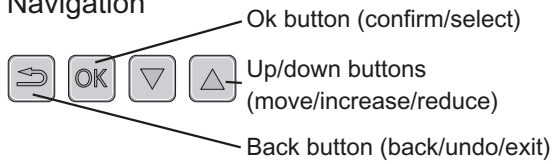


Installer manual
SMO 05
Accessories

Quick guide

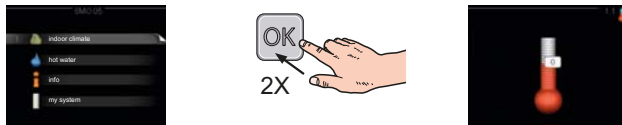
Navigation



A detailed explanation of the button functions can be found on page 18.

How to scroll through menus and make different settings is described on page 19.

Set the indoor climate



The mode for setting the indoor temperature is reached, when in the start mode in the main menu, by pressing the OK button twice. Read more about the settings on page 20.

Increase hot water volume



To temporarily increase the amount of hot water (if a hot water heater is installed to your SMO 05), first push the down button once to mark menu 2 (water droplet) and then press the OK button twice. Read more about the settings on page 24.

In event of disturbances in comfort

If a disturbance in comfort of any type occurs there are some measures that can be taken before you need to contact your installer. See page 30 for instructions.

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1 Important information

Safety information

This manual describes installation and service procedures for implementation by specialists.

This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.

Children should be supervised to ensure that they do not play with the appliance.

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Symbols



NOTE

This symbol indicates danger to machine or person.



Caution

This symbol indicates important information about what you should observe when maintaining your installation.



TIP

This symbol indicates tips on how to facilitate using the product.

Marking

This accessory is CE marked and fulfils IP20 (room unit) and IP21 (unit box).

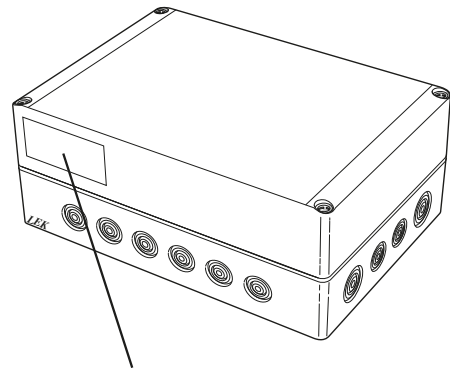
The CE marking means that NIBE ensures that the product meets all regulations that are placed on it based on relevant EU directives. The CE mark is obligatory for most products sold in the EU, regardless where they are made.

IP20 means that the product can be touched by hand, that objects with a diameter larger than or equivalent to 12.5 mm cannot penetrate and cause damage.

Serial number

The serial number can be found on one long side of the cover on the unit box.

Install the cover on the unit box so that the serial number is visible.



Serial number



Caution

Always give the product's serial number when reporting a fault.

Country specific information

Installer manual

This installer manual must be left with the customer.

Inspection of the installation

Current regulations require the heating installation to be inspected before it is commissioned. The inspection must be carried out by a suitably qualified person. Fill in the page for information about installation data in the User manual.

✓	Description	Notes	Signature	Date
	Communication, heat pump			
	Electricity (page 11)			
	Supply connected 230 V			
	Outside sensor			
	Room sensor			
	Hot water sensor			
	Room unit			
	Bridge at installation of room unit			
	Dipswitch			
	Miscellaneous			
	Checking additional heater			
	Checking the function of the reversing valve			

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For countries not mention in this list, please contact Nibe Sweden or check www.nibe.eu for more information.

2 Delivery and handling

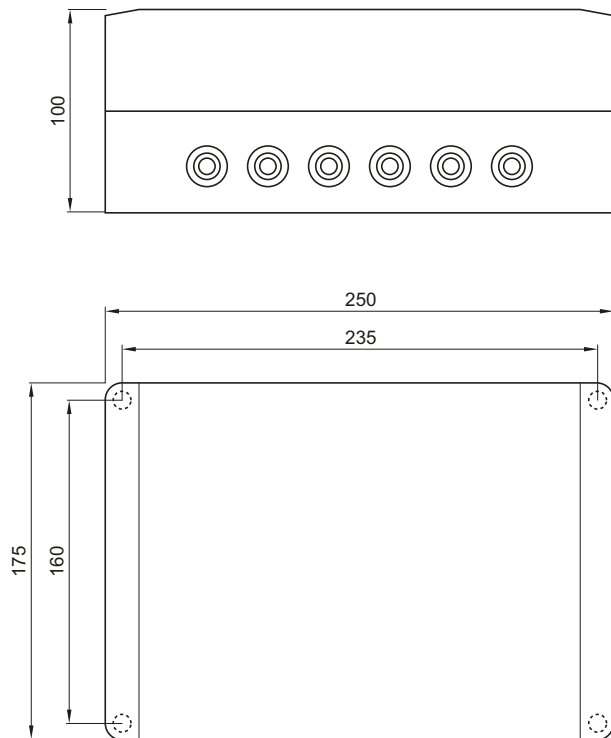
Mounting



NOTE

For wall mounting, use the mounting adapted for the base.

Unit box



Room unit

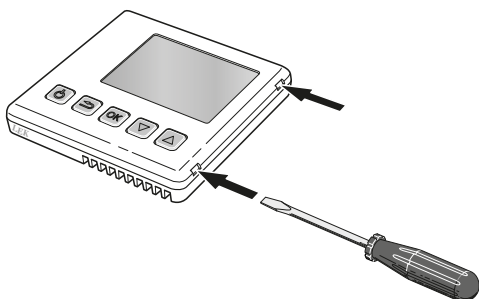
Mounting

SMO 05 cannot be installed directly against a wall because the connection terminal protrudes from the reverse.

Install SMO 05 either in a spare apparatus box or on the plastic spacer supplied.

If you want to use the room temperature sensor in SMO 05 the position of the room unit is important. See page 13.

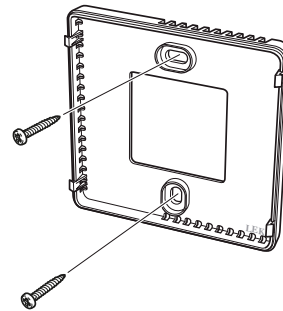
1.



Open SMO 05 by inserting a screwdriver in one of the 4 mm wide gaps in the edge. Press the screw-

driver straight in to open the clips. Repeat for the other three clips.

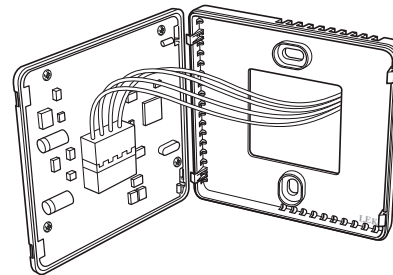
2.



Without plastic spacer: Place the rear panel in front of the apparatus box and screw to the wall.

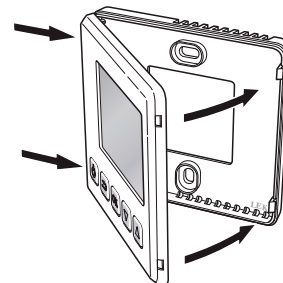
With plastic spacer: Screw the plastic spacer into the wall. Then screw the the rear panel into the plastic spacer with the two screws supplied.

3.



Connect the room unit, see page 12.

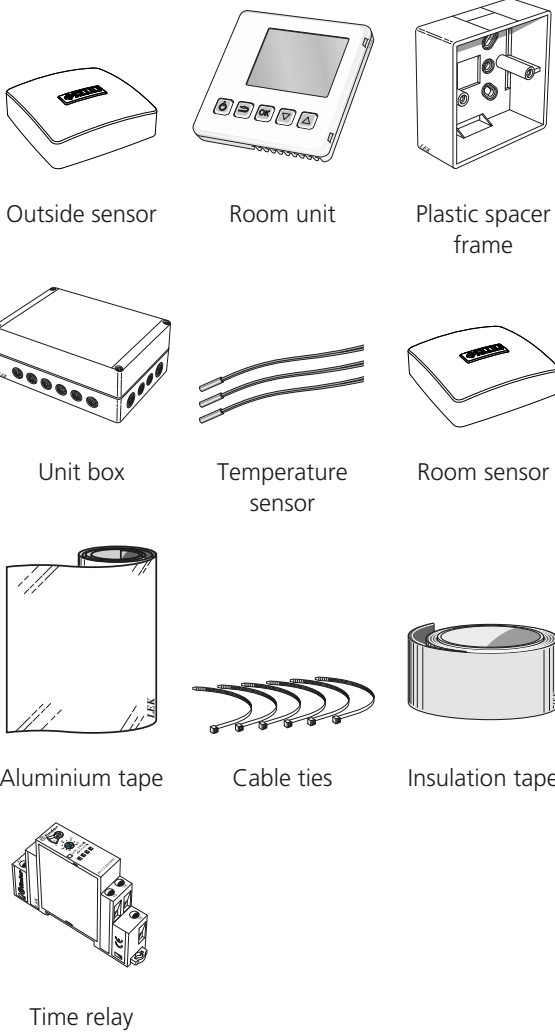
4.



Angle the front panel approx. 30 ° and secure the two clips on one side. Then close the unit and secure the two clips on the other side.

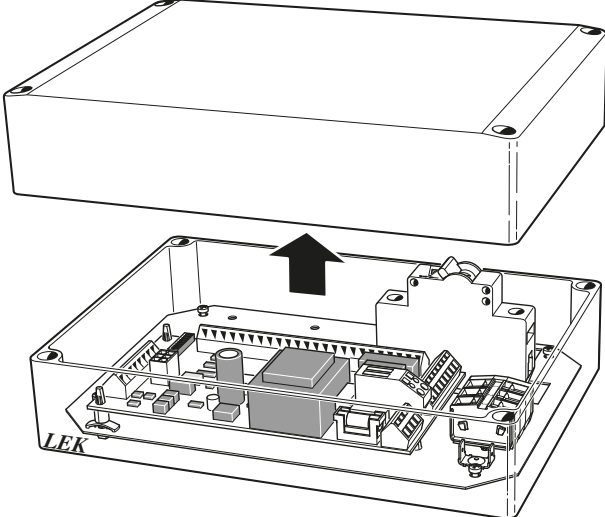
For dimensions and setting-out coordinates see page 34.

Supplied components



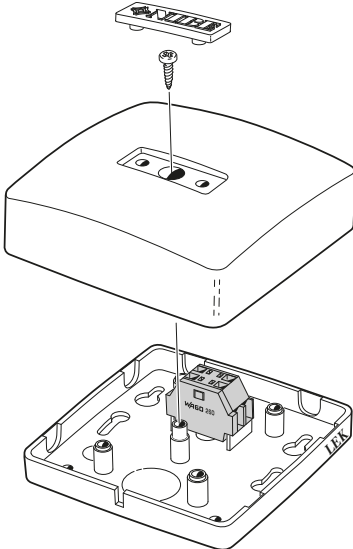
Removing the covers

Unit box



Remove the four screws in their respective corners and lift the cover.

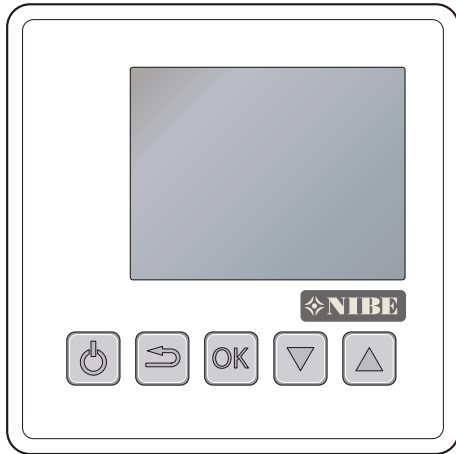
The outdoor temperature sensor/Room temperature sensor



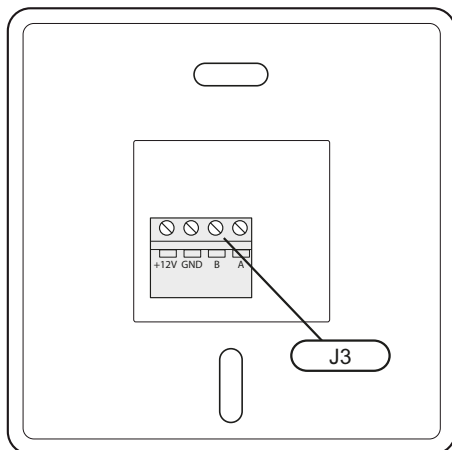
3 The Control Module Design

Room unit

Front



Rear side

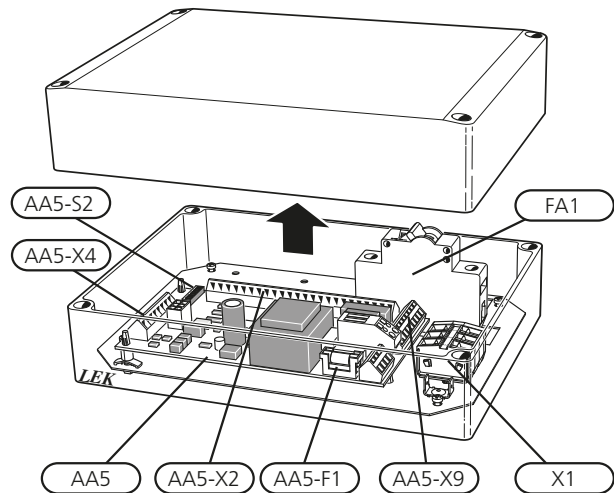


Electrical components

- AA 25 Room unit
- J 3 Terminal block, communication connection

Designations in component locations according to standard IEC 81346-1 and 81346-2.

Unit box



Electrical components

- FA1 Miniature circuit-breaker. 10A
- X1 Terminal block, power supply
- AA5 Accessory card
- AA5-X2 Terminal block, sensors and external blocking
- AA5-X4 Terminal block, communication
- AA5-X9 Terminal block, circulation pump, mixing valve and auxiliary relay
- AA5-S2 DIP switch
- AA5-F1 Fine wire fuse, T4AH250V










Designations in component locations according to standard IEC 81346-1 and 81346-2.

4 Pipe connections

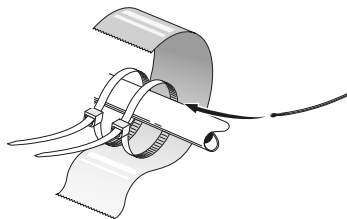
General

Pipe installation must be carried out in accordance with current norms and directives. See manual for NIBE F2015/F2025/F2016/F2026/F2300 for installation of the heat pump.


Symbol key

Symbol	Meaning
	Shut-off valve
	Non-return valve
	Shunt / shuttle valve
	Safety valve
	Trim valve
	Temperature sensor
	Pressure gauge
	Circulation pump
	Particle filter

Temperature sensor installation on pipe




Install the temperature sensors with cable ties (secure the first cable tie to the pipe on the centre of the sensor and the second about 5 cm after the sensor) and aluminium tape. Then insulate with supplied insulation tape.

 **NOTE** Sensor and communication cables must not be placed near power cables.

Docking alternatives

SMO 05 can be connected in several different ways, some of which are shown below.

Further option information is available at www.nibe.eu and in the respective assembly instructions for the accessories used. See page 32 for a list of the accessories that can be used with SMO 05.

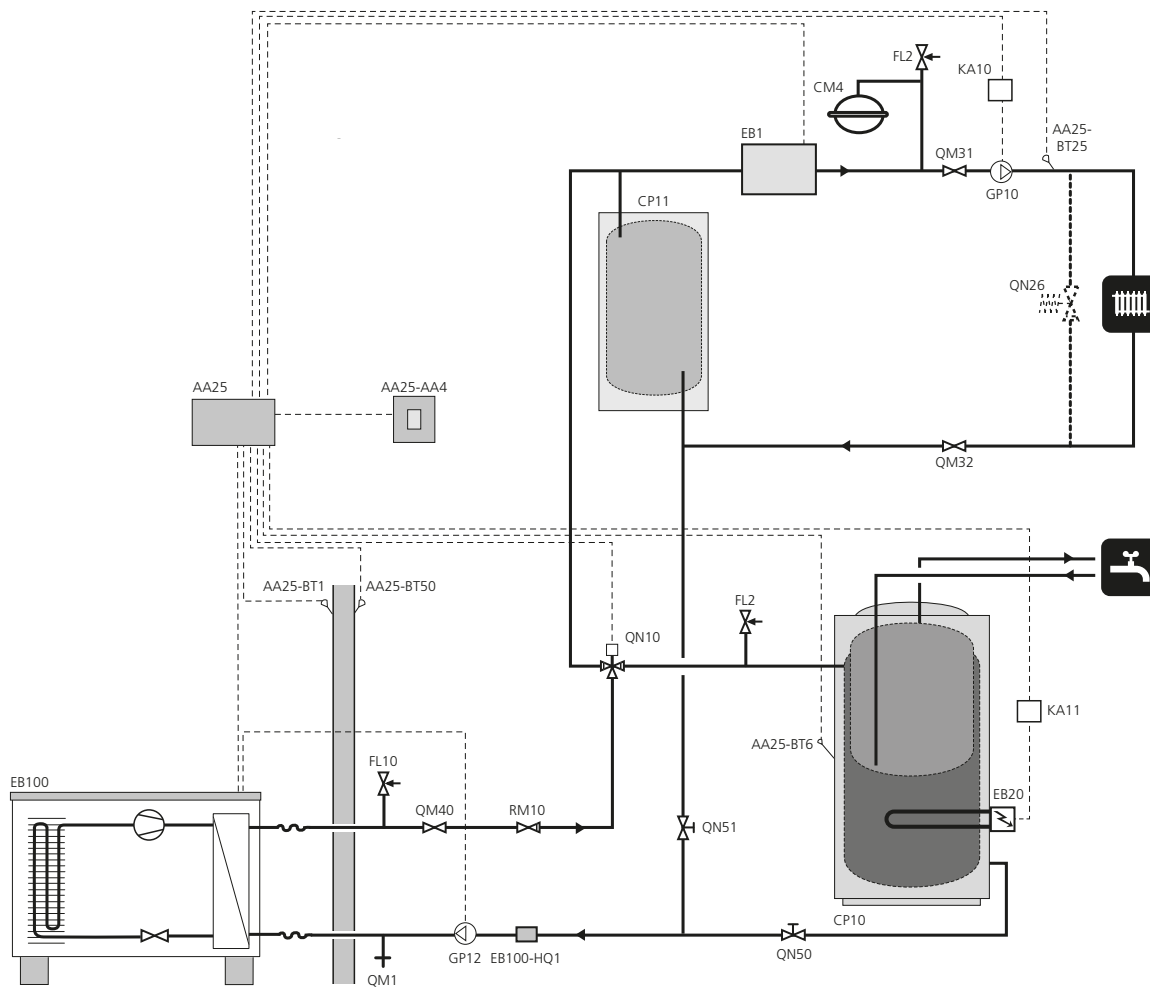
 **NOTE** This is the outline diagram. Actual installations must be planned according to applicable standards.

Explanation

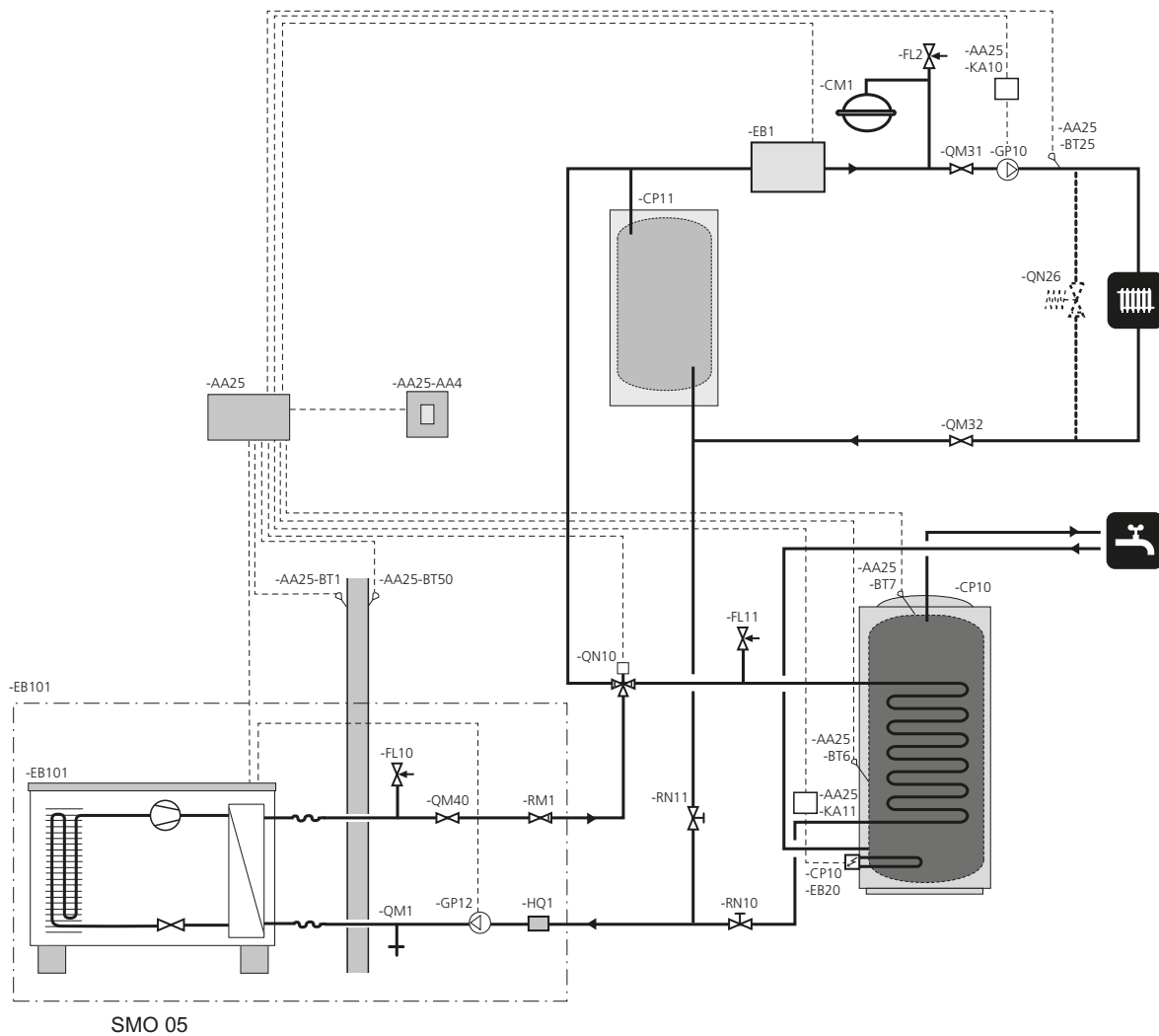
AA25	SMO 05
AA4	Display unit
BT1	Outside sensor
BT6	Hot water sensor, Charging
BT7	Hot water sensor, Top (VPB)
BT25	Flow sensor, External
BT50	Room sensor
KF1	Time relay
EB100	Heat pump (F2026/F2300)
GP12	Charge pump
HQ1	Particle filter
Miscellaneous	
EB1	Immersion heater
EB20	Immersion heater
CM4	Expansion vessel closed, Hot water
CP1	Accumulator tank
CP10	Accumulator tank with hot water heating (VPA/VPAS/VPB)
CP11	Buffer vessel (UKV)
FL2	Safety valve, Heating medium
FL10	Safety valve, Heat pump
GP10	Circulation pump, Heating medium
KA10	Auxiliary relay/Contactor
KA11	Auxiliary relay/Contactor
QM1	Drain valve, Heating medium
QM31	Shut-off valve, Heating medium, Flow
QM32	Shut off valve, Heating medium, Return
QM40	Shut-off valve
QN10	Reversing valve, Hot water/Heating medium
QN26	Overflow valve
QN50	Control valve
QN51	Control valve
RM10	Non-return valve

Designations according to standards 81346-1 and 81346-2.

NIBE F2026 docked with SMO 05 and immersion heater (floating condensing)



NIBE F2300 docked with SMO 05 and immersion heater (floating condensing)



The heating medium side and the hot water side must be fitted with the necessary safety equipment in accordance with the applicable regulations.

Note! This is an outline diagram. Actual installations must be planned according to applicable standards.

The principle above requires accessories.

5 Electrical connections

General



NOTE

All electrical connections must be carried out by an authorised electrician.

Electrical installation and wiring must be carried out in accordance with the stipulations in force.

When installing SMO 05, NIBE's air/water heat pump and any addition must be current free.



Caution

The relay outputs on the accessory card (AA5) can have a max load of 2 A (230 V) in total.

Connections

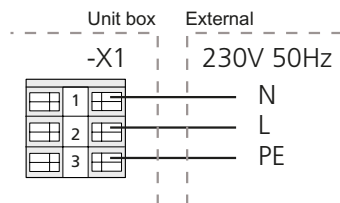


NOTE

To prevent interference, unshielded communication and/or sensor to external connections cables must not be laid closer than 20 cm to high voltage cable when cable routing.

Connecting the supply

Connect the power supply to terminal block X1 as illustrated.

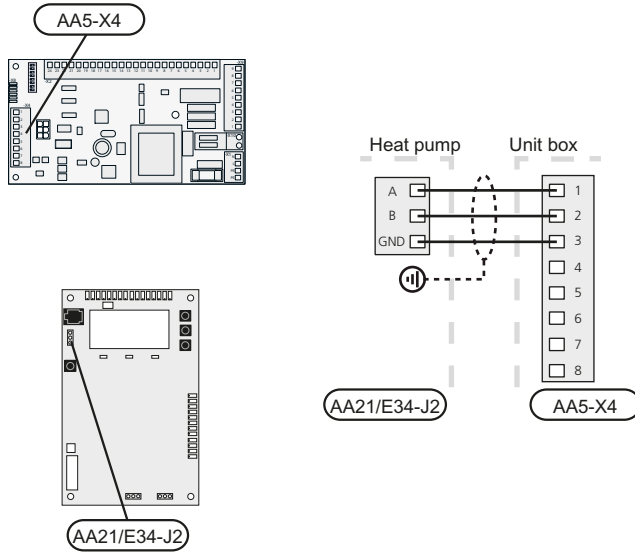


Communication with heat pump

NIBE F2015/F2025/F2300

The heat pump is connected to terminal block X4:1 (A), X4:2 (B) and X4:3 (GND) on the accessory card (AA5) from terminal block -AA21:J2 in F2015/F2300 or from terminal block -E34:J2 in F2025.

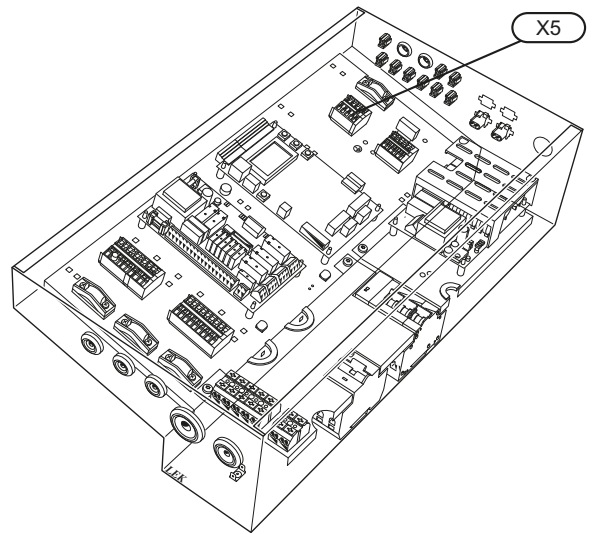
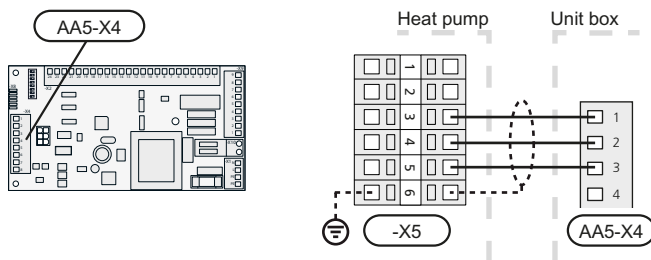
Use a cable of at least 0.5 mm² cable area.



NIBE F2016/F2026

The heat pump is connected to terminal X4:1, X4:2 and X4:3 on the accessories card (AA5) from terminal -X5 (3, 4, 5, 6) i F2016/F2026, as illustrated.

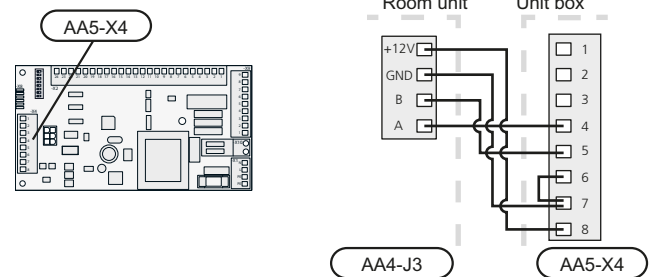
Use a cable of at least 0.5 mm² cable area.



Room unit

The room unit is connected to terminal block X4:4 (A), X4:5 (B), X4:7 (GND) and X4:8 (+12V) on the accessory card (AA5). Fit a bridge between X4:6 and X4:7.

Use a cable of at least 0.5 mm² cable area.

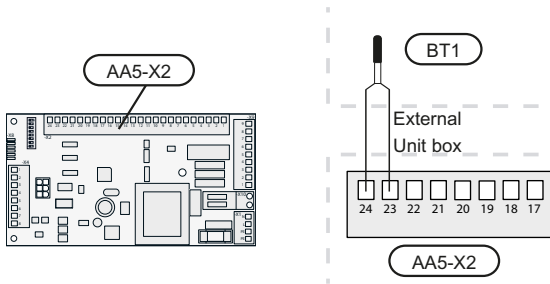


Outside sensor

Install the outside temperature sensor (BT1) in the shade on a wall facing north or north-west, so it is unaffected by the morning sun.

Connect the sensor to terminal block X2:23 and X2:24 on the accessory card (AA5). Use a 2 core cable of at least 0.5 mm² cable area.

If a conduit is used it must be sealed to prevent condensation in the sensor capsule.



Room sensor

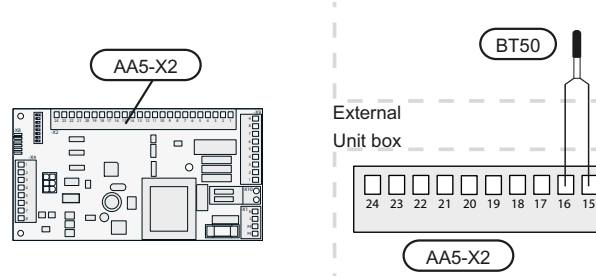
SMO 05 is delivered with a room sensor supplied (BT50). The room temperature sensor has up to three functions:

1. Show current room temperature in the heat pump's display.
2. Option of changing the room temperature in °C.
3. Makes it possible to change/stabilise the room temperature.

Install the sensor in a neutral position where the set temperature is required. A suitable location is on a free inner wall in a hall approx. 1.5 m above the floor. It is important that the sensor is not obstructed from measuring the correct room temperature by being located, for example, in a recess, between shelves, behind a curtain, above or close to a heat source, in a draft from an external door or in direct sunlight. Closed radiator thermostats can also cause problems.

SMO 05 operates without the sensor, but if one wishes to read off the accommodation's indoor temperature in SMO 05's display the sensor must be installed. Connect the room temperature sensor to X2:15 and X2:16 on the accessory card (AA5).

Use a 2 core cable of at least 0.5 mm² cable area.



Caution

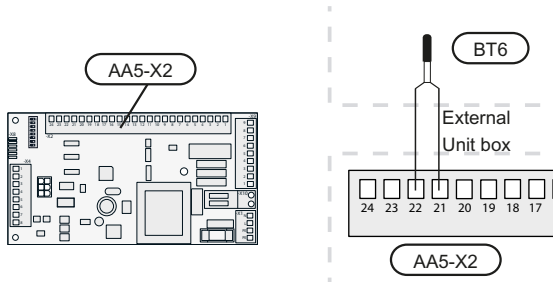
Changes of temperature in accommodation take time. For example, short time periods in combination with underfloor heating will not give a noticeable difference in room temperature.

Temperature sensor, hot water charging

The temperature sensor, hot water charging (BT6) is placed in the submerged tube on the water heater.

Connect the sensor to terminal block X2:21 and X2:22 on the accessory card (AA5). Use a 2 core cable of at least 0.5 mm² cable area.

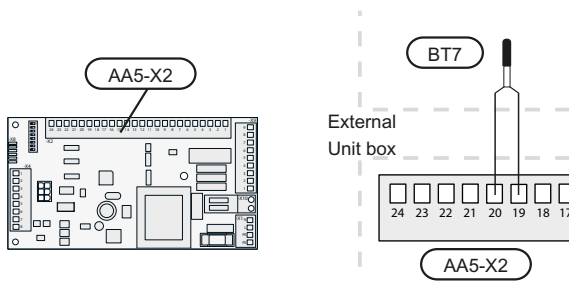
Hot water charging can be activated in menu 5.2.



Temperature sensor, hot water top

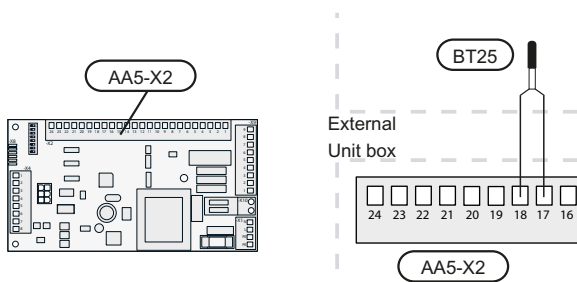
A temperature sensor for hot water top (BT7) can be connected to SMO 05 for showing the water temperature at the top of the tank (placed in submerged tube).

Connect the sensor to terminal block X2:19 and X2:20 on the accessory card (AA5). Use a 2 core cable of at least 0.5 mm² cable area.



Temperature sensor, external flow line

The temperature sensor, external flow line (BT25) is connected to terminal block X2:17 and X2:18 on the accessory card (AA5). Use a 2 core cable of at least 0.5 mm² cable area.



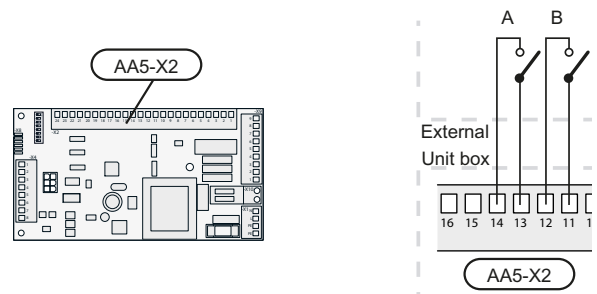
Switch for external blocking of addition and/or compressor

In those cases external blocking of addition (B) and/or compressor (A) is wanted, this can be connected to terminal block X2:11 and X2:12 (addition) respectively terminal block X2:13 and X2:14 (compressor) on the accessory card (AA5).

The addition and/or the compressor are disconnected by connecting a potential free switch function to actual terminal block. Use a 2 core cable of at least 0.5 mm² cable area.

External blocking of addition and compressor can be combined.

A closed contact results in the electrical output being disconnected.

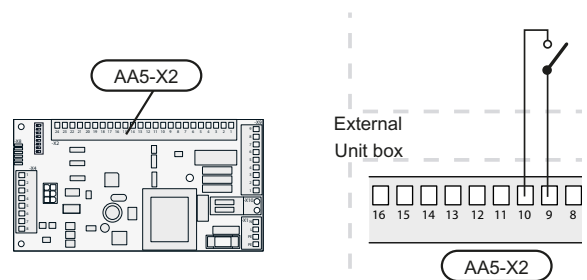


Contact for external adjustment.

An external contact function can be connected to SMO 05 to change the supply temperature and the room temperature.


When the contact is closed, the offset heating curve is changed by the number of steps selected in the menu 1.9.2 "external adjustment". If a room temperature sensor is installed and activated the desired room temperature (°C) is set in the menu.

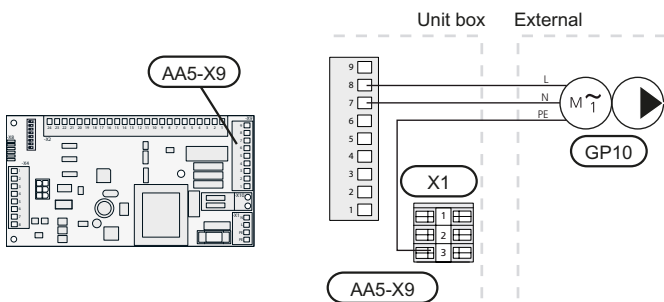
The contact must be potential free and connected to terminal block X2:9 and X2:10 on the accessory card (AA5).



Connection of the circulation pump (GP10)

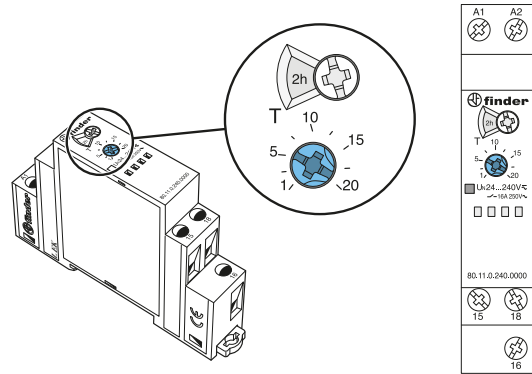
The circulation pump is connected to terminal block X9:7 (N), X9:8 (230 V) and X1:3 (PE) on the accessory card (AA5).

NOTE
 During the emergency mode function, the circulation pump requires external voltage.



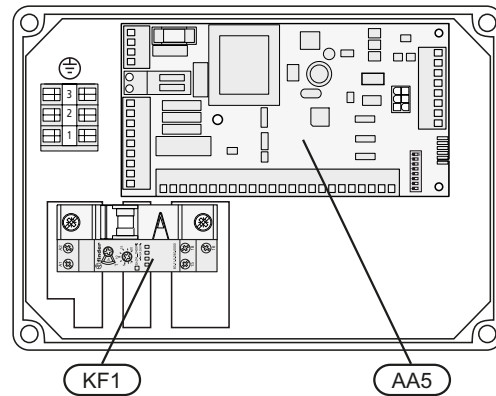
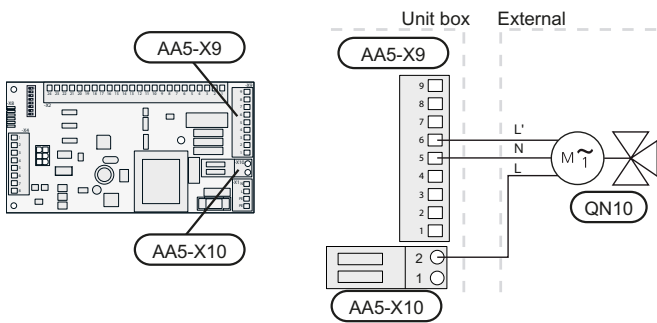
Connection of additional heat (EM1/EB1) and time relay

The addition can be controlled in two steps using a time relay (KF1). The additional relay (QA1) is connected to the accessories card (AA5) as illustrated from QA1:A1 to AA5-X9:2 (230 V) and from QA1:A2 to AA5-X9:1 (N). Connect the time relay as illustrated.



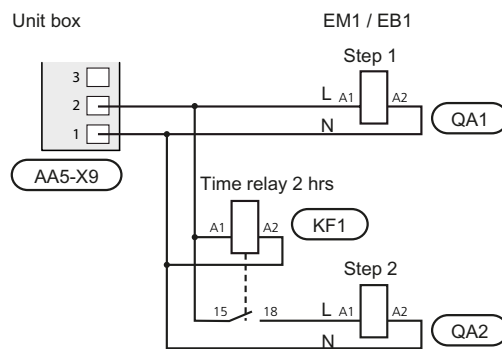
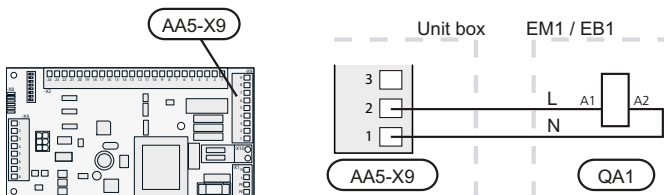
Connection of the reversing valve motor (QN10)

The reversing valve is connected to terminal block X9:5 (N), X9:6 (230 V during hot water production, 0 V during heating) and X10:2 (230 V) on the accessory card (AA5).



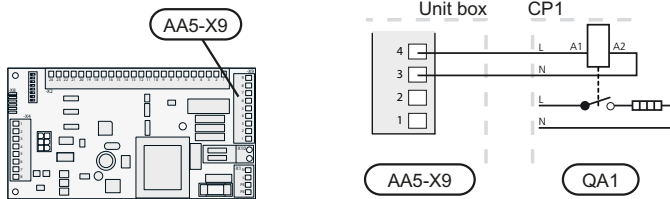
Connection of additional heat (EM1/EB1)

The additional relay (QA1) is connected to the accessories card (AA5) as illustrated from QA1:A1 to AA5-X9:2 (230 V) and from QA1:A2 to AA5-X9:1 (N).



Connection of add. heat for hot water

The additional relay (QA1) is connected to the accessories card (AA5) as illustrated from QA1:A1 to AA5-X9:4 (230 V) and from QA1:A2 to AA5-X9:3 (N).



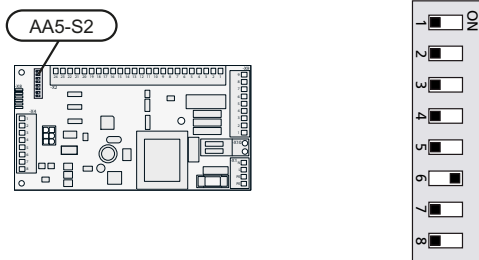
Connecting accessories

Instructions for connecting other accessories are in the installation instructions provided. See page 32 for the list of the accessories that can be used with SMO 05.

Settings

DIP switch

The DIP switch on the accessory card must be set as follows.



6 Commissioning and adjusting

Preparations

- NIBE F2015/F2025/F2016/F2026/F2300 must have a control card with display with version 2.10 or later. The control card version is displayed in the heat pump's display upon start-up.
- SMO 05 must be ready-connected.
- Read how to use the room unit on page 18.

Commissioning with NIBE air/water heat pump

NIBE F2015/F2025

- Follow the instructions in the heat pump's Installation and Maintenance under section "Commissioning and adjustment" – "Start-up and inspection".

NIBE F2016/F2026

- Follow the instructions in the heat pump's Installation manual under section "Commissioning and adjustment" – "Start-up and inspection".

NIBE F2300

- Follow the instructions in the heat pump's Installation manual under section "Commissioning and adjustment" – "Start-up and inspection".

SMO 05

1. Power the heat pump.
2. Power SMO 05.
3. Make settings that affect actual docking.
4. Set curve slope and offset heating curve in menu 1.9.1. See page 21.
5. Set the correct flow during hot water production according to the heat pump's Installation manual. Check the difference between BT2 and BT3 in menu 3.

Commissioning without NIBE air/water heat pump

1. Go to menu 4.2 op. mode.
2. Mark "add. heat only" using the up and down buttons and then press the OK button.
3. Return to the main menus by pressing the Back button.



Caution

When commissioning without NIBE air/water heat pump an alarm communication error may appear in the room unit.

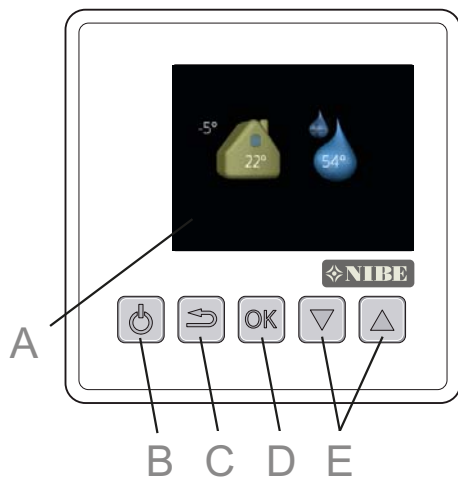
Reset the alarm when setting "add. heat only" in menu 4.2.

Check the reversing valve

1. Change menu 4.2 to manual operating mode with heating permitted.
2. Change degree minutes to 0 in menu 4.9.3 "current value".
3. Create hot water demand.
4. Check that the reversing valve is open for hot water charging.
5. Change degree minutes in menu 4.9.3 "current value" to a lower value than shown in menu 4.9.3 "start addition" (factory setting: -400).
6. Check that the reversing valve is set to open for heating operation.
7. Change menu 4.2 to desired operating mode.
8. Reset menu 4.9.3 "current value" to 0.

7 Control - Introduction

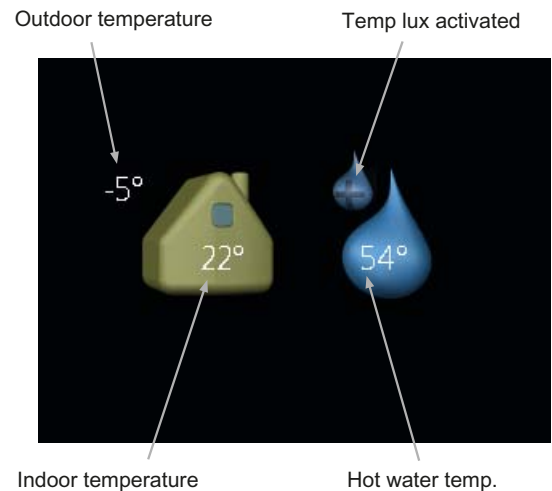
Room unit



- A Display**
Instructions, settings and operational information are shown on the display.
- B Stand-by button**
The room unit can be switched to stand-by mode using the stand-by button. Heat pump operation is not affected by pressing the button.
- C Back button**
The back button is used to:
 - go back to the previous menu.
 - change a setting that has not been confirmed.
- D OK button**
The OK button is used to:
 - confirm selections of sub menus/options/set values.
- E Up and down buttons**
With the up and down buttons you can:
 - scroll in menus and between options.
 - increase and decrease the values.
 - change page in multiple page instructions

Menu system

When the room unit starts up you come to the information menu. Basic information about your system status is shown here.



Press any button to go to the main menu.



The information menu shows:

- on starting
- when the back button in the main menu is pressed
- after 15 minutes of inactivity.

In the event of an alarm a symbol is shown in the display together with the alarm's number. See page 30 for instructions.

In the other menus the alarm symbol is shown in the bottom right hand corner.

Menu 1 - INDOOR CLIMATE

Setting the indoor climate. See page 20.

Menu 2 - HOT WATER

Setting the hot water production. See page 24.

This menu only appears if a water heater is activated in the menu system.

Menu 3 - INFO

Display of temperature and other operating information. See page 25.

Menu 4 - MY INSTALLATION

Setting operating mode etc. See page 26.

Menu 5 - SERVICE

Advanced settings. These settings are not available to the end user. The menu is visible by pressing the back button for 7 seconds. See page 28.

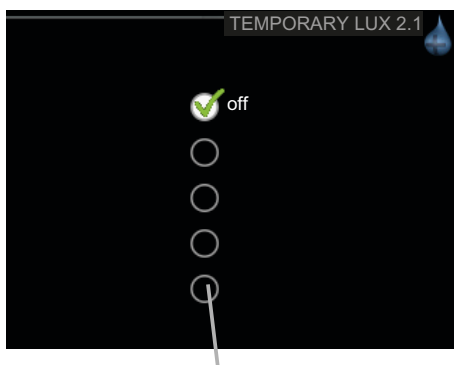
Operation

To move the cursor, press the up or down button. The marked position is brighter and/or has a turned up tab.


Selecting menu

To advance in the menu system select a sub-menu by marking it by using the up and down buttons and then pressing the OK button.



Selecting options



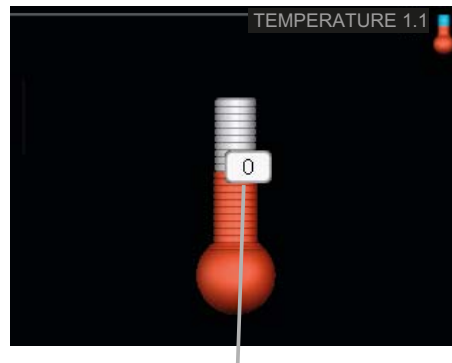
Selectable options

In an options menu the current selected option is indicated by a green tick. 

To select another option:





1. Mark the applicable option using the up or down button. One of the options is pre-selected (white). 
2. Press the OK button to confirm the selected option. The selected option has a green tick. 

Setting a value



Adjustable value

To set a value:

1. Mark the value you want to set using the up or down button. 
2. Press the OK button. The background of the value becomes green, which means that you have accessed the setting mode. 
3. Press the up button to increase the value or the down button to reduce the value. 
4. Press the OK button to confirm the value you have set. To undo and return to the original value, press the back button. 

8 Control - Menus

Menu 1 - INDOOR CLIMATE

Overview

1 - INDOOR CLIMATE	1.1 - temperature
	1.9 - advanced
	1.9.1 - heating curve
	1.9.2 - external adjustment
	1.9.3 - min. flow line temp.
	1.9.4 - room sensor settings

Sub-menus

For the menu **INDOOR CLIMATE** there are several sub-menus. Status information for the relevant menu can be found on the display to the right of the menus.

temperature Setting the temperature for the climate system. The status information shows the set values for the climate system.

advanced Setting of heat curve, adjusting with external contact, minimum value for supply temperature and room sensor.

Menu 1.1 - temperature

Set the temperature (with room sensors installed and activated):

Setting range: 5 - 30 °C
Default value: 20

The value in the display appears as a temperature in °C if the heating system is controlled by a room sensor.

To change the room temperature, use the up and down buttons to set the desired temperature in the display. Confirm the new setting by pressing the OK button. The new temperature is shown on the right-hand side of the symbol in the display.

Setting the temperature (without room sensors activated):

Setting range: -10 to +10
Default value: 0

The display shows the set values for heating (curve offset). To increase or reduce the indoor temperature, increase or reduce the value on the display.

Use the up and down buttons to set a new value. Confirm the new setting by pressing the OK button.

The number of steps the value has to be changed to achieve a degree change of the indoor temperature depends on the heating unit. One step for under floor heating whilst radiators may require three.

Setting the desired value. The new value is shown on the right-hand side of the symbol in the display.



Caution

An increase in the room temperature can be slowed by the thermostats for the radiators or under floor heating. Therefore, open the thermostat valves fully, except in those rooms where a cooler temperature is required, e.g. bedrooms.



TIP

Wait 24 hours before making a new setting, so that the room temperature has time to stabilise.

If it is cold outdoors and the room temperature is too low, increase the curve slope in menu 1.9.1 by one increment.

If it is cold outdoors and the room temperature is too high, lower the curve slope menu 1.9.1 by one increment.

If it is warm outdoors and the room temperature is too low, increase the value in menu 1.1 by one increment.

If it is warm outdoors and the room temperature is too high, reduce the value in menu 1.1 by one increment.

Menu 1.9 - advanced

Menu **advanced** has orange text and is intended for the advanced user. This menu has several sub-menus.

heating curve Setting the heating curve slope.

external adjustment Setting the heat curve offset when the external contact is connected.

min. flow line temp. Setting minimum permitted flow line temperature.

room sensor settings Settings regarding the room sensor.

Menu 1.9.1 - heating curve

heating curve

Setting range: 1 - 15

Default value: 13

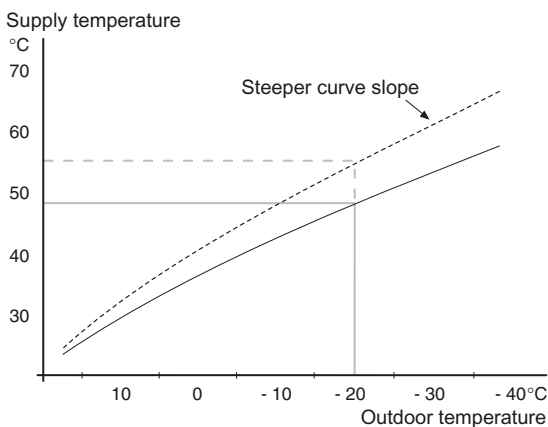
offset

Setting range: -10 to +10

Default value: 0

In the menu **heating curve** the so-called heating curve for your house can be set. The task of the heating curve is to give an even indoor temperature, regardless of the outdoor temperature, and thereby energy efficient operation. It is from this heating curve that the heat pump's control computer determines the temperature of the water to the heating system, flow line temperature, and therefore the indoor temperature. You can select heating curve and read off how the flow line temperature changes at different outdoor temperatures here.

Curve coefficient



The slope of the heating curve indicates how many degrees the supply temperature is to be increased/reduced when the outdoor temperature drops/increases. A steeper slope means a higher supply temperature at a certain outdoor temperature.

The optimum slope depends on the climate conditions in your location, if the house has radiators or under floor heating and how well insulated the house is.

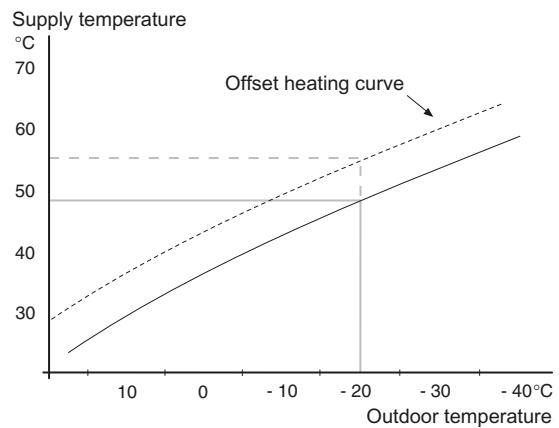
The heating curve is set when the heating installation is installed, but may need adjusting later. Thereafter the heating curve should not need further adjustment.



Caution

In the event of making fine adjustments for the indoor temperature, the heat curve must be offset up or down instead, this is done in menu 1.1 **temperature**.

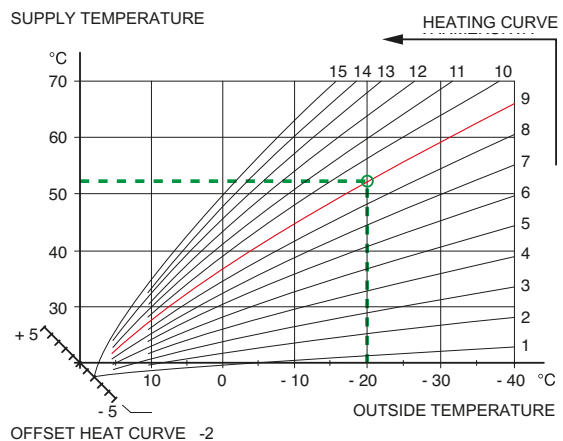
Curve offset

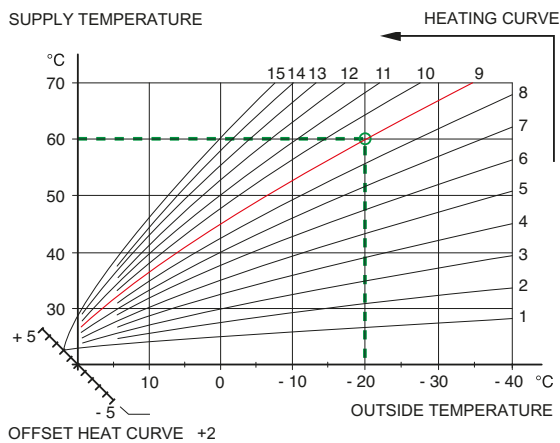
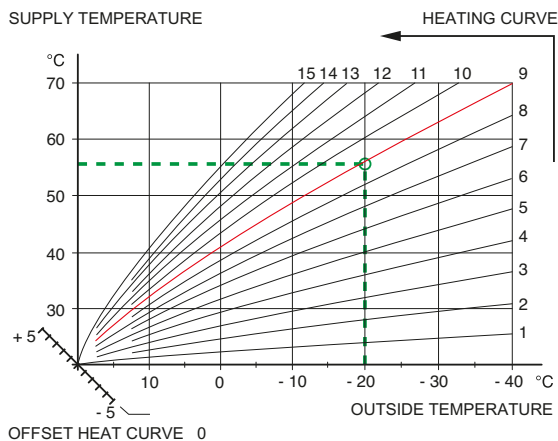


An offset of the heating curve means that the supply temperature changes as much for all the outdoor temperatures, e.g. that a curve offset of +2 steps increases the supply temperature by 5 °C at all outdoor temperatures.

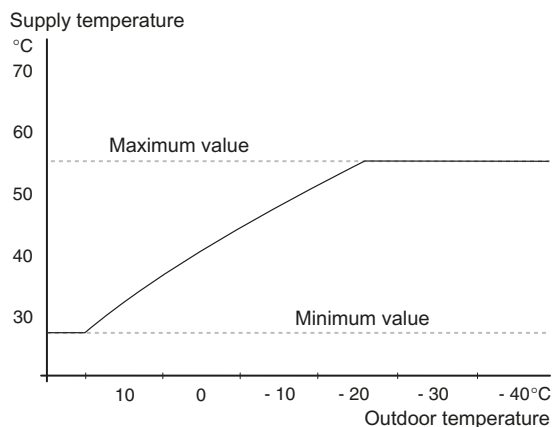
Setting automatic heating controls with diagram

The diagrams are based on the dimensioned outdoor temperature in the area and the dimensioned supply temperature of the climate system. When these two values "meet", the heating control's curve slope can be read.





Flow line temperature– maximum and minimum values



Because the flow line temperature cannot be calculated higher than the set maximum value or lower than the set minimum value the heating curve flattens out at these temperatures.



Caution

Underfloor heating systems are normally **max flow line temperature** set between 35 and 45 °C.

Check the max temperature for your floor with your installer/floor supplier.

Use the up and down buttons to set a new value. Confirm the new setting by pressing the OK button.

To select another heat curve (slope):

1. Press the OK button to access the setting mode
2. Select a new heating curve. The heating curves are numbered from 1 to 15, the greater the number, the steeper the slope and the greater the supply temperature.
3. Press the OK button to exit the setting.



TIP

Wait 24 hours before making a new setting, so that the room temperature has time to stabilise.

If it is cold outdoors and the room temperature is too low, increase the curve slope by one increment.

If it is cold outdoors and the room temperature is too high, lower the curve slope by one increment.

If it is warm outdoors and the room temperature is too low, increase the curve offset by one increment.

If it is warm outdoors and the room temperature is too high, lower the curve offset by one increment.

Menu 1.9.2 - external adjustment

climate system (with room temperature sensors installed and activated)

Setting range: 5 - 30 °C

Default value: 20

climate system (without room temperature sensors activated)

Setting range: -10 to +10

Default value: 0

Connecting an external contact, for example, a room thermostat or a timer allows you to temporarily or periodically raise or lower the room temperature. When the contact is on, the heat curve offset is changed by the number of steps selected in the menu. If a room sensor is installed and activated the desired room temperature (°C) is set.

Menu 1.9.3 - min. flow line temp.

climate system

Setting range: 15 – 50 °C

Default value: 15 °C

Set the minimum temperature on the supply temperature to the climate system. This means that SMO 05 never calculates a temperature lower than that set here.



TIP

The value can be increased if you have, for example, a cellar that you always want to heat, even in summer.

You may also need to increase the value in "stop heating" menu 4.9.2 "auto mode setting".

Menu 1.9.4 - room sensor settings

factor system

Setting range: 0.1 - 6.0

Default value: 2.0

Room sensors to control the room temperature can be activated here.

Here you can set a factor that determines how much the supply temperature is to be affected by the difference between the desired room temperature and the actual room temperature. A higher value gives a greater change of the heating curve's set offset.

Menu 2 - HOT WATER

Overview

2 - HOT WATER	2.1 - temporary lux
	2.2 - comfort mode
	2.9 - advanced
	2.9.1 - periodic increases

Sub-menus

For the menu **HOT WATER** there are several sub-menus. Status information for the relevant menu can be found on the display to the right of the menus.

temporary lux Activation of temporary increase in the hot water temperature. Status information displays "off" or what length of time of the temporary temperature increase remains.

comfort mode Setting hot water comfort. The status information displays what mode is selected, "economy", "normal" or "luxury".

advanced Setting periodic increase in the hot water temperature.

Menu 2.1 - temporary lux

Setting range: 1, 3, 6 and 12 hours, and mode "off"
Default value: "off"

When hot water requirement has temporarily increased this menu can be used to select an increase in the hot water temperature to lux mode for a selectable time.



Caution

If comfort mode "luxury" is selected in menu 2.2 no further increase can be carried out.

The function is activated immediately when a time period is selected and confirmed using the OK button. The time to the right displays the remaining time at the selected setting.

When the time has run out SMO 05 returns to the mode set in menu 2.2.

Select "off" to switch off **temporary lux**.

Menu 2.2 - comfort mode

Setting range: economy, normal, luxury
Default value: normal

The difference between the selectable modes is the temperature of the hot tap water. Higher temperature means that the hot water lasts longer.

economy: This mode gives less hot water than the other, but is more economical. This mode can be used in smaller households with a small hot water requirement.

normal: Normal mode gives a larger amount of hot water and is suitable for most households.

luxury: Lux mode gives the greatest possible amount of hot water. In this mode the immersion heater may be partially used to heat hot water, which may increase operating costs.

Menu 2.9 - advanced

Menu **advanced** has orange text and is intended for the advanced user. This menu has several sub-menus.

Menu 2.9.1 - periodic increases

period

Setting range: 1 - 90 days
Default value: 14 days

To prevent bacterial growth in the water heater, the compressor and the immersion heater can increase hot water temperature at regular intervals.

The length of time between increases can be selected here. The time can be set between 1 and 90 days. Factory setting is 14 days. Untick "activated" to switch off the function.

Menu 3 - INFO

Menu 3.1 - service info

Information about the heat pump's actual operating status (e.g. current temperatures etc.) can be obtained here. No changes can be made.

The information is on several pages. Push the up and down buttons to scroll between the pages.

Menu 4 MY SYSTEM

Overview

4 - MY SYSTEM	4.2 - op. mode	
	4.8 - alarm reset*	
	4.9 - advanced	4.9.1 - op. prioritisation
		4.9.2 - auto mode setting
		4.9.3 - degree minute setting
		4.9.4 - factory setting user

* Only shown in the event of an alarm.

Sub-menus

For the menu **HEAT PUMP** there are several sub-menus. Status information for the relevant menu can be found on the display to the right of the menus.

op. mode Activation of manual or automatic operating mode. The status information shows the selected operating mode.

alarm reset Alarms can be reset here.

advanced Setting heat pump work mode.

Menu 4.2 - op. mode

op. mode

Setting range: auto, manual, add. heat only

Default value: auto

functions

Setting range: compressor, addition, heating

The heat pump operating mode is usually set to "auto". It is also possible to set the heat pump to "add. heat only", but only when an addition is used, or "manual" and select yourself what functions are to be permitted.

Change the operating mode by marking the desired mode and pressing the OK button. When an operating mode is selected, selectable options are displayed to the right. To select selectable functions that are permitted or not, mark the function using the up and down buttons and press the OK button.

Operating mode auto

In this operating mode you cannot select which functions are to be permitted because it is handled automatically by the heat pump.

Operating mode manual

In this operating mode you can select what functions are permitted. You cannot deselect "compressor" in manual mode.

Operating mode add. heat only



Caution

If you choose mode "add. heat only" the compressor is deselected and there is a higher operating cost.

In this operating mode the compressor is not active and only additional heating is used.

Functions

"**compressor**" is that which produces heating and hot water for the accommodation. If "compressor" is deselected, a symbol in the main menu on the heat pump symbol is displayed. You cannot deselect "compressor" in manual mode.

"**addition**" is what helps the compressor to heat the accommodation and/or the hot water when it cannot manage the whole requirement alone.

"**heating**" means that you get heat in the accommodation. You can deselect the function when you do not wish to have heating running.



Caution

If you deselect "addition" it may mean that insufficient hot water and/or heating in the accommodation is achieved.

Menu 4.8 - alarm reset

This menu is only available if an alarm has occurred.

Here you can reset any alarms that have occurred in SMO 05 or heat pump.



Caution

In the event of an alarm reset, the control system restarts in the heat pump.

Menu 4.9 - advanced

Menu **advanced** has orange text and is intended for the advanced user. This menu has several sub-menus.

Menu 4.9.1 - op. prioritisation

op. prioritisation hot water / heating

Setting range: 0 to 180

Default value: 20

Choose here how long the heat pump should work with each requirement if there are two requirements at the same time. If there is only one requirement the heat pump only works with that requirement.

If 0 minutes is selected it means that requirement is not prioritised, but will only be activated when there is no other requirement.

Menu 4.9.2 - auto mode setting

stop heating

Setting range: 0 – 40 °C

Default value: 20

stop additional heat

Setting range: -20 – 40 °C

Default value: 15

filtering time

Setting range: 0 – 48 h

Default value: 24 h

When operating mode is set to "auto" the heat pump selects when start and stop of additional heat and heat production is permitted, dependent on the average outdoor temperature.

Select the average outdoor temperatures in this menu.

You can also set the time over which (filtering time) the average temperature is calculated. If you select 0, the present outdoor temperature is used.



Caution

It cannot be set "stop additional heat" higher than "stop heating".

Menu 4.9.3 - degree minute setting

current value

Setting range: -3000 – 100

start compressor

Setting range: -1000 – -30

Default value: -60

start addition

Setting range: -2000 – -30

Default value: -400

stop additional heat

Setting range: -2000 – -30

Default value: -230

Degree minutes are a measurement of the current heating requirement in the house and determine when the compressor respectively additional heat will start/stop.



Caution

Higher value on "start compressor" gives more compressor starts, which increases wear in the compressor. Too low value can give uneven indoor temperatures.

Menu 4.9.4 - factory setting user

All settings that are available to the user (including advanced menus) can be reset to default values here.



Caution

After factory setting, personal settings such as heating curves must be reset.

Menu 5 - SERVICE

Overview

5 - SERVICE	5.1 - operating settings	5.1.1 - hot water settings
		5.1.2 - max flow line temperature
		5.1.4 - alarm actions
	5.2 - system settings	
	5.5 - factory setting service	

Hold the back button in for 7 seconds to access the Service menu.

Sub-menus

Menu **SERVICE** has orange text and is intended for the advanced user. This menu has several sub-menus. Status information for the relevant menu can be found on the display to the right of the menus.

operating settings Operating settings for the heat pump.

system settings System settings for the heat pump, activating accessories etc.

factory setting service Total reset of all settings (including settings available to the user) to default values.



NOTE

Incorrect settings in the service menus can damage the heat pump.

Menu 5.1 - operating settings

Operating settings can be made for the heat pump in the sub menus.

Menu 5.1.1 - hot water settings

economy

Setting range start temp. economy: 5– 70 °C

Factory setting start temp. economy: 41 °C

Setting range stop temp. economy: 5– 70 °C

Factory setting stop temp. economy: 45 °C

normal

Setting range start temp. normal: 5– 70 °C

Factory setting start temp. normal: 43 °C

Setting range stop temp. normal: 5– 70 °C

Factory setting stop temp. normal: 47 °C

luxury

Setting range start temp. lux: 5– 70 °C

Factory setting start temp. lux: 45 °C

Setting range stop temp. lux: 5– 70 °C

Factory setting stop temp. lux: 49 °C

stop temp. per. increase

Setting range: 55 – 70 °C

Default values: 55 °C

Recommended normal setting

Heat pump	Water heater	Start	Stop
F2026	VPA	43 °C	47 °C
F2026	VPB	42 °C	46 °C
F2300	VPA	48 °C	52 °C
F2300	VPB	46 °C	50 °C

Here you set the start and stop temperature of the hot water for the different comfort options in menu 2.2 as well as the stop temperature for periodic increase in menu 2.9.1.

The above values are the default settings when there are different heater designs, sensor locations and other factors that are unique to each installation. These settings may therefore need adjusting.

Menu 5.1.2 - max flow line temperature

climate system

Setting range: 10 – 80 °C

Default value: 55 °C

Set the maximum supply temperature for the climate system here. If the installation has more than one climate system, individual maximum supply temperatures can be set for each system.



Caution

Underfloor heating systems are normally **max flow line temperature** set between 35 and 45 °C.

Check the max floor temperature with your floor supplier.

Menu 5.1.4 - alarm actions

Select how you want the SMO 05 to alert you that there is an alarm in the display here.

The different alternatives are that the system stops producing hot water (default setting) and/or reduces the room temperature.



Caution

If no alarm action is selected, it can result in higher energy consumption in the event of an alarm.

Menu 5.2 - system settings

If the water heater is docked to the installation, hot water charging must be activated here.

Menu 5.5 - factory setting service

All settings can be reset (including settings available to the user) to default values here.



NOTE

When resetting, the start guide is displayed the next time the heat pump is restarted.

9 Disturbances in comfort

In most cases, the heat pump notes malfunctions and indicates this with alarms and shows instructions in the room unit display. See "Manage alarm" for information about managing alarms. If the malfunction does not appear in the display, or if the display is not lit, the following troubleshooting guide can be used.

Manage alarm



In the event of an alarm, a malfunction has occurred, which is indicated by an alarm clock in the room unit.

Alarm

In the event of an alarm a malfunction has occurred that SMO 05 cannot rectify itself. The display shows what type of alarm it is and lets you reset the alarm. You can also choose to set the heat pump to auxiliary operation.

Alarm list

Alarm AA25:## (where ## is a number) means that the alarm has occurred in SMO 05.

Alarm EB100:## (where ## is a number) means that the alarm has occurred in the heat pump (see the heat pump manual).

Sensor alarm BT1/BT6/BT25:

The sensor is probably broken or has lost contact with the accessory card. The alarm resets automatically after correct connection.

- Check the connection of the sensor to the accessory card and that the cable has not got a short-circuit.
- If the above is not the source of the fault, replace the sensor.

Communication alarm heat pump

The heat pump has lost contact with the accessory card.

- Check the connection between the heat pump and the accessory card and that the cable has not got a short-circuit.

Communication alarm accessory card

The room unit has lost contact with the accessory card.

- Check the connection between the room unit and the accessory card and that the cable has not got a short-circuit.

Resetting the alarm

Alarm reset can be carried out in two ways.

1. Select "yes" in menu 4.8.
2. Restart of SMO 05 (on/off of voltage to SMO 05).

In the event of an alarm reset, the control system restarts in the heat pump and any alarms in SMO 05 are reset.

Troubleshooting

If the malfunction is not shown in the display the following tips can be used or consult the heat pump manual.

Basic actions

Start by checking the following possible fault sources:

- That the heat pump is running or that the supply cable to SMO 05 is connected.
- Group and main fuses of the accommodation.
- The property's earth circuit breaker.
- The heat pump's miniature circuit breaker (FC1).

Low hot water temperature or a lack of hot water

This part of the fault-tracing chapter only applies if the heat pump is docked to the hot water heater.

- Heat pump in incorrect operating mode.
 - If mode "manual" is selected, select "addition".
- Large hot water consumption.
 - Wait until the hot water has heated up. Temporarily increased hot water capacity (temporary lux) can be activated in menu 2.1.
- Too low hot water setting.
 - Enter menu 2.2 and select a higher comfort mode.
- Too low or no operating prioritisation of hot water.
 - Enter menu 4.9.1 and increase the time for when hot water is to be prioritised.

Low room temperature

- Closed thermostats in several rooms.
 - Set the thermostats to max in as many rooms as possible. Adjust the room temperature via menu 1.1 instead of choking the thermostats.
- Installation in incorrect operating mode.
 - Enter menu 4.2. If mode "auto" is selected, select a higher value on "stop heating" in menu 4.9.2.
 - If mode "manual" is selected, select "heating". If this is not enough, select "addition".
- Too low set value on the automatic heating control.

- Enter menu 1.1 (temperature) and adjust the heat curve offset of the heat curve. If the room temperature is only low in cold weather the curve slope in the menu 1.9.1 (heating curve) needs to be adjusted up.
- Too low or no operating prioritisation of heat.
 - Enter menu 4.9.1 and increase the time for when heating is to be prioritised.
- External switch for changing the room heating activated.
 - Check any external switches.

High room temperature

- Too high set value on the automatic heating control.
 - Enter menu 1.1 (temperature) and adjust the heat curve offset downwards. If the room temperature is only high in cold weather the curve slope in menu 1.9.1 (heating curve) needs to be adjusted down.
- External switch for changing the room heating activated.
 - Check any external switches.

Add. heat only

If you are unsuccessful in rectifying the fault and are unable to heat the house, you can, whilst waiting for assistance, continue running SMO 05 in "add. heat only". This means that SMO 05 only uses the additional heating to heat the house and domestic hot water.

Set SMO 05 to additional heat mode

1. Go to menu 4.2 op. mode.
2. Mark "add. heat only" using the control buttons and then press the OK button.
3. Return to the main menus by pressing the Back button.

10 Accessories

Auxiliary relay HR 10

Part no. 089 423

External electrical addition ELK

ELK 5

Immersion heater
5 kW, 1 x 230 V
Part no. 069 025

ELK 8

Immersion heater
8 kW, 1 x 230 V
Part no. 069 026

ELK 15

Immersion heater
15 kW, 3 x 400 V
Part no. 069 022

Heat pump

F2016

6 kW Part no. 064 081
8 kW Part no. 064 082
11 kW Part no. 064 083

F2026

6 kW Part no. 064 084
8 kW Part no. 064 085
10 kW Part no. 064 086

F2300

14 kW Part no. 064 063
20 kW Part no. 064 064

Hot water control

VST 11

Shuttle valve, Cu-pipe Ø28
Max heat pump size 10 kW
Part no. 089 152

VST 20

Reversing valve, Cu-pipe Ø35
Max heat pump size 20 kW
Part no. 089 388

Hot water heater

VPA 200/70

Part no. 088 650

VPA 300/200

Copper Part no. 088 710
Enamel Part no. 088 700

VPA 450/300

Copper Part no. 088 660
Enamel Part no. 088 670

VPB 200

Copper Part no. 088 515
Enamel Part no. 088 517
Stainless steel Part no 088 518

VPB 300

Copper Part no. 083 009
Enamel Part no. 083 011
Stainless steel Part no 083 010

VPB 500

Hot water heater with charge coil
Copper Part no. 083 220

VPB 750-2

Hot water heater with charge coil
Copper Part no. 083 231

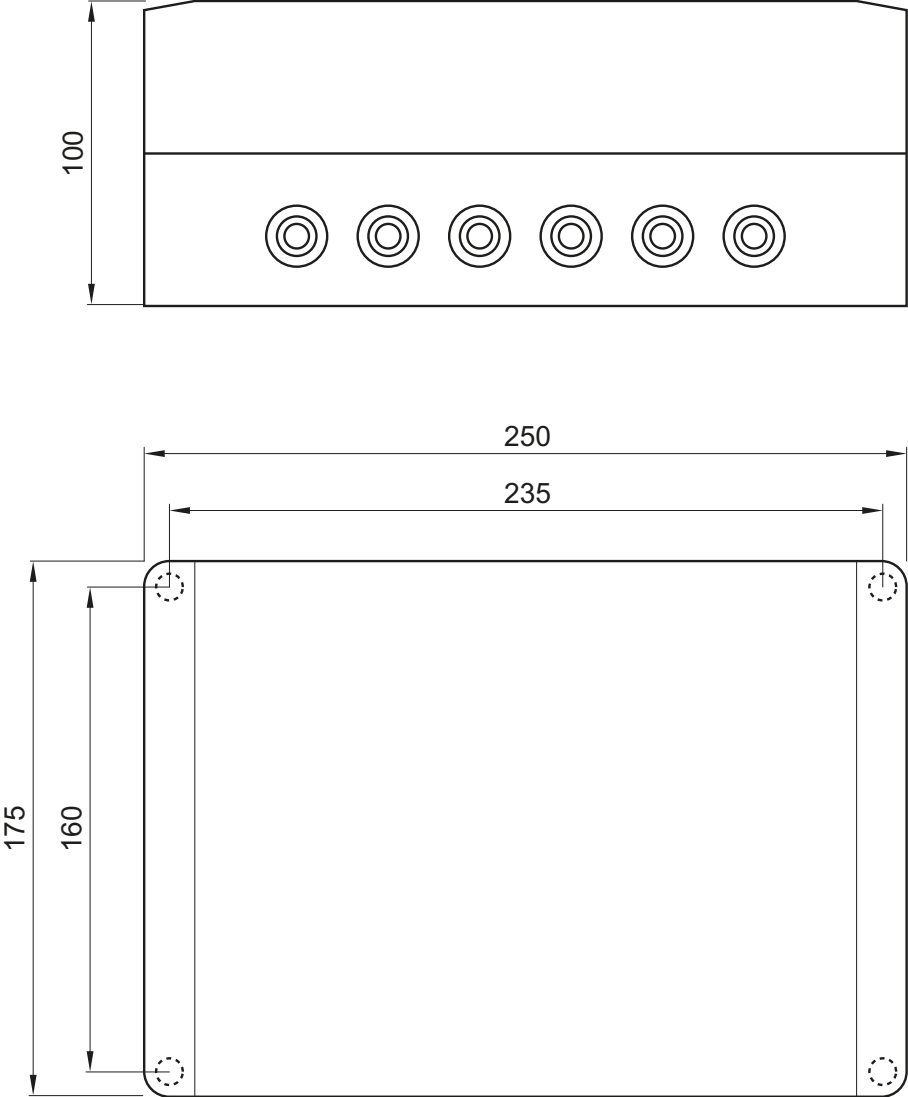
VPB 1000

Hot water heater with charge coil
Copper Part no. 083 240

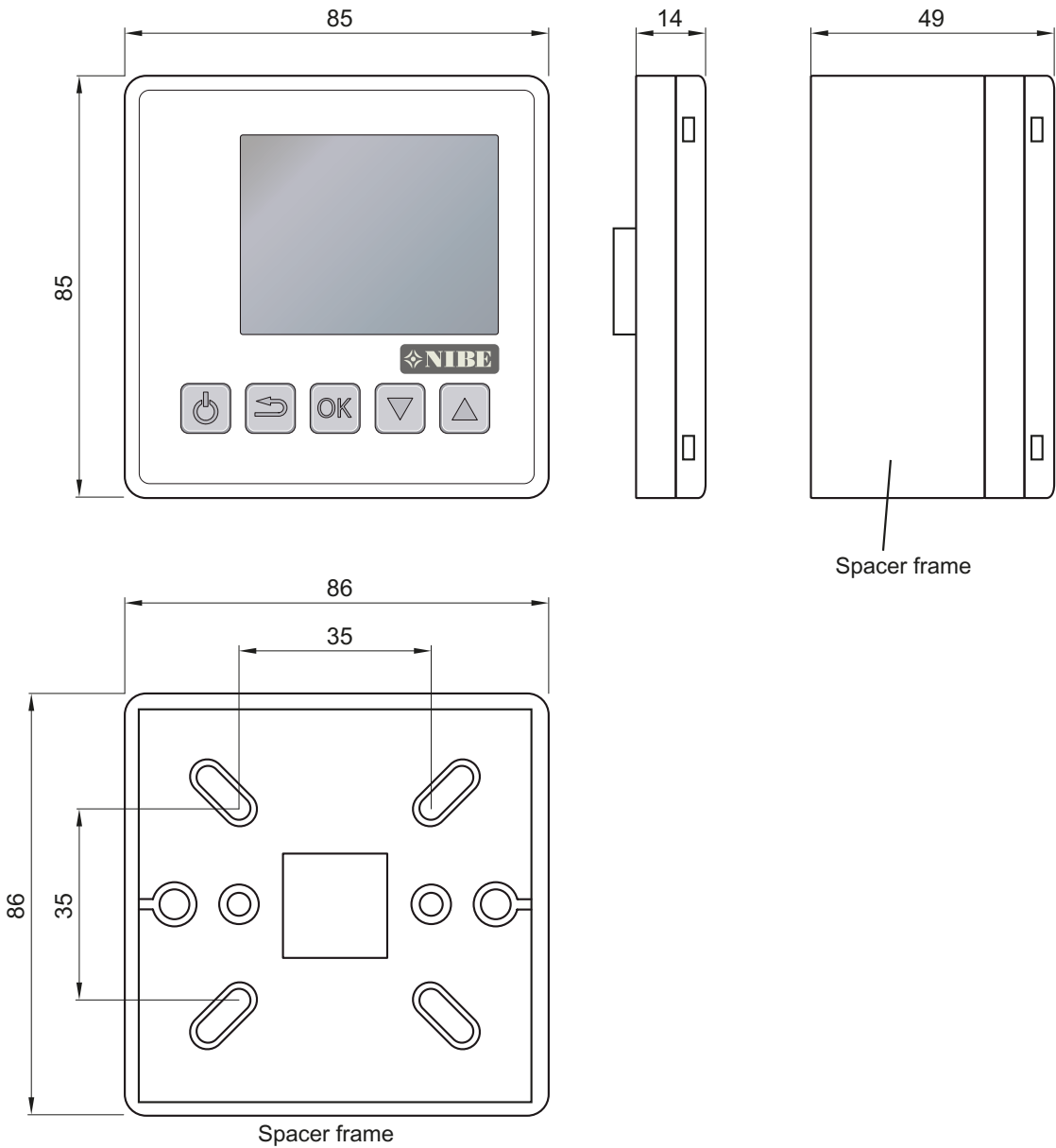
11 Technical data

Dimensions and setting-out coordinates

Unit box



Room unit

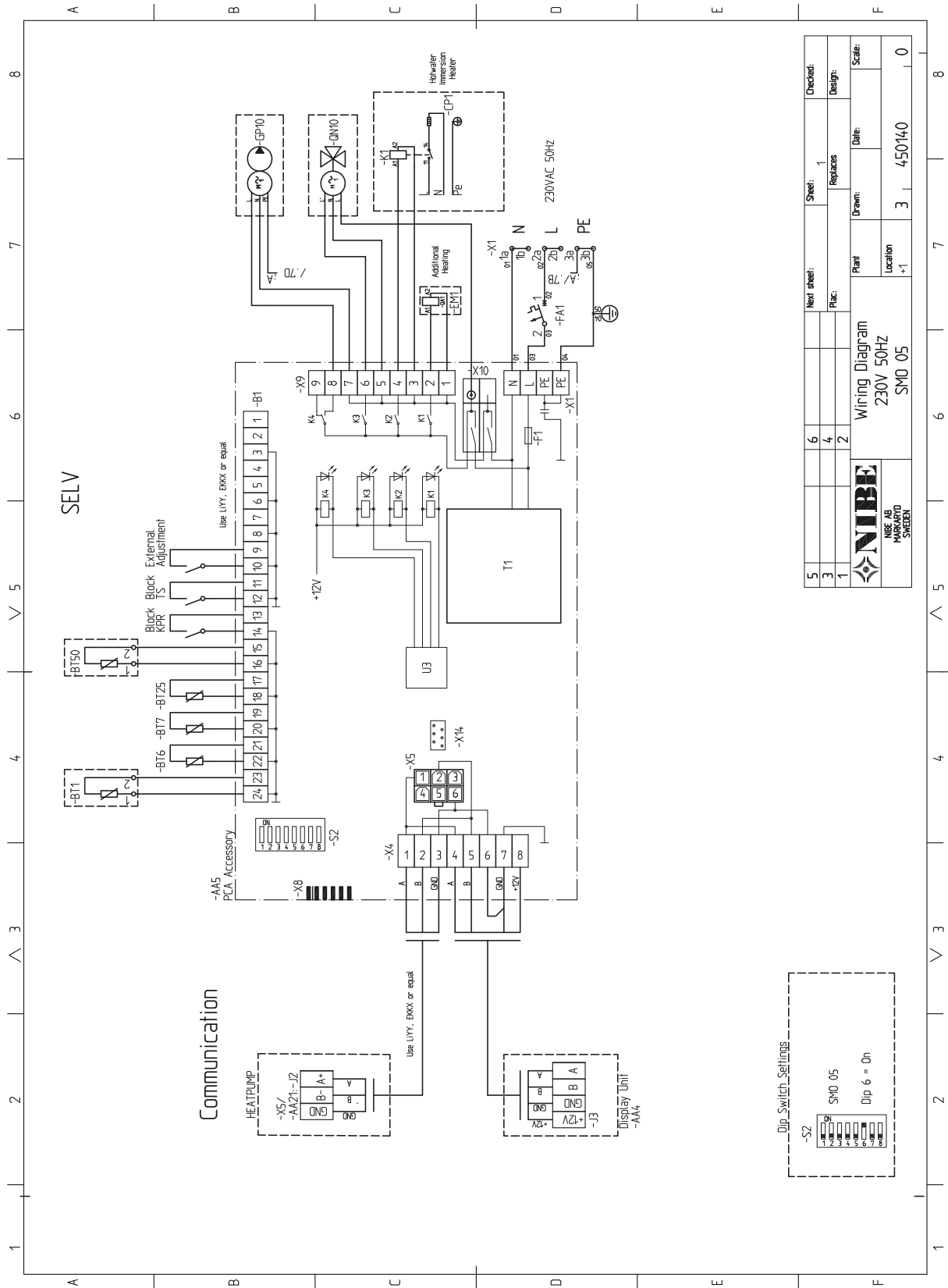


Technical specifications

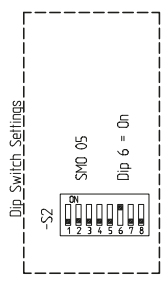


Room unit		
Width	(mm)	85
Height	(mm)	85
Depth	(mm)	14
Depth (with spacer frame)	(mm)	49
Enclosure class		IP20
Unit box		
Width	(mm)	250
Height	(mm)	175
Depth	(mm)	100
Enclosure class		IP21
SMO 05		
Max number air/water heat pumps		1
Max number of sensors		5
Max number of charge pumps		1
Max number of circulation pumps/climate systems		1
Supply voltage		230 V 50 Hz
Max. current	(A)	2
Max number of additional steps		2
Part No.		067 155

Electrical circuit diagram



5	6	7	8
Next sheet:	Sheet:	Replaces:	Checked:
1	1		Design:
3	4		Scale:
NIBE NIBE AB MARKARVÄN SWEDEN			
Wiring Diagram		Plant:	Date:
230V 50HZ		Location:	Scale:
SMO 05		+1	3 450140 0



12 Item register

Item register

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