MITSUBISHI
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Changes for the Better

AIR TO WATER HEAT PUMP SYSTEMS

Mitsubishi
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Renewable Heating Technology

DATA BOOK

Vol.6.0

Contents

When installing or relocating, or servicing the heat pump, use only the specified refrigerant (R32) to charge the refrigerant lines. Do not mix it with any other refrigerant and do not allow air to remain in the lines.
If air is mixed with the refrigerant, then it can be the cause of abnormal high pressure in the refrigerant line, and may result in an explosion and other hazards.
The use of any refrigerant other than that specified for the system will cause mechanical failure or system malfunction or unit breakdown. In the worst case, this could lead to a serious impediment to securing product safety.

Contents

1.1 Outdoor unit specifications

(1) Packaged-type units

MODEL NAME			PUZ-WZ50VAA(-BS)	PUZ-WZ60VAA(-BS)
POWER SUPPLY(Phase, voltage, frequency)			1φ, 230 V, 50 Hz	1φ, 230 V, 50 Hz
	Max. Current	A	13.0	13.0
Braker size		A	16.0	16.0
Outer casing			Galvanized plate	Galvanized plate
External finish			Munsell N8.75, N2.75 (FRONT PANEL)	Munsell N8.75, N2.75 (FRONT PANEL)
Refrigerant control			Linear expansion valve	Linear expansion valve
Compressor			Rolling piston type rotary	Rolling piston type rotary
	Model		SPB280FARMC	SPB280FARMC
	Motor output	kW	2.0	2.0
	Start type		Inverter	Inverter
	Protection devices		Discharge temp. thermistor Shell temp. thermistor High pressure switch Thermal protector	Discharge temp. thermistor Shell temp. thermistor High pressure switch Thermal protector
	Oil	L	0.38 (PZ46M)	0.38 (PZ46M)
Crankcase heater			-	-
Heat exchanger	Air		Plate fin coil	Plate fin coil
	Water		Plate heat exchanger	Plate heat exchanger
Fan	Fan(drive) x No.		Propeller fan ×1	Propeller fan ×1
	Fan motor output	kW	0.074	0.074
	Air flow	m^3/min (CFM)	46 (1625)	46 (1625)
Defrost method			Reverse cycle	Reverse cycle
Noise level (SPL)	Heating	dBA	44	44
	Cooling	dBA	-	-
Noise level (PWL) (Based on EN12102:2013)	Heating	dBA	56	56
Dimensions	Width	mm(in)	1050 (41-5/16)	1050 (41-5/16)
	Depth	mm(in)	480 (18-7/8)	480 (18-7/8)
	Height	mm(in)	1020 (40-3/16)	1020 (40-3/16)
Weight		kg(lbs)	89 (196)	89 (196)
Refrigerant			R290 (3)	R290 (3)
	Chargeless	kg(lbs)	0.6 (1.3)	0.6 (1.3)
	MAX.	kg(lbs)	-	-
Pipe size O.D.	Liquid	mm(in)	-	-
	Gas	mm(in)	-	-
Connection method			Water Connect	Water Connect
Between the indoor & outdoor unit	Height difference	m	-	-
	Piping length	m	-	-
Guaranteed operating range (Outdoor)	Heating	°C	-25 to +24	-25 to +24
	DHW	°C	-25 to +46	-25 to +46
	Cooling	°C	+10 to +46	+10 to +46
Outlet water temp. (Max in Heating, Min in Cooling)	Heating	°C	+75	+75
	Cooling	°C	-	-
Nominal return water temperature range	Heating	°C	+9 to +74 *1	+9 to +74 *1
	Cooling	°C	+9 to +28 *1	+9 to +28 *1
Water Flow rate range		L/min	6.5 to 14.3	6.5 to 17.2

MODEL NAME			PUZ-WZ80VAA(-BS)	
POWER SUPPLY(Phase, voltage, frequency)			1φ, 230 V, 50 Hz	
	Max. Current	A	22	
Braker size		A	25	
Outer casing			Galvanized plate	
External finish			Munsell N8.75, N2.75 (FRONT PANEL)	
Refrigerant control			Linear expansion valve	
Compressor			Rolling piston type rotary	
	Model		SPB280FARMC	KP173VGBC
	Motor output	kW	2.0	0.8
	Start type		Inverter	Fixed
	Protection devices		Discharge temp. thermistor Shell temp. thermistor High pressure switch Thermal protector	High pressure switch Thermostat (Built in bimetal
	Oil	L	0.38 (PZ46M)	0.30 (PZ46M)
Crankcase heater			-	
Heat exchanger	Air		Plate fin coil	
	Water		Plate heat exchanger	
Fan	Fan(drive) x No.		Propeller fan ×1	
	Fan motor output	kW	0.074	
	Air flow	m^3/min (CFM)	46 (1625)	
Defrost method			Reverse cycle	Hot gas
Noise level (SPL)	Heating	dBA	45	
	Cooling	dBA	-	
Noise level (PWL) (Based on EN12102:2013)	Heating	dBA	58	
Dimensions	Width	mm(in)	1050 (41-5/16)	
	Depth	mm(in)	480 (18-7/8)	
	Height	mm(in)	1020 (40-3/16)	
Weight		kg(lbs)	117 (258)	
Refrigerant			R290 (3)	
	Chargeless	kg(lbs)	0.4 (0.9)	
	MAX.	kg(lbs)	-	
Pipe size O.D.	Liquid	mm(in)	-	
	Gas	mm(in)	-	
Connection method			Water Connect	
Between the indoor & outdoor unit	Height difference	m	-	
	Piping length	m	-	
Guaranteed operating range (Outdoor)	Heating	°C	-25 to +24	
	DHW	°C	-25 to +46	
	Cooling	°C	+10 to +46	
Outlet water temp. (Max in Heating, Min in Cooling)	Heating	°C	+75	
	Cooling	°C	-	
Nominal return water temperature range	Heating	°C	+9 to +74 *1	
	Cooling	°C	+9 to +28 *1	
Water Flow rate range		L/min	6.5 to 22.9	

MODEL NAME			PUZ-WM50VHA(-BS)	PUZ-WM60VAA(-BS)
POWER SUPPLY(Phase, voltage, frequency)			1φ, 230 V, 50 Hz	1φ, 230 V, 50 Hz
	Max. Current	A	13.0	13.0
Braker size		A	16	16
Outer casing			Galvanized plate	Galvanized plate
External finish			Munsell N8.75, N2.75 (FRONT PANEL)	Munsell N8.75, N2.75 (FRONT PANEL)
Refrigerant control			Linear expansion valve	Linear expansion valve
Compressor			Hermetic twin rotary	Hermetic twin rotary
	Model		SVB130FBBMC-L3	SVB220FEGMC-L1
	Motor output	kW	0.9	1.5
	Start type		Inverter	Inverter
	Protection devices		HP switch Discharge thermo Comp. Surface thermo Over current detection	HP switch Discharge thermo Comp. Surface thermo Over current detection
	Oil	L	0.6	0.6
Crankcase heater			-	-
Heat exchanger	Air		Plate fin coil	Plate fin coil
	Water		Plate heat exchanger	Plate heat exchanger
Fan	Fan(drive) x No.		Propeller fan ×1	Propeller fan ×1
	Fan motor output	kW	0.074	0.074
	Air flow	m^3/min (CFM)	36 (1270)	44 (1550)
Defrost method			Reverse cycle	Reverse cycle
Noise level (SPL)	Heating	dBA	52	45
	Cooling	dBA	52	45
Noise level (PWL) (Based on EN12102:2013)	Heating	dBA	61	58
Dimensions	Width	mm(in)	950 (37-3/8)	1050 (41-5/16)
	Depth	mm(in)	330+30 (13-1-3/16)	480 (18-7/8)
	Height	mm(in)	943 (37-1/8)	1020 (40-3/16)
Weight		kg(lbs)	71 (157)	98 (216)
Refrigerant			R32	R32
	Chargeless	kg(lbs)	2.0 (4.4)	2.2 (4.9)
	MAX.	kg(lbs)	-	-
Pipe size O.D.	Liquid	mm(in)	-	-
	Gas	mm(in)	-	-
Connection method			Water Connect	Water Connect
Between the indoor & outdoor unit	Height difference	m	-	-
	Piping length	m	-	-
Guaranteed operating range (Outdoor)	Heating	°C	-20 to +24	-20 to +24
	DHW	°C	-20 to +35	-20 to +35
	Cooling	°C	+10 to +46	+10 to +46
Outlet water temp. (Max in Heating, Min in Cooling)	Heating	°C	+60	+60
	Cooling	°C	+5	+5
Nominal return water temperature range	Heating	°C	+9 to +59 *1	+9 to +59 *1
	Cooling	°C	+8 to +28 *1	+8 to +28 *1
Water Flow rate range		L/min	6.5 to 14.3	8.6 to 17.2

*1 Due to the water quantity of system. See the graph of Section "1.4 Available range".

1 Specifications

MODEL NAME			PUZ-WM85VAA(-BS)	PUZ-WM85YAA(-BS)
POWER SUPPLY(Phase, voltage, frequency)			1φ, 230 V, 50 Hz	3φ, 400 V, 50 Hz
	Max. Current	A	22.0	11.5
Braker size		A	25	16
Outer casing			Galvanized plate	Galvanized plate
External finish			Munsell N8.75, N2.75 (FRONT PANEL)	Munsell N8.75, N2.75 (FRONT PANEL)
Refrigerant control			Linear expansion valve	Linear expansion valve
Compressor			Hermetic twin rotary	Hermetic twin rotary
	Model		SVB220FEGMC-L1	SVB220FEAMC-L1
	Motor output	kW	1.5	1.5
	Start type		Inverter	Inverter
	Protection devices		HP switch Discharge thermo Comp. Surface thermo Over current detection	HP switch Discharge thermo Comp. Surface thermo Over current detection
	Oil	L	0.6	0.6
Crankcase heater			-	-
Heat exchanger	Air		Plate fin coil	Plate fin coil
	Water		Plate heat exchanger	Plate heat exchanger
Fan	Fan(drive) x No.		Propeller fan ×1	Propeller fan ×1
	Fan motor output	kW	0.074	0.074
	Air flow	m^3/min (CFM)	44 (1550)	44 (1550)
Defrost method			Reverse cycle	Reverse cycle
Noise level (SPL)	Heating	dBA	45	45
	Cooling	dBA	45	45
Noise level (PWL) (Based on EN12102:2013)	Heating	dBA	58	58
Dimensions	Width	mm(in)	1050 (41-5/16)	1050 (41-5/16)
	Depth	mm(in)	480 (18-7/8)	480 (18-7/8)
	Height	mm(in)	1020 (40-3/16)	1020 (40-3/16)
Weight		kg(lbs)	98 (216)	111 (245)
Refrigerant			R32	R32
	Chargeless	kg(lbs)	2.2 (4.9)	2.2 (4.9)
	MAX.	kg(lbs)	-	-
Pipe size O.D.	Liquid	mm(in)	-	-
	Gas	mm(in)	-	-
Connection method			Water Connect	Water Connect
Between the indoor & outdoor unit	Height difference	m	-	-
	Piping length	m	-	-
Guaranteed operating range (Outdoor)	Heating	°C	-20 to +24	-20 to +24
	DHW	°C	-20 to +35	-20 to +35
	Cooling	°C	+10 to +46	+10 to +46
Outlet water temp. (Max in Heating, Min in Cooling)	Heating	°C	+60	+60
	Cooling	°C	+5	+5
Nominal return water temperature range	Heating	°C	+9 to +59 *1	+9 to +59 *1
	Cooling	°C	+8 to +28 *1	+8 to +28 *1
Water Flow rate range		L/min	10.8 to 24.4	10.8 to 24.4

*1 Due to the water quantity of system. See the graph of Section "1.4 Available range".

MODEL NAME			PUZ-WM112VAA(-BS)	PUZ-WM112YAA(-BS)
POWER SUPPLY(Phase, voltage, frequency)			1φ, 230 V, 50 Hz	3φ, 400 V, 50 Hz
	Max. Current	A	28.0	13.0
Braker size		A	32	16
Outer casing			Galvanized plate	Galvanized plate
External finish			Munsell N8.75, N2.75 (FRONT PANEL)	Munsell N8.75, N2.75 (FRONT PANEL)
Refrigerant control			Linear expansion valve	Linear expansion valve
Compressor			Hermetic scroll	Hermetic scroll
	Model		DVB28FBAMT	DVB28FBBMT
	Motor output	kW	2.2	2.2
	Start type		Inverter	Inverter
	Protection devices		HP switch Discharge thermo Comp. Surface thermo Over current detection	HP switch Discharge thermo Comp. Surface thermo Over current detection
	Oil	L	0.9	0.9
Crankcase heater			-	-
Heat exchanger	Air		Plate fin coil	Plate fin coil
	Water		Plate heat exchanger	Plate heat exchanger
Fan	Fan(drive) x No.		Propeller fan ×1	Propeller fan ×1
	Fan motor output	kW	0.200	0.200
	Air flow	m^3/min (CFM)	50 (1760)	50 (1760)
Defrost method			Reverse cycle	Reverse cycle
Noise level (SPL)	Heating	dBA	47	47
	Cooling	dBA	49	49
Noise level (PWL) (Based on EN12102:2013)	Heating	dBA	60	60
Dimensions	Width	mm(in)	1050 (41-5/16)	1050 (41-5/16)
	Depth	mm(in)	480 (18-7/8)	480 (18-7/8)
	Height	mm(in)	1020 (40-3/16)	1020 (40-3/16)
Weight		kg(lbs)	119 (262)	132 (291)
Refrigerant			R32	R32
	Chargeless	kg(lbs)	3.0 (6.7)	3.0 (6.7)
	MAX.	kg(lbs)	-	-
Pipe size O.D.	Liquid	mm(in)	-	-
	Gas	mm(in)	-	-
Connection method			Water Connect	Water Connect
Between the indoor & outdoor unit	Height difference	m	-	-
	Piping length	m	-	-
Guaranteed operating range (Outdoor)	Heating	°C	-25 to +24	-25 to +24
	DHW	°C	-25 to +35	-25 to +35
	Cooling	°C	+10 to +46	+10 to +46
Outlet water temp. (Max in Heating, Min in Cooling)	Heating	°C	+60	+60
	Cooling	°C	+5	+5
Nominal return water temperature range	Heating	°C	+9 to +59 *1	+9 to +59 *1
	Cooling	°C	+8 to +28 *1	+8 to +28 *1
Water Flow rate range		L/min	14.4 to 32.1	14.4 to 32.1

*1 Due to the water quantity of system. See the graph of Section "1.4 Available range".

MODEL NAME			PUZ-HWM140VHA(-BS)	PUZ-HWM140YHA(-BS)
POWER SUPPLY(Phase, voltage, frequency)			1φ, 230V, 50Hz	3φ, 400V, 50Hz
	Max. Current	A	35.0	13.0
Braker size		A	40	16
Outer casing			Galvanized plate	Galvanized plate
External finish			Munsell: N8.75, 3Y 7.8/1.1	Munsell: N8.75, 3Y 7.8/1.1
Refrigerant control			Linear expansion valve	Linear expansion valve
Compressor			Hermetic scroll	Hermetic scroll
	Model		AVB36FJDMT	AVB36FJCMT
	Motor output	kW	3.67	3.75
	Start type		Inverter	Inverter
	Protection devices		HP switch Discharge thermo Comp. Surface thermo Over current detection	HP switch Discharge thermo Comp. Surface thermo Over current detection
	Oil	L	1.4	1.4
Crankcase heater			-	-
Heat exchanger	Air		Plate fin coil	Plate fin coil
	Water		Plate heat exchanger	Plate heat exchanger
Fan	Fan(drive) x No.		Propeller fan ×2	Propeller fan ×2
	Fan motor output	kW	0.074 ×2	0.074 ×2
	Air flow	m^3/min (CFM)	100 (3530)	100 (3530)
Defrost method			Reverse cycle	Reverse cycle
Noise level (SPL)	Heating	dBA	53	53
	Cooling	dBA	53	53
Noise level (PWL) (Based on EN12102:2013)	Heating	dBA	67	67
Dimensions	Width	mm(in)	1020 (40-3/16)	1020 (40-3/16)
	Depth	mm(in)	330+30 (13-1-3/16)	330+30 (13-1-3/16)
	Height	mm(in)	1350 (53-1/8)	1350 (53-1/8)
Weight		kg(lbs)	132 (291)	143 (315)
Refrigerant			R32	R32
	Chargeless	kg(lbs)	3.3 (7.3)	3.3 (7.3)
	MAX.	kg(lbs)	-	-
Pipe size O.D.	Liquid	mm(in)	-	-
	Gas	mm(in)	-	-
Connection method			Water Connect	Water Connect
Between the indoor & outdoor unit	Height difference	m	-	-
	Piping length	m	-	-
Guaranteed operating range (Outdoor)	Heating	°C	-28 to +21	-28 to +21
	DHW	°C	-28 to +35	-28 to +35
	Cooling	°C	+10 to +46	+10 to +46
Outlet water temp. (Max in Heating, Min in Cooling)	Heating	°C	+60	+60
	Cooling	°C	+5	+5
Nominal return water temperature range	Heating	°C	+9 to +59 *1	+9 to +59 *1
	Cooling	°C	+8 to +28 *1	+8 to +28 *1
Water Flow rate range		L/min	17.9 to 40.1	17.9 to 40.1

*1 Due to the water quantity of system. See the graph of Section "1.4 Available range".

(2) Split-type units

MODEL NAME			SUZ-SWM30VA	SUZ-SHWM30VAH
POWER SUPPLY(Phase, voltage, frequency)			1φ, 230 V, 50 Hz	1φ, 230 V, 50 Hz
	Max. Current	A	13.5	13.5
Braker size		A	16	16
Outer casing			Galvanized plate	Galvanized plate
External finish			Munsell 3Y 7.8/1.1 (FRONT PANEL)	Munsell 3Y 7.8/1.1 (FRONT PANEL)
Refrigerant control			Linear expansion valve	Linear expansion valve
Compressor			Hermetic twin rotary	Hermetic twin rotary
	Model		SVB130FPBM1T	SVB130FPBM1T
	Motor output	kW	0.9	0.9
	Start type		Inverter	Inverter
	Protection devices		Discharge thermo Over current Thermal Protector High pressure cut (Indoor unit)	Discharge thermo Over current Thermal Protector High pressure cut (Indoor unit)
	Oil	L	0.6	0.6
Base antifreeze heater	Input	kW	-	0.060
Heat exchanger	Air		Plate fin coil	Plate fin coil
	Water		-	-
Fan	Fan(drive) x No.		Propeller fan ×1	Propeller fan ×1
	Fan motor output	kW	0.050	0.050
	Air flow	m^3/min (CFM)	28.0 (989)	28.0 (989)
Defrost method			Reverse cycle	Reverse cycle
Noise level (SPL)	Heating	dBA	43	43
	Cooling	dBA	45	45
Noise level (PWL) (Based on EN12102:2013)	Heating	dBA	57	57
Dimensions	Width	mm(in)	714 (28-1/8)	714 (28-1/8)
	Depth	mm(in)	285 (11-1/4)	285 (11-1/4)
	Height	mm(in)	800 (31-1/2)	800 (31-1/2)
Weight		kg(lbs)	39 (86)	39.5 (87)
Refrigerant			R32	R32
	Chargeless	kg(lbs)	0.8 (1.8)	0.8 (1.8)
	MAX.	kg(lbs)	1.3 (2.9)	1.3 (2.9)
Pipe size O.D.	Liquid	mm(in)	6.35 (1/4)	6.35 (1/4)
	Gas	mm(in)	12.7 (1/2)	12.7 (1/2)
Connection method			Flared	Flared
Between the indoor & outdoor unit	Height difference	m	Max. 26	Max. 26
	Piping length	m	2 to 26	2 to 26
Guaranteed operating range (Outdoor)	Heating	°C	-25 to +24	-25 to +24
	DHW	°C	-25 to +35	-25 to +35
	Cooling	°C	+10 to +46	+10 to +46
Outlet water temp. (Max in Heating, Min in Cooling)	Heating	°C	+60	+60
	Cooling	°C	+5	+5
Nominal return water temperature range	Heating	°C	+5 to +59 *1	+5 to +59 *1
	Cooling	°C	+8 to +28 *1	+8 to +28 *1
Water Flow rate range		L/min	6.5 to 11.4	6.5 to 11.4

*1 Due to the water quantity of system. See the graph of Section "1.4 Available range".

MODEL NAME				SUZ-SWM40VA2(-SC)	SUZ-SHWM40VAH(-SC)
POWER SUPPLY(Phase, voltage, frequency)				1φ, 230 V, 50 Hz	1φ, 230 V, 50 Hz
	Max. Current		A	13.5	13.5
Braker size			A	16	16
Outer casing				Galvanized plate	Galvanized plate
External finish				Munsell 3Y 7.8/1.1 (FRONT PANEL)	Munsell 3Y 7.8/1.1 (FRONT PANEL)
Refrigerant control				Linear expansion valve	Linear expansion valve
Compressor				Hermetic twin rotary	Hermetic twin rotary
	Model			SVB130FPBM1T	SVB172FPKM1T
	Motor output		kW	0.9	1.2
	Start type			Inverter	Inverter
	Protection devices			Discharge thermo Over current Thermal Protector High pressure cut (Indoor unit)	Discharge thermo Over current Thermal Protector High pressure cut (Indoor unit)
	Oil		L	0.6	0.6
Base antifreeze heater		Input	kW	-	0.060
Heat exchanger		Air		Plate fin coil	Plate fin coil
		Water		-	-
Fan	Fan(drive) x No.			Propeller fan ×1	Propeller fan ×1
	Fan motor output		kW	0.050	0.050
	Air flow		m^3/min (CFM)	28.0 (989)	30.2 (1065)
Defrost method				Reverse cycle	Reverse cycle
Noise level (SPL)		Heating	dBA	43	44
		Cooling	dBA	46	47
Noise level (PWL) (Based on EN12102:2013)		Heating	dBA	57	58
Dimensions		Width	mm(in)	714 (28-1/8)	714 (28-1/8)
		Depth	mm(in)	285 (11-1/4)	285 (11-1/4)
		Height	mm(in)	800 (31-1/2)	800 (31-1/2)
Weight			kg(lbs)	39 (86)	40 (88)
Refrigerant				R32	R32
		Chargeless	kg(lbs)	0.8 (1.8)	0.8 (1.8)
		MAX.	kg(lbs)	1.3 (2.9)	1.3 (2.9)
Pipe size O.D.		Liquid	mm(in)	6.35 (1/4)	6.35 (1/4)
		Gas	mm(in)	12.7 (1/2)	12.7 (1/2)
Connection method				Flared	Flared
Between the indoor & outdoor unit		Height difference	m	Max. 26	Max. 26
		Piping length	m	2 to 26	2 to 26
Guaranteed operating range (Outdoor)		Heating	°C	-25 to +24	-25 to +24
		DHW	°C	-25 to +35	-25 to +35
		Cooling	°C	+10 to +46	+10 to +46
Outlet water temp. (Max in Heating, Min in Cooling)		Heating	°C	+60	+60
		Cooling	°C	+5	+5
Nominal return water temperature range		Heating	°C	+5 to +59 *1	+5 to +59 *1
		Cooling	°C	+8 to +28 *1	+8 to +28 *1
Water Flow rate range			L/min	6.5 to 11.4	7.2 to 17.2

*1 Due to the water quantity of system. See the graph of Section "1.4 Available range".

MODEL NAME			**SUZ-SWM60VA2(-SC)**	**SUZ-SHWM60VAH(-SC)**
POWER SUPPLY(Phase, voltage, frequency)			1φ, 230 V, 50 Hz	1φ, 230 V, 50 Hz
	Max. Current	A	13.5	17.3
Braker size		A	16	20
Outer casing			Galvanized plate	Galvanized plate
External finish			Munsell 3Y 7.8/1.1 (FRONT PANEL)	Munsell 3Y 7.8/1.1 (FRONT PANEL)
Refrigerant control			Linear expansion valve	Linear expansion valve
Compressor			Hermetic twin rotary	Hermetic twin rotary
	Model		SVB172FPKM1T	SVB220FUAM2T
	Motor output	kW	1.2	1.5
	Start type		Inverter	Inverter
	Protection devices		Discharge thermo Over current Thermal Protector High pressure cut (Indoor unit)	Discharge thermo Over current Thermal Protector High pressure cut (Indoor unit)
	Oil	L	0.6	0.6
Base antifreeze heater	Input	kW	-	0.120
Heat exchanger	Air		Plate fin coil	Plate fin coil
	Water		-	-
Fan	Fan(drive) x No.		Propeller fan ×1	Propeller fan ×1
	Fan motor output	kW	0.050	0.050
	Air flow	m^3/min (CFM)	30.2 (1065)	41.7 (1471)
Defrost method			Reverse cycle	Reverse cycle
Noise level (SPL)	Heating	dBA	45	45
	Cooling	dBA	47	47
Noise level (PWL) (Based on EN12102:2013)	Heating	dBA	60	60
Dimensions	Width	mm(in)	714 (28-1/8)	840 (33-1/16)
	Depth	mm(in)	285 (11-1/4)	330 (13)
	Height	mm(in)	800 (31-1/2)	880 (34-5/8)
Weight		kg(lbs)	40 (88)	53.5 (118)
Refrigerant			R32	R32
	Chargeless	kg(lbs)	0.8 (1.8)	1.1 (2.4)
	MAX.	kg(lbs)	1.3 (2.9)	1.7 (3.7)
Pipe size O.D.	Liquid	mm(in)	6.35 (1/4)	6.35 (1/4)
	Gas	mm(in)	12.7 (1/2)	12.7 (1/2)
Connection method			Flared	Flared
Between the indoor & outdoor unit	Height difference	m	Max. 26	Max. 30
	Piping length	m	2 to 26	2 to 46
Guaranteed operating range (Outdoor)	Heating	°C	-25 to +24	-25 to +24
	DHW	°C	-25 to +35	-25 to +35
	Cooling	°C	+10 to +46	+10 to +46
Outlet water temp. (Max in Heating, Min in Cooling)	Heating	°C	+60	+60
	Cooling	°C	+5	+5
Nominal return water temperature range	Heating	°C	+5 to +59 *1	+5 to +59 *1
	Cooling	°C	+8 to +28 *1	+8 to +28 *1
Water Flow rate range		L/min	7.2 to 17.2	10.9 to 21.5

*1 Due to the water quantity of system. See the graph of Section "1.4 Available range".

1 Specifications

MODEL NAME			SUZ-SWM80VA2	SUZ-SWM80VAH2
POWER SUPPLY(Phase, voltage, frequency)			1φ, 230 V, 50 Hz	1φ, 230 V, 50 Hz
	Max. Current	A	17.3	17.3
Braker size		A	20	20
Outer casing			Galvanized plate	Galvanized plate
External finish			Munsell 3Y 7.8/1.1 (FRONT PANEL)	Munsell 3Y 7.8/1.1 (FRONT PANEL)
Refrigerant control			Linear expansion valve	Linear expansion valve
Compressor			Hermetic twin rotary	Hermetic twin rotary
	Model		SVB220FUAM2T	SVB220FUAM2T
	Motor output	kW	1.5	1.5
	Start type		Inverter	Inverter
	Protection devices		Discharge thermo Over current Thermal Protector High pressure cut (Indoor unit)	Discharge thermo Over current Thermal Protector High pressure cut (Indoor unit)
	Oil	L	0.6	0.6
Base antifreeze heater	Input	kW	-	0.120
Heat exchanger	Air		Plate fin coil	Plate fin coil
	Water		-	-
Fan	Fan(drive) x No.		Propeller fan ×1	Propeller fan ×1
	Fan motor output	kW	0.050	0.050
	Air flow	m^3/min (CFM)	46.5 (1642)	46.5 (1642)
Defrost method			Reverse cycle	Reverse cycle
Noise level (SPL)	Heating	dBA	46	46
	Cooling	dBA	47	47
Noise level (PWL) (Based on EN12102:2013)	Heating	dBA	60	60
Dimensions	Width	mm(in)	840 (33-1/16)	840 (33-1/16)
	Depth	mm(in)	330 (13)	330 (13)
	Height	mm(in)	880 (34-5/8)	880 (34-5/8)
Weight		kg(lbs)	53 (117)	53.5 (118)
Refrigerant			R32	R32
	Chargeless	kg(lbs)	1.1 (2.4)	1.1 (2.4)
	MAX.	kg(lbs)	1.7 (3.7)	1.7 (3.7)
Pipe size O.D.	Liquid	mm(in)	6.35 (1/4)	6.35 (1/4)
	Gas	mm(in)	12.7 (1/2)	12.7 (1/2)
Connection method			Flared	Flared
Between the indoor & outdoor unit	Height difference	m	Max. 30	Max. 30
	Piping length	m	2 to 46	2 to 46
Guaranteed operating range (Outdoor)	Heating	°C	-25 to +24	-25 to +24
	DHW	°C	-25 to +35	-25 to +35
	Cooling	°C	+10 to +46	+10 to +46
Outlet water temp. (Max in Heating, Min in Cooling)	Heating	°C	+60	+60
	Cooling	°C	+5	+5
Nominal return water temperature range	Heating	°C	+5 to +59 *1	+5 to +59 *1
	Cooling	°C	+8 to +28 *1	+8 to +28 *1
Water Flow rate range		L/min	10.9 to 21.5	10.9 to 21.5

*1 Due to the water quantity of system. See the graph of Section "1.4 Available range".

MODEL NAME			**SUZ-SWM100VA**	**SUZ-SWM100VAH**
POWER SUPPLY(Phase, voltage, frequency)			1φ, 230 V, 50 Hz	1φ, 230 V, 50 Hz
	Max. Current	A	17.3	17.3
Braker size		A	20	20
Outer casing			Galvanized plate	Galvanized plate
External finish			Munsell 3Y 7.8/1.1 (FRONT PANEL)	Munsell 3Y 7.8/1.1 (FRONT PANEL)
Refrigerant control			Linear expansion valve	Linear expansion valve
Compressor			Hermetic twin rotary	Hermetic twin rotary
	Model		SVB220FUAM2T	SVB220FUAM2T
	Motor output	kW	1.5	1.5
	Start type		Inverter	Inverter
	Protection devices		Discharge thermo Over current Thermal Protector High pressure cut (Indoor unit)	Discharge thermo Over current Thermal Protector High pressure cut (Indoor unit)
	Oil	L	0.6	0.6
Base antifreeze heater	Input	kW	-	0.120
Heat exchanger	Air		Plate fin coil	Plate fin coil
	Water		-	-
Fan	Fan(drive) x No.		Propeller fan ×1	Propeller fan ×1
	Fan motor output	kW	0.050	0.050
	Air flow	m^3/min (CFM)	46.5 (1642)	46.5 (1642)
Defrost method			Reverse cycle	Reverse cycle
Noise level (SPL)	Heating	dBA	47	47
	Cooling	dBA	47	47
Noise level (PWL) (Based on EN12102:2013)	Heating	dBA	62	62
Dimensions	Width	mm(in)	840 (33-1/16)	840 (33-1/16)
	Depth	mm(in)	330 (13)	330 (13)
	Height	mm(in)	880 (34-5/8)	880 (34-5/8)
Weight		kg(lbs)	53 (117)	53.5 (118)
Refrigerant			R32	R32
	Chargeless	kg(lbs)	1.1 (2.4)	1.1 (2.4)
	MAX.	kg(lbs)	1.7 (3.7)	1.7 (3.7)
Pipe size O.D.	Liquid	mm(in)	6.35 (1/4)	6.35 (1/4)
	Gas	mm(in)	12.7 (1/2)	12.7 (1/2)
Connection method			Flared	Flared
Between the indoor & outdoor unit	Height difference	m	Max. 30	Max. 30
	Piping length	m	2 to 46	2 to 46
Guaranteed operating range (Outdoor)	Heating	°C	-25 to +24	-25 to +24
	DHW	°C	-25 to +35	-25 to +35
	Cooling	°C	+10 to +46	+10 to +46
Outlet water temp. (Max in Heating, Min in Cooling)	Heating	°C	+60	+60
	Cooling	°C	+5	+5
Nominal return water temperature range	Heating	°C	+5 to +59 *1	+5 to +59 *1
	Cooling	°C	+8 to +28 *1	+8 to +28 *1
Water Flow rate range		L/min	10.9 to 21.5	10.9 to 21.5

*1 Due to the water quantity of system. See the graph of Section "1.4 Available range".

MODEL NAME			PUZ-SWM60VAA	PUZ-SWM80VAA
POWER SUPPLY(Phase, voltage, frequency)			1φ, 230 V, 50 Hz	1φ, 230 V, 50 Hz
	Max. Current	A	13.5	17.0
Braker size		A	16	20
Outer casing			Galvanized plate	Galvanized plate
External finish			Munsell N8.75, N2.75 (FRONT PANEL)	Munsell N8.75, N2.75 (FRONT PANEL)
Refrigerant control			Linear expansion valve	Linear expansion valve
Compressor			Hermetic scroll	Hermetic scroll
	Model		DVB28FECMT	DVB28FECMT
	Motor output	kW	2.2	2.2
	Start type		Inverter	Inverter
	Protection devices		HP switch Discharge thermo Comp. Surface thermo Over current detection Thermal Protector	HP switch Discharge thermo Comp. Surface thermo Over current detection Thermal Protector
	Oil	L	0.9	0.9
Base antifreeze heater	Input	kW	-	-
Heat exchanger	Air		Plate fin coil	Plate fin coil
	Water		-	-
Fan	Fan(drive) x No.		Propeller fan ×1	Propeller fan ×1
	Fan motor output	kW	0.200	0.200
	Air flow	m^3/min (CFM)	58 (2050)	58 (2050)
Defrost method			Reverse cycle	Reverse cycle
Noise level (SPL)	Heating	dBA	40	41
	Cooling	dBA	45	46
Noise level (PWL) (Based on EN12102:2013)	Heating	dBA	54	54
Dimensions	Width	mm(in)	1050 (41-3/8)	1050 (41-3/8)
	Depth	mm(in)	480 (18-7/8)	480 (18-7/8)
	Height	mm(in)	1040 (40)	1040 (40)
Weight		kg(lbs)	104.5 (231)	104.5 (231)
Refrigerant			R32	R32
	Chargeless	kg(lbs)	1.8 (3.97)	1.8 (3.97)
	MAX.	kg(lbs)	2.4 (5.29)	2.4 (5.29)
Pipe size O.D.	Liquid	mm(in)	6.35 (1/4)	6.35 (1/4)
	Gas	mm(in)	12.7 (1/2) or 15.88 (5/8) *2	12.7 (1/2) or 15.88 (5/8) *2
Connection method			Flared	Flared
Between the indoor & outdoor unit	Height difference	m	Max. 30	Max. 30
	Piping length	m	2 to 50	2 to 50
Guaranteed operating range (Outdoor)	Heating	°C	-25 to +24	-25 to +24
	DHW	°C	-25 to +42	-25 to +42
	Cooling	°C	+10 to +52	+10 to +52
Outlet water temp. (Max in Heating, Min in Cooling)	Heating	°C	+68	+68
	Cooling	°C	+5	+5
Nominal return water temperature range	Heating	°C	*1	*1
	Cooling	°C	*1	*1
Water Flow rate range		L/min	7.2 to 22.9	7.2 to 22.9

*1 Due to the water quantity of system. See the graph of Section "1.4 Available range".

*2 The capacity depends on the length and diameter of refrigerant piping. Check the length and diameter to operate the air conditioner in an adequate capacity.

MODEL NAME				PUZ-SWM80YAA	PUZ-SWM100VAA
POWER SUPPLY(Phase, voltage, frequency)				3φ, 400 V, 50 Hz	1φ, 230 V, 50 Hz
	Max. Current		A	8.0	22.0
Braker size			A	16	25
Outer casing				Galvanized plate	Galvanized plate
External finish				Munsell N8.75, N2.75 (FRONT PANEL)	Munsell N8.75, N2.75 (FRONT PANEL)
Refrigerant control				Linear expansion valve	Linear expansion valve
Compressor				Hermetic scroll	Hermetic scroll
	Model			DVB28FEDMT	DVB28FECMT
	Motor output		kW	2.2	2.2
	Start type			Inverter	Inverter
	Protection devices			HP switch Discharge thermo Comp. Surface thermo Over current detection Thermal Protector	HP switch Discharge thermo Comp. Surface thermo Over current detection Thermal Protector
	Oil		L	0.9	0.9
Base antifreeze heater		Input	kW	-	-
Heat exchanger		Air		Plate fin coil	Plate fin coil
		Water		-	-
Fan	Fan(drive) x No.			Propeller fan ×1	Propeller fan ×1
	Fan motor output		kW	0.200	0.200
	Air flow		m^3/min (CFM)	58 (2050)	62 (2190)
Defrost method				Reverse cycle	Reverse cycle
Noise level (SPL)		Heating	dBA	41	44
		Cooling	dBA	46	47
Noise level (PWL) (Based on EN12102:2013)		Heating	dBA	54	58
Dimensions		Width	mm(in)	1050 (41-3/8)	1050 (41-3/8)
		Depth	mm(in)	480 (18-7/8)	480 (18-7/8)
		Height	mm(in)	1040 (40)	1040 (40)
Weight			kg(lbs)	113.5 (251)	105.5 (233)
Refrigerant				R32	R32
		Chargeless	kg(lbs)	1.8 (3.97)	1.8 (3.97)
		MAX.	kg(lbs)	2.4 (5.29)	2.4 (5.29)
Pipe size O.D.		Liquid	mm(in)	6.35 (1/4)	6.35 (1/4)
		Gas	mm(in)	12.7 (1/2) or 15.88 (5/8) *2	12.7 (1/2) or 15.88 (5/8) *2
Connection method				Flared	Flared
Between the indoor & outdoor unit		Height difference	m	Max. 30	Max. 30
		Piping length	m	2 to 50	2 to 50
Guaranteed operating range (Outdoor)		Heating	°C	-25 to +24	-25 to +24
		DHW	°C	-25 to +42	-25 to +42
		Cooling	°C	+10 to +52	+10 to +52
Outlet water temp. (Max in Heating, Min in Cooling)		Heating	°C	+68	+68
		Cooling	°C	+5	+5
Nominal return water temperature range		Heating	°C	*1	*1
		Cooling	°C	*1	*1
Water Flow rate range			L/min	7.2 to 22.9	7.2 to 28.7

*1 Due to the water quantity of system. See the graph of Section "1.4 Available range".

*2 The capacity depends on the length and diameter of refrigerant piping. Check the length and diameter to operate the air conditioner in an adequate capacity.

MODEL NAME			PUZ-SWM100YAA	PUZ-SWM120VAA
POWER SUPPLY(Phase, voltage, frequency)			3φ, 400 V, 50 Hz	1φ, 230 V, 50 Hz
	Max. Current	A	9.0	28.0
Braker size		A	16	32
Outer casing			Galvanized plate	Galvanized plate
External finish			Munsell N8.75, N2.75 (FRONT PANEL)	Munsell N8.75, N2.75 (FRONT PANEL)
Refrigerant control			Linear expansion valve	Linear expansion valve
Compressor			Hermetic scroll	Hermetic scroll
	Model		DVB28FEDMT	DVB28FECMT
	Motor output	kW	2.2	2.2
	Start type		Inverter	Inverter
	Protection devices		HP switch Discharge thermo Comp. Surface thermo Over current detection Thermal Protector	HP switch Discharge thermo Comp. Surface thermo Over current detection Thermal Protector
	Oil	L	0.9	0.9
Base antifreeze heater	Input	kW	-	-
Heat exchanger	Air		Plate fin coil	Plate fin coil
	Water		-	-
Fan	Fan(drive) x No.		Propeller fan ×1	Propeller fan ×1
	Fan motor output	kW	0.200	0.200
	Air flow	m³/min (CFM)	62 (2190)	60 (2120)
Defrost method			Reverse cycle	Reverse cycle
Noise level (SPL)	Heating	dBA	44	45
	Cooling	dBA	47	48
Noise level (PWL) (Based on EN12102:2013)	Heating	dBA	58	58
Dimensions	Width	mm(in)	1050 (41-3/8)	1050 (41-3/8)
	Depth	mm(in)	480 (18-7/8)	480 (18-7/8)
	Height	mm(in)	1040 (40)	1040 (40)
Weight		kg(lbs)	113.5 (251)	112 (247)
Refrigerant			R32	R32
	Chargeless	kg(lbs)	1.8 (3.97)	1.8 (3.97)
	MAX.	kg(lbs)	2.4 (5.29)	2.4 (5.29)
Pipe size O.D.	Liquid	mm(in)	6.35 (1/4)	6.35 (1/4)
	Gas	mm(in)	12.7 (1/2) or 15.88 (5/8) *2	12.7 (1/2) or 15.88 (5/8) *2
Connection method			Flared	Flared
Between the indoor & outdoor unit	Height difference	m	Max. 30	Max. 30
	Piping length	m	2 to 50	2 to 30 (50 *3)
Guaranteed operating range (Outdoor)	Heating	°C	-25 to +24	-25 to +24
	DHW	°C	-25 to +42	-25 to +42
	Cooling	°C	+10 to +52	+10 to +52
Outlet water temp. (Max in Heating, Min in Cooling)	Heating	°C	+68	+68
	Cooling	°C	+5	+5
Nominal return water temperature range	Heating	°C	*1	*1
	Cooling	°C	*1	*1
Water Flow rate range		L/min	7.2 to 28.7	10.0 to 34.4

*1 Due to the water quantity of system. See the graph of Section "1.4 Available range".

*2 The capacity depends on the length and diameter of refrigerant piping. Check the length and diameter to operate the air conditioner in an adequate capacity.

MODEL NAME			PUZ-SWM120YAA	PUZ-SWM140VAA
POWER SUPPLY(Phase, voltage, frequency)			3φ, 400 V, 50 Hz	1φ, 230 V, 50 Hz
	Max. Current	A	12.0	28.0
Braker size		A	16	32
Outer casing			Galvanized plate	Galvanized plate
External finish			Munsell N8.75, N2.75 (FRONT PANEL)	Munsell N8.75, N2.75 (FRONT PANEL)
Refrigerant control			Linear expansion valve	Linear expansion valve
Compressor			Hermetic scroll	Hermetic scroll
	Model		DVB28FEDMT	DVB36FEAMT
	Motor output	kW	2.2	3.6
	Start type		Inverter	Inverter
	Protection devices		HP switch Discharge thermo Comp. Surface thermo Over current detection Thermal Protector	HP switch Discharge thermo Comp. Surface thermo Over current detection Thermal Protector
	Oil	L	0.9	0.9
Base antifreeze heater	Input	kW	-	-
Heat exchanger	Air		Plate fin coil	Plate fin coil
	Water		-	-
Fan	Fan(drive) x No.		Propeller fan ×1	Propeller fan ×1
	Fan motor output	kW	0.200	0.200
	Air flow	m^3/min (CFM)	60 (2120)	60 (2120)
Defrost method			Reverse cycle	Reverse cycle
Noise level (SPL)	Heating	dBA	45	46
	Cooling	dBA	48	49
Noise level (PWL) (Based on EN12102:2013)	Heating	dBA	58	58
Dimensions	Width	mm(in)	1050 (41-3/8)	1050 (41-3/8)
	Depth	mm(in)	480 (18-7/8)	480 (18-7/8)
	Height	mm(in)	1040 (40)	1040 (40)
Weight		kg(lbs)	124.5 (275)	113.5 (251)
Refrigerant			R32	R32
	Chargeless	kg(lbs)	1.8 (3.97)	1.8 (3.97)
	MAX.	kg(lbs)	2.4 (5.29)	2.4 (5.29)
Pipe size O.D.	Liquid	mm(in)	6.35 (1/4)	6.35 (1/4)
	Gas	mm(in)	12.7 (1/2) or 15.88 (5/8) *2	12.7 (1/2) or 15.88 (5/8) *2
Connection method			Flared	Flared
Between the indoor & outdoor unit	Height difference	m	Max. 30	Max. 30
	Piping length	m	2 to 30 (50 *3)	2 to 30 (50 *3)
Guaranteed operating range (Outdoor)	Heating	°C	-25 to +24	-25 to +24
	DHW	°C	-25 to +42	-25 to +42
	Cooling	°C	+10 to +52	+10 to +52
Outlet water temp. (Max in Heating, Min in Cooling)	Heating	°C	+68	+68
	Cooling	°C	+5	+5
Nominal return water temperature range	Heating	°C	*1	*1
	Cooling	°C	*1	*1
Water Flow rate range		L/min	10.0 to 34.4	10.0 to 34.4

*1 Due to the water quantity of system. See the graph of Section "1.4 Available range".

*2 The capacity depends on the length and diameter of refrigerant piping. Check the length and diameter to operate the air conditioner in an adequate capacity.

*3 Piping length of 30 m or more is for heating only.

MODEL NAME			PUZ-SWM140YAA	PUZ-SHWM60VAA
POWER SUPPLY(Phase, voltage, frequency)			3φ, 400 V, 50 Hz	1φ, 230 V, 50 Hz
	Max. Current	A	12.0	13.5
Braker size		A	16	16
Outer casing			Galvanized plate	Galvanized plate
External finish			Munsell N8.75, N2.75 (FRONT PANEL)	Munsell N8.75, N2.75 (FRONT PANEL)
Refrigerant control			Linear expansion valve	Linear expansion valve
Compressor			Hermetic scroll	Hermetic scroll
	Model		DVB36FEBMT	DVK28FECMT
	Motor output	kW	3.6	2.2
	Start type		Inverter	Inverter
	Protection devices		HP switch Discharge thermo Comp. Surface thermo Over current detection Thermal Protector	HP switch Discharge thermo Comp. Surface thermo Over current detection Thermal Protector
	Oil	L	0.9	0.9
Base antifreeze heater	Input	kW	-	-
Heat exchanger	Air		Plate fin coil	Plate fin coil
	Water		-	-
Fan	Fan(drive) x No.		Propeller fan ×1	Propeller fan ×1
	Fan motor output	kW	0.200	0.200
	Air flow	m^3/min (CFM)	60 (2120)	58 (2050)
Defrost method			Reverse cycle	Reverse cycle
Noise level (SPL)	Heating	dBA	46	40
	Cooling	dBA	49	45
Noise level (PWL) (Based on EN12102:2013)	Heating	dBA	58	54
Dimensions	Width	mm(in)	1050 (41-3/8)	1050 (41-3/8)
	Depth	mm(in)	480 (18-7/8)	480 (18-7/8)
	Height	mm(in)	1040 (40)	1040 (40)
Weight		kg(lbs)	124.5 (275)	106 (234)
Refrigerant			R32	R32
	Chargeless	kg(lbs)	1.8 (3.97)	1.8 (3.97)
	MAX.	kg(lbs)	2.4 (5.29)	2.4 (5.29)
Pipe size O.D.	Liquid	mm(in)	6.35 (1/4)	6.35 (1/4)
	Gas	mm(in)	12.7 (1/2) or 15.88 (5/8) *2	12.7 (1/2) or 15.88 (5/8) *2
Connection method			Flared	Flared
Between the indoor & outdoor unit	Height difference	m	Max. 30	Max. 30
	Piping length	m	2 to 30 (50 *3)	2 to 50
Guaranteed operating range (Outdoor)	Heating	°C	-25 to +24	-30 to +24
	DHW	°C	-25 to +42	-30 to +42
	Cooling	°C	+10 to +52	+10 to +52
Outlet water temp. (Max in Heating, Min in Cooling)	Heating	°C	+68	+68
	Cooling	°C	+5	+5
Nominal return water temperature range	Heating	°C	*1	*1
	Cooling	°C	*1	*1
Water Flow rate range		L/min	10.0 to 34.4	7.2 to 22.9

*1 Due to the water quantity of system. See the graph of Section "1.4 Available range".

*2 The capacity depends on the length and diameter of refrigerant piping. Check the length and diameter to operate the air conditioner in an adequate capacity.

*3 Piping length of 30 m or more is for heating only.

MODEL NAME			PUZ-SHWM80VAA	PUZ-SHWM80YAA
POWER SUPPLY(Phase, voltage, frequency)			1φ, 230 V, 50 Hz	3φ, 400 V, 50 Hz
	Max. Current	A	19.0	8.0
Braker size		A	25	16
Outer casing			Galvanized plate	Galvanized plate
External finish			Munsell N8.75, N2.75 (FRONT PANEL)	Munsell N8.75, N2.75 (FRONT PANEL)
Refrigerant control			Linear expansion valve	Linear expansion valve
Compressor			Hermetic scroll	Hermetic scroll
	Model		DVK28FECMT	DVK28FEDMT
	Motor output	kW	2.2	2.2
	Start type		Inverter	Inverter
	Protection devices		HP switch Discharge thermo Comp. Surface thermo Over current detection Thermal Protector	HP switch Discharge thermo Comp. Surface thermo Over current detection Thermal Protector
	Oil	L	0.9	0.9
Base antifreeze heater	Input	kW	-	-
Heat exchanger	Air		Plate fin coil	Plate fin coil
	Water		-	-
Fan	Fan(drive) x No.		Propeller fan ×1	Propeller fan ×1
	Fan motor output	kW	0.200	0.200
	Air flow	m^3/min (CFM)	58 (2050)	58 (2050)
Defrost method			Reverse cycle	Reverse cycle
Noise level (SPL)	Heating	dBA	41	41
	Cooling	dBA	46	46
Noise level (PWL) (Based on EN12102:2013)	Heating	dBA	54	54
Dimensions	Width	mm(in)	1050 (41-3/8)	1050 (41-3/8)
	Depth	mm(in)	480 (18-7/8)	480 (18-7/8)
	Height	mm(in)	1040 (40)	1040 (40)
Weight		kg(lbs)	106 (234)	115 (254)
Refrigerant			R32	R32
	Chargeless	kg(lbs)	1.8 (3.97)	1.8 (3.97)
	MAX.	kg(lbs)	2.4 (5.29)	2.4 (5.29)
Pipe size O.D.	Liquid	mm(in)	6.35 (1/4)	6.35 (1/4)
	Gas	mm(in)	12.7 (1/2) or 15.88 (5/8) *2	12.7 (1/2) or 15.88 (5/8) *2
Connection method			Flared	Flared
Between the indoor & outdoor unit	Height difference	m	Max. 30	Max. 30
	Piping length	m	2 to 50	2 to 50
Guaranteed operating range (Outdoor)	Heating	°C	-30 to +24	-30 to +24
	DHW	°C	-30 to +42	-30 to +42
	Cooling	°C	+10 to +52	+10 to +52
Outlet water temp. (Max in Heating, Min in Cooling)	Heating	°C	+70	+70
	Cooling	°C	+5	+5
Nominal return water temperature range	Heating	°C	*1	*1
	Cooling	°C	*1	*1
Water Flow rate range		L/min	7.2 to 22.9	7.2 to 22.9

*1 Due to the water quantity of system. See the graph of Section "1.4 Available range".

*2 The capacity depends on the length and diameter of refrigerant piping. Check the length and diameter to operate the air conditioner in an adequate capacity.

MODEL NAME			PUZ-SHWM100VAA	PUZ-SHWM100YAA
POWER SUPPLY(Phase, voltage, frequency)			1φ, 230 V, 50 Hz	3φ, 400 V, 50 Hz
	Max. Current	A	27.0	9.0
Braker size		A	30	16
Outer casing			Galvanized plate	Galvanized plate
External finish			Munsell N8.75, N2.75 (FRONT PANEL)	Munsell N8.75, N2.75 (FRONT PANEL)
Refrigerant control			Linear expansion valve	Linear expansion valve
Compressor			Hermetic scroll	Hermetic scroll
	Model		DVK28FECMT	DVK28FEDMT
	Motor output	kW	2.2	2.2
	Start type		Inverter	Inverter
	Protection devices		HP switch Discharge thermo Comp. Surface thermo Over current detection Thermal Protector	HP switch Discharge thermo Comp. Surface thermo Over current detection Thermal Protector
	Oil	L	0.9	0.9
Base antifreeze heater	Input	kW	-	-
Heat exchanger	Air		Plate fin coil	Plate fin coil
	Water		-	-
Fan	Fan(drive) x No.		Propeller fan ×1	Propeller fan ×1
	Fan motor output	kW	0.200	0.200
	Air flow	m^3/min (CFM)	62 (2190)	62 (2190)
Defrost method			Reverse cycle	Reverse cycle
Noise level (SPL)	Heating	dBA	44	44
	Cooling	dBA	47	47
Noise level (PWL) (Based on EN12102:2013)	Heating	dBA	58	58
Dimensions	Width	mm(in)	1050 (41-3/8)	1050 (41-3/8)
	Depth	mm(in)	480 (18-7/8)	480 (18-7/8)
	Height	mm(in)	1040 (40)	1040 (40)
Weight		kg(lbs)	106.5 (235)	115 (254)
Refrigerant			R32	R32
	Chargeless	kg(lbs)	1.8 (3.97)	1.8 (3.97)
	MAX.	kg(lbs)	2.4 (5.29)	2.4 (5.29)
Pipe size O.D.	Liquid	mm(in)	6.35 (1/4)	6.35 (1/4)
	Gas	mm(in)	12.7 (1/2) or 15.88 (5/8) *2	12.7 (1/2) or 15.88 (5/8) *2
Connection method			Flared	Flared
Between the indoor & outdoor unit	Height difference	m	Max. 30	Max. 30
	Piping length	m	2 to 50	2 to 50
Guaranteed operating range (Outdoor)	Heating	°C	-30 to +24	-30 to +24
	DHW	°C	-30 to +42	-30 to +42
	Cooling	°C	+10 to +52	+10 to +52
Outlet water temp. (Max in Heating, Min in Cooling)	Heating	°C	+70	+70
	Cooling	°C	+5	+5
Nominal return water temperature range	Heating	°C	*1	*1
	Cooling	°C	*1	*1
Water Flow rate range		L/min	7.2 to 28.7	7.2 to 28.7

*1 Due to the water quantity of system. See the graph of Section "1.4 Available range".

*2 The capacity depends on the length and diameter of refrigerant piping. Check the length and diameter to operate the air conditioner in an adequate capacity.

MODEL NAME			PUZ-SHWM120VAA	PUZ-SHWM120YAA
POWER SUPPLY(Phase, voltage, frequency)			1φ, 230 V, 50 Hz	3φ, 400 V, 50 Hz
	Max. Current	A	28.0	12.0
Braker size		A	32	16
Outer casing			Galvanized plate	Galvanized plate
External finish			Munsell N8.75, N2.75 (FRONT PANEL)	Munsell N8.75, N2.75 (FRONT PANEL)
Refrigerant control			Linear expansion valve	Linear expansion valve
Compressor			Hermetic scroll	Hermetic scroll
	Model		DVK28FECMT	DVK28FEDMT
	Motor output	kW	2.2	2.2
	Start type		Inverter	Inverter
	Protection devices		HP switch Discharge thermo Comp. Surface thermo Over current detection Thermal Protector	HP switch Discharge thermo Comp. Surface thermo Over current detection Thermal Protector
	Oil	L	0.9	0.9
Base antifreeze heater	Input	kW	-	-
Heat exchanger	Air		Plate fin coil	Plate fin coil
	Water		-	-
Fan	Fan(drive) x No.		Propeller fan ×1	Propeller fan ×1
	Fan motor output	kW	0.200	0.200
	Air flow	m^3/min (CFM)	60 (2120)	60 (2120)
Defrost method			Reverse cycle	Reverse cycle
Noise level (SPL)	Heating	dBA	45	45
	Cooling	dBA	48	48
Noise level (PWL) (Based on EN12102:2013)	Heating	dBA	58	58
Dimensions	Width	mm(in)	1050 (41-3/8)	1050 (41-3/8)
	Depth	mm(in)	480 (18-7/8)	480 (18-7/8)
	Height	mm(in)	1040 (40)	1040 (40)
Weight		kg(lbs)	113.5 (251)	125.5 (277)
Refrigerant			R32	R32
	Chargeless	kg(lbs)	1.8 (3.97)	1.8 (3.97)
	MAX.	kg(lbs)	2.4 (5.29)	2.4 (5.29)
Pipe size O.D.	Liquid	mm(in)	6.35 (1/4)	6.35 (1/4)
	Gas	mm(in)	12.7 (1/2) or 15.88 (5/8) *2	12.7 (1/2) or 15.88 (5/8) *2
Connection method			Flared	Flared
Between the indoor & outdoor unit	Height difference	m	Max. 30	Max. 30
	Piping length	m	2 to 30 (50 *3)	2 to 30 (50 *3)
Guaranteed operating range (Outdoor)	Heating	°C	-30 to +24	-30 to +24
	DHW	°C	-30 to +42	-30 to +42
	Cooling	°C	+10 to +52	+10 to +52
Outlet water temp. (Max in Heating, Min in Cooling)	Heating	°C	+70	+70
	Cooling	°C	+5	+5
Nominal return water temperature range	Heating	°C	*1	*1
	Cooling	°C	*1	*1
Water Flow rate range		L/min	10.0 to 34.4	10.0 to 34.4

*1 Due to the water quantity of system. See the graph of Section "1.4 Available range".

*2 The capacity depends on the length and diameter of refrigerant piping. Check the length and diameter to operate the air conditioner in an adequate capacity.

*3 Piping length of 30 m or more is for heating only.

MODEL NAME			PUZ-SHWM140VAA	PUZ-SHWM140YAA
POWER SUPPLY(Phase, voltage, frequency)			1φ, 230 V, 50 Hz	3φ, 400 V, 50 Hz
	Max. Current	A	35.0	12.0
Braker size		A	40	16
Outer casing			Galvanized plate	Galvanized plate
External finish			Munsell N8.75, N2.75 (FRONT PANEL)	Munsell N8.75, N2.75 (FRONT PANEL)
Refrigerant control			Linear expansion valve	Linear expansion valve
Compressor			Hermetic scroll	Hermetic scroll
	Model		DVK36FEAMT	DVK36FEBMT
	Motor output	kW	3.6	3.6
	Start type		Inverter	Inverter
	Protection devices		HP switch Discharge thermo Comp. Surface thermo Over current detection Thermal Protector	HP switch Discharge thermo Comp. Surface thermo Over current detection Thermal Protector
	Oil	L	0.9	0.9
Base antifreeze heater	Input	kW	-	-
Heat exchanger	Air		Plate fin coil	Plate fin coil
	Water		-	-
Fan	Fan(drive) x No.		Propeller fan ×1	Propeller fan ×1
	Fan motor output	kW	0.200	0.200
	Air flow	m^3/min (CFM)	60 (2120)	60 (2120)
Defrost method			Reverse cycle	Reverse cycle
Noise level (SPL)	Heating	dBA	46	46
	Cooling	dBA	49	49
Noise level (PWL) (Based on EN12102:2013)	Heating	dBA	58	58
Dimensions	Width	mm(in)	1050 (41-3/8)	1050 (41-3/8)
	Depth	mm(in)	480 (18-7/8)	480 (18-7/8)
	Height	mm(in)	1040 (40)	1040 (40)
Weight		kg(lbs)	114.5 (253)	126 (278)
Refrigerant			R32	R32
	Chargeless	kg(lbs)	1.8 (3.97)	1.8 (3.97)
	MAX.	kg(lbs)	2.4 (5.29)	2.4 (5.29)
Pipe size O.D.	Liquid	mm(in)	6.35 (1/4)	6.35 (1/4)
	Gas	mm(in)	12.7 (1/2) or 15.88 (5/8) *2	12.7 (1/2) or 15.88 (5/8) *2
Connection method			Flared	Flared
Between the indoor & outdoor unit	Height difference	m	Max. 30	Max. 30
	Piping length	m	2 to 30 (50 *3)	2 to 30 (50 *3)
Guaranteed operating range (Outdoor)	Heating	°C	-30 to +24	-30 to +24
	DHW	°C	-30 to +42	-30 to +42
	Cooling	°C	+10 to +52	+10 to +52
Outlet water temp. (Max in Heating, Min in Cooling)	Heating	°C	+70	+70
	Cooling	°C	+5	+5
Nominal return water temperature range	Heating	°C	*1	*1
	Cooling	°C	*1	*1
Water Flow rate range		L/min	10.0 to 34.4	7.2 to 28.7

*1 Due to the water quantity of system. See the graph of Section "1.4 Available range".

*2 The capacity depends on the length and diameter of refrigerant piping. Check the length and diameter to operate the air conditioner in an adequate capacity.

*3 Piping length of 30 m or more is for heating only.

MODEL NAME				PXZ-4F75VG	PXZ-5F85VG
POWER SUPPLY(Phase, voltage, frequency)				1φ, 230V, 50Hz	1φ, 230V, 50Hz
	Max. Current		A	18.0	21.4
Braker size			A	25.0	25.0
Outer casing				Galvanized plate	Galvanized plate
External finish				Munsell No. 3Y 7.8/1.1	Munsell No. 3Y 7.8/1.1
Refrigerant control				Linear expansion valve	Linear expansion valve
Compressor				Hermetic twin rotary	Hermetic twin rotary
	Model			SVB172FPKM1T	SVB220FUGMC-L1
	Motor output		kW	2.0	2.2
	Start type			Inverter	Inverter
	Protection devices			HP switch Theraml Protector Comp. Surface thermo Over current detection	HP switch Theraml Protector Comp. Surface thermo Over current detection
	Oil		L	0.6	0.6
Crankcase heater				-	-
Heat exchanger		Air		Plate fin coil	Plate fin coil
		Water		Plate heat exchanger	Plate heat exchanger
Fan	Fan(drive) x No.			Propeller fan ×1	Propeller fan ×1
	Fan motor output		kW	0.064	0.088
	Air flow		m^3/min (CFM)	42.7 (1508)	62.0 (2182)
Defrost method				Reverse cycle	Reverse cycle
Noise level (SPL)	ATW	Heating (Full Load)	dBA	57	54
		Cooling	dBA	-	-
	ATA	Heating (Full Load)	dBA	54	51
		Cooling	dBA	48	49
Noise level (PWL) (Based on EN12102:2013)	ATW	Heating	dBA	67	64
	ATA	Cooling	dBA	63	61
Dimensions		Width	mm(in)	840 (33-11/16)	950 (37-3/8)
		Depth	mm(in)	330 (13)	330 (13)
		Height	mm(in)	710 (27-15/16)	796 (31-5/16)
Weight			kg(lbs)	59 (130)	62 (137)
Refrigerant				R32	R32
		Chargeless	kg(lbs)	2.4 (5.3)	2.4 (5.3)
		MAX.	kg(lbs)	2.4 (5.3)	2.4 (5.3)
Pipe size O.D.		Liquid	mm(in)	6.35 (1/4)	6.35 (1/4)
		Gas	mm(in)	12.7 (1/2)	12.7 (1/2)
Connection method				Flared	Flared
Between the indoor & outdoor unit		Height difference	m	Max. 20	Max. 20
		Piping length	m	Max. 60m total Max. 30m for each	Max. 70m total Max. 30m for each
Guaranteed operating range (Outdoor)	ATW	Heating	°C	-20 to +24	-20 to +24
		DHW	°C	-20 to +35	-20 to +35
		Cooling	°C	-	-
	ATA	Heating	°C	-20 to +24	-20 to +24
		Cooling	°C	-10 to +46	-10 to +46
Outlet water temp. (Max in Heating, Min in Cooling)		Heating	°C	+55	+55
		Cooling	°C	-	-
Nominal return water temperature range		Heating	°C	+10 to +54 *1	+10 to +54 *1
		Cooling	°C	*1	*1
Water Flow rate range			L/min	11.5 to 21.7	11.5 to 24.6

*1 Due to the water quantity of system. See the graph of Section "1.4 Available range".

1.2 Capacity

Based on EN14511-1:2018, EN14511-2:2018, EN14511-3:2018 and EN14511-4:2018.

(1) Packaged-type units

MODEL NAME			PUZ-WZ50VAA(-BS)	PUZ-WZ60VAA(-BS)	PUZ-WZ80VAA(-BS)
Heating (A7/W35)	Capacity	kW	4.00	5.00	6.00
	COP		5.10	5.00	4.70
	Power input	kW	0.78	1.00	1.28
	Test condition flow rate	L/min	11.5	14.3	17.2
Heating (A2/W35)	Capacity	kW	5.00	6.00	8.00
	COP		3.15	3.10	3.05
	Power input	kW	1.59	1.94	2.62
	Test condition flow rate	L/min	14.3	17.2	22.9
Pressure difference (Water circuit)		kPa	13	19	18
Heating pump input (Based on EN14511)		kW	0.017	0.023	0.022
Cooling (A35/W7)	Capacity	kW	3.20	3.60	4.00
	EER (COP)		3.10	2.90	2.70
	Power input	kW	1.03	1.24	1.48
	Test condition flow rate	L/min	9.2	10.3	11.5
Cooling (A35/W18)	Capacity	kW	4.20	4.60	5.00
	EER (COP)		3.20	3.00	2.80
	Power input	kW	0.35	0.35	0.35
	Test condition flow rate	L/min	12.0	13.2	14.3
Pressure difference (Water circuit)		kPa	9	11	9
Cooling pump input (Based on EN14511)		kW	0.013	0.015	0.013
Recommended plate heat exchanger			Built-in	Built-in	Built-in

Note: "COP" and "Power input" in the above table are values that contains the "pump input (Based on EN 14511) ".

MODEL NAME			PUZ-WM50VHA(-BS)	PUZ-WM60VAA(-BS)	PUZ-WM85VAA(-BS)
Heating (A7/W35)	Capacity	kW	4.00	5.00	6.50
	COP		5.20	5.10	4.90
	Power input	kW	0.77	0.98	1.33
	Test condition flow rate	L/min	11.5	14.3	18.6
Heating (A2/W35)	Capacity	kW	5.00	6.00	8.50
	COP		3.70	3.75	3.51
	Power input	kW	1.35	1.60	2.42
	Test condition flow rate	L/min	14.3	17.2	24.4
Pressure difference (Water circuit)		kPa	12	8	15
Heating pump input (Based on EN14511)		kW	0.010	0.008	0.020
Cooling (A35/W7)	Capacity	kW	4.00	5.00	6.50
	EER (COP)		3.40	3.40	3.30
	Power input	kW	1.18	1.47	1.97
	Test condition flow rate	L/min	11.5	14.3	18.6
Cooling (A35/W18)	Capacity	kW	4.00	5.00	6.50
	EER (COP)		5.00	4.50	5.00
	Power input	kW	0.80	1.11	1.30
	Test condition flow rate	L/min	11.5	14.3	18.6
Pressure difference (Water circuit)		kPa	10	8	11
Cooling pump input (Based on EN14511)		kW	0.010	0.008	0.014
Recommended plate heat exchanger			Built-in	Built-in	Built-in

Note: "COP" and "Power input" in the above table are values that contains the "pump input (Based on EN 14511) ".

MODEL NAME			PUZ-WM85YAA(-BS)	PUZ-WM112VAA(-BS)	PUZ-WM112YAA(-BS)
Heating (A7/W35)	Capacity	kW	6.50	9.00	9.00
	COP		4.90	4.70	4.70
	Power input	kW	1.33	1.91	1.91
	Test condition flow rate	L/min	18.6	25.8	25.8
Heating (A2/W35)	Capacity	kW	8.50	11.20	11.20
	COP		3.51	3.44	3.44
	Power input	kW	2.42	3.26	3.26
	Test condition flow rate	L/min	24.4	32.1	32.1
Pressure difference (Water circuit)		kPa	15	24	24
Heating pump input (Based on EN14511)		kW	0.020	0.043	0.043
Cooling (A35/W7)	Capacity	kW	6.50	9.00	9.00
	EER (COP)		3.30	3.30	3.30
	Power input	kW	1.97	2.73	2.73
	Test condition flow rate	L/min	18.6	25.8	25.8
Cooling (A35/W18)	Capacity	kW	6.50	9.00	9.00
	EER (COP)		5.00	4.90	4.90
	Power input	kW	1.30	1.84	1.84
	Test condition flow rate	L/min	18.6	25.8	25.8
Pressure difference (Water circuit)		kPa	11	20	20
Cooling pump input (Based on EN14511)		kW	0.014	0.032	0.032
Recommended plate heat exchanger			Built-in	Built-in	Built-in

Note: "COP" and "Power input" in the above table are values that contains the "pump input (Based on EN 14511) ".

MODEL NAME			PUZ-HWM140VHA(-BS)	PUZ-HWM140YHA(-BS)
Heating (A7/W35)	Capacity	kW	12.00	12.00
	COP		4.50	4.50
	Power input	kW	2.67	2.67
	Test condition flow rate	L/min	34.4	34.4
Heating (A2/W35)	Capacity	kW	14.00	14.00
	COP		3.15	3.15
	Power input	kW	4.44	4.44
	Test condition flow rate	L/min	40.1	40.1
Pressure difference (Water circuit)		kPa	9	9
Heating pump input (Based on EN14511)		kW	0.020	0.020
Cooling (A35/W7)	Capacity	kW	11.90	11.90
	EER (COP)		3.00	3.00
	Power input	kW	3.97	3.97
	Test condition flow rate	L/min	34.1	34.1
Cooling (A35/W18)	Capacity	kW	11.10	11.10
	EER (COP)		4.10	4.10
	Power input	kW	2.71	2.71
	Test condition flow rate	L/min	31.8	31.8
Pressure difference (Water circuit)		kPa	7	7
Cooling pump input (Based on EN14511)		kW	0.020	0.020
Recommended plate heat exchanger			Built-in	Built-in

Note: "COP" and "Power input" in the above table are values that contains the "pump input (Based on EN 14511) ".

(2) Split-type units

MODEL NAME			SUZ-SWM30VA	SUZ-SHWM30VAH	SUZ-SWM40VA2(-SC)
Heating (A7/W35)	Capacity	kW	3.00	3.00	3.00
	COP		5.11	5.11	5.11
	Power input	kW	0.59	0.59	0.59
	Test condition flow rate	L/min	8.6	8.6	8.6
Heating (A2/W35)	Capacity	kW	3.00	3.00	4.00
	COP		3.96	3.67	3.90
	Power input	kW	0.76	0.82	1.03
	Test condition flow rate	L/min	8.6	8.6	11.5
Pressure difference (Water circuit)		kPa	-	-	-
Heating pump input (Based on EN14511)		kW	-	-	-
Cooling (A35/W7)	Capacity	kW	3.50	3.50	4.50
	EER (COP)		3.52	3.52	3.31
	Power input	kW	0.99	0.99	1.36
	Test condition flow rate	L/min	10.0	10.0	12.9
Cooling (A35/W18)	Capacity	kW	3.50	3.50	5.60
	EER (COP)		5.51	5.51	4.71
	Power input	kW	0.64	0.64	1.19
	Test condition flow rate	L/min	10.0	10.0	16.1
Pressure difference (Water circuit)		kPa	-	-	-
Cooling pump input (Based on EN14511)		kW	-	-	-
Recommended indoor unit model			E*S***D-***E	E*S***D-***E	E*S***D-***E

The table shows performance data obtained when an indoor unit is connected.

MODEL NAME			SUZ-SHWM40VAH(-SC)	SUZ-SWM60VA2(-SC)	SUZ-SHWM60VAH(-SC)
Heating (A7/W35)	Capacity	kW	3.00	5.00	5.00
	COP		4.77	4.85	4.95
	Power input	kW	0.63	1.03	1.01
	Test condition flow rate	L/min	8.6	14.3	14.3
Heating (A2/W35)	Capacity	kW	4.00	6.00	6.00
	COP		3.61	3.62	3.47
	Power input	kW	1.11	1.66	1.73
	Test condition flow rate	L/min	11.5	17.2	17.2
Pressure difference (Water circuit)		kPa	-	-	-
Heating pump input (Based on EN14511)		kW	-	-	-
Cooling (A35/W7)	Capacity	kW	4.50	5.00	6.00
	EER (COP)		3.33	3.18	3.28
	Power input	kW	1.35	1.57	1.83
	Test condition flow rate	L/min	12.9	14.3	17.2
Cooling (A35/W18)	Capacity	kW	5.60	6.00	6.00
	EER (COP)		4.70	4.65	5.21
	Power input	kW	1.19	1.29	1.15
	Test condition flow rate	L/min	16.1	17.2	17.2
Pressure difference (Water circuit)		kPa	-	-	-
Cooling pump input (Based on EN14511)		kW	-	-	-
Recommended indoor unit model			E*S***D-***E	E*S***D-***E	E*S***D-***E

The table shows performance data obtained when an indoor unit is connected.

MODEL NAME			SUZ-SWM80VA2	SUZ-SWM80VAH2	SUZ-SWM100VA
Heating (A7/W35)	Capacity	kW	6.00	6.00	7.50
	COP		5.10	5.10	4.85
	Power input	kW	1.18	1.18	1.55
	Test condition flow rate	L/min	17.2	17.2	21.5
Heating (A2/W35)	Capacity	kW	7.50	7.50	9.00
	COP		3.50	3.31	3.12
	Power input	kW	2.14	2.27	2.88
	Test condition flow rate	L/min	21.5	21.5	25.8
Pressure difference (Water circuit)		kPa	-	-	-
Heating pump input (Based on EN14511)		kW	-	-	-
Cooling (A35/W7)	Capacity	kW	6.70	6.70	7.30
	EER (COP)		3.20	3.20	3.00
	Power input	kW	2.09	2.09	2.43
	Test condition flow rate	L/min	19.2	19.2	20.9
Cooling (A35/W18)	Capacity	kW	6.70	6.70	8.10
	EER (COP)		5.06	5.06	4.44
	Power input	kW	1.32	1.32	1.82
	Test condition flow rate	L/min	19.2	19.2	23.2
Pressure difference (Water circuit)		kPa	-	-	-
Cooling pump input (Based on EN14511)		kW	-	-	-
Recommended indoor unit model			E*S***D-***E	E*S***D-***E	E*S***D-***E

The table shows performance data obtained when an indoor unit is connected.

MODEL NAME			SUZ-SWM100VAH
Heating (A7/W35)	Capacity	kW	7.50
	COP		4.85
	Power input	kW	1.55
	Test condition flow rate	L/min	21.5
Heating (A2/W35)	Capacity	kW	9.00
	COP		3.00
	Power input	kW	3.00
	Test condition flow rate	L/min	25.8
Pressure difference (Water circuit)		kPa	-
Heating pump input (Based on EN14511)		kW	-
Cooling (A35/W7)	Capacity	kW	7.30
	EER (COP)		3.00
	Power input	kW	2.43
	Test condition flow rate	L/min	20.9
Cooling (A35/W18)	Capacity	kW	8.10
	EER (COP)		4.44
	Power input	kW	1.82
	Test condition flow rate	L/min	23.2
Pressure difference (Water circuit)		kPa	-
Cooling pump input (Based on EN14511)		kW	-
Recommended indoor unit model			E*S***D-***E

The table shows performance data obtained when an indoor unit is connected.

MODEL NAME			PUZ-SWM60VAA	PUZ-SWM80VAA	PUZ-SWM80YAA
Heating (A7/W35)	Capacity	kW	5.00	6.00	6.00
	COP		5.02	5.02	5.02
	Power input	kW	1.00	1.20	1.20
	Test condition flow rate	L/min	14.3	17.2	17.2
Heating (A2/W35)	Capacity	kW	6.00	8.00	8.00
	COP		3.75	3.70	3.70
	Power input	kW	1.60	2.16	2.16
	Test condition flow rate	L/min	17.2	22.9	22.9
Pressure difference (Water circuit)		kPa	-	-	-
Heating pump input (Based on EN14511)		kW	-	-	-
Cooling (A35/W7)	Capacity	kW	5.10	7.10	7.10
	EER (COP)		3.50	3.30	3.30
	Power input	kW	1.46	2.15	2.15
	Test condition flow rate	L/min	14.6	20.4	20.4
Cooling (A35/W18)	Capacity	kW	6.00	8.00	8.00
	EER (COP)		5.40	4.95	4.95
	Power input	kW	1.11	1.62	1.62
	Test condition flow rate	L/min	17.2	22.9	22.9
Pressure difference (Water circuit)		kPa	-	-	-
Cooling pump input (Based on EN14511)		kW	-	-	-
Recommended indoor unit model			E*S***F-***E	E*S***F-***E	E*S***F-***E

The table shows performance data obtained when an indoor unit is connected.

MODEL NAME			PUZ-SWM100VAA	PUZ-SWM100YAA	PUZ-SWM120VAA
Heating (A7/W35)	Capacity	kW	8.00	8.00	10.00
	COP		5.02	5.02	4.87
	Power input	kW	1.59	1.59	2.05
	Test condition flow rate	L/min	22.9	22.9	28.7
Heating (A2/W35)	Capacity	kW	10.00	10.00	12.10
	COP		3.47	3.47	3.27
	Power input	kW	2.88	2.88	3.70
	Test condition flow rate	L/min	28.7	28.7	34.7
Pressure difference (Water circuit)		kPa	-	-	-
Heating pump input (Based on EN14511)		kW	-	-	-
Cooling (A35/W7)	Capacity	kW	9.00	9.00	11.00
	EER (COP)		3.00	3.00	2.86
	Power input	kW	3.00	3.00	3.85
	Test condition flow rate	L/min	25.8	25.8	31.5
Cooling (A35/W18)	Capacity	kW	10.00	10.00	12.00
	EER (COP)		4.50	4.50	4.50
	Power input	kW	2.22	2.22	2.67
	Test condition flow rate	L/min	28.7	28.7	34.4
Pressure difference (Water circuit)		kPa	-	-	-
Cooling pump input (Based on EN14511)		kW	-	-	-
Recommended indoor unit model			E*S***F-***E	E*S***F-***E	E*S***F-***E

The table shows performance data obtained when an indoor unit is connected.

MODEL NAME			PUZ-SWM120YAA	PUZ-SWM140VAA	PUZ-SWM140YAA
Heating (A7/W35)	Capacity	kW	10.00	12.00	12.00
	COP		4.87	4.77	4.77
	Power input	kW	2.05	2.52	2.52
	Test condition flow rate	L/min	28.7	34.4	34.4
Heating (A2/W35)	Capacity	kW	12.10	14.00	14.00
	COP		3.27	3.27	3.27
	Power input	kW	3.70	4.28	4.28
	Test condition flow rate	L/min	34.7	40.1	40.1
Pressure difference (Water circuit)		kPa	-	-	-
Heating pump input (Based on EN14511)		kW	-	-	-
Cooling (A35/W7)	Capacity	kW	11.00	12.50	12.50
	EER (COP)		2.86	2.62	2.62
	Power input	kW	3.85	4.77	4.77
	Test condition flow rate	L/min	31.5	35.8	35.8
Cooling (A35/W18)	Capacity	kW	12.00	14.00	14.00
	EER (COP)		4.50	3.75	3.75
	Power input	kW	2.67	3.73	3.73
	Test condition flow rate	L/min	34.4	40.1	40.1
Pressure difference (Water circuit)		kPa	-	-	-
Cooling pump input (Based on EN14511)		kW	-	-	-
Recommended indoor unit model			E*S***F-***E	E*S***F-***E	E*S***F-***E

The table shows performance data obtained when an indoor unit is connected.

MODEL NAME			PUZ-SHWM60VAA	PUZ-SHWM80VAA	PUZ-SHWM80YAA
Heating (A7/W35)	Capacity	kW	5.00	6.00	6.00
	COP		5.05	5.05	5.05
	Power input	kW	0.99	1.19	1.19
	Test condition flow rate	L/min	14.3	17.2	17.2
Heating (A2/W35)	Capacity	kW	6.00	8.00	8.00
	COP		3.85	3.80	3.80
	Power input	kW	1.56	2.11	2.11
	Test condition flow rate	L/min	17.2	22.9	22.9
Pressure difference (Water circuit)		kPa	-	-	-
Heating pump input (Based on EN14511)		kW	-	-	-
Cooling (A35/W7)	Capacity	kW	5.10	7.10	7.10
	EER (COP)		3.50	3.30	3.30
	Power input	kW	1.46	2.15	2.15
	Test condition flow rate	L/min	14.6	20.4	20.4
Cooling (A35/W18)	Capacity	kW	6.00	8.00	8.00
	EER (COP)		5.40	4.95	4.95
	Power input	kW	1.11	1.62	1.62
	Test condition flow rate	L/min	17.2	22.9	22.9
Pressure difference (Water circuit)		kPa	-	-	-
Cooling pump input (Based on EN14511)		kW	-	-	-
Recommended indoor unit model			E*S***F-***E	E*S***F-***E	E*S***F-***E

The table shows performance data obtained when an indoor unit is connected.

MODEL NAME			PUZ-SHWM100VAA	PUZ-SHWM100YAA	PUZ-SHWM120VAA
Heating (A7/W35)	Capacity	kW	8.00	8.00	10.00
	COP		5.05	5.05	4.90
	Power input	kW	1.58	1.58	2.04
	Test condition flow rate	L/min	22.9	22.9	28.7
Heating (A2/W35)	Capacity	kW	10.00	10.00	12.10
	COP		3.55	3.55	3.35
	Power input	kW	2.82	2.82	3.61
	Test condition flow rate	L/min	28.7	28.7	34.7
Pressure difference (Water circuit)		kPa	-	-	-
Heating pump input (Based on EN14511)		kW	-	-	-
Cooling (A35/W7)	Capacity	kW	9.00	9.00	11.00
	EER (COP)		3.00	3.00	2.86
	Power input	kW	3.00	3.00	3.85
	Test condition flow rate	L/min	25.8	25.8	31.5
Cooling (A35/W18)	Capacity	kW	10.00	10.00	12.00
	EER (COP)		4.50	4.50	4.50
	Power input	kW	2.22	2.22	2.67
	Test condition flow rate	L/min	28.7	28.7	34.4
Pressure difference (Water circuit)		kPa	-	-	-
Cooling pump input (Based on EN14511)		kW	-	-	-
Recommended indoor unit model			E*S***F-***E	E*S***F-***E	E*S***F-***E

The table shows performance data obtained when an indoor unit is connected.

MODEL NAME			PUZ-SHWM120YAA	PUZ-SHWM140VAA	PUZ-SHWM140YAA
Heating (A7/W35)	Capacity	kW	10.00	12.00	12.00
	COP		4.90	4.85	4.85
	Power input	kW	2.04	2.47	2.47
	Test condition flow rate	L/min	28.7	34.4	34.4
Heating (A2/W35)	Capacity	kW	12.10	14.00	14.00
	COP		3.35	3.30	3.30
	Power input	kW	3.61	4.24	4.24
	Test condition flow rate	L/min	34.7	40.1	40.1
Pressure difference (Water circuit)		kPa	-	-	-
Heating pump input (Based on EN14511)		kW	-	-	-
Cooling (A35/W7)	Capacity	kW	11.00	12.50	12.50
	EER (COP)		2.86	2.62	2.62
	Power input	kW	3.85	4.77	4.77
	Test condition flow rate	L/min	31.5	35.8	35.8
Cooling (A35/W18)	Capacity	kW	12.00	14.00	14.00
	EER (COP)		4.50	3.75	3.75
	Power input	kW	2.67	3.73	3.73
	Test condition flow rate	L/min	34.4	40.1	40.1
Pressure difference (Water circuit)		kPa	-	-	-
Cooling pump input (Based on EN14511)		kW	-	-	-
Recommended indoor unit model			E*S***F-***E	E*S***F-***E	E*S***F-***E

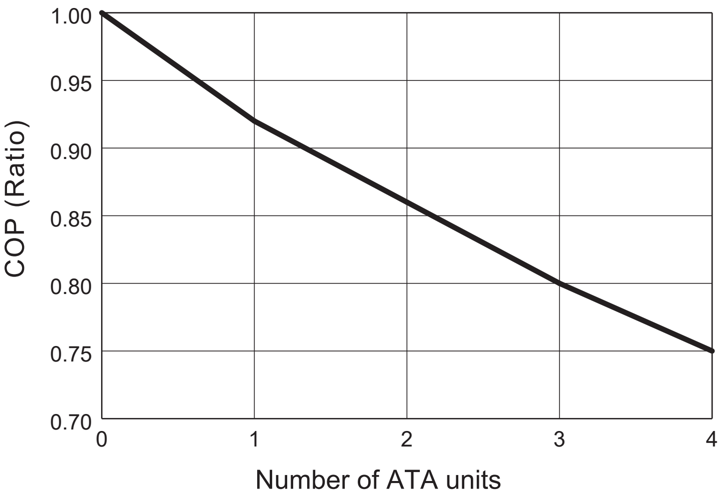
The table shows performance data obtained when an indoor unit is connected.

MODEL NAME			PXZ-4F75VG	PXZ-5F85VG
Heating (A7/W35)	Capacity	kW	7.5	8.5
	COP		4.17	4.34
	Power input	kW	1.80	1.96
	Test condition flow rate	L/min	21.5	24.4
Heating (A2/W35)	Capacity	kW	6.8	7.8
	COP		2.80	3.00
	Power input	kW	2.43	2.60
	Test condition flow rate	L/min	19.5	22.4
Pressure difference (Water circuit)		kPa	-	-
Heating pump input (Based on EN14511)		kW	-	-
Cooling (A35/W7)	Capacity	kW	-	-
	EER (COP)		-	-
	Power input	kW	-	-
	Test condition flow rate	L/min	-	-
Cooling (A35/W18)	Capacity	kW	-	-
	EER (COP)		-	-
	Power input	kW	-	-
	Test condition flow rate	L/min	-	-
Pressure difference (Water circuit)		kPa	-	-
Cooling pump input (Based on EN14511)		kW	-	-
Recommended indoor unit model			E*S***D-***E	E*S***D-***E

The table shows performance data obtained when an indoor unit is connected.

* In case of ATW unit single connection, the COP for ATW heating decreases depending on the number of connected ATA units. (Refer to the figure below.)

ATW COP reduction ratio by ATA indoor units



Number of ATA units	0	1	2	3	4
COP (Ratio)	1.00	0.92	0.86	0.80	0.75

Outdoor unit	Indoor unit	For medium-temperature application							For low-temperature application						
		Seasonal space heating energy efficiency class	Water heating energy efficiency class	Rated heat output under average climate conditions	Seasonal space heating energy efficiency under average climate conditions	Water heating energy efficiency under average climate conditions	Sound power level LWA indoor	Sound power level LWA outdoor	Seasonal space heating energy efficiency class	Water heating energy efficiency class	Rated heat output under average climate conditions	Seasonal space heating energy efficiency under average climate conditions	Water heating energy efficiency under average climate conditions	Sound power level LWA indoor	Sound power level LWA outdoor
				kW	%	%	dBA	dBA			kW	%	%	dBA	dBA
PUZ-WZ50VAA(-BS)	EHPT17X-****E	A++	A+	5	135	120	40	56	A+++	A+	5	177	120	40	56
	ERPT17X-****E	A++	A+	5	138	120	40	56	A+++	A+	5	182	120	40	56
	EHPT20X-****E(W)	A++	A+	5	135	134	40	56	A+++	A+	5	177	134	40	56
	ERPT20X-****E	A++	A+	5	138	134	40	56	A+++	A+	5	182	134	40	56
	EHPT30X-****E	A++	A	5	135	120	40	56	A+++	A	5	177	120	40	56
	ERPT30X-****E	A++	A	5	138	120	40	56	A+++	A	5	182	120	40	56
	ERPX-****E	A++	-	5	138	-	40	56	A+++	-	5	182	-	40	56
PUZ-WZ60VAA(-BS)	EHPT17X-****E	A++	A+	6	137	120	40	56	A+++	A+	6	175	120	40	56
	ERPT17X-****E	A++	A+	6	139	120	40	56	A+++	A+	6	179	120	40	56
	EHPT20X-****E(W)	A++	A+	6	137	134	40	56	A+++	A+	6	175	134	40	56
	ERPT20X-****E	A++	A+	6	139	134	40	56	A+++	A+	6	179	134	40	56
	EHPT30X-****E	A++	A	6	137	120	40	56	A+++	A	6	175	120	40	56
	ERPT30X-****E	A++	A	6	139	120	40	56	A+++	A	6	179	120	40	56
	ERPX-****E	A++	-	6	139	-	40	56	A+++	-	6	179	-	40	56
PUZ-WZ80VAA(-BS)	EHPT17X-****E	A++	A+	8	138	120	40	58	A++	A+	8	174	120	40	58
	ERPT17X-****E	A++	A+	8	140	120	40	58	A+++	A+	8	176	120	40	58
	EHPT20X-****E(W)	A++	A+	8	138	134	40	58	A++	A+	8	174	134	40	58
	ERPT20X-****E	A++	A+	8	140	134	40	58	A+++	A+	8	176	134	40	58
	EHPT30X-****E	A++	A	8	138	120	40	58	A++	A	8	174	120	40	58
	ERPT30X-****E	A++	A	8	140	120	40	58	A+++	A	8	176	120	40	58
	ERPX-****E	A++	-	8	140	-	40	58	A+++	-	8	176	-	40	58
PUZ-WM50VHA(-BS)	EHPT17X-****E	A++	A+	5	129	115	40	61	A+++	A+	5	183	115	40	61
	ERPT17X-****E	A++	A+	5	131	115	40	61	A+++	A+	5	188	115	40	61
	EHPT20X-****E(W)	A++	A+	5	129	140	40	61	A+++	A+	5	183	140	40	61
	ERPT20X-****E	A++	A+	5	131	140	40	61	A+++	A+	5	188	140	40	61
	ERPX-****E	A++	-	5	131	-	40	61	A+++	-	5	188	-	40	61
PUZ-WM60VAA(-BS)	EHPT17X-****E	A++	A+	6	139	115	40	58	A+++	A+	6	188	115	40	58
	ERPT17X-****E	A++	A+	6	141	115	40	58	A+++	A+	6	192	115	40	58
	EHPT20X-****E(W)	A++	A+	6	139	128	40	58	A+++	A+	6	188	128	40	58
	ERPT20X-****E	A++	A+	6	141	128	40	58	A+++	A+	6	192	128	40	58
	ERPX-****E	A++	-	6	141	-	40	58	A+++	-	6	192	-	40	58
PUZ-WM85V/YAA(-BS)	EHPT17X-****E	A++	A+	9	140/139	115	40	58	A+++	A+	9	192/190	115	40	58
	ERPT17X-****E	A++	A+	9	141/141	115	40	58	A+++	A+	9	195/194	115	40	58
	EHPT20X-****E(W)	A++	A+	9	140/139	128	40	58	A+++	A+	9	192/190	128	40	58
	ERPT20X-****E	A++	A+	9	141/141	128	40	58	A+++	A+	9	195/194	128	40	58
	EHPT30X-****E	A++	A	9	140/139	113	40	58	A+++	A	9	192/190	113	40	58
	ERPT30X-****E	A++	A	9	141/141	113	40	58	A+++	A	9	195/194	113	40	58
	ERPX-****E	A++	-	9	141/141	-	40	58	A+++	-	9	195/194	-	40	58
PUZ-WM112V/YAA(-BS)	EHPT20X-****E(W)	A++	A+	10	135/134	136	40	60	A+++	A+	10	193/191	136	40	60
	ERPT20X-****E	A++	A+	10	136/136	136	40	60	A+++	A+	10	195/195	136	40	60
	EHPT30X-****E	A++	A	10	135/134	112	40	60	A+++	A	10	193/191	112	40	60
	ERPT30X-****E	A++	A	10	136/136	112	40	60	A+++	A	10	195/195	112	40	60
	ERPX-****E	A++	-	10	136/136	-	40	60	A+++	-	10	195/195	-	40	60

Notes:

- E**T17/20*-***E use “Load profile L”.
- E**T30*-***E use “Load profile XL”.
- Water heating energy efficiency is measured based on EN16147: 2022 (PUZ-(H)WM models) or EN16147: 2017 (Other models).

Outdoor unit	Indoor unit	For medium-temperature application							For low-temperature application						
		Seasonal space heating energy efficiency class	Water heating energy efficiency class	Rated heat output under average climate conditions	Seasonal space heating energy efficiency under average climate conditions	Water heating energy efficiency under average climate conditions	Sound power level LWA indoor	Sound power level LWA outdoor	Seasonal space heating energy efficiency class	Water heating energy efficiency class	Rated heat output under average climate conditions	Seasonal space heating energy efficiency under average climate conditions	Water heating energy efficiency under average climate conditions	Sound power level LWA indoor	Sound power level LWA outdoor
				kW	%	%	dBA	dBA			kW	%	%	dBA	dBA
PUZ-HWM140V/YHA(-BS)	EHPT20X-****E(W)	A++	A+	14	132/131	133	40	67	A+++	A+	14	176/175	133	40	67
	ERPT20X-****E	A++	A+	14	133/133	133	40	67	A+++	A+	14	178/178	133	40	67
	EHPT30X-****E	A++	A+	14	132/131	123	40	67	A+++	A+	14	176/175	123	40	67
	ERPT30X-****E	A++	A+	14	133/133	123	40	67	A+++	A+	14	178/178	123	40	67
	ERPX-****E	A++	-	14	133/133	-	40	67	A+++	-	14	178/178	-	40	67
SUZ-SWM30VA	EHST17D-****E	A++	A+	4	130	136	41	57	A+++	A+	4	191	136	41	57
	ERST17D-****E	A++	A+	4	133	136	41	57	A+++	A+	4	195	136	41	57
	ERST17D-***BE	A++	A+	4	133	136	41	57	A+++	A+	4	195	136	41	57
	EHST20D-****E	A++	A+	4	130	151	41	57	A+++	A+	4	191	151	41	57
	ERST20D-****E	A++	A+	4	133	151	41	57	A+++	A+	4	195	151	41	57
	EHST30D-****E	A++	A+	4	130	126	41	57	A+++	A+	4	191	126	41	57
	ERST30D-****E	A++	A+	4	133	126	41	57	A+++	A+	4	195	126	41	57
	EHSD-****E	A++	-	4	130	-	41	57	A+++	-	4	191	-	41	57
	ERSD-****E	A++	-	4	133	-	41	57	A+++	-	4	195	-	41	57
SUZ-SHWM30VAH	EHST17D-****E	A+	A+	4	124	136	41	57	A+++	A+	4	180	136	41	57
	ERST17D-****E	A++	A+	4	126	136	41	57	A+++	A+	4	184	136	41	57
	ERST17D-***BE	A++	A+	4	126	136	41	57	A+++	A+	4	184	136	41	57
	EHST20D-****E	A+	A+	4	124	151	41	57	A+++	A+	4	180	151	41	57
	ERST20D-****E	A++	A+	4	126	151	41	57	A+++	A+	4	184	151	41	57
	EHST30D-****E	A+	A+	4	124	126	41	57	A+++	A+	4	180	126	41	57
	ERST30D-****E	A++	A+	4	126	126	41	57	A+++	A+	4	184	126	41	57
	EHSD-****E	A+	-	4	124	-	41	57	A+++	-	4	180	-	41	57
	ERSD-****E	A++	-	4	126	-	41	57	A+++	-	4	184	-	41	57
SUZ-SWM40VA2(-SC)	EHST17D-****E	A++	A+	5	133	136	41	57	A+++	A+	5	196	136	41	57
	ERST17D-****E	A++	A+	5	135	136	41	57	A+++	A+	5	200	136	41	57
	ERST17D-***BE	A++	A+	5	135	136	41	57	A+++	A+	5	200	136	41	57
	EHST20D-****E	A++	A+	5	133	151	41	57	A+++	A+	5	196	151	41	57
	ERST20D-****E	A++	A+	5	135	151	41	57	A+++	A+	5	200	151	41	57
	EHST30D-****E	A++	A+	5	133	126	41	57	A+++	A+	5	196	126	41	57
	ERST30D-****E	A++	A+	5	135	126	41	57	A+++	A+	5	200	126	41	57
	EHSD-****E	A++	-	5	133	-	41	57	A+++	-	5	196	-	41	57
	ERSD-****E	A++	-	5	135	-	41	57	A+++	-	5	200	-	41	57
SUZ-SHWM40VAH(-SC)	EHST17D-****E	A+	A+	5	124	135	41	58	A++	A+	5	172	135	41	58
	ERST17D-****E	A++	A+	5	126	135	41	58	A+++	A+	5	176	135	41	58
	ERST17D-***BE	A++	A+	5	126	135	41	58	A+++	A+	5	176	135	41	58
	EHST20D-****E	A+	A+	5	124	153	41	58	A++	A+	5	172	153	41	58
	ERST20D-****E	A++	A+	5	126	153	41	58	A+++	A+	5	176	153	41	58
	EHST30D-****E	A+	A+	5	124	128	41	58	A++	A+	5	172	128	41	58
	ERST30D-****E	A++	A+	5	126	128	41	58	A+++	A+	5	176	128	41	58
	EHSD-****E	A+	-	5	124	-	41	58	A++	-	5	172	-	41	58
	ERSD-****E	A++	-	5	126	-	41	58	A+++	-	5	176	-	41	58

Note: E**T17/20*-***E use “Load profile L”.
E**T30*-***E use “Load profile XL”.

Outdoor unit	Indoor unit	For medium-temperature application							For low-temperature application						
		Seasonal space heating energy efficiency class	Water heating energy efficiency class	Rated heat output under average climate conditions	Seasonal space heating energy efficiency under average climate conditions	Water heating energy efficiency under average climate conditions	Sound power level LWA indoor	Sound power level LWA outdoor	Seasonal space heating energy efficiency class	Water heating energy efficiency class	Rated heat output under average climate conditions	Seasonal space heating energy efficiency under average climate conditions	Water heating energy efficiency under average climate conditions	Sound power level LWA indoor	Sound power level LWA outdoor
				kW	%	%	dBA	dBA			kW	%	%	dBA	dBA
SUZ-SWM60VA2(-SC)	EHST17D-****E	A++	A+	6	134	135	41	60	A+++	A+	6	185	135	41	60
	ERST17D-****E	A++	A+	6	136	135	41	60	A+++	A+	6	189	135	41	60
	ERST17D-***BE	A++	A+	6	136	135	41	60	A+++	A+	6	189	135	41	60
	EHST20D-****E	A++	A+	6	134	153	41	60	A+++	A+	6	185	153	41	60
	ERST20D-****E	A++	A+	6	136	153	41	60	A+++	A+	6	189	153	41	60
	EHST30D-****E	A++	A+	6	134	128	41	60	A+++	A+	6	185	128	41	60
	ERST30D-****E	A++	A+	6	136	128	41	60	A+++	A+	6	189	128	41	60
	EHSD-****E	A++	-	6	134	-	41	60	A+++	-	6	185	-	41	60
	ERSD-****E	A++	-	6	136	-	41	60	A+++	-	6	189	-	41	60
SUZ-SHWM60VAH(-SC)	EHST17D-****E	A++	A+	6	126	142	41	60	A+++	A+	6	175	142	41	60
	ERST17D-****E	A++	A+	6	128	142	41	60	A+++	A+	6	178	142	41	60
	ERST17D-***BE	A++	A+	6	128	142	41	60	A+++	A+	6	178	142	41	60
	EHST20D-****E	A++	A+	6	126	148	41	60	A+++	A+	6	175	148	41	60
	ERST20D-****E	A++	A+	6	128	148	41	60	A+++	A+	6	178	148	41	60
	EHST30D-****E	A++	A+	6	126	125	41	60	A+++	A+	6	175	125	41	60
	ERST30D-****E	A++	A+	6	128	125	41	60	A+++	A+	6	178	125	41	60
	EHSD-****E	A++	-	6	126	-	41	60	A+++	-	6	175	-	41	60
	ERSD-****E	A++	-	6	128	-	41	60	A+++	-	6	178	-	41	60
SUZ-SWM80VA2	EHST17D-****E	A++	A+	7	133	142	41	60	A+++	A+	7	183	142	41	60
	ERST17D-****E	A++	A+	7	135	142	41	60	A+++	A+	7	187	142	41	60
	ERST17D-***BE	A++	A+	7	135	142	41	60	A+++	A+	7	187	142	41	60
	EHST20D-****E	A++	A+	7	133	148	41	60	A+++	A+	7	183	148	41	60
	ERST20D-****E	A++	A+	7	135	148	41	60	A+++	A+	7	187	148	41	60
	EHST30D-****E	A++	A+	7	133	125	41	60	A+++	A+	7	183	125	41	60
	ERST30D-****E	A++	A+	7	135	125	41	60	A+++	A+	7	187	125	41	60
	EHSD-****E	A++	-	7	133	-	41	60	A+++	-	7	183	-	41	60
	ERSD-****E	A++	-	7	135	-	41	60	A+++	-	7	187	-	41	60
SUZ-SWM80VAH2	EHST17D-****E	A++	A+	7	128	142	41	60	A+++	A+	7	175	142	41	60
	ERST17D-****E	A++	A+	7	130	142	41	60	A+++	A+	7	178	142	41	60
	ERST17D-***BE	A++	A+	7	130	142	41	60	A+++	A+	7	178	142	41	60
	EHST20D-****E	A++	A+	7	128	148	41	60	A+++	A+	7	175	148	41	60
	ERST20D-****E	A++	A+	7	130	148	41	60	A+++	A+	7	178	148	41	60
	EHST30D-****E	A++	A+	7	128	125	41	60	A+++	A+	7	175	125	41	60
	ERST30D-****E	A++	A+	7	130	125	41	60	A+++	A+	7	178	125	41	60
	EHSD-****E	A++	-	7	128	-	41	60	A+++	-	7	175	-	41	60
	ERSD-****E	A++	-	7	130	-	41	60	A+++	-	7	178	-	41	60
SUZ-SWM100VA	EHST17D-****E	A++	A+	8	133	142	41	62	A+++	A+	8	179	142	41	62
	ERST17D-****E	A++	A+	8	134	142	41	62	A+++	A+	8	182	142	41	62
	ERST17D-***BE	A++	A+	8	134	142	41	62	A+++	A+	8	182	142	41	62
	EHST20D-****E	A++	A+	8	133	148	41	62	A+++	A+	8	179	148	41	62
	ERST20D-****E	A++	A+	8	134	148	41	62	A+++	A+	8	182	148	41	62
	EHST30D-****E	A++	A+	8	133	125	41	62	A+++	A+	8	179	125	41	62
	ERST30D-****E	A++	A+	8	134	125	41	62	A+++	A+	8	182	125	41	62
	EHSD-****E	A++	-	8	133	-	41	62	A+++	-	8	179	-	41	62
	ERSD-****E	A++	-	8	134	-	41	62	A+++	-	8	182	-	41	62

Note: E**T17/20*-***E use “Load profile L”.
E**T30*-***E use “Load profile XL”.

Outdoor unit	Indoor unit	For medium-temperature application							For low-temperature application						
		Seasonal space heating energy efficiency class	Water heating energy efficiency class	Rated heat output under average climate conditions	Seasonal space heating energy efficiency under average climate conditions	Water heating energy efficiency under average climate conditions	Sound power level LWA indoor	Sound power level LWA outdoor	Seasonal space heating energy efficiency class	Water heating energy efficiency class	Rated heat output under average climate conditions	Seasonal space heating energy efficiency under average climate conditions	Water heating energy efficiency under average climate conditions	Sound power level LWA indoor	Sound power level LWA outdoor
				kW	%	%	dBA	dBA			kW	%	%	dBA	dBA
SUZ-SWM100VAH	EHST17D-****E	A++	A+	8	127	142	41	62	A++	A+	8	174	142	41	62
	ERST17D-****E	A++	A+	8	129	142	41	62	A+++	A+	8	177	142	41	62
	ERST17D-***BE	A++	A+	8	129	142	41	62	A+++	A+	8	177	142	41	62
	EHST20D-****E	A++	A+	8	127	148	41	62	A++	A+	8	174	148	41	62
	ERST20D-****E	A++	A+	8	129	148	41	62	A+++	A+	8	177	148	41	62
	EHST30D-****E	A++	A+	8	127	125	41	62	A++	A+	8	174	125	41	62
	ERST30D-****E	A++	A+	8	129	125	41	62	A+++	A+	8	177	125	41	62
	EHSD-****E	A++	-	8	127	-	41	62	A++	-	8	174	-	41	62
	ERSD-****E	A++	-	8	129	-	41	62	A+++	-	8	177	-	41	62
PUZ-SWM60VAA	ERST17D-***BE	A++	A+	6	128	126	41	54	A+++	A+	6	185	126	41	54
	ERST20F-****E	A++	A+	6	128	137	41	54	A+++	A+	6	185	137	41	54
	ERST30F-****E	A++	A+	6	128	130	41	54	A+++	A+	6	185	130	41	54
	ERSF-****E	A++	-	6	128	-	41	54	A+++	-	6	185	-	41	54
PUZ-SWM80V/YAA	ERST17D-***BE	A++	A+	8	130/130	126	41	54	A+++	A+	8	184/184	126	41	54
	ERST20F-****E	A++	A+	8	130/130	137	41	54	A+++	A+	8	184/184	137	41	54
	ERST30F-****E	A++	A+	8	130/130	130	41	54	A+++	A+	8	184/184	130	41	54
	ERSF-****E	A++	-	8	130/130	-	41	54	A+++	-	8	184/184	-	41	54
PUZ-SWM100V/YAA	ERST20F-****E	A++	A+	10	134/134	137	41	58	A+++	A+	10	181/180	137	41	58
	ERST30F-****E	A++	A+	10	134/134	130	41	58	A+++	A+	10	181/180	130	41	58
	ERSF-****E	A++	-	10	134/134	-	41	58	A+++	-	10	181/180	-	41	58
PUZ-SWM120V/YAA	ERST20F-****E	A++	A+	12	133/132	137	41	58	A+++	A+	12	179/179	137	41	58
	ERST30F-****E	A++	A+	12	133/132	130	41	58	A+++	A+	12	179/179	130	41	58
	ERSF-****E	A++	-	12	133/132	-	41	58	A+++	-	12	179/179	-	41	58
PUZ-SWM140V/YAA	ERST20F-****E	A++	A+	14	136/135	131	41	58	A+++	A+	14	178/177	131	41	58
	ERST30F-****E	A++	A	14	136/135	112	41	58	A+++	A	14	178/177	112	41	58
	ERSF-****E	A++	-	14	136/135	-	41	58	A+++	-	14	178/177	-	41	58
PUZ-SHWM60VAA	ERST17D-***BE	A++	A+	6	131	126	41	54	A+++	A+	6	188	126	41	54
	ERST20F-****E	A++	A+	6	131	137	41	54	A+++	A+	6	188	137	41	54
	ERST30F-****E	A++	A+	6	131	130	41	54	A+++	A+	6	188	130	41	54
	ERSF-****E	A++	-	6	131	-	41	54	A+++	-	6	188	-	41	54
PUZ-SHWM80V/YAA	ERST17D-***BE	A++	A+	8	134/133	126	41	54	A+++	A+	8	188/187	126	41	54
	ERST20F-****E	A++	A+	8	134/133	137	41	54	A+++	A+	8	188/187	137	41	54
	ERST30F-****E	A++	A+	8	134/133	130	41	54	A+++	A+	8	188/187	130	41	54
	ERSF-****E	A++	-	8	134/133	-	41	54	A+++	-	8	188/187	-	41	54
PUZ-SHWM100V/YAA	ERST20F-****E	A++	A+	10	138/138	137	41	58	A+++	A+	10	186/186	137	41	58
	ERST30F-****E	A++	A+	10	138/138	130	41	58	A+++	A+	10	186/186	130	41	58
	ERSF-****E	A++	-	10	138/138	-	41	58	A+++	-	10	186/186	-	41	58
PUZ-SHWM120V/YAA	ERST20F-****E	A++	A+	12	138/138	137	41	58	A+++	A+	12	182/182	137	41	58
	ERST30F-****E	A++	A+	12	138/138	130	41	58	A+++	A+	12	182/182	130	41	58
	ERSF-****E	A++	-	12	138/138	-	41	58	A+++	-	12	182/182	-	41	58
PUZ-SHWM140V/YAA	ERST20F-****E	A++	A+	14	142/142	131	41	58	A+++	A+	14	185/185	131	41	58
	ERST30F-****E	A++	A	14	142/142	112	41	58	A+++	A	14	185/185	112	41	58
	ERSF-****E	A++	-	14	142/142	-	41	58	A+++	-	14	185/185	-	41	58

Note: E**T17/20*-***E use “Load profile L”.
E**T30*-***E use “Load profile XL”.

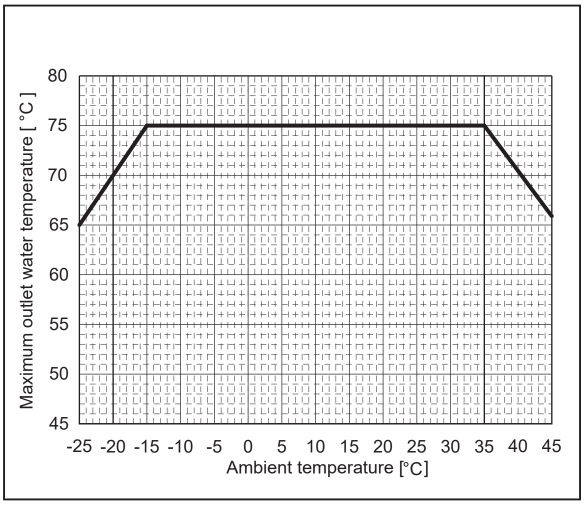
Outdoor unit	Indoor unit	For medium-temperature application							For low-temperature application						
		Seasonal space heating energy efficiency class	Water heating energy efficiency class	Rated heat output under average climate conditions	Seasonal space heating energy efficiency under average climate conditions	Water heating energy efficiency under average climate conditions	Sound power level LWA indoor	Sound power level LWA outdoor	Seasonal space heating energy efficiency class	Water heating energy efficiency class	Rated heat output under average climate conditions	Seasonal space heating energy efficiency under average climate conditions	Water heating energy efficiency under average climate conditions	Sound power level LWA indoor	Sound power level LWA outdoor
				kW	%	%	dBA	dBA			kW	%	%	dBA	dBA
PUMY-P112VKM6(-BS)	ERST20C-****E	A+	A	11	121	105	40	69	A++	A	11	168	105	40	69
	ERSC-****E	A+	-	11	121	-	40	69	A++	-	11	168	-	40	69
PUMY-P125VKM6(-BS)	ERST20C-****E	A+	A	11	121	105	40	69	A++	A	11	168	105	40	69
	ERSC-****E	A+	-	11	121	-	40	69	A++	-	11	168	-	40	69
PUMY-P140VKM6(-BS)	ERST20C-****E	A+	A	11	121	105	40	69	A++	A	11	168	105	40	69
	ERSC-****E	A+	-	11	121	-	40	69	A++	-	11	168	-	40	69
PUMY-P112YKM5(-BS)	ERST20C-****E	A+	A	11	121	105	40	69	A++	A	11	168	105	40	69
	ERSC-****E	A+	-	11	121	-	40	69	A++	-	11	168	-	40	69
PUMY-P125YKM5(-BS)	ERST20C-****E	A+	A	11	121	105	40	69	A++	A	11	168	105	40	69
	ERSC-****E	A+	-	11	121	-	40	69	A++	-	11	168	-	40	69
PUMY-P140YKM5(-BS)	ERST20C-****E	A+	A	11	121	105	40	69	A++	A	11	168	105	40	69
	ERSC-****E	A+	-	11	121	-	40	69	A++	-	11	168	-	40	69
PXZ-4F75VG	EHST17D-****E	A+	A+	6	113	121	41	67	A++	A+	6	154	121	41	67
	ERST17D-****E	A+	A+	6	113	121	41	67	A++	A+	6	154	121	41	67
	EHST20D-****E	A+	A+	6	113	130	41	67	A++	A+	6	154	130	41	67
	ERST20D-****E	A+	A+	6	113	130	41	67	A++	A+	6	154	130	41	67
	EHST30D-****E	A+	A	6	113	116	41	67	A++	A	6	154	116	41	67
	ERST30D-****E	A+	A	6	113	116	41	67	A++	A	6	154	116	41	67
	EHSD-****E	A+	-	6	113	-	41	67	A++	-	6	154	-	41	67
	ERSD-****E	A+	-	6	113	-	41	67	A++	-	6	154	-	41	67
PXZ-5F85VG	EHST17D-****E	A+	A+	7	111	125	41	64	A++	A+	7	157	125	41	64
	ERST17D-****E	A+	A+	7	111	125	41	64	A++	A+	7	157	125	41	64
	EHST20D-****E	A+	A+	7	111	135	41	64	A++	A+	7	157	135	41	64
	ERST20D-****E	A+	A+	7	111	135	41	64	A++	A+	7	157	135	41	64
	EHST30D-****E	A+	A	7	111	119	41	64	A++	A	7	157	119	41	64
	ERST30D-****E	A+	A	7	111	119	41	64	A++	A	7	157	119	41	64
	EHSD-****E	A+	-	7	111	-	41	64	A++	-	7	157	-	41	64
	ERSD-****E	A+	-	7	111	-	41	64	A++	-	7	157	-	41	64

Note: E**T17/20*-***E use “Load profile L”.
E**T30*-***E use “Load profile XL”.

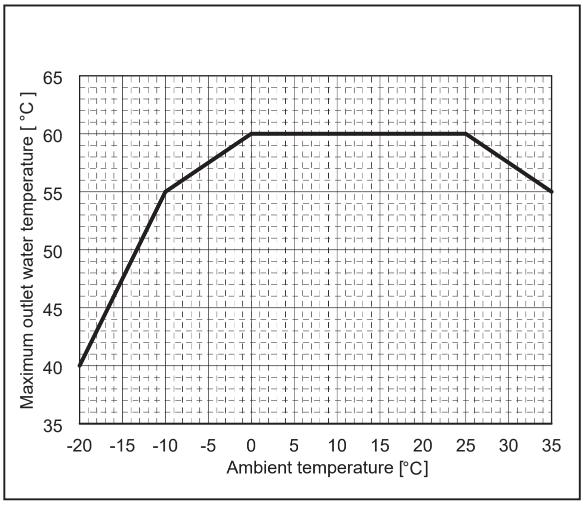
1.3 Maximum outlet water temperature

(1) Packaged-type units

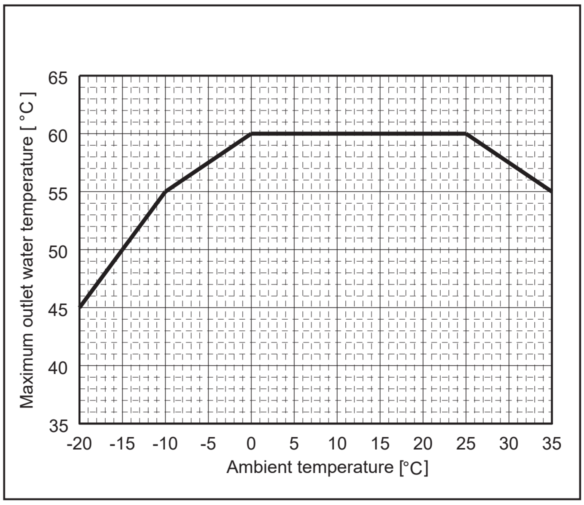
PUZ-WZ50VAA(-BS)
PUZ-WZ60VAA(-BS)
PUZ-WZ80VAA(-BS)



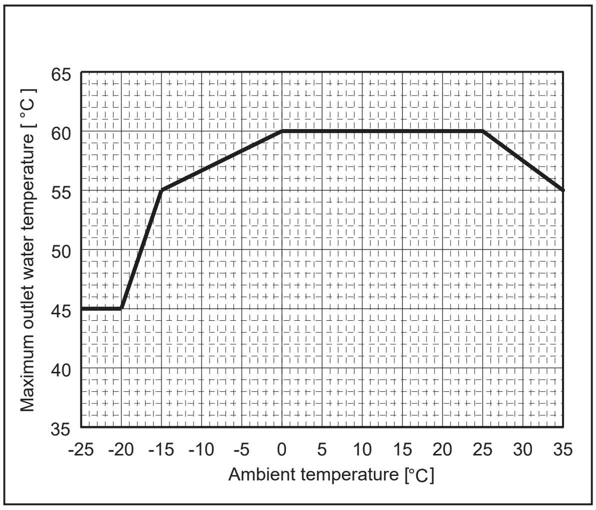
PUZ-WM50VHA(-BS)



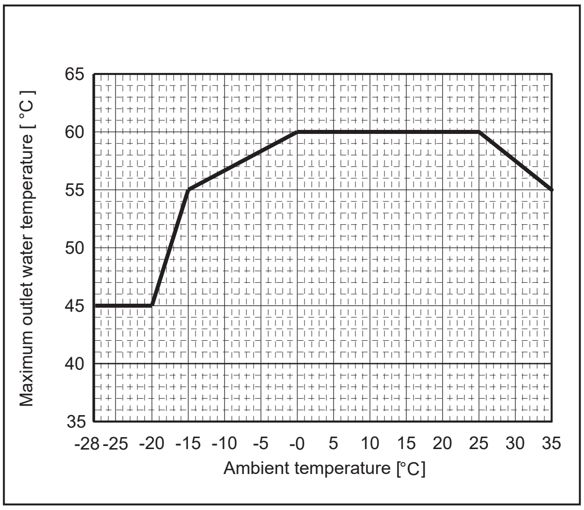
PUZ-WM60VAA(-BS)
PUZ-WM85VAA(-BS)
PUZ-WM85YAA(-BS)



PUZ-WM112VAA(-BS)
PUZ-WM112YAA(-BS)

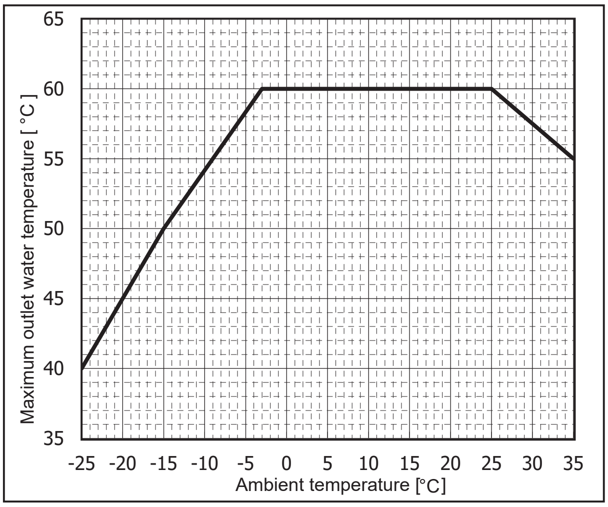


PUZ-HWM140VHA(-BS)
PUZ-HWM140YHA(-BS)

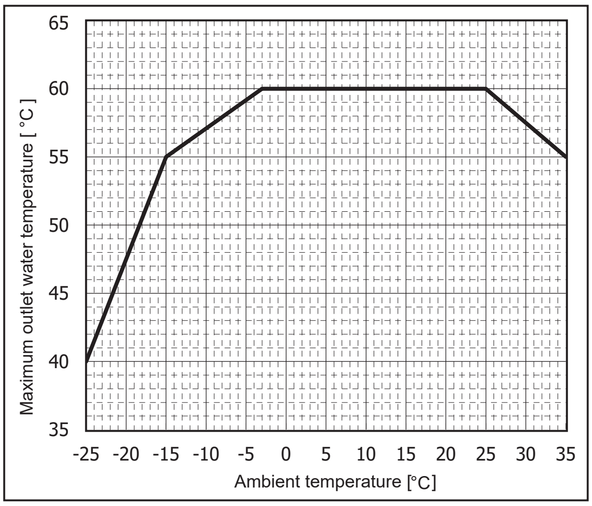


(2) Split-type units

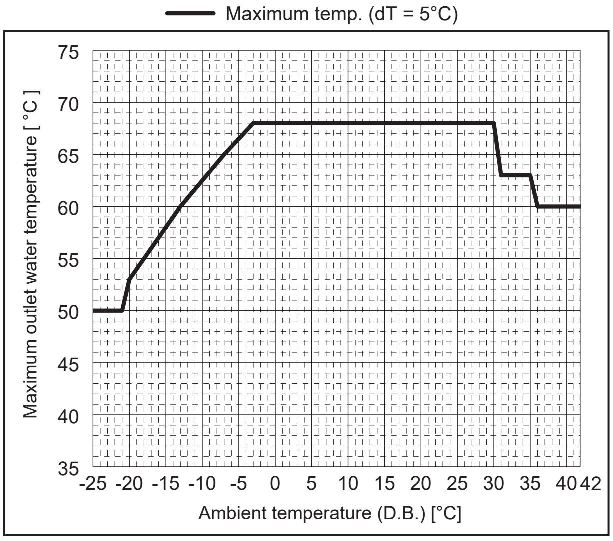
SUZ-SWM30VA
SUZ-SHWM30VAH
SUZ-SWM40VA2(-SC)
SUZ-SHWM40VAH(-SC)
SUZ-SWM60VA2(-SC)



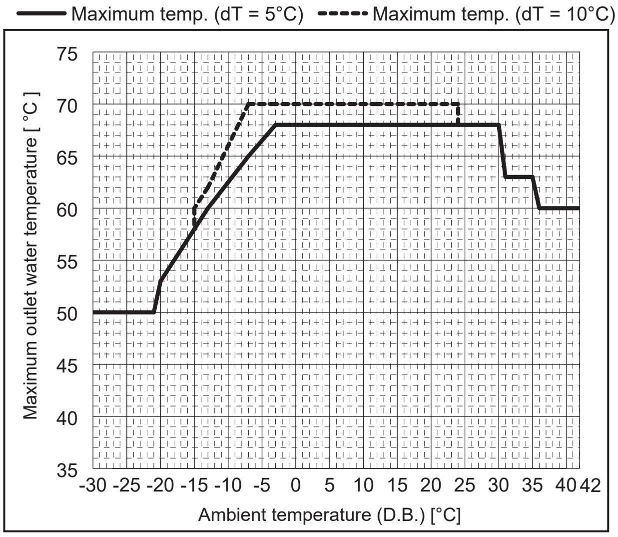
SUZ-SHWM60VAH(-SC)
SUZ-SWM80VA2
SUZ-SWM80VAH2
SUZ-SWM100VA
SUZ-SWM100VAH



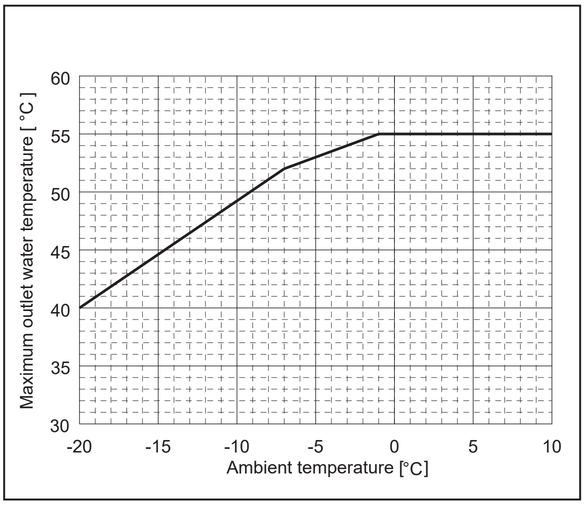
PUZ-SWM60VAA
PUZ-SWM80VAA
PUZ-SWM80YAA
PUZ-SWM100VAA
PUZ-SWM100YAA
PUZ-SWM120VAA
PUZ-SWM120YAA
PUZ-SWM140VAA
PUZ-SWM140YAA



PUZ-SHWM60VAA
PUZ-SHWM80VAA
PUZ-SHWM80YAA
PUZ-SHWM100VAA
PUZ-SHWM100YAA
PUZ-SHWM120VAA
PUZ-SHWM120YAA
PUZ-SHWM140VAA
PUZ-SHWM140YAA



PXZ-4F75VG
PXZ-5F85VG

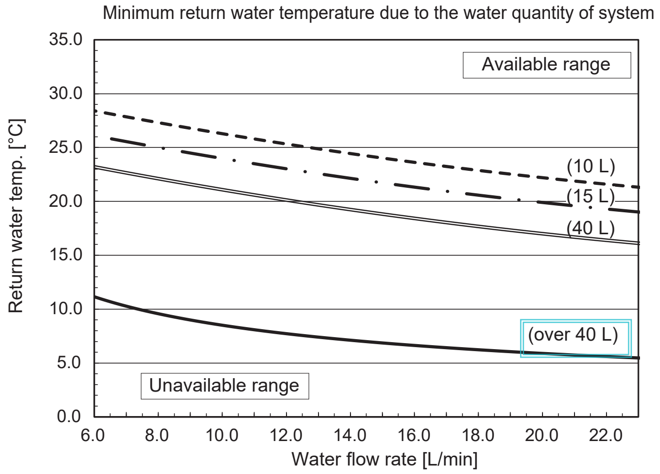


1.4 Available range (Water flow rate, return water temp.)

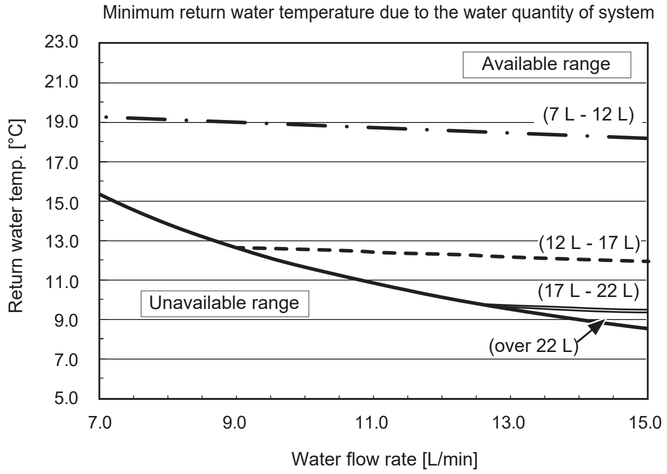
(1) Packaged-type units

■ Heating

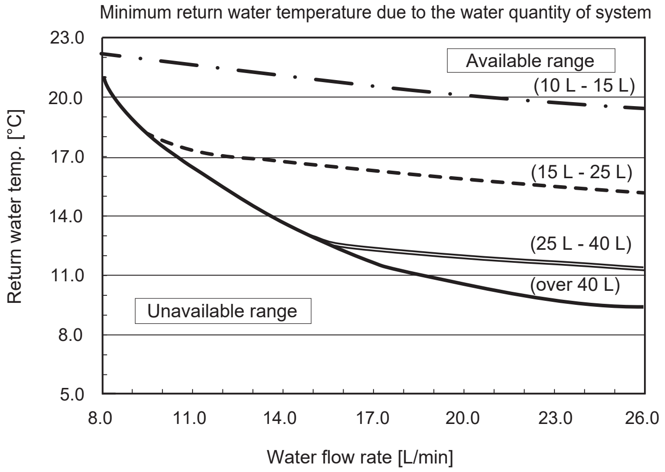
PUZ-WZ50VAA(-BS) PUZ-WZ60VAA(-BS) PUZ-WZ80VAA(-BS)



PUZ-WM50VHA(-BS)

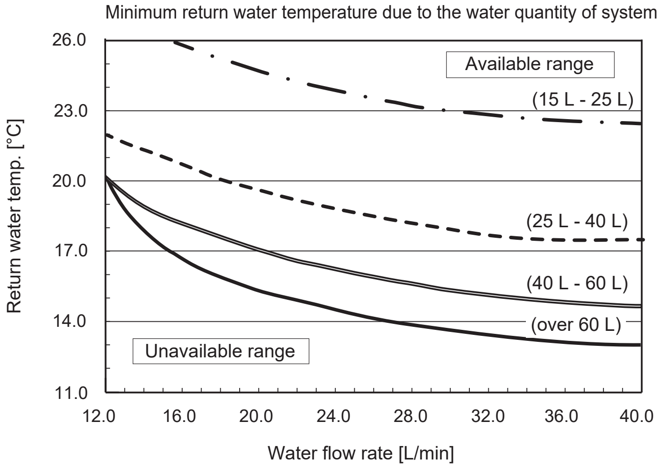


PUZ-WM60VAA(-BS) PUZ-WM85VAA(-BS) PUZ-WM85YAA(-BS)

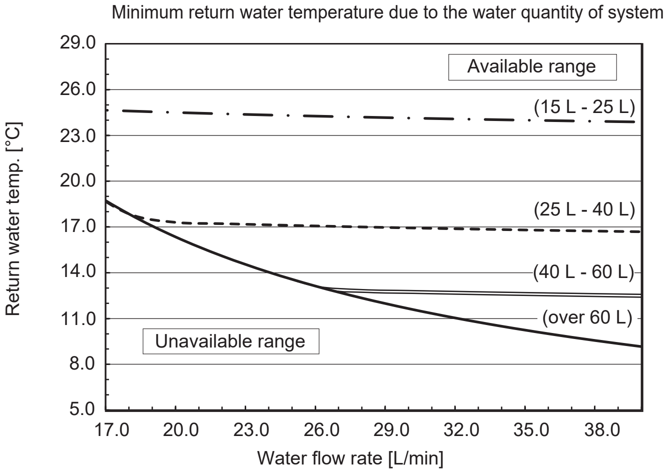


Note:
Be sure to avoid the unavailable range during defrosting.
Otherwise, the outdoor unit is insufficiently defrosted and/or the heat exchanger of the indoor unit may freeze.

PUZ-WM112VAA(-BS) PUZ-WM112YAA(-BS)



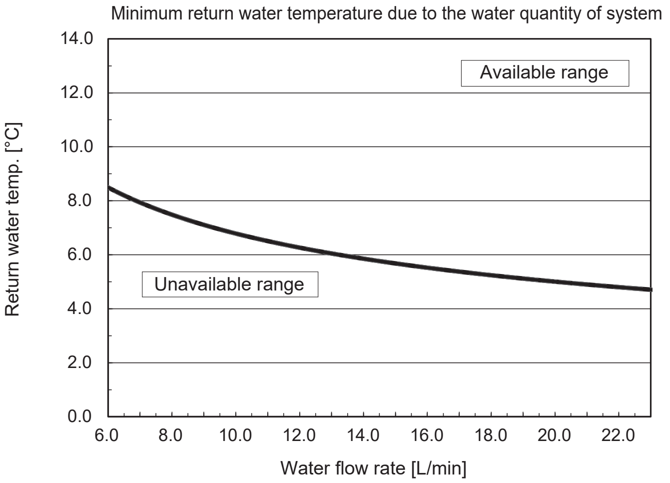
PUZ-HWM140VHA(-BS) PUZ-HWM140YHA(-BS)



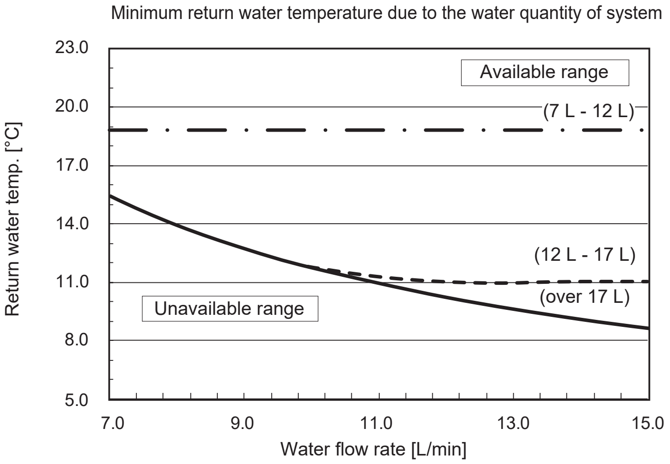
Note:
Be sure to avoid the unavailable range during defrosting.
Otherwise, the outdoor unit is insufficiently defrosted and/or the heat exchanger of the indoor unit may freeze.

■ Cooling

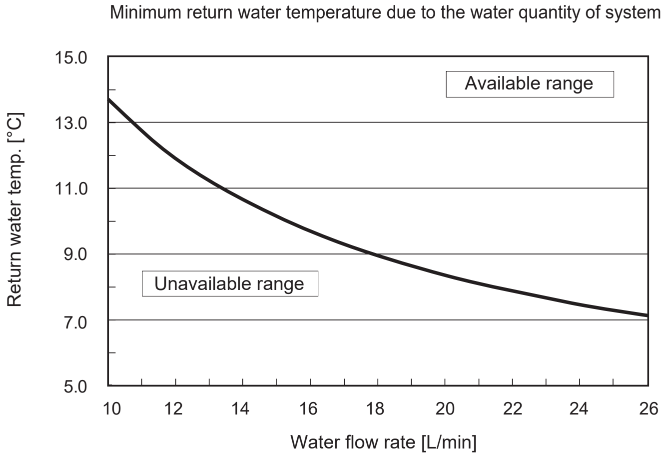
PUZ-WZ50VAA(-BS) PUZ-WZ60VAA(-BS) PUZ-WZ80VAA(-BS)



PUZ-WM50VHA(-BS)

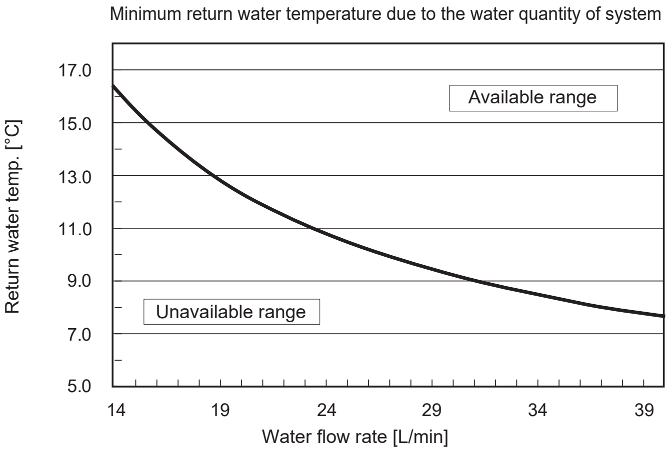


PUZ-WM60VAA(-BS) PUZ-WM85VAA(-BS) PUZ-WM85YAA(-BS)

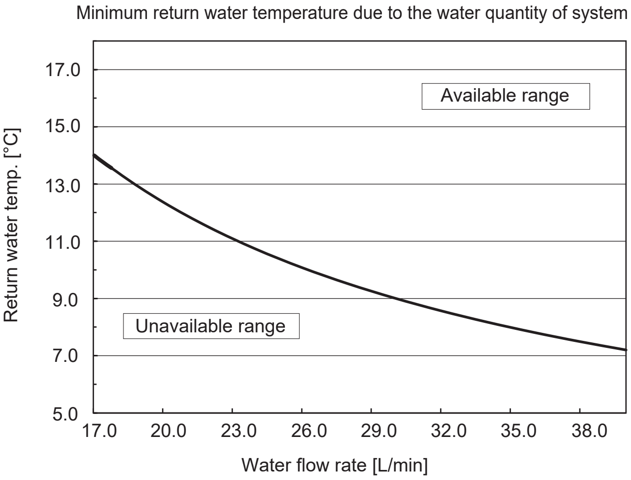


Note:
Be sure to avoid the unavailable range during defrosting.
Otherwise, the outdoor unit is insufficiently defrosted and/or the heat exchanger of the indoor unit may freeze.

PUZ-WM112VAA(-BS) PUZ-WM112YAA(-BS)



PUZ-HWM140VHA(-BS) PUZ-HWM140YHA(-BS)

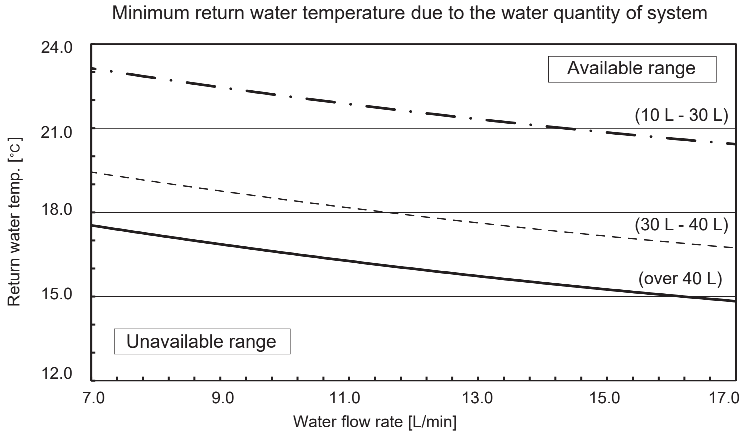


Note:
Be sure to avoid the unavailable range during defrosting.
Otherwise, the outdoor unit is insufficiently defrosted and/or the heat exchanger of the indoor unit may freeze.

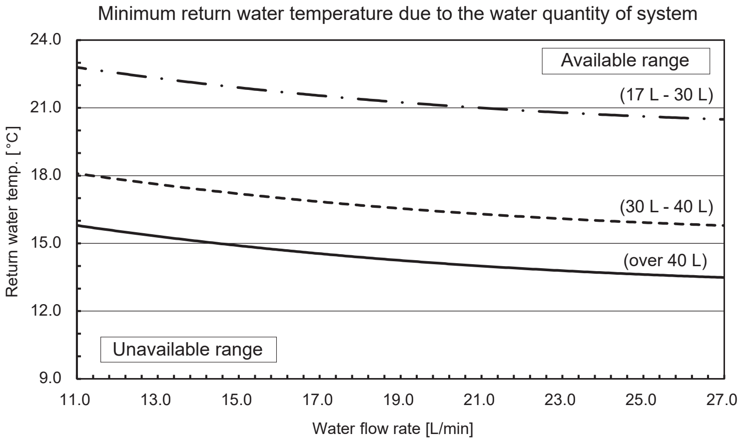
(2) Split-type units

■ Heating

SUZ-SWM30VA SUZ-SHWM30VAH
SUZ-SWM40VA2 SUZ-SHWM40VAH
SUZ-SWM60VA2

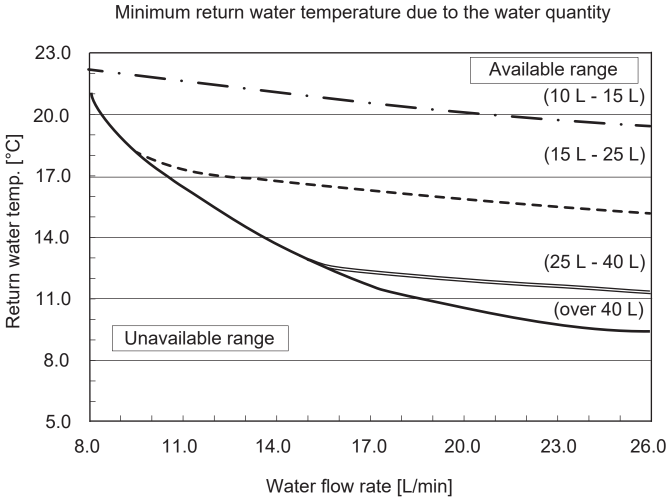


SUZ-SHWM60VAH
SUZ-SWM80VA(H)2
SUZ-SWM100VA(H)

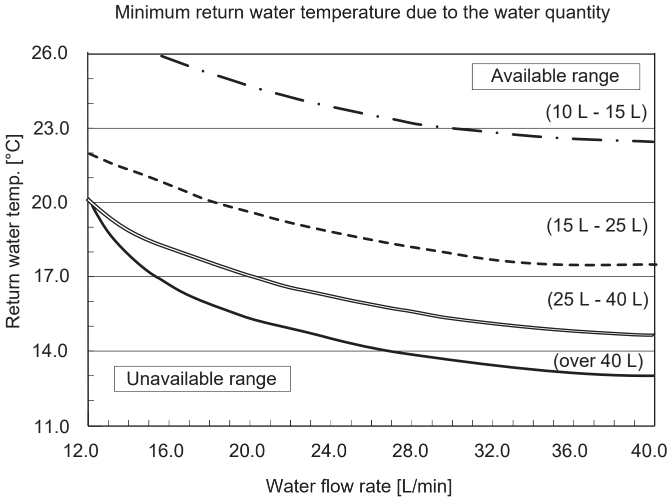


Note:
Be sure to avoid the unavailable range during defrosting.
Otherwise, the outdoor unit is insufficiently defrosted and/or the heat exchanger of the indoor unit may freeze.

PUZ-SWM60VAA PUZ-SWM80VAA PUZ-SWM80YAA PUZ-SWM100VAA PUZ-SWM100YAA
PUZ-SHWM60VAA PUZ-SHWM80VAA PUZ-SHWM80YAA PUZ-SHWM100VAA PUZ-SHWM100YAA



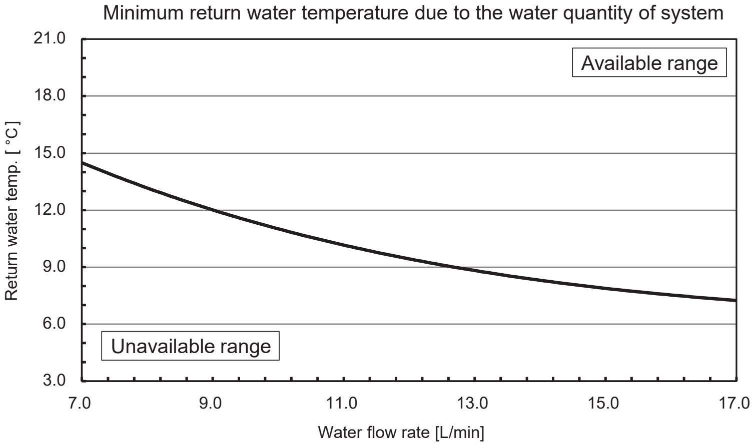
PUZ-SWM120VAA PUZ-SWM120YAA PUZ-SWM140VAA PUZ-SWM140YAA
PUZ-SHWM120VAA PUZ-SHWM120YAA PUZ-SHWM140VAA PUZ-SHWM140YAA



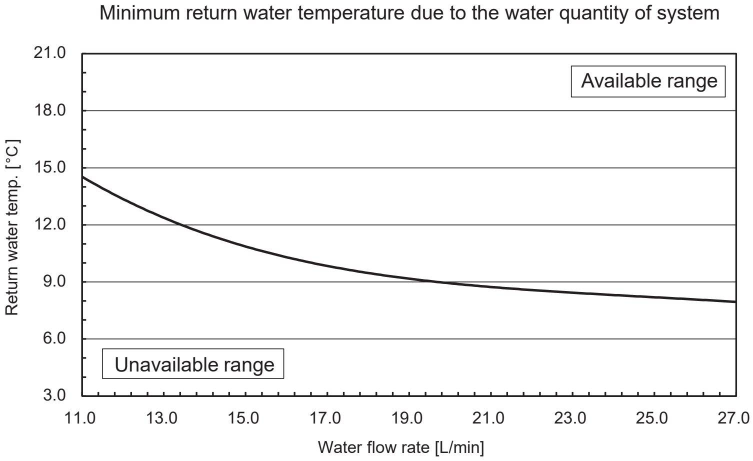
Note:
Be sure to avoid the unavailable range during defrosting.
Otherwise, the outdoor unit is insufficiently defrosted and/or the heat exchanger of the indoor unit may freeze.

■ Cooling

SUZ-SWM30VA SUZ-SHWM30VAH
SUZ-SWM40VA2 SUZ-SHWM40VAH
SUZ-SWM60VA2

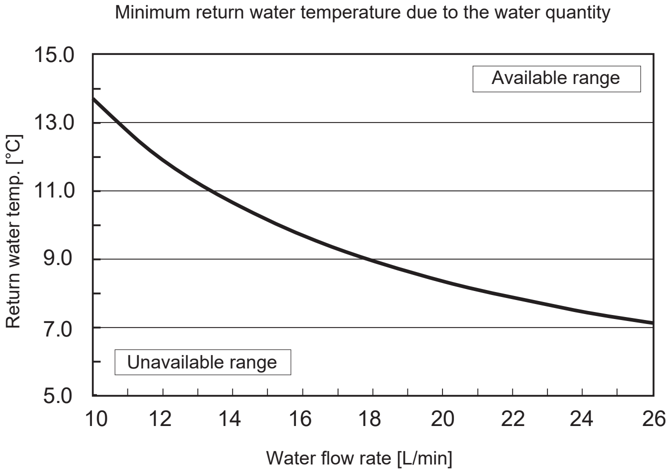


SUZ-SHWM60VAH
SUZ-SWM80VA(H)2
SUZ-SWM100VA(H)

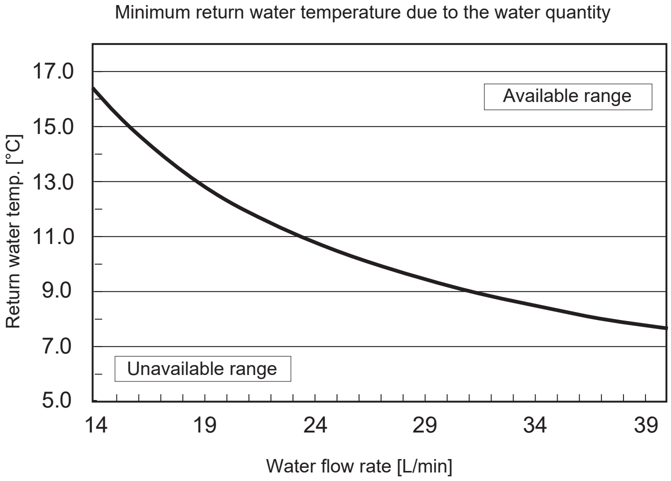


Note:
Be sure to avoid the unavailable range during defrosting.
Otherwise, the outdoor unit is insufficiently defrosted and/or the heat exchanger of the indoor unit may freeze.

PUZ-SWM60VAA PUZ-SWM80VAA PUZ-SWM80YAA PUZ-SWM100VAA PUZ-SWM100YAA
PUZ-SHWM60VAA PUZ-SHWM80VAA PUZ-SHWM80YAA PUZ-SHWM100VAA PUZ-SHWM100YAA

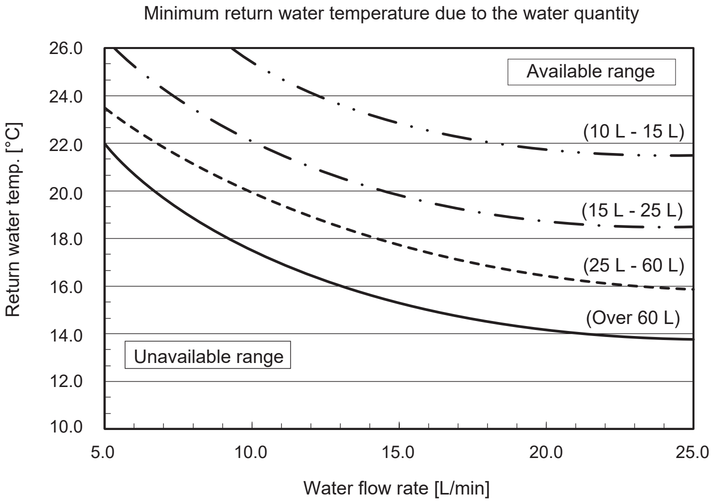


PUZ-SWM120VAA PUZ-SWM120YAA PUZ-SWM140VAA PUZ-SWM140YAA
PUZ-SHWM120VAA PUZ-SHWM120YAA PUZ-SHWM140VAA PUZ-SHWM140YAA

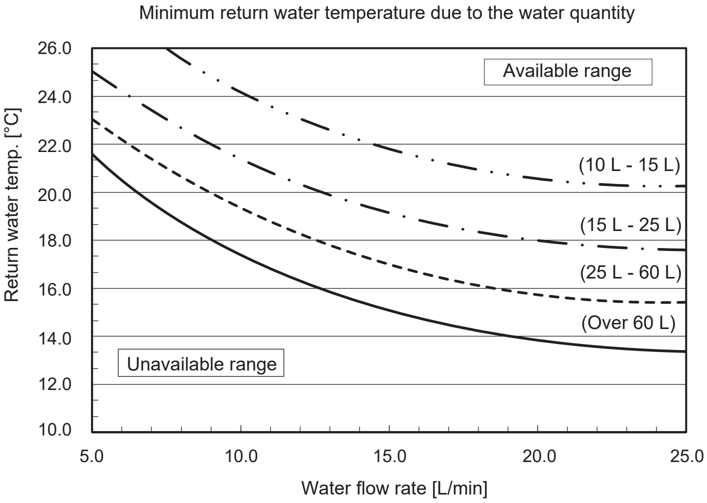


Note:
Be sure to avoid the unavailable range during defrosting.
Otherwise, the outdoor unit is insufficiently defrosted and/or the heat exchanger of the indoor unit may freeze.

PXZ-4F75VG



PXZ-5F85VG

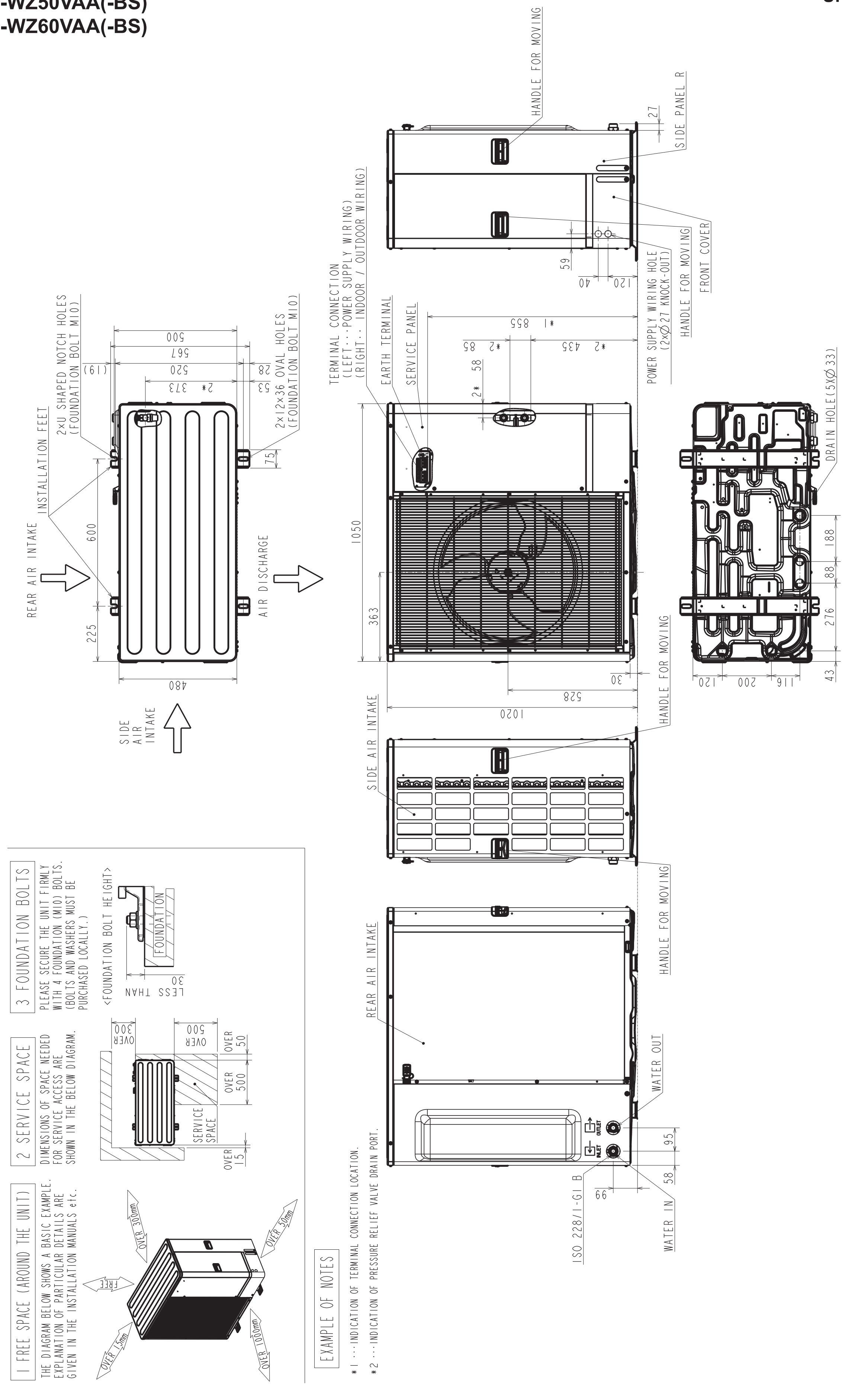


Note:
Be sure to avoid the unavailable range during defrosting.
Otherwise, the outdoor unit is insufficiently defrosted and/or the heat exchanger of the indoor unit may freeze.

(1)Packaged-type units

■ **PUZ-WZ50VAA(-BS)**
PUZ-WZ60VAA(-BS)

Unit : mm



1 FREE SPACE (AROUND THE UNIT)

THE DIAGRAM BELOW SHOWS A BASIC EXAMPLE. EXPLANATION OF PARTICULAR DETAILS ARE GIVEN IN THE INSTALLATION MANUALS etc.

2 SERVICE SPACE

DIMENSIONS OF SPACE NEEDED FOR SERVICE ACCESS ARE SHOWN IN THE BELOW DIAGRAM.

3 FOUNDATION BOLTS

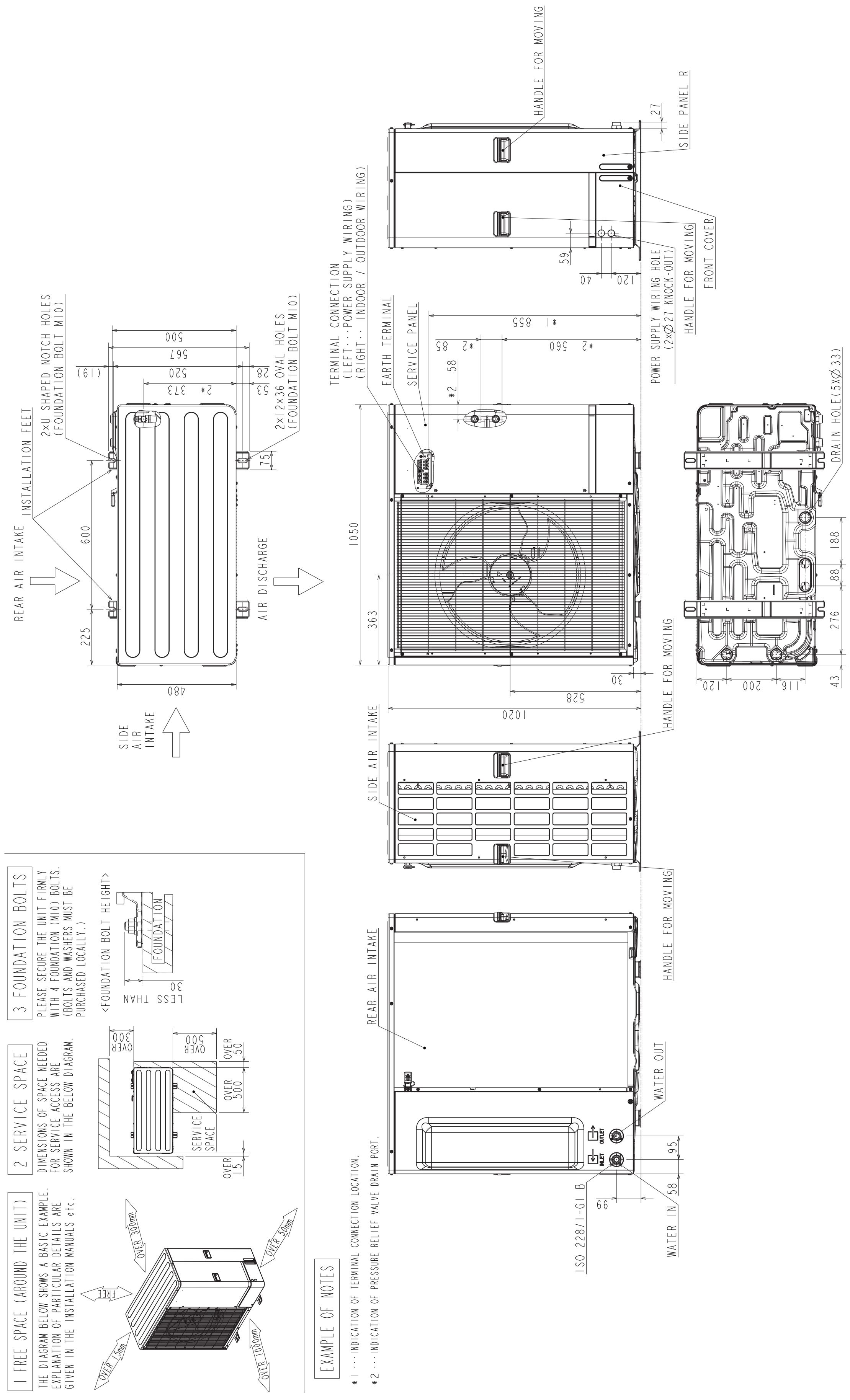
PLEASE SECURE THE UNIT FIRMLY WITH 4 FOUNDATION (M10) BOLTS. (BOLTS AND WASHERS MUST BE PURCHASED LOCALLY.)

EXAMPLE OF NOTES

*1 ···INDICATION OF TERMINAL CONNECTION LOCATION.
*2 ···INDICATION OF PRESSURE RELIEF VALVE DRAIN PORT.

■ PUZ-WZ80VAA(-BS)

Unit : mm



1 FREE SPACE (AROUND THE UNIT)

THE DIAGRAM BELOW SHOWS A BASIC EXAMPLE. EXPLANATION OF PARTICULAR DETAILS ARE GIVEN IN THE INSTALLATION MANUALS etc.

2 SERVICE SPACE

DIMENSIONS OF SPACE NEEDED FOR SERVICE ACCESS ARE SHOWN IN THE BELOW DIAGRAM.

3 FOUNDATION BOLTS

PLEASE SECURE THE UNIT FIRMLY WITH 4 FOUNDATION (M10) BOLTS. (BOLTS AND WASHERS MUST BE PURCHASED LOCALLY.)

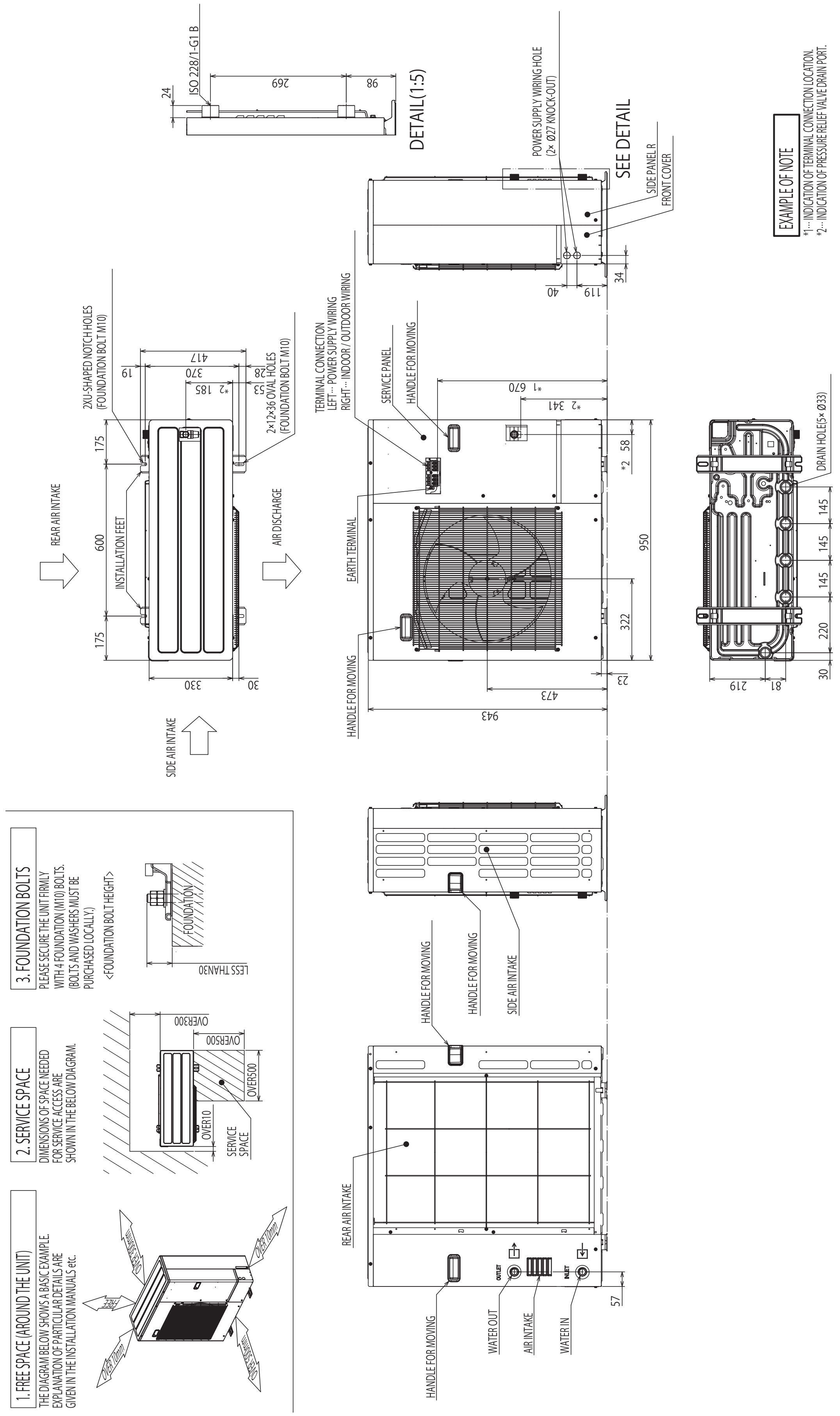
EXAMPLE OF NOTES

*1 ···INDICATION OF TERMINAL CONNECTION LOCATION.

*2 ···INDICATION OF PRESSURE RELIEF VALVE DRAIN PORT.

■ PUZ-WM50VHA(-BS)

Unit : mm



EXAMPLE OF NOTE

*1··· INDICATION OF TERMINAL CONNECTION LOCATION.

*2··· INDICATION OF PRESSURE RELIEF VALVE DRAIN PORT.

1. FREE SPACE (AROUND THE UNIT)

THE DIAGRAM BELOW SHOWS A BASIC EXAMPLE. EXPLANATION OF PARTICULAR DETAILS ARE GIVEN IN THE INSTALLATION MANUALS etc.

2. SERVICE SPACE

DIMENSIONS OF SPACE NEEDED FOR SERVICE ACCESS ARE SHOWN IN THE BELOW DIAGRAM.

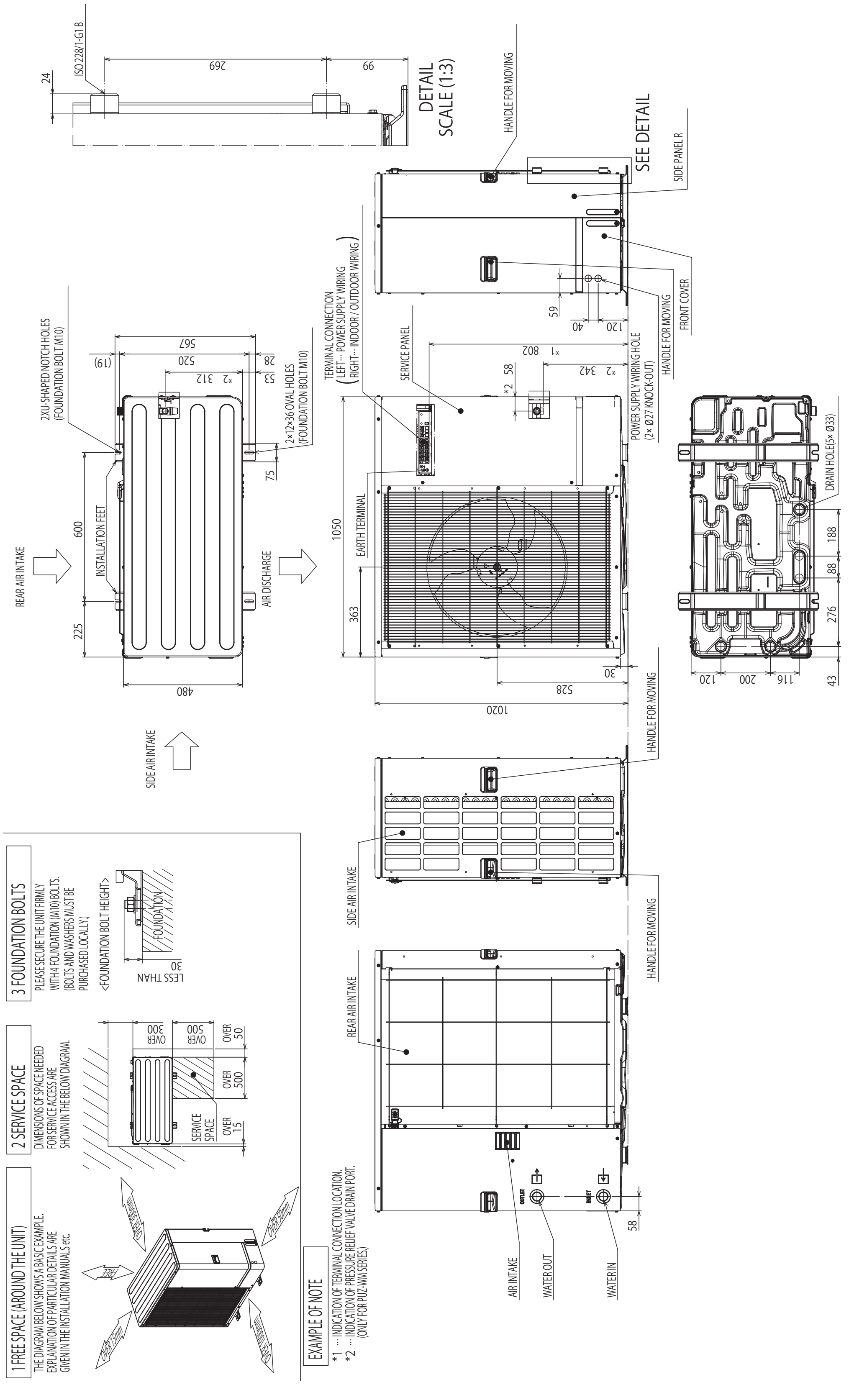
3. FOUNDATION BOLTS

PLEASE SECURE THE UNIT FIRMLY WITH 4 FOUNDATION (M10) BOLTS. (BOLTS AND WASHERS MUST BE PURCHASED LOCALLY.)

<FOUNDATION BOLT HEIGHT>

■ PUZ-WM60VAA(-BS)
PUZ-WM85VAA(-BS)
PUZ-WM85YAA(-BS)
PUZ-WM112VAA(-BS)
PUZ-WM112YAA(-BS)

Unit : mm



1 FREE SPACE (AROUND THE UNIT)

THE DIAGRAM BELOW SHOWS A BASIC EXAMPLE. EXPLANATION OF PARTICULAR DETAILS ARE GIVEN IN THE INSTALLATION MANUALS etc.

2 SERVICE SPACE

DIMENSIONS OF SPACE NEEDED FOR SERVICE ACCESS ARE SHOWN IN THE BELOW DIAGRAM.

3 FOUNDATION BOLTS

PLEASE SECURE THE UNIT FIRMLY WITH 4 FOUNDATION (M10) BOLTS. (BOLTS AND WASHERS MUST BE PURCHASED LOCALLY.)

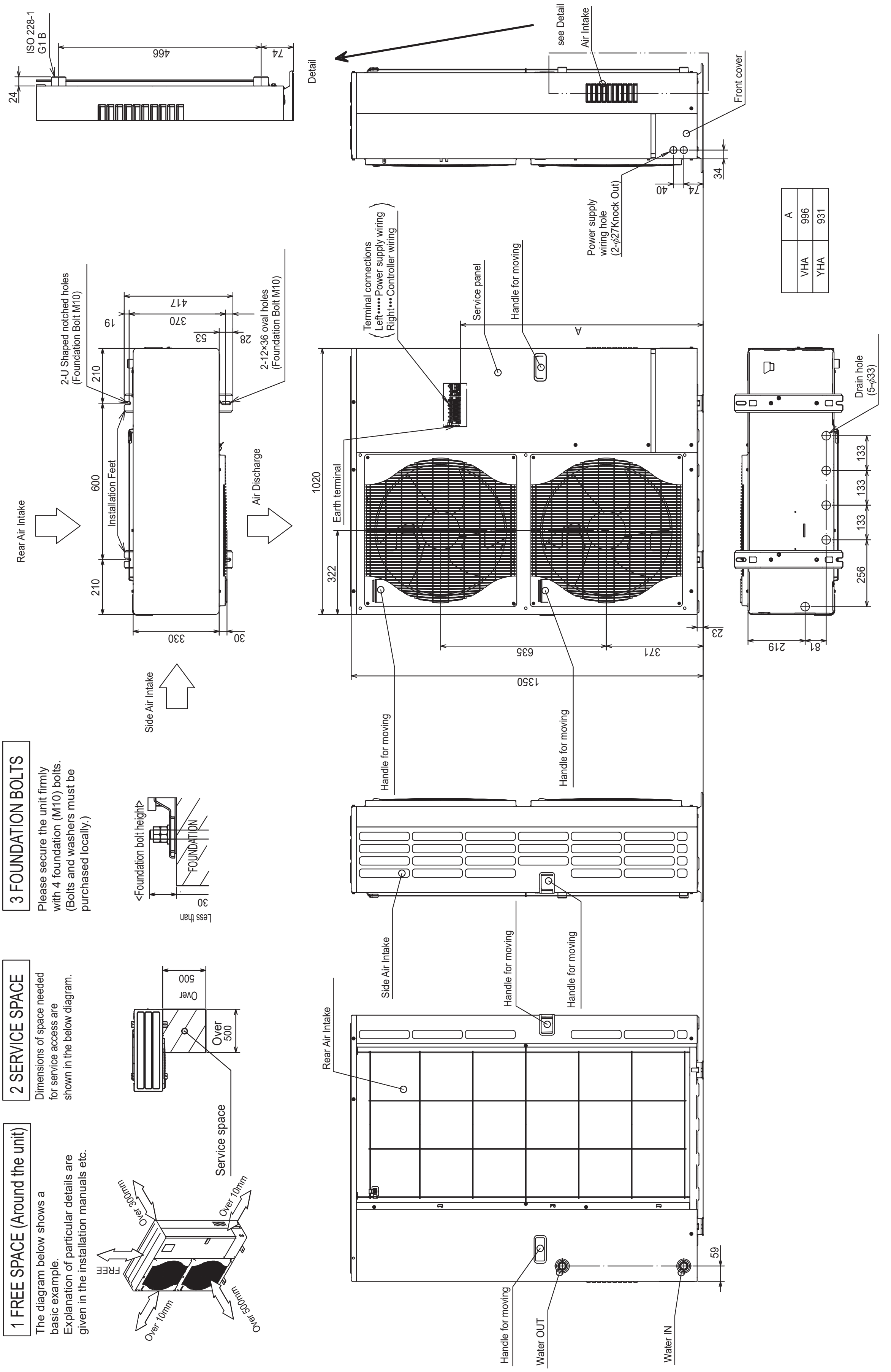
<FOUNDATION BOLT HEIGHT>

EXAMPLE OF NOTE

*1 ··· INDICATION OF TERMINAL CONNECTION LOCATION.
*2 ··· INDICATION OF PRESSURE RELIEF VALVE DRAIN PORT. (ONLY FOR PUZ-WM SERIES)

■ PUZ-HWM140VHA(-BS)
PUZ-HWM140YHA(-BS)

Unit : mm



	A
VHA	996
YHA	931

1 FREE SPACE (Around the unit)

The diagram below shows a basic example.
Explanation of particular details are given in the installation manuals etc.

2 SERVICE SPACE

Dimensions of space needed for service access are shown in the below diagram.

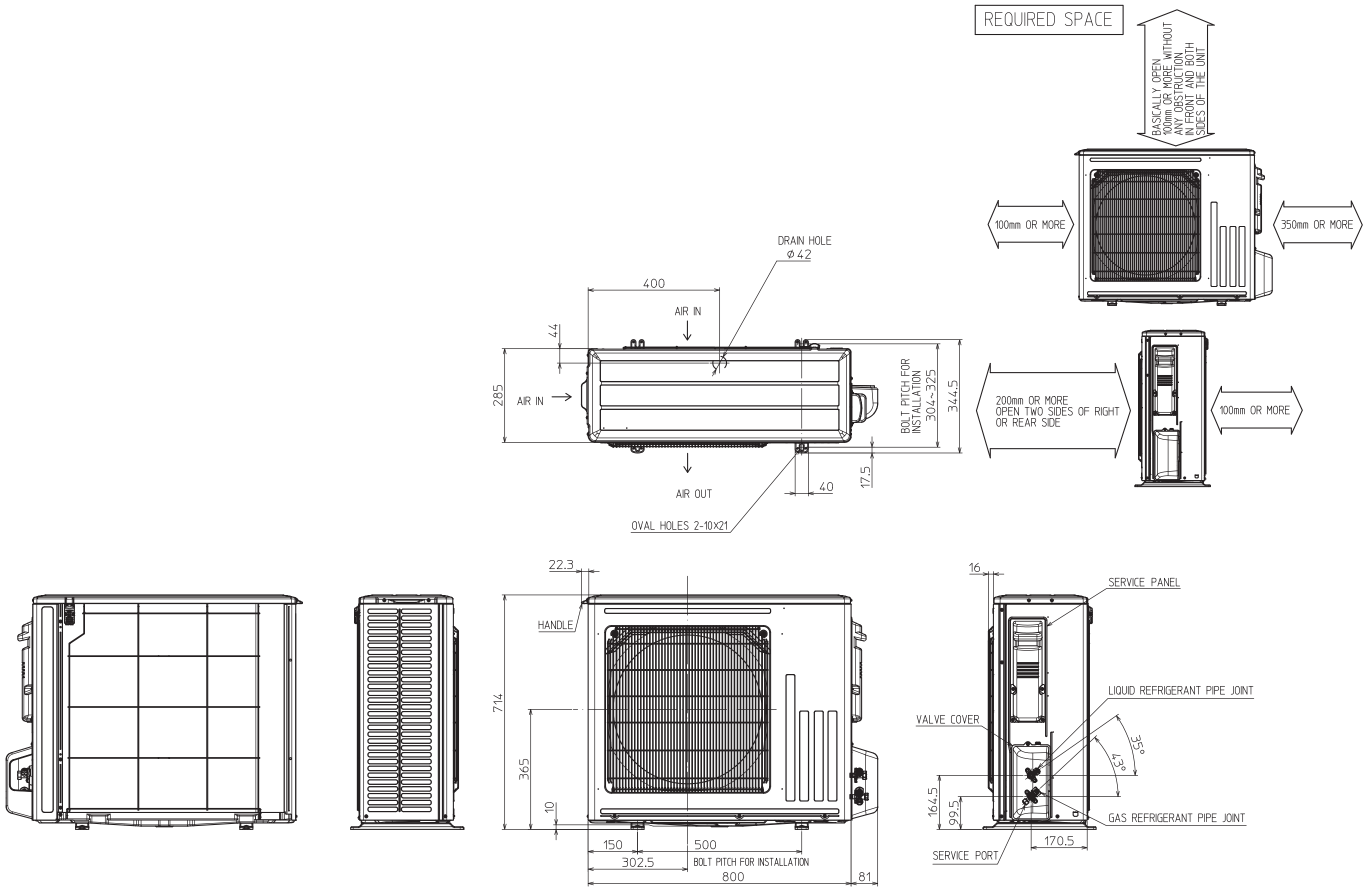
3 FOUNDATION BOLTS

Please secure the unit firmly with 4 foundation (M10) bolts. (Bolts and washers must be purchased locally.)

(2)Split-type units

Unit : mm

- **SUZ-SWM30VA**
  SUZ-SHWM30VAH
  SUZ-SWM40VA2(-SC)
  SUZ-SHWM40VAH(-SC)
  SUZ-SWM60VA2(-SC)

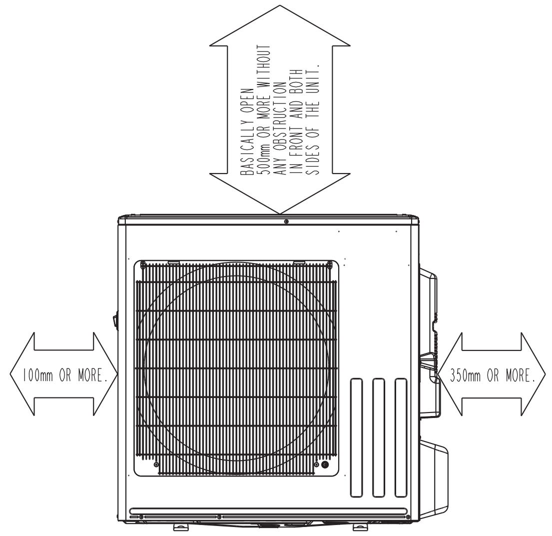


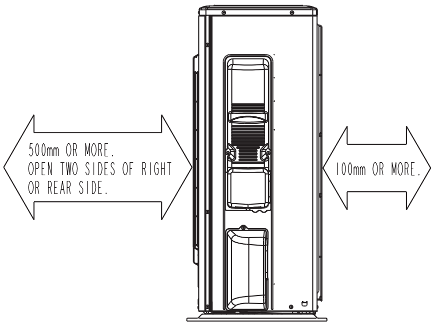
REFRIGERANT PIPE JOINT	LIQUID REFRIGERANT PIPE	FLARED 6.35(1/4")
	GAS REFRIGERANT PIPE	FLARED 12.7(1/2")

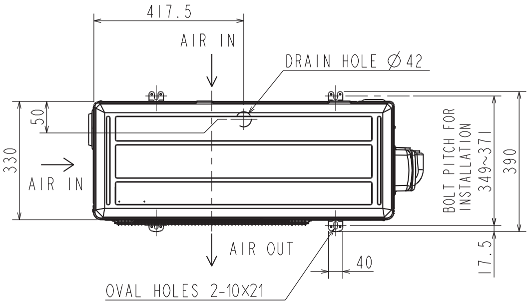
■ **SUZ-SHWM60VAH(-SC)**
SUZ-SWM80VA2
SUZ-SWM80VAH2
SUZ-SWM100VA
SUZ-SWM100VAH

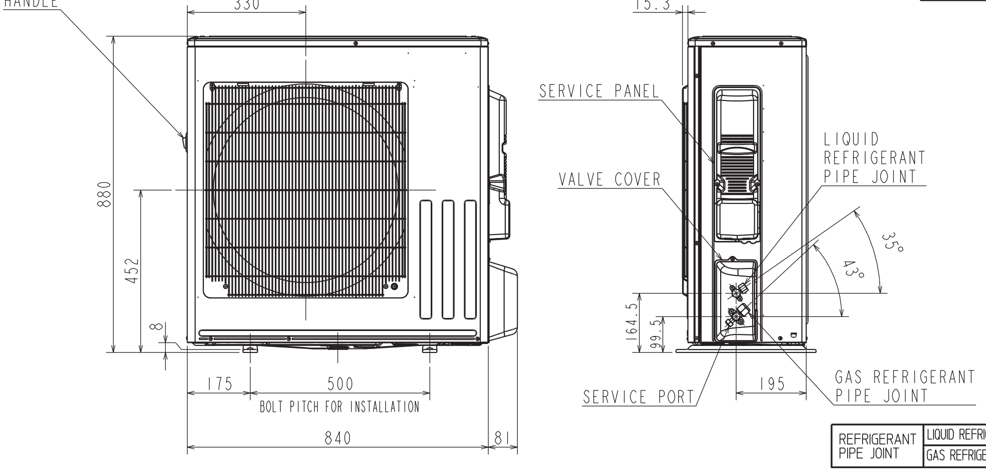
Unit : mm

REQUIRED SPACE



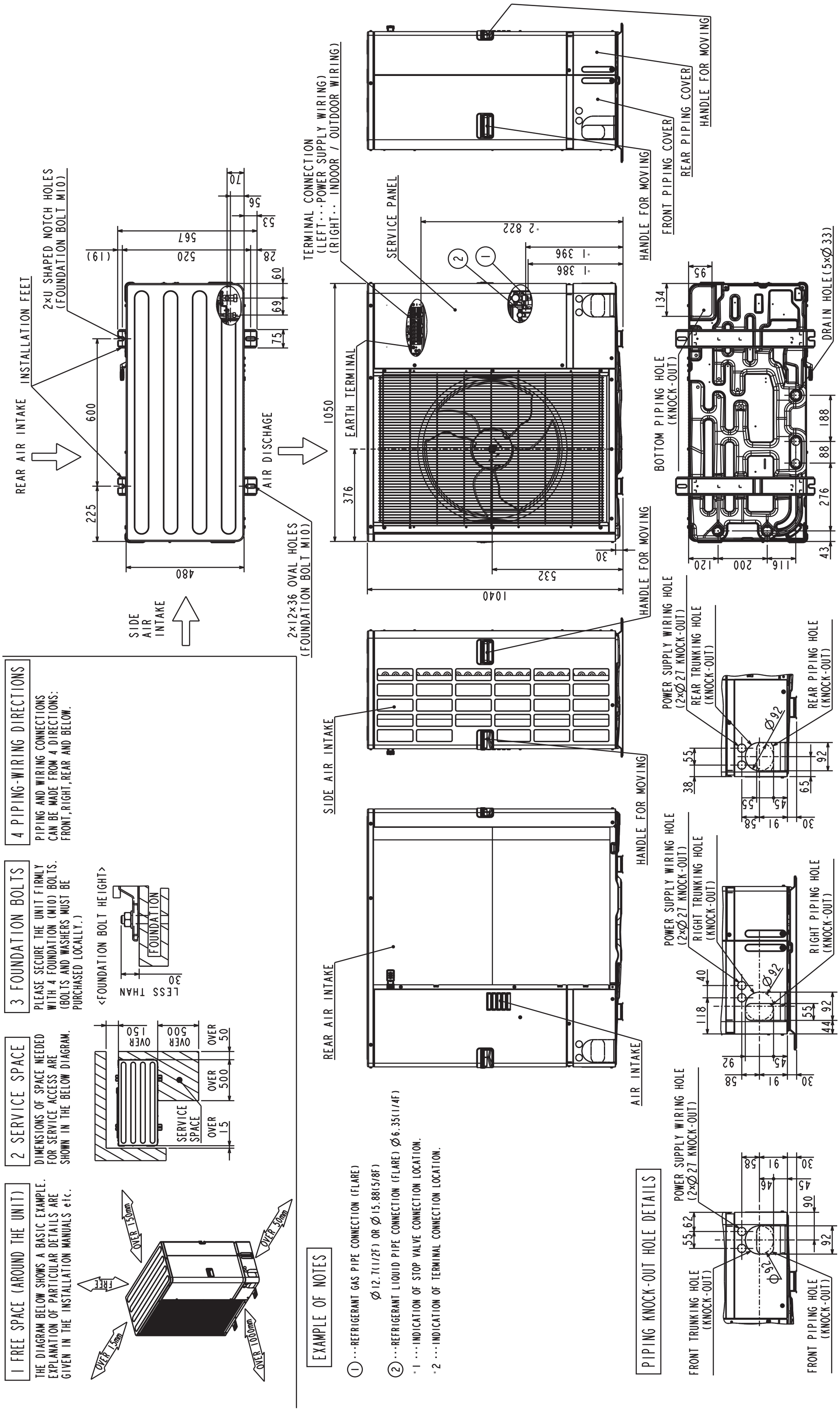






REFRIGERANT PIPE JOINT	LIQUID REFRIGERANT PIPE	FLARED ø6.35 (1/4”)
	GAS REFRIGERANT PIPE	FLARED ø12.7 (1/2”)

■ **PUZ-SWM60VAA**
PUZ-SWM80VAA
PUZ-SWM80YAA
PUZ-SWM100VAA
PUZ-SWM100YAA
PUZ-SWM120VAA
PUZ-SWM120YAA
PUZ-SWM140VAA
PUZ-SWM140YAA
PUZ-SHWM60VAA
PUZ-SHWM80VAA
PUZ-SHWM80YAA
PUZ-SHWM80YAA
PUZ-SHWM100VAA
PUZ-SHWM100YAA
PUZ-SHWM120VAA
PUZ-SHWM120YAA
PUZ-SHWM140VAA
PUZ-SHWM140YAA



1 FREE SPACE (AROUND THE UNIT)

THE DIAGRAM BELOW SHOWS A BASIC EXAMPLE. EXPLANATION OF PARTICULAR DETAILS ARE GIVEN IN THE INSTALLATION MANUALS etc.

2 SERVICE SPACE

DIMENSIONS OF SPACE NEEDED FOR SERVICE ACCESS ARE SHOWN IN THE BELOW DIAGRAM.

3 FOUNDATION BOLTS

PLEASE SECURE THE UNIT FIRMLY WITH 4 FOUNDATION (M10) BOLTS. (BOLTS AND WASHERS MUST BE PURCHASED LOCALLY.)

4 PIPING-WIRING DIRECTIONS

PIPING AND WIRING CONNECTIONS CAN BE MADE FROM 4 DIRECTIONS: FRONT, RIGHT, REAR AND BELOW.

EXAMPLE OF NOTES

① ···REFRIGERANT GAS PIPE CONNECTION (FLARE) Ø12.7(1/2F) OR Ø15.88(5/8F)

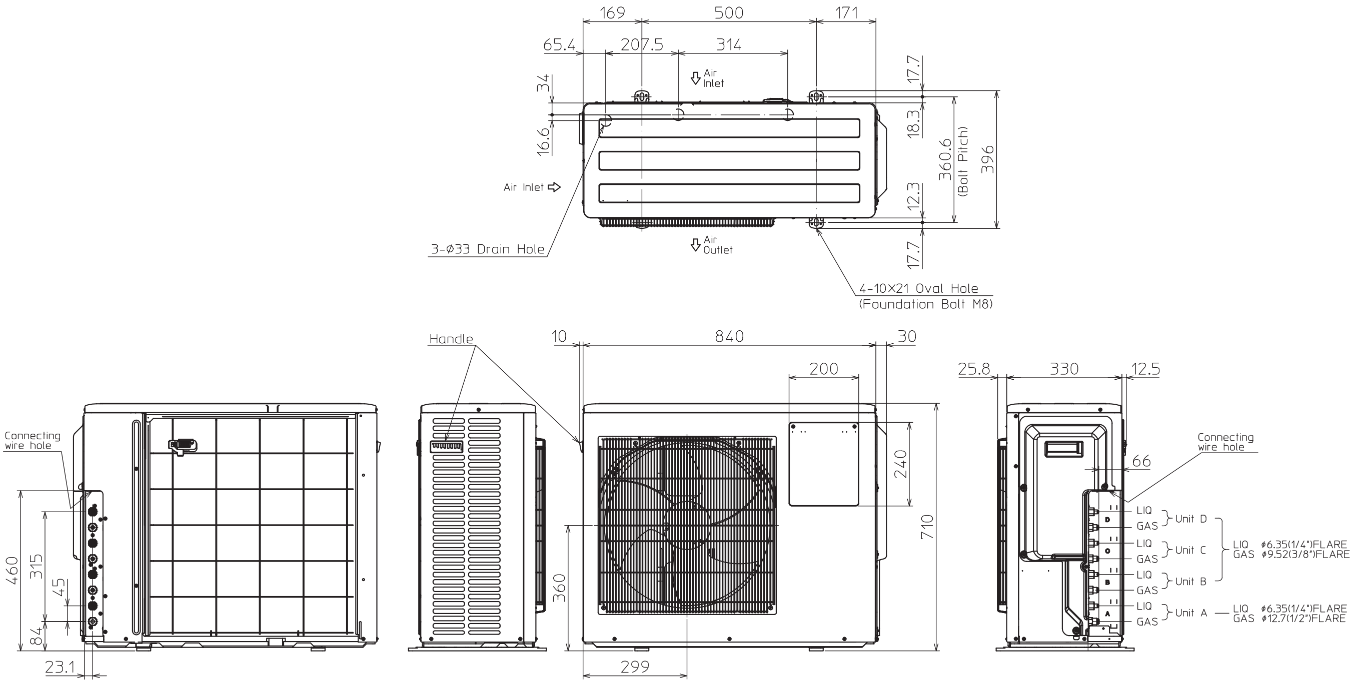
② ···REFRIGERANT LIQUID PIPE CONNECTION (FLARE) Ø6.35(1/4F)

*1 ···INDICATION OF STOP VALVE CONNECTION LOCATION.

*2 ···INDICATION OF TERMINAL CONNECTION LOCATION.

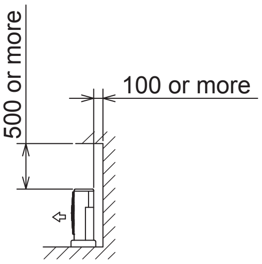
■ PXZ-4F75VG

Unit: mm

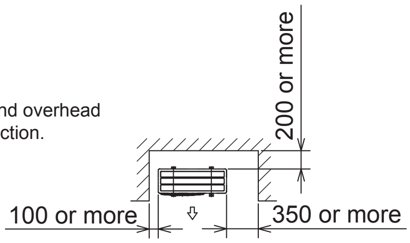


1.Installation space

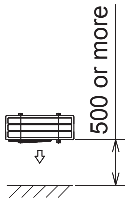
Note : Leave front and both sides free of obstruction.



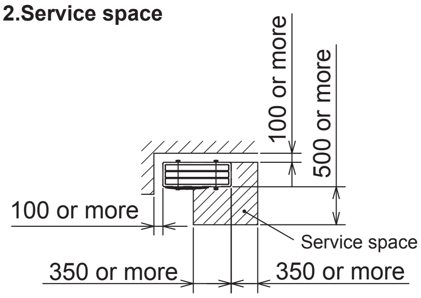
Note : Leave front and overhead free of obstruction.



Note : Leave rear, overhead and both sides free of obstruction.

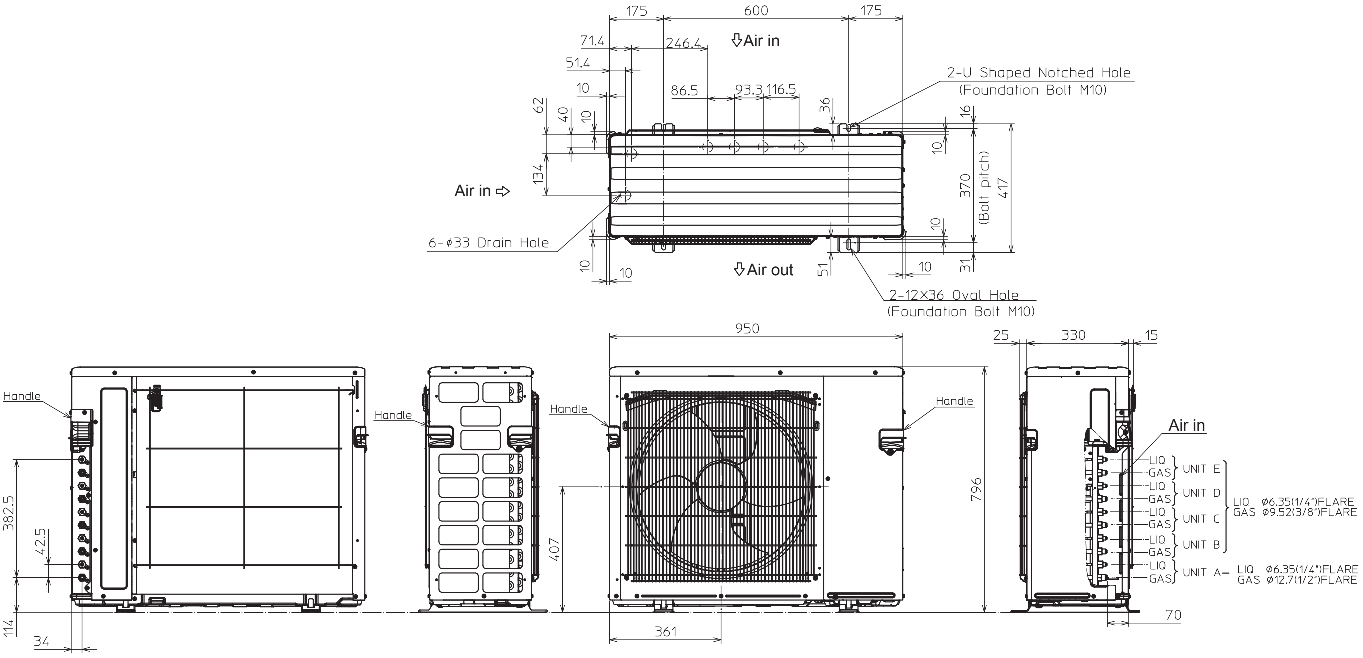


2.Service space

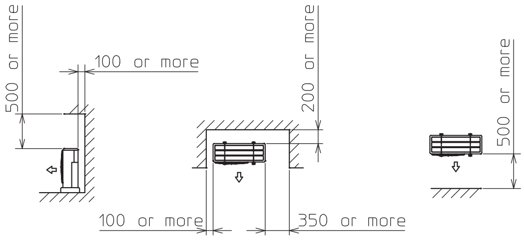


■ PXZ-5F85VG

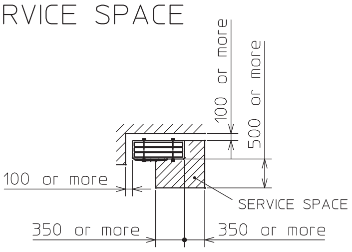
Unit: mm



1.FREE SPACE



2.SERVICE SPACE

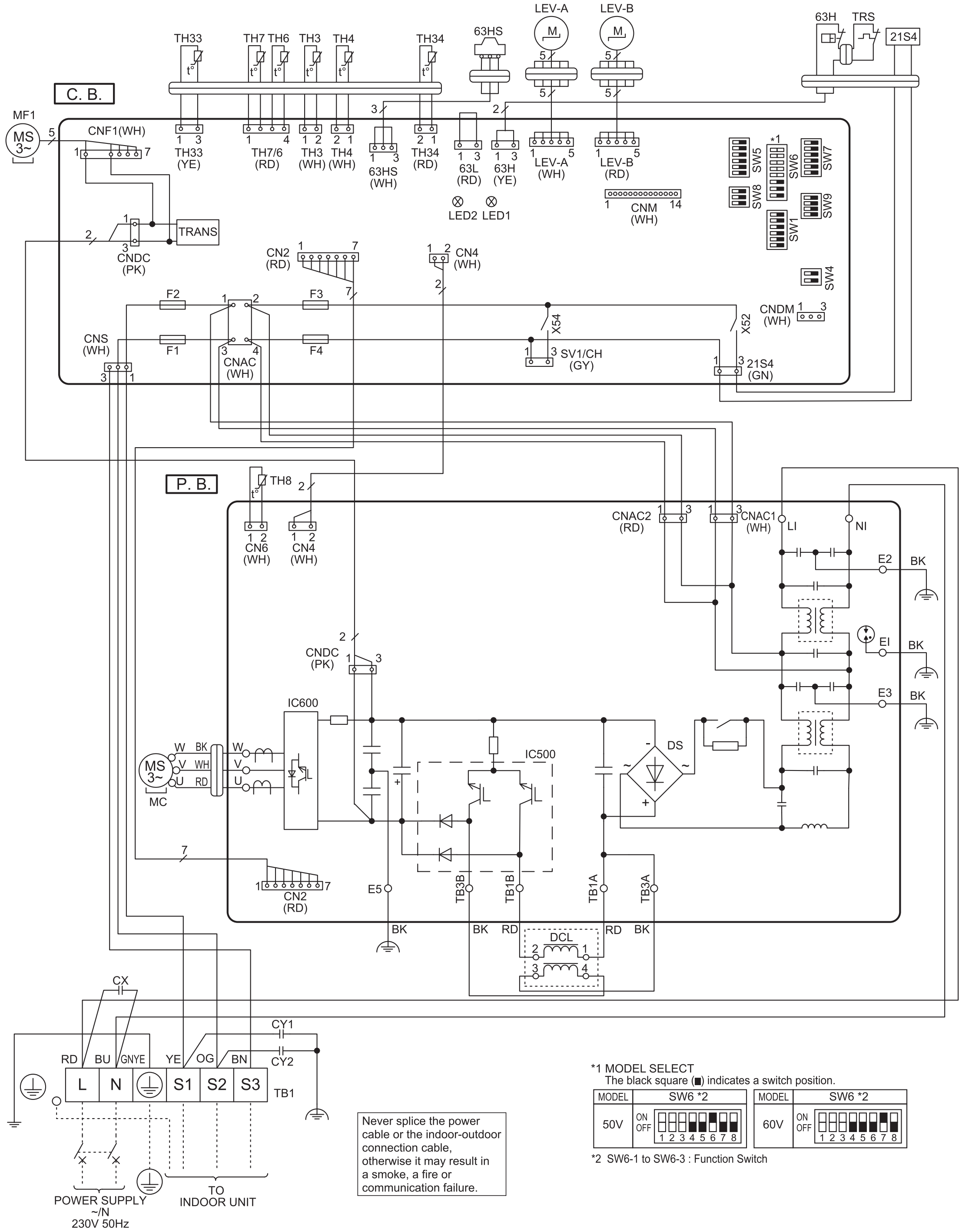


(1)Packaged-type units

■ PUZ-WZ50VAA(-BS) PUZ-WZ60VAA(-BS)

[LEGEND]

SYMBOL	NAME	SYMBOL	NAME
TB1	Terminal Block <Power Supply, Indoor/Outdoor>	CX	Capacitor
MC	Motor for Compressor	P. B.	Power Circuit Board
MF1	Fan Motor	C. B.	Controller Circuit Board
21S4	Solenoid Valve (4-Way Valve)	SW1	Switch <Manual Defrost, Defect History Record Reset, Refrigerant Address>
63H	High Pressure Switch		
63HS	Pressure Sensor	SW4	Switch <Function Switch>
TH3	Thermistor <Liquid>	SW5	Switch <Function Switch>
TH4	Thermistor <Discharge>	SW6	Switch <Function Switch, Model Select>
TH6	Thermistor <2-Phase Pipe>	SW7	Switch <Function Switch>
TH7	Thermistor <Ambient>	SW8	Switch <Function Switch>
TH8	Thermistor <Heat Sink>	SW9	Switch <Function Switch>
TH33	Thermistor <Comp. Surface>	CNDM	Connector <Connection for Option>
TH34	Thermistor <Plate Hex Liquid>	SV1/CH	Connector <Connection for Option>
TRS	Thermal Protector	CNM	Connector <Connection for Option>
LEV-A, LEV-B	Linear Expansion Valve	F1, F2	Fuse <T10AL250V>
DCL	Reactor	F3, F4	Fuse <T6.3AL250V>
CY1, CY2	Capacitor		



Never splice the power cable or the indoor-outdoor connection cable, otherwise it may result in a smoke, a fire or communication failure.

*1 MODEL SELECT
The black square (■) indicates a switch position.

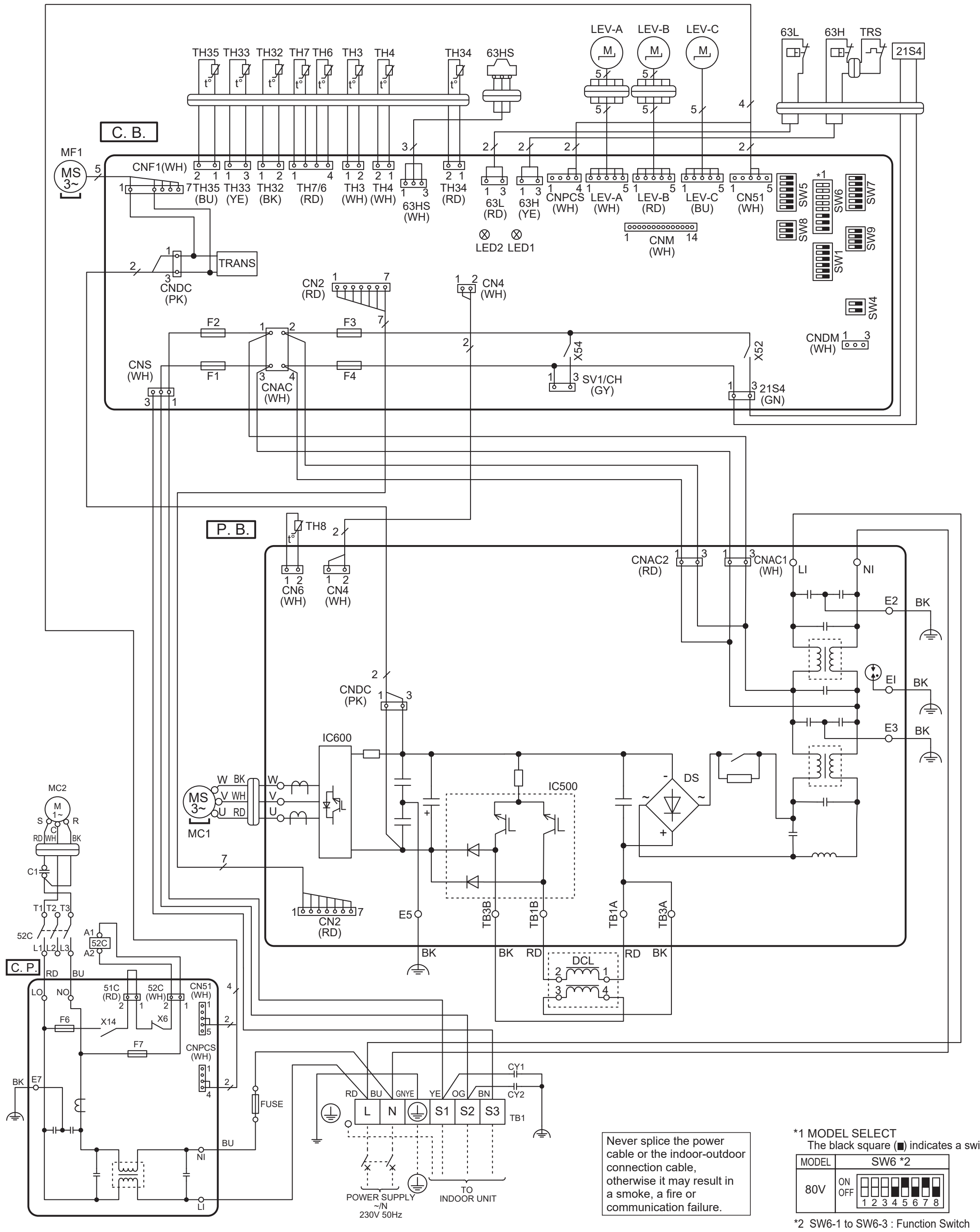
MODEL	SW6 *2	MODEL	SW6 *2
50V	ON □□□□□■□□ OFF □□□■■□■■ 1 2 3 4 5 6 7 8	60V	ON □□□□□□■□ OFF □□□■■■□■ 1 2 3 4 5 6 7 8

*2 SW6-1 to SW6-3 : Function Switch

■ PUZ-WZ80VAA(-BS)

[LEGEND]

SYMBOL	NAME	SYMBOL	NAME
TB1	Terminal Block<Power Supply, Indoor/Outdoor>	FUSE	Fuse <T20AL250V>
MC1	Motor for INV Compressor	C1	Run Capacitor
MC2	Motor for FIX Compressor	52C	Contactor
MF1	Fan Motor	P.B.	Power Circuit Board
21S4	Solenoid Valve(4-Way Valve)	C. B.	Controller Circuit Board
63H	High Pressure Switch INV	SW1	Switch <Manual Defrost, Defect History Record Reset, Refrigerant Address>
63L	High Pressure Switch FIX		
63HS	Pressure Sensor	SW4	Switch <Function Switch>
TH3	Thermistor <INV Liquid>	SW5	Switch <Function Switch>
TH4	Thermistor <Discharge>	SW6	Switch <Function Switch, Model Select>
TH6	Thermistor <2-Phase Pipe>	SW7	Switch <Function Switch>
TH7	Thermistor <Ambient>	SW8	Switch <Function Switch>
TH8	Thermistor <Heat Sink>	SW9	Switch <Function Switch>
TH32	Thermistor <FIX Liquid>	CNDM	Connector <Connection for Opition>
TH33	Thermistor <Comp. Surface>	SV1/CH	Connector <Connection for Option>
TH34	Thermistor <Plate Hex Liquid>	CNM	Connector <Connection for Opition>
TH35	Thermistor <Suction Pipe>	F1,F2	Fuse <T10AL250V>
TRS	Thermal Protector	F3,F4	Fuse <T6.3AL250V>
LEV-A,LEV-B,LEV-C	Linear Expansion Valve	C.P.	Comp Protector Circuit Board
DCL	Reactor	F6, F7	Fuse <T6.3AL250V>
CY1,CY2	Capacitor		



Never splice the power cable or the indoor-outdoor connection cable, otherwise it may result in a smoke, a fire or communication failure.

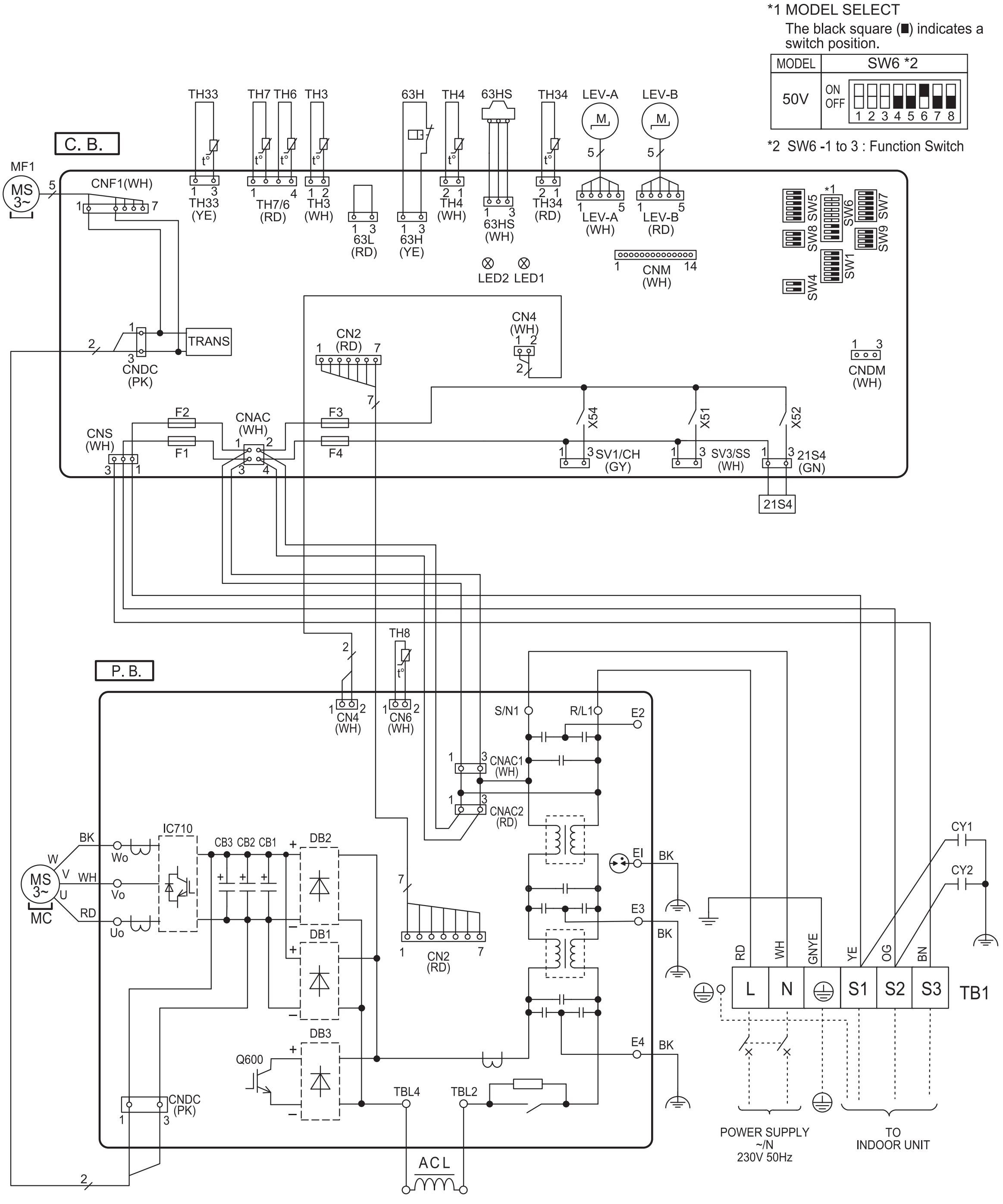
*1 MODEL SELECT
The black square (■) indicates a switch position.

MODEL	SW6 *2
80V	ON OFF 1 2 3 4 5 6 7 8

*2 SW6-1 to SW6-3 : Function Switch

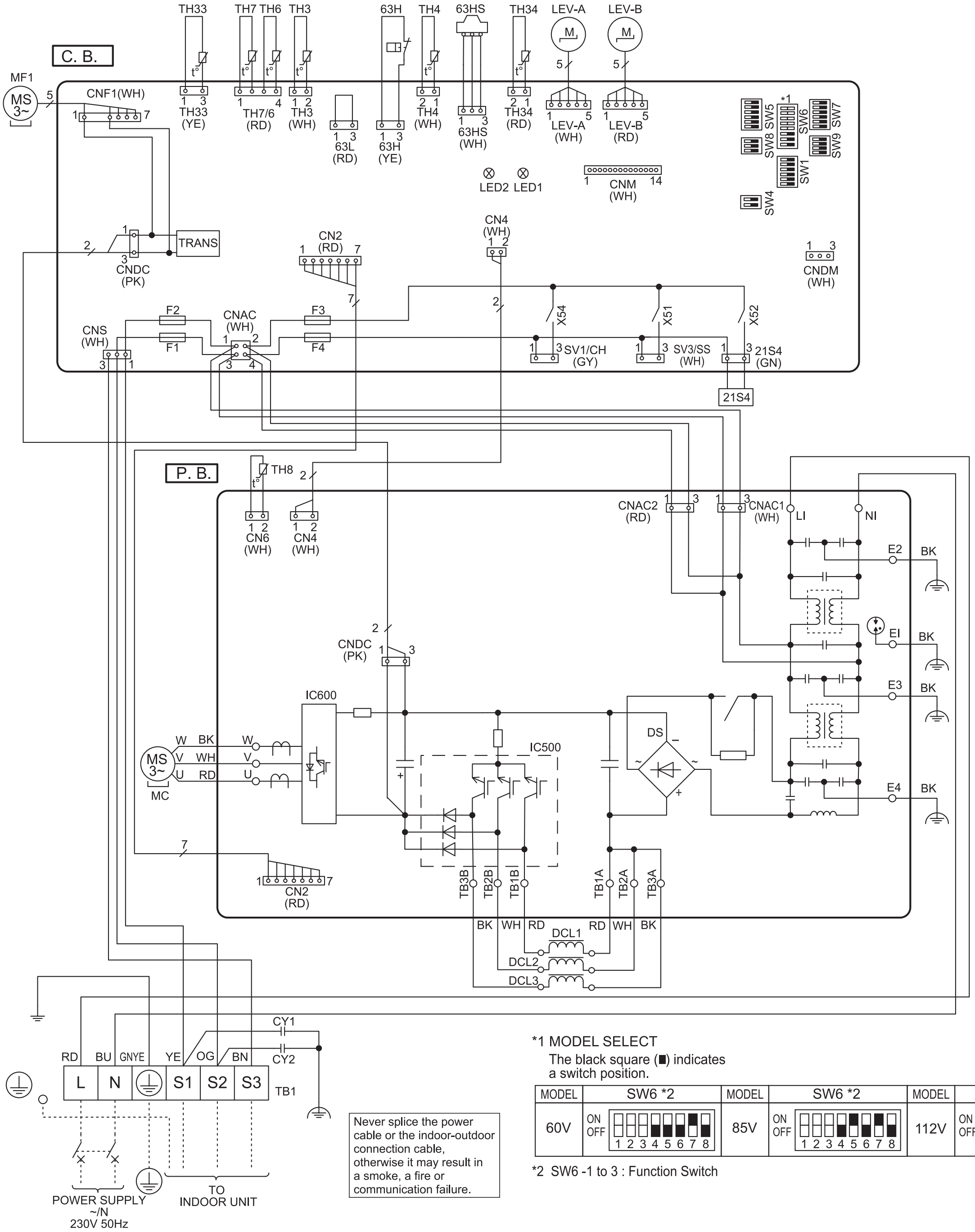
■ PUZ-WM50VHA(-BS)

SYMBOL	NAME	SYMBOL	NAME
TB1	Terminal Block <Power Supply, Indoor/Outdoor>	CY1, CY2	Capacitor
MC	Motor for Compressor	P.B.	Power Circuit Board
MF1	Fan Motor	C.B.	Controller Circuit Board
21S4	Solenoid Valve (4-Way Valve)	SW1	Switch <Manual Defrost, Defect History Record Reset, Refrigerant Address>
63H	High Pressure Switch		
63HS	Pressure Sensor	SW4	Switch <Function Switch>
TH3	Thermistor <Liquid>	SW5	Switch <Function Switch>
TH4	Thermistor <Discharge>	SW6	Switch <Function Switch, Model Select>
TH6	Thermistor <2-Phase Pipe>	SW7	Switch <Function Switch>
TH7	Thermistor <Ambient>	SW8	Switch <Function Switch>
TH8	Thermistor <Heat Sink>	SW9	Switch <Function Switch>
TH33	Thermistor <Comp. Surface>	CNDM	Connector <Connection for Option>
TH34	Thermistor <Plate Hex Liquid>	SV1/CH	Connector <Connection for Option>
LEV-A, LEV-B	Linear Expansion Valve	SV3/SS	Connector <Connection for Option>
ACL	Reactor	CNM	Connector <Connection for Option>
		F1, F2, F3, F4	Fuse <T6.3AL250V>



■ PUZ-WM60VAA(-BS) PUZ-WM85VAA(-BS) PUZ-WM112VAA(-BS)

SYMBOL	NAME	SYMBOL	NAME
TB1	Terminal Block <Power Supply, Indoor/Outdoor>	P.B.	Power Circuit Board
MC	Motor for Compressor	C.B.	Controller Circuit Board
MF1	Fan Motor	SW1	Switch <Manual Defrost, Defect History Record Reset, Refrigerant Address>
21S4	Solenoid Valve (4-Way Valve)		
63H	High Pressure Switch	SW4	Switch <Function Switch>
63HS	Pressure Sensor	SW5	Switch <Function Switch>
TH3	Thermistor <Liquid>	SW6	Switch <Function Switch, Model Select>
TH4	Thermistor <Discharge>	SW7	Switch <Function Switch>
TH6	Thermistor <2-Phase Pipe>	SW8	Switch <Function Switch>
TH7	Thermistor <Ambient>	SW9	Switch <Function Switch>
TH8	Thermistor <Heat Sink>	CNDM	Connector <Connection for Option>
TH33	Thermistor <Comp. Surface>	SV1/CH	Connector <Connection for Option>
TH34	Thermistor <Plate Hex Liquid>	SV3/SS	Connector <Connection for Option>
LEV-A, LEV-B	Linear Expansion Valve	CNM	Connector <Connection for Option>
DCL1, DCL2, DCL3	Reactor	F1, F2, F3, F4	Fuse <T6.3AL250V>
CY1, CY2	Capacitor		



Never splice the power cable or the indoor-outdoor connection cable, otherwise it may result in a smoke, a fire or communication failure.

*1 MODEL SELECT

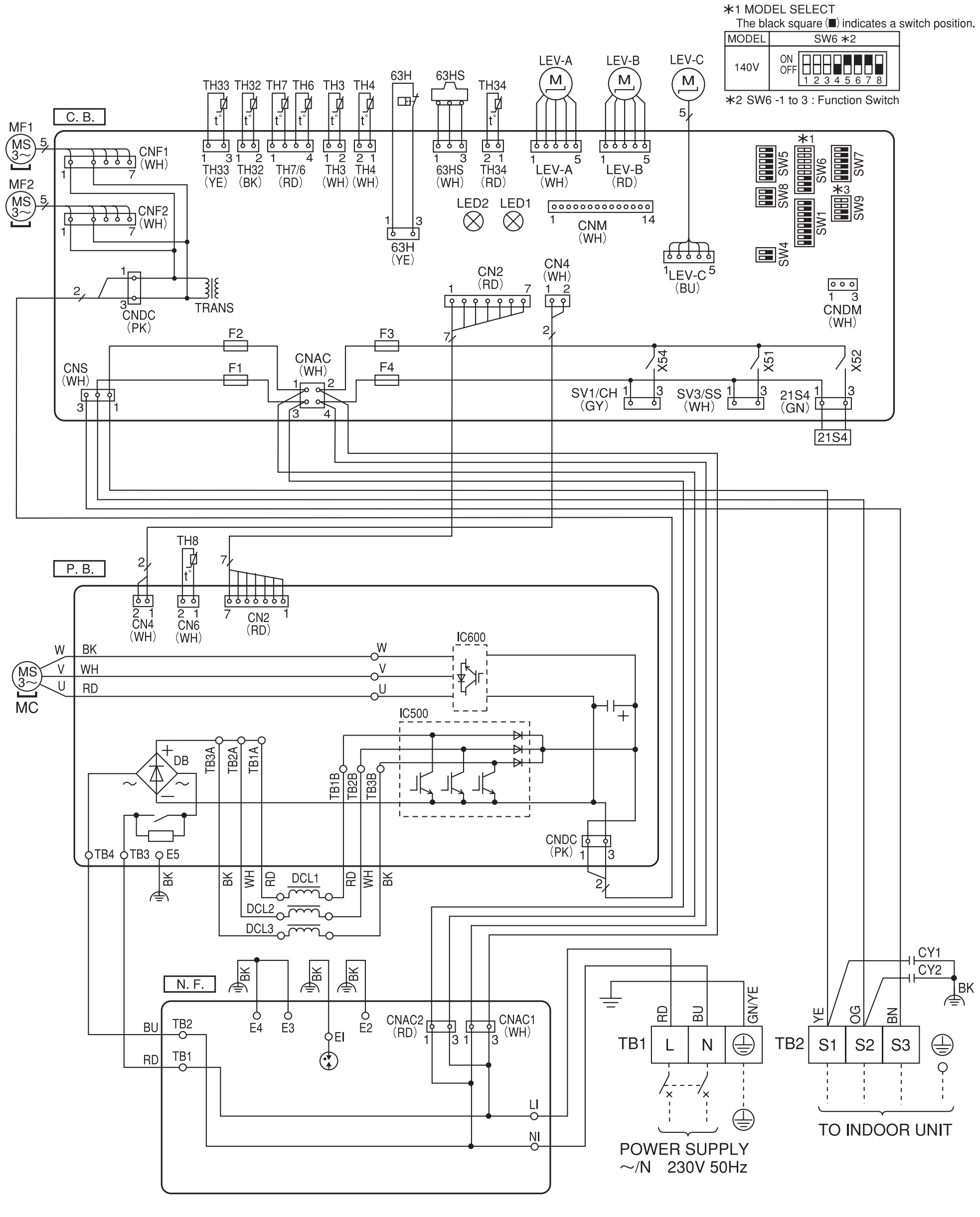
The black square (■) indicates a switch position.

MODEL	SW6 *2	MODEL	SW6 *2	MODEL	SW6 *2
60V	ON ☐☐☐☐☐☐■☐ OFF ☐☐☐■■■☐■ 1 2 3 4 5 6 7 8	85V	ON ☐☐☐☐■☐■☐ OFF ☐☐☐■☐■☐■ 1 2 3 4 5 6 7 8	112V	ON ☐☐☐☐☐■■☐ OFF ☐☐☐■■☐☐■ 1 2 3 4 5 6 7 8

*2 SW6 -1 to 3 : Function Switch

■ PUZ-HWM140VHA(-BS)

SYMBOL	NAME	SYMBOL	NAME
TB1	Terminal Block〈Power Supply〉	CY1, CY2	Capacitor
TB2	Terminal Block〈Indoor/Outdoor〉	P. B.	Power Circuit Board
MC	Motor for Compressor	N. F.	Noise Filter Circuit Board
MF1, MF2	Fan Motor	C. B.	Controller Circuit Board
21S4	Solenoid Valve Coil〈4-Way Valve〉	SW1	Switch〈Manual Defrost, Defect History Record Reset, Function Switch〉
63H	High Pressure Switch		
63HS	Pressure Sensor	SW4	Switch〈Function Switch〉
TH3	Thermistor〈Liquid〉	SW5	Switch〈Function Switch〉
TH4	Thermistor〈Discharge〉	SW6	Switch〈Function Switch, Model Select〉
TH6	Thermistor〈2-Phase pipe〉	SW7	Switch〈Function Switch〉
TH7	Thermistor〈Ambient〉	SW8	Switch〈Function Switch〉
TH8	Thermistor〈Heat Sink〉	SW9	Switch〈Function Switch〉
TH32	Thermistor〈Suction〉	SV1/CH	Connector〈Connection for Option〉
TH33	Thermistor〈Comp. Surface〉	SV3/SS	Connector〈Connection for Option〉
TH34	Thermistor〈Plate Hex Liquid〉	CNDM	Connector〈Connection for Option〉
LEV-A, LEV-B, LEV-C	Linear Expansion Valve	F1, F2	Fuse〈T10AL250V〉
DCL1, DCL2, DCL3	Reactor	F3, F4	Fuse〈T6.3AL250V〉



*1 MODEL SELECT
The black square (■) indicates a switch position.

MODEL	SW6 *2
140V	ON OFF 1 2 3 4 5 6 7 8

*2 SW6 -1 to 3 : Function Switch

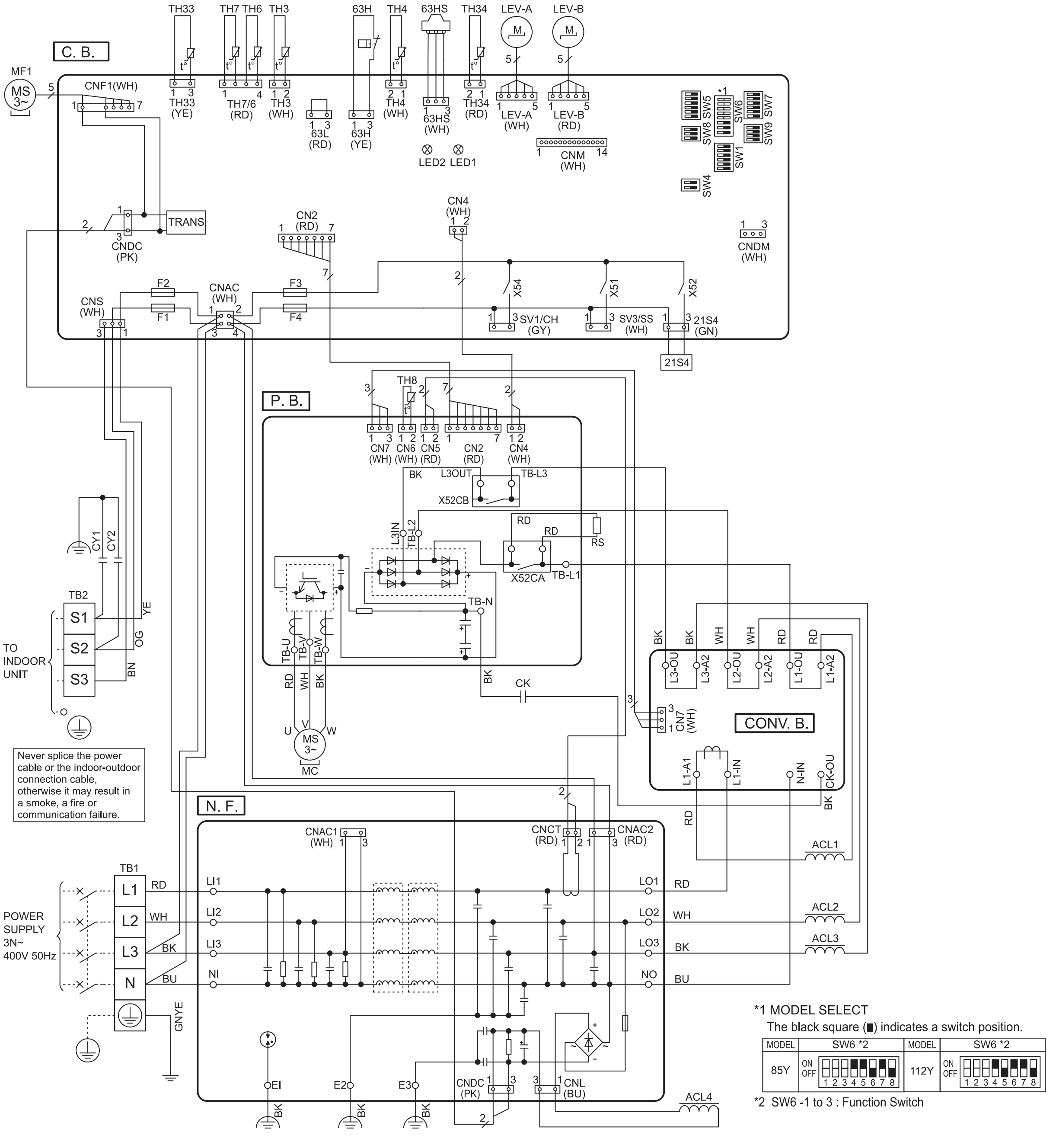
*3 Ambient temp. of ZUBADAN Flash Injection becomes effective.
The black square (■) indicates a switch position.

Ambient temp.	SW9-3, 9-4 *4	Ambient temp.	SW9-3, 9-4 *4	Ambient temp.	SW9-3, 9-4 *4	Ambient temp.	SW9-3, 9-4 *4
3℃ or less (Default setting)	 ON OFF 1 2 3 4	0℃ or less	 ON OFF 1 2 3 4	−3℃ or less	 ON OFF 1 2 3 4	−6℃ or less	 ON OFF 1 2 3 4

*4 SW9 -1 to 2 : Function Switch

■ PUZ-WM85YAA(-BS) PUZ-WM112YAA-BS

SYMBOL	NAME	SYMBOL	NAME
TB1	Terminal Block <Power Supply>	P. B.	Power Circuit Board
TB2	Terminal Block <Indoor/Outdoor>	N. F.	Noise Filter Circuit Board
MC	Motor for Compressor	CONV. B.	Converter Circuit Board
MF1	Fan Motor	C. B.	Controller Circuit Board
21S4	Solenoid Valve (4-Way Valve)	SW1	Switch <Manual Defrost, Defect History Record Reset, Refrigerant Address>
63H	High Pressure Switch		
63HS	Pressure Sensor		
TH3	Thermistor <Liquid>	SW4	Switch <Function Switch>
TH4	Thermistor <Discharge>	SW5	Switch <Function Switch>
TH6	Thermistor <2-Phase Pipe>	SW6	Switch <Function Switch, Model Select>
TH7	Thermistor <Ambient>		
TH8	Thermistor <Heat Sink>	SW7	Switch <Function Switch>
TH33	Thermistor <Comp. Surface>	SW8	Switch <Function Switch>
TH34	Thermistor <Plate Hex Liquid>	SW9	Switch <Function Switch>
LEV-A, LEV-B	Linear Expansion Valve	CNDM	Connector <Connection for Option>
ACL1, ACL2, ACL3, ACL4	Reactor	SV1/CH	Connector <Connection for Option>
		SV3/SS	Connector <Connection for Option>
CY1, CY2	Capacitor	CNM	Connector <Connection for Option>
CK	Capacitor	F1, F2, F3, F4	Fuse <T6.3AL250V>
RS	Rush Current Protect Resistor		



Never splice the power cable or the indoor-outdoor connection cable, otherwise it may result in a smoke, a fire or communication failure.

*1 MODEL SELECT

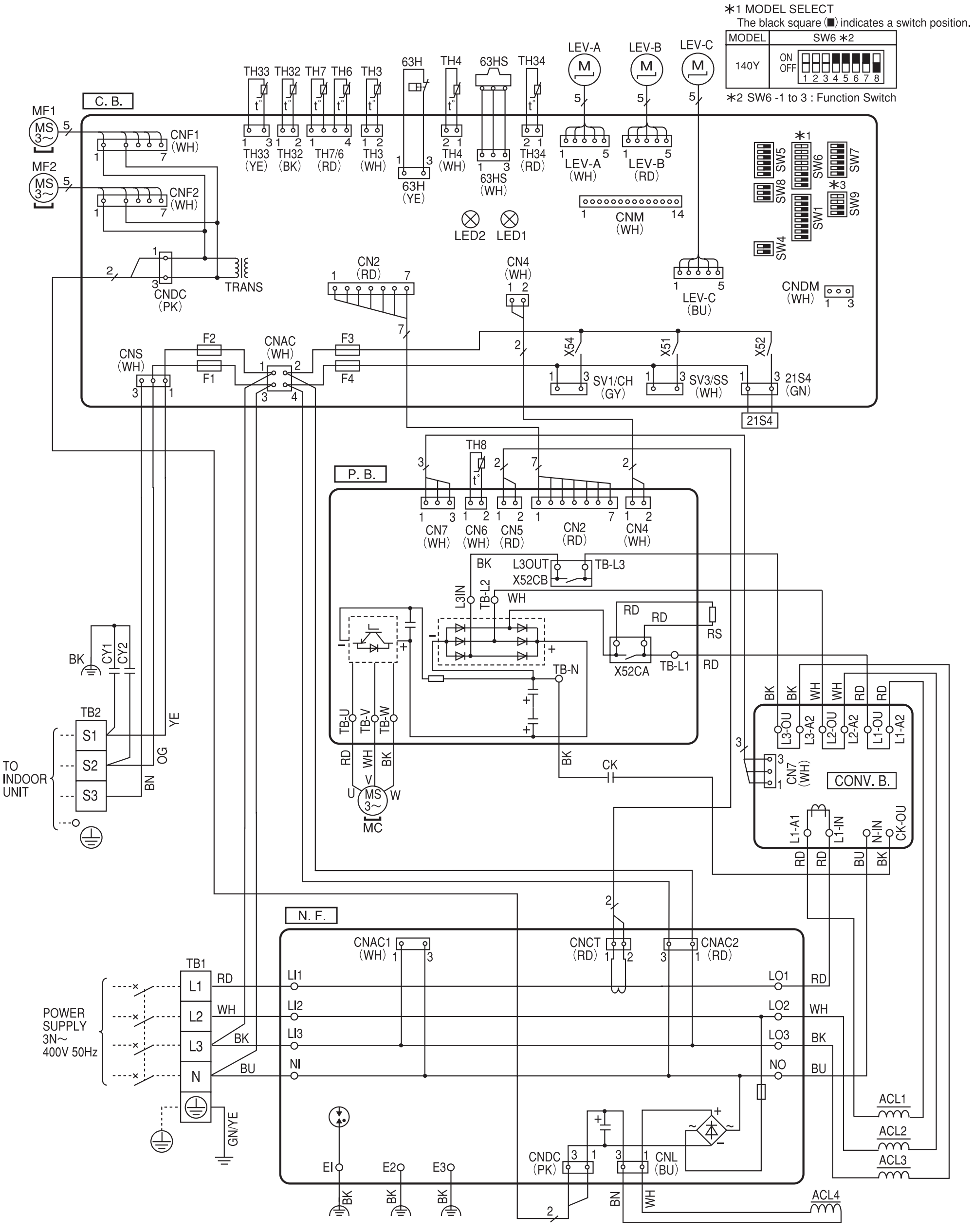
The black square (■) indicates a switch position.

MODEL	SW6 *2	MODEL	SW6 *2
85Y	ON OFF 1 2 3 4 5 6 7 8	112Y	ON OFF 1 2 3 4 5 6 7 8

*2 SW6 -1 to 3 : Function Switch

■ PUZ-HWM140YHA(-BS)

SYMBOL	NAME	SYMBOL	NAME
TB1	Terminal Block〈Power Supply〉	RS	Rush Current Protect Resistor
TB2	Terminal Block〈Indoor/Outdoor〉	P. B.	Power Circuit Board
MC	Motor for Compressor	N. F.	Noise Filter Circuit Board
MF1, MF2	Fan Motor	CONV. B.	Converter Circuit Board
21S4	Solenoid Valve Coil〈4-Way Valve〉	C. B.	Controller Circuit Board
63H	High Pressure Switch	SW1	Switch〈Manual Defrost, Defect History Record Reset, Function Switch〉
63HS	Pressure Sensor		
TH3	Thermistor〈Liquid〉	SW4	Switch〈Function Switch〉
TH4	Thermistor〈Discharge〉	SW5	Switch〈Function Switch〉
TH6	Thermistor〈2-Phase pipe〉	SW6	Switch〈Function Switch, Model Select〉
TH7	Thermistor〈Ambient〉	SW7	Switch〈Function Switch〉
TH8	Thermistor〈Heat Sink〉	SW8	Switch〈Function Switch〉
TH32	Thermistor〈Suction〉	SW9	Switch〈Function Switch〉
TH33	Thermistor〈Comp. Surface〉	CNDM	Connector〈Connection for Option〉
TH34	Thermistor〈Plate Hex Liquid〉	SV1/CH	Connector〈Connection for Option〉
LEV-A, LEV-B, LEV-C	Linear Expansion Valve	SV3/SS	Connector〈Connection for Option〉
ACL1, ACL2, ACL3, ACL4	Reactor	F1, F2	Fuse〈T10AL250V〉
CY1, CY2	Capacitor	F3, F4	Fuse〈T6.3AL250V〉
CK	Capacitor		



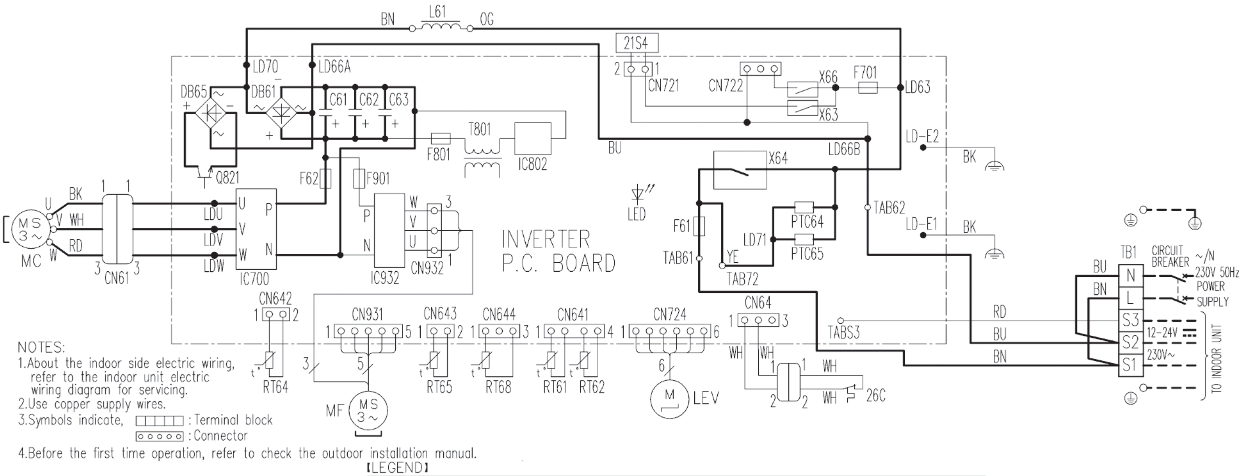
∗3 Ambient temp. of ZUBADAN Flash Injection becomes effective.
The black square (■) indicates a switch position.

Ambient temp.	SW9-3, 9-4 ∗4	Ambient temp.	SW9-3, 9-4 ∗4	Ambient temp.	SW9-3, 9-4 ∗4	Ambient temp.	SW9-3, 9-4 ∗4
3℃ or less (Default setting)	ON OFF 1 2 3 4	0℃ or less	ON OFF 1 2 3 4	−3℃ or less	ON OFF 1 2 3 4	−6℃ or less	ON OFF 1 2 3 4

∗4 SW9 -1 to 2 : Function Switch

(2)Split-type units

■ SUZ-SWM30VA
SUZ-SWM40VA2(-SC)
SUZ-SWM60VA2(-SC)

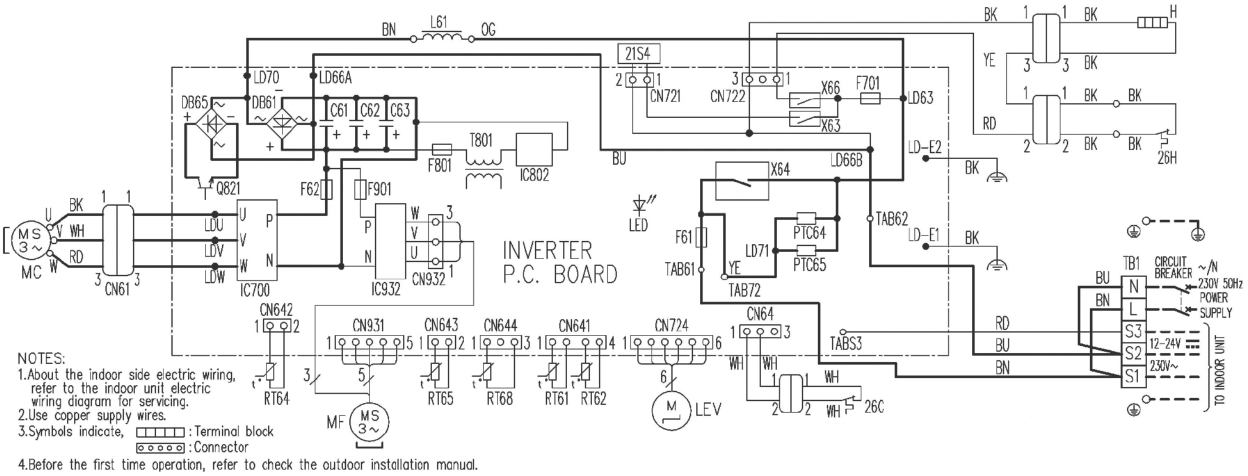


NOTES:
1.About the indoor side electric wiring, refer to the indoor unit electric wiring diagram for servicing.
2.Use copper supply wires.
3.Symbols indicate, ▭▭▭▭ : Terminal block
○○○○○ : Connector
4.Before the first time operation, refer to check the outdoor installation manual.

【LEGEND】

SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
CN61	CONNECTOR	LEV	EXPANSION VALVE COIL	RT65	AMBIENT TEMP. THERMISTOR
C61, C62, C63	SMOOTHING CAPACITOR	L61	REACTOR	RT68	OUTDOOR HEAT EXCHANGER TEMP. THERMISTOR
DB61, DB65	DIODE MODULE	MC	COMPRESSOR		
F61	FUSE (25A 250V)	MF	FAN MOTOR	TB1	TERMINAL BLOCK
F62	FUSE (15A 250V)	PTC64, PTC65	CIRCUIT PROTECTION	T801	TRANSFORMER
F701, F801, F901	FUSE (T3.15AL250V)	Q821	SWITCHING POWER TRANSISTOR	X63, X64, X66	RELAY
IC700, IC932	POWER MODULE	RT61	DEFROST THERMISTOR	21S4	REVERSING VALVE COIL
IC802	POWER DEVICE	RT62	DISCHARGE TEMP. THERMISTOR	26C	COMPRESSOR PROTECTOR
LED	LED	RT64	FIN TEMP. THERMISTOR		

■ SUZ-SHWM30VAH
SUZ-SHWM40VAH(-SC)

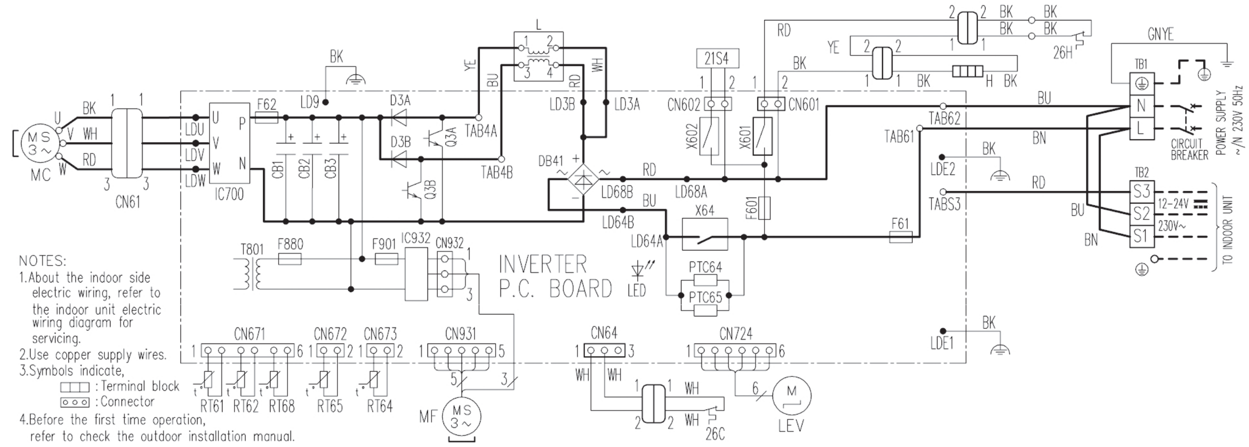


NOTES:
1.About the indoor side electric wiring, refer to the indoor unit electric wiring diagram for servicing.
2.Use copper supply wires.
3.Symbols indicate, ▭▭▭▭ : Terminal block
○○○○○ : Connector
4.Before the first time operation, refer to check the outdoor installation manual.

【LEGEND】

SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
CN61	CONNECTOR	LEV	EXPANSION VALVE COIL	RT68	OUTDOOR HEAT EXCHANGER TEMP. THERMISTOR
C61, C62, C63	SMOOTHING CAPACITOR	L61	REACTOR		
DB61, DB65	DIODE MODULE	MC	COMPRESSOR	TB1	TERMINAL BLOCK
F61	FUSE (25A 250V)	MF	FAN MOTOR	T801	TRANSFORMER
F62	FUSE (15A 250V)	PTC64, PTC65	CIRCUIT PROTECTION	X63, X64, X66	RELAY
F701, F801, F901	FUSE (T3.15AL250V)	Q821	SWITCHING POWER TRANSISTOR	21S4	REVERSING VALVE COIL
H	DEFROST HEATER	RT61	DEFROST THERMISTOR	26C	COMPRESSOR PROTECTOR
IC700, IC932	POWER MODULE	RT62	DISCHARGE TEMP. THERMISTOR	26H	HEATER PROTECTOR
IC802	POWER DEVICE	RT64	FIN TEMP. THERMISTOR		
LED	LED	RT65	AMBIENT TEMP. THERMISTOR		

■ SUZ-SHWM60VAH(-SC)
SUZ-SWM80VAH2
SUZ-SWM100VAH

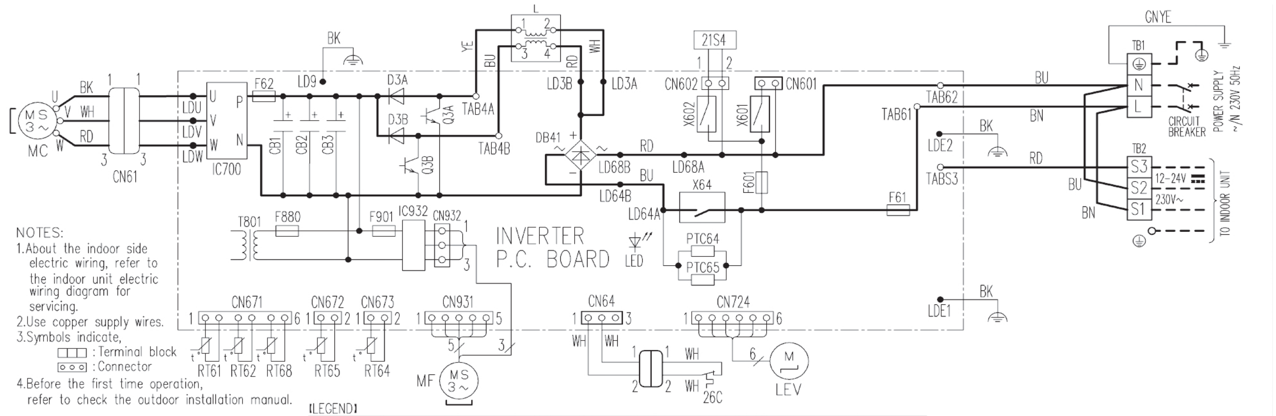


NOTES:
1.About the indoor side electric wiring, refer to the indoor unit electric wiring diagram for servicing.
2.Use copper supply wires.
3.Symbols indicate,
▭▭▭ : Terminal block
○○○ : Connector
4.Before the first time operation, refer to check the outdoor installation manual.

【LEGEND】

SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
CB1,CB2,CB3	SMOOTHING CAPACITOR	L	REACTOR	RT65	AMBIENT TEMP. THERMISTOR
CN61	CONNECTOR	LED	LED	RT68	OUTDOOR HEAT EXCHANGER TEMP. THERMISTOR
DB41	DIODE MODULE	LEV	EXPANSION VALVE COIL		
D3A,D3B	DIODE	MC	COMPRESSOR	TB1,TB2	TERMINAL BLOCK
F601	FUSE (T3.15AL250V)	MF	FAN MOTOR	T801	TRANSFORMER
F61	FUSE (25A 250V)	PTC64,PTC65	CIRCUIT PROTECTION	X601,X602	RELAY
F62	FUSE (15A 250V)	Q3A,Q3B	SWITCHING POWER TRANSISTOR	X64	RELAY
F880,F901	FUSE (T3.15AL250V)	RT61	DEFROST THERMISTOR	21S4	REVERSING VALVE COIL
H	DEFROST HEATER	RT62	DISCHARGE TEMP. THERMISTOR	26C	COMPRESSOR PROTECTOR
IC700,IC932	POWER MODULE	RT64	FIN TEMP. THERMISTOR	26H	HEATER PROTECTOR

■ SUZ-SWM80VA2
SUZ-SWM100VA



NOTES:
1.About the indoor side electric wiring, refer to the indoor unit electric wiring diagram for servicing.
2.Use copper supply wires.
3.Symbols indicate,
▭▭▭ : Terminal block
○○○ : Connector
4.Before the first time operation, refer to check the outdoor installation manual.

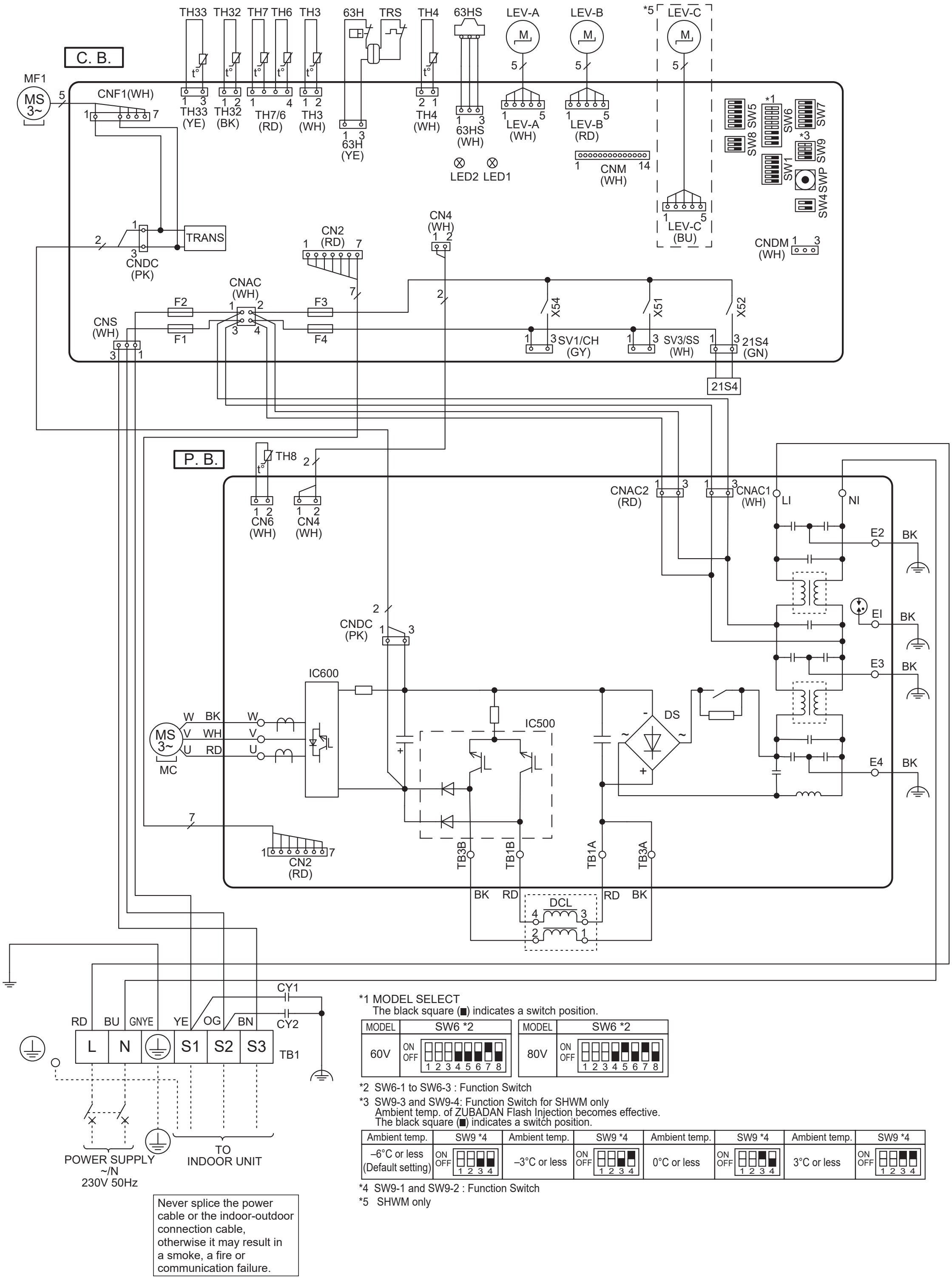
【LEGEND】

SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
CB1,CB2,CB3	SMOOTHING CAPACITOR	LED	LED	RT65	AMBIENT TEMP. THERMISTOR
CN61	CONNECTOR	LEV	EXPANSION VALVE COIL	RT68	OUTDOOR HEAT EXCHANGER TEMP. THERMISTOR
DB41	DIODE MODULE	MC	COMPRESSOR		
D3A,D3B	DIODE	MF	FAN MOTOR	TB1,TB2	TERMINAL BLOCK
F601	FUSE (T3.15AL250V)	PTC64,PTC65	CIRCUIT PROTECTION	T801	TRANSFORMER
F61	FUSE (25A 250V)	Q3A,Q3B	SWITCHING POWER TRANSISTOR	X601,X602	RELAY
F62	FUSE (15A 250V)	RT61	DEFROST THERMISTOR	X64	RELAY
F880,F901	FUSE (T3.15AL250V)	RT62	DISCHARGE TEMP. THERMISTOR	21S4	REVERSING VALVE COIL
IC700,IC932	POWER MODULE	RT64	FIN TEMP. THERMISTOR	26C	COMPRESSOR PROTECTOR
L	REACTOR				

■ PUZ-SWM60VAA PUZ-SWM80VAA
PUZ-SHWM60VAA PUZ-SHWM80VAA

[LEGEND]

SYMBOL	NAME	SYMBOL	NAME
TB1	Terminal Block <Power Supply, Indoor/Outdoor>	P. B.	Power Circuit Board
MC	Motor for Compressor	C. B.	Controller Circuit Board
MF1	Fan Motor	SW1	Switch <Manual Defrost, Defect History Record Reset, Refrigerant Address>
21S4	Solenoid Valve (4-Way Valve)		
63H	High Pressure Switch	SW4	Switch <Function Switch>
63HS	High Pressure Sensor	SW5	Switch <Function Switch>
TH3	Thermistor <Liquid>	SW6	Switch <Function Switch, Model Select>
TH4	Thermistor <Discharge>	SW7	Switch <Function Switch>
TH6	Thermistor <2-Phase Pipe>	SW8	Switch <Function Switch>
TH7	Thermistor <Ambient>	SW9	Switch <Function Switch>
TH8	Thermistor <Heat Sink>	SWP	Switch <Pump Down>
TH32	Thermistor <Suction>	CNDM	Connector <Connection for Option>
TH33	Thermistor <Comp. Surface>	SV1/CH	Connector <Connection for Option>
TRS	Thermal Protector	SV3/SS	Connector <Connection for Option>
LEV-A, LEV-B, LEV-C	Linear Expansion Valve	CNM	Connector <Connection for Option>
DCL	Reactor	F1, F2	Fuse <T10AL250V>
CY1, CY2	Capacitor	F3, F4	Fuse <T6.3AL250V>



Never splice the power cable or the indoor-outdoor connection cable, otherwise it may result in a smoke, a fire or communication failure.

*1 MODEL SELECT
The black square (■) indicates a switch position.

MODEL	SW6 *2
60V	ON OFF 1 2 3 4 5 6 7 8

MODEL	SW6 *2
80V	ON OFF 1 2 3 4 5 6 7 8

*2 SW6-1 to SW6-3 : Function Switch

*3 SW9-3 and SW9-4: Function Switch for SHWM only
Ambient temp. of ZUBADAN Flash Injection becomes effective.
The black square (■) indicates a switch position.

Ambient temp.	SW9 *4	Ambient temp.	SW9 *4	Ambient temp.	SW9 *4	Ambient temp.	SW9 *4
–6°C or less (Default setting)	ON OFF 1 2 3 4	–3°C or less	ON OFF 1 2 3 4	0°C or less	ON OFF 1 2 3 4	3°C or less	ON OFF 1 2 3 4

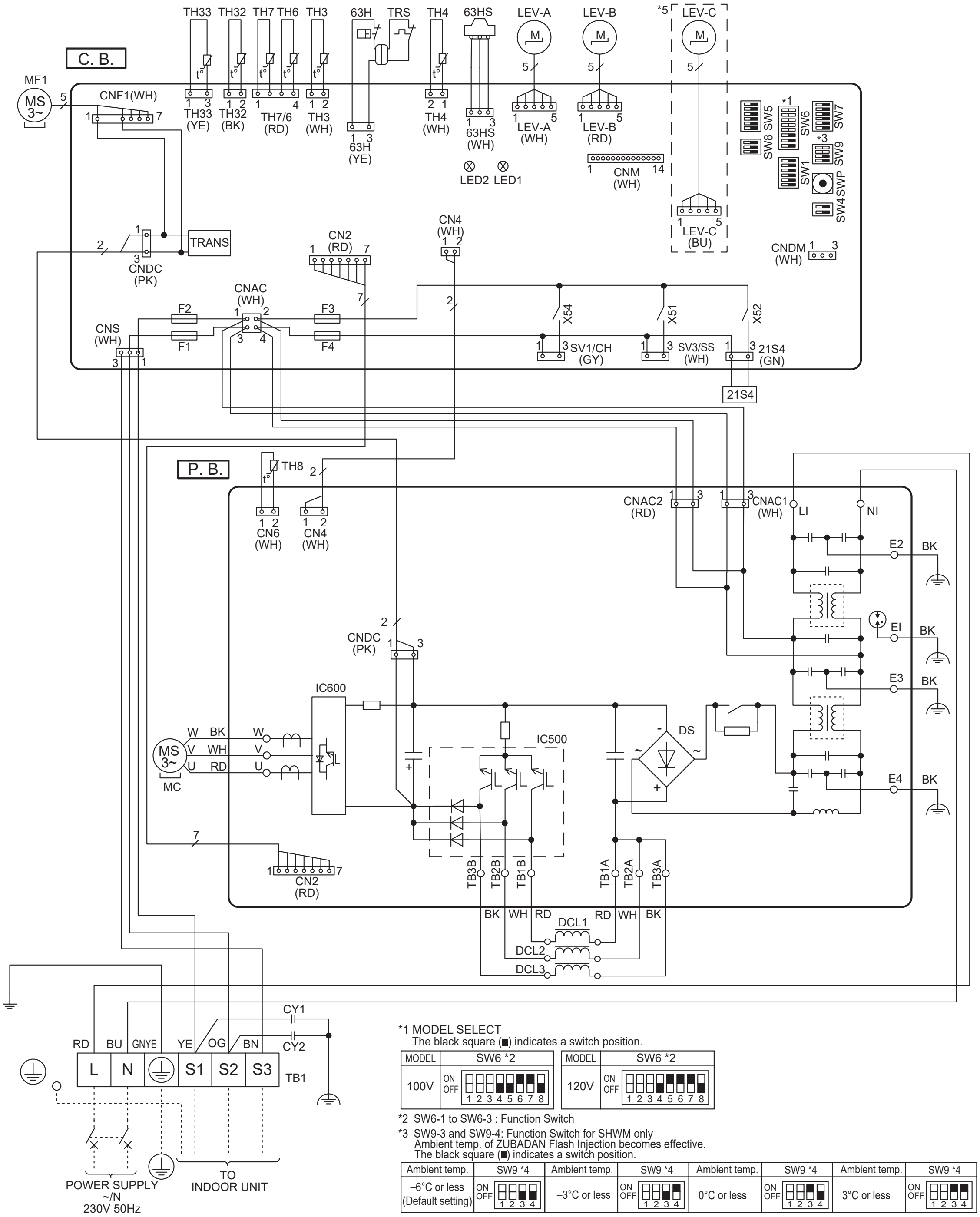
*4 SW9-1 and SW9-2 : Function Switch

*5 SHWM only

■ PUZ-SWM100VAA PUZ-SWM120VAA PUZ-SHWM100VAA PUZ-SHWM120VAA

[LEGEND]

SYMBOL	NAME	SYMBOL	NAME
TB1	Terminal Block <Power Supply, Indoor/Outdoor>	P.B.	Power Circuit Board
MC	Motor for Compressor	C.B.	Controller Circuit Board
MF1	Fan Motor	SW1	Switch <Manual Defrost, Defect History Record Reset, Refrigerant Address>
21S4	Solenoid Valve (4-Way Valve)		
63H	High Pressure Switch	SW4	Switch <Function Switch>
63HS	High Pressure Sensor	SW5	Switch <Function Switch>
TH3	Thermistor <Liquid>	SW6	Switch <Function Switch, Model Select>
TH4	Thermistor <Discharge>	SW7	Switch <Function Switch>
TH6	Thermistor <2-Phase Pipe>	SW8	Switch <Function Switch>
TH7	Thermistor <Ambient>	SW9	Switch <Function Switch>
TH8	Thermistor <Heat Sink>	SWP	Switch <Pump Down>
TH32	Thermistor <Suction>	CNDM	Connector <Connection for Option>
TH33	Thermistor <Comp. Surface>	SV1/CH	Connector <Connection for Option>
TRS	Thermal Protector	SV3/SS	Connector <Connection for Option>
LEV-A, LEV-B, LEV-C	Linear Expansion Valve	CNM	Connector <Connection for Option>
DCL1, DCL2, DCL3	Reactor	F1, F2	Fuse <T10AL250V>
CY1, CY2	Capacitor	F3, F4	Fuse <T6.3AL250V>



Never splice the power cable or the indoor-outdoor connection cable, otherwise it may result in a smoke, a fire or communication failure.

*1 MODEL SELECT
The black square (■) indicates a switch position.

MODEL	SW6 *2
100V	ON OFF 1 2 3 4 5 6 7 8

MODEL	SW6 *2
120V	ON OFF 1 2 3 4 5 6 7 8

*2 SW6-1 to SW6-3 : Function Switch

*3 SW9-3 and SW9-4: Function Switch for SHWM only
Ambient temp. of ZUBADAN Flash Injection becomes effective.
The black square (■) indicates a switch position.

Ambient temp.	SW9 *4	Ambient temp.	SW9 *4	Ambient temp.	SW9 *4	Ambient temp.	SW9 *4
–6°C or less (Default setting)	ON OFF 1 2 3 4	–3°C or less	ON OFF 1 2 3 4	0°C or less	ON OFF 1 2 3 4	3°C or less	ON OFF 1 2 3 4

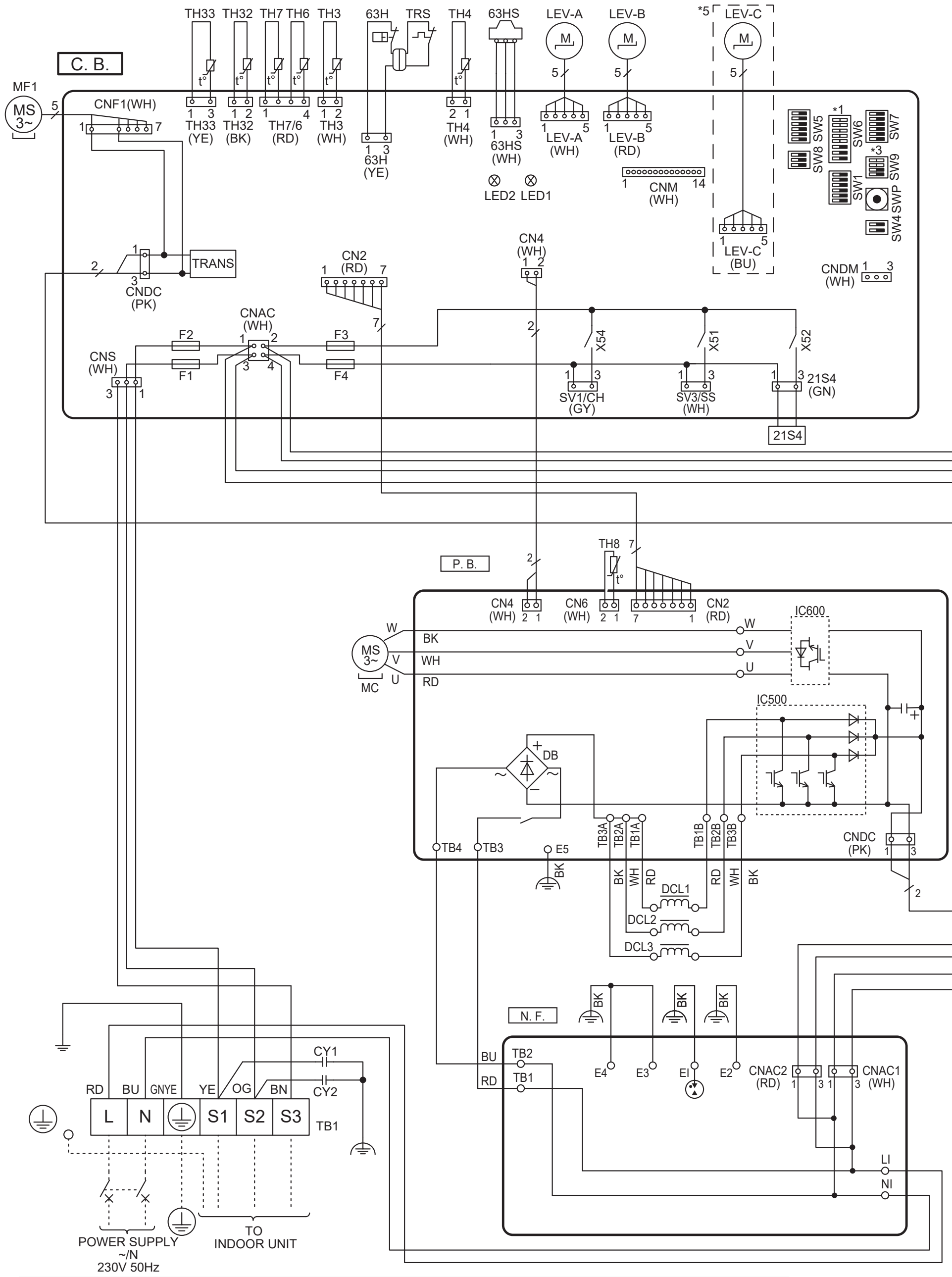
*4 SW9-1 and SW9-2 : Function Switch

*5 SHWM only

■ PUZ-SWM140VAA PUZ-SHWM140VAA

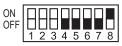
[LEGEND]

SYMBOL	NAME	SYMBOL	NAME
TB1	Terminal Block <Power Supply, Indoor/Outdoor>	P. B.	Power Circuit Board
MC	Motor for Compressor	N. F.	Noise Filter Circuit Board
MF1	Fan Motor	C. B.	Controller Circuit Board
21S4	Solenoid Valve (4-Way Valve)	SW1	Switch <Manual Defrost, Defect History Record Reset, Refrigerant Address>
63H	High Pressure Switch		
63HS	High Pressure Sensor	SW4	Switch <Function Switch>
TH3	Thermistor <Liquid>	SW5	Switch <Function Switch>
TH4	Thermistor <Discharge>	SW6	Switch <Function Switch, Model Select>
TH6	Thermistor <2-Phase Pipe>	SW7	Switch <Function Switch>
TH7	Thermistor <Ambient>	SW8	Switch <Function Switch>
TH8	Thermistor <Heat Sink>	SW9	Switch <Function Switch>
TH32	Thermistor <Suction>	SWP	Switch <Pump Down>
TH33	Thermistor <Comp. Surface>	CNDM	Connector <Connection for Option>
TRS	Thermal Protector	SV1/CH	Connector <Connection for Option>
LEV-A, LEV-B, LEV-C	Linear Expansion Valve	SV3/SS	Connector <Connection for Option>
DCL1, DCL2, DCL3	Reactor	CNM	Connector <Connection for Option>
CY1, CY2	Capacitor	F1, F2	Fuse <T10AL250V>
		F3, F4	Fuse <T6.3AL250V>



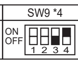
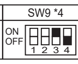
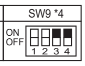
Never splice the power cable or the indoor-outdoor connection cable, otherwise it may result in a smoke, a fire or communication failure.

*1 MODEL SELECT
The black square (■) indicates a switch position.

MODEL	SW6 *2
140V	

*2 SW6-1 to SW6-3 : Function Switch

*3 SW9-3 and SW9-4: Function Switch
Ambient temp. of ZUBADAN Flash Injection becomes effective.
The black square (■) indicates a switch position.

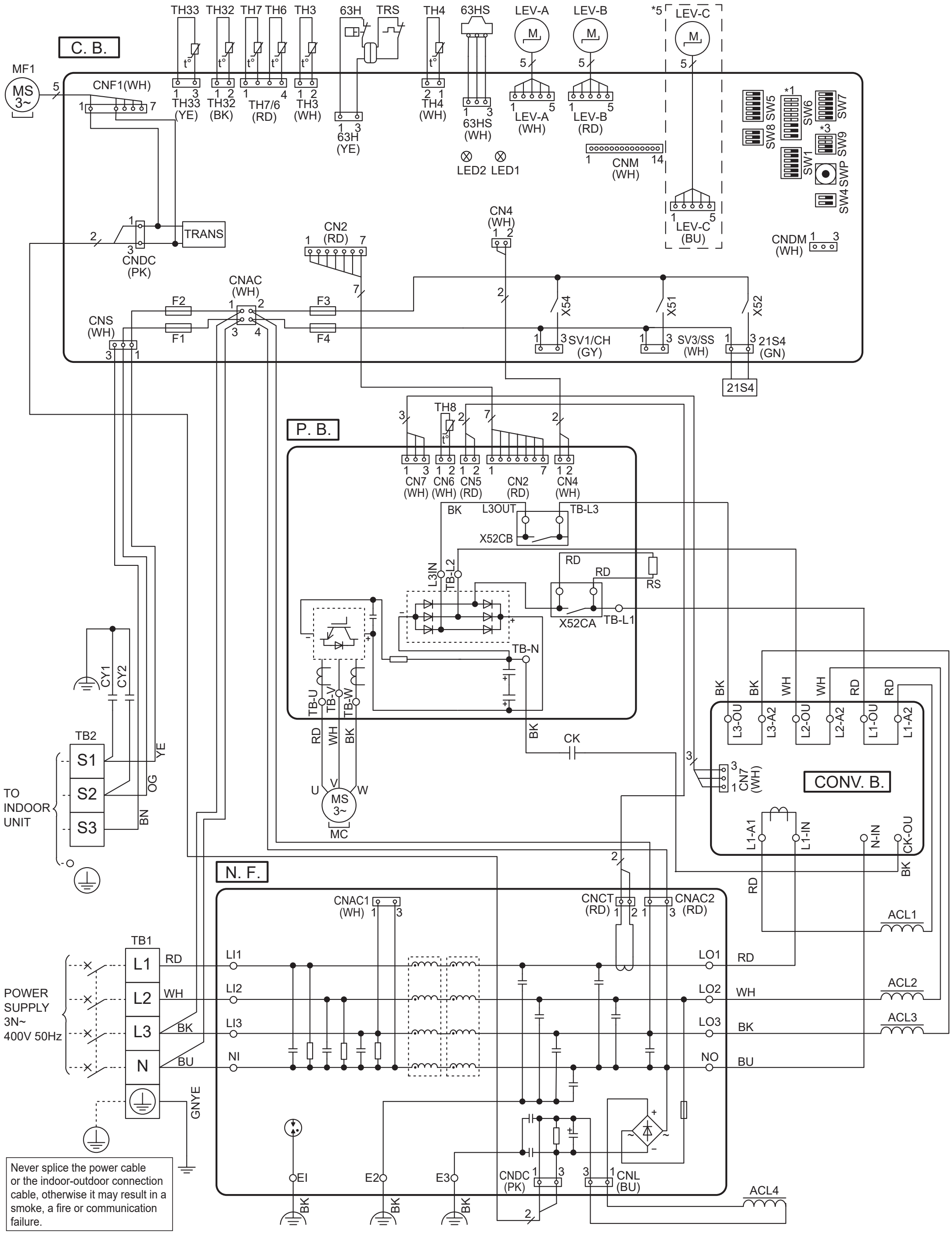
Ambient temp.	SW9 *4	Ambient temp.	SW9 *4	Ambient temp.	SW9 *4	Ambient temp.	SW9 *4
–6°C or less (Default setting)		–3°C or less		0°C or less		3°C or less	

*4 SW9-1 and SW9-2 : Function Switch
*5 SHWM only

■ PUZ-SWM80YAA PUZ-SHWM80YAA PUZ-SWM100YAA PUZ-SHWM100YAA PUZ-SWM120YAA PUZ-SHWM120YAA PUZ-SWM140YAA PUZ-SHWM140YAA

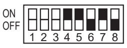
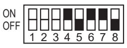
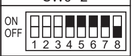
[LEGEND]

SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
TB1	Terminal Block <Power Supply>	TRS	Thermal Protector	SW4	Switch <Function Switch>
TB2	Terminal Block <Indoor/Outdoor>	LEV-A, LEV-B, LEV-C	Linear Expansion Valve	SW5	Switch <Function Switch>
MC	Motor for Compressor			SW6	Switch <Function Switch, Model Select>
MF1	Fan Motor	ACL1, ACL2, ACL3, ACL4	Reactor	SW7	Switch <Function Switch>
21S4	Solenoid Valve (4-Way Valve)			SW8	Switch <Function Switch>
63H	High Pressure Switch	CY1, CY2	Capacitor	SW9	Switch <Function Switch>
63HS	High Pressure Sensor	CK	Capacitor	SWP	Switch <Pump Down>
TH3	Thermistor <Liquid>	RS	Rush Current Protect Resistor	CNDM	Connector <Connection for Option>
TH4	Thermistor <Discharge>	P. B.	Power Circuit Board	SV1/CH	Connector <Connection for Option>
TH6	Thermistor <2-Phase Pipe>	N. F.	Noise Filter Circuit Board	SV3/SS	Connector <Connection for Option>
TH7	Thermistor <Ambient>	CONV. B.	Converter Circuit Board	CNM	Connector <Connection for Option>
TH8	Thermistor <Heat Sink>	C. B.	Controller Circuit Board	F1, F2	Fuse <T10AL250V>
TH32	Thermistor <Suction>	SW1	Switch <Manual Defrost, Defect History Record Reset, Refrigerant Address>	F3, F4	Fuse <T6.3AL250V>
TH33	Thermistor <Comp. Surface>				



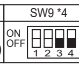
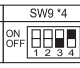
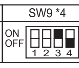
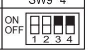
Never splice the power cable or the indoor-outdoor connection cable, otherwise it may result in a smoke, a fire or communication failure.

*1 MODEL SELECT
The black square (■) indicates a switch position.

MODEL	SW6 *2	MODEL	SW6 *2
80Y		100Y	
120Y		140Y	

*2 SW6-1 to SW6-3 : Function Switch

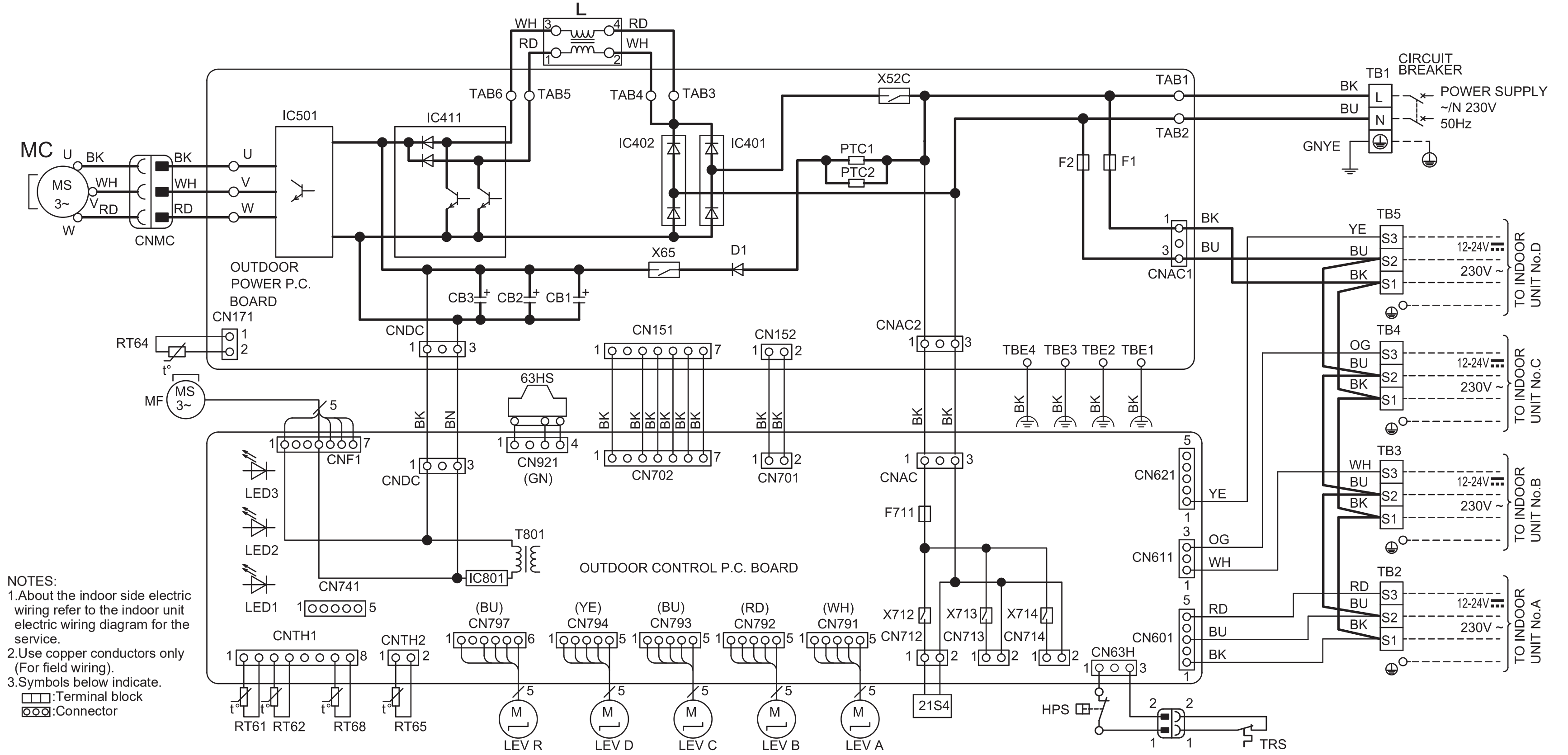
*3 SW9-3 and SW9-4: Function Switch for SHWM only
Ambient temp. of ZUBADAN Flash Injection becomes effective.
The black square (■) indicates a switch position.

Ambient temp.	SW9 *4	Ambient temp.	SW9 *4	Ambient temp.	SW9 *4	Ambient temp.	SW9 *4
–6°C or less (Default setting)		–3°C or less		0°C or less		3°C or less	

*4 SW9-1 and SW9-2 : Function Switch

*5 SHWM only

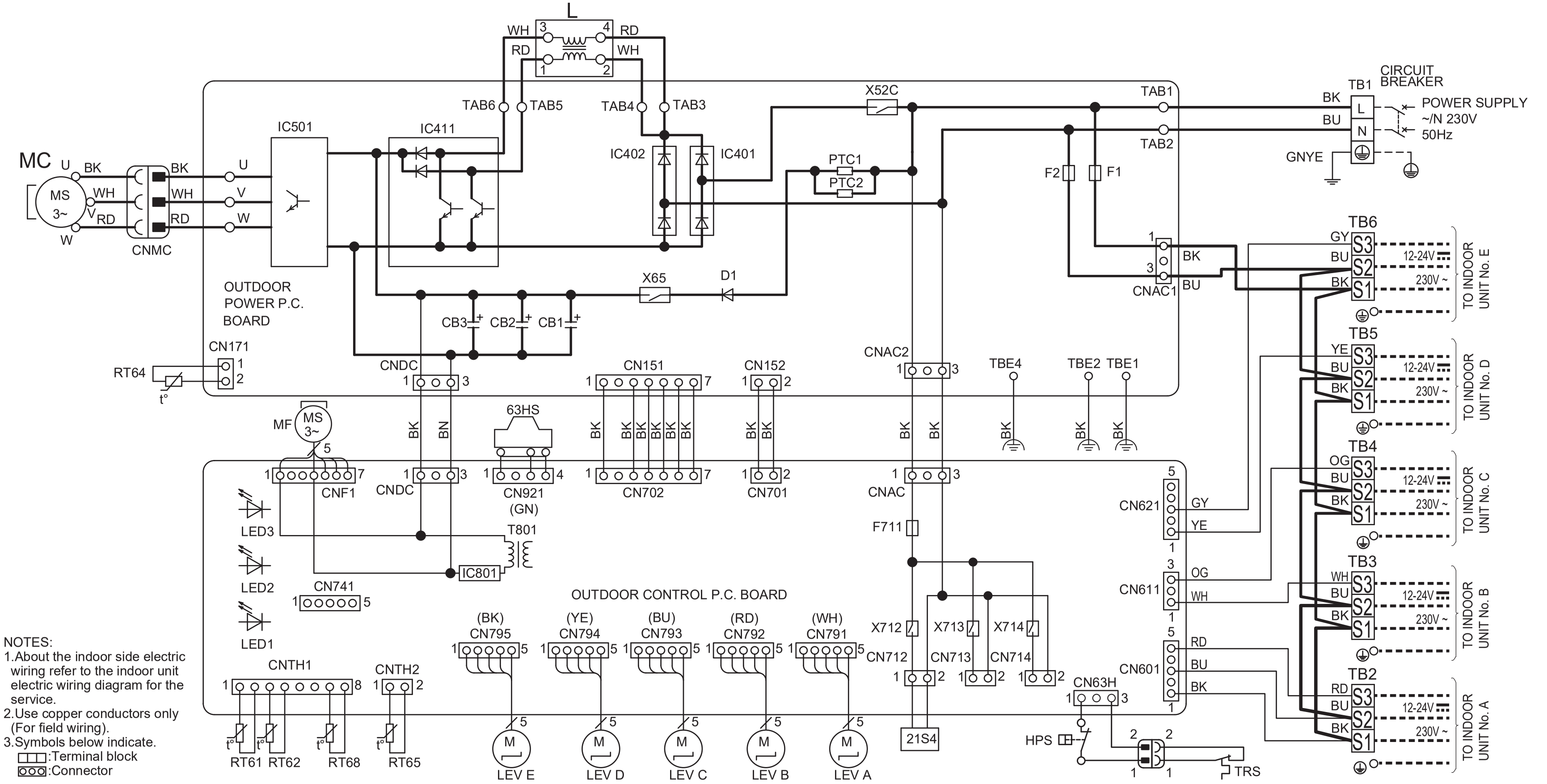
■ PXZ-4F75VG



NOTES:
1.About the indoor side electric wiring refer to the indoor unit electric wiring diagram for the service.
2.Use copper conductors only (For field wiring).
3.Symbols below indicate.
▭▭:Terminal block
○○○:Connector

SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
CB1~3	SMOOTHING CAPACITOR	IC401,402	DIODE BRIDGE	LEV A~D,R	EXPANSION VALVE COIL	RT64	FIN TEMP. THERMISTOR	TRS	THERMAL PROTECTOR	21S4	4-WAY VALVE SOLENOID COIL
D1	DIODE	IC411	POWER FACTOR CONTROLLER	MC	COMPRESSOR	RT65	AMBIENT TEMP. THERMISTOR	X52C	RELAY		
F1	FUSE(T6.3AL250V)	IC501	POWER MODULE	MF	FAN MOTOR	RT68	OUTDOOR HEAT EXCHANGER TEMP. THERMISTOR	X65	RELAY	63HS	HIGH PRESSURE SENSOR
F2	FUSE(T6.3AL250V)	IC801	POWER DEVICE	PTC1,2	CIRCUIT PROTECTOR			X712	RELAY		
F711	FUSE(T3.15AL250V)	L	REACTOR	RT61	DEFROST THERMISTOR	T801	TRANSFORMER	X713	RELAY		
HPS	HIGH PRESSURE SWITCH	LED1~3	LED	RT62	DISCHARGE TEMP. THERMISTOR	TB1~5	TERMINAL BLOCK	X714	RELAY		

■ PXZ-5F85VG



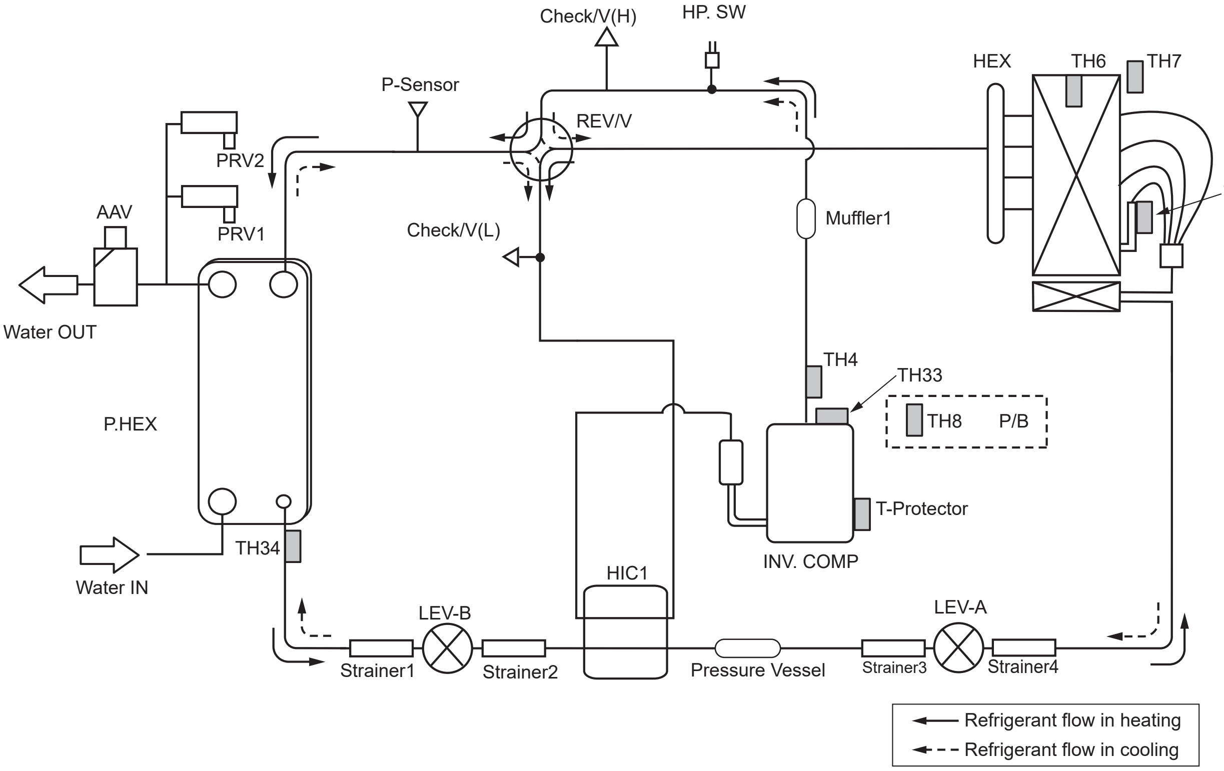
NOTES:
1.About the indoor side electric wiring refer to the indoor unit electric wiring diagram for the service.
2.Use copper conductors only (For field wiring).
3.Symbols below indicate.
▭▭:Terminal block
ooo:Connector

SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
CB1~3	SMOOTHING CAPACITOR	IC401,402	DIODE BRIDGE	LEV A~E	EXPANSION VALVE COIL	RT64	FIN TEMP. THERMISTOR	TRS	THERMAL PROTECTOR	21S4	4-WAY VALVE SOLENOID COIL
D1	DIODE	IC411	POWER FACTOR CONTROLLER	MC	COMPRESSOR	RT65	AMBIENT TEMP. THERMISTOR	X52C	RELAY		
F1	FUSE(T6.3AL250V)	IC501	POWER MODULE	MF	FAN MOTOR	RT68	OUTDOOR HEAT EXCHANGER TEMP. THERMISTOR	X65	RELAY	63HS	HIGH PRESSURE SENSOR
F2	FUSE(T6.3AL250V)	IC801	POWER DEVICE	PTC1,2	CIRCUIT PROTECTOR			X712	RELAY		
F711	FUSE(T3.15AL250V)	L	REACTOR	RT61	DEFROST THERMISTOR	T801	TRANSFORMER	X713	RELAY		
HPS	HIGH PRESSURE SWITCH	LED1~3	LED	RT62	DISCHARGE TEMP. THERMISTOR	TB1~6	TERMINAL BLOCK	X714	RELAY		

(1)Packaged-type units

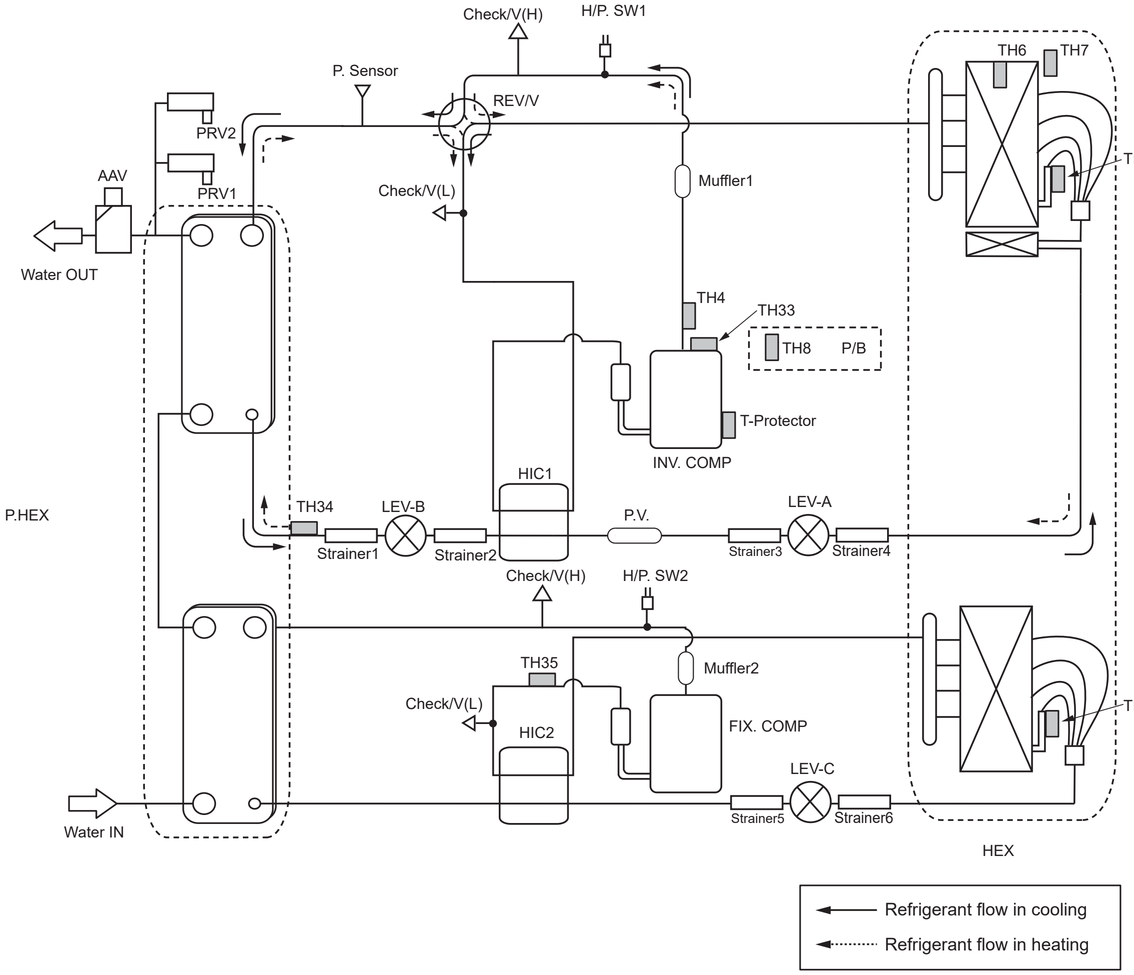
■ PUZ-WZ50VAA(-BS) PUZ-WZ60VAA(-BS)

Unit : mm



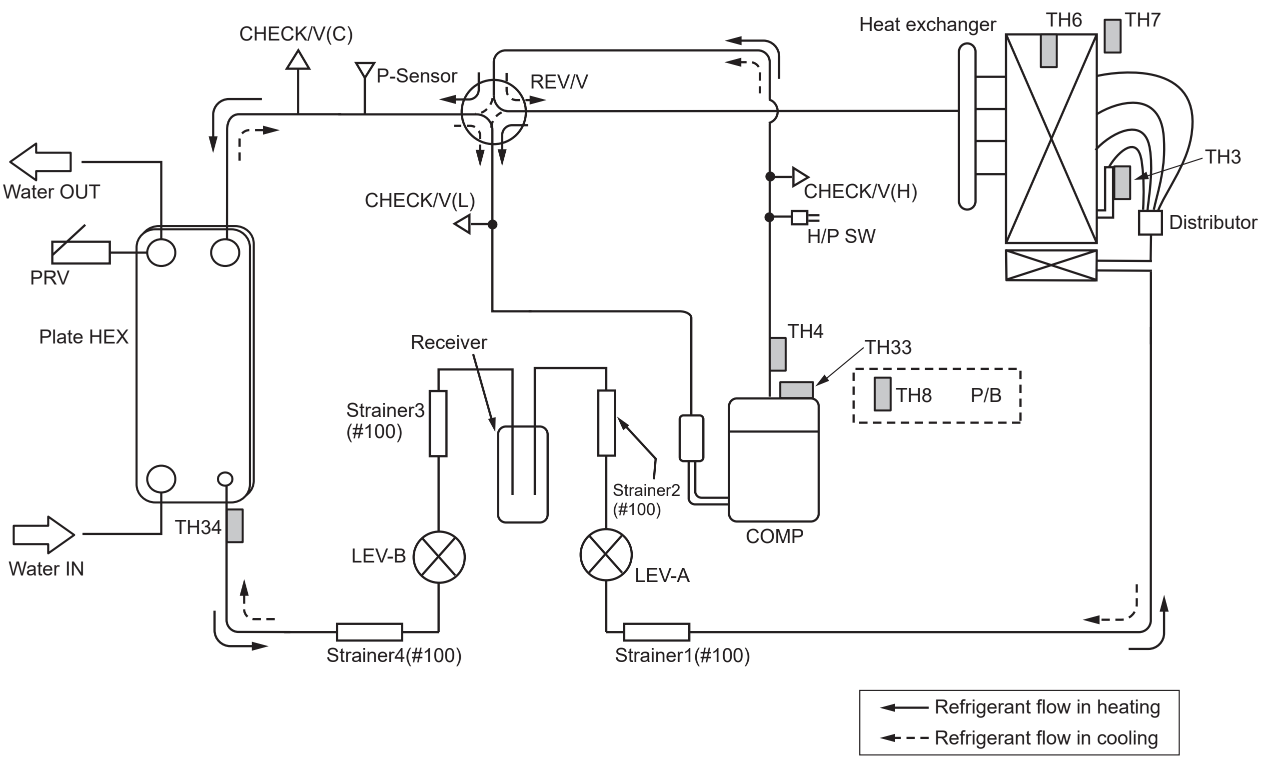
■ PUZ-WZ80VAA(-BS)

Unit : mm



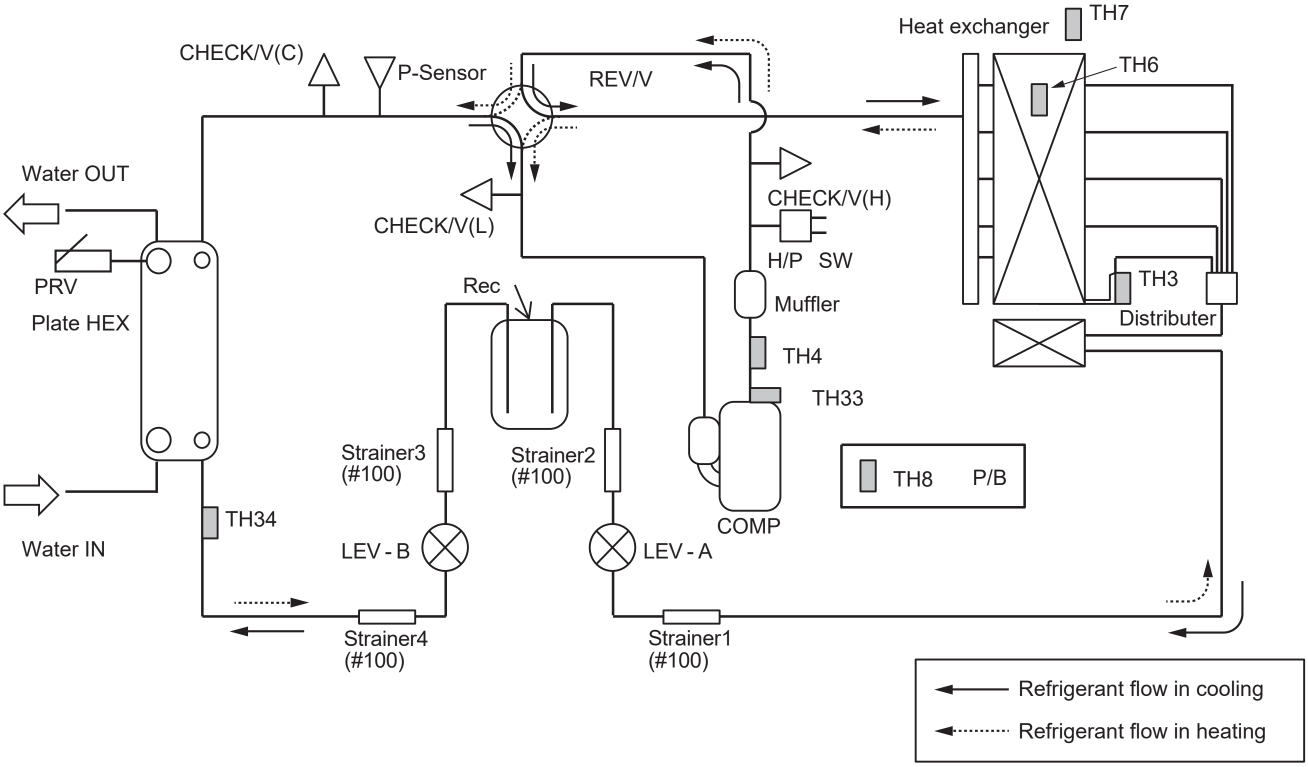
■ PUZ-WM50VHA(-BS)

Unit : mm



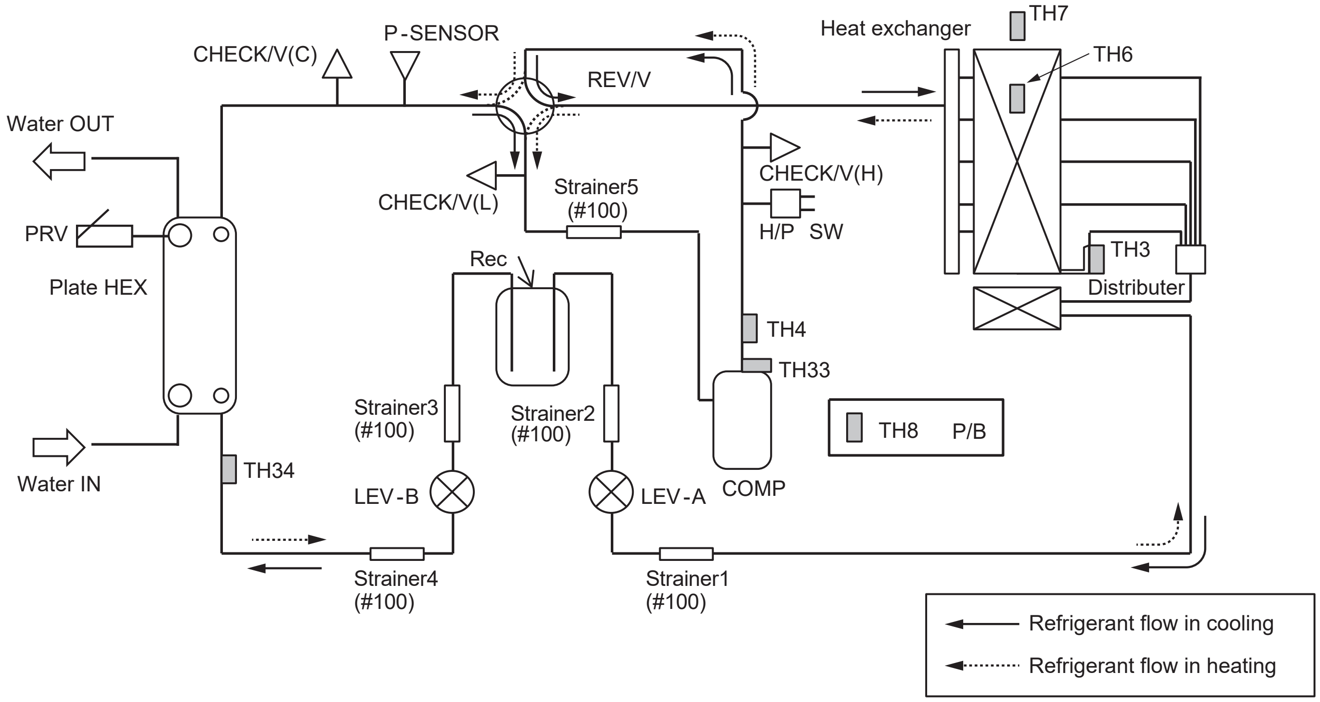
■ PUZ-WM60VAA(-BS) PUZ-WM85VAA(-BS) PUZ-WM85YAA(-BS)

Unit : mm



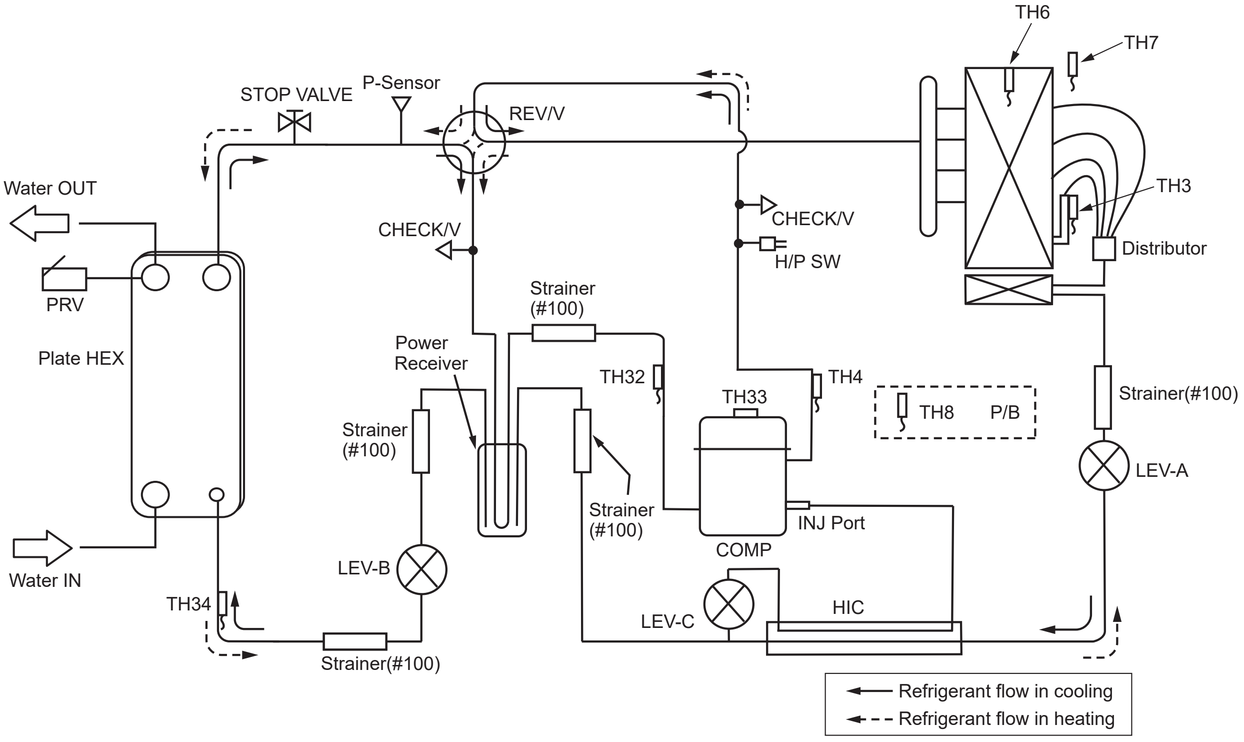
■ PUZ-WM112VAA(-BS)
PUZ-WM112YAA(-BS)

Unit : mm



■ PUZ-HWM140VHA(-BS)
PUZ-HWM140YHA(-BS)

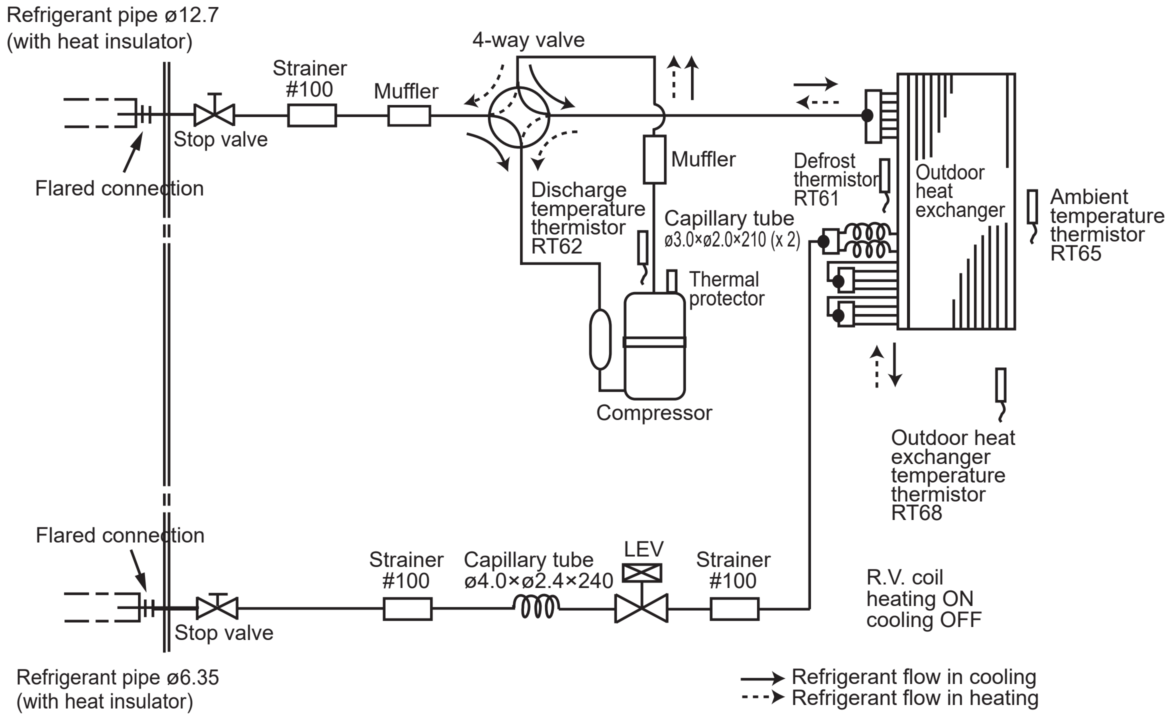
Unit : mm



(2)Split-type units

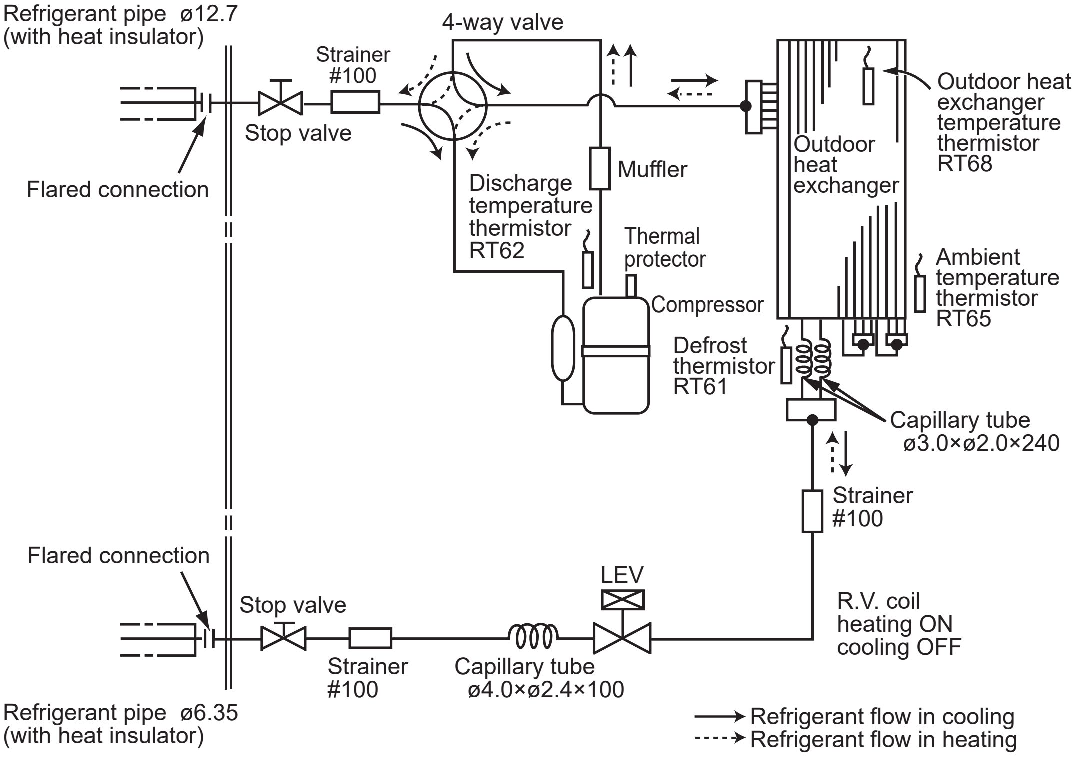
■ **SUZ-SWM30VA** **SUZ-SWM40VA2(-SC)** **SUZ-SWM60VA2(-SC)**
SUZ-SHWM30VAH **SUZ-SHWM40VAH(-SC)**

Unit : mm

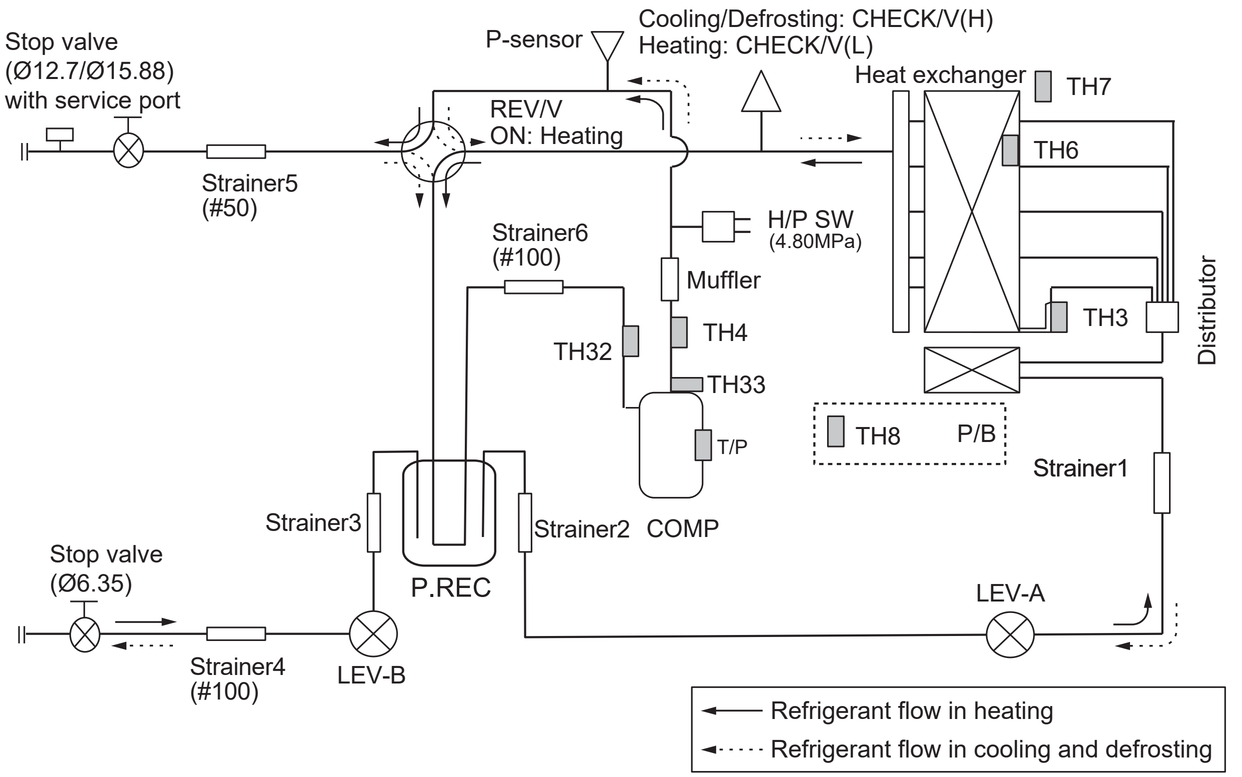


■ **SUZ-SHWM60VAH(-SC)** **SUZ-SWM80VA2** **SUZ-SWM100VA**
SUZ-SWM80VAH2 **SUZ-SWM100VAH**

Unit : mm

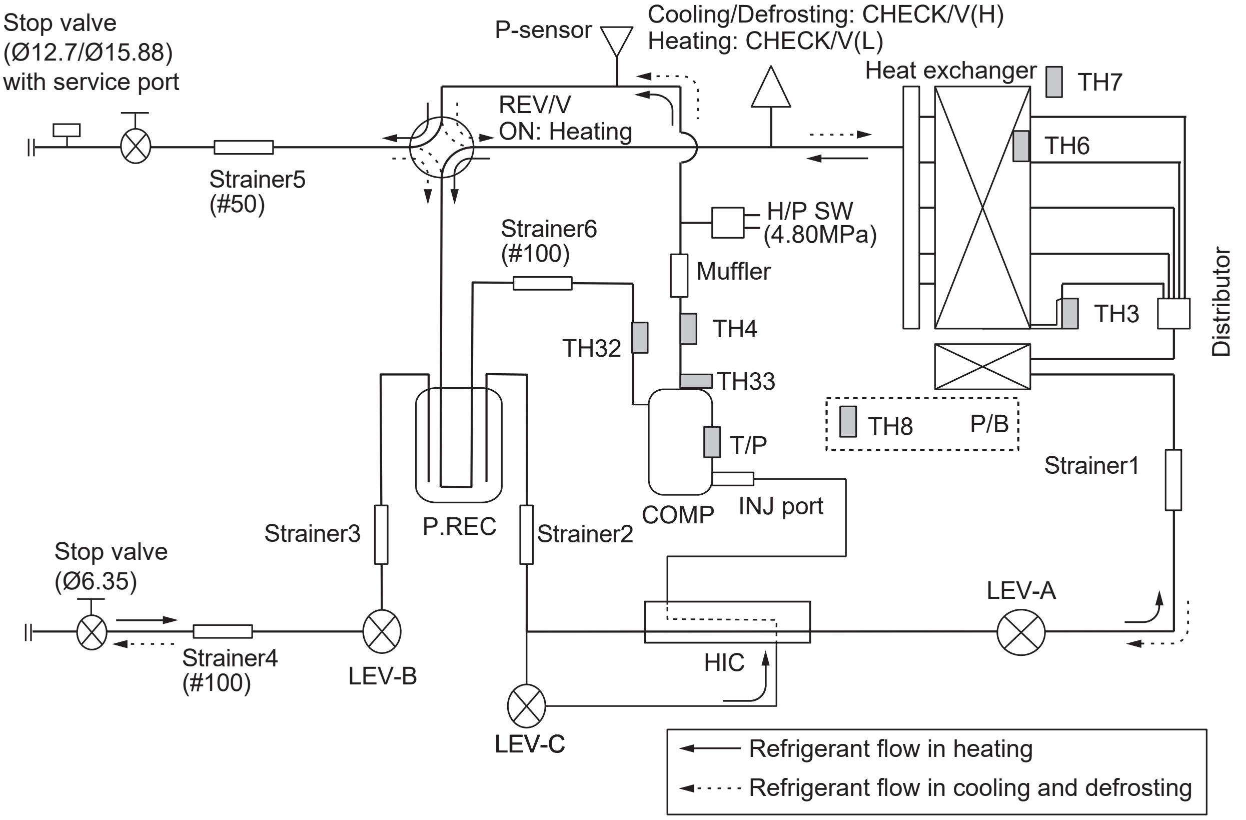


■ PUZ-SWM60VAA PUZ-SWM80VAA PUZ-SWM100VAA PUZ-SWM120VAA PUZ-SWM140VAA
PUZ-SWM80YAA PUZ-SWM100YAA PUZ-SWM120YAA PUZ-SWM140YAA



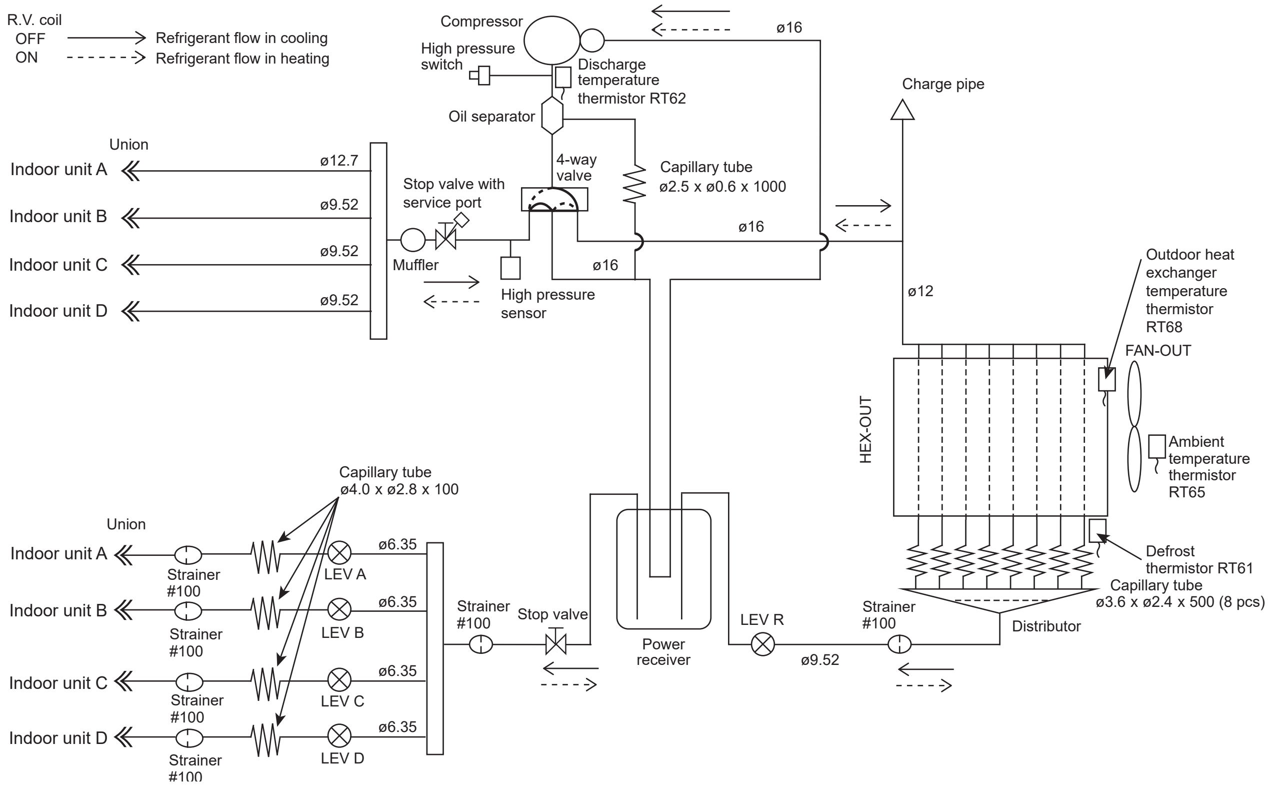
■ PUZ-SHWM60VAA PUZ-SHWM80VAA PUZ-SHWM100VAA PUZ-SHWM120VAA PUZ-SHWM140VAA
PUZ-SHWM80YAA PUZ-SHWM100YAA PUZ-SHWM120YAA PUZ-SHWM140YAA

unit: mm (in)



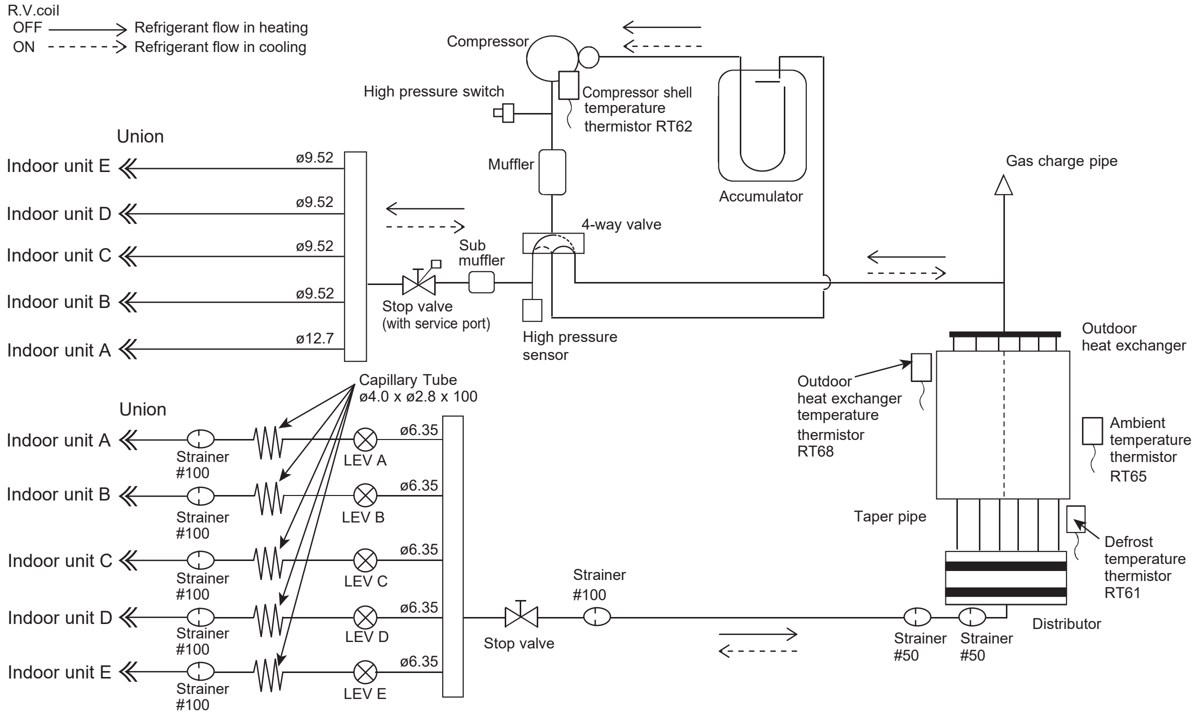
■ PXZ-4F75VG

Unit: mm



■ PXZ-5F85VG

Unit: mm



NOTES:
- These values are only for reference purpose. Actual performance may vary depending on operating conditions.
- Grey highlighted data includes defrost operation.

Max: Maximum capacity
Partload1: Heating reference capacity defined at A2W35
Cooling reference capacity defined at A35W7 and A35W18
Partload2: Approximately 80% of Partload1
Min: Minimum capacity

5.1 Cooling performance data

(1)Packaged-type units

■ Power inverter

Water outlet temperature [°C]			7		18	
Model	Ambient temperature [°C]		Capacity	COP	Capacity	COP
PUZ-WZ50VAA(-BS)	Max	35	3.5	2.74	4.2	3.20
		30	3.8	3.17	4.4	3.59
		25	3.9	3.45	4.5	3.85
		20	4.0	3.82	4.7	4.23
	Partload1	35	3.2	3.10	4.2	3.20
		30	3.2	3.44	4.2	3.73
		25	3.2	3.94	4.2	4.14
		20	3.2	4.67	4.2	4.77
	Min	35	0.9	2.73	1.4	3.62
		30	1.1	3.44	1.5	4.53
		25	1.2	4.32	1.6	5.68
		20	1.2	5.47	1.7	7.19
PUZ-WZ60VAA(-BS)	Max	35	3.8	2.51	4.6	3.00
		30	4.1	2.88	4.9	3.23
		25	4.0	3.27	5.0	3.42
		20	4.1	3.69	5.1	3.70
	Partload1	35	3.6	2.90	4.6	3.00
		30	3.6	3.29	4.6	3.47
		25	3.6	3.73	4.6	3.78
		20	3.6	4.34	4.6	4.30
	Min	35	0.9	2.69	1.4	3.55
		30	1.1	3.38	1.5	4.43
		25	1.1	4.24	1.6	5.54
		20	1.2	5.36	1.7	7.00
PUZ-WZ80VAA(-BS)	Max	35	4.3	2.42	5.3	2.62
		30	4.6	2.79	5.6	2.93
		25	4.6	2.92	5.6	2.96
		20	4.6	3.18	5.7	3.10
	Partload1	35	4.0	2.70	5.0	2.80
		30	4.0	3.04	5.0	3.40
		25	4.0	3.27	5.0	3.55
		20	4.0	3.66	5.0	3.93
	Min	35	1.0	2.73	1.5	3.89
		30	1.1	3.40	1.7	4.92
		25	1.2	4.22	1.8	6.20
		20	1.3	5.24	1.9	7.88

Water outlet temperature [°C]			7		18	
Model	Ambient temperature [°C]		Capacity	COP	Capacity	COP
PUZ-WM50VHA(-BS)	Max	35	4.5	3.40	6.9	4.16
		30	5.3	3.60	7.1	4.46
		25	4.9	3.64	6.7	4.62
		20	4.8	3.40	6.2	3.74
	Partload1	35	4.5	3.40	4.5	5.00
		30	4.5	3.62	4.5	5.40
		25	4.5	4.06	4.5	6.30
		20	4.0	4.31	4.0	6.31
	Partload2	35	3.6	3.69	3.6	5.40
		30	3.6	3.80	3.6	5.69
		25	3.6	4.11	3.6	6.23
		20	3.6	3.89	3.6	5.88
	Min	35	1.9	4.01	2.6	5.66
		30	2.0	4.69	2.7	6.38
		25	2.1	5.46	2.8	7.28
		20	2.1	5.82	2.8	7.37
PUZ-WM60VAA(-BS)	Max	35	6.0	3.30	8.4	3.51
		30	6.3	3.73	8.7	3.98
		25	6.0	3.32	8.2	3.25
		20	6.0	3.02	7.6	2.75
	Partload1	35	6.0	3.30	6.0	4.45
		30	6.0	3.89	6.0	6.42
		25	6.0	3.32	6.0	6.24
		20	6.0	3.02	6.0	5.93
	Partload2	35	4.8	3.84	4.8	4.88
		30	4.8	4.53	4.8	6.92
		25	4.8	4.33	4.8	7.20
		20	4.8	4.07	4.8	7.31
	Min	35	2.3	4.58	3.2	5.46
		30	2.4	5.54	3.3	6.82
		25	2.5	5.68	3.4	7.72
		20	2.6	5.54	3.4	8.41
PUZ-WM85VAA(-BS) PUZ-WM85YAA(-BS)	Max	35	7.5	3.15	10.5	3.87
		30	7.9	3.56	10.9	4.38
		25	7.5	3.17	10.2	3.58
		20	7.2	2.88	9.5	3.03
	Partload1	35	7.5	3.15	7.5	4.90
		30	7.5	3.71	7.5	7.07
		25	7.5	3.17	7.5	6.87
		20	7.2	2.88	7.5	6.53
	Partload2	35	6.0	3.66	6.0	5.38
		30	6.0	4.33	6.0	7.62
		25	6.0	4.13	6.0	7.93
		20	6.0	3.89	6.0	8.05
	Min	35	2.3	4.38	3.2	6.01
		30	2.4	5.29	3.3	7.51
		25	2.5	5.43	3.4	8.50
		20	2.6	5.29	3.4	9.26
PUZ-WM112VAA(-BS) PUZ-WM112YAA(-BS)	Max	35	10.0	3.30	13.9	3.98
		30	10.6	3.91	14.8	4.67
		25	10.4	3.72	14.1	4.18
		20	10.1	3.44	13.4	3.63
	Partload1	35	10.0	3.30	10.0	4.90
		30	10.0	4.14	10.0	5.83
		25	10.0	3.92	10.0	5.81
		20	10.0	3.49	10.0	5.48
	Partload2	35	8.0	3.80	8.0	5.04
		30	8.0	4.57	8.0	5.94
		25	8.0	4.66	8.0	6.27
		20	8.0	4.58	8.0	6.27
	Min	35	2.8	3.00	4.1	4.91
		30	3.0	3.45	4.3	5.79
		25	3.1	4.09	4.3	6.81
		20	3.2	4.51	4.4	7.44

Water outlet temperature [°C]			7		18	
Model	Ambient temperature [°C]		Capacity	COP	Capacity	COP
PUZ-HWM140VHA(-BS) PUZ-HWM140YHA(-BS)	Max	35	12.3	3.07	16.2	4.34
		30	12.3	3.63	16.2	5.14
		25	12.3	3.94	16.2	5.61
		20	12.3	4.45	16.2	6.21
	Partload1	35	11.9	3.24	11.1	5.35
		30	11.9	3.84	11.1	6.33
		25	11.9	4.16	11.1	6.91
		20	11.9	4.69	11.1	7.65
	Partload2	35	9.5	4.07	8.9	6.20
		30	9.5	4.78	8.9	7.27
		25	9.5	5.37	8.9	7.86
		20	9.5	6.12	8.9	8.80
	Min	35	5.0	3.84	7.4	6.26
		30	5.3	4.37	7.7	7.21
		25	5.5	5.13	7.9	7.95
		20	5.7	5.68	8.1	8.95

(2)Split-type units

■ Power inverter

Water outlet temperature [°C]			7		18	
Model	Ambient temperature [°C]		Capacity	COP	Capacity	COP
SUZ-SWM30VA SUZ-SHWM30VAH	Max	35	4.1	3.23	5.5	4.42
		30	4.3	3.83	5.8	5.16
		25	4.5	4.55	6.0	6.19
		20	4.6	5.31	6.3	7.62
	Partload1	35	3.5	3.52	3.5	5.51
		30	3.5	4.28	3.5	6.62
		25	3.5	5.15	3.5	7.95
		20	3.5	6.18	3.5	8.99
	Partload2	35	2.8	3.77	2.8	5.69
		30	2.8	4.50	2.8	6.83
		25	2.8	5.39	2.8	8.24
		20	2.8	6.47	2.8	9.39
	Min	35	1.3	3.70	1.5	5.73
		30	1.3	4.22	1.5	6.66
		25	1.4	5.19	1.6	8.22
		20	1.4	6.02	1.7	9.60
SUZ-SWM40VA2(-SC)	Max	35	4.7	3.13	6.5	4.18
		30	5.0	3.67	7.0	5.01
		25	5.2	4.33	7.2	5.96
		20	5.4	5.12	7.5	7.26
	Partload1	35	4.5	3.31	5.6	4.71
		30	4.5	3.88	5.6	5.65
		25	4.5	4.67	5.6	6.72
		20	4.5	5.62	5.6	7.50
	Partload2	35	3.6	3.54	4.5	5.16
		30	3.6	4.19	4.5	6.18
		25	3.6	5.00	4.5	7.28
		20	3.6	6.02	4.5	8.28
	Min	35	1.3	3.55	1.6	5.45
		30	1.3	4.05	1.6	6.34
		25	1.4	4.98	1.7	7.82
		20	1.4	5.78	1.8	9.13
SUZ-SHWM40VAH(-SC)	Max	35	4.9	2.98	6.5	3.97
		30	5.3	3.65	6.9	4.62
		25	5.5	4.51	7.2	5.35
		20	5.6	5.83	7.5	6.17
	Partload1	35	4.5	3.33	5.6	4.70
		30	4.5	3.90	5.6	5.41
		25	4.5	4.97	5.6	6.15
		20	4.5	6.37	5.6	6.88
	Partload2	35	3.6	3.37	4.5	4.60
		30	3.6	4.04	4.5	5.27
		25	3.6	5.00	4.5	5.79
		20	3.6	6.16	4.5	6.35
	Min	35	1.7	3.14	2.1	4.28
		30	1.8	3.88	2.2	4.95
		25	1.9	4.76	2.3	5.59
		20	2.0	5.84	2.3	6.11
SUZ-SWM60VA2(-SC)	Max	35	5.3	2.82	7.2	3.75
		30	5.7	3.45	7.6	4.36
		25	5.9	4.27	8.0	5.05
		20	6.1	5.52	8.3	5.83
	Partload1	35	5.0	3.18	6.0	4.65
		30	5.0	3.69	6.0	5.11
		25	5.0	4.70	6.0	5.81
		20	5.0	6.03	6.0	6.50
	Partload2	35	4.0	3.32	4.8	4.65
		30	4.0	3.98	4.8	5.33
		25	4.0	4.93	4.8	5.85
		20	4.0	6.07	4.8	6.42
	Min	35	1.7	3.11	2.1	4.23
		30	1.8	3.84	2.2	4.90
		25	1.9	4.71	2.3	5.53
		20	2.0	5.77	2.3	6.05

Water outlet temperature [°C]			7		18	
Model	Ambient temperature [°C]		Capacity	COP	Capacity	COP
SUZ-SHWM60VAH(-SC)	Max	35	6.3	3.18	8.3	4.23
		30	6.6	3.73	8.5	5.00
		25	6.8	4.43	8.8	6.07
		20	7.0	5.22	9.1	7.43
	Partload1	35	6.0	3.28	6.0	5.21
		30	6.0	3.91	6.0	6.45
		25	6.0	4.74	6.0	7.91
		20	6.0	5.86	6.0	9.36
	Partload2	35	4.8	3.52	4.8	5.39
		30	4.8	4.26	4.8	6.60
		25	4.8	5.17	4.8	8.15
		20	4.8	6.39	4.8	9.75
	Min	35	2.3	3.23	3.0	4.86
		30	2.4	3.87	3.2	6.04
		25	2.5	4.74	3.3	7.41
		20	2.6	5.95	3.5	9.03
SUZ-SWM80VA2 SUZ-SWM80VAH2	Max	35	6.9	2.98	9.1	3.89
		30	7.2	3.50	9.3	4.60
		25	7.5	4.15	9.7	5.58
		20	7.7	4.89	10.0	6.83
	Partload1	35	6.7	3.20	6.7	5.06
		30	6.7	3.66	6.7	5.93
		25	6.7	4.44	6.7	7.28
		20	6.7	5.49	6.7	8.61
	Partload2	35	5.4	3.43	5.4	5.23
		30	5.4	4.16	5.4	6.41
		25	5.4	5.04	5.4	7.91
		20	5.4	6.23	5.4	9.47
	Min	35	2.3	3.15	3.0	4.72
		30	2.4	3.78	3.2	5.86
		25	2.5	4.62	3.3	7.20
		20	2.6	5.80	3.5	8.77
SUZ-SWM100VA SUZ-SWM100VAH	Max	35	7.5	2.78	10.1	3.46
		30	7.9	3.25	10.4	4.10
		25	8.2	3.82	10.8	4.91
		20	8.5	4.53	11.1	5.93
	Partload1	35	7.3	3.00	8.1	4.44
		30	7.3	3.46	8.1	5.14
		25	7.3	4.17	8.1	6.18
		20	7.3	5.22	8.1	7.28
	Partload2	35	5.8	3.28	6.5	4.79
		30	5.8	3.96	6.5	5.77
		25	5.8	4.87	6.5	7.09
		20	5.8	6.00	6.5	8.37
	Min	35	2.3	3.10	3.0	4.41
		30	2.4	3.72	3.2	5.48
		25	2.5	4.55	3.3	6.73
		20	2.6	5.71	3.5	8.19
PUZ-SWM60VAA PUZ-SHWM60VAA	Max	35	6.5	3.44	8.8	5.24
		30	6.9	4.15	9.4	6.24
		25	7.2	4.66	9.8	6.64
		20	7.4	5.23	10.1	7.39
	Partload1	35	5.1	3.50	6.0	5.40
		30	5.1	4.22	6.0	6.59
		25	5.1	4.75	6.0	7.62
		20	5.1	5.33	6.0	9.04
	Partload2	35	4.1	3.61	4.8	5.48
		30	4.1	4.19	4.8	6.63
		25	4.1	4.77	4.8	7.90
		20	4.1	5.37	4.8	9.56
	Min	35	2.2	3.00	3.0	4.52
		30	2.3	3.62	3.2	5.52
		25	2.4	4.07	3.3	6.38
		20	2.5	4.57	3.5	7.00

Water outlet temperature [°C]			7		18	
Model	Ambient temperature [°C]		Capacity	COP	Capacity	COP
PUZ-SWM80VAA PUZ-SWM80YAA PUZ-SHWM80VAA PUZ-SHWM80YAA	Max	35	8.0	3.23	10.0	4.67
		30	8.5	3.89	10.7	5.51
		25	8.8	4.14	11.1	5.72
		20	9.2	4.53	11.5	6.25
	Partload1	35	7.1	3.30	8.0	4.95
		30	7.1	4.10	8.0	6.05
		25	7.1	4.52	8.0	6.74
		20	7.1	5.07	8.0	7.81
	Partload2	35	5.7	3.60	6.4	5.10
		30	5.7	4.21	6.4	6.16
		25	5.7	4.71	6.4	7.07
		20	5.7	5.28	6.4	8.33
	Min	35	2.2	2.80	3.0	4.28
		30	2.3	3.42	3.2	5.23
		25	2.4	3.95	3.3	5.83
		20	2.5	4.69	3.5	6.75
PUZ-SWM100VAA PUZ-SWM100YAA PUZ-SHWM100VAA PUZ-SHWM100YAA	Max	35	9.2	2.96	12.0	4.16
		30	9.8	3.58	12.7	4.90
		25	9.9	3.69	13.0	4.96
		20	10.1	4.04	13.3	6.31
	Partload1	35	9.0	3.00	10.0	4.50
		30	9.0	3.70	10.0	5.57
		25	9.0	3.92	10.0	6.00
		20	9.0	4.37	10.0	6.82
	Partload2	35	7.2	3.47	8.0	4.90
		30	7.2	4.08	8.0	5.94
		25	7.2	4.46	8.0	6.62
		20	7.2	5.01	8.0	7.65
	Min	35	2.2	2.90	3.0	4.32
		30	2.3	3.58	3.2	5.34
		25	2.4	3.79	3.2	5.76
		20	2.5	4.23	3.5	6.55
PUZ-SWM120VAA PUZ-SWM120YAA PUZ-SHWM120VAA PUZ-SHWM120YAA	Max	35	10.3	3.12	13.5	4.28
		30	10.9	3.65	14.3	5.44
		25	11.1	3.67	14.6	5.67
		20	11.3	4.04	15.0	6.35
	Partload1	35	11.0	2.86	12.0	4.50
		30	11.0	3.57	12.0	5.72
		25	11.0	3.65	12.0	5.96
		20	11.0	4.12	12.0	6.68
	Partload2	35	8.8	3.46	9.6	5.27
		30	8.8	4.17	9.6	6.38
		25	8.8	4.46	9.6	6.95
		20	8.8	5.02	9.6	7.96
	Min	35	2.2	3.09	3.1	4.24
		30	2.3	3.86	3.3	5.39
		25	2.4	3.95	3.3	5.62
		20	2.5	4.45	3.5	6.30
PUZ-SWM140VAA PUZ-SWM140YAA PUZ-SHWM140VAA PUZ-SHWM140YAA	Max	35	12.5	2.60	15.0	3.53
		30	13.3	2.99	15.9	4.02
		25	13.5	3.08	16.2	4.23
		20	13.8	3.37	16.7	4.63
	Partload1	35	12.5	2.62	14.0	3.75
		30	12.5	3.13	14.0	4.27
		25	12.5	3.22	14.0	4.49
		20	12.5	3.54	14.0	4.91
	Partload2	35	10.0	3.09	11.2	4.54
		30	10.0	3.64	11.2	5.41
		25	10.0	3.89	11.2	5.70
		20	10.0	4.36	11.2	6.36
	Min	35	3.3	2.97	4.4	4.12
		30	3.4	3.55	4.5	4.69
		25	3.4	3.65	4.6	4.93
		20	3.6	4.01	4.7	5.40

5.2 Heating performance data

(1)Packaged-type units

■ PUZ-WZ50VAA(-BS)

Water outlet temperature [°C]		25		35		40		45		50		55		60		65		70		75	
Ambient temperature [°C]		Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP
Max	-25	-	-	3.2	1.85	3.2	1.64	3.2	1.41	3.0	1.32	2.9	1.22	2.7	1.14	2.7	1.03	-	-	-	-
	-20	-	-	3.8	2.20	3.7	1.96	3.6	1.75	3.6	1.55	3.6	1.39	3.3	1.28	3.1	1.15	2.8	1.04	-	-
	-15	-	-	4.2	2.37	4.0	2.14	4.0	1.90	3.9	1.73	3.9	1.51	3.4	1.34	3.2	1.20	2.9	1.08	2.6	0.96
	-10	4.8	3.40	4.9	2.63	4.7	2.46	4.6	2.16	4.5	2.00	4.5	1.76	4.1	1.61	3.7	1.45	3.1	1.22	2.9	1.07
	-7	5.4	3.81	5.2	2.68	5.1	2.57	4.9	2.41	4.9	2.25	4.5	2.01	4.0	1.85	3.7	1.67	3.3	1.49	3.1	1.23
	2	6.1	3.58	5.8	2.95	5.7	2.60	5.5	2.35	5.5	2.23	5.0	2.07	4.6	1.89	4.3	1.69	3.7	1.47	3.5	1.35
	7	6.5	6.58	6.2	5.12	6.1	4.57	6.0	3.79	5.9	3.45	5.8	3.08	5.6	2.76	5.2	2.53	5.0	2.16	4.8	1.97
	12	7.8	7.77	7.5	6.04	7.1	5.26	6.9	4.32	6.9	3.92	6.7	3.50	6.5	3.12	6.1	2.89	5.3	2.56	4.5	2.19
	15	8.0	8.68	7.7	6.55	7.5	5.78	7.6	5.16	7.6	4.67	7.4	4.16	7.2	3.71	7.2	3.37	6.2	2.99	5.6	2.29
	20	8.5	8.77	8.8	7.74	8.5	6.60	8.6	5.79	8.3	5.12	8.1	4.49	7.6	3.86	7.2	3.31	7.0	3.36	6.8	2.70
Partload1	-25	-	-	3.2	1.85	3.2	1.64	3.2	1.41	3.0	1.32	2.9	1.22	2.7	1.14	2.7	1.03	-	-	-	-
	-20	-	-	3.8	2.20	3.7	1.96	3.6	1.75	3.6	1.55	3.6	1.39	3.3	1.28	3.1	1.15	2.8	1.04	-	-
	-15	-	-	4.2	2.37	4.0	2.14	4.0	1.90	3.9	1.73	3.9	1.51	3.4	1.34	3.2	1.20	2.9	1.08	2.6	0.96
	-10	4.8	3.40	4.9	2.63	4.7	2.46	4.6	2.16	4.5	2.00	4.5	1.76	4.1	1.61	3.7	1.45	3.1	1.22	2.9	1.07
	-7	5.0	4.02	5.0	2.70	5.0	2.57	4.9	2.41	4.9	2.25	4.5	2.01	4.0	1.85	3.7	1.67	3.3	1.49	3.1	1.23
	2	5.0	4.11	5.0	3.15	5.0	2.74	5.0	2.45	5.0	2.32	5.0	2.07	4.6	1.89	4.3	1.69	3.7	1.47	3.5	1.35
	7	4.0	6.85	4.0	5.10	4.0	4.60	4.0	4.00	4.0	3.58	4.0	3.20	4.0	2.86	4.0	2.51	4.0	2.14	4.0	1.95
	12	4.0	8.36	4.0	6.20	4.0	5.44	4.0	4.66	4.0	4.14	4.0	3.70	4.0	3.28	4.0	2.85	4.0	2.47	4.0	2.13
	15	4.0	9.66	4.0	6.93	4.0	6.03	4.0	5.08	4.0	4.49	4.0	3.96	4.0	3.49	4.0	3.05	4.0	2.64	4.0	2.28
	20	4.0	11.16	4.0	8.46	4.0	7.12	4.0	5.95	4.0	5.18	4.0	4.49	4.0	3.83	4.0	3.32	4.0	2.98	4.0	2.63
Min	-25	-	-	1.9	1.83	1.8	1.59	1.8	1.40	1.7	1.29	1.5	1.18	1.3	1.07	1.2	0.97	-	-	-	-
	-20	-	-	2.4	2.25	2.3	1.97	2.2	1.73	2.1	1.55	2.0	1.37	1.8	1.26	1.7	1.15	1.5	1.02	-	-
	-15	-	-	2.9	2.73	2.8	2.41	2.7	2.12	2.6	1.88	2.5	1.67	2.4	1.47	2.2	1.32	2.1	1.17	1.9	1.04
	-10	3.8	4.09	3.6	3.22	3.4	2.85	3.3	2.52	3.1	2.24	3.0	1.99	2.9	1.77	2.8	1.57	2.7	1.34	2.5	1.18
	-7	1.6	4.05	1.6	3.25	1.6	2.87	1.6	2.53	2.7	2.41	2.6	2.15	2.5	1.91	2.4	1.70	2.2	1.50	2.1	1.28
	2	1.6	4.15	1.6	3.15	1.4	2.74	1.4	2.39	1.9	2.32	1.8	2.03	1.7	1.78	1.7	1.57	1.5	1.37	1.5	1.27
	7	1.8	6.67	1.8	4.82	1.8	4.02	1.8	3.67	1.8	3.42	1.8	3.04	2.9	2.70	2.7	2.35	2.6	2.10	2.5	1.84
	12	2.0	7.69	1.9	5.55	1.8	4.59	1.7	4.17	1.6	3.45	1.5	3.01	1.5	2.59	1.3	2.23	1.3	1.99	1.2	1.73
	15	2.1	8.50	2.0	6.67	2.0	5.45	1.9	4.63	1.8	3.80	1.7	3.30	1.6	2.83	1.5	2.44	1.4	2.20	1.3	1.91
	20	2.3	10.19	2.3	7.56	2.3	6.34	2.2	5.32	2.1	4.62	2.0	4.07	2.0	3.63	1.8	3.10	1.7	2.70	1.6	2.34

■ PUZ-WZ60VAA(-BS)

Water outlet temperature [°C]		25		35		40		45		50		55		60		65		70		75	
Ambient temperature [°C]		Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP
Max	-25	-	-	4.1	1.76	4.0	1.59	3.7	1.37	3.4	1.28	3.2	1.20	3.0	1.12	2.7	1.02	-	-	-	-
	-20	-	-	4.8	2.06	4.7	1.86	4.5	1.69	4.0	1.49	3.7	1.37	3.4	1.26	3.1	1.15	2.8	1.03	-	-
	-15	-	-	5.4	2.13	5.1	1.92	4.8	1.79	4.4	1.64	4.0	1.51	3.6	1.34	3.2	1.21	2.9	1.09	2.6	0.97
	-10	6.1	3.05	6.2	2.37	5.9	2.21	5.5	2.04	5.1	1.89	4.7	1.76	4.3	1.61	3.9	1.46	3.3	1.23	2.9	1.07
	-7	6.4	3.51	6.2	2.47	6.0	2.37	5.9	2.27	5.8	2.12	5.4	1.97	4.8	1.82	4.4	1.67	3.9	1.49	3.7	1.26
	2	7.1	3.54	6.8	2.92	6.2	2.57	6.0	2.34	6.0	2.21	6.0	2.03	5.5	1.86	5.0	1.68	4.3	1.46	4.0	1.34
	7	7.6	6.07	7.2	4.72	7.1	4.22	6.9	3.74	6.8	3.40	6.8	3.07	6.6	2.75	6.4	2.43	6.1	2.08	6.0	1.92
	12	9.1	7.17	8.7	5.57	8.2	4.86	8.0	4.27	8.0	3.87	7.8	3.48	7.6	3.11	7.4	2.78	6.4	2.46	5.6	2.13
	15	9.7	7.96	9.3	6.00	9.0	5.30	8.8	4.63	8.7	4.19	8.6	3.77	8.3	3.35	8.1	2.99	7.0	2.65	5.9	2.26
	20	10.2	8.04	10.6	7.10	10.2	6.06	9.9	5.20	9.6	4.60	9.3	4.06	8.8	3.49	8.0	2.93	7.9	2.98	7.1	2.66
Partload1	-25	-	-	4.1	1.76	4.0	1.59	3.7	1.37	3.4	1.28	3.2	1.20	3.0	1.12	2.7	1.02	-	-	-	-
	-20	-	-	4.8	2.06	4.7	1.86	4.5	1.69	4.0	1.49	3.7	1.37	3.4	1.26	3.1	1.15	2.8	1.03	-	-
	-15	-	-	5.4	2.13	5.1	1.92	4.8	1.79	4.4	1.64	4.0	1.51	3.6	1.34	3.2	1.21	2.9	1.09	2.6	0.97
	-10	6.0	3.31	6.0	2.56	6.0	2.26	5.5	2.04	5.1	1.89	4.7	1.76	4.3	1.61	3.9	1.46	3.3	1.23	2.9	1.07
	-7	6.0	3.72	6.0	2.50	6.0	2.37	5.9	2.27	5.8	2.12	5.4	1.97	4.8	1.82	4.4	1.67	3.9	1.49	3.7	1.26
	2	6.0	4.05	6.0	3.10	6.0	2.69	6.0	2.34	6.0	2.21	6.0	2.03	5.5	1.86	5.0	1.68	4.3	1.46	4.0	1.34
	7	5.0	6.72	5.0	5.00	5.0	4.51	5.0	3.96	5.0	3.55	5.0	3.15	5.0	2.82	5.0	2.51	5.0	2.15	5.0	1.96
	12	5.0	8.20	5.0	6.08	5.0	5.33	5.0	4.61	5.0	4.10	5.0	3.64	5.0	3.23	5.0	2.86	5.0	2.48	5.0	2.14
	15	5.0	9.46	5.0	6.78	5.0	5.91	5.0	5.07	5.0	4.48	5.0	3.97	5.0	3.50	5.0	3.09	5.0	2.67	5.0	2.31
	20	5.0	10.93	5.0	8.28	5.0	6.97	5.0	5.93	5.0	5.16	5.0	4.51	5.0	3.85	5.0	3.36	5.0	3.02	5.0	2.66
Min	-25	-	-	1.9	1.81	1.8	1.58	1.7	1.39	1.6	1.28	1.5	1.17	1.3	1.06	1.2	0.97	-	-	-	-
	-20	-	-	2.4	2.23	2.3	1.95	2.2	1.71	2.1	1.53	2.0	1.37	1.8	1.26	1.7	1.15	1.5	1.02	-	-
	-15	-	-	2.9	2.72	2.8	2.40	2.7	2.11	2.6	1.88	2.5	1.66	2.4	1.46	2.2	1.32	2.1	1.17	1.9	1.03
	-10	3.8	4.08	3.6	3.20	3.4	2.84	3.3	2.51	3.1	2.23	3.0	1.98	2.9	1.76	2.8	1.56	2.7	1.33	2.5	1.17
	-7	1.6	4.03	1.6	3.24	1.6	2.86	1.6	2.52	2.7	2.39	2.6	2.14	2.5	1.90	2.4	1.70	2.2	1.49	2.1	1.27
	2	1.6	4.10	1.6	3.12	1.4	2.71	1.4	2.36	1.9	2.28	1.8	2.02	1.7	1.78	1.7	1.57	1.5	1.37	1.5	1.26
	7	1.8	6.95	1.8	5.03	1.8	4.19	1.8	3.62	1.8	3.37	1.8	2.96	2.9	2.63	2.8	2.32	2.7	2.08	2.5	1.83
	12	2.0	8.02	1.9	5.79	1.8	4.79	1.7	4.11	1.6	3.40	1.5	2.93	1.5	2.52	1.4	2.21	1.3	1.98	1.2	1.73
	15	2.1	8.30	2.0	6.51	1.9	5.31	1.9	4.54	1.8	3.72	1.7	3.20	1.6	2.75	1.5	2.42	1.4	2.17	1.3	1.90
	20	2.3	9.95	2.3	7.38	2.2	6.19	2.2	5.22	2.1	4.52	2.0	3.95	1.9	3.53	1.8	3.07	1.7	2.67	1.6	2.32

PUZ-WZ80VAA(-BS)

Water outlet temperature [°C]		25		35		40		45		50		55		60		65		70		75	
Ambient temperature [°C]		Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP
Max	-25	-	-	5.6	1.66	5.5	1.57	5.6	1.36	4.8	1.11	4.6	1.04	4.5	1.02	4.2	0.91	-	-	-	-
	-20	-	-	6.3	1.99	6.1	1.91	6.2	1.56	5.4	1.26	5.7	1.22	5.1	1.08	4.7	1.00	4.1	0.88	-	-
	-15	-	-	7.0	2.18	6.7	1.96	6.7	1.78	6.6	1.63	6.6	1.46	5.2	1.11	4.8	1.02	4.2	0.89	3.2	0.72
	-10	8.0	2.88	8.2	2.23	7.8	2.08	6.8	1.83	6.7	1.70	6.7	1.54	6.0	1.28	5.5	1.17	4.6	0.98	3.4	0.74
	-7	8.5	3.24	8.2	2.28	8.0	2.19	7.4	1.87	7.3	1.75	7.0	1.62	6.8	1.49	6.6	1.23	6.4	1.02	6.2	0.94
	2	9.2	3.36	8.8	2.77	8.7	2.44	8.7	2.27	8.5	2.14	8.3	1.96	7.6	1.79	6.6	1.57	5.9	1.40	5.0	1.03
	7	9.7	5.21	9.2	4.06	9.1	3.62	9.0	3.20	8.9	2.91	8.8	2.66	8.5	2.38	7.9	2.05	7.8	1.75	7.6	1.64
	12	11.6	6.16	11.1	4.78	10.5	4.17	10.4	3.65	10.3	3.31	10.1	3.02	9.9	2.69	9.2	2.34	8.0	2.07	7.1	1.82
	15	11.7	6.37	11.2	4.81	11.1	4.24	11.1	4.02	11.1	3.64	10.9	3.33	10.8	2.97	10.8	2.84	9.4	2.51	7.9	1.78
	20	12.3	6.44	12.8	5.68	12.5	4.85	12.5	4.52	12.2	3.99	11.9	3.59	11.2	3.09	10.8	2.78	10.7	2.83	9.6	2.09
Partload1	-25	-	-	5.6	1.66	5.5	1.57	5.6	1.36	4.8	1.11	4.6	1.04	4.5	1.02	4.2	0.91	-	-	-	-
	-20	-	-	6.3	1.99	6.1	1.91	6.2	1.56	5.4	1.26	5.7	1.22	5.1	1.08	4.7	1.00	4.1	0.88	-	-
	-15	-	-	7.0	2.18	6.7	1.96	6.7	1.78	6.6	1.63	6.6	1.46	5.2	1.11	4.8	1.02	4.2	0.89	3.2	0.72
	-10	8.0	2.88	8.0	2.26	7.8	2.08	6.8	1.83	6.7	1.70	6.7	1.54	6.0	1.28	5.5	1.17	4.6	0.98	3.4	0.74
	-7	8.0	3.42	8.0	2.30	8.0	2.19	7.4	1.87	7.3	1.75	7.0	1.62	6.8	1.49	6.6	1.23	6.4	1.02	6.2	0.94
	2	8.0	3.98	8.0	3.05	8.0	2.65	8.0	2.50	8.0	2.37	8.0	2.12	7.6	1.79	6.6	1.57	5.9	1.40	5.0	1.03
	7	6.0	6.31	6.0	4.70	6.0	4.24	6.0	3.79	6.0	3.40	6.0	3.00	6.0	2.68	6.0	2.34	6.0	2.00	6.0	1.80
	12	6.0	7.71	6.0	5.72	6.0	5.01	6.0	4.42	6.0	3.93	6.0	3.47	6.0	3.07	6.0	2.35	6.0	2.04	6.0	1.81
	15	6.0	8.55	6.0	6.13	6.0	5.34	6.0	4.83	6.0	4.26	6.0	3.80	6.0	3.35	6.0	2.35	6.0	2.04	6.0	1.81
	20	6.0	9.87	6.0	7.48	6.0	6.30	6.0	5.65	6.0	4.91	6.0	4.32	6.0	3.68	6.0	2.55	6.0	2.29	6.0	2.08
Min	-25	-	-	2.0	1.90	1.9	1.66	1.8	1.45	1.7	1.33	1.6	1.24	1.4	1.13	1.3	1.04	-	-	-	-
	-20	-	-	2.5	2.31	2.4	2.03	2.3	1.79	2.2	1.60	2.1	1.42	1.9	1.31	1.8	1.21	1.6	1.07	-	-
	-15	-	-	3.0	2.73	2.9	2.41	2.8	2.14	2.7	1.91	2.6	1.71	2.5	1.50	2.3	1.37	2.2	1.22	2.0	1.09
	-10	3.9	4.09	3.6	3.22	3.5	2.85	3.4	2.55	3.2	2.27	3.1	2.03	3.0	1.81	2.9	1.63	2.8	1.39	2.6	1.23
	-7	1.6	4.06	1.6	3.26	1.6	2.87	1.6	2.59	2.7	2.46	2.7	2.27	2.6	2.03	2.5	1.85	2.4	1.63	2.3	1.41
	2	1.6	3.90	1.6	2.97	1.4	2.58	1.4	2.26	2.0	2.19	1.9	1.93	1.8	1.70	1.7	1.50	1.6	1.31	1.6	1.20
	7	1.8	6.36	1.8	4.60	1.8	3.83	1.8	3.55	1.8	3.31	1.8	2.71	2.9	2.40	2.8	2.31	2.7	2.07	2.5	1.78
	12	2.0	7.33	1.9	5.29	1.8	4.38	1.7	4.04	1.6	3.34	1.5	2.68	1.5	2.31	1.4	2.20	1.3	1.97	1.2	1.68
	15	2.1	7.96	2.0	6.24	1.9	5.09	1.7	4.19	1.6	3.44	1.7	3.08	1.6	2.64	1.5	2.33	1.4	2.09	1.3	1.81
	20	2.3	9.54	2.3	7.08	2.2	5.93	2.0	4.82	2.0	4.18	2.0	3.80	1.9	3.39	1.8	2.95	1.7	2.57	1.6	2.21

PUZ-WM50VHA(-BS)

Water outlet temperature [°C]		25		35		40		45		50		55		60	
Ambient temperature [°C]		Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP
Max	-20	-	-	3.5	1.75	3.0	1.88	-	-	-	-	-	-	-	-
	-15	-	-	3.9	2.60	3.9	2.43	3.9	2.26	-	-	-	-	-	-
	-10	4.5	3.34	4.7	2.91	4.6	2.68	4.5	2.46	4.2	2.06	4.0	1.87	-	-
	-7	5.0	3.64	5.5	3.13	5.3	2.87	5.1	2.61	4.7	2.29	4.4	1.97	-	-
	2	5.5	4.19	5.4	3.40	5.2	3.05	5.1	2.73	5.0	2.46	5.0	1.98	4.8	1.95
	7	5.9	6.45	5.6	4.82	5.5	4.46	5.4	3.93	5.2	3.37	5.0	3.08	4.9	2.61
	12	6.4	7.26	6.2	5.60	6.0	4.96	5.9	4.32	5.7	3.75	5.4	3.18	5.3	2.80
	15	7.0	8.19	6.7	6.18	6.6	5.44	6.4	4.70	6.2	4.07	5.9	3.44	5.8	3.02
	20	5.3	7.74	5.1	5.84	5.0	5.09	4.9	4.45	4.8	3.90	4.6	3.43	4.5	3.03
Partload1	-20	-	-	3.5	1.75	3.0	1.88	-	-	-	-	-	-	-	-
	-15	-	-	3.9	2.60	3.9	2.43	3.9	2.26	-	-	-	-	-	-
	-10	4.5	3.34	4.7	2.91	4.6	2.68	4.5	2.46	4.2	2.06	4.0	1.87	-	-
	-7	5.0	3.64	5.0	3.00	5.0	2.81	5.0	2.61	4.7	2.29	4.4	1.97	-	-
	2	5.0	4.38	5.0	3.70	5.0	3.10	5.0	2.76	5.0	2.46	5.0	1.98	4.8	1.95
	7	5.0	6.69	5.0	5.00	5.0	4.48	5.0	3.87	5.0	3.39	5.0	3.08	4.9	2.61
	12	5.0	6.93	5.0	6.13	5.0	5.37	5.0	4.60	5.0	3.92	5.0	3.23	5.0	2.82
	15	5.0	7.16	5.0	6.84	5.0	5.94	5.0	5.05	5.0	4.30	5.0	3.54	5.0	3.09
	20	5.0	7.89	5.0	5.87	5.0	5.09	4.9	4.45	4.8	3.90	4.6	3.43	4.5	3.03
Partload2	-20	-	-	2.8	1.87	2.4	1.76	-	-	-	-	-	-	-	-
	-15	-	-	2.9	2.15	2.9	1.96	2.8	1.79	-	-	-	-	-	-
	-10	3.6	3.46	3.5	2.77	3.4	2.49	3.4	2.24	3.3	2.00	3.2	1.78	-	-
	-7	4.0	3.81	4.0	3.04	3.8	2.72	3.7	2.42	3.5	2.15	3.5	1.90	-	-
	2	4.0	4.43	4.0	3.69	4.0	3.11	4.0	2.77	4.0	2.46	4.0	2.20	3.9	1.96
	7	4.0	6.96	4.0	5.47	4.0	4.68	4.0	4.11	4.0	3.41	4.0	2.99	4.0	2.61
	12	4.0	7.39	4.0	6.17	4.0	5.40	4.0	4.63	4.0	3.99	4.0	3.35	4.0	2.92
	15	4.0	7.47	4.0	6.85	4.0	5.95	4.0	5.05	4.0	4.36	4.0	3.66	4.0	3.18
	20	4.0	8.20	4.0	6.03	4.0	5.22	4.0	4.54	4.0	3.96	4.0	3.47	4.0	3.05
Min	-20	-	-	1.9	1.88	1.9	1.75	-	-	-	-	-	-	-	-
	-15	-	-	2.4	2.24	2.4	2.03	2.3	1.84	-	-	-	-	-	-
	-10	2.3	3.23	2.2	2.59	2.1	2.32	2.0	2.07	1.9	1.85	1.8	1.64	-	-
	-7	2.7	3.25	2.7	3.25	2.3	2.54	2.5	2.36	2.2	2.05	2.0	1.76	-	-
	2	2.5	4.24	2.5	3.42	2.5	3.88	2.5	3.47	2.4	3.10	2.3	2.78	2.2	2.49
	7	1.9	6.55	1.8	5.46	1.5	3.57	1.3	2.97	1.3	2.60	1.3	2.29	1.3	2.00
	12	1.8	8.57	1.8	6.20	1.8	5.36	1.8	4.67	1.7	4.09	1.7	3.59	1.6	3.17
	15	2.2	7.61	2.0	6.52	1.9	5.62	1.9	4.88	1.8	4.26	1.8	3.74	1.7	3.29
	20	3.1	9.79	2.9	6.84	2.8	5.81	2.7	4.96	2.6	4.26	2.5	3.68	2.4	3.19

■ PUZ-WM60VAA(-BS)

Water outlet temperature [°C]		25		35		40		45		50		55		60	
Ambient temperature [°C]		Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP
Max	-20	-	-	3.7	2.20	3.6	1.85	3.6	1.55	-	-	-	-	-	-
	-15	-	-	5.3	2.70	5.2	2.30	5.1	1.95	5.1	1.95	-	-	-	-
	-10	6.3	3.10	6.2	2.80	6.1	2.50	6.0	2.20	5.9	2.00	5.7	1.80	-	-
	-7	6.9	3.25	6.6	2.95	6.3	2.65	6.0	2.40	6.0	2.20	6.0	2.05	-	-
	2	7.3	3.65	7.1	3.40	6.9	3.15	6.7	2.90	6.8	2.60	6.9	2.39	7.0	2.15
	7	8.4	5.30	7.9	4.80	7.4	4.30	6.9	3.85	7.0	3.30	7.1	2.80	7.1	2.50
	12	8.1	5.30	7.8	4.85	7.5	4.40	7.2	3.95	7.3	3.45	7.4	2.95	7.5	2.60
	15	9.0	5.60	8.6	5.15	8.2	4.70	7.8	4.25	7.9	3.70	8.0	3.15	8.1	2.80
	20	9.7	6.25	9.4	5.65	9.1	5.05	8.8	4.50	8.9	3.95	9.1	3.45	9.2	3.10
Partload1	-20	-	-	3.7	2.20	3.6	1.85	-	-	-	-	-	-	-	-
	-15	-	-	5.3	2.70	5.2	2.30	5.1	1.95	-	-	-	-	-	-
	-10	6.0	3.20	6.0	2.85	6.0	2.50	6.0	2.20	5.9	2.00	5.7	1.80	-	-
	-7	6.0	3.60	6.0	3.20	6.0	2.80	6.0	2.40	6.0	2.20	6.0	2.05	-	-
	2	6.0	4.10	6.0	3.75	6.0	3.40	6.0	3.06	6.0	2.75	6.0	2.45	5.9	2.20
	7	6.0	5.67	6.0	5.06	6.0	4.45	6.0	3.90	6.0	3.40	6.0	2.98	6.0	2.50
	12	6.0	6.10	6.0	5.45	6.0	4.80	6.0	4.20	6.0	3.60	6.0	3.05	6.0	2.70
	15	6.0	7.10	6.0	6.30	6.0	5.50	6.0	4.70	6.0	4.00	6.0	3.35	6.0	2.95
	20	6.0	8.95	6.0	7.85	6.0	6.75	6.0	5.70	6.0	4.85	6.0	4.00	6.0	3.45
Partload2	-20	-	-	2.9	2.25	2.9	1.90	-	-	-	-	-	-	-	-
	-15	-	-	4.3	2.75	4.2	2.35	4.1	1.95	-	-	-	-	-	-
	-10	4.8	3.15	4.8	2.85	4.8	2.55	4.8	2.25	4.7	2.00	4.6	1.75	-	-
	-7	4.8	3.65	4.8	3.25	4.8	2.85	4.8	2.45	4.8	2.25	4.8	2.05	-	-
	2	4.8	4.40	4.8	4.00	4.8	3.60	4.8	3.20	4.8	2.85	4.8	2.50	4.7	2.25
	7	4.8	5.90	4.8	5.25	4.8	4.60	4.8	4.00	4.8	3.50	4.8	3.00	4.8	2.50
	12	4.8	6.60	4.8	5.85	4.8	5.10	4.8	4.40	4.8	3.75	4.8	3.15	4.8	2.75
	15	4.8	7.60	4.8	6.70	4.8	5.80	4.8	4.95	4.8	4.20	4.8	3.45	4.8	3.00
	20	4.8	9.50	4.8	8.30	4.8	7.10	4.8	5.95	4.8	5.00	4.8	4.10	4.8	3.50
Min	-20	-	-	2.9	2.30	2.8	1.90	-	-	-	-	-	-	-	-
	-15	-	-	3.3	2.35	3.2	2.00	3.2	1.65	-	-	-	-	-	-
	-10	3.7	3.05	3.6	2.75	3.6	2.45	3.5	2.20	3.4	1.85	3.4	1.55	-	-
	-7	3.3	3.60	3.2	3.15	3.2	2.70	3.2	2.25	3.0	2.00	2.8	1.80	-	-
	2	3.8	4.90	3.4	4.40	3.4	3.90	3.2	3.40	3.1	2.95	2.9	2.55	2.8	2.25
	7	3.5	6.20	2.9	5.45	2.8	4.70	2.7	3.95	2.5	3.35	2.4	2.80	2.4	2.40
	12	3.2	7.25	2.9	6.35	2.7	5.45	2.6	4.60	2.5	3.90	2.4	3.20	2.3	2.75
	15	3.4	8.05	3.1	7.05	3.0	6.05	2.9	5.10	2.8	4.30	2.7	3.50	2.5	2.95
	20	3.9	9.95	3.6	8.80	3.4	7.40	3.3	6.05	3.2	5.05	3.0	4.05	2.9	3.40

■ PUZ-WM85VAA(-BS) PUZ-WM85YAA(-BS)

Water outlet temperature [°C]		25		35		40		45		50		55		60	
Ambient temperature [°C]		Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP
Max	-20	-	-	5.0	1.75	5.0	1.60	4.9	1.45	-	-	-	-	-	-
	-15	-	-	7.3	2.15	7.2	1.95	7.1	1.80	6.9	1.80	-	-	-	-
	-10	8.5	2.45	8.5	2.30	8.5	2.15	8.5	2.05	8.1	1.85	7.6	1.65	-	-
	-7	8.5	2.55	8.8	2.45	8.7	2.35	8.5	2.25	8.3	2.05	8.0	1.90	-	-
	2	9.8	3.45	9.7	3.20	9.6	2.95	9.5	2.70	9.3	2.45	9.2	2.25	9.1	2.00
	7	10.9	5.00	10.5	4.55	10.1	4.10	9.8	3.65	9.6	3.15	9.4	2.65	9.2	2.35
	12	11.0	5.05	10.7	4.60	10.5	4.15	10.2	3.75	10.1	3.25	9.9	2.80	9.7	2.45
	15	11.9	5.35	11.5	4.90	11.3	4.45	11.1	4.00	10.9	3.50	10.7	3.00	10.5	2.60
	20	13.3	5.90	12.9	5.35	12.7	4.80	12.4	4.25	12.3	3.75	12.1	3.25	11.9	2.90
Partload1	-20	-	-	5.0	1.75	5.0	1.60	-	-	-	-	-	-	-	-
	-15	-	-	7.3	2.15	7.2	1.95	7.1	1.80	-	-	-	-	-	-
	-10	8.5	2.45	8.5	2.30	8.5	2.15	8.5	2.05	8.1	1.85	7.6	1.65	-	-
	-7	8.5	2.80	8.5	2.60	8.5	2.40	8.5	2.25	8.3	2.05	8.0	1.90	-	-
	2	8.5	3.87	8.5	3.51	8.5	3.15	8.5	2.86	8.5	2.55	8.5	2.30	8.3	2.05
	7	8.5	5.40	8.5	4.80	8.5	4.20	8.5	3.70	8.5	3.25	8.5	2.82	8.5	2.35
	12	8.5	5.80	8.5	5.20	8.5	4.60	8.5	4.00	8.5	3.45	8.5	2.90	8.5	2.50
	15	8.5	6.70	8.5	5.95	8.5	5.20	8.5	4.45	8.5	3.80	8.5	3.20	8.5	2.75
	20	8.5	8.50	8.5	7.45	8.5	6.40	8.5	5.40	8.5	4.55	8.5	3.75	8.5	3.25
Partload2	-20	-	-	4.0	1.80	4.0	1.60	-	-	-	-	-	-	-	-
	-15	-	-	5.8	2.20	5.8	2.00	5.7	1.80	-	-	-	-	-	-
	-10	6.8	2.40	6.8	2.30	6.8	2.20	6.8	2.10	6.4	1.85	6.1	1.60	-	-
	-7	6.8	2.75	6.8	2.60	6.8	2.45	6.8	2.30	6.6	2.10	6.4	1.90	-	-
	2	6.8	4.15	6.8	3.75	6.8	3.35	6.8	3.00	6.8	2.65	6.8	2.35	6.6	2.10
	7	6.8	5.60	6.8	5.00	6.8	4.40	6.8	3.80	6.8	3.30	6.8	2.85	6.8	2.35
	12	6.8	6.30	6.8	5.60	6.8	4.90	6.8	4.20	6.8	3.60	6.8	3.00	6.8	2.55
	15	6.8	7.20	6.8	6.35	6.8	5.50	6.8	4.65	6.8	3.95	6.8	3.30	6.8	2.80
	20	6.8	9.05	6.8	7.90	6.8	6.75	6.8	5.60	6.8	4.70	6.8	3.85	6.8	3.30
Min	-20	-	-	2.9	1.80	2.8	1.60	-	-	-	-	-	-	-	-
	-15	-	-	3.3	1.85	3.2	1.65	3.2	1.50	-	-	-	-	-	-
	-10	3.7	2.30	3.6	2.20	3.6	2.10	3.5	2.05	3.4	1.75	3.4	1.45	-	-
	-7	3.3	2.70	3.2	2.50	3.2	2.30	3.2	2.10	3.0	1.85	2.8	1.65	-	-
	2	3.8	4.65	3.4	4.15	3.4	3.65	3.2	3.15	3.1	2.75	2.9	2.40	2.8	2.10
	7	3.9	5.95	3.2	5.20	3.1	4.45	3.0	3.75	2.8	3.20	2.6	2.65	2.6	2.25
	12	3.2	6.90	2.9	6.05	2.7	5.20	2.6	4.40	2.5	3.70	2.4	3.05	2.3	2.55
	15	3.4	7.65	3.1	6.70	3.0	5.75	2.9	4.80	2.8	4.05	2.7	3.35	2.5	2.75
	20	3.9	9.70	3.6	8.35	3.4	7.00	3.3	5.70	3.2	4.75	3.0	3.80	2.9	3.20

■ PUZ-WM112VAA(-BS) PUZ-WM112YAA(-BS)

Water outlet temperature [°C]		25		35		40		45		50		55		60	
Ambient temperature [°C]		Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP
Max	-25	-	-	6.5	1.70	6.2	1.55	5.9	1.40	-	-	-	-	-	-
	-20	-	-	7.7	2.35	7.4	2.10	7.0	1.90	-	-	-	-	-	-
	-15	-	-	8.4	2.55	8.0	2.30	7.5	2.05	7.1	1.75	6.7	1.50	-	-
	-10	10.1	2.80	11.2	2.60	10.6	2.40	10.1	2.25	9.5	1.90	9.0	1.55	-	-
	-7	11.2	2.95	12.1	2.80	11.7	2.65	11.2	2.50	10.6	2.20	10.0	1.90	-	-
	2	13.1	3.54	12.5	3.17	12.2	2.80	11.9	2.49	11.6	2.20	11.3	1.93	11.0	1.69
	7	14.3	5.05	13.5	4.55	13.1	4.05	12.7	3.55	12.2	3.10	11.7	2.70	11.2	2.40
	12	14.4	5.65	13.7	5.25	13.3	4.85	13.0	4.50	12.6	3.95	12.1	3.45	11.6	2.96
	15	15.5	5.65	14.8	5.35	14.5	5.05	14.1	4.80	13.6	4.25	13.2	3.75	12.8	3.22
	20	17.3	7.80	16.9	6.95	16.5	6.10	16.1	5.30	15.6	4.65	15.1	4.05	14.6	3.55
Partload1	-25	-	-	6.5	1.70	6.2	1.55	5.9	1.40	-	-	-	-	-	-
	-20	-	-	7.7	2.35	7.4	2.10	7.0	1.90	-	-	-	-	-	-
	-15	-	-	8.4	2.55	8.0	2.30	7.5	2.05	7.1	1.75	6.7	1.50	-	-
	-10	10.1	3.00	10.1	2.75	10.1	2.50	10.1	2.25	9.5	1.90	9.0	1.55	-	-
	-7	11.2	3.25	11.2	3.00	11.2	2.75	11.2	2.50	10.6	2.20	10.0	1.90	-	-
	2	11.2	3.83	11.2	3.44	11.2	3.05	11.2	2.74	10.6	2.30	10.0	1.95	9.4	1.70
	7	11.2	5.20	11.2	4.70	11.2	4.20	11.2	3.70	10.6	3.35	10.0	3.00	9.4	2.40
	12	11.2	6.65	11.2	6.05	11.2	5.45	11.2	4.85	10.6	4.20	10.0	3.55	9.4	3.00
	15	11.2	7.55	11.2	6.85	11.2	6.15	11.2	5.50	10.6	4.75	10.0	4.00	9.4	3.35
	20	11.2	9.70	11.2	8.65	11.2	7.60	11.2	6.60	10.6	5.65	10.0	4.75	9.4	3.95
Partload2	-25	-	-	5.2	1.75	5.0	1.60	4.7	1.45	-	-	-	-	-	-
	-20	-	-	6.2	2.25	5.9	2.05	5.6	1.85	-	-	-	-	-	-
	-15	-	-	6.7	2.50	6.4	2.25	6.0	2.00	5.7	1.75	5.4	1.50	-	-
	-10	8.1	3.05	8.1	2.80	8.1	2.55	8.1	2.30	7.6	2.00	7.2	1.70	-	-
	-7	9.0	3.30	9.0	3.05	9.0	2.80	9.0	2.55	8.5	2.20	8.0	1.90	-	-
	2	9.0	4.25	9.0	3.75	9.0	3.25	9.0	2.80	8.5	2.45	8.0	2.10	7.5	1.80
	7	9.0	5.25	9.0	4.80	9.0	4.35	9.0	3.90	8.5	3.45	8.0	3.00	7.5	2.40
	12	9.0	6.85	9.0	6.25	9.0	5.65	9.0	5.05	8.5	4.35	8.0	3.65	7.5	3.10
	15	9.0	7.80	9.0	7.05	9.0	6.30	9.0	5.60	8.5	4.80	8.0	4.05	7.5	3.40
	20	9.0	9.85	9.0	8.75	9.0	7.65	9.0	6.60	8.5	5.65	8.0	4.75	7.5	4.00
Min	-25	-	-	4.1	1.70	3.9	1.50	3.7	1.35	-	-	-	-	-	-
	-20	-	-	4.9	2.25	4.6	2.00	4.4	1.75	-	-	-	-	-	-
	-15	-	-	6.7	2.50	5.2	2.20	4.9	1.95	4.0	1.65	3.1	1.40	-	-
	-10	6.9	3.00	6.2	2.75	5.9	2.50	5.7	2.25	5.4	1.95	5.1	1.70	-	-
	-7	4.3	3.15	3.9	2.85	3.7	2.55	3.4	2.30	3.2	2.00	3.0	1.70	-	-
	2	4.6	4.25	4.2	3.75	4.0	3.25	3.7	2.75	3.5	2.40	3.2	2.10	3.0	1.70
	7	4.4	4.95	4.0	4.45	3.7	3.95	3.5	3.50	3.4	3.05	3.0	2.60	2.8	2.05
	12	4.3	6.30	4.0	5.85	3.8	5.40	3.7	4.95	3.5	4.30	3.3	3.65	3.1	3.05
	15	4.8	7.30	4.4	6.55	4.2	5.80	4.0	5.05	3.7	4.40	3.5	3.75	3.3	3.15
	20	5.7	9.25	5.1	8.10	4.8	6.95	4.6	5.80	4.3	5.00	4.1	4.25	3.9	3.70

■ PUZ-HWM140VHA(-BS) PUZ-HWM140YHA(-BS)

Water outlet temperature [°C]		25		35		40		45		50		55		60	
Ambient temperature [°C]		Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP
Max	-28	-	-	9.1	1.60	8.8	1.45	8.5	1.30	-	-	-	-	-	-
	-25	-	-	10.0	1.65	9.7	1.50	9.3	1.35	-	-	-	-	-	-
	-20	-	-	12.0	1.75	11.6	1.60	11.2	1.45	-	-	-	-	-	-
	-15	-	-	14.0	1.85	13.5	1.70	13.1	1.55	12.6	1.45	12.2	1.30	-	-
	-10	14.6	2.40	14.4	2.25	14.2	2.10	14.0	1.90	14.0	1.85	14.0	1.75	-	-
	-7	16.1	2.70	15.9	2.50	15.7	2.30	15.5	2.10	14.7	2.05	14.0	1.95	-	-
	2	16.5	3.25	16.3	3.00	16.0	2.75	15.8	2.50	15.1	2.45	14.3	2.35	14.0	2.10
	7	16.8	4.70	16.6	4.25	16.4	3.80	16.1	3.30	15.4	2.90	14.6	2.50	14.0	2.50
	12	17.1	5.25	16.8	4.90	16.6	4.55	16.4	4.20	15.6	3.70	14.8	3.20	14.1	2.70
	15	18.5	5.35	18.2	5.00	17.9	4.75	17.7	4.50	16.9	4.00	16.0	3.50	15.2	3.00
	20	21.1	7.25	20.8	6.50	20.5	5.75	20.2	4.95	19.3	4.40	18.3	3.80	17.3	3.25
Partload1	-28	-	-	9.1	1.60	8.8	1.45	8.5	1.30	-	-	-	-	-	-
	-25	-	-	10.0	1.65	9.7	1.50	9.3	1.35	-	-	-	-	-	-
	-20	-	-	10.5	2.00	10.2	1.85	9.8	1.65	-	-	-	-	-	-
	-15	-	-	11.0	2.30	11.0	2.10	11.0	1.90	11.0	1.75	11.0	1.60	-	-
	-10	14.0	2.80	14.0	2.50	14.0	2.20	14.0	1.90	14.0	1.85	14.0	1.75	-	-
	-7	14.0	3.05	14.0	2.80	14.0	2.55	14.0	2.30	14.0	2.15	14.0	1.95	-	-
	2	14.0	3.40	14.0	3.15	14.0	2.90	14.0	2.65	14.0	2.55	14.0	2.40	14.0	2.10
	7	14.0	4.90	14.0	4.45	14.0	4.00	14.0	3.50	14.0	3.15	14.0	2.75	14.0	2.50
	12	14.0	5.50	14.0	5.15	14.0	4.80	14.0	4.45	14.0	4.00	14.0	3.50	14.0	3.00
	15	14.0	5.50	14.0	5.25	14.0	5.00	14.0	4.75	14.0	4.30	14.0	3.85	14.0	3.40
	20	14.0	7.65	14.0	6.85	14.0	6.05	14.0	5.25	14.0	4.75	14.0	4.20	14.0	3.70
Partload2	-28	-	-	7.3	1.70	7.0	1.60	6.8	1.45	-	-	-	-	-	-
	-25	-	-	8.0	1.75	7.7	1.65	7.5	1.50	-	-	-	-	-	-
	-20	-	-	8.4	2.15	8.1	2.00	7.8	1.85	-	-	-	-	-	-
	-15	-	-	8.8	2.50	8.8	2.30	8.8	2.10	8.8	1.90	8.8	1.70	-	-
	-10	11.2	2.85	11.2	2.70	11.2	2.55	11.2	2.35	11.2	2.10	11.2	1.85	-	-
	-7	11.2	3.25	11.2	3.00	11.2	2.75	11.2	2.50	11.2	2.30	11.2	2.10	-	-
	2	11.2	3.65	11.2	3.40	11.2	3.15	11.2	2.90	11.2	2.75	11.2	2.55	11.2	2.30
	7	11.2	5.25	11.2	4.80	11.2	4.35	11.2	3.85	11.2	3.40	11.2	2.90	11.2	2.50
	12	11.2	5.85	11.2	5.55	11.2	5.25	11.2	4.90	11.2	4.30	11.2	3.70	11.2	3.00
	15	11.2	6.00	11.2	5.65	11.2	5.45	11.2	5.25	11.2	4.65	11.2	4.05	11.2	3.40
	20	11.2	8.10	11.2	7.35	11.2	6.60	11.2	5.80	11.2	5.10	11.2	4.40	11.2	3.70
Min	-28	-	-	4.8	1.70	4.4	1.45	4.0	1.15	-	-	-	-	-	-
	-25	-	-	5.5	1.75	5.0	1.50	4.6	1.20	-	-	-	-	-	-
	-20	-	-	6.7	2.05	6.1	1.75	5.5	1.40	-	-	-	-	-	-
	-15	-	-	7.8	2.35	7.2	2.00	6.5	1.60	5.7	1.30	4.8	1.00	-	-
	-10	6.2	2.55	5.9	2.30	5.6	2.05	5.3	1.75	4.6	1.45	4.0	1.10	-	-
	-7	5.1	3.65	4.0	2.25	4.0	2.05	4.0	1.85	3.6	1.50	3.1	1.15	-	-
	2	5.6	4.20	5.1	3.65	4.7	3.10	4.2	2.50	3.7	2.05	3.2	1.55	-	-
	7	4.5	6.60	4.2	4.45	3.7	3.50	3.2	2.55	2.7	2.00	2.2	1.45	-	-
	12	6.6	5.15	6.2	4.90	5.8	4.65	5.4	4.35	5.2	3.70	5.0	3.05	-	-
	15	6.9	5.15	6.4	5.10	5.9	5.05	5.4	4.95	5.3	4.35	5.2	3.70	-	-
	20	7.3	14.00	6.7	8.00	6.4	6.65	6.0	5.30	5.6	4.40	5.1	3.45	-	-

(2)Split-type units

SUZ-SWM30VA

Water outlet temperature [°C]		25		35		40		45		50		55		60	
Ambient temperature [°C]		Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP
Max	-25	-	-	2.3	1.86	2.2	1.73	-	-	-	-	-	-	-	-
	-20	-	-	2.9	1.99	2.9	1.87	2.9	1.75	-	-	-	-	-	-
	-15	-	-	3.7	2.31	3.7	2.15	3.7	1.98	3.7	1.85	-	-	-	-
	-10	4.8	2.92	4.7	2.52	4.9	2.36	4.6	2.12	4.6	1.88	-	-	-	-
	-7	6.3	3.16	5.8	2.71	5.6	2.49	5.3	2.26	4.6	2.17	3.8	2.07	-	-
	2	5.0	3.99	4.9	3.32	4.9	2.99	4.8	2.65	4.4	2.56	4.0	2.47	3.1	2.40
	7	6.0	4.76	5.8	3.91	5.7	3.49	5.6	3.06	5.5	2.80	5.3	2.54	4.0	2.39
	12	5.9	6.02	5.7	4.86	5.6	4.28	5.5	3.70	5.4	3.28	5.3	2.86	4.0	2.59
	15	6.6	6.54	6.3	5.24	6.2	4.59	6.0	3.94	5.7	3.53	5.3	3.12	4.0	2.88
	20	7.5	7.12	7.2	5.94	7.1	5.17	6.9	4.39	6.1	4.01	5.3	3.62	4.0	3.46
Partload1	-25	-	-	2.3	1.86	2.2	1.73	-	-	-	-	-	-	-	-
	-20	-	-	2.9	1.99	2.9	1.87	2.9	1.75	-	-	-	-	-	-
	-15	-	-	3.0	2.43	3.0	2.15	3.0	2.06	3.0	1.98	-	-	-	-
	-10	3.0	3.30	3.0	2.80	3.0	2.36	3.0	2.30	3.0	2.24	-	-	-	-
	-7	3.0	3.74	3.0	3.14	3.0	2.84	3.0	2.54	3.0	2.32	3.6	2.10	-	-
	2	3.0	4.91	3.0	3.96	3.0	3.49	3.0	3.01	3.0	2.69	3.0	2.48	3.1	2.15
	7	3.0	6.55	3.0	5.11	3.0	4.39	3.0	3.67	3.0	3.25	3.6	2.83	3.6	2.35
	12	3.0	7.27	3.0	5.75	3.0	4.99	3.0	4.23	3.0	3.73	3.6	3.23	4.0	2.67
	15	3.0	8.16	3.0	6.39	3.0	5.51	3.0	4.62	3.0	4.06	3.6	3.50	4.0	2.89
	20	3.0	9.53	3.0	7.69	3.0	6.52	3.0	5.35	3.0	4.68	3.6	4.00	4.0	3.26
Partload2	-25	-	-	2.0	1.90	1.8	1.76	-	-	-	-	-	-	-	-
	-20	-	-	2.3	2.08	2.3	1.94	2.3	1.80	-	-	-	-	-	-
	-15	-	-	2.4	2.52	2.4	2.32	2.4	2.11	2.4	1.91	-	-	-	-
	-10	2.4	3.39	2.4	2.87	2.4	2.61	2.4	2.35	2.4	2.35	-	-	-	-
	-7	2.4	3.79	2.4	3.18	2.4	2.88	2.4	2.57	2.4	2.37	2.9	2.16	-	-
	2	2.4	4.87	2.4	3.97	2.4	3.52	2.4	3.07	2.4	2.79	2.4	2.50	2.4	2.18
	7	2.4	6.11	2.4	4.91	2.4	4.31	2.4	3.71	2.4	3.33	2.9	2.94	2.9	2.54
	12	2.4	7.27	2.4	5.75	2.4	4.99	2.4	4.23	2.4	3.78	2.9	3.32	3.2	2.83
	15	2.4	8.12	2.4	6.35	2.4	5.47	2.4	4.58	2.4	4.08	2.9	3.58	3.2	3.04
	20	2.4	9.41	2.4	7.59	2.4	6.43	2.4	5.27	2.4	4.66	2.9	4.05	3.2	3.40
Min	-25	-	-	2.0	1.90	1.9	1.76	-	-	-	-	-	-	-	-
	-20	-	-	1.9	2.20	1.9	2.08	1.9	1.95	-	-	-	-	-	-
	-15	-	-	2.3	2.54	2.2	2.34	2.1	2.13	2.0	1.93	-	-	-	-
	-10	2.4	3.39	2.4	2.87	2.4	2.61	2.4	2.35	2.4	2.35	-	-	-	-
	-7	2.4	3.79	2.4	3.18	2.4	2.88	2.4	2.57	2.4	2.37	2.3	2.14	-	-
	2	2.1	4.92	2.0	4.02	2.0	3.57	1.9	3.12	1.9	2.85	1.9	2.57	1.9	2.30
	7	2.0	6.00	1.9	4.81	1.9	4.22	1.8	3.62	1.8	3.28	1.7	2.93	1.7	2.59
	12	1.9	6.95	1.8	5.48	1.8	4.75	1.7	4.01	1.7	3.57	1.6	3.13	1.6	2.69
	15	2.0	7.87	1.9	6.13	1.9	5.26	1.8	4.39	1.8	3.92	1.8	3.45	1.8	2.98
	20	2.3	8.84	2.2	7.48	2.2	6.31	2.1	5.14	2.1	4.54	2.0	3.94	2.0	3.34

SUZ-SHWM30VAH

Water outlet temperature[°C]		25		35		40		45		50		55		60	
Ambient temperature[°C]		Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP
Max	-25	-	-	2.3	1.77	2.2	1.65	-	-	-	-	-	-	-	-
	-20	-	-	3.4	1.87	3.4	1.76	3.4	1.66	-	-	-	-	-	-
	-15	-	-	4.3	2.16	4.3	2.02	4.2	1.87	4.2	1.76	-	-	-	-
	-10	5.2	2.70	5.2	2.34	5.5	2.18	5.2	1.99	5.2	1.99	-	-	-	-
	-7	6.3	3.07	5.8	2.64	5.6	2.42	5.3	2.20	4.6	2.10	3.8	2.00	-	-
	2	5.0	3.82	4.9	3.19	4.9	2.88	4.8	2.57	4.4	2.47	4.0	2.38	3.1	2.29
	7	6.0	4.76	5.8	3.91	5.7	3.49	5.6	3.06	5.5	2.80	5.3	2.54	4.0	2.39
	12	5.9	6.02	5.7	4.86	5.6	4.28	5.5	3.70	5.4	3.28	5.3	2.86	4.0	2.59
	15	6.6	6.54	6.3	5.24	6.2	4.59	6.0	3.94	5.7	3.53	5.3	3.12	4.0	2.88
	20	7.5	7.12	7.2	5.94	7.1	5.17	6.9	4.39	6.1	4.01	5.3	3.62	4.0	3.46
Partload1	-25	-	-	2.3	1.77	2.2	1.65	-	-	-	-	-	-	-	-
	-20	-	-	3.0	1.90	3.2	1.78	3.4	1.66	-	-	-	-	-	-
	-15	-	-	3.0	2.13	3.0	2.02	3.0	1.85	3.0	1.70	-	-	-	-
	-10	3.0	2.78	3.0	2.43	3.0	2.18	3.0	2.07	3.0	2.00	-	-	-	-
	-7	3.0	3.49	3.0	2.95	3.0	2.69	3.0	2.42	3.0	2.22	3.6	2.03	-	-
	2	3.0	4.50	3.0	3.67	3.0	3.25	3.0	2.84	3.0	2.60	3.0	2.36	3.1	2.06
	7	3.0	6.55	3.0	5.11	3.0	4.39	3.0	3.67	3.0	3.25	3.6	2.83	3.6	2.35
	12	3.0	7.27	3.0	5.75	3.0	4.99	3.0	4.23	3.0	3.73	3.6	3.23	4.0	2.67
	15	3.0	8.16	3.0	6.39	3.0	5.51	3.0	4.62	3.0	4.06	3.6	3.50	4.0	2.89
	20	3.0	9.53	3.0	7.69	3.0	6.52	3.0	5.35	3.0	4.68	3.6	4.00	4.0	3.26
Partload2	-25	-	-	2.0	1.80	1.7	1.67	-	-	-	-	-	-	-	-
	-20	-	-	2.4	1.92	2.6	1.81	2.7	1.70	-	-	-	-	-	-
	-15	-	-	2.4	2.29	2.4	2.12	2.4	1.94	2.4	1.77	-	-	-	-
	-10	2.4	2.90	2.4	2.54	2.4	2.36	2.4	2.17	2.4	2.17	-	-	-	-
	-7	2.4	3.48	2.4	2.95	2.4	2.68	2.4	2.41	2.4	2.24	2.9	2.07	-	-
	2	2.4	4.37	2.4	3.61	2.4	3.23	2.4	2.85	2.4	2.60	2.4	2.35	2.4	2.06
	7	2.4	6.11	2.4	4.91	2.4	4.31	2.4	3.71	2.4	3.33	2.9	2.94	2.9	2.54
	12	2.4	7.27	2.4	5.75	2.4	4.99	2.4	4.23	2.4	3.78	2.9	3.32	3.2	2.83
	15	2.4	8.12	2.4	6.35	2.4	5.47	2.4	4.58	2.4	4.08	2.9	3.58	3.2	3.04
	20	2.4	9.41	2.4	7.59	2.4	6.43	2.4	5.27	2.4	4.66	2.9	4.05	3.2	3.40
Min	-25	-	-	2.0	1.80	1.9	1.67	-	-	-	-	-	-	-	-
	-20	-	-	1.9	2.13	1.9	1.98	1.9	1.84	-	-	-	-	-	-
	-15	-	-	2.3	2.38	2.2	2.19	2.1	2.01	2.0	1.82	-	-	-	-
	-10	2.4	3.09	2.4	2.65	2.4	2.36	2.4	2.21	2.4	2.17	-	-	-	-
	-7	2.4	3.48	2.4	2.95	2.4	2.68	2.4	2.41	2.4	2.24	2.3	2.03	-	-
	2	2.1	4.92	2.0	4.02	2.0	3.57	1.9	3.12	1.9	2.85	1.9	2.57	1.9	2.30
	7	2.0	6.00	1.9	4.81	1.9	4.22	1.8	3.62	1.8	3.28	1.7	2.93	1.7	2.59
	12	1.9	6.95	1.8	5.48	1.8	4.75	1.7	4.01	1.7	3.57	1.6	3.13	1.6	2.69
	15	2.0	7.87	1.9	6.13	1.9	5.26	1.8	4.39	1.8	3.92	1.8	3.45	1.8	2.98
	20	2.3	8.84	2.2	7.48	2.2	6.31	2.1	5.14	2.1	4.54	2.0	3.94	2.0	3.34

■ SUZ-SWM40VA2(-SC)

Water outlet temperature[°C]		25		35		40		45		50		55		60	
Ambient temperature[°C]		Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP
Max	-25	-	-	2.3	1.86	2.2	1.73	-	-	-	-	-	-	-	-
	-20	-	-	3.4	1.93	3.4	1.82	3.4	1.71	-	-	-	-	-	-
	-15	-	-	4.3	2.23	4.3	2.08	4.2	1.92	4.2	1.81	-	-	-	-
	-10	5.2	2.78	5.2	2.41	5.5	2.23	5.2	2.04	5.2	2.04	-	-	-	-
	-7	7.0	2.94	6.5	2.53	6.3	2.33	6.0	2.12	4.9	2.10	3.8	2.07	-	-
	2	6.0	3.85	5.6	3.23	5.4	2.92	5.2	2.61	4.6	2.54	4.0	2.47	3.1	2.40
	7	6.9	4.35	6.7	3.60	6.6	3.23	6.5	2.85	5.9	2.70	5.3	2.54	4.0	2.39
	12	7.0	5.42	6.8	4.41	6.7	3.91	6.6	3.40	6.0	3.13	5.3	2.86	4.0	2.59
	15	7.8	5.82	7.5	4.71	7.4	4.16	7.2	3.60	6.3	3.36	5.3	3.12	4.0	2.88
	20	8.9	6.24	8.6	5.26	8.5	4.61	8.3	3.95	6.8	3.79	5.3	3.62	4.0	3.46
Partload1	-25	-	-	2.3	1.86	2.2	1.73	-	-	-	-	-	-	-	-
	-20	-	-	3.4	1.93	3.4	1.82	3.4	1.71	-	-	-	-	-	-
	-15	-	-	4.3	2.23	4.3	2.08	4.2	1.92	4.2	1.77	-	-	-	-
	-10	4.5	2.94	4.5	2.55	4.5	2.23	4.5	2.16	4.5	2.09	-	-	-	-
	-7	4.5	3.62	4.5	2.97	4.5	2.65	4.5	2.32	4.2	2.20	3.8	2.07	-	-
	2	4.0	4.92	4.0	3.90	4.0	3.39	4.0	2.88	4.0	2.68	4.0	2.47	3.1	2.15
	7	3.0	6.55	3.0	5.11	3.0	4.39	3.0	3.67	3.0	3.23	3.6	2.79	3.6	2.35
	12	4.0	6.96	4.0	5.52	4.0	4.80	4.0	4.08	4.0	3.61	4.0	3.14	4.0	2.67
	15	4.0	7.86	4.0	6.17	4.0	5.33	4.0	4.48	4.0	3.95	4.0	3.42	4.0	2.89
	20	4.0	9.22	4.0	7.48	4.0	6.37	4.0	5.25	4.0	4.59	4.0	3.92	4.0	3.26
Partload2	-25	-	-	2.0	1.90	1.7	1.77	-	-	-	-	-	-	-	-
	-20	-	-	2.7	2.02	2.7	1.90	2.7	1.77	-	-	-	-	-	-
	-15	-	-	3.4	2.43	3.4	2.24	3.4	2.04	3.4	1.85	-	-	-	-
	-10	3.6	3.12	3.6	2.71	3.6	2.51	3.6	2.30	3.6	2.30	-	-	-	-
	-7	3.6	3.77	3.6	3.12	3.6	2.80	3.6	2.47	3.3	2.28	3.0	2.09	-	-
	2	3.2	4.82	3.2	3.94	3.2	3.50	3.2	3.06	3.2	2.77	3.2	2.47	2.4	2.18
	7	2.4	6.11	2.4	4.91	2.4	4.31	2.4	3.71	2.4	3.32	2.9	2.93	2.9	2.54
	12	3.2	7.22	3.2	5.72	3.2	4.97	3.2	4.22	3.2	3.76	3.2	3.29	3.2	2.83
	15	3.2	8.13	3.2	6.37	3.2	5.49	3.2	4.61	3.2	4.09	3.2	3.56	3.2	3.04
	20	3.2	9.49	3.2	7.67	3.2	6.51	3.2	5.35	3.2	4.70	3.2	4.05	3.2	3.40
Min	-25	-	-	2.0	1.90	1.9	1.77	-	-	-	-	-	-	-	-
	-20	-	-	1.9	2.28	1.9	2.12	1.9	1.95	-	-	-	-	-	-
	-15	-	-	2.3	2.54	2.2	2.34	2.1	2.13	2.0	1.93	-	-	-	-
	-10	2.8	3.34	2.7	2.84	2.7	2.59	2.6	2.34	2.6	2.34	-	-	-	-
	-7	2.6	3.70	2.5	3.11	2.5	2.82	2.4	2.52	2.4	2.33	2.3	2.14	-	-
	2	2.1	4.92	2.0	4.02	2.0	3.57	1.9	3.12	1.9	2.85	1.9	2.57	1.9	2.30
	7	2.0	6.00	1.9	4.81	1.9	4.22	1.8	3.62	1.8	3.28	1.7	2.93	1.7	2.59
	12	1.9	6.95	1.8	5.48	1.8	4.75	1.7	4.01	1.7	3.57	1.6	3.13	1.6	2.69
	15	2.0	7.87	1.9	6.13	1.9	5.26	1.8	4.39	1.8	3.92	1.8	3.45	1.8	2.98
	20	2.3	8.84	2.2	7.48	2.2	6.31	2.1	5.14	2.1	4.54	2.0	3.94	2.0	3.34

■ SUZ-SHWM40VAH(-SC)

Water outlet temperature [°C]		25		35		40		45		50		55		60	
Ambient temperature [°C]		Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP
Max	-25	-	-	2.7	1.66	2.5	1.54	-	-	-	-	-	-	-	-
	-20	-	-	4.0	1.74	3.8	1.64	3.5	1.53	-	-	-	-	-	-
	-15	-	-	5.0	2.01	4.7	1.87	4.3	1.72	4.3	1.58	-	-	-	-
	-10	6.8	2.53	6.1	2.18	5.5	2.02	5.4	1.84	5.4	1.84	-	-	-	-
	-7	7.4	2.78	6.5	2.33	6.1	2.11	5.6	1.88	4.8	1.71	4.0	1.54	-	-
	2	6.1	3.60	5.8	2.81	5.7	2.42	5.5	2.02	4.9	2.00	4.3	1.98	3.3	1.96
	7	7.1	4.27	7.0	3.39	7.0	2.95	6.9	2.51	6.1	2.45	5.3	2.39	3.6	2.33
	12	7.1	5.10	6.9	4.10	6.8	3.60	6.7	3.10	6.0	2.96	5.3	2.81	3.6	2.67
	15	7.7	5.30	7.5	4.29	7.4	3.79	7.3	3.28	6.3	3.19	5.3	3.09	3.6	3.00
	20	8.9	5.45	8.6	4.67	8.5	4.14	8.3	3.60	6.8	3.61	5.3	3.61	3.6	3.62
Partload1	-25	-	-	2.7	1.66	2.5	1.54	-	-	-	-	-	-	-	-
	-20	-	-	4.0	1.74	3.8	1.64	3.5	1.53	-	-	-	-	-	-
	-15	-	-	5.0	2.01	4.7	1.87	4.3	1.72	4.3	1.58	-	-	-	-
	-10	5.0	2.65	5.0	2.29	5.0	2.11	5.0	1.93	5.0	1.94	-	-	-	-
	-7	5.0	4.03	5.0	3.00	5.0	2.49	5.0	1.97	4.5	1.76	4.0	1.54	-	-
	2	4.0	4.75	4.0	3.61	4.0	3.04	4.0	2.47	4.0	2.34	4.0	2.20	3.3	1.96
	7	3.0	6.46	3.0	4.77	3.0	3.93	3.0	3.08	3.3	2.94	3.6	2.79	3.6	2.33
	12	4.0	6.00	4.0	4.78	4.0	4.17	4.0	3.56	4.0	3.37	4.0	3.17	3.6	2.67
	15	4.0	6.23	4.0	5.03	4.0	4.43	4.0	3.83	4.0	3.64	4.0	3.44	3.6	3.00
	20	4.0	6.35	4.0	5.51	4.0	4.93	4.0	4.34	4.0	4.08	4.0	3.82	3.6	3.62
Partload2	-25	-	-	2.3	1.68	2.0	1.56	-	-	-	-	-	-	-	-
	-20	-	-	3.2	1.94	3.0	1.76	2.8	1.59	-	-	-	-	-	-
	-15	-	-	4.0	2.21	3.8	2.02	3.5	1.83	3.5	1.64	-	-	-	-
	-10	4.0	3.04	4.0	2.49	4.0	2.21	4.0	1.94	4.0	1.84	-	-	-	-
	-7	4.0	4.28	4.0	3.18	4.0	2.63	4.0	2.08	3.6	1.82	3.2	1.56	-	-
	2	3.2	4.86	3.2	3.71	3.2	3.14	3.2	2.56	3.2	2.33	3.2	2.09	2.7	1.86
	7	2.6	5.38	2.6	4.20	2.4	3.61	2.6	3.02	2.6	2.93	2.9	2.84	2.9	2.75
	12	3.2	5.87	3.2	4.70	3.2	4.12	3.2	3.53	3.2	3.38	3.2	3.22	2.9	3.07
	15	3.2	5.97	3.2	4.87	3.2	4.32	3.2	3.77	3.2	3.62	3.2	3.47	2.9	3.32
	20	3.2	5.88	3.2	5.19	3.2	4.69	3.2	4.19	3.2	3.99	3.2	3.79	2.9	3.59
Min	-25	-	-	2.3	1.68	2.2	1.56	-	-	-	-	-	-	-	-
	-20	-	-	2.4	2.00	2.4	1.85	2.4	1.69	-	-	-	-	-	-
	-15	-	-	2.9	2.24	2.8	2.07	2.6	1.90	2.6	1.73	-	-	-	-
	-10	3.5	3.55	3.4	2.79	3.3	2.41	3.3	2.03	3.3	1.83	-	-	-	-
	-7	2.9	4.57	2.8	3.38	2.7	2.78	2.7	2.18	2.6	1.94	2.6	1.70	-	-
	2	2.7	4.97	2.6	3.84	2.6	3.27	2.5	2.70	2.5	2.37	2.4	2.04	2.4	1.71
	7	2.6	5.38	2.6	4.20	2.6	3.61	2.6	3.02	2.5	2.94	2.3	2.86	2.2	2.78
	12	2.6	5.61	2.5	4.49	2.5	3.93	2.4	3.37	2.3	3.24	2.2	3.11	2.1	2.98
	15	3.0	5.81	2.8	4.73	2.7	4.19	2.6	3.65	2.5	3.52	2.4	3.39	2.3	3.26
	20	3.4	5.56	3.2	5.19	3.1	4.70	3.0	4.20	2.9	4.03	2.8	3.85	2.7	3.68

■ SUZ-SWM60VA2(-SC)

Water outlet temperature [°C]		25		35		40		45		50		55		60	
Ambient temperature [°C]		Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP
Max	-25	-	-	2.7	1.72	2.5	1.60	-	-	-	-	-	-	-	-
	-20	-	-	4.0	1.79	3.8	1.68	3.5	1.57	-	-	-	-	-	-
	-15	-	-	5.0	2.06	4.7	1.91	4.3	1.77	4.3	1.62	-	-	-	-
	-10	6.8	2.58	6.1	2.23	5.9	2.17	5.4	1.88	5.4	1.76	-	-	-	-
	-7	7.8	3.43	7.0	2.69	6.6	2.32	6.2	1.95	5.4	1.74	4.5	1.53	-	-
	2	8.3	4.03	7.3	3.13	6.8	2.68	6.3	2.23	5.7	2.15	5.0	2.07	3.9	1.99
	7	8.6	4.54	8.4	3.58	8.3	3.10	8.2	2.62	7.5	2.47	6.7	2.32	4.8	2.17
	12	8.9	5.17	8.5	4.15	8.3	3.64	8.1	3.13	7.4	2.98	6.7	2.83	4.8	2.68
	15	9.7	5.30	9.3	4.30	9.1	3.80	8.9	3.30	7.8	3.20	6.7	3.09	4.8	2.99
	20	11.1	5.40	10.7	4.65	10.5	4.14	10.3	3.62	8.5	3.62	6.7	3.61	4.8	3.61
Partload1	-25	-	-	2.7	1.72	2.5	1.60	-	-	-	-	-	-	-	-
	-20	-	-	4.0	1.79	3.8	1.68	3.5	1.57	-	-	-	-	-	-
	-15	-	-	5.0	2.06	4.7	1.91	4.3	1.77	4.3	1.62	-	-	-	-
	-10	6.0	3.00	6.0	2.44	5.9	2.17	5.4	1.88	5.4	1.76	-	-	-	-
	-7	6.0	4.36	6.0	3.16	6.0	2.56	6.0	1.96	5.3	1.75	4.5	1.53	-	-
	2	6.0	4.86	6.0	3.62	6.0	3.00	6.0	2.38	5.5	2.23	5.0	2.07	3.9	1.99
	7	5.0	6.47	5.0	4.85	5.0	4.04	5.0	3.23	5.0	3.00	5.0	2.77	4.8	2.17
	12	6.0	6.21	6.0	4.88	6.0	4.22	6.0	3.55	6.0	3.28	6.0	3.01	4.8	2.68
	15	6.0	6.55	6.0	5.22	6.0	4.56	6.0	3.89	6.0	3.58	6.0	3.27	4.8	2.99
	20	6.0	6.85	6.0	5.87	6.0	5.20	6.0	4.53	6.0	4.17	6.0	3.80	4.8	3.61
Partload2	-25	-	-	2.3	1.76	2.0	1.63	-	-	-	-	-	-	-	-
	-20	-	-	3.2	2.07	3.0	1.85	2.8	1.63	-	-	-	-	-	-
	-15	-	-	4.0	2.35	3.8	2.11	3.5	1.88	3.5	1.64	-	-	-	-
	-10	4.8	3.39	4.8	2.65	4.7	2.28	4.3	1.91	4.3	1.71	-	-	-	-
	-7	4.8	4.33	4.8	3.19	4.8	2.62	4.8	2.05	4.2	1.83	3.6	1.61	-	-
	2	4.8	5.19	4.8	3.86	4.8	3.20	4.8	2.53	4.4	2.31	4.0	2.09	3.1	1.87
	7	4.0	6.16	4.0	4.74	4.0	4.03	4.0	3.32	4.0	3.13	4.0	2.94	3.8	2.75
	12	4.8	6.40	4.8	5.05	4.8	4.38	4.8	3.70	4.8	3.46	4.8	3.22	3.8	2.98
	15	4.8	6.63	4.8	5.32	4.8	4.67	4.8	4.01	4.8	3.77	4.8	3.53	3.8	3.29
	20	4.8	6.72	4.8	5.83	4.8	5.21	4.8	4.59	4.8	4.31	4.8	4.03	3.8	3.75
Min	-25	-	-	2.3	1.76	2.2	1.63	-	-	-	-	-	-	-	-
	-20	-	-	2.4	2.11	2.4	1.90	2.4	1.69	-	-	-	-	-	-
	-15	-	-	2.9	2.35	2.8	2.13	2.6	1.90	2.6	1.68	-	-	-	-
	-10	3.5	3.84	3.4	2.93	3.3	2.48	3.3	2.03	3.3	1.75	-	-	-	-
	-7	2.9	5.10	2.8	3.64	2.7	2.91	2.7	2.18	2.6	1.94	2.6	1.70	-	-
	2	2.7	5.72	2.6	4.21	2.6	3.46	2.5	2.70	2.5	2.37	2.4	2.04	2.4	1.71
	7	2.8	5.80	2.7	4.49	2.7	3.84	2.6	3.18	2.5	3.02	2.3	2.86	2.2	2.70
	12	2.6	5.61	2.5	4.49	2.5	3.93	2.4	3.37	2.3	3.24	2.2	3.11	2.1	2.98
	15	3.0	5.81	2.8	4.73	2.7	4.19	2.6	3.65	2.5	3.52	2.4	3.39	2.3	3.26
	20	3.4	5.65	3.2	5.24	3.1	4.72	3.0	4.20	2.9	4.03	2.8	3.85	2.7	3.68

■ SUZ-SHWM60VAH(-SC)

Water outlet temperature[°C]		25		35		40		45		50		55		60	
Ambient temperature[°C]		Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP
Max	-25	-	-	4.8	1.73	4.4	1.57	-	-	-	-	-	-	-	-
	-20	-	-	6.0	1.87	5.6	1.74	5.2	1.36	-	-	-	-	-	-
	-15	-	-	6.6	2.05	6.6	1.97	5.7	1.47	5.3	1.35	4.8	1.23	-	-
	-10	8.2	2.69	7.6	2.17	7.3	1.91	7.0	1.65	6.4	1.55	5.7	1.44	-	-
	-7	8.2	3.16	7.6	2.58	7.3	2.29	7.0	2.00	6.6	1.84	6.1	1.68	-	-
	2	7.8	3.74	7.4	3.13	7.2	2.83	7.0	2.52	6.5	2.27	6.0	2.02	5.0	1.78
	7	8.9	4.93	8.6	4.04	8.5	3.60	8.3	3.15	7.5	2.90	6.7	2.64	4.8	2.39
	12	8.9	6.25	8.5	5.04	8.3	4.44	8.1	3.83	7.4	3.47	6.7	3.11	4.8	2.75
	15	9.7	6.85	9.3	5.50	9.1	4.83	8.9	4.15	7.8	3.79	6.7	3.42	4.8	3.06
	20	11.1	7.47	10.7	6.27	10.5	5.48	10.3	4.68	8.5	4.32	6.7	3.95	4.8	3.59
Partload1	-25	-	-	4.8	1.73	4.4	1.57	-	-	-	-	-	-	-	-
	-20	-	-	6.0	1.87	5.6	1.74	5.2	1.61	-	-	-	-	-	-
	-15	-	-	6.0	2.09	6.0	1.78	5.7	1.47	5.3	1.35	4.8	1.23	-	-
	-10	6.0	3.01	6.0	2.38	6.0	2.07	6.0	1.75	5.9	1.60	5.7	1.44	-	-
	-7	6.0	3.64	6.0	2.87	6.0	2.49	6.0	2.10	6.0	1.84	6.0	1.69	-	-
	2	6.0	4.38	6.0	3.47	6.0	3.01	6.0	2.56	6.0	2.27	6.0	2.18	5.0	1.78
	7	5.0	6.31	5.0	4.95	5.0	4.27	5.0	3.59	5.0	3.27	5.0	2.94	4.8	2.39
	12	6.0	7.29	6.0	5.73	6.0	4.95	6.0	4.17	6.0	3.68	6.0	3.19	4.8	2.75
	15	6.0	8.34	6.0	6.49	6.0	5.57	6.0	4.64	6.0	4.08	6.0	3.51	4.8	3.06
	20	6.0	9.97	6.0	7.98	6.0	6.73	6.0	5.47	6.0	4.76	6.0	4.04	4.8	3.59
Partload2	-25	-	-	3.8	1.61	3.6	1.46	-	-	-	-	-	-	-	-
	-20	-	-	4.8	1.86	4.5	1.57	4.2	1.28	-	-	-	-	-	-
	-15	-	-	4.8	2.19	4.8	1.87	4.6	1.54	4.2	1.22	3.8	1.28	-	-
	-10	4.8	3.18	4.8	2.52	4.8	2.19	4.8	1.86	4.7	1.68	4.6	1.49	-	-
	-7	4.8	3.68	4.8	2.95	4.8	2.59	4.8	2.22	4.8	2.00	4.8	1.78	-	-
	2	4.8	4.51	4.8	3.65	4.8	3.22	4.8	2.79	4.8	2.51	4.8	2.23	4.0	1.95
	7	4.0	6.32	4.0	4.96	4.0	4.28	4.0	3.60	4.0	3.28	4.0	2.95	3.8	2.63
	12	4.8	7.51	4.8	5.88	4.8	5.07	4.8	4.25	4.8	3.78	4.8	3.30	3.8	2.83
	15	4.8	8.57	4.8	6.63	4.8	5.66	4.8	4.69	4.8	4.14	4.8	3.59	3.8	3.04
	20	4.8	10.18	4.8	8.10	4.8	6.79	4.8	5.48	4.8	4.79	4.8	4.09	3.8	3.40
Min	-25	-	-	3.8	1.61	3.6	1.46	-	-	-	-	-	-	-	-
	-20	-	-	3.9	2.61	3.6	2.19	3.3	1.78	-	-	-	-	-	-
	-15	-	-	4.2	2.66	3.8	2.29	3.4	1.91	3.0	1.54	3.2	1.54	-	-
	-10	5.0	3.33	4.5	2.66	4.3	2.33	4.0	1.99	3.9	1.81	3.8	1.62	-	-
	-7	4.3	3.70	3.9	2.95	3.7	2.58	3.5	2.20	3.5	1.99	3.4	1.78	-	-
	2	4.1	5.22	3.8	4.17	3.7	3.65	3.5	3.12	3.4	2.83	3.3	2.54	3.2	2.25
	7	3.8	6.33	3.6	4.98	3.5	4.31	3.4	3.63	3.4	3.28	3.3	2.93	3.3	2.58
	12	3.6	7.58	3.4	5.84	3.3	4.97	3.2	4.10	3.2	3.67	3.1	3.24	3.1	2.81
	15	4.0	8.69	3.8	6.61	3.7	5.57	3.6	4.53	3.5	4.03	3.4	3.53	3.3	3.03
	20	4.7	10.02	4.4	8.28	4.3	6.86	4.1	5.43	4.0	4.77	3.9	4.10	3.8	3.44

SUZ-SWM80VA2

Water outlet temperature[°C]		25		35		40		45		50		55		60	
Ambient temperature[°C]		Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP
Max	-25	-	-	4.8	1.81	4.4	1.64	-	-	-	-	-	-	-	-
	-20	-	-	6.0	1.94	5.6	1.81	5.2	1.67	-	-	-	-	-	-
	-15	-	-	7.0	2.26	6.6	2.05	6.1	1.83	6.0	1.67	5.9	1.50	-	-
	-10	8.6	2.82	8.0	2.36	7.3	2.20	7.0	1.90	6.7	1.73	6.3	1.56	-	-
	-7	9.0	3.30	8.0	2.63	7.7	2.30	7.4	1.96	7.0	1.78	6.6	1.59	-	-
	2	8.8	3.78	8.4	3.15	8.2	2.84	8.0	2.52	7.8	2.33	7.5	2.13	6.5	1.94
	7	10.4	4.58	10.1	3.79	10.0	3.40	9.8	3.00	9.0	2.77	8.2	2.54	6.0	2.31
	12	10.5	5.90	10.1	4.79	9.9	4.24	9.7	3.68	9.0	3.36	8.2	3.03	6.0	2.71
	15	11.5	6.41	11.0	5.19	10.8	4.58	10.5	3.97	9.4	3.67	8.2	3.36	6.0	3.06
	20	13.2	6.94	12.7	5.87	12.5	5.16	12.2	4.44	10.2	4.18	8.2	3.92	6.0	3.66
Partload1	-25	-	-	4.8	1.81	4.4	1.64	-	-	-	-	-	-	-	-
	-20	-	-	6.0	1.94	5.6	1.81	5.2	1.67	-	-	-	-	-	-
	-15	-	-	7.0	2.26	6.6	2.05	6.1	1.83	6.0	1.67	5.9	1.50	-	-
	-10	7.0	2.80	7.0	2.35	7.0	2.13	7.0	1.90	6.7	1.73	6.3	1.56	-	-
	-7	7.0	3.79	7.0	2.90	7.0	2.46	7.0	2.01	7.0	1.78	6.6	1.59	-	-
	2	7.5	4.39	7.5	3.50	7.5	3.06	7.5	2.61	7.8	2.33	7.5	2.17	6.5	1.94
	7	6.0	6.63	6.0	5.10	6.0	4.34	6.0	3.57	6.0	3.29	6.0	3.00	6.0	2.31
	12	7.5	7.01	7.5	5.54	7.5	4.81	7.5	4.07	7.5	3.60	7.5	3.12	6.0	2.71
	15	7.5	8.12	7.5	6.34	7.5	5.45	7.5	4.56	7.5	4.02	7.5	3.47	6.0	3.06
	20	7.5	9.79	7.5	7.88	7.5	6.67	7.5	5.45	7.5	4.74	7.5	4.03	6.0	3.66
Partload2	-25	-	-	3.8	1.83	3.6	1.66	-	-	-	-	-	-	-	-
	-20	-	-	4.8	2.07	4.5	1.75	4.2	1.43	-	-	-	-	-	-
	-15	-	-	5.6	2.31	5.2	1.97	4.9	1.62	4.8	1.28	4.7	1.30	-	-
	-10	5.6	3.22	5.6	2.55	5.6	2.22	5.6	1.88	5.3	1.72	5.0	1.55	-	-
	-7	6.2	3.73	5.9	2.92	5.6	2.52	5.6	2.11	5.6	1.90	5.3	1.68	-	-
	2	6.0	4.45	6.0	3.66	6.0	3.27	6.0	2.87	6.2	2.60	6.0	2.32	5.2	2.05
	7	4.8	6.34	4.8	5.00	4.8	4.33	4.8	3.66	4.8	3.34	4.8	3.01	4.8	2.69
	12	6.0	7.53	6.0	5.90	6.0	5.09	6.0	4.27	6.0	3.79	6.0	3.31	4.8	2.83
	15	6.0	8.64	6.0	6.70	6.0	5.73	6.0	4.76	6.0	4.20	6.0	3.64	4.8	3.08
	20	6.0	10.36	6.0	8.27	6.0	6.95	6.0	5.63	6.0	4.92	6.0	4.20	4.8	3.49
Min	-25	-	-	3.8	1.83	3.6	1.66	-	-	-	-	-	-	-	-
	-20	-	-	3.9	2.61	3.6	2.19	3.3	1.78	-	-	-	-	-	-
	-15	-	-	4.2	2.66	3.8	2.29	3.4	1.91	3.0	1.54	3.2	1.54	-	-
	-10	5.0	3.33	4.5	2.66	4.3	2.33	4.0	1.99	3.9	1.81	3.8	1.62	-	-
	-7	4.3	3.70	3.9	2.95	3.7	2.58	3.5	2.20	3.5	1.99	3.4	1.78	-	-
	2	4.1	5.22	3.8	4.17	3.7	3.65	3.5	3.12	3.4	2.83	3.3	2.54	3.2	2.25
	7	3.8	6.33	3.6	4.98	3.5	4.31	3.4	3.63	3.4	3.28	3.3	2.93	3.3	2.58
	12	3.6	7.58	3.4	5.84	3.3	4.97	3.2	4.10	3.2	3.67	3.1	3.24	3.1	2.81
	15	4.0	8.69	3.8	6.61	3.7	5.57	3.6	4.53	3.5	4.03	3.4	3.53	3.3	3.03
	20	4.7	10.02	4.4	8.28	4.3	6.86	4.1	5.43	4.0	4.77	3.9	4.10	3.8	3.44

SUZ-SWM80VAH2

Water outlet temperature [°C]		25		35		40		45		50		55		60	
Ambient temperature [°C]		Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP
Max	-25	-	-	4.8	1.73	4.4	1.57	-	-	-	-	-	-	-	-
	-20	-	-	6.0	1.87	5.6	1.74	5.2	1.61	-	-	-	-	-	-
	-15	-	-	7.0	2.18	6.6	1.97	6.1	1.77	6.0	1.61	5.9	1.46	-	-
	-10	8.6	2.71	8.0	2.28	7.3	2.12	7.0	1.84	6.7	1.68	6.3	1.51	-	-
	-7	9.0	3.16	8.0	2.53	7.7	2.22	7.4	1.90	7.0	1.72	6.6	1.55	-	-
	2	8.8	3.59	8.4	3.01	8.2	2.72	8.0	2.43	7.8	2.24	7.5	2.06	6.5	1.87
	7	10.4	4.58	10.1	3.79	10.0	3.40	9.8	3.00	9.0	2.77	8.2	2.54	6.0	2.31
	12	10.5	5.90	10.1	4.79	9.9	4.24	9.7	3.68	9.0	3.36	8.2	3.03	6.0	2.71
	15	11.5	6.41	11.0	5.19	10.8	4.58	10.5	3.97	9.4	3.67	8.2	3.36	6.0	3.06
	20	13.2	6.94	12.7	5.87	12.5	5.16	12.2	4.44	10.2	4.18	8.2	3.92	6.0	3.66
Partload1	-25	-	-	4.8	1.73	4.4	1.57	-	-	-	-	-	-	-	-
	-20	-	-	6.0	1.87	5.6	1.74	5.2	1.61	-	-	-	-	-	-
	-15	-	-	7.0	2.18	6.6	1.97	6.1	1.77	6.0	1.61	5.9	1.46	-	-
	-10	7.0	2.67	7.0	2.26	7.0	2.05	7.0	1.84	6.7	1.68	6.3	1.51	-	-
	-7	7.0	3.56	7.0	2.76	7.0	2.36	7.0	1.94	7.0	1.72	6.6	1.55	-	-
	2	7.5	4.10	7.5	3.31	7.5	2.91	7.5	2.51	7.8	2.24	7.5	2.10	6.5	1.87
	7	6.0	6.63	6.0	5.10	6.0	4.34	6.0	3.57	6.0	3.29	6.0	3.00	6.0	2.31
	12	7.5	7.01	7.5	5.54	7.5	4.81	7.5	4.07	7.5	3.60	7.5	3.12	6.0	2.71
	15	7.5	8.12	7.5	6.34	7.5	5.45	7.5	4.56	7.5	4.02	7.5	3.47	6.0	3.06
	20	7.5	9.79	7.5	7.88	7.5	6.67	7.5	5.45	7.5	4.74	7.5	4.03	6.0	3.66
Partload2	-25	-	-	3.8	1.73	3.6	1.57	-	-	-	-	-	-	-	-
	-20	-	-	4.8	1.97	4.5	1.67	4.2	1.38	-	-	-	-	-	-
	-15	-	-	5.6	2.20	5.2	1.88	4.9	1.56	4.8	1.24	4.7	1.26	-	-
	-10	5.6	3.01	5.6	2.42	5.6	2.11	5.6	1.81	5.3	1.65	5.0	1.49	-	-
	-7	6.2	3.48	5.9	2.76	5.6	2.39	5.6	2.02	5.6	1.82	5.3	1.62	-	-
	2	6.0	4.09	6.0	3.41	6.0	3.06	6.0	2.71	6.2	2.47	6.0	2.22	5.2	1.95
	7	4.8	6.34	4.8	5.00	4.8	4.33	4.8	3.66	4.8	3.34	4.8	3.01	4.8	2.69
	12	6.0	7.53	6.0	5.90	6.0	5.09	6.0	4.27	6.0	3.79	6.0	3.31	4.8	2.83
	15	6.0	8.64	6.0	6.70	6.0	5.73	6.0	4.76	6.0	4.20	6.0	3.64	4.8	3.08
	20	6.0	10.36	6.0	8.27	6.0	6.95	6.0	5.63	6.0	4.92	6.0	4.20	4.8	3.49
Min	-25	-	-	3.8	1.73	3.6	1.57	-	-	-	-	-	-	-	-
	-20	-	-	3.9	2.41	3.6	2.04	3.3	1.67	-	-	-	-	-	-
	-15	-	-	4.2	2.47	3.8	2.13	3.4	1.79	3.0	1.45	3.2	1.46	-	-
	-10	5.0	3.33	4.5	2.48	4.3	2.18	4.0	1.88	3.9	1.71	3.8	1.54	-	-
	-7	4.3	3.70	3.9	2.70	3.7	2.38	3.5	2.05	3.5	1.86	3.4	1.67	-	-
	2	4.1	5.22	3.8	4.17	3.7	3.65	3.5	3.12	3.4	2.83	3.3	2.54	3.2	2.25
	7	3.8	6.33	3.6	4.98	3.5	4.31	3.4	3.63	3.4	3.28	3.3	2.93	3.3	2.58
	12	3.6	7.58	3.4	5.84	3.3	4.97	3.2	4.10	3.2	3.67	3.1	3.24	3.1	2.81
	15	4.0	8.69	3.8	6.61	3.7	5.57	3.6	4.53	3.5	4.03	3.4	3.53	3.3	3.03
	20	4.7	10.02	4.4	8.28	4.3	6.86	4.1	5.43	4.0	4.77	3.9	4.10	3.8	3.44

SUZ-SWM100VA

Water outlet temperature[°C]		25		35		40		45		50		55		60	
Ambient temperature[°C]		Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP
Max	-25	-	-	4.8	1.81	4.4	1.64	-	-	-	-	-	-	-	-
	-20	-	-	6.0	1.94	5.6	1.81	5.2	1.67	-	-	-	-	-	-
	-15	-	-	7.0	2.26	6.6	2.05	6.1	1.83	6.0	1.67	5.9	1.50	-	-
	-10	9.0	2.82	8.0	2.36	7.7	2.17	7.0	1.90	6.7	1.73	6.3	1.56	-	-
	-7	10.1	3.14	9.0	2.54	8.5	2.24	7.9	1.94	7.4	1.78	6.8	1.62	-	-
	2	9.9	3.60	9.2	3.01	8.9	2.72	8.5	2.42	8.5	2.26	8.5	2.09	7.7	1.93
	7	12.1	4.30	11.7	3.56	11.5	3.19	11.3	2.82	10.4	2.63	9.5	2.43	7.0	2.24
	12	12.2	5.56	11.7	4.54	11.5	4.03	11.2	3.52	10.4	3.22	9.5	2.91	7.0	2.61
	15	13.1	6.03	12.7	4.91	12.5	4.35	12.3	3.79	10.9	3.52	9.5	3.25	7.0	2.98
	20	15.2	6.47	14.7	5.52	14.5	4.88	14.2	4.23	11.9	4.04	9.5	3.85	7.0	3.66
Partload1	-25	-	-	4.8	1.81	4.4	1.64	-	-	-	-	-	-	-	-
	-20	-	-	6.0	1.94	5.6	1.81	5.2	1.67	-	-	-	-	-	-
	-15	-	-	7.0	2.26	6.6	2.05	6.1	1.83	6.0	1.67	5.9	1.50	-	-
	-10	7.5	2.92	7.5	2.41	7.3	2.16	7.0	1.90	6.7	1.73	6.3	1.56	-	-
	-7	7.5	3.71	7.5	2.85	7.5	2.42	7.5	1.99	7.4	1.78	6.8	1.62	-	-
	2	9.0	3.82	9.0	3.12	8.9	2.72	8.5	2.42	8.5	2.26	8.5	2.09	7.7	1.93
	7	7.5	6.26	7.5	4.85	7.5	4.15	7.5	3.44	7.5	3.12	7.5	2.80	7.0	2.24
	12	10.0	6.40	10.0	5.08	10.0	4.42	10.0	3.76	9.8	3.34	9.5	2.91	7.0	2.61
	15	10.0	7.37	10.0	5.81	10.0	5.03	10.0	4.25	9.8	3.75	9.5	3.25	7.0	2.98
	20	10.0	9.01	10.0	7.33	10.0	6.26	10.0	5.18	9.8	4.52	9.5	3.85	7.0	3.66
Partload2	-25	-	-	3.8	1.83	3.6	1.66	-	-	-	-	-	-	-	-
	-20	-	-	4.8	2.07	4.5	1.75	4.2	1.43	-	-	-	-	-	-
	-15	-	-	5.6	2.31	5.2	1.97	4.9	1.62	4.8	1.28	4.7	1.30	-	-
	-10	6.0	3.22	6.0	2.55	5.8	2.22	5.6	1.88	5.3	1.72	5.0	1.55	-	-
	-7	6.0	3.65	6.0	2.87	6.0	2.48	6.0	2.09	5.9	1.89	5.4	1.69	-	-
	2	7.2	3.93	7.2	3.36	7.1	3.08	6.8	2.79	6.8	2.58	6.8	2.36	6.1	2.15
	7	6.0	6.51	6.0	5.08	6.0	4.37	6.0	3.65	6.0	3.28	6.0	2.91	5.6	2.54
	12	8.0	6.90	8.0	5.51	8.0	4.82	8.0	4.12	7.8	3.67	7.6	3.21	5.6	2.76
	15	8.0	7.89	8.0	6.26	8.0	5.45	8.0	4.63	7.8	4.10	7.6	3.56	5.6	3.03
	20	8.0	9.60	8.0	7.84	8.0	6.71	8.0	5.57	7.8	4.88	7.6	4.18	5.6	3.49
Min	-25	-	-	3.8	1.83	3.6	1.66	-	-	-	-	-	-	-	-
	-20	-	-	3.9	2.61	3.6	2.19	3.3	1.78	-	-	-	-	-	-
	-15	-	-	4.2	2.66	3.8	2.29	3.4	1.91	3.0	1.54	3.2	1.54	-	-
	-10	5.0	3.33	4.5	2.66	4.3	2.33	4.0	1.99	3.9	1.81	3.8	1.62	-	-
	-7	4.3	3.68	3.9	2.95	3.7	2.59	3.5	2.22	3.5	2.00	3.4	1.78	-	-
	2	4.1	5.22	3.8	4.17	3.7	3.65	3.5	3.12	3.4	2.83	3.3	2.54	3.2	2.25
	7	3.8	6.33	3.6	4.98	3.5	4.31	3.4	3.63	3.4	3.28	3.3	2.93	3.3	2.58
	12	3.6	7.58	3.4	5.84	3.3	4.97	3.2	4.10	3.2	3.67	3.1	3.24	3.1	2.81
	15	4.0	8.69	3.8	6.61	3.7	5.57	3.6	4.53	3.5	4.03	3.4	3.53	3.3	3.03
	20	4.7	10.02	4.4	8.28	4.3	6.86	4.1	5.43	4.0	4.77	3.9	4.10	3.8	3.44

SUZ-SWM100VAH

Water outlet temperature [°C]		25		35		40		45		50		55		60	
Ambient temperature [°C]		Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP
Max	-25	-	-	4.8	1.73	4.4	1.57	-	-	-	-	-	-	-	-
	-20	-	-	6.0	1.87	5.6	1.74	5.2	1.61	-	-	-	-	-	-
	-15	-	-	7.0	2.18	6.6	1.97	6.1	1.77	6.0	1.61	5.9	1.46	-	-
	-10	9.0	2.72	8.0	2.28	7.7	2.10	7.0	1.84	6.7	1.68	6.3	1.51	-	-
	-7	10.1	3.03	9.0	2.46	8.5	2.17	7.9	1.88	7.4	1.73	6.8	1.57	-	-
	2	9.9	3.45	9.2	2.90	8.9	2.62	8.5	2.34	8.5	2.19	8.5	2.03	7.7	1.87
	7	12.1	4.30	11.7	3.56	11.5	3.19	11.3	2.82	10.4	2.63	9.5	2.43	7.0	2.24
	12	12.2	5.56	11.7	4.54	11.5	4.03	11.2	3.52	10.4	3.22	9.5	2.91	7.0	2.61
	15	13.1	6.03	12.7	4.91	12.5	4.35	12.3	3.79	10.9	3.52	9.5	3.25	7.0	2.98
	20	15.2	6.47	14.7	5.52	14.5	4.88	14.2	4.23	11.9	4.04	9.5	3.85	7.0	3.66
Partload1	-25	-	-	4.8	1.73	4.4	1.57	-	-	-	-	-	-	-	-
	-20	-	-	6.0	1.87	5.6	1.74	5.2	1.61	-	-	-	-	-	-
	-15	-	-	7.0	2.18	6.6	1.97	6.1	1.77	6.0	1.61	5.9	1.46	-	-
	-10	7.5	2.79	7.5	2.32	7.3	2.08	7.0	1.84	6.7	1.68	6.3	1.51	-	-
	-7	7.5	3.50	7.5	2.73	7.5	2.33	7.5	1.93	7.4	1.73	6.8	1.57	-	-
	2	9.0	3.63	9.0	3.00	8.9	2.62	8.5	2.34	8.5	2.19	8.5	2.03	7.7	1.87
	7	7.5	6.26	7.5	4.85	7.5	4.15	7.5	3.44	7.5	3.12	7.5	2.80	7.0	2.24
	12	10.0	6.40	10.0	5.08	10.0	4.42	10.0	3.76	9.8	3.34	9.5	2.91	7.0	2.61
	15	10.0	7.37	10.0	5.81	10.0	5.03	10.0	4.25	9.8	3.75	9.5	3.25	7.0	2.98
	20	10.0	9.01	10.0	7.33	10.0	6.26	10.0	5.18	9.8	4.52	9.5	3.85	7.0	3.66
Partload2	-25	-	-	3.8	1.73	3.6	1.57	-	-	-	-	-	-	-	-
	-20	-	-	4.8	1.97	4.5	1.67	4.2	1.38	-	-	-	-	-	-
	-15	-	-	5.6	2.20	5.2	1.88	4.9	1.56	4.8	1.24	4.7	1.26	-	-
	-10	6.0	3.03	6.0	2.43	5.8	2.12	5.6	1.81	5.3	1.65	5.0	1.49	-	-
	-7	6.0	3.40	6.0	2.71	6.0	2.36	6.0	2.01	5.9	1.82	5.4	1.63	-	-
	2	7.2	3.69	7.2	3.18	7.1	2.92	6.8	2.66	6.8	2.46	6.8	2.27	6.1	2.06
	7	6.0	6.51	6.0	5.08	6.0	4.37	6.0	3.65	6.0	3.28	6.0	2.91	5.6	2.54
	12	8.0	6.90	8.0	5.51	8.0	4.82	8.0	4.12	7.8	3.67	7.6	3.21	5.6	2.76
	15	8.0	7.89	8.0	6.26	8.0	5.45	8.0	4.63	7.8	4.10	7.6	3.56	5.6	3.03
	20	8.0	9.60	8.0	7.84	8.0	6.71	8.0	5.57	7.8	4.88	7.6	4.18	5.6	3.49
Min	-25	-	-	3.8	1.73	3.6	1.57	-	-	-	-	-	-	-	-
	-20	-	-	3.9	2.41	3.6	2.04	3.3	1.67	-	-	-	-	-	-
	-15	-	-	4.2	2.47	3.8	2.13	3.4	1.79	3.0	1.45	3.2	1.46	-	-
	-10	5.0	3.33	4.5	2.48	4.3	2.18	4.0	1.88	3.9	1.71	3.8	1.54	-	-
	-7	4.3	3.68	3.9	2.70	3.7	2.39	3.5	2.06	3.5	1.87	3.4	1.67	-	-
	2	4.1	5.22	3.8	4.17	3.7	3.65	3.5	3.12	3.4	2.83	3.3	2.54	3.2	2.25
	7	3.8	6.33	3.6	4.98	3.5	4.31	3.4	3.63	3.4	3.28	3.3	2.93	3.3	2.58
	12	3.6	7.58	3.4	5.84	3.3	4.97	3.2	4.10	3.2	3.67	3.1	3.24	3.1	2.81
	15	4.0	8.69	3.8	6.61	3.7	5.57	3.6	4.53	3.5	4.03	3.4	3.53	3.3	3.03
	20	4.7	10.02	4.4	8.28	4.3	6.86	4.1	5.43	4.0	4.77	3.9	4.10	3.8	3.44

■ PUZ-SWM60VAA

Water outlet temperature[°C]		25		35		40		45		50		55		60		65		70	
Ambient temperature[°C]		Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP
Max	-25	-	-	4.4	1.68	4.2	1.58	4.0	1.48	4.0	1.41	-	-	-	-	-	-	-	-
	-20	-	-	5.2	2.40	5.1	2.14	5.0	1.83	4.5	1.61	-	-	-	-	-	-	-	-
	-15	-	-	5.7	2.65	5.6	2.40	5.4	2.09	5.3	1.83	4.5	1.63	-	-	-	-	-	-
	-10	7.5	3.71	6.8	3.10	6.7	2.74	6.5	2.39	6.0	2.08	5.4	2.03	4.4	1.66	-	-	-	-
	-7	8.0	3.76	7.6	3.15	7.2	2.84	6.8	2.49	6.4	2.18	5.5	2.03	4.6	1.68	3.6	1.25	-	-
	2	7.5	4.48	7.0	3.58	6.8	3.26	6.5	2.90	6.2	2.44	5.6	1.97	4.8	1.78	4.2	1.65	-	-
	7	9.0	5.59	8.3	4.77	8.0	4.22	7.6	3.61	7.2	3.19	6.9	2.68	6.2	2.38	5.8	2.10	-	-
	12	9.6	6.65	9.2	5.59	9.1	4.93	8.9	4.22	8.4	3.70	7.9	3.19	7.0	2.79	6.3	2.43	-	-
	15	9.9	7.16	9.6	5.99	9.5	5.28	9.3	4.57	8.8	3.95	8.3	3.50	7.3	3.04	6.7	2.68	-	-
	20	10.2	8.23	10.0	6.91	9.9	6.10	9.7	5.28	9.5	4.61	9.2	3.80	8.4	3.50	7.8	3.30	-	-
Partload1	-25	-	-	4.4	1.68	4.2	1.58	4.0	1.48	4.0	1.41	-	-	-	-	-	-	-	-
	-20	-	-	5.2	2.40	5.1	2.14	5.0	1.83	4.5	1.61	-	-	-	-	-	-	-	-
	-15	-	-	5.7	2.65	5.6	2.40	5.4	2.09	5.3	1.83	4.5	1.63	-	-	-	-	-	-
	-10	6.0	3.81	5.7	3.15	5.6	2.79	5.5	2.39	5.5	2.08	5.4	2.03	4.4	1.66	-	-	-	-
	-7	6.0	3.91	6.0	3.17	6.0	2.84	6.0	2.49	6.0	2.18	5.5	2.03	4.6	1.68	3.6	1.25	-	-
	2	6.0	4.68	6.0	3.75	6.0	3.31	6.0	2.90	6.0	2.44	5.6	1.97	4.8	1.78	4.0	1.66	-	-
	7	5.0	5.54	5.0	5.02	5.0	4.27	5.0	3.66	5.0	3.19	4.0	2.45	4.0	2.31	4.0	2.20	-	-
	12	5.0	6.25	5.0	5.23	5.0	4.77	5.0	4.27	5.0	3.65	4.0	3.14	4.0	2.79	4.0	2.55	-	-
	15	5.0	7.06	5.0	5.89	5.0	5.18	5.0	4.47	5.0	3.90	4.0	3.50	4.0	2.99	4.0	2.60	-	-
	20	5.0	7.87	5.0	6.86	5.0	5.99	5.0	5.13	5.0	4.46	4.0	3.80	4.0	3.45	4.0	3.20	-	-
Partload2	-25	-	-	3.6	1.63	3.5	1.53	3.4	1.38	3.2	1.46	-	-	-	-	-	-	-	-
	-20	-	-	4.3	2.40	4.2	2.14	4.1	1.83	4.0	1.53	-	-	-	-	-	-	-	-
	-15	-	-	4.9	2.60	4.8	2.34	4.7	2.04	4.6	1.78	4.5	1.58	-	-	-	-	-	-
	-10	4.8	3.81	4.6	3.05	4.5	2.69	4.4	2.34	4.4	2.03	4.3	1.83	3.5	1.61	-	-	-	-
	-7	4.8	3.81	4.8	3.25	4.8	2.90	4.8	2.49	4.8	2.18	4.8	2.03	4.2	1.68	2.9	1.44	-	-
	2	4.8	4.73	4.8	3.79	4.8	3.36	4.8	2.90	4.8	2.49	4.8	2.19	4.4	1.88	3.2	1.60	-	-
	7	4.0	5.33	4.0	4.41	4.0	4.01	4.0	3.56	4.0	3.04	3.2	2.40	3.2	2.26	3.2	2.09	-	-
	12	4.0	5.84	4.0	4.93	4.0	4.57	4.0	4.17	4.0	3.55	3.2	3.09	3.2	2.74	3.2	2.40	-	-
	15	4.0	6.91	4.0	5.79	4.0	5.08	4.0	4.37	4.0	3.80	3.2	3.40	3.2	2.94	3.2	2.55	-	-
	20	4.2	7.57	4.0	6.70	4.0	5.84	4.0	4.98	4.0	4.26	3.2	3.70	3.2	3.40	3.2	3.10	-	-
Min	-25	-	-	3.6	1.60	3.5	1.50	3.4	1.35	3.0	1.35	-	-	-	-	-	-	-	-
	-20	-	-	4.3	2.35	4.2	2.10	4.1	1.80	3.9	1.50	-	-	-	-	-	-	-	-
	-15	-	-	4.9	2.55	4.8	2.30	4.7	2.00	4.6	1.75	4.5	1.55	-	-	-	-	-	-
	-10	3.8	3.60	3.5	2.85	3.4	2.55	3.3	2.20	3.2	1.90	3.1	1.60	3.0	1.60	-	-	-	-
	-7	3.8	3.70	3.5	2.90	3.4	2.60	3.2	2.25	3.1	2.00	2.9	1.70	2.8	1.67	2.0	1.42	-	-
	2	3.4	4.60	3.1	3.60	2.9	3.20	2.6	2.75	2.4	2.05	2.1	1.80	2.0	1.92	1.9	1.55	-	-
	7	2.7	4.80	2.4	3.50	2.3	3.30	2.2	3.05	2.0	2.50	1.7	2.30	1.6	2.27	1.5	2.07	-	-
	12	3.3	5.35	3.0	4.45	2.8	4.20	2.6	3.90	2.2	3.20	1.8	2.60	1.8	2.58	1.7	2.30	-	-
	15	3.8	6.75	3.2	5.60	3.0	4.85	2.8	4.10	2.4	3.45	1.9	2.90	1.9	2.78	1.8	2.50	-	-
	20	4.2	7.45	3.7	6.55	3.4	5.65	3.1	4.75	2.9	3.90	2.6	3.30	2.5	3.38	2.3	3.05	-	-

■ PUZ-SWM80VAA PUZ-SWM80YAA

Water outlet temperature[°C]		25		35		40		45		50		55		60		65		70	
Ambient temperature[°C]		Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP
Max	-25	-	-	5.0	1.73	4.9	1.58	4.7	1.47	4.0	1.41	-	-	-	-	-	-	-	-
	-20	-	-	6.7	2.24	6.6	1.99	6.4	1.73	5.5	1.48	-	-	-	-	-	-	-	-
	-15	-	-	7.3	2.55	7.0	2.29	6.6	2.04	6.2	1.78	5.7	1.58	-	-	-	-	-	-
	-10	8.5	3.55	7.6	3.03	7.5	2.68	7.3	2.38	7.1	2.03	6.9	1.94	5.5	1.55	-	-	-	-
	-7	9.4	3.65	8.8	3.04	8.6	2.79	8.4	2.48	7.3	2.13	7.1	1.98	5.7	1.57	4.3	1.20	-	-
	2	9.9	3.99	9.3	3.38	9.1	3.07	8.8	2.71	8.0	2.35	7.1	1.84	6.0	1.74	5.5	1.60	-	-
	7	9.6	5.47	8.9	4.66	8.6	4.11	8.2	3.50	7.9	3.14	7.5	2.63	6.8	2.33	6.0	2.02	-	-
	12	10.4	6.44	9.9	5.53	9.7	4.87	9.5	4.16	9.1	3.65	8.6	3.14	7.7	2.74	6.8	2.43	-	-
	15	10.7	7.05	10.4	5.93	10.2	5.27	10.0	4.56	9.5	3.90	9.0	3.50	8.0	2.99	7.1	2.51	-	-
	20	10.9	8.01	10.8	6.79	10.6	6.03	10.4	5.22	10.2	4.51	9.7	3.75	9.1	3.50	8.5	3.25	-	-
Partload1	-25	-	-	5.0	1.73	4.9	1.58	4.7	1.47	4.0	1.41	-	-	-	-	-	-	-	-
	-20	-	-	6.7	2.24	6.6	1.99	6.4	1.73	5.5	1.48	-	-	-	-	-	-	-	-
	-15	-	-	7.3	2.55	7.0	2.29	6.6	2.04	6.2	1.78	5.7	1.58	-	-	-	-	-	-
	-10	8.0	3.60	7.6	3.03	7.5	2.68	7.3	2.38	7.1	2.03	6.9	1.94	5.5	1.55	-	-	-	-
	-7	8.0	3.75	8.0	3.11	8.0	2.84	8.0	2.48	7.3	2.13	7.1	1.98	5.7	1.57	4.3	1.20	-	-
	2	8.0	4.45	8.0	3.70	8.0	3.22	8.0	2.81	7.6	2.45	7.1	1.84	6.0	1.74	5.5	1.60	-	-
	7	6.0	5.73	6.0	5.02	6.0	4.26	6.0	3.70	6.0	3.24	4.0	2.50	4.0	2.43	4.0	2.20	-	-
	12	6.0	6.54	6.0	5.42	6.0	4.87	6.0	4.31	6.0	3.70	4.0	3.14	4.0	2.79	4.0	2.55	-	-
	15	6.0	7.15	6.0	6.03	6.0	5.32	6.0	4.61	6.0	4.01	4.0	3.50	4.0	2.99	4.0	2.60	-	-
	20	6.0	8.16	6.0	7.00	6.0	6.13	6.0	5.22	6.0	4.61	4.0	3.80	4.0	3.45	4.0	3.20	-	-
Partload2	-25	-	-	4.0	1.68	4.0	1.58	4.0	1.48	3.2	1.46	-	-	-	-	-	-	-	-
	-20	-	-	5.4	2.40	5.3	2.14	5.1	1.84	5.0	1.53	-	-	-	-	-	-	-	-
	-15	-	-	5.8	2.65	5.6	2.40	5.3	2.09	5.4	1.84	5.4	1.63	-	-	-	-	-	-
	-10	6.4	3.80	6.1	3.14	6.0	2.79	5.8	2.38	5.8	2.08	5.8	1.98	4.4	1.58	-	-	-	-
	-7	6.4	3.90	6.4	3.19	6.4	2.84	6.4	2.48	6.4	2.18	6.4	2.03	4.6	1.65	3.4	1.25	-	-
	2	6.4	4.65	6.4	3.69	6.4	3.32	6.4	2.91	6.4	2.56	6.4	2.15	4.8	1.80	4.4	1.63	-	-
	7	4.8	5.47	4.8	4.72	4.8	4.21	4.8	3.65	4.8	3.14	3.2	2.45	3.2	2.31	3.2	2.09	-	-
	12	4.8	6.18	4.8	5.17	4.8	4.71	4.8	4.26	4.8	3.65	3.2	3.09	3.2	2.79	3.2	2.40	-	-
	15	4.8	7.05	4.8	5.93	4.8	5.22	4.8	4.51	4.8	3.90	3.2	3.40	3.2	2.99	3.2	2.55	-	-
	20	4.8	7.81	4.8	6.84	4.8	5.98	4.8	5.07	4.8	4.41	3.2	3.70	3.2	3.45	3.2	3.10	-	-
Min	-25	-	-	3.6	1.60	3.5	1.50	3.4	1.35	3.0	1.35	-	-	-	-	-	-	-	-
	-20	-	-	4.3	2.35	4.2	2.10	4.1	1.80	3.9	1.50	-	-	-	-	-	-	-	-
	-15	-	-	4.9	2.55	4.8	2.30	4.7	2.00	4.6	1.75	4.5	1.55	-	-	-	-	-	-
	-10	3.8	3.60	3.5	2.85	3.4	2.55	3.3	2.20	3.2	1.90	3.1	1.60	3.0	1.60	-	-	-	-
	-7	3.8	3.70	3.5	2.90	3.4	2.60	3.2	2.25	3.1	2.00	2.9	1.70	2.8	1.67	2.0	1.42	-	-
	2	3.4	4.60	3.1	3.60	2.9	3.20	2.6	2.75	2.4	2.05	2.1	1.80	2.0	1.92	1.9	1.55	-	-
	7	2.7	4.80	2.4	3.50	2.3	3.30	2.2	3.05	2.0	2.50	1.7	2.30	1.6	2.27	1.5	2.07	-	-
	12	3.3	5.35	3.0	4.45	2.8	4.20	2.6	3.90	2.2	3.20	1.8	2.60	1.8	2.58	1.7	2.30	-	-
	15	3.8	6.75	3.2	5.60	3.0	4.85	2.8	4.10	2.4	3.45	1.9	2.90	1.9	2.78	1.8	2.50	-	-
	20	4.2	7.45	3.7	6.55	3.4	5.65	3.1	4.75	2.9	3.90	2.6	3.30	2.5	3.38	2.3	3.05	-	-

■ PUZ-SWM100VAA PUZ-SWM100YAA

Water outlet temperature[°C]		25		35		40		45		50		55		60		65		70	
Ambient temperature[°C]		Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP
Max	-25	-	-	7.0	1.84	7.0	1.74	6.9	1.63	6.0	1.36	-	-	-	-	-	-	-	-
	-20	-	-	8.0	2.14	7.8	1.94	7.6	1.74	7.0	1.43	-	-	-	-	-	-	-	-
	-15	-	-	9.0	2.25	8.8	2.09	8.5	1.89	7.9	1.68	7.3	1.58	-	-	-	-	-	-
	-10	11.5	2.75	11.0	2.55	10.6	2.35	10.2	2.09	9.7	1.99	8.8	1.84	7.5	1.77	-	-	-	-
	-7	12.4	2.96	11.9	2.70	11.5	2.50	11.0	2.24	10.0	2.09	9.0	1.89	7.8	1.63	6.3	1.40	-	-
	2	12.4	3.22	12.1	3.05	11.8	2.81	11.5	2.50	11.0	2.30	9.5	1.97	8.7	1.89	7.8	1.71	-	-
	7	11.4	5.59	10.9	4.72	10.5	4.06	10.0	3.40	9.7	3.15	9.2	2.47	8.5	2.32	7.7	2.02	-	-
	12	12.9	6.40	12.2	5.54	12.0	4.83	11.7	4.06	11.1	3.61	10.5	3.04	9.5	2.63	8.7	2.41	-	-
	15	13.4	6.81	13.0	5.74	12.7	5.18	12.4	4.57	11.8	4.23	11.1	3.66	10.0	2.99	9.3	2.60	-	-
	20	14.2	7.72	13.8	6.35	13.5	5.74	13.1	5.08	12.5	4.49	11.4	3.87	10.5	3.66	10.0	3.44	-	-
Partload1	-25	-	-	7.0	1.84	7.0	1.74	6.9	1.63	6.0	1.36	-	-	-	-	-	-	-	-
	-20	-	-	8.0	2.14	7.8	1.94	7.6	1.74	7.0	1.43	-	-	-	-	-	-	-	-
	-15	-	-	9.0	2.25	8.8	2.09	8.5	1.89	7.9	1.68	7.3	1.58	-	-	-	-	-	-
	-10	10.0	3.32	10.0	2.92	10.0	2.55	10.0	2.19	9.7	1.99	8.8	1.84	7.5	1.77	-	-	-	-
	-7	10.0	3.57	10.0	2.98	10.0	2.70	10.0	2.40	10.0	2.09	9.0	1.89	7.8	1.63	6.3	1.40	-	-
	2	10.0	4.19	10.0	3.47	10.0	3.06	10.0	2.71	10.0	2.40	9.5	1.97	8.7	1.89	7.8	1.71	-	-
	7	8.0	5.99	8.0	5.02	8.0	4.37	8.0	3.66	8.0	3.30	7.0	2.70	7.0	2.37	7.0	1.99	-	-
	12	8.0	7.31	8.0	5.99	8.0	5.18	8.0	4.37	8.0	3.87	7.0	3.20	7.0	2.73	7.0	2.35	-	-
	15	8.0	7.62	8.0	6.30	8.0	5.59	8.0	4.88	8.0	4.38	7.0	3.76	7.0	3.04	7.0	2.71	-	-
	20	8.0	8.79	8.0	7.21	8.0	6.35	8.0	5.49	8.0	4.80	7.0	3.97	7.0	3.87	7.0	3.56	-	-
Partload2	-25	-	-	5.6	1.79	5.6	1.74	5.5	1.63	4.8	1.41	-	-	-	-	-	-	-	-
	-20	-	-	6.4	2.40	6.3	2.14	6.1	1.84	5.6	1.53	-	-	-	-	-	-	-	-
	-15	-	-	7.2	2.55	7.0	2.30	6.8	2.04	6.3	1.84	5.8	1.63	-	-	-	-	-	-
	-10	8.0	3.77	8.0	3.16	8.0	2.75	8.0	2.35	7.8	2.09	7.4	1.89	6.0	1.82	-	-	-	-
	-7	8.0	3.83	8.0	3.16	8.0	2.86	8.0	2.50	8.0	2.19	7.6	1.99	6.2	1.68	5.0	1.45	-	-
	2	8.0	4.54	8.0	3.66	8.0	3.32	8.0	2.91	8.0	2.55	8.0	2.20	7.0	1.99	6.2	1.81	-	-
	7	6.4	5.89	6.4	5.07	6.4	4.42	6.4	3.76	6.4	3.35	5.6	2.78	5.6	2.42	5.6	2.07	-	-
	12	6.4	7.37	6.4	5.64	6.4	5.03	6.4	4.37	6.4	3.87	5.6	3.20	5.6	2.78	5.6	2.25	-	-
	15	6.4	7.62	6.4	6.25	6.4	5.54	6.4	4.77	6.4	4.28	5.6	3.71	5.6	3.04	5.6	2.65	-	-
	20	6.4	8.48	6.4	7.16	6.4	6.30	6.4	5.38	6.4	4.74	5.6	3.92	5.6	3.82	5.6	3.64	-	-
Min	-25	-	-	3.6	1.60	3.5	1.50	3.4	1.35	3.0	1.35	-	-	-	-	-	-	-	-
	-20	-	-	4.3	2.35	4.2	2.10	4.1	1.80	3.9	1.50	-	-	-	-	-	-	-	-
	-15	-	-	4.9	2.55	4.8	2.30	4.7	2.00	4.6	1.75	4.5	1.55	-	-	-	-	-	-
	-10	3.8	3.60	3.5	2.85	3.4	2.55	3.3	2.20	3.2	1.90	3.1	1.60	3.0	1.60	-	-	-	-
	-7	3.8	3.70	3.5	2.90	3.4	2.60	3.2	2.25	3.1	2.00	2.9	1.70	2.8	1.67	2.0	1.42	-	-
	2	3.4	4.60	3.2	3.60	2.9	3.20	2.6	2.75	2.4	2.05	2.1	1.80	2.0	1.92	1.9	1.55	-	-
	7	2.7	4.80	2.5	3.50	2.3	3.30	2.2	3.05	2.0	2.50	1.7	2.30	1.6	2.27	1.5	2.07	-	-
	12	3.3	5.35	3.0	4.45	2.8	4.20	2.6	3.90	2.2	3.20	1.8	2.60	1.8	2.58	1.7	2.30	-	-
	15	3.8	6.75	3.2	5.60	3.0	4.85	2.8	4.10	2.4	3.45	1.9	2.90	1.9	2.78	1.8	2.50	-	-
	20	4.2	7.45	3.7	6.55	3.4	5.65	3.1	4.75	2.9	3.90	2.6	3.30	2.5	3.38	2.3	3.05	-	-

■ PUZ-SWM120VAA PUZ-SWM120YAA

Water outlet temperature[°C]		25		35		40		45		50		55		60		65		70	
Ambient temperature[°C]		Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP
Max	-25	-	-	8.2	1.74	8.1	1.69	8.0	1.60	7.0	1.43	-	-	-	-	-	-	-	-
	-20	-	-	9.2	1.84	8.9	1.79	8.6	1.69	7.3	1.43	-	-	-	-	-	-	-	-
	-15	-	-	10.4	2.14	10.0	1.99	9.5	1.84	8.9	1.63	8.3	1.49	-	-	-	-	-	-
	-10	12.6	2.56	12.0	2.38	11.7	2.20	11.3	2.05	10.9	1.90	10.5	1.75	9.0	1.54	-	-	-	-
	-7	13.0	2.77	12.5	2.51	12.2	2.36	12.1	2.15	11.5	1.95	11.0	1.79	9.7	1.59	8.7	1.34	-	-
	2	13.0	3.22	12.7	2.90	12.6	2.66	12.4	2.40	12.2	2.15	12.1	1.94	10.8	1.74	9.8	1.52	-	-
	7	13.2	5.00	12.9	4.16	12.5	3.67	12.1	3.16	11.7	2.91	11.2	2.58	10.5	2.25	9.7	1.87	-	-
	12	15.0	5.51	14.5	4.64	14.2	4.18	13.8	3.67	13.2	3.17	12.6	2.71	11.7	2.35	10.2	2.01	-	-
	15	15.9	6.02	15.4	5.10	15.1	4.69	14.7	4.23	14.0	3.83	13.3	3.37	12.4	2.71	11.1	2.23	-	-
	20	16.9	6.22	16.4	5.41	16.2	4.95	15.9	4.49	15.2	3.98	14.5	3.47	13.5	3.06	12.1	2.70	-	-
Partload1	-25	-	-	8.2	1.74	8.1	1.69	8.0	1.60	7.0	1.43	-	-	-	-	-	-	-	-
	-20	-	-	9.2	1.84	8.9	1.79	8.6	1.69	7.3	1.43	-	-	-	-	-	-	-	-
	-15	-	-	10.4	2.14	10.0	1.99	9.5	1.84	8.9	1.63	8.3	1.49	-	-	-	-	-	-
	-10	12.1	2.87	11.0	2.76	11.0	2.46	11.0	2.10	10.9	1.90	10.5	1.75	9.0	1.54	-	-	-	-
	-7	12.1	3.28	12.1	2.74	12.1	2.51	12.1	2.20	11.5	2.00	11.0	1.79	9.7	1.59	8.7	1.34	-	-
	2	12.1	3.63	12.1	3.27	12.1	2.86	12.1	2.45	12.1	2.20	12.1	1.94	10.8	1.74	9.8	1.52	-	-
	7	10.0	5.86	10.0	4.87	10.0	4.13	10.0	3.47	10.0	3.11	7.0	2.70	7.0	2.30	7.0	2.01	-	-
	12	10.0	7.29	10.0	5.92	10.0	5.10	10.0	4.28	10.0	3.73	7.0	3.06	7.0	2.55	7.0	2.05	-	-
	15	10.0	7.60	10.0	6.27	10.0	5.56	10.0	4.84	10.0	4.29	7.0	3.68	7.0	2.96	7.0	2.37	-	-
	20	10.0	8.82	10.0	7.14	10.0	6.32	10.0	5.46	10.0	4.70	7.0	3.88	7.0	3.68	7.0	3.45	-	-
Partload2	-25	-	-	6.6	1.84	6.5	1.79	6.4	1.69	5.6	1.53	-	-	-	-	-	-	-	-
	-20	-	-	7.4	2.25	7.2	2.04	6.9	1.79	5.8	1.53	-	-	-	-	-	-	-	-
	-15	-	-	8.3	2.45	8.0	2.25	7.6	2.04	7.1	1.79	6.6	1.63	-	-	-	-	-	-
	-10	9.6	3.54	8.8	3.07	8.8	2.72	8.8	2.36	8.7	2.10	8.4	1.90	7.2	1.59	-	-	-	-
	-7	9.6	3.69	9.6	3.13	9.6	2.82	9.6	2.46	9.2	2.15	8.8	1.95	7.8	1.64	7.0	1.40	-	-
	2	9.6	4.34	9.6	3.56	9.6	3.22	9.6	2.81	9.6	2.50	9.6	2.15	8.6	1.94	7.8	1.71	-	-
	7	8.0	6.02	8.0	5.07	8.0	4.44	8.0	3.72	8.0	3.27	5.6	2.73	5.6	2.35	5.6	2.10	-	-
	12	8.0	7.34	8.0	6.02	8.0	5.20	8.0	4.39	8.0	3.83	5.6	3.17	5.6	2.71	5.6	2.36	-	-
	15	8.0	7.70	8.0	6.32	8.0	5.61	8.0	4.90	8.0	4.34	5.6	3.73	5.6	3.01	5.6	2.47	-	-
	20	8.0	8.87	8.0	7.24	8.0	6.37	8.0	5.51	8.0	4.75	5.6	3.93	5.6	3.83	5.6	3.71	-	-
Min	-25	-	-	4.0	1.60	3.9	1.50	3.8	1.35	3.2	1.35	-	-	-	-	-	-	-	-
	-20	-	-	4.9	2.35	4.8	2.10	4.7	1.80	4.5	1.50	-	-	-	-	-	-	-	-
	-15	-	-	5.6	2.55	5.5	2.30	5.4	2.00	5.3	1.75	5.2	1.55	-	-	-	-	-	-
	-10	3.8	3.60	3.6	2.85	3.5	2.55	3.4	2.20	3.3	1.90	3.1	1.60	3.0	1.60	-	-	-	-
	-7	3.8	3.70	3.5	2.90	3.4	2.60	3.2	2.25	3.1	2.00	2.9	1.70	2.8	1.67	3.0	1.65	-	-
	2	3.5	4.60	3.2	3.60	3.0	3.20	2.7	2.75	2.4	2.05	2.1	1.80	2.0	1.92	2.9	1.80	-	-
	7	2.7	4.80	2.5	3.50	2.4	3.30	2.3	3.05	2.0	2.50	1.7	2.30	1.6	2.27	2.3	2.20	-	-
	12	3.4	5.35	3.1	4.45	2.9	4.20	2.7	3.90	2.3	3.20	1.9	2.60	1.8	2.58	2.5	2.55	-	-
	15	4.0	6.75	3.3	5.60	3.1	4.85	2.9	4.10	2.5	3.45	2.0	2.90	1.9	2.78	2.6	2.62	-	-
	20	4.3	7.45	3.8	6.55	3.5	5.65	3.2	4.75	2.9	3.90	2.6	3.30	2.5	3.38	3.5	3.02	-	-

PUZ-SWM140VAA PUZ-SWM140YAA

Water outlet temperature[°C]		25		35		40		45		50		55		60		65		70	
Ambient temperature[°C]		Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP
Max	-25	-	-	8.4	1.67	8.4	1.65	8.3	1.58	7.8	1.33	-	-	-	-	-	-	-	-
	-20	-	-	9.9	1.80	9.6	1.72	9.2	1.62	8.4	1.37	-	-	-	-	-	-	-	-
	-15	-	-	12.0	1.90	11.6	1.92	10.8	1.85	9.9	1.57	8.7	1.42	-	-	-	-	-	-
	-10	14.0	2.25	12.7	2.14	12.7	2.11	11.8	2.01	11.0	1.90	10.6	1.69	9.2	1.53	-	-	-	-
	-7	14.0	2.35	13.2	2.31	13.0	2.26	12.5	2.11	11.7	1.94	11.1	1.83	9.9	1.56	8.8	1.30	-	-
	2	15.0	2.85	14.6	2.74	14.2	2.44	14.0	2.18	14.0	2.10	14.0	2.09	10.9	1.73	9.9	1.49	-	-
	7	15.4	4.18	14.4	3.57	14.2	3.32	13.9	3.01	13.3	2.64	12.6	2.42	11.0	2.14	9.8	1.90	-	-
	12	16.3	5.10	15.4	4.29	15.1	3.83	14.8	3.32	14.2	2.90	13.6	2.49	12.4	2.24	10.4	2.10	-	-
	15	16.7	5.61	15.8	4.95	15.5	4.54	15.2	4.08	14.6	3.56	14.0	3.05	12.8	2.64	11.3	2.14	-	-
	20	17.9	5.41	17.0	5.10	16.7	4.69	16.4	4.29	15.7	3.87	15.0	3.41	13.8	2.95	12.4	2.87	-	-
Partload1	-25	-	-	8.4	1.67	8.4	1.65	8.3	1.58	7.8	1.33	-	-	-	-	-	-	-	-
	-20	-	-	9.9	1.80	9.6	1.72	9.2	1.62	8.4	1.37	-	-	-	-	-	-	-	-
	-15	-	-	12.0	1.90	11.6	1.88	10.8	1.92	9.9	1.57	8.7	1.42	-	-	-	-	-	-
	-10	14.0	2.34	12.7	2.72	12.7	2.32	11.8	2.01	11.0	1.90	10.6	1.69	9.2	1.53	-	-	-	-
	-7	14.0	2.95	13.0	2.55	13.0	2.38	12.5	2.11	11.7	1.94	11.1	1.83	9.9	1.56	8.8	1.30	-	-
	2	14.0	3.64	14.0	3.21	14.0	2.64	14.0	2.18	14.0	2.10	14.0	2.09	10.9	1.73	9.9	1.49	-	-
	7	12.0	5.61	12.0	4.85	12.0	3.93	12.0	3.27	12.0	2.85	7.0	2.70	7.0	2.22	7.0	2.01	-	-
	12	12.0	6.73	12.0	5.66	12.0	4.90	12.0	4.08	12.0	3.46	7.0	2.93	7.0	2.44	7.0	2.28	-	-
	15	12.0	7.35	12.0	6.02	12.0	5.36	12.0	4.69	12.0	4.12	7.0	3.52	7.0	2.84	7.0	2.34	-	-
	20	12.0	8.57	12.0	6.84	12.0	6.07	12.0	5.31	12.0	4.53	7.0	3.72	7.0	3.52	7.0	3.10	-	-
Partload2	-25	-	-	6.7	1.82	6.7	1.77	6.7	1.67	6.2	1.47	-	-	-	-	-	-	-	-
	-20	-	-	7.9	2.17	7.6	1.97	7.3	1.77	6.7	1.52	-	-	-	-	-	-	-	-
	-15	-	-	9.6	2.33	9.3	2.17	8.6	1.97	7.9	1.77	6.9	1.62	-	-	-	-	-	-
	-10	11.2	3.40	10.2	2.99	10.2	2.63	9.4	2.27	8.8	2.01	8.5	1.90	7.4	1.56	-	-	-	-
	-7	11.2	3.55	10.4	3.09	10.4	2.78	10.0	2.42	9.4	2.11	8.9	1.91	7.9	1.60	7.0	1.40	-	-
	2	11.2	4.01	11.2	3.50	11.2	3.14	11.2	2.73	11.2	2.42	11.2	2.11	8.7	1.90	7.9	1.59	-	-
	7	9.6	6.12	9.6	5.05	9.6	4.34	9.6	3.62	9.6	3.15	5.6	2.62	5.6	2.25	5.6	2.10	-	-
	12	9.6	7.24	9.6	6.07	9.6	5.25	9.6	4.39	9.6	3.71	5.6	3.03	5.6	2.59	5.6	2.40	-	-
	15	9.6	7.65	9.6	6.33	9.6	5.61	9.6	4.90	9.6	4.32	5.6	3.57	5.6	2.88	5.6	2.65	-	-
	20	9.6	8.93	9.6	7.24	9.6	6.38	9.6	5.51	9.6	4.68	5.6	3.76	5.6	3.67	5.6	3.20	-	-
Min	-25	-	-	4.2	1.60	4.1	1.50	4.0	1.35	4.0	1.35	-	-	-	-	-	-	-	-
	-20	-	-	5.1	2.35	5.0	2.10	4.9	1.80	4.7	1.50	-	-	-	-	-	-	-	-
	-15	-	-	5.8	2.55	5.7	2.30	5.6	2.00	5.5	1.75	5.4	1.55	-	-	-	-	-	-
	-10	4.0	3.60	3.8	2.85	3.7	2.55	3.6	2.20	3.5	1.90	3.3	1.60	3.2	1.60	-	-	-	-
	-7	4.2	3.70	3.9	2.90	3.8	2.60	3.7	2.25	3.5	2.00	3.2	1.70	3.1	1.67	3.9	1.65	-	-
	2	3.9	4.60	3.5	3.60	3.4	3.20	3.2	2.75	3.0	2.05	2.7	1.80	2.6	1.92	3.7	1.75	-	-
	7	3.9	4.80	3.5	3.50	3.4	3.30	3.2	3.05	3.0	2.50	2.7	2.30	2.6	2.27	3.0	2.24	-	-
	12	4.2	5.35	3.9	4.45	3.7	4.20	3.5	3.90	3.3	3.20	3.0	2.60	2.9	2.58	3.2	2.51	-	-
	15	4.4	6.75	4.3	5.60	4.2	4.85	4.1	4.10	3.9	3.45	3.6	2.90	3.5	2.78	3.3	2.64	-	-
	20	5.2	7.45	4.8	6.55	4.6	5.65	4.4	4.75	2.9	3.90	4.0	3.30	3.9	3.38	4.5	3.05	-	-

PUZ-SHWM60VAA

Water outlet temperature[°C]		25		35		40		45		50		55		60		65		70	
Ambient temperature[°C]		Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP
Max	-30	-	-	4.7	1.73	4.3	1.57	4.0	1.44	4.1	1.52	-	-	-	-	-	-	-	-
	-20	-	-	6.0	2.28	5.5	2.03	4.9	1.78	4.5	1.57	-	-	-	-	-	-	-	-
	-15	-	-	7.3	2.64	6.5	2.38	6.0	2.08	5.6	1.93	4.8	1.73	-	-	-	-	-	-
	-10	8.7	3.56	8.0	3.10	6.9	2.74	6.7	2.39	6.0	2.13	5.4	1.93	5.0	1.66	-	-	-	-
	-7	9.0	3.66	8.3	3.15	7.2	2.84	7.0	2.49	6.2	2.18	5.5	1.98	4.8	1.73	4.5	1.60	5.0	1.25
	2	7.5	4.48	7.0	3.68	6.8	3.31	6.5	2.95	6.2	2.49	5.6	1.94	4.9	1.78	4.3	1.61	5.0	1.41
	7	9.0	5.59	8.3	4.78	8.0	4.22	7.6	3.61	7.2	3.19	6.9	2.68	6.2	2.38	5.8	2.03	5.3	1.62
	12	9.6	6.65	9.2	5.59	9.1	4.93	8.9	4.22	8.4	3.70	7.9	3.19	7.0	2.79	6.4	2.41	6.1	1.82
	15	9.9	7.16	9.6	5.99	9.5	5.28	9.3	4.57	8.8	3.95	8.3	3.50	7.3	3.04	6.8	2.56	6.4	2.01
	20	10.2	8.23	10.0	6.91	9.9	6.10	9.7	5.28	9.5	4.61	9.2	3.80	8.4	3.50	7.9	3.04	7.1	2.28
Partload1	-30	-	-	4.7	1.73	4.3	1.57	4.0	1.44	4.1	1.52	-	-	-	-	-	-	-	-
	-20	-	-	6.0	2.28	5.5	2.03	4.9	1.78	4.5	1.57	-	-	-	-	-	-	-	-
	-15	-	-	6.0	2.70	6.0	2.38	6.0	2.08	5.6	1.93	4.8	1.73	-	-	-	-	-	-
	-10	6.0	3.81	6.0	3.26	6.0	2.90	6.0	2.54	6.0	2.13	5.4	1.93	5.0	1.66	-	-	-	-
	-7	6.0	3.91	6.0	3.20	6.0	2.90	6.0	2.54	6.0	2.24	5.5	1.98	4.8	1.73	4.5	1.60	5.0	1.25
	2	6.0	4.68	6.0	3.85	6.0	3.46	6.0	3.00	6.0	2.54	5.6	1.94	4.9	1.78	4.3	1.61	5.0	1.41
	7	5.0	5.54	5.0	5.08	5.0	4.32	5.0	3.66	5.0	3.19	4.0	2.45	4.0	2.31	4.0	2.11	5.0	1.66
	12	5.0	6.25	5.0	5.23	5.0	4.77	5.0	4.27	5.0	3.65	4.0	3.14	4.0	2.79	4.0	2.43	5.0	1.91
	15	5.0	7.06	5.0	5.89	5.0	5.18	5.0	4.47	5.0	3.90	4.0	3.50	4.0	2.99	4.0	2.65	5.0	2.08
	20	5.0	7.87	5.0	6.86	5.0	5.99	5.0	5.13	5.0	4.46	4.0	3.80	4.0	3.45	4.0	3.10	5.0	2.33
Partload2	-30	-	-	3.8	1.67	3.6	1.52	3.4	1.37	3.3	1.47	-	-	-	-	-	-	-	-
	-20	-	-	4.8	2.38	4.7	2.13	4.6	1.83	4.3	1.52	-	-	-	-	-	-	-	-
	-15	-	-	4.9	2.59	4.9	2.33	4.8	2.03	4.8	1.83	4.6	1.62	-	-	-	-	-	-
	-10	4.8	3.81	4.8	3.15	4.8	2.79	4.8	2.44	4.8	2.08	4.8	1.83	4.0	1.66	-	-	-	-
	-7	4.8	3.81	4.8	3.25	4.8	2.84	4.8	2.44	4.8	2.18	4.8	1.93	4.6	1.73	3.6	1.64	5.0	1.25
	2	4.8	4.73	4.8	3.89	4.8	3.46	4.8	3.00	4.8	2.54	4.8	2.19	4.8	1.88	3.4	1.65	5.0	1.41
	7	4.0	5.33	4.0	4.42	4.0	4.01	4.0	3.56	4.0	3.04	3.2	2.40	3.2	2.26	3.2	2.13	5.0	1.66
	12	4.0	5.84	4.0	4.93	4.0	4.57	4.0	4.17	4.0	3.55	3.2	3.09	3.2	2.74	3.2	2.46	5.0	1.91
	15	4.0	6.91	4.0	5.79	4.0	5.08	4.0	4.37	4.0	3.80	3.2	3.40	3.2	2.94	3.2	2.70	5.0	2.08
	20	4.2	7.57	4.0	6.70	4.0	5.84	4.0	4.98	4.0	4.26	3.2	3.70	3.2	3.40	3.2	3.20	5.0	2.33
Min	-30	-	-	3.6	1.60	3.5	1.50	3.4	1.35	3.0	1.35	-	-	-	-	-	-	-	-
	-20	-	-	4.3	2.35	4.2	2.10	4.1	1.80	3.9	1.50	-	-	-	-	-	-	-	-
	-15	-	-	4.9	2.55	4.8	2.30	4.7	2.00	4.6	1.75	4.5	1.55	-	-	-	-	-	-
	-10	3.8	3.60	3.5	2.85	3.4	2.55	3.3	2.20	3.2	1.90	3.1	1.60	3.0	1.60	-	-	-	-
	-7	3.8	3.70	3.5	2.90	3.4	2.60	3.2	2.25	3.1	2.00	2.9	1.70	2.8	1.67	2.0	1.42	5.0	1.25
	2	3.4	4.60	3.1	3.60	2.9	3.20	2.6	2.75	2.4	2.05	2.1	1.80	2.0	1.92	1.9	1.55	5.0	1.41
	7	2.7	4.80	2.4	3.50	2.3	3.30	2.2	3.05	2.0	2.50	1.7	2.30	1.6	2.27	1.5	2.07	5.0	1.66
	12	3.3	5.35	3.0	4.45	2.8	4.20	2.6	3.90	2.2	3.20	1.8	2.60	1.8	2.58	1.7	2.30	5.0	1.91
	15	3.8	6.75	3.2	5.60	3.0	4.85	2.8	4.10	2.4	3.45	1.9	2.90	1.9	2.78	1.8	2.50	5.0	2.08
	20	4.2	7.45	3.7	6.55	3.4	5.65	3.1	4.75	2.9	3.90	2.6	3.30	2.5	3.38	2.3	3.05	5.0	2.33

■ PUZ-SHWM80VAA PUZ-SHWM80YAA

Water outlet temperature[°C]		25		35		40		45		50		55		60		65		70	
Ambient temperature[°C]		Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP
Max	-30	-	-	5.6	1.78	5.5	1.62	5.3	1.43	4.4	1.39	-	-	-	-	-	-	-	-
	-20	-	-	7.6	2.23	7.5	1.98	7.3	1.73	6.3	1.47	-	-	-	-	-	-	-	-
	-15	-	-	8.8	2.54	8.5	2.28	8.2	1.98	7.1	1.88	6.0	1.62	-	-	-	-	-	-
	-10	10.3	3.36	9.7	2.96	9.4	2.70	9.1	2.45	7.8	2.14	7.6	1.99	6.0	1.51	-	-	-	-
	-7	10.6	3.36	10.0	3.03	9.7	2.70	9.4	2.40	8.2	2.19	7.9	1.99	6.2	1.58	5.9	1.51	5.3	1.25
	2	10.1	3.99	9.5	3.37	9.3	3.02	9.0	2.66	8.7	2.45	7.6	1.84	6.6	1.69	5.7	1.57	5.4	1.40
	7	9.6	5.47	8.9	4.65	8.6	4.11	8.2	3.50	7.9	3.14	7.5	2.63	6.8	2.33	6.2	1.97	6.3	1.61
	12	10.4	6.44	9.9	5.53	9.7	4.87	9.5	4.16	9.1	3.65	8.6	3.14	7.7	2.74	7.0	2.35	6.7	1.81
	15	10.7	7.05	10.4	5.93	10.2	5.27	10.0	4.56	9.5	3.90	9.0	3.50	8.0	2.99	7.2	2.48	6.9	1.99
	20	10.9	8.01	10.8	6.79	10.6	6.03	10.4	5.22	10.2	4.51	9.7	3.75	9.1	3.50	8.5	2.99	7.9	2.27
Partload1	-30	-	-	5.6	1.78	5.5	1.62	5.3	1.43	4.4	1.39	-	-	-	-	-	-	-	-
	-20	-	-	7.6	2.23	7.5	1.98	7.3	1.73	6.3	1.47	-	-	-	-	-	-	-	-
	-15	-	-	8.0	2.70	8.0	2.39	8.0	2.03	7.1	1.88	6.0	1.62	-	-	-	-	-	-
	-10	8.0	3.62	8.0	3.15	8.0	2.85	8.0	2.55	7.8	2.14	7.6	1.99	6.0	1.51	-	-	-	-
	-7	8.0	3.82	8.0	3.18	8.0	2.85	8.0	2.50	8.0	2.29	7.9	1.99	6.2	1.58	5.9	1.51	5.3	1.25
	2	8.0	4.55	8.0	3.80	8.0	3.37	8.0	2.91	8.0	2.56	7.6	1.84	6.6	1.69	5.7	1.57	5.4	1.40
	7	6.0	5.73	6.0	5.05	6.0	4.41	6.0	3.70	6.0	3.24	4.0	2.50	4.0	2.31	4.0	2.11	5.0	1.66
	12	6.0	6.54	6.0	5.42	6.0	4.87	6.0	4.31	6.0	3.70	4.0	3.14	4.0	2.79	4.0	2.43	5.0	1.91
	15	6.0	7.15	6.0	6.03	6.0	5.32	6.0	4.61	6.0	4.01	4.0	3.50	4.0	2.99	4.0	2.65	5.0	2.08
	20	6.0	8.16	6.0	7.00	6.0	6.13	6.0	5.22	6.0	4.61	4.0	3.80	4.0	3.45	4.0	3.10	5.0	2.33
Partload2	-30	-	-	4.5	1.73	4.4	1.57	4.2	1.42	3.5	1.41	-	-	-	-	-	-	-	-
	-20	-	-	6.1	2.39	6.0	2.08	5.8	1.78	5.6	1.52	-	-	-	-	-	-	-	-
	-15	-	-	6.4	2.74	6.4	2.44	6.4	2.08	6.3	1.93	5.9	1.67	-	-	-	-	-	-
	-10	6.4	3.82	6.4	3.16	6.4	2.85	6.4	2.55	6.4	2.19	6.4	1.83	4.8	1.61	-	-	-	-
	-7	6.4	3.92	6.4	3.21	6.4	2.91	6.4	2.55	6.4	2.29	6.4	2.04	4.9	1.68	4.7	1.59	5.0	1.25
	2	6.4	4.70	6.4	3.88	6.4	3.48	6.4	3.02	6.4	2.61	6.4	2.20	5.3	1.89	4.6	1.64	5.0	1.41
	7	4.8	5.47	4.8	4.70	4.8	4.21	4.8	3.65	4.8	3.14	3.2	2.45	3.2	2.26	3.2	2.13	5.0	1.66
	12	4.8	6.18	4.8	5.17	4.8	4.71	4.8	4.26	4.8	3.65	3.2	3.09	3.2	2.74	3.2	2.46	5.0	1.91
	15	4.8	7.05	4.8	5.93	4.8	5.22	4.8	4.51	4.8	3.90	3.2	3.40	3.2	2.94	3.2	2.70	5.0	2.08
	20	4.8	7.81	4.8	6.84	4.8	5.98	4.8	5.07	4.8	4.41	3.2	3.70	3.2	3.40	3.2	3.20	5.0	2.33
Min	-30	-	-	3.6	1.60	3.5	1.50	3.4	1.35	3.0	1.35	-	-	-	-	-	-	-	-
	-20	-	-	4.3	2.35	4.2	2.10	4.1	1.80	3.9	1.50	-	-	-	-	-	-	-	-
	-15	-	-	4.9	2.55	4.8	2.30	4.7	2.00	4.6	1.75	4.5	1.55	-	-	-	-	-	-
	-10	3.8	3.60	3.5	2.85	3.4	2.55	3.3	2.20	3.2	1.90	3.1	1.60	3.0	1.60	-	-	-	-
	-7	3.8	3.70	3.5	2.90	3.4	2.60	3.2	2.25	3.1	2.00	2.9	1.70	2.8	1.67	2.0	1.42	5.0	1.25
	2	3.4	4.60	3.1	3.60	2.9	3.20	2.6	2.75	2.4	2.05	2.1	1.80	2.0	1.92	1.9	1.55	5.0	1.41
	7	2.7	4.80	2.4	3.50	2.3	3.30	2.2	3.05	2.0	2.50	1.7	2.30	1.6	2.27	1.5	2.07	5.0	1.66
	12	3.3	5.35	3.0	4.45	2.8	4.20	2.6	3.90	2.2	3.20	1.8	2.60	1.8	2.58	1.7	2.30	5.0	1.91
	15	3.8	6.75	3.2	5.60	3.0	4.85	2.8	4.10	2.4	3.45	1.9	2.90	1.9	2.78	1.8	2.50	5.0	2.08
	20	4.2	7.45	3.7	6.55	3.4	5.65	3.1	4.75	2.9	3.90	2.6	3.30	2.5	3.38	2.3	3.05	5.0	2.33

■ PUZ-SHWM100VAA PUZ-SHWM100YAA

Water outlet temperature[°C]		25		35		40		45		50		55		60		65		70	
Ambient temperature[°C]		Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP
Max	-30	-	-	8.0	2.03	7.9	1.83	7.7	1.59	8.0	1.46	-	-	-	-	-	-	-	-
	-20	-	-	9.4	2.18	9.2	1.98	9.0	1.78	8.6	1.57	-	-	-	-	-	-	-	-
	-15	-	-	10.7	2.54	10.5	2.23	10.3	1.93	10.0	1.88	9.2	1.62	-	-	-	-	-	-
	-10	12.6	2.85	12.0	2.64	11.7	2.49	11.4	2.29	11.0	2.03	10.0	1.94	8.0	1.61	-	-	-	-
	-7	13.5	2.95	13.2	2.69	12.9	2.49	12.6	2.29	12.2	2.13	10.9	1.98	9.2	1.68	8.4	1.47	6.3	1.23
	2	12.8	3.52	12.4	3.23	12.2	2.96	11.9	2.66	11.4	2.35	10.4	2.04	9.4	1.89	8.5	1.54	6.4	1.38
	7	11.4	5.59	10.9	4.74	10.5	4.11	10.0	3.45	9.7	3.20	9.2	2.58	8.5	2.32	8.7	1.91	6.6	1.59
	12	12.9	6.40	12.2	5.54	12.0	4.83	11.7	4.06	11.1	3.61	10.5	3.04	9.5	2.63	9.0	2.28	8.7	1.78
	15	13.4	6.81	13.0	5.74	12.7	5.18	12.4	4.57	11.8	4.23	11.1	3.66	10.0	2.99	9.4	2.44	9.1	1.96
	20	14.2	7.72	13.8	6.35	13.5	5.74	13.1	5.08	12.5	4.49	11.4	3.87	10.5	3.66	9.9	2.90	11.1	2.25
Partload1	-30	-	-	8.0	2.03	7.9	1.83	7.7	1.59	7.0	1.51	-	-	-	-	-	-	-	-
	-20	-	-	9.4	2.18	9.2	1.98	9.0	1.78	8.6	1.57	-	-	-	-	-	-	-	-
	-15	-	-	10.0	2.64	10.0	2.33	10.0	1.98	10.0	1.88	9.2	1.62	-	-	-	-	-	-
	-10	10.0	3.51	10.0	2.97	10.0	2.69	10.0	2.44	10.0	2.13	10.0	1.94	8.0	1.61	-	-	-	-
	-7	10.0	3.56	10.0	3.07	10.0	2.80	10.0	2.49	10.0	2.29	10.0	2.03	9.2	1.68	8.4	1.47	6.3	1.23
	2	10.0	4.19	10.0	3.55	10.0	3.17	10.0	2.81	10.0	2.50	10.0	2.09	9.4	1.89	8.5	1.54	6.4	1.38
	7	8.0	5.99	8.0	5.05	8.0	4.42	8.0	3.71	8.0	3.30	7.0	2.70	7.0	2.37	7.0	2.06	6.6	1.63
	12	8.0	7.31	8.0	5.99	8.0	5.18	8.0	4.37	8.0	3.87	7.0	3.20	7.0	2.73	7.0	2.34	7.0	1.81
	15	8.0	7.67	8.0	6.30	8.0	5.59	8.0	4.88	8.0	4.38	7.0	3.76	7.0	3.04	7.0	2.55	7.0	1.99
	20	8.0	8.79	8.0	7.21	8.0	6.35	8.0	5.49	8.0	4.80	7.0	3.97	7.0	3.87	7.0	2.99	7.0	2.28
Partload2	-30	-	-	6.4	2.08	6.3	1.88	6.2	1.62	5.6	1.56	-	-	-	-	-	-	-	-
	-20	-	-	7.2	2.39	7.2	2.13	7.2	1.83	6.9	1.62	-	-	-	-	-	-	-	-
	-15	-	-	8.0	2.69	8.0	2.39	8.0	2.03	8.0	1.93	7.4	1.73	-	-	-	-	-	-
	-10	8.0	3.76	8.0	3.15	8.0	2.85	8.0	2.54	8.0	2.24	8.0	1.88	6.4	1.71	-	-	-	-
	-7	8.0	3.76	8.0	3.20	8.0	2.90	8.0	2.54	8.0	2.34	8.0	2.08	7.4	1.78	6.7	1.55	5.0	1.24
	2	8.0	4.54	8.0	3.69	8.0	3.32	8.0	2.91	8.0	2.60	8.0	2.20	7.5	1.99	6.8	1.64	5.1	1.39
	7	6.4	5.89	6.4	5.10	6.4	4.42	6.4	3.76	6.4	3.35	5.6	2.78	5.6	2.42	5.6	2.15	5.3	1.65
	12	6.4	7.42	6.4	5.74	6.4	5.08	6.4	4.37	6.4	3.87	5.6	3.20	5.6	2.78	5.6	2.45	5.6	1.90
	15	6.4	7.67	6.4	6.25	6.4	5.54	6.4	4.77	6.4	4.28	5.6	3.71	5.6	3.04	5.6	2.64	5.6	2.06
	20	6.4	8.48	6.4	7.16	6.4	6.30	6.4	5.38	6.4	4.74	5.6	3.92	5.6	3.82	5.6	3.25	5.6	2.31
Min	-30	-	-	3.6	1.60	3.5	1.50	3.4	1.35	3.0	1.35	-	-	-	-	-	-	-	-
	-20	-	-	4.3	2.35	4.2	2.10	4.1	1.80	3.9	1.50	-	-	-	-	-	-	-	-
	-15	-	-	4.9	2.55	4.8	2.30	4.7	2.00	4.6	1.75	4.5	1.55	-	-	-	-	-	-
	-10	3.8	3.60	3.5	2.85	3.4	2.55	3.3	2.20	3.2	1.90	3.1	1.60	3.0	1.60	-	-	-	-
	-7	3.8	3.70	3.5	2.90	3.4	2.60	3.2	2.25	3.1	2.00	2.9	1.70	2.8	1.67	2.0	1.42	5.0	1.25
	2	3.4	4.60	3.2	3.60	2.9	3.20	2.6	2.75	2.4	2.05	2.1	1.80	2.0	1.92	1.9	1.55	5.0	1.41
	7	2.7	4.80	2.5	3.50	2.3	3.30	2.2	3.05	2.0	2.50	1.7	2.30	1.6	2.27	1.5	2.07	5.0	1.66
	12	3.3	5.35	3.0	4.45	2.8	4.20	2.6	3.90	2.2	3.20	1.8	2.60	1.8	2.58	1.7	2.30	5.0	1.91
	15	3.8	6.75	3.2	5.60	3.0	4.85	2.8	4.10	2.4	3.45	1.9	2.90	1.9	2.78	1.8	2.50	5.0	2.08
	20	4.2	7.45	3.7	6.55	3.4	5.65	3.1	4.75	2.9	3.90	2.6	3.30	2.5	3.38	2.3	3.05	5.0	2.33

■ PUZ-SHWM120VAA PUZ-SHWM120YAA

Water outlet temperature[°C]		25		35		40		45		50		55		60		65		70	
Ambient temperature[°C]		Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP
Max	-30	-	-	9.6	1.99	9.4	1.79	9.2	1.59	9.0	1.52	-	-	-	-	-	-	-	-
	-20	-	-	11.0	2.04	10.9	1.94	10.8	1.79	9.6	1.58	-	-	-	-	-	-	-	-
	-15	-	-	12.3	2.40	12.2	2.14	12.1	1.89	11.6	1.84	11.2	1.80	-	-	-	-	-	-
	-10	14.0	2.45	13.6	2.40	13.2	2.24	12.8	2.04	12.4	1.94	12.1	1.91	10.0	1.57	-	-	-	-
	-7	15.2	2.65	14.9	2.45	14.5	2.30	14.1	2.14	13.3	2.04	12.4	1.89	10.0	1.63	8.0	1.41	7.1	1.16
	2	13.5	3.37	13.2	3.18	12.9	2.91	12.6	2.61	12.3	2.30	12.1	2.07	11.0	1.84	9.0	1.49	7.1	1.32
	7	13.2	5.00	12.9	4.18	12.5	3.67	12.1	3.16	11.7	2.91	11.2	2.58	10.5	2.25	9.4	1.85	7.2	1.56
	12	15.0	5.51	14.5	4.64	14.2	4.18	13.8	3.67	13.2	3.17	12.6	2.71	11.7	2.35	9.8	2.15	9.3	1.71
	15	15.9	6.02	15.4	5.10	15.1	4.69	14.7	4.23	14.0	3.83	13.3	3.37	12.4	2.71	11.5	2.35	10.1	1.86
	20	16.9	6.22	16.4	5.41	16.2	4.95	15.9	4.49	15.2	3.98	14.5	3.47	13.5	3.06	12.0	2.81	12.0	2.12
Partload1	-30	-	-	9.6	1.99	9.4	1.79	9.2	1.59	9.0	1.52	-	-	-	-	-	-	-	-
	-20	-	-	11.0	2.04	10.9	1.94	10.8	1.79	9.6	1.58	-	-	-	-	-	-	-	-
	-15	-	-	12.1	2.45	12.1	2.19	12.1	1.89	11.6	1.84	11.2	1.80	-	-	-	-	-	-
	-10	12.1	3.27	12.1	2.83	12.1	2.55	12.1	2.24	12.1	1.99	12.1	1.91	10.0	1.57	-	-	-	-
	-7	12.1	3.37	12.1	2.90	12.1	2.65	12.1	2.40	12.1	2.19	12.1	1.94	10.0	1.63	8.0	1.41	7.1	1.16
	2	12.1	3.63	12.1	3.35	12.1	3.01	12.1	2.66	12.1	2.35	12.1	2.07	11.0	1.84	9.0	1.49	7.1	1.32
	7	10.0	5.86	10.0	4.90	10.0	4.23	10.0	3.47	10.0	3.11	7.0	2.70	7.0	2.30	7.0	2.10	7.0	1.61
	12	10.0	7.29	10.0	5.92	10.0	5.10	10.0	4.28	10.0	3.73	7.0	3.58	7.0	3.16	7.0	2.30	7.0	1.85
	15	10.0	7.60	10.0	6.27	10.0	5.56	10.0	4.84	10.0	4.29	7.0	3.89	7.0	3.26	7.0	2.49	7.0	1.91
	20	10.0	8.82	10.0	7.14	10.0	6.32	10.0	5.46	10.0	4.70	7.0	4.00	7.0	3.58	7.0	2.94	7.0	2.21
Partload2	-30	-	-	7.7	2.09	7.6	1.89	7.4	1.63	7.2	1.57	-	-	-	-	-	-	-	-
	-20	-	-	8.8	2.30	8.7	2.09	8.6	1.84	7.8	1.63	-	-	-	-	-	-	-	-
	-15	-	-	9.6	2.60	9.6	2.30	9.6	1.99	9.3	1.94	9.0	1.84	-	-	-	-	-	-
	-10	9.6	3.57	9.6	3.06	9.6	2.76	9.6	2.45	9.6	2.19	9.6	1.94	8.0	1.67	-	-	-	-
	-7	9.6	3.67	9.6	3.16	9.6	2.86	9.6	2.50	9.6	2.30	9.6	2.09	8.0	1.73	6.4	1.52	7.0	1.18
	2	9.6	4.34	9.6	3.59	9.6	3.22	9.6	2.86	9.6	2.55	9.6	2.20	8.6	1.94	7.2	1.61	7.0	1.34
	7	8.0	6.02	8.0	5.10	8.0	4.44	8.0	3.72	8.0	3.27	5.6	3.09	5.6	2.55	5.6	2.10	7.0	1.61
	12	8.0	7.34	8.0	6.02	8.0	5.20	8.0	4.39	8.0	3.83	5.6	3.93	5.6	3.47	5.6	2.39	7.0	1.85
	15	8.0	7.70	8.0	6.32	8.0	5.61	8.0	4.90	8.0	4.34	5.6	4.28	5.6	3.59	5.6	2.57	7.0	1.91
	20	8.0	8.87	8.0	7.24	8.0	6.37	8.0	5.51	8.0	4.75	5.6	4.40	5.6	3.93	5.6	3.15	7.0	2.21
Min	-30	-	-	4.0	1.60	3.9	1.50	3.8	1.35	3.2	1.35	-	-	-	-	-	-	-	-
	-20	-	-	4.9	2.35	4.8	2.10	4.7	1.80	4.5	1.50	-	-	-	-	-	-	-	-
	-15	-	-	5.6	2.55	5.5	2.30	5.4	2.00	5.3	1.75	5.2	1.55	-	-	-	-	-	-
	-10	3.8	3.60	3.6	2.85	3.5	2.55	3.4	2.20	3.3	1.90	3.1	1.60	3.0	1.60	-	-	-	-
	-7	3.8	3.70	3.5	2.90	3.4	2.60	3.2	2.25	3.1	2.00	2.9	1.70	2.8	1.67	3.0	1.65	7.0	1.18
	2	3.5	4.60	3.2	3.60	3.0	3.20	2.7	2.75	2.4	2.05	2.1	1.80	2.0	1.92	2.9	1.80	7.0	1.34
	7	2.7	4.80	2.5	3.50	2.4	3.30	2.3	3.05	2.0	2.50	1.7	2.30	1.6	2.27	2.3	2.20	7.0	1.61
	12	3.4	5.35	3.1	4.45	2.9	4.20	2.7	3.90	2.3	3.20	1.9	2.60	1.8	2.58	2.5	2.55	7.0	1.85
	15	4.0	6.75	3.3	5.60	3.1	4.85	2.9	4.10	2.5	3.45	2.0	2.90	1.9	2.78	2.6	2.62	7.0	1.91
	20	4.3	7.45	3.8	6.55	3.5	5.65	3.2	4.75	2.9	3.90	2.6	3.30	2.5	3.38	3.5	3.02	7.0	2.21

■ PUZ-SHWM140VAA PUZ-SHWM140YAA

Water outlet temperature[°C]		25		35		40		45		50		55		60		65		70	
Ambient temperature[°C]		Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP
Max	-30	-	-	9.8	1.94	9.7	1.79	9.6	1.58	10.0	1.43	-	-	-	-	-	-	-	-
	-20	-	-	11.8	2.04	11.7	1.89	11.5	1.73	11.3	1.53	-	-	-	-	-	-	-	-
	-15	-	-	14.2	2.14	14.1	2.09	14.0	1.99	12.9	1.79	11.7	1.73	-	-	-	-	-	-
	-10	15.5	2.15	14.9	2.25	14.8	2.15	14.6	2.00	14.5	1.95	14.3	1.84	11.0	1.49	-	-	-	-
	-7	16.2	2.25	15.8	2.25	15.6	2.20	15.4	2.10	15.3	2.00	15.2	1.90	11.0	1.54	9.0	1.35	8.4	1.15
	2	15.6	2.98	14.6	2.98	14.5	2.67	14.3	2.37	14.2	2.16	14.0	2.01	12.0	1.70	10.5	1.55	8.9	1.30
	7	15.4	4.18	14.4	3.57	14.2	3.32	13.9	3.01	13.3	2.64	12.6	2.42	11.0	2.14	10.5	2.10	9.2	1.55
	12	16.3	5.10	15.4	4.29	15.1	3.83	14.8	3.32	14.2	2.90	13.6	2.49	12.4	2.24	12.2	2.15	11.9	1.70
	15	16.7	5.61	15.8	4.95	15.5	4.54	15.2	4.08	14.6	3.56	14.0	3.05	12.8	2.64	12.7	2.55	12.5	1.75
	20	17.9	5.41	17.0	5.10	16.7	4.69	16.4	4.29	15.7	3.87	15.0	3.41	13.8	2.95	13.1	2.90	15.0	2.10
Partload1	-30	-	-	9.8	1.94	9.7	1.79	9.6	1.58	10.0	1.43	-	-	-	-	-	-	-	-
	-20	-	-	11.8	2.04	11.7	1.89	11.5	1.73	11.3	1.48	-	-	-	-	-	-	-	-
	-15	-	-	14.0	2.19	14.0	2.09	14.0	1.99	12.9	1.79	11.7	1.73	-	-	-	-	-	-
	-10	14.0	2.66	14.0	2.71	14.0	2.41	14.0	2.05	14.0	1.90	14.0	1.84	11.0	1.49	-	-	-	-
	-7	14.0	3.02	14.0	2.77	14.0	2.51	14.0	2.25	14.0	2.00	14.0	1.92	11.0	1.54	9.0	1.35	8.4	1.15
	2	14.0	3.64	14.0	3.30	14.0	2.78	14.0	2.42	14.0	2.21	14.0	2.01	12.0	1.70	10.5	1.55	8.9	1.30
	7	12.0	5.61	12.0	4.85	12.0	4.03	12.0	3.27	12.0	2.85	7.0	2.70	7.0	2.22	7.0	2.08	7.0	1.65
	12	12.0	6.73	12.0	5.66	12.0	4.90	12.0	4.08	12.0	3.46	7.0	3.42	7.0	3.02	7.0	2.35	7.0	1.90
	15	12.0	7.35	12.0	6.02	12.0	5.36	12.0	4.69	12.0	4.12	7.0	3.73	7.0	3.12	7.0	2.69	7.0	2.00
	20	12.0	8.57	12.0	6.84	12.0	6.07	12.0	5.31	12.0	4.53	7.0	3.83	7.0	3.42	7.0	3.10	7.0	2.25
Partload2	-30	-	-	7.8	2.09	7.8	1.89	7.7	1.63	7.5	1.51	-	-	-	-	-	-	-	-
	-20	-	-	9.4	2.24	9.3	2.04	9.2	1.84	9.0	1.63	-	-	-	-	-	-	-	-
	-15	-	-	11.2	2.50	11.2	2.24	11.2	1.94	10.3	1.94	9.4	1.84	-	-	-	-	-	-
	-10	11.2	3.43	11.2	2.97	11.2	2.66	11.2	2.36	11.2	2.10	11.2	1.95	8.8	1.64	-	-	-	-
	-7	11.2	3.53	11.2	3.12	11.2	2.82	11.2	2.46	11.2	2.25	11.2	2.05	8.8	1.69	7.2	1.45	7.0	1.20
	2	11.2	4.01	11.2	3.50	11.2	3.14	11.2	2.78	11.2	2.47	11.2	2.16	9.6	1.90	8.4	1.64	7.1	1.37
	7	9.6	6.12	9.6	5.05	9.6	4.34	9.6	3.62	9.6	3.15	5.6	2.97	5.6	2.44	5.6	2.35	7.0	1.65
	12	9.6	7.24	9.6	6.07	9.6	5.25	9.6	4.39	9.6	3.71	5.6	3.77	5.6	3.32	5.6	2.89	7.0	1.90
	15	9.6	7.65	9.6	6.33	9.6	5.61	9.6	4.90	9.6	4.32	5.6	4.10	5.6	3.43	5.6	2.98	7.0	2.00
	20	9.6	8.93	9.6	7.24	9.6	6.38	9.6	5.51	9.6	4.68	5.6	4.21	5.6	3.77	5.6	3.24	7.0	2.25
Min	-30	-	-	4.2	1.60	4.1	1.50	4.0	1.35	4.0	1.35	-	-	-	-	-	-	-	-
	-20	-	-	5.1	2.35	5.0	2.10	4.9	1.80	4.7	1.50	-	-	-	-	-	-	-	-
	-15	-	-	5.8	2.55	5.7	2.30	5.6	2.00	5.5	1.75	5.4	1.55	-	-	-	-	-	-
	-10	4.0	3.60	3.8	2.85	3.7	2.55	3.6	2.20	3.5	1.90	3.3	1.60	3.2	1.60	-	-	-	-
	-7	4.2	3.70	3.9	2.90	3.8	2.60	3.7	2.25	3.5	2.00	3.2	1.70	3.1	1.67	3.9	1.65	7.0	1.20
	2	3.9	4.60	3.5	3.60	3.4	3.20	3.2	2.75	3.0	2.05	2.7	1.80	2.6	1.92	3.7	1.75	7.0	1.37
	7	3.9	4.80	3.5	3.50	3.4	3.30	3.2	3.05	3.0	2.50	2.7	2.30	2.6	2.27	3.0	2.24	7.0	1.65
	12	4.2	5.35	3.9	4.45	3.7	4.20	3.5	3.90	3.3	3.20	3.0	2.60	2.9	2.58	3.2	2.51	7.0	1.90
	15	4.4	6.75	4.3	5.60	4.2	4.85	4.1	4.10	3.9	3.45	3.6	2.90	3.5	2.78	3.3	2.64	7.0	2.00
	20	5.2	7.45	4.8	6.55	4.6	5.65	4.4	4.75	2.9	3.90	4.0	3.30	3.9	3.38	4.5	3.05	7.0	2.25

PXZ-4F75VG

Water outlet temperature[°C]		25		35		40		45		50		55		60	
Ambient temperature[°C]		Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP
Max	-20	-	-	4.1	1.68	4.0	1.43	-	-	-	-	-	-	-	-
	-15	-	-	4.8	1.96	4.7	1.78	4.6	1.55	-	-	-	-	-	-
	-10	5.7	2.98	5.5	2.23	5.4	2.03	5.3	1.77	5.2	1.54	-	-	-	-
	-7	6.2	3.20	6.0	2.40	5.8	2.18	5.7	1.90	5.6	1.66	-	-	-	-
	2	7.0	3.74	6.8	2.80	6.7	2.59	6.6	2.37	6.4	2.16	6.3	1.94	-	-
	7	9.6	4.77	9.3	3.57	9.1	3.25	8.9	2.84	8.8	2.47	8.7	2.14	-	-
	12	10.4	5.13	10.2	3.90	10.0	3.61	9.9	3.15	9.7	2.73	9.5	2.37	-	-
	15	11.0	5.36	10.8	4.04	10.6	3.81	10.5	3.34	10.3	2.91	10.1	2.52	-	-
	20	12.1	5.65	12.0	4.28	11.8	4.07	11.6	3.61	11.4	3.18	11.3	2.80	-	-
Partload1	-20	-	-	4.1	1.68	4.0	1.43	-	-	-	-	-	-	-	-
	-15	-	-	4.8	1.96	4.7	1.78	4.6	1.55	-	-	-	-	-	-
	-10	5.7	2.98	5.5	2.23	5.4	2.03	5.3	1.77	5.2	1.54	-	-	-	-
	-7	6.2	3.20	6.0	2.40	5.8	2.18	5.7	1.90	5.6	1.66	-	-	-	-
	2	7.0	3.74	6.8	2.80	6.7	2.59	6.6	2.37	6.4	2.16	6.3	1.94	-	-
	7	7.8	5.56	7.5	4.17	7.5	3.74	7.5	3.32	7.5	2.89	7.5	2.46	-	-
	12	7.8	6.12	7.5	4.65	7.5	4.18	7.5	3.72	7.5	3.25	7.5	2.78	-	-
	15	7.1	6.62	7.5	5.00	7.5	4.54	7.5	4.08	7.5	3.62	7.5	3.16	-	-
	20	6.7	8.05	7.5	6.10	7.5	5.50	7.5	4.91	7.5	4.31	7.5	3.72	-	-
Partload2	-20	-	-	3.3	1.83	3.2	1.56	-	-	-	-	-	-	-	-
	-15	-	-	3.8	2.13	3.8	1.94	3.7	1.70	-	-	-	-	-	-
	-10	4.6	3.25	4.4	2.43	4.3	2.22	4.3	1.93	4.2	1.68	-	-	-	-
	-7	4.9	3.49	4.8	2.61	4.7	2.38	4.6	2.08	4.5	1.81	-	-	-	-
	2	5.6	4.20	5.4	3.15	5.3	2.91	5.2	2.67	5.1	2.43	5.0	2.18	-	-
	7	6.2	5.76	6.0	4.31	6.0	3.87	6.0	3.43	6.0	2.99	6.0	2.55	-	-
	12	6.2	6.23	6.0	4.74	6.0	4.26	6.0	3.79	6.0	3.31	6.0	2.83	-	-
	15	5.7	7.04	6.0	5.32	6.0	4.83	6.0	4.34	6.0	3.85	6.0	3.36	-	-
	20	5.3	7.91	6.0	5.99	6.0	5.41	6.0	4.82	6.0	4.24	6.0	3.65	-	-
Min	-20	-	-	2.9	1.82	2.8	1.54	-	-	-	-	-	-	-	-
	-15	-	-	3.7	2.18	3.6	1.98	3.6	1.73	-	-	-	-	-	-
	-10	3.5	3.45	3.4	2.59	3.3	2.36	3.2	2.06	3.2	1.79	-	-	-	-
	-7	3.9	3.56	3.7	2.67	3.7	2.43	3.6	2.12	3.5	1.84	-	-	-	-
	2	3.0	4.13	2.9	3.10	2.8	2.86	2.8	2.62	2.7	2.39	2.7	2.15	-	-
	7	4.4	5.55	4.3	4.16	4.2	3.79	4.1	3.31	4.1	2.88	4.0	2.50	-	-
	12	5.0	6.32	4.9	4.81	4.8	4.44	4.7	3.88	4.7	3.37	4.6	2.92	-	-
	15	5.5	6.98	5.4	5.27	5.3	4.97	5.3	4.35	5.2	3.79	5.1	3.29	-	-
	20	5.9	7.86	5.8	5.95	5.7	5.66	5.6	5.02	5.6	4.42	5.5	3.89	-	-

PXZ-5F85VG

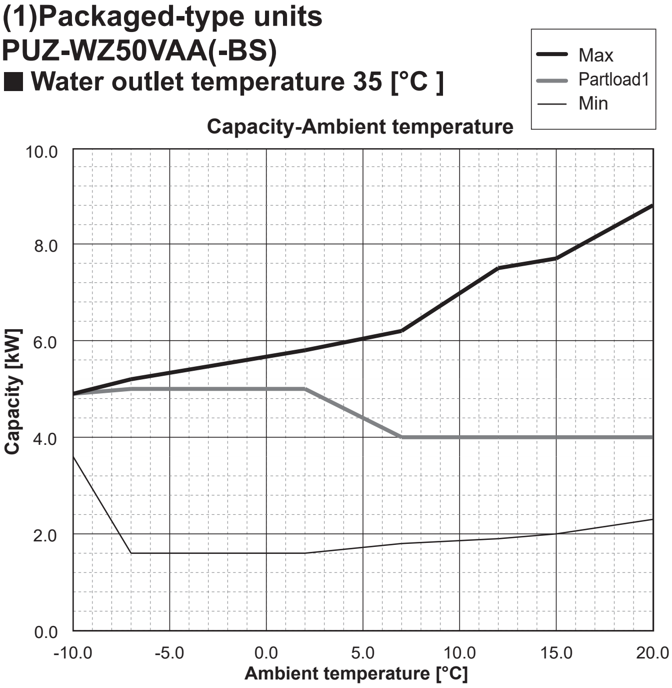
Water outlet temperature[°C]		25		35		40		45		50		55		60	
Ambient temperature[°C]		Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP	Capacity	COP
Max	-20	-	-	5.2	1.74	5.1	1.56	-	-	-	-	-	-	-	-
	-15	-	-	6.1	1.97	6.0	1.76	5.8	1.58	-	-	-	-	-	-
	-10	7.5	2.74	7.1	2.20	6.9	1.97	6.8	1.76	5.5	1.32	-	-	-	-
	-7	8.1	2.91	7.7	2.34	7.1	2.03	6.5	1.71	5.9	1.40	-	-	-	-
	2	8.2	3.73	7.8	3.00	7.6	2.71	7.5	2.42	7.3	2.13	7.1	1.84	-	-
	7	10.5	4.96	10.0	3.99	9.8	3.57	9.5	3.20	8.7	2.87	8.6	2.57	-	-
	12	11.5	5.42	10.9	4.33	10.6	3.87	10.4	3.45	9.5	3.08	9.4	2.75	-	-
	15	12.1	5.74	11.5	4.56	11.2	4.06	11.0	3.61	10.0	3.23	9.9	2.89	-	-
	20	13.3	6.35	12.7	4.99	12.4	4.43	12.1	3.95	11.2	3.53	11.1	3.17	-	-
Partload1	-20	-	-	5.2	1.74	5.1	1.56	-	-	-	-	-	-	-	-
	-15	-	-	6.1	1.97	6.0	1.76	5.8	1.58	-	-	-	-	-	-
	-10	7.5	2.74	7.1	2.20	6.9	1.97	6.8	1.76	5.5	1.32	-	-	-	-
	-7	8.1	2.91	7.7	2.34	7.1	2.03	6.5	1.71	5.9	1.40	-	-	-	-
	2	8.2	3.73	7.8	3.00	7.6	2.71	7.5	2.42	7.3	2.13	7.1	1.84	-	-
	7	8.9	5.40	8.5	4.34	8.5	3.91	8.5	3.48	8.5	3.04	8.5	2.61	-	-
	12	8.9	6.09	8.5	4.87	8.5	4.37	8.5	3.87	8.5	3.36	8.5	2.86	-	-
	15	8.9	6.69	8.5	5.32	8.5	4.76	8.5	4.21	8.5	3.65	8.5	3.10	-	-
	20	8.9	7.98	8.5	6.27	8.5	5.58	8.5	4.90	8.5	4.21	8.5	3.53	-	-
Partload2	-20	-	-	4.1	1.80	4.0	1.61	-	-	-	-	-	-	-	-
	-15	-	-	4.9	2.04	4.8	1.83	4.7	1.64	-	-	-	-	-	-
	-10	6.0	2.84	5.7	2.28	5.5	2.04	5.4	1.83	4.4	1.37	-	-	-	-
	-7	6.5	3.02	6.1	2.43	5.7	2.10	5.2	1.78	4.7	1.45	-	-	-	-
	2	6.6	4.04	6.2	3.25	6.1	2.93	6.0	2.62	5.8	2.30	5.7	1.99	-	-
	7	7.2	5.64	6.8	4.53	6.8	4.08	6.8	3.63	6.8	3.18	6.8	2.73	-	-
	12	7.2	6.34	6.8	5.07	6.8	4.55	6.8	4.03	6.8	3.51	6.8	2.98	-	-
	15	7.2	7.01	6.8	5.57	6.8	4.99	6.8	4.41	6.8	3.83	6.8	3.25	-	-
	20	7.1	8.25	6.8	6.48	6.8	5.77	6.8	5.06	6.8	4.35	6.8	3.65	-	-
Min	-20	-	-	3.7	1.73	3.6	1.55	-	-	-	-	-	-	-	-
	-15	-	-	4.3	2.05	4.2	1.84	4.1	1.65	-	-	-	-	-	-
	-10	3.9	2.84	3.7	2.29	3.6	2.05	3.5	1.83	2.9	1.37	-	-	-	-
	-7	4.3	3.11	4.1	2.50	3.8	2.17	3.4	1.83	3.1	1.50	-	-	-	-
	2	3.5	3.90	3.3	3.14	3.3	2.84	3.2	2.53	3.1	2.23	3.0	1.93	-	-
	7	5.0	5.95	4.7	4.78	4.6	4.28	4.5	3.83	4.1	3.43	4.1	3.08	-	-
	12	5.6	6.37	5.3	5.09	5.2	4.54	5.1	4.05	4.6	3.62	4.6	3.24	-	-
	15	6.0	7.01	5.7	5.57	5.6	4.96	5.5	4.42	5.0	3.94	4.9	3.53	-	-
	20	6.8	8.24	6.5	6.47	6.3	5.74	6.2	5.12	5.7	4.58	5.6	4.11	-	-

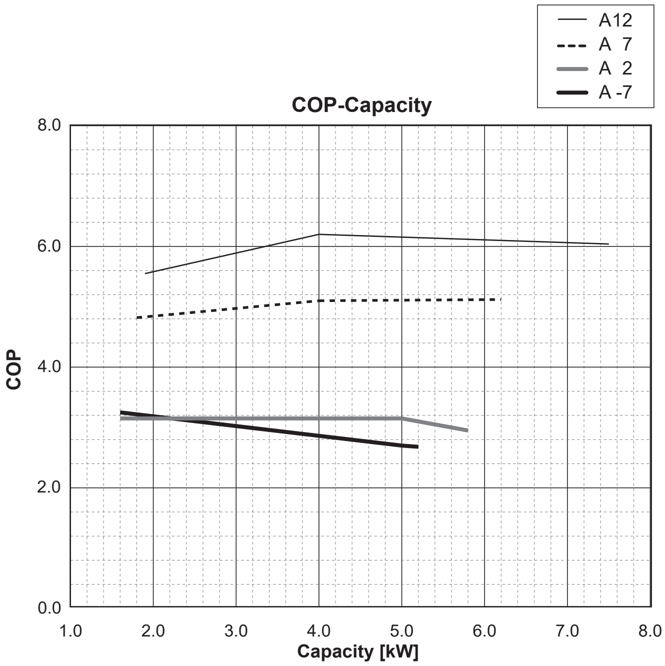
5.3 Part load chart

(1)Packaged-type units

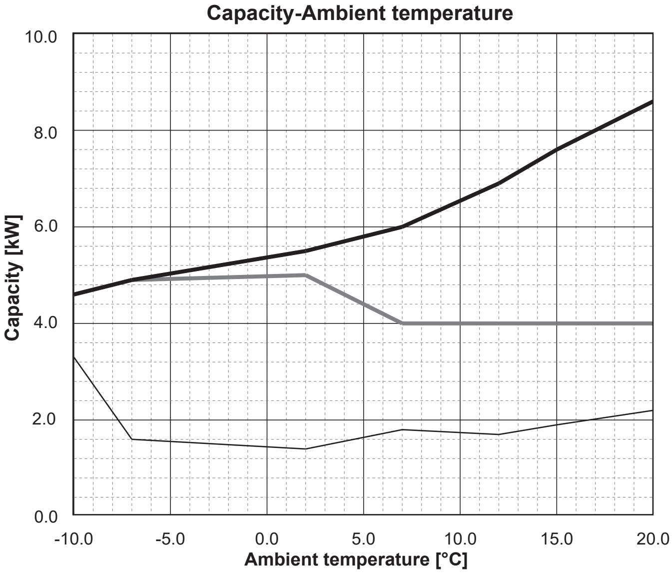
PUZ-WZ50VAA(-BS)

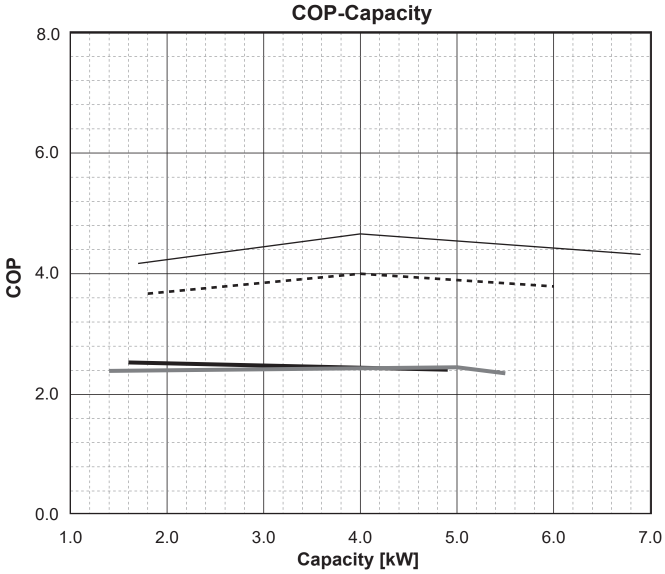
■ Water outlet temperature 35 [°C]


Capacity-Ambient temperature

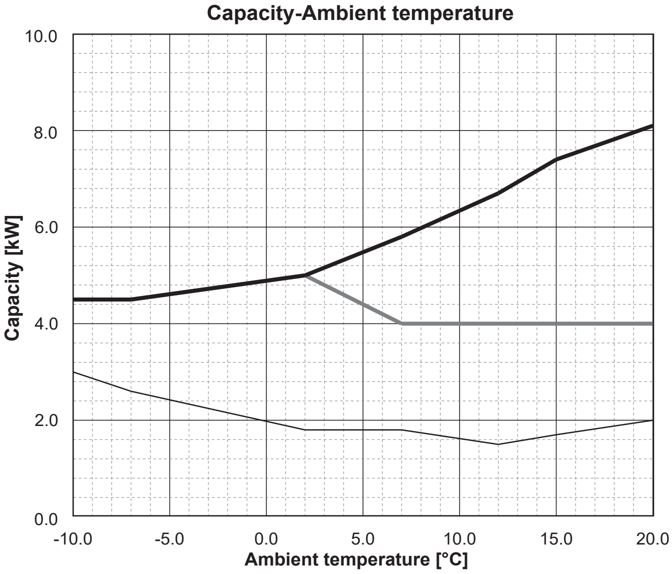

COP-Capacity

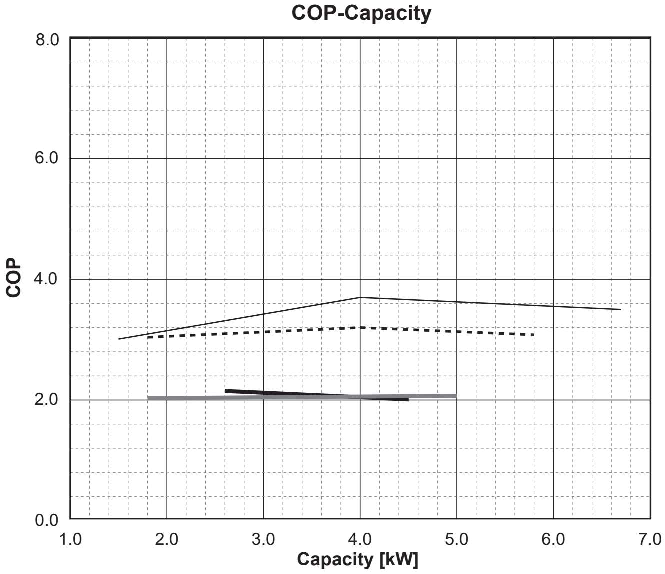
■ Water outlet temperature 45 [°C]


Capacity-Ambient temperature

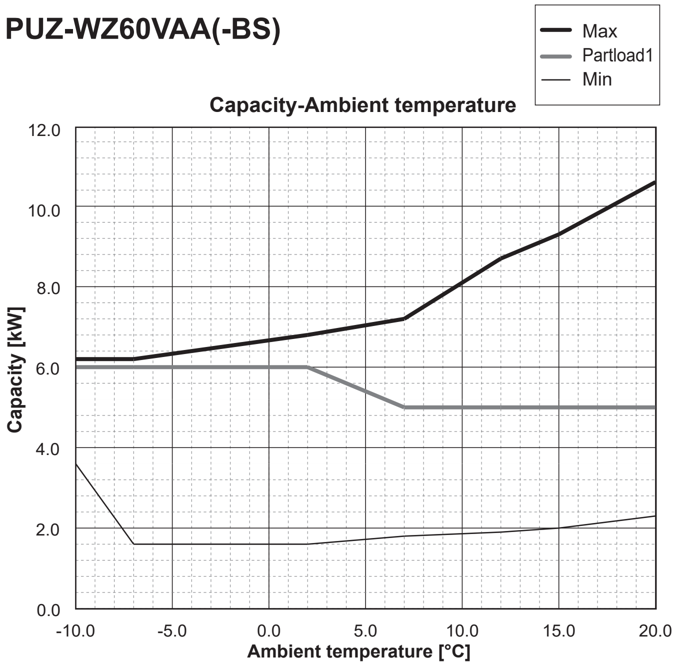

COP-Capacity

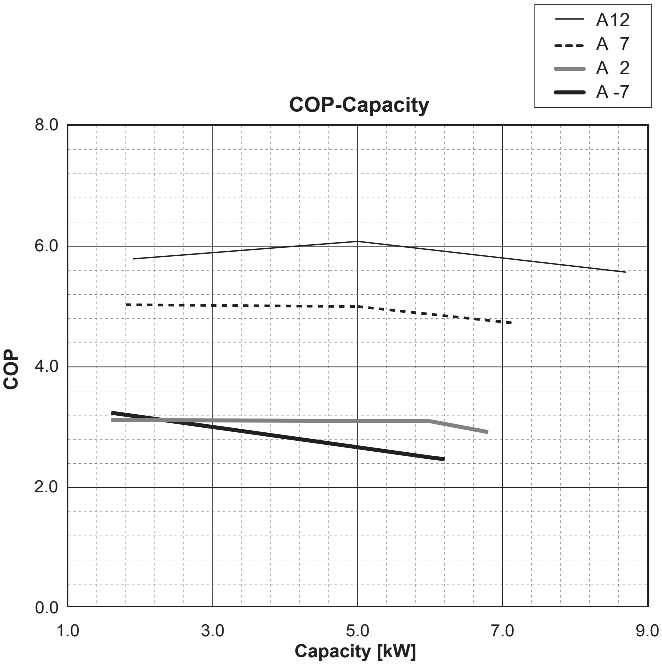
■ Water outlet temperature 55 [°C]

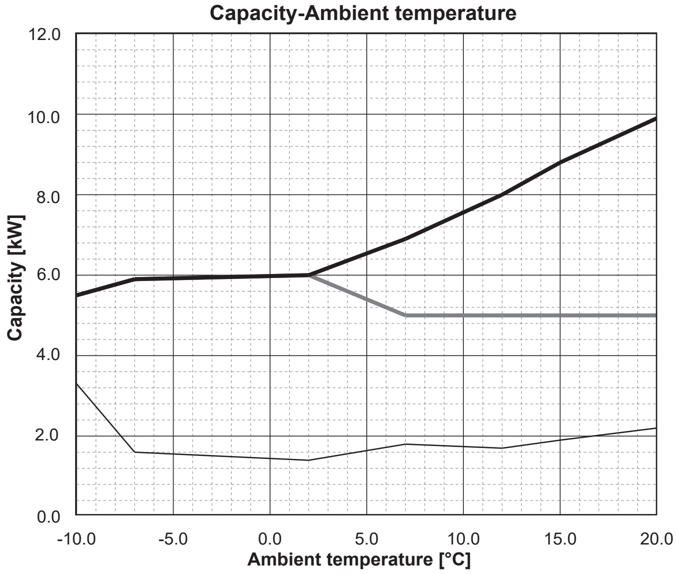

Capacity-Ambient temperature

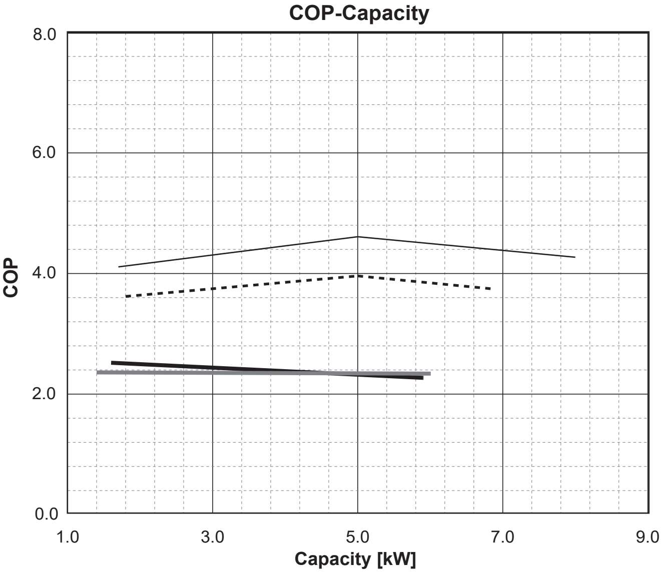

COP-Capacity

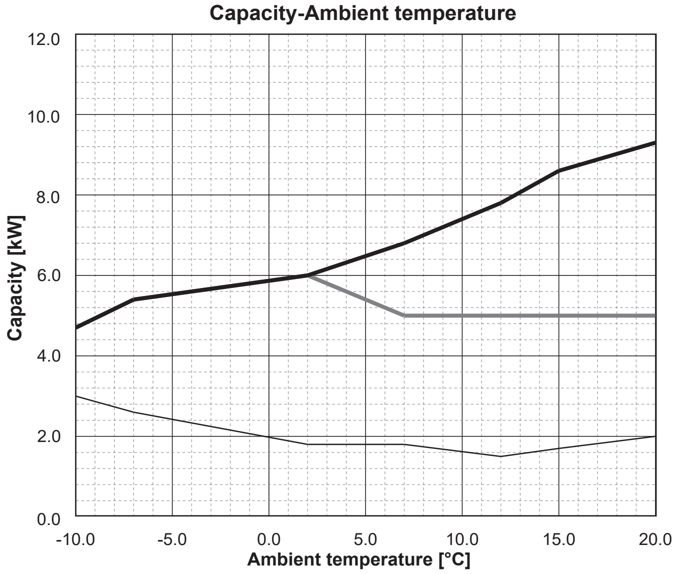
PUZ-WZ60VAA(-BS)

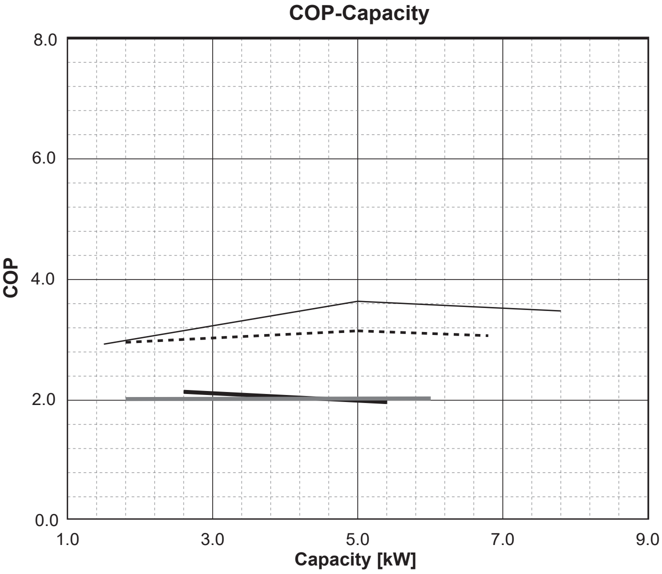




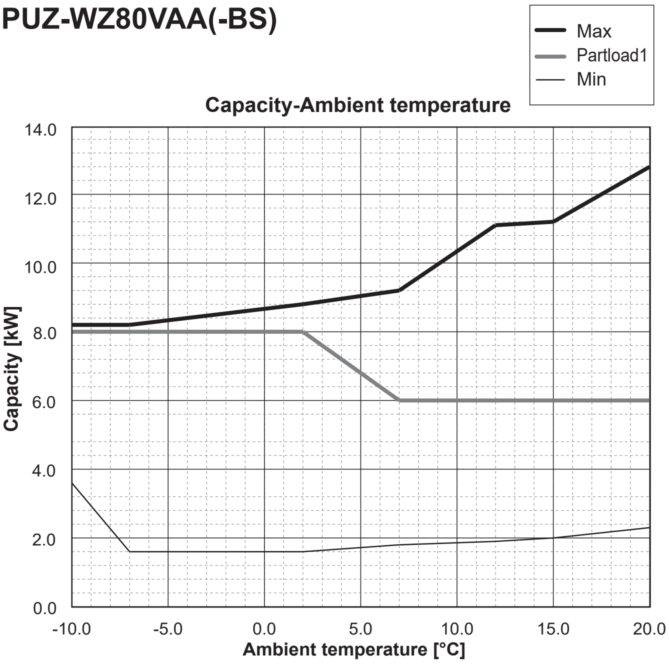


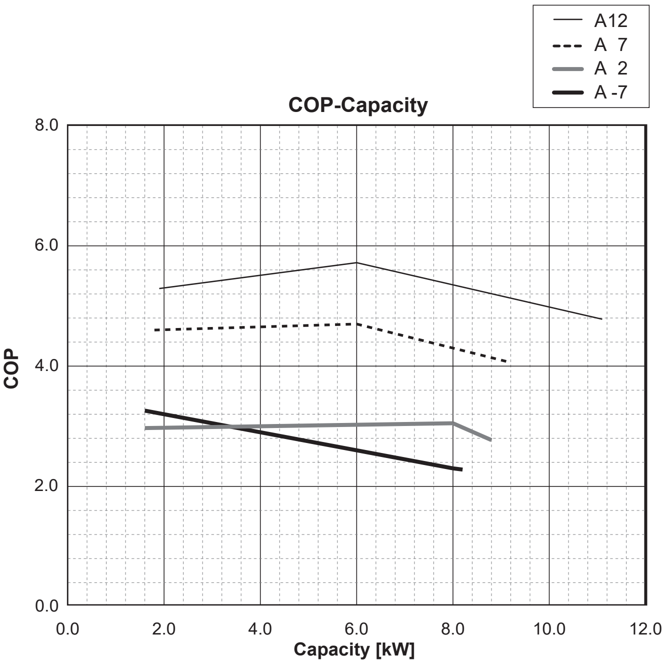


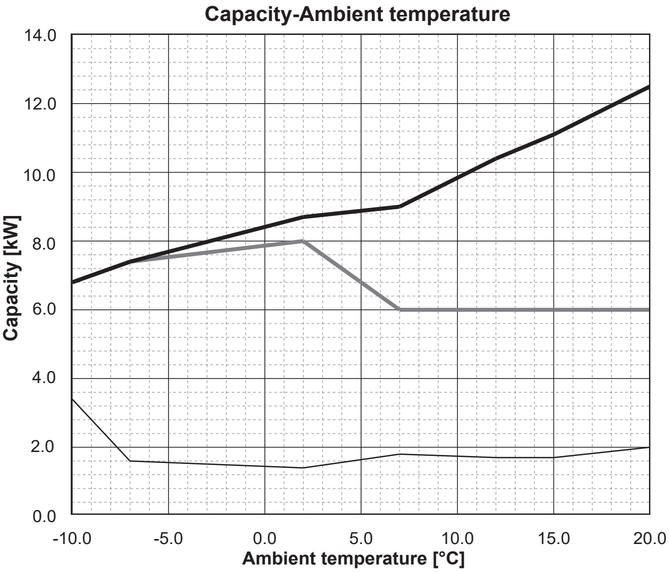


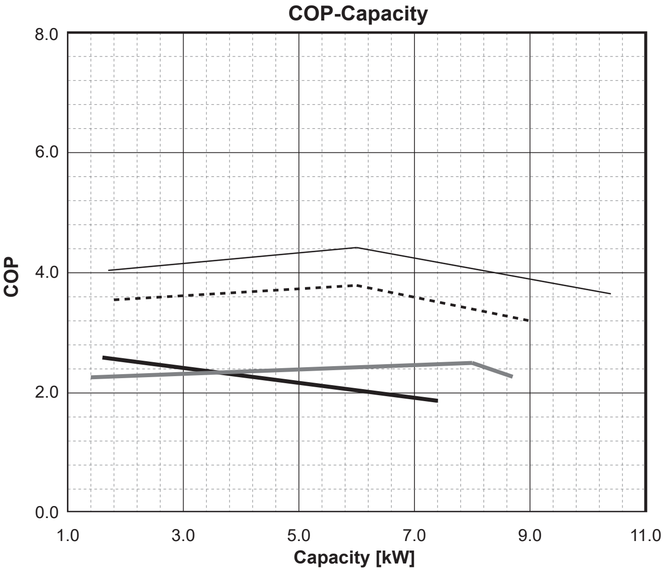


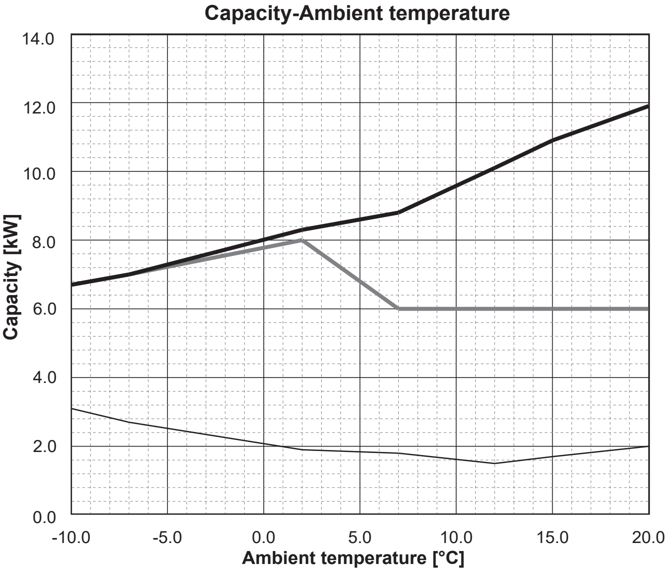
PUZ-WZ80VAA(-BS)

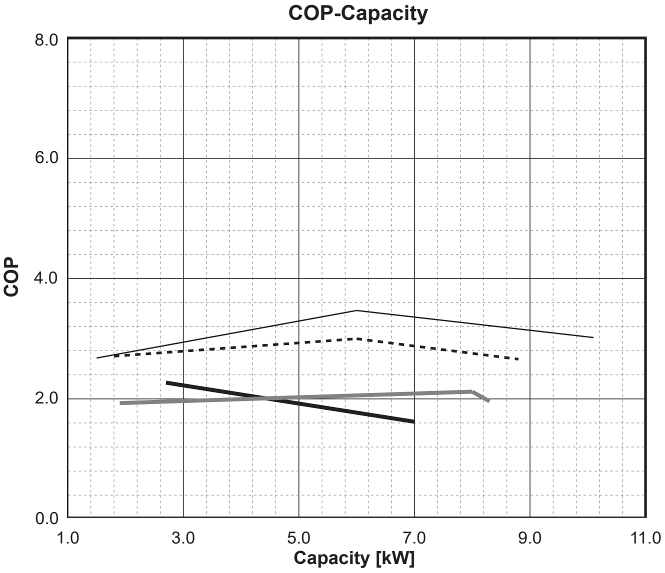






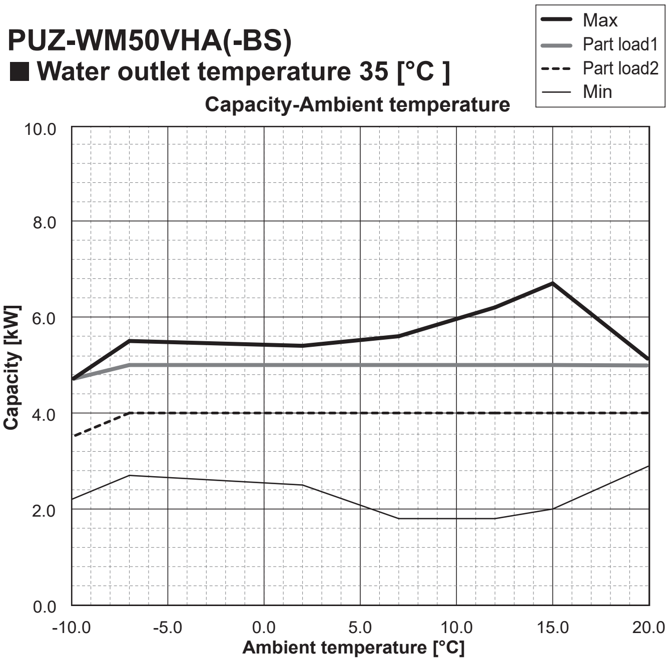


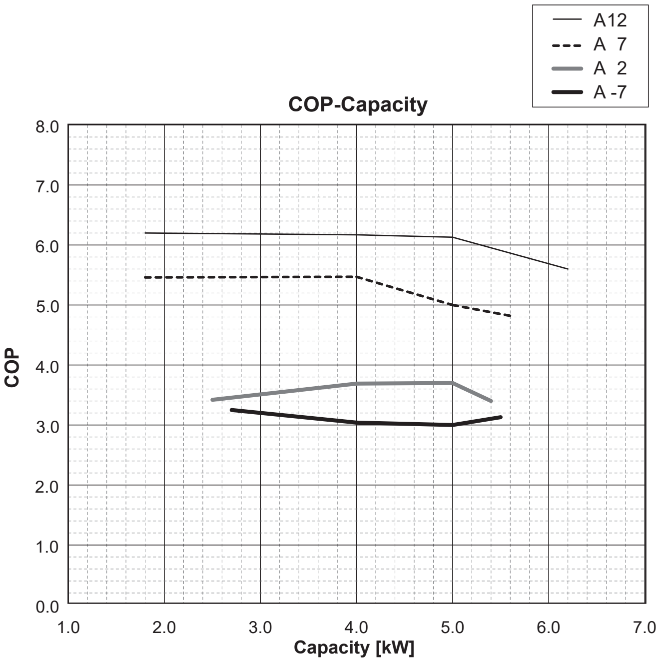




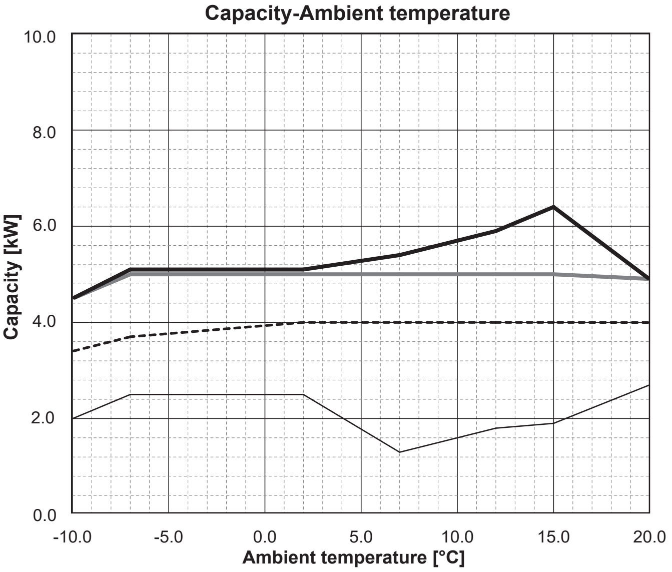
PUZ-WM50VHA(-BS)

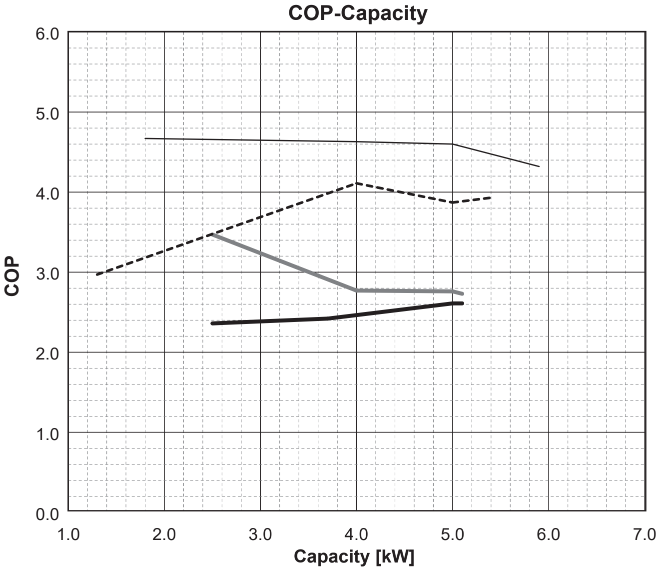
■ Water outlet temperature 35 [°C]



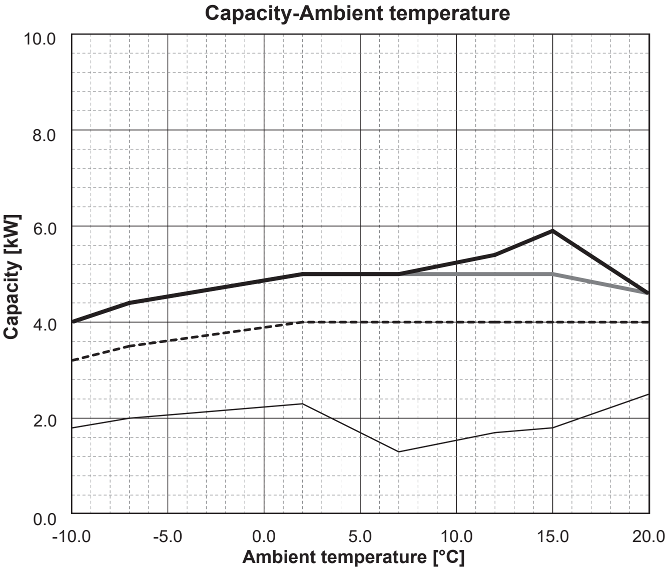


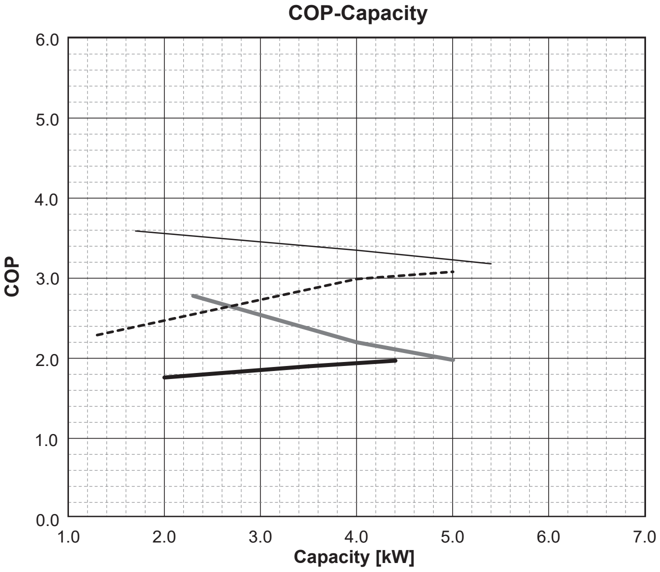
■ Water outlet temperature 45 [°C]





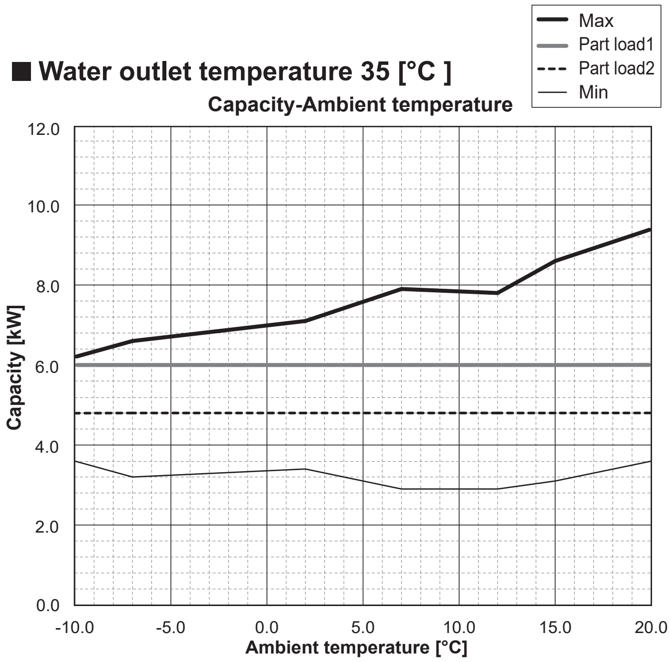
■ Water outlet temperature 55 [°C]

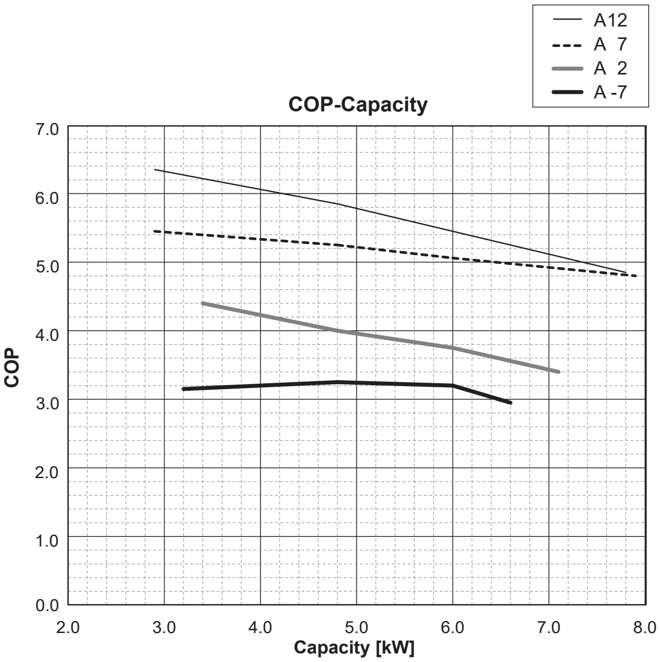




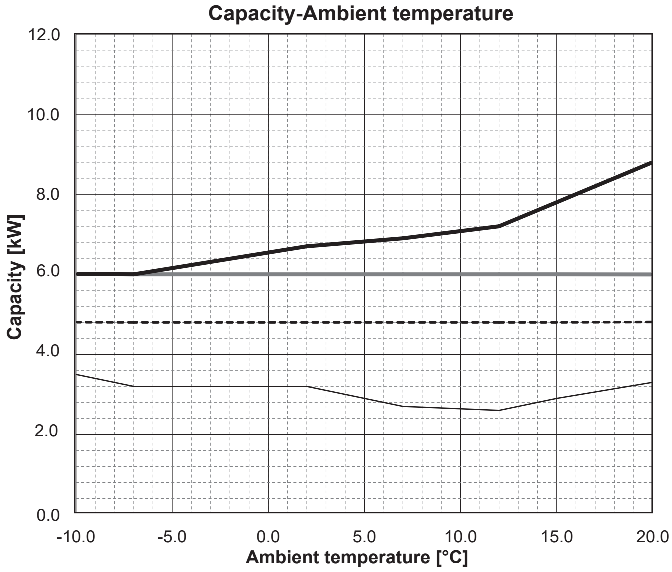
PUZ-WM60VAA(-BS)

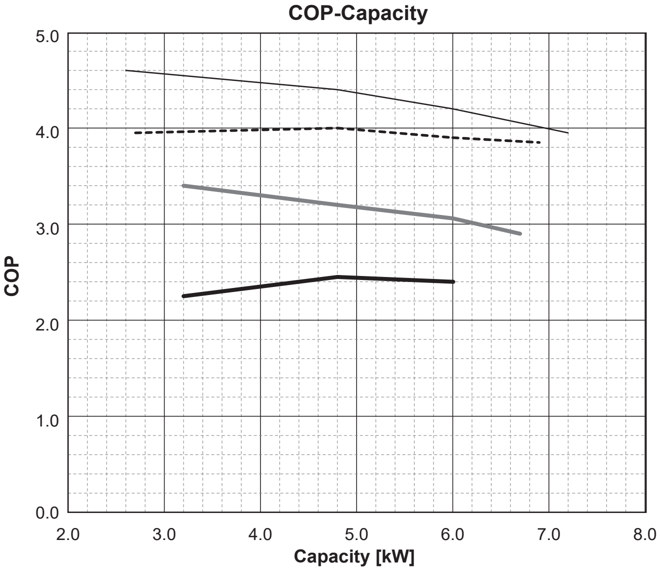
■ Water outlet temperature 35 [°C]


Capacity-Ambient temperature

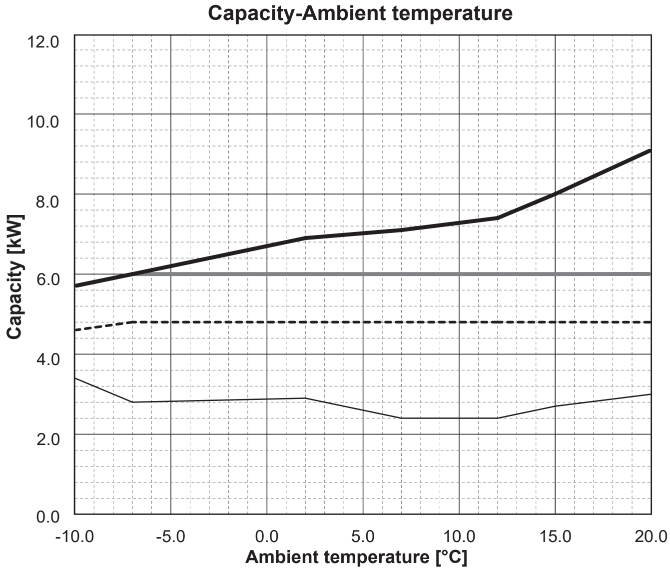

COP-Capacity

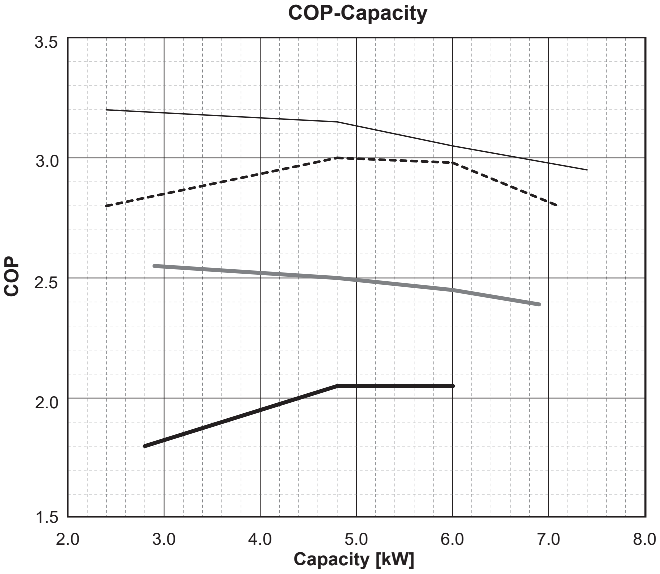
■ Water outlet temperature 45 [°C]


Capacity-Ambient temperature


COP-Capacity

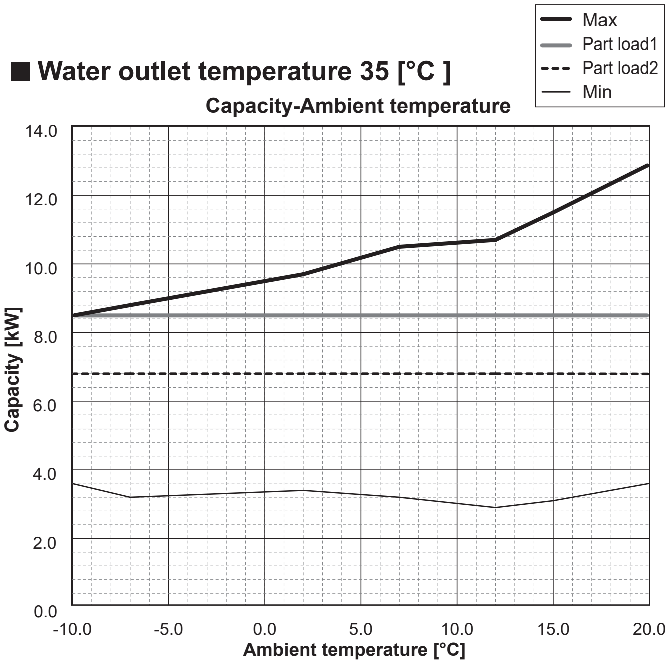
■ Water outlet temperature 55 [°C]

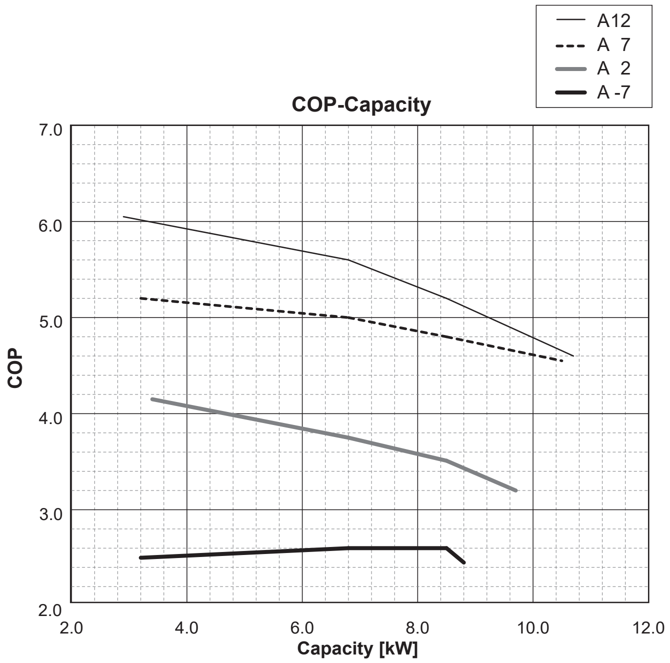

Capacity-Ambient temperature


COP-Capacity

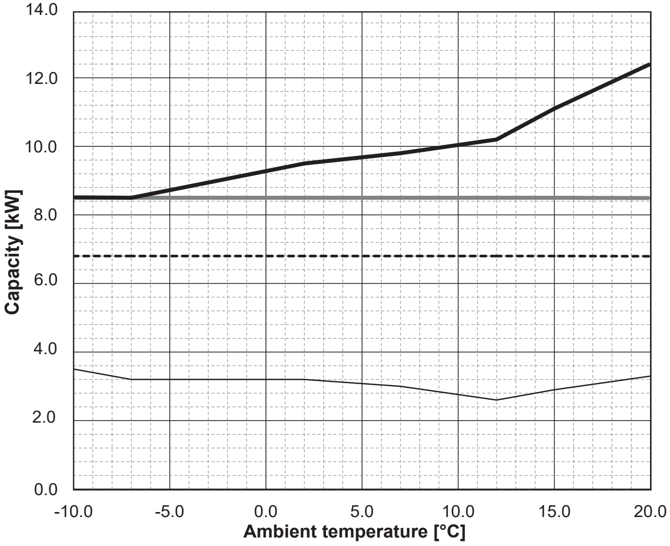
PUZ-WM85VAA(-BS) PUZ-WM85YAA(-BS)

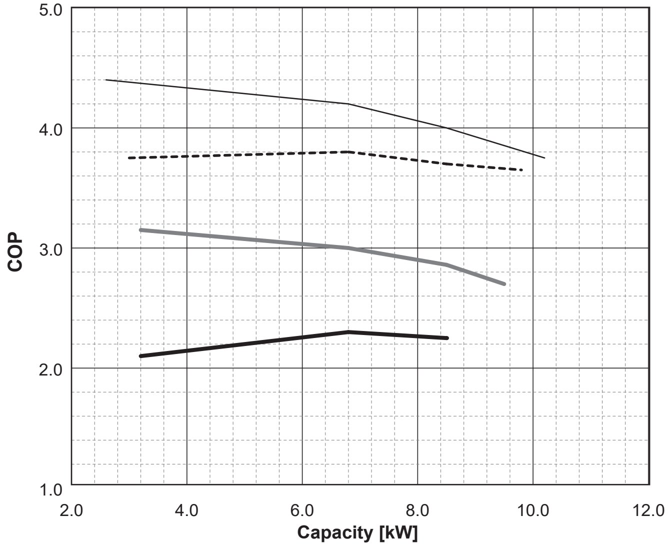
■ Water outlet temperature 35 [°C]


Capacity-Ambient temperature

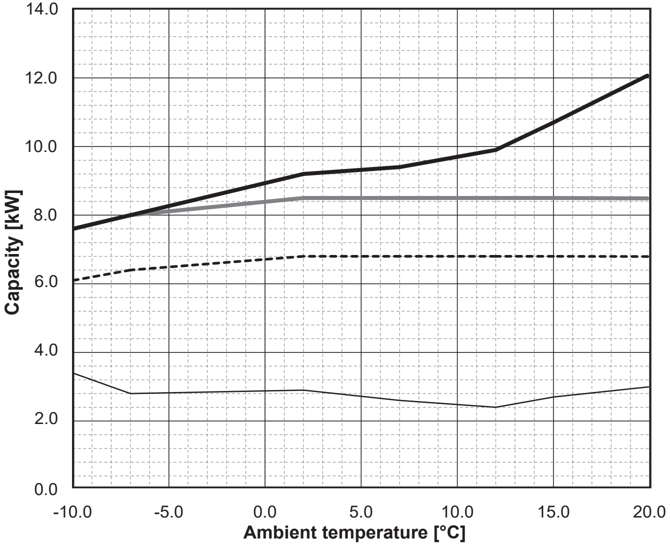

COP-Capacity

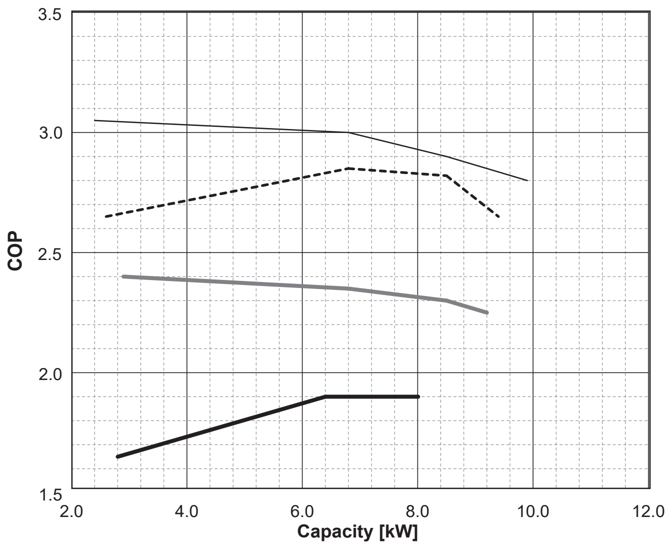
■ Water outlet temperature 45 [°C]


Capacity-Ambient temperature


COP-Capacity

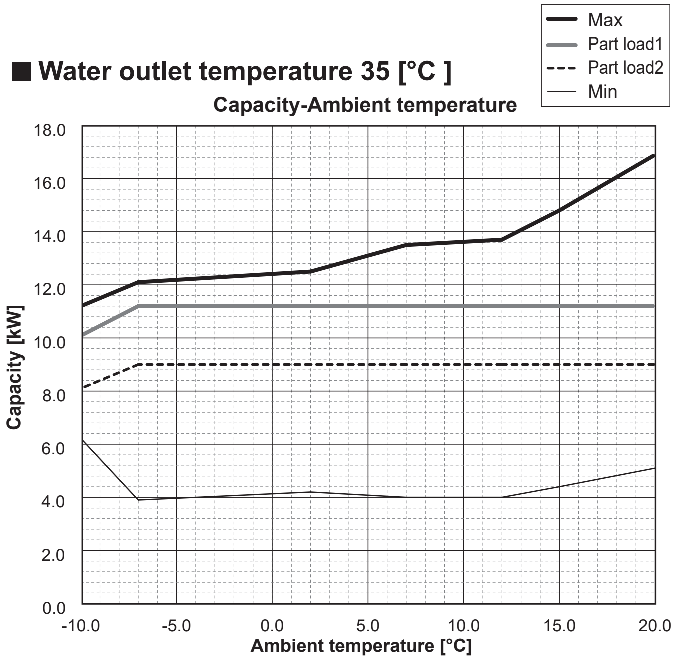
■ Water outlet temperature 55 [°C]

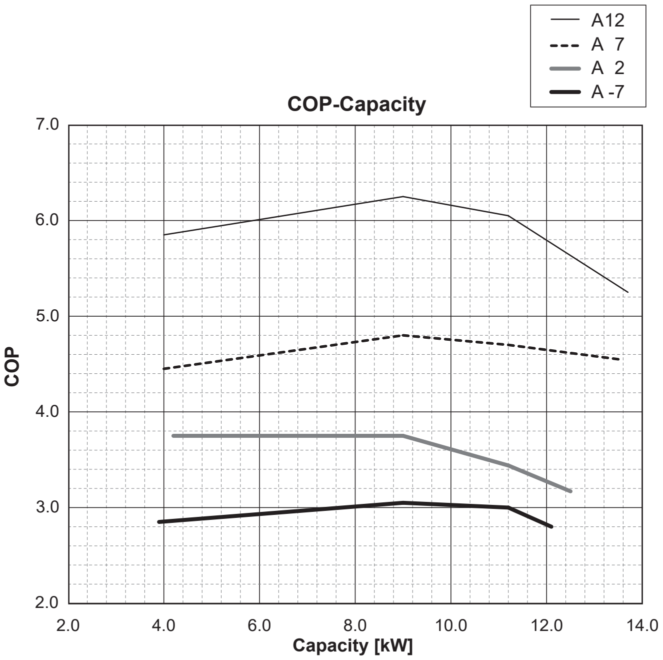

Capacity-Ambient temperature


COP-Capacity

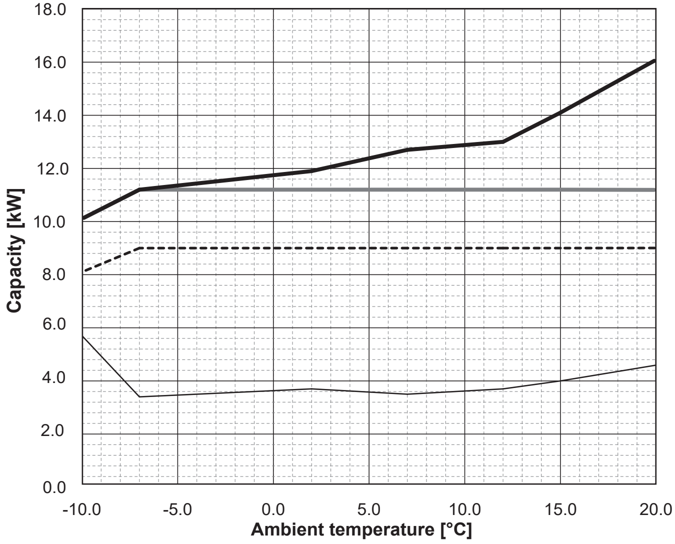
PUZ-WM112VAA(-BS) PUZ-WM112YAA(-BS)

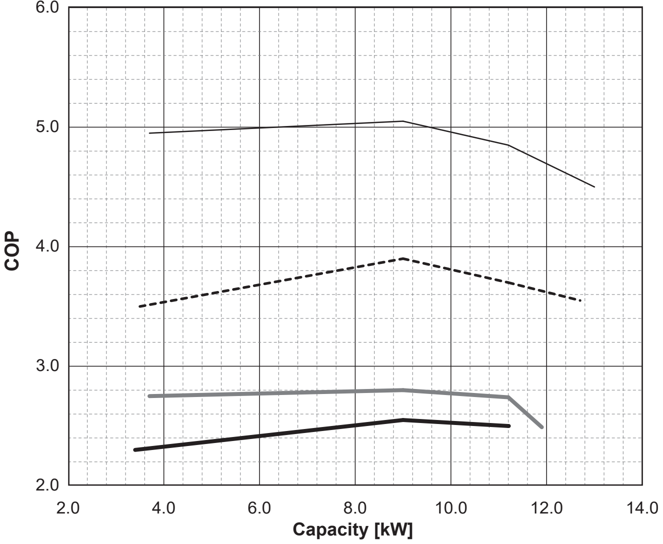
■ Water outlet temperature 35 [°C]


Capacity-Ambient temperature

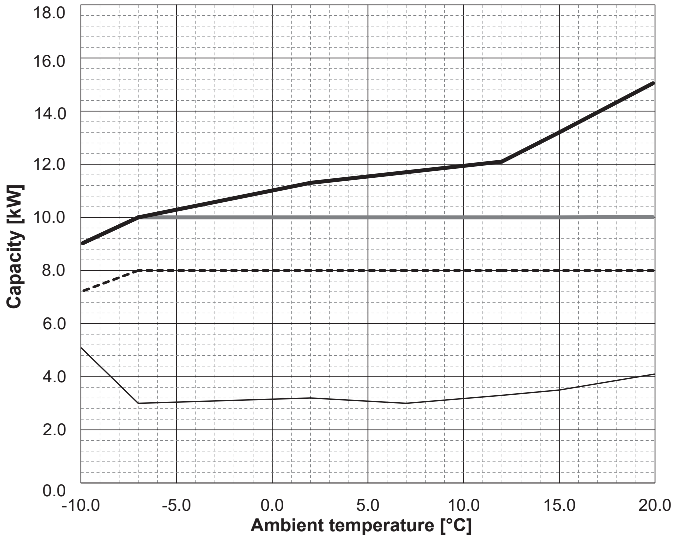

COP-Capacity

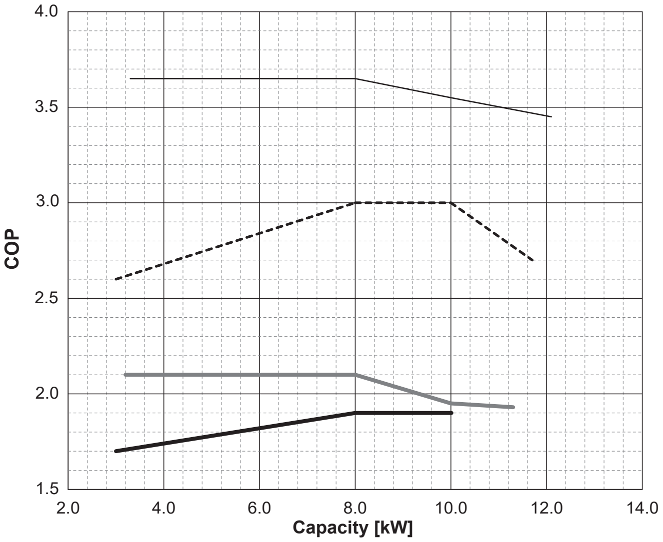
■ Water outlet temperature 45 [°C]


Capacity-Ambient temperature


COP-Capacity

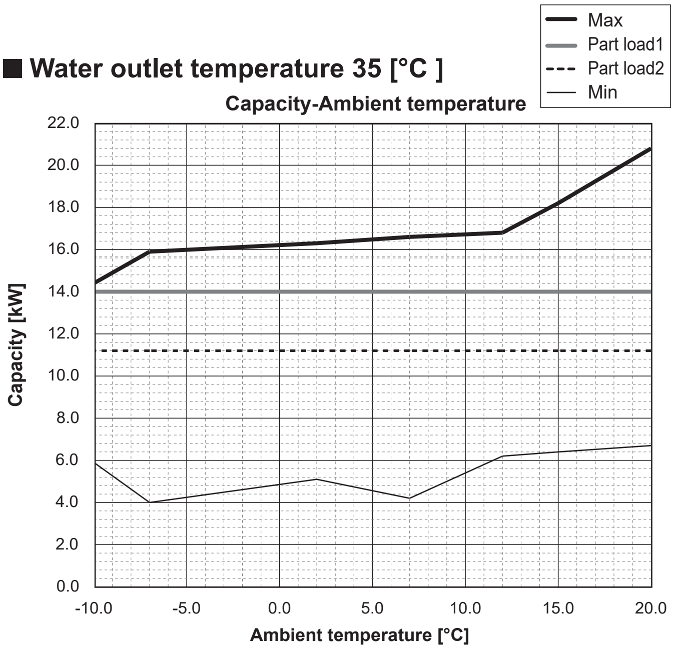
■ Water outlet temperature 55 [°C]

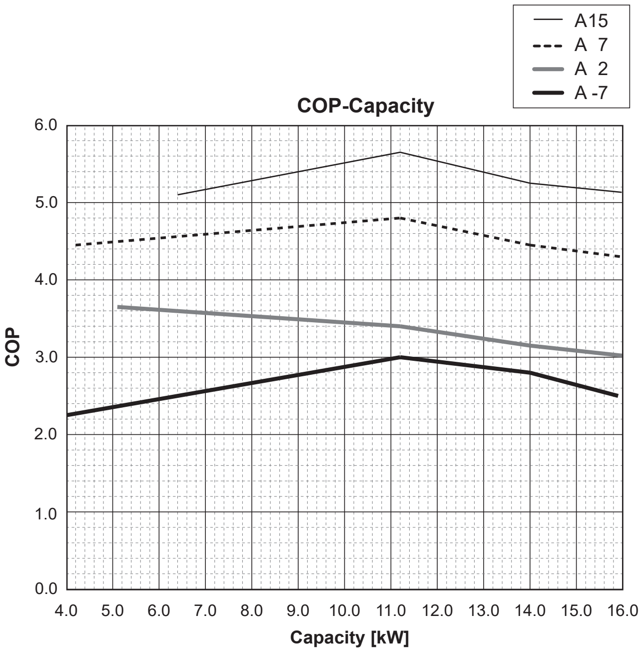

Capacity-Ambient temperature


COP-Capacity

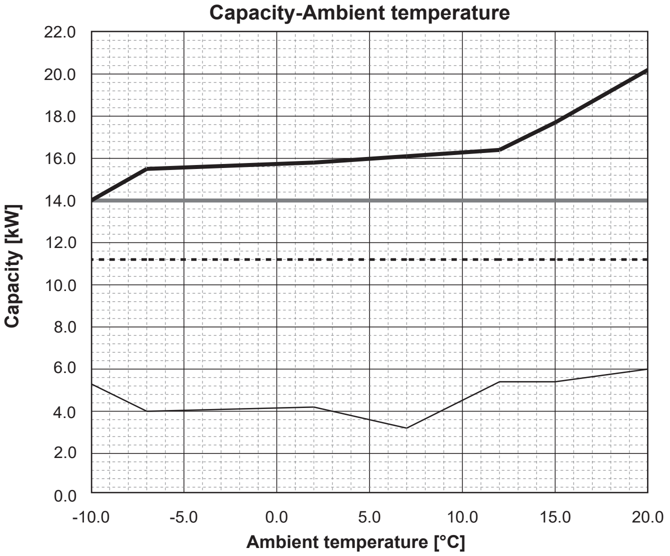
PUZ-HWM140VHA(-BS) PUZ-HWM140YHA(-BS)

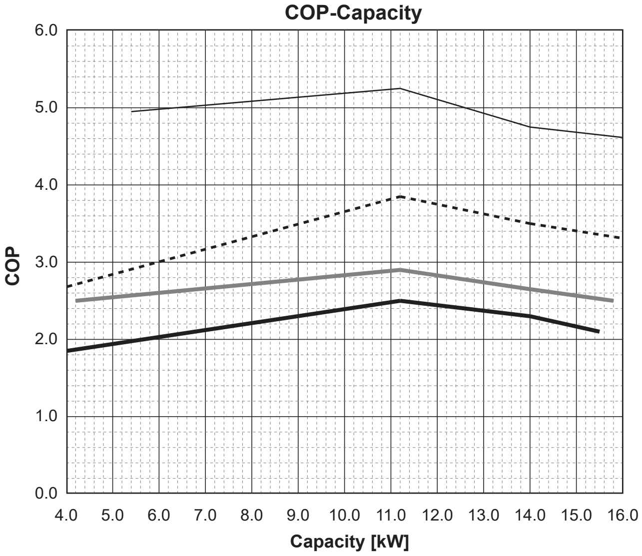
■ Water outlet temperature 35 [°C]


Capacity-Ambient temperature

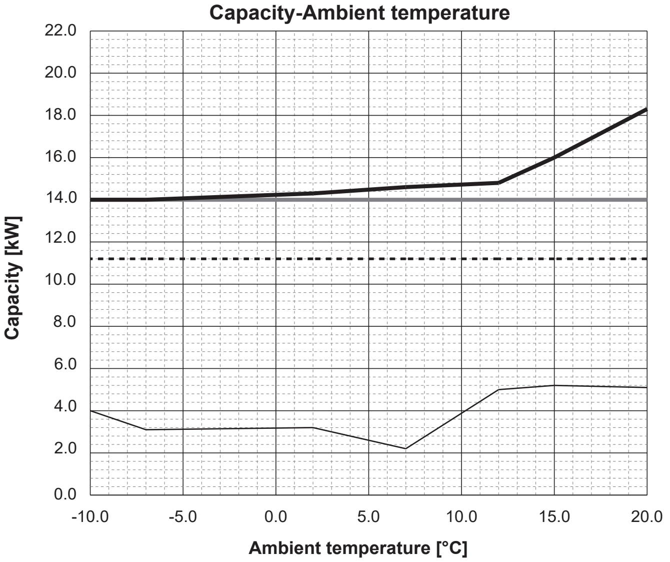

COP-Capacity

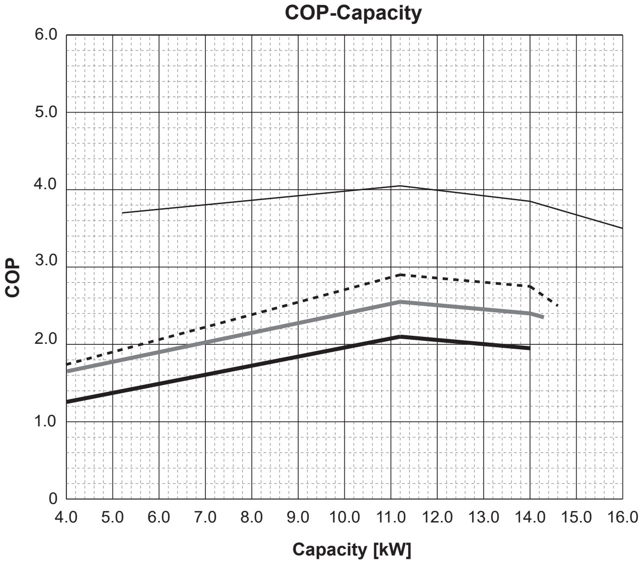
■ Water outlet temperature 45 [°C]


Capacity-Ambient temperature


COP-Capacity

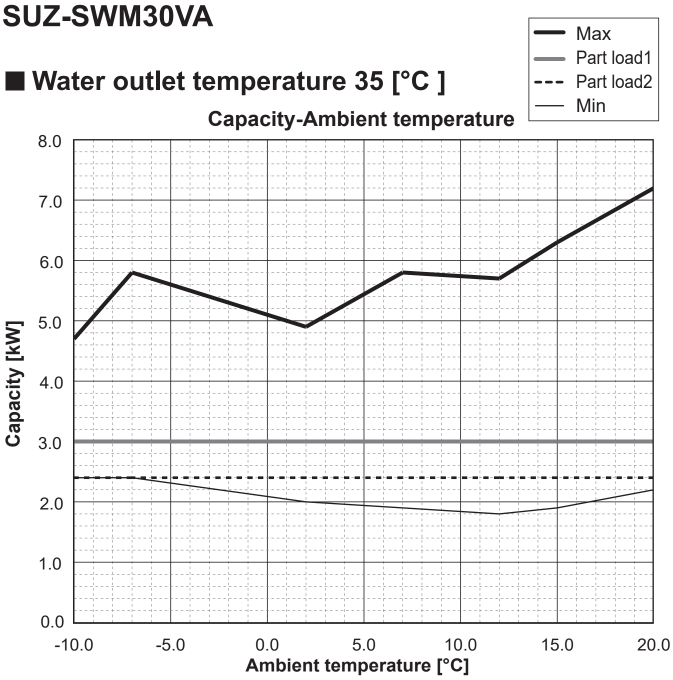
■ Water outlet temperature 55 [°C]

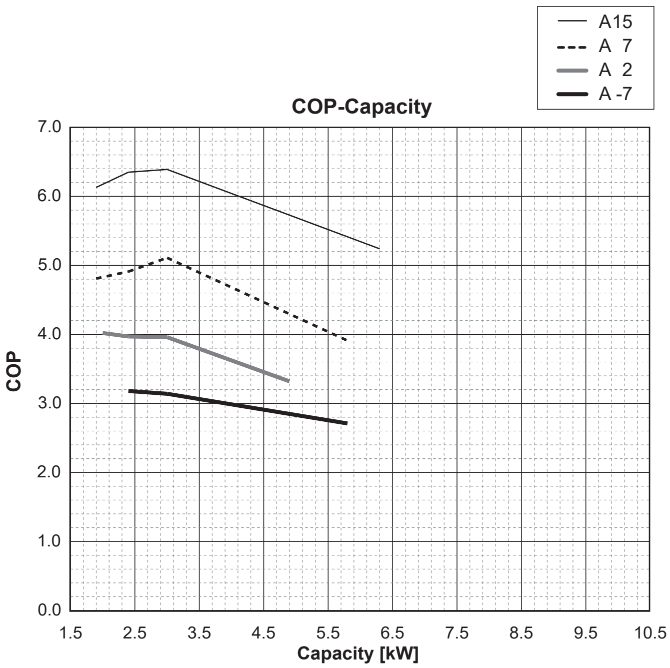

Capacity-Ambient temperature


COP-Capacity

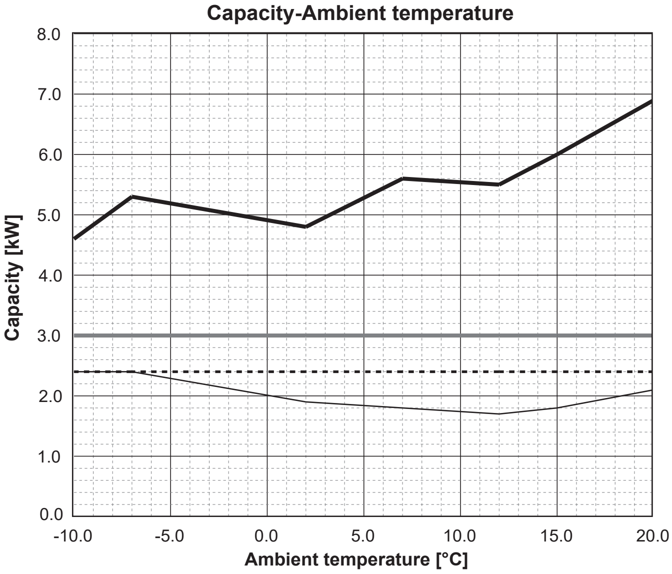
SUZ-SWM30VA

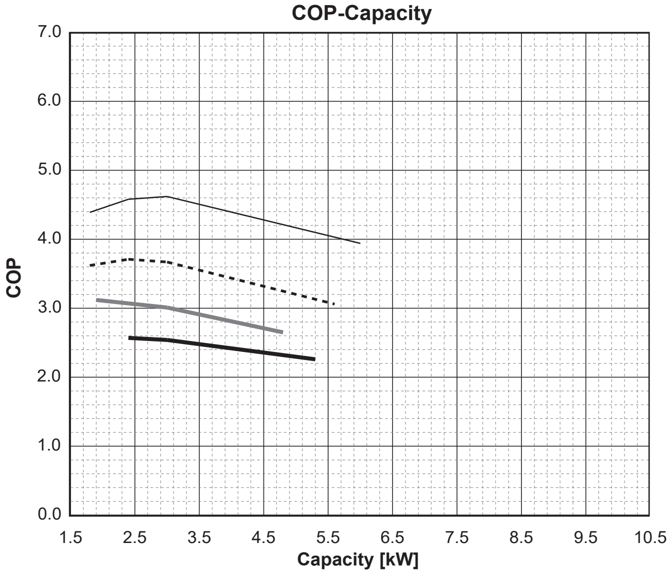
■ Water outlet temperature 35 [°C]



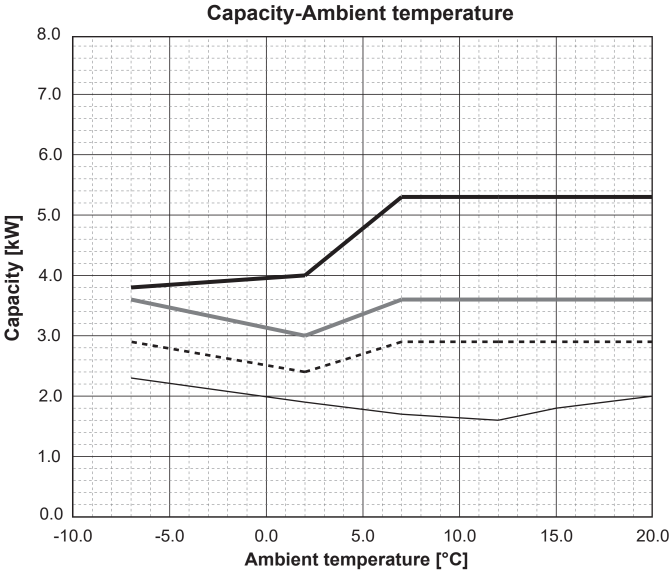


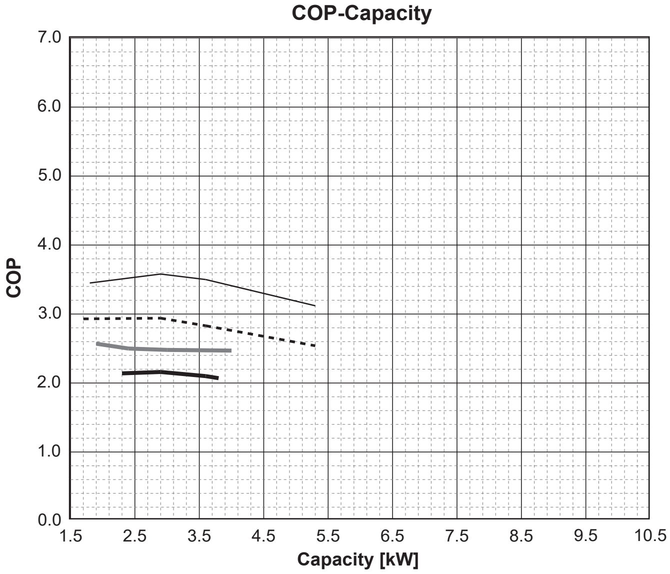
■ Water outlet temperature 45 [°C]





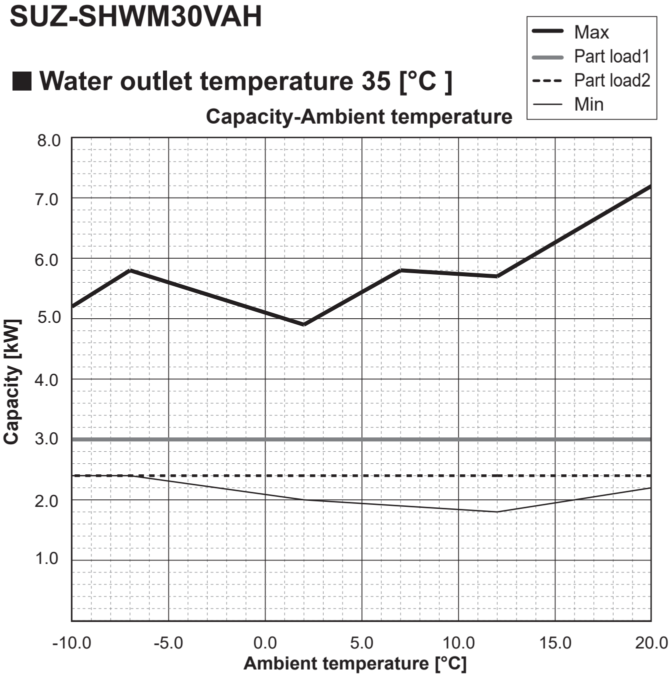
■ Water outlet temperature 55 [°C]

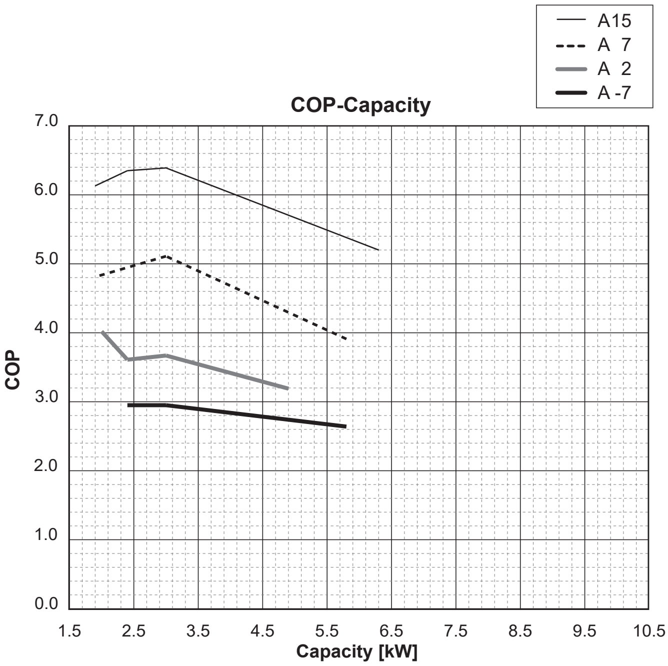




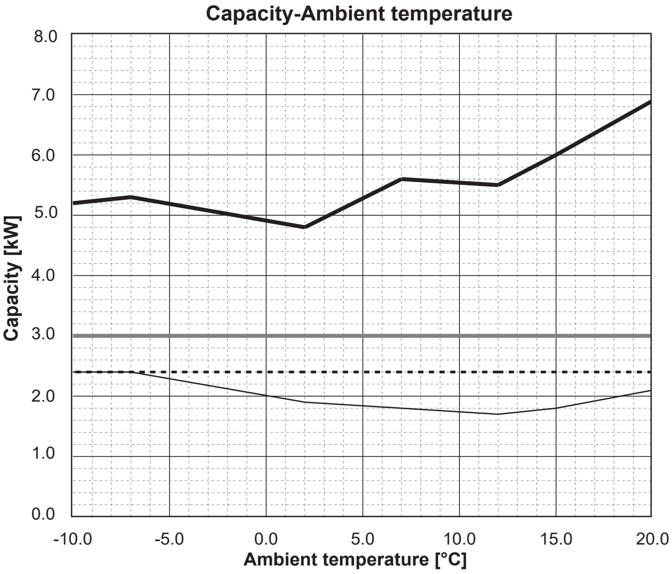
SUZ-SHWM30VAH

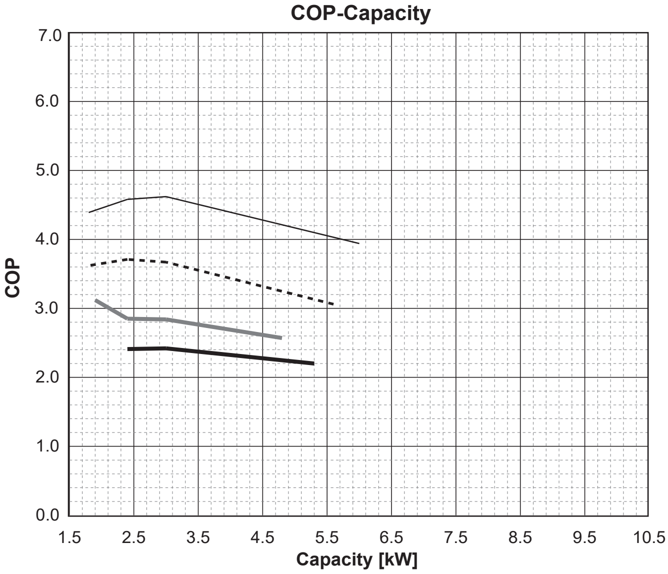
■ Water outlet temperature 35 [°C]


Capacity-Ambient temperature

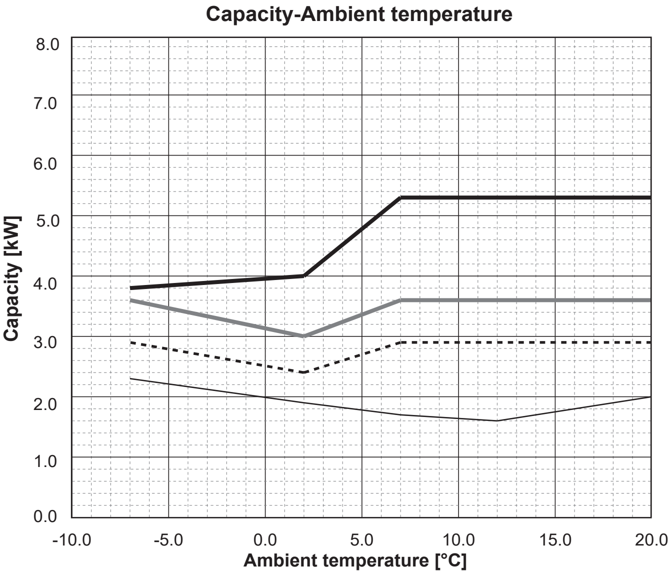

COP-Capacity

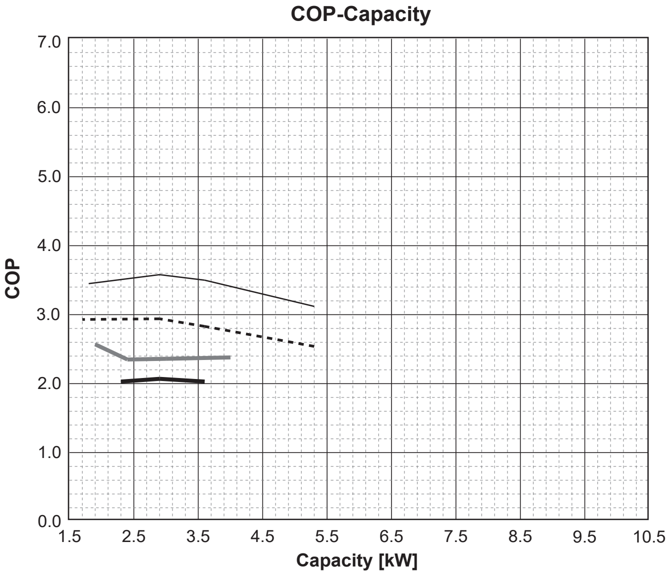
■ Water outlet temperature 45 [°C]


Capacity-Ambient temperature


COP-Capacity

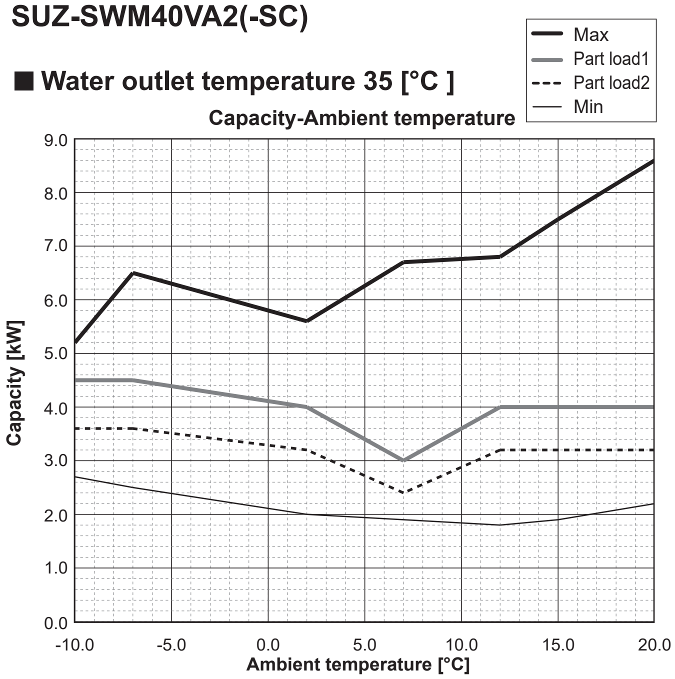
■ Water outlet temperature 55 [°C]

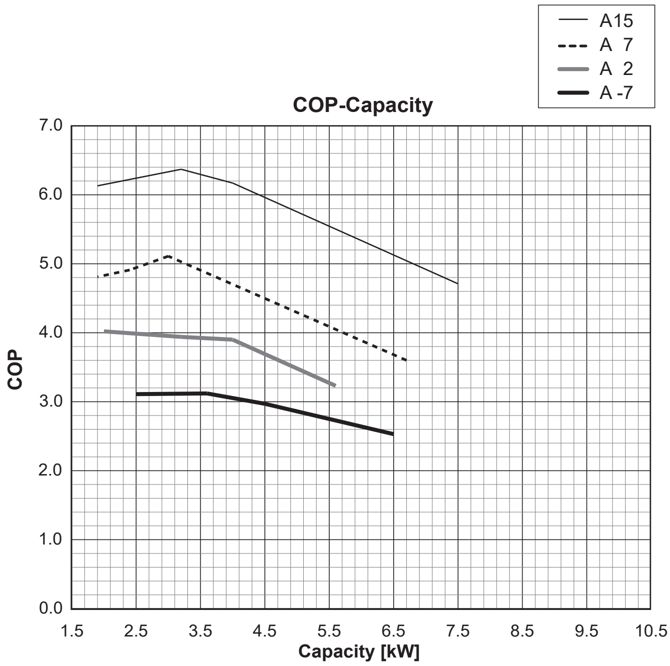

Capacity-Ambient temperature


COP-Capacity

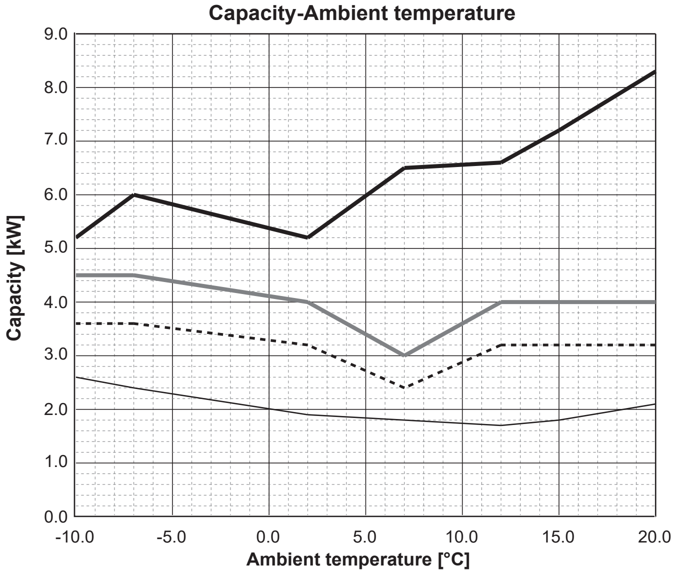
SUZ-SWM40VA2(-SC)

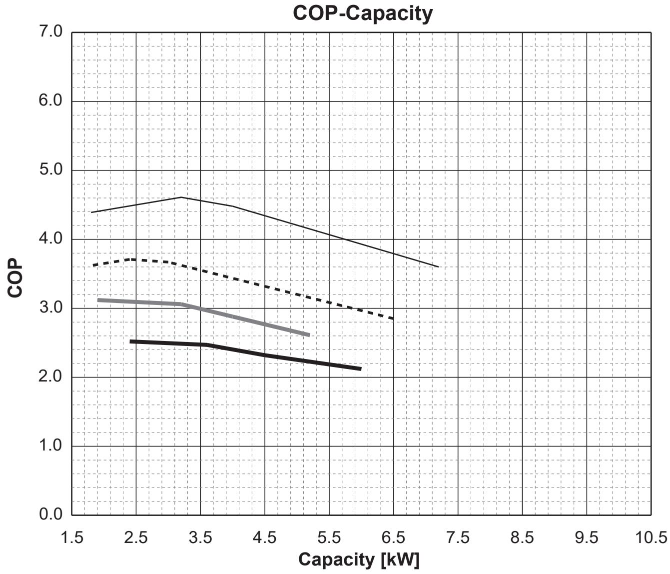
■ Water outlet temperature 35 [°C]



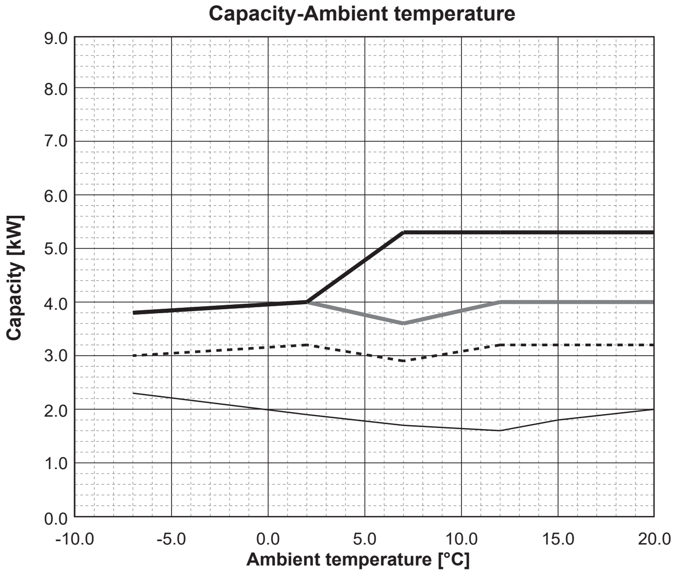


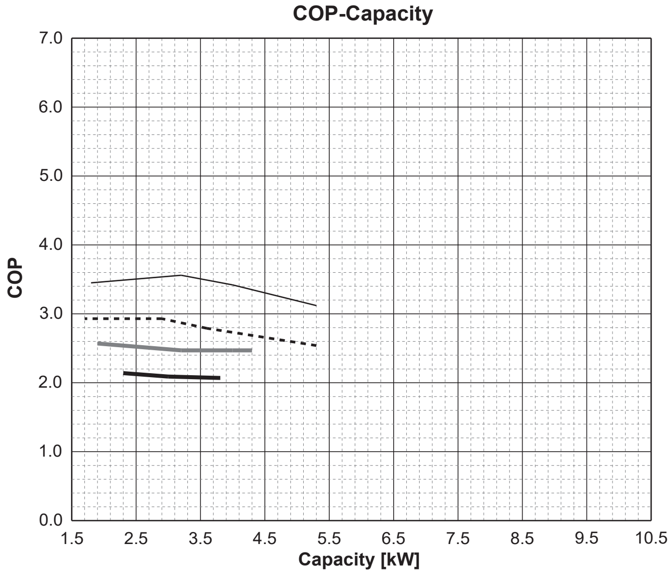
■ Water outlet temperature 45 [°C]





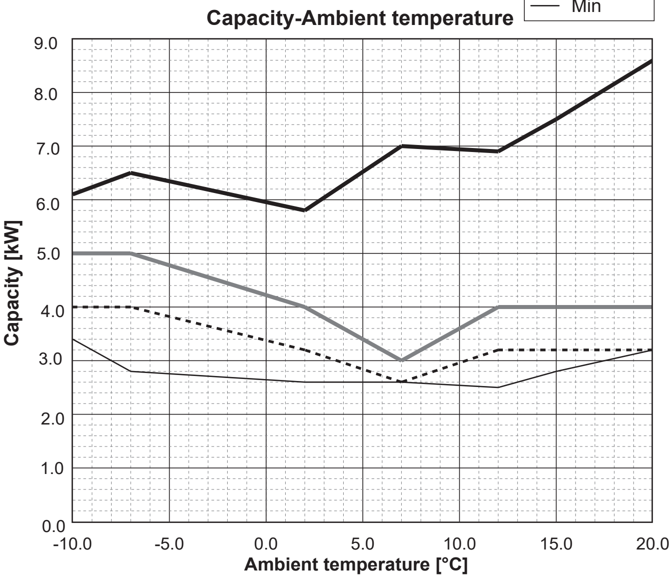
■ Water outlet temperature 55 [°C]

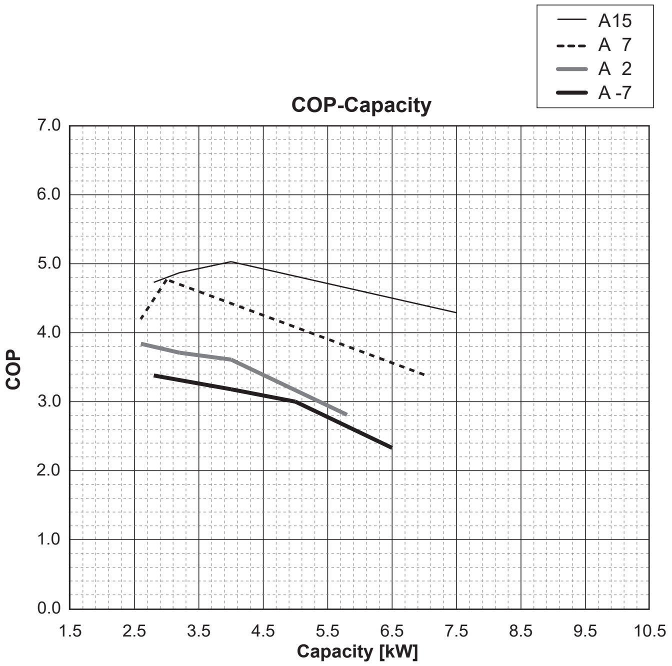




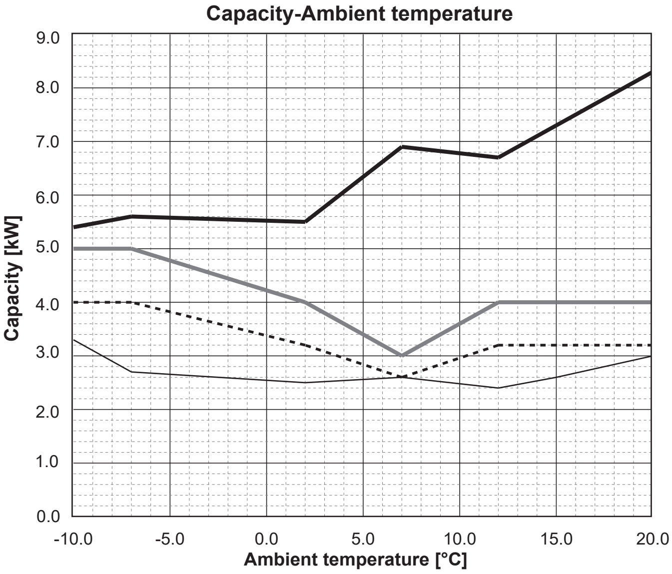
SUZ-SHWM40VAH(-SC)

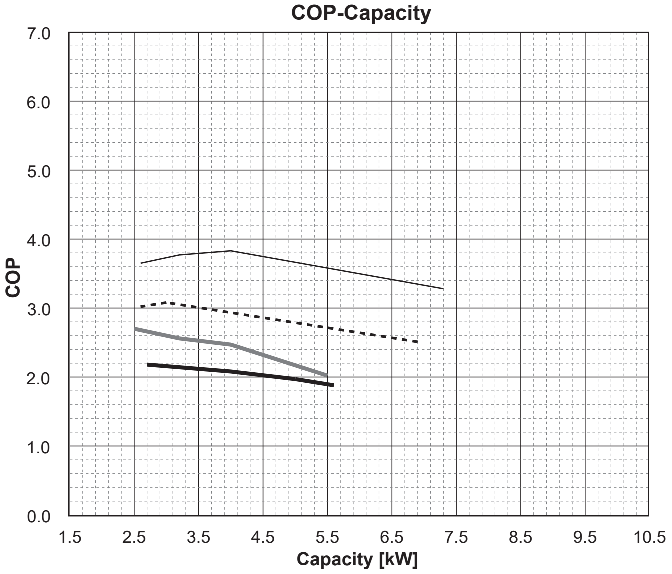
■ Water outlet temperature 35 [°C]



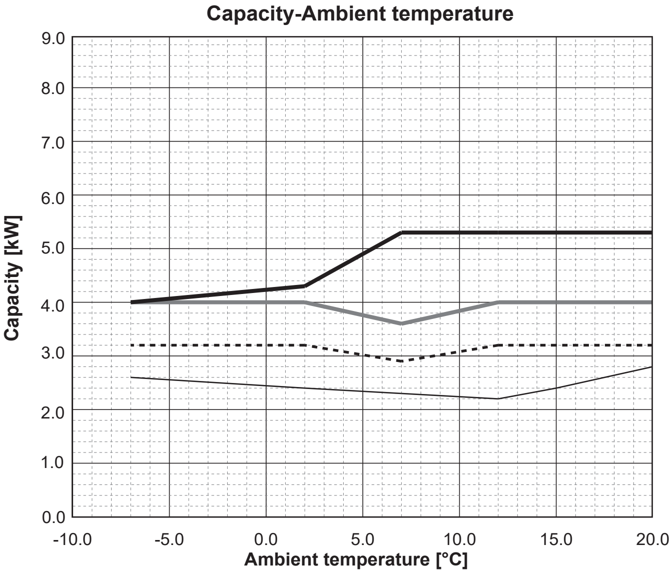


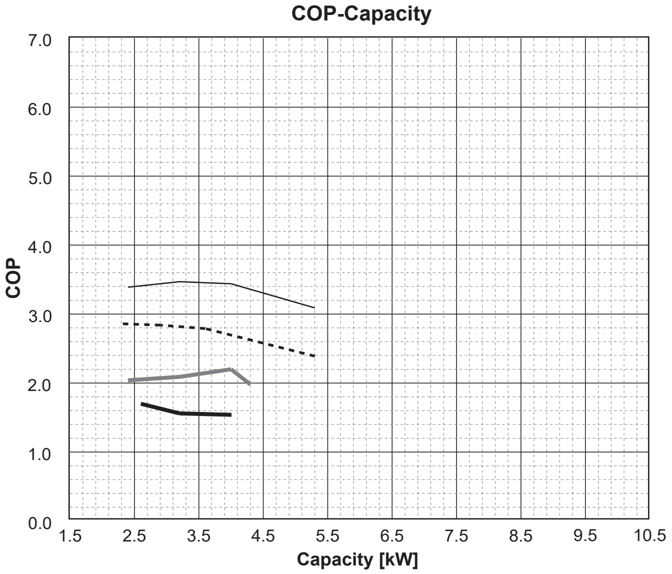
■ Water outlet temperature 45 [°C]





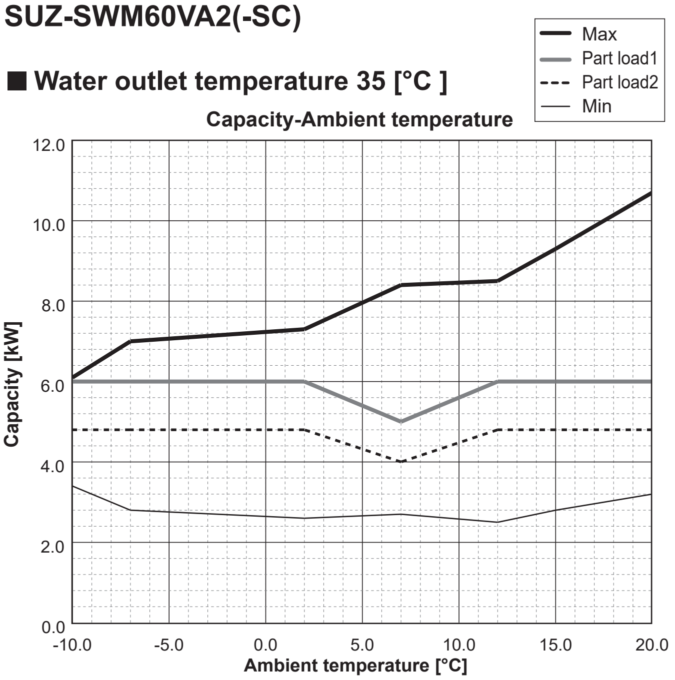
■ Water outlet temperature 55 [°C]

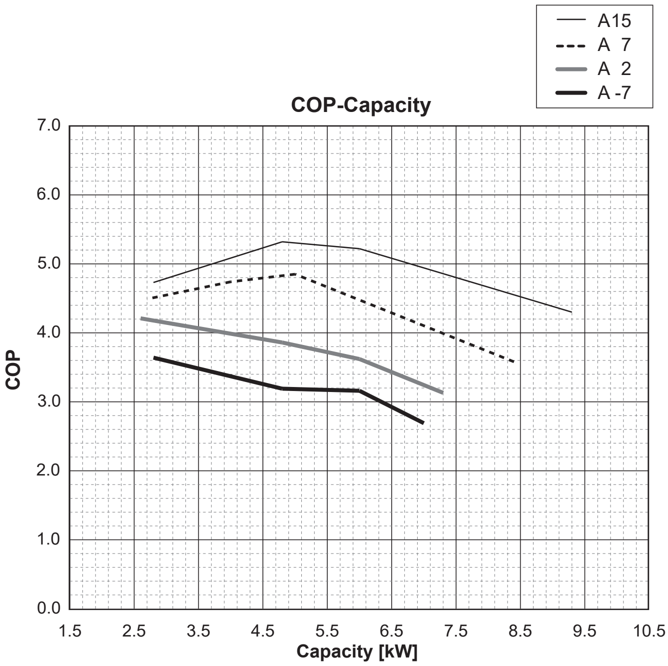




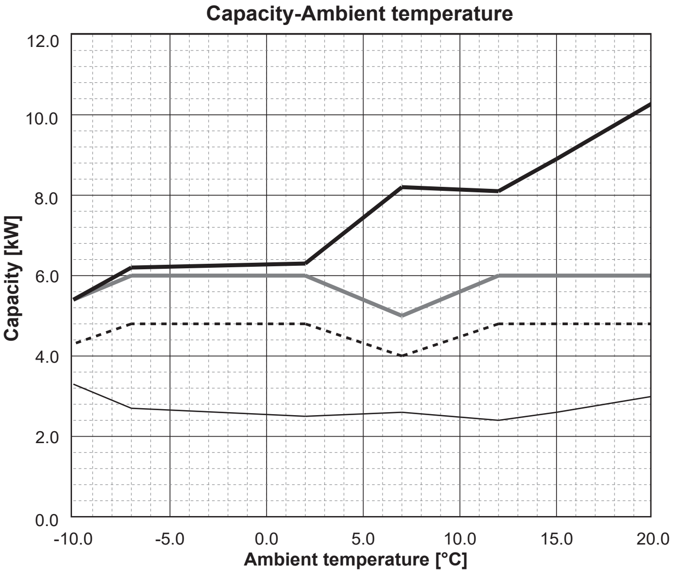
SUZ-SWM60VA2(-SC)

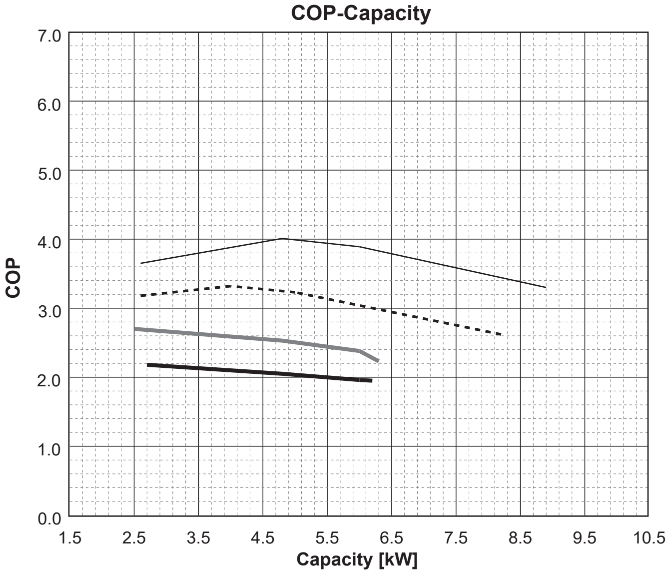
■ Water outlet temperature 35 [°C]



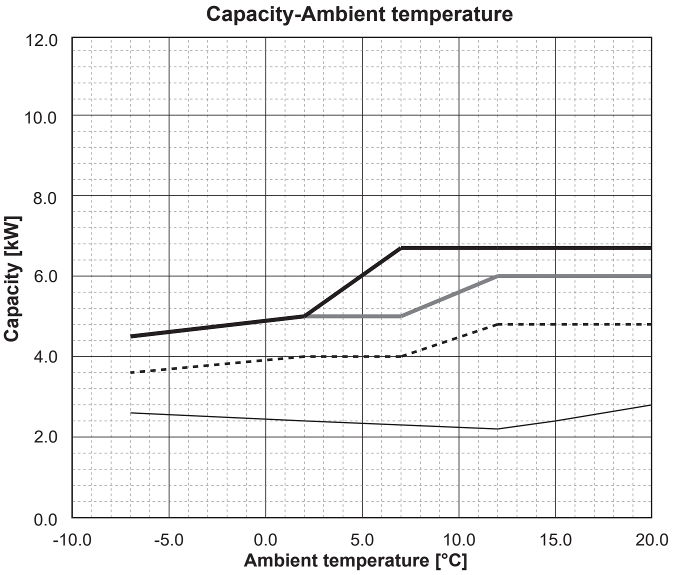


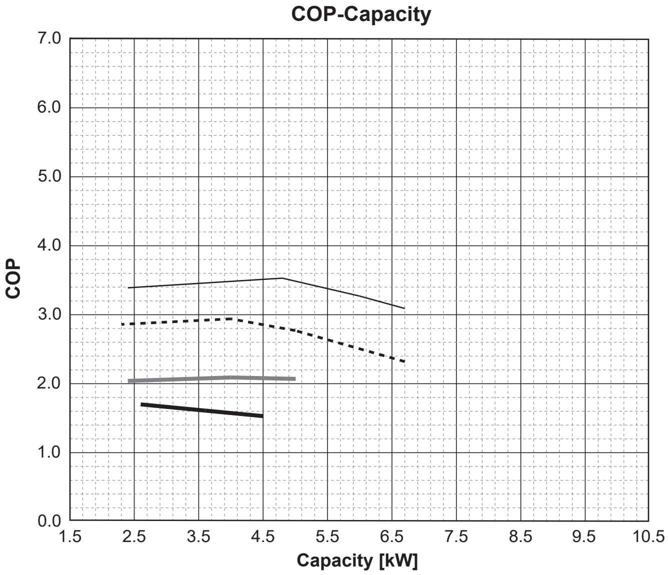
■ Water outlet temperature 45 [°C]





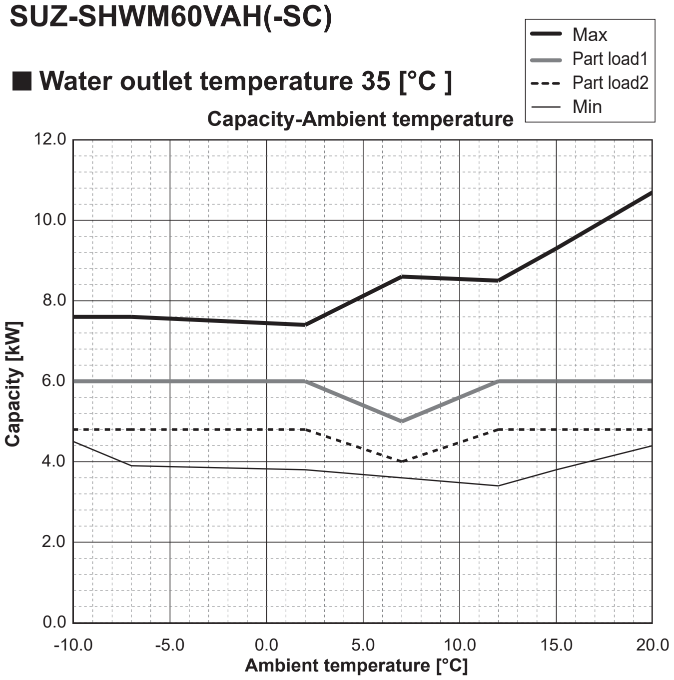
■ Water outlet temperature 55 [°C]

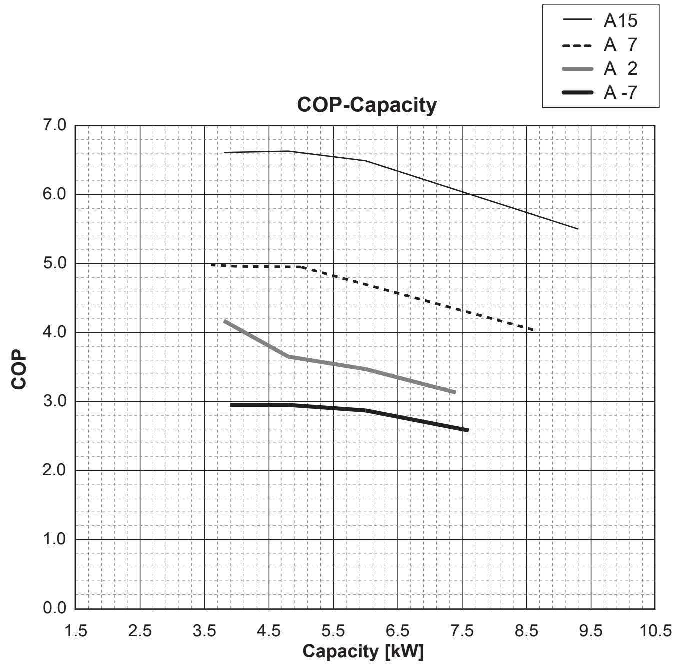




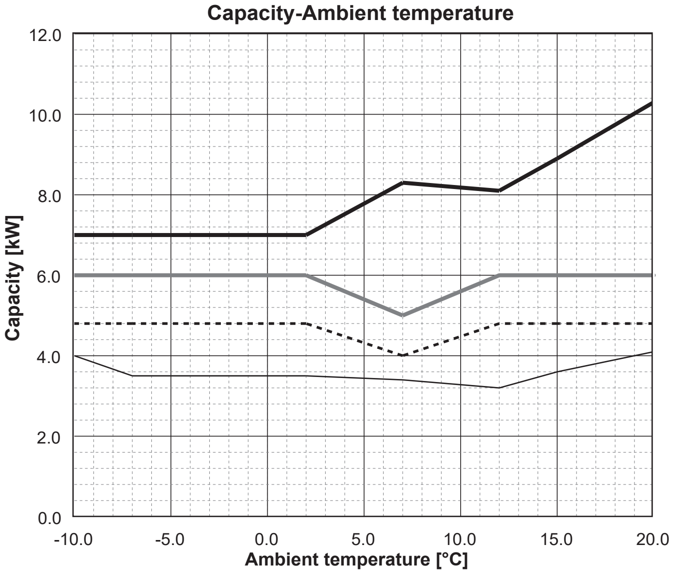
SUZ-SHWM60VAH(-SC)

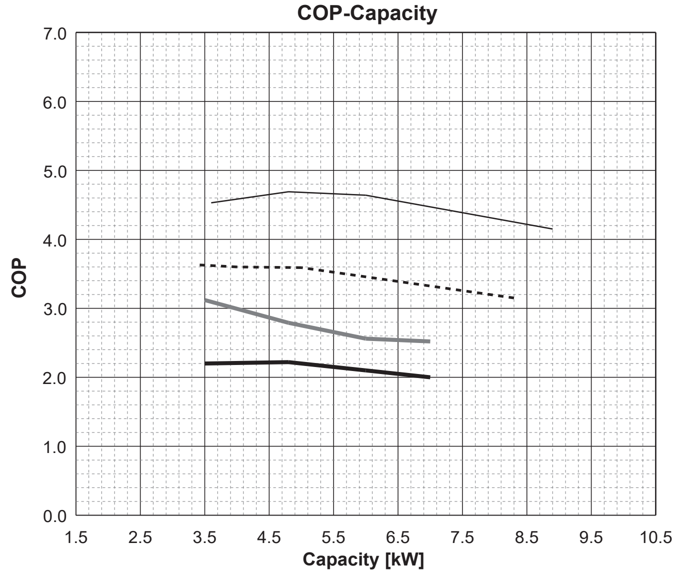
■ Water outlet temperature 35 [°C]



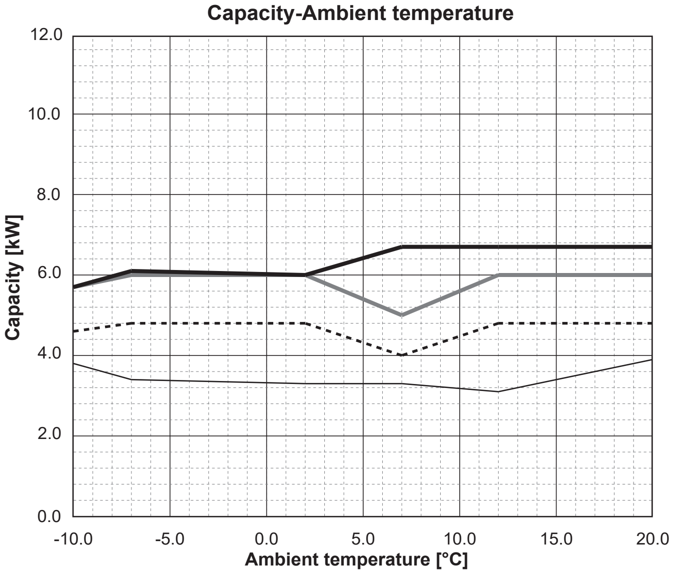


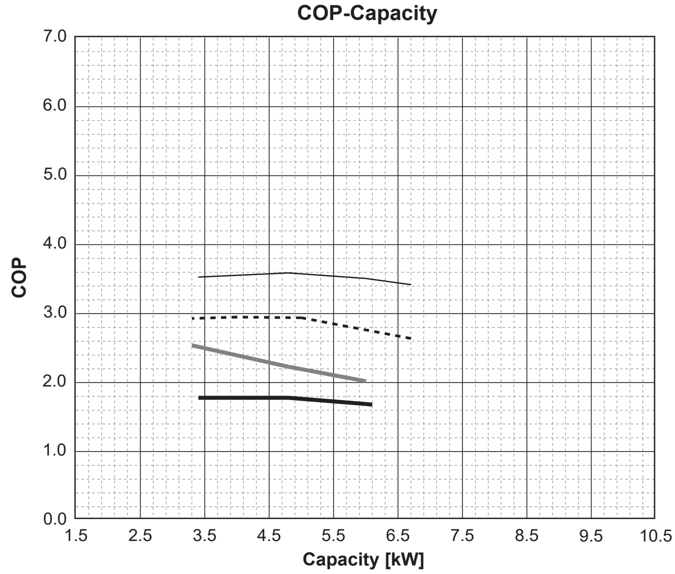
■ Water outlet temperature 45 [°C]





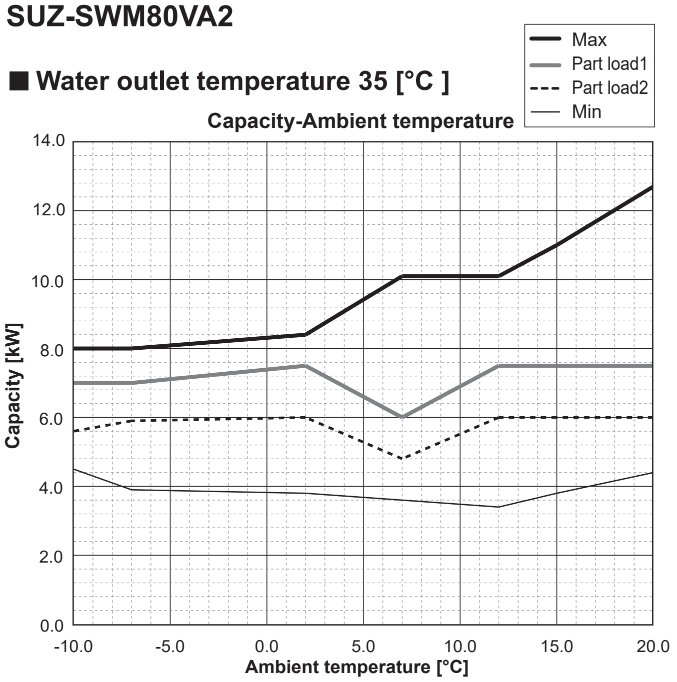
■ Water outlet temperature 55 [°C]

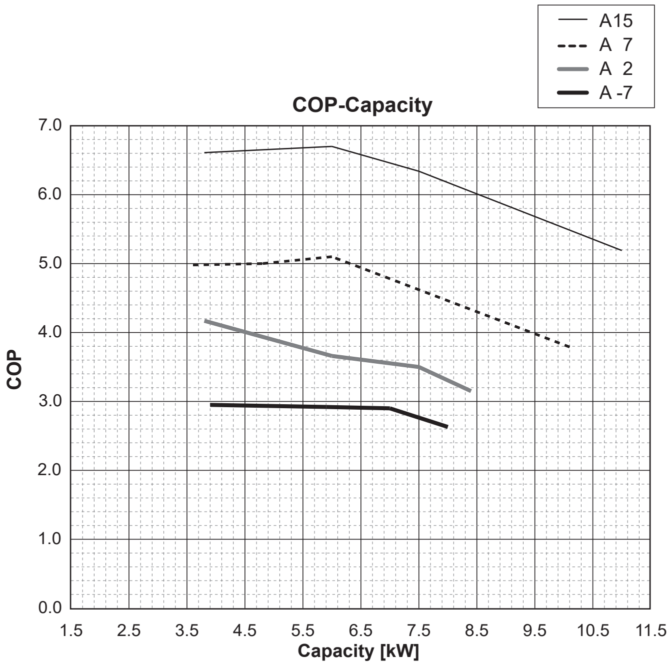




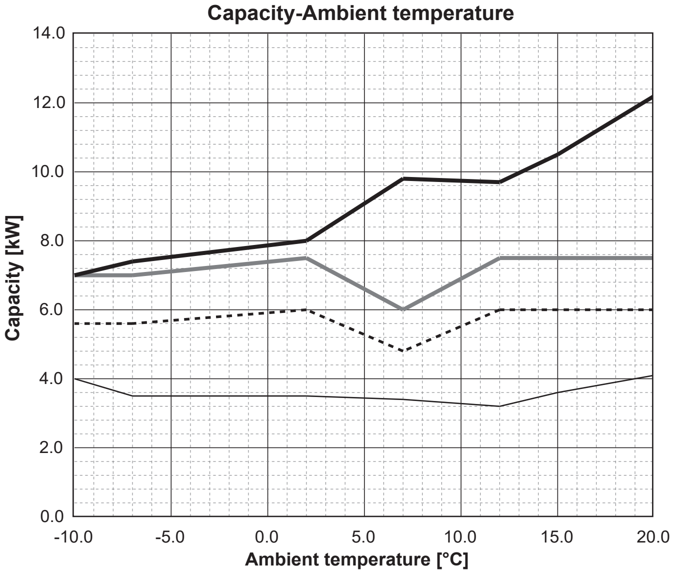
SUZ-SWM80VA2

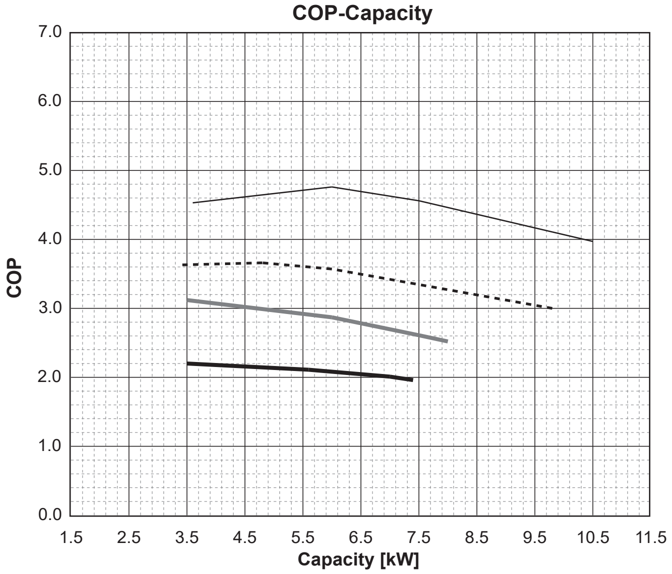
■ Water outlet temperature 35 [°C]



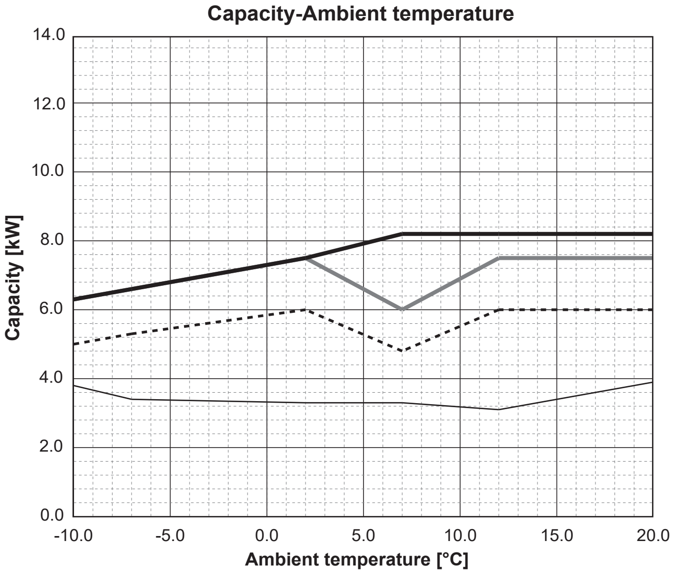


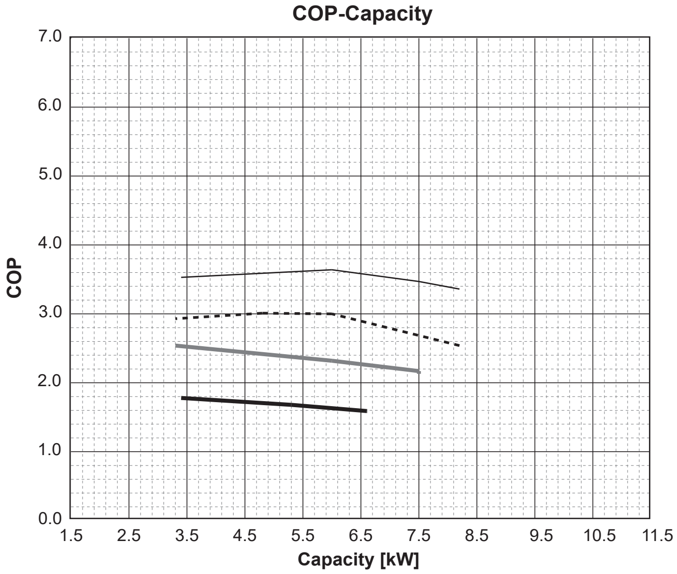
■ Water outlet temperature 45 [°C]





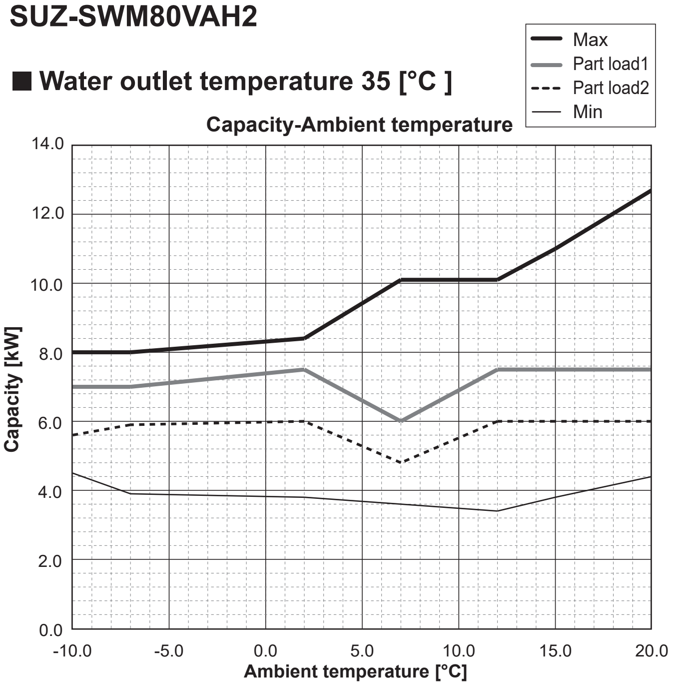
■ Water outlet temperature 55 [°C]

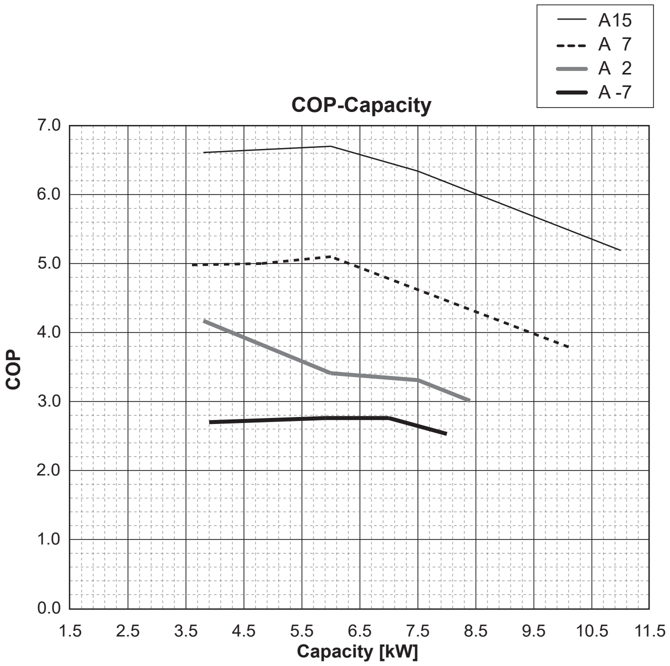




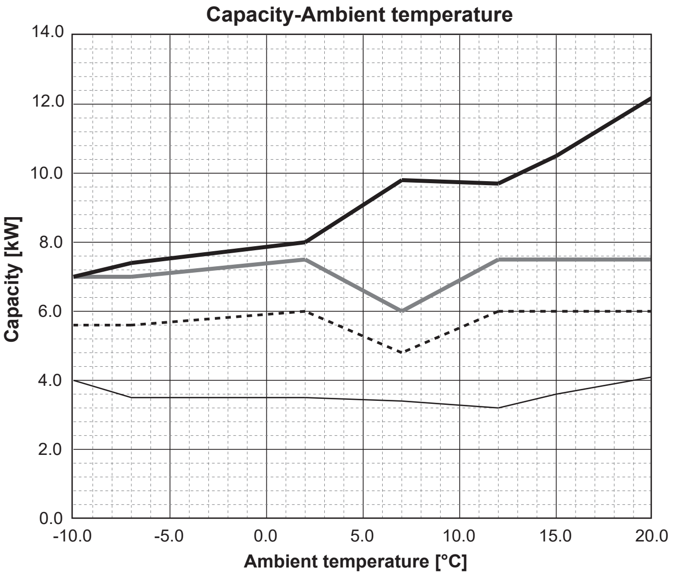
SUZ-SWM80VAH2

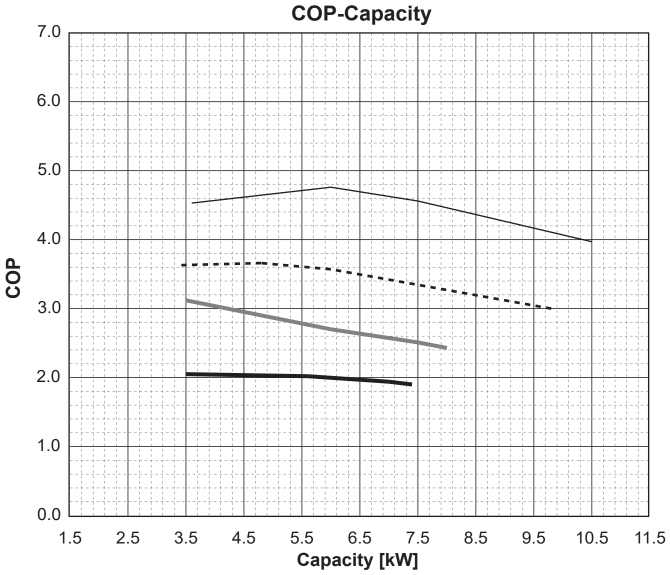
■ Water outlet temperature 35 [°C]



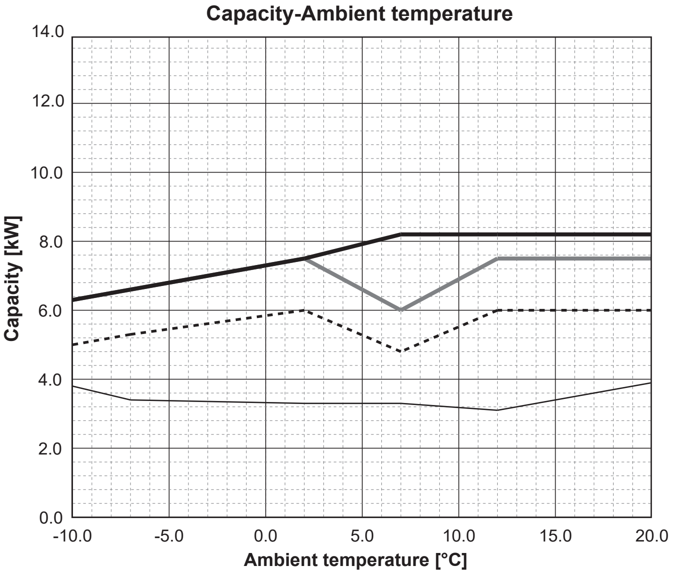


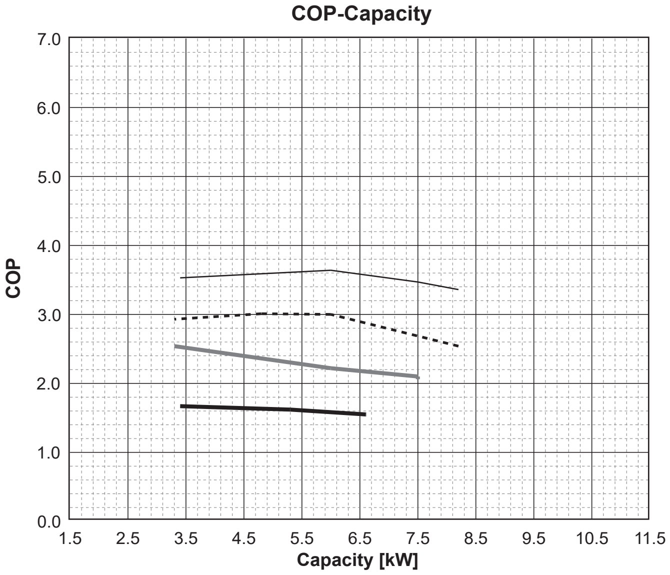
■ Water outlet temperature 45 [°C]





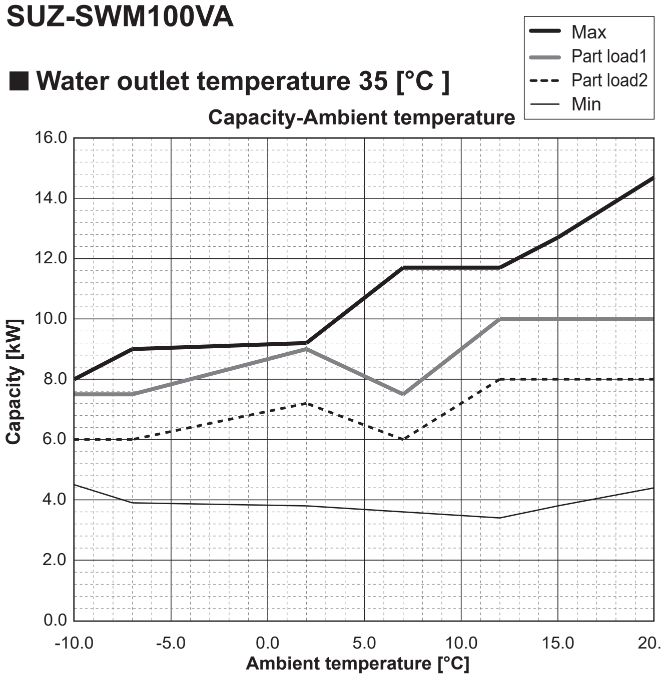
■ Water outlet temperature 55 [°C]

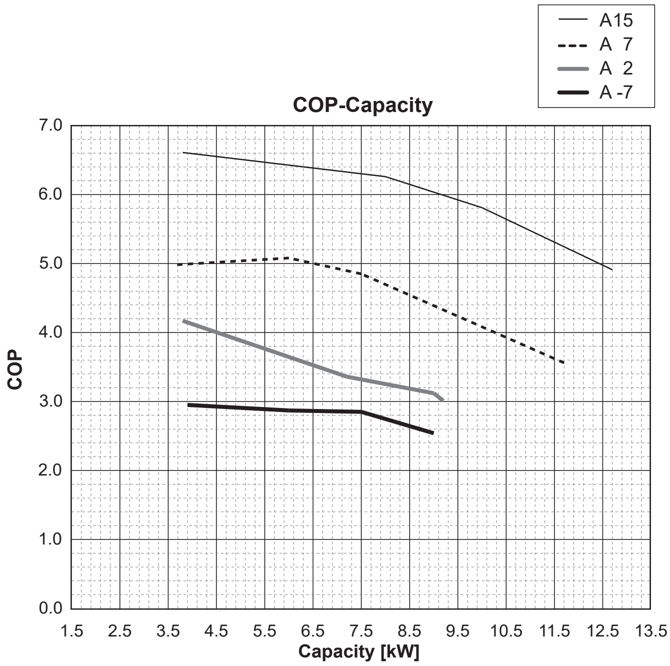




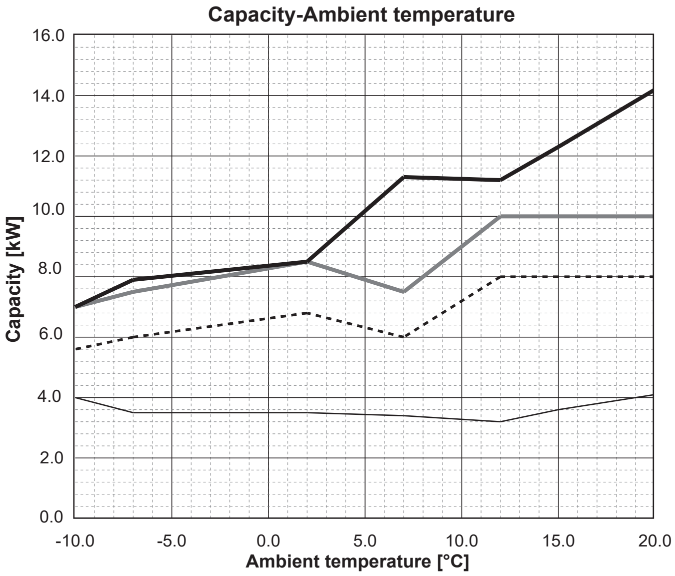
SUZ-SWM100VA

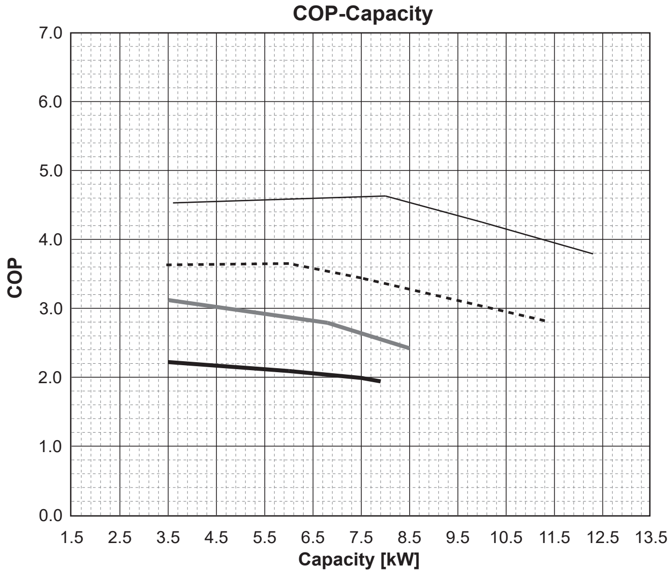
■ Water outlet temperature 35 [°C]


Capacity-Ambient temperature

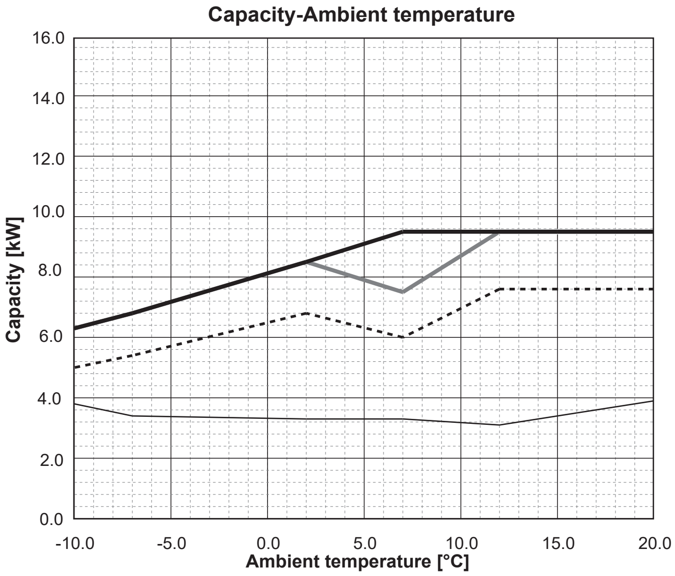

COP-Capacity

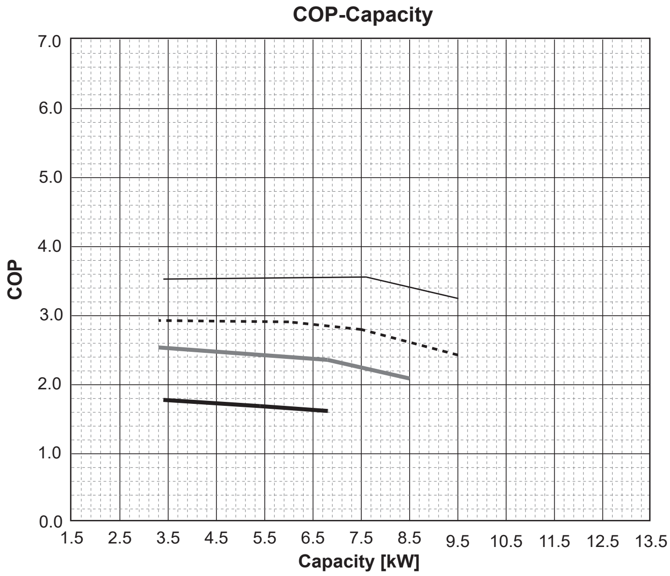
■ Water outlet temperature 45 [°C]


Capacity-Ambient temperature


COP-Capacity

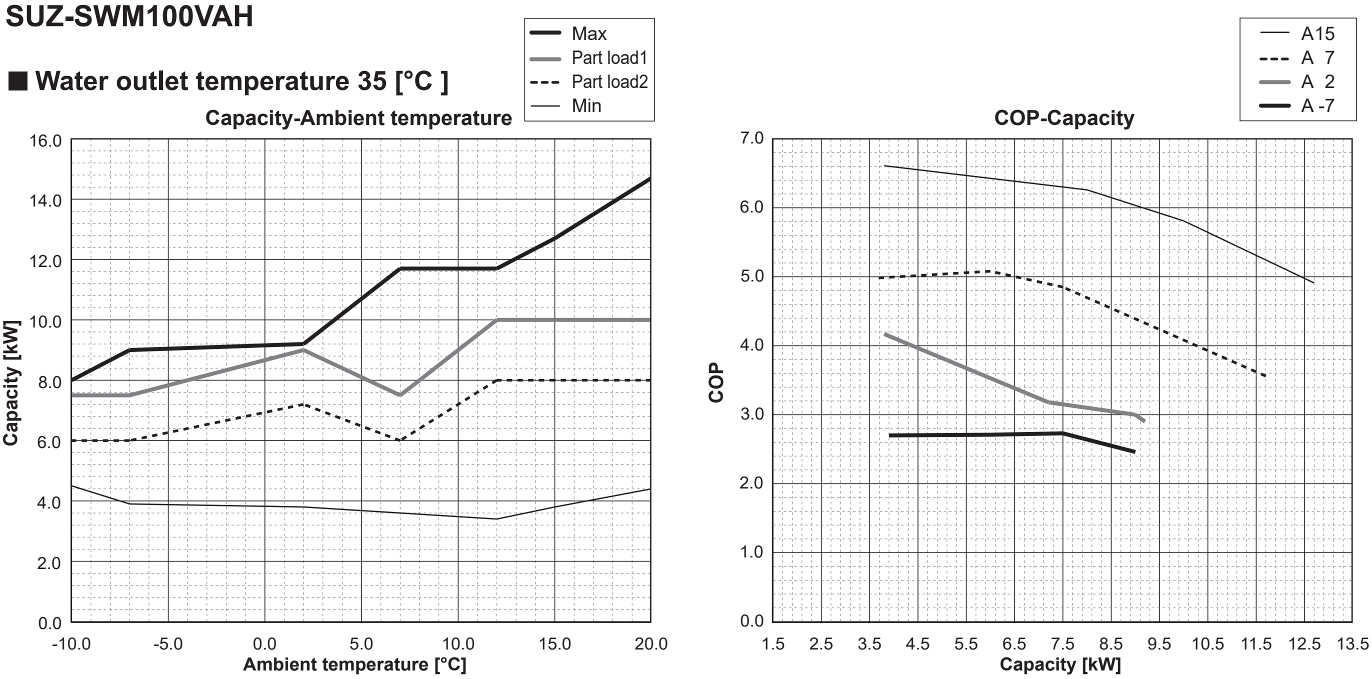
■ Water outlet temperature 55 [°C]


Capacity-Ambient temperature

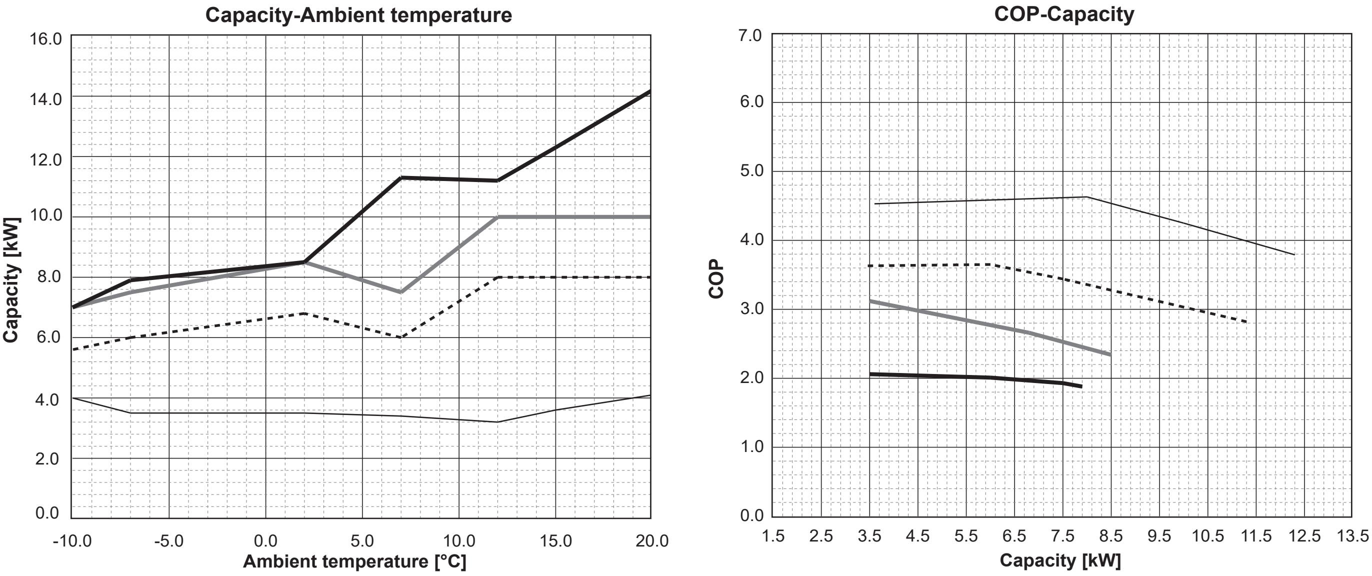

COP-Capacity

SUZ-SWM100VAH

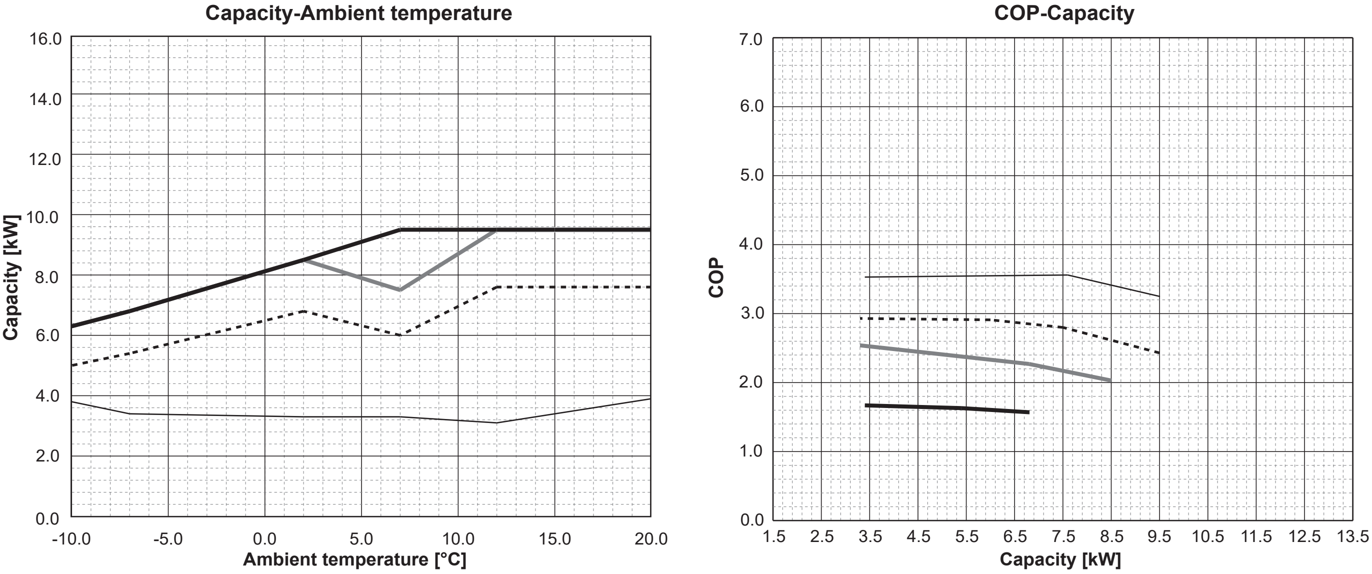
■ Water outlet temperature 35 [°C]



■ Water outlet temperature 45 [°C]

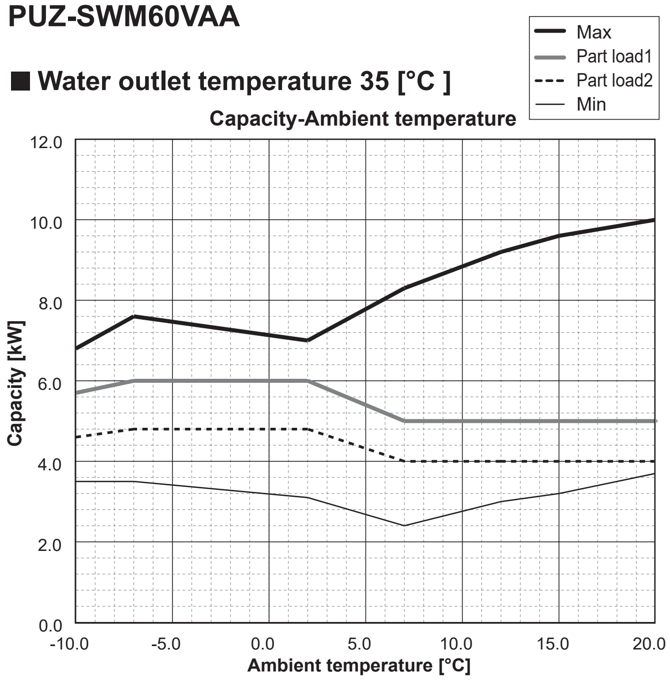


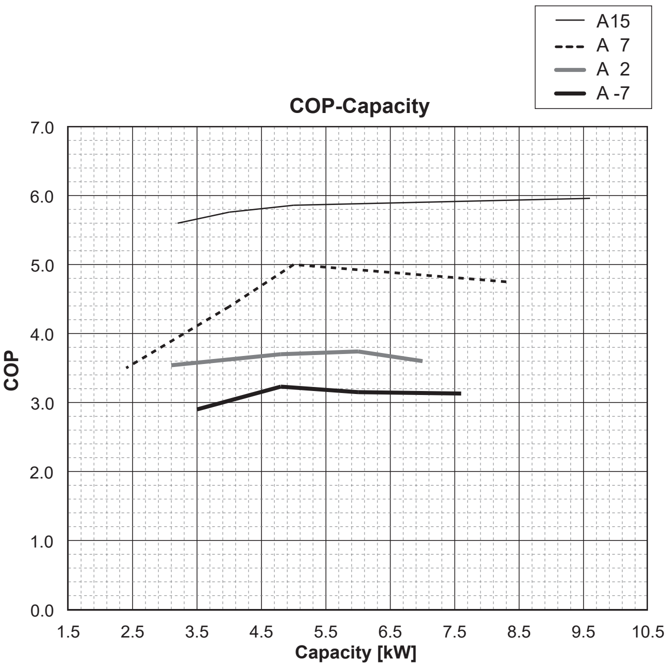
■ Water outlet temperature 55 [°C]



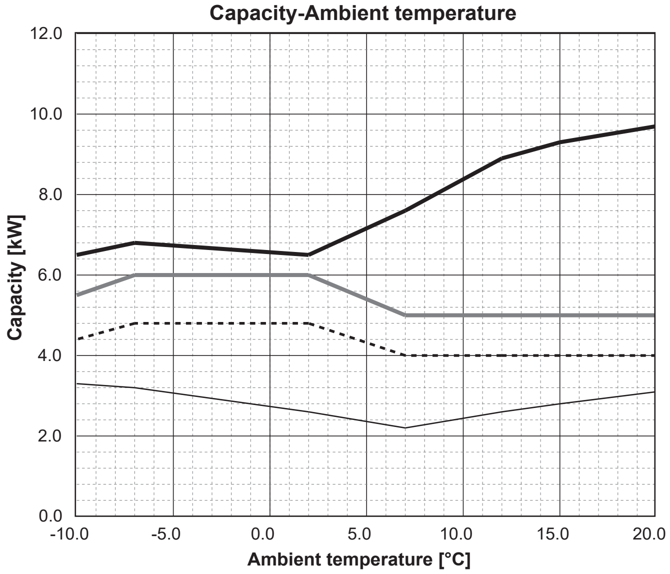
PUZ-SWM60VAA

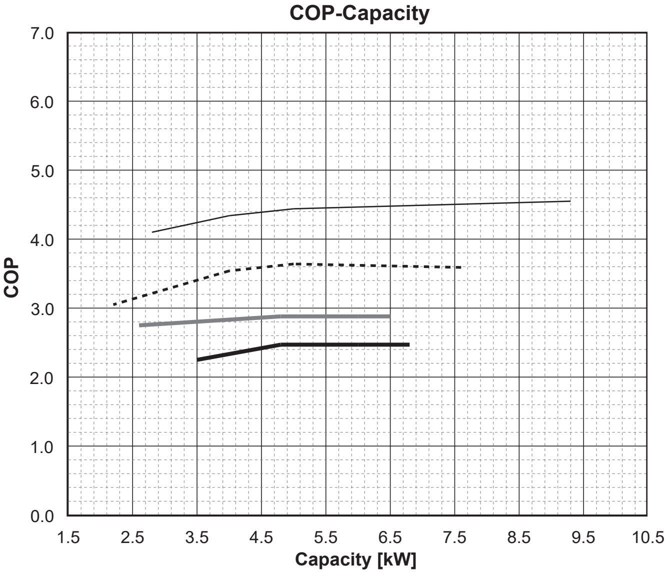
■ Water outlet temperature 35 [°C]


Capacity-Ambient temperature

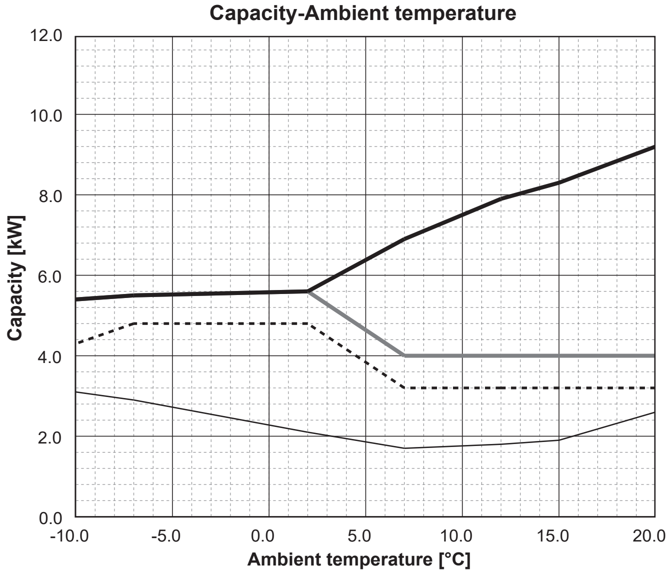

COP-Capacity

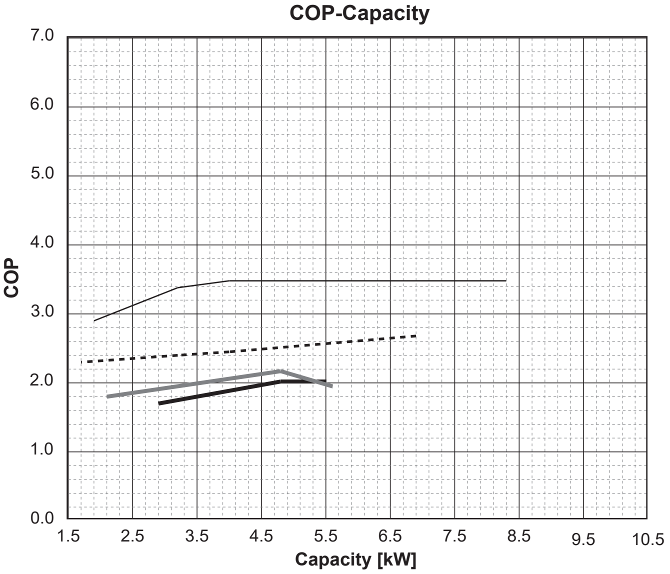
■ Water outlet temperature 45 [°C]


Capacity-Ambient temperature


COP-Capacity

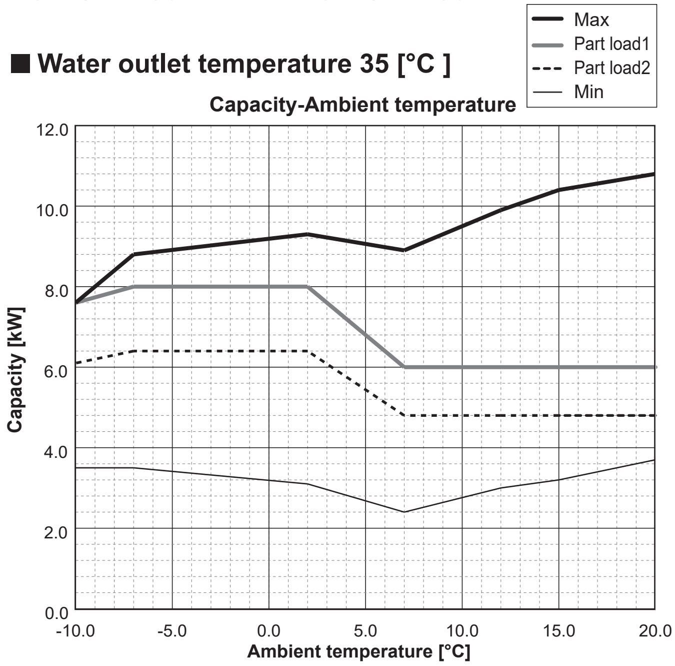
■ Water outlet temperature 55 [°C]

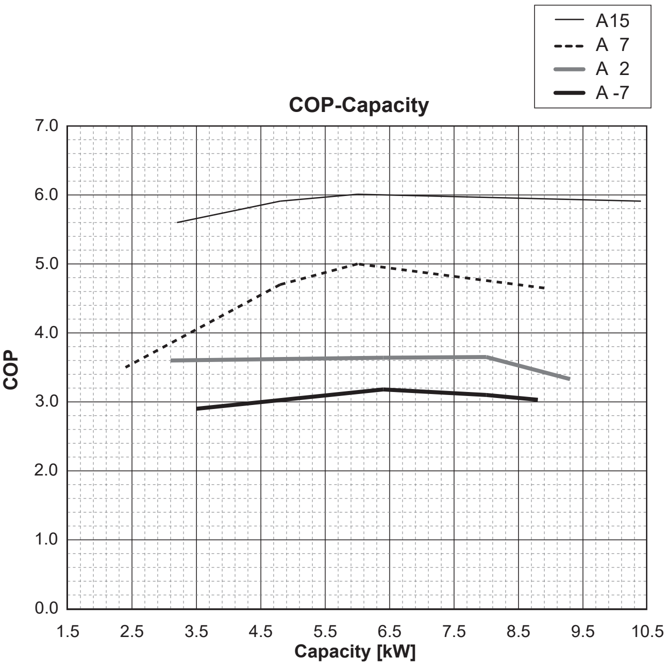

Capacity-Ambient temperature


COP-Capacity

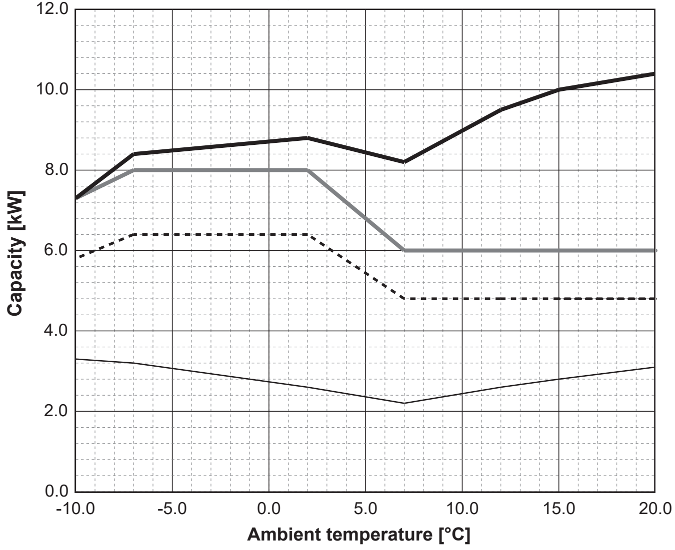
PUZ-SWM80VAA PUZ-SWM80YAA

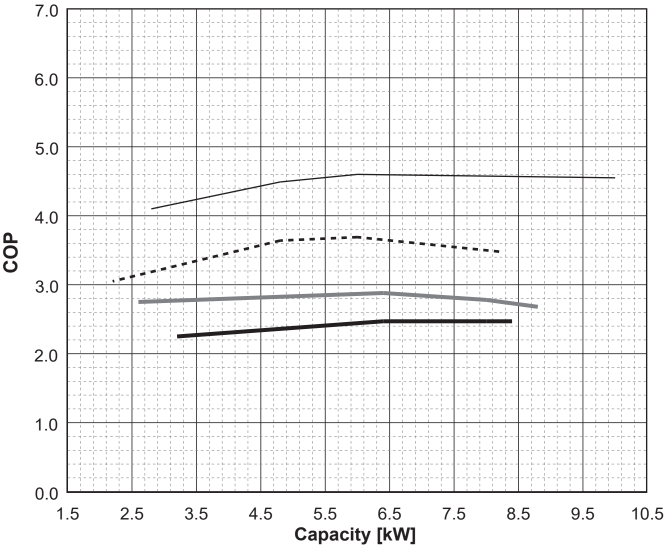
■ Water outlet temperature 35 [°C]


Capacity-Ambient temperature

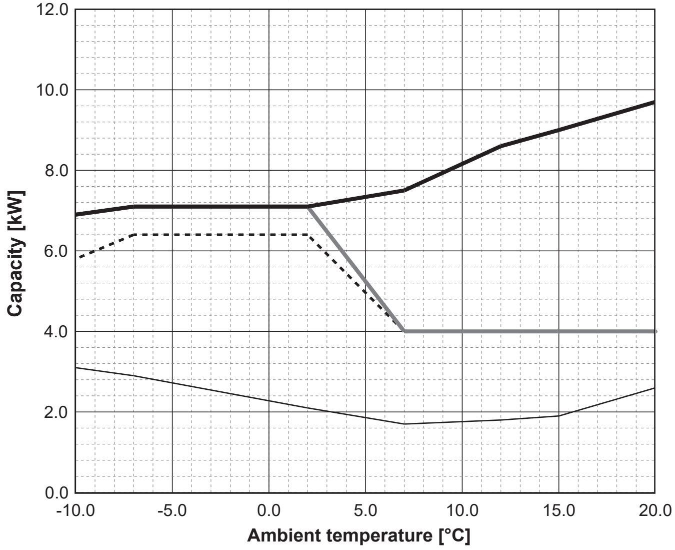

COP-Capacity

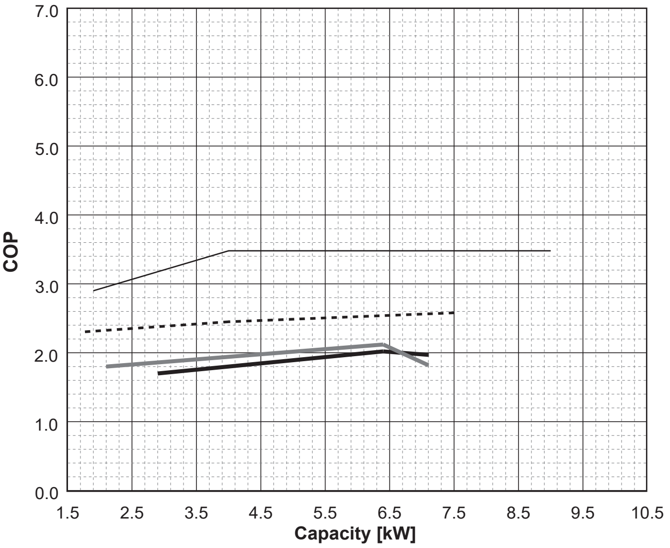
■ Water outlet temperature 45 [°C]


Capacity-Ambient temperature


COP-Capacity

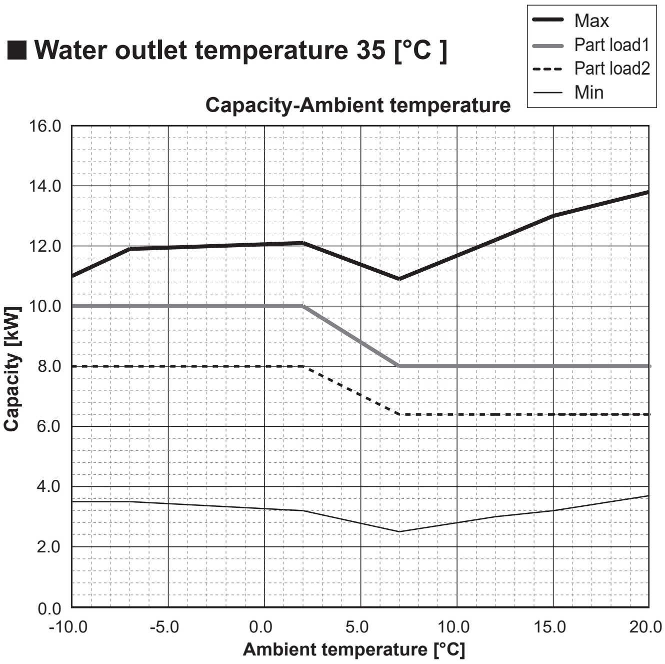
■ Water outlet temperature 55 [°C]

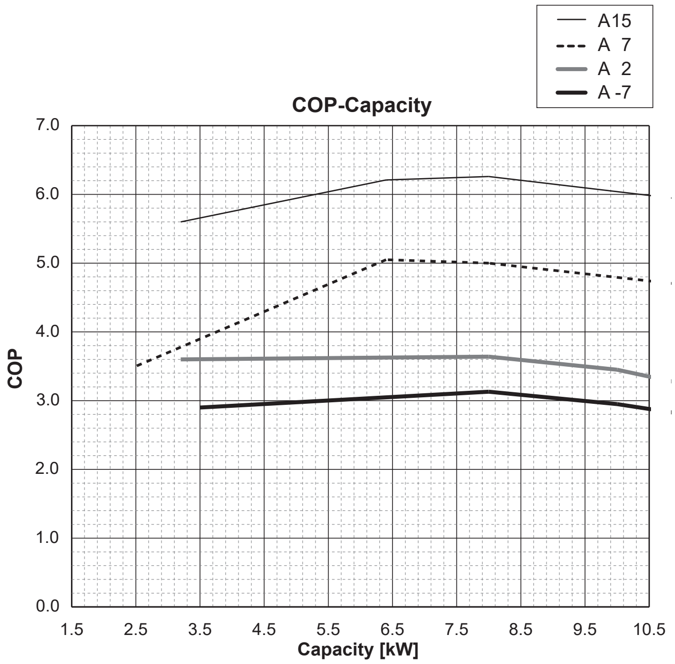

Capacity-Ambient temperature


COP-Capacity

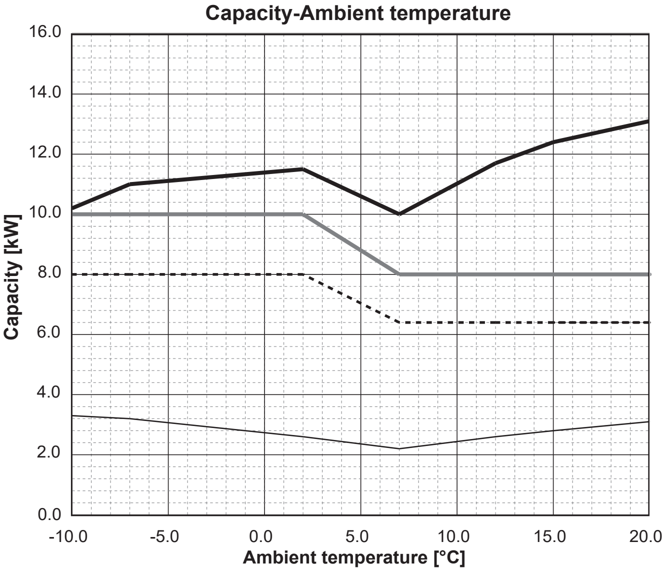
PUZ-SWM100VAA PUZ-SWM100YAA

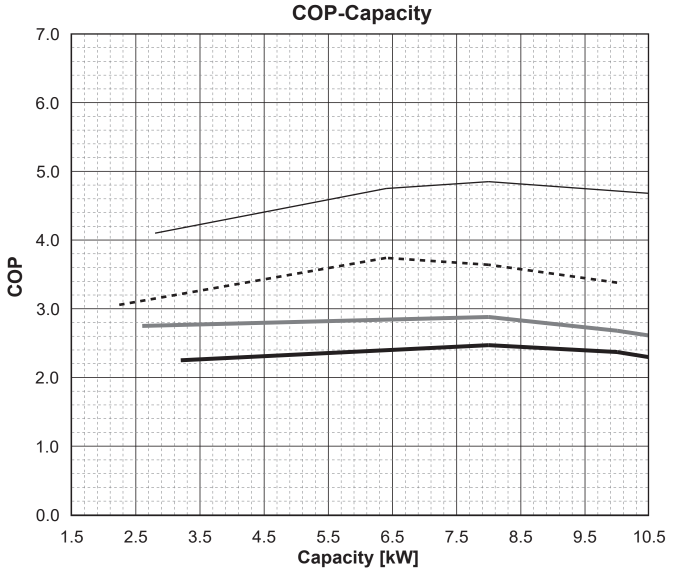
■ Water outlet temperature 35 [°C]


Capacity-Ambient temperature

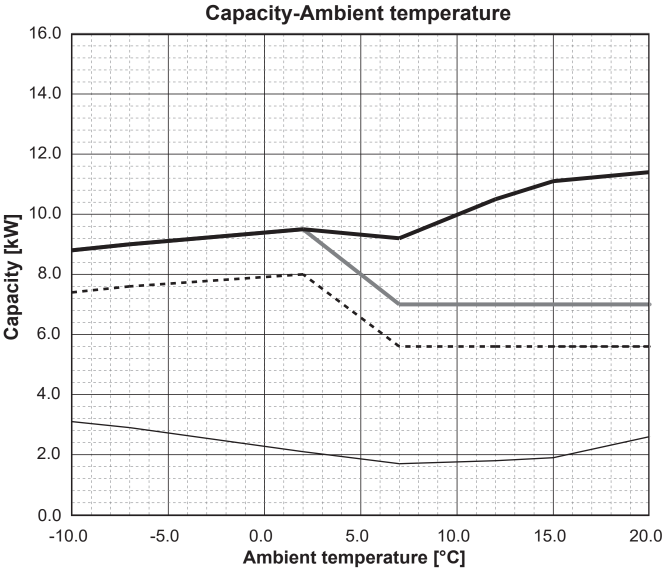

COP-Capacity

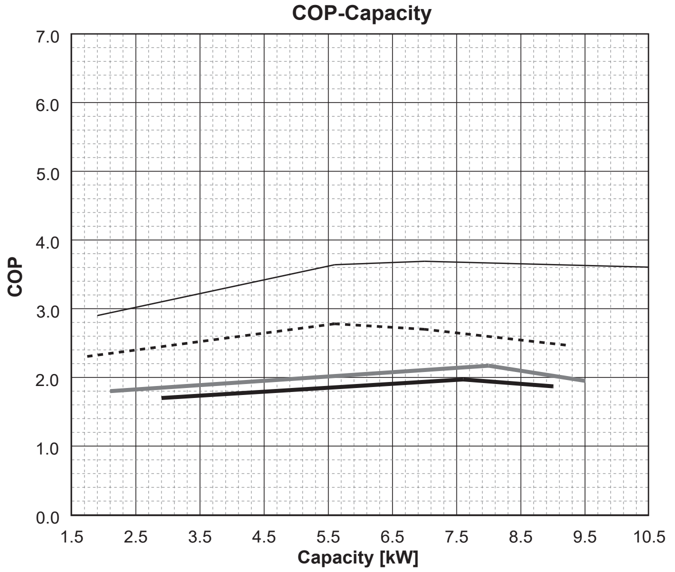
■ Water outlet temperature 45 [°C]


Capacity-Ambient temperature


COP-Capacity

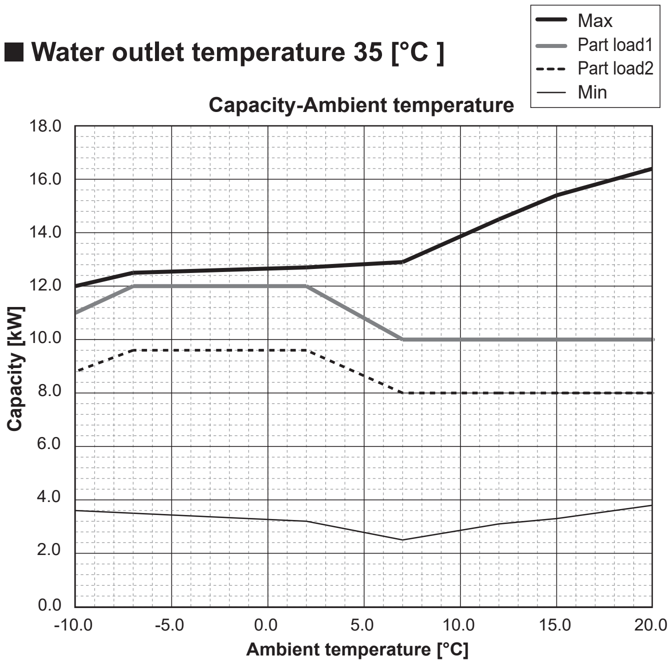
■ Water outlet temperature 55 [°C]

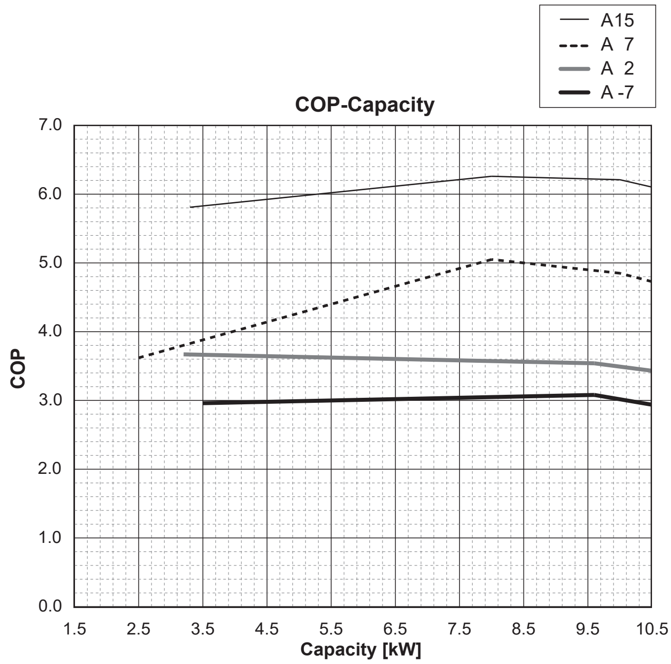

Capacity-Ambient temperature


COP-Capacity

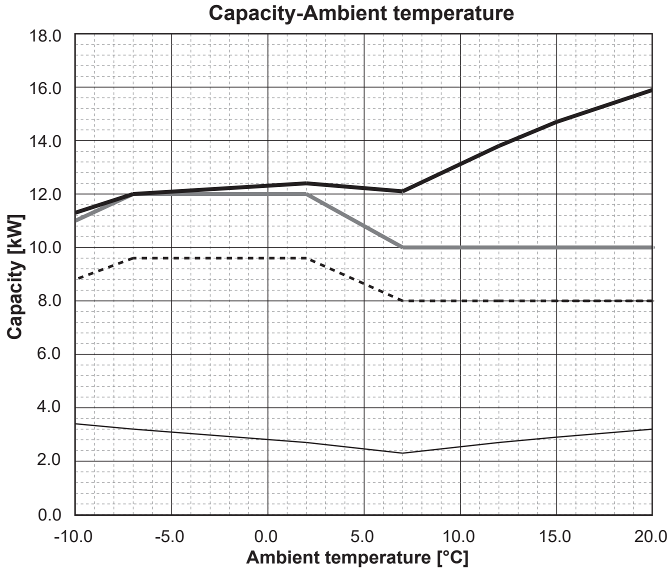
PUZ-SWM120VAA PUZ-SWM120YAA

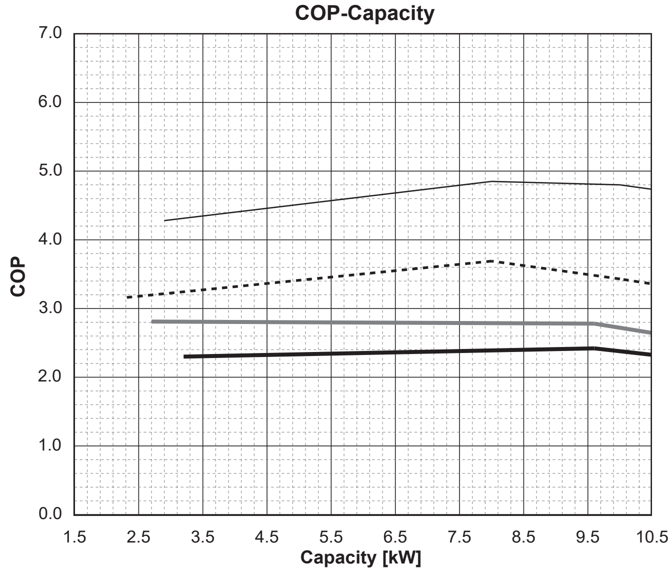
■ Water outlet temperature 35 [°C]



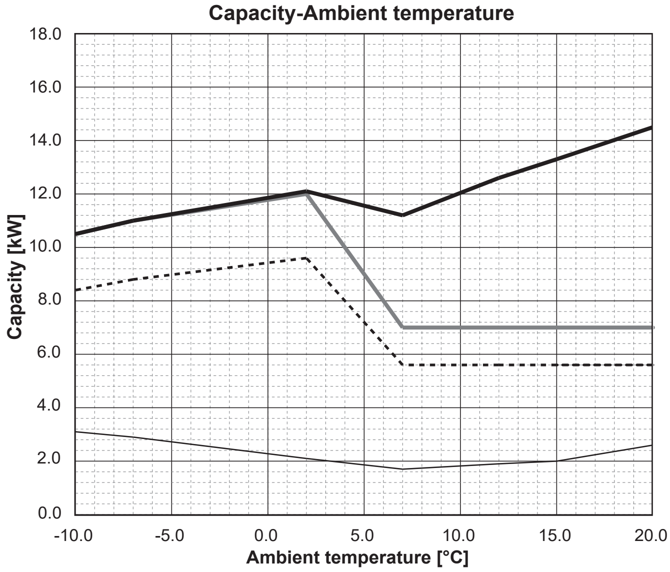


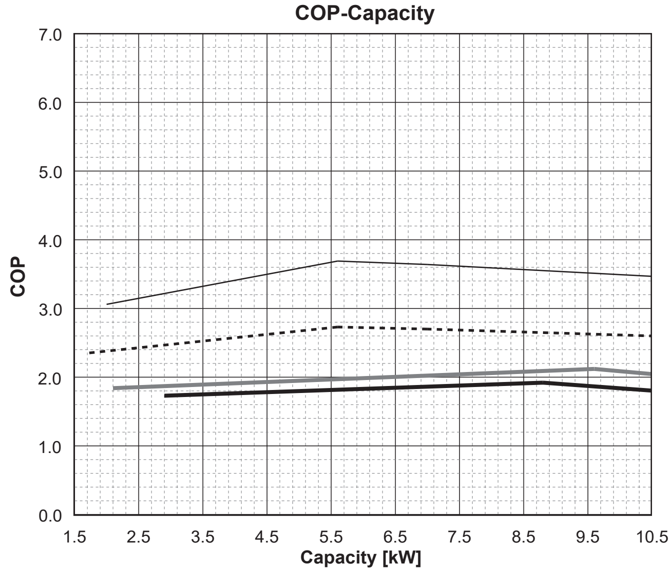
■ Water outlet temperature 45 [°C]





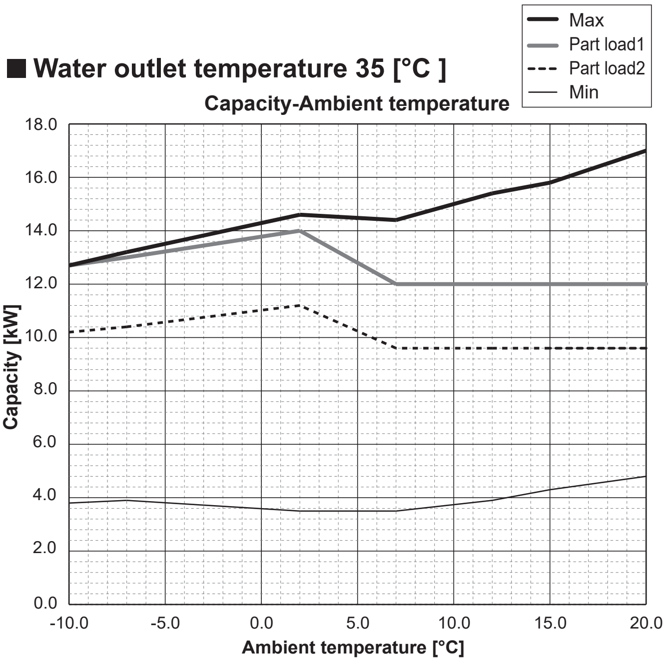
■ Water outlet temperature 55 [°C]

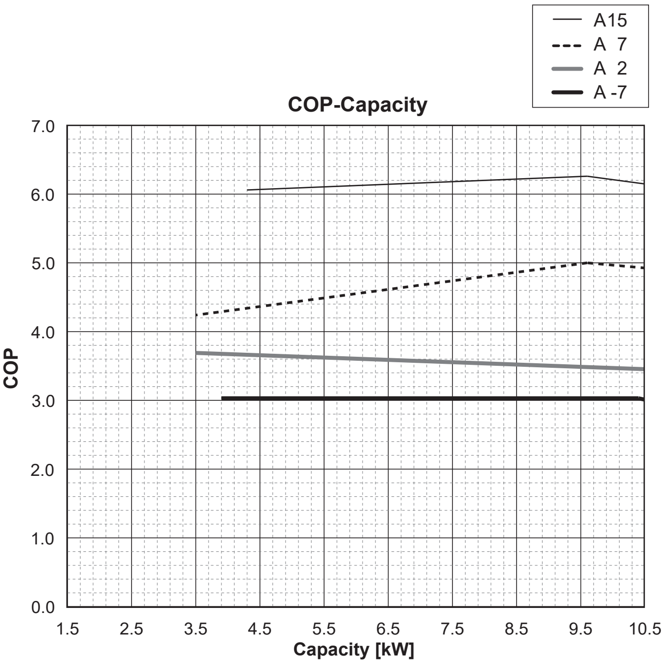




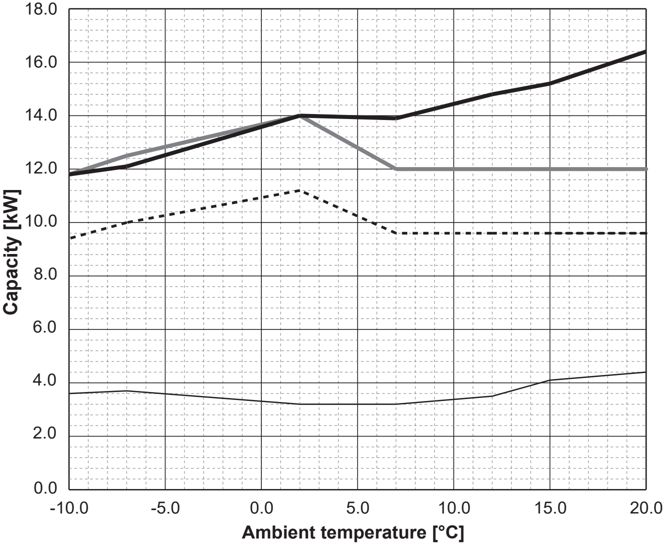
PUZ-SWM140VAA PUZ-SWM140YAA

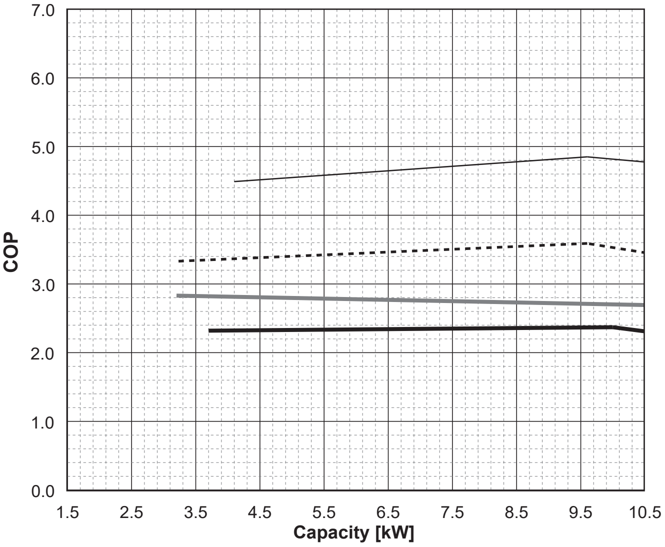
■ Water outlet temperature 35 [°C]


Capacity-Ambient temperature

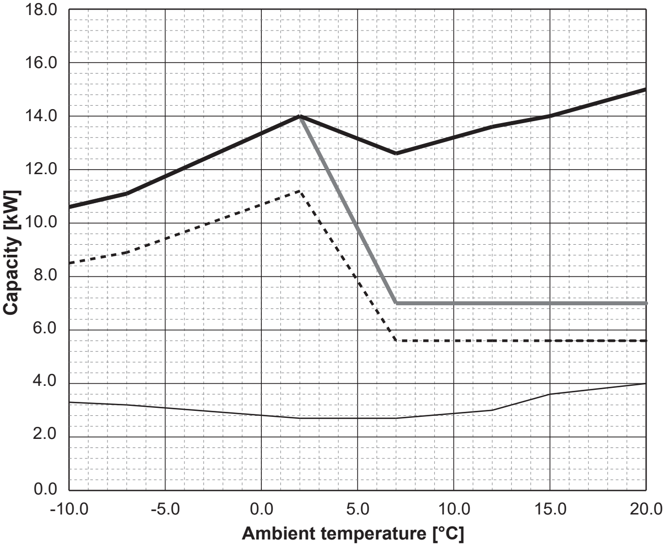

COP-Capacity

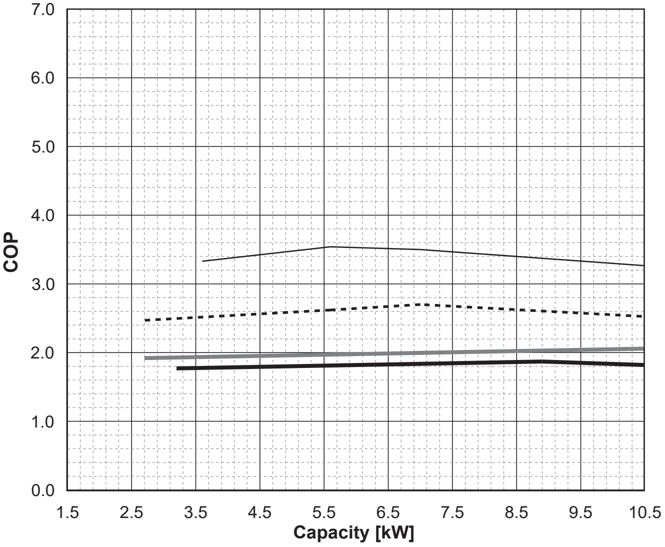
■ Water outlet temperature 45 [°C]


Capacity-Ambient temperature


COP-Capacity

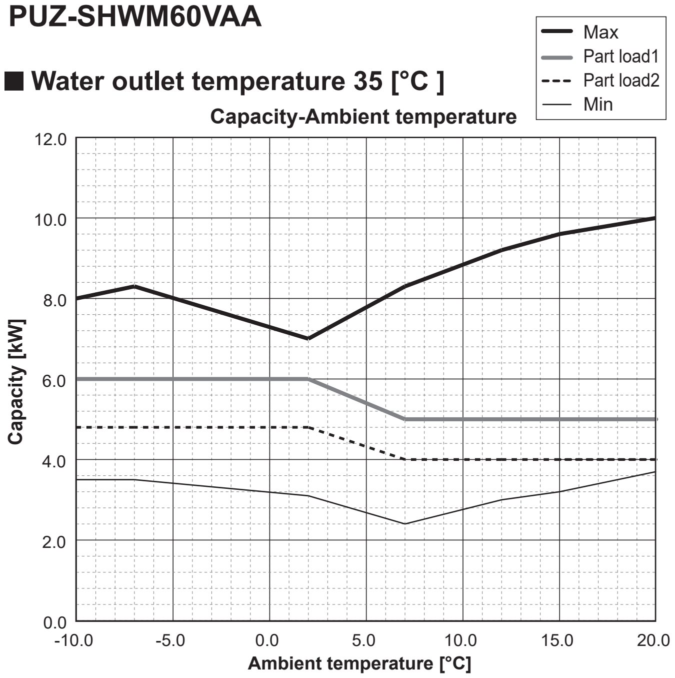
■ Water outlet temperature 55 [°C]

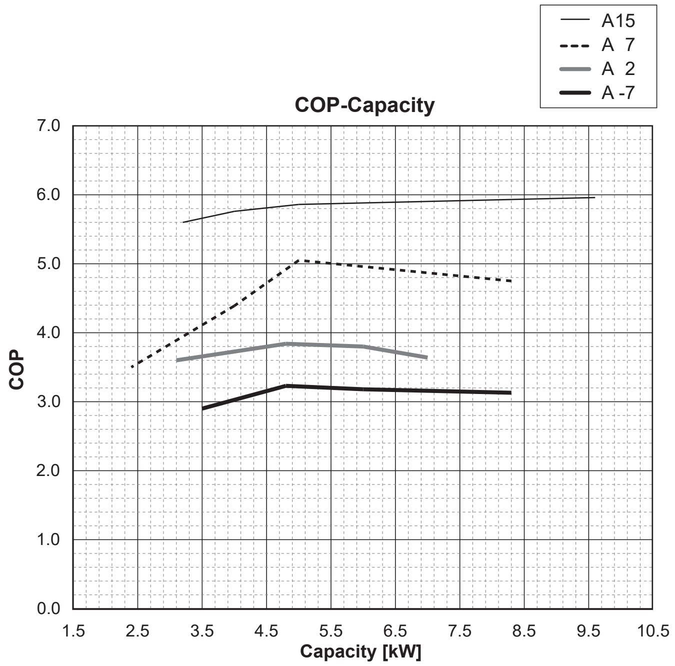

Capacity-Ambient temperature


COP-Capacity

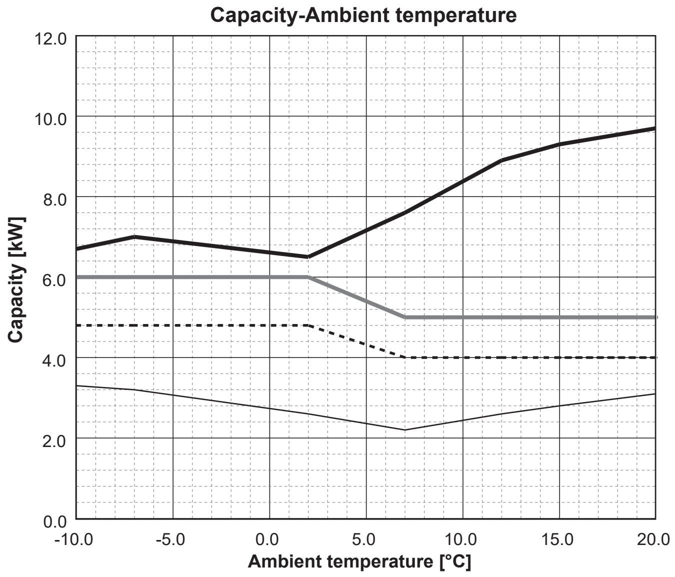
PUZ-SHWM60VAA

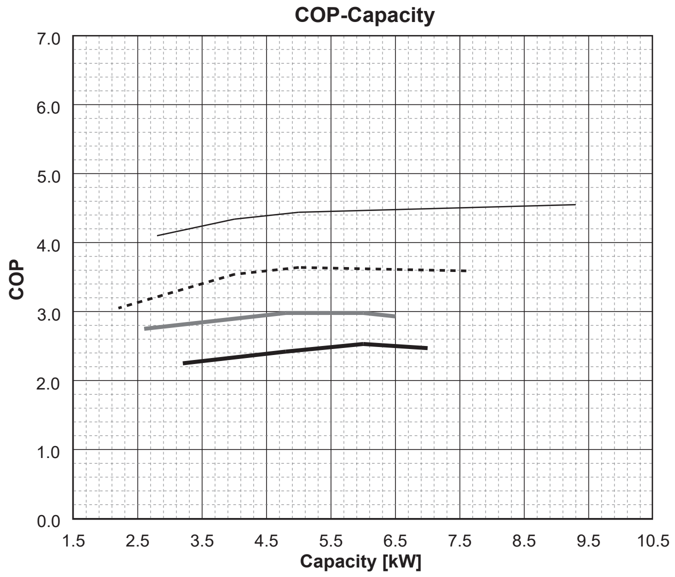
■ Water outlet temperature 35 [°C]


Capacity-Ambient temperature

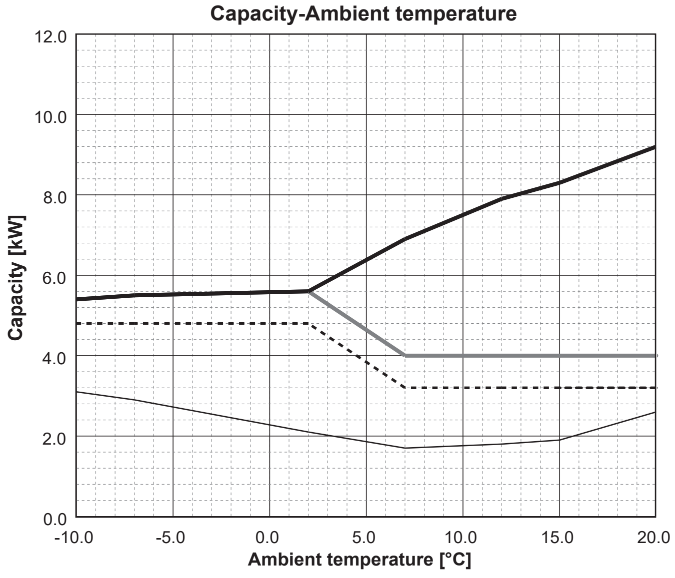

COP-Capacity

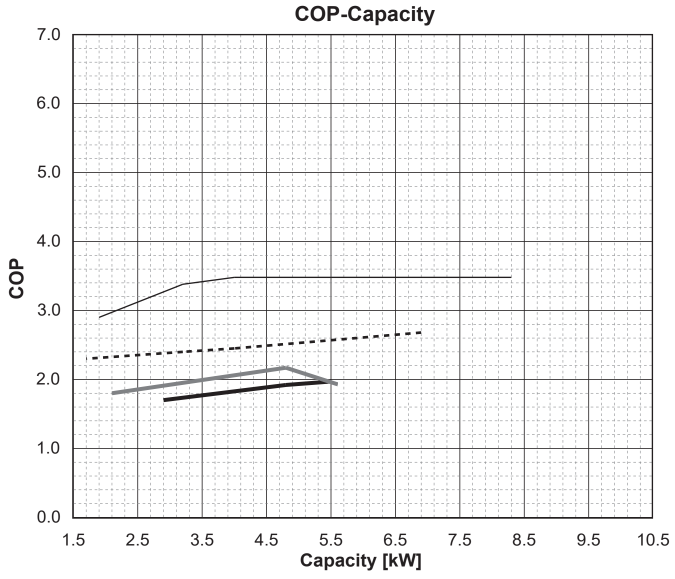
■ Water outlet temperature 45 [°C]


Capacity-Ambient temperature


COP-Capacity

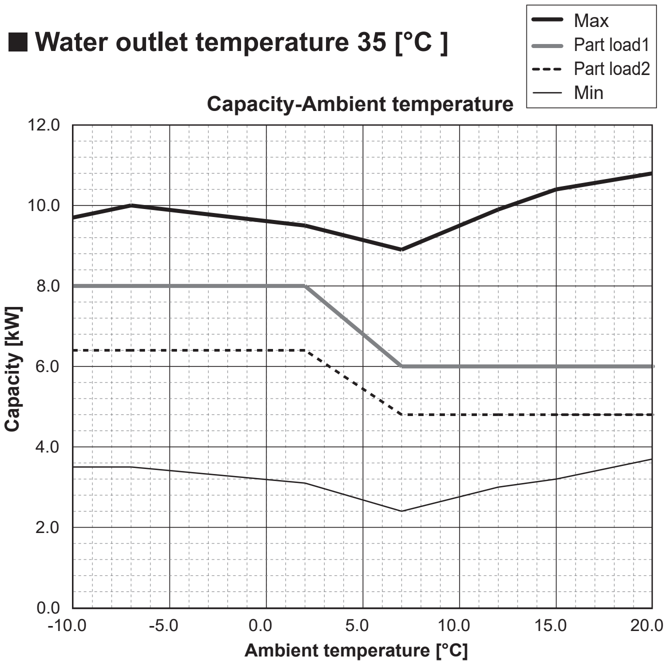
■ Water outlet temperature 55 [°C]

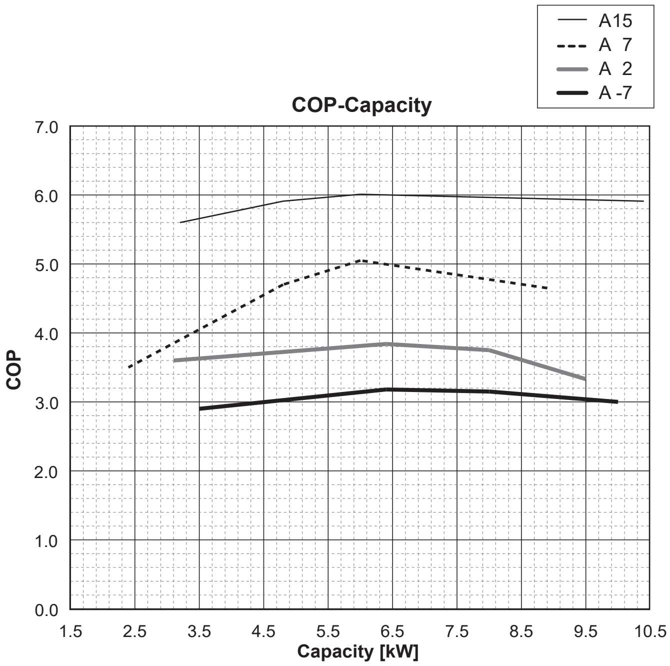

Capacity-Ambient temperature


COP-Capacity

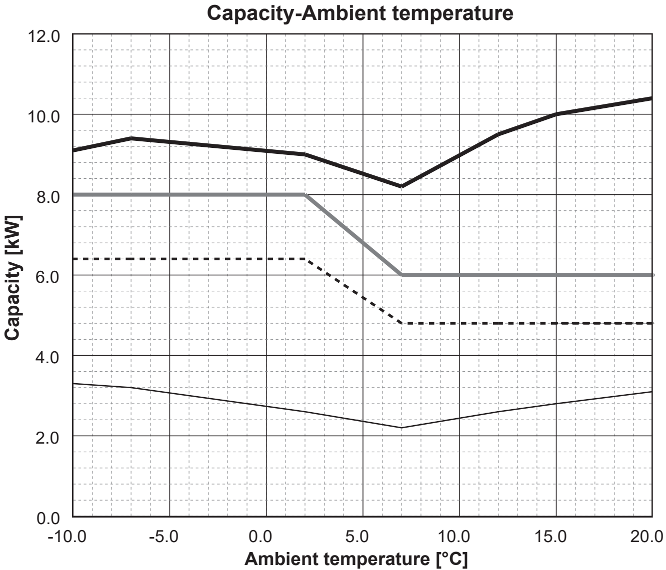
PUZ-SHWM80VAA PUZ-SHWM80YAA

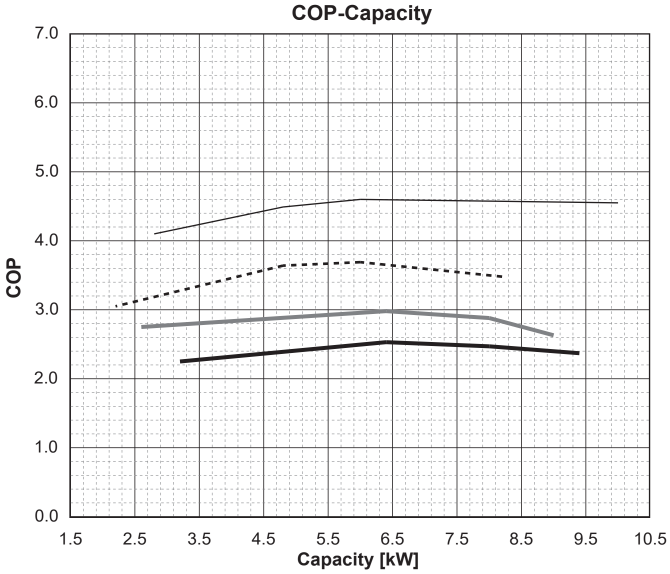
■ Water outlet temperature 35 [°C]



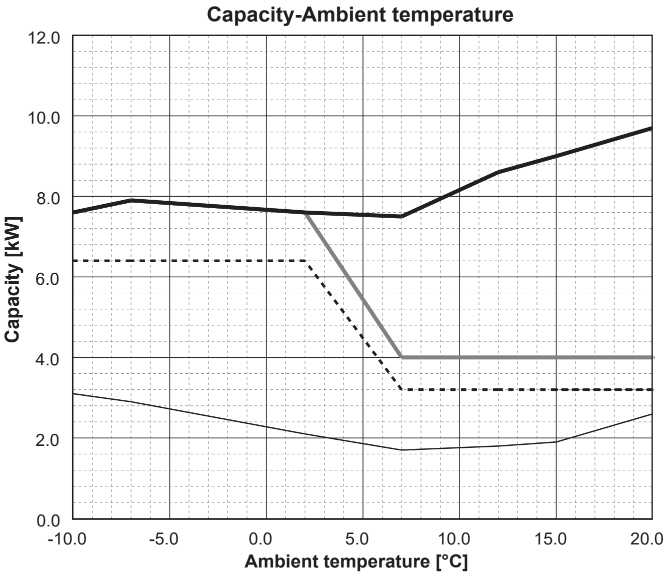


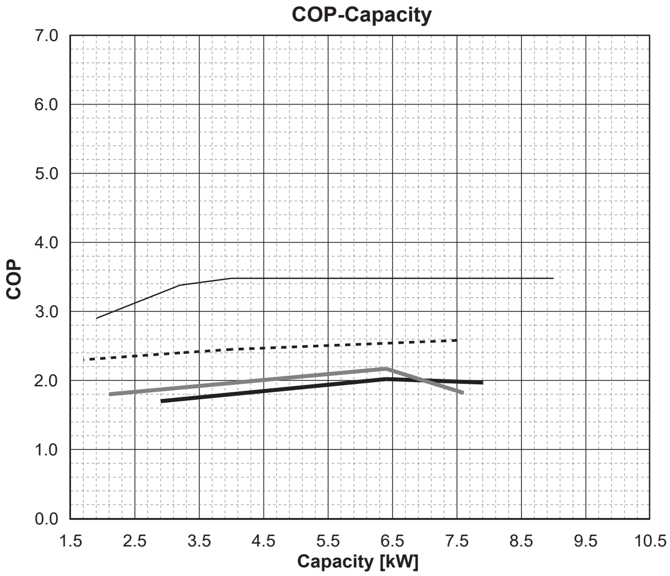
■ Water outlet temperature 45 [°C]





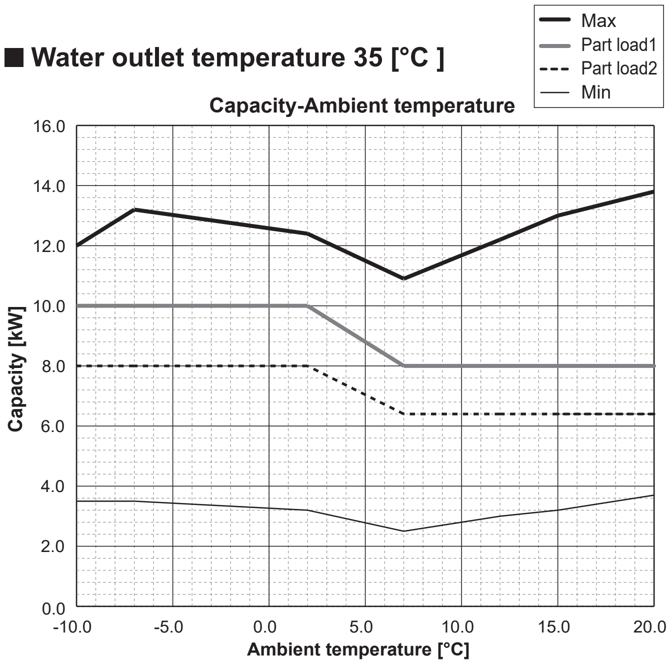
■ Water outlet temperature 55 [°C]

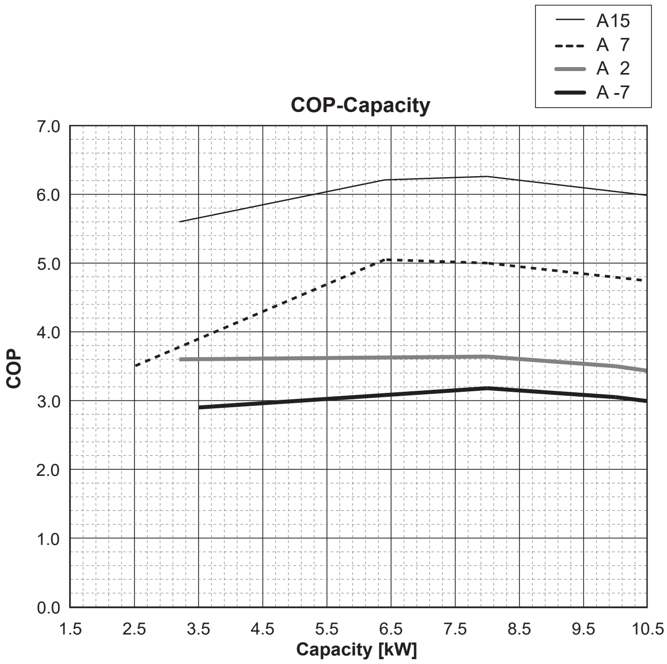




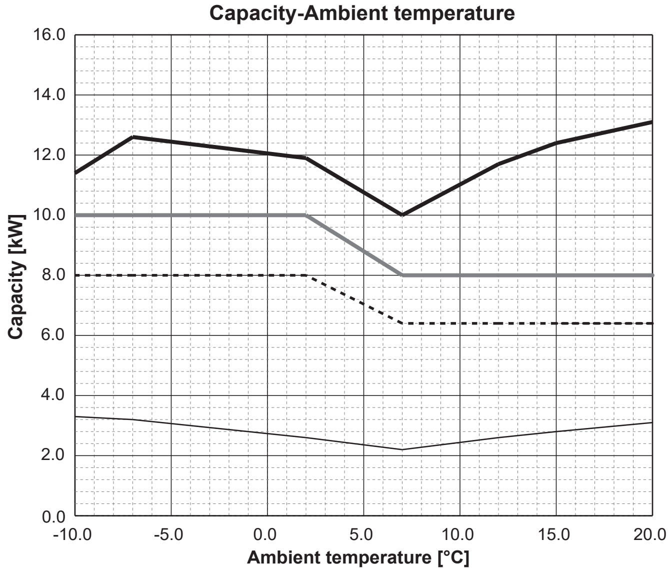
PUZ-SHWM100VAA PUZ-SHWM100YAA

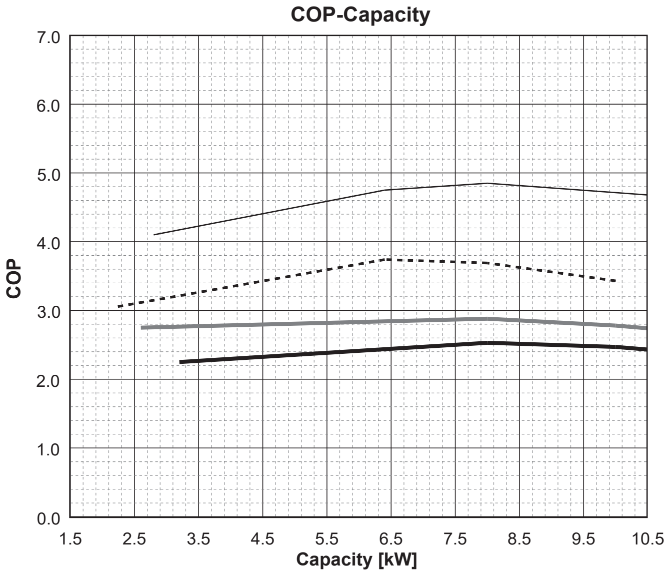
■ Water outlet temperature 35 [°C]


Capacity-Ambient temperature

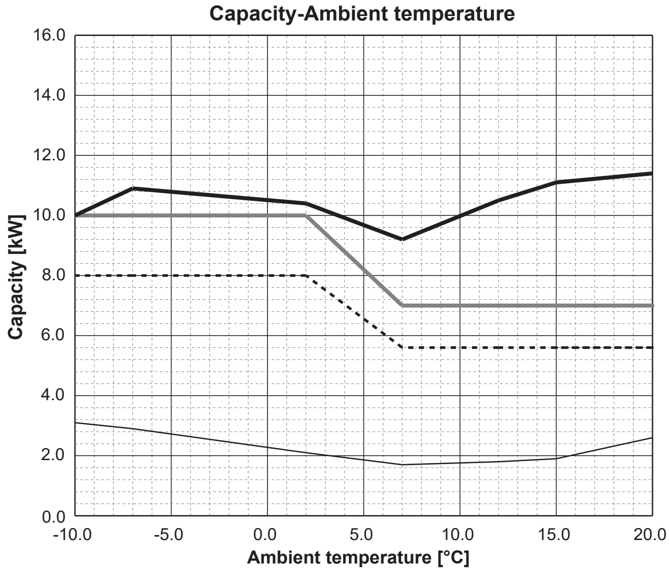

COP-Capacity

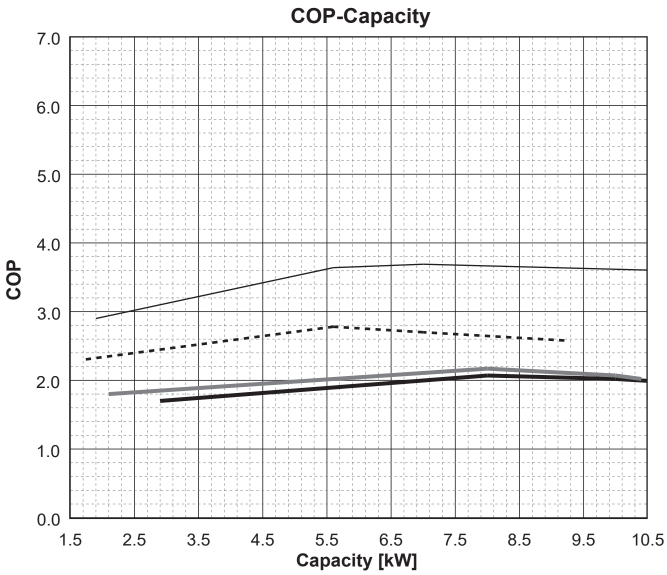
■ Water outlet temperature 45 [°C]


Capacity-Ambient temperature


COP-Capacity

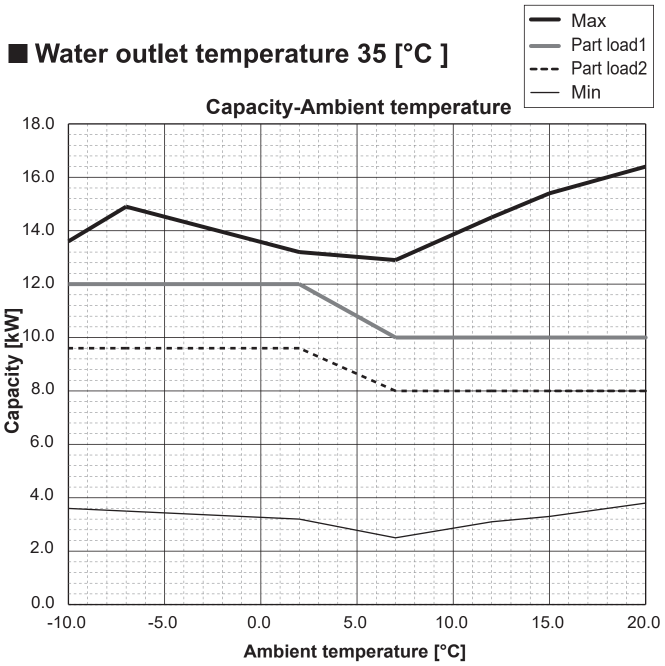
■ Water outlet temperature 55 [°C]

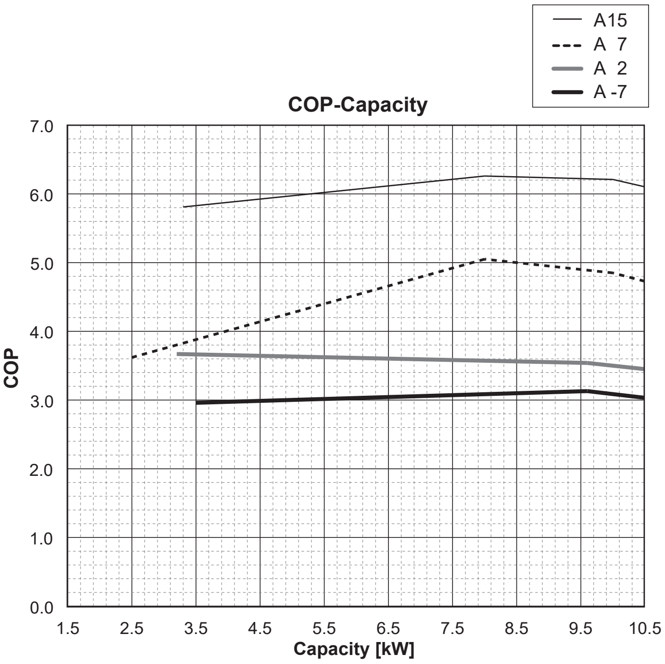

Capacity-Ambient temperature


COP-Capacity

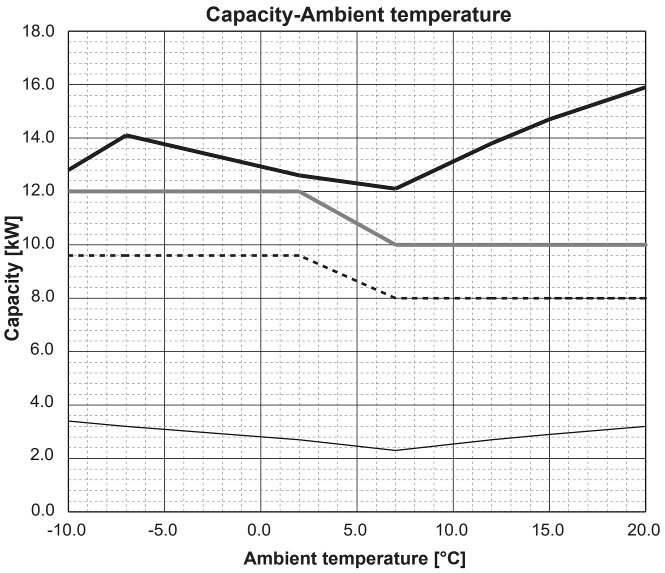
PUZ-SHWM120VAA PUZ-SHWM120YAA

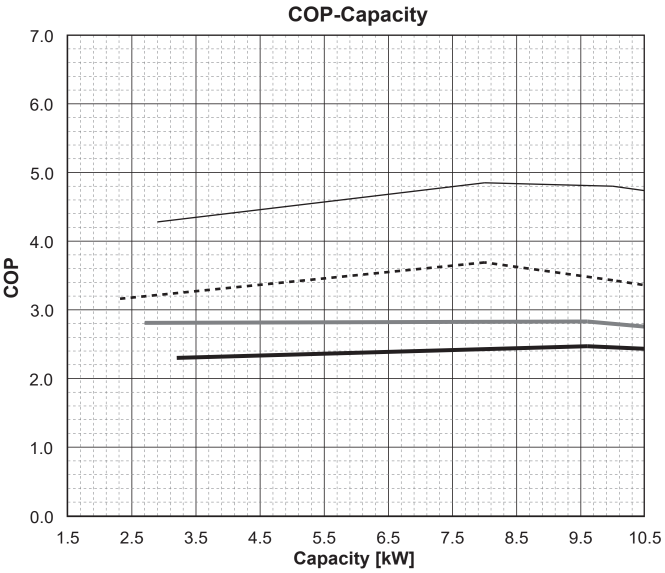
■ Water outlet temperature 35 [°C]



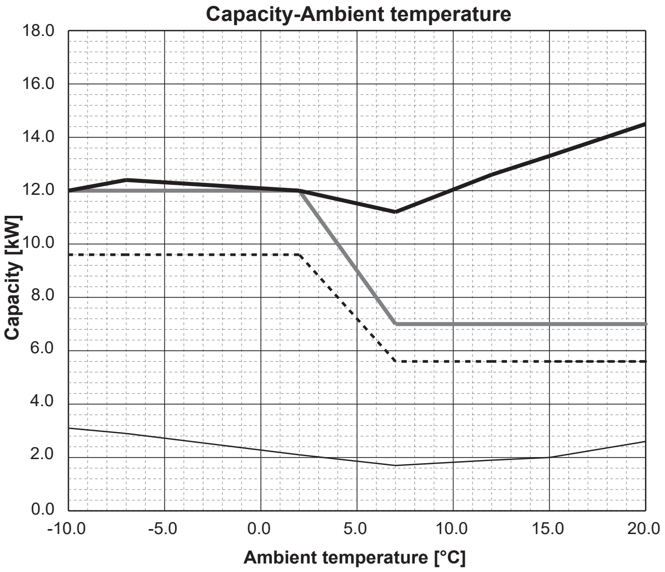


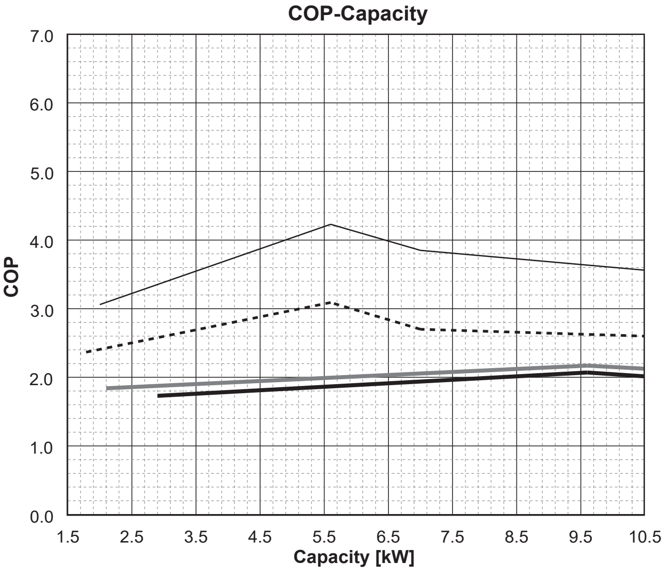
■ Water outlet temperature 45 [°C]





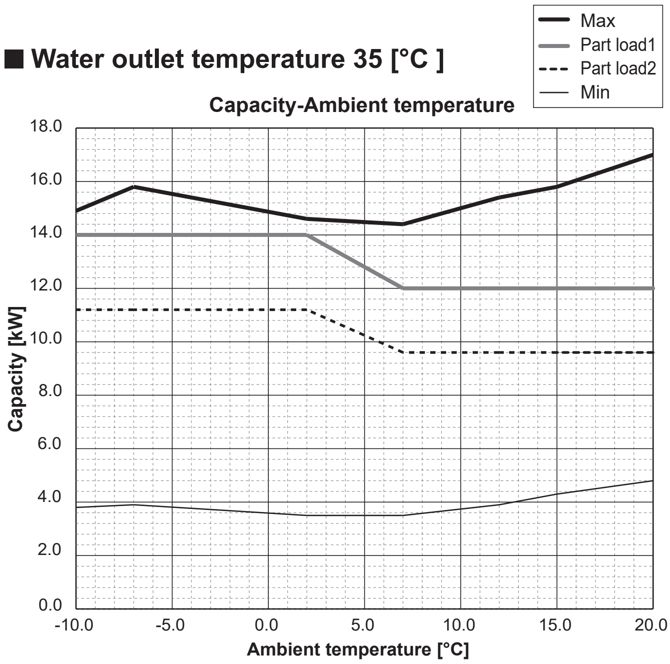
■ Water outlet temperature 55 [°C]

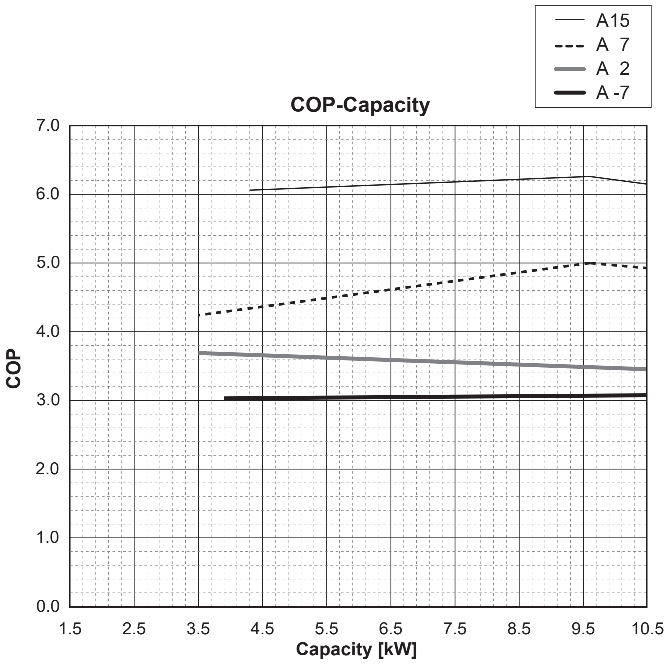




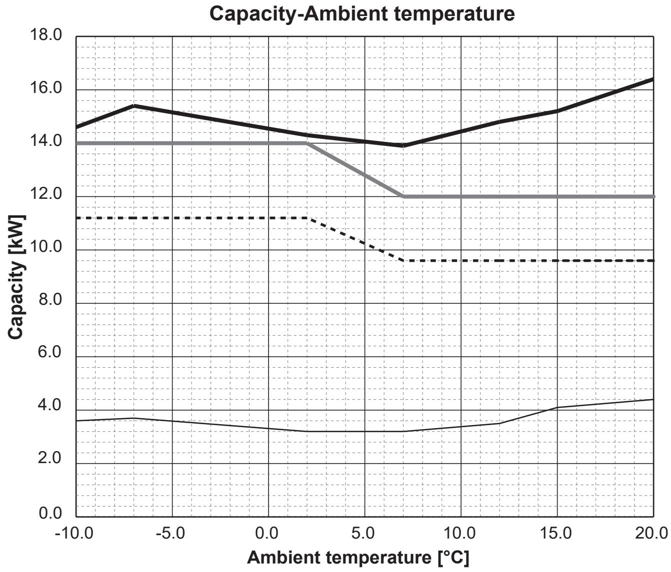
PUZ-SHWM140VAA PUZ-SHWM140YAA

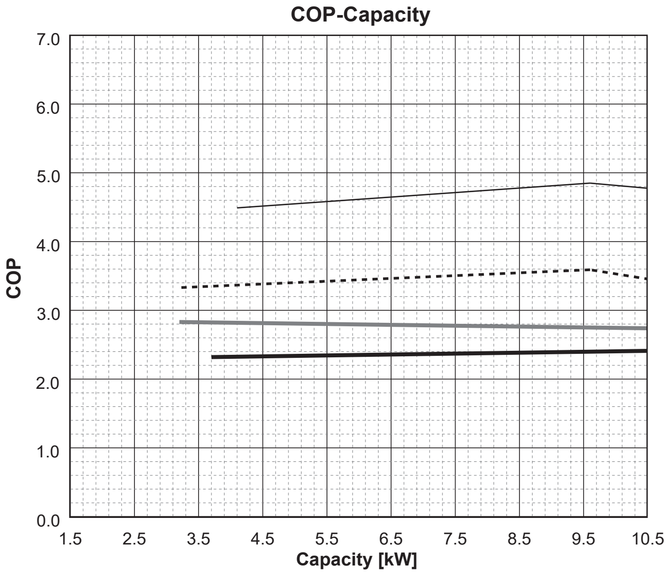
■ Water outlet temperature 35 [°C]


Capacity-Ambient temperature

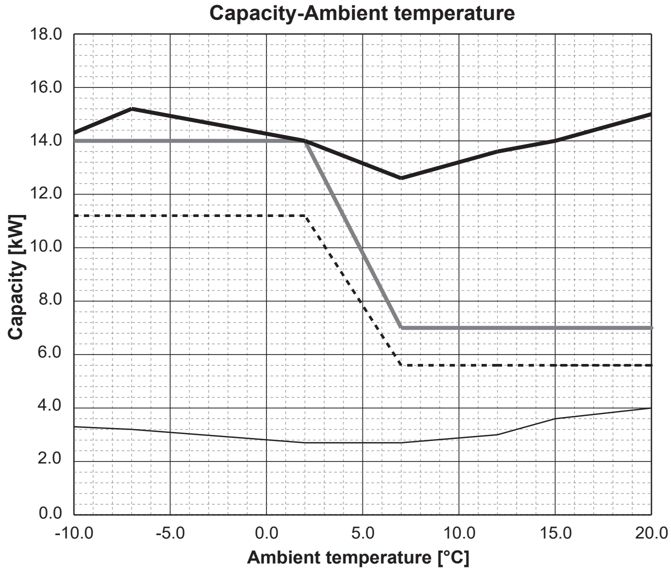

COP-Capacity

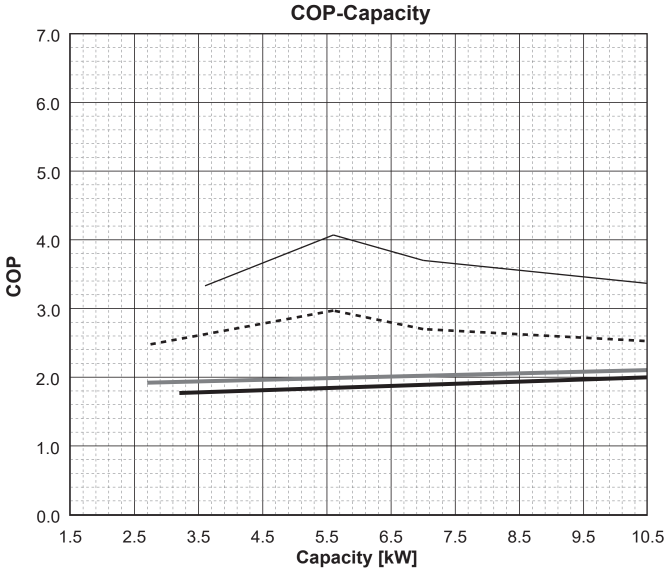
■ Water outlet temperature 45 [°C]


Capacity-Ambient temperature


COP-Capacity

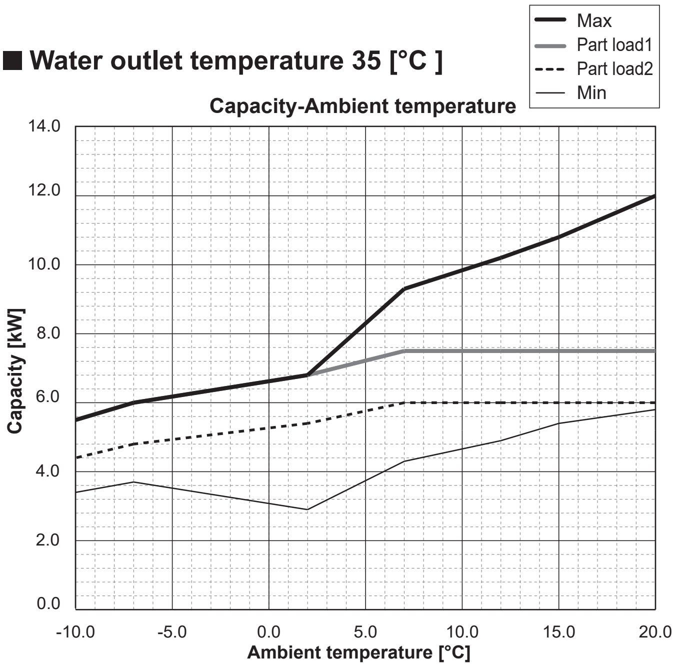
■ Water outlet temperature 55 [°C]

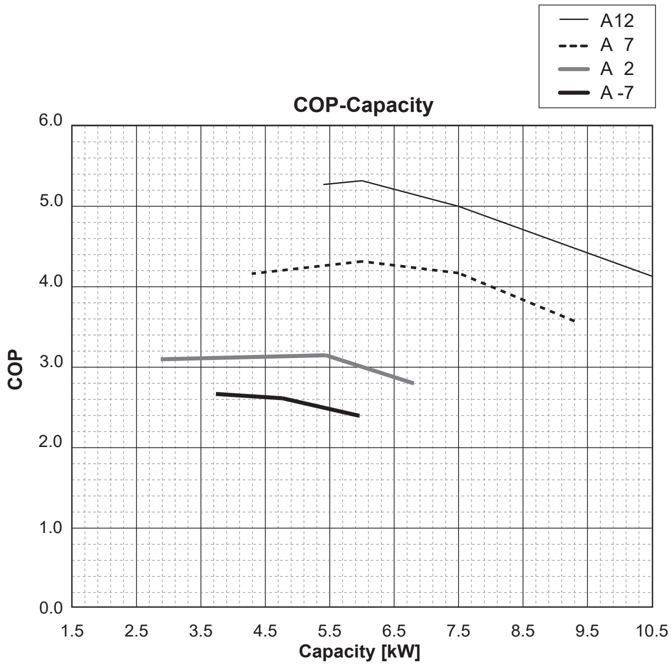

Capacity-Ambient temperature


COP-Capacity

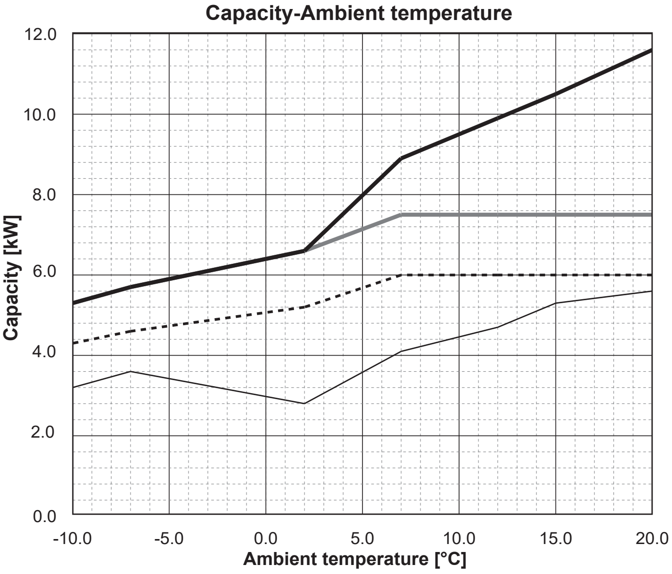
PXZ-4F75VG

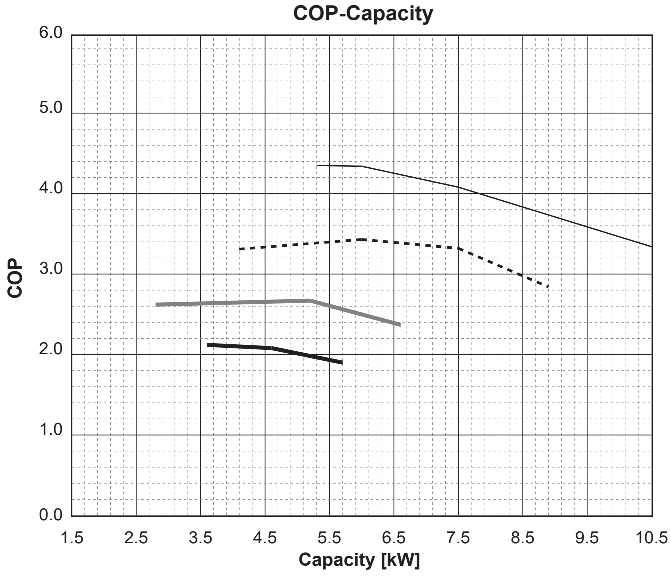
■ Water outlet temperature 35 [°C]


Capacity-Ambient temperature

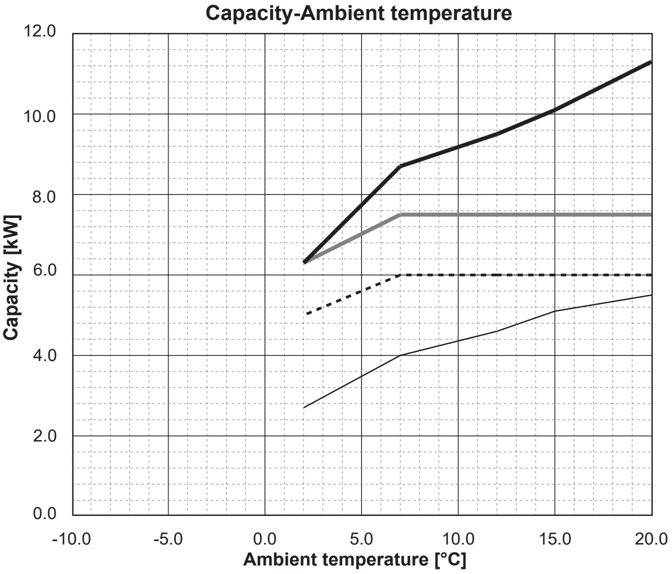

COP-Capacity

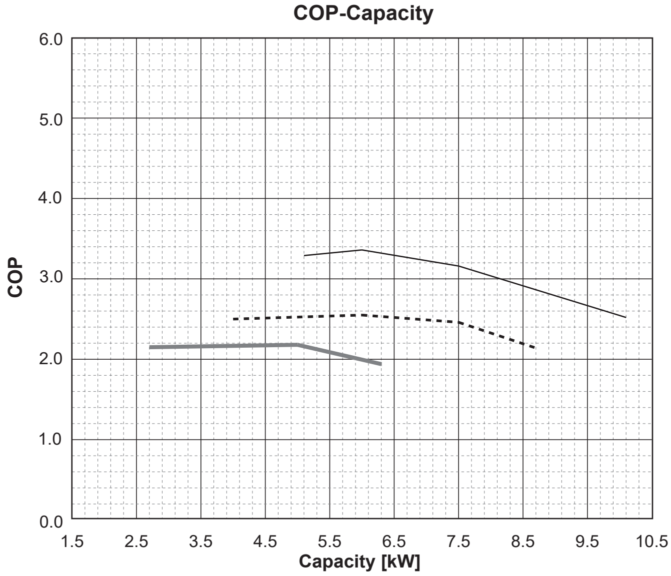
■ Water outlet temperature 45 [°C]


Capacity-Ambient temperature


COP-Capacity

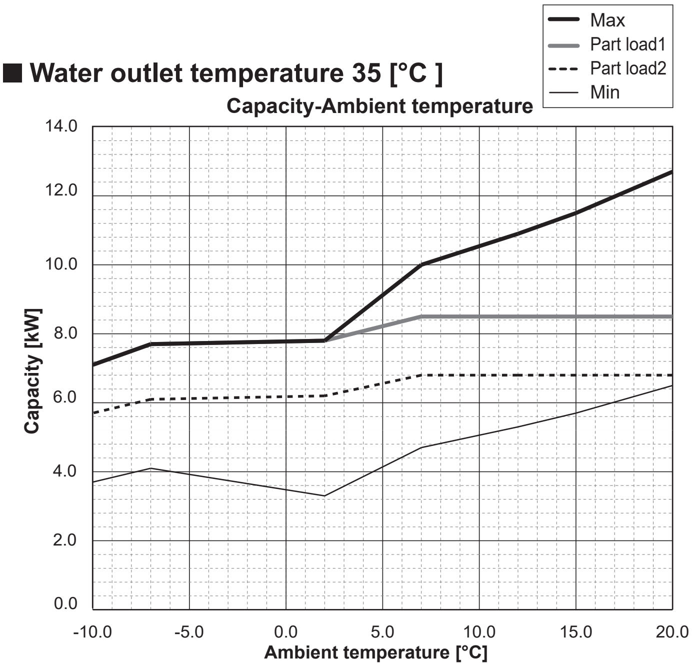
■ Water outlet temperature 55 [°C]


Capacity-Ambient temperature

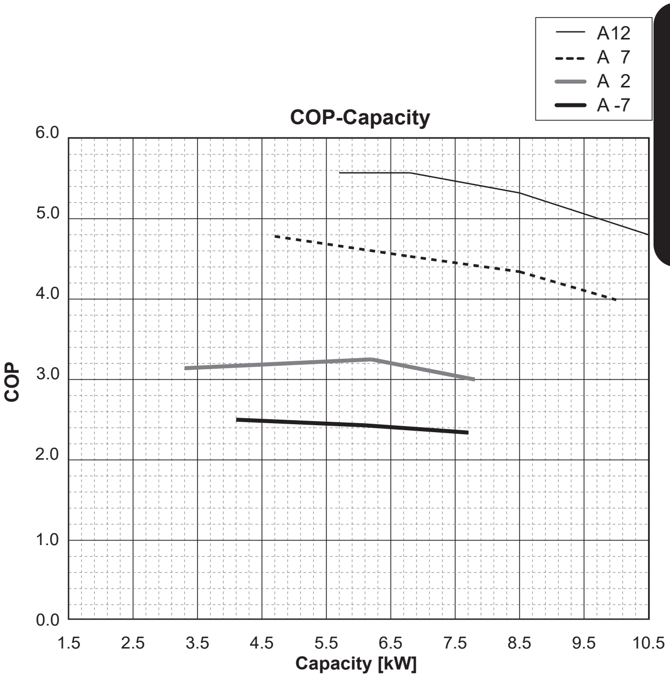

COP-Capacity

PXZ-5F85VG

■ Water outlet temperature 35 [°C]

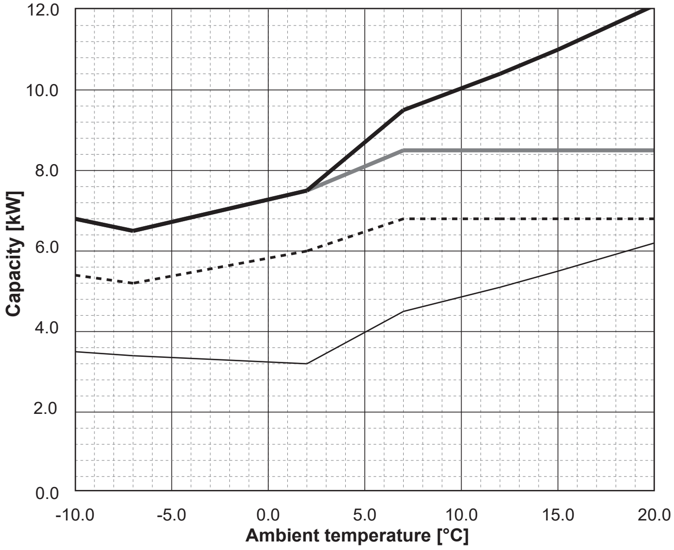


Capacity-Ambient temperature

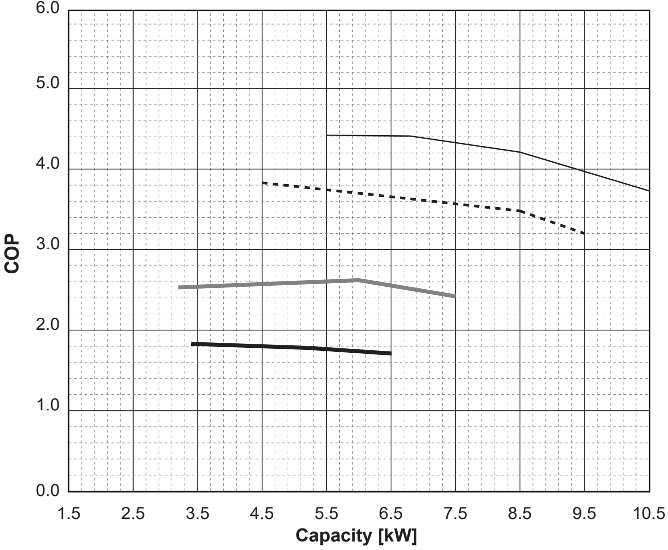


COP-Capacity

■ Water outlet temperature 45 [°C]

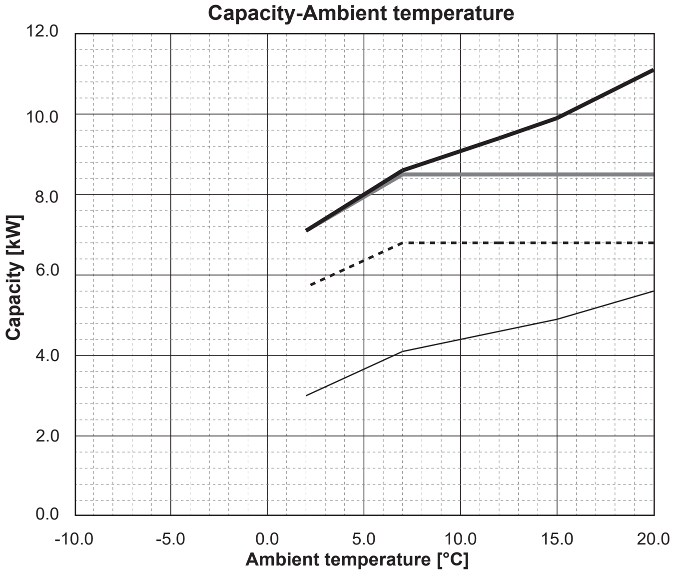


Capacity-Ambient temperature

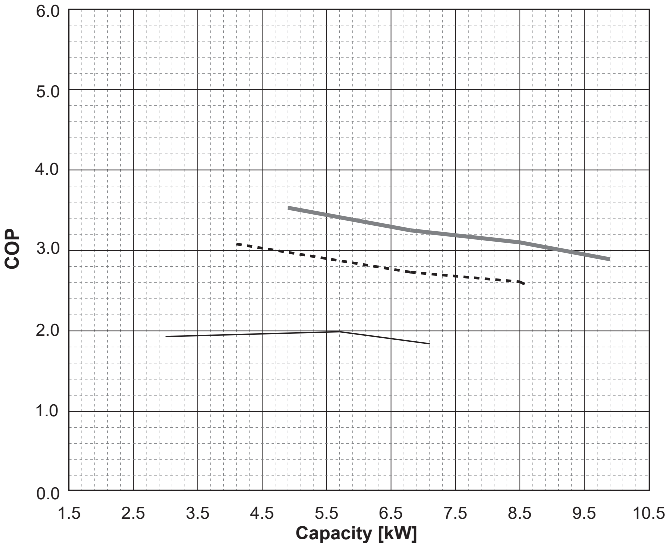


COP-Capacity

■ Water outlet temperature 55 [°C]



Capacity-Ambient temperature



COP-Capacity

5.4 Best COP

<Notes>
1) Max COP of each model at each condition are shown.
2) Gray highlighted data means integrated data including defrost operation.

Water outlet temperature[℃]		35		45		55	
Ambient temperature[℃]		Capacity	COP	Capacity	COP	Capacity	COP
PUZ-WZ50VAA(-BS)	-7	3.5	2.87	3.4	2.54	3.4	2.07
	2	3.8	3.27	3.7	2.55	4.0	2.11
		3.6	3.49	4.0	2.75	4.5	2.28
	7	4.0	5.10	4.5	4.00	4.7	3.23
PUZ-WZ60VAA(-BS)	-7	3.4	2.84	3.6	2.58	3.7	2.05
	2	3.8	3.52	3.8	2.62	4.6	2.09
		3.6	3.76	4.0	2.83	5.2	2.27
	7	3.1	5.05	4.2	3.97	5.0	3.15
PUZ-WZ80VAA(-BS)	-7	3.5	2.90	3.6	2.60	3.8	2.14
	2	6.6	3.35	6.5	2.81	5.0	2.40
		3.3	3.49	3.6	2.92	4.7	2.59
	7	3.9	4.85	4.5	3.88	4.8	3.04
PUZ-WM50VHA(-BS)	-7	2.7	3.25	3.7	2.42	3.5	1.90
	2	4.0	3.69	4.0	2.77	4.0	2.20
		2.5	3.42	2.5	3.47	2.3	2.78
	7	1.8	5.46	4.0	4.11	4.0	2.99
PUZ-WM60VAA(-BS)	-7	4.8	3.25	4.8	2.45	4.8	2.05
	2	4.8	4.00	4.8	3.20	4.8	2.50
		3.4	4.40	3.2	3.40	5.3	2.63
	7	2.9	5.45	4.8	4.00	4.8	3.00
PUZ-WM85VAA(-BS) PUZ-WM85YAA(-BS)	-7	6.8	2.60	6.8	2.30	6.4	1.90
	2	6.8	3.75	6.8	3.00	6.8	2.35
		3.4	4.15	7.5	3.15	7.5	2.47
	7	3.2	5.20	6.8	3.80	6.8	2.85
PUZ-WM112VAA(-BS) PUZ-WM112YAA(-BS)	-7	9.0	3.05	9.0	2.55	8.0	1.90
	2	9.0	3.75	9.0	2.80	8.0	2.10
		9.9	3.94	9.9	2.94	8.8	2.21
	7	9.0	4.80	9.0	3.90	8.0	3.00
PUZ-HWM140VHA(-BS) PUZ-HWM140YHA(-BS)	-7	11.2	3.00	11.2	2.50	11.2	2.10
	2	5.1	3.65	11.2	2.90	11.2	2.55
		6.0	3.69	12.3	3.05	12.3	2.68
	7	11.2	4.80	11.2	3.85	11.2	2.90
SUZ-SWM30VA	-7	2.4	3.18	2.4	2.57	2.9	2.16
	2	2.4	3.97	2.4	3.07	2.4	2.50
		2.0	4.02	1.9	3.12	1.9	2.57
	7	3.0	5.11	2.4	3.71	2.9	2.94
SUZ-SHWM30VAH	-7	3.0	2.95	3.0	2.42	2.9	2.07
	2	3.0	3.67	2.4	2.85	4.0	2.38
		2.0	4.02	1.9	3.12	1.9	2.57
	7	3.0	5.11	2.4	3.71	2.9	2.94
SUZ-SWM40VA2(-SC)	-7	3.6	3.12	2.4	2.52	2.3	2.14
	2	3.2	3.94	3.2	3.06	4.0	2.47
		2.0	4.02	1.9	3.12	1.9	2.57
	7	3.0	5.11	2.4	3.71	2.9	2.93
SUZ-SHWM40VAH(-SC)	-7	2.8	3.38	2.7	2.18	2.6	1.70
	2	3.2	3.71	3.2	2.56	4.0	2.20
		2.6	3.84	2.5	2.70	2.4	2.04
	7	3.0	4.77	3.0	3.08	2.3	2.86
SUZ-SWM60VA2(-SC)	-7	2.8	3.64	2.7	2.18	2.6	1.70
	2	4.8	3.86	4.8	2.53	4.0	2.09
		2.6	4.21	2.5	2.70	2.4	2.04
	7	5.0	4.85	4.0	3.32	4.0	2.94
SUZ-SHWM60VAH(-SC)	-7	4.8	2.95	4.8	2.22	4.8	1.78
	2	4.8	3.65	4.8	2.79	4.8	2.23
		3.8	4.17	3.5	3.12	3.3	2.54
	7	3.6	4.98	3.4	3.63	4.0	2.95
SUZ-SWM80VA2	-7	3.9	2.95	3.5	2.20	3.4	1.78
	2	6.0	3.66	6.0	2.87	6.0	2.32
		3.8	4.17	3.5	3.12	3.3	2.54
	7	6.0	5.10	4.8	3.66	4.8	3.01
SUZ-SWM80VAH2	-7	7.0	2.76	3.5	2.05	3.4	1.67
	2	6.0	3.41	6.0	2.71	6.0	2.22
		3.8	4.17	3.5	3.12	3.3	2.54
	7	6.0	5.10	4.8	3.66	4.8	3.01
SUZ-SWM100VA	-7	3.9	2.95	3.5	2.22	3.4	1.78
	2	7.2	3.36	6.8	2.79	6.8	2.36
		3.8	4.17	3.5	3.12	3.3	2.54
	7	10.0	5.08	6.0	3.65	3.3	2.93

Water outlet temperature[°C]		35		45		55	
Ambient temperature[°C]		Capacity	COP	Capacity	COP	Capacity	COP
SUZ-SWM100VAH	-7	7.5	2.73	3.5	2.06	3.4	1.67
	2	7.2	3.18	6.8	2.66	6.8	2.27
		3.8	4.17	3.5	3.12	3.3	2.54
	7	10.0	5.08	6.0	3.65	3.3	2.93
PUZ-SWM60VAA	-7	5.0	3.25	5.2	2.54	5.2	2.08
	2	5.2	3.79	5.0	2.93	4.3	2.29
		4.3	3.84	4.2	3.00	4.0	2.34
	7	5.5	4.97	5.3	3.71	4.5	2.73
PUZ-SWM80V/YAA	-7	5.0	3.24	5.2	2.53	5.4	2.08
	2	5.2	3.79	5.0	2.96	4.3	2.30
		4.3	3.84	4.2	3.02	4.0	2.35
	7	5.5	4.97	5.3	3.70	4.8	2.73
PUZ-SWM100V/YAA	-7	5.0	3.26	5.2	2.55	5.4	2.09
	2	5.2	3.76	5.0	2.96	4.3	2.30
		4.3	3.81	4.2	3.01	4.0	2.35
	7	5.5	4.97	5.3	3.71	4.8	2.68
PUZ-SWM120V/YAA	-7	6.6	3.23	6.4	2.56	6.2	2.15
	2	7.0	3.76	6.9	3.07	6.8	2.25
		6.0	4.12	5.9	3.22	5.8	2.35
	7	5.6	5.17	5.4	3.82	5.2	2.83
PUZ-SWM140V/YAA	-7	6.9	3.40	6.7	2.68	6.5	2.21
	2	7.3	3.81	7.2	3.03	7.0	2.26
		6.0	4.11	5.9	3.29	5.8	2.47
	7	6.7	5.10	6.6	3.83	6.5	2.83
PUZ-SHWM60VAA	-7	5.4	3.25	6.0	2.54	6.0	2.03
	2	5.2	3.94	5.0	3.05	4.3	2.29
		4.3	4.04	4.2	3.10	4.0	2.34
	7	5.6	5.13	5.4	3.76	4.8	2.73
PUZ-SHWM80V/YAA	-7	5.4	3.26	6.0	2.60	6.0	2.09
	2	5.2	3.94	5.0	3.07	4.3	2.30
		4.3	4.04	4.2	3.12	4.0	2.35
	7	5.6	5.10	5.4	3.75	4.8	2.78
PUZ-SHWM100V/YAA	-7	5.4	3.25	6.0	2.59	6.0	2.08
	2	5.2	3.94	5.0	3.06	4.3	2.30
		4.3	4.05	4.2	3.11	4.0	2.35
	7	5.6	5.15	5.4	3.76	4.8	2.73
PUZ-SHWM120V/YAA	-7	6.6	3.32	6.4	2.65	6.2	2.14
	2	7.0	3.79	6.9	3.07	6.8	2.25
		6.0	4.15	5.9	3.22	5.8	2.35
	7	5.6	5.20	5.4	3.82	5.2	2.83
PUZ-SHWM140V/YAA	-7	6.9	3.38	6.7	2.66	6.5	2.20
	2	7.3	3.81	7.2	3.03	7.0	2.26
		6.0	4.11	5.9	3.29	5.8	2.47
	7	6.7	5.10	6.6	3.83	6.5	2.83
PXZ-4F75VG	-7	3.7	2.67	3.6	2.12	-	-
	2	5.4	3.15	5.2	2.67	5.0	2.18
	7	6.0	4.31	6.0	3.43	6.0	2.55
PXZ-5F85VG	-7	4.1	2.50	3.4	1.83	-	-
	2	6.2	3.25	6.0	2.62	5.7	1.99
	7	4.7	4.78	4.5	3.83	4.1	3.08

5.5 Correcting capacity for changes in the length of refrigerant piping

Split-type units

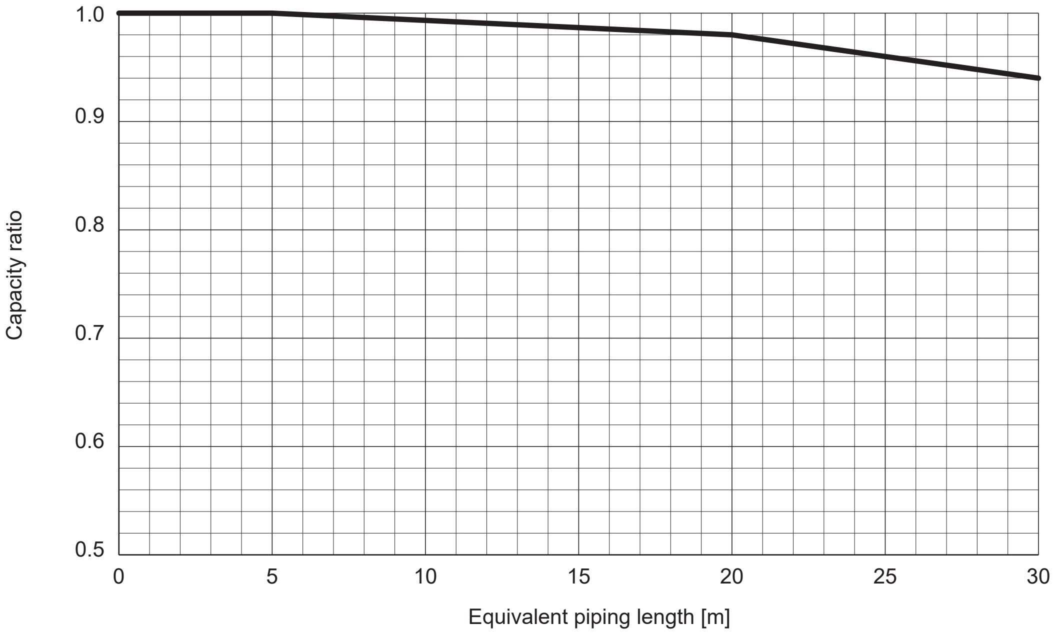
■ **SUZ-SWM30VA**	**SUZ-SHWM30VAH**	
SUZ-SWM40VA2(-SC)	**SUZ-SHWM40VAH(-SC)**	**SUZ-SWM60VA2(-SC)**

<Method for obtaining the equivalent piping length>

Equivalent length = (piping length[*1]) + 0.3 × (number of bends in the piping)

[*1] Max piping length of SUZ series is 30m.

<Cooling>



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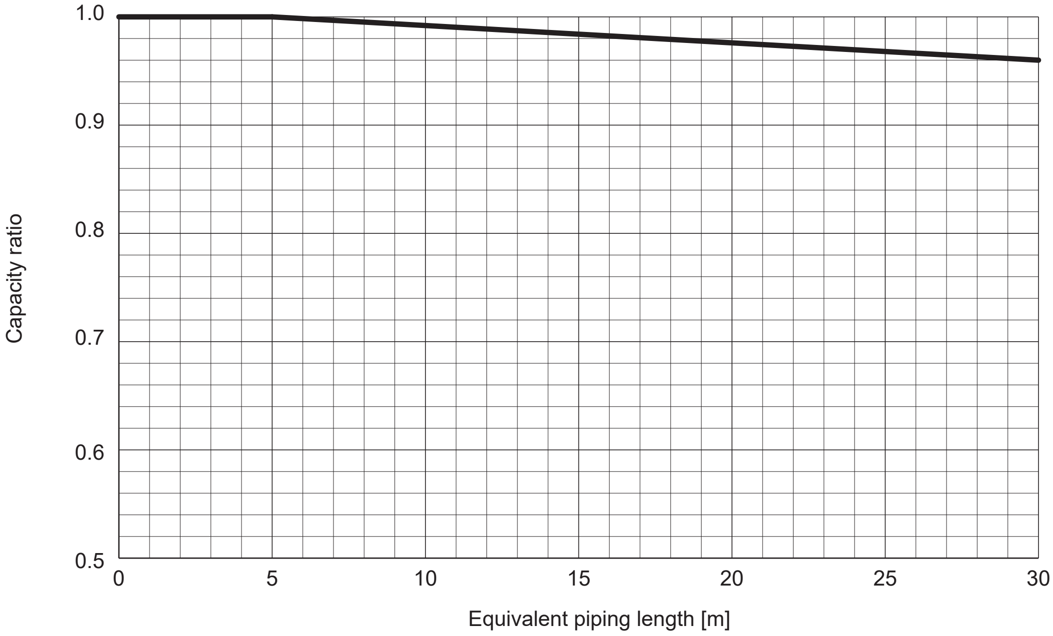


Split-type units

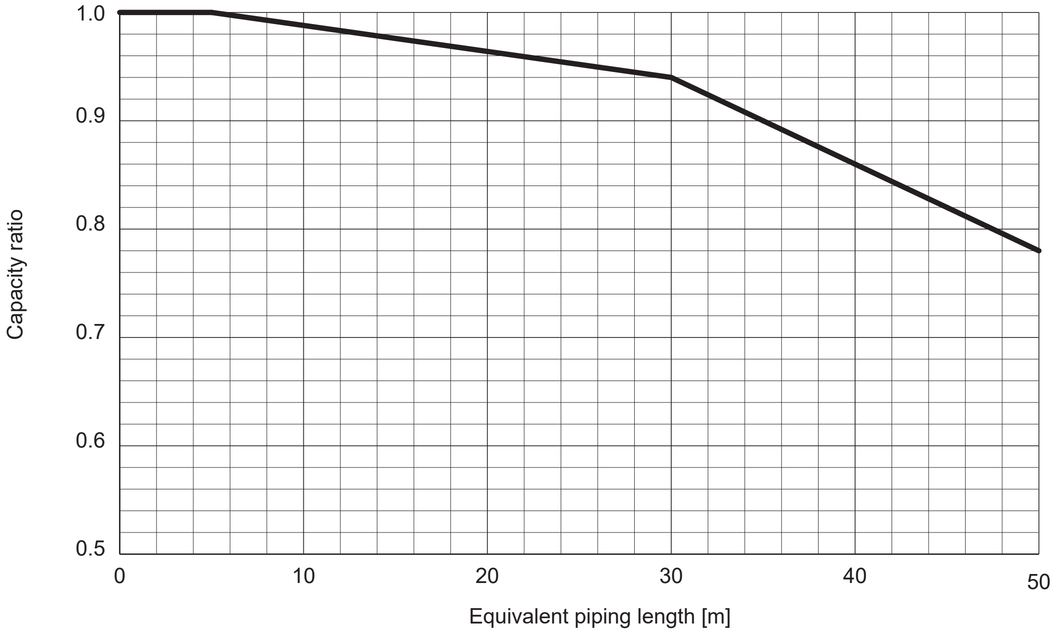
■ SUZ-SHWM60VAH(-SC) SUZ-SWM80VA(H)2 SUZ-SWM100VA(H)

<Method for obtaining the equivalent piping length>

Equivalent length = (piping length[*1]) + 0.3 × (number of bends in the piping)

[*1] Max piping length of SUZ series is 30m.

<Cooling>



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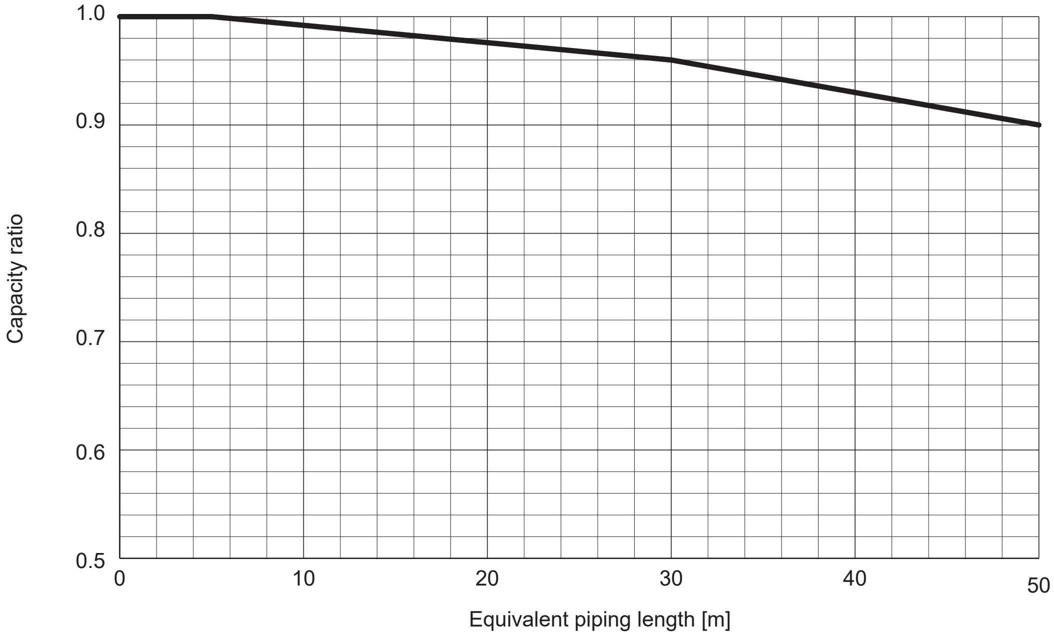
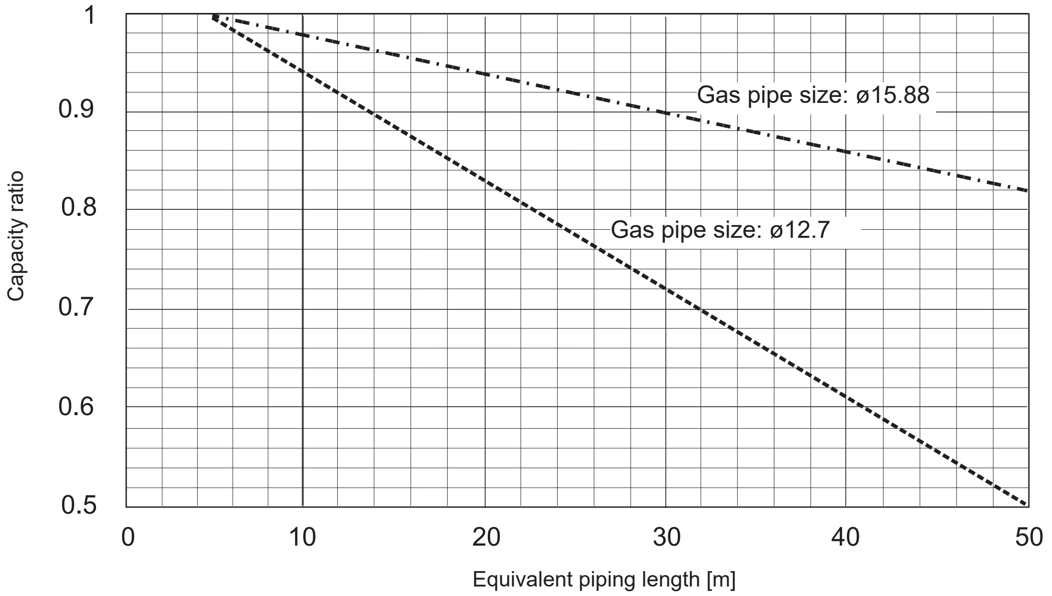


■ PUZ-SWM60VAA PUZ-SWM80VAA PUZ-SWM80YAA PUZ-SWM100VAA PUZ-SWM100YAA
PUZ-SHWM60VAA PUZ-SHWM80VAA PUZ-SHWM80YAA PUZ-SHWM100VAA PUZ-SHWM100YAA

<Method for obtaining the equivalent piping length>

Equivalent length = (piping length) + 0.3 × (number of bends in the piping)

<Cooling>



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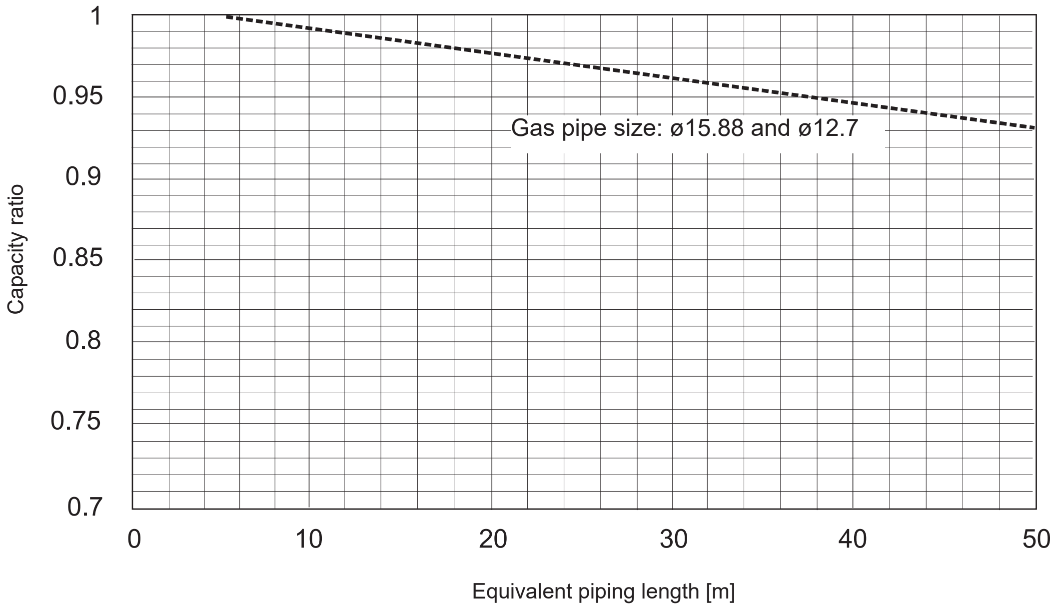
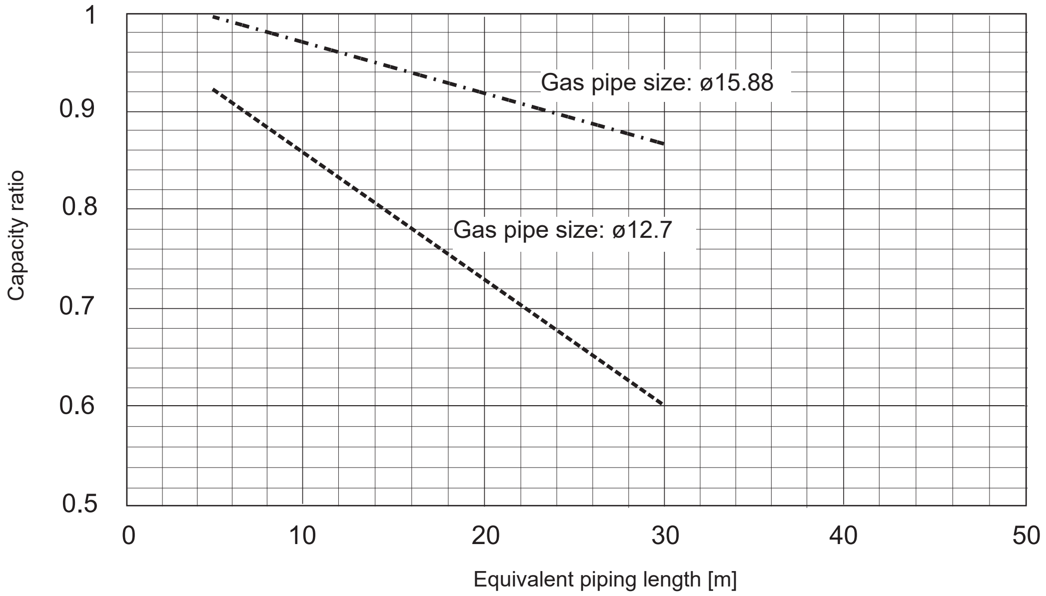


■ PUZ-SWM120VAA PUZ-SWM120YAA PUZ-SHWM120VAA PUZ-SHWM120YAA

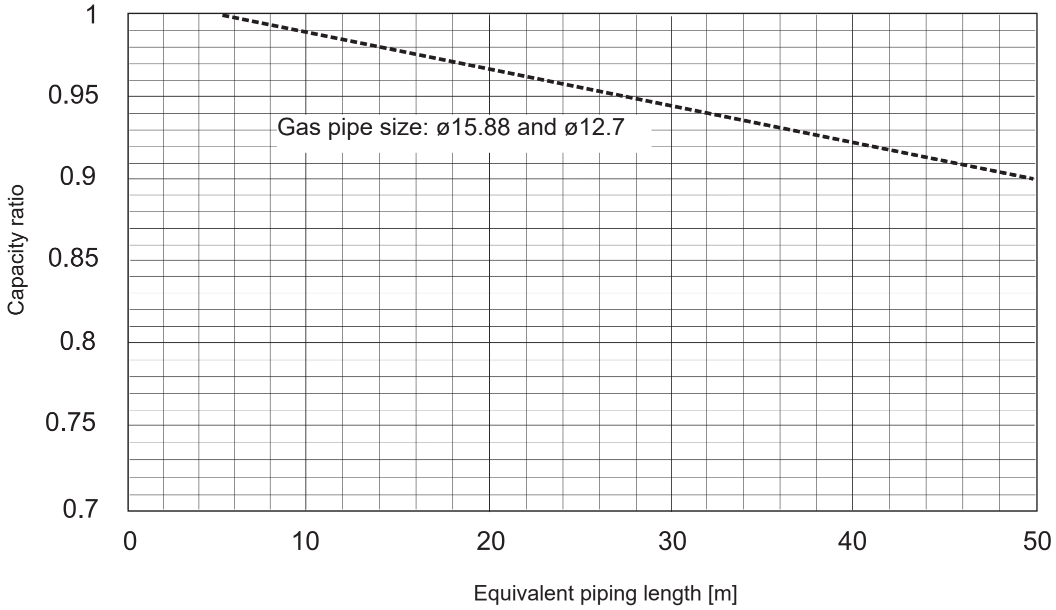
<Method for obtaining the equivalent piping length>

Equivalent length = (piping length) + 0.3 × (number of bends in the piping)

<Cooling>



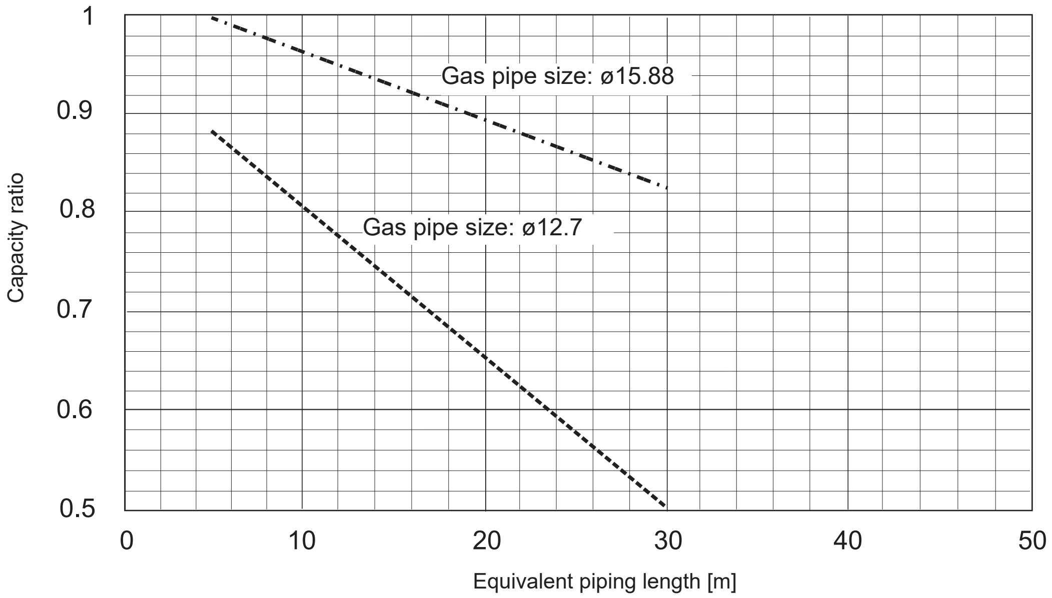
<Heating>



■ PUZ-SWM140VAA PUZ-SWM140YAA PUZ-SHWM140VAA PUZ-SHWM140YAA

<Method for obtaining the equivalent piping length>
Equivalent length = (piping length) + 0.3 × (number of bends in the piping)

<Cooling>



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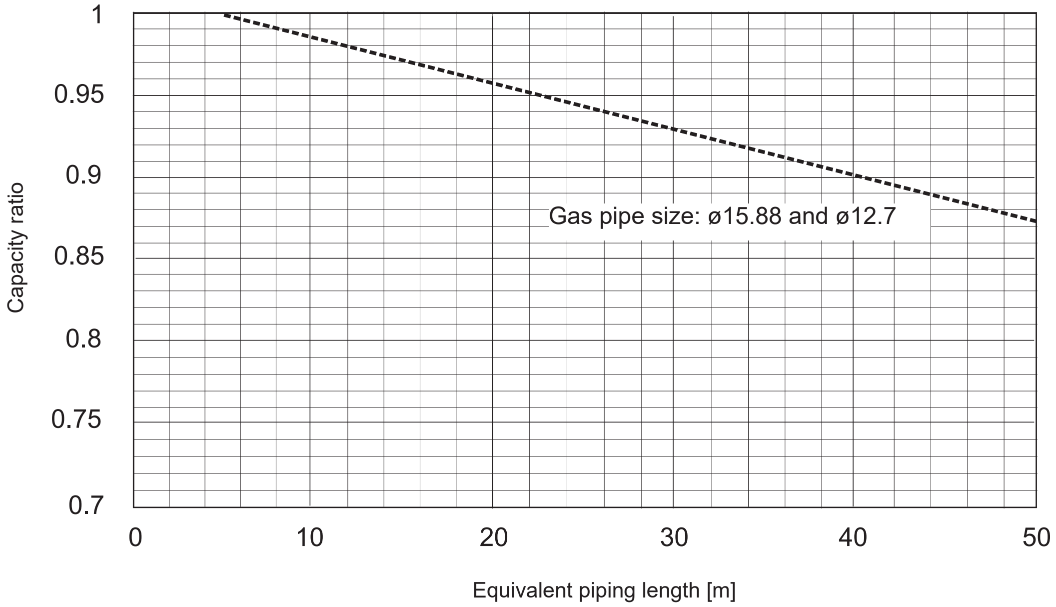
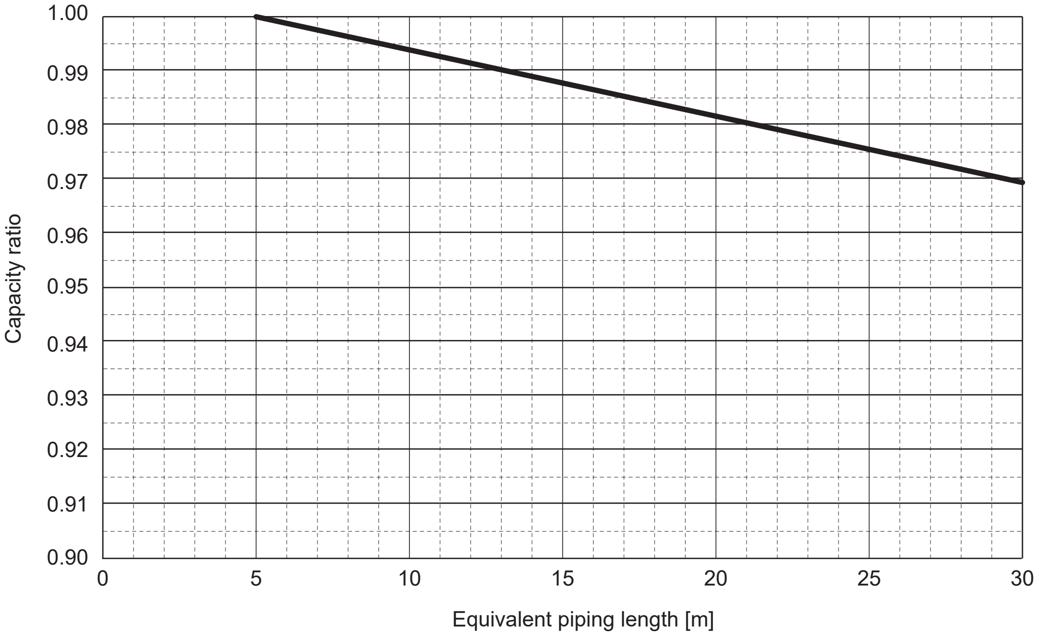


■ PXZ-4F75VG
PXZ-5F85VG

<Method for obtaining the equivalent piping length>

Equivalent length = (piping length[*1]) + 0.3 × (number of bends in the piping)

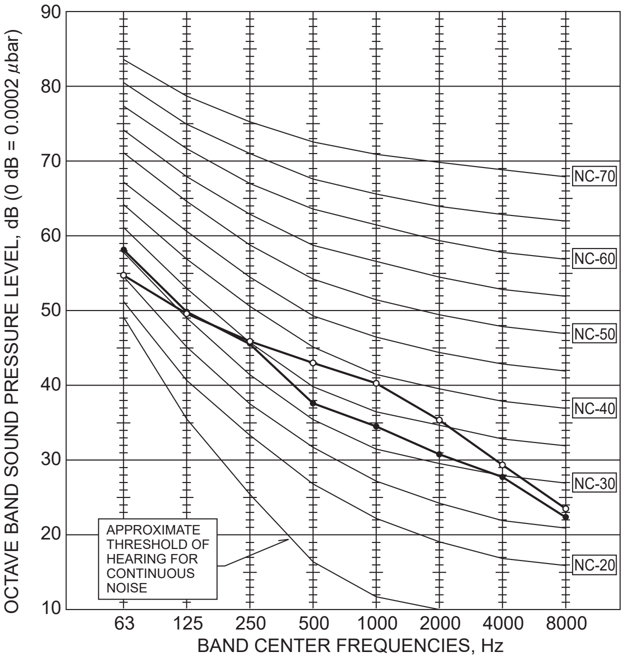
[*1] Max piping length of PXZ series is 30m.



(1)Packaged-type units

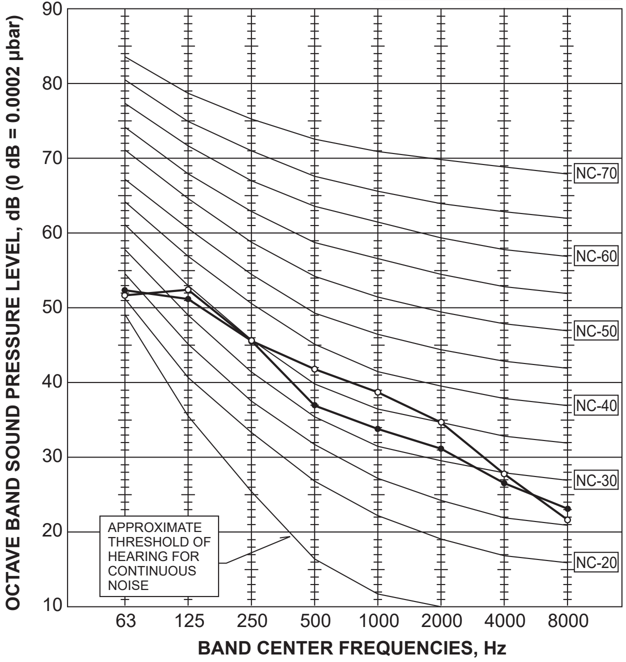
■ PUZ-WZ50VAA(-BS)

MODE	SPL(dB)	LINE
COOLING	45	○—○
HEATING	42	●—●



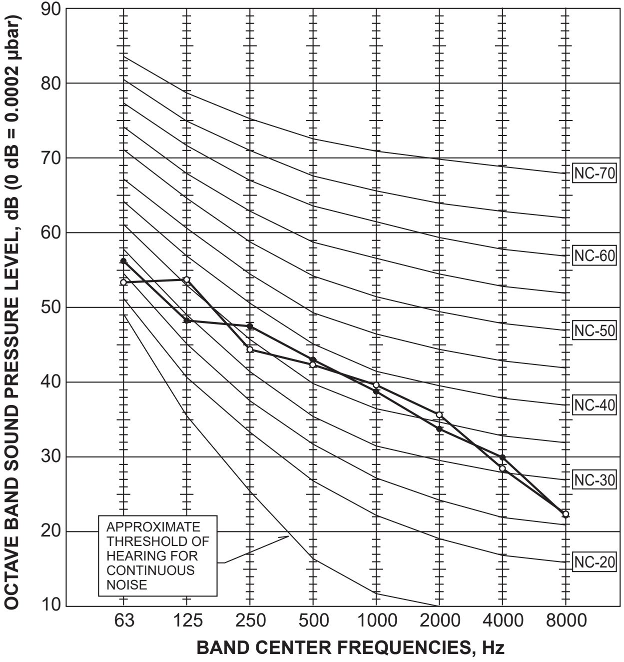
■ PUZ-WZ60VAA(-BS)

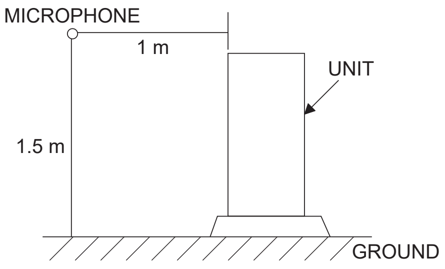
MODE	SPL(dB)	LINE
COOLING	45	○—○
HEATING	42	●—●



■ PUZ-WZ80VAA(-BS)

MODE	SPL(dB)	LINE
COOLING	45	○—○
HEATING	45	●—●



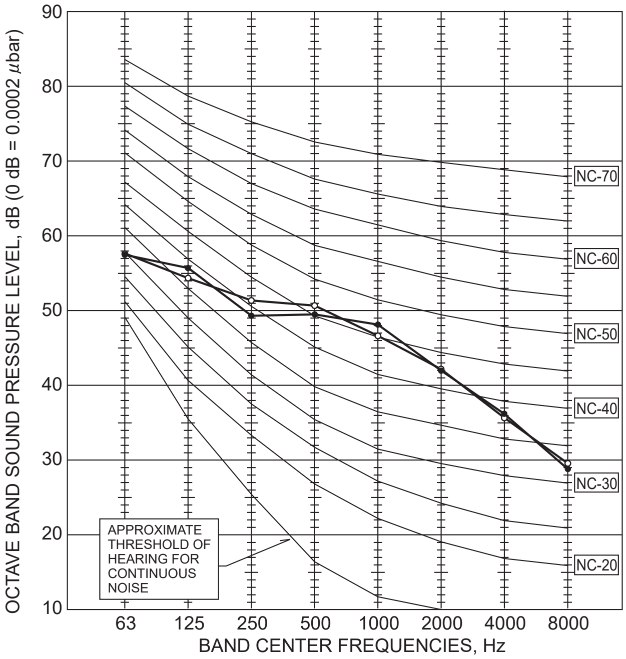


<Note>
These values are only for reference purpose.

6 Noise criterion curves

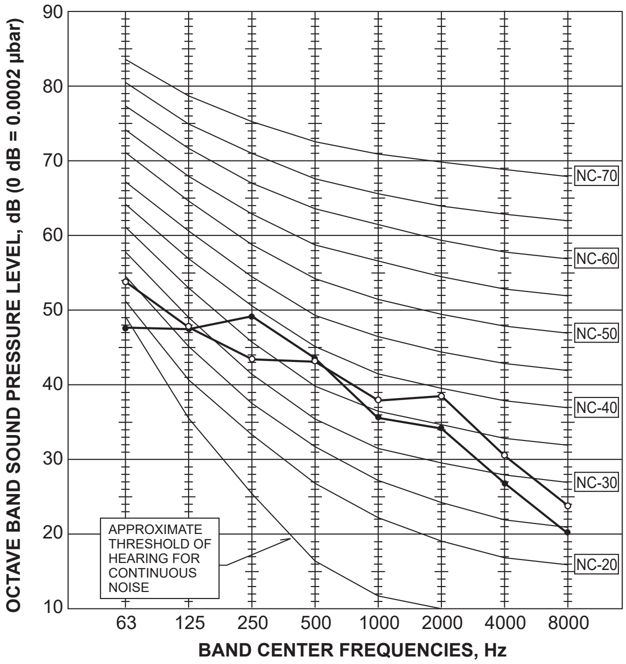
■ PUZ-WM50VHA(-BS)

MODE	SPL(dBA)	LINE
COOLING	52	○—○
HEATING	52	●—●



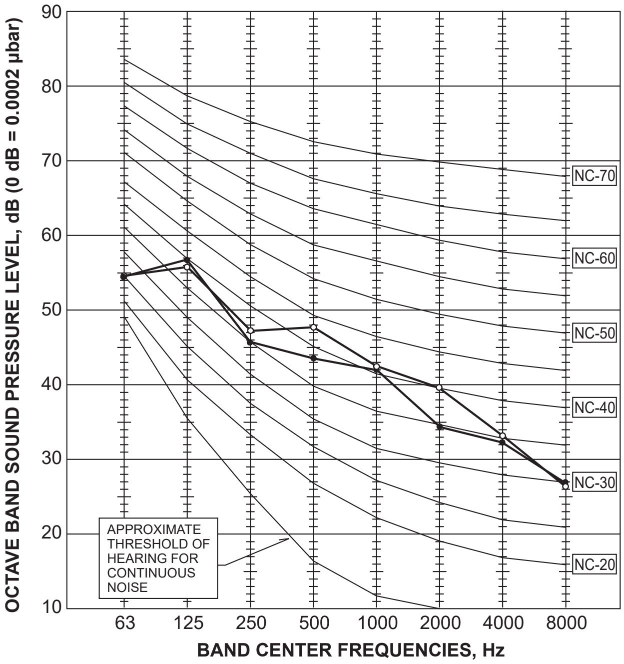
■ PUZ-WM60VAA(-BS)
PUZ-WM85VAA(-BS)
PUZ-WM85YAA(-BS)

MODE	SPL(dBA)	LINE
COOLING	45	○—○
HEATING	45	●—●



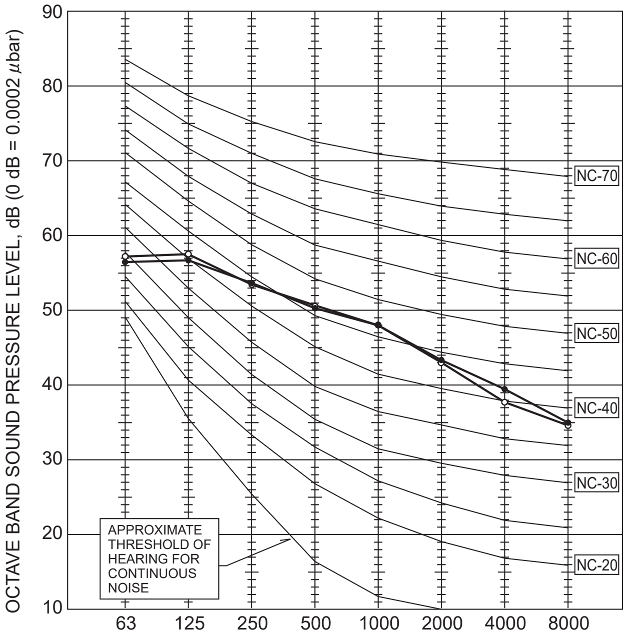
■ PUZ-WM112VAA(-BS)
PUZ-WM112YAA(-BS)

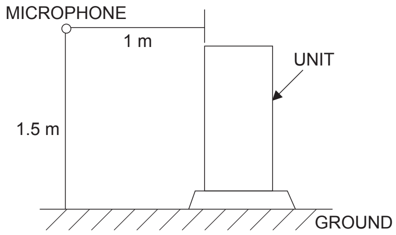
MODE	SPL(dBA)	LINE
COOLING	49	○—○
HEATING	47	●—●



■ PUZ-HWM140VHA(-BS)
PUZ-HWM140YHA(-BS)

MODE	SPL(dBA)	LINE
COOLING	53	○—○
HEATING	53	●—●





<Notes>

1) Sound data is taken when the system is running stably.

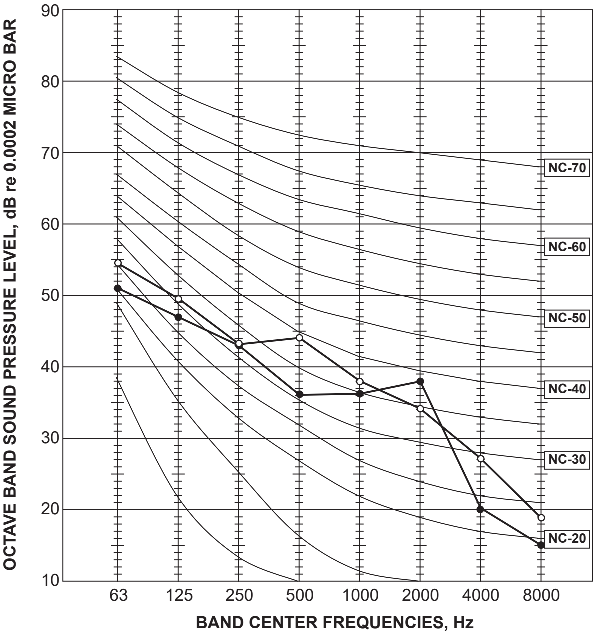
2) Relatively large noise could be heard transiently in the case 4-way valve, or LEV operates.

3) These values are only for reference purpose.

(2)Split-type units

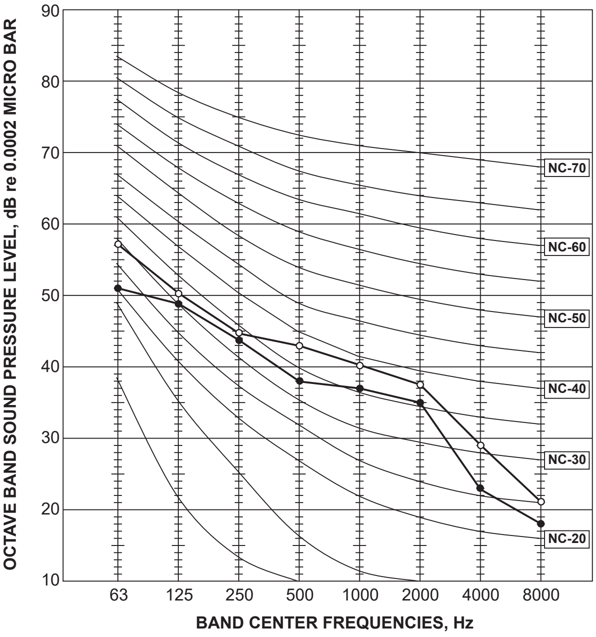
■ SUZ-S(H)WM30VA(H)

FUNCTION	SPL(dBA)	LINE
COOLING	45	○—○
HEATING	43	●—●



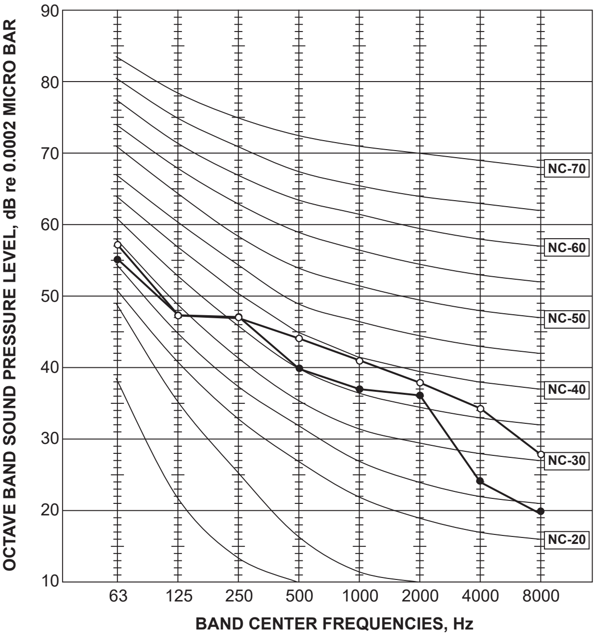
■ SUZ-SWM40VA2(-SC)

FUNCTION	SPL(dBA)	LINE
COOLING	46	○—○
HEATING	43	●—●



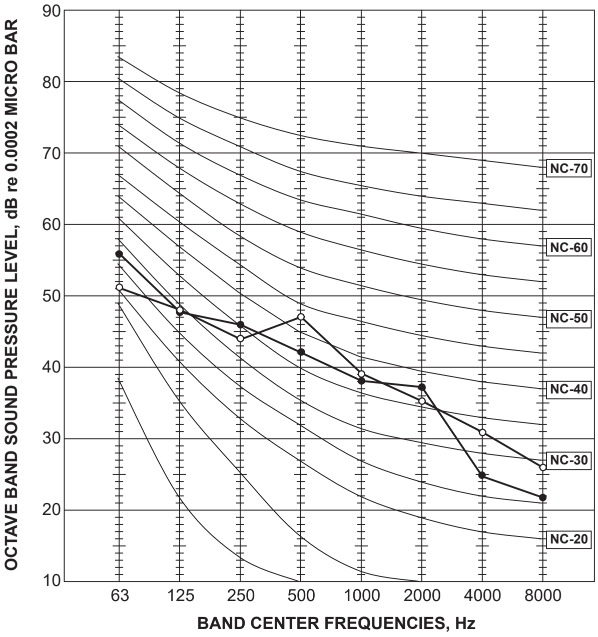
■ SUZ-SHWM40VAH(-SC)

FUNCTION	SPL(dBA)	LINE
COOLING	47	○—○
HEATING	44	●—●



■ SUZ-SWM60VA2(-SC)

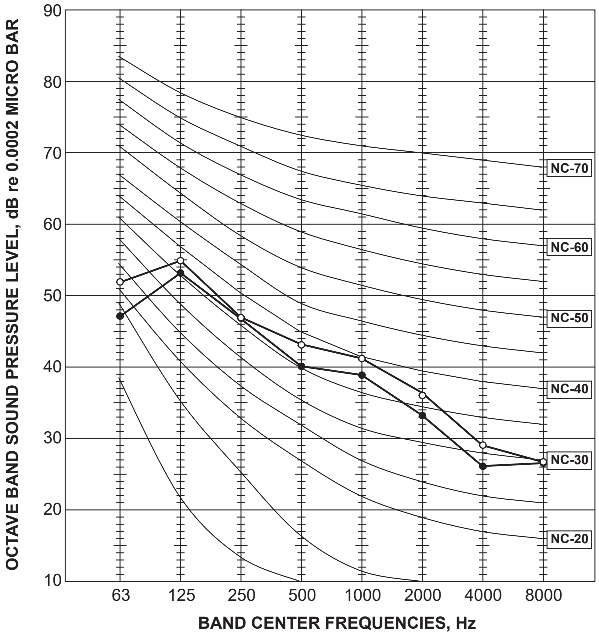
FUNCTION	SPL(dBA)	LINE
COOLING	47	○—○
HEATING	45	●—●



<Notes>
1) Sound data is taken when the system is running stably.
2) Relatively large noise could be heard transiently in the case 4-way valve, or LEV operates.
3) These values are only for reference purpose.

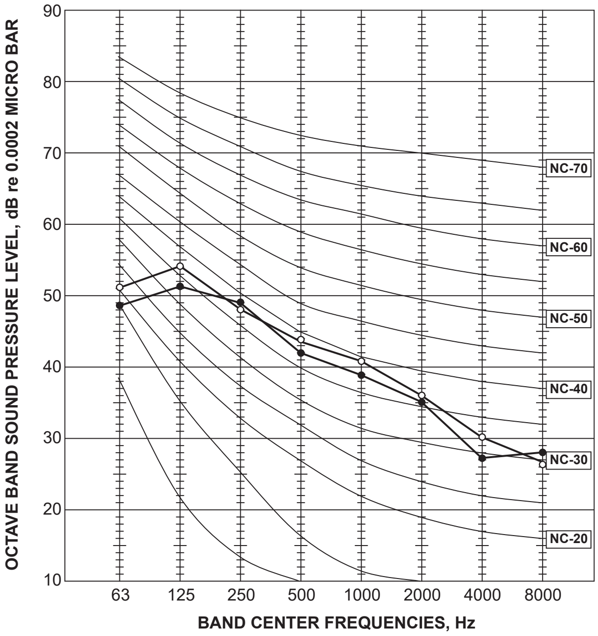
SUZ-SHWM60VAH(-SC)

FUNCTION	SPL(dBA)	LINE
COOLING	47	○—○
HEATING	45	●—●



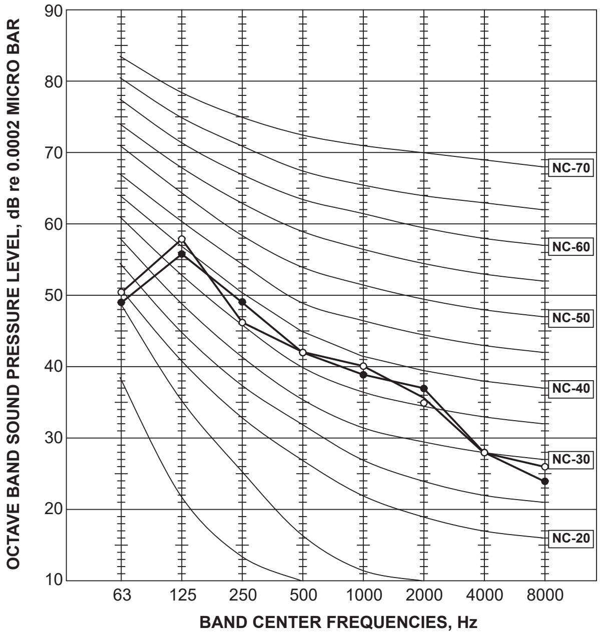
SUZ-SWM80VA(H)2

FUNCTION	SPL(dBA)	LINE
COOLING	47	○—○
HEATING	46	●—●



SUZ-SWM100VA(H)

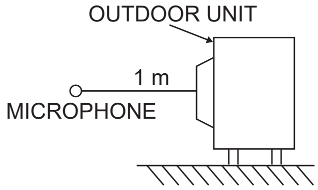
FUNCTION	SPL(dBA)	LINE
COOLING	47	○—○
HEATING	47	●—●



Test conditions

Cooling: Dry-bulb temperature 35°C

Heating: Dry-bulb temperature 7°C Wet-bulb temperature 6°C

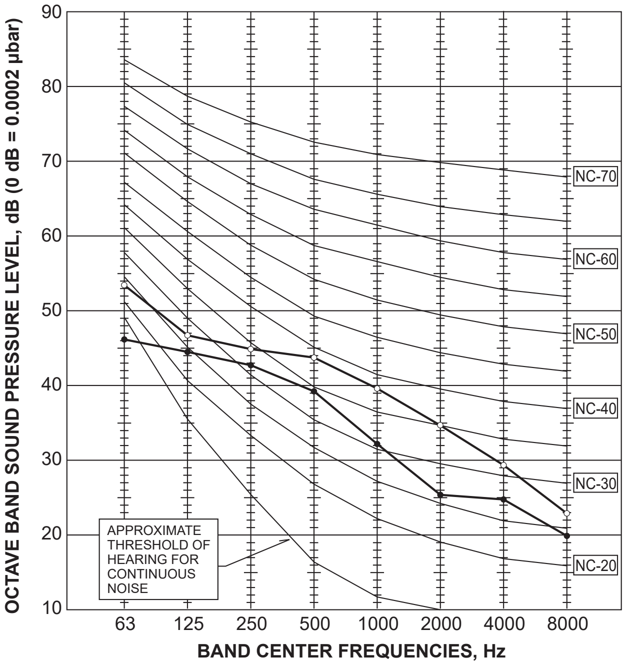


<Note>
These values are only for reference purpose.

6 Noise criterion curves

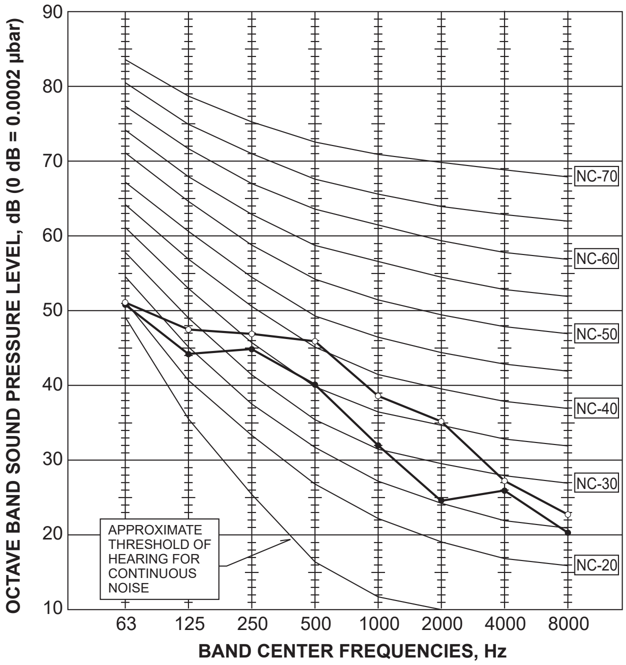
PUZ-SWM60VAA
PUZ-SHWM60VAA

MODE	SPL(dBA)	LINE
HEATING	40(A7W35)	●—●
COOLING	45(A35W7)	○—○



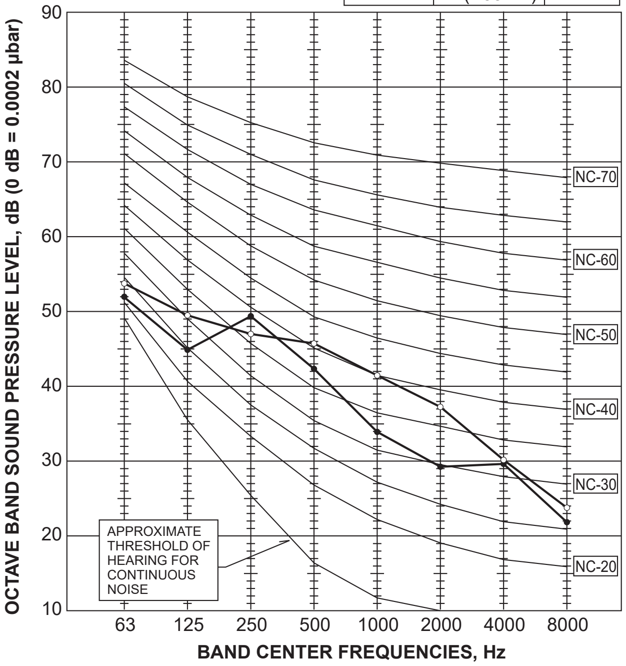
PUZ-SWM80VAA
PUZ-SWM80YAA
PUZ-SHWM80VAA
PUZ-SHWM80YAA

MODE	SPL(dBA)	LINE
HEATING	41(A7W35)	●—●
COOLING	46(A35W7)	○—○



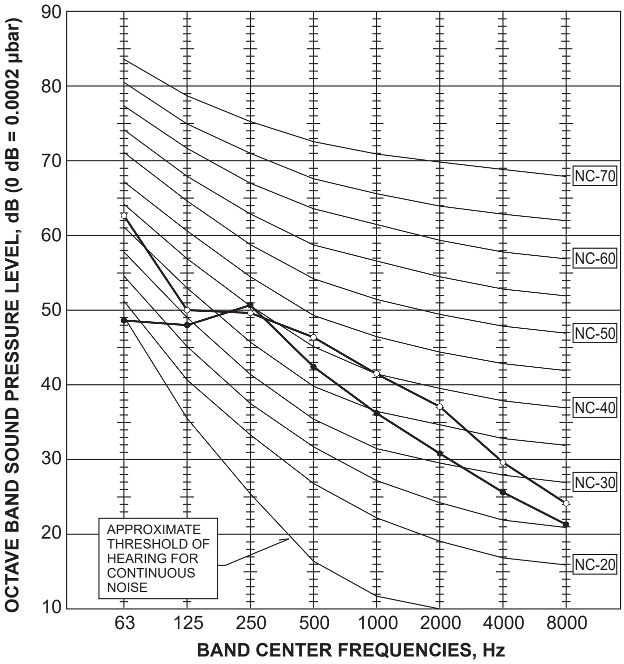
PUZ-SWM100VAA
PUZ-SWM100YAA
PUZ-SHWM100VAA
PUZ-SHWM100YAA

MODE	SPL(dBA)	LINE
HEATING	44(A7W35)	●—●
COOLING	47(A35W7)	○—○



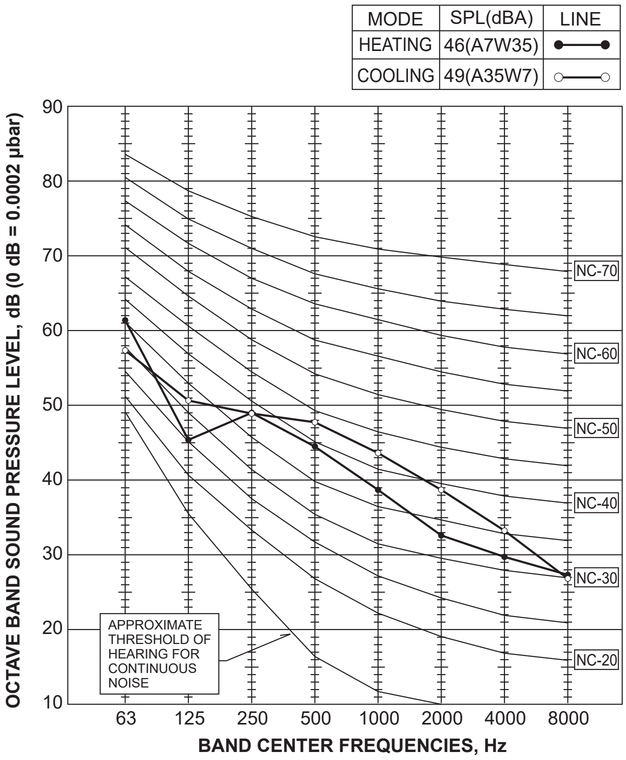
PUZ-SWM120VAA
PUZ-SWM120YAA
PUZ-SHWM120VAA
PUZ-SHWM120YAA

MODE	SPL(dBA)	LINE
HEATING	45(A7W35)	●—●
COOLING	48(A35W7)	○—○

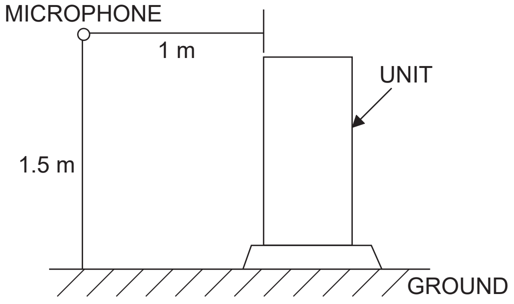


<Notes>
1) Sound data is taken when the system is running stably.
2) Relatively large noise could be heard transiently in the case 4-way valve, or LEV operates.
3) These values are only for reference purpose.

PUZ-SHWM140VAA
PUZ-SHWM140YAA



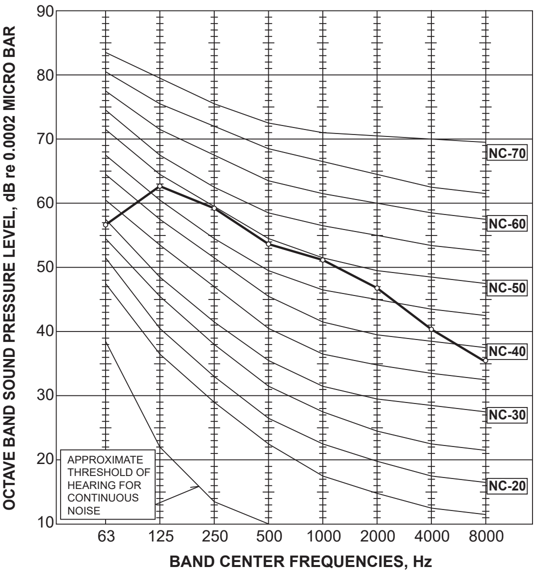
MODE	SPL(dBA)	LINE
HEATING	46(A7W35)	●——●
COOLING	49(A35W7)	○——○



<Note>
These values are only for reference purpose.

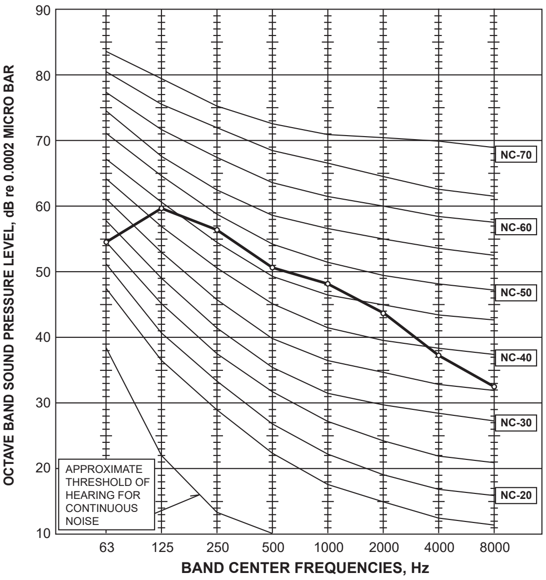
PXZ-4F75VG

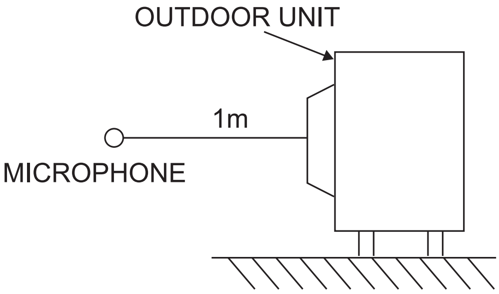
FUNCTION	SPL(dBA)	LINE
Heating (ATW)	57	○——○



PXZ-5F85VG

FUNCTION	SPL(dBA)	LINE
Heating (ATW)	54	○——○



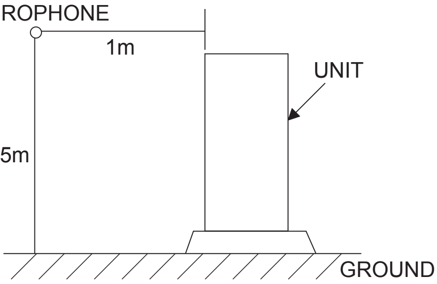


Test conditions

Heating: Dry-bulb temperature •••• 7.0°C Wet-bulb temperature •••• 6.0°C

<Note>
These values are only for reference purpose.

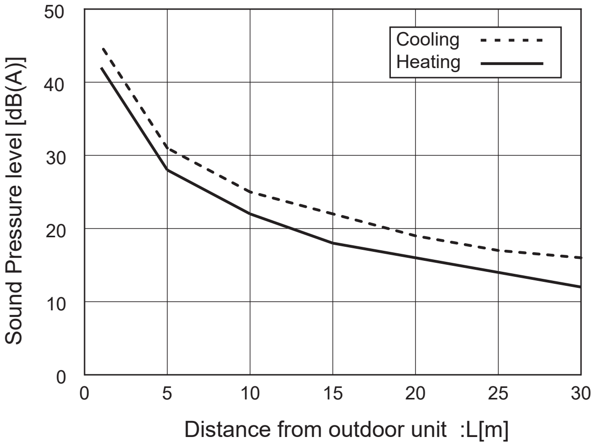
Annotation and measurement condition



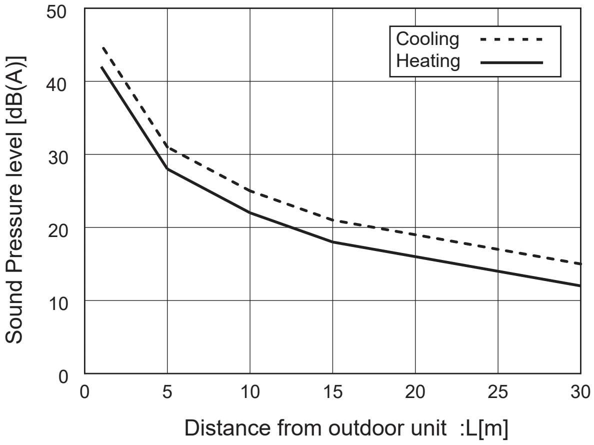
<Notes>
1) Sound data is taken when the system is running stably.
2) Relatively large noise could be heard transiently in the case 4-way valve, or LEV operates.
3) Sound reflection from ground and surrounding walls is not considered.

(1)Packaged-type units

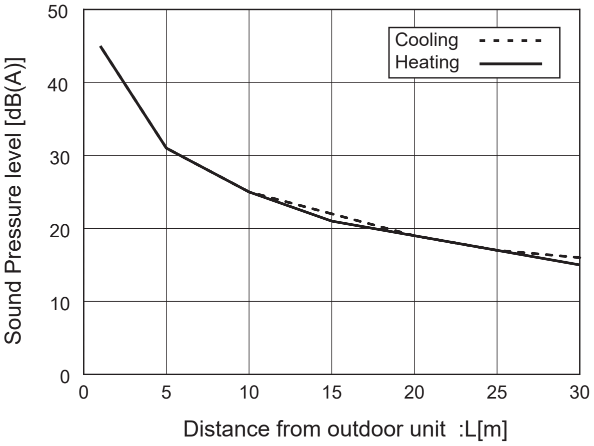
■ PUZ-WZ50VAA(-BS)



■ PUZ-WZ60VAA(-BS)

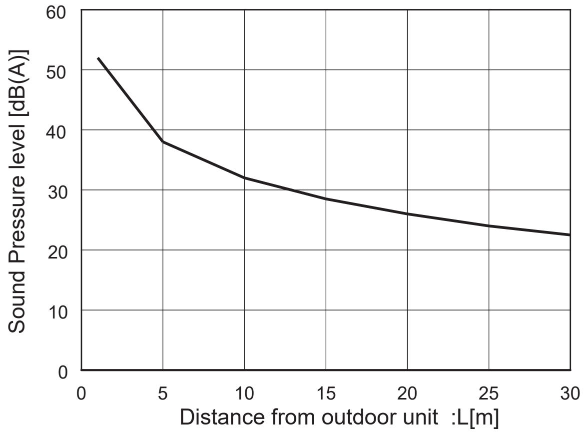


■ PUZ-WZ80VAA(-BS)

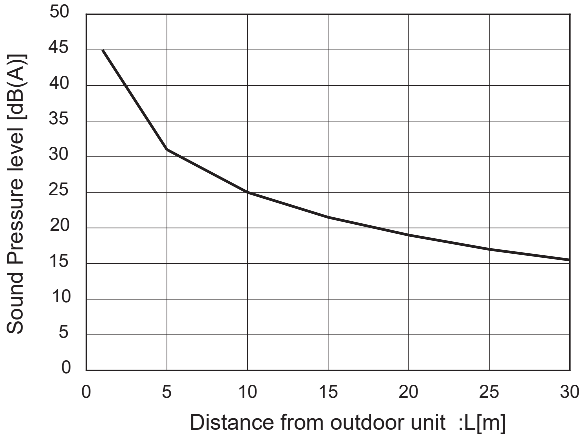


<Note>
These values are only for reference purpose.

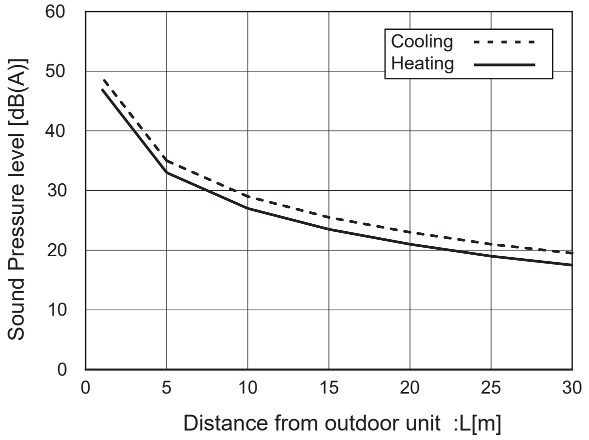
■ PUZ-WM50VHA(-BS)



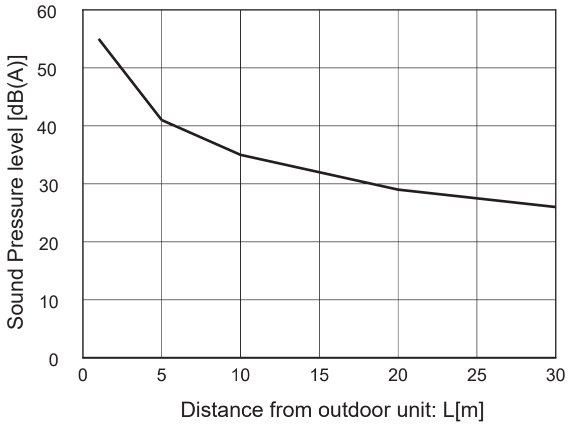
■ PUZ-WM60VAA(-BS)
PUZ-WM85VAA(-BS)
PUZ-WM85YAA(-BS)



■ PUZ-WM112VAA(-BS)
PUZ-WM112YAA(-BS)



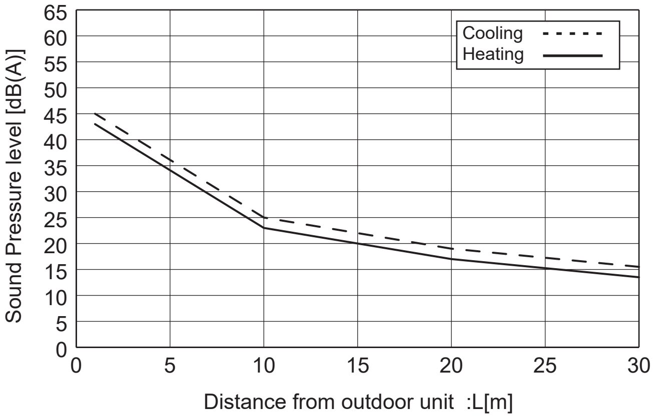
■ PUZ-HWM140VHA(-BS)
PUZ-HWM140YHA(-BS)



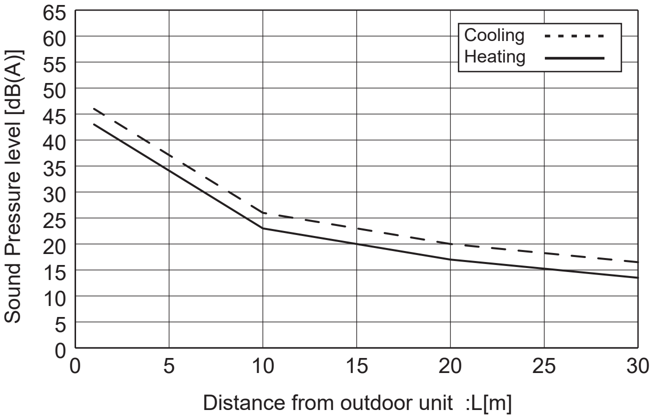
<Note>
These values are only for reference purpose.

(2)Split-type units

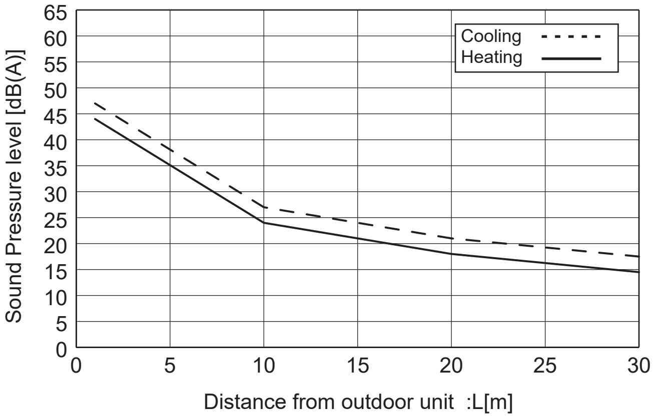
■ SUZ-SWM30VA
SUZ-SHWM30VAH



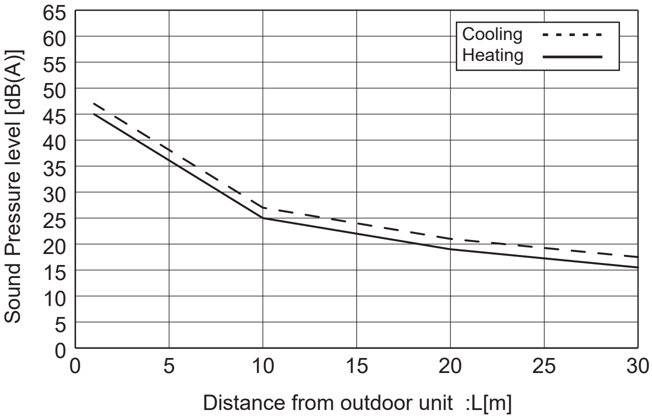
■ SUZ-SWM40VA2



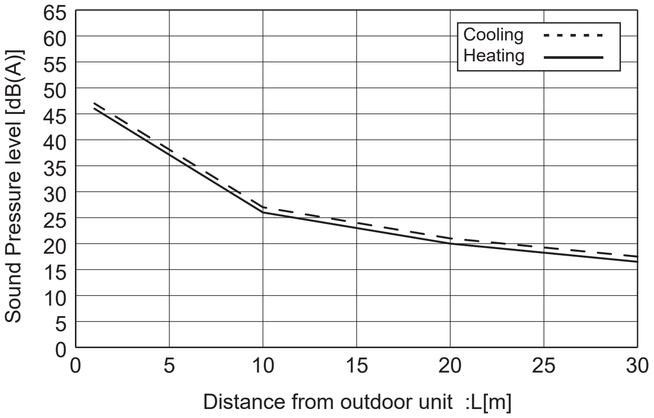
■ SUZ-SHWM40VAH



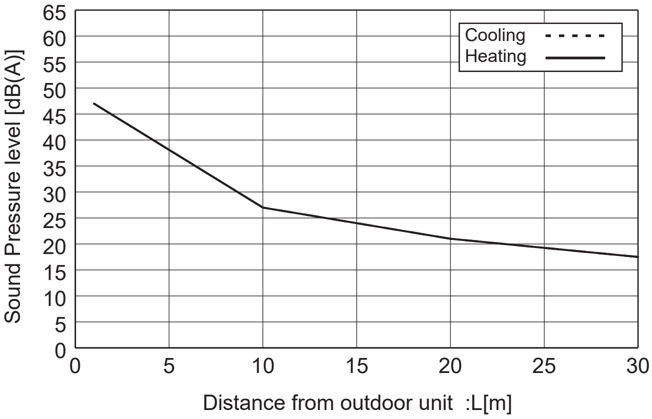
■ SUZ-SWM60VA2
SUZ-SHWM60VAH



■ SUZ-SWM80VA2(H)

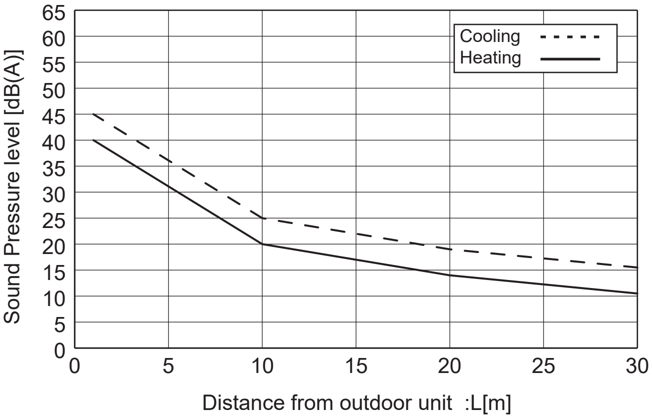


■ SUZ-SWM100VA(H)

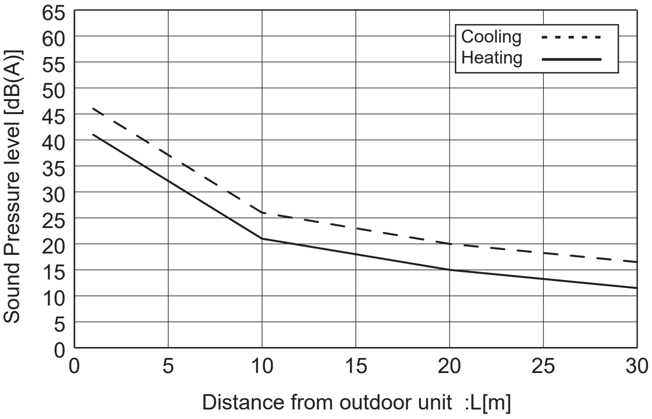


<Note>
These values are only for reference purpose.

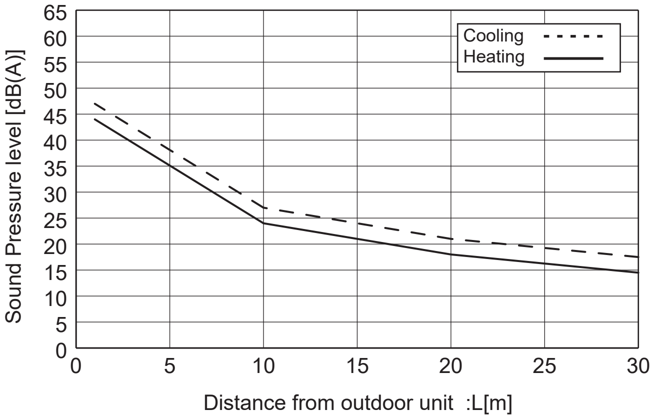
■ PUZ-SWM60VAA
PUZ-SHWM60VAA



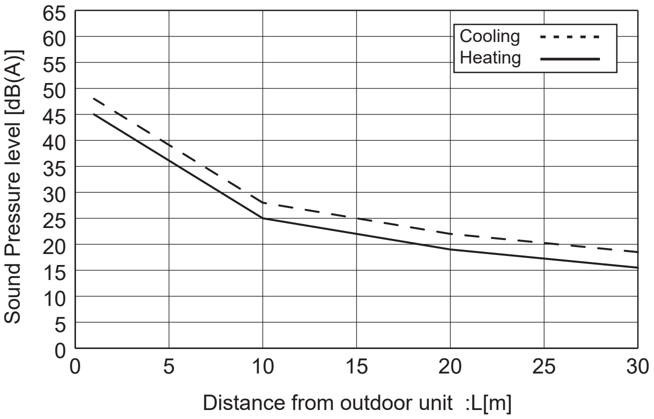
■ PUZ-SWM80VAA
PUZ-SWM80YAA
PUZ-SHWM80VAA
PUZ-SHWM80YAA



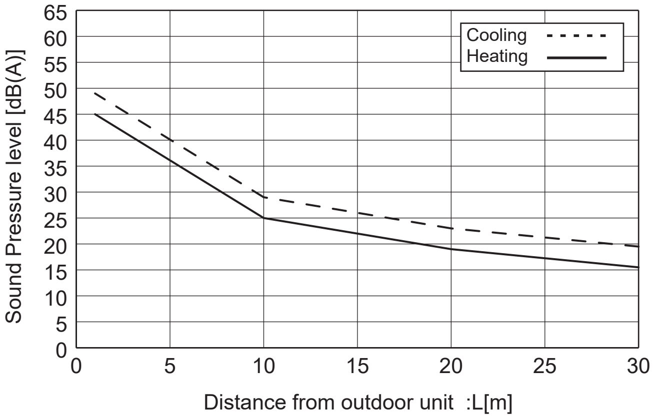
■ PUZ-SWM100VAA
PUZ-SWM100YAA
PUZ-SHWM100VAA
PUZ-SHWM100YAA



■ PUZ-SWM120VAA
PUZ-SWM120YAA
PUZ-SHWM120VAA
PUZ-SHWM120YAA



■ PUZ-SHWM140VAA
PUZ-SHWM140YAA



<Note>
These values are only for reference purpose.

7 Estimated noise level based on the distance from Outdoor unit

PXZ-4F75VG

PXZ-5F85VG

<Note>
These values are only for reference purpose.

1.Type: Power Inverter Outdoor unit

2.Model name: PUZ-WZ50VAA(-BS)

3.Specification

(1) Unit mass W= 54 kg

(2) Anchor bolt

1.The total number of bolts. N= 4

2.The size and shape. "=M 10 type

3.The axis section area per one bolt. A= 78 mm^2= 78×10^{-6} m^2

4.The total number of bolts in one side which be pulled stronger when the unit inverted. Nt= 2

(3) The height between the installing surface and the center of gravity of the unit Hg= 450 mm= 0.450 m

(4) The bolt-span from the examination angle L= 520 mm= 0.520 m

(5) The distance between the center of bolt and the center of gravity of the unit Lg= 295 mm(Lg≦L/2)= 0.295 m

4.The examination calculation (by rounding off to the first decimal place of each item)

(1) The horizontal seismic coeffcient for designing Kh= 1.0

(2) The vertical seismic coefficient for designing Kv=Kh/2= 0.5

(3) The horizontal earthquake forces for designing Fh=Kh·W·9.8= 529.2 N

(4) The vertical earthquake forces for designing Fv=Kv·W·9.8= 264.6 N

(5) The withdrawal strength of the anchor bolt $Rb=\frac{Fh \cdot Hg-(W \cdot 9.8-Fv) \cdot Lg}{L \cdot Nt}$ = 153.9 N

(6) The shear forces of the anchor bolt Q=Fh/N= 132.3 N

(7) The stress arising to the anchor bolt

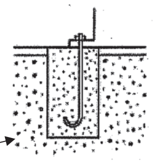
1.The tensile stress. σ=Rb/A= 2.0 MPa < ft = 176.4 MPa

2.The shearing stress. τ =Q/A= 1.7 MPa < fs = 132.3 MPa

3.The stress when affected by both the shearing and the tensile at the same time. fts=1.4ft-1.6 τ = 244.2 MPa

σ = 2.0 MPa < fts= 176.4 MPa

(8) The construction way of the anchor bolt



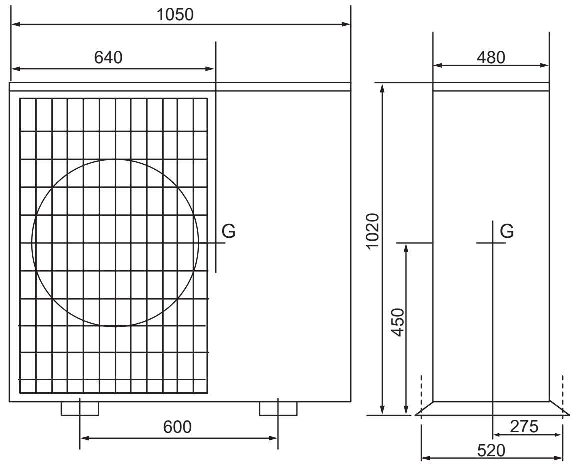
1.The construction way of the anchor bolt. = Boxed J type anchor

2.The thickness of the concrete. = 120 mm = 0.120 m

3.The length of buried part of bolt. = 70 mm = 0.070 m

4.The permissible withdrawal weight. Ta= 3136 N > Rb= 153.9 N

Since the results from the examination above, the anchor bolt has enough strength



1.Type: Power Inverter Outdoor unit

2.Model name: PUZ-WZ60VAA(-BS)

3.Specification

(1) Unit mass W= 54 kg

(2) Anchor bolt

1.The total number of bolts. N= 4

2.The size and shape. "=M 10 type

3.The axis section area per one bolt. A= 78 mm^2= 78×10^{-6} m^2

4.The total number of bolts in one side which be pulled stronger when the unit inverted. Nt= 2

(3) The height between the installing surface and the center of gravity of the unit Hg= 450 mm= 0.450 m

(4) The bolt-span from the examination angle L= 520 mm= 0.520 m

(5) The distance between the center of bolt and the center of gravity of the unit Lg= 295 mm(Lg≦L/2)= 0.295 m

4.The examination calculation (by rounding off to the first decimal place of each item)

(1) The horizontal seismic coeffcient for designing Kh= 1.0

(2) The vertical seismic coefficient for designing Kv=Kh/2= 0.5

(3) The horizontal earthquake forces for designing Fh=Kh·W·9.8= 529.2 N

(4) The vertical earthquake forces for designing Fv=Kv·W·9.8= 264.6 N

(5) The withdrawal strength of the anchor bolt $Rb=\frac{Fh\cdot Hg-(W\cdot 9.8-Fv)\cdot Lg}{L\cdot Nt}$ = 153.9 N

(6) The shear forces of the anchor bolt Q=Fh/N= 132.3 N

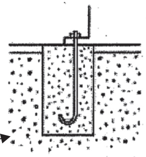
(7) The stress arising to the anchor bolt

1.The tensile stress. σ =Rb/A= 2.0 MPa < ft = 176.4 MPa

2.The shearing stress. τ =Q/A= 1.7 MPa < fs = 132.3 MPa

3.The stress when affected by both the shearing and the tensile at the same time. fts=1.4ft-1.6 τ = 244.2 MPa

σ= 2.0 MPa < fts= 176.4 MPa



(8) The construction way of the anchor bolt

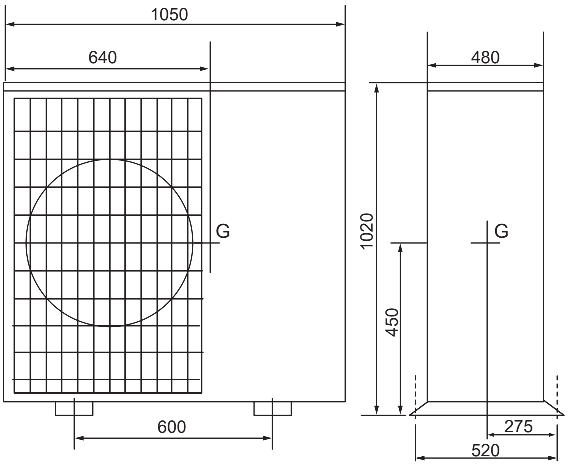
1.The construction way of the anchor bolt. = Boxed J type anchor

2.The thickness of the concrete. = 120 mm = 0.120 m

3.The length of buried part of bolt. = 70 mm = 0.070 m

4.The permissible withdrawal weight. Ta= 3136 N > Rb= 153.9 N

Since the results from the examination above, the anchor bolt has enough strength



8 Earthquake-proof strength analysis

1.Type: Power Inverter Outdoor unit

2.Model name: PUZ-WZ80VAA(-BS)

3.Specification

(1) Unit mass W= 54 kg

(2) Anchor bolt

1.The total number of bolts. N= 4

2.The size and shape. "=M 10 type

3.The axis section area per one bolt. A= 78 mm^2= 78×10^{-6} m^2

4.The total number of bolts in one side which be pulled stronger when the unit inverted. Nt= 2

(3) The height between the installing surface and the center of gravity of the unit Hg= 495 mm= 0.495 m

(4) The bolt-span from the examination angle L= 520 mm= 0.520 m

(5) The distance between the center of bolt and the center of gravity of the unit Lg= 260 mm(Lg≦L/2)= 0.26 m

4.The examination calculation (by rounding off to the first decimal place of each item)

(1) The horizontal seismic coeffcient for designing Kh= 1.0

(2) The vertical seismic coefficient for designing Kv=Kh/2= 0.5

(3) The horizontal earthquake forces for designing Fh=Kh·W·9.8= 529.2 N

(4) The vertical earthquake forces for designing Fv=Kv·W·9.8= 264.6 N

(5) The withdrawal strength of the anchor bolt $Rb=\frac{Fh\cdot Hg-(W\cdot 9.8-Fv)\cdot Lg}{L\cdot Nt}$ = 185.7 N

(6) The shear forces of the anchor bolt Q=Fh/N= 132.3 N

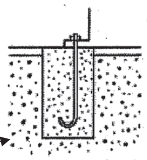
(7) The stress arising to the anchor bolt

1.The tensile stress. σ=Rb/A= 2.4 MPa < ft = 176.4 MPa

2.The shearing stress. τ=Q/A= 1.7 MPa < fs = 132.3 MPa

3.The stress when affected by both the shearing and the tensile at the same time. fts=1.4ft-1.6 τ = 244.2 MPa

σ = 2.4 MPa < fts= 176.4 MPa



(8) The construction way of the anchor bolt

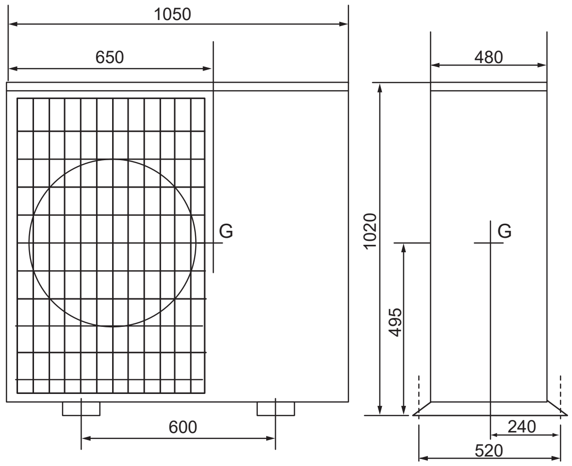
1.The construction way of the anchor bolt. = Boxed J type anchor

2.The thickness of the concrete. = 120 mm = 0.120 m

3.The length of buried part of bolt. = 70 mm = 0.070 m

4.The permissible withdrawal weight. Ta= 3136 N > Rb= 185.7 N

Since the results from the examination above, the anchor bolt has enough strength



1.Type: Power Inverter Outdoor unit

2.Model name: PUZ-WM50VHA(-BS)

3.Specification

(1) Unit mass W= 71 kg

(2) Anchor bolt

1.The total number of bolts. N= 4

2.The size and shape. "=M 10 type

3.The axis section area per one bolt. A= 78 mm^2= 78×10^{-6} m^2

4.The total number of bolts in one side which be pulled stronger when the unit inverted. Nt= 2

(3) The height between the installing surface and the center of gravity of the unit Hg= 430 mm= 0.430 m

(4) The bolt-span from the examination angle L= 370 mm= 0.370 m

(5) The distance between the center of bolt and the center of gravity of the unit Lg= 180 mm(Lg≦L/2)= 0.180 m

4.The examination calculation (by rounding off to the first decimal place of each item)

(1) The horizontal seismic coeffcient for designing Kh= 1.0

(2) The vertical seismic coefficient for designing Kv=Kh/2= 0.5

(3) The horizontal earthquake forces for designing Fh=Kh·W·9.8= 695.8 N

(4) The vertical earthquake forces for designing Fv=Kv·W·9.8= 347.9 N

(5) The withdrawal strength of the anchor bolt $Rb=\frac{Fh\cdot Hg-(W\cdot 9.8-Fv)\cdot Lg}{L\cdot Nt}$ = 319.7 N

(6) The shear forces of the anchor bolt Q=Fh/N= 174.0 N

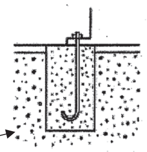
(7) The stress arising to the anchor bolt

1.The tensile stress. σ=Rb/A= 4.1 MPa < ft = 176.4 MPa

2.The shearing stress. τ=Q/A= 2.2 MPa < fs = 132.3 MPa

3.The stress when affected by both the shearing and the tensile at the same time. fts=1.4ft-1.6 τ = 243.4 MPa

σ = 4.1 MPa < fts= 243.4 MPa



(8) The construction way of the anchor bolt

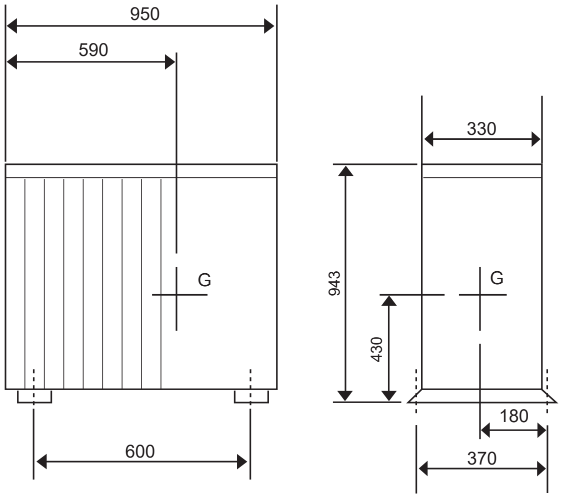
1.The construction way of the anchor bolt. = Boxed J type anchor

2.The thickness of the concrete. = 120 mm = 0.120 m

3.The length of buried part of bolt. = 70 mm = 0.070 m

4.The permissible withdrawal weight. Ta= 3136 N > Rb= 320 N

Since the results from the examination above, the anchor bolt has enough strength



8 Earthquake-proof strength analysis

1.Type: Power Inverter Outdoor unit

2.Model name: PUZ-WM60VAA(-BS), PUZ-WM85VAA(-BS)

3.Specification

(1) Unit mass W= 98 kg

(2) Anchor bolt

1.The total number of bolts. N= 4

2.The size and shape. "=M 10 type

3.The axis section area per one bolt. A= 78 mm^2= 78×10^{-6} m^2

4.The total number of bolts in one side which be pulled stronger when the unit inverted. Nt= 2

(3) The height between the installing surface and the center of gravity of the unit Hg= 450 mm= 0.450 m

(4) The bolt-span from the examination angle L= 520 mm= 0.520 m

(5) The distance between the center of bolt and the center of gravity of the unit Lg= 225 mm(Lg≦L/2)= 0.225 m

4.The examination calculation (by rounding off to the first decimal place of each item)

(1) The horizontal seismic coeffcient for designing Kh= 1.0

(2) The vertical seismic coefficient for designing Kv=Kh/2= 0.5

(3) The horizontal earthquake forces for designing Fh=Kh·W·9.8= 960.4 N

(4) The vertical earthquake forces for designing Fv=Kv·W·9.8= 480.2 N

(5) The withdrawal strength of the anchor bolt $Rb=\frac{Fh\cdot Hg-(W\cdot 9.8-Fv)\cdot Lg}{L\cdot Nt}$ = 311.7 N

(6) The shear forces of the anchor bolt Q=Fh/N= 240.1 N

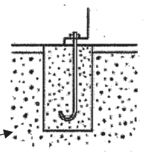
(7) The stress arising to the anchor bolt

1.The tensile stress. σ=Rb/A= 4.0 MPa < ft = 176.4 MPa

2.The shearing stress. τ=Q/A= 3.1 MPa < fs = 132.3 MPa

3.The stress when affected by both the shearing and the tensile at the same time. fts=1.4ft-1.6 τ = 242.0 MPa

σ= 4.0 MPa < fts= 242.0 MPa



(8) The construction way of the anchor bolt

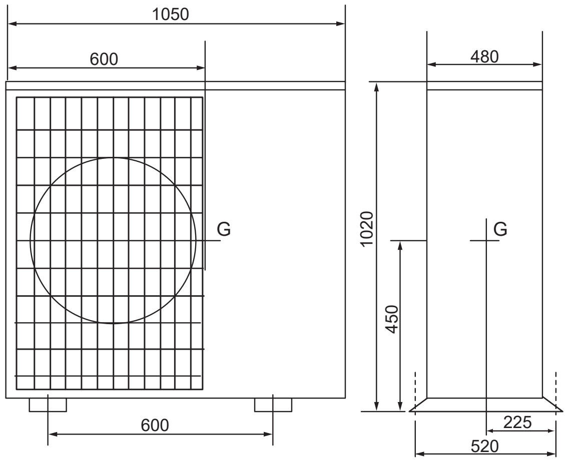
1.The construction way of the anchor bolt. = Boxed J type anchor

2.The thickness of the concrete. = 120 mm = 0.120 m

3.The length of buried part of bolt. = 70 mm = 0.070 m

4.The permissible withdrawal weight. Ta= 3136 N > Rb= 312 N

Since the results from the examination above, the anchor bolt has enough strength



1.Type: Power Inverter Outdoor unit

2.Model name: PUZ-WM85YAA(-BS)

3.Specification

(1) Unit mass W= 111 kg

(2) Anchor bolt

1.The total number of bolts. N= 4

2.The size and shape. "=M 10 type

3.The axis section area per one bolt. A= 78 mm^2= 78×10^{-6} m^2

4.The total number of bolts in one side which be pulled stronger when the unit inverted. Nt= 2

(3) The height between the installing surface and the center of gravity of the unit Hg= 450 mm= 0.450 m

(4) The bolt-span from the examination angle L= 520 mm= 0.520 m

(5) The distance between the center of bolt and the center of gravity of the unit Lg= 225 mm(Lg≦L/2)= 0.225 m

4.The examination calculation (by rounding off to the first decimal place of each item)

(1) The horizontal seismic coeffcient for designing Kh= 1.0

(2) The vertical seismic coefficient for designing Kv=Kh/2= 0.5

(3) The horizontal earthquake forces for designing Fh=Kh･W･9.8= 1087.8 N

(4) The vertical earthquake forces for designing Fv=Kv･W･9.8= 543.9 N

(5) The withdrawal strength of the anchor bolt $Rb=\frac{Fh \cdot Hg-(W \cdot 9.8-Fv) \cdot Lg}{L \cdot Nt}$ = 353.0 N

(6) The shear forces of the anchor bolt Q=Fh/N= 272.0 N

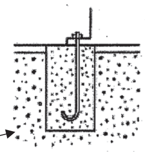
(7) The stress arising to the anchor bolt

1.The tensile stress. σ=Rb/A= 4.5 MPa < ft = 176.4 MPa

2.The shearing stress. τ=Q/A= 3.5 MPa < fs = 132.3 MPa

3.The stress when affected by both the shearing and the tensile at the same time. fts=1.4ft-1.6 τ = 241.4 MPa

σ= 4.5 MPa < fts= 241.4 MPa



(8) The construction way of the anchor bolt

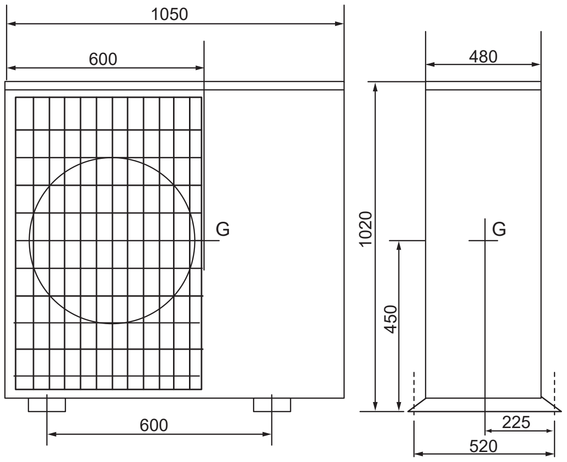
1.The construction way of the anchor bolt. = Boxed J type anchor

2.The thickness of the concrete. = 120 mm = 0.120 m

3.The length of buried part of bolt. = 70 mm = 0.070 m

4.The permissible withdrawal weight. Ta= 3136 N > Rb= 353 N

Since the results from the examination above, the anchor bolt has enough strength



8 Earthquake-proof strength analysis

1.Type: Power Inverter Outdoor unit

2.Model name: PUZ-WM112VAA(-BS)

3.Specification

(1) Unit mass W= 119 kg

(2) Anchor bolt

1.The total number of bolts. N= 4

2.The size and shape. "=M 10 type

3.The axis section area per one bolt. A= 78 mm^2= 78×10^{-6} m^2

4.The total number of bolts in one side which be pulled stronger when the unit inverted. Nt= 2

(3) The height between the installing surface and the center of gravity of the unit Hg= 450 mm= 0.450 m

(4) The bolt-span from the examination angle L= 520 mm= 0.520 m

(5) The distance between the center of bolt and the center of gravity of the unit Lg= 225 mm($Lg \leqq L/2$)= 0.225 m

4.The examination calculation (by rounding off to the first decimal place of each item)

(1) The horizontal seismic coeffcient for designing Kh= 1.0

(2) The vertical seismic coefficient for designing Kv=Kh/2= 0.5

(3) The horizontal earthquake forces for designing Fh=Kh·W·9.8= 1166.2 N

(4) The vertical earthquake forces for designing Fv=Kv·W·9.8= 583.1 N

(5) The withdrawal strength of the anchor bolt $Rb=\frac{Fh \cdot Hg-(W \cdot 9.8-Fv) \cdot Lg}{L \cdot Nt}$ = 378.5 N

(6) The shear forces of the anchor bolt Q=Fh/N= 291.6 N

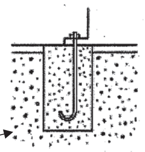
(7) The stress arising to the anchor bolt

1.The tensile stress. σ=Rb/A= 4.9 MPa < ft = 176.4 MPa

2.The shearing stress. τ=Q/A= 3.7 MPa < fs = 132.3 MPa

3.The stress when affected by both the shearing and the tensile at the same time. fts=1.4ft-1.6 τ = 241.0 MPa

σ = 4.9 MPa < fts= 241.0 MPa



(8) The construction way of the anchor bolt

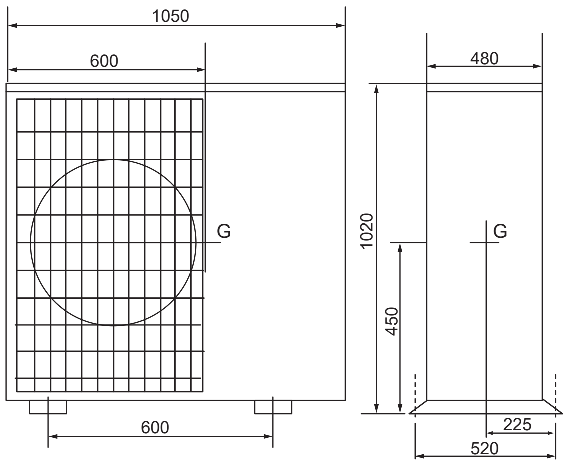
1.The construction way of the anchor bolt. = Boxed J type anchor

2.The thickness of the concrete. = 120 mm = 0.120 m

3.The length of buried part of bolt. = 70 mm = 0.070 m

4.The permissible withdrawal weight. Ta= 3136 N > Rb= 378 N

Since the results from the examination above, the anchor bolt has enough strength



1.Type: Power Inverter Outdoor unit

2.Model name: PUZ-WM112YAA(-BS)

3.Specification

(1) Unit mass W= 132 kg

(2) Anchor bolt

1.The total number of bolts. N= 4

2.The size and shape. "=M 10 type

3.The axis section area per one bolt. A= 78 mm^2= 78×10^{-6} m^2

4.The total number of bolts in one side which be pulled stronger when the unit inverted. Nt= 2

(3) The height between the installing surface and the center of gravity of the unit Hg= 450 mm= 0.450 m

(4) The bolt-span from the examination angle L= 520 mm= 0.520 m

(5) The distance between the center of bolt and the center of gravity of the unit Lg= 225 mm($Lg \leqq L/2$)= 0.225 m

4.The examination calculation (by rounding off to the first decimal place of each item)

(1) The horizontal seismic coeffcient for designing Kh= 1.0

(2) The vertical seismic coefficient for designing Kv=Kh/2= 0.5

(3) The horizontal earthquake forces for designing $Fh=Kh \cdot W \cdot 9.8=$ 1293.6 N

(4) The vertical earthquake forces for designing $Fv=Kv \cdot W \cdot 9.8=$ 646.8 N

(5) The withdrawal strength of the anchor bolt $Rb=\frac{Fh \cdot Hg-(W \cdot 9.8-Fv) \cdot Lg}{L \cdot Nt}$ = 419.8 N

(6) The shear forces of the anchor bolt Q=Fh/N= 323.4 N

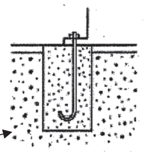
(7) The stress arising to the anchor bolt

1.The tensile stress. σ=Rb/A= 5.4 MPa < ft = 176.4 MPa

2.The shearing stress. τ=Q/A= 4.1 MPa < fs = 132.3 MPa

3.The stress when affected by both the shearing and the tensile at the same time. $fts=1.4ft-1.6\tau$ = 240.4 MPa

σ= 5.4 MPa < fts= 240.4 MPa



(8) The construction way of the anchor bolt

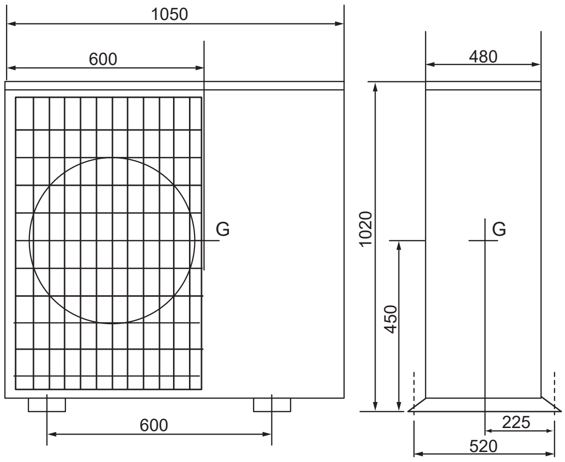
1.The construction way of the anchor bolt. = Boxed J type anchor

2.The thickness of the concrete. = 120 mm = 0.120 m

3.The length of buried part of bolt. = 70 mm = 0.070 m

4.The permissible withdrawal weight. Ta= 3136 N > Rb= 420 N

Since the results from the examination above, the anchor bolt has enough strength



8 Earthquake-proof strength analysis

1.Type: Power Inverter Outdoor unit

2.Model name: PUZ-HWM140VHA(-BS)

3.Specification

(1) Unit mass W= 132 kg

(2) Anchor bolt

1.The total number of bolts. N= 4

2.The size and shape. "=M 10 type

3.The axis section area per one bolt. A= 78 mm^2= 78 × 10^{-6} m^2

4.The total number of bolts in one side which be pulled stronger when the unit inverted. Nt= 2

(3) The height between the installing surface and the center of gravity of the unit Hg= 490 mm= 0.49 m

(4) The bolt-span from the examination angle L= 370 mm= 0.37 m

(5) The distance between the center of bolt and the center of gravity of the unit Lg= 175 mm(Lg≦L/2)= 0.175 m

4.The examination calculation (by rounding off to the first decimal place of each item)

(1) The horizontal seismic coeffcient for designing Kh= 1.0

(2) The vertical seismic coefficient for designing Kv=Kh/2= 0.5

(3) The horizontal earthquake forces for designing Fh=Kh･W･9.8= 1293.6 N

(4) The vertical earthquake forces for designing Fv=Kv･W･9.8= 646.8 N

(5) The withdrawal strength of the anchor bolt $Rb=\frac{Fh\cdot Hg-(W\cdot 9.8-Fv)\cdot Lg}{L\cdot Nt}$ = 703.6 N

(6) The shear forces of the anchor bolt Q=Fh/N= 323.4 N

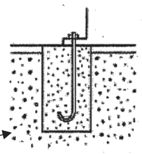
(7) The stress arising to the anchor bolt

1.The tensile stress. σ=Rb/A= 9.0 MPa < ft = 176.4 MPa

2.The shearing stress. τ=Q/A= 4.1 MPa < fs = 132.3 MPa

3.The stress when affected by both the shearing and the tensile at the same time. fts=1.4ft-1.6 τ = 240.3 MPa

σ = 9.0 MPa < fts= 176.4 MPa



(8) The construction way of the anchor bolt

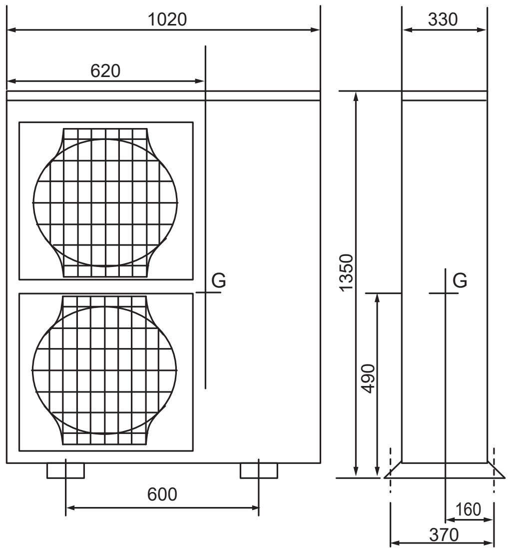
1.The construction way of the anchor bolt. = Boxed J type anchor

2.The thickness of the concrete. = 120 mm = 0.120 m

3.The length of buried part of bolt. = 70 mm = 0.070 m

4.The permissible withdrawal weight. Ta= 3136 N > Rb= 703.6 N

Since the results from the examination above, the anchor bolt has enough strength



8 Earthquake-proof strength analysis

1.Type: Power Inverter Outdoor unit

2.Model name: PUZ-HWM140YHA(-BS)

3.Specification

(1) Unit mass W= 143 kg

(2) Anchor bolt

1.The total number of bolts. N= 4

2.The size and shape. "=M 10 type

3.The axis section area per one bolt. A= 78 mm^2= 78×10^{-6} m^2

4.The total number of bolts in one side which be pulled stronger when the unit inverted. Nt= 2

(3) The height between the installing surface and the center of gravity of the unit Hg= 550 mm= 0.55 m

(4) The bolt-span from the examination angle L= 370 mm= 0.37 m

(5) The distance between the center of bolt and the center of gravity of the unit Lg= 175 mm($Lg \leqq L/2$)= 0.175 m

4.The examination calculation (by rounding off to the first decimal place of each item)

(1) The horizontal seismic coeffcient for designing Kh= 1.0

(2) The vertical seismic coefficient for designing Kv=Kh/2= 0.5

(3) The horizontal earthquake forces for designing Fh=Kh·W·9.8= 1401.4 N

(4) The vertical earthquake forces for designing Fv=Kv·W·9.8= 700.7 N

(5) The withdrawal strength of the anchor bolt $Rb = \frac{Fh \cdot Hg - (W \cdot 9.8 - Fv) \cdot Lg}{L \cdot Nt}$ = 875.9 N

(6) The shear forces of the anchor bolt Q=Fh/N= 350.4 N

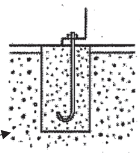
(7) The stress arising to the anchor bolt

1.The tensile stress. σ=Rb/A= 11.2 MPa < ft = 176.4 MPa

2.The shearing stress. τ=Q/A= 4.5 MPa < fs = 132.3 MPa

3.The stress when affected by both the shearing and the tensile at the same time. fts=1.4ft-1.6 τ = 239.8 MPa

σ= 11.2 MPa < fts= 176.4 MPa



(8) The construction way of the anchor bolt

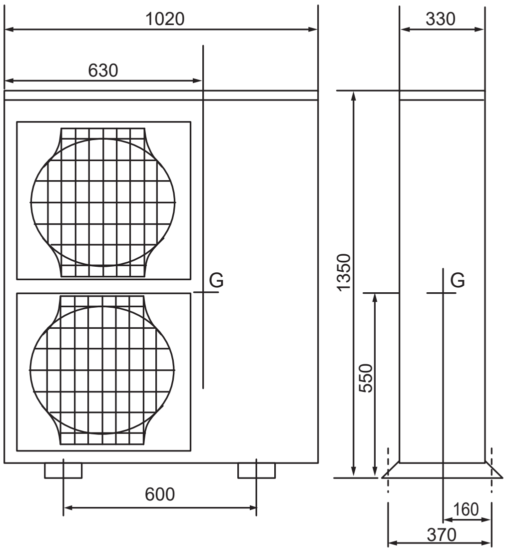
1.The construction way of the anchor bolt. = Boxed J type anchor

2.The thickness of the concrete. = 120 mm = 0.120 m

3.The length of buried part of bolt. = 70 mm = 0.070 m

4.The permissible withdrawal weight. Ta= 3136 N > Rb= 875.9 N

Since the results from the examination above, the anchor bolt has enough strength



1.Type: Power Inverter Outdoor unit

2.Model name: SUZ-SWM30VA, SUZ-SHWM30VAH, SUZ-SWM40/60VA2(-SC), SUZ-SHWM40VAH(-SC)

3.Specification

(1) Unit mass W= 40 kg

(2) Anchor bolt

1.The total number of bolts. N= 4

2.The size and shape. "=M 10 type

3.The axis section area per one bolt. A= 78 mm^2= 7.8E-05 m^2

4.The total number of bolts in one side which be pulled stronger when the unit inverted. Nt= 2

(3) The height between the installing surface and the center of gravity of the unit Hg= 340 mm= 0.34 m

(4) The bolt-span from the examination angle L= 290 mm= 0.29 m

(5) The distance between the center of bolt and the center of gravity of the unit Lg= 140 mm(Lg≦L/2)= 0.14 m

4.The examination calculation (by rounding off to the first decimal place of each item)

(1) The horizontal seismic coeffcient for designing Kh= 1.0

(2) The vertical seismic coefficient for designing Kv=Kh/2= 0.5

(3) The horizontal earthquake forces for designing Fh=Kh·W·9.8= 392.0 N

(4) The vertical earthquake forces for designing Fv=Kv·W·9.8= 196.0 N

(5) The withdrawal strength of the anchor bolt $Rb=\dfrac{Fh\cdot Hg-(W\cdot 9.8-Fv)\cdot Lg}{L\cdot Nt}$ = 182.5 N

(6) The shear forces of the anchor bolt Q=Fh/N= 98.0 N

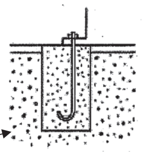
(7) The stress arising to the anchor bolt

1.The tensile stress. σ=Rb/A= 2.3 MPa < ft = 176.4 MPa

2.The shearing stress. τ=Q/A= 1.3 MPa < fs = 132.3 MPa

3.The stress when affected by both the shearing and the tensile at the same time. fts=1.4ft-1.6 τ = 244.9 MPa

σ = 2.3 MPa < fts= 176.4 MPa



(8) The construction way of the anchor bolt

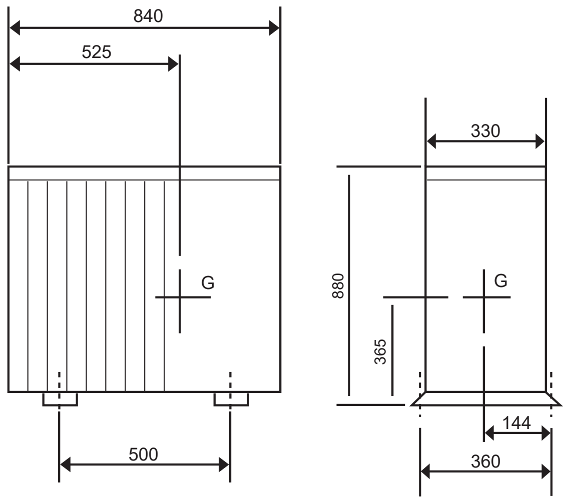
1.The construction way of the anchor bolt. = Boxed J type anchor

2.The thickness of the concrete. = 120 mm = 0.120 m

3.The length of buried part of bolt. = 70 mm = 0.070 m

4.The permissible withdrawal weight. Ta= 3136 N > Rb= 182.5 N

Since the results from the examination above, the anchor bolt has enough strength



8 Earthquake-proof strength analysis

1.Type: Power Inverter Outdoor unit

2.Model name: SUZ-SHWM60VAH, SUZ-SWM80VA(H)2, SUZ-SWM100VA(H)

3.Specification

(1) Unit mass W= 53.5 kg

(2) Anchor bolt

1.The total number of bolts. N= 4

2.The size and shape. "=M 10 type

3.The axis section area per one bolt. A= 78 mm^2= 7.8E-05 m^2

4.The total number of bolts in one side which be pulled stronger when the unit inverted. Nt= 2

(3) The height between the installing surface and the center of gravity of the unit Hg= 390 mm= 0.39 m

(4) The bolt-span from the examination angle L= 330 mm= 0.33 m

(5) The distance between the center of bolt and the center of gravity of the unit Lg= 150 mm(Lg≦L/2)= 0.15 m

4.The examination calculation (by rounding off to the first decimal place of each item)

(1) The horizontal seismic coeffcient for designing Kh= 1.0

(2) The vertical seismic coefficient for designing Kv=Kh/2= 0.5

(3) The horizontal earthquake forces for designing Fh=Kh·W·9.8= 524.3 N

(4) The vertical earthquake forces for designing Fv=Kv·W·9.8= 262.2 N

(5) The withdrawal strength of the anchor bolt $Rb=\frac{Fh\cdot Hg-(W\cdot 9.8-Fv)\cdot Lg}{L\cdot Nt}$ = 250.2 N

(6) The shear forces of the anchor bolt Q=Fh/N= 131.1 N

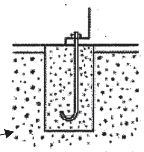
(7) The stress arising to the anchor bolt

1.The tensile stress. σ=Rb/A= 3.2 MPa $<$ ft = 176.4 MPa

2.The shearing stress. τ=Q/A= 1.7 MPa $<$ fs = 132.3 MPa

3.The stress when affected by both the shearing and the tensile at the same time. fts=1.4ft-1.6 τ = 244.3 MPa

σ = 3.2 MPa $<$ fts= 176.4 MPa



(8) The construction way of the anchor bolt

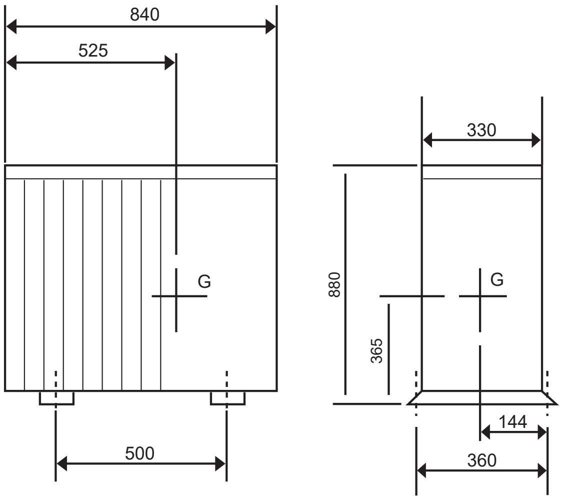
1.The construction way of the anchor bolt. = Boxed J type anchor

2.The thickness of the concrete. = 120 mm = 0.120 m

3.The length of buried part of bolt. = 70 mm = 0.070 m

4.The permissible withdrawal weight. Ta= 3136 N $>$ Rb= 250.2 N

Since the results from the examination above, the anchor bolt has enough strength



8 Earthquake-proof strength analysis

1.Type: Power Inverter Outdoor unit

2.Model name: PUZ-S(H)WM60VAA, PUZ-S(H)WM80VAA, PUZ-S(H)WM100VAA, PUZ-S(H)WM120VAA

3.Specification

(1) Unit mass W= 113.5 kg

(2) Anchor bolt

1.The total number of bolts. N= 4

2.The size and shape. "=M 10 type

3.The axis section area per one bolt. A= 78 mm^2= 7.8E-05 m^2

4.The total number of bolts in one side which be pulled stronger when the unit inverted. Nt= 2

(3) The height between the installing surface and the center of gravity of the unit Hg= 480 mm= 0.48 m

(4) The bolt-span from the examination angle L= 512.2 mm= 0.5122 m

(5) The distance between the center of bolt and the center of gravity of the unit Lg= 200 mm(Lg≦L/2)= 0.2 m

4.The examination calculation (by rounding off to the first decimal place of each item)

(1) The horizontal seismic coeffcient for designing Kh= 1.0

(2) The vertical seismic coefficient for designing Kv=Kh/2= 0.5

(3) The horizontal earthquake forces for designing $Fh=Kh\cdot W\cdot 9.8=$ 1112.3 N

(4) The vertical earthquake forces for designing $Fv=Kv\cdot W\cdot 9.8=$ 556.2 N

(5) The withdrawal strength of the anchor bolt $Rb=\frac{Fh\cdot Hg-(W\cdot 9.8-Fv)\cdot Lg}{L\cdot Nt}$ = 412.6 N

(6) The shear forces of the anchor bolt Q=Fh/N= 278.1 N

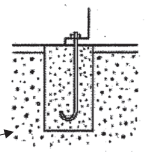
(7) The stress arising to the anchor bolt

1.The tensile stress. σ =Rb/A= 5.3 MPa < ft = 176.4 MPa

2.The shearing stress. τ =Q/A= 3.6 MPa< fs = 132.3 MPa

3.The stress when affected by both the shearing and the tensile at the same time. fts=1.4ft-1.6 τ = 241.3 MPa

σ = 5.3 MPa < fts= 176.4 MPa



(8) The construction way of the anchor bolt

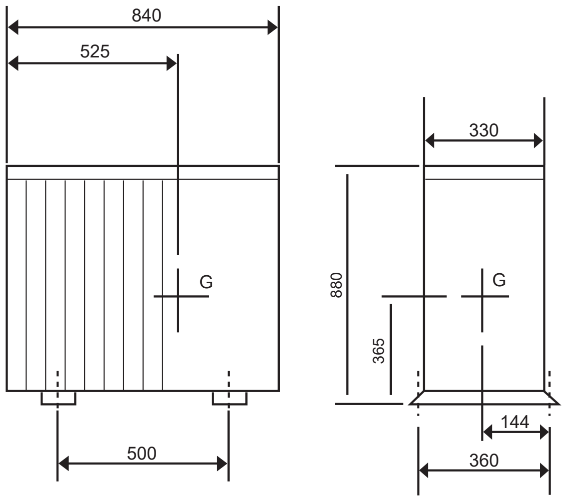
1.The construction way of the anchor bolt. = Boxed J type anchor

2.The thickness of the concrete. = 120 mm = 0.120 m

3.The length of buried part of bolt. = 70 mm = 0.070 m

4.The permissible withdrawal weight. Ta= 3136 N > Rb= 412.6 N

Since the results from the examination above, the anchor bolt has enough strength



1.Type: Power Inverter Outdoor unit

2.Model name: PUZ-S(H)WM140VAA

3.Specification

(1) Unit mass W= 114.5 kg

(2) Anchor bolt

1.The total number of bolts. N= 4

2.The size and shape. "=M 10 type

3.The axis section area per one bolt. A= 78 mm^2= 7.8E-05 m^2

4.The total number of bolts in one side which be pulled stronger when the unit inverted. Nt= 2

(3) The height between the installing surface and the center of gravity of the unit Hg= 460 mm= 0.46 m

(4) The bolt-span from the examination angle L= 512.2 mm= 0.5122 m

(5) The distance between the center of bolt and the center of gravity of the unit Lg= 252.2 mm($Lg \leqq L/2$)= 0.260 m

4.The examination calculation (by rounding off to the first decimal place of each item)

(1) The horizontal seismic coeffcient for designing Kh= 1.0

(2) The vertical seismic coefficient for designing Kv=Kh/2= 0.5

(3) The horizontal earthquake forces for designing Fh=Kh·W·9.8= 1122.1 N

(4) The vertical earthquake forces for designing Fv=Kv·W·9.8= 561.1 N

(5) The withdrawal strength of the anchor bolt $Rb=\frac{Fh \cdot Hg-(W \cdot 9.8-Fv) \cdot Lg}{L \cdot Nt}$ = 365.7 N

(6) The shear forces of the anchor bolt Q=Fh/N= 280.5 N

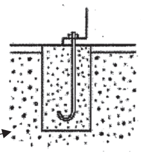
(7) The stress arising to the anchor bolt

1.The tensile stress. σ=Rb/A= 4.7 MPa $<$ ft = 176.4 MPa

2.The shearing stress. τ = Q/A= 3.6 MPa $<$ fs = 132.3 MPa

3.The stress when affected by both the shearing and the tensile at the same time. fts=1.4ft-1.6 τ = 241.2 MPa

σ = 4.7 MPa $<$ fts= 176.4 MPa



(8) The construction way of the anchor bolt

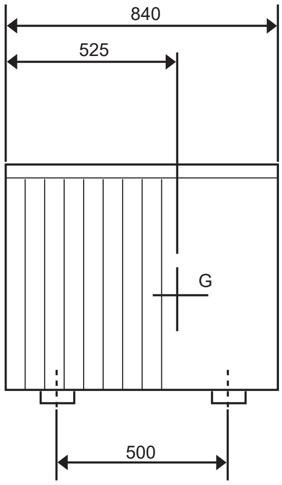
1.The construction way of the anchor bolt. = Boxed J type anchor

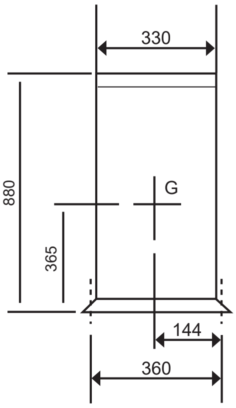
2.The thickness of the concrete. = 120 mm = 0.120 m

3.The length of buried part of bolt. = 70 mm = 0.070 m

4.The permissible withdrawal weight. Ta= 3136 N $>$ Rb= 365.7 N

Since the results from the examination above, the anchor bolt has enough strength





8 Earthquake-proof strength analysis

1.Type: Power Inverter Outdoor unit

2.Model name: PUZ-S(H)WM80YAA, PUZ-S(H)WM100YAA, PUZ-S(H)WM120YAA, PUZ-S(H)WM140YAA

3.Specification

(1) Unit mass W= 126.0 kg

(2) Anchor bolt

1.The total number of bolts. N= 4

2.The size and shape. "=M 10 type

3.The axis section area per one bolt. A= 78 mm^2= 7.8E-05 m^2

4.The total number of bolts in one side which be pulled stronger when the unit inverted. Nt= 2

(3) The height between the installing surface and the center of gravity of the unit Hg= 500 mm= 0.5 m

(4) The bolt-span from the examination angle L= 512.2 mm= 0.5122 m

(5) The distance between the center of bolt and the center of gravity of the unit Lg= 232.2 mm($Lg \leqq L/2$)= 0.280 m

4.The examination calculation (by rounding off to the first decimal place of each item)

(1) The horizontal seismic coeffcient for designing Kh= 1.0

(2) The vertical seismic coefficient for designing Kv=Kh/2= 0.5

(3) The horizontal earthquake forces for designing $Fh=Kh\cdot W\cdot 9.8=$ 1234.8 N

(4) The vertical earthquake forces for designing $Fv=Kv\cdot W\cdot 9.8=$ 617.4 N

(5) The withdrawal strength of the anchor bolt $Rb=\frac{Fh\cdot Hg-(W\cdot 9.8-Fv)\cdot Lg}{L\cdot Nt}$ = 462.7 N

(6) The shear forces of the anchor bolt Q=Fh/N= 308.7 N

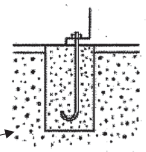
(7) The stress arising to the anchor bolt

1.The tensile stress. $\sigma=Rb/A=$ 5.9 MPa $<$ ft = 176.4 MPa

2.The shearing stress. $\tau=Q/A=$ 4.0 MPa $<$ fs = 132.3 MPa

3.The stress when affected by both the shearing and the tensile at the same time. $fts=1.4ft-1.6\tau=$ 240.6 MPa

$\sigma=$ 5.9 MPa $<$ fts= 176.4 MPa



(8) The construction way of the anchor bolt

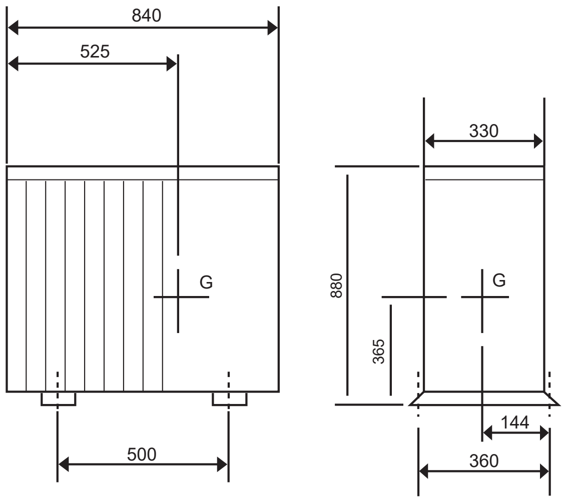
1.The construction way of the anchor bolt. = Boxed J type anchor

2.The thickness of the concrete. = 120 mm = 0.120 m

3.The length of buried part of bolt. = 70 mm = 0.070 m

4.The permissible withdrawal weight. Ta= 3136 N $>$ Rb= 462.7 N

Since the results from the examination above, the anchor bolt has enough strength



9 Error code table

Display	Contents to be inspected (During operation)
U1	Abnormal high pressure (63H operated)
U2	Abnormal temperature of discharge/Comp. Surface, shortage of refrigerant
U3	Open/short (RT62)
U4	Open/short(RT61, RT64, RT65,RT68)
U5	Abnormal temperature of heatsink
U6	Abnormality in power module
U7	Abnormal super heat
U8	Abnormality in outdoor fan motor
U9	Voltage error, Current sensor error (Input current)
Ud	Overheat error
UF	Compressor overcurrent shutoff (When Comp. locked)
UH	Current sensor error (Comp. current), Input overcurrent shutoff
UL	Abnormal low pressure (63L operated)
UP	Compressor overcurrent shutoff
P4	Drain sensor abnormality, Contact failure of drain float switch
P5	Drain over flow protection
P6	Freezing/overheating protection
P8	Abnormality temperature of pipe
PA	Water leakage
Pb	Fan trouble (Indoor unit)
UE	Closed valve
PE	Abnormal temperature of inlet water
Ed	Serial communication error
EA, Eb, EC	Incorrect wiring indoor / outdoor unit connection
E6 - E9	Indoor / Outdoor unit communication error
E0, E3 - E5	Remote communication error
EE, EF	Combination error, undefined error
A0	Duplex address error
A2	Transmission processor hardware error
A3	Transmission bus BUSY error
A6	Signal communication error with transmission processor
A7	No ACK error
A8	No response frame error
L6	Circulation water freeze protection
PL	Outdoor refrigerant system abnormality

Display	Contents to be inspected (When power is turned on)
F3	63L connector (red) open
F5	63H connector (yellow) open
F9	2 connectors (63H and 63L) open
FC	Outdoor control system error

(1)Packaged-type units

■ **PUZ-WZ50VAA(-BS) PUZ-WZ60VAA(-BS) PUZ-WZ80VAA(-BS)**

1. Selecting the installation location

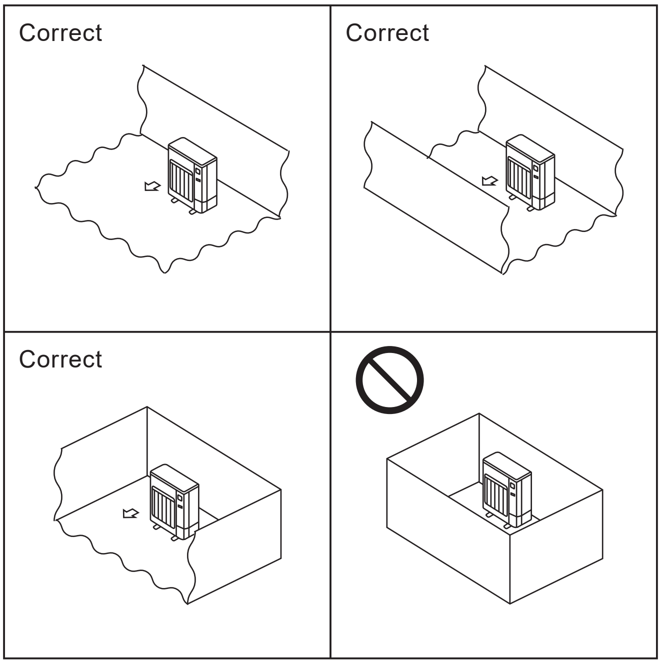


Fig. 1-1

1.1. Choosing the outdoor unit installation location

○ R290 is heavier than air—as well as other refrigerants—so tends to accumulate at the base (in the vicinity of the floor). If R290 accumulates around base, it may reach a flammable concentration in case room is small. To avoid ignition, maintaining a safe work environment is required by ensuring appropriate ventilation. If a refrigerant leak is confirmed in a room or an area where there is insufficient ventilation, refrain from using of flames until the work environment can be improved by ensuring appropriate ventilation.

- Avoid locations exposed to direct sunlight or other sources of heat.
- Select a location from which noise emitted by the unit will not inconvenience neighbors.
- Select a location permitting easy wiring and pipe access to the power source and indoor unit.
- Avoid locations where combustible gases may leak, be produced, flow, or accumulate.
- Note that water may drain from the unit during operation.
- Select a level location that can bear the weight and vibration of the unit.
- Avoid locations where the unit can be covered by snow. In areas where heavy snow fall is anticipated, special precautions such as raising the installation location or installing a hood on the air intake must be taken to prevent the snow from blocking the air intake or blowing directly against it. This can reduce the airflow and a malfunction may result.
- Avoid locations exposed to oil, steam, or sulfuric gas.
- Use the transportation handles of the outdoor unit to transport the unit. If the unit is carried from the bottom, hands or fingers may be pinched.
- Refrigerant pipes connection shall be accessible for maintenance purposes.

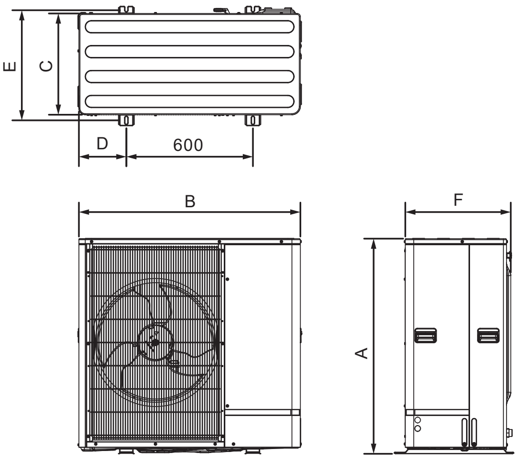
○ Install outdoor units in a place where at least one of the four sides is open, and in a sufficiently large space without depressions. (Fig. 2-1)

- Define a protective zone close around the unit according to section “3. Protective zone”.

⚠ **CAUTION:**

- **Perform grounding.**
  Do not connect the ground wire to a gas pipe, water pipe arrester or telephone ground wire. Defective grounding could cause an electric shock.
- **Do not install the unit in a place where an inflammable gas leaks.**
  If gas leaks and accumulates in the area surrounding the unit, it could cause an explosion.
- **Install a ground leakage breaker depending on the installation place (where it is humid).**
  If a ground leakage breaker is not installed, it could cause an electric shock.
- **Perform the drainage/piping work securely according to the Installation Manual.**
  If there is a defect in the drainage/piping work, water could drop from the unit and household goods could be wet and damaged.

2.2. Outline dimensions (Outdoor unit) (Fig. 2-2)



(mm)

Models	A	B	C	D	E	F
50	1020	1050	480	225	520	500
60	1020	1050	480	225	520	500
80	1020	1050	480	225	520	500

Fig. 1-2

2.3. Ventilation and service space

2.3.1. Windy location installation

When installing the outdoor unit on a rooftop or other location unprotected from the wind, situate the air outlet of the unit so that it is not directly exposed to strong winds. Strong wind entering the air outlet may impede the normal airflow and a malfunction may result.

The following shows three examples of precautions against strong winds.

(1) Face the air outlet towards the nearest available wall 35 cm away from the wall. (Fig. 2-3)

(2) Install an air guide if the unit is installed in a location where strong winds from a typhoon, etc. may directly enter the air outlet. (Fig. 2-4)
  A: Air Protect Guide

(3) Position the unit so that the air outlet blows perpendicularly to the direction of the wind. (Fig. 2-5)
  B: Wind direction

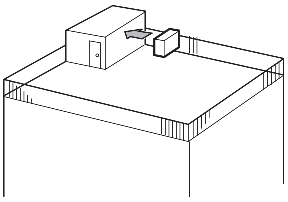


Fig. 1-3

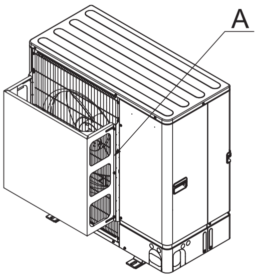


Fig. 1-4

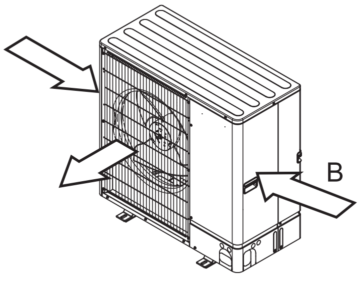


Fig. 1-5

2.3.2. When installing a single outdoor unit

Minimum dimensions are as follows, except for Max., meaning Maximum dimensions, indicated.

Refer to the figures for each case.

(1) Obstruction or closed surface at rear only (Fig. 2-6)
(2) Obstructions or closed surfaces at rear and above only (Fig. 2-7)
  - Do not install an air outlet guide for upward airflow.
(3) Obstructions or closed surfaces at rear and sides only (Fig. 2-8)
(4) Obstruction or closed surface at front only (Fig. 2-9)
(5) Obstructions or closed surfaces at front and rear only (Fig. 2-10)
(6) Obstructions or closed surfaces at rear, sides, and above only (Fig. 2-11)
  - Do not install an air outlet guide for upward airflow.

2.3.3. When installing multiple outdoor units

Leave a space of no less than 50 mm between the units.

Refer to the figures for each case.

(1) Obstruction or closed surface at rear only (Fig. 2-12)
(2) Obstructions or closed surfaces at rear and above only (Fig. 2-13)
  - No more than 3 units must be installed side by side. In addition, leave space as shown.
   C: Space (Fig. 2-13)
  - Do not install air outlet guides for upward airflow.
(3) Obstruction or closed surface at front only (Fig. 2-14)
(4) Obstructions or closed surfaces at front and rear only (Fig. 2-15)
(5) Single parallel unit arrangement (Fig. 2-16)
  * When using air outlet guides installed for upward airflow, the distance between the frontal faces of the units should be no less than 500 mm.
(6) Multiple parallel unit arrangement (Fig. 2-17)
  * When using air outlet guides installed for upward airflow, the distance between the frontal faces of the units should be no less than 1000 mm.
(7) Stacked unit arrangement (Fig. 2-18)
  - The units can be stacked up to two units high.
  - No more than 2 stacked units must be installed side by side. In addition, leave space as shown.
  D: Space (Fig. 2-18)

UNIT : mm

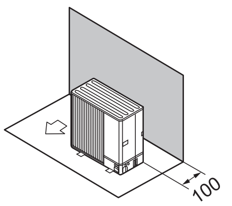


Fig. 1-6

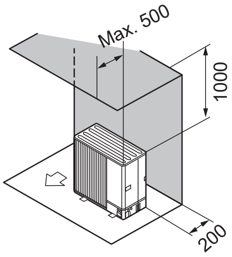


Fig. 1-7

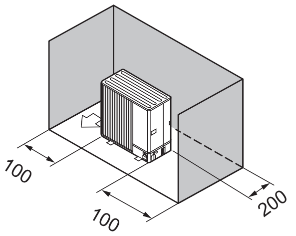


Fig. 1-8

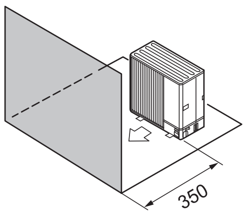


Fig. 1-9

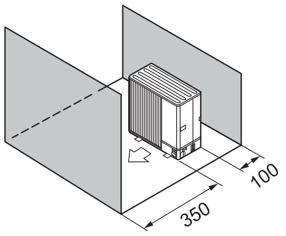


Fig. 1-10

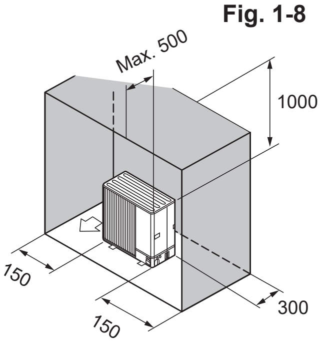


Fig. 1-11

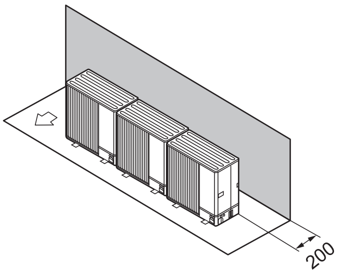


Fig. 1-12

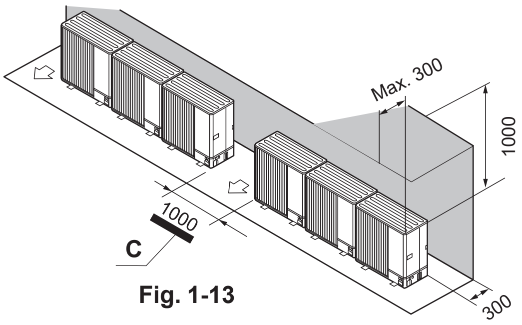


Fig. 1-13

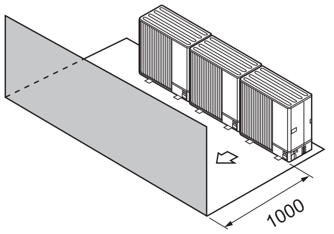


Fig. 1-14

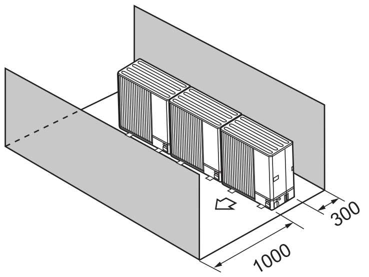


Fig. 1-15

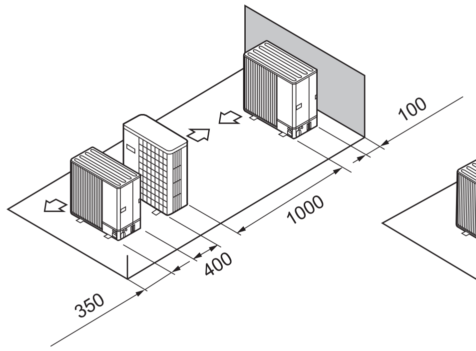


Fig. 1-16

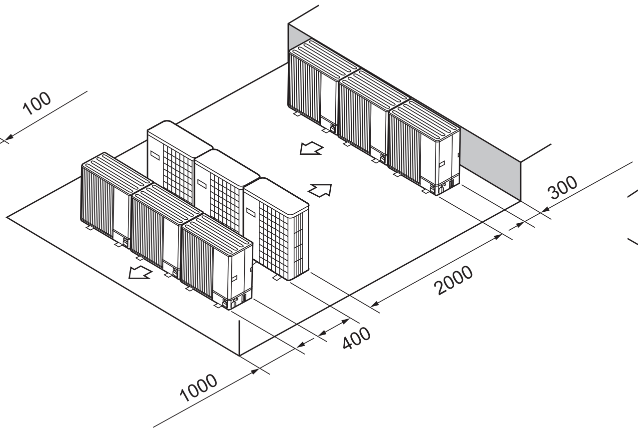


Fig. 1-17

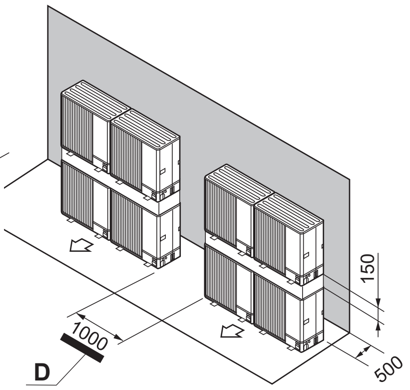


Fig. 1-18

○1.4. Minimum installation area

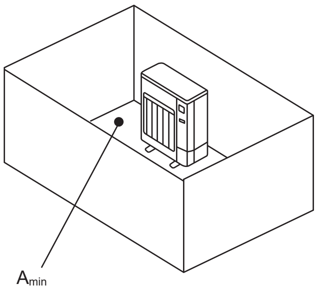
⚠ **CAUTION:**

If despite the instructions delineated in section "1. Safety precautions" of this Installation Manual you elect to install a unit in a space where all four sides are blocked and/or there are obstructions, you do so of your own risk and volition. Mitsubishi Electric does not warrant or represent the functionality; specification; quality; accuracy; or output deriving from any such unit installed in such a way and shall not be liable for any resulting cost or damage. In the event you still choose to install the unit(s) in such a space, we recommend that you accord with one of the following situations (A, B or C) below, to increase the likelihood of the unit's function in accordance with its specification.

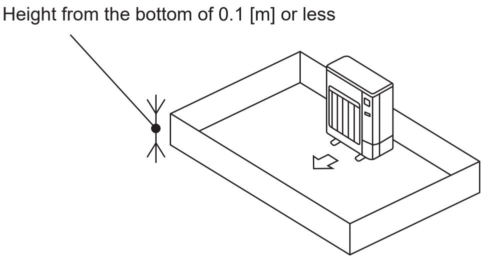
Note: The following recommended Situations are provided solely for the installer to consider safe operations, and do not warrant or guarantee the unit performance against its specification.

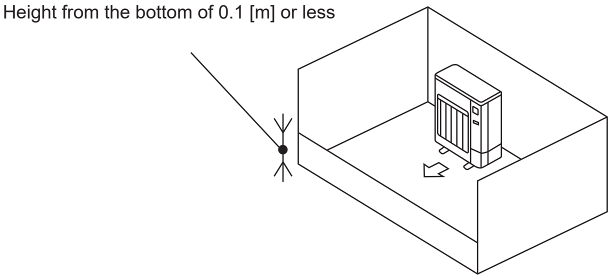
A) Secure sufficient installation space (minimum installation area A_{min}).
Install in a space with an installation area of A_{min} or more, corresponding to refrigerant quantity M (factory-charged refrigerant + locally added refrigerant).

M [kg]	A_{min} [m²]
0.6	44
1.0	72
1.5	108
2.0	143
2.5	179
3.0	215
3.5	250
4.0	286
4.5	322
5.0	358

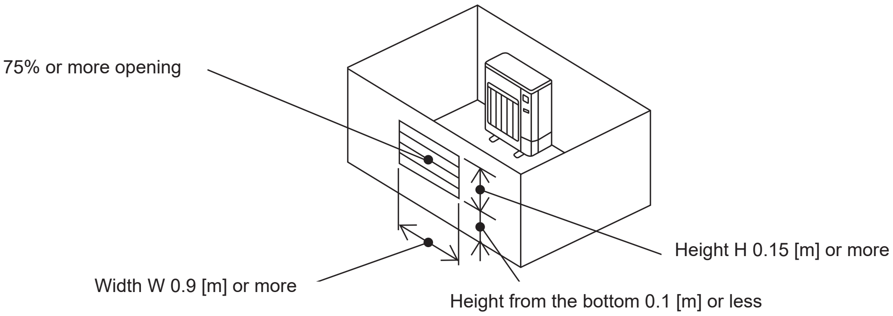


B) Install in a space with a depression height of ≤ 0.1 [m].



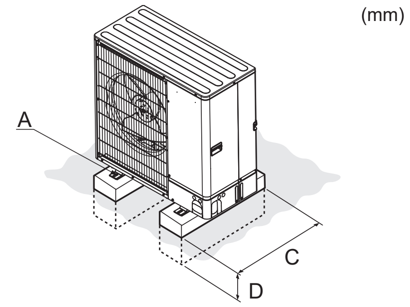


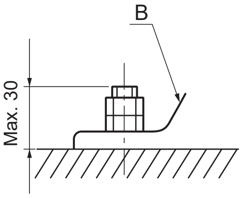
C) Create an opening in the closed face in front of the unit to enable ventilation in the area, ensuring to follow all professional safety instructions and equipment requirements when making the opening through drilling or otherwise.
Make sure that the width of the open area is 0.9 [m] or more and the height of the open area is 0.15 [m] or more.
However, the height from the bottom of the installation space to the bottom edge of the open area should be 0.1 [m] or less.
Open area should be 75% or more opening.



Note: This countermeasure is for keeping safety and specification is not guaranteed.

2. Installation diagram





A: M10 (3/8”) bolt
B: Base
C: As long as possible.
D: Set deep in the ground

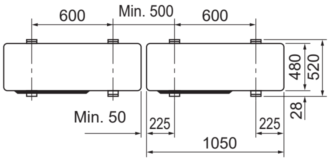


Fig. 4-1

- Be sure to install the unit in a sturdy, level surface to prevent rattling noises during operation. (Fig. 4-1)

<Foundation specifications>

Foundation bolt	M10 (3/8")
Thickness of concrete	120 mm
Length of bolt	70 mm
Weight-bearing capacity	320 kg

- Make sure that the length of the foundation bolt is within 30 mm of the bottom surface of the base.
- Secure the base of the unit firmly with four-M10 foundation bolts in sturdy locations.

Installing the outdoor unit

- In addition to the unit base, use the installation holes on the back of the unit to attach wires, etc., if necessary to install the unit. Use self-tapping screws (ø5 × 15 mm or less) and install on site.

⚠ **WARNING:**

- **The unit must be securely installed on a structure that can sustain its weight. If the unit is mounted on an unstable structure, it may fall down and cause damage or injuries.**
- **The unit must be installed according to the instructions in order to minimize the risk of damage from earthquakes, typhoons, or strong winds. An incorrectly installed unit may fall down and cause damage or injuries.**
- **Be sure to install the unit according to section “2. Installation location and 3. Protective zone”.**
- **There must be no ignition sources in the protective zone.**
- **Take care that the tools used and work clothes do not become a source of ignition.**
- **The area shall be checked by the installer for refrigerant leak with a refrigerant detector prior to and during work in the protective zone.**
- **In the event of refrigerant leakage, to do as follows:**
  - Evacuate any people from the danger zone.
  - From a safe position, switch off the electricity supply for all system components.
  - Remove ignition sources from the danger zone.
  - Do not operate the unit until repairs are completed.
- **Wear protective equipment when touching the bottom of the outdoor unit.**
  Failure to do so could cause injuries.

⚠ **CAUTION:**

- **Install be unit on a rigid structure to prevent excessive operation sound or vibration.**

■ **PUZ-WM50VHA(-BS) PUZ-WM60VAA(-BS) PUZ-WM85VAA(-BS) PUZ-WM85YAA(-BS) PUZ-WM112VAA(-BS) PUZ-WM112YAA(-BS)**

1. Selecting the installation location

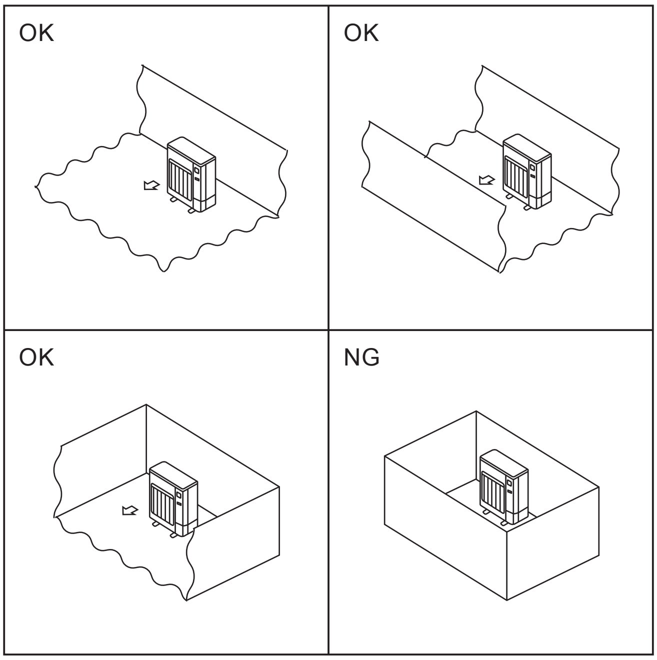


Fig. 1-1

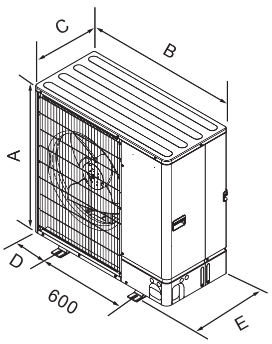
1.1. Choosing the outdoor unit installation location

- R32 is heavier than air—as well as other refrigerants—so tends to accumulate at the base (in the vicinity of the floor). If R32 accumulates around base, it may reach a flammable concentration in case room is small. To avoid ignition, maintaining a safe work environment is required by ensuring appropriate ventilation. If a refrigerant leak is confirmed in a room or an area where there is insufficient ventilation, refrain from using of flames until the work environment can be improved by ensuring appropriate ventilation.
- Avoid locations exposed to direct sunlight or other sources of heat.
- Select a location from which noise emitted by the unit will not inconvenience neighbors.
- Select a location permitting easy wiring and pipe access to the power source and indoor unit.
- Avoid locations where combustible gases may leak, be produced, flow, or accumulate.
- Note that water may drain from the unit during operation.
- Select a level location that can bear the weight and vibration of the unit.
- Avoid locations where the unit can be covered by snow. In areas where heavy snow fall is anticipated, special precautions such as raising the installation location or installing a hood on the air intake must be taken to prevent the snow from blocking the air intake or blowing directly against it. This can reduce the airflow and a malfunction may result.
- Avoid locations exposed to oil, steam, or sulfuric gas.
- Use the transportation handles of the outdoor unit to transport the unit. If the unit is carried from the bottom, hands or fingers may be pinched.

◎ Install outdoor units in a place where at least one of the four sides is open, and in a sufficiently large space without depressions. (Fig. 1-1)

⚠ **CAUTION:**

- **Perform grounding.**
  Do not connect the ground wire to a gas pipe, water pipe arrester or telephone ground wire. Defective grounding could cause an electric shock.
- **Do not install the unit in a place where an inflammable gas leaks.**
  If gas leaks and accumulates in the area surrounding the unit, it could cause an explosion.
- **Install a ground leakage breaker depending on the installation place (where it is humid).**
  If a ground leakage breaker is not installed, it could cause an electric shock.
- **Perform the drainage/piping work securely according to the installation manual.**
  If there is a defect in the drainage/piping work, water could drop from the unit and household goods could be wet and damaged.
- **Fasten a flare nut with a torque wrench as specified in this manual.**
  When fastened too tight, a flare nut may be broken after a long period and cause a leakage of refrigerant.



(mm)

Models	A	B	C	D	E
50	943	950	330+30	175	370
60	1020	1050	480	225	520
85	1020	1050	480	225	520
112	1020	1050	480	225	520

Fig. 1-2

1.2. Outline dimensions (Outdoor unit) (Fig. 1-2)

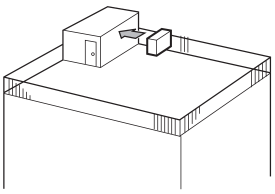


Fig. 1-3

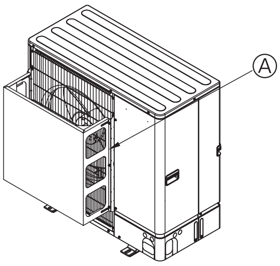


Fig. 1-4

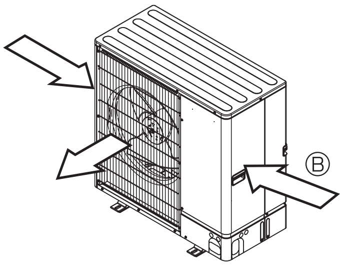


Fig. 1-5

1.3. Ventilation and service space

1.3.1. Windy location installation

When installing the outdoor unit on a rooftop or other location unprotected from the wind, situate the air outlet of the unit so that it is not directly exposed to strong winds. Strong wind entering the air outlet may impede the normal airflow and a malfunction may result.

The following shows three examples of precautions against strong winds.

① Face the air outlet towards the nearest available wall about 35 cm away from the wall. (Fig. 1-3)

② Install an optional air guide if the unit is installed in a location where strong winds from a typhoon, etc. may directly enter the air outlet. (Fig. 1-4)

Ⓐ Air outlet guide

③ Position the unit so that the air outlet blows perpendicularly to the seasonal wind direction, if possible. (Fig. 1-5)

Ⓑ Wind direction

1.3.2. When installing a single outdoor unit (Refer to the last page)

Minimum dimensions are as follows, except for Max., meaning Maximum dimensions, indicated.

Refer to the figures for each case.

① Obstacles at rear only (Fig. 1-6)

② Obstacles at rear and above only (Fig. 1-7)
- Do not install the optional air outlet guides for upward airflow.

③ Obstacles at rear and sides only (Fig. 1-8)

④ Obstacles at front only (Fig. 1-9)

⑤ Obstacles at front and rear only (Fig. 1-10)

⑥ Obstacles at rear, sides, and above only (Fig. 1-11)
- Do not install the optional air outlet guides for upward airflow.

1.3.3. When installing multiple outdoor units (Refer to the last page)

Leave 50 mm space or more between the units.

Refer to the figures for each case.

① Obstacles at rear only (Fig. 1-12)

② Obstacles at rear and above only (Fig. 1-13)
- No more than 3 units must be installed side by side. In addition, leave space as shown.
- Do not install the optional air outlet guides for upward airflow.

③ Obstacles at front only (Fig. 1-14)

④ Obstacles at front and rear only (Fig. 1-15)

⑤ Single parallel unit arrangement (Fig. 1-16)

* When using an optional air outlet guide installed for upward airflow, the clearance is 500 mm or more.

⑥ Multiple parallel unit arrangement (Fig. 1-17)

* When using an optional air outlet guide installed for upward airflow, the clearance is 1000 mm or more.

⑦ Stacked unit arrangement (Fig. 1-18)
- The units can be stacked up to two units high.
- No more than 2 stacked units must be installed side by side. In addition, leave space as shown.

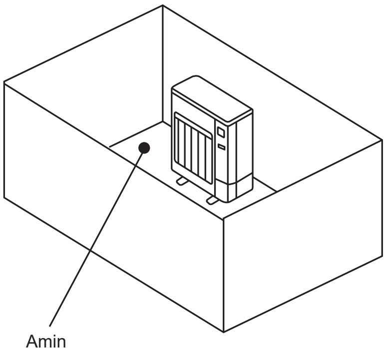
◎1.4. Minimum installation area

If you unavoidably install a unit in a space where all four sides are blocked or there are depressions, confirm that one of these situations (A, B or C) is satisfied.

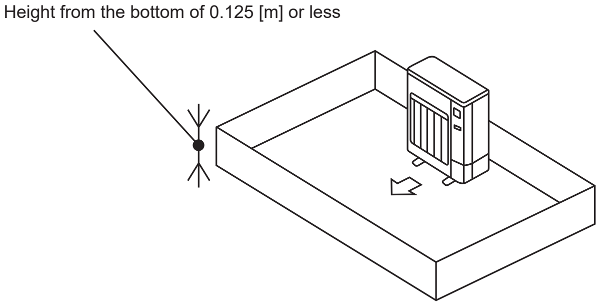
Note: These countermeasures are for keeping safety not for specification guarantee.

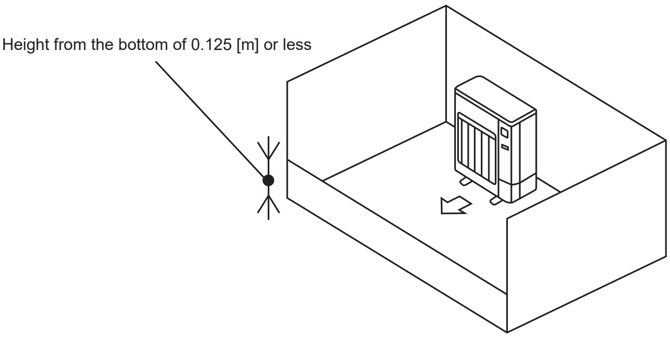
A) Secure sufficient installation space (minimum installation area Amin).
Install in a space with an installation area of Amin or more, corresponding to refrigerant quantity M (factory-charged refrigerant + locally added refrigerant).

M [kg]	Amin [m²]
1.0	12
1.5	17
2.0	23
2.5	28
3.0	34
3.5	39
4.0	45
4.5	50
5.0	56
5.5	62
6.0	67
6.5	73
7.0	78
7.5	84

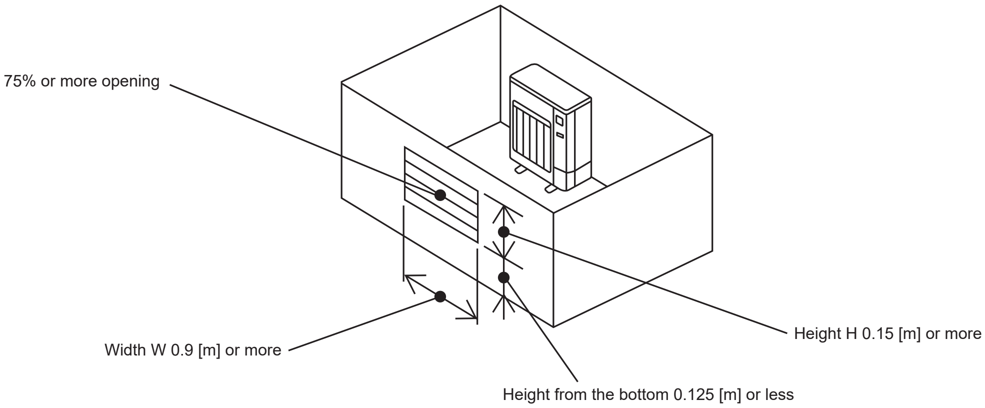


B) Install in a space with a depression height of ≤ 0.125 [m].





C) Create an appropriate ventilation open area.
Make sure that the width of the open area is 0.9 [m] or more and the height of the open area is 0.15 [m] or more.
However, the height from the bottom of the installation space to the bottom edge of the open area should be 0.125 [m] or less.
Open area should be 75% or more opening.



UNIT : mm
( ): WM50

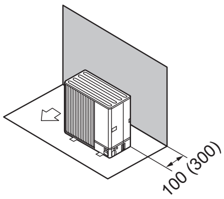


Fig. 1-6

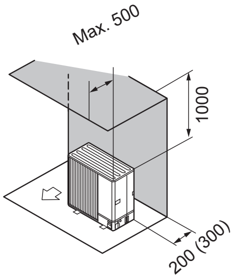


Fig. 1-7

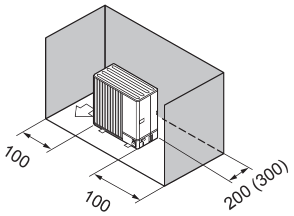


Fig. 1-8

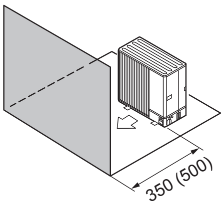


Fig. 1-9

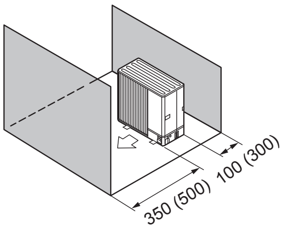


Fig. 1-10

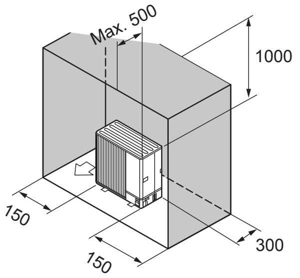


Fig. 1-11

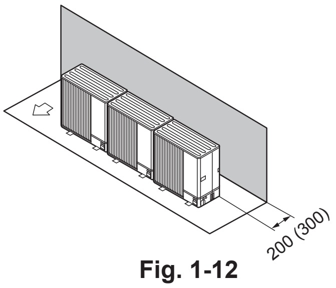


Fig. 1-12

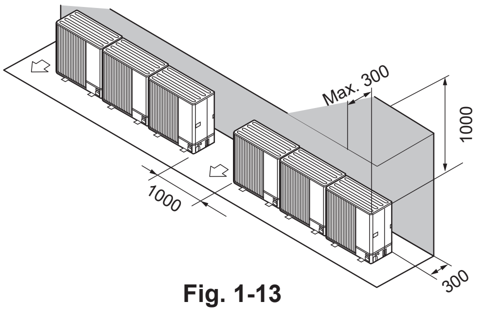


Fig. 1-13

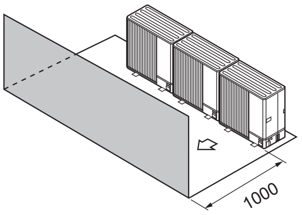


Fig. 1-14

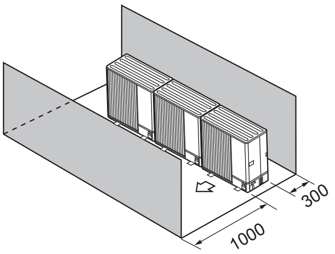


Fig. 1-15

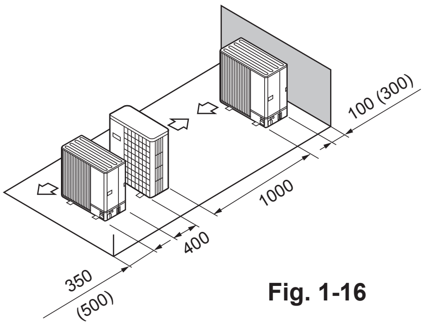


Fig. 1-16

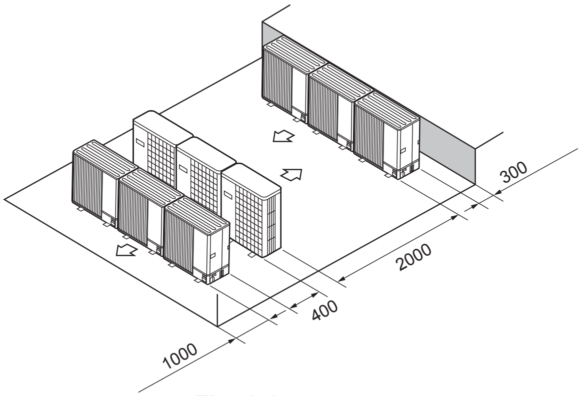


Fig. 1-17

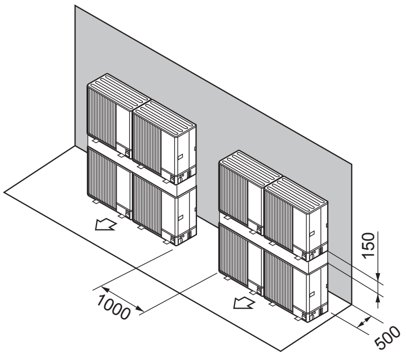
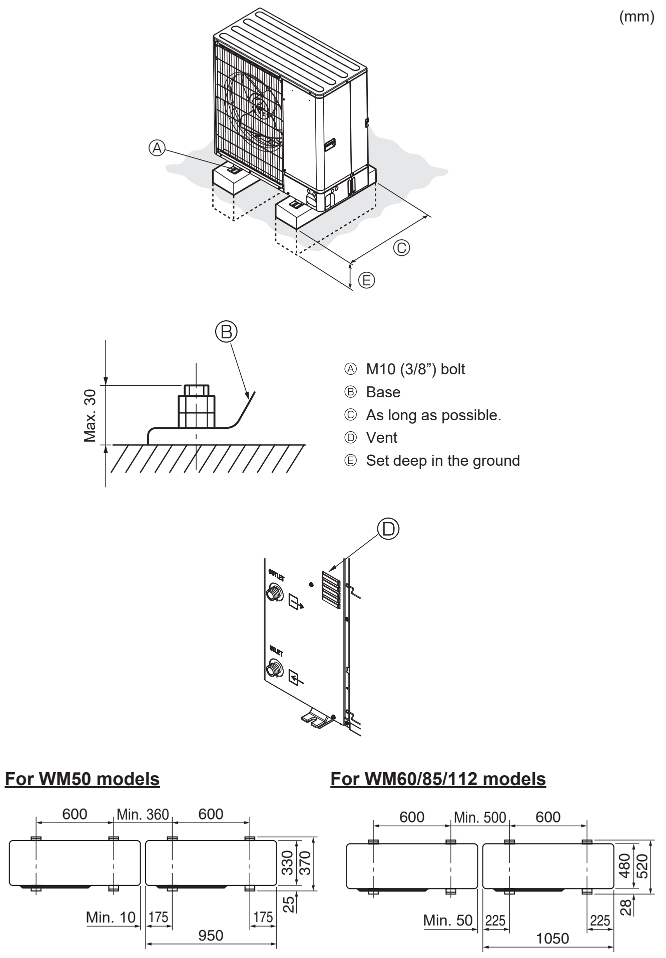


Fig. 1-18

2. Installation diagram



For WM50 models

For WM60/85/112 models

Fig. 2-1

- Be sure to install the unit in a sturdy, level surface to prevent rattling noises during operation. (Fig. 2-1)

<Foundation specifications>

Foundation bolt	M10 (3/8")
Thickness of concrete	120 mm
Length of bolt	70 mm
Weight-bearing capacity	320 kg

- Make sure that the length of the foundation bolt is within 30 mm of the bottom surface of the base.
- Secure the base of the unit firmly with four-M10 foundation bolts in sturdy locations.

Installing the outdoor unit

- Do not block the vent. If the vent is blocked, operation will be hindered and breakdown may result.
- In addition to the unit base, use the installation holes on the back of the unit to attach wires, etc., if necessary to install the unit. Use self-tapping screws (ø5 × 15 mm or less) and install on site.

⚠ **WARNING:**

- **The unit must be securely installed on a structure that can sustain its weight. If the unit is mounted on an unstable structure, it may fall down and cause damage or injuries.**
- **The unit must be installed according to the instructions in order to minimize the risk of damage from earthquakes, typhoons, or strong winds. An incorrectly installed unit may fall down and cause damage or injuries.**

⚠ **CAUTION:**

- **Install be unit on a rigid structure to prevent excessive operation sound or vibration.**

■ **PUZ-HWM140VHA(-BS) PUZ-HWM140YHA(-BS)**

1. Selecting the installation location

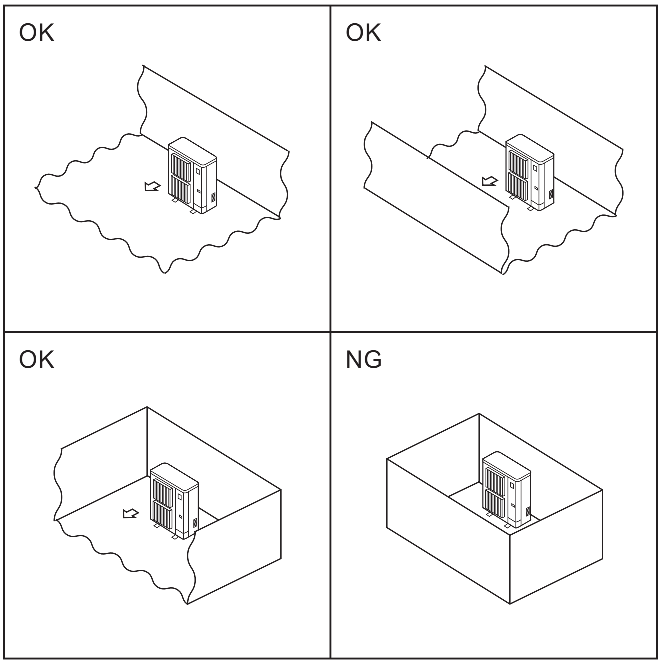


Fig. 1-1

1.1. Choosing the outdoor unit installation location

◎ R32 is heavier than air—as well as other refrigerants—so tends to accumulate at the base (in the vicinity of the floor). If R32 accumulates around base, it may reach a flammable concentration in case room is small. To avoid ignition, maintaining a safe work environment is required by ensuring appropriate ventilation. If a refrigerant leak is confirmed in a room or an area where there is insufficient ventilation, refrain from using of flames until the work environment can be improved by ensuring appropriate ventilation.

- Avoid locations exposed to direct sunlight or other sources of heat.
- Select a location from which noise emitted by the unit will not inconvenience neighbors.
- Select a location permitting easy wiring and pipe access to the power source and indoor unit.
- Avoid locations where combustible gases may leak, be produced, flow, or accumulate.
- Note that water may drain from the unit during operation.
- Select a level location that can bear the weight and vibration of the unit.
- Avoid locations where the unit can be covered by snow. In areas where heavy snow fall is anticipated, special precautions such as raising the installation location or installing a hood on the air intake must be taken to prevent the snow from blocking the air intake or blowing directly against it. This can reduce the airflow and a malfunction may result.
- Avoid locations exposed to oil, steam, or sulfuric gas.
- Use the transportation handles of the outdoor unit to transport the unit. If the unit is carried from the bottom, hands or fingers may be pinched.

◎ Install outdoor units in a place where at least one of the four sides is open, and in a sufficiently large space without depressions. (Fig. 1-1)

⚠ **Caution:**

- **Perform grounding.**
  Do not connect the ground wire to a gas pipe, water pipe arrester or telephone ground wire. Defective grounding could cause an electric shock.
- **Do not install the unit in a place where an inflammable gas leaks.**
  If gas leaks and accumulates in the area surrounding the unit, it could cause an explosion.
- **Install a ground leakage breaker depending on the installation place (where it is humid).**
  If a ground leakage breaker is not installed, it could cause an electric shock.
- **Perform the drainage/piping work securely according to the installation manual.**
  If there is a defect in the drainage/piping work, water could drop from the unit and household goods could be wet and damaged.
- **Fasten a flare nut with a torque wrench as specified in this manual.**
  When fastened too tight, a flare nut may be broken after a long period and cause a leakage of refrigerant.

1.2. Outline dimensions (Outdoor unit) (Fig. 1-2)

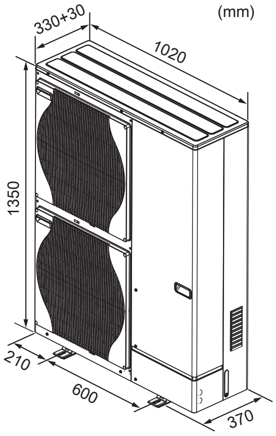


Fig. 1-2

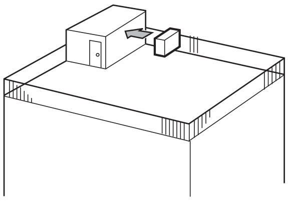


Fig. 1-3

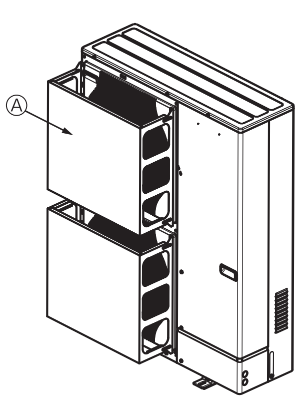


Fig. 1-4

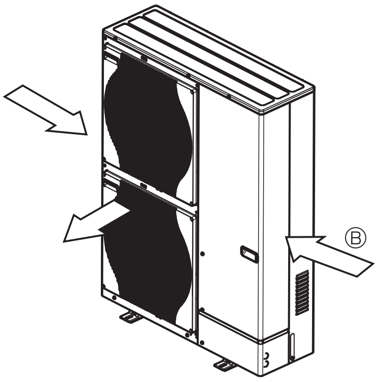


Fig. 1-5

1.3. Ventilation and service space

1.3.1. Windy location installation

When installing the outdoor unit on a rooftop or other location unprotected from the wind, situate the air outlet of the unit so that it is not directly exposed to strong winds. Strong wind entering the air outlet may impede the normal airflow and a malfunction may result.

The following shows three examples of precautions against strong winds.

① Face the air outlet towards the nearest available wall about 35 cm away from the wall. (Fig. 1-3)

② Install an optional air protect guide if the unit is installed in a location where strong winds from a typhoon, etc. may directly enter the air outlet. (Fig. 1-4)
   Ⓐ Air protect guide

③ Position the unit so that the air outlet blows perpendicularly to the seasonal wind direction, if possible. (Fig. 1-5)
   Ⓑ Wind direction

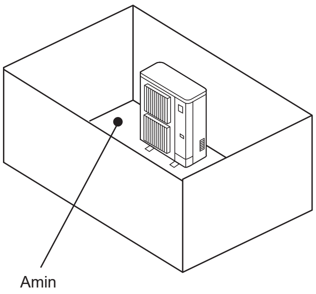
◎ 1.4. Minimum installation area

If you unavoidably install a unit in a space where all four sides are blocked or there are depressions, confirm that one of these situations (A, B or C) is satisfied.

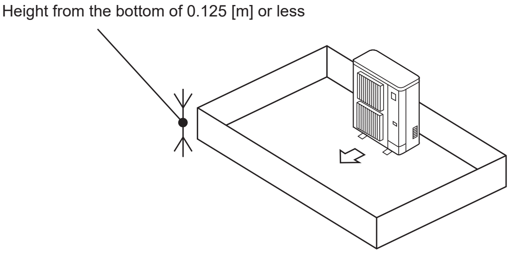
Note: These countermeasures are for keeping safety not for specification guarantee.

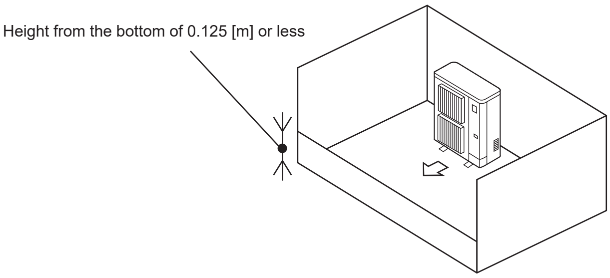
A) Secure sufficient installation space (minimum installation area Amin).
Install in a space with an installation area of Amin or more, corresponding to refrigerant quantity M (factory-charged refrigerant + locally added refrigerant).

M [kg]	Amin [m²]
1.0	12
1.5	17
2.0	23
2.5	28
3.0	34
3.5	39
4.0	45
4.5	50
5.0	56
5.5	62
6.0	67
6.5	73
7.0	78
7.5	84

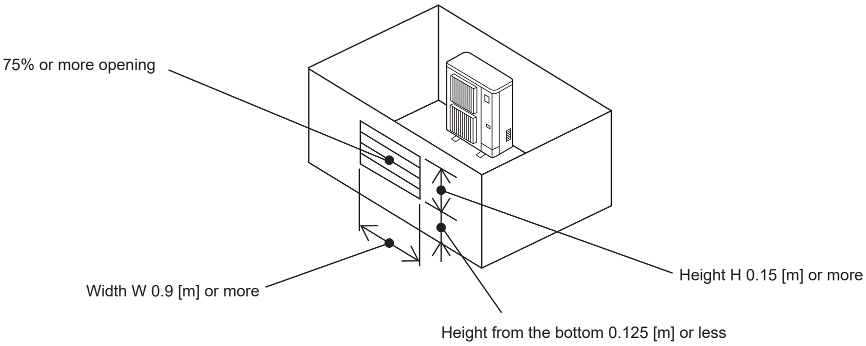


B) Install in a space with a depression height of ≤ 0.125 [m].





C) Create an appropriate ventilation open area.
Make sure that the width of the open area is 0.9 [m] or more and the height of the open area is 0.15 [m] or more.
However, the height from the bottom of the installation space to the bottom edge of the open area should be 0.125 [m] or less.
Open area should be 75% or more opening.



UNIT : mm

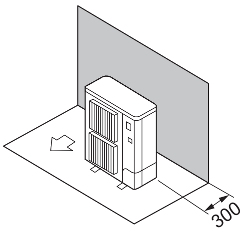


Fig. 1-6

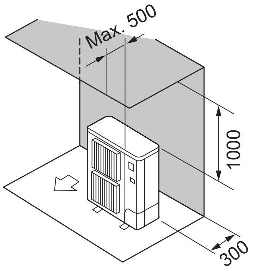


Fig. 1-7

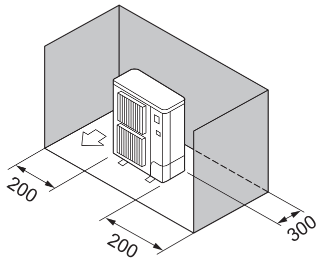


Fig. 1-8

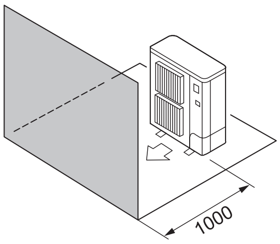


Fig. 1-9

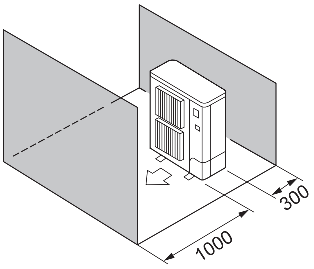


Fig. 1-10

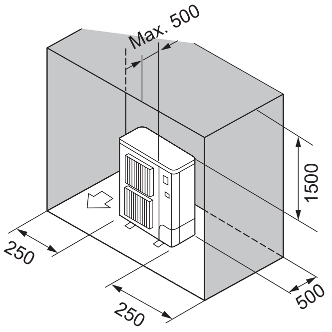


Fig. 1-11

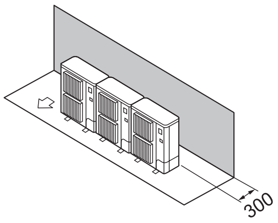


Fig. 1-12

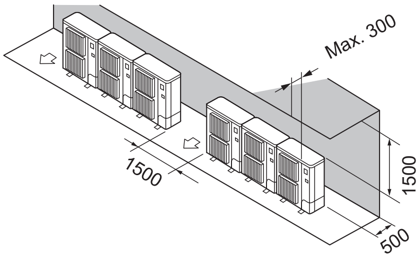


Fig. 1-13

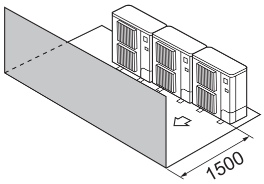


Fig. 1-14

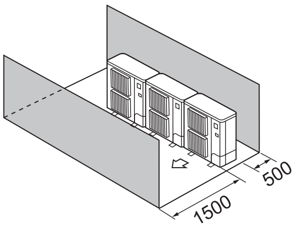


Fig. 1-15

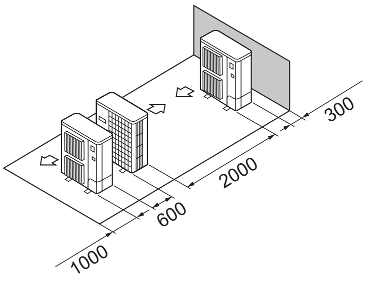


Fig. 1-16

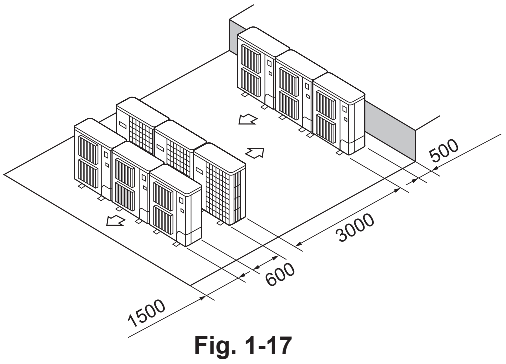


Fig. 1-17

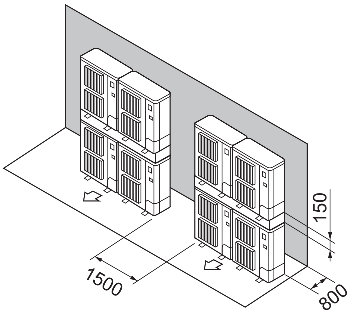
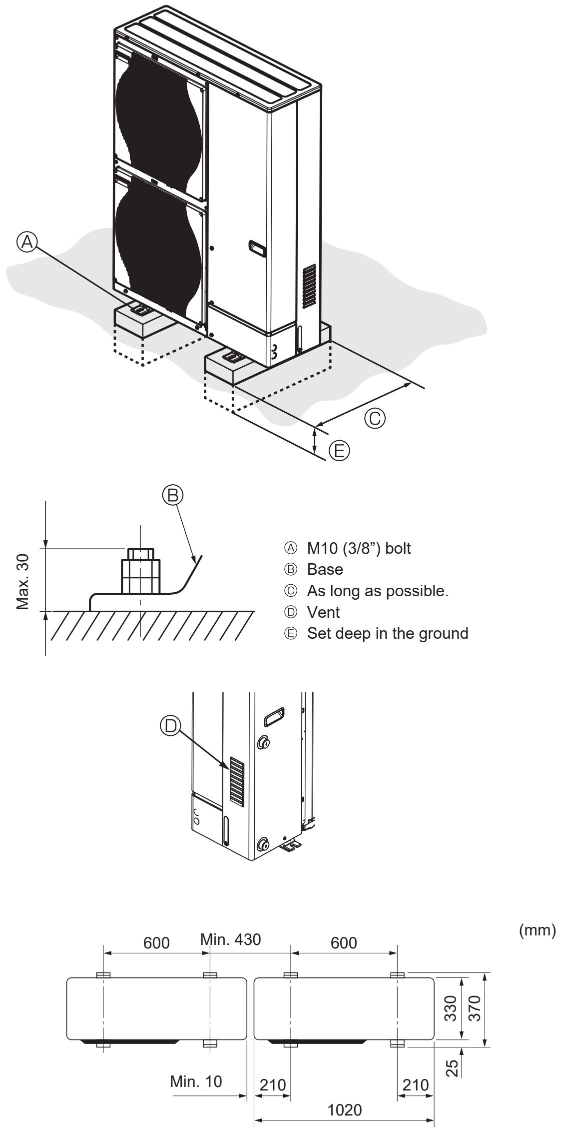


Fig. 1-18

2. Installation diagram



Ⓐ M10 (3/8”) bolt
Ⓑ Base
Ⓒ As long as possible.
Ⓓ Vent
Ⓔ Set deep in the ground

Fig. 2-1

- Be sure to install the unit in a sturdy, level surface to prevent rattling noises during operation. (Fig. 2-1)

<Foundation specifications>

Foundation bolt	M10 (3/8")
Thickness of concrete	120 mm
Length of bolt	70 mm
Weight-bearing capacity	320 kg

- Make sure that the length of the foundation bolt is within 30 mm of the bottom surface of the base.
- Secure the base of the unit firmly with four-M10 foundation bolts in sturdy locations.

Installing the outdoor unit

- Do not block the vent. If the vent is blocked, operation will be hindered and breakdown may result.
- In addition to the unit base, use the installation holes on the back of the unit to attach wires, etc., if necessary to install the unit. Use self-tapping screws (ø5 × 15 mm or less) and install on site.

⚠ **Warning:**

- **The unit must be securely installed on a structure that can sustain its weight. If the unit is mounted on an unstable structure, it may fall down and cause damage or injuries.**
- **The unit must be installed according to the instructions in order to minimize the risk of damage from earthquakes, typhoons, or strong winds. An incorrectly installed unit may fall down and cause damage or injuries.**

⚠ **Caution:**

- **Install be unit on a rigid structure to prevent excessive operation sound or vibration.**

(2)Split-type units

■ **SUZ-SWM30VA SUZ-SWM40VA2 SUZ-SWM60VA2 SUZ-SHWM30VAH SUZ-SHWM40VAH SUZ-SWM80VA2 SUZ-SWM80VAH2 SUZ-SWM100VA SUZ-SWM100VAH SUZ-SHWM60VAH**

1. Selecting the installation location

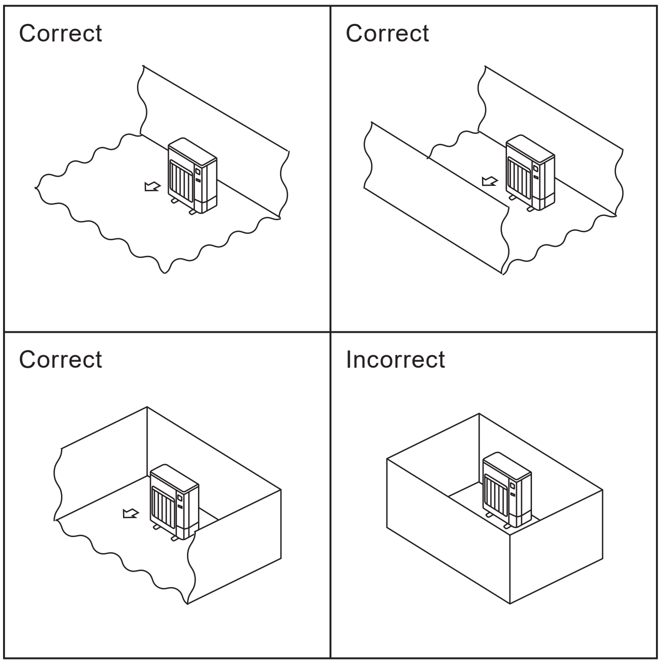


Fig. 1-1

1.1. Outdoor unit

- R32 is heavier than air—as well as other refrigerants—so tends to accumulate at the base (in the vicinity of the floor). If R32 accumulates around base, it may reach a flammable concentration in case room is small. To avoid ignition, maintaining a safe work environment is required by ensuring appropriate ventilation. If a refrigerant leak is confirmed in a room or an area where there is insufficient ventilation, refrain from using of flames until the work environment can be improved by ensuring appropriate ventilation.
- Where it is not exposed to strong wind.
- Where airflow is good and dustless.
- Where it is not causing the air short cycle.
- Where neighbours are not annoyed by operation sound or hot air.
- Where rigid wall or support is available to prevent the increase of operation sound or vibration.
- Where there is no risk of combustible gas leakage.
- When installing the unit at a high level, be sure to fix the unit legs.
- Where it is at least 3 m away from the antenna of TV set or radio. (Otherwise, images would be disturbed or noise would be generated.)
- Please install it in an area not affected by snowfall or blowing snow. In areas with heavy snow, please install a canopy, a pedestal and/or some baffle boards.
- Install the unit horizontally.
- Refrigerant pipes connection shall be accessible for maintenance purposes.

◎ Install outdoor units in a place where at least one of the four sides is open, and in a sufficiently large space without depressions. (Fig. 1-1)

⚠ **Caution:**

Avoid the following places for installation where air to water heat pump trouble is liable to occur.

- **Where there is too much machine oil.**
- **Salty environment as seaside areas.**
- **Hot-spring areas.**
- **Where sulfide gas exists.**
- **Other special atmospheric areas.**

The outdoor unit produces condensate during the heating operation. Select the installation place to ensure to prevent the outdoor unit and/or the grounds from being wet by drain water or damaged by frozen drain water.

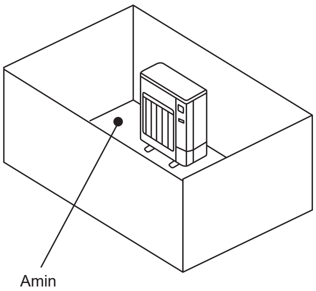
◎1.2. Minimum installation area

If you unavoidably install a unit in a space where all four sides are blocked or there are depressions, confirm that one of these situations (A, B or C) is satisfied.

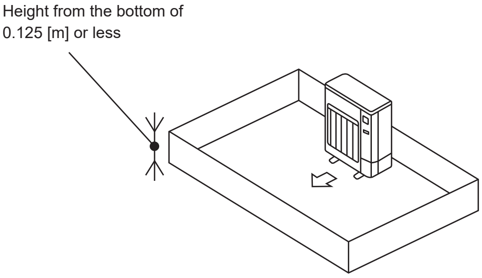
Note: These countermeasures are for keeping safety not for specification guarantee.

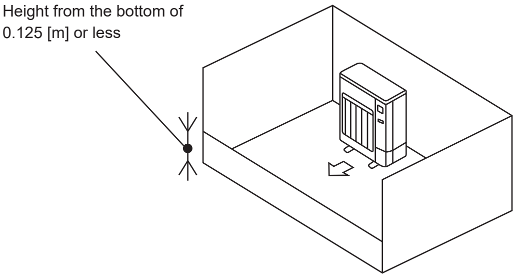
A) Secure sufficient installation space (minimum installation area Amin).
Install in a space with an installation area of Amin or more, corresponding to refrigerant quantity M (factory-charged refrigerant + locally added refrigerant).

M [kg]	Amin [m²]
1.0	12
1.5	17
2.0	23
2.5	28
3.0	34
3.5	39
4.0	45
4.5	50
5.0	56
5.5	62
6.0	67
6.5	73
7.0	78
7.5	84

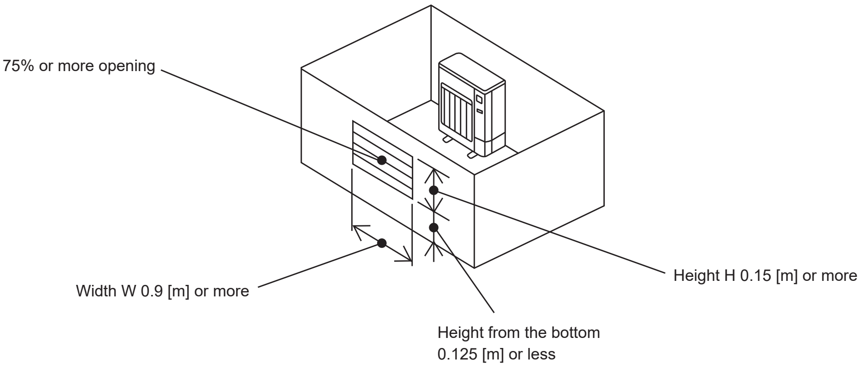


B) Install in a space with a depression height of ≤ 0.125 [m].





C) Create an appropriate ventilation open area.
Make sure that the width of the open area is 0.9 [m] or more and the height of the open area is 0.15 [m] or more.
However, the height from the bottom of the installation space to the bottom edge of the open area should be 0.125 [m] or less.
Open area should be 75% or more opening.



Note:
About the indoor unit, there are no installation restrictions due to the use of R32 refrigerant.
Please refer to the indoor unit installation manual and check the required installation area.

2. Installation diagram

2.1. Outdoor unit (Fig. 2-1)

Ventilation and service space

Ⓐ 100 mm or more
Ⓑ 350 mm or more
Ⓒ 500 mm or more

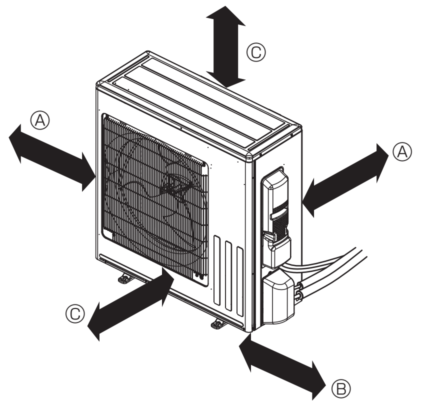
When the piping is to be attached to a wall containing metals (tin plated) or metal netting, use a chemically treated wooden piece 20 mm or thicker between the wall and the piping or wrap 7 to 8 turns of insulation vinyl tape around the piping.

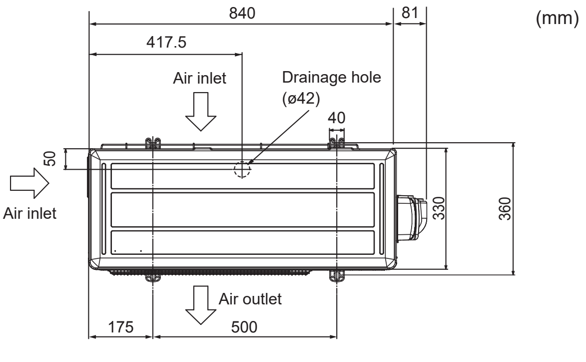
Units should be installed by licensed contractor accordingly to local code requirement.

Note:
When operating the air to water heat pump in low outside temperature, be sure to follow the instructions described below.

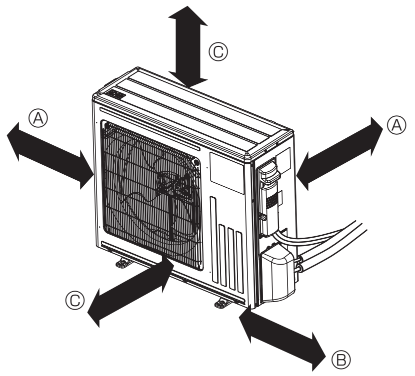
- Never install the outdoor unit in a place where its air inlet/outlet side may be exposed directly to wind.
- To prevent exposure to wind, install the outdoor unit with its air inlet side facing the wall.
- To prevent exposure to wind, it is recommended to install a baffle board on the air outlet side of the outdoor unit.

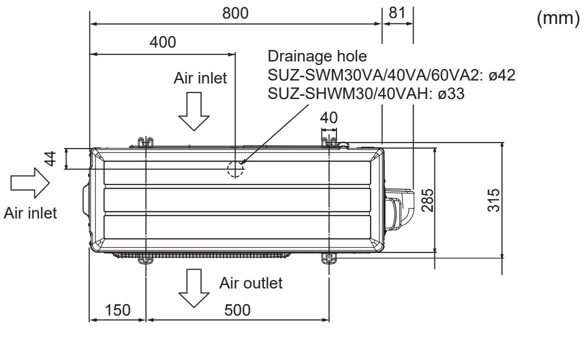
■ **SUZ-SWM80VA2, SUZ-SWM80VAH2, SUZ-SWM100VA, SUZ-SWM100VAH, SUZ-SHWM60VAH**





■ **SUZ-SWM30VA, SUZ-SWM40VA2, SUZ-SWM60VA2, SUZ-SHWM30VAH, SUZ-SHWM40VAH**





- **PUZ-SWM60VAA PUZ-SWM80VAA PUZ-SWM80YAA PUZ-SWM100VAA PUZ-SWM100YAA**
  PUZ-SHWM60VAA PUZ-SHWM80VAA PUZ-SHWM80YAA PUZ-SHWM100VAA PUZ-SHWM100YAA
  PUZ-SWM120VAA PUZ-SWM120YAA PUZ-SWM140VAA PUZ-SWM140YAA
  PUZ-SHWM120VAA PUZ-SHWM120YAA PUZ-SHWM140VAA PUZ-SHWM140YAA

1. Selecting the installation location

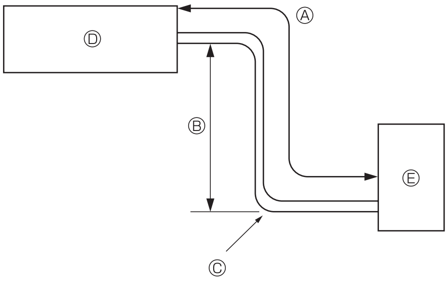


Fig. 2-1

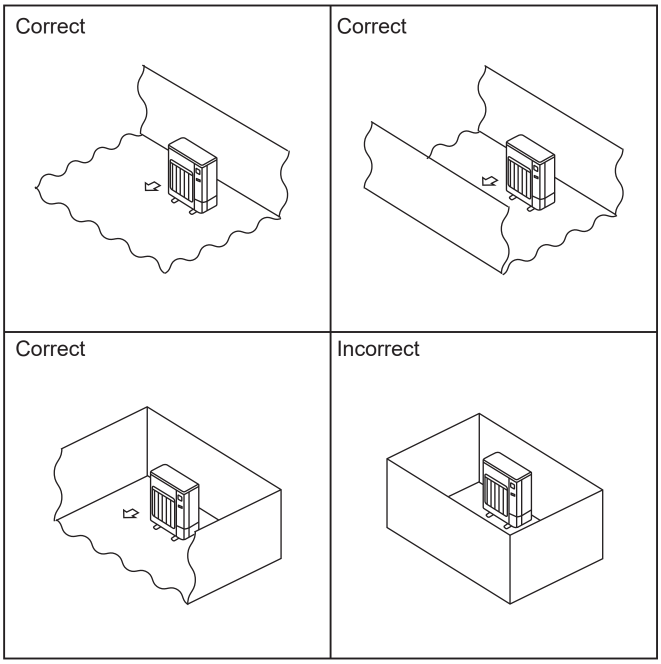


Fig. 2-2

2.1. Refrigerant pipe (Fig. 2-1)

► **Check that the difference between the heights of the indoor and outdoor units, the length of refrigerant pipe, and the number of bends in the pipe are within the limits shown below.**

Model	Ⓐ Pipe length (one way)	Ⓑ Height difference	Ⓒ Number of bends (one way)
S(H)WM60/80/100	2 m - 50 m	Max. 30 m	Max. 10
S(H)WM120/140	2 m - 30 m *1	Max. 30 m	Max. 10

*1 Only when the unit operates in heating, the pipe length available to use is 2 m - 50 m. Refer to section 4.

- Height difference limitation is defined regardless of which unit, indoor or outdoor, is positioned higher.
  Ⓓ Indoor unit
  Ⓔ Outdoor unit

The insulation materials should be satisfied the following SPECs.
- Heat transfer rate: 0.040 W/mK or less
- Insulation thickness: 9 mm or more
- Heat resistance: 110°C or more

If the piping length in the outside is over 15 m, the insulation thickness should be 18 mm or more.

2.2. Choosing the outdoor unit installation location

- ● R32 is heavier than air—as well as other refrigerants—so tends to accumulate at the base (in the vicinity of the floor). If R32 accumulates around base, it may reach a flammable concentration in case room is small. To avoid ignition, maintaining a safe work environment is required by ensuring appropriate ventilation. If a refrigerant leak is confirmed in a room or an area where there is insufficient ventilation, refrain from using of flames until the work environment can be improved by ensuring appropriate ventilation.
- Avoid locations exposed to direct sunlight or other sources of heat.
- Select a location from which noise emitted by the unit will not inconvenience neighbors.
- Select a location permitting easy wiring and pipe access to the power source and indoor unit.
- Avoid locations where combustible gases may leak, be produced, flow, or accumulate.
- Note that water may drain from the unit during operation.
- Select a level location that can bear the weight and vibration of the unit.
- Avoid locations where the unit can be covered by snow. In areas where heavy snow fall is anticipated, special precautions such as raising the installation location or installing a hood on the air intake must be taken to prevent the snow from blocking the air intake or blowing directly against it. This can reduce the airflow and a malfunction may result.
- Avoid locations exposed to oil, steam, or sulfuric gas.
- Use the transportation handles of the outdoor unit to transport the unit. If the unit is carried from the bottom, hands or fingers may be pinched.
- Refrigerant pipes connection shall be accessible for maintenance purposes.
- ● Install outdoor units in a place where at least one of the four sides is open, and in a sufficiently large space without depressions. (Fig. 2-2)

⚠ **CAUTION:**
- **Perform grounding.**
  Do not connect the ground wire to a gas pipe, water pipe arrester or telephone ground wire. Defective grounding could cause an electric shock.
- **Do not install the unit in a place where an inflammable gas leaks.**
  If gas leaks and accumulates in the area surrounding the unit, it could cause an explosion.
- **Install a ground leakage breaker depending on the installation place (where it is humid).**
  If a ground leakage breaker is not installed, it could cause an electric shock.
- **Perform the drainage/piping work securely according to the installation manual.**
  If there is a defect in the drainage/piping work, water could drop from the unit and household goods could be wet and damaged.
- **Fasten a flare nut with a torque wrench as specified in this manual.**
  When fastened too tight, a flare nut may be broken after a long period and cause a leakage of refrigerant.

(mm)

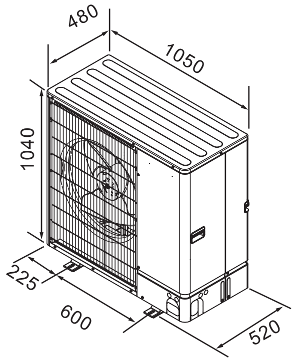


Fig. 2-3

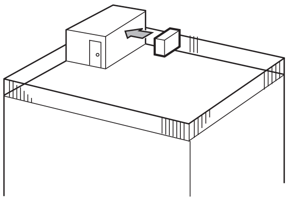


Fig. 2-4

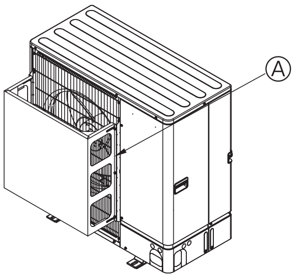


Fig. 2-5

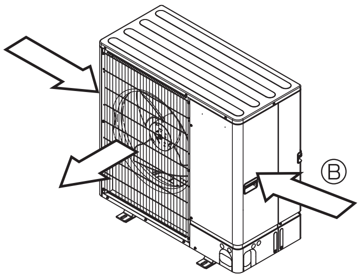


Fig. 2-6

2.3. Outline dimensions (Outdoor unit) (Fig. 2-3)

2.4. Ventilation and service space

2.4.1. Windy location installation

When installing the outdoor unit on a rooftop or other location unprotected from the wind, situate the air outlet of the unit so that it is not directly exposed to strong winds. Strong wind entering the air outlet may impede the normal airflow and a malfunction may result.

The following shows three examples of precautions against strong winds.

① Face the air outlet towards the nearest available wall about 35 cm away from the wall. (Fig. 2-4)
② Install an optional air guide if the unit is installed in a location where strong winds from a typhoon, etc. may directly enter the air outlet. (Fig. 2-5)
  Ⓐ Air outlet guide
③ Position the unit so that the air outlet blows perpendicularly to the seasonal wind direction, if possible. (Fig. 2-6)
  Ⓑ Wind direction

2.4.2. When installing a single outdoor unit (Refer to the last page)

Minimum dimensions are as follows, except for Max., meaning Maximum dimensions, indicated.

Refer to the figures for each case.

① Obstacles at rear only (Fig. 2-7)
② Obstacles at rear and above only (Fig. 2-8)
  - Do not install the optional air outlet guides for upward airflow.
③ Obstacles at rear and sides only (Fig. 2-9)
④ Obstacles at front only (Fig. 2-10)
⑤ Obstacles at front and rear only (Fig. 2-11)
⑥ Obstacles at rear, sides, and above only (Fig. 2-12)
  - Do not install the optional air outlet guides for upward airflow.

2.4.3. When installing multiple outdoor units (Refer to the last page)

Leave 50 mm space or more between the units.

Refer to the figures for each case.

① Obstacles at rear only (Fig. 2-13)
② Obstacles at rear and above only (Fig. 2-14)
  - No more than 3 units must be installed side by side. In addition, leave space as shown.
  - Do not install the optional air outlet guides for upward airflow.
③ Obstacles at front only (Fig. 2-15)
④ Obstacles at front and rear only (Fig. 2-16)
⑤ Single parallel unit arrangement (Fig. 2-17)
  * When using an optional air outlet guide installed for upward airflow, the clearance is 500 mm or more.
⑥ Multiple parallel unit arrangement (Fig. 2-18)
  * When using an optional air outlet guide installed for upward airflow, the clearance is 1000 mm or more.
⑦ Stacked unit arrangement (Fig. 2-19)
  - The units can be stacked up to two units high.
  - No more than 2 stacked units must be installed side by side. In addition, leave space as shown.

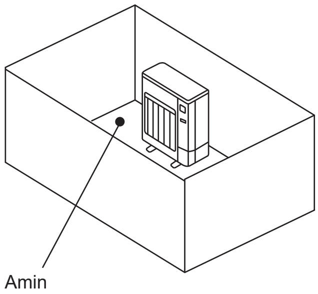
- **2.5. Minimum installation area**

If you unavoidably install a unit in a space where all four sides are blocked or there are depressions, confirm that one of these situations (A, B or C) is satisfied.

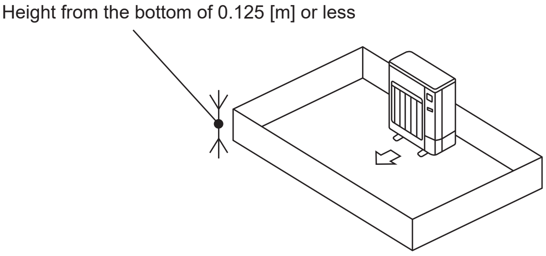
Note: These countermeasures are for keeping safety not for specification guarantee.

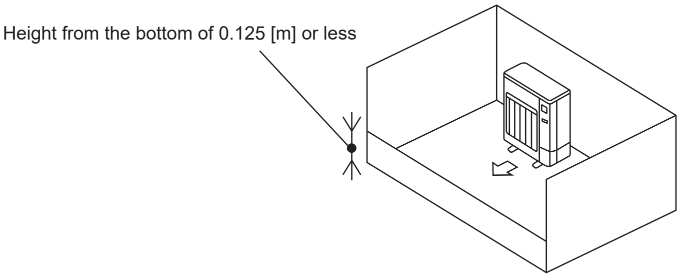
A) Secure sufficient installation space (minimum installation area Amin).
Install in a space with an installation area of Amin or more, corresponding to refrigerant quantity M (factory-charged refrigerant + locally added refrigerant).

M [kg]	Amin [m²]
1.0	12
1.5	17
2.0	23
2.5	28
3.0	34
3.5	39
4.0	45
4.5	50
5.0	56
5.5	62
6.0	67
6.5	73
7.0	78
7.5	84

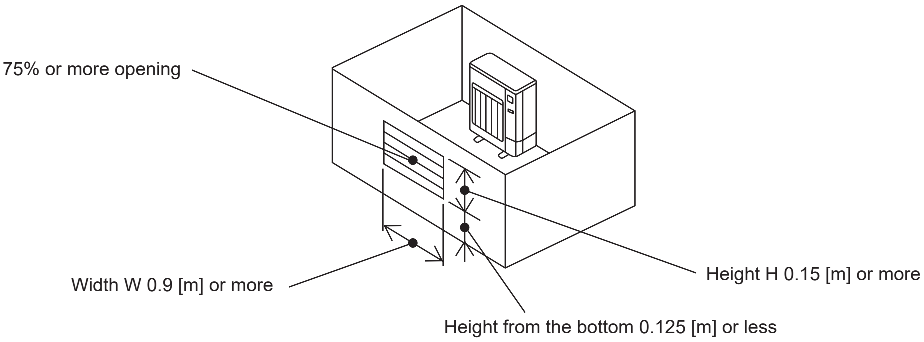


B) Install in a space with a depression height of ≤ 0.125 [m].



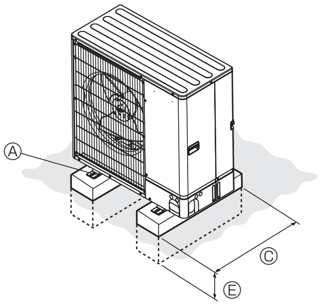


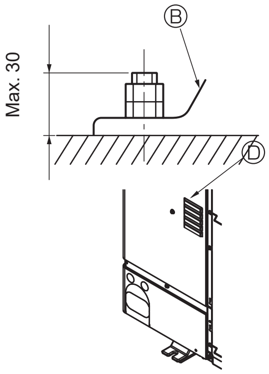
C) Create an appropriate ventilation open area.
Make sure that the width of the open area is 0.9 [m] or more and the height of the open area is 0.15 [m] or more.
However, the height from the bottom of the installation space to the bottom edge of the open area should be 0.125 [m] or less.
Open area should be 75% or more opening.



2. Installation diagram

(mm)





Ⓐ M10 (3/8”) bolt
Ⓑ Base
Ⓒ As long as possible.
Ⓓ Vent
Ⓔ Set deep in the ground

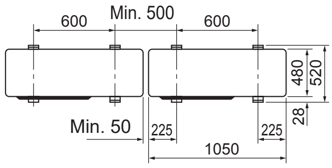


Fig. 3-1

- Be sure to install the unit in a sturdy, level surface to prevent rattling noises during operation. (Fig. 3-1)

<Foundation specifications>

Foundation bolt	M10 (3/8")
Thickness of concrete	120 mm
Length of bolt	70 mm
Weight-bearing capacity	320 kg

- Make sure that the length of the foundation bolt is within 30 mm of the bottom surface of the base.
- Secure the base of the unit firmly with four-M10 foundation bolts in sturdy locations.

Installing the outdoor unit
- Do not block the vent. If the vent is blocked, operation will be hindered and breakdown may result.
- In addition to the unit base, use the installation holes on the back of the unit to attach wires, etc., if necessary to install the unit. Use self-tapping screws (ø5 × 15 mm or less) and install on site.

⚠ WARNING:
- **The unit must be securely installed on a structure that can sustain its weight. If the unit is mounted on an unstable structure, it may fall down and cause damage or injuries.**
- **The unit must be installed according to the instructions in order to minimize the risk of damage from earthquakes, typhoons, or strong winds. An incorrectly installed unit may fall down and cause damage or injuries.**

⚠ CAUTION:
- **Install be unit on a rigid structure to prevent excessive operation sound or vibration.**

Contents

1 Combination table

Split indoor/outdoor unit combination		R290			R32				
		PUZ-WZ50VAA	PUZ-WZ60VAA	PUZ-WZ80VAA	PUZ-WM50VHA	PUZ-WM60VAA	PUZ-WM85V/YAA	PUZ-WM112V/YAA	PUZ-HWM140V/YHA
Heating only Cylinder	EHPT17X-VM2E	●	●	●	●	●	●		
	EHPT17X-VM6E	●	●	●	●	●	●		
	EHPT17X-YM9E	●	●	●	●	●	●		
	EHPT20X-YM9E	●	●	●	●	●	●	●	●
	EHPT20X-TM9E	●	●	●	●	●	●	●	●
	EHPT20X-MEHEW	●	●	●	●	●	●	●	●
	EHPT30X-YM9EE	●	●	●			●	●	●
Reversible Cylinder	ERPT17X-VM2E	●	●	●	●	●	●		
	ERPT20X-VM2E	●	●	●	●	●	●	●	●
	ERPT20X-VM6E	●	●	●	●	●	●	●	●
	ERPT20X-YM9E	●	●	●	●	●	●	●	●
	ERPT30X-VM2EE	●	●	●			●	●	●
	ERPT30X-VM6EE	●	●	●			●	●	●
	ERPT30X-YM9EE	●	●	●			●	●	●
Reversible Hydrobox	ERPX-ME	●	●	●	●	●	●	●	●
	ERPX-VM2E	●	●	●	●	●	●	●	●
	ERPX-VM6E	●	●	●	●	●	●	●	●
	ERPX-YM9E	●	●	●	●	●	●	●	●

●: Combination is available.

▲: Combination is possible but cooling function is still not available.

Blank: Combination is NOT available.

1 Combination table

Split indoor/outdoor unit combination		R32																				ATA/ATW Hybrid system							
		SUZ-SWM30VA	SUZ-SWM40VA2(-SC)	SUZ-SWM60VA2(-SC)	SUZ-SWM80VA2	SUZ-SWM100VA	SUZ-SHWM30VAH	SUZ-SHWM40VAH(-SC)	SUZ-SHWM60VAH(-SC)	SUZ-SWM80VAH2	SUZ-SWM100VAH	PUZ-SWM60VAA	PUZ-SWM80V/YAA	PUZ-SWM100V/YAA	PUZ-SWM120V/YAA	PUZ-SWM140V/YAA	PUZ- SHWM60VAA	PUZ- SHWM80V/YAA	PUZ- SHWM100V/YAA	PUZ- SHWM120V/YAA	PUZ- SHWM140V/YAA	PUMY-P112VKM6	PUMY-P125VKM6	PUMY-P140VKM6	PUMY-P112YKM5	PUMY-P125YKM5	PUMY-P140YKM5	PXZ-4F75VG	PXZ-5F85VG
Heating only Cylinder	EHST17D-VM2E	●	●	●	●	●	●	●	●	●	●																	▲	▲
	EHST17D-YM9E	●	●	●	●	●	●	●	●	●	●																	▲	▲
	EHST20D-VM2E	●	●	●	●	●	●	●	●	●	●																	▲	▲
	EHST20D-VM6E	●	●	●	●	●	●	●	●	●	●																	▲	▲
	EHST20D-YM9E	●	●	●	●	●	●	●	●	●	●																	▲	▲
	EHST20D-TM9E	●	●	●	●	●	●	●	●	●	●																	▲	▲
	EHST30D-MEE	●	●	●	●	●	●	●	●	●	●																		
	EHST30D-VM6EE	●	●	●	●	●	●	●	●	●	●																	▲	▲
	EHST30D-YM9EE	●	●	●	●	●	●	●	●	●	●																	▲	▲
	EHST30D-TM9EE	●	●	●	●	●	●	●	●	●	●																	▲	▲
Reversible Cylinder	ERST17D-VM2E	●	●	●	●	●	●	●	●	●	●																	●	●
	ERST17D-VM6E	●	●	●	●	●	●	●	●	●	●																	●	●
	ERST20D-VM2E	●	●	●	●	●	●	●	●	●	●																	●	●
	ERST20D-VM6E	●	●	●	●	●	●	●	●	●	●																	●	●
	ERST20D-YM9E	●	●	●	●	●	●	●	●	●	●																	●	●
	ERST30D-VM2EE	●	●	●	●	●	●	●	●	●	●																	●	●
	ERST30D-VM6EE	●	●	●	●	●	●	●	●	●	●																	●	●
	ERST30D-YM9EE	●	●	●	●	●	●	●	●	●	●																	●	●
	ERST17D-VM2BE	●	●	●	●	●	●	●	●	●	●	●	●				●	●											
	ERST17D-VM6BE	●	●	●	●	●	●	●	●	●	●	●	●				●	●											
	ERST17D-YM9BE	●	●	●	●	●	●	●	●	●	●	●	●				●	●											
	ERST20F-VM2E											●	●	●	●	●	●	●	●	●	●								
	ERST20F-VM6E											●	●	●	●	●	●	●	●	●	●								
	ERST20F-YM9E											●	●	●	●	●	●	●	●	●	●								
	ERST20F-TM9E											●	●	●	●	●	●	●	●	●	●								
	ERST30F-VM2EE											●	●	●	●	●	●	●	●	●	●								
	ERST30F-VM6EE											●	●	●	●	●	●	●	●	●	●								
	ERST30F-YM9EE											●	●	●	●	●	●	●	●	●	●								
	ERST30F-TM9EE											●	●	●	●	●	●	●	●	●	●								
	ERST20C-VM2E																					●	●	●	●	●	●		
	ERST30C-VM2EE																												
Heating only Hydrobox	EHSD-MEE	●	●	●	●	●	●	●	●	●	●																		
	EHSD-VM2E	●	●	●	●	●	●	●	●	●	●																	▲	▲
	EHSD-VM6E	●	●	●	●	●	●	●	●	●	●																	▲	▲
	EHSD-YM9E	●	●	●	●	●	●	●	●	●	●																	▲	▲
	EHSD-TM9E	●	●	●	●	●	●	●	●	●	●																	▲	▲
Reversible Hydrobox	ERSD-VM2E	●	●	●	●	●	●	●	●	●	●																	●	●
	ERSD-VM6E	●	●	●	●	●	●	●	●	●	●																	●	●
	ERSD-YM9E	●	●	●	●	●	●	●	●	●	●																	●	●
	ERSF-MEE											●	●	●	●	●	●	●	●	●	●								
	ERSF-VM2E											●	●	●	●	●	●	●	●	●	●								
	ERSF-VM6E											●	●	●	●	●	●	●	●	●	●								
	ERSF-YM9E											●	●	●	●	●	●	●	●	●	●								
	ERSF-TM9E											●	●	●	●	●	●	●	●	●	●								
	ERSC-VM2E																					●	●	●	●	●	●		
	ERSC-MEE																					●	●	●	●	●	●		
	ERSC-VM6E																					●	●	●	●	●	●		
	ERSC-YM9E																					●	●	●	●	●	●		

●: Combination is available.
▲: Combination is possible but cooling function is still not available.
Blank: Combination is NOT available.

2 Specifications

2.1. Cylinder unit

Model name				EHST17D-VM2E	EHST17D-YM9E	EHST20D-VM2E	EHST20D-VM6E	EHST20D-YM9E	EHST20D-TM9E
Dimensions	Without package	Height	mm	1400	1400	1600	1600	1600	1600
		Width	mm	595	595	595	595	595	595
		Depth	mm	680	680	680	680	680	680
	With package	Height	mm	1670	1670	1850	1850	1850	1850
		Width	mm	660	660	660	660	660	660
		Depth	mm	800	800	800	800	800	800
Casing	Munsell		-	6.2PB 9/0.9	6.2PB 9/0.9	6.2PB 9/0.9	6.2PB 9/0.9	6.2PB 9/0.9	6.2PB 9/0.9
	RAL code		-	260 90 05	260 90 05	260 90 05	260 90 05	260 90 05	260 90 05
	Material		-	Pre-coated metal	Pre-coated metal	Pre-coated metal	Pre-coated metal	Pre-coated metal	Pre-coated metal
Product weight (empty)			kg	90	93	93	94	95	95
Product weight (full)			kg	266	270	299	300	304	304
Water volume of heating circuit in the unit *1			L	3.4	4.7	3.5	3.5	5.8	5.8
Type of Installation			-	Floor standing	Floor standing	Floor standing	Floor standing	Floor standing	Floor standing
Electrical data	Control board *2 (Including 4 pumps)	Power supply	Ph	~/N	~/N	~/N	~/N	~/N	~/N
			V	230	230	230	230	230	230
			Hz	50	50	50	50	50	50
		Input	kW	0.30	0.30	0.30	0.30	0.30	0.30
		Current	A	1.95	1.95	1.95	1.95	1.95	1.95
		Breaker	A	10	10	10	10	10	10
	Booster heater	Power supply	Ph	~/N	3~	~/N	~/N	3~	3~
			V	230	400	230	230	400	230
			Hz	50	50	50	50	50	50
		Capacity	kW	2	3+6	2	2+4	3+6	3+6
		Heater step	-	1	3	1	3	3	3
		Current	A	9	13	9	26	13	23
		Breaker	A	16	16	16	32	16	32
	Immersion heater	Power supply	Ph	-	-	-	-	-	-
			V	-	-	-	-	-	-
			Hz	-	-	-	-	-	-
		Capacity	kW	-	-	-	-	-	-
		Current	A	-	-	-	-	-	-
		Breaker	A	-	-	-	-	-	-
Water circulation pump (Primary circuit)	Type		-	DC motor	DC motor	DC motor	DC motor	DC motor	DC motor
	Input (10/20/max L/min)*3	Speed 1	W	10/13/14	10/13/14	10/13/15	10/13/15	10/13/15	10/13/15
		Speed 2	W	16/21/24	16/21/24	16/21/27	16/21/27	16/21/27	16/21/27
		Speed 3	W	24/32/36	24/32/36	24/32/42	24/32/42	24/32/42	24/32/42
		Speed 4	W	34/46/54	34/46/54	34/46/58	34/46/58	34/46/58	34/46/58
		Speed 5 (Default setting)	W	47/58/60	47/58/60	47/58/60	47/58/60	47/58/60	47/58/60
Performance curve: please refer to the following page	Current (10/20/max L/min)*3	Speed 1	A	0.2/0.2/0.3	0.2/0.2/0.3	0.2/0.2/0.3	0.2/0.2/0.3	0.2/0.2/0.3	0.2/0.2/0.3
		Speed 2	A	0.2/0.3/0.4	0.2/0.3/0.4	0.2/0.3/0.4	0.2/0.3/0.4	0.2/0.3/0.4	0.2/0.3/0.4
		Speed 3	A	0.3/0.4/0.5	0.3/0.4/0.5	0.3/0.4/0.5	0.3/0.4/0.5	0.3/0.4/0.5	0.3/0.4/0.5
		Speed 4	A	0.4/0.5/0.6	0.4/0.5/0.6	0.4/0.5/0.6	0.4/0.5/0.6	0.4/0.5/0.6	0.4/0.5/0.6
		Speed 5 (Default setting)	A	0.5/0.6/0.6	0.5/0.6/0.6	0.5/0.6/0.6	0.5/0.6/0.6	0.5/0.6/0.6	0.5/0.6/0.6
Water circulation pump (DHW circuit)	Input	Speed I	W	55	55	55	55	55	55
		Speed II (Default setting)	W	69	69	69	69	69	69
		Speed III	W	80	80	80	80	80	80
	Current	Speed I	A	0.25	0.25	0.25	0.25	0.25	0.25
		Speed II (Default setting)	A	0.31	0.31	0.31	0.31	0.31	0.31
		Speed III	A	0.34	0.34	0.34	0.34	0.34	0.34
	Flow rate	Speed I	L/min	13.5	13.5	13.5	13.5	13.5	13.5
		Speed II (Default setting)	L/min	19.0	19.0	19.0	19.0	19.0	19.0
		Speed III	L/min	22.9	22.9	22.9	22.9	22.9	22.9
Flow rate	Primary circuit	Max.*4	L/min	25.8	25.8	36.9	36.9	36.9	36.9
		Min.*5	L/min	5.0	5.0	5.0	5.0	5.0	5.0
Domestic hot water tank	Volume		L	170	170	200	200	200	200
	Material		-	Duplex 2304 stainless steel (EN10088)	Duplex 2304 stainless steel (EN10088)	Duplex 2304 stainless steel (EN10088)	Duplex 2304 stainless steel (EN10088)	Duplex 2304 stainless steel (EN10088)	Duplex 2304 stainless steel (EN10088)
	Declared load profile		-	L	L	L	L	L	L
Expansion vessel (Primary circuit)	Volume		L	12	12	12	12	12	12
	Charge pressure		MPa	0.1	0.1	0.1	0.1	0.1	0.1
Safety device	Primary circuit	Control thermistor	°C	1 to 80	1 to 80	1 to 80	1 to 80	1 to 80	1 to 80
		Pressure relief valve	MPa	0.3	0.3	0.3	0.3	0.3	0.3
		Flow sensor (Min. flow)	L/min	5.0	5.0	5.0	5.0	5.0	5.0
		BH manual reset thermostat	°C	90	90	90	90	90	90
		BH thermal Cut Off	°C	121	121	121	121	121	121
	DHW tank	Control thermistor	°C	75	75	75	75	75	75
		IH manual reset thermostat	°C	-	-	-	-	-	-
		Temperature & pressure relief valve	°C	-	-	-	-	-	-
			MPa	1.0	1.0	1.0	1.0	1.0	1.0
Connections	Water	Primary circuit for local system	-	G1	G1	G1	G1	G1	G1
		Primary circuit for outdoor unit	-	-	-	-	-	-	-
		DHW circuit	-	G3/4	G3/4	G3/4	G3/4	G3/4	G3/4
	Refrigerant	Gas	mm	φ12.7	φ12.7	φ12.7	φ12.7	φ12.7	φ12.7
		Liquid	mm	φ6.35	φ6.35	φ6.35	φ6.35	φ6.35	φ6.35
Refrigerant *6			-	R32/R410A	R32/R410A	R32/R410A	R32/R410A	R32/R410A	R32/R410A
Guaranteed operating range *7	Ambient		°C	0 to 35	0 to 35	0 to 35	0 to 35	0 to 35	0 to 35
			%RH	≤ 80	≤ 80	≤ 80	≤ 80	≤ 80	≤ 80
	Outdoor temperature	Heating	°C	See outdoor unit spec table					
		Cooling *8	°C	-	-	-	-	-	-
Operating range	Heating	Room temperature	°C	10 to 30	10 to 30	10 to 30	10 to 30	10 to 30	10 to 30
		Flow temperature *10, 11	°C	20 to 60	20 to 60	20 to 60	20 to 60	20 to 60	20 to 60
	Cooling	Room temperature	°C	-	-	-	-	-	-
		Flow temperature *10, 11	°C	-	-	-	-	-	-
	DHW *9		°C	40 to 60	40 to 60	40 to 60	40 to 60	40 to 60	40 to 60
	Legionella prevention *9		°C	60 to 70	60 to 70	60 to 70	60 to 70	60 to 70	60 to 70
Sound power level (PWL)			dB(A)	41	41	41	41	41	41

*1 Volume of sanitary water circuit, primary DHW circuit (from 3-way valve to confluent point with Heating circuit), piping to Expansion vessel, and Expansion vessel is not included in this value.
*2 When powered by an independent source.
*3 Allowable flow rate range differs depending on connected outdoor unit.
*4 If the water flow rate range exceeds maximum, the flow speed will be greater than 2.0 m/s, which could corrode the pipes.
*5 If the water flow is less than the minimum, the flow error will be activated.
*6 Refrigerant of outdoor unit connected to cylinder unit.
*7 The enviroment must be frost-free.
*8 See outdoor unit spec table (min, 10°C). Cooling mode is not available in low outdoor temperature. If you use our system in cooling mode at the low ambient temperature (10°C or below), there are some risks of plate heat exchanger damages by frozen water.
*9 For the model without both booster heater and immersion heater, the max. hot water temperature is [Max. outlet water of outdoor unit -3 °C]. For the max. outllet of outdoor unit spec table.
*10 Maximum temperature of E*****F model depending on the connected outdoor unit. PUZ: 70°C, Other: 60°C.
*11 Maximum temperature of E*****X model depending on the connected outdoor unit. WZ: 75°C. Other: 60°C.

2 Specifications

Model name				EHST30D-MEE	EHST30D-VM6EE	EHST30D-YM9EE	EHST30D-TM9EE	ERST17D-VM2E	ERST17D-VM6E
Dimensions	Without package	Height	mm	2050	2050	2050	2050	1400	1400
		Width	mm	595	595	595	595	595	595
		Depth	mm	680	680	680	680	680	680
	With package	Height	mm	2320	2320	2320	2320	1670	1670
		Width	mm	660	660	660	660	660	660
		Depth	mm	800	800	800	800	800	800
Casing	Munsell		-	6.2PB 9/0.9	6.2PB 9/0.9	6.2PB 9/0.9	6.2PB 9/0.9	6.2PB 9/0.9	6.2PB 9/0.9
	RAL code		-	260 90 05	260 90 05	260 90 05	260 90 05	260 90 05	260 90 05
	Material		-	Pre-coated metal	Pre-coated metal	Pre-coated metal	Pre-coated metal	Pre-coated metal	Pre-coated metal
Product weight (empty)			kg	106	108	110	110	91	92
Product weight (full)			kg	413	415	419	419	267	268
Water volume of heating circuit in the unit *1			L	3.9	3.9	6.2	6.2	3.4	3.4
Type of Installation			-	Floor standing	Floor standing	Floor standing	Floor standing	Floor standing	Floor standing
Electrical data	Control board *2 (Including 4 pumps)	Power supply	Ph	~/N	~/N	~/N	~/N	~/N	~/N
			V	230	230	230	230	230	230
			Hz	50	50	50	50	50	50
		Input	kW	0.30	0.30	0.30	0.30	0.30	0.30
		Current	A	1.95	1.95	1.95	1.95	1.95	1.95
		Breaker	A	10	10	10	10	10	10
	Booster heater	Power supply	Ph	-	~/N	3~	3~	~/N	~/N
			V	-	230	400	230	230	230
			Hz	-	50	50	50	50	50
		Capacity	kW	-	2+4	3+6	3+6	2	2+4
		Heater step	-	-	3	3	3	1	3
		Current	A	-	26	13	23	9	26
		Breaker	A	-	32	16	32	16	32
	Immersion heater	Power supply	Ph	-	-	-	-	-	-
			V	-	-	-	-	-	-
			Hz	-	-	-	-	-	-
		Capacity	kW	-	-	-	-	-	-
		Current	A	-	-	-	-	-	-
		Breaker	A	-	-	-	-	-	-
Water circulation pump (Primary circuit)	Type		-	DC motor	DC motor	DC motor	DC motor	DC motor	DC motor
	Input (10/20/max L/min)*3	Speed 1	W	10/13/15	10/13/15	10/13/15	10/13/15	10/13/14	10/13/14
		Speed 2	W	16/21/27	16/21/27	16/21/27	16/21/27	16/21/24	16/21/24
		Speed 3	W	24/32/42	24/32/42	24/32/42	24/32/42	24/32/36	24/32/36
		Speed 4	W	34/46/58	34/46/58	34/46/58	34/46/58	34/46/54	34/46/54
		Speed 5 (Default setting)	W	47/58/60	47/58/60	47/58/60	47/58/60	47/58/60	47/58/60
Performance curve: please refer to the following page	Current (10/20/max L/min)*3	Speed 1	A	0.2/0.2/0.3	0.2/0.2/0.3	0.2/0.2/0.3	0.2/0.2/0.3	0.2/0.2/0.3	0.2/0.2/0.3
		Speed 2	A	0.2/0.3/0.4	0.2/0.3/0.4	0.2/0.3/0.4	0.2/0.3/0.4	0.2/0.3/0.4	0.2/0.3/0.4
		Speed 3	A	0.3/0.4/0.5	0.3/0.4/0.5	0.3/0.4/0.5	0.3/0.4/0.5	0.3/0.4/0.5	0.3/0.4/0.5
		Speed 4	A	0.4/0.5/0.6	0.4/0.5/0.6	0.4/0.5/0.6	0.4/0.5/0.6	0.4/0.5/0.6	0.4/0.5/0.6
		Speed 5 (Default setting)	A	0.5/0.6/0.6	0.5/0.6/0.6	0.5/0.6/0.6	0.5/0.6/0.6	0.5/0.6/0.6	0.5/0.6/0.6
Water circulation pump (DHW circuit)	Input	Speed I	W	58	58	58	58	55	55
		Speed II (Default setting)	W	72	72	72	72	69	69
		Speed III	W	83	83	83	83	80	80
	Current	Speed I	A	0.27	0.27	0.27	0.27	0.25	0.25
		Speed II (Default setting)	A	0.33	0.33	0.33	0.33	0.31	0.31
		Speed III	A	0.36	0.36	0.36	0.36	0.34	0.34
	Flow rate	Speed I	L/min	14.5	14.5	14.5	14.5	13.5	13.5
		Speed II (Default setting)	L/min	21.0	21.0	21.0	21.0	19.0	19.0
		Speed III	L/min	25.2	25.2	25.2	25.2	22.9	22.9
Flow rate	Primary circuit	Max.*4	L/min	36.9	36.9	36.9	36.9	25.8	25.8
		Min.*5	L/min	5.0	5.0	5.0	5.0	5.0	5.0
Domestic hot water tank	Volume		L	300	300	300	300	170	170
	Material		-	Duplex 2304 stainless steel (EN10088)	Duplex 2304 stainless steel (EN10088)	Duplex 2304 stainless steel (EN10088)	Duplex 2304 stainless steel (EN10088)	Duplex 2304 stainless steel (EN10088)	Duplex 2304 stainless steel (EN10088)
	Declared load profile		-	XL	XL	XL	XL	L	L
Expansion vessel (Primary circuit)	Volume		L	-	-	-	-	12	12
	Charge pressure		MPa	-	-	-	-	0.1	0.1
Safety device	Primary circuit	Control thermistor	°C	1 to 80	1 to 80	1 to 80	1 to 80	1 to 80	1 to 80
		Pressure relief valve	MPa	0.3	0.3	0.3	0.3	0.3	0.3
		Flow sensor (Min. flow)	L/min	5.0	5.0	5.0	5.0	5.0	5.0
		BH manual reset thermostat	°C	-	90	90	90	90	90
		BH thermal Cut Off	°C	-	121	121	121	121	121
	DHW tank	Control thermistor	°C	75	75	75	75	75	75
		IH manual reset thermostat	°C	-	-	-	-	-	-
		Temperature & pressure relief valve	°C	-	-	-	-	-	-
			MPa	1.0	1.0	1.0	1.0	1.0	1.0
Connections	Water	Primary circuit for local system	-	G1	G1	G1	G1	G1	G1
		Primary circuit for outdoor unit	-	-	-	-	-	-	-
		DHW circuit	-	G3/4	G3/4	G3/4	G3/4	G3/4	G3/4
	Refrigerant	Gas	mm	φ12.7	φ12.7	φ12.7	φ12.7	φ12.7	φ12.7
		Liquid	mm	φ6.35	φ6.35	φ6.35	φ6.35	φ6.35	φ6.35
Refrigerant *6			-	R32/R410A	R32/R410A	R32/R410A	R32/R410A	R32/R410A	R32/R410A
Guaranteed operating range *7	Ambient		°C	0 to 35	0 to 35	0 to 35	0 to 35	0 to 35	0 to 35
			%RH	≤ 80	≤ 80	≤ 80	≤ 80	≤ 80	≤ 80
	Outdoor temperature	Heating	°C	See outdoor unit spec table					
		Cooling *8	°C	-	-	-	-	See outdoor unit spec table	
Operating range	Heating	Room temperature	°C	10 to 30	10 to 30	10 to 30	10 to 30	10 to 30	10 to 30
		Flow temperature *10, 11	°C	20 to 60	20 to 60	20 to 60	20 to 60	20 to 60	20 to 60
	Cooling	Room temperature	°C	-	-	-	-	-	-
		Flow temperature *10, 11	°C	-	-	-	-	5 to 25	5 to 25
	DHW *9		°C	40 to 60	40 to 60	40 to 60	40 to 60	40 to 60	40 to 60
	Legionella prevention *9		°C	60 to 70	60 to 70	60 to 70	60 to 70	60 to 70	60 to 70
Sound power level (PWL)			dB(A)	41	41	41	41	41	41

[*1] Volume of sanitary water circuit, primary DHW circuit (from 3-way valve to confluent point with Heating circuit), piping to Expansion vessel, and Expansion vessel is not included in this value.
[*2] When powered by an independent source.
[*3] Allowable flow rate range differs depending on connected outdoor unit.
[*4] If the water flow rate range exceeds maximum, the flow speed will be greater than 2.0 m/s, which could corrode the pipes.
[*5] If the water flow is less than the minimum, the flow error will be activated.
[*6] Refrigerant of outdoor unit connected to cylinder unit.
[*7] The enviroment must be frost-free.
[*8] See outdoor unit spec table (min, 10°C). Cooling mode is not available in low outdoor temperature. If you use our system in cooling mode at the low ambient temperature (10°C or below), there are some risks of plate heat exchanger damages by frozen water.
[*9] For the model without both booster heater and immersion heater, the max. hot water temperature is [Max. outlet water of outdoor unit -3 °C]. For the max. outllet of outdoor unit spec table.
[*10] Maximum temperature of E*****F model depending on the connected outdoor unit. PUZ: 70°C, Other: 60°C.
[*11] Maximum temperature of E*****X model depending on the connected outdoor unit. WZ: 75°C. Other: 60°C.

2 Specifications

Model name				ERST20D-VM2E	ERST20D-VM6E	ERST20D-YM9E	ERST30D-VM2EE	ERST30D-VM6EE	ERST30D-YM9EE
Dimensions	Without package	Height	mm	1600	1600	1600	2050	2050	2050
		Width	mm	595	595	595	595	595	595
		Depth	mm	680	680	680	680	680	680
	With package	Height	mm	1850	1850	1850	2320	2320	2320
		Width	mm	660	660	660	660	660	660
		Depth	mm	800	800	800	800	800	800
Casing	Munsell		-	6.2PB 9/0.9	6.2PB 9/0.9	6.2PB 9/0.9	6.2PB 9/0.9	6.2PB 9/0.9	6.2PB 9/0.9
	RAL code		-	260 90 05	260 90 05	260 90 05	260 90 05	260 90 05	260 90 05
	Material		-	Pre-coated metal	Pre-coated metal	Pre-coated metal	Pre-coated metal	Pre-coated metal	Pre-coated metal
Product weight (empty)			kg	94	95	96	108	109	110
Product weight (full)			kg	300	301	304	414	415	419
Water volume of heating circuit in the unit *1			L	3.5	3.5	5.8	3.9	3.9	6.2
Type of Installation			-	Floor standing	Floor standing	Floor standing	Floor standing	Floor standing	Floor standing
Electrical data	Control board *2 (Including 4 pumps)	Power supply	Ph	~/N	~/N	~/N	~/N	~/N	~/N
			V	230	230	230	230	230	230
			Hz	50	50	50	50	50	50
		Input	kW	0.30	0.30	0.30	0.30	0.30	0.30
		Current	A	1.95	1.95	1.95	1.95	1.95	1.95
		Breaker	A	10	10	10	10	10	10
	Booster heater	Power supply	Ph	~/N	~/N	3~	~/N	~/N	3~
			V	230	230	400	230	230	400
			Hz	50	50	50	50	50	50
		Capacity	kW	2	2+4	3+6	2	2+4	3+6
		Heater step	-	1	3	3	1	3	3
		Current	A	9	26	13	9	26	13
		Breaker	A	16	32	16	16	32	16
	Immersion heater	Power supply	Ph	-	-	-	-	-	-
			V	-	-	-	-	-	-
			Hz	-	-	-	-	-	-
		Capacity	kW	-	-	-	-	-	-
		Current	A	-	-	-	-	-	-
		Breaker	A	-	-	-	-	-	-
Water circulation pump (Primary circuit)	Type		-	DC motor	DC motor	DC motor	DC motor	DC motor	DC motor
	Input (10/20/max L/min)*3	Speed 1	W	10/13/15	10/13/15	10/13/15	10/13/15	10/13/15	10/13/15
		Speed 2	W	16/21/27	16/21/27	16/21/27	16/21/27	16/21/27	16/21/27
		Speed 3	W	24/32/42	24/32/42	24/32/42	24/32/42	24/32/42	24/32/42
		Speed 4	W	34/46/58	34/46/58	34/46/58	34/46/58	34/46/58	34/46/58
		Speed 5 (Default setting)	W	47/58/60	47/58/60	47/58/60	47/58/60	47/58/60	47/58/60
Performance curve: please refer to the following page	Current (10/20/max L/min)*3	Speed 1	A	0.2/0.2/0.3	0.2/0.2/0.3	0.2/0.2/0.3	0.2/0.2/0.3	0.2/0.2/0.3	0.2/0.2/0.3
		Speed 2	A	0.2/0.3/0.4	0.2/0.3/0.4	0.2/0.3/0.4	0.2/0.3/0.4	0.2/0.3/0.4	0.2/0.3/0.4
		Speed 3	A	0.3/0.4/0.5	0.3/0.4/0.5	0.3/0.4/0.5	0.3/0.4/0.5	0.3/0.4/0.5	0.3/0.4/0.5
		Speed 4	A	0.4/0.5/0.6	0.4/0.5/0.6	0.4/0.5/0.6	0.4/0.5/0.6	0.4/0.5/0.6	0.4/0.5/0.6
		Speed 5 (Default setting)	A	0.5/0.6/0.6	0.5/0.6/0.6	0.5/0.6/0.6	0.5/0.6/0.6	0.5/0.6/0.6	0.5/0.6/0.6
Water circulation pump (DHW circuit)	Input	Speed I	W	55	55	55	58	58	58
		Speed II (Default setting)	W	69	69	69	72	72	72
		Speed III	W	80	80	80	83	83	83
	Current	Speed I	A	0.25	0.25	0.25	0.27	0.27	0.27
		Speed II (Default setting)	A	0.31	0.31	0.31	0.33	0.33	0.33
		Speed III	A	0.34	0.34	0.34	0.36	0.36	0.36
	Flow rate	Speed I	L/min	13.5	13.5	13.5	14.5	14.5	14.5
		Speed II (Default setting)	L/min	19.0	19.0	19.0	21.0	21.0	21.0
		Speed III	L/min	22.9	22.9	22.9	25.2	25.2	25.2
Flow rate	Primary circuit	Max.*4	L/min	36.9	36.9	36.9	36.9	36.9	36.9
		Min.*5	L/min	5.0	5.0	5.0	5.0	5.0	5.0
Domestic hot water tank	Volume		L	200	200	200	300	300	300
	Material		-	Duplex 2304 stainless steel (EN10088)	Duplex 2304 stainless steel (EN10088)	Duplex 2304 stainless steel (EN10088)	Duplex 2304 stainless steel (EN10088)	Duplex 2304 stainless steel (EN10088)	Duplex 2304 stainless steel (EN10088)
	Declared load profile		-	L	L	L	XL	XL	XL
Expansion vessel (Primary circuit)	Volume		L	12	12	12	-	-	-
	Charge pressure		MPa	0.1	0.1	0.1	-	-	-
Safety device	Primary circuit	Control thermistor	°C	1 to 80	1 to 80	1 to 80	1 to 80	1 to 80	1 to 80
		Pressure relief valve	MPa	0.3	0.3	0.3	0.3	0.3	0.3
		Flow sensor (Min. flow)	L/min	5.0	5.0	5.0	5.0	5.0	5.0
		BH manual reset thermostat	°C	90	90	90	90	90	90
		BH thermal Cut Off	°C	121	121	121	121	121	121
	DHW tank	Control thermistor	°C	75	75	75	75	75	75
		IH manual reset thermostat	°C	-	-	-	-	-	-
		Temperature & pressure relief valve	°C	-	-	-	-	-	-
			MPa	1.0	1.0	1.0	1.0	1.0	1.0
Connections	Water	Primary circuit for local system	-	G1	G1	G1	G1	G1	G1
		Primary circuit for outdoor unit	-	-	-	-	-	-	-
		DHW circuit	-	G3/4	G3/4	G3/4	G3/4	G3/4	G3/4
	Refrigerant	Gas	mm	φ12.7	φ12.7	φ12.7	φ12.7	φ12.7	φ12.7
		Liquid	mm	φ6.35	φ6.35	φ6.35	φ6.35	φ6.35	φ6.35
Refrigerant *6			-	R32/R410A	R32/R410A	R32/R410A	R32/R410A	R32/R410A	R32/R410A
Guaranteed operating range *7	Ambient		°C	0 to 35	0 to 35	0 to 35	0 to 35	0 to 35	0 to 35
			%RH	≤ 80	≤ 80	≤ 80	≤ 80	≤ 80	≤ 80
	Outdoor temperature	Heating	°C	See outdoor unit spec table					
		Cooling *8	°C	See outdoor unit spec table					
Operating range	Heating	Room temperature	°C	10 to 30	10 to 30	10 to 30	10 to 30	10 to 30	10 to 30
		Flow temperature *10, 11	°C	20 to 60	20 to 60	20 to 60	20 to 60	20 to 60	20 to 60
	Cooling	Room temperature	°C	-	-	-	-	-	-
		Flow temperature *10, 11	°C	5 to 25	5 to 25	5 to 25	5 to 25	5 to 25	5 to 25
	DHW *9		°C	40 to 60	40 to 60	40 to 60	40 to 60	40 to 60	40 to 60
	Legionella prevention *9		°C	60 to 70	60 to 70	60 to 70	60 to 70	60 to 70	60 to 70
Sound power level (PWL)			dB(A)	41	41	41	41	41	41

*1 Volume of sanitary water circuit, primary DHW circuit (from 3-way valve to confluent point with Heating circuit), piping to Expansion vessel, and Expansion vessel is not included in this value.
*2 When powered by an independent source.
*3 Allowable flow rate range differs depending on connected outdoor unit.
*4 If the water flow rate range exceeds maximum, the flow speed will be greater than 2.0 m/s, which could corrode the pipes.
*5 If the water flow is less than the minimum, the flow error will be activated.
*6 Refrigerant of outdoor unit connected to cylinder unit.
*7 The enviroment must be frost-free.
*8 See outdoor unit spec table (min, 10°C). Cooling mode is not available in low outdoor temperature. If you use our system in cooling mode at the low ambient temperature (10°C or below), there are some risks of plate heat exchanger damages by frozen water.
*9 For the model without both booster heater and immersion heater, the max. hot water temperature is [Max. outlet water of outdoor unit -3 °C]. For the max. outllet of outdoor unit spec table.
*10 Maximum temperature of E*****F model depending on the connected outdoor unit. PUZ: 70°C, Other: 60°C.
*11 Maximum temperature of E*****X model depending on the connected outdoor unit. WZ: 75°C. Other: 60°C.

2 Specifications

Model name				ERST20C-VM2E	ERST30C-VM2EE	ERST20F-VM2E	ERST20F-VM6E	ERST20F-YM9E	ERST20F-TM9E
Dimensions	Without package	Height	mm	1600	2050	1600	1600	1600	1600
		Width	mm	595	595	595	595	595	595
		Depth	mm	680	680	680	680	680	680
	With package	Height	mm	1850	2320	1850	1850	1850	1850
		Width	mm	660	660	660	660	660	660
		Depth	mm	800	800	800	800	800	800
Casing	Munsell		-	6.2PB 9/0.9	6.2PB 9/0.9	6.2PB 9/0.9	6.2PB 9/0.9	6.2PB 9/0.9	6.2PB 9/0.9
	RAL code		-	260 90 05	260 90 05	260 90 05	260 90 05	260 90 05	260 90 05
	Material		-	Pre-coated metal	Pre-coated metal	Pre-coated metal	Pre-coated metal	Pre-coated metal	Pre-coated metal
Product weight (empty)			kg	99	114	94	96	98	98
Product weight (full)			kg	307	422	301	302	307	307
Water volume of heating circuit in the unit *1			L	4.6	5	3.6	3.6	5.9	5.9
Type of Installation			-	Floor standing	Floor standing	Floor standing	Floor standing	Floor standing	Floor standing
Electrical data	Control board *2 (Including 4 pumps)	Power supply	Ph	~/N	~/N	~/N	~/N	~/N	~/N
			V	230	230	230	230	230	230
			Hz	50	50	50	50	50	50
		Input	kW	0.30	0.30	0.30	0.30	0.30	0.30
		Current	A	1.95	1.95	1.95	1.95	1.95	1.95
		Breaker	A	10	10	10	10	10	10
	Booster heater	Power supply	Ph	~/N	~/N	~/N	~/N	3~	3~
			V	230	230	230	230	400	230
			Hz	50	50	50	50	50	50
		Capacity	kW	2	2	2	2+4	3+6	3+6
		Heater step	-	1	1	1	3	3	3
		Current	A	9	9	9	26	13	23
		Breaker	A	16	16	16	32	16	32
	Immersion heater	Power supply	Ph	-	-	-	-	-	-
			V	-	-	-	-	-	-
			Hz	-	-	-	-	-	-
		Capacity	kW	-	-	-	-	-	-
		Current	A	-	-	-	-	-	-
		Breaker	A	-	-	-	-	-	-
Water circulation pump (Primary circuit)	Type		-	DC motor	DC motor	DC motor	DC motor	DC motor	DC motor
	Input (10/20/max L/min)*3	Speed 1	W	10/13/15	10/13/15	10/13/15	10/13/15	10/13/15	10/13/15
		Speed 2	W	16/21/27	16/21/27	16/21/27	16/21/27	16/21/27	16/21/27
		Speed 3	W	24/32/42	24/32/42	24/32/42	24/32/42	24/32/42	24/32/42
		Speed 4	W	34/46/58	34/46/58	34/46/58	34/46/58	34/46/58	34/46/58
		Speed 5 (Default setting)	W	47/58/60	47/58/60	47/58/60	47/58/60	47/58/60	47/58/60
Performance curve: please refer to the following page	Current (10/20/max L/min)*3	Speed 1	A	0.2/0.2/0.3	0.2/0.2/0.3	0.2/0.2/0.3	0.2/0.2/0.3	0.2/0.2/0.3	0.2/0.2/0.3
		Speed 2	A	0.2/0.3/0.4	0.2/0.3/0.4	0.2/0.3/0.4	0.2/0.3/0.4	0.2/0.3/0.4	0.2/0.3/0.4
		Speed 3	A	0.3/0.4/0.5	0.3/0.4/0.5	0.3/0.4/0.5	0.3/0.4/0.5	0.3/0.4/0.5	0.3/0.4/0.5
		Speed 4	A	0.4/0.5/0.6	0.4/0.5/0.6	0.4/0.5/0.6	0.4/0.5/0.6	0.4/0.5/0.6	0.4/0.5/0.6
		Speed 5 (Default setting)	A	0.5/0.6/0.6	0.5/0.6/0.6	0.5/0.6/0.6	0.5/0.6/0.6	0.5/0.6/0.6	0.5/0.6/0.6
Water circulation pump (DHW circuit)	Input	Speed I	W	58	58	55	55	55	55
		Speed II (Default setting)	W	72	72	69	69	69	69
		Speed III	W	83	83	80	80	80	80
	Current	Speed I	A	0.27	0.27	0.25	0.25	0.25	0.25
		Speed II (Default setting)	A	0.33	0.33	0.31	0.31	0.31	0.31
		Speed III	A	0.36	0.36	0.34	0.34	0.34	0.34
	Flow rate	Speed I	L/min	14.5	14.5	13.5	13.5	13.5	13.5
		Speed II (Default setting)	L/min	21.0	21.0	19.0	19.0	19.0	19.0
		Speed III	L/min	25.2	25.2	22.9	22.9	22.9	22.9
Flow rate	Primary circuit	Max.*4	L/min	36.9	36.9	36.9	36.9	36.9	36.9
		Min.*5	L/min	5.0	5.0	5.0	5.0	5.0	5.0
Domestic hot water tank	Volume		L	200	300	200	200	200	200
	Material		-	Duplex 2304 stainless steel (EN10088)	Duplex 2304 stainless steel (EN10088)	Duplex 2304 stainless steel (EN10088)	Duplex 2304 stainless steel (EN10088)	Duplex 2304 stainless steel (EN10088)	Duplex 2304 stainless steel (EN10088)
	Declared load profile		-	L	XL	L	L	L	L
Expansion vessel (Primary circuit)	Volume		L	12	-	12	12	12	12
	Charge pressure		MPa	0.1	-	0.1	0.1	0.1	0.1
Safety device	Primary circuit	Control thermistor	°C	1 to 80	1 to 80	1 to 80	1 to 80	1 to 80	1 to 80
		Pressure relief valve	MPa	0.3	0.3	0.3	0.3	0.3	0.3
		Flow sensor (Min. flow)	L/min	5.0	5.0	5.0	5.0	5.0	5.0
		BH manual reset thermostat	°C	90	90	90	90	90	90
		BH thermal Cut Off	°C	121	121	121	121	121	121
	DHW tank	Control thermistor	°C	75	75	75	75	75	75
		IH manual reset thermostat	°C	-	-	-	-	-	-
		Temperature & pressure relief valve	°C	-	-	-	-	-	-
			MPa	1.0	1.0	1.0	1.0	1.0	1.0
Connections	Water	Primary circuit for local system	-	G1	G1	G1	G1	G1	G1
		Primary circuit for outdoor unit	-	-	-	-	-	-	-
		DHW circuit	-	G3/4	G3/4	G3/4	G3/4	G3/4	G3/4
	Refrigerant	Gas	mm	φ15.88	φ15.88	φ12.7 or φ15.88	φ12.7 or φ15.88	φ12.7 or φ15.88	φ12.7 or φ15.88
		Liquid	mm	φ9.52	φ9.52	φ6.35	φ6.35	φ6.35	φ6.35
Refrigerant *6			-	R410A	R410A	R32	R32	R32	R32
Guaranteed operating range *7	Ambient		°C	0 to 35	0 to 35	0 to 35	0 to 35	0 to 35	0 to 35
			%RH	≤ 80	≤ 80	≤ 80	≤ 80	≤ 80	≤ 80
	Outdoor temperature	Heating	°C	See outdoor unit spec table					
		Cooling *8	°C	See outdoor unit spec table					
Operating range	Heating	Room temperature	°C	10 to 30	10 to 30	10 to 30	10 to 30	10 to 30	10 to 30
		Flow temperature *10, 11	°C	20 to 60	20 to 60	20 to 70	20 to 70	20 to 70	20 to 70
	Cooling	Room temperature	°C	-	-	-	-	-	-
		Flow temperature *10, 11	°C	5 to 25	5 to 25	-	-	-	-
	DHW *9		°C	40 to 60	40 to 60	40 to 65	40 to 65	40 to 65	40 to 65
	Legionella prevention *9		°C	60 to 70	60 to 70	60 to 70	60 to 70	60 to 70	60 to 70
Sound power level (PWL)			dB(A)	40	40	41	41	41	41

*1 Volume of sanitary water circuit, primary DHW circuit (from 3-way valve to confluent point with Heating circuit), piping to Expansion vessel, and Expansion vessel is not included in this value.
*2 When powered by an independent source.
*3 Allowable flow rate range differs depending on connected outdoor unit.
*4 If the water flow rate range exceeds maximum, the flow speed will be greater than 2.0 m/s, which could corrode the pipes.
*5 If the water flow is less than the minimum, the flow error will be activated.
*6 Refrigerant of outdoor unit connected to cylinder unit.
*7 The enviroment must be frost-free.
*8 See outdoor unit spec table (min, 10°C). Cooling mode is not available in low outdoor temperature. If you use our system in cooling mode at the low ambient temperature (10°C or below), there are some risks of plate heat exchanger damages by frozen water.
*9 For the model without both booster heater and immersion heater, the max. hot water temperature is [Max. outlet water of outdoor unit -3 °C]. For the max. outllet of outdoor unit spec table.
*10 Maximum temperature of E*****F model depending on the connected outdoor unit. PUZ: 70°C, Other: 60°C.
*11 Maximum temperature of E*****X model depending on the connected outdoor unit. WZ: 75°C. Other: 60°C.

2 Specifications

Model name				ERST30F-VM2EE	ERST30F-VM6EE	ERST30F-YM9EE	ERST30F-TM9EE	EHPT17X-VM2E	EHPT17X-VM6E
Dimensions	Without package	Height	mm	2050	2050	2050	2050	1400	1400
		Width	mm	595	595	595	595	595	595
		Depth	mm	680	680	680	680	680	680
	With package	Height	mm	2320	2320	2320	2320	1670	1670
		Width	mm	660	660	660	660	660	660
		Depth	mm	800	800	800	800	800	800
Casing	Munsell		-	6.2PB 9/0.9	6.2PB 9/0.9	6.2PB 9/0.9	6.2PB 9/0.9	6.2PB 9/0.9	6.2PB 9/0.9
	RAL code		-	260 90 05	260 90 05	260 90 05	260 90 05	260 90 05	260 90 05
	Material		-	Pre-coated metal	Pre-coated metal	Pre-coated metal	Pre-coated metal	Pre-coated metal	Pre-coated metal
Product weight (empty)			kg	109	110	112	112	83	84
Product weight (full)			kg	416	417	421	421	258	259
Water volume of heating circuit in the unit *1			L	4.0	4.0	6.3	6.3	3.2	3.2
Type of Installation			-	Floor standing	Floor standing	Floor standing	Floor standing	Floor standing	Floor standing
Electrical data	Control board *2 (Including 4 pumps)	Power supply	Ph	~/N	~/N	~/N	~/N	~/N	~/N
			V	230	230	230	230	230	230
			Hz	50	50	50	50	50	50
		Input	kW	0.30	0.30	0.30	0.30	0.30	0.30
		Current	A	1.95	1.95	1.95	1.95	1.95	1.95
		Breaker	A	10	10	10	10	10	10
	Booster heater	Power supply	Ph	~/N	~/N	3~	3~	~/N	~/N
			V	230	230	400	230	230	230
			Hz	50	50	50	50	50	50
		Capacity	kW	2	2+4	3+6	3+6	2	2+4
		Heater step	-	1	3	3	3	1	3
		Current	A	9	26	13	23	9	26
		Breaker	A	16	32	16	32	16	32
	Immersion heater	Power supply	Ph	-	-	-	-	-	-
			V	-	-	-	-	-	-
			Hz	-	-	-	-	-	-
		Capacity	kW	-	-	-	-	-	-
		Current	A	-	-	-	-	-	-
		Breaker	A	-	-	-	-	-	-
Water circulation pump (Primary circuit)	Type		-	DC motor	DC motor	DC motor	DC motor	DC motor	DC motor
	Input (10/20/max L/min)*3	Speed 1	W	10/13/15	10/13/15	10/13/15	10/13/15	10/13/14	10/13/14
		Speed 2	W	16/21/27	16/21/27	16/21/27	16/21/27	16/21/24	16/21/24
		Speed 3	W	24/32/42	24/32/42	24/32/42	24/32/42	24/32/36	24/32/36
		Speed 4	W	34/46/58	34/46/58	34/46/58	34/46/58	34/46/54	34/46/54
		Speed 5 (Default setting)	W	47/58/60	47/58/60	47/58/60	47/58/60	47/58/60	47/58/60
Performance curve: please refer to the following page	Current (10/20/max L/min)*3	Speed 1	A	0.2/0.2/0.3	0.2/0.2/0.3	0.2/0.2/0.3	0.2/0.2/0.3	0.2/0.2/0.3	0.2/0.2/0.3
		Speed 2	A	0.2/0.3/0.4	0.2/0.3/0.4	0.2/0.3/0.4	0.2/0.3/0.4	0.2/0.3/0.4	0.2/0.3/0.4
		Speed 3	A	0.3/0.4/0.5	0.3/0.4/0.5	0.3/0.4/0.5	0.3/0.4/0.5	0.3/0.4/0.5	0.3/0.4/0.5
		Speed 4	A	0.4/0.5/0.6	0.4/0.5/0.6	0.4/0.5/0.6	0.4/0.5/0.6	0.4/0.5/0.6	0.4/0.5/0.6
		Speed 5 (Default setting)	A	0.5/0.6/0.6	0.5/0.6/0.6	0.5/0.6/0.6	0.5/0.6/0.6	0.5/0.6/0.6	0.5/0.6/0.6
Water circulation pump (DHW circuit)	Input	Speed I	W	58	58	58	58	55	55
		Speed II (Default setting)	W	72	72	72	72	69	69
		Speed III	W	83	83	83	83	80	80
	Current	Speed I	A	0.27	0.27	0.27	0.27	0.25	0.25
		Speed II (Default setting)	A	0.33	0.33	0.33	0.33	0.31	0.31
		Speed III	A	0.36	0.36	0.36	0.36	0.34	0.34
	Flow rate	Speed I	L/min	14.5	14.5	14.5	14.5	13.5	13.5
		Speed II (Default setting)	L/min	21.0	21.0	21.0	21.0	19.0	19.0
		Speed III	L/min	25.2	25.2	25.2	25.2	22.9	22.9
Flow rate	Primary circuit	Max.*4	L/min	36.9	36.9	36.9	36.9	25.8	25.8
		Min.*5	L/min	5.0	5.0	5.0	5.0	5.0	5.0
Domestic hot water tank	Volume		L	300	300	300	300	170	170
	Material		-	Duplex 2304 stainless steel (EN10088)	Duplex 2304 stainless steel (EN10088)	Duplex 2304 stainless steel (EN10088)	Duplex 2304 stainless steel (EN10088)	Duplex 2304 stainless steel (EN10088)	Duplex 2304 stainless steel (EN10088)
	Declared load profile		-	XL	XL	XL	XL	L	L
Expansion vessel (Primary circuit)	Volume		L	-	-	-	-	12	12
	Charge pressure		MPa	-	-	-	-	0.1	0.1
Safety device	Primary circuit	Control thermistor	°C	1 to 80	1 to 80	1 to 80	1 to 80	1 to 80	1 to 80
		Pressure relief valve	MPa	0.3	0.3	0.3	0.3	0.3	0.3
		Flow sensor (Min. flow)	L/min	5.0	5.0	5.0	5.0	5.0	5.0
		BH manual reset thermostat	°C	90	90	90	90	90	90
		BH thermal Cut Off	°C	121	121	121	121	121	121
	DHW tank	Control thermistor	°C	75	75	75	75	75	75
		IH manual reset thermostat	°C	-	-	-	-	-	-
		Temperature & pressure relief valve	°C	-	-	-	-	-	-
			MPa	1.0	1.0	1.0	1.0	1.0	1.0
Connections	Water	Primary circuit for local system	-	G1	G1	G1	G1	G1	G1
		Primary circuit for outdoor unit	-	-	-	-	-	φ28 mm	φ28 mm
		DHW circuit	-	G3/4	G3/4	G3/4	G3/4	G3/4	G3/4
	Refrigerant	Gas	mm	φ12.7 or φ15.88	φ12.7 or φ15.88	φ12.7 or φ15.88	φ12.7 or φ15.88	-	-
		Liquid	mm	φ6.35	φ6.35	φ6.35	φ6.35	-	-
Refrigerant *6			-	R32	R32	R32	R32	R718	R718
Guaranteed operating range *7	Ambient		°C	0 to 35	0 to 35	0 to 35	0 to 35	0 to 35	0 to 35
			%RH	≤ 80	≤ 80	≤ 80	≤ 80	≤ 80	≤ 80
	Outdoor temperature	Heating	°C	See outdoor unit spec table					
		Cooling *8	°C	See outdoor unit spec table					
Operating range	Heating	Room temperature	°C	10 to 30	10 to 30	10 to 30	10 to 30	10 to 30	10 to 30
		Flow temperature *10, 11	°C	20 to 70	20 to 70	20 to 70	20 to 70	20 to 75	20 to 75
	Cooling	Room temperature	°C	-	-	-	-	-	-
		Flow temperature *10, 11	°C	5 to 25	5 to 25	5 to 25	5 to 25	-	-
	DHW *9		°C	40 to 65	40 to 65	40 to 65	40 to 65	40 to 70	40 to 70
	Legionella prevention *9		°C	60 to 70	60 to 70	60 to 70	60 to 70	60 to 70	60 to 70
Sound power level (PWL)			dB(A)	41	41	41	41	40	40

*1 Volume of sanitary water circuit, primary DHW circuit (from 3-way valve to confluent point with Heating circuit), piping to Expansion vessel, and Expansion vessel is not included in this value.
*2 When powered by an independent source.
*3 Allowable flow rate range differs depending on connected outdoor unit.
*4 If the water flow rate range exceeds maximum, the flow speed will be greater than 2.0 m/s, which could corrode the pipes.
*5 If the water flow is less than the minimum, the flow error will be activated.
*6 Refrigerant of outdoor unit connected to cylinder unit.
*7 The enviroment must be frost-free.
*8 See outdoor unit spec table (min, 10°C). Cooling mode is not available in low outdoor temperature. If you use our system in cooling mode at the low ambient temperature (10°C or below), there are some risks of plate heat exchanger damages by frozen water.
*9 For the model without both booster heater and immersion heater, the max. hot water temperature is [Max. outlet water of outdoor unit -3 °C]. For the max. outllet of outdoor unit spec table.
*10 Maximum temperature of E*****F model depending on the connected outdoor unit. PUZ: 70°C, Other: 60°C.
*11 Maximum temperature of E*****X model depending on the connected outdoor unit. WZ: 75°C. Other: 60°C.

2 Specifications

Model name				EHPT17X-YM9E	EHPT20X-YM9E	EHPT20X-TM9E	EHPT20X-MEHEW	EHPT30X-YM9EE	ERPT17X-VM2E
Dimensions	Without package	Height	mm	1400	1600	1600	1600	2050	1400
		Width	mm	595	595	595	595	595	595
		Depth	mm	680	680	680	680	680	680
	With package	Height	mm	1670	1850	1850	1850	2320	1670
		Width	mm	660	660	660	660	660	660
		Depth	mm	800	800	800	800	800	800
Casing	Munsell		-	6.2PB 9/0.9	6.2PB 9/0.9	6.2PB 9/0.9	6.2PB 9/0.9	6.2PB 9/0.9	6.2PB 9/0.9
	RAL code		-	260 90 05	260 90 05	260 90 05	260 90 05	260 90 05	260 90 05
	Material		-	Pre-coated metal	Pre-coated metal	Pre-coated metal	Pre-coated metal	Pre-coated metal	Pre-coated metal
Product weight (empty)			kg	85	90	90	81	105	84
Product weight (full)			kg	263	299	299	287	415	260
Water volume of heating circuit in the unit *1			L	5.5	6.0	6.0	3.7	6.7	3.2
Type of Installation			-	Floor standing	Floor standing	Floor standing	Floor standing	Floor standing	Floor standing
Electrical data	Control board *2 (Including 4 pumps)	Power supply	Ph	~/N	~/N	~/N	~/N	~/N	~/N
			V	230	230	230	230	230	230
			Hz	50	50	50	50	50	50
		Input	kW	0.30	0.30	0.30	0.30	0.30	0.30
		Current	A	1.95	1.95	1.95	1.95	1.95	1.95
		Breaker	A	10	10	10	10	10	10
	Booster heater	Power supply	Ph	3~	3~	3~	-	3~	~/N
			V	400	400	230	-	400	230
			Hz	50	50	50	-	50	50
		Capacity	kW	3+6	3+6	3+6	-	3+6	2
		Heater step	-	3	3	3	-	3	1
		Current	A	13	13	23	-	13	9
		Breaker	A	16	16	32	-	16	16
	Immersion heater	Power supply	Ph	-	-	-	~/N	-	-
			V	-	-	-	230	-	-
			Hz	-	-	-	50	-	-
		Capacity	kW	-	-	-	3	-	-
		Current	A	-	-	-	13	-	-
		Breaker	A	-	-	-	16	-	-
Water circulation pump (Primary circuit)	Type		-	DC motor	DC motor	DC motor	DC motor	DC motor	DC motor
	Input (10/20/max L/min)*3	Speed 1	W	10/13/14	10/13/15	10/13/15	10/13/15	10/13/15	10/13/14
		Speed 2	W	16/21/24	16/21/27	16/21/27	16/21/27	16/21/27	16/21/24
		Speed 3	W	24/32/36	24/32/42	24/32/42	24/32/42	24/32/42	24/32/36
		Speed 4	W	34/46/54	34/46/58	34/46/58	34/46/58	34/46/58	34/46/54
		Speed 5 (Default setting)	W	47/58/60	47/58/60	47/58/60	47/58/60	47/58/60	47/58/60
Performance curve: please refer to the following page	Current (10/20/max L/min)*3	Speed 1	A	0.2/0.2/0.3	0.2/0.2/0.3	0.2/0.2/0.3	0.2/0.2/0.3	0.2/0.2/0.3	0.2/0.2/0.3
		Speed 2	A	0.2/0.3/0.4	0.2/0.3/0.4	0.2/0.3/0.4	0.2/0.3/0.4	0.3/0.4/0.5	0.2/0.3/0.4
		Speed 3	A	0.3/0.4/0.5	0.3/0.4/0.5	0.3/0.4/0.5	0.3/0.4/0.5	0.4/0.5/0.7	0.3/0.4/0.5
		Speed 4	A	0.4/0.5/0.6	0.4/0.5/0.6	0.4/0.5/0.6	0.4/0.5/0.6	0.6/0.8/1.0	0.4/0.5/0.6
		Speed 5 (Default setting)	A	0.5/0.6/0.6	0.5/0.6/0.6	0.5/0.6/0.6	0.5/0.6/0.6	0.9/1.1/1.4	0.5/0.6/0.6
Water circulation pump (DHW circuit)	Input	Speed I	W	55	58	58	58	58	55
		Speed II (Default setting)	W	69	72	72	72	72	69
		Speed III	W	80	83	83	83	83	80
	Current	Speed I	A	0.25	0.27	0.27	0.27	0.27	0.25
		Speed II (Default setting)	A	0.31	0.33	0.33	0.33	0.33	0.31
		Speed III	A	0.34	0.36	0.36	0.36	0.36	0.34
	Flow rate	Speed I	L/min	13.5	14.5	14.5	14.5	14.5	13.5
		Speed II (Default setting)	L/min	19.0	21.0	21.0	21.0	21.0	19.0
		Speed III	L/min	22.9	25.2	25.2	25.2	25.2	22.9
Flow rate	Primary circuit	Max.*4	L/min	25.8	36.9	36.9	36.9	36.9	25.8
		Min.*5	L/min	5.0	5.0	5.0	5.0	5.0	5.0
Domestic hot water tank	Volume		L	170	200	200	200	300	170
	Material		-	Duplex 2304 stainless steel (EN10088)	Duplex 2304 stainless steel (EN10088)	Duplex 2304 stainless steel (EN10088)	Duplex 2304 stainless steel (EN10088)	Duplex 2304 stainless steel (EN10088)	Duplex 2304 stainless steel (EN10088)
	Declared load profile		-	L	L	L	L	XL	L
Expansion vessel (Primary circuit)	Volume		L	12	12	12	-	-	12
	Charge pressure		MPa	0.1	0.1	0.1	-	-	0.1
Safety device	Primary circuit	Control thermistor	°C	1 to 80	1 to 80	1 to 80	1 to 80	1 to 80	1 to 80
		Pressure relief valve	MPa	0.3	0.3	0.3	0.3	0.3	0.3
		Flow sensor (Min. flow)	L/min	5.0	5.0	5.0	5.0	5.0	5.0
		BH manual reset thermostat	°C	90	90	90	-	90	90
		BH thermal Cut Off	°C	121	121	121	-	121	121
	DHW tank	Control thermistor	°C	75	75	75	75	75	75
		IH manual reset thermostat	°C	-	-	-	85	-	-
		Temperature & pressure relief valve	°C	-	-	-	90	-	-
			MPa	1.0	1.0	1.0	0.7	1.0	1.0
Connections	Water	Primary circuit for local system	-	G1	G1	G1	G1	G1	G1
		Primary circuit for outdoor unit	-	φ28 mm	φ28 mm	φ28 mm	φ28 mm	φ28 mm	φ28 mm
		DHW circuit	-	G3/4	G3/4	G3/4	G3/4	G3/4	G3/4
	Refrigerant	Gas	mm	-	-	-	-	-	-
		Liquid	mm	-	-	-	-	-	-
Refrigerant *6			-	R718	R718	R718	R718	R718	R718
Guaranteed operating range *7	Ambient		°C	0 to 35	0 to 35	0 to 35	0 to 35	0 to 35	0 to 35
			%RH	≤ 80	≤ 80	≤ 80	≤ 80	≤ 80	≤ 80
	Outdoor temperature	Heating	°C	See outdoor unit spec table					
		Cooling *8	°C	-					
Operating range	Heating	Room temperature	°C	10 to 30	10 to 30	10 to 30	10 to 30	10 to 30	10 to 30
		Flow temperature *10, 11	°C	20 to 75	20 to 75	20 to 75	20 to 60	20 to 75	20 to 75
	Cooling	Room temperature	°C	-	-	-	-	-	-
		Flow temperature *10, 11	°C	-	-	-	-	-	5 to 25
	DHW *9		°C	40 to 70	40 to 70	40 to 70	40 to 60	40 to 70	40 to 70
	Legionella prevention *9		°C	60 to 70	60 to 70	60 to 70	60 to 70	60 to 70	60 to 70
Sound power level (PWL)			dB(A)	40	40	40	40	40	40

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*1 Volume of sanitary water circuit, primary DHW circuit (from 3-way valve to confluent point with Heating circuit), piping to Expansion vessel, and Expansion vessel is not included in this value.
*2 When powered by an independent source.
*3 Allowable flow rate range differs depending on connected outdoor unit.
*4 If the water flow rate range exceeds maximum, the flow speed will be greater than 2.0 m/s, which could corrode the pipes.
*5 If the water flow is less than the minimum, the flow error will be activated.
*6 Refrigerant of outdoor unit connected to cylinder unit.
*7 The enviroment must be frost-free.
*8 See outdoor unit spec table (min, 10°C). Cooling mode is not available in low outdoor temperature. If you use our system in cooling mode at the low ambient temperature (10°C or below), there are some risks of plate heat exchanger damages by frozen water.
*9 For the model without both booster heater and immersion heater, the max. hot water temperature is [Max. outlet water of outdoor unit -3 °C]. For the max. outllet of outdoor unit spec table.
*10 Maximum temperature of E*****F model depending on the connected outdoor unit. PUZ: 70°C, Other: 60°C.
*11 Maximum temperature of E*****X model depending on the connected outdoor unit. WZ: 75°C. Other: 60°C.

2 Specifications

Model name				ERPT20X-VM2E	ERPT20X-VM6E	ERPT20X-YM9E	ERPT30X-VM2EE	ERPT30X-VM6EE	ERPT30X-YM9EE
Dimensions	Without package	Height	mm	1600	1600	1600	2050	2050	2050
		Width	mm	595	595	595	595	595	595
		Depth	mm	680	680	680	680	680	680
	With package	Height	mm	1850	1850	1850	2320	2320	2320
		Width	mm	660	660	660	660	660	660
		Depth	mm	800	800	800	800	800	800
Casing	Munsell		-	6.2PB 9/0.9	6.2PB 9/0.9	6.2PB 9/0.9	6.2PB 9/0.9	6.2PB 9/0.9	6.2PB 9/0.9
	RAL code		-	260 90 05	260 90 05	260 90 05	260 90 05	260 90 05	260 90 05
	Material		-	Pre-coated metal	Pre-coated metal	Pre-coated metal	Pre-coated metal	Pre-coated metal	Pre-coated metal
Product weight (empty)			kg	88	89	90	104	105	106
Product weight (full)			kg	294	295	299	411	412	416
Water volume of heating circuit in the unit *1			L	3.7	3.7	61.0	4.4	4.4	6.7
Type of Installation			-	Floor standing	Floor standing	Floor standing	Floor standing	Floor standing	Floor standing
Electrical data	Control board *2 (Including 4 pumps)	Power supply	Ph	~/N	~/N	~/N	~/N	~/N	~/N
			V	230	230	230	230	230	230
			Hz	50	50	50	50	50	50
		Input	kW	0.30	0.30	0.30	0.30	0.30	0.30
		Current	A	1.95	1.95	1.95	1.95	1.95	1.95
		Breaker	A	10	10	10	10	10	10
	Booster heater	Power supply	Ph	~/N	~/N	3~	~/N	~/N	3~
			V	230	230	400	230	230	400
			Hz	50	50	50	50	50	50
		Capacity	kW	2	2+4	3+6	2	2+4	3+6
		Heater step	-	1	3	3	1	3	3
		Current	A	9	26	13	9	26	13
		Breaker	A	16	32	16	16	32	16
	Immersion heater	Power supply	Ph	-	-	-	-	-	-
			V	-	-	-	-	-	-
			Hz	-	-	-	-	-	-
		Capacity	kW	-	-	-	-	-	-
		Current	A	-	-	-	-	-	-
		Breaker	A	-	-	-	-	-	-
Water circulation pump (Primary circuit)	Type		-	DC motor	DC motor	DC motor	DC motor	DC motor	DC motor
	Input (10/20/max L/min)*3	Speed 1	W	10/13/15	10/13/15	10/13/15	10/13/15	10/13/15	10/13/15
		Speed 2	W	16/21/27	16/21/27	16/21/27	16/21/27	16/21/27	16/21/27
		Speed 3	W	24/32/42	24/32/42	24/32/42	24/32/42	24/32/42	24/32/42
		Speed 4	W	34/46/58	34/46/58	34/46/58	34/46/58	34/46/58	34/46/58
		Speed 5 (Default setting)	W	47/58/60	47/58/60	47/58/60	47/58/60	47/58/60	47/58/60
Performance curve: please refer to the following page	Current (10/20/max L/min)*3	Speed 1	A	0.2/0.2/0.3	0.2/0.2/0.3	0.2/0.2/0.3	0.2/0.2/0.3	0.2/0.2/0.3	0.2/0.2/0.3
		Speed 2	A	0.2/0.3/0.4	0.2/0.3/0.4	0.2/0.3/0.4	0.3/0.4/0.5	0.3/0.4/0.5	0.3/0.4/0.5
		Speed 3	A	0.3/0.4/0.5	0.3/0.4/0.5	0.3/0.4/0.5	0.4/0.5/0.7	0.4/0.5/0.7	0.4/0.5/0.7
		Speed 4	A	0.4/0.5/0.6	0.4/0.5/0.6	0.4/0.5/0.6	0.6/0.8/1.0	0.6/0.8/1.0	0.6/0.8/1.0
		Speed 5 (Default setting)	A	0.5/0.6/0.6	0.5/0.6/0.6	0.5/0.6/0.6	0.9/1.1/1.4	0.9/1.1/1.4	0.9/1.1/1.4
Water circulation pump (DHW circuit)	Input	Speed I	W	58	58	58	58	58	58
		Speed II (Default setting)	W	72	72	72	72	72	72
		Speed III	W	83	83	83	83	83	83
	Current	Speed I	A	0.27	0.27	0.27	0.27	0.27	0.27
		Speed II (Default setting)	A	0.33	0.33	0.33	0.33	0.33	0.33
		Speed III	A	0.36	0.36	0.36	0.36	0.36	0.36
	Flow rate	Speed I	L/min	14.5	14.5	14.5	14.5	14.5	14.5
		Speed II (Default setting)	L/min	21.0	21.0	21.0	21.0	21.0	21.0
		Speed III	L/min	25.2	25.2	25.2	25.2	25.2	25.2
Flow rate	Primary circuit	Max.*4	L/min	36.9	36.9	36.9	36.9	36.9	36.9
		Min.*5	L/min	5.0	5.0	5.0	5.0	5.0	5.0
Domestic hot water tank	Volume		L	200	200	200	300	300	300
	Material		-	Duplex 2304 stainless steel (EN10088)	Duplex 2304 stainless steel (EN10088)	Duplex 2304 stainless steel (EN10088)	Duplex 2304 stainless steel (EN10088)	Duplex 2304 stainless steel (EN10088)	Duplex 2304 stainless steel (EN10088)
	Declared load profile		-	L	L	L	XL	XL	XL
Expansion vessel (Primary circuit)	Volume		L	12	12	12	-	-	-
	Charge pressure		MPa	0.1	0.1	0.1	-	-	-
Safety device	Primary circuit	Control thermistor	°C	1 to 80	1 to 80	1 to 80	1 to 80	1 to 80	1 to 80
		Pressure relief valve	MPa	0.3	0.3	0.3	0.3	0.3	0.3
		Flow sensor (Min. flow)	L/min	5.0	5.0	5.0	5.0	5.0	5.0
		BH manual reset thermostat	°C	90	90	90	90	90	90
		BH thermal Cut Off	°C	121	121	121	121	121	121
	DHW tank	Control thermistor	°C	75	75	75	75	75	75
		IH manual reset thermostat	°C	-	-	-	-	-	-
		Temperature & pressure relief valve	°C	-	-	-	-	-	-
			MPa	1.0	1.0	1.0	1.0	1.0	1.0
Connections	Water	Primary circuit for local system	-	G1	G1	G1	G1	G1	G1
		Primary circuit for outdoor unit	-	φ28 mm	φ28 mm	φ28 mm	φ28 mm	φ28 mm	φ28 mm
		DHW circuit	-	G3/4	G3/4	G3/4	G3/4	G3/4	G3/4
	Refrigerant	Gas	mm	-	-	-	-	-	-
		Liquid	mm	-	-	-	-	-	-
Refrigerant *6			-	R718	R718	R718	R718	R718	R718
Guaranteed operating range *7	Ambient		°C	0 to 35	0 to 35	0 to 35	0 to 35	0 to 35	0 to 35
			%RH	≤ 80	≤ 80	≤ 80	≤ 80	≤ 80	≤ 80
	Outdoor temperature	Heating	°C	See outdoor unit spec table					
		Cooling *8	°C	See outdoor unit spec table					
Operating range	Heating	Room temperature	°C	10 to 30	10 to 30	10 to 30	10 to 30	10 to 30	10 to 30
		Flow temperature *10, 11	°C	20 to 75	20 to 75	20 to 75	20 to 75	20 to 75	20 to 75
	Cooling	Room temperature	°C	-	-	-	-	-	-
		Flow temperature *10, 11	°C	5 to 25	5 to 25	5 to 25	5 to 25	5 to 25	5 to 25
	DHW *9		°C	40 to 70	40 to 70	40 to 70	40 to 70	40 to 70	40 to 70
	Legionella prevention *9		°C	60 to 70	60 to 70	60 to 70	60 to 70	60 to 70	60 to 70
Sound power level (PWL)			dB(A)	40	40	40	40	40	40

*1 Volume of sanitary water circuit, primary DHW circuit (from 3-way valve to confluent point with Heating circuit), piping to Expansion vessel, and Expansion vessel is not included in this value.
*2 When powered by an independent source.
*3 Allowable flow rate range differs depending on connected outdoor unit.
*4 If the water flow rate range exceeds maximum, the flow speed will be greater than 2.0 m/s, which could corrode the pipes.
*5 If the water flow is less than the minimum, the flow error will be activated.
*6 Refrigerant of outdoor unit connected to cylinder unit.
*7 The enviroment must be frost-free.
*8 See outdoor unit spec table (min, 10°C). Cooling mode is not available in low outdoor temperature. If you use our system in cooling mode at the low ambient temperature (10°C or below), there are some risks of plate heat exchanger damages by frozen water.
*9 For the model without both booster heater and immersion heater, the max. hot water temperature is [Max. outlet water of outdoor unit -3 °C]. For the max. outllet of outdoor unit spec table.
*10 Maximum temperature of E*****F model depending on the connected outdoor unit. PUZ: 70°C, Other: 60°C.
*11 Maximum temperature of E*****X model depending on the connected outdoor unit. WZ: 75°C. Other: 60°C.

2.2. 2-zone Cylinder unit

Model name				ERST17D-VM2BE	ERST17D-VM6BE	ERST17D-YM9BE
Dimensions	Without package	Height	mm	1750	1750	1750
		Width	mm	595	595	595
		Depth	mm	680	680	680
	With package	Height	mm	2020	2020	2020
		Width	mm	660	660	660
		Depth	mm	800	800	800
Casing	Munsell		-	6.2PB 9/0.9	6.2PB 9/0.9	6.2PB 9/0.9
	RAL code		-	260 90 05	260 90 05	260 90 05
	Material		-	Pre-coated metal	Pre-coated metal	Pre-coated metal
Product weight (empty)			kg	113	114	115
Product weight (full)			kg	290	291	294
Water volume of heating circuit in the unit *1			L	4.3	4.3	6.2
Type of Installation			-	Floor standing	Floor standing	Floor standing
Electrical data	Control board *2 (Including 4 pumps)	Power supply	Ph	~/N	~/N	~/N
			V	230	230	230
			Hz	50	50	50
		Input	kW	0.30	0.30	0.30
		Current	A	1.95	1.95	1.95
		Breaker	A	10	10	10
	Booster heater	Power supply	Ph	~/N	~/N	3~
			V	230	230	400
			Hz	50	50	50
		Capacity	kW	2	2+4	3+6
		Heater step	-	1	3	3
		Current	A	9	26	13
		Breaker	A	16	32	16
	Immersion heater	Power supply	Ph	-	-	-
			V	-	-	-
			Hz	-	-	-
		Capacity	kW	-	-	-
		Current	A	-	-	-
		Breaker	A	-	-	-
Water circulation pump (Primary circuit)	Type		-	DC motor	DC motor	DC motor
	Input (10/20/max L/min)*3	Speed 1	W	10/13/14	10/13/14	10/13/14
		Speed 2	W	16/21/24	16/21/24	16/21/24
		Speed 3	W	24/32/36	24/32/36	24/32/36
		Speed 4	W	34/46/54	34/46/54	34/46/54
		Speed 5 (Default setting)	W	47/58/60	47/58/60	47/58/60
Performance curve: please refer to the following page	Current (10/20/max L/min)*3	Speed 1	A	0.2/0.2/0.3	0.2/0.2/0.3	0.2/0.2/0.3
		Speed 2	A	0.2/0.3/0.4	0.2/0.3/0.4	0.2/0.3/0.4
		Speed 3	A	0.3/0.4/0.5	0.3/0.4/0.5	0.3/0.4/0.5
		Speed 4	A	0.4/0.5/0.6	0.4/0.5/0.6	0.4/0.5/0.6
		Speed 5 (Default setting)	A	0.5/0.6/0.6	0.5/0.6/0.6	0.5/0.6/0.6
Water circulation pump (DHW circuit)	Input	Speed I	W	55	55	55
		Speed II (Default setting)	W	69	69	69
		Speed III	W	80	80	80
	Current	Speed I	A	0.25	0.25	0.25
		Speed II (Default setting)	A	0.31	0.31	0.31
		Speed III	A	0.34	0.34	0.34
	Flow rate	Speed I	L/min	13.5	13.5	13.5
		Speed II (Default setting)	L/min	19.0	19.0	19.0
		Speed III	L/min	22.9	22.9	22.9
Water circulation pump (Zone1/ Zone2	Input (0/10/20L/min)	Speed CC1 (Min)	W	14/22/25	14/22/25	14/22/25
		Speed CC4 (Max)	W	28/43/52	28/43/52	28/43/52
	Current (Max)	Speed CC4 (Max)	A	0.52	0.52	0.52
Flow rate	Primary circuit	Max.*4	L/min	25.8	25.8	25.8
		Min.*5	L/min	5.0	5.0	5.0
Domestic hot water tank	Volume		L	170	170	170
	Material		-	Duplex 2304 stainless steel (EN10088)	Duplex 2304 stainless steel (EN10088)	Duplex 2304 stainless steel (EN10088)
	Declared load profile		-	L	L	L
Expansion vessel (Primary circuit)	Volume		L	12	12	12
	Charge pressure		MPa	0.1	0.1	0.1
Safety device	Primary circuit	Control thermistor	°C	1 to 80	1 to 80	1 to 80
		Pressure relief valve	MPa	0.3	0.3	0.3
		Flow sensor (Min. flow)	L/min	5.0	5.0	5.0
		BH manual reset thermostat	°C	90	90	90
		BH thermal Cut Off	°C	121	121	121
	DHW tank	Control thermistor	°C	75	75	75
		IH manual reset thermostat	°C	-	-	-
		Temperature & pressure relief valve	°C	-	-	-
			MPa	1.0	1.0	1.0
Connections	Water	Primary circuit for local system	-	G1	G1	G1
		Primary circuit for outdoor unit	-	-	-	-
		DHW circuit	-	G3/4	G3/4	G3/4
	Refrigerant	Gas	mm	φ12.7	φ12.7	φ12.7
		Liquid	mm	φ6.35	φ6.35	φ6.35
Refrigerant *6			-	R32/R410A	R32/R410A	R32/R410A
Guaranteed operating range *7	Ambient		°C	0 to 35	0 to 35	0 to 35
			%RH	≤ 80	≤ 80	≤ 80
	Outdoor temperature	Heating	°C	See outdoor unit spec table		
		Cooling *8	°C	See outdoor unit spec table		
Operating range	Heating	Room temperature	°C	10 to 30	10 to 30	10 to 30
		Flow temperature	°C	20 to 60	20 to 60	20 to 60
	Cooling	Room temperature	°C	-	-	-
		Flow temperature	°C	5 to 25	5 to 25	5 to 25
	DHW *9		°C	40 to 60	40 to 60	40 to 60
	Legionella prevention *9		°C	60 to 70	60 to 70	60 to 70
Sound power level (PWL)			dB(A)	41	41	41

*1 Volume of sanitary water circuit, primary DHW circuit (from 3-way valve to confluent point with Heating circuit), piping to Expansion vessel, and Expansion vessel is not included in this value.
*2 When powered by an independent source.
*3 Allowable flow rate range differs depending on connected outdoor unit.
*4 If the water flow rate range exceeds maximum, the flow speed will be greater than 2.0 m/s, which could corrode the pipes.
*5 If the water flow is less than the minimum, the flow error will be activated.
*6 Refrigerant of outdoor unit connected to cylinder unit.
*7 The enviroment must be frost-free.
*8 See outdoor unit spec table (min, 10°C). Cooling mode is not available in low outdoor temperature. If you use our system in cooling mode at the low ambient temperature (10°C or below), there are some risks of plate heat exchanger damages by frozen water.
*9 For the model without both booster heater and immersion heater, the max. hot water temperature is [Max. outlet water of outdoor unit -3 °C]. For the max. outllet of outdoor unit spec table.

2.3. Hydrobox

Model name				EHSD-MEE	EHSD-VM2E	EHSD-VM6E	EHSD-YM9E	EHSD-TM9E	ERSD-VM2E
Dimensions	Without package	Height	mm	800	800	800	800	800	800
		Width	mm	530	530	530	530	530	530
		Depth	mm	360	360	360	360	360	360
	With package	Height	mm	560	560	560	560	560	560
		Width	mm	600	600	600	600	600	600
		Depth	mm	990	990	990	990	990	990
Casing	Munsell		-	6.2PB 9/0.9	6.2PB 9/0.9	6.2PB 9/0.9	6.2PB 9/0.9	6.2PB 9/0.9	6.2PB 9/0.9
	RAL code		-	260 90 05	260 90 05	260 90 05	260 90 05	260 90 05	260 90 05
	Material		-	Pre-coated metal	Pre-coated metal	Pre-coated metal	Pre-coated metal	Pre-coated metal	Pre-coated metal
Product weight (empty)			kg	29	36	37	38	38	37
Product weight (full)			kg	31	41	42	43	43	42
Water volume of heating circuit in the unit *1			L	1.5	5.0	5.0	5.0	5.0	5.0
Type of Installation			-	Wall mounted	Wall mounted	Wall mounted	Wall mounted	Wall mounted	Wall mounted
Electrical data	Control board *2 (Including 4 pumps)	Power supply	Ph	~/N	~/N	~/N	~/N	~/N	~/N
			V	230	230	230	230	230	230
			Hz	50	50	50	50	50	50
		Input	kW	0.30	0.30	0.30	0.30	0.30	0.30
		Current	A	1.95	1.95	1.95	1.95	1.95	1.95
		Breaker	A	10	10	10	10	10	10
	Booster heater	Power supply	Ph	-	~/N	~/N	3~	3~	~/N
			V	-	230	230	400	230	230
			Hz	-	50	50	50	50	50
		Capacity	kW	-	2	2+4	3+6	3+6	2
		Heater step	-	-	1	3	3	3	1
		Current	A	-	9	26	13	23	9
		Breaker	A	-	16	32	16	32	16
	Immersion heater	Power supply	Ph	-	-	-	-	-	-
			V	-	-	-	-	-	-
			Hz	-	-	-	-	-	-
		Capacity	kW	-	-	-	-	-	-
		Current	A	-	-	-	-	-	-
		Breaker	A	-	-	-	-	-	-
Water circulation pump (Primary circuit)	Type		-	DC motor	DC motor	DC motor	DC motor	DC motor	DC motor
	Input (10/20/max L/min)*3	Speed 1	W	10/13/15	10/13/15	10/13/15	10/13/15	10/13/15	10/13/15
		Speed 2	W	16/21/27	16/21/27	16/21/27	16/21/27	16/21/27	16/21/27
		Speed 3	W	24/32/42	24/32/42	24/32/42	24/32/42	24/32/42	24/32/42
		Speed 4	W	34/46/58	34/46/58	34/46/58	34/46/58	34/46/58	34/46/58
		Speed 5 (Default setting)	W	47/58/60	47/58/60	47/58/60	47/58/60	47/58/60	47/58/60
Performance curve: please refer to the following page	Current (10/20/max L/min)*3	Speed 1	A	0.2/0.2/0.3	0.2/0.2/0.3	0.2/0.2/0.3	0.2/0.2/0.3	0.2/0.2/0.3	0.2/0.2/0.3
		Speed 2	A	0.2/0.3/0.4	0.2/0.3/0.4	0.2/0.3/0.4	0.2/0.3/0.4	0.2/0.3/0.4	0.2/0.3/0.4
		Speed 3	A	0.3/0.4/0.5	0.3/0.4/0.5	0.3/0.4/0.5	0.3/0.4/0.5	0.3/0.4/0.5	0.3/0.4/0.5
		Speed 4	A	0.4/0.5/0.6	0.4/0.5/0.6	0.4/0.5/0.6	0.4/0.5/0.6	0.4/0.5/0.6	0.4/0.5/0.6
		Speed 5 (Default setting)	A	0.5/0.6/0.6	0.5/0.6/0.6	0.5/0.6/0.6	0.5/0.6/0.6	0.5/0.6/0.6	0.5/0.6/0.6
Water circulation pump (DHW circuit)	Input	Speed I	W	-	-	-	-	-	-
		Speed II (Default setting)	W	-	-	-	-	-	-
		Speed III	W	-	-	-	-	-	-
	Current	Speed I	A	-	-	-	-	-	-
		Speed II (Default setting)	A	-	-	-	-	-	-
		Speed III	A	-	-	-	-	-	-
	Flow rate	Speed I	L/min	-	-	-	-	-	-
		Speed II (Default setting)	L/min	-	-	-	-	-	-
		Speed III	L/min	-	-	-	-	-	-
Flow rate	Primary circuit	Max.*4	L/min	36.9	36.9	36.9	36.9	36.9	36.9
		Min.*5	L/min	5.0	5.0	5.0	5.0	5.0	5.0
Domestic hot water tank	Volume		L	-	-	-	-	-	-
	Material		-	-	-	-	-	-	-
	Declared load profile		-	-	-	-	-	-	-
Expansion vessel (Primary circuit)	Volume		L	-	10	10	10	10	10
	Charge pressure		MPa	-	0.1	0.1	0.1	0.1	0.1
Safety device	Primary circuit	Control thermistor	°C	1 to 80	1 to 80	1 to 80	1 to 80	1 to 80	1 to 80
		Pressure relief valve	MPa	0.3	0.3	0.3	0.3	0.3	0.3
		Flow sensor (Min. flow)	L/min	5.0	5.0	5.0	5.0	5.0	5.0
		BH manual reset thermostat	°C	-	90	90	90	90	90
		BH thermal Cut Off	°C	-	121	121	121	121	121
	DHW tank	Control thermistor	°C	-	-	-	-	-	-
		IH manual reset thermostat	°C	-	-	-	-	-	-
		Temperature & pressure relief valve	°C	-	-	-	-	-	-
			MPa	-	-	-	-	-	-
Connections	Water	Primary circuit for local system	-	G1	G1	G1	G1	G1	G1
		Primary circuit for outdoor unit	-	-	-	-	-	-	-
		DHW circuit	-	-	-	-	-	-	-
	Refrigerant	Gas	mm	φ12.7	φ12.7	φ12.7	φ12.7	φ12.7	φ12.7
		Liquid	mm	φ6.35	φ6.35	φ6.35	φ6.35	φ6.35	φ6.35
Refrigerant *6			-	R32/R410A	R32/R410A	R32/R410A	R32/R410A	R32/R410A	R32/R410A
Guaranteed operating range *7	Ambient		°C	0 to 35	0 to 35	0 to 35	0 to 35	0 to 35	0 to 35
			%RH	≤ 80	≤ 80	≤ 80	≤ 80	≤ 80	≤ 80
	Outdoor temperature	Heating	°C	See outdoor unit spec table					
		Cooling *8	°C	-					
Operating range	Heating	Room temperature	°C	10 to 30	10 to 30	10 to 30	10 to 30	10 to 30	10 to 30
		Flow temperature *10, 11	°C	20 to 60	20 to 60	20 to 60	20 to 60	20 to 60	20 to 60
	Cooling	Room temperature	°C	-	-	-	-	-	-
		Flow temperature *10, 11	°C	-	-	-	-	-	5 to 25
	DHW *9		°C	-	-	-	-	-	-
	Legionella prevention *9		°C	-	-	-	-	-	-
Sound power level (PWL)			dB(A)	41	41	41	41	41	41

*1 Volume of sanitary water circuit, primary DHW circuit (from 3-way valve to confluent point with Heating circuit), piping to Expansion vessel, and Expansion vessel is not included in this value.
*2 When powered by an independent source.
*3 Allowable flow rate range differs depending on connected outdoor unit.
*4 If the water flow rate range exceeds maximum, the flow speed will be greater than 2.0 m/s, which could corrode the pipes.
*5 If the water flow is less than the minimum, the flow error will be activated.
*6 Refrigerant of outdoor unit connected to cylinder unit.
*7 The enviroment must be frost-free.
*8 See outdoor unit spec table (min, 10°C). Cooling mode is not available in low outdoor temperature. If you use our system in cooling mode at the low ambient temperature (10°C or below), there are some risks of plate heat exchanger damages by frozen water.
*9 For the model without both booster heater and immersion heater, the max. hot water temperature is [Max. outlet water of outdoor unit -3 °C]. For the max. outllet of outdoor unit spec table.
*10 Maximum temperature of E*****F model depending on the connected outdoor unit. PUZ: 70°C, Other: 60°C.
*11 Maximum temperature of E*****X model depending on the connected outdoor unit. WZ: 75°C, Other: 60°C.

2 Specifications

Model name				ERSD-VM6E	ERSD-YM9E	ERSC-MEE	ERSC-VM2E	ERSC-VM6E	ERSC-YM9E
Dimensions	Without package	Height	mm	800	800	800	800	800	800
		Width	mm	530	530	530	530	530	530
		Depth	mm	360	360	360	360	360	360
	With package	Height	mm	560	560	560	560	560	560
		Width	mm	600	600	600	600	600	600
		Depth	mm	990	990	990	990	990	990
Casing	Munsell		-	6.2PB 9/0.9	6.2PB 9/0.9	6.2PB 9/0.9	6.2PB 9/0.9	6.2PB 9/0.9	6.2PB 9/0.9
	RAL code		-	260 90 05	260 90 05	260 90 05	260 90 05	260 90 05	260 90 05
	Material		-	Pre-coated metal	Pre-coated metal	Pre-coated metal	Pre-coated metal	Pre-coated metal	Pre-coated metal
Product weight (empty)			kg	38	39	36	43	44	46
Product weight (full)			kg	43	44	38	49	50	52
Water volume of heating circuit in the unit *1			L	5.0	5.0	2.6	6.1	6.1	6.1
Type of Installation			-	Wall mounted	Wall mounted	Wall mounted	Wall mounted	Wall mounted	Wall mounted
Electrical data	Control board *2 (Including 4 pumps)	Power supply	Ph	~/N	~/N	~/N	~/N	~/N	~/N
			V	230	230	230	230	230	230
			Hz	50	50	50	50	50	50
		Input	kW	0.30	0.30	0.30	0.30	0.30	0.30
		Current	A	1.95	1.95	1.95	1.95	1.95	1.95
		Breaker	A	10	10	10	10	10	10
	Booster heater	Power supply	Ph	~/N	3~	-	~/N	~/N	3~
			V	230	400	-	230	230	400
			Hz	50	50	-	50	50	50
		Capacity	kW	2+4	3+6	-	2	2+4	3+6
		Heater step	-	3	3	-	1	3	3
		Current	A	26	13	-	9	26	13
		Breaker	A	32	16	-	16	32	16
	Immersion heater	Power supply	Ph	-	-	-	-	-	-
			V	-	-	-	-	-	-
			Hz	-	-	-	-	-	-
		Capacity	kW	-	-	-	-	-	-
		Current	A	-	-	-	-	-	-
		Breaker	A	-	-	-	-	-	-
Water circulation pump (Primary circuit)	Type		-	DC motor	DC motor	DC motor	DC motor	DC motor	DC motor
	Input (10/20/max L/min)*3	Speed 1	W	10/13/15	10/13/15	10/13/15	10/13/15	10/13/15	10/13/15
		Speed 2	W	16/21/27	16/21/27	16/21/27	16/21/27	16/21/27	16/21/27
		Speed 3	W	24/32/42	24/32/42	24/32/42	24/32/42	24/32/42	24/32/42
		Speed 4	W	34/46/58	34/46/58	34/46/58	34/46/58	34/46/58	34/46/58
		Speed 5 (Default setting)	W	47/58/60	47/58/60	47/58/60	47/58/60	47/58/60	47/58/60
Performance curve: please refer to the following page	Current (10/20/max L/min)*3	Speed 1	A	0.2/0.2/0.3	0.2/0.2/0.3	0.2/0.2/0.3	0.2/0.2/0.3	0.2/0.2/0.3	0.2/0.2/0.3
		Speed 2	A	0.2/0.3/0.4	0.2/0.3/0.4	0.2/0.3/0.4	0.2/0.3/0.4	0.2/0.3/0.4	0.2/0.3/0.4
		Speed 3	A	0.3/0.4/0.5	0.3/0.4/0.5	0.3/0.4/0.5	0.3/0.4/0.5	0.3/0.4/0.5	0.3/0.4/0.5
		Speed 4	A	0.4/0.5/0.6	0.4/0.5/0.6	0.4/0.5/0.6	0.4/0.5/0.6	0.4/0.5/0.6	0.4/0.5/0.6
		Speed 5 (Default setting)	A	0.5/0.6/0.6	0.5/0.6/0.6	0.5/0.6/0.6	0.5/0.6/0.6	0.5/0.6/0.6	0.5/0.6/0.6
Water circulation pump (DHW circuit)	Input	Speed I	W	-	-	-	-	-	-
		Speed II (Default setting)	W	-	-	-	-	-	-
		Speed III	W	-	-	-	-	-	-
	Current	Speed I	A	-	-	-	-	-	-
		Speed II (Default setting)	A	-	-	-	-	-	-
		Speed III	A	-	-	-	-	-	-
	Flow rate	Speed I	L/min	-	-	-	-	-	-
		Speed II (Default setting)	L/min	-	-	-	-	-	-
		Speed III	L/min	-	-	-	-	-	-
Flow rate	Primary circuit	Max.*4	L/min	36.9	36.9	36.9	36.9	36.9	36.9
		Min.*5	L/min	5.0	5.0	5.0	5.0	5.0	5.0
Domestic hot water tank	Volume		L	-	-	-	-	-	-
	Material		-	-	-	-	-	-	-
	Declared load profile		-	-	-	-	-	-	-
Expansion vessel (Primary circuit)	Volume		L	10	10	-	10	10	10
	Charge pressure		MPa	0.1	0.1	-	0.1	0.1	0.1
Safety device	Primary circuit	Control thermistor	°C	1 to 80	1 to 80	1 to 80	1 to 80	1 to 80	1 to 80
		Pressure relief valve	MPa	0.3	0.3	0.3	0.3	0.3	0.3
		Flow sensor (Min. flow)	L/min	5.0	5.0	5.0	5.0	5.0	5.0
		BH manual reset thermostat	°C	90	90	-	90	90	90
		BH thermal Cut Off	°C	121	121	-	121	121	121
	DHW tank	Control thermistor	°C	-	-	-	-	-	-
		IH manual reset thermostat	°C	-	-	-	-	-	-
		Temperature & pressure relief valve	°C	-	-	-	-	-	-
			MPa	-	-	-	-	-	-
Connections	Water	Primary circuit for local system	-	G1	G1	G1	G1	G1	G1
		Primary circuit for outdoor unit	-	-	-	-	-	-	-
		DHW circuit	-	-	-	-	-	-	-
	Refrigerant	Gas	mm	φ12.7	φ12.7	φ15.88	φ15.88	φ15.88	φ15.88
		Liquid	mm	φ6.35	φ6.35	φ9.52	φ9.52	φ9.52	φ9.52
Refrigerant *6			-	R32/R410A	R32/R410A	R410A	R410A	R410A	R410A
Guaranteed operating range *7	Ambient		°C	0 to 35	0 to 35	0 to 35	0 to 35	0 to 35	0 to 35
			%RH	≤ 80	≤ 80	≤ 80	≤ 80	≤ 80	≤ 80
	Outdoor temperature	Heating	°C	See outdoor unit spec table					
		Cooling *8	°C	See outdoor unit spec table					
Operating range	Heating	Room temperature	°C	10 to 30	10 to 30	10 to 30	10 to 30	10 to 30	10 to 30
		Flow temperature *10, 11	°C	20 to 60	20 to 60	20 to 60	20 to 60	20 to 60	20 to 60
	Cooling	Room temperature	°C	-	-	-	-	-	-
		Flow temperature *10, 11	°C	5 to 25	5 to 25	5 to 25	5 to 25	5 to 25	5 to 25
	DHW *9		°C	-	-	-	-	-	-
	Legionella prevention *9		°C	-	-	-	-	-	-
Sound power level (PWL)			dB(A)	41	41	40	40	40	40

*1 Volume of sanitary water circuit, primary DHW circuit (from 3-way valve to confluent point with Heating circuit), piping to Expansion vessel, and Expansion vessel is not included in this value.
*2 When powered by an independent source.
*3 Allowable flow rate range differs depending on connected outdoor unit.
*4 If the water flow rate range exceeds maximum, the flow speed will be greater than 2.0 m/s, which could corrode the pipes.
*5 If the water flow is less than the minimum, the flow error will be activated.
*6 Refrigerant of outdoor unit connected to cylinder unit.
*7 The enviroment must be frost-free.
*8 See outdoor unit spec table (min, 10°C). Cooling mode is not available in low outdoor temperature. If you use our system in cooling mode at the low ambient temperature (10°C or below), there are some risks of plate heat exchanger damages by frozen water.
*9 For the model without both booster heater and immersion heater, the max. hot water temperature is [Max. outlet water of outdoor unit -3 °C]. For the max. outllet of outdoor unit spec table.
*10 Maximum temperature of E*****F model depending on the connected outdoor unit. PUZ: 70°C, Other: 60°C.
*11 Maximum temperature of E*****X model depending on the connected outdoor unit. WZ: 75°C, Other: 60°C.

2 Specifications

Model name				ERSF-MEE	ERSF-VM2E	ERSF-VM6E	ERSF-YM9E	ERSF-TM9E
Dimensions	Without package	Height	mm	800	800	800	800	800
		Width	mm	530	530	530	530	530
		Depth	mm	360	360	360	360	360
	With package	Height	mm	560	560	560	560	560
		Width	mm	600	600	600	600	600
		Depth	mm	990	990	990	990	990
Casing	Munsell		-	6.2PB 9/0.9	6.2PB 9/0.9	6.2PB 9/0.9	6.2PB 9/0.9	6.2PB 9/0.9
	RAL code		-	260 90 05	260 90 05	260 90 05	260 90 05	260 90 05
	Material		-	Pre-coated metal	Pre-coated metal	Pre-coated metal	Pre-coated metal	Pre-coated metal
Product weight (empty)			kg	32	39	40	41	41
Product weight (full)			kg	34	45	46	47	47
Water volume of heating circuit in the unit *1			L	1.6	5.1	5.1	5.1	5.1
Type of Installation			-	Wall mounted	Wall mounted	Wall mounted	Wall mounted	Wall mounted
Electrical data	Control board *2 (Including 4 pumps)	Power supply	Ph	~/N	~/N	~/N	~/N	~/N
			V	230	230	230	230	230
			Hz	50	50	50	50	50
		Input	kW	0.30	0.30	0.30	0.30	0.30
		Current	A	1.95	1.95	1.95	1.95	1.95
		Breaker	A	10	10	10	10	10
	Booster heater	Power supply	Ph	-	~/N	~/N	3~	3~
			V	-	230	230	400	230
			Hz	-	50	50	50	50
		Capacity	kW	-	2	2+4	3+6	3+6
		Heater step	-	-	1	3	3	3
		Current	A	-	9	26	13	23
		Breaker	A	-	16	32	16	32
	Immersion heater	Power supply	Ph	-	-	-	-	-
			V	-	-	-	-	-
			Hz	-	-	-	-	-
		Capacity	kW	-	-	-	-	-
		Current	A	-	-	-	-	-
		Breaker	A	-	-	-	-	-
Water circulation pump (Primary circuit)	Type		-	DC motor	DC motor	DC motor	DC motor	DC motor
	Input (10/20/max L/min)*3	Speed 1	W	10/13/15	10/13/15	10/13/15	10/13/15	10/13/15
		Speed 2	W	16/21/27	16/21/27	16/21/27	16/21/27	16/21/27
		Speed 3	W	24/32/42	24/32/42	24/32/42	24/32/42	24/32/42
		Speed 4	W	34/46/58	34/46/58	34/46/58	34/46/58	34/46/58
		Speed 5 (Default setting)	W	47/58/60	47/58/60	47/58/60	47/58/60	47/58/60
Performance curve: please refer to the following page	Current (10/20/max L/min)*3	Speed 1	A	0.2/0.2/0.3	0.2/0.2/0.3	0.2/0.2/0.3	0.2/0.2/0.3	0.2/0.2/0.3
		Speed 2	A	0.2/0.3/0.4	0.2/0.3/0.4	0.2/0.3/0.4	0.2/0.3/0.4	0.2/0.3/0.4
		Speed 3	A	0.3/0.4/0.5	0.3/0.4/0.5	0.3/0.4/0.5	0.3/0.4/0.5	0.3/0.4/0.5
		Speed 4	A	0.4/0.5/0.6	0.4/0.5/0.6	0.4/0.5/0.6	0.4/0.5/0.6	0.4/0.5/0.6
		Speed 5 (Default setting)	A	0.5/0.6/0.6	0.5/0.6/0.6	0.5/0.6/0.6	0.5/0.6/0.6	0.5/0.6/0.6
Water circulation pump (DHW circuit)	Input	Speed I	W	-	-	-	-	-
		Speed II (Default setting)	W	-	-	-	-	-
		Speed III	W	-	-	-	-	-
	Current	Speed I	A	-	-	-	-	-
		Speed II (Default setting)	A	-	-	-	-	-
		Speed III	A	-	-	-	-	-
	Flow rate	Speed I	L/min	-	-	-	-	-
		Speed II (Default setting)	L/min	-	-	-	-	-
		Speed III	L/min	-	-	-	-	-
Flow rate	Primary circuit	Max.*4	L/min	36.9	36.9	36.9	36.9	36.9
		Min.*5	L/min	5.0	5.0	5.0	5.0	5.0
Domestic hot water tank	Volume		L	-	-	-	-	-
	Material			-	-	-	-	-
	Declared load profile		-	-	-	-	-	-
Expansion vessel (Primary circuit)	Volume		L	-	10	10	10	10
	Charge pressure		MPa	-	0.1	0.1	0.1	0.1
Safety device	Primary circuit	Control thermistor	°C	1 to 80	1 to 80	1 to 80	1 to 80	1 to 80
		Pressure relief valve	MPa	0.3	0.3	0.3	0.3	0.3
		Flow sensor (Min. flow)	L/min	5.0	5.0	5.0	5.0	5.0
		BH manual reset thermostat	°C	-	90	90	90	90
		BH thermal Cut Off	°C	-	121	121	121	121
	DHW tank	Control thermistor	°C	-	-	-	-	
		IH manual reset thermostat	°C	-	-	-	-	
		Temperature & pressure relief valve	°C	-	-	-	-	
			MPa	-	-	-	-	
Connections	Water	Primary circuit for local system	-	G1	G1	G1	G1	G1
		Primary circuit for outdoor unit	-	-	-	-	-	-
		DHW circuit	-	-	-	-	-	-
	Refrigerant	Gas	mm	φ12.7 or φ15.88	φ12.7 or φ15.88	φ12.7 or φ15.88	φ12.7 or φ15.88	φ12.7 or φ15.88
		Liquid	mm	φ6.35	φ6.35	φ6.35	φ6.35	φ6.35
Refrigerant *6			-	R32	R32	R32	R32	R32
Guaranteed operating range *7	Ambient		°C	0 to 35	0 to 35	0 to 35	0 to 35	0 to 35
			%RH	≤ 80	≤ 80	≤ 80	≤ 80	≤ 80
	Outdoor temperature	Heating	°C	See outdoor unit spec table				
		Cooling *8	°C	See outdoor unit spec table				
Operating range	Heating	Room temperature	°C	10 to 30	10 to 30	10 to 30	10 to 30	10 to 30
		Flow temperature *10, 11	°C	20 to 70	20 to 70	20 to 70	20 to 70	20 to 70
	Cooling	Room temperature	°C	-	-	-	-	-
		Flow temperature *10, 11	°C	5 to 25	5 to 25	5 to 25	5 to 25	5 to 25
	DHW *9		°C	-	-	-	-	-
	Legionella prevention *9		°C	-	-	-	-	-
Sound power level (PWL)			dB(A)	41	41	41	41	41

*1 Volume of sanitary water circuit, primary DHW circuit (from 3-way valve to confluent point with Heating circuit), piping to Expansion vessel, and Expansion vessel is not included in this value.
*2 When powered by an independent source.
*3 Allowable flow rate range differs depending on connected outdoor unit.
*4 If the water flow rate range exceeds maximum, the flow speed will be greater than 2.0 m/s, which could corrode the pipes.
*5 If the water flow is less than the minimum, the flow error will be activated.
*6 Refrigerant of outdoor unit connected to cylinder unit.
*7 The enviroment must be frost-free.
*8 See outdoor unit spec table (min, 10°C). Cooling mode is not available in low outdoor temperature. If you use our system in cooling mode at the low ambient temperature (10°C or below), there are some risks of plate heat exchanger damages by frozen water.
*9 For the model without both booster heater and immersion heater, the max. hot water temperature is [Max. outlet water of outdoor unit -3 °C]. For the max. outllet of outdoor unit spec table.
*10 Maximum temperature of E*****F model depending on the connected outdoor unit. PUZ: 70°C, Other: 60°C.
*11 Maximum temperature of E*****X model depending on the connected outdoor unit. WZ: 75°C, Other: 60°C.

2 Specifications

Model name				ERPX-ME	ERPX-VM2E	ERPX-VM6E	ERPX-YM9E
Dimensions	Without package	Height	mm	800	800	800	800
		Width	mm	530	530	530	530
		Depth	mm	360	360	360	360
	With package	Height	mm	560	560	560	560
		Width	mm	600	600	600	600
		Depth	mm	990	990	990	990
Casing	Munsell		-	6.2PB 9/0.9	6.2PB 9/0.9	6.2PB 9/0.9	6.2PB 9/0.9
	RAL code		-	260 90 05	260 90 05	260 90 05	260 90 05
	Material		-	Pre-coated metal	Pre-coated metal	Pre-coated metal	Pre-coated metal
Product weight (empty)			kg	29	31	33	33
Product weight (full)			kg	30	36	38	38
Water volume of heating circuit in the unit *1			L	1.0	4.5	4.5	4.5
Type of Installation			-	Wall mounted	Wall mounted	Wall mounted	Wall mounted
Electrical data	Control board *2 (Including 4 pumps)	Power supply	Ph	~/N	~/N	~/N	~/N
			V	230	230	230	230
			Hz	50	50	50	50
		Input	kW	0.30	0.30	0.30	0.30
		Current	A	1.95	1.95	1.95	1.95
		Breaker	A	10	10	10	10
	Booster heater	Power supply	Ph	-	~/N	~/N	3~
			V	-	230	230	400
			Hz	-	50	50	50
		Capacity	kW	-	2	2+4	3+6
		Heater step	-	-	1	3	3
		Current	A	-	9	26	13
		Breaker	A	-	16	32	16
	Immersion heater	Power supply	Ph	-	-	-	-
			V	-	-	-	-
			Hz	-	-	-	-
		Capacity	kW	-	-	-	-
		Current	A	-	-	-	-
		Breaker	A	-	-	-	-
Water circulation pump (Primary circuit)	Type		-	DC motor	DC motor	DC motor	DC motor
	Input (10/20/max L/min)*3	Speed 1	W	10/13/15	10/13/15	10/13/15	10/13/15
		Speed 2	W	16/21/27	16/21/27	16/21/27	16/21/27
		Speed 3	W	24/32/42	24/32/42	24/32/42	24/32/42
		Speed 4	W	34/46/58	34/46/58	34/46/58	34/46/58
		Speed 5 (Default setting)	W	47/58/60	47/58/60	47/58/60	47/58/60
Performance curve: please refer to the following page	Current (10/20/max L/min)*3	Speed 1	A	0.2/0.2/0.3	0.2/0.2/0.3	0.2/0.2/0.3	0.2/0.2/0.3
		Speed 2	A	0.2/0.3/0.4	0.2/0.3/0.4	0.2/0.3/0.4	0.2/0.3/0.4
		Speed 3	A	0.3/0.4/0.5	0.3/0.4/0.5	0.3/0.4/0.5	0.3/0.4/0.5
		Speed 4	A	0.4/0.5/0.6	0.4/0.5/0.6	0.4/0.5/0.6	0.4/0.5/0.6
		Speed 5 (Default setting)	A	0.5/0.6/0.6	0.5/0.6/0.6	0.5/0.6/0.6	0.5/0.6/0.6
Water circulation pump (DHW circuit)	Input	Speed I	W	-	-	-	-
		Speed II (Default setting)	W	-	-	-	-
		Speed III	W	-	-	-	-
	Current	Speed I	A	-	-	-	-
		Speed II (Default setting)	A	-	-	-	-
		Speed III	A	-	-	-	-
	Flow rate	Speed I	L/min	-	-	-	-
		Speed II (Default setting)	L/min	-	-	-	-
		Speed III	L/min	-	-	-	-
Flow rate	Primary circuit	Max.*4	L/min	36.9	36.9	36.9	36.9
		Min.*5	L/min	5.0	5.0	5.0	5.0
Domestic hot water tank	Volume		L	-	-	-	-
	Material		-	-	-	-	-
	Declared load profile		-	-	-	-	-
Expansion vessel (Primary circuit)	Volume		L	10	10	10	10
	Charge pressure		MPa	0.1	0.1	0.1	0.1
Safety device	Primary circuit	Control thermistor	°C	1 to 80	1 to 80	1 to 80	1 to 80
		Pressure relief valve	MPa	0.3	0.3	0.3	0.3
		Flow sensor (Min. flow)	L/min	5.0	5.0	5.0	5.0
		BH manual reset thermostat	°C	-	90	90	90
		BH thermal Cut Off	°C	-	121	121	121
	DHW tank	Control thermistor	°C	-	-	-	-
		IH manual reset thermostat	°C	-	-	-	-
		Temperature & pressure relief valve	°C	-	-	-	-
			MPa	-	-	-	-
Connections	Water	Primary circuit for local system	-	G1	G1	G1	G1
		Primary circuit for outdoor unit	-	G1	G1	G1	G1
		DHW circuit	-	-	-	-	-
	Refrigerant	Gas	mm	-	-	-	-
		Liquid	mm	-	-	-	-
Refrigerant *6			-	R718	R718	R718	R718
Guaranteed operating range *7	Ambient		°C	0 to 35	0 to 35	0 to 35	0 to 35
			%RH	≤ 80	≤ 80	≤ 80	≤ 80
	Outdoor temperature	Heating	°C				
		Cooling *8	°C				
Operating range	Heating	Room temperature	°C	10 to 30	10 to 30	10 to 30	10 to 30
		Flow temperature *10, 11	°C	20 to 75	20 to 75	20 to 75	20 to 75
	Cooling	Room temperature	°C	-	-	-	-
		Flow temperature *10, 11	°C	5 to 25	5 to 25	5 to 25	5 to 25
	DHW *9		°C	-	-	-	-
	Legionella prevention *9		°C	-	-	-	-
Sound power level (PWL)			dB(A)	40	40	40	40

*1 Volume of sanitary water circuit, primary DHW circuit (from 3-way valve to confluent point with Heating circuit), piping to Expansion vessel, and Expansion vessel is not included in this value.
*2 When powered by an independent source.
*3 Allowable flow rate range differs depending on connected outdoor unit.
*4 If the water flow rate range exceeds maximum, the flow speed will be greater than 2.0 m/s, which could corrode the pipes.
*5 If the water flow is less than the minimum, the flow error will be activated.
*6 Refrigerant of outdoor unit connected to cylinder unit.
*7 The enviroment must be frost-free.
*8 See outdoor unit spec table (min, 10°C). Cooling mode is not available in low outdoor temperature. If you use our system in cooling mode at the low ambient temperature (10°C or below), there are some risks of plate heat exchanger damages by frozen water.
*9 For the model without both booster heater and immersion heater, the max. hot water temperature is [Max. outlet water of outdoor unit -3 °C]. For the max. outllet of outdoor unit spec table.
*10 Maximum temperature of E*****F model depending on the connected outdoor unit. PUZ: 70°C, Other: 60°C.
*11 Maximum temperature of E*****X model depending on the connected outdoor unit. WZ: 75°C, Other: 60°C.

3 Performance data

3.1 Combination performance

■ Packaged type

<table>
<tr><td colspan="3" rowspan="2"></td><td colspan="14">Cylinder unit</td><td colspan="4">Hydrobox</td></tr>
<tr><td>EHPT17X-VM2E</td><td>EHPT17X-VM6E</td><td>EHPT17X-YM9E</td><td>EHPT20X-YM9E</td><td>EHPT20X-TM9E</td><td>EHPT20X-MEHEW</td><td>EHPT30X-YM9EE</td><td>ERPT17X-VM2E</td><td>ERPT20X-VM2E</td><td>ERPT20X-VM6E</td><td>ERPT20X-YM9E</td><td>ERPT30X-VM2EE</td><td>ERPT30X-VM6EE</td><td>ERPT30X-YM9EE</td><td>ERPX-ME</td><td>ERPX-VM2E</td><td>ERPX-VM6E</td><td>ERPX-YM9E</td></tr>
<tr><td colspan="3">Outdoor unit</td><td colspan="18">PUZ-WZ50VAA(-BS)</td></tr>
<tr><td rowspan="3">Heating A7/W35</td><td>Capacity</td><td>kW</td><td colspan="18">4.00</td></tr>
<tr><td>COP</td><td>-</td><td colspan="18">5.10</td></tr>
<tr><td>Power input(*)</td><td>kW</td><td colspan="18">0.78</td></tr>
<tr><td rowspan="3">Heating A2/W35</td><td>Capacity</td><td>kW</td><td colspan="18">5.00</td></tr>
<tr><td>COP</td><td>-</td><td colspan="18">3.15</td></tr>
<tr><td>Power input(*)</td><td>kW</td><td colspan="18">1.59</td></tr>
<tr><td rowspan="3">Cooling A35/W7</td><td>Capacity</td><td>kW</td><td colspan="18">3.20</td></tr>
<tr><td>EER</td><td>-</td><td colspan="18">3.10</td></tr>
<tr><td>Power input(*)</td><td>kW</td><td colspan="18">1.03</td></tr>
<tr><td rowspan="3">Cooling A35/W18</td><td>Capacity</td><td>kW</td><td colspan="18">4.20</td></tr>
<tr><td>EER</td><td>-</td><td colspan="18">3.20</td></tr>
<tr><td>Power input(*)</td><td>kW</td><td colspan="18">1.31</td></tr>
<tr><td rowspan="3">DHW Average climate condition</td><td>ηwh</td><td>-</td><td colspan="3">120</td><td colspan="3">134</td><td>120</td><td>120</td><td colspan="3">134</td><td colspan="3">120</td><td colspan="4">-</td></tr>
<tr><td>Pes</td><td>kW</td><td colspan="3">0.041</td><td colspan="3">0.041</td><td>0.046</td><td>0.041</td><td colspan="3">0.041</td><td colspan="3">0.046</td><td colspan="4">-</td></tr>
<tr><td>Water heater energy efficiency class</td><td>-</td><td colspan="3">A+</td><td colspan="3">A+</td><td>A</td><td>A+</td><td colspan="3">A+</td><td colspan="3">A</td><td colspan="4">-</td></tr>
<tr><td colspan="3">Outdoor unit</td><td colspan="18">PUZ-WZ60VAA(-BS)</td></tr>
<tr><td rowspan="3">Heating A7/W35</td><td>Capacity</td><td>kW</td><td colspan="18">5.00</td></tr>
<tr><td>COP</td><td>-</td><td colspan="18">5.00</td></tr>
<tr><td>Power input(*)</td><td>kW</td><td colspan="18">1.00</td></tr>
<tr><td rowspan="3">Heating A2/W35</td><td>Capacity</td><td>kW</td><td colspan="18">6.00</td></tr>
<tr><td>COP</td><td>-</td><td colspan="18">3.10</td></tr>
<tr><td>Power input(*)</td><td>kW</td><td colspan="18">1.94</td></tr>
<tr><td rowspan="3">Cooling A35/W7</td><td>Capacity</td><td>kW</td><td colspan="18">3.60</td></tr>
<tr><td>EER</td><td>-</td><td colspan="18">2.90</td></tr>
<tr><td>Power input(*)</td><td>kW</td><td colspan="18">1.24</td></tr>
<tr><td rowspan="3">Cooling A35/W18</td><td>Capacity</td><td>kW</td><td colspan="18">4.60</td></tr>
<tr><td>EER</td><td>-</td><td colspan="18">3.00</td></tr>
<tr><td>Power input(*)</td><td>kW</td><td colspan="18">1.53</td></tr>
<tr><td rowspan="3">DHW Average climate condition</td><td>ηwh</td><td>-</td><td colspan="3">120</td><td colspan="3">134</td><td>120</td><td>120</td><td colspan="3">134</td><td colspan="3">120</td><td colspan="4">-</td></tr>
<tr><td>Pes</td><td>kW</td><td colspan="3">0.041</td><td colspan="3">0.041</td><td>0.046</td><td>0.041</td><td colspan="3">0.041</td><td colspan="3">0.046</td><td colspan="4">-</td></tr>
<tr><td>Water heater energy efficiency class</td><td>-</td><td colspan="3">A+</td><td colspan="3">A+</td><td>A</td><td>A+</td><td colspan="3">A+</td><td colspan="3">A</td><td colspan="4">-</td></tr>
<tr><td colspan="3">Outdoor unit</td><td colspan="18">PUZ-WZ80VAA(-BS)</td></tr>
<tr><td rowspan="3">Heating A7/W35</td><td>Capacity</td><td>kW</td><td colspan="18">6.00</td></tr>
<tr><td>COP</td><td>-</td><td colspan="18">4.70</td></tr>
<tr><td>Power input(*)</td><td>kW</td><td colspan="18">1.28</td></tr>
<tr><td rowspan="3">Heating A2/W35</td><td>Capacity</td><td>kW</td><td colspan="18">8.00</td></tr>
<tr><td>COP</td><td>-</td><td colspan="18">3.05</td></tr>
<tr><td>Power input(*)</td><td>kW</td><td colspan="18">2.62</td></tr>
<tr><td rowspan="3">Cooling A35/W7</td><td>Capacity</td><td>kW</td><td colspan="18">4.00</td></tr>
<tr><td>EER</td><td>-</td><td colspan="18">2.70</td></tr>
<tr><td>Power input(*)</td><td>kW</td><td colspan="18">1.48</td></tr>
<tr><td rowspan="3">Cooling A35/W18</td><td>Capacity</td><td>kW</td><td colspan="18">5.00</td></tr>
<tr><td>EER</td><td>-</td><td colspan="18">2.80</td></tr>
<tr><td>Power input(*)</td><td>kW</td><td colspan="18">1.79</td></tr>
<tr><td rowspan="3">DHW Average climate condition</td><td>ηwh</td><td>-</td><td colspan="3">120</td><td colspan="3">134</td><td>120</td><td>120</td><td colspan="3">134</td><td colspan="3">120</td><td colspan="4">-</td></tr>
<tr><td>Pes</td><td>kW</td><td colspan="3">0.041</td><td colspan="3">0.041</td><td>0.046</td><td>0.041</td><td colspan="3">0.041</td><td colspan="3">0.046</td><td colspan="4">-</td></tr>
<tr><td>Water heater energy efficiency class</td><td>-</td><td colspan="3">A+</td><td colspan="3">A+</td><td>A</td><td>A+</td><td colspan="3">A+</td><td colspan="3">A</td><td colspan="4">-</td></tr>
</table>

Note: "Power input" in the above table are values that contains the "pump input (Based on EN 14511)".

Heating: A7W35: Heating outside air DB 7°C/WB 6°C, Water outlet temperature 35°C (ΔT=5°C)
A2W35: Heating outside air DB 2°C/WB 1°C, Water outlet temperature 35°C (ΔT=5°C)
Cooling: A35/W7: Cooling outside air DB 35°C, Water outlet temperature 7°C (ΔT=5°C)
A35/W18: Cooling outside air DB 35°C, Water outlet temperature 18°C (ΔT=5°C)
DHW: ηwh values are measured based on EN16147:2017.

3 Performance data

			Cylinder unit														Hydrobox			
			EHPT17X-VM2E	EHPT17X-VM6E	EHPT17X-YM9E	EHPT20X-YM9E	EHPT20X-TM9E	EHPT20X-MEHEW	EHPT30X-YM9EE	ERPT17X-VM2E	ERPT20X-VM2E	ERPT20X-VM6E	ERPT20X-YM9E	ERPT30X-VM2EE	ERPT30X-VM6EE	ERPT30X-YM9EE	ERPX-ME	ERPX-VM2E	ERPX-VM6E	ERPX-YM9E
Outdoor unit			**PUZ-WM50VHA(-BS)**																	
Heating A7/W35	Capacity	kW	4.00						-	4.00				-			4.00			
	COP	-	5.20						-	5.20				-			5.20			
	Power input(*)	kW	0.77						-	0.77				-			0.77			
Heating A2/W35	Capacity	kW	5.00						-	5.00				-			5.00			
	COP	-	3.70						-	3.70				-			3.70			
	Power input(*)	kW	1.35						-	1.35				-			1.35			
Cooling A35/W7	Capacity	kW	4.00						-	4.00				-			4.00			
	EER	-	3.40						-	3.40				-			3.40			
	Power input(*)	kW	1.18						-	1.18				-			1.18			
Cooling A35/W18	Capacity	kW	4.00						-	4.00				-			4.00			
	EER	-	5.00						-	5.00				-			5.00			
	Power input(*)	kW	0.80						-	0.80				-			0.80			
DHW Average climate condition	ηwh	-	115			140			-	115	140			-			-			
	Pes	kW	0.033			0.038			-	0.033	0.038			-			-			
	Water heater energy efficiency class	-	A+			A+			-	A+	A+			-			-			
Outdoor unit			**PUZ-WM60VAA(-BS)**																	
Heating A7/W35	Capacity	kW	5.00						-	5.00				-			5.00			
	COP	-	5.10						-	5.10				-			5.10			
	Power input(*)	kW	0.98						-	0.98				-			0.98			
Heating A2/W35	Capacity	kW	6.00						-	6.00				-			6.00			
	COP	-	3.75						-	3.75				-			3.75			
	Power input(*)	kW	1.60						-	1.60				-			1.60			
Cooling A35/W7	Capacity	kW	5.00						-	5.00				-			5.00			
	EER	-	3.40						-	3.40				-			3.40			
	Power input(*)	kW	1.47						-	1.47				-			1.47			
Cooling A35/W18	Capacity	kW	5.00						-	5.00				-			5.00			
	EER	-	4.50						-	4.50				-			4.50			
	Power input(*)	kW	1.11						-	1.11				-			1.11			
DHW Average climate condition	ηwh	-	115			128			-	115	128			-			-			
	Pes	kW	0.037			0.043			-	0.037	0.043			-			-			
	Water heater energy efficiency class	-	A+			A+			-	A+	A+			-			-			
Outdoor unit			**PUZ-WM85V/YAA(-BS)**																	
Heating A7/W35	Capacity	kW	6.50																	
	COP	-	4.90																	
	Power input(*)	kW	1.33																	
Heating A2/W35	Capacity	kW	8.50																	
	COP	-	3.51																	
	Power input(*)	kW	2.42																	
Cooling A35/W7	Capacity	kW	6.50																	
	EER	-	3.30																	
	Power input(*)	kW	1.97																	
Cooling A35/W18	Capacity	kW	6.50																	
	EER	-	5.00																	
	Power input(*)	kW	1.30																	
DHW Average climate condition	ηwh	-	115			128			113	115	128			113			-			
	Pes	kW	0.037			0.043			0.047	0.037	0.043			0.047			-			
	Water heater energy efficiency class	-	A+			A+			A	A+	A+			A			-			

Note: "Power input" in the above table are values that contains the "pump input (Based on EN 14511)".

Heating: A7W35: Heating outside air DB 7°C/WB 6°C, Water outlet temperature 35°C (ΔT=5°C)
A2W35: Heating outside air DB 2°C/WB 1°C, Water outlet temperature 35°C (ΔT=5°C)
Cooling: A35/W7: Cooling outside air DB 35°C, Water outlet temperature 7°C (ΔT=5°C)
A35/W18: Cooling outside air DB 35°C, Water outlet temperature 18°C (ΔT=5°C)
DHW: ηwh values are measured based on EN16147:2022.

			Cylinder unit														Hydrobox			
			EHPT17X-VM2E	EHPT17X-VM6E	EHPT17X-YM9E	EHPT20X-YM9E	EHPT20X-TM9E	EHPT20X-MEHEW	EHPT30X-YM9EE	ERPT17X-VM2E	ERPT20X-VM2E	ERPT20X-VM6E	ERPT20X-YM9E	ERPT30X-VM2EE	ERPT30X-VM6EE	ERPT30X-YM9EE	ERPX-ME	ERPX-VM2E	ERPX-VM6E	ERPX-YM9E
Outdoor unit			**PUZ-WM112V/YAA(-BS)**																	
Heating A7/W35	Capacity	kW	-			9.00				-	9.00									
	COP	-	-			4.70				-	4.70									
	Power input(*)	kW	-			1.91				-	1.91									
Heating A2/W35	Capacity	kW	-			11.20				-	11.20									
	COP	-	-			3.44				-	3.44									
	Power input(*)	kW	-			3.26				-	3.26									
Cooling A35/W7	Capacity	kW	-			9.00				-	9.00									
	EER	-	-			3.30				-	3.30									
	Power input(*)	kW	-			2.73				-	2.73									
Cooling A35/W18	Capacity	kW	-			9.00				-	9.00									
	EER	-	-			4.90				-	4.90									
	Power input(*)	kW	-			1.84				-	1.84									
DHW Average climate condition	ηwh	-	-			136			112	-	136			112			-			
	Pes	kW	-			0.042			0.048	-	0.042			0.048			-			
	Water heater energy efficiency class	-	-			A+			A	-	A+			A			-			
Outdoor unit			**PUZ-HWM140V/YHA(-BS)**																	
Heating A7/W35	Capacity	kW	-			12.00				-	12.00									
	COP	-	-			4.50				-	4.50									
	Power input(*)	kW	-			2.67				-	2.67									
Heating A2/W35	Capacity	kW	-			14.00				-	14.00									
	COP	-	-			3.15				-	3.15									
	Power input(*)	kW	-			4.44				-	4.44									
Cooling A35/W7	Capacity	kW	-			11.90				-	11.90									
	EER	-	-			3.00				-	3.00									
	Power input(*)	kW	-			3.97				-	3.97									
Cooling A35/W18	Capacity	kW	-			11.10				-	11.10									
	EER	-	-			4.10				-	4.10									
	Power input(*)	kW	-			2.71				-	2.71									
DHW Average climate condition	ηwh	-	-			133			123	-	133			123			-			
	Pes	kW	-			0.042			0.045	-	0.042			0.045			-			
	Water heater energy efficiency class	-	-			A+			A+	-	A+			A+			-			

Note: "Power input" in the above table are values that contains the "pump input (Based on EN 14511)".

Heating: A7W35: Heating outside air DB 7°C/WB 6°C, Water outlet temperature 35°C (ΔT=5°C)
A2W35: Heating outside air DB 2°C/WB 1°C, Water outlet temperature 35°C (ΔT=5°C)
Cooling: A35/W7: Cooling outside air DB 35°C, Water outlet temperature 7°C (ΔT=5°C)
A35/W18: Cooling outside air DB 35°C, Water outlet temperature 18°C (ΔT=5°C)
DHW: ηwh values are measured based on EN16147:2022.

3 Performance data

■ Split type

			Cylinder unit																					Hydrobox							
			EHST17D-VM2E	EHST17D-YM9E	EHST20D-VM2E	EHST20D-VM6E	EHST20D-YM9E	EHST20D-TM9E	EHST30D-MEE	EHST30D-VM6EE	EHST30D-YM9EE	EHST30D-TM9EE	ERST17D-VM2E	ERST17D-VM6E	ERST20D-VM2E	ERST20D-VM6E	ERST20D-YM9E	ERST30D-VM2EE	ERST30D-VM6EE	ERST30D-YM9EE	ERST17D-VM2BE	ERST17D-VM6BE	ERST17D-YM9BE	EHSD-MEE	EHSD-VM2E	EHSD-VM6E	EHSD-YM9E	EHSD-TM9E	ERSD-VM2E	ERSD-VM6E	ERSD-YM9E
Outdoor unit			**SUZ-SWM30VA**																												
Heating A7/W35	Capacity	kW	3.00																					3.00							
	COP	-	5.11																					5.11							
	Power input(*)	kW	0.59																					0.59							
Heating A2/W35	Capacity	kW	3.00																					3.00							
	COP	-	3.96																					3.96							
	Power input(*)	kW	0.76																					0.76							
Cooling A35/W7	Capacity	kW	3.50																					3.50							
	EER	-	3.52																					3.52							
	Power input(*)	kW	0.99																					0.99							
Cooling A35/W18	Capacity	kW	3.50																					3.50							
	EER	-	5.51																					5.51							
	Power input(*)	kW	0.64																					0.64							
DHW Average climate condition	ηwh	-	136		151				126				136		151			126			136			-							
	Pes	kW	0.022		0.024				0.034				0.022		0.024			0.034			0.022			-							
	Water heater energy efficiency class	-	A+		A+				A+				A+		A+			A+			A+			-							
Outdoor unit			**SUZ-SWM40VA2(-SC)**																												
Heating A7/W35	Capacity	kW	3.00																					3.00							
	COP	-	5.11																					5.11							
	Power input(*)	kW	0.59																					0.59							
Heating A2/W35	Capacity	kW	4.00																					4.00							
	COP	-	3.90																					3.90							
	Power input(*)	kW	1.03																					1.03							
Cooling A35/W7	Capacity	kW	4.50																					4.50							
	EER	-	3.31																					3.31							
	Power input(*)	kW	1.36																					1.36							
Cooling A35/W18	Capacity	kW	5.60																					5.60							
	EER	-	4.71																					4.71							
	Power input(*)	kW	1.19																					1.19							
DHW Average climate condition	ηwh	-	136		151				126				136		151			126			136			-							
	Pes	kW	0.022		0.024				0.034				0.022		0.024			0.034			0.022			-							
	Water heater energy efficiency class	-	A+		A+				A+				A+		A+			A+			A+			-							
Outdoor unit			**SUZ-SWM60VA2(-SC)**																												
Heating A7/W35	Capacity	kW	5.00																					5.00							
	COP	-	4.85																					4.85							
	Power input(*)	kW	1.03																					1.03							
Heating A2/W35	Capacity	kW	6.00																					6.00							
	COP	-	3.62																					3.62							
	Power input(*)	kW	1.66																					1.66							
Cooling A35/W7	Capacity	kW	5.00																					5.00							
	EER	-	3.18																					3.18							
	Power input(*)	kW	1.57																					1.57							
Cooling A35/W18	Capacity	kW	6.00																					6.00							
	EER	-	4.65																					4.65							
	Power input(*)	kW	1.29																					1.29							
DHW Average climate condition	ηwh	-	135		153				128				135		153			128			135			-							
	Pes	kW	0.023		0.025				0.038				0.023		0.025			0.038			0.023			-							
	Water heater energy efficiency class	-	A+		A+				A+				A+		A+			A+			A+			-							
Outdoor unit			**SUZ-SWM80VA2**																												
Heating A7/W35	Capacity	kW	6.00																					6.00							
	COP	-	5.10																					5.10							
	Power input(*)	kW	1.18																					1.18							
Heating A2/W35	Capacity	kW	7.50																					7.50							
	COP	-	3.50																					3.50							
	Power input(*)	kW	2.14																					2.14							
Cooling A35/W7	Capacity	kW	6.70																					6.70							
	EER	-	3.20																					3.20							
	Power input(*)	kW	2.09																					2.09							
Cooling A35/W18	Capacity	kW	6.70																					6.70							
	EER	-	5.06																					5.06							
	Power input(*)	kW	1.32																					1.32							
DHW Average climate condition	ηwh	-	142		148				125				142		148			125			142			-							
	Pes	kW	0.023		0.025				0.036				0.023		0.025			0.036			0.023			-							
	Water heater energy efficiency class	-	A+		A+				A+				A+		A+			A+			A+			-							

Note: "Power input" in the above table are values that contains the "pump input (Based on EN 14511)".

Heating: A7W35: Heating outside air DB 7°C/WB 6°C, Water outlet temperature 35°C (ΔT=5°C)
A2W35: Heating outside air DB 2°C/WB 1°C, Water outlet temperature 35°C (ΔT=5°C)
Cooling: A35/W7: Cooling outside air DB 35°C, Water outlet temperature 7°C (ΔT=5°C)
A35/W18: Cooling outside air DB 35°C, Water outlet temperature 18°C (ΔT=5°C)
DHW: ηwh values are measured based on EN16147:2017.

3 Performance data

			Cylinder unit																					Hydrobox							
			EHST17D-VM2E	EHST17D-YM9E	EHST20D-VM2E	EHST20D-VM6E	EHST20D-YM9E	EHST20D-TM9E	EHST30D-MEE	EHST30D-VM6EE	EHST30D-YM9EE	EHST30D-TM9EE	ERST17D-VM2E	ERST17D-VM6E	ERST20D-VM2E	ERST20D-VM6E	ERST20D-YM9E	ERST30D-VM2EE	ERST30D-VM6EE	ERST30D-YM9EE	ERST17D-VM2BE	ERST17D-VM6BE	ERST17D-YM9BE	EHSD-MEE	EHSD-VM2E	EHSD-VM6E	EHSD-YM9E	EHSD-TM9E	ERSD-VM2E	ERSD-VM6E	ERSD-YM9E
Outdoor unit			**SUZ-SWM100VA**																												
Heating A7/W35	Capacity	kW	7.50																					7.50							
	COP	-	4.85																					4.85							
	Power input(*)	kW	1.55																					1.55							
Heating A2/W35	Capacity	kW	9.00																					9.00							
	COP	-	3.12																					3.12							
	Power input(*)	kW	2.88																					2.88							
Cooling A35/W7	Capacity	kW	7.30																					7.30							
	EER	-	3.00																					3.00							
	Power input(*)	kW	2.43																					2.43							
Cooling A35/W18	Capacity	kW	8.10																					8.10							
	EER	-	4.44																					4.44							
	Power input(*)	kW	1.82																					1.82							
DHW Average climate condition	ηwh	-	142		148				125				142		148			125			142			-							
	Pes	kW	0.023		0.025				0.036				0.023		0.025			0.036			0.023			-							
	Water heater energy efficiency class	-	A+		A+				A+				A+		A+			A+			A+			-							
Outdoor unit			**SUZ-SHWM30VAH**																												
Heating A7/W35	Capacity	kW	3.00																					3.00							
	COP	-	5.11																					5.11							
	Power input(*)	kW	0.59																					0.59							
Heating A2/W35	Capacity	kW	3.00																					3.00							
	COP	-	3.67																					3.67							
	Power input(*)	kW	0.82																					0.82							
Cooling A35/W7	Capacity	kW	3.50																					3.50							
	EER	-	3.52																					3.52							
	Power input(*)	kW	0.99																					0.99							
Cooling A35/W18	Capacity	kW	3.50																					3.50							
	EER	-	5.51																					5.51							
	Power input(*)	kW	0.64																					0.64							
DHW Average climate condition	ηwh	-	136		151				126				136		151			126			136			-							
	Pes	kW	0.022		0.024				0.034				0.022		0.024			0.034			0.022			-							
	Water heater energy efficiency class	-	A+		A+				A+				A+		A+			A+			A+			-							
Outdoor unit			**SUZ-SHWM40VAH(-SC)**																												
Heating A7/W35	Capacity	kW	3.00																					3.00							
	COP	-	4.77																					4.77							
	Power input(*)	kW	0.63																					0.63							
Heating A2/W35	Capacity	kW	4.00																					4.00							
	COP	-	3.61																					3.61							
	Power input(*)	kW	1.11																					1.11							
Cooling A35/W7	Capacity	kW	4.50																					4.50							
	EER	-	3.33																					3.33							
	Power input(*)	kW	1.35																					1.35							
Cooling A35/W18	Capacity	kW	5.60																					5.60							
	EER	-	4.70																					4.70							
	Power input(*)	kW	1.19																					1.19							
DHW Average climate condition	ηwh	-	135		153				128				135		153			128			135			-							
	Pes	kW	0.023		0.025				0.038				0.023		0.025			0.038			0.023			-							
	Water heater energy efficiency class	-	A+		A+				A+				A+		A+			A+			A+			-							
Outdoor unit			**SUZ-SHWM60VAH(-SC)**																												
Heating A7/W35	Capacity	kW	5.00																					5.00							
	COP	-	4.95																					4.95							
	Power input(*)	kW	1.01																					1.01							
Heating A2/W35	Capacity	kW	6.00																					6.00							
	COP	-	3.47																					3.47							
	Power input(*)	kW	1.73																					1.73							
Cooling A35/W7	Capacity	kW	6.00																					6.00							
	EER	-	3.28																					3.28							
	Power input(*)	kW	1.83																					1.83							
Cooling A35/W18	Capacity	kW	6.00																					6.00							
	EER	-	5.21																					5.21							
	Power input(*)	kW	1.15																					1.15							
DHW Average climate condition	ηwh	-	142		148				125				142		148			125			142			-							
	Pes	kW	0.023		0.025				0.036				0.023		0.025			0.036			0.023			-							
	Water heater energy efficiency class	-	A+		A+				A+				A+		A+			A+			A+			-							

Note: "Power input" in the above table are values that contains the "pump input (Based on EN 14511)".

Heating: A7W35: Heating outside air DB 7°C/WB 6°C, Water outlet temperature 35°C (ΔT=5°C)
A2W35: Heating outside air DB 2°C/WB 1°C, Water outlet temperature 35°C (ΔT=5°C)
Cooling: A35/W7: Cooling outside air DB 35°C, Water outlet temperature 7°C (ΔT=5°C)
A35/W18: Cooling outside air DB 35°C, Water outlet temperature 18°C (ΔT=5°C)
DHW: ηwh values are measured based on EN16147:2017.

3 Performance data

			Cylinder unit																					Hydrobox							
			EHST17D-VM2E	EHST17D-YM9E	EHST20D-VM2E	EHST20D-VM6E	EHST20D-YM9E	EHST20D-TM9E	EHST30D-MEE	EHST30D-VM6EE	EHST30D-YM9EE	EHST30D-TM9EE	ERST17D-VM2E	ERST17D-VM6E	ERST20D-VM2E	ERST20D-VM6E	ERST20D-YM9E	ERST30D-VM2EE	ERST30D-VM6EE	ERST30D-YM9EE	ERST17D-VM2BE	ERST17D-VM6BE	ERST17D-YM9BE	EHSD-MEE	EHSD-VM2E	EHSD-VM6E	EHSD-YM9E	EHSD-TM9E	ERSD-VM2E	ERSD-VM6E	ERSD-YM9E
Outdoor unit			**SUZ-SWM80VAH2**																												
Heating A7/W35	Capacity	kW	6.00																					6.00							
	COP	-	5.10																					5.10							
	Power input(*)	kW	1.18																					1.18							
Heating A2/W35	Capacity	kW	7.50																					7.50							
	COP	-	3.31																					3.31							
	Power input(*)	kW	2.27																					2.27							
Cooling A35/W7	Capacity	kW	6.70																					6.70							
	EER	-	3.20																					3.20							
	Power input(*)	kW	2.09																					2.09							
Cooling A35/W18	Capacity	kW	6.70																					6.70							
	EER	-	5.06																					5.06							
	Power input(*)	kW	1.32																					1.32							
DHW Average climate condition	ηwh	-	142		148				125				142		148			125			142			-							
	Pes	kW	0.023		0.025				0.036				0.023		0.025			0.036			0.023			-							
	Water heater energy efficiency class	-	A+		A+				A+				A+		A+			A+			A+			-							
Outdoor unit			**SUZ-SWM100VAH**																												
Heating A7/W35	Capacity	kW	7.50																					7.50							
	COP	-	4.85																					4.85							
	Power input(*)	kW	1.55																					1.55							
Heating A2/W35	Capacity	kW	9.00																					9.00							
	COP	-	3.00																					3.00							
	Power input(*)	kW	3.00																					3.00							
Cooling A35/W7	Capacity	kW	7.30																					7.30							
	EER	-	3.00																					3.00							
	Power input(*)	kW	2.43																					2.43							
Cooling A35/W18	Capacity	kW	8.10																					8.10							
	EER	-	4.44																					4.44							
	Power input(*)	kW	1.82																					1.82							
DHW Average climate condition	ηwh	-	142		148				125				142		148			125			142			-							
	Pes	kW	0.023		0.025				0.036				0.023		0.025			0.036			0.023			-							
	Water heater energy efficiency class	-	A+		A+				A+				A+		A+			A+			A+			-							

Note: "Power input" in the above table are values that contains the "pump input (Based on EN 14511)".

Heating: A7W35: Heating outside air DB 7°C/WB 6°C, Water outlet temperature 35°C (ΔT=5°C)
A2W35: Heating outside air DB 2°C/WB 1°C, Water outlet temperature 35°C (ΔT=5°C)
Cooling: A35/W7: Cooling outside air DB 35°C, Water outlet temperature 7°C (ΔT=5°C)
A35/W18: Cooling outside air DB 35°C, Water outlet temperature 18°C (ΔT=5°C)
DHW: ηwh values are measured based on EN16147:2017.

3 Performance data

<table>
<tr><th colspan="3" rowspan="2"></th><th colspan="11">Cylinder unit</th><th colspan="5">Hydrobox</th></tr>
<tr><th>ERST17D-VM2BE</th><th>ERST17D-VM6BE</th><th>ERST17D-YM9BE</th><th>ERST20F-VM2E</th><th>ERST20F-VM6E</th><th>ERST20F-YM9E</th><th>ERST20F-TM9E</th><th>ERST30F-VM2EE</th><th>ERST30F-VM6EE</th><th>ERST30F-YM9EE</th><th>ERST30F-TM9EE</th><th>ERSF-MEE</th><th>ERSF-VM2E</th><th>ERSF-VM6E</th><th>ERSF-YM9E</th><th>ERSF-TM9E</th></tr>
<tr><td colspan="3">Outdoor unit</td><td colspan="16">PUZ-SWM60VAA</td></tr>
<tr><td rowspan="3">Heating
A7/W35</td><td>Capacity</td><td>kW</td><td colspan="11">5.00</td><td colspan="5">5.00</td></tr>
<tr><td>COP</td><td>-</td><td colspan="11">5.02</td><td colspan="5">5.02</td></tr>
<tr><td>Power input(*)</td><td>kW</td><td colspan="11">1.00</td><td colspan="5">1.00</td></tr>
<tr><td rowspan="3">Heating
A2/W35</td><td>Capacity</td><td>kW</td><td colspan="11">6.00</td><td colspan="5">6.00</td></tr>
<tr><td>COP</td><td>-</td><td colspan="11">3.75</td><td colspan="5">3.75</td></tr>
<tr><td>Power input(*)</td><td>kW</td><td colspan="11">1.60</td><td colspan="5">1.60</td></tr>
<tr><td rowspan="3">Cooling
A35/W7</td><td>Capacity</td><td>kW</td><td colspan="11">5.10</td><td colspan="5">5.10</td></tr>
<tr><td>EER</td><td>-</td><td colspan="11">3.50</td><td colspan="5">3.50</td></tr>
<tr><td>Power input(*)</td><td>kW</td><td colspan="11">1.46</td><td colspan="5">1.46</td></tr>
<tr><td rowspan="3">Cooling
A35/W18</td><td>Capacity</td><td>kW</td><td colspan="11">6.00</td><td colspan="5">6.00</td></tr>
<tr><td>EER</td><td>-</td><td colspan="11">5.40</td><td colspan="5">5.40</td></tr>
<tr><td>Power input(*)</td><td>kW</td><td colspan="11">1.11</td><td colspan="5">1.11</td></tr>
<tr><td rowspan="3">DHW
Average climate condition</td><td>ηwh</td><td>-</td><td colspan="3">126</td><td colspan="4">137</td><td colspan="4">130</td><td colspan="5">-</td></tr>
<tr><td>Pes</td><td>kW</td><td colspan="3">0.036</td><td colspan="4">0.042</td><td colspan="4">0.044</td><td colspan="5">-</td></tr>
<tr><td>Water heater energy efficiency class</td><td>-</td><td colspan="3">A+</td><td colspan="4">A+</td><td colspan="4">A+</td><td colspan="5">-</td></tr>
<tr><td colspan="3">Outdoor unit</td><td colspan="16">PUZ-SWM80V/YAA</td></tr>
<tr><td rowspan="3">Heating
A7/W35</td><td>Capacity</td><td>kW</td><td colspan="11">6.00</td><td colspan="5">6.00</td></tr>
<tr><td>COP</td><td>-</td><td colspan="11">5.02</td><td colspan="5">5.02</td></tr>
<tr><td>Power input(*)</td><td>kW</td><td colspan="11">1.20</td><td colspan="5">1.20</td></tr>
<tr><td rowspan="3">Heating
A2/W35</td><td>Capacity</td><td>kW</td><td colspan="11">8.00</td><td colspan="5">8.00</td></tr>
<tr><td>COP</td><td>-</td><td colspan="11">3.70</td><td colspan="5">3.70</td></tr>
<tr><td>Power input(*)</td><td>kW</td><td colspan="11">2.16</td><td colspan="5">2.16</td></tr>
<tr><td rowspan="3">Cooling
A35/W7</td><td>Capacity</td><td>kW</td><td colspan="11">7.10</td><td colspan="5">7.10</td></tr>
<tr><td>EER</td><td>-</td><td colspan="11">3.30</td><td colspan="5">3.30</td></tr>
<tr><td>Power input(*)</td><td>kW</td><td colspan="11">2.15</td><td colspan="5">2.15</td></tr>
<tr><td rowspan="3">Cooling
A35/W18</td><td>Capacity</td><td>kW</td><td colspan="11">8.00</td><td colspan="5">8.00</td></tr>
<tr><td>EER</td><td>-</td><td colspan="11">4.95</td><td colspan="5">4.95</td></tr>
<tr><td>Power input(*)</td><td>kW</td><td colspan="11">1.62</td><td colspan="5">1.62</td></tr>
<tr><td rowspan="3">DHW
Average climate condition</td><td>ηwh</td><td>-</td><td colspan="3">126</td><td colspan="4">137</td><td colspan="4">130</td><td colspan="5">-</td></tr>
<tr><td>Pes</td><td>kW</td><td colspan="3">0.036</td><td colspan="4">0.042</td><td colspan="4">0.044</td><td colspan="5">-</td></tr>
<tr><td>Water heater energy efficiency class</td><td>-</td><td colspan="3">A+</td><td colspan="4">A+</td><td colspan="4">A+</td><td colspan="5">-</td></tr>
<tr><td colspan="3">Outdoor unit</td><td colspan="16">PUZ-SWM100V/YAA</td></tr>
<tr><td rowspan="3">Heating
A7/W35</td><td>Capacity</td><td>kW</td><td colspan="3">-</td><td colspan="8">8.00</td><td colspan="5">8.00</td></tr>
<tr><td>COP</td><td>-</td><td colspan="3">-</td><td colspan="8">5.02</td><td colspan="5">5.02</td></tr>
<tr><td>Power input(*)</td><td>kW</td><td colspan="3">-</td><td colspan="8">1.59</td><td colspan="5">1.59</td></tr>
<tr><td rowspan="3">Heating
A2/W35</td><td>Capacity</td><td>kW</td><td colspan="3">-</td><td colspan="8">10.00</td><td colspan="5">10.00</td></tr>
<tr><td>COP</td><td>-</td><td colspan="3">-</td><td colspan="8">3.47</td><td colspan="5">3.47</td></tr>
<tr><td>Power input(*)</td><td>kW</td><td colspan="3">-</td><td colspan="8">2.88</td><td colspan="5">2.88</td></tr>
<tr><td rowspan="3">Cooling
A35/W7</td><td>Capacity</td><td>kW</td><td colspan="3">-</td><td colspan="8">9.00</td><td colspan="5">9.00</td></tr>
<tr><td>EER</td><td>-</td><td colspan="3">-</td><td colspan="8">3.00</td><td colspan="5">3.00</td></tr>
<tr><td>Power input(*)</td><td>kW</td><td colspan="3">-</td><td colspan="8">3.00</td><td colspan="5">3.00</td></tr>
<tr><td rowspan="3">Cooling
A35/W18</td><td>Capacity</td><td>kW</td><td colspan="3">-</td><td colspan="8">10.00</td><td colspan="5">10.00</td></tr>
<tr><td>EER</td><td>-</td><td colspan="3">-</td><td colspan="8">4.50</td><td colspan="5">4.50</td></tr>
<tr><td>Power input(*)</td><td>kW</td><td colspan="3">-</td><td colspan="8">2.22</td><td colspan="5">2.22</td></tr>
<tr><td rowspan="3">DHW
Average climate condition</td><td>ηwh</td><td>-</td><td colspan="3">-</td><td colspan="4">137</td><td colspan="4">130</td><td colspan="5">-</td></tr>
<tr><td>Pes</td><td>kW</td><td colspan="3">-</td><td colspan="4">0.042</td><td colspan="4">0.044</td><td colspan="5">-</td></tr>
<tr><td>Water heater energy efficiency class</td><td>-</td><td colspan="3">-</td><td colspan="4">A+</td><td colspan="4">A+</td><td colspan="5">-</td></tr>
<tr><td colspan="3">Outdoor unit</td><td colspan="16">PUZ-SWM120V/YAA</td></tr>
<tr><td rowspan="3">Heating
A7/W35</td><td>Capacity</td><td>kW</td><td colspan="3">-</td><td colspan="8">10.00</td><td colspan="5">10.00</td></tr>
<tr><td>COP</td><td>-</td><td colspan="3">-</td><td colspan="8">4.87</td><td colspan="5">4.87</td></tr>
<tr><td>Power input(*)</td><td>kW</td><td colspan="3">-</td><td colspan="8">2.05</td><td colspan="5">2.05</td></tr>
<tr><td rowspan="3">Heating
A2/W35</td><td>Capacity</td><td>kW</td><td colspan="3">-</td><td colspan="8">12.10</td><td colspan="5">12.10</td></tr>
<tr><td>COP</td><td>-</td><td colspan="3">-</td><td colspan="8">3.27</td><td colspan="5">3.27</td></tr>
<tr><td>Power input(*)</td><td>kW</td><td colspan="3">-</td><td colspan="8">3.70</td><td colspan="5">3.70</td></tr>
<tr><td rowspan="3">Cooling
A35/W7</td><td>Capacity</td><td>kW</td><td colspan="3">-</td><td colspan="8">11.00</td><td colspan="5">11.00</td></tr>
<tr><td>EER</td><td>-</td><td colspan="3">-</td><td colspan="8">2.86</td><td colspan="5">2.86</td></tr>
<tr><td>Power input(*)</td><td>kW</td><td colspan="3">-</td><td colspan="8">3.85</td><td colspan="5">3.85</td></tr>
<tr><td rowspan="3">Cooling
A35/W18</td><td>Capacity</td><td>kW</td><td colspan="3">-</td><td colspan="8">12.00</td><td colspan="5">12.00</td></tr>
<tr><td>EER</td><td>-</td><td colspan="3">-</td><td colspan="8">4.50</td><td colspan="5">4.50</td></tr>
<tr><td>Power input(*)</td><td>kW</td><td colspan="3">-</td><td colspan="8">2.67</td><td colspan="5">2.67</td></tr>
<tr><td rowspan="3">DHW
Average climate condition</td><td>ηwh</td><td>-</td><td colspan="3">-</td><td colspan="4">137</td><td colspan="4">130</td><td colspan="5">-</td></tr>
<tr><td>Pes</td><td>kW</td><td colspan="3">-</td><td colspan="4">0.042</td><td colspan="4">0.044</td><td colspan="5">-</td></tr>
<tr><td>Water heater energy efficiency class</td><td>-</td><td colspan="3">-</td><td colspan="4">A+</td><td colspan="4">A+</td><td colspan="5">-</td></tr>
</table>

Note: "Power input" in the above table are values that contains the "pump input (Based on EN 14511)".

Heating: A7W35: Heating outside air DB 7°C/WB 6°C, Water outlet temperature 35°C (ΔT=5°C)
A2W35: Heating outside air DB 2°C/WB 1°C, Water outlet temperature 35°C (ΔT=5°C)
Cooling: A35/W7: Cooling outside air DB 35°C, Water outlet temperature 7°C (ΔT=5°C)
A35/W18: Cooling outside air DB 35°C, Water outlet temperature 18°C (ΔT=5°C)
DHW: ηwh values are measured based on EN16147:2017.

3 Performance data

			Cylinder unit											Hydrobox				
			ERST17D-VM2BE	ERST17D-VM6BE	ERST17D-YM9BE	ERST20F-VM2E	ERST20F-VM6E	ERST20F-YM9E	ERST20F-TM9E	ERST30F-VM2EE	ERST30F-VM6EE	ERST30F-YM9EE	ERST30F-TM9EE	ERSF-MEE	ERSF-VM2E	ERSF-VM6E	ERSF-YM9E	ERSF-TM9E
Outdoor unit			**PUZ-SWM140V/YAA**															
Heating A7/W35	Capacity	kW	-			12.00								12.00				
	COP	-	-			4.77								4.77				
	Power input(*)	kW	-			2.52								2.52				
Heating A2/W35	Capacity	kW	-			14.00								14.00				
	COP	-	-			3.27								3.27				
	Power input(*)	kW	-			4.28								4.28				
Cooling A35/W7	Capacity	kW	-			12.50								12.50				
	EER	-	-			2.62								2.62				
	Power input(*)	kW	-			4.77								4.77				
Cooling A35/W18	Capacity	kW	-			14.00								14.00				
	EER	-	-			3.75								3.75				
	Power input(*)	kW	-			3.73								3.73				
DHW Average climate condition	ηwh	-	-			131				112				-				
	Pes	kW	-			0.044				0.044				-				
	Water heater energy efficiency class	-	-			A+				A				-				
Outdoor unit			**PUZ- SHWM60VAA**															
Heating A7/W35	Capacity	kW	5.00											5.00				
	COP	-	5.05											5.05				
	Power input(*)	kW	0.99											0.99				
Heating A2/W35	Capacity	kW	6.00											6.00				
	COP	-	3.85											3.85				
	Power input(*)	kW	1.56											1.56				
Cooling A35/W7	Capacity	kW	5.10											5.10				
	EER	-	3.50											3.50				
	Power input(*)	kW	1.46											1.46				
Cooling A35/W18	Capacity	kW	6.00											6.00				
	EER	-	5.40											5.40				
	Power input(*)	kW	1.11											1.11				
DHW Average climate condition	ηwh	-	126			137				130				-				
	Pes	kW	0.036			0.042				0.044				-				
	Water heater energy efficiency class	-	A+			A+				A+				-				
Outdoor unit			**PUZ- SHWM80V/YAA**															
Heating A7/W35	Capacity	kW	6.00											6.00				
	COP	-	5.05											5.05				
	Power input(*)	kW	1.19											1.19				
Heating A2/W35	Capacity	kW	8.00											8.00				
	COP	-	3.80											3.80				
	Power input(*)	kW	2.11											2.11				
Cooling A35/W7	Capacity	kW	7.10											7.10				
	EER	-	3.30											3.30				
	Power input(*)	kW	2.15											2.15				
Cooling A35/W18	Capacity	kW	8.00											8.00				
	EER	-	4.95											4.95				
	Power input(*)	kW	1.62											1.62				
DHW Average climate condition	ηwh	-	126			137				130				-				
	Pes	kW	0.036			0.042				0.044				-				
	Water heater energy efficiency class	-	A+			A+				A+				-				
Outdoor unit			**PUZ- SHWM100V/YAA**															
Heating A7/W35	Capacity	kW	-			8.00								8.00				
	COP	-	-			5.05								5.05				
	Power input(*)	kW	-			1.58								1.58				
Heating A2/W35	Capacity	kW	-			10.00								10.00				
	COP	-	-			3.55								3.55				
	Power input(*)	kW	-			2.82								2.82				
Cooling A35/W7	Capacity	kW	-			9.00								9.00				
	EER	-	-			3.00								3.00				
	Power input(*)	kW	-			3.00								3.00				
Cooling A35/W18	Capacity	kW	-			10.00								10.00				
	EER	-	-			4.50								4.50				
	Power input(*)	kW	-			2.22								2.22				
DHW Average climate condition	ηwh	-	-			137				130				-				
	Pes	kW	-			0.042				0.044				-				
	Water heater energy efficiency class	-	-			A+				A+				-				

Note: "Power input" in the above table are values that contains the "pump input (Based on EN 14511)".

Heating: A7W35: Heating outside air DB 7°C/WB 6°C, Water outlet temperature 35°C (ΔT=5°C)
A2W35: Heating outside air DB 2°C/WB 1°C, Water outlet temperature 35°C (ΔT=5°C)
Cooling: A35/W7: Cooling outside air DB 35°C, Water outlet temperature 7°C (ΔT=5°C)
A35/W18: Cooling outside air DB 35°C, Water outlet temperature 18°C (ΔT=5°C)
DHW: ηwh values are measured based on EN16147:2017.

Performance data

			Cylinder unit											Hydrobox				
			ERST17D-VM2BE	ERST17D-VM6BE	ERST17D-YM9BE	ERST20F-VM2E	ERST20F-VM6E	ERST20F-YM9E	ERST20F-TM9E	ERST30F-VM2EE	ERST30F-VM6EE	ERST30F-YM9EE	ERST30F-TM9EE	ERSF-MEE	ERSF-VM2E	ERSF-VM6E	ERSF-YM9E	ERSF-TM9E
Outdoor unit			**PUZ- SHWM120V/YAA**															
Heating A7/W35	Capacity	kW	-			10.00								10.00				
	COP	-	-			4.90								4.90				
	Power input(*)	kW	-			2.04								2.04				
Heating A2/W35	Capacity	kW	-			12.10								12.10				
	COP	-	-			3.35								3.35				
	Power input(*)	kW	-			3.61								3.61				
Cooling A35/W7	Capacity	kW	-			11.00								11.00				
	EER	-	-			2.86								2.86				
	Power input(*)	kW	-			3.85								3.85				
Cooling A35/W18	Capacity	kW	-			12.00								12.00				
	EER	-	-			4.50								4.50				
	Power input(*)	kW	-			2.67								2.67				
DHW Average climate condition	ηwh	-	-			137				130				-				
	Pes	kW	-			0.042				0.044				-				
	Water heater energy efficiency class	-	-			A+				A+				-				
Outdoor unit			**PUZ- SHWM140V/YAA**															
Heating A7/W35	Capacity	kW	-			12.00								12.00				
	COP	-	-			4.85								4.85				
	Power input(*)	kW	-			2.47								2.47				
Heating A2/W35	Capacity	kW	-			14.00								14.00				
	COP	-	-			3.30								3.30				
	Power input(*)	kW	-			4.24								4.24				
Cooling A35/W7	Capacity	kW	-			12.50								12.50				
	EER	-	-			2.62								2.62				
	Power input(*)	kW	-			4.77								4.77				
Cooling A35/W18	Capacity	kW	-			14.00								14.00				
	EER	-	-			3.75								3.75				
	Power input(*)	kW	-			3.73								3.73				
DHW Average climate condition	ηwh	-	-			131				112				-				
	Pes	kW	-			0.044				0.044				-				
	Water heater energy efficiency class	-	-			A+				A				-				

Note: "Power input" in the above table are values that contains the "pump input (Based on EN 14511)".

Heating: A7W35: Heating outside air DB 7°C/WB 6°C, Water outlet temperature 35°C (ΔT=5°C)
A2W35: Heating outside air DB 2°C/WB 1°C, Water outlet temperature 35°C (ΔT=5°C)
Cooling: A35/W7: Cooling outside air DB 35°C, Water outlet temperature 7°C (ΔT=5°C)
A35/W18: Cooling outside air DB 35°C, Water outlet temperature 18°C (ΔT=5°C)
DHW: ηwh values are measured based on EN16147:2017.

3 Performance data

			Cylinder unit		Hydrobox			
			ERST20C-VM2E	ERST30C-VM2EE	ERSC-VM2E	ERSC-MEE	ERSC-VM6E	ERSC-YM9E
Outdoor unit			**PUMY-P112VKM6(-BS)**					
Heating A7/W35	Capacity	kW	12.50	-	12.50			
	COP	-	4.08	-	4.08			
	Power input(*)	kW	3.06	-	3.06			
Heating A2/W35	Capacity	kW	10.00	-	10.00			
	COP	-	2.86	-	2.86			
	Power input(*)	kW	3.50	-	3.50			
Cooling A35/W7	Capacity	kW	-	-	-			
	EER	-	-	-	-			
	Power input(*)	kW	-	-	-			
Cooling A35/W18	Capacity	kW	-	-	-			
	EER	-	-	-	-			
	Power input(*)	kW	-	-	-			
DHW Average climate condition	ηwh	-	105	-	-			
	Pes	kW	0.048	-	-			
	Water heater energy efficiency class	-	A	-	-			
Outdoor unit			**PUMY-P125VKM6(-BS)**					
Heating A7/W35	Capacity	kW	12.50	-	12.50			
	COP	-	4.08	-	4.08			
	Power input(*)	kW	3.06	-	3.06			
Heating A2/W35	Capacity	kW	10.00	-	10.00			
	COP	-	2.86	-	2.86			
	Power input(*)	kW	3.50	-	3.50			
Cooling A35/W7	Capacity	kW	-	-	-			
	EER	-	-	-	-			
	Power input(*)	kW	-	-	-			
Cooling A35/W18	Capacity	kW	-	-	-			
	EER	-	-	-	-			
	Power input(*)	kW	-	-	-			
DHW Average climate condition	ηwh	-	105	-	-			
	Pes	kW	0.048	-	-			
	Water heater energy efficiency class	-	A	-	-			
Outdoor unit			**PUMY-P140VKM6(-BS)**					
Heating A7/W35	Capacity	kW	12.50	-	12.50			
	COP	-	4.08	-	4.08			
	Power input(*)	kW	3.06	-	3.06			
Heating A2/W35	Capacity	kW	10.00	-	10.00			
	COP	-	2.86	-	2.86			
	Power input(*)	kW	3.50	-	3.50			
Cooling A35/W7	Capacity	kW	-	-	-			
	EER	-	-	-	-			
	Power input(*)	kW	-	-	-			
Cooling A35/W18	Capacity	kW	-	-	-			
	EER	-	-	-	-			
	Power input(*)	kW	-	-	-			
DHW Average climate condition	ηwh	-	105	-	-			
	Pes	kW	0.048	-	-			
	Water heater energy efficiency class	-	A	-	-			
Outdoor unit			**PUMY-P112YKM5(-BS)**					
Heating A7/W35	Capacity	kW	12.50	-	12.50			
	COP	-	4.08	-	4.08			
	Power input(*)	kW	3.06	-	3.06			
Heating A2/W35	Capacity	kW	10.00	-	10.00			
	COP	-	2.86	-	2.86			
	Power input(*)	kW	3.50	-	3.50			
Cooling A35/W7	Capacity	kW	-	-	-			
	EER	-	-	-	-			
	Power input(*)	kW	-	-	-			
Cooling A35/W18	Capacity	kW	-	-	-			
	EER	-	-	-	-			
	Power input(*)	kW	-	-	-			
DHW Average climate condition	ηwh	-	105	-	-			
	Pes	kW	0.048	-	-			
	Water heater energy efficiency class	-	A	-	-			
Outdoor unit			**PUMY-P125YKM5(-BS)**					
Heating A7/W35	Capacity	kW	12.50	-	12.50			
	COP	-	4.08	-	4.08			
	Power input(*)	kW	3.06	-	3.06			
Heating A2/W35	Capacity	kW	10.00	-	10.00			
	COP	-	2.86	-	2.86			
	Power input(*)	kW	3.50	-	3.50			
Cooling A35/W7	Capacity	kW	-	-	-			
	EER	-	-	-	-			
	Power input(*)	kW	-	-	-			
Cooling A35/W18	Capacity	kW	-	-	-			
	EER	-	-	-	-			
	Power input(*)	kW	-	-	-			
DHW Average climate condition	ηwh	-	105	-	-			
	Pes	kW	0.048	-	-			
	Water heater energy efficiency class	-	A	-	-			
Outdoor unit			**PUMY-P140YKM5(-BS)**					
Heating A7/W35	Capacity	kW	12.50	-	12.50			
	COP	-	4.08	-	4.08			
	Power input(*)	kW	3.06	-	3.06			
Heating A2/W35	Capacity	kW	10.00	-	10.00			
	COP	-	2.86	-	2.86			
	Power input(*)	kW	3.50	-	3.50			
Cooling A35/W7	Capacity	kW	-	-	-			
	EER	-	-	-	-			
	Power input(*)	kW	-	-	-			
Cooling A35/W18	Capacity	kW	-	-	-			
	EER	-	-	-	-			
	Power input(*)	kW	-	-	-			
DHW Average climate condition	ηwh	-	105	-	-			
	Pes	kW	0.048	-	-			
	Water heater energy efficiency class	-	A	-	-			

Note: "Power input" in the above table are values that contains the "pump input (Based on EN 14511)".

Heating: A7W35: Heating outside air DB 7°C/WB 6°C, Water outlet temperature 35°C (ΔT=5°C)
A2W35: Heating outside air DB 2°C/WB 1°C, Water outlet temperature 35°C (ΔT=5°C)
Cooling: A35/W7: Cooling outside air DB 35°C, Water outlet temperature 7°C (ΔT=5°C)
A35/W18: Cooling outside air DB 35°C, Water outlet temperature 18°C (ΔT=5°C)
DHW: ηwh values are measured based on EN16147:2017.

			Cylinder unit																					Hydrobox							
			EHST17D-VM2E	EHST17D-YM9E	EHST20D-VM2E	EHST20D-VM6E	EHST20D-YM9E	EHST20D-TM9E	EHST30D-MEE	EHST30D-VM6EE	EHST30D-YM9EE	EHST30D-TM9EE	ERST17D-VM2E	ERST17D-VM6E	ERST20D-VM2E	ERST20D-VM6E	ERST20D-YM9E	ERST30D-VM2EE	ERST30D-VM6EE	ERST30D-YM9EE	ERST17D-VM2BE	ERST17D-VM6BE	ERST17D-YM9BE	EHSD-MEE	EHSD-VM2E	EHSD-VM6E	EHSD-YM9E	EHSD-TM9E	ERSD-VM2E	ERSD-VM6E	ERSD-YM9E
Outdoor unit			**PXZ-4F75VG**																												
Heating A7/W35	Capacity	kW	7.50						-	7.50											-			7.50							
	COP	-	4.17						-	4.17											-			4.17							
	Power input(*)	kW	1.80						-	1.80											-			1.80							
Heating A2/W35	Capacity	kW	6.80						-	6.80											-			6.80							
	COP	-	2.80						-	2.80											-			2.80							
	Power input(*)	kW	2.43						-	2.43											-			2.43							
Cooling A35/W7	Capacity	kW	-						-	-											-			-							
	EER	-	-						-	-											-			-							
	Power input(*)	kW	-						-	-											-			-							
Cooling A35/W18	Capacity	kW	-						-	-											-			-							
	EER	-	-						-	-											-			-							
	Power input(*)	kW	-						-	-											-			-							
DHW Average climate condition	ηwh	-	121		130				-	116			121		130			116			-			-							
	Pes	kW	0.030		0.033				-	0.035			0.030		0.033			0.035			-			-							
	Water heater energy efficiency class	-	A+		A+				-	A			A+		A+			A			-			-							
Outdoor unit			**PXZ-5F85VG**																												
Heating A7/W35	Capacity	kW	8.50						-	8.50											-			8.50							
	COP	-	4.34						-	4.34											-			4.34							
	Power input(*)	kW	1.96						-	1.96											-			1.96							
Heating A2/W35	Capacity	kW	7.80						-	7.80											-			7.80							
	COP	-	3.00						-	3.00											-			3.00							
	Power input(*)	kW	2.60						-	2.60											-			2.60							
Cooling A35/W7	Capacity	kW	-						-	-											-			-							
	EER	-	-						-	-											-			-							
	Power input(*)	kW	-						-	-											-			-							
Cooling A35/W18	Capacity	kW	-						-	-											-			-							
	EER	-	-						-	-											-			-							
	Power input(*)	kW	-						-	-											-			-							
DHW Average climate condition	ηwh	-	125		135				-	119			125		135			119			-			-							
	Pes	kW	0.029		0.031				-	0.037			0.029		0.031			0.037			-			-							
	Water heater energy efficiency class	-	A+		A+				-	A			A+		A+			A			-			-							

Note: "Power input" in the above table are values that contains the "pump input (Based on EN 14511)".

Heating: A7W35: Heating outside air DB 7°C/WB 6°C, Water outlet temperature 35°C (ΔT=5°C)
A2W35: Heating outside air DB 2°C/WB 1°C, Water outlet temperature 35°C (ΔT=5°C)
Cooling: A35/W7: Cooling outside air DB 35°C, Water outlet temperature 7°C (ΔT=5°C)
A35/W18: Cooling outside air DB 35°C, Water outlet temperature 18°C (ΔT=5°C)
DHW: ηwh values are measured based on EN16147:2017.

3 Performance data

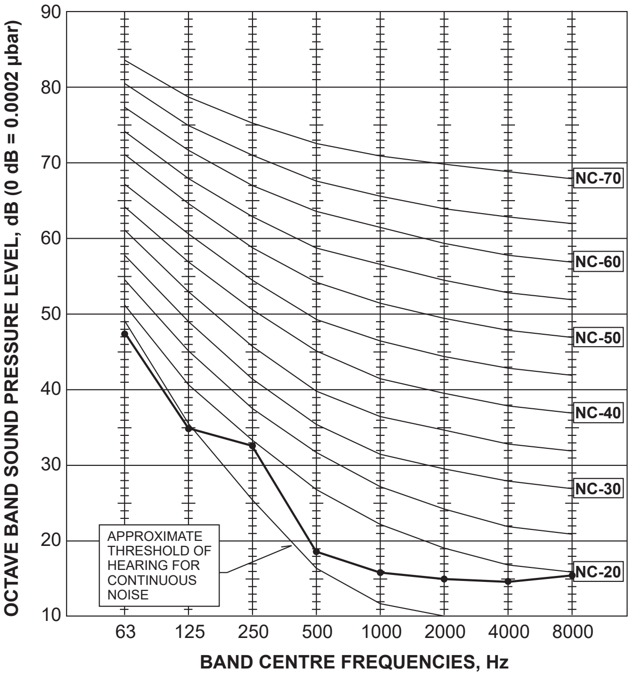
3.2 Heat time data (DHW mode)

Heat time (min)	170L			200L			300L		
	Ambient temperature [°C]			Ambient temperature [°C]			Ambient temperature [°C]		
	2	7	14	2	7	14	2	7	14
PUZ-WZ50VAA(-BS)	137	107	93	153	119	103	219	171	148
PUZ-WZ60VAA(-BS)	114	89	77	127	99	86	182	142	123
PUZ-WZ80VAA(-BS)	86	89	77	95	99	86	137	142	123
PUZ-WM50VHA(-BS)	111	102	102	130	120	120	-	-	-
PUZ-WM60VAA(-BS)	94	85	81	110	100	95	-	-	-
PUZ-WM85V/YAA(-BS)	68	64	60	80	75	70	120	113	105
PUZ-WM112V/YAA(-BS)	-	-	-	65	60	55	98	90	83
PUZ-HWM140V/YHA(-BS)	-	-	-	56	56	51	84	84	76
SUZ-SWM30VA	98	87	84	115	102	99	173	153	149
SUZ-SHWM30VAH	98	87	84	115	102	99	173	153	149
SUZ-SWM40VA2(-SC)	98	87	84	115	102	99	173	153	149
SUZ-SHWM40VAH(-SC)	112	95	76	132	112	89	198	168	134
SUZ-SWM60VA2(-SC)	112	95	76	132	112	89	198	168	134
SUZ-SHWM60VAH(-SC)	76	61	60	89	72	71	134	108	107
SUZ-SWM80VA2	76	61	60	89	72	71	134	108	107
SUZ-SWM80VAH2	76	61	60	89	72	71	134	108	107
SUZ-SWM100VA	76	61	60	89	72	71	134	108	107
SUZ-SWM100VAH	76	61	60	89	72	71	134	108	107
PUZ-S(H)WM60VAA	81	72	68	95	85	80	143	128	120
PUZ-S(H)WM80V/YAA	68	60	55	80	70	65	120	105	98
PUZ-S(H)WM100V/YAA	-	-	-	70	65	60	105	98	90
PUZ-S(H)WM120V/YAA	-	-	-	58	54	50	88	80	73
PUZ-S(H)WM140V/YAA	-	-	-	52	48	43	78	70	63
PUHZ-SW75V/YAA(-BS)	98	85	81	115	100	95	173	150	143
PUHZ-SW100V/YAA(-BS)	85	77	68	100	90	80	150	135	120
PUHZ-SW120V/YHA(-BS)	-	-	-	85	75	70	128	113	105
PUHZ-SHW80VAA(-BS)	-	-	-	80	70	65	120	105	98
PUHZ-SHW112V/YAA(-BS)	-	-	-	60	60	55	90	90	83
PUHZ-SHW140YHA(-BS)	-	-	-	50	50	45	75	75	68
PXZ-4F75VG	108	79	72	127	93	85	191	140	127
PXZ-5F85VG	98	77	70	115	90	82	173	135	124
PUHZ-FRP71VHA2	-	-	-	122	100	95	-	-	-
PUMY-P112/125/140VKM5/YKM(E)4(-BS)	-	-	-	115	110	95	-	-	-

3.3 Noise criterion curves

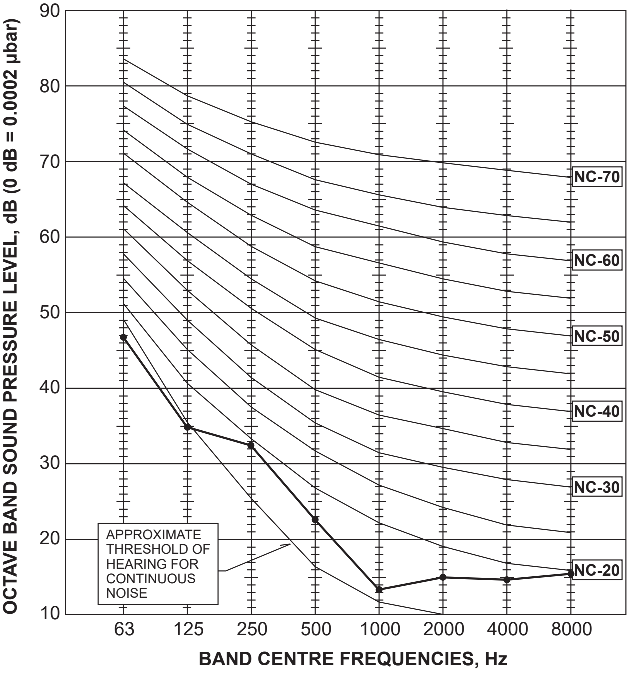
■ Cylinder unit

Pump speed (primary circuit): 5
Pump speed (sanitary circuit): 2
Flow rate: 20L/min
SPL: 29dB

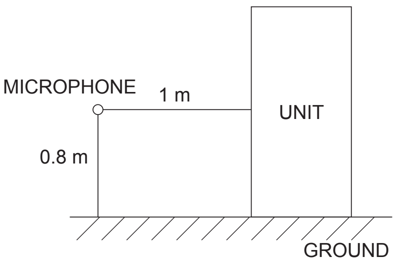


■ Hydrobox

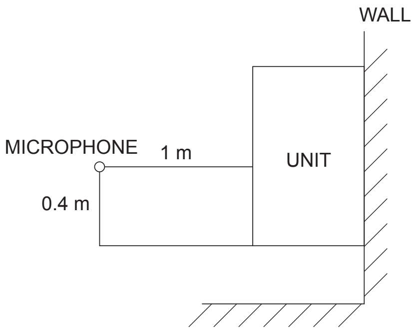
Pump speed: 5
Flow rate: 20L/min
SPL: 29dB



■ Cylinder unit



■ Hydrobox



Note: These values are only for reference purpose.

4 Cylinder unit

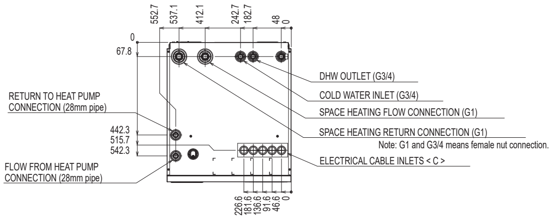
4.1 Outlines and dimensions

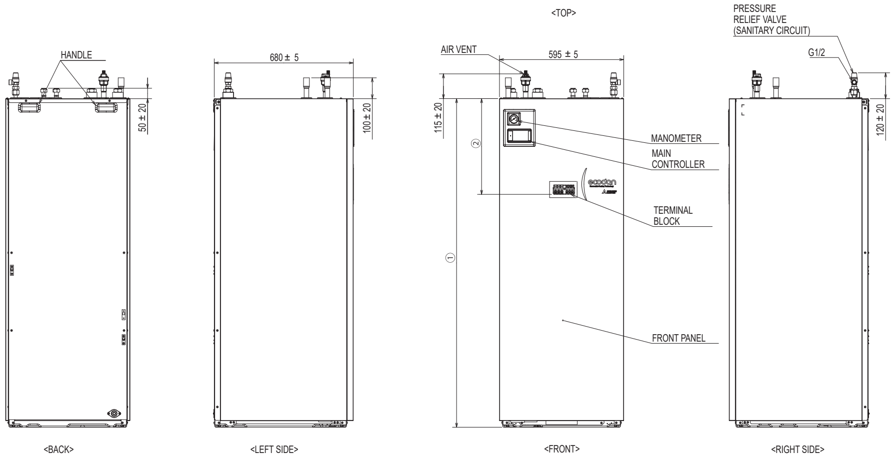
<Unit: mm>

■ Technical Drawings

<E**T***-*M**E>
(Packaged model system)

DHW tank capacity	170L	200L	300L
①	1400	1600	2050
②	456	456	931





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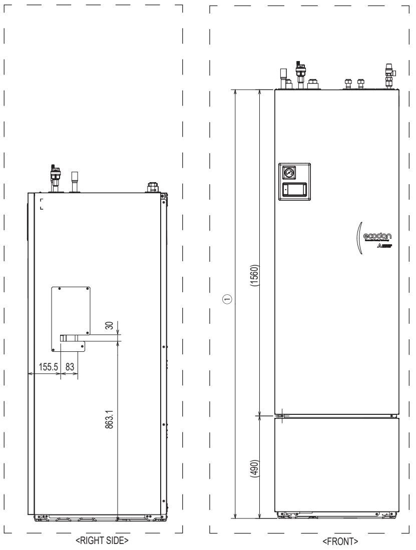
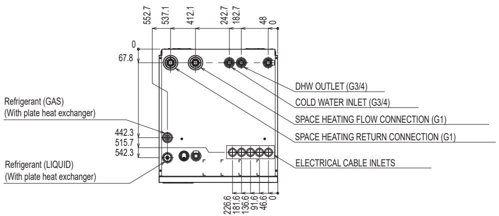
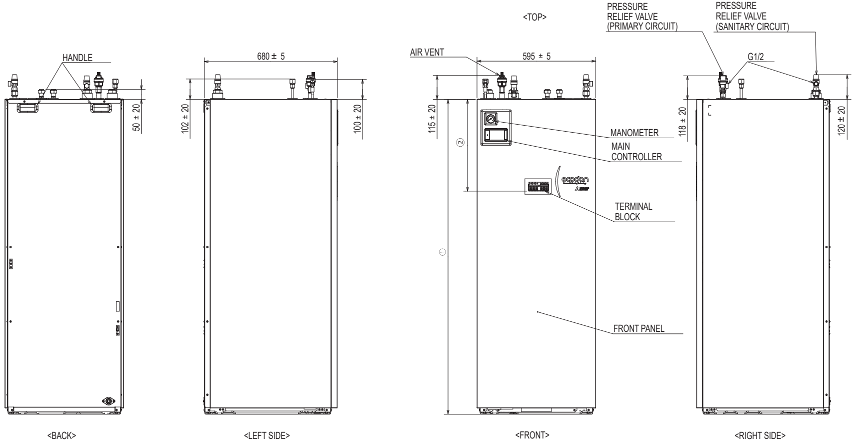


(Split model system)

DHW tank capacity	170L	200L	300L
①	1400	1600	2050
②	456	456	931





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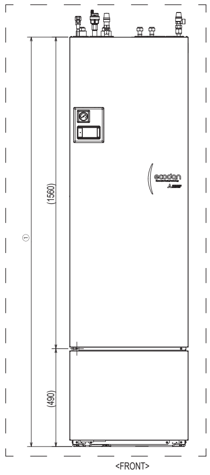
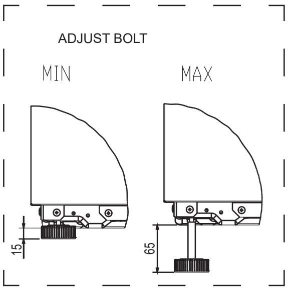


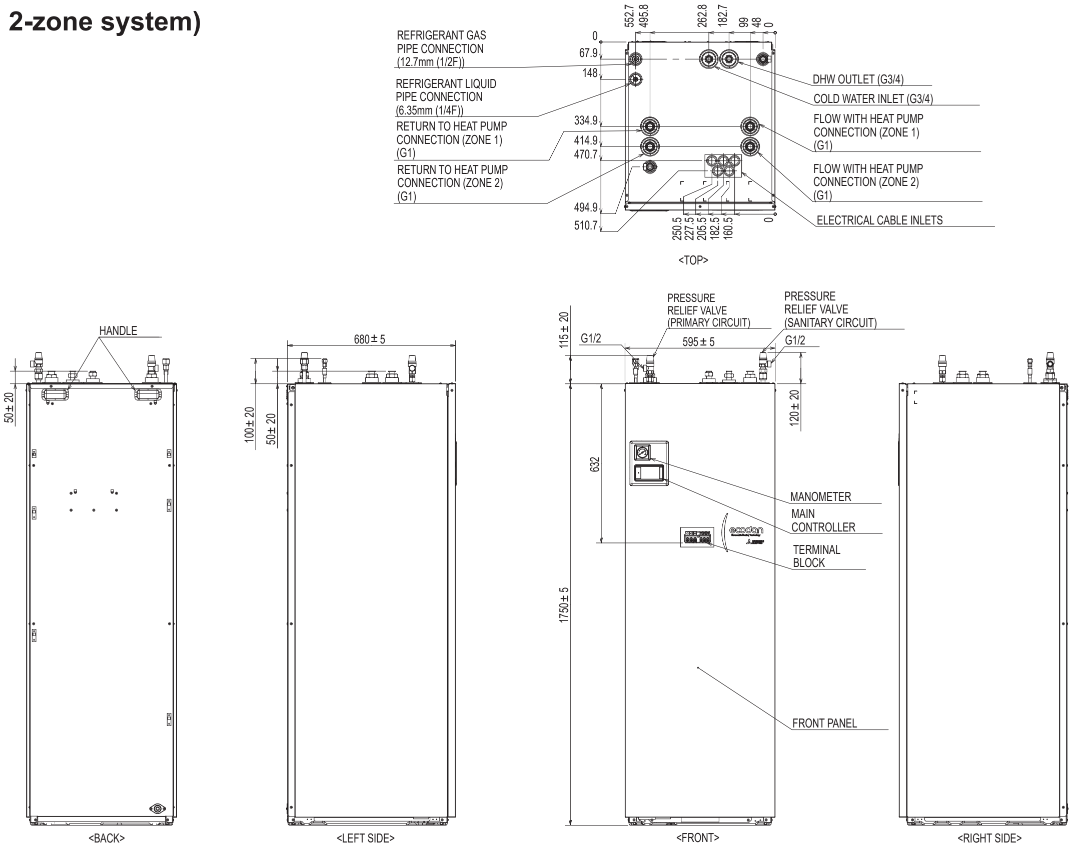


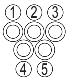
Pipe description	Connection size/type	
Refrigerant (GAS) (With plate heat exchanger)	12.7 mm or 15.88 mm/Flare (E*ST**F-*) 12.7 mm/Flare (E*ST**D-*) 15.88 mm/Flare (E*ST**C-*)	⚠ **Warning** • Refrigerant pipes connection shall be accessible for maintenance purposes. • In case of reconnecting the refrigerant pipes after detaching, make the flared part of pipe re-fabricated.
Refrigerant (LIQUID) (With plate heat exchanger)	6.35 mm/Flare (E*ST**F/D-*) 9.52 mm/Flare (E*ST**C-*)	
Electrical cable inlets ①②③④⑤ ○○○○○	For inlets ①, ② and ③, run low-voltage wires including external input wires and thermistor wires. For inlets ④ and ⑤, run high-voltage wires including power cable, indoor-outdoor cable, and external output wires. *For a wireless receiver (option) cable and ecodan Wi-Fi interface (option) cable, use inlet ①.	

<Table 4.1.1>

4 Cylinder unit

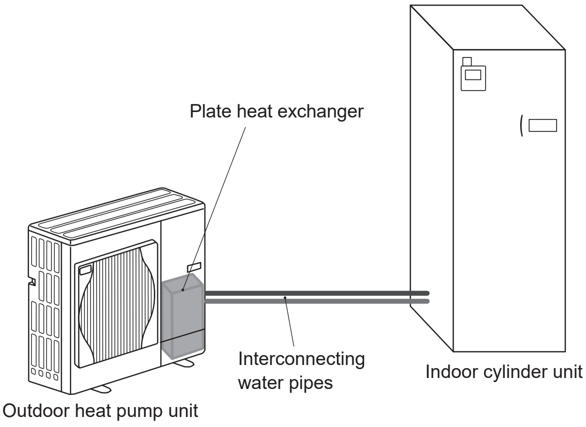
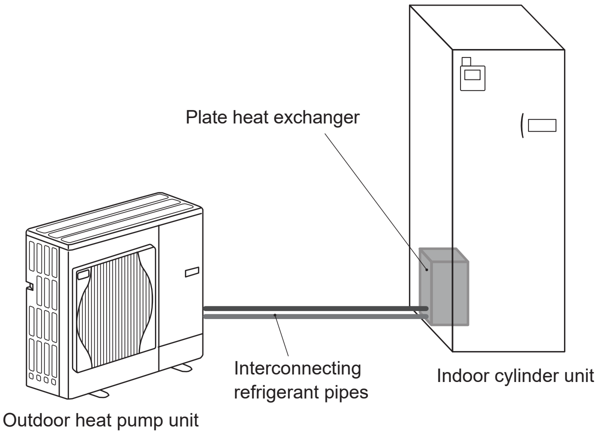
(Split model 2-zone system)



Electrical cable inlets  ① ② ③ ④ ⑤	For inlets ①, ② and ③, run low-voltage wires including external input wires and thermistor wires. For inlets ④ and ⑤, run high-voltage wires including power cable, indoor-outdoor cable, and external output wires. *For a wireless receiver (option) cable and ecodan Wi-Fi interface (option) cable, use inlet ①.

4 Cylinder unit

System configuration

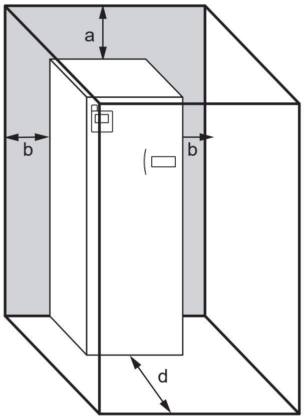
	Packaged model system	Split model system
Model name	**E*PT**X-**	**E*ST**D-, E*ST**C-, E*ST**F-**
Cylinder unit		

Service access diagrams

Service access	
Parameter	Dimension (mm)
a	300*
b	150
c (distance behind unit not visible in Figure 4.1.1)	10
d	500

<Table 4.1.2>

Sufficient space MUST be left for the provision of discharge pipework as detailed in National and Local Building Regulations.



* An additional 300 mm of space (total 600 mm) is required , when installing the optional 2-zone kit (PAC-TZ02-E2) on top of the cylinder unit.

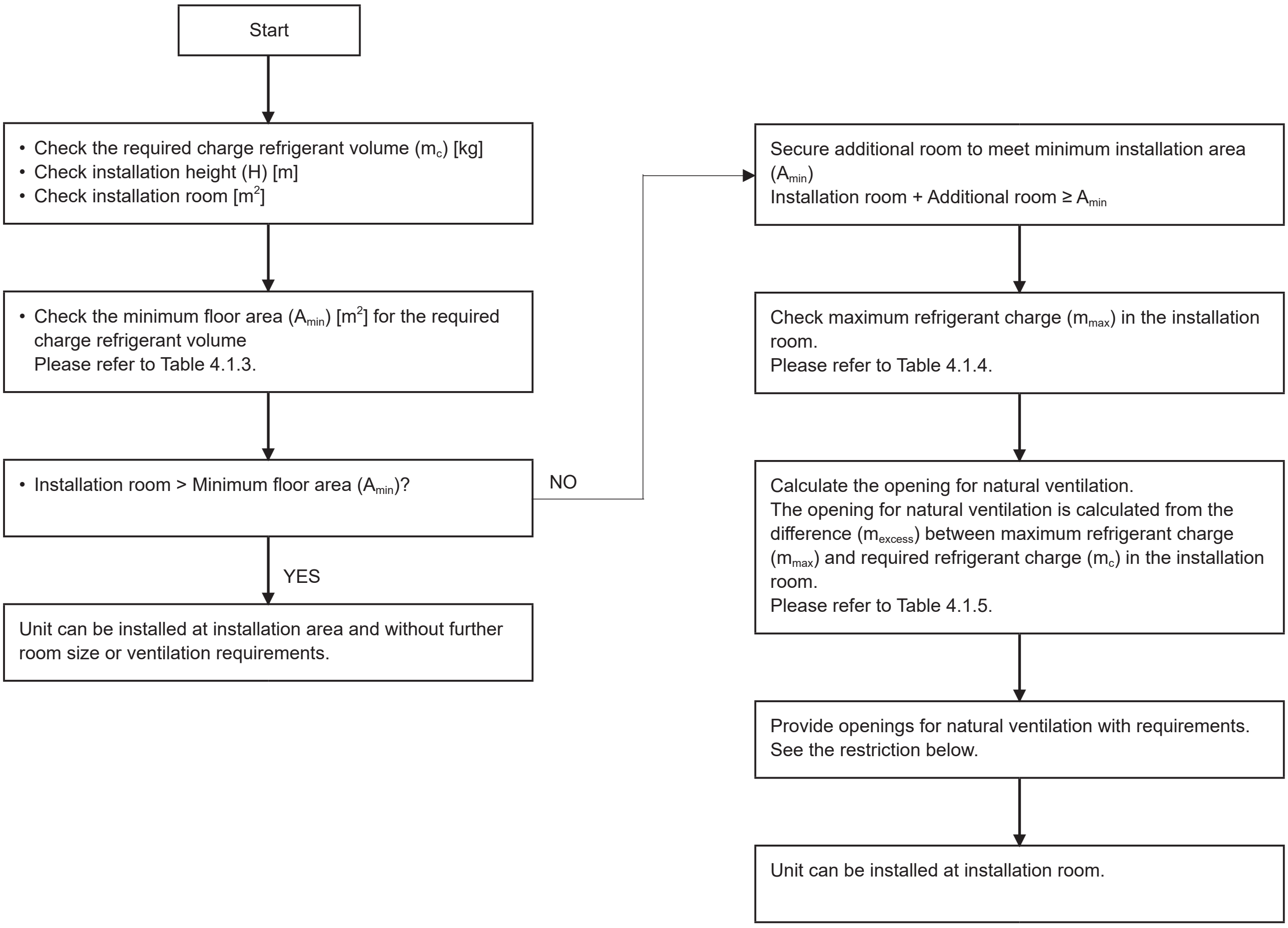
<Figure 4.1.1>
Service access

The cylinder unit must be located indoors and in a frost-free environment, for example in a utility room, to minimise heat loss from stored water.

Indoor unit installation requirements for R32 refrigerant

- If the total refrigerant charge in the system is < 1.84 kg, no additional minimum floor area is required.
- If the total refrigerant charge in the system is ≥ 1.84 kg, minimum floor area requirements are complied according to the below flow chart.
- Charges above 2.4 kg are not allowed in the unit.

Flow chart for indoor unit installation



Start

- Check the required charge refrigerant volume (m_c) [kg]
- Check installation height (H) [m]
- Check installation room [m^2]

- Check the minimum floor area (A_{min}) [m^2] for the required charge refrigerant volume
  Please refer to Table 4.1.3.

- Installation room > Minimum floor area (A_{min})?

Unit can be installed at installation area and without further room size or ventilation requirements.

Secure additional room to meet minimum installation area (A_{min})
Installation room + Additional room ≥ A_{min}

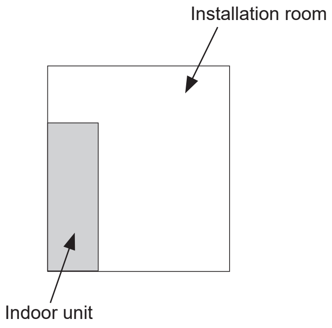
Check maximum refrigerant charge (m_{max}) in the installation room.
Please refer to Table 4.1.4.

Calculate the opening for natural ventilation.
The opening for natural ventilation is calculated from the difference (m_{excess}) between maximum refrigerant charge (m_{max}) and required refrigerant charge (m_c) in the installation room.
Please refer to Table 4.1.5.

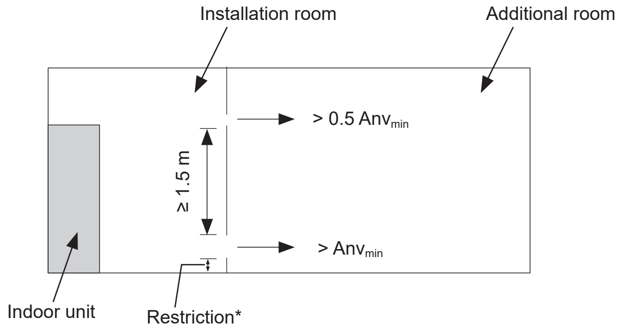
Provide openings for natural ventilation with requirements.
See the restriction below.

Unit can be installed at installation room.

Cylinder unit:



Cylinder unit:
In case of natural ventilation



* Restriction for ventilation
When the openings for connected rooms and natural ventilation are required, the following conditions shall be applied.

- The area of any openings above 300 mm from the floor shall not be considered in determining compliance with minimum opening for natural ventilation (Anv_{min}).
- At least 50% of the required opening area Anv_{min} shall be below 200 mm from the floor.
- The bottom of the lowest openings shall not be higher than the point of release when the unit is installed and not more than 100 mm from the floor.
- Openings are permanent openings which cannot be closed.
- The height of the openings between the wall and floor which connect the rooms are not less than 20 mm.
- A second higher opening shall be provided. The total size of second opening shall not be less than 50% of minimum opening area for Anv_{min} and shall be at least 1.5 m above the floor.

■ Indoor unit installation requirements for R32 refrigerant

Minimum floor area: Cylinder unit

m_c [kg]	Minimum floor area (A_{min}) [m^2]			
	E*ST17D	E*ST20D/ERST20F	ERST17D-*M*BE	E*ST30D/ERST30F
	H = 1400 mm	H = 1600 mm	H = 1600 mm	H = 2050 mm
< 1.84	-	-	-	-
1.84	5.8	5.0	5.0	3.9
1.9	5.9	5.2	5.2	4.1
2.0	6.3	5.5	5.5	4.3
2.1	6.9	5.8	5.8	4.5
2.2	7.6	6.0	6.0	4.7
2.3	8.3	6.4	6.4	4.9
2.4	9.1	6.9	6.9	5.1

<Table 4.1.3>

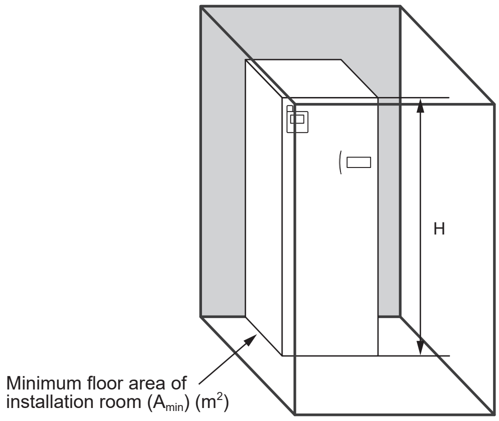
- **If the total refrigerant charge in the system is < 1.84 kg, no additional minimum floor area is required.**
- **Charges above 2.4 kg are not allowed in the unit.**
- **For intermediate refrigerant charges, use the row with the higher value. Example: If the refrigerant charge is 2.04 kg, use the row of 2.1 kg.**
- **The value of installation height (H) is considered above value to comply to IEC60335-2-40: 2018**

Maximum refrigerant charge allowed in the room: Cylinder unit

Installation room [m^2]	Maximum refrigerant charge in a room (m_{max}) [kg]			
	E*ST17D	E*ST20D/ERST20F	ERST17D-*M*BE	E*ST30D/ERST30F
	H = 1400 mm	H = 1600 mm	H = 1600 mm	H = 2050 mm
1	1.83	1.83	1.83	1.83
2	1.83	1.83	1.83	1.83
3	1.83	1.83	1.83	1.83
4	1.83	1.83	1.83	1.88
5	1.83	1.84	1.84	2.36
6	1.93	2.21	2.21	2.4
7	2.11	2.4	2.4	2.4
8	2.26	2.4	2.4	2.4
9	2.39	2.4	2.4	2.4
10	2.4	2.4	2.4	2.4

<Table 4.1.4>

- **For intermediate floor areas, use the row with the lower value. Example: If the floor area is 5.4 m^2, use the row of 5 m^2.**
- **The value of installation height (H) is considered above value to comply to IEC60335-2-40: 2018**



Minimum venting opening area for natural ventilation: Cylinder unit

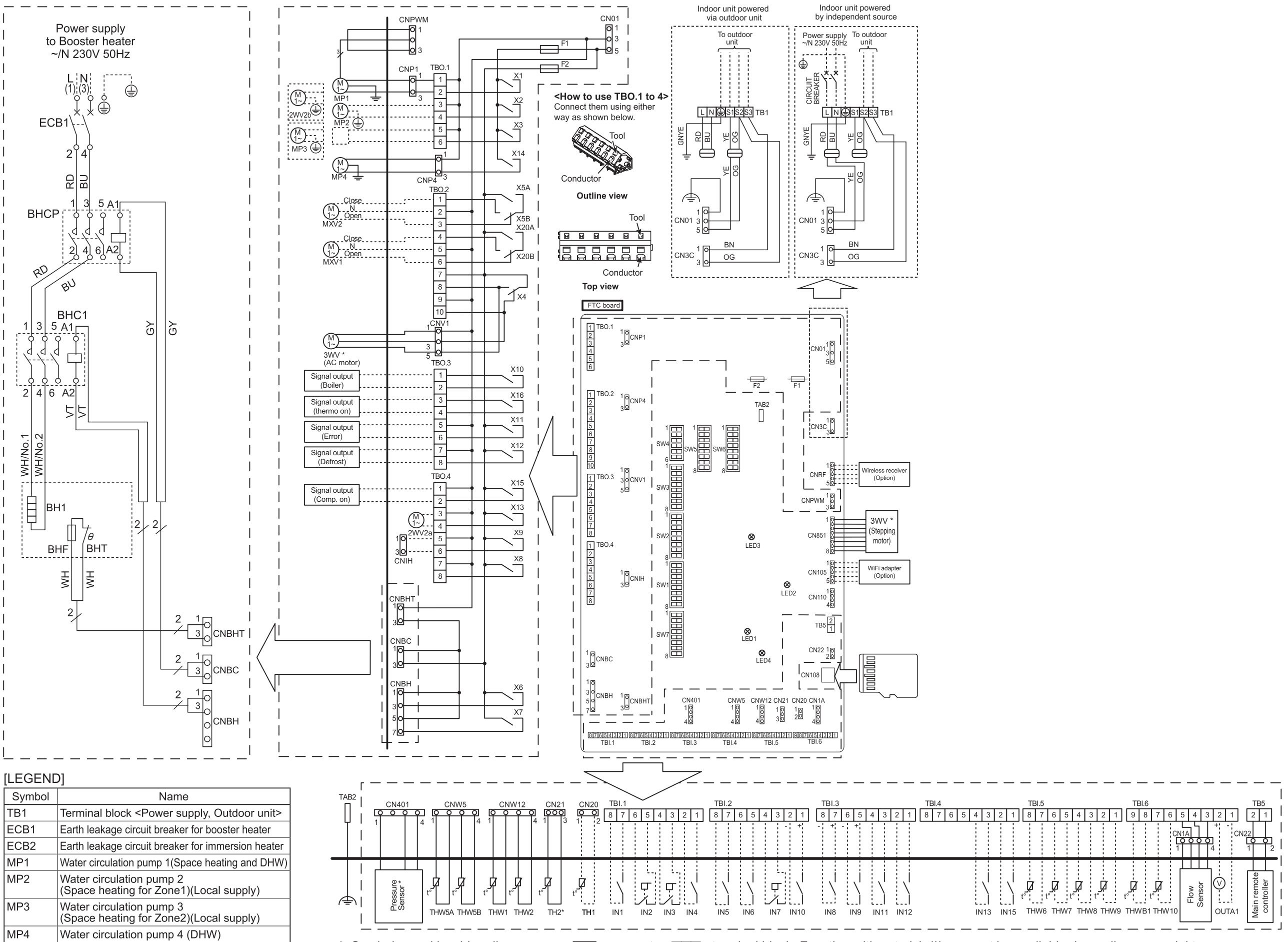
m_c [kg]	m_{max} [kg]	m_{excess} [kg] = m_c - m_{max}	Minimum opening for natural ventilation (Anv_{min}) [cm^2]			
			E*ST17D	E*ST20D/ERST20F	ERST17D-*M*BE	E*ST30D/ERST30F
2.4	1.84	0.56	149	139	139	123
2.4	1.9	0.5	133	124	124	110
2.4	2.0	0.4	107	100	100	88
2.4	2.1	0.3	82	75	75	66
2.4	2.2	0.2	56	50	50	44
2.4	2.3	0.1	29	25	25	22

<Table 4.1.5>

- **For intermediate m_{excess} values, the value that corresponds to the higher m_{excess} value from the table is considered.**
  Example:
  m_{excess} = 0.44 kg, the value that corresponds to m_{excess} = 0.5 kg is considered.
- **The value of installation height (H) is considered above value to comply to IEC60335-2-40: 2018**

4.2 Wiring diagrams

■ E**T***-VM2(E)E



1. Symbols used in wiring diagram are, ○○ : connector, ☐☐☐ : terminal block. Function with asterisk (*) may not be available depending on model types.
2. Indoor unit and outdoor unit connecting wires have polarities, make sure to match terminal numbers (S1, S2, S3) for correct wirings.
3. Since the outdoor unit side electric wiring may change, be sure to check the outdoor unit electric wiring diagram for service.
4. Refer to the installation manual for the water circulation diagrams of the models other than shown below.

[LEGEND]

Symbol	Name
TB1	Terminal block <Power supply, Outdoor unit>
ECB1	Earth leakage circuit breaker for booster heater
ECB2	Earth leakage circuit breaker for immersion heater
MP1	Water circulation pump 1(Space heating and DHW)
MP2	Water circulation pump 2 (Space heating for Zone1)(Local supply)
MP3	Water circulation pump 3 (Space heating for Zone2)(Local supply)
MP4	Water circulation pump 4 (DHW)
3WV	3-way valve (AC motor) (E*PT20/30X-*M**E*, E*ST**C/F-*M**E) 3-way valve (Stepping motor) (EHPT17X-*M**E*, E*ST**D-*M**E)
2WV2a	2-way valve (For Zone 1)(Local supply)
2WV2b	2-way valve (For Zone 2)(Local supply)
MXV1	Mixing valve 1(For Zone 1)(Local supply)
MXV2	Mixing valve 2(For Zone 2)(Local supply)
IHT	Thermostat (fixed temp.) for immersion heater
IH	Immersion heater
IHC	Contactor for immersion heater
TH1	Thermistor (Room temp.)(Option)
TH2	Thermistor (Ref. liquid temp.)
THW1	Thermistor (Flow water temp.)
THW2	Thermistor (Return water temp.)
THW5A	Thermistor (DHW tank upper water temp.)
THW5B	Thermistor (DHW tank lower water temp.)
THW6	Thermistor (Zone1 flow temp.)(Option)
THW7	Thermistor (Zone1 return temp.)(Option)
THW8	Thermistor (Zone2 flow temp.)(Option)
THW9	Thermistor (Zone2 return temp.)(Option)
THW10	Thermistor (Mixing tank temp.)(Option)
THWB1	Thermistor (Boiler flow temp.)(Option)
IN1	Room thermostat 1 (Local supply)
IN2	Flow switch 1 (Local supply)
IN3	Flow switch 2 (Local supply)
IN4	Demand control (Local supply)
IN5	Outdoor thermostat (Local supply)
IN6	Room thermostat 2 (Local supply)
IN7	Flow switch 3 (Local supply)
IN8	Electric energy meter 1 (Local supply)
IN9	Electric energy meter 2 (Local supply)
IN10	Heat meter (Local supply)
IN11	Smart grid ready input (Local supply)
IN12	
IN13	Forced cooling mode (Local supply)
IN15	Cooling limit temp. (Local supply)
INA1	Flow sensor
FLOW TEMP. CONTROLLER (FTC)	
TBO.1-4	Terminal block <Outputs>
TBI.1-6	Terminal block <Signal Inputs, Thermistor>
F1	Fuse (IEC T10AL250V)
F2	Fuse (IEC T6.3AL250V)
SW1-7	DIP switch *See Table 3
X1-20	Relay
LED1	Power supply (FTC)
LED2	Power supply (Main remote controller)
LED3	Communication (FTC-Outdoor unit)
LED4	Reading or writing data to microSD card
CNPWM	Pump speed control signal for MP1
CN108	microSD card connector

Table 1 Signal Inputs

Name	Terminal block	Connector	Item	OFF (Open)	ON (Short)
IN1	TBI.1 7-8	—	Room thermostat 1 input *1	Refer to SW2-1 in "6-10. DIP Switch Functions".	
IN2	TBI.1 5-6	—	Flow switch 1 input	Refer to SW2-2 in "6-10. DIP Switch Functions".	
IN3	TBI.1 3-4	—	Flow switch 2 input (Zone1)	Refer to SW3-2 in "6-10. DIP Switch Functions".	
IN4	TBI.1 1-2	—	Demand control input	Normal	Heat source OFF/ Boiler operation *3
IN5	TBI.2 7-8	—	Outdoor thermostat input *2	Standard operation	Heater operation/ Boiler operation *3
IN6	TBI.2 5-6	—	Room thermostat 2 input *1	Refer to SW3-1 in "6-10. DIP Switch Functions".	
IN7	TBI.2 3-4	—	Flow switch 3 input (Zone2)	Refer to SW3-2 in "6-10. DIP Switch Functions".	
IN8	TBI.3 7-8	—	Electric energy meter 1	Refer to installation manual.	
IN9	TBI.3 5-6	—	Electric energy meter 2		
IN10	TBI.2 1-2	—	Heat meter		
IN11	TBI.3 3-4	—	Smart grid ready input		
IN12	TBI.3 1-2	—			
IN13	TBI.4 3-4	—	Forced cooling mode *4	Refer to SW7-2 in "6-10. DIP Switch Functions".	
IN15	TBI.4 1-2	—	Cooling limit temp. *4	Refer to SW7-3 in "6-10. DIP Switch Functions".	
INA1	TBI.6 3-5	CN1A	Flow sensor	Refer to installation manual.	

*1. Set the ON/OFF cycle time of the room thermostat for 10 minutes or more; otherwise the compressor may be damaged.
*2. If using outdoor thermostat for controlling operation of heaters, the lifetime of the heaters and related parts may be reduced.
*3. To turn on the boiler operation, use the main remote controller to select "Boiler" in "External input setting" screen in the service menu.
*4. Only for ER series.

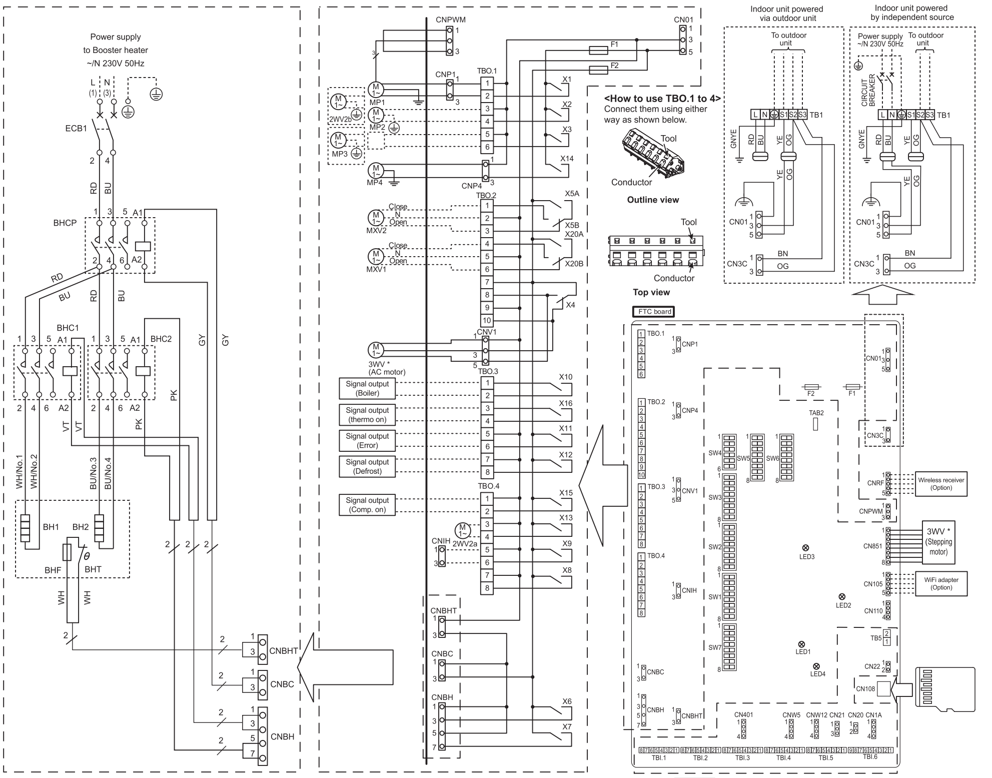
Table 2 Outputs

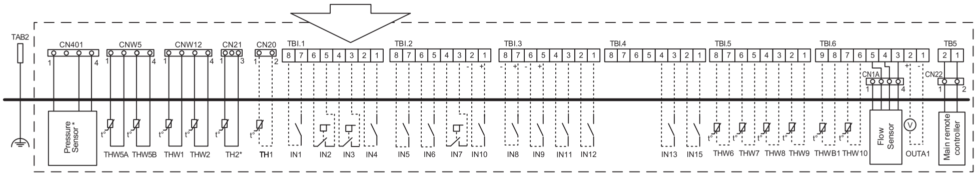
Name	Terminal block	Connector	Item	OFF	ON
OUT1	TBO.1 1-2	CNP1	Water circulation pump 1 output (Space heating/cooling & DHW)	OFF	ON
OUT2	TBO.1 3-4	—	Water circulation pump 2 output (Space heating/cooling for Zone1)	OFF	ON
OUT3	TBO.1 5-6	—	Water circulation pump 3 output (Space heating/cooling for Zone2) *1	OFF	ON
			2-way valve 2b output *2		
OUT4	TBO.2 7-9	—	3-way valve SPST (2-way valve 1) output	Heating	DHW
	TBO.2 8-10	CNV1	3-way valve SPDT output		
	—	CN851	3-way valve output		
OUT5	TBO.2 1-2	—	Zone 2 mixing valve output *1	Stop	Close
	TBO.2 2-3				Open
OUT6	—	CNBH 1-3	Booster heater 1 output	OFF	ON
OUT7	—	CNBH 5-7	Booster heater 2 output	OFF	ON
OUT8	TBO.4 7-8	—	Cooling signal output	OFF	ON
OUT9	TBO.4 5-6	CNIH	Immersion heater output	OFF	ON
OUT10	TBO.3 1-2	—	Boiler output	OFF	ON
OUT11	TBO.3 5-6	—	Error output	Normal	Error
OUT12	TBO.3 7-8	—	Defrost output	Normal	Defrost
OUT13	TBO.4 3-4	—	2-way valve 2a output *2	OFF	ON
OUT14	—	CNP4	Water circulation pump 4 output (DHW)	OFF	ON
OUT15	TBO.4 1-2	—	Comp. ON signal	OFF	ON
OUT16	TBO.3 3-4	—	Thermo ON signal	OFF	ON
OUT18	TBO.2 4-5	—	Zone 1 mixing valve output *1	Stop	Close
	TBO.2 5-6				Open
OUTA1	TBI.6 1-2	—	Analog output	0V-10V	

Do not connect to the terminals that are indicated as "—" in the "Terminal block" field.
*1. For 2-zone temperature control.
*2. For 2-zone valve ON/OFF control.

4 Cylinder unit

■ E**T***-VM6(E)E





[LEGEND]

Symbol	Name
TB1	Terminal block <Power supply, Outdoor unit>
ECB1	Earth leakage circuit breaker for booster heater
ECB2	Earth leakage circuit breaker for immersion heater
MP1	Water circulation pump 1(Space heating and DHW)
MP2	Water circulation pump 2 (Space heating for Zone1)(Local supply)
MP3	Water circulation pump 3 (Space heating for Zone2)(Local supply)
MP4	Water circulation pump 4 (DHW)
3WV	3-way valve (AC motor) (E*PT20/30X-*M**E*, E*ST**C/F-*M**E) 3-way valve (Stepping motor) (EHPT17X-*M**E*, E*ST**D-*M**E)
2WV2a	2-way valve (For Zone 1)(Local supply)
2WV2b	2-way valve (For Zone 2)(Local supply)
MXV1	Mixing valve 1(For Zone 1)(Local supply)
MXV2	Mixing valve 2(For Zone 2)(Local supply)
IHT	Thermostat (fixed temp.) for immersion heater
IH	Immersion heater
IHC	Contactor for immersion heater
TH1	Thermistor (Room temp.)(Option)
TH2	Thermistor (Ref. liquid temp.)
THW1	Thermistor (Flow water temp.)
THW2	Thermistor (Return water temp.)
THW5A	Thermistor (DHW tank upper water temp.)
THW5B	Thermistor (DHW tank lower water temp.)
THW6	Thermistor (Zone1 flow temp.)(Option)
THW7	Thermistor (Zone1 return temp.)(Option)
THW8	Thermistor (Zone2 flow temp.)(Option)
THW9	Thermistor (Zone2 return temp.)(Option)
THW10	Thermistor (Mixing tank temp.)(Option)
THWB1	Thermistor (Boiler flow temp.)(Option)
IN1	Room thermostat 1 (Local supply)
IN2	Flow switch 1 (Local supply)
IN3	Flow switch 2 (Local supply)
IN4	Demand control (Local supply)
IN5	Outdoor thermostat (Local supply)
IN6	Room thermostat 2 (Local supply)
IN7	Flow switch 3 (Local supply)
IN8	Electric energy meter 1 (Local supply)
IN9	Electric energy meter 2 (Local supply)
IN10	Heat meter (Local supply)
IN11	Smart grid ready input (Local supply)
IN12	
IN13	Forced cooling mode (Local supply)
IN15	Cooling limit temp. (Local supply)
INA1	Flow sensor
FLOW TEMP. CONTROLLER (FTC)	
TBO.1-4	Terminal block <Outputs>
TBI.1-6	Terminal block <Signal Inputs, Thermistor>
F1	Fuse (IEC T10AL250V)
F2	Fuse (IEC T6.3AL250V)
SW1-7	DIP switch *See Table 3
X1-20	Relay
LED1	Power supply (FTC)
LED2	Power supply (Main remote controller)
LED3	Communication (FTC-Outdoor unit)
LED4	Reading or writing data to microSD card
CNPWM	Pump speed control signal for MP1
CN108	microSD card connector

1. Symbols used in wiring diagram are, ⚬⚬ : connector, ▭▭▭ : terminal block. Function with asterisk (*) may not be available depending on model types.
2. Indoor unit and outdoor unit connecting wires have polarities, make sure to match terminal numbers (S1, S2, S3) for correct wirings.
3. Since the outdoor unit side electric wiring may change, be sure to check the outdoor unit electric wiring diagram for service.
4. Refer to the installation manual for the water circulation diagrams of the models other than shown below.

Table 1 Signal Inputs

Name	Terminal block	Connector	Item	OFF (Open)	ON (Short)
IN1	TBI.1 7-8	—	Room thermostat 1 input *1	Refer to SW2-1 in "6-10. DIP Switch Functions".	
IN2	TBI.1 5-6	—	Flow switch 1 input	Refer to SW2-2 in "6-10. DIP Switch Functions".	
IN3	TBI.1 3-4	—	Flow switch 2 input (Zone1)	Refer to SW3-2 in "6-10. DIP Switch Functions".	
IN4	TBI.1 1-2	—	Demand control input	Normal	Heat source OFF/ Boiler operation *3
IN5	TBI.2 7-8	—	Outdoor thermostat input *2	Standard operation	Heater operation/ Boiler operation *3
IN6	TBI.2 5-6	—	Room thermostat 2 input *1	Refer to SW3-1 in "6-10. DIP Switch Functions".	
IN7	TBI.2 3-4	—	Flow switch 3 input (Zone2)	Refer to SW3-2 in "6-10. DIP Switch Functions".	
IN8	TBI.3 7-8	—	Electric energy meter 1	Refer to installation manual.	
IN9	TBI.3 5-6	—	Electric energy meter 2		
IN10	TBI.2 1-2	—	Heat meter		
IN11	TBI.3 3-4	—	Smart grid ready input		
IN12	TBI.3 1-2	—			
IN13	TBI.4 3-4	—	Forced cooling mode *4	Refer to SW7-2 in "6-10. DIP Switch Functions".	
IN15	TBI.4 1-2	—	Cooling limit temp. *4	Refer to SW7-3 in "6-10. DIP Switch Functions".	
INA1	TBI.6 3-5	CN1A	Flow sensor	Refer to installation manual.	

*1. Set the ON/OFF cycle time of the room thermostat for 10 minutes or more; otherwise the compressor may be damaged.
*2. If using outdoor thermostat for controlling operation of heaters, the lifetime of the heaters and related parts may be reduced.
*3. To turn on the boiler operation, use the main remote controller to select "Boiler" in "External input setting" screen in the service menu.
*4. Only for ER series.

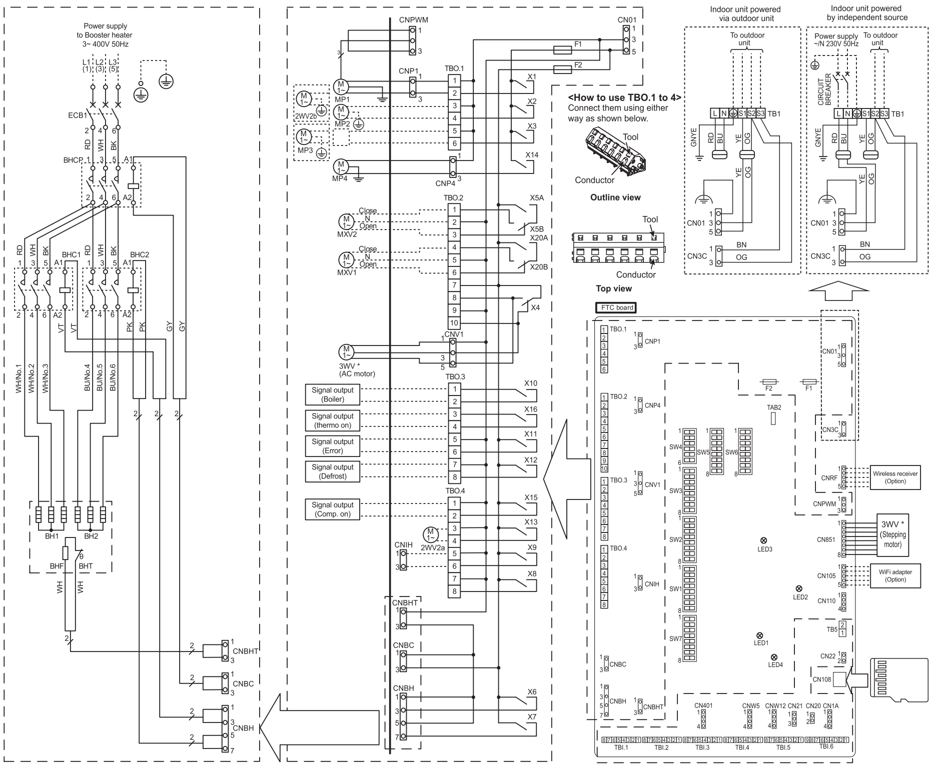
Table 2 Outputs

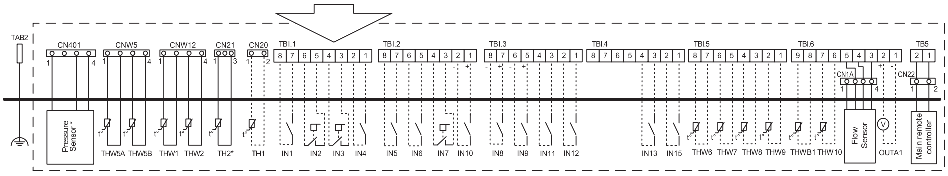
Name	Terminal block	Connector	Item	OFF	ON
OUT1	TBO.1 1-2	CNP1	Water circulation pump 1 output (Space heating/cooling & DHW)	OFF	ON
OUT2	TBO.1 3-4	—	Water circulation pump 2 output (Space heating/cooling for Zone1)	OFF	ON
OUT3	TBO.1 5-6	—	Water circulation pump 3 output (Space heating/cooling for Zone2) *1 2-way valve 2b output *2	OFF	ON
OUT4	TBO.2 7-9	—	3-way valve SPST (2-way valve 1) output	Heating	DHW
	TBO.2 8-10	CNV1	3-way valve SPDT output		
	—	CN851	3-way valve output		
OUT5	TBO.2 1-2	—	Zone 2 mixing valve output *1	Stop	Close
	TBO.2 2-3				Open
OUT6	—	CNBH 1-3	Booster heater 1 output	OFF	ON
OUT7	—	CNBH 5-7	Booster heater 2 output	OFF	ON
OUT8	TBO.4 7-8	—	Cooling signal output	OFF	ON
OUT9	TBO.4 5-6	CNIH	Immersion heater output	OFF	ON
OUT10	TBO.3 1-2	—	Boiler output	OFF	ON
OUT11	TBO.3 5-6	—	Error output	Normal	Error
OUT12	TBO.3 7-8	—	Defrost output	Normal	Defrost
OUT13	TBO.4 3-4	—	2-way valve 2a output *2	OFF	ON
OUT14	—	CNP4	Water circulation pump 4 output (DHW)	OFF	ON
OUT15	TBO.4 1-2	—	Comp. ON signal	OFF	ON
OUT16	TBO.3 3-4	—	Thermo ON signal	OFF	ON
OUT18	TBO.2 4-5	—	Zone 1 mixing valve output *1	Stop	Close
	TBO.2 5-6				Open
OUTA1	TBI.6 1-2	—	Analog output	0V-10V	

Do not connect to the terminals that are indicated as "—" in the "Terminal block" field.
*1. For 2-zone temperature control.
*2. For 2-zone valve ON/OFF control.

4 Cylinder unit

E**T***-YM9(E)E





[LEGEND]

Symbol	Name
TB1	Terminal block <Power supply, Outdoor unit>
ECB1	Earth leakage circuit breaker for booster heater
ECB2	Earth leakage circuit breaker for immersion heater
MP1	Water circulation pump 1(Space heating and DHW)
MP2	Water circulation pump 2 (Space heating for Zone1)(Local supply)
MP3	Water circulation pump 3 (Space heating for Zone2)(Local supply)
MP4	Water circulation pump 4 (DHW)
3WV	3-way valve (AC motor) (E*PT20/30X-*M**E*, E*ST**C/F-*M**E) 3-way valve (Stepping motor) (EHPT17X-*M**E*, E*ST**D-*M**E)
2WV2a	2-way valve (For Zone 1)(Local supply)
2WV2b	2-way valve (For Zone 2)(Local supply)
MXV1	Mixing valve 1(For Zone 1)(Local supply)
MXV2	Mixing valve 2(For Zone 2)(Local supply)
IHT	Thermostat (fixed temp.) for immersion heater
IH	Immersion heater
IHC	Contactor for immersion heater
TH1	Thermistor (Room temp.)(Option)
TH2	Thermistor (Ref. liquid temp.)
THW1	Thermistor (Flow water temp.)
THW2	Thermistor (Return water temp.)
THW5A	Thermistor (DHW tank upper water temp.)
THW5B	Thermistor (DHW tank lower water temp.)
THW6	Thermistor (Zone1 flow temp.)(Option)
THW7	Thermistor (Zone1 return temp.)(Option)
THW8	Thermistor (Zone2 flow temp.)(Option)
THW9	Thermistor (Zone2 return temp.)(Option)
THW10	Thermistor (Mixing tank temp.)(Option)
THWB1	Thermistor (Boiler flow temp.)(Option)
IN1	Room thermostat 1 (Local supply)
IN2	Flow switch 1 (Local supply)
IN3	Flow switch 2 (Local supply)
IN4	Demand control (Local supply)
IN5	Outdoor thermostat (Local supply)
IN6	Room thermostat 2 (Local supply)
IN7	Flow switch 3 (Local supply)
IN8	Electric energy meter 1 (Local supply)
IN9	Electric energy meter 2 (Local supply)
IN10	Heat meter (Local supply)
IN11	Smart grid ready input (Local supply)
IN12	
IN13	Forced cooling mode (Local supply)
IN15	Cooling limit temp. (Local supply)
INA1	Flow sensor
FLOW TEMP. CONTROLLER (FTC)	
TBO.1-4	Terminal block <Outputs>
TBI.1-6	Terminal block <Signal Inputs, Thermistor>
F1	Fuse (IEC T10AL250V)
F2	Fuse (IEC T6.3AL250V)
SW1-7	DIP switch *See Table 3
X1-20	Relay
LED1	Power supply (FTC)
LED2	Power supply (Main remote controller)
LED3	Communication (FTC-Outdoor unit)
LED4	Reading or writing data to microSD card
CNPWM	Pump speed control signal for MP1
CN108	microSD card connector

1. Symbols used in wiring diagram are, ⚬⚬ : connector, ▭▭▭ : terminal block. Function with asterisk (*) may not be available depending on model types.
2. Indoor unit and outdoor unit connecting wires have polarities, make sure to match terminal numbers (S1, S2, S3) for correct wirings.
3. Since the outdoor unit side electric wiring may change, be sure to check the outdoor unit electric wiring diagram for service.
4. Refer to the installation manual for the water circulation diagrams of the models other than shown below.

Table 1 Signal Inputs

Name	Terminal block	Connector	Item	OFF (Open)	ON (Short)
IN1	TBI.1 7-8	—	Room thermostat 1 input *1	Refer to SW2-1 in "6-10. DIP Switch Functions".	
IN2	TBI.1 5-6	—	Flow switch 1 input	Refer to SW2-2 in "6-10. DIP Switch Functions".	
IN3	TBI.1 3-4	—	Flow switch 2 input (Zone1)	Refer to SW3-2 in "6-10. DIP Switch Functions".	
IN4	TBI.1 1-2	—	Demand control input	Normal	Heat source OFF/ Boiler operation *3
IN5	TBI.2 7-8	—	Outdoor thermo-stat input *2	Standard opera-tion	Heater operation/ Boiler operation *3
IN6	TBI.2 5-6	—	Room thermostat 2 input *1	Refer to SW3-1 in "6-10. DIP Switch Functions".	
IN7	TBI.2 3-4	—	Flow switch 3 input (Zone2)	Refer to SW3-2 in "6-10. DIP Switch Functions".	
IN8	TBI.3 7-8	—	Electric energy meter 1	Refer to installation manual.	
IN9	TBI.3 5-6	—	Electric energy meter 2		
IN10	TBI.2 1-2	—	Heat meter		
IN11	TBI.3 3-4	—	Smart grid ready input		
IN12	TBI.3 1-2	—			
IN13	TBI.4 3-4	—	Forced cooling mode *4	Refer to SW7-2 in "6-10. DIP Switch Functions".	
IN15	TBI.4 1-2	—	Cooling limit temp. *4	Refer to SW7-3 in "6-10. DIP Switch Functions".	
INA1	TBI.6 3-5	CN1A	Flow sensor	Refer to installation manual.	

*1. Set the ON/OFF cycle time of the room thermostat for 10 minutes or more; otherwise the compressor may be damaged.

*2. If using outdoor thermostat for controlling operation of heaters, the lifetime of the heaters and related parts may be reduced.

*3. To turn on the boiler operation, use the main remote controller to select "Boiler" in "External input setting" screen in the service menu.

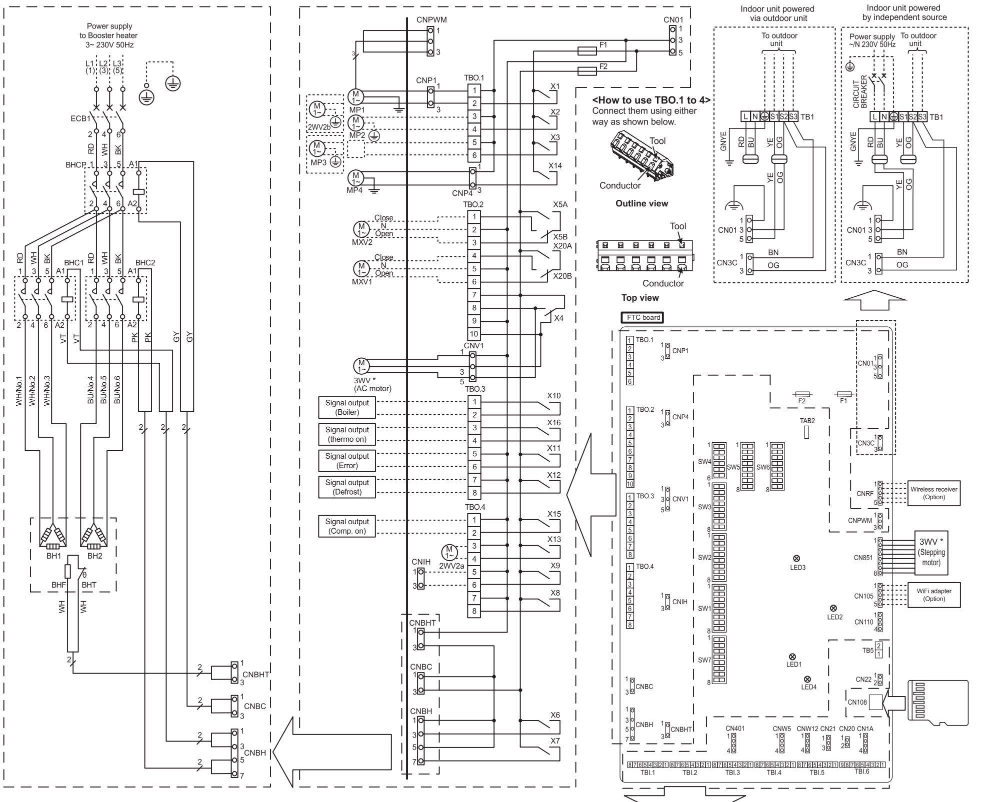
*4. Only for ER series.

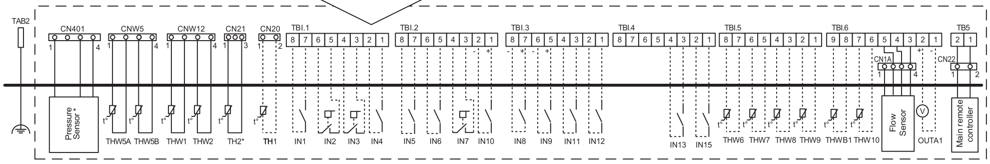
Table 2 Outputs

Name	Terminal block	Connector	Item	OFF	ON
OUT1	TBO.1 1-2	CNP1	Water circulation pump 1 output (Space heating/cooling & DHW)	OFF	ON
OUT2	TBO.1 3-4	—	Water circulation pump 2 output (Space heating/cooling for Zone1)	OFF	ON
OUT3	TBO.1 5-6	—	Water circulation pump 3 output (Space heating/cooling for Zone2) *1	OFF	ON
			2-way valve 2b output *2		
OUT4	TBO.2 7-9	—	3-way valve SPST (2-way valve 1) output	Heating	DHW
	TBO.2 8-10	CNV1	3-way valve SPDT output		
	—	CN851	3-way valve output		
OUT5	TBO.2 1-2	—	Zone 2 mixing valve output *1	Stop	Close
	TBO.2 2-3				Open
OUT6	—	CNBH 1-3	Booster heater 1 output	OFF	ON
OUT7	—	CNBH 5-7	Booster heater 2 output	OFF	ON
OUT8	TBO.4 7-8	—	Cooling signal output	OFF	ON
OUT9	TBO.4 5-6	CNIH	Immersion heater output	OFF	ON
OUT10	TBO.3 1-2	—	Boiler output	OFF	ON
OUT11	TBO.3 5-6	—	Error output	Normal	Error
OUT12	TBO.3 7-8	—	Defrost output	Normal	Defrost
OUT13	TBO.4 3-4	—	2-way valve 2a output *2	OFF	ON
OUT14	—	CNP4	Water circulation pump 4 output (DHW)	OFF	ON
OUT15	TBO.4 1-2	—	Comp. ON signal	OFF	ON
OUT16	TBO.3 3-4	—	Thermo ON signal	OFF	ON
OUT18	TBO.2 4-5	—	Zone 1 mixing valve output *1	Stop	Close
	TBO.2 5-6				Open
OUTA1	TBI.6 1-2	—	Analog output	0V-10V	

Do not connect to the terminals that are indicated as "—" in the "Terminal block" field.
*1. For 2-zone temperature control.
*2. For 2-zone valve ON/OFF control.

EH*T***-TM9(E)E





[LEGEND]

Symbol	Name
TB1	Terminal block <Power supply, Outdoor unit>
ECB1	Earth leakage circuit breaker for booster heater
ECB2	Earth leakage circuit breaker for immersion heater
MP1	Water circulation pump 1(Space heating and DHW)
MP2	Water circulation pump 2 (Space heating for Zone1)(Local supply)
MP3	Water circulation pump 3 (Space heating for Zone2)(Local supply)
MP4	Water circulation pump 4 (DHW)
3WV	3-way valve (AC motor) (E*PT20/30X-*M**E*, E*ST**C/F-*M**E) 3-way valve (Stepping motor) (EHPT17X-*M**E*, E*ST**D-*M**E)
2WV2a	2-way valve (For Zone 1)(Local supply)
2WV2b	2-way valve (For Zone 2)(Local supply)
MXV1	Mixing valve 1(For Zone 1)(Local supply)
MXV2	Mixing valve 2(For Zone 2)(Local supply)
IHT	Thermostat (fixed temp.) for immersion heater
IH	Immersion heater
IHC	Contactor for immersion heater
TH1	Thermistor (Room temp.)(Option)
TH2	Thermistor (Ref. liquid temp.)
THW1	Thermistor (Flow water temp.)
THW2	Thermistor (Return water temp.)
THW5A	Thermistor (DHW tank upper water temp.)
THW5B	Thermistor (DHW tank lower water temp.)
THW6	Thermistor (Zone1 flow temp.)(Option)
THW7	Thermistor (Zone1 return temp.)(Option)
THW8	Thermistor (Zone2 flow temp.)(Option)
THW9	Thermistor (Zone2 return temp.)(Option)
THW10	Thermistor (Mixing tank temp.)(Option)
THWB1	Thermistor (Boiler flow temp.)(Option)
IN1	Room thermostat 1 (Local supply)
IN2	Flow switch 1 (Local supply)
IN3	Flow switch 2 (Local supply)
IN4	Demand control (Local supply)
IN5	Outdoor thermostat (Local supply)
IN6	Room thermostat 2 (Local supply)
IN7	Flow switch 3 (Local supply)
IN8	Electric energy meter 1 (Local supply)
IN9	Electric energy meter 2 (Local supply)
IN10	Heat meter (Local supply)
IN11	Smart grid ready input (Local supply)
IN12	
IN13	Forced cooling mode (Local supply)
IN15	Cooling limit temp. (Local supply)
INA1	Flow sensor
FLOW TEMP. CONTROLLER (FTC)	
TBO.1-4	Terminal block <Outputs>
TBI.1-6	Terminal block <Signal Inputs, Thermistor>
F1	Fuse (IEC T10AL250V)
F2	Fuse (IEC T6.3AL250V)
SW1-7	DIP switch *See Table 3
X1-20	Relay
LED1	Power supply (FTC)
LED2	Power supply (Main remote controller)
LED3	Communication (FTC-Outdoor unit)
LED4	Reading or writing data to microSD card
CNPWM	Pump speed control signal for MP1
CN108	microSD card connector

1. Symbols used in wiring diagram are, ○○ : connector, ☐☐☐ : terminal block. Function with asterisk (*) may not be available depending on model types.
2. Indoor unit and outdoor unit connecting wires have polarities, make sure to match terminal numbers (S1, S2, S3) for correct wirings.
3. Since the outdoor unit side electric wiring may change, be sure to check the outdoor unit electric wiring diagram for service.
4. Refer to the installation manual for the water circulation diagrams of the models other than shown below.

Table 1 Signal Inputs

Name	Terminal block	Connector	Item	OFF (Open)	ON (Short)
IN1	TBI.1 7-8	—	Room thermostat 1 input *1	Refer to SW2-1 in "6-10. DIP Switch Functions".	
IN2	TBI.1 5-6	—	Flow switch 1 input	Refer to SW2-2 in "6-10. DIP Switch Functions".	
IN3	TBI.1 3-4	—	Flow switch 2 input (Zone1)	Refer to SW3-2 in "6-10. DIP Switch Functions".	
IN4	TBI.1 1-2	—	Demand control input	Normal	Heat source OFF/ Boiler operation *3
IN5	TBI.2 7-8	—	Outdoor thermostat input *2	Standard operation	Heater operation/ Boiler operation *3
IN6	TBI.2 5-6	—	Room thermostat 2 input *1	Refer to SW3-1 in "6-10. DIP Switch Functions".	
IN7	TBI.2 3-4	—	Flow switch 3 input (Zone2)	Refer to SW3-2 in "6-10. DIP Switch Functions".	
IN8	TBI.3 7-8	—	Electric energy meter 1	Refer to installation manual.	
IN9	TBI.3 5-6	—	Electric energy meter 2		
IN10	TBI.2 1-2	—	Heat meter		
IN11	TBI.3 3-4	—	Smart grid ready input		
IN12	TBI.3 1-2	—			
IN13	TBI.4 3-4	—	Forced cooling mode *4	Refer to SW7-2 in "6-10. DIP Switch Functions".	
IN15	TBI.4 1-2	—	Cooling limit temp. *4	Refer to SW7-3 in "6-10. DIP Switch Functions".	
INA1	TBI.6 3-5	CN1A	Flow sensor	Refer to installation manual.	

*1. Set the ON/OFF cycle time of the room thermostat for 10 minutes or more; otherwise the compressor may be damaged.
*2. If using outdoor thermostat for controlling operation of heaters, the lifetime of the heaters and related parts may be reduced.
*3. To turn on the boiler operation, use the main remote controller to select "Boiler" in "External input setting" screen in the service menu.
*4. Only for ER series.

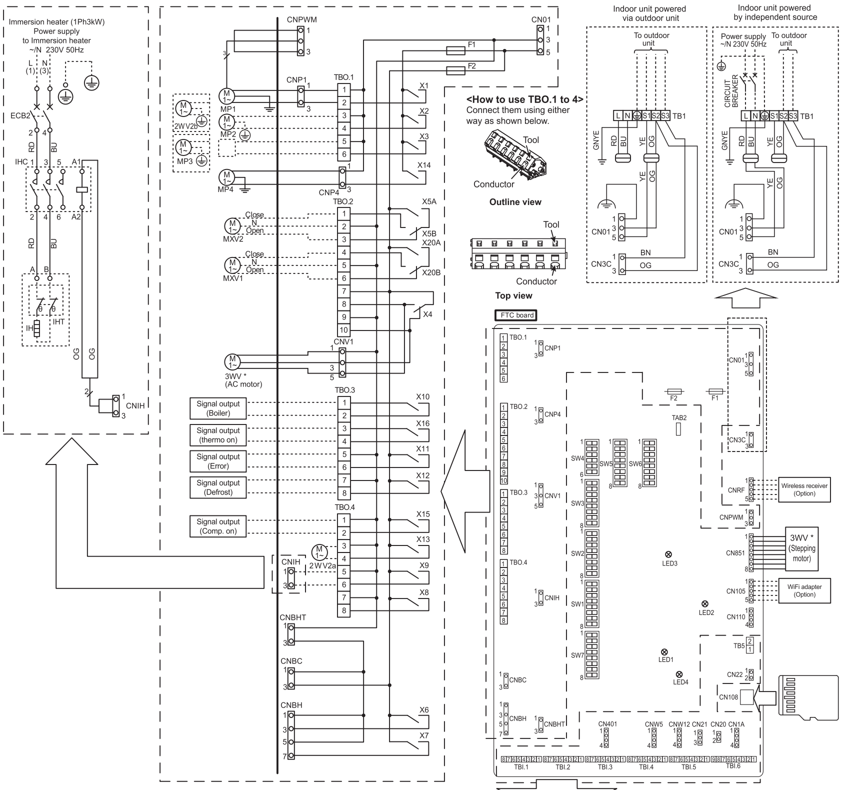
Table 2 Outputs

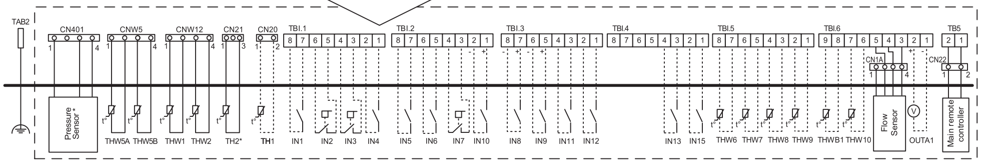
Name	Terminal block	Connector	Item	OFF	ON
OUT1	TBO.1 1-2	CNP1	Water circulation pump 1 output (Space heating/cooling & DHW)	OFF	ON
OUT2	TBO.1 3-4	—	Water circulation pump 2 output (Space heating/cooling for Zone1)	OFF	ON
OUT3	TBO.1 5-6	—	Water circulation pump 3 output (Space heating/cooling for Zone2) *1 2-way valve 2b output *2	OFF	ON
OUT4	TBO.2 7-9	—	3-way valve SPST (2-way valve 1) output	Heating	DHW
	TBO.2 8-10	CNV1	3-way valve SPDT output		
	—	CN851	3-way valve output		
OUT5	TBO.2 1-2	—	Zone 2 mixing valve output *1	Stop	Close
	TBO.2 2-3				Open
OUT6	—	CNBH 1-3	Booster heater 1 output	OFF	ON
OUT7	—	CNBH 5-7	Booster heater 2 output	OFF	ON
OUT8	TBO.4 7-8	—	Cooling signal output	OFF	ON
OUT9	TBO.4 5-6	CNIH	Immersion heater output	OFF	ON
OUT10	TBO.3 1-2	—	Boiler output	OFF	ON
OUT11	TBO.3 5-6	—	Error output	Normal	Error
OUT12	TBO.3 7-8	—	Defrost output	Normal	Defrost
OUT13	TBO.4 3-4	—	2-way valve 2a output *2	OFF	ON
OUT14	—	CNP4	Water circulation pump 4 output (DHW)	OFF	ON
OUT15	TBO.4 1-2	—	Comp. ON signal	OFF	ON
OUT16	TBO.3 3-4	—	Thermo ON signal	OFF	ON
OUT18	TBO.2 4-5	—	Zone 1 mixing valve output *1	Stop	Close
	TBO.2 5-6				Open
OUTA1	TBI.6 1-2	—	Analog output	0V-10V	

Do not connect to the terminals that are indicated as "—" in the "Terminal block" field.
*1. For 2-zone temperature control.
*2. For 2-zone valve ON/OFF control.

4 Cylinder unit

■ EHPT20X-MEHEW





[LEGEND]

Symbol	Name
TB1	Terminal block <Power supply, Outdoor unit>
ECB1	Earth leakage circuit breaker for booster heater
ECB2	Earth leakage circuit breaker for immersion heater
MP1	Water circulation pump 1(Space heating and DHW)
MP2	Water circulation pump 2 (Space heating for Zone1)(Local supply)
MP3	Water circulation pump 3 (Space heating for Zone2)(Local supply)
MP4	Water circulation pump 4 (DHW)
3WV	3-way valve (AC motor) (E*PT20/30X-*M**E*, E*ST**C/F-*M**E) 3-way valve (Stepping motor) (EHPT17X-*M**E*, E*ST**D-*M**E)
2WV2a	2-way valve (For Zone 1)(Local supply)
2WV2b	2-way valve (For Zone 2)(Local supply)
MXV1	Mixing valve 1(For Zone 1)(Local supply)
MXV2	Mixing valve 2(For Zone 2)(Local supply)
IHT	Thermostat (fixed temp.) for immersion heater
IH	Immersion heater
IHC	Contactor for immersion heater
TH1	Thermistor (Room temp.)(Option)
TH2	Thermistor (Ref. liquid temp.)
THW1	Thermistor (Flow water temp.)
THW2	Thermistor (Return water temp.)
THW5A	Thermistor (DHW tank upper water temp.)
THW5B	Thermistor (DHW tank lower water temp.)
THW6	Thermistor (Zone1 flow temp.)(Option)
THW7	Thermistor (Zone1 return temp.)(Option)
THW8	Thermistor (Zone2 flow temp.)(Option)
THW9	Thermistor (Zone2 return temp.)(Option)
THW10	Thermistor (Mixing tank temp.)(Option)
THWB1	Thermistor (Boiler flow temp.)(Option)
IN1	Room thermostat 1 (Local supply)
IN2	Flow switch 1 (Local supply)
IN3	Flow switch 2 (Local supply)
IN4	Demand control (Local supply)
IN5	Outdoor thermostat (Local supply)
IN6	Room thermostat 2 (Local supply)
IN7	Flow switch 3 (Local supply)
IN8	Electric energy meter 1 (Local supply)
IN9	Electric energy meter 2 (Local supply)
IN10	Heat meter (Local supply)
IN11	Smart grid ready input (Local supply)
IN12	
IN13	Forced cooling mode (Local supply)
IN15	Cooling limit temp. (Local supply)
INA1	Flow sensor
FLOW TEMP. CONTROLLER (FTC)	
TBO.1-4	Terminal block <Outputs>
TBI.1-6	Terminal block <Signal Inputs, Thermistor>
F1	Fuse (IEC T10AL250V)
F2	Fuse (IEC T6.3AL250V)
SW1-7	DIP switch *See Table 3
X1-20	Relay
LED1	Power supply (FTC)
LED2	Power supply (Main remote controller)
LED3	Communication (FTC-Outdoor unit)
LED4	Reading or writing data to microSD card
CNPWM	Pump speed control signal for MP1
CN108	microSD card connector

1. Symbols used in wiring diagram are, ⊡⊡ : connector, ▭▭▭ : terminal block. Function with asterisk (*) may not be available depending on model types.
2. Indoor unit and outdoor unit connecting wires have polarities, make sure to match terminal numbers (S1, S2, S3) for correct wirings.
3. Since the outdoor unit side electric wiring may change, be sure to check the outdoor unit electric wiring diagram for service.

Table 1 Signal Inputs

Name	Terminal block	Connector	Item	OFF (Open)	ON (Short)
IN1	TBI.1 7-8	—	Room thermostat 1 input *1	Refer to SW2-1 in "6-10. DIP Switch Functions".	
IN2	TBI.1 5-6	—	Flow switch 1 input	Refer to SW2-2 in "6-10. DIP Switch Functions".	
IN3	TBI.1 3-4	—	Flow switch 2 input (Zone1)	Refer to SW3-2 in "6-10. DIP Switch Functions".	
IN4	TBI.1 1-2	—	Demand control input	Normal	Heat source OFF/ Boiler operation *3
IN5	TBI.2 7-8	—	Outdoor thermostat input *2	Standard operation	Heater operation/ Boiler operation *3
IN6	TBI.2 5-6	—	Room thermostat 2 input *1	Refer to SW3-1 in "6-10. DIP Switch Functions".	
IN7	TBI.2 3-4	—	Flow switch 3 input (Zone2)	Refer to SW3-2 in "6-10. DIP Switch Functions".	
IN8	TBI.3 7-8	—	Electric energy meter 1	Refer to installation manual.	
IN9	TBI.3 5-6	—	Electric energy meter 2		
IN10	TBI.2 1-2	—	Heat meter		
IN11	TBI.3 3-4	—	Smart grid ready input		
IN12	TBI.3 1-2	—			
IN13	TBI.4 3-4	—	Forced cooling mode *4	Refer to SW7-2 in "6-10. DIP Switch Functions".	
IN15	TBI.4 1-2	—	Cooling limit temp. *4	Refer to SW7-3 in "6-10. DIP Switch Functions".	
INA1	TBI.6 3-5	CN1A	Flow sensor	Refer to installation manual.	

*1. Set the ON/OFF cycle time of the room thermostat for 10 minutes or more; otherwise the compressor may be damaged.
*2. If using outdoor thermostat for controlling operation of heaters, the lifetime of the heaters and related parts may be reduced.
*3. To turn on the boiler operation, use the main remote controller to select "Boiler" in "External input setting" screen in the service menu.
*4. Only for ER series.

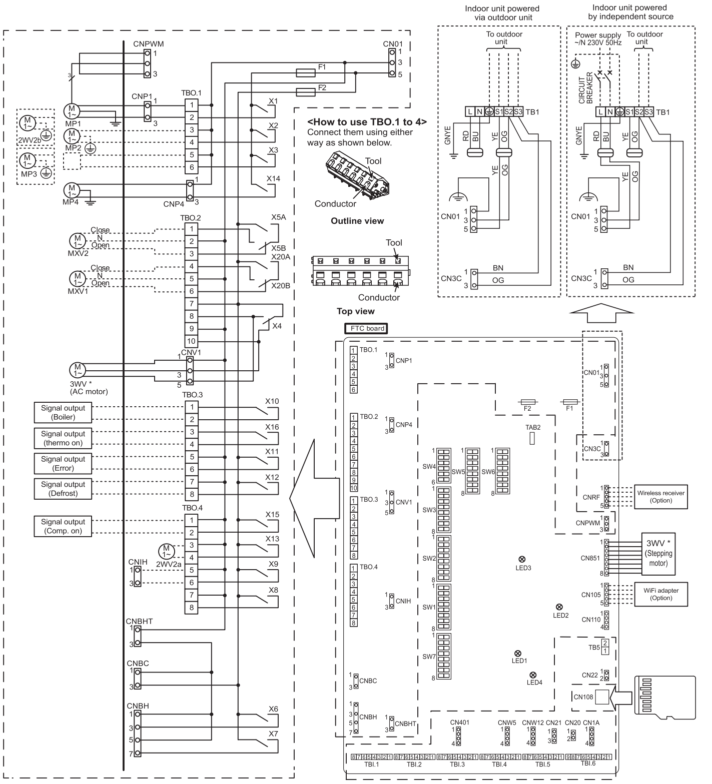
Table 2 Outputs

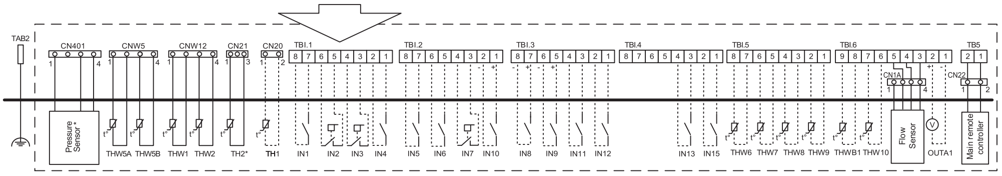
Name	Terminal block	Connector	Item	OFF	ON
OUT1	TBO.1 1-2	CNP1	Water circulation pump 1 output (Space heating/cooling & DHW)	OFF	ON
OUT2	TBO.1 3-4	—	Water circulation pump 2 output (Space heating/cooling for Zone1)	OFF	ON
OUT3	TBO.1 5-6	—	Water circulation pump 3 output (Space heating/cooling for Zone2) *1	OFF	ON
			2-way valve 2b output *2		
OUT4	TBO.2 7-9	—	3-way valve SPST (2-way valve 1) output	Heating	DHW
	TBO.2 8-10	CNV1	3-way valve SPDT output		
	—	CN851	3-way valve output		
OUT5	TBO.2 1-2	—	Zone 2 mixing valve output *1	Stop	Close
	TBO.2 2-3				Open
OUT6	—	CNBH 1-3	Booster heater 1 output	OFF	ON
OUT7	—	CNBH 5-7	Booster heater 2 output	OFF	ON
OUT8	TBO.4 7-8	—	Cooling signal output	OFF	ON
OUT9	TBO.4 5-6	CNIH	Immersion heater output	OFF	ON
OUT10	TBO.3 1-2	—	Boiler output	OFF	ON
OUT11	TBO.3 5-6	—	Error output	Normal	Error
OUT12	TBO.3 7-8	—	Defrost output	Normal	Defrost
OUT13	TBO.4 3-4	—	2-way valve 2a output *2	OFF	ON
OUT14	—	CNP4	Water circulation pump 4 output (DHW)	OFF	ON
OUT15	TBO.4 1-2	—	Comp. ON signal	OFF	ON
OUT16	TBO.3 3-4	—	Thermo ON signal	OFF	ON
OUT18	TBO.2 4-5	—	Zone 1 mixing valve output *1	Stop	Close
	TBO.2 5-6				Open
OUTA1	TBI.6 1-2	—	Analog output	0V-10V	

Do not connect to the terminals that are indicated as "—" in the "Terminal block" field.
*1. For 2-zone temperature control.
*2. For 2-zone valve ON/OFF control.

4 Cylinder unit

■ E**T***-M(E)E





[LEGEND]

Symbol	Name
TB1	Terminal block <Power supply, Outdoor unit>
ECB1	Earth leakage circuit breaker for booster heater
ECB2	Earth leakage circuit breaker for immersion heater
MP1	Water circulation pump 1(Space heating and DHW)
MP2	Water circulation pump 2 (Space heating for Zone1)(Local supply)
MP3	Water circulation pump 3 (Space heating for Zone2)(Local supply)
MP4	Water circulation pump 4 (DHW)
3WV	3-way valve (AC motor) (E*PT20/30X-*M**E*, E*ST**C/F-*M**E) 3-way valve (Stepping motor) (EHPT17X-*M**E*, E*ST**D-*M**E)
2WV2a	2-way valve (For Zone 1)(Local supply)
2WV2b	2-way valve (For Zone 2)(Local supply)
MXV1	Mixing valve 1 (For Zone 1)(Local supply)
MXV2	Mixing valve 2 (For Zone 2)(Local supply)
IHT	Thermostat (fixed temp.) for immersion heater
IH	Immersion heater
IHC	Contactor for immersion heater
TH1	Thermistor (Room temp.)(Option)
TH2	Thermistor (Ref. liquid temp.)
THW1	Thermistor (Flow water temp.)
THW2	Thermistor (Return water temp.)
THW5A	Thermistor (DHW tank upper water temp.)
THW5B	Thermistor (DHW tank lower water temp.)
THW6	Thermistor (Zone1 flow temp.)(Option)
THW7	Thermistor (Zone1 return temp.)(Option)
THW8	Thermistor (Zone2 flow temp.)(Option)
THW9	Thermistor (Zone2 return temp.)(Option)
THW10	Thermistor (Mixing tank temp.)(Option)
THWB1	Thermistor (Boiler flow temp.)(Option)
IN1	Room thermostat 1 (Local supply)
IN2	Flow switch 1 (Local supply)
IN3	Flow switch 2 (Local supply)
IN4	Demand control (Local supply)
IN5	Outdoor thermostat (Local supply)
IN6	Room thermostat 2 (Local supply)
IN7	Flow switch 3 (Local supply)
IN8	Electric energy meter 1 (Local supply)
IN9	Electric energy meter 2 (Local supply)
IN10	Heat meter (Local supply)
IN11	Smart grid ready input (Local supply)
IN12	
IN13	Forced cooling mode (Local supply)
IN15	Cooling lower limit temperature input (Local supply)
INA1	Flow sensor
FLOW TEMP. CONTROLLER (FTC)	
TBO.1-4	Terminal block <Outputs>
TBI.1-6	Terminal block <Signal Inputs, Thermistor>
F1	Fuse (IEC T10AL250V)
F2	Fuse (IEC T6.3AL250V)
SW1-7	DIP switch *See Table 3
X1-20	Relay
LED1	Power supply (FTC)
LED2	Power supply (Main remote controller)
LED3	Communication (FTC-Outdoor unit)
LED4	Reading or writing data to microSD card
CNPWM	Pump speed control signal for MP1
CN108	microSD card connector

1. Symbols used in wiring diagram are, ○○ : connector, ☐☐☐ : terminal block. Function with asterisk (*) may not be available depending on model types.
2. Indoor unit and outdoor unit connecting wires have polarities, make sure to match terminal numbers (S1, S2, S3) for correct wirings.
3. Since the outdoor unit side electric wiring may change, be sure to check the outdoor unit electric wiring diagram for service.
4. Refer to the installation manual for the water circulation diagrams of the models other than shown below.

Table 1 Signal Inputs

Name	Terminal block	Connector	Item	OFF (Open)	ON (Short)
IN1	TBI.1 7-8	—	Room thermostat 1 input *1	Refer to SW2-1 in "6-10. DIP Switch Functions".	
IN2	TBI.1 5-6	—	Flow switch 1 input	Refer to SW2-2 in "6-10. DIP Switch Functions".	
IN3	TBI.1 3-4	—	Flow switch 2 input (Zone1)	Refer to SW3-2 in "6-10. DIP Switch Functions".	
IN4	TBI.1 1-2	—	Demand control input	Normal	Heat source OFF/ Boiler operation *3
IN5	TBI.2 7-8	—	Outdoor thermostat input *2	Standard operation	Heater operation/ Boiler operation *3
IN6	TBI.2 5-6	—	Room thermostat 2 input *1	Refer to SW3-1 in "6-10. DIP Switch Functions".	
IN7	TBI.2 3-4	—	Flow switch 3 input (Zone2)	Refer to SW3-2 in "6-10. DIP Switch Functions".	
IN8	TBI.3 7-8	—	Electric energy meter 1	Refer to installation manual.	
IN9	TBI.3 5-6	—	Electric energy meter 2		
IN10	TBI.2 1-2	—	Heat meter		
IN11	TBI.3 3-4	—	Smart grid ready input		
IN12	TBI.3 1-2	—			
IN13	TBI.4 3-4	—	Forced cooling mode	Refer to SW7-2 in "6-10. DIP Switch Functions".	
IN15	TBI.4 1-2	—	Cooling lower limit temperature input	Refer to SW7-3 in "6-10. DIP Switch Functions".	
INA1	TBI.6 3-5	CN1A	Flow sensor	Refer to installation manual.	

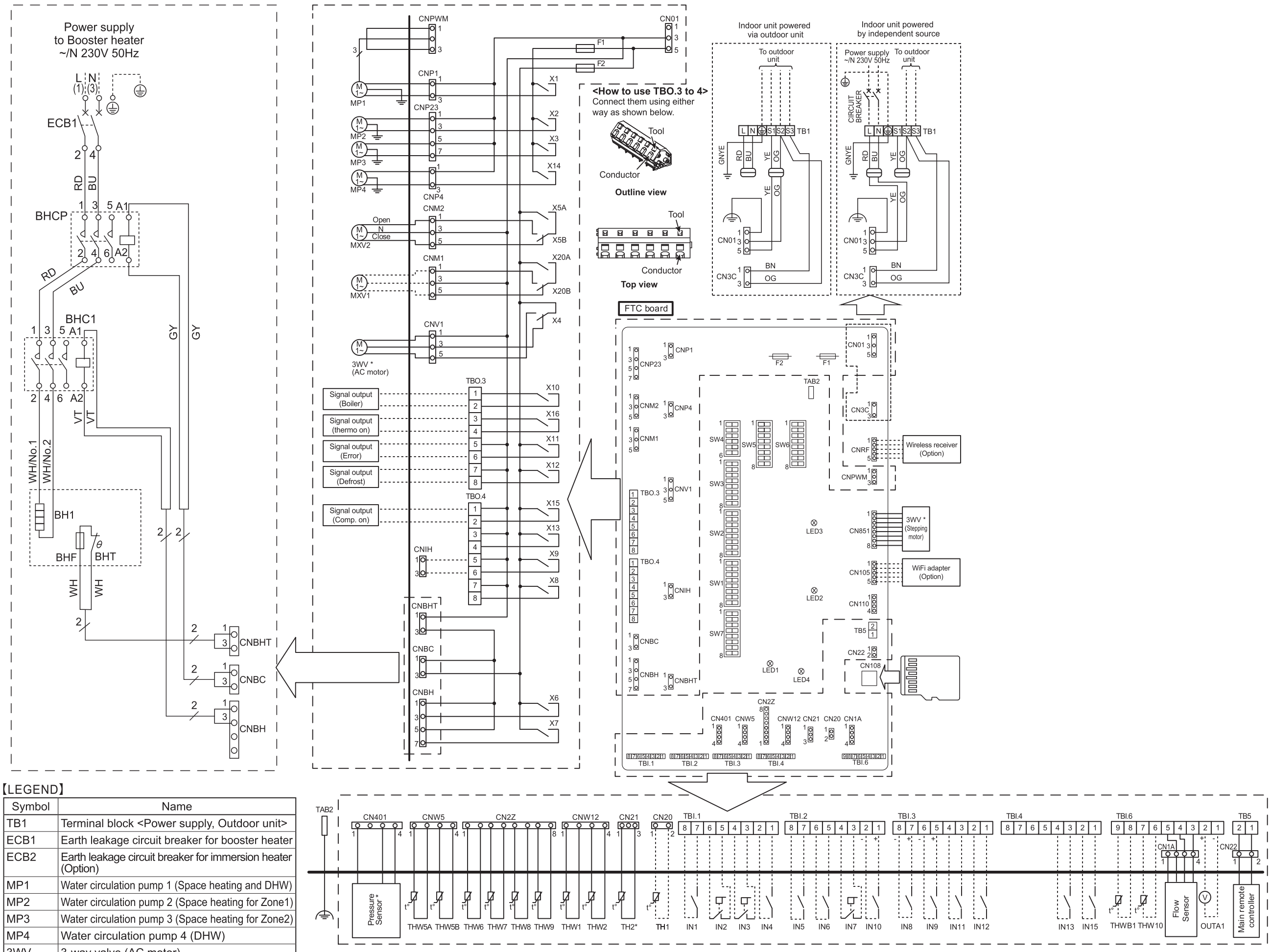
*1. Set the ON/OFF cycle time of the room thermostat for 10 minutes or more; otherwise the compressor may be damaged.
*2. If using outdoor thermostat for controlling operation of heaters, the lifetime of the heaters and related parts may be reduced.
*3. To turn on the boiler operation, use the main remote controller to select "Boiler" in "External input setting" screen in the service menu.

Table 2 Outputs

Name	Terminal block	Connector	Item	OFF	ON
OUT1	TBO.1 1-2	CNP1	Water circulation pump 1 output (Space heating/cooling & DHW)	OFF	ON
OUT2	TBO.1 3-4	—	Water circulation pump 2 output (Space heating/cooling for Zone1)	OFF	ON
OUT3	TBO.1 5-6	—	Water circulation pump 3 output (Space heating/cooling for Zone2) *1 2-way valve 2b output *2	OFF	ON
OUT4	TBO.2 7-9	—	3-way valve SPST (2-way valve 1) output	Heating	DHW
	TBO.2 8-10	CNV1	3-way valve SPDT output		
	—	CN851	3-way valve output		
OUT5	TBO.2 1-2	—	Zone 2 mixing valve output *1	Stop	Close
	TBO.2 2-3				Open
OUT6	—	CNBH 1-3	Booster heater 1 output	OFF	ON
OUT7	—	CNBH 5-7	Booster heater 2 output	OFF	ON
OUT8	TBO.4 7-8	—	Cooling signal output	OFF	ON
OUT9	TBO.4 5-6	CNIH	Immersion heater output	OFF	ON
OUT10	TBO.3 1-2	—	Boiler output	OFF	ON
OUT11	TBO.3 5-6	—	Error output	Normal	Error
OUT12	TBO.3 7-8	—	Defrost output	Normal	Defrost
OUT13	TBO.4 3-4	—	2-way valve 2a output *2	OFF	ON
OUT14	—	CNP4	Water circulation pump 4 output (DHW)	OFF	ON
OUT15	TBO.4 1-2	—	Comp. ON signal	OFF	ON
OUT16	TBO.3 3-4	—	Thermo ON signal	OFF	ON

Do not connect to the terminals that are indicated as "—" in the "Terminal block" field.
*1. For 2-zone temperature control.
*2. For 2-zone valve ON/OFF control.

ERST17D-VM2BE



【LEGEND】

Symbol	Name
TB1	Terminal block <Power supply, Outdoor unit>
ECB1	Earth leakage circuit breaker for booster heater
ECB2	Earth leakage circuit breaker for immersion heater (Option)
MP1	Water circulation pump 1 (Space heating and DHW)
MP2	Water circulation pump 2 (Space heating for Zone1)
MP3	Water circulation pump 3 (Space heating for Zone2)
MP4	Water circulation pump 4 (DHW)
3WV	3-way valve (AC motor) (E*PT20/30X-*M**E*, E*ST**C/F-*M**E) 3-way valve (Stepping motor) (EHPT17X-*M**E*, E*ST17/20D-*M**E)
MXV1	Mixing valve 1 (For Zone 1)(Local supply)
MXV2	Mixing valve 2 (For Zone 2)(Local supply)
IHT	Thermostat (fixed temp.) for immersion heater (Option)
IH	Immersion heater (Option)
IHC	Contactor for immersion heater (Option)
TH1	Thermistor (Room temp.) (Option)
TH2	Thermistor (Ref. liquid temp.)
THW1	Thermistor (Flow water temp.)
THW2	Thermistor (Return water temp.)
THW5A	Thermistor (DHW tank upper water temp.)
THW5B	Thermistor (DHW tank lower water temp.)
THW6	Thermistor (Zone1 flow temp.)
THW7	Thermistor (Zone1 return temp.)
THW8	Thermistor (Zone2 flow temp.)
THW9	Thermistor (Zone2 return temp.)
THW10	Thermistor (Mixing tank temp.) (Option)
THWB1	Thermistor (Boiler flow temp.) (Option)
IN1	Room thermostat 1 (Local supply)
IN2	Flow switch 1 (Local supply)
IN3	Flow switch 2 (Local supply)
IN4	Demand control (Local supply)
IN5	Outdoor thermostat (Local supply)
IN6	Room thermostat 2 (Local supply)
IN7	Flow switch 3 (Local supply)
IN8	Electric energy meter 1 (Local supply)
IN9	Electric energy meter 2 (Local supply)
IN10	Heat meter (Local supply)
IN11	Smart grid ready input (Local supply)
IN12	
IN13	Forced cooling mode (Local supply)
IN15	Cooling lower limit temperature input (Local supply)
INA1	Flow sensor
FLOW TEMP. CONTROLLER (FTC)	
TBO.3-4	Terminal block <Outputs>
TBI.1-6	Terminal block <Signal Inputs, Thermistor>
F1	Fuse (IEC T10AL250V)
F2	Fuse (IEC T6.3AL250V)
SW1-7	DIP switch *See Table 3
X1-20	Relay
LED1	Power supply (FTC)
LED2	Power supply (Main remote controller)
LED3	Communication (FTC-Outdoor unit)
LED4	Reading or writing data to microSD card
CNPWM	Pump speed control signal for MP1
CN108	microSD card connector

1. Symbols used in wiring diagram are, ○○ : connector, ☐☐☐ : terminal block. Function with asterisk (*) may not be available depending on model types.
2. Indoor unit and outdoor unit connecting wires have polarities, make sure to match terminal numbers (S1, S2, S3) for correct wirings.
3. Since the outdoor unit side electric wiring may change, be sure to check the outdoor unit electric wiring diagram for service.
4. Refer to the installation manual for the water circulation diagrams of the models other than shown below.

Table 1 Signal Inputs

Name	Terminal block	Connector	Item	OFF (Open)	ON (Short)
IN1	TBI.1 7-8	—	Room thermostat 1 input *1	Refer to SW2-1 in "6-10. DIP Switch Functions".	
IN2	TBI.1 5-6	—	Flow switch 1 input	Refer to SW2-2 in "6-10. DIP Switch Functions".	
IN3	TBI.1 3-4	—	Flow switch 2 input (Zone1)	Refer to SW3-2 in "6-10. DIP Switch Functions".	
IN4	TBI.1 1-2	—	Demand control input	Normal	Heat source OFF/ Boiler operation *3
IN5	TBI.2 7-8	—	Outdoor thermostat input *2	Standard operation	Heater operation/ Boiler operation *3
IN6	TBI.2 5-6	—	Room thermostat 2 input *1	Refer to SW3-1 in "6-10. DIP Switch Functions".	
IN7	TBI.2 3-4	—	Flow switch 3 input (Zone2)	Refer to SW3-2 in "6-10. DIP Switch Functions".	
IN8	TBI.3 7-8	—	Electric energy meter 1	Refer to installation manual.	
IN9	TBI.3 5-6	—	Electric energy meter 2		
IN10	TBI.2 1-2	—	Heat meter		
IN11	TBI.3 3-4	—	Smart grid ready input		
IN12	TBI.3 1-2	—			
IN13	TBI.4 3-4	—	Forced cooling mode	Refer to SW7-2 in "6-10. DIP Switch Functions".	
IN15	TBI.4 1-2	—	Cooling lower limit temperature input	Refer to SW7-3 in "6-10. DIP Switch Functions".	
INA1	TBI.6 3-5	CN1A	Flow sensor	Refer to installation manual.	

*1. Set the ON/OFF cycle time of the room thermostat for 10 minutes or more; otherwise the compressor may be damaged.
*2. If using outdoor thermostat for controlling operation of heaters, the lifetime of the heaters and related parts may be reduced.
*3. To turn on the boiler operation, use the main remote controller to select "Boiler" in "External input setting" screen in the service menu.

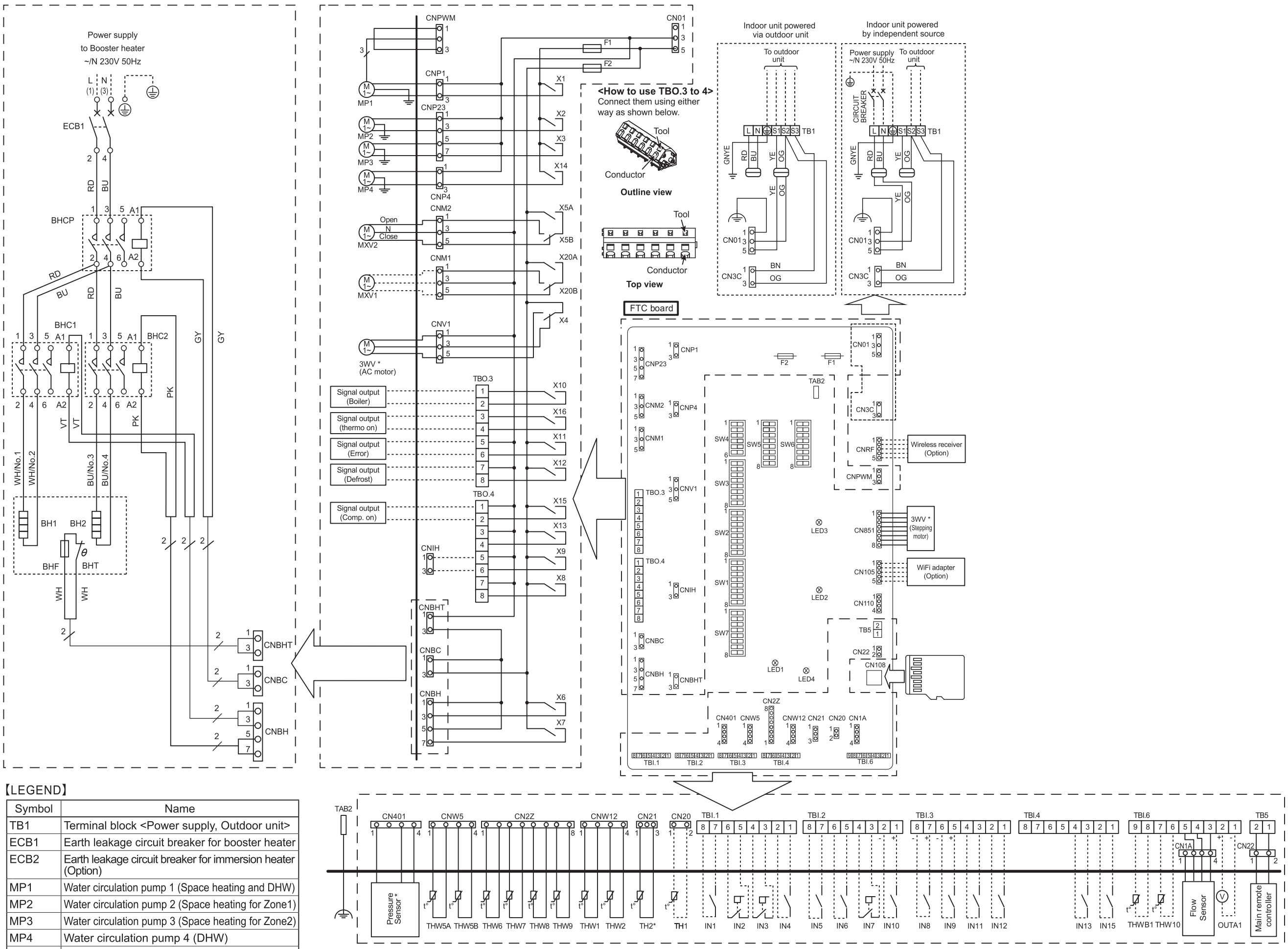
Table 2 Outputs

Name	Terminal block	Connector	Item	OFF	ON
OUT1	—	CNP1	Water circulation pump 1 output (Space heating/cooling & DHW)	OFF	ON
OUT2	—	CNP23 1-3	Water circulation pump 2 output (Space heating/cooling for Zone1)	OFF	ON
OUT3	—	CNP23 5-7	Water circulation pump 3 output (Space heating/cooling for Zone2) *1	OFF	ON
			2-way valve 2b output *2		
OUT4	—	CNV1	3-way valve (2-way valve) output	Heating	DHW
		CN851	3-way valve output		
OUT5	—	CNM2	Zone 2 mixing valve output *1	Stop	Close
					Open
OUT6	—	CNBH 1-3	Booster heater 1 output	OFF	ON
OUT7	—	CNBH 5-7	Booster heater 2 output	OFF	ON
OUT8	TBO.4 7-8	—	Cooling signal output	OFF	ON
OUT9	TBO.4 5-6	CNIH	Immersion heater output	OFF	ON
OUT10	TBO.3 1-2	—	Boiler output	OFF	ON
OUT11	TBO.3 5-6	—	Error output	Normal	Error
OUT12	TBO.3 7-8	—	Defrost output	Normal	Defrost
OUT13	TBO.4 3-4	—	2-way valve 2a output *2	OFF	ON
OUT14	—	CNP4	Water circulation pump 4 output (DHW)	OFF	ON
OUT15	TBO.4 1-2	—	Comp. ON signal	OFF	ON
OUT16	TBO.3 3-4	—	Thermo ON signal	OFF	ON
OUT18	—	CNM1	Zone 1 mixing valve output *1	Stop	Close
					Open
OUTA1	TBI.6 1-2	—	Analog output	0V-10V	

Do not connect to the terminals that are indicated as "—" in the "Terminal block" field.
*1. For 2-zone temperature control.
*2. For 2-zone valve ON/OFF control.

4 Cylinder unit

ERST17D-VM6BE



【LEGEND】

Symbol	Name
TB1	Terminal block <Power supply, Outdoor unit>
ECB1	Earth leakage circuit breaker for booster heater
ECB2	Earth leakage circuit breaker for immersion heater (Option)
MP1	Water circulation pump 1 (Space heating and DHW)
MP2	Water circulation pump 2 (Space heating for Zone1)
MP3	Water circulation pump 3 (Space heating for Zone2)
MP4	Water circulation pump 4 (DHW)
3WV	3-way valve (AC motor) (E*PT20/30X-*M**E*, E*ST**C/F-*M**E) 3-way valve (Stepping motor) (EHPT17X-*M**E*, E*ST17/20D-*M**E)
MXV1	Mixing valve 1 (For Zone 1)(Local supply)
MXV2	Mixing valve 2 (For Zone 2)(Local supply)
IHT	Thermostat (fixed temp.) for immersion heater (Option)
IH	Immersion heater (Option)
IHC	Contactor for immersion heater (Option)
TH1	Thermistor (Room temp.) (Option)
TH2	Thermistor (Ref. liquid temp.)
THW1	Thermistor (Flow water temp.)
THW2	Thermistor (Return water temp.)
THW5A	Thermistor (DHW tank upper water temp.)
THW5B	Thermistor (DHW tank lower water temp.)
THW6	Thermistor (Zone1 flow temp.)
THW7	Thermistor (Zone1 return temp.)
THW8	Thermistor (Zone2 flow temp.)
THW9	Thermistor (Zone2 return temp.)
THW10	Thermistor (Mixing tank temp.) (Option)
THWB1	Thermistor (Boiler flow temp.) (Option)
IN1	Room thermostat 1 (Local supply)
IN2	Flow switch 1 (Local supply)
IN3	Flow switch 2 (Local supply)
IN4	Demand control (Local supply)
IN5	Outdoor thermostat (Local supply)
IN6	Room thermostat 2 (Local supply)
IN7	Flow switch 3 (Local supply)
IN8	Electric energy meter 1 (Local supply)
IN9	Electric energy meter 2 (Local supply)
IN10	Heat meter (Local supply)
IN11	Smart grid ready input (Local supply)
IN12	
IN13	Forced cooling mode (Local supply)
IN15	Cooling lower limit temperature input (Local supply)
INA1	Flow sensor
FLOW TEMP. CONTROLLER (FTC)	
TBO.3-4	Terminal block <Outputs>
TBI.1-6	Terminal block <Signal Inputs, Thermistor>
F1	Fuse (IEC T10AL250V)
F2	Fuse (IEC T6.3AL250V)
SW1-7	DIP switch *See Table 3
X1-20	Relay
LED1	Power supply (FTC)
LED2	Power supply (Main remote controller)
LED3	Communication (FTC-Outdoor unit)
LED4	Reading or writing data to microSD card
CNPWM	Pump speed control signal for MP1
CN108	microSD card connector

1. Symbols used in wiring diagram are, ⚬⚬ : connector, ▭▭▭ : terminal block. Function with asterisk (*) may not be available depending on model types.
2. Indoor unit and outdoor unit connecting wires have polarities, make sure to match terminal numbers (S1, S2, S3) for correct wirings.
3. Since the outdoor unit side electric wiring may change, be sure to check the outdoor unit electric wiring diagram for service.
4. Refer to the installation manual for the water circulation diagrams of the models other than shown below.

Table 1 Signal Inputs

Name	Terminal block	Connector	Item	OFF (Open)	ON (Short)
IN1	TBI.1 7-8	—	Room thermostat 1 input *1	Refer to SW2-1 in "6-10. DIP Switch Functions".	
IN2	TBI.1 5-6	—	Flow switch 1 input	Refer to SW2-2 in "6-10. DIP Switch Functions".	
IN3	TBI.1 3-4	—	Flow switch 2 input (Zone1)	Refer to SW3-2 in "6-10. DIP Switch Functions".	
IN4	TBI.1 1-2	—	Demand control input	Normal	Heat source OFF/ Boiler operation *3
IN5	TBI.2 7-8	—	Outdoor thermostat input *2	Standard operation	Heater operation/ Boiler operation *3
IN6	TBI.2 5-6	—	Room thermostat 2 input *1	Refer to SW3-1 in "6-10. DIP Switch Functions".	
IN7	TBI.2 3-4	—	Flow switch 3 input (Zone2)	Refer to SW3-2 in "6-10. DIP Switch Functions".	
IN8	TBI.3 7-8	—	Electric energy meter 1	Refer to installation manual.	
IN9	TBI.3 5-6	—	Electric energy meter 2		
IN10	TBI.2 1-2	—	Heat meter		
IN11	TBI.3 3-4	—	Smart grid ready input		
IN12	TBI.3 1-2	—			
IN13	TBI.4 3-4	—	Forced cooling mode	Refer to SW7-2 in "6-10. DIP Switch Functions".	
IN15	TBI.4 1-2	—	Cooling lower limit temperature input	Refer to SW7-3 in "6-10. DIP Switch Functions".	
INA1	TBI.6 3-5	CN1A	Flow sensor	Refer to installation manual.	

*1. Set the ON/OFF cycle time of the room thermostat for 10 minutes or more; otherwise the compressor may be damaged.
*2. If using outdoor thermostat for controlling operation of heaters, the lifetime of the heaters and related parts may be reduced.
*3. To turn on the boiler operation, use the main remote controller to select "Boiler" in "External input setting" screen in the service menu.

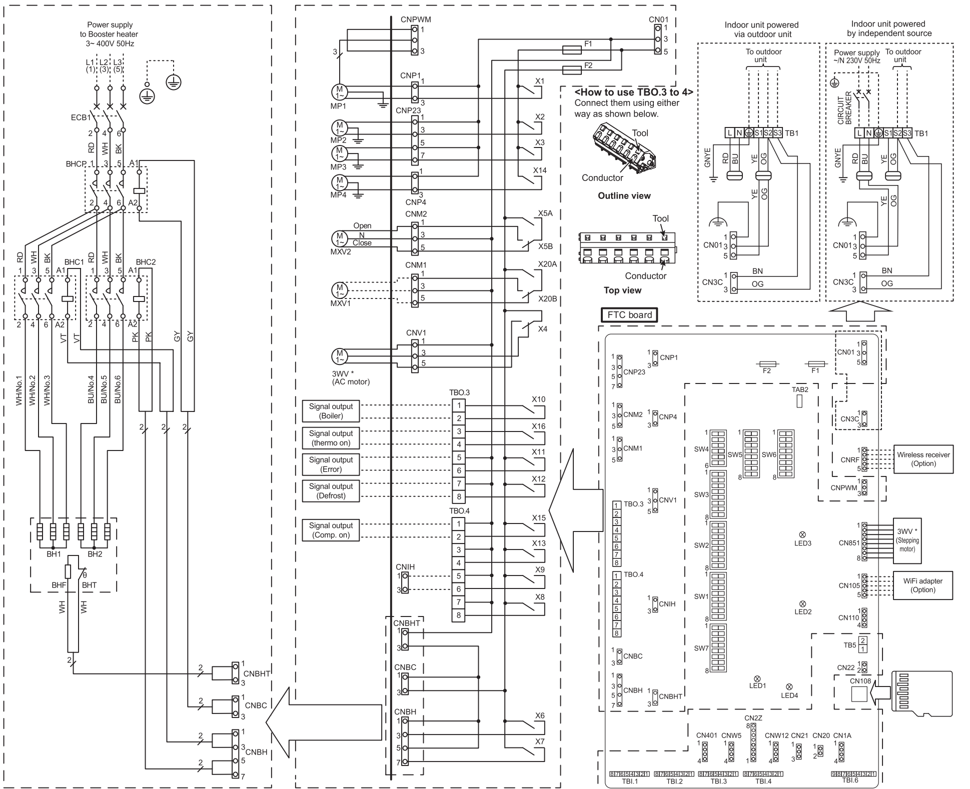
Table 2 Outputs

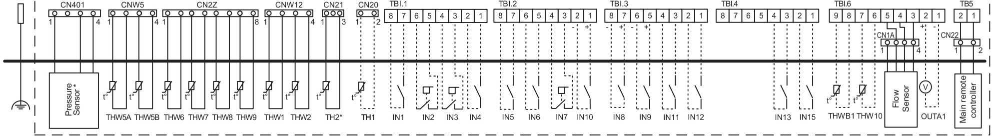
Name	Terminal block	Connector	Item	OFF	ON
OUT1	—	CNP1	Water circulation pump 1 output (Space heating/cooling & DHW)	OFF	ON
OUT2	—	CNP23 1-3	Water circulation pump 2 output (Space heating/cooling for Zone1)	OFF	ON
OUT3	—	CNP23 5-7	Water circulation pump 3 output (Space heating/cooling for Zone2) *1 2-way valve 2b output *2	OFF	ON
OUT4	—	CNV1 CN851	3-way valve (2-way valve) output 3-way valve output	Heating	DHW
OUT5	—	CNM2	Zone 2 mixing valve output *1	Stop	Close Open
OUT6	—	CNBH 1-3	Booster heater 1 output	OFF	ON
OUT7	—	CNBH 5-7	Booster heater 2 output	OFF	ON
OUT8	TBO.4 7-8	—	Cooling signal output	OFF	ON
OUT9	TBO.4 5-6	CNIH	Immersion heater output	OFF	ON
OUT10	TBO.3 1-2	—	Boiler output	OFF	ON
OUT11	TBO.3 5-6	—	Error output	Normal	Error
OUT12	TBO.3 7-8	—	Defrost output	Normal	Defrost
OUT13	TBO.4 3-4	—	2-way valve 2a output *2	OFF	ON
OUT14	—	CNP4	Water circulation pump 4 output (DHW)	OFF	ON
OUT15	TBO.4 1-2	—	Comp. ON signal	OFF	ON
OUT16	TBO.3 3-4	—	Thermo ON signal	OFF	ON
OUT18	—	CNM1	Zone 1 mixing valve output *1	Stop	Close Open
OUTA1	TBI.6 1-2	—	Analog output	0V-10V	

Do not connect to the terminals that are indicated as "—" in the "Terminal block" field.
*1. For 2-zone temperature control.
*2. For 2-zone valve ON/OFF control.

4 Cylinder unit

ERST17D-YM9BE





【LEGEND】

Symbol	Name
TB1	Terminal block <Power supply, Outdoor unit>
ECB1	Earth leakage circuit breaker for booster heater
ECB2	Earth leakage circuit breaker for immersion heater (Option)
MP1	Water circulation pump 1 (Space heating and DHW)
MP2	Water circulation pump 2 (Space heating for Zone1)
MP3	Water circulation pump 3 (Space heating for Zone2)
MP4	Water circulation pump 4 (DHW)
3WV	3-way valve (AC motor) (E*PT20/30X-*M**E*, E*ST**C/F-*M**E) 3-way valve (Stepping motor) (EHPT17X-*M**E*, E*ST17/20D-*M**E)
MXV1	Mixing valve 1 (For Zone 1)(Local supply)
MXV2	Mixing valve 2 (For Zone 2)(Local supply)
IHT	Thermostat (fixed temp.) for immersion heater (Option)
IH	Immersion heater (Option)
IHC	Contactor for immersion heater (Option)
TH1	Thermistor (Room temp.) (Option)
TH2	Thermistor (Ref. liquid temp.)
THW1	Thermistor (Flow water temp.)
THW2	Thermistor (Return water temp.)
THW5A	Thermistor (DHW tank upper water temp.)
THW5B	Thermistor (DHW tank lower water temp.)
THW6	Thermistor (Zone1 flow temp.)
THW7	Thermistor (Zone1 return temp.)
THW8	Thermistor (Zone2 flow temp.)
THW9	Thermistor (Zone2 return temp.)
THW10	Thermistor (Mixing tank temp.) (Option)
THWB1	Thermistor (Boiler flow temp.) (Option)
IN1	Room thermostat 1 (Local supply)
IN2	Flow switch 1 (Local supply)
IN3	Flow switch 2 (Local supply)
IN4	Demand control (Local supply)
IN5	Outdoor thermostat (Local supply)
IN6	Room thermostat 2 (Local supply)
IN7	Flow switch 3 (Local supply)
IN8	Electric energy meter 1 (Local supply)
IN9	Electric energy meter 2 (Local supply)
IN10	Heat meter (Local supply)
IN11 IN12	Smart grid ready input (Local supply)
IN13	Forced cooling mode (Local supply)
IN15	Cooling lower limit temperature input (Local supply)
INA1	Flow sensor
FLOW TEMP. CONTROLLER (FTC)	
TBO.3-4	Terminal block <Outputs>
TBI.1-6	Terminal block <Signal Inputs, Thermistor>
F1	Fuse (IEC T10AL250V)
F2	Fuse (IEC T6.3AL250V)
SW1-7	DIP switch *See Table 3
X1-20	Relay
LED1	Power supply (FTC)
LED2	Power supply (Main remote controller)
LED3	Communication (FTC-Outdoor unit)
LED4	Reading or writing data to microSD card
CNPWM	Pump speed control signal for MP1
CN108	microSD card connector

1. Symbols used in wiring diagram are, ○○ : connector, ☐☐☐ : terminal block. Function with asterisk (*) may not be available depending on model types.
2. Indoor unit and outdoor unit connecting wires have polarities, make sure to match terminal numbers (S1, S2, S3) for correct wirings.
3. Since the outdoor unit side electric wiring may change, be sure to check the outdoor unit electric wiring diagram for service.
4. Refer to the installation manual for the water circulation diagrams of the models other than shown below.

Table 1 Signal Inputs

Name	Terminal block	Connector	Item	OFF (Open)	ON (Short)
IN1	TBI.1 7-8	—	Room thermostat 1 input *1	Refer to SW2-1 in "6-10. DIP Switch Functions".	
IN2	TBI.1 5-6	—	Flow switch 1 input	Refer to SW2-2 in "6-10. DIP Switch Functions".	
IN3	TBI.1 3-4	—	Flow switch 2 input (Zone1)	Refer to SW3-2 in "6-10. DIP Switch Functions".	
IN4	TBI.1 1-2	—	Demand control input	Normal	Heat source OFF/ Boiler operation *3
IN5	TBI.2 7-8	—	Outdoor thermostat input *2	Standard operation	Heater operation/ Boiler operation *3
IN6	TBI.2 5-6	—	Room thermostat 2 input *1	Refer to SW3-1 in "6-10. DIP Switch Functions".	
IN7	TBI.2 3-4	—	Flow switch 3 input (Zone2)	Refer to SW3-2 in "6-10. DIP Switch Functions".	
IN8	TBI.3 7-8	—	Electric energy meter 1	Refer to installation manual.	
IN9	TBI.3 5-6	—	Electric energy meter 2		
IN10	TBI.2 1-2	—	Heat meter		
IN11	TBI.3 3-4	—	Smart grid ready input		
IN12	TBI.3 1-2	—			
IN13	TBI.4 3-4	—	Forced cooling mode	Refer to SW7-2 in "6-10. DIP Switch Functions".	
IN15	TBI.4 1-2	—	Cooling lower limit temperature input	Refer to SW7-3 in "6-10. DIP Switch Functions".	
INA1	TBI.6 3-5	CN1A	Flow sensor	Refer to installation manual.	

*1. Set the ON/OFF cycle time of the room thermostat for 10 minutes or more; otherwise the compressor may be damaged.
*2. If using outdoor thermostat for controlling operation of heaters, the lifetime of the heaters and related parts may be reduced.
*3. To turn on the boiler operation, use the main remote controller to select "Boiler" in "External input setting" screen in the service menu.

Table 2 Outputs

Name	Terminal block	Connector	Item	OFF	ON
OUT1	—	CNP1	Water circulation pump 1 output (Space heating/cooling & DHW)	OFF	ON
OUT2	—	CNP23 1-3	Water circulation pump 2 output (Space heating/cooling for Zone1)	OFF	ON
OUT3	—	CNP23 5-7	Water circulation pump 3 output (Space heating/cooling for Zone2) *1 2-way valve 2b output *2	OFF	ON
OUT4	—	CNV1 CN851	3-way valve (2-way valve) output 3-way valve output	Heating	DHW
OUT5	—	CNM2	Zone 2 mixing valve output *1	Stop	Close Open
OUT6	—	CNBH 1-3	Booster heater 1 output	OFF	ON
OUT7	—	CNBH 5-7	Booster heater 2 output	OFF	ON
OUT8	TBO.4 7-8	—	Cooling signal output	OFF	ON
OUT9	TBO.4 5-6	CNIH	Immersion heater output	OFF	ON
OUT10	TBO.3 1-2	—	Boiler output	OFF	ON
OUT11	TBO.3 5-6	—	Error output	Normal	Error
OUT12	TBO.3 7-8	—	Defrost output	Normal	Defrost
OUT13	TBO.4 3-4	—	2-way valve 2a output *2	OFF	ON
OUT14	—	CNP4	Water circulation pump 4 output (DHW)	OFF	ON
OUT15	TBO.4 1-2	—	Comp. ON signal	OFF	ON
OUT16	TBO.3 3-4	—	Thermo ON signal	OFF	ON
OUT18	—	CNM1	Zone 1 mixing valve output *1	Stop	Close Open
OUTA1	TBI.6 1-2	—	Analog output	0V-10V	

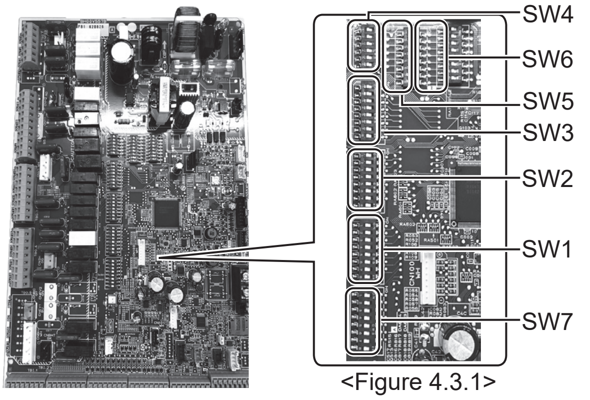
Do not connect to the terminals that are indicated as "—" in the "Terminal block" field.
*1. For 2-zone temperature control.
*2. For 2-zone valve ON/OFF control.

4.3 Dip switch functions

4.3.1 DIP Switch Functions

The DIP switch number is printed on the circuit board next to the relevant switches. The word ON is printed on the circuit board and on the DIP switch block itself. To move the switch, you will need to use a pin or the corner of a thin metal ruler or similar.

DIP switch settings are listed below in Table 4.3.1.
Only an authorised installer can change DIP switch setting under one's own responsibility according to the installation condition.
Make sure to turn off both indoor unit and outdoor unit power supplies before changing the switch settings.



<Figure 4.3.1>

DIP switch		Function	OFF	ON	Default settings: Indoor unit model
SW1	SW1-1	Boiler	WITHOUT Boiler	WITH Boiler	OFF
	SW1-2	Heat pump maximum outlet water temperature	55ºC	60ºC	ON *1
	SW1-3	DHW tank	WITHOUT DHW tank	WITH DHW tank	ON
	SW1-4	Immersion heater	WITHOUT Immersion heater	WITH Immersion heater	OFF: Except EHPT20X-MEHEW ON : EHPT20X-MEHEW
	SW1-5	Booster heater	WITHOUT Booster heater	WITH Booster heater	OFF: E**T***-M**E* ON : E**T***-*M 2/6/9*E
	SW1-6	Booster heater function	For heating only	For heating and DHW	OFF: E**T***-M**E* ON : E**T***-*M 2/6/9*E
	SW1-7	Outdoor unit type	Split type	Packaged type	OFF: E*ST***-*M**E ON : E*PT**X-*M**E*
	SW1-8	Wireless remote controller	WITHOUT Wireless remote controller	WITH Wireless remote controller	OFF
SW2	SW2-1	Room thermostat 1 input (IN1) logic change	Zone 1 operation stop at thermostat short	Zone 1 operation stop at thermostat open	OFF
	SW2-2	Flow switch 1 input (IN2) logic change	Failure detection at short	Failure detection at open	OFF
	SW2-3	Booster heater capacity restriction	Inactive	Active	OFF: Except E**T***-VM2*E ON : E**T***-VM2*E
	SW2-4	Cooling mode function	Inactive	Active	OFF: EH*T***-*M**E* ON : ER*T***-*M**E
	SW2-5	Automatic switch to backup heat source operation (When outdoor unit stops by error)	Inactive	Active *2	OFF
	SW2-6	Mixing tank	WITHOUT Mixing tank	WITH Mixing tank	OFF: Except E*ST***-*M*BE ON : E*ST***-*M*BE
	SW2-7	2-zone temperature control	Inactive	Active *3	
	SW2-8	Flow sensor	WITHOUT Flow sensor	WITH Flow sensor	ON
SW3	SW3-1	Room thermostat 2 input (IN6) logic change	Zone 2 operation stop at thermostat short	Zone 2 operation stop at thermostat open	OFF
	SW3-2	Flow switch 2 and 3 input logic change	Failure detection at short	Failure detection at open	OFF
	SW3-3	3-way valve type	AC motor	Stepping motor	OFF: Except E**T17X/17D/20D-*M**E ON : E**T17X/17D/20D-*M**E
	SW3-4	Electric energy meter	WITHOUT Electric energy meter	WITH Electric energy meter	OFF
	SW3-5	Heating mode function *4	Inactive	Active	ON
	SW3-6	2-zone valve ON/OFF control	Inactive	Active	OFF
	SW3-7	Heat exchanger for DHW	Coil in tank	External plate HEX	ON
	SW3-8	Heat meter	WITHOUT Heat meter	WITH Heat meter	OFF
SW4	SW4-1	—	—	—	OFF
	SW4-2	—	—	—	OFF
	SW4-3	—	—	—	OFF
	SW4-4	Indoor unit only operation (during installation work) *5	Inactive	Active	OFF
	SW4-5	Emergency mode (Heater only operation)	Normal	Emergency mode (Heater only operation)	OFF *6
	SW4-6	Emergency mode (Boiler operation)	Normal	Emergency mode (Boiler operation)	OFF *6
SW5	SW5-1	—	—	—	OFF
	SW5-2	Advanced auto adaptation	Inactive	Active	ON
	SW5-3	Capacity code			
	SW5-4				
	SW5-5				
	SW5-6				
	SW5-7				
	SW5-8	—	—	—	OFF

Capacity code

	SW5-3	SW5-4	SW5-5	SW5-6	SW5-7
E**T**C-*M**E	ON	ON	ON	ON	OFF
E**T**D-*M**E	ON	OFF	OFF	ON	OFF
E**T**X-*M**E*	OFF	OFF	OFF	OFF	OFF
E**T**F-*M**E	OFF	OFF	ON	ON	OFF

DIP switch		Function	OFF	ON	Default settings: Indoor unit model
SW6	SW6-1	—	—	—	OFF
	SW6-2	—	—	—	OFF
	SW6-3	Pressure sensor	Inactive	Active	OFF: Except E*ST**D/F-*M**E ON : E*ST**D/F-*M**E
	SW6-4	Analog output signal (0-10 V)	Inactive	Active	OFF
	SW6-5	—	—	—	OFF
	SW6-6	—	—	—	OFF
	SW6-7	—	—	—	OFF
	SW6-8	—	—	—	OFF
SW7	SW7-1	Mixing valve setting	Only Zone 2	Zone 1 and Zone 2	OFF
	SW7-2	Forced cooling mode input (IN13) logic change	Active at short	Active at open	OFF
	SW7-3	Cooling limit temp. input (IN15) logic change	Active at short	Active at open	OFF
	SW7-4	—	—	—	OFF
	SW7-5	—	—	—	OFF
	SW7-6	—	—	—	OFF
	SW7-7	—	—	—	OFF
	SW7-8	—	—	—	OFF

<Table 4.3.1>

Notes:

***1. When the cylinder unit is connected with a PUMY-P and PXZ outdoor unit of which maximum outlet water temperature is 55ºC, DIP SW1-2 must be changed to OFF.**

***2. External output (OUT11) will be available. For safety reasons, this function is not available for certain errors. (In that case, system operation must be stopped and only the water circulation pump keeps running.)**

***3. Active only when SW3-6 is set to OFF.**

***4. This switch functions only when the cylinder unit is connected with a PUHZ-FRP outdoor unit. When another type of outdoor unit is connected, the heating mode function is active regardless of the fact that this switch is ON or OFF.**

***5. Space heating and DHW can be operated only in indoor unit, like an electric heater. (Refer to "5.4 Indoor unit only operation".)**

***6. If emergency mode is no longer required, return the switch to OFF position.**

4.4 Field wiring

4.4.1 Electrical Connection

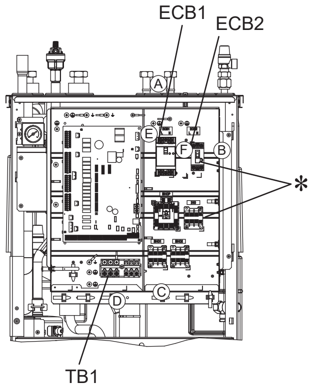
All electrical work should be carried out by a suitably qualified technician. Failure to comply with this could lead to electrocution, fire, and death. It will also invalidate product warranty. All wiring should be according to national wiring regulations.

Breaker abbreviation	Meaning
ECB1	Earth leakage circuit breaker for booster heater
ECB2	Earth leakage circuit breaker for immersion heater
TB1	Terminal block 1

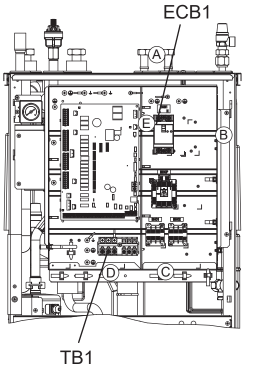
The cylinder unit can be powered in two ways.
1. Power cable is run from the outdoor unit to the cylinder unit.
2. Cylinder unit has independent power source.

Connections should be made to the terminals indicated in the figures to the left below depending on the phase.

Booster heater and immersion heater should be connected independently from one another to dedicated power supplies.



<1 phase (with immersion heater)>

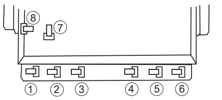


<3 phase (without immersion heater)>

Ⓐ Locally supplied wiring should be inserted through the inlets situated on the top of the cylinder unit. (Refer to Table 4.1.1.)

Ⓑ Wiring should be fed down the right hand side of the control and electrical box and clamped in place using clips provided.

Ⓒ The wires should be inserted individually through the cable inlets as below.
- ② Outputs wire
- ③ Indoor-Outdoor wire
- ⑤ Power line (B.H.)/ Power line (I.H.) (Option)
- ⑦ Signal input wires



Ⓓ Connect the outdoor unit – cylinder unit connecting cable to TB1.

Ⓔ Connect the power cable for the booster heater to ECB1.

Ⓕ If immersion heater is present, connect the power cable to ECB2.

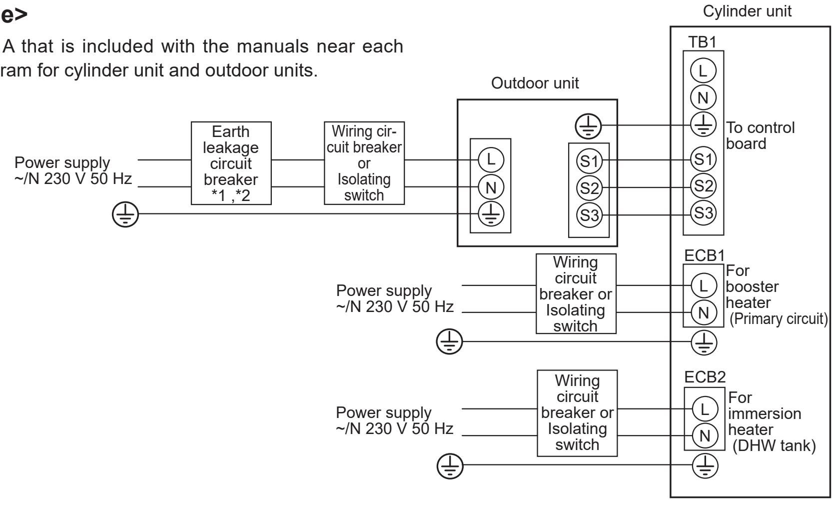
- Avoid contact between wiring and parts (✻).
- Make sure that ECB1 and ECB2 are ON.
- On completion of wiring, ensure main remote controller cable is connected to the relay connector.

■ Option 1: Cylinder unit powered via outdoor unit

(If you want to use independent source, go to the Mitsubishi Electric website.)
PXZ model is not available.
The model is cylinder unit powered by independent source ONLY.

<1 phase>

Affix label A that is included with the manuals near each wiring diagram for cylinder unit and outdoor units.



<Figure 4.4.1>
Electrical connections 1 phase

*1. If the installed earth leakage circuit breaker does not have an over-current protection function, install a breaker with that function along the same power line.

*2. A breaker with at least 3.0 mm contact separation in each pole shall be provided.
Use earth leakage circuit breaker (NV).
The breaker shall be provided to ensure disconnection of all active phase conductors of the supply.

*3. Max. 45 m
If 2.5 mm² used, Max. 50 m
If 2.5 mm² used and S3 separated, Max. 80 m

*4. The values given in the table below are not always measured against the ground value.

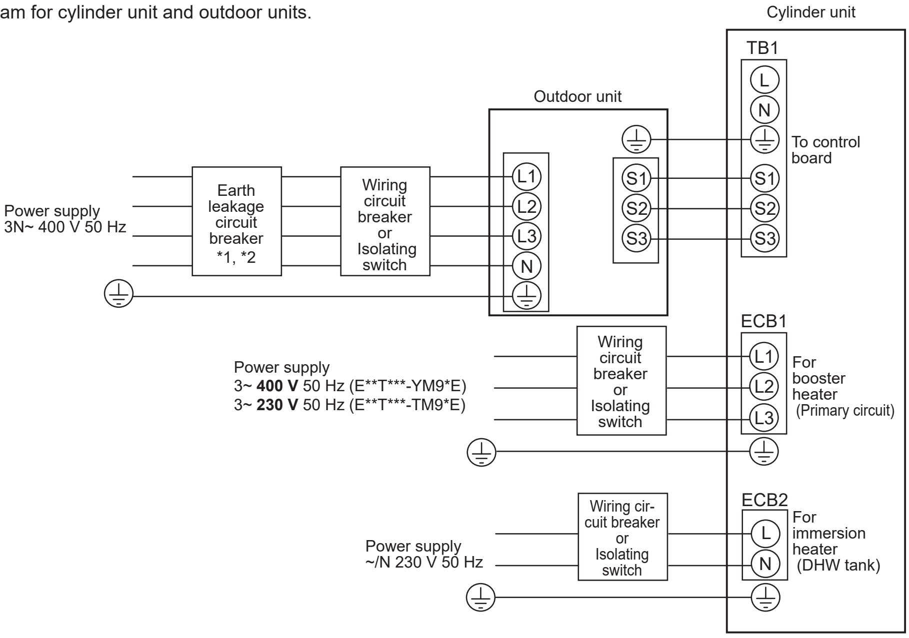
Description	Power supply	Capacity	Breaker	Wiring
Booster heater (Primary circuit)	~/N 230 V 50 Hz	2 kW	16 A *2	2.5 mm²
		6 kW	32 A *2	6.0 mm²
Immersion heater (DHW tank)	~/N 230 V 50 Hz	3 kW	16 A *2	2.5 mm²

Wiring No. × size (mm²)	Cylinder unit - Outdoor unit	*3	3 × 1.5 (polar)
	Cylinder unit - Outdoor unit earth	*3	1 × Min. 1.5
Circuit rating	Cylinder unit - Outdoor unit S1 - S2	*4	230 V AC
	Cylinder unit - Outdoor unit S2 - S3	*4	24 V DC

Notes:
1. **Wiring size must comply with the applicable local and national codes.**
2. **Indoor unit/outdoor unit connecting cords shall not be lighter than polychloroprene sheathed flexible cord. (Design 60245 IEC 57)**
Indoor unit power supply cords shall not be lighter than polychloroprene sheathed flexible cord. (Design 60227 IEC 53)
3. **Install an earth longer than other cables.**
4. **Please keep enough output capacity of power supply for each heater. Insufficient power supply capacity might cause chattering.**

<3 phase>

Affix label A that is included with the manuals near each wiring diagram for cylinder unit and outdoor units.



<Figure 4.4.2>
Electrical connections 3 phase

Description	Power supply	Capacity (Indoor unit Ref.)	Breaker	Wiring
Booster heater (Primary circuit)	3~ 400 V 50 Hz	9 kW	16 A *2	2.5 mm²
	3~ 230 V 50 Hz	9 kW	32 A *2	6.0 mm²
Immersion heater (DHW tank)	~/N 230 V 50 Hz	3 kW	16 A *2	2.5 mm²

Wiring No. × size (mm²)	Cylinder unit - Outdoor unit	*3	3 × 1.5 (polar)
	Cylinder unit - Outdoor unit earth	*3	1 × Min. 1.5
Circuit rating	Cylinder unit - Outdoor unit S1 - S2	*4	230 V AC
	Cylinder unit - Outdoor unit S2 - S3	*4	24 V DC

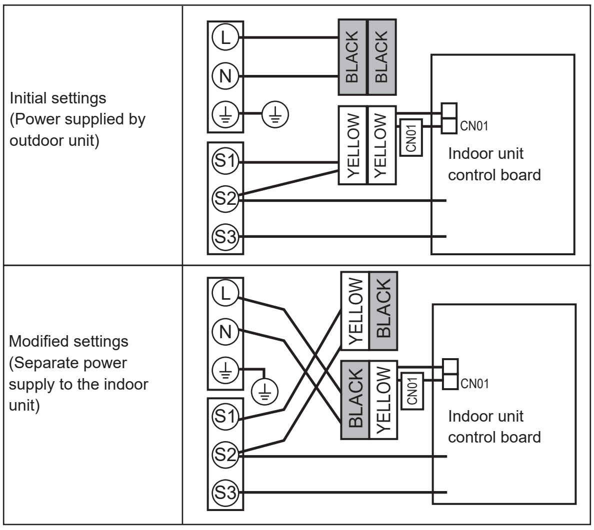
*1. If the installed earth leakage circuit breaker does not have an over-current protection function, install a breaker with that function along the same power line.
*2. A breaker with at least 3.0 mm contact separation in each pole shall be provided. Use earth leakage circuit breaker (NV).
The breaker shall be provided to ensure disconnection of all active phase conductors of the supply.
*3. Max. 45 m
If 2.5 mm² used, Max. 50 m
If 2.5 mm² used and S3 separated, Max. 80 m
*4. The values given in the table above are not always measured against the ground value.

Notes:
1. **Wiring size must comply with the applicable local and national codes.**
2. **Indoor unit/outdoor unit connecting cords shall not be lighter than polychloroprene sheathed flexible cord. (Design 60245 IEC 57)**
Indoor unit power supply cords shall not be lighter than polychloroprene sheathed flexible cord. (Design 60227 IEC 53)
3. **Install an earth longer than other cables.**
4. **Please keep enough output capacity of power supply for each heater. Insufficient power supply capacity might cause chattering.**

Option 2: Cylinder unit powered by independent source

If the indoor unit and outdoor unit have separate power supplies, the following requirements must be carried out:

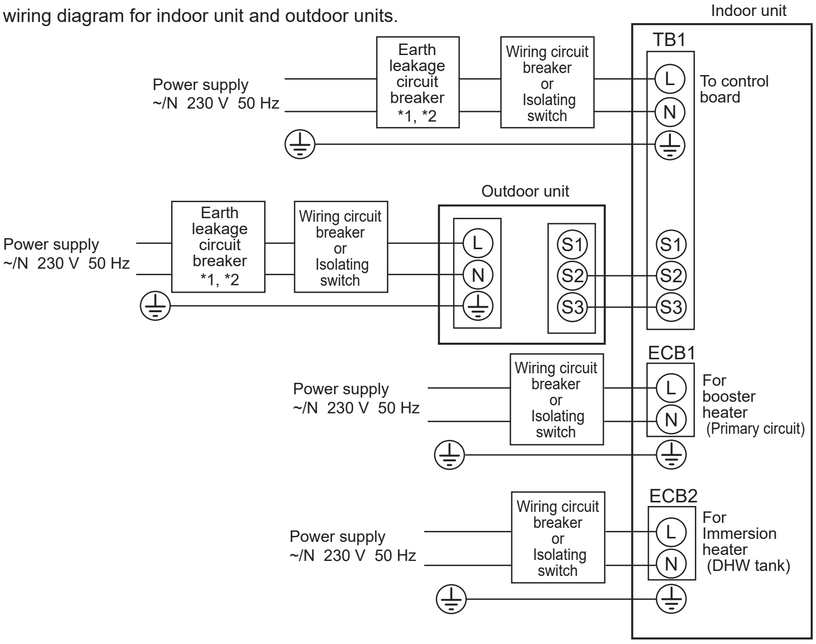
- **Change the interconnected wiring in the control and electrical box of the indoor unit (see Figure 4.4.3)**
- **Turn the outdoor unit DIP switch SW8-3 to ON**
- **Turn on the outdoor unit before the indoor unit.**
- **Power by independent source is not available for particular models of outdoor unit model. For more details, refer to the connecting outdoor unit Installation Manual.**



<Figure 4.4.3>

<1 phase>

Affix label B that is included with the manuals near each wiring diagram for indoor unit and outdoor units.

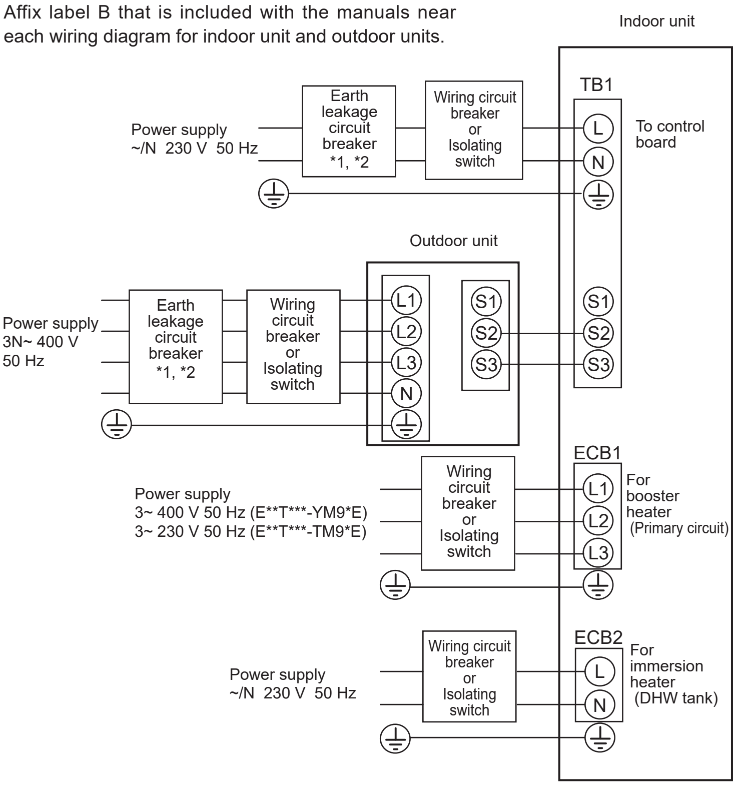


<Figure 4.4.4>
Electrical connections 1 phase

Description	Power supply	Capacity	Breaker	Wiring
Booster heater (Primary circuit)	~/N 230 V 50 Hz	2 kW	16 A *2	2.5 mm²
		6 kW	32 A *2	6.0 mm²
Immersion heater (DHW tank)	~/N 230 V 50 Hz	3 kW	16 A *2	2.5 mm²

<3 phase>

Affix label B that is included with the manuals near each wiring diagram for indoor unit and outdoor units.



<Figure 4.4.5>
Electrical connections 3 phase

Description	Power supply	Capacity (Indoor unit Ref.)	Breaker	Wiring
Booster heater (Primary circuit)	3~ 400 V 50 Hz	9 kW	16 A *2	2.5 mm²
	3~ 230 V 50 Hz	9 kW	32 A *2	6.0 mm²
Immersion heater (DHW tank)	~/N 230 V 50 Hz	3 kW	16 A *2	2.5 mm²

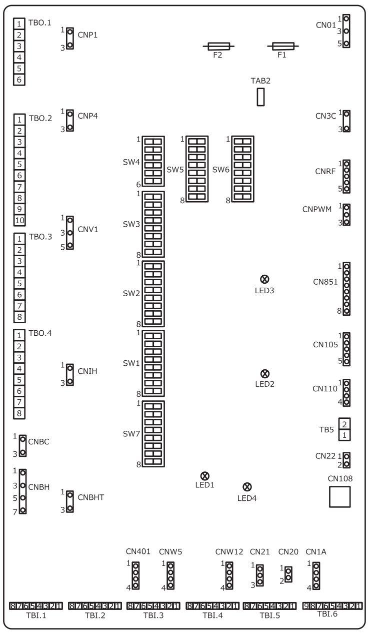
Indoor unit power supply			~/N 230 V 50 Hz
Indoor unit input capacity Main switch (Breaker)		*2	16 A
Wiring No.× size (mm²)	Indoor unit power supply		2 × min. 1.5
	Indoor unit power supply earth		1 × min. 1.5
	Indoor unit - Outdoor unit	*3	2 × min. 0.3
	Indoor unit - Outdoor unit earth		—
Circuit rating	Indoor unit L - N	*4	230 V AC
	Indoor unit - Outdoor unit S1 - S2	*4	—
	Indoor unit - Outdoor unit S2 - S3	*4	24 V DC

*1. If the installed earth leakage circuit breaker does not have an over-current protection function, install a breaker with that function along the same power line.
*2. A breaker with at least 3.0 mm contact separation in each pole shall be provided. Use earth leakage breaker (NV).
The breaker shall be provided to ensure disconnection of all active phase conductors of the supply.
*3. Max. 120 m
*4. The values given in the table above are not always measured against the ground value.

Note:
1. **Wiring size must comply with the applicable local and national codes.**
2. **Indoor unit/outdoor unit connecting cords shall not be lighter than polychloroprene sheathed flexible cord. (Design 60245 IEC 57)**
   Indoor unit power supply cords shall not be lighter than polychloroprene sheathed flexible cord. (Design 60227 IEC 53)
3. **Install an earth longer than other cables.**
4. **Please keep enough output capacity of power supply for each heater. Insufficient power supply capacity might cause chattering.**

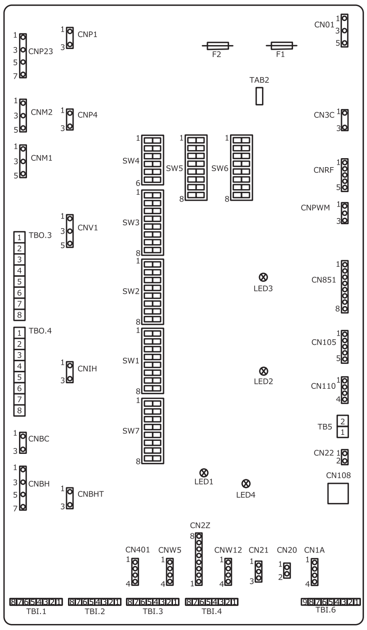
4.4.2 Connecting inputs/outputs

(Except E*ST***-*M*BE)



<Figure 4.4.6>

(E*ST***-*M*BE)



<Figure 4.4.7>

■ Signal inputs

Name	Terminal block	Connector	Item	OFF (Open)	ON (Short)
IN1	TBI.1 7-8	—	Room thermostat 1 input *1	Refer to SW2-1 in <5.1 DIP Switch Functions>.	
IN2	TBI.1 5-6	—	Flow switch 1 input	Refer to SW2-2 in <5.1 DIP Switch Functions>.	
IN3	TBI.1 3-4	—	Flow switch 2 input (Zone 1)	Refer to SW3-2 in <5.1 DIP Switch Functions>.	
IN4	TBI.1 1-2	—	Demand control input	Normal	Heat source OFF/ Boiler operation *3
IN5	TBI.2 7-8	—	Outdoor thermostat input *2	Standard operation	Heater operation/ Boiler operation *3
IN6	TBI.2 5-6	—	Room thermostat 2 input *1	Refer to SW3-1 in <5.1 DIP Switch Functions>.	
IN7	TBI.2 3-4	—	Flow switch 3 input (Zone 2)	Refer to SW3-2 in <5.1 DIP Switch Functions>.	
IN8	TBI.3 7-8	—	Electric energy meter 1	*4	
IN9	TBI.3 5-6	—	Electric energy meter 2		
IN10	TBI.2 1-2	—	Heat meter		
IN11	TBI.3 3-4	—	Smart grid ready input	*5	
IN12	TBI.3 1-2	—			
IN13	TBI.4 3-4	—	Forced cooling mode *6	Refer to SW7-2 in <5.1 DIP Switch Functions>.	
IN15	TBI.4 1-2	—	Cooling limit temp. *6	Refer to SW7-3 in <5.1 DIP Switch Functions>.	
INA1	TBI.6 3-5	CN1A	Flow sensor	—	—

*1. Set the ON/OFF cycle time of the room thermostat for 10 minutes or more; otherwise the compressor may be damaged.

*2. If using outdoor thermostat for controlling operation of heaters, the lifetime of the heaters and related parts may be reduced.

*3. To turn on the boiler operation, use the main remote controller to select [Boiler settings] in [Operation settings] from [Service].

*4. Connectable electric energy meter and heat meter

● Pulse type	Voltage free contact for 12 VDC detection by FTC (TBI.2 1pin ,TBI.3 5 and 7 pins have a positive voltage.)
● Pulse duration	Minimum ON time: 40 ms Minimum OFF time: 100 ms
● Possible unit of pulse	0.1 pulse/kWh 1 pulse/kWh 10 pulse/kWh 100 pulse/kWh 1000 pulse/kWh

Those values can be set by the main remote controller. (Refer to the menu tree in "Main remote controller".)

*5. As for the SG ready, refer to "5.5 Smart grid ready".

*6. Only for ER series

Wiring specification and local supply parts (except INA1)

Item	Name	Model and specifications
Signal input function	Signal input wire	Use sheathed vinyl coated cord or cable. Max. 30 m Wire type: CV, CVS or equivalent Wire size: Stranded wire 0.13 mm² to 0.52 mm² Solid wire: ø0.4 mm to ø0.8 mm
	Switch	Non-voltage “a” contact signals

Note:
Stranded wire should be processed with insulation-covered bar terminal (DIN46228-4 standard compatible type).

4 Cylinder unit

■ Thermistor inputs

Name	Terminal block	Connector	Item	Optional part model
TH1	—	CN20	Thermistor (Room temp.) (Option)	PAC-SE41TS-E
TH2	—	CN21	Thermistor (Ref. liquid temp.)	—
THW1	—	CNW12 1-2	Thermistor (Flow water temp.)	—
THW2	—	CNW12 3-4	Thermistor (Return water temp.)	—
THW5A	—	CNW5 1-2	Thermistor (DHW tank upper water temp.)	—
THW5B	—	CNW5 3-4	Thermistor (DHW tank lower water temp.)	—
THW6	TBI.5 7-8	CN2Z 1-2	Thermistor (Zone 1 flow water temp.) (Option) *1	PAC-TH011-E(Except E*ST***-*M*BE)
THW7	TBI.5 5-6	CN2Z 3-4	Thermistor (Zone 1 return water temp.) (Option) *1	
THW8	TBI.5 3-4	CN2Z 5-6	Thermistor (Zone 2 flow water temp.) (Option) *1	PAC-TH011-E(Except E*ST***-*M*BE)
THW9	TBI.5 1-2	CN2Z 7-8	Thermistor (Zone 2 return water temp.) (Option) *1	
THW10	TBI.6 6-7	—	Thermistor (Mixing tank water temp.) (Option) *1	PAC-TH012HT-E(5 m)/ PAC-TH012HTL-E(30 m)
THWB1	TBI.6 8-9	—	Thermistor (Boiler flow water temp.) (Option) *1	

Ensure to wire thermistor wirings away from the power line and/or OUT1 to OUT18 wirings.

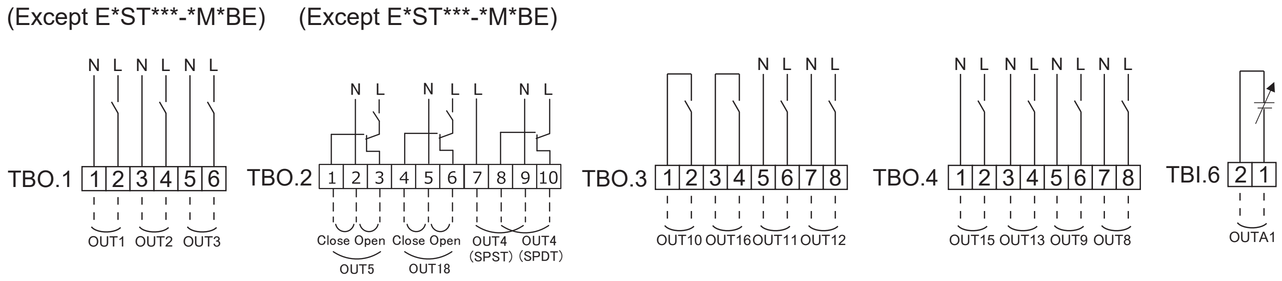
***1. The maximum length of the thermistor wiring is 30 m.**
The length of the optional thermistors are 5 m. If you need to splice and extend the wirings, following points must be carried out.

1) **Connect the wirings by soldering.**
2) **Insulate each connecting point against dust and water. Stranded wire should be processed with insulation-covered bar terminal (DIN46228-4 standard compatible type).**

■ Outputs

Name	Terminal block	Connector	Item	OFF	ON	Signal/Max current	Max. total current
OUT1	TBO.1 1-2	CNP1	Water circulation pump 1 output (Space heating/cooling & DHW)	OFF	ON	230 V AC 1.0 A Max. (Inrush current 40 A Max.)	4.0 A (a)
OUT2	TBO.1 3-4	CNP23 1-3	Water circulation pump 2 output (Space heating/cooling for Zone 1)	OFF	ON	230 V AC 1.0 A Max. (Inrush current 40 A Max.)	
OUT3	TBO.1 5-6	CNP23 5-7	Water circulation pump 3 output (Space heating/cooling for Zone 2) *1	OFF	ON	230 V AC 1.0 A Max. (Inrush current 40 A Max.)	
			2-way valve 2b output *2				
OUT14	—	CNP4	Water circulation pump 4 output (DHW)	OFF	ON	230 V AC 1.0 A Max. (Inrush current 40 A Max.)	
OUT4	TBO.2 7-9	—	3-way valve SPST (2-way valve 1) output	Heating	DHW	230 V AC 0.1 A Max.	3.0 A (b)
	TBO.2 8-10	CNV1	3-way valve SPDT output				
	—	CN851	3-way valve output				
OUT5	TBO.2 1-2	CNM2	Zone 2 mixing valve output *1	Stop	Close	230 V AC 0.1 A Max.	
	TBO.2 2-3				Open		
OUT6	—	CNBH 1-3	Booster heater 1 output	OFF	ON	230 V AC 0.5 A Max. (Relay)	
OUT7	—	CNBH 5-7	Booster heater 2 output	OFF	ON	230 V AC 0.5 A Max. (Relay)	
OUT8	TBO.4 7-8	—	Cooling signal output	OFF	ON	230 V AC 0.5 A Max.	
OUT9	TBO.4 5-6	CNIH	Immersion heater output	OFF	ON	230 V AC 0.5 A Max. (Relay)	
OUT10	TBO.3 1-2	—	Boiler output	OFF	ON	non-voltage contact ·220 - 240 V AC (30 V DC) 0.5 A or less ·10 mA 5 V DC or more	—
OUT11	TBO.3 5-6	—	Error output	Normal	Error	230 V AC 0.5 A Max.	3.0 A (b)
OUT12	TBO.3 7-8	—	Defrost output	Normal	Defrost	230 V AC 0.5 A Max.	
OUT13	TBO.4 3-4	—	2-way valve 2a output *2	OFF	ON	230 V AC 0.1 A Max.	
OUT15	TBO.4 1-2	—	Comp ON signal	OFF	ON	230 V AC 0.5 A Max.	
OUT16	TBO.3 3-4	—	Heating/Cooling thermo ON signal	OFF	ON	non-voltage contact ·220 - 240 V AC (30 V DC) 0.5 A or less ·10 mA 5 V DC or more	—
OUT18	TBO.2 4-5	CNM1	Zone 1 mixing valve output *1	Stop	Close	230 V AC 0.1 A Max.	3.0 A (b)
	TBO.2 5-6				Open		
OUTA1	TBI.6 1-2	—	Analog output	0 - 10 V		0 - 10 V DC 5 mA max.	—

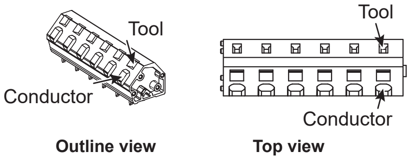
Do not connect to the terminals that are indicated as "—" in the "Terminal block" field.
***1 For 2-zone temperature control.**
***2 For 2-zone valve ON/OFF control.**



Wiring specification and local supply parts

Item	Name	Model and specifications
External output function	Outputs wire	Use sheathed vinyl coated cord or cable. Max. 30 m Wire type: CV, CVS or equivalent Wire size: Stranded wire 0.25 mm² to 1.5 mm² Solid wire: ø0.57 mm to ø1.2 mm

How to use TBO.1 to 4



Connect them using either way as shown above.

<Figure 4.4.8>

Notes:

1. When the cylinder unit is powered via outdoor unit, the maximum grand total current of (a)+(b) is 3.0 A.
2. Do not connect multiple water circulation pumps directly to each output (OUT1, OUT2, and OUT3). In such a case, connect them via (a) relay(s).
3. Do not connect water circulation pumps to both TBO.1 1-2 and CNP1 at the same time.
4. Connect an appropriate surge absorber to OUT10 (TBO.3 1-2) depending on the load at site.
5. Stranded wire should be processed with insulation-covered bar terminal (DIN46228-4 standard compatible type).
6. Use the same thing as the signal input wire for OUTA1 wiring.

4.4.3 Wiring for 2-zone temperature control

Connect the pipe work and locally supplied parts according to the relevant circuit diagram shown in “Local system” in Section 3, of this manual.

<Mixing valve>

- Except 2-zone cylinder

  Zone1

  Connect the signal line to open Port A (hot water inlet port) to TBO. 2-6 (Open), the signal line to open Port B (cold water inlet port) to TBO. 2-4 (Close) , and the neutral terminal wire to TBO. 2-5 (N).

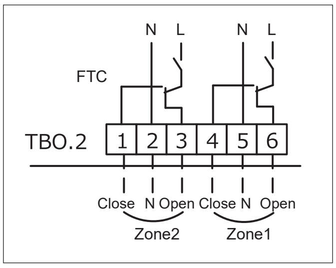
  Zone2

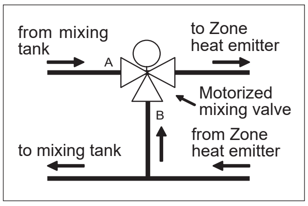
  Connect the signal line to open Port A (hot water inlet port) to TBO. 2-3 (Open), the signal line to open Port B (cold water inlet port) to TBO. 2-1 (Close) , and the neutral terminal wire to TBO. 2-2 (N).

<Thermistor>

- Do not install the thermistors on the mixing tank.
- Install the thermistor (Zone 1 flow water temp.) (THW6) near the mixing valve.
- Install the thermistor (zone 2 flow water temp.) (THW8) near the mixing valve.
- The maximum length of the thermistor wiring is 30 m.
- The length of the optional thermistors are 5 m. If you need to splice and extend the wirings, following points must be carried out.
  1) Connect the wirings by soldering.
  2) Insulate each connecting point against dust and water.

Except 2-zone cylinder





DIP Switch settings of cylinder unit (hydrobox)

Setting the following DIP switches are necessary for 2-zone control.

DIP switch	Function	OFF	ON	Setting when using 2-zone kit
SW2-6	Mixing tank	WITHOUT Mixing tank	WITH Mixing tank	ON
SW2-7	2-zone temperature control	Inactive	Active *	ON
SW7-1	Mixing valve setting	Only Zone2	Zone1 and Zone2	OFF

* Active only when SW3-6 is set to OFF.

Specifications

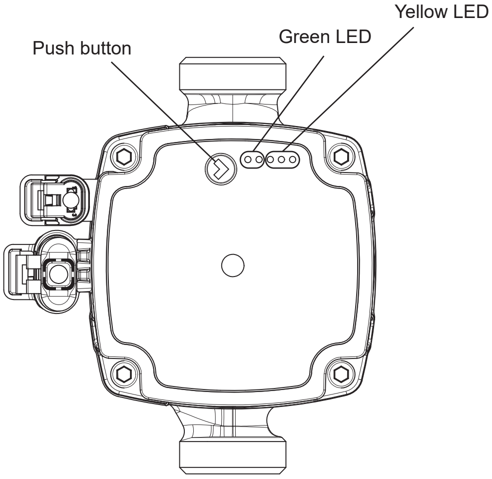
Model name	PAC-TZ02-E2
Dimension	265 mm × 383 mm × 383 mm
Weight	17 kg
Power supply	230 V/single phase/50 Hz from cylinder unit (hydrobox)
Sound pressure level	28 dB(A)
Sound power level	40 dB(A)
Pump 2, 3	Max. 52 W/0.52 A
	Max. head 7.0 m ^{*1}
Mixing valve	5 W
	Running time 90° 120s
Water flow rate range	Depend on outdoor unit

Note:

- ● Max. flow rate is 36.9 L/min. If the flow rate exceeds 36.9L/min, pipes would be eroded.
- ● The water flow rate between the cylinder unit (hydrobox) and the 2-zone kit must be greater than the total flow rate of Zone 1 and Zone 2.

Pump performance view

Display	Performance in % of MAX consumption
One green LED	0
Two green LED	0-25
Two green LED + one yellow LED	25-50
Two green LED + two yellow LED	50-75
Two green LED + three yellow LED	75-100



Pump key lock function

If you press the push button for more than 10 seconds, you can toggle between enabling/disabling the key lock function.

Pump setting selection

You can check the setting by pressing the push button.
If you press the button for 2 to 10 seconds, the user interface switches to “setting selection” if the user interface is unlocked.
You can change the settings as below table.

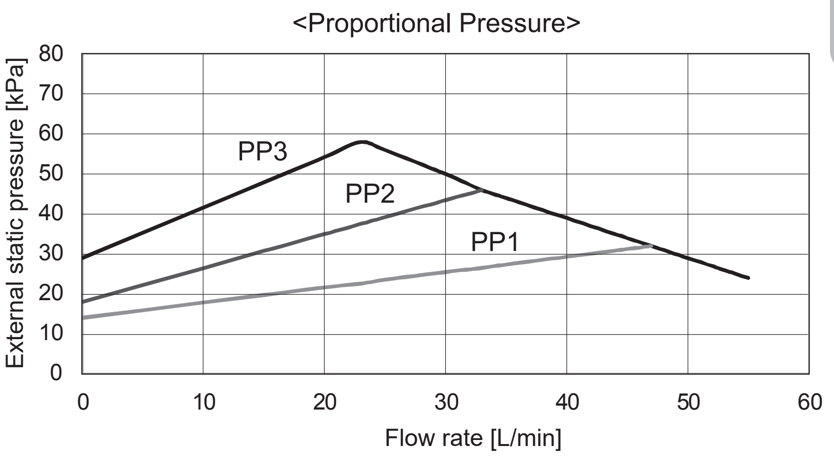
Mode	LED1 green	LED2 green	LED3 yellow	LED4 yellow	LED5 yellow
PP1	●		●		
PP2	●		●	●	
PP3	●		●	●	●
PP AA	●				
CP1		●	●		
CP2		●	●	●	
CP3		●	●	●	●
CP AA		●			
CC1			●		
CC2			●	●	
CC3			●	●	●

PP: Proportional Pressure

The head (pressure) is reduced at falling heat demand and increased at rising heat demand.

PP1: lowest proportional pressure curve
PP2: intermediate proportional pressure curve
PP3: highest proportional pressure curve
PP Auto Adapt: highest to lowest proportional pressure curve

The Auto Adapt function enables the circulator to adjust the pump performance automatically to the size of the system or the variations in load over time.

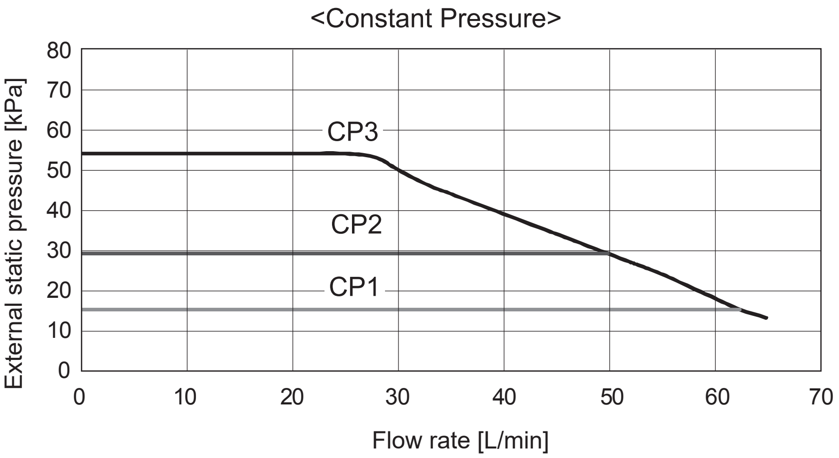


CP: Constant Pressure

The head (pressure) is kept constant, irrespective of the heat demand.

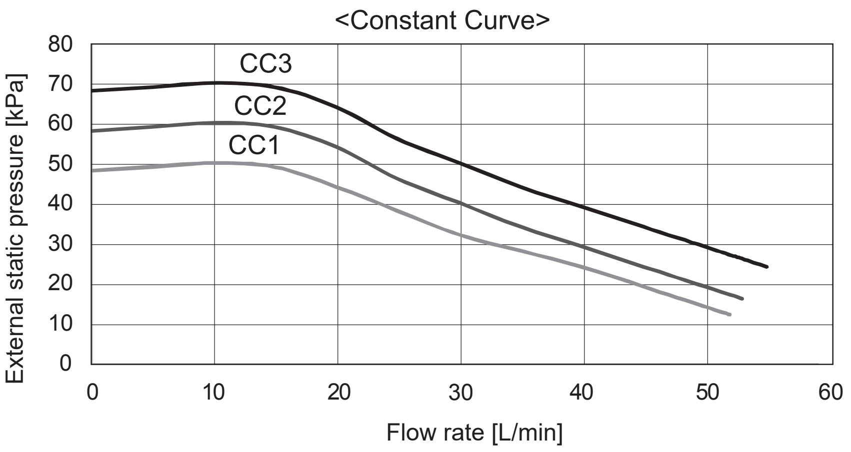
CP1: lowest constant pressure curve
CP2: intermediate constant pressure curve
CP3: highest constant pressure curve
CP Auto Adapt: highest to lowest constant pressure curve

The Auto Adapt function enables the circulator to adjust the pump performance automatically to the size of the system or the variations in load over time.



CC: Constant Curve

The circulator runs on a constant curve.



4.4.4 Indoor unit only operation (during installation work)

In the case when DHW or heating operation is required prior to connection of the outdoor unit; i.e. during installation work, an electric heater in indoor unit (*1) can be used.
*1 Model with electric heater only

1. To start operation
- Check if the indoor unit power supply is OFF, and turn DIP switch 4-4 and 4-5 ON.
- Turn ON the indoor unit power supply.

2. To end operation*2
- Turn OFF the indoor unit power supply.
- Turn DIP switch 4-4 and 4-5 OFF.

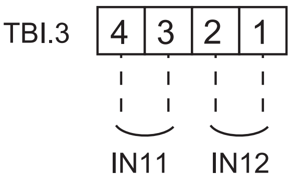
*2 When the indoor unit only operation is ended, ensure to check over the settings after outdoor unit is connected.

Note:
Prolonged running of this operation may affect the life of the electric heater.

4.4.5 Smart grid ready

In DHW, heating or cooling operation, the commands in the table below can be used.

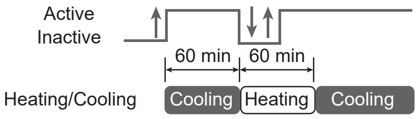
IN11	**IN12**	**Meaning**
OFF (open)	OFF (open)	Normal operation
ON (short)	OFF (open)	Switch-on recommendation
OFF (open)	ON (short)	Switch-off command
ON (short)	ON (short)	Switch-on command



4.4.6 Forced cooling mode input (IN13) (only for ER series)

- When IN13 is active, the mode (heating/cooling) is fixed to cooling.
- SW7-2 changes the logic of IN13.

Name	**Terminal block**	**DIP SW7-2**	
		OFF	**ON**
IN13	TBI.4 3-4	Active at short (Default setting)	Active at open



Notes:
Use non-voltage contact signals for the switch of IN13.
The mode (heating/cooling) does not switch under the condition such as
- within 60 minutes since the mode switched last time,
- during DHW mode or legionella prevention mode,
- during outdoor unit protection control,
- during emergency operation, floor dry up operation, or abnormality.

Check the mode with the main remote controller or the cooling signal output (OUT8 ON: cooling, OFF: heating).

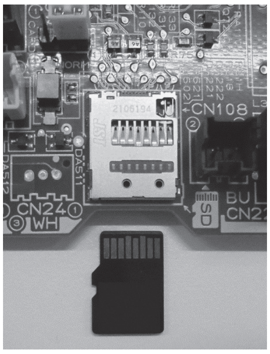
4.4.7 Using microSD memory card

The cylinder unit is equipped with a microSD memory card interface in FTC.
Using a microSD memory card can simplify main remote controller settings and can store operating logs. *1

*1 To edit main remote controller settings or to check operating data, an Ecodan service tool (for use with PC) is required.

<Handling precautions>

(1) Use a microSD memory card that complies with the SD standards. Check that the microSD memory card has a logo on it of those shown to the right.
(2) SD memory cards to the SD standards include microSD and microSDHC memory cards. The capacities are available up to 32 GB.
(3) Insert the microSD memory card into the FTC control board in the direction shown below.



(4) Before inserting or ejecting a microSD memory card, make sure to power off the system. If a microSD memory card is inserted or ejected with the system powered on, the stored data could be corrupted or the microSD memory card be damaged.
*A microSD memory card is live for a short duration after the system is powered off. Before insertion or ejection wait until the LED lamps on the FTC control board are all off.
(5) The read and write operations have been verified using the following microSD memory cards, however, these operations are not always guaranteed as the specifications of these microSD memory cards could change.

Manufacturer	Model	Tested in
Vantastek	Vantastek 8GB microSDHC	Sep. 2022
Longsys	NC5MC 2008G-52A39	Sep. 2022
Kingston	SDCS2/32GBSP	Sep. 2022

Before using a new microSD memory card (including the card that comes with the unit), always check that the microSD memory card can be safely read and written to by the FTC controller.
<How to check read and write operations>
- a) Check for correct wiring of power supply to the system. For more details, refer to section 4.4.
(Do not power on the system at this point.)
- b) Insert a microSD memory card.
- c) Power on the system.
- d) The LED4 lamp lights if the read and write operations are successfully completed. If the LED4 lamp continues blinking or does not light, the microSD memory card cannot be read or written to by the FTC controller.

(6) Make sure to follow the instruction and the requirement of the microSD memory card's manufacturer.
(7) Format the microSD memory card if determined unreadable in step (5).
This could make it readable.
Download an SD card formatter from the following site.
SD Association homepage: https://www.sdcard.org/home/
(8) FTC supports FAT12/FAT16/FAT32 file system but not NTFS/exFAT file system.
(9) Mitsubishi Electric is not liable for any damages, in whole or in part, including failure of writing to a microSD memory card, and corruption and loss of the saved data, or the like. Back up saved data as necessary.
(10) Do not touch any electronic parts on the FTC control board when inserting or ejecting a microSD memory card, or else the control board could fail.

Logos
microSD™ microSDHC™
Capacities
2 GB to 32 GB *2
SD speed classes
All

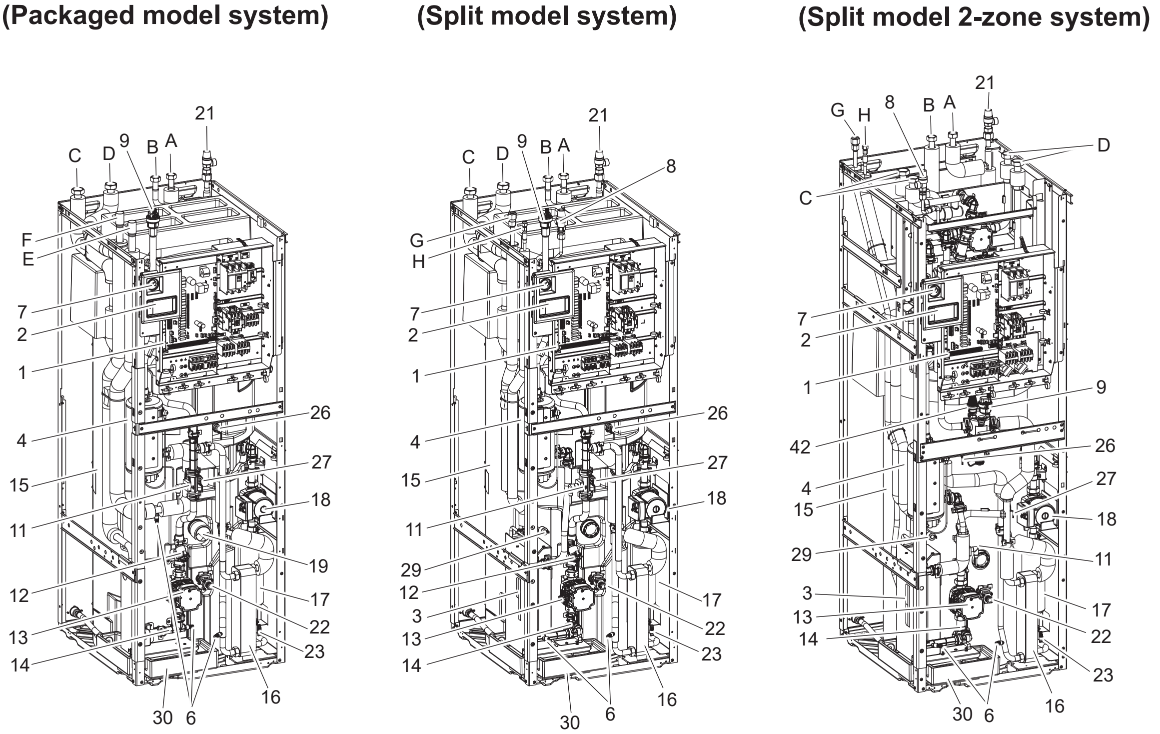
- The microSD logo is a trademark of SD-3C, LLC.

*2 A 2GB SD memory card stores up to 30 days of operation logs.

4.5 Water circuit diagrams

4.5.1 Component parts

<ET***-*M**E>**



<Figure 4.5.1>

Note:
For installation of all ET***-*M*EE* models, make sure to install a suitably sized primary-side expansion vessel. (See figure 4.5.2 and 4.5.3 for further guidance)**

No.	Part name	EHST17/20D-*M*E	EHST30D-*M*EE	EHST30D-MEE	ERST17/20D-*M*E	ERST30D-*M*EE	ERST20F-*M*E	ERST30F-*M*EE	ERST17D-*M*BE
A	DHW outlet pipe	✓	✓	✓	✓	✓	✓	✓	✓
B	Cold water inlet pipe	✓	✓	✓	✓	✓	✓	✓	✓
C	Water pipe (Space heating/cooling return connection)	✓	✓	✓	✓	✓	✓	✓	✓
D	Water pipe (Space heating/cooling flow connection)	✓	✓	✓	✓	✓	✓	✓	✓
E	Water pipe (Flow from heat pump connection)	—	—	—	—	—	—	—	—
F	Water pipe (Return to heat pump connection)	—	—	—	—	—	—	—	—
G	Refrigerant pipe (Gas)	✓	✓	✓	✓	✓	✓	✓	✓
H	Refrigerant pipe (Liquid)	✓	✓	✓	✓	✓	✓	✓	✓
1	Control and electrical box	✓	✓	✓	✓	✓	✓	✓	✓
2	Main remote controller	✓	✓	✓	✓	✓	✓	✓	✓
3	Plate heat exchanger (Refrigerant - Water)	✓	✓	✓	✓	✓	✓	✓	✓
4	Booster heater 1,2	✓	✓	—	✓	✓	✓	✓	✓
5	3-way valve	✓	✓	✓	✓	✓	✓	✓	✓
6	Drain cock (Primary circuit)	✓	✓	✓	✓	✓	✓	✓	✓
7	Manometer	✓	✓	✓	✓	✓	✓	✓	✓
8	Pressure relief valve (3 bar)	✓	✓	✓ *2, 3	✓	✓ *3	✓	✓ *3	✓
9	Automatic air vent	✓	✓	✓	✓	✓	✓	✓	✓
10	Expansion vessel (Primary circuit)	✓	—	—	✓	—	✓	—	✓
11	Flow sensor	✓	✓	✓	✓	✓	✓	✓	✓
12	Magnetic filter	✓	✓	✓	✓	✓	✓	✓	✓
13	Water circulation pump 1 (Primary circuit)	✓	✓	✓	✓	✓	✓	✓	✓
14	Pump elbow	✓	✓	✓	✓	✓	✓	✓	✓
15	DHW tank	✓	✓	✓	✓	✓	✓	✓	✓
16	Plate heat exchanger (Water - Water)	✓	✓	✓	✓	✓	✓	✓	✓
17	Scale trap	✓	✓	✓	✓	✓	✓	✓	✓
18	Water circulation pump (Sanitary circuit)	✓	✓	✓	✓	✓	✓	✓	✓
19	Immersion heater	—	—	—	—	—	—	—	—
20	Temperature and pressure relief valve	—	—	—	—	—	—	—	—
21	Pressure relief valve (10 bar) (DHW Tank)	✓	✓	✓	✓	✓	✓	✓	✓
22	Drain cock (DHW tank)	✓	✓	✓	✓	✓	✓	✓	✓
23	Drain cock (Sanitary circuit)	✓	✓	✓	✓	✓	✓	✓	✓
24	Thermistor (Flow water temp.) (THW1)	✓	✓	✓	✓	✓	✓	✓	✓
25	Thermistor (Return water temp.) (THW2)	✓	✓	✓	✓	✓	✓	✓	✓
26	Thermistor (DHW tank upper water temp.) (THW5A)	✓	✓	✓	✓	✓	✓	✓	✓
27	Thermistor (DHW tank lower water temp.) (THW5B)	✓	✓	✓	✓	✓	✓	✓	✓
28	Thermistor (Ref. liquid temp.) (TH2)	✓	✓	✓	✓	✓	✓	✓	✓
29	Pressure sensor	✓	✓	✓	✓	✓	✓	✓	✓
30	Drain pan	—	—	—	✓	✓	✓	✓	✓
31	Outdoor unit	—	—	—	—	—	—	—	—
32	Drain pipe (Local supply)	—	—	—	—	—	—	—	—
33	Back flow prevention device (Local supply)	—	—	—	—	—	—	—	—
34	Isolating valve (Local supply)	—	—	—	—	—	—	—	—
35	Magnetic filter (Local supply) (Recommended)	—	—	—	—	—	—	—	—
36	Strainer (Local supply)	—	—	—	—	—	—	—	—
37	Pressure relief valve (3 bar - In outdoor unit)	—	—	—	—	—	—	—	—
38	Inlet control group *1	—	—	—	—	—	—	—	—
39	Filling loop (Ball valves, check valves and flexible hose) *1	—	—	—	—	—	—	—	—
40	Potable expansion vessel *1	—	—	—	—	—	—	—	—
41	Air vent (Local supply)	—	—	—	—	—	—	—	—
42	Pressure relief valve (5 bar)	✓	—	—	✓	—	✓	—	✓
43	Water circulation pump 2 (Zone 1)	—	—	—	—	—	—	—	✓
44	Water circulation pump 3 (Zone 2)	—	—	—	—	—	—	—	✓
45	Mixing valve	—	—	—	—	—	—	—	✓
46	Magnetic filter	—	—	—	—	—	—	—	✓
47	Mud trap	—	—	—	—	—	—	—	✓
48	Thermistor (Zone 1 flow water temp.) (THW6)	—	—	—	—	—	—	—	✓
49	Thermistor (Zone 1 return water temp.) (THW7)	—	—	—	—	—	—	—	✓
50	Thermistor (Zone 2 flow water temp.) (THW8)	—	—	—	—	—	—	—	✓
51	Thermistor (Zone 2 return water temp.) (THW9)	—	—	—	—	—	—	—	✓
52	Header	—	—	—	—	—	—	—	✓

*1 Supplied with UK model ONLY. Please refer to PAC-WK02UK-E Installation Manual for more information on accessories.
*2 Attachment the part to the position of 3 bar PRV for E*ST20 series. (Refer to *c of the Figure 4.5.6)
*3 Attachment the part to the position of 3 bar PRV for E*ST30 series. (Refer to *d of the Figure 4.5.6)

<Table 4.5.1>

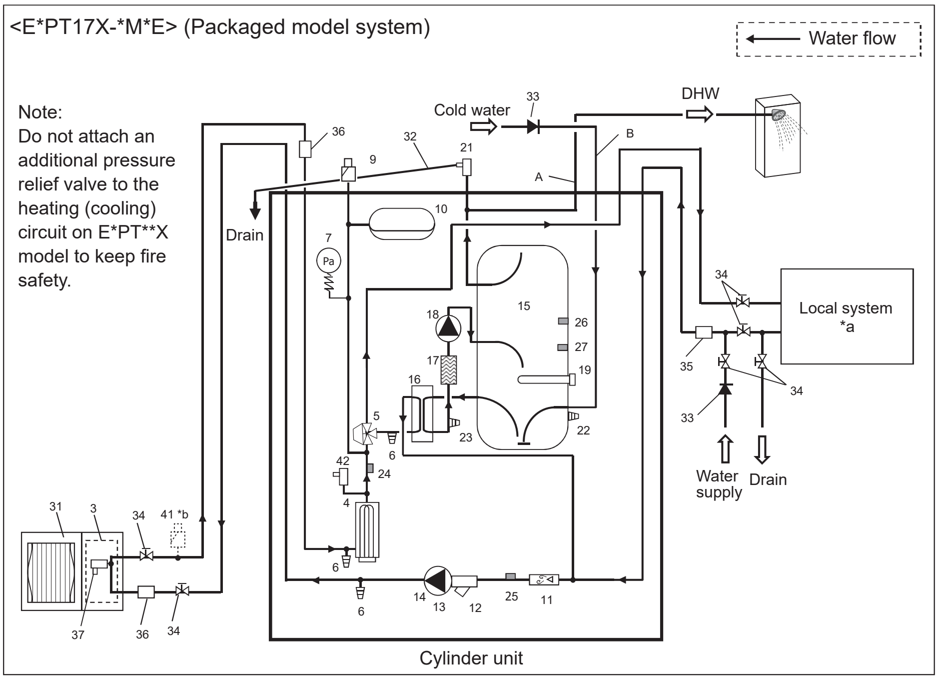
No.	Part name	ERST20C-*M*E	ERST30C-*M*EE	EHPT17/20X-*M*E	EHPT30X-*M*EE	ERPT17/20X-*M*E	ERPT30X-*M*EE	EHPT20X-MEHEW
A	DHW outlet pipe	✓	✓	✓	✓	✓	✓	✓
B	Cold water inlet pipe	✓	✓	✓	✓	✓	✓	✓
C	Water pipe (Space heating/cooling return connection)	✓	✓	✓	✓	✓	✓	✓
D	Water pipe (Space heating/cooling flow connection)	✓	✓	✓	✓	✓	✓	✓
E	Water pipe (Flow from heat pump connection)	—	—	✓	✓	✓	✓	✓
F	Water pipe (Return to heat pump connection)	—	—	✓	✓	✓	✓	✓
G	Refrigerant pipe (Gas)	✓	✓	—	—	—	—	—
H	Refrigerant pipe (Liquid)	✓	✓	—	—	—	—	—
1	Control and electrical box	✓	✓	✓	✓	✓	✓	✓
2	Main remote controller	✓	✓	✓	✓	✓	✓	✓
3	Plate heat exchanger (Refrigerant - Water)	✓	✓	—	—	—	—	—
4	Booster heater 1,2	✓	✓	✓	✓	✓	✓	—
5	3-way valve	✓	✓	✓	✓	✓	✓	✓
6	Drain cock (Primary circuit)	✓	✓	✓	✓	✓	✓	✓
7	Manometer	✓	✓	✓	✓	✓	✓	✓
8	Pressure relief valve (3 bar)	✓ *2	✓ *3	—	—	—	—	—
9	Automatic air vent	✓	✓	✓	✓	✓	✓	✓
10	Expansion vessel (Primary circuit)	✓	—	✓	—	✓	—	—
11	Flow sensor	✓	✓	✓	✓	✓	✓	✓
12	Magnetic filter	✓	✓	✓	✓	✓	✓	✓
13	Water circulation pump 1 (Primary circuit)	✓	✓	✓	✓	✓	✓	✓
14	Pump elbow	✓	✓	✓	✓	✓	✓	✓
15	DHW tank	✓	✓	✓	✓	✓	✓	✓
16	Plate heat exchanger (Water - Water)	✓	✓	✓	✓	✓	✓	✓
17	Scale trap	✓	✓	✓	✓	✓	✓	✓
18	Water circulation pump (Sanitary circuit)	✓	✓	✓	✓	✓	✓	✓
19	Immersion heater	—	—	—	—	—	—	✓
20	Temperature and pressure relief valve	—	—	—	—	—	—	✓
21	Pressure relief valve (10 bar) (DHW Tank)	✓	✓	✓	✓	✓	✓	—
22	Drain cock (DHW tank)	✓	✓	✓	✓	✓	✓	✓
23	Drain cock (Sanitary circuit)	✓	✓	✓	✓	✓	✓	✓
24	Thermistor (Flow water temp.) (THW1)	✓	✓	✓	✓	✓	✓	✓
25	Thermistor (Return water temp.) (THW2)	✓	✓	✓	✓	✓	✓	✓
26	Thermistor (DHW tank upper water temp.) (THW5A)	✓	✓	✓	✓	✓	✓	✓
27	Thermistor (DHW tank lower water temp.) (THW5B)	✓	✓	✓	✓	✓	✓	✓
28	Thermistor (Ref. liquid temp.) (TH2)	✓	✓	—	—	—	—	—
29	Pressure sensor	—	—	—	—	—	—	—
30	Drain pan	✓	✓	—	—	✓	✓	—
31	Outdoor unit	—	—	—	—	—	—	—
32	Drain pipe (Local supply)	—	—	—	—	—	—	—
33	Back flow prevention device (Local supply)	—	—	—	—	—	—	—
34	Isolating valve (Local supply)	—	—	—	—	—	—	—
35	Magnetic filter (Local supply) (Recommended)	—	—	—	—	—	—	—
36	Strainer (Local supply)	—	—	—	—	—	—	—
37	Pressure relief valve (3 bar - In outdoor unit)	—	—	—	—	—	—	—
38	Inlet control group *1	—	—	—	—	—	—	—
39	Filling loop (Ball valves, check valves and flexible hose) *1	—	—	—	—	—	—	—
40	Potable expansion vessel *1	—	—	—	—	—	—	—
41	Air vent (Local supply)	—	—	—	—	—	—	—
42	Pressure relief valve (5 bar)	✓	—	✓	—	✓	—	—
43	Water circulation pump 2 (Zone 1)	—	—	—	—	—	—	—
44	Water circulation pump 3 (Zone 2)	—	—	—	—	—	—	—
45	Mixing valve	—	—	—	—	—	—	—
46	Magnetic filter	—	—	—	—	—	—	—
47	Mud trap	—	—	—	—	—	—	—
48	Thermistor (Zone 1 flow water temp.) (THW6)	—	—	—	—	—	—	—
49	Thermistor (Zone 1 return water temp.) (THW7)	—	—	—	—	—	—	—
50	Thermistor (Zone 2 flow water temp.) (THW8)	—	—	—	—	—	—	—
51	Thermistor (Zone 2 return water temp.) (THW9)	—	—	—	—	—	—	—
52	Header	—	—	—	—	—	—	—

*1 Supplied with UK model ONLY. Please refer to PAC-WK02UK-E Installation Manual for more information on accessories.
*2 Attachment the part to the position of 3 bar PRV for E*ST20 series. (Refer to *c of the Figure 4.5.6)
*3 Attachment the part to the position of 3 bar PRV for E*ST30 series. (Refer to *d of the Figure 4.5.6)

<Table 4.5.2>

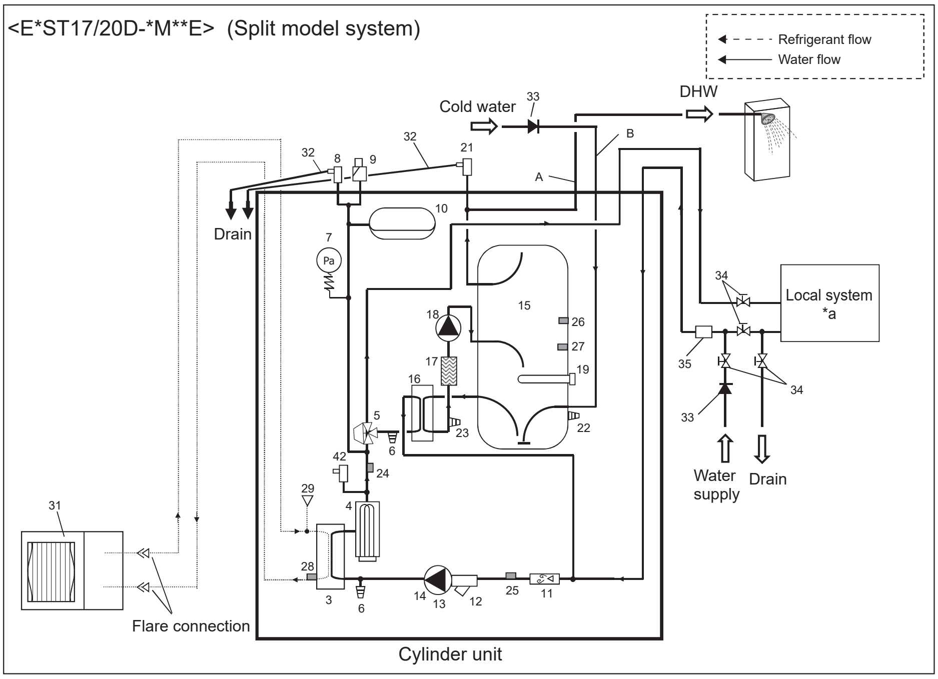
4 Cylinder unit

■ Water circuit diagram


<E*PT17X-*M*E> (Packaged model system)

Note:
Do not attach an additional pressure relief valve to the heating (cooling) circuit on E*PT**X model to keep fire safety.

<Figure 4.5.2>

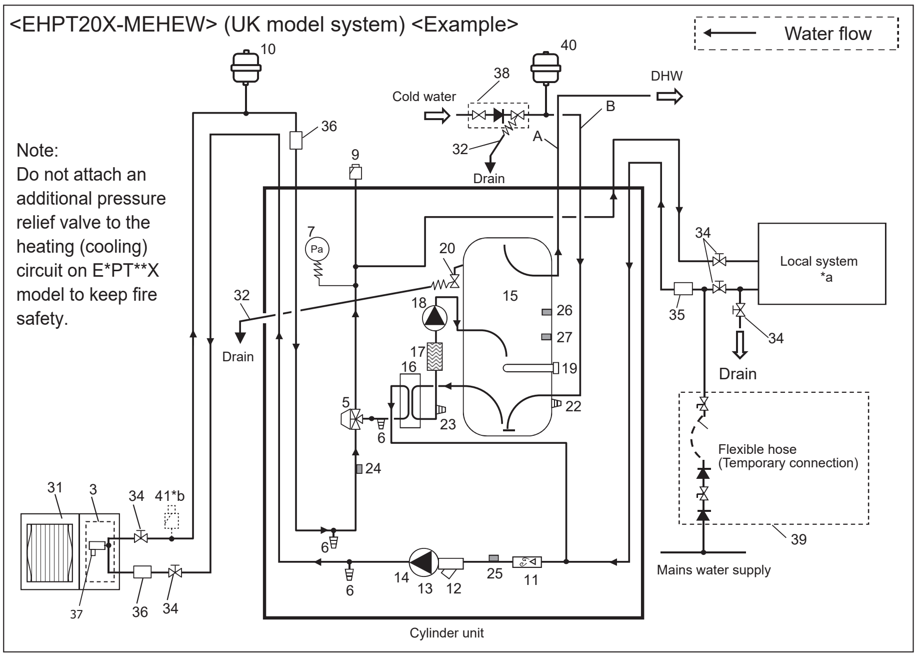

<E*ST17/20D-*M**E> (Split model system)

<Figure 4.5.3>

*a Refer to the following section “Local system” on the paper-based manual in chapter 3.
*b If the outdoor unit is higher than the indoor unit, or if there is a location where air gets trapped in the upper part of the water pipe, consider adding this part.

Note
- To enable draining of the cylinder unit an isolating valve should be positioned on both the inlet and outlet pipework.
- Be sure to install a strainer on the inlet pipework to the cylinder unit.
- Suitable drain pipework should be attached to the relief valves instructed to be connected to it in Figure 4.5.2 and 4.5.3 in accordance with your country’s regulations.
- A backflow prevention device must be installed on the cold water supply pipework (IEC 61770)
- When using components made from different metals or connecting pipes made of different metals insulate the joints to prevent any corrosive reaction taking place which may damage the pipework.)

4 Cylinder unit



<EHPT20X-MEHEW> (UK model system) <Example>

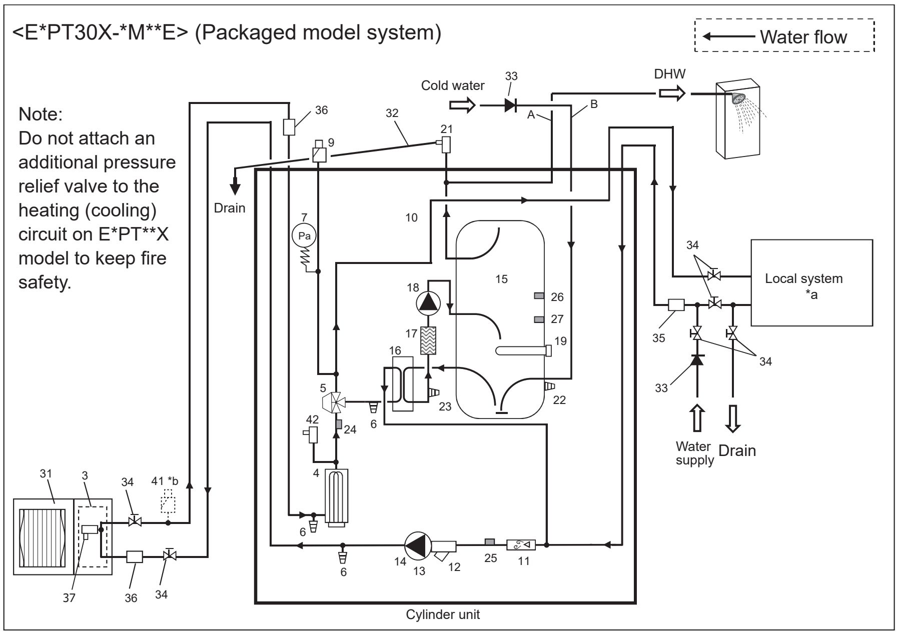
Note:
Do not attach an additional pressure relief valve to the heating (cooling) circuit on E*PT**X model to keep fire safety.

<Figure 4.5.4>

*a Refer to the following section "Local system" on the paper-based manual.

*b If the outdoor unit is higher than the indoor unit, or if there is a location where air gets trapped in the upper part of the water pipe, consider adding this part.

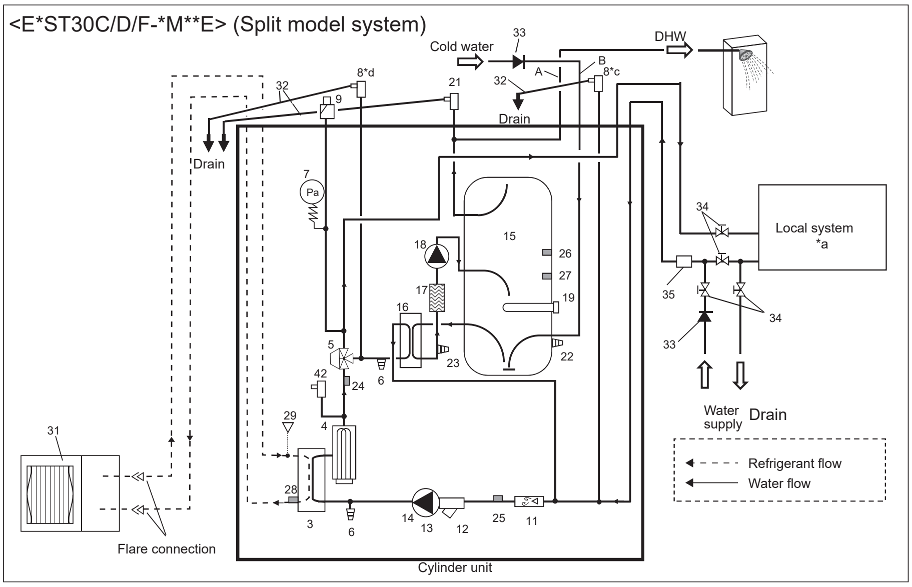
Note (Figure 4.5.4)
- To enable draining of the cylinder unit an isolating valve should be positioned on both the inlet and outlet pipework. No valve should be fitted between the expansion valve (item 38) and the cylinder unit (safety matter).
- For space heating (primary) circuit a suitable expansion vessel must be supplied and fitted by installer. (See figure 4.6.4)
- Be sure to install a strainer on the inlet pipework to the cylinder unit.
- Suitable drain pipework should be attached to the relief valves instructed to be connected to it in Figure 4.5.4 in accordance with your country's regulations.
- When using components made from different metals or connecting pipes made of different metals insulate the joints to prevent any corrosive reaction taking place which may damage any pipework.
- Filling loop's flexible hose must be removed following the filling procedure. Item provided with unit as loose accessory.
- Install the inlet control group (item 38) above the level of the temperature and pressure relief valve (item 20). This will ensure DHW tank will not require drain down to service/maintain the inlet control group.



<E*PT30X-*M**E> (Packaged model system)

Note:
Do not attach an additional pressure relief valve to the heating (cooling) circuit on E*PT**X model to keep fire safety.

<Figure 4.5.5>



<E*ST30C/D/F-*M**E> (Split model system)

<Figure 4.5.6>

*a Refer to the following section "Local system" on the paper-based manual.

*b If the outdoor unit is higher than the indoor unit, or if there is a location where air gets trapped in the upper part of the water pipe, consider adding this part.

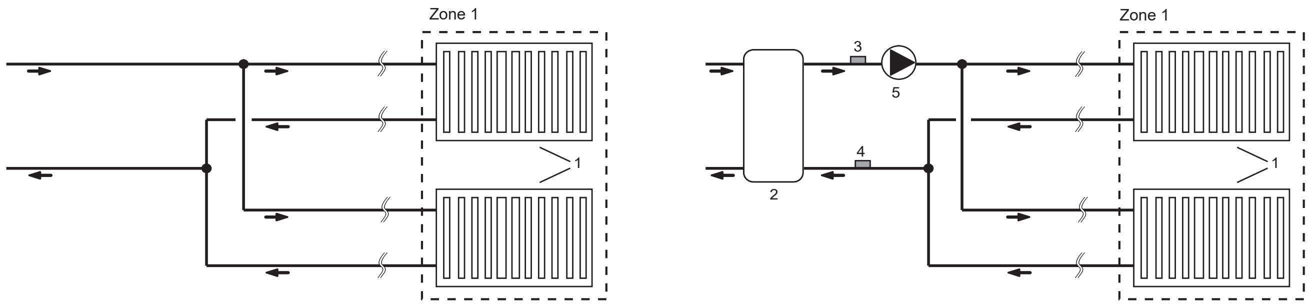
*c E**T20 only

*d E**T30 only

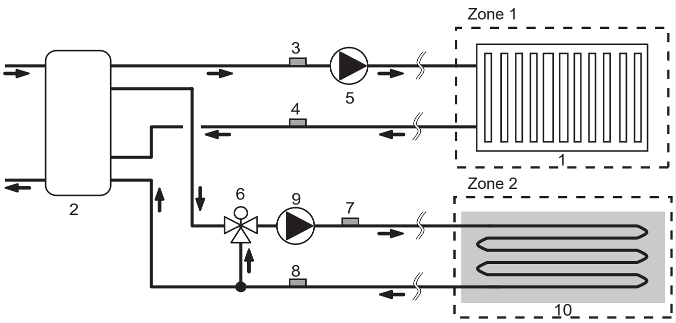
Note (Figure 4.5.5) (Figure 4.5.6)
- To enable draining of the cylinder unit an isolating valve should be positioned on both the inlet and outlet pipework.
- Be sure to install a strainer on the inlet pipework to the cylinder unit.
- Suitable drain pipework should be attached to the relief valves instructed to be connected to it in Figure 4.5.5 and 4.5.6 in accordance with your country's regulations.
- A backflow prevention device must be installed on the cold water supply pipework (IEC 61770)
- When using components made from different metals or connecting pipes made of different metals insulate the joints to prevent any corrosive reaction taking place which may damage the pipework.

4.5.2 Local system

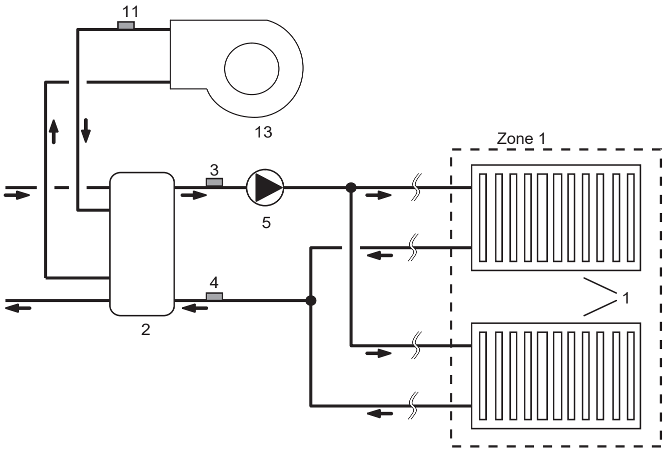
1-zone temperature control



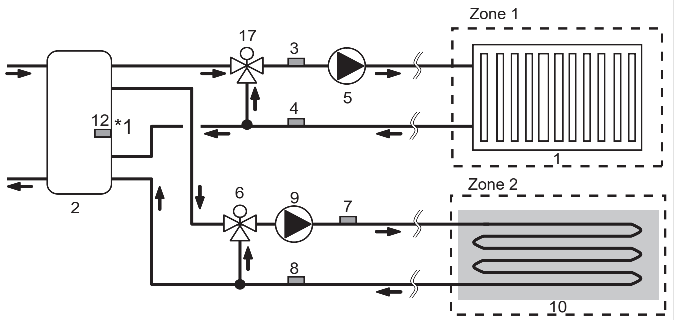
2-zone temperature control



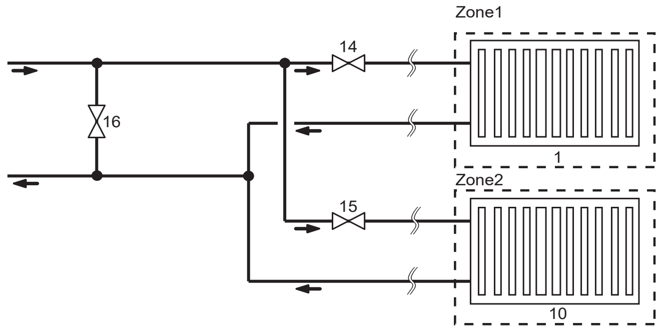
1-zone temperature control with boiler



2-zone temperature control & Buffer tank control



1-zone temperature control (2-zone valve ON/OFF control)



1. Zone 1 heat emitters (e.g. radiator, fan coil unit) (local supply)
2. Mixing tank (local supply)
3. Thermistor (Zone 1 flow water temp.) (THW6)
4. Thermistor (Zone 1 return water temp.) (THW7)

   } Optional part: PAC-TH011-E
5. Zone 1 water circulation pump (local supply)
6. Zone 2 motorized mixing valve (local supply)
7. Thermistor (Zone 2 flow water temp.) (THW8)
8. Thermistor (Zone 2 return water temp.) (THW9)

   } Optional part: PAC-TH011-E
9. Zone 2 water circulation pump (local supply)
10. Zone 2 heat emitters (e.g. underfloor heating) (local supply)
11. Thermistor (Boiler flow water temp.) (THWB1)
12. Thermistor (Mixing tank water temp.) (THW10) *1

    } Optional part: PAC-TH012HT(L)-E
13. Boiler (local supply)
14. Zone 1 2-way valve (local supply)
15. Zone 2 2-way valve (local supply)
16. Bypass valve (local supply)
17. Zone 1 motorized mixing valve (local supply)

*1 ONLY buffer tank control (heating/cooling) applies to "Smart grid ready".

4.6. Installation

<Preparation before the installation and service>

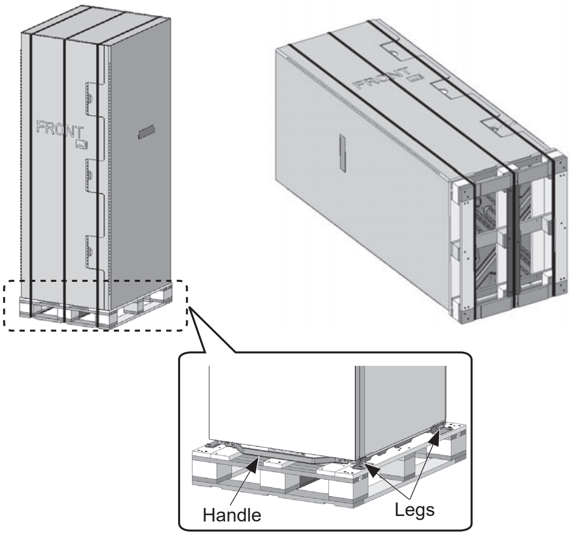
- Prepare the proper tools.
- Prepare the proper protection.
- Allow parts to cool before attempting any maintenance.
- Provide adequate ventilation.
- After stopping the operation of the system, turn off the power-supply breaker and remove the power plug.
- Discharge the capacitor before commencing work involving the electric parts.

<Precautions during service>

- Do not perform work involving electric parts with wet hands.
- Do not pour water or liquid into the electric parts.
- Do not touch the refrigerant.
- Do not touch the hot or cold surfaces in the refrigerant cycle.
- When the repair or the inspection of the circuit needs to be carried out without turning off the power, exercise great caution NOT to touch any LIVE parts.

4.6.1 Location

■ Transportation and Handling



<Figure 4.6.1>

Cylinder unit is delivered on a wooden pallet base with cardboard protection.

Care should be taken when transporting the cylinder unit that the casing is not damaged by impact. Do not remove the protective packaging until cylinder unit has reached its final location. This will help protect the structure and control panel.

- The cylinder unit can be transported either vertically or horizontally. If transported horizontally, the panel marked 'Front' must be facing **UPWARDS** <Figure 4.6.1>.
- The cylinder unit should ALWAYS be moved by a minimum of 3 people.
- When carrying the cylinder unit, use the handles provided.
- Before using the handles, make sure they are securely attached.
- **Please wear protective equipment when you touch front handle.** It could cause injury if you do not wear the protective equipment.
- **Please remove front handle, fixing legs, wooden base and any other packaging once the unit is in installation location.**
- **Keep the handles for future transportation.**

■ Suitable Location

Before installation, the cylinder unit should be stored in a frost-free weatherproof location. Units must **NOT** be stacked.

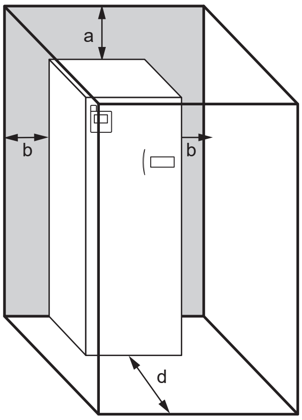
- The cylinder unit should be installed indoors in a frost free weather proof location.
- Install the cylinder unit where it is not exposed to water/excessive moisture.
- The cylinder unit should be positioned on a level surface capable of supporting it's **FILLED** weight. (Adjustable feet (accessory parts) can be used to ensure unit is level.)
- When using the adjustable feet, ensure that the floor is strong enough.
- Care should be taken that minimum distances around and in front of the unit for service access are observed <Figure 4.6.2>.
- Secure the cylinder unit to prevent it being knocked over.
- Please be careful not to break the insulation attached to the unit.

■ Service access diagrams

Service access	
Parameter	Dimension (mm)
a	300*
b	150
c (distance behind unit not visible in Figure 4.6.2)	10
d	500

<Table 4.6.1>

Sufficient space MUST be left for the provision of discharge pipework as detailed in National and Local Building Regulations.



* An additional 300 mm of space (total 600 mm) is required , when installing the optional 2-zone kit (PAC-TZ02-E2) on top of the cylinder unit.

<Figure 4.6.2>
Service access

The cylinder unit must be located indoors and in a frost-free environment, for example in a utility room, to minimise heat loss from stored water.

■ Repositioning

If you need to move the cylinder unit to a new position, fully drain the cylinder unit before moving to avoid damage to the unit.

4.6.2 Water Quality and System Preparation

The water quality must comply with European Directive (EU) 2020/2184 standards, and/or local national standards.
For example, in France : Arrêté du 11 Janvier 2007 relative aux limites et références de qualité des eaux brutes et des eaux destinées à la consommation humaine

■ Water quality in primary circuit

- The water in primary circuit should observe local national standards :
  For example, in Germany and Belgium : VDI2035 Sheet 1
- The water in primary circuit should be clean and with a pH value of pH6.5-10.0.

■ Water quality in sanitary circuit

- The sanitary water circuit should be clean and with a pH value of pH6.5-8.0
- The following are maximum values of water in sanitary circuit;
  Calcium: 100 mg/L, Hardness: 250 mg/L (Ca Hardness)
  14.0 °dH (German degree)
  25 °f (French degree)
  17.5 °E (English degree)
  Chloride: 100 mg/L, Copper: 0.3 mg/L
- Other constituents of water in sanitary circuit should be compliant with European Directive (EU) 2020/2184 standards.
- In known hard water areas, to prevent/minimise scaling, it is beneficial to restrict the routine stored water temperature (DHW max. temp.) to 55°C, and/or to add an appropriate water treatment (i.e: softener).

■ Anti-Freeze

Anti-freeze solutions should use propylene glycol with a toxicity rating of Class 1 as listed in Clinical Toxicology of Commercial Products, 5th Edition.

Notes:

1. Ethylene glycol is toxic and should NOT be used in the primary water circuit in case of any cross-contamination of the potable circuit.
2. For 2-zone valve ON/OFF control, propylene glycol should be used.

■ New Installation (primary water circuit)

- Before connecting outdoor unit, thoroughly cleanse pipework of building debris, solder, etc. using a suitable chemical cleansing agent.
- Flush the system to remove chemical cleanser.
- For all packaged model systems, add a combined inhibitor and anti-freeze solution to prevent damage to the pipework and system components.
- For split model systems, the responsible installer should decide if anti-freeze solution is necessary for each site's conditions. Corrosion inhibitor however should ALWAYS be used.

■ Existing Installation (primary water circuit)

- Before connecting outdoor unit, the existing heating circuit MUST be chemically cleansed to remove existing debris from the heating circuit.
- Flush the system to remove chemical cleanser.
- For all packaged model systems, and the split model or PUMY system without booster heater, add a combined inhibitor and anti-freeze solution to prevent damage to the pipework and system components.
- For split model systems, the responsible installer should decide if anti-freeze solution is necessary for each site's conditions. Corrosion inhibitor however should ALWAYS be used.

When using chemical cleansers and inhibitors, always follow manufacturer's instructions and ensure the product is appropriate for the materials used in the water circuit

■ Minimum amount of water required in the space heating/cooling circuit

Outdoor heat pump unit		Indoor unit containing water amount [L]	Additional required water amount [L]*1	
			Average / Warmer climate*2	Colder climate*2
Packaged model	PUZ-WM50	5	2	24
	PUZ-WM60		4	29
	PUZ-WM85		7	32
	PUZ-WM112		11	43
	PUZ-HWM140		15	55
	PUZ-WZ50		2	24
	PUZ-WZ60		4	21
	PUZ-WZ80		6	29
Split model SUZ series	SUZ-SWM30VA		5 *3	12 *3
	SUZ-SWM40VA2		5 *3	12 *3
	SUZ-SWM60VA2		9 *3	21 *3
	SUZ-SWM80VA(H)2		12 *3	29 *3
	SUZ-SWM100VA(H)		12 *3	38 *3
	SUZ-SHWM30VAH		9 *3	21 *3
	SUZ-SHWM40VAH		9 *3	21 *3
	SUZ-SHWM60VAH		12 *3	29 *3
Split model PUZ series	PUZ-S(H)WM60	5	4	21
	PUZ-S(H)WM80		6	29
	PUZ-S(H)WM100		9	38
	PUZ-S(H)WM120		12	47
	PUZ-S(H)WM140		15	55
Split model Multi series	PUMY-P112	5	22	75
	PUMY-P125		22	75
	PUMY-P140		22	75
	PXZ-4F75VG		6	27
	PXZ-5F85VG		6	29

<Table 4.6.2>

*1 Water amount: If there is a bypass circuit, above table means minimum water amount in case of bypass.
*2 Climate: Please refer to 2009/125/EC: Energy-related Products Directive and Regulation (EU) No 813/2013 to confirm your climate zone.
*3 SUZ series: Flow temperature MUST always be NO lower than 32 °C when outdoor temperature drops below -15 °C.
Potential risks of plate HEX get frozen and damaged, and also outdoor HEX would be frosted due to insufficient defrosting.

Case 1. No division between primary and secondary circuit
- Please ensure the required water amount according to Table 4.6.2 by water pipe and radiator or underfloor heating.

Case 2. Separate primary and secondary circuit
- If the interlock operation of primary and secondary pump is not available, please ensure required additional water in only primary circuit according to Table 4.6.2.
- If the interlock operation of primary and secondary pump is available, please ensure total water amount of primary and secondary circuit according to Table 4.6.2.

In case of the shortage of required water amount, please install buffer tank.

4.6.3 Water Pipe Work

■ Hot Water Pipework

The cylinder unit is UNVENTED. When installing unvented hot water systems, building regulations part G3 (England and Wales), P3 (Scotland) and P5 (Northern Ireland) should be adhered to. If outside of the UK, please adhere to your own country's regulations for unvented hot water systems.

Connect the flow for the DHW to pipe A (Figure 4.5.1).
The function of the following safety components of the cylinder unit should be checked on installation for any abnormalities;
- Pressure relief valve (primary circuit and tank)
- Expansion vessel pre-charge (gas charge pressure)

The instruction on the following pages regarding safe discharge of hot water from safety devices should be followed carefully.
- The pipework will become very hot, so should be insulated to prevent burns.
- When connecting pipework, ensure that no foreign objects such as debris or the like enter the pipe.

■ Cold Water Pipework

Cold water to the suitable standard (see section 4.6.2) should be introduced to the system by connecting pipe B (Figure 4.5.1) using appropriate fittings.

■ Short Cycling Prevention

If there are thermostatic or motorized valves on the installation, at least one of the valves on each zone must be fully open (preferably on the largest emitter).

■ Negative pressure prevention

To prevent negative pressure effecting DHW tank, installer should install appropriate pipework or use appropriate devices.

■ Hydraulic filter work (ONLY E*PT series)

Install a hydraulic filter or strainer (local supply) at the water intake ("Pipe E" in Fig.4.5.1)

■ Pipework Connections

Connections to the cylinder unit should be made using the G-screw connection.
Note: Before brazing pipes in the field, protect pipes on the cylinder unit using wet towels, etc. as "heat shield".

■ Insulation of Pipework

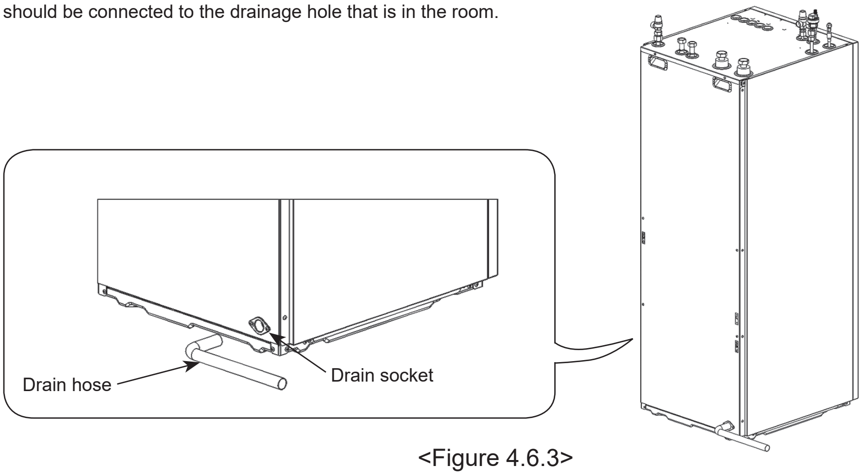
- All exposed water pipework should be insulated to prevent unnecessary heat loss and condensation. To prevent condensate entering the cylinder unit, the pipework and connections at the top of the cylinder unit should be carefully insulated.
- Cold and hot water pipework should not be run close together where possible, to avoid unwanted heat transfer.
- Pipework between outdoor heat pump unit and cylinder unit should be insulated with suitable pipe insulation material with a thermal conductivity of ≤ 0.04 W/m.K.

■ Drain Pipework (ONLY ER series)

The drain should be set from the drain socket at left rear of the unit.
The drain pipe should be installed to drain condensed water during cooling mode.
Close the drain socket hole when cooling operation is not used.
- To prevent dirty water from draining directly onto the floor next to cylinder unit, please connect appropriate discharge pipework from the cylinder drain pan.
- Securely install the drain pipe to prevent leakage from the connection.
- Securely insulate the drain pipe to prevent water dripping from the locally supplied drain pipe.
- Install the drain pipe at a down slope of 1/100 or more.
- Do not place the drain pipe in drain channel where sulphuric gas exists.
- After installation, check that the drain pipe drains water properly from the outlet of the pipe to suitable discharge location.
- The drain hose should be connected to the drainage hole that is in the room.

<Installation>
1. The drain socket (inside diameter 26 mm) is left rear of the cylinder unit. (Figure 4.6.3)
2. Fix the drain pipe (VP-20) which fits the drain socket with the polyvinyl chloride type adhesive.
3. Set the drain pipework up to the outlet with the down grade of more than one hundredth.

Note: Securely support the locally supplied drain pipe to avoid the drain pipe falling from the drain socket.



<Figure 4.6.3>

Sizing Expansion Vessels

Expansion vessel volume must fit the local system water volume.
To size an expansion vessel for the heating circuit, the following formula and graph can be used.
When the necessary expansion vessel volume exceeds the volume of an built-in expansion vessel, install an additional expansion vessel so that the sum of the volumes of the expansion vessels exceeds the necessary expansion vessel volume.

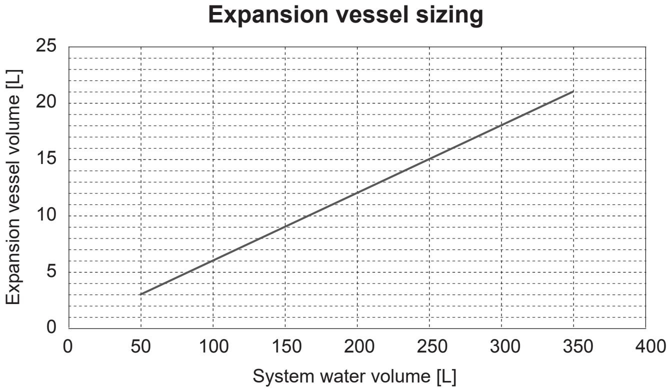
* For installation of an E**T***-*M*EE* model, provide and install a suitable primary-side expansion vessel and additional 3 bar rated pressure relief valve in the field as the model DOES NOT come fitted with a primary-side expansion vessel.

$$V = \frac{\varepsilon \times G}{1 - \frac{P_1 + 0.098}{P_2 + 0.098}}$$

Where;
V : Necessary expansion vessel volume [L]
ε : Water expansion coefficient
G : Total volume of water in the system [L]
P_1 : Expansion vessel setting pressure [MPa]
P_2 : Max. pressure during operation [MPa]

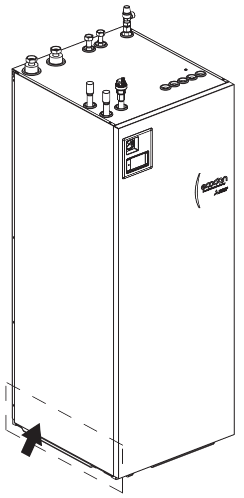
Graph to the right is for the following values

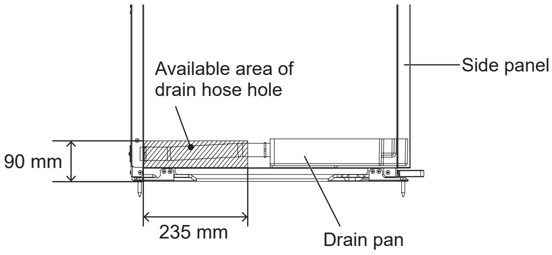
ε : at 70°C = 0.0229
P_1 : 0.1 MPa
P_2 : 0.3 MPa
*A 30% safety margin has been added.



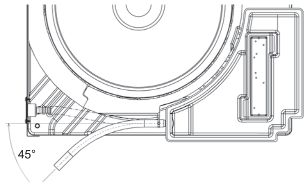
<Figure 4.6.4>

Drain hose connection from left side





<Note>
Please make a hole to come out drain hose within this area.
* Please note that bigger hole will deteriorate insulation and sound level.



<Note>
Be careful not to kink or collapse the drain hose.
(Must be in a state where it can be drained)

4.6.4 Water Circulation Pump Characteristics

1. Primary circuit

Pump speed can be selected by main remote controller setting (see Figure 4.6.5 to 4.6.12).

Adjust the pump speed setting so that the flow rate in the primary circuit is appropriate for the outdoor unit installed (see Table 4.6.3). It may be necessary to add an additional pump to the system depending on the length and lift of the primary circuit.

For outdoor unit model not listed in Table 4.6.3, refer to the water flow rate range in the specification table of outdoor unit Data Book.

<Second pump >

If a second pump is required for the installation, please read the following carefully.

If a second pump is used in the system, it can be positioned in 2 ways.

The position of the pump influences which terminal of the FTC the signal cable should be wired to. If the additional pump(s) have current greater than 1A, please use appropriate relay. Pump signal cable can either be wired to TBO.1 1-2 or CNP1 but NOT both.

Option 1 (Space heating/cooling only)

If the second pump is being used for the heating circuit, only then the signal cable should be wired to TBO.1 terminals 3 and 4 (OUT2). In this position, the pump can be run at a different speed to the cylinder unit's in-built pump.

Option 2 (Primary circuit DHW and space heating/cooling)

If the second pump is being used in the primary circuit between the cylinder unit and the outdoor unit (Package system ONLY), then the signal cable should be wired to TBO.1 terminals 1 and 2 (OUT1). In this position, the pump speed **MUST** match the speed of the cylinder unit's in-built pump.

Note: Refer to 5.2 Connecting inputs/outputs.

2. Sanitary circuit

Default setting: Speed 2

DHW circulation pump MUST be set to speed 2.

Outdoor heat pump unit		Water flow rate range [L/min]	Recommended flow [L/min] *1
Packaged model	PUZ-WM50	6.5 - 14.3	9.0
	PUZ-WM60	8.6 - 17.2	10.8
	PUZ-WM85	10.8 - 24.4 *3	15.2
	PUZ-WM112	14.4 - 32.1 *3	20.1 *2
	PUZ-HWM140	17.9 - 36.9 *3	25.1 *2
	PUZ-WZ50	6.5 - 14.3	9.0
	PUZ-WZ60	6.5 - 17.2	10.8
	PUZ-WZ80	6.5 - 22.9	14.3
Split model SUZ series	SUZ-SWM30VA	6.5 - 11.4	7.2
	SUZ-SWM40VA2	6.5 - 11.4	7.2
	SUZ-SWM60VA2	7.2 - 17.2	10.8
	SUZ-SWM80VA(H)2	10.8 - 21.5	13.4
	SUZ-SWM100VA(H)	10.8 - 25.8 *3	16.1
	SUZ-SHWM30VAH	6.5 - 11.4	7.2
	SUZ-SHWM40VAH	6.5 - 17.2	7.2
	SUZ-SHWM60VAH	8.6 - 21.5	10.8
Split model PUZ series	PUZ-S(H)WM60	7.2 - 22.9	10.8
	PUZ-S(H)WM80	7.2 - 22.9	14.3
	PUZ-S(H)WM100	7.2 - 28.7	17.9
	PUZ-S(H)WM120	10.0 - 34.4 *3	21.5 *2
	PUZ-S(H)WM140	10.0 - 34.4 *3	25.1 *2
Split model Multi series	PUMY-P112	17.9 - 35.8 *3	25.1 *2
	PUMY-P125	17.9 - 35.8 *3	28.7 *2
	PUMY-P140	17.9 - 35.8 *3	29.6 *2
	PXZ-4F75VG	11.5 - 21.7	13.4
	PXZ-5F85VG	11.5 - 24.6 *3	15.2

<Table 4.6.3>

Notes:

1. **If the water flow rate is less than the minimum flow rate setting of the flow sensor (default 5.0 L/min), the flow rate error will be activated.**
2. **If the water flow rate exceeds 36.9 L/min (E**T20/30 series) or 25.8 L/min (E**T17 series), the flow speed will be greater than 2.0 m/s, which could erode the pipes.**

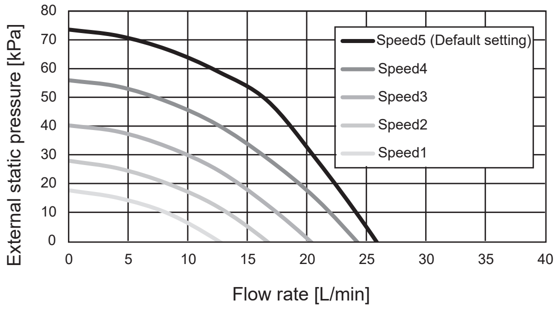
*1 To ensure optimal heating operation (condition: inlet/outlet temperature difference ΔT = 8K).

*2 With buffer tank

*3 If you want to secure the maximum flow rate, please install an additional pump.

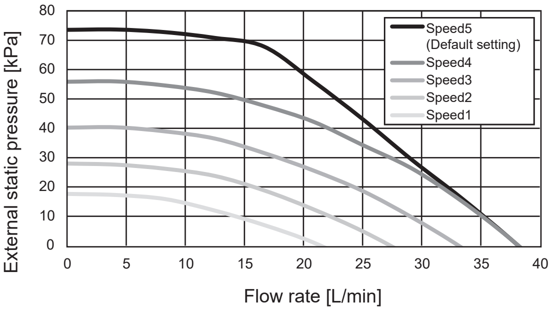
Water circulation pump characteristics

E*PT17X series



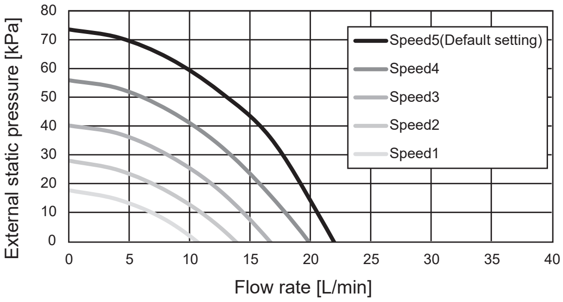
<Figure 4.6.5>

E*PT20/30X series



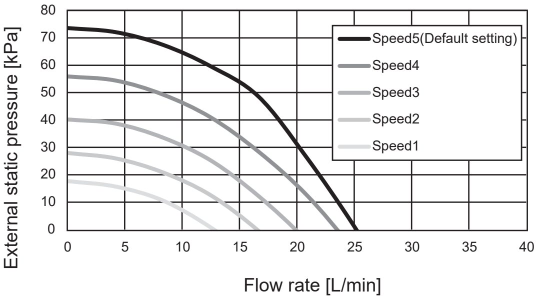
<Figure 4.6.6>

E*ST17D series (Except for 2-zone cylinder)



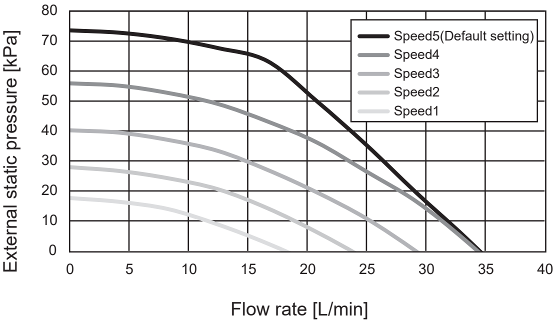
<Figure 4.6.7>

E*ST20D series



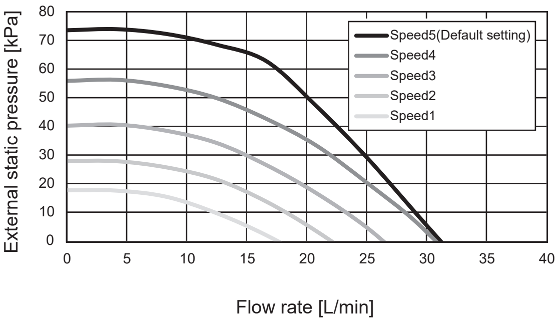
<Figure 4.6.8>

E*ST20/30C series



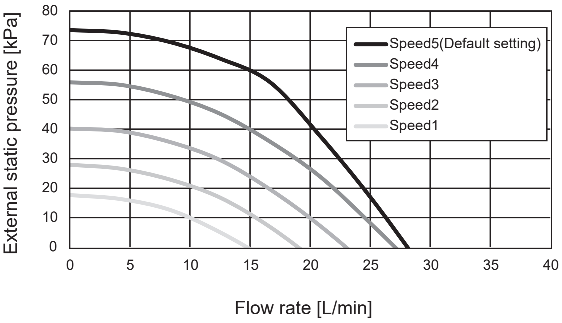
<Figure 4.6.9>

E*ST20F/30F series



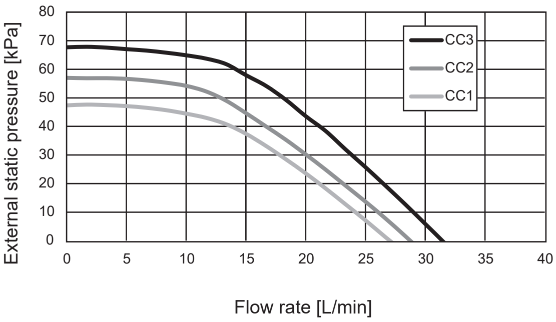
<Figure 4.6.10>

E*ST30D series



<Figure 4.6.11>

2-zone cylinder



<Figure 4.6.12>

Note: For installation of E*PT series, set its pump speed with a pressure drop between the cylinder unit and the outdoor unit factored into the external static pressure.

Immersion heater

When an immersion heater is fitted, do NOT energise the heater until the DHW tank is full of water. Also do NOT energise any immersion heater if any sterilisation chemicals remain in the DHW tank as this will cause premature failure of the heater.

Safety Device Connections

The expansion relief valve on the secondary hot water side, and the temperature and pressure (T&P) relief valve (*A), both need appropriate discharge pipework. There must be no valve fitted between the expansion relief valve and the tank.

*A EHPT20X-MEHEW is equipped with factory-fitted T & P relief valve on the tank (2). Any other models are equipped with Pressure relief valve, fitted to the DHW pipework (3).

Note : 1. Do not secure the screws excessively when connecting the Discharge pipe, otherwise it may result in damage to the cylinder unit.

<For UK>

The right side panel has a plate (*B) so that connection can be made to the factory fitted temperature and pressure relief valve. If you wish to make the connection in a different position you will have to cut a hole in the side panel yourself. However it remains necessary that the drainage parameters outlined in the appropriate Building Regulations are complied with.

*B Unscrew the plate on the right-side panel, connect the Pressure relief valve to the discharge pipework, and refit the plate. Always replace the plate so that no gaps exist between the plate and side panel and the plate and drain pipe to avoid heat loss.
In accordance with Building Regulations a tundish must be fitted into the pipework within 500 mm of the safety device (also see Figure 4.6.14). Due to the distance between the two safety devices it may be necessary to fit each safety device with its own tundish before you run the pipework together to a safe discharge (see Figure 4.6.13).

Note : 2. Alternatively the discharges from the expansion relief valve and T&P relief valve may commonly discharge to a singular tundish, so long as this tundish is located within 500 mm of the T&P relief valve in UK. When connecting discharge pipes to the safety devices, beware not to strain the inlet connections.

Diagram part No.	Description	Connection size	Connection type
1	Expansion relief valve (part of inlet control group)	15 mm	Compression
2	T&P relief valve	15 mm /G 1/2	Compression/ Female
3	Pressure relief valve	G 1/2	Female

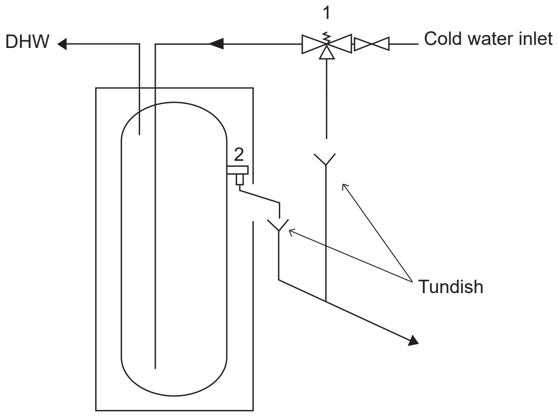
<Table 4.6.4>

Always refer to local regulations when installing discharge pipework.
Install discharge pipework in a frost-free environment.
It is necessary to provide appropriate drainage from the pressure relief valve situated on top of the cylinder unit to prevent damage to the unit and the surrounding area from any steam or hot water released. Relief valves MUST NOT be used for any other purpose.

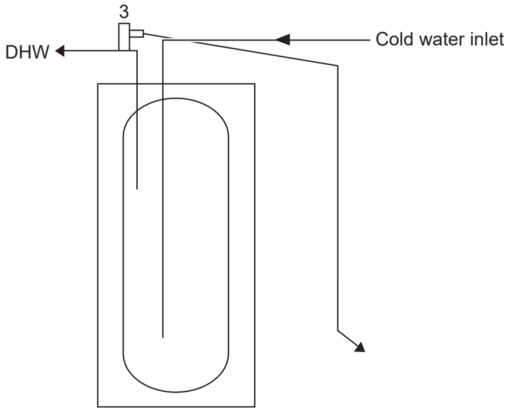
For UK use WK02UK-E kit, for other countries please see below;

- Any discharge pipework should be capable of withstanding discharge of hot water. Discharge pipework should be installed in a continuously downward direction. Discharge pipework must be left open to the environment.

<UK model>
EHPT20X-MEHEW



<Other models> The expansion vessel on the sanitary water side shall be installed as necessary in accordance with your local regulations.



<Figure 4.6.13>

Piping diagram for 2-zone temperature control

Connect the pipe work and locally supplied parts according to the relevant circuit diagram shown in Section 3. Technical Information, of this manual.
For more details on wiring, refer to "4.4.3 Wiring for 2-zone temperature control".

**Note: Do not install the thermistors on the mixing tank. This could affect correct monitoring of flow and return temperatures through each zone.
Install the Zone2 flow temp. thermistor (THW8) near the mixing valve.**

4.6.5 Safety Device Discharge Arrangements (G3)

The following instructions are a requirement of UK Building Regulations and must be adhered to. For other countries please refer to local legislation. If you are in any doubt please seek advice from local building planning office.

1. Position the inlet control group so that discharge from both safety valves can be joined together via a 15 mm end feed Tee.
2. Connect the tundish and route the discharge pipe as shown in Figure 4.6.14.
3. The tundish should be fitted vertically and as close to the safety device as possible and within 500 mm of the device.
4. The tundish should be visible to occupants and positioned away from electrical devices.
5. The discharge pipe (D2) from the tundish should terminate in a safe place where there is no risk to persons in the vicinity of the discharge, be of metal construction and:

A) Be at least one pipe size larger than the nominal outlet size of the safety device unless its total equivalent hydraulic resistance exceeds that of a straight pipe 9 m long i.e. discharge pipes between 9 m and 18 m equivalent resistance length should be at least two sizes larger than the nominal outlet size of the safety device, between 18 and 27 m at least 3 sizes larger, and so on. Bends must be taken into account in calculating the flow resistance. Refer to Figure 4.6.14, Table 4.6.5 and the worked example. An alternative approach for sizing discharge pipes would be to follow BS 6700: 1987 specification for design installation, testing and maintenance of services supplying water for domestic use within buildings and their cartilages.

B) Have a vertical section of pipe at least 300 mm long, below the tundish before any elbows or bends in the pipework.

C) Be installed with a continuous fall.

D) Have discharges visible at both the tundish and the final point of discharge but where this is not possible or is practically difficult there should be clear visibility at one or other of these locations. Examples of acceptable discharge arrangements are:

i. Ideally below a fixed grating and above the water seal in a trapped gully.

ii. Downward discharges at low level; i.e. up to 100 mm above external surfaces such as car parks, hard standings, grassed areas etc. are acceptable providing that where children may play or otherwise come into contact with discharges a wire cage or similar guard is positioned to prevent contact, whilst maintaining visibility.

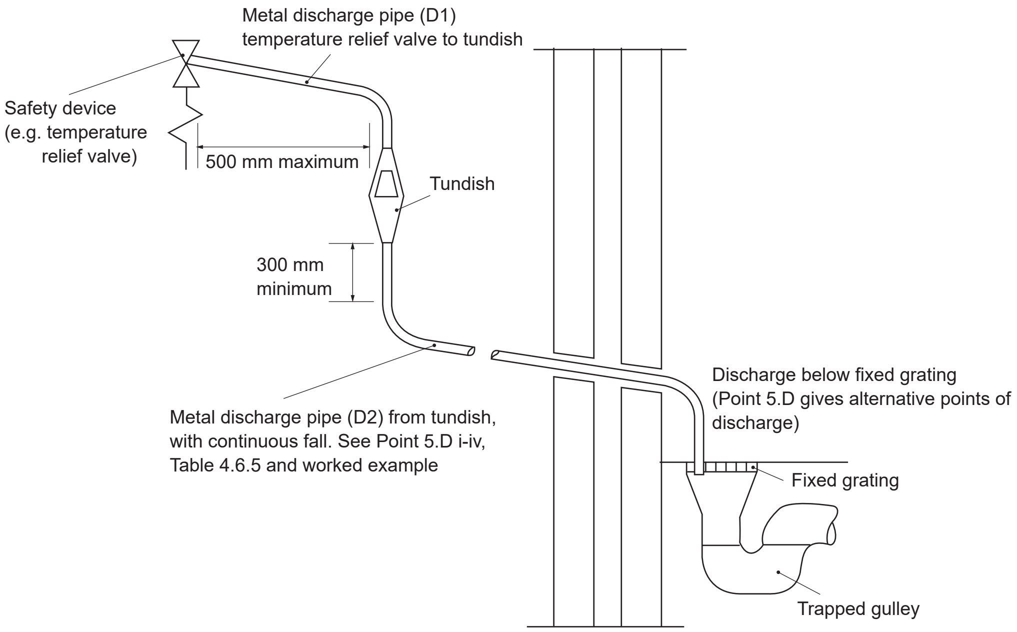
iii. Discharges at high level; e.g. into a metal hopper and metal down pipe with the end of the discharge pipe clearly visible (tundish visible or not) or onto a roof capable of withstanding high temperature discharges of water and 3 m from any plastic guttering system that would collect such discharges (tundish visible).

iv. Where a single pipe serves a number of discharges, such as in blocks of flats, the number served should be limited to not more than 6 systems so that any installation discharging can be traced reasonably easily. The single common discharge pipe should be at least one pipe size larger than the largest individual discharge pipe (D2) to be connected. If unvented hot water storage systems are installed where discharges from safety devices may not be apparent i.e. in dwellings occupied by blind, infirm or disabled people, consideration should be given to the installation of an electronically operated device to warn when discharge takes place.

Note: **The discharge will consist of scalding water and steam. Asphalt, roofing felt and nonmetallic rainwater goods may be damaged by such discharges.**

Worked example: The example below is for a G½ temperature relief valve with a discharge pipe (D2) having 4 No. elbows and length of 7 m from the tundish to the point of discharge.

From Table 4.6.5: Maximum resistance allowed for a straight length of 22 mm copper discharge pipe (D2) from a G½ temperature relief valve is: 9.0 m subtract the resistance for 4 No. 22 mm elbows at 0.8 m each = 3.2 m. Therefore the maximum permitted length equates to: 5.8 m. 5.8 m is less than the actual length of 7 m, therefore calculate the next largest size. Maximum resistance allowed for a straight length of 28 mm pipe (D2) from a G½ temperature relief valve equates to: 18 m
Subtract the resistance for 4 No. 28 mm elbows at 1.0 m each = 4 m. Therefore the maximum permitted length equates to: 14 m. As the actual length is 7 m, a 28 mm (D2) copper pipe will be satisfactory.



<Figure 4.6.14>

Valve outlet size	Minimum size of discharge pipe D1	Minimum size of discharge pipe D2 from tundish	Maximum resistance allowed, expressed as a length of straight pipe (no elbows or bends)	Resistance created by each elbow or bend
G 1/2	15 mm	22 mm	Up to 9 m	0.8 m
		28 mm	Up to 18 m	1.0 m
		35 mm	Up to 27 m	1.4 m
G 3/4	22 mm	28 mm	Up to 9 m	1.0 m
		35 mm	Up to 18 m	1.4 m
		42 mm	Up to 27 m	1.7 m
G1	28 mm	35 mm	Up to 9 m	1.4 m
		42 mm	Up to 18 m	1.7 m
		54 mm	Up to 27 m	2.3 m

<Table 4.6.5>

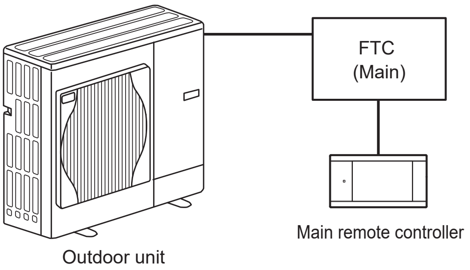
4.7. System Set Up

4.7.1 Remote Controller Options

The indoor unit comes factory fitted with a main remote controller. This incorporates a thermistor for temperature monitoring and a graphical user interface to enable set-up, view current status and input scheduling functions. The main remote controller is also used for servicing purposes. This facility is accessed via password protected service menus.

To provide the best efficiency in heating operation, Mitsubishi Electric recommends using Auto Adaptation function based on room temperature. To use this function, a room thermistor needs to be present in a main living area. This can be done in a number of ways. The most convenient are detailed below.
Refer to heating section of this manual for instructions on how to set the weather compensation curve, flow temperature or room temperature (Auto Adaptation).
For instructions on how to set the thermistor input for the FTC, please refer to Setting section in 6. Remote Controller in the installation manual.

Factory supplied standard



> The factory setting for space heating mode is set to room temperature (Auto Adaptation). If there is no room sensor present in the system, this setting must be changed to either weather compensation curve mode or flow temperature mode.

Note: Auto Adaptation is not available in cooling mode.

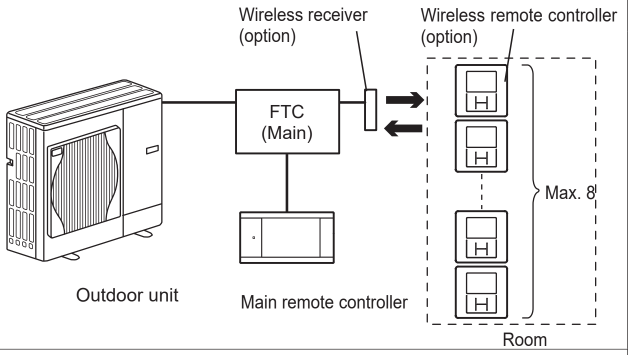
■ 1-zone temperature control

Control option A

This option features the main remote controller and the Mitsubishi Electric wireless remote controller. The wireless remote controller is used to monitor room temperature and can be used to make changes to the space heating settings, boost DHW *1 and switch to holiday mode without directly using the main remote controller.

If more than one wireless remote controller is used, the most recently requested temperature setting will commonly be applied to all rooms by the central control system regardless of which wireless remote controller was used. No hierarchy exists across these remote controllers.

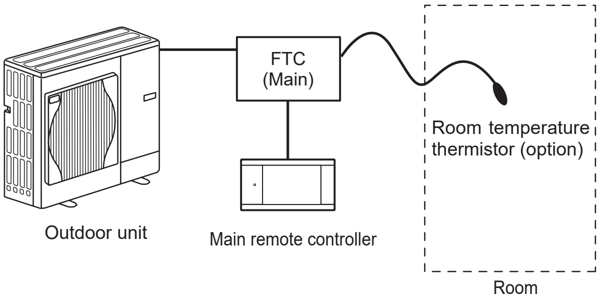
Wire the wireless receiver to FTC referring to the wireless remote controller instruction manual. **Turn DIP SW1-8 to ON.** Before operation, configure the wireless remote controller to transmit and receive data referring to the wireless remote controller installation manual.



Control option B

This option features the main remote controller and the Mitsubishi Electric thermistor wired to FTC. The thermistor is used to monitor room temperature but can not make any changes in control operation. Any changes to DHW *1 must be made using the main remote controller mounted on the indoor unit.

Wire the thermistor to the TH1 connector on FTC.
The number of room temperature thermistors that can be connected to FTC is always one.



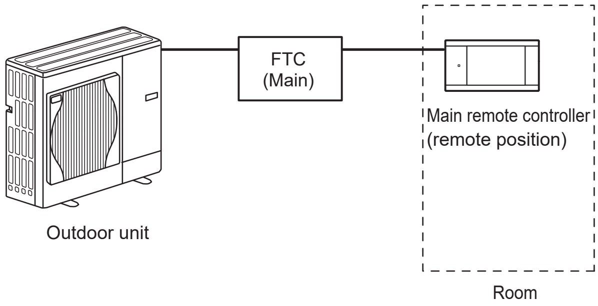
Control option C

This option features the main remote controller being removed from the indoor unit and situated in a different room. A thermistor built in the main remote controller can be used for monitoring the room temperature for Auto Adaptation function whilst keeping all its features of the main remote controller available.

The main remote controller and FTC are connected by a 2-core, 0.3 mm², non-polar cable (local supply) with a maximum length of 150 m.

To use the sensor in the main remote controller, the main remote controller should come off from the indoor unit. Otherwise it will detect the temperature of the indoor unit instead of room temperature. This will affect the output of the space heating.

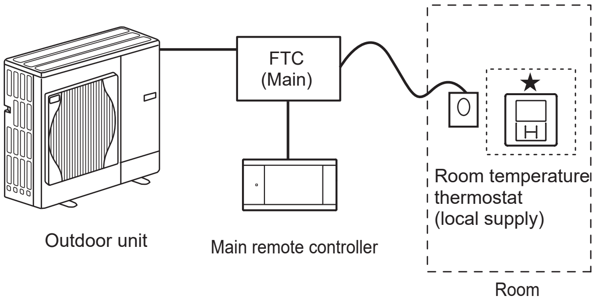
Note: Wiring for main remote controller cable shall be (5 cm or more) apart from power source wiring so that it is not influenced by electrical noise from power source wiring. (Do not insert main remote controller cable and power source wiring in the same conduit.)



Control option D (Flow temperature or weather compensation curve only)

This option features the main remote controller and a locally supplied thermostat wired to FTC. The thermostat is used to set the maximum temperature for heating room or the minimum temperature for cooling room. Any changes to DHW *1 must be made using main remote controller mounted on the indoor unit.

The thermostat is wired to IN1 in TBI.1 on FTC. The number of thermostats that can be connected to FTC is one for one zone.



*1 If applicable
★ The wireless remote controller can be also used as a thermostat.

2-zone temperature control

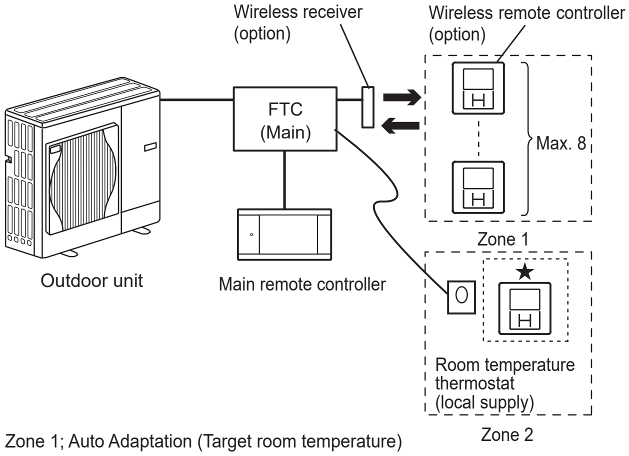
Control option A

This option features the main remote controller, the Mitsubishi Electric wireless remote controller and a locally supplied thermostat.
The wireless remote controller is used to monitor the Zone 1 room temperature and the thermostat is used to monitor the Zone 2 room temperature.
The thermostat can be also allocated to Zone 1 and the wireless remote controller to Zone 2.

The wireless remote controller can be also used to make changes to the space heating settings, boost DHW *1 and switch to holiday mode without having to use the main remote controller.

If more than one wireless remote controller is used, the last temperature setting adjustment/demand will be applied to all rooms in same zone.

Wire the wireless receiver to FTC referring to the wireless remote controller instruction manual. Turn DIP SW1-8 to ON. Before operation, configure the wireless remote controller to transmit and receive data referring to the wireless remote controller installation manual.
The thermostat is used to set the maximum temperature for heating Zone 2 room.
The thermostat is wired to IN6 on FTC. (If the thermostat is allocated to Zone 1, it is wired to IN1 on TBI.1.) (Refer to 5.2. on the paper-based manual.)

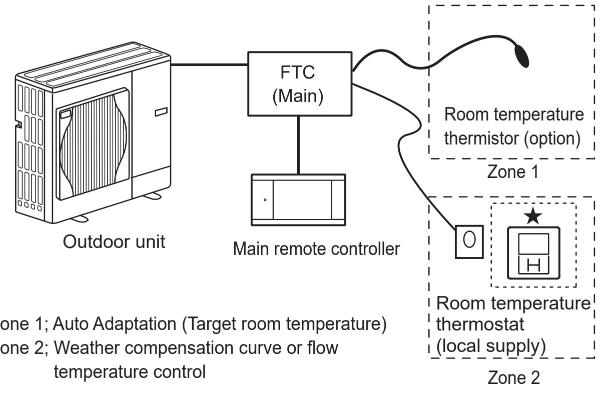


Zone 1; Auto Adaptation (Target room temperature)
Zone 2; Weather compensation curve or flow temperature control

Control option B

This option features the main remote controller, the Mitsubishi Electric thermistor and a locally supplied thermostat that are wired to FTC.
The thermistor is used to monitor the Zone 1 room temperature and the thermostat is used to control the Zone 2 room temperature.

The thermostat can be also allocated to Zone 1 and the thermistor to Zone 2.
The thermistor can not make any changes in control operation. Any changes to DHW *1 must be made using the main remote controller mounted on the indoor unit.
Wire the thermistor to the TH1 connector on FTC.
The number of room temperature thermistors that can be connected to FTC is always one.
The thermostat is used to set the maximum temperature for heating Zone 2 room.
The thermostat is wired to IN6 on FTC. (If the thermostat is allocated to Zone 1, wire it to IN1 on TBI.1.) (Refer to 5.2. on the paper-based manual.)



Zone 1; Auto Adaptation (Target room temperature)
Zone 2; Weather compensation curve or flow temperature control

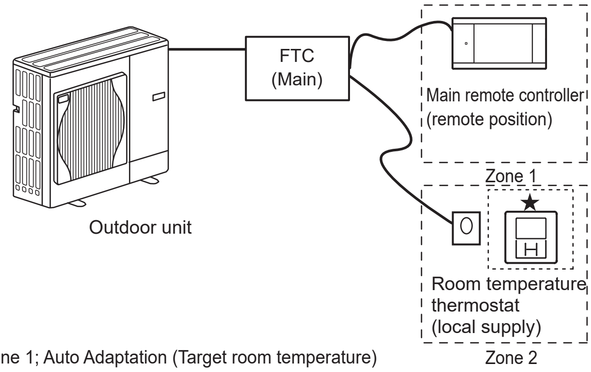
Control option C

This option features the main remote controller (with in-built thermistor) that is removed from the indoor unit to monitor the Zone 1 room temperature and a locally supplied thermostat to monitor the Zone 2 room temperature.
The thermostat can be also allocated to Zone 1 and the thermistor to Zone 2.

A thermistor built into the main remote controller can be used for monitoring the room temperature for Auto Adaptation function whilst keeping all its features of the main remote controller available.
The main remote controller and FTC are connected by a 2-core, 0.3 mm², non-polar cable (local supply) with a maximum length of 150 m.
To use the sensor in the main remote controller, the main remote controller should be detached from the indoor unit. Otherwise it will detect the temperature of the indoor unit instead of room temperature. This will affect the output of the space heating.

The thermostat is used to set the maximum temperature for heating Zone 2 room.
The thermostat is wired to IN6 on FTC. (If the thermostat is allocated to Zone 1, wire it to IN1 on TBI.1.) (Refer to 5.2. on the paper-based manual.)

Note: Wiring for main remote controller cable shall be (5 cm or more) apart from power source wiring so that it is not influenced by electrical noise from power source wiring. (Do not insert main remote controller cable and power source wiring in the same conduit.)

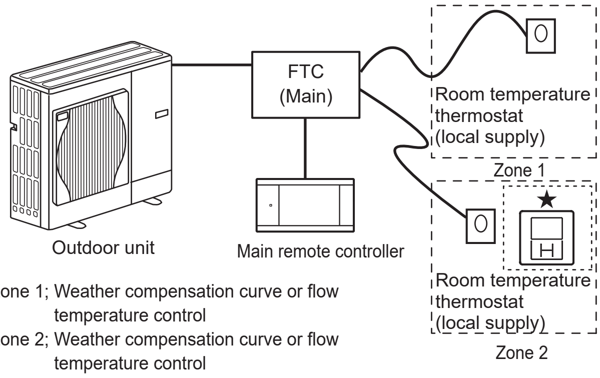


Zone 1; Auto Adaptation (Target room temperature)
Zone 2; Weather compensation curve or flow temperature control

Control option D

This option features the locally supplied thermostats wired to FTC. The thermostats are individually allocated to Zone 1 and Zone 2. The thermostats are used to set each maximum temperature for heating Zone 1 and Zone 2 rooms or the minimum temperature for cooling Zone 1 and Zone 2. Any changes to DHW *1 must be made using the main remote controller mounted on the indoor unit.

The thermostat for Zone 1 is wired to IN1 in TBI.1 on FTC.
The thermostat for Zone 2 is wired to IN6 in TBI.1 on FTC.



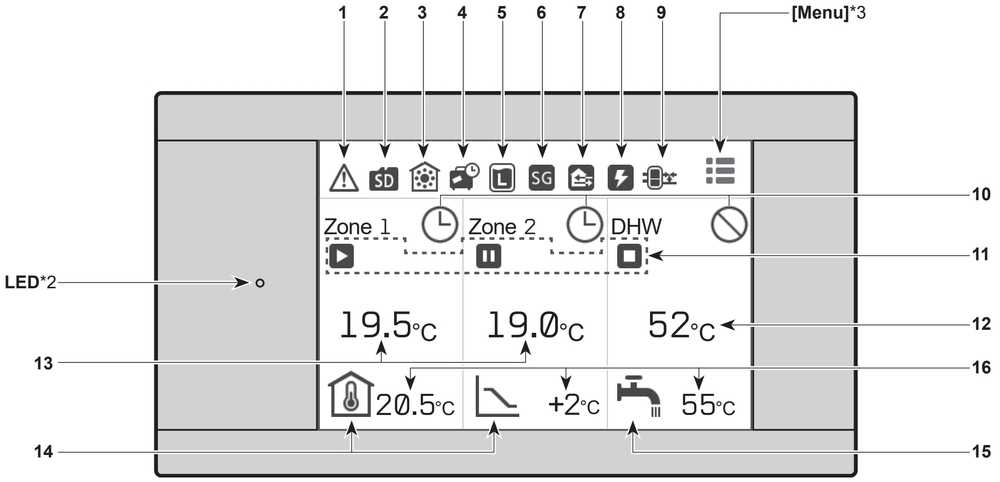
Zone 1; Weather compensation curve or flow temperature control
Zone 2; Weather compensation curve or flow temperature control

*1 If applicable
*2 For the options above, the sensor types can be exchanged between Zone 1 and Zone 2. (e.g. Wireless remote controller in Zone 1 and room temperature thermostat in Zone 2 can be changed to room temperature thermostat and wireless remote controller, respectively.)
★ **The wireless remote controller can be also used as a thermostat.**

4.7.2 Main remote controller

■ Main remote controller

To change the settings of your heating/cooling system, please use the main remote controller located on the wall or the front panel of the cylinder unit or hydrobox. The following is a guide to viewing the main settings. Should you require more information, please contact your installer or local Mitsubishi Electric dealer. Some functions are not available depending on the system configuration. These functions are grayed out or not shown.
Note: The terms displayed on the remote controller are enclosed in square brackets.



[Home screen] (Full screen*1)

Home screen icons

No.	Icons	Description
1	⚠	Alert (for multiple outdoor units control) Touching the menu icon displays error codes.
	J1	Alert Error codes are displayed.
2	SD	SD card is inserted. Normal operation
	SD	SD card is inserted. Abnormal operation
3	☀	Heating mode
	❄	Cooling mode
4	🕒	Holiday schedule is activated.
5	L	Legionella prevention mode is running.
6	SG	Smart grid ready is running.
7	⚙	Compressor is running.
	❄	Compressor is running and defrosting.
	⚙	Compressor is running and in quiet mode. The sound level is shown at left side of the icon.
	⚠	Emergency heating
8	⚡	Electric heater is running.
9	🔥	Boiler is running.
	▯	Buffer tank control is running.
10	🕒	Schedule
	⊘	Prohibited
	☁	Cloud control
11	▶	Operation
	⏸	Standby
	⏸	This unit is in standby whilst other indoor unit(s) is in operation by priority.
	■	Stop
12		Actual DHW tank temperature values
13		Actual room temperature values [-- °C] appears when the unit is not connected to the room RC (Remote Controller) and it is under control other than Auto Adaptation.
14	⟍	Weather compensation curve When the operation stops: Black During heating operation: Orange During cooling operation: Blue
	🌡 *4	Auto Adaptation (Target room temperature) When the operation stops: Black During heating operation: Orange
	🌡💧	Flow temperature (Target flow temperature) When the operation stops: Black During heating operation: Orange During cooling operation: Blue
15	🚰	DHW icon is displayed when DHW is enabled. When the operation stops: Black During operation: Orange
16		Target temperature values The settable temperature differs depending on the control logic.

- The screen will turn off when the main remote controller is not operated for a while. Touching any part of the screen turns it on again.
- From [Touch screen] in [Setting], the brightness can be adjusted.
- By selecting [Always on] for [Backlight time] from [Touch screen] in [Setting], the backlight stays lit for 30 seconds and after it dims down.

***1 From [Setting], the screen can be switched to the full screen or the base screen.**
The base screen does not display the operation icons and the target temperature values.
***2 From [Display] in [Setting], the LED lamp can be turned on/off.**
***3 Pressing and holding the menu icon ☰ for 3 seconds switches the lock menu to on/off.**
Some functions cannot be edited when the lock menu is on.
(The icon changes to ☰ when the lock menu is on.)
***4 Auto Adaptation cannot be selected during the cooling mode.**

■ Quick start

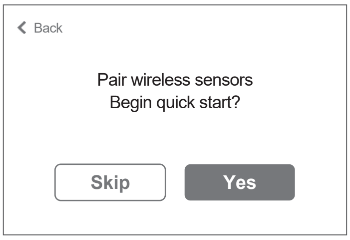
When the main remote controller is switched on for the first time, the screen automatically goes to the [Language], [Date/Time], [System configuration], and quick start setting screen in order. On the quick start setting screen, the following items can be set.

Note:
[Electric booster heater use]
This setting restricts the booster heater capacity. It is NOT possible to change the setting after starting up.
If you do not have any special requirements (such as building regulations) in your country, skip this setting (select [Next]).

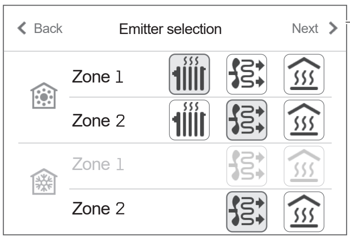
Quick start

- [Zone sensor selection]*1
- [Emitter selection]
- [Control logic]
- [Outdoor design temperature]
- [Zone sensor selection]*2
- [DHW]
- [Flow rate & pump speed]
- [Electric booster heater use]*3

*1 Selection of zone to assign each wireless remote controller
*2 Selection of room sensors for monitoring the room temperature
*3 It cannot be reset, so be careful when you set it.



Pair wireless sensors
Begin quick start?



Zone 1
Zone 2
Zone 1
Zone 2

[Emitter selection]

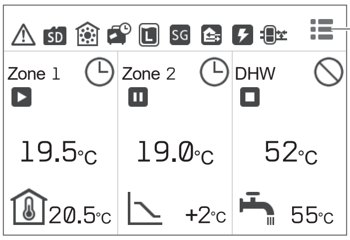
Next setting

■ Lock menu

Pressing and holding the menu icon ☰ for 3 seconds switches the lock menu to on.
(The icon changes to ☷ when the lock menu is on.)
Some functions cannot be edited in this state.

Note: You need a password to edit [Service] even when the lock menu is off.

Refer to the main controller menu tree for details of the items which cannot be edited when the lock menu is on.



Zone 1 | Zone 2 | DHW
19.5°C | 19.0°C | 52°C
20.5°C | +2°C | 55°C

[Home screen]

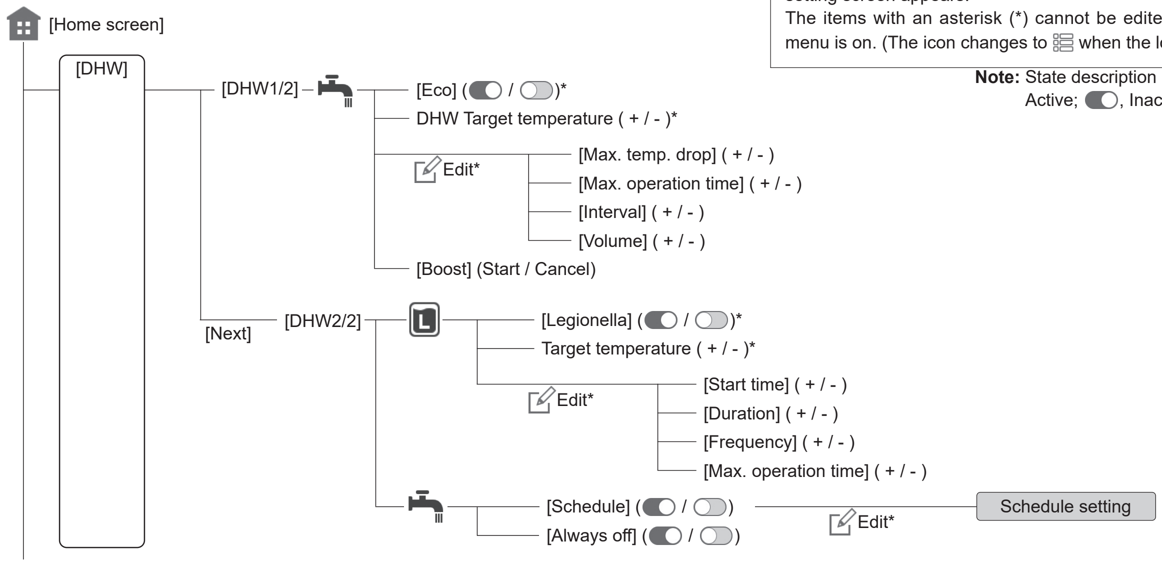
Press and hold the icon for 3 seconds.

☷ Lock

<Main Controller Menu Tree>

When the system is started up for the first time, the quick start setting screen appears.
The items with an asterisk (*) cannot be edited when the lock menu is on. (The icon changes to ☷ when the lock menu is on.)

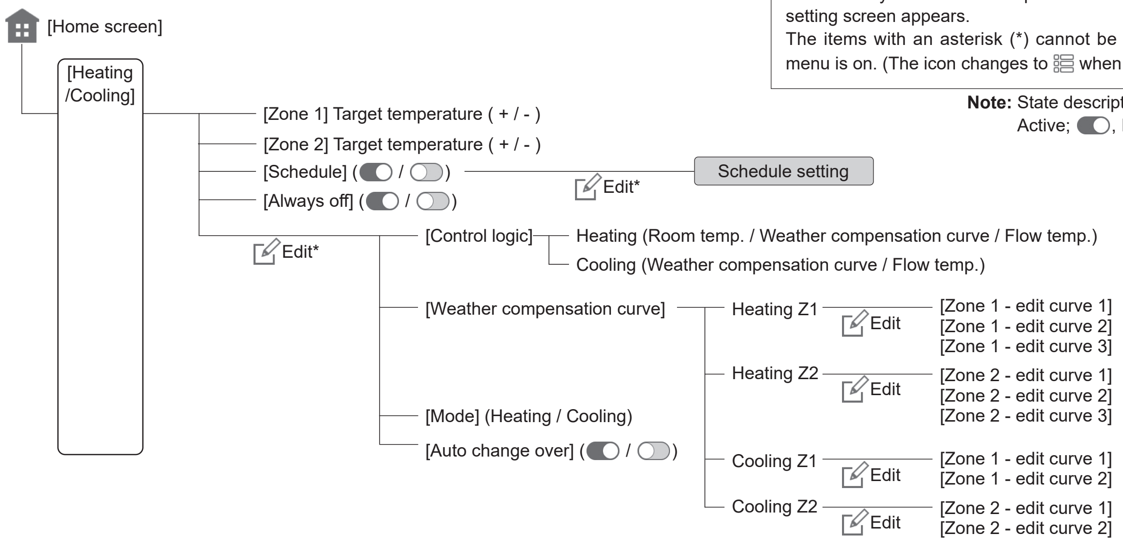
Note: State description indicated by toggle
Active; ●, Inactive; ○

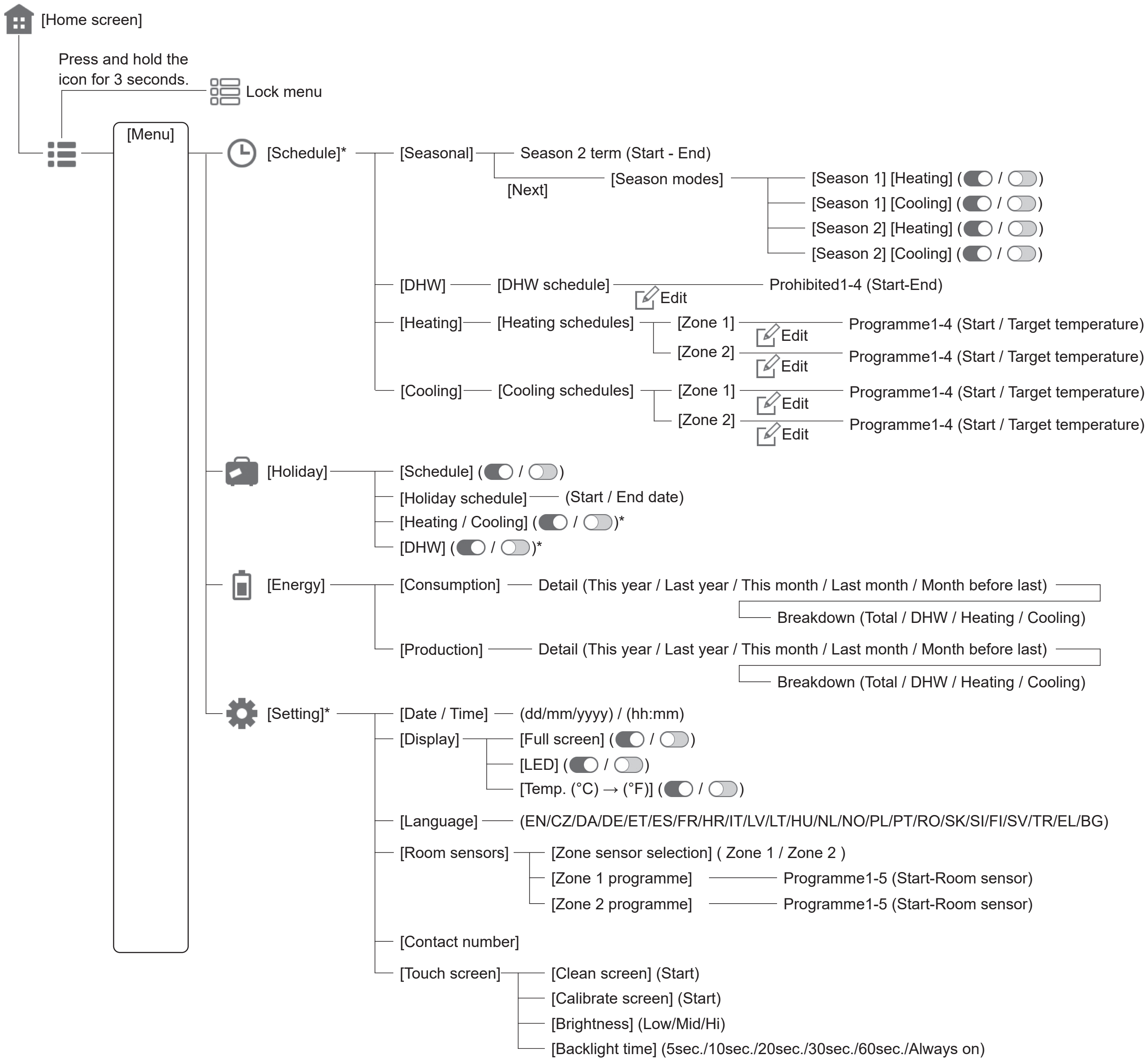


<Main Controller Menu Tree>

When the system is started up for the first time, the quick start setting screen appears.
The items with an asterisk (*) cannot be edited when the lock menu is on. (The icon changes to ☰ when the lock menu is on.)

Note: State description indicated by toggle
Active; ●, Inactive; ○





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<Main Controller Menu Tree>

When the system is started up for the first time, the quick start setting screen appears.
The items with an asterisk (*) cannot be edited when the lock menu is on. (The icon changes to ☰ when the lock menu is on.)

Note: State description indicated by toggle Active; ●, Inactive; ○

- [Home screen]
  - [Menu]
    - [Service]*
      - [Manual operation]
      - [Function settings]
      - [Thermistor adjustment]
      - [Auxiliary settings]
        - [Economy settings for pump]
          - On/Off
          - [Delay]
        - [Electric heater (heating)]
          - On/Off
          - [Delay]
        - [Electric heater (DHW)]
          - On/Off
          - (Booster heater/Immersion heater)
          - [Delay]
        - [Mixing valve 1 control]
          - [Running]
          - [Interval]
        - [Mixing valve 2 control]
          - [Running]
          - [Interval]
        - [Flow sensor]
          - [Minimum]
          - [Maximum]
        - [Analogue output]
          - [Priority]
          - [Interval]
        - [Electric heater schedule]
          - [Daily schedule]
          - [Time schedule 1](Always/Start-Stop/Never)
          - [Time schedule 2](Always/Start-Stop/Never)
      - [Heat source setting]
        - [Standard] (Heat pump & electric heater) / [Heater] (Electric heater only)/ [Boiler] / [Hybrid] (Heat pump & heater/Boiler)
      - [Pump speed]
      - [Heat pump settings]
        - [Heat pump flow rate range]
          - [Minimum]
          - [Maximum]
        - [Quiet mode]
          - [Heating] – [Quiet level] (Normal/Level1/Level2/Level3)
          - [Cooling] – [Quiet level] (Normal/Level1/Level2/Level3)
      - [Operation settings]
        - [Heating operation]
          - [Flow temperature range]
            - [Minimum temp.]
            - [Maximum temp.]
          - [Room temperature control]
            - [Mode]
            - [Interval]
          - [Heat pump thermo diff.]
            - On/Off
            - [Lower]
            - [Upper]
        - [Freeze stat function]
          - [Flow temp.]
          - [Ambient temp.]
        - [Simultaneous operation]
          - On/Off
          - [Ambient temp.]
        - [Cold weather function]
          - On/Off
          - [Ambient temp.]
        - [Boiler settings] *1
          - [Hybrid settings]
            - [Priority] – [Ambient] / [Cost] / [CO_2]
            - [Outdoor ambient temperature]
          - [Intelligent settings]
            - [Energy price]
              - [Electricity]
              - [Boiler]
            - [Electricity Schedule]
            - [CO_2 emission]
              - [Electricity]
              - [Boiler]
            - [Heat source]
              - [Heat pump capacity]
              - [Boiler efficiency]
              - [Booster heater 1 capacity]
              - [Booster heater 2 capacity]
        - [Smart grid ready]
          - [DHW]
            - On/Off
            - [Target temp.]
          - [Heating]
            - On/Off
            - [Target temp.]
          - [Cooling]
            - On/Off
            - [Target temp.]
          - [Pump cycles]
            - On/Off (Heating)
            - On/Off (Cooling)
            - [Interval]
        - [Floor dry up]
          - On/Off
          - [Target temperature]
            - [Start & End]
            - [Max temperature]
            - [Max temperature period]
          - [Flow temperature increase]
            - [Temperature increase step]
            - [Increase interval]
          - [Flow temperature decrease]
            - [Temperature decrease step]
            - [Decrease interval]

<Continued to next page.>

***1** For more details, refer to the installation manual of PAC-TH012HT(L)-E.

Continued from the previous page.

<Main Controller Menu Tree>

When the system is started up for the first time, the quick start setting screen appears. The items with an asterisk (*) cannot be edited when the lock menu is on. (The icon changes to ☰ when the lock menu is on.)

- Note:
  State description indicated by toggle
  Active; ●, Inactive; ○

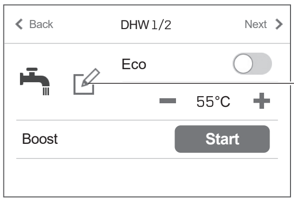
- [Home screen]
  - [Menu]
    - [Service]*
      - [Operation settings]
        - [Summer mode]
          - [Summer mode] — On/Off
          - [Ambient temperature]
            - [Heating on]
            - [Heating off]
          - [Judgement time]
            - [Heating on]
            - [Heating off]
          - [Forced heating On] — Ambient temperature
        - [Water flow control]
          - On/Off
          - Heating water temperature difference
          - Cooling water temperature difference
        - [Auto change over]
          - [Auto change over] — On/Off
          - [Ambient temperature]
            - [Heat→Cool]
            - [Cool→Heat]
          - [Judgement time]
            - [Heat→Cool]
            - [Cool→Heat]
        - [Zone prohibited]
          - Zone 1 Heating (On/Off)
          - Zone 2 Heating (On/Off)
          - Zone 1 Cooling (On/Off)
          - Zone 2 Cooling (On/Off)
        - [Holiday mode]
          - [Zone 1]
            - [Heating room temperature]
            - [Heating flow temperature]
            - [Cooling flow temperature]
          - [Zone 2]
            - [Heating room temperature]
            - [Heating flow temperature]
            - [Cooling flow temperature]
      - [Energy monitor settings]
        - [Electric heater capacity]
          - [Booster heater 1]
          - [Booster heater 2]
          - [Immersion heater]
          - [Analogue output]
        - [Water pump input]
          - [Pump 1]
          - [Pump 2]
          - [Pump 3]
          - [Pump 4]
        - [Delivered energy adjustment]
        - [Electric energy meter]
        - [Heat meter]
      - [External input settings]
        - [Demand control (IN4)] — [Off] (Heat source) / [Boiler]
        - [Outdoor thermostat (IN5)] — [Heater] / [Boiler]
        - [Cooling limit temp.(IN15)]
          - [Zone selection]
          - [Zone 1 lowest temperature]
          - [Zone 2 lowest temperature]
      - [Thermo on output] — [Zone 1] / [Zone 2] / [Zones 1&2]
      - [Commissioning wizard]
      - [Running information]
      - [Thermistor reading]
      - [Summary of settings]
      - [Error history]
      - [Password protection]
      - [Manual reset]
        - [Main remote controller] — Yes/No
        - [Flow temperature controller] — Yes/No
      - [SD card]
        - [SD → Main remote controller] — Select download data
        - [Main remote controller → SD] — Select upload data
    - Power (On/Off)

DHW (Domestic Hot Water) / Legionella Prevention

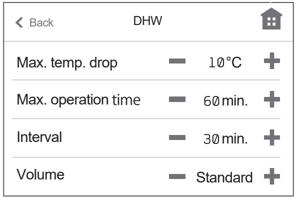
The DHW and legionella prevention menus control the operation of DHW tank heat ups.

DHW mode settings

- [DHW]: The Eco mode can be activated/deactivated by the toggle.
  The target temperature can be adjusted by +/-.
  From the edit icon, [Max. temp. drop], [Max. operation time], [Interval], and [Volume] can be set.



[DHW]



Max. temp. drop 10°C

Max. operation time 60 min.

Interval 30 min.

Volume Standard

[DHW]

Menu subtitle	Function	Range	Unit	Default value
DHW target temp.	Desired temperature of stored hot water	40 - 70*1	°C	50
[Max. temp. drop]	Difference in temperature between the DHW maximum temperature and the temperature at which DHW mode restarts	5 - 40*2	°C	10
[Max. operation time]	Maximum time allowed for stored water heating DHW mode	30 - 120	min.	60
[Interval]	The time period after DHW mode when space heating has priority over DHW mode temporarily preventing further stored water heating (Only when DHW max. operation time has passed.)	30 - 120	min.	30

***1 The maximum temperature differs depending on the connected outdoor unit. (60°C/65°C/70°C)**
***2 When the DHW maximum temperature is set over 55°C, the temperature at which DHW mode restarts must be less than 50°C to protect the device.**

[Eco]
DHW mode can run in either normal or Eco mode. Normal mode will heat the water in the DHW tank fast using the full power of the heat pump. Eco mode takes a little longer to heat the water in the DHW tank, but the energy used is reduced. This is because heat pump operation is restricted using signals from the FTC based on measured DHW tank temperature.

Note: The actual energy saved in Eco mode will vary according to outdoor ambient temperature.

[Volume]
Select the amount of DHW tank. If you need much hot water, select [Large].

Return to the DHW/legionella prevention menu.

Legionella prevention mode settings (LP mode)

- [Legionella]: It can be activated/deactivated by the toggle.
  The target temperature can be changed by +/-.
  From the edit icon ✎, [Start time], [Duration], [Frequency], and [Max. operation time] can be set.
- [Schedule]: It can be activated/deactivated by the toggle.
- [Always off]: It can be activated/deactivated by the toggle.

During LP mode, the temperature of the stored water is increased above 60°C to inhibit legionella bacteria growth. It is strongly recommended that this is done at regular intervals. Please check local regulations for the recommended frequency of heat ups.

Note 1: When failures occur on the hydrobox, the LP mode may not function normally.
Note 2: Even when DHW operation is prohibited, LP mode will operate.

Please note that LP mode uses the assistance of electric heaters to supplement the energy input of the heat pump. Heating water for long periods of time is not efficient and will increase running costs. The installer should give careful consideration to the necessity of legionella prevention treatment whilst not wasting energy by heating the stored water for excessive time periods. The end user should understand the importance of this feature.
ALWAYS COMPLY WITH LOCAL AND NATIONAL GUIDANCE FOR YOUR COUNTRY REGARDING LEGIONELLA PREVENTION.

Menu subtitle	Function	Range	Unit	Default value
Hot water temp.	Desired temperature of stored hot water	60 - 70	°C	65
[Start time]	Time when LP mode will begin	0:00 - 23:00	-	03:00
[Duration]	The time period after LP mode desired water temperature has been reached	1 - 120	min.	30
[Frequency]	Time between LP mode DHW tank heat up	1 - 30	day	15
[Max. operation time]	Maximum time allowed for LP mode DHW tank heat	1 - 5	h	3

[Setting]

From the menu icon ☰, access [Setting].
The following items can be edited in [Setting].

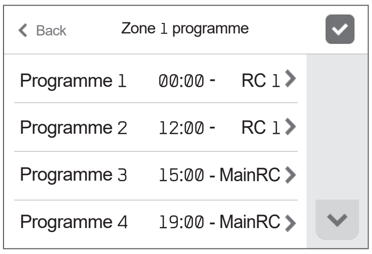
- [Date / time]
- [Display] (From [Setting], the screen can be switched to the full screen or the base screen.)
- [Language]
- [Room sensors]
- [Contact number]
- [Touch screen] ([Calibrate screen]*1, [Clean screen]*2, [Brightness], and [Backlight time])

Follow the procedure described in General Operation for the set up operation.

*1 Touching the 9 dots displayed on the screen starts calibration.
To properly calibrate the touch panel, use a pointy but not sharp object to touch the dots.
Note: A sharp object may damage or scratch the touch screen.

*2 You can wipe the screen while touch operations are invalid for 30 seconds.
Wipe with a soft dry cloth, a cloth soaked in water with mild detergent, or a cloth dampened with ethanol.
Do not use acidic, alkaline, or organic solvents.

[Room sensors]
For [Room sensors], it is important to choose the correct room sensor depending on the heating and cooling mode the system will operate in.



Programme 1 00:00 - RC 1
Programme 2 12:00 - RC 1
Programme 3 15:00 - MainRC
Programme 4 19:00 - MainRC

[Zone 1 programme]

<table>
<tr><th>Menu subtitle</th><th>Description</th></tr>
<tr><td>[Zone sensor selection]</td><td>When 2-zone temperature control is active and wireless remote controllers are available, select [Zone sensor selection] in [Room sensors] from [Setting], and then select zone No. (Zone 1/Zone 2) to assign each remote controller.</td></tr>
<tr><td>[Zone 1 programme]
[Zone 2 programme]</td><td>From [Zone 1 programme] or [Zone 2 programme], select a wireless remote controller to be used for monitoring the room temperature from Zone 1 and Zone 2 separately.
<table>
<tr><th rowspan="2">Control option *</th><th colspan="2">Corresponding initial settings room sensor</th></tr>
<tr><th>[Zone 1]</th><th>[Zone 2]</th></tr>
<tr><td>A
Zone 1 ; Auto Adaptation (Target room temperature)
Zone 2 ; Weather compensation curve or flow temperature control</td><td>RC 1~8
(Wireless remote controller)</td><td>*1</td></tr>
<tr><td>B
Zone 1 ; Auto Adaptation (Target room temperature)
Zone 2 ; Weather compensation curve or flow temperature control</td><td>TH1
(Room temperature thermistor (option))</td><td>*1</td></tr>
<tr><td>C
Zone 1 ; Auto Adaptation (Target room temperature)
Zone 2 ; Weather compensation curve or flow temperature control</td><td>[MainRC]
(Main remote controller)</td><td>*1</td></tr>
<tr><td>D
Zone 1 ; Weather compensation curve or flow temperature control
Zone 2 ; Weather compensation curve or flow temperature control</td><td>*1</td><td>*1</td></tr>
</table>
* Refer to the website manual for details.
*1. Not specified (if a locally-supplied room thermostat is used)
RC 1-8 (if a wireless remote controller is used as a room thermostat)
The wireless remote controller to be used can be changed up to 4 times within 24 hours according to the set time schedule. (Programme 1-5)</td></tr>
</table>

[Service]

The service menu provides functions to be used by installer or service engineer. It is NOT intended for the home owner to alter settings within this menu. It is for this reason password protection is required to prevent unauthorised access to the service settings.

The factory default password is “0000”.
Follow the procedure described in [Password protection] for the set up operation.

Many functions can not be set whilst the indoor unit is running. The installer should turn off the unit before trying to set these functions. If the installer attempts to change the settings whilst the unit is running, the main remote controller will display a reminder message prompting the installer to stop operation before continuing. By selecting “Yes”, the unit will cease operation.

[Manual operation]

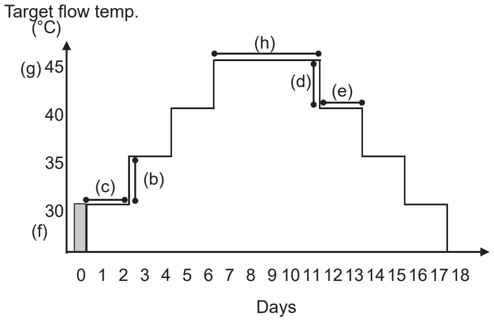
During the filling of the system, the primary circuit circulation pump, 3-way valve and mixing valve can be manually overridden using manual operation mode.
When manual operation is selected, a small timer icon appears in the screen. When selected, this function will only remain in manual operation for a maximum of 2 hours. This is to prevent accidental permanent override of the FTC.

Manual operation and heat source setting can not be selected if the system is running. A screen will be displayed asking the installer to stop the system before these modes can be activated.
The system automatically stops 2 hours after last operation.

[Floor dry up function]

The floor dry up function automatically changes the target hot water temperature in stages to gradually dry concrete when this particular type of underfloor heating system is installed.

Upon completion of the operation, the system stops all the operations except the Freeze stat. operation.
For floor dry up function, the target flow temperature of Zone 1 is the same as that of Zone 2.



- This function is not available when a PUHZ-FRP outdoor unit is connected.
- Disconnect wiring to external inputs of room thermostat, demand control, and outdoor thermostat, or the target flow temperature may not be maintained.

Functions		Symbol	Description	Option/Range	Unit	Default
[Floor dry up function]		a	Set the function to on and power on the system using the main remote controller, and the dry up heating operation will start.	on/off	—	off
[Flow temperature increase]	[Temperature increase step]	b	It sets the increase step of the target flow temperature.	+1 to +30	ºC	+5
	[Increase interval]	c	It sets the period for which the same target flow temperature is maintained.	1 to 7	day	2
[Flow temperature decrease]	[Temperature decrease step]	d	It sets the decrease step of the target flow temperature.	−1 to −30	ºC	−5
	[Decrease interval]	e	It sets the period for which the same target flow temperature is maintained.	1 to 7	day	2
[Target temperature]	[Start & End]	f	It sets the target flow temperature at the start and the finish of the operation.	20 to 60*	ºC	30
	[Max temperature]	g	It sets the maximum target flow temperature.	20 to 60*	ºC	45
	[Max temperature period]	h	It sets the period for which the maximum target flow temperature is maintained.	1 to 20	day	5

* The maximum temperature differs depending on the connected outdoor unit.

[Password protection]

Password protection is recommended to prevent unauthorised access to the service menu by untrained persons.

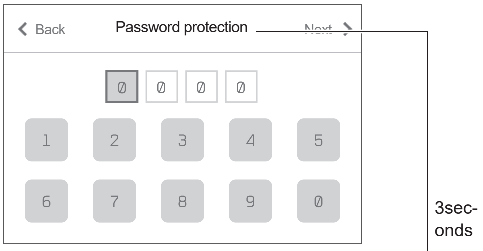
[Password reset]

If you forget the password you entered, or have to service a unit somebody else installed, you can reset and change the password.

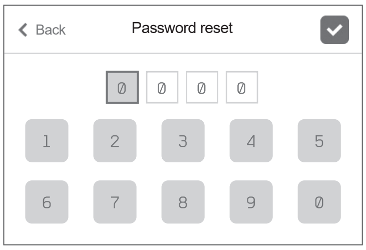
1. From [Service] in [Menu], access the [Password protection] screen.
2. Press and hold the title section for 3 seconds to access the [Password reset] screen.
3. Enter a new password.
4. Touching [Back] or the confirm icon ✓ saves the password.

[Manual reset]

Should you wish to restore the factory settings at any time, you should use the manual reset function. Please note this will reset ALL functions to the factory default settings.



[Password protection]



[Password reset]

Energy monitor

End user can monitor accumulated*1 consumption and production energy in each operation mode*2 on the main remote controller.
*1 Monthly and Year to date
*2 - DHW operation
- Space heating
- Space cooling

Refer to “6. Remote controller” on the paper-based manual for how to check the energy, and “5.1 DIP switch functions” on the paper-based manual for the details on DIP-SW setting. Either one of the following two methods is used for monitoring.
Note: Method 1 should be used as a guide. If a certain accuracy is required, the 2nd method should be used.

	Booster heater 1	Booster heater 2	Immersion heater *3	Pump 1 *4
Default	2 kW	4 kW	0 kW	*** (factory fitted pump)
EHST17D-VM2E	2 kW	0 kW	0 kW	***
EHST17D-YM9E	3 kW	6 kW	0 kW	***
EHST20D-VM2E	2 kW	0 kW	0 kW	***
EHST20D-VM6E	2 kW	4 kW	0 kW	***
EHST20D-YM9E	3 kW	6 kW	0 kW	***
EHST20D-TM9E	3 kW	6 kW	0 kW	***
EHST30D-MEE	0 kW	0 kW	0 kW	***
EHST30D-VM6EE	2 kW	4 kW	0 kW	***
EHST30D-YM9EE	3 kW	6 kW	0 kW	***
EHST30D-TM9EE	3 kW	6 kW	0 kW	***
ERST17D-VM2E	2 kW	0 kW	0 kW	***
ERST17D-VM6E	2 kW	4 kW	0 kW	***
ERST20D-VM2E	2 kW	0 kW	0 kW	***
ERST20D-VM6E	2 kW	4 kW	0 kW	***
ERST20D-YM9E	3 kW	6 kW	0 kW	***
ERST30D-VM2EE	2 kW	0 kW	0 kW	***
ERST30D-VM6EE	2 kW	4 kW	0 kW	***
ERST30D-YM9EE	3 kW	6 kW	0 kW	***
ERST17D-VM2BE	2 kW	0 kW	0 kW	***
ERST17D-VM6BE	2 kW	4 kW	0 kW	***
ERST17D-YM9BE	3 kW	6 kW	0 kW	***
ERST20F-VM2E	2 kW	0 kW	0 kW	***
ERST20F-VM6E	2 kW	4 kW	0 kW	***
ERST20F-YM9E	3 kW	6 kW	0 kW	***
ERST20F-TM9E	3 kW	6 kW	0 kW	***
ERST30F-VM2EE	2 kW	0 kW	0 kW	***
ERST30F-VM6EE	2 kW	4 kW	0 kW	***
ERST30F-YM9EE	3 kW	6 kW	0 kW	***
ERST30F-TM9EE	3 kW	6 kW	0 kW	***
ERST20C-VM2E	2 kW	0 kW	0 kW	***
ERST30C-VM2EE	2 kW	0 kW	0 kW	***
EHPT17X-VM2E	2 kW	0 kW	0 kW	***
EHPT17X-VM6E	2 kW	4 kW	0 kW	***
EHPT17X-YM9E	3 kW	6 kW	0 kW	***
EHPT20X-YM9E	3 kW	6 kW	0 kW	***
EHPT20X-TM9E	3 kW	6 kW	0 kW	***
EHPT20X-MEHEW	0 kW	0 kW	3 kW	***
EHPT30X-YM9EE	3 kW	6 kW	0 kW	***
ERPT17X-VM2E	2 kW	0 kW	0 kW	***
ERPT20X-VM2E	2 kW	0 kW	0 kW	***
ERPT20X-VM6E	2 kW	4 kW	0 kW	***
ERPT20X-YM9E	3 kW	6 kW	0 kW	***
ERPT30X-VM2EE	2 kW	0 kW	0 kW	***
ERPT30X-VM6EE	2 kW	4 kW	0 kW	***
ERPT30X-YM9EE	3 kW	6 kW	0 kW	***

<Table 4.7.1>

Method 1. Calculation internally

Electricity consumption is calculated internally based on the energy consumption of outdoor unit, electric heater, water pump(s) and other auxiliaries. *5
Delivered heat is calculated internally by multiplying delta T (flow and return temperature) and flow rate measured by the factory fitted sensors.
Set the electric heater capacity and water pump(s) input according to indoor unit model and specs of additional pump(s) supplied locally. (Refer to the menu tree in “6. Remote controller” on the paper-based manual)

*3 Change setting to 3 kW when connecting optional immersion heater "PAC-IH03V2-E".
*4 "***" displayed in the energy monitor setting mode means the factory fitted pump is connected as Pump 1 so that the input is automatically calculated.
*5 When the indoor unit is connected with a PXZ or PUMY models, electricity consumption is not calculated internally. To display the electricity consumption, use the 2nd method.

When additional pumps supplied locally are connected as Pump2/3, change setting according to specs of the pumps.
When anti-freeze solution (propylene glycol) is used for primary water circuit, set the delivered energy adjustment if necessary.
Should you need more details, refer to “6. Remote controller” on the paper-based manual.

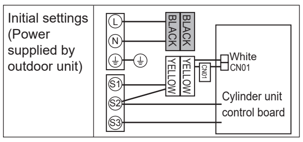
Method 2. Actual measurement by external meter (locally supplied)

FTC has external input terminals for 2 ‘Electric energy meters’ and a ‘Heat meter’.
If two ‘Electric energy meters’ are connected, the 2 recorded values will be combined at the FTC and shown on the main remote controller.
(e.g. Meter 1 for H/P power line, Meter 2 for heater power line)
Refer to “Signal inputs” section in “5.2 Connecting inputs/outputs” on the paper-based manual for more information on connectable electric energy meter and heat meter.

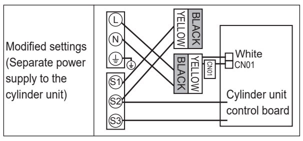
4.8. Service and Maintenance

The cylinder unit must be serviced **once a year** by a qualified individual. Servicing and maintenance of the outdoor unit should only be done by a Mitsubishi Electric trained technician with relevant qualifications and experience. Any electrical work should be done by a trades person with the appropriate electrical qualifications. Any maintenance or 'DIY' fixes done by a non-accredited person could invalidate the Warranty and/or result in damage to the cylinder unit and injury to the person.

■ Basic Troubleshooting

No.	Fault symptom	Possible cause	Explanation - Solution
1	Main remote controller display is blank.	1. There is no power supply to main remote controller. 2. Power is supplied to main remote controller, however, the display on the main remote controller does not appear.	1. Check LED2 on FTC. (See "4.2 Wiring diagrams".) (i) When LED2 is lit. Check for damage or contact failure of the main remote controller wiring. (ii) When LED2 is blinking. Refer to No. 5 below. (iii) When LED2 is not lit. Refer to No. 4 below. 2. Check the following: • Disconnection between the main remote controller cable and the FTC control board • Failure of the main remote controller if "Please Wait" is not displayed. • Refer to No. 2 below if "Please Wait" is displayed.
2	"Please Wait" remains displayed on the main remote controller.	1. "Please Wait" is displayed for up to 6 minutes. 2. Communication failure between the main remote controller and FTC 3. Communication failure between FTC and outdoor unit	1. Normal operation 2, Main remote controller start up checks/procedure. 3. (i) If "0%" or "50–99%" is displayed below "Please Wait" there is a communication error between the main remote controller and the FTC control board. • Check wiring connections on the main remote controller. • Replace the main remote controller or the FTC control board. (ii) If "1–49%" is displayed there is a communication error between the outdoor unit's and FTC's control boards. • Check the wiring connections on the outdoor unit control board and the FTC control board. (Ensure S1 and S2 are not cross-wired and S3 is securely wired with no damage. (See "4.4 Field wiring".) • Replace the outdoor unit's and/or the FTC's control boards.
3	The main screen appears with a press of the "ON" button, but disappears in a second.	The main remote controller operations do not work for a while after the settings are changed in the service menu. This is because the system takes time to apply the changes.	Normal operation The indoor unit is applying updated settings made in the service menu. Normal operation will start shortly.
4	LED2 on FTC is off. (See "4.2 Wiring diagrams".)	When LED1 on FTC is also off. (See "4.2 Wiring diagrams".) <FTC powered via outdoor unit.> 1. The outdoor unit is not supplied at the rated voltage. 2. Defective outdoor controller circuit board 3. FTC is not supplied with 220 to 240 V AC. 4. FTC failure 5. Faulty connector wiring	1. Check the voltage across the terminals L and N or L3 and N on the outdoor power board. (See "4.4 Field wiring".) • When the voltage is not 220 to 240 V AC, check wiring of the outdoor unit and of the breaker. • When the voltage is at 220 to 240 V AC, go to "2." below. 2. Check the voltage across the outdoor unit terminals S1 and S2. (See "4.4 Field wiring".) • When the voltage is not 220 to 240 V AC, check the fuse on the outdoor control board and check for faulty wiring. • When the voltage is 220 to 240 V AC, go to "3." below. 3. Check the voltage across the indoor unit terminals S1 and S2. (See "4.4 Field wiring".) • When the voltage is not 220 to 240 V AC, check FTC-outdoor unit wiring for faults. • When the voltage is 220 to 240 V AC, go to "4." below. 4. Check the FTC control board. • Check the fuse on FTC control board. • Check for faulty wiring. • If no problem found with the wiring, the FTC control board is faulty. 5. Check the connector wiring. • When the connectors are wired incorrectly, re-wire the connectors referring to below. (See "4.4 Field wiring".) 

4 Cylinder unit

No.	Fault symptom	Possible cause	Explanation - Solution
4	LED2 on FTC is off. (See "4.2 Wiring diagrams".)	<FTC powered on independent source> 1. FTC is not supplied with 220 to 240 V AC.	1. Check the voltage across the L and N terminals on the indoor power supply terminal block. (See "4.4 Field wiring".) • When the voltage is not 220 to 240 V AC, check for faulty wiring to power supply. • When the voltage is 220 to 240 V AC, go to 2. below.
		2. There are problems in the method of connecting the connectors.	2. Check for faulty wiring between the connectors. • When the connectors are wired incorrectly re-wire them correctly referring to below. (See "4.4 Field wiring" and a wiring diagram on the control and electrical box cover.)  • If no problem found with the wiring, go to 3. below.
		3. FTC failure	3. Check the FTC control board. • Check the fuse on FTC control board. • Check for faulty wiring. • If no problem found with the wiring, the FTC control board is faulty.
		When LED1 on FTC is lit. Incorrect setting of refrigerant address for outdoor unit (None of the refrigerant address is set to "0".)	Recheck the refrigerant address setting on the outdoor unit. Set the refrigerant address to “0”. (Set refrigerant address using SW1(3-6) on outdoor controller circuit board.)
5	LED2 on FTC is blinking. (See "4.2 Wiring diagrams".)	When LED1 is also blinking on FTC . Faulty wiring between FTC and outdoor unit	Check for faulty wiring between FTC and outdoor unit.
		When LED1 on FTC is lit. 1. Faulty wiring in main remote controller Multiple indoor units have been wired to a single outdoor unit.	1. Check for faulty wiring in main remote controller. The number of indoor units that can be wired to a single outdoor unit is one. Additional indoor units must be wired individually to a single outdoor unit.
		2. Short-circuited wiring in main remote controller 3. Main remote controller failure	2.,3. Remove main remote controller wires and check LED2 on FTC. (See "4.2 Wiring diagrams".) • If LED2 is blinking check for short circuits in the main remote controller wiring. • If LED2 is lit, wire the main remote controller again and: - if LED2 is blinking, the main remote controller is faulty; - if LED2 is lit, faulty wiring of the main remote controller has been corrected.
6	LED4 on FTC is off. (See "4.2 Wiring diagrams".)	1. SD memory card is NOT inserted into the memory card slot with correct orientation. 2. Not an SD standards compliant memory card.	1. Correctly insert SD memory card in place until a click is heard. 2. Use an SD standards compliant memory card. (Refer to "4.4.7 Using micro SD memory card".)
	LED4 on FTC is blinking. (See "4.2 Wiring diagrams".)	1. Full of data. 2. Write-protected. 3. NOT formatted. 4. Formatted in NTFS file system.	1. Move or delete data, or replace SD memory card with a new one. 2. Release the write-protect switch. 3. Refer to "4.4.7 Using micro SD memory card". 4. FTC is Not compatible with NTFS file system. Use an micro SD memory card formatted in FAT file system.
7	No water at hot tap.	1. Cold main off 2. Strainer (local supply) blocked.	1. Check and open stop cock. 2. Isolate water supply and clean strainer.
8	Cold water at tap.	1. Hot water run out.	1. Ensure DHW mode is operating and wait for DHW tank to re-heat.
		2. Prohibit, schedule timer or holiday mode selected or demand control input (IN4) or smart grid ready (switch-off command).	2. Check settings and change as appropriate.
		3. Heat pump not working.	3. Check heat pump – consult outdoor unit service manual.
		4. Booster heater cut-out tripped.	4. Check booster heater thermostat and press reset button if safe. Reset button is located on the side of booster heater, covered with white rubber cap. See "4.5.1 Component parts" to find out its position.
		5. The earth leakage circuit breaker for booster heater breaker (ECB1) tripped.	5. Check the cause and reset if safe.
		6. The booster heater thermal cut-out has tripped and cannot be reset using the manual reset button.	6. Check resistance across the thermal cut-out, if open then the connection is broken and the booster heater will have to be replaced. Contact your Mitsubishi Electric dealer.
		7. Immersion heater cut-out tripped.	7. Check immersion heater thermostat and press reset button, located on immersion heater boss, if safe. If the heater has been operated with no water inside it may have failed, so please replace it with a new one.
		8. Immersion heater breaker (ECB2) tripped.	8. Check the cause and reset if safe.
		9. 3-way valve fault	9. Check plumbing/wiring to 3-way valve. (i) Manually override 3-way valve using the main remote controller. (Refer to <Manual operation> in "4.7 System setup") If the valve does not still function, go to (ii) below. (ii) Replace 3-way valve coil. If the valve does not still function, go to (iii) below. (iii) Replace 3-way valve. (Refer to Service manual.)

No.	Fault symptom	Possible cause	Explanation - Solution
9	Water heating takes longer.	1. Heat pump not working.	1. Check heat pump – consult outdoor unit service manual.
		2. Booster heater cut-out tripped.	2. Check booster heater thermostat and press reset button if safe. Reset button is located on the side of booster heater, covered with white rubber cap. See "4.5.1 Component parts" to find out its position.
		3. Booster heater breaker (ECB1) tripped.	3. Check the cause and reset if safe.
		4. The booster heater thermal cut-out has tripped and cannot be reset using the manual reset button.	4. Check resistance across the thermal cut-out, if open then connection is broken and the booster heater will have to be replaced. Contact your Mitsubishi Electric dealer.
		5. Immersion heater cut-out has been triggered.	5. Check immersion heater thermostat and press reset button located on immersion heater boss, if safe. If the heater kept running with no water inside, this may have resulted in failure, so replace it with a new one.
		6. Immersion heater breaker (ECB2) tripped.	6. Check the cause and reset if safe.
		7. Flow rate of the sanitary circuit may be reduced.	7. Check the following items • Check for trapped air in water pump (sanitary circuit). • Check if the speed of water pump (sanitary circuit) is set to 2. • Check water pump (sanitary circuit) for malfunction. (Refer to Service manual.) • Replace plate heat exchanger (water - water) or scale trap, if there are a blockage which blocks the sanitary circuit.
10	Temperature of DHW tank water dropped.	When DHW operation is not running, the DHW tank emits heat and the water temperature decreases to a certain level. If water in the DHW tank is reheated frequently because of a significant drop in water temperature, check for the following.	
		1. Water leakage in the pipes that connect to the DHW tank	1. Take the following measures. • Retighten the nuts holding the pipes onto the DHW tank. • Replace seal materials. • Replace the pipes.
		2. Insulation material coming loose or off.	2. Fix insulation.
		3. 3-way valve failure	3. Check plumbing/wiring to 3-way valve. (i) Manually override 3-way valve using the main remote controller. (Refer to <Manual operation> in "4.7 System setup".) If the valve does not still function, go to (ii) below. (ii) Replace 3-way valve motor. If the valve does not still function, go to (iii) below. (iii) Replace 3-way valve. (Refer to Sevice manual.)
		4. Water pump (sanitary circuit) speed setting failure	4. Water pump (sanitary circuit) MUST be set to speed 2. When it set to speed 1, hot water would be mixed with cold water due to circulation.
11	Hot or warm water from cold tap.	Heat of hot water pipe is transferred to cold water pipe.	Insulate/re-route pipework.
12	Water leakage	1. Poorly sealed connections of water circuit components	1. Tighten connections as required.
		2. Water circuit components reaching the end of life	2. Refer to PARTS CATALOG for expected part lifetimes and replace them as necessary.
13	Heating system does not reach the set temperature.	1. Prohibit, schedule timer or holiday mode selected or demand control input (IN4) or smart grid ready (switch-off command).	1. Check settings and change as appropriate.
		2. Check settings and change as appropriate.	2. Check the battery power and replace if flat.
		3. The temperature sensor is located in a room that has a different temperature relative to that of the rest of the house.	3. Relocate the temperature sensor to a more suitable room.
		4. Heat pump not working.	4. Check heat pump – consult outdoor unit service manual.
		5. Booster heater cut-out tripped.	5. Check booster heater thermostat and press reset button if safe. Reset button is located on the side of booster heater, covered with white rubber cap. (See "4.5.1 Componant parts" for position.)
		6. Booster heater breaker (ECB1) tripped.	6. Check the cause of the trip and reset if safe.
		7. The booster heater thermal cut-out tripped and cannot be reset using the manual reset button.	7. Check resistance across the thermal cut-out, if open then the connection is broken and the booster heater will have to be replaced. Contact your Mitsubishi Electric dealer.
		8. Incorrectly sized heat emitter	8. Check the heat emitter surface area is adequate Increase size if necessary.
		9. 3-way valve failure	9. Check plumbing/wiring to 3-way valve. (i) Manually override 3-way valve using the main remote controller. (Refer to <Manual operation> in "4.7 System setup".) If the 3-way valve does not function, go to (ii) below. (ii) Replace 3-way valve motor. If the 3-way valve coil is replaced but the 3-way valve does not function go to (iii) below. (iii) Replace 3-way valve. (Refer to Service manual.)
		10. Battery problem (wireless control only)	10. Check the battery power and replace if flat.
		11. If a mixing tank is installed, the flow rate between the mixing tank and the cylinder unit is less than that between the mixing tank and the local system.	11. Increase the flow rate between the mixing tank and the cylinder unit decrease that between the mixing tank and the local system.
		12. Malfunction of pump or mixing valve	12. Contact installer.
		13. Valves on heating system are closed.	13. Open the valves.

No.	Fault symptom	Possible cause	Explanation - Solution
14	Heating system does not reach the set lower temperature.	Heating system operates depending on the heating load to prevent low-load heating system from the frequent switching (ON/OFF) of the compressor.	Normal operation, no action necessary.
15	In 2-zone temperature control, only Zone2 does not reach the set temperature.	1. When Zone1 and Zone2 are both in heating mode, the hot water temperature in Zone2 does not exceed that in Zone1. 2. Faulty wiring of motorized mixing valve 3. Faulty installation of motorized mixing valve 4. Incorrect setting of Running time 5. Motorized mixing valve failure	1. Normal action no action necessary. 2. Refer to installation manual, "4.4.3 Wiring for 2-zone temperature control". 3. Check for correct installation. (Refer to the manual included with each motorized mixing valve.) 4. Check for correct setting of Running time. 5. Inspect the mixing valve. (Refer to the manual included with each motorized mixing valve.)
16	When a PUHZ-FRP outdoor unit is connected, DHW or Heating operation cannot run.	The outdoor unit is set to have operation of the indoor unit of air conditioner take precedence over that of the cylinder unit, and in the main remote controller settings "Electric heater (Heating)" or "Electric heater (DHW)" is turned off.	Turn ON Electric heater (Heating) or Electric heater (DHW) using the main remote controller.
17	When a PUHZ-FRP outdoor unit is connected and is in heat recovery operation, the set temperature is not reached.	When the outdoor unit is set to have cooling operation of the indoor unit of air conditioner take precedence over that of the cylinder unit, the outdoor unit controls the frequency of the compressor according to the load of air conditioner. The DHW and heating run according to that frequency.	Normal operation no action necessary. If Air-to-Water system is given priority in operation, comp Hz can be regulated depending on the load of DHW or Heating. For more details, refer to the PUHZ-FRP installation manual.
18	After DHW operation room temperature rises slightly.	At the end of the DHW mode operation the 3-way valve diverts hot water away from the DHW circuit into space heating circuit. This is done to prevent the cylinder unit components from overheating. The amount of hot water directed into the space heating circuit varies according to the type of the system and of the pipe run between the plate heat exchanger and the cylinder unit.	Normal operation no action necessary.
19	The room temperature rises during DHW operation.	3-way valve failure	Check the 3-way valve. (i) Manually override 3-way valve using the main remote controller. (Refer to <Manual operation> in "4.7 System setup".) If the 3-way valve does not function, go to (ii) below. (ii) Replace 3-way valve coil. If the 3-way valve coil is replaced but the 3-way valve does not function go to (iii) below. (iii) Replace 3-way valve. (Refer to Service manual.)
20	Water discharges from pressure relief valve. (Primary circuit)	1. If continual – pressure relief valve could bite foreign objects and the valve seat may be damaged. 2. If intermittent – expansion vessel charge may have reduced/bladder perished.	1. Turn the handle on the pressure relief valve several turns. If leakage persists, replace the pressure relief valve with a new one. 2. Check pressure in expansion vessel. Recharge to 1 bar if necessary. If bladder perished replace expansion vessel with a new one.
21	Water discharges from pressure relief valve. (Sanitary circuit)	1. If continual – field supplied pressure reducing valve not working. 2. If continual – pressure relief valve could bite foreign objects and the valve seat may be damaged. 3. If intermittent – expansion vessel charge may have reduced/bladder perished. 4. DHW tank may have subjected to backflow.	1. Check function of pressure reducing valve and replace if necessary. 2. Turn the handle on the pressure relief valve several turns. If leakage persists, replace the pressure relief valve with a new one. 3. Check gas-side pressure in expansion vessel. Recharge to correct precharge pressure if necessary. If bladder perished replace expansion vessel with a new one with appropriate pre-charge. 4. Check the pressure in DHW tank. If pressure in DHW tank is similar to that in the incoming mains, cold water supply that merges with incoming mains water supply could flow back to DHW tank. Investigate source of back-feed and rectify error in pipework/fitting configuration. Adjust pressure in cold supply.
22	Water discharges from temperature and pressure relief valve (EHPT20X-MHEDW only) (Sanitary circuit)	1. If continual – field supplied pressure reducing valve not working. 2. If continual – temperature and pressure relief valve could bite foreign objects and the valve seat may be damaged. 3. If intermittent – expansion vessel charge may have reduced/bladder perished. 4. DHW tank may have subjected to backflow. 5. Unit has overheated – thermal controls have failed.	1. Check function of pressure reducing valve and replace if necessary. 2. Turn the handle on the temperature and pressure relief valve several turns. If leakage persists, replace the temperature and pressure relief valve with a new one. 3. Check gas-side pressure in expansion vessel. Recharge to correct precharge pressure if necessary. If bladder perished replace expansion vessel with a new one with appropriate pre-charge. 4. Check pressure in DHW tank. If pressure in DHW tank is similar to that in the incoming mains, cold water supply that merges with incoming mains water supply could flow back to DHW tank. Investigate source of back-feed and rectify error in pipework/fitting configuration. Adjust pressure in cold supply. 5. Switch off power to the heat pump and immersion heaters. Leave water running. Wait until discharge stops. Isolate water supply and replace if faulty.

No.	Fault symptom	Possible cause	Explanation - Solution
23	Water discharges from expansion relief valve - part of Inlet Control Group (EHPT20X-MHEDW only) (sanitary circuit)	1. If continual – field supplied pressure reducing valve not working. 2. If continual – expansion relief valve may be damaged. 3. If intermittent – expansion vessel charge may have reduced/bladder perished. 4. DHW tank may have subjected to backflow. 5. Unit has overheated – thermal controls have failed.	1. Check function of pressure reducing valve and replace if necessary. 2. Turn the handle on the expansion relief valve to check for foreign objects inside. If the problem is not still solved, replace the expansion relief valve with a new one. 3. Check gas-side pressure in expansion vessel. Recharge to correct precharge pressure if necessary. If bladder perished replace expansion vessel with a new one with appropriate precharge. 4. Check pressure in DHW tank. If pressure in DHW tank is similar to that in the incoming mains, cold water supply that merges with incoming mains water supply could flow back to DHW tank. Investigate source of back-feed and rectify error in pipework/fitting configuration. Adjust pressure in cold supply. 5. Switch off power to the heat pump and immersion heaters. Leave water running. Wait until discharge stops. Isolate water supply and replace if faulty.
24	Noisy water circulation pump	Air in water circulation pump	Use manual and automatic air vents to remove air from system. Top up water if necessary to achieve 1 bar on primary circuit.
25	Noise during hot water draw off typically worse in the morning.	1. Loose airing cupboard pipework 2. Heaters switching on/off	1. Install extra pipe fastening clips. 2. Normal operation no action necessary.
26	Mechanical noise heard coming from the cylinder unit.	1. Heaters switching on/off 2. 3-way valve changing position between DHW and heating mode	Normal operation no action necessary.
27	Water circulation pump runs for a short time unexpectedly.	Water circulation pump jam prevention mechanism (routine) to inhibit the build-up of scale	Normal operation no action necessary.
28	Milky/Cloudy water (Sanitary circuit)	Oxygenated water	Water from any pressurised system will release oxygen bubbles when water is running. The bubbles will settle out.
29	Heating mode has been on standby for a long time (does not start operation smoothly.)	The time of "Delay" set in "Economy settings for pump" is too short. (Go to "Service menu" → "Auxiliary settings" → "Economy settings for pump").	Increase the time of "Delay" in "Economy settings for pump" .
30	The cylinder unit that was running in the heating mode before power failure is running in the DHW mode after power recovery.	The cylinder unit is designed to run in an operation mode with a higher priority (i.e. DHW mode in this case) at power recovery.	• Normal operation. • After the DHW max. operation time has elapsed or the DHW max. temperature has been reached, the DHW mode switches to the other mode (ex. Heating mode).
31	Cooling mode is NOT available.	DIP SW2-4 is OFF.	Turn DIP SW2-4 to ON. (Refer to "4.3 DIP switch functions".)
32	The cooling system does not cool down to the set temperature.	1. When the water in the circulation circuit is unduly hot, Cooling mode starts with a delay for the protection of the outdoor unit. 2. When the outdoor ambient temperature is lower than the preset temperature that activates the freeze stat function, Cooling mode does not start running.	1. Normal operation 2. To run Cooling mode overriding the freeze stat function, adjust the preset temperature that activates the freeze stat function. (Refer to <Freeze stat function> in "4.7 System setup".)
33	The electric heaters are activated shortly after DHW or LP mode starts running after Cooling mode.	The setting time period of Heat-pump-only operation is short.	Adjust the setting time period of Heat-pump only operation. (Refer to <Electric heater (DHW)> in "4.7 System setup".)
34	During DHW or LP mode following the cooling mode, error L6 (circulation water freeze protection error) occurs and the system stops all the operations.	The unit runs in Cooling mode when the outdoor ambient temperature is lower than 10ºC (outside of the guaranteed operating range). (When defrosting operation is running at such a low outdoor ambient temperature after Cooling mode is switched to DHW or LP mode, the water temperature in the cooling circuit drops too low, which could result in L6 error to stop all the operations.	Do not run Cooling operation when the outdoor ambient temperature is lower than 10ºC. To automatically stop or recover only Cooling operation and keep other operations running, the freeze stat function can be used. Set the preset temperature that activates the freeze stat function to adjust the outdoor ambient temperature as follows. (Refer to <Freeze stat function> in "4.7 System setup".) **Outdoor ambient temperature** – **Cooling operation** 3ºC higher than the preset temperature – Stop 5ºC higher than the preset temperature – Recover

<table>
<tr><th>No.</th><th>Fault symptom</th><th>Possible cause</th><th>Explanation - Solution</th></tr>
<tr><td rowspan="4">35</td><td rowspan="4">The energy monitor value seems not correct.

Note:
There could be some discrepancies between the actual and the calculated values.
If you seek for accuracy, please make sure to connect power meter(s) and heat meter to FTC board. Both should be locally supplied.</td><td>1. Incorrect setting of the energy monitor</td><td>1. Check the setting by following the procedure below.
(1) Check if the DIP switch is set as the table below.
Consumed electric energy<table><tr><th>SW3-4</th><th>Electric energy meter (Local supply)</th></tr><tr><td>OFF</td><td>Without</td></tr><tr><td>ON</td><td>With</td></tr></table>Delivered heat energy<table><tr><th>SW3-8</th><th>Heat meter (Local supply)</th></tr><tr><td>OFF</td><td>Without</td></tr><tr><td>ON</td><td>With</td></tr></table>(2) In the case external electric energy meter and/or heat meter is not used, check if the setting for electric heater and water pump(s) input is correct by referring to “Energy monitor” in “4.7 System setup”.
(3) In the case external electric energy meter and/or heat meter is used, check if the unit of output pulse on external meter matches with the one set at the main remote controller by referring to “Energy monitor” in “4.7 System setup”.</td></tr>
<tr><td>2. Non-connectable type of external meter (local supply) is connected.</td><td>2. Check if the external meter (local supply) is connectable type by referring to “Energy monitor” in “4.7 System setup”.</td></tr>
<tr><td>3. External meter (local supply) failure</td><td>3. Check if signal is sent to IN8 to IN10 properly. (Refer to section 4.2 Wiring diagram)
Replace the external heat meter if defective.</td></tr>
<tr><td>4. FTC board failure</td><td>4. Check the FTC control board.
• Check for faulty wiring.
• If no problem found with the wiring, the FTC control board is faulty. Replace the board.</td></tr>
<tr><td>36</td><td>Heat pump is forced to turn ON and OFF.</td><td>Smart grid ready input (IN11 and IN12) is used, and switch-on and off commands are input.</td><td>Normal operation no action necessary.</td></tr>
</table>

Annual Maintenance

It is essential that the cylinder unit is serviced at least once a year by a qualified individual. Any spare parts required should be purchased from Mitsubishi Electric. NEVER bypass safety devices or operate the unit without them being fully operational.

<Annual maintenance points>

Use the Annual Maintenance Log Book as a guide to carrying out the necessary checks on the cylinder unit and outdoor unit.

■ Annual Maintenance (cylinder unit and hydrobox)

It is essential that the indoor unit is serviced at least once a year by a qualified individual. Any required parts should be purchased from Mitsubishi Electric. NEVER bypass safety devices or operate the unit without them being fully operational. For more details, refer to service handbook.

Notes
- **Within the first couple of months of installation, remove and clean the indoor unit's strainer plus any additional filter items that are fitted external to the indoor unit. This is especially important when installing on an old/existing pipe work system.**
- **The pressure relief valve and T&P valve should be checked annually by turning the knob manually so that the medium is discharged, thus cleaning the seal seat.**

In addition to annual servicing it is necessary to replace or inspect some parts after a certain period of system operation. Please see tables below for detailed instructions. Replacement and inspection of parts should always be done by a competent person with relevant training and qualifications.

Parts which require regular replacement

Parts	Replace every	Possible failures
Pressure relief valve (PRV) Manometer Inlet control group (ICG)*1 Mud trap*2	6 years	Water leakage

*1 OPTIONAL PARTS for UK
*2 Cylinder unit: ERST17D-*M*BE

Parts which require regular inspection

Parts	Check every	Possible failures
Pressure relief valve (3bar) Temperature and pressure relief valve	1 year (turning the knob manually)	It could seize and risk burst of expansion vessel
Immersion heater*3	2 years	Earth leakage causing circuit breaker to activate (Heater is always OFF)
Water circulation pump (Primary circuit)	20,000 hrs (3 years)	Water circulation pump failure
Magnetic filter	3 years	Flow rate decrease due to clogging
Mud trap*4	1 year	Flow rate decrease due to clogging

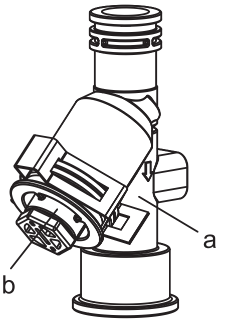
*3 Cylinder unit: EHPT20X-MEHEW and OPTIONAL PART
*4 Cylinder unit: ERST17D-*M*BE

Parts which must NOT be re-used when servicing

* O-ring
* Gasket

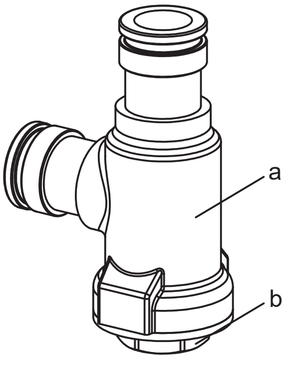
Note:
- **Always replace the gasket for pump with a new one at each regular maintenance (every 20,000 hours of use or every 3 years).**

<Draining particles from the magnetic filter>
Note: DRAINED WATER MAY BE VERY HOT
1. Turn OFF the unit via the user interface.
2. Turn OFF the circuit breaker.
3. Check if body of the magnet filter is still fitted tight (a).
4. Close the isolating valves.
5. Put a suitable bottle below the magnetic filter.
6. Remove fastener and open the cap of the filter (b).
7. Collect the water and particles in the bottle.
8. Wash the inside mesh and magnet and remove particles from them.
9. Put the inside mesh and magnet back into the filter.
10. Fit the cap with fastener.
11. Open the isolating valves.
12. Check the pressure of the water circuit.



a. body
b. cap

<Draining particles from the magnetic filter (ONLY Cylinder unit: ERST17D-*M*BE)>
Note: DRAINED WATER MAY BE VERY HOT
1. Turn OFF the unit via the user interface.
2. Turn OFF the circuit breaker.
3. Check if body of the magnet filter is still screwed tight (a).
4. Close the isolating valves.
5. Hold the motor of mixing valve and pull hard to remove it from the valve.
6. Put a suitable bottle below the magnetic filter.
7. Open the cap of the filter with 2 spanners (b).
8. Collect the water and particles in the bottle.
9. Wash the inside mesh and magnet and remove particles from them.
10. Put the inside mesh and magnet back into the filter.
11. Screw the cap with 2 spanners.
12. Reattach the motor on the mixing valve.
13. Open the isolating valves.
14. Check the pressure of the water circuit.



a body
b cap

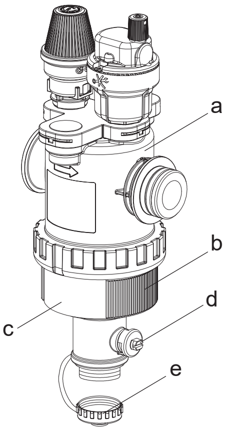
<Draining dirt from the mud trap (ONLY Cylinder unit: ERST17D-*M*BE)>

Note: DRAINED WATER MAY BE VERY HOT

1. Turn OFF the unit via the user interface.
2. Turn OFF the circuit breaker.
3. Check if upper and lower parts of the mud trap are still screwed tight (a, c).
4. Take off the magnetic sleeve (b).
5. Unscrew the drain cap (e).
6. Connect a drain hose to the bottom of the mud trap so that the water and dirt can be collected in a suitable bottle.
7. Open the drain valve for a couple of seconds (d).
8. After dirt drained, close the drain valve.
9. Screw the drain cap back on.
10. Reattach the magnetic sleeve.
11. Check the pressure of the water circuit.

Notes:

- When checking the mud trap for tightness, hold it firmly, so as NOT to apply stress to the water piping.
- To prevent dirt from remaining in the mud trap, take off the magnetic sleeve.
- Always first unscrew the drain cap, and connect a drain hose to the bottom of the water filter, then open the drain valve.



a upper part
b magnetic sleeve
c lower part
d drain valve
e drain cap

■ Error Codes

Code	Error	Action
L3	Circulation water temperature overheat protection	Flow rate may be reduced. Check for; • Water leakage • Magnetic filter / Strainer blockage • Water circulation pump function (Error code may display during filling of primary circuit, complete filling and reset error code.)
L4	DHW tank water temperature overheat protection	Check the immersion heater and it's contactor.
L5	Indoor unit temperature thermistor (THW1, THW2, THW5A, THW5B, THW6, THW7, THW8, THW9) failure	Check resistance across the thermistor.
L6	Circulation water freeze protection	See Action for L3.
L8	Heating operation error	Check and re-attach any thermistors that may have become dislodged.
L9	Low primary circuit flow rate detected by flow sensor or flow switch (flow switches 1, 2, 3)	See Action for L3. If the flow sensor or flow switch itself does not work, replace it. **Caution: The pump valves may be hot, please take care.**
LA	Pressure sensor failure	Check pressure sensor cable for damage or loose connections.
LB	High pressure protection	• Flow rate of the heating circuit may be reduced. Check water circuit. • Plate heat exchanger may be clogged. Check the plate heat exchanger. • Outdoor unit failure. Check refrigerant volume, valve, LEV coil and pipe crushing of outdoor unit.
LC	Boiler circulation water temperature overheat protection	Check if the setting temperature of the Boiler for heating exceeds the restriction. (See the manual of the thermistors "PAC-TH012HT(L)-E")
		Flow rate of the heating circuit from the boiler may be reduced. Check for • Water leakage • Magnetic filter / Strainer blockage • Water circulation pump function.
LD	Thermistor (Boiler flow water temp.) (THWB1) failure	Check resistance across the thermistor.
LE	Boiler operation error	See Action for L8. Check the status of the boiler.
LF	Flow sensor failure	Check flow sensor cable for damage or loose connections.
LH	Boiler circulation water freeze protection	Flow rate of the heating circuit from the boiler may be reduced. Check for • Water leakage • Magnetic filter / Strainer blockage • Water circulation pump function.
LJ	DHW operation error (type of external plate HEX)	• Check for disconnection of the thermistor (DHW tank lower water temp.) (THW5B). • Flow rate may be reduced. Check for water circulation pump function. (primary / sanitary)
LL	Setting errors of DIP switches on FTC control board	For boiler operation, check that DIP SW1-1 is set to ON (With Boiler) and DIP SW2-6 is set to ON (With Mixing Tank). For 2-zone temperature control, check DIP SW2-7 is set to ON (2-zone) and DIP SW2-6 is set to ON (With Mixing Tank).
LP	Out of water flow rate range for outdoor heat pump unit	Check the installation the water flow rate range. (See Table 4.6.3 for Cylinder unit, Table 5.6.3 for Hydrobox.) Check remote controller settings ([Service] → [Heat pump settings] → [Heat pump flow rate range]) See Action for L3.
P1	Thermistor (Room temp.) (TH1) failure	Check resistance across the thermistor.
P2	Thermistor (Ref. liquid temp.) (TH2) failure	Check resistance across the thermistor.
P6	Anti-freeze protection of plate heat exchanger	See Action for L3. Check for correct amount of refrigerant.
J0	Communication failure between FTC and wireless receiver	Check connection cable for damage or loose connections.
J1 - J8	Communication failure between wireless receiver and wireless remote controller	Check wireless remote controller's battery is not flat. Check the pairing between wireless receiver to wireless remote controller. Test the wireless communication. (See the manual of wireless system)
E0 - E5	Communication failure between main remote controller and FTC	Check connection cable for damage or loose connections.
E6 - EF	Communication failure between FTC and outdoor unit	Check that the outdoor unit has not been turned off. Check connection cable for damage or loose connections. Refer to outdoor unit service manual.
E9	Outdoor unit receives no signal from indoor unit.	Check both units are switched on. Check connection cable for damage or loose connections. Refer to outdoor unit service manual.
EE	Combination error between FTC and outdoor unit	Check combination of FTC and outdoor unit.
U*, F*	Outdoor unit failure	Refer to outdoor unit service manual.
A*	M-NET communication error	Refer to outdoor unit service manual.

Note: To cancel error codes, please switch system off (Touch [Reset] on main remote controller).

Engineers Forms

Should settings be changed from default, please enter and record new setting in ‘Commissioning/Field settings record sheet’ below. This will ease resetting in the future should the system use change or the circuit board need to be replaced.

Commissioning/Field settings record sheet

Main remote controller screen				Parameters	Default setting	Field setting	Notes
DHW	DHW *4		Eco	On/Off *5	Off		
			Boost	On/Off	—		
			DHW max. temp.	40°C to 55/60/65/70°C *6	50°C		
			Max. temp. drop	5°C to 40°C	10°C		
			Max. operation time	30 to 120 min.	60 min.		
			Interval	30 to 120 min.	30 min.		
			Volume	Large / Standard	Standard *7		
			Schedule	On/Off	Off		
			Always off	On/Off	Off		
	Legionella prevention *4		Legionella	On/Off	On		
			Hot water temp.	60°C to 70°C *6	65°C		
			Start time	00:00 to 23:00	03:00		
			Duration	1 to 120 min.	30 min.		
			Frequency	1 to 30 days	15 days		
			Max. operation time	1 to 5 h	3 h		
Heating / Cooling *3	Heating / Cooling		Zone 1 heating room temp.	10°C to 30°C	20°C		
			Zone 2 heating room temp. *1	10°C to 30°C	20°C		
			Zone 1 heating flow temp.	20°C to 60/70/75°C	45°C		
			Zone 2 heating flow temp. *2	20°C to 60/70/75°C	35°C		
			Zone 1 cooling flow temp. *3	5°C to 25°C	15°C		
			Zone 2 cooling flow temp. *3	5°C to 25°C	20°C		
			Zone 1 heating weather compensation curve	−9°C to +9°C	0°C		
			Zone 2 heating weather compensation curve *2	−9°C to +9°C	0°C		
			Zone 1 cooling weather compensation curve	−9°C to +9°C	0°C		
			Zone 2 cooling weather compensation curve *2	−9°C to +9°C	0°C		
			Schedule	On/Off	Off		
			Always off	On/Off	Off		
			Heating / Cooling	Heating / Cooling	Heating		
			Zone 1 control logic	Heating room temp./ Heating flow temp./ Heating weather compensation curve / Cooling flow temp./ Cooling weather compensation curve	Heating weather compensation curve		
			Zone 2 control logic *2	Heating room temp./ Heating flow temp./ Heating weather compensation curve / Cooling flow temp./ Cooling weather compensation curve	Heating weather compensation curve		
			Auto change over	On/Off	Off		
	Weather compensation curve (Heating)	Hi flow temp. set point	Zone 1 outdoor ambient temp.	−30°C to +33°C *8	−15°C		
			Zone 1 flow temp.	20°C to 60/70/75°C	50°C		
			Zone 2 outdoor ambient temp. *2	−30°C to +33°C *8	−15°C		
			Zone 2 flow temp. *2	20°C to 60/70/75°C	40°C		
		Lo flow temp. set point	Zone 1 outdoor ambient temp.	−28°C to +35°C *9	20°C		
			Zone 1 flow temp.	20°C to 60/70/75°C	25°C		
			Zone 2 outdoor ambient temp. *2	−28°C to +35°C *9	20°C		
			Zone 2 flow temp. *2	20°C to 60/70/75°C	25°C		
		Adjust	Zone 1 outdoor ambient temp.	−29°C to +34°C *10	—		
			Zone 1 flow temp.	20°C to 60/70/75°C	—		
			Zone 2 outdoor ambient temp. *2	−29°C to +34°C *10	—		
			Zone 2 flow temp. *2	20°C to 60/70/75°C	—		
	Weather compensation curve (Cooling)	Hi flow temp. set point	Zone 1 outdoor ambient temp.	10°C to 46°C	35°C		
			Zone 1 flow temp.	5°C to 25°C	15°C		
			Zone 2 outdoor ambient temp. *2	10°C to 46°C	35°C		
			Zone 2 flow temp. *2	5°C to 25°C	20°C		
		Lo flow temp. set point	Zone 1 outdoor ambient temp.	10°C to 46°C	25°C		
			Zone 1 flow temp.	5°C to 25°C	25°C		
			Zone 2 outdoor ambient temp. *2	10°C to 46°C	25°C		
			Zone 2 flow temp. *2	5°C to 25°C	25°C		
Menu	Energy		Energy monitor	Consumed electrical energy/Delivered energy	—		
	Holiday		Schedule	On/Off/Set time	—		
			DHW *4	On/Off	Off		
			Heating / Cooling *3	On/Off	On		
	Setting	Language	EN/CZ/DA/DE/ET/ES/FR/HR/IT/LV/LT/HU/NL/NO/PL/PT/RO/SK/SI/FI/SV/TR/EL/BG		EN		
		Room sensors	Zone sensor selection *2	Zone 1/Zone 2	Zone 1		
			Zone 1 programme	TH1/Main RC/Room RC1-8/“Time/Zone”	TH1		
			Zone 2 programme *2	TH1/Main RC/Room RC1-8/“Time/Zone”	TH1		
		Display	Temp. (°C) → (°F)	On/Off	Off		
		Touch screen	Clean screen	On/Off	Off		
			Calibrate screen	On/Off	Off		
			Brightness	Low / Mid / Hi	Mid		
			Backlight time	5sec./10sec./20sec./30sec./60sec./Always on	30sec.		

Continued to next page.

■ Engineers Forms

Commissioning/Field settings record sheet

Main remote controller screen					Parameters			Default setting	Field setting	Notes
Menu	Service	Thermistor adjustment	THW1		−10°C to +10°C			0°C		
			THW2		−10°C to +10°C			0°C		
			THW5B		−10°C to +10°C			0°C		
			THW6		−10°C to +10°C			0°C		
			THW7		−10°C to +10°C			0°C		
			THW8		−10°C to +10°C			0°C		
			THW9		−10°C to +10°C			0°C		
			THW10		−10°C to +10°C			0°C		
			THWB1		−10°C to +10°C			0°C		
		Auxiliary settings	Economy settings for pump.		On/Off *11			On		
					Delay (3 to 60 min.)			10 min.		
			Electric heater (heating)		Space heating: On (used)/Off (not used)			On		
					Electric heater delay timer (5 to 180 min.)			30 min.		
			Electric heater (DHW) *4		Booster heater	DHW: On (used)/Off (not used)		On		
					Immersion heater	DHW: On (used)/Off (not used)		On		
					Electric heater delay timer (15 to 30 min.)			15 min.		
			Mixing valve 1 control		Running (10 to 240 sec.)			120 sec.		
					Interval (1 to 30 min.)			2 min.		
			Mixing valve 2 control		Running (10 to 240 sec.)			120 sec.		
					Interval (1 to 30 min.)			2 min.		
			Flow sensor *12		Minimum (0 to 100 L/min)			5 L/min		
					Maximum (0 to 100 L/min)			100 L/min		
			Analogue output		Interval (1 to 30 min.)			5 min.		
					Priority (Normal / High)			Normal		
			Electric heater schedule *19		Daily schedule (Schedule 1/Schedule 2)			Shedule 1		
					Time schedule 1 (Always/Start-Stop/Never)			Always		
					Time schedule 2 (Always/Start-Stop/Never)			Always		
		Pump speed	DHW		Pump speed (1 to 5)			5		
			Heating / Cooling		Pump speed (1 to 5)			5		
		Heat source setting			Standard / Heater / Boiler / Hybrid *13			Standard		
		Heat pump settings	Heat pump flow rate range			Minimum (0 to 100 L/min)		5 L/min		
						Maximum (0 to 100 L/min)		100 L/min		
			Quiet mode *21		Heating	Day (Mon to Sun)		—		
						Time		0:00 to 23:45		
						Quiet level (Normal/ Level1/ Level2/ Level3)		Normal		
					Cooling	Day (Mon to Sun)		—		
						Time		0:00 to 23:45		
						Quiet level (Normal/ Level1/ Level2/ Level3)		Normal		
		Operation settings	Heating operation	Flow temperature range *14	Minimum temp. (20 to 45°C)			30°C		
					Maximum temp. (35 to 60/70/75°C)			50°C		
				Room temperature control *14	Mode (Auto/Quick/Normal/Slow)			Auto		
					Interval (10 to 60 min.)*15			10 min.		
				Heat pump thermo diff.	On/Off *11			On		
					Lower (−9 to −1°C)			−5°C		
					Upper (+3 to +5°C)			5°C		
			Freeze stat function *16		Ambient temp. (3 to 20°C) / **			5°C		
			Simultaneous operation (DHW/ Heating)		On/Off *11			Off		
					Ambient temp. (−30 to +10°C) *8			−15°C		
			Cold weather function		On/Off *11			Off		
					Ambient temp. (−30 to −10°C) *8			−15°C		
			Boiler settings		Hybrid settings	Outdoor ambient temp. (−30 to +10°C) *8		−15°C		
						Priority mode (Ambient/Cost/CO_2) *17		Ambient		
						Outdoor ambient temp. rise (+1 to +5°C)		+3°C		
					Intelligent settings	Energy price *18	Electricity (0.001 to 999 */kWh)	0.5 */kWh		
							Boiler (0.001 to 999 */kWh)	0.5 */kWh		
						CO_2 emission	Electricity (0.001 to 999 kg -CO_2/kWh)	0.5 kg -CO_2/ kWh		
							Boiler (0.001 to 999 kg -CO_2/kWh)	0.5 kg -CO_2/ kWh		
						Heat source	Heat pump capacity (1 to 40 kW)	11.2 kW		
							Boiler efficiency (25 to 150%)	80%		
							Booster heater 1 capacity (0 to 30 kW)	2 kW		
							Booster heater 2 capacity (0 to 30 kW)	4 kW		

Continued to next page.

Engineers Forms

Commissioning/Field settings record sheet (continued from the previous page)

Main remote controller screen					Parameters		Default setting	Field setting	Notes
Menu	Service	Operation settings	Smart grid ready	DHW	On/Off		Off		
					Target temp. (+1 to +30°C) / -- (Non active)		--		
				Heating	On/Off		Off		
					Target temp.	Switch-on recommendation (20 to 60/70/75°C)	50°C		
						Switch-on command (20 to 60/70/75°C)	55°C		
				Cooling	On/Off		Off		
					Target temp.	Switch-on recommendation (5 to 25°C)	15°C		
						Switch-on command (5 to 25°C)	10°C		
				Pump cycles	Heating (On/Off)		On		
					Cooling (On/Off)		On		
					Interval (10 to 120 min.)		10 min.		
			Floor dry up		On/Off *11		Off		
					Target temperature	Start & End (20 to 60/70/75°C)	30°C		
						Max temperature (20 to 60/70/75°C)	45°C		
						Max temperature period (1 to 20 days)	5 days		
					Flow temperature increase	Temperature increase step (+1 to +30°C)	+5°C		
						Increase interval (1 to 7 days)	2 days		
					Flow temperature decrease	Temperature decrease step (-1 to -30°C)	−5°C		
						Decrease interval (1 to 7 days)	2 days		
			Summer mode		On/Off		Off		
					Ambient temperature	Heating on (4 to 19°C)	10°C		
						Heating off (5 to 20°C)	15°C		
					Judgement time	Heating on (1 to 48 h)	6 h		
						Heating off (1 to 48 h)	6 h		
					Forced heating On (-30 to 10°C)		5°C		
			Auto change over		On/Off		Off		
					Ambient temperature	Heat→Cool (10 to 40°C)	28°C		
						Cool→Heat (5 to 20°C)	15°C		
					Judgement time	Heat→Cool (1 to 48 h)	6 h		
						Cool→Heat (1 to 48 h)	6 h		
			Water flow control		On/Off		Off		
					Water temperature difference *20	Heating (+3 to +20°C)	+5°C		
						Cooling (+3 to +10°C)	+5°C		
			Holiday mode		Zone 1 heating room temp.	10°C to 30°C	15°C		
					Zone 2 heating room temp. *1	10°C to 30°C	15°C		
					Zone 1 heating flow temp.	20°C to 60/70/75°C	35°C		
					Zone 2 heating flow temp. *2	20°C to 60/70/75°C	25°C		
					Zone 1 cooling flow temp. *3	5°C to 25°C	25°C		
					Zone 2 cooling flow temp. *3	5°C to 25°C	25°C		
			Zone prohibited		Heating (Zone 1)	Permitted/Prohibited	Permitted		
					Heating (Zone 2)	Permitted/Prohibited	Permitted		
					Cooling (Zone 1)	Permitted/Prohibited	Permitted		
					Cooling (Zone 2)	Permitted/Prohibited	Permitted		

Continued to next page.

Engineers Forms

Commissioning/Field settings record sheet (continued from the previous page)

Main remote controller screen					Parameters	Default setting	Field setting	Notes
Menu	Service	Energy monitor settings	Electric heater capacity	Booster heater 1	0 to 30 kW	2 kW		
				Booster heater 2	0 to 30 kW	4 kW		
				Immersion heater	0 to 30 kW	0 kW		
				Analogue output	0 to 30 kW	0 kW		
			Delivered energy adjustment		−50 to +50%	0%		
			Water pump input	Pump 1	0 to 200 W or ***(factory fitted pump)	***		
				Pump 2	0 to 200 W	0 W		
				Pump 3	0 to 200 W	0 W		
				Pump 4 *7	0 to 200 W	72 W		
			Electric energy meter		0.1/1/10/100/1000 pulse/kWh	1000 pulse/kWh		
			Heat meter		0.1/1/10/100/1000 pulse/kWh	1000 pulse/kWh		
		External input settings	Demand control (IN4)		Heat source OFF/Boiler operation	Boiler operation		
			Outdoor thermostat (IN5)		Heater operation/Boiler operation	Boiler operation		
			Cooling limit temp. (IN15)	Zone selection	Zone 1/Zone 2/Zone 1&2	Zone 1		
				Zone 1 lowest temperature	5°C to 25°C	18°C		
				Zone 2 lowest temperature	5°C to 25°C	18°C		
		Thermo on output			Zone 1/Zone 2/Zone 1&2	Zone 1&2		

*1 The settings related to Zone 2 can be switched only when 2-zone temperature control or 2-zone valve ON/OFF control is active.
*2 The settings related to Zone 2 can be switched only when 2-zone temperature control is enabled (when DIP SW 2-6 and SW 2-7 are ON).
3 Cooling mode settings are available for ERS model only.
*4 Only available if DHW tank is present in system.
*5 When the indoor unit is connected with a PUMY-P outdoor unit, the mode is fixed to “Off”.
*6 For the model without both booster and immersion heater, it may not reach the set temperature depending on the outside ambient temperature.
*7 This setting is valid for only cylinder units.
*8 The lower limit is -15°C depending on the connected outdoor unit.
*9 The lower limit is -13°C depending on the connected outdoor unit.
*10 The lower limit is -14°C depending on the connected outdoor unit.
*11 On: the function is active; Off: the function is inactive.
*12 Do not change the setting since it is set according to the specification of flow sensor attached to the indoor unit.
*13 When DIP SW1-1 is set to OFF “WITHOUT Boiler” or SW2-6 is set to OFF “WITHOUT Mixing tank”, neither Boiler nor Hybrid can be selected.
*14 Valid only when operating in Heating room temperature.
*15 When DIP SW5-2 is set to OFF, the function is active.
*16 If asterisk (**) is chosen freeze stat function is deactivated. (i.e. primary water freeze risk)
*17 When the indoor unit is connected with a PUMY-P and PXZ outdoor unit, the mode is fixed to “Ambient”.
18 “” of “*/kWh” represents currency unit (e.g. €, £, or the like)
*19 Valid only during heating mode
*20 To enable this function in the outdoor unit of PUZ-S(H)WM, switch the [Mode 7] in [Function settings] to "2".
([Menu] → [Service] → [Function settings], [Ref. add: 0], [Unit: 1] → [Mode 7], 1-High temperature control (default) / 2-Water temperature difference control)
*21 When connected with a SUZ outdoor unit, there is no sound reduction effect even if it is set to the heating quiet mode 3 and the cooling quiet mode 1 to 3.

Refrigerant collecting (pumpdown) for split model systems only

Refer to “Refrigerant collection” in the outdoor unit installation manual or service manual.

Back-up operation of boiler

Heating operation is backed up by boiler.
For more details, refer to the installation manual of PAC-TH012HT-E.

<Installation & System set up>
1. Set DIP-SW 1-1 to ON "With boiler" and SW2-6 to ON “With Mixing tank”.
2. Install the thermistor (Boiler flow water temp.) (THWB1) *1 on the boiler circuit.
3. Connect the output wire (OUT10: Boiler operation) to the signal input (room thermostat input) on the boiler. *2
4. Install one of the following room temperature thermostats. *3

- Wireless remote controller (option)
- Room temperature thermostat (local supply)
- Main remote controller (remote position)

<Main remote controller settings>
1. Go to [Service] menu, then [Heat source setting], and choose [Boiler] or [Hybrid]. *4
2. Go to [Service] menu, and choose [Operation settings], then [Boiler settings] to make detailed settings for [Hybrid settings].

*1 The boiler temperature thermistor is an optional part.
*2 OUT10 has no voltage across it.
*3 Boiler heating is controlled on/off by the room temp. thermostat.
*4 [Hybrid] automatically switches heat sources between heat pump (and electric heater) and boiler.

Multiple outdoor units control

To realize bigger systems by using multiple outdoor units, up to 6 units of the same model can by connected.
The hydrobox can be used as a sub unit for multiple outdoor unit control.
For more details, refer to the installation manual of the flow temperature controller [main] (PAC-IF081/082).
PAC-IF071/072B-E can not be connected to the hydrobox.
Check the model name of connecting main unit.

<DIP switch setting>
- Set DIP SW4-1 to ON “Active: multiple outdoor unit control”.
- Keep DIP SW4-2 OFF (default setting) (main/sub setting: sub).
- Set DIP SW1-3 to ON when the hydrobox is connected to a DHW tank.

Note : SUZ-SWM/PXZ/PUMY-P outdoor unit is not available for multiple outdoor units control.

MITSUBISHI ELECTRIC

Mitsubishi Electric Erp Directive Related Product Information: **erp.mitsubishielectric.eu/erp**
Details and precautions on installation, maintenance and assembly can be found in the installation and or operation manuals.
This information is based on EU regulation No 811/2013 and No 813/2013.

PRODUCT FICHE OF TEMPERATURE CONTROLS

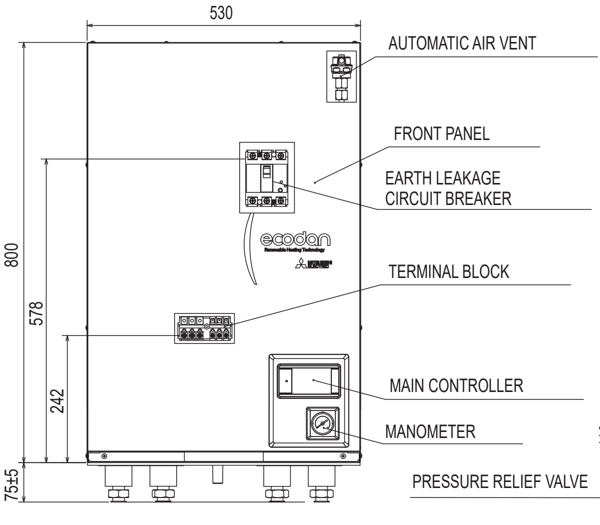
1	Parts name	5	Main Remote controller	7	Wireless remote controller & receiver
2	Model name	6	(Indoor Unit Accessory)		PAR-WT60R-E & PAR-WR61R-E
3	The class of the temperature control		VI		VI
4	The contribution to seasonal space heating energy efficiency (%)		4		4

5 Hydrobox

5.1. Outlines and dimensions

■ Technical Drawings

<Unit: mm>



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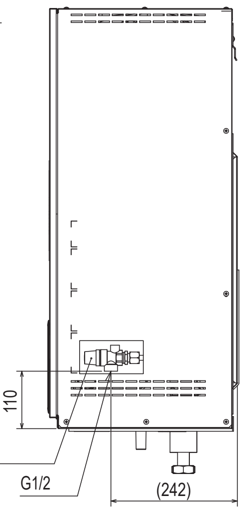

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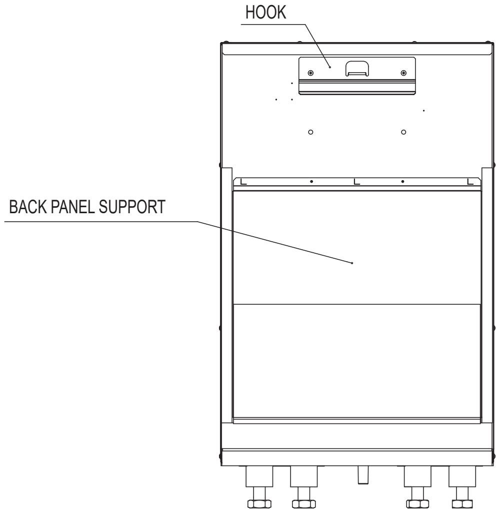
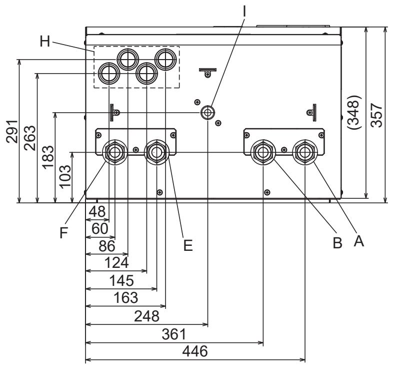


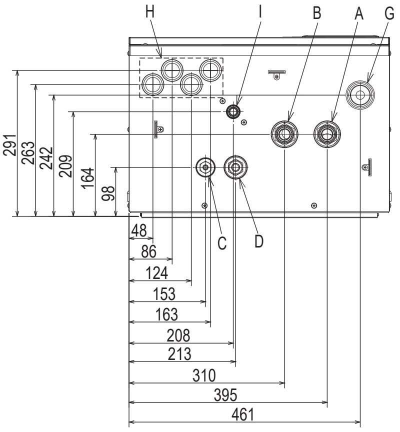
<Rear>

<ERPX> (Packaged model system for heating and cooling)

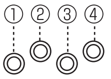


<View from below>

<ERS*> (Split model system for heating and cooling)



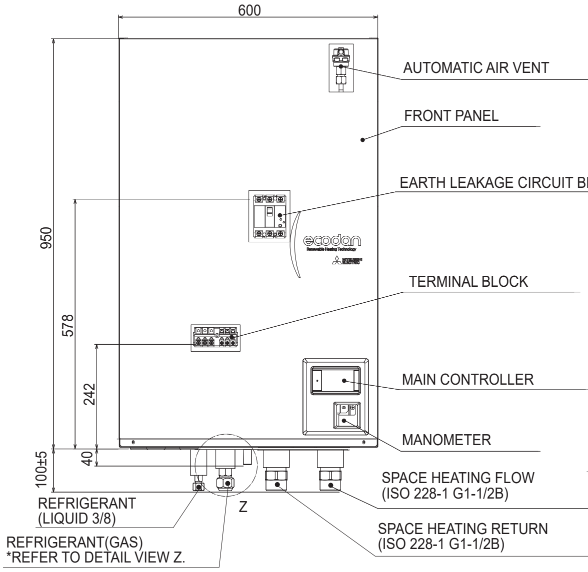
<View from below>

<table>
<tr><th>Letter</th><th>Pipe description</th><th colspan="2">Connection size/type</th></tr>
<tr><td>A</td><td>Space heating/Indirect DHW tank (primary) RETURN connection</td><td colspan="2">G1 (EHSD/ERSD/ERSC/ERSF/ERPX-*)</td></tr>
<tr><td>B</td><td>Space heating/Indirect DHW tank (primary) FLOW connection</td><td colspan="2">G1 (EHSD/ERSD/ERSC/ERSF/ERPX-*)</td></tr>
<tr><td>C</td><td>Refrigerant (Liquid)</td><td>6.35 mm/Flare (E*SD/F-*)
9.52 mm/Flare (E*SC-*)</td><td rowspan="2">⚠ Warning
• Refrigerant pipes connection shall be accessible for maintenance purposes.
• In case of reconnecting the refrigerant pipes after detaching, make the flared part of pipe re-fabricated.</td></tr>
<tr><td>D</td><td>Refrigerant (Gas)</td><td>12.7 mm/Flare (E*SD-*)
12.7 or 15.88mm/Flare (ERSF-*)
15.88 mm/Flare (E*SC-*)</td></tr>
<tr><td>E</td><td>Flow connection FROM heat pump</td><td colspan="2">G1 (ERPX-*)</td></tr>
<tr><td>F</td><td>Return connection TO heat pump</td><td colspan="2">G1 (ERPX-*)</td></tr>
<tr><td>G</td><td>Discharge pipe (by installer) from pressure relief valve</td><td colspan="2">G1/2 (valve port within hydrobox casing)</td></tr>
<tr><td>H</td><td>Electrical cable inlets

 </td><td colspan="2">For inlets ① and ②, run high-voltage wires including power cable, indoor-outdoor cable, and external output wires.
For inlets ③ and ④, run low-voltage wires including external input wires and thermistor wires.
For a wireless receiver (option) cable, use inlet ④.</td></tr>
<tr><td>I</td><td>Drain socket</td><td colspan="2">Outside diameter 20 mm (EHSD-* not included.)</td></tr>
</table>

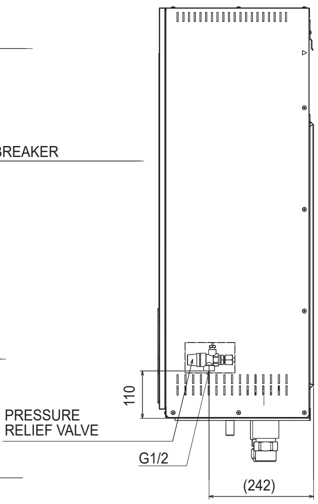
<Table 5.1.1>

<ERSE> (Split model system for heating and cooling)

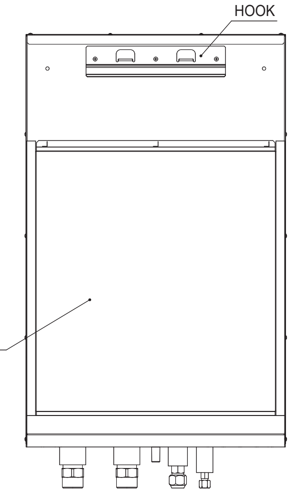
<Unit: mm>



<Front>



<Side>



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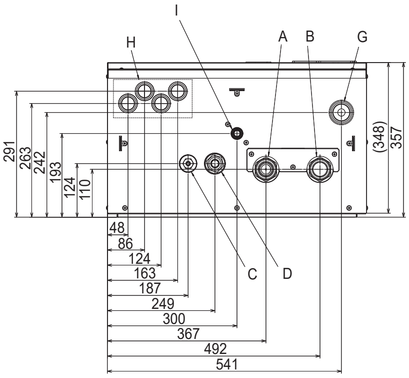
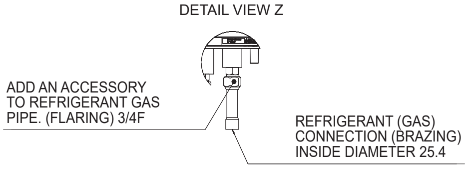


<View from below>

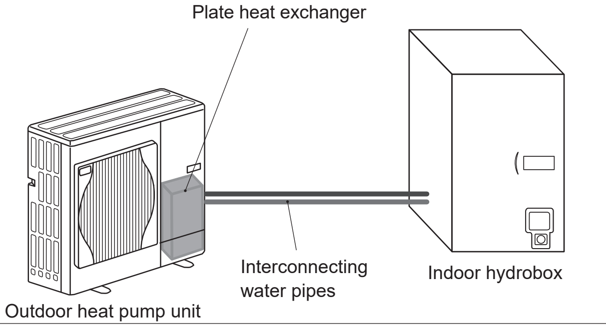
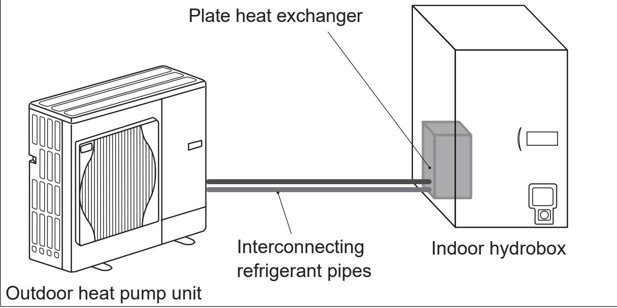


Letter	Pipe description	Connection size/type	
A	Space heating/Indirect DHW tank (primary) RETURN connection	G1-1/2B (ERSE-*)	
B	Space heating/Indirect DHW tank (primary) FLOW connection	G1-1/2B (ERSE-*)	
C	Refrigerant (Liquid)	9.52 mm/Flare (ERSE-*)	⚠ **Warning** • Refrigerant pipes connection shall be accessible for maintenance purposes. • In case of reconnecting the refrigerant pipes after detaching, make the flared part of pipe re-fabricated.
D	Refrigerant (Gas)	Inside diameter 25.4 mm (ERSE-*)	
G	Discharge pipe (by installer) from pressure relief valve	G1/2 (valve port within hydrobox casing)	
H	Electrical cable inlets ① ② ③ ④	For inlets ① and ②, run high-voltage wires including power cable, indoor-outdoor cable, and external output wires. For inlets ③ and ④, run low-voltage wires including external input wires and thermistor wires. For a wireless receiver (option) cable, use inlet ④.	
I	Drain socket	Outside diameter 20 mm (EHSD-* not included.)	

<Table 5.1.2>

5 Hydrobox

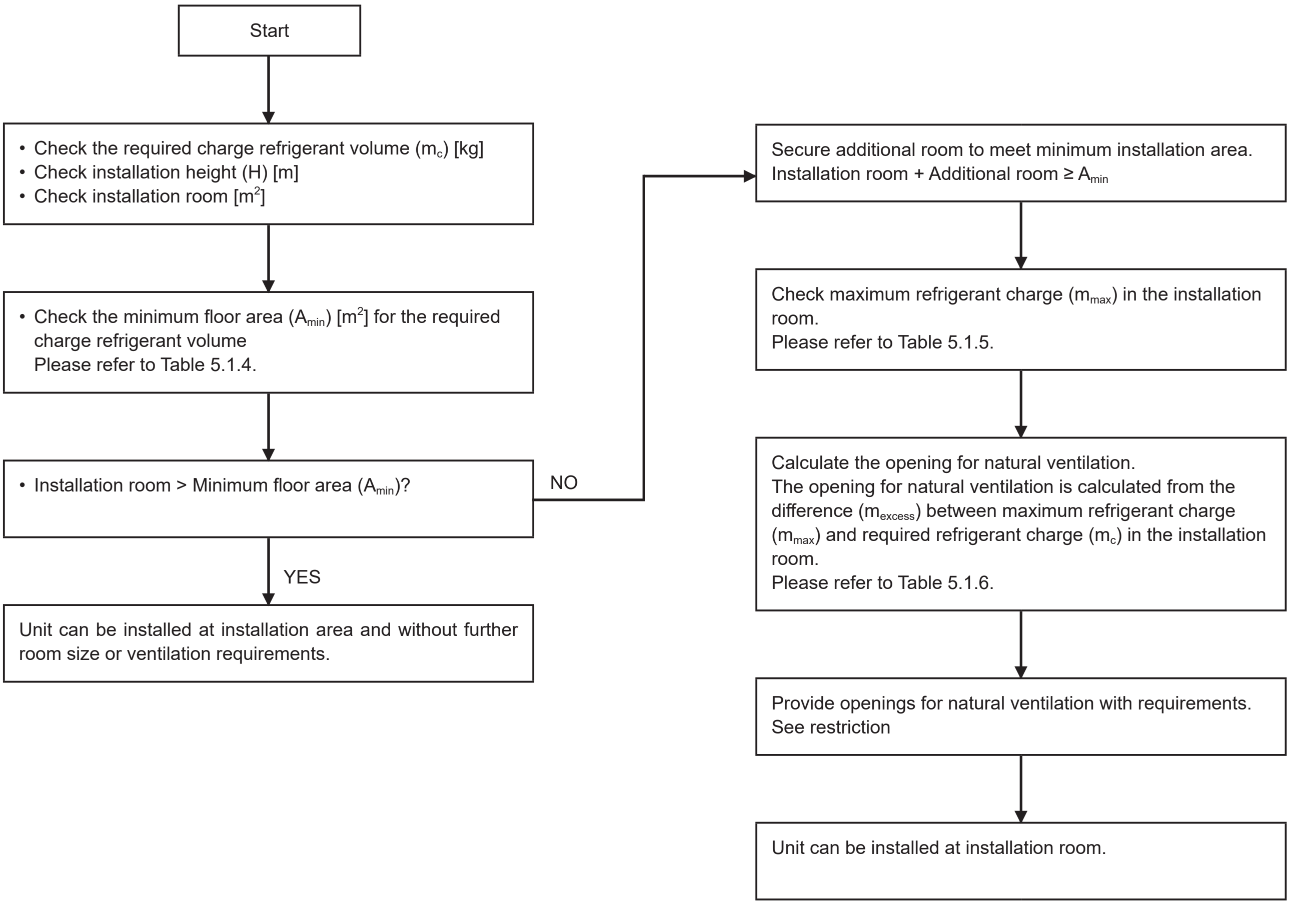
■ System configuration

	Packaged model system	Split model system
Model name	**ERPX-**	**E*SD-, E*SC-, E*SF-, E*SE-**
Hydrobox		

■ Indoor unit installation requirements for R32 refrigerant

- If the total refrigerant charge in the system is < 1.84 kg, no additional minimum floor area is required.
- If the total refrigerant charge in the system is ≥ 1.84 kg, minimum floor area requirements are complied according to the below flow chart.
- Charges above 2.4 kg are not allowed in the unit.

Flow chart for indoor unit installation



Start

- Check the required charge refrigerant volume (m_c) [kg]
- Check installation height (H) [m]
- Check installation room [m^2]

- Check the minimum floor area (A_{min}) [m^2] for the required charge refrigerant volume
  Please refer to Table 5.1.4.

- Installation room > Minimum floor area (A_{min})?

YES

Unit can be installed at installation area and without further room size or ventilation requirements.

NO

Secure additional room to meet minimum installation area.
Installation room + Additional room ≥ A_{min}

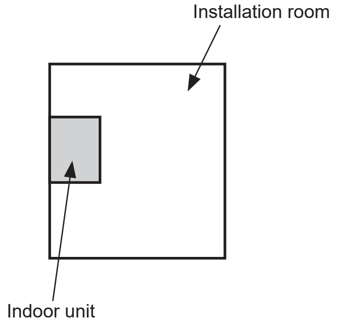
Check maximum refrigerant charge (m_{max}) in the installation room.
Please refer to Table 5.1.5.

Calculate the opening for natural ventilation.
The opening for natural ventilation is calculated from the difference (m_{excess}) between maximum refrigerant charge (m_{max}) and required refrigerant charge (m_c) in the installation room.
Please refer to Table 5.1.6.

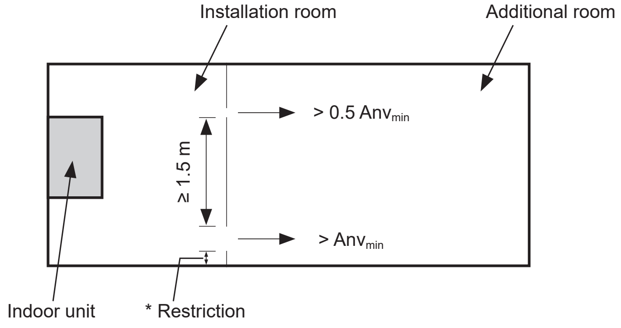
Provide openings for natural ventilation with requirements.
See restriction

Unit can be installed at installation room.

Hydrobox:



Hydrobox:
In case of natural ventilation



* Restriction for ventilation
When the openings for connected rooms and natural ventilation are required, the following conditions shall be applied.
- The area of any openings above 300 mm from the floor shall not be considered in determining compliance with minimum opening for natural ventilation (Anv_{min}).
- At least 50% of the required opening area Anv_{min} shall be below 200 mm from the floor.
- The bottom of the lowest openings shall not be higher than the point of release when the unit is installed and not more than 100 mm from the floor.
- Openings are permanent openings which cannot be closed.
- The height of the openings between the wall and floor which connect the rooms are not less than 20 mm.
- A second higher opening shall be provided. The total size of second opening shall not be less than 50% of minimum opening area for Anv_{min} and shall be at least 1.5 m above the floor.

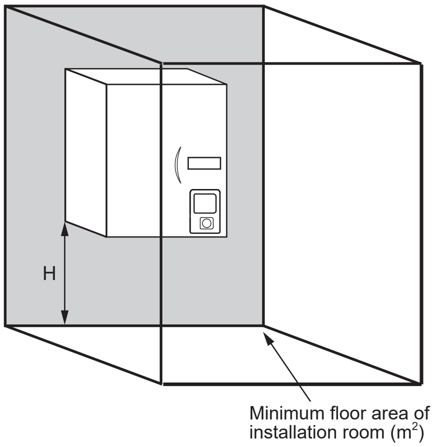
Indoor unit installation requirements for R32 refrigerant

Minimum floor area: Hydrobox

m_c [kg]	Minimum floor area (A_{min}) [m^2]								
	H = 1000 mm	H = 1050 mm	H = 1100 mm	H = 1150 mm	H = 1200 mm	H = 1250 mm	H = 1300 mm	H = 1350 mm	H = 1400 mm
< 1.84	-	-	-	-	-	-	-	-	-
1.84	10.4	9.5	8.6	7.9	7.3	6.7	6.2	6.0	5.8
1.9	11.1	10.1	9.2	8.4	7.7	7.1	6.6	6.2	5.9
2.0	12.3	11.2	10.2	9.3	8.6	7.9	7.3	6.8	6.3
2.1	13.6	12.3	11.2	10.3	9.4	8.7	8.0	7.5	6.9
2.2	14.9	13.5	12.3	11.3	10.3	9.5	8.8	8.2	7.6
2.3	16.3	14.8	13.4	12.3	11.3	10.4	9.6	8.9	8.3
2.4	17.7	16.1	14.6	13.4	12.3	11.3	10.5	9.7	9.1

<Table 5.1.3>

- **H = Height measured from the bottom of the casing to the floor.**
- **If the total refrigerant charge in the system is < 1.84 kg, no additional minimum floor area is required.**
- **Charges above 2.4 kg are not allowed in the unit.**
- **For intermediate refrigerant charges, use the row with the higher value. Example: If the refrigerant charge is 2.04 kg, use the row of 2.1 kg.**
- **The value of installation height (H) is considered above value to comply to IEC60335-2-40: 2018**



Maximum refrigerant charge allowed in the room: Hydrobox

Installation room [m^2]	Maximum refrigerant charge in a room (m_{max}) [kg]								
	H = 1000 mm	H = 1050 mm	H = 1100 mm	H = 1150 mm	H = 1200 mm	H = 1250 mm	H = 1300 mm	H = 1350 mm	H = 1400 mm
1	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83
2	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83
3	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83
4	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83
5	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83
6	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.86	1.93
7	1.83	1.83	1.83	1.83	1.83	1.88	1.96	2.04	2.11
8	1.83	1.83	1.83	1.85	1.93	2.01	2.1	2.18	2.26
9	1.83	1.83	1.88	1.97	2.05	2.14	2.22	2.31	2.39
10	1.83	1.89	1.98	2.07	2.16	2.25	2.34	2.4	2.4
11	1.89	1.98	2.08	2.17	2.27	2.36	2.4	2.4	2.4
12	1.97	2.07	2.17	2.27	2.37	2.4	2.4	2.4	2.4
13	2.05	2.16	2.26	2.36	2.4	2.4	2.4	2.4	2.4
14	2.13	2.24	2.35	2.4	2.4	2.4	2.4	2.4	2.4
15	2.21	2.32	2.4	2.4	2.4	2.4	2.4	2.4	2.4
16	2.28	2.39	2.4	2.4	2.4	2.4	2.4	2.4	2.4
17	2.35	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
18	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4

<Table 5.1.4>

- **For intermediate floor areas, use the row with the lower value. Example: If the floor area is 5.4 m^2, use the row of 5 m^2.**
- **The value of installation height (H) is considered above value to comply to IEC60335-2-40: 2018**

Minimum venting opening area for natural ventilation: Hydrobox

m_c [kg]	m_{max} [kg]	m_{excess} [kg] = m_c - m_{max}	Minimum opening for natural ventilation (Anv_{min}) [cm^2]								
			H = 1000 mm	H = 1050 mm	H = 1100 mm	H = 1150 mm	H = 1200 mm	H = 1250 mm	H = 1300 mm	H = 1350 mm	H = 1400 mm
2.4	1.84	0.56	200	191	182	174	167	160	154	152	149
2.4	1.9	0.5	182	173	165	158	152	146	140	135	133
2.4	2.0	0.4	149	142	136	130	125	120	115	111	107
2.4	2.1	0.3	115	109	105	100	96	92	89	85	82
2.4	2.2	0.2	79	75	71	68	66	63	61	58	56
2.4	2.3	0.1	40	39	37	35	34	32	31	30	29

<Table 5.1.5>

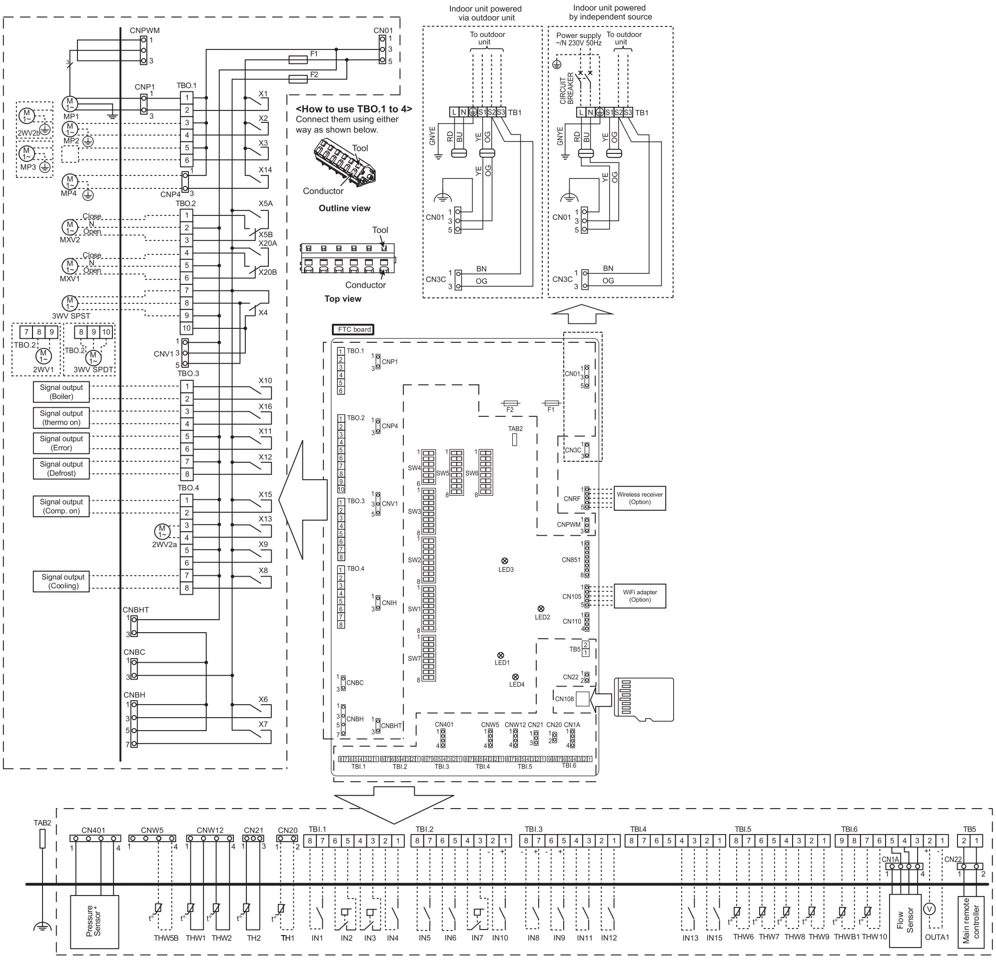
- **For intermediate m_{excess} values, the value that corresponds to the higher m_{excess} value from the table is considered.**
  Example:
  m_{excess} = 0.44 kg, the value that corresponds to m_{excess} = 0.5 kg is considered.
- **The value of installation height (H) is considered above value to comply to IEC60335-2-40: 2018**

Repositioning hydrobox

If you need to move the hydrobox to a new position, fully drain it before moving to avoid damage to the unit.
Note: Do NOT hold piping when moving or lifting the hydrobox.

5.2. Wiring diagrams

■ E***-M(E)E.UK



1. Symbols used in wiring diagram are, ○○ : connector, ☐☐☐ : terminal block.
2. Indoor unit and outdoor unit connecting wires have polarities, make sure to match terminal numbers (S1, S2, S3) for correct wirings.
3. Since the outdoor unit side electric wiring may change, be sure to check the outdoor unit electric wiring diagram for service.

[LEGEND]

Symbol	Name
TB1	Terminal block <Power supply, Outdoor unit>
ECB1	Earth leakage circuit breaker for booster heater
MP1	Water circulation pump 1(Space heating and DHW)
MP2	Water circulation pump 2 (Space heating for Zone1)(Local supply)
MP3	Water circulation pump 3 (Space heating for Zone2)(Local supply)
MP4	Water circulation pump 4 (DHW)(Local supply)
3WV(2WV1)	3-way valve (2-way valve 1)(Local supply)
2WV2a	2-way valve (For Zone 1)(Local supply)
2WV2b	2-way valve (For Zone 2)(Local supply)
MXV1	Mixing valve 1(For Zone1)(Local supply)
MXV2	Mixing valve 2(For Zone2)(Local supply)
BHT	Thermostat for booster heater
BHF	Thermal fuse for booster heater
BH1	Booster heater 1
BH2	Booster heater 2
BHC1	Contactor for booster heater 1
BHC2	Contactor for booster heater 2
BHCP	Contactor for booster heater protection
TH1	Thermistor (Room temp.)(Option)
TH2	Thermistor (Ref. liquid temp.)
THW1	Thermistor (Flow water temp.)
THW2	Thermistor (Return water temp.)
THW5B	Thermistor (DHW tank water temp.)(Option)
THW6	Thermistor (Zone1 flow temp.)(Option)
THW7	Thermistor (Zone1 return temp.)(Option)
THW8	Thermistor (Zone2 flow temp.)(Option)
THW9	Thermistor (Zone2 return temp.)(Option)
THW10	Thermistor (Mixing tank temp.)(Option)
THWB1	Thermistor (Boiler flow temp.)(Option)
IN1	Room thermostat 1 (Local supply)
IN2	Flow switch 1 (Local supply)
IN3	Flow switch 2 (Local supply)
IN4	Demand control (Local supply)
IN5	Outdoor thermostat (Local supply)
IN6	Room thermostat 2 (Local supply)
IN7	Flow switch 3 (Local supply)
IN8	Electric energy meter 1 (Local supply)
IN9	Electric energy meter 2 (Local supply)
IN10	Heat meter (Local supply)
IN11	Smart grid ready input (Local supply)
IN12	
IN13	Forced cooling mode (Local supply)
IN15	Cooling limit temp. (Local supply)
INA1	Flow sensor
FLOW TEMP. CONTROLLER (FTC)	
TBO.1−4	Terminal block <Outputs>
TBI.1−6	Terminal block <Signal Inputs, Thermistor>
F1	Fuse (IEC T10AL250V)
F2	Fuse (IEC T6.3AL250V)
SW1−7	DIP switch *See Table 3
X1−20	Relay
LED1	Power supply (FTC)
LED2	Power supply (Main remote controller)
LED3	Communication (FTC-Outdoor unit)
LED4	Reading or writing data to microSD card
CNPWM	Pump speed control signal for MP1
CN108	microSD card connector

Table 1 Signal Inputs

Name	Terminal block	Connector	Item	OFF (Open)	ON (Short)
IN1	TBI.1 7-8	—	Room thermostat 1 input *1	Refer to SW2-1 in "6-6. DIP Switch Functions".	
IN2	TBI.1 5-6	—	Flow switch 1 input	Refer to SW2-2 in "6-6. DIP Switch Functions".	
IN3	TBI.1 3-4	—	Flow switch 2 input (Zone1)	Refer to SW3-2 in "6-6. DIP Switch Functions".	
IN4	TBI.1 1-2	—	Demand control input	Normal	Heat source OFF/ Boiler operation *3
IN5	TBI.2 7-8	—	Outdoor thermostat input *2	Standard operation	Heater operation/ Boiler operation *3
IN6	TBI.2 5-6	—	Room thermostat 2 input *1	Refer to SW3-1 in "6-6. DIP Switch Functions".	
IN7	TBI.2 3-4	—	Flow switch 3 input (Zone2)	Refer to SW3-2 in "6-6. DIP Switch Functions".	
IN8	TBI.3 7-8	—	Electric energy meter 1	Refer to installation manual.	
IN9	TBI.3 5-6	—	Electric energy meter 2		
IN10	TBI.2 1-2	—	Heat meter		
IN11	TBI.3 3-4	—	Smart grid ready input		
IN12	TBI.3 1-2	—			
IN13	TBI.4 3-4	—	Forced cooling mode *4	Refer to SW7-2 in "6-6. DIP Switch Functions".	
IN15	TBI.4 1-2	—	Cooling limit temp. *4	Refer to SW7-3 in "6-6. DIP Switch Functions".	
INA1	TBI.6 3-5	CN1A	Flow sensor	Refer to installation manual.	

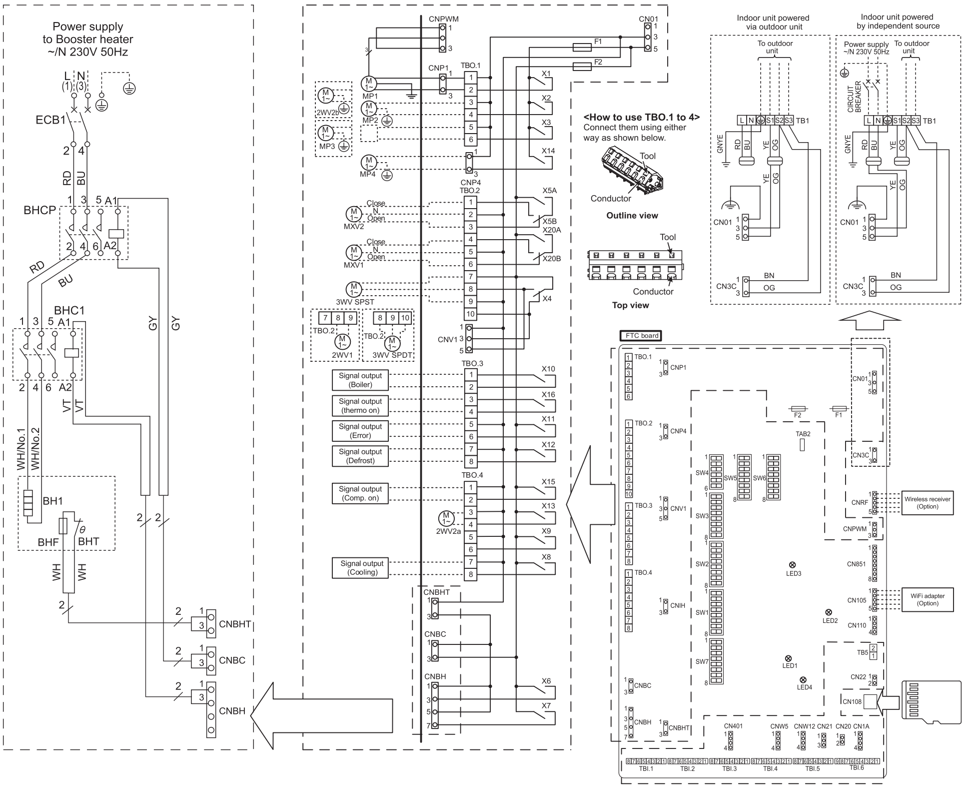
*1. Set the ON/OFF cycle time of the room thermostat for 10 minutes or more; otherwise the compressor may be damaged.
*2. If using outdoor thermostat for controlling operation of heaters, the lifetime of the heaters and related parts may be reduced.
*3. To turn on the boiler operation, use the main remote controller to select "Boiler" in "External input setting" screen in the service menu.
*4. Only for ER series.

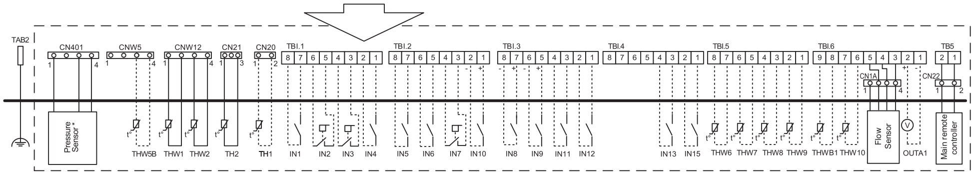
Table 2 Outputs

Name	Terminal block	Connector	Item	OFF	ON
OUT1	TBO.1 1-2	CNP1	Water circulation pump 1 output (Space heating/cooling & DHW)	OFF	ON
OUT2	TBO.1 3-4	—	Water circulation pump 2 output (Space heating/cooling for Zone1)	OFF	ON
OUT3	TBO.1 5-6	—	Water circulation pump 3 output (Space heating/cooling for Zone2) *1	OFF	ON
			2-way valve 2b output *2		
OUT4	TBO.2 7-9	—	3-way valve SPST (2-way valve 1) output	Heating	DHW
	TBO.2 8-10	CNV1	3-way valve SPDT output		
	—	CN851	3-way valve output		
OUT5	TBO.2 1-2	—	Zone 2 mixing valve output *1	Stop	Close
	TBO.2 2-3				Open
OUT6	—	CNBH 1-3	Booster heater 1 output	OFF	ON
OUT7	—	CNBH 5-7	Booster heater 2 output	OFF	ON
OUT8	TBO.4 7-8	—	Cooling signal output	OFF	ON
OUT9	TBO.4 5-6	CNIH	Immersion heater output	OFF	ON
OUT10	TBO.3 1-2	—	Boiler output	OFF	ON
OUT11	TBO.3 5-6	—	Error output	Normal	Error
OUT12	TBO.3 7-8	—	Defrost output	Normal	Defrost
OUT13	TBO.4 3-4	—	2-way valve 2a output *2	OFF	ON
OUT14	—	CNP4	Water circulation pump 4 output (DHW)	OFF	ON
OUT15	TBO.4 1-2	—	Comp. ON signal	OFF	ON
OUT16	TBO.3 3-4	—	Thermo ON signal	OFF	ON
OUT18	TBO.2 4-5	—	Zone 1 mixing valve output *1	Stop	Close
	TBO.2 5-6				Open
OUTA1	TBI.6 1-2	—	Analog output	0V-10V	

Do not connect to the terminals that are indicated as "—" in the "Terminal block" field.
*1. For 2-zone temperature control.
*2. For 2-zone valve ON/OFF control.

■ E***-VM2E.UK





[LEGEND]

Symbol	Name
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ECB1	Earth leakage circuit breaker for booster heater
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2WV2a	2-way valve (For Zone 1)(Local supply)
2WV2b	2-way valve (For Zone 2)(Local supply)
MXV1	Mixing valve 1(For Zone1)(Local supply)
MXV2	Mixing valve 2(For Zone2)(Local supply)
BHT	Thermostat for booster heater
BHF	Thermal fuse for booster heater
BH1	Booster heater 1
BH2	Booster heater 2
BHC1	Contactor for booster heater 1
BHC2	Contactor for booster heater 2
BHCP	Contactor for booster heater protection
TH1	Thermistor (Room temp.)(Option)
TH2	Thermistor (Ref. liquid temp.)
THW1	Thermistor (Flow water temp.)
THW2	Thermistor (Return water temp.)
THW5B	Thermistor (DHW tank water temp.)(Option)
THW6	Thermistor (Zone1 flow temp.)(Option)
THW7	Thermistor (Zone1 return temp.)(Option)
THW8	Thermistor (Zone2 flow temp.)(Option)
THW9	Thermistor (Zone2 return temp.)(Option)
THW10	Thermistor (Mixing tank temp.)(Option)
THWB1	Thermistor (Boiler flow temp.)(Option)
IN1	Room thermostat 1 (Local supply)
IN2	Flow switch 1 (Local supply)
IN3	Flow switch 2 (Local supply)
IN4	Demand control (Local supply)
IN5	Outdoor thermostat (Local supply)
IN6	Room thermostat 2 (Local supply)
IN7	Flow switch 3 (Local supply)
IN8	Electric energy meter 1 (Local supply)
IN9	Electric energy meter 2 (Local supply)
IN10	Heat meter (Local supply)
IN11	Smart grid ready input (Local supply)
IN12	
IN13	Forced cooling mode (Local supply)
IN15	Cooling limit temp. (Local supply)
INA1	Flow sensor
FLOW TEMP. CONTROLLER (FTC)	
TBO.1−4	Terminal block <Outputs>
TBI.1−6	Terminal block <Signal Inputs, Thermistor>
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F2	Fuse (IEC T6.3AL250V)
SW1−7	DIP switch *See Table 3
X1−20	Relay
LED1	Power supply (FTC)
LED2	Power supply (Main remote controller)
LED3	Communication (FTC-Outdoor unit)
LED4	Reading or writing data to microSD card
CNPWM	Pump speed control signal for MP1
CN108	microSD card connector

1. Symbols used in wiring diagram are, ⚬⚬ : connector, ☐☐☐ : terminal block.
2. Indoor unit and outdoor unit connecting wires have polarities, make sure to match terminal numbers (S1, S2, S3) for correct wirings.
3. Since the outdoor unit side electric wiring may change, be sure to check the outdoor unit electric wiring diagram for service.

Table 1 Signal Inputs

Name	Terminal block	Connector	Item	OFF (Open)	ON (Short)
IN1	TBI.1 7-8	—	Room thermostat 1 input *1	Refer to SW2-1 in "6-6. DIP Switch Functions".	
IN2	TBI.1 5-6	—	Flow switch 1 input	Refer to SW2-2 in "6-6. DIP Switch Functions".	
IN3	TBI.1 3-4	—	Flow switch 2 input (Zone1)	Refer to SW3-2 in "6-6. DIP Switch Functions".	
IN4	TBI.1 1-2	—	Demand control input	Normal	Heat source OFF/ Boiler operation *3
IN5	TBI.2 7-8	—	Outdoor thermostat input *2	Standard operation	Heater operation/ Boiler operation *3
IN6	TBI.2 5-6	—	Room thermostat 2 input *1	Refer to SW3-1 in "6-6. DIP Switch Functions".	
IN7	TBI.2 3-4	—	Flow switch 3 input (Zone2)	Refer to SW3-2 in "6-6. DIP Switch Functions".	
IN8	TBI.3 7-8	—	Electric energy meter 1	Refer to installation manual.	
IN9	TBI.3 5-6	—	Electric energy meter 2		
IN10	TBI.2 1-2	—	Heat meter		
IN11	TBI.3 3-4	—	Smart grid ready input		
IN12	TBI.3 1-2	—			
IN13	TBI.4 3-4	—	Forced cooling mode *4	Refer to SW7-2 in "6-6. DIP Switch Functions".	
IN15	TBI.4 1-2	—	Cooling limit temp. *4	Refer to SW7-3 in "6-6. DIP Switch Functions".	
INA1	TBI.6 3-5	CN1A	Flow sensor	Refer to installation manual.	

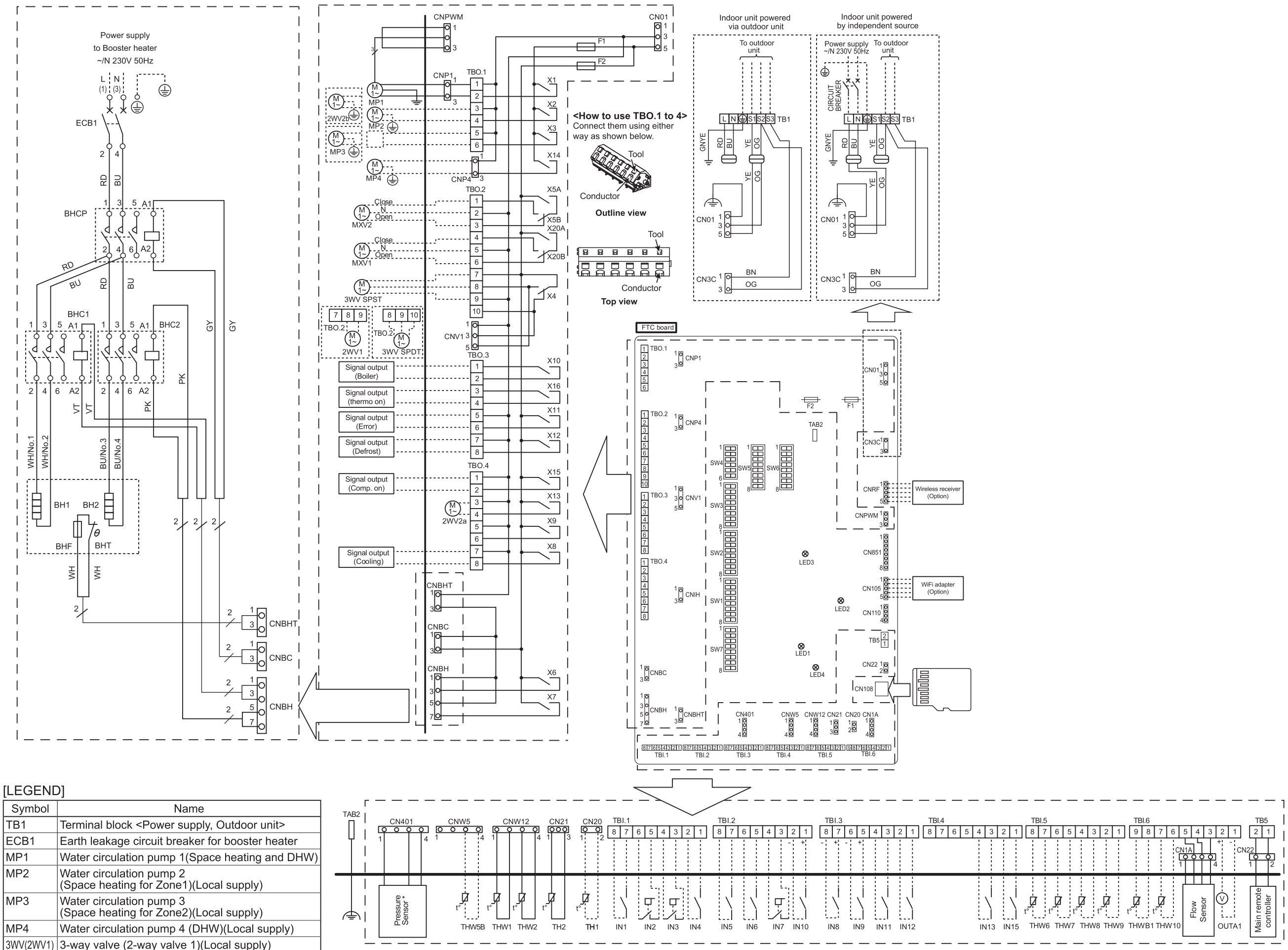
*1. Set the ON/OFF cycle time of the room thermostat for 10 minutes or more; otherwise the compressor may be damaged.
*2. If using outdoor thermostat for controlling operation of heaters, the lifetime of the heaters and related parts may be reduced.
*3. To turn on the boiler operation, use the main remote controller to select "Boiler" in "External input setting" screen in the service menu.
*4. Only for ER series.

Table 2 Outputs

Name	Terminal block	Connector	Item	OFF	ON
OUT1	TBO.1 1-2	CNP1	Water circulation pump 1 output (Space heating/cooling & DHW)	OFF	ON
OUT2	TBO.1 3-4	—	Water circulation pump 2 output (Space heating/cooling for Zone1)	OFF	ON
OUT3	TBO.1 5-6	—	Water circulation pump 3 output (Space heating/cooling for Zone2) *1	OFF	ON
			2-way valve 2b output *2		
OUT4	TBO.2 7-9	—	3-way valve SPST (2-way valve 1) output	Heating	DHW
	TBO.2 8-10	CNV1	3-way valve SPDT output		
	—	CN851	3-way valve output		
OUT5	TBO.2 1-2	—	Zone 2 mixing valve output *1	Stop	Close
	TBO.2 2-3				Open
OUT6	—	CNBH 1-3	Booster heater 1 output	OFF	ON
OUT7	—	CNBH 5-7	Booster heater 2 output	OFF	ON
OUT8	TBO.4 7-8	—	Cooling signal output	OFF	ON
OUT9	TBO.4 5-6	CNIH	Immersion heater output	OFF	ON
OUT10	TBO.3 1-2	—	Boiler output	OFF	ON
OUT11	TBO.3 5-6	—	Error output	Normal	Error
OUT12	TBO.3 7-8	—	Defrost output	Normal	Defrost
OUT13	TBO.4 3-4	—	2-way valve 2a output *2	OFF	ON
OUT14	—	CNP4	Water circulation pump 4 output (DHW)	OFF	ON
OUT15	TBO.4 1-2	—	Comp. ON signal	OFF	ON
OUT16	TBO.3 3-4	—	Thermo ON signal	OFF	ON
OUT18	TBO.2 4-5	—	Zone 1 mixing valve output *1	Stop	Close
	TBO.2 5-6				Open
OUTA1	TBI.6 1-2	—	Analog output	0V-10V	

Do not connect to the terminals that are indicated as "—" in the "Terminal block" field.
*1. For 2-zone temperature control.
*2. For 2-zone valve ON/OFF control.

■ E***-VM6E.UK



1. Symbols used in wiring diagram are, ⚬⚬ : connector, ☐☐☐ : terminal block.
2. Indoor unit and outdoor unit connecting wires have polarities, make sure to match terminal numbers (S1, S2, S3) for correct wirings.
3. Since the outdoor unit side electric wiring may change, be sure to check the outdoor unit electric wiring diagram for service.

[LEGEND]

Symbol	Name
TB1	Terminal block <Power supply, Outdoor unit>
ECB1	Earth leakage circuit breaker for booster heater
MP1	Water circulation pump 1(Space heating and DHW)
MP2	Water circulation pump 2 (Space heating for Zone1)(Local supply)
MP3	Water circulation pump 3 (Space heating for Zone2)(Local supply)
MP4	Water circulation pump 4 (DHW)(Local supply)
3WV(2WV1)	3-way valve (2-way valve 1)(Local supply)
2WV2a	2-way valve (For Zone 1)(Local supply)
2WV2b	2-way valve (For Zone 2)(Local supply)
MXV1	Mixing valve 1(For Zone1)(Local supply)
MXV2	Mixing valve 2(For Zone2)(Local supply)
BHT	Thermostat for booster heater
BHF	Thermal fuse for booster heater
BH1	Booster heater 1
BH2	Booster heater 2
BHC1	Contactor for booster heater 1
BHC2	Contactor for booster heater 2
BHCP	Contactor for booster heater protection
TH1	Thermistor (Room temp.)(Option)
TH2	Thermistor (Ref. liquid temp.)
THW1	Thermistor (Flow water temp.)
THW2	Thermistor (Return water temp.)
THW5B	Thermistor (DHW tank water temp.)(Option)
THW6	Thermistor (Zone1 flow temp.)(Option)
THW7	Thermistor (Zone1 return temp.)(Option)
THW8	Thermistor (Zone2 flow temp.)(Option)
THW9	Thermistor (Zone2 return temp.)(Option)
THW10	Thermistor (Mixing tank temp.)(Option)
THWB1	Thermistor (Boiler flow temp.)(Option)
IN1	Room thermostat 1 (Local supply)
IN2	Flow switch 1 (Local supply)
IN3	Flow switch 2 (Local supply)
IN4	Demand control (Local supply)
IN5	Outdoor thermostat (Local supply)
IN6	Room thermostat 2 (Local supply)
IN7	Flow switch 3 (Local supply)
IN8	Electric energy meter 1 (Local supply)
IN9	Electric energy meter 2 (Local supply)
IN10	Heat meter (Local supply)
IN11 IN12	Smart grid ready input (Local supply)
IN13	Forced cooling mode (Local supply)
IN15	Cooling limit temp. (Local supply)
INA1	Flow sensor
FLOW TEMP. CONTROLLER (FTC)	
TBO.1~4	Terminal block <Outputs>
TBI.1~6	Terminal block <Signal Inputs, Thermistor>
F1	Fuse (IEC T10AL250V)
F2	Fuse (IEC T6.3AL250V)
SW1~7	DIP switch *See Table 3
X1~20	Relay
LED1	Power supply (FTC)
LED2	Power supply (Main remote controller)
LED3	Communication (FTC-Outdoor unit)
LED4	Reading or writing data to microSD card
CNPWM	Pump speed control signal for MP1
CN108	microSD card connector

Table 1 Signal Inputs

Name	Terminal block	Connector	Item	OFF (Open)	ON (Short)
IN1	TBI.1 7-8	—	Room thermostat 1 input *1	Refer to SW2-1 in "6-6. DIP Switch Functions".	
IN2	TBI.1 5-6	—	Flow switch 1 input	Refer to SW2-2 in "6-6. DIP Switch Functions".	
IN3	TBI.1 3-4	—	Flow switch 2 input (Zone1)	Refer to SW3-2 in "6-6. DIP Switch Functions".	
IN4	TBI.1 1-2	—	Demand control input	Normal	Heat source OFF/ Boiler operation *3
IN5	TBI.2 7-8	—	Outdoor thermostat input *2	Standard operation	Heater operation/ Boiler operation *3
IN6	TBI.2 5-6	—	Room thermostat 2 input *1	Refer to SW3-1 in "6-6. DIP Switch Functions".	
IN7	TBI.2 3-4	—	Flow switch 3 input (Zone2)	Refer to SW3-2 in "6-6. DIP Switch Functions".	
IN8	TBI.3 7-8	—	Electric energy meter 1	Refer to installation manual.	
IN9	TBI.3 5-6	—	Electric energy meter 2		
IN10	TBI.2 1-2	—	Heat meter		
IN11	TBI.3 3-4	—	Smart grid ready input		
IN12	TBI.3 1-2	—			
IN13	TBI.4 3-4	—	Forced cooling mode *4	Refer to SW7-2 in "6-6. DIP Switch Functions".	
IN15	TBI.4 1-2	—	Cooling limit temp. *4	Refer to SW7-3 in "6-6. DIP Switch Functions".	
INA1	TBI.6 3-5	CN1A	Flow sensor	Refer to installation manual.	

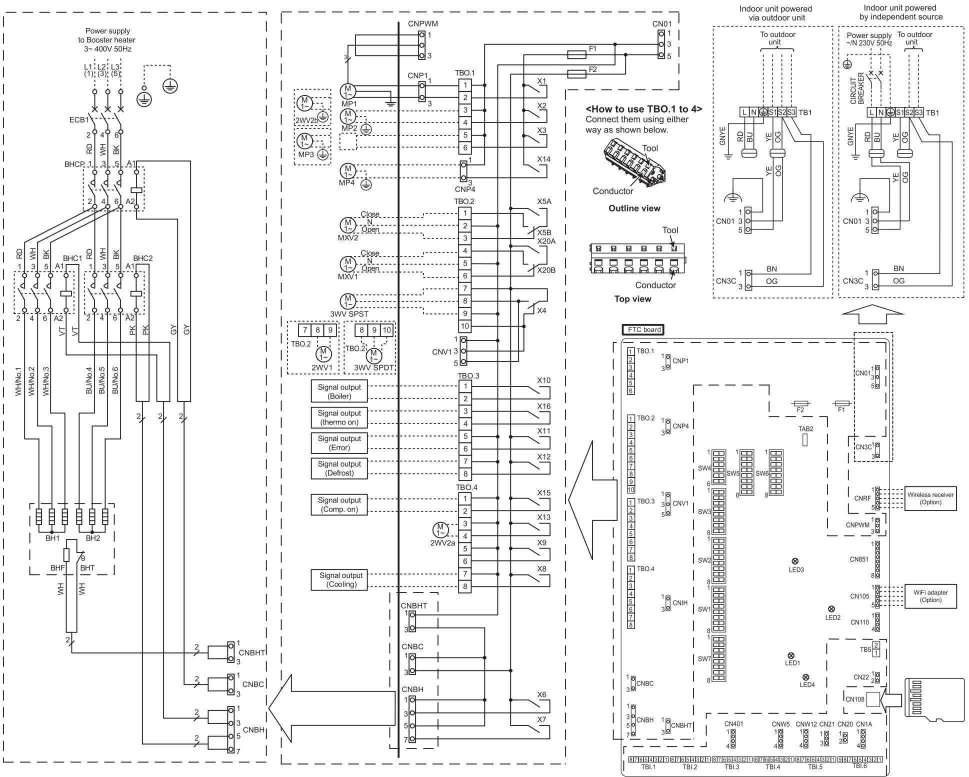
*1. Set the ON/OFF cycle time of the room thermostat for 10 minutes or more; otherwise the compressor may be damaged.
*2. If using outdoor thermostat for controlling operation of heaters, the lifetime of the heaters and related parts may be reduced.
*3. To turn on the boiler operation, use the main remote controller to select "Boiler" in "External input setting" screen in the service menu.
*4. Only for ER series.

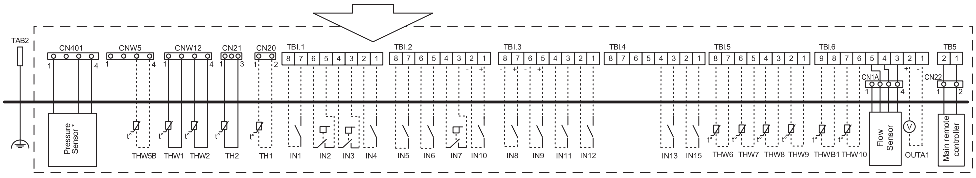
Table 2 Outputs

Name	Terminal block	Connector	Item	OFF	ON
OUT1	TBO.1 1-2	CNP1	Water circulation pump 1 output (Space heating/cooling & DHW)	OFF	ON
OUT2	TBO.1 3-4	—	Water circulation pump 2 output (Space heating/cooling for Zone1)	OFF	ON
OUT3	TBO.1 5-6	—	Water circulation pump 3 output (Space heating/cooling for Zone2) *1 2-way valve 2b output *2	OFF	ON
OUT4	TBO.2 7-9	—	3-way valve SPST (2-way valve 1) output	Heating	DHW
	TBO.2 8-10	CNV1	3-way valve SPDT output		
	—	CN851	3-way valve output		
OUT5	TBO.2 1-2	—	Zone 2 mixing valve output *1	Stop	Close
	TBO.2 2-3				Open
OUT6	—	CNBH 1-3	Booster heater 1 output	OFF	ON
OUT7	—	CNBH 5-7	Booster heater 2 output	OFF	ON
OUT8	TBO.4 7-8	—	Cooling signal output	OFF	ON
OUT9	TBO.4 5-6	CNIH	Immersion heater output	OFF	ON
OUT10	TBO.3 1-2	—	Boiler output	OFF	ON
OUT11	TBO.3 5-6	—	Error output	Normal	Error
OUT12	TBO.3 7-8	—	Defrost output	Normal	Defrost
OUT13	TBO.4 3-4	—	2-way valve 2a output *2	OFF	ON
OUT14	—	CNP4	Water circulation pump 4 output (DHW)	OFF	ON
OUT15	TBO.4 1-2	—	Comp. ON signal	OFF	ON
OUT16	TBO.3 3-4	—	Thermo ON signal	OFF	ON
OUT18	TBO.2 4-5	—	Zone 1 mixing valve output *1	Stop	Close
	TBO.2 5-6				Open
OUTA1	TBI.6 1-2	—	Analog output	0V-10V	

Do not connect to the terminals that are indicated as "—" in the "Terminal block" field.
*1. For 2-zone temperature control.
*2. For 2-zone valve ON/OFF control.

■ E***-YM9(E)E.UK





[LEGEND]

Symbol	Name
TB1	Terminal block <Power supply, Outdoor unit>
ECB1	Earth leakage circuit breaker for booster heater
MP1	Water circulation pump 1(Space heating and DHW)
MP2	Water circulation pump 2 (Space heating for Zone1)(Local supply)
MP3	Water circulation pump 3 (Space heating for Zone2)(Local supply)
MP4	Water circulation pump 4 (DHW)(Local supply)
3WV(2WV1)	3-way valve (2-way valve 1)(Local supply)
2WV2a	2-way valve (For Zone 1)(Local supply)
2WV2b	2-way valve (For Zone 2)(Local supply)
MXV1	Mixing valve 1(For Zone1)(Local supply)
MXV2	Mixing valve 2(For Zone2)(Local supply)
BHT	Thermostat for booster heater
BHF	Thermal fuse for booster heater
BH1	Booster heater 1
BH2	Booster heater 2
BHC1	Contactor for booster heater 1
BHC2	Contactor for booster heater 2
BHCP	Contactor for booster heater protection
TH1	Thermistor (Room temp.)(Option)
TH2	Thermistor (Ref. liquid temp.)
THW1	Thermistor (Flow water temp.)
THW2	Thermistor (Return water temp.)
THW5B	Thermistor (DHW tank water temp.)(Option)
THW6	Thermistor (Zone1 flow temp.)(Option)
THW7	Thermistor (Zone1 return temp.)(Option)
THW8	Thermistor (Zone2 flow temp.)(Option)
THW9	Thermistor (Zone2 return temp.)(Option)
THW10	Thermistor (Mixing tank temp.)(Option)
THWB1	Thermistor (Boiler flow temp.)(Option)
IN1	Room thermostat 1 (Local supply)
IN2	Flow switch 1 (Local supply)
IN3	Flow switch 2 (Local supply)
IN4	Demand control (Local supply)
IN5	Outdoor thermostat (Local supply)
IN6	Room thermostat 2 (Local supply)
IN7	Flow switch 3 (Local supply)
IN8	Electric energy meter 1 (Local supply)
IN9	Electric energy meter 2 (Local supply)
IN10	Heat meter (Local supply)
IN11	Smart grid ready input (Local supply)
IN12	
IN13	Forced cooling mode (Local supply)
IN15	Cooling limit temp. (Local supply)
INA1	Flow sensor
FLOW TEMP. CONTROLLER (FTC)	
TBO.1~4	Terminal block <Outputs>
TBI.1~6	Terminal block <Signal Inputs, Thermistor>
F1	Fuse (IEC T10AL250V)
F2	Fuse (IEC T6.3AL250V)
SW1~7	DIP switch *See Table 3
X1~20	Relay
LED1	Power supply (FTC)
LED2	Power supply (Main remote controller)
LED3	Communication (FTC-Outdoor unit)
LED4	Reading or writing data to microSD card
CNPWM	Pump speed control signal for MP1
CN108	microSD card connector

1. Symbols used in wiring diagram are, ⚬⚬ : connector, ☐☐☐ : terminal block.
2. Indoor unit and outdoor unit connecting wires have polarities, make sure to match terminal numbers (S1, S2, S3) for correct wirings.
3. Since the outdoor unit side electric wiring may change, be sure to check the outdoor unit electric wiring diagram for service.

Table 1 Signal Inputs

Name	Terminal block	Connector	Item	OFF (Open)	ON (Short)
IN1	TBI.1 7-8	—	Room thermostat 1 input *1	Refer to SW2-1 in “6-6. DIP Switch Functions”.	
IN2	TBI.1 5-6	—	Flow switch 1 input	Refer to SW2-2 in “6-6. DIP Switch Functions”.	
IN3	TBI.1 3-4	—	Flow switch 2 input (Zone1)	Refer to SW3-2 in “6-6. DIP Switch Functions”.	
IN4	TBI.1 1-2	—	Demand control input	Normal	Heat source OFF/ Boiler operation *3
IN5	TBI.2 7-8	—	Outdoor thermostat input *2	Standard operation	Heater operation/ Boiler operation *3
IN6	TBI.2 5-6	—	Room thermostat 2 input *1	Refer to SW3-1 in “6-6. DIP Switch Functions”.	
IN7	TBI.2 3-4	—	Flow switch 3 input (Zone2)	Refer to SW3-2 in “6-6. DIP Switch Functions”.	
IN8	TBI.3 7-8	—	Electric energy meter 1	Refer to installation manual.	
IN9	TBI.3 5-6	—	Electric energy meter 2		
IN10	TBI.2 1-2	—	Heat meter		
IN11	TBI.3 3-4	—	Smart grid ready input		
IN12	TBI.3 1-2	—			
IN13	TBI.4 3-4	—	Forced cooling mode *4	Refer to SW7-2 in “6-6. DIP Switch Functions”.	
IN15	TBI.4 1-2	—	Cooling limit temp. *4	Refer to SW7-3 in “6-6. DIP Switch Functions”.	
INA1	TBI.6 3-5	CN1A	Flow sensor	Refer to installation manual.	

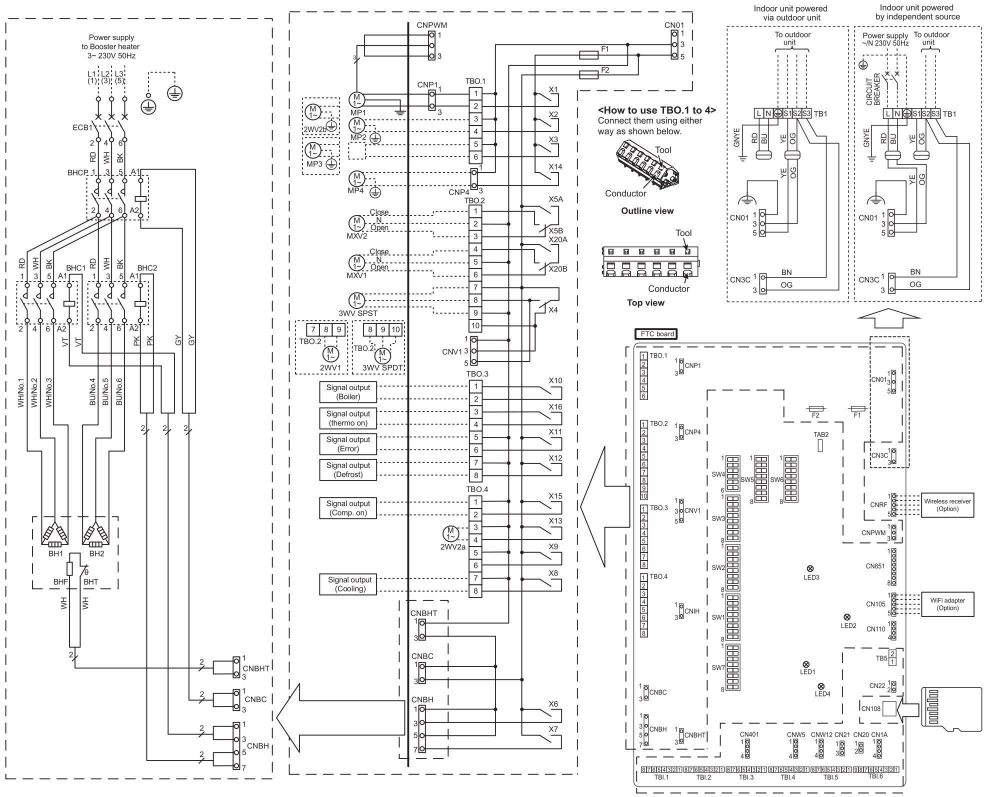
*1. Set the ON/OFF cycle time of the room thermostat for 10 minutes or more; otherwise the compressor may be damaged.
*2. If using outdoor thermostat for controlling operation of heaters, the lifetime of the heaters and related parts may be reduced.
*3. To turn on the boiler operation, use the main remote controller to select “Boiler” in “External input setting” screen in the service menu.
*4. Only for ER series.

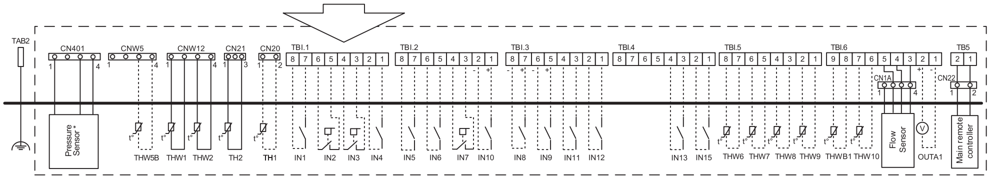
Table 2 Outputs

Name	Terminal block	Connector	Item	OFF	ON
OUT1	TBO.1 1-2	CNP1	Water circulation pump 1 output (Space heating/cooling & DHW)	OFF	ON
OUT2	TBO.1 3-4	—	Water circulation pump 2 output (Space heating/cooling for Zone1)	OFF	ON
OUT3	TBO.1 5-6	—	Water circulation pump 3 output (Space heating/cooling for Zone2) *1	OFF	ON
			2-way valve 2b output *2		
OUT4	TBO.2 7-9	—	3-way valve SPST (2-way valve 1) output	Heating	DHW
	TBO.2 8-10	CNV1	3-way valve SPDT output		
	—	CN851	3-way valve output		
OUT5	TBO.2 1-2	—	Zone 2 mixing valve output *1	Stop	Close
	TBO.2 2-3				Open
OUT6	—	CNBH 1-3	Booster heater 1 output	OFF	ON
OUT7	—	CNBH 5-7	Booster heater 2 output	OFF	ON
OUT8	TBO.4 7-8	—	Cooling signal output	OFF	ON
OUT9	TBO.4 5-6	CNIH	Immersion heater output	OFF	ON
OUT10	TBO.3 1-2	—	Boiler output	OFF	ON
OUT11	TBO.3 5-6	—	Error output	Normal	Error
OUT12	TBO.3 7-8	—	Defrost output	Normal	Defrost
OUT13	TBO.4 3-4	—	2-way valve 2a output *2	OFF	ON
OUT14	—	CNP4	Water circulation pump 4 output (DHW)	OFF	ON
OUT15	TBO.4 1-2	—	Comp. ON signal	OFF	ON
OUT16	TBO.3 3-4	—	Thermo ON signal	OFF	ON
OUT18	TBO.2 4-5	—	Zone 1 mixing valve output *1	Stop	Close
	TBO.2 5-6				Open
OUTA1	TBI.6 1-2	—	Analog output	0V-10V	

Do not connect to the terminals that are indicated as “—” in the “Terminal block” field.
*1. For 2-zone temperature control.
*2. For 2-zone valve ON/OFF control.

■ E*S*-TM9E.UK





[LEGEND]

Symbol	Name
TB1	Terminal block <Power supply, Outdoor unit>
ECB1	Earth leakage circuit breaker for booster heater
MP1	Water circulation pump 1(Space heating and DHW)
MP2	Water circulation pump 2 (Space heating for Zone1)(Local supply)
MP3	Water circulation pump 3 (Space heating for Zone2)(Local supply)
MP4	Water circulation pump 4 (DHW)(Local supply)
3WV(2WV1)	3-way valve (2-way valve 1)(Local supply)
2WV2a	2-way valve (For Zone 1)(Local supply)
2WV2b	2-way valve (For Zone 2)(Local supply)
MXV1	Mixing valve 1(For Zone1)(Local supply)
MXV2	Mixing valve 2(For Zone2)(Local supply)
BHT	Thermostat for booster heater
BHF	Thermal fuse for booster heater
BH1	Booster heater 1
BH2	Booster heater 2
BHC1	Contactor for booster heater 1
BHC2	Contactor for booster heater 2
BHCP	Contactor for booster heater protection
TH1	Thermistor (Room temp.)(Option)
TH2	Thermistor (Ref. liquid temp.)
THW1	Thermistor (Flow water temp.)
THW2	Thermistor (Return water temp.)
THW5B	Thermistor (DHW tank water temp.)(Option)
THW6	Thermistor (Zone1 flow temp.)(Option)
THW7	Thermistor (Zone1 return temp.)(Option)
THW8	Thermistor (Zone2 flow temp.)(Option)
THW9	Thermistor (Zone2 return temp.)(Option)
THW10	Thermistor (Mixing tank temp.)(Option)
THWB1	Thermistor (Boiler flow temp.)(Option)
IN1	Room thermostat 1 (Local supply)
IN2	Flow switch 1 (Local supply)
IN3	Flow switch 2 (Local supply)
IN4	Demand control (Local supply)
IN5	Outdoor thermostat (Local supply)
IN6	Room thermostat 2 (Local supply)
IN7	Flow switch 3 (Local supply)
IN8	Electric energy meter 1 (Local supply)
IN9	Electric energy meter 2 (Local supply)
IN10	Heat meter (Local supply)
IN11 IN12	Smart grid ready input (Local supply)
IN13	Forced cooling mode (Local supply)
IN15	Cooling limit temp. (Local supply)
INA1	Flow sensor
FLOW TEMP. CONTROLLER (FTC)	
TBO.1~4	Terminal block <Outputs>
TBI.1~6	Terminal block <Signal Inputs, Thermistor>
F1	Fuse (IEC T10AL250V)
F2	Fuse (IEC T6.3AL250V)
SW1~7	DIP switch *See Table 3
X1~20	Relay
LED1	Power supply (FTC)
LED2	Power supply (Main remote controller)
LED3	Communication (FTC-Outdoor unit)
LED4	Reading or writing data to microSD card
CNPWM	Pump speed control signal for MP1
CN108	microSD card connector

1. Symbols used in wiring diagram are, ○○ : connector, ☐☐☐ : terminal block.
2. Indoor unit and outdoor unit connecting wires have polarities, make sure to match terminal numbers (S1, S2, S3) for correct wirings.
3. Since the outdoor unit side electric wiring may change, be sure to check the outdoor unit electric wiring diagram for service.

Table 1 Signal Inputs

Name	Terminal block	Connector	Item	OFF (Open)	ON (Short)
IN1	TBI.1 7-8	—	Room thermostat 1 input *1	Refer to SW2-1 in "6-6. DIP Switch Functions".	
IN2	TBI.1 5-6	—	Flow switch 1 input	Refer to SW2-2 in "6-6. DIP Switch Functions".	
IN3	TBI.1 3-4	—	Flow switch 2 input (Zone1)	Refer to SW3-2 in "6-6. DIP Switch Functions".	
IN4	TBI.1 1-2	—	Demand control input	Normal	Heat source OFF/ Boiler operation *3
IN5	TBI.2 7-8	—	Outdoor thermostat input *2	Standard operation	Heater operation/ Boiler operation *3
IN6	TBI.2 5-6	—	Room thermostat 2 input *1	Refer to SW3-1 in "6-6. DIP Switch Functions".	
IN7	TBI.2 3-4	—	Flow switch 3 input (Zone2)	Refer to SW3-2 in "6-6. DIP Switch Functions".	
IN8	TBI.3 7-8	—	Electric energy meter 1	Refer to installation manual.	
IN9	TBI.3 5-6	—	Electric energy meter 2		
IN10	TBI.2 1-2	—	Heat meter		
IN11	TBI.3 3-4	—	Smart grid ready input		
IN12	TBI.3 1-2	—			
IN13	TBI.4 3-4	—	Forced cooling mode *4	Refer to SW7-2 in "6-6. DIP Switch Functions".	
IN15	TBI.4 1-2	—	Cooling limit temp. *4	Refer to SW7-3 in "6-6. DIP Switch Functions".	
INA1	TBI.6 3-5	CN1A	Flow sensor	Refer to installation manual.	

*1. Set the ON/OFF cycle time of the room thermostat for 10 minutes or more; otherwise the compressor may be damaged.
*2. If using outdoor thermostat for controlling operation of heaters, the lifetime of the heaters and related parts may be reduced.
*3. To turn on the boiler operation, use the main remote controller to select "Boiler" in "External input setting" screen in the service menu.
*4. Only for ER series.

Table 2 Outputs

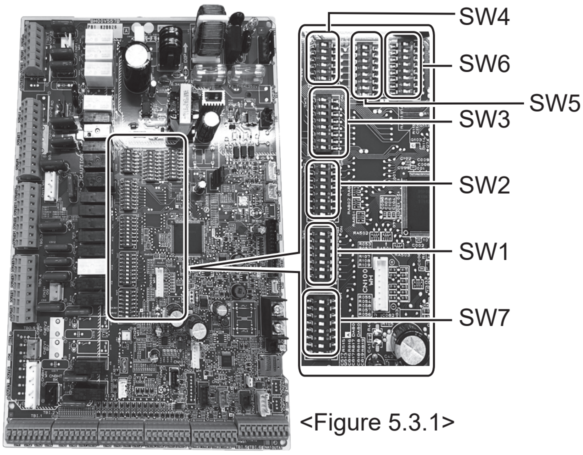
Name	Terminal block	Connector	Item	OFF	ON
OUT1	TBO.1 1-2	CNP1	Water circulation pump 1 output (Space heating/cooling & DHW)	OFF	ON
OUT2	TBO.1 3-4	—	Water circulation pump 2 output (Space heating/cooling for Zone1)	OFF	ON
OUT3	TBO.1 5-6	—	Water circulation pump 3 output (Space heating/cooling for Zone2) *1 2-way valve 2b output *2	OFF	ON
OUT4	TBO.2 7-9	—	3-way valve SPST (2-way valve 1) output	Heating	DHW
	TBO.2 8-10	CNV1	3-way valve SPDT output		
	—	CN851	3-way valve output		
OUT5	TBO.2 1-2	—	Zone 2 mixing valve output *1	Stop	Close
	TBO.2 2-3				Open
OUT6	—	CNBH 1-3	Booster heater 1 output	OFF	ON
OUT7	—	CNBH 5-7	Booster heater 2 output	OFF	ON
OUT8	TBO.4 7-8	—	Cooling signal output	OFF	ON
OUT9	TBO.4 5-6	CNIH	Immersion heater output	OFF	ON
OUT10	TBO.3 1-2	—	Boiler output	OFF	ON
OUT11	TBO.3 5-6	—	Error output	Normal	Error
OUT12	TBO.3 7-8	—	Defrost output	Normal	Defrost
OUT13	TBO.4 3-4	—	2-way valve 2a output *2	OFF	ON
OUT14	—	CNP4	Water circulation pump 4 output (DHW)	OFF	ON
OUT15	TBO.4 1-2	—	Comp. ON signal	OFF	ON
OUT16	TBO.3 3-4	—	Thermo ON signal	OFF	ON
OUT18	TBO.2 4-5	—	Zone 1 mixing valve output *1	Stop	Close
	TBO.2 5-6				Open
OUTA1	TBI.6 1-2	—	Analog output	0V-10V	

Do not connect to the terminals that are indicated as "—" in the "Terminal block" field.
*1. For 2-zone temperature control.
*2. For 2-zone valve ON/OFF control.

5.3 DIP Switch Functions

The DIP switch number is printed on the circuit board next to the relevant switches. The word ON is printed on the circuit board and on the DIP switch block itself. To move the switch, you will need to use a pin or the corner of a thin metal ruler or similar.

DIP switch settings are listed below in Table 5.3.1.
Only an authorised installer can change DIP switch setting under one's own responsibility according to the installation condition.
Make sure to turn off both indoor unit and outdoor unit power supplies before changing the switch settings.



<Figure 5.3.1>

DIP switch		Function	OFF	ON	Default settings: Indoor unit model
SW1	SW1-1	Boiler	WITHOUT Boiler	WITH Boiler	OFF
	SW1-2	Heat pump maximum outlet water temperature	55ºC	60ºC	ON *1
	SW1-3	DHW tank	WITHOUT DHW tank	WITH DHW tank	OFF
	SW1-4	Immersion heater	WITHOUT Immersion heater	WITH Immersion heater	OFF
	SW1-5	Booster heater	WITHOUT Booster heater	WITH Booster heater	OFF: E***-M*E ON : E***-*M2/6/9*E
	SW1-6	Booster heater function	For heating only	For heating and DHW	OFF: E***-M*E ON : E***-*M2/6/9*E
	SW1-7	Outdoor unit type	Split type	Packaged type	OFF: Except ERPX-*M*E ON : ERPX-*M*E
	SW1-8	Wireless remote controller	WITHOUT Wireless remote controller	WITH Wireless remote controller	OFF
SW2	SW2-1	Room thermostat1 input (IN1) logic change	Zone 1 operation stop at thermostat short	Zone 1 operation stop at thermostat open	OFF
	SW2-2	Flow switch1 input (IN2) logic change	Failure detection at short	Failure detection at open	OFF
	SW2-3	Booster heater capacity restriction	Inactive	Active	OFF: Except E***-VM2E ON : E***-VM2E
	SW2-4	Cooling mode function	Inactive	Active	OFF: EHSD-*M*E ON : ER**-*M**E
	SW2-5	Automatic switch to backup heat source operation (When outdoor unit stops by error)	Inactive	Active *2	OFF
	SW2-6	Mixing tank	WITHOUT Mixing tank	WITH Mixing tank	OFF
	SW2-7	2-zone temperature control	Inactive	Active *3	OFF
	SW2-8	Flow sensor	WITHOUT Flow sensor	WITH Flow sensor	ON
SW3	SW3-1	Room thermostat 2 (IN6) input logic change	Zone 2 operation stop at thermostat short	Zone 2 operation stop at thermostat open	OFF
	SW3-2	Flow switch 2 and 3 input logic change	Failure detection at short	Failure detection at open	OFF
	SW3-3	—	—	—	OFF
	SW3-4	Electric energy meter	WITHOUT Electric energy meter	WITH Electric energy meter	OFF
	SW3-5	Heating mode function *4	Inactive	Active	ON
	SW3-6	2-zone valve ON/OFF control	Inactive	Active	OFF
	SW3-7	Heat exchanger for DHW	Coil in tank	External plate HEX	OFF
	SW3-8	Heat meter	WITHOUT Heat meter	WITH Heat meter	OFF
SW4	SW4-1	Multiple outdoor units control	Inactive	Active	OFF
	SW4-2	Position of multiple outdoor units control *5	Sub	Main	OFF
	SW4-3	—	—	—	OFF
	SW4-4	Indoor unit only operation (during installation work) *6	Inactive	Active	OFF
	SW4-5	Emergency mode (Heater only operation)	Normal	Emergency mode (Heater only operation)	OFF *7
	SW4-6	Emergency mode (Boiler operation)	Normal	Emergency mode (Boiler operation)	OFF *7
SW5	SW5-1	—	—	—	OFF
	SW5-2	Advanced auto adaptation	Inactive	Active	ON
	SW5-3	Capacity code			
	SW5-4				
	SW5-5				
	SW5-6				
	SW5-7				
	SW5-8	—	—	—	OFF

Capacity code

	SW 5-3	SW 5-4	SW 5-5	SW 5-6	SW 5-7
ERSC-*M*E	ON	ON	ON	ON	OFF
E*SD-*M*E	ON	OFF	OFF	ON	OFF
ERSF-*M*E	OFF	OFF	ON	ON	OFF
ERSE-*M*EE	OFF	ON	ON	OFF	ON
ERPX-*M*E	OFF	OFF	OFF	OFF	OFF

DIP switch		Function	OFF	ON	Default settings: Indoor unit model
SW6	SW6-1	—	—	—	OFF
	SW6-2	—	—	—	OFF
	SW6-3	Pressure sensor	Inactive	Active	OFF: Except E*SD-*M*E, ERSF-*M*E ON : E*SD-*M*E, ERSF-*M*E
	SW6-4	Analog output	Inactive	Active	OFF
	SW6-5	—	—	—	OFF
	SW6-6	—	—	—	OFF
	SW6-7	—	—	—	OFF
	SW6-8	—	—	—	OFF
SW7	SW7-1	Mixing valve setting	Only Zone 2	Zone 1 and Zone 2	OFF
	SW7-2	Forced cooling mode input (IN13) logic change	Active at short	Active at open	OFF
	SW7-3	Cooling limit temp. input (IN15) logic change	Active at short	Active at open	OFF
	SW7-4	—	—	—	OFF
	SW7-5	—	—	—	OFF
	SW7-6	—	—	—	OFF
	SW7-7	—	—	—	OFF
	SW7-8	—	—	—	OFF

<Table 5.3.1>

Notes:

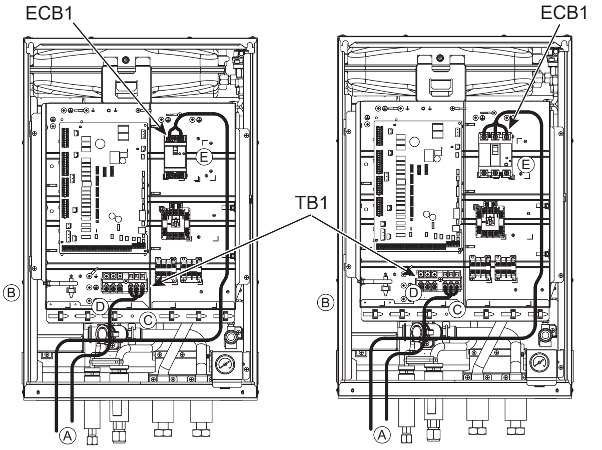
***1. When the hydrobox is connected with a PUMY-P and PXZ outdoor unit of which maximum outlet water temperature is 55ºC, DIP SW1-2 must be changed to OFF.**
***2. OUT11 will be available. For safety reasons, this function is not available for certain errors. (In that case, system operation must be stopped and only the water circulation pump keeps running.)**
***3. Active only when SW3-6 is set to OFF.**
***4. This switch functions only when the hydrobox is connected with a PUHZ-FRP outdoor unit. When another type of outdoor unit is connected, the heating mode function is active regardless of the fact that this switch is ON or OFF.**
***5. Active only when SW4-1 is set to ON.**
***6. Space heating and DHW can be operated only in indoor unit, like an electric heater. (Refer to “5.4.4 Indoor unit only operation”.)**
***7. If emergency mode is no longer required, return the switch to OFF position.**

5.4. Field wiring

5.4.1 Electrical Connection

All electrical work should be carried out by a suitably qualified technician. Failure to comply with this could lead to electrocution, fire, and death. It will also invalidate product warranty. All wiring should be according to national wiring regulations.

Breaker abbreviation	Meaning
ECB1	Earth leakage circuit breaker for booster heater
TB1	Terminal block 1



<1 phase> <3 phase>

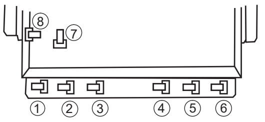
<Figure 5.4.1>

The hydrobox can be powered in two ways.
1. Power cable is run from the outdoor unit to the hydrobox.
2. Hydrobox has independent power source.

Connections should be made to the terminals indicated in the figures to the left below depending on the phase.

Booster heater and immersion heater should be connected independently from one another to dedicated power supplies.

Ⓐ Locally supplied wiring should be inserted through the inlets situated on the base of the hydrobox. (Refer to Table 5.1.1)
Ⓑ Wiring should be fed down the left hand side of the control and electrical box and clamped in place using clips provided.
Ⓒ The wires should be fixed with the cable straps as below.
- ② Output wires
- ③ Indoor-Outdoor wire
- ⑥ Power line (B.H.)
- ⑦ Signal input wires/ Wireless receiver (option) wire (PAR-WR61R-E)



Ⓓ Connect the outdoor unit – hydrobox connecting cable to TB1.
Ⓔ Connect the power cable for the booster heater to ECB1.

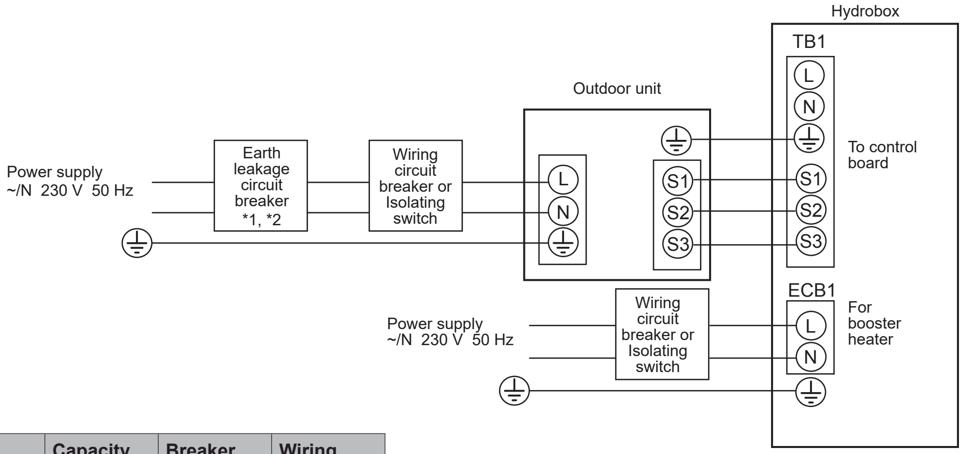
- Make sure that ECB1 is ON.

■ Option 1: Hydrobox powered via outdoor unit

(If you want to use independent source, go to the Mitsubishi website.)
PXZ model is not available.
The model is Hydrobox powered by independent source ONLY.

<1 phase>

Affix label A that is included with the manuals near each wiring diagram for hydrobox and outdoor units.

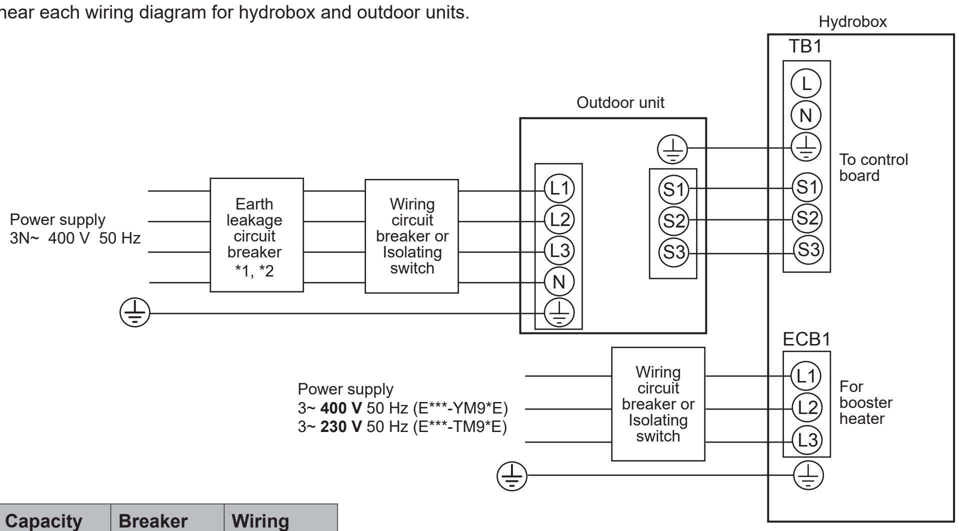


Description	Power supply	Capacity	Breaker	Wiring
Booster heater	~/N 230 V 50 Hz	2 kW	16 A *2	2.5 mm²
		6 kW	32 A *2	6.0 mm²

<Figure 5.4.2>
Electrical connections 1 phase

<3 phase>

Affix label A that is included with the manuals near each wiring diagram for hydrobox and outdoor units.



Description	Power supply	Capacity	Breaker	Wiring
Booster heater	3~ 400 V 50 Hz	9 kW	16 A *2	2.5 mm²
	3~ 230 V 50 Hz	9 kW	32 A *2	6.0 mm²

<Figure 5.4.3>
Electrical connections 3 phase

		<EHSD/ERSF/ERSC/ERPX series>	<ERSE series>
Wiring No. × size (mm²)	Hydrobox - Outdoor unit	3 × 1.5 (polar) *3	3 × 4 (polar) *4
	Hydrobox - Outdoor unit earth	1 × Min. 1.5 *3	1 × Min. 2.5 *5
Circuit rating	Hydrobox - Outdoor unit S1 - S2 *6	230 V AC	230 V AC
	Hydrobox - Outdoor unit S2 - S3 *6	24 V DC	24 V DC

*1. If the installed earth leakage circuit breaker does not have an over-current protection function, install a breaker with that function along the same power line.

*2. A breaker with at least 3.0 mm contact separation in each pole shall be provided. Use earth leakage circuit breaker (NV).
The breaker shall be provided to ensure disconnection of all active phase conductors of the supply.

*3. Max. 45 m
If 2.5 mm² used, Max. 50 m
If 2.5 mm² used and S3 separated, Max. 80 m

*4. Max. 50 m
If 6 mm² used, Max. 80 m

*5. If S3 separated, Max. 80 m

*6. The values given in the table above are not always measured against the ground value.

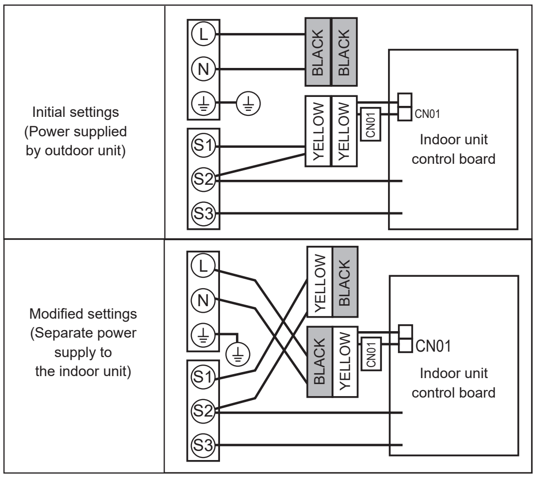
Notes:
1. **Wiring size must comply with the applicable local and national codes.**
2. **Indoor unit/outdoor unit connecting cords shall not be lighter than polychloroprene sheathed flexible cord. (Design 60245 IEC 57)**
   Indoor unit power supply cords shall not be lighter than polychloroprene sheathed flexible cord. (Design 60227 IEC 53)
3. **Install an earth longer than other cables.**
4. **Please keep enough output capacity of power supply for each heater. Insufficient power supply capacity might cause chattering.**

■ Option 2: Hydrobox powered by independent source

Indoor unit powered by independent source.

If the indoor unit and outdoor unit have separate power supplies, the following requirements must be carried out:

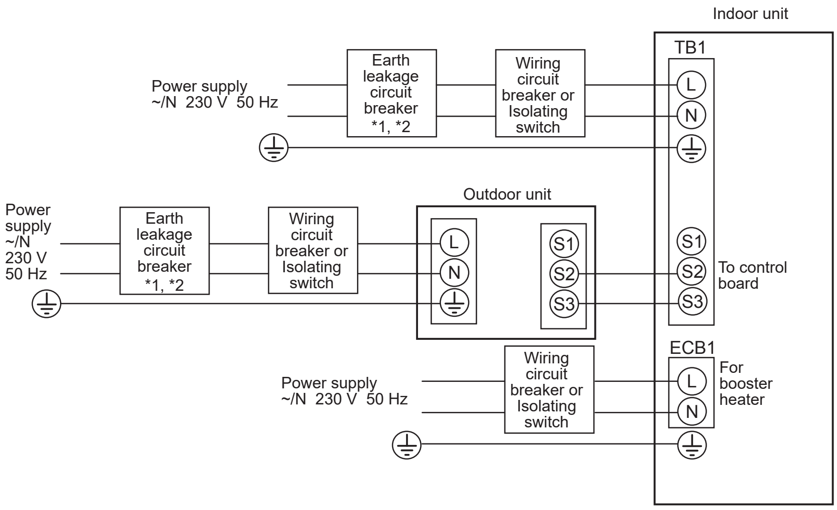
- **Change the interconnected wiring in the control and electrical box of the indoor unit (see Figure 5.4.4)**
- **Turn the outdoor unit DIP switch SW8-3 to ON**
- **Turn on the outdoor unit before the indoor unit.**
- **Power by independent source is not available for particular models of outdoor unit model. For more details, refer to the connecting outdoor unit Installation Manual.**



<Figure 5.4.4>

<1 phase>

Affix label B that is included with the manuals near each wiring diagram for indoor unit and outdoor units.

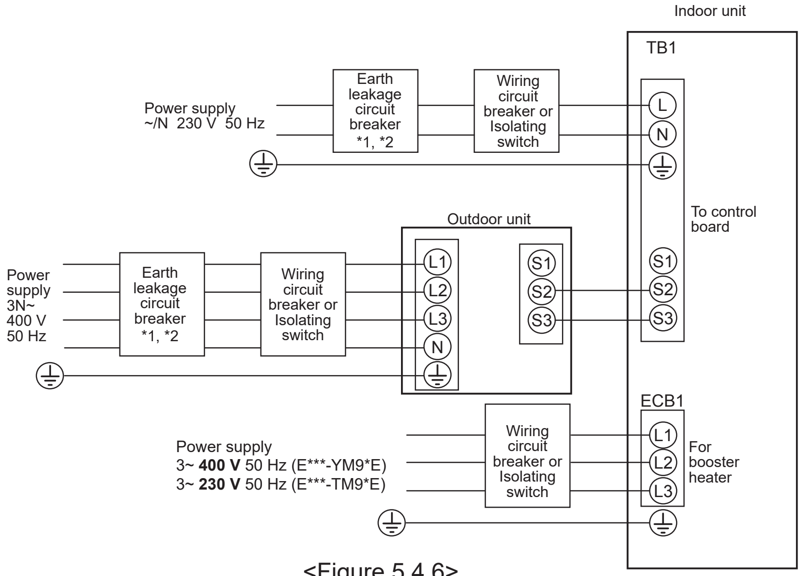


<Figure 5.4.5>
Electrical connections 1 phase

Description	Power supply	Capacity	Breaker	Wiring
Booster heater	~/N 230 V 50 Hz	2 kW	16 A *2	2.5 mm²
		6 kW	32 A *2	6.0 mm²

<3 phase>

Affix label B that is included with the manuals near each wiring diagram for indoor unit and outdoor units.



<Figure 5.4.6>
Electrical connections 3 phase

Description	Power supply	Capacity	Breaker	Wiring
Booster heater	3~ 400 V 50 Hz	9 kW	16 A *2	2.5 mm²
	3~ 230 V 50 Hz	9 kW	32 A *2	6.0 mm²

Indoor unit power supply			~/N 230 V 50 Hz
Indoor unit input capacity Main switch (Breaker)		*2	16 A
Wiring No. × size (mm²)	Indoor unit power supply		2 × min. 1.5
	Indoor unit power supply earth		1 × min. 1.5
	Indoor unit - Outdoor unit	*3	2 × min. 0.3
	Indoor unit - Outdoor unit earth		—
Circuit rating	Indoor unit L - N	*4	230 V AC
	Indoor unit - Outdoor unit S1 - S2	*4	—
	Indoor unit - Outdoor unit S2 - S3	*4	24 V DC

*1. If the installed earth leakage circuit breaker does not have an over-current protection function, install a breaker with that function along the same power line.

*2. A breaker with at least 3.0 mm contact separation in each pole shall be provided. Use earth leakage breaker (NV). The breaker shall be provided to ensure disconnection of all active phase conductors of the supply.

*3. Max. 120 m

*4. The values given in the table above are not always measured against the ground value.

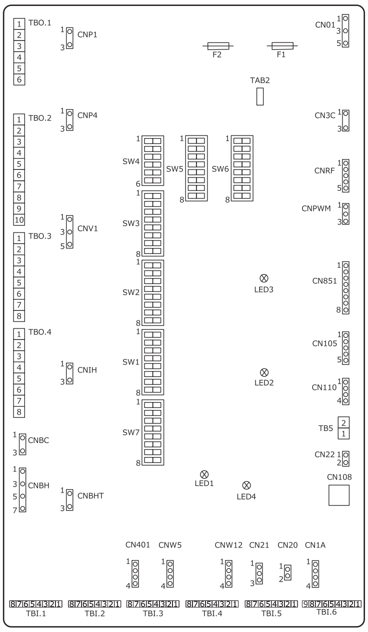
Notes:
1. **Wiring size must comply with the applicable local and national codes.**
2. **Indoor unit/outdoor unit connecting cords shall not be lighter than polychloroprene sheathed flexible cord. (Design 60245 IEC 57) Indoor unit power supply cords shall not be lighter than polychloroprene sheathed flexible cord. (Design 60227 IEC 53)**
3. **Install an earth longer than other cables.**
4. **Please keep enough output capacity of power supply for each heater. Insufficient power supply capacity might cause chattering.**

5.4.2 Connecting inputs/outputs

Wiring specification and local supply parts

Item	Name	Model and specifications
Signal input function	Signal input wire	Use sheathed vinyl coated cord or cable. Max. 30 m Wire type: CV, CVS or equivalent Wire size: Stranded wire 0.13 mm² to 0.52 mm² Solid wire: ø0.4 mm to ø0.8 mm
	Switch	Non-voltage “a” contact signals Remote switch: minimum applicable load 12 V DC, 1 mA

Note:
Stranded wire should be processed with insulation-covered bar terminal (DIN46228-4 standard compatible type).



<Figure 5.4.7>

■ Signal inputs

Name	Terminal block	Connector	Item	OFF (Open)	ON (Short)
IN1	TBI.1 7-8	—	Room thermostat 1 input *1	Refer to SW2-1 in <5.1 DIP Switch Functions>.	
IN2	TBI.1 5-6	—	Flow switch 1 input	Refer to SW2-2 in <5.1 DIP Switch Functions>.	
IN3	TBI.1 3-4	—	Flow switch 2 input (Zone 1)	Refer to SW3-2 in <5.1 DIP Switch Functions>.	
IN4	TBI.1 1-2	—	Demand control input	Normal	Heat source OFF/ Boiler operation *3
IN5	TBI.2 7-8	—	Outdoor thermostat input *2	Standard operation	Heater operation/ Boiler operation *3
IN6	TBI.2 5-6	—	Room thermostat 2 input *1	Refer to SW3-1 in <5.1 DIP Switch Functions>.	
IN7	TBI.2 3-4	—	Flow switch 3 input (Zone 2)	Refer to SW3-2 in <5.1 DIP Switch Functions>.	
IN8	TBI.3 7-8	—	Electric energy meter 1	*4	
IN9	TBI.3 5-6	—	Electric energy meter 2		
IN10	TBI.2 1-2	—	Heat meter		
IN11	TBI.3 3-4	—	Smart grid ready input	*5	
IN12	TBI.3 1-2	—			
IN13	TBI.4 3-4	—	Forced cooling mode *6	Refer to SW7-2 in <5.1 DIP Switch Functions>.	
IN15	TBI.4 1-2	—	Cooling limit temp. *6	Refer to SW7-3 in <5.1 DIP Switch Functions>.	
INA1	TBI.6 3-5	CN1A	Flow sensor	—	—

*1. Set the ON/OFF cycle time of the room thermostat for 10 minutes or more; otherwise the compressor may be damaged.
*2. If using outdoor thermostat for controlling operation of heaters, the lifetime of the heaters and related parts may be reduced.
*3. To turn on the boiler operation, use the main remote controller to select [Boiler settings] in [Operation settings] from [Service].
*4. Connectable electric energy meter and heat meter

- Pulse type: Voltage free contact for 12 V DC detection by FTC (TBI.2 1 pin, TBI.3 5 and 7 pins have a positive voltage.)
- Pulse duration: Minimum ON time: 40 ms
Minimum OFF time: 100 ms
- Possible unit of pulse: 0.1 pulse/kWh, 1 pulse/kWh, 10 pulse/kWh, 100 pulse/kWh, 1000 pulse/kWh

Those values can be set by the main remote controller. (Refer to the menu tree in "Main remote controller".)
*5. As for the smart grid ready, refer to website manual.
*6. Only for ER series.

■ Thermistor inputs

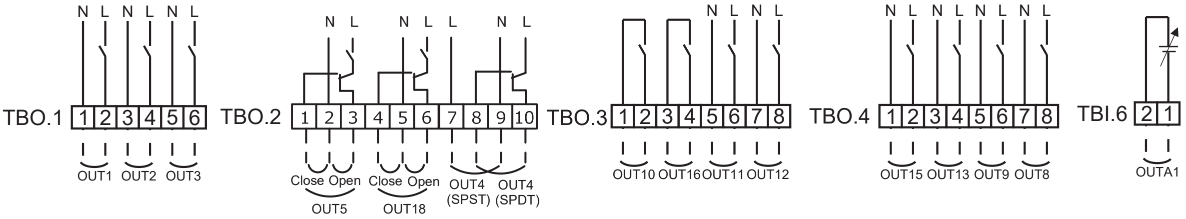
Name	Terminal block	Connector	Item	Optional part model
TH1	—	CN20	Thermistor (Room temp.) (Option)	PAC-SE41TS-E
TH2	—	CN21	Thermistor (Ref. liquid temp.)	—
THW1	—	CNW12 1-2	Thermistor (Flow water temp.)	—
THW2	—	CNW12 3-4	Thermistor (Return water temp.)	—
THW5B	—	CNW5 3-4	Thermistor (DHW tank lower water temp.) (Option) *1	PAC-TH011TK2-E(5 m)/ PAC-TH011TKL2-E(30 m)
THW6	TBI.5 7-8	—	Thermistor (Zone 1 flow water temp.) (Option) *1	PAC-TH011-E
THW7	TBI.5 5-6	—	Thermistor (Zone 1 return water temp.) (Option) *1	
THW8	TBI.5 3-4	—	Thermistor (Zone 2 flow water temp.) (Option) *1	PAC-TH011-E
THW9	TBI.5 1-2	—	Thermistor (Zone 2 return water temp.) (Option) *1	
THW10	TBI.6 6-7	—	Thermistor (Mixing tank water temp.)(Option) *1	PAC-TH012HT-E(5 m)/ PAC-TH012HTL-E(30 m)
THWB1	TBI.6 8-9	—	Thermistor (Boiler flow water temp.) (Option) *1	

Ensure to wire thermistor wirings away from the power line and/or OUT1 to OUT18 wirings.
***1. The maximum length of the thermistor wiring is 30 m. When the wires are wired to adjacent terminals, use ring terminals and insulate the wires.**
The length of the optional thermistors are 5 m. If you need to splice and extend the wirings, following points must be carried out.
1) Connect the wirings by soldering.
2) Insulate each connecting point against dust and water.

■ Outputs

Name	Terminal block	Connector	Item	OFF	ON	Signal/Max. current	Max. total current
OUT1	TBO.1 1-2	CNP1	Water circulation pump 1 output (Space heating/cooling & DHW)	OFF	ON	230 V AC 1.0 A Max. (Inrush current 40 A Max.)	4.0 A (a)
OUT2	TBO.1 3-4	—	Water circulation pump 2 output (Space heating/cooling for Zone 1)	OFF	ON	230 V AC 1.0 A Max. (Inrush current 40 A Max.)	
OUT3	TBO.1 5-6	—	Water circulation pump 3 output (Space heating/cooling for Zone 2) *1	OFF	ON	230 V AC 1.0 A Max. (Inrush current 40 A Max.)	
			2-way valve 2b output *2				
OUT14	—	CNP4	Water circulation pump 4 output (DHW)	OFF	ON	230 V AC 1.0 A Max. (Inrush current 40 A Max.)	
OUT4	TBO.2 7-9	—	3-way valve SPST (2-way valve 1) output	Heating	DHW	230 V AC 0.1 A Max.	3.0 A (b)
	TBO.2 8-10	CNV1	3-way valve SPDT output				
	—	CN851	3-way valve output				
OUT5	TBO.2 1-2	—	Zone 2 mixing valve output *1	Stop	Close	230 V AC 0.1 A Max.	
	TBO.2 2-3				Open		
OUT6	—	CNBH 1-3	Booster heater 1 output	OFF	ON	230 V AC 0.5 A Max. (Relay)	
OUT7	—	CNBH 5-7	Booster heater 2 output	OFF	ON	230 V AC 0.5 A Max. (Relay)	
OUT8	TBO.4 7-8	—	Cooling signal output	OFF	ON	230 V AC 0.5 A Max.	
OUT9	TBO.4 5-6	CNIH	Immersion heater output	OFF	ON	230 V AC 0.5 A Max. (Relay)	
OUT10	TBO.3 1-2	—	Boiler output	OFF	ON	non-voltage contact · 220 - 240 V AC (30 V DC) 0.5 A or less · 10 mA 5 V DC or more	—
OUT11	TBO.3 5-6	—	Error output	Normal	Error	230 V AC 0.5 A Max.	3.0 A (b)
OUT12	TBO.3 7-8	—	Defrost output	Normal	Defrost	230 V AC 0.5 A Max.	
OUT13	TBO.4 3-4	—	2-way valve 2a output *2	OFF	ON	230 V AC 0.1 A Max.	
OUT15	TBO.4 1-2	—	Comp ON signal	OFF	ON	230 V AC 0.5 A Max.	
OUT16	TBO.3 3-4	—	Heating/Cooling thermostat ON signal	OFF	ON	non-voltage contact · 220 - 240 V AC (30 V DC) 0.5 A or less · 10 mA 5 V DC or more	—
OUT18	TBO.2 4-5	—	Zone 1 mixing valve output *1	Stop	Close	230 V AC 0.1 A Max.	3.0 A (b)
	TBO.2 5-6				Open		
OUTA1	TBI.6 1-2	—	Analog output	0 V - 10 V		0 - 10 V DC 5 mA max.	—

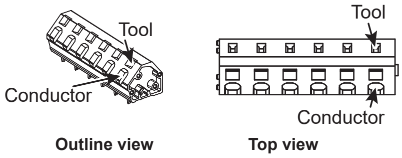
Do not connect to the terminals that are indicated as "—" in the "Terminal block" field.
***1 For 2-zone temperature control.**
***2 For 2-zone valve ON/OFF control.**



Wiring specification and local supply parts

Item	Name	Model and specifications
External output function	Outputs wire	Use sheathed vinyl coated cord or cable. Max. 30 m Wire type: CV, CVS or equivalent Wire size: Stranded wire 0.25 mm² to 1.5 mm² Solid wire: 0.25 mm² to 1.5 mm²

How to use TBO.1 to 4



Connect them using either way as shown above.

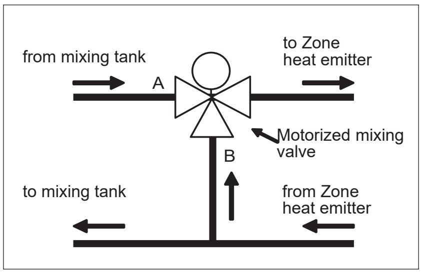
<Figure 5.4.8>

Note:

1. **When the hydrobox is powered via outdoor unit, the maximum grand total current of (a)+(b) is 3.0 A.**
2. **Do not connect multiple water circulation pumps directly to each output (OUT1, OUT2, and OUT3). In such a case, connect them via (a) relay(s).**
3. **Do not connect water circulation pumps to both TBO.1 1-2 and CNP1 at the same time.**
4. **Connect an appropriate surge absorber to OUT10 (TBO.3 1-2) depending on the load at site.**
5. **Stranded wire should be processed with insulation-covered bar terminal (DIN46228-4 standard compatible type).**
6. **Use the same thing as the Signal input wire for OUTA1 wiring.**

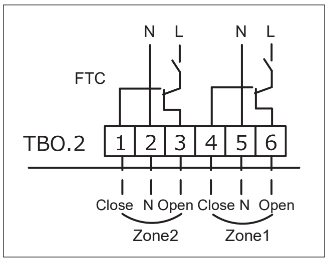
5.4.3 Wiring for 2-zone temperature control

Connect the pipe work and locally supplied parts according to the relevant circuit diagram shown "Local system" in Section 3, of this manual.



<Mixing valve>
Zone1
Connect the signal line to open Port A (hot water inlet port) to TBO. 2-6 (Open), the signal line to open Port B (cold water inlet port) to TBO. 2-4 (Close) , and the neutral terminal wire to TBO. 2-5 (N).
Zone2
Connect the signal line to open Port A (hot water inlet port) to TBO. 2-3 (Open), the signal line to open Port B (cold water inlet port) to TBO. 2-1 (Close) , and the neutral terminal wire to TBO. 2-2 (N).

<Thermistor>
- Do not install the thermistors on the mixing tank.
- Install the thermistor (Zone 1 flow water temp.) (THW6) near the mixing valve.
- Install the thermistor (Zone 2 flow water temp.) (THW8) near the mixing valve.
- The maximum length of the thermistor wiring is 30 m.
- The length of the optional thermistors are 5 m. If you need to splice and extend the wirings, following points must be carried out.
  1) Connect the wirings by soldering.
  2) Insulate each connecting point against dust and water.



5.4.4 Indoor unit only operation (during installation work)

In the case when DHW or heating operation is required prior to connection of the outdoor unit; i.e. during installation work, an electric heater in indoor unit (*1) can be used.
*1 Model with electric heater only.

1. To start operation
- Check if the indoor unit power supply is OFF, and turn DIP switch 4-4 and 4-5 ON.
- Turn ON the indoor unit power supply.

2. To end operation *2
- Turn OFF the indoor unit power supply.
- Turn DIP switch 4-4 and 4-5 OFF.

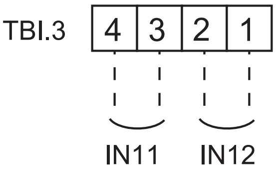
*2 When the indoor unit only operation is ended, ensure to check over the settings after outdoor unit is connected.

Note:
Prolonged running of this operation may affect the life of the electric heater.

5.4.5 Smart grid ready

In DHW, heating or cooling operation, the commands in the table below can be used.

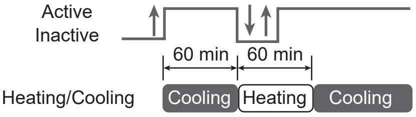
IN11	IN12	Meaning
OFF (open)	OFF (open)	Normal operation
ON (short)	OFF (open)	Switch-on recommendation
OFF (open)	ON (short)	Switch-off command
ON (short)	ON (short)	Switch-on command



5.4.6 Forced cooling mode input (IN13) (only for ER series)

- When IN13 is active, the mode (heating/cooling) is fixed to cooling.
- SW7-2 changes the logic of IN13.

Name	Terminal block	DIP SW7-2	
		OFF	ON
IN13	TBI.4 3-4	Active at short (Default setting)	Active at open



Notes:
Use non-voltage contact signals for the switch of IN13.
The mode (heating/cooling) does not switch under the condition such as
- within 60 minutes since the mode switched last time,
- during DHW mode or legionella prevention mode,
- during outdoor unit protection control,
- during emergency operation, floor dry up operation, or abnormality.

Check the mode with the main remote controller or the cooling signal output (OUT8 ON: cooling, OFF: heating).

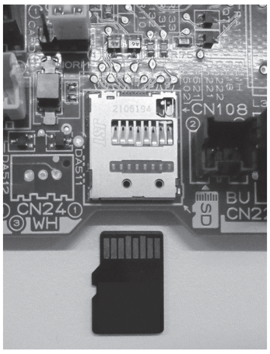
5.4.7 Using microSD memory card

The indoor unit is equipped with a microSD memory card interface in FTC.
Using a microSD memory card can simplify main remote controller settings and can store operating logs. *1

*1 To edit main remote controller settings or to check operating data, an Ecodan service tool (for use with PC) is required.

<Handling precautions>

(1) Use a microSD memory card that complies with the SD standards. Check that the microSD memory card has a logo on it of those shown to the right.
(2) SD memory cards to the SD standards include microSD and microSDHC memory cards. The capacities are available up to 32 GB.
(3) Insert the microSD memory card into the FTC control board in the direction shown below.



(4) Before inserting or ejecting a microSD memory card, make sure to power off the system. If a microSD memory card is inserted or ejected with the system powered on, the stored data could be corrupted or the microSD memory card be damaged.
*A microSD memory card is live for a short duration after the system is powered off. Before insertion or ejection wait until the LED lamps on the FTC control board are all off.
(5) The read and write operations have been verified using the following microSD memory cards, however, these operations are not always guaranteed as the specifications of these microSD memory cards could change.

Manufacturer	Model	Tested in
Vantastek	Vantastek 8GB microSDHC	Sep. 2022
Longsys	NC5MC 2008G-52A39	Sep. 2022
Kingston	SDCS2/32GBSP	Sep. 2022

Before using a new microSD memory card (including the card that comes with the unit), always check that the microSD memory card can be safely read and written to by the FTC controller.
<How to check read and write operations>
a) Check for correct wiring of power supply to the system. For more details, refer to section 5.4.
(Do not power on the system at this point.)
b) Insert a microSD memory card.
c) Power on the system.
d) The LED4 lamp lights if the read and write operations are successfully completed. If the LED4 lamp continues blinking or does not light, the microSD memory card cannot be read or written to by the FTC controller.

(6) Make sure to follow the instruction and the requirement of the microSD memory card's manufacturer.
(7) Format the microSD memory card if determined unreadable in step (5). This could make it readable.
Download an SD card formatter from the following site.
SD Association homepage: https://www.sdcard.org/home/
(8) FTC supports FAT12/FAT16/FAT32 file system but not NTFS/exFAT file system.
(9) Mitsubishi Electric is not liable for any damages, in whole or in part, including failure of writing to a microSD memory card, and corruption and loss of the saved data, or the like. Back up saved data as necessary.
(10) Do not touch any electronic parts on the FTC control board when inserting or ejecting a microSD memory card, or else the control board could fail.

Logos
microSD ™ microSDHC ™
Capacities
2 GB to 32 GB *2
SD speed classes
All

• The microSD logo is a trademark of SD-3C, LLC.

*2 A 2GB microSD memory card stores up to 30 days of operation logs.

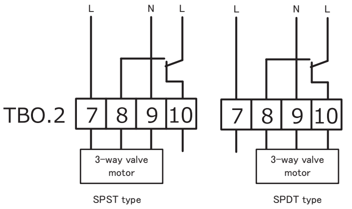
5.4.8 DHW tank for Hydrobox

■ Connecting procedure for DHW tank

Notes:

- **Be aware that the respective DHW operations are greatly effected by the selections of the components such as tank, immersion heater, or the like.**
- **Follow your local regulations to perform system configuration.**

1. To enable switching of the water circulation circuit between the DHW mode and the heating mode, install a 3-way valve (local supply).
   The use of two 2-way valves can perform the same function as a 3-way valve.
2. Install the optional thermistor THW5B (optional part PAC-TH011TK2-E/PAC-TH011TKL2-E) on the DHW tank.
   It is recommended to position the thermistor at the mid point of the DHW tank capacity. Insulate thermistor from ambient air. Especially for double (insulated) tank, thermistor should be attached to the inner side (to detect the water temperature).
3. Connect the thermistor lead to the CNW5 connector on the FTC. If the thermistor lead is too long, bundle it with a strap to adjust the length.
4. The output terminals for the 3-way valve (SPST) is TBO.2 7-9 (OUT4). The output terminals for the 3-way valve (SPDT) is TBO.2 8-10 (OUT4).



When the rated current of the 3-way valve exceeds 0.1 A, be sure to use a relay with maximum voltage and current ratings of 230 V AC / 0.1 A when connecting to the FTC. Do not directly connect the 3-way valve cable to the FTC. Connect the relay cable to the TBO.2 8-9 terminals.
For systems using 2-way valves instead of a 3-way valve please read the following;

	Installation position	Electrical connection terminal block	Output signal		
			Heating	DHW	System
2-way valve1	DHW	TBO.2 8-9	OFF (closed)	ON (open)	OFF (closed)
2-way valve2	Heating	TBO.4 3-4	ON (open)	OFF (closed)	OFF (closed)

Notes:

Should the 2-way valve become blocked, the water circulation will stop.
A bypass valve or circuit should be installed between pump and 2-way valve for safety.
The TBO.4 3-4 terminals on the FTC are shown in the wiring diagram.
The 2-way valve (local supply) should be installed according to the instructions supplied with it. Follow 2-way valve’s manufacturer’s instructions as to whether to connect an earth cable or not.

- For the 2-way valve, choose the one that slowly opens and shuts off to prevent water hammer sound.
- Choose the 2-way valve equipped with manual override, which is necessary for topping up or draining of water.

5. Turn the DIP SW1-3 on the FTC to ON.
6. When using an immersion heater (local supply), connect a contact relay cable for the immersion heater to TBO.4 5-6 (OUT9), and turn the DIP SW1-4 to ON. Do not directly connect the power cable to the FTC.

Notes:

- When an immersion heater is installed, select appropriate breaker capacity and a cable with appropriate diameter on the basis of heater output.
- When wiring an immersion heater in the field, always install an earth leakage breaker to prevent accidental electric shock.

Specification of 2-way valve (local supply)

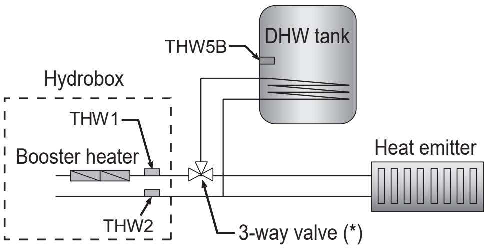
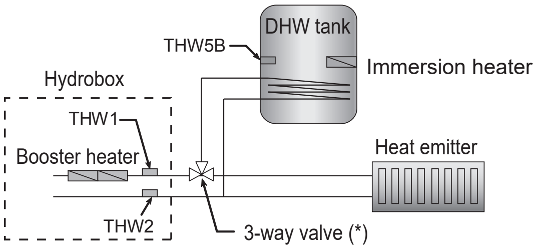
- Power supply: 230 V AC
- Current: 0.1 A Max. **(If over 0.1 A you must use a relay)**
- Type: Normally closed

⚠ WARNING: When connecting DHW tank

(1) Attach the optional thermistor THW5B (PAC-TH011TK2-E/PAC-TH011TKL2-E).
(2) Always use earth leakage breaker when connecting immersion heater.
(3) When installing an immersion heater, be sure that the immersion heater has a built-in direct cut-off thermostat.
(4) Connect a pressure relief valve on the sanitary water side.
(5) It is essential that no check valve or isolating valve is fitted between the hydrobox and the pressure relief valve.

Recommended DHW system

Where system involves a DHW tank:

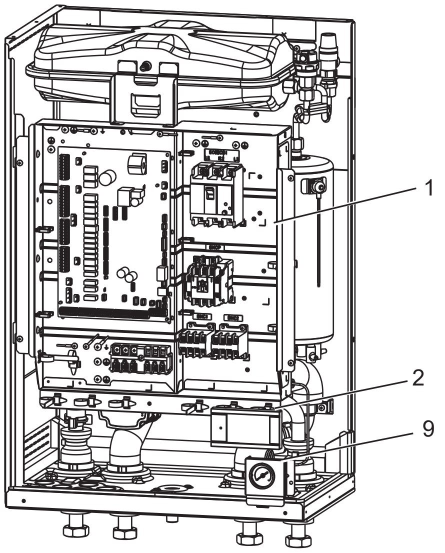
DHW tank	Immersion heater	Booster heater	BH function	System diagram	Thermistor
Present	Absent	Present	For space heating/ cooling and DHW		THW1: Flow water temp. THW2: Return water temp. THW5B: DHW tank lower water temp. (optional part PAC-TH011TK2-E/ PAC-TH011TKL2-E)
Present	Present	Present	For space heating/ cooling and DHW		THW1: Flow water temp. THW2: Return water temp. THW5B: DHW tank lower water temp. (optional part PAC-TH011TK2-E/ PAC-TH011TKL2-E)

*The use of two 2-way valves can perform same function as a 3-way valve.

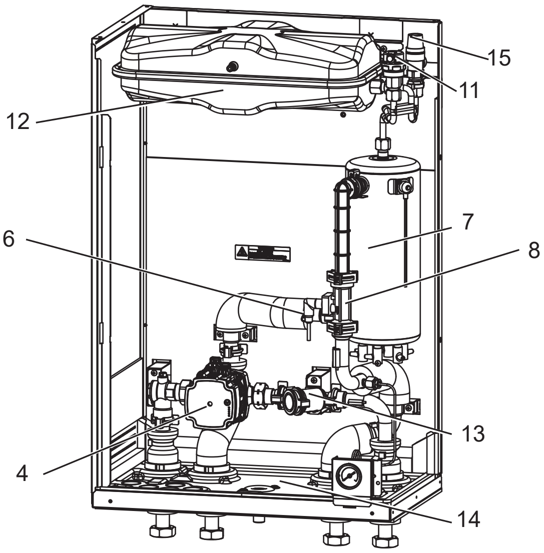
5.5. Water circuit diagrams

5.5.1 Component Parts

<ERPX-*M*E> (Packaged model system)

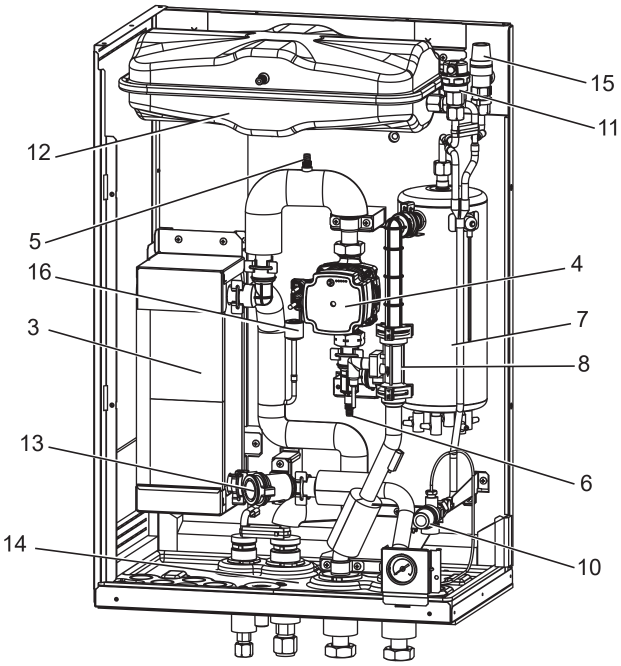


<Figure 5.5.1>



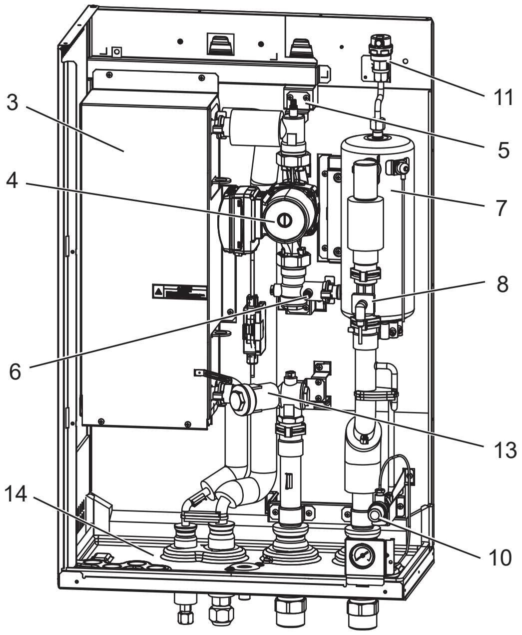
<Figure 5.5.2>

<E*S*-*M*E> (Split model system)



<Figure 5.5.3>

<ERSE-*M*EE> (Split model system)



<Figure 5.5.4>

No.	Part name	ERPX-ME	ERPX-*M*E	EHSD-MEE	EHSD-*M*E	ERS*-MEE	ERS*-*M*(E)E
1	Control and electrical box	✓	✓	✓	✓	✓	✓
2	Main remote controller	✓	✓	✓	✓	✓	✓
3	Plate heat exchanger (Refrigerant - Water)	–	–	✓	✓	✓	✓
4	Water circulation pump 1	✓	✓	✓	✓	✓	✓
5	Air vent (manual)	–	–	✓	✓	✓	✓
6	Drain cock (Primary circuit)	–	✓	✓	✓	✓	✓
7	Booster heater 1, 2	–	✓	–	✓	–	✓
8	Flow sensor	✓	✓	✓	✓	✓	✓
9	Manometer	✓	✓	✓	✓	✓	✓
10	Pressure relief valve (3 bar)	–	–	✓	✓	✓	✓
11	Automatic air vent	✓	✓	✓	✓	✓	✓
12	Expansion vessel	✓	✓	–	✓	–	✓ *1
13	Magnetic filter	✓	✓	✓	✓	✓	✓
14	Drain pan	✓	✓	–	–	✓	✓
15	Pressure relief valve (5 bar)	✓	✓	–	✓	–	✓ *1
16	Pressure sensor	–	–	✓	✓	✓ *2	✓ *2

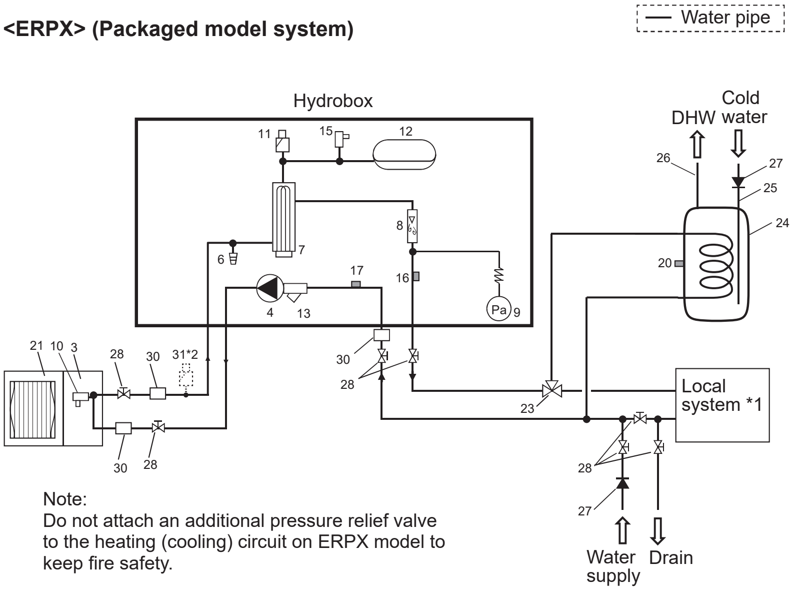
<Table 5.5.1>

Note:
For installation of all E*-*M*EE models, make sure to install a suitably sized primary-side expansion vessel. (See figure 5.5.5, 5.5.6 and 5.6.17 for further guidance)**

*1 ERSE-YM9EE is not included.
2 ERSC-, ERSE-* is not included.

5.5.2 Water circuit diagram

<ERPX> (Packaged model system)



Note:
Do not attach an additional pressure relief valve to the heating (cooling) circuit on ERPX model to keep fire safety.

<Figure 5.5.5>

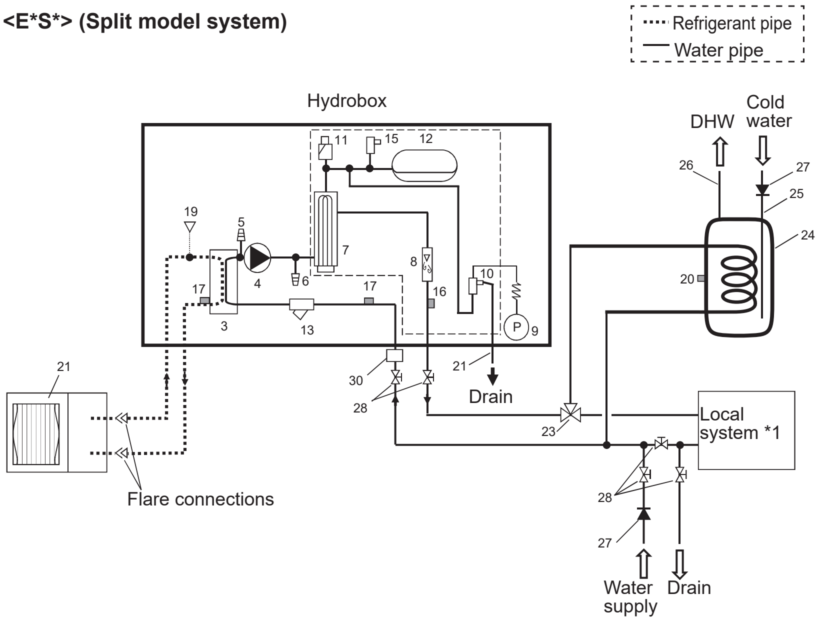
Notes
- Be sure to follow your local regulations to perform system configuration of the DHW connections.
- DHW connections are not included in the hydrobox package. All required parts are to be sourced locally.
- To enable draining of the hydrobox, an isolating valve should be positioned on both the inlet and outlet pipework.
- Be sure to install a strainer on the inlet pipe work to the hydrobox.
- Suitable drain pipework should be attached to the relief valves instructed to be connected to it in Figure 5.5.5 and 5.5.6 in accordance with your country's regulations.
- A backflow prevention device must be installed on water supply pipework (IEC 61770).
- When using components made from different metals or connecting pipes made of different metals, insulate the joints to prevent a corrosive reaction taking place which will damage the pipework.

No.	Part name	ERPX-ME	ERPX-*M*E	EHSD-MEE	EHSD-*M*E	ERS*-MEE	ERS*-*M*(E)E
1	Control and electrical box	✓	✓	✓	✓	✓	✓
2	Main remote controller	✓	✓	✓	✓	✓	✓
3	Plate heat exchanger (Refrigerant - Water)	–	–	✓	✓	✓	✓
4	Water circulation pump 1	✓	✓	✓	✓	✓	✓
5	Air vent (manual)	–	–	✓	✓	✓	✓
6	Drain cock (Primary circuit)	–	✓	✓	✓	✓	✓
7	Booster heater 1, 2	–	✓	–	✓	–	✓
8	Flow sensor	✓	✓	✓	✓	✓	✓
9	Manometer	✓	✓	✓	✓	✓	✓
10	Pressure relief valve (3 bar)	–	–	✓	✓	✓	✓
11	Automatic air vent	✓	✓	✓	✓	✓	✓
12	Expansion vessel	✓	✓	–	✓	–	✓*3
13	Magnetic filter	✓	✓	✓	✓	✓	✓
14	Drain pan	✓	✓	–	–	✓	✓
15	Pressure relief valve (5 bar)	✓	✓	–	✓	–	✓*3
16	THW1	✓	✓	✓	✓	✓	✓
17	THW2	✓	✓	✓	✓	✓	✓
18	TH2	–	–	✓	✓	✓	✓
19	Pressure sensor	–	–	✓*4	✓*4	✓*4	✓*4
20	THW5B (Optional part PAC-TH011TK2-E or PAC-TH011TKL2-E)	–	–	–	–	–	–
21	Outdoor unit	–	–	–	–	–	–
22	Drain pipe (Local supply)	–	–	–	–	–	–
23	3-way valve (Local supply)	–	–	–	–	–	–
24	DHW indirect unvented tank (Local supply)	–	–	–	–	–	–
25	Cold water inlet pipe (Local supply)	–	–	–	–	–	–
26	DHW outlet pipe (Local supply)	–	–	–	–	–	–
27	Back flow prevention device (Local supply)	–	–	–	–	–	–
28	Isolating valve (Local supply)	–	–	–	–	–	–
29	Magnetic filter (Local supply) (Recommended)	–	–	–	–	–	–
30	Strainer (Local supply)	–	–	–	–	–	–
31	Air vent (Local supply)	–	–	–	–	–	–

<Table 5.5.2>

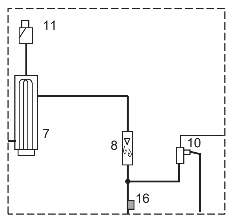
*1 Refer to the following section "Local system".
*2 If the outdoor unit is higher than the indoor unit, or if there is a location where air gets trapped in the upper part of the water pipe, consider adding this part.
*3 ERSE-YM9EE is not included.
4 ERSC-, ERSE-* is not included.

<E*S*> (Split model system)



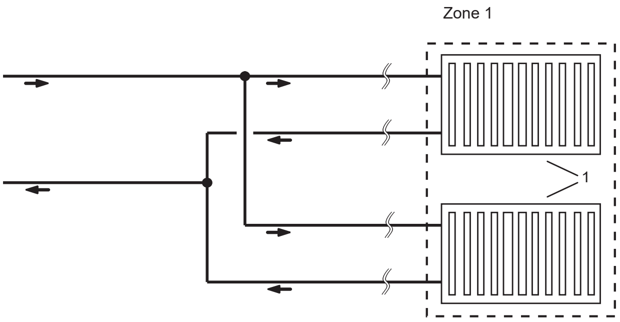
<Figure 5.5.6>

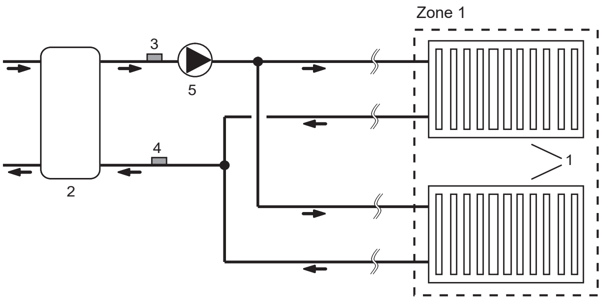
<ERSE only>



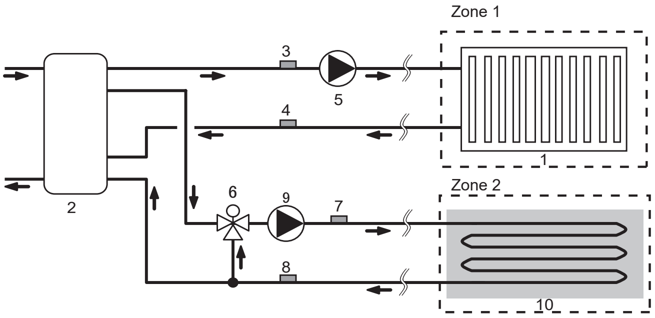
5.5.3 Local system

1-zone temperature control

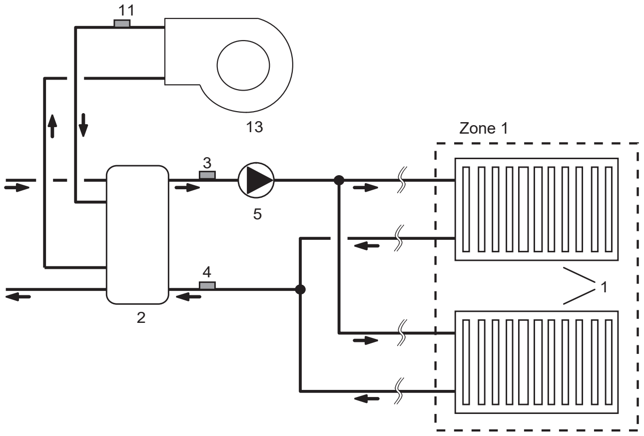




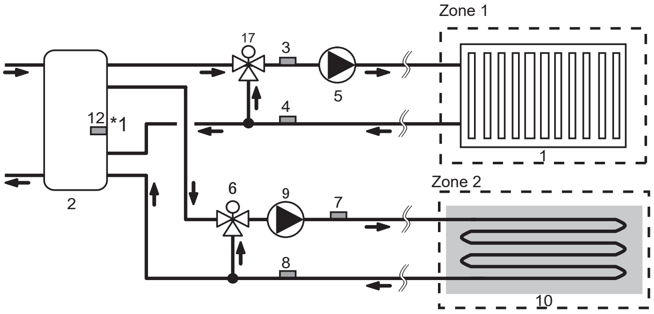
2-zone temperature control



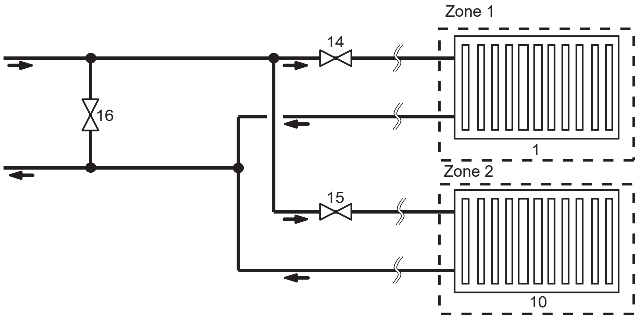
1-zone temperature control with boiler



2-zone temperature control & Buffer tank control



1-zone temperature control (2-zone valve ON/OFF control)



1. Zone 1 heat emitters (e.g. radiator, fan coil unit) (local supply)
2. Mixing tank (local supply)
3. Thermistor (Zone 1 flow water temp.) (THW6)
4. Thermistor (Zone 1 return water temp.) (THW7)
   } Optional part : PAC-TH011-E
5. Zone 1 water circulation pump (local supply)
6. Zone 2 motorized mixing valve (local supply)
7. Thermistor (Zone 2 flow water temp.) (THW8)
8. Thermistor (Zone 2 return water temp.) (THW9)
   } Optional part : PAC-TH011-E
9. Zone 2 water circulation pump (local supply)
10. Zone 2 heat emitters (e.g. underfloor heating) (local supply)
11. Thermistor (Boiler flow water temp.) (THWB1)
12. Thermistor (Mixing tank water temp.) (THW10) *1
    } Optional part : PAC-TH012HT(L)-E
13. Boiler (local supply)
14. Zone 1 2-way valve (local supply)
15. Zone 2 2-way valve (local supply)
16. Bypass valve (local supply)
17. Zone 1 motorized mixing valve(local supply)

*1 ONLY Buffer tank control (heating/cooling) applies to [Smart grid ready].

5.6. Installation

<Preparation before the installation and service>

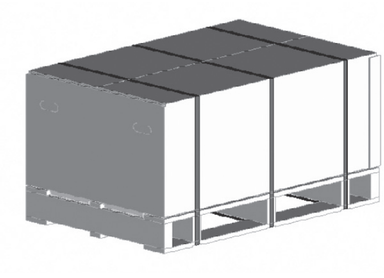
- Prepare the proper tools.
- Prepare the proper protection.
- Allow parts to cool before attempting any maintenance.
- Provide adequate ventilation.
- After stopping the operation of the system, turn off the power-supply breaker and remove the power plug.
- Discharge the capacitor before commencing work involving the electric parts.

<Precautions during service>

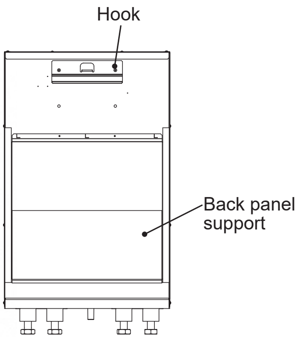
- Do not perform work involving electric parts with wet hands.
- Do not pour water or liquid into the electric parts.
- Do not touch the refrigerant.
- Do not touch the hot or cold surfaces in the refrigerant cycle.
- When the repair or the inspection of the circuit needs to be carried out without turning off the power, exercise great caution NOT to touch any LIVE parts.

5.6.1 Location

■ Transportation and Handling



<Figure 5.6.1>



<Figure 5.6.2>

Hydrobox is delivered on a wooden pallet base with cardboard protection.

Care should be taken when transporting the hydrobox so that the casing is not damaged by impact. Do not remove the protective packaging until hydrobox has reached its final location. This will help protect the structure and control panel.

Notes:
- **The hydrobox should ALWAYS be moved by a minimum of 2 people.**
- **Do NOT hold piping when moving or lifting the hydrobox.**

■ Suitable Location

Before installation the hydrobox should be stored in a frost-free weatherproof location. Units must **NOT** be stacked.

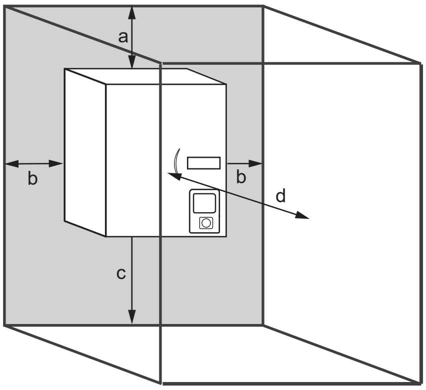
- The hydrobox should be installed indoors in a frost free weather proof location.
- Install the hydrobox where it is not exposed to water/excessive moisture.
- The hydrobox should be positioned on a level wall capable of supporting it's filled weight.
- To find out the weight, refer to "3. Technical Information".
- Care should be taken that minimum distances around and in front of the unit for service access are observed <Figure 5.6.3>.
- Secure the hydrobox to prevent it being knocked over.
- The hook and panel supports should be used to fix the hydrobox to the wall. <Figure 5.6.2>

■ Service access diagrams

Service access	
Parameter	Dimension (mm)
a	200
b	150
c	500
d	500

<Table 5.6.1>

Sufficient space MUST be left for the provision of discharge pipework as detailed in National and Local building regulations.



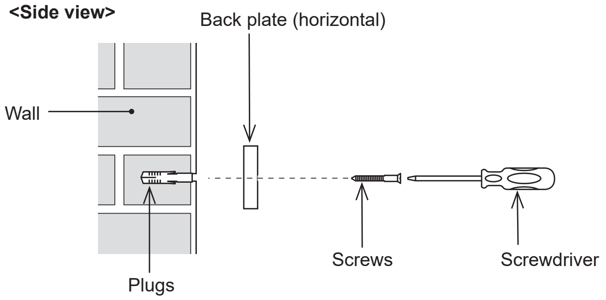
<Figure 5.6.3>
Service access

The hydrobox must be located indoors and in a frost-free environment, for example in a utility room.

5 Hydrobox

■ Mounting procedure

1. Install the included back plate accessory.
   * When installing the back plate, use locally-supplied screws and compatible fixing plugs.



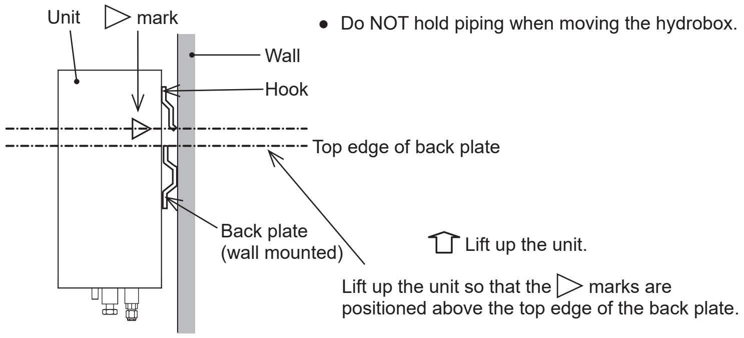
<Figure 5.6.4>

- Fit the back plate correctly with its horizontal notch profile positioned at the TOP.
  The back plate is provided with screw mounting holes that are round or oval. To prevent the unit from falling off the wall, choose the appropriate number of holes or hole positions and horizontally secure the back plate to the appropriate wall location.

2. Insert the hook on the back of the hydrobox behind the notch of the back plate.
   *The lifting up of the hydrobox is facilitated by first tilting the unit forward using the included packaging cushioning.

   i) Each of the right and left side panels has a ▷ mark indication.
   Lift up the unit so that the ▷ marks are positioned above the top edge of the back plate as shown below.

<Side view of unit>

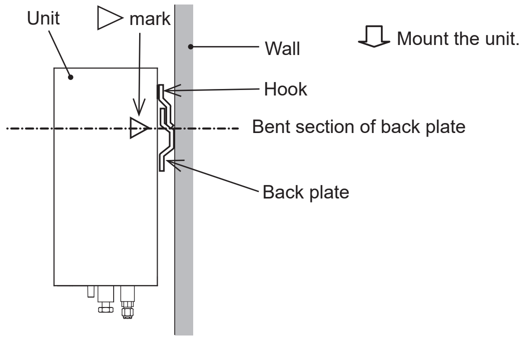


- Do NOT hold piping when moving the hydrobox.

<Figure 5.6.5>

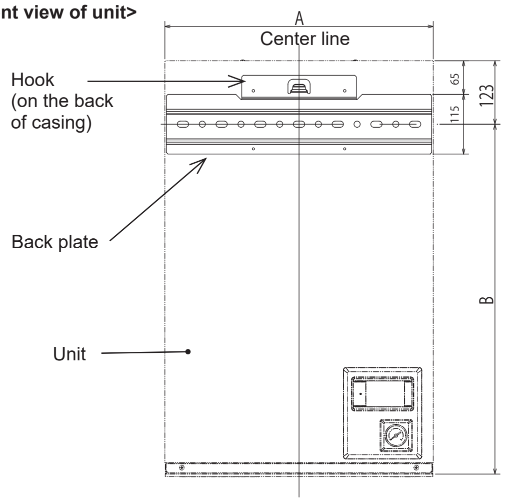
   ii) Check and ensure that the ▷ marks are positioned and properly engaged at the bent section level on the back plate as shown below.

<Side view of unit>



<Figure 5.6.6>

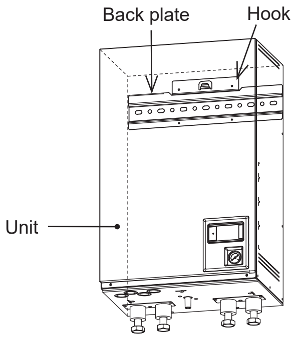
<Front view of unit>



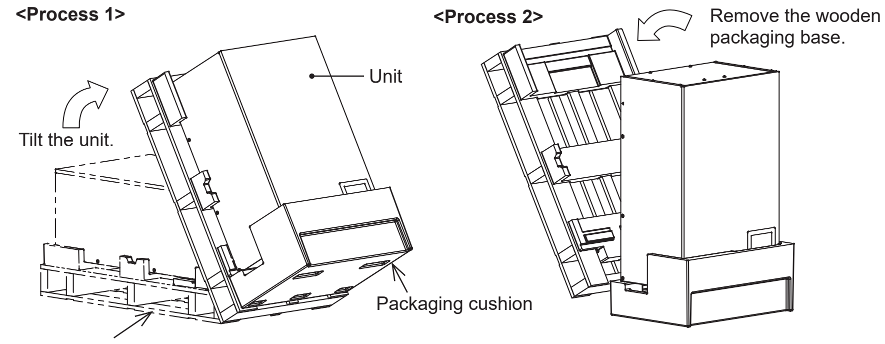
<Figure 5.6.7>

- Figure 5.6.7 shows the relative positions between the unit and the wall secured back plate.
  Referring to <Figure 5.6.3> Service access, install the back plate.

Dimensions (mm) Hydro box	A	B
ERSC E*SD ERSF ERPX	530	677
ERSE	600	827

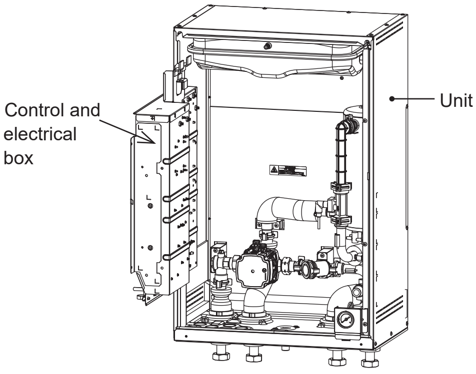


<Figure 5.6.8>

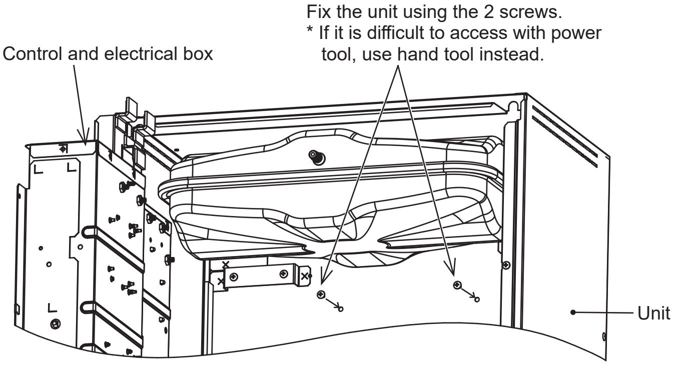


<Figure 5.6.9>

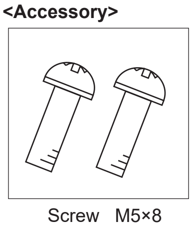
3. Fix the unit to the back plate using the included 2 screws (accessory items).

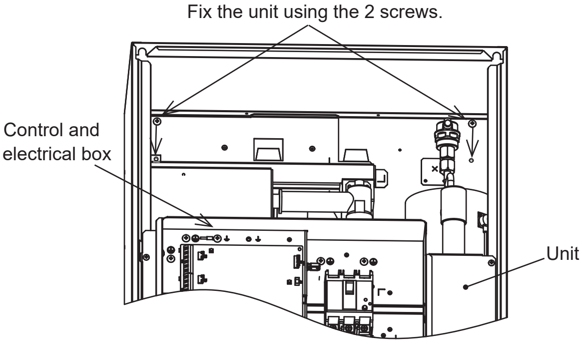


<Figure 5.6.10>



<Figure 5.6.11>





<Figure 5.6.12>

CAUTION: BEFORE performing field piping, be sure to fit and tighten these two screws. Otherwise, the hook could be disengaged, and the unit could fall down.

5.6.2 Water Quality and System Preparation

The water quality must comply with European Directive (EU) 2020/2184 standards, and/or local national standards.
For example, in France : Arrêté du 11 Janvier 2007 relative aux limites et références de qualité des eaux brutes et des eaux destinées à la consommation humaine

■ Water quality in primary circuit

- The water in primary circuit should observe local national standards :
  For example, in Germany and Belgium : VDI2035 Sheet 1
- The water in primary circuit should be clean and with a pH value of pH6.5-10.0.

■ Water quality in sanitary circuit

- The sanitary water circuit should be clean and with a pH value of pH6.5-8.0
- The following are maximum values of water in sanitary circuit;
  Calcium: 100 mg/L, Hardness: 250 mg/L (Ca Hardness)
  14.0 °dH (German degree)
  25 °f (French degree)
  17.5 °E (English degree)
  Chloride: 100 mg/L, Copper: 0.3 mg/L
- Other constituents of water in sanitary circuit should be compliant with EuropeanDirective (EU) 2020/2184 standards.
- In known hard water areas, to prevent/minimise scaling, it is beneficial to restrict the routine stored water temperature (DHW maximum temperature) to 55°C, and/or to add an appropriate water treatment (i.e: softener).

■ Anti-Freeze

Anti-freeze solutions should use propylene glycol with a toxicity rating of Class 1 as listed in Clinical Toxicology of Commercial Products, 5th Edition.

Notes:

1. Ethylene glycol is toxic and should NOT be used in the primary water circuit in case of any cross-contamination of the potable circuit.
2. For 2-zone valve ON/OFF control, propylene glycol should be used.

■ New Installation (primary water circuit)

- Before connecting outdoor unit, thoroughly cleanse pipework of building debris, solder, etc. using a suitable chemical cleansing agent.
- Flush the system to remove chemical cleanser.
- For all packaged model systems, and the split model or PUMY system without booster heater, add a combined inhibitor and anti-freeze solution to prevent damage to the pipework and system components.
- For split model systems, the responsible installer should decide if anti-freeze solution is necessary for each site's conditions. Corrosion inhibitor however should ALWAYS be used.

■ Existing Installation (primary water circuit)

- Before connecting outdoor unit, the existing heating circuit MUST be chemically cleansed to remove existing debris from the heating circuit.
- Flush the system to remove chemical cleanser.
- For all packaged model systems, add a combined inhibitor and anti-freeze solution to prevent damage to the pipework and system components.
- For split model systems, the responsible installer should decide if anti-freeze solution is necessary for each site's conditions. Corrosion inhibitor however should ALWAYS be used.

When using chemical cleansers and inhibitors, always follow manufacturer's instructions and ensure the product is appropriate for the materials used in the water circuit.

■ Minimum amount of water required in the space heating/cooling circuit

Outdoor heat pump unit		Indoor unit containing water amount [L]	Additional required water amount [L]*1	
			Average / Warmer climate*2	Colder climate*2
Packaged model	PUZ-WM50	5	2	24
	PUZ-WM60		4	29
	PUZ-WM85		7	32
	PUZ-WM112		11	43
	PUZ-HWM140		15	55
	PUZ-WZ50		2	24
	PUZ-WZ60		4	21
	PUZ-WZ80		6	29
Split model SUZ series	SUZ-SWM30VA		5 *3	12 *3
	SUZ-SWM40VA2		5 *3	12 *3
	SUZ-SWM60VA2		9 *3	21 *3
	SUZ-SWM80VA(H)2		12 *3	29 *3
	SUZ-SWM100VA(H)		12 *3	38 *3
	SUZ-SHWM30VAH		9 *3	21 *3
	SUZ-SHWM40VAH		9 *3	21 *3
	SUZ-SHWM60VAH		12 *3	29 *3
Split model PUZ series	PUZ-S(H)WM60	5	4	21
	PUZ-S(H)WM80		6	29
	PUZ-S(H)WM100		9	38
	PUZ-S(H)WM120		12	47
	PUZ-S(H)WM140		15	55
Split model Multi series	PUMY-P112	5	22	75
	PUMY-P125		22	75
	PUMY-P140		22	75
	PXZ-4F75VG		6	27
	PXZ-5F85VG		6	29

<Table 5.6.2>

*1 Water amount: If there is a bypass circuit, above table means minimum water amount in case of bypass.
*2 Climate: Please refer to 2009/125/EC: Energy-related Products Directive and Regulation (EU) No 813/2013 to confirm your climate zone.
*3 SUZ series: Flow temperature MUST always be NO lower than 32 °C when outdoor temperature drops below -15 °C.
Potential risks of plate HEX get frozen and damaged, and also outdoor HEX would be frosted due to insufficient defrosting.

Case 1. No division between primary and secondary circuit

- Please ensure the required water amount according to Table 5.6.2 by water pipe and radiator or underfloor heating.

Case 2. Separate primary and secondary circuit

- If the interlock operation of primary and secondary pump is not available, please ensure required additional water in only primary circuit according to Table 5.6.2.
- If the interlock operation of primary and secondary pump is available, please ensure total water amount of primary and secondary circuit according to Table 5.6.2.
  In case of the shortage of required water amount, please install buffer tank.

5.6.3 Water Pipe Work

Note: Prevent the field piping from straining the piping on the hydrobox by fixing it to a wall or applying other methods.

■ Hot Water Pipework

The function of the following safety components of the hydrobox should be checked on installation for any abnormalities;
- Pressure relief valve
- Expansion vessel pre-charge (gas charge pressure)

The instruction on the following pages regarding safe discharge of hot water from safety devices should be followed carefully.
- The pipework will become very hot, so should be insulated to prevent burns.
- When connecting pipework, ensure that no foreign objects such as debris or the like enter the pipe.

■ Safety Device Connections

The hydrobox contains a pressure relief valve. (see Figure 5.6.13) The connection size is G1/2. The installer MUST responsibly connect appropriate discharge pipework from this valve in accordance with local and national regulations.
Failure to do so will result in discharge from the pressure relief valve directly into the hydrobox and cause serious damage to the product.

All pipework used should be capable of withstanding discharge of hot water. Relief valves should NOT be used for any other purpose, and their discharges should terminate in a safe and appropriate manner in accordance with local regulation requirements.

Note: Beware that the manometer and the pressure relief valve are NOT strained on its capillary side and on its inlet side respectively. If a pressure relief valve is added, it is essential that no check valve or isolation valve is fitted between the hydrobox connection and the added pressure relief valve (safety matter).

■ Hydraulic Filter Work (ONLY ERPX series)

Install a hydraulic filter or strainer (local supply) at the water intake ("Pipe E" in Table 5.1.1, also see associated schematic Fig. 5.5.5)

■ Pipework Connections

Connections to the hydrobox should be made using the G-Screw connection (EHSD/ERSD/ERSF/ERSC/ERPX series) or the G1-1/2B (ERSE series) as appropriate. (The hydrobox has G1 or G1 -1/2B thread connections.)
Do not over-tighten compression fittings as this will lead to deformation of the olive ring and potential leaks.

■ Drain Pipework (ONLY ER** series)

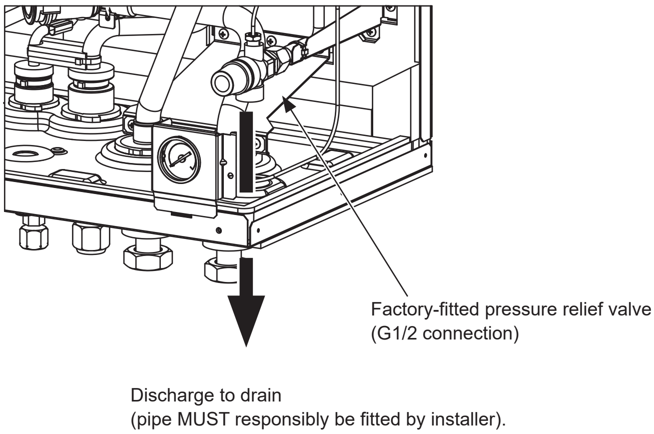
The drain pipe should be installed to drain condensing water in cooling mode.
- Securely install the drain pipe to prevent leakage from the connection.
- Securely insulate the drain pipe to prevent water dripping from the locally supplied drain pipe.
- Install the drain pipe at a down slope of 1/100 or more.
- Do not place the drain pipe in drain channel where sulphuric gas exists.
- After installation, check that the drain pipe drains water properly from the outlet of the pipe.

<Installation>
1. Apply polyvinyl chloride type adhesive over the shaded surfaces inside of the drain pipe and on the exterior of the drain socket as shown.
2. Insert the drain socket deeply into the drain pipe <Figure 5.6.15>.

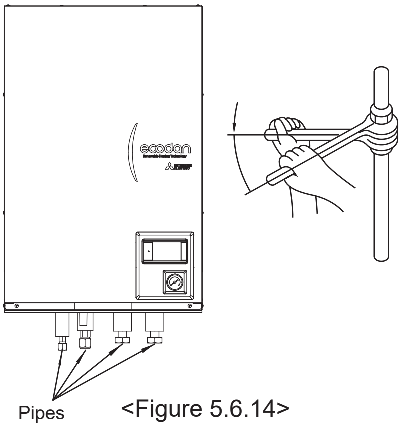
Note: Securely support the locally supplied drain pipe using pipe support to avoid the drain pipe falling from the drain socket.
To prevent dirty water from draining directly onto the floor next to hydrobox, please connect appropriate discharge pipework from the hydrobox.

■ Insulation of Pipework

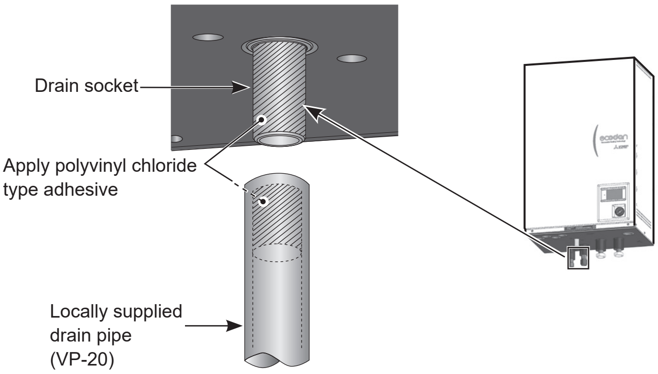
- All exposed water pipework should be insulated to prevent unnecessary heat loss and condensation. To prevent condensate entering the hydrobox, the pipework and connections at the top of the hydrobox should be carefully insulated.
- Cold and hot water pipework should not be run close together where possible, to avoid unwanted heat transfer.
- Pipework between outdoor heat pump unit and hydrobox should be insulated with suitable pipe insulation material with a thermal conductivity of ≤ 0.04 W/m.K.



<Figure 5.6.13>



<Figure 5.6.14>



<Figure 5.6.15>

■ Water Circulation Pump Characteristics

Pump speed can be selected by main remote controller setting (see Figure 5.6.16).
Adjust the pump speed setting so that the flow rate in the primary circuit is appropriate for the installed outdoor unit (see Table 5.6.3). It may be necessary to add an additional pump to the system depending on the length and lift of the primary circuit.
For outdoor unit model not listed in Table 5.6.3, refer to water flow rate range in the specification table of outdoor unit Data Book.

<Second pump>
If a second pump is required for the installation, please read the following carefully.
The second pump can be positioned in 2 ways.
If the additional pump(s) have current greater than 1A, please use appropriate relay. Pump signal cable can either be wired to TBO.1 1-2 or CNP1 but NOT both.

Option 1 (Space heating/cooling only)
If the second pump is being used for the heating/cooling circuit only then the signal cable should be wired to TBO.1 terminals 3 and 4 (OUT2). In this position, the pump can be run at a different speed from the hydrobox's in-built pump.

Option 2 (Primary circuit DHW and space heating/cooling)
If the second pump is being used in the primary circuit between the hydrobox and the outdoor unit (Package system ONLY) then the signal cable should be wired to TBO.1 terminals 1 and 2 (OUT1). In this position the pump speed **MUST** match the speed of the hydrobox's in-built pump.
Note: Refer to 5.2 Connecting inputs/outputs.

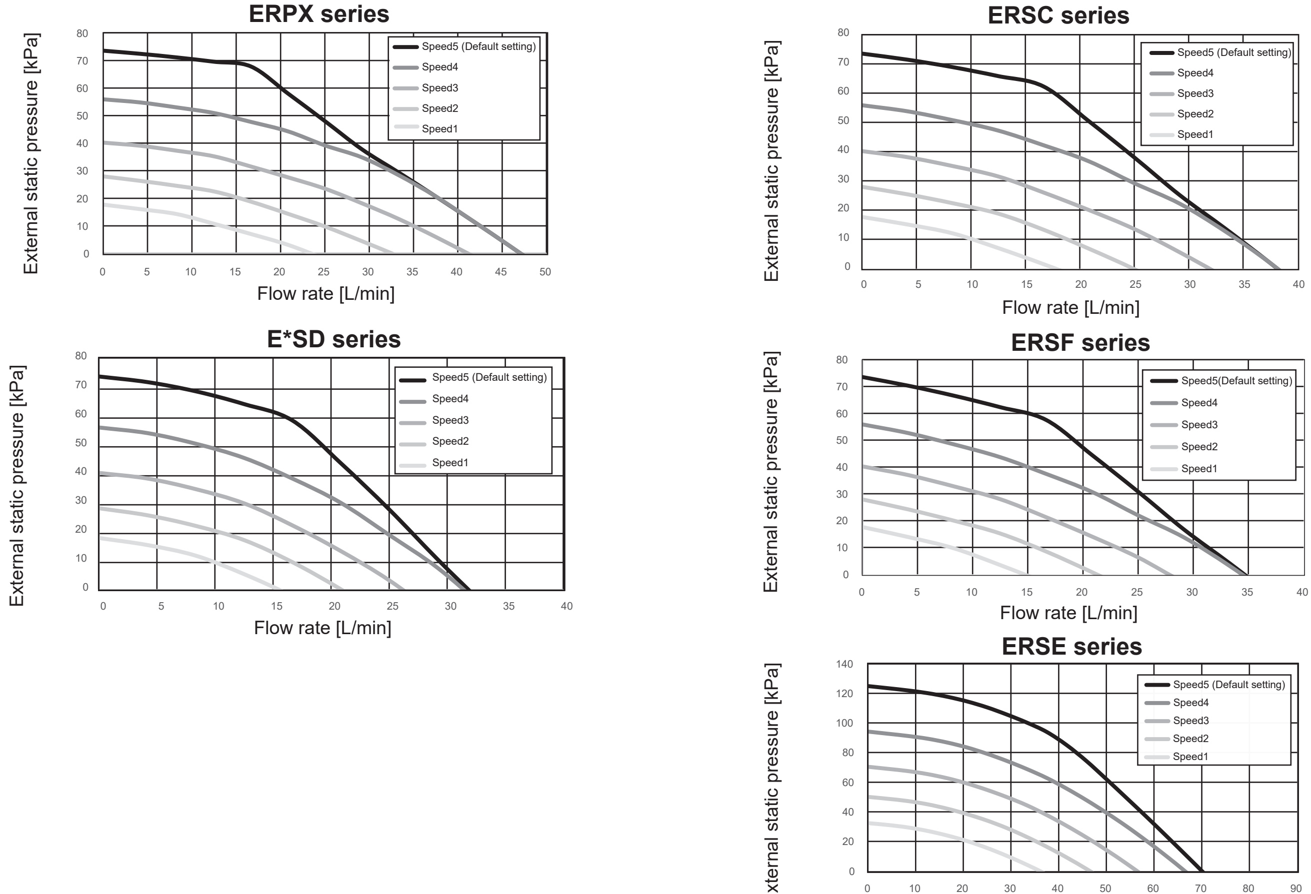
Outdoor heat pump unit		Water flow rate range [L/min]	Recommended flow [L/min] *1
Packaged model	PUZ-WM50	6.5 - 14.3	9.0
	PUZ-WM60	8.6 - 17.2	10.8
	PUZ-WM85	10.8 - 24.4 *3	15.2
	PUZ-WM112	14.4 - 32.1 *3	20.1 *2
	PUZ-HWM140	17.9 - 36.9 *3	25.1 *2
	PUZ-WZ50	6.5 - 14.3	9.0
	PUZ-WZ60	6.5 - 17.2	10.8
	PUZ-WZ80	6.5 - 22.9	14.3
Split model SUZ series	SUZ-SWM30VA	6.5 - 11.4	7.2
	SUZ-SWM40VA2	6.5 - 11.4	7.2
	SUZ-SWM60VA2	7.2 - 17.2	10.8
	SUZ-SWM80VA(H)2	10.8 - 21.5	13.4
	SUZ-SWM100VA(H)	10.8 - 25.8 *3	16.1
	SUZ-SHWM30VAH	6.5 - 11.4	7.2
	SUZ-SHWM40VAH	6.5 - 17.2	7.2
	SUZ-SHWM60VAH	8.6 - 21.5	10.8
Split model PUZ series	PUZ-S(H)WM60	7.2 - 22.9	10.8
	PUZ-S(H)WM80	7.2 - 22.9	14.3
	PUZ-S(H)WM100	7.2 - 28.7	17.9
	PUZ-S(H)WM120	10.0 - 34.4 *3	21.5 *2
	PUZ-S(H)WM140	10.0 - 34.4 *3	25.1 *2
Split model Multi series	PUMY-P112	17.9 - 35.8 *3	25.1 *2
	PUMY-P125	17.9 - 35.8 *3	28.7 *2
	PUMY-P140	17.9 - 35.8 *3	29.6 *2
	PXZ-4F75VG	11.5 - 21.7	13.4
	PXZ-5F85VG	11.5 - 24.6 *3	15.2

<Table 5.6.3>

Notes:
1. If the water flow rate is less than the minimum flow rate setting of the flow sensor (default 5.0 L/min), the flow rate error will be activated.
2. If the water flow rate exceeds 36.9 L/min, the flow speed will be greater than 2.0 m/s, which could erode the pipes.

*1 To ensure optimal heating operation (condition: inlet/outlet temperature difference ΔT = 8K)
*2 With buffer tank
*3 If you want to secure the maximum flow rate, please install an additional pump.

Water Circulation Pump Characteristics



<Figure 5.6.16>

■ Sizing Expansion Vessels

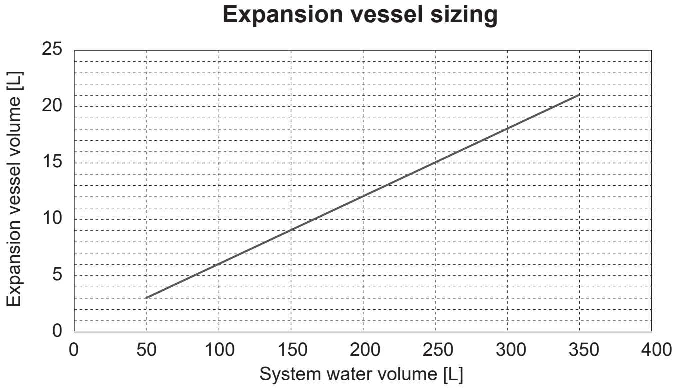
Expansion vessel volume must fit the local system water volume.
To size an expansion vessel both for the heating and cooling circuits, the following formula and graph can be used.
When the necessary expansion vessel volume exceeds the volume of an built-in expansion vessel, install an additional expansion vessel so that the sum of the volumes of the expansion vessels exceeds the necessary expansion vessel volume.

* For installation of an E***-*M*EE model, provide and install a suitable primary-side expansion vessel and additional 3 bar rated pressure relief valve in the field as the model does not come fitted with a primary-side expansion vessel.

$$V = \frac{\varepsilon \times G}{1 - \frac{P_1 + 0.098}{P_2 + 0.098}}$$

Where;
V : Necessary expansion vessel volume [L]
ε : Water expansion coefficient
G : Total volume of water in the system [L]
P_1 : Expansion vessel setting pressure [MPa]
P_2 : Max. pressure during operation [MPa]

Graph to the right is for the following values
ε : at 70°C = 0.0229
P_1 : 0.1 MPa
P_2 : 0.3 MPa
*A 30% safety margin has been added.



<Figure 5.6.17>

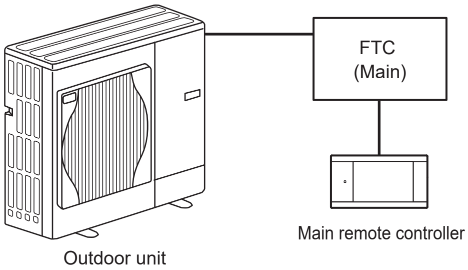
5.7. System Set Up

5.7.1 Remote Controller Options

The indoor unit comes factory fitted with a main remote controller. This incorporates a thermistor for temperature monitoring and a graphical user interface to enable set-up, view current status and input scheduling functions. The main remote controller is also used for servicing purposes. This facility is accessed via password protected service menus.

To provide the best efficiency in heating operation, Mitsubishi Electric recommends using Auto Adaptation function based on room temperature. To use this function, a room thermistor needs to be present in a main living area. This can be done in a number of ways. The most convenient are detailed below.
Refer to heating section of this manual for instructions on how to set the weather compensation curve, flow temperature or room temperature (Auto Adaptation).
For instructions on how to set the thermistor input for the FTC, please refer to Setting section in 6. Remote Controller in the installation manual.

Factory supplied standard



The factory setting for space heating mode is set to room temperature (Auto Adaptation). If there is no room sensor present in the system, this setting must be changed to either weather compensation curve mode or flow temperature mode.

Note: Auto Adaptation is not available in cooling mode.

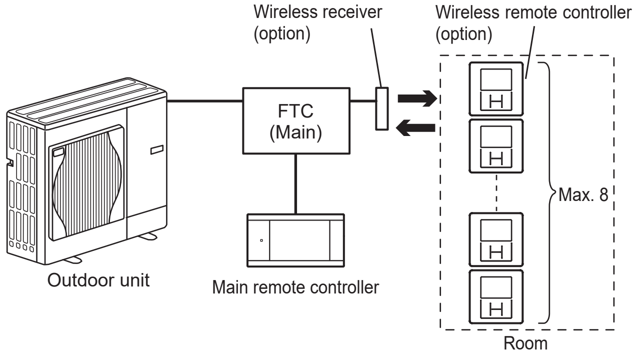
■ 1-zone temperature control

Control option A

This option features the main remote controller and the Mitsubishi Electric wireless remote controller. The wireless remote controller is used to monitor room temperature and can be used to make changes to the space heating settings, boost DHW *1 and switch to holiday mode without directly using the main remote controller.

If more than one wireless remote controller is used, the most recently requested temperature setting will commonly be applied to all rooms by the central control system regardless of which wireless remote controller was used. No hierarchy exists across these remote controllers.

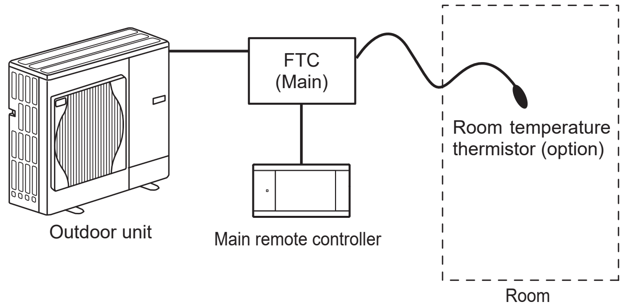
Wire the wireless receiver to FTC referring to the wireless remote controller instruction manual. **Turn DIP SW1-8 to ON.** Before operation, configure the wireless remote controller to transmit and receive data referring to the wireless remote controller installation manual.



Control option B

This option features the main remote controller and the Mitsubishi Electric thermistor wired to FTC. The thermistor is used to monitor room temperature but can not make any changes in control operation. Any changes to DHW *1 must be made using the main remote controller mounted on the indoor unit.

Wire the thermistor to the TH1 connector on FTC.
The number of room temperature thermistors that can be connected to FTC is always one.



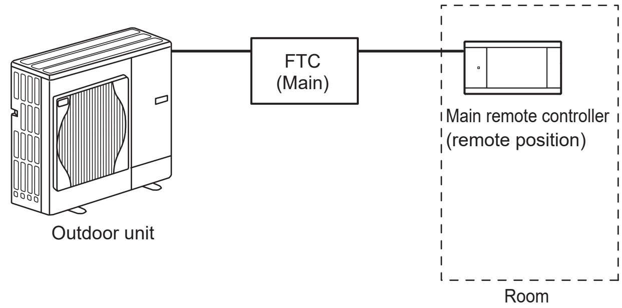
Control option C

This option features the main remote controller being removed from the indoor unit and situated in a different room. A thermistor built in the main remote controller can be used for monitoring the room temperature for Auto Adaptation function whilst keeping all its features of the main remote controller available.

The main remote controller and FTC are connected by a 2-core, 0.3 mm², non-polar cable (local supply) with a maximum length of 150 m.

To use the sensor in the main remote controller, the main remote controller should come off from the indoor unit. Otherwise it will detect the temperature of the indoor unit instead of room temperature. This will affect the output of the space heating.

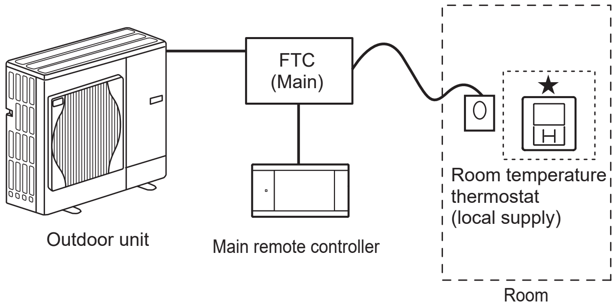
Note: Wiring for main remote controller cable shall be (5 cm or more) apart from power source wiring so that it is not influenced by electrical noise from power source wiring. (Do not insert main remote controller cable and power source wiring in the same conduit.)



Control option D (Flow temperature or weather compensation curve only)

This option features the main remote controller and a locally supplied thermostat wired to FTC. The thermostat is used to set the maximum temperature for heating room or the minimum temperature for cooling room. Any changes to DHW *1 must be made using main remote controller mounted on the indoor unit.

The thermostat is wired to IN1 in TBI.1 on FTC. The number of thermostats that can be connected to FTC is one for one zone.



*1 If applicable

★ The wireless remote controller can be also used as a thermostat.

2-zone temperature control

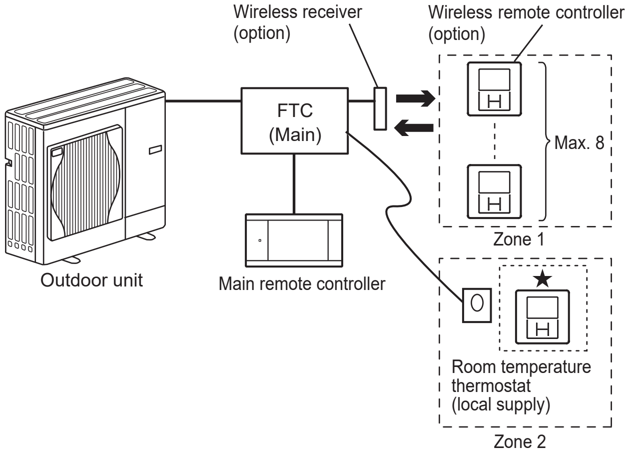
Control option A

This option features the main remote controller, the Mitsubishi Electric wireless remote controller and a locally supplied thermostat.
The wireless remote controller is used to monitor the Zone 1 room temperature and the thermostat is used to monitor the Zone 2 room temperature.
The thermostat can be also allocated to Zone 1 and the wireless remote controller to Zone 2.

The wireless remote controller can be also used to make changes to the space heating settings, boost DHW *1 and switch to holiday mode without having to use the main remote controller.

If more than one wireless remote controller is used, the last temperature setting adjustment/demand will be applied to all rooms in same zone.

Wire the wireless receiver to FTC referring to the wireless remote controller instruction manual. Turn DIP SW1-8 to ON. Before operation, configure the wireless remote controller to transmit and receive data referring to the wireless remote controller installation manual.
The thermostat is used to set the maximum temperature for heating Zone 2 room. The thermostat is wired to IN6 on FTC. (If the thermostat is allocated to Zone 1, it is wired to IN1 on TBI.1.) (Refer to 5.2. on the paper-based manual.)

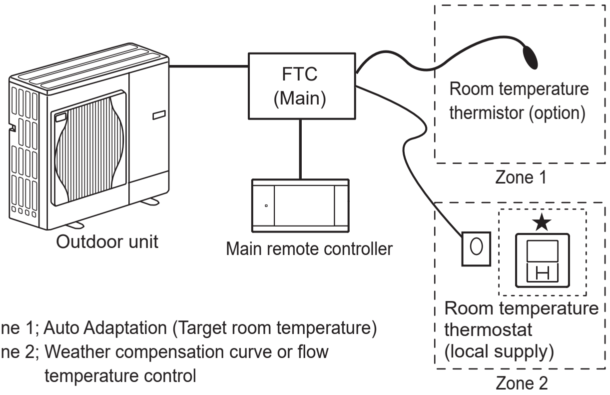


Zone 1; Auto Adaptation (Target room temperature)
Zone 2; Weather compensation curve or flow temperature control

Control option B

This option features the main remote controller, the Mitsubishi Electric thermistor and a locally supplied thermostat that are wired to FTC.
The thermistor is used to monitor the Zone 1 room temperature and the thermostat is used to control the Zone 2 room temperature.

The thermostat can be also allocated to Zone 1 and the thermistor to Zone 2.
The thermistor can not make any changes in control operation. Any changes to DHW *1 must be made using the main remote controller mounted on the indoor unit.
Wire the thermistor to the TH1 connector on FTC.
The number of room temperature thermistors that can be connected to FTC is always one.
The thermostat is used to set the maximum temperature for heating Zone 2 room. The thermostat is wired to IN6 on FTC. (If the thermostat is allocated to Zone 1, wire it to IN1 on TBI.1.) (Refer to 5.2. on the paper-based manual.)



Zone 1; Auto Adaptation (Target room temperature)
Zone 2; Weather compensation curve or flow temperature control

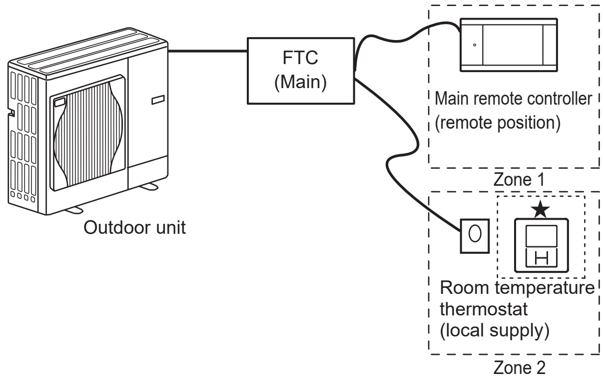
Control option C

This option features the main remote controller (with in-built thermistor) that is removed from the indoor unit to monitor the Zone 1 room temperature and a locally supplied thermostat to monitor the Zone 2 room temperature.
The thermostat can be also allocated to Zone 1 and the thermistor to Zone 2.

A thermistor built into the main remote controller can be used for monitoring the room temperature for Auto Adaptation function whilst keeping all its features of the main remote controller available.
The main remote controller and FTC are connected by a 2-core, 0.3 mm², non-polar cable (local supply) with a maximum length of 150 m.
To use the sensor in the main remote controller, the main remote controller should be detached from the indoor unit. Otherwise it will detect the temperature of the indoor unit instead of room temperature. This will affect the output of the space heating.

The thermostat is used to set the maximum temperature for heating Zone 2 room. The thermostat is wired to IN6 on FTC. (If the thermostat is allocated to Zone 1, wire it to IN1 on TBI.1.) (Refer to 5.2. on the paper-based manual.)

Note: Wiring for main remote controller cable shall be (5 cm or more) apart from power source wiring so that it is not influenced by electrical noise from power source wiring. (Do not insert main remote controller cable and power source wiring in the same conduit.)

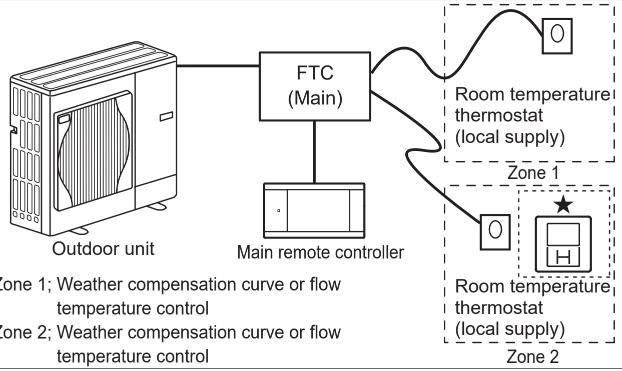


Zone 1; Auto Adaptation (Target room temperature)
Zone 2; Weather compensation curve or flow temperature control

Control option D

This option features the locally supplied thermostats wired to FTC. The thermostats are individually allocated to Zone 1 and Zone 2. The thermostats are used to set each maximum temperature for heating Zone 1 and Zone 2 rooms or the minimum temperature for cooling Zone 1 and Zone 2. Any changes to DHW *1 must be made using the main remote controller mounted on the indoor unit.

The thermostat for Zone 1 is wired to IN1 in TBI.1 on FTC.
The thermostat for Zone 2 is wired to IN6 in TBI.1 on FTC.



Zone 1; Weather compensation curve or flow temperature control
Zone 2; Weather compensation curve or flow temperature control

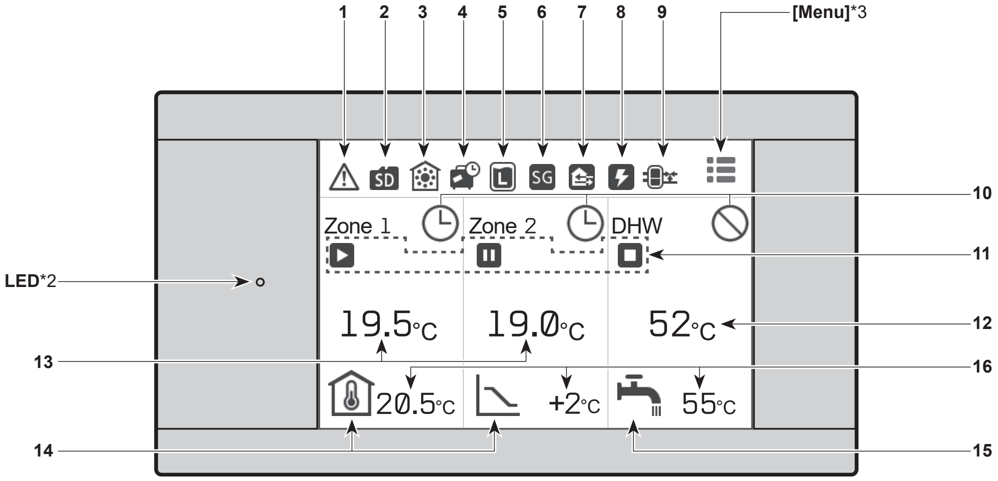
*1 If applicable
*2 For the options above, the sensor types can be exchanged between Zone 1 and Zone 2. (e.g. Wireless remote controller in Zone 1 and room temperature thermostat in Zone 2 can be changed to room temperature thermostat and wireless remote controller, respectively)

★ The wireless remote controller can be also used as a thermostat.

5.7.2 Main remote controller

■ Main remote controller

To change the settings of your heating/cooling system, please use the main remote controller located on the wall or the front panel of the cylinder unit or hydrobox. The following is a guide to viewing the main settings. Should you require more information, please contact your installer or local Mitsubishi Electric dealer. Some functions are not available depending on the system configuration. These functions are grayed out or not shown.
Note: The terms displayed on the remote controller are enclosed in square brackets.



[Home screen] (Full screen*1)

Home screen icons

No.	Icons	Description
1	⚠	Alert (for multiple outdoor units control) Touching the menu icon displays error codes.
	J1	Alert Error codes are displayed.
2	SD	SD card is inserted. Normal operation
	SD	SD card is inserted. Abnormal operation
3	☼	Heating mode
	❄	Cooling mode
4		Holiday schedule is activated.
5	L	Legionella prevention mode is running.
6	SG	Smart grid ready is running.
7		Compressor is running.
	❄	Compressor is running and defrosting.
		Compressor is running and in quiet mode. The sound level is shown at left side of the icon.
	⚠	Emergency heating
8	⚡	Electric heater is running.

No.	Icons	Description
9		Boiler is running.
		Buffer tank control is running.
10	🕒	Schedule
	⊘	Prohibited
		Cloud control
11	▶	Operation
	⏸	Standby
	⏸	This unit is in standby whilst other indoor unit(s) is in operation by priority.
	⏹	Stop
12	Actual DHW tank temperature values	
13	Actual room temperature values [-- °C] appears when the unit is not connected to the room RC (Remote Controller) and it is under control other than Auto Adaptation.	

No.	Icons	Description
14		Weather compensation curve When the operation stops: Black During heating operation: Orange During cooling operation: Blue
	*4	Auto Adaptation (Target room temperature) When the operation stops: Black During heating operation: Orange
		Flow temperature (Target flow temperature) When the operation stops: Black During heating operation: Orange During cooling operation: Blue
15		DHW icon is displayed when DHW is enabled. When the operation stops: Black During operation: Orange
16	Target temperature values The settable temperature differs depending on the control logic.	

- The screen will turn off when the main remote controller is not operated for a while. Touching any part of the screen turns it on again.
- From [Touch screen] in [Setting], the brightness can be adjusted.
- By selecting [Always on] for [Backlight time] from [Touch screen] in [Setting], the backlight stays lit for 30 seconds and after it dims down.

***1 From [Setting], the screen can be switched to the full screen or the base screen.**
The base screen does not display the operation icons and the target temperature values.
***2 From [Display] in [Setting], the LED lamp can be turned on/off.**
***3 Pressing and holding the menu icon ☰ for 3 seconds switches the lock menu to on/off.**
Some functions cannot be edited when the lock menu is on.
(The icon changes to ☰ when the lock menu is on.)
***4 Auto Adaptation cannot be selected during the cooling mode.**

■ Quick start

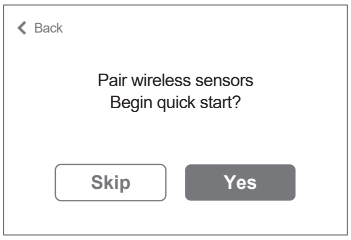
When the main remote controller is switched on for the first time, the screen automatically goes to the [Language], [Date/Time], [System configuration], and quick start setting screen in order. On the quick start setting screen, the following items can be set.

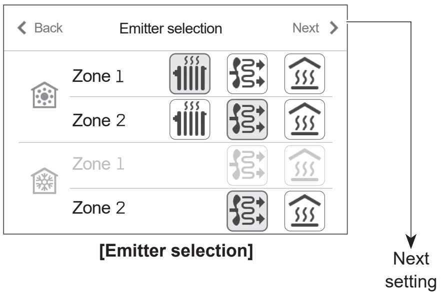
Note:
[Electric booster heater use]
This setting restricts the booster heater capacity. It is NOT possible to change the setting after starting up.
If you do not have any special requirements (such as building regulations) in your country, skip this setting (select [Next]).

Quick start

- [Zone sensor selection]*1
- [Emitter selection]
- [Control logic]
- [Outdoor design temperature]
- [Zone sensor selection]*2
- [DHW]
- [Flow rate & pump speed]
- [Electric booster heater use]*3

*1 Selection of zone to assign each wireless remote controller
*2 Selection of room sensors for monitoring the room temperature
*3 It cannot be reset, so be careful when you set it.


Pair wireless sensors
Begin quick start?



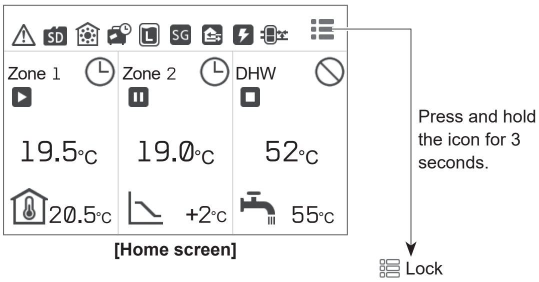
[Emitter selection]

■ Lock menu

Pressing and holding the menu icon ☰ for 3 seconds switches the lock menu to on.
(The icon changes to ☰ when the lock menu is on.)
Some functions cannot be edited in this state.

Note: You need a password to edit [Service] even when the lock menu is off.

Refer to the main controller menu tree for details of the items which cannot be edited when the lock menu is on.

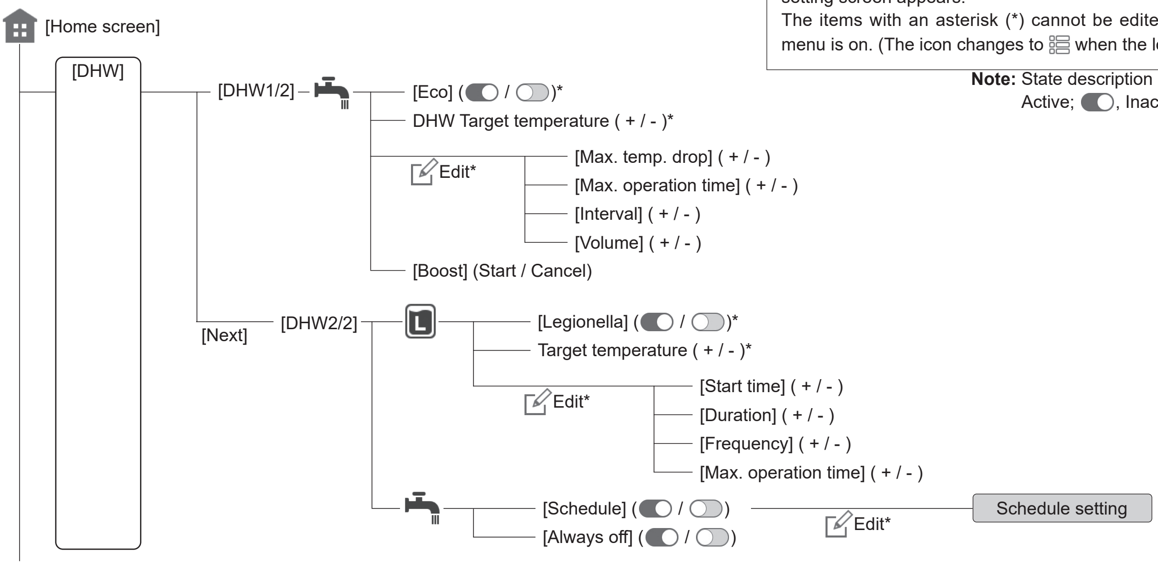


[Home screen]

<Main Controller Menu Tree>

When the system is started up for the first time, the quick start setting screen appears.
The items with an asterisk (*) cannot be edited when the lock menu is on. (The icon changes to ☰ when the lock menu is on.)

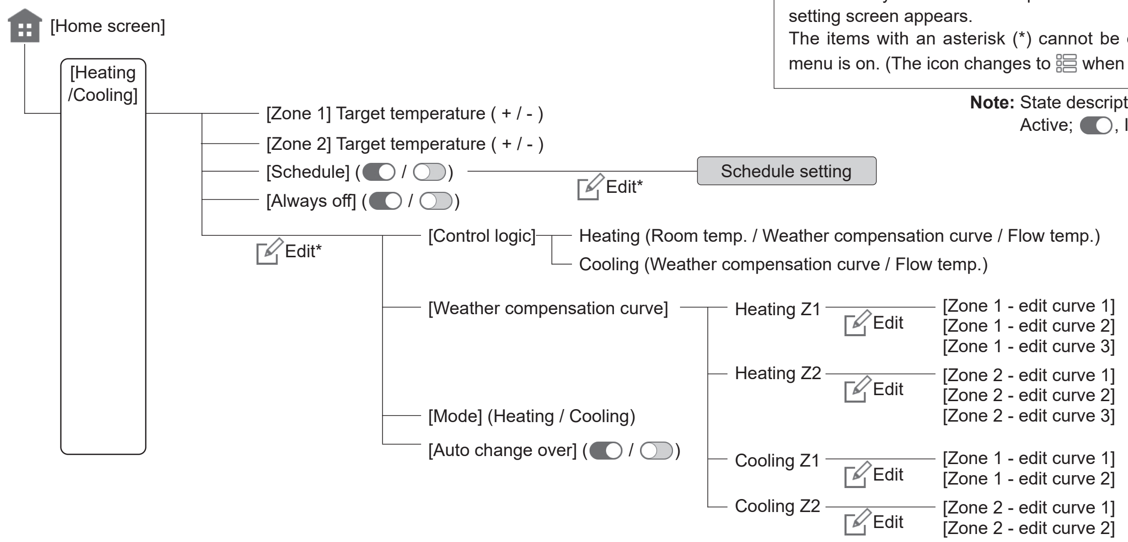
Note: State description indicated by toggle Active; ⬤, Inactive; ○

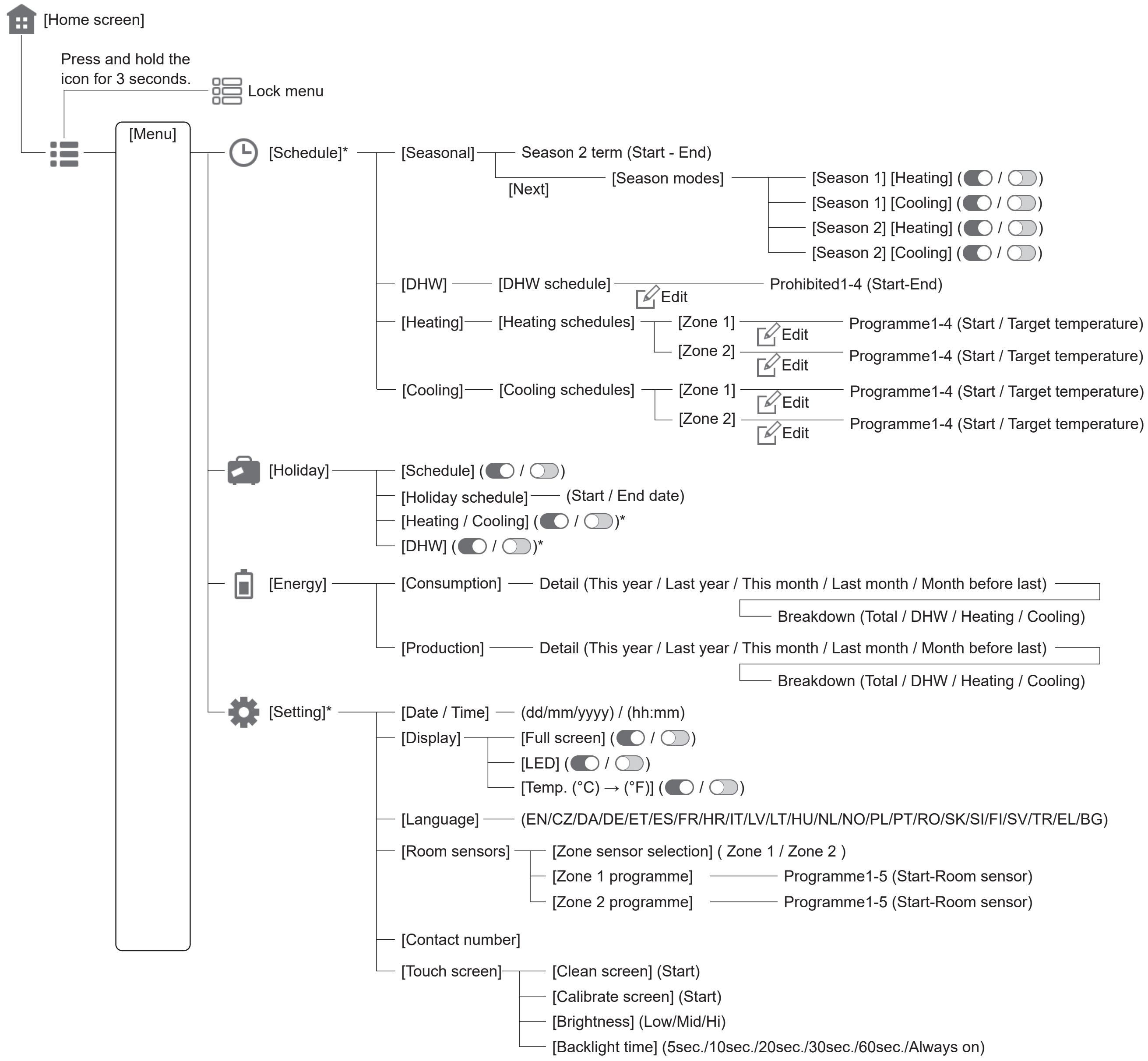


<Main Controller Menu Tree>

When the system is started up for the first time, the quick start setting screen appears.
The items with an asterisk (*) cannot be edited when the lock menu is on. (The icon changes to ☰ when the lock menu is on.)

Note: State description indicated by toggle
Active; ●, Inactive; ○





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<Main Controller Menu Tree>

When the system is started up for the first time, the quick start setting screen appears.
The items with an asterisk (*) cannot be edited when the lock menu is on. (The icon changes to ☰ when the lock menu is on.)

Note: State description indicated by toggle
Active; ●, Inactive; ○

- [Home screen]
  - [Menu]
    - [Service]*
      - [Manual operation]
      - [Function settings]
      - [Thermistor adjustment]
      - [Auxiliary settings]
        - [Economy settings for pump]
          - On/Off
          - [Delay]
        - [Electric heater (heating)]
          - On/Off
          - [Delay]
        - [Electric heater (DHW)]
          - On/Off (Booster heater/Immersion heater)
          - [Delay]
        - [Mixing valve 1 control]
          - [Running]
          - [Interval]
        - [Mixing valve 2 control]
          - [Running]
          - [Interval]
        - [Flow sensor]
          - [Minimum]
          - [Maximum]
        - [Analogue output]
          - [Priority]
          - [Interval]
        - [Electric heater schedule]
          - [Daily schedule]
          - [Time schedule 1](Always/Start-Stop/Never)
          - [Time schedule 2](Always/Start-Stop/Never)
      - [Heat source setting]
        - [Standard] (Heat pump & electric heater) / [Heater] (Electric heater only)/ [Boiler] / [Hybrid] (Heat pump & heater/Boiler)
      - [Pump speed]
      - [Heat pump settings]
        - [Heat pump flow rate range]
          - [Minimum]
          - [Maximum]
        - [Quiet mode]
          - [Heating] – [Quiet level] (Normal/Level1/Level2/Level3)
          - [Cooling] – [Quiet level] (Normal/Level1/Level2/Level3)
      - [Operation settings]
        - [Heating operation]
          - [Flow temperature range]
            - [Minimum temp.]
            - [Maximum temp.]
          - [Room temperature control]
            - [Mode]
            - [Interval]
          - [Heat pump thermo diff.]
            - On/Off
            - [Lower]
            - [Upper]
        - [Freeze stat function]
          - [Flow temp.]
          - [Ambient temp.]
        - [Simultaneous operation]
          - On/Off
          - [Ambient temp.]
        - [Cold weather function]
          - On/Off
          - [Ambient temp.]
        - [Boiler settings] *1
          - [Hybrid settings]
            - [Priority] – [Ambient] / [Cost] / [CO_2]
            - [Outdoor ambient temperature]
          - [Intelligent settings]
            - [Energy price]
              - [Electricity]
              - [Boiler]
            - [Electricity Schedule]
            - [CO_2 emission]
              - [Electricity]
              - [Boiler]
            - [Heat source]
              - [Heat pump capacity]
              - [Boiler efficiency]
              - [Booster heater 1 capacity]
              - [Booster heater 2 capacity]
        - [Smart grid ready]
          - [DHW]
            - On/Off
            - [Target temp.]
          - [Heating]
            - On/Off
            - [Target temp.]
          - [Cooling]
            - On/Off
            - [Target temp.]
          - [Pump cycles]
            - On/Off (Heating)
            - On/Off (Cooling)
            - [Interval]
        - [Floor dry up]
          - On/Off
          - [Target temperature]
            - [Start & End]
            - [Max temperature]
            - [Max temperature period]
          - [Flow temperature increase]
            - [Temperature increase step]
            - [Increase interval]
          - [Flow temperature decrease]
            - [Temperature decrease step]
            - [Decrease interval]

<Continued to next page.>

***1** For more details, refer to the installation manual of PAC-TH012HT(L)-E.

Continued from the previous page.

<Main Controller Menu Tree>

When the system is started up for the first time, the quick start setting screen appears. The items with an asterisk (*) cannot be edited when the lock menu is on. (The icon changes to ☰ when the lock menu is on.)

- Note:
  State description indicated by toggle
  Active; ●, Inactive; ○

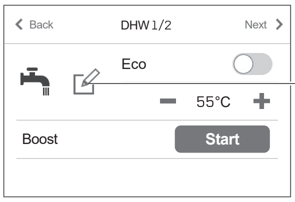
- [Home screen]
  - [Menu]
    - [Service]*
      - [Operation settings]
        - [Summer mode]
          - [Summer mode] — On/Off
          - [Ambient temperature]
            - [Heating on]
            - [Heating off]
          - [Judgement time]
            - [Heating on]
            - [Heating off]
          - [Forced heating On] — Ambient temperature
        - [Water flow control]
          - On/Off
          - Heating water temperature difference
          - Cooling water temperature difference
        - [Auto change over]
          - [Auto change over] — On/Off
          - [Ambient temperature]
            - [Heat→Cool]
            - [Cool→Heat]
          - [Judgement time]
            - [Heat→Cool]
            - [Cool→Heat]
        - [Zone prohibited]
          - Zone 1 Heating (On/Off)
          - Zone 2 Heating (On/Off)
          - Zone 1 Cooling (On/Off)
          - Zone 2 Cooling (On/Off)
        - [Holiday mode]
          - [Zone 1]
            - [Heating room temperature]
            - [Heating flow temperature]
            - [Cooling flow temperature]
          - [Zone 2]
            - [Heating room temperature]
            - [Heating flow temperature]
            - [Cooling flow temperature]
      - [Energy monitor settings]
        - [Electric heater capacity]
          - [Booster heater 1]
          - [Booster heater 2]
          - [Immersion heater]
          - [Analogue output]
        - [Water pump input]
          - [Pump 1]
          - [Pump 2]
          - [Pump 3]
          - [Pump 4]
        - [Delivered energy adjustment]
        - [Electric energy meter]
        - [Heat meter]
      - [External input settings]
        - [Demand control (IN4)] — [Off] (Heat source) / [Boiler]
        - [Outdoor thermostat (IN5)] — [Heater] / [Boiler]
        - [Cooling limit temp.(IN15)]
          - [Zone selection]
          - [Zone 1 lowest temperature]
          - [Zone 2 lowest temperature]
      - [Thermo on output] — [Zone 1] / [Zone 2] / [Zones 1&2]
      - [Commissioning wizard]
      - [Running information]
      - [Thermistor reading]
      - [Summary of settings]
      - [Error history]
      - [Password protection]
      - [Manual reset]
        - [Main remote controller] — Yes/No
        - [Flow temperature controller] — Yes/No
      - [SD card]
        - [SD → Main remote controller] — Select download data
        - [Main remote controller → SD] — Select upload data
    - Power (On/Off)

DHW (Domestic Hot Water) / Legionella Prevention

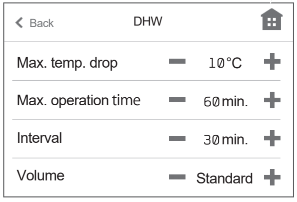
The DHW and legionella prevention menus control the operation of DHW tank heat ups.

DHW mode settings

- [DHW]: The Eco mode can be activated/deactivated by the toggle.
  The target temperature can be adjusted by +/-.
  From the edit icon, [Max. temp. drop], [Max. operation time], [Interval], and [Volume] can be set.



[DHW]



Max. temp. drop 10°C
Max. operation time 60min.
Interval 30min.
Volume Standard

[DHW]

Menu subtitle	Function	Range	Unit	Default value
DHW target temp.	Desired temperature of stored hot water	40 - 70*1	°C	50
[Max. temp. drop]	Difference in temperature between the DHW maximum temperature and the temperature at which DHW mode restarts	5 - 40*2	°C	10
[Max. operation time]	Maximum time allowed for stored water heating DHW mode	30 - 120	min.	60
[Interval]	The time period after DHW mode when space heating has priority over DHW mode temporarily preventing further stored water heating (Only when DHW max. operation time has passed.)	30 - 120	min.	30

***1 The maximum temperature differs depending on the connected outdoor unit. (60°C/65°C/70°C)**
***2 When the DHW maximum temperature is set over 55°C, the temperature at which DHW mode restarts must be less than 50°C to protect the device.**

[Eco]
DHW mode can run in either normal or Eco mode. Normal mode will heat the water in the DHW tank fast using the full power of the heat pump. Eco mode takes a little longer to heat the water in the DHW tank, but the energy used is reduced. This is because heat pump operation is restricted using signals from the FTC based on measured DHW tank temperature.

Note: The actual energy saved in Eco mode will vary according to outdoor ambient temperature.

[Volume]
Select the amount of DHW tank. If you need much hot water, select [Large].

Return to the DHW/legionella prevention menu.

Legionella prevention mode settings (LP mode)

- [Legionella]: It can be activated/deactivated by the toggle.
  The target temperature can be changed by +/-.
  From the edit icon ✎, [Start time], [Duration], [Frequency], and [Max. operation time] can be set.
- [Schedule]: It can be activated/deactivated by the toggle.
- [Always off]: It can be activated/deactivated by the toggle.

During LP mode, the temperature of the stored water is increased above 60°C to inhibit legionella bacteria growth. It is strongly recommended that this is done at regular intervals. Please check local regulations for the recommended frequency of heat ups.

Note 1: When failures occur on the hydrobox, the LP mode may not function normally.
Note 2: Even when DHW operation is prohibited, LP mode will operate.

Please note that LP mode uses the assistance of electric heaters to supplement the energy input of the heat pump. Heating water for long periods of time is not efficient and will increase running costs. The installer should give careful consideration to the necessity of legionella prevention treatment whilst not wasting energy by heating the stored water for excessive time periods. The end user should understand the importance of this feature.
ALWAYS COMPLY WITH LOCAL AND NATIONAL GUIDANCE FOR YOUR COUNTRY REGARDING LEGIONELLA PREVENTION.

Menu subtitle	Function	Range	Unit	Default value
Hot water temp.	Desired temperature of stored hot water	60 - 70	°C	65
[Start time]	Time when LP mode will begin	0:00 - 23:00	-	03:00
[Duration]	The time period after LP mode desired water temperature has been reached	1 - 120	min.	30
[Frequency]	Time between LP mode DHW tank heat up	1 - 30	day	15
[Max. operation time]	Maximum time allowed for LP mode DHW tank heat	1 - 5	h	3

[Setting]

From the menu icon ☰, access [Setting].
The following items can be edited in [Setting].

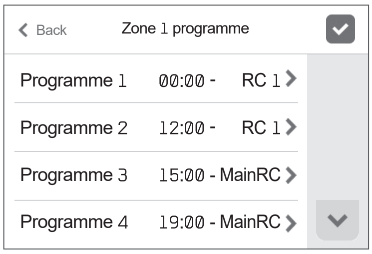
- [Date / time]
- [Display] (From [Setting], the screen can be switched to the full screen or the base screen.)
- [Language]
- [Room sensors]
- [Contact number]
- [Touch screen] ([Calibrate screen]*1, [Clean screen]*2, [Brightness], and [Backlight time])

Follow the procedure described in General Operation for the set up operation.

*1 Touching the 9 dots displayed on the screen starts calibration.
To properly calibrate the touch panel, use a pointy but not sharp object to touch the dots.
Note: A sharp object may damage or scratch the touch screen.

*2 You can wipe the screen while touch operations are invalid for 30 seconds.
Wipe with a soft dry cloth, a cloth soaked in water with mild detergent, or a cloth dampened with ethanol.
Do not use acidic, alkaline, or organic solvents.

[Room sensors]
For [Room sensors], it is important to choose the correct room sensor depending on the heating and cooling mode the system will operate in.



Programme 1 00:00 - RC 1
Programme 2 12:00 - RC 1
Programme 3 15:00 - MainRC
Programme 4 19:00 - MainRC

[Zone 1 programme]

<table>
<tr><th>Menu subtitle</th><th>Description</th></tr>
<tr><td>[Zone sensor selection]</td><td>When 2-zone temperature control is active and wireless remote controllers are available, select [Zone sensor selection] in [Room sensors] from [Setting], and then select zone No. (Zone 1/Zone 2) to assign each remote controller.</td></tr>
<tr><td>[Zone 1 programme]
[Zone 2 programme]</td><td>From [Zone 1 programme] or [Zone 2 programme], select a wireless remote controller to be used for monitoring the room temperature from Zone 1 and Zone 2 separately.
<table>
<tr><th rowspan="2">Control option *</th><th colspan="2">Corresponding initial settings room sensor</th></tr>
<tr><th>[Zone 1]</th><th>[Zone 2]</th></tr>
<tr><td>A
Zone 1 ; Auto Adaptation (Target room temperature)
Zone 2 ; Weather compensation curve or flow temperature control</td><td>RC 1~8
(Wireless remote controller)</td><td>*1</td></tr>
<tr><td>B
Zone 1 ; Auto Adaptation (Target room temperature)
Zone 2 ; Weather compensation curve or flow temperature control</td><td>TH1
(Room temperature thermistor (option))</td><td>*1</td></tr>
<tr><td>C
Zone 1 ; Auto Adaptation (Target room temperature)
Zone 2 ; Weather compensation curve or flow temperature control</td><td>[MainRC]
(Main remote controller)</td><td>*1</td></tr>
<tr><td>D
Zone 1 ; Weather compensation curve or flow temperature control
Zone 2 ; Weather compensation curve or flow temperature control</td><td>*1</td><td>*1</td></tr>
</table>
* Refer to the website manual for details.
*1. Not specified (if a locally-supplied room thermostat is used)
RC 1-8 (if a wireless remote controller is used as a room thermostat)
The wireless remote controller to be used can be changed up to 4 times within 24 hours according to the set time schedule. (Programme 1-5)</td></tr>
</table>

[Service]

The service menu provides functions to be used by installer or service engineer. It is NOT intended for the home owner to alter settings within this menu. It is for this reason password protection is required to prevent unauthorised access to the service settings.

The factory default password is “0000”.
Follow the procedure described in [Password protection] for the set up operation.

Many functions can not be set whilst the indoor unit is running. The installer should turn off the unit before trying to set these functions. If the installer attempts to change the settings whilst the unit is running, the main remote controller will display a reminder message prompting the installer to stop operation before continuing. By selecting “Yes”, the unit will cease operation.

[Manual operation]

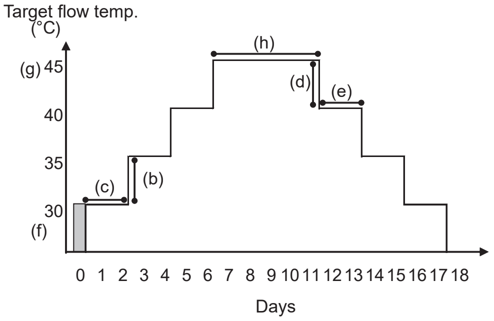
During the filling of the system, the primary circuit circulation pump, 3-way valve and mixing valve can be manually overridden using manual operation mode.
When manual operation is selected, a small timer icon appears in the screen. When selected, this function will only remain in manual operation for a maximum of 2 hours. This is to prevent accidental permanent override of the FTC.

Manual operation and heat source setting can not be selected if the system is running. A screen will be displayed asking the installer to stop the system before these modes can be activated.
The system automatically stops 2 hours after last operation.

[Floor dry up function]

The floor dry up function automatically changes the target hot water temperature in stages to gradually dry concrete when this particular type of underfloor heating system is installed.

Upon completion of the operation, the system stops all the operations except the Freeze stat. operation.
For floor dry up function, the target flow temperature of Zone 1 is the same as that of Zone 2.



- This function is not available when a PUHZ-FRP outdoor unit is connected.
- Disconnect wiring to external inputs of room thermostat, demand control, and outdoor thermostat, or the target flow temperature may not be maintained.

Functions		Symbol	Description	Option/Range	Unit	Default
[Floor dry up function]		a	Set the function to on and power on the system using the main remote controller, and the dry up heating operation will start.	on/off	—	off
[Flow temperature increase]	[Temperature increase step]	b	It sets the increase step of the target flow temperature.	+1 to +30	ºC	+5
	[Increase interval]	c	It sets the period for which the same target flow temperature is maintained.	1 to 7	day	2
[Flow temperature decrease]	[Temperature decrease step]	d	It sets the decrease step of the target flow temperature.	−1 to −30	ºC	−5
	[Decrease interval]	e	It sets the period for which the same target flow temperature is maintained.	1 to 7	day	2
[Target temperature]	[Start & End]	f	It sets the target flow temperature at the start and the finish of the operation.	20 to 60*	ºC	30
	[Max temperature]	g	It sets the maximum target flow temperature.	20 to 60*	ºC	45
	[Max temperature period]	h	It sets the period for which the maximum target flow temperature is maintained.	1 to 20	day	5

* The maximum temperature differs depending on the connected outdoor unit.

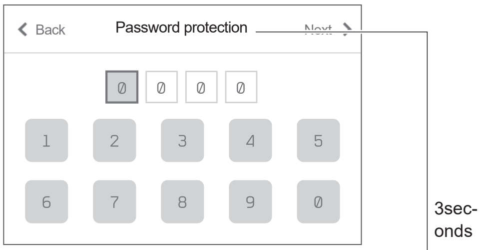
[Password protection]

Password protection is recommended to prevent unauthorised access to the service menu by untrained persons.

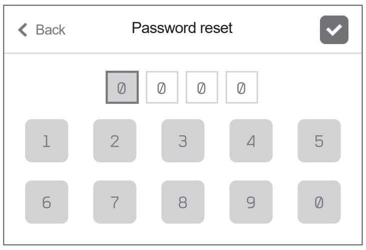
[Password reset]

If you forget the password you entered, or have to service a unit somebody else installed, you can reset and change the password.

1. From [Service] in [Menu], access the [Password protection] screen.
2. Press and hold the title section for 3 seconds to access the [Password reset] screen.
3. Enter a new password.
4. Touching [Back] or the confirm icon ✓ saves the password.



[Password protection]



[Password reset]

[Manual reset]

Should you wish to restore the factory settings at any time, you should use the manual reset function. Please note this will reset ALL functions to the factory default settings.

Energy monitor

End user can monitor accumulated*1 consumption and production energy in each operation mode*2 on the main remote controller.
*1 Monthly and Year to date
*2 - DHW operation
- Space heating
- Space cooling

Refer to “6. Remote controller” on the paper-based manual for how to check the energy, and “5.1 DIP switch functions” on the paper-based manual for the details on DIP-SW setting. Either one of the following two methods is used for monitoring.
Note: Method 1 should be used as a guide. If a certain accuracy is required, the 2nd method should be used.

	Booster heater 1	Booster heater 2	Pump 1 *4	Pump 2	Pump 3
Default	2 kW	4 kW	***(factory fitted pump)	0 kW	0 kW
EHSD-MEE	0 kW	0 kW	***	“When additional pumps supplied locally are connected as Pump 2/3, change setting according to specs of the pumps.”	
EHSD-VM2E	2 kW	0 kW	***		
EHSD-VM6E	2 kW	4 kW	***		
EHSD-YM9E	3 kW	6 kW	***		
EHSD-TM9E	3 kW	6 kW	***		
ERSD-VM2E	2 kW	0 kW	***		
ERSD-VM6E	2 kW	4 kW	***		
ERSD-YM9E	3 kW	6 kW	***		
ERSF-MEE	0 kW	0 kW	***		
ERSF-VM2E	2 kW	0 kW	***		
ERSF-VM6E	2 kW	4 kW	***		
ERSF-YM9E	3 kW	6 kW	***		
ERSF-TM9E	3 kW	6 kW	***		
ERSC-VM2E	2 kW	0 kW	***		
ERSC-MEE	0 kW	0 kW	***		
ERSC-VM6E	2 kW	4 kW	***		
ERSC-YM9E	3 kW	6 kW	***		
ERPX-ME	0 kW	0 kW	***		
ERPX-VM2E	2 kW	0 kW	***		
ERPX-VM6E	2 kW	4 kW	***		
ERPX-YM9E	3 kW	6 kW	***		

<Table 5.7.1>

Method 1. Calculation internally
Electricity consumption is calculated internally based on the energy consumption of outdoor unit, electric heater, water pump(s) and other auxiliaries. (*3)
Delivered heat is calculated internally by multiplying delta T (flow and return temperature) and flow rate measured by the factory fitted sensors.
Set the electric heater capacity and water pump(s) input according to indoor unit model and specs of additional pump(s) supplied locally. (Refer to the menu tree in “6. Remote controller” on the paper-based manual)

*3 When the indoor unit is connected with a PXZ or PUMY models, electricity consumption is not calculated internally. To display the electricity consumption, use the 2nd method.
*4 “***” displayed in the energy monitor setting mode means the factory fitted pump is connected as Pump 1 so that the input is automatically calculated.

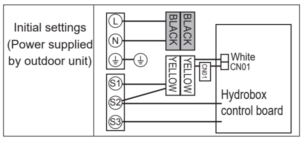
When anti-freeze solution (propylene glycol) is used for primary water circuit, set the delivered energy adjustment if necessary.
Should you need more details, refer to “6. Remote controller” on the paper-based manual.

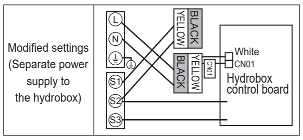
Method 2. Actual measurement by external meter (locally supplied)
FTC has external input terminals for 2 ‘Electric energy meters’ and a ‘Heat meter’.
If two ‘Electric energy meters’ are connected, the 2 recorded values will be combined at the FTC and shown on the main remote controller.
(e.g. Meter 1 for H/P power line, Meter 2 for heater power line)
Refer to the “Signal inputs” section in “5.2 Connecting inputs/outputs” on the paper-based manual for more information on connectable electric energy meter and heat meter.

5.8. Service and Maintenance

The indoor hydrobox must be serviced **once a year** by a qualified individual. Servicing and maintenance of the outdoor unit should only be done by a Mitsubishi Electric trained technician with relevant qualifications and experience. Any electrical work should be done by a tradesperson with the appropriate electrical qualifications. Any maintenance or 'DIY' fixes done by a non-accredited person could invalidate the Warranty and/or result in damage to the hydrobox and injury to the person.

■ Basic Troubleshooting

No.	Fault symptom	Possible cause	Explanation - Solution
1	Main remote controller display is blank.	1. There is no power supply to main remote controller. 2. Power is supplied to main remote controller, however, the display on the main remote controller does not appear.	1. Check LED2 on FTC. (See "5.2 Wiring diagrams".) (i) When LED2 is lit. Check for damage or contact failure of the main remote controller wiring. (ii) When LED2 is blinking. Refer to No. 5 below. (iii) When LED2 is not lit. Refer to No. 4 below. 2. Check the following: • Disconnection between the main remote controller cable and the FTC control board • Failure of the main remote controller if "Please Wait" is not displayed. • Refer to No. 2 below if "Please Wait" is displayed.
2	"Please Wait" remains displayed on the main remote controller.	1. "Please Wait" is displayed for up to 6 minutes. 2. Communication failure between the main remote controller and FTC 3. Communication failure between FTC and outdoor unit	1. Normal operation, no action necessary. 2.,3. Main remote controller start up checks/procedure (i) If "0%" or "50–99%" is displayed below "Please Wait" there is a communication error between the main remote controller and the FTC control board. • Check wiring connections on the main remote controller. • Replace the main remote controller or the FTC control board. (ii) If "1–49%" is displayed there is a communication error between the outdoor unit's and FTC's control boards. • Check the wiring connections on the outdoor unit control board and the FTC control board. (Ensure S1 and S2 are not cross-wired and S3 is securely wired with no damage. See "5.4 Field wiring".) • Replace the outdoor unit's and/or the FTC's control boards.
3	The main screen appears with a press of the "ON" button, but disappears in a second.	The main remote controller operations do not work for a while after the settings are changed in the service menu. This is because the system takes time to apply the changes.	Normal operation, no action necessary. The indoor unit is applying updated settings made in the service menu. Normal operation will start shortly.
4	LED2 on FTC is off. (See "5.2 Wiring diagrams".)	When LED1 on FTC is also off. (See "5.2 Wiring diagrams".) <FTC powered via outdoor unit.> 1. The outdoor unit is not supplied at the rated voltage. 2. Defective outdoor controller circuit board 3. FTC is not supplied with 220 to 240 V AC. 4. FTC failure 5. Faulty connector wiring	1. Check the voltage across the terminals L and N or L3 and N on the outdoor power board. (See "5.4 Field wiring".) • When the voltage is not 220 to 240 V AC, check wiring of the outdoor unit and of the breaker. • When the voltage is at 220 to 240 V AC, go to "2." below. 2. Check the voltage across the outdoor unit terminals S1 and S2. (See "5.4 Field wiring".) • When the voltage is not 220 to 240 V AC, check the fuse on the outdoor control board and check for faulty wiring. • When the voltage is 220 to 240 V AC, go to "3." below. 3. Check the voltage across the indoor unit terminals S1 and S2. (See "5.4 Field wiring".) • When the voltage is not 220 to 240 V AC, check FTC-outdoor unit wiring for faults. • When the voltage is 220 to 240 V AC, go to "4." below. 4. Check the FTC control board. • Check the fuse on FTC control board. • Check for faulty wiring. • If no problem found with the wiring, the FTC control board is faulty. 5. Check the connector wiring. • When the connectors are wired incorrectly, re-wire the connectors referring to below. (See "5.4 Field wiring".) 

No.	Fault symptom	Possible cause	Explanation - Solution
4	LED2 on FTC is off. (See "5.2 Wiring diagrams".)	<FTC powered on independent source> 1. FTC is not supplied with 220 to 240 V AC.	1. Check the voltage across the L and N terminals on the indoor power supply terminal block. (See "5.4 Field wiring".) • When the voltage is not 220 to 240 V AC, check for faulty wiring to power supply. • When the voltage is 220 to 240 V AC, go to 2. below.
		2. There are problems in the method of connecting the connectors.	2. Check for faulty wiring between the connectors. • When the connectors are wired incorrectly re-wire them correctly referring to below. (See "5.4 Field wiring". and a wiring diagram on the control and electrical box cover.)  • If no problem found with the wiring, go to 3. below.
		3. FTC failure	3. Check the FTC control board. • Check the fuse on FTC control board. • Check for faulty wiring. • If no problem found with the wiring, the FTC control board is faulty.
		When LED1 on FTC is lit. Incorrect setting of refrigerant address for outdoor unit (None of the refrigerant address is set to "0".)	Recheck the refrigerant address setting on the outdoor unit. Set the refrigerant address to “0”. (Set refrigerant address using SW1(3–6) on outdoor controller circuit board.)
5	LED2 on FTC is blinking. (See "5.2 Wiring diagrams".)	When LED1 is also blinking on FTC . Faulty wiring between FTC and outdoor unit	Check for faulty wiring between FTC and outdoor unit.
		When LED1 on FTC is lit. 1. Faulty wiring in main remote controller Multiple indoor units have been wired to a single outdoor unit. 2. Short-circuited wiring in main remote controller 3. Main remote controller failure	1. Check for faulty wiring in main remote controller. The number of indoor units that can be wired to a single outdoor unit is one. Additional indoor units must be wired individually to a single outdoor unit. 2.,3. Remove main remote controller wires and check LED2 on FTC. (See Figure 5.4.7) • If LED2 is blinking check for short circuits in the main remote controller wiring. • If LED2 is lit, wire the main remote controller again and: - if LED2 is blinking, the main remote controller is faulty; - if LED2 is lit, faulty wiring of the main remote controller has been corrected.
6	LED4 on FTC is off. (See "5.2 Wiring diagrams".)	1. SD memory card is NOT inserted into the memory card slot with correct orientation. 2. Not an SD standards compliant memory card	1. Correctly insert SD memory card in place until a click is heard. 2. Use an SD standards compliant memory card. (Refer to "5.4.7 Using micro SD memory card".)
	LED4 on FTC is blinking. (See "5.2 Wiring diagrams".)	1. Full of data 2. Write-protected 3. NOT formatted 4. Formatted in NTFS file system	1. Move or delete data, or replace SD memory card with a new one. 2. Release the write-protect switch. 3. Refer to "5.4.7 Using micro SD memory card". 4. FTC is Not compatible with NTFS file system. Use an micro SD memory card formatted in FAT file system.
7	No water at hot tap.	1. Cold main off 2. Strainer (local supply) blocked	1. Check and open stop cock. 2. Isolate water supply and clean strainer.
8	Cold water at tap.	1. Hot water run out.	1. Ensure DHW mode is operating and wait for DHW tank to re-heat.
		2. Prohibit, schedule timer or holiday mode selected or demand control input (IN4) or smart grid ready (switch-off command).	2. Check settings and change as appropriate.
		3. Heat pump not working	3. Check heat pump – consult outdoor unit service manual.
		4. Booster heater cut-out tripped.	4. Check booster heater thermostat and press reset button if safe. Reset button is located on the side of booster heater, covered with white rubber cap. See "5.5.1 Component parts" to find out its position.
		5. The earth leakage circuit breaker for booster heater breaker (ECB1) tripped.	5. Check the cause and reset if safe.
		6. The booster heater thermal cut-out has tripped and cannot be reset using the manual reset button.	6. Check resistance across the thermal cut-out, if open then the connection is broken and the booster heater will have to be replaced. Contact your Mitsubishi Electric dealer.
		7. Immersion heater cut-out tripped.	7. Check immersion heater thermostat and press reset button, located on immersion heater boss, if safe. If the heater has been operated with no water inside it may have failed, so please replace it with a new one.
		8. Immersion heater breaker (ECB2) tripped.	8. Check the cause and reset if safe.
		9. 3-way valve fault	9. Check plumbing/wiring to 3-way valve. (i) Manually override 3-way valve using the main remote controller. (Refer to <Manual operation> in section "5.7 System setup".) If the valve does not still function, go to (ii) below. (ii) Replace 3-way valve.

No.	Fault symptom	Possible cause	Explanation - Solution
9	Water heating takes longer.	1. Heat pump not working 2. Booster heater cut-out tripped. 3. Booster heater breaker (ECB1) tripped. 4. The booster heater thermal cut-out has tripped and cannot be reset using the manual reset button. 5. Immersion heater cut-out has been triggered. 6. Immersion heater breaker (ECB2) tripped.	1. Check heat pump – consult outdoor unit service manual. 2. Check booster heater thermostat and press reset button if safe. Reset button is located on the side of booster heater, covered with white rubber cap. See "5.5.1 Component parts" to find out its position. 3. Check the cause and reset if safe. 4. Check resistance across the thermal cut-out, if open then connection is broken and the booster heater will have to be replaced. Contact your Mitsubishi Electric dealer. 5. Check immersion heater thermostat and press reset button if safe. If the heater kept running with no water inside, this may have resulted in failure, so replace it with a new one. 6. Check the cause and reset if safe.
10	Temperature of DHW tank water dropped.	When DHW operation is not running, the DHW tank emits heat and the water temperature decreases to a certain level. If water in the DHW tank is reheated frequently because of a significant drop in water temperature, check for the following. 1. Water leakage in the pipes that connect to the DHW tank 2. Insulation material coming loose or off 3. 3-way valve failure	1. Take the following measures. • Retighten the nuts holding the pipes onto the DHW tank. • Replace seal materials. • Replace the pipes. 2. Fix insulation. 3. Check plumbing/wiring to 3-way valve. (i) Manually override 3-way valve using the main remote controller. (Refer to <Manual operation> in "5.7 System setup".) If the valve does not still function, go to (ii) below. (ii) Replace 3-way valve.
11	Hot or warm water from cold tap.	Heat of hot water pipe is transferred to cold water pipe.	Insulate/re-route pipework.
12	Water leakage	1. Poorly sealed connections of water circuit components 2. Water circuit components reaching the end of life	1. Tighten connections as required. 2. Refer to PARTS CATALOG in the service manual for expected part lifetimes and replace them as necessary.
13	Heating system does not reach the set higher temperature.	1. Prohibit, schedule timer or holiday mode selected or demand control input (IN4) or smart grid ready (switch-off command). 2. Check settings and change as appropriate. 3. The temperature sensor is located in a room that has a different temperature relative to that of the rest of the house. 4. Heat pump not working 5. Booster heater cut-out tripped. 6. Booster heater breaker (ECB1) tripped. 7. The booster heater thermal cut-out tripped and cannot be reset using the manual reset button. 8. Incorrectly sized heat emitter 9. 3-way valve failure 10. Battery problem (*wireless control only) 11. If a mixing tank is installed, the flow rate between the mixing tank and the hydrobox is less than that between the mixing tank and the local system.	1. Check settings and change as appropriate. 2. Check the battery power and replace if flat. 3. Relocate the temperature sensor to a more suitable room. 4. Check heat pump – consult outdoor unit service manual. 5. Check booster heater thermostat and press reset button if safe. Reset button is located on the side of booster heater, covered with white rubber cap. (See "5.5.1 Component parts" for position.) 6. Check the cause of the trip and reset if safe. 7. Check resistance across the thermal cut-out, if open then the connection is broken and the booster heater will have to be replaced. Contact your Mitsubishi Electric dealer. 8. Check the heat emitter surface area is adequate Increase size if necessary. 9. Check plumbing/wiring to 3-way valve. 10. Check the battery power and replace if flat. 11. Increase the flow rate between the mixing tank and the hydrobox or decrease that between the mixing tank and the local system.
14	Heating system does not reach the set lower temperature.	The heating system operates according to the heating pressure to prevent the low pressure system from frequent switching (ON/OFF) of the compressor.	Normal operation, no action necessary.

No.	Fault symptom	Possible cause	Explanation - Solution
15	In 2-zone temperature control, only Zone2 does not reach the set temperature.	1. When Zone1 and Zone2 are both in heating mode, the hot water temperature in Zone2 does not exceed that in Zone1. 2. Faulty wiring of motorized mixing valve 3. Faulty installation of motorized mixing valve 4. Incorrect setting of Running time 5. Motorized mixing valve failure	1. Normal operation, no action necessary. 2. Refer to "5.4.3 Wiring for 2-zone temperature control" in installation manual. 3. Check for correct installation. (Refer to the manual included with each motorized mixing valve.) 4. Check for correct setting of Running time. 5. Inspect the mixing valve. (Refer to the manual included with each motorized mixing valve.)
16	When a PUHZ-FRP outdoor unit is connected, DHW or Heating operation cannot run.	The outdoor unit is set to have operation of the indoor unit of air conditioner take precedence over that of the hydrobox, and in the main remote controller settings "Electric heater (Heating)" or "Electric heater (DHW)" is turned off.	Turn ON Electric heater (Heating) or Electric heater (DHW) using the main remote controller.
17	When a PUHZ-FRP outdoor unit is connected and is in heat recovery operation, the set temperature is not reached.	When the outdoor unit is set to have cooling operation of the indoor unit of air conditioner take precedence over that of the hydrobox, the outdoor unit controls the frequency of the compressor according to the load of air conditioner. The DHW and heating run according to that frequency.	Normal operation, no action necessary. If Air-to-Water system is given priority in operation, comp Hz can be regulated depending on the load of DHW or Heating. For more details, refer to the PUHZ-FRP installation manual.
18	After DHW operation room temperature rises slightly.	At the end of the DHW mode operation the 3-way valve diverts hot water away from the DHW circuit into space heating circuit. This is done to prevent the hydrobox components from overheating. The amount of hot water directed into the space heating circuit varies according to the type of the system and of the pipe run between the plate heat exchanger and the hydrobox.	Normal operation, no action necessary.
19	The room temperature rises during DHW operation.	3-way valve failure	Check the 3-way valve.
20	Water discharges from pressure relief valve. (Primary circuit)	1. If continual – pressure relief valve may be damaged. 2. If intermittent – expansion vessel charge may have reduced/bladder perished.	1. Turn the handle on the pressure relief valve to check for foreign objects in it. If the problem is not still solved, replace the pressure relief valve with a new one. 2. Check pressure in expansion vessel. Recharge to 1 bar if necessary. If bladder perished, replace expansion vessel with a new one.
21	Water discharges from pressure relief valve (field supplied item). (Sanitary circuit)	1. If continual – field supplied pressure reducing valve not working. 2. If continual – pressure relief valve seat may be damaged. 3. If intermittent – expansion vessel charge may have reduced/bladder perished. 4. DHW tank may have subjected to backflow.	1. Check function of pressure reducing valve and replace if necessary. 2. Turn the handle on the pressure relief valve to check for foreign objects inside. If the problem is not still solved, replace the pressure relief valve. 3. Check gas-side pressure in expansion vessel. Recharge to correct precharge pressure if necessary. If bladder perished, replace expansion vessel with a new one with appropriate pre-charge. 4. Check the pressure in DHW tank. If pressure in DHW tank is similar to that in the incoming mains, cold water supply that merges with incoming mains water supply could flow back to DHW tank. Investigate source of back-feed and rectify error in pipework/fitting configuration. Adjust pressure in cold supply.
22	Noisy water circulation pump	Air in water circulation pump	Use manual and automatic air vents to remove air from system. Top up water if necessary to achieve 1 bar on primary circuit.
23	Noise during hot water draw off typically worse in the morning.	1. Loose airing cupboard pipework 2. Heaters switching on/off	1. Install extra pipe fastening clips. 2. Normal operation, no action necessary.
24	Mechanical noise heard coming from the hydrobox.	1. Heaters switching on/off 2. 3-way valve changing position between DHW and heating mode	Normal operation, no action necessary.
25	Water circulation pump runs for a short time unexpectedly .	Water circulation pump jam prevention mechanism (routine) to inhibit the build-up of scale	Normal operation, no action necessary.
26	Milky/Cloudy water (Sanitary circuit)	Oxygenated water	Water from any pressurised system will release oxygen bubbles when water is running. The bubbles will settle out.
27	Heating mode has been on standby for a long time (does not start operation smoothly.)	The time of “Delay” set in “Economy settings for pump” is too short. (Go to “Service menu” → “Auxiliary settings” → “Economy settings for pump”).	Increase the time of “Delay” in “Economy settings for pump” .

<table>
<tr><th>No.</th><th>Fault symptom</th><th>Possible cause</th><th>Explanation - Solution</th></tr>
<tr><td>28</td><td>The hydrobox that was running in the heating mode before power failure is running in the DHW mode after power recovery.</td><td>The hydrobox is designed to run in an operation mode with a higher priority (i.e. DHW mode in this case) at power recovery.</td><td>• Normal operation, no action necessary.
• After the DHW max. operation time has elapsed or the DHW max. temperature has been reached, the DHW mode switches to the other mode (ex. Heating mode).</td></tr>
<tr><td>29</td><td>Cooling mode is NOT available.</td><td>DIP SW2-4 is OFF.</td><td>Turn DIP SW2-4 to ON. (Refer to “5.3 DIP switch functions”.)</td></tr>
<tr><td>30</td><td>The cooling system does not cool down to the set temperature.</td><td>1. When the water in the circulation circuit is unduly hot, Cooling mode starts with a delay for the protection of the outdoor unit.
2. When the outdoor ambient temperature is lower than the preset temperature that activates the freeze stat. function, Cooling mode does not start running.</td><td>1. Normal operation, no action necessary.
2. To run Cooling mode overriding the freeze stat. function, adjust the preset temperature that activates the freeze stat. function.
(Refer to <Freeze stat function> in “5.7 System setup”.)</td></tr>
<tr><td>31</td><td>The electric heaters are activated shortly after DHW or LP mode starts running after Cooling mode.</td><td>The setting time period of Heat-pump-only operation is short.</td><td>Adjust the setting time period of Heat-pump only operation. (Refer to <Electric heater (DHW)> in “5.7 System setup”.)</td></tr>
<tr><td>32</td><td>During DHW or LP mode following the cooling mode, error L6 (circulation water freeze protection error) occurs and the system stops all the operations.</td><td>The unit runs in Cooling mode when the outdoor ambient temperature is lower than 10ºC (outside of the guaranteed operating range).
(When defrosting operation is running at such a low outdoor ambient temperature after Cooling mode is switched to DHW or LP mode, the water temperature in the cooling circuit drops too low, which could result in L6 error to stop all the operations.</td><td>Do not run Cooling operation when the outdoor ambient temperature is lower than 10ºC.
To automatically stop or recover only Cooling operation and keep other operations running, the freeze stat. function can be used. Set the preset temperature that activates the freeze stat. function to adjust the outdoor ambient temperature as follows. (Refer to <Freeze stat function> in “5.7 System setup”.)
<table>
<tr><th>Outdoor ambient temperature</th><th>Cooling operation</th></tr>
<tr><td>3ºC higher than the preset temperature</td><td>Stop</td></tr>
<tr><td>5ºC higher than the preset temperature</td><td>Recover</td></tr>
</table></td></tr>
<tr><td>33</td><td>The energy monitor value seems not correct.
Note:
There could be some discrepancies between the actual and the calculated values.
If you seek for accuracy, please make sure to connect power meter(s) and heat meter to FTC board. Both should be locally supplied.</td><td>1. Incorrect setting of the energy monitor
2. Non-connectable type of external meter (local supply) is connected.
3. External meter (local supply) failure
4. FTC board failure</td><td>1. Check the setting by following the procedure below.
(1) Check if the DIP switch is set as the table below.
Consumed electric energy
<table>
<tr><th>SW3-4</th><th>Electric energy meter (Local supply)</th></tr>
<tr><td>OFF</td><td>Without</td></tr>
<tr><td>ON</td><td>With</td></tr>
</table>
Delivered heat energy
<table>
<tr><th>SW3-8</th><th>Heat meter (Local supply)</th></tr>
<tr><td>OFF</td><td>Without</td></tr>
<tr><td>ON</td><td>With</td></tr>
</table>
(2) In the case external electric energy meter and/or heat meter is not used, check if the setting for electric heater and water pump(s) input is correct by referring to <Energy monitor setting> in “5.7 System setup”.
(3) In the case external electric energy meter and/or heat meter is used, check if the unit of output pulse on external meter matches with the one set at the main remote controller by referring to <Energy monitor setting> in “5.7 System setup”.
2. Check if the external meter (local supply) is connectable type by referring to <Energy monitor setting> in “5.7 System setup”.
3. Check if signal is sent to IN8 to IN10 properly. (Refer to “5.2 Wiring diagrams”.)
Replace the external heat meter if defective.
4. Check the FTC control board.
• Check for faulty wiring.
• If no problem found with the wiring, the FTC control board is faulty. Replace the board.</td></tr>
<tr><td>34</td><td>Heat pump is forced to turn ON and OFF.</td><td>Smart grid ready input (IN11 and IN12) is used, and switch-on and off commands are input.</td><td>Normal operation, no action necessary.</td></tr>
</table>

Annual Maintenance

It is essential that the hydrobox is serviced at least once a year by a qualified individual any spare parts required MUST be purchased from Mitsubishi Electric (safety matter).
NEVER bypass safety devices or operate the unit without them being fully operational.

<Annual maintenance points>
Use the Annual Maintenance Log Book as a guide to carrying out the necessary checks on the indoor and outdoor unit.

■ Error Codes

Code	Error	Action
L3	Circulation water temperature overheat protection	Flow rate may be reduced. Check for; • Water leakage • Magnetic filter / Strainer blockage • Water circulation pump function (Error code may display during filling of primary circuit, complete filling and reset error code.)
L4	DHW tank water temperature overheat protection	Check the immersion heater and it's contactor.
L5	Indoor unit temperature thermistor (THW1, THW2, THW5A, THW5B, THW6, THW7, THW8, THW9) failure	Check resistance across the thermistor.
L6	Circulation water freeze protection	See Action for L3.
L8	Heating operation error	Check and re-attach any thermistors that may have become dislodged.
L9	Low primary circuit flow rate detected by flow sensor or flow switch (flow switches 1, 2, 3)	See Action for L3. If the flow sensor or flow switch itself does not work, replace it. **Caution: The pump valves may be hot, please take care.**
LA	Pressure sensor failure	Check pressure sensor cable for damage or loose connections.
LB	High pressure protection	• Flow rate of the heating circuit may be reduced. Check water circuit. • Plate heat exchanger may be clogged. Check the plate heat exchanger. • Outdoor unit failure. Check refrigerant volume, valve, LEV coil and pipe crushing of outdoor unit.
LC	Boiler circulation water temperature overheat protection	Check if the setting temperature of the Boiler for heating exceeds the restriction. (See the manual of the thermistors "PAC-TH012HT(L)-E")
		Flow rate of the heating circuit from the boiler may be reduced. Check for • Water leakage • Magnetic filter / Strainer blockage • Water circulation pump function.
LD	Thermistor (Boiler flow water temp.) (THWB1) failure	Check resistance across the thermistor.
LE	Boiler operation error	See Action for L8. Check the status of the boiler.
LF	Flow sensor failure	Check flow sensor cable for damage or loose connections.
LH	Boiler circulation water freeze protection	Flow rate of the heating circuit from the boiler may be reduced. Check for • Water leakage • Magnetic filter / Strainer blockage • Water circulation pump function.
LJ	DHW operation error (type of external plate HEX)	• Check for disconnection of the thermistor (DHW tank lower water temp.) (THW5B). • Flow rate may be reduced. Check for water circulation pump function. (primary / sanitary)
LL	Setting errors of DIP switches on FTC control board	For boiler operation, check that DIP SW1-1 is set to ON (With Boiler) and DIP SW2-6 is set to ON (With Mixing Tank). For 2-zone temperature control, check DIP SW2-7 is set to ON (2-zone) and DIP SW2-6 is set to ON (With Mixing Tank).
LP	Out of water flow rate range for outdoor heat pump unit	Check the installation the water flow rate range. (See Table 4.6.3 for Cylinder unit, Table 5.6.3 for Hydrobox.) Check remote controller settings ([Service] → [Heat pump settings] → [Heat pump flow rate range]) See Action for L3.
P1	Thermistor (Room temp.) (TH1) failure	Check resistance across the thermistor.
P2	Thermistor (Ref. liquid temp.) (TH2) failure	Check resistance across the thermistor.
P6	Anti-freeze protection of plate heat exchanger	See Action for L3. Check for correct amount of refrigerant.
J0	Communication failure between FTC and wireless receiver	Check connection cable for damage or loose connections.
J1 - J8	Communication failure between wireless receiver and wireless remote controller	Check wireless remote controller's battery is not flat. Check the pairing between wireless receiver to wireless remote controller. Test the wireless communication. (See the manual of wireless system)
E0 - E5	Communication failure between main remote controller and FTC	Check connection cable for damage or loose connections.
E6 - EF	Communication failure between FTC and outdoor unit	Check that the outdoor unit has not been turned off. Check connection cable for damage or loose connections. Refer to outdoor unit service manual.
E9	Outdoor unit receives no signal from indoor unit.	Check both units are switched on. Check connection cable for damage or loose connections. Refer to outdoor unit service manual.
EE	Combination error between FTC and outdoor unit	Check combination of FTC and outdoor unit.
U*, F*	Outdoor unit failure	Refer to outdoor unit service manual.
A*	M-NET communication error	Refer to outdoor unit service manual.

Note: To cancel error codes, please switch system off (Touch [Reset] on main remote controller).

Engineers Forms

Should settings be changed from default, please enter and record new setting in ‘Commissioning/Field settings record sheet’ below. This will ease resetting in the future should the system use change or the circuit board need to be replaced.

Commissioning/Field settings record sheet

Main remote controller screen				Parameters	Default setting	Field setting	Notes
DHW	DHW *4		Eco	On/Off *5	Off		
			Boost	On/Off	—		
			DHW max. temp.	40°C to 55/60/65/70°C *6	50°C		
			Max. temp. drop	5°C to 40°C	10°C		
			Max. operation time	30 to 120 min.	60 min.		
			Interval	30 to 120 min.	30 min.		
			Volume	Large / Standard	Standard *7		
			Schedule	On/Off	Off		
			Always off	On/Off	Off		
	Legionella prevention *4		Legionella	On/Off	On		
			Hot water temp.	60°C to 70°C *6	65°C		
			Start time	00:00 to 23:00	03:00		
			Duration	1 to 120 min.	30 min.		
			Frequency	1 to 30 days	15 days		
			Max. operation time	1 to 5 h	3 h		
Heating / Cooling *3	Heating / Cooling		Zone 1 heating room temp.	10°C to 30°C	20°C		
			Zone 2 heating room temp. *1	10°C to 30°C	20°C		
			Zone 1 heating flow temp.	20°C to 60/70/75°C	45°C		
			Zone 2 heating flow temp. *2	20°C to 60/70/75°C	35°C		
			Zone 1 cooling flow temp. *3	5°C to 25°C	15°C		
			Zone 2 cooling flow temp. *3	5°C to 25°C	20°C		
			Zone 1 heating weather compensation curve	−9°C to +9°C	0°C		
			Zone 2 heating weather compensation curve *2	−9°C to +9°C	0°C		
			Zone 1 cooling weather compensation curve	−9°C to +9°C	0°C		
			Zone 2 cooling weather compensation curve *2	−9°C to +9°C	0°C		
			Schedule	On/Off	Off		
			Always off	On/Off	Off		
			Heating / Cooling	Heating / Cooling	Heating		
			Zone 1 control logic	Heating room temp./ Heating flow temp./ Heating weather compensation curve / Cooling flow temp./ Cooling weather compensation curve	Heating weather compensation curve		
			Zone 2 control logic *2	Heating room temp./ Heating flow temp./ Heating weather compensation curve / Cooling flow temp./ Cooling weather compensation curve	Heating weather compensation curve		
			Auto change over	On/Off	Off		
	Weather compensation curve (Heating)	Hi flow temp. set point	Zone 1 outdoor ambient temp.	−30°C to +33°C *8	−15°C		
			Zone 1 flow temp.	20°C to 60/70/75°C	50°C		
			Zone 2 outdoor ambient temp. *2	−30°C to +33°C *8	−15°C		
			Zone 2 flow temp. *2	20°C to 60/70/75°C	40°C		
		Lo flow temp. set point	Zone 1 outdoor ambient temp.	−28°C to +35°C *9	20°C		
			Zone 1 flow temp.	20°C to 60/70/75°C	25°C		
			Zone 2 outdoor ambient temp. *2	−28°C to +35°C *9	20°C		
			Zone 2 flow temp. *2	20°C to 60/70/75°C	25°C		
		Adjust	Zone 1 outdoor ambient temp.	−29°C to +34°C *10	—		
			Zone 1 flow temp.	20°C to 60/70/75°C	—		
			Zone 2 outdoor ambient temp. *2	−29°C to +34°C *10	—		
			Zone 2 flow temp. *2	20°C to 60/70/75°C	—		
	Weather compensation curve (Cooling)	Hi flow temp. set point	Zone 1 outdoor ambient temp.	10°C to 46°C	35°C		
			Zone 1 flow temp.	5°C to 25°C	15°C		
			Zone 2 outdoor ambient temp. *2	10°C to 46°C	35°C		
			Zone 2 flow temp. *2	5°C to 25°C	20°C		
		Lo flow temp. set point	Zone 1 outdoor ambient temp.	10°C to 46°C	25°C		
			Zone 1 flow temp.	5°C to 25°C	25°C		
			Zone 2 outdoor ambient temp. *2	10°C to 46°C	25°C		
			Zone 2 flow temp. *2	5°C to 25°C	25°C		
Menu	Energy		Energy monitor	Consumed electrical energy/Delivered energy	—		
	Holiday		Schedule	On/Off/Set time	—		
			DHW *4	On/Off	Off		
			Heating / Cooling *3	On/Off	On		
	Setting	Language	EN/CZ/DA/DE/ET/ES/FR/HR/IT/LV/LT/HU/NL/NO/PL/PT/RO/SK/SI/FI/SV/TR/EL/BG		EN		
		Room sensors	Zone sensor selection *2	Zone 1/Zone 2	Zone 1		
			Zone 1 programme	TH1/Main RC/Room RC1-8/“Time/Zone”	TH1		
			Zone 2 programme *2	TH1/Main RC/Room RC1-8/“Time/Zone”	TH1		
		Display	Temp. (°C) → (°F)	On/Off	Off		
		Touch screen	Clean screen	On/Off	Off		
			Calibrate screen	On/Off	Off		
			Brightness	Low / Mid / Hi	Mid		
			Backlight time	5sec./10sec./20sec./30sec./60sec./Always on	30sec.		

Continued to next page.

■ Engineers Forms

Commissioning/Field settings record sheet

Main remote controller screen					Parameters			Default setting	Field setting	Notes
Menu	Service	Thermistor adjustment		THW1	−10°C to +10°C			0°C		
				THW2	−10°C to +10°C			0°C		
				THW5B	−10°C to +10°C			0°C		
				THW6	−10°C to +10°C			0°C		
				THW7	−10°C to +10°C			0°C		
				THW8	−10°C to +10°C			0°C		
				THW9	−10°C to +10°C			0°C		
				THW10	−10°C to +10°C			0°C		
				THWB1	−10°C to +10°C			0°C		
		Auxiliary settings		Economy settings for pump.	On/Off *11			On		
					Delay (3 to 60 min.)			10 min.		
				Electric heater (heating)	Space heating: On (used)/Off (not used)			On		
					Electric heater delay timer (5 to 180 min.)			30 min.		
				Electric heater (DHW) *4	Booster heater	DHW: On (used)/Off (not used)		On		
					Immersion heater	DHW: On (used)/Off (not used)		On		
					Electric heater delay timer (15 to 30 min.)			15 min.		
				Mixing valve 1 control	Running (10 to 240 sec.)			120 sec.		
					Interval (1 to 30 min.)			2 min.		
				Mixing valve 2 control	Running (10 to 240 sec.)			120 sec.		
					Interval (1 to 30 min.)			2 min.		
				Flow sensor *12	Minimum (0 to 100 L/min)			5 L/min		
					Maximum (0 to 100 L/min)			100 L/min		
				Analogue output	Interval (1 to 30 min.)			5 min.		
					Priority (Normal / High)			Normal		
				Electric heater schedule *19	Daily schedule (Schedule 1/Schedule 2)			Shedule 1		
					Time schedule 1 (Always/Start-Stop/Never)			Always		
					Time schedule 2 (Always/Start-Stop/Never)			Always		
		Pump speed		DHW	Pump speed (1 to 5)			5		
				Heating / Cooling	Pump speed (1 to 5)			5		
		Heat source setting			Standard / Heater / Boiler / Hybrid *13			Standard		
		Heat pump settings		Heat pump flow rate range		Minimum (0 to 100 L/min)		5 L/min		
						Maximum (0 to 100 L/min)		100 L/min		
				Quiet mode *21	Heating	Day (Mon to Sun)		—		
						Time		0:00 to 23:45		
						Quiet level (Normal/ Level1/ Level2/ Level3)		Normal		
					Cooling	Day (Mon to Sun)		—		
						Time		0:00 to 23:45		
						Quiet level (Normal/ Level1/ Level2/ Level3)		Normal		
		Operation settings	Heating operation	Flow temperature range *14	Minimum temp. (20 to 45°C)			30°C		
					Maximum temp. (35 to 60/70/75°C)			50°C		
				Room temperature control *14	Mode (Auto/Quick/Normal/Slow)			Auto		
					Interval (10 to 60 min.)*15			10 min.		
				Heat pump thermo diff.	On/Off *11			On		
					Lower (−9 to −1°C)			−5°C		
					Upper (+3 to +5°C)			5°C		
			Freeze stat function *16		Ambient temp. (3 to 20°C) / **			5°C		
			Simultaneous operation (DHW/ Heating)		On/Off *11			Off		
					Ambient temp. (−30 to +10°C) *8			−15°C		
			Cold weather function		On/Off *11			Off		
					Ambient temp. (−30 to −10°C) *8			−15°C		
			Boiler settings		Hybrid settings	Outdoor ambient temp. (−30 to +10°C) *8		−15°C		
						Priority mode (Ambient/Cost/CO$_2$) *17		Ambient		
						Outdoor ambient temp. rise (+1 to +5°C)		+3°C		
					Intelligent settings	Energy price *18	Electricity (0.001 to 999 */kWh)	0.5 */kWh		
							Boiler (0.001 to 999 */kWh)	0.5 */kWh		
						CO$_2$ emission	Electricity (0.001 to 999 kg -CO$_2$/kWh)	0.5 kg -CO$_2$/ kWh		
							Boiler (0.001 to 999 kg -CO$_2$/kWh)	0.5 kg -CO$_2$/ kWh		
						Heat source	Heat pump capacity (1 to 40 kW)	11.2 kW		
							Boiler efficiency (25 to 150%)	80%		
							Booster heater 1 capacity (0 to 30 kW)	2 kW		
							Booster heater 2 capacity (0 to 30 kW)	4 kW		

Continued to next page.

■ Engineers Forms

Commissioning/Field settings record sheet (continued from the previous page)

Main remote controller screen					Parameters		Default setting	Field setting	Notes
Menu	Service	Operation settings	Smart grid ready	DHW	On/Off		Off		
					Target temp. (+1 to +30°C) / -- (Non active)		--		
				Heating	On/Off		Off		
					Target temp.	Switch-on recommendation (20 to 60/70/75°C)	50°C		
						Switch-on command (20 to 60/70/75°C)	55°C		
				Cooling	On/Off		Off		
					Target temp.	Switch-on recommendation (5 to 25°C)	15°C		
						Switch-on command (5 to 25°C)	10°C		
				Pump cycles	Heating (On/Off)		On		
					Cooling (On/Off)		On		
					Interval (10 to 120 min.)		10 min.		
			Floor dry up		On/Off *11		Off		
					Target temperature	Start & End (20 to 60/70/75°C)	30°C		
						Max temperature (20 to 60/70/75°C)	45°C		
						Max temperature period (1 to 20 days)	5 days		
					Flow temperature increase	Temperature increase step (+1 to +30°C)	+5°C		
						Increase interval (1 to 7 days)	2 days		
					Flow temperature decrease	Temperature decrease step (-1 to -30°C)	−5°C		
						Decrease interval (1 to 7 days)	2 days		
			Summer mode		On/Off		Off		
					Ambient temperature	Heating on (4 to 19°C)	10°C		
						Heating off (5 to 20°C)	15°C		
					Judgement time	Heating on (1 to 48 h)	6 h		
						Heating off (1 to 48 h)	6 h		
					Forced heating On (-30 to 10°C)		5°C		
			Auto change over		On/Off		Off		
					Ambient temperature	Heat→Cool (10 to 40°C)	28°C		
						Cool→Heat (5 to 20°C)	15°C		
					Judgement time	Heat→Cool (1 to 48 h)	6 h		
						Cool→Heat (1 to 48 h)	6 h		
			Water flow control		On/Off		Off		
					Water temperature difference *20	Heating (+3 to +20°C)	+5°C		
						Cooling (+3 to +10°C)	+5°C		
			Holiday mode		Zone 1 heating room temp.	10°C to 30°C	15°C		
					Zone 2 heating room temp. *1	10°C to 30°C	15°C		
					Zone 1 heating flow temp.	20°C to 60/70/75°C	35°C		
					Zone 2 heating flow temp. *2	20°C to 60/70/75°C	25°C		
					Zone 1 cooling flow temp. *3	5°C to 25°C	25°C		
					Zone 2 cooling flow temp. *3	5°C to 25°C	25°C		
			Zone prohibited		Heating (Zone 1)	Permitted/Prohibited	Permitted		
					Heating (Zone 2)	Permitted/Prohibited	Permitted		
					Cooling (Zone 1)	Permitted/Prohibited	Permitted		
					Cooling (Zone 2)	Permitted/Prohibited	Permitted		

Continued to next page.

Engineers Forms

Commissioning/Field settings record sheet (continued from the previous page)

Main remote controller screen					Parameters	Default setting	Field setting	Notes
Menu	Service	Energy monitor settings	Electric heater capacity	Booster heater 1	0 to 30 kW	2 kW		
				Booster heater 2	0 to 30 kW	4 kW		
				Immersion heater	0 to 30 kW	0 kW		
				Analogue output	0 to 30 kW	0 kW		
			Delivered energy adjustment		−50 to +50%	0%		
			Water pump input	Pump 1	0 to 200 W or ***(factory fitted pump)	***		
				Pump 2	0 to 200 W	0 W		
				Pump 3	0 to 200 W	0 W		
				Pump 4 *7	0 to 200 W	72 W		
			Electric energy meter		0.1/1/10/100/1000 pulse/kWh	1000 pulse/kWh		
			Heat meter		0.1/1/10/100/1000 pulse/kWh	1000 pulse/kWh		
		External input settings	Demand control (IN4)		Heat source OFF/Boiler operation	Boiler operation		
			Outdoor thermostat (IN5)		Heater operation/Boiler operation	Boiler operation		
			Cooling limit temp. (IN15)	Zone selection	Zone 1/Zone 2/Zone 1&2	Zone 1		
				Zone 1 lowest temperature	5°C to 25°C	18°C		
				Zone 2 lowest temperature	5°C to 25°C	18°C		
		Thermo on output			Zone 1/Zone 2/Zone 1&2	Zone 1&2		

*1 The settings related to Zone 2 can be switched only when 2-zone temperature control or 2-zone valve ON/OFF control is active.
*2 The settings related to Zone 2 can be switched only when 2-zone temperature control is enabled (when DIP SW 2-6 and SW 2-7 are ON).
3 Cooling mode settings are available for ERS model only.
*4 Only available if DHW tank is present in system.
*5 When the indoor unit is connected with a PUMY-P outdoor unit, the mode is fixed to “Off”.
*6 For the model without both booster and immersion heater, it may not reach the set temperature depending on the outside ambient temperature.
*7 This setting is valid for only cylinder units.
*8 The lower limit is -15°C depending on the connected outdoor unit.
*9 The lower limit is -13°C depending on the connected outdoor unit.
*10 The lower limit is -14°C depending on the connected outdoor unit.
*11 On: the function is active; Off: the function is inactive.
*12 Do not change the setting since it is set according to the specification of flow sensor attached to the indoor unit.
*13 When DIP SW1-1 is set to OFF “WITHOUT Boiler” or SW2-6 is set to OFF “WITHOUT Mixing tank”, neither Boiler nor Hybrid can be selected.
*14 Valid only when operating in Heating room temperature.
*15 When DIP SW5-2 is set to OFF, the function is active.
*16 If asterisk (**) is chosen freeze stat function is deactivated. (i.e. primary water freeze risk)
*17 When the indoor unit is connected with a PUMY-P and PXZ outdoor unit, the mode is fixed to “Ambient”.
18 “” of “*/kWh” represents currency unit (e.g. €, £, or the like)
*19 Valid only during heating mode
*20 To enable this function in the outdoor unit of PUZ-S(H)WM, switch the [Mode 7] in [Function settings] to "2".
([Menu] → [Service] → [Function settings], [Ref. add: 0], [Unit: 1] → [Mode 7], 1-High temperature control (default) / 2-Water temperature difference control)
*21 When connected with a SUZ outdoor unit, there is no sound reduction effect even if it is set to the heating quiet mode 3 and the cooling quiet mode 1 to 3.

■ Refrigerant collecting (pumpdown) for split model systems only

Refer to “Refrigerant collection” in the outdoor unit installation manual or service manual.

■ Back-up operation of boiler

Heating operation is backed up by boiler.
For more details, refer to the installation manual of PAC-TH012HT-E.

<Installation & System set up>

1. Set DIP-SW 1-1 to ON "With boiler" and SW2-6 to ON “With Mixing tank”.
2. Install the thermistor (Boiler flow water temp.) (THWB1) *1 on the boiler circuit.
3. Connect the output wire (OUT10: Boiler operation) to the signal input (room thermostat input) on the boiler. *2
4. Install one of the following room temperature thermostats. *3

- Wireless remote controller (option)
- Room temperature thermostat (local supply)
- Main remote controller (remote position)

<Main remote controller settings>

1. Go to [Service] menu, then [Heat source setting], and choose [Boiler] or [Hybrid]. *4
2. Go to [Service] menu, and choose [Operation settings], then [Boiler settings] to make detailed settings for [Hybrid settings].

*1 The boiler temperature thermistor is an optional part.
*2 OUT10 has no voltage across it.
*3 Boiler heating is controlled on/off by the room temp. thermostat.
*4 [Hybrid] automatically switches heat sources between heat pump (and electric heater) and boiler.

■ Multiple outdoor units control

To realize bigger systems by using multiple outdoor units, up to 6 units of the same model can by connected.
The hydrobox can be used as a sub unit for multiple outdoor unit control.
For more details, refer to the installation manual of the flow temperature controller [main] (PAC-IF081/082).
PAC-IF071/072B-E can not be connected to the hydrobox.
Check the model name of connecting main unit.

<DIP switch setting>

- Set DIP SW4-1 to ON “Active: multiple outdoor unit control”.
- Keep DIP SW4-2 OFF (default setting) (main/sub setting: sub).
- Set DIP SW1-3 to ON when the hydrobox is connected to a DHW tank.

Note : SUZ-SWM/PXZ/PUMY-P outdoor unit is not available for multiple outdoor units control.

MITSUBISHI ELECTRIC

Mitsubishi Electric Erp Directive Related Product Information: **erp.mitsubishielectric.eu/erp**
Details and precautions on installation, maintenance and assembly can be found in the installation and or operation manuals.
This information is based on EU regulation No 811/2013 and No 813/2013.

PRODUCT FICHE OF TEMPERATURE CONTROLS

1	Parts name	5	Main Remote controller	7	Wireless remote controller & receiver
2	Model name	6	(Indoor Unit Accessory)		PAR-WT60R-E & PAR-WR61R-E
3	The class of the temperature control		VI		VI
4	The contribution to seasonal space heating energy efficiency (%)		4		4

Contents

Contents

1 Safety precautions

FOR INSTALLER

- **Before installing the FTC unit, make sure you read all the “Safety precautions”.**
- **Please report to your electrical supply authority or obtain their consent before connecting this equipment to the power supply system.**

⚠ **WARNING:**
Precautions that must be observed to prevent injuries or death.

⚠ **CAUTION:**
Precautions that must be observed to prevent damage to the unit.

After installation, perform the test run to ensure normal operation. Then explain to your customer the “Safety Precautions”*1, use, and maintenance of the unit based on the information in this manual. This manual must be given to the user. This manual must always be kept by the actual users.
*1 “Safety Precautions” for user is indicated on page 31.
⏚ : This indicates a part which must be grounded.

⚠ **WARNING:**
Carefully read the labels attached to the unit.

⚠ **WARNING:**

- **The unit must not be installed by the user. Ask an installer or an authorized technician to install the unit. If the unit is installed improperly, electric shock, or fire may occur.**
- **For installation work, follow the instructions in the Installation Manual and use tools and pipe components specifically made for use with the specified refrigerant in the outdoor unit installation manual.**
- **The unit must be installed according to the instructions in order to minimize the risk of damage by earthquakes, typhoons, or strong winds. Improperly installed units may fall down and cause damage or injuries.**
- **The unit must be securely installed on a structure that can sustain its weight. If the unit is mounted on an unstable structure, it may fall down and cause damage or injuries.**
- **All electric work must be performed by a qualified technician according to local regulations and the instructions given in this manual. The unit must be powered by dedicated power lines and the correct voltage and circuit breakers must be used. Power lines with insufficient capacity or incorrect electrical work may result in electric shock or fire.**
- **Only the specified cables can be used for wiring. Connections must be made securely without tension on the terminals. If cables are connected or installed improperly, it may result in overheating or fire.**
- **Terminal block cover panel of the unit must be firmly fixed. If the cover panel is mounted improperly, dust and moisture may enter the unit, and it may cause electric shock or fire.**
- **Make sure to use accessories authorized by Mitsubishi Electric and ask an installer or an authorized technician to install them. If accessories are improperly installed, it may cause electric shock, or fire.**
- **Do not remodel the unit. Consult an installer for repairs. If alterations or repairs are not performed correctly, it may cause electric shock or fire.**
- **The user should never attempt to repair the unit or transfer it to another location. If the unit is installed improperly, it may cause electric shock or fire. If the FTC unit needs to be repaired or moved, ask an installer or an authorized technician.**
- **During the installation of a heat pump system, keep water from splashing on the FTC unit.**
- **When installing sensors and parts, do not expose the terminals.**

1.1 Before installation (Environment)

⚠ **CAUTION:**

- **Do not install the FTC unit in an outdoor location as it is designed for indoor installation only. Otherwise electric shock or breakdown may be caused by water, wind or dust.**
- **Do not use the unit in an corrosive environment. If the FTC unit is installed or exposed to steam, volatile oil (including machine oil), or sulfuric gas, or exposed to briny air, the internal parts can be damaged.**
- **Do not install the unit where combustible gas may leak, be produced, flow, or accumulate. If combustible gas accumulates around the unit, it may cause fire or explosion.**
- **When installing the unit in a hospital or in a building where communications equipment are installed, you may need to take measures to prevent noise and electronic interference. Inverters, home appliances, high-frequency medical equipment, and radio communications equipment can cause malfunction or breakdown of the FTC unit. At the same time, the noise and electric interference from the FTC unit may disturb the proper operation of nearby medical equipment, and communications equipment.**

1.2 Before installation or relocation

⚠ **CAUTION:**

- **Be very careful when moving the units. Do not hold the packaging bands. Wear protective gloves to unpack and to move the units, in order to avoid injury to your hands.**
- **Be sure to safely dispose of the packaging materials. Packaging materials, such as nails and other metal or wooden parts may cause injuries.**
- **Do not wash the FTC unit, it can cause an electric shock.**

1.3 Before electric work

⚠ **Caution:**

- **Be sure to install a circuit breaker. If it is not installed, there may be a risk to get an electric shock.**
- **For the power lines, use standard cables of sufficient capacity. Otherwise, it may cause a short circuit, overheating, or fire.**
- **When installing the power lines, do not apply tension to the cables. The cables may be cut or overheated resulting in a fire.**
- **Make sure to ground the unit. Do not connect the ground wire to gas or water pipes, lightning rods, or telephone grounding lines. If the unit is not properly grounded, there may be a risk to get an electric shock.**
- **Make sure to use circuit breakers (ground fault interrupter, isolating switch (+B fuse), and molded case circuit breaker) with the specified capacity. If the circuit breaker capacity is larger than the specified capacity, breakdown or fire may occur.**

1.4 Before starting the test run

⚠ Caution:

- **Turn on the main power switch of the outdoor unit more than 12 hours before starting operation. Starting operation immediately after turning on the power switch can severely damage the internal parts. Keep the main power switch turned on during the operation period.**
- **In heating mode, to avoid the heat emitters being damaged by excessively hot water, set the target flow temperature to a minimum of 2ºC below the maximum allowable temperature of all the heat emitters. For Zone 2, set the target flow temperature to a minimum of 5ºC below the maximum allowable flow temperature of all the heat emitters.**
- **Before starting operation, check that all protective parts are correctly installed. Make sure not to get injured by touching high voltage parts.**
- **Do not touch any switch with wet hands. There may be a risk of electrocution.**
- **After stopping operation, make sure to wait at least 5 minutes before turning off the main power. Otherwise, it may cause breakdown.**

1.5 Electric booster and immersion heaters

⚠ Warning:

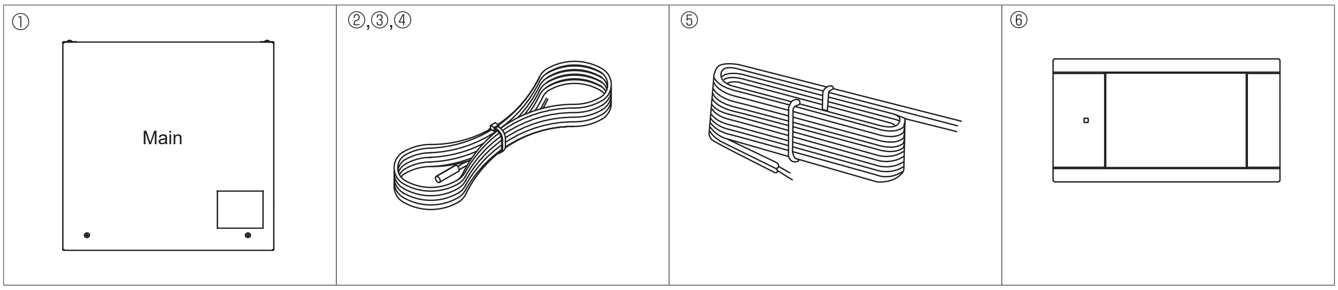
- **FTC has signal outputs for heaters however it can not isolate power to them in the event of overheating. All electrical heaters used on the water circuit must have:**

a) A thermostat to prevent overheating.
b) A non-self resetting thermal mechanism to prevent overheating.

Abbreviations and glossary

Abbreviations/Word	Description
Ambient temperature	The outdoor temperature
Freeze stat. function	Heating to prevent water pipes freezing
ASHP/HP	Air source heat pump
COP	Coefficient of performance the efficiency of the heat pump
Cylinder unit	Indoor unvented DHW tank and component plumbing parts
Hydrobox	Indoor unit housing the component plumbing parts (NO DHW tank)
DeltaT	Difference in temperature between two system locations.
DHW mode	Domestic hot water heating mode for showers, sinks, etc
Flow temperature	Temperature at which water is delivered to the primary circuit
FTC (Main)	Flow temperature controller, the circuit board in charge of controlling the system, main board for multiple outdoor units control
FTC (Sub)	Sub board for multiple outdoor units control
Compensation curve mode	Space heating incorporating outdoor temperature compensation
Heating mode	Space heating through radiators or under floor heating
Cooling mode	Space cooling through radiators or under floor cooling
Legionella	Bacteria potentially found in plumbing, showers and water tanks that may cause Legionnaires disease
LP mode	Legionella prevention mode – a function on systems with tanks to prevent the growth of legionella bacterium
Packaged model	Plate heat exchanger (Refrigerant - Water) in the outdoor heat pump unit
Split model	Plate heat exchanger (Refrigerant - Water) in the indoor unit
TRV	Thermostatic radiator valve – a valve on the entrance or exit of the radiator panel controlling the heat output

2.1 Check the parts (Fig. 2.1.1)



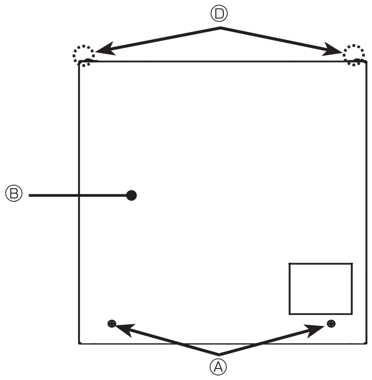
<Fig. 2.1.1>

The FTC unit should be supplied with the following parts.

	Part name	Wiring diagram symbol	Q'ty		
			PAC-IF081	PAC-IF082	PAC-IF083
①	FTC (Main) unit/FTC (Sub) unit		1	1	1
②	Thermistor (Ref. liquid temp.) (Lead wire: 5 m/Red, Connector: 3p)	TH2	1	–	–
③	Thermistors (Flow water temp. and Return water temp.) (Lead wire: Gray (Flow water temp.), Black(Return water temp.), Connector: 4p)	THW1/2	1 (5 m/5 m)	1 (5 m/5 m)	1 (1.1 m/1.2 m)
④	Thermistors (DHW tank upper water temp. and DHW tank lower water temp.) (Lead wire: Blue (DHW tank upper water temp.), Gray (DHW tank lower water temp.), Connector: 4p)	THW5A/5B	–	–	1
⑤	Main remote controller cable (10 m)		1	1	1
⑥	Main remote controller		1	1	1
⑦	microSD memory card [*1]		1	1	1

*1 A microSD memory card is installed in the unit at the factory.

2.2 Choosing the FTC unit installation location



<Fig. 2.3.1>

- Do not install the FTC unit outdoors as it is designed for indoor installation only. (The FTC circuit board and casing are not waterproof.)
- Avoid locations where the unit is exposed to direct sunlight or other sources of heat.
- Select a location where easy wiring access to the power source is available.
- Avoid locations where combustible gases may leak, be produced, flow, or accumulate.
- Select a level location that can bear the weight and vibration of the unit.
- Avoid locations where the unit is exposed to oil, steam, or sulfuric gas.
- Do not install in a location that is hot or humid for long periods of time.

2.3. Installing the FTC unit (Fig. 2.3.1, 2.3.2, 2.3.3, 2.3.4)

1. Remove 2 screws (Screw Ⓐ) from FTC unit and remove the cover. (See Fig. 2.3.4)
2. Install the 4 screws (locally supplied) in the 4 holes (Hole Ⓒ).
   Note: To prevent the unit from falling off the wall, select the appropriate screws (locally supplied) and secure the base horizontally to the appropriate wall location. (See Fig. 2.3.2)

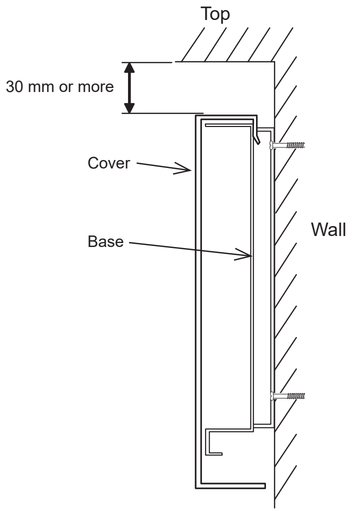
Screw Ⓐ
Cover Ⓑ
Hole for installation Ⓒ
Screw Ⓓ

Note: Do not remove the screws Ⓓ as the screws are component parts of the cover and are not used for the installation of cover.

Weight	PAC-IF081B-E	3.9 kg
	PAC-IF082/083B-E	4.2 kg
Allowable ambient temperature		0 to 35°C
Allowable ambient humidity		80% RH or less

Optional extras

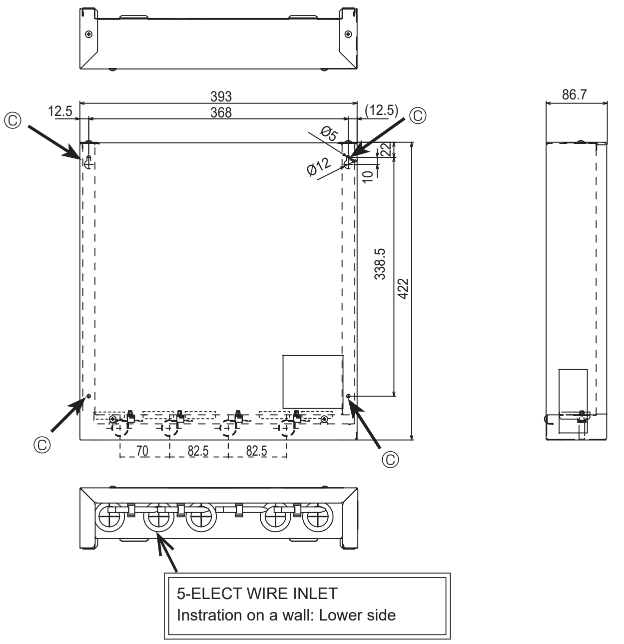
• Wireless Remote Controller	PAR-WT60R-E
• Wireless Receiver	PAR-WR61R-E
• Remote sensor	PAC-SE41TS-E



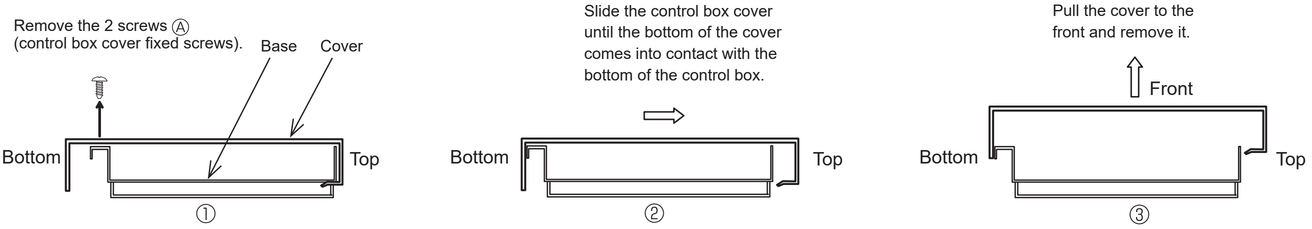
<Fig. 2.3.2>
Service space

<FTC (Main) unit>

<Unit: mm>



<Fig. 2.3.3>


Remove the 2 screws Ⓐ (control box cover fixed screws).

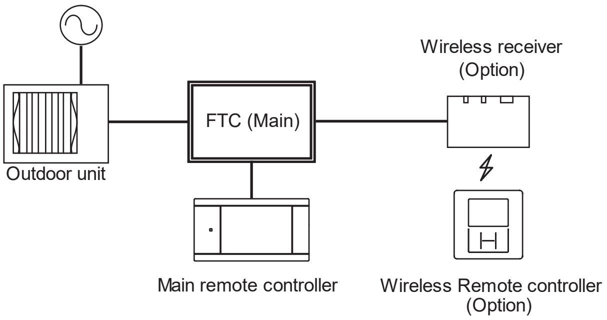
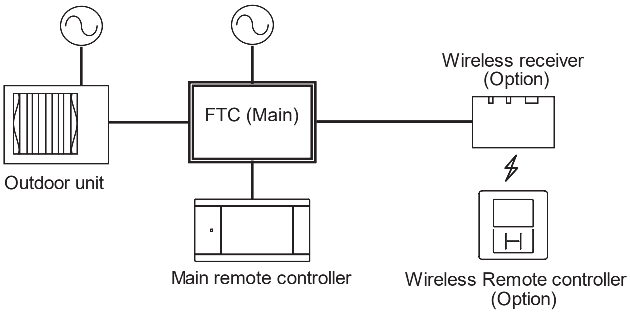
Slide the control box cover until the bottom of the cover comes into contact with the bottom of the control box.

Pull the cover to the front and remove it.

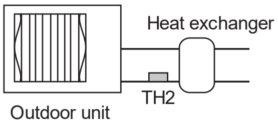
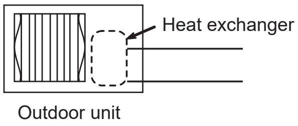
<Fig. 2.3.4>

The FTC (Main) is designed for use with a number of heat pump systems. Please refer to the following table to find the relevant installation information for your system.
For multiple outdoor units control with FTC (Sub), see section 9.

3.1 First step (Electrical work)

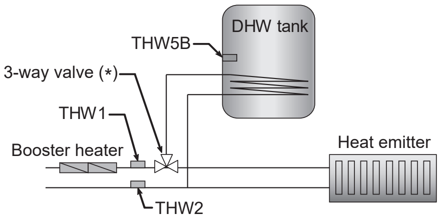
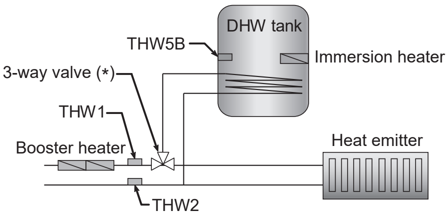
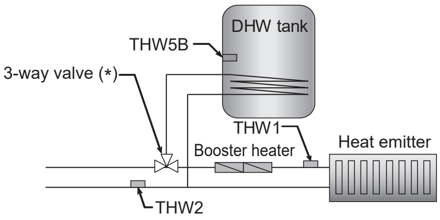
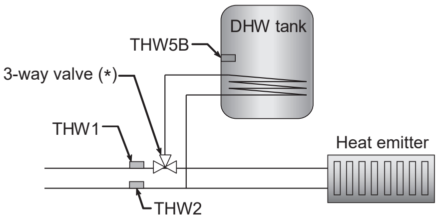
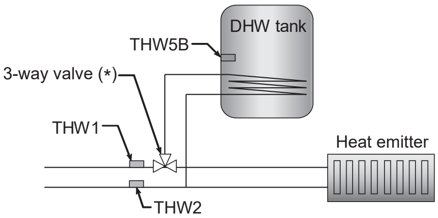
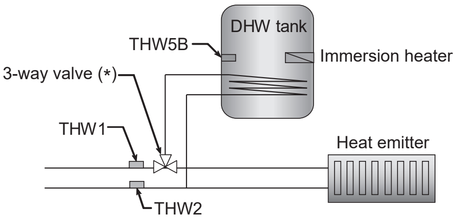
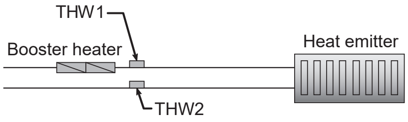
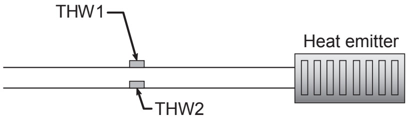
Power supply	System diagram	Reference section
FTC (Main) powered via outdoor unit		4.1 4.2
FTC (Main) powered by independent source		4.1 4.2

3.2 Second step (Outdoor unit connection)

Outdoor unit type	System diagram	Thermistor	Reference section
Split		TH2: Ref. liquid temp.	4.4 5.2
Packaged		—	4.4 5.2

* PAC-IF082/083B-E is not available for Split-type system.

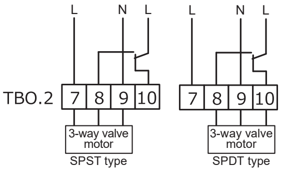
3.3 Third step (Functions setting)

DHW tank	Immersion heater	Booster heater	BH function	System diagram	Thermistor	Reference section	Remarks
Present	Absent	Present	For heating and DHW		THW1: Flow water temp. THW2: Return water temp. THW5B: DHW tank lower water temp.	4.4 4.5 5.3	
Present	Present	Present	For heating and DHW		THW1: Flow water temp. THW2: Return water temp. THW5B: DHW tank lower water temp.	4.4 4.5 5.3	
Present	Absent	Present	For heating only		THW1: Flow water temp. THW2: Return water temp. THW5B: DHW tank lower water temp.	4.4 4.5 5.3	1. 'Legionella prevention mode' cannot be selected in this system.
Present	Absent	Absent	—		THW1: Flow water temp. THW2: Return water temp. THW5B: DHW tank lower water temp.	4.4 4.5 5.3	1. 'Legionella prevention mode' cannot be selected in this system. 2. Please make sure water circuit not to get frozen during defrost.
Present	Present	Present	For heating only		THW1: Flow water temp. THW2: Return water temp. THW5B: DHW tank lower water temp.	4.4 4.5 5.3	
Present	Present	Absent	—		THW1: Flow water temp. THW2: Return water temp. THW5B: DHW tank lower water temp.	4.4 4.5 5.3	
Absent	Absent	Present	—		THW1: Flow water temp. THW2: Return water temp.	4.4 4.5 5.3	
Absent	Absent	Absent	—		THW1: Flow water temp. THW2: Return water temp.	4.4 4.5 5.3	1. Please make sure water circuit not to get frozen during defrost.

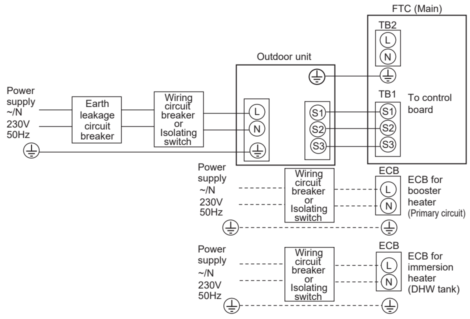
* The use of two 2-way valves can perform same function as a 3-way valve.

3.4 Fourth step (Functions setting)

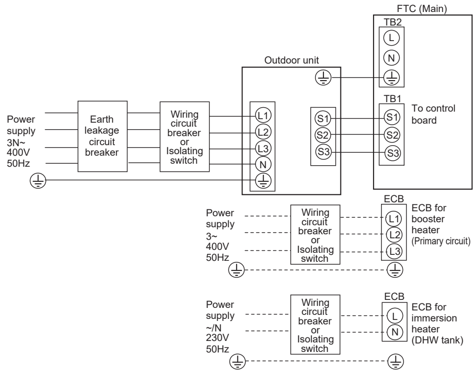
* Make sure to check the followings for your safety when designing a system. These are the minimum requirements for the safe use of FTC unit.

<table>
<tr><th>Parts name</th><th>Requirement</th></tr>
<tr><td>Flow switch</td><td>It is required to protect system from the effects of insufficient flow.</td></tr>
<tr><td>Flow sensor</td><td>It is required to detect an error in flow rate.
(The operation is validated with SIKA VVX20.)
It is required for Energy monitor function.</td></tr>
<tr><td>Strainer /Magnetic filter (water circuit)</td><td>Provide it as required to protect parts from damages caused by iron particles/water/contamination (e.g. The position before pump and return part from emitters).</td></tr>
<tr><td>Pressure relief valve
(Primary circuit side)
(Sanitary water side)</td><td>It is required to protect system from reaching high pressure.
Select the operating pressure depending on water pressure in the circuit in normal use.
Note: Follow the national regulations.</td></tr>
<tr><td>3-way valve</td><td>Power supply: 230 V AC
Current: 0.1 A max. (You must use a relay if over 0.1 A.)
Connect earth cable, if there is one.
Type: SPST or SPDT
 </td></tr>
<tr><td>2-way valve</td><td>Power supply: 230 V AC
Current: 0.1 A max. (You must use a relay if over 0.1 A.)
Connect earth cable, if there is one.
Type: Normally closed
Select the 2-way valve that slowly opens and shuts off to prevent water hammer.
A bypass valve or circuit should be installed between pump and 2-way valve for safety (to release pressure when the both 2-way valves are closed).
Select a 2-way valve equipped with manual override, which is necessary for topping up or draining of water.</td></tr>
<tr><td>Water circulation pump</td><td>Power supply: 230 V AC
Current: 0.1 A max.
When connecting a pump with an electric current of ≥ 1 A or multiple pumps, please note the following.
1. Use (a) relay(s).
2. When power is supplied from outdoor unit, total current (including the other parts) requirement must be ≤ 3 A. (Otherwise, the fuse on the outdoor unit PCB will blow.)
3. When independent power supplies (i.e. from the FTC unit itself), total current for the pump(s) is ≤ 4 A. (Otherwise, the fuse on the FTC PCB will blow.)
Connect earth cable, if there is one.
Adjust the pump speed setting so that the flow rate in the primary circuit is appropriate for the outdoor unit installed. See the table and figures below.
<table>
<tr><th colspan="2">Outdoor heat pump unit</th><th>Water flow rate range [L/min]</th></tr>
<tr><td rowspan="8">Packaged model</td><td>PUZ-WM50</td><td>6.5 - 14.3</td></tr>
<tr><td>PUZ-WM60</td><td>8.6 - 17.2</td></tr>
<tr><td>PUZ-WM85</td><td>10.8 - 24.4</td></tr>
<tr><td>PUZ-WM112</td><td>14.4 - 32.1</td></tr>
<tr><td>PUZ-HWM140</td><td>17.9 - 36.9</td></tr>
<tr><td>PUZ-WZ50</td><td>6.5 - 14.3</td></tr>
<tr><td>PUZ-WZ60</td><td>6.5 - 17.2</td></tr>
<tr><td>PUZ-WZ80</td><td>6.5 - 22.9</td></tr>
<tr><td rowspan="3">Split model</td><td>PUHZ-SW160</td><td>23.0 - 63.1</td></tr>
<tr><td>PUHZ-SW200</td><td>28.7 - 71.7</td></tr>
<tr><td>PUHZ-SHW230</td><td>28.7 - 65.9</td></tr>
</table>
<Table 3.4.1>
Notes: 1. The water velocity in pipes should be kept within certain limits of material to avoid erosion corrosion and excessive noise generation. (e.g. Copper pipe: 2.0 m/s)
2. If the water flow rate is less than the minimum flow rate setting of the flow sensor (default 5.0 L/min), the flow rate error will be activated.
*1 Flow rate recommended for installation</td></tr>
</table>

<table>
<tr><th>Parts name</th><th colspan="2">Requirement</th></tr>
<tr><td>Booster heater</td><td>General</td><td>* Consider necessity and capacity of booster heater to meet the following points.
(1) Heating capacity and flow water temperature should always be sufficient.
(2) System can increase the temperature of the stored water in tank to inhibit legionella bacteria growth.
(Note) For systems without booster heater or immersion heater, ‘legionella prevention mode’ is NOT available.
(3) Water circuit should not be frozen during defrost operation.</td></tr>
<tr><td></td><td>Control power for contactor</td><td>Power supply: 230 V AC / Current: 0.5 A max.
* Use a relay.</td></tr>
<tr><td></td><td>Separate power for heater</td><td>Install an earth leakage circuit breaker (ECB) for heater, separate from control power (See Fig. 1 and Fig. 2).
* When using two booster heaters, booster heater 1 capacity must be less than that of booster heater 2. When using a single booster heater, connect to BH1 (TBO.5 5-6 (OUT6)) , and turn the DIP SW2-3 to ON. (Booster heater capacity restriction)



<Fig. 1 (1 phase)>



<Fig. 2 (3 phase)>

Heater capacity/Breaker/wiring (recommended)

<1 Phase>

<table>
<tr><th>Description</th><th>Power supply</th><th>Total capacity (BH1 + BH2)</th><th>Breaker</th><th>Wiring</th></tr>
<tr><td>Booster heater (Primary circuit)</td><td>~/N 230V 50Hz</td><td>2 kW (2 kW + 0 kW)</td><td>16 A</td><td>2.5 mm²</td></tr>
<tr><td></td><td></td><td>6 kW (2 kW + 4 kW)</td><td>32 A</td><td>6.0 mm²</td></tr>
</table>

<3 Phase>

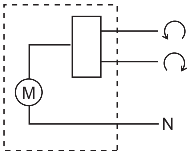
<table>
<tr><th>Description</th><th>Power supply</th><th>Total capacity (BH1 + BH2)</th><th>Breaker</th><th>Wiring</th></tr>
<tr><td>Booster heater (Primary circuit)</td><td>3~ 400V 50Hz</td><td>9 kW (3 kW + 6 kW)</td><td>16 A</td><td>2.5 mm²</td></tr>
</table>

* When installing a booster heater with the capacity of bigger than shown above, select an appropriate size breaker and cable (diameter) based on the maximum possible electric current.</td></tr>
<tr><td></td><td>Safety device</td><td>(1) Use an overheat protection thermostat (manual reset type) (to detect unusual temperature increase/heating up without water).
Protection device operating temperature must be above 80°C. Protection device should not operate quickly, but water circuit must not boil even when heater(s) overshoot.
(Reference value) Thermostat operation temperature used in our Cylinder unit and Hydrobox : 90°C ± 4°C
(2) Connect a pressure relief valve on the primary circuit side.</td></tr>
<tr><td>Immersion heater</td><td>General</td><td>* Consider necessity and capacity of immersion heater to meet the following points.
(1) Heating capacity and flow water temperature should always be sufficient.
(2) System can increase the temperature of the stored water in tank to inhibit legionella bacteria growth.
(Note) For systems without booster heater or immersion heater, ‘legionella prevention mode’ is NOT available.</td></tr>
<tr><td></td><td>Control power for contactor</td><td>Power supply: 230 V AC / Current: 0.5 A max.
* Use a relay.</td></tr>
<tr><td></td><td>Separate power for heater</td><td>Install an earth leakage circuit breaker (ECB) for heater, separate from control power (See Fig. 1 and Fig. 2).
*ECB is built-in in PAC-IF082/083B-E.
Heater capacity/Breaker/wiring (recommended)

<1 Phase>

<table>
<tr><th>Description</th><th>Power supply</th><th>Capacity</th><th>Breaker</th><th>Wiring</th></tr>
<tr><td>Immersion heater (DHW tank)</td><td>~/N 230V 50Hz</td><td>3 kW</td><td>16 A</td><td>2.5 mm²</td></tr>
</table>

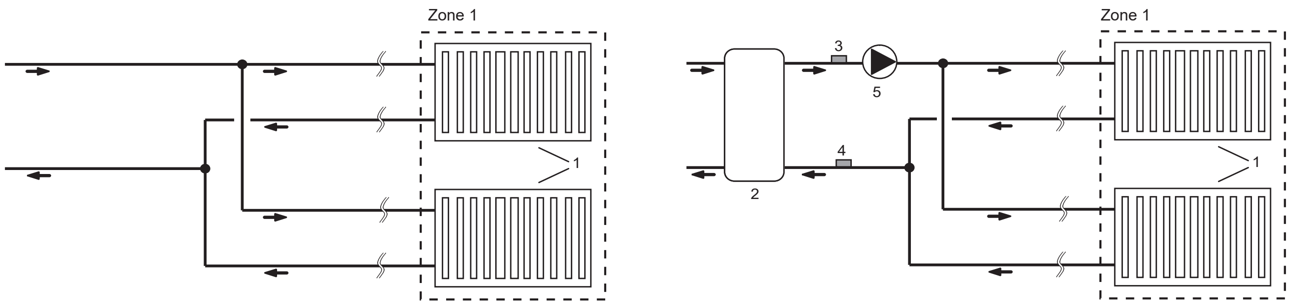
* When installing an immersion heater with a capacity bigger than the one shown above, select an appropriate size breaker and cable (diameter) based on the maximum possible electric current.</td></tr>
<tr><td></td><td>Safety device</td><td>(1) Install the thermistor THW5B (optional parts PAC-TH011TK2-E (5 m) or PAC-TH011TKL2-E (30 m)) on the DHW tank.
Note that PAC-IF083B-E comes with THW5B. (Microcomputer detecting temperature for protection: 80°C)
(2) Use a built-in direct cut-off thermostat (manual reset type).
Protection device operating temperature must be above 80°C. A fast reaction from the protection device is not required, but water circuit must not boil even when a heater overshoots.
(Reference value) Thermostat operation temperature used in our Cylinder unit : 85°C ± 5°C
(3) Connect a pressure relief valve on the sanitary water side.</td></tr>
<tr><td colspan="2">Mixing valve</td><td>Power supply: 230 V AC
Current: 0.1 A max. (You must use a relay if over 0.1 A.)
Connect earth cable, if there is one.
Type: Refer to the right figure.



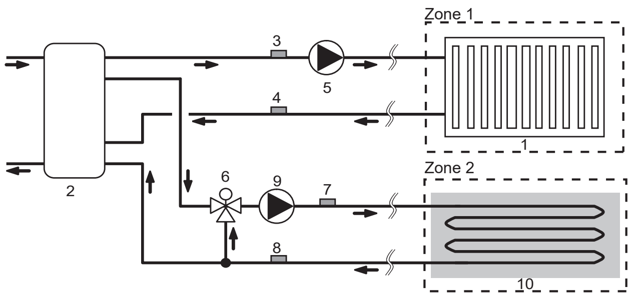
Mixing valve</td></tr>
<tr><td colspan="2">Expansion Vessel (Primary circuit side)
Expansion Vessel (Sanitary circuit side)</td><td>When the water circuit is closed, select the expansion vessel according to water quantity of the water circuit.
* Follow the national regulations.</td></tr>
<tr><td colspan="2">Limits of total electric current when connecting local supply parts</td><td>Option 1. (Power supply from outdoor unit)
Total current requirement must be ≤ 3 A. (Otherwise, the fuse on the outdoor unit PCB will blow up.)
Option 2. (Independent power supply (i.e. from the FTC unit itself))
Total current of the pump(s) must be ≤ 4 A.
The total current allowed for parts except pumps is ≤ 3 A. (Otherwise, the fuse on the FTC PCB will blow up.)</td></tr>
</table>

3.5 Local system

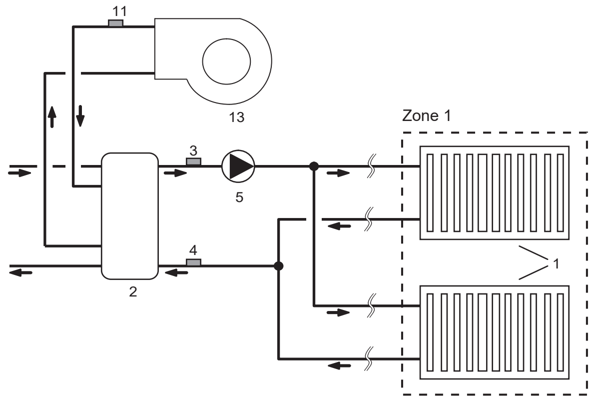
1-zone temperature control



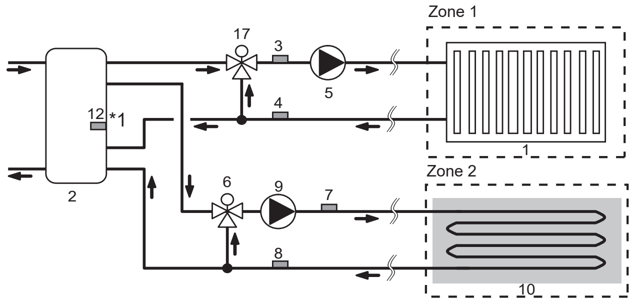
2-zone temperature control



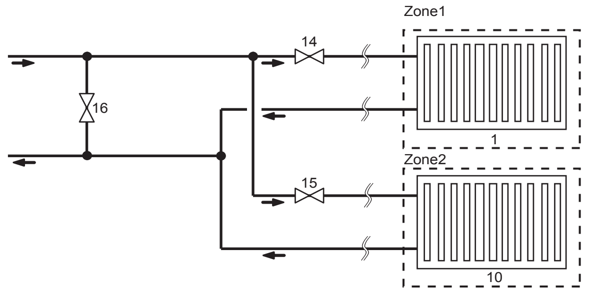
1-zone temperature control with boiler



2-zone temperature control & Buffer tank control



1-zone temperature control (2-zone valve ON/OFF control)



1. Zone 1 heat emitters (e.g. radiator, fan coil unit) (local supply)
2. Mixing tank (local supply)
3. Thermistor (Zone 1 flow water temp.) (THW6) } Optional part : PAC-TH011-E
4. Thermistor (Zone 1 return water temp.) (THW7)
5. Zone 1 water circulation pump (local supply)
6. Zone 2 motorized mixing valve (local supply)
7. Thermistor (Zone 2 flow water temp.) (THW8) } Optional part : PAC-TH011-E
8. Thermistor (Zone 2 return water temp.) (THW9)
9. Zone 2 water circulation pump (local supply)
10. Zone 2 heat emitters (e.g. underfloor heating) (local supply)
11. Thermistor (Boiler flow water temp.) (THWB1) } Optional part : PAC-TH012HT(L)-E
12. Thermistor (Mixing tank water temp.) (THW10) *1
13. Boiler (local supply)
14. Zone 1 2-way valve (local supply)
15. Zone 2 2-way valve (local supply)
16. Bypass valve (local supply)
17. Zone 1 motorized mixing valve (local supply)

*1 ONLY Buffer tank control (heating/cooling) applies to [Smart grid ready].

3.6 Minimum amount of water required in the space heating/cooling circuit

Outdoor heat pump unit		Indoor unit containing water amount [L]	Additional required water amount [L]*1	
			Average / Warmer climate*2	Colder climate*2
Packaged model	PUZ-WM50	5	2	24
	PUZ-WM60		4	29
	PUZ-WM85		7	32
	PUZ-WM112		11	43
	PUZ-HWM140		15	55
	PUZ-WZ50		2	24
	PUZ-WZ60		4	21
	PUZ-WZ80		6	29
Split model	PUHZ-SW160	5	18	64
	PUHZ-SW200		24	81
	PUHZ-SHW230		28	94

<Table 3.6.1>

*1 Water amount: If there is a bypass circuit, above table means minimum water amount in case of bypass.

*2 Climate: Please refer to 2009/125/EC: Energy-related Products Directive and Regulation (EU) No 813/2013 to confirm your climate zone.

Case 1. No division between primary and secondary circuit

- Please ensure the required water amount according to the table 3.6.1 by water pipe and radiator or underfloor heating.

Case 2. Separate primary and secondary circuit

- If the interlock operation of primary and secondary pump is not available, please ensure required additional water in only primary circuit according to the table 3.6.1.
- If the interlock operation of primary and secondary pump is not available, please ensure required additional water in only primary circuit according to Table 3.6.1.

In case of the shortage of required water amount, please install buffer tank.

3.7 Energy monitor *3

End user can monitor accumulated*1 consumption and production energy in each operation mode*2 on the main remote controller.

*1 Monthly and Year to date

*2 - DHW operation
- Space heating
- Space cooling

*3 Not available during multiple outdoor unit control.

Refer to “7. Remote controller” for how to check the energy, and “5.1 DIP switch functions” for the details on DIP-SW setting.
Either one of the following two methods is used for monitoring.

Note: The method 1 should be used as a guide. If a certain accuracy is required, the method 2 should be used.

Booster heater1	Booster heater2	Immersion heater	Pump1	Pump2	Pump3
2kW*1	4kW*1	0kW*1	*** *1	0W*1	0W*1

<Table 3.7>

Method 1. Calculation internally

Electricity consumption is calculated internally based on the energy consumption of outdoor unit, electric heater, water pump(s) and other auxiliaries.
Delivered heat is calculated internally by multiplying delta T (Flow and Return temp.) and flow rate measured by the locally supplied sensors.
Set the electric heater capacity and water pump(s) input according to indoor unit model and specs of additional pump(s) supplied locally. (Refer to the menu tree in “7. Remote controller”.)

*1 Be sure to change the setting corresponding to the specification of locally supplied auxiliaries such as electric heater and pump.

When anti-freeze solution (propylene glycol) is used for primary water circuit, set the delivered energy adjustment if necessary.
Should you need more details, refer to “7. Remote controller”.

Method 2. Actual measurement by external meter (locally supplied)

FTC has external input terminals for 2 ‘Electric energy meters’ and a ‘Heat meter’.
If two ‘Electric energy meters’ are connected, the 2 recorded values will be combined at the FTC and shown on the main remote controller.
(e.g. Meter 1 for H/P power line, Meter 2 for heater power line)
Refer to the “Signal inputs” section in “4.5 Connecting inputs/outputs” for more information on connectable electric energy meter and heat meter.

4.1 Electrical connection

All electrical work should be carried out by a suitably qualified technician. Failure to comply with this could lead to electrocution, fire, and death. It will also invalidate product warranty. All wiring should be according to national wiring regulations.
For multiple outdoor units control with FTC (Sub), see section 9.

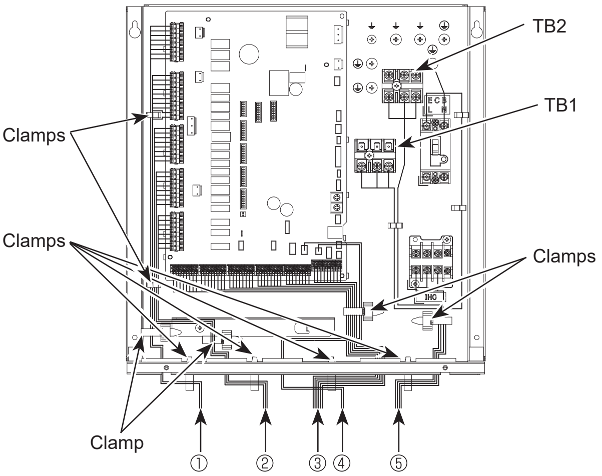
FTC (Main) can be powered in two ways.
1. Power cable is run from the outdoor unit to FTC (Main).
2. FTC (Main) has independent power source.

Connections should be made to the terminals indicated in the following figures depending on the phase.

Breaker abbreviation	Meaning
ECB	Earth leakage circuit breaker for immersion heater
TB1	Terminal block 1
TB2	Terminal block 2

Immersion heater should be connected independently from one another to dedicated power supplies.

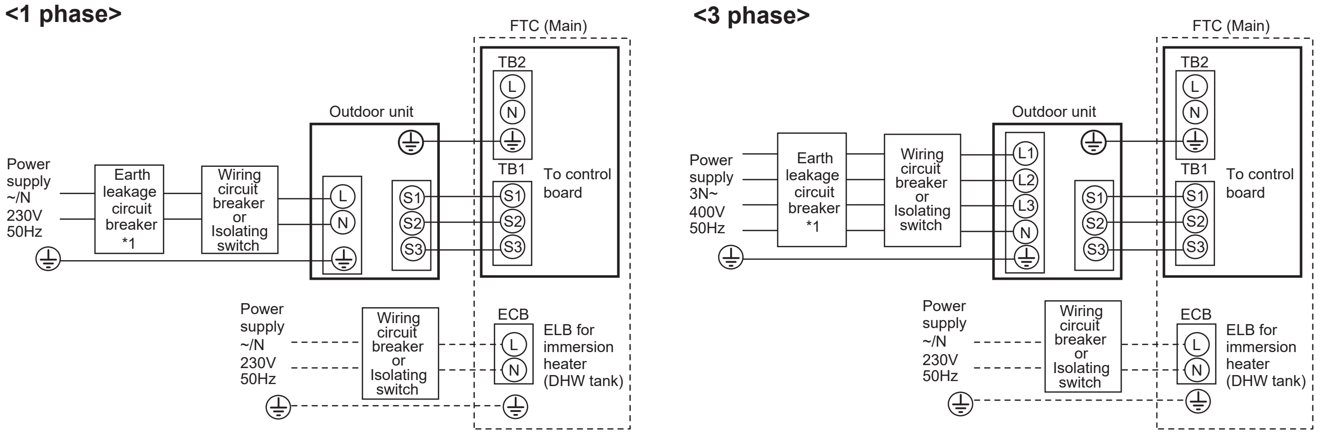
Notes: 1. Do not run the low voltage cables through a slot that the high voltage cables go through.
2. Do not run other cables except low voltage cables through a slot that the wireless receiver's cable goes through.
3. Do not bundle power cables together with other cables.
4. Bundle cables as figure above by using clamps.



① High voltage cables (OUTPUT)
② High voltage cables (OUTPUT)
③ Low voltage cables (INPUT) and wireless receiver's cable
④ Thermistor cables
⑤ Power cables

<Fig. 4.1.1> Wiring for PAC-IF08*B-E

Option 1: FTC (Main) powered via outdoor unit



<Fig. 4.1.2>
Electrical connections 1 phase/3 phase

☐ : PAC-IF081B-E
⬚ : PAC-IF082/083B-E

*1. If the installed earth leakage circuit breaker does not have an over-current protection function, install a breaker with that function along the same power line.
A breaker with at least 3.0 mm contact separation in each pole shall be provided. Use earth leakage breaker (NV).
The breaker shall be provided to ensure disconnection of all active phase conductors of the supply.

Note: In accordance with IEE regulations the circuit breaker/isolating switch located on the outdoor unit should be installed with lockable devices (health and safety).

Wiring Wiring No. × size (mm²)	FTC (Main) - Outdoor unit	*2	3 × 1.5 (polar)
	FTC (Main) - Outdoor unit earth	*2	1 × Min. 1.5
Circuit rating	FTC (Main) - Outdoor unit S1 - S2	*3	230V AC
	FTC (Main) - Outdoor unit S2 - S3	*3	24V DC

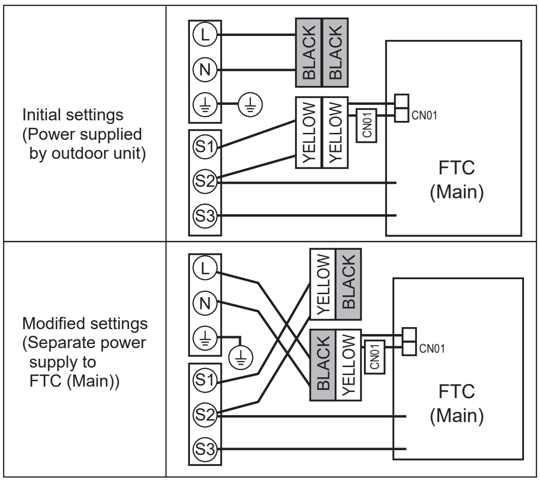
*2. 45 m max.
If 2.5 mm² is used, the maximum length is 50 m.
If 2.5 mm² is used and S3 is separated, the maximum length is 80 m.
*3. The values given in the table above are not always measured against the ground value.

Notes: 1. Wiring size must comply with the applicable local and national codes.
2. FTC (Main)/outdoor unit connecting cords shall not be lighter than polychloroprene sheathed flexible cord. (Design 60245 IEC 57)
FTC (Main) power supply cords shall not be lighter than polychloroprene sheathed flexible cord. (Design 60227 IEC 53)
3. Install an earth longer than other cables.
4. Please keep enough output capacity of power supply for each individual heater. Insufficient power supply capacity might cause chattering.

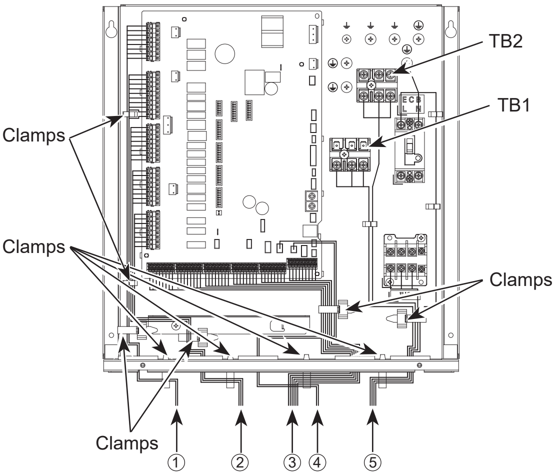
Option 2: FTC (Main) powered by independent source

If FTC (Main) and outdoor units have separate power supplies, the following requirements must be carried out:

- **FTC (Main) unit electrical box connector connections changed. (see Fig. 4.1.3)**
- **Outdoor unit DIP switch settings changed to SW8-3 ON.**
- **Turn on the outdoor unit before the FTC (Main).**
- **Power by independent source is not available for particular models of outdoor unit model.**
  For more detail, refer to the connecting outdoor unit installation manual.



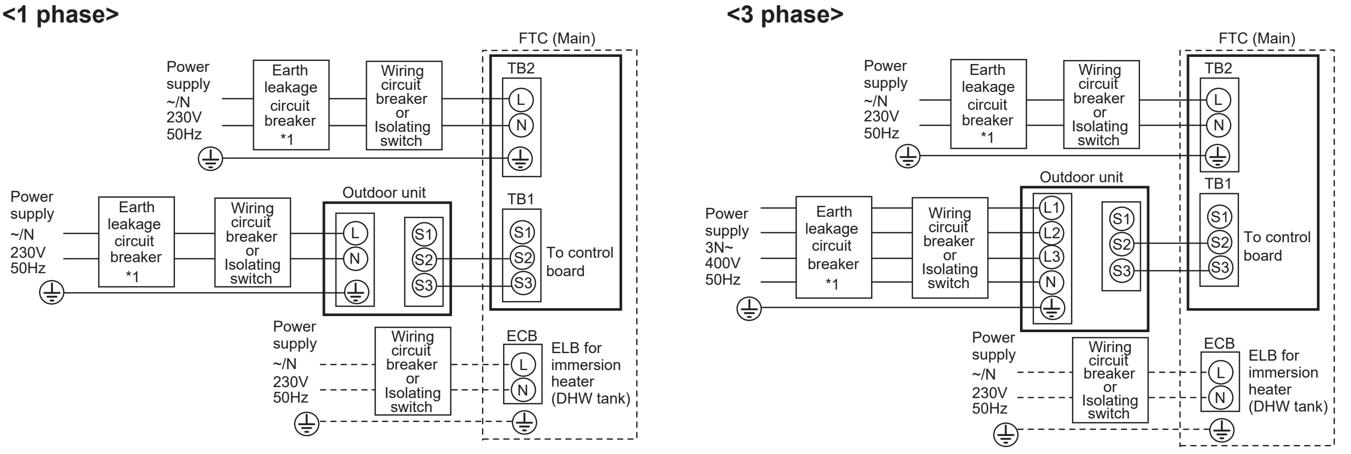
<Fig. 4.1.3>



<Fig. 4.1.4> Wiring for PAC-IF08*B-E

① High voltage cables (OUTPUT)
② High voltage cables (OUTPUT)
③ Low voltage cables (INPUT) and wireless receiver's cable
④ Thermistor cables
⑤ Power cables

Notes: 1. Do not run the low voltage cables through a slot that the high voltage cables go through.
2. Do not run other cables except low voltage cables through a slot that the wireless receiver's cable goes through.
3. Do not bundle power cables together with other cables.
4. Bundle cables as figure above by using clamps.



▭ : PAC-IF081B-E
⬚ : PAC-IF082/083B-E

<Fig. 4.1.5>
Electrical connections 1 phase/3 phase

*1. If the installed earth leakage circuit breaker does not have an over-current protection function, install a breaker with that function along the same power line.
A breaker with at least 3.0 mm contact separation in each pole shall be provided. Use earth leakage circuit breaker (NV).
The breaker shall be provided to ensure disconnection of all active phase conductors of the supply.

Note: In accordance with IEE regulations the circuit breaker/isolating switch located on the outdoor unit should be installed with lockable devices (health and safety).

FTC (Main) power supply			~/N 230 V 50 Hz
FTC (Main) input capacity Main switch (Breaker)		*1	16 A
Wiring Wiring No. × size (mm²)	FTC (Main) power supply		2 × Min. 1.5
	FTC (Main) power supply earth		1 × Min. 1.5
	FTC (Main) - Outdoor unit	*2	2 × Min. 0.3
	FTC (Main) - Outdoor unit earth		—
Circuit rating	FTC (Main) L - N	*3	230V AC
	FTC (Main) - Outdoor unit S1 - S2	*3	—
	FTC (Main) - Outdoor unit S2 - S3	*3	24V DC

*2. 120 m max.
*3. The values given in the table above are not always measured against the ground value.

Notes: 1. Wiring size must comply with the applicable local and national codes.
2. FTC (Main) unit/outdoor unit connecting cords shall not be lighter than polychloroprene sheathed flexible cord. (Design 60245 IEC 57)
FTC (Main) unit power supply cords shall not be lighter than polychloroprene sheathed flexible cord. (Design 60227 IEC 53)
3. Install an earth longer than other cables.
4. Please keep enough output capacity of power supply for each individual heater. Insufficient power supply capacity might cause chattering.

4.2 Connecting the main remote controller

4.2.1 Connect the main remote controller cable to FTC (Main)

Connect the main remote controller cable to 1 and 2 on the terminal block (TB5) on the FTC (Main) controller. <Fig. 4.2.1>
Wiring wire No. × size (mm²): 2 × 0.3 (non polar)
The 10 m wire is attached as an accessory. (150 m max.)
Wiring size must comply with the applicable local and national codes.
Circuit rating: 12V DC
Circuit rating is NOT always against the ground.

Location to place the main remote controller

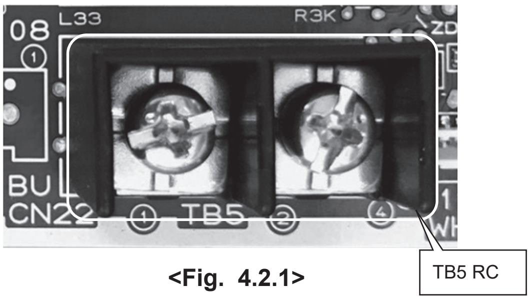
When using the remote controller options (refer to section 4.3), place the main remote controller on appropriate location that meets the following points to detect room temperature.

- Do not place the main remote controller in the periphery of a door or a window.
- Do not place the main remote controller near heat or cold sources, such as a radiator or the like.

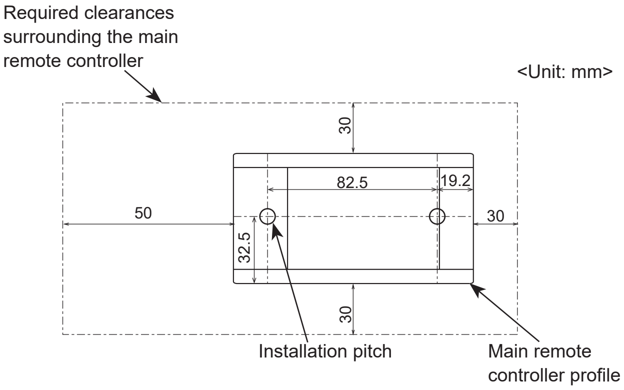
Notes:

Wiring for main remote controller cable shall be (5 cm or more) apart from power source wiring so that it is not influenced by electric noise from power source wiring. (Do not insert main remote controller cable and power source wiring in the same conduit.) (Refer to Fig. 4.1.1)

Stranded wire should be processed with insulation-covered bar terminal (DIN46228-4 standard compatible type).



<Fig. 4.2.1>



<Fig. 4.2.2>

4.2.2 Installing the main remote controller

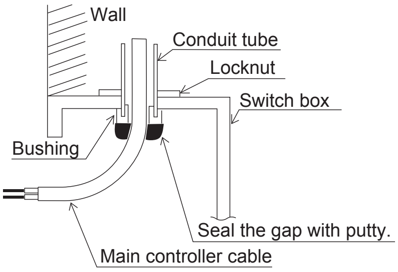
1. The main remote controller can be installed either in the switch box or directly on the wall. Perform the installation properly according to the method.
   (1) Secure clearances shown in Fig. 4.2.2 regardless of whether installing the main remote controller either directly on the wall or in the switch box.
   (2) Prepare the following items in the field.
   Double switch box
   Thin metal conduit
   Locknut and bushing
   Cable cover
   Wall plug

2. Drill an installation hole in the wall.
   ■ Installation using a switch box
   - Drill a hole in the wall for the switch box, and install the switch box in the hole.
   - Fit the conduit tube into the switch box.

   ■ Direct wall installation
   - Drill a cable access hole and thread the main remote controller cable through it.

⚠ **CAUTION:**

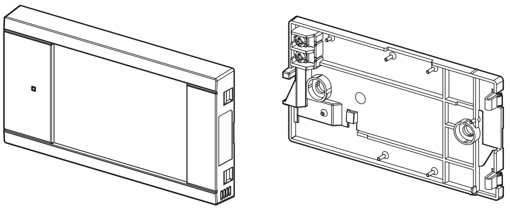
To prevent entry of dew, water, and insects, seal the gap between the cable and the hole through which the cable is threaded with putty. Otherwise, electric shock, fire, or failure may result.



<Fig. 4.2.3>

3. Have the main remote controller ready.
   Remove the bottom case from the main remote controller.

4. Connect the main remote controller cable to the terminal block on the bottom case.
   Modify the main remote controller cable as shown in Fig. 4.2.5, and thread the cable from behind the bottom case.
   Completely thread the cable to the front so that the unsheathed part of the cable cannot be seen behind the bottom case.
   Connect the main remote controller cable to the terminal block on the bottom case.
   ■ Direct wall installation
   - Seal the gap between the cable and the hole through which the cable is threaded.



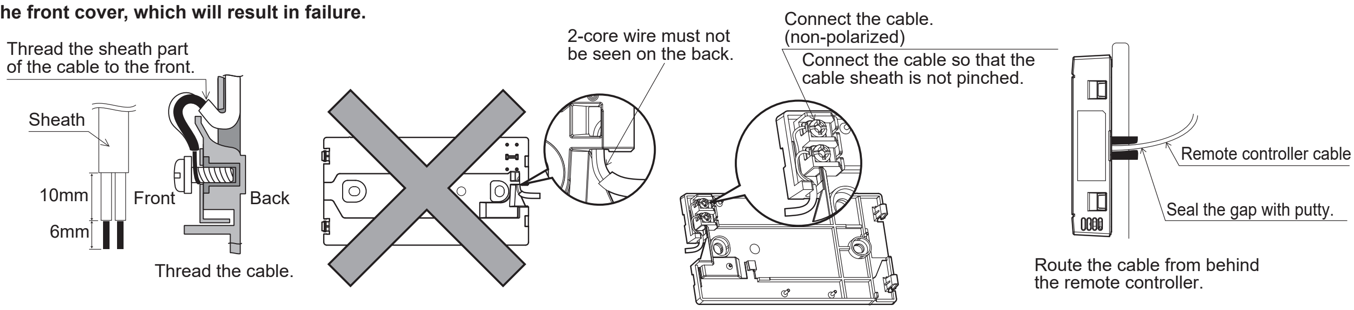
Front cover and top case Bottom case

<Fig. 4.2.4>

⚠ **CAUTION**

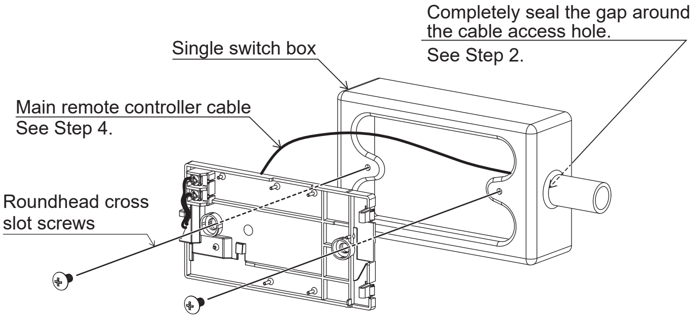
To prevent electric shock or failure, keep the sheath ends or any other foreign objects out of the terminal block.

Do not use ring terminals to connect the wires to the terminal block on the bottom case. The terminals will come in contact with the control board and the front cover, which will result in failure.

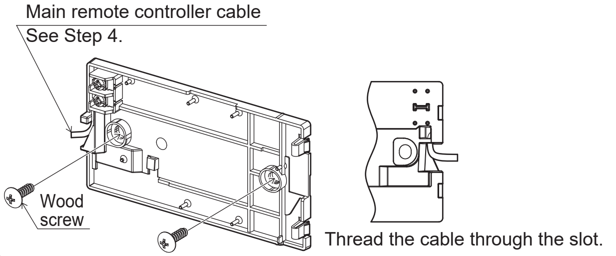


<Fig. 4.2.5>

5. Install the bottom case.
    - ■ Installation using a switch box
        - When installing the bottom case on the switch box, secure it to the switch box with screws.
        - Install the bottom case in the direction shown in Fig 4.2.6.



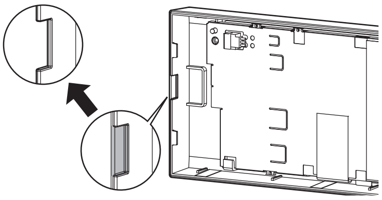
- ■ Direct wall installation
    - Thread the cable through the slot provided.
    - When mounting the bottom case on the wall, secure at least two corners of the main remote controller with screws.
    - To prevent the bottom case from lifting, use top-left bottom-right corners of the main remote controller (viewed from the front) to secure the bottom case to the wall with wall plugs or the like.
    - Install the bottom case in the direction shown in Fig 4.2.6.



<Fig. 4.2.6>

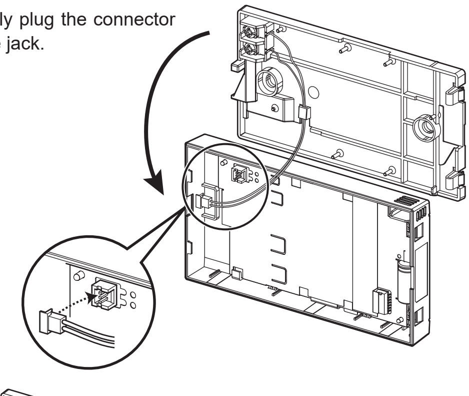
⚠ **CAUTION:**
To avoid causing deformation or cracks to the main remote controller, do not overtighten the screws and do not make an additional installation hole(s).

6. Cut out the cable access hole.
    - ■ Direct wall installation
        - Cut out the knockout hole (indicated with grey in Fig. 4.2.7) in the front cover by nipper.
        - Thread the main remote controller cable from the slot behind the bottom case through this access hole.



<Fig. 4.2.7>

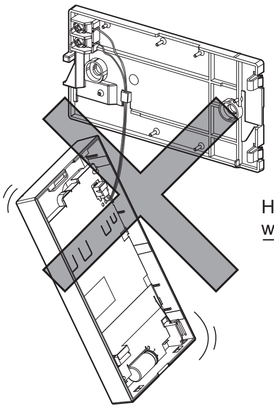
7. Plug the lead wire cable into the top case.
    Plug the lead wire cable coming from the bottom case into the top case.



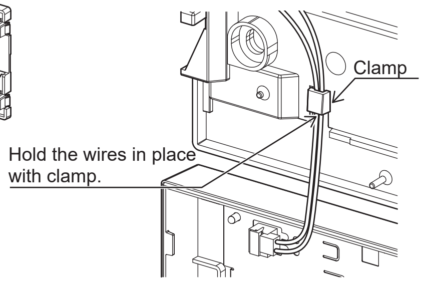
⚠ **CAUTION:**
To avoid failures, do not remove the controller board protective sheet and the controller board from the top case.
After the cable is plugged into the top case, do not hang the top case as shown in Fig. 4.2.8. Otherwise, the main remote controller cable could sever, which could cause malfunction to the main remote controller.

8. Fit the lead wires into the clamps.

⚠ **CAUTION:**
Hold the wires in place with clamps to prevent excessive strain from being applied on the terminal block and causing cable breakage.



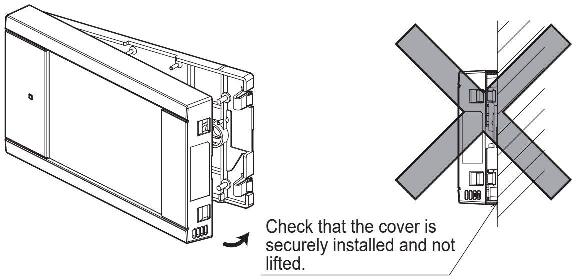
<Fig. 4.2.8>



<Fig. 4.2.9>

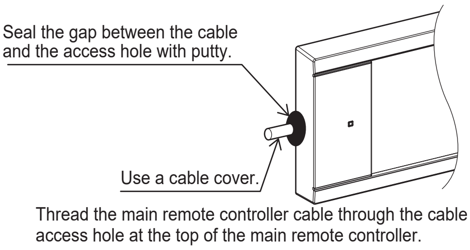
9. Fit the top case and the front cover onto the bottom case.
   The top case assembly (fitted with the front cover at factory shipment) has two tabs on top. Hook the tabs onto the bottom case and snap the top case onto the bottom case into place. Check that the cover is securely installed.

⚠ **CAUTION:**
When the top case is correctly attached to the bottom case, a click is heard. If the front cover is not clicked into place, it may fall off.



<Fig. 4.2.10>

- Direct wall installation (when routing the main remote controller cable along the wall surface)
  • Thread the main remote controller cable through the cable access hole at the top of the main remote controller.
  • Seal the gap between the cable and the access hole with putty.
  • Use a cable cover.



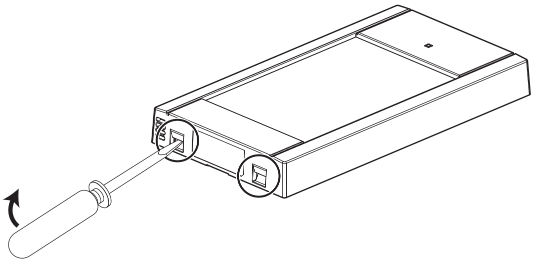
<Fig. 4.2.11>

- Disassembling the top case and the front cover

(1) Remove the front cover.
Insert a flat head screwdriver into either of two open slots at the bottom of the main remote controller and move the screwdriver handle downward as shown. The engagement of the tabs will be released. Then pull the front cover toward the front to remove the front cover.

(2) Remove the top case.
Insert a flat head screwdriver into either of two open slots at the bottom of the main remote controller. The subsequent procedure is the same as that of the front cover.

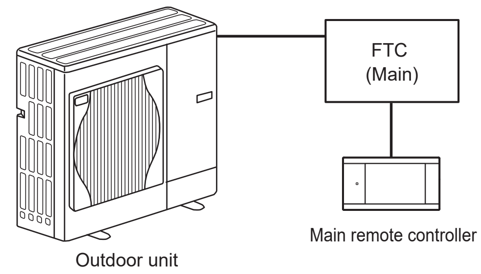
⚠ **CAUTION:**
Use a 5 mm-flat head screwdriver. Do not turn the screwdriver forcibly while placing the blade in the slots. Doing so could break the covers.



<Fig. 4.2.12>

4.3 Main remote controller options

Factory supplied standard



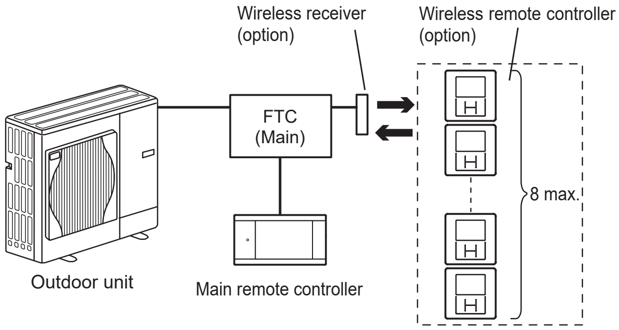
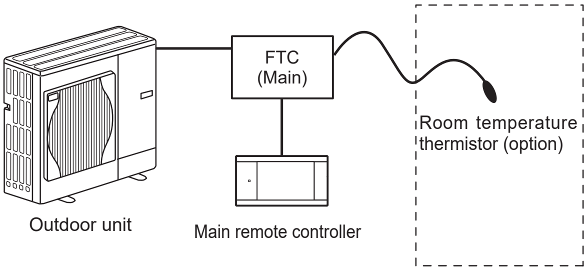
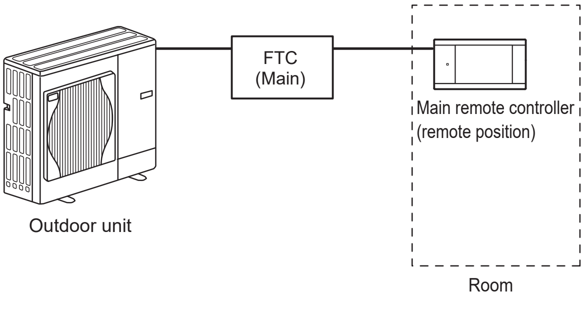
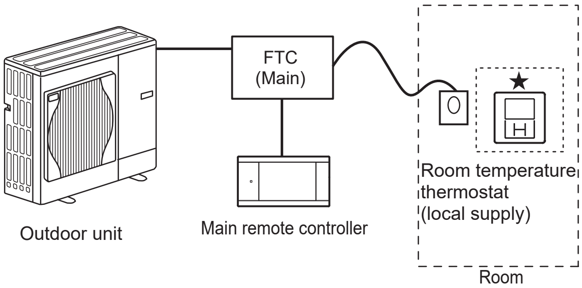
The FTC (cased) comes factory fitted with a main remote controller. This incorporates a thermistor for temperature monitoring and a graphical user interface to enable set-up, view current status and input scheduling functions. The main remote controller is also used for servicing purposes. This facility is accessed via password protected service menus.

To provide the best efficiency, Mitsubishi Electric recommends using Auto Adaptation function based on room temperature for heating purposes only. To use this function a room thermistor needs to be present in a main living area. This can be done in a number of ways. The most convenient are detailed below.
Refer to heating section of this manual for instructions on how to set the weather compensation curve, flow temperature or room temperature (Auto Adaptation).
For instructions on how to set the thermistor input for the FTC (Main) please refer to Initial settings section.

> The factory setting for space heating mode is set to room temperature (Auto Adaptation). If there is no room sensor present in the system or if cooling is required, this setting must be changed to either weather compensation curve mode or flow temperature mode.

Note: Auto Adaptation is not available in cooling mode.

■ 1-zone temperature control

Control option A This option features the main remote controller and the Mitsubishi Electric wireless remote controller. The wireless remote controller is used to monitor room temperature and can be used to make changes to the space heating settings, boost DHW *1 and switch to holiday mode without directly using the main remote controller. If more than one wireless remote controller is used, the most recently requested temperature setting will commonly be applied to all rooms by the central control system regardless of which wireless remote controller was used. No hierarchy exists across these remote controllers. Wire the wireless receiver to FTC (Main) referring to the wireless remote controller instruction manual. **Turn DIP SW1-8 to ON.** Before operation, configure the wireless remote controller to transmit and receive data referring to the wireless remote controller installation manual.	
Control option B This option features the main remote controller and the Mitsubishi Electric thermistor wired to FTC (Main). The thermistor is used to monitor room temperature but can not make any changes in control operation. Any changes to DHW *1 must be made using the main remote controller mounted on the FTC (Main). Wire the thermistor to the CN20 connector on FTC (Main). The number of room temperature thermistors that can be connected to FTC (Main) is always one.	
Control option C This option features the main remote controller being removed from the FTC (Main) and situated in a different room. A thermistor built in the main remote controller can be used for monitoring the room temperature for Auto Adaptation function whilst keeping all its features of the main remote controller available. The main remote controller and FTC (Main) are connected by a 2-core, 0.3 mm², non-polar cable (local supply) with a maximum length of 150 m. To use the sensor in the main remote controller, the main remote controller should be detached from the FTC (Main). Otherwise it will detect the temperature of the FTC (Main) instead of room temperature. This will affect the output of the space heating.	
Control option D (Flow temperature or weather compensation curve only) This option features the main remote controller and a locally supplied thermostat wired to FTC (Main). The thermostat is used to set the maximum temperature for heating room. Any changes to DHW *1 must be made using main remote controller mounted on the FTC (Main). The thermostat is wired to IN1 in TBI.1 on FTC (Main). A single thermostat can be connected to FTC (Main). **The wireless remote controller can be also used as a thermostat.**	

*1 If applicable

2-zone temperature control

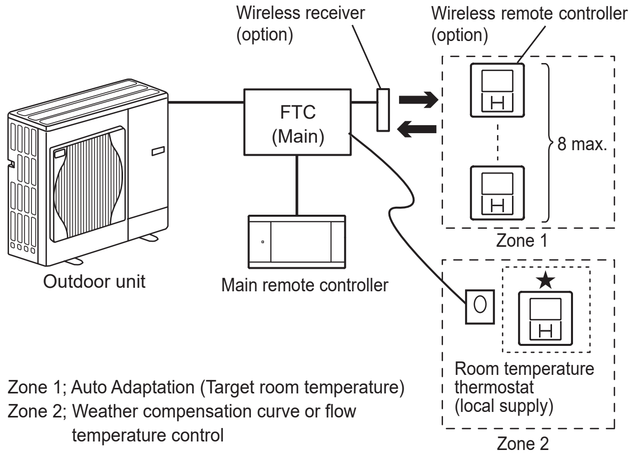
Control option A

This option features the main remote controller, the Mitsubishi Electric wireless remote controller and a locally supplied thermostat.
The wireless remote controller is used to monitor the Zone 1 room temperature and the thermostat is used to monitor the Zone 2 room temperature.
The thermostat can be also assigned to Zone 1 and the wireless remote controller to Zone 2.

The wireless remote controller can be also used to make changes to the space heating settings, boost DHW *1 and switch to holiday mode without having to use the main remote controller.

If more than one wireless remote controller is used, the last temperature setting adjustment/demand will be applied to all rooms in same zone.

Wire the wireless receiver to FTC (Main) referring to the wireless remote controller instruction manual. Turn DIP SW1-8 to ON. Before operation, configure the wireless remote controller to transmit and receive data referring to the wireless remote controller installation manual.
The thermostat is used to set the maximum temperature for heating Zone 2 room.
The thermostat is wired to IN6 on FTC (Main). (If the thermostat is assigned to Zone 1, it is wired to IN1 on TBI.1.) (Refer to 4.5.)

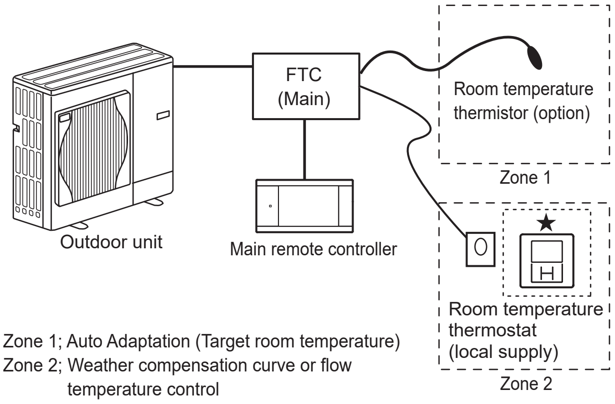


Zone 1; Auto Adaptation (Target room temperature)
Zone 2; Weather compensation curve or flow temperature control

Control option B

This option features the main remote controller, the Mitsubishi Electric thermistor and a locally supplied thermostat that are wired to FTC (Main).
The thermistor is used to monitor the Zone 1 room temperature and the thermostat is used to control the Zone 2 room temperature.

The thermostat can be also assigned to Zone 1 and the thermistor to Zone 2.
The thermistor can not make any changes in control operation. Any changes to DHW *1 must be made using the main remote controller mounted on the FTC (Main).
Wire the thermistor to the CN20 connector on FTC (Main).
The number of room temperature thermistors that can be connected to FTC (Main) is always one.
The thermostat is used to set the maximum temperature for heating Zone 2 room.
The thermostat is wired to IN6 on FTC (Main). (If the thermostat is assigned to Zone 1, wire it to IN1 on TBI.1.) (Refer to 4.5.)



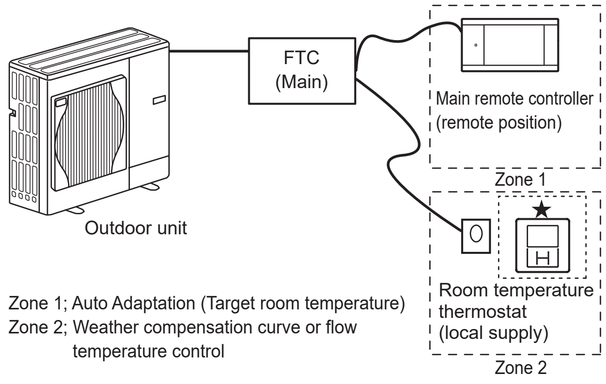
Zone 1; Auto Adaptation (Target room temperature)
Zone 2; Weather compensation curve or flow temperature control

Control option C

This option features the main remote controller (with in-built thermistor) that is removed from the FTC (Main) to monitor the Zone 1 room temperature and a locally supplied thermostat to monitor the Zone 2 room temperature.
The thermostat can be also assigned to Zone 1 and the thermistor to Zone 2.

A thermistor built into the main remote controller can be used for monitoring the room temperature for Auto Adaptation function whilst keeping all its features of the main remote controller available.
The main remote controller and FTC (Main) are connected by a 2-core, 0.3 mm², non-polar cable (local supply) with a maximum length of 150 m.
To use the sensor in the main remote controller, the main remote controller should be detached from the FTC (Main). Otherwise it will detect the temperature of the FTC (Main) instead of room temperature. This will affect the output of the space heating.

The thermostat is used to set the maximum temperature for heating Zone 2 room.
The thermostat is wired to IN6 on FTC (Main). (If the thermostat is assigned to Zone 1, wire it to IN1 on TBI.1.) (Refer to 4.5.)

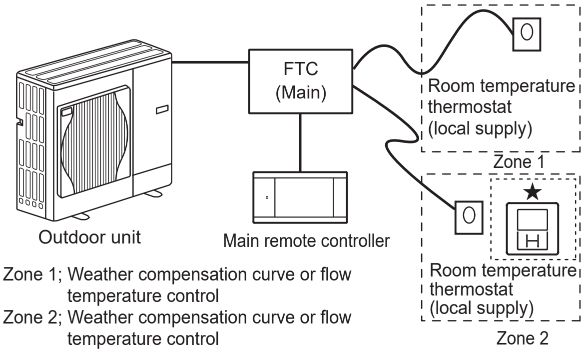


Zone 1; Auto Adaptation (Target room temperature)
Zone 2; Weather compensation curve or flow temperature control

Control option D

This option features the locally supplied thermostats wired to FTC (Main). The thermostats are individually assigned to Zone 1 and Zone 2. The thermostats are used to set each maximum temperature for heating Zone 1 and Zone 2 rooms. Any changes to DHW *1 must be made using the main remote controller mounted on the FTC (Main).

The thermostat for Zone 1 is wired to IN1 in TBI.1 on FTC (Main).
The thermostat for Zone 2 is wired to IN6 in TBI.1 on FTC (Main).



Zone 1; Weather compensation curve or flow temperature control
Zone 2; Weather compensation curve or flow temperature control

Note: For the options above, the sensor types can be exchanged between Zone 1 and Zone 2. (e.g. Wireless remote controller in Zone 1 and room temperature thermostat in Zone 2 can be changed to room temperature thermostat and wireless remote controller, respectively.)
*1 If applicable
★ The wireless remote controller can be also used as a thermostat.

4.4. Connecting the thermistor cables

Connect the thermistor for the FTC (Main) controller.
For multiple outdoor units control with FTC (Sub), see section 9.

4.4.1 Connecting the room temp. thermistor (TH1) cable

TH1 is an optional part (PAC-SE41TS-E).
TH1 is required to use the Auto Adaptation function. However, when room temperature detection is conducted by the main remote controller or the wireless remote controller (optional), this part is not required.
Connect the TH1 cable to the CN20 connector on FTC (Main).
When the TH1 cable is too long, bundle the excess cable outside the FTC (Main) unit.
For more details, refer to Section 4.3 in this manual or the installation manual that comes with PAC-SE41TS-E.
When using TH1, place this sensor on appropriate location to detect room temperature.

4.4.2. Connecting the refrigerant pipe temp. thermistor (TH2) cable

Connect the TH2 cable to the CN21 connector on FTC (Main).
For split outdoor unit : Connect TH2.
For packaged outdoor unit : It is NOT necessary to connect TH2.

When the TH2 cable is too long, bundle the excess cable outside the FTC (Main) unit.
Do not bind the wires in the FTC (Main) unit.

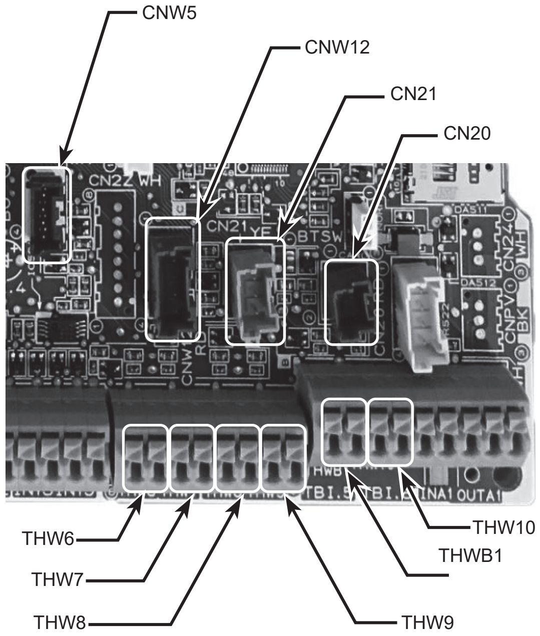
<Thermistor position>
Place TH2 on **refrigerant** piping (**liquid** side).
It is recommended to protect the thermistor with heat insulating materials so as not to be affected by ambient temperature.
Note: Be sure to place TH2 where it correctly detects refrigerant piping temp. (liquid side).
Because;
(1) TH2 is required to detect heating subcool correctly.
(2) Refrigerant temperature of water-to-refrigerant heat exchanger also needs to be detected for protection purpose.

4.4.3. Connecting the cables of the thermistor (Flow water temp.) (THW1) and the thermistor (Return water temp.) (THW2)

The THW1 and the THW2 cables share a connector, and the connector connects to CNW12 connector on FTC (Main).

When the THW1 and THW2 cables are too long, bundle the excess cables outside the FTC (Main) unit.
Do not bind the wires in the FTC (Main) unit.

<Thermistor position>
Place THW1 on **water** piping (water **outlet** side) after booster heater, and THW2 on the water inlet side.
It is recommended to protect the thermistor with heat insulating materials so as not to be affected by ambient temperature.
Note: Be sure to attach THW1 where it correctly detects flow temperature (water outlet side). For more details, see Page 5.



<Fig. 4.4.1>

4.4.4. Connecting the cable of the thermistor (DHW tank lower water temp.) (THW5B)

THW5B is an optional part (PAC-TH011TK2-E (5 m) or PAC-TH011TKL2-E (30 m)). However, PAC-IF083B-E comes with THW5B.
Connect the THW5B cable to the CNW5 connector on FTC (Main) if the DHW tank is available.
When the THW5B cable supplied with FTC (Main) is too long, bundle the excess cable outside the FTC (Main) unit.
Do not bind the wires in the FTC (Main) unit.

<Thermistor position>
Place THW5 on the position where tank water temperature can be detected correctly.
It is recommended to position the thermistor at the mid height of the DHW tank (to control DHW heating with this sensor).
It is recommended to protect the thermistor with heat insulating materials so as not to be affected by ambient temperature.
Especially for double (insulated) tank, thermistor should be attached to the inner side (to detect the water temperature).

Note:
Stranded wire should be processed with insulation-covered bar terminal (DIN46228-4 standard compatible type).
For 2-zone temperature control, refer to “4.7 Wiring for 2-zone temperature control” where the necessary thermistor (THW6, THW7, THW8, THW9) connection is explained.

For back-up operation of boiler, refer to the installation manual of PAC-TH012HT-E where the necessary thermistor (THWB1, THW6, THW7) connection is explained.

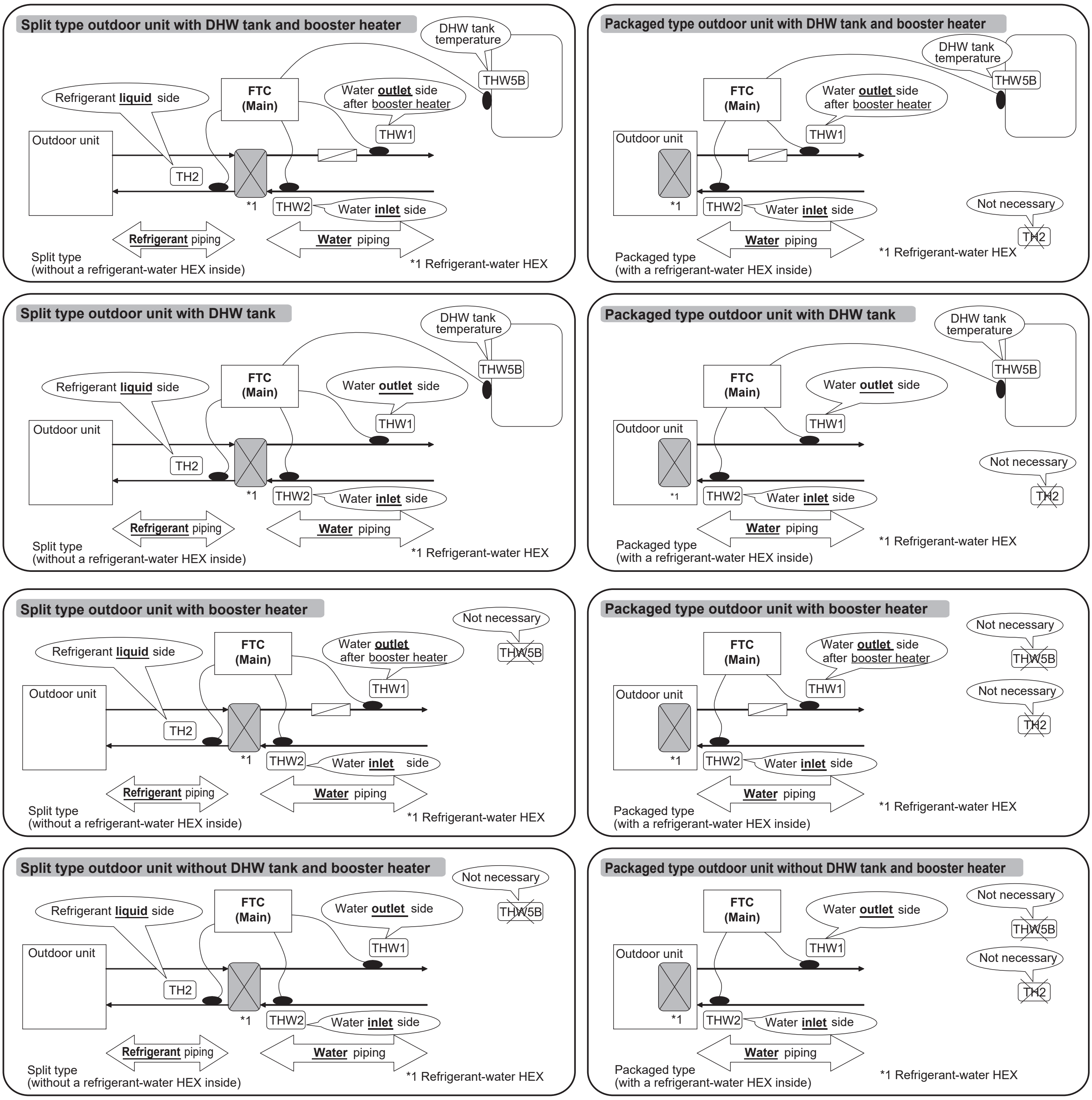
⚠ **CAUTION:**
Do not route the thermistor cables together with power cables.
The sensor part of the thermistor should be installed where user can not access.

4.4.5. Thermistor position and necessity

<Thermistor position and necessity>

Outdoor unit type	DHW tank	TH2	THW1	THW2	THW5B
Split	Present	✓	✓	✓	✓
	Absent	✓	✓	✓	—
Packaged	Present	—	✓	✓	✓
	Absent	—	✓	✓	—

✓: Necessary. Connect the thermistor.
—: Not necessary. Do not connect the thermistor.



<Fig. 4.4.2>

4.5 Connecting inputs/outputs

For multiple outdoor units control with FTC (Sub), see section 9.

■ Signal inputs

Name	Terminal block	Con-nector	Item	OFF (Open)	ON (Short)
IN1	TBI.1 7-8	—	Room thermostat 1 input *1	Refer to SW2-1 in <5.1 DIP switch functions>.	
IN2	TBI.1 5-6	—	Flow switch 1 input	Refer to SW2-2 in <5.1 DIP switch functions>.	
IN3	TBI.1 3-4	—	Flow switch 2 input (Zone 1)	Refer to SW3-2 in <5.1 DIP switch functions>.	
IN4	TBI.1 1-2	—	Demand control input	Normal	Heat source OFF/ Boiler operation *3
IN5	TBI.2 7-8	—	Outdoor thermostat input *2	Standard operation	Heater operation/ Boiler operation *3
IN6	TBI.2 5-6	—	Room thermostat 2 input *1	Refer to SW3-1 in <5.1 DIP switch functions>.	
IN7	TBI.2 3-4	—	Flow switch 3 input (Zone 2)	Refer to SW3-2 in <5.1 DIP switch functions>.	
IN8	TBI.3 7-8	—	Electric energy meter 1	*4	
IN9	TBI.3 5-6	—	Electric energy meter 2		
IN10	TBI.2 1-2	—	Heat meter		
IN11	TBI.3 3-4	—	Smart grid ready input	*5	
IN12	TBI.3 1-2	—			
IN13	TBI.4 3-4	—	Forced cooling mode	Refer to SW7-2 in <5.1 DIP switch functions>.	
IN15	TBI.4 1-2	—	Cooling limit temp.	Refer to SW7-3 in <5.1 DIP switch functions>.	
INA1	TBI.6 3-5	CN1A	Flow sensor input	*6	

*1. Set the ON/OFF cycle time of the room thermostat for 10 minutes or more; otherwise the compressor may be damaged.

*2. If using outdoor thermostat for controlling operation of heaters, the lifetime of the heaters and related parts may be reduced.

*3. To turn on the boiler operation, use the main remote controller to select [Boiler settings] in [Operation settings] from [Service].

*4. Connectable electric energy meter and heat meter

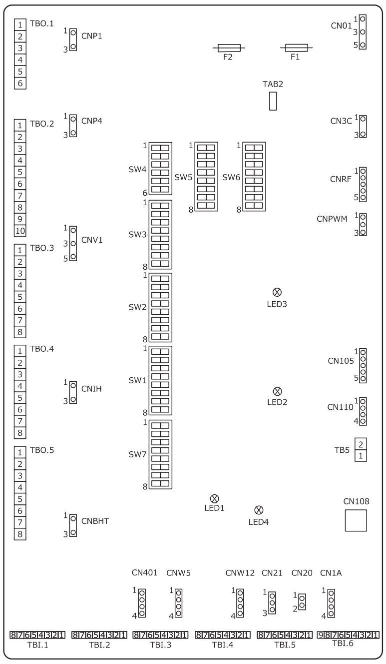
● Pulse type	Voltage free contact for 12 VDC detection by FTC (TBI.2 1 pin, TBI.3 5 and 7 pins have a positive voltage.)
● Pulse duration	Minimum ON time: 40ms Minimum OFF time: 100ms
● Possible unit of pulse	0.1 pulse/kWh 1 pulse/kWh 10 pulse/kWh 100 pulse/kWh 1000 pulse/kWh

Those values can be set by the main remote controller. (Refer to the menu tree in "7.2 Main remote controller".)

*5. As for the smart grid ready, refer to "4.9 Smart grid ready".

*6. Connectable flow sensor

● Power supply	5 V DC
● Measuring range	5 to 100 L/min Those values can be set by the main remote controller. (Refer to [Auxiliary settings] on this page.)
● Flow signal	0.5 V (at minimum flow rate) to 3.5 V (at maximum flow rate)



<Fig. 4.5.1>

Wiring specification and local supply parts

Item	Name	Model and specifications
Signal input function	Signal input wire	Use sheathed vinyl coated cord or cable: 30 m max. Wire type: CV, CVS or equivalent Wire size: Stranded wire 0.13 mm² to 0.52 mm² Solid wire: ø0.4 mm to ø0.8 mm
	Switch	Non-voltage “a” contact signals Remote switch: minimum applicable load 12 V DC, 1 mA

Note:
Stranded wire should be processed with insulation-covered bar terminal (DIN46228-4 standard compatible type).

[Auxiliary settings]

This function is used to set the parameters for any auxiliary parts used in the system

Menu subtitle		Function/ Description
[Economy settings for pump]		Water pump stops automatically in certain period of time from when operation is finished.
	[Delay]	Time before pump switched off*1
[Electric heater (Heating)]		To select “WITH booster heater (ON)” or “WITHOUT booster heater (OFF)” in heating mode.
	[Delay]	The minimum time required for the booster heater to turn ON from after heating mode has started.
[Electric heater (DHW)]		To select "WITH (ON)" or "WITHOUT (OFF)" booster heater or immersion heater individually in DHW mode.
	[Delay]	The minimum time required for the booster heater or immersion heater to turn ON from after DHW mode has started. (This setting is applied for both booster and immersion heater.)
Mixing valve 1/2 control *2	[Running]	Period from valve fully open (at a hot water mixing ratio of 100%) to valve fully closed (at a cold water mixing ratio of 100%)
	[Interval]	Interval (min.) to control the mixing valve.
[Flow sensor] *3	[Minimum]	The minimum flow rate to be detected at flow sensor.
	[Maximum]	The maximum flow rate to be detected at flow sensor.

*1. Decreasing "time before pump switched off" may increase the duration of stand-by in heating/cooling mode.

*2. Set the running time according to the specifications of the actuator of each mixing valve. It is recommended to set the interval to 2 minutes that is a default value. With the interval set longer, it could take longer to warm up a room.

*3. Do not change the setting since it is set according to the specification of flow sensor attached to the indoor unit.

■ Thermistor inputs

Name	Terminal block	Connector	Item	Optional part model
TH1	—	CN20	Thermistor (Room temp.) (Option) *1	PAC-SE41TS-E
TH2	—	CN21	Thermistor (Ref. liquid temp.) *2	—
THW1	—	CNW12 1-2	Thermistor (Flow water temp.)	—
THW2	—	CNW12 3-4	Thermistor (Return water temp.)	—
THW5A	—	CNW5 1-2	Thermistor (DHW tank upper water temp.)	—
THW5B	—	CNW5 3-4	Thermistor (DHW tank water temp.)	—
THW6	TBI.5 7-8	—	Thermistor (Zone 1 flow water temp.) (Option) *1	PAC-TH011-E
THW7	TBI.5 5-6	—	Thermistor (Zone 1 return water temp.) (Option) *1	
THW8	TBI.5 3-4	—	Thermistor (Zone 2 flow water temp.) (Option) *1	PAC-TH011-E
THW9	TBI.5 1-2	—	Thermistor (Zone 2 return water temp.) (Option) *1	
THW10	TBI.6 6-7	—	Thermistor (Mixing tank water temp.) (Option) *1	PAC-TH012HT-E(5 m)/ PAC-TH012HTL-E(30 m)
THWB1	TBI.6 8-9	—	Thermistor (Boiler flow water temp.) (Option) *1	

Ensure to wire thermistor wirings away from the power line and/or OUT1 to OUT18 wirings.

***1. The maximum length of the thermistor wiring is 30 m.**

The length of the optional thermistors are 5 m. If you need to splice and extend the wirings, following points must be carried out.

1) Connect the wirings by soldering.

2) Insulate each connecting point against dust and water. Stranded wire should be processed with insulation-covered bar terminal (DIN46228-4 standard compatible type).

***2. Except PAC-IF082/083B-E.**

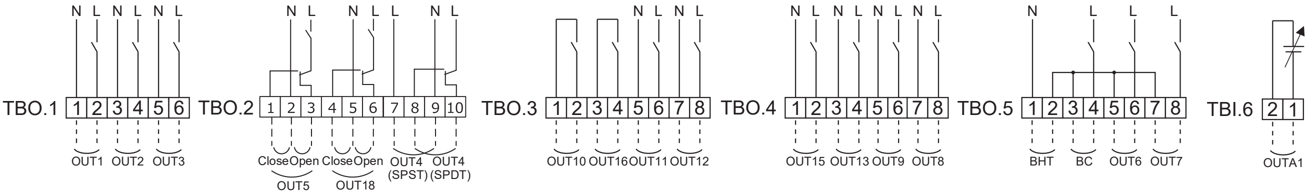
■ Outputs

Name	Terminal block	Connector	Item	OFF	ON	Signal/Max. current	Max. total current
OUT1	TBO.1 1-2	CNP1	Water circulation pump 1 output (Space heating/cooling & DHW)	OFF	ON	230 V AC 1.0 A max. (Inrush current 40 A max.)	4.0 A (a)
OUT2	TBO.1 3-4	—	Water circulation pump 2 output (Space heating/cooling for Zone 1)	OFF	ON	230 V AC 1.0 A max. (Inrush current 40 A max.)	
OUT3	TBO.1 5-6	—	Water circulation pump 3 output (Space heating/cooling for Zone 2) *1	OFF	ON	230 V AC 1.0 A max. (Inrush current 40 A max.)	
			2-way valve 2b output *2				
OUT4	TBO.2 7-9	—	3-way valve SPST (2-way valve 1) output	Heating/Cooling	DHW	230 V AC 0.1 A max.	3.0 A (b)
	TBO.2 8-10	CNV1	3-way valve SPDT output				
OUT5	TBO.2 1-2	—	Zone 2 mixing valve output *1	Stop	Close	230 V AC 0.1 A max.	
	TBO.2 2-3				Open		
OUT6	TBO.5 5-6	—	Booster heater 1 output	OFF	ON	230 V AC 0.5 A max. (Relay)	
OUT7	TBO.5 7-8	—	Booster heater 2 output	OFF	ON	230 V AC 0.5 A max. (Relay)	
OUT8	TBO.4 7-8	—	Cooling signal output	OFF	ON	230 V AC 0.5 A max.	
OUT9	TBO.4 5-6	CNIH	Immersion heater output	OFF	ON	230 V AC 0.5 A max. (Relay)	
OUT10	TBO.3 1-2	—	Boiler output	OFF	ON	non-voltage contact ·220 - 240 V AC (30 V DC) 0.5 A or less ·10 mA 5 V DC or more	—
OUT11	TBO.3 5-6	—	Error output	Normal	Error	230 V AC 0.5 A max.	3.0 A (b)
OUT12	TBO.3 7-8	—	Defrost output	Normal	Defrost	230 V AC 0.5 A max.	
OUT13	TBO.4 3-4	—	2-way valve 2a output *2	OFF	ON	230 V AC 0.1 A max.	
OUT14	—	CNP4	Water circulation pump 4 output (DHW)	OFF	ON	230 V AC 1.0 A max.	4.0 A (a)
OUT15	TBO.4 1-2	—	Comp ON signal	OFF	ON	230 V AC 0.5 A max.	3.0 A (b)
OUT16	TBO.3 3-4	—	Heating/Cooling thermostat ON signal	OFF	ON	non-voltage contact ·220 - 240 V AC (30V DC) 0.5 A or less ·10 mA 5 V DC or more	—
OUT18	TBO.2 4-5	—	Zone 1 mixing valve output *1	Stop	Close	230 V AC 0.1 A max.	3.0 A (b)
	TBO.2 5-6				Open		
OUTA1	TBI.6 1-2	—	Analog output	—	—	0 - 10 V DC 5 mA max.	—
BC	TBO.5 3-4	—	Booster heater protection output	OFF (BHT open)	ON (BHT short)	230 V AC 0.5 A max.	—
BHT	TBO.5 1-2	CNBHT	Thermostat for booster heater	Thermostat Normal: short	High temp. : open	—	—

Do not connect to the terminals that are indicated as "—" in the "Terminal block" field.

***1 For 2-zone temperature control.**

***2 For 2-zone valve ON/OFF control.**



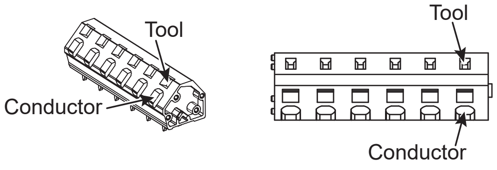
Wiring specification and local supply parts

Item	Name	Model and specifications
External output function	Outputs wire	Use sheathed vinyl coated cord or cable: 30 m max. Wire type: CV, CVS or equivalent Wire size: Stranded wire 0.25 mm² to 1.5 mm² Solid wire: 0.25 mm² to 1.5 mm²

Note:

1. **When the FTC is powered via outdoor unit, the maximum grand total current of (a)+(b) is 3.0 A.**
2. **Do not connect multiple water circulation pumps directly to each output (OUT1, OUT2, and OUT3). In such a case, connect them via (a) relay(s).**
3. **Connect an appropriate surge absorber to OUT10 (TBO.3 1-2) depending on the load at site.**
4. **Stranded wire should be processed with insulation-covered bar terminal (DIN46228-4 standard compatible type).**

How to use TBO.1 to 5



Outline view **Top view**

Connect them using either way as shown above.
<Fig. 4.5.2>

4.6 Wiring for heater

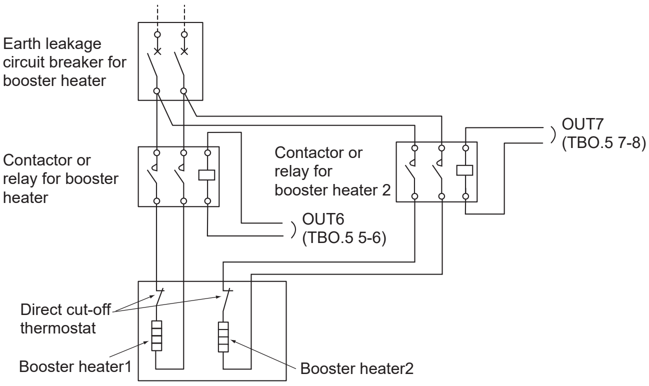
<Be careful when connecting a booster heater(s)>
The initial setting assumes that the connected booster heater(s) has a built-in direct cut-off thermostat. (Fig. 4.6.1)
When the connected booster heater(s) has a built-in indirect cut-off thermostat, perform wiring according to the following items. (Fig. 4.6.2)

- Connect the thermostat signal to BHT (TBO.5 1-2).
- Remove the jumper wire from connector CNBHT.
- Connect a contactor (or relay) for protecting the booster heater.
  (Connect the electromagnetic coil terminals to BC (TBO.5 3-4.))

* Do not remove the jumper wire from connector CNBHT when the connected booster heater(s) has a built-in direct cut-off thermostat. (Fig. 4.6.1)

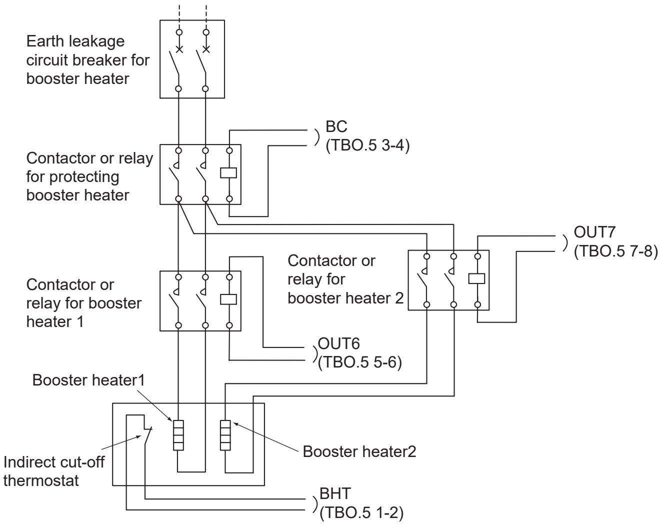
<Care to be taken when connecting an immersion heater>
The initial setting assumes that the connected immersion heater has a built-in direct cut-off thermostat. (Fig. 4.6.3)

<Wiring for booster heater with a built-in direct cut-off thermostat>



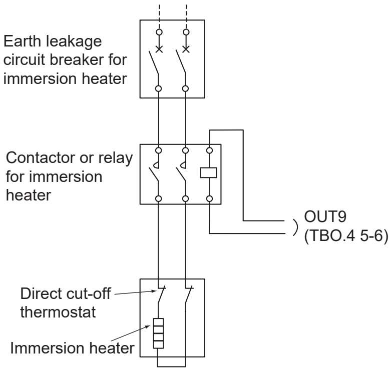
<Fig. 4.6.1>

<Wiring for booster heater with a built-in indirect cut-off thermostat>



<Fig. 4.6.2>

<Wiring for immersion heater with a built-in direct cut-off thermostat>



<Fig. 4.6.3>

4.7 Wiring for 2-zone temperature control

Connect the pipe work and locally supplied parts according to the relevant circuit diagram shown “Local system” in Section 3, of this manual.

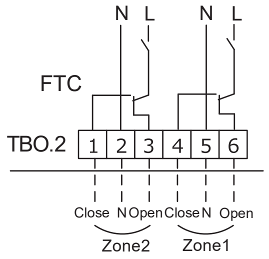
<Mixing valve>

Zone 1

Connect the signal line to open Port A (hot water inlet port) to TBO. 2-6 (Open), the signal line to open Port B (cold water inlet port) to TBO. 2-4 (Close) , and the neutral terminal wire to TBO. 2-5 (N).

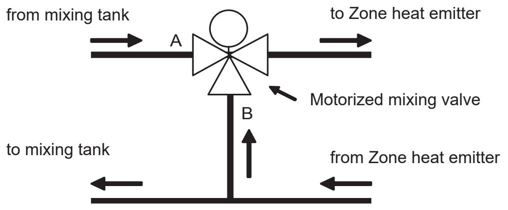
Zone 2

Connect the signal line to open Port A (hot water inlet port) to TBO. 2-3 (Open), the signal line to open Port B (cold water inlet port) to TBO. 2-1 (Close) , and the neutral terminal wire to TBO. 2-2 (N).



<Thermistor>

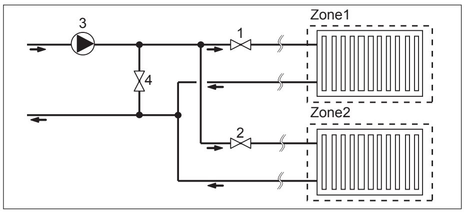
- Do not install the thermistors on the mixing tank.
- Install the thermistor (Zone 1 flow water temp.) (THW6) near the mixing valve.
- Install the thermistor (Zone 2 flow water temp.) (THW8) near the mixing valve.
- The maximum length of the thermistor wiring is 30 m.
- The length of the optional thermistors are 5 m. If you need to splice and extend the wirings, following points must be carried out.
  1) Connect the wirings by soldering.
  2) Insulate each connecting point against dust and water.



4.8 2-zone valve ON/OFF control

Opening/Closing 2-way valve provides a simple 2-Zone control.
Flow temperature is common for Zone 1 and 2.

1. Pipe work



1. Zone 1 2-way valve 2a (local supply)
2. Zone 2 2-way valve 2b (local supply)
3. Water circulation pump 2 (local supply) *1
4. By-pass valve (local supply) *2

*1 Install according to system in the field.
*2 For safety protection, it is recommended to install a bypass valve.

Note: Freeze stat function is deactivated whilst this control is ON. Use anti-freeze solution to avoid freezing, if necessary.

2. DIP switch

Turn DIP switch 3-6 ON.

3. 2-way valve 2a (for Zone 1) / 2-way valve 2b (for Zone 2)

Electrically wire 2-way valve 2a and 2b to the appropriate external output terminals. (Refer to "External outputs" in 4.5)

4. Room thermostat connection

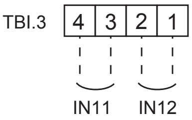
Heating operation mode	Zone 1	Zone 2
Room temperature control (Auto Adaptation) *3	● Wireless remote controller (option) ● Room temperature thermistor (option) ● Main remote controller (remote position)	● Wireless remote controller (option)
Weather compensation curve or flow temperature control	● Wireless remote controller (option) *4 ● Room temperature thermostat (local supply)	● Wireless remote controller (option) *4 ● Room temperature thermostat (local supply)

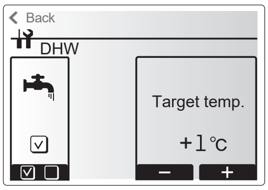
***3 Ensure to install the room thermostat for Zone 1 in main room since the room temperature control for Zone 1 is prioritized.**
***4 The wireless remote controller can be used as a thermostat.**

4.9 Smart grid ready

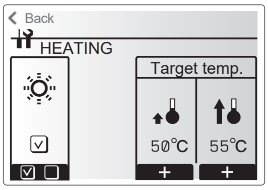
In DHW, heating or cooling operation, the commands in the table below can be used.

IN11	IN12	Meaning
OFF (open)	OFF (open)	Normal operation
ON (short)	OFF (open)	Switch-on recommendation
OFF (open)	ON (short)	Switch-off command
ON (short)	ON (short)	Switch-on command





Target temp.
+1℃



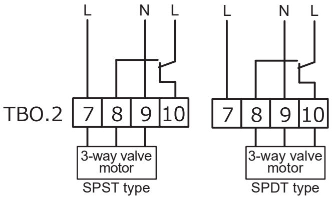
Target temp.
50℃ 55℃

4.10 Installation procedure for DHW tank

Note:

- **Be aware that the respective DHW operations are greatly affected by the selections of the components such as tank, immersion heater, or the like.**
- **Comply to your local regulations to perform system configuration.**

1. To enable switching of the water circulation circuit between the DHW mode and the heating mode, install a 3-way valve (local supply). The 3-way valve and the DHW tank should be positioned as shown in the system diagram in section 3.
   The use of two 2-way valves can perform the same function as a 3-way valve.
2. Install the optional thermistor THW5 (optional part PAC-TH011TK2-E (5 m) or PAC-TH011TKL2-E (30 m)) on the DHW tank. Note that PAC-IF083B-E comes with THW5B.
   It is recommended to position the thermistor at the mid point of the DHW tank capacity. Insulate thermistor from ambient air. Especially for double (insulated) tank, thermistor should be attached to the inner side (to detect the water temperature).
3. Connect the thermistor lead to the CNW5 connector on the FTC (Main).
4. The output terminals for the 3-way valve (SPST) is TBO.2 7-9 (OUT4).
   The output terminals for the 3-way valve (SPDT) is TBO.2 8-10 (OUT4).



When the rated current of the 3-way valve exceeds 0.1 A, be sure to use a relay with maximum voltage and current ratings of 230 V AC / 0.1 A when connecting to the FTC (Main). Do not directly connect the 3-way valve cable to the FTC (Main). Connect the relay cable to the TBO.2 8-9 terminals.
For systems using 2-way valves instead of a 3-way valve please read the following:

Specification of 2-way valve (local supply)

- Power supply: 230 V AC
- Current: 0.1 A max. **(You must use a relay if over 0.1 A.)**
- Type: Normally closed

	Installation position	Electrical connection terminal block	Output signal		
			Heating/ Cooling	DHW	System OFF
2-way valve 1	DHW	TBO.2 8-9	OFF (closed)	ON (open)	OFF (closed)
2-way valve 2	Heating/ Cooling	TBO.4 3-4	ON (open)	OFF (closed)	OFF (closed)

Note: Should the 2-way valve become blocked, the water circulation will stop.
A bypass valve or circuit should be installed between pump and 2-way valve for safety.
The TBO.4 3-4 terminals on the FTC (Main) are shown in the wiring diagram.
The 2-way valve (local supply) should be installed according to the instructions supplied with it. Follow 2-way valve's manufacturer's instructions as to whether to connect an earth cable or not.

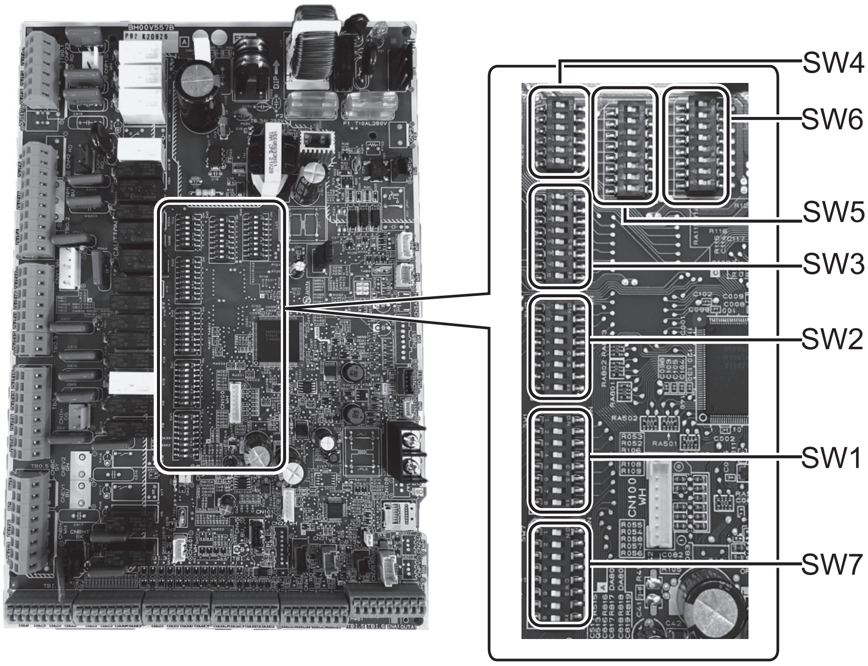
- For the 2-way valve, choose the one that slowly opens and shuts off to prevent water hammer sound.
- Choose the 2-way valve equipped with manual override, which is necessary for topping up or draining of water.

5. Turn the DIP SW1-3 on the FTC (Main) to ON.

6. When using an immersion heater (local supply), connect a contact relay cable for the immersion heater to TBO.4 5-6 (OUT9), and turn the DIP SW1-4 to ON. Do NOT directly connect the power cable to the FTC (Main).

Note:

- When an immersion heater is installed, select appropriate breaker capacity and a cable with appropriate diameter on the basis of heater output.
- When wiring an immersion heater in the field, always install an earth leakage breaker to prevent accidental electric shock.



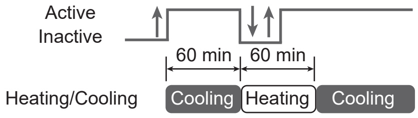
When connecting DHW tank

(1) Attach the optional thermistor THW5 (PAC-TH011TK2-E (5 m) or PAC-TH011TKL2-E (30 m)). Note that PAC-IF083B-E comes with THW5A/5B.
(2) Always use earth leakage breaker when connecting immersion heater.
(3) When installing an immersion heater, be sure that the immersion heater has a built-in direct cut-off thermostat.
(4) Connect a pressure relief valve on the sanitary water side.

4.11 Forced cooling mode input (IN13)

- When IN13 is active, the mode (heating/cooling) is fixed to cooling.
- SW7-2 changes the logic of IN13.

Name	Terminal block	DIP SW7-2	
		OFF	ON
IN13	TBI.4 3-4	Active at short (Default setting)	Active at open



Notes:
Use non-voltage contact signals for the switch of IN13.
The mode (heating/cooling) does not switch under the condition such as
- within 60 minutes since the mode switched last time,
- during DHW mode or legionella prevention mode,
- during outdoor unit protection control,
- during emergency operation, floor dry up operation, or abnormality.

Check the mode with the main remote controller or the cooling signal output (OUT8 ON: cooling, OFF: heating).

4.12 Using microSD memory card

FTC is equipped with a microSD memory card interface.
Using a microSD memory card can simplify main remote controller settings and can store operating logs. *1

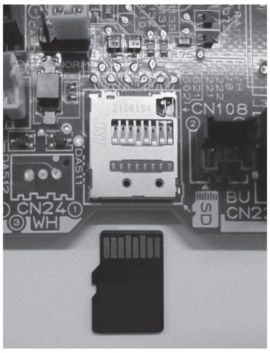
*1 To edit main remote controller settings or to check operating data, an Ecodan service tool (for use with PC) is required.

<Handling precautions>

(1) Use a microSD memory card that complies with the SD standards. Check that the microSD memory card has a logo on it of those shown to the right.

(2) SD memory cards to the SD standards include microSD and microSDHC memory cards. The capacities are available up to 32 GB.

(3) Insert the microSD memory card into the FTC control board in the direction shown below.



(4) Before inserting or ejecting a microSD memory card, make sure to power off the system. If a microSD memory card is inserted or ejected with the system powered on, the stored data could be corrupted or the microSD memory card be damaged.
*A microSD memory card is live for a short duration after the system is powered off. Before insertion or ejection wait until the LED lamps on the FTC control board are all off.

(5) The read and write operations have been verified using the following microSD memory cards, however, these operations are not always guaranteed as the specifications of these microSD memory cards could change.

Manufacturer	Model	Tested in
Vantastek	Vantastek 8GB microSDHC	Sep. 2022
Longsys	NC5MC2008G-52A39	Sep. 2022
Kingston	SDCS2/32GBSP	Sep. 2022

Before using a new microSD memory card (including the card that comes with the unit), always check that the microSD memory card can be safely read and written to by the FTC controller.
<How to check read and write operations>
a) Check for correct wiring of power supply to the system. For more details, refer to section 4.1.
(Do not power on the system at this point.)
b) Insert a microSD memory card.
c) Power on the system.
d) The LED4 lamp lights if the read and write operations are successfully completed. If the LED4 lamp continues blinking or does not light, the microSD memory card cannot be read or written to by the FTC controller.

(6) Make sure to follow the instruction and the requirement of the microSD memory card's manufacturer.

(7) Format the microSD memory card if determined unreadable in step (5). This could make it readable.
Download an SD card formatter from the following site.
SD Association homepage: https://www.sdcard.org/home/

(8) FTC supports FAT12/FAT16/FAT32 file system but not NTFS/exFAT file system.

(9) Mitsubishi Electric is not liable for any damages, in whole or in part, including failure of writing to a microSD memory card, and corruption and loss of the saved data, or the like. Back up saved data as necessary.

(10) Do not touch any electronic parts on the FTC control board when inserting or ejecting a microSD memory card, or else the control board could fail.

Logos
microSD™ microSDHC™
Capacities
2 GB to 32 GB *2
SD speed classes
All

• The microSD logo is a trademark of SD-3C, LLC.

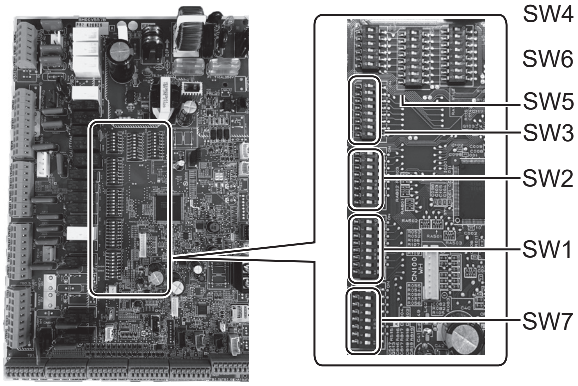
*2 A 2GB microSD memory card stores up to 30 days of operation logs.

5 DIP Switch setting

5.1 DIP switch functions

Located on the FTC printed circuit board are 7 sets of small white switches known as DIP switches. The DIP switch number is printed on the circuit board next to the relevant switches. The word ON is printed on the circuit board and on the DIP switch block itself. To move the switch, you will need to use a pin or the corner of a thin metal ruler or similar.

DIP switch settings are listed below in Table 5.1.1.
Only an authorised installer can change DIP switch setting under one's own responsibility according to the installation condition.
Make sure to turn off both indoor unit and outdoor unit power supplies before changing the switch settings.
For multiple outdoor units control with FTC (sub), see section 10.3.2.



<Fig. 5.1.1>

DIP switch		Function	OFF	ON	Default settings: Indoor unit model
SW1	SW1-1	Boiler	WITHOUT Boiler	WITH Boiler	OFF
	SW1-2	Heat pump maximum outlet water temperature	55ºC	60ºC	ON *1
	SW1-3	DHW tank	WITHOUT DHW tank	WITH DHW tank	OFF: PAC-IF081B-E ON : PAC-IF082/083B-E
	SW1-4	Immersion heater	WITHOUT Immersion heater	WITH Immersion heater	OFF: PAC-IF081B-E ON : PAC-IF082/083B-E
	SW1-5	Booster heater	WITHOUT Booster heater	WITH Booster heater	OFF
	SW1-6	Booster heater function	For heating only	For heating and DHW	OFF
	SW1-7	Outdoor unit type	Split type	Packaged type	OFF: PAC-IF081B-E ON : PAC-IF082/083B-E
	SW1-8	Wireless remote controller	WITHOUT Wireless remote controller	WITH Wireless remote controller	OFF
SW2	SW2-1	Room thermostat1 input (IN1) logic change	Zone 1 operation stop at thermostat short	Zone 1 operation stop at thermostat open	OFF
	SW2-2	Flow switch1 input (IN2) logic change	Failure detection at short	Failure detection at open	OFF
	SW2-3	Booster heater capacity restriction	Inactive	Active	OFF
	SW2-4	Cooling mode function	Inactive	Active	OFF
	SW2-5	Automatic switch to backup heat source operation (When outdoor unit stops by error)	Inactive	Active *2	OFF
	SW2-6	Mixing tank	WITHOUT Mixing tank	WITH Mixing tank	OFF
	SW2-7	2-zone temperature control	Inactive	Active *6	OFF
	SW2-8	Flow sensor	WITHOUT Flow sensor	WITH Flow sensor	OFF
SW3	SW3-1	Room thermostat 2 input (IN6) logic change	Zone 2 operation stop at thermostat short	Zone 2 operation stop at thermostat open	OFF
	SW3-2	Flow switch 2 and 3 input logic change	Failure detection at short	Failure detection at open	OFF
	SW3-3	—	—	—	OFF
	SW3-4	Electric energy meter	WITHOUT Electric energy meter	WITH Electric energy meter	OFF
	SW3-5	Heating mode function *3	Inactive	Active	ON
	SW3-6	2-zone valve ON/OFF control	Inactive	Active	OFF
	SW3-7	—	—	—	OFF
	SW3-8	Heat meter	WITHOUT Heat meter	WITH Heat meter	OFF
SW4	SW4-1	Multiple outdoor unit control	Inactive	Active	OFF
	SW4-2	Position of multiple outdoor unit control *7	Sub	Main	OFF
	SW4-3	—	—	—	OFF
	SW4-4	Indoor unit only operation (during installation work) *4	Inactive	Active	OFF
	SW4-5	Emergency mode (Heater only operation)	Normal	Emergency mode (Heater only operation)	OFF *5
	SW4-6	Emergency mode (Boiler operation)	Normal	Emergency mode (Boiler operation)	OFF *5
SW5	SW5-1	—	—	—	OFF
	SW5-2	Advanced Auto Adaptation	Inactive	Active	ON
	SW5-3	—	—	—	OFF
	SW5-4	—	—	—	OFF
	SW5-5	—	—	—	OFF
	SW5-6	—	—	—	OFF
	SW5-7	—	—	—	OFF
	SW5-8	—	—	—	OFF

DIP switch		Function	OFF	ON	Default settings: Indoor unit model
SW6	SW6-1	—	—	—	OFF: PAC-IF081/082B-E ON: PAC-IF083B-E
	SW6-2	—	—	—	OFF
	SW6-3	Pressure sensor	Inactive	Active	OFF
	SW6-4	Analog output signal (0-10V)	Inactive	Active	OFF
	SW6-5	—	—	—	OFF
	SW6-6	—	—	—	OFF
	SW6-7	—	—	—	OFF
	SW6-8	—	—	—	OFF
SW7	SW7-1	Mixing valve setting	Only Zone 2	Zone 1 and Zone 2	OFF
	SW7-2	Forced cooling mode input (IN13) logic change	Active at short	Active at open	OFF
	SW7-3	Cooling limit temp. input (IN15) logic change	Active at short	Active at open	OFF
	SW7-4	—	—	—	OFF
	SW7-5	—	—	—	OFF
	SW7-6	—	—	—	OFF
	SW7-7	—	—	—	OFF
	SW7-8	—	—	—	OFF

<Table 5.1.1>

Note: ***1. When the FTC unit is connected with an outdoor unit of which maximum outlet water temperature is 55ºC, DIP SW1-2 must be changed to OFF.**

***2. External output (OUT11) will be available. For safety reasons, this function is not available for certain errors. (In that case, system operation must be stopped and only the water circulation pump keeps running.)**

***3. This switches functions only when the cylinder unit is connected with a PUHZ-FRP outdoor unit. When another type of outdoor unit is connected, the heating mode function is active regardless of the fact that this switch is ON or OFF.**

***4. Space heating and DHW can be operated only in indoor unit, like an electric heater. (Refer to “5.7 Indoor unit only operation”.)**

***5. If emergency mode is no longer required, return the switch to OFF position.**

***6. Active only when SW3-6 is set to OFF.**

***7. SW4-2 is available only when SW4-1 is ON.**

5.2 Outdoor unit type

Set DIP SW1-7 to set the outdoor unit type.

DIP SW1-7	Setting	Note
OFF	Split type	Necessary to connect TH2
ON	Packaged type	Not necessary to connect TH2

Set DIP SW1-2 to set the heat pump maximum outlet water temperature.

DIP SW1-2	Setting
OFF	55°C
ON	60°C

Note: When DIP SW1-2 is OFF (55°C) and an electric heater is not installed (*), ‘Legionellla Prevention Mode’ is NOT available.

* DIP SW settings set when no electric heater is installed.

DIP SW1-2	DIP SW1-4	DIP SW1-5	DIP SW1-6
OFF	OFF	ON	OFF
OFF	OFF	OFF	(ON/OFF)

5.3 Functions setting

Set DIP SW1-1 to set whether the system has a boiler.

DIP SW1-1	Setting
OFF	WITHOUT boiler
ON	WITH boiler

When DIP SW1-1 is OFF, back-up operation of boiler is not available.

Set DIP SW1-3 to set whether the system has a DHW tank.

DIP SW1-3	Setting	Note
OFF	WITHOUT DHW tank	Not necessary to connect THW5
ON	WITH DHW tank	Necessary to connect THW5

When DIP SW1-3 is OFF, DHW mode is not available.

Set DIP SW1-4 to set whether the system has an immersion heater.

DIP SW1-4	Setting
OFF	WITHOUT immersion heater
ON	WITH immersion heater

Set DIP SW1-5 to set whether the system has a booster heater.

DIP SW1-5	Setting
OFF	WITHOUT booster heater
ON	WITH booster heater

Set DIP SW1-6 to set the booster heater function.

DIP SW1-6	Setting
OFF	For heating only
ON	For heating and DHW

Set DIP SW2-6 to set whether the system has a mixing tank.

DIP SW2-6	Setting
OFF	WITHOUT mixing tank
ON	WITH mixing tank

When DIP SW2-6 is OFF, back-up operation of boiler is not available.
When DIP SW2-6 is OFF, 2-zone temperature control is not available.

Set DIP SW2-7 to activate or deactivate 2-zone temperature control.

DIP SW2-7	Setting
OFF	Inactive
ON	Active

Set DIP SW2-8 to set whether the system has a flow sensor.

DIP SW2-8	Setting
OFF	WITHOUT flow sensor
ON	WITH flow sensor

Set DIP SW3-4 to set whether the system has an electric energy meter.

DIP SW3-4	Setting
OFF	WITHOUT electric energy meter
ON	WITH electric energy meter

Set DIP SW3-6 to activate or deactivate 2-zone valve ON/OFF control.

DIP SW3-6	Setting
OFF	Inactive
ON	Active

Set DIP SW3-8 to set whether the system has a heat meter.

DIP SW3-8	Setting
OFF	WITHOUT heat meter
ON	WITH heat meter

Set DIP SW4-1 to activate or deactivate multiple units control.

DIP SW4-1	Setting
OFF	Inactive
ON	Active

When DIP SW4-1 is OFF, 2-zone temperature control and 2-zone valve ON/OFF control is not available.

Set DIP SW4-2 to set main or sub of multiple units control.

DIP SW4-2	Setting
OFF	Sub
ON	Main

When multiple units control is not available, setting of DIP SW4-2 is not necessary.

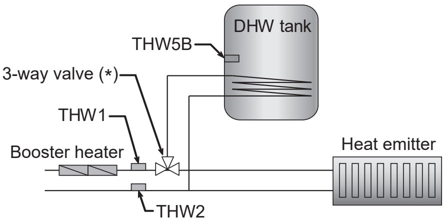
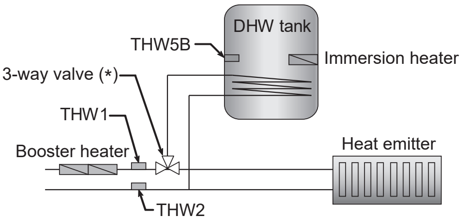
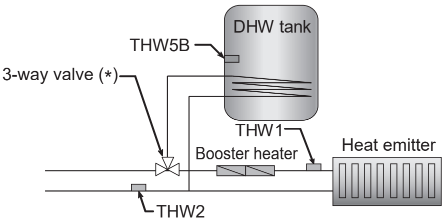
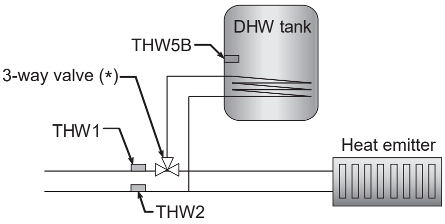
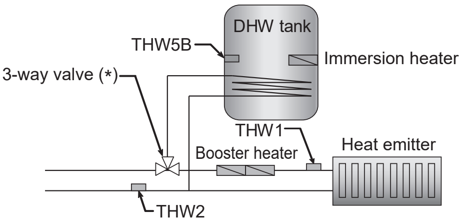
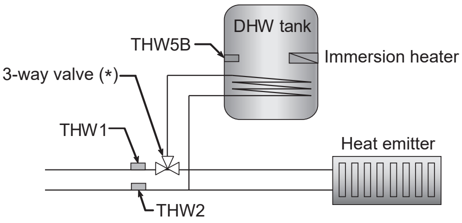
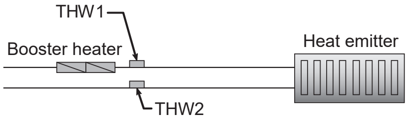
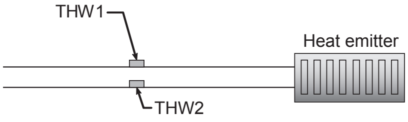
Set DIP SW5-2 to activate or deactivate advanced Auto Adaptation.

DIP SW5-2	Setting
OFF	Inactive
ON	Active

Set DIP SW7-1 to set the target zone of mixing valve.

DIP SW7-1	Setting
OFF	Only Zone 2
ON	Zone 1 and Zone 2

<Summary of Function setting>

DIP SW1-3 (DHW tank)	DIP SW1-4 (Immersion heater)	DIP SW1-5 (Booster heater)	DIP SW1-6 (BH function)	System diagram
ON (WITH DHW tank)	OFF (WITHOUT immersion heater)	ON (WITH booster heater)	ON (For heating and DHW)	
ON (WITH DHW tank)	ON (WITH immersion heater)	ON (WITH booster heater)	ON (For heating and DHW)	
ON (WITH DHW tank)	OFF (WITHOUT immersion heater)	ON (WITH booster heater)	OFF (For heating only)	
ON (WITH DHW tank)	OFF (WITHOUT immersion heater)	OFF (WITHOUT booster heater)	—	
ON (WITH DHW tank)	ON (WITH immersion heater)	ON (WITH booster heater)	OFF (For heating only)	
ON (WITH DHW tank)	ON (WITH immersion heater)	OFF (WITHOUT booster heater)	—	
OFF (WITHOUT DHW tank)	OFF (WITHOUT immersion heater)	ON (WITH booster heater)	OFF	
OFF (WITHOUT DHW tank)	OFF (WITHOUT immersion heater)	OFF (WITHOUT booster heater)	—	

* The use of two 2-way valves can perform same function as a 3-way valve.

5.4 Operation setting

Set DIP SW1-8 to set whether the system has a wireless remote controller.

DIP SW1-8	Setting
OFF	WITHOUT wireless remote controller
ON	WITH wireless remote controller

Set DIP SW2-1 to set the room thermostat 1 input (IN1) logic.

DIP SW2-1	Setting
OFF	Operation stop at thermostat short
ON	Operation stop at thermostat open

Set DIP SW2-2 to set the flow switch 1 input (IN2) logic.

DIP SW2-2	Setting
OFF	Failure detection at short
ON	Failure detection at open

Set DIP SW2-3 to set the restriction on the capacity of booster heater.

DIP SW2-3	Setting
OFF	Inactive
ON	Active

When DIP SW2-3 is ON, booster heater 2 operation is not available. (Only booster heater 1 is available.)

Notes: ① When installing one booster heater, use OUT6 (Booster Heater 1) and switch SW2-3 to ON.
② When installing two booster heaters, use OUT6 (Booster Heater 1) and OUT7 (Booster heater 2). In such cases, use OUT7 (Booster heater 2) to connect the one with higher capacity.

Reference: Summary of booster heater control
The booster heater is controlled in the following three steps.

		Booster heater 1 (OUT6)	Booster heater 2 (OUT7)
OFF		OFF	OFF
ON	STEP 1	ON	OFF
	STEP 2	OFF	ON
	STEP 3	ON	ON

Controlled to this extent when SW2-3 is ON.

Set DIP SW2-4 to activate or deactivate cooling mode.

DIP SW2-4	Setting
OFF	Inactive
ON	Active

When DIP SW2-4 is OFF, cooling mode is not available.

Set DIP SW2-5 to set the automatic switch to backup heater only operation. (When outdoor unit stops by error.)

DIP SW2-5	Setting
OFF	Inactive
ON	Active

Set DIP SW3-1 to set the room thermostat 2 input (IN6) logic.

DIP SW3-1	Setting
OFF	Operation stop at thermostat short
ON	Operation stop at thermostat open

Set DIP SW3-2 to set the flow switch 2 and 3 input logic.

DIP SW3-2	Setting
OFF	Operation stop at thermostat short
ON	Operation stop at thermostat open

Set DIP SW3-5 to activate or deactivate heating mode.

DIP SW3-5	Setting
OFF	Inactive
ON	Active

When the connected outdoor unit is not of PUHZ-FRP model, heating mode is always active regardless of DIP SW3-5 setting.

Set DIP SW4-4 to activate or deactivate indoor unit only operation.

DIP SW4-4	Setting
OFF	Inactive
ON	Active

5.5 Emergency mode (Heater only operation)

The emergency mode is available when a failure on the outdoor unit of the heat pump or a communication error occurs.
This mode uses booster heater or immersion heater as a heat source and automatically controls between the DHW mode and the heating mode. When the system is not incorporated with heater, the emergency mode is not available.
Before starting the emergency mode, turn off the outdoor unit and FTC (Main), and then turn DIP SW4-5 to ON. Then, turn on FTC (Main) to start the emergency mode. FTC (Main) can be power-supplied by the outdoor unit or directly by power source.
If emergency mode is no longer required, please turn off both outdoor and indoor unit power supply before returning DIP SW4-5 to OFF position.

5.6 Emergency mode (Boiler operation)

The emergency mode is available when a failure on the outdoor unit of the heat pump or a communication error occurs.
This mode uses boiler as a heat source and automatically controls the heating mode. When the system is not incorporated with boiler, the emergency mode is not available.
Before starting the emergency mode, turn off the outdoor unit and FTC (Main), and then turn DIP SW4-6 to ON. Then, turn on FTC (Main) to start the emergency mode. FTC (Main) can be power-supplied by the outdoor unit or directly by power source.
If emergency mode is no longer required, please turn off both outdoor and indoor unit power supply before returning DIP SW4-6 to OFF position.

5.7 Indoor unit only operation (during installation work)

In the case when DHW or heating operation is required prior to connection of the outdoor unit; i.e. during installation work, an electric heater in indoor unit (*1) can be used.
Not available during multiple outdoor unit control.
*1 Model with electric heater only.

1. To start operation
● Check if the indoor unit power supply is OFF, and turn DIP SW4-4 and 4-5 ON.
● Turn ON the indoor unit power supply.

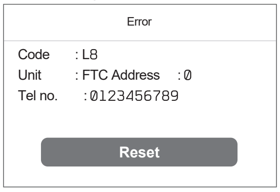
2. To end operation*
● Turn OFF the indoor unit power supply.
● Turn DIP SW4-4 and 4-5 OFF.
*When the indoor unit only operation is ended, ensure to check over the settings after outdoor unit is connected.

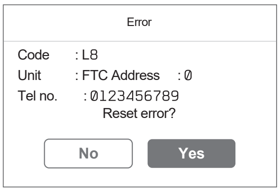
Note:
Prolonged running of this operation may affect the life of the electric heater.

6.1. Check

After completing installation and the wiring and piping of the local application and outdoor units, check for refrigerant leakage, looseness in the power supply or control wiring, wrong polarity, and power cable is securely connected.
Use a 500-volt megohmmeter to check that the resistance between the power supply terminals and ground is at least 1.0 MΩ.

⚠ **WARNING:**
Do not use the system if the insulation resistance is less than 1.0MΩ.
⚠ **CAUTION:**
Do not carry out this test on the control wiring (low voltage circuit) terminals.


Error
Code : L8
Unit : FTC Address : 0
Tel no. : 0123456789


Error
Code : L8
Unit : FTC Address : 0
Tel no. : 0123456789
Reset error?

6.2. Self-check

When an error occurs when power is applied or during operation
■ Indication of error details
The code, unit, address, and telephone number are displayed.
The telephone number is displayed if registered.
■ Resetting the error
Press the F4 (RESET) button, and the F3 (Yes) button to reset the current error.

Code	Error	Action
L3	Circulation water temperature overheat protection	Flow rate may be reduced. Check for; • Water leakage • Magnetic filter / Strainer blockage • Water circulation pump function (Error code may display during filling of primary circuit, complete filling and reset error code.)
L4	DHW tank water temperature overheat protection	Check the immersion heater and it's contactor.
L5	Indoor unit temperature thermistor (THW1, THW2, THW5A, THW5B, THW6, THW7, THW8, THW9) failure	Check resistance across the thermistor.
L6	Circulation water freeze protection	See Action for L3.
L8	Heating operation error	Check and re-attach any thermistors that have become dislodged.
L9	Low primary circuit flow rate detected by flow sensor or flow switch (flow switches 1, 2, 3)	See Action for L3. If the flow sensor or flow switch itself does not work, replace it. **Caution: The pump valves may be hot, please take care.**
LA	Pressure sensor failure	Check pressure sensor cable for damage or loose connections.
LB	High pressure protection	• Flow rate of the heating circuit may be reduced. Check water circuit. • Plate heat exchanger may be clogged. Check the plate heat exchanger. • Outdoor unit failure. Check refrigerant volume, valve, LEV coil and pipe crushing of outdoor unit.
LC	Boiler circulation water temperature overheat protection	Check if the setting temperature of the Boiler for heating exceeds the restriction. (See the manual of the thermistors "PAC-TH012HT(L)-E".) Flow rate of the heating circuit from the boiler may be reduced. Check for • Water leakage • Magnetic filter / Strainer blockage • Water circulation pump function
LD	Thermistor (Boiler flow water temp.) (THWB1) failure	Check resistance across the thermistor.
LE	Boiler operation error	See Action for L8. Check the status of the boiler.
LF	Flow sensor failure	Check flow sensor cable for damage or loose connections.
LH	Boiler circulation water freeze protection	Flow rate of the heating circuit from the boiler may be reduced. Check for • Water leakage • Magnetic filter / Strainer blockage • Water circulation pump function
LJ	DHW operation error (type of external plate HEX)	• Check for disconnection of thermistor (DHW tank lower water temp.) (THW5B). • Flow rate may be reduced. • Check for water circulation pump function. (primary / sanitary)
LL	Setting errors of DIP switches on FTC control board	For boiler operation, check that DIP SW1-1 is set to ON (With Boiler) and DIP SW2-6 is set to ON (With Mixing Tank). For 2-zone temperature control, check DIP SW2-7 is set to ON (2-zone) and DIP SW2-6 is set to ON (With Mixing Tank).
LP	Out of water flow rate range for outdoor heat pump unit	Check the Table 3.4.1 Check remote controller settings ([Service]→[Heat pump settings]→[Heat pump flow rate range]) See Action for L3.
P1	Thermistor (Room temp.) (TH1) failure	Check resistance across the thermistor.
P2	Thermistor (Ref. liquid temp.) (TH2) failure	Check resistance across the thermistor.
P6	Anti-freeze protection of plate heat exchanger	See Action for L3. Check for correct amount of refrigerant.
J0	Communication failure between FTC and wireless receiver	Check connection cable for damage or loose connections.
J1 - J8	Communication failure between wireless receiver and wireless remote controller	Check wireless remote controller's battery is not flat. Check the pairing between wireless receiver to wireless remote controller. Test the wireless communication. (See the manual of wireless system.)
J9	Communication failure between FTC (Main) and FTC (Sub).	Check connection cable for damage or loose connections.
E0 - E5	Communication failure between main remote controller and FTC	Check connection cable for damage or loose connections.
E6 - EF	Communication failure between FTC and outdoor unit	Check that the outdoor unit has not been turned off. Check connection cable for damage or loose connections. Refer to outdoor unit service manual.
E9	Outdoor unit receives no signal from indoor unit.	Check both units are switched on. Check connection cable for damage or loose connections. Refer to outdoor unit service manual.
EE	Combination error between FTC and outdoor unit	Check combination of FTC and outdoor unit.
U*, F*, PL	Outdoor unit failure	Refer to outdoor unit service manual.
A*	M-NET communication error	Refer to outdoor unit service manual.

Note: To cancel error codes, please switch system off (Touch [Reset] on main remote controller).

For description of each LED (LED1 to 3) provided on the FTC, refer to the following table.

LED 1 (Power for microcomputer)	Indicates whether control power is supplied. Make sure that this LED is always lit.
LED 2 (Power for main remote controller)	Indicates whether power is supplied to the main remote controller. This LED lights only in the case of the FTC (Main) unit which is connected to the outdoor unit refrigerant address “0“.
LED 3 (Communication between FTC and outdoor unit)	Indicates state of communication between the FTC and outdoor unit. Make sure that this LED is always blinking.

Note
(Marking for WEEE)

This symbol mark is for EU countries only.
This symbol mark is according to the directive 2012/19/EU Article 14 Information for users and Annex IX.

Your Mitsubishi Electric products have been manufactured with high quality materials and components which can be recycled and/or reused. This symbol means that electrical and electronic equipment, at their end-of-life, should be disposed of separately from your household waste. Please, dispose of this equipment at your local community waste collection/recycling centre.

In the European Union, there are separate collection systems for used electrical and electronic product.

Please, help us to conserve the environment we live in!

7.1. Safety precautions FOR USER

- ► **Before installing the unit, make sure you read all the “Safety Precautions”.**
- ► **The “Safety Precautions” provide very important points regarding safety. Make sure you follow them.**
- ► **Please report to or take consent by the supply authority before connection to the system.**

Symbols used in the text

⚠ **WARNING:**

Describes precautions that should be observed to prevent danger of injury or death to the user.

⚠ **CAUTION:**

Describes precautions that should be observed to prevent damage to the unit.

Symbols used in the illustrations

⏚ : Indicates a part which must be grounded.

⚠ **WARNING:**

- **For appliances not accessible to the general public.**
- **The unit must not be installed by the user. Ask the dealer or an authorized company to install the unit. If the unit is installed improperly, water leakage, electric shock or fire may result.**
- **Do not stand on, or place any items on the unit.**
- **Do not splash water over the unit and do not touch the unit with wet hands. An electric shock may result.**
- **Do not spray combustible gas close to the unit. Fire may result.**
- **Do not place a gas heater or any other open-flame appliance where it will be exposed to the air discharged from the unit. Incomplete combustion may result.**
- **Do not remove the front panel or the fan guard from the outdoor unit when it is running.**
- **When you notice exceptionally abnormal noise or vibration, stop operation, turn off the power switch, and contact your dealer.**
- **Never insert fingers, sticks, etc. into the intakes or outlets.**
- **If you detect odd smells, stop using the unit, turn off the power switch and consult your dealer. Otherwise, a breakdown, electric shock, or fire may result.**
- **If the supply cable is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.**
- **This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.**
- **Children should be supervised to ensure that they do not play with the appliance.**
- **If the refrigeration gas blows out or leaks, stop the operation of the air conditioner, thoroughly ventilate the room, and contact your dealer.**
- **Do not install in location that is hot or humid for long periods of time.**

⚠ **CAUTION:**

- **Do not use any sharp object to push the buttons, as this may damage the main remote controller.**
- **Never block or cover the indoor or outdoor unit’s intakes or outlets.**

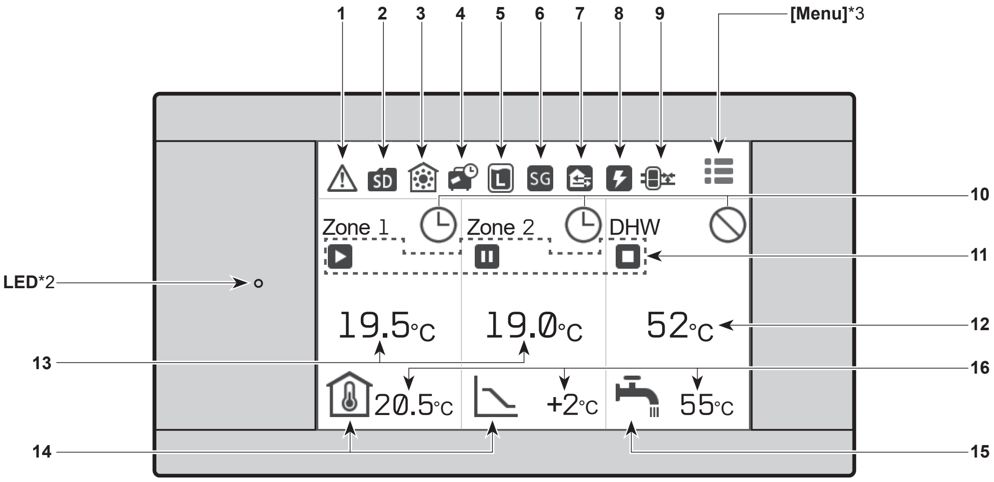
Disposing of the unit

When you need to dispose of the unit, consult your dealer.

Flow temp. controller

Main remote controller

To change the settings of your heating/cooling system, please use the main remote controller located on the wall or the front panel of the cylinder unit or hydrobox. The following is a guide to viewing the main settings. Should you require more information, please contact your installer or local Mitsubishi Electric dealer. Some functions are not available depending on the system configuration. These functions are grayed out or not shown.
Note: The terms displayed on the remote controller are enclosed in square brackets.



[Home screen] (Full screen*1)

Home screen icons

No.	Icons	Description
1	⚠	Alert (for multiple outdoor units control) Touching the menu icon displays error codes.
	J1	Alert Error codes are displayed.
2	SD	SD card is inserted. Normal operation
	SD	SD card is inserted. Abnormal operation
3	☀	Heating mode
	❄	Cooling mode
4		Holiday schedule is activated.
5	L	Legionella prevention mode is running.
6	SG	Smart grid ready is running.
7		Compressor is running.
	❄	Compressor is running and defrosting.
		Compressor is running and in quiet mode. The sound level is shown at left side of the icon.
	⚠	Emergency heating
8	⚡	Electric heater is running.
9	🔥	Boiler is running.
		Buffer tank control is running.
10	🕒	Schedule
	⊘	Prohibited
	☁	Cloud control
11	▶	Operation
	⏸	Standby
	⏸	This unit is in standby whilst other indoor unit(s) is in operation by priority.
	■	Stop
12		Actual DHW tank temperature values
13		Actual room temperature values [-- °C] appears when the unit is not connected to the room RC (Remote Controller) and it is under control other than Auto Adaptation.
14	⟍	Weather compensation curve When the operation stops: Black During heating operation: Orange During cooling operation: Blue
	🌡 *4	Auto Adaptation (Target room temperature) When the operation stops: Black During heating operation: Orange
	🌡💧	Flow temperature (Target flow temperature) When the operation stops: Black During heating operation: Orange During cooling operation: Blue
15	🚰	DHW icon is displayed when DHW is enabled. When the operation stops: Black During operation: Orange
16		Target temperature values The settable temperature differs depending on the control logic.

- The screen will turn off when the main remote controller is not operated for a while. Touching any part of the screen turns it on again.
- From [Touch screen] in [Setting], the brightness can be adjusted.
- By selecting [Always on] for [Backlight time] from [Touch screen] in [Setting], the backlight stays lit for 30 seconds and after it dims down.

***1 From [Setting], the screen can be switched to the full screen or the base screen.**
The base screen does not display the operation icons and the target temperature values.
***2 From [Display] in [Setting], the LED lamp can be turned on/off.**
***3 Pressing and holding the menu icon ☰ for 3 seconds switches the lock menu to on/off.**
Some functions cannot be edited when the lock menu is on.
(The icon changes to ☰ when the lock menu is on.)
***4 Auto Adaptation cannot be selected during the cooling mode.**

■ Quick start

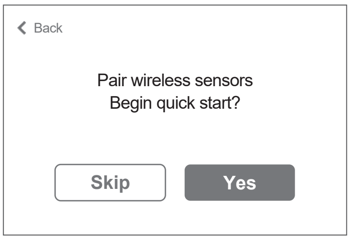
When the main remote controller is switched on for the first time, the screen automatically goes to the [Language], [Date/Time], [System configuration], and quick start setting screen in order. On the quick start setting screen, the following items can be set.

Note:
[Electric booster heater use]
This setting restricts the booster heater capacity. It is NOT possible to change the setting after starting up.
If you do not have any special requirements (such as building regulations) in your country, skip this setting (select [Next]).

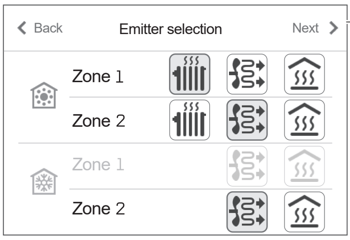
Quick start

- [Zone sensor selection]*1
- [Emitter selection]
- [Control logic]
- [Outdoor design temperature]
- [Zone sensor selection]*2
- [DHW]
- [Flow rate & pump speed]
- [Electric booster heater use]*3

*1 Selection of zone to assign each wireless remote controller
*2 Selection of room sensors for monitoring the room temperature
*3 It cannot be reset, so be careful when you set it.



Pair wireless sensors
Begin quick start?



[Emitter selection]

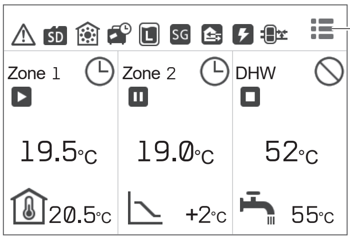
Next setting

■ Lock menu

Pressing and holding the menu icon ☰ for 3 seconds switches the lock menu to on.
(The icon changes to ☷ when the lock menu is on.)
Some functions cannot be edited in this state.

Note: You need a password to edit [Service] even when the lock menu is off.

Refer to the main controller menu tree for details of the items which cannot be edited when the lock menu is on.



[Home screen]

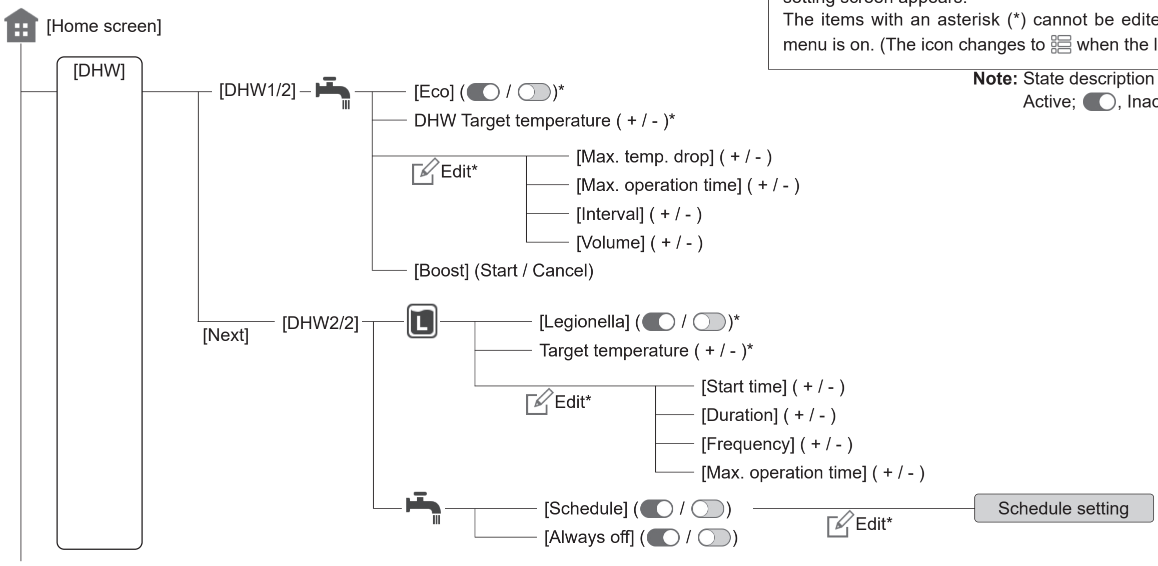
Press and hold the icon for 3 seconds.

☷ Lock

<Main Controller Menu Tree>

When the system is started up for the first time, the quick start setting screen appears.
The items with an asterisk (*) cannot be edited when the lock menu is on. (The icon changes to ☷ when the lock menu is on.)

Note: State description indicated by toggle
Active; ●, Inactive; ○

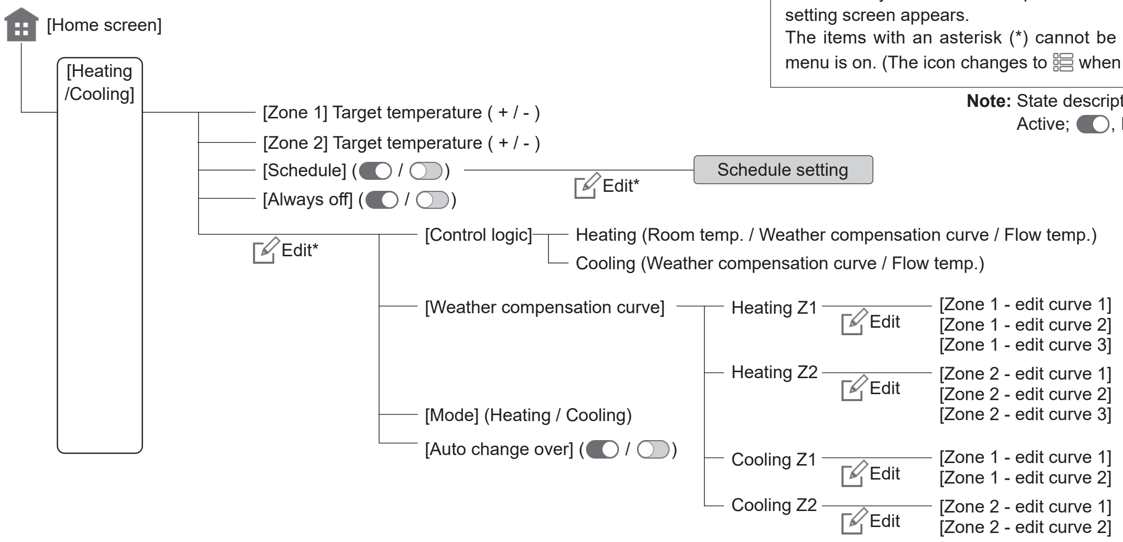


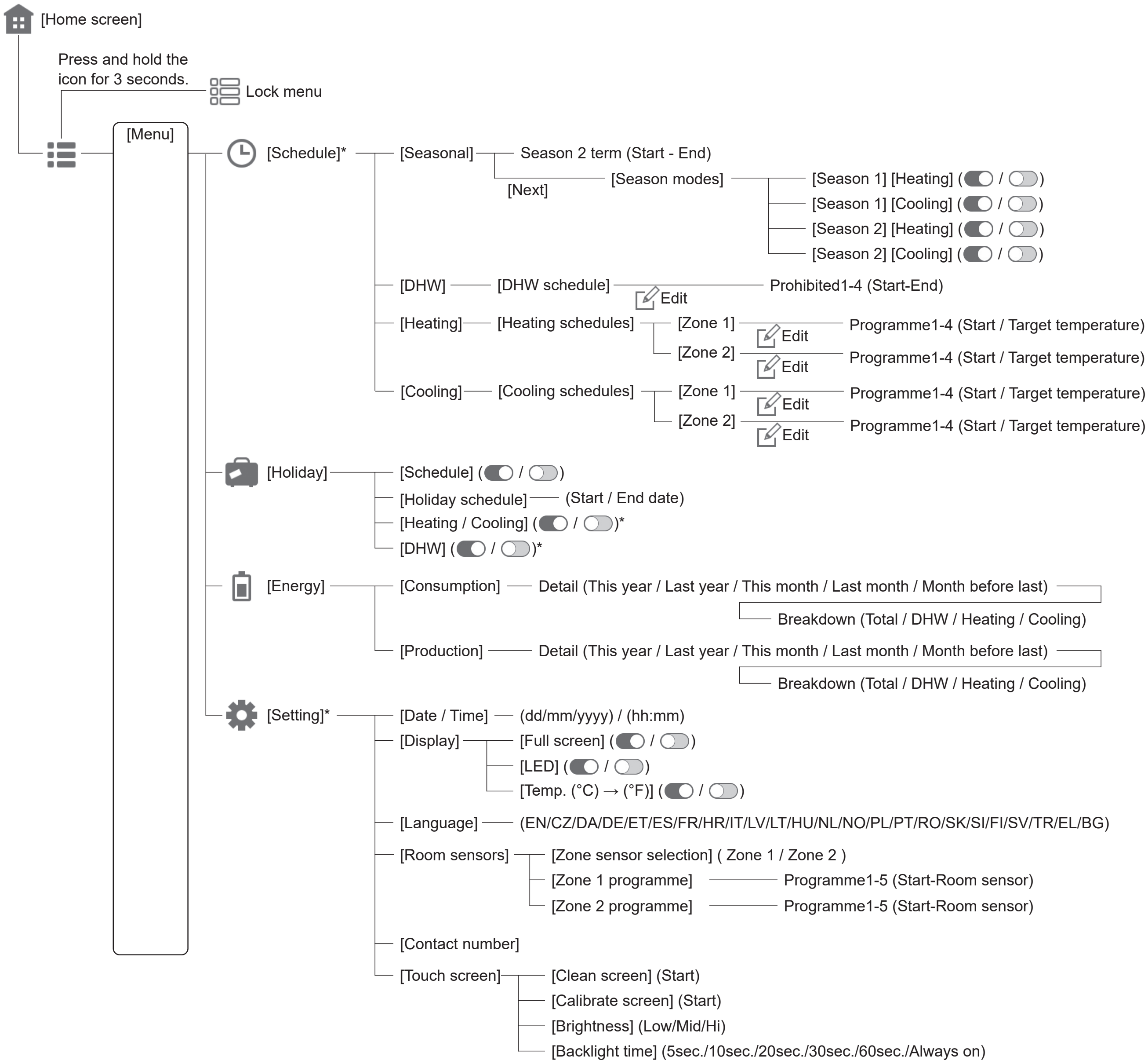
[Home screen]
- [DHW]
  - [DHW1/2]
    - [Eco] (● / ○)*
    - DHW Target temperature (+ / -)*
    - Edit*
      - [Max. temp. drop] (+ / -)
      - [Max. operation time] (+ / -)
      - [Interval] (+ / -)
      - [Volume] (+ / -)
    - [Boost] (Start / Cancel)
  - [Next] [DHW2/2]
    - L
      - [Legionella] (● / ○)*
      - Target temperature (+ / -)*
      - Edit*
        - [Start time] (+ / -)
        - [Duration] (+ / -)
        - [Frequency] (+ / -)
        - [Max. operation time] (+ / -)
    - [Schedule] (● / ○)
    - [Always off] (● / ○)
    - Edit*
      - Schedule setting

<Main Controller Menu Tree>

When the system is started up for the first time, the quick start setting screen appears.
The items with an asterisk (*) cannot be edited when the lock menu is on. (The icon changes to ☰ when the lock menu is on.)

Note: State description indicated by toggle
Active; ●, Inactive; ○



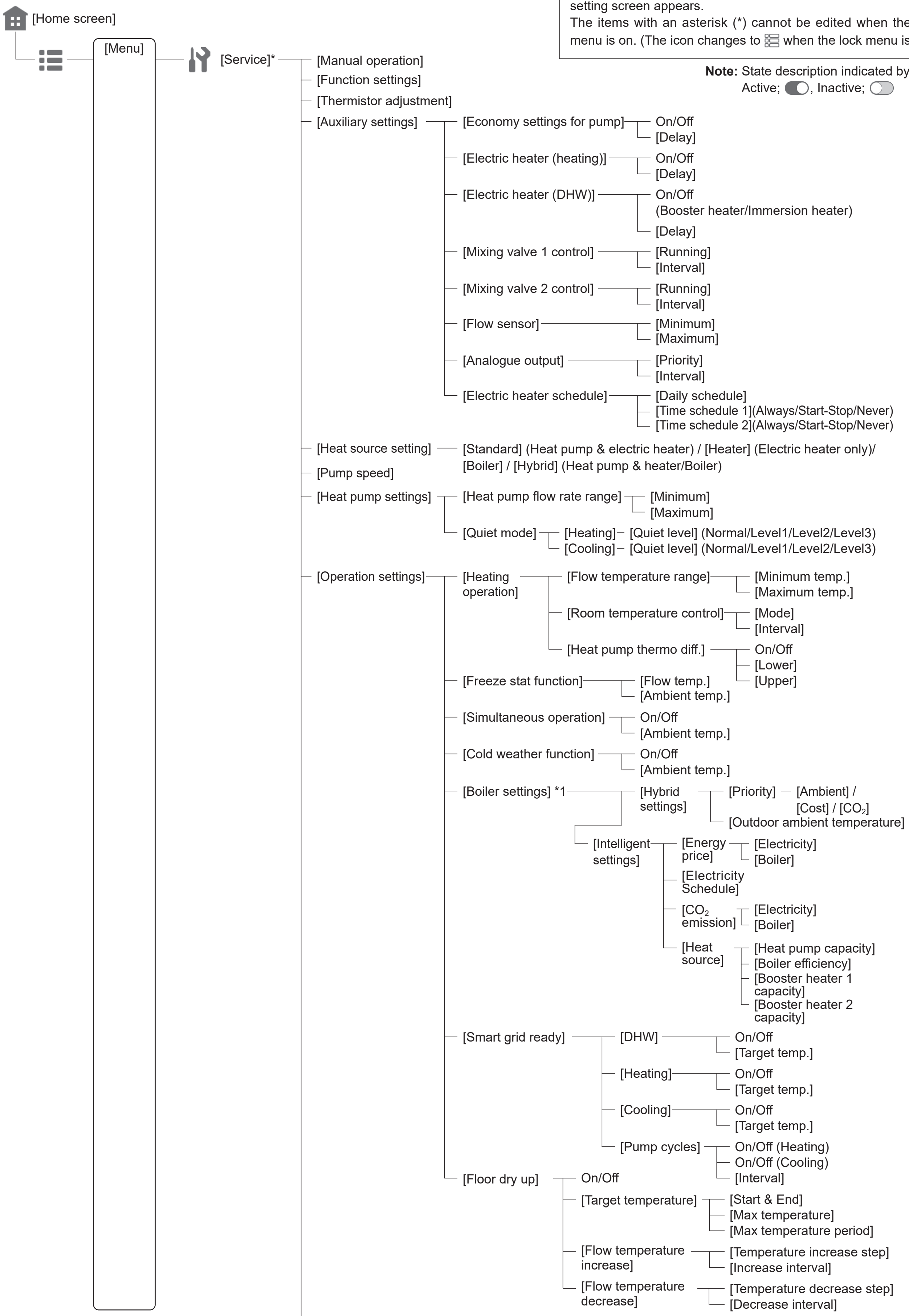


Continued from the previous page.

<Main Controller Menu Tree>

When the system is started up for the first time, the quick start setting screen appears.
The items with an asterisk (*) cannot be edited when the lock menu is on. (The icon changes to ☰ when the lock menu is on.)

Note: State description indicated by toggle
Active; ●, Inactive; ○



- [Home screen]
  - [Menu]
    - [Service]*
      - [Manual operation]
      - [Function settings]
      - [Thermistor adjustment]
      - [Auxiliary settings]
        - [Economy settings for pump]
          - On/Off
          - [Delay]
        - [Electric heater (heating)]
          - On/Off
          - [Delay]
        - [Electric heater (DHW)]
          - On/Off (Booster heater/Immersion heater)
          - [Delay]
        - [Mixing valve 1 control]
          - [Running]
          - [Interval]
        - [Mixing valve 2 control]
          - [Running]
          - [Interval]
        - [Flow sensor]
          - [Minimum]
          - [Maximum]
        - [Analogue output]
          - [Priority]
          - [Interval]
        - [Electric heater schedule]
          - [Daily schedule]
          - [Time schedule 1](Always/Start-Stop/Never)
          - [Time schedule 2](Always/Start-Stop/Never)
      - [Heat source setting]
        - [Standard] (Heat pump & electric heater) / [Heater] (Electric heater only)/ [Boiler] / [Hybrid] (Heat pump & heater/Boiler)
      - [Pump speed]
      - [Heat pump settings]
        - [Heat pump flow rate range]
          - [Minimum]
          - [Maximum]
        - [Quiet mode]
          - [Heating] – [Quiet level] (Normal/Level1/Level2/Level3)
          - [Cooling] – [Quiet level] (Normal/Level1/Level2/Level3)
      - [Operation settings]
        - [Heating operation]
          - [Flow temperature range]
            - [Minimum temp.]
            - [Maximum temp.]
          - [Room temperature control]
            - [Mode]
            - [Interval]
          - [Heat pump thermo diff.]
            - On/Off
            - [Lower]
            - [Upper]
        - [Freeze stat function]
          - [Flow temp.]
          - [Ambient temp.]
        - [Simultaneous operation]
          - On/Off
          - [Ambient temp.]
        - [Cold weather function]
          - On/Off
          - [Ambient temp.]
        - [Boiler settings] *1
          - [Hybrid settings]
            - [Priority] – [Ambient] / [Cost] / [CO_2]
            - [Outdoor ambient temperature]
          - [Intelligent settings]
            - [Energy price]
              - [Electricity]
              - [Boiler]
            - [Electricity Schedule]
            - [CO_2 emission]
              - [Electricity]
              - [Boiler]
            - [Heat source]
              - [Heat pump capacity]
              - [Boiler efficiency]
              - [Booster heater 1 capacity]
              - [Booster heater 2 capacity]
        - [Smart grid ready]
          - [DHW]
            - On/Off
            - [Target temp.]
          - [Heating]
            - On/Off
            - [Target temp.]
          - [Cooling]
            - On/Off
            - [Target temp.]
          - [Pump cycles]
            - On/Off (Heating)
            - On/Off (Cooling)
            - [Interval]
        - [Floor dry up]
          - On/Off
          - [Target temperature]
            - [Start & End]
            - [Max temperature]
            - [Max temperature period]
          - [Flow temperature increase]
            - [Temperature increase step]
            - [Increase interval]
          - [Flow temperature decrease]
            - [Temperature decrease step]
            - [Decrease interval]

<Continued to next page.>

***1** For more details, refer to the installation manual of PAC-TH012HT(L)-E.

Continued from the previous page.

<Main Controller Menu Tree>

When the system is started up for the first time, the quick start setting screen appears. The items with an asterisk (*) cannot be edited when the lock menu is on. (The icon changes to ☰ when the lock menu is on.)

- Note:
  State description indicated by toggle
  Active; ●, Inactive; ○

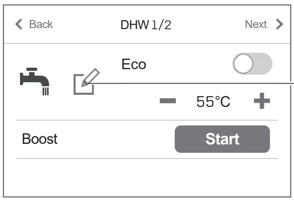
- [Home screen]
  - [Menu]
    - [Service]*
      - [Operation settings]
        - [Summer mode]
          - [Summer mode] — On/Off
          - [Ambient temperature]
            - [Heating on]
            - [Heating off]
          - [Judgement time]
            - [Heating on]
            - [Heating off]
          - [Forced heating On] — Ambient temperature
        - [Water flow control]
          - On/Off
          - Heating water temperature difference
          - Cooling water temperature difference
        - [Auto change over]
          - [Auto change over] — On/Off
          - [Ambient temperature]
            - [Heat→Cool]
            - [Cool→Heat]
          - [Judgement time]
            - [Heat→Cool]
            - [Cool→Heat]
        - [Zone prohibited]
          - Zone 1 Heating (On/Off)
          - Zone 2 Heating (On/Off)
          - Zone 1 Cooling (On/Off)
          - Zone 2 Cooling (On/Off)
        - [Holiday mode]
          - [Zone 1]
            - [Heating room temperature]
            - [Heating flow temperature]
            - [Cooling flow temperature]
          - [Zone 2]
            - [Heating room temperature]
            - [Heating flow temperature]
            - [Cooling flow temperature]
      - [Energy monitor settings]
        - [Electric heater capacity]
          - [Booster heater 1]
          - [Booster heater 2]
          - [Immersion heater]
          - [Analogue output]
        - [Water pump input]
          - [Pump 1]
          - [Pump 2]
          - [Pump 3]
          - [Pump 4]
        - [Delivered energy adjustment]
        - [Electric energy meter]
        - [Heat meter]
      - [External input settings]
        - [Demand control (IN4)] — [Off] (Heat source) / [Boiler]
        - [Outdoor thermostat (IN5)] — [Heater] / [Boiler]
        - [Cooling limit temp.(IN15)]
          - [Zone selection]
          - [Zone 1 lowest temperature]
          - [Zone 2 lowest temperature]
      - [Thermo on output] — [Zone 1] / [Zone 2] / [Zones 1&2]
      - [Commissioning wizard]
      - [Running information]
      - [Thermistor reading]
      - [Summary of settings]
      - [Error history]
      - [Password protection]
      - [Manual reset]
        - [Main remote controller] — Yes/No
        - [Flow temperature controller] — Yes/No
      - [SD card]
        - [SD → Main remote controller] — Select download data
        - [Main remote controller → SD] — Select upload data
    - Power (On/Off)

DHW (Domestic Hot Water) / Legionella Prevention

The DHW and legionella prevention menus control the operation of DHW tank heat ups.

DHW mode settings

- [DHW]: The Eco mode can be activated/deactivated by the toggle.
  The target temperature can be adjusted by +/-.
  From the edit icon, [Max. temp. drop], [Max. operation time], [Interval], and [Volume] can be set.



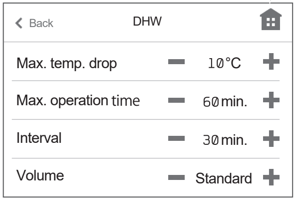
< Back DHW 1/2 Next >

Eco ○

− 55°C +

Boost Start

[DHW]



< Back DHW

Max. temp. drop	− 10°C +
Max. operation time	− 60min. +
Interval	− 30min. +
Volume	− Standard +

[DHW]

Menu subtitle	Function	Range	Unit	Default value
DHW target temp.	Desired temperature of stored hot water	40 - 70*1	°C	50
[Max. temp. drop]	Difference in temperature between the DHW maximum temperature and the temperature at which DHW mode restarts	5 - 40*2	°C	10
[Max. operation time]	Maximum time allowed for stored water heating DHW mode	30 - 120	min.	60
[Interval]	The time period after DHW mode when space heating has priority over DHW mode temporarily preventing further stored water heating (Only when DHW max. operation time has passed.)	30 - 120	min.	30

***1 The maximum temperature differs depending on the connected outdoor unit. (60°C/65°C/70°C)**
***2 When the DHW maximum temperature is set over 55°C, the temperature at which DHW mode restarts must be less than 50°C to protect the device.**

[Eco]
DHW mode can run in either normal or Eco mode. Normal mode will heat the water in the DHW tank fast using the full power of the heat pump. Eco mode takes a little longer to heat the water in the DHW tank, but the energy used is reduced. This is because heat pump operation is restricted using signals from the FTC based on measured DHW tank temperature.

Note: The actual energy saved in Eco mode will vary according to outdoor ambient temperature.

[Volume]
Select the amount of DHW tank. If you need much hot water, select [Large].

Return to the DHW/legionella prevention menu.

Legionella prevention mode settings (LP mode)

- [Legionella]: It can be activated/deactivated by the toggle.
  The target temperature can be changed by +/-.
  From the edit icon ✎, [Start time], [Duration], [Frequency], and [Max. operation time] can be set.
- [Schedule]: It can be activated/deactivated by the toggle.
- [Always off]: It can be activated/deactivated by the toggle.

During LP mode, the temperature of the stored water is increased above 60°C to inhibit legionella bacteria growth. It is strongly recommended that this is done at regular intervals. Please check local regulations for the recommended frequency of heat ups.

Note 1: When failures occur on the hydrobox, the LP mode may not function normally.
Note 2: Even when DHW operation is prohibited, LP mode will operate.

Please note that LP mode uses the assistance of electric heaters to supplement the energy input of the heat pump. Heating water for long periods of time is not efficient and will increase running costs. The installer should give careful consideration to the necessity of legionella prevention treatment whilst not wasting energy by heating the stored water for excessive time periods. The end user should understand the importance of this feature.
ALWAYS COMPLY WITH LOCAL AND NATIONAL GUIDANCE FOR YOUR COUNTRY REGARDING LEGIONELLA PREVENTION.

Menu subtitle	Function	Range	Unit	Default value
Hot water temp.	Desired temperature of stored hot water	60 - 70	°C	65
[Start time]	Time when LP mode will begin	0:00 - 23:00	-	03:00
[Duration]	The time period after LP mode desired water temperature has been reached	1 - 120	min.	30
[Frequency]	Time between LP mode DHW tank heat up	1 - 30	day	15
[Max. operation time]	Maximum time allowed for LP mode DHW tank heat	1 - 5	h	3

⚙ [Setting]

From the menu icon ☰, access [Setting].
The following items can be edited in [Setting].

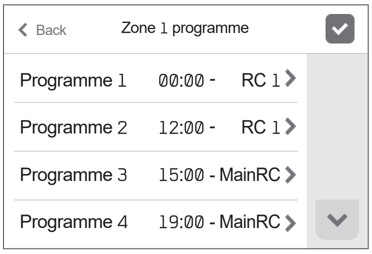
- [Date / time]
- [Display] (From [Setting], the screen can be switched to the full screen or the base screen.)
- [Language]
- [Room sensors]
- [Contact number]
- [Touch screen] ([Calibrate screen]*1, [Clean screen]*2, [Brightness], and [Backlight time])

Follow the procedure described in General Operation for the set up operation.

*1 Touching the 9 dots displayed on the screen starts calibration.
To properly calibrate the touch panel, use a pointy but not sharp object to touch the dots.
Note: A sharp object may damage or scratch the touch screen.

*2 You can wipe the screen while touch operations are invalid for 30 seconds.
Wipe with a soft dry cloth, a cloth soaked in water with mild detergent, or a cloth dampened with ethanol.
Do not use acidic, alkaline, or organic solvents.

[Room sensors]
For [Room sensors], it is important to choose the correct room sensor depending on the heating and cooling mode the system will operate in.



Programme 1 00:00 - RC 1
Programme 2 12:00 - RC 1
Programme 3 15:00 - MainRC
Programme 4 19:00 - MainRC

[Zone 1 programme]

<table>
<tr><th>Menu subtitle</th><th>Description</th></tr>
<tr><td>[Zone sensor selection]</td><td>When 2-zone temperature control is active and wireless remote controllers are available, select [Zone sensor selection] in [Room sensors] from [Setting], and then select zone No. (Zone 1/Zone 2) to assign each remote controller.</td></tr>
<tr><td>[Zone 1 programme]
[Zone 2 programme]</td><td>From [Zone 1 programme] or [Zone 2 programme], select a wireless remote controller to be used for monitoring the room temperature from Zone 1 and Zone 2 separately.
<table>
<tr><th rowspan="2">Control option *</th><th colspan="2">Corresponding initial settings room sensor</th></tr>
<tr><th>[Zone 1]</th><th>[Zone 2]</th></tr>
<tr><td>A
Zone 1 ; Auto Adaptation (Target room temperature)
Zone 2 ; Weather compensation curve or flow temperature control</td><td>RC 1~8
(Wireless remote controller)</td><td>*1</td></tr>
<tr><td>B
Zone 1 ; Auto Adaptation (Target room temperature)
Zone 2 ; Weather compensation curve or flow temperature control</td><td>TH1
(Room temperature thermistor (option))</td><td>*1</td></tr>
<tr><td>C
Zone 1 ; Auto Adaptation (Target room temperature)
Zone 2 ; Weather compensation curve or flow temperature control</td><td>[MainRC]
(Main remote controller)</td><td>*1</td></tr>
<tr><td>D
Zone 1 ; Weather compensation curve or flow temperature control
Zone 2 ; Weather compensation curve or flow temperature control</td><td>*1</td><td>*1</td></tr>
</table>
* Refer to the website manual for details.
*1. Not specified (if a locally-supplied room thermostat is used)
RC 1-8 (if a wireless remote controller is used as a room thermostat)
The wireless remote controller to be used can be changed up to 4 times within 24 hours according to the set time schedule. (Programme 1-5)</td></tr>
</table>

[Service]

The service menu provides functions to be used by installer or service engineer. It is NOT intended for the home owner to alter settings within this menu. It is for this reason password protection is required to prevent unauthorised access to the service settings.

The factory default password is “0000”.
Follow the procedure described in [Password protection] for the set up operation.

Many functions can not be set whilst the indoor unit is running. The installer should turn off the unit before trying to set these functions. If the installer attempts to change the settings whilst the unit is running, the main remote controller will display a reminder message prompting the installer to stop operation before continuing. By selecting “Yes”, the unit will cease operation.

[Manual operation]

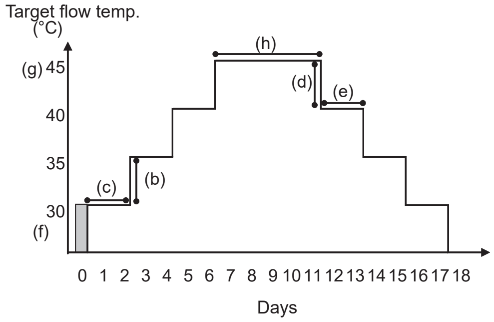
During the filling of the system, the primary circuit circulation pump, 3-way valve and mixing valve can be manually overridden using manual operation mode.
When manual operation is selected, a small timer icon appears in the screen. When selected, this function will only remain in manual operation for a maximum of 2 hours. This is to prevent accidental permanent override of the FTC.

Manual operation and heat source setting can not be selected if the system is running. A screen will be displayed asking the installer to stop the system before these modes can be activated.
The system automatically stops 2 hours after last operation.

[Floor dry up function]

The floor dry up function automatically changes the target hot water temperature in stages to gradually dry concrete when this particular type of underfloor heating system is installed.

Upon completion of the operation, the system stops all the operations except the Freeze stat. operation.
For floor dry up function, the target flow temperature of Zone 1 is the same as that of Zone 2.



- This function is not available when a PUHZ-FRP outdoor unit is connected.
- Disconnect wiring to external inputs of room thermostat, demand control, and outdoor thermostat, or the target flow temperature may not be maintained.

Functions		Symbol	Description	Option/Range	Unit	Default
[Floor dry up function]		a	Set the function to on and power on the system using the main remote controller, and the dry up heating operation will start.	on/off	—	off
[Flow temperature increase]	[Temperature increase step]	b	It sets the increase step of the target flow temperature.	+1 to +30	ºC	+5
	[Increase interval]	c	It sets the period for which the same target flow temperature is maintained.	1 to 7	day	2
[Flow temperature decrease]	[Temperature decrease step]	d	It sets the decrease step of the target flow temperature.	−1 to −30	ºC	−5
	[Decrease interval]	e	It sets the period for which the same target flow temperature is maintained.	1 to 7	day	2
[Target temperature]	[Start & End]	f	It sets the target flow temperature at the start and the finish of the operation.	20 to 60*	ºC	30
	[Max temperature]	g	It sets the maximum target flow temperature.	20 to 60*	ºC	45
	[Max temperature period]	h	It sets the period for which the maximum target flow temperature is maintained.	1 to 20	day	5

* The maximum temperature differs depending on the connected outdoor unit.

[Password protection]

Password protection is recommended to prevent unauthorised access to the service menu by untrained persons.

[Password reset]

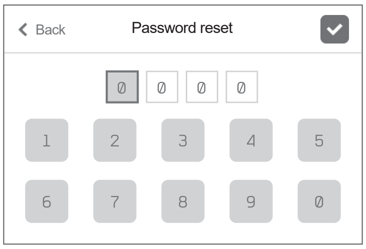
If you forget the password you entered, or have to service a unit somebody else installed, you can reset and change the password.

1. From [Service] in [Menu], access the [Password protection] screen.
2. Press and hold the title section for 3 seconds to access the [Password reset] screen.
3. Enter a new password.
4. Touching [Back] or the confirm icon ✓ saves the password.

[Manual reset]

Should you wish to restore the factory settings at any time, you should use the manual reset function. Please note this will reset ALL functions to the factory default settings.

[Password protection]



[Password reset]

Engineers Forms

Should settings be changed from default, please enter and record new setting in ‘Commissioning/Field settings record sheet’ below. This will ease resetting in the future should the system use change or the circuit board need to be replaced.

Commissioning/Field settings record sheet

Main remote controller screen				Parameters	Default setting	Field setting	Notes
DHW	DHW *4		Eco	On/Off *5	Off		
			Boost	On/Off	—		
			DHW max. temp.	40°C to 55/60/65/70°C *6	50°C		
			Max. temp. drop	5°C to 40°C	10°C		
			Max. operation time	30 to 120 min.	60 min.		
			Interval	30 to 120 min.	30 min.		
			Volume	Large / Standard	Standard *7		
			Schedule	On/Off	Off		
			Always off	On/Off	Off		
	Legionella prevention *4		Legionella	On/Off	On		
			Hot water temp.	60°C to 70°C *6	65°C		
			Start time	00:00 to 23:00	03:00		
			Duration	1 to 120 min.	30 min.		
			Frequency	1 to 30 days	15 days		
			Max. operation time	1 to 5 h	3 h		
Heating / Cooling *3	Heating / Cooling		Zone 1 heating room temp.	10°C to 30°C	20°C		
			Zone 2 heating room temp. *1	10°C to 30°C	20°C		
			Zone 1 heating flow temp.	20°C to 60/70/75°C	45°C		
			Zone 2 heating flow temp. *2	20°C to 60/70/75°C	35°C		
			Zone 1 cooling flow temp. *3	5°C to 25°C	15°C		
			Zone 2 cooling flow temp. *3	5°C to 25°C	20°C		
			Zone 1 heating weather compensation curve	−9°C to +9°C	0°C		
			Zone 2 heating weather compensation curve *2	−9°C to +9°C	0°C		
			Zone 1 cooling weather compensation curve	−9°C to +9°C	0°C		
			Zone 2 cooling weather compensation curve *2	−9°C to +9°C	0°C		
			Schedule	On/Off	Off		
			Always off	On/Off	Off		
			Heating / Cooling	Heating / Cooling	Heating		
			Zone 1 control logic	Heating room temp./ Heating flow temp./ Heating weather compensation curve / Cooling flow temp./ Cooling weather compensation curve	Heating weather compensation curve		
			Zone 2 control logic *2	Heating room temp./ Heating flow temp./ Heating weather compensation curve / Cooling flow temp./ Cooling weather compensation curve	Heating weather compensation curve		
			Auto change over	On/Off	Off		
	Weather compensation curve (Heating)	Hi flow temp. set point	Zone 1 outdoor ambient temp.	−30°C to +33°C *8	−15°C		
			Zone 1 flow temp.	20°C to 60/70/75°C	50°C		
			Zone 2 outdoor ambient temp. *2	−30°C to +33°C *8	−15°C		
			Zone 2 flow temp. *2	20°C to 60/70/75°C	40°C		
		Lo flow temp. set point	Zone 1 outdoor ambient temp.	−28°C to +35°C *9	20°C		
			Zone 1 flow temp.	20°C to 60/70/75°C	25°C		
			Zone 2 outdoor ambient temp. *2	−28°C to +35°C *9	20°C		
			Zone 2 flow temp. *2	20°C to 60/70/75°C	25°C		
		Adjust	Zone 1 outdoor ambient temp.	−29°C to +34°C *10	—		
			Zone 1 flow temp.	20°C to 60/70/75°C	—		
			Zone 2 outdoor ambient temp. *2	−29°C to +34°C *10	—		
			Zone 2 flow temp. *2	20°C to 60/70/75°C	—		
	Weather compensation curve (Cooling)	Hi flow temp. set point	Zone 1 outdoor ambient temp.	10°C to 46°C	35°C		
			Zone 1 flow temp.	5°C to 25°C	15°C		
			Zone 2 outdoor ambient temp. *2	10°C to 46°C	35°C		
			Zone 2 flow temp. *2	5°C to 25°C	20°C		
		Lo flow temp. set point	Zone 1 outdoor ambient temp.	10°C to 46°C	25°C		
			Zone 1 flow temp.	5°C to 25°C	25°C		
			Zone 2 outdoor ambient temp. *2	10°C to 46°C	25°C		
			Zone 2 flow temp. *2	5°C to 25°C	25°C		
Menu	Energy		Energy monitor	Consumed electrical energy/Delivered energy	—		
	Holiday		Schedule	On/Off/Set time	—		
			DHW *4	On/Off	Off		
			Heating / Cooling *3	On/Off	On		
	Setting	Language	EN/CZ/DA/DE/ET/ES/FR/HR/IT/LV/LT/HU/NL/NO/PL/PT/RO/SK/SI/FI/SV/TR/EL/BG		EN		
		Room sensors	Zone sensor selection *2	Zone 1/Zone 2	Zone 1		
			Zone 1 programme	TH1/Main RC/Room RC1-8/“Time/Zone”	TH1		
			Zone 2 programme *2	TH1/Main RC/Room RC1-8/“Time/Zone”	TH1		
		Display	Temp. (°C) → (°F)	On/Off	Off		
		Touch screen	Clean screen	On/Off	Off		
			Calibrate screen	On/Off	Off		
			Brightness	Low / Mid / Hi	Mid		
			Backlight time	5sec./10sec./20sec./30sec./60sec./Always on	30sec.		

Continued to next page.

■ Engineers Forms

Commissioning/Field settings record sheet

Main remote controller screen					Parameters			Default setting	Field setting	Notes
Menu	Service	Thermistor adjustment		THW1	−10°C to +10°C			0°C		
				THW2	−10°C to +10°C			0°C		
				THW5B	−10°C to +10°C			0°C		
				THW6	−10°C to +10°C			0°C		
				THW7	−10°C to +10°C			0°C		
				THW8	−10°C to +10°C			0°C		
				THW9	−10°C to +10°C			0°C		
				THW10	−10°C to +10°C			0°C		
				THWB1	−10°C to +10°C			0°C		
		Auxiliary settings		Economy settings for pump.	On/Off *11			On		
					Delay (3 to 60 min.)			10 min.		
				Electric heater (heating)	Space heating: On (used)/Off (not used)			On		
					Electric heater delay timer (5 to 180 min.)			30 min.		
				Electric heater (DHW) *4	Booster heater	DHW: On (used)/Off (not used)		On		
					Immersion heater	DHW: On (used)/Off (not used)		On		
					Electric heater delay timer (15 to 30 min.)			15 min.		
				Mixing valve 1 control	Running (10 to 240 sec.)			120 sec.		
					Interval (1 to 30 min.)			2 min.		
				Mixing valve 2 control	Running (10 to 240 sec.)			120 sec.		
					Interval (1 to 30 min.)			2 min.		
				Flow sensor *12	Minimum (0 to 100 L/min)			5 L/min		
					Maximum (0 to 100 L/min)			100 L/min		
				Analogue output	Interval (1 to 30 min.)			5 min.		
					Priority (Normal / High)			Normal		
				Electric heater schedule *19	Daily schedule (Schedule 1/Schedule 2)			Shedule 1		
					Time schedule 1 (Always/Start-Stop/Never)			Always		
					Time schedule 2 (Always/Start-Stop/Never)			Always		
		Pump speed		DHW	Pump speed (1 to 5)			5		
				Heating / Cooling	Pump speed (1 to 5)			5		
		Heat source setting			Standard / Heater / Boiler / Hybrid *13			Standard		
		Heat pump settings		Heat pump flow rate range		Minimum (0 to 100 L/min)		5 L/min		
						Maximum (0 to 100 L/min)		100 L/min		
				Quiet mode *21	Heating	Day (Mon to Sun)		—		
						Time		0:00 to 23:45		
						Quiet level (Normal/ Level1/ Level2/ Level3)		Normal		
					Cooling	Day (Mon to Sun)		—		
						Time		0:00 to 23:45		
						Quiet level (Normal/ Level1/ Level2/ Level3)		Normal		
		Operation settings	Heating operation	Flow temperature range *14	Minimum temp. (20 to 45°C)			30°C		
					Maximum temp. (35 to 60/70/75°C)			50°C		
				Room temperature control *14	Mode (Auto/Quick/Normal/Slow)			Auto		
					Interval (10 to 60 min.)*15			10 min.		
				Heat pump thermo diff.	On/Off *11			On		
					Lower (−9 to −1°C)			−5°C		
					Upper (+3 to +5°C)			5°C		
			Freeze stat function *16		Ambient temp. (3 to 20°C) / **			5°C		
			Simultaneous operation (DHW/ Heating)		On/Off *11			Off		
					Ambient temp. (−30 to +10°C) *8			−15°C		
			Cold weather function		On/Off *11			Off		
					Ambient temp. (−30 to −10°C) *8			−15°C		
			Boiler settings		Hybrid settings	Outdoor ambient temp. (−30 to +10°C) *8		−15°C		
						Priority mode (Ambient/Cost/CO$_2$) *17		Ambient		
						Outdoor ambient temp. rise (+1 to +5°C)		+3°C		
					Intelligent settings	Energy price *18	Electricity (0.001 to 999 */kWh)	0.5 */kWh		
							Boiler (0.001 to 999 */kWh)	0.5 */kWh		
						CO$_2$ emission	Electricity (0.001 to 999 kg -CO$_2$/kWh)	0.5 kg -CO$_2$/kWh		
							Boiler (0.001 to 999 kg -CO$_2$/kWh)	0.5 kg -CO$_2$/kWh		
						Heat source	Heat pump capacity (1 to 40 kW)	11.2 kW		
							Boiler efficiency (25 to 150%)	80%		
							Booster heater 1 capacity (0 to 30 kW)	2 kW		
							Booster heater 2 capacity (0 to 30 kW)	4 kW		

Continued to next page.

Engineers Forms

Commissioning/Field settings record sheet (continued from the previous page)

Main remote controller screen					**Parameters**		**Default setting**	**Field setting**	**Notes**
Menu	Service	Operation settings	Smart grid ready	DHW	On/Off		Off		
					Target temp. (+1 to +30°C) / -- (Non active)		--		
				Heating	On/Off		Off		
					Target temp.	Switch-on recommendation (20 to 60/70/75°C)	50°C		
						Switch-on command (20 to 60/70/75°C)	55°C		
				Cooling	On/Off		Off		
					Target temp.	Switch-on recommendation (5 to 25°C)	15°C		
						Switch-on command (5 to 25°C)	10°C		
				Pump cycles	Heating (On/Off)		On		
					Cooling (On/Off)		On		
					Interval (10 to 120 min.)		10 min.		
			Floor dry up		On/Off *11		Off		
					Target temperature	Start & End (20 to 60/70/75°C)	30°C		
						Max temperature (20 to 60/70/75°C)	45°C		
						Max temperature period (1 to 20 days)	5 days		
					Flow temperature increase	Temperature increase step (+1 to +30°C)	+5°C		
						Increase interval (1 to 7 days)	2 days		
					Flow temperature decrease	Temperature decrease step (-1 to -30°C)	−5°C		
						Decrease interval (1 to 7 days)	2 days		
			Summer mode		On/Off		Off		
					Ambient temperature	Heating on (4 to 19°C)	10°C		
						Heating off (5 to 20°C)	15°C		
					Judgement time	Heating on (1 to 48 h)	6 h		
						Heating off (1 to 48 h)	6 h		
					Forced heating On (-30 to 10°C)		5°C		
			Auto change over		On/Off		Off		
					Ambient temperature	Heat→Cool (10 to 40°C)	28°C		
						Cool→Heat (5 to 20°C)	15°C		
					Judgement time	Heat→Cool (1 to 48 h)	6 h		
						Cool→Heat (1 to 48 h)	6 h		
			Water flow control		On/Off		Off		
					Water temperature difference *20	Heating (+3 to +20°C)	+5°C		
						Cooling (+3 to +10°C)	+5°C		
			Holiday mode		Zone 1 heating room temp.	10°C to 30°C	15°C		
					Zone 2 heating room temp. *1	10°C to 30°C	15°C		
					Zone 1 heating flow temp.	20°C to 60/70/75°C	35°C		
					Zone 2 heating flow temp. *2	20°C to 60/70/75°C	25°C		
					Zone 1 cooling flow temp. *3	5°C to 25°C	25°C		
					Zone 2 cooling flow temp. *3	5°C to 25°C	25°C		
			Zone prohibited		Heating (Zone 1)	Permitted/Prohibited	Permitted		
					Heating (Zone 2)	Permitted/Prohibited	Permitted		
					Cooling (Zone 1)	Permitted/Prohibited	Permitted		
					Cooling (Zone 2)	Permitted/Prohibited	Permitted		

Continued to next page.

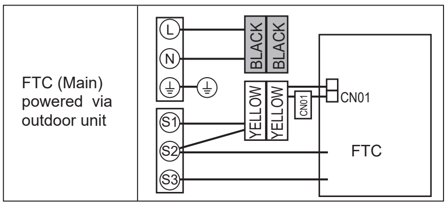
Engineers Forms

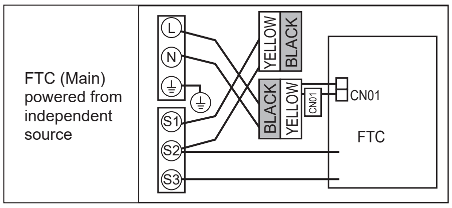
Commissioning/Field settings record sheet (continued from the previous page)

Main remote controller screen					**Parameters**	**Default setting**	**Field setting**	**Notes**
Menu	Service	Energy monitor settings	Electric heater capacity	Booster heater 1	0 to 30 kW	2 kW		
				Booster heater 2	0 to 30 kW	4 kW		
				Immersion heater	0 to 30 kW	0 kW		
				Analogue output	0 to 30 kW	0 kW		
			Delivered energy adjustment		−50 to +50%	0%		
			Water pump input	Pump 1	0 to 200 W or ***(factory fitted pump)	***		
				Pump 2	0 to 200 W	0 W		
				Pump 3	0 to 200 W	0 W		
				Pump 4 *7	0 to 200 W	72 W		
			Electric energy meter		0.1/1/10/100/1000 pulse/kWh	1000 pulse/kWh		
			Heat meter		0.1/1/10/100/1000 pulse/kWh	1000 pulse/kWh		
		External input settings	Demand control (IN4)		Heat source OFF/Boiler operation	Boiler operation		
			Outdoor thermostat (IN5)		Heater operation/Boiler operation	Boiler operation		
			Cooling limit temp. (IN15)	Zone selection	Zone 1/Zone 2/Zone 1&2	Zone 1		
				Zone 1 lowest temperature	5°C to 25°C	18°C		
				Zone 2 lowest temperature	5°C to 25°C	18°C		
		Thermo on output			Zone 1/Zone 2/Zone 1&2	Zone 1&2		

*1 The settings related to Zone 2 can be switched only when 2-zone temperature control or 2-zone valve ON/OFF control is active.
*2 The settings related to Zone 2 can be switched only when 2-zone temperature control is enabled (when DIP SW 2-6 and SW 2-7 are ON).
3 Cooling mode settings are available for ERS model only.
*4 Only available if DHW tank is present in system.
*5 When the indoor unit is connected with a PUMY-P outdoor unit, the mode is fixed to “Off”.
*6 For the model without both booster and immersion heater, it may not reach the set temperature depending on the outside ambient temperature.
*7 This setting is valid for only cylinder units.
*8 The lower limit is -15°C depending on the connected outdoor unit.
*9 The lower limit is -13°C depending on the connected outdoor unit.
*10 The lower limit is -14°C depending on the connected outdoor unit.
*11 On: the function is active; Off: the function is inactive.
*12 Do not change the setting since it is set according to the specification of flow sensor attached to the indoor unit.
*13 When DIP SW1-1 is set to OFF “WITHOUT Boiler” or SW2-6 is set to OFF “WITHOUT Mixing tank”, neither Boiler nor Hybrid can be selected.
*14 Valid only when operating in Heating room temperature.
*15 When DIP SW5-2 is set to OFF, the function is active.
*16 If asterisk (**) is chosen freeze stat function is deactivated. (i.e. primary water freeze risk)
*17 When the indoor unit is connected with a PUMY-P and PXZ outdoor unit, the mode is fixed to “Ambient”.
18 “” of “*/kWh” represents currency unit (e.g. €, £, or the like)
*19 Valid only during heating mode
*20 To enable this function in the outdoor unit of PUZ-S(H)WM, switch the [Mode 7] in [Function settings] to "2".
([Menu] → [Service] → [Function settings], [Ref. add: 0], [Unit: 1] → [Mode 7], 1-High temperature control (default) / 2-Water temperature difference control)
*21 When connected with a SUZ outdoor unit, there is no sound reduction effect even if it is set to the heating quiet mode 3 and the cooling quiet mode 1 to 3.

<Troubleshooting by inferior phenomena>

No.	Fault symptom	Possible cause	Explanation - Solution
1	Main remote controller display is blank.	1. There is no power supply to main remote controller. 2. Power is supplied to main remote controller, however, the display on the main remote controller does not appear.	1. Check LED2 on FTC (Main). (See Figure 4.5.1.) (i) When LED2 is lit. Check for damage or contact failure of the main remote controller wiring. (ii) When LED2 is blinking. Refer to No. 5 below. (iii) When LED2 is not lit. Refer to No. 4 below. 2. Check the following: • Disconnection between the main remote controller cable and the FTC (Main) control board • Failure of the main remote controller if "Please Wait" is not displayed. • Refer to No. 2 below if "Please Wait" is displayed.
2	"Please Wait" remains displayed on the main remote controller.	1. "Please Wait" is displayed for up to 6 minutes. 2. Communication failure between the main remote controller and FTC (Main). 3. Communication failure between FTC (Main) and outdoor unit.	1. Normal operation. 2.,3. Main remote controller start up checks/procedure. (i) If "0%" or "50-99%" is displayed below "Please Wait", there is a communication error between the main remote controller and the FTC (Main) control board. • Check wiring connections on the main remote controller. • Replace the main remote controller or the FTC (Main) control board. (ii) If "1-49%" is displayed there is a communication error between the outdoor unit's and FTC (Main) control boards. • Check the wiring connections on the outdoor unit control board and the FTC (Main) control board. (Ensure S1 and S2 are not cross-wired and S3 is securely wired with no damage. (See section 4.1.) • Replace the outdoor unit's and/or the FTC (Main) control boards.
3	The main screen appears with a press of the "ON" button, but disappears in a second.	The main remote controller operations do not work for a whilst after the settings are changed in the service menu. This is because the system takes time to apply the changes.	Normal operation. The indoor unit is applying updated settings made in the service menu. Normal operation will start shortly.
4	LED2 on FTC (Main) is off. (See <Figure 4.5.1>.)	When LED1 on FTC (Main) is also off. (See Figure 4.5.1.) <FTC (Main) powered via outdoor unit.> 1. The outdoor unit is not supplied at the rated voltage. 2. Defective outdoor controller circuit board 3. FTC (Main) is not supplied with 220 to 240V AC 4. FTC (Main) failure 5. Faulty connector wiring	1. Check the voltage across the terminals L and N or L3 and N on the outdoor power board. (See section 4.1.) • When the voltage is not 220 to 240 V AC, check wiring of the outdoor unit and of the breaker. • When the voltage is at 220 to 240 V AC, go to "2." below. 2. Check the voltage across the outdoor unit terminals S1 and S2. (See section 4.1.) • When the voltage is not 220 to 240 V AC, check the fuse on the outdoor control board and check for faulty wiring. • When the voltage is 220 to 240 V AC, go to "3." below. 3. Check the voltage across the indoor unit terminals S1 and S2. (See section 4.1.) • When the voltage is not 220 to 240 V AC, check FTC (Main)-outdoor unit wiring for faults. • When the voltage is 220 to 240V AC, go to "4." below. 4. Check the FTC (Main) control board. • Check the fuse on FTC (Main) control board. • Check for faulty wiring. • If no problem found with the wiring, the FTC (Main) control board is faulty. 5. Check the connector wiring. • When the connectors are wired incorrectly, re-wire the connectors referring to below. (See section 4.1.) 

No.	Fault symptom	Possible cause	Explanation - Solution
4.	LED2 on FTC (Main) is off. (See Figure <4.5.1>)	<FTC (Main) powered on independent source> 1. FTC (Main) is not supplied with 220 to 240 V AC. 2. There are problems in the method of connecting the connectors. 3. FTC (Main) failure	1. Check the voltage across the L and N terminals on the indoor power supply terminal block. (See section 4.1.) • When the voltage is not 220 to 240 V AC, check for faulty wiring to power supply. • When the voltage is 220 to 240 V AC, go to 2. below. 2. Check for faulty wiring between the connectors. • When the connectors are wired incorrectly re-wire them correctly referring to below. (See section 4.1 and a wiring diagram on the control and electrical box cover.)  • If no problem found with the wiring, go to 3. below. 3. Check the FTC (Main) control board. • Check the fuse on FTC (Main) control board. • Check for faulty wiring. • If no problem found with the wiring, the FTC (Main) control board is faulty.
		When LED1 on FTC (Main) is lit., the setting of refrigerant address for outdoor unit is incorrect. (None of the refrigerant address is set to "0".)	Recheck the refrigerant address setting on the outdoor unit. Set the refrigerant address to "0". (Set refrigerant address using SW1 (3 - 6) on outdoor controller circuit board.)
5	LED2 on FTC (Main) is blinking. (See Figure 4.5.1.)	When LED1 is also blinking on FTC (Main). Faulty wiring between FTC (Main) and outdoor unit	Check for faulty wiring between FTC (Main) and outdoor unit.
		When LED1 on FTC (Main) is lit. 1. Faulty wiring in main remote controller Multiple indoor units have been wired to a single outdoor unit. 2. Short-circuited wiring in main remote controller 3. Main remote controller failure	1. Check for faulty wiring in main remote controller. The number of indoor units that can be wired to a single outdoor unit is one. Additional indoor units must be wired individually to a single outdoor unit. 2.,3. Remove main remote controller wires and check LED2 on FTC (Main). (See Figure 4.5.1.) • If LED2 is blinking check for short circuits in the main remote controller wiring . • If LED2 is lit, wire the main remote controller again and: - if LED2 is blinking, the main remote controller is faulty; - if LED2 is lit, faulty wiring of the main remote controller has been corrected.
6	LED4 on FTC (Main) is off. (See Figure 4.5.1.)	1. SD memory card is NOT inserted into the memory card slot with correct orientation. 2. Not an SD standards compliant memory card.	1. Correctly insert SD memory card in place until a click is heard. 2. Use an SD standards compliant memory card. (Refer to section 4.11.)
	LED4 on FTC (Main) is blinking. (See Figure 4.5.1.)	1. Full of data 2. Write-protected 3. NOT formatted 4. Formatted in NTFS file system	1. Move or delete data, or replace microSD memory card with a new one. 2. Release the write-protect switch. 3. Refer to "4.11 Using microSD memory card". 4. FTC is not compatible with NTFS file system. Use a microSD memory card formatted in FAT file system.
7	No water at hot tap.	1. Cold main off 2. Strainer (local supply) blocked.	1. Check and open stop cock. 2. Isolate water supply and clean strainer.
8	Cold water at tap.	1. Hot water run out. 2. Prohibit, schedule timer or holiday mode selected. 3. Heat pump not working. 4. Booster heater cut-out tripped. 5. The earth leakage circuit breaker for booster heater breaker (ECB1) tripped. 6. The booster heater thermal cut-out has tripped and cannot be reset using the manual reset button. 7. Immersion heater cut-out tripped. 8. Immersion heater breaker (ECB2) tripped. 9. 3-way valve fault	1. Ensure DHW mode is operating and wait for DHW tank to re-heat. 2. Check settings and change as appropriate. 3. Check heat pump – consult outdoor unit service manual. 4. Check booster heater thermostat and press reset button if safe. 5. Check the cause and reset if safe. 6. Check resistance across the thermal cut-out, if open then the connection is broken and the booster heater will have to be replaced. Contact your Mitsubishi Electric dealer. 7. Check immersion heater thermostat and press reset button, located on immersion heater boss, if safe. If the heater has been operated with no water inside it may have failed, so please replace it with a new one. 8. Check the cause and reset if safe. 9. Check plumbing/wiring to 3-way valve. (i) Manually override 3-way valve using the main remote controller. (Refer to [Manual operation] in section 7. Remote controller) If the valve does not still function, go to (ii) below. (ii) Replace 3-way valve coil. If the valve does not still function, go to (iii) below. (iii) Replace 3-way valve. (Refer to the service manual.)

No.	Fault symptom	Possible cause	Explanation - Solution
9	Water heating takes longer.	1. Heat pump not working. 2. Booster heater cut-out tripped. 3. Booster heater breaker tripped. 4. The booster heater thermal cut-out has tripped and cannot be reset using the manual reset button. 5. Immersion heater cut-out has been triggered. 6. Immersion heater breaker tripped. 7. Decreased flow rate in DHW circuit. (Only when the external plate HEX for DHW is used.)	1. Check heat pump – consult outdoor unit service manual. 2. Check booster heater thermostat and press reset button if safe. 3. Check the cause and reset if safe. 4. Check resistance across the thermal cut-out, if open then connection is broken and the booster heater will have to be replaced. Contact your Mitsubishi Electric dealer. 5. Check immersion heater thermostat and press reset button located on immersion heater boss, if safe. If the heater kept running with no water inside, this may have resulted in failure, so replace it with a new one. 6. Check the cause and reset if safe. 7. Check the water circulation pump 4 (DHW).
10	Temperature of DHW tank water dropped.	When DHW operation is not running, the DHW tank emits heat and the water temperature decreases to a certain level. If water in the DHW tank is reheated frequently because of a significant drop in water temperature, check for the following. 1. Water leakage in the pipes that connect to the DHW tank 2. Insulation material coming loose or off. 3. 3-way valve failure	1. Take the following measures. • Retighten the nuts holding the pipes onto the DHW tank. • Replace seal materials. • Replace the pipes. 2. Fix insulation. 3. Check plumbing/wiring to 3-way valve. (i) Manually override 3-way valve using the main remote controller. (Refer to [Manual operation] in section 7. Remote controller) If the valve does not still function, go to (ii) below. (ii) Replace 3-way valve coil. If the valve does not still function, go to (iii) below. (iii) Replace 3-way valve. (Refer to the service manual.)
11	Hot or warm water from cold tap	Heat of hot water pipe is transferred to cold water pipe.	Insulate/re-route pipework.
12	Water leakage	1. Poorly sealed connections of water circuit components 2. Water circuit components reaching the end of life	1. Tighten connections as required. 2. Refer to the parts catalog in the service manual for expected part lifetimes and replace them as necessary.
13	Heating system does not reach the set temperature.	1. Prohibit, schedule timer or holiday mode selected. 2. Check settings and change as appropriate. 3. The temperature sensor is located in a room that has a different temperature relative to that of the rest of the house. 4. Heat pump not working. 5. Booster heater cut-out tripped. 6. Booster heater breaker (ECB1) tripped. 7. The booster heater thermal cut-out tripped and can not be reset using the manual reset button. 8. Incorrectly sized heat emitter 9. 3-way valve failure 10. Battery problem (*wireless control only) 11. If a mixing tank is installed, the flow rate between the mixing tank and the heat exchanger is less than that between the mixing tank and the local system.	1. Check settings and change as appropriate. 2. Check the battery power and replace if flat. 3. Reposition the temperature sensor to a more suitable room. 4. Check heat pump – consult outdoor unit service manual. 5. Check booster heater thermostat and press reset button if safe. 6. Check the cause of the trip and reset if safe. 7. Check resistance across the thermal cut-out, if open then the connection is broken and the booster heater will have to be replaced. Contact your Mitsubishi Electric dealer. 8. Check the heat emitter surface area is adequate Increase size if necessary. 9. Check plumbing/wiring to 3-way valve. 10. Check the battery power and replace it flat. 11. Increase the flow rate between the mixing tank and the heat exchanger decrease that between the mixing tank and the local system.
14	In 2-zone temperature control, only Zone 2 does not reach the set temperature.	1. When Zone 1 and Zone 2 are both in heating mode, the hot water temperature in Zone 2 does not exceed that in Zone 1. 2. Faulty wiring of motorized mixing valve 3. Faulty installation of motorized mixing valve 4. Incorrect setting of running time 5. Motorized mixing valve failure	1. Normal operation no action necessary. 2. Refer to "4.7 Wiring for 2-zone temperature control". 3. Check for correct installation. (Refer to the manual included with each motorized mixing valve.) 4. Check for correct setting of running time. 5. Inspect the mixing valve. (Refer to the manual included with each motorized mixing valve.)
15	After DHW operation room temperature rises a little	At the end of the DHW mode operation the 3-way valve diverts hot water away from the DHW circuit into space heating circuit. This is done to prevent the system components from overheating. The amount of hot water directed into the space heating circuit varies according to the type of the system.	Normal operation no action necessary.

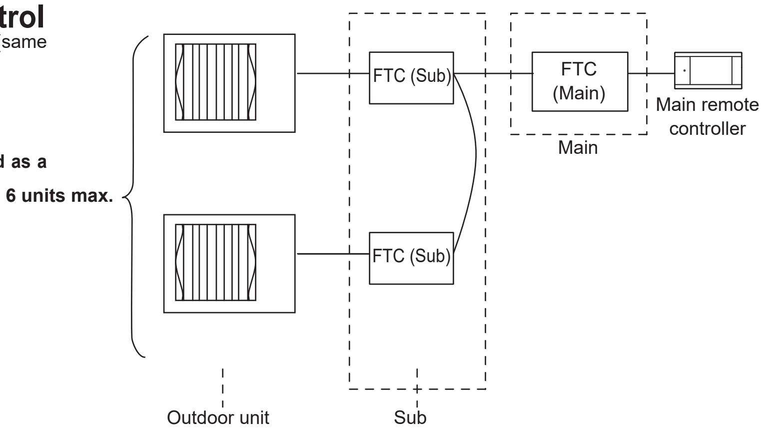
No.	Fault symptom	Possible cause	Explanation - Solution
16	The room temperature rises during DHW operation.	3-way valve failure	Check the 3-way valve.
17	Water discharges from pressure relief valve. (Primary circuit)	1. If continual – pressure relief valve may be damaged. 2. If intermittent – expansion vessel charge may have reduced/bladder perished.	1. Turn the handle on the pressure relief valve to check for foreign objects in it. If the problem is not still solved, replace the pressure relief valve with a new one. 2. Check pressure in expansion vessel. Recharge to 1 bar if necessary. If bladder perished replace expansion vessel with a new one.
18	Water discharges from pressure relief valve (field supplied item). (Sanitary circuit)	1. If continual – field supplied pressure reducing valve not working. 2. If continual – pressure relief valve seat may be damaged. 3. If intermittent – expansion vessel charge may have reduced/bladder perished. 4. DHW tank may have subjected to back-flow.	1. Check function of pressure reducing valve and replace if necessary. 2. Turn the handle on the pressure relief valve to check for foreign objects inside. If the problem is not still solved, replace the pressure relief valve. 3. Check gas-side pressure in expansion vessel. Recharge to correct precharge pressure if necessary. If bladder perished replace expansion vessel with a new one with appropriate pre-charge. 4. Check gas-side pressure in DHW tank. If pressure in DHW tank is similar to that in incoming mains, cold water supply that merges with incoming mains water supply could flow back to DHW tank. Investigate source of back-feed and rectify error in pipework/fitting configuration. Adjust pressure in cold supply.
19	Noisy water circulation pump	Air in water circulation pump	Use manual and automatic air vents to remove air from system. Top up water if necessary to achieve 1 bar on primary circuit.
20	Noise during hot water draw off typically worse in the morning.	1. Loose airing cupboard pipework 2. Heaters switching on/off	1. Install extra pipe fastening clips. 2. Normal operation no action necessary.
21	Mechanical noise heard coming from the system.	1. Heaters switching on/off 2. 3-way valve changing position between DHW and heating mode	Normal operation no action necessary.
22	Water circulation pump runs for a short time unexpectedly .	Water circulation pump jam prevention mechanism (routine) to inhibit the build-up of scale	Normal operation no action necessary.
23	Milky/Cloudy water (Sanitary circuit)	Oxygenated water	Water from any pressurised system will release oxygen bubbles when water is running. The bubbles will settle out.
24	Heating mode has been on standby for a long time (does not start operation smoothly.)	The time of "Delay" set in "Economy settings for pump" is too short. (Go to [Service]→[Auxiliary settings]→[Economy settings for pump])	Increase the time of [Delay] in [Economy settings for pump].
25	The FTC unit that was running in the heating mode before power failure is running in the DHW mode after power recovery.	The FTC unit is designed to run in an operation mode with a higher priority (i.e. DHW mode in this case) at power recovery.	• Normal operation. • After the DHW max. operation time has elapsed or the DHW max. temperature has been reached, the DHW mode switches to the other mode (ex. heating mode).
26	Cooling mode is NOT available.	DIP SW2-4 is OFF.	Turn DIP SW2-4 to ON. (Refer to "5.1 DIP switch functions" in this manual.)
27	The cooling system does not cool down to the set temperature.	1. When the water in the circulation circuit is unduly hot, Cooling mode starts with a delay for the protection of the outdoor unit. 2. When the outdoor temperature is lower than the preset temperature below which the freeze stat. function is activated, Cooling mode does not start running.	1. Normal operation. 2. To run Cooling mode overriding the freeze stat. function, adjust the preset temperature below which the freeze stat. function is activated. (Refer to "Freeze stat function" on Page 38.
28	The electric heaters are activated shortly after DHW or LP mode starts running after Cooling mode.	The setting time period of Heat-pump-only operation is short.	Adjust the setting time period of Heat-pump only operation. (Refer to "Electric heater (DHW)" in the table of [Auxiliary settings] on Page 19.)
29	During DHW or LP mode following the cooling mode, error L6 (circulation water freeze protection) occurs and operation stops frequently.	If the preset temperature below which the freeze stat. function is activated is low, error L6 is more likely to occur interruption operation before the freeze stat. function is activated.	Adjust the preset temperature below which the freeze stat. function is activated. (Refer to "Freeze stat function" on Page 38.)
30	Heat pump is forced to turn ON and OFF.	Smart grid ready input (IN11 and IN12) is used, and switch-on and off commands are input.	Normal operation no action necessary.

10.1 Wiring for multiple outdoor units control

To establish a larger system, up to 6 outdoor units of the same model (same type / same capacity / same phase) can be connected in one system.

Note:

- **Flow sensor is necessary for packaged outdoor unit.**
- **Packaged outdoor unit DIP switch settings changed to SW5-5 ON.**
- **PUZ-S(H)WM outdoor unit can be connected when hydrobox is used as a sub unit.**
- **SUZ-SWM outdoor unit can not be connected.**

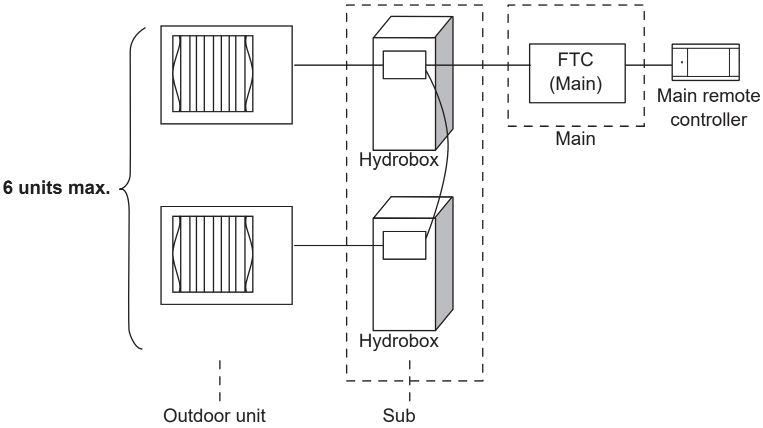


10.1.1 Requirements

<Outdoor unit>
(a) Up to 6 units can be connected.
(b) All the outdoor units must be of the same model.
(c) The outdoor units must be connected to sub units.

<FTC: Main unit>
Each sub unit is controlled by the main unit.
(a) The outdoor units must NOT be connected to the main unit.
Make sure that the main unit is powered by independent source.
(b) Wire the main remote controller to TB5 1-2 on the main unit.
(c) Wire the electric heater to the main unit.

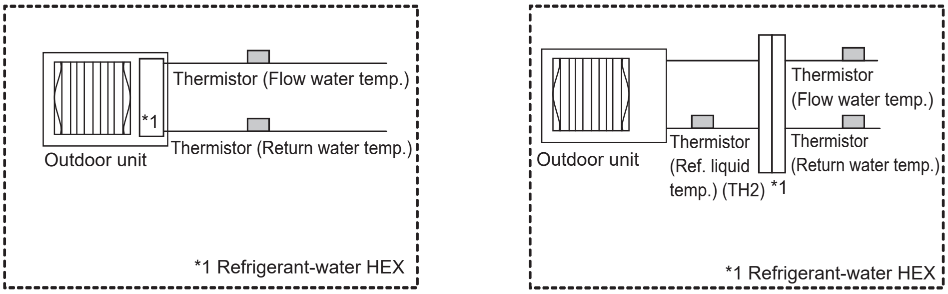
<FTC: Sub unit>
The hydrobox or main unit is used as a sub unit
(a) Connect each outdoor unit to a sub unit.
(b) The main remote controller must NOT be wired to a sub unit.



10.2 Pipe work

Following is the system example of two outdoor units being connected in one system.

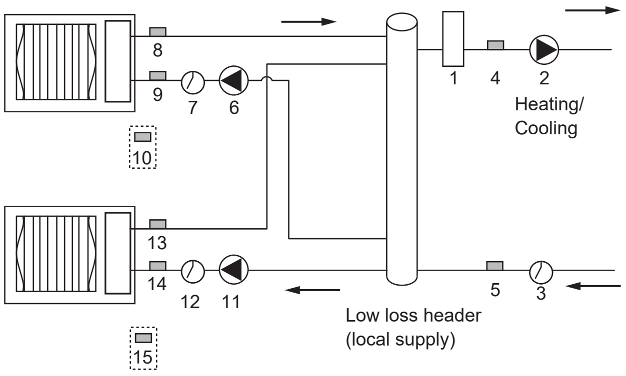
IMPORTANT NOTE
Keep the minimum amount of water required in the space heating circuit according to the number of outdoor units.



Outdoor unit (Packaged type) Outdoor unit (Split type)

<Fig. 10.2.1>

System 1: Heating/Cooling system
- Install a low loss header (local supply).
- Install booster heater toward the local system, relative to the low loss header.



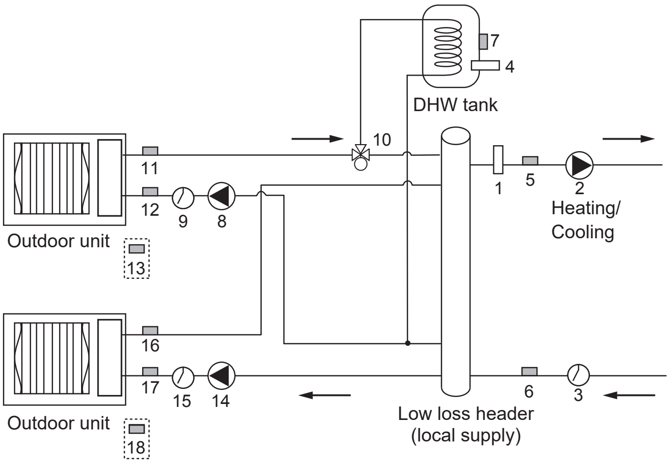
<Fig. 10.2.2>

No.	Component	Wiring		
		Main	Sub 1	Sub 2
1	Booster heater (local supply)	✓		
2	Circulation pump1 (local supply)	✓		
3	Flow switch1 or sensor *2	✓		
4	Thermistor (Flow water temp.) (THW1)	✓		
5	Thermistor (Return water temp.) (THW2)	✓		
6	Sub 1 circulation pump1 (local supply)		✓	
7	Sub 1 flow switch or sensor *2		✓	
8	Sub 1 thermistor (Flow water temp.) (THW1)		✓	
9	Sub 1 thermistor (Return water temp.) (THW2)		✓	
10	Sub 1 thermistor (Ref. liquid temp.) (TH2) *1		✓	
11	Sub 2 circulation pump1 (local supply)			✓
12	Sub 2 flow switch or sensor *2			✓
13	Sub 2 thermistor (Flow water temp.) (THW1)			✓
14	Sub 2 thermistor (Return water temp.) (THW2)			✓
15	Sub 2 thermistor (Ref. liquid temp.) (TH2) *1			✓

*1 When the outdoor unit is split type, TH2 needs to be installed. <Fig. 10.2.1>
*2 For safety protection, it is recommended to install.

System 2: Heating/Cooling & DHW system

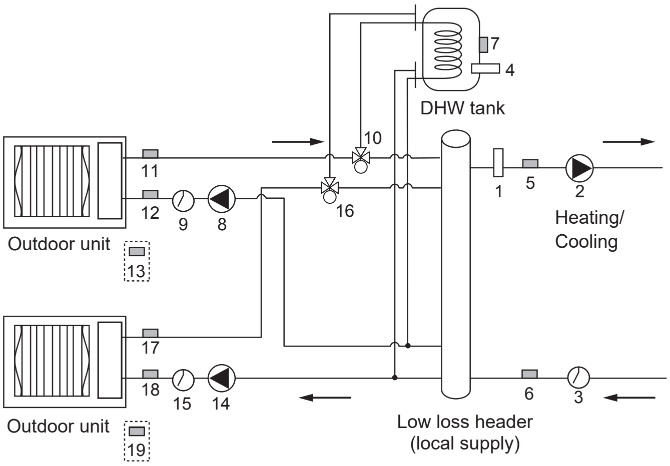
- Install DHW tank toward the outdoor unit , relative to the low loss header.
- Wire 3-way valve or 2-way valve 1, 2 to FTC (sub unit).
- LP mode uses assistance of electric heater. Place an immersion heater on the DHW circuit.
- Install a low loss header (local supply).
- Install booster heater toward the local system, relative to the low loss header.



<Fig. 10.2.3>

No.	Component	Wiring		
		Main	Sub 1 *4	Sub 2
1	Booster heater (local supply)	✓		
2	Circulation pump1 (local supply)	✓		
3	Flow switch 1 or sensor *2	✓		
4	Immersion heater (local supply)	✓		
5	Thermistor (Flow water temp.) (THW1)	✓		
6	Thermistor (Return water temp.) (THW2)	✓		
7	Thermistor (DHW tank lower water temp.) (THW5B)	✓		
8	Sub 1 circulation pump 1 (field supply)		✓	
9	Sub 1 flow switch or sensor *2		✓	
10	Sub 1 3-way valve (local supply) *3		✓	
11	Sub 1 thermistor (Flow water temp.) (THW1)		✓	
12	Sub 1 thermistor (Return water temp.) (THW2)		✓	
13	Sub 1 thermistor (Ref. liquid temp.) (TH2) *1		✓	
14	Sub 2 circulation pump1 (local supply)			✓
15	Sub 2 flow switch or sensor *2			✓
16	Sub 2 thermistor (Flow water temp.) (THW1)			✓
17	Sub 2 thermistor (Return water temp.) (THW2)			✓
18	Sub 2 thermistor (Ref. liquid temp.) (TH2) *1			✓

*1 When the outdoor unit is split type, TH2 needs to be installed. (Fig. 10.2.1)
*2 For safety protection, it is recommended to install.
*3 The use of two 2-way valves can perform the same function as a 3-way valve.
*4 DHW operation requires to use the main unit (or hydrobox) as the sub controller.



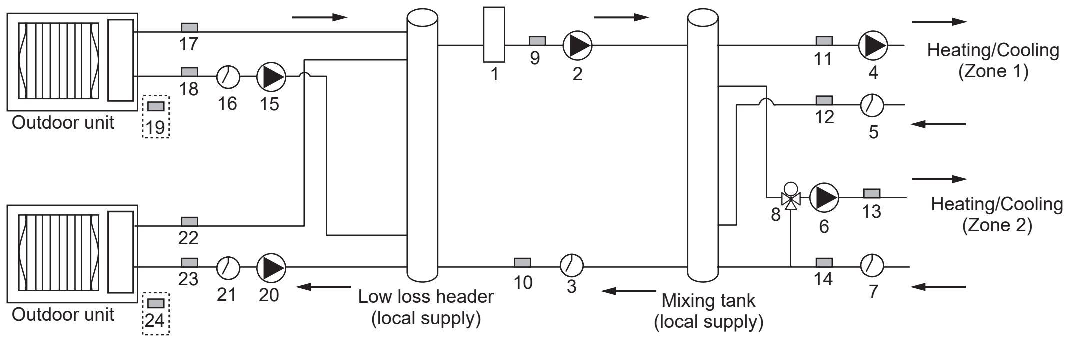
<Fig. 10.2.4>

No.	Component	Wiring		
		Main	Sub 1 *4	Sub 2 *4
1	Booster heater (local supply)	✓		
2	Circulation pump 1 (local supply)	✓		
3	Flow switch 1 or sensor *2	✓		
4	Immersion heater (local supply)	✓		
5	Thermistor (Flow water temp.) (THW1)	✓		
6	Thermistor (Return water temp.) (THW2)	✓		
7	Thermistor (DHW tank lower water temp.) (THW5B)	✓		
8	Sub1 circulation pump 1 (local supply)		✓	
9	Sub1 flow switch or sensor *2		✓	
10	Sub1 3-way valve (local supply) *3		✓	
11	Sub 1 thermistor (Flow water temp.) (THW1)		✓	
12	Sub 1 thermistor (Return water temp.) (THW2)		✓	
13	Sub 1 thermistor (Ref. liquid temp.) (TH2) *1		✓	
14	Sub2 circulation pump 1 (local supply)			✓
15	Sub2 flow switch or sensor *2			✓
16	Sub2 3-way valve (local supply) *3			✓
17	Sub 2 thermistor (Flow water temp.) (THW1)			✓
18	Sub 2 thermistor (Return water temp.) (THW2)			✓
19	Sub 2 thermistor (Ref. liquid temp.) (TH2) *1			✓

*1 When the outdoor unit is split type, TH2 needs to be installed. (Fig. 10.2.1)
*2 For safety protection, it is recommended to install.
*3 The use of two 2-way valves can perform the same function as a 3-way valve.
*4 DHW operation requires to use the main unit (or hydrobox) as the sub controller.

System 3: 2-zone temperature control

- Install a mixing tank (local supply) for 2-zone temperature control.
- Install a low loss header (local supply).
- Install booster heater toward the local system, relative to the low loss header.
- For details on 2-zone installation, refer to ‘2-zone temperature control’ in “3.5 Local system”.



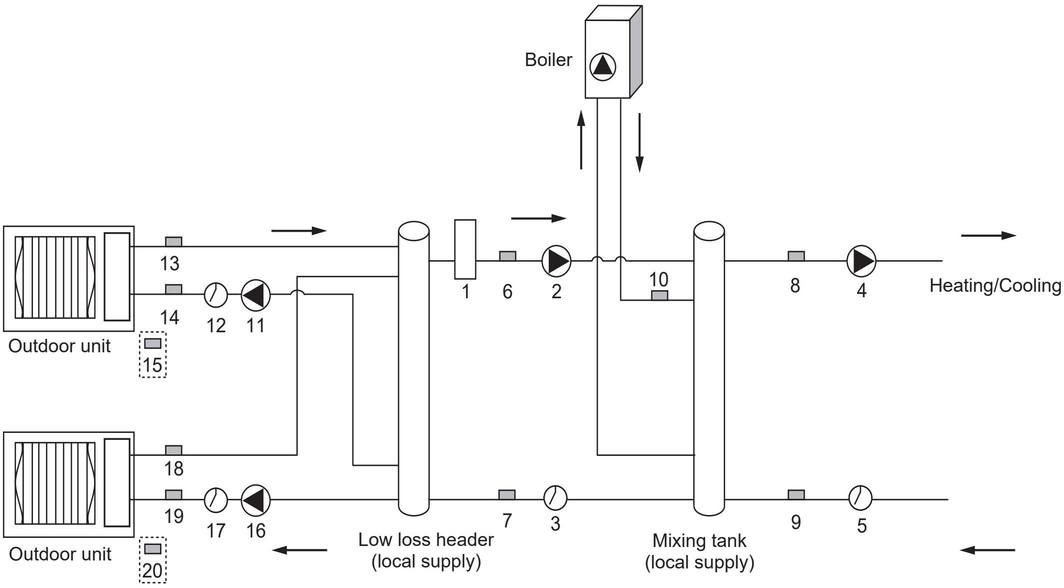
<Fig. 10.2.5>

No.	Component	Wiring		
		Main	Sub 1	Sub 2
1	Booster heater (local supply)	✓		
2	Circulation pump 1 (local supply)	✓		
3	Flow switch 1 or sensor *2	✓		
4	Circulation pump 2 (local supply)	✓		
5	Flow switch 2 (local supply) *2	✓		
6	Circulation pump 3 (local supply)	✓		
7	Flow switch 3 (local supply) *2	✓		
8	Motorized mixing valve (local supply)	✓		
9	Thermistor (Flow water temp.) (THW1)	✓		
10	Thermistor (Return water temp.) (THW2)	✓		
11	Thermistor (Zone 1 flow water temp.) (THW6) (option)	✓		
12	Thermistor (Zone 1 return water temp.) (THW7) (option)	✓		
13	Thermistor (Zone 2 flow water temp.) (THW8) (option)	✓		
14	Thermistor (Zone 2 return water temp.) (THW9) (option)	✓		
15	Sub 1 circulation pump 1 (local supply)		✓	
16	Sub 1 flow switch or sensor *2		✓	
17	Sub 1 thermistor (Flow water temp.) (THW1)		✓	
18	Sub 1 thermistor (Return water temp.) (THW2)		✓	
19	Sub 1 thermistor (Ref. liquid temp.) (TH2) *1		✓	
20	Sub 2 circulation pump1 (local supply)			✓
21	Sub 2 flow switch or sensor *2			✓
22	Sub 2 thermistor (Flow water temp.) (THW1)			✓
23	Sub 2 thermistor (Return water temp.) (THW2)			✓
24	Sub 2 thermistor (Ref. liquid temp.) (TH2) *1			✓

*1 When the outdoor unit is split type, TH2 needs to be installed. (Fig. 10.2.1)
*2 For safety protection, it is recommended to install.

System 4: Heating/Cooling system (with Boiler)

- Install a mixing tank (local supply) for connection of the boiler.
- Install a low loss header (local supply).
- Install booster heater between low loss header and mixing tank.
- For more details, refer to the installation manual of PAC-TH012HT-E.



<Fig. 10.2.6>

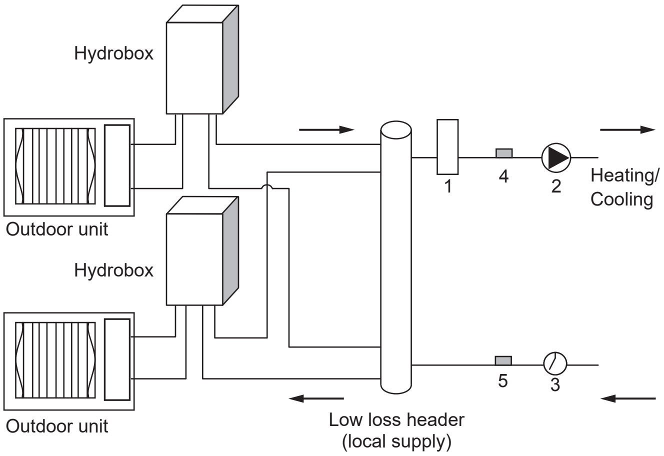
No.	Component	Wiring		
		Main	Sub 1	Sub 2
1	Booster heater (local supply)	✓		
2	Circulation pump 1 (local supply)	✓		
3	Flow switch 1 or sensor *2	✓		
4	Circulation pump 2 (local supply)	✓		
5	Flow switch 2 (local supply) *2	✓		
6	Thermistor (Flow water temp.) (THW1)	✓		
7	Thermistor (Return water temp.) (THW2)	✓		
8	Thermistor (Zone 1 flow water temp.) (THW6) (option)	✓		
9	Thermistor (Zone 1 return water temp.) (THW7) (option)	✓		
10	Thermistor (Boiler flow water temp.) (THWB1) (option)	✓		

*1 When the outdoor unit is split type, TH2 needs to be installed. (Fig. 10.2.1)
*2 For safety protection, it is recommended to install.

No.	Component	Wiring		
		Main	Sub 1	Sub 2
11	Sub 1 circulation pump 1 (local supply)		✓	
12	Sub 1 flow switch or sensor *2		✓	
13	Sub 1 thermistor (Flow water temp.) (THW1)		✓	
14	Sub 1 thermistor (Return water temp.) (THW2)		✓	
15	Sub 1 thermistor (Ref. liquid temp.) (TH2) *1		✓	
16	Sub 2 circulation pump 1 (local supply)			✓
17	Sub 2 flow switch or sensor *2			✓
18	Sub 2 thermistor (Flow water temp.) (THW1)			✓
19	Sub 2 thermistor (Return water temp.) (THW2)			✓
20	Sub 2 thermistor (Ref. liquid temp.) (TH2) *1			✓

System 5: Heating/Cooling system (with Hydrobox)*1

- Install a low loss header (local supply).
- Install booster heater toward the local system, relative to the low loss header.



<Fig. 10.2.7>

No.	Component	Wiring		
		Main	Sub 1 (Hydrobox)	Sub 2 (Hydrobox)
1	Booster heater (local supply)	✓		
2	Circulation pump 1 (local supply)	✓		
3	Flow switch 1 or sensor *2	✓		
4	Thermistor (Flow water temp.) (THW1)	✓		
5	Thermistor (Return water temp.) (THW2)	✓		

*1 Cooling system is available only with ERS or ERP models.
*2 For safety protection, it is recommended to install.

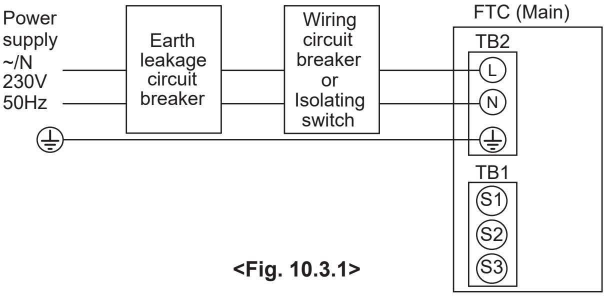
10.3 Electrical connection

All electrical work should be carried out by a suitably qualified technician. Failure to comply with this could lead to electrocution, fire, and death. It will also invalidate product warranty. All wiring should be according to national wiring regulations.

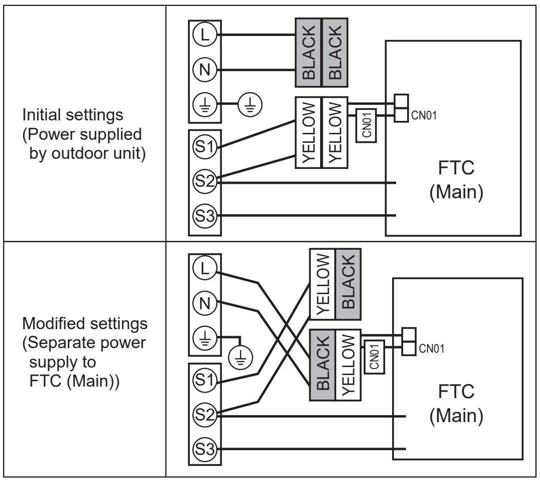
10.3.1 Main unit

■ **FTC (Main)**

Outdoor unit must NOT be connected to FTC (Main) unit.
FTC (Main) unit electrical box connector connections changed. (See Fig. 10.3.2.)



<Fig. 10.3.1>



<Fig. 10.3.2>

10.3.2 Sub unit

Connect each outdoor unit to a sub unit.
FTC (Sub) can be powered in two ways.
1. Power cable is run from the outdoor unit to a sub unit.
2. FTC (Sub) has independent power source.

■ **FTC (Main) (PAC-IF08*B-E) used as sub**

- For wiring as a sub controller, refer to "4.1 Electrical connection". *1

*1 Do not connect the power cable to the booster heater because it does not work in sub controller setting.

■ **Hydrobox**

- For wiring as a sub controller (hydrobox) , refer to "4.4 Electrical Connection" in Hydrobox installation manual.

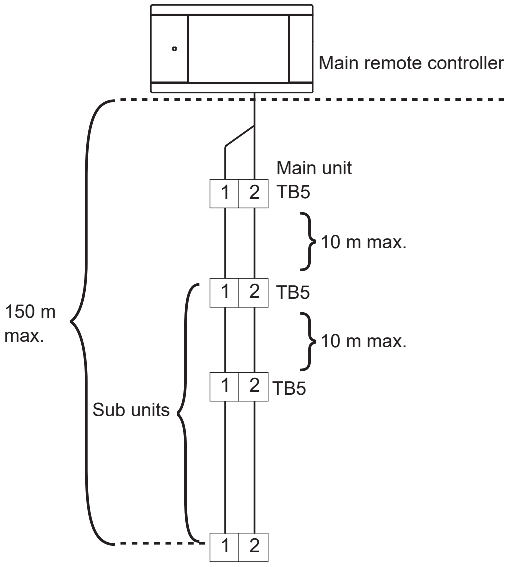
Notes: 1. Do not connect the power cable to the booster heater because it doesn’t work in sub controller setting.
2. Do not connect the main remote controller cable.

<Before system set up>
Insert the included SD memory card into the FTC control board. (Refer to section 4.11.)

10.4 Main remote controller wiring

(a) Wire the main remote controller to TB5 RC terminals on the main unit. The main remote controller must NOT be connected to a sub unit.
(b) Tighten the main unit and sub units wiring together to TB5 RC terminals. *1
*1 The maximum length between each units wiring is 10 m. The maximum length of total daisy-chain wiring is 150 m.

■ **Hydrobox (with FTC (Main) that is set as sub)**



<Fig. 10.4.1>

Note: Wiring for main remote controller cable and daisy chain cable shall be (5 cm or more) apart from power source wiring so that it is not influenced by electrical noise from power source wiring. (Do NOT insert main remote controller cable and power source wiring in the same conduit.)

10.5 Connecting the thermistor cables

Connect the thermistor for the FTC (Sub) controller.

10.5.1. Connecting the refrigerant pipe temp. thermistor (TH2) cable

Connect the TH2 cable to the CN21 connector on FTC (Sub).
For split outdoor unit : Connect TH2.
For packaged outdoor unit : It is NOT necessary to connect TH2.

When the TH2 cable is too long, bundle the excess cable outside the FTC (Sub) unit.
Do not bind the wires in the FTC (Sub) unit.

<Thermistor position>
Place TH2 on **refrigerant** piping (**liquid** side).
It is recommended to protect the thermistor with heat insulating materials so as not to be affected by ambient temperature.
Note: Be sure to place TH2 where it correctly detects refrigerant piping temp. (liquid side).
Because;
(1) TH2 is required to detect heating subcool correctly.
(2) Refrigerant temperature of water-to-refrigerant heat exchanger also needs to be detected for protection purpose.

10.5.2. Connecting the flow water temp. thermistor (THW1) cable and the return water temp. thermistor (THW2) cable

The THW1 and the THW2 cables share a connector, and the connector connects to CNW12 connector on FTC (Sub).

When the THW1 and THW2 cables are too long, bundle the excess cables outside the FTC (Sub) unit. Do not bind the wires in the FTC (Sub) unit.

<Thermistor position>
Place THW1 on **water** piping (water **outlet** side) after booster heater, and THW2 on the water inlet side.
It is recommended to protect the thermistor with heat insulating materials so as not to be affected by ambient temperature.
Note: Be sure to attach THW1 where it correctly detects flow temperature (water outlet side). For more details, see Page 5.

⚠ **CAUTION:**
Do not route the thermistor cables together with power cables.
The sensor part of the thermistor should be installed where user can not access.

10.6 DIP switch functions

<Outdoor unit>
- Set refrigerant address on each outdoor unit from 1 to 6.

Note: Do NOT use refrigerant address 0 as 0 is used for FTC (Main). The address range is from 1 to 6.

Split model (SW1-3 to SW1-6)

DIP switch	Refrigerant address number					
	Add. 1	Add. 2	Add. 3	Add. 4	Add. 5	Add. 6
SW1-1	—	—	—	—	—	—
SW1-2	—	—	—	—	—	—
SW1-3	ON	OFF	ON	OFF	ON	OFF
SW1-4	OFF	ON	ON	OFF	OFF	ON
SW1-5	OFF	OFF	OFF	ON	ON	ON
SW1-6	OFF	OFF	OFF	OFF	OFF	OFF

Packaged model

Refer to outdoor unit installation manual.

<FTC: Main>
- Set DIP SW4-1 and SW4-2 to ON.
- For more details refer to “5. DIP Switch setting.”

<FTC: Sub>
- Set DIP SW4-1 to ON "Active :multiple outdoor unit control".
- Set DIP SW1-7 (Outdoor unit type) on each sub unit according to each connected outdoor unit type.
- Set only DIP-SW1-3 to ON on the sub unit that runs DHW operation.

DIP Switch		Function	OFF	ON	Main	Sub*1
SW1	SW1-1	Boiler	WITHOUT Boiler	WITH Boiler	✓	—
	SW1-2	Heat pump maximum outlet water temperature	55˚C	60˚C	✓	✓
	SW1-3	DHW tank	WITHOUT DHW tank	WITH DHW tank	✓	✓
	SW1-4	Immersion heater	WITHOUT Immersion heater	WITH Immersion heater	✓	—
	SW1-5	Booster heater	WITHOUT Booster heater	WITH Booster heater	✓	—
	SW1-6	Booster heater function	For heating only	For heating and DHW	—	—
	SW1-7	Outdoor unit type	Split type	Packaged type	—	✓
	SW1-8	Wireless remote controller	WITHOUT Wireless remote controller	WITH Wireless remote controller	✓	—
SW2	SW2-1	Room thermostat 1 input (IN1) logic change	Zone 1 operation stop at short	Zone 1 operation stop at open	✓	—
	SW2-2	Flow switch 1 input (IN2) logic change	Failure detection at short	Failure detection at open	✓	✓
	SW2-3	Booster heater capacity restriction	Inactive	Active	✓	—
	SW2-4	Cooling mode function	Inactive	Active	✓	—
	SW2-5	"Automatic switch to backup heater only operation (When outdoor unit stops by error)"	Inactive	Active	✓	—
	SW2-6	Mixing tank	WITHOUT Mixing tank	WITH Mixing tank	✓*2	—
	SW2-7	2-zone temperature control	Inactive	Active	✓	—
	SW2-8	Flow sensor	WITHOUT Flow sensor	WITH Flow sensor	✓	✓
SW3	SW3-1	Room thermostat 2 input (IN6) logic change	Zone 2 operation stop at short	Zone 2 operation stop at open	✓	—
	SW3-2	Flow switch 2 and 3 input logic change	Failure detection at short	Abnormality detection at open	✓	—
	SW3-3	—	—	—	—	—
	SW3-4	—	—	—	—	—
	SW3-5	Heating mode function	Inactive	Active	✓	—
	SW3-6	2-zone valve ON/OFF control	Inactive	Active	✓	—
	SW3-7	—	—	—	—	—
	SW3-8	—	—	—	—	—
SW4	SW4-1	Multiple unit control	Inactive	Active	ON	ON
	SW4-2	Position of multiple outdoor units control	Sub	Main	ON	OFF
	SW4-3	—	—	—	—	—
	SW4-4	—	—	—	—	—
	SW4-5	Emergency mode (Heater only operation)	Normal	"Emergency mode (Heater only operation) (To be activated only when powered ON)"	✓	—
	SW4-6	Emergency mode (Boiler operation)	Normal	"Emergency mode (Boiler operation) (To be activated only when powered ON)"	✓	—
SW5	SW5-1	—	—	—	—	—
	SW5-2	Advanced Auto Adaptation	Inactive	Active	✓	—
	SW5-3	—	—	—	—	—
	SW5-4	—	—	—	—	—
	SW5-5	—	—	—	—	—
	SW5-6	—	—	—	—	—
	SW5-7	—	—	—	—	—
	SW5-8	—	—	—	—	—
SW6	SW6-1	—	—	—	—	—
	SW6-2	—	—	—	—	—
	SW6-3	Pressure sensor	Inactive	Active	—	✓
	SW6-4	Analog output signal (0-10 V)	Inactive	Active	✓	—
	SW6-5	—	—	—	—	—
	SW6-6	—	—	—	—	—
	SW6-7	—	—	—	—	—
	SW6-8	—	—	—	—	—
SW7	SW7-1	Mixing valve setting	Only Zone 2	Zone 1 and Zone 2	✓	—
	SW7-2	Forced cooling mode input (IN13) logic change	Active at short	Active at open	✓	—
	SW7-3	Cooling limit temp. input (IN15) logic change	Active at short	Active at open	✓	—
	SW7-4	—	—	—	—	—
	SW7-5	—	—	—	—	—
	SW7-6	—	—	—	—	—
	SW7-7	—	—	—	—	—
	SW7-8	—	—	—	—	—

*1 When FTC (Main) in Hydrobox is set as Sub.

*2 Set DIP SW2-6 to ON in "System 3 (2 zone)" and in "System 4 (with Boiler)" mentioned in "10.2 Pipe work."

✓ : Setting is required

— : NO setting (function is not available)

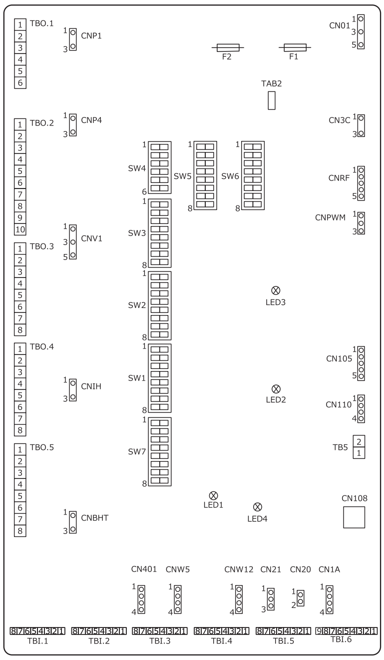
10.7 Connecting inputs/outputs

<Electrical connection for main controller>

- Refer to "4.5 Connecting inputs/outputs"

<Electrical connection for sub controller>

■ **PAC-IF08*B-E**



<Fig. 10.7.1>

Signal inputs

Name	Terminal block	Connector	Item
RC	TB5 1-2	—	Communication cable between indoor units
IN2	TBI.1 5-6	—	Flow switch 1 input
INA1	TBI. 6 3-5	CN1A	Flow sensor input

Wiring specification and local supply parts

Item	Name	Model and specifications
Signal input function	Signal input wire	Use sheathed vinyl coated cord or cable: 10 m max. Wire type: CV, CVS or equivalent Wire size: Stranded wire 0.13 mm² to 1.25 mm² Solid wire: ø0.4 mm to ø1.2 mm
	Switch	Non-voltage “a” contact signals Remote switch: minimum applicable load 12 V DC, 1 mA

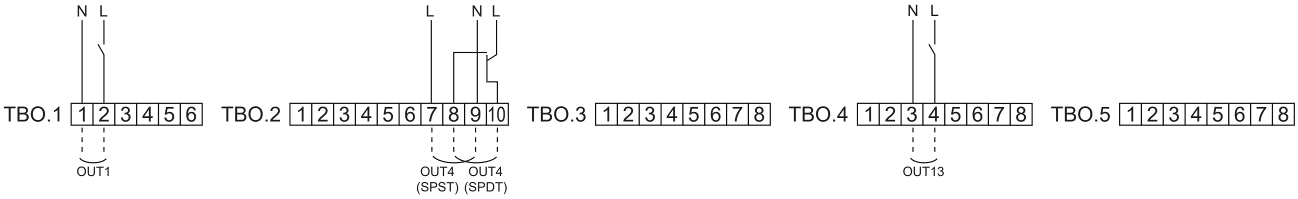
Thermistor inputs

Name	Terminal block	Connector	Item	Optional part model
TH2	—	CN21	Thermistor (Ref. liquid temp.)	—
THW1	—	CNW12 1-2	Thermistor (Flow water temp.)	—
THW2	—	CNW12 3-4	Thermistor (Return water temp.)	—

Note:
Do not splice the wiring to extend or shorten it, or this could affect correct monitoring of each temperature.
If the wiring is too long, bundle it with a strap to adjust the length.

Outputs

Name	Terminal block	Connector	Item	OFF	ON	Signal/Max. current
OUT1	TBO.1 1-2	CNP1	Water circulation pump 1 output	OFF	ON	230V AC 1.0 A max.
OUT4	TBO.2 7-9	—	3-way valve SPST (2-way valve 1) output	Heating	DHW	230V AC 0.1 A max.
	TBO.2 8-10	CNV1	3-way valve SPDT output			
OUT13	TBO.4 3-4	—	2-way valve 2 output	DHW	Heating	230V AC 0.1 A max.

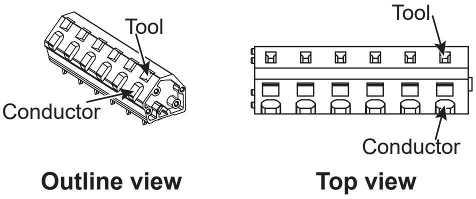


<Fig. 10.7.2>

Wiring specification and local supply parts

Item	Name	Model and specifications
External output function	Outputs wire	Use sheathed vinyl coated cord or cable : 30 m max. Wire type: CV, CVS or equivalent Wire size: Stranded wire 0.25 mm² to 1.5 mm² Solid wire: 0.25 mm² to 1.5 mm²

How to use TBO.1 to 5

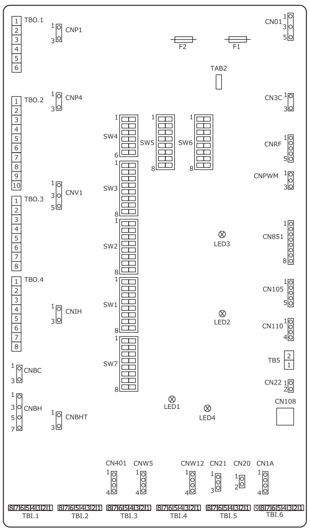


Connect them using either way as shown above.

<Fig. 10.7.3>

Note:
1. Do not connect multiple water circulation pumps directly to each output (OUT1). In such a case, connect them via (a) relay(s).
2. Stranded wire should be processed with insulation-covered bar terminal (DIN46228-4 standard compatible type).

Hydrobox



<Fig. 10.7.4>

Signal inputs

Name	Terminal block	Connector	Item
RC	TB5 1-2	CN22	Communication cable between indoor units
INA1	TBI.6 3-5	CN1A	Flow sensor input

Wiring specification and local supply parts

Item	Name	Model and specifications
Signal input function	Signal input wire	Use sheathed vinyl coated cord or cable: 10 m max. Wire type: CV, CVS or equivalent Wire size: Stranded wire 0.5 mm² to 1.25 mm² Solid wire: ø0.65 mm to ø1.2 mm

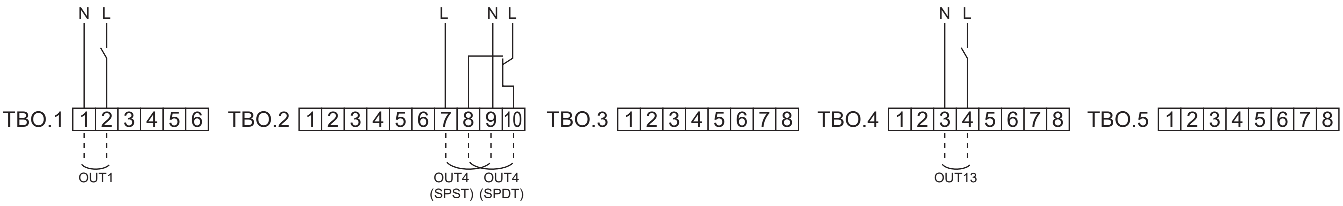
Thermistor inputs

Name	Terminal block	Connector	Item	Optional part model
TH2	—	CN21	Thermistor (Ref. liquid temp.)	—
THW1	—	CNW12 1-2	Thermistor (Flow water temp.)	—
THW2	—	CNW12 3-4	Thermistor (Return water temp.)	—

Note:
Do not splice the wiring to extend or shorten it, or this could affect correct monitoring of each temperature.
If the wiring is too long, bundle it with a strap to adjust the length.

Outputs

Name	Terminal block	Connector	Item	OFF	ON	Signal/Max. current
OUT1	TBO.1 1-2	CNP1	Water circulation pump 1 output	OFF	ON	230 V AC 1.0 A max.
OUT4	TBO.2 7-9	—	3-way valve SPST (2-way valve 1) output	Heating	DHW	230 V AC 0.1 A max.
	TBO.2 8-10	CNV1	3-way valve SPDT output			
OUT13	TBO.4 3-4	—	2-way valve 2 output	DHW	Heating	230 V AC 0.1 A max.



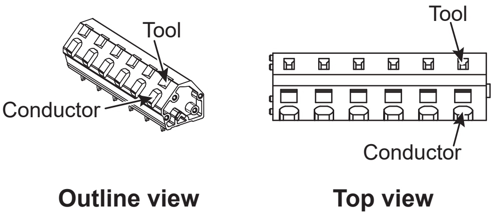
<Fig. 10.7.5>

Wiring specification and local supply parts

Item	Name	Model and specifications
External output function	Outputs wire	Use sheathed vinyl coated cord or cable: 30 m max. Wire type: CV, CVS or equivalent Wire size: Stranded wire 0.25 mm² to 1.5 mm² Solid wire: 0.25 mm² to 1.5 mm²

Note:
1. **Do not connect multiple water circulation pumps directly to each output (OUT1). In such a case, connect them via (a) relay(s).**
2. **Do not connect water circulation pumps to both TBO.1 1-2 and CNP1 at the same time.**
3. **Stranded wire should be processed with insulation-covered bar terminal (DIN46228-4 standard compatible type).**

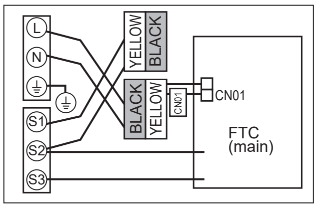
How to use TBO.1 to 4



Connect them using either way as shown above.

<Fig. 10.7.6>

■ Basic Troubleshooting for multiple outdoor units control

No.	Fault symptom	Possible cause	Explanation - Solution
1	Main remote controller display is blank.	1. There is no power supply to main remote controller.	1. Check LED2 on the FTC main controller. (See Figure 4.5.1.) (i) When LED2 is lit. Check for damage or contact failure of the main remote controller wiring. (ii) When LED2 is blinking. Refer to No. 4 below. (iii) When LED2 is not lit. Refer to No. 3 below.
		2. Power is supplied to the main remote controller, however, the display on the main remote controller does not appear.	2. Check the following: • Disconnection between the main remote controller cable and the FTC main controller. • Failure of the main remote controller if “Please Wait” is not displayed. • Refer to No. 2 below if “Please Wait” is displayed.
2	“Please Wait” remains displayed on the main remote controller.	1. "Please Wait" is displayed for up to 6 minutes.	1. Normal operation.
		2. Communication failure between the main remote controller and FTC main/sub controller. 3. Communication failure between FTC sub controller and outdoor unit.	2.,3. Main remote controller start up checks/procedure. (i) If “0%” or “50-99%” is displayed below "Please Wait" there is a communication error between the main remote controller and the FTC main/sub controller. • Check wiring connections on the main remote controller. • Replace the main remote controller or FTC main/sub controller. (ii) If “1-49%” is displayed there is a communication error between the outdoor unit's control board and FTC sub controller. • Check the wiring connections on the outdoor unit control board and the FTC sub controller. (Ensure S1 and S2 are not cross-wired and S3 is securely wired with no damage. (See section 4.5.) • Replace the outdoor unit's control board and/or the sub controller.
3	Warning symbol is displayed on the main remote controller.	Sub unit failure	1. Press CONFIRM button on the main remote controller while the warning symbol is displayed. 2. Check the error details.
4	LED2 on FTC main controller is off. (See Figure 4.5.1.)	When LED1 on FTC main controller is also off. (See Figure 4.5.1.) 1. FTC main controller is not supplied with 220 to 240V AC.	1. Check the voltage across the L and N terminals on the indoor power supply terminal block. (See section 4.5.) • When the voltage is not 220 to 240V AC, check for faulty wiring to power supply. • When the voltage is 220 to 240V AC, go to 2. below.
		2. There are problems in the method of connecting the connectors.	2. Check for faulty wiring between the connectors. • When the connectors are wired incorrectly re-wire them correctly referring to below. (See section 4.5 and a wiring diagram on the control and electrical box cover.)  • If no problem found with the wiring, go to 3. below.
		3. FTC main controller failure	3. Check the FTC main controller. • Check the fuse on the FTC main controller. • Check for faulty wiring. • Check DIP SW4-2 is ON. • If no problem found with the wiring, the FTC main controller is faulty.
5	LED2 on FTC is blinking. (See Figure 4.5.1.)	When LED1 is also blinking on FTC main controller.	Check for faulty wiring in FTC main controller.
		When LED1 on FTC main controller is lit. 1. Faulty wiring in main remote controller Multiple indoor units have been wired to a single outdoor unit.	1. Check for faulty wiring in main remote controller. The number of indoor units that can be wired to a single outdoor unit is one. Additional indoor units must be wired individually to a single outdoor unit.
		2. Short-circuited wiring in main remote controller 3. Main remote controller failure	2.,3. Remove main remote controller wires and check LED2 on FTC main controller. (See Figure 4.5.1.) • If LED2 is blinking check for short circuits in the main remote controller wiring. • If LED2 is lit, wire the main remote controller again and: - if LED2 is blinking, the main remote controller is faulty; - if LED2 is lit, faulty wiring of the main remote controller has been corrected.
		4. DIP SW setting failure	4. Check DIP SW4-2 on the FTC sub controller is OFF.
6	Main remote controller communication failure E0/E4 E3/E5	1. Connection failure of the earth cable	1. Electrical connection (FTC powered via outdoor unit) • Check for looseness or breakage of the earth cables of outdoor units. • Daisy-chain the outdoor units with earth cables and earth them with one of the cables. Electrical connection (FTC powered via independent source) • Check for looseness or breakage of the earth cables of FTC units. • Daisy-chain the FTC units with earth cables and earth them with one of the cables.
		2. Incorrect wiring of main remote controller.	2. The main remote controller must NOT be wired to FTC sub controller.

For other details, refer to "8. Troubleshooting".

11.1 Refrigerant collecting (pumpdown) for split model systems only

Refer to “Refrigerant collection” in the outdoor unit installation manual or service manual.

11.2 Back-up operation of boiler

Heating operation is backed up by boiler.
For more details, refer to the installation manual of PAC-TH012HT-E.

<Installation & System set up>
1. Set DIP-SW 1-1 to ON "With boiler" and SW2-6 to ON “With Mixing tank”.
2. Install the thermistor (Boiler flow water temp.) (THWB1) *1 on the boiler circuit.
3. Connect the output wire (OUT10: Boiler operation) to the signal input (room thermostat input) on the boiler. *2
4. Install one of the following room temp. thermostats. *3

- Wireless remote controller (option)
- Room temp. thermostat (local supply)
- Main remote controller (remote position)

<Remote controller settings>
1. Go to [Service] menu, then [Heat source setting], and choose [Boiler] or [Hybrid]. *4
2. Go to [Service] menu, and choose [Operation settings], then [Boiler settings] to make detailed settings for [Hybrid settings].

*1 The thermistor (Boiler flow water temp.) is an optional part.
*2 OUT10 has no voltage across it.
*3 Boiler heating is controlled on/off by the room temperature thermostat.
*4 [Hybrid] automatically switches heat sources between heat pump (and electric heater) and boiler.

MITSUBISHI ELECTRIC

Mitsubishi Electric Erp Directive Related Product Information: **erp.mitsubishielectric.eu/erp**
Details and precautions on installation, maintenance and assembly can be found in the installation and or operation manuals.
This information is based on EU regulation No 811/2013 and No 813/2013.

PRODUCT FICHE OF TEMPERATURE CONTROLS

1	Parts name	5	Main Remote controller	7	Wireless remote controller & receiver
2	Model name	6	(Indoor Unit Accessory)		PAR-WT60R-E & PAR-WR61R-E
3	The class of the temperature control		VI		VI
4	The contribution to seasonal space heating energy efficiency (%)		4		4

Local application factors

- * This FTC is designed to connect Mr.Slim/ Ecodan inverter outdoor unit of MITSUBISHI ELECTRIC to local systems. Please check the following when designing the local system.
- * MITSUBISHI ELECTRIC does not take any responsibility for the local system design.

Heat exchanger

(1) Withstanding pressure
Designed pressure of outdoor unit is 4.15 MPa. Following must be satisfied for burst pressure of connecting application.
Burst pressure: More than 12.45 MPa (3 times more than designed pressure)

(2) Performance
Secure the heat exchanger capacity which meets the following conditions. If the conditions are not met, it may result in malfunction caused by the protection operation or the outdoor unit may be turned off due to the operation of protection system.
• In case of hot water supply, condense temperature is less than 58°C in max. frequency operation with the outside temperature 7°C D.B./6°C W.B.

(3) Contamination maintenance
1. Wash the inside of heat exchanger to keep it clean. Be sure to RINSE not to leave flux. Do not use chlorine detergent when washing.
2. Be sure that the amount of contamination per unit cubic content of heat transfer pipe is less than the following amount.
Example) In case of Φ9.52 mm
Residual water: 0.6 mg/m, Residual oil: 0.5 mg/m, Solid foreign object: 1.8 mg/m

Thermistor position

Refer to 4.4.

Notes

- · Install the hydraulic filter at the water inlet pipework.
- · Inlet water temperature of heat exchanger should be within the range 5 °C - 55 °C.
- · The water in both primary and sanitary circuit should be clean and with pH value of 6.5-8.0
- · The followings are the maximum values;
  Calcium: 100 mg/L, Ca hardness: 250 mg/L
  Chloride: 100 mg/L, Copper: 0.3 mg/L
- · Other constituents should be to European Directive 98/83 EC standards.
- · Refrigerant pipe diameter from outdoor unit to refrigerant-water HEX (Only for SPLIT type)
  Use the pipe with same diameter size as the refrigerant pipe connection diameter of outdoor unit. (Refer to outdoor unit installation manual.)
- · Ensure that there is sufficient anti-freeze chemical in the water circuit. It is recommended to use 7 : 4 anti-freeze to water ratio.
- · The water velocity in pipes should be kept within certain limits of material to avoid erosion, corrosion and excessive noise generation.
  Be aware, and take care of, that local velocities in small pipes, bends and similar obstructions can exceed the values above.
  e.g. Copper: 1.5 m/s

⚠ **WARNING:**
- **· Always use water that meets the above quality requirements. Using water that does not meet these standards may result in damage to the system pipework and heating components.**
- **· Never use anything other than water as a medium. It may cause a fire or an explosion.**
- **· Do not use heated water that is produced by the air to water heat pump directly for drinking or cooking. There is a risk to damage your health. There is also a risk that installing the water heat exchanger may corrode if the necessary water quality for air to water heat pump system cannot be maintained. If you wish to use the heated water from the heated pump for these purposes, take measure such as to the second heat exchanger within the water piping system.**
- **· The water quality must comply with European Directive (EU) 2020/2184 standards.**

Additional Requirements

1. Important Notice (Fire safety)
R32 and R290 are flammable refrigerant, and the fire safety warranty for the whole system (including outdoor unit) must be done by your side.
Conformity of regulations (e.g. IEC 60335-2-40) and laws must be confirmed on the system by your side.

2. Flow sensor (Outdoor unit : Packaged model)
Flow sensor (option) is necessary for packaged outdoor unit**.** Refer to the manual of PAC-FS01-E for details.

3. Pressure relief valve (Outdoor unit : Packaged model)
Do not attach the pressure relief valve to the heating (cooling) circuit on outdoor unit.

Contents

1 Optional parts list

Packaged model

<Indoor unit (Cylinder unit)>

Parts name	Model name	Specification	Cylinder unit							
			EHPT17X-VM2E	EHPT17X-VM6E	EHPT17X-YM9E	EHPT20X-YM9E	EHPT20X-TM9E	EHPT20X-MEHEW	EHPT30X-YM9EE	ERPT17X-VM2E
Wireless remote controller	PAR-WT60R-E		×	×	×	×	×	×	×	×
Wireless receiver	PAR-WR61R-E		×	×	×	×	×	×	×	×
Thermistors	PAC-SE41TS-E	For room temp.	×	×	×	×	×	×	×	×
	PAC-TH011-E	For zone (fow and return temp.)	×	×	×	×	×	×	×	×
	PAC-TH012HT-E	For boiler and buffer (5 m)	×	×	×	×	×	×	×	×
	PAC-TH012HTL-E	For boiler and buffer (30 m)	×	×	×	×	×	×	×	×
Immersion heater	PAC-IH01V2-E	1Ph 1kW	×	×	×	×	×	-	×	×
	PAC-IH03V2-E	1Ph 3kW	×	×	×	×	×	-	×	×
EHPT accessories for UK	PAC-WK02UK-E		-	-	-	-	-	×	-	-
Wi-Fi interface	MAC-587IF-E		×	×	×	×	×	×	×	×
2 zone kit	PAC-TZ02-E2		×	×	×	×	×	×	×	×
Expansion vessel kit	PAC-EVP12-E1	12L	-	-	-	-	-	×	×	-

<Indoor unit (Cylinder unit)>

Parts name	Model name	Specification	Cylinder unit					
			ERPT20X-VM2E	ERPT20X-VM6E	ERPT20X-YM9E	ERPT30X-VM2EE	ERPT30X-VM6EE	ERPT30X-YM9EE
Wireless remote controller	PAR-WT60R-E		×	×	×	×	×	×
Wireless receiver	PAR-WR61R-E		×	×	×	×	×	×
Thermistors	PAC-SE41TS-E	For room temp.	×	×	×	×	×	×
	PAC-TH011-E	For zone (fow and return temp.)	×	×	×	×	×	×
	PAC-TH012HT-E	For boiler and buffer (5 m)	×	×	×	×	×	×
	PAC-TH012HTL-E	For boiler and buffer (30 m)	×	×	×	×	×	×
Immersion heater	PAC-IH01V2-E	1Ph 1kW	×	×	×	×	×	×
	PAC-IH03V2-E	1Ph 3kW	×	×	×	×	×	×
EHPT accessories for UK	PAC-WK02UK-E		-	-	-	-	-	-
Wi-Fi interface	MAC-587IF-E		×	×	×	×	×	×
2 zone kit	PAC-TZ02-E2		×	×	×	×	×	×
Expansion vessel kit	PAC-EVP12-E1	12L	-	-	-	×	×	×

<Indoor unit (Hydrobox)>

Parts name	Model name	Specification	Hydrobox			
			ERPX-ME	ERPX-VM2E	ERPX-VM6E	ERPX-YM9E
Wireless remote controller	PAR-WT60R-E		×	×	×	×
Wireless receiver	PAR-WR61R-E		×	×	×	×
Thermistors	PAC-SE41TS-E	For room temp.	×	×	×	×
	PAC-TH011-E	For zone (fow and return temp.)	×	×	×	×
	PAC-TH011TK2-E	For tank temp. (5 m)	×	×	×	×
	PAC-TH011TKL2-E	For tank temp. (30 m)	×	×	×	×
	PAC-TH012HT-E	For boiler and buffer (5 m)	×	×	×	×
	PAC-TH012HTL-E	For boiler and buffer (30 m)	×	×	×	×
Wi-Fi interface	MAC-587IF-E		×	×	×	×
2 zone kit	PAC-TZ02-E2		×	×	×	×
Expansion vessel kit	PAC-EVP12-E1	12L	-	-	-	-

1 Optional parts list

<Outdoor unit>

Parts name	Model name	Power Inverter							
		PUZ-WZ50VAA (-BS)	PUZ-WZ60VAA (-BS)	PUZ-WZ80VAA (-BS)	PUZ-WM50VHA (-BS)	PUZ-WM60VAA (-BS)	PUZ-WM85V/ YAA(-BS)	PUZ-WM112V/ YAA(-BS)	PUZ-HWM140V/ YHA(-BS)
Connector for Drain Hose Heater Signal Output	PAC-SE60RA-E	-	-	-	×	×	×	×	×
	PAC-SE61RA-E	-	-	-	-	-	-	-	-
	MAC-063RA-E	×	×	×	-	-	-	-	-
Air discharge Guide	MAC-886SG-E	-	-	-	-	-	-	-	-
	PAC-SJ07SG-E	-	-	-	-	-	-	-	-
	PAC-SG59SG-E	-	-	-	×	-	-	-	×
	PAC-SH96SG-E	×[*2]	×[*2]	×[*2]	-	×[*2]	×[*2]	×[*2]	-
Air Protection Guide	PAC-SJ06AG-E	-	-	-	-	-	-	-	-
	PAC-SH63AG-E	-	-	-	×	-	-	-	×
	PAC-SH95AG-E	×[*2]	×[*2]	×[*2]	-	×[*2]	×[*2]	×[*2]	-
Attachment	PAC-SJ82AT-E	×	×	×	-	×	×	×	-
Drain Socket	PAC-SG61DS-E	×	×	×	×	×	×	×	-
	PAC-SJ08DS-E	-	-	-	-	-	-	-	-
Centralized Drain Pan[*1]	PAC-SG63DP-E	-	-	-	-	-	-	-	-
	PAC-SG64DP-E	-	-	-	×	-	-	-	-
	PAC-SH97DP-E	-	-	-	-	-	-	-	-
	PAC-SJ83DP-E	×	×	×	-	×	×	×	-
Control/Service Tool	PAC-SK52ST	×	×	×	×	×	×	×	×
Defrost Heater	MAC-642BH-U1	-	-	-	-	-	-	-	-

[*1] Cannot be used for cold climate.

[*2] Attachment (PAC-SJ82AT-E) is necessary for the Air Guide.

<Interface/Flow temperature control>

Parts name	Model name	Specification	Power Inverter							
			PUZ-WZ50VAA (-BS)	PUZ-WZ60VAA (-BS)	PUZ-WZ80VAA (-BS)	PUZ-WM50VHA (-BS)	PUZ-WM60VAA (-BS)	PUZ-WM85V/ YAA(-BS)	PUZ-WM112V/ YAA(-BS)	PUZ-HWM140V/ YHA(-BS)
Flow Temperature Controller	PAC-IF033B-E	1 PC Board w/ Case	×[*3]	×[*3]	×[*3]	×[*3]	×[*3]	×[*3]	×[*3]	×[*3]
System controllers	PAC-IF082B-E	1 PC Board w/ Case	-	-	-	-	-	-	-	-
	PAC-SIF051B-E	1 PC Board w/ Case	-	-	-	-	-	-	-	-
Flow sensor	PAC-FS01-E	1 PC Flow sensor	×	×	×	×	×	×	×	×
Thermistor	PAC-TH011-E		×	×	×	×	×	×	×	×

[*3] Flow sensor (PAC-FS01-E) is required.

1 Optional parts list

CONTENTS

Parts name	Model name	Contents	Q'ty
Air discharge guide	MAC-886SG-E	Air discharge guide	1
		Screw	4
	PAC-SJ07SG-E	Air discharge guide	1
		Support (For right and left)	2
		Attachment screw(5×10)	4
		Attachment screw(4×10)	4
	PAC-SG59SG-E	Air discharge guide	1
		Attachment screw(5×35)	4
		Spacer	4
	PAC-SH96SG-E	Air discharge guide	1
		Support	1
		Screw(5×15)	12
		Washer	12
		Spring washer	12
Air protection guide	PAC-SJ06AG-E	Air protect guide	1
		Mounting screw (4×16)	4
		Washer (for screw 4×16)	4
		Spring washer	4
	PAC-SH63AG-E	Air guide	1
		Mounting screw (5×15)	4
		Washer	4
		Spring washer	4
	PAC-SH95AG-E	Air guide	1
		Mounting screw (5×15)	6
		Washer	6
		Spring washer	6
Drain socket	PAC-SG61DS-E	Drain socket	1
		Drain cap (φ33)	5
		Heat insulator	3
		Band	8
	PAC-SJ08DS-E	Drain socket	1
Centralized drain pan	PAC-SG63DP-E	Centralized drain pan	1
	PAC-SG64DP-E	Centralized drain pan	1
	PAC-SH97DP-E	Centralized drain pan	1
	PAC-SJ83DP-E	Centralized drain pan	1
Control/Service tool	PAC-SK52ST	Control/Service Tool	1
Defrost Heater	MAC-642BH-U1	Defrost heater (with 2-pin lead assembly)	1
		Heater support	1
		Cable tie	1
		Cable clamp	1
		Self drilling screw	2
		Wiring diagram	1
		Insulation	1
		3-pin lead assembly	1
Capacity step control interface	PAC-IF011B-E	PC Board	1
		Case	1
		Thermistor	2
Flow temperature controller	PAC-IF033B-E	PC Board	1
		Case	1
		Thermistor	3
		Remote controller	1
		Remote controller cable (5m)	1
System controllers	PAC-IF082B-E	PC Board	1
		Case	1
		Flow/Return water temp. thermistor	1
		Remote controller	1
		Remote controller cable (10m)	1
		SD memory card	1
	PAC-SIF051B-E	PC Board	1
		Case	1
		Thermistor	1
		Flow/Return water temp thermistor	1
		Remote controller cable (10m)	1
		SD memory card	1
Thermistors	PAC-TH011-E	For zone (flow and return temp.)	20[1)]
	PAC-TH011TK2-E	For tank temp. (5m)	10[2)]
	PAC-TH011TKL2-E	For tank temp. (30m)	5[3)]
	PAC-TH012HT-E	For boiler and buffer (5m)	10[2)]
	PAC-TH012HTL-E	For boiler and buffer (30m)	5[3)]
2 zone kit	PAC-TZ02-E2	2 zone kit	1
		Flexible hose	2
		Conversion joint	2
		Gasket	4
Attachment	PAC-SJ82AT-E	Attachment	2
		Mounting screw 5×15	8
		Washer	8
		Spring washer	8

1 Optional parts list

Parts name	Model name	Contents	Q'ty
Wi-Fi interface	MAC-587IF-E	Interface unit (with connecting cable)	1
		Fixing screw 3.5×16 mm	2
		Fixing screw 4×16 mm	1
		Mounting cord clamp	1
		Fastener (for bundling the wires)	1
		Holder	1
		Clip	1
Pressure sensor	PAC-PS01-E	Pressure sensor	20
Flow sensor	PAC-FS01-E	Flow sensor body	1
		Flow sensor cable	1
		O-ring	2
Expansion vessel kit	PAC-EVP12-E1	Expansion vessel 12L	1
		5 bar pressure relief valve	1
Drain hose heater connector	MAC-063RA-E	Terminal block	1
		Screw	1
		Lead wire with connector	1

Notes:
1) Two thermistors per package; 10 packages per carton
2) One thermistors per package; 10 packages per carton
3) One thermistors per package; 5 packages per carton

1 Optional parts list

Split model

<Indoor unit (Cylinder unit)>

Parts name	Model name	Specification	Cylinder unit							
			EHST17D-VM2E	EHST17D-YM9E	ERST17D-VM2E	ERST17D-VM6E	ERST17D-VM2BE	ERST17D-VM6BE	ERST17D-YM9BE	EHST20D-VM2E
Wireless remote controller	PAR-WT60R-E		×	×	×	×	×	×	×	×
Wireless receiver	PAR-WR61R-E		×	×	×	×	×	×	×	×
Thermistors	PAC-SE41TS-E	For room temp.	×	×	×	×	×	×	×	×
	PAC-TH011-E	For zone (flow and return temp.)	×	×	×	×	×	×	×	×
	PAC-TH011TK2-E	For tank temp. (5 m)	-	-	-	-	-	-	-	-
	PAC-TH011TKL2-E	For tank temp. (30 m)	-	-	-	-	-	-	-	-
	PAC-TH012HT-E	For boiler and buffer (5 m)	×	×	×	×	×	×	×	×
	PAC-TH012HTL-E	For boiler and buffer (30 m)	×	×	×	×	×	×	×	×
Immersion heater	PAC-IH01V2-E	1Ph 1kW	×	×	×	×	×	×	×	×
	PAC-IH03V2-E	1Ph 3kW	×	×	×	×	×	×	×	×
Wi-Fi interface	MAC-587IF-E		×	×	×	×	×	×	×	×
2 zone kit	PAC-TZ02-E2		×	×	×	×	-	-	-	×
Expansion vessel kit	PAC-EVP12-E1	12L	-	-	-	-	-	-	-	-

<Indoor unit (Cylinder unit)>

Parts name	Model name	Specification	Cylinder unit							
			EHST20D-VM6E	EHST20D-YM9E	EHST20D-TM9E	ERST20D-VM2E	ERST20D-VM6E	ERST20D-YM9E	ERST20F-VM2E	ERST20F-VM6E
Wireless remote controller	PAR-WT60R-E		×	×	×	×	×	×	×	×
Wireless receiver	PAR-WR61R-E		×	×	×	×	×	×	×	×
Thermistors	PAC-SE41TS-E	For room temp.	×	×	×	×	×	×	×	×
	PAC-TH011-E	For zone (flow and return temp.)	×	×	×	×	×	×	×	×
	PAC-TH011TK2-E	For tank temp. (5 m)	-	-	-	-	-	-	-	-
	PAC-TH011TKL2-E	For tank temp. (30 m)	-	-	-	-	-	-	-	-
	PAC-TH012HT-E	For boiler and buffer (5 m)	×	×	×	×	×	×	×	×
	PAC-TH012HTL-E	For boiler and buffer (30 m)	×	×	×	×	×	×	×	×
Immersion heater	PAC-IH01V2-E	1Ph 1kW	×	×	×	×	×	×	×	×
	PAC-IH03V2-E	1Ph 3kW	×	×	×	×	×	×	×	×
Wi-Fi interface	MAC-587IF-E		×	×	×	×	×	×	×	×
2 zone kit	PAC-TZ02-E2		×	×	×	×	×	×	×	×
Expansion vessel kit	PAC-EVP12-E1	12L	-	-	-	-	-	-	-	-

1 Optional parts list

<Indoor unit (Cylinder unit)>

Parts name	Model name	Specification	Cylinder unit							
			ERST20F-YM9E	ERST20F-TM9E	ERST20C-VM2E	EHST30D-MEE	EHST30D-VM6EE	EHST30D-YM9EE	EHST30D-TM9EE	ERST30D-VM2EE
Wireless remote controller	PAR-WT60R-E		×	×	×	×	×	×	×	×
Wireless receiver	PAR-WR61R-E		×	×	×	×	×	×	×	×
Thermistors	PAC-SE41TS-E	For room temp.	×	×	×	×	×	×	×	×
	PAC-TH011-E	For zone (flow and return temp.)	×	×	×	×	×	×	×	×
	PAC-TH011TK2-E	For tank temp. (5 m)	-	-	-	-	-	-	-	-
	PAC-TH011TKL2-E	For tank temp. (30 m)	-	-	-	-	-	-	-	-
	PAC-TH012HT-E	For boiler and buffer (5 m)	×	×	×	×	×	×	×	×
	PAC-TH012HTL-E	For boiler and buffer (30 m)	×	×	×	×	×	×	×	×
Immersion heater	PAC-IH01V2-E	1Ph 1kW	×	×	×	×	×	×	×	×
	PAC-IH03V2-E	1Ph 3kW	×	×	×	×	×	×	×	×
Wi-Fi interface	MAC-587IF-E		×	×	×	×	×	×	×	×
2 zone kit	PAC-TZ02-E2		×	×	×	×	×	×	×	×
Expansion vessel kit	PAC-EVP12-E1	12L	-	-	-	×	×	×	×	×

<Indoor unit (Cylinder unit)>

Parts name	Model name	Specification	Cylinder unit						
			ERST30D-VM6EE	ERST30D-YM9EE	ERST30F-VM2EE	ERST30F-VM6EE	ERST30F-YM9EE	ERST30F-TM9EE	ERST30C-VM2EE
Wireless remote controller	PAR-WT60R-E		×	×	×	×	×	×	×
Wireless receiver	PAR-WR61R-E		×	×	×	×	×	×	×
Thermistors	PAC-SE41TS-E	For room temp.	×	×	×	×	×	×	×
	PAC-TH011-E	For zone (flow and return temp.)	×	×	×	×	×	×	×
	PAC-TH011TK2-E	For tank temp. (5 m)	-	-	-	-	-	-	-
	PAC-TH011TKL2-E	For tank temp. (30 m)	-	-	-	-	-	-	-
	PAC-TH012HT-E	For boiler and buffer (5 m)	×	×	×	×	×	×	×
	PAC-TH012HTL-E	For boiler and buffer (30 m)	×	×	×	×	×	×	×
Immersion heater	PAC-IH01V2-E	1Ph 1kW	×	×	×	×	×	×	×
	PAC-IH03V2-E	1Ph 3kW	×	×	×	×	×	×	×
Wi-Fi interface	MAC-587IF-E		×	×	×	×	×	×	×
2 zone kit	PAC-TZ02-E2		×	×	×	×	×	×	×
Expansion vessel kit	PAC-EVP12-E1	12L	×	×	×	×	×	×	×

1 Optional parts list

<Indoor unit (Hydrobox)>

Parts name	Model name	Specification	Hydrobox								
			EHSD-MEE	EHSD-VM2E	EHSD-VM6E	EHSD-YM9E	EHSD-TM9E	ERSD-VM2E	ERSD-VM6E	ERSD-YM9E	ERSF-MEE
Wireless remote controller	PAR-WT60R-E		×	×	×	×	×	×	×	×	×
Wireless receiver	PAR-WR61R-E		×	×	×	×	×	×	×	×	×
Thermistors	PAC-SE41TS-E	For room temp.	×	×	×	×	×	×	×	×	×
	PAC-TH011-E	For zone (flow and return temp.)	×	×	×	×	×	×	×	×	×
	PAC-TH011TK2-E	For tank temp. (5 m)	×	×	×	×	×	×	×	×	×
	PAC-TH011TKL2-E	For tank temp. (30 m)	×	×	×	×	×	×	×	×	×
	PAC-TH012HT-E	For boiler and buffer (5 m)	×	×	×	×	×	×	×	×	×
	PAC-TH012HTL-E	For boiler and buffer (30 m)	×	×	×	×	×	×	×	×	×
Joint pipe	PAC-SG73RJ-E	For PUHZ-SW200YKA/ SHW230YKA2(-BS) ø9.52→ø12.7	-	-	-	-	-	-	-	-	-
Wi-Fi interface	MAC-587IF-E		×	×	×	×	×	×	×	×	×
2 zone kit	PAC-TZ02-E2		×	×	×	×	×	×	×	×	×
Expansion vessel kit	PAC-EVP12-E1	12L	×	-	-	-	-	-	-	-	×

<Indoor unit (Hydrobox)>

Parts name	Model name	Specification	Hydrobox							
			ERSF-VM2E	ERSF-VM6E	ERSF-YM9E	ERSF-TM9E	ERSC-VM2E	ERSC-MEE	ERSC-VM6E	ERSC-YM9E
Wireless remote controller	PAR-WT60R-E		×	×	×	×	×	×	×	×
Wireless receiver	PAR-WR61R-E		×	×	×	×	×	×	×	×
Thermistors	PAC-SE41TS-E	For room temp.	×	×	×	×	×	×	×	×
	PAC-TH011-E	For zone (flow and return temp.)	×	×	×	×	×	×	×	×
	PAC-TH011TK2-E	For tank temp. (5 m)	×	×	×	×	×	×	×	×
	PAC-TH011TKL2-E	For tank temp. (30 m)	×	×	×	×	×	×	×	×
	PAC-TH012HT-E	For boiler and buffer (5 m)	×	×	×	×	×	×	×	×
	PAC-TH012HTL-E	For boiler and buffer (30 m)	×	×	×	×	×	×	×	×
Joint pipe	PAC-SG73RJ-E	For PUHZ-SW200YKA/ SHW230YKA2(-BS) ø9.52→ø12.7	-	-	-	-	-	-	-	-
Wi-Fi interface	MAC-587IF-E		×	×	×	×	×	×	×	×
2 zone kit	PAC-TZ02-E2		×	×	×	×	×	×	×	×
Expansion vessel kit	PAC-EVP12-E1	12L	-	-	-	-	-	×	-	-

1 Optional parts list

<Outdoor unit>

Parts name	Model name	Eco Inverter			
		SUZ-SWM30VA	SUZ-SWM40VA2	SUZ-SWM60VA2	SUZ-SWM80VA2
Connector for Drain Hose Heater Signal Output	PAC-SE60RA-E	—	—	—	—
	PAC-SE61RA-E	—	—	—	—
	MAC-061RA-E	×	×	×	×
	MAC-062RA-E	—	—	—	—
Air discharge Guide	MAC-886SG-E	—	—	—	—
	MAC-882SG	×	×	×	—
	MAC-890SG-E	—	—	—	×
	PAC-SJ07SG-E	—	—	—	—
	PAC-SG59SG-E	—	—	—	—
	PAC-SH96SG-E	—	—	—	—
Air Protection Guide	PAC-SJ06AG-E	—	—	—	—
	PAC-SH63AG-E	—	—	—	—
	PAC-SH95AG-E	—	—	—	—
Attachment	PAC-SJ82AT-E	—	—	—	—
Drain Socket[*1]	PAC-SG61DS-E	—	—	—	—
	PAC-SJ08DS-E	—	—	—	—
Centralized Drain Pan[*1]	PAC-SG63DP-E	—	—	—	—
	PAC-SG64DP-E	—	—	—	—
	PAC-SH97DP-E	—	—	—	—
	PAC-SJ83DP-E	—	—	—	—
Control/Service Tool	PAC-SK52ST	—	—	—	—
Defrost Heater	MAC-642BH-U1	—	—	—	—
Muffler	MAC-001MF-E	—	—	—	—
Joint pipe and nut	MAC-001FN-E	—	—	—	—

<Outdoor unit>

Parts name	Model name	Eco Inverter (Standard)			Eco Inverter (Hyper Heating)		
		SUZ-SWM80VAH2	SUZ-SWM100VA	SUZ-SWM100VAH	SUZ-SHWM30VAH	SUZ-SHWM40VAH	SUZ-SHWM60VAH
Connector for Drain Hose Heater Signal Output	PAC-SE60RA-E	—	—	—	—	—	—
	PAC-SE61RA-E	—	—	—	—	—	—
	MAC-061RA-E	—	×	—	—	—	—
	MAC-062RA-E	—	—	—	—	—	—
Air discharge Guide	MAC-886SG-E	—	—	—	—	—	—
	MAC-882SG	—	—	—	×	×	—
	MAC-890SG-E	×	×	×	—	—	×
	PAC-SJ07SG-E	—	—	—	—	—	—
	PAC-SG59SG-E	—	—	—	—	—	—
	PAC-SH96SG-E	—	—	—	—	—	—
Air Protection Guide	PAC-SJ06AG-E	—	—	—	—	—	—
	PAC-SH63AG-E	—	—	—	—	—	—
	PAC-SH95AG-E	—	—	—	—	—	—
Attachment	PAC-SJ82AT-E	—	—	—	—	—	—
Drain Socket[*1]	PAC-SG61DS-E	—	—	—	—	—	—
	PAC-SJ08DS-E	—	—	—	—	—	—
Centralized Drain Pan[*1]	PAC-SG63DP-E	—	—	—	—	—	—
	PAC-SG64DP-E	—	—	—	—	—	—
	PAC-SH97DP-E	—	—	—	—	—	—
	PAC-SJ83DP-E	—	—	—	—	—	—
Control/Service Tool	PAC-SK52ST	—	—	—	—	—	—
Defrost Heater	MAC-642BH-U1	—	—	—	—	—	—
Muffler	MAC-001MF-E	—	—	—	—	—	—
Joint pipe and nut	MAC-001FN-E	—	—	—	—	—	—

1 Optional parts list

<Outdoor unit>

Parts name	Model name	Power Inverter				
		PUZ-SWM60VAA	PUZ-SWM80VAA PUZ-SWM80YAA	PUZ-SWM100VAA PUZ-SWM100YAA	PUZ-SWM120VAA PUZ-SWM120YAA	PUZ-SWM140VAA PUZ-SWM140YAA
Connector for Drain Hose Heater Signal Output	PAC-SE60RA-E	×	×	×	×	×
	PAC-SE61RA-E	—	—	—	—	—
	MAC-061RA-E	—	—	—	—	—
	MAC-062RA-E	—	—	—	—	—
Air discharge Guide	MAC-886SG-E	—	—	—	—	—
	MAC-882SG	—	—	—	—	—
	MAC-890SG-E	—	—	—	—	—
	PAC-SJ07SG-E	—	—	—	—	—
	PAC-SG59SG-E	—	—	—	—	—
	PAC-SH96SG-E	×[2]	×[2]	×[2]	×[2]	×[2]
Air Protection Guide	PAC-SJ06AG-E	—	—	—	—	—
	PAC-SH63AG-E	—	—	—	—	—
	PAC-SH95AG-E	×[2]	×[2]	×[2]	×[2]	×[2]
Attachment	PAC-SJ82AT-E	×	×	×	×	×
Drain Socket[1]	PAC-SG61DS-E	×	×	×	×	×
	PAC-SJ08DS-E	—	—	—	—	—
Centralized Drain Pan[1]	PAC-SG63DP-E	—	—	—	—	—
	PAC-SG64DP-E	—	—	—	—	—
	PAC-SH97DP-E	—	—	—	—	—
	PAC-SJ83DP-E	×	×	×	×	×
Control/Service Tool	PAC-SK52ST	×	×	×	×	×
Defrost Heater	MAC-642BH-U1	—	—	—	—	—
Muffler	MAC-001MF-E	—	—	—	—	—
Joint pipe and nut	MAC-001FN-E	×	×	×	×	×

<Outdoor unit>

Parts name	Model name	ZUBADAN				
		PUZ-SHWM60VAA	PUZ-SHWM80VAA PUZ-SHWM80YAA	PUZ-SHWM100VAA PUZ-SHWM100YAA	PUZ-SHWM120VAA PUZ-SHWM120YAA	PUZ-SHWM140VAA PUZ-SHWM140YAA
Connector for Drain Hose Heater Signal Output	PAC-SE60RA-E	×	×	×	×	×
	PAC-SE61RA-E	—	—	—	—	—
	MAC-061RA-E	—	—	—	—	—
	MAC-062RA-E	—	—	—	—	—
Air discharge Guide	MAC-886SG-E	—	—	—	—	—
	MAC-882SG	—	—	—	—	—
	MAC-890SG-E	—	—	—	—	—
	PAC-SJ07SG-E	—	—	—	—	—
	PAC-SG59SG-E	—	—	—	—	—
	PAC-SH96SG-E	×[2]	×[2]	×[2]	×[2]	×[2]
Air Protection Guide	PAC-SJ06AG-E	—	—	—	—	—
	PAC-SH63AG-E	—	—	—	—	—
	PAC-SH95AG-E	×[2]	×[2]	×[2]	×[2]	×[2]
Attachment	PAC-SJ82AT-E	×	×	×	×	×
Drain Socket[1]	PAC-SG61DS-E	×	×	×	×	×
	PAC-SJ08DS-E	—	—	—	—	—
Centralized Drain Pan[1]	PAC-SG63DP-E	—	—	—	—	—
	PAC-SG64DP-E	—	—	—	—	—
	PAC-SH97DP-E	—	—	—	—	—
	PAC-SJ83DP-E	×	×	×	×	×
Control/Service Tool	PAC-SK52ST	×	×	×	×	×
Defrost Heater	MAC-642BH-U1	—	—	—	—	—
Muffler	MAC-001MF-E	—	—	—	—	—
Joint pipe and nut	MAC-001FN-E	×	×	×	×	×

[1] Cannot be used for cold climate.
[2] Attachment (PAC-SJ82AT-E) is necessary for the Air Guide.

1 Optional parts list

<Outdoor unit>

Parts name	Model name	PXZ-ecodan	
		PXZ-4F75VG	PXZ-5F85VG
Connector for Drain Hose Heater Signal Output	PAC-SE60RA-E	—	—
	PAC-SE61RA-E	—	—
	MAC-061RA-E	—	—
	MAC-062RA-E	×	×
Air discharge Guide	MAC-886SG-E	—	—
	MAC-882SG	—	—
	MAC-890SG-E	—	—
	PAC-SJ07SG-E	—	—
	PAC-SG59SG-E	—	—
	PAC-SH96SG-E	—	—
Air Protection Guide	PAC-SJ06AG-E	—	—
	PAC-SH63AG-E	—	—
	PAC-SH95AG-E	—	—
Attachment	PAC-SJ82AT-E	—	—
Drain Socket*1	PAC-SG61DS-E	—	—
	PAC-SJ08DS-E	—	—
Centralized Drain Pan*1	PAC-SG63DP-E	—	—
	PAC-SG64DP-E	—	—
	PAC-SH97DP-E	—	—
	PAC-SJ83DP-E	—	—
Control/Service Tool	PAC-SK52ST	—	—
Defrost Heater	MAC-642BH-U1	—	—
Muffler	MAC-001MF-E	×	×
Joint pipe and nut	MAC-001FN-E	—	—

*1 Cannot be used for cold climate.
*2 Attachment (PAC-SJ82AT-E) is necessary for the Air Guide.

1 Optional parts list

<Interface/Flow temperature control>

Parts name	Model name	Specification	Eco Inverter				
			SUZ-SWM30VA	SUZ-SWM40VA2	SUZ-SWM60VA2	SUZ-SWM80VA2	SUZ-SWM100VA
Flow Temperature Controller	PAC-IF033B-E	1 PC Board w/ Case	—	—	—	—	—
System controllers	PAC-IF081B-E	1 PC Board w/ Case	×	×	×	×	×
	PAC-SIF051B-E	1 PC Board w/ Case	—	—	—	—	—
Pressure sensor	PAC-PS01-E	20 PC Pressure sensor	×	×	×	×	×
Flow sensor	PAC-FS01-E	1 PC Flow sensor	×	×	×	×	×
Thermistor	PAC-TH011-E		×	×	×	×	×

Parts name	Model name	Specification	Eco Inverter (Standard with base heater)		Eco Inverter (Hyper Heating)		
			SUZ-SWM80VAH2	SUZ-SWM100VAH	SUZ-SHWM30VAH	SUZ-SHWM40VAH	SUZ-SHWM60VAH
Flow Temperature Controller	PAC-IF033B-E	1 PC Board w/ Case	—	—	—	—	—
System controllers	PAC-IF081B-E	1 PC Board w/ Case	×	×	×	×	×
	PAC-SIF051B-E	1 PC Board w/ Case	—	—	—	—	—
Pressure sensor	PAC-PS01-E	20 PC Pressure sensor	×	×	×	×	×
Flow sensor	PAC-FS01-E	1 PC Flow sensor	×	×	×	×	×
Thermistor	PAC-TH011-E		×	×	×	×	×

Parts name	Model name	Specification	Power Inverter				
			PUZ-SWM60VAA	PUZ-SWM80VAA PUZ-SWM80YAA	PUZ-SWM100VAA PUZ-SWM100YAA	PUZ-SWM120VAA PUZ-SWM120YAA	PUZ-SWM140VAA PUZ-SWM140YAA
Flow Temperature Controller	PAC-IF033B-E	1 PC Board w/ Case	—	—	—	—	—
System controllers	PAC-IF081B-E	1 PC Board w/ Case	—	—	—	—	—
	PAC-SIF051B-E	1 PC Board w/ Case	—	—	—	—	—
Pressure sensor	PAC-PS01-E	20 PC Pressure sensor	—	—	—	—	—
Flow sensor	PAC-FS01-E	1 PC Flow sensor	—	—	—	—	—
Thermistor	PAC-TH011-E		—	—	—	—	—

Parts name	Model name	Specification	ZUBADAN				
			PUZ-SHWM60VAA	PUZ-SHWM80VAA PUZ-SHWM80YAA	PUZ-SHWM100VAA PUZ-SHWM100YAA	PUZ-SHWM120VAA PUZ-SHWM120YAA	PUZ-SHWM140VAA PUZ-SHWM140YAA
Flow Temperature Controller	PAC-IF033B-E	1 PC Board w/ Case	—	—	—	—	—
System controllers	PAC-IF081B-E	1 PC Board w/ Case	—	—	—	—	—
	PAC-SIF051B-E	1 PC Board w/ Case	—	—	—	—	—
Pressure sensor	PAC-PS01-E	20 PC Pressure sensor	—	—	—	—	—
Flow sensor	PAC-FS01-E	1 PC Flow sensor	—	—	—	—	—
Thermistor	PAC-TH011-E		—	—	—	—	—

1 Optional parts list

Parts name	Model name	Specification	PXZ-ecodan	
			PXZ-4F75VG	PXZ-5F85VG
Flow Temperature Controller	PAC-IF033B-E	1 PC Board w/ Case	—	—
System controllers	PAC-IF081B-E	1 PC Board w/ Case	—	—
	PAC-SIF051B-E	1 PC Board w/ Case	—	—
Pressure sensor	PAC-PS01-E	20 PC Pressure sensor	—	—
Flow sensor	PAC-FS01-E	1 PC Flow sensor	—	—
Thermistor	PAC-TH011-E		—	—

1 Optional parts list

CONTENTS

Parts name	Model name	Contents	Q'ty
Air discharge guide	MAC-886SG-E	Air discharge guide	1
		Screw	4
	PAC-SJ07SG-E	Air discharge guide	1
		Support (For right and left)	2
		Attachment screw(5×10)	4
		Attachment screw(4×10)	4
	PAC-SG59SG-E	Air discharge guide	1
		Attachment screw(5×35)	4
		Spacer	4
	PAC-SH96SG-E	Air discharge guide	1
		Support	1
		Screw(5×15)	12
		Washer	12
		Spring washer	12
Air protection guide	PAC-SJ06AG-E	Air protect guide	1
		Mounting screw (4×16)	4
		Washer (for screw 4×16)	4
		Spring washer	4
	PAC-SH63AG-E	Air guide	1
		Mounting screw (5×15)	4
		Washer	4
		Spring washer	4
	PAC-SH95AG-E	Air guide	1
		Mounting screw (5×15)	6
		Washer	6
		Spring washer	6
Drain socket	PAC-SG61DS-E	Drain socket	1
		Drain cap (φ33)	5
		Heat insulator	3
		Band	8
	PAC-SJ08DS-E	Drain socket	1
Centralized drain pan	PAC-SG63DP-E	Centralized drain pan	1
	PAC-SG64DP-E	Centralized drain pan	1
	PAC-SH97DP-E	Centralized drain pan	1
	PAC-SJ83DP-E	Centralized drain pan	1
Control/Service tool	PAC-SK52ST	Control/Service Tool	1
Defrost Heater	MAC-642BH-U1	Defrost heater (with 2-pin lead assembly)	1
		Heater support	1
		Cable tie	1
		Cable clamp	1
		Self drilling screw	2
		Wiring diagram	1
		Insulation	1
		3-pin lead assembly	1
Capacity step control interface	PAC-IF011B-E	PC Board	1
		Case	1
		Thermistor	2
Flow temperature controller	PAC-IF033B-E	PC Board	1
		Case	1
		Thermistor	3
		Remote controller	1
		Remote controller cable (5m)	1
System controllers	PAC-IF071B-E	PC Board	1
		Case	1
		Thermistor	1
		Flow/Return water temp. thermistor	1
		Remote controller	1
		Remote controller cable (10m)	1
		SD memory card	1
	PAC-SIF051B-E	PC Board	1
		Case	1
		Thermistor	1
		Flow/Return water temp thermistor	1
		Remote controller cable (10m)	1
		SD memory card	1
Thermistors	PAC-TH011-E	For zone (flow and return temp.)	20[1)]
	PAC-TH011TK2-E	For tank temp. (5m)	10[2)]
	PAC-TH011TKL2-E	For tank temp. (30m)	5[3)]
	PAC-TH012HT-E	For boiler and buffer (5m)	10[2)]
	PAC-TH012HTL-E	For boiler and buffer (30m)	5[3)]

1 Optional parts list

Parts name	Model name	Contents	Q'ty
2 zone kit	PAC-TZ02-E2	2 zone kit	1
		Flexible hose	2
		Conversion joint	2
		Gasket	4
Attachment	PAC-SJ82AT-E	Attachment	2
		Mounting screw 5×15	8
		Washer	8
		Spring washer	8
Wi-Fi interface	MAC-587IF-E	Interface unit (with connecting cable)	1
		Fixing screw 3.5×16 mm	2
		Fixing screw 4×16 mm	1
		Mounting cord clamp	1
		Fastener (for bundling the wires)	1
		Holder	1
		Clip	1
Pressure sensor	PAC-PS01-E	Pressure sensor	20
Flow sensor	PAC-FS01-E	Flow sensor body	1
		Flow sensor cable	1
		O-ring	2
Expansion vessel kit	PAC-EVP12-E1	Expansion vessel 12L	1
		5 bar pressure relief valve	1
Drain hose heater connecter	MAC-061RA-E	Terminal bed	1
		Screw (4×12)	2
		Lead wire with connector (3 PIN) for SUZ-SWM30/40/60VA* (-SC)	1
		Lead wire with connector (2 PIN) for SUZ-SWM80/100VA*	1
	MAC-062RA-E	Terminal bed	1
		Lead wire with connector	1
		Screw (4×25)	1
Muffler	MAC-001MF-E	Muffler	1
		Flare nut	2
		Pipe cover (EPT)	2
		Pipe cover	2
Joint pipe and nut	MAC-001FN-E	Joint pipe	1
		Flare nut	1

Notes:
1) Two thermistors per package; 10 packages per carton
2) One thermistors per package; 10 packages per carton
3) One thermistors per package; 5 packages per carton

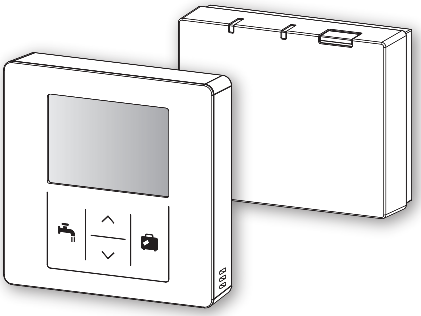
UK CA CE

MITSUBISHI ELECTRIC

ecodan

Wireless Remote Controller and Receiver

PAR-WT60R-E
PAR-WR61R-E



This manual explains installation of the PAR-WR61R-E wireless receiver and the PAR-WT60R-E wireless remote controller, and settings of these devices. Before installing the devices, read this manual thoroughly. After reading, be sure to hand this manual to the user.

1. Safety precautions

- The precautions mentioned below are important to use the device safely. Be sure to understand and follow them.
- The following hazardous classification shows the likelihood and severity of hazards if a person does not follow the instructions contained on the following signs.

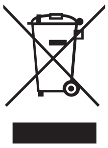
⚠ **Warning**	Indicates a hazardous situation which, if a person does not follow the instructions, could result in death or serious injury.
⚠ **Caution**	Indicates a potentially hazardous situation that, if a person does not follow the instructions, may result in bodily injury or property damage.

⚠ Warning	
►Installation	
Do not use the device in particular environments.	Do not use the device in particular environments where the following substances are present in large amounts: oil, vapour, organic solvent, corrosive gas (such as ammonia, sulphuric compounds, and acid or the like), or where acid or alkali solution, or particular sprays are used frequently. This could affect operating performance, or cause corrosion, which could result in electrical shock, breakdown, smoke generation, or fire.
Do not place the devices in an environment where flammable gas may occur, stay, flow in, or leak.	Build-up of flammable gas could result in fire or explosion.
The device must be installed by a dealer or an authorised technician according to the appropriate installation manual.	If the device is installed improperly, electric shock or fire could result.
Do not place the device in an environment that exposes it to large amounts of vapor or condensation.	Electric shock, fire, or breakdown could result.
►Wiring	
The wireless receiver's maximum voltage is 12V DC. Do not connect 230V AC power source to the wireless receiver.	Breakdown, ignition, or fire could result.
Connections must be made securely and without tension or external force on the terminals.	If connections are made improperly, breaking of wire, heat generation, or fire could result.
►Others	
Do not use sharp objects to press the buttons.	Electric shock or breakdown may result.
Do not touch or operate the device with wet hands.	Electric shock or breakdown may result.
Do not wash the device with water or solution or the like.	Electric shock or breakdown may result.
When installing or repairing the device, ask a dealer or a qualified technician.	If the device is not installed properly, electric shock, smoke generation, or fire could result from entry of dust or water.
Do not disassemble or modify.	

⚠ Caution	
Do not drop the device.	This could break the case or affect the device enough to make it inoperable.
Install the device in a place capable of bearing its own weight .	If the device is not installed securely or properly, the wireless receiver may fall.

■ Disposal

This symbol mark is for EU countries only.



This symbol mark is according to the directive 2002/96/EC Article 10 Information for users and Annex IV, and/or to the directive 2006/66/EC Article 20 Information for end-users and Annex II.

Your MITSUBISHI ELECTRIC product is designed and manufactured with high quality materials and components which can be recycled and/or reused. This symbol means that electrical and electronic equipment, batteries and accumulators, at their end-of-life, should be disposed of separately from your household waste. If a chemical symbol is printed beneath the symbol, this chemical symbol means that the battery or accumulator contains a heavy metal at a certain concentration.

This will be indicated as follows: Hg: mercury (0.0005%), Cd; cadmium (0.002 %), Pb: lead (0.004%)

In the European Union there are separate collection systems for used electrical and electronic products, batteries and accumulators.

Please, dispose of this equipment, batteries and accumulators correctly at your local community waste collection/recycling centre.

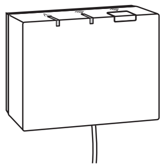
Please, help us to conserve the environment we live in!

2. Accessories and installation tool

The following items are included in the box.

Part name	No.
① Wireless receiver <PAR-WR61R-E> (2 m long cable included)	1
② Bracket	1
③ Flat head screw (4.1 × 6)	4
④ Installation and setting manual	1

①



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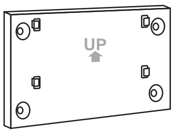

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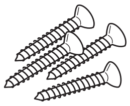


* Installing of the devices requires a Phillips-head screwdriver (No.2 6 mm).

■ How to read the year of manufacture

The year of manufacture is indicated on the wireless remote controller and receiver as below.

L * * * * * * S ☐ ☐ * * * * * *

Month of manufacture : 1,2,3,4,5,6,7,8,9,X(10),Y(11),Z(12)

Year of manufacture (western calendar) 2=2022, 3=2023

3. Before using ATW wireless system

Following is the summary of the procedure for installing and setting the wireless system.

1. Devices and manuals required to set and install the wireless system

① PAR-WT60R-E wireless remote controller
② PAR-WR61R-E wireless receiver
③ ATW wireless system installation and setting manual (this manual)
④ Wireless remote controller operation manual (hereinafter abbreviated as OM)
⑤ Ecodan system installation manual (hereinafter abbreviated as IM)

2. Installing and setting procedure

① Power off the ecodan system.
② Install the wireless receiver on the ecodan system.
(See "4. Installing the Wireless Receiver" in this manual.)

When installing the wireless receiver, be sure to set the SW1-8 on the control board to ON. (See “5.1 DIP Switch Functions” in IM.)

③ Power on the ecodan system, and the LEDs will blink on the receiver for 3 seconds.
④ Place two AA alkaline batteries in the wireless remote controller.
(See “·Batteries” in “4. Before Operation” in OM.)
⑤ Perform pairing process between the wireless receiver and the remote controller.
(See "5. Pairing process” in this manual.)

The wireless receiver does not go through a pairing process unless the ecodan system is off. When the system is ON, be sure to turn it off before beginning the pairing process.

⑥ Test wireless communication between the wireless remote controller and the wireless receiver.
(See “6.4 Communication Test” in “6. Setting wireless remote controllers” in this manual.)

⑦ Position the wireless remote controller in an appropriate place.
(See "4. Before Operation" in OM.)

⑧ To set the wireless remote controller as a room sensor that monitors room temperature, see "Main remote controller Options" in IM.

⑨ Use the main controller to set the ecodan system to the room temp. (⌂) mode.
When the flow temp. (💧💧) mode or the compensation curve (⟍) mode is selected, the wireless remote controller will operate as a thermostat. (See “Main remote controller” in IM.)

When the remote controller set as a room sensor runs out of battery or gets a communication error during room temp. mode, the room temp. mode will automatically switch to the compensation curve mode.
The room temp. mode will be restored by battery replacement or solution of communication error.

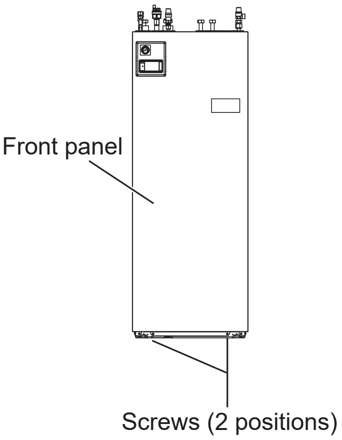
Installation and setting of the wireless remote controller is complete. To set additional wireless remote controllers, repeat Step ④ **to** ⑧.

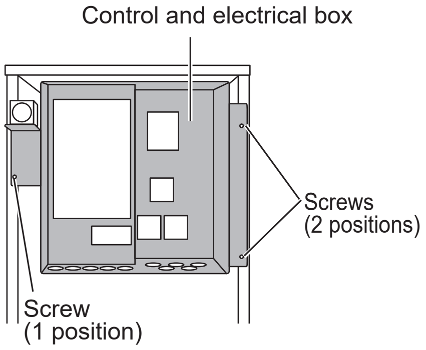
4. Installing Wireless Receiver

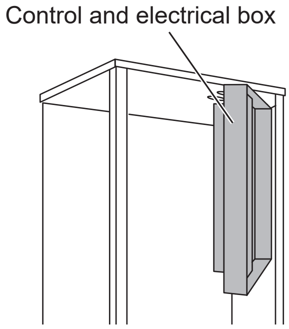
4.1. Connecting to Cylinder unit

*** Before installation, be sure to turn off the main power supply.**

① Remove the two screws that hold the front panel, and remove the panel.
② Remove the screw and pull the control and electrical box so that the control and electrical box is swung toward you from left.



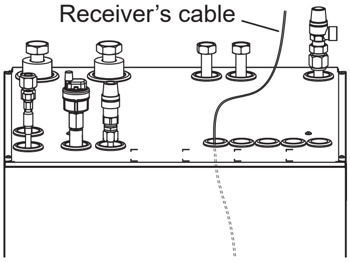




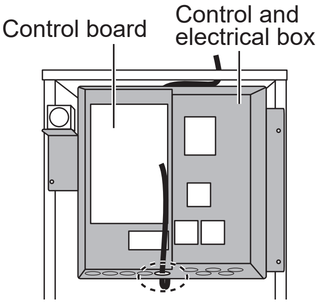
If the removed front panel is set aside away from the indoor unit, ensure the relay connector on Main remote controller is disconnected.

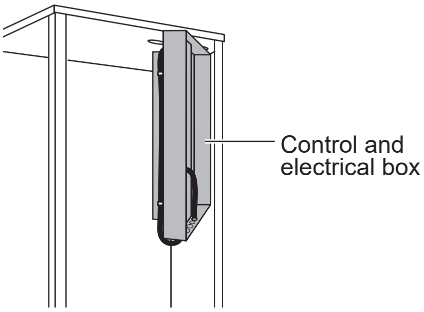
③ Run the receiver's cable into the cylinder unit through the inlet as shown on the figure.

Do not run the receiver's cable through an inlet that a power cable goes through and do not bundle the cable together with a power cable.

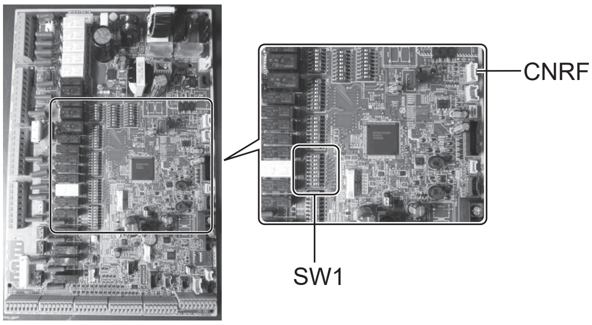


④ Route the cable out the back of the control and electrical box, and run the cable into the box through the shown inlet in the underside of the box.

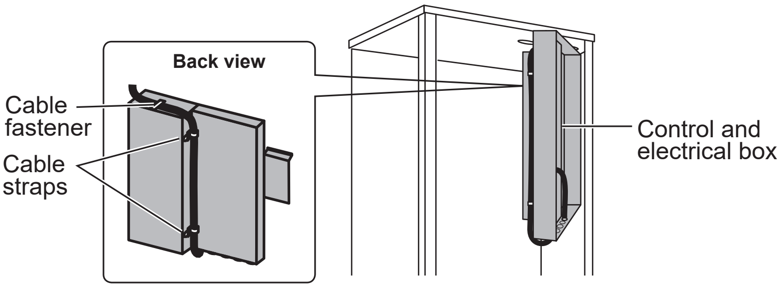




⑤ Connect the cable connector to the CNRF terminal on the control board. Switch ON SW1-8.



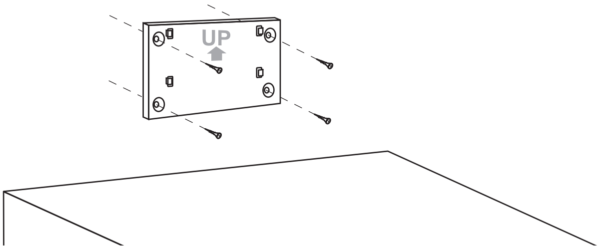
⑥ Remove excessive slack on the cable , then secure the cable with a cable fastener and 2 cable straps on the upper side and center on the back of control and electrical box.



⑦Place the control and electrical box back in the original position and reinstall the 3 screws.

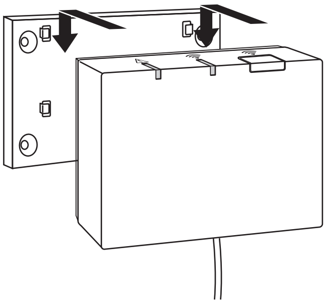
⑧ Check the maximum reach of the cable and install the bracket on the wall with screws.

Do not excessively pull the cable when checking the maximum reach.



<Notice>
- **Do not overtighten the screws.**
  ►The bracket may deform or break.
- **When installing the bracket, select an interference-free space.**
  ►Keep the installing area at least 10 cm away from metal or a wall box. If unable to do so, always place the room wireless remote controllers in locations where the communication test determines that the wireless remote controllers are fully capable of communication with the wireless receiver.
- **Do not install the bracket with screws on the exterior casing of the cylinder unit.**
  ►The internal parts may be damaged, which could result in breakdown of the indoor unit.
- **Do not install the bracket where the receiver could be exposed to moisture or leaked water from piping connections above.**
  ►The wireless receiver subjected to moisture or leaked water could cause electric shock, fire, or its breakdown.

⑨ Place the wireless receiver on the fixed bracket.
Hook the holes on the back of the wireless receiver onto the projections on the bracket, and fix the wireless receiver in place.



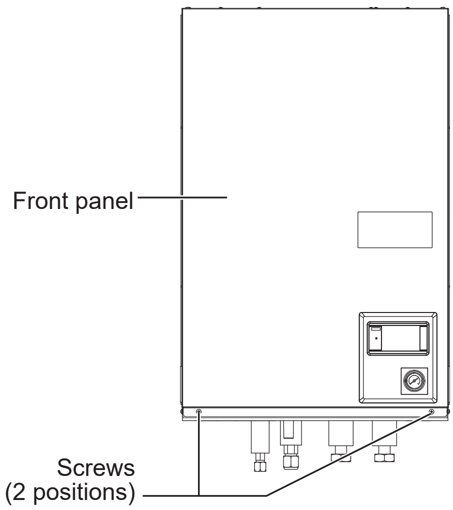
<Notice>
- **Do not place the wireless receiver inside the cylinder unit.**
  ►Both the wireless receiver and its wire may break due to heat inside the indoor unit.
- **Do not let the wireless receiver stand on top of the cylinder unit. Always fix the wireless receiver onto the bracket.**
  ►Wireless communication performance may be affected.
- **Do not pull the cable excessively.**
  ►Breakdown, ignition, or fire may result.
- **Do not have the wireless receiver suspended.**
  ►Breakdown, ignition, or fire may result.

⑩ Fix the front panel with screws.

4.2. Connecting to Hydrobox

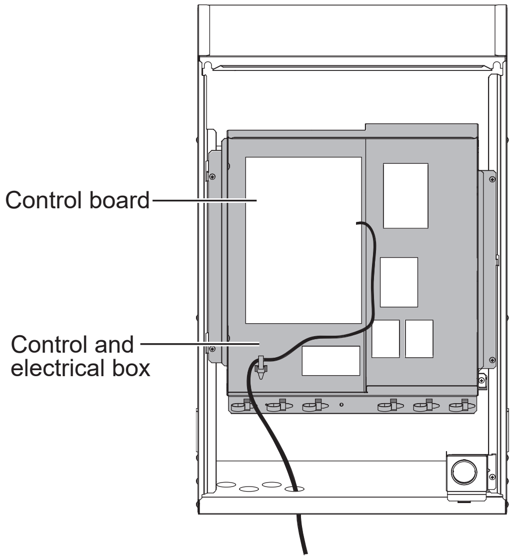
*** Before installation, be sure to turn off the main power supply.**

① Remove the two screws that hold the front panel, and remove the panel.



② Route the receiver's cable into the hydrobox through the leftmost inlet at the bottom of the unit. Then route into the control and electrical box through the shown inlet at the bottom of the control and electrical box.

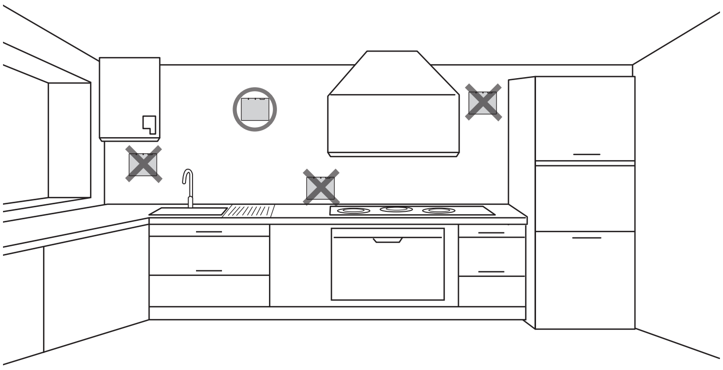
- **Do not bundle the receiver cable with a power cable.**
- **Do not run the cable through an inlet that a power cable goes through.**



Refer to ⑤, ⑦, and ⑧ in "4.1. Connecting to Cylinder unit" in this manual for the procedures ③ and ④.

When installing the wireless receiver, observe the following.

- Keep the other electric or electronic devices (e.g. radio, induction heating cooker, microwave oven, refrigerator, and mobile phone or the like) at least 50 cm away from the wireless receiver.
- Place the wireless receiver in an interference-free area and keep the wireless receiver away from metal.



Refer to ⑨ and ⑩ in "4.1. Connecting to Cylinder unit" in this manual for the procedures ⑤ and ⑥.

5. Pairing process

- **If the wireless remote controller is not paired, the indoor unit cannot be operated using the remote controller.**
- **Before using the wireless remote controllers, always ensure to go through a pairing process.**
- **Pairing is NOT possible unless the ecodan system is off. When the ecodan system is ON, be sure to turn it off before starting the pairing process.**
- **The wireless receiver is also needed for pairing, so please make sure to operate the wireless remote controller near the wireless receiver.**
- **Do not pair multiple wireless remote controllers with the receiver at the same time.**

● When the remote controller operating, be sure to touch the buttons with your fingers or Stylus pen.

►The operation panel may not work properly in the following cases.

* The operation panel or your finger is wet or dirty.

* The operation panel is touched with a gloved finger or a finger with a bandage.

* The operation panel is touched with a sharp-pointed instrument.

If the operation panel does not respond to touch on the screen, release your finger from the screen and touch it again.

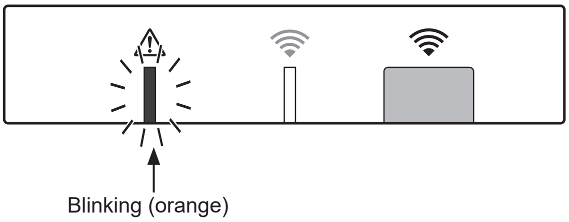
Touching the screen again without pause may result in false detection. Touching on the screen strongly does not enhance the detection sensitivity.

The response of operation panel depends on the ambient temperature and humidity, physical condition of the user, and operating conditions of the electric appliances.

① Press button on the wireless receiver for 3 seconds or more until orange ⚠ LED blinks.

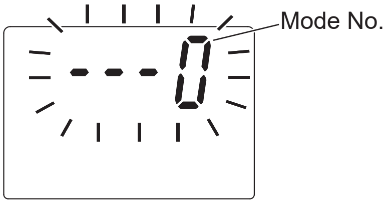
The pairing mode is cancelled by pressing button.

<Reciever Top view>

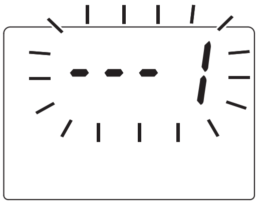


② Touch, and buttons simultaneously for at least 3 seconds until the mode number blinks.

<Remote controller Display>



③ Touch ⌃ or ⌄ button to set the mode number to “1” and touch button.



④ When ■ button is touched in the middle of setting, the screen returns to the previous indication.

When ▯ appears on the display, do not perform pairing. The power may be turned off in the middle of pairing, which may lose the pairing information.

⑤ Touch ⌃ or ⌄ button to select a pairing address, and touch ■ button to set the address.
" - " (no setting) is displayed initially. Choose a number from 1 to 8.

After touching ■ button, the wireless remote controller starts communication with the wireless receiver.

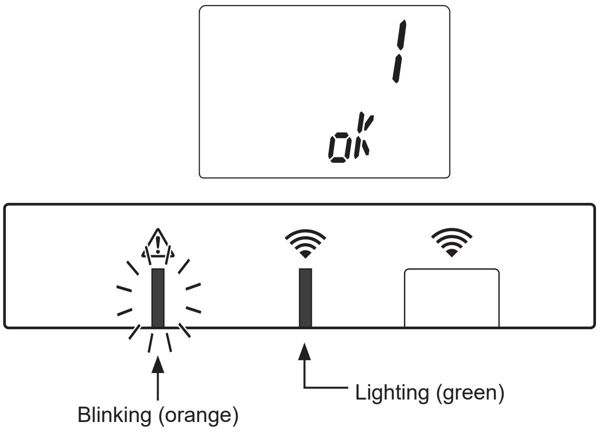
When using multiple wireless remote controllers in one ecodan system, be sure to set different address for each remote controller.

⑥ When the pairing process has been successfully performed, "ok" is shown on the remote controller and green ᯤ LED steadily lights on the wireless receiver.

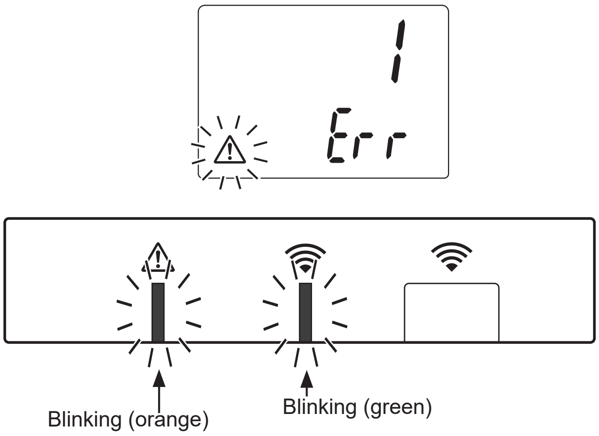
When "Err" appears on the remote controller and green ᯤ LED on the wireless receiver blinks , correctly repeat the same process from step 5.

Even if the pairing process failed, the wireless receiver stays in the pairing mode for 5 minutes unless cancelled.

<Pairing is successful>



<Pairing is unsuccessful>



<<Main causes that prevent successful pairing>>

- **The wireless receiver does not enter the pairing mode.**
  ►Press ■ button for 3 seconds or more until orange ⚠ LED blinks.
  Make sure to turn off the ecodan system by main controller.
- **Pairing is attempted outside the transmission range of the wireless receiver.**
  ►Adjust the distance between the wireless receiver and remote controller, and so try again.
  If the distance is excessively short, pairing may fail. Keep the distance of about 50 cm.
- **The wireless remote controller has been already paired with the wireless receiver.**
  ►The pairing address assigned to a wireless remote controller cannot be changed by remote controller. Use the wireless receiver to reset pairing information. (Refer to “(3) Resetting pairing information” in “7.3. Wireless Receiver Functions”.)

Even when power fails or when the batteries run down, the pairing information will be kept.

6. Setting wireless remote controllers

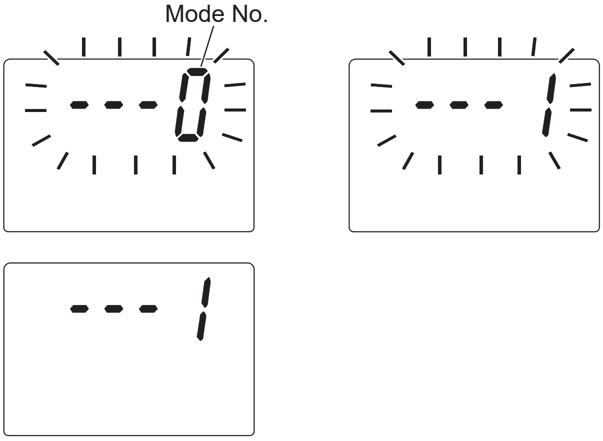
① Touch, 🚰 and ↩ buttons simultaneously for at least 3 seconds until the mode number blinks.

② Touch ∧ or ∨ button to choose a mode number.

③ Confirm setting by touching 🚰 button.
The display stops blinking and lights steadily.

When ↩ button is touched in the middle of setting, the screen returns to the previous indication.

<Remote controller Display>



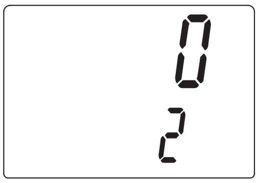
Mode No.	Names	Functions	Initial settings
0	Pairing address display	To view the own pairing address of the wireless remote controller.	
1	Pairing	To perform a pairing process with the wireless receiver.	
2	Temperature unit	To select °C or °F.	°C
3	Communication test	Communication test with the wireless receiver.	
4	Room temperature display	Actual room temperature display	ON
5	Automatic zone no. display	To enable or disable automatic zone no. display.	OFF

6.1. Viewing Address Number (Mode No. 0)

Set the mode no. to “0”.

The display to the right shows that the address is set to “2”.

<Remote controller Display>



6.2. Pairing (Mode No. 1)

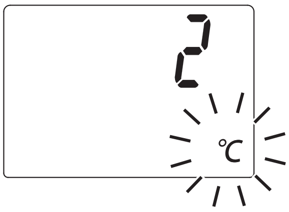
For details, refer to “5. Pairing process”.

6.3. Selecting the Temperature Unit (Mode No. 2)

Set the mode no. to “2”.
The temperature reading can be selected between Celsius (°C) or Fahrenheit (°F).

Touch ∧ or ∨ button to select °C or °F and touch 🚰 button to confirm the selection.

<Remote controller Display>



6.4. Communication Test (Mode No. 3)

Set the mode no. to “3”.
Communication test is performed between the wireless remote controller and the wireless receiver.

When the display shows "ok", this indicates that the communication between the remote controller and the receiver is established. If "Err" is shown, the wireless remote controller is not communicating with the wireless receiver.

Do not leave the wireless remote controller in a location where the communication test results in "Err".

Before conducting the communication test, ensure that the wireless remote controller goes through a pairing process. Do not conduct the communication test on multiple remote controllers at the same time.

6.5. Displaying or Hiding Room Temperature (Mode No. 4)

Set the mode no. to “4”.
Select either displaying or hiding the room temperature.

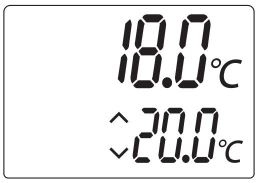
Touch ⌃ or ⌄ button to select displaying or hiding the room temperature, and touch 🚰 button to save the setting.

Hiding :" - - - ".
Displaying :Actual room temperature is displayed

When the indoor unit is operating, the room temperature display shows the actual room temperature (18°C) above and the set temperature (20°C) below as shown in the figure to the right. The measurable temperature range is from 0°C to 40°C.

If the measured room temperature is out of 0°C to 40°C range, the room temperature display blinks.

<Remote controller Display>



When the wireless remote controller is installed on a bracket, room temperature might not be accurate being affected by the wall temperature.
Perform a test run and place the remote controller where the room temperature can be correctly detected.

6.6. Automatic Zone No. Display (Mode No. 5)

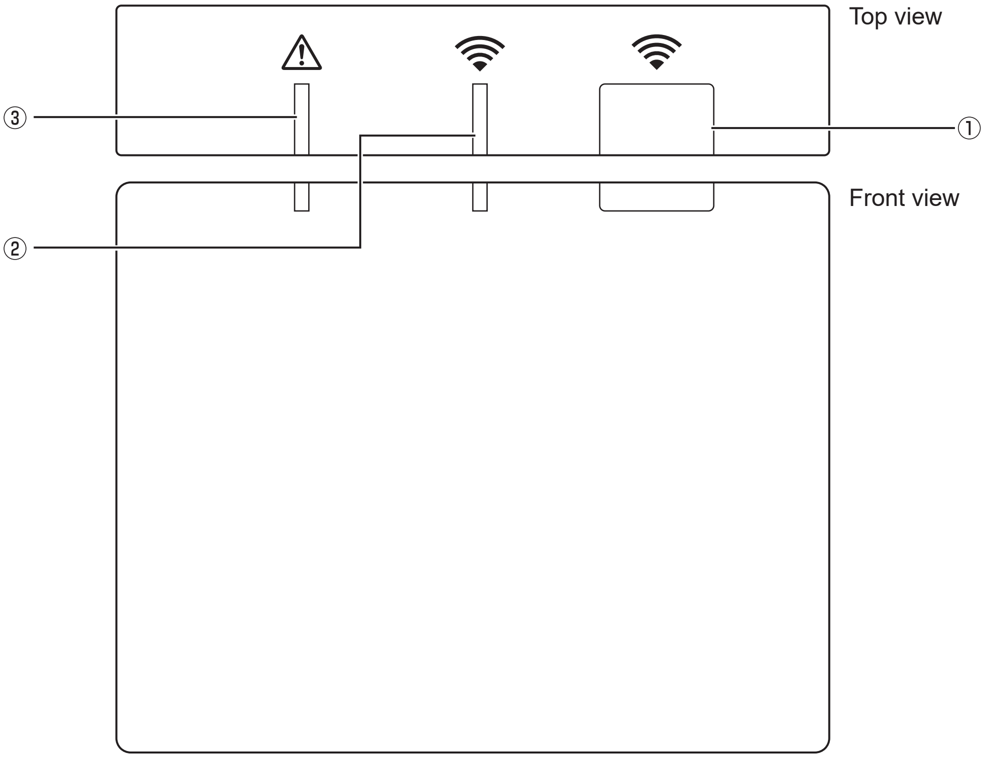
Set the mode no. to “5”.
When the automatic zone no. display is active, a zone number assigned to the remote controller is displayed for 3 seconds after temperature setting.
Touch ⌃ or ⌄ button to select between "-- -" and z1 or z2, and touch 🚰 button to save setting.

Inactive :"- - -".
Active :The zone no. (z1 or z2) assigned to the remote controller is shown.

7. Wireless Receiver Operation

The wireless receiver is powered by indoor unit. It communicates with the wireless remote controller(s), and transmits to the indoor unit the operation status and commands received from the wireless remote controlle(s). The wireless receiver has two modes available: pairing mode and pairing reset mode.

7.1. Functions of Buttons and Displays



Number	Item	Description
①	Setting button	To switch operating mode.
②	Communication LED (green)	To indicate that the wireless receiver is communicating.
③	Operation LED (orange)	To show operating status of the wireless receiver.

The following table shows the operating and illuminating status of the LEDs.

Operation LED (orange)	Communication LED (green)	Description
Blinking	Blinking	Power is ON (for 3 seconds).
Off	Off	Normal mode: Not paired
Off	On	Normal mode: Paired
Off	Blinking	Normal mode: Communicating
Blinking	Off	Performing a pairing process
Blinking	On	Pairing: Successful
Blinking	Blinking	Pairing: Unsuccessful
On	On	Pairing information is cleared.

7.2. Turning on Power

When the wireless receiver is powered by indoor unit after installation, green 📶 LED and orange ⚠ LED blink for 3 seconds.

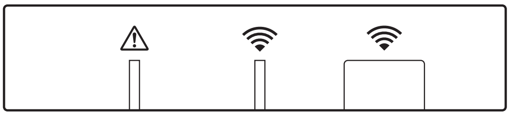
Power ON

7.3. Wireless Receiver Functions

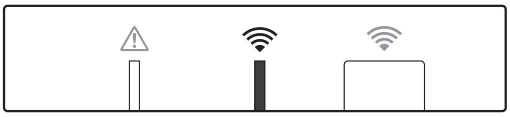
(1) Normal mode

When the wireless receiver is paired with a wireless remote controller, green 📶 LED comes on. When the wireless receiver is communicating with a wireless remote controller, green 📶 LED blinks.

Not paired



Paired



Transmitting

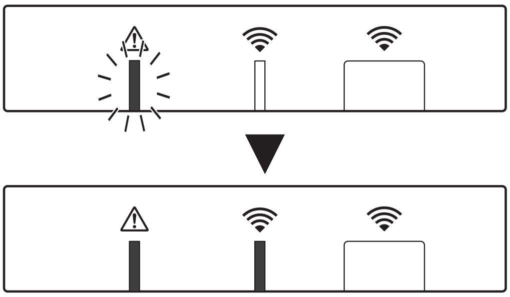
(2) Pairing mode

For details, refer to "5. Pairing process" in this manual.

(3) Resetting pairing information

Once pairing information has been cleared, ALL the wireless remote controllers need go through a pairing process again.

Press ☐ button for 5 seconds or more until 📶 and ⚠ LED light while pairing mode is active. All the pairing information is cleared.



8. Specifications

Item	Description
Power source	12V DC (powered by indoor unit)
Operating temperature and humidity requirements	Temperature: 0 to 40°C Humidity 30 to 90%RH (No condensation)
Weight	150 g (excluding a cable)
Dimension (W×H×D)	100 mm × 80 mm × 30 mm
Transmitter power level (MAX)	10 dBm
Frequency	868.3 MHz

9. FAQ

Questions	*Answers*
How many wireless remote controllers are allowed to be paired?	Up to 8 controllers.
What should be noted about Pairing?	• The same address cannot be assigned to multiple remote controllers • If the same address is assigned to multiple controllers, the address can be assigned to only the last paired remote controller. • Once the remote controller is paired, its pairing address cannot be changed by remote controller. Use the wireless receiver to reset pairing information.
What causes a communication error between the wireless remote controller and wireless receiver?	Check the following possible causes. • The batteries on the wireless remote controller are running out. • The transmitted signal does not reach the wireless receiver. • The wireless remote controller is not paired.
What measures should be taken when the room temp. display indicates “1” with⚠ and LED light blinks?	The indoor unit or outdoor unit has a failure. Refer to the indications on the main controller and take appropriate measures. Please also check installation and service manuals for the indoor unit.
What measures should be taken when the room temp. display indicates “2” with ⚠ and LED light blinks?	The thermistor inside the wireless remote controller has a failure. Check the resistance of the thermistor. (When the room temperature is between 0 and 40°C, the resistance must be between 5 and 28 kΩ.)
What measures should be taken when the room temp. display indicates “3” with ⚠ and LED light blinks?	A communication error occurs between the wireless remote controller and the wireless receiver. Check the following possible causes. • The signal that is transmitted by the wireless remote controller does not reach the wireless receiver. • The wireless remote controller is not paired.
What measures should be taken when the room temp. display indicates “4” with ⚠ and LED light blinks?	A communication error occurs between the wireless receiver and the indoor unit. Check the following possible causes. • The cable connecting between the wireless receiver and the indoor unit has severed. • The wireless receiver is not correctly connected to the indoor unit.
What measures should be taken when the room temp. display indicates “E” with ⚠ and LED light blinks?	Backup heater is running due to a failure of the indoor unit or the outdoor unit. Check the error code displayed on the main controller and take appropriate measures accordingly. The holiday mode is NOT available during backup heater only operation.

MITSUBISHI ELECTRIC

ATW/BTW UNIT OPTIONAL PARTS IMMERSION HEATER (1Ph 1/3kW) PAC-IH01V2-E / PAC-IH03V2-E

INSTALLATION MANUAL

- Before starting installation, read the following description together with the installation manual included with the ATW/BTW unit.
- Please read carefully and observe fully the following safety precautions.

⚠ WARNING	Precaution that must be observed to prevent injuries or death.

- After installation carry out a test run to ensure correct operation, then explain operation method and safety precautions to the end user.
  Tell your customers to keep this installation manual together with the operation manual, and when they give or sell this machine to any other person include this installation manual and operation manual with it.

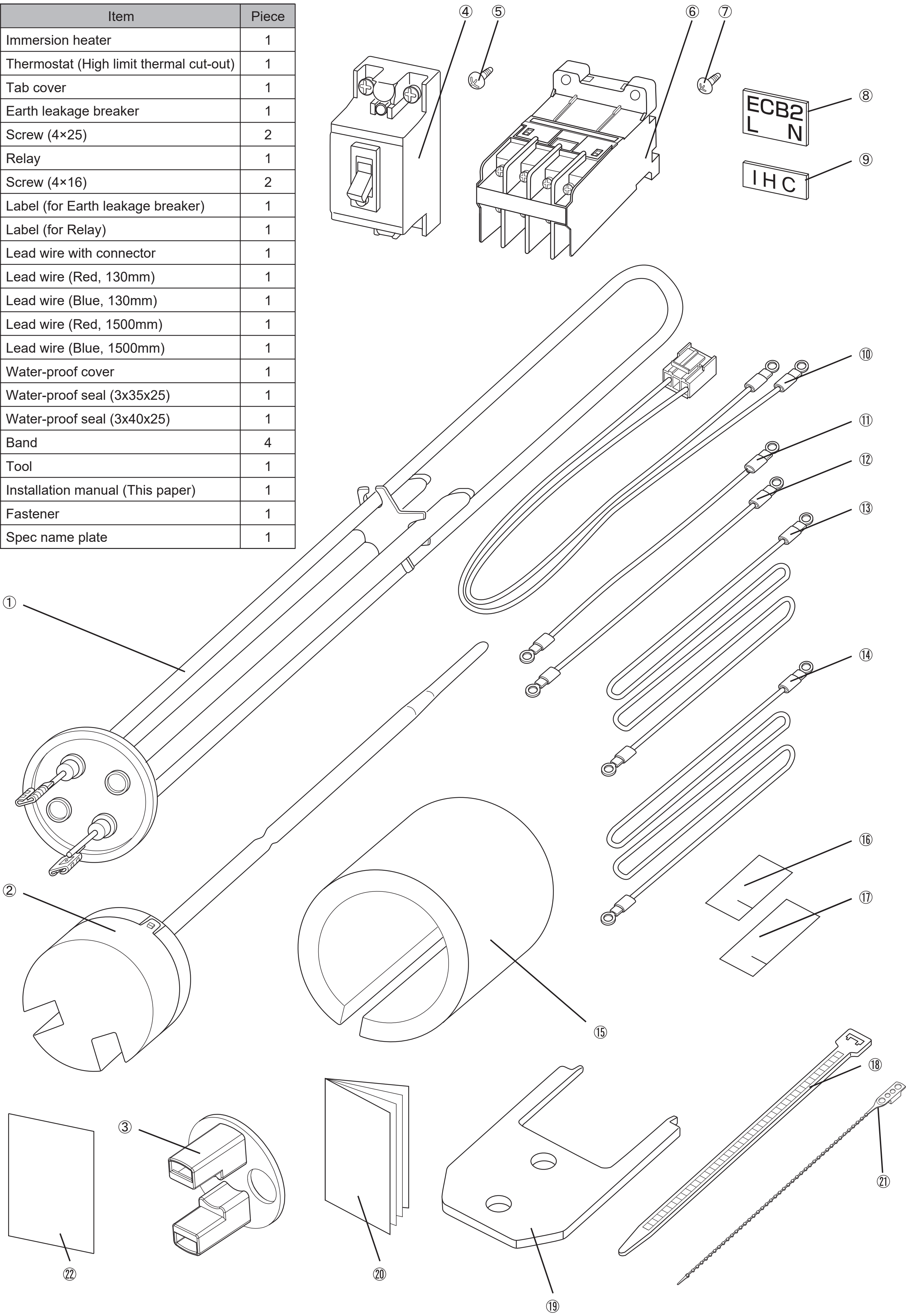
⚠ WARNING

- If the ATW/BTW unit has already been connected to the power supply ensure circuit breaker is off before carrying out electrical work.
- If the immersion heater is installed incorrectly or modified after installation by the user, water leakage, electric shock or fire may result.
- All electrical work should be performed by a qualified technician according to local regulations and the instructions given in this manual.
- The immersion heater must be powered by a dedicated power supply and the correct voltage and correctly sized circuit breakers must be used.
- Connections must be made securely and without tension on the terminals.
  The included component parts of the PAC-IH01V2-E / PAC-IH03V2-E IMMERSION HEATER (1Ph 1/3kW) shall be used only for the purposes indicated in the installation manual.

3 Immersion heater

Contents

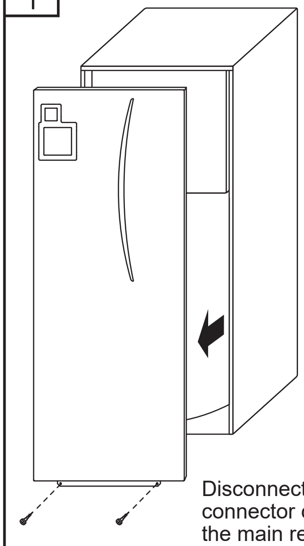
	Item	Piece
①	Immersion heater	1
②	Thermostat (High limit thermal cut-out)	1
③	Tab cover	1
④	Earth leakage breaker	1
⑤	Screw (4×25)	2
⑥	Relay	1
⑦	Screw (4×16)	2
⑧	Label (for Earth leakage breaker)	1
⑨	Label (for Relay)	1
⑩	Lead wire with connector	1
⑪	Lead wire (Red, 130mm)	1
⑫	Lead wire (Blue, 130mm)	1
⑬	Lead wire (Red, 1500mm)	1
⑭	Lead wire (Blue, 1500mm)	1
⑮	Water-proof cover	1
⑯	Water-proof seal (3x35x25)	1
⑰	Water-proof seal (3x40x25)	1
⑱	Band	4
⑲	Tool	1
⑳	Installation manual (This paper)	1
㉑	Fastener	1
㉒	Spec name plate	1



3 Immersion heater

<ATW unit>

1

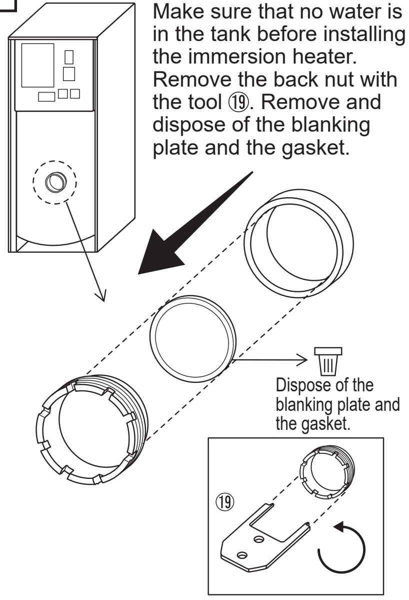


Refer to the installation manual of the ATW unit for the front panel removal.

Disconnect the relay connector connecting from the main remote controller under the electrical box. Remove the front panel.

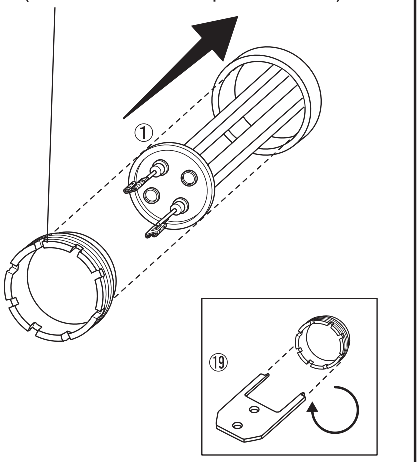
2

Make sure that no water is in the tank before installing the immersion heater. Remove the back nut with the tool ⑲. Remove and dispose of the blanking plate and the gasket.



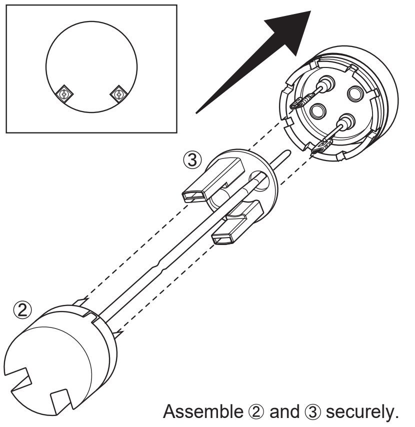
3

Adjust the position of the immersion heater so that the thermostat pockets are located at the upper right and lower left as shown in the figure. Fasten the back nut securely to prevent water leakage. (Recommended torque = 10 N•m)



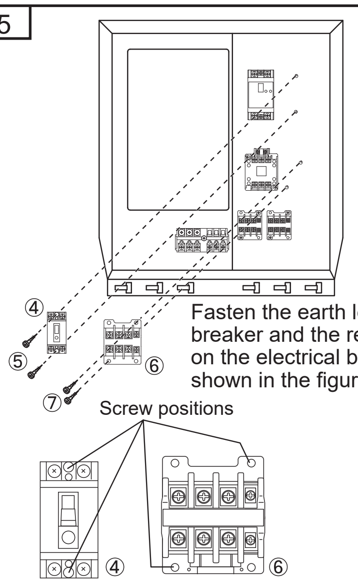
4

Attach the tab cover ③ to the immersion heater. Insert the thermostat into the upper right thermostat pocket. Position the terminals on the thermostat head at the bottom as shown in the figure.



Assemble ② and ③ securely.

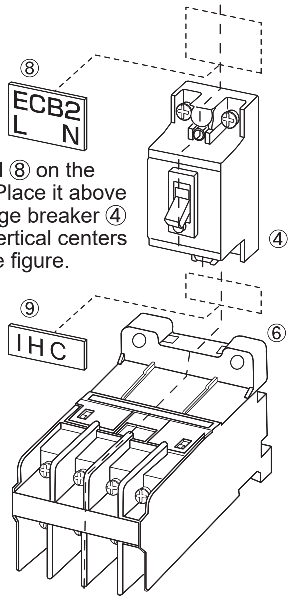
5



Fasten the earth leakage breaker and the relay on the electrical box as shown in the figure.

Recommended torque = 1.5 N•m

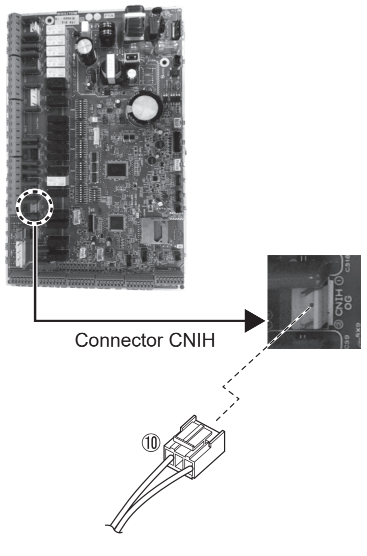
6



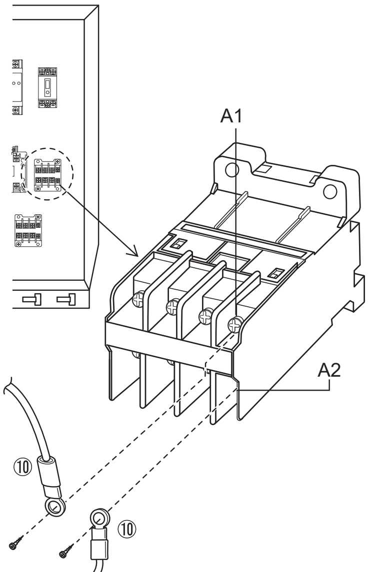
Attach the label ⑧ on the electrical box. Place it above the earth leakage breaker ④ and align the vertical centers as shown in the figure.

Attach the label ⑨ on the electrical box. Place it above the relay ⑥ and align the vertical centers as shown in the figure.

7

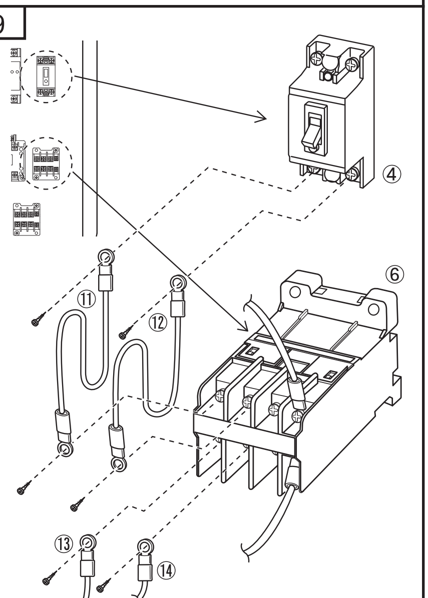


8



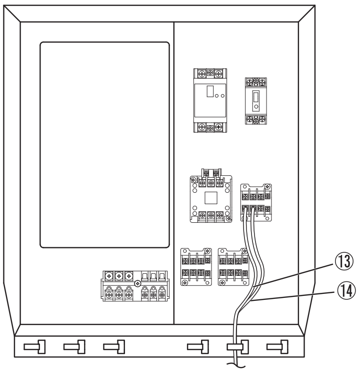
Recommended torque = 1 N•m

9



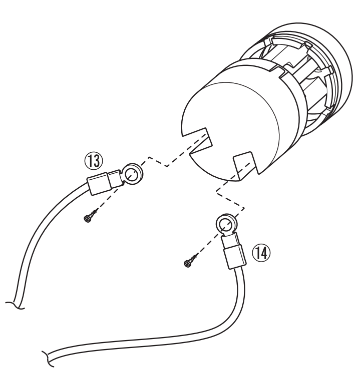
Recommended torque = 1.5 N•m

10



Do not bundle the lead wires ⑬ and ⑭ together with the low voltage wires, such as the main remote controller wires.

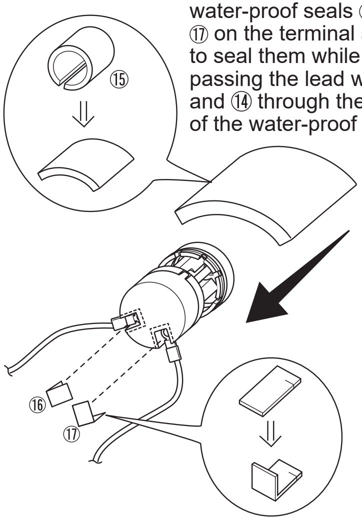
11



Recommended torque = 1.2 N•m

12

Attach the water-proof cover ⑮ as shown in the figure. Attach the water-proof seals ⑯ and ⑰ on the terminal screws to seal them while passing the lead wires ⑬ and ⑭ through the slits of the water-proof seals.



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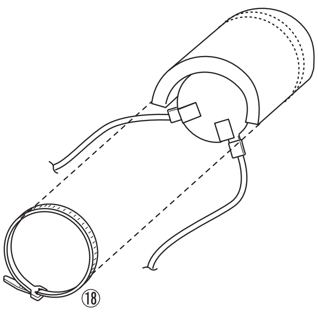
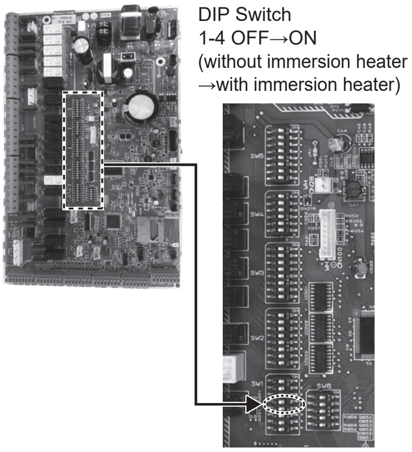


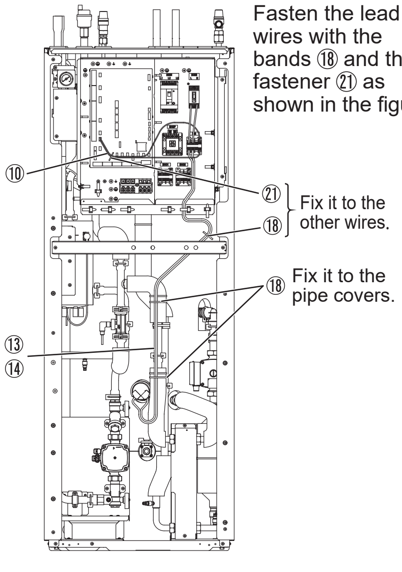
Fasten the water-proof cover ⑮ to the boss of the cylinder unit with the band ⑱.

14



DIP Switch
1-4 OFF→ON
(without immersion heater
→with immersion heater)

15



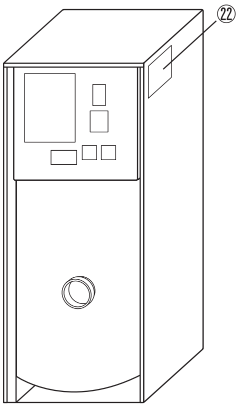
Fasten the lead wires with the bands ⑱ and the fastener ㉑ as shown in the figure.

16

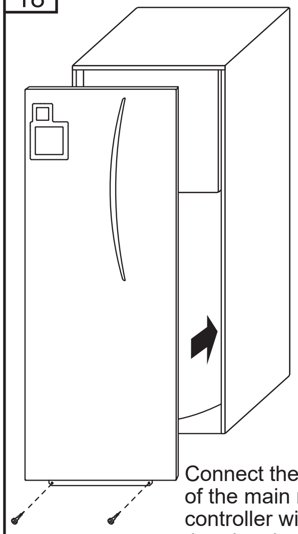
For details of wiring to the earth leakage breaker, refer to the installation manual and the wiring diagram of the ATW unit. Fill the tank with water and make sure that no water leaks around the immersion heater.

17

Attach the label ㉒. Do not cover or overlap the other labels.



18



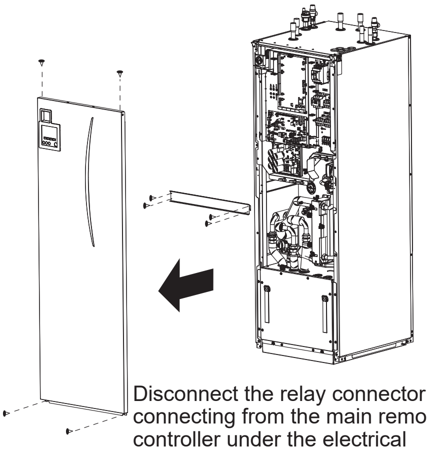
Refer to the installation manual of the ATW unit for the front panel installation.

Connect the relay connector of the main remote controller wires under the electrical box before installing the front panel.

<BTW unit>

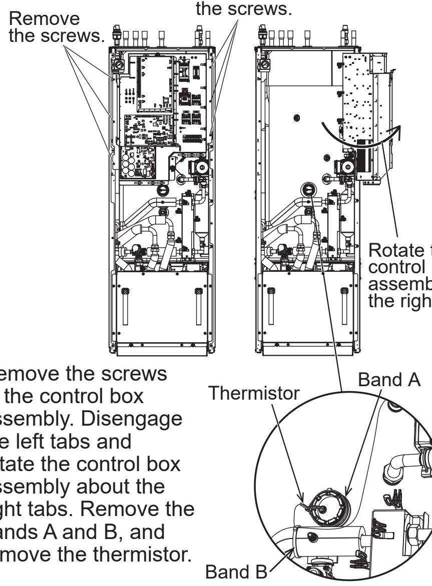
1

Refer to the installation manual of the BTW unit for the front panel removal.



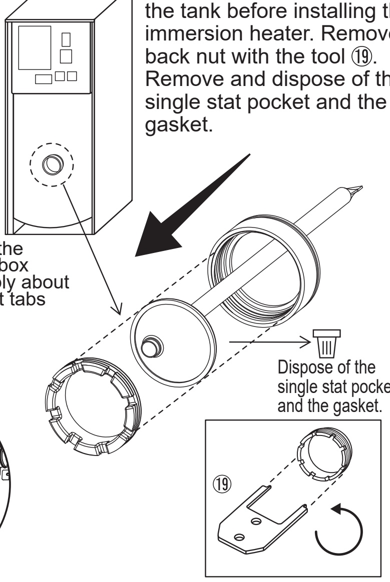
Disconnect the relay connector connecting from the main remote controller under the electrical box. Remove the front panel and the frame.

2



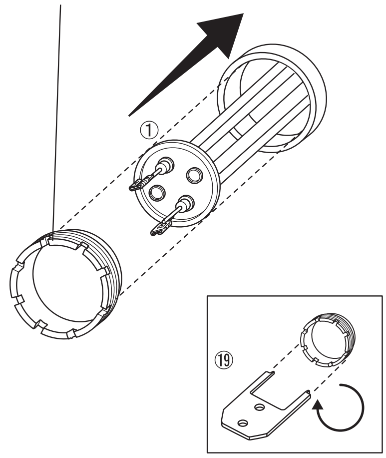
Remove the screws of the control box assembly. Disengage the left tabs and rotate the control box assembly about the right tabs. Remove the bands A and B, and remove the thermistor.

Make sure that no water is in the tank before installing the immersion heater. Remove the back nut with the tool ⑲. Remove and dispose of the single stat pocket and the gasket.



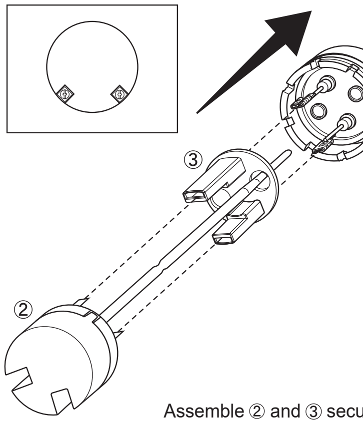
3

Adjust the position of the immersion heater so that the thermostat pockets are located at the upper right and lower left as shown in the figure. Fasten the back nut securely to prevent water leakage. (Recommended torque = 10 N•m)



4

Attach the tab cover ③ to the immersion heater. Insert the thermostat into the upper right thermostat pocket.
Position the terminals on the thermostat head at the bottom as shown in the figure.

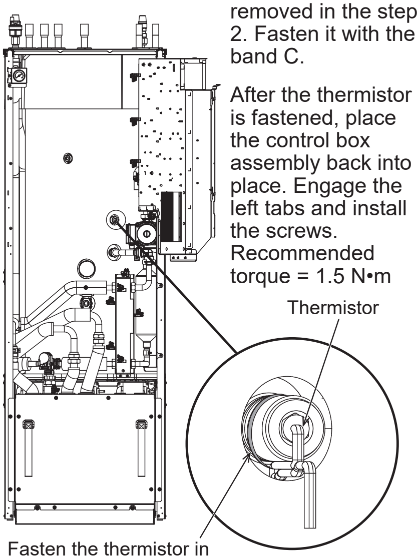


Assemble ② and ③ securely.

5

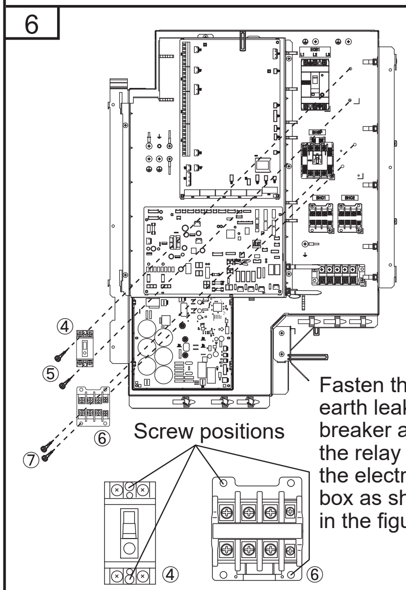
Mount the thermistor removed in the step 2. Fasten it with the band C.

After the thermistor is fastened, place the control box assembly back into place. Engage the left tabs and install the screws. Recommended torque = 1.5 N•m



Fasten the thermistor in the insertion opening with the band C.

6



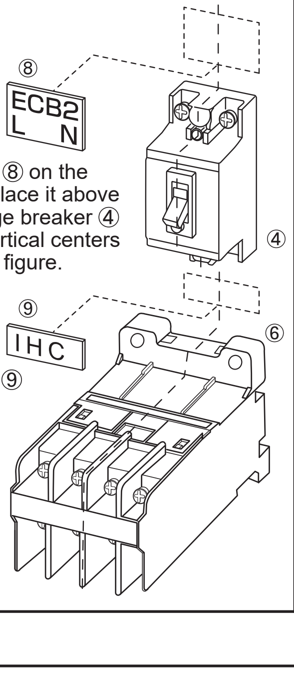
Fasten the earth leakage breaker and the relay on the electrical box as shown in the figure.

Recommended torque = 1.5 N•m

7

Attach the label ⑧ on the electrical box. Place it above the earth leakage breaker ④ and align the vertical centers as shown in the figure.

Attach the label ⑨ on the electrical box. Place it above the relay ⑥ and align the vertical centers as shown in the figure.



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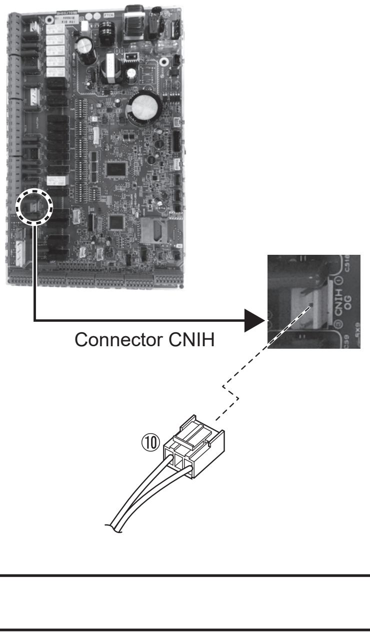

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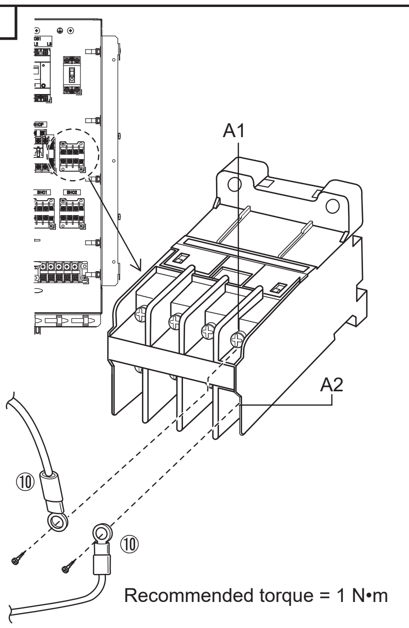
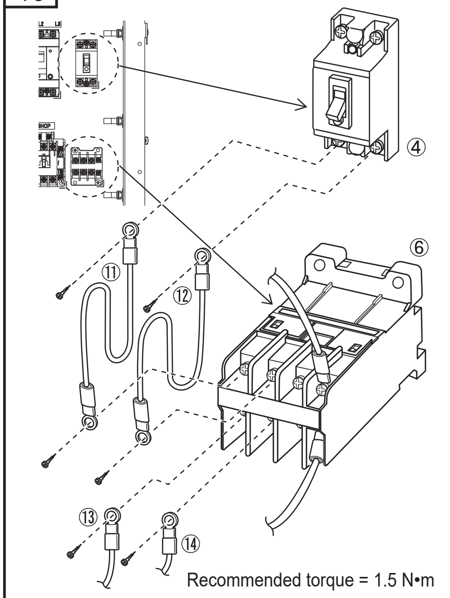


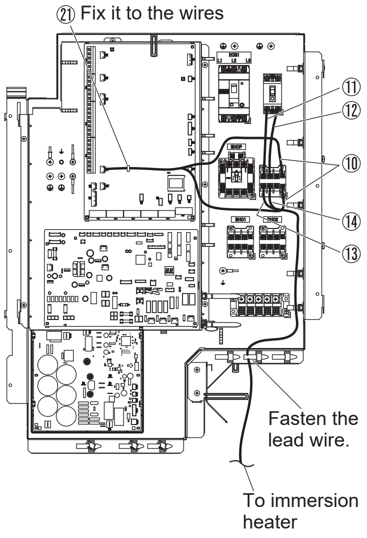
Recommended torque = 1 N•m

10



Recommended torque = 1.5 N•m

11

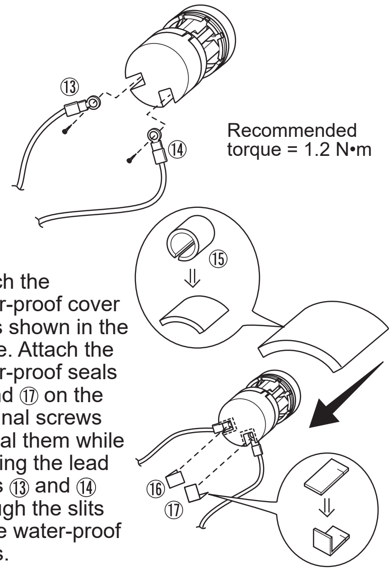


㉑ Fix it to the wires

Fasten the lead wire.

To immersion heater

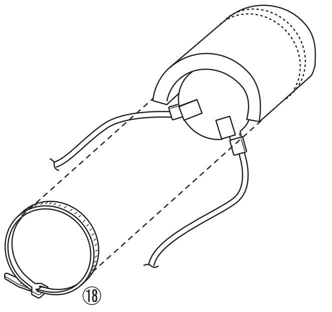
12



Recommended torque = 1.2 N•m

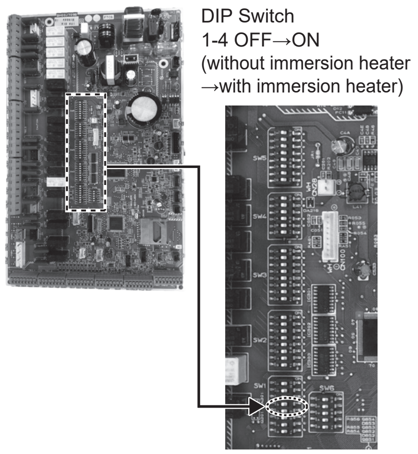
Attach the water-proof cover ⑮ as shown in the figure. Attach the water-proof seals ⑯ and ⑰ on the terminal screws to seal them while passing the lead wires ⑬ and ⑭ through the slits of the water-proof seals.

13



Fasten the water-proof cover ⑮ to the boss of the cylinder unit with the band ⑱.

14



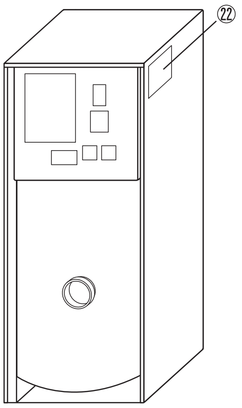
DIP Switch
1-4 OFF→ON
(without immersion heater
→with immersion heater)

15

For details of wiring to the earth leakage breaker, refer to the installation manual and the wiring diagram of the BTW unit. Fill the tank with water and make sure that no water leaks around the immersion heater.

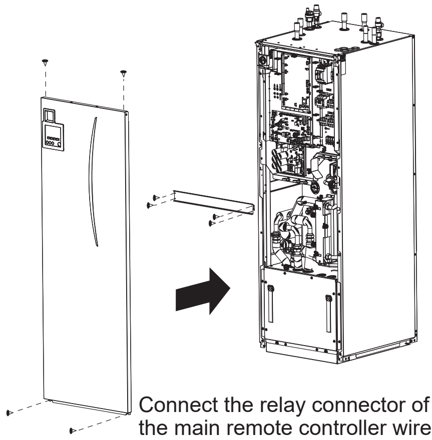
16

Attach the label ㉒. Do not cover or overlap the other labels.



17

Assemble in the reverse order of the step 1.
Recommended torque for the frame = 1.5 N•m
Recommended torque for the front panel = 3 N•m



Connect the relay connector of the main remote controller wires under the electrical box before installing the front panel.

MITSUBISHI ELECTRIC

CYLINDER UNIT OPTIONAL PARTS
EHPT ACCESSORIES for UK
PAC-WK02UK-E

INSTALLATION MANUAL

- Before starting installation, read the following description together with the installation manual included with the cylinder unit.
- Please read carefully and observe fully the following safety precautions.

⚠ WARNING	Precautions that must be observed to prevent injuries or death.

- After installation carry out a test run to ensure correct operation, then explain operation method and safety precautions to the end user.
  Tell your customers to keep this installation manual together with the operation manual, and when they give or sell this machine to any other person include this installation manual and operation manual with it.

⚠ WARNING

- Before installing any accessories on the cylinder unit ensure the unit is isolated from the power supply.
- Connections must be made securely and without tension on the terminals.
  The included component parts of the PAC-WK02UK-E EHPT ACCESSORIES for UK shall be used only for the purposes indicated in the installation manual.

In addition to annual servicing it is necessary to replace or inspect the ICG after a certain period of system operation. Please see table below for detailed instructions. Replacement and inspection of the ICG should always be done by a competent person with relevant training and qualifications.

Part which requires regular replacement

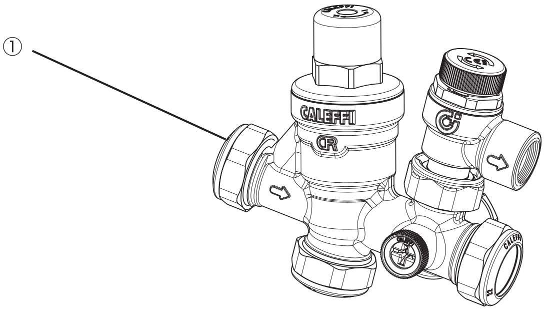
Part	Replace every	Possible failures
Inlet control group (ICG)	6 years	Water leakage due to brass corrosion (Dezincification)

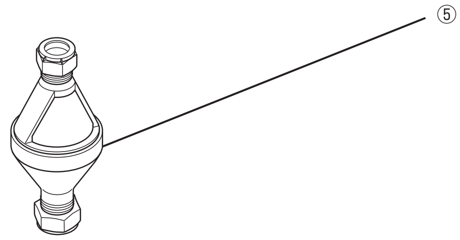
4 EHPT accessories for UK

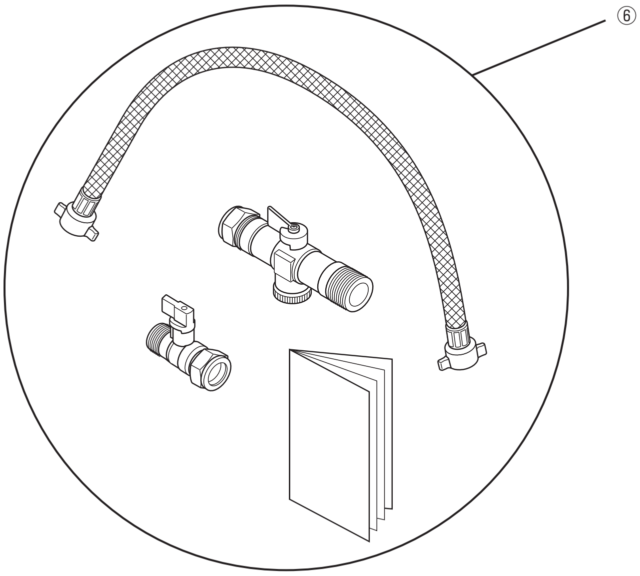
Contents

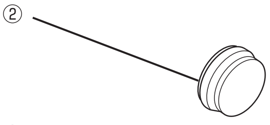
	Item	Piece(s)
①	Unvented inlet control group (Pressure reducing valve/strainer/check valves/ expansion relief valve).	1
②	Blanking cap (22mm)	1
③	Nipple & Olive (15mm)	1
④	Expansion vessel 18L (R3/4”)	1
⑤	Tundish (15mm, 22mm)	2
⑥	Filling loop (15mm)	1
⑦	Installation manual	1

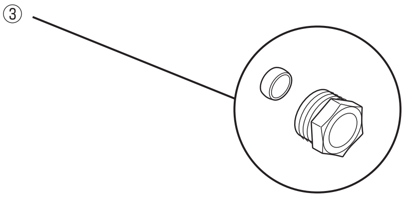
The parts ① to ⑤ are provided to meet the requirements for the UK Building Regulation G3.
The parts ② and ③ are accessory parts for the unvented inlet control group.
The pressure reducing valve is factory set at 3.5 bar and the expansion relief valve at 6.0 bar.
The gas charge pressure for the expansion vessel is 3.5 bar.

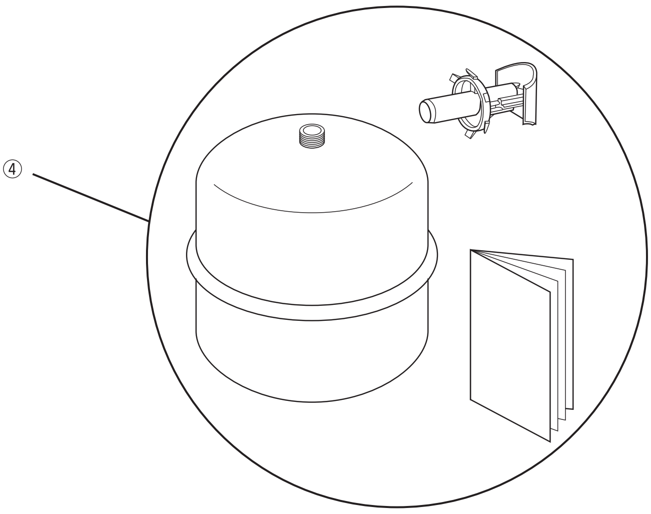


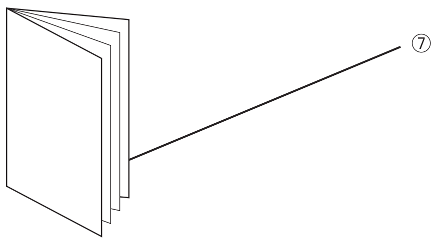








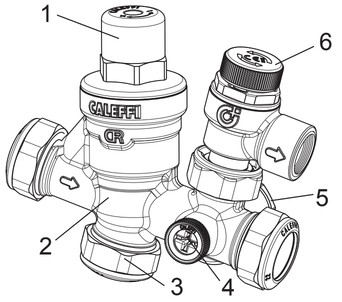




Installation

Carefully follow these instructions and ensure that the installation conforms to UK Building Regulation G3 and the Water Supply Regulations.

Unvented inlet control group (ICG)



Item	Component
1	Pressure reducing valve
2	Manifold block (Including check valve)
3	22mm balanced cold water take-off
4	Pressure gauge port
5	3/4" connection for exp.vessel
6	Expansion relief valve

It is recommended that isolating valves are installed upstream and downstream to facilitate any future maintenance.
For safety reasons, it is essential that no isolation valve is fitted between the ICG and the cold water inlet connection of the cylinder.
Install the pressure reducing valve with its embossed arrow pointing in the direction of flow.
Ensure the expansion relief valve is seated correctly into the main block/ casting and its nut is fully tightened to secure its position.
Ensure that the expansion relief valve discharge pipework has a continuous fall and terminates via a tundish and in such a position as not to cause injury.
The first 22mm connection (Item 3 above) can be used to provide an unbalanced cold water supply. It must never be used to connect the expansion vessel. If not used, use the blanking cap (22mm) supplied.
The small black plug is a connection prepared for a pressure gauge, which is available when specified.
On the opposite side of the manifold to the pressure gauge connection, there is a 3/4" plastic plugged connection that may be used for direct mounting to the expansion vessel if required.

Expansion vessel

Install the expansion vessel between the pressure reducing valve and the cylinder unit or by using the appropriate port of the ICG. (Ensure the expansion vessel is connected to an active section of the potable pipework and is NOT directly connected to any redundant “Dead-leg” section of pipework.)

Note:

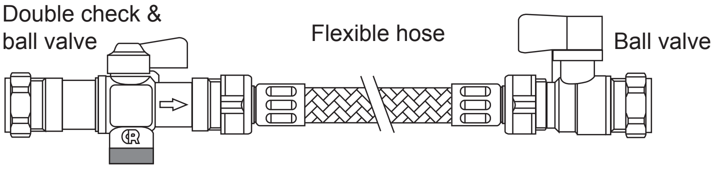
- ■ When connecting the ICG to the expansion vessel using a field-supplied flexible hose, provide sufficient bending radius to prevent abnormal noise.
- ■ For more details about the following instructions, refer to the installation manual provided with the potable expansion vessel, as well as this manual.
  - • If the expansion vessel is installed separately to the ICG (ie. direct in-line) then the supplied flow diverter can be used.
  - • ICG should always be installed on cold water supply to cylinder to comply with WRAS/Building Regulation G3.
  - • The ICG. should be installed above the level of the T&P valve. This will avoid the requirement to drain cylinder when servicing the ICG in future.
  - • Expansion vessel should be installed hanging from connecting pipework.
  - • Expansion vessel should be fastened to a suitable surface (wall etc.) to prevent strain on pipe connection.
  - • Gas inlet screw type of expansion vessel: 8V1

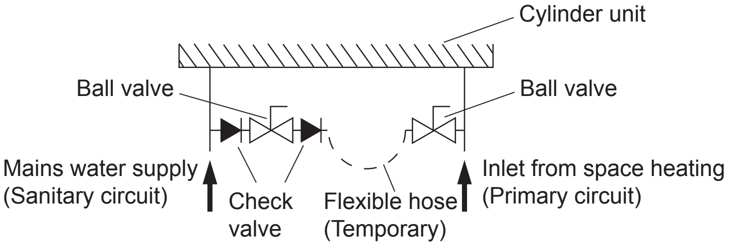
Tundish

Install the tundishes in accordance with the UK Building Regulation G3. For more details refer to the "Safety Device Discharge Arrangements" section in the installation manual for the cylinder unit .

Filling loop

Note: Refer to the installation manual provided with the filling loop as well.





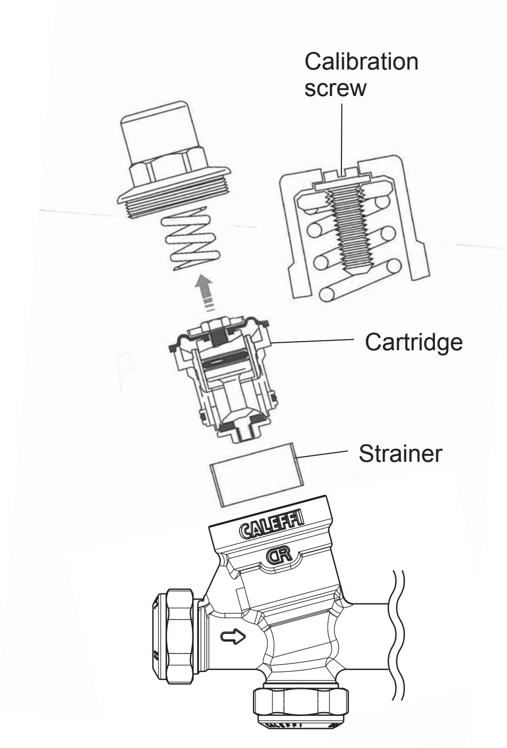
The procedure and recommendations specified in the cylinder unit installation manual for filling and pressurising the primary heating circuit of the cylinder unit must be followed.
The heating return pipe and the cold water supply pipe must be provided with tees with a short length of R250 (half hard) copper tube in the side port.
Fit the double check valve to the pipe from the mains supply pipe using the compression joint, which complies with BS EN 1252-2, ensuring that the flow through the valve is in the same direction as the arrow on the body.
Fit the ball valve to the pipe from the heating return using the compression joint.
Connect the flexible hose between the double check valve and ball valve and tighten the wing nuts to make water tight joints.
Open both ball valves and fill the system, when the pressure starts to increase on the cylinder unit pressure gauge partially close the ball valve on the double check valve to control the pressure to that specified by the cylinder unit installation manual.
Once filling and pressurisation have been completed, close both ball valves and remove the flexible hose.
If the flexible hose is removed it is recommended that caps (not supplied) are fitted to both valve connections to prevent any potential leakage.

Maintenance and service

Pressure reducing valve

Under normal circumstances the pressure reducing valve should not require any maintenance, but regular inspection and cleaning is recommended.
If the strainer or cartridge are damaged replace entire valve.

1. Isolate the water supply to the pressure reducing valve.
2. Unscrew anticlockwise the central calibration screw to decompress the spring.
3. Remove the plastic cover using a spanner on the hexagon faces.
4. Extract the cartridge with the aid of long nosed pliers to grip the head of the set screw.
5. Remove the strainer element.
   *If the strainer or cartridge are damaged replace item(s) accordingly.
6. Clean the strainer element and cartridge under clean running water.
7. Replace the strainer, cartridge and cover.
8. Turn on the water supply and check for leakage.
9. Re-calibrate the pressure reducing valve. (Rotate it clockwise to increase the outlet pressure and anticlockwise to reduce it.)



Expansion relief valve

Manually operate (rotate head anti-clockwise) the expansion relief valve to ensure free water flow through discharge port and connecting pipe.

Expansion vessel

The pre-charge gas pressure must be checked annually to make sure that the expansion vessel is in working order.
If water discharges through the expansion relief valve, it is possible that the expansion vessel's existing gas pre-charge pressure is too low.
Check this in the following manner:

1. Close the water supply.
2. Drain the sanitary circuit until the pressure is 0 bar.
3. Check the pre-charge.
4. Increase the gas pre-charge pressure with nitrogen/air to 3.5 bar.

Make sure that the pre-charge is not higher than the maximum working pressure.
If the expansion vessel cannot be pressurized, it is possible that the membrane has a leak.
If so, you must then replace the expansion vessel.

MITSUBISHI ELECTRIC

PARTS NAME : HIGH TEMP. THERMISTOR
PARTS No. : PAC-TH012HT-E
SALES MODEL CODE : 7H1THR7

MITSUBISHI ELECTRIC CORPORATION

INSTALLATION MANUAL

- Before starting installation, read the following description together with the installation manual included with the unit.
- Please read carefully and observe fully the following safety precautions.

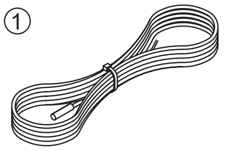
⚠ WARNING	Precautions that must be observed to prevent injuries or death.

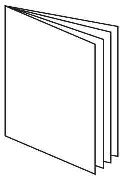
- After installation carry out a test run to ensure correct operation, then explain operation method and safety precautions to the end user. Tell your customers to keep this installation manual together with the operation manual, and when they give or sell this machine to any other person include this installation manual and operation manual with it.

⚠WARNING

- Before installing any accessories on the unit ensure the unit is isolated from the power supply.
- Connections must be made securely and without tension on the terminals.
- All electrical work should be performed by a qualified technician according to local regulations and the instructions given in this manual.
- The flow temperature from boiler MUST NOT exceed 70 °C (*1).
- Before running Floor Dry-up function, disconnect IN4, IN5, IN11 and IN12 wirings. (*2)
  *1 When the temperature sensed by flow temp. thermistor or return temp. thermistor exceeds 80°C, FTC will detect it as overheat error.
  *2 High-temperature water produced by boiler operation could flow in and this could cause a big damage to the floor.
- Make sure to install the boiler that has overheat protection and output flow temperature control.
- Install the sensing part in a place where a user cannot touch it.

<Included items>

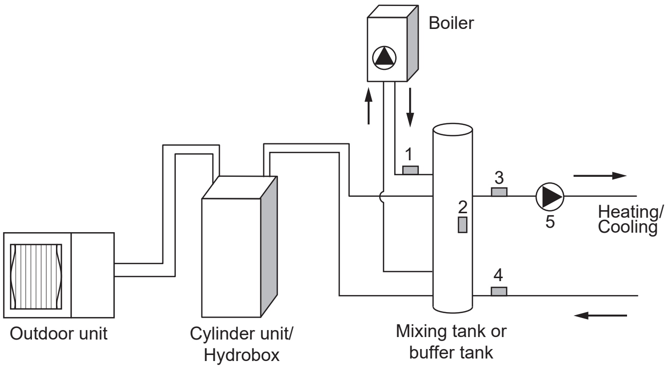
①


②


	Item	Piece
①	High temp. thermistor 5 m, color: black	1
②	Installation manual (This paper)	1

■ Local system

The high temp. thermistor is used as the boiler flow temp. thermistor (THWB1) or the mixing tank temp. thermistor (THW10).



Number	Component
1	Boiler flow temp. thermistor (THWB1)
2	Mixing tank temp. thermistor (THW10)
3	Flow temp. thermistor (THW6) (option)
4	Return temp. thermistor (THW7) (option)
5	Circulation pump (local supply)

1. Boiler operation

FTC can control boiler only in space heating mode.
When boiler is running, the heating operation is regulated by the room thermostat connected to FTC.

IMPORTANT NOTE: Be sure to connect room thermostat to FTC.

5 High temp. thermistor

1.1 Wiring for boiler control

<Thermistor inputs>

Name	Terminal block	Item	Optional part model
THW6	TBI.5 7-8	Thermistor (Zone1 flow water temp.) (Option)	PAC-TH011-E
THW7	TBI.5 5-6	Thermistor (Zone1 return water temp.) (Option)	
THWB1	TBI.6 7-8 [*1] TBI.6 8-9 [*2]	Thermistor (Boiler flow water temp.)	PAC-TH012HT-E

*1 For E*****-***C/D model
*2 For E*****-***E model

<Outputs>

Connect OUT10 to boiler external input (Room thermostat).

Name	Terminal block	Item	OFF	ON	Signal/Max current
OUT10	TBO.3 1-2	Boiler output	OFF	ON	non-voltage contact • 220 - 240V AC (30V DC) 0.5 A or less • 10 mA 5V DC or more

Note: • OUT10 is separated by basic insulation from other external output signals in FTC.
- Connect the surge absorber according to the load at site.
- When the wires are wired to adjacent terminals, use ring terminals and insulate the wires.
- Do not splice the wiring to extend or shorten it, or this could affect correct monitoring of each temperature. If the wiring is too long, bundle it with a strap to adjust the length.

1.2 Dip switch setting

Set Dip SW1-1 and SW2-6 to ON .

Dip switch	Function	OFF	ON
SW1-1	Boiler	WITHOUT Boiler	WITH Boiler
SW2-6	Mixing tank	WITHOUT Mixing tank	WITH Mixing tank

1.3 Main controller setting

<Service menu> → “Heat source setting”
→ “Operation settings” → “Boiler operation”

Menu		Description
Heat source setting	Hybrid	Automatically switch "Heat pump" and "Boiler".
Hybrid settings	Outdoor ambient temp.	Set the ambient temperature to switch to Boiler operation.
	Priority mode	Set which one to prioritize (Ambient or Cost or CO_2).
	Outdoor ambient temp. rise	Difference in temperature to switch to Heat pump operation.
Intelligent settings	Energy price	Enter unit prices of electricity, and gas or oil (depending on boiler type) per 1 kWh.
	CO_2 emission	Enter CO_2 emission amount from electricity or boiler (gas or oil).
	Heat source	Enter outdoor unit capacity, electric heater capacity, and boiler efficiency.

2. Buffer tank control SG

Buffer tank control operates when heating (or cooling) function is active in the smart grid ready*.
* Refer to the installation manual of indoor unit.

2.1 Wiring for buffer tank control

<Thermistor inputs>

Name	Terminal block	Item	Optional part model
THW6	TBI.5 7-8	Thermistor (Zone1 flow water temp.) (Option)	PAC-TH011-E
THW7	TBI.5 5-6	Thermistor (Zone1 return water temp.) (Option)	
THW10	TBI.6 5-6 [*1] TBI.6 6-7 [*2]	Thermistor (Mixing tank water temp.)	PAC-TH012HT-E

*1 For E*****-***C/D model
*2 For E*****-***E model

<Signal inputs>

<table>
<tr><th>Name</th><th>Terminal block</th><th>Item</th><th>OFF (open)</th><th>ON (short)</th></tr>
<tr><td>IN11</td><td>TBI.3 3-4</td><td rowspan="2">Smart grid ready input</td><td colspan="2" rowspan="2">
<table>
<tr><th>IN11</th><th>IN12</th><th>Meaning</th></tr>
<tr><td>OFF (open)</td><td>OFF (open)</td><td>Normal operation</td></tr>
<tr><td>ON (short)</td><td>OFF (open)</td><td>Switch-on recommendation</td></tr>
<tr><td>OFF (open)</td><td>ON (short)</td><td>Switch-off command</td></tr>
<tr><td>ON (short)</td><td>ON (short)</td><td>Switch-on command</td></tr>
</table>
</td></tr>
<tr><td>IN12</td><td>TBI.3 1-2</td></tr>
</table>

2.2 Dip switch setting

Set Dip SW2-6 to ON.

Dip switch	Function	OFF	ON
SW2-6	Mixing tank	WITHOUT Mixing tank	WITH Mixing tank

2.3 Main controller setting

<Service menu> → “Operation settings” → “Smart grid ready”

Name			Description
Heating	Target temp.	↑🌡	Target temp. of "Switch-on recommendation".
		⬆🌡	Target temp. of "Switch-on command".
Cooling	Target temp.	↓🌡	Target temp. of "Switch-on recommendation".
		⬇🌡	Target temp. of "Switch-on command".
Pump cycles	On/Off		When set to "On", the water circulation pump is operated intermittently according to the heat storage temp. of the buffer tank.
	Interval		Re-judgment of the pump on/off time.

MITSUBISHI ELECTRIC

PARTS NAME : HIGH TEMP. THERMISTOR
PARTS No. : PAC-TH012HTL-E
SALES MODEL CODE : 7H1THR8

MITSUBISHI ELECTRIC CORPORATION

INSTALLATION MANUAL

- Before starting installation, read the following description together with the installation manual included with the unit.
- Please read carefully and observe fully the following safety precautions.

⚠ WARNING	Precautions that must be observed to prevent injuries or death.

- After installation carry out a test run to ensure correct operation, then explain operation method and safety precautions to the end user. Tell your customers to keep this installation manual together with the operation manual, and when they give or sell this machine to any other person include this installation manual and operation manual with it.

⚠WARNING

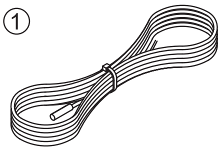
- Before installing any accessories on the unit ensure the unit is isolated from the power supply.
- Connections must be made securely and without tension on the terminals.
- All electrical work should be performed by a qualified technician according to local regulations and the instructions given in this manual.
- The flow temperature from boiler MUST NOT exceed 70 °C (*1).
- Before running Floor Dry-up function, disconnect IN4, IN5, IN11 and IN12 wirings. (*2)

*1 When the temperature sensed by flow temp. thermistor or return temp. thermistor exceeds 80°C, FTC will detect it as overheat error.
*2 High-temperature water produced by boiler operation could flow in and this could cause a big damage to the floor.

- Make sure to install the boiler that has overheat protection and output flow temperature control.
- Install the sensing part in a place where a user cannot touch it.

<Included items>

①



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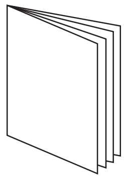
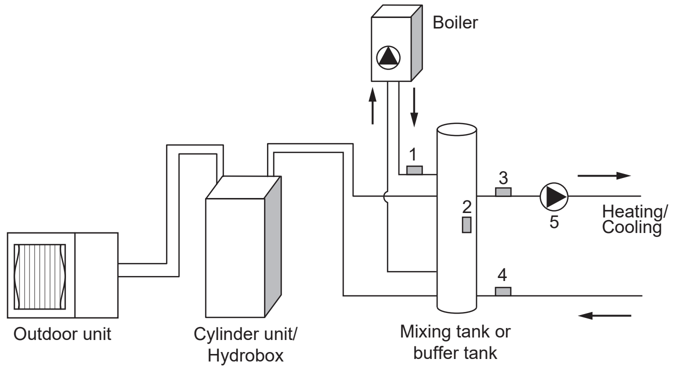


	Item	Piece
①	High temp. thermistor 30 m, color: black	1
②	Installation manual (This paper)	1

■ Local system

The high temp. thermistor is used as the boiler flow temp. thermistor (THWB1) or the mixing tank temp. thermistor (THW10).



Number	Component
1	Boiler flow temp. thermistor (THWB1)
2	Mixing tank temp. thermistor (THW10)
3	Flow temp. thermistor (THW6) (option)
4	Return temp. thermistor (THW7) (option)
5	Circulation pump (local supply)

1. Boiler operation

FTC can control boiler only in space heating mode.
When boiler is running, the heating operation is regulated by the room thermostat connected to FTC.

IMPORTANT NOTE: Be sure to connect room thermostat to FTC.

6 High temp. thermistor

1.1 Wiring for boiler control

<Thermistor inputs>

Name	Terminal block	Item	Optional part model
THW6	TBI.5 7-8	Thermistor (Zone1 flow water temp.) (Option)	PAC-TH011-E
THW7	TBI.5 5-6	Thermistor (Zone1 return water temp.) (Option)	
THWB1	TBI.6 7-8 [*1] TBI.6 8-9 [*2]	Thermistor (Boiler flow water temp.)	PAC-TH012HTL-E

*1 For E*****-***C/D model
*2 For E*****-***E model

<Outputs>

Connect OUT10 to boiler external input (Room thermostat).

Name	Terminal block	Item	OFF	ON	Signal/Max current
OUT10	TBO.3 1-2	Boiler output	OFF	ON	non-voltage contact • 220 - 240V AC (30V DC) 0.5 A or less • 10 mA 5V DC or more

Note:
- OUT10 is separated by basic insulation from other external output signals in FTC.
- Connect the surge absorber according to the load at site.
- When the wires are wired to adjacent terminals, use ring terminals and insulate the wires.
- Do not splice the wiring to extend or shorten it, or this could affect correct monitoring of each temperature. If the wiring is too long, bundle it with a strap to adjust the length.

1.2 Dip switch setting

Set Dip SW1-1 and SW2-6 to ON .

Dip switch	Function	OFF	ON
SW1-1	Boiler	WITHOUT Boiler	WITH Boiler
SW2-6	Mixing tank	WITHOUT Mixing tank	WITH Mixing tank

1.3 Main controller setting

<Service menu> → "Heat source setting"
→ "Operation settings" → "Boiler operation"

Menu		Description
Heat source setting	Hybrid	Automatically switch "Heat pump" and "Boiler".
Hybrid settings	Outdoor ambient temp.	Set the ambient temperature to switch to Boiler operation.
	Priority mode	Set which one to prioritize (Ambient or Cost or CO_2).
	Outdoor ambient temp. rise	Difference in temperature to switch to Heat pump operation.
Intelligent settings	Energy price	Enter unit prices of electricity, and gas or oil (depending on boiler type) per 1 kWh.
	CO_2 emission	Enter CO_2 emission amount from electricity or boiler (gas or oil).
	Heat source	Enter outdoor unit capacity, electric heater capacity, and boiler efficiency.

2. Buffer tank control SG

Buffer tank control operates when heating (or cooling) function is active in the smart grid ready*.
* Refer to the installation manual of indoor unit.

2.1 Wiring for buffer tank control

<Thermistor inputs>

Name	Terminal block	Item	Optional part model
THW6	TBI.5 7-8	Thermistor (Zone1 flow water temp.) (Option)	PAC-TH011-E
THW7	TBI.5 5-6	Thermistor (Zone1 return water temp.) (Option)	
THW10	TBI.6 5-6 [*1] TBI.6 6-7 [*2]	Thermistor (Mixing tank water temp.)	PAC-TH012HTL-E

*1 For E*****-***C/D model
*2 For E*****-***E model

<Signal inputs>

<table>
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<tr><td>ON (short)</td><td>ON (short)</td><td>Switch-on command</td></tr>
</table>
</td></tr>
<tr><td>IN12</td><td>TBI.3 1-2</td></tr>
</table>

2.2 Dip switch setting

Set Dip SW2-6 to ON.

Dip switch	Function	OFF	ON
SW2-6	Mixing tank	WITHOUT Mixing tank	WITH Mixing tank

2.3 Main controller setting

<Service menu> → "Operation settings" → "Smart grid ready"

Name			Description
Heating	Target temp.	↑🌡	Target temp. of "Switch-on recommendation".
		⇈🌡	Target temp. of "Switch-on command".
Cooling	Target temp.	↓🌡	Target temp. of "Switch-on recommendation".
		⇊🌡	Target temp. of "Switch-on command".
Pump cycles	On/Off		When set to "On", the water circulation pump is operated intermittently according to the heat storage temp. of the buffer tank.
	Interval		Re-judgment of the pump on/off time.

MITSUBISHI
ELECTRIC

ATW INDOOR UNIT OPTIONAL PARTS
2 ZONE KIT
PAC-TZ02-E2

INSTALLATION MANUAL

- This 2 zone kit MUST be used with Cylinder unit or Hydrobox **except for ERSE models**.
- Before starting installation, read the following description together with the installation manual included with the Cylinder unit (Hydrobox).
- Please read carefully and observe fully the following safety precautions.

⚠ WARNING	Precaution that must be observed to prevent injuries or death.
⚠ CAUTION	Incorrect handling could lead to injury or damage to house and household articles.

- After installation, carry out a test run to ensure correct operation, then explain operation method and safety precautions to the end user.
  Tell your customers to keep this installation manual, and when they give or sell this machine to any other person include this installation manual with it.

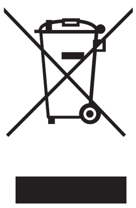
⚠WARNING

- If Cylinder unit (Hydrobox) has already been connected to the power supply, ensure circuit breaker is off before carrying out electrical work.
- If the 2 zone kit is installed incorrectly or modified after installation by the user, water may leak or 2 zone kit may fall from Cylinder unit or wall.
- All installation should be performed by a qualified technician according to local regulations and the instructions given in this manual.
- Connections must be made securely and without tension on the terminals.

⚠CAUTION

- The 2 zone kit must be installed by 2 or more people.
- All exposed water pipework should be insulated to prevent unnecessary heat loss and condensation.
- To also use the 2 zone kit in Cooling mode, securely apply heat-insulation to draining pipework. If heat-insulation is inadequate, condensation could occur on the surface of pipes and dew could drop on the floor or important goods.
- To prevent dirty water from draining onto the floor next to Cylinder unit or under Hydrobox, please connect appropriate discharge pipework from the 2 zone kit to its disposal location.
- Secure 2 zone kit to prevent it from falling.
- Do not hold piping or drain socket when moving the 2 zone kit.
- Avoid the connection of piping or drain socket from damage. Otherwise, it may cause water leakage.
- To prevent incorrect installation, please connect the flexible hose at the bend radius of 150 mm or more.
- The water flow rate between the Cylinder unit (Hydrobox) and the 2 zone kit must be greater than the total flow rate of Zone1 and Zone2. Otherwise, Zone1 and Zone2 may not be heated properly.

■ Disposal of the Unit



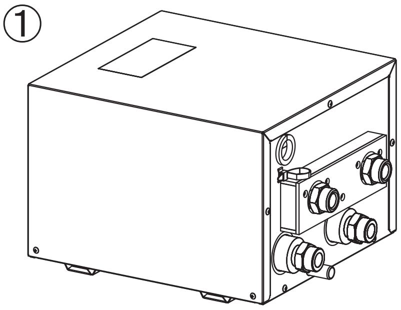
<Figure 1.1>

Note: This symbol mark is for EU countries only.
This symbol mark is according to the directive 2012/19/EU Article 14 Information for users and Annex IX, and/or to the directive 2006/66/EC Article 20 Information for end-users and Annex II.
Your Mitsubishi Electric heating system products have been manufactured with high quality materials and components which can be recycled and/or reused. The symbol in Figure 1.1 means that electrical and electronic equipment, batteries and accumulators at the end of their life, should be disposed of separately from your household waste.
If a chemical symbol is printed beneath the symbol (Figure 1.1), this chemical symbol means that the battery or accumulator contains a heavy metal at a certain concentration. This is indicated as follows;
Hg: mercury (0.0005%), Cd: cadmium (0.002%), Pb: lead (0.004%)
In the European Union there are separate collection systems for used electrical and electronic products, batteries and accumulators.
Please dispose of this equipment, batteries and accumulators correctly at your local community waste collection/recycling centre.
Contact your local Mitsubishi Electric dealer for country-specific details on disposal.
Please, help us to conserve the environment we live in.

Contents

	Item	Q'ty
①	2 zone kit	1
②	Flexible hose (520mm)	2
③	Connection joint	2
④	Fixing plate	2
⑤	Gasket	4
⑥	Installation manual	1
⑦	Screw (M5×8)	2

①



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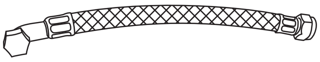
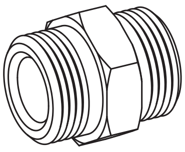
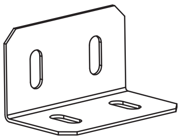


③



④



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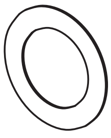

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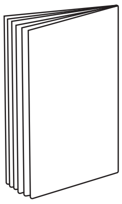

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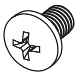
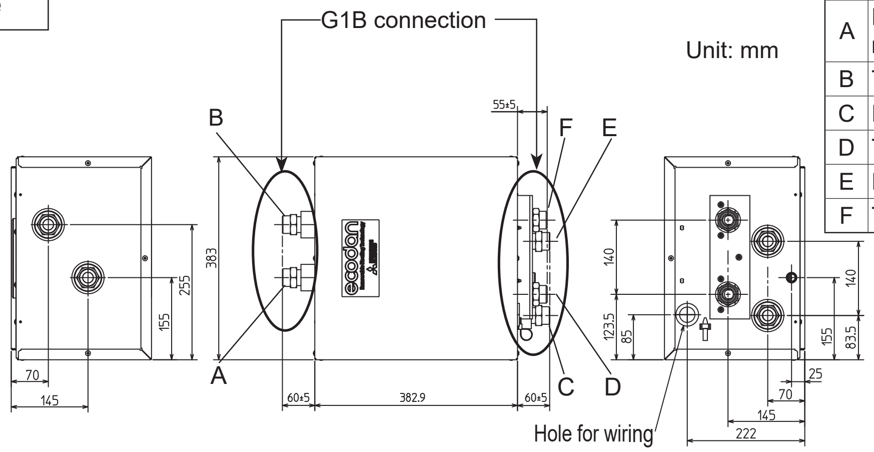
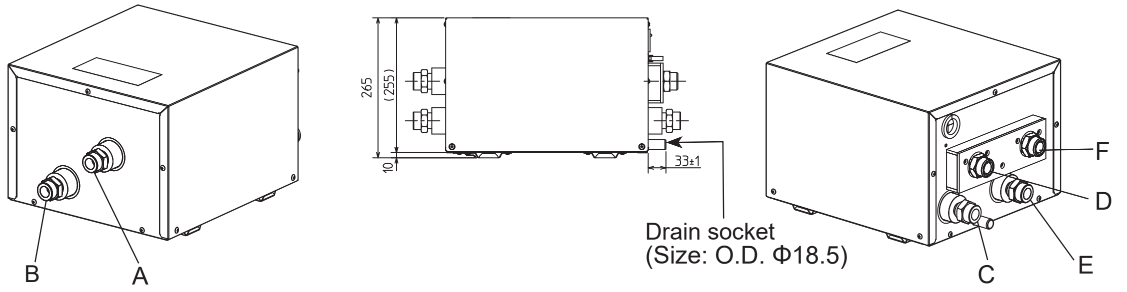


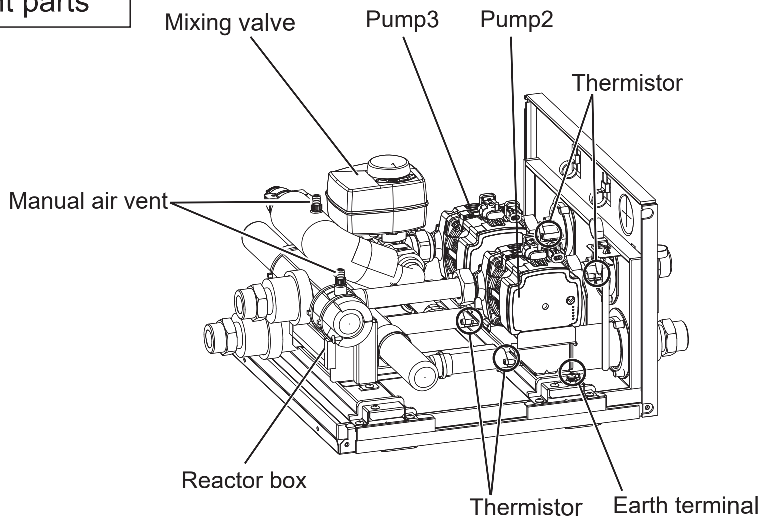
Outline

A	From Cylinder unit or Hydrobox
B	To Cylinder unit or Hydrobox
C	From Zone1
D	To Zone1
E	From Zone2
F	To Zone2



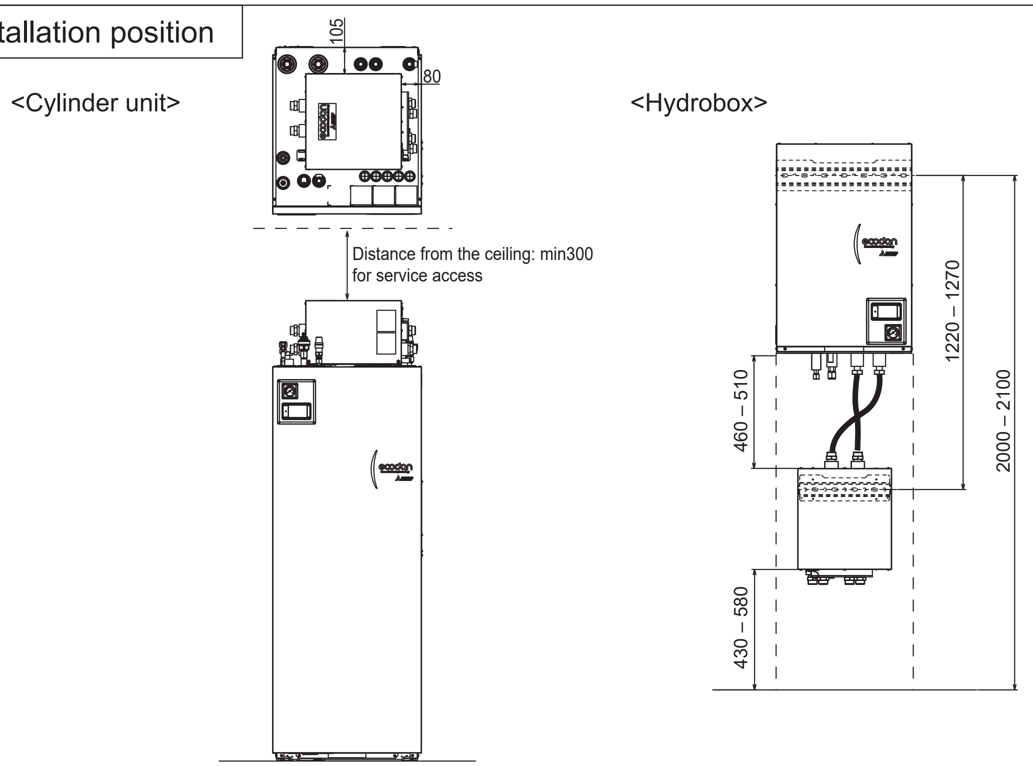


Component parts

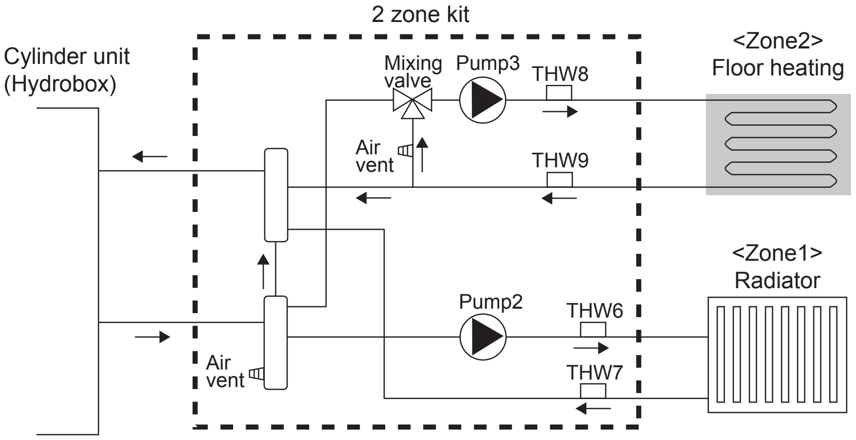


Installation position

Unit: mm



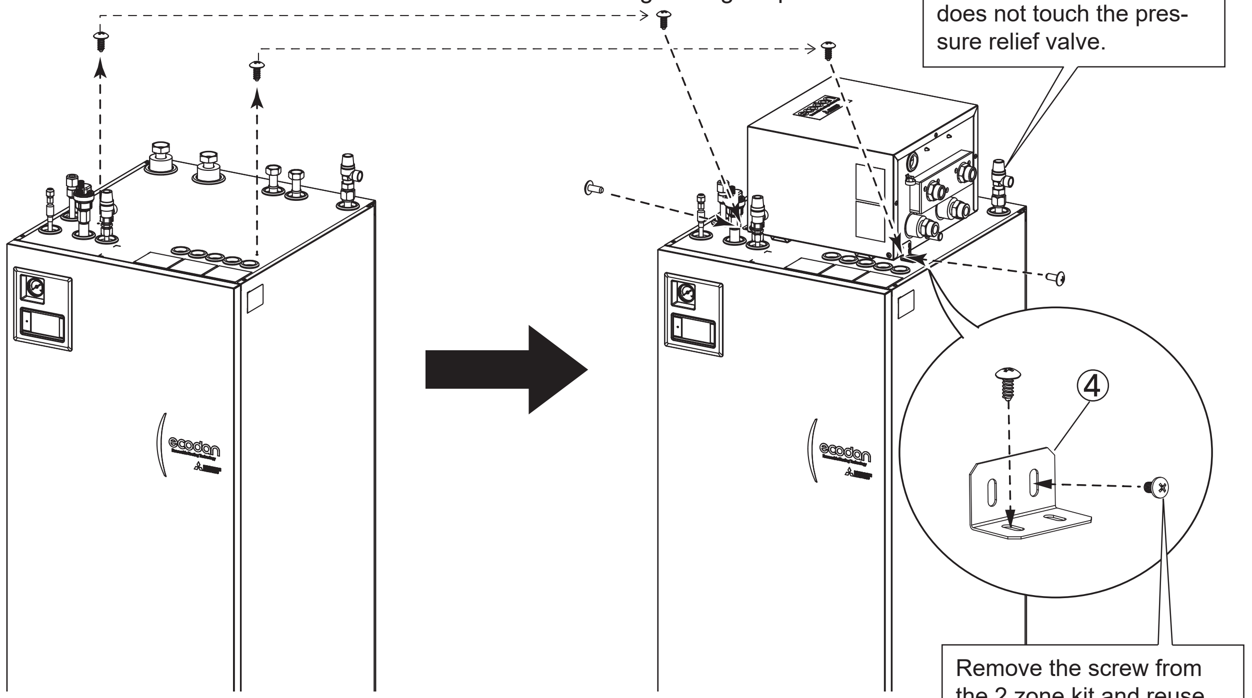
Water circuit and system figure



1	Case of Cylinder unit

Tightening torque:1.5N·m

Ensure that the 2 zone kit does not touch the pressure relief valve.

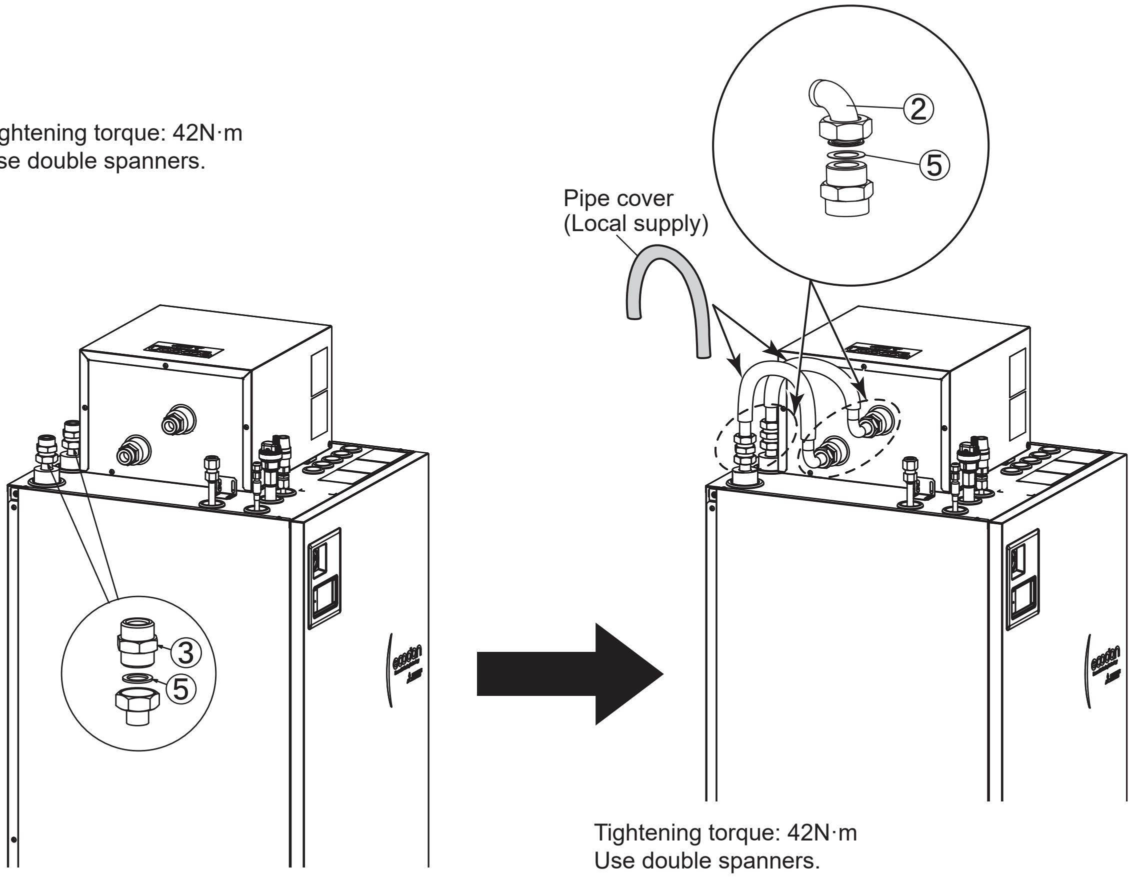


Remove the screw from the 2 zone kit and reuse to secure ④.

2	Case of Cylinder unit

Tightening torque: 42N·m
Use double spanners.

Pipe cover
(Local supply)



Tightening torque: 42N·m
Use double spanners.
Do not use the flexible hose below the bend radius of 150 mm.

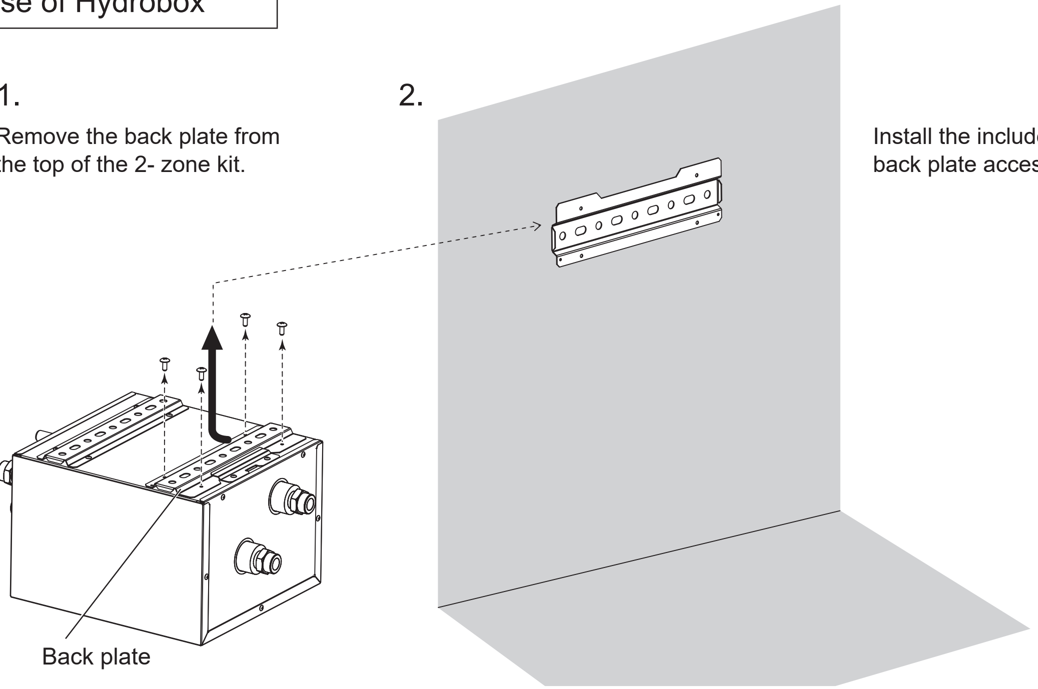
1 Case of Hydrobox

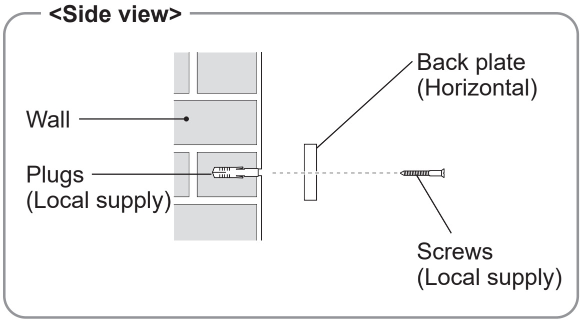
1\.

Remove the back plate from the top of the 2- zone kit.

2\.

Install the included back plate accessory.

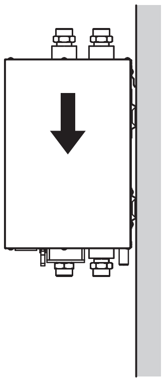




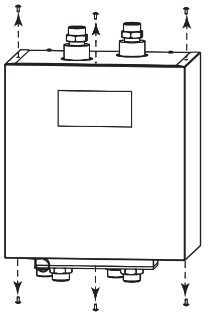
- Ensure that the notch is positioned at the TOP of the back plate. The back plate is provided with screw mounting holes that are round or oval. To prevent the 2- zone kit from falling off the wall, choose the appropriate number of holes or hole positions and horizontally secure the back plate to the appropriate wall location.

2 Case of Hydrobox

1\.

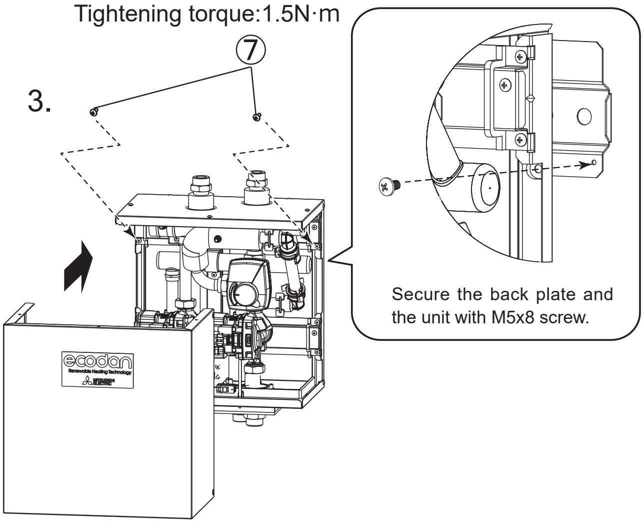


2\.



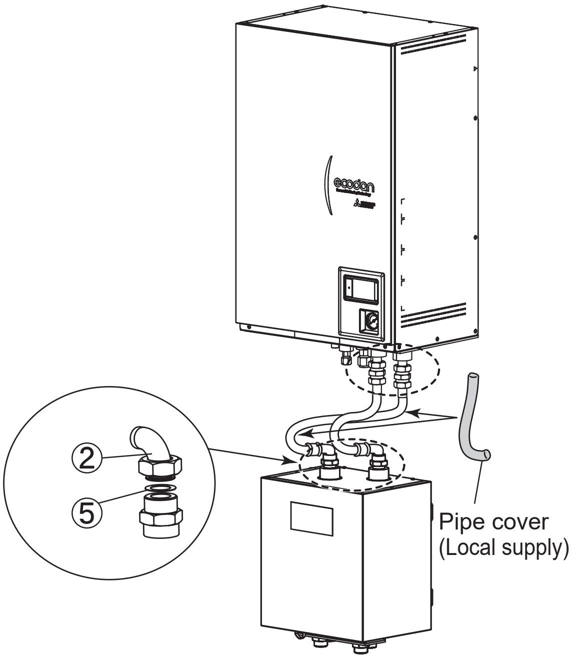
3\.

Tightening torque:1.5N·m



Secure the back plate and the unit with M5x8 screw.

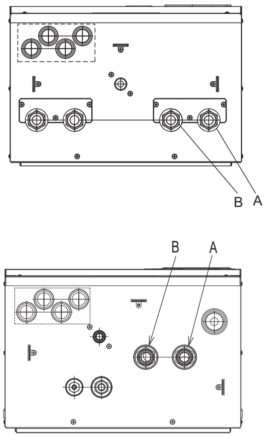
3 Case of Hydrobox



Tightening torque: 42N·m
Use double spanners.
Do not use the flexible hose below the bend radius of 150 mm.

<View from below>

Heating and cooling model

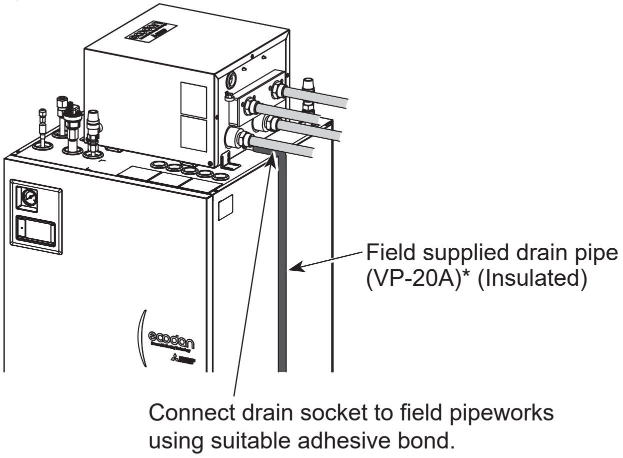


Letter	Pipe description
A	Space heating/Indirect DHW tank (primary) return connection
B	Space heating/Indirect DHW tank (primary) flow connection

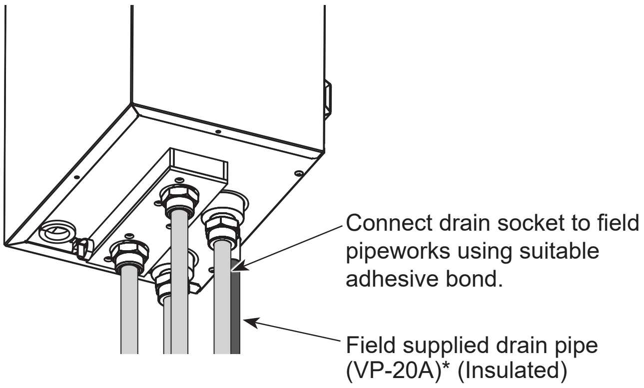
Drain piping

Connect the drain pipe only for Heating and Cooling models.

<Cylinder unit>



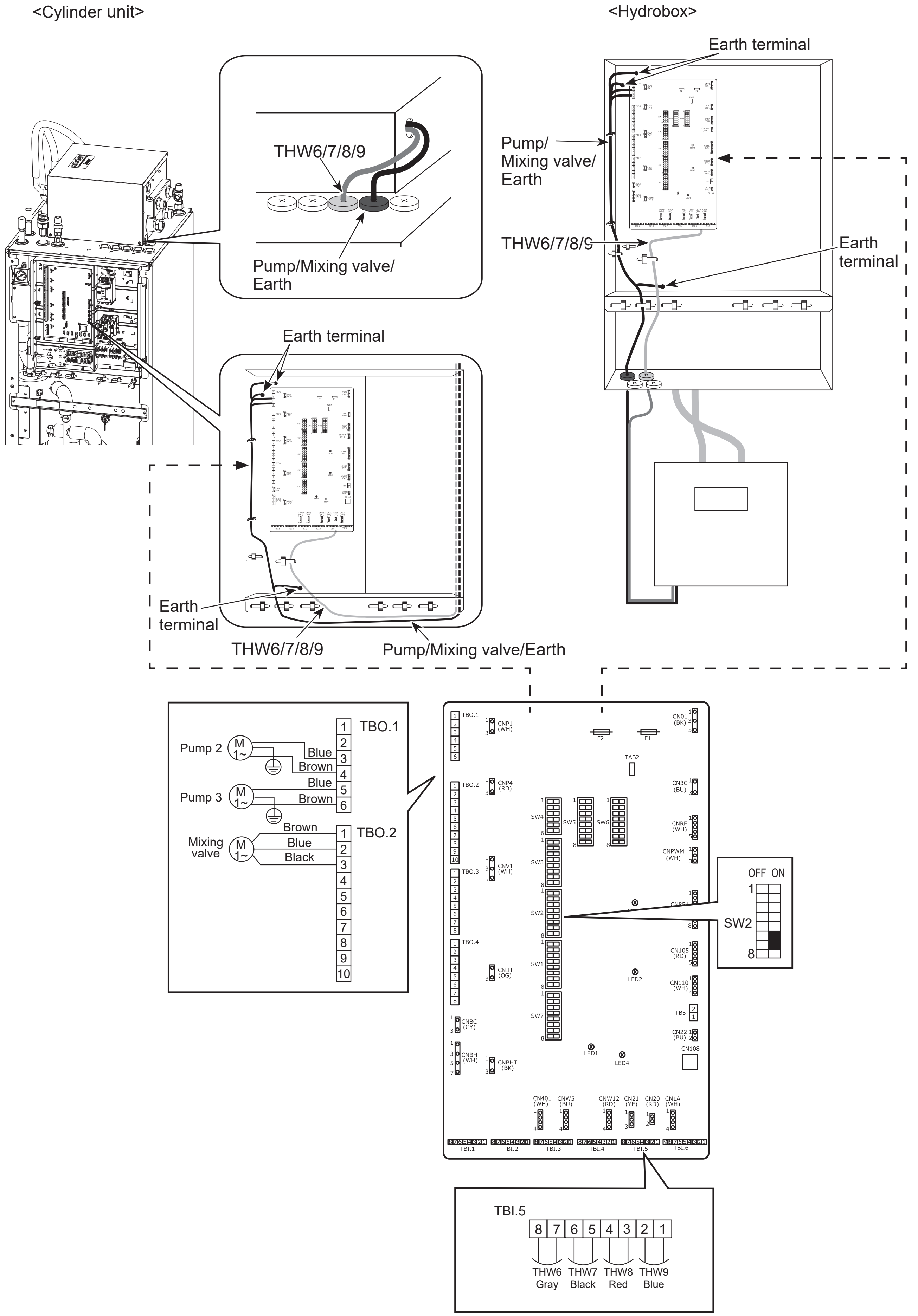
<Hydrobox>



NOTE
- Please use PVC pipe for drain piping.
- Use only compatible adhesive/glue for pipe joint.
- For proper drain-off, install pipework with gradient/fall of min. 1/100.
- Install pipe to fall continuously without bowing.
- Do not install any air purge points on condensate drain pipe run.
- Condensate drain pipe must discharge to suitable and safe outlet location. It should not be directly connected to any sewer-connected pipework that may introduce sulphurous gases/smells to the building.

* “VP-20” is a PVC pipe with an outside diameter of 26 mm and an inside diameter of 20 mm.

Wiring


<Cylinder unit>
<Hydrobox>
THW6/7/8/9
Pump/Mixing valve/ Earth
Earth terminal
Earth terminal
THW6/7/8/9
Pump/Mixing valve/Earth
Earth terminal
Pump/ Mixing valve/ Earth
THW6/7/8/9
Earth terminal
TBO.1
Pump 2
M 1~
Blue
Brown
Pump 3
M 1~
Blue
Brown
1
2
3
4
5
6
TBO.2
Mixing valve
M 1~
Brown
Blue
Black
1
2
3
4
5
6
7
8
9
10
SW2
OFF ON
1
8
TBI.5
8 7 6 5 4 3 2 1
THW6 Gray
THW7 Black
THW8 Red
THW9 Blue

DIP Switch settings of Cylinder unit (Hydrobox)

Setting the following DIP switches are necessary for 2 zone control. (See the installation manual of Cylinder unit or Hydrobox for more information.)

DIP switch	Function	OFF	ON	Setting when using 2 zone kit
SW2-6	Mixing tank	WITHOUT Mixing tank	WITH Mixing tank	ON
SW2-7	2-zone temperature control	Inactive	Active *	ON

* Active only when SW3-6 is set to OFF.

Specifications

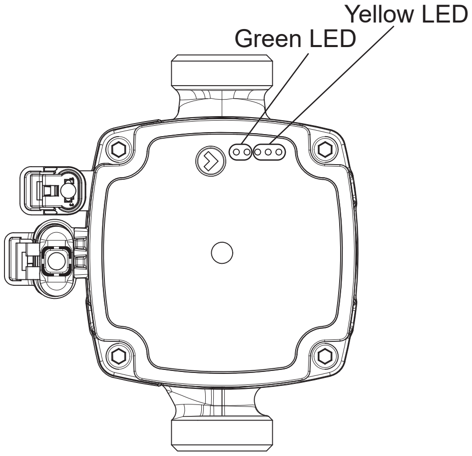
Model name	PAC-TZ02-E2
Dimension	265mm × 383mm × 383mm
Weight	17kg
Power supply	230V/single phase/50Hz from Cylinder unit or Hydrobox
Sound pressure level	28dB(A)
Sound power level	40dB(A)
Pump2, 3	Max. 52W/0.52A
	Max. head 7.0m [*1]
Mixing valve	5W
	Running time 90° 120s
Water flow rate range	Depend on outdoor unit

Note:

- Max. flow rate is 36.9L/min. If the flow rate exceeds 36.9L/min, pipes would be eroded.
- The water flow rate between the Cylinder unit or Hydrobox and the 2 zone kit must be greater than the total flow rate of Zone1 and Zone2.

Pump performance view

Display	Performance in % of MAX consumption
One green LED	0
Two green LED	0-25
Two green LED + one yellow LED	25-50
Two green LED + two yellow LED	50-75
Two green LED + three yellow LED	75-100



Pump key lock function

If you press the button for more than 10 seconds, you can toggle between enabling/disabling the key lock function.

Pump setting selection

You can check the setting by pressing the push button.
If you press the button for 2 to 10 seconds, the user interface switches to “setting selection” if the user interface is unlocked.
You can change the settings as below table.

Mode	LED1 green	LED2 green	LED3 yellow	LED4 yellow	LED5 yellow
PP1	●		●		
PP2	●		●	●	
PP3	●		●	●	●
PP AA	●				
CP1		●	●		
CP2		●	●	●	
CP3		●	●	●	●
CP AA		●			
CC1			●		
CC2			●	●	
CC max.			●	●	●

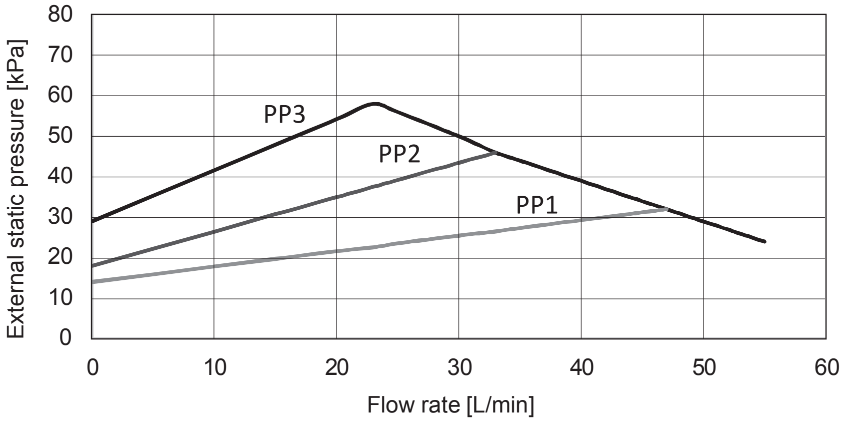
PP: Proportional Pressure

The head (pressure) is reduced at falling heat demand and increased at rising heat demand.

PP1: lowest proportional pressure curve
PP2: intermediate proportional pressure curve
PP3: highest proportional pressure curve
PP Auto Adapt: highest to lowest proportional pressure curve

The Auto Adapt function enables the circulator to adjust the pump performance automatically to the size of the system or the variations in load over time.

<Proportional Pressure>



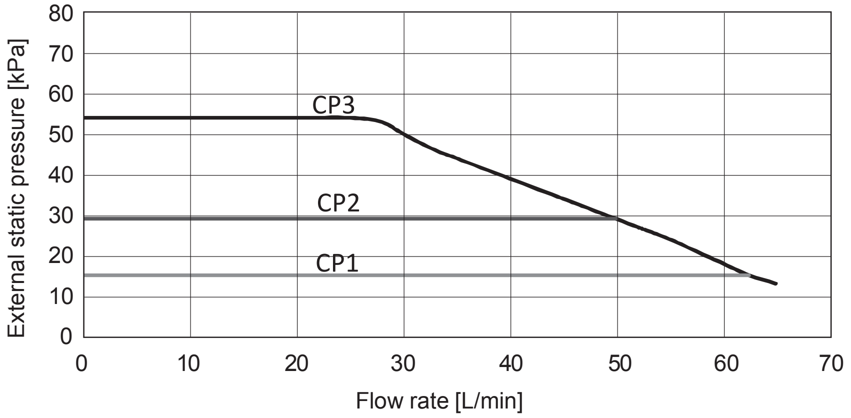
CP: Constant Pressure

The head (pressure) is kept constant, irrespective of the heat demand.

CP1: lowest constant pressure curve
CP2: intermediate constant pressure curve
CP3: highest constant pressure curve
CP Auto Adapt: highest to lowest constant pressure curve

The Auto Adapt function enables the circulator to adjust the pump performance automatically to the size of the system or the variations in load over time.

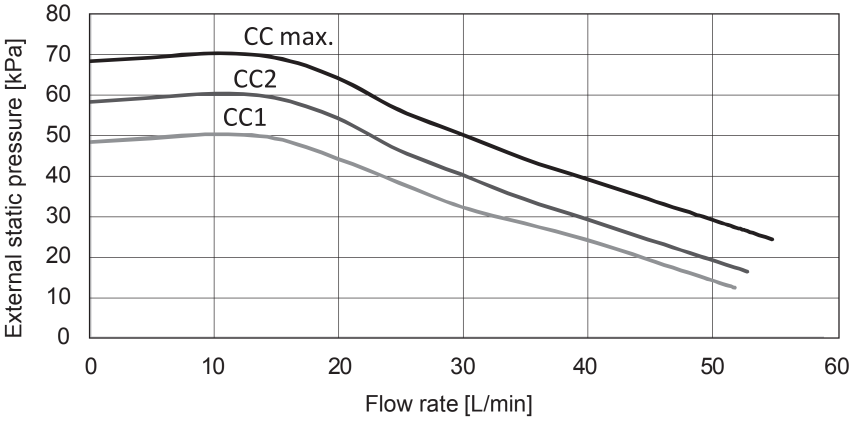
<Constant Pressure>



CC: Constant Curve

The circulator runs on a constant curve.

<Constant Curve>



PARTS NAME : PRESSURE SENSOR
PARTS No. : PAC-PS01-E
SALES MODEL CODE : 7H1PS01

MITSUBISHI ELECTRIC CORPORATION

INSTALLATION MANUAL

- Before starting installation, read the following description together with the installation manual included with the unit.
- Please read carefully and observe fully the following safety precautions.

⚠ WARNING	Precautions that must be observed to prevent injuries or death.

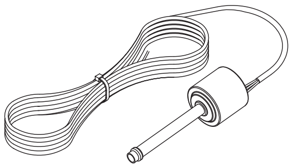
- After installation carry out a test run to ensure correct operation, then explain operation method and safety precautions to the end user. Tell your customers to keep this installation manual together with the operation manual, and when they give or sell this machine to any other person include this installation manual and operation manual with it.

⚠ WARNING

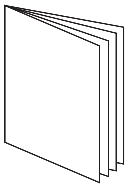
- Before installing any accessories on the unit ensure the unit is isolated from the power supply.
- Connections must be made securely and without tension on the terminals.
- All electrical work should be performed by a qualified technician according to local regulations and the instructions given in this manual.
- Do not remodel this part.

<Included items>

①



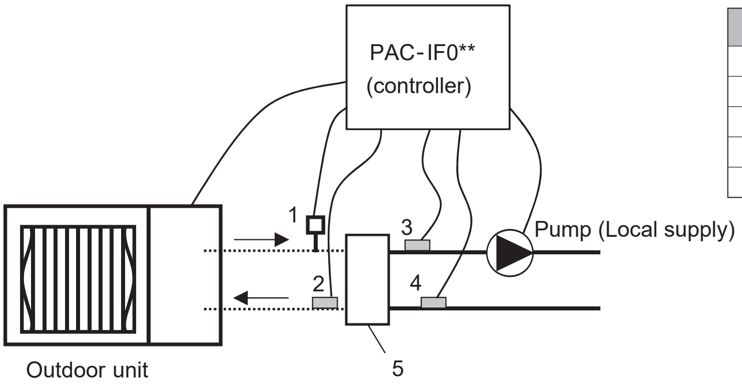
②



	Item	Piece
①	Pressure sensor 1.9 m	1
②	Installation manual (This paper)	1

■ Local system

Install the pressure sensor on the flow side of the refrigerant pipe.



Number	Component
1	Pressure sensor
2	Refrigerant liquid temp. thermistor (TH2)
3	Flow temp. thermistor (THW1)
4	Return temp. thermistor (THW2)
5	Plate heat exchanger (local supply)

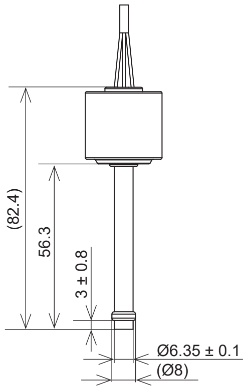
<Note>

Be sure to set this optional part when the combination of the below models are set.

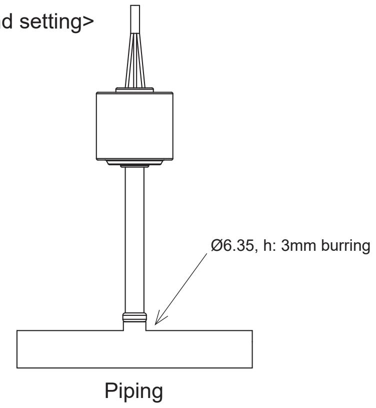
▪ Outdoor unit: SUZ-SWM**VA ▪ Indoor unit: PAC-IF071B-E
PAC-IF033****-E

1. Pipe work

Install the pressure sensor following the Note below.



<Recommend setting>



<Note>
- Install the sensor within 0.4 m from the plate heat exchanger.
- When brazing the pipe, keep the temperature around the cap at 100 °C or lower. Failure to do so could impair waterproof performance of the pressure sensor.
- When wiring, please do not touch the terminals while live, otherwise the pressure sensor could be damaged by static electricity.
- Please do not install the pressure sensor anywhere that may come into contact with water.
- Please do not apply any stress (e.g. bending stress, pulling stress, or impact shock) to the electric wire. Failure to do so could break or damage the electric wire.

2. Electrical work

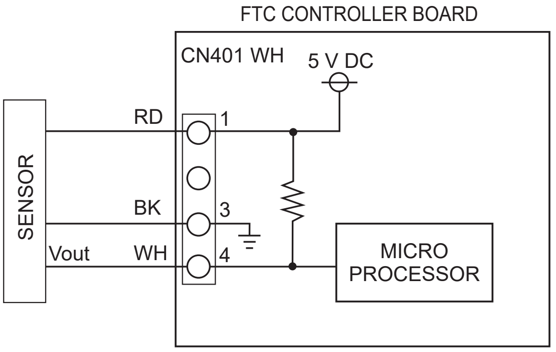
Model	Connector	Item
PAC-IF07*B-E	CN401	Pressure sensor
PAC-IF033****-E	CN401	Pressure sensor

3. Dip switch setting

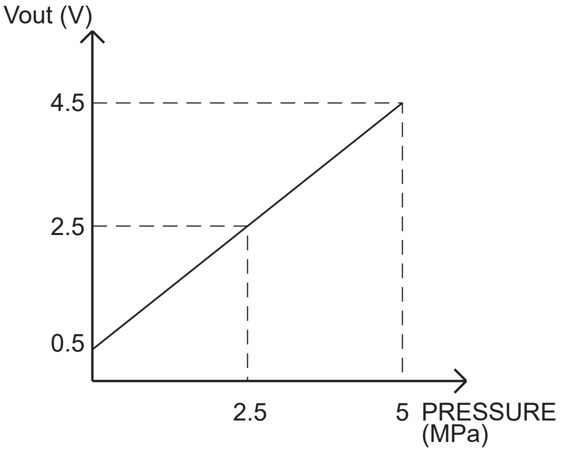
Model	Dip switch	Function	OFF	ON
PAC-IF071B-E	SW6-3	Pressure sensor	Inactive	Active
PAC-IF033****-E	SW4-1	Pressure sensor	Inactive	Active

4. Specifications

Ambient temperature range	-30 to 100 °C
Fluid temperature range	-30 to 120 °C



①-③ : 5 V (DC)
③-④ : Output Vout (DC)



PARTS NAME : FLOW SENSOR

PARTS No. : PAC-FS01-E

SALES MODEL CODE : 7H1FS01

MITSUBISHI ELECTRIC CORPORATION

INSTALLATION MANUAL

- Before starting installation, read the following description together with the installation manual included with the unit.
- Please read carefully and observe fully the following safety precautions.

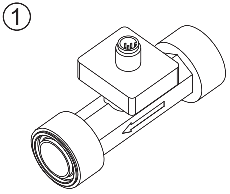
⚠ WARNING	Precautions that must be observed to prevent injuries or death.

- After installation carry out a test run to ensure correct operation, then explain operation method and safety precautions to the end user. Tell your customers to keep this installation manual together with the operation manual, and when they give or sell this machine to any other person include this installation manual and operation manual with it.

⚠ WARNING

- Before installing any accessories on the unit ensure the unit is isolated from the power supply.
- Connections must be made securely and without tension on the terminals.
- All electrical work should be performed by a qualified technician according to local regulations and the instructions given in this manual.
- Do not remodel this part.

<Included items>

①


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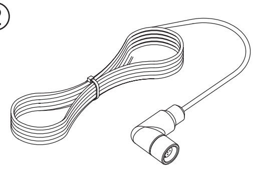

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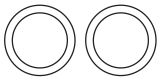
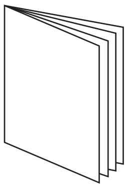
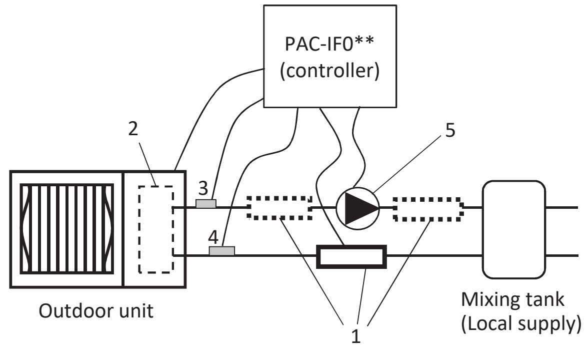


④


	Item	Piece
①	Flow sensor body	1
②	Flow sensor cable 5 m, color: black	1
③	O-ring	2
④	Installation manual (This paper)	1

■ Local system

Install the flow sensor between the mixing tank and the plate heat exchanger when using the mixing tank.



Number	Component
1	Flow sensor
2	Plate heat exchanger
3	Flow temp. thermistor (THW1)
4	Return temp. thermistor (THW2)
5	Circulation pump (local supply)

<Note>

Be sure to install this optional part when the combination of the below models are set.

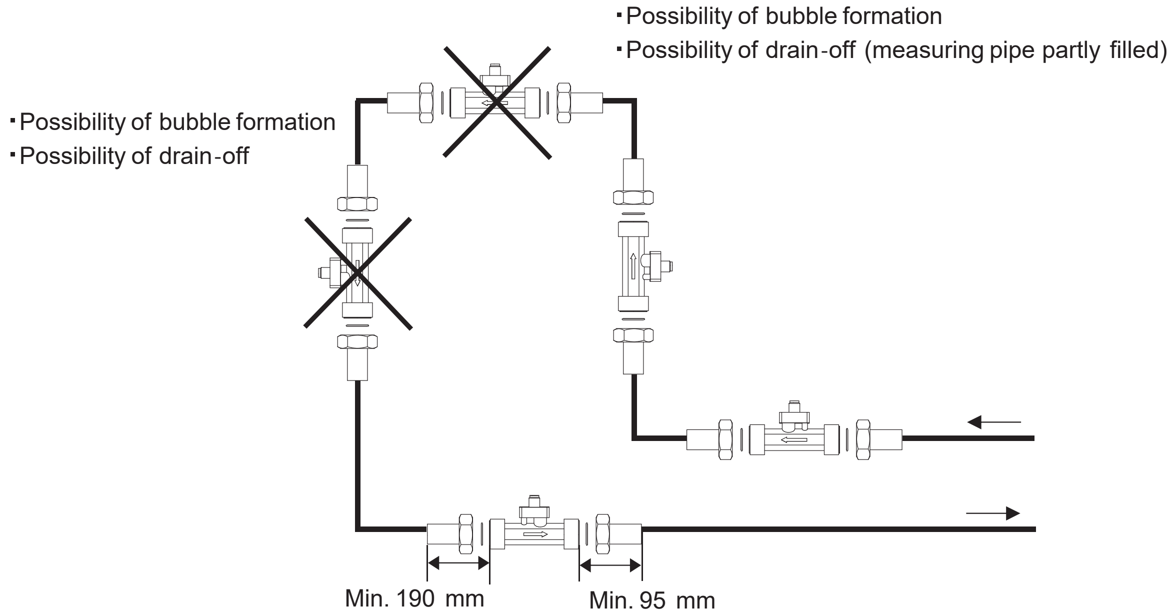
- Outdoor unit: PUZ-(H)WM****A
- Indoor unit: PAC-IF072B-E
  PAC-IF033****-E

Install this flow sensor optionally for the combination of the below models.

- Outdoor unit: SUZ-SWM**VA
  PUD-S(H)WM***AA
  PUHZ-S(H)W*****A
- Indoor unit: PAC-IF071B-E
  PAC-IF033****-E

1.Installation

The unit can be installed in both horizontal as well as vertical pipelines.
The flow sensor is only suitable for use in fully filled piping.



<Note>

- The length of the inlet section should be at least 190 mm and the length of the outlet section should be at least 95 mm.

2. Electrical work

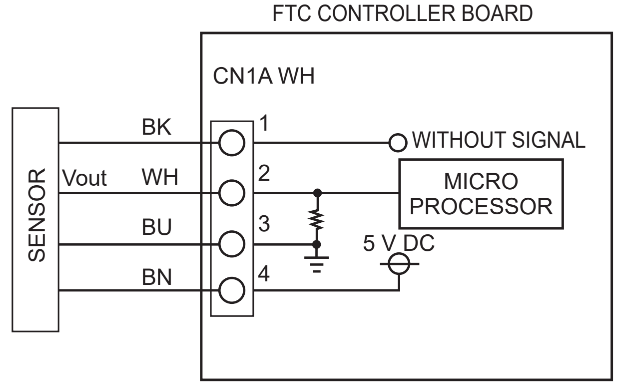
Model	Signal name	Terminal block	Connector	Item
PAC-IF07*B-E	INA1	TBI.4 1-3	CN1A	Flow sensor
PAC-IF033****-E	—	—	CN1A	Flow sensor

3. Dip switch setting

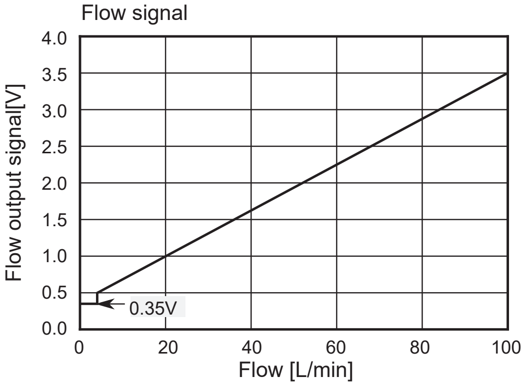
Model	Dip switch	Function	OFF	ON
PAC-IF07*B-E	SW2-8	Flow sensor	WITHOUT Flow sensor	WITH Flow sensor
PAC-IF033****-E	SW4-2	Flow sensor	WITHOUT Flow sensor	WITH Flow sensor

4. Specifications

Ambient temperature range	0 to 70 °C
Fluid temperature range	5 to 90 °C



④-③ : 5 V (DC)
②-③ : Output Vout (DC)



MITSUBISHI
ELECTRIC

Air to Water Heat Pump Optional Parts
Connector for drain hose heater
MAC-061RA-E

SAFETY PRECAUTIONS

- Before starting installation, read the “Safety Precautions’’ described below.
- The following precautions must be observed as it describes the serious matters for safety.
- The safety precautions are described with the degree of danger.

⚠WARNING	When you handle wrong, it can lead to death or serious injury.
⚠CAUTION	When you handle wrong, it can lead to injury or damage to building and furniture.

- After installation, make test operation and confirm that it works properly. and explain the safety precautions, operation method, and maintenance to your customers.
  Tell your customers to keep this installation manual together with the operation manual with them, and when they give or sell this machine to other person put this installation manual and operation manual with it.

⚠WARNING

The installation must be done by dealer or qualified person.
- **If the customers do the installation by themselves and it is not perfectly installed it can cause water leak, electric shock, or fire.**

The installation must be done in accordance with this manual.
- **If the installation is not perfectly done, it can cause water leak, electric shock, or fire.**

The installation must be done carefully.
- **If you handle edges of parts, fins or something like that without protective gloves, you may be injured.**

Never try any modification.
- **For repair, ask your dealer.**
  If the machine is modified or repaired unperfectly, it can cause water leak, electric shock, or fire.

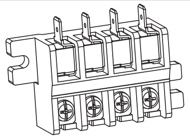
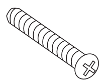
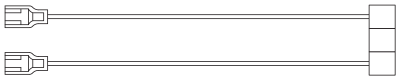
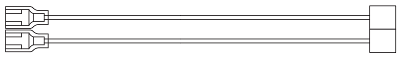
Never move or reinstall the machine by the customers.
- **If the installation is not perfectly done, it can cause water leak, electric shock, or fire. Ask your dealer or qualified person.**

The wiring must be securely done by using proper cable. The wires should be connected to the terminals not to have external force of the cable.
- **Imperfect connections can cause heat or fire.**

The terminal cover (panel) of the unit must be Installed securely.
- **Imperfect installation can cause fire or electric shock by dust or water.**

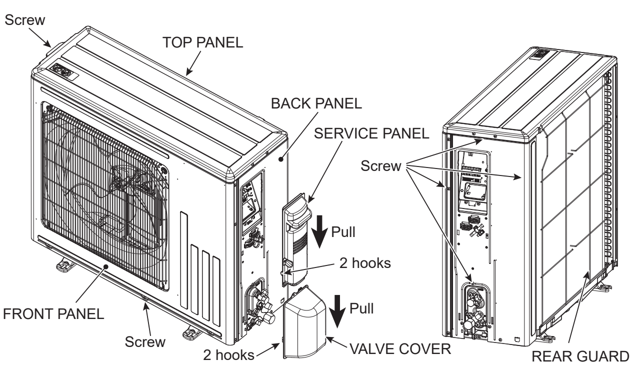
The electric installation must be done by a qualified person in accordance with this installation manual. Use the separate circuit only for this machine and use rated voltage and circuit breaker.
- **If the electric circuit power is not sufficient or the wiring is not properly done, it can cause electric shock or fire.**

Contents

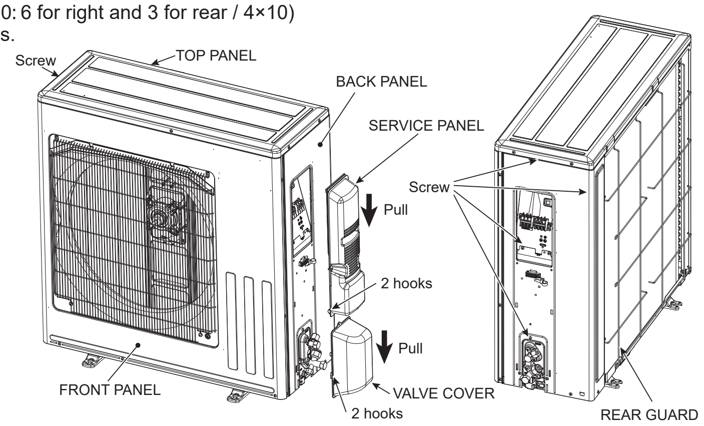
① Terminal block ×1	② Screw M4×12 ×2	③-1 Lead wire with connector (3PIN) ×1 for SUZ-SWM30/40/60VA* (-SC)	③-2 Lead wire with connector (2PIN) ×1 for SUZ-SWM80/100VA*
			

Installation

(1) Remove the SERVICE PANEL fixing screws, then slide the SERVICE PANEL downward to remove it.
(SUZ-SWM30/40/60: 4 for left / 4×10) (SUZ-SWM80/100: 2 for left / 4×10)
(2) Disconnect the power supply cable from Terminal block.
(3) Disconnect the indoor/outdoor connecting cable from Terminal block.
(4) Remove the VALVE COVER fixing screws, then slide the VALVE COVER downward to remove it. (All models: 1 for left / 4×10)
(5) Remove the TOP PANEL fixing screw to remove it. (SUZ-SWM30/40/60: 2 for right and 2 for left / 4×10) (SUZ-SWM80/100: 1 for front, 2 for right and 2 for left / 4×10)
(6) Remove the FRONT PANEL fixing screws to remove it.
(SUZ-SWM30/40/60：4 for front, 3 for right and 2 for left / 4×10) (SUZ-SWM80/100: 6 for front, 3 for right and 4 for left / 4×10)
(7) Remove the BACK PANEL fixing screws to remove it.
(SUZ-SWM30/40/60: 6 for right and 3 for rear / 4×10) (SUZ-SWM80/100: 6 for right and 3 for rear / 4×10)
*The screw (2pcs) for fixing REAR GUARD is not same as other screws.



<For SUZ-SWM30/40/60VA* (-SC)>

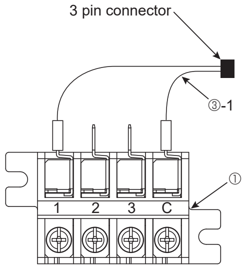


<For SUZ-SWM80/100VA*>

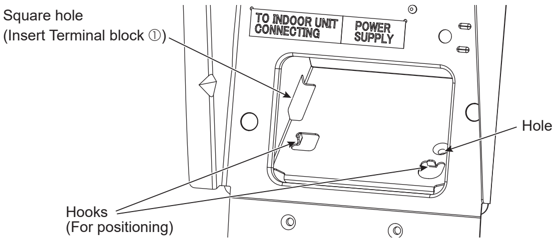
10 Connector for drain hose heater

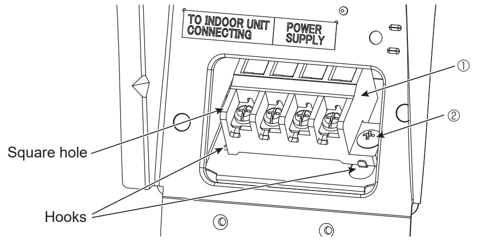
<For SUZ-SWM30/40/60VA* (-SC)>

(8) Connect one end of the Lead wire with connector ③-1 to Terminal block ①. Leave the other end of it unconnected.
(9) Fix the Terminal block ① with the screw ② (1pc) so that the Lead wire with connector ③-1 comes inside of outdoor unit.
(10) Connect the other end of the Lead wire with connector ③-1 to CN722 on the outdoor controller circuit board.
(11) Assemble the parts removed in the previous steps form (1) to (7) in the reverse order of removal.

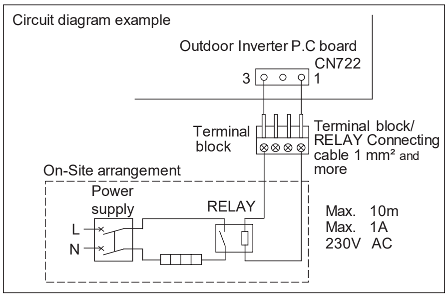


*Not use 2nd and 3rd pin



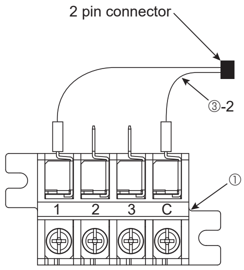


- Drain hose heater RELAY connection only
- MAX. current 1A

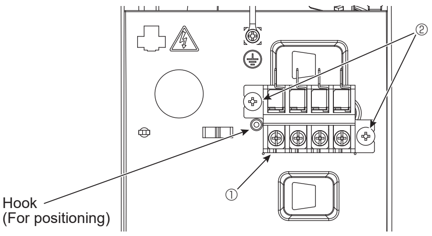


<For SUZ-SWM80/100VA*>

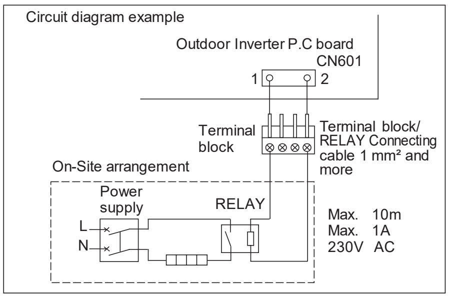
(8) Connect one end of the Lead wire with connector ③-2 to Terminal block ①. Leave the other end of it unconnected.
(9) Fix the Terminal block ① with the screw ② (2 pcs) so that the Lead wire with connector ③-2 comes inside of outdoor unit.
(10) Connect the other end of the Lead wire with connector ③-2 to CN601 on the outdoor controller circuit board.
(11) Assemble the parts removed in the previous steps form (1) to (7) in the reverse order of removal.



*Not use 2nd and 3rd pin

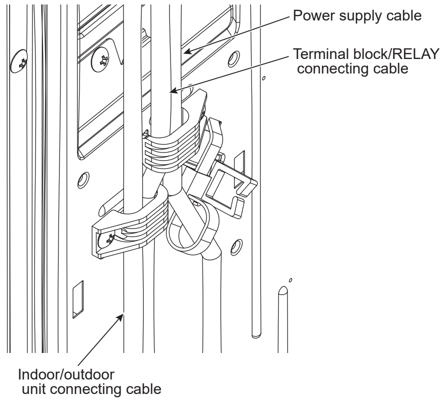


- Drain hose heater RELAY connection only
- MAX. current 1A

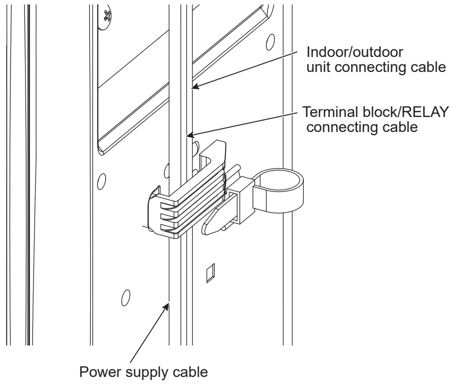


Note 1: Connect the cable as they were If any of the cable are disconnected during installation.
Note 2: Take great care not to pinch the lead wire when installing panels.
Note 3: Terminal block/RELAY connecting cable shall not be lighter than polychloroprene sheathed flexible cable. (Design 60245 IEC 57)
Note 4: Connecting cables shall be wired as below.

<For SUZ-SWM30/40/60VA*(-SC)>



<For SUZ-SWM80/100VA*>



MITSUBISHI
ELECTRIC

Heat Pump Outdoor Unit Optional Parts Connector for drain hose heater MAC-062RA-E

SAFETY PRECAUTIONS

- Before starting installation, read the “SAFETY PRECAUTIONS” described below.
- The following precautions must be observed as it describes the serious matters for safety.
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⚠**CAUTION**	When you handle wrong, it can lead to injury or damage to building and furniture.

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⚠WARNING

The installation must be done by dealer or qualified person.
- **If customers install the machine by themselves and it is not perfectly installed, it can cause water leak, electric shock, or fire.**

The installation must be done in accordance with this manual.
- **If the installation is not perfectly done, it can cause water leak, electric shock, or fire.**

The installation must be done carefully.
- **If you handle edges of parts, fins or something like that without protective gloves, you may be injured.**

Never try any modification.
- **For repair, ask your dealer.**
  If the machine is modified or repaired imperfectly, it can cause water leak, electric shock, or fire.

Customers shall not move or reinstall the machine by themselves.
- **If the installation is not perfectly done, it can cause water leak, electric shock, or fire. Ask your dealer or qualified person.**

The wiring must be securely done by using proper cable. The wires should be connected to the terminals not to have external force of the cable.
- **Imperfect connections can cause heat or fire.**

The terminal cover (panel) of the unit must be installed securely.
- **Imperfect installation can cause fire or electric shock by dust or water.**

The electric installation must be done by a qualified person in accordance with this installation manual. Use the separate circuit only for this machine and use rated voltage and circuit breaker.
- **If the electric circuit power is not sufficient or the wiring is not properly done, it can cause electric shock or fire.**

If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.

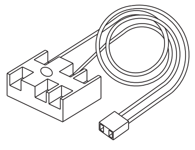
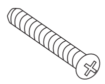
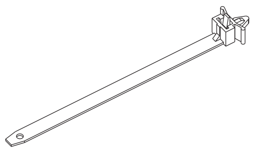
Do not touch the unit, parts, or wires with wet hands.
Doing so may cause electric shock.

⚠CAUTION

Be sure to cut off the main power in case of wiring works.
- **Failure to do so could cause electric shock.**

Install an earth leakage breaker depending on the installation place.
- **If an earth leakage breaker is not installed, it could cause electric shock.**

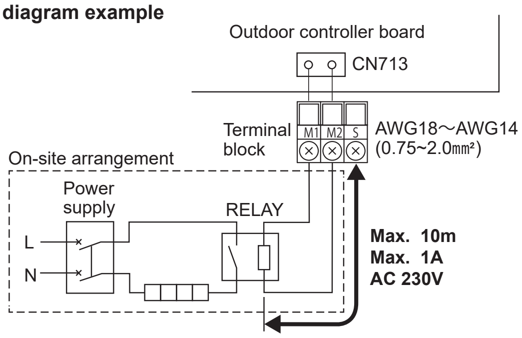
Contents

① Terminal block assy ×1	② Screw ×1	③ Cable strap ×1
		

10 Connector for drain hose heater

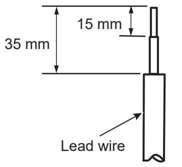
Installation

Circuit diagram example



- ● **Drain hose heater RELAY connection only**
- ● **Max. current 1A**

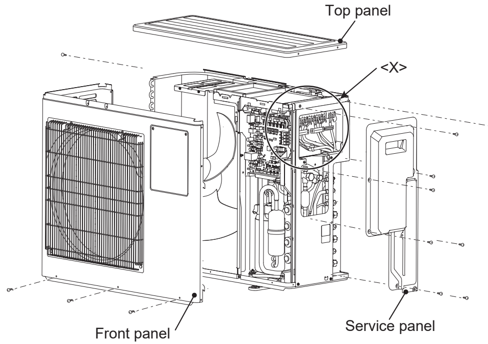
Notice about terminal treatment of cable and wire



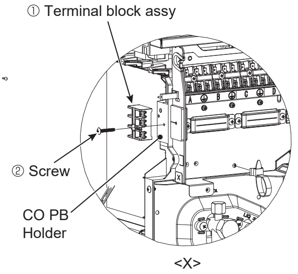
- Be sure to attach each screw to its correspondent terminal when securing the cord and/or the wire to the terminal block.
- Make earth wire a little longer than others. (More than 35 mm)
- For future servicing, give extra length to the connecting wires.

In case of PXZ UNIT size H710xW840xD330

1) Remove the service panel, top panel and front panel.
2) Attach the terminal block ① to CO PB Holder with the screw ②.
3) Connect the lead wire ① of connector side to CN713 port on the outdoor controller board.
4) Connect cables (locally procured) for a drain hose heater RELAY to the terminal block ① so that no part of its core is appeared, and no external force is reached to the connecting section of the terminal block.
5) Firmly tighten the terminal screws to prevent the wires from loosening. After tightening, pull the wires lightly to confirm that they do not move.
6) Fix the lead wire with the cable clamp and cable strap ③. Do not fix the wire at fixed point of screw in the cable clamp. Run the cables or wires so as not to deform the service panel. Otherwise, rainwater may enter the outdoor unit.
7) Assemble the service panel, top panel, and front panel securely.



Detail of (1) and (7)



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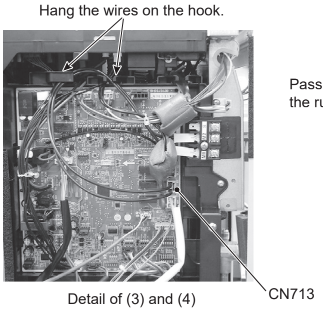
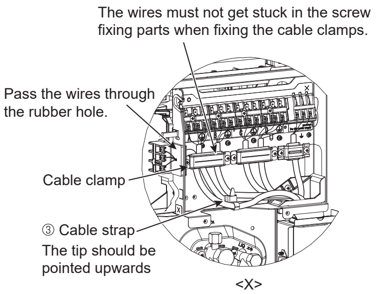
Detail of (2)



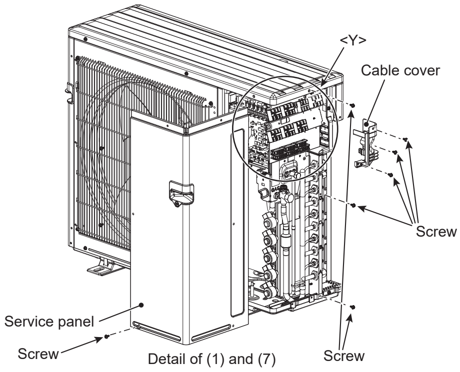
Detail of (3) and (4)



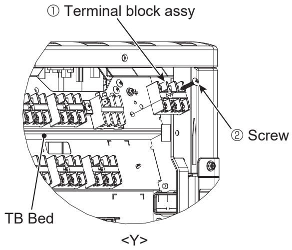
<X>
Detail of (5) and (6)

In case of PXZ UNIT size H796xW950xD330

1) Remove the service panel and cable cover.
2) Attach the terminal block ① to TB Bed with the screw ②.
3) Connect the lead wire ① of connector side to CN713 port on the outdoor controller board.
4) Pass the cables (locally procured) for a drain hose heater RELAY to the terminal block ① through the grommet, and connect them so that no part of its core is appeared, and no external force is reached to the connecting section of the terminal block.
5) Firmly tighten the terminal screws to prevent the wires from loosening. After tightening, pull the wires lightly to confirm that they do not move.
6) Fix the lead wire with the cable clamp. Do not fix the wire at fixed point of screw in the cable clamp. Run the cables or wires so as not to deform the service panel. Otherwise, rainwater may enter the outdoor unit.
7) Assemble the cable cover, service panel, top panel, and front panel securely.

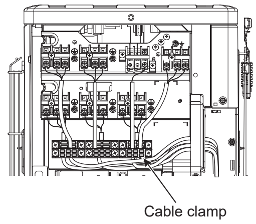


Detail of (1) and (7)



<Y>
Detail of (2)

Detail of (3) and (4)



Detail of (5) and (6)

MITSUBISHI ELECTRIC

Air to Water Heat Pump Optional Parts
Connector for drain hose heater
MAC-063RA-E

SAFETY PRECAUTIONS

- Before starting installation, read the "Safety Precautions'' described below.
- This part is an optional part for products containing R290 refrigerant.
  Be sure to follow the safety requirements stated in the Install manual of the product.
- The following precautions must be observed as it describes the serious matters for safety.
- The safety precautions are described with the degree of danger.

⚠**WARNING**	When you handle wrong, it can lead to death or serious injury.
⚠**CAUTION**	When you handle wrong, it can lead to injury or damage to building and furniture.

- After installation, make test operation and confirm that it works properly, and explain the safety precautions, operation method, and maintenance to your customers.
  Tell your customers to keep this installation manual together with the operation manual with them, and when they give or sell this machine to other person put this installation manual and operation manual with it.

⚠WARNING

The installation must be done by dealer or qualified person.
- **If the customers do the installation by themselves and it is not perfectly installed it can cause water leak, electric shock, fire or explosion.**

The installation must be done in accordance with this manual.
- **If the installation is not perfectly done, it can cause water leak, electric shock, fire or explosion.**

The installation must be done carefully.
- **If you handle edges of parts, fins or something like that without protective gloves, you may be injured.**

Never try any modification.
- **For repair, ask your dealer.**
  If the machine is modified or repaired unperfectly, it can cause water leak, electric shock, fire or explosion.

Never move or reinstall the machine by the customers.
- **If the installation is not perfectly done, it can cause water leak, electric shock, fire or explosion. Ask your dealer or qualified person.**

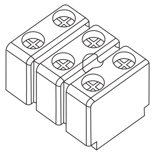
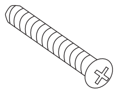
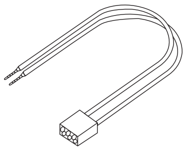
The wiring must be securely done by using proper cable. The wires should be connected to the terminals not to have external force of the cable.
- **Imperfect connections can cause heat, fire or explosion.**

The terminal cover (panel) of the unit must be Installed securely.
- **Imperfect installation can cause fire or electric shock by dust or water.**

The electric installation must be done by a qualified person in accordance with this installation manual. Use the separate circuit only for this machine and use rated voltage and circuit breaker.
- **If the electric circuit power is not sufficient or the wiring is not properly done, it can cause electric shock, fire or explosion.**

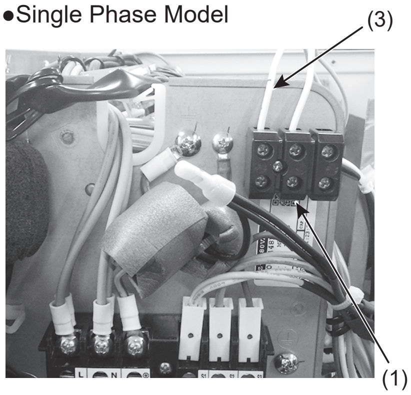
Do not locate the sources of ignition, such as the relay which controls the drain hose heater, inside the product and Protective zone written in the Install manual of the product.
- **If the insallation is not perfectly done, it can cause fire or explosion.**

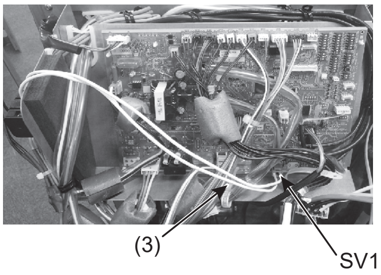
Contents

(1) Terminal block	×1
	
(2) Screw	×1
	
(3) Lead wire with connector	×1
	

Installation

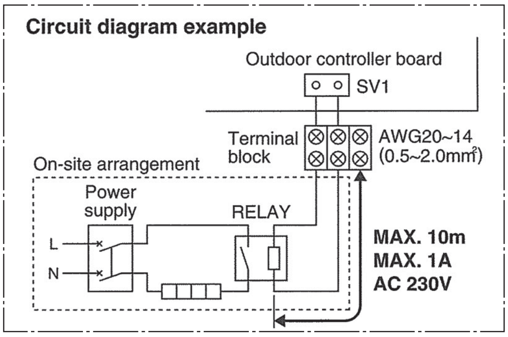
- Single Phase Model





1. Attach the terminal block (1), with the screw (2).
2. Connect the lead wire (3) connector side to SV1 port on the outdoor controller board.
3. Connect the lead wire (3) to the terminal block (1).
4. Wire local cables for a drain hose heater RELAY to the terminal block (1).

- **Drain hose heater RELAY connection only**
- **MAX current 1A**



MITSUBISHI
ELECTRIC

Heat Pump Outdoor Unit Optional Parts
Muffler
MAC-001MF-E

SAFETY PRECAUTIONS

- Before starting installation, read the “SAFETY PRECAUTIONS’’ described below.
- The following precautions must be observed as it describes the serious matters for safety.
- The safety precautions are described with the degree of danger.

⚠WARNING	When you handle wrong, it can lead to death or serious injury.
⚠CAUTION	When you handle wrong, it can lead to injury or damage to building and furniture.

- After installation, make test operation and confirm that it works properly, and explain the safety precautions, operation method, and maintenance to your customers.
  Tell your customers to keep this installation manual together with the operation manual with them, and when they give or sell this machine to other person, give this installation manual and the operation manual with it.

⚠WARNING

The installation must be done by dealer or qualified person.
- **If customers install the machine by themselves and it is not perfectly installed, it can cause water leak, electric shock, or fire.**

The installation must be done in accordance with this manual.
- **If the installation is not perfectly done, it can cause water leak, electric shock, or fire.**

The installation must be done carefully.
- **If you handle edges of parts, fins or something like that without protective gloves, you may be injured.**

Never try any modification.
- **For repair, ask your dealer.**
  If the machine is modified or repaired imperfectly, it can cause water leak, electric shock, or fire.

Customers shall not move or reinstall the machine by themselves.
- **If the installation is not perfectly done, it can cause water leak, electric shock, or fire. Ask your dealer or qualified person.**

Check the outdoor unit manual before the work, and the installation must be done in accordance with the manual.
- **If the installation is not perfectly done, it can cause water leak, electric shock, or fire.**

Pipe-work shall be protected from physical damage.

The installation of pipe-work shall be kept to a minimum.

Fasten a flare nut with a torque wrench as specified in this manual.
- **If fastened too tight, a flare nut may break after a long period of use and cause refrigerant leakage.**

Use appropriate tools and piping materials for installation.
- **The pressure of R32 is 1.6 times more than R22. Not using appropriate tools or piping materials and incomplete installation could cause the pipes to burst or injury.**

Check that the refrigerant gas does not leak after installation has been completed.
- **If refrigerant gas leaks indoors and comes into contact with the flame of a fan heater, space heater, stove, etc., harmful substances will be generated.**

When installing the unit, securely connect the refrigerant pipes before starting the compressor.
- **If the compressor is started before the refrigerant pipes are connected and when the stop valve is open, air could be drawn in and the pressure in the refrigeration cycle could become abnormally high. This could cause the pipes to burst or injury.**

⚠CAUTION

Install an earth leakage breaker depending on the installation place.
- **If an earth leakage breaker is not installed, it could cause electric shock.**

Perform the drainage/piping work securely according to the installation manual.
- **If there is defect in the drainage/piping work, water could drop from the unit, soaking and damaging household goods.**

Do not touch the air inlet or the aluminum fins of the outdoor unit.
- **This could cause injury.**

Do not install the outdoor unit where small animals may live.
- **If small animals enter and touch the electric parts inside the unit, it could cause a malfunction, smoke emission, or fire. Also, advise user to keep the area around the unit clean.**

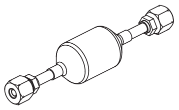
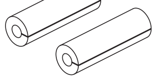
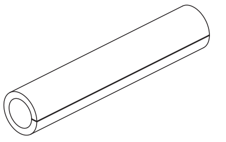
Do not operate the air conditioner during interior construction and finishing work, or while waxing the floor.
- **Before operating the air conditioner, ventilate the room well after such work is performed. Otherwise, it may cause volatile elements to adhere inside the air conditioner, resulting in water leakage or scattering of dew.**

When there are the ports which are not used, make sure their nuts are tightened securely.

When charging the refrigerant system with additional refrigerant, be sure to use liquid refrigerant. Charge the liquid refrigerant slowly, otherwise the compressor will be locked.
- **To maintain the high pressure of the gas cylinder, warm the gas cylinder with warm water (under 40°C) during cold season. But never use naked fire or steam.**

Note:
Reusable mechanical connectors and flared joints are not allowed indoors.
When connecting the refrigerant piping by brazing, rather than using flare connections, complete all brazing prior to connecting indoor unit to outdoor unit.

Contents

① Muffler ×1	② Pipe cover ×2	③ Pipe cover ×1
		

■ Parts to be provided at your site

④	Piping tape	1

Installation

Connection pipe condition

Connection side	Indoor	Outdoor
Connection Gas pipe size	ø9.52	ø9.52

1. Connect the muffler ① to the gas piping within 3 meters from the piping connection port of the outdoor unit outside.
2. The muffler can be connected in any orientation.

Flaring work

3. Cut the copper pipe correctly with a pipe cutter. (Fig. 1, 2)
4. Completely remove all burrs from the cut cross section of pipe. (Fig. 3)
   - Point the copper pipe downward while removing burrs to prevent them from dropping in the pipe.
5. Remove flare nuts (A) and port cap attached to the muffler ①, then put the flare nuts on the pipe with the burrs completely removed. (Not possible to put them on after flaring work.)
6. Perform the flare work (Fig. 4 and 5).
   Firmly hold the copper pipe according to the dimensions shown in the table.
   Select X mm from the table according to the tool selected.
7. Check the following.
   - Check the flare work based on Fig.6.
   - If the flare work is not proper, cut off the flared section and do flaring work again.

Fig. 1

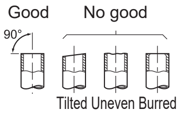


Fig. 2

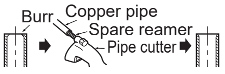


Fig. 3

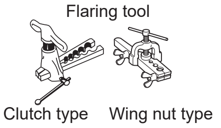


Fig. 4

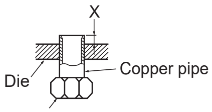


Fig. 5

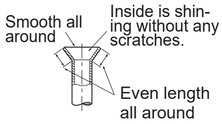


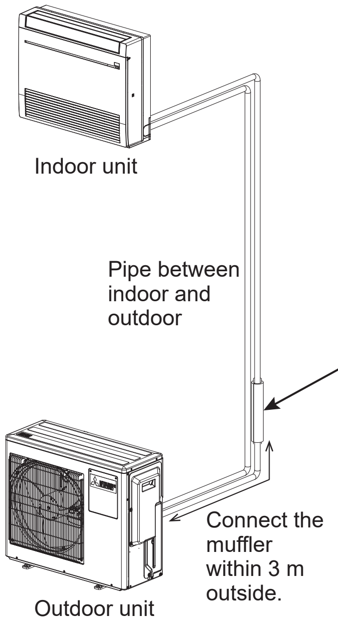
Fig. 6

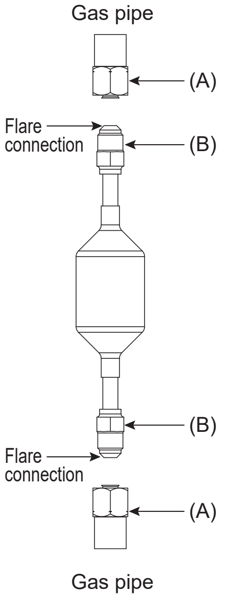
Pipe diameter (mm)	Nut (mm)	X (mm)			Tightening torque	
		Clutch type tool for R32, R410A	Clutch type tool for R22	Wing nut type tool for R22	N·m	kgf·cm
Ø9.52 (3/8")	22	0 to 0.5	1.0 to 1.5	1.5 to 2.0	34.4 to 41.2	350 to 420

Pipe connection

8. Align the center of the pipe with that of the pipe at the muffler, then tighten the flare nuts by 3 to 4 turns by hand.
9. Tighten the flare nuts in the range of from 34.4N·m (350kgf·cm) to 41.2 N·m(420kgf·cm).
10. Perform the procedure 3 to 4 for outdoor and indoor side.
11. After connecting the muffler with the piping at an indoor and outdoor unit, cover the muffler and piping joints with the pipe covers ② and ③. (Do not point their slits in the same orientation.)
12. Using the piping tape ④, apply the tape starting from the root of Indoor gas pipe. Tape the pipe cover securely so that there is no clearance between the cover and the parts (muffler etc.) and at the slits. (For the detail, see the following figure.)

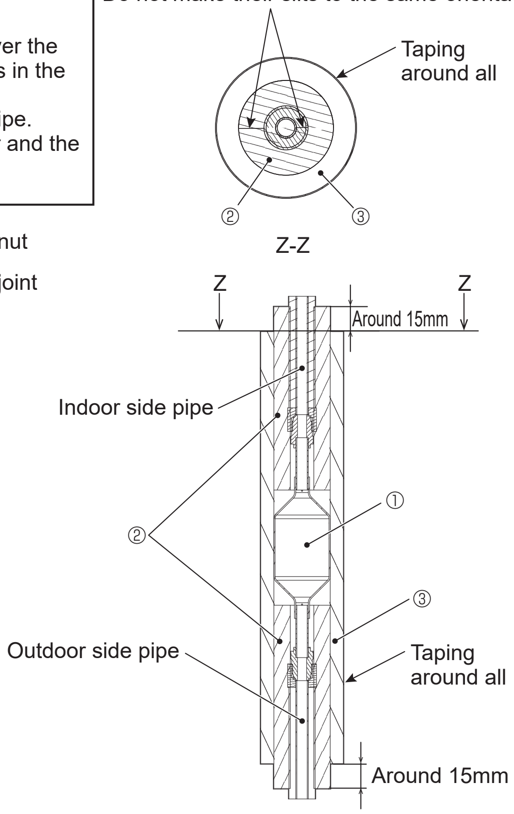
No clearance at slit in ② and ③
Do not make their slits to the same orientation.





(A) Flare nut

(B) Flare joint



Air to water Optional parts
Installation Manual for Joint Pipe and Nut

MAC-001FN-E

SAFETY PRECAUTIONS

- Carefully read this section “SAFETY PRECAUTIONS”, and securely install the optional parts.
- Be sure to observe the cautions described here: They include critical contents for safety.
- The following indications show the classification of danger and possible consequences following incorrect handling.

⚠WARNING	Incorrect handling could lead to death or serious injury.
⚠CAUTION	Incorrect handling could lead to injury or damage to house and household articles.

- After installation, perform a test run and make sure that there is no abnormality, and ask your customer to keep this installation sheet with the installation manual at all times. Also ask the customer to transfer these manuals to a new user if the user changes.

⚠WARNING

Ask the dealer or specialist for installation.
- If installed incorrectly by user, water leak, electric shock, fire, etc. could result.

Securely perform installation using tools and piping parts specially made for the refrigerant R410A·R32, according to this installation manual.
- Since pressure of HFC type refrigerant R410A·R32 being used increases higher about 1.6 times compared with R22, if specified piping parts are not used or installation is not correct, it could cause explosion or injury, and in less severe cases, water leak, electric shock or fire.

If the unit is installed in a small room, make sure that limit density will not be exceeded even if refrigerant leaks.
- Consult your dealer for proper countermeasures against exceeding limit density.
  If limit density is exceeded, it may cause lack of oxygen hazard.

Ventilate if refrigerant leaks.
- If refrigerant touches heat source, it could cause generation of harmful gas.

When installing or reinstalling after moving, do not mix any material inside refrigerant cycle other than refrigerant specified (R410A·R32).
- If air, etc. is mixed, pressure inside of refrigerant cycle may become abnormally high, which could cause explosion, etc.

Never remodel.
- Consult your dealer for repair. If remodeled or repaired incorrectly by user, it may cause water leak, electric shock or fire.

Do not move and re-install by user itself.
- If installation is not correct, it may cause water leak, electric shock or fire. Ask your dealer or vendor.

After installation is complete, make sure that refrigerant does not leak.
- If refrigerant leaks inside the room and reaches heat source such as fan heater, stove, etc., it could cause generation of harmful gas.

Before installation

⚠CAUTION

Do not use in unusual circumstances.
- Do not use in a place where there is much oil (including machine oil), steam, sulfration gas, or high salt content (seaside area), or where outdoor unit is blocked by snow cover. Doing so could damage the performance of the unit and parts may be broken.

Do not install in a place where flammable gas could be generated, flow in, remain or leak.
- Gas accumulating around the unit could cause fire or explosion.

Before performing installation (moving)

⚠CAUTION

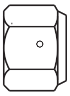
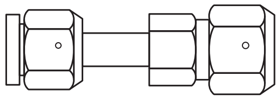
Securely apply heat-insulation to refrigerant pipe so that no condensation occurs.
- If heat-insulation is incorrect, condensation could occur on the surface of pipes and dewdrops could accumulate on ceiling, floor or important goods.

Tighten flare nuts using torque wrench according to the specified method.
- If tightened too strongly, there could occur breakage of flare nut or leakage of refrigerant after a long period of time.

Before installing these optional parts, be sure to read **SAFETY PRECAUTIONS** in the installation manual attached to the outdoor unit and observe instructions given there.

12 Joint pipe and nut

Make sure that you have all the following parts, in addition to this manual in this box:

Nut (For outdoor unit) ×1	Joint (For indoor unit) ×1
Unit side  On-site pipe side	Unit side  On-site pipe side

Note: There are holes in the nut to prevent damage during freezing.

Installation procedure (carefully read the following before installing.)
When using the outdoor unit of PUZ-S(H)WM series, a gas piping of ø15.88 is recommended for cooling operation with long piping length.
By setting this nut to the gas pipe of the outdoor unit and this joint to the gas pipe of the indoor unit, ø15.88 size pipe can be connected.

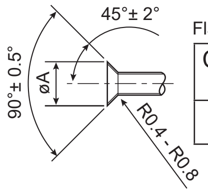
Note: When installing this optional parts, be sure to read "Refrigerant pipe connection" in the installation manual attached to unit or pipe.

Notice:

Follow the instructions below to prevent abrasive components contained in sandpaper and cutting tools entering the refrigerant circuit because those components can cause failures of the compressor and valves.

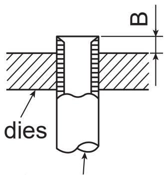
- To deburr pipes, use a reamer or other deburring tools, not sandpaper.
- To cut the pipes, use a pipe cutter, not a grinder or other tools that use abrasive materials.
- When cutting or deburring pipes, do not allow cutting chips or other foreign matters to enter the pipes.
- If cutting chips or other foreign matters enter the pipes, wipe them off the inside of the pipes.

1. Flare nut processing for outdoor unit.
   1) Apply flare processing to on-site pipes to adapt to R32, according to the table on the right.
      Use the included flare nut at this time.
      Note: Check the installation manual attached to the outdoor unit for advisability on whether or not on-site (existing) pipes can be used.
   2) Thinly apply refrigeration oil (locally procured) on flare surface.
   3) For connection, first align the center, then tighten the first 3 to 4 turns of flare nut by hand.
   4) Securely tighten flare nut using torque wrench according to the table on the right.



Flare cutting dimensions

Copper pipe O.D. (mm)	Flare dimensions øA dimensions (mm)
ø15.88	19.3 - 19.7

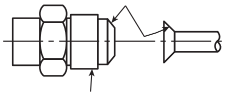
	Copper pipe O.D. (mm)	B (mm)
		Flare tool for R32
		Clutch type
	ø15.88	0 - 0.5

Note: When flare processing for refrigerant R32 is applied using current tool, refer to the table above.
B size can be secured using copper pipe gauge for margin adjustment.

2. Flare nut processing for indoor unit.
   1) Remove flare nut from joint and apply flare processing to on-site pipes to adapt to R32, according to the table on the right.
      Use the removed flare nut at this time.
      Note: Check the installation manual attached to the outdoor unit for advisability on whether or not on-site (existing) pipes can be used.
   2) Remove caps (both ends) for protection against mixing of foreign materials from optional part, and thinly apply refrigeration oil (locally procured) on flare surface.
   3) For connection, first align the center, then tighten the first 3 to 4 turns of flare nut by hand.
   4) Securely tighten flare nut using torque wrench according to the table on the right.

Refrigeration oil application point

Apply refrigeration oil to entire circumference of flare sheet surface.



Note: Do not apply to thread section.
(If applied to threads, flare nut can easily be loosened.)

<Proper tightening torque using torque wrench>

Copper pipe O.D. (mm)	Width across flats (mm)	Tightening torque (N·m)
ø12.7	26	53.0±3.9
ø15.88	29	76.0±2.5

3. Check and test run.
   1) After refrigerant pipe is connected, be sure to perform gas leakage inspection for connected points.
   2) Heat insulation is necessary for this optional part: Wrap heat insulator (locally procured) around the on-site pipes and also the optional part (for dewdrop dripping prevention).
   3) Perform test run according to the installation manual of the unit, making sure to also perform operation check.

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