



MOS GB 0923-4
SMO 10
511882

INSTALLATION AND MAINTENANCE INSTRUCTIONS

NIBE SMO 10



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General

In order to get the ultimate benefit from your NIBE SMO 10 you should read through these Installation and Maintenance Instructions.

SMO 10 is a control module designed to optimally control up to nine NIBE outdoor air pumps together with other heating equipment.

Microprocessors ensure that the control module always works efficiently.

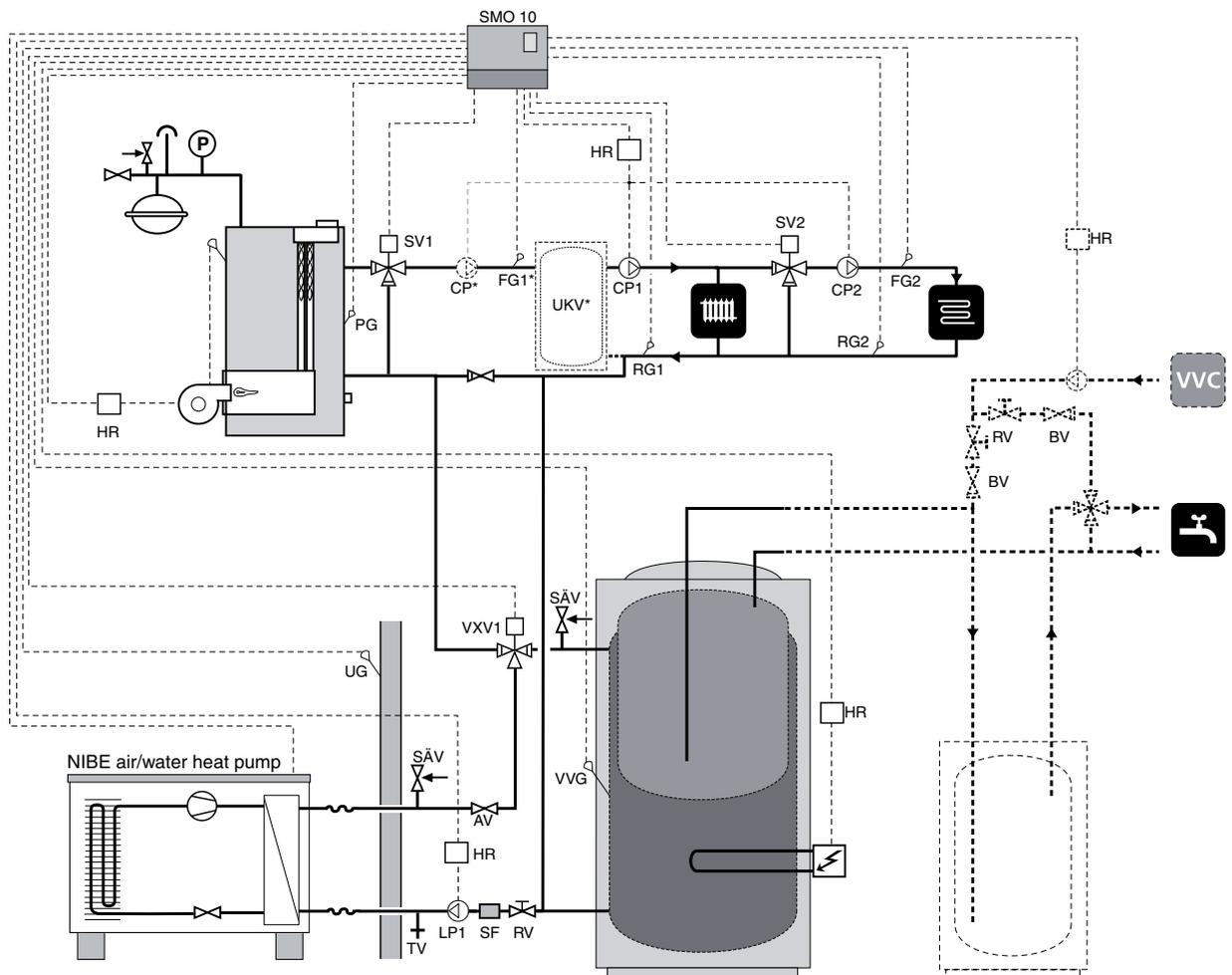
SMO 10 is a Swedish made quality product offering a long life span and safe operation.

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To be filled in when the product has been installed

<p>Serial number (103), should always be stated in all correspondence with NIBE.</p> <p>089 _ _ _ _ _</p>
Installation Date
Installer
Type of docking
Accumulator/hot water heater
Number of heat pumps
Output size
Shunt group 2
Chosen output, immersion heater
Circulation pump setting (16), heating medium
Circulation pump setting (40), charge pump
Menu setting 2.1, "Heat curve"
Setting Offset heating curve
Date _____ Sign _____

System diagram



Principle of operation

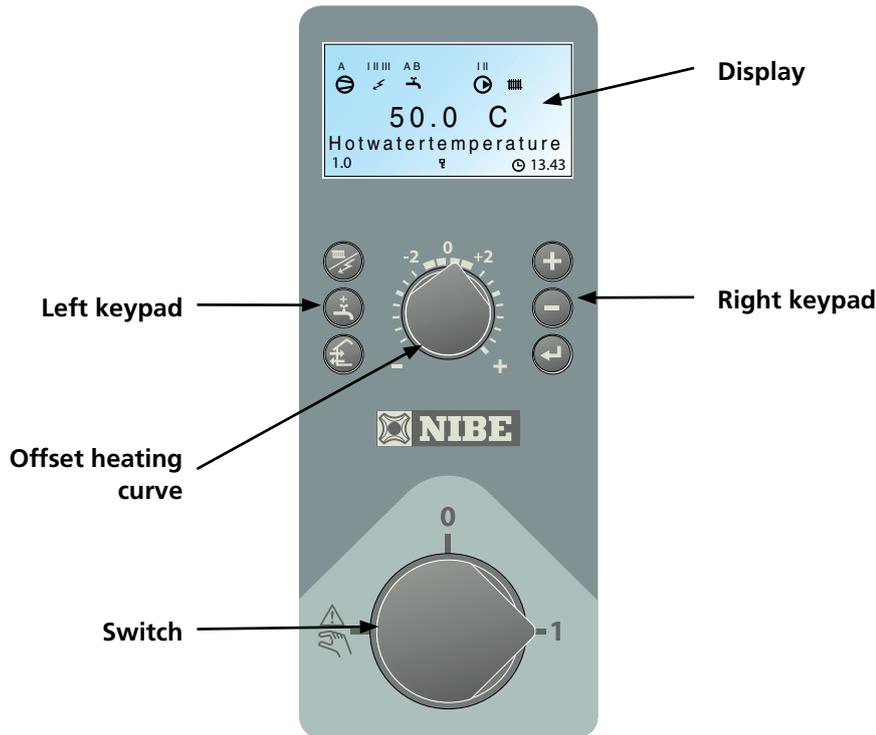
SMO 10 is an advanced control module, which, together with NIBE air/water heat pump and existing heating and hot water equipment, creates a complete installation.

SMO 10 can be used for with several different connection options. The base is the NIBE air/water heat pump, which, in turn, can be docked on to electric boilers, oil-fired boilers and accumulator tanks, for example, NIBE VPA.

Abbreviations

AV	Shut-off valve
BV	Non-return valve
EXP	Expansion vessel with necessary safety equipment
FG1	Flow line sensor 1
FG2	Flow line sensor 2
HR	Auxiliary relay
LP1	Charge pump 1
LP2	Charge pump 2
PG	Boiler sensor
RG1	Return line sensor 1
RG2	Return line sensor 2
RV	Control valve
SF	Particle filter (Included in NIBE air/water heat pump)
SV1	Shunt valve 1
SV2	Shunt valve 2
SÄV	Safety valve
TV	Drain valve
UG	Outdoor sensor
VVC	Hot water circulation
VVG	Hot water sensor
VXV1	Three way valve 1
VXV2	Three way valve 2
CP1	Circulation pump 1
CP2	Circulation pump 2

Front panel



Display

First row:

AB Compressor symbol



A together with compressor symbol, is displayed when step 1 is in operation.

B together with compressor symbol, is displayed when step 2 is in operation.

The compressor symbol alone indicates that the compressor is to start, but is locked due to start conditions in the air/water heat pump not being met internally, e.g. stop temperature.

I III III Addition. heat symbol



Indicates when the additional heater is connected. The line indicates which power step/steps are currently connected.

Only shown if immersion heater is connected

Power stage **I** is connected.

Power stage **II** is connected.

III Addition. heat symbol



Power stage **III** is connected. Only flashes when hot water is being heated by the electrical addition.

AB Hot water symbol



Indicates when the "Extra hot water" function is active.

A shown when 3 hour temperature increase is activated.

B shown when time based temperature increase is activated, periodically or time controlled.



Circulation pump symbol

Shown when the circulation pump in the heating system is in operation.



Heating system symbol

Shown when house heating with compressor is in progress.



Defrosting symbol

Indicates when air/water heat pump defrosting is in progress.

Second row: Value of the current parameter.

Third row: Description of current display parameter. "Hot water temp" is normally shown.

Fourth row: Shows the information symbols.

1.0 Menu number.

P Pool charging in progress.

🔒 Key lock activated.

Switch

with three positions **1** – **0** –  :

- 1** Normal mode. All control functions connected.
- 0** System fully shutdown.

 Standby mode. This mode is used in the event of operating disturbances. Additional heat output is limited depending on selected connection option. See section "Dealing with malfunctions". **NOTE! There is a risk of freezing at outdoor temperatures below 0°C.**

Offset heating curve



This knob is used to change the heating curve's parallel offset and in doing so the room temperature.

Turning clockwise increases the room temperature.

When the knob is turned menu 2.0 is shown on the display and the value for the calculated flow temperature changes.

Also see the section Room temperature.

Right keypad



Use **the plus button** to scroll through the menu system (forwards) or increase the value of the selected parameter.



Use **the minus button** to scroll through the menu system (backwards) or decrease the value of the selected parameter.



Use **the enter button** to select a lower menu in the menu system, to activate a parameter change as well as confirm a parameter change.

Also see the "Menu management" section.

Left keypad



Operating mode

This button is used to set the required operating mode with regard to permitting/blocking the circulation pump and additional energy. The change does not need to be confirmed with the enter button.

The current operating mode is shown on the display when the button is pressed and the mode changes when you continue to press the button. The display returns to the normal display mode once the enter button is pressed.

The different operating modes are:

Auto mode: SMO 10 automatically selects the operating mode with reference to the outdoor temperature. The circulation pump and addition are permitted to run as needed.

Summer mode: Only production of hot water with the air/water heat pump. The circulation pump and additional heat are blocked. However, when "Extra hot water" is activated the immersion heater is connected.

Spring/Autumn mode: Only production of heat and hot water with the air/water heat pump. The circulation pump is operational. Additional heat blocked. However, when "Extra hot water" is activated the immersion heater is connected.

NOTE! In the event of an alarm from the air/water heat pump, the different modes are not displayed.



Extra Hot Water*

The "Extra hot water" function is activated for a period of 3 hours using this button. The change does not need to be confirmed with the enter button.

At activation, the hot water temperature increases above the normal temperature, up to the set value.

Also see section "Function description" – "Extra hot water".



No function.

Key lock

A key lock can be activated by simultaneously pressing the plus and the minus buttons. The key symbol will then be shown on the display. The same procedure is used to deactivate the key lock.

* Requires additional power before three way valve or immersion heater in hot water heater.

Room temperature

Heating control system

The indoor temperature depends on several factors. During the hot season, solar radiation and heat given off by people and equipment are sufficient to keep the house warm. When it gets colder outside, the heating system must be started. The colder it gets, the hotter the radiators must be.

This adjustment is made automatically, however the basic settings must first be made on the boiler, see the section "Default setting".

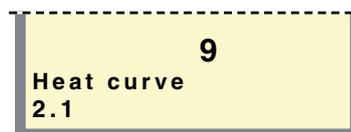
Default setting

The basic heating is set using menu 2.1 and with the "Heating curve offset" knob.

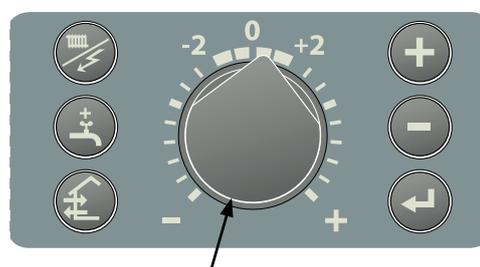
If you do not know the correct settings use the basic data from the map opposite.

If the required room temperature is not obtained, readjustment may be necessary.

NOTE! Wait one day between settings so that the temperatures have time to stabilise.



Menu 2.1 Heat curve



Offset heating curve

Readjustment the default settings

Cold weather conditions

When the room temperature is too low, the "Heat curve" value is increased in menu 2.1 by one increment.

When the room temperature is too high, the "Heat curve" value is lowered in menu 2.1 by one increment.

Warm weather conditions

If the room temperature is low, increase the heating curve offset setting by one step.

If the room temperature is high, reduce the "Heating curve offset" setting by one step.

Changing the room temperature manually

If you want to temporarily or permanently lower or raise the indoor temperature relative to the previously set temperature, turn the "Heating curve offset" knob anticlockwise or clockwise. One to three lines approximately represents a one degree change in room temperature.

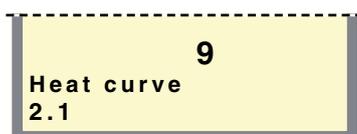
NOTE! An increase in the room temperature may be inhibited by the radiator or floor heating thermostats, if so these must be turned up.

Setting with diagrams

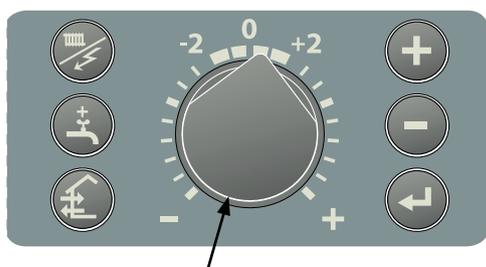
The heating control system on the SMO 10 is controlled by the outside temperature. This means the flow temperature is regulated in relation to the current outdoor temperature.

The diagram is based on the dimensioned outdoor temperature in the area and the dimensioned supply temperature of the heating system. When these two values "meet", the heating control's curve slope can be read. This is set on menu 2.1 "Heat curve".

A suitable value is set using the knob on the front panel, "Offset heat curve". A suitable value for floor heating is -1 and for radiator systems -2.



Menu 2.1 Heat curve

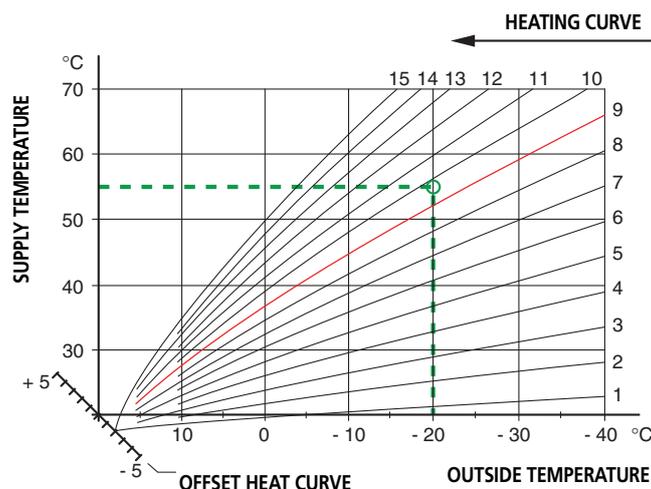


Offset heating curve

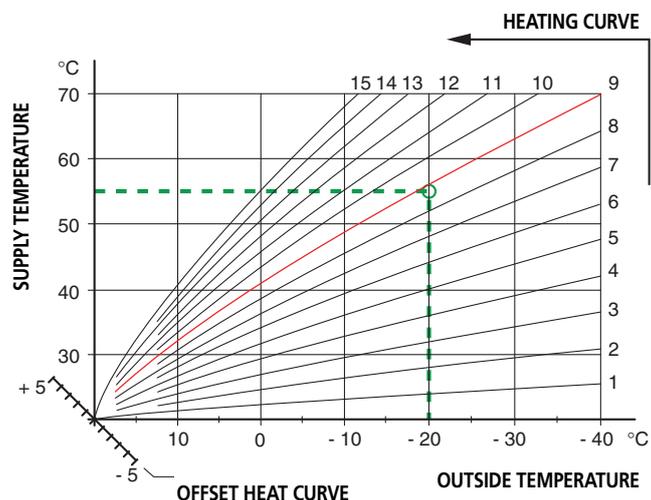
NOTE!

"Heat curve" in menu 2.1 and "Max supply temp." in menu 2.4 are adjusted according to the heating system in question.

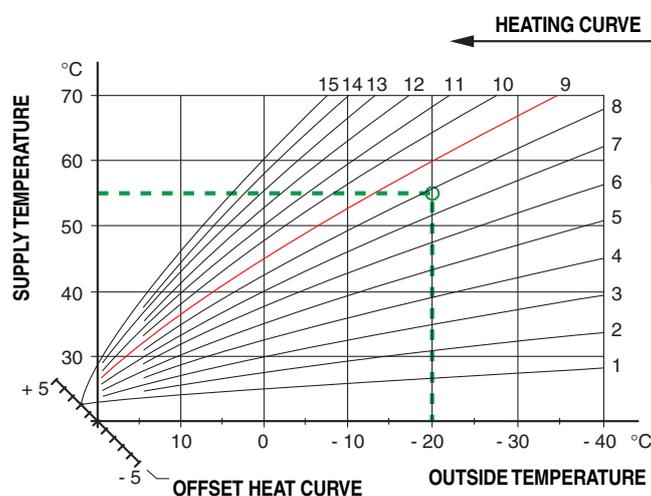
Shifting the heating curve -2



Shifting the heating curve 0



Shifting the heating curve +2



Dealing with malfunctions

Numbers between brackets refer to section "Technical specifications" – "List of components".

If the operating disturbance cannot be rectified by means of the following, an installation engineer should be called. If necessary set the switch to "⚠" (manual shunt operation necessary).

Low temperature or a lack of hot water

- Air in boiler or system.
- Large amounts of hot water were used.
- Circuit or main MCB tripped.
- Possible earth circuit-breaker tripped.
- Mixer valve set too low.
- Switch (8) set to "0".
- Tripped Miniature circuit-breaker (7) or Fine-wire fuse (33). See "Dealing with malfunctions" – "Resetting the miniature circuit breakers".
- Load monitor or external control may have been blocked the electrical output.
- Incorrectly set values for hot water production.

The hot water temperature does not reach the desired level for "Extra hot water"

- An alarm has been triggered, which blocks the extra hot water.
- Maximum boiler temperature, knob (102) on the EBV card (2), is set too low. This temperature should be set 10 °C above the set value in menu 9.1.14.
- Max power output, knob (101) or fuse rating, knob (100), is set too low.

High hot water temperature

- Mixer valve set too high.
- Incorrectly set values for hot water production.

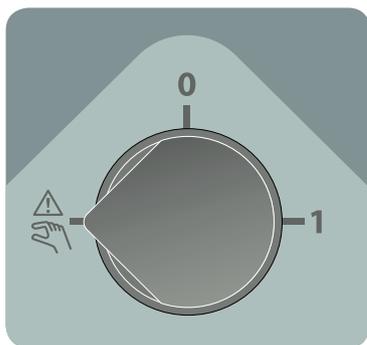
Low room temperature

- Air in boiler or system.
- Circuit or main MCB tripped.
- Possible earth circuit-breaker tripped.
- Tripped Miniature circuit-breaker (7) or Fine-wire fuse (33). See "Dealing with malfunctions" – "Resetting the miniature circuit breakers".
- Automatic heating control system settings not correct.
- 24 hour setting incorrectly set so that night reduction is active during the day.
- Circulation pump stopped.
- Initial pressure in expansion vessel too low. This is indicated by low pressure on the pressure gauge. Contact the installer.
- Load monitor or external control may have been blocked the electrical output.

High room temperature

- Incorrect values set on the automatic heating control system.

Switch position " ⚠️👉 "



Reserve operation

During this stage, electronic control is not available and the display is off. The automatic heating control system is deactivated and mixing is performed manually.

The charge pump (LP1), circulation pump (CP1), additional heater (TS2) and heating cartridge in the accumulator are in operation.

In cases when oil addition (or electricity/gas addition with shunt) is used, the boiler's shunt must be operated manually.

Terminals 3, 8, 9, 14, 18, 20 and 26 on the terminal block (11) are always powered.

NOTE!

As SMO 10 can be connected to a large number of external units, these should also be checked.

Alarm indications on the display

Other information about any operational faults or reactions can also be shown on the display besides the standard information. This type of information is only shown in menu 1.0 (The display always automatically returns to menu 1.0 approximately 30 minutes after the last button was pressed). This information alternates with menu 1.0's standard information. At the same time the display's background lighting flashes.

The number to the far right in the display shows the relevant heat pump. 0 stands for an alarm outside the heat pump.



LP alarm

This information is shown when the low pressure pressostat in the air/water heat pump has tripped. SMO 10 switches to additional power*.

The alarm may be due to a frozen evaporator or reduced air flow through the evaporator. The information disappears when the pressostat is reset and the air/water heat pump has been restarted. The alarm is reset in menu 5.2.



HP Alarm

This information is shown when the high pressure pressostat in the air/water heat pump has tripped. SMO 10 switches to additional power*.

The alarm may be due to too low charge flow. The information disappears when the pressostat is reset and the air/water heat pump has been restarted. The alarm is reset in menu 5.2.



M-prot. alarm

This information is shown when the motor cut-out in the air/water heat pump has tripped. SMO 10 switches to additional power*.

The alarm may be due to dropped phase because of tripped fuses or incorrectly set motor cut-out. The information disappears when the fault is remedied and the air/water heat pump has been restarted. The alarm is reset in menu 5.2.

* Means that the compressor is blocked. The flow temperature is forced to the set minimum temperature in menu 2.3 (can be removed in menu 9.3.17).



Sensor alarm

This information is shown when a temperature sensor in the air/water heat pump stops working. SMO 10 switches to additional power*.

The alarm may be due to an open-circuit or incorrect installation. The information disappears when the cause is remedied and the air/water heat pump has been restarted. The alarm is reset in menu 5.2.

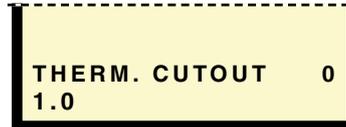


Com. alarm

Error text is displayed when contact between SMO 10 and the air/water heat pump is lost. SMO 10 switches to additional power*.

The alarm may be due to a wiring short-circuit or lost power to the air/water heat pump. The information disappears when both SMO 10 and the air/water heat pump are restarted.

NOTE! SMO 10 must be powered within 5 minutes after the air/water heat pump restarts and communication between the products is resumed. The alarm is reset in menu 5.2.



Therm. cutout

Shown when any temperature limiter has tripped.

The compressor and the immersion heater are blocked, any set automatic operations are disabled as the operating mode switches to spring/autumn, (circulation pump in operation). Only applies if a temperature limiter is connected to terminal block (11) terminals 33 and 34.

The information disappears when the fault is remedied and the alarm is reset in menu 9.3.6.



HWsens. alarm

This information is shown when a fault on the hot water temperature sensor has been registered. SMO 10 is force-run solely for hot water charging and automatic mode is engaged.

The alarm may be due to faulty sensors or a broken sensor cable. The information disappears when the fault is remedied and the alarm is reset in menu 9.3.6.

SUPSENS ALARM 0
1.0

SUPsens alarm

This information is shown when a fault on the flow temperature sensor has been registered. SMO 10 is force-run solely for hot water charging, any set automatic operations are disabled and the operating mode switches to summer.

The alarm may be due to faulty sensors or a broken sensor cable. The information disappears when the fault is remedied and the alarm is reset in menu 9.3.6.

IHSENS. ALARM 0
1.0

IHsens. alarm

This information is shown when a fault on the immersion heater temperature sensor has been registered. Immersion heater operation is blocked, any set automatic operations are disabled as the operating mode switches to spring/autumn.

The alarm may be due to faulty sensors or a broken sensor cable. The information disappears when the fault is remedied and the alarm is reset in menu 9.3.6.

REPLACED SENSOR 1
1.0

REPLACED SENSOR

This information is displayed when sensors in the heat pump are incorrectly installed. SMO 10 switches to additional power*.

The information disappears when the cause is remedied and the heat pump has been restarted.

DEFROSTING TIME 1
1.0

DEFROSTING TIME

This information is shown when defrosting in the heat pump has failed three times in succession. Check the temperature on the return line sensor (menu 5.14). If it is below 10 °C the heat pump will not defrost. Check the temperature on the evaporator sensor (menu 5.10). If it is higher than the outdoor air temperature (menu 5.9) during compressor operation the heat pump does not defrost.

The information disappears when the cause is remedied and the heat pump has been restarted.

SHORT OP TIME 1
1.0

SHORT OP TIME

This information is displayed when the operating time of the heat pump has been less than 2 minutes 3 times in a row. SMO 10 switches to additional power*.

The information disappears when the cause is remedied and the heat pump has been restarted.

PERMANENT HOT GAS 1
1.0

PERMANENT HOT GAS

This information is displayed when hot gas in the heat pump exceeds 120 °C. Becomes continuous after three repetitions within 240 minutes. SMO 10 switches to additional power*.

The information disappears when the cause is remedied and the heat pump has been restarted.

PHASE ERROR 1
1.0

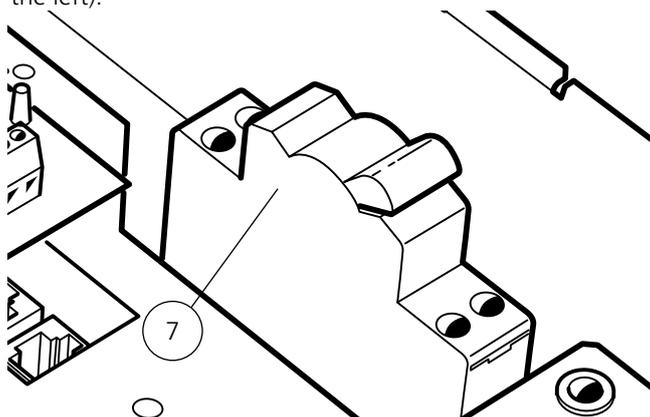
PHASE ERROR

This information is displayed when the compressor in F20XX has the incorrect direction of rotation. When starting for the first time or after work in the distribution board see "Commissioning and adjusting" – "Start-up and inspection" in F20XX Installation and Maintenance instructions. SMO 10 switches to additional power*.

The information disappears when the cause is remedied and F20XX has been restarted.

Resetting the miniature circuit breakers

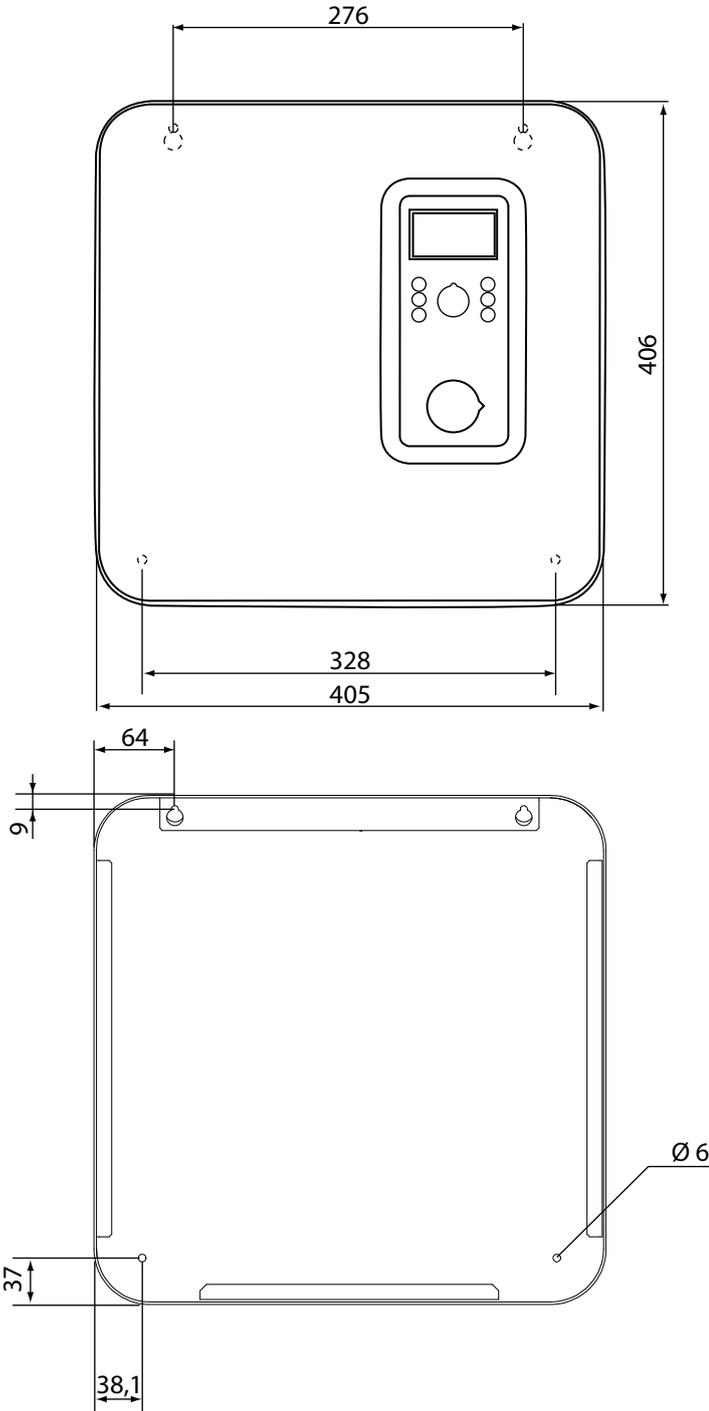
The miniature circuit breaker (7) is located above the circuit board on the right hand side under the cover of SMO 10. Normal mode of the miniature circuit breakers is "1" (to the left).



General information for the installer

Suspension

SMO 10 is attached to a wall using four screws. There are two holes on the reverse for hanging SMO 10 and two through holes in the electrical connection area.



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 and should be documented. The above applies to installations with a closed expansion vessel. If the electric boiler or the expansion vessel is replaced, the installation must be inspected again.

Docking

The safety equipment must be installed in accordance with current regulations for all docking options. See www.nibe.se/docking for more docking options.

Changing menu type

Not all menus are visible from the outset, they require activation in menu 8.1.1. Three different menu types can be chosen. Menu type for relevant menu is marked in section "Menu tree".

- N** Normal, covers the normal user's needs.
- U** Extended, shows all menus except the service menus.
- S** Service, shows all menus, returns to normal 30 minutes after the last button was pressed.

Additional power without heat pump



Quick guide – menu setting additional power

Menu 9.3.2 Add. heat mode

Additional heat mode is activated when "Yes" is shown on the display screen, otherwise "No" is shown. When the additional heat mode is activated, the immersion heater respective circulation pump cannot be blocked with the operating mode button. The factory setting is "No".

Operation without heat pump!

Connection

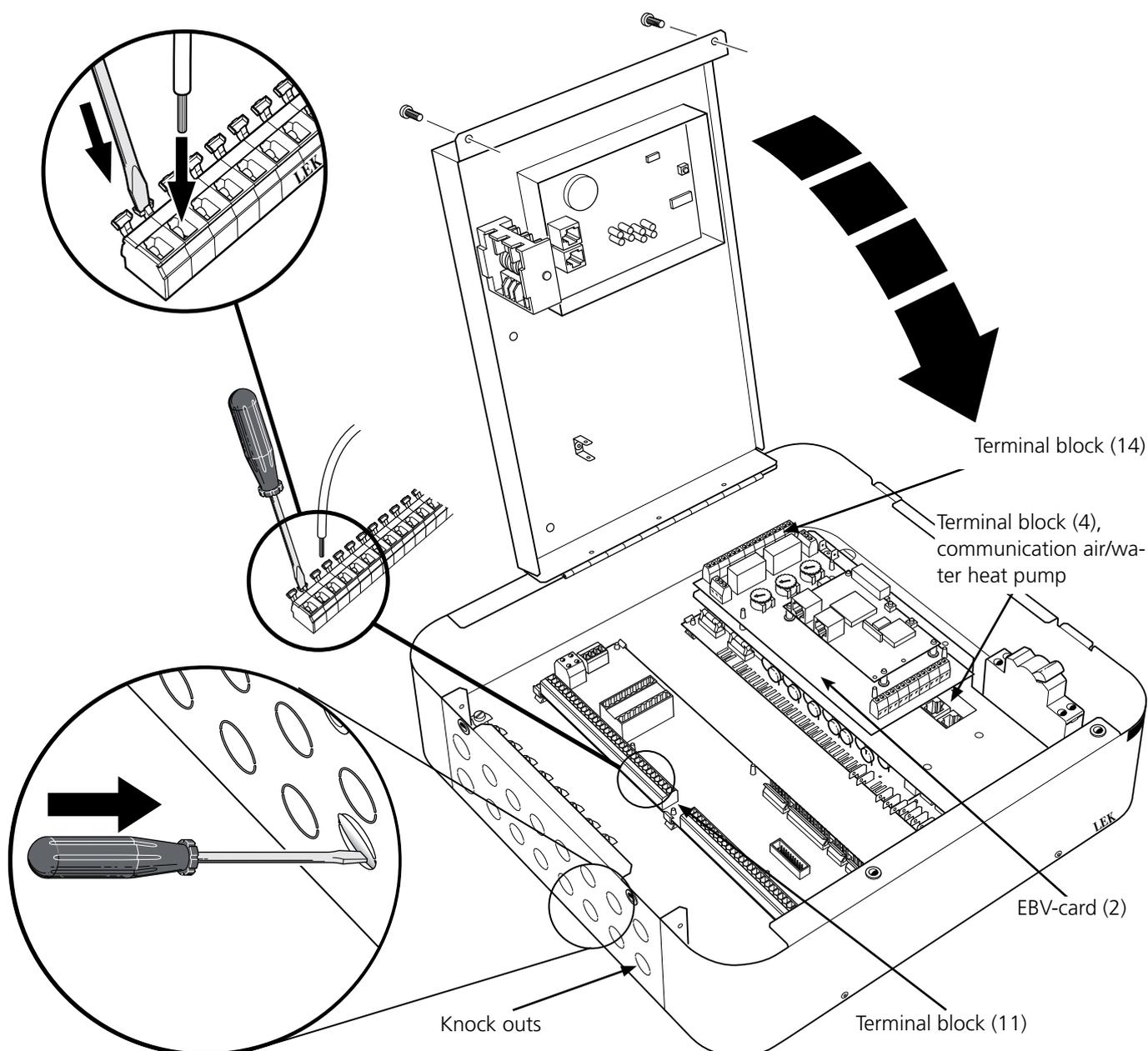
SMO 10 must be installed via an isolator switch with a minimum breaking gap of 3 mm.

Disconnect the control module before insulation testing the house wiring.

The installer is responsible for ensuring that there is sufficient strain relief for the cable. Cables are lead in through the "knock outs" in the underside (2x Ø20mm and 14x Ø16mm, cable glands are not supplied).

NOTE!

To prevent interference, sensor cables and communication cables must be separated (min 20 cm) from high voltage cable when cable routing.



NOTE!

Work behind screwed covers may only be carried out under the supervision of a qualified installation engineer.

NOTE!

Electrical installation and service must be carried out under the supervision of a qualified electrician. Electrical installation and wiring must be carried out in accordance with the stipulations in force.

Connecting hot water heating

The three-way valve (VXV1) is connected to terminal 17 (230 V during hot water production), 18 (L1) and 19 (N) on terminal block (11).

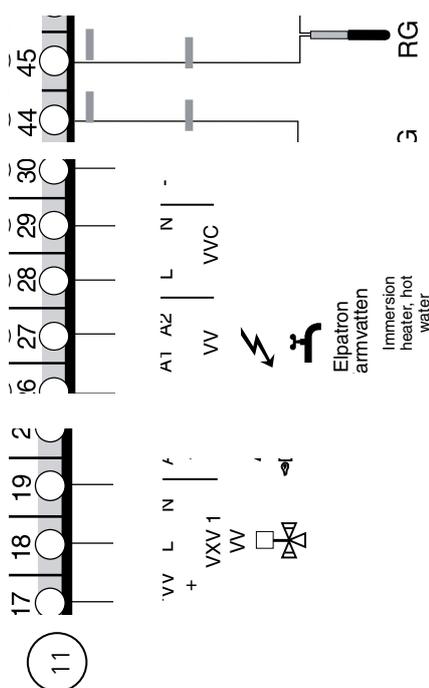
The hot water sensor (VVG) is installed in the hot water accumulator tank's submerged tube.

To measure the precise values the sensor must make good contact with the measuring point. This sensor must be connected to terminals 43 and 44 on the terminal block (11).

The immersion heater in the hot water heater must be used in cases where the additional heater is located after the three-way valve. Connect to terminals 26 (230 V) and 27 (N) on terminal block (11).

If hot water circulation (VVC) is to be used, connect the pump to terminals 28 (230 V) and 29 (N) on terminal block (11).

See section "Electrical connection" – "Terminal diagram" for complete terminal diagram.



Quick guide – menu settings Hot water heating

Menu 1.1 Start temperature HW

The temperature when the heat pump starts to work with the hot water heater is set here.

The value can be set between 25 and 50 °C. The factory setting is 45 °C.

Menu 1.2 Stop temperature HW

The temperature when the heat pump/immersion heater should stop heating the water is set here.

The value can be set between 30 and 80 °C. The factory setting is 50 °C.

Menu 1.6 HW run time

How long hot water heating has been in progress is shown here (accumulated).

Menu 8.5.0 Period settings

Time periods for heating and hot water production are set in the sub-menus for this menu.

Menu 9.3.15 Block HW/Heating

Deselection can be made here if there is no hot water or heating demand.

The options are "No hot water", "No heating" or "HW+heating". Factory setting "HW+heating".

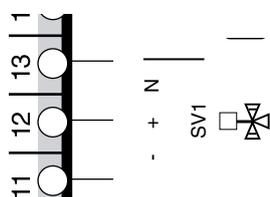
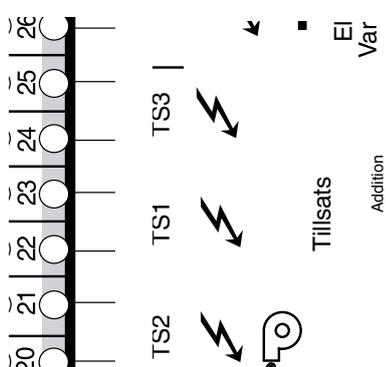
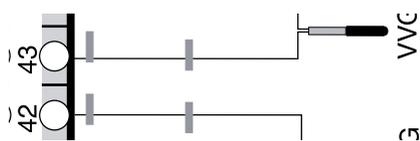
Connection oil addition

The oil boiler is controlled by a relay (TS2) and connected to terminals 20 and 21 (N) on the terminal block (11).

The shunt valve (SV1) is connected to terminals 11 (230 V closing signal), 12 (230 V opening signal) and 13 (N).

Boiler temperature sensor (PG) is connected to terminals 41 and 42, terminal block (11).

See section "Electrical connection" – "Terminal diagram" for complete terminal diagram.



11

Quick guide – menu settings Oil addition

Menu 9.2.3 Docking type

The relevant docking option is selected here:

- VVM
- SMO Oilburner
- SMO EI. after
- SMO Vent. Air
- SMO EI before

Factory setting is "SMO Oilburner".

Select "SMO Oilburner".

Menu 9.2.1 Start add. heat.

The degree minute deficit that must be set before the additional heat supply is activated is set here.

A value between -1000 and -30 can be set. The factory setting is -400.

Menu 9.2.8 Oil burner temp.

The oil boiler's temperature is shown in °C here.

Menu 9.2.9 Oil b. start temp.

The oil boiler temperature must be set before the shunt valve is permitted to open.

The value can be set between 10 and 65 °C. The factory setting is 55°C.

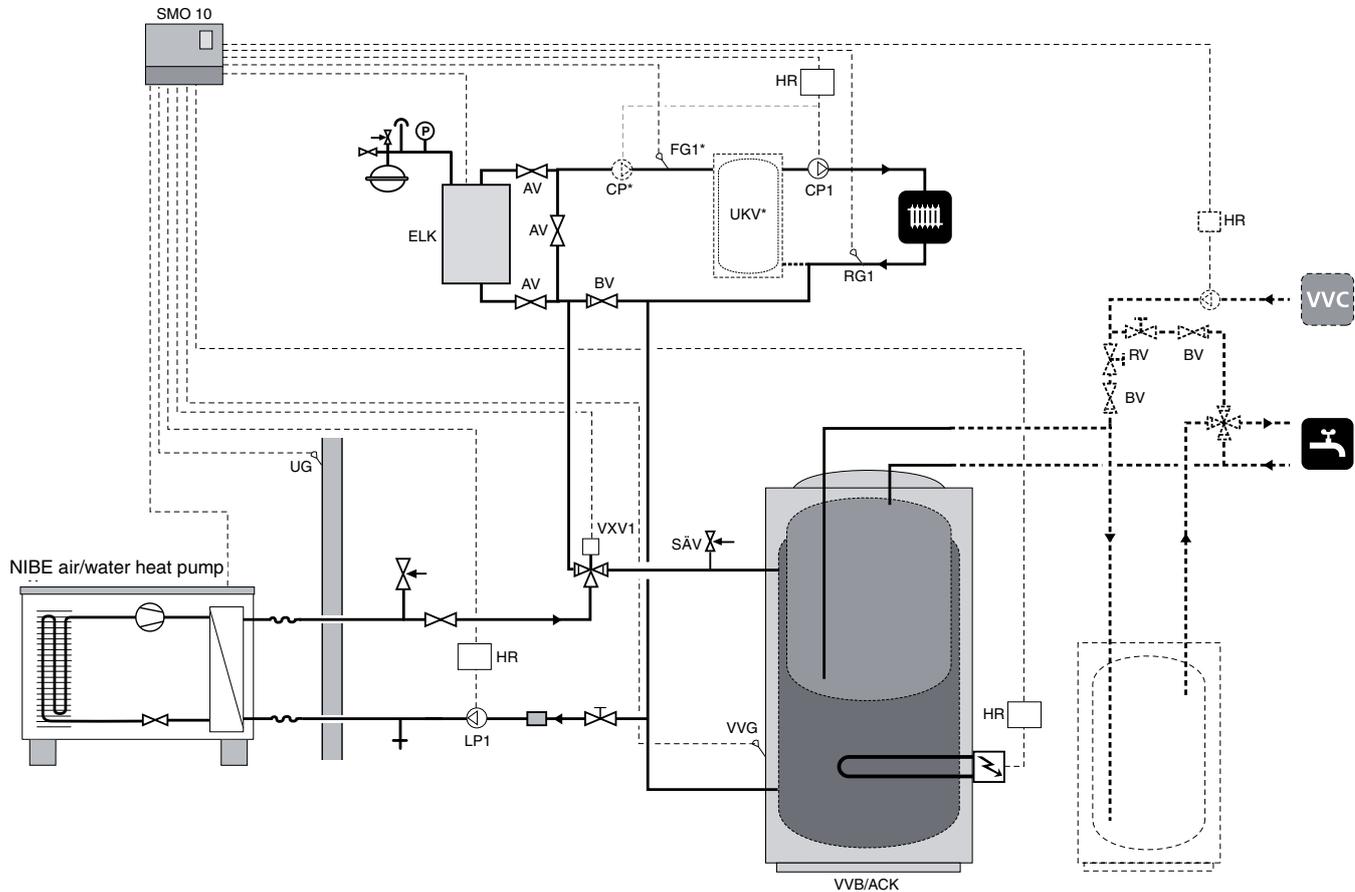
Menu 9.2.10 Oil b. min. time

Number of hours the oil boiler is to be active.

The value can be set between 1 and 12 hours. The factory setting is 2 hours.

Docking – Immersion heater after three way valve

NIBE air/water heat pump docked to the immersion heater after the three way valve together with SMO 10 and water heater (floating condensing)



Function

SMO 10 controls air/water heat pump, immersion heater, circulation pumps, three way valves, etc. The air/water heat pump works with floating condensing against the heating system and prioritises hot water charging via the reversing valve (VXV1). The air/water heat pump works in stage 1 or stage 2 depending on the outdoor air temperature and the heating requirement.

If the air/water heat pump does not manage the heating demand, additional heat from the immersion heater is engaged.

When additional heat is engaged, hot water is heated using the immersion heater in the hot water heater.

In combined mode, the three way (VXV1) is open towards the heating system.

NOTE!

To prevent interference, sensor cables and communication cables must be separated (min 20 cm) from high voltage cable when cable routing.

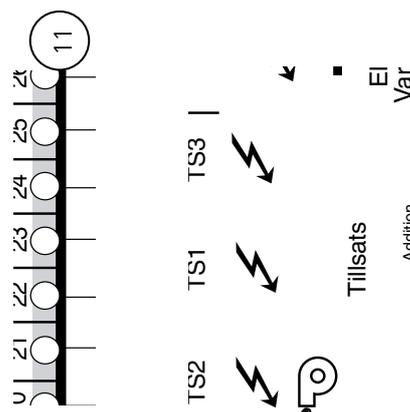
Docking – Immersion heater after three way valve

Connecting immersion heater after three way valve

The addition must be equipped with its own safety equipment according to applicable regulations. Safety equipment can consist of temperature limiter, isolator and relevant by-pass.

SMO 10 produces a control voltage of 230 V for output control. The various stages of the immersion heater are controlled by relays TS1, TS2 and TS3.

See section "Electrical connection" – "Terminal diagram" for complete terminal diagram.



Quick guide – menu settings immersion heater after three way valve

Menu 9.2.3 Docking type

The relevant docking option is selected here:

- VVM
- SMO Oilburner
- SMO El. after
- SMO Vent. Air
- SMO El before

Factory setting is "SMO Oilburner".

Select "SMO El. after".

Menu 9.2.1 Start add. heat.

The degree minute deficit that must be set before the additional heat supply is activated is set here.

A value between -1000 and -30 can be set. The factory setting is -400.

Menu 9.2.5 Reg. integrator time

Degree minutes per step are set here after the additional heater has engaged.

The value can be set between 10 and 100 degree minutes. Factory setting is 100.

Menu 8.3.1 Fuse size

The setting selected on the load monitor card (2) is shown here knob (100).

Menu 8.3.2 Max. electric power

The setting selected on the load monitor card (2) is shown here knob (101).

Menu 9.2.11 Max. step 2h

The maximum number of electrical steps that can be in operation for the first two hours after start/power failure is selected here.

The value is adjustable between 0 and 7. The factory setting is 2. For one step, only engage TS1 linear.

Menu 9.2.12 Immersion heater type

Here it can be decided whether the electrical addition is to be controlled binary, VVM Binary or Linear.

Binary Control means that the increase occurs according to the binary number system and consequently makes control possible with at least seven power stages.

VVM Binary means that the increase occurs binary analogue VVM 240. Can be used for heater cartridge sizes 3, 4,5 and 6 kW or multiples.

Linear control allows a maximum of three power stages as the increase occurs according to linear increasing models.

The factory setting is binary.

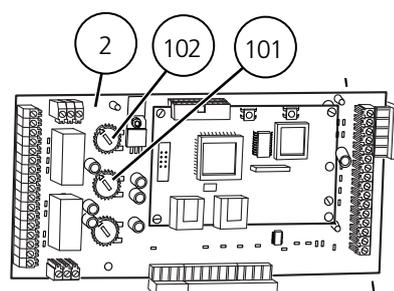
Max electrical addition (binary)

No. of steps	Knob position	Addition
2	A	TS2
3	B	TS1+TS2
4	C	TS3
5	D	TS1 + TS3
6	E	TS2 + TS3
7	F	TS1 + TS2 + TS3

Max electrical addition (linear)

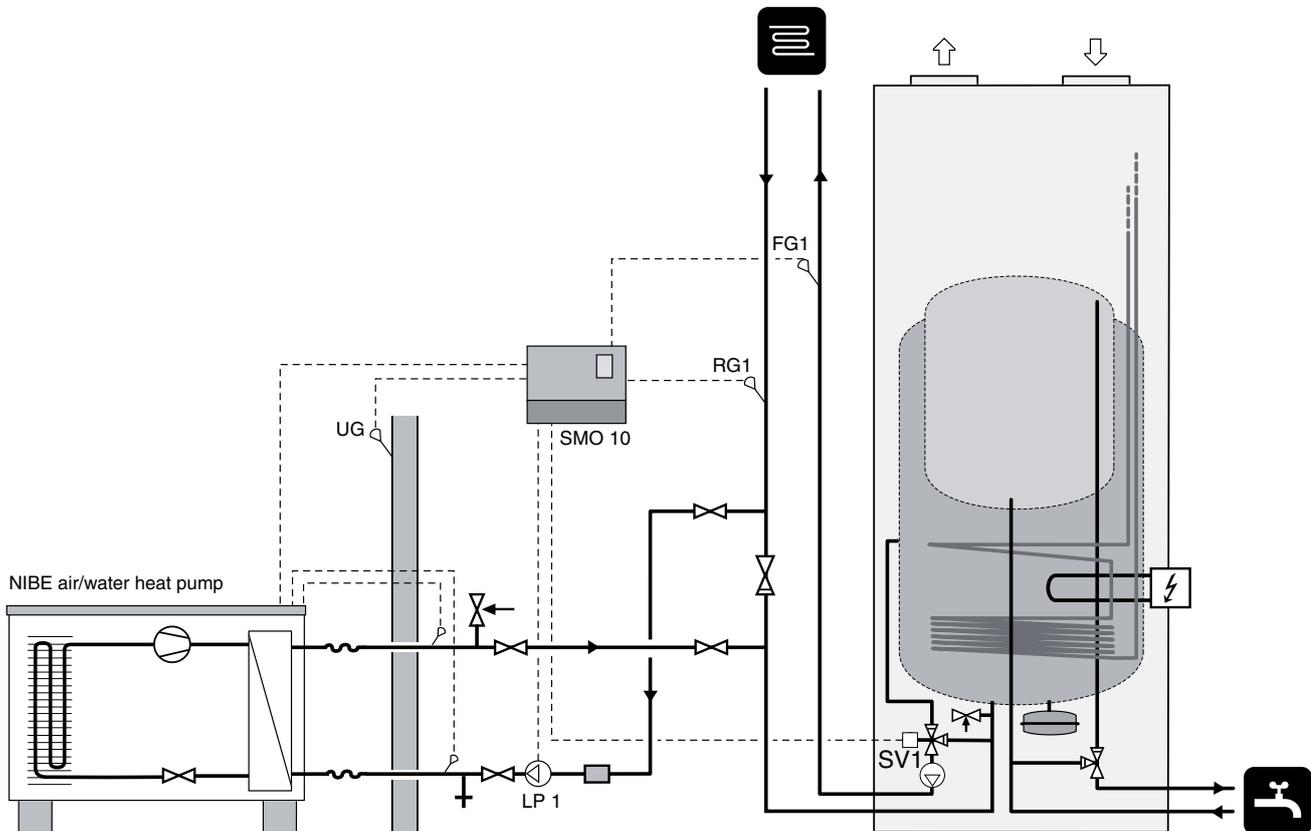
No. of steps	Knob position	Addition
2	A	TS1+TS2
3	B	TS1+TS2+TS3

The setting of the different maximum immersion heater outputs is done using the knob (101) on the EBV card (2).



Docking – Exhaust air heat pump

NIBE air/water heat pump and NIBE exhaust air heat pump controlled by SMO 10



Function

The air/water heat pump only heats the heating system and the exhaust air heat pump only heats water.

For large hot water demands, the exhaust air heat pump assists the immersion heater in maintaining the temperature.

When the air/water heat pump cannot cope with the demands, the SV1 shunt valve opens towards the exhaust air heat pump. In this way the exhaust air heat pump acts as an additional heater.

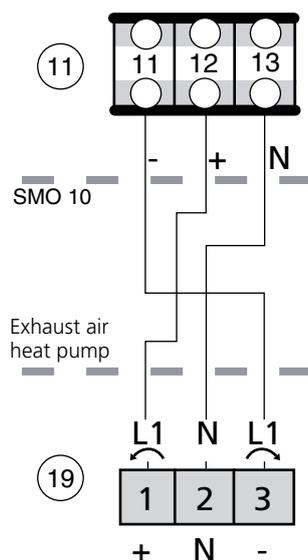
NOTE!

To prevent interference, sensor cables and communication cables must be separated (min 20 cm) from high voltage cable when cable routing.

Connecting the exhaust air heat pump

The shunt motor (19) in the exhaust air heat pump must be controlled by SMO 10. See corresponding Installation and maintenance instructions for the shunt motor's position.

Connect to terminal block (11) in SMO as below.



Quick guide – menu settings when docking to exhaust air heat pump

Menu 9.2.1 Start add. heat.

The degree minute deficit that must be set before the additional heat supply is activated is set here.

A value between -1000 and -30 can be set. The factory setting is -400.

Menu 9.2.3 Docking type

The relevant docking option is selected here:

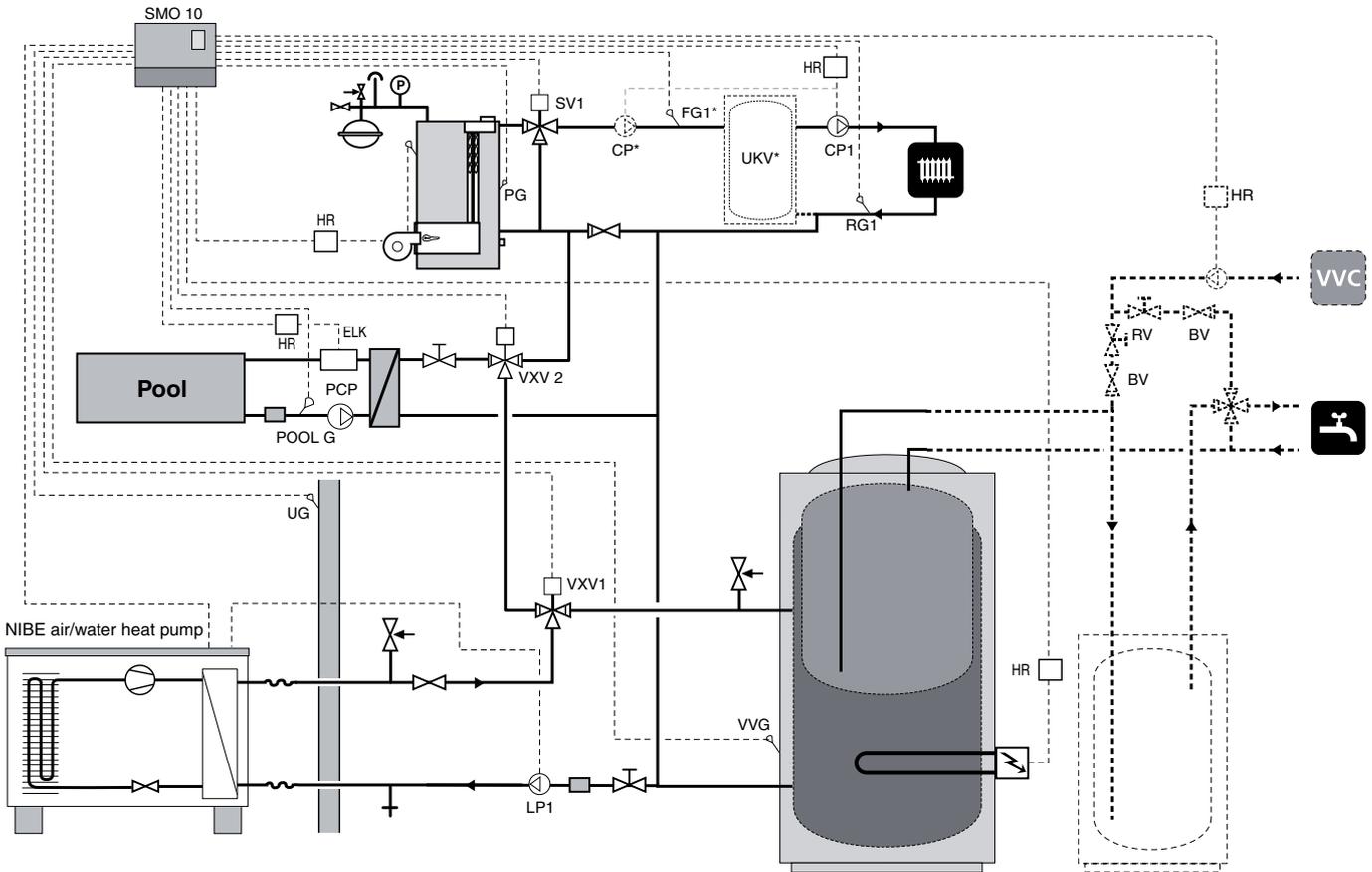
- VVM
- SMO Oilburner
- SMO El. after
- SMO Vent. Air
- SMO El before

Factory setting is "SMO Oilburner".

Select "SMO Vent. Air".

Docking – Pool heating

NIBE air/water heat pump connected for pool heating together with oil fired boiler and SMO 10 and water heater (floating condensing)



Function

SMO 10 controls the heat pump, oil fired boiler, circulation pumps, etc. The heat pump works with floating condensing against the heating system and prioritises hot water charging via the three way valve (VXV1). The three way valve also works in combined mode.

If there is no hot water or heating requirement the three way valve (VXV2) shifts to pool heating.

The charge pump (LP1) is always active and must be connected to SMO 10.

If the heat pump does not manage the heating or hot water demand, the additional heat is produced from the immersion heater (ELK).

When using the extra hot water function, the heat pump may stop due to too high a return temperature.

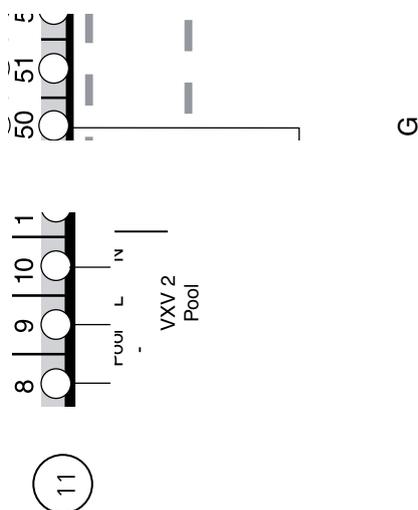
NOTE!

To prevent interference, sensor cables and communication cables must be separated (min 20 cm) from high voltage cable when cable routing.

Pool heating connection

Three way valve (VXV2) is connected to terminals 10 (N), 8 (230 V during hot water production) and 9 (230 V) on terminal block (11).

Pool temperature sensor (PoolG) is connected to terminals 49 and 50, terminal block (11).



Quick guide – menu settings pool heating

Menu 8.4.0 Pool settings

Pool settings are made on the sub-menus to this menu.

Menu 8.4.1 Pool control

You choose here whether pool control should be On or Off.

Menu 8.4.2 Pool temperature

The current Pool temperature is shown here.

Menu 8.4.3 Pool start temp.

The temperature at which pool heating is to start is shown here. When the temperature drops below this value, heating starts after the hot water and heating demands are met.

The value can be adjusted between 5 and 40 °C in increments of 0.5 °C. The factory setting is 25 °C.

Menu 8.4.4 Pool stop temp.

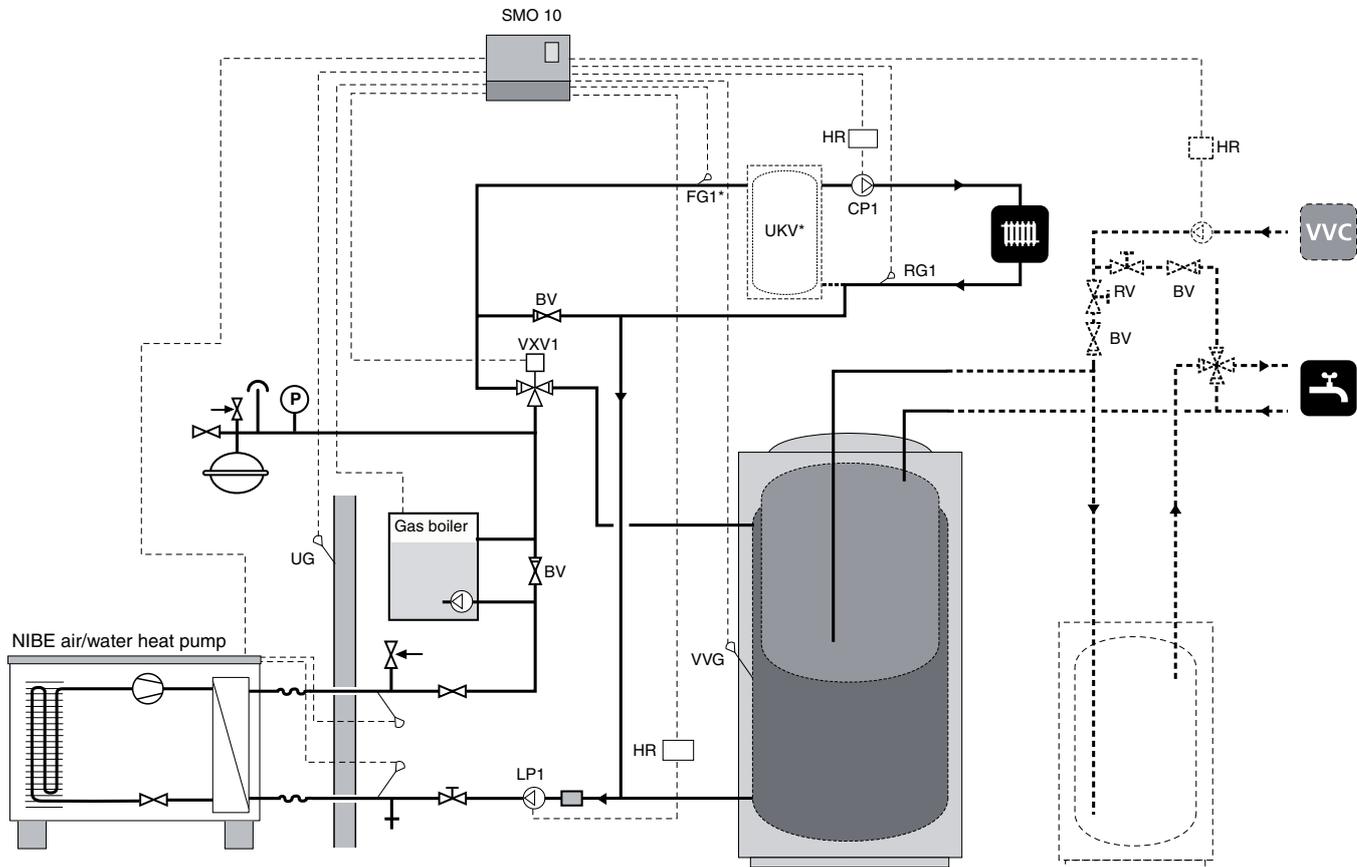
The temperature at which pool heating is to stop.

The value can be adjusted between 5 and 40 °C in increments of 0.5 °C. The factory setting is 28 °C.

Docking – Gas boiler

NIBE air/water heat pump docked to the gas boiler before the three way valve together with SMO 10 and water heater (floating condensing)

The gas boiler can also be connected after the three way valve together with a shunt valve. Connection option “Docking” – “Oil addition” then applies.



Function

This docking option must be selected in cases where the shunt valve is not required.

SMO 10 controls air/water heat pump, gas boiler, circulation pumps, etc. The air/water heat pump works with floating condensing against the heating system and prioritises hot water charging via the reversing valve (VXV1). The three way valve also works in combined mode.

The charge pump (LP1) is always active and must be connected to SMO 10.

The air/water heat pump works in stage 1 or stage 2 depending on the outdoor air temperature and the heating requirement.

If the air/water heat pump does not manage the heating or hot water demand, additional heat is engaged from the gas boiler.

When using the extra hot water function, the heat pump may stop due to too high a return temperature.

NOTE!

This solution cannot be combined with several air/water heat pumps.

NOTE!

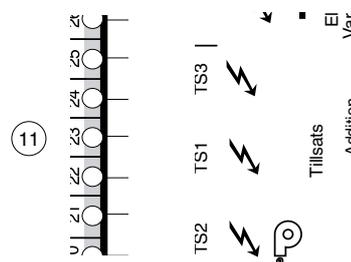
To prevent interference, sensor cables and communication cables must be separated (min 20 cm) from high voltage cable when cable routing.

Connecting a gas boiler

The addition must be equipped with its own safety equipment according to applicable regulations. Safety equipment can consist of temperature limiter, isolator and relevant by-pass.

SMO 10 produces a control voltage of 230 V for output control. The various stages of the gas boiler are controlled by relays TS1, TS2 and TS3. In cases where the gas boiler only has one stage, it must be connected to TS2, and knob (102) must be set to position "A".

See section "Electrical connection" – "Terminal diagram" for complete terminal diagram.



Menu 9.2.3 Docking type

The relevant docking option is selected here:

- VVM
- SMO Oilburner
- SMO El. after
- SMO Vent. Air
- SMO El before

Factory setting is "SMO Oilburner".

Select "SMO El before".

Menu 9.2.1 Start add. heat.

The degree minute deficit that must be set before the additional heat supply is activated is set here.

A value between -1000 and -30 can be set. The factory setting is -400.

Menu 9.2.5 Reg. integrator time

Degree minutes per step are set here after the additional heater has engaged.

The value can be set between 10 and 100 degree minutes. Factory setting is 100.

Menu 8.3.1 Fuse size

The setting selected on the load monitor card (2) is shown here knob (100).

Menu 8.3.2 Max. electric power

The setting selected on the load monitor card (2) is shown here knob (101).

Menu 9.2.11 Max. step 2h

The maximum number of electrical steps that can be in operation for the first two hours after start/power failure is selected here.

The value can be set between 0 and 7. Factory setting is 2.

Menu 9.2.12 Immersion heater type

Here it can be decided whether the electrical addition is to be controlled binary, VVM Binary or Linear.

Binary Control means that the increase occurs according to the binary number system and consequently makes control possible with at least seven power stages.

VVM Binary means that the increase occurs binary analogue VVM 240. Can be used for heater cartridge sizes 3, 4,5 and 6 kW or multiples.

Linear control allows a maximum of three power stages as the increase occurs according to linear increasing models.

The factory setting is binary.

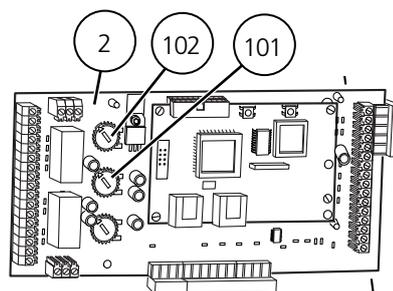
Max addition (binary)

No. of steps	Knob position	Addition
1	–	TS1
2	A	TS2
3	B	TS1+TS2
4	C	TS3
5	D	TS1 + TS3
6	E	TS2 + TS3
7	F	TS1 + TS2 + TS3

Max addition (linear)

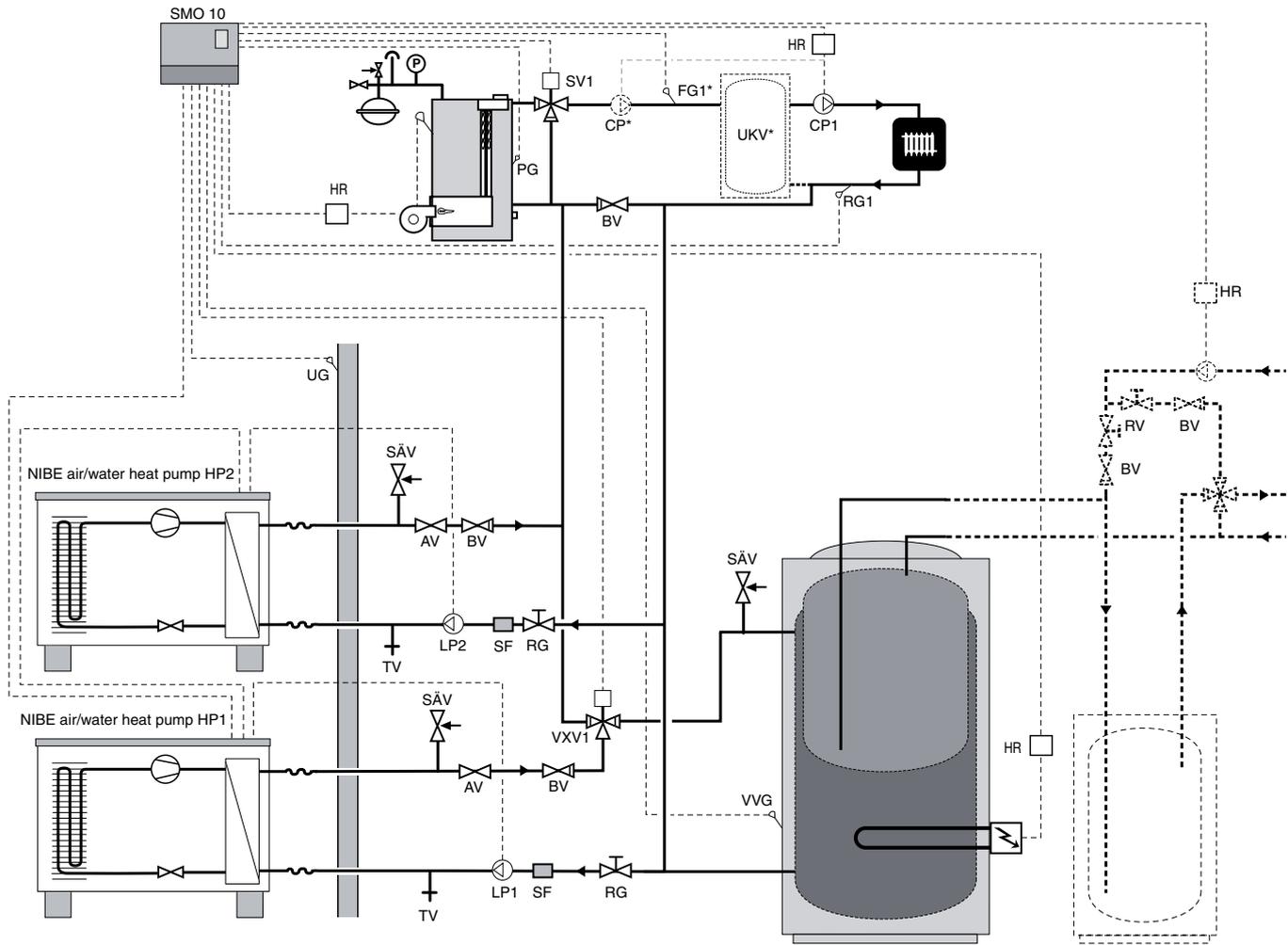
No. of steps	Knob position	Addition
1	–	TS1
2	A	TS1+TS2
3	B	TS1+TS2+TS3

The setting of the different maximum immersion heater outputs is done using the knob (101) on the EBV card (2).



Docking – Several heat pumps

Several heat pumps together with SMO 10 and water heater (floating condensing)



Function

SMO 10 controls up to nine air/water heat pumps (of which max one for hot water), oil boiler, circulation pump, shunt, etc. The air/water heat pumps run with floating condensation towards the heating system. Heat pump HP 1 prioritises hot water charging via a three way valve (VXV1). The heat pump works in stage 1 or stage 2 depending on the outdoor air temperature.

If the heat pumps cannot meet the heating demand, additional heat is shunted in from the oil-fired boiler.

When additional heat is engaged, hot water is heated using the immersion heater in the hot water heater.

The outline diagram is equipped with accessories.

NOTE!

To prevent interference, sensor cables and communication cables must be separated (min 20 cm) from high voltage cable when cable routing.

Quick guide – menu settings several heat pumps

Menu 9.1.2 Number of heat pumps

The number of connected air/water heat pumps are indicated here.

The value can be set between 0 and 9. Factory setting is 1.

Menu 9.2.3 Docking type

The relevant docking option is selected here:

- VVM
- SMO Oilburner
- SMO El. after
- SMO Vent. Air
- SMO El before

Factory setting is "SMO Oilburner".

Select "SMO Oilburner" or "SMO El. after".

Connecting several heat pumps

SMO 10 can control up to 9 NIBE air/water heat pumps, of which, max one for hot water. Additional heaters, circulation pumps, shunt valves etc are controlled at the same time.

The cables in the air/water heat pump should be routed out through the cable glands on the heat pump's left-hand side, seen from the front.

VP1: Connect the screened 3 core cable between SMO 10, terminal block (11), and heat pump VP1 terminal block (44) as illustrated. See "Electrical connections" – "Communication cable between SMO 10 and a heat pump" for a more detailed description.

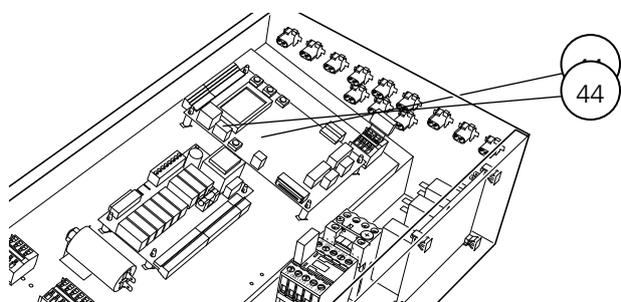
VP2: Connect screened 3 core cable in parallel between heat pump VP1 terminal (44) and heat pump VP2 terminal (44). Connect the screen to ground on ONE of the heat pumps.

VP3: Connected in the same way as VP2.

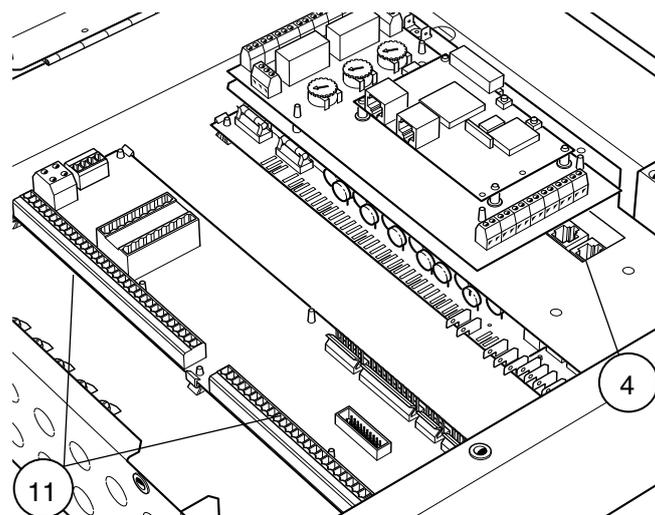
Select the required address number in the heat pump. This is done in channel 20 in the FIGHTER 2005/2010 and channel A1 on FIGHTER 2020. Confirm with the enter button.

Address numbers must be selected so that each air/water heat pump in the system receives a unique address (1 – 9) for communication with SMO 10.

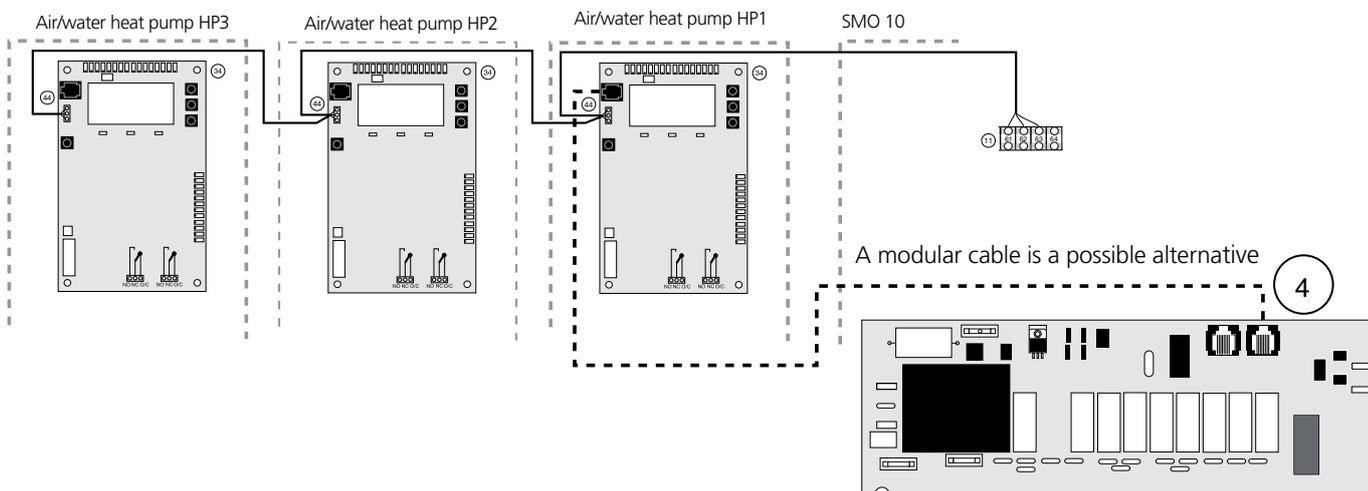
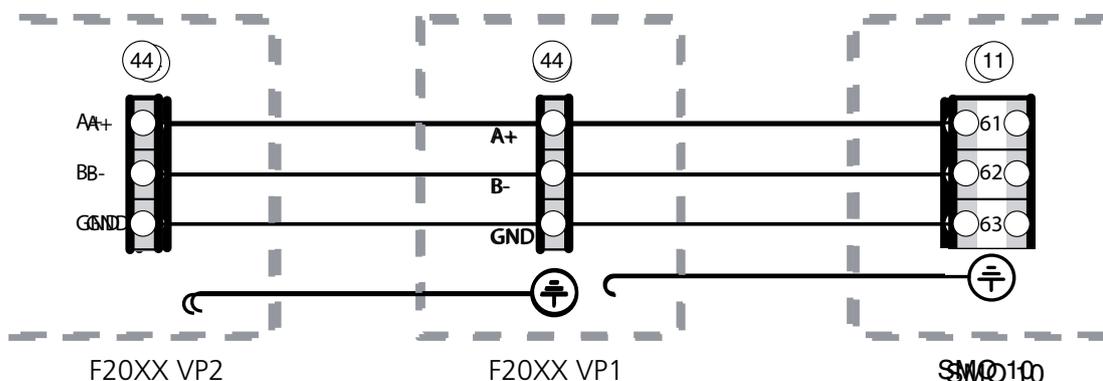
For example, three air/water heat pumps in the same system give the addresses 1, 2 and 3. The air/water heat pump that produces hot water should be set on 1.



NIBE air/water heat pump

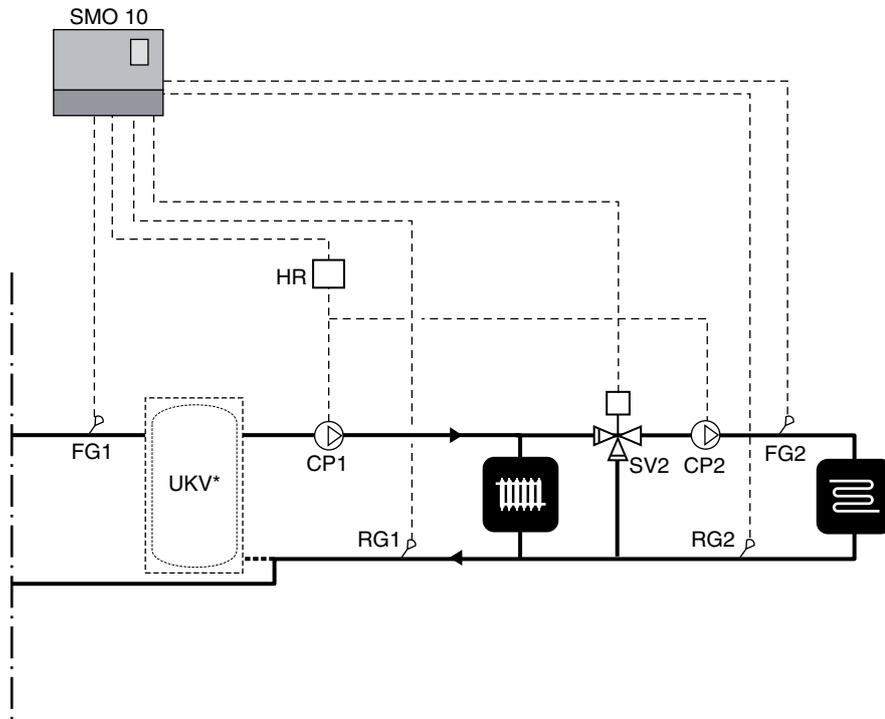


SMO 10



Docking – Extra shunt group

NIBE air/water heat pump and SMO 10 with two heating circuits



Function

A shunt valve (SV2) a circulation pump (CP2) can be connected to another heating circuit with a lower temperature demand.

The circulation pumps for heating circuit 1 and 2 (CP1 and CP2) are controlled at the same time. The supply temperature is controlled by shunt valve (SV2) and by sensor FG2.

The supply temperature is calculated in the same way and with corresponding settings as heating circuit 1.

NOTE!

To prevent interference, sensor cables and communication cables must be separated (min 20 cm) from high voltage cable when cable routing.

Connecting extra shunt group

Flow line sensor 2 (FG2) must be installed on the flow line for heating circuit 2. The sensor must make good contact with the measuring point for optimum function. Use supplied paste and aluminium tape to ensure measuring ability. The sensor must be connected to terminals 41 and 42 on the terminal block (11).

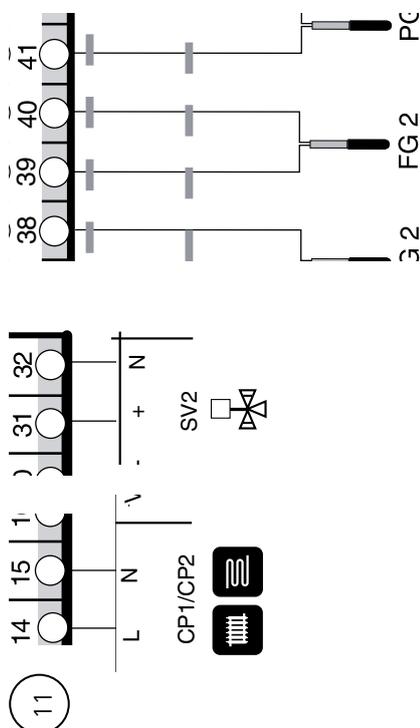
Return sensor 2 (RG2) must be installed on the return line for heating circuit 2. The sensor must make good contact with the measuring point for optimum function. Use supplied paste and aluminium tape to ensure measuring ability. The sensor must be connected to terminals 39 and 40 on the terminal block (11).

The control signal for circulation pump 2 (CP2) must be connected to terminal 14 (230 V) and 15 (N) on terminal block (11), i.e. in the same way as circulation pump 1 (CP1).

The shunt valve (SV2) must be connected to terminals 30 (230 V closing signal), 32 (N) and 31 (230 V opening signal) on terminal block (11).

Note that SMO 10 produces 230 V control signals for control of external contacts.

See section "Electrical connection" – "Terminal diagram" for complete terminal diagram.



Quick guide – menu settings extra shunt group

Menu 9.3.3 Shunt 2

Shunt group 2 can be set to "On" or "Off" here (accessories required). The factory setting is "Off".

Select "On".

Menu 3.1 Heat curve 2

The desired curve slope (heat curve) 2 is selected here. At value 0 the function "Own curve" is activated, see menu 3.6.0.

The value can be set between curves 0 and 20. The factory setting is 9.

Menu 3.2 Offset heat curve 2

Offset for heat curve 2 is selected here.

The value can be set between -10 and +10. The factory setting is -2.

Menu 3.3 Min. supply temp. 2

The desired minimum level for the supply temperature for heating system 2 is selected here.

The calculated flow temperature never drops below the set level irrespective of the outdoor temperature, curve slope or offset heating curve.

The value can be set between 10 and 65 °C. The factory setting is 15 °C.

Menu 3.4 Max supply temp. 2

The desired maximum level for the supply temperature for heating system 2 is selected here.

The calculated flow temperature never exceeds the set level irrespective of the outdoor temperature, curve slope or offset heating curve.

The value can be set between 10 and 80 °C. The factory setting is 55 °C.

NOTE!

Menu 3.0 with sub-menus is only displayed if "On" is selected in menu 9.3.3.

Function description – Heating

Function

The outdoor temperature (measured by UG) and the selected heat curves give a theoretical set point value for the supply temperature for the heating system of the house.

The difference between the set point value and the actual supply temperature (measured by FG) gives a value in degree minutes, which is used as a base for heating control.

The desired operating mode is selected with the operating mode button regarding whether the circulation pump, respectively, additional unit, must be active or not. This selection does not have to be confirmed with the enter button.

A press of the operating mode button displays the current operating mode in the status field. A further press switches to the next step.

Press the enter button to return to normal view.

Contact for changing the room temperature

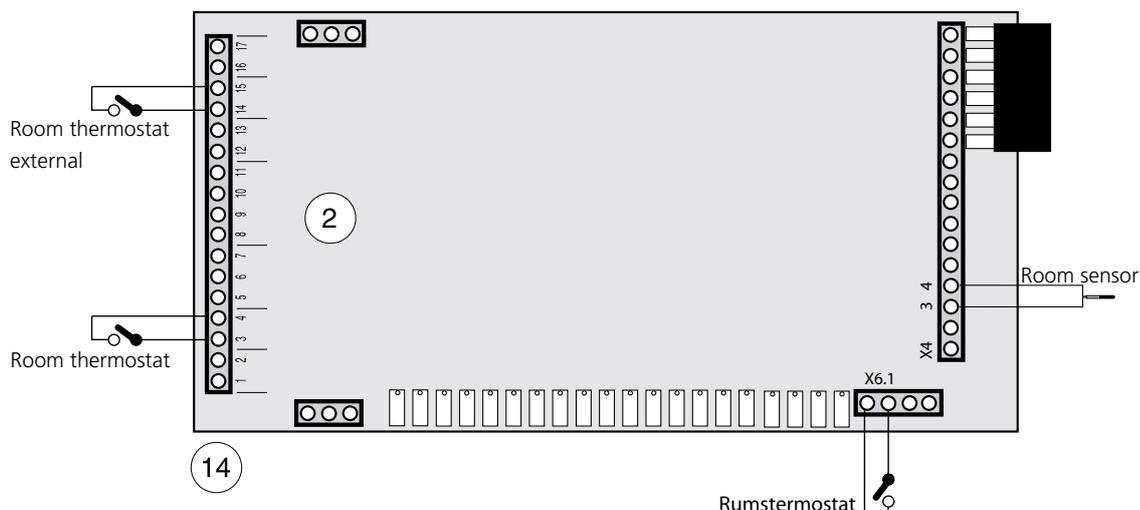
An external contact function can be connected to SMO 10 to change the supply temperature and in doing so change the room temperature, for example, a room thermostat or a timer. The contact should be potential free and is connected to terminals 3 and 4 on terminal block (14) on the EBV card (2).

When contact is made, the supply temperature increases or decreases. The value for the change is set on menu 2.5, External adjustment. The value is adjustable between -10 and +10. One step corresponds to one offset step of the heat curve.

Room sensor

A room sensor, type RG 05, can be connected to SMO 10 between pos 3 and 4 on terminal block X4 on the EBV card. SMO 10 compensates, by increasing or reducing the calculated supply temperature, to maintain the room temperature.

The room sensor is activated under menu 9.3.5. When activated, menu 6.0 can be accessed and required settings made in its sub-menus.



Quick guide – menu settings Heating

Operating mode

The menu can be accessed via the operating mode button. Here you select whether heat production is permitted. See "Front panel" – "Explanation" for information regarding the different operating modes.



Menu 2.1 Heat curve

The selected curve slope (heat curve) is selected here. At value 0, the function "Own curve" is activated, see menu 2.6.0.

The value can be set between curves 0 and 20. The factory setting is 9.

Menu 2.2 Heating curve offset

The selected heating curve offset is shown here. The value is adjustable between -10 and +10. NOTE! The value is changed using the "Heating curve offset" knob.

Menu 2.3 Min supply temp.

The desired minimum level for the supply temperature for the heating system is selected here.

The calculated flow temperature never drops below the set level irrespective of the outdoor temperature, curve slope or offset heating curve.

The value can be set between 10 and 65 °C. The factory setting is 15°C.

Menu 2.4 Max supply temp.

The desired maximum level for the supply temperature for the heating system is selected here.

The calculated flow temperature never exceeds the set level irrespective of the outdoor temperature, curve slope or offset heating curve.

The value can be set between 10 and 80 °C. The factory setting is 55°C.

Menu 2.5 External adjustment*

Connecting an external contact, see "Function description – Heating", for example, a room thermostat or a timer allows you to temporarily or periodically raise or lower the supply temperature and with that the room temperature. When the external contact is made, the heating curve offset is changed by the number of steps shown here.

The value can be set between -10 and +10. The factory setting is 0.

Menu 9.3.5 Room sensor*

A room sensor is reset here if installed (accessory RG05 required).

Menu 6.1 Room adjustment*

The factor that determines how much a deviation between desired and actual room temperature is to affect the supply temperature.

The factor is multiplied by the deviation and corrects the calculated supply temperature with this number. If the deviation is 1 °C and the factor is 3, the supply temperature changes by 3 °C.

The factor can be adjusted between 0 and 10 in increments of 0.1. Factory setting is 1.0.

Menu 6.2 Roomtemp. setpoint*

The desired room temperature is set here.

The value can be adjusted between 10.0 and 30.0 °C in increments of 0.5 °C. Factory setting is 21.0 °C.

* Accessories are needed.

Function description – Extra hot water

Function

The function for extra hot water increases the hot water temperature above the normal up to the set value in menu 1.3. The temperature then increases to the level set in menu 9.1.14 with the heat pump, where after the remaining temperature increase is achieved by the additional heater.

AB The function can be selected for a 3 hour period (A) or at regular intervals (B).

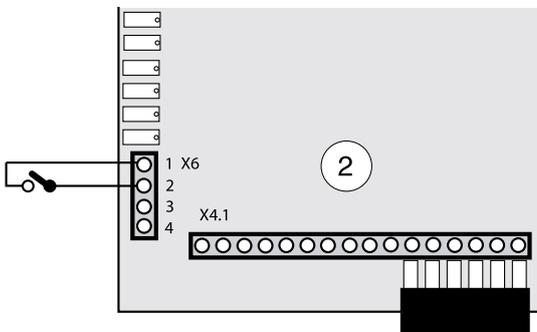
- A** Shown when 3 hour temperature increase is activated. This is activated with the button for extra hot water or via the external contact.
- B** Shown when periodic temperature increase is running. Periodic temperature increase is set in menu 1.4 or 7.4.0.

External activation of "Extra hot water"

An external contact function can be connected to SMO 10 for activation of the "Temporary extra hot water" function.

The contact must be potential free and non-locking and connected via edge board contact between terminals 1 and 2 on the EBV-card's terminal block X6.

When the contact makes for at least one second, the "Temporary Extra hot water" function is activated. An automatic return to the previously set function occurs after 3 hours.



Quick guide – menu settings Extra hot water

Menu 1.3 Stop temp. XHW

The desired stop temperature for extra hot water is set here.

The value can be set between 40 and 80 °C. The factory setting is 60 °C.

Menu 1.4 Interval XHW

How often the hot water temperature is increased from the normal level to the "Extra hot water" level is shown here. The value is adjustable between 0 and 90 days. Periodic Extra hot water is **shut-off** at value 0. Extra hot water is started when the value is confirmed.

The factory setting is 14 days.

Menu 1.5 Next XHW action

Future increases to the "Extra hot water" level are shown here.

Menu 7.4.0 Extra hot water

Settings for control of extra hot water can be made in the sub-menus to this menu.

Menu 9.1.14 Heat pump stop XHW

The temperature at which extra hot water switches from compressor operation to immersion heater for hot water is set here. The same value as in menu 1.2 should be selected.

The value can be set between 45 and 65 °C. The factory setting is 50 °C.

Menu 9.1.15 Max heat p. time XHW

If the compressor does not manage to obtain the temperature after this time, SMO 10 switches to combined mode and the immersion heater starts in the hot water heater.

The value is adjustable between 0 and 20 minutes. The factory setting is 10 minutes.

Electrical connections

Communication cable between SMO 10 and a heat pump

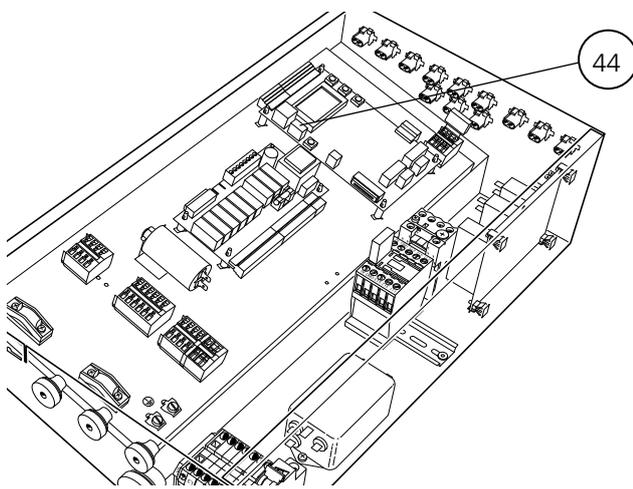
A screened 3 core cable is used for communication between SMO 10 and a NIBE air/water heat pump.

- Connect terminal 61 on terminal block (11) in SMO to terminal block (44) on the CPU card in the heat pump terminal A+.
- Connect terminal 62 on terminal block (11) to terminal block (44) terminal B-.
- Connect terminal 63 on terminal block (11) to terminal block (44) terminal GND.
- Connect the screen to the PE rail in the SMO box. The screen may only be connected in one place however, and must not be connected anywhere out in the heat pump.

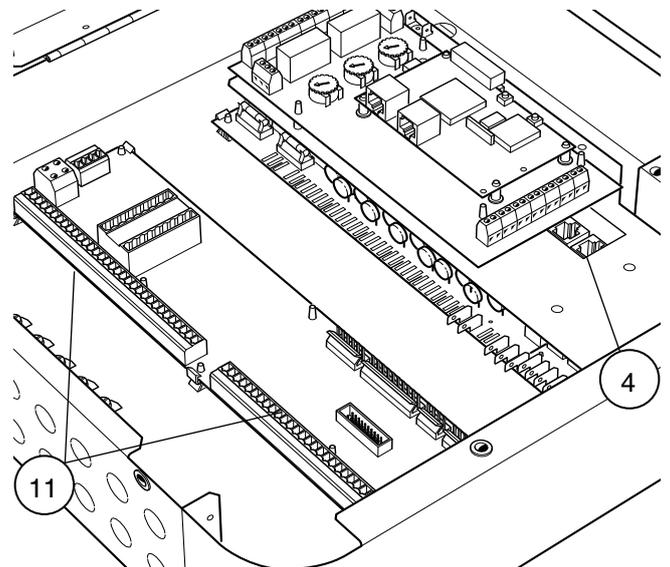
A modular cable can be used for connection between SMO 10 and heat pump 1.

NOTE!

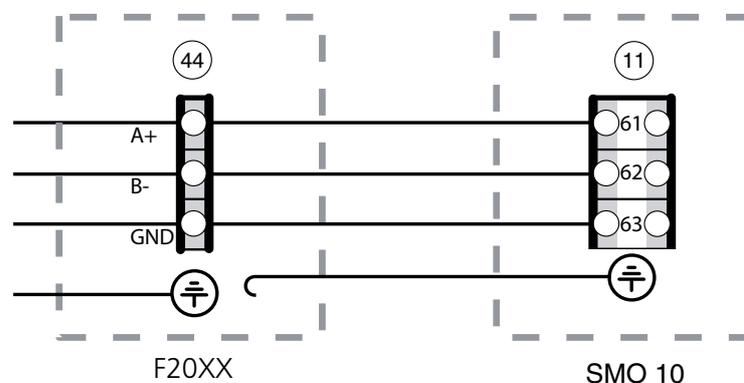
Communication cables must be separated (min 20 cm) from high voltage cables when cable routing.



NIBE air/water heat pump



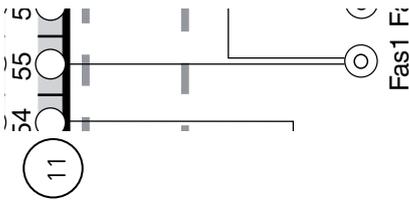
SMO 10



Connecting the outside sensor

The outside sensor (UG) must be installed in a shaded location on a wall facing north or north-west, where it will not be affected for example by the morning sun. Connect the sensor with two wires to terminals 53 and 54 on terminal block (11), see section "Electrical connection – Terminal diagram".

If a conduit is used it must be sealed to prevent condensation in the sensor capsule. The minimum cable cross section should be 0.4 mm² up to lengths of 50 metres, for example, EKKX or LiYY.



Connection of the flow and return line sensors

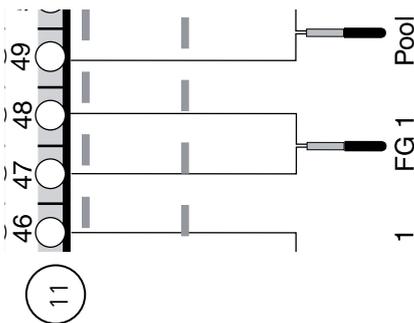
The sensors must have a good contact with the measuring point for best function. Use supplied paste and aluminium tape to ensure measuring ability.

The flow line sensor (FG1) must be installed on the flow line to the heating system. Position the sensor according to the relevant outline diagram under section "Docking".

The sensor must be connected to terminals 47 - 48 on the terminal block (11).

The return sensor (RG1) must be installed on the return line from the heating system. Position the sensor according to the relevant outline diagram under section "Docking".

The sensor must be connected to terminals 45 - 46 on the terminal block (11).



Max boiler temperature/hot water heating

The setting of the different maximum boiler/hot water heater temperatures is done using the knob (102) on the EBV card (2). The temperature should be set 10 °C above the set value in menu 9.1.14.

Boiler temperature	Knob position
55	A
60	B
65	C
70	D
75	E
80	F

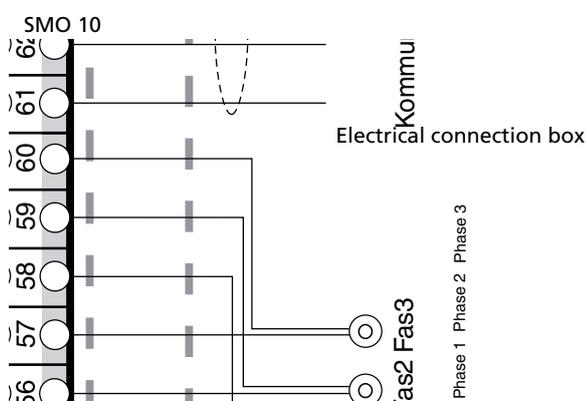
Load monitor

SMO 10 is equipped with an internal load monitor. For the load monitor to function effectively the accompanying current transformers must be connected.

When the load monitor senses an overcurrent on one of the phases, the immersion heater will step down the output until it can be connected again.

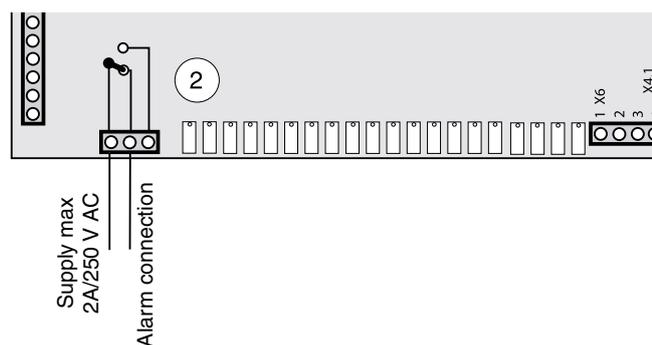
The control system must be set for the installation's main fuse so that the load monitor can work correctly. This is carried out using knob (100), marked "fuse" on the EBV card (2). The supplied current sensor is connected to terminals 55 – 60 on terminal block (11).

Cable type: unshielded LiYY, screened LiYCY. Cable cross section, at least 4 x 0.25 for cable lengths up to 50 m.



External alarm

Signals to an external alarm can be obtained through a connection to the EBV-card (2) according to the image below.



Tariff

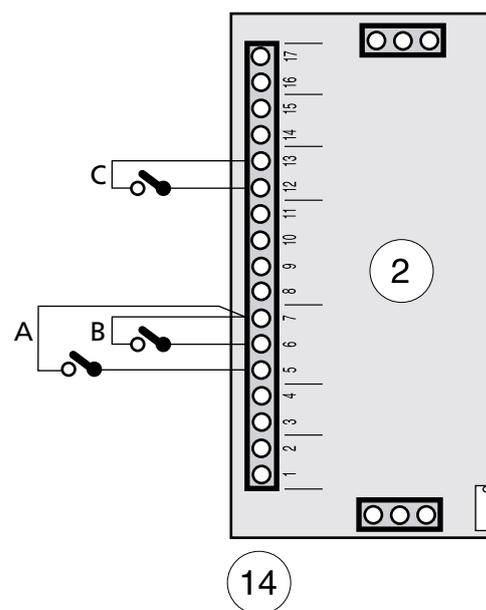
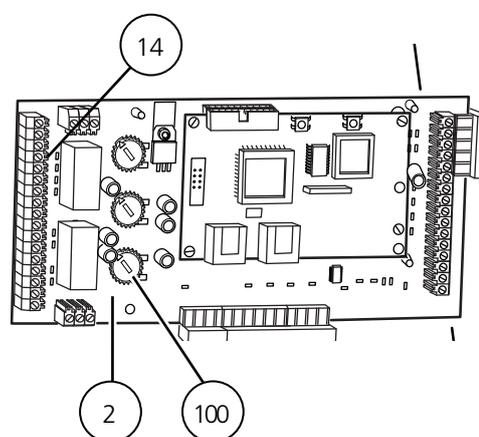
Where centralised load control or tariff control is used this can be connected to the terminal block (14) on the EBV card (2).

Tariff A: To limit the electrical output to half of what is set with max electrical output knob (101), connect a potential free contact between 5 and 7 on the terminal block (14).

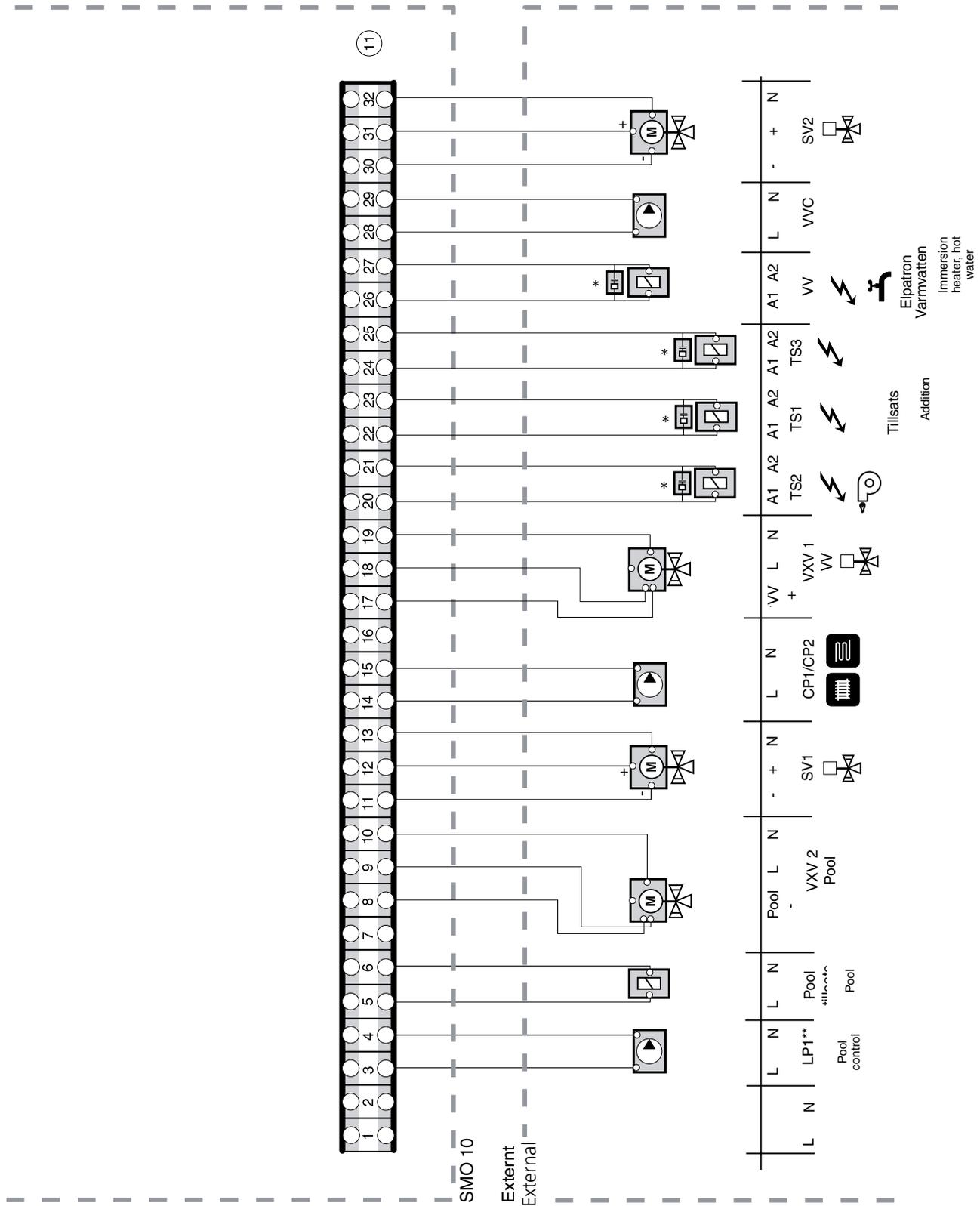
Tariff B: When the complete electrical output is to be disconnected, a potential free contact is connected between 6 and 7 on terminal block (14).

Tariff C: When the complete electrical output together with all heat pumps is to be disconnected, a potential free contact is connected between 12 and 13 on terminal block (14).

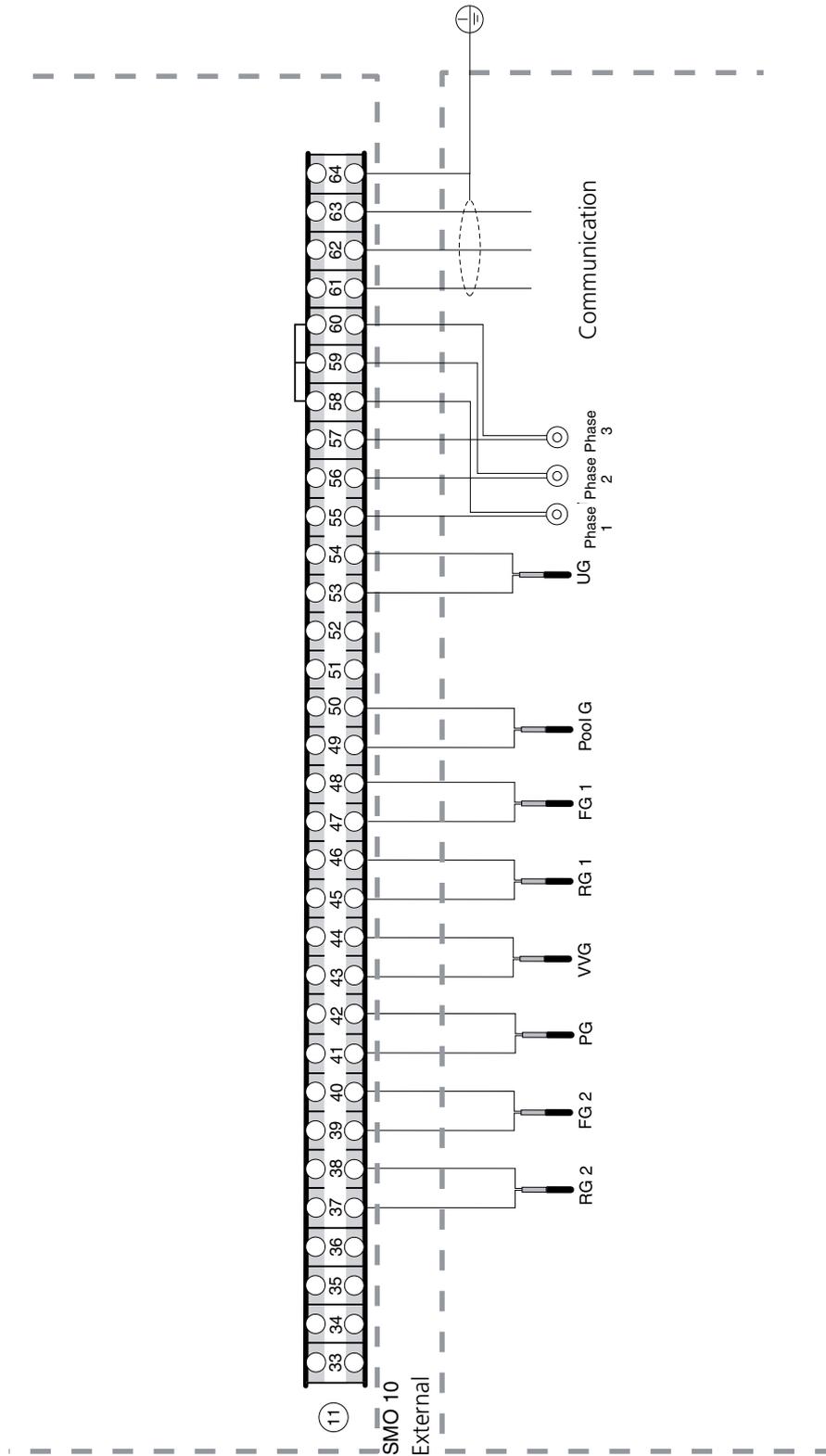
A closed contact results in the electrical output being disconnected.



Terminal diagram



* The interference protection that is supplied in the enclosed kit must be installed either on terminal block 11 or on the contactor.



NOTE!

To prevent interference, sensor cables and communication cables must be separated (min 20 cm) from high voltage cable when cable routing.

Starting

Start-up with NIBE Air/water heat pump

F20XX

1. Follow the instructions in the heat pump's Installation and Maintenance under section "Commissioning and adjustment" – "Start-up and inspection".
2. **FIGHTER 2005/2010:** Change channel 13 to 2. Confirm using the enter button.
3. Check that the modular cable is connected to the heat pump.

SMO 10

1. Check that the modular signal cable between F20XX and SMO 10 is connected.
2. Set the switch (8) to 1. SMO 10 must be powered within 5 minutes after the heat pump has been started, to prevent triggering a communication alarm.
3. Set the date and time in menu 7.1 and 7.2.
4. Select "Service" in menu 8.1.1
5. Set the fuse size on knob (100) equal to the building's fuse size. Check the value in menu 8.3.1.
6. Select the number of heat pumps in menu 9.1.2.
7. Make settings that affect actual docking. See section "Docking".
8. See section "Room temperature" – "Default setting" to set the curve slope and heat curve offset.
9. If floating condensing is applied, the charge flow must be set during hot water production. Check ΔT In menu 5.15, Difference flow-return. See diagram in the heat pump Installation and maintenance.

Start-up without NIBE Air/water heat pump

1. Select "Service" in menu 8.1.1, Menu type.
2. Select "0" in menu 9.1.2, Number of heat pumps.
3. Select "Off" in menu 9.3.12 to switch-off charge pump operation.
4. Select "Yes" in menu 9.3.2, Add. Power.
5. See section "Room temperature" – "Default setting" to set the curve slope and heat curve offset.

Menus to know

- 8.1.1, Menu type: Select Service to gain access to all the menus.
- 9.3.10, Operating mode: Displays SMO 10's operating mode.
- 5.2, VP operating status: Shows heat pump's operating mode.
- 5.3, VP compr.mode: Shows the compressor status for the heat pump.
- 5.4, Time to start: Displays time until compressor start in the heat pump.

NOTE!

Do not forget to fill in the table on page 2.

Menu management

The menu tree shows all the menus. Three different menu types can be chosen.

- N** Normal, covers the normal user's needs.
- U** Extended, shows all menus except the service menus.
- S** Service, shows all menus, returns to normal 30 minutes after the last button was pressed.

Changing of menu type is done from menu 8.1.1

Information is presented on the display about the status of the heat pump and the electric boiler. Menu 1.0 is normally shown on the display screen. The plus and minus buttons and the enter button are used to scroll through the menu system as well as to change the set value in some menus.



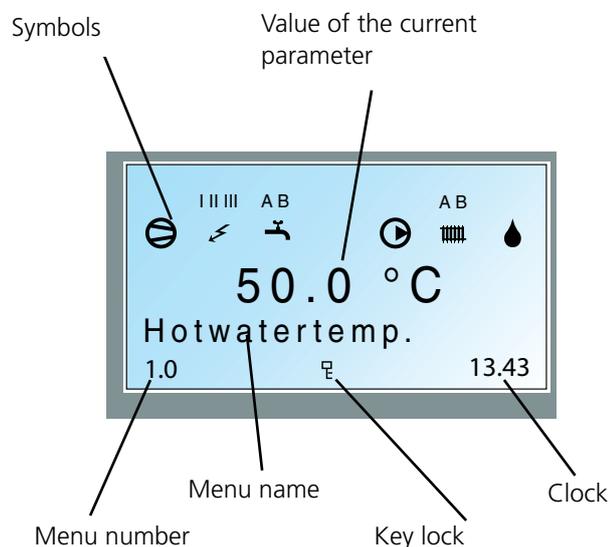
The Plus button is used to move forward to the next menu on the current menu level and to increase the value of the parameter in menus where this is possible.



The Minus button is used to move back to the previous menu on the current menu level and to decrease the value of the parameter in menus where this is possible.



The Enter button is used to select sub-menus of the current menu, to permit parameters to be changed and to confirm any changes to parameters. When the menu number ends with a zero this indicates there is a submenu.



Changing parameters

Changing a parameter (value):

- Access the required menu.
- Press the enter button, the numerical value starts to flash
- Increase or decrease the value with the Plus/Minus buttons.
- Confirm by pressing the enter button.
- Menu 1.0 is automatically displayed again 30 minutes after pressing the last button.

Example

Changing the curve slope, menu 2.1.

- The starting point is menu 1.0.
- Press the plus button to move to menu 2.0.
- Press the enter button to move to menu 2.1.
- Press the enter button to change the value.
- Change the value by pressing the plus or minus buttons.
- Confirm the selected value by pressing the enter button.
- Press the minus button to move to menu 2.9.
- Press the enter button to move to menu 2.0.
- Press the minus button to move to menu 1.0.

Key lock

A key lock can be activated in the main menus by simultaneously pressing the plus and the minus buttons. The key symbol will then be shown on the display. The same procedure is used to deactivate the key lock.

Quick movement

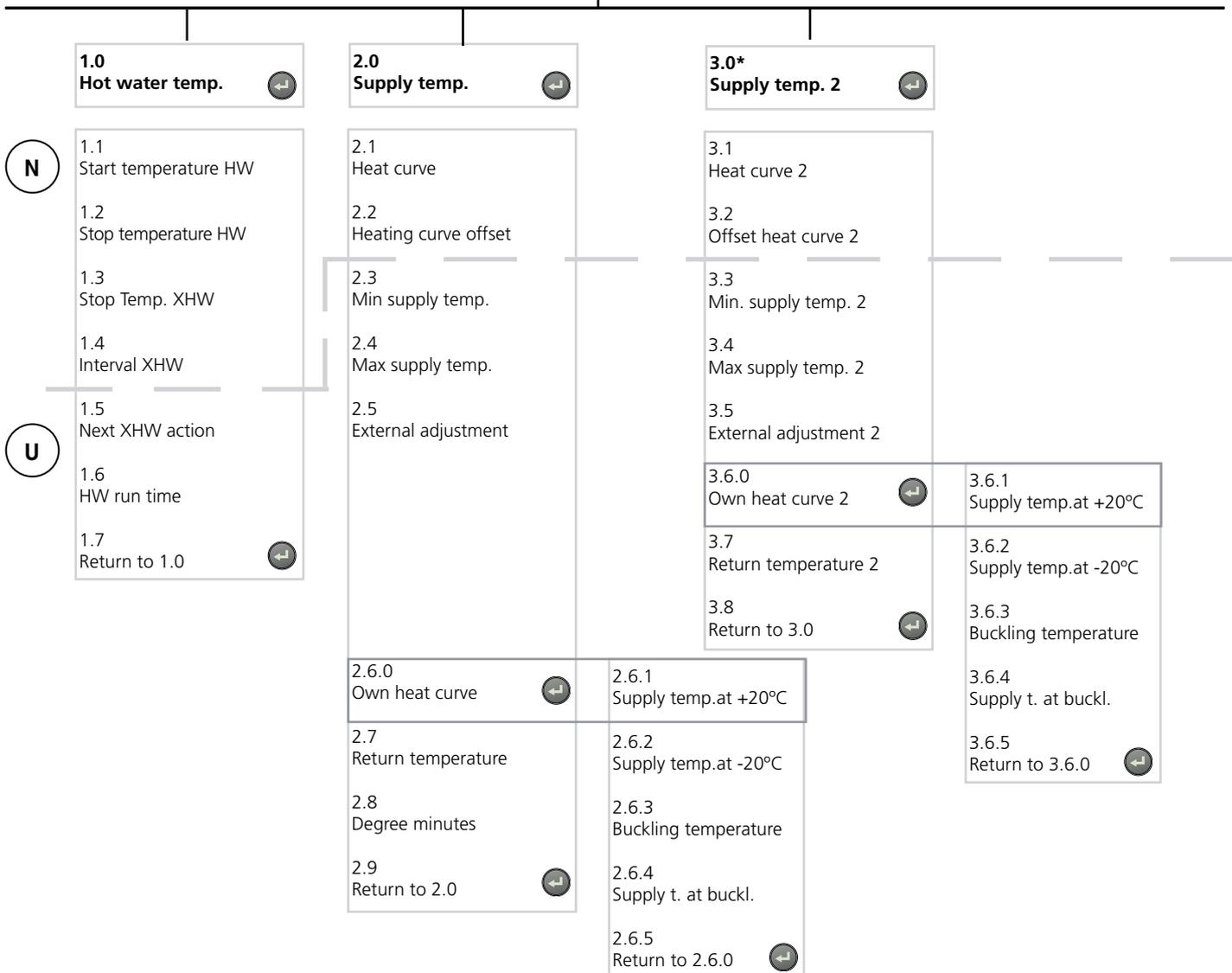
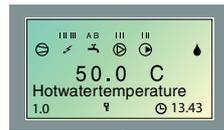
To quickly return to the main menu from sub-menus press the button at the bottom left.



NOTE!

Ensure the operating mode is not changed during quick movement

Menu tree

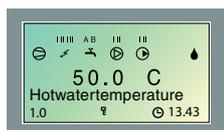


N Normal, covers the normal user's needs.

U Extended, shows all menus except the service menus.

S Service, shows all menus, returns to normal 30 minutes after the last button was pressed.

* Requires accessory and activation in menu 9.3.3.



4.0
Outdoor temp. 

4.1
Outdoor avg. temp.

4.2
Return to 4.0 

5.0
Heat pump 

5.1
Heat pump

5.2
Heat pump op. mode #

5.3
Heat pump status #

5.4
Minutes to start #

5.5
Starts count A #

5.6
Starts count B #

5.7
Acc. run time A #

5.8
Acc. run time B #

5.9
Outdoor temp. #

5.10
Evapor. temp. #

5.11
Suction gas temp #

5.12
Liquid temperature #

5.13
Hotgas temperature #

5.14
Return temperature #

5.15
Diff. Supply/return #

5.16
Start defrosting #

5.17
Return to 5.0 

6.0*
Room temperature 

6.1
Room adjustment

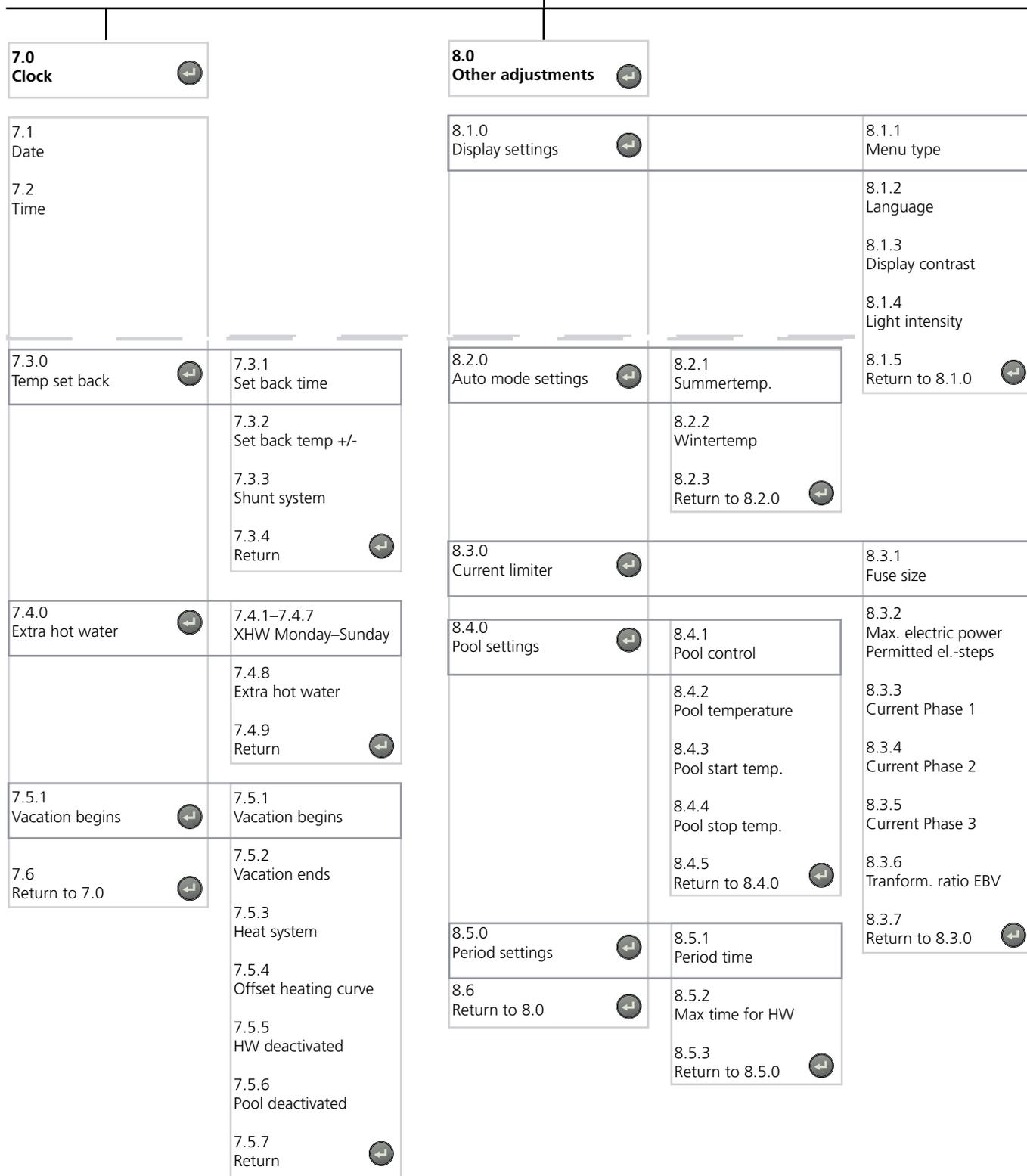
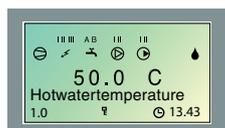
6.2
Shunt system

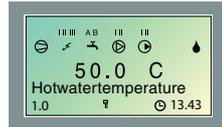
6.3
Roomtemp. setpoint

6.4
Return to 6.0 

* Requires accessory and activation in menu 9.3.5.

Menu tree





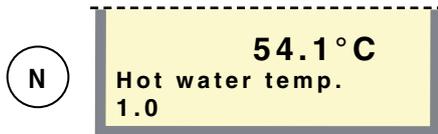
9.0
Service menus

9.1.0 Heat pump settings			9.1.1 Heat p. start value
9.2.0 Add. heat settings		9.2.1 Start add. heat.	9.1.2 Number of heat pumps
9.3.0 Operating settings.	9.3.1 Max. boiler temp.	9.2.2 Time factor	9.1.3 Start defrost
9.4 Quick start	9.3.2 Add. heat mode	9.2.3 Docking type	9.1.4 Stop defrost
9.5.0 Alarmlog	9.3.3 Shunt 2	9.2.4 Reg. amplification	9.1.5 Max defrost time
9.6.0 System Info	9.3.4 Room unit	9.2.5 Reg. integrator time	9.1.6 Time betw. defr
9.7 Return to 9.0	9.3.5 Room sensor	9.2.6 Shunt amplification	9.1.7 Step change t.
	9.3.6 Reset alarm	9.2.7 Shunt amplification 2	9.1.9 Stop Temp.
	9.3.7 Clear alarm log	9.2.8 Oil burner temp.	9.1.10 Time bet. starts
	9.3.8.0 Test mode	9.2.9 Oil b. start temp.	9.1.11 Return max.
	9.3.9 Factory setting	9.2.10 Oil b. min. time	9.1.12 Return diff.
	9.3.10 Operating mode	9.2.11 Max. step 2h	9.1.14 Heat pump stop XHW
	9.3.11.0 Floor drying	9.2.12 Immersion heater type	9.1.15 Max heat p. time XHW
	9.3.12 Supply pump exer.	9.2.13 HW degree minutes	9.1.16 Return to 9.1.0
	9.3.13 Supply diff. HP	9.2.14 Return to 9.2.0	
	9.3.14 Diff. HP add. Heat		
	9.3.11.1 Floor drying		
	9.3.11.2 Period time 1		
	9.3.11.3 Temperat. period 1		
	9.3.11.4 Period time 2		
	9.3.11.5 Temperat. period 2		
	9.3.11.6 Return		
	9.3.15.0 BW-Zirkulation	9.3.15.1 Time der Period BWUP	
	9.3.16 Block HW/Heating	9.3.15.2 Period time BW-UP	
	9.3.17 Heat drop at alarm	9.3.15.3 Acc. run time BW-UP	
	9.3.18 Type of HW sensor	9.3.15.3 Return to 9.3.15.0	
	9.3.19 Return to 9.3.0		

S

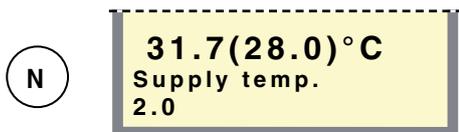
Menu explanation

Main menus



Menu 1.0 Hot water temp.

The current hot water temperature (HWS) in the outer jacket is shown here. Note that the hot water temperature at the top of the tank is usually higher. This menu is not displayed when hot water (HW) is deselected.



Menu 2.0 Supply temp.

The current supply temperature (FG1) for the heating system is shown here with the calculated supply temperature in brackets. This menu is not displayed when heating is deselected.



Menu 3.0 Supply temp. 2*

The current supply temperature (FG2) for the heating system is shown here with the calculated supply temperature in brackets.

This menu is shown first when "On" is selected in menu 9.3.3.



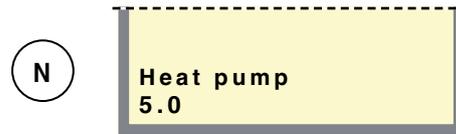
Menu 4.0 Outdoor temp.

The current outdoor temperature is shown here. Measured from outdoor sensor (UG).

N Normal, covers the normal user's needs.

U Extended, shows all menus except the service menus.

S Service, shows all menus, returns to normal 30 minutes after the last button was pressed.



Menu 5.0 Heat pump

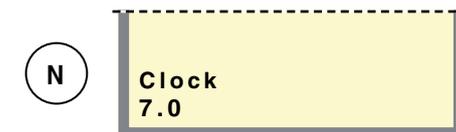
Readings regarding the heat pump are set on the sub-menus to this menu.



Menu 6.0 Room temperature*

Current room temperature is displayed here. Desired room temperature is displayed here within brackets.

Settings regarding room temperature control can be made in the sub-menus to this menu.



Menu 7.0 Clock

Settings regarding the date and time are made in the sub-menus of this menu. Different temperature reductions and increases at selected times are also set from this menu.



Menu 8.0 Other adjustments

Settings regarding the menu type, language, operating mode settings and load monitor reading are made in the sub-menus to this menu.



Menu 9.0 Service menus

This menu and its sub-menus are only shown on the display screen when access has been selected in menu 8.1.1. Values can be read and various settings can be made from these sub-menus. NOTE! These settings should only be made by persons with the necessary expertise.

* Accessories are needed.

1.0 Hot water temp.

Menu 1.1 Start temperature HW

The temperature when the heat pump starts to work with the hot water heater is set here.

The value can be set between 25 and 50 °C. The factory setting is 45 °C.

Menu 1.2 Stop temperature HW

The temperature when the heat pump/immersion heater should stop heating the water is set here.

The value can be set between 30 and 80 °C. The factory setting is 50 °C.

Menu 1.3 Stop temp. XHW

The desired stop temperature for extra hot water is set here.

The value can be set between 40 and 80 °C. The factory setting is 60 °C.

Menu 1.4 Interval XHW

How often the hot water temperature is increased from the normal level to the "Extra hot water" level is shown here.

The value is adjustable between 0 and 90 days. Periodic Extra hot water is **shut-off** at value **0**. Extra hot water is started when the value is confirmed. The factory setting is 14 days.

Menu 1.5 Next XHW action

Future increases to the "Extra hot water" level are shown here.

Menu 1.6 HW run time

How long hot water heating has been in progress is shown here (accumulated).

Menu 1.7 Return

Return to menu 1.0.

Menu explanation

2.0 Supply temp.

Menu 2.1 Heat curve

The selected curve slope (heat curve) is selected here. At value 0, the function "Own curve" is activated, see menu 2.6.0.

The value can be set between curves 0 and 20. The factory setting is 9.

Menu 2.2 Heating curve offset

The selected heating curve offset is shown here. The value is adjustable between -10 and +10. NOTE! The value is changed using the "Heating curve offset" knob.

Menu 2.3 Min supply temp.

The desired minimum level for the supply temperature for the heating system is selected here.

The calculated flow temperature never drops below the set level irrespective of the outdoor temperature, curve slope or offset heating curve.

The value can be set between 10 and 65 °C. The factory setting is 15 °C.

Menu 2.4 Max supply temp.

The desired maximum level for the supply temperature for the heating system is selected here.

The calculated supply temperature never exceeds the set level irrespective of the outdoor temperature, curve slope or offset heating curve.

The value can be set between 10 and 80 °C. The factory setting is 55 °C.

Menu 2.5 External adjustment

Connecting an external contact, see "Function description – Heating", for example, a room thermostat or a timer allows you to temporarily or periodically raise or lower the supply temperature and with that the room temperature. When the external contact is made, the heating curve offset is changed by the number of steps shown here.

The value can be set between -10 and +10. The factory setting is 0.

Menu 2.6.0 Own heat curve

Here you can select your own heat curve definition. This is an individual linear curve with one break point. You select a break point and the associated temperatures.

NOTE! The "Curve slope" in menu 2.1 must be set to 0 to activate this function.

Menu 2.6.1 Supply temp.at +20°C

The supply temperature at an outside temperature of +20 is selected here.

The value can be set between 0 and 80 °C. The factory setting is 15 °C.

Menu 2.6.2 Supply temp.at -20°C

The supply temperature at an outside temperature of -20 is selected here.

The value can be set between 0 and 80 °C. The factory setting is 35 °C.

Menu 2.6.3 Buckling temperature

Here you select at what outside temperature the break point shall occur.

The value can be set between -15 and +15 °C. The factory setting is 0 °C.

Menu 2.6.4 Supply t. at buckl.

You set the required flow temperature for the break point here.

The value can be set between 0 and 80 °C. The factory setting is 20 °C.

Menu 2.6.5 Return

Return to menu 2.6.

Menu 2.7 Return temperature

The current actual return line temperature from the heating system is shown here.

Menu 2.8 Degree-minutes

Current value for number of degree-minutes. This value can be changed to speed up the start of heating production.

The value can be set from 100 and downwards. The factory setting is 0.

Menu 2.9 Return

Return to menu 2.0.

3.0 Supply temp. 2*

Menu 3.1 Heat curve 2

The desired curve slope (heat curve) 2 is selected here. At value 0 the function "Own curve" is activated, see menu 3.6.0.

The value can be set between curves 0 and 20. The factory setting is 6.

Menu 3.2 Offset heat curve 2

Offset for heat curve 2 is selected here.

The value can be set between -10 and +10. The factory setting is -1.

Menu 3.3 Min. supply temp. 2

The desired minimum level for the flow line temperature for heating system 2 is selected here.

The calculated flow temperature never drops below the set level irrespective of the outdoor temperature, curve slope or offset heating curve.

The value can be set between 10 and 65 °C. The factory setting is 15 °C.

Menu 3.4 Max supply temp. 2

The desired maximum level for the supply temperature for heating system 2 is selected here.

The calculated supply temperature never exceeds the set level irrespective of the outdoor temperature, curve slope or offset heating curve.

The value can be set between 10 and 80 °C. The factory setting is 45 °C.

Menu 3.5 External adjustment 2

Connecting an external contact, see "Function description – Heating", for example, a room thermostat or a timer allows you to temporarily or periodically raise or lower the supply temperature and with that the room temperature. When the external contact is made, the heating curve offset is changed by the number of steps shown here.

The value can be set between -10 and +10. The factory setting is 0 °C.

Menu 3.6.0 Own heat curve 2

Here you can select your own heat curve definition. This is an individual linear curve with one break point. You select a break point and the associated temperatures.

NOTE! The "Curve slope" in menu 3.1 must be set to 0 to activate this function.

Menu 3.6.1 Supply temp.at +20°C

The supply temperature at an outside temperature of +20 is selected here.

The value can be set between 0 and 80 °C. The factory setting is 15 °C.

Menu 3.6.2 Supply temp.at -20°C

The supply temperature at an outside temperature of -20 is selected here.

The value can be set between 0 and 80 °C. The factory setting is 35 °C.

Menu 3.6.3 Buckling temperature

Here you select at what outside temperature the break point shall occur.

The value can be set between -15 and +15 °C. The factory setting is 0 °C.

Menu 3.6.4 Supply t. at buckl.

You set the required flow temperature for the break point here.

The value can be set between 0 and 80 °C. The factory setting is 20 °C.

Menu 3.6.5 Return

Return to menu 3.6.

Menu 3.7 Return temperature 2

The current actual return line temperature from heating system 2 is displayed here.

Menu 3.8 Return

Return to menu 3.0.

* Requires accessory and activation in menu 9.3.3.

Menu explanation

4.0 Outdoor temp.

Menu 4.1 Outdoor avg. temp.

Average outdoor temperature during the last 24 hours.

Menu 4.2 Return

Return to menu 4.0.

5.0 Heat pump

Menu 5.1 Heat pump

Here you can chose which heat pump to read. The selected heat pump is displayed in the following menus to the right of the display.

Menu 5.2 Heat pump op. mode

The operating status of the air/water heat pump is shown here, alternatively which alarm has been activated (corresponds to channel 00 in the air/water heat pump). In the event of an alarm the air/water heat pump can be restarted using the enter button.

Menu 5.3 Heat pump status

Displays compressor status for the air/water heat pump (corresponds to channel 27 in the air/water heat pump).

"Waiting" means that the compressor starts as soon as the time conditions in the air/water heat pump permits.

"Stopped" means the compressor is at a stand still.

"Compr. on" means that the compressor is running. (FIGHTER 2005/2025).

"Comp. level A" means that the compressor runs at stage A, low power stage. (FIGHTER 2010)

"Comp. level B" means that the compressor runs at stage B, high power stage. (FIGHTER 2010)

Menu 5.4 Minutes to start

Time until compressor start in the air/water heat pump is shown in this menu.

Menu 5.5 Starts count A

The accumulated number of starts with the compressor's stage 1 in FIGHTER 2010 is shown here. (Does not apply to FIGHTER 2005/2025.)

Menu 5.6 Starts count B

FIGHTER 2010: The accumulated number of starts with the compressor's stage 2 in the air/water heat pump is shown here.

FIGHTER 2005/2025: The accumulated number of starts with the compressor in the heat pump is shown here.

Menu 5.7 Acc. run time A

The accumulated time that the compressor's stage 1 has used on FIGHTER 2010 is shown here. (Does not apply to FIGHTER 2005/2025.)

Menu 5.8 Acc. run time B

FIGHTER 2010: The accumulated time that the compressor's stage 2 has used on the air/water heat pump.

FIGHTER 2005/2025: The accumulated time that the compressor has been used in the heat pump is shown here.

Menu 5.9 Outdoor temp.

This menu shows the outdoor air temperature that the heat pump measures.

Menu 5.10 Evapor. temp.

This menu shows the evaporator temperature in the air/water heat pump.

Menu 5.11 Suction gas temp

This menu shows the suction gas temperature in the air/water heat pump.

Menu 5.12 Liquid temperature

This menu shows the liquid temperature in the air/water heat pump.

Menu 5.13 Hotgas temperature

This menu shows the hotgas temperature in the air/water heat pump.

Menu 5.14 Return temperature

This menu shows the return temperature that the air/water heat pump measures.

Menu 5.15 Diff. Supply/return

Difference (ΔT) between the flow line and return line to/from the air/water heat pump.

Menu 5.16 Start defrosting

Manual activation of defrosting procedure in the air/water heat pump.

Menu 5.17 Return

Return to menu 5.0.

6.0 Room temperature*

Menu 6.1 Room adjustment

The factor that determines how much a deviation between desired and actual room temperature is to affect the supply temperature.

The factor is multiplied by the deviation and corrects the calculated supply temperature with this number. If the deviation is 1 °C and the factor is 3, the supply temperature changes by 3 °C.

The factor can be adjusted between 0 and 10 in increments of 0.1. Factory setting is 1.0.

Menu 6.2 Shunt system

The heating system that the room sensor is to affect is selected here. If shunt group 2 is present this can be set to "Off", "Shunt 1", "Shunt 2" or "Shunt 1+2". In other cases only "Off" and "Shunt 1" can be selected.

Menu 6.3 Roomtemp. setpoint

The desired room temperature is set here.

The value can be adjusted between 10.0 and 30.0 °C in increments of 0.5 °C. Factory setting is 22.0 °C.

Menu 6.4 Return

Return to menu 6.0.

7.0 Clock

Menu 7.1 Date

The current date is set here.

Menu 7.2 Time

Here the current time is set.

Menu 7.3.0 Temp set back.

Settings, e.g. for night reduction can be selected in the sub-menus to this menu.

Menu 7.3.1 Set back time

The time for the day change, e.g. night reduction is chosen here.

Menu 7.3.2 Set back temp +/-

Changes to the flow temperature with a day change, e.g. night reduction are set here. The value is adjustable between -10 and +10.

Menu 7.3.3 Shunt system

The heating system to be affected is selected here. If shunt group 2 is present this can be set to "Off", "Shunt 1", "Shunt 2" or "Shunt 1+2". In other cases only "Off" and "Shunt 1" can be selected.

Menu 7.3.4 Return

Return to menu 7.3.

Menu 7.4.0 Extra hot water

Settings for control of extra hot water can be made in the sub-menus to this menu.

Menu 7.4.1 – 7.4.7 XHW Monday – Sunday

Here you select the period for respective days when extra hot water should be activated. Hours and minutes for both start and stop are shown. Equal values or the stop time before the start time mean that extra hot water is not activated.

Menu 7.4.8 Return

Return to menu 7.4.0

* Requires accessory and activation in menu 9.3.5.

Menu explanation

Meny 7.5.0 Vacation set back

Settings concerning vacation set back are made on the sub-menus to this menu.

When the vacation function is active, the flow temperature is lowered according to the chosen setting, and the hot water heating as well as pool heating can be turned off.

When the vacation function is deactivated, the heat pump is heating the water for one hour, before extra hot water is activated.

Meny 7.5.1 Vacation begins

Here you select the start date for the vacation set back. The date is changed by pressing the enter-button. The vacation set back starts at 12:00 midnight the chosen date.

The same date in menu 7.5.1 and 7.5.2 deactivates the vacation set back.

Meny 7.5.2 Vacation ends

Here you select the end date for the vacation set back. The date is changed by pressing the enter-button. The vacation set back ends at 11:59 p.m. the chosen date.

The same date in menu 7.5.1 and 7.5.2 deactivates the vacation set back.

Meny 7.5.3 Shunt system

Here you select which heating system shall be affected by the vacation set back.

Meny 7.5.4 Offset heating curve

Here you select the heating curve offset during the vacation set back. The value can be adjusted between -10 and +10. The factory setting is -5.

If the selected heating system has a room sensor, the set back is given in degrees instead.

7.5.5 HW deactivated

Here you can select whether hot water heating shall be turned off during the vacation set back. Can be set to "Yes" or "No". The factory setting is "Yes".

7.5.6 Pool deactivated

Here you can select whether pool heating shall be turned off during the vacation set back. Can be set to "Yes" or "No". The factory setting is "Yes".

7.5.7 Return

Return to menu 7.5.0.

Menu 7.6 Return

Return to menu 7.0.

8.0 Other adjustments

Menu 8.1.0 Display settings

Settings concerning language and menu type are set on the sub-menus to this menu.

Menu 8.1.1 Menu type

The menu type is chosen here: Normal, extended or service.

Normal, covers the normal user's needs.

Advanced, shows all menus except the service menus.

Service, shows all menus, returns to normal 30 minutes after the last button was pressed.

Menu 8.1.2 Language

The desired language is chosen here:

Menu 8.1.3 Display contrast

The display's contrast is set here. The value can be set between 0 and 31. The factory setting is 20.

Menu 8.1.4 Light intensity

The light intensity in idle mode is set here. Idle mode starts 30 minutes after the last button was pushed. The value is adjustable between 0 and 2. The factory setting is 2.

0=shut-off, 1=low, 2=average.

Menu 8.1.5 Return

Return to menu 8.1.0.

Menu 8.2.0 Auto mode settings

Settings regarding auto mode can be made in the sub-menus to this menu.

Menu 8.2.1 Summertemp.

The average temperature when the circulation pump and immersion heater are blocked is shown here.

The value can be set between 0 and 30 °C. The factory setting is 25 °C.

Menu 8.2.2 Wintertemp

The average temperature when the circulation pump and immersion heater are activated is shown here.

The value can be set between 0 and 30 °C. The factory setting is 20 °C.

Menu 8.2.3 Return

Return to menu 8.2.0.

Menu 8.3.0 Current limiter

Settings and readings regarding the load monitor are set on the sub-menus to this menu.

Menu 8.3.1 Fuse size

The setting selected on the load monitor card (2) is shown here knob (100).

Menu 8.3.2 Max. electric power

The setting selected on the load monitor card (2) is shown here knob (101).

Menu 8.3.3 – 8.3.5 Current phase 1 – 3

Shows the measured current from phase 1 – 3.

Menu 8.3.6 Transform. ratio EBV

The transfer value must be defined depending on the current transformers used for the EBV card. This is done in this menu. The value is adjustable between 100 and 900 in increments of 10. The setting 300 applies for the supplied current transformers.

Menu 8.3.7 Return

Return to menu 8.3.0.

Menu 8.4.0 Pool settings

Pool settings are made on the sub-menus to this menu.

Menu 8.4.1 Pool control

You choose here whether pool control should be On or Off.

Menu 8.4.2 Pool temperature

The current Pool temperature is shown here.

Menu 8.4.3 Pool start temp.

The temperature at which pool heating is to start is shown here. When the temperature drops below this value, heating starts after the hot water and heating demands are met.

The value can be adjusted between 5 and 40 °C in increments of 0.5 °C. The factory setting is 25 °C.

Menu 8.4.4 Pool stop temp.

The temperature at which pool heating is to stop.

The value can be adjusted between 5 and 40 °C in increments of 0.5 °C. The factory setting is 28 °C.

Menu 8.4.5

Return to menu 8.4.0.

Menu 8.5.0 Period settings

Time periods for heating and hot water production are set in the sub-menus for this menu.

Menu 8.5.1 Period time

The length of time for production of hot water and heating is set here.

The value is adjustable between 5 and 60 minutes. The factory setting is 60 minutes.

Menu 8.5.2 Max time for HW

Here you select how much time of the period time (menu 8.5.1) is to be used to heat the hot water when there is a need of both heating and hot water.

The value is adjustable between 0 and 60 minutes. The factory setting is 30 minutes.

Menu 8.5.3

Return to menu 8.5.0.

Menu 8.6 Return

Return to menu 8.0.

Menu explanation

9.1.0 Heat pump settings

Settings regarding the air/water heat pump can be made in the sub-menus to this menu.

Menu 9.1.1 Heat p. start value

Degree minute setting for start of air/water heat pump.

The value can be set between -120 and 0. The factory setting is -60.

Menu 9.1.2 Number of heat pumps

The number of connected air/water heat pumps are indicated here.

The value can be set between 0 and 9.

Menu 9.1.3 Start defrost*

The desired start temperature on the evaporator sensor for air/water heat pump defrosting is set here.

The value can be set between -10 and +2 °C. The factory setting is -4 °C.

Menu 9.1.4 Stop defrost*

The desired stop temperature on the evaporator sensor for air/water heat pump defrosting is set here.

The value can be set between 10 and 40 °C. The factory setting is 20 °C.

Menu 9.1.5 Max defrost time*

The longest period for defrosting the air/water heat pump is set here.

The value is adjustable between 5 and 12 minutes. The factory setting is 7 minutes.

Menu 9.1.6 Time betw. defr*

Minimum running time, heat production before new defrosting is permitted in the air/water heat pump.

The value is adjustable between 10 and 90 minutes. The factory setting is 50 minutes.

Menu 9.1.7 Step change t.*

Outdoor air temperature, for modifying the power stage in FIGHTER 2010.

The value can be set between 0 and 40 °C. The factory setting is 13 °C.

Menu 9.1.9 Stop Temp.*

Stop temperature, set outdoor air temperature when the downtime relay in the air/water heat pump is activated, and it stops.

The value can be set between -12 and 0 °C. The factory setting is -7 °C.

Menu 9.1.10 Time bet. starts*

Minimum time interval in minutes between compressor starts in the air/water heat pump.

The value is adjustable between 20 and 60 minutes. The factory setting is 20 minutes.

Menu 9.1.14 Heat pump stop XHW

The temperature at which extra hot water switches from compressor operation to immersion heater for hot water is set here. The same value as in menu 1.2 should be selected.

The value can be set between 45 and 65 °C. The factory setting is 50 °C.

Menu 9.1.15 Max heat p. time XHW

If the compressor does not manage to obtain the temperature after this time, SMO 10 switches to combined mode and the immersion heater starts in the hot water heater.

The value is adjustable between 0 and 60 minutes. The factory setting is 30 minutes.

Menu 9.1.16 Return

Return to menu 9.1.0.

* See FIGHTER 20XX Installation And Maintenance Instructions for setting range and factory setting.

9.2.0 Add. heat settings

Settings regarding additional heat and shunt in SMO 10 and any extra shunt can be made on the sub-menus in this menu.

Menu 9.2.1 Start add. heat.

The degree minute deficit that must be set before the additional heat supply is activated is set here.

A value between -1000 and -30 can be set. The factory setting is -400.

Menu 9.2.2 Time factor

The time factor of the immersion heater since first start up is shown here. The value is saved in the microprocessor and thus is not reset even when the boiler is switched off using the main power switch.

Menu 9.2.3 Docking type

The relevant docking option is selected here:

- VVM
- SMO Oilburner
- SMO El. after
- SMO Vent. Air
- SMO El before
- SMO Waterheat

Factory setting is "SMO Oilburner".

Menu 9.2.5 Reg. integrator time

Number of degree minutes per step are set here after the additional heater has engaged.

The value is adjustable between 10 and 100 degree minutes. The factory setting is 100.

Menu 9.2.6 Shunt amplification

Applies to shunt 1 (SV1). E.g. 2 degrees difference and 2 in amplification gives 4 sec/min controlling the shunt.

The value can be set between 1 and 10. The factory setting is 2.

Menu 9.2.7 Shunt amplification 2

Applies to any shunt 2 (SV2) (accessory required). E.g. 2 degrees difference and 2 in amplification gives 4 sec/min controlling the shunt. This function compensates for the speed variation found on different shunt motors that may be installed.

The value can be set between 1 and 10. The factory setting is 2.

Menu 9.2.8 Oil burner temp.

The oil boiler's temperature is shown in °C here.

Menu 9.2.9 Oil b. start temp.

The oil boiler temperature must be set before the shunt valve is permitted to open.

The value can be set between 10 and 65 °C. The factory setting is 55 °C.

Menu 9.2.10 Oil b. min. time

Number of hours the oil boiler is to be active.

The value can be set between 1 and 12 hours. The factory setting is 2 hours.

Menu 9.2.11 Max. step 2h

The maximum number of electrical steps that can be in operation for the first two hours after start/power failure is selected here.

The value is adjustable between 0 and 7. The factory setting is 2.

Menu 9.2.12 Immersion heater type

Here it can be decided whether the electrical addition is to be controlled binary, VVM Binary or Linear.

Binary Control means that the increase occurs according to the binary number system and consequently makes control possible with at least seven power stages.

VVM Binary means that the increase occurs binary analogue VVM 240. Can be used for heater cartridge sizes 3, 4,5 and 6 kW or multiples.

Linear control allows a maximum of three power stages as the increase occurs according to linear increasing models.

The factory setting is binary.

Menu 9.2.13 HW degree minutes

Current value for number of degree-minutes for hot water heating.

Menu 9.2.14 Return

Return to menu 9.2.0.

Menu explanation

9.3.0 Operating settings.

Menu 9.3.0 Operating settings.

Settings regarding additional heat, floor drying and a return to the factory settings can be made on the sub-menus in this menu.

Menu 9.3.1 Max. boiler temp.

The setting selected on the EBV card (2) knob (102) is shown here.

Menu 9.3.2 Add. heat mode

Additional heat mode is activated when "Yes" is shown on the display screen, otherwise "No" is shown. When the additional heat mode is activated, the immersion heater respective circulation pump cannot be blocked with the operating mode button.

Menu 9.3.3 Shunt 2

Shunt group 2 can be set to "On" or "Off" here (accessories required).

Menu 9.3.4 Room unit

Accessories are needed.

Menu 9.3.5 Room sensor

A room sensor is reset here if installed (accessory RG05 required).

Menu 9.3.6 Reset alarm

Resetting alarms in SMO 10.

Menu 9.3.7 Clear alarm log

Clearing the alarm log in SMO 10.

Menu 9.3.8.0 Test mode

Only for service personnel.

Menu 9.3.9 Factory setting

Return to the factory settings in SMO 10, "Yes" or "No".

Menu 9.3.10 Operating mode

Describes the operating mode of SMO 10 and the air/water heat pump.

Shutdown: Additional heater and heat pump are shut-down due to an alarm.

Alternating: the air/water heat pump produces heat and switches, when necessary, between hot water and heating.

Combined Mode: Due to a great heating demand, the immersion heater is used for hot water and the air/water heat pump produces heat. The addition assists, when necessary, with heat production.

Hot water: Only hot water is produced. This is carried out by the air/water heat pump.

Addition: The air/water heat pump is off and both hot water and heat is produced by the addition.

Menu 9.3.11.0 Floor drying

Settings for the floor drying program are made in the sub-menus to this menu.

Menu 9.3.11.1 Floor drying

"On" or "Off" is selected for the floor drying program from this sub-menu. After time period 1 switching to time period 2 then Return to normal settings.

Menu 9.3.11.2 Period time 1

Selection of the number of days in period 1. The value is adjustable between 1 to 5. The factory setting is 3 days.

Menu 9.3.11.3 Temperat. period 1

Selection of the flow temperature in period 1. The value is adjustable between 15 and 50 °C. Factory setting is 25 °C.

Menu 9.3.11.4 Period time 2

Selection of the number of days in period 2. The value is adjustable between 1 to 5. The factory setting is 1 days.

Menu 9.3.11.5 Temperat. period 2

Selection of the flow temperature in period 2. The value is adjustable between 15 and 50 °C. Factory setting is 40 °C.

Menu 9.3.11.6 Return

Return to menu 9.3.11.0.

Menu 9.3.12 Supply pump exer.

Supply pump operation can be deactivated here. In off mode, the supply pump does not operate and freeze protection is not available.

The factory setting is "On".

Menu 9.3.13 Supply diff. HP

When the current flow temperature deviates from the set value compared to that calculated, the heat pump is forced to stop/start irrespective of the degree-minute figure.

When the current flow temperature exceeds the set value, the degree-minute figure is set to 1. The compressor stops when there is only a heating requirement.

If the current supply temperature falls below the set value, the degree minute number is set to -60. This means that the compressor will start. If the value also falls below menu (9.3.14), the degree minute figure can go to -400.

The value can be set between 3 and 25 °C. The factory setting is 10 °C.

Menu 9.3.14 Diff. HP add. Heat

When the current flow temperature drops below that calculated by the set value, plus the value from menu 9.3.13, the degree-minute value is set to -400. This means that the additional heat can be engaged directly.

The value can be set between 1 and 8 °C. The factory setting is 3 °C.

Menu 9.3.15.0 BW-Zirkulation

Settings regarding hot water circulation can be made in the sub-menus to this menu.

Menu 9.3.15.1 Time der Period BWUP

Intervals for hot water circulation pump operation during a 24 hour period can be selected here according to period time (menu 9.3.15.2) and operating time (menu 9.3.15.3).

Menu 9.3.15.2 Period time BW-UP

The period time for the hot water circulation pump is set here.

Adjustable between 10 and 60 minutes. The factory setting is 15 minutes.

Menu 9.3.15.3 Acc. run time BW-UP

The operating time per period for the hot water circulation pump is selected here.

Adjustable between 1 and 60 minutes. The factory setting is 3 minutes.

Menu 9.3.15.4 Return

Return to 9.3.15.0.

Menu 9.3.16 Block HW/Heating

Deselection can be made here if the system is not built for hot water or heating.

Options are "No hot water", "No heating" or "HW+heating". Factory setting is "HW+heating".

Menu 9.3.17 Heat drop at alarm

If "Yes" is selected, attention is attracted by a triggered alarm due to the supply temperature dropping to Min. temp. supply.

If "No" is selected, the supply temperature does not drop in the event of an alarm. This means that SMO 10 must be checked regularly. If an earlier alarm indication is required, e.g. a light or a buzzer, SMO 10's extra alarm output is used, see "Electrical connection" – "External alarm".

The factory setting is "Yes".

Menu 9.3.18 Type of HW-sensor

Select here whether to use hot water sensors that can manage higher temperatures (above 100 °C). Options are:

Standard: Standard setting.

High temp: The calculation for the HW jacket sensor and flow line sensor is replaced to adjust a sensor that manages higher temperatures (up to 110 °C). Used if new sensors are installed when installing solar heating.

The factory setting is "Standard".

Menu 9.3.19 Return

Return to menu 9.3.0.

Menu explanation

9.4 Quick start

If "Yes" is selected, the compressor starts in the heat pump within 3 minutes if there is a hot water heating demand.

9.5.0 Alarmlog

The alarm logs with the last 10 alarms are shown in the sub-menus of this menu.

Menu 9.5.1 – 9.5.10 Log 01 – 10

Shows the last 10 alarms.

Menu 9.5.11 Return

Return to menu 9.5.0

9.6.0 System Info

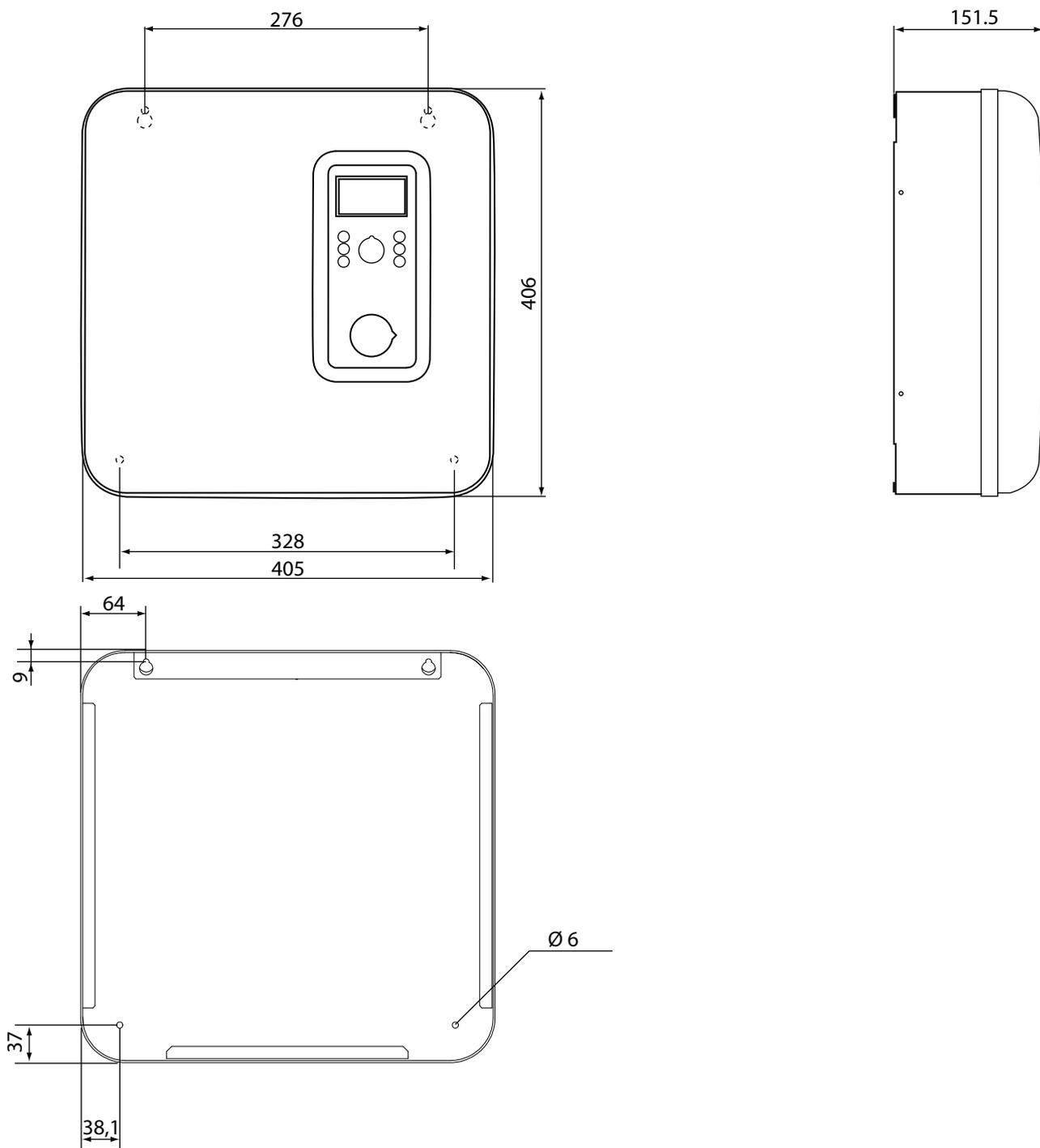
Only for service personnel.

Menu 9.7 Return

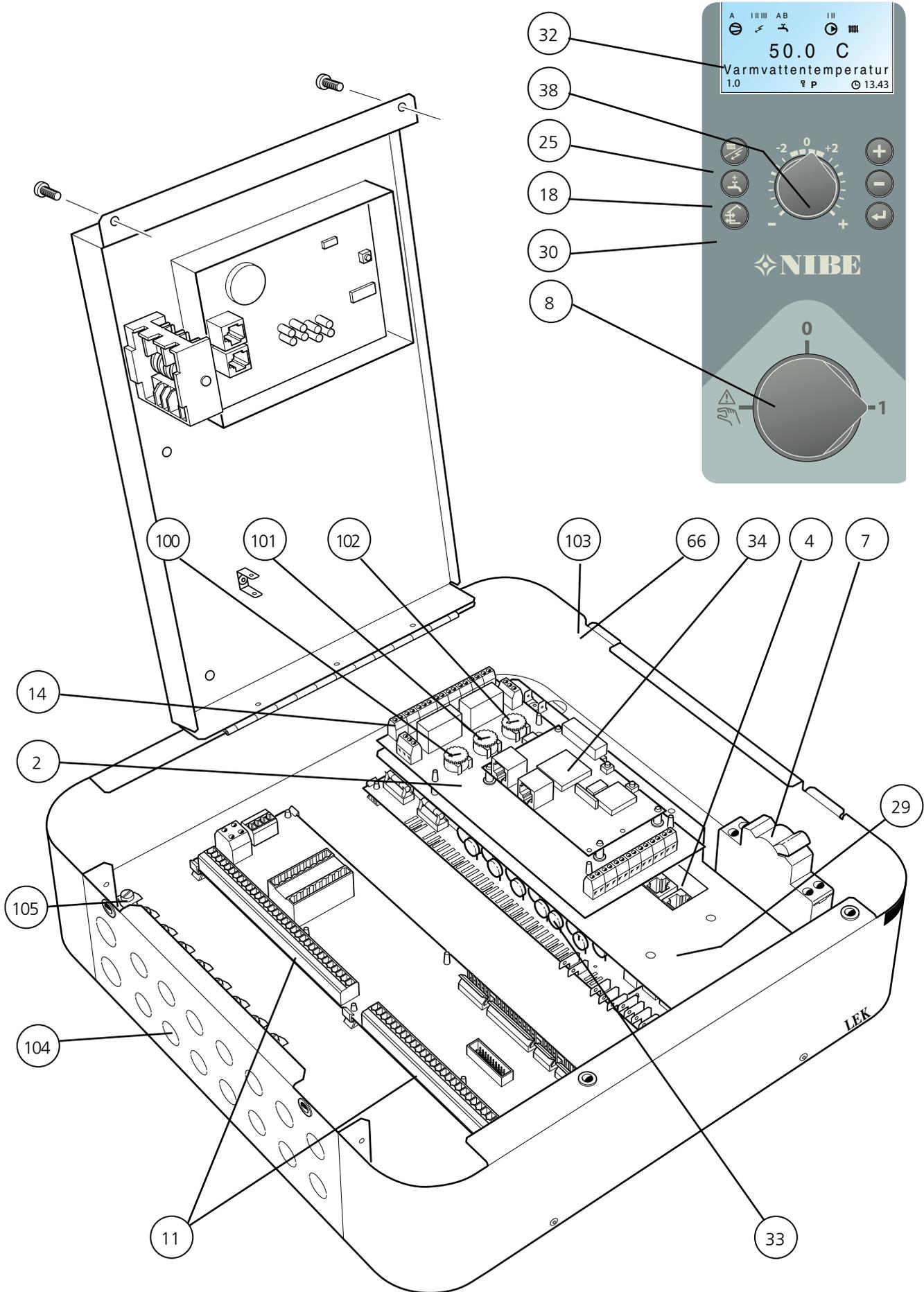
Return to menu 9.0.

Technical specifications

Dimensions and setting-out coordinates



Component locations

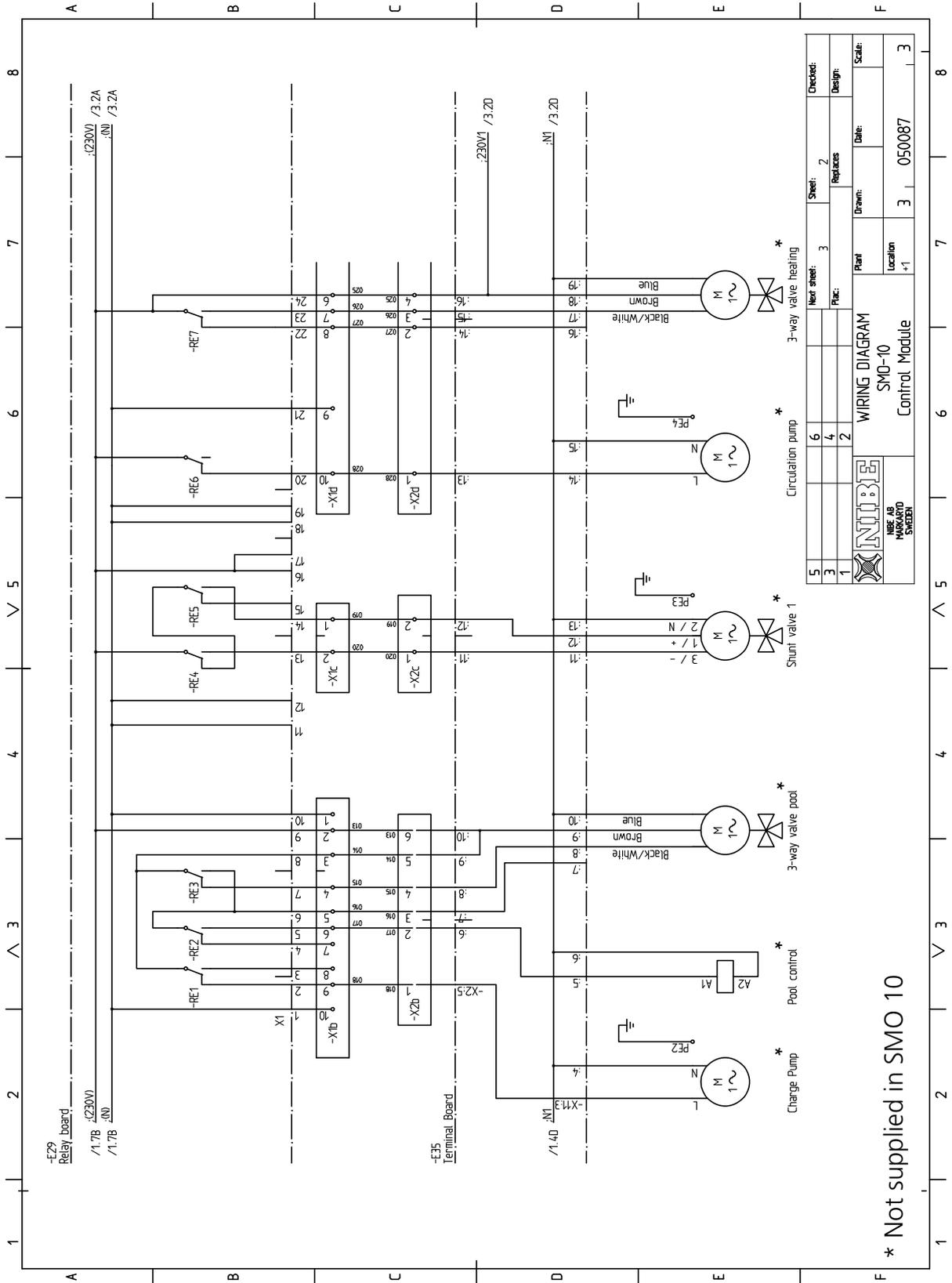


List of components

- 2 EBV card
- 4 Terminal block, communication air/water heat pump
- 7 Miniature circuit-breaker
- 8 Switch, position 1 – 0 – 
- 11 Terminal block, supply, sensor, external units
- 14 Terminal block
- 18 Pushbutton, Extra hot water
- 25 Push button "Operating mode"
- 29 Relay card with power supply unit
- 30 No function
- 32 Display unit
- 33 Fine wire fuse, concealed on relay card
- 34 Central unit
- 38 Knob, Offset heating curve
- 66 Rating plate
- 100 Knob, setting "Fuse"
- 101 Knob, setting "Max electrical output"
- 102 Knob, "Max boiler temperature setting"
- 103 Serial number
- 104 Knockout holes (2x Ø20mm and 14 x Ø16mm)
- 105 PE-rail

Temperature sensor data

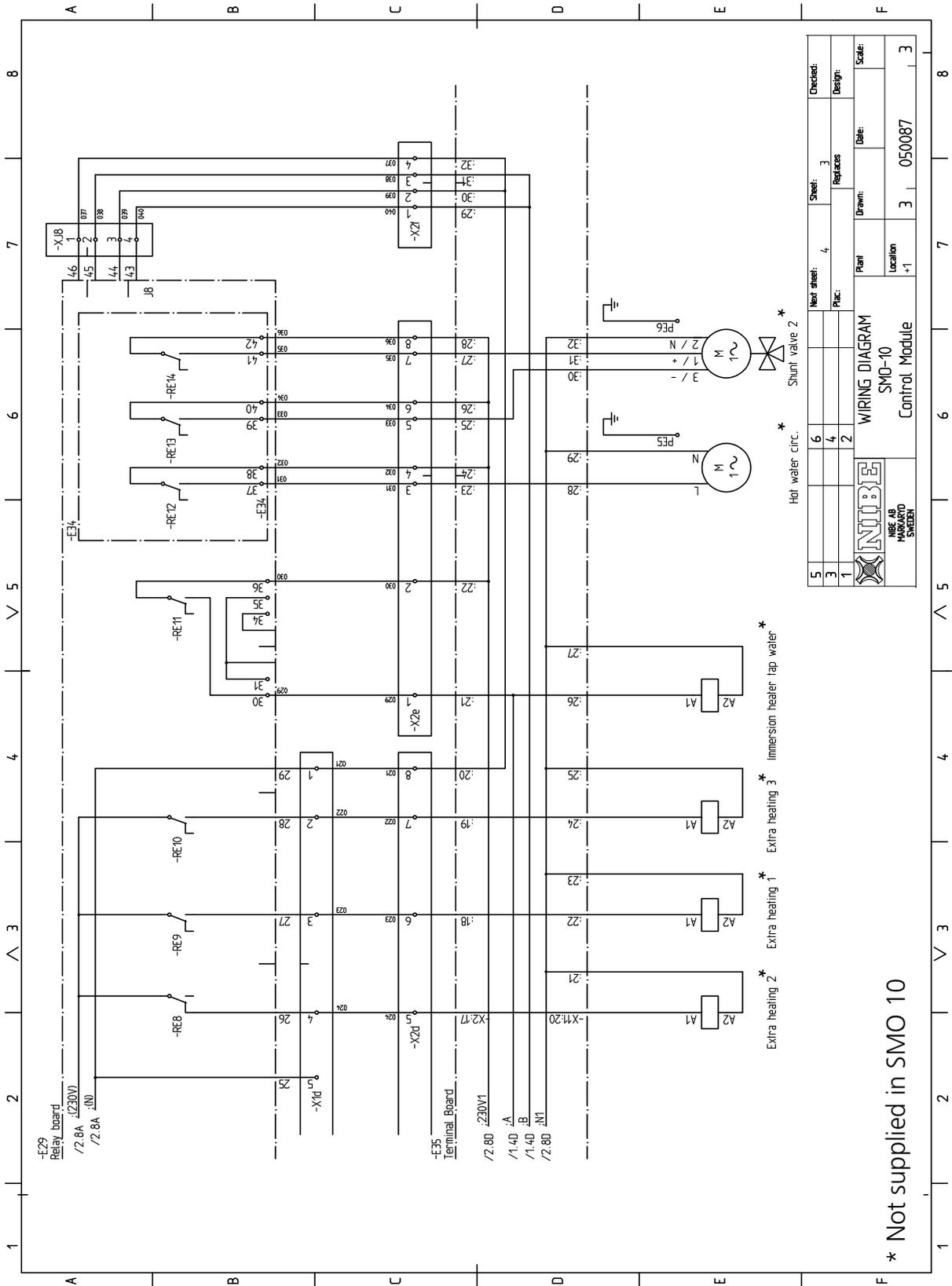
Temperature (°C)	Resistance (kΩ)	Voltage (V)
-40	102,35	4,78
-35	73,51	4,70
-30	53,44	4,60
-25	39,29	4,47
-20	29,20	4,31
-15	21,93	4,12
-10	16,62	3,90
-5	12,71	3,65
0	9,81	3,38
5	7,62	3,09
10	5,97	2,80
15	4,71	2,50
20	3,75	2,22
25	3,00	1,95
30	2,42	1,70
35	1,96	1,47
40	1,60	1,27
45	1,31	1,09
50	1,08	0,94
55	0,83	0,76
60	0,69	0,65
65	0,56	0,54
70	0,46	0,46



5	Next sheet:	3	Sheet:	2	Checked:
3	Replaces:	4	Replaces:	2	Design:
1	Drawn:	2	Drawn:	3	Scale:
		Plant:		Date:	
		Location:		Date:	
		+1		050087	
		3		3	

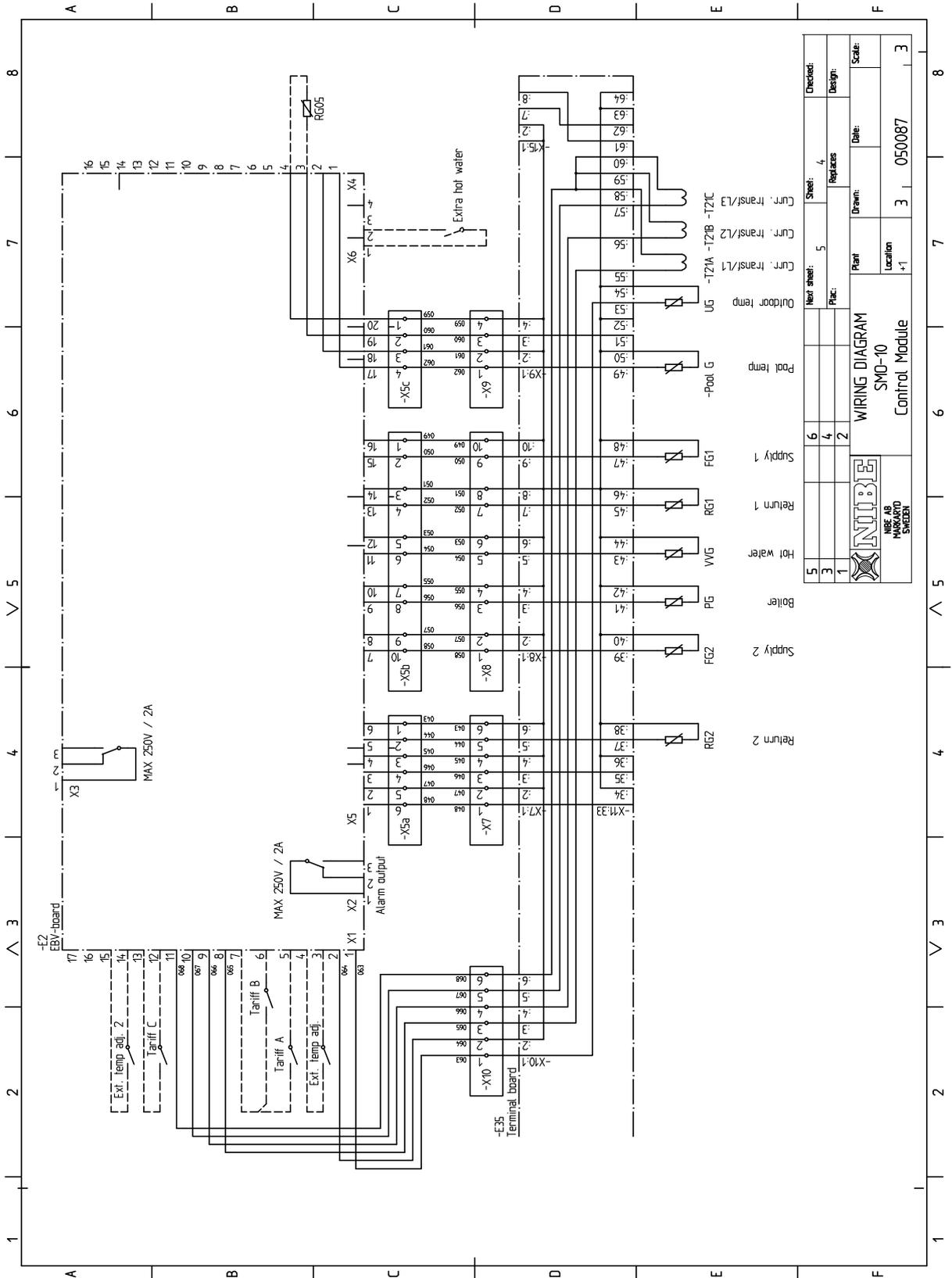
* Not supplied in SMO 10

Technical specifications



5	6	4	3	3	3
Next sheet:	Sheet:	Replaces:	Checked:	Plant:	Location:
3	4	2	3	+1	050087
1	2	2	Design:	Date:	Scale:
 WIRING DIAGRAM SMO-10 Control Module					

* Not supplied in SMO 10



5	Checked:	Sheet:	4
3	Design:	Replaces:	5
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1	Location:	+1	Scale:
NIBE NIBE AB FIMSTEDEN SWEDEN		WIRING DIAGRAM SMO-10 Control Module	
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2	Location:	+1	3

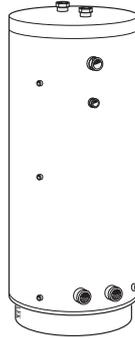
Accessories

FIGHTER 2020



F2025-6 Art.-Nr.: 064 016
 F2025-8 Art.-Nr.: 064 017
 F2025-10 Art.-Nr.: 064 018
 F2025-14 Art.-Nr.: 064 014

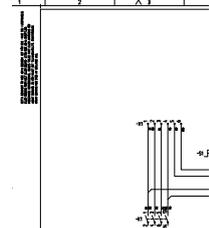
Double-jacketed hot water heater



VPA 200/70 Part no. 088 650
 (Max recommended power 12 kW)
 VPA 300/200 Part no. 088 141
 VPA 450/300 Part no. 088 660

Auxiliary relay HR 10

Part no 089 423



Room thermostat RT 10

Part no. 418 366



Hot water control VST 11

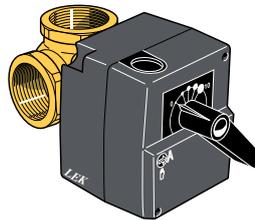
Part no 089 152



Shuttle valve, Cu-pipe Ø28
 (Max recommended charge power, 17 kW)

Hot water control VST 20

Part. no: 089 388



Three way valve, Cu-pipe Ø28
 (Max recommended charge power, 40 kW)

Modular cable

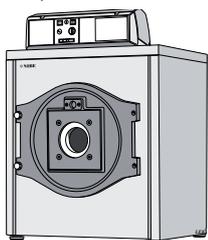
Part no. 418,469



Modular cable, 15 m with connector joint

TYPE-HL

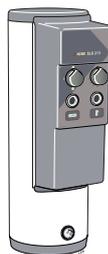
HL 25, Part no. 089 880
 HL 35, Part no. 089 881
 HL 50, Part no. 089 882
 HL 65, Part no. 089 883



Low temperature boiler for oil and gas

ELK 213

Part no. 069 300



Immersion heater 13 kW

EK 15

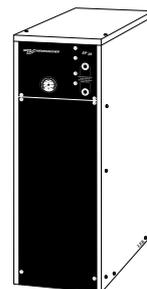
Part no. 069 310



Immersion heater 15 kW

EP 26

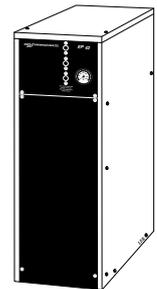
Part no. 069 320



Electric boiler 26 kW

EP 42

Part no. 069 321

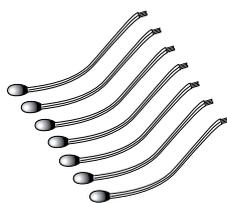


Electric boiler 42 kW

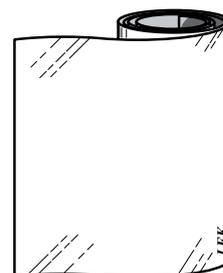
Enclosed kit



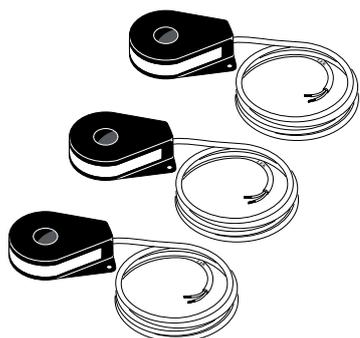
Outdoor sensor (UG)



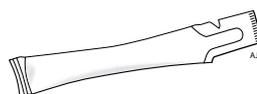
Temperature sensors with probes



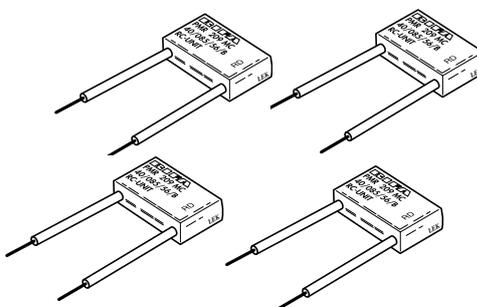
Aluminium tape



Current sensor



Heating pipe paste



Interference protection

Technical specifications



Width	405 mm
Height	406 mm
Depth	151,5 mm
Weight	7 kg
Max number of air/water heat pumps	9 x
Max number of sensors	14 x
Max number of charge pumps	1 x
Max number of circulation pumps (heating system)	2 x
Supply voltage	230 V 50 Hz
Max. current	2,5 A
Enclosure class	IP21



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