

Control module NIBE SMO S40



Quick guide

NAVIGATION

Select



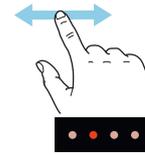
Most options and functions are activated by lightly pressing on the display with your finger.

Scroll



If the menu has several sub-menus, you can see more information by dragging up or down with your finger.

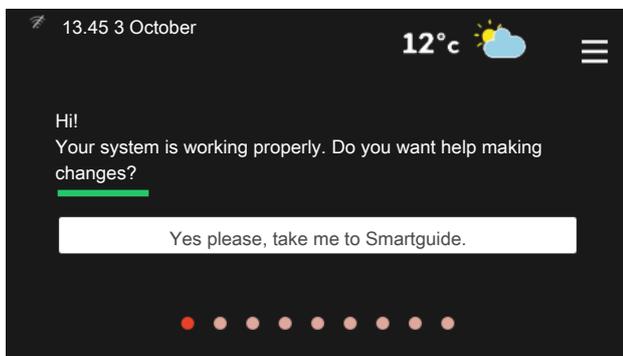
Browse



The dots at the bottom edge show that there are more pages.

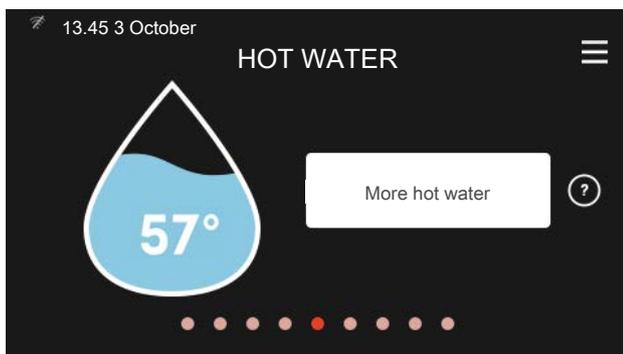
Drag to the right or left with your finger to browse between the pages.

Smartguide



Smartguide helps you both to view information about the current status and to make the most common settings easily. The information that you see depends on the product you have and the accessories that are connected to the product.

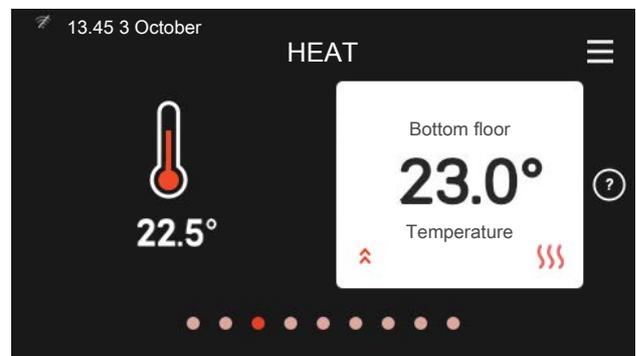
Increasing hot water temperature



Here, you can start or stop a temporary increase in the hot water temperature.

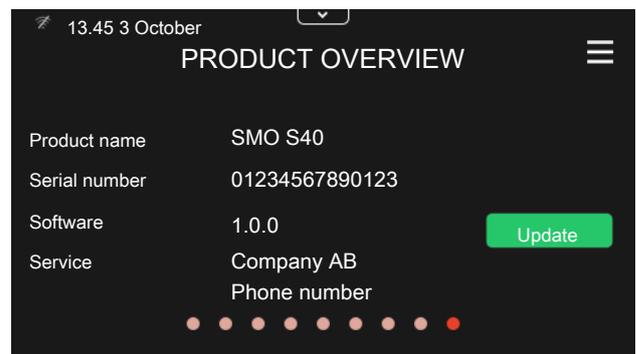
This function page is only visible in installations with a water heater.

Setting the indoor temperature.



Here, you can set the temperature in the installation's zones.

Product overview



Here, you can find information about product name, the product's serial number, the version of the software and service. When there is new software to download, you can do it here (provided that SMO S40 is connected to myUplink).

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1 Important information

Symbols



NOTE

This symbol indicates danger to person or machine .



Caution

This symbol indicates important information about what you should consider when installing or servicing the installation.



TIP

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

Serial number

The serial number can be found on the left-hand side of the control module and on the "Product overview" home screen.



Caution

You need the product's ((14 digit) serial number for servicing and support.

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.

In addition, fill in the page for the installation data in the User Manual.

✓	<i>Description</i>	<i>Notes</i>	<i>Signature</i>	<i>Date</i>
	Electrical connections			
	Communication, heat pump			
	Connected supply 230 V			
	Outside sensor			
	Room sensor			
	Temperature sensor, hot water charging			
	Temperature sensor, hot water top			
	Temperature sensor, external flow line			
	Temperature sensor, external return line			
	Charge pump			
	Shuttle valve			
	AUX1			
	AUX2			
	AUX3			
	AUX4			
	AUX5			
	AUX6			
	AUX10			
	AUX11			
	Miscellaneous			
	Checking additional heater			
	Checking the function of the reversing valve			
	Checking charge pump function			
	Completed installation check of heat pump and associated equipment			

System solutions

COMPATIBLE PRODUCTS

The following combinations of products are recommended for control by SMO S40.

							
Control module	Air/water heat pump	HW control	Accumulator with hot water heater	Circ. pump	Water heater	Addition	Volume vessel
SMO S40	AMS 10-6 / HBS 05-6	VST 05	VPA 200/70 VPA 300/200 VPA 450/300 VPAS 300/450	CPD 11-25/65 CPD 11-25/75	VPB 200 VPB 300 VPBS 300 VPB 500	ELK 15 ELK 26 ELK 42	UKV 40 UKV 100 UKV 200 UKV 300 UKV 500
	AMS 10-8 / HBS 05-12						
	F2040 – 6						
	F2040 – 8						
	F2120 – 8						
	AMS 10-12 / HBS 05-12	VST 11			VPB 750-2 VPB 1000		
	F2040 – 12						
	F2120 – 12						
	F2120 – 16						
	AMS 10-16 / HBS 05-16	VST 20					
	F2040 – 16						
	F2120 – 20						

COMPATIBLE AIR/WATER HEAT PUMPS

In some air/water heat pumps, manufactured before or during 2019, the circuit board must be updated in order to be compatible with SMO S40.

Air/water heat pump	Lowest compatible software version
NIBE SPLIT HBS 05 (AMS 10, HBS 05)	v37 (AA23 communication board)
F2030	v129
F2040	v37 (AA23 communication board)
F2120	v561
F2300	v129

2 Delivery and handling

Mounting



NOTE

For wall mounting, use screws (and any plugs) suitable for the surface.

Use all mounting points and install SMO S40 upright flat against the wall without any part of the control module protruding beyond the edge of the wall.

Leave at least 100 mm free space around the control module to facilitate access and cable routing on installation and service.

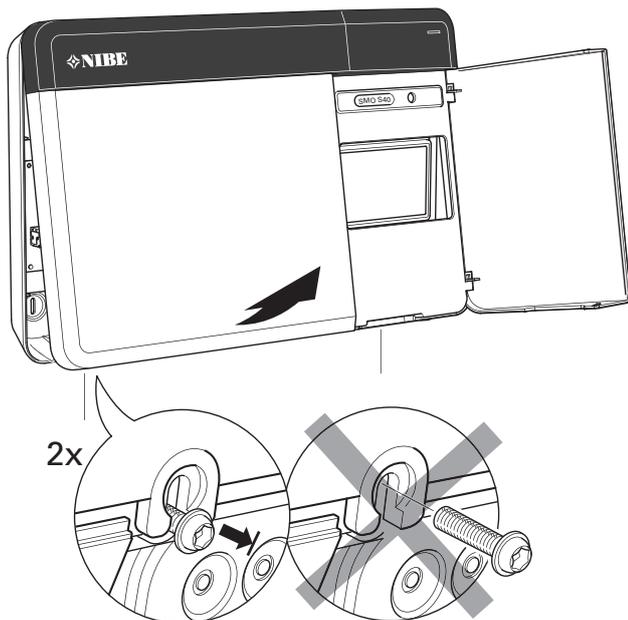


Caution

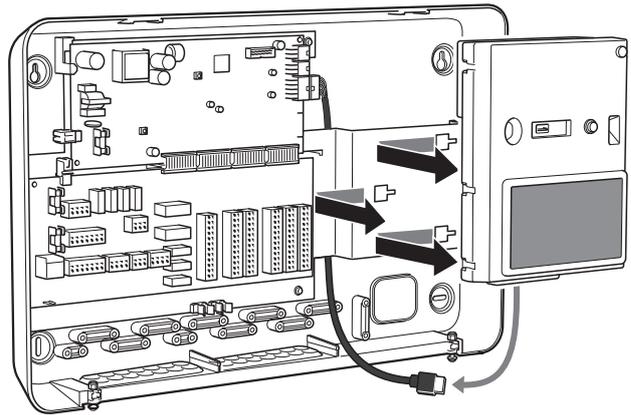
Screws for removing the front cover are reached from underneath.

SMO S40

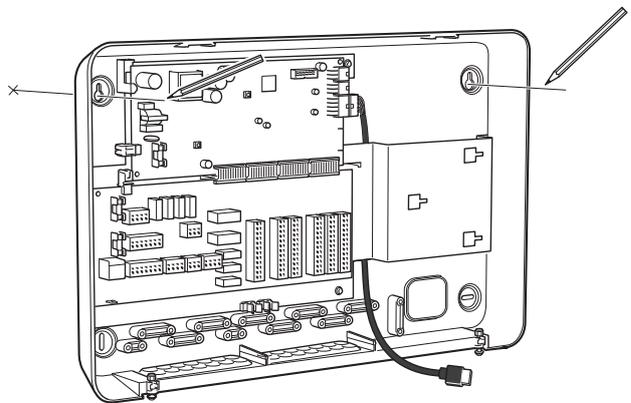
1. Remove the hatch, by unscrewing the screws in the bottom edge. Angle out at the bottom edge and unhook the cover at the upper edge.



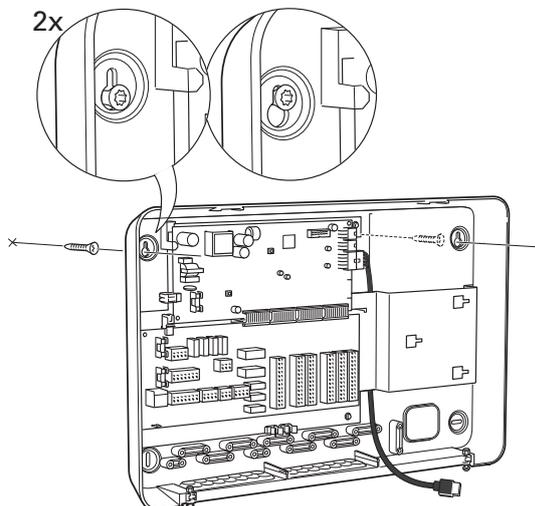
2. Remove the display by moving it to the left. Detach the cable from the lower edge.



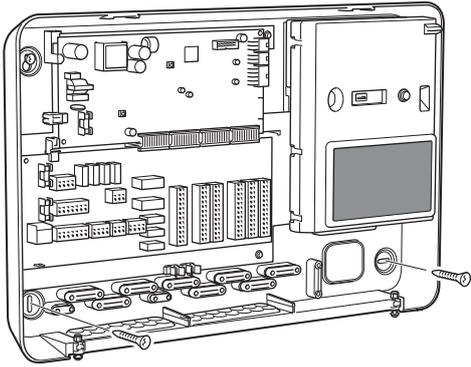
3. Mark the position of the two upper screws using a pen. Screw in the upper two screws.



4. Hook onto SMO S40 the screws in the wall.



5. Reassemble the display. Screw SMO S40 into place on the lower edge with the two remaining screws.



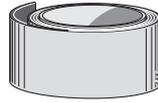
Supplied components



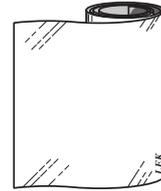
Outdoor temperature sensor
1 x



Room sensor
1 x



Insulation tape



Aluminium tape



Cable ties



Temperature sensor

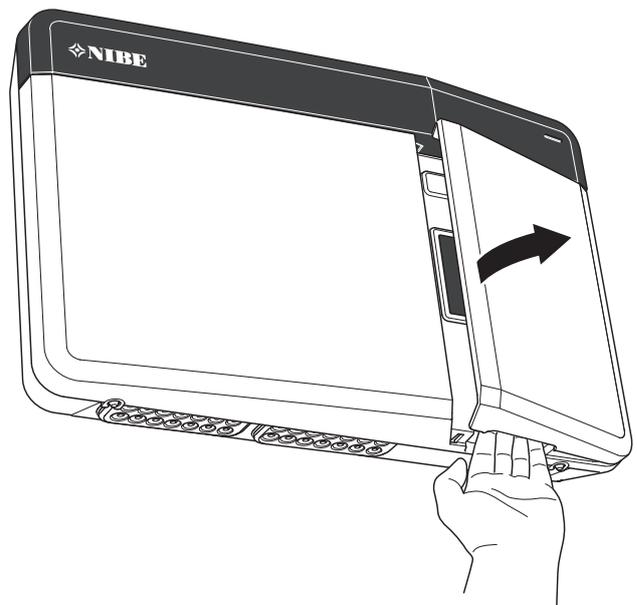


Current sensor

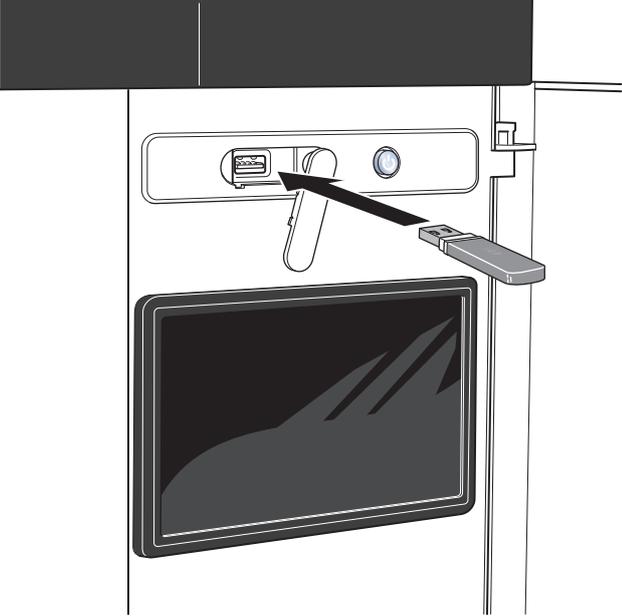


Heating pipe paste

Open front hatch

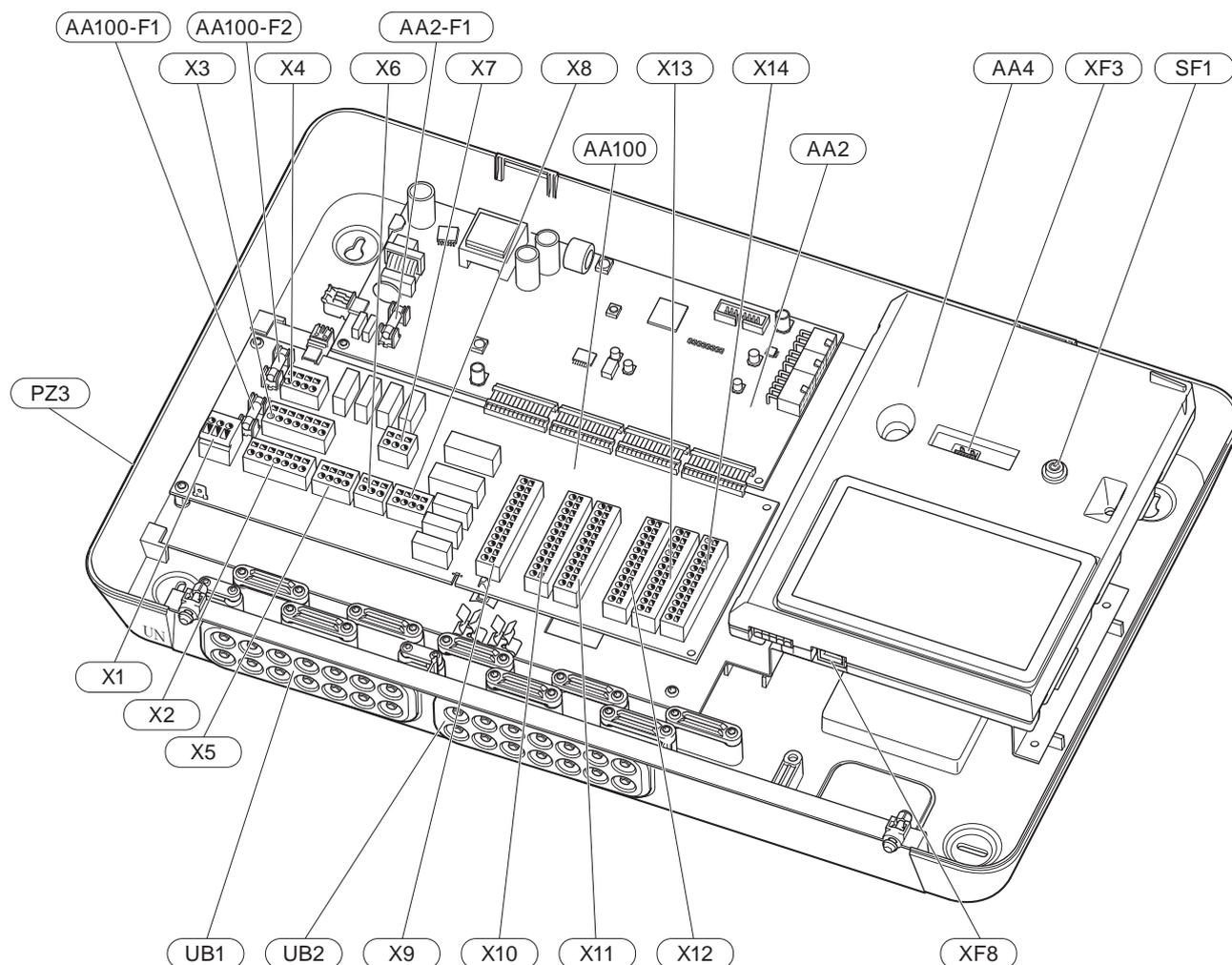


Open USB cover



3 The Control Module Design

Component positions



List of components

ELECTRICAL COMPONENTS

AA2	Base card	
	F1	Fine wire fuse, 4AT
AA4	Display unit	
	XF3	USB socket
	XF8	Network socket
AA100	Joint card	
	F1	Fine wire fuse, 6.3AT
	F2	Fine wire fuse, 6.3AT
	X1	Terminal block, power supply
	X2	Terminal block, earth
	X3	Terminal block (N)
	X4	Terminal block (L)
	X5	Terminal block (QN10, GP10, GP12.1-EB101, GP12.2-EB102)
	X6	Terminal block AUX outputs (AUX10)
	X7	Terminal block AUX outputs (AUX11)
	X8	Terminal block, additional heat
	X9	Terminal block, external connection options
	X10	Terminal block AUX inputs, external connection options (selectable AUX 1–6)
	X11	Terminal block (GND)
	X12	Terminal block, external connections
	X13	Terminal block (GND)
	X14	Terminal block, external connections
SF1	On/off button	
XF8	Network connection for myUplink	
UB1	Cable grommet, incoming supply electricity, power for accessories	
UB2	Cable gland, signal	

OTHER COMPONENTS

PZ3	Serial number plate
-----	---------------------

Designations according to standard EN 81346-2.

4 Installing the installation

General

Pipe installation must be carried out in accordance with applicable regulations. See manual for compatible NIBE air/water heat pump for installation of the heat pump.

The pipe dimension should not be less than the recommended pipe diameter according to the table. However, each system must be dimensioned individually to manage the recommended system flows.

MINIMUM SYSTEM FLOWS

The installation must be dimensioned at least to manage the minimum defrosting flow at 100% pump operation, see table.

<i>Air/water heat pump</i>	<i>Minimum flow during defrosting (100% pump speed (l/s))</i>	<i>Minimum recommended pipe dimension (DN)</i>	<i>Minimum recommended pipe dimension (mm)</i>
HBS 05-6/ AMS 10-6	0.19	20	22
HBS 05-12/ AMS 10-8	0.19	20	22
HBS 05-12/ AMS 10-12	0.29	20	22
HBS 05-16/ AMS 10-16	0.39	25	28

<i>Air/water heat pump</i>	<i>Minimum flow during defrosting (100% pump speed (l/s))</i>	<i>Minimum recommended pipe dimension (DN)</i>	<i>Minimum recommended pipe dimension (mm)</i>
F2120-8 (1x230V)	0.27	20	22
F2120-8	0.27	20	22
F2120-12 (1x230V)	0.35	25	28
F2120-12	0.35	25	28
F2120-16	0.38	25	28
F2120-20	0.48	32	35

<i>Air/water heat pump</i>	<i>Minimum flow during defrosting (100% pump speed (l/s))</i>	<i>Minimum recommended pipe dimension (DN)</i>	<i>Minimum recommended pipe dimension (mm)</i>
F2040-6	0.19	20	22
F2040-8	0.19	20	22
F2040-12	0.29	20	22
F2040-16	0.39	25	28



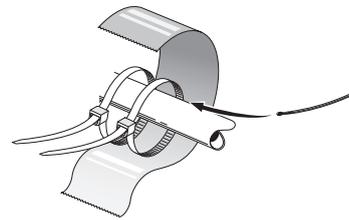
NOTE

An undersized system can result in damage to the machine and lead to malfunctions.

Symbol key

Symbol	Meaning
	Unit box
	Shut-off valve
	Tapping valve
	Non-return valve
	Mixing valve
	Circulation pump
	Expansion vessel
	Filterball
	Pressure gauge
	Particle filter
	Safety valve
	Temperature sensor
	Reversing valve/shunt
	Heat exchanger
	Overflow valve
	Under floor heating systems
	Control module
	Cooling system
	Air/water heat pump
	Pool
	Radiator system
	Domestic hot water
	Addition
	Water heater

Temperature sensor installation on pipe



The temperature sensors are mounted with heat conducting paste, cable ties (the first cable tie is secured to the pipe in the middle of the sensor and the other cable tie is mounted approx. 5 cm beyond the sensor) and aluminium tape. Then insulate with supplied insulation tape.



NOTE

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

Fixed condensing

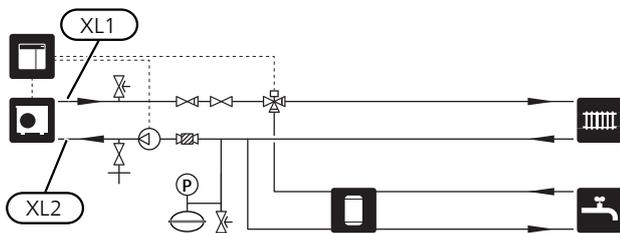
If SMO S40 is only to work towards a water heater with fixed condensing, you must connect external supply temperature sensor (BT25) according to the description in section "Temperature sensor, external flow line". In addition, you must make the following menu settings.

Menu	Menu setting (local variations may be required)
1.30.4 – Lowest supply, heating	Desired temperature in the tank.
1.30.6 – Highest supply, heating	Desired temperature in the tank.
4.1 – Operating mode	Manual

Connecting air/water heat pump

You can find a list of compatible air/water heat pumps in section "System solutions".

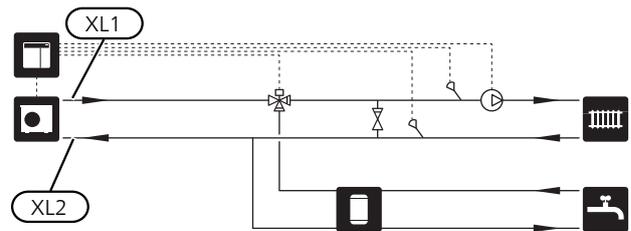
- Install the necessary safety equipment, non-return valve, shut-off valve, circulation pump and expansion vessel. Also, consult the Installer Manual for your air/water heat pump.
- Install the enclosed filterball.
- If the system is to work towards both a climate system and hot water heater, a reversing valve must be installed.



Connecting the climate system

A climate system is a system that regulates indoor comfort with the help of the control system in SMO S40 and for example radiators, underfloor heating/cooling, fan convectors etc.

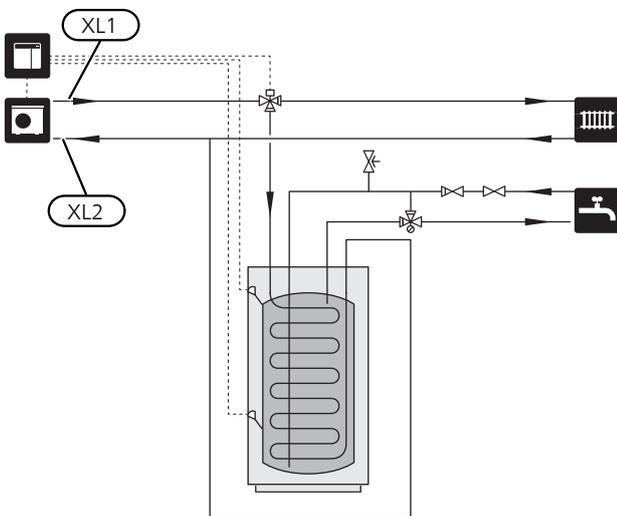
- Install external supply temperature sensor (BT25) It says when the air/water heat pump must start to produce heating/cooling for the climate system.
- Install external return temperature sensor (BT71). It is used to check that the climate system is correctly adjusted.
- When connecting to systems with thermostats on all radiators/underfloor heating coils, some of the thermostats must be removed to ensure there is sufficient flow.
- For an even flow to the radiators during hot water charging or similar, a circulation pump and reversing valve for the climate system are installed.



Cold and hot water

CONNECTING THE HOT WATER HEATER

- Controlling hot water sensor (BT6) and display hot water sensor (BT7) are placed in the water heater.
- Fit shut-off valve, non-return valve and safety valve as illustrated.
- The safety valve must have max. 1.0 MPa (10.0 bar) opening pressure, and be installed on the incoming domestic water line as shown.
- A mixer valve must also be installed, if the factory setting for hot water is changed. National regulations must be observed.
- Hot water production is activated in the start guide or in menu 7.1.1.



Installation alternative

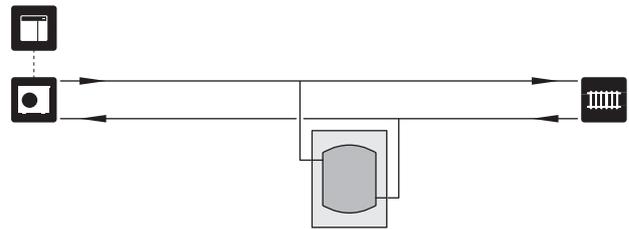
SMO S40 can be connected in several different ways, some of which are shown below.

More information about the alternatives is available at nibe.eu/ODM and in the relevant assembly instructions for the accessories used. See section "Accessories" for a list of the accessories that can be used with SMO S40.

BUFFER VESSEL UKV

UKV is an accumulator tank that is suitable for connection to a heat pump or another external heat source, and can have several different applications. It can also be used during external control of the heating system.

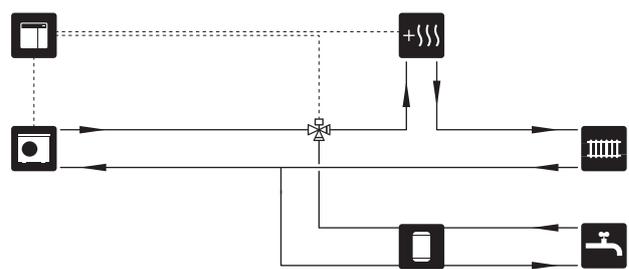
The image shows UKV flow equalisation.



ADDITION

On cold days of the year, when the availability of energy from the air is lower, the additional heating can compensate and help to produce heat. The additional heating is also good to have as assistance, if the heat pump ends up outside its working range or if it has been blocked for any reason.

In the principle diagram below, the additional heat is located after the reversing valve. (Additional heat can also be connected before the reversing valve.)



COOLING

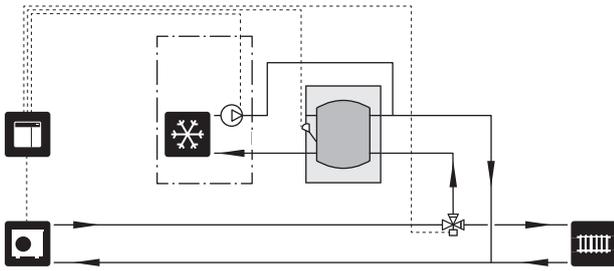
Cooling (in 2-pipe system)

Cooling and heating are distributed via the same climate system.



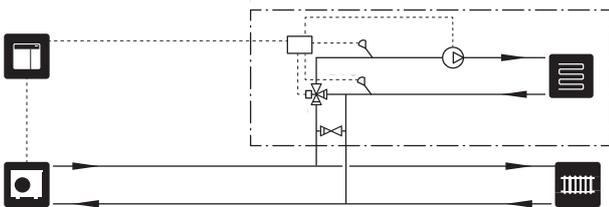
Cooling (in 4-pipe system)

With the accessory NIBE AXC 30, separate cooling and heating systems can be connected via a reversing valve. It is also possible to connect cooling (in 4 pipe systems) on AUX10 (relay K8) or AUX11 (relay K9).



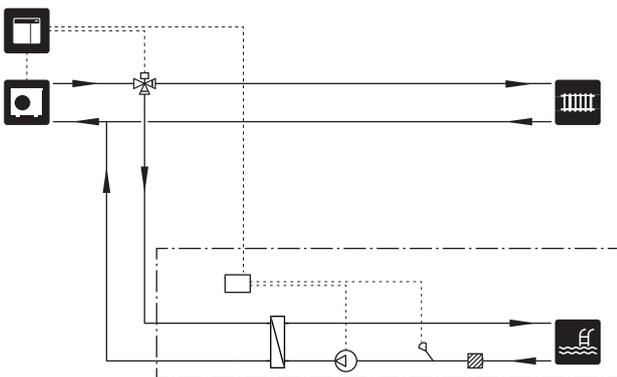
EXTRA CLIMATE SYSTEM

In buildings with several climate systems that require different supply temperatures, the accessory ECS 40/ECS 41 can be connected. A shunt valve then lowers the temperature to the underfloor heating system, for example.



POOL

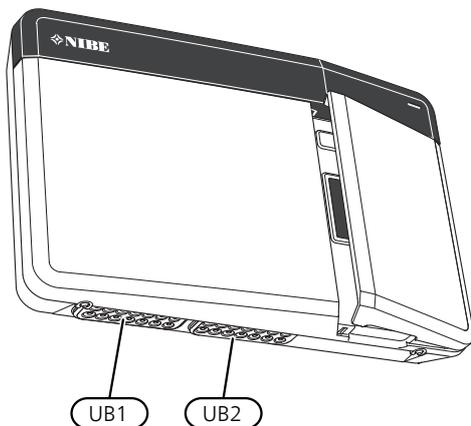
POOL 40 is an accessory that enables pool heating using one or more compressors in your installation.



5 Electrical connections

General

- Disconnect SMO S40 before insulation testing the house wiring.
- When the building is equipped with an earth-fault breaker the heat pump should be equipped with a separate one.
- SMO S40 must be installed via an isolator switch. The cable area has to be dimensioned based on the fuse rating used.
- Use a screened cable for communication with the heat pump.
- To prevent interference, sensor cables to external connections must not be laid close to high voltage cables.
- The minimum area of communication and sensor cables to external connections must be 0.5 mm² up to 50 m, for example EKKX, LiYY or equivalent.
- When cable routing in SMO S40, the cable grommets (UB1 and UB2) must be used.
- For an electrical wiring diagram for the control module, see section "Technical Specifications"



NOTE

Do not start the system before filling up with water. Components in the system could be damaged.



NOTE

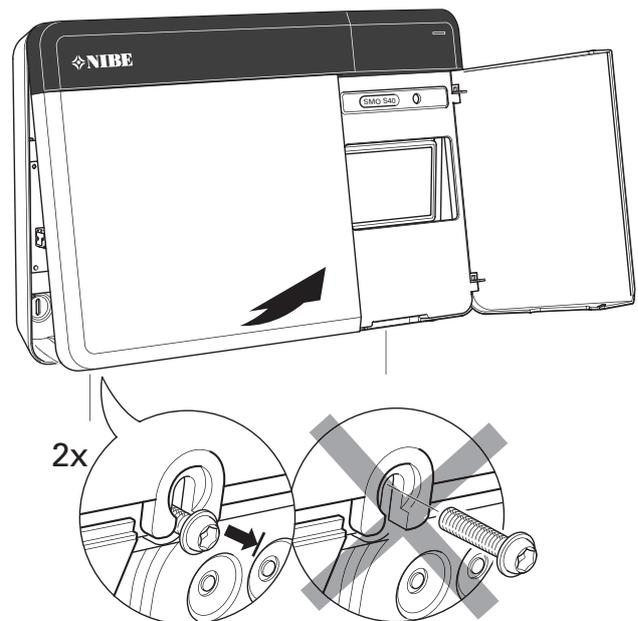
Electrical installation and any servicing must be carried out under the supervision of a qualified electrician. Disconnect the current using the circuit breaker before carrying out any servicing.

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

ACCESSIBILITY, ELECTRICAL CONNECTION

Removing the cover

Loosen the screws slightly. Lift the bottom edge of the front cover of the control module and unhook the cover on the upper edge.



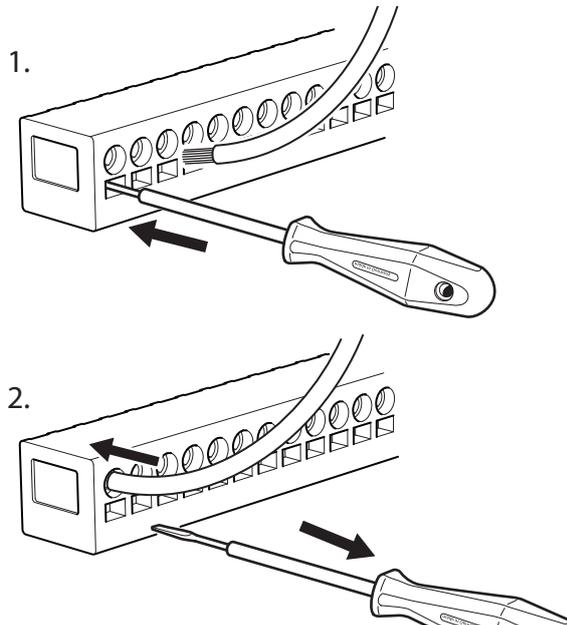
Removing the covers

The cover is opened using a screwdriver.

CABLE LOCK

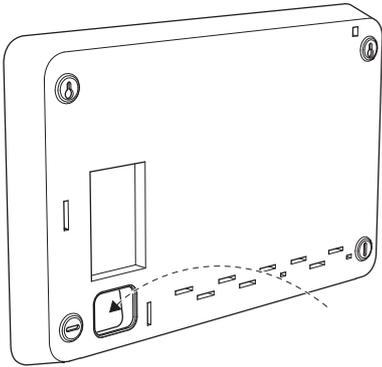
Use a suitable tool to release/lock cables in the heat pump terminal blocks.

Terminal block



MAKING HOLES FOR CABLE ROUTING

Press out the hole using a suitable tool.



Connections



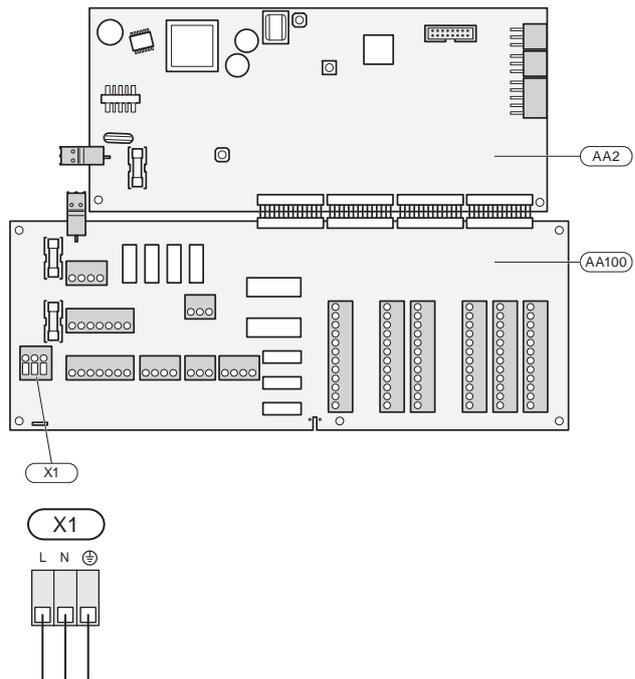
NOTE

To prevent interference, sensor cables to external connections must not be laid close to high voltage cables.

POWER CONNECTION

Supply voltage

The incoming cable must be connected to terminal block AA100-X1. Tightening torque: 0.5 – 0.6 Nm.



Tariff control

If the voltage to the compressor in the air/water pump is lost for a certain period, this must be blocked simultaneously via the selectable inputs, see section "Selectable in/outputs – Possible selections for AUX inputs". Compressor blocking must be performed either on the control module or on the air/water heat pump, not on both at the same time.

CHARGE PUMP FOR HEAT PUMP 1 AND 2

Connect circulation pump (AA35-GP12.1-EB101) to the terminal block AA100-X2 (PE), AA100-X3 (N) and AA100-X5:3 (230 V).

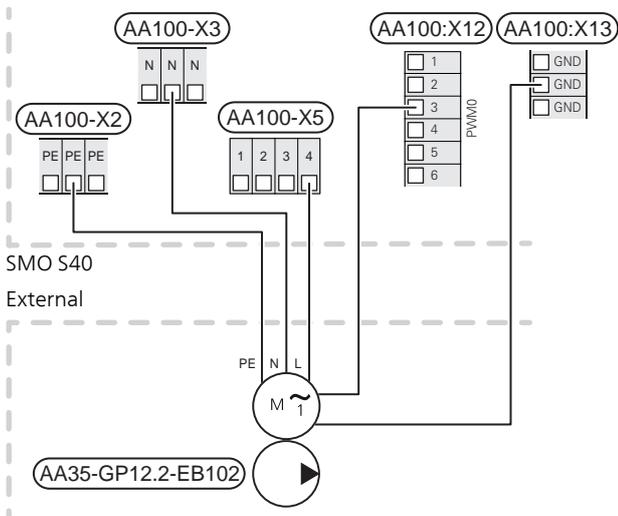
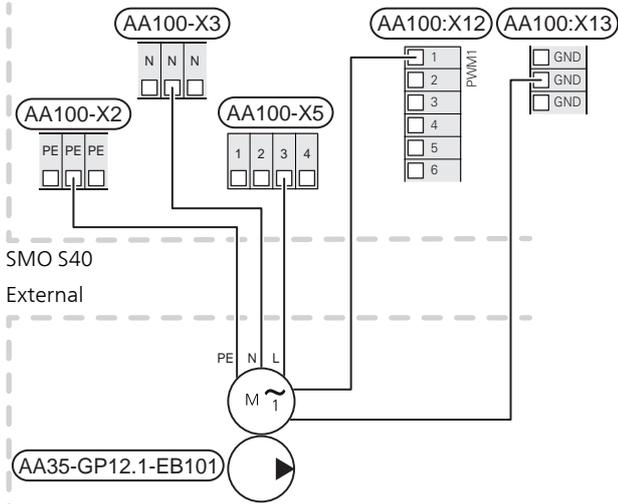
Control signal for AA35-GP12.1-EB101 is connected to terminal block AA100-X12:1 (Pulse/0–10V) (PWM1) and GND on any block X13.

If two heat pumps are connected to SMO S40 the circulation pump (AA35-GP12.2-EB102) must be connected to the terminal block AA100-X2 (PE), AA100-X3 (N) and AA100-X5:4 (230 V). Control signal for (AA35-GP12.2-EB102) is connected to terminal block AA100-X12:3 (Pulse/0–10V) (PWM0) and GND on any block X13.



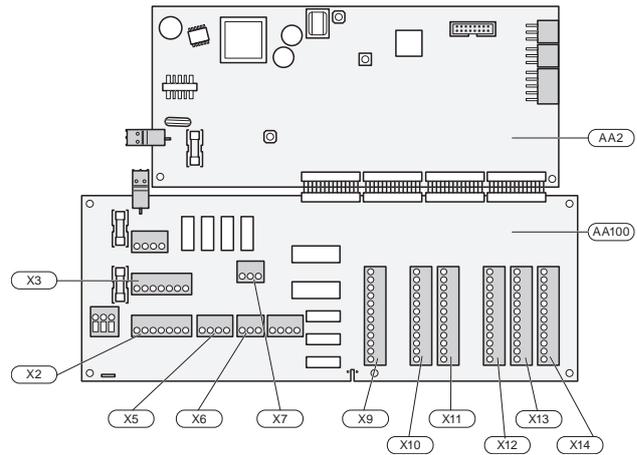
TIP

Two charge pumps can be connected to and controlled by SMO S40. Several charge pumps can be connected, if accessory boards (AXC) are used, two pumps per board.



SENSORS

External connections are connected on terminal block X10 and X11 on the joint board (AA100).

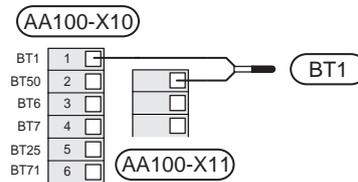


Outside sensor

The outdoor sensor (BT1) is placed in the shade on a wall facing north or north-west, so it is unaffected e.g. by the morning sun.

The outdoor sensor is connected to terminal block AA100-X10:1 and to any input on terminal block AA100-X11.

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

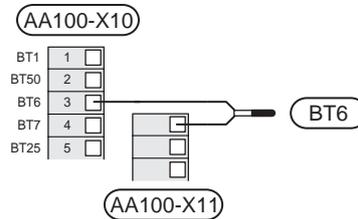


Temperature sensor, hot water charging

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

Connect the sensor to terminal block AA100-X10:3 and to any input on terminal block AA100-X11.

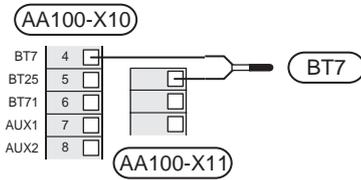
Settings for hot water are made in menu 2 "Hot water".



Temperature sensor, hot water top

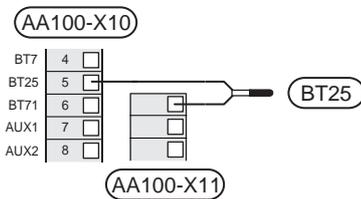
A temperature sensor for hot water top (BT7) can be connected to SMO S40 to show the water temperature at the top of the tank (if it is possible to install a sensor at the top of the tank).

Connect the sensor to terminal block AA100-X10:4 and to any input on terminal block AA100-X11.



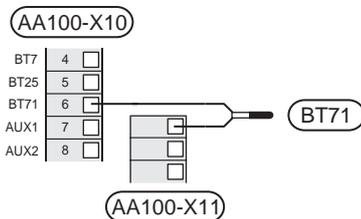
Temperature sensor, external flow line

Connect temperature sensor, external supply line (BT25) to terminal block AA100-X10:5 and to any input on terminal block AA100-X11.



Temperature sensor, external return line

Connect temperature sensor, external return line (BT71) to terminal block AA100-X10:6 and to any input on terminal block AA100-X11.



Room sensor

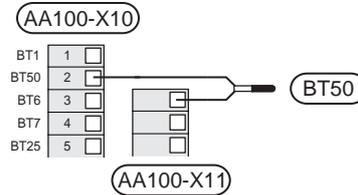
SMO S40 is delivered with an enclosed room sensor (BT50) that makes it possible to display and control the room temperature.

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

SMO S40 operates without room sensor, but if you want to read the home's indoor temperature from the display on SMO S40, the room sensor must be fitted. The room sensor is connected on terminal block AA100-X10:2 and to any input on terminal block AA100-X11.

If a room sensor is to be used to change the room temperature in °C and/or to fine-tune the room temperature, the sensor must be activated in menu 1.3 "Room sensor settings".

If a room sensor is used in a room with underfloor heating, it should only have an indicative function, not control of the room temperature.

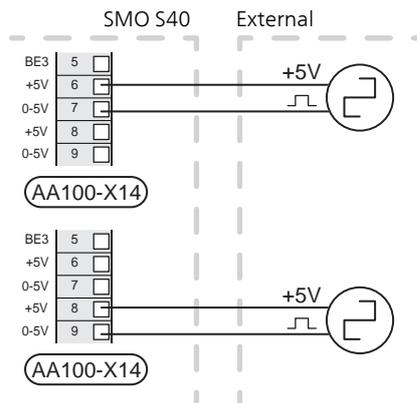


Caution

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.

EXTERNAL ENERGY METER

One or two energy meters (BE6, BE7) are connected to terminal block AA100-X14:6-7 or AA100-X14:8-9.



Activate the energy meter(s) in menu 7.2 and then set the desired value ("Energy per pulse" or "Pulses per kWh") in menu 7.2.19.

LOAD MONITOR

When many power consumers are connected in the property at the same time as the electric additional heat is in operation, there is a risk of the property's main fuses tripping. SMO S40 has an integrated load monitor that controls the power steps for the electric additional heat by disconnecting step by step in event of overload in a phase. Reconnection occurs when other current consumption is reduced.

Connecting current sensors

A current sensor (BE1 - BE3) must be installed on each incoming phase conductor into the electrical distribution unit, to measure the current. The electrical distribution unit is an appropriate installation point.

Connect the current sensors to a multi-core cable in an enclosure directly adjacent to the electrical distribution unit. The multi-core cable between the enclosure and SMO S40 must have a cable area of at least 0.5 mm².

Connect the sensor to terminal block AA100-X14:BE1-BE3 and to any terminal block on AA100-X13:GND.

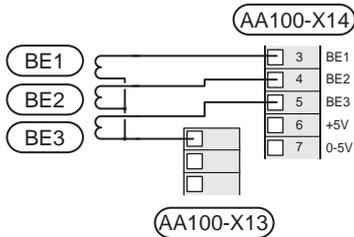
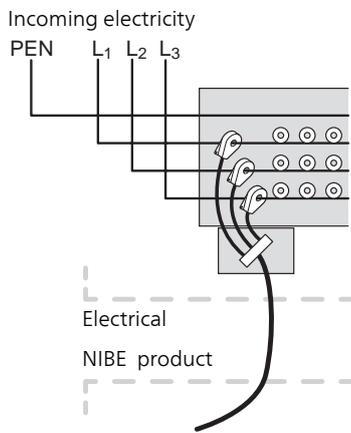
The value for the size of the fuse is set in menu 7.1.9 to correspond with the size of the property's main fuse. Here it is also possible to adjust the current sensor's transformer ratio.

Enclosed current sensors have a transformer ratio of 300 and, if these are used, the incoming current must not exceed 50 A.



NOTE

The voltage from the current sensor to the input board must not exceed 3.2 V.



NOTE

If the installed heat pump is frequency controlled, it will be limited when all power stages are disengaged.

STEP CONTROLLED ADDITIONAL HEAT



NOTE

If external voltage is used, mark any junction boxes with warnings for external voltage.

Step-controlled additional heat before the reversing valve

External step-controlled additional heat can be controlled by up to three potential-free relays in the control module (3 step linear or 7 step binary).

The electric additional heat will charge with the maximum number of steps, together with the compressor, to finish the hot water charging and return to charging the heating as soon as possible. This only occurs when the number of degree minutes is below the start value for the additional heat.

Step-controlled additional heat after the reversing valve

External step-controlled additional heat can be controlled by two relays (2 step linear or 3 step binary), which means that the third relay is used to control the immersion heater in the water heater/accumulator tank.

With the AXC 30 accessory, a further three potential-free relays can be used for additional heat control, which then gives an additional 3 linear or 7 binary steps.

Step in occurs with at least 1 minute interval and step outs with at least 3 seconds interval.

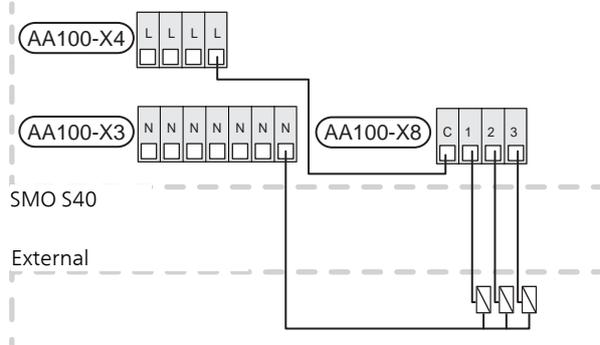
Step 1 is connected to terminal block AA100-X8:1.

Step 2 is connected to terminal block AA100-X8:2.

Step 3 is connected to terminal block AA100-X8:3.

The settings for step controlled additional heat are made in menu 7.1.5.

If the relays are to be used for operating voltage, bridge the supply from terminal block AA100-X4:L to terminal block AA100-X8:C.



SHUNT CONTROLLED ADDITIONAL HEAT



NOTE

Mark up any junction boxes with warnings for external voltage.

This connection enables an external additional heater, e.g. an oil boiler, gas boiler or district heating exchanger to aid with heating.

SMO S40 controls a shunt valve and start signal for the additional heat using three relays. If the installation cannot manage to maintain the correct supply temperature, the additional heat starts. When the boiler sensor (BT52) shows 55 °C, SMO S40 sends a signal to the shunt (QN11) to open from the additional heat. The shunt (QN11) is controlled to ensure that the true supply temperature corresponds with the control system's theoretically calculated set point value. When the heating demand drops sufficiently, so additional heat is no longer required, the shunt (QN11) closes completely. Factory-set minimum operating time for the boiler is 12 hours (can be adjusted in menu 7.1.5).

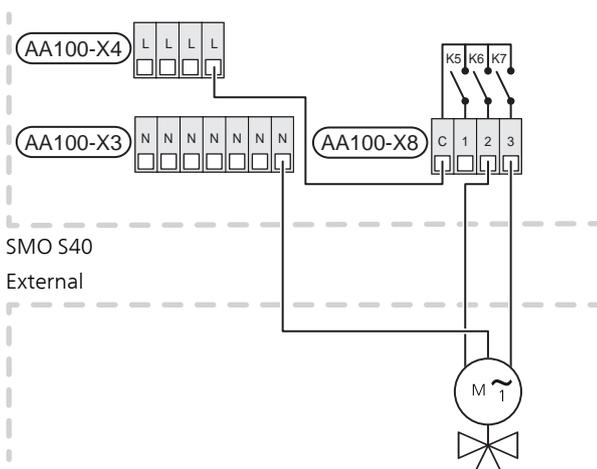
The settings for shunt controlled additional heat are made in menu 7.1.5.

The boiler sensor (BT52) is connected to selectable AUX inputs and selected in menu 7.4.

Connect the shunt motor (QN11) to terminal blocks AA100-X8:2 (230 V, close) and 3 (230 V, open) and terminal block AA100-X3:N.

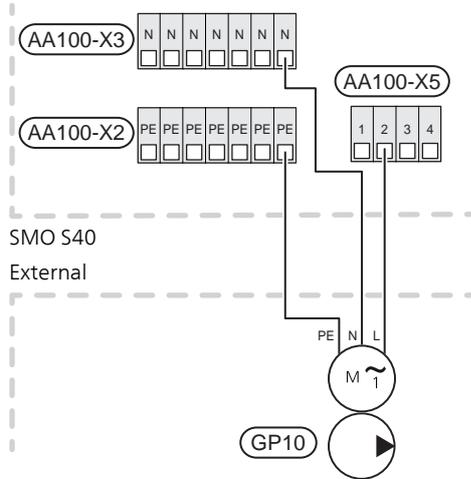
To control switching the additional heat on and off, connect it to terminal block AA100-X8:1.

If the relays are to be used for operating voltage, bridge the supply from terminal block AA100-X4:L to terminal block AA100-X8:C.



EXTERNAL CIRCULATION PUMP (GP10)

Connect the external circulation pump (GP10) to terminal block AA100-X2: (PE), AA100-X3: (N) and AA100-X5:2 (230 V) as illustrated.

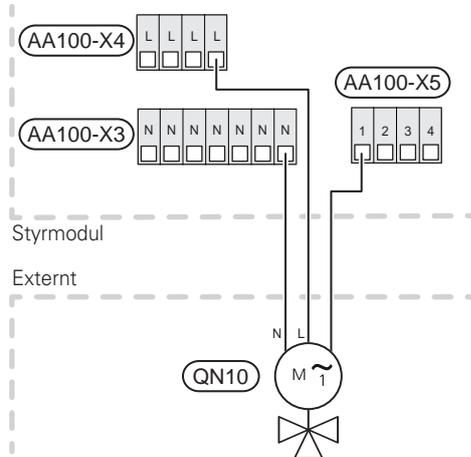


REVERSING VALVE, HEATING/HOT WATER

SMO S40 can be supplemented with an external reversing valve (QN10) for hot water control. (See "Accessories" section.)

Hot water production can be selected in menu 7.2.1.

Connect the external reversing valve (QN10) to terminal block AA100-X3:N (AA100-X5:1), (operation) and AA100-X4:L as illustrated.

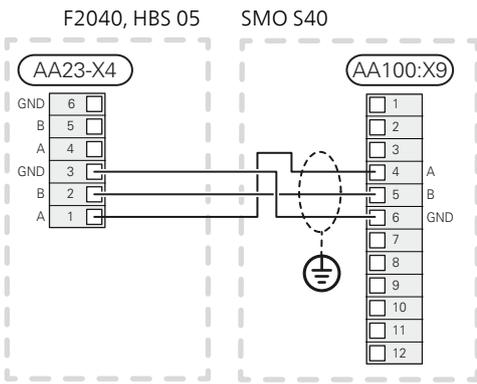


COMMUNICATION

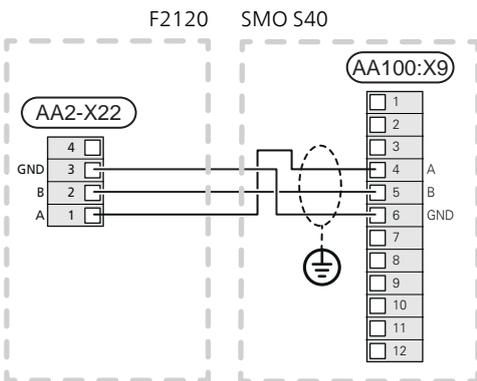
Communication with heat pump

If SMO S40 is to be connected to the heat pump, this is connected to terminal block X9:4 (A), X9:5 (B) and X9:6 (GND) on the joint card (AA100). Use a screened cable. The screened cable is connected using the cable clamp supplied.

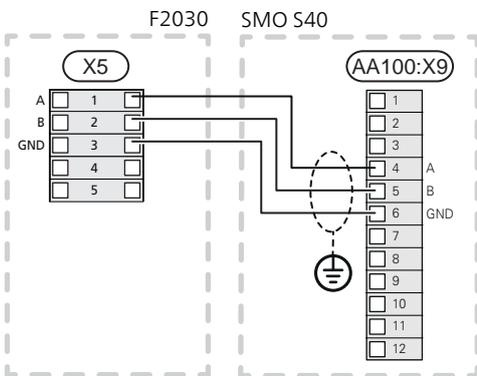
SMO S40 and F2040 / NIBE SPLIT HBS 05



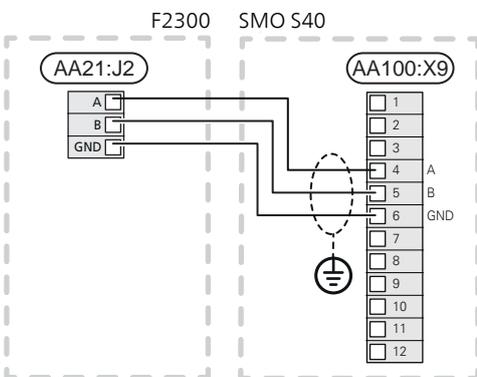
SMO S40 and F2120



SMO S40 and F2030



SMO S40 and F2300



Multi-installation



Caution

Up to 8 air/water heat pumps can be controlled by SMO S40.

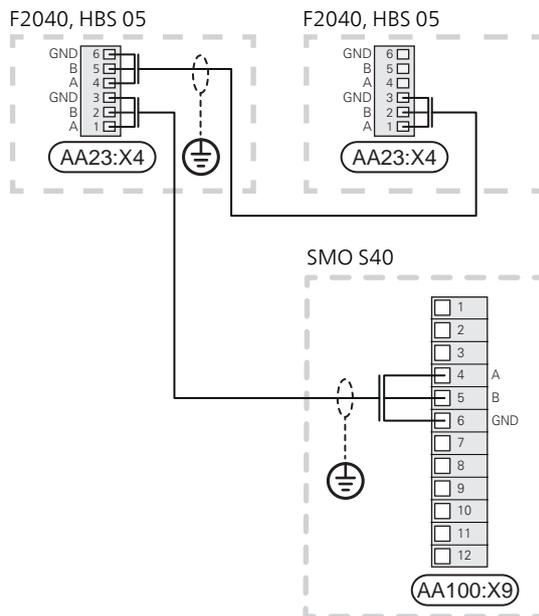


Caution

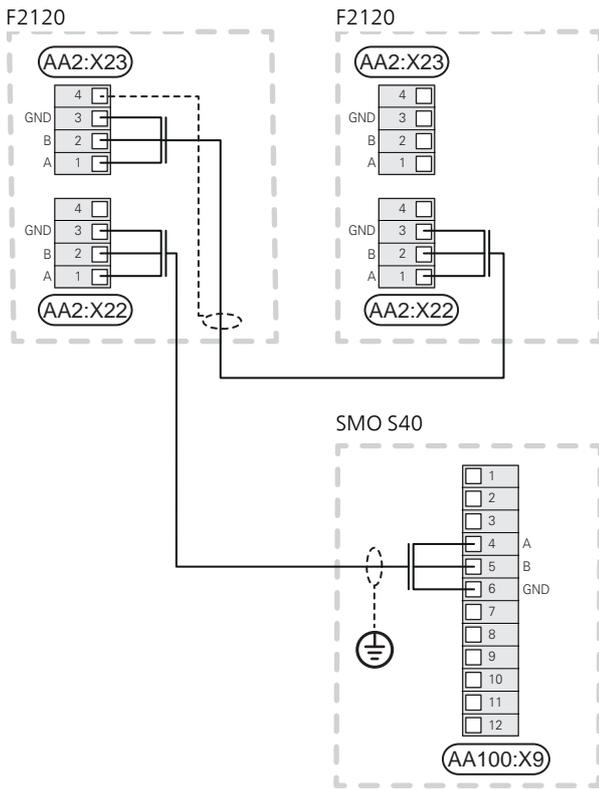
It is possible to combine various NIBE air/water heat pumps, of different sizes and models, with each other.

If several heat pumps are to be connected to SMO S40 these must be connected in cascade as illustrated.

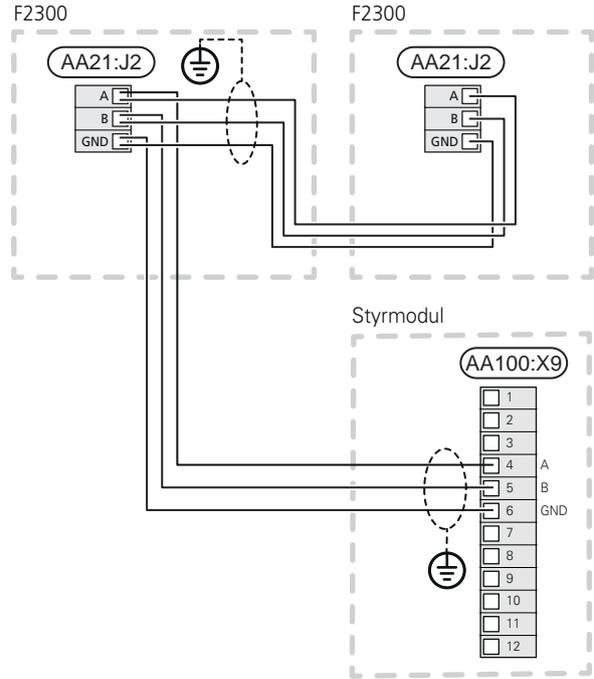
SMO S40 and F2040 / NIBE SPLIT HBS 05



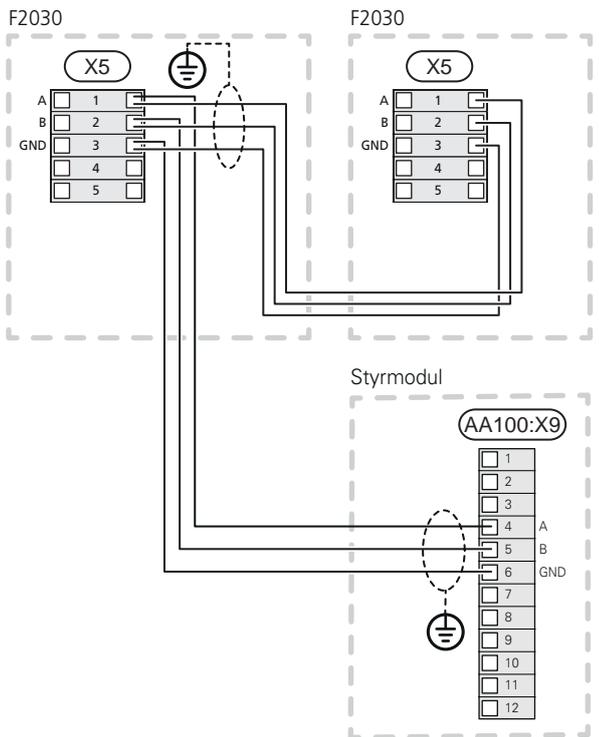
SMO S40 and F2120



SMO S40 and F2300



SMO S40 and F2030



Connecting accessories

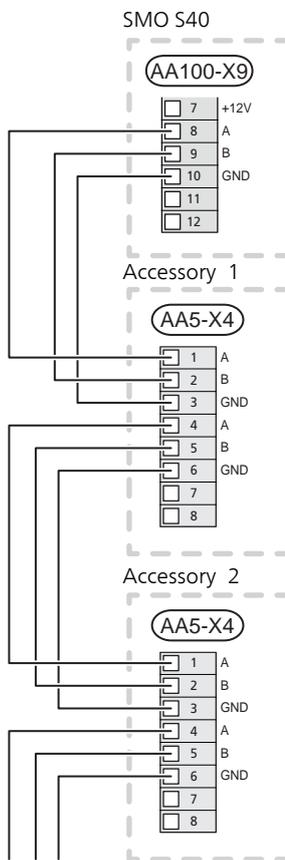
Instructions for connecting accessories are provided in the manual accompanying the accessory. See section "Accessories" for a list of the accessories that can be used with SMO S40. Connection for communication with the most common accessories is shown here.

Accessories with accessory board (AA5)

Accessories with accessory board (AA5) are connected to the control module's terminal block AA100-X9:8–10. Use cable type LiYY, EKKX or equivalent.

If several accessories are to be connected, connect the first accessory board directly to the terminal block in SMO S40. Other accessory boards are connected to the first in series.

Because there can be different connections for accessories with accessory board (AA5), you should always read the instructions in the manual for the accessory that is to be installed.

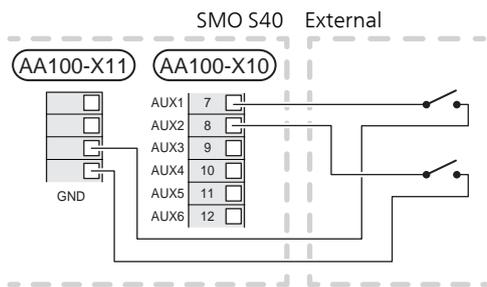


Selectable in/outputs

On the joint card (AA100), SMO S40 has software-controlled AUX inputs and outputs for connecting the external switch function (contact has to be potential free) or sensor.

Go into menu 7.4 "Selectable in/outputs" on the display to select to which AUX connection each function connects.

Selectable inputs for these functions are AA100-X10:7-12. Each function connects to any input and GND (AA100-X11).



The example above uses the inputs AUX1 (AA100-X10:7) and AUX2 (AA100-X10:8).

Selectable outputs AA100-X6 and -X7.

For certain functions, accessories may be required.

 **TIP**
Some of the following functions can also be activated and scheduled via menu settings.

POSSIBLE SELECTION FOR AUX INPUTS

Temperature sensor

Temperature sensor can be connected to SMO S40.

Available options are:

- Boiler (BT52) (only shown if shunt-controlled additional heat is selected in menu 7.1.5)
- supply temperature sensor for cooling (BT64) (used when "active cooling in 4-pipe system" has been activated in the output AUX 10 (AA100-X6) or AUX 11 (AA100-X7))
- cooling/heating (BT74), determines when it is time to switch between cooling and heating mode (can be selected when the cooling function is activated in menu 7.2.1).
- additional heat (BT63), is used when docking "step-controlled additional heat before reversing valve for hot water" in order to measure the temperature after the additional heat.
- it is possible to connect two own sensors.

Monitor

Available options are:

- alarm from external units. The alarm is connected to the control, which means that the malfunction is presented as an information message in the display. Potential-free signal of type NO or NC.
- stove monitor. (A thermostat that is connected to the chimney. When the negative pressure is too low and the thermostat is connected, the fans in ERS (NC) are switched off.

External activation of functions

An external switch function can be connected to SMO S40 to activate various functions. The function is activated during the time the switch is closed.

Possible functions that can be activated:

- hot water demand mode "more hot water"
- hot water demand mode "small"
- "External adjustment"

When the switch is closed, the temperature is changed in °C (if a room sensor is connected and activated). If a room sensor is not connected or not activated, the desired change of "Temperature" (heating curve offset) is set with the number of steps selected. The value is adjustable between -10 and +10. External adjustment of climate systems 2 to 8 requires accessories.

– *climate system 1 to 8*

The value for the change is set in menu 1.30.3, "External adjustment".

- activation of one of four fan speeds.
(Can be selected if ventilation accessory is activated.)
The following five options are available:
 - 1-4 is normally open (NO)
 - 1 is normally closed (NC)

The fan speed is activated during the time the switch is closed. Normal speed is resumed when the switch is opened again.

- SG ready

 **Caution**
This function can only be used in mains networks that support the "SG Ready" standard. "SG Ready" requires two AUX inputs.

If this function is wanted, it must be connected to terminal block X10 on the joint card (AA100).

"SG Ready" is a smart form of tariff control, through which your electricity supplier can affect the indoor, hot water and/or pool temperatures (if applicable) or simply block the additional heat and/or compressor in the heat pump at certain times of the day (can be selected in menu 4.2.3 after the function is activated).

Activate the function by connecting potential-free switch functions to two inputs selected in menu 7.4 (SG Ready A and SG Ready B).

Closed or open switch means one of the following:

– *Blocking (A: Closed, B: Open)*

“SG Ready” is active. The compressor in the air/water heat pump and additional heat are blocked in the same way as current tariff blocking.

– *Normal mode (A: Open, B: Open)*

“SG Ready” is not active. No effect on the system.

– *Low price mode (A: Open, B: Closed)*

“SG Ready” is active. The system focuses on costs savings and can for example exploit a low tariff from the electricity supplier or over-capacity from any own power source (effect on the system can be adjusted in the menu 4.2.3).

– *Overcapacity mode (A: Closed, B: Closed)*

“SG Ready” is active. The system is permitted to run at full capacity at over capacity (very low price) with the electricity supplier (effect on the system is settable in menu 4.2.3).

(A = SG Ready A and B = SG Ready B)

External blocking of functions

An external switch function can be connected to SMO S40 for blocking various functions. The switch must be potential-free and a closed switch results in blocking.



NOTE

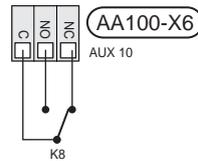
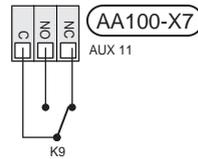
Blocking entails a risk of freezing.

Functions that can be blocked:

- heating (blocking of heating demand)
- cooling (blocking cooling requirement)
- hot water (hot water production). Any hot water circulation (HWC) remains in operation.
- compressor in heat pump EB101 and/or EB102
- internally controlled additional heat
- tariff blocking (additional heat, compressor, heating, cooling and hot water are disconnected)

OPTIONAL SELECTION FOR AUX OUTPUTS (POTENTIAL-FREE SWITCHING RELAY)

It is possible to have an external connection via a relay function via a potential-free switching relay (max 2 A) on the joint board (AA100), terminal block X6:C,NO,NC (AUX10) or X7:C,NO,NC (AUX11). The function must be activated in menu 7.4.



The picture shows the relay in the alarm position.

If SMO S40 is switched off or in emergency mode, the relay is in alarm position.



Caution

The relay outputs may be subjected to a max load of 2 A at resistive load (230V AC).



TIP

The AXC accessory is required, if more than two functions are to be connected to the AUX outputs.

Optional functions for external connection:

Indications

- alarm indication
- cooling mode indication (can be selected when the heat pump is permitted to produce cooling)
- cooling mode indication cooling 4 pipes (can be selected when the heat pump is permitted to produce cooling)
- holiday indication
- away mode
- external heating medium pump
- indication of low electricity price (Smart Price Adaption)
- PV panel control (if accessories EME are installed)

Control

- control of circulation pump for hot water circulation
- control of external circulation pump (for heating medium)

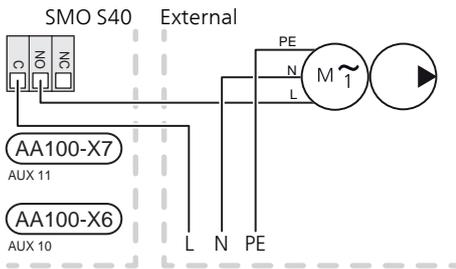


NOTE

The relevant distribution box must be marked with a warning about external voltage.

Connecting external heating medium pump

An external heating medium pump is connected to the AUX output, as illustrated below.



Settings

ELECTRIC ADDITIONAL HEAT – MAXIMUM NUMBER OF STEPS

Setting maximum number of steps in the electric additional heat is done in menu 7.1.5.1.

Power steps of the immersion heater

If the current sensors are connected, SMO S40 monitors the phase currents. If the current is too high, SMO S40 withdraws the last step that was applied.

EMERGENCY MODE

When SMO S40 is put into emergency mode, the system works as follows:

- SMO S40 prioritises heating production.
- Hot water is produced if possible.
- The load monitor is not connected.
- Fixed supply temperature if the system has no value from the outdoor sensor (BT1).

You can activate the emergency mode both when SMO S40 is running and when it is switched off.

When the emergency mode is active, the status lamp turns yellow.

To activate when SMO S40 is running: press and hold the on/off button (SF1) for 2 seconds and select "emergency mode" from the shutdown menu.

To activate when SMO S40 is switched off: press and hold the on/off button (SF1) for 5 seconds. (Deactivate the emergency mode by pressing once.)

6 Commissioning and adjusting

Preparations

- SMO S40 must be ready-connected.
- The climate system must be filled with water and bled.

Commissioning

WITH NIBE AIR/WATER HEAT PUMP

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

SMO S40

1. Power-up the heat pump. The heat pump may need to be preheated, depending on the outdoor temperature.
2. Power SMO S40.
3. Follow the instructions in the display's start guide. If the start guide does not start when you start the SMO S40, start it manually in menu 7.7.

Commissioning with additional heating only

At first start follow the start guide, otherwise follow the list below.

1. Go to menu 4.1 "Operating mode".
2. Mark "Additional heat only".

Check the reversing valve

1. Activate "Reversing valve (QN10)" in menu 7.5.3 "Forced control".
2. Check that the reversing valve for heating/hot water (QN10) opens or is open for hot water charging.
3. Deactivate "Reversing valve (QN10)" in menu 7.5.3 "Forced control".

Check selectable outputs

To check any function connected to selectable outputs (AUX 10 and AUX 11):

1. Activate "AA100-X6" and "AA100-X7" in menu 7.5.3 "Forced control".
2. Check the desired function.
3. Deactivate "AA100-X6" and "AA100-X7" in menu 7.5.3 "Forced control".

Cooling mode

If the installation contains one or more NIBE air/water heat pumps that can produce cooling, cooling operation can be permitted. See relevant Installer Manual.

When cooling operation is permitted you can choose cooling mode indication in menu 7.4 "Selectable inputs/outputs" for the AUX output.

Start guide



NOTE

There must be water in the climate system before SMO S40 is started.

1. Start SMO S40 by pressing the on/off button once (SF1).
2. Follow the instructions in the display's start guide. If the start guide does not start when you start the SMO S40, start it manually in menu 7.7.



TIP

See the section "Control – Introduction" for a more detailed introduction to the installation's control system (operation, menus, etc.).

COMMISSIONING

The first time the installation is started a start guide is started. The start guide instructions state what needs to be carried out at the first start together with a run through of the installation's basic settings.

The start guide ensures that the start-up is carried out correctly and, for this reason, cannot be skipped.

During the start-up guide, the reversing valves and the shunt are run back and forth to help vent the heat pump.

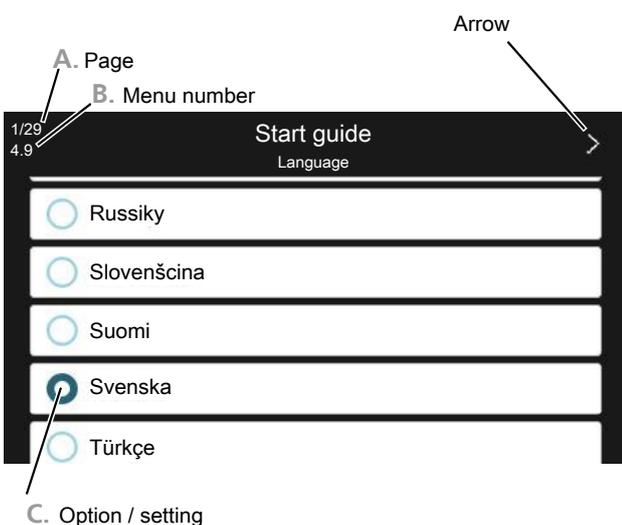


Caution

As long as the start guide is active, no function in SMO S40 will start automatically.

The start guide will appear at each restart of SMO S40, until it is deselected on the last page.

OPERATION IN THE START GUIDE



A. Page

Here you can see how far you have come in the start guide.

Drag to the right or left with your finger to browse between the pages.

You can also press the arrows in the top corners to browse.

B. Menu number

Here, you can see which menu in the control system this page of the start guide is based on.

If you want to read more about the affected menu, either consult its help menu or read the Installer Manual.

C. Option / setting

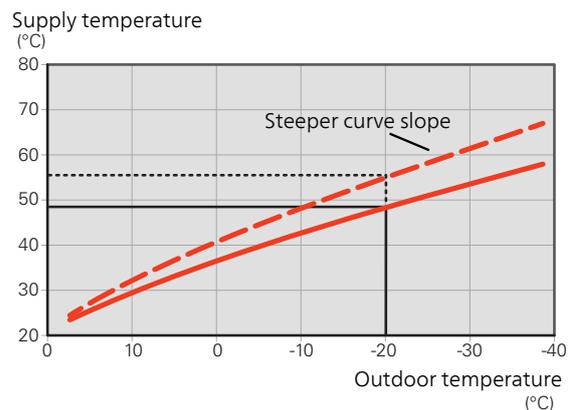
Make settings for the system here.

Setting the cooling/heating curve

In menu **Curve, heating** you can view the heating curve for your house. The task of the curve is to give an even indoor temperature, regardless of the outdoor temperature, and thereby energy-efficient operation. Based on this curve, the SMO S40 determines the temperature of the water to the climate system (the supply temperature) and thus the indoor temperature.

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.

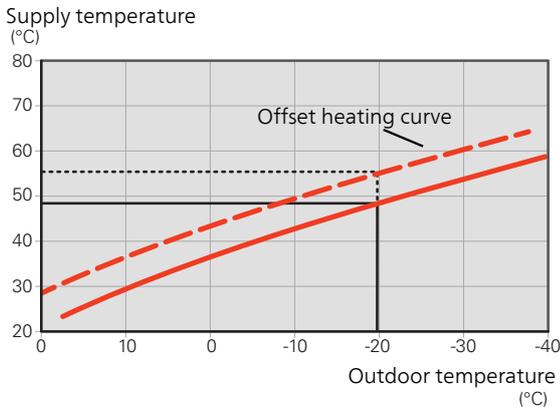


The optimum curve slope depends on the climate conditions in your location, whether the house has radiators, fan coils or underfloor heating and how well insulated the house is.

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

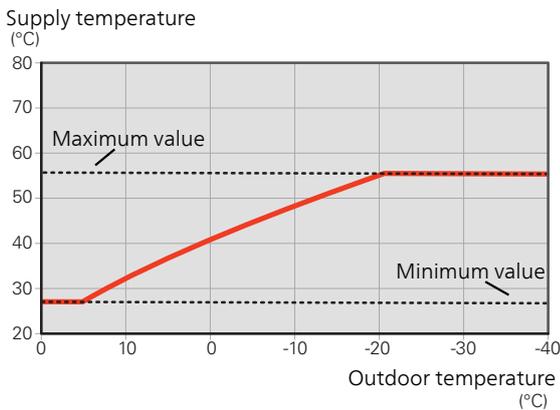
CURVE OFFSET

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



SUPPLY 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.

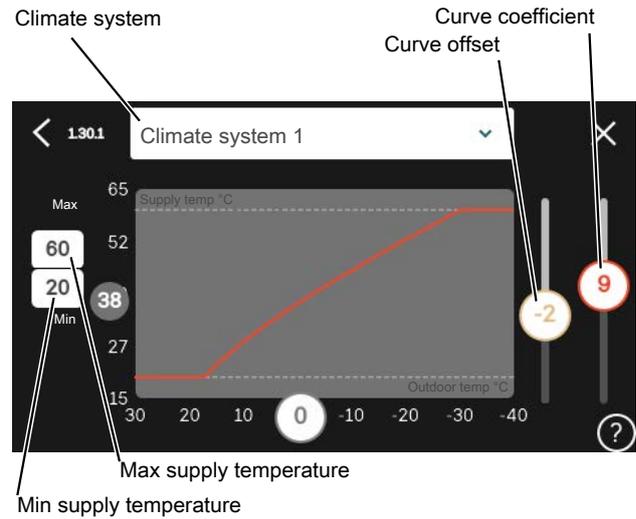


Caution

With underfloor heating systems, the maximum supply temperature is normally set between 35 and 45 °C.

Check the max floor temperature with your floor supplier.

ADJUSTMENT OF CURVE



1. Select the climate system (if more than one) for which the curve is to be changed.
2. Select curve slope and curve offset.
3. Select max and min supply temperature.



Caution

Curve 0 means that **own curve** is used.

Settings for **own curve** are made in menu 1.30.7.

TO READ OFF A HEATING CURVE

1. Drag in the circle on the axis with outdoor temperature.
2. Read off the value for supply temperature in the circle on the other axis.

7 myUplink



With myUplink you can control the installation – where and when you want. In the event of any malfunction, you receive an alarm directly to your e-mail or a push notification to the myUplink app, which allows you to take prompt action.

Visit myuplink.com for more information.

Specification

You need the following in order for myUplink to be able to communicate with your SMO S40:

- wireless network or network cable
- Internet connection to which SMO S40 can be connected
- account on myuplink.com

We recommend our mobile apps for myUplink.

For more information, visit myuplink.com.

Connection

If you do not already have an account, register in the mobile app or on myuplink.com.

CONNECT SYSTEM



Caution

Before you can connect to myUplink, you must select connection type (wired/wifi) in menu 5.2.1 or 5.2.2.

When you have logged in for the first time, you must connect your system to your registered account via the mobile app or myuplink.com. Here, you can also invite and/or add further users.

DISCONNECT USERS

You can choose to disconnect the users who are connected to your system:

You do this by going to menu 5.1 - myUplink.



NOTE

Once you have disconnected all users, no one can monitor or control your system via myUplink without being connected to it again.

Range of services

myUplink gives you access to various levels of service. The base level is included and, apart from this, you can choose two premium services for a fixed annual fee (the fee varies depending on the functions selected).

The base level allows you to monitor the system, manage alarms and read diagrams containing information for the last month.

If you want to read older information, as well as receive information based on more parameters and/or change settings, choose a premium service.

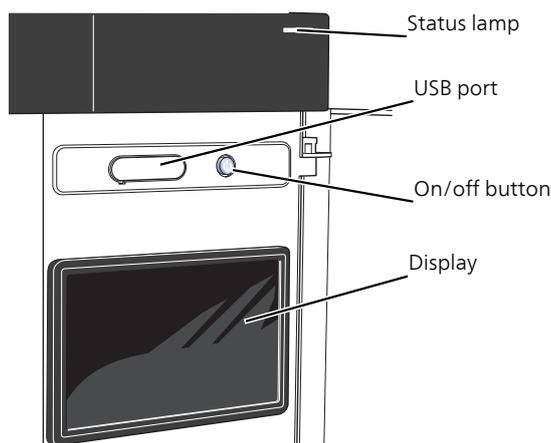
<i>Service level</i>	<i>Basic</i>	<i>Premium extended history</i>	<i>Premium change settings</i>
Viewer	X	X	X
Alarm	X	X	X
History	X	X	X
Extended history	-	X	-
Manage	-	-	X

Mobile apps for myUplink

The mobile apps can be downloaded free of charge from where you usually download your mobile apps. Logging into the mobile app is performed using the same account details as on myuplink.com.

8 Control - Introduction

Display unit



THE STATUS LAMP

The status lamp indicates current operating status. It:

- lights up white during normal operation.
- lights yellow in emergency mode.
- lights red in the event of a deployed alarm.
- flashes white during active notice.
- is out when SMO S40 is switched off.

If the status lamp is red, you receive information and suggestions for suitable actions on the display.



TIP

You also receive this information via myUplink.

THE USB PORT

Above the display, there is a USB port that can be used e.g. for updating the software. Visit myuplink.com and click the "Software" tab to download the latest version of the software for your installation.



TIP

If you connect the product to the network, you can update the software without using the USB port. See section "myUplink".

THE ON/OFF BUTTON

The on/off button (SF1) has three functions:

- start
- switch off
- activate emergency mode

To start: press the on/off button once.

To switch off or restart: press the on/off button once. This brings up a menu with various options.

For hard switch off: press and hold the on/off button for 5 seconds.

You can activate the emergency mode both when SMO S40 is running and when it is switched off.

To activate when SMO S40 is running: press and hold the on/off button (SF1) for 2 seconds and select "emergency mode" from the shutdown menu.

To activate when SMO S40 is switched off: press and hold the on/off button (SF1) for 5 seconds. (Deactivate the emergency mode by pressing once.)

THE DISPLAY

Instructions, settings and operational information are shown on the display.

Navigation

SMO S40 has a touchscreen where you simply navigate by pressing and dragging with your finger.

SELECT

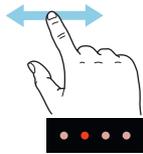
Most options and functions are activated by lightly pressing on the display with your finger.



BROWSE

The dots at the bottom edge show that there are more pages.

Drag to the right or left with your finger to browse between the pages.



SCROLL

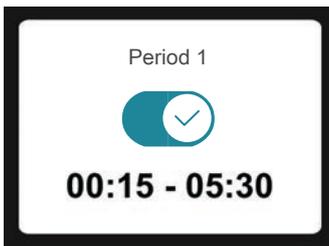
If the menu has several sub-menus, you can see more information by dragging up or down with your finger.



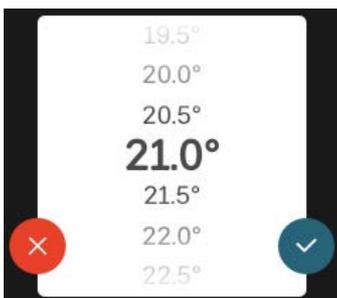
CHANGE A SETTING

Press the setting you want to change.

If it is an on/off setting, it changes as soon as you press it.



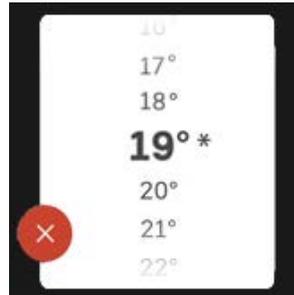
If there are several possible values, a spinning-wheel appears that you drag up or down to find the desired value.



Press  to save your change, or  if you don't want to make a change.

FACTORY SETTING

Factory set values are marked with *.



HELP MENU



In many menus there is a symbol that indicates that extra help is available.

Press the symbol to open the help text.

You may need to drag with your finger to see all text.

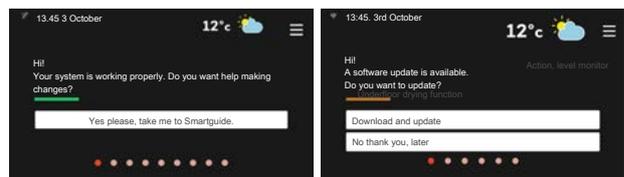
Menu types

HOME SCREENS

Smartguide

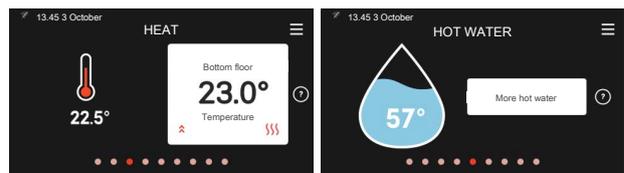
Smartguide helps you both to view information about the current status and to make the most common settings easily. The information that you see depends on the product you have and the accessories that are connected to the product.

Select an option and press it to proceed. The instructions on the screen help you to choose correctly or give you information about what is happening.

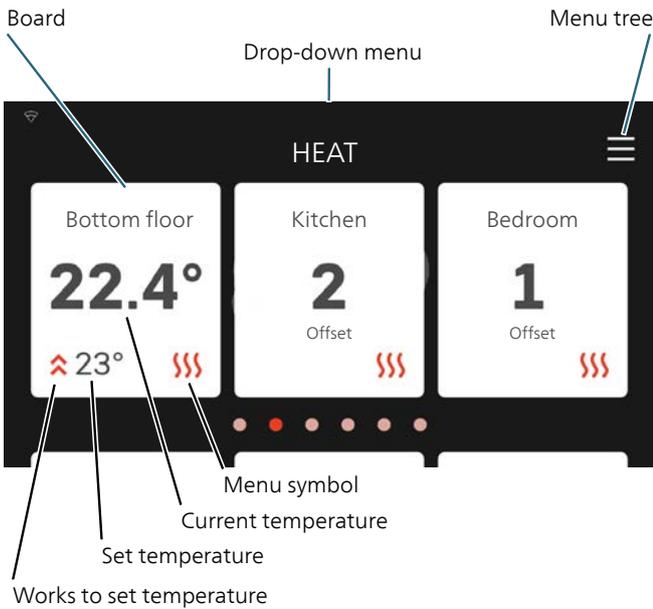


Function pages

On the function pages, you can both view information about the current status and easily make the most common settings. The function pages that you see depend on the product you have and the accessories that are connected to the product.



Drag to the right or left with your finger to browse between the function pages.



Press the boards to adjust desired value. On certain function pages, you use your finger to drag up or down to obtain more cards.

Product overview

It can be a good idea to have the product overview open during any service cases. You can find it among the function pages.

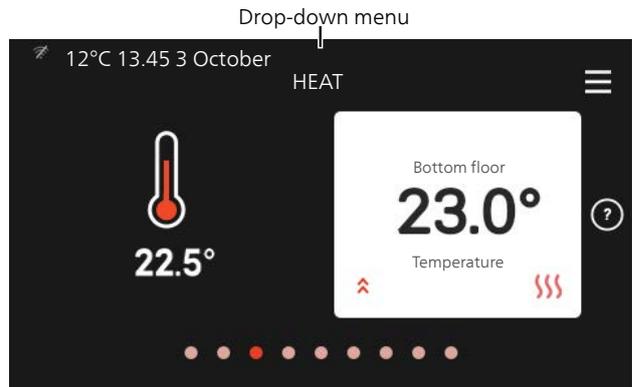
Here, you can find information about product name, the product's serial number, the version of the software and service. When there is new software to download, you can do it here (provided that SMO S40 is connected to myUplink).

 **TIP**
You enter the service details in menu 4.11.1.



Drop-down menu

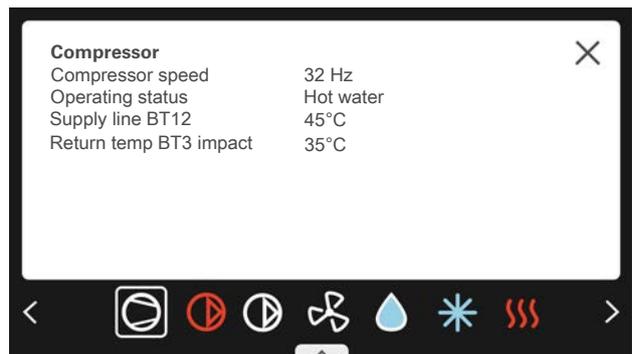
From the home screens, you can reach a new window containing further information by dragging down a drop-down menu.



The drop-down menu shows the current status for SMO S40, what is in operation and what SMO S40 is doing at the moment.

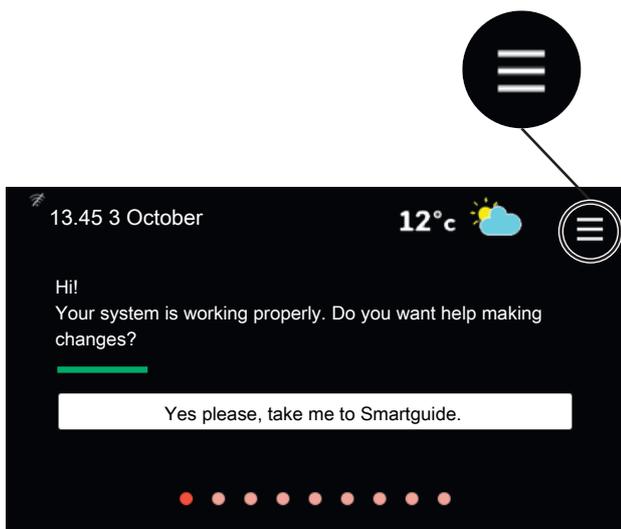


Press the icons on the menu's lower edge for more information about each function.

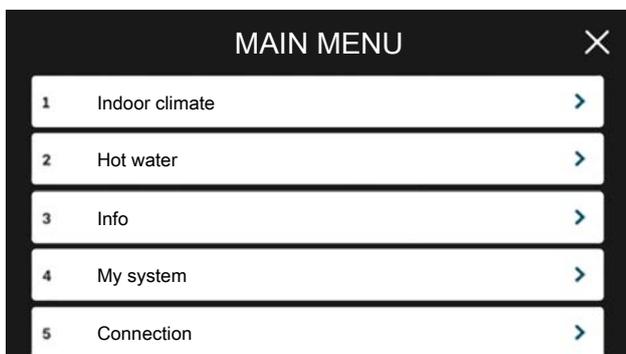


MENU TREE AND INFORMATION

In the menu tree, you can find all menus and can make more advanced settings.



You can always press "X" to return to the home screens.



9 Control – Menus

Menu 1 – Indoor climate

OVERVIEW

1.1 - Temperature	1.1.1 - Heating
	1.1.2 - Cooling ¹
	1.1.3 - Humidity ¹
1.2 - Ventilation ¹	1.2.1 - Fan speed ¹
	1.2.2 - Night cooling ¹
	1.2.4 - Demand-controlled ventilation ¹
	1.2.5 - Fan return time ¹
	1.2.6 - Filter cleaning interval ¹
1.3 - Room sensor settings	1.3.3 - Room units ¹
	1.3.4 - Zones
1.4 - External impact	
1.5 - Climate system name	
1.30 - Advanced	1.30.1 - Curve, heating
	1.30.2 - Curve, cooling
	1.30.3 - External adjustment
	1.30.4 - Lowest supply heating
	1.30.5 - Lowest supply cooling
	1.30.6 - Highest supply heating
	1.30.7 - Own curve
	1.30.8 - Point offset

¹ Consult the accessory's Installer Manual.

MENU 1.1 TEMPERATURE

You make temperature settings for SMO S40 here.

MENU 1.1.1, 1.1.2 - HEATING AND COOLING

Heating and cooling

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

<p><i>Heating</i></p> <p>Setting range: 5 – 30 °C</p> <p><i>Cooling (accessory required)</i></p> <p>Setting range: 5 – 35°C</p>

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



Caution

A slow climate system, such as underfloor heating, may be unsuitable for controlling with room sensors.

Setting the temperature (without room sensors activated):

Setting range: -10 – 10

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

The number of steps the value has to be changed in order to achieve a one degree change to the indoor temperature depends on the climate system. One step is usually enough, but in some cases several steps may be required.

Set the desired value. The new value is shown on the right-hand side of the symbol on home screen heating/home screen cooling.



Caution

An increase in the room temperature can be slowed by the thermostats for the radiators or under floor heating. Therefore, open the thermostats 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 1.30.1 by one increment.

If it is cold outdoors and the room temperature is too high, reduce the curve slope in menu 1.30.1 by one increment.

If it is warm outdoors and the room temperature is too low, increase the value in menu 1.1.1 by one increment.

If it is warm outdoors and the room temperature is too high, reduce the value in menu 1.1.1 by one increment.

MENU 1.2 - VENTILATION

This menu is lit if the installation contains one or more ventilation accessories.

You make the settings for the ventilation in the installation here. For example, you can adjust the fan speed and set how frequently SMO S40 will remind you of when air filters need replacing.

MENU 1.3 - ROOM SENSOR SETTINGS

Name room sensor

Enter a name for the relevant room sensor.

Control room sensor

Setting range: on/off

Activate room sensors to control the room temperature here.

You can connect several room sensors to each zone, and you can give each room sensor a unique name.



Caution

A slow heating system such as underfloor heating may be inappropriate for controlling with room sensors.

MENU 1.3.4 - ZONES

Here, you name and add new zones.

MENU 1.4 EXTERNAL IMPACT

Information for the accessories/functions that can affect the indoor climate and that are active is shown here.

MENU 1.5 - CLIMATE SYSTEM NAME

You can give the installation's climate system a name here.

MENU 1.30 - ADVANCED

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

Curve, heating Setting the heating curve slope.

Curve, cooling Setting the curve slope for cooling.

External adjustment Setting the heating curve offset when an external contact is connected.

Lowest supply heating Setting minimum permitted supply temperature during heating operation.

Lowest supply cooling Setting minimum permitted supply temperature when cooling.

Highest supply heating Setting maximum permitted supply temperature for the climate system.

Own curve You can create your own heating curve here, if there are special requirements, by setting the desired supply temperatures for different outdoor temperatures.

Point offset Select a change in the heating curve at a certain outdoor temperature here. One step is usually enough to change the room temperature by one degree, but in some cases several steps may be required.

MENU 1.30.1 - CURVE, HEATING

Curve, heating

Setting range: 0 – 15,0

In menu "Curve, heating" you can view the heating curve for your house. The task of the heating curve is to provide an even indoor temperature, regardless of the outdoor temperature. It is from this heating curve that SMO S40 determines the temperature of the water to the climate system, the supply temperature, and therefore the indoor temperature. Here, you can select heating curve and read off how the supply temperature changes at different outdoor temperatures.



TIP

It is also possible to create your own curve. This is done in menu 1.30.7.



Caution

With underfloor heating systems, the maximum supply temperature is normally set between 35 and 45 °C.

Check the max floor temperature with your floor supplier.



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 1.30.2 - CURVE, COOLING (ACCESSORY REQUIRED)

Curve, cooling

Setting range: 0 – 9

In the "Curve, cooling" menu you can view the cooling curve for your house. The task of the cooling curve is, together with the heating curve, to provide a uniform indoor temperature, regardless of the outdoor temperature, and thereby energy-efficient operation. It is from these curves that SMO S40 determines the temperature of the water to the heating system, the supply temperature, and consequently the indoor temperature. Here, you can select the curve and read how the supply temperature changes at different outdoor temperatures. The number to the right of "system" shows the system for which you have selected the curve.



Caution

Must be restricted with underfloor cooling min. flow line temp. to prevent condensation.

Cooling in 2-pipe system

SMO S40 contains a built-in function for operating cooling in a 2-pipe system down to 7 °C. This requires that the outdoor module can perform cooling. (See the Installer Manual for your air/water heat pump.) If the outdoor module is permitted to run cooling, the cooling menus are activated in the display on SMO S40.

For operating mode "cooling" to be permitted, the average temperature must be above the set value for "start cooling" in menu 7.1.10.2 "Auto mode setting". The alternative is to activate cooling by selecting "manual" operating mode in menu 4.1 "Operating mode".

The cooling settings for the climate system are adjusted in the indoor climate menu, menu 1.

MENU 1.30.3 - EXTERNAL ADJUSTMENT

Climate system

Setting range: -10 – 10

Setting range (if room sensor is installed): 5 – 30 °C

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 1.30.4 - LOWEST SUPPLY HEATING

heating

Setting range: 5 – 80 °C

Set the minimum temperature on the supply temperature to the climate system. This means that SMO S40 never calculates a temperature lower than that set here.

MENU 1.30.5 - LOWEST SUPPLY COOLING

cooling (heat pump with cooling function required)

Depending on which cooling accessory is used, the setting range can vary.

Setting range 7 – 30 °C

Alarm, room sensor during cooling operation

Setting range: on/off

Set the minimum temperature on the supply temperature to the climate system. This means that SMO S40 never calculates a temperature lower than that set here. Here, you can receive alarms during cooling operation, for example if a room sensor malfunctions.



NOTE

Cooling flow line must be set with regard to which climate system is connected. For example, floor cooling with too low cooling flow line can cause condensation precipitation, which in the worst instance could lead to moisture damage.

MENU 1.30.6 - HIGHEST SUPPLY HEATING

climate system

Setting range: 5 – 80 °C

Here, you set the highest supply temperature for the climate system. This means that SMO S40 never calculates a temperature higher than the one set here.



Caution

With underfloor heating systems, "Maximum supply temperature for heating" should normally be set between 35 and 45°C.

Check the max floor temperature with your floor supplier.

MENU 1.30.7 - OWN CURVE

Own curve, heating



Caution

Curve 0 must be selected for own curve to apply.

You can create your own heating curve here, if there are special requirements, by setting the desired supply temperatures for different outdoor temperatures.

Supply temp

Setting range: 5 – 80 °C

Own curve, cooling



Caution

Curve 0 must be selected for own curve to apply.

You can create your own cooling curve here, if there are special requirements, by setting the desired supply temperatures for different outdoor temperatures.

Supply temp

Setting range: -5 – 40 °C

MENU 1.30.8 - POINT OFFSET

Outdoor temp. point

Setting range: -40 – 30 °C

Change in curve

Setting range: -10 – 10°C

Select a change in the heating curve at a certain outdoor temperature here. One step is usually enough to change the room temperature by one degree, but in some cases several steps may be required.

The heating curve is affected at $\pm 5^\circ\text{C}$ from set outdoor temp. point.

It is important that the correct heating curve is selected so that the room temperature is experienced as even.



TIP

If it feels cold in the house at e.g. -2°C , "outdoor temp. point" is set to "-2" and "change in curve" is increased until the desired room temperature is maintained.



Caution

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

Menu 2 – Hot water

OVERVIEW

Hot water settings require SMO S40 to be docked to a water heater.

2.1 - More hot water

2.2 - Hot water demand

2.3 - External impact

2.4 - Periodic increase

2.5 - Hot water circulation

MENU 2.1 - MORE HOT WATER

Setting range: 3, 6 and 12 hours, as well as the modes "Off" and "One-time increase".

When there is a temporary increase in hot water demand, this menu can be used to select an increase in the hot water temperature for a selectable time.



Caution

If demand mode "Large" is selected in menu 2.2, no further increase can be made.

The function is activated directly when a time period is selected. The remaining time for the selected setting is shown to the right.

When the time has run out, SMO S40 returns to the set demand mode.

Select "Off" to switch off "More hot water".

MENU 2.2 - HOT WATER DEMAND

Alternative: Smart control, Small, Medium, Large

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

Smart control: With Smart control activated, SMO S40 continuously learns the previous hot water consumption and thereby adapts the temperature in the water heater for minimum energy consumption.

Small: This mode gives less hot water at a lower temperature than the other alternatives. This mode can be used in smaller households with a small hot water requirement.

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

Large: This mode gives the most hot water at a higher temperature than the other alternatives. In this mode, the immersion heater may be used in part to heat hot water. In this mode, hot water production is prioritised.

MENU 2.3 - EXTERNAL INFLUENCE

Information for the accessories/functions that can affect the hot water operation is shown here.

MENU 2.4 - PERIODIC INCREASE

Period

Setting range: 1 - 90 days

Start time

Setting range: 00:00 - 23:59

Next increase

The date when the next periodic increase will occur is shown here.

The length of time between increases can be selected here. The time can be set between 1 and 90 days. Tick/untick "Activated" to start/switch off the function.

MENU 2.5 - HOT WATER CIRCULATION

Run time

Setting range: 1 – 60 min

Downtime

Setting range: 0 – 60 min

Period

Active days

Setting range: Monday - Sunday

Start time

Setting range: 00:00 – 23:59

Stop time

Setting range: 00:00 – 23:59

Set hot water circulation for up to five periods per day here. During the set periods, the hot water circulation pump will run according to the settings above.

"Operating time." determines how long the hot water circulation pump will run per operation.

"Downtime" determines how long the hot water circulation pump will be stationary between operations.

"*Period*" Here, you set the time period during which the hot water circulation pump will run, by selecting *active days*, *start time* and *stop time*.



NOTE

Hot water circulation is activated in menu 7.4 "Selectable in/outputs" or via accessory.

Menu 3 - Info

OVERVIEW

3.1 - Operating info
3.2 - Temperature log
3.3 - Energy log
3.4 - Alarm log
3.5 - Product info, summary
3.6 - Licences

MENU 3.1 - OPERATING INFO

Information about the installation's current operating status (e.g. current temperatures) can be obtained here. In multi-installations, with several interconnected heat pumps, information about these is also shown in this menu. No changes can be made.

MENU 3.2 - TEMPERATURE LOG

Here you can see the average temperature indoors week by week over the past year.

The average outdoor temperature is only shown if a room temperature sensor/room unit is installed.

In installations with ventilation accessories and no room sensors (BT50), the exhaust air temperature is also displayed.

MENU 3.3 - ENERGY LOG

Number of months

Setting range: 1 – 24 months

Number of years

Setting range: 1 – 5 years

Here, you can see a diagram showing how much energy SMO S40 supplies and consumes. You can select which parts of the installation will be included in the log. It is also possible to activate display of indoor and/or outdoor temperature.

Number of months: Select how many months to show in the diagram here.

Number of years: Select how many years to show in the diagram here.

MENU 3.4 - ALARM LOG

To facilitate troubleshooting, the installation's operating status at the time of an alarm is stored here. You can see information for the 10 most recent alarms.

To view operating status in the event of an alarm, select the relevant alarm from the list.

MENU 3.5 - PRODUCT INFO, SUMMARY

Here, you can see general information about your system, such as software versions.

MENU 3.6 - LICENCES

You can view licences for open source code here.

Menu 4 - My system

OVERVIEW

4.1 - Operating mode	
4.2 - Plus functions	4.2.2 - Solar electricity ¹
	4.2.3 - SG Ready
	4.2.5 - Smart Price Adaption™
4.4 - Weather control	
4.5 - Away mode	
4.6 - Smart Energy Source	
4.7 - Energy price	4.7.1 - Electricity price
	4.7.2 - Fixed electricity price
	4.7.3 - Shunt valve-controlled additional heat
	4.7.4 - Step-controlled additional heat
	4.7.6 - External additional heat
4.8 - Time and date	
4.9 - Language	
4.10 - Country	
4.11 - Tools	4.11.1 - Installer details
	4.11.2 - Audio
	4.11.3 - Fan de-icing
	4.11.4 - Home screen
4.30 - Advanced	4.30.4 - Factory setting, user

¹ Consult the accessory's Installer Manual.

MENU 4.1 - OPERATING MODE

Operating status

Alternative: auto, manual, add. heat only

Manual

Alternative: Additional heat, heating, Cooling

Add. heat only

Alternative: Heating

The operating mode for SMO S40 is normally set to "Auto". It is also possible to use operating mode "Additional heat only". Select "Manual" to choose which functions are to be activated.

If "Manual" or "Additional heat only" is selected, selectable options are shown further down. Tick the functions you want to activate.

Operating mode auto

In this operating mode, SMO S40 automatically selects which functions are permitted.

Operating mode manual

In this operating mode, you can select the functions that are permitted. You cannot deselect "Compressor" in manual mode.

Operating mode add. heat only

In this operating mode the compressor is not active, only additional heat is used.



Caution

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



Caution

You should not change from additional heat only if you do not have a heat pump connected (see menu 7.3.1 "Configure").

Manual

"Compressor" is the unit that produces heating and hot water for the home. You cannot deselect "compressor" in manual mode.

"Additional heat" is the unit that helps the compressor to heat the home and/or the hot water when it cannot manage the entire requirement alone.

"Heating" means you obtain heating in the home. You can deselect the function when you do not wish to have the heating on.

"Cooling" means that you obtain cooling in the home in hot weather. You can deselect this function when you do not wish to have cooling in operation.

MENU 4.2 - PLUS FUNCTIONS

Settings for any additional functions installed in SMO S40 can be made in the sub menus.

MENU 4.2.3 - SG READY

Here, you set which part of your climate system (e.g. room temperature) will be affected on activation of "SG Ready". The function can only be used in mains networks that support the "SG Ready" standard.

Affect room temperature

With low price mode on "SG Ready" the parallel offset for the indoor temperature is increased by "+1". If a room sensor is installed and activated, the desired room temperature is instead increased by 1 °C.

With over capacity mode on "SG Ready" the parallel offset for the indoor temperature is increased by "+2". If a room sensor is installed and activated, the desired room temperature is instead increased by 2 °C.

Affect hot water

With low price mode on "SG Ready", the stop temperature for the hot water is set as high as possible with compressor operation only (immersion heater not permitted).

In the case of overcapacity mode on "SG Ready", the hot water is set to large demand mode (immersion heater permitted).

Affect cooling

With low price mode of "SG Ready" and cooling operation the indoor temperature is not affected.

With overcapacity mode on "SG Ready" and cooling operation, the parallel offset for the indoor temperature is decreased by "-1". If a room sensor is installed and activated, the desired room temperature is decreased instead by 1 °C.

Affect pool temperature

With low price mode on "SG Ready", the desired pool temperature (start and stop temperature) is increased by 1 °C.

With over capacity mode on "SG Ready" the desired pool temperature (start and stop temperature) is increased by 2 °C



NOTE

The function must be connected to two AUX inputs and be activated in menu 7.4 "Selectable in/outputs".

MENU 4.2.5 - SMART PRICE ADAPTION™

Range

Here you select where (which zone) SMO S40 is installed.

Contact your electricity supplier to find out which zone digit to enter.

Affect heating

Alternative: on/off

Degree of effect

Setting range: 1 – 10

Affect hot water

Alternative: on/off

Degree of effect

Setting range: 1 – 4

Affect pool temperature

Alternative: on/off

Degree of effect

Setting range: 1 – 10

Affect cooling

Alternative: on/off

Degree of effect

Setting range: 1 – 10

This function can only be used if your electricity supplier supports Smart price adaption, if you have an hourly tariff agreement and an active myUplink account.

Smart price adaption™ moves the heat pump's consumption over 24 hours to periods with the cheapest electricity tariff, which gives savings for hourly rate based electricity contracts. The function is based on hourly rates for the next 24 hours being retrieved via myUplink and therefore an internet connection and an account for myUplink are required.

You can choose which parts of the installation are to be affected by the electricity price and to what extent; the higher value you select, the greater the effect the electricity price has.



NOTE

A value that is set high may result in increased savings, but may also affect the comfort.

MENU 4.4 - WEATHER CONTROL

Activate weath. contr.

Setting range: on/off

Factor

Setting range: 0 – 10

You can select whether you want SMO S40 to adjust the indoor climate based on the weather forecast here.

You can set factor for outdoor temperature. The higher the value, the greater the effect from the weather forecast.



Caution

This menu is only visible if the installation is connected to myUplink.

MENU 4.5 - AWAY MODE

When away mode is activated, the following functions are affected:

- the setting for heating is lowered slightly
- the setting for cooling is raised slightly (accessory is required)
- the hot water temperature is lowered if demand mode "large" or "medium" is selected
- The AUX function "Away mode" is activated.

If you want, you can select for the following functions to be affected:

- ventilation (accessory is required)
- hot water circulation (accessories or use of AUX is required)

MENU 4.6 - SMART ENERGY SOURCE™

Smart energy source™

Alternative: on/off

Control method

Alternative: Price / CO₂

If Smart Energy Source™ is activated SMO S40 prioritises how / to what extent each docked energy source will be used. Here you can select whether the system will use the energy source that is cheapest at the time or the one that is most carbon dioxide neutral at the time.



Caution

Your choices in this menu affect menu 4.7 - Energy price.

MENU 4.7 - ENERGY PRICE

Here you can use tariff control for your additional heat.

Here you can choose whether the system is to exercise control based on the spot price, tariff control or a set price. The setting is made for each individual energy source. Spot price can only be used if you have an hourly tariff agreement with your electricity supplier.

Set the lower tariff periods. It is possible to set two different date periods per year. Within these periods, it is possible to set up to four different periods on weekdays (Monday to Friday) or four different periods on weekends (Saturdays and Sundays).

MENU 4.7.1 - ELECTRICITY PRICE

Here you can use tariff control for the electric additional heat.

Set the lower tariff periods. It is possible to set two different date periods per year. Within these periods, it is possible to set up to four different periods on weekdays (Monday to Friday) or four different periods on weekends (Saturdays and Sundays).

MENU 4.8 - TIME AND DATE

Set time and date, display mode and time zone here.



TIP

Time and date are set automatically if connected to myUplink. To obtain the correct time, the time zone must be set.

MENU 4.9 - LANGUAGE

Choose the language that you want the information to be displayed in here.

MENU 4.10 - COUNTRY

Select here the country in which the product was installed. This allows access to country-specific settings in your product.

Language settings can be made regardless of this selection.



NOTE

This option locks after 24 hours, restart of display or program updating.

MENU 4.11 - TOOLS

Here, you can find tools for use.

MENU 4.11.1 - INSTALLER DETAILS

The installer's name and telephone number are entered in this menu.

Afterwards, the details are visible in home screen, product overview.

MENU 4.11.2 - AUDIO

Setting range: on/off

Here you choose if you want to hear a sound when you press buttons on the display.

MENU 4.11.3 - FAN DE-ICING

Setting range: on/off

Here, you set de-icing of the fan in the air/water heat pump, if the air/water heat pump has this function.

MENU 4.11.4 - HOME SCREEN

Setting range: on/off

Here you choose the home screens to which you want quick access. For some home screens, you can also set display options.

MENU 4.30 - ADVANCED

Menu **Advanced** is intended for advanced users.

MENU 4.30.4 - 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 - Connection

OVERVIEW

5.1 - myUplink	
5.2 - Network settings	5.2.1 - wifi
	5.2.2 - Ethernet
5.10 - Tools	5.10.1 - Direct connection

MENU 5.1 - MYUPLINK

Here you can manage the installation's connection to myUplink (myuplink.com) and see the number of users connected to the installation via the internet.

A connected user has a user account in myUplink, which has been given permission to control and/or monitor your installation.

Request new connection string

To connect a user account on myUplink to your installation, you must request a unique connection code.

1. Select "Request new connection string"
2. The installation now communicates with myUplink to create a connection code.
3. When a connection string has been produced, it is shown in this menu and is valid for 60 minutes.

Disconnect all users

To disconnect the users who are connected to the installation via myUplink, select "Disconnect all users".



NOTE

After disconnecting all users none of them can monitor or control your installation via myUplink without requesting a new connection string.

MENU 5.2 - NETWORK SETTINGS

Here, you choose whether your system connects to the Internet via wifi (menu 5.2.1) or via a network cable (Ethernet) (menu 5.2.2).

TCP/IP settings

You can set TCP/IP settings for your installation here.

Automatic setting (DHCP)

Activate "Automatic". The installation now receives the TCP/IP settings using DHCP.

Manual setting

Select "IP address" and enter correct address using the keyboard.

Repeat the procedure for "Network mask", "Gateway" and "DNS".



Caution

The installation cannot connect to the internet without the correct TCP/IP settings. If unsure about applicable settings use the automatic mode or contact your network administrator (or similar) for further information.



TIP

All settings made since opening the menu can be reset by selecting "Reset".

MENU 5.10 - TOOLS

As the installer, you can e.g. connect an installation via an app here, by activating an access point for direct connection to a mobile phone.

Menu 6 - Scheduling

OVERVIEW

6.1 - Holiday

6.2 - Scheduling

MENU 6.1 - HOLIDAY

In this menu, you schedule longer changes in heating and hot water temperature.

You can also schedule settings for certain installed accessories.

If a room sensor is installed and activated, the desired room temperature (°C) is set during the time period.

If a room sensor is not activated, the desired offset of the heating curve is set. One step is usually enough to change the room temperature by one degree, but in some cases several steps may be required.



TIP

Complete holiday setting about a day before your return so that room temperature and hot water have time to regain usual levels.



Caution

Holiday settings finish on the selected date. If you want to repeat the holiday setting once the end date has passed, go into the menu and change the date.

MENU 6.2 - SCHEDULING

In this menu, you schedule repeated changes in heating and hot water.

You can also schedule settings for certain installed accessories.

If a room sensor is installed and activated, the desired room temperature (°C) is set during the time period.

If a room sensor is not activated, the desired offset of the heating curve is set. One step is usually enough to change the room temperature by one degree, but in some cases several steps may be required.



Caution

A schedule repeats according to the selected setting (e.g. every Monday) until you go into the menu and switch it off.

Menu 7 - Installer settings

OVERVIEW

7.1 - Operating settings	7.1.1 - Hot water	7.1.1.1 - Temperature setting
		7.1.1.2 - Operating settings
	7.1.2 - Circulation pumps	7.1.2.3 - Operating mode, charge pump, GP12
		7.1.2.4 - Pump speed charge pump GP12
		7.1.2.5 - Flow setting charge pump
	7.1.4 - Ventilation ¹	7.1.4.1 - Fan speed, exhaust air ¹
		7.1.4.2 - Fan speed, supply air ¹
		7.1.4.4 - Demand controlled ventilation ¹
	7.1.5 - Additional heat	7.1.5.1 - Additional heat
	7.1.6 - Heating	7.1.6.1 - Max diff. supply temperature
		7.1.6.2 - Flow setting, climate system
		7.1.6.3 - Power at DOT
		7.1.6.4 - Humidity control
	7.1.7 - Cooling	7.1.7.1 - Cooling settings
		7.1.7.2 - Humidity control
	7.1.8 - Alarm	7.1.8.1 - Alarm actions
		7.1.8.2 - Emergency mode
	7.1.9 - Load monitor	
	7.1.10 - System settings	7.1.10.1 - Operating priority
		7.1.10.2 - Auto mode setting
		7.1.10.3 - Degree minutes setting
7.2 - Accessory settings ¹	7.2.1 - Add/remove accessories	
7.3 - Multi-installation	7.3.1 - Configure	
	7.3.2 - Installed heat pump	7.3.2.1 - Heat pump settings
	7.3.3 - Name heat pump	
	7.3.4 - Docking	
	7.3.5 - Serial number	
7.4 - Selectable in/outputs		
7.5 - Tools	7.5.1 - Heat pump, test	7.5.1.1 - Test mode
	7.5.2 - Underfloor drying function	
	7.5.3 - Forced control	
	7.5.8 - Screen lock	
	7.5.9 - Modbus TCP/IP	
7.6 - Factory setting service		
7.7 - Start guide		
7.8 - Quick start		
7.9 - Logs	7.9.1 - Change log	
	7.9.2 - Extended alarm log	
	7.9.3 - Black box	

¹ Consult the accessory's Installer Manual.

MENU 7.1 - OPERATING SETTINGS

Make operating settings for the system here.

MENU 7.1.1 - HOT WATER

This menu contains advanced settings for hot water operation.

MENU 7.1.1.1 - TEMPERATURE SETTING

Start temperature

Demand mode, small/medium/large

Setting range: 5 – 70 °C

Stop temperature

Demand mode, small/medium/large

Setting range: 5 – 70 °C

Stop temperature periodic increase

Setting range: 55 – 70 °C

Here you set the start and stop temperature of the hot water for the different demand modes in menu 2.2 as well as the stop temperature for periodic increase (menu 2.4).

MENU 7.1.1.2 - OPERATING SETTINGS

Step diff. compressor

Setting range: 0.5 – 4.0 °C

Charge method

Alternative: Target temp, Delta temp.

Charge power

Alternatives: auto, manual

Desired output "medium"

Setting range: 1 – 50 kW

Desired output "large"

Setting range: 1 – 50 kW

If several compressors are available set the difference between engagement disengagement of them during hot water charging and fixed condensing.

Here, you select the charge method for hot water mode. "Delta temp." is recommended for water heaters with a charge coil, "Target temp." for double-jacketed heaters and heaters with a hot water coil.

MENU 7.1.2 - CIRCULATION PUMPS

This menu contains sub-menus where you can make advanced circulation pump settings.

MENU 7.1.2.3 - OPERATING MODE CHARGE PUMP GP12

Operating mode Charge pump

Alternatives: Auto, Intermittent

Operating mode Charge pump during cooling

Alternatives: Auto, Intermittent

Auto: The charge pump runs according to the current operating mode for SMO S40.

Intermittent: The charge pump starts approx. 20 seconds before or after the compressor in the heat pump.

MENU 7.1.2.4 - PUMP SPEED CHARGE PUMP GP12

Make settings here for the charge pump's speed in the current operating mode, for example in heating or hot water operation. Which operating modes can be changed depends on which accessories are connected.

Speed control - Heating

Alternatives: Auto/manual

Manual

Alternatives: On/Off

Speed in standby mode

Setting range: 1 – 100%

Speed control - Pool

Manual

Alternatives: On/Off

Manual speed Pool

Setting range: 1 – 100%

Speed control - Hot water

Manual

Alternatives: On/Off

Manual speed Hot water

Setting range: 1 – 100%

Speed control charge pump - Cooling

Manual

Alternatives: On/Off

Active cooling.

Setting range: 1 – 100%

Lowest permitted speed

Setting range: 1 – 50%

Highest permitted speed

Setting range: 80 – 100%

Speed control: Here, you set whether the charge pump will be regulated automatically or manually. Select "Auto" for optimal operation.

Speed in standby mode: Here, you set the speed the charge pump will have in standby mode. Standby mode occurs when heating or cooling operation is permitted at the same time as there is no need for either compressor operation or electric additional heat.

Speed control charge pump: Here, you set whether the charge pump is to be regulated automatically or via manually controlled speed. Select "Auto" for optimal operation.

Manual speed, charge pump: If you have opted to control the charge pump manually, you set the desired pump speed here. (Settings are available per demand heating/pool/hot water/cooling.)

Lowest permitted speed: Here, you can restrict the pump speed, so the charge pump is not allowed to operate at a lower speed than the set value.

Maximum permitted speed: Here, you can restrict the pump speed, so the charge pump is not allowed to operate at a higher speed than the set value.

MENU 7.1.2.5 - FLOW SETTING CHARGE PUMP

Pump setting

Activate flow test

Activate flow test for charge pump (GP12) here

Flow setting charge pump

Check that the flow for the charge pump through the heat pump is sufficient. Activate the flow test to measure delta (the difference between the flow and return line temperatures from the heat pump). The test is OK if delta lies below the parameter shown in the display.

If the temperature difference lies above the parameter, adjust the flow for the charge pump by reducing the pressure or in the worst case scenario replacing the charge pump, until the test is OK.

MENU 7.1.5 - ADDITIONAL HEAT

This menu contains sub-menus where you can make advanced additional heat settings.

MENU 7.1.5.1 - ADDITIONAL HEAT

Make settings for connected additional heat (step controlled or shunt controlled additional heat) here.

Select whether step controlled or shunt controlled additional heat is connected. Then you can make settings for the different alternatives.

Add. heat type: Step-contr

Add. heat type

Alternative: step controlled/shunt controlled

Location

Alternative: After/Before QN10

Additional heat in tank

Alternative: on/off

Activating immersion heater in heat.

Alternative: on/off

Max step

Setting range (binary stepping deactivated): 0 – 3

Setting range (binary stepping activated): 0 – 7

Binary stepping

Alternative: on/off

Location: Here you choose whether the step controlled additional heat is located before or after the reversing valve for hot water charging (QN10). Step controlled additional heat is, for example, when an external electric boiler is installed.

Additional heat in tank If an immersion heater is installed in the tank, it can be permitted to produce hot water at the same time as the heat pump prioritises heating or cooling.

Max step: Here, you can set the maximum number of permitted additional heat steps, if there is internal additional heat in the tank (only accessible if the additional heat is positioned after QN10), whether binary stepping is to be used, the size of the fuse and transformer ratio.

When *binary stepping* is deactivated (off) the settings refer to linear stepping. If the additional heat is placed after QN10, the number of steps is restricted to two linear or three binary.

Add. heat type: Shunt-contr

Add. heat type

Alternative: step controlled/shunt controlled

Prioritised add. heat

Alternative: on/off

Minimum operating time

Setting range: 0 – 48 h

Lowest temperature

Setting range: 5 – 90 °C

Shunt amplification

Setting range: 0.1 – 10.0

Shunt waiting time

Setting range: 10 – 300 s

Select this option if shunt controlled additional heat is connected.

Here, you set when the additional heat is to start, the minimum operating time and the minimum temperature for external additional heat with shunt. External additional heat with shunt is, for example, a log or pellet boiler.

You can set shunt valve amplification and shunt valve waiting time.

If you select "Prioritised additional heat", the heat from the external additional heat is used instead of the heat pump. The shunt adjusts for as long as heat is available, otherwise the shunt is closed.

MENU 7.1.6 - HEATING

This menu contains sub-menus where you can make advanced settings for heating operation.

MENU 7.1.6.1 - MAX DIFFERENCE SUPPLY TEMPERATURE

Max difference compressor

Setting range: 1 – 25 °C

Max difference additional heat

Setting range: 1 – 24 °C

BT12 offset heat pump 1 – 8

Setting range: -5 – 5°C

Here you set the maximum permitted difference between the calculated and actual supply temperature in the event of compressor or additional heat mode respectively. Max difference additional heat can never exceed max difference compressor

Max. difference, compressor: If the current supply temperature *exceeds* the calculated supply by the set value, the degree minute value is set to +1. The compressor in the heat pump stops if there is only a heating demand.

Max difference additional heat: If "Additional heat" is selected and activated in menu 4.1 and the current supply temperature *exceeds* the calculated temperature by the set value, the additional heat is forced to stop.

BT12 offset: If there is a difference between temperature sensor, heating medium supply (BT25), and temperature sensor, condenser supply (BT12), you can set a fixed offset here to compensate for the difference.

MENU 7.1.6.2 - FLOW SETTING, CLIMATE SYSTEM

Setting

Alternative: radiator, floor heat., rad. + floor heat., Own setting

Setting range DOT: -40.0 – 20.0 °C

Own setting

Setting range dT at DOT 0.0 – 25.0

Setting range DOT: -40.0 – 20.0°C

The type of heating distribution system the heating medium pump works towards is set here.

dT at DOT is the difference in degrees between supply and return temperatures at design outdoor temperature.

MENU 7.1.6.3 - POWER AT DOT

Alternative: Manually selected power at DOT, Power at DOT

Manually selected power at DOT

Setting range: on/off

Power at DOT

Setting range: 1 – 1,000 kW

Here, you set the power the property requires at DOT (dimensioned outdoor temperature).

If you choose not to activate "Manually selected power at DOT", the setting is made automatically, i.e. SMO S40 selects suitable power at DOT.

MENU 7.1.6.4 - HUMIDITY CONTROL

Here you can activate Humidity control, controlled by the relative humidity (RH) of the air, during heating operation. Only shown if a moisture sensor is installed

MENU 7.1.7 - COOLING (HEAT PUMP WITH COOLING FUNCTION REQUIRED)

This menu contains sub-menus where you can make advanced settings for cooling operation.

MENU 7.1.7.1 - COOLING SETTINGS

Max. compressors in active cooling

Setting range: 1 – max number

Super cooling

Setting range: on/off

Max. compressors in active cooling

Set the max number of compressors that may be used for cooling in those cases where several compressors are available here.

Super cooling

With supercooling activated, the installation prioritises production of cooling using the heat pump at the same time as hot water is produced by additional heat in the tank.

MENU 7.1.7.2 - HUMIDITY CONTROL

Only shown if a moisture sensor is installed and cooling is activated.

Prevent condensation in cold

Setting range: on/off

Limit RH in cold

Setting range: on/off

Prevent condensation in cold

With the function activated, condensation in the pipes is prevented.

Limit RH in cold

With the function activated, the temperature is regulated to achieve the desired relative humidity (RH).

MENU 7.1.8 - ALARM

In this menu, you make settings for the safety measures that SMO S40 will implement in the event of any operational disruption.

MENU 7.1.8.1 - ALARM ACTIONS

Reduce room temperature

Setting range: on/off

Stop producing HW

Setting range: on/off

Audio signal in event of alarm

Setting range: on/off

Select how you want the SMO S40 to alert you that there is an alarm in the display here.

The different alternatives are that SMO S40 stops producing hot water and/or reduces the room temperature.



Caution

If no alarm action is selected, this can result in higher energy consumption in the event of a malfunction.

MENU 7.1.8.2 - EMERGENCY MODE

Add. heat steps

Setting range: 0 – 3

Shunt controlled additional heat

Alternative: on/off

Settings are made in this menu for how the additional heat will be controlled in emergency mode.



Caution

In emergency mode, the display is switched off. If you feel the selected settings are insufficient, you will not be able to change these.

MENU 7.1.9 - LOAD MONITOR

Fuse size

Setting range: 1 – 400 A

Transformer ratio

Setting range: 300 – 3,000

Here, you set fuse size and transformer ratio for the system. The transformer ratio is the factor that is used to convert the metered voltage to current.

MENU 7.1.10 - SYSTEM SETTINGS

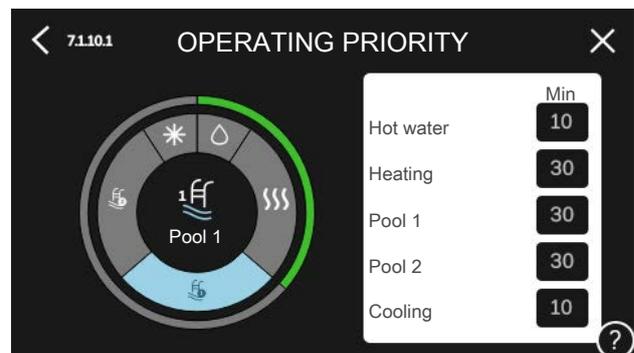
You make your various system settings for your installation here.

MENU 7.1.10.1 - OPERATING PRIORITY

Setting range: 0 – 180 minutes

Select here how long the installation should work with each requirement if there are several requirements at the same time. If there is only one requirement, the installation only works with that requirement.

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



MENU 7.1.10.2 - AUTO MODE SETTINGS

Start cooling

Setting range: 15 – 40 °C

Stop heating

Setting range: -20 – 40°C

Stop additional heat

Setting range: -25 – 40°C

Filtering time

Setting range: 0 – 48 h

Time between cooling and heating

Setting range: 0 – 48 h

Used as cooling/heating sensor

Possible options: None, Zone 1 - X

Set point value cool/heat sensor

Setting range: 5 – 40 °C

Heating at room sub temp

Setting range: 0.5 – 10.0 °C

Cooling at room over temp

Setting range: 0.5 – 10.0 °C

Auto: When the operating mode is set to "Auto", SMO S40 selects when start and stop of additional heat and cooling/heating production are permitted, depending on the average outdoor temperature.

Stop heating, Stop additional heat: In this menu, you set the temperatures that the system is to use for control in auto mode.



Caution

It is not possible to set "Stop additional heat" higher than "Stop heating".

In systems where heating and cooling share the same pipes, "Stop heating" cannot be set higher than "Start cooling" if there is no cooling/heating sensor.

Filtering time

You can set the time over which the average outdoor temperature is calculated. If you select 0, the current outdoor temperature is used.

Time between cooling and heating

Here you can set how long SMO S40 is to wait before it returns to heating mode when the cooling demand has ceased or vice versa.

Used as cooling/heating sensor

Here you select the sensor that will be used for cooling/heating. If BT74 is installed, it will be preselected and no other option is possible.

Set point value cool/heat sensor

Here you can set at which indoor temperature SMO S40 is to shift between heating respectively cooling operation.

Heating at room sub temp

Here you can set how far the room temperature can drop below the desired temperature before SMO S40 switches to heating operation.

Cooling at room over temp

Here you can set how high the room temperature can increase above the desired temperature before SMO S40 switches to cooling operation.

Cooling with room over temperature passive

Here you can set how high the room temperature can increase above the desired temperature before SMO S40 switches to cooling operation.

MENU 7.1.10.3 - DEGREE MINUTES SETTING

Current value

Setting range: -3,000 – 100 DM

Heating auto

Setting option: on/off

Start compressor

Setting range: -1,000 – (-30) DM

Stepping difference compressor

Setting range: 10 – 2,000 DM

Relative DM Start additional heat

Setting range: 100 – 2,000 DM

Difference between additional heat steps

Setting range: 10 – 1,000 DM

Cooling auto

Setting option: on/off

Start active cooling

Setting alternative: 10 – 300 DM

Degree minutes cooling

Setting alternative: -100 – 3,000 DM

DM = degree minutes

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

A higher value for "Start compressor" can give more compressor starts, which increases wear on the compressor. Too low a value can give uneven indoor temperatures.

MENU 7.2 - ACCESSORY SETTINGS

The operating settings for accessories that are installed and activated are made in the sub-menus for this.

MENU 7.2.1 - ADD/REMOVE ACCESSORIES

Here, you tell SMO S40 which accessories are installed. To identify connected accessories automatically, select "Search for accessories". It is also possible to select accessories manually from the list.

MENU 7.3 - MULTI-INSTALLATION

In the sub-menus here, you make settings for the heat pumps that are connected to SMO S40.

MENU 7.3.1 - CONFIGURE

Search installed heat pumps: Here, you can search for, activate or deactivate connected heat pumps.



Caution

In multi-installations, each heat pump must have a unique ID. You enter this for each heat pump that is connected to SMO S40.

In systems with several air/water heat pumps, each heat pump must have a unique address. This is set using a DIP switch in the relevant air/water heat pump that is connected to SMO S40.

MENU 7.3.2 - INSTALLED HEAT PUMPS

Here, you select the settings that you want to make for each heat pump.

MENU 7.3.2.1 - HEAT PUMP SETTINGS

Here, you make settings that are specific for the installed heat pumps. To see what settings you can make, see Installer Manual for the relevant heat pump.

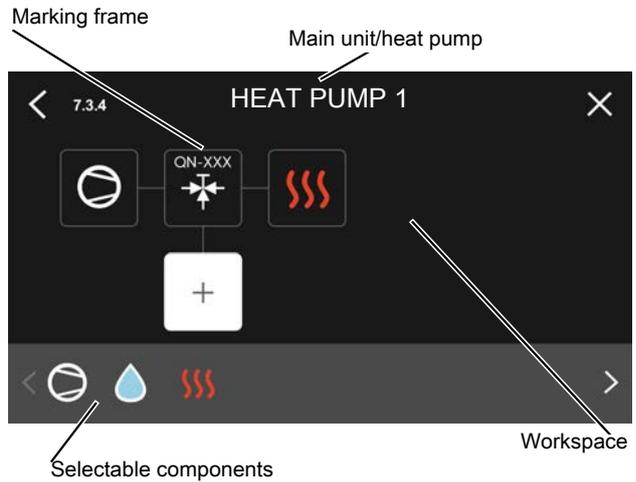
MENU 7.3.3 - NAME HEAT PUMPS

Here, you can name the heat pumps that are connected to SMO S40.

MENU 7.3.4 - DOCKING

Here you set how your system is docked in respect of pipes, in relation to heating the property and any accessories.

This menu has a docking memory which means that the control system remembers how a particular reversing valve is docked and automatically enters the correct docking the next time you use the same reversing valve.



Main unit/heat pump: Here, you select the heat pump for which the docking setting is to be made (if the heat pump is solitary in the system, only the main unit is shown).

Workspace for docking: The system docking is drawn here.

Compressor: Select here if the compressor in the heat pump is blocked (factory setting), externally controlled via a selectable input or standard (docked to hot water charging and heating the building, for example).

Marking frame: Press the marking frame you want to change. Select one of the selectable components.

Symbol	Description
	Blocked
	Compressor (standard)
	Compressor (blocked)
	Shuttle valve The designations above the reversing valve indicate where it is electrically connected (EB101 = Heat pump 1, EB102 = Heat pump 2, etc).
	Hot water charging. For a multi-installation: hot water with the main unit and/or shared hot water from several different heat pumps.
	Hot water charging with subordinate heat pump in multi-installation.
	Pool 1

Symbol	Description
	Pool 2
	Heating (heating the building, includes any extra climate system)
	Cooling

MENU 7.3.5 - SERIAL NUMBER

Here, you allocate your heat pumps a serial number.



Caution

This menu is only shown if at least one connected heat pump does not have a serial number. (This can occur during service visits.)

MENU 7.4 - SELECTABLE IN/OUTPUTS

Here, you state where the external switch function has been connected, either to one of the AUX inputs on terminal block X10 or to the AUX outputs on terminal blocks X6 and X7.

MENU 7.5 - TOOLS

Here, you can find functions for maintenance and service work.

MENU 7.5.1 - HEAT PUMP, TEST



NOTE

This menu and its sub-menus are intended for testing the heat pump.

Use of this menu for other reasons may result in your installation not functioning as intended.

MENU 7.5.2 - UNDERFLOOR DRYING FUNCTION

Length period 1 – 7

Setting range: 0 – 30 days

Temperature period 1 – 7

Setting range: 15 – 70 °C

Set the function for under floor drying here.

You can set up to seven period times with different calculated flow temperatures. If less than seven periods are to be used, set the remaining period times to 0 days.

When the underfloor drying function has been activated, a counter is displayed showing the number of full days the function has been active. The function counts degree

minutes in the same way as during normal heating operation, but for the supply temperatures that are set for the respective period.



TIP

If the operating mode "Additional heat only" is to be used, select this in menu 4.1.

MENU 7.5.3 - FORCED CONTROL

Here you can force control the various components in the installation. The most important safety functions remain active however.



NOTE

Forced control is only intended to be used for troubleshooting purposes. Using the function in any other way may cause damage to the components in your climate system.

MENU 7.5.8 - SCREEN LOCK

Here, you can choose to activate the screen lock for SMO S40. During activation, you will be asked to enter the required code (four digits). The code is also used to deactivate the screen lock as well as when changing code.

MENU 7.5.9 - MODBUS TCP/IP

Setting range: on/off

Here, you activate Modbus TCP/IP.

MENU 7.6 - FACTORY SETTING SERVICE

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

Here, you can also choose to factory reset the connected heat pumps.



NOTE

When resetting, the start guide is displayed the next time SMO S40 restarts.

MENU 7.7 - START GUIDE

When SMO S40 is started for the first time, the start guide is automatically activated. From this menu, you can start it manually.

MENU 7.8 - QUICK START

Here, you can quick start the compressors.



Caution

One of the following demands for the compressor must exist for quick start:

- heating
- hot water
- cooling
- pool (accessory is required)



Caution

Too many quick starts in a short space of time may damage the compressors and their auxiliary equipment.

MENU 7.9 - LOGS

Under this menu, there are logs that collect information about alarms and changes made. The menu is intended to be used for troubleshooting.

MENU 7.9.1 - CHANGE LOG

Read off any previous changes to the control system here.



NOTE

The change log is saved at restart and remains unchanged after factory setting.

MENU 7.9.2 - EXTENDED ALARM LOG

This log is intended to be used for troubleshooting.

MENU 7.9.3 - BLACK BOX

Via this menu, it is possible to export all logs (Change log, Extended alarm log) to USB. Connect a USB memory and select the log(s) you want to export.

10 Service

Service actions



NOTE

Servicing should only be carried out by persons with the necessary expertise.

When replacing components on SMO S40 only replacement parts from NIBE may be used.

EMERGENCY MODE

When SMO S40 is put into emergency mode, the system works as follows:

- SMO S40 prioritises heating production.
- Hot water is produced if possible.
- The load monitor is not connected.
- Fixed supply temperature if the system has no value from the outdoor sensor (BT1).

You can activate the emergency mode both when SMO S40 is running and when it is switched off.

When the emergency mode is active, the status lamp turns yellow.

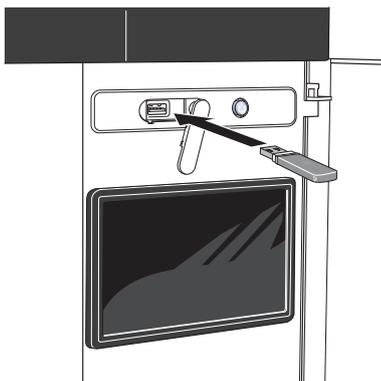
To activate when SMO S40 is running: press and hold the on/off button (SF1) for 2 seconds and select "emergency mode" from the shutdown menu.

To activate when SMO S40 is switched off: press and hold the on/off button (SF1) for 5 seconds. (Deactivate the emergency mode by pressing once.)

TEMPERATURE SENSOR DATA

Temperature (°C)	Resistance (kOhm)	Voltage (VDC)
-40	351.0	3.256
-35	251.6	3.240
-30	182.5	3.218
-25	133.8	3.189
-20	99.22	3.150
-15	74.32	3.105
-10	56.20	3.047
-5	42.89	2.976
0	33.02	2.889
5	25.61	2.789
10	20.02	2.673
15	15.77	2.541
20	12.51	2.399
25	10.00	2.245
30	8.045	2.083
35	6.514	1.916
40	5.306	1.752
45	4.348	1.587
50	3.583	1.426
55	2.968	1.278
60	2.467	1.136
65	2.068	1.007
70	1.739	0.891
75	1.469	0.785
80	1.246	0.691
85	1.061	0.607
90	0.908	0.533
95	0.779	0.469
100	0.672	0.414

USB SERVICE OUTLET



If you connect the product to the network, you can upgrade the software without using the USB port. See section "myUplink".

The display unit is equipped with a USB socket that can be used to update the software and save logged information in SMO S40.

When a USB memory is connected, a new menu (menu 8) appears in the display.

Update the software

You can update the software with a USB memory in menu 8.1.



NOTE

In order to update using a USB memory, the memory must contain a file with software for SMO S40 from NIBE.

One or more files are shown in the display. Select a file and press "OK".



TIP

A software update does not reset the menu settings in SMO S40.



Caution

If the update is interrupted before it is complete (e.g. in the event of a power cut etc.) the software is automatically restored to the previous version.

Menu 8.2 - Logging

Setting range: 1 s – 60 min

Here you can choose how current measurement values from SMO S40 should be saved onto a log file on the USB memory.

1. Set the desired interval between loggings.
2. Select "Start logging".

3. The relevant measurement values from SMO S40 are now saved in a file on the USB memory at the set interval until you select "Stop logging".



Caution

Select "Stop logging" before removing the USB memory.

Logging floor drying

Here you can save a floor drying log on the USB memory and in this way see when the concrete slab reached the correct temperature.

- Make sure that "floor drying function" is activated in menu 7.5.2.
- A log file is now created, where the temperature and the immersion heater output can be read off. Logging continues until "logging floor drying activated" is deselected or until "floor drying function" is stopped.



Caution

Deselect "logging floor drying activated" before you remove the USB memory.

Menu 8.3 - Manage settings

Here you can manage (save as or retrieve from) all the menu settings (user and service menus) in SMO S40 with a USB memory.

The menu settings can be saved to the USB memory using "Save settings", in order to restore them later or to copy the settings to another SMO S40.



Caution

When you save the menu settings to the USB memory you replace any previously saved settings on the USB memory.

Via "recover settings" you reset all menu settings from the USB memory.



Caution

Reset of the menu settings from the USB memory cannot be undone.

Manual restoring of software

If you want to restore the software to the previous version:

1. Switch off SMO S40 via the shutdown menu. The status lamp goes out, off/on button light up blue.
2. Press the on/off button once.
3. When the on/off button changes colour from blue to white, press and hold the on/off button.
4. When the status lamp changes to green, release the on/off button.



Caution

If the status lamp should turn yellow at any time, SMO S40 has ended up in emergency mode and the software has not been restored.



TIP

If you have a previous version of the software on your USB memory, you can install that instead of manually restoring the version.

11 Disturbances in comfort

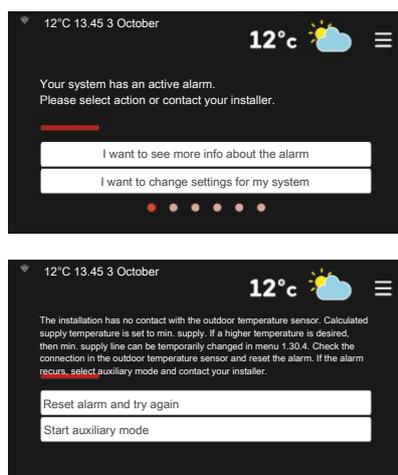
In most cases, SMO S40 notes a malfunction (a malfunction can lead to disruption in comfort) and indicates this with alarms, and instructions for action, in the display.

Info-menu

All the control module's (and any accessories' and heat pumps') measurement values are gathered under menu 3.1 (Operating info) in the control module's menu system. Examining the values in this menu can often make it easier to identify the source of the fault.

Manage alarm

In the event of an alarm, a malfunction has occurred and the status lamp shines with a steady red light. You receive information about the alarm in the smart-guide on the display.



ALARM

In the event of an alarm with a red status lamp, a malfunction has occurred that SMO S40 cannot remedy itself. On the display, you can see what type of alarm it is and reset it.

In many cases, it is sufficient to select "Reset alarm and try again" for the installation to revert to normal operation.

If a white light comes on after selecting "Reset alarm and try again", the alarm has been remedied.

"Auxiliary operation" is a type of emergency mode. This means that the installation attempts to produce heat and/or hot water, even though there is some kind of problem. This could mean that the heat pump's compressor is not in operation. In this case, any electric additional heat produces heat and/or hot water.



Caution

To select "Auxiliary operation", an alarm action must be selected in menu 7.1.8.1 – "Alarm actions".



Caution

Selecting "Auxiliary operation" is not the same as correcting the problem that caused the alarm. The status lamp will therefore remain red.

Troubleshooting

If the operational interference is not shown in the display the following tips can be used:

Basic actions

Start by checking the following items:

- Group and main fuses of the accommodation.
- The property's earth circuit breaker.
- Correctly set load monitor (if current sensors installed).

Low hot water temperature or a lack of hot water

This part of the fault-tracing chapter only applies if the water heater is installed in the system.

- Closed or choked filling valve for the hot water.
 - Open the valve.
- Mixing valve (if there is one installed) set too low.
 - Adjust the mixer valve.
- SMO S40 in incorrect operating mode.
 - Enter menu 4.1. ("Operating mode"). If "auto" mode is selected, select a higher value for "stop additional heat" in menu 7.1.10.2.
 - If "manual" mode is selected, select "additional heat".
- Large hot water consumption.
 - Wait until the hot water has heated up. Temporarily increased hot water capacity can be activated in home screen "hot water" or in menu 2.1.
- Too low hot water setting.
 - Enter menu 2.2 and select a higher demand mode.
- Low hot water access with the "Smart Control" function active.
 - If the hot water usage has been low for an extended period of time, less hot water than normal will be produced. Activate "More hot water" in menu 2.1.
- Too low or no operating prioritisation of hot water.
 - Enter menu 7.1.10.1 and increase the time for when hot water is to be prioritised. Note that, if the time for hot water is increased, the time for heating production is reduced, which can give lower/uneven room temperatures.
- "Holiday" activated in menu 6.1.
 - Enter menu 6.1 and deactivate.

Low room temperature

- Closed thermostats in several rooms.
 - Set the thermostats to max in as many rooms as possible. Adjust the room temperature via home screen heating, rather than choking the thermostats.
- SMO S40 in incorrect operating mode.
 - Enter menu 4.1 ("Operating mode"). If "auto" mode is selected, select a higher value for "stop heating" in menu 7.1.10.2.
 - If "manual" mode is selected, select "heating". If this is not enough, then also select "additional heat".
- Too low set value on the automatic heating control.

- Go to home screen heating or menu 1.30.1 (Curve, heating) and adjust the heating curve offset upwards. If the room temperature is only low in cold weather, the curve slope in menu 1.30.1 (Curve, heating) may need to be adjusted upwards.

- Too low or no operating prioritisation of heat.
 - Enter menu 7.1.10.1 and increase the time for when heating is to be prioritised. Note that if the time for heating is increased the time for hot water production is reduced, which can give smaller amounts of hot water.
- "Holiday mode" activated in menu 6.1.
 - Enter menu 6.1 and deactivate.
- External switch for changing room temperature activated.
 - Check any external switches.
- Air in the climate system.
 - Vent the climate system.
- Closed valves to the climate system.
 - Closed valves to the climate system or heat pump.
 - Open the valves.

High room temperature

- Too high set value on the automatic heating control.
 - Go to home screen heating or menu 1.30.1 (Curve, heating) and adjust the heating curve offset downwards. If the room temperature is only high in cold weather, the curve slope in menu 1.30.1 (Curve, heating) may need to be adjusted downwards.
- External switch for changing room temperature activated.
 - Check any external switches.

Low system pressure

- Not enough water in the climate system.
 - Fill the climate system with water and check for leaks.

The air/water heat pump's compressor does not start

- There is no heating or cooling demand, nor hot water demand or pool demand.
 - SMO S40 does not call on heating, cooling, hot water or pool.
- Compressor blocked due to the temperature conditions.
 - Wait until the temperature is within the product's working range.
- Minimum time between compressor starts has not been reached.
 - Wait for at least 30 minutes and then check if the compressor has started.
- Alarm tripped.
 - Follow the display instructions.
- "Additional heat only" is selected.
 - Switch to "Auto" or "Manual" in menu 4.1 "Operating mode".
- The heat pump can be missing in the docking.
 - Select the heat pumps that must be included in the installation in menu 7.3.4 "Docking".

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 the heat pump in emergency mode or "Additional heat only" mode. "Additional heat only" mode means that additional heat only is used to heat the house.

SET THE INSTALLATION TO ADDITIONAL HEAT MODE

1. Go to menu 4.1 "Operating mode".
2. Select "Additional heat only".

EMERGENCY MODE

You can activate the emergency mode both when SMO S40 is running and when it is switched off.

To activate when SMO S40 is running: press and hold the on/off button (SF1) for 2 seconds and select "emergency mode" from the shutdown menu.

To activate when SMO S40 is switched off: press and hold the on/off button (SF1) for 5 seconds. (Deactivate the emergency mode by pressing once.)

12 Accessories

Not all accessories are available on all markets.

Some accessories manufactured before 2019 may need to have their circuit board updated in order to be compatible with SMO S40. For more information, see the Installer Manual for the relevant accessory.

ACCESSORY CARD AXC 30

An accessory board for active cooling (4-pipe system), extra climate system, hot water comfort or if more than two charge pumps are to be connected to SMO S40. It can also be used for step-controlled additional heat (e.g. external electric boiler), shunt-controlled additional heat (e.g. wood/oil/gas/pellet boiler).

An accessory board is required if for example an HWC pump is to be connected to SMO S40 at the same time that the common alarm indication is activated.

Part no. 067 304

AUXILIARY RELAY HR 10

Auxiliary relay HR 10 is used to control external 1 to 3 phase loads such as oil burners, immersion heaters and pumps.

Part no 067 309

CHARGE PUMP CPD 11

Charge pump for heat pump

CPD 11-25/65

CPD 11-25/75

Part no. 067 321

Part no. 067 320

COMMUNICATION MODULE FOR SOLAR ELECTRICITY EME 20

EME 20 is used to enable communication and control between inverters for solar cells from NIBE and SMO S40.

Part no. 057 188

CONNECTION BOX K11

Connection box with thermostat and overheating protection.

(When connecting Immersion heater IU)

Part no. 018 893

ENERGY MEASUREMENT KIT EMK 500

This accessory is installed externally and used to measure the amount of energy that is supplied for the pool, hot water, heating and cooling in the building.

Cu pipe Ø28.

Part no. 067 178

EXHAUST AIR HEAT PUMP S135

S135 is an exhaust air heat pump specially designed to combine the recovery of mechanical exhaust air with an air/water heat pump. Indoor module/control module controls S135.

Part no. 066 161

EXTERNAL ELECTRIC ADDITIONAL HEAT ELK

ELK 15

15 kW, 3 x 400 V

Part no. 069 022

ELK 42

42 kW, 3 x 400 V

Part no. 067 075

ELK 26

26 kW, 3 x 400 V

Part no. 067 074

ELK 213

7-13 kW, 3 x 400 V

Part no. 069 500

EXTRA SHUNT GROUP ECS 40/ECS 41

This accessory is used when SMO S40 is installed in houses with two or more different heating systems that require different supply temperatures.

ECS 40 (Max 80 m²)

Part no 067 287

ECS 41 (approx.

80-250 m²)

Part no 067 288

HOT WATER CONTROL

VST 11

Reversing valve, copper pipe Ø28

(Max recommended power, 17 kW)

Part no. 089 152

VST 20

Reversing valve, copper pipe Ø35

(Max recommended power, 40 kW)

Part no 089 388

IMMERSION HEATER IU

3 kW

Part no. 018 084

6 kW

Part no. 018 088

9 kW

Part no. 018 090

VPB S

Water heater without immersion heater with charging coil.

VPB S200

Copper Part no. 081 139

Enamel Part no. 081 140

Stainless steel Part no. 081 141

VPB S300

Copper Part no. 081 142

Enamel Part no. 081 144

Stainless steel Part no. 081 143

POOL HEATING POOL 40

POOL 40 is used to enable pool heating with SMO S40.

Part no 067 062

REVERSING VALVE FOR COOLING

VCC 11

Reversing valve, Cu pipe Ø28 mm

Part no. 067 312

ROOM UNIT RMU S40

The room unit is an accessory that allows the control and monitoring of SMO S40 to be carried out in a different part of your home to where it is located.

Part no. 067 650

WATER HEATER/ACCUMULATOR TANK

AHPH S

Accumulator tank without an immersion heater with integrated hot water coil (stainless steel).

Part no. 080 137

VPA

Water heater with double-jacketed vessel.

VPA 450/300

Copper Part no. 082 030

Enamel Part no. 082 032

VPB

Water heater without immersion heater with charging coil.

VPB 500

Copper Part no. 081 054

VPB 750

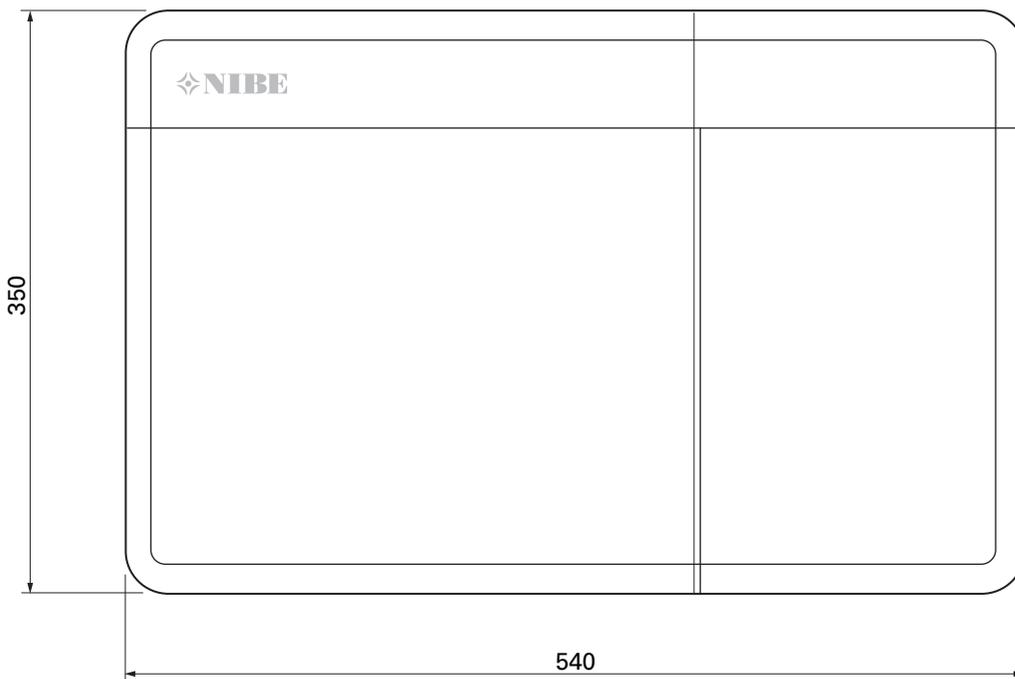
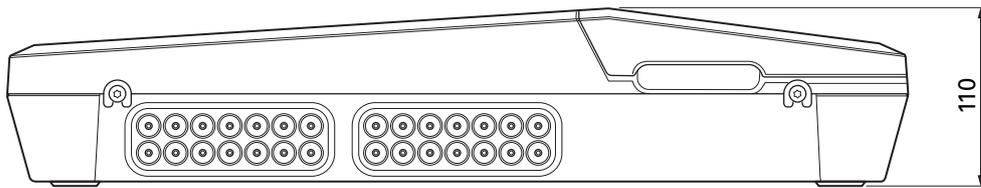
Copper Part no. 081 052

VPB 1000

Copper Part no. 081 053

13 Technical data

Dimensions



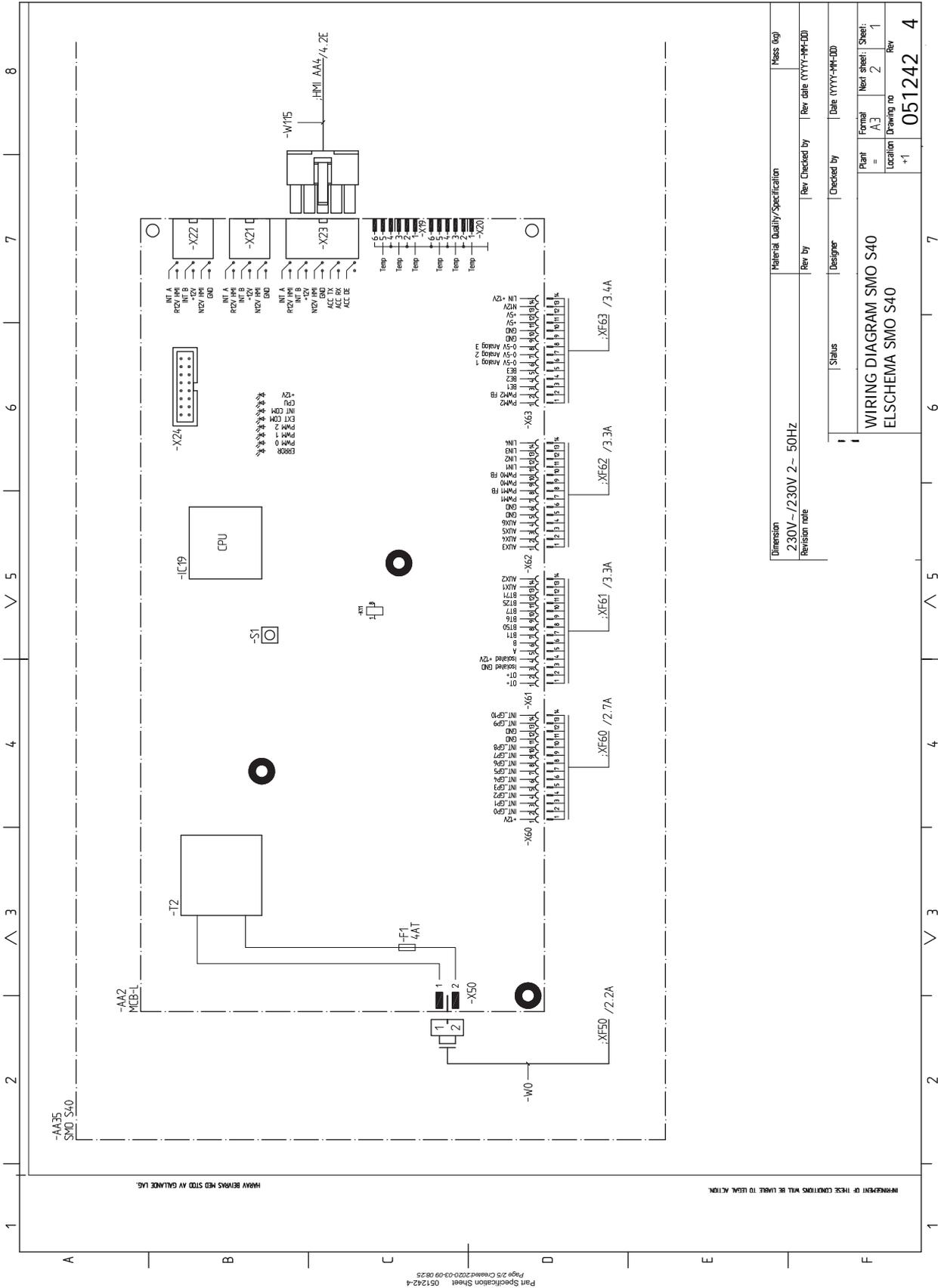
Technical specifications

<i>SMO S40</i>		
<i>Electrical data</i>		
Supply voltage		230V~ 50Hz
Enclosure class		IP21
Rated value for impulse voltage	kV	4
Pollution degree		2
Fuse	A	10
<i>WLAN</i>		
2.412 – 2.484 GHz max power	dbm	11
<i>Optional connections</i>		
Max number air/water heat pumps		8
Max number of charge pumps		2
Max number of outputs for additional heat step		3
<i>Miscellaneous</i>		
Operation mode (EN60730)		Type 1
Area of operation	°C	-25 – 70
Ambient temperature	°C	5 – 35
Program cycles, hours		1, 24
Program cycles, days		1, 2, 5, 7
Resolution, program	min.	1
<i>Dimensions and weight</i>		
Width	mm	540
Depth	mm	110
Height	mm	350
Weight, (without packaging and enclosed components)	kg	5
<i>Miscellaneous</i>		
Part no. SMO S40		067 654

Energy labelling

<i>Supplier</i>		<i>NIBE</i>
<i>Model</i>		<i>SMO S40 + F2040 / F2120</i>
Controller, class		VI
Controller, contribution to efficiency	%	4.0

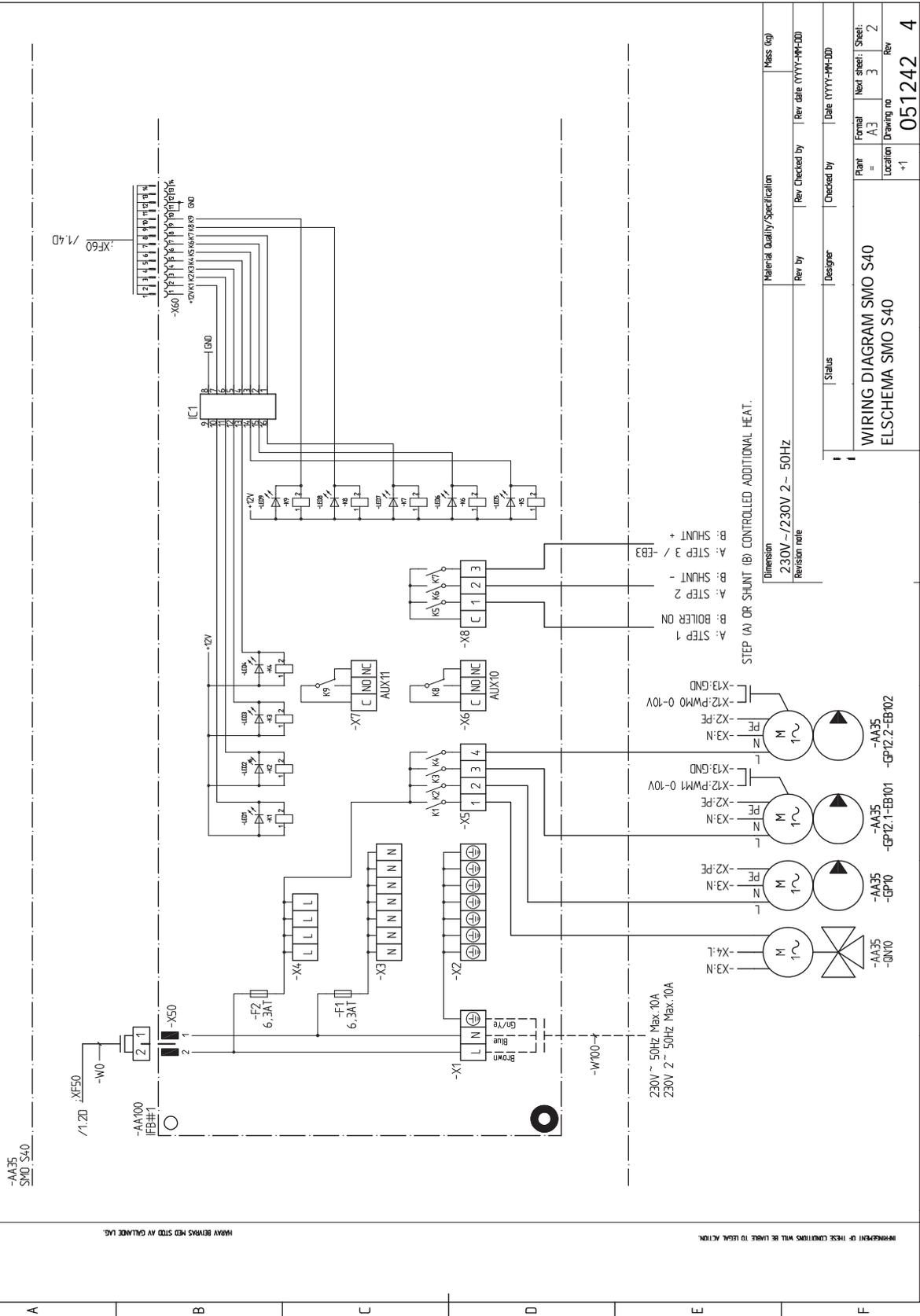
Electrical circuit diagram



Dimension	Material Quality/Specification	Miss (kg)
230V~/230V 2~50Hz		
Revision note	Rev by	Rev Checked by
	Designer	Checked by
	Status	Date (YYYY-MM-DD)
WIRING DIAGRAM SMO S40 ELSHEMA SMO S40		
Plant	Formal	Next Sheet
=	A.3	2
Location	Drawing no	Rev
+1	051242	4

Part Specification Sheet 051242
 Page 2 of 2 Created: 2022-03-09 08:25

1 2 3 4 5 6 7 8



-AA35
SMO S40

/1.20 XF50

-AA100
FB#1

-X50

-F2
6.3AT

-F1
6.3AT

-X4

-X3

-X2

-X1

-W100

230V ~ 50Hz Max. 10A
230V 2 ~ 50Hz Max. 10A

-X4:L
-X3:N

-AA35
-GN10

-AA35
-GP10

-AA35
-GP12.1-FB101

-AA35
-GP12.2-FB102

-AA35
-GP12.2-FB102

-X13:GND
-X12:PWM0 0-10V
-X2:PE
-X3:N

-X13:GND
-X12:PWM1 0-10V
-X2:PE
-X3:N

-X13:GND
-X12:PE
-X3:N

Part Specification Sheet 051242-4
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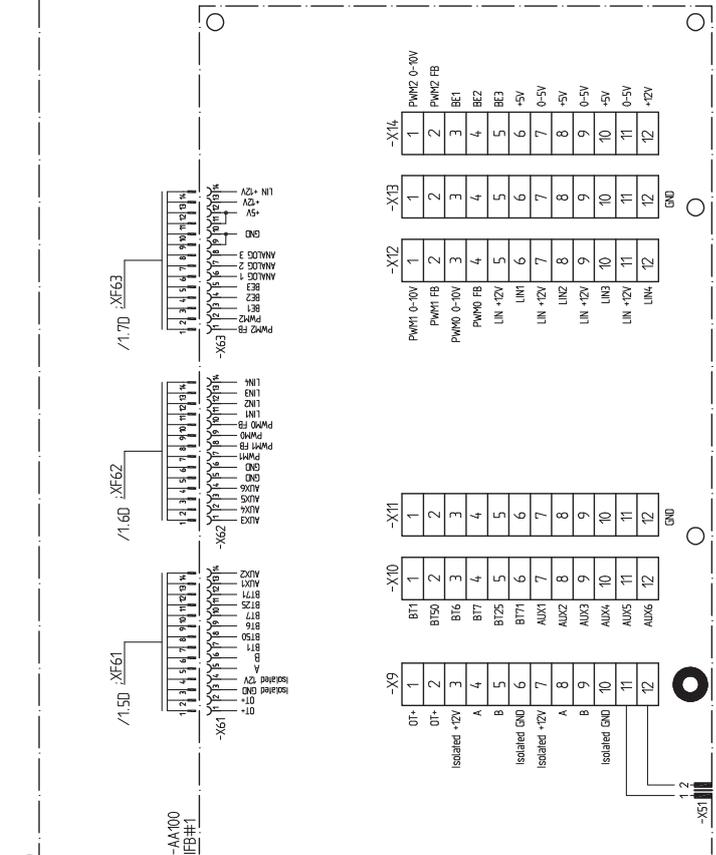
INDEPENDENT OF THESE CONDITIONS WILL BE LIABLE TO LEAK ACTORS

HEAVY ERRORS AND STD. BY GALANCE UAG.

1 2 3 4 5 6 7 8

-AA35
SMO S40

HEAVY BENDS PER STD. BY GALVAN. LAG.



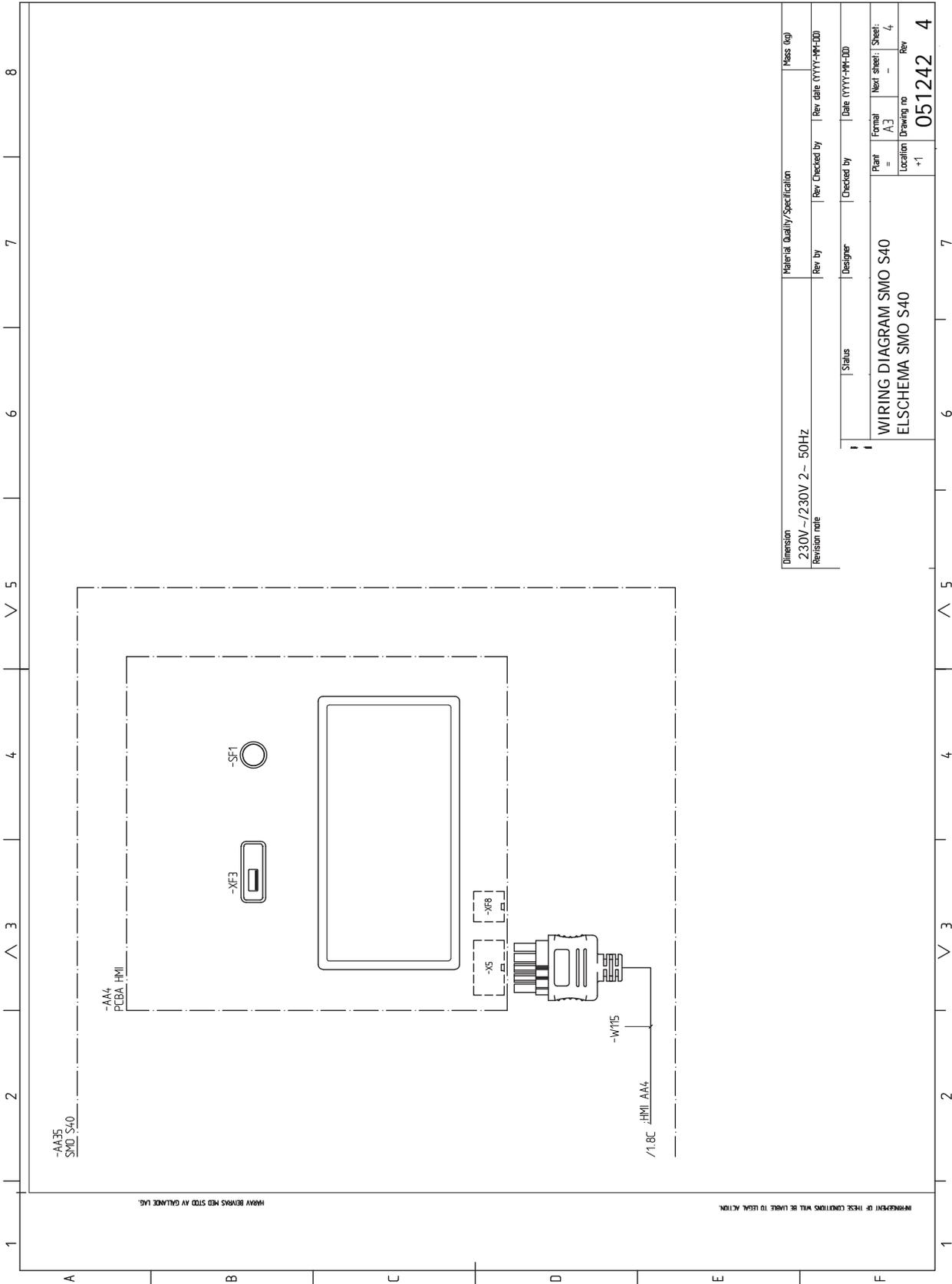
Note! Connect the shield for communication cable to the clamp.

Part Specification Sheet 0512424
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Dimension	Material Quality/Specification		Mass (kg)
230V - /230V 2 - 50HZ	Rev by	Rev Checked by	Rev date (YYYY-MM-DD)
Revision note	Status	Designer	Checked by
			Date (YYYY-MM-DD)

WIRING DIAGRAM SMO S40		Plant	Formal	Next sheet	Sheet
ELSCHEMA SMO S40		=	A3	4	3
		Location	Drawing no	Rev	
		+1	051242	4	

1 2 3 4 5 6 7 8



-AA35
SMD S40

-AA4
PCBA HMI

-XF3

-SF1

-X5

-X6

-W15

/1.8C HMI AA4

HAWY BERRY'S MED STID AV GALLICE LAG

INDEPENDENT OF THESE CONDITIONS WILL BE LIABLE TO LEAK ACTION.

Part Specification Sheet 0512424
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Dimension	Material Quality/Specification		Mass (kg)
230V~/230V 2~ 50Hz	Rev by	Rev Checked by	Rev date (YYYY-MM-DD)
Revision note	Status	Designer	Checked by
			Date (YYYY-MM-DD)
	WIRING DIAGRAM SMO S40		Plant = A3
	ELSCHEMA SMO S40		Formal Next Sheet: 4
			Location Drawing no
			+1
			Rev
			051242
			4

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