Air to Water Heat Pump
User manual

AE200DN**** / AE160DN**** / MIM-E03FN

- Thank you for purchasing this Samsung Product.
- Before operating this unit, please read this manual carefully and retain it for future reference.

SAMSUNG

Contents

Safety Information

This content is intended to protect the user's safety and prevent property damage. Please read it carefully for correct use of the product.

⚠ WARNING

Hazards or unsafe practices that may result in severe personal injury or death.

⚠ CAUTION

Hazards or unsafe practices that may result in minor personal injury or property damage.

FOR INSTALLATION

⚠ WARNING

The installation of this appliance must be performed by a qualified technician or service company.
- Failing to do so may result in electric shock, fire, explosion, problems with the product, or injury.

You must connect the product with rated power upon installation.
- Failing to do so may result in problems with the product, electric shock, or fire.

Do not install this appliance near a heater, inflammable material. Do not install this appliance in a humid, oily or dusty location, in a location exposed to direct sunlight and water (rain drops). Do not install this appliance in a location where gas may leak.
- Failing to do so may result in electric shock or fire.

⚠ CAUTION

Install the product on a hard and even place that can support its weight.
- If the place cannot support its weight, the product may fall down and it may cause product damage.

FOR POWER SUPPLY

⚠ WARNING

Do not bend or pull the power cord excessively. Do not twist or tie up the power cord.
- Failing to do so may result in electric shock or fire.

FOR OPERATION

⚠ WARNING

If the appliance generates a strange noise, a burning smell or smoke, unplug the product immediately and contact your nearest service centre.
• Failing to do so may result in electric shock or fire.

To reinstall the product, please contact your nearest service centre.
• Failing to do so may result in problems with the product, water leakage, electric shock, or fire.
• A delivery service for the product is not provided. If you reinstall the product in another location, additional construction expenses and an installation fee will be charged.

If the malfunction diagnosis indicator appears or malfunctions, then stop operation immediately.
• If you detect any burning smells from the product or it malfunctions, then immediately turn off the product and power, and then contact the service centre. Continuing to use the device in this state can cause electrical shock, fire, or damage to the product.

Do not attempt to repair, disassemble, or modify the product yourself.
• Failing to do so may result in electric shock, fire, product malfunction, or injury.

⚠ CAUTION

Do not allow water to enter the product.
• Failing to do so may result in fire or explosion.

Do not operate the product with wet hands.
• Failing to do so may result in electric shock.

Do not spray volatile material such as insecticide onto the surface of the product.
• As well as being harmful to humans, it may also result in electric shock, fire, or product malfunction.

Do not give a strong impact to the product and do not disassemble the product.

Do not use this product for other purposes.

Do not press the buttons with any sharp objects.
• Failing to do so may result in electric shock or part damage.

FOR CLEANING

⚠ WARNING

Do not clean the product by spraying water directly onto it. Do not use benzene, thinner, alcohol or acetone to clean the product.
• Failing to do so may result in discoloration, deformation, damage, electric shock, or fire.

Controller Operation

Operate the product by using the controller.

Operating basic modes

Select Zone 1 or 2 on the control card on the Home screen to access the zone page, and select from Auto, Cool, Heat modes.

Auto mode

Hydro unit will automatically adjust the temperature of discharge water with the Auto mode for indoor heating.

📄 **NOTE**
- When Water Law is active, the target supply water temperature will be determined automatically depending on the outdoor temperature: For the Heat mode, colder outdoor temperatures will result in warmer water.

Cool mode

You can adjust cooling temperature as you like with the Cool mode to cool indoor place.
- When selecting the Heat mode during the Cool mode, the Cool mode will be canceled.

Heat mode

Floor heating is available with the Heat mode by providing hot water in the spring, autumn and winter.
- When selecting the Cool mode during the Heat mode, the Heat mode will be canceled.

📄 **NOTE**
- When setting standard cooling & heating temperature as indoor temperature, the Auto mode cannot be selected.

Domestic Hot Water (DHW) mode

Select DHW on the control card on the Home screen to access the DHW page. Select from Economic, Standard, Power, and Forced modes.

📄 **NOTE**
- To operate hot water mode, you need to set the hot water function 'YES' in the field specification setting mode (#3011) of AI Home and connect the temperature sensor of hot water tank.
- When the Cool/Heat mode and the DHW mode are selected at the same time, the Cool/Heat mode and the DHW mode will operate alternately.
- 🔌 (power) for the DHW mode cannot be used when the Booster heater is not in use.
  (The model "AE200DN****" does not have the booster heater but is alternatively controlled by the backup heater.)
- If you want to enjoy a leisurely bath or need a lot of warm water urgently, select the Forced mode. When this mode is enabled, it is assured that the full capacity of the heat pump is only delivered for domestic water heating.

⚠️ **CAUTION**
- By default field setting value option, this function will not be turned off automatically.
- If you want a Forced mode for a certain amount of duration time, change the field setting value of AI Home.

Controller Operation

Adjusting desired temperature

On each zone page, touch Temp and scroll up/down to adjust the temperature.

📄 **NOTE**
- You can adjust the desired temperature by 0.5 or 1 °C. (Default: 1 °C)

Setting the standard temperature

On the Home screen, select ⚙ › **Heat pump** › **Standard temperature**.

Select from Water outlet and Indoor temperature, and press **Apply** to save the change.

📄 **NOTE**
- When the Reference temperature to control is Water outlet, you can set the temperature only for Water outlet.
- When the Reference temperature to control is Indoor temperature, you set the temperatures for Indoor temperature.
- In case of the model that can support both, you can set only the temperature for Indoor temperature but the temperature for Water outlet is also affected together.
- Depending on the Reference temperature set for cooling and heating, the controllable temperatures are restricted for each mode.

	Auto	Cool and Heat
Water outlet	Water Law	Water outlet
Indoor temperature	-	Indoor temperature

Power Smart Features

There is a variety of useful functionality provided by the Samsung product.

Operation status

Swipe on the Home screen and select the Overview card. This allows the product's operation to be checked. The below operations can be checked on the Overview screen.

Comp, Booster heater, Heater, Boiler, Water tank, Water pump, Solar, Solar PV, Smart grid, Demand response, Device status, Hydraulic.

Quiet mode

Noise from operation can be reduced with the Quiet mode.

On the Home screen, select ⚙ > **Heat pump** > **Quiet mode**.

📄 **NOTE**
- When setting the Quiet mode through a contact from the outdoor unit or setting the Automatically running in the service mode using the AI Home, the mode cannot be controlled by user entry.

Away mode

Heating can operate at low temperature while you are out with the Away mode enabled.

Swipe on the Home screen to access the Away card, and select **Away mode on**.

📄 **NOTE**
- To cancel Away mode, select **Turn off Away** on the Home screen.
- A preset schedule will not be applied if Away mode is on.

SmartThings app

❶ Checking the power connections

Check if the power is connected to the product and the access point.

❷ Setting up and connecting to a Wi-Fi access point using your smartphone

1 To connect the product to a Wi-Fi network, turn on Wi-Fi at "Settings > Connections > Wi-Fi", and then select the access point to connect to
- Only alphanumeric characters are supported for wireless access point names (SSIDs).
  If an SSID has a special character, rename it before connecting to it.
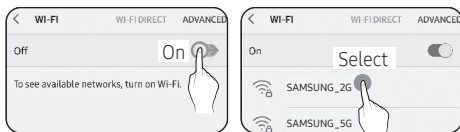
2 Turning off "SMART NETWORK SWITCH" at "Settings > Connections > Wi-Fi" on your Smartphone
- If "SMART NETWORK SWITCH" or "Adaptive Wi-Fi" is turned on, you cannot connect to the network. Be sure to turn off these functions before connecting to the network.
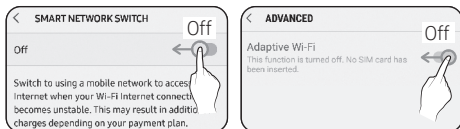
📄 NOTE
- The setup may differ depending on your smartphone model, OS version and manufacturer.

3 Checking the Internet connectivity
- After connecting to Wi-Fi, check that your smartphone is connected to the Internet.

📄 NOTE
- A firewall may prevent your smartphone from connecting to the Internet. In this case, contact your Internet service provider for troubleshooting.

❸ Downloading the SmartThings app and registering your Samsung account

1 Downloading the SmartThings app
- Search for "SmartThings" on Play Store or App Store, and download the SmartThings app to your smartphone.
- If the SmartThings app is already installed on your smartphone, update it to the latest version.

📄 NOTE
- The supporting software version of the SmartThings app is subject to change according to the OS supporting policy the manufacturer provides.
  In addition, as for the SmartThings app or the functions that the app supports, the new application update policy on the existing OS version can be suspended due to usability or security reasons.
- The SmartThings app is subject to change without notice to improve usability or performance. As the mobile phone OS version is updated every year, the SmartThings is also updated continually according to the latest OS.
- If you have enquiries regarding the items mentioned above, please contact us on st.service@samsung.com.

2 Registering your Samsung account
- A Samsung account is required to use the SmartThings app. To create your Samsung account and log in to your account, follow the instructions displayed on the SmartThings app. You do not need to install an additional app.

📄 NOTE
- If you already have a Samsung account, log in to the account. When your smartphone is a Samsung device and you have a Samsung account, your smartphone is automatically logged in to your account.
- If you log in from a smartphone produced for a different country, you need to log in with its country code when you create your Samsung account, and the SmartThings app may not be used on some smartphones.

❹ Connecting the SmartThings app to your product

1 Selecting the product to connect to
1) After the SmartThings app is started, select "ADD NOW" when a pop-up window saying that a product to connect to is found appears.

A new device has been found.
Add this device to
SmartThings?

Never   Later   Add now   Select
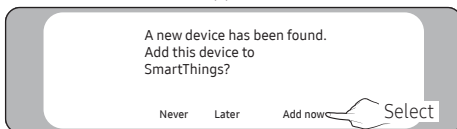
SmartThings app

2) If the pop-up window does not appear, select "+", "Add" and then "Device".
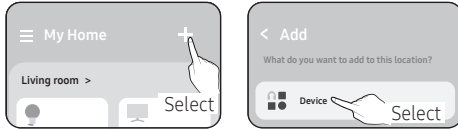
Select

Select

You can add a product you want to connect to by selecting it manually.
- Select manually: Samsung > Air conditioner > Heat pump
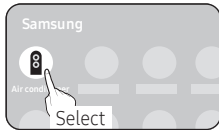
Select

2 Connecting the SmartThings app to your product

- Follow the instructions displayed on the SmartThings app to connect to your product.
- For information on how to use the SmartThings app, select the How To menu on the app.

NOTE

- If any pop-window appears on the top of the smartphone while connecting to your product, do not select it.
- If a Samsung account-related country error occurs during connecting to your product, log out of your current Samsung account, log in to your previous Samsung account, and then delete all devices that have been connected previously. Then, log in to your current Samsung account again, and then configure the settings.
- If a failure message appears while adding a device, see "Setting up and connecting to a Wi-Fi access point using your smartphone" on page 10. The connection may fail temporarily due to an installation location problem of the access point or other problems.
- If the number of added indoor units is incorrect after adding devices, run the tracking again and then try adding the devices again.
- For security protocols for wireless/wired access points, WPA-PSK and WPA2-PSK are recommended. For authentication methods, AES is recommended. New Wi-Fi authentication specifications and Wi-Fi non-standard authentication methods are not supported.
- If your Internet service provider permanently have registered the MAC address (a unique identification number) of your PC or modem, you may not be able to connect your product to the Internet. Contact your Internet service provider and ask how to connect devices other than your PC (such as an air conditioner and an air purifier) to the Internet.
- Since the APP version will be continuously updated, there may be differences between the operation interface in the manual and the actual APP, please refer to the actual APP operation.

Energy-saving operation

Setting a schedule

Set a schedule to have the product perform a specific operation on a set day, at a set time, for a set period.

Swipe on the Home screen to display the Schedules card. Touch the "+" icon on the top right of the screen to create a schedule.

After adding a schedule, set time blocks to set the operating time/period, set the temperature/mode, and press Save to set the schedule.

📄 **NOTE**

- The Schedules card on the Home screen will display a summary of the set schedule from the day before the scheduled operation.
- Touch and hold the line representing a schedule, then drag to adjust the scheduled operation time/period.
- Schedules can't be set when Away mode is on.

Energy

Connect to SmartThings via Wi-Fi to view energy consumption and energy settings on the Energy card on the Home screen.

📄 **NOTE**

- Refer to page 10 on how to connect to SmartThings.
- Monthly energy consumption and the current month's energy consumption are displayed on the Energy card.
- Select an energy item on the Energy card to view a graph showing energy consumption and savings.
- The SmartThings energy service on your smart device links with the energy service on the product.
- Energy savings measurements are made by the product and can differ from actual energy savings.

Setting Options

How to set the Options

Select ⚙ on the Home screen, and select from the setting options. General Settings and Heat Pump Settings are available.

General settings

Step 1	Step 2	Step 3	Description	Default
Samsung Account			Samsung account input/display	
Connections	Wi-Fi		Wi-Fi on or off	On
	Bluetooth			
	Easy connection		SmartThings QR code display	
Lock			Child lock on or off	Off
Home device notifications			Notifications on or off	On
Display	Display mode		Dark / Light	Dark
	Brightness		Screen brightness adjustment	
	Font size		Font size adjustment	
Display and style	Cover Screen		Cover screen on or off	On
	Retention time		Cover screen retention time settings	7 min
Avatar	Avatar		Avatar on or off	Off
App lock			App lock on or off	Off
Language			Language selection	Set country's language
Date and time	Automatic date and time		Auto date/time on or off	On
	Select time zone		Time zone selection	
	Use 24-hour format		AM/PM format on or off	On
Accessibility	Visibility enhancements	High contrast	High contrast on or off	Off
		Font size	Font size adjustment	
Software update	Download and install		Check for software updates	
Support	Watch tutorial again		Watch tutorial again	
	User manual		User Manual QR code display	
	Remote support		Remote support	
Reset	Reset network settings		Reset connected network settings	
	Reset all settings		Reset all settings	
	Restart		Restart	

Setting Options

Step 1	Step 2	Step 3	Description	Default
About device	Status information		Display device info (version)	
			Device network info (MAC, BLE)	
	Legal information	AI Home Privacy Notice	Privacy notice	
		Terms of Service for AI Home	Service notice	
		Open source licenses	Open source notice	

NOTE

- When Cover Screen is off, screen inactivity of 10 minutes turns the LCD screen off.

  Touch the screen to return to the Home screen.

  When Cover Screen is on, Cover Screen is displayed for the duration set in Settings. The LCD screen turns off after a further 10 minutes. Touch the screen to return to the Home screen.

Heat pump settings

Step 1	Step 2	Step 3	Description	Default
Quiet	Quiet mode		Quiet mode on or off	Off
	Schedule Quiet mode		Schedule Quiet mode on or off	Off
Standard temperature			Water outlet / Indoor temperature	Water outlet
Temperature control unit			Set temperature control unit	1°C
Temperature limits	Cooling water outlet		Set cooling temperature limit	16-25°C
	Heating water outlet		Set heating temperature limit	25C-65/70/75°C [*1]
	Hot water		Set hot water temperature limit	40C-55/63/70°C [*1]
PV energy saving			PV energy saving on or off	Off
Emergency mode			Set Emergency heating Emergency hot water supply on or off	Off
Smart reset			Reset on or off	Off
Error history			View error history	
Service information			View service info	

- [*1] The value is determined according to the type of outdoor unit.

Setting Options

Installation/Service mode

Accessing Service mode

On the Home screen, select ⚙ › **Heat pump** › **Service information**. When Customer service contact is displayed, touch the display 10 to 15 times in quick succession to access Service mode.

Heat pump FSV options can be set in Service mode.

📄 **NOTE**
- Certain setting changes require a reboot, in which case the product will reboot after displaying a reboot notification.

Installation/Service mode

NOTE
- Unavailable functions are marked inactive and they cannot be set.
- If communication initialization is needed after the setting, the system will reset automatically and communication will be initialized.

Step 1	Step 2	Step 3	Description	Default
Service information	Service company		Enter service provider's name	
	Call number		Entering a phone number	
	E-mail		Entering an email address	
	Last service date		Enter service date	
	Installation date		Enter installation date	
Heat pump options	Zone control and heating type (4061) [Note1)]	Zone 1 heating type	Zone 1 Floor / FCU / Radiator	Floor
		Zone 2 (4061) heating type	Zone 2 Floor / FCU / Radiator	Floor
	Heat pump controller temperature settings [Note2)]		Controller installed in heat pump / Controller installed indoors	Heat pump
	Water pump settings	Inverter pump control (4051)	Not used / Max 100% / Max 85% / Max 70%	100%
		Inverter pump minimum control (4054)	25% / 35% / 45% / 55%	25%
		Zone 1 pump control(Thermo off) (4062)	Off/On / Off and On	Off and On
		Zone 2 pump control(Thermo off) (4063)	Off/On / Off and On	Off and On
	Mixing valve (4041, 4042, 4043)		Used / Not used	Used / Not used [(*1)]
		Used selected	Target temperature/ Water Law temperature	Target temperature/ Water Law temperature [(*1)]
		Target △T for heating (4042)	5 to 15°C	10°C
		Target △T for cooling (4043)	5 to 15°C	10°C

Installation/Service mode

Step 1	Step 2	Step 3	Description	Default
Heat pump options	Activating hot water function (3011) Note 3)		Used / Not used When Used is selected, select from Control hot water thermo type 1 and Control hot water thermo type 2	Used / Not used (*1)
	Using the thermostat (2091,2092)		Thermostat #1 UFHs (2091) Used / Not used Thermostat #2 FCUs (2092) Used / Not used	Not used
	Room temperature control (2093)		Thermo on/off by room sensor / Thermo on/off by Water Law	Thermo on/off by Water Law
			When Water Law is selected, select from Pump off when thermo is off, Pump on when thermo is off, and Pump on/off when thermo is off	Pump on/off when thermo is off
	Energy metering (3081, 3083)	Backup heater capacity (3081)	1kw to 6kw	2kw
		Booster heater capacity (3083)	1kw to 6kw	3kw
	Solar panel / DHW thermostat (3061)		Used / Not used	Not used
			When Used is selected, select from Solar panel and DHW thermostat	Solar panel
	Room Temperature Calibration		-9.9 to 9.9°C	0°C
	Disinfection (3041, 3042, 3043)		On/Off	On
		Interval (3042)	Sun / Mon / Tue / Wed / Thu / Fri / Sat	Fri
		Start time (3043)	Set time	11:00 PM
	Water Law settings	WL type (2041)	Water Law 1 / Water Law 2	Water Law 1
		Max outdoor temperature (2011)	-20 to 5°C	-10 °C
		Min outdoor temperature (2012)	10 to 20°C	15 °C
		Max water out temp for Water Law 1 (2021)	17 to 65/70/75°C (*2)	40°C

Step 1	Step 2	Step 3	Description	Default
Heat pump options	Water Law settings	Min water out temp for Water Law 1 (2022)	17 to 65/70/75°C (*2)	25°C
		Max water out temp for Water Law 2 (2031)	17 to 65/70/75°C (*2)	50°C
		Min water out temp for Water Law 2 (2032)	17 to 65/70/75°C (*2)	35°C
		WL type (2081)	Water Law 1 / Water Law 2	Water Law 1
		Max outdoor temperature (2051)	25 to 35°C	30°C
		Min outdoor temperature (2052)	35 to 45°C	40°C
		Max water out temp for Water Law (2061)	5 to 25°C	25°C
		Min water out temp for Water Law 1 (2062)	5 to 25°C	18°C
		Max water out temp for Water Law 2 (2071)	5 to 25°C	18°C
		Min water out temp for Water Law 2 (2072)	5 to 25°C	5°C
	Away mode settings	Water out temperature (5013)	15 to 55°C	15°C
		Room temperature (5014)	16 to 30°C	16°C
		Water Law 1 temperature (5017)	15 to 55°C	15°C
		Water Law 2 temperature (5018)	15 to 55°C	15°C
		Water out temperature (5011)	5 to 25°C	25°C
		Room temperature (5012)	18 to 30°C	30°C
		Water Law 1 temperature (5015)	5 to 25°C	25°C

Installation/Service mode

Step 1	Step 2	Step 3	Description	Default
Heat pump options	Away mode settings	Water Law 2 temperature (5016)	5 to 25°C	25°C
		DHW tank temperature (5019)	30 to 70°C	30°C
	DHW heat pump settings	Max temp for heat pump (3021)	45 to 55/63/70°C (*2)	55/63/70°C (*2)
		Heat pump thermo off hysteresis (3022)	0 to 10°C	0/2°C (*1)
		Heat pump thermo on hysteresis (3023)	5 to 30°C	5°C
		Min heating operating time (3024)	1 Min to 20 min.	5 min.
		Max hot water operating time (3025)	5 Min to 95 min.	30 min.
		Max heating operating time (3026)	30 Min to 600 min.	180 min.
	PV control / Peak power control (5041, 5081)		On/Off	Off
			When On is selected, select from PV control and Peak power control	PV control Note 4)
	Frequency ratio control (5051)		On/Off	Off
	Smart grid control (5091)		On/Off	Off
	Booster heater (3031)		On/Off	On
	Backup heater (4021)		On/Off	Off
	External heater (4026)		On/Off	Off
	Backup boiler (4031)		On/Off	Off
	Output type settings (6041)		2Way valve / Zone pump	2Way valve
	Heat pump status		Heat pump status display	

Installation/Service mode

Step 1	Step 2	Step 3	Description	Default
Self-test mode	Self-test mode display		On/Off	Off
			Self-test mode display	
			Water pump On/Off	Off
			Booster heater On/Off	Off
			DHW valve (3way valve) On/Off	Off
			2way valve 1	Off
			Backup heater1	Off
			Backup heater2	Off
			Backup boiler	Off
			2way valve 2	Off
			Mixing valve	Off
Indoor unit options	Product		Indoor unit product info	
	Installation 1		Indoor unit Installation 1 info	
	Installation 2		Indoor unit Installation 2 info	
	Indoor Address		Indoor unit indoor address	
Field setting value	Simple setting		Enter FSV ID and value	
	FSV upload		Read indoor unit FSV settings	
	FSV download (to Indoor)		Write indoor unit FSV settings	
ODU K3 reset			K3 reset	
Reset all service mode data			Reset service settings	
Service mode history			View history of service settings	

- Note1) Changing the Heating type in Zone 1 or Zone 2 changes the image shown in Overview. After making a Heating type change, the product must be rebooted and re-registered in SmartThings.
- Note 2) Temperature calibration is activated only when Controller installed indoors > Use controller temperature data is selected.
- Note 3) After making a change to Activating hot water function (3011) settings, the product must be rebooted and re-registered in SmartThings.
- Note 4) PV control must be set to Used to access the PV energy saving menu.
- (*1) The value is determined according to the type of hydro unit.
- (*2) The value is determined according to the type of outdoor unit.

Installation/Service mode

📄 **NOTE**

• Address is displayed in hexadecimal. Please refer to the following table.

Hexadecimal	Decimal	Hexadecimal	Decimal	Hexadecimal	Decimal
00	0	10	16	20	32
01	1	11	17	21	33
02	2	12	18	22	34
03	3	13	19	23	35
04	4	14	20	24	36
05	5	15	21	25	37
06	6	16	22	26	38
07	7	17	23	27	39
08	8	18	24	28	40
09	9	19	25	29	41
0A	10	1A	26	2A	42
0B	11	1B	27	2B	43
0C	12	1C	28	2C	44
0D	13	1D	29	2D	45
0E	14	1E	30	2E	46
0F	15	1F	31	2F	47

Hexadecimal	Decimal	Hexadecimal	Decimal
30	48	40	64
31	49	41	65
32	50	42	66
33	51	43	67
34	52	44	68
35	53	45	69
36	54	46	70
37	55	47	71
38	56	48	72
39	57	49	73
3A	58	4A	74
3B	59	4B	75
3C	60	4C	76
3D	61	4D	77
3E	62	4E	78
3F	63	4F	79

Field setting mode

Air to Water Heat Pump: Only AE***DN*MPK / MIM-E03FN Model

⚠ CAUTION

• Set the FSV value of the product other than the specified models by referring to the FSV label provided with the manual of the product, and then attach it on the control box's cover. The FSV values in the table are applied to the specified models.

📄 NOTE

• Be sure to reset the power when changing the FSV (#3041 to 3046) of disinfection operation and the FSV (#5011 to 5019) of setting the Away mode.

Field Setting Value (FSV) 10**

Code 10** : Upper and lower temperature limits of each operation mode of AI Home
Heating (Water Out, Room), Cooling (Water Out, Room), DHW (Tank)

• The values in the following table are just examples for your understanding.

Main Code	Menu	Function			Sub Code	Model Code: AE200DNWMPK / AE200DNXMPK			Model Code: AE160DNYMPK / AE160DNZMPK / MIM-E03FN		
						Setting Standard			Setting Standard		
		Item	Step	Unit		Default	Min. value	Max. value	Default	Min. value	Max. value
Wired Controller Code 10**	Cooling	Water Out Temperature for Cooling	Max	1	°C	1011	25	18	25	25	18	25
			Min	1	°C	1012	16	5	18	16	5	18
		Room Temperature for Cooling	Max	1	°C	1021	30	28	30	30	28	30
			Min	1	°C	1022	18	18	28	18	18	28
	Heating	Water Out Temperature for Heating	Max	1	°C	1031	65/70/75 [*1]	37	65/70/75 [*1]	65/70/75 [*1]	37	65/70/75 [*1]
			Min	1	°C	1032	25	15	37	25	15	37
		Room Temperature for Heating	Max	1	°C	1041	30	18	30	30	18	30
			Min	1	°C	1042	16	16	18	16	16	18
	DHW	DHW tank Temperature	Max	1	°C	1051	55/63/70 [*1]	50	70	55/63/70 [*1]	50	70
			Min	1	°C	1052	40	30	40	40	30	40
	Hysteresis for Thermo ON	Water Out Hysteresis for Heat	0.5	°C	1061	0	0	7	0	0	7	
		Water Out Hysteresis for Cool	0.5	°C	1062	1	1	7	1	1	7	
		Room Hysteresis for Heat	0.5	°C	1063	0	0	7	0	0	7	
		Room Hysteresis for Cool	0.5	°C	1064	1	1	7	1	1	7	

📄 NOTE

• The FSV #3011 in the AI Home should be set to 1 or 2 to use the DHW mode.
• [*1] The value is determined according to the type of outdoor unit.

Field setting mode

AI Home Setting Range: Code 10**

Space Cooling (FSV#1011~1022)

- Target water outlet temperature : Upper limit(#1011, Default 25°C, Range : 18 ~ 25°C),
                                                    Lower limit(#1012, Default 16°C, Range : 5 ~ 18°C)
    – With this default FSV settings, user can change the target water outlet temperature within the range of 16 ~ 25°C for cooling.
    – Do not set it below 16 degrees to prevent floor condensation when using underfloor cooling.
- Target room temperature : Upper limit(#1021, Default 30°C), Lower limit(#1022, Default 18°C)
    – With this default FSV settings, user can change the target room temperature within the range of 18 ~ 30°C for cooling.

Space Heating (FSV#1031~1042)

- Target water outlet temperature : Upper limit(#1031, Default 65/70/75°C, Range : 37 ~ 65/70/75°C),
                                                    Lower limit(#1032, Default 25°C, Range : 15 ~ 37°C)
    – With this default FSV settings, user can change the target water outlet temperature within the range of 25 ~ 65/70/75°C for heating.
- Target room temperature : Upper limit(#1041, Default 30°C), Lower limit(#1042, Default: 16°C)
    – With this default FSV settings, user can change the target room temperature within the range of 16 ~ 30°C for heating.

DHW Heating (FSV#1051/1052)

- Target DHW tank temperature : Upper limit(#1051, Default 55/63/70°C, Range : 50 ~ 70°C),
                                                    Lower limit(#1052, Default 40°C, Range : 30 ~ 40°C)
    – With this default FSV settings, user can change the target tank temperature within the range of 40 ~ 55/63/70°C for DHW heating.

Hysteresis (FSV#1061~1064)

If the value of the FSV is large, it takes longer to thermo on
- Water outlet temperature control by hysteresis (heating)
    Ex) When target water outlet temperature is 55°C, thermo off temperature is 57°C and thermo on temperature is 55°C-FSV#1061(Default 0°C, Range 0~7°C)
- Water outlet temperature control by hysteresis (cooling)
    Ex) When target water outlet temperature is 7°C, thermo off temperature is 7°C and thermo on temperature is 7°C+FSV#1062(Default 1°C, Range 1~7°C)
- Room temperature control by hysteresis (heating)
    Ex) When target room temperature is 30°C, thermo off temperature is 31°C and thermo on temperature is 30°C-FSV#1063(Default 0°C, Range 0~7°C)
- Room temperature control by hysteresis (cooling)
    Ex) When target room temperature is 18°C, thermo off temperature is 18°C and thermo on temperature is 18°C+FSV#1064(Default 1°C, Range 1~7°C)

Field Setting Mode

Field Setting Value (FSV) 20**

Code 20** : Water law design and external room thermostat Heating(2 WL's for floor & FCU),
Cooling(2 WL's for floor & FCU), WL & Thermostat types
- The values in the following table are just examples for your understanding.

Main Code	Menu	Function				Sub Code	Model Code: AE200DNWMPK / AE200DNXMPK			Model Code: AE160DNYMPK / AE160DNZMPK / MIM-E03FN		
							Setting Standard			Setting Standard		
		Item		Step	Unit		Default	Min. value	Max. value	Default	Min. value	Max. value
Water Law Code 20**	Heating	Outdoor Temperature for Heating Water Law	Max	1	°C	2011	-10	-20	5	-10	-20	5
			Min	1	°C	2012	15	10	20	15	10	20
		Water out Temperature for WL1 Heating (UFHs)	Max	1	°C	2021	40	17	65/70/75 [*1]	40	17	65/70/75 [*1]
			Min	1	°C	2022	25	17	65/70/75 [*1]	25	17	65/70/75 [*1]
		Water out Temperature for WL2 Heating (FCUs)	Max	1	°C	2031	50	17	65/70/75 [*1]	50	17	65/70/75 [*1]
			Min	1	°C	2032	35	17	65/70/75 [*1]	35	17	65/70/75 [*1]
		Heating Water Law Selection	WL Type	-	-	2041	1(WL1)	1	2	1(WL1)	1	2
	Cooling	Outdoor Temperature for Cooling Water Law	Max	1	°C	2051	30	25	35	30	25	35
			Min	1	°C	2052	40	35	45	40	35	45
		Water out Temperature for WL1 Cooling (UFHs)	Max	1	°C	2061	25	5	25	25	5	25
			Min	1	°C	2062	18	5	25	18	5	25
		Water out Temperature for WL2 Cooling (FCUs)	Max	1	°C	2071	18	5	25	18	5	25
			Min	1	°C	2072	5	5	25	5	5	25
		Cooling Water Law Selection	WL Type	-	-	2081	1(WL1)	1	2	1(WL1)	1	2
	External Control	External Room Thermostat	#1 (UFHs)	1	-	2091	0(No)	0	4	0(No)	0	4
			#2 (FCUs)	1	-	2092	0(No)	0	4	0(No)	0	4
	AI Home	AI Home Room Temp. Control		1	-	2093	4	1	4	4	1	4

📄 **NOTE**
- [*1] The value is determined according to the type of outdoor unit.

Field Setting Mode

Field setting mode

Water Law & Room Thermostat / AI Home: Code 20**
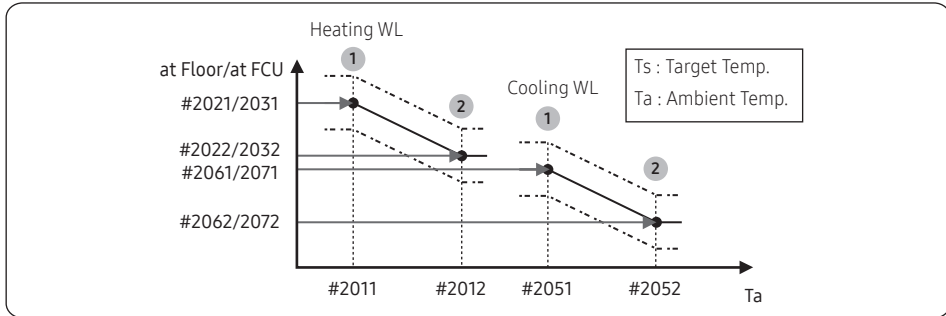
Water Law for Heating (FSV#2011~2041)

- Outdoor air temperature range : Lower limit ① (#2011, Default -10℃, Range : -20 ~ 5℃),
  Upper limit ② (#2012, Default 15℃, Range : 10 ~ 20℃)
  – With this default settings, the water outlet temperature by heating water law can be changed within the outdoor temperature range of -10 ~ 15℃.
- Water out temperature range for floor/FCU applications respectively :
  Upper limit ① (#2021/2031, Default 40/50℃, Range : 17 ~ 65/70/75℃),
  Lower limit ② (#2022/2032, Default 25/35℃, Range : 17 ~ 65/70/75℃)
  – With this default settings, the water outlet temperature by heating water law can be changed within the range of 25/35 ~ 40/50℃.
- In case that 2 zone control is not used (FSV# 4061 = 0) and the external room thermostat is not used (FSV#2091 = 0, #2092 = 0). Type of water law for according to heating devices(floor/FCU) : #2041(Default 1(WL1 for floor)), 2(WL2 for FCU or radiator)

Water Law for Cooling (FSV#2051~2081)

- Outdoor air temperature range : Lower limit ① (#2051, Default 30℃, Range : 25 ~ 35℃),
  Upper limit ② (#2052, Default 40℃, Range : 35 ~ 45℃)
  – With this default settings, the water outlet temperature by cooling water law can be changed within the outdoor temperature range of 30 ~ 40℃.
- Water out temperature range for floor/FCU applications respectively :
  Upper limit ① (#2061/2071, Default 25/18℃), Lower limit ② (#2062/2072, Default 18/5℃)
  – With this default settings, the water outlet temperature by cooling water law can be changed within the range of 5/18 ~ 18/25℃.
- In case that 2 zone control is not used (FSV# 4061 = 0) and the external room thermostat is not used (FSV# 2091 = 0, #2092 = 0). Type of water law for according to cooling devices(floor/FCU) : #2081(Default 1(WL1 for floor), 2(WL2 for FCU or radiator)
- Do not set WL1 below 16 degrees to prevent floor condensation when using underfloor cooling.

External Room Thermostat (Field Option) (FSV#2091/2092)

- Room thermostat #1 (#2091, Default 0 for no usage), #2 (#2092, Default 0 for no usage)
    - To use AI Home for heating/cooling operation, both of the above settings should be set to 0 simultaneously. If not, thermostat controls system.
    - To use the External Room Thermostat option, set the 2-zone control option (FSV #4061) to "0" for disabling it.
    - If set to #2091/#2092 1, the compressor can be turned on or off only by the thermostat.
    - If set to #2091/#2092 2~4, the compressor can be turned on or off by the thermostat or according to the WL discharged water temperature.(#2092 2, WL Thermo off → Water pump off, #2092 3, WL Thermo off → Water pump on, #2092 4, WL Thermo off → Water pump 7min off → 3min on →.......).
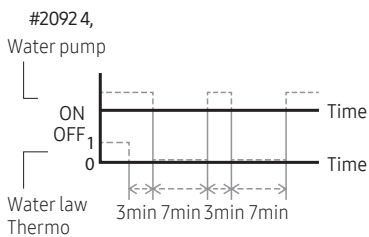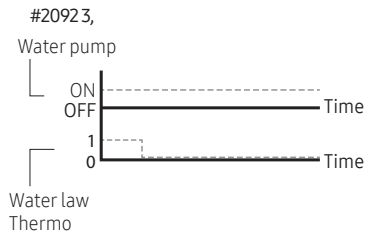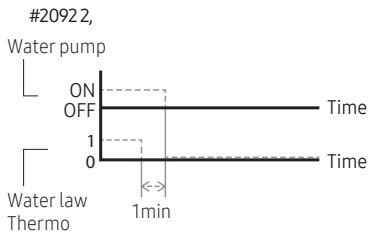
- During the thermostat operation, the user has the possibility to shift up or down the target water temperature within the range of -5 ~ +5℃.

Field setting mode

- When the Room thermostat is used, floor valve should be connected to 2 way valve #1 and the FCU valve should be separately connected to 2 way valve #2 of the Hydro Unit PBA.
- When only floor cooling/heating is installed and if the Water Law or outlet water temperature is too low, 2way valve may closed and E911 error may occur.
- When the floor and FCU units are installed together and operating in cooling mode, floor valve may close and E911 may occur to prevent floor condensation when the outlet water temperature is below 16°C. Therefore FCU should secure minimum value for the flow rate.
- Thermostat #2 which controls FCU has the priority for operation modes and the discharge water temperature.
- Samsung is not responsible for the accidents such as floor condensations which can occur by not connecting the floor valve to the 2 way valve #1 port of the Hydro Unit PBA.

AI Home room temperature control (FSV#2093)

- Control by room temperature sensor
    - If set to #2093 1, the compressor can be turned on or off only by Room temp sensor.
    - If set to #2093 2~4, the compressor can be turned on or off by Room Temp. sensor or according to the WL discharged water temperature.
      (#2093 2, WL Thermo off → Water pump off, #2093 3, WL Thermo off → Water pump on, #2093 4, WL Thermo off → Water pump 7min off → 3min on →.......).

Field Setting Value (FSV) 30**

Code 30** : User's options for Domestic Hot Water(DHW) tank heating
• The values in the following table are just examples for your understanding.

Main Code	Menu	Function			Sub Code	Model Code: AE200DNWMPK / AE200DNXMPK			Model Code: AE160DNYMPK / AE160DNZMPK / MIM-E03FN		
						Setting Standard			Setting Standard		
		Item	Step	Unit		Default	Min. value	Max. value	Default	Min. value	Max. value
Domestic Hot Water Tank Code 30**	DHW	DHW mode activate / DHW mode	-	-	3011	1	0	2	0	0	2
		Heat Pump / Max. Temp.	1	°C	3021	55/63/70 (*1)	45	55/63/70 (*1)	55/63/70 (*1)	45	55/63/70 (*1)
		Stop	1	°C	3022	0	0	10	2	0	10
		Start	1	°C	3023	5	5	30	5	5	30
		Min. Operating Time	1	min	3024	5	1	20	5	1	20
		Max. Operating Time	5	min	3025	30	5	95	30	5	95
		Operation Interval	30	min	3026	180	30	600	180	30	600
		Booster Heater / On/Off	-	-	3031	1(On)	0(Off)	1	1(On)	0(Off)	1
		Delay Time	5	min	3032	20	20	95	20	20	95
		Overshoot	1	°C	3033	0	0	4	0	0	4
		Disinfection / On/Off	-	-	3041	1(On)	0(Off)	1	1(On)	0(Off)	1
		Interval	1	day	3042	Fri(5)	Sun(0)	All(7)	Fri(5)	Sun(0)	All(7)
		Start Time	1	o'clock	3043	23	0	23	23	0	23
		Target Temp.	5	°C	3044	70	40	70	70	40	70
		Duration	5	min	3045	10	5	60	10	5	60
		Max time	1	hour	3046	8	1	24	8	1	24
		Power DHW by User Input / Timer OFF Function	-	-	3051	0(No)	0	1(Yes)	0(No)	0	1(Yes)
		Time Duration	1	(x10) min	3052	6	3	30	6	3	30
		Solar Panel/DHW Thermostat / H/P Combination	1	-	3061	0(No)	0	2	0(No)	0	2
		3-way Valve / Defalut Direction	-	-	3071	0(Room)	0	1(Tank)	0(Room)	0	1(Tank)
	Addition Function	Energy metering / Backup Heater capacity	1	kW	3081	2	1	6	2	1	6
		Booster Heater capacity	1	kW	3083	3	1	6	3	1	6

📖 **NOTE**
• (*1) The value is determined according to the type of outdoor unit.

Field setting mode

DHW Heating : Code 30**

DHW Application (FSV#3011)

The FSV #3011 in the AI Home should be set to 1 or 2 to use DHW function.

If FSV #3011 is set to 1, the DHW operation starts based on the thermo on temperature. (In case of Heating/Cooling - DHW Combined Operation Mode)

If FSV #3011 is set to 2, the DHW operation starts based on the thermo off temperature. (In case of Heating/Cooling - DHW Combined Operation Mode)

(For example, when the current temperature becomes 45℃ under the conditions that the thermo on temperature is 43℃ and the thermo off temperature is 48℃, the DHW turns off if FSV #3011 is set to 1 and DHW turns on if FSV #3011 is set to 2.)

Heat Pump Variables for Controlling DHW Tank (FSV#3021~3026)

• Maximum DHW tank temperature with the heat pump operation :
  FSV #3021, Default 55/63/70℃, Range : 45 ~ 55/63/70℃.
• Temperature difference determining the heat pump OFF temperature :
  FSV #3022, Range : 0 ~ 10℃.
• Temperature difference determining the heat pump ON temperature :
  FSV #3023, Default 5℃, Range : 5 ~ 30℃.

[DHW Tank water temperature thermo on/off control]

$T_U > T_{HP\,MAX}$ $T_U < T_{HP\,MAX}$

Tu : User set temp.

T(C) : Temp. (Celsius)

T(C)

T_U

#3021 $T_{HP\,MAX}$

    #3022

$T_{HP\,OFF}$

    #3023

$T_{HP\,ON}$

T(C)

#3021 $T_{HP\,MAX}$

$T_U = T_{HP\,OFF}$

    #3023

$T_{HP\,ON}$
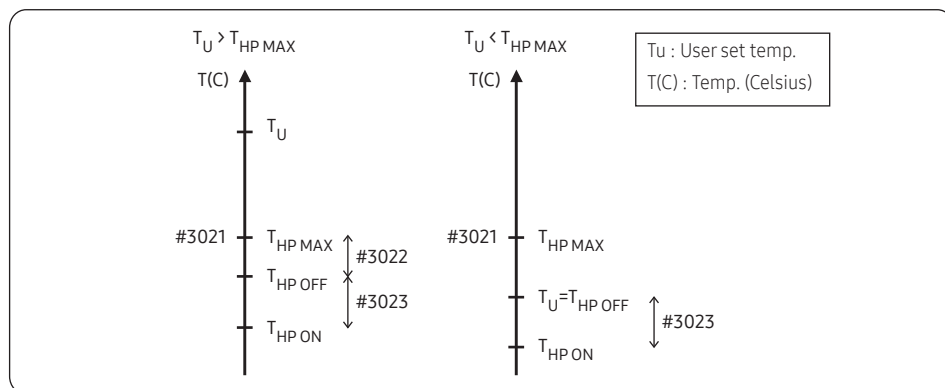
- DHW heating mode timer : Mode timer manage the operation terms when there are simultaneous requests of space heating/cooling and DHW.
  - FSV #3024 (minimum Space heating operating time, Default 5 min., Range 1 ~ 20 min.), #3025 (maximum DHW time, Default 30 min., Range 5 ~ 95 min.), #3026(maximum space heating operation time, Default 3 hour, Range 0.5 ~ 10 hour)
  - Maximum operation time is applied only when both DHW and Space heating request operation. DHW or Space heating operates continuously until reaching at target temperature without time limitation in the single operation.

[Time variation control of DHW and space heating mode]

Space heating request   1   0

DHW request   1   0

DHW operation   1

Space heating operation   0

#3024

#3025   #3026

t
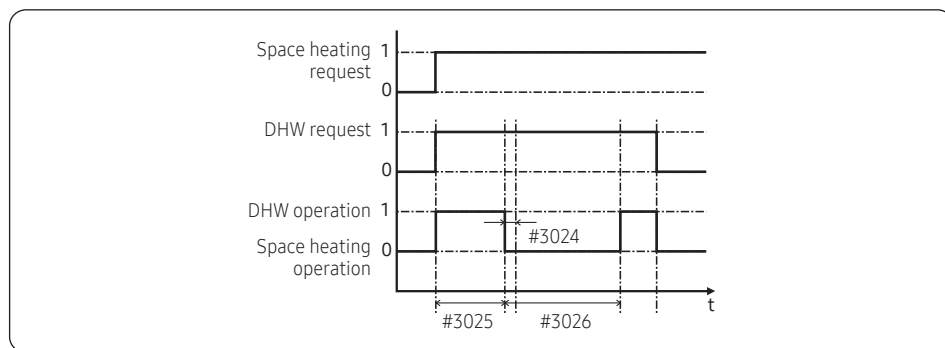
Field setting mode

Booster Heater Variables for Controlling DHW Tank (FSV#3031~3033)

- The FSV #3031 should be set to "1(On)" (Default) to use booster heater as an additional heat source for DHW tank.
- Booster heater startup delay timer : In case of DHW request, this timer will delay the operation of booster heater compared to heat pump.
    - FSV #3032 (Default 20 min., Range 20 ~ 95 min.), In "Power/Forced" DHW mode, the delay timer will be neglected, and the booster starts immediately.
    - In "Economic" DHW mode, the DHW heating will be conducted only with heat pump.
    - #3032 should be smaller than the maximum H/P time (#3025). If the delay time is set too high, it might take very long time for DHW heating.
- Temperature difference determining the booster heater OFF temperature (T_BH OFF = Tu + #3033) : FSV #3033, Default 0℃, Range : 0 ~ 4℃.
- Temperature difference determining the booster heater ON temperature (T_BH ON = T_BH OFF - 2)

[Time variation control of Heat pump and booster heater of DHW]
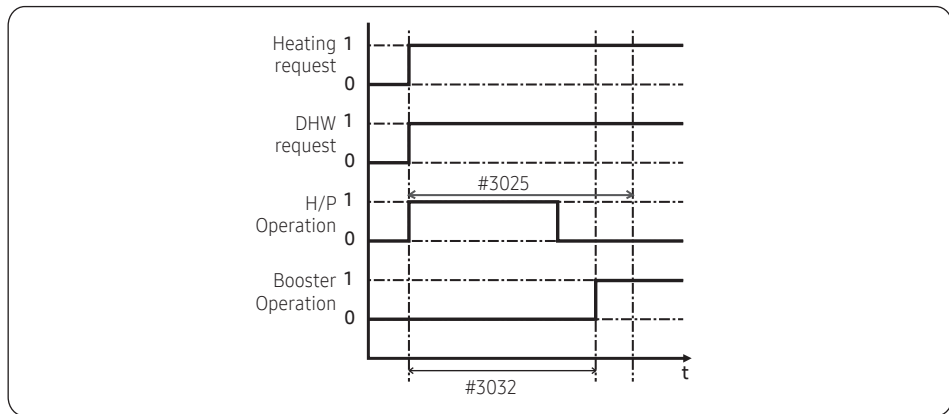
NOTE

- The FSV #4022 for booster heater priority should be set to "0 (both)" or "2" (booster) to use booster heater.
- If not(backup heater priority), the booster heater can be operated in case of no backup heater demand.
- The model "AE200DN*MPK" does not have the booster heater but is alternatively controlled by the backup heater. If you want an alternative control, FSV#3031 should be set to 1.

‹Example of using BSH in hot water supply›

Case 1) When set temperature is 70℃
BSH is ON at less than 68 degrees, OFF at more than 70℃.

Case 2) When setting temperature is 50℃ (FSV 3022 = 0 condition)
Heat pump and BHS are ON at less than 45 degrees, OFF at more than 50℃
(Thermo off / on operation temperature is used together)

[Thermo on/off control of Heat pump and Booster Heater]

| Case 1 : When set temperature(Tu) > ThpMAX(FSV #3021) [1]* | Case 2 : When set temperature(Tu) ≤ ThpMAX(FSV #3021) [1]* |
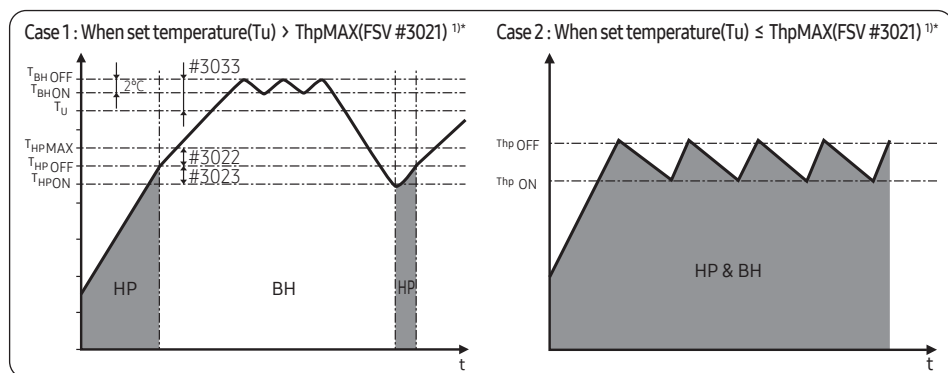
NOTE

- [1]* The value is determined according to the type of outdoor unit.

Disinfection Function (FSV#3041~3046)

- The FSV #3041 should be set to "1 (On)" (Default) to use disinfection function.
  - Scheduling : Day (#3042, Default "Friday"), starting time (#3043, Default "23:00"),
    target tank temp. (#3044, Default "70℃"), duration (#3045, Default 10 min.)

[Time variation control of Heat pump and booster heater of DHW]
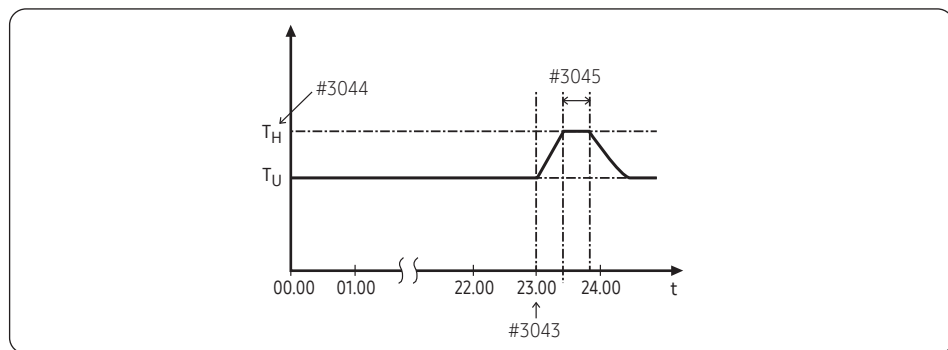
Field Setting Mode

Field setting mode

📄 **NOTE**

- Disinfection function is available only when a booster heater is connected. But the model "AE200DN*MPK" is alternatively controlled by the backup heater.
- Check tank capacity, booster heater capacity, and booster heater for issues if disinfection operation does not work normally over the maximum operation time(E919 error).

Forced DHW by User's Input (FSV#3052)

- Forced mode can be activated by changing the FSV #3011 (default=0=NOT USE) to 1 / 2 (USE)
- Forced mode shall be working depending on Timer setting (#3051, #3052).

Additional Solar panel/DHW thermostat Installation for DHW with Heat Pump (Field Option) (FSV#3061)

- Solar panel and heat pump are able to operate simultaneously by setting value. (FSV #3061, "1")
- When using DHW thermostat, set the FSV #3061, "2".

3-way Valve (FSV#3071)

- The 3-way valve determines the direction of DHW (domestic hot water) and space heating/cooling, and cannot open in both directions simultaneously.
- There is one minute delay of 2-way / 3-Way valve closing whereas no delay of valve opening.
- FSV 3071 determines a 3-way direction. [Defalut #3071=0; When the power to the 3-way valve is OFF, it goes towards the room]

Energy metering (FSV#3081/3083)

- To accurately indicate energy consumption, the capacity of the backup heater and booster heater must be set using FSV #3081 / 3083.

📄 **NOTE**

- Energy metering measurements are made by the product and can differ from actual energy consumption.

Field Setting Value (FSV) 40**

Code 40** : User's options for heating devices including internal backup heater and external boiler
• The values in the following table are just examples for your understanding.

Main Code	Menu	Item	Step	Unit	Sub Code	Model Code : AE200DNWMPK Default	Min. value	Max. value	Model Code : AE200DNXMPK Default	Min. value	Max. value
Heating Code 40**	Heating	**Heat Pump** Heating / DHW priority	-	-	4011	0(DHW)	0	1(Heating)	0(DHW)	0	1(Heating)
		Low Outdoor Temp. for Heating Priority	1	°C	4012	0	-15	20	0	-15	20
		Heating Off Temp.	1	°C	4013	35/45 (*2)	10	35/45 (*2)	35/45 (*2)	10	35/45 (*2)
		Backup Heater On/Off	-	-	4021	0(No)	0	1	0(No)	0	1
		BUH/BSH Priority	1	-	4022	2(BSH)	0(Both)	2(BSH)	2(BSH)	0(Both)	2(BSH)
		Back-up Heater On/Off	-	-	4023	1(Yes)	0(No)	1	1(Yes)	0(No)	1
		Threshold Temp.	1	°C	4024	0	-25	35	0	-25	35
		Defrost Backup Temp.	5	°C	4025	15	10	55	15	10	55
		External Heater	-	-	4026	0	0	1	N/A	N/A	N/A
		Backup Boiler Back-up Boiler On/Off	-	-	4031	0(No)	0	1(Yes)	0(No)	0	1(Yes)
		Boiler Priority	-	-	4032	0(No)	0	1(Yes)	0(No)	0	1(Yes)
		Threshold Condition	1	°C	4033	-15	-20	5	-15	-20	5
		Mixing valve Application	1	-	4041	0(No)	0	2	2(Yes)	0	2
		Target ΔT(Heating)	1	°C	4042	10	5	15	10	5	15
		Target ΔT(Cooling)	1	°C	4043	10	5	15	10	5	15
		Control factor	1	-	4044	2	1	5	2	1	5
		Control interval	1	min	4045	1	1	30	1	1	30
		Running Time	1	(x10) sec	4046	12	6	24	12	6	24

Field setting mode

Main Code	Menu	Function				Sub Code	Model Code : AE200DNWMPK			Model Code : AE200DNXMPK		
		Function					Setting Standard			Setting Standard		
		Item		Step	Unit		Default	Min. value	Max. value	Default	Min. value	Max. value
Heating Code 40**	Heating	Inverter Pump	Application	-	-	4051	1	0	3	1	0	3
			Target ΔT	1	℃	4052	5	2	8	5	2	8
			Control factor	1	-	4053	2	1	3	2	1	3
			PWM minimum output	1	(10)%	4054	0(25%)	0(25%)	3(55%)	0(25%)	0(25%)	3(55%)
	Addition Function	Zone control	Application	1	-	4061	0(No)	0	1(Yes)	1(Yes)	0	1(Yes)
			T-Off Zone1 pump(2Way V/v) Control	1	-	4062	2	0	2	2	0	2
			T-Off Zone2 pump(2Way V/v) Control	1	-	4063	2	0	2	2	0	2

Main Code	Menu	Function				Sub Code	Model Code: AE160DNYMPK / MIM-E03FN			Model Code: AE160DNZMPK		
							Setting Standard			Setting Standard		
		Item		Step	Unit		Default	Min. value	Max. value	Default	Min. value	Max. value
Heating Code 40**	Heating	Heat Pump	Heating / DHW priority	-	-	4011	0(DHW)	0	1(Heating)	0(DHW)	0	1(Heating)
			Low Outdoor Temp. for Heating Priority	1	°C	4012	0	-15	20	0	-15	20
			Heating Off Temp .	1	°C	4013	35/45 [2]	10	35/45 [2]	35/45 [2]	10	35/45 [2]
		Backup Heater	On/Off	-	-	4021	0(No)	0	1	0(No)	0	1
			BUH/BSH Priority	1	-	4022	0(Both)	0(Both)	2(BSH)	0(Both)	0(Both)	2(BSH)
			Back-up Heater On/Off	-	-	4023	1(Yes)	0(No)	1	1(Yes)	0(No)	1
			Threshold Temp.	1	°C	4024	0	-25	35	0	-25	35
			Defrost Backup Temp.	5	°C	4025	15	10	55	15	10	55
			External Heater	-	-	4026	0	0	1	N/A	N/A	N/A
		Backup Boiler	Back-up Boiler On/Off	-	-	4031	0(No)	0	1(Yes)	0(No)	0	1(Yes)
			Boiler Priority	-	-	4032	0(No)	0	1(Yes)	0(No)	0	1(Yes)
			Threshold Condition	1	°C	4033	-15	-20	5	-15	-20	5
		Mixing valve	Application	1	-	4041	0(No)	0	2	2(Yes)	0	2
			Target ΔT(Heating)	1	°C	4042	10	5	15	10	5	15
			Target ΔT(Cooling)	1	°C	4043	10	5	15	10	5	15
			Control factor	1	-	4044	2	1	5	2	1	5
			Control interval	1	min	4045	1	1	30	1	1	30
			Running Time	1	(x10) sec	4046	12	6	24	12	6	24

Field setting mode

Main Code	Menu	Function			Sub Code	Model Code : AE160DNYMPK / MIM-E03FN			Model Code : AE160DNZMPK		
						Setting Standard			Setting Standard		
		Item	Step	Unit		Default	Min. value	Max. value	Default	Min. value	Max. value
Heating Code 40**	Heating	Inverter Pump	Application	-	-	4051	1	0	3	1	0	3
			Target ΔT	1	˚C	4052	5	2	8	5	2	8
			Control factor	1	-	4053	2	1	3	2	1	3
			PWM minimum output	1	(10)%	4054	0(25%)	0(25%)	3(55%)	0(25%)	0(25%)	3(55%)
	Addition Function	Zone control	Application	1	-	4061	0(No)	0	1(Yes)	1(Yes)	0	1(Yes)
			T-Off Zone1 pump(2Way V/v) Control	1	-	4062	2	0	2	2	0	2
			T-Off Zone2 pump(2Way V/v) Control	1	-	4063	2	0	2	2	0	2

📖 **NOTE**

- [*2] The value is determined according to the type of outdoor unit.

Field Setting Mode

Additional heating option : 40**

Heat Pump Variables for Space Heating (FSV#4011~4013)

- FSV #4011 for DHW priority is set to "0(DHW)" as a default. Space heating gets a priority by setting FSV #4011 "1", but this is only valid when the outdoor temperature is lower than the specified temperature defined by FSV #4012.
- When priority is on DHW, DHW mode (FSV #3025,default 30 mins) and space heating (FSV#3026,default 180 mins) alternately operate, and when priority is on space heating, they operate as space heating mode.
- Space heating off temperature(FSV #4013, Default "35/45℃", Range 10 ~ 35/45℃): At high outdoor temperature above this value, the space heating will be turned off.

Backup Heater Variables for Space Heating (FSV#4021~4025)

- The FSV #4021 should be set to 1(Yes) to use the electric backup heater in hydro unit as an additional heat source.
- To configure the backup heater's operating conditions by setting FSV #4023 and FSV #4024.
  – When FSV #4023 is set to 0, the backup heater operates regardless of the outdoor temperature.
  – When FSV #4023 is set to 1(Default), the backup heater operates when the outdoor temperature is below FSV #4024(Default "0") to save energy; its operation is restricted at FSV #4024 or higher.
- FSV #4022 can be set to priorities such as 0 (both), 1 (backup heater), and 2 (booster heater).
- The FSV #4022 for backup heater priority should be set to "0 (both)" (Default) or "1" (backup) to use backup heater. If FSV #4022 is not set to 2 (booster heater priority), the backup heater can be operated in case of no booster heater demand.
- The threshold temperature for backup heater operation during defrost mode to prevent cold draft because of chilled water can be controlled by adjusting FSV #4025. Under FSV #4025 of water outlet temperature, backup heater Will be turned on.

📄 **NOTE**

- To use both backup heater and booster heater together at the same time as set FSV#4022="0", please check the capacity of the power circuit breaker of your house before use.

External Heater for Space Heating (Field Option) (FSV#4026)

- The FSV #4026 should be set to "1 (Yes)" to use the external backup heater as an additional heat source. (default: "0 (No installation)")
- The operation algorithm of the External Heater is the same as the built-in Backup heater. However, it does not work during DHW mode and disinfection mode.
- Some models cannot have that feature set. (Refer to the FSV table)

Field Setting Mode

Field setting mode

External Backup Boiler for Space Heating (Field Option) (FSV#4031~4033)

- The FSV #4031 should be set to "1 (Yes)" to use a backup boiler as an additional heat source. (default: "0 (No installation)")
- Priority of backup boiler and heat pump is defined by FSV #4032 (default: "0 (OFF)")
- To compensate the lowered heat pump heating performance under very cold weather conditions, the backup boiler operates instead of heat pump under the threshold temperature (FSV #4033, Default "-15°C", Range -20 ~ 5°C).

Mixing valve Installation (Field Option) (FSV#4041~4046)

- The FSV #4041 should be set to "1 or 2" to use mixing valve.

※ 4041 =1 : Controlled based on the temperature difference (4042, 4043)

※ 4041 =2 : Controlled based on the temperature difference of the WL value

- Even when setting #4041 to "1", the mixing valve is basically operated by the WL valve of the FCU/Floor, but if zone control is not used (FSV #4061 = "0") and the Fcu and floor are simultaneously thermo-on, it is controlled based on the temperature difference (4042, 4043).
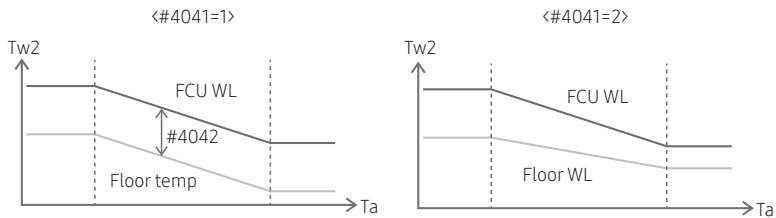
- FSV #4042 / #4043 is for adjusting temperature difference between Tw3 (Tw2) and Tw4.
- FSV #4044 determines the mount of the opening/closing degree of the valve per operation, and the larger the set number, the greater the opening/closing degree per operation. It operates every FSV#4045 set interval.
- When using mixing valve, FSV #4046 should be matched with mixing valve running time charateristic. (set according to the mixing valve specifications.)

📄 NOTE

- AE200DNX*** / AE160DNZ*** (2 Zone-built in) are configured to allow the Mixing Valve to operate.

Inverter Pump Installation (Field Option) (FSV#4051~4054)

- FSV #4051=1 (Default) : Inverter pump use + Max PWM output 100%, FSV #4051=2 : Inverter pump use + Max PWM output 85%, FSV #4051=3 : Inverter pump use + Max PWM output 70%, FSV #4051=0 : Fixed pump.
- FSV #4052 is for adjusting temperature difference between Tw2 and Tw1.
- FSV #4053 determines the amount of change in PWM output during pump operation, and the larger the set value, the greater the change in PWM output per operation.
- Pump PWM minimum output is limited to 25% to 55% according to FSV #4054.
  (Setting "0":25%, "1":35%, "2":45%, "3":55%)

📑 **NOTE**

- Tw1 (Inlet Water Temp), Tw2 (Discharge Water Temp), Tw3 (Backup Heater oulet Water Temp), Tw4 (Mixing valve Temp.)

Zone Control (Field Option) (FSV#4061~4063)

- Zone control Using AI Home (install option) FSV # 4061 should be set to "1 (Yes)" to zone control.
  - To use the zone control (FSV #4061=1), set the thermostat control option (FSV #2091 & #2092) to "0" for disabling it.
  - This field option controls each zone (Zone 1, Zone 2) with AI Home setting not by using the external room thermostat signal.
  - According to FSV #4062/4063 setting, Zone pump (2way V/v) is operated when Zone1/ Zone2 Thermo Off (Setting "0": Thermo off_ Water pump off, "1": Thermo off _ Water pump on, "2": Thermo off _Water pump 7min off → 3min on →.......).

📑 **NOTE**

- AE200DNX*** / AE160DNZ*** (2 Zone-built in) are configured to allow the 2 Zone Control.

Field setting mode

Field Setting Value (FSV) 50**/60**

Code 50**/60** : User's options for extra functions
• The values in the following table are just examples for your understanding.

Main Code	Menu	Function			Sub Code	Model Code : AE200DNWMPK / AE160DNYMPK / MIM-E03FN			Model Code : AE200DNXMPK / AE160DNZMPK		
						Setting Standard			Setting Standard		
		Item	Step	Unit		Default	Min. value	Max. value	Default	Min. value	Max. value
Others Code 50**	Away mode	Water Out Temperature for Cooling	1	°C	5011	25	5	25	25	5	25
		Room Temperature for Cooling	1	°C	5012	30	18	30	30	18	30
		Water Out Temperature for Heating	1	°C	5013	15	15	55	15	15	55
		Room Temperature for Heating	1	°C	5014	16	16	30	16	16	30
		Cooling WL1 Temp.	1	°C	5015	25	5	25	25	5	25
		Cooling WL2 Temp.	1	°C	5016	25	5	25	25	5	25
		Heating WL1 Temp.	1	°C	5017	15	15	55	15	15	55
		Heating WL2 Temp.	1	°C	5018	15	15	55	15	15	55
		DHW tank Temp.	1	°C	5019	30	30	70	30	30	70
	DHW Saving	DHW Saving Temp	1	°C	5021	5	0	40	5	0	40
		DHW Saving Mode	1	-	5022	0	0	1	0	0	1
		DHW Saving Thermo on Temp.	1	°C	5023	25	0	40	25	0	40
	Power Peak Control	Application	-	-	5041	0(No)	0	1(Yes)	0(No)	0	1(Yes)
		Select forced off parts	1	-	5042	0(All)	0	3	0(All)	0	3
		Using input voltage	-	-	5043	1(High)	0(Low)	1	1(High)	0(Low)	1
	Frequency Ratio Control		-	-	5051	0(No)	0	1(Yes)	0(No)	0	1(Yes)

Field Setting Mode

Main Code	Menu	Function			Sub Code	Model Code : AE200DNWMPK / AE160DNYMPK / MIM-E03FN			Model Code : AE200DNXMPK / AE160DNZMPK		
		Function				Setting Standard			Setting Standard		
		Item	Step	Unit		Default	Min. value	Max. value	Default	Min. value	Max. value
Others Code 50**	Addition Function	PV control	Application	1	-	5081	0(No)	0	1(Yes)	0(No)	0	1(Yes)
			Setting Temp Shift Value(Cooling)	1	°C	5082	2	1	20	2	1	20
			Setting Temp Shift Value(Heating)	1	°C	5083	2	1	50	2	1	50
	Addition Function	Smart Grid Control	Application	1	-	5091	0(No)	0	1(Yes)	0(No)	0	1(Yes)
			Setting Temp Shift Value(Heating)	1	°C	5092	2	1	50	2	1	50
			Setting Temp Shift Value(DHW)	1	°C	5093	5	1	40	5	1	40
			DHW Mode (Target Tank Temp.)	1	-	5094	0	0	1	0	0	1
Others Code 60**	Outdoor Unit	Heating Outdoor Unit Control	DHW Defrost Temp	1	°C	6011	40	10	70	40	10	70
			Mini Thermo ON operating time limit	1	min	6022	5	5	30	5	5	30
			Optional Thermo On/Off	1	-	6031	1(Yes)	0(No)	1(Yes)	1(Yes)	0(No)	1(Yes)
	Thermostat Control	Type	"0" : 2way valve "1" : Water pump"	1	-	6041	0	0	1	1	0	1

Field setting mode

Others : Code 50**/60**

Away mode (FSV#5011~5019)

- All the target temperatures – space heating and cooling, water law, DHW, Room temperature – are set to the values defined in the above table under the Away mode.

📄 **NOTE**

- With the lowered target temperatures (FSV #5011 ~ #5019), the system operates normally.

Economic DHW Heating (FSV#5021~5023)

- DHW heating only by the heat pump to save energy (Operated in Eco mode of AI Home)
  Target DHW temperature is lower than the temperature set by user.
  The temperature difference is defined by FSV #5021. (default: 5°C) If user sets the temperature 45°C, the system sets the target temperature 40°C with the default setting.
  – If user want additional energy saving, use a "Saving mode" (#5022, default : 0, OFF)
  – The user can set the "Thermo On" temperature during "Saving mode" using FSV #5023

Field Setting Mode

Peak Power Control (FSV#5041~5043)

- If users make contracts with local electric power company for limiting the amount of power consumption when a surge in power usage, users can set FSV of "Forced off".
- The setting of FSV#5041 (default "0", No use) determines whether to use Peak power control.
- Depending on the setting of FSV#5042, the system will operate as follows when the external contact is "ON": If input is "0 (default)", Back up heater (BUH) is unavailable.
  If input is "1", Only Compressor(Heat Pump) is available.
  If input is "2", Only Booster Heater (BSH) is available.
  If input is "3", nothing is available.

[D-00]	Compressor	Back up heater	Booster heater
0 (Default)	Permitted	Forced off	Permitted
1	Permitted	Forced off	Forced off
2	Forced off	Forced off	Permitted
3	Forced off	Forced off	Forced off

- Applying the control when power voltage of input contact is high is default. According to FSV (#5043), it is available to adopt this logic in low condition exceptionally.
- When Peak power control is applied, the system is subject to "Forced OFF" according to the set value. Therefore, appropriate measures such as antifreeze are necessary to prevent freezing at low temperatures.

FR Control(Frequency ratio control) - Display "DR" on AI Home (FSV#5051)

- This is to limit the maximum frequency of the outdoor unit compressor. (if #5051 = 1 "use")
  - Mothod 1 : External DC signal Control uses a DC voltage of 0 ~ 10V (0v = 50%, ~ 10v = 150%)
  - Mothod 2 : Demand ratio (DR) control through Modbus communication.

PV Control (Photovoltaics control) (FSV#5081~5083)

This is for energy saving by using the solar energy.

The FSV #5081 should be set to "1(Yes)" for PV control. (However, Peak power control can not be used at the same time.)

FSV	0	1
#5081	Disable (Default)	Activation

📄 **NOTE**

- This function is activated only for the Away and DHW mode.

Field Setting Mode

Field setting mode

- Cooling mode (FSV #5082 = 2℃, Default)
  – Room sensor setting: Current setting value - FSV #5082 (Min = FSV #1022)
  – Water outlet setting: Current setting value - FSV #5082 (Min = FSV #1012)
  – Water law setting: Current setting value - FSV #5082 (Min = FSV #2061, #2062, #2071, #2072)
- Heating mode (FSV #5083 = 2℃, Default)
  – Room sensor setting: Current setting value + FSV #5083 (Max = FSV #1041)
  – Water outlet setting: Current setting value + FSV #5083 (Max = FSV #1031)
  – Water law setting: Current setting value + FSV #5083 (Max = FSV #2021, #2022, #2031, #2032)
- DHW mode
  – Thermo on operation regardless of Away mode: Setting temperature = Max temperature of DHW mode (FSV #1051)

Smart Grid Control (FSV#5091~5094)

The FSV #5091 should be set to "1(Yes)" for Smart grid control.

FSV	0	1
#5091	Disable (Default)	Activation

[Operation mode for Smart grid]

Operation Mode	Terminal 1	Terminal 2
Mode 1	Short	Open
Mode 2	Open	Open
Mode 3	Open	Short
Mode 4	Short	Short

- Mode 1 : Forced thermo off operation of all system
- Mode 2 : Normal operation
       It is equally applied both heating and DHW mode.
- Mode 3 : Normal operation (FSV #5092 = 2℃, FSV #5093 = 5℃, Default)
       The heating and DHW setting temperature are set by the FSV setting value.
  – Heating mode (Room sensor setting) : Current setting value + FSV #5092
  – Heating mode (Water outlet setting) : Current setting value + FSV #5092
  – Heating mode (Water law setting) : Current setting value + FSV #5092
  – DHW mode : Current setting value + FSV #5093
- Mode 4 : When operating on, the setting temperature is reflected as follows.

Field Setting Mode

DHW mode

- The booster heater operates with the heat pump immediately without delay.
  – #5094=0 : Target setting temperature is 55/63/70℃ [*1]. FSV#3021 (Maximum DHW tank temperature with the heat pump operation)
  – #5094=1 : Target setting temperature is 70℃.
    [If FSV #3031 is 0 (no use booster heater) or DHW mode is economic mode, it does not activate booster heater.]

Heating mode

  – Heating mode (Room sensor setting) : Current setting value + FSV #5092+3℃ (Max=FSV #1041)
  – Heating mode (Water outlet setting) : Current setting value + FSV #5092+5℃ (Max=FSV #1031)
  – Heating mode (Water law setting) : Current setting value + FSV #5092+5℃
    (Max=FSV #2021, #2022, #2031, #2032)

Change temperature for direction of 3 Way valve during defrosting mode (FSV#6011)

- In the state where DHW is set to be used(FSV#3011= "1" or "2"), if the Water Outlet Temperature (TW2) falls below the set temperature of FSV#6011 (default "40") during the defrost operation, the 3 way valve automatically changes to the DHW direction.

Outdoor Unit Control (FSV#6022/6031)

- Minimum Thermo ON operating time limit (FSV#6022): Minimum operating time after outdoor unit starts.
- Heating Optional Thermo On/Off Function (FSV#6031): Function to induce an increase in efficiency during operation by stopping the outdoor unit when the outdoor unit is continuously operated at a low operating frequency during heating operation.

Thermostat Control Type (FSV #6041)

- When external room thermostat setting (FSV #2091, #2092) is set to use, it is applied as follows.

FSV #6041	Type	Output when all thermostat contact is OFF
0	2way valve Control	Open
1	Secondary Pump Control	OFF

- When external room thermostat setting (FSV #2091, #2092), 2Zone Control (FSV #4061) are set to unuse, it is applied as follows.

FSV #6041	DHW mode	Not DHW mode
0	Close	Open
1	Close	Open for Thermo ON, Close for Thermo Off

- [*1] The value is determined according to the type of outdoor unit.

Maintaining the Unit

Maintenance activities

- In order to ensure optimal availability of the unit, a number of checks and inspections on the unit and the field wiring have to be carried out at regular intervals, preferably yearly.
  This maintenance should be carried out by SAMSUNG local technician. Besides keeping the AI Home and remote controller clean by means of a soft damp cloth, no maintenance is required by the operator.

⚠ WARNING
- During longer periods of standstill, e.g. during summer with a heating only application, it is very important NOT TO SWITCH OFF THE POWER SUPPLY towards the unit.
- Switching off the power supply stops the automatic repetitive movement of the motor in order to prevent it from getting jammed.

Emergency heating / Emergency hot water supply

‹Emergency heating_(when backup heater on (FSV#4021) #4021)›
- Heating function is performed only by the backup heater if the outdoor unit malfunctions (available only when a backup heater is connected).

Method 1 (AI Home setting)
- Enabling the function: Select Emergency heating (⚙ › **Heat pump** › **Emergency mode**) Turn on in AI Home
- Disabling the function: Select Emergency heating (⚙ › **Heat pump** › **Emergency mode**) Turn off in AI Home

Method 2 (Dip Switch setting)
- Enabling the function: Turn off Control Kit Dip Software 1, then turn the power off and on.
- Disabling the function: Turn on Control Kit Dip Software 1, then turn the power off and on.
- Default operation: Automatic heating is performed at a set temperature of 45℃.

‹Emergency hot water supply_(when DHW on (FSV#3011) and Booster Heater on (FSV#3031))

- Hot water is supplied only by the booster heater if the outdoor unit malfunctions.

Method 1 (AI Home setting)

- Enabling the function: Select Emergency hot water supply (⚙ › **Heat pump** › **Emergency hot water supply**) Turn on in AI Home
- Enabling the function: Select Emergency hot water supply (⚙ › **Heat pump** › **Emergency hot water supply**) Turn off in AI Home

Method 2 (Dip Switch setting)

- Enabling the function: Turn off Control Kit Dip Software 2, then turn the power off and on.
- Disabling the function: Turn on Control Kit Dip Software 2, then turn the power off and on.
- Default operation: Automatic hot water supply is performed at a set temperature of 50°C.
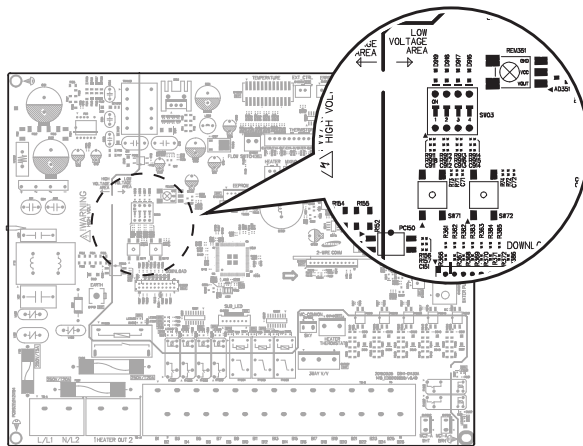
📄 **NOTE**

- Emergency heating and Emergency hot water supply do not function concurrently.
- Model AE200DN*MPK comes with a backup heater instead of a booster heater.

Troubleshooting tips

It the unit has some problem to work properly, error codes will be displayed on the AI Home. The following table describes the explanation of the error codes.

Display	Explanation
120	Short- or open-circuit error of the room temperature sensor of the Zone 2 indoor unit (detected only when the AI Home temperature data is used)
121	Short- or open-circuit error of the room temperature sensor of the Zone 1 indoor unit (detected only when the AI Home temperature data is used)
653	AI Home thermistor SHORT or OPEN
896	Water outlet temperature sensor(Tw5) for external heater short or open
897	Water tank in sensor error SHORT or OPEN
899	Zone1 Water Outlet Themistor SHORT or OPEN
900	Zone2 Water Outlet Themistor SHORT or OPEN
901	Water Inlet thermistor SHORT or OPEN (Split models only)
902	PHE Outlet thermistor SHORT or OPEN (Split models only)
903	Water Outlet thermistor SHORT or OPEN
904	Water TANK thermistor SHORT or OPEN
916	Mixing Valve thermistor SHORT or OPEN

Communication

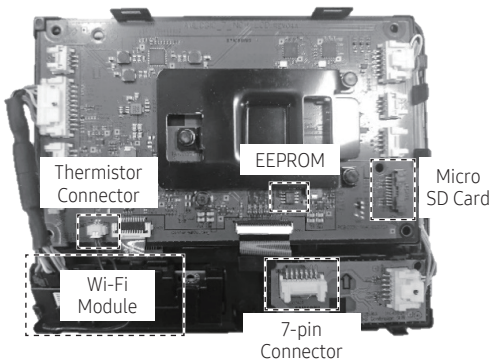| Display	Explanation
105	Wi-Fi communication error
601	Communication error between AI Home and the Hydro unit
604	Tracking error between AI Home and the Hydro unit
654	Memory(EEPROM) Read/Write Error (AI Home data error)
670	Controller combination error

E601, E604
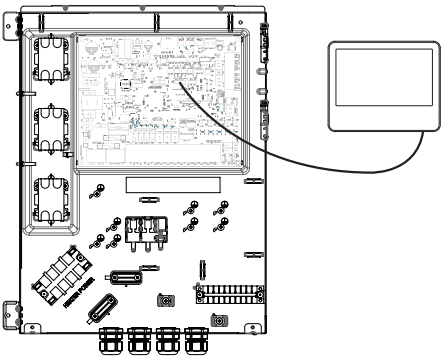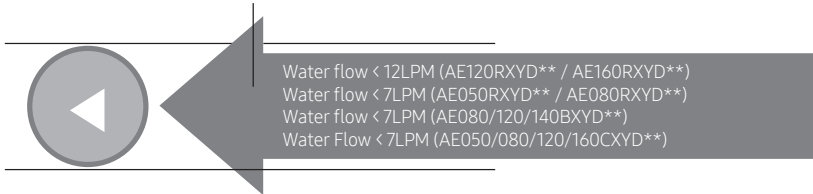

E654

- MEMORY(EEPROM) Read/Write Error (AI Home data error)

Troubleshooting tips

Water pump & Flow Sensor

Display	Explanation
911	Low flow rate error • in case of low flow rate in 30 sec during water pump signals is ON(Starting) • in case of low flow rate in 15 sec during water pump signals is ON(After starting)

E911

• Water pump ON (Low flow rate) : NOT enough water flow

Water flow < 12LPM (AE120RXYD** / AE160RXYD**)
Water flow < 7LPM (AE050RXYD** / AE080RXYD**)
Water flow < 7LPM (AE080/120/140BXYD**)
Water Flow < 7LPM (AE050/080/120/160CXYD**)

📖 **NOTE**
• AE200DNX***, AE160DNZ*** (2 zone built-in type) model has 2 pumps built-in. It is necessary to check which pump among the main INV pump and the Fixed pump causes the error. Use the controller's 'Self Test Mode' to check the operation status of each pump.

Water flow range

	Water flow rates (LPM)	
	Min	Max
AE050RXYD** / AE080RXYD**	7	48
AE120RXYD** / AE160RXYD**	12	58
AE080BXYD** / AE050CXYD** / AE080CXYD**	7	48
AE120BXYD** / AE140BXYD** / AE120CXYD** / AE160CXYD**	7	58

Error codes

Display	Explanation	Error Source
101	Hydro Unit / Outdoor Unit communication connection error	Hydro Unit
105	Wi-Fi communication error	Hydro Unit
109	Address incomplete communication error	Hydro Unit
120	Short- or open-circuit error of the room temperature sensor of the Zone 2 indoor unit (detected only when the AI Home temperature data is used)	Hydro Unit
121	Short- or open-circuit error of the room temperature sensor of the Zone 1 indoor unit (detected only when the AI Home temperature data is used)	Hydro Unit
122	EVA Inlet temp sensor SHORT or OPEN	Hydro Unit
123	EVA Outlet temp sensor SHORT or OPEN	Hydro Unit
162	EEPROM Error	Hydro Unit
163	EEPROM OPTION SETTING ERROR	Hydro Unit
198	Error of Terminal Block's Thermal Fuse(Open)	Hydro Unit
201	Hydro Unit / Outdoor Unit communication error(Matching error)	Hydro Unit/ Ourdoor Unit
202	Hydro Unit / Outdoor Unit communication error(3 min)	Hydro Unit/ Ourdoor Unit
203	Communication error between INVERTER and MAIN MICOM (4 min)	Outdoor Unit
205	Main PBA - load PBA Communication error	Outdoor Unit
221	Outdoor Unit air temperature sensor error	Outdoor Unit
231/241	Condenser temperature sensor error	Outdoor Unit
251/261	Discharge temperature sensor error	Outdoor Unit
266/276	Compressor top temperature sensor error	Outdoor Unit
269/308	Compressor suction temperature sensor error	Outdoor Unit
291	High pressure sensor SHORT or OPEN	Outdoor Unit
296	Low pressure sensor SHORT or OPEN	Outdoor Unit
320	OLP sensor error	Outdoor Unit
321	EVI inlet temp sensor error	Outdoor Unit
322	EVI outlet temp sensor error	Outdoor Unit
381	Inverter1 PCB overheat error	Outdoor Unit
403	Plate heat exchanger freeze detection (During cooling operation)	Outdoor Unit

Error codes

Display	Explanation	Error Source
404	Protection of Outdoor Unit when it is overload (during Safety Start, Normal operation state)	Outdoor Unit
407	Comp down due to high pressure sensor	Outdoor Unit
410	Comp down due to low pressure sensor	Outdoor Unit
416	Discharge of a compressor is overheated	Outdoor Unit
419	OUTDOOR UNIT EEV operation error	Outdoor Unit
425	Power source line missing error (only for 3-phase model)	Outdoor Unit
428	Comp down due to pressure ratio control	Outdoor Unit
436	Plate heat exchanger freeze detection (During heating operation)	Outdoor Unit
438	Error due to excessive open of EVI EEV	Outdoor Unit
439	Refrigerant leakage error	Outdoor Unit
440	Heating operation blocked (outdoor temperature over 35 °C)	Outdoor Unit
441	Cooling operation blocked (outdoor temperature under 9 °C)	Outdoor Unit
443	Compressor lock due to low pressure	Outdoor Unit
450	Error due to high cond temperature	Outdoor Unit
458	OUTDOOR UNIT fan1 error	Outdoor Unit
461	[Inverter] Compressor startup error	Outdoor Unit
462	[Inverter] Total current error/PFC over current error	Outdoor Unit
463	OLP is overheated	Outdoor Unit
464	[Inverter] IPM over current error	Outdoor Unit
465	Compressor overload error	Outdoor Unit
466	DC LINK over/low voltage error	Outdoor Unit
467	[Inverter] Compressor rotation error	Outdoor Unit
468	[Inverter] Current sensor error	Outdoor Unit
469	[Inverter] DC LINK voltage sensor error	Outdoor Unit
470	Outdoor unit EEPROM Read/Write Error	Outdoor Unit
471	Outdoor unit EEPROM Read/Write Error(OTP error)	Outdoor Unit
474	IPM(IGBT Module) or PFCM temperature sensor Error	Outdoor Unit
475	Outdoor Unit Fan2 error	Outdoor Unit
484	PFC Overload Error	Outdoor Unit

Appendix

Display	Explanation	Error Source
485	Input current sensor error	Outdoor Unit
488	AC Input Voltage Sensor Error	Outdoor Unit
500	IPM is overheated	Outdoor Unit
507	Comp down due to high pressure switch	Outdoor unit
536	PHE refrigerant leak error	Outdoor unit
554	Gas leak error	Outdoor Unit
590	Inverter EEPROM Checksum error	Outdoor Unit
601	Communication error between the Hydro Unit and AI Home	Hydro Unit
604	Communication tracking error between the Hydro Unit and AI Home	Hydro Unit
653	AI Home temp sensor SHORT or OPEN	Hydro Unit, AI Home
654	Memory(EEPROM) Read/Write Error (AI Home data error)	Hydro Unit, AI Home
670	Controller combination error	Hydro Unit
896	Water outlet temperature sensor (Tw5) for external heater short or open	Hydro Unit
897	Water Tank in sensor error (open/short)	Hydro unit
899	Short- or open-circuit error of the Zone 1 water-out temperature sensor	Hydro Unit
900	Short- or open-circuit error of the Zone 2 water-out temperature sensor	Hydro Unit
901	Water inlet (PHE) temperature sensor error (open/short)	Hydro Unit
902	Water outlet (PHE) temperature sensor error (open/short)	Hydro Unit
903	Water outlet (backup heater) temperature sensor error	Hydro Unit
904	DHW tank temperature sensor error	Hydro Unit
906	Refrigerant gas inlet (PHE) temperature sensor (open/short)	Outdoor Unit
907	Error due to pipe rupture protection	Hydro Unit
908	Error due to freeze prevention (Re-operation is possible)	Hydro Unit
909	Error due to freeze prevention (Re-operation is impossible)	Hydro Unit
910	Water temperature sensor on water outlet pipe is detached	Hydro Unit
911	Flow Switch Off Error, When Water pump is running	Hydro Unit
913	Six times detection for Flow Switch Error (Re-operation is not possible)	Hydro Unit
914	Error due to incorrect thermostat connection	Hydro Unit
915	Error on DC fan (Non-operating)	Hydro Unit

Error codes

Display	Explanation	Error Source
916	Mixing valve sensor error	Hydro Unit
917	Water Tank Sensor configuration error	Hydro Unit
919	Error that the set temperature for disinfection operation is not reached, or, after reaching, the temperature fails to continue for the requested time	Hydro Unit
920	FSV SD card data error	Hydro Unit
973	Water pressure error(open/short)	Outdoor Unit

Appendix

Specifications

Wi-Fi	
Frequency Range	Transmitter Power(Max)
2412 - 2472 MHz	20 dBm
5150 - 5850 MHz	20 dBm

Bluetooth	
Frequency Range	Transmitter Power(Max)
2402 - 2480 MHz	20 dBm

Open Source Announcement

The software included in this product contains open source software.

The following URL http://opensource.samsung.com/opensource/SMART_TP1_0/seq/0 leads to open source license information as related to this product.

Appendix

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QUESTIONS OR COMMENTS?

COUNTRY	CALL	OR VISIT US ONLINE AT
UK	0333 000 0333	www.samsung.com/uk/support
IRELAND (EIRE)	0818 717100	www.samsung.com/ie/support
GERMANY	06196 77 555 77	www.samsung.com/de/support
FRANCE	01 48 63 00 00	www.samsung.com/fr/support
SPAIN	91 175 00 15	www.samsung.com/es/support
PORTUGAL	210 608 098 Chamada para a rede fixa nacional Dias úteis das 9h às 20h	www.samsung.com/pt/support
LUXEMBURG	261 03 710	www.samsung.com/be_fr/support
NETHERLANDS	088 90 90 100	www.samsung.com/nl/support
BELGIUM	02-201-24-18	www.samsung.com/be/support (Dutch) www.samsung.com/be_fr/support (French)
NORWAY	21629099	www.samsung.com/no/support
DENMARK	707 019 70	www.samsung.com/dk/support
FINLAND	030-6227 515	www.samsung.com/fi/support
SWEDEN	0771-400 300	www.samsung.com/se/support
AUSTRIA	0800 72 67 864 (0800-SAMSUNG)	www.samsung.com/at/support
SWITZERLAND	0800 726 786	www.samsung.com/ch/support (German) www.samsung.com/ch_fr/support (French)
HUNGARY	0680SAMSUNG (0680-726-7864)	www.samsung.com/hu/support
CZECH	800 - SAMSUNG (800-726786)	www.samsung.com/cz/support
SLOVAKIA	0800 - SAMSUNG (0800-726 786)	www.samsung.com/sk/support
CROATIA	072 726 786	www.samsung.com/hr/support

COUNTRY	CALL	OR VISIT US ONLINE AT
BOSNIA	055 233 999	www.samsung.com/ba/support
North Macedonia	023 207 777	www.samsung.com/mk/support
MONTENEGRO	020 405 888	www.samsung.com/support
SLOVENIA	080 697 267 (brezplačna številka)	www.samsung.com/si/support
SERBIA	011 321 6899	www.samsung.com/rs/support
KOSOVO	038 40 30 90	www.samsung.com/support
ALBANIA	045 620 202	www.samsung.com/al/support
BULGARIA	0800 111 31 - Безплатен за всички оператори *3000 - Цена на един градски разговор или според тарифата на мобилният оператор 09:00 до 18:00 - Понеделник до Петък	www.samsung.com/bg/support
ROMANIA	0800872678 - Apel gratuit *8000 - Apel tarifat în rețea Program Call Center Luni - Vineri: 9 AM - 6 PM	www.samsung.com/ro/support
ITALIA	800-SAMSUNG (800.7267864)	www.samsung.com/it/support
CYPRUS	8009 4000 only from landline, toll free	www.samsung.com/gr/support
GREECE	80111-SAMSUNG (80111 726 7864) only from land line (+30) 210 6897691 from mobile and land line	www.samsung.com/gr/support
POLAND	801-172-678* * (opłata według taryfy operatora)	http://www.samsung.com/pl/support/
LITHUANIA	8-800-77777	www.samsung.com/lt/support
LATVIA	8000-7267	www.samsung.com/lv/support
ESTONIA	800-7267	www.samsung.com/ee/support
UKRAINE	0-800-502-000	www.samsung.com/ua/support
MOLDOVA	+373-22-667-400	www.samsung.com/ua/support/moldova

This appliance is filled with R-32.