

2000 Commissioning document

This guide follows the step-by-step process of commissioning a 2000-heat pump.



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Pre-Commissioning Checks

On the larger 12/14/16kw units a transportation support bracket is installed on the compressor within the unit, this bracket must be removed prior to starting the unit.

Failure to remove the support bracket will result in the compressor becoming noisy and potentially being damaged.

Step 1: Remove Front panel

Step 2: Remove the screw

Step 3: Remove the bracket

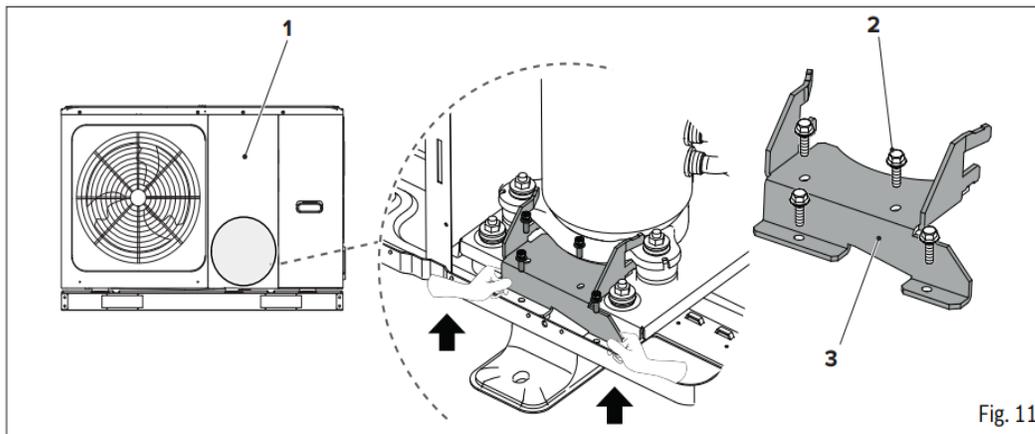
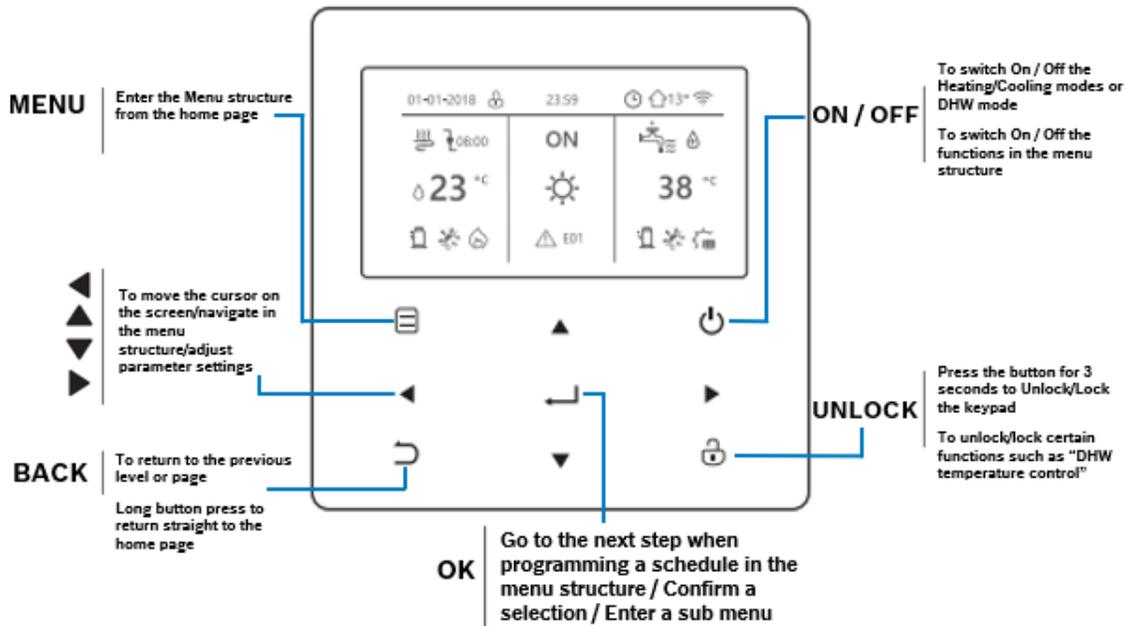


Fig. 11

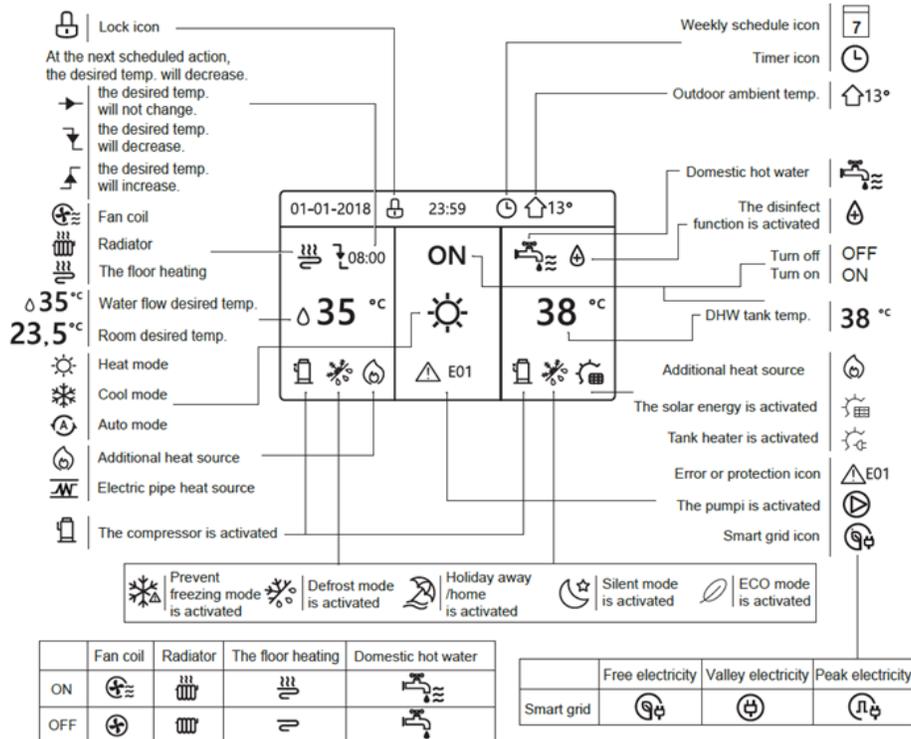
Other Checks

1. Make sure the water hydraulics are piped up in accordance with the manufacturer's instructions.
2. Make sure the electrical connections are wired in accordance with the manufacturer's instructions.
3. Make sure the system is fully flushed and an adequate filtration system is fitted.
4. Open any auto air vents and fill the system 1 bar minimum and make sure the system is vented fully.
5. Make sure the system is leak free.
6. Make sure an adequate level of anti-freeze is added to the system to give protection to a -12°C.
Make sure the anti-freeze is fully mixed into the system prior to starting the unit.
7. Make sure the DIP switches are set as per this manual.

Display Overview

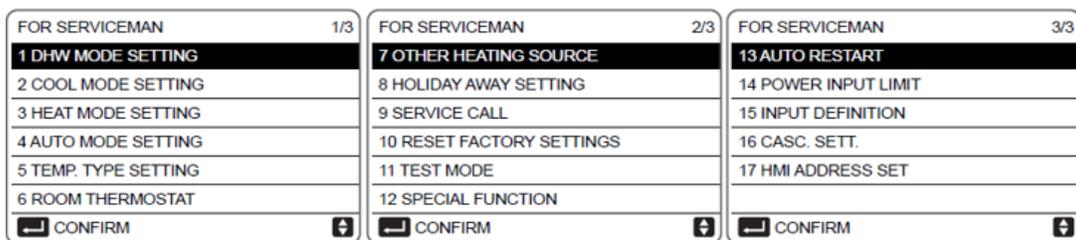
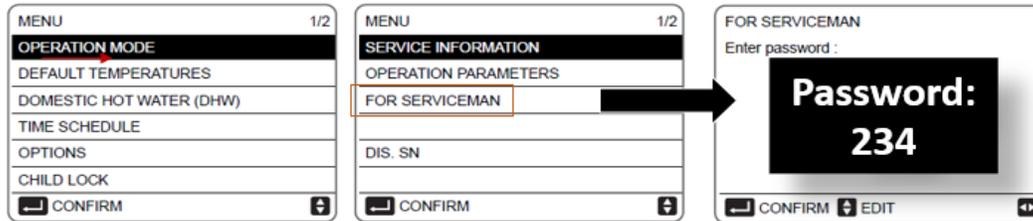


Press **UNLOCK** for 3 seconds to unlock the keypad.



Menu Structure

Press the **Menu** button once, then the **Down arrow** until **For Serviceman** is highlighted
Press **ok** to enter installer menu.



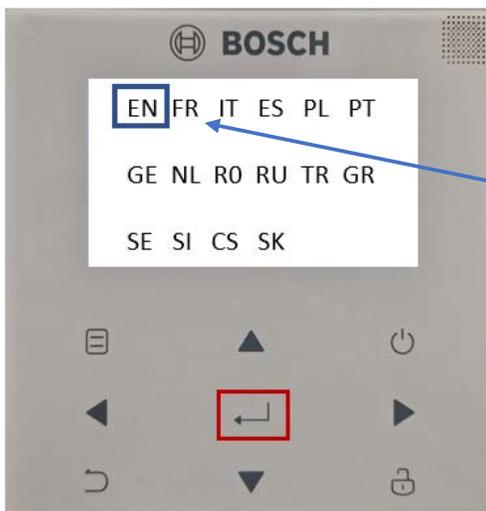
Parameter	Description
AHS	Backup boiler
IBH	Backup electric heater
P_i	Unit pump or Zone 1 pump (for double zone systems)
P_0	Secondary circuit pump (or Zone 1 pump for double zone systems)
P_C	Zone 2 pump (for double zone systems)
P_d	DHW recirculation pump
P_s	Solar circuit pump
Pe	Evaporation pressure in Cooling mode or condensation pressure in Heating mode
SV1	3-way circuit/DHW diverter valve
SV2	3-way diverter valve for direct double zone systems
SV3	3-way mixing valve for mixed circuit
T1	Water supply temperature from additional heating source (with IBH heater or AHS boiler)
T2	Refrigerant temperature entering the user side exchanger (plate heat exchanger) in Cooling mode (or leaving in Heating mode)
T3	Refrigerant temperature leaving the source exchanger (coil) in Cooling mode (or entering in Heating mode)
T4	Outdoor air temperature
T5	DHW tank temperature
T1S	Water supply temperature setpoint
Ta	Room air temperature, detected by the probe in the HMI
Tbt1	Temperature of the upper part of the inertial storage tank
TBH	Backup electric heater for DHW (Domestic Hot Water) storage tank
Th	Compressor suction refrigerant temperature
Tp	Compressor discharge refrigerant temperature
Tsolar	Water temperature in the solar thermal circuit
Tw2	Water supply temperature for the mixed zone (for double zone systems)
Twin	Unit water return temperature
Twout	Unit water supply temperature

First Start Up & Commissioning



When the unit is switched on for the first time, the HMI will initialise the system and display a percentage of completion (1%-99%)

Note:
The HMI cannot be used until this process has been completed.



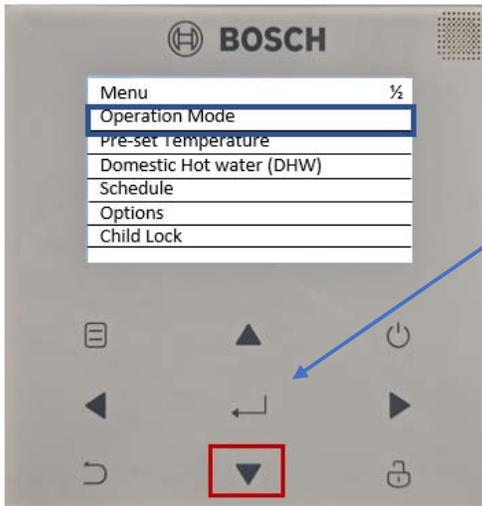
The HMI will prompt you to select the system language from those available

Press the **OK** button to move forward.

Note: If no language is confirmed within 60 seconds, the HMI will confirm the highlighted language when the time expires



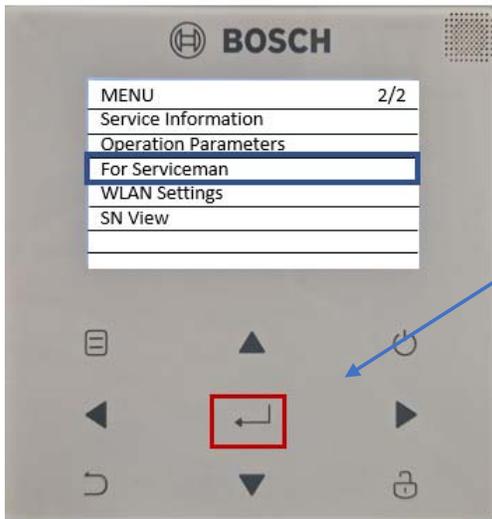
Press the **Menu** button to start the commissioning process.



When entering the Menu **Operation mode** will be highlighted.

The **Arrow Buttons** allow you to navigate the menu and highlight the option you require.

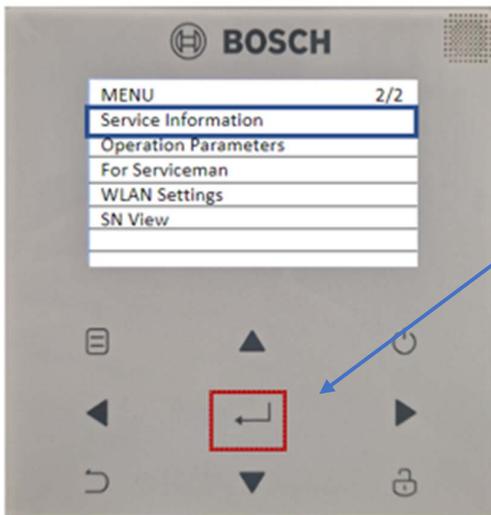
Press **OK** button to enter that menu.



Press the **Down Arrow** button until **For Serviceman** is highlighted.

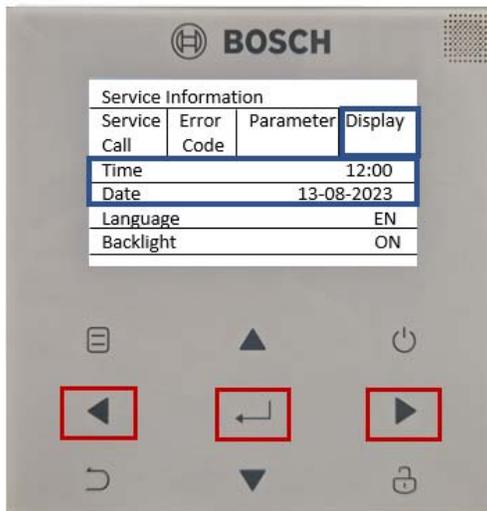
Press **OK** button to go into that menu.

Note:
The password to be entered is **234**



Press the **Down Arrow** until **Service Information** is highlighted.

Press **OK** button to go into the options menu.



Display menu.

Press the **Right Arrow** button until **Display** is highlighted.

Press **OK** button to go into that menu.

Press the **Ok** button on time and date and use **Up** or **Down** arrows to adjust.

Language: Amend if incorrectly set

Backlight: On/Off illumination of screen

Buzzer: On/Off Audible Alarm

Screen-lock time: Default 120 Secs after no input

Note:

The **Options** menu will also allow access to the following menus:

Service Call

The installer can enter your own telephone number, to do this you will need to go to the For Serviceman menu and select the service call option to enter your details.

Error Codes

Displays the meaning of error codes in case of failure or malfunction.

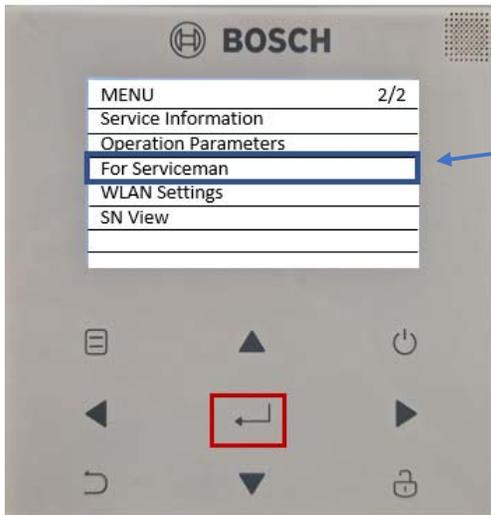
Scroll through using the up and down arrows, press OK to display the meaning of the error code.

A total of eight error codes will be stored, before being overwritten with the latest fault.

Parameters

Displays the main temperature parameters, shown as both SET and CURRENT temperatures.

Domestic Hot Water Settings



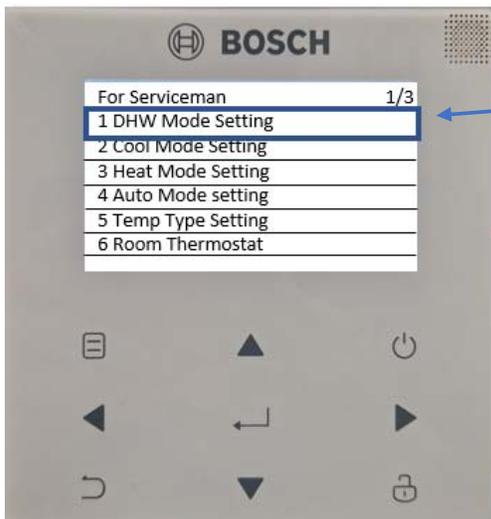
Press the **Menu** button.

Press the **Down Arrow** button until **For Serviceman** is highlighted.

Press **OK** button to go into that menu.

Note:

The password to be entered is **234**



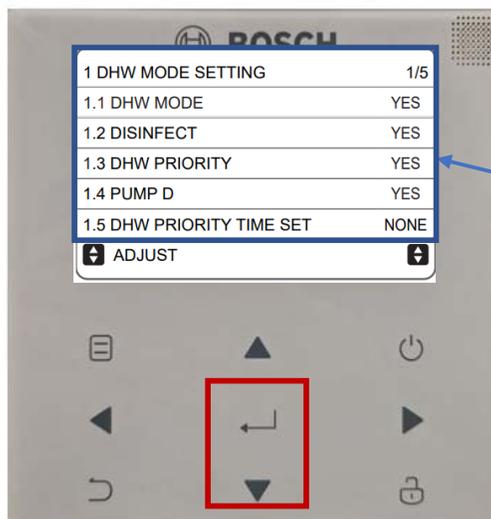
DHW Mode Setting will be highlighted.

Press the **Ok** button to enter the menu to adjust the DHW settings.

The **Up** and **Down Arrows** allow you to navigate within the menu.

Note:

Menu 1.6 for Dhwh temp



1.1: Default Yes (Yes/No)

Enables/Disables Domestic Hot Water

1.2: Default Yes (Yes/No)

Enables/disables the anti-legionella cycle and can be set on a schedule

1.3: Default No (Yes/No)

DHW mode has priority over operation in Heating/Cooling mode

1.4: Default No (Yes/No)

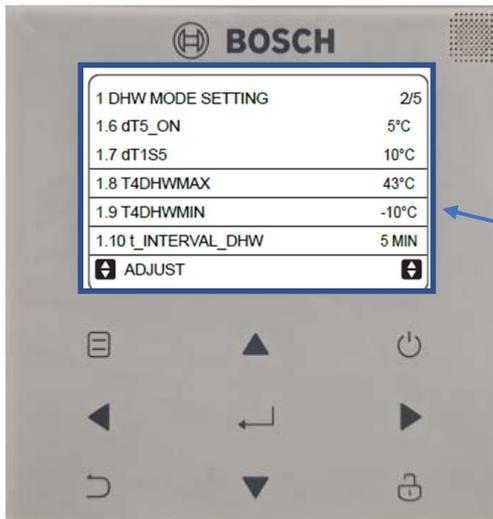
DHW recirculation management by the unit

1.5: Default No (Yes/No)

Enables two controls and their respective parameters:

Defines a maximum operating time in Heating/Cooling mode before switching to DHW (t_DHWHP_RESTRICT, menu 1.17)

Defines a maximum operating time in DHW before switching to Heating/Cooling mode (t_DHWHP_MAX, menu 1.18)



1.6: Default 10 (1-30)

Defines the temperature range between DHW setpoint (T5S) and DHW storage tank temperature (T5).

Note: DHW request ends when $T5 \geq T5S$ or when T5 reaches the maximum temperature for DHW in the heat pump T5stop, according to the outdoor temperature T4

1.7: Default 10 (5-40)

The range between the water supply temperature Twout (water supply temperature) and the DHW storage tank temperature (T5).

The heat pump in DHW mode will deliver water at Twout (water supply temperature) = T5 (DHW storage temp) + dT1S5.

1.8: Default 43 (35-43)

Maximum outdoor air temperature for which the unit can operate in DHW with heat pump.

1.9 Default 10 25-30)

Minimum outdoor air temperature for which the unit can operate in DHW with heat pump.

1.10 Default 5 (non-adjustable)

Minimum minutes between compressor shutdown and subsequent restart in DHW mode

1.11: Default 5 (0-10)

How many degrees above the DHW setpoint (T5S) the storage tank heater TBH (Electric heater) must be brought to.

When TBH is activated, the DHW storage tank will be brought to temperature T5S (DHW setpoint) + dT5_TBH_OFF (Temperature set).

1.12: Default 5 (-5-50)

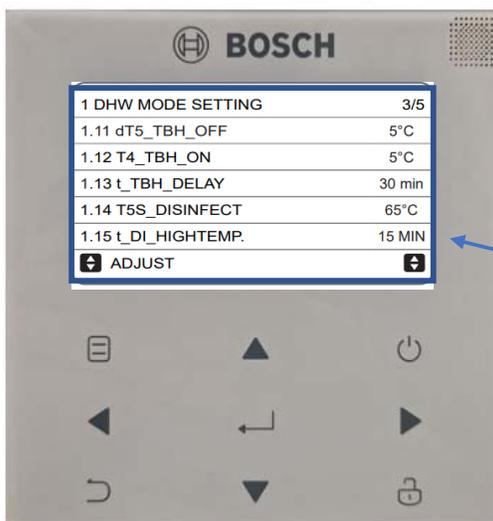
Maximum outdoor air temperature at which the TBH (Electric heater) can be activated.

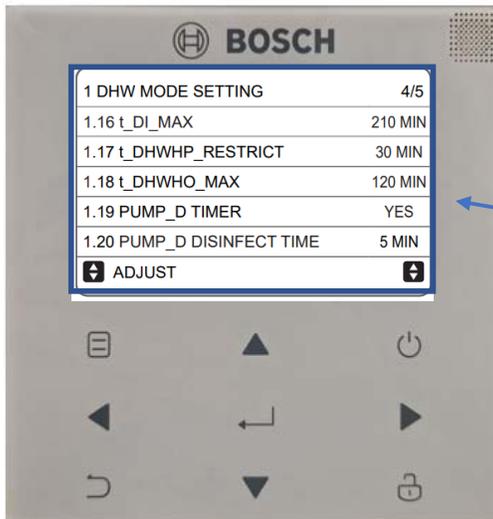
1.13: Default 30 (0-240)

Minimum minutes of compressor operation beyond which, if the unit fails to bring the DHW storage tank to the setpoint, the TBH (Electric heater) can be activated.

Note on menu 1.7 dT1S5:
If this is increased the unit will be faster in DHW production but the cycle of recharge is expected to have lower efficiency.

Furthermore, with setpoint higher than 55 °C units will go activate the **Extra Heater** to be able to achieve the desired setpoint.





1.14: Default 65 (60-70)

Temperature to which the unit brings the DHW storage tank in the DISINFECT (anti-legionella) function.

1.15: Default 65 (60-70)

Time which the unit should keep the DHW tank at temperature T5S_DISINFECT in the DISINFECT (anti-legionella) function.

1.16: Default 210 (90-300)

Maximum minutes for which the unit can keep the DISINFECT (anti-legionella) function on

1.17: Default 30 (10-600)

Maximum operating minutes of the heat pump in Heating/Cooling mode before switching to Domestic Hot Water mode.

1.18: Default 90 (10-600)

Maximum operating minutes in DHW mode before switching to Heating/Cooling mode.

1.19: Default Yes (No-Yes)

Hourly scheduling of the DHW circulation pump

1.20: Default Yes (No-Yes)

Operating minutes of the circulation pump when it is started.

1.21: Default Yes (No-Yes)

Activation of the recirculation pump even during the anti-legionella cycle.

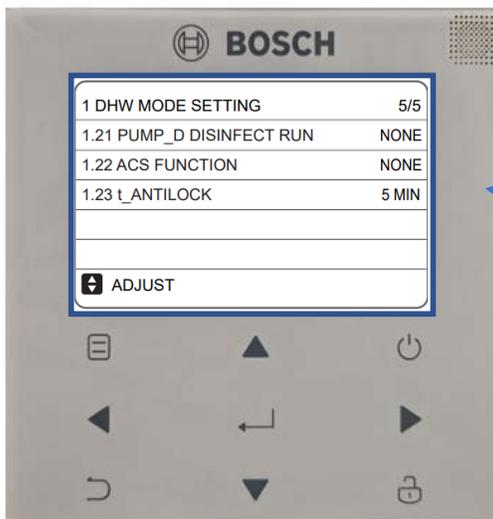
Note: Mandatory if T5 is located below the additional heater (TBH).

1.22: Default Yes (No-Yes)

Do not change.

1.23 Default Yes (No-Yes)

Enables a safety opening cycle of all system valves SV1, SV2, SV3 (3-way mixing valve) defining their opening minutes if they remain closed for more than 24 hours.



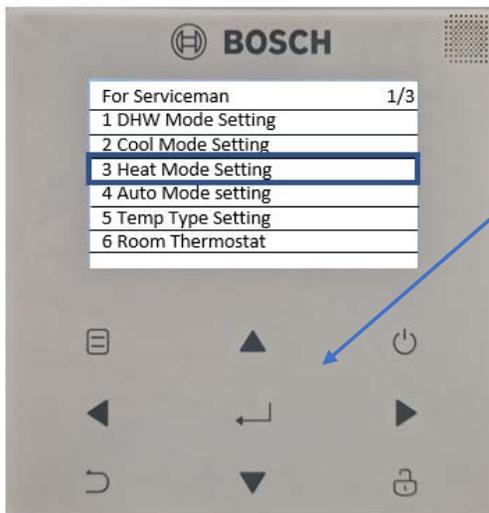
Note:

Default settings should be fine for the majority of properties, the main menu for DHW is:

1.6 dT5_ON (standard: 10 - settable: 1/30)

Controls activation of the DHW request, defining the temperature range between DHW setpoint (T5S) and DHW storage tank temperature (T5) at which the system turns into DHW production.

Select The Heat Emitter Type for Zone 1 / Zone 2.



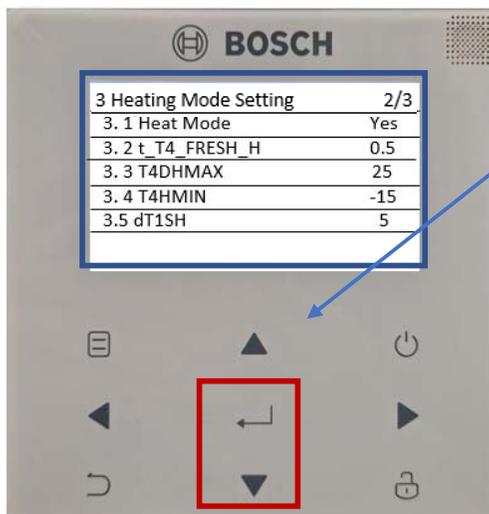
Press the **Menu** button.

Press the **Down Arrow** button until for **Serviceman** is highlighted.

Press **OK** button to go into that menu.

Note:

The password to be entered is **234**



Press **Down Arrow** until **Heat mode setting** is highlighted.

Then press the **Ok** button.

Note:

Menu 3.12 for single heating zone.
Menu 3.13 for multi heating zone.

3.1: Default Yes (No-Yes)

Enables/disables Heating mode.

3.2: Default 0.5 (0.5-6)

Time when the unit updates the heat curve, based on the outdoor air temperature.

3.3: Default 25 (20-35)

Maximum outdoor air temperature for which the unit can operate in Heating mode.

Note: Summer disconnection temperature or commissioning on a hot day put up to 30°C on a hot day to get the heat pump to kick in

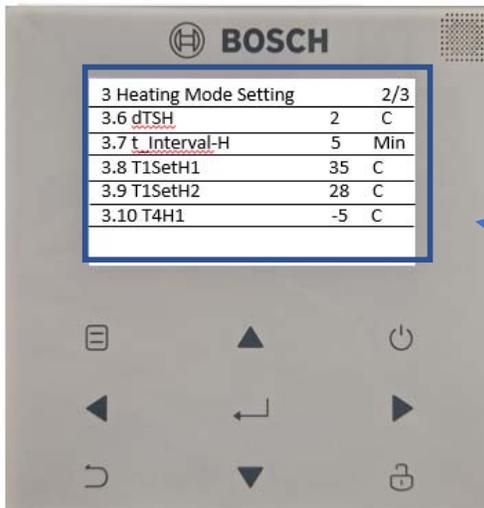
3.4: Default -15 (25-30)

Minimum outdoor air temperature for which the unit can operate in Heating mode.

Note: leave at -15 unless in Scotland < worst case scenario temperature drops e.g., -20

3.5: Default 5 (2-10)

The range between the water supply temperature (T1) and the setpoint (T1S) within which the unit starts to operate in Heating mode.



3.6: Default 2 (1-10)

The range between the room air temperature (Ta) and the setpoint (TS) within which the unit continues to operate in Heating mode.

NOTE only used if the unit's Heating mode control is on room air temperature.

3.7: Default 5 (non-adjustable)

Minimum minutes between compressor shutdown and subsequent restart in Heating mode

3.8: Default 35 (25-60)

Maximum water supply setpoint for the customisable heat curve in Heating mode. Set to 55c for Rads and 45c for UFH or to the Design flow temp.

3.9: Default 28 (25-60)

Minimum water supply setpoint for the customisable climate curve in Heating mode.

3.10: Default -5 (25-35)

Minimum outdoor air temperature at which the setpoint T1SetH1 is activated for the customisable heat curve in Heating mode.

Note: Set to the External design temp.

3.11 Default 7 (25-35)

Maximum outdoor air temperature at which the setpoint T1SetH2 is activated for the customisable climate curve in Heating mode.

3.12 Default RAD (CRP = radiant / CVC = fan coils / RAD = radiators)

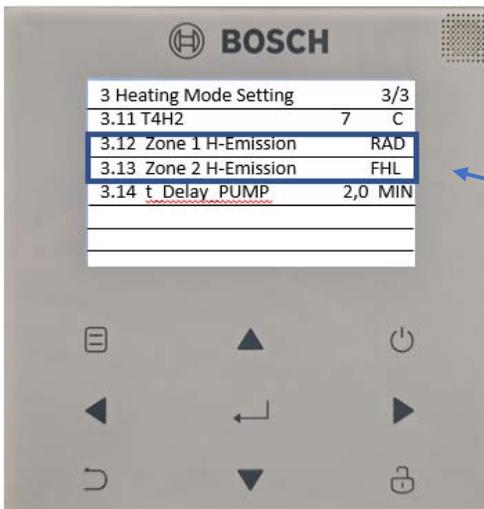
Type of distribution system in Heating mode of the system's zone 1

3.13 Default CRP (CRP = radiant / CVC = fan coils / RAD = radiators)

Type of distribution system in Heating mode of the system's zone 2

3.14 Default 2 (0.5-20)

Delay between compressor switch-off and pump switch-off

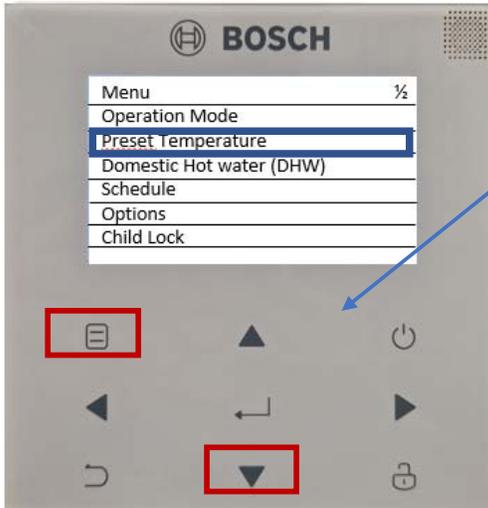


Note:
Default settings should be fine for the majority of properties, the main menu for CH is:

3.12 Default RAD (CRP = radiant / CVC = fan coils / RAD = radiators)
Type of Heating system zone 1

3.13 Default CRP (CRP = radiant / CVC = fan coils / RAD = radiators)
Type of Heating system zone 2

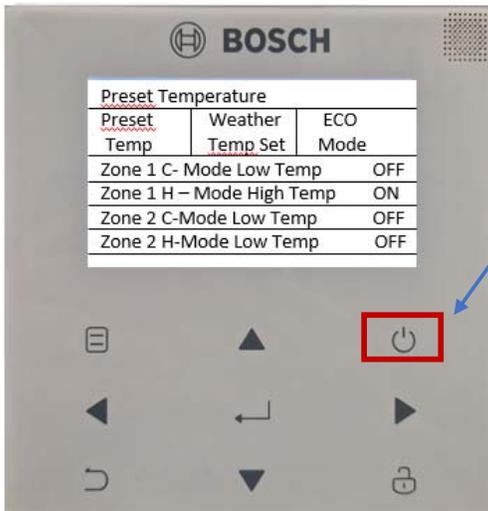
Selecting A Heat Curve



Press the **Menu** to enter the main menu.

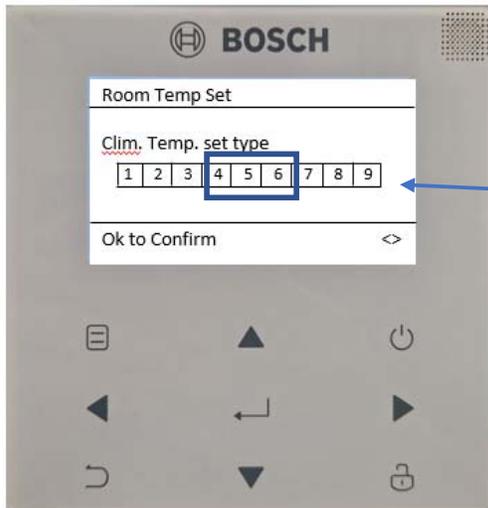
Press the **Down Arrow** until **Preset Temperature** is highlighted.

Then press the **Ok** button.



Using the **Arrow Buttons**, you can select zones 1 - 2 or both depending on the system.

Press the **On/Off Button** to turn the weather curve on or off for the selected heating zone.



Climate temp type allows you to set the heat curve.

4. Default setting for heating
Suitable for most well insulated properties
48c flow temperature at -3 outside temp

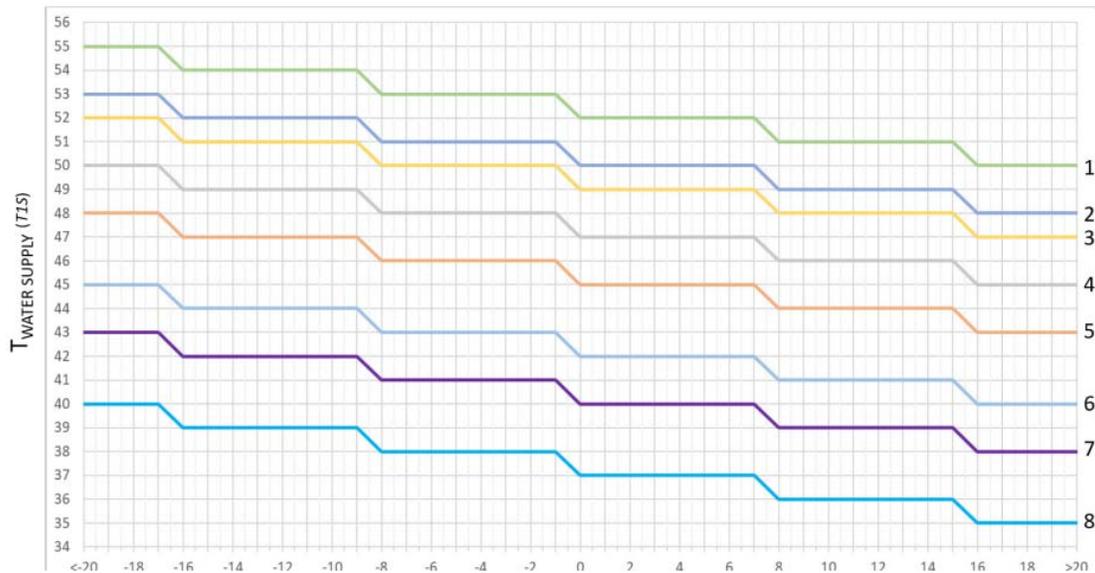
6. Eco Setting for heating
Suitable for exceptionally well insulated properties. 43c flow temp at -3 outside temp

9. Custom Setting for heating
Customisable heat curve

Press **Ok** to confirm your selection.

8 available default curves for Heating mode on systems with terminal distribution?

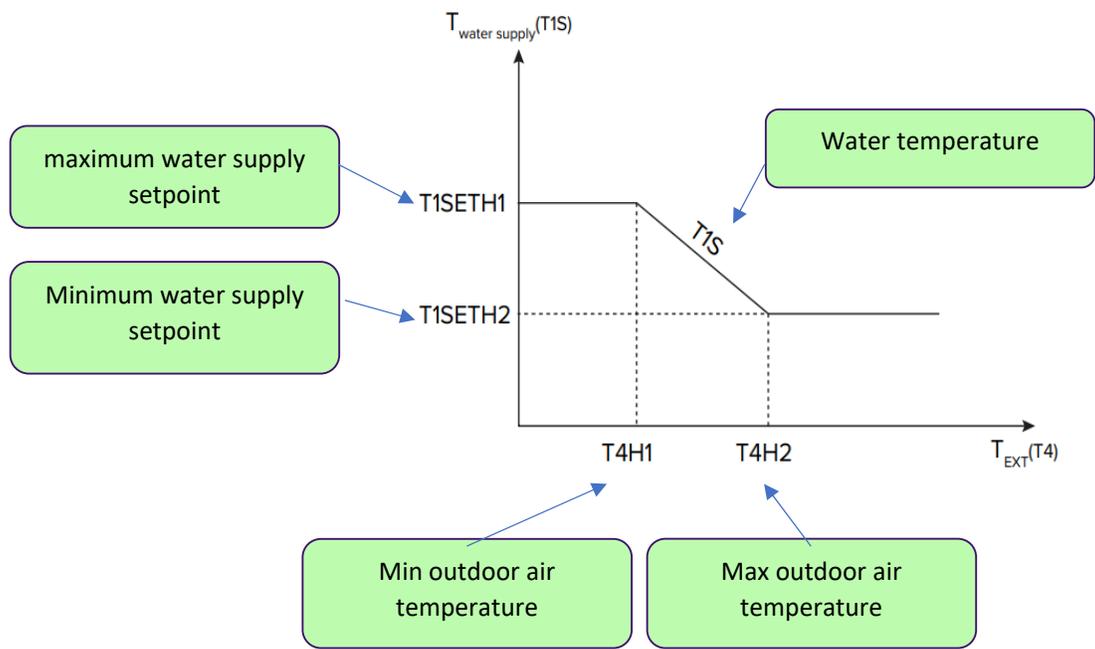
Note: The default curve for Heating mode is 4, for ECO mode it is 6



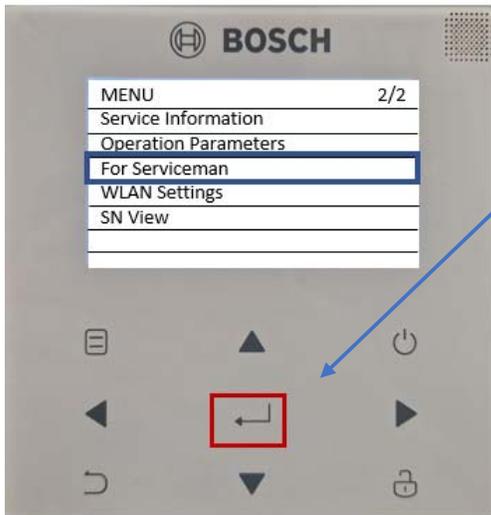
Setting 9 allows a customisable heat curve to be set via menu 3.8-3.11

Menu 3.12

Zone 1 & 3.13 Zone 2 < if used > must also be set for CRP=radiant; CVC=fan coils; RAD=radiators



Setting A Customable Heat Curve



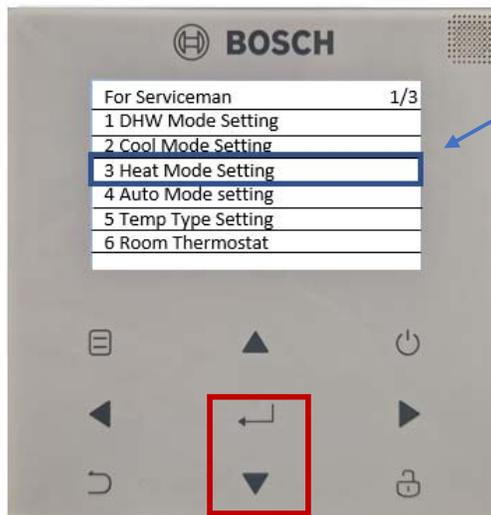
Press the **Menu** button.

Press the **Down Arrow** button until **For Serviceman** is highlighted.

Press **OK** button to go into that menu.

Note:

The password to be entered is **234**

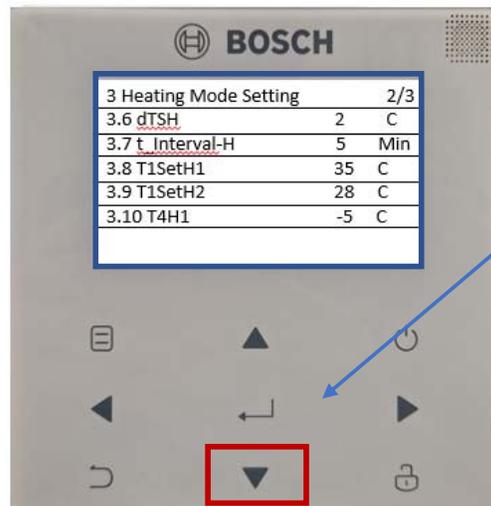


Press **Down Arrow** button until **Heat Mode Setting** is highlighted.

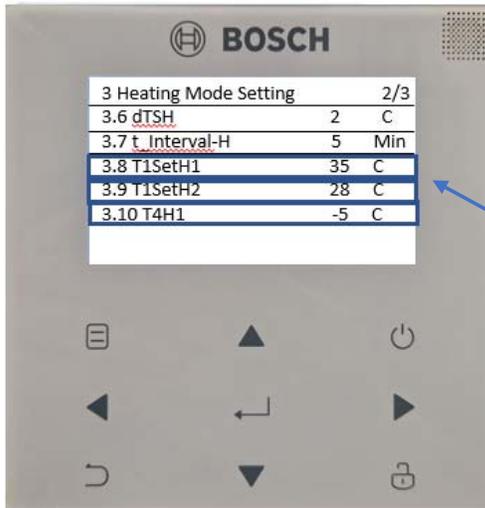
Then press the **Ok** button.

Note:

Menu 3.8 -3.11 are individual settings for a customisable heat curve



Press **Down Arrow** button to select each heat curve setting.



Individual settings for customisable heat curve

3.8: Default 35 (25-60)

Maximum water supply setpoint for the customisable heat curve in Heating mode. Set to 55c for Rads and 45c for UFH or to the Design flow temp.

3.9: Default 28 (25-60)

Minimum water supply setpoint for the customisable climate curve in Heating mode.

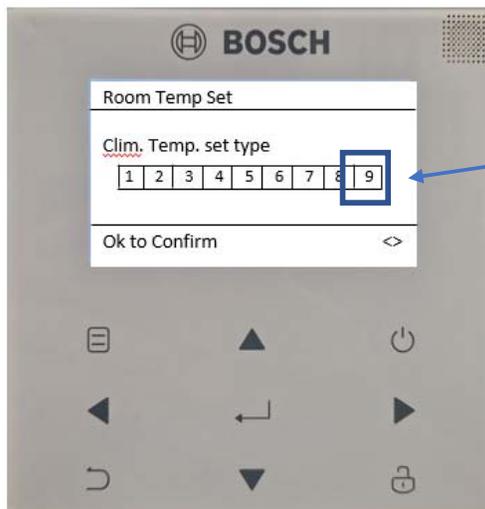
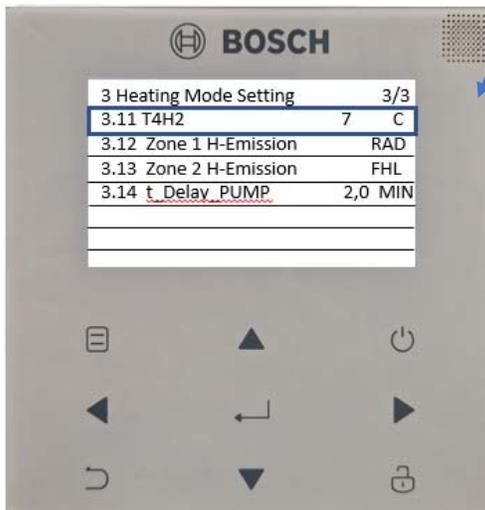
3.10: Default -5 (25-35)

Minimum outdoor air temperature at which the setpoint T1SetH1 is activated for the customisable heat curve in Heating mode.

Set to the External design temp.

3.11 Default 7 (25-35)

Maximum outdoor air temperature at which the setpoint T1SetH2 is activated for the customisable climate curve in Heating mode.

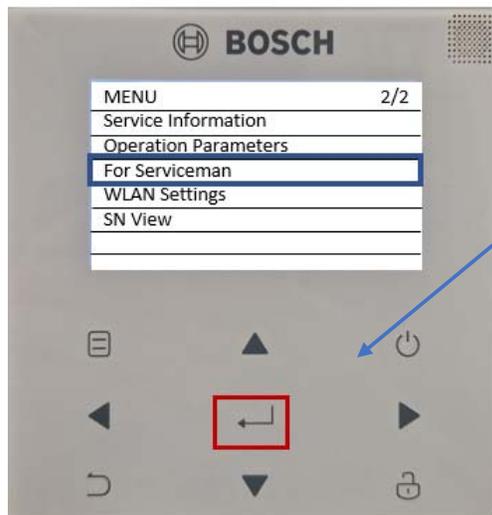


Note:

If adjusting 3.8-3.11 ensure **Clim Temp.set type** is set to 9 “customisable heat curve.”

See page 14 for a diagram on customisable heat curve.

Selecting Buffer/Low Loss Header Sensor (TBT1)

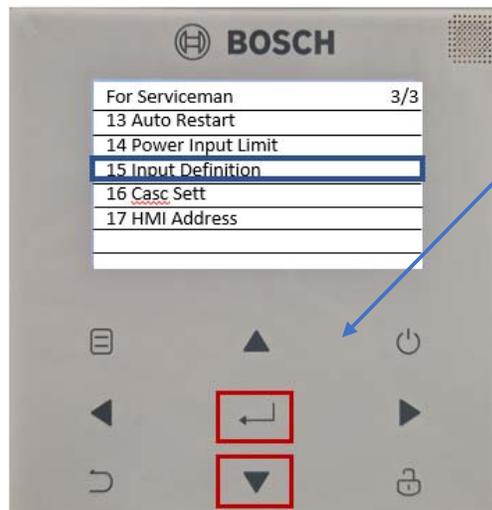


Press the **Menu** button.

Press the **Down Arrow** button until **For Serviceman** is highlighted.

Press **OK** button to go into that menu.

Note: The password to be entered is **234**

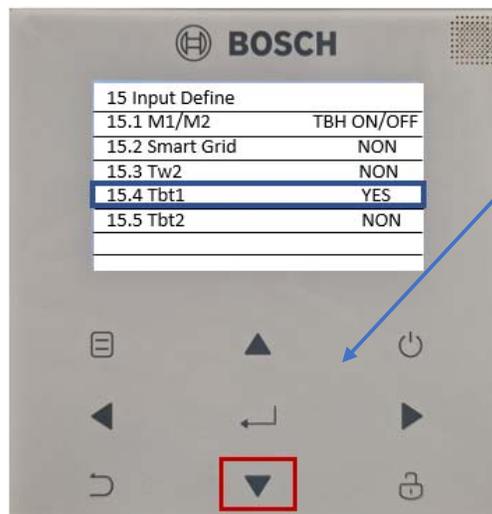


Press the **Down Arrow** until **Input Definition** is highlighted.

Then press the **Ok** button.

Note:

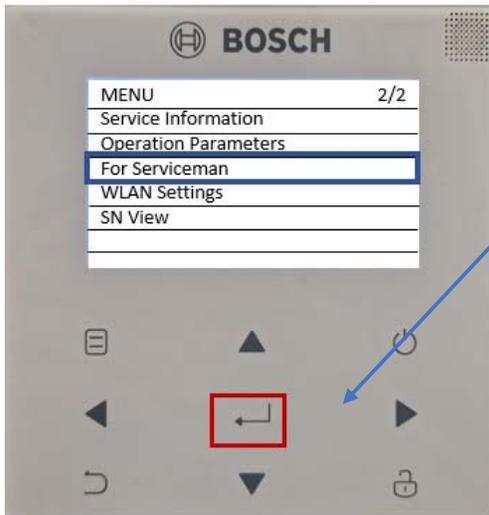
Menu 15.4 to activate menu



Press the **Down Arrow** until you get to **Tbt1**.

Then change it from non to **Yes**.

Select Room Thermostat Control Type

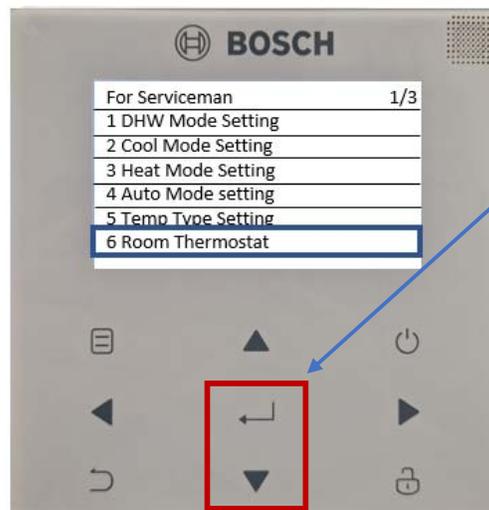


Press the **Menu** button.

Press the **Down Arrow** button until **For Serviceman** is highlighted.

Press **OK** button to go into that menu.

Note: The password to be entered is **234**

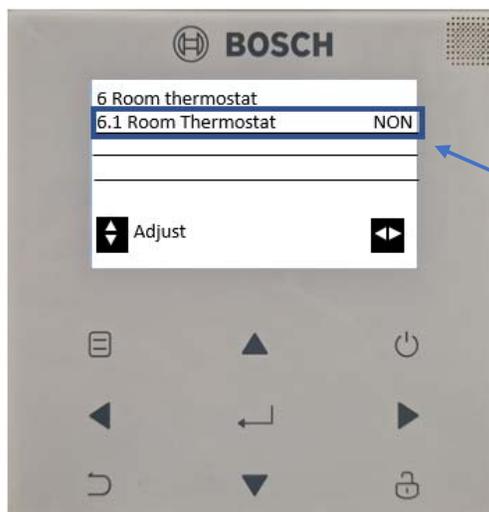


Press **Down Arrow** until **Room Thermostat** is highlighted.

Then press the **Ok** button.

Note:

Menu 6.1 has multiple options



Press **Up** or **Down** Arrow to change the thermostat configuration.

6.1 NO

No thermostat

Enables HMI to be set as thermostat or external controls.

Valves active: SV1 if there is a cylinder as well.



Press **Up** or **Down** Arrow to change the thermostat configuration.

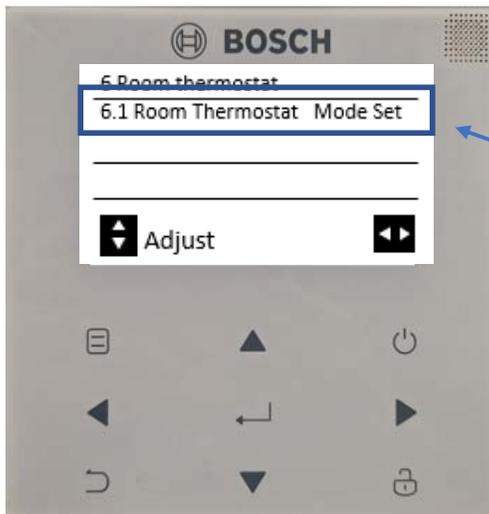
6.1: One Zone

One thermostat required Disable HMI function as thermostat.

Method B wiring in the manual on page 68 for 230V.

Valves active: SV1 if there is a cylinder as well.

Pump active: P_o



Press **Up** or **Down** Arrow to change the thermostat configuration.

6.1: Mode set

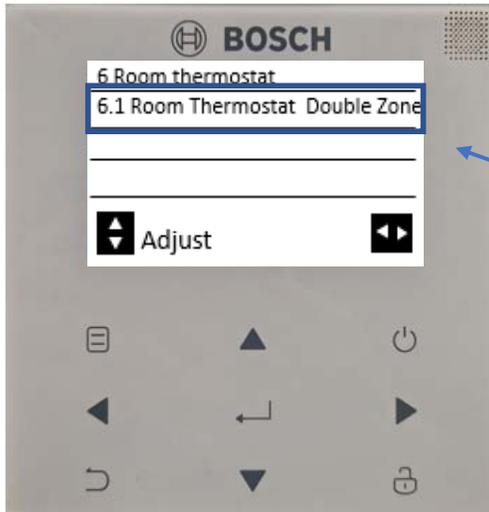
One thermostat required. Disable HMI function as thermostat and heating programmer (DHW will still be able to be programmed).

Method A wiring in the manual on page 68 for 230V.

Valves active:

SV1 if there is a cylinder as well.
SV2

Pump active: P_o



Press **Up** or **Down** Arrow to change the thermostat configuration.

6.1 Double Zone

Two thermostats required Disable HMI function as thermostat and heating programmer (DHW will still be able to be programmed).

Method C wiring in the manual on page 68 for 230V.

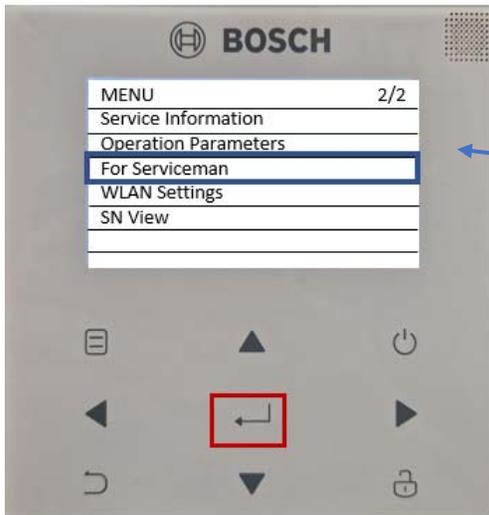
Valves active:

SV1 if there is a cylinder as well.
SV3.

Pump active:

P_o
P_c

Electrical Heater Settings

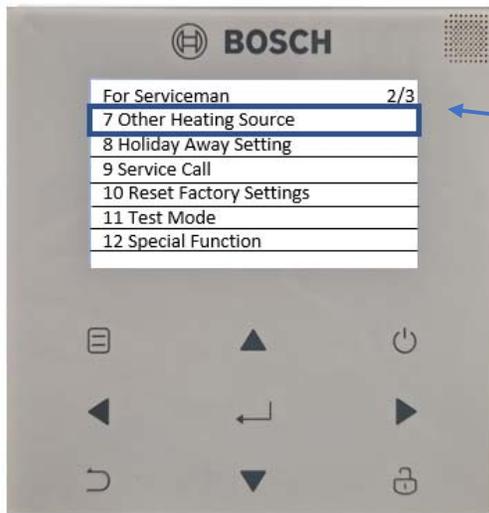


Press the **Menu** button.

Press the **Down Arrow** button until **For Serviceman** is highlighted.

Press **OK** button to go into that menu.

Note: The password to be entered is **234**

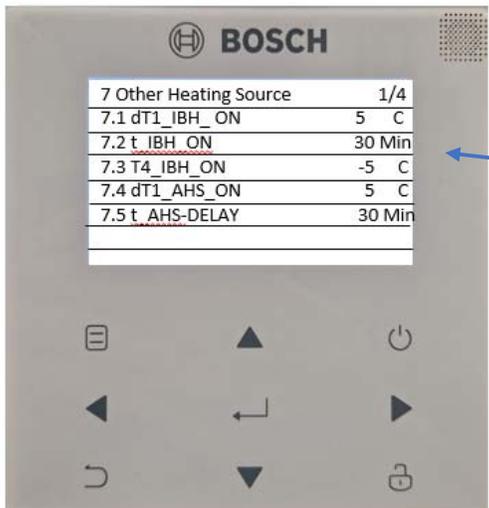


Press the **Down Arrow** button until for **Other Heating Source** is highlighted.

Press **OK** button to go into that menu.

Note:
Menu 7 to open Other Heating Source
Menu 7.3 to adjust electrical heater switch on temperature

Default options suitable for most properties

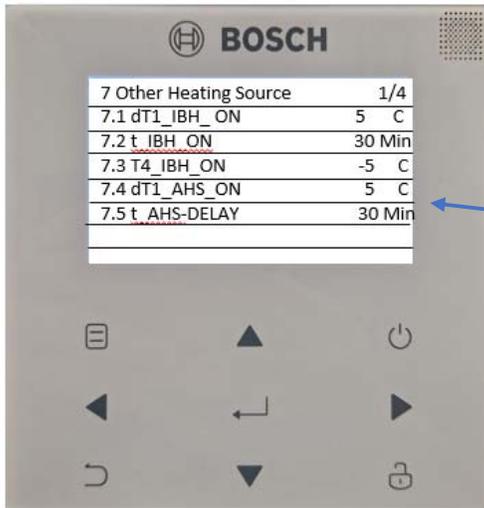


7.1 Default 5 (2-10)
The range between the water supply temperature (T1) and the setpoint (T1S) beyond which the heater is switched on.

When $T1 \leq T1S - dT1S_IBH_O$ the heater is switched on.

7.2 Default 30 (15-120)
Minimum time in minutes between compressor start-up and heater start-up

Note: ≤ Less than or Equal to



7.4 Default (-5 -15-30)

The outdoor temperature when the heater will be used.

Note:

If the outdoor temperature is higher than T4_IBH_ON, the heater will not come on.

7.5 Default (5 (2-20))

The range between the water supply temperature (T1) and the setpoint (T1S) beyond which the boiler is switched on.

When $T1S - T1 \geq dT1S_AHS_O$, the boiler is switched on.

Note: \geq Greater than or Equal to

7.6 Default 30 (5/120)

The outdoor temperature below which the boiler can be used.

Note:

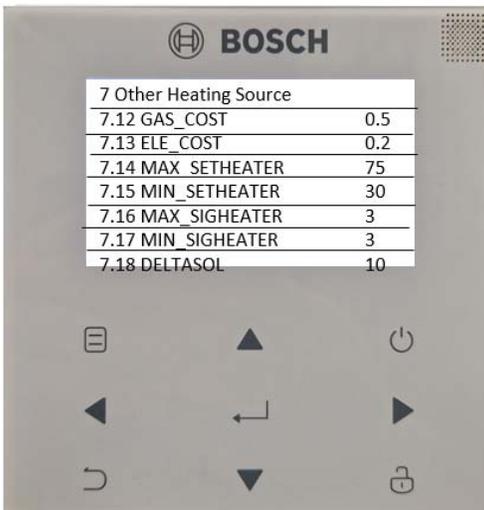
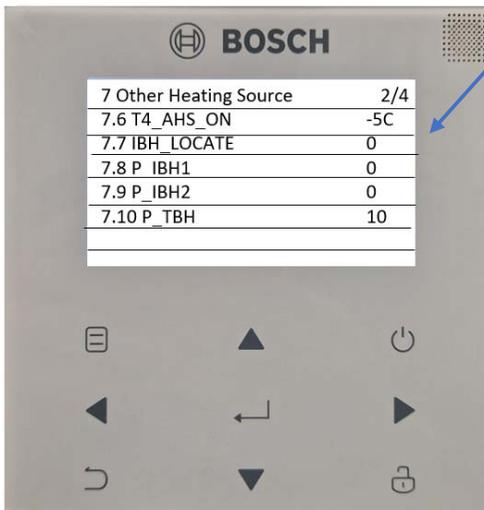
If the outdoor temperature is higher than T4_AHS_ON, the heater cannot be used.

7.7 Default -5 (15/30)

Do not Adjust.

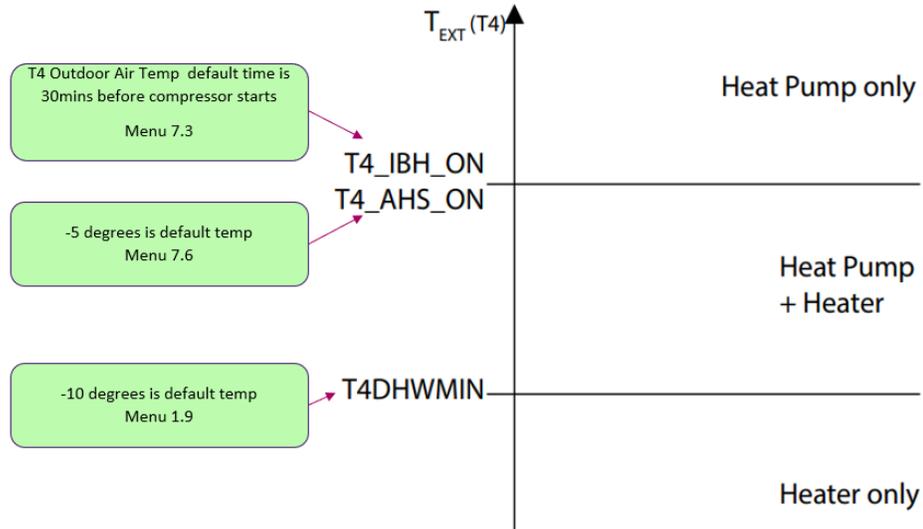
Note:

Menu 7.8 – 7.18 are not used in the UK.

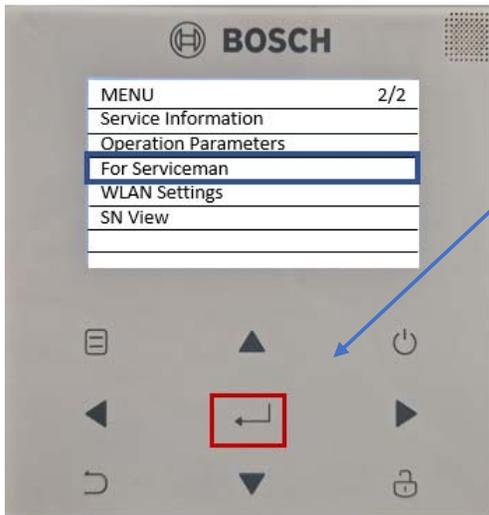


Activation of the additional source is linked to the simultaneous presence of 3 conditions, each of which is associated with a parameter.

Very low outdoor temperature : parameter T4_IBH_ON or T4_AHS_ON: the minimum outdoor air temperature for heat pump operation only.



Cooling

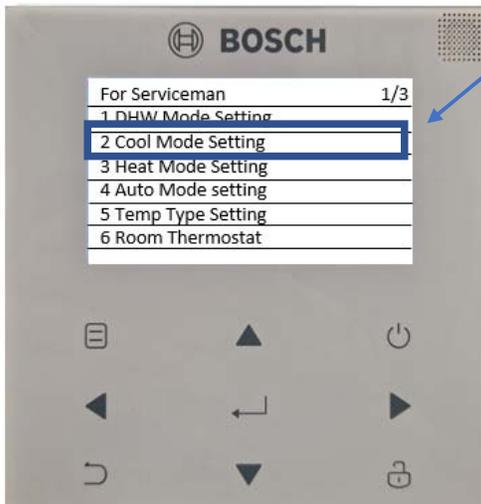


Press the **Menu** button.

Press the **Down Arrow** button until **For Serviceman** is highlighted.

Press **OK** button to go into that menu.

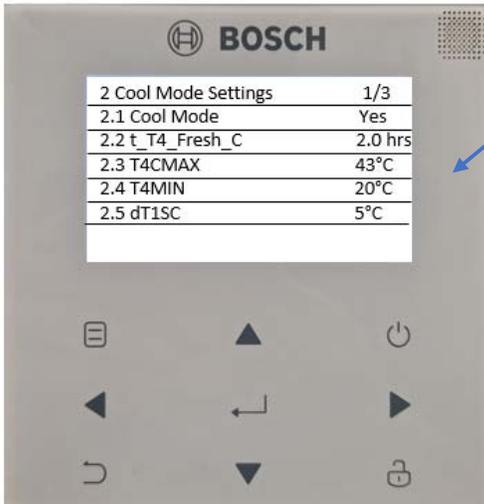
Note: The password to be entered is **234**



Press the **Down Arrow** button until **Cool Mode Setting** is highlighted.

Press **OK** button to go into that menu.

Note:
Menu 2.3 to set Maximum outdoor temp to activate cooling mode



2.1 Default Yes (Yes/No)
Enables/disables Cooling mode.

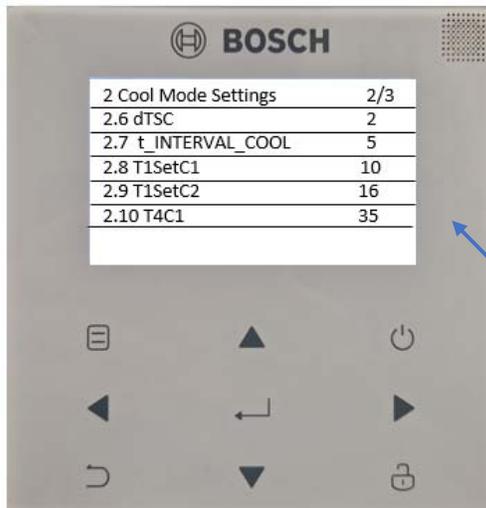
2.2 Default 0.5 (0.5/6)
Sets the time when the unit updates the climate curve, adjusting it according to the outdoor air temperature.

2.3 Default 52 (35/52)
Maximum outdoor air temperature for which the unit can operate in Cooling mode.

2.4 Default 10 (-5/25)
Defines the minimum outdoor air temperature for which the unit can operate in Cooling mode.

2.5 Default 5 (2/10)
Defines the range between the water supply temperature (T1) and the setpoint (T1S) within which the unit starts to operate in Cooling mode.

The heat pump starts when $T1 \geq T1S + dT1SC$ and stops when $T1 \leq T1S$.



2.6 Default 2 (1/10)

The range between the room air temperature (T_a) and the setpoint (TS) within which the unit starts to operate in Cooling mode.

The heat pump starts when $T_a \geq TS + dTSC$ and stops when $T_a \leq TS$.

2.7 Default 5 Non-Adjustable

The minimum minutes between compressor shutdown and subsequent restart in Cooling mode

2.8 Default 10 (5/25)

The maximum water supply setpoint for the customisable climate curve in Cooling mode

2.9 Default 35 (-5/46)

The minimum water supply setpoint for the customisable climate curve in Cooling mode

2.10 Default 35 (-5/46)

The minimum outdoor air temperature at which the setpoint T1 SetC1 is activated for the customisable climate curve in Cooling mode.

2.11 Default 25 (-5/46)

The maximum outdoor air temperature at which the setpoint T1 SetC2 is activated for the customisable climate curve in Cooling mode.

2.12 Default Unit Dependent

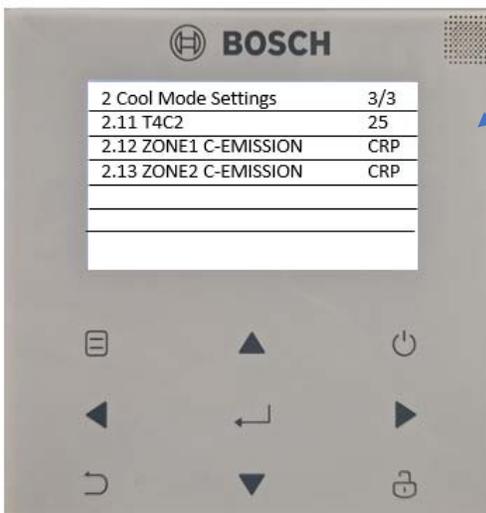
Type of distribution system in Cooling mode of the system's zone 1.

2.13 Default Unit Dependent

Type of distribution system in Cooling mode of the system's zone 2.

Note:

CRP = radiant / CVC = fan coils / RAD = radiators.



Note:

Add info on cooling menu

Activating Heating and Hot water

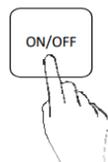
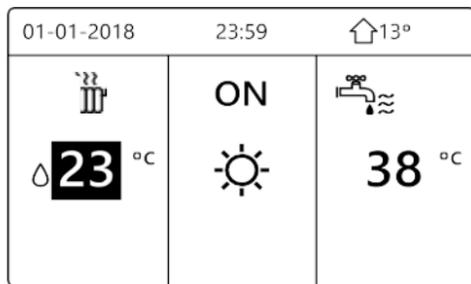
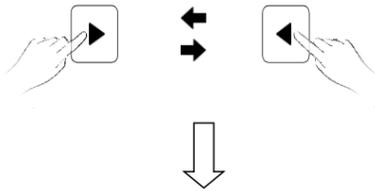
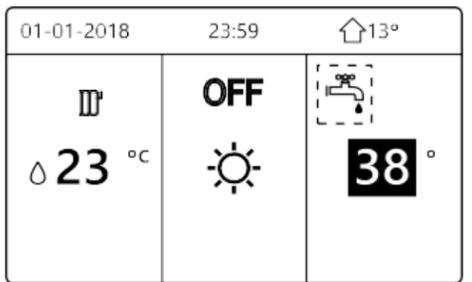


Once commissioning has been completed you will need to activate heating and hot water within the home screen

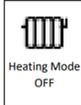
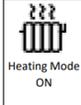
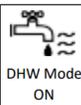
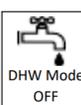
Press **UNLOCK** for 3 seconds to unlock the keypad.

Using the **Arrow Buttons** highlight the required option, Heating or Hot water.

Press the **ON/Off Button** to enable.



Symbol index

	Heating Mode OFF
	Heating Mode ON
	Hot Water ON
	Hot Water OFF