Installer manual

Indoor module
NIBE VVM S500

Quick guide
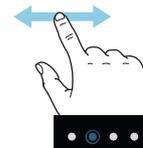
NAVIGATION

Select

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

Scroll

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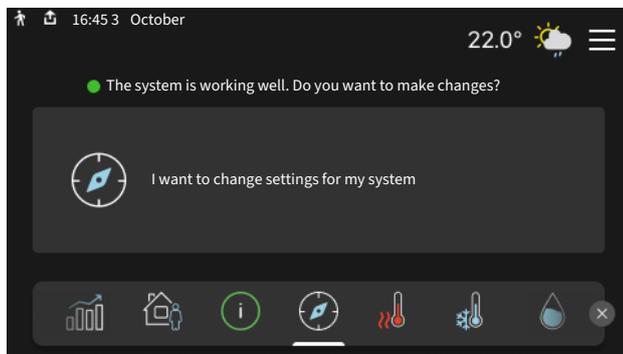
Browse

The symbols at the bottom edge show if there are more pages.

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

Smartguide

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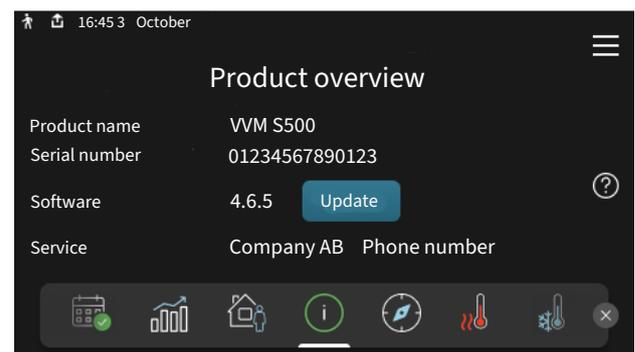
Setting the indoor temperature.

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

Increasing hot water temperature

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

Product overview

Here, you can find information about the product name, the product's serial number, the version of the software, and the contact details of the company that provides service. When there is new software to download, you can do it here (provided that VVM S500 is connected to myUplink).

Table of Contents

Important information

Safety information

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

The manual must be left with the customer.

For the latest version of the product's documentation, see nibe.eu.

> ⚠ **CAUTION!**
>
> Also read the enclosed Safety Manual before starting the installation.

Symbols

Explanation of symbols that may be present in this manual.

> ⚠ **CAUTION!**
>
> This symbol indicates danger to person or machine.

> ☞ **NOTE!**
>
> This symbol indicates important information about what you should consider when installing or servicing the installation.

> 💡 **TIP!**
>
> This symbol indicates tips on how to facilitate using the product.

Marking

Explanation of symbols that may be present on the product's label(s).

⚠ Dangerous voltage.

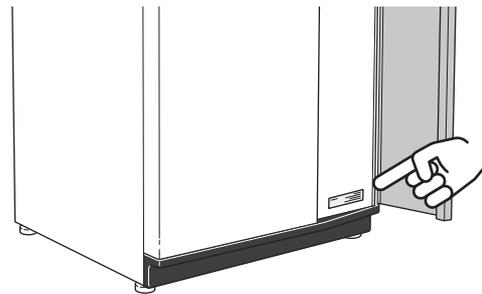⚠ Danger to person or machine.

📖 Read the User Manual.

➡ Disconnect the voltage supply before starting work.

Serial number

The serial number can be found at the bottom right on VVM S500, in the display on the home screen "Product overview" and on the type plate (PZ1).

> ☞ **NOTE!**
>
> You need the product's (14 digit) serial number for servicing and support.

Inspection of the installation

Current regulations require the heating installation to pass an installation inspection before it is commissioned. The inspection must be carried out by a suitably qualified person. In addition, complete the page in the User Manual for information about the installation data.

✔	Description	Notes	Signature	Date
	Connecting to air/water heat pump			
	System flushed			
	System vented			
	Expansion vessel			
	Particle filter			
	Safety valve			
	Shut off valves			
	System pressure			
	Connected according to outline diagram			
	Flows according to table in section "Minimum system flows", chapter "Pipe connections"			
	Cold and hot water			
	Shut off valves			
	Mixing valve			
	Safety valve			
	Electrical connections			
	Connected communication			
	Circuit fuses			
	Fuses property			
	Outside sensor			
	Room sensor			
	Current sensor			
	Safety breaker			
	Earth circuit-breaker			
	Setting emergency mode			
	Miscellaneous			
	Docked to			
	Cooling			
	Pipe system, condensation insulation			

System solutions

Go to CompatibilityAWHP or scan the QR code below.

This provides information about possible combinations with VVM S500. (Some products are not sold in all markets).

Delivery and handling

Transport

VVM S500 should be transported and stored vertically in a dry place.

However, the VVM S500 can be carefully laid on its back when being moved into the building.
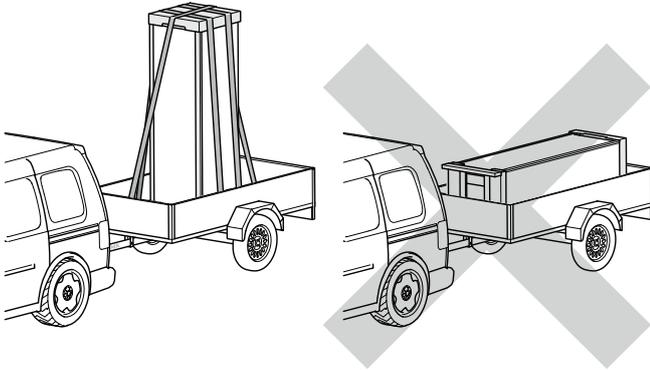
Assembly

• Position VVM S500 on a solid foundation indoors that withstands water and the weight of the product.

• Use the product's adjustable feet to attain a horizontal and stable set-up.

20-55 mm
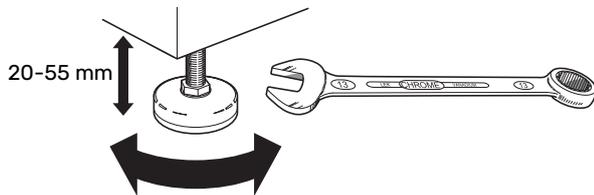
• The space where VVM S500 is located must be frost-free.

• Since water comes from VVM S500, the area where VVM S500 is located must be equipped with floor drainage.

INSTALLATION AREA

Leave a free space of 800 mm in front of the product. All service on VVM S500 can be carried out from the front.

10−25

50   50

800
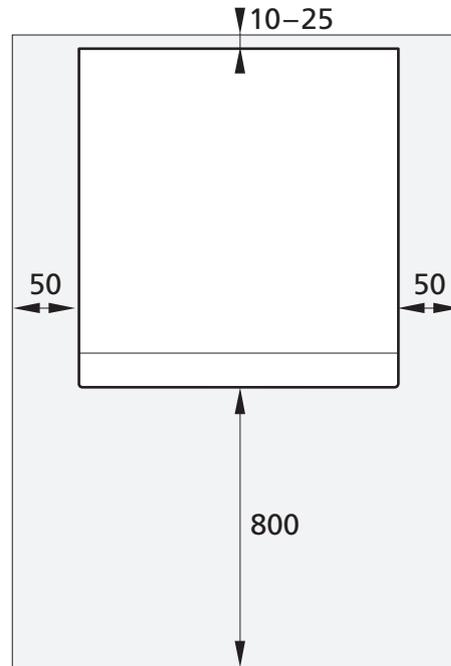
⚠ **CAUTION!**

Leave 10 – 25 mm free space between VVM S500 and the wall behind for routing cables and pipes.

Supplied components

Outdoor temperature sensor (BT1)
1 x

Room sensor(BT50)
1 x

Current sensor [1]
3 x

Filterball (G1") (QZ2)
1 x
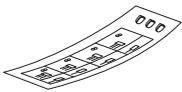
Label for external control voltage for the control system
1 x

[1] Only VVM S500 3x400 V.

LOCATION

The kit of enclosed items is placed on top of the indoor module.

Handling panels

OPEN FRONT HATCH
Press the hatch's top left corner to open it.

REMOVE THE FRONT
1. Remove the screw in the hole next to the on/off button (SF1).
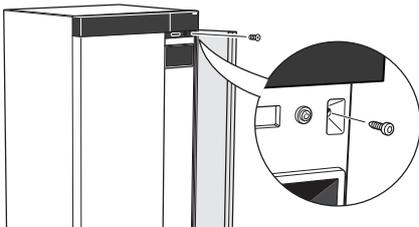
2. Pull the panel's top edge towards you and lift diagonally upwards to remove it from the frame.
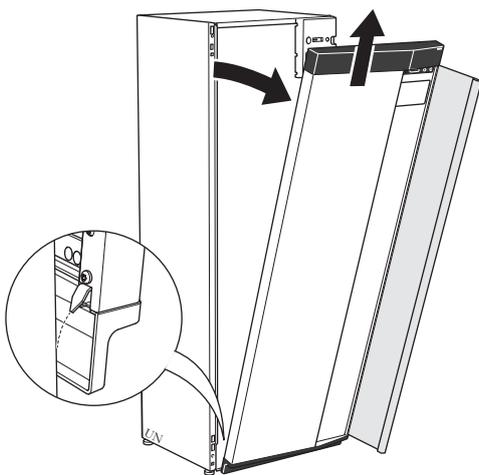
ASSEMBLE THE FRONT
1. Hook one bottom corner of the front onto the frame.
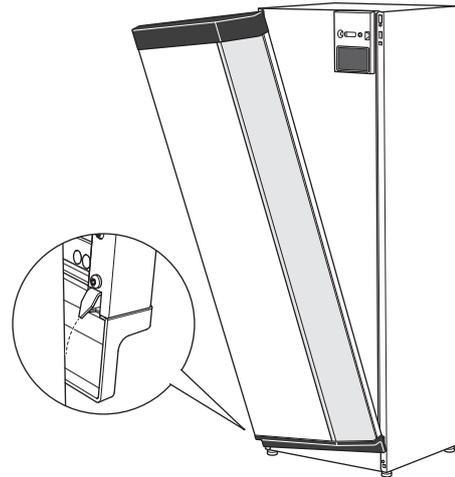
2. Hook the other corner in place.
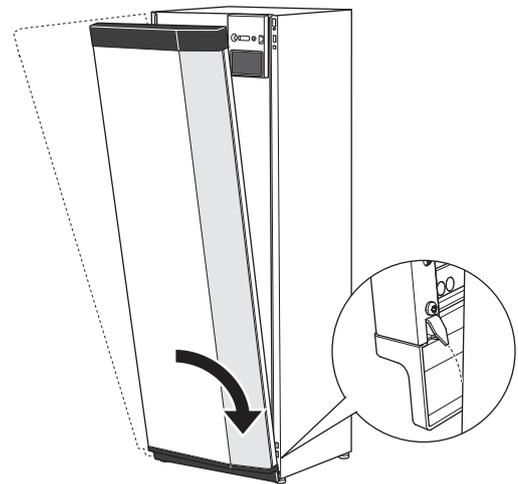
3. Check the display is straight. Adjust if necessary.
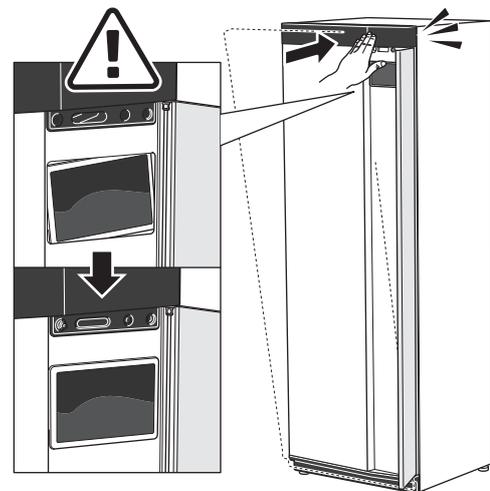
4. Press the top of the front section against the frame and screw it into place.
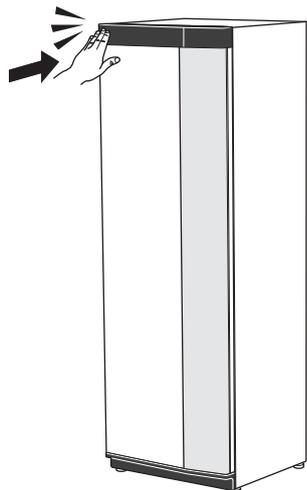
REMOVE SIDE PANEL

The side panels can be removed to facilitate the installation.

1. Remove the screws from the upper and lower edges.
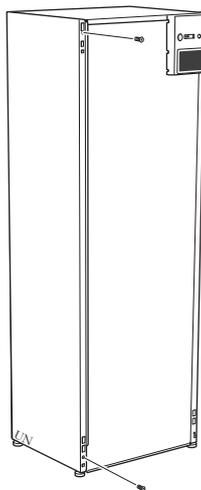
2. Turn the panel outwards slightly.
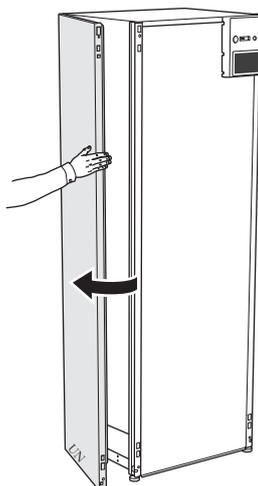
3. Move the panel outwards and backwards.
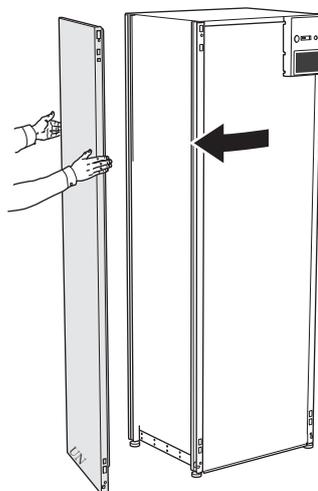
4. Assembly takes place in the reverse order.

Indoor module's design

General
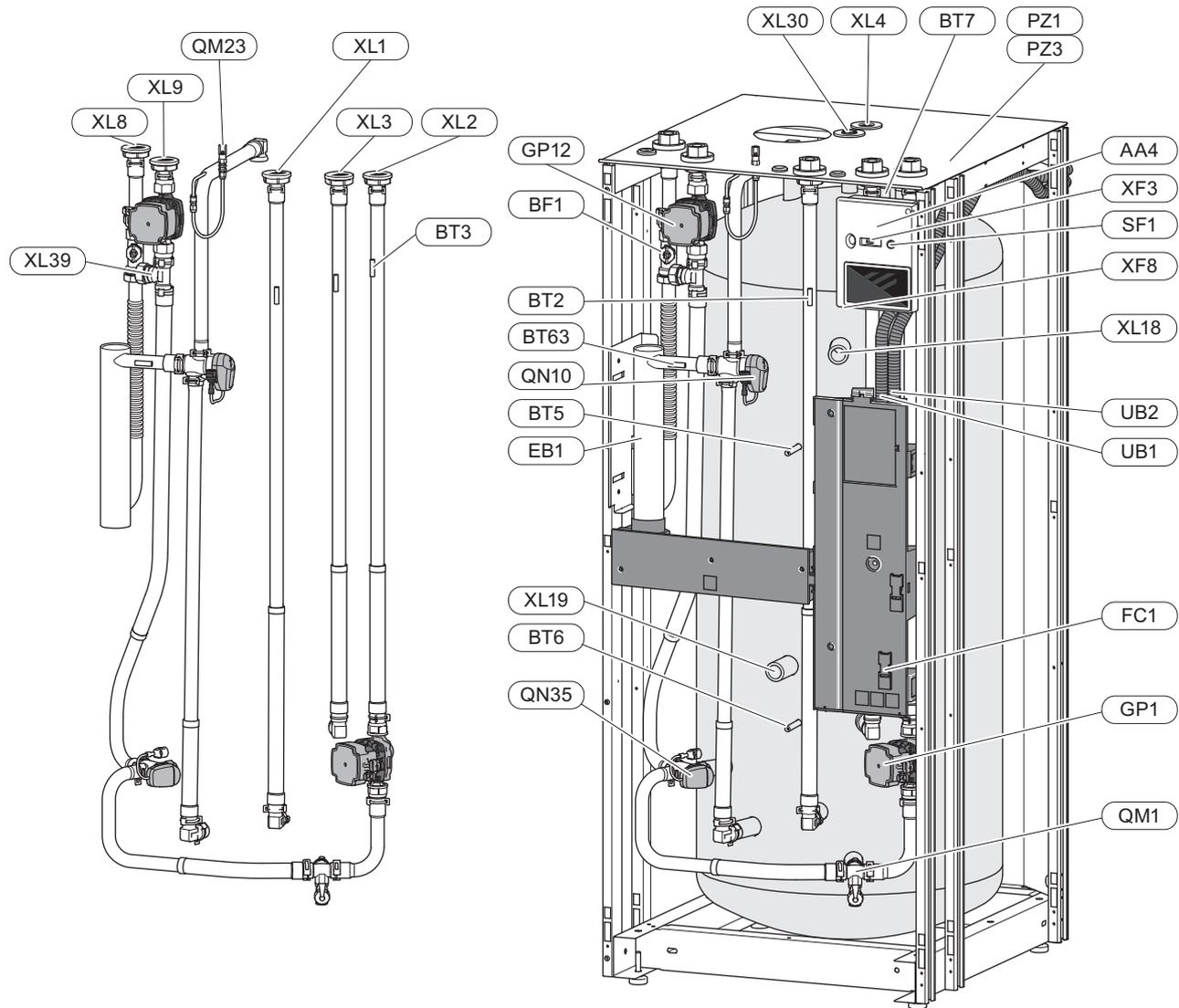
Pipe connections

XL1	Heating medium connection, supply
XL2	Heating medium connection, return
XL3	Cold water connection
XL4	Hot water connection
XL8	Docking connection, supply, from heat pump
XL9	Docking connection, return, to heat pump
XL18	Docking connection, supply, from additional heat
XL19	Docking connection, return, to additional heat
XL30	Expansion vessel connection
XL39	Accessory connection, return

HVAC components

GP1	Circulation pump
GP12	Charge pump
QM1	Drain valve, heating medium
QM23	Vent valve, heating medium pump
QN10	Diverter valve, heating/hot water
QN35	Diverter valve, heating/hot water

Sensors etc.

BF1	Flow meter
BT2	Flow line sensor
BT3	Return line sensor
BT5	Controlling hot water sensor
BT6	Controlling hot water sensor
BT7	Display hot water sensor
BT63	Supply temperature sensor after additional heat

Electrical components

AA4	Display unit
EB1	Immersion heater
FC1	Miniature circuit breaker[1]
SF1	On/off button
XF3	USB socket
XF8	Network connection for myUplink

[1] Only VVM S500 1x230 V

Miscellaneous

PZ1	Rating plate
PZ3	Serial number

Designations according to standard EN 81346-2.

Distribution boxes
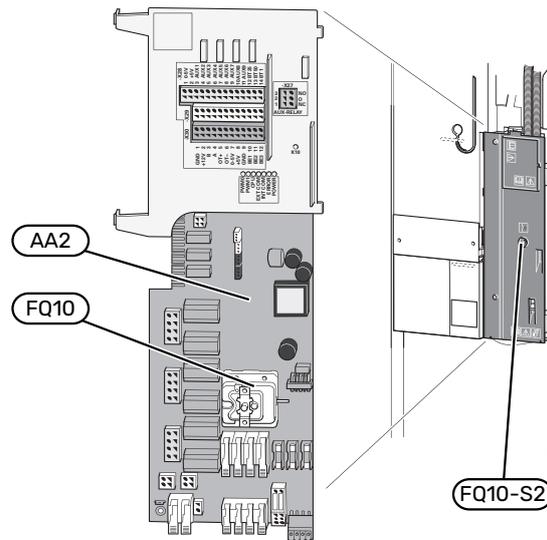
ELECTRICAL COMPONENTS

AA2	Base card
FQ10	Temperature limiter
	FQ10-S2 Reset button for temperature limiter

Pipe connections

General

Pipe installation must be carried out in accordance with current norms and directives.

The system requires the dimensions of the radiator circuit to be designed for a low temperature heating medium. At the lowest dimensioned outdoor temperature (DOT), the highest recommended temperatures are 55 °C on the supply line and 45 °C on the return line, but VVM S500 can handle up to 70 °C.

> 👉 **NOTE!**
>
> Ensure that incoming water is clean. When using a private well, it may be necessary to supplement with an extra water filter.

> ⚠ **CAUTION!**
>
> Any high points in the climate system, must be equipped with air vents.

> ⚠ **CAUTION!**
>
> The pipe systems need to be flushed out before the indoor module is connected so that any debris cannot damage component parts.

> ⚠ **CAUTION!**
>
> Water may drip from the safety valve's overflow pipe. The overflow pipe must be routed to a suitable drain, to prevent hot water splashes from causing harm. The overflow pipe must be inclined along its entire length to prevent pockets where water can accumulate, and must be frost-proof. The overflow pipe must be at least the same size as the safety valve. The overflow pipe must be visible and its mouth must be open and not placed close to electrical components.

MINIMUM SYSTEM FLOW DEFROSTING

> ⚠ **CAUTION!**
>
> An undersized climate system can result in damage to the product and lead to malfunctions.

The dimensions of the pipes between the indoor module and the heat pump should not be less than the recommended pipe diameter. However, each climate system must be dimensioned individually to provide the recommended system flows.

The installation must be dimensioned to provide the minimum defrosting flow at 100 % circulation pump operation.

SYSTEM VOLUME

Internal volume in VVM S500 for calculating expansion vessel is 500 l. The expansion vessel's volume must be at least 5 % of the system's total volume.

Example table

Total volume (l) (indoor module and climate system)	Volume (l) expansion vessel
500	25
700	35
1,000	50
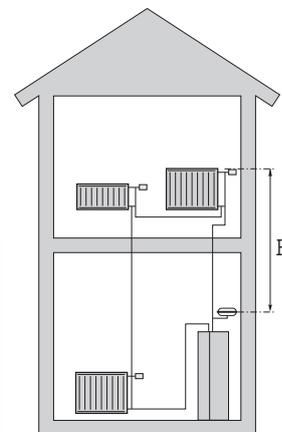
> ⚠ **CAUTION!**
>
> Expansion vessels are not supplied with the product. Equip the product with an expansion vessel.

The pre-pressure of the pressure expansion vessel must be dimensioned according to the maximum height (H) between the vessel and the highest positioned radiator, see figure. A pre-pressure of 0.5 bar (5 mvp) means a maximum permitted height difference of 5 m.

If the standard pre-pressure in the pressure vessel is not high enough, it can be increased by filling via the valve in the expansion vessel. The expansion vessel's pre-pressure must be entered in the check list on page 5.

Any change in the initial pressure affects the ability of the expansion vessel to handle the expansion of the water.

SYMBOL KEY

Symbol	Meaning
	Unit box
	Shut-off valve
	Tapping valve
	Non-return valve
	Mixing valve
	Circulation pump
	Immersion heater
	Expansion vessel
	Filterball
	Safety valve
	Temperature sensor
	Trim valve
	Diverter valve/shunt
	Heat exchanger
	Overflow valve
	Indoor module
	Air/water heat pump
	Domestic hot water
	Hot water circulation
	Heating system
	Heating system with lower temperature

SYSTEM DIAGRAM

VVM S500 consists of a coil for hot water, an immersion heater, circulation pumps, a buffer vessel and a control system. VVM S500 connects to the climate system.

VVM S500 is intended for connection and communication with compatible NIBE outdoor unit, and together they constitute a complete heating installation.

When it is cold outdoors, the outdoor unit works with the indoor module, and if the outdoor air temperature falls below the outdoor unit's working range, all heating is performed by the immersion heater.
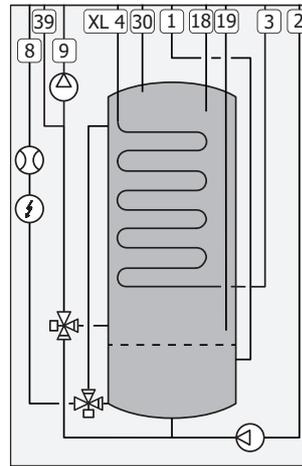
XL1   Connection, heating medium flow line
XL2   Connection, heating medium return line
XL3   Connection, cold water
XL4   Connection, hot water
XL8   Connection, docking from heat pump
XL9   Connection, docking to heat pump
XL18   Docking connection, supply, from additional heat
XL19   Docking connection, return, to additional heat
XL30   Expansion vessel connection
XL39   Connection, accessory, out

☞ **NOTE!**

This is a principle of operation. For more detailed information about VVM S500, see section "Indoor module's design".

Dimensions and pipe connections

XL8 XL9 XL30 XL4 XL1 XL3 XL2

760
667
595
465
380
190
84
1800
20-55
645

910
792
755
720
660
383
293
1826
650
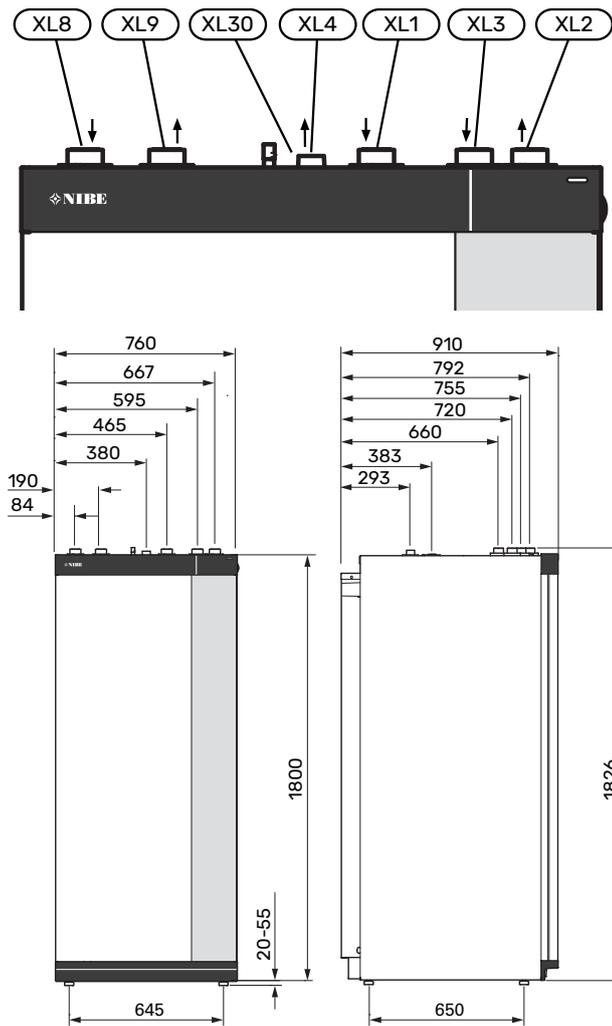
PIPE DIMENSIONS

Connection		
XL1 / XL2	Heating medium supply/return ∅	G1 int.
XL3 / XL4	Cold/hot water ∅	G1 int.
XL8 / XL9	Docking connection, supply (from heat pump) / Docking connection, return (to heat pump) ∅	G1 int.
XL30	Connection, expansion vessel	G3/4 int.

Connecting to air/water heat pump

NIBE recommends installing VVM S500 as close to the heat pump as possible to obtain the optimum comfort.

☞ NOTE!

Also, consult the Installer Manual for your air/water heat pump.

Install as follows:

- pressure relief valve

  Some heat pump models have a factory-fitted safety valve.

- drain valve

  For draining the heat pump during prolonged power failures. Only for heat pumps that do not have a gas separator.

- non-return valve

  Installations with only one heat pump: a non-return valve is only required in those cases where the placement of the products in relation to each other can cause self-circulation.

  Cascade installations: each heat pump must be fitted with a non-return valve.

  If the heat pump is already fitted with a non-return valve, there is no need to install another.

- shut-off valve

  To facilitate any future servicing.

- enclosed filterball (QZ2)

  Installed before connection "heating medium return" (XL2) (the lower connection) on the vacuum pump.

EB101-XL1   XL8

EB101-XL2   XL9
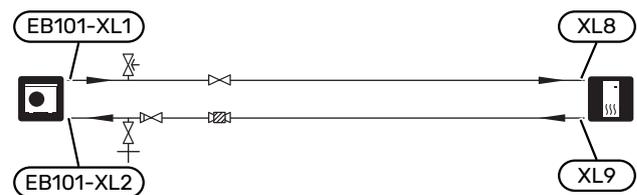
Use without heat pump

The indoor module can be used without an outdoor unit, i.e. solely as an electric boiler, to produce heat and hot water, for example before the outdoor unit is installed.

In order to use the indoor module alone, you need:

1. connect the pipe for docking coming in from the heat pump (XL8) with the pipe out to the heat pump (XL9)

2. To make software settings according to section "Commissioning without heat pump".

Climate system

A climate system is a system that regulates the indoor temperature with the help of the control system in VVM S500 and the heating medium circuit's radiators, under floor heating, under floor cooling, fan coils, etc.

CONNECTING THE CLIMATE SYSTEM

Install as follows:

• expansion vessel in connection XL30

• pressure gauge in connection XL30

• pressure relief valve

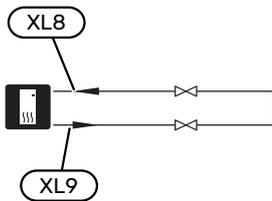 Recommended opening pressure is 0.25 MPa (2.5 bar). For information about max opening pressure, see technical specifications.

• enclosed filterball (QZ2)

  The filterball is installed as close to VVM S500 as possible and must be accessible for servicing and cleaning.

• shut-off valve

  Install the shut-off valve as close to VVM S500 as possible.

• When connecting to a system with thermostats, either a bypass valve must be fitted or, alternatively, some of the thermostats must be removed to ensure there is sufficient flow and heat emission.
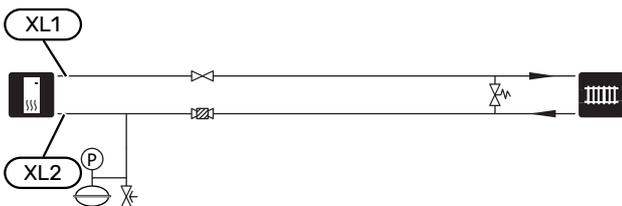
Cold and hot water

The settings for hot water are made in menu 7.1.1 - "Hot water".

CONNECTING COLD AND HOT WATER

Install as follows:

• shut-off valve

• non-return valve

• pressure relief valve

  The safety valve must have an opening pressure of max. 1.0 MPa (10.0 bar).

• mixing valve

  A mixer valve must also be installed, if the factory setting for hot water is changed. National regulations must be observed.
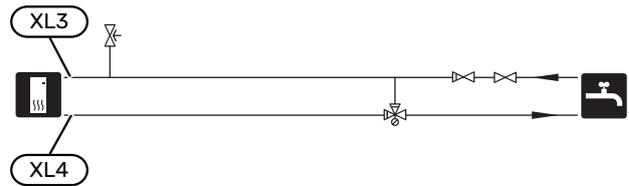
Installation alternative

VVM S500 can be installed in several different ways, some of which are shown here.

Further option information is available at nibe.eu and in the respective assembly instructions for the accessories used. See page 61 for a list of the accessories that can be used with VVM S500.

EXTRA CLIMATE SYSTEM

In buildings with several climate systems that require different supply temperatures, the accessory ECS 40/ECS 41 can be connected.

A shunt valve then lowers the temperature to the underfloor heating system, for example.
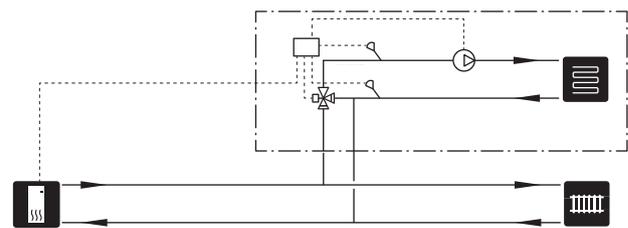
EXTRA HOT WATER HEATERS

The system should be supplemented with an extra water heater, if a large bath tub or other significant consumer of hot water is installed.

Water heater with immersion heater

In a water heater with an immersion heater, the water is initially heated by the heat pump. The immersion heater in the water heater is used for keeping warm and when the heat pump does not have sufficient power.

The water heater's flow is connected after VVM S500.
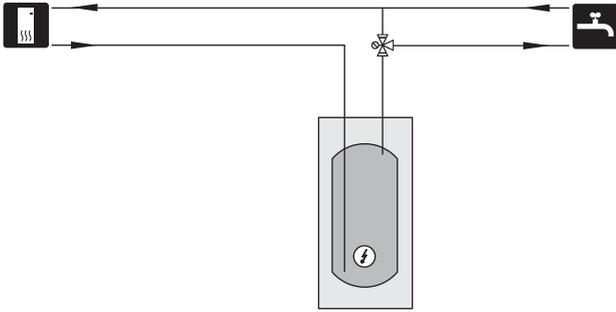
HOT WATER CIRCULATION

A circulation pump can be controlled by VVM S500 to circulate the hot water. The circulating water must have a temperature that prevents bacterial growth and scalding, and national standards must be satisfied.

The HWC return is connected to a freestanding water heater.

The circulation pump is activated via the AUX output in menu 7.4 -"Selectable in/outputs".

HWC can be supplemented with a hot water sensor for HWC (BT70) and (BT82), which is connected via the AUX input and activated in menu 7.4 -"Selectable in/outputs".
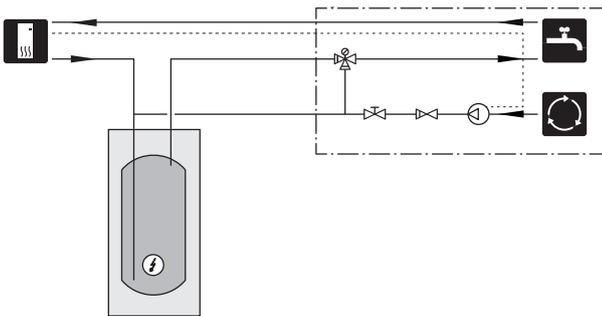
TWO HEAT PUMPS

When connecting two air/water heat pumps to VVM S500, separate energy meters are required for each heat pump.

In the case of two air/water heat pumps, the AXC 40 accessory is required to connect the charge pumps.

For more information, see the manual for the EMK 300 accessory.

Electrical connections

General

All electrical equipment, except the outdoor sensors, room sensors and the current sensors are ready connected at the factory.

- Electrical installation and wiring must be carried out in accordance with national provisions.

- Disconnect VVM S500 before insulation testing the house wiring.

- VVM S500 should be equipped with a residual current device (RCD). A separate residual current device is recommended.

- VVM S500 must be installed via an isolator switch. The cable area has to be dimensioned based on the fuse rating used.

- If a miniature circuit breaker is used, this must have at least triggering characteristic "C". See section "Technical specifications" for fuse size.

- Use a screened cable for communication with the heat pump.

- To prevent interference, communication cables to external connections must not be laid in the vicinity of high voltage cables.

- The minimum area of communication and sensor cables to external connections must be 0.5 mm² up to 50 m, for example EKKX, LiYY or equivalent.

- For an electrical wiring diagram for VVM S500, see the "Technical specifications" section.

- When routing a cable into VVM S500, the cable grommets (UB1) and (UB2) must be used.

-
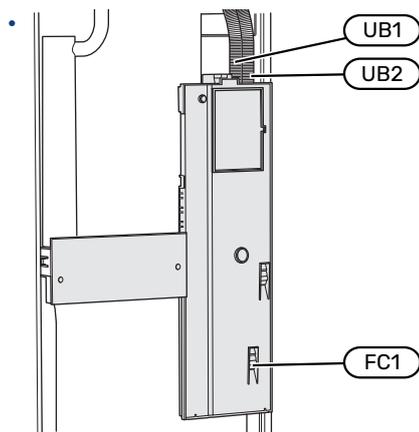
> ⚠ **CAUTION!**
>
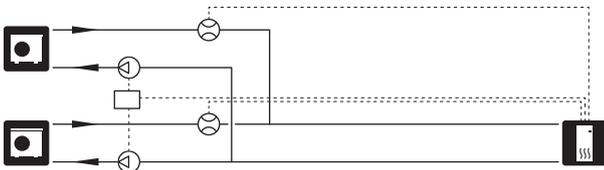> Electrical installation and any servicing must be carried out under the supervision of a qualified electrician. Turn off the power with the circuit breaker before servicing.

> ⚠ **CAUTION!**
>
> If the supply cable is damaged, only NIBE, its service representative or similar authorised person may replace it to prevent any danger and damage.

> ⚠ **CAUTION!**
>
> To prevent damage to the electronics in VVM S500, check the connections, main voltage and phase voltage before starting the product.

> ⚠ **CAUTION!**
>
> Do not start the system before filling up with water. Components in the system could be damaged.

MINIATURE CIRCUIT-BREAKER

The operating circuit in VVM S500 and some of its internal components are fused internally by a miniature circuit-breaker (FC1).

Only VVM S500 1x230 V.

ACCESSIBILITY, ELECTRICAL CONNECTION

Removing the cover

The hatch is opened using a screwdriver.
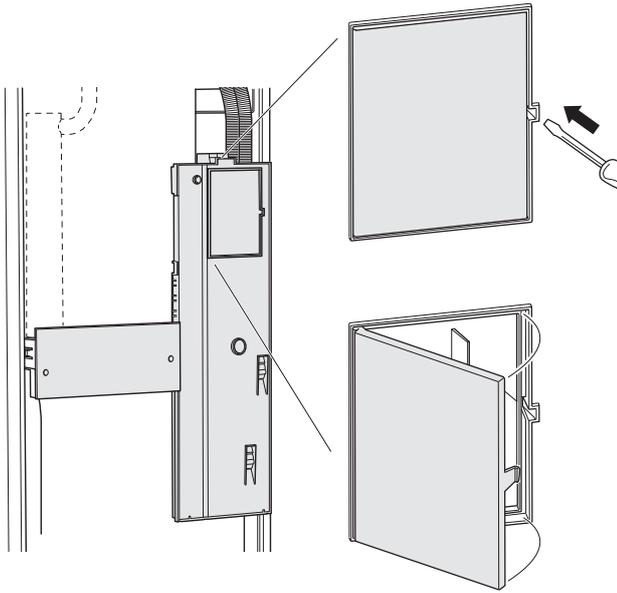
Removing the covers

The cover is opened using a screwdriver.
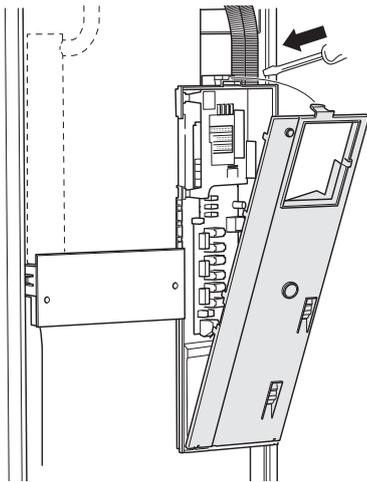
CABLE LOCK

Use a suitable tool to release/lock cables in the indoor module terminal blocks.

Terminal block
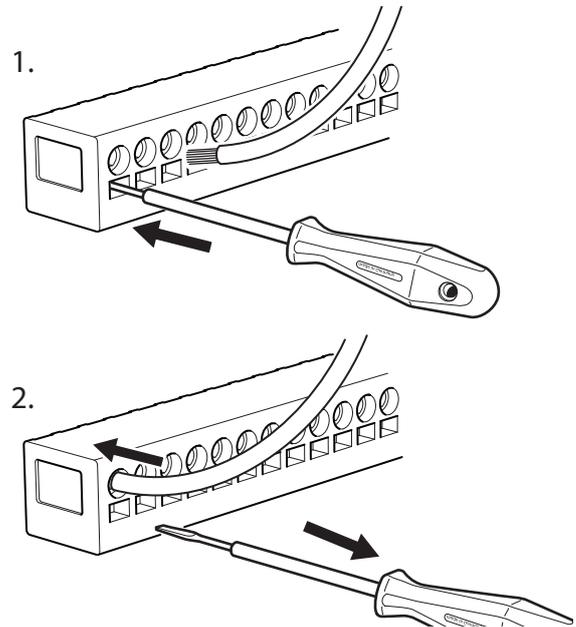
TEMPERATURE LIMITER
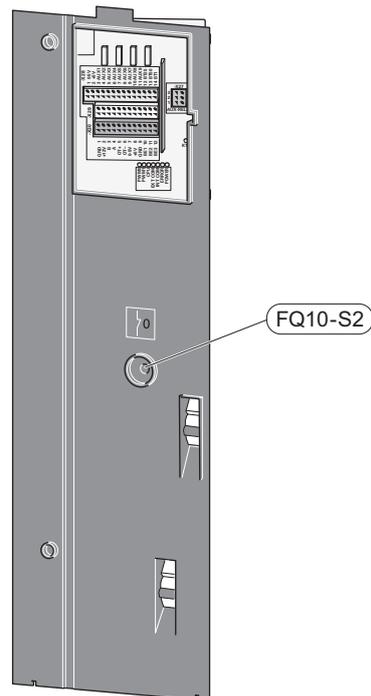
The temperature limiter (FQ10) cuts the voltage to the electric additional heat if the temperature rises above 89 °C and it is reset manually.

Resetting

The temperature limiter (FQ10) is accessed behind the front cover. Reset the temperature limiter by pressing its button (FQ10-S2).

Connections

TERMINAL BLOCKS

The following terminal blocks are used on the base board (AA2).
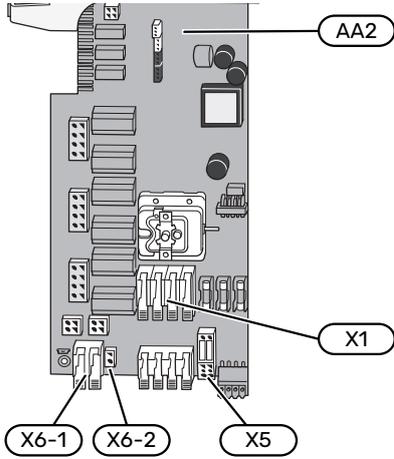
POWER CONNECTION

Supply voltage

Enclosed cable for incoming supply electricity is connected to terminal block X1 and X6-1 on the PCB (AA2).

Connection 1x230 V   ### Connection 3x400 V
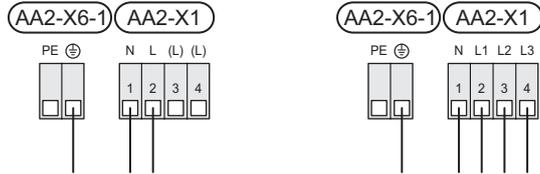
External control voltage for the control system

If the control system will be powered separately from other components in the indoor module (e.g. for tariff control), a separate operating cable must be connected.

> ⚠ **CAUTION!**
>
> During service, all supply circuits must be disconnected.

1. Remove the bridges from terminal block AA2-X5.
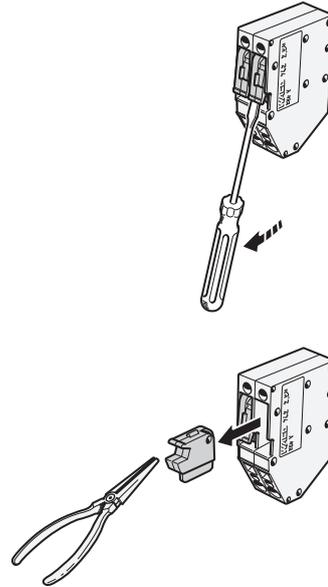
2. Connect control voltage (230 V ~ 50Hz) to AA2-X5:N, AA2-X5:L and AA2-X6-2 (PE).

Enclosed label

The enclosed label is placed on the electrical connection's cover.
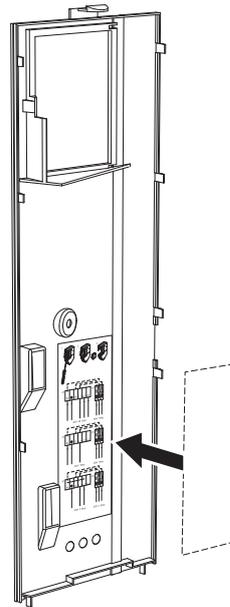
Tariff control

If the voltage to the immersion heater is lost for some time, "Tariff blocking" must be selected at the same time via the selectable inputs, see section "Selectable inputs".

EXTERNAL CONNECTIONS

Connect external connections on terminal blocks X28, X29 and X30 on the base board (AA2).
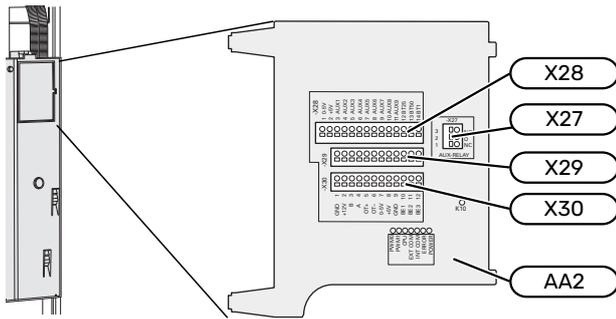
Sensors

Outside sensor

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

Connect the outdoor temperature sensor to terminal block AA2-X28:14 and AA2-X29:GND.

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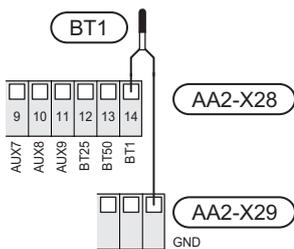
External supply temperature sensor

If an external supply temperature sensor (BT25) needs to be used, connect it to terminal block AA2-X28:12 and to terminal block AA2-X29:GND.
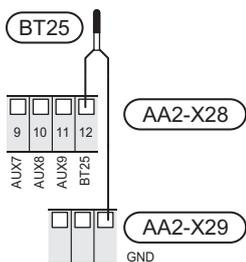
Room sensor

VVM S500 is supplied with an enclosed room sensor (BT50) that makes it possible to display and control the room temperature in the display on VVM S500.

VVM S500 operates without the room sensor, but if you want to read the property's indoor temperature from the display on VVM S500, the room temperature sensor must be fitted.

The room temperature sensor is installed in a neutral location where the set temperature is required. A suitable location might be, for example, on a free inner wall in a hall approx.

1.5 m above the floor. It is important that the room temperature sensor is not prevented from measuring the correct room temperature, for example by being located in a recess, between shelves, behind a curtain, above or close to a heat source, in a draught from an external door or in direct sunlight. Closed radiator thermostats can also cause problems.

Connect the room temperature sensor to terminal blocks AA2-X28:13 and AA2-X29:GND.

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

If a room sensor is used in a room with underfloor heating, it should only have an indicatory function, not control of the room temperature.
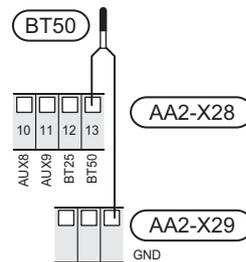
> ☞ **NOTE!**
>
> Changes of temperature in the property take a long time. For example, short periods of time combined with under floor heating will not give a noticeable difference in room temperature.

Pulse energy meter

Up to two electricity meters or energy meters for heating (BE6, BE7) can be connected to VVM S500 via terminal blocks AA2-X28:1-2 and AA2-X30:7-8.

> ☞ **NOTE!**
>
> The EMK accessory is connected to the same terminal blocks as electricity meters/energy meters.
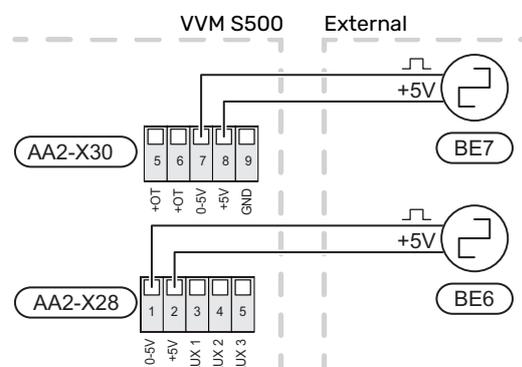
Activate the meter(s) in menu 7.2 - "Accessory settings" and then set the desired value ("Energy per pulse" or "Pulses per kWh") in menu 7.2.19 -"Pulse energy meter".

Load monitor

Integrated load monitor

VVM S500 is equipped with a simple form of integrated load monitor, which limits the power steps for the electric additional heat by calculating whether future power steps can be connected to the relevant phase without exceeding the current for the specified main fuse.

If the current would exceed the specified main fuse, the power step is not permitted. The size of the property's main fuse is specified in menu 7.1.9 - "Load monitor".

Load monitor with current sensor

When many power-consuming products are connected in the property at the same time as the compressor and/or the electric additional heat is operating, there is a risk of the property's main fuses tripping.

VVM S500 is equipped with a load monitor that, with the help of a current sensor, controls the power steps for the electric additional heat by redistributing the power between the different phases or, alternatively, disengages the electric additional heat step-by-step if there is an overload in a phase.

If the overload persists, even though the electric additional heat has been disconnected, the compressor is restricted if it is inverter controlled.

Reconnection occurs when the other current consumption is reduced.

The building's phases can have different loads. If the compressor has been connected to a heavily loaded phase, there is a risk that the compressor output will be restricted and the electric additional heat will operate longer than expected. This means that the savings will not be as expected.

Connection and activation of current sensors

1. Install a current sensor on each incoming phase conductor into the electrical distribution unit. This is best done in the electrical distribution unit.

2. Connect the current sensors to a multi-core cable in an enclosure directly adjacent to the electrical distribution unit. The multi-core cable between the enclosure and VVM S500 must have a cable area of at least 0.5 mm².

Incoming electricity

PEN L₁ L₂ L₃

Electrical distribution unit

NIBE product
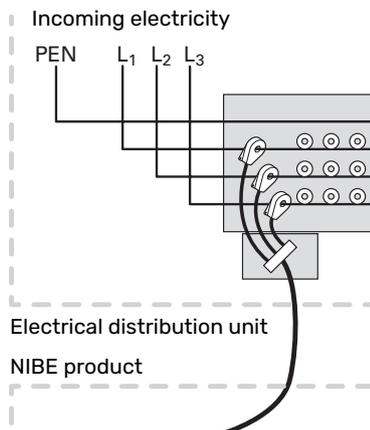
3. Connect the cable to terminal block AA2-X30:9-12, where X30:9 is the common terminal block for the three current sensors.
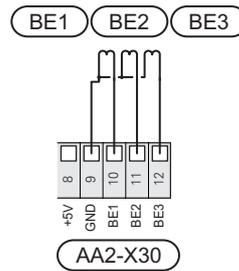
4. Specify the size of the property's main fuse in menu 7.1.9 - "Load monitor".

5. Activate phase detection in menu 7.1.9 - "Load monitor". Read more about phase detection in section "Menu 7.1.9 - Load monitor".

COMMUNICATION

Air/water heat pump

The air/water heat pump is connected to the terminal block AA2-X30:1 (GND), X30:3 (B) and X30:4 (A).

Indoor module
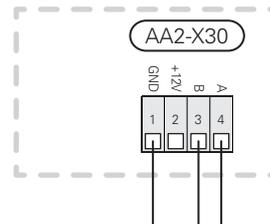
More information about connection can be found in the air-to-water heat pump's Installer Manual.

Multi-installation

> **NOTE!**
> Up to 2 heat pumps can be controlled by VVM S500.

> **NOTE!**
> It is possible to combine various NIBE heat pumps, of different sizes and models, with each other.

If multiple heat pumps are to be connected to the VVM S500, they must be connected in parallel.

Connecting accessories

Instructions for connecting accessories are provided in the manual accompanying the accessory. See section "Accessories" for a list of the accessories that can be used with VVM S500. Connection for communication with the most common accessories is shown here.

Accessories with accessory board (AA5)

Accessories with accessory board (AA5) connect to terminal block AA2-X30:1, 3, 4 in VVM S500.

If several accessories are to be connected, or are already installed, the boards are connected in series.

Because there can be different connections for accessories with accessory board (AA5), you should always read the instructions in the manual for the accessory that is to be installed.
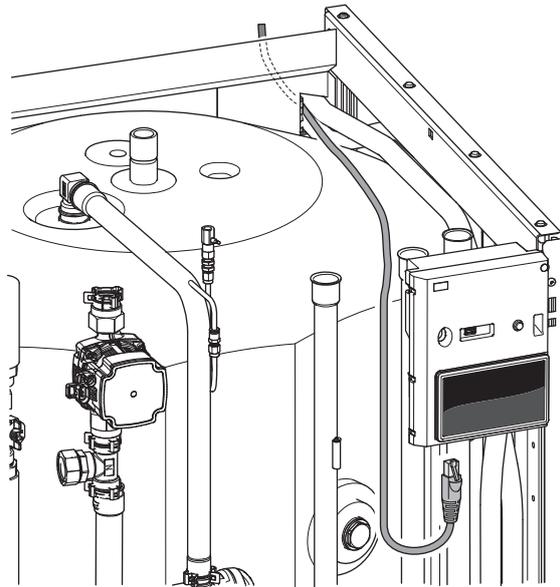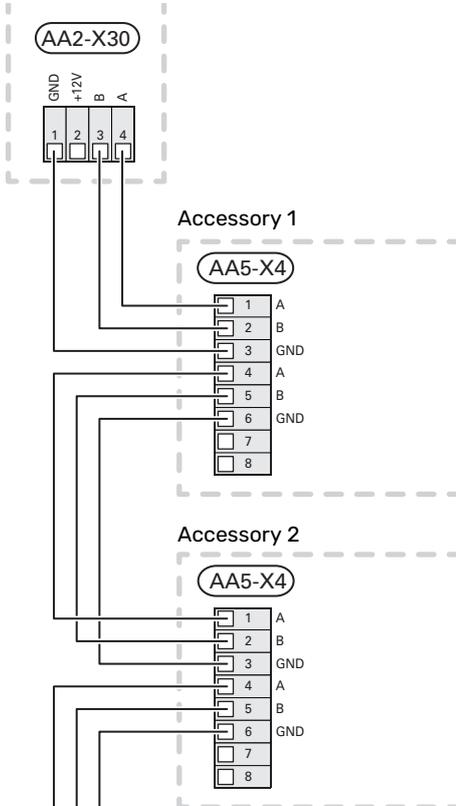
Network cable for myUplink (W130)

In instances when you want to connect to myUplink using a network cable instead of via wifi.

1. Connect the shielded network cable to the display.

2. Route the network cable to the top of VVM S500.

SELECTABLE IN/OUTPUTS

VVM S500 has software-controlled AUX inputs and outputs for connecting the external switch function (contact has to be potential-free) or sensor.

In menu 7.4 - "Selectable in/outputs", you select the AUX connection to which each function has been connected.

For certain functions, accessories may be required.

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

Selectable inputs

Selectable inputs on the base board (AA2) for these functions are AA2-X28:3-11. Each function connects to any input and GND (AA2-X29).
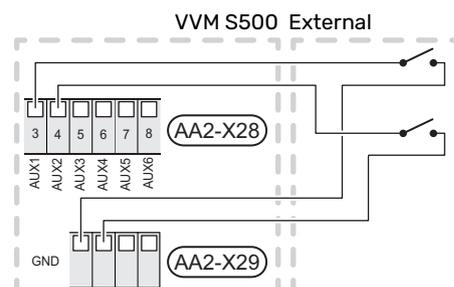
The example above uses the inputs AUX1 (AA2-X28:3) and AUX2 (AA2-X28:4).

Selectable output

A selectable output is AA2-X27.

The output is a potential-free switching relay.

Alarm indication is connected to C-NC, other functions are connected to C-NO.

If VVM S500 is switched off or in emergency mode, the relay is in C-NC position.

VVM S500   External
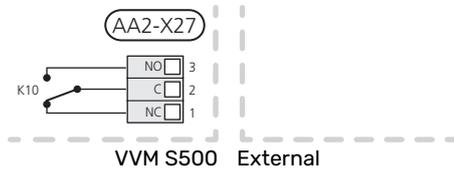
> **NOTE!**
>
> The relay output may be subjected to a max load of 2 A at resistive load (230 V~).

> **TIP!**
>
> The AXC accessory is required if more than one function is to be connected to the AUX output.

Possible selection for AUX inputs

Temperature sensor
Available options are:

- Cool/ht sensor (BT74), determines when it is time to switch between cooling, heating and hot water mode.

- Ext. HW out temp. (BT70) (displayed hot water sensor for HWC. Placed on the supply line.)

  Can be selected when "HW circulation" is activated in menu 7.4 - "Selectable in/outputs".

- Ext. HW recirc. temp. (BT82) (displayed hot water sensor for HWC. Placed on the return line.)

  Can be selected when "HW circulation" is activated in menu 7.4 - "Selectable in/outputs".

- 6 dedicated sensors (BT37.1 – BT37.6) for optional placement and naming.

Monitor
Available options are:

- External alarm (NO), External alarm (NC)
  The alarm is connected to the control, which means that the malfunction is presented as an information message in the display.

- Stove monitor. To the ERS HRV unit.
  A stove monitor is a thermostat that is connected to the chimney. If the negative pressure is too low, the fans in ERS (NC) are closed.

External activation of functions

An external switch function can be connected to VVM S500 to activate various functions. The function is activated during the time the switch is closed.

Possible functions that can be activated:

- Temp. more hot water

- Act. dmnd. mode small

- "External adjustment"

  When the switch is closed, the temperature is changed in °C (if a room sensor is connected and activated). If a room sensor is not connected or not activated, the desired change of "Temperature" ("Offset") is set with the number of steps selected. The value is adjustable between -10 and +10. Setting the value for the change is performed in menu 1.30.3 - "External adjustment".

- activation of one of four fan speeds.

  (Can be selected if ventilation accessory is activated.)

  The following options are available:

  – "Activate fan speed 1 (NO)" - "Activate fan speed 4 (NO)"
  – "Activate fan speed 1 (NC)"

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

- SG Ready

> **NOTE!**
>
> "SG Ready" requires two AUX inputs.

In cases where this function is required, it must be connected to terminal block X28 on the base board (AA2).

"SG Ready" is a smart form of tariff control, through which your electricity supplier can affect the indoor, hot water and/or pool temperatures (if applicable) or simply block the additional heating and/or the compressor in the heat pump at certain times of the day (can be selected in menu 4.2.3 after the function has been activated). Activate the function by connecting potential-free switch functions to two inputs selected in menu 7.4 - "Selectable in/outputs" (SG Ready A and SG Ready B).

Closed or open switch means one of the following:

– *Blocking (A: Closed, B: Open)*

  "SG Ready" is active. The compressor in the air/water heat pump and additional heating are blocked.

– *Normal mode (A: Open, B: Open)*

  "SG Ready" is not active. No effect on the system.

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

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

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

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

(A = SG Ready A. B = SG Ready B)

External blocking of functions

An external switch function can be connected to VVM S500 for blocking various functions. The switch must be potential-free and a closed switch results in blocking.

> ⚠ CAUTION!
>
> Blocking entails a risk of freezing.

Functions that can be blocked:

- Block heating
- Block hot water (any hot water circulation (HWC) remains in operation)
- Block (EB101), Block (EB102) (heat pump (EB101) and/or (EB102))
- Block additional heat
- Tariff blocking (NO), Tariff blocking (NC) (additional heat, compressor, heating, cooling and hot water are disconnected)
- "External power limiting"

    In markets where the mains network operator requires dynamic control of the mains network's load, the compressor's and the immersion heater's operating power can be limited.

    You set the power limit in menu 7.4.2 - "External power limiting".

Possible selections for AUX output

Indications

- Alarm outp.
- Group alarm
- Cooling mode indication
- Cool. mode ind. w delay
- Holiday
- Away mode
- SPA (Smart Price Adaption: low electricity price)

Control

- HW circulation (circulation pump for hot water circulation)
- Ext. HM pump (external heating medium pump)

> ⚠ CAUTION!
>
> The relevant distribution box must be marked with a warning about external voltage.

Connecting external circulation pump

An external circulation pump is connected to the AUX output, as illustrated below.
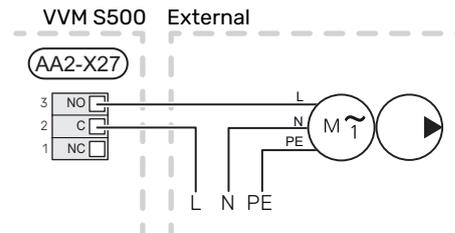
Settings

ELECTRICAL ADDITION - MAXIMUM OUTPUT

The immersion heater is set at the factory to max power.

The immersion heater's power is set in menu 7.1.5.1 - "Int elec add heat".

Power steps of the immersion heater

The table(s) displays the total phase current for the immersion heater.

3x400 V

Electrical addition (kW)	Max L1 (A)	Max L2 (A)	Max L3 (A)
0	0.0	0.0	0.0
2	0.0	8.7	0.0
3	0.0	7.5	7.5
4	0.0	8.7	8.7
5	8.7	7.5	7.5
6	8.7	8.7	8.7
7	8.7	7.5	15.6
9[1]	8.7	15.6	15.6

[1] Factory setting

1x230 V

Electrical addition (kW)	Max L1 (A)
0	0.0
1	4.3
2	8.7
3	13.0
4	17.4
5	21.7
6	26.1
7[1]	30.4

[1] Factory setting

Current sensor

When the current sensors are connected, VVM S500 monitors the phase currents and allocates the power steps automatically to the least loaded phase.

> ⚠ **CAUTION!**
>
> If the current sensors are not connected, VVM S500 calculates how high the currents will be if the relevant power steps are added. If the currents are higher than the set fuse size, the power step is not allowed to cut in.

EMERGENCY MODE

Emergency mode is used in event of operational interference and in conjunction with service.

When VVM S500 is put into emergency mode, the system works as follows:

- VVM S500 prioritises heating production.
- Hot water is produced if possible.
- The load monitor is not active.
- Max output for the immersion heater in emergency mode, limited according to the setting in menu 7.1.8.2 - "Emergency mode".
- Fixed supply temperature if the system has no value from the outdoor temperature sensor (BT1).

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

You can activate the emergency mode both when VVM S500 is running and when it is switched off.

To activate when VVM S500 is running: press and hold the on/off button (SF1) for 2 seconds and select "Emergency mode" from the shutdown menu.

To activate emergency mode when VVM S500 is switched off: press and hold the on/off button (SF1) for 5 seconds. (Deactivate the emergency mode by pressing once).

Commissioning and adjusting

Preparations

1. Check that the externally mounted filling valves are fully closed.

2. Check that VVM S500 is closed.

3. Check the miniature circuit-breaker (FC1)[1]. It may have tripped during transport.

4. Check that the draining valve (QM1) is fully closed and that the temperature limiter (FQ10) has not tripped. See section "Temperature limiter".

Filling and venting

FILLING THE HOT WATER COIL

1. Open a hot water tap in the house.

2. Top up the hot water coil through the cold water connection (XL3).

3. When the water coming out of the hot water tap is no longer mixed with air, the hot water coil is full and the hot water tap can be closed.

FILLING THE CLIMATE SYSTEM

1. Open the vent valve (QM23).

2. Open the externally mounted filler valve. The boiler section and the rest of the climate system are filled with water.

3. When the water exiting the vent valve (QM23) is no longer mixed with air, close the valve.

4. After a while, the pressure rises on the externally mounted pressure gauge. When the opening pressure for the externally mounted safety valve has been reached, it starts to release water. Close the filling valve.

5. Reduce the pressure in the climate system to the normal working range (approx. 1 bar) by opening the vent valve (QM23) or the externally mounted safety valve.

VENTING THE CLIMATE SYSTEM

> ☞ NOTE!
> Insufficient venting can damage internal components in VVM S500.

1. Turn off VVM S500 using the on/off button (SF1).

2. Vent VVM S500 through the vent valve (QM23) and other climate systems through their relevant vent valves.

3. Keep topping up and venting until all air has been removed and the pressure is correct.

---

[1] Only VVM S500 1x230 V.
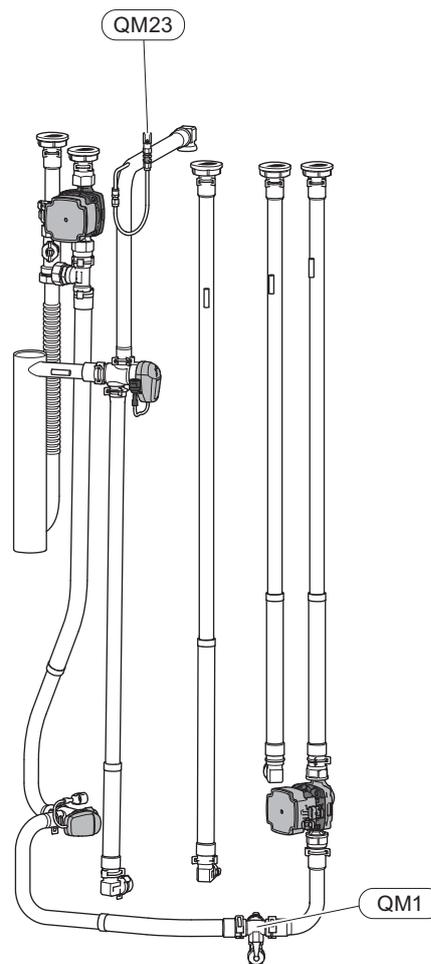
Commissioning

START GUIDE

> ⚠ **CAUTION!**
> There must be water in the climate system before VVM S500 is started.

> ⚠ **CAUTION!**
> Do not start VVM S500 if there is a risk that the water in the system has frozen.

1. Power the heat pump.

2. Start VVM S500 by pressing the on/off button (SF1).

3. Follow the instructions in the display's start guide. If the start guide does not start when you start the VVM S500, you can start it manually in menu 7.7.

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

Commissioning

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

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

> ☞ **NOTE!**
> As long as the start guide is active, no function in VVM S500 will start automatically.

Operation in the start guide

A. Scroll bar

Arrows forwards
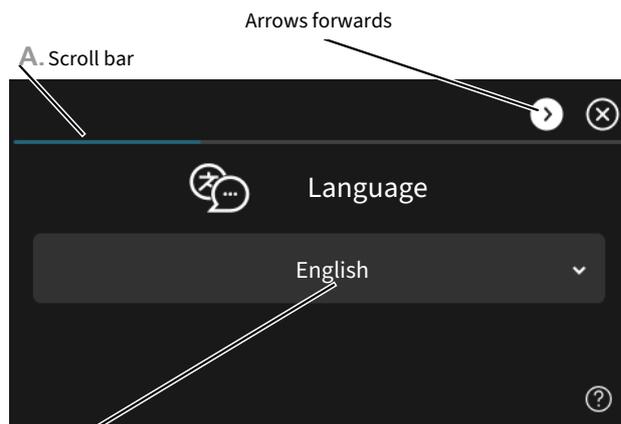
B. Option / setting

A. Scroll bar

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

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

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

B. Option / setting

Make settings for the system here.

COMMISSIONING WITHOUT HEAT PUMP

The indoor module can be used without an outdoor unit, i.e. solely as an electric boiler, to produce heat and hot water, for example before the outdoor unit is installed.

1. Go to menu 4.1 - "Operating mode" and select "Add. heat only".

2. Go to menu 7.3.2 - "Installed heat pump" and deactivate the heat pump..

☞ **NOTE!**

When commissioning without NIBE outdoor unit the "communication error" alarm may appear in the display.

The alarm is reset if the relevant heat pump is de-activated in menu 7.3.2 - "Installed heat pump"

⚠ **CAUTION!**

Select operating mode "Auto" or "Manual" when the indoor unit is once again to be used with the outdoor unit.

PUMP SPEED

The heating medium pump (GP1) in VVM S500 is frequency controlled and adjusts automatically using control and based on heating demand.

Capacity, heating medium pump (GP1)

Available pressure
(kPa)

Flow
(l/s)

Capacity, charge pump (GP12)

Available pressure
(kPa)

Flow
(l/s)

Setting the cooling/heating curve

In the menus "1.30.1 - Curve, heating" and "1.30.2 - Curve, cooling", you can see the heating and cooling curves for your house. The purpose of the curves is to provide an even indoor temperature, regardless of the outdoor temperature, and thereby energy–efficient operation. Based on these curves, VVM S500 determines the temperature of the water to the climate system (the supply temperature) and thus the indoor temperature.
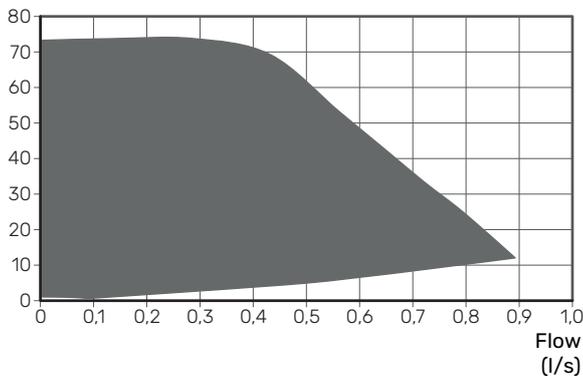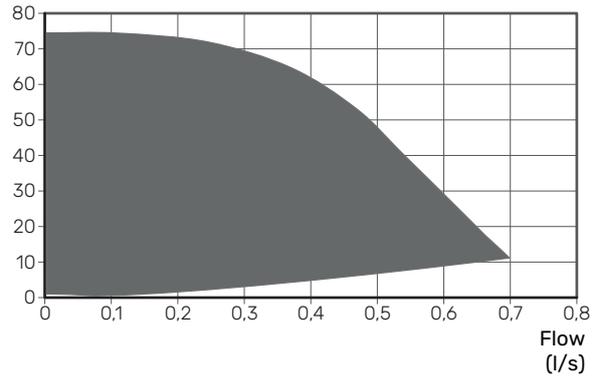
CURVE COEFFICIENT

The slopes of the heating /cooling curves indicate how many degrees the supply temperature is to be increased/reduced when the outdoor temperature drops/increases. A steeper slope means a higher supply temperature for heating or a lower supply temperature for cooling at a certain outdoor temperature.

The lower the heating curve, the more energy efficient the operation, although an excessively low curve entails reduced comfort.
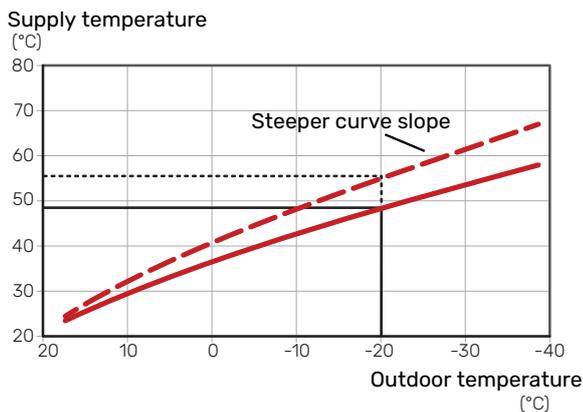
The optimum curve slope depends on the climate conditions and the lowest dimensioned outdoor temperature (DOT) in your location, whether the house has radiators, fan coils or underfloor heating and how well insulated the house is.

For houses with radiators or fan coils, a higher heating curve (e.g. curve 9) is suitable, for houses with under floor heating, a lower curve (e.g. curve 5) is suitable.

The heating/cooling curves are set when the heating/cooling system is installed, but may need adjusting later. Thereafter, the curves should not need further adjustment.

CURVE OFFSET

An offset of the heating curve means that the supply temperature changes by the same amount for all outdoor temperatures, e.g. a curve offset of +2 steps increases the supply temperature by 5 °C at all outdoor temperatures. A corresponding change to the cooling curve results in a lowering of the supply temperature.
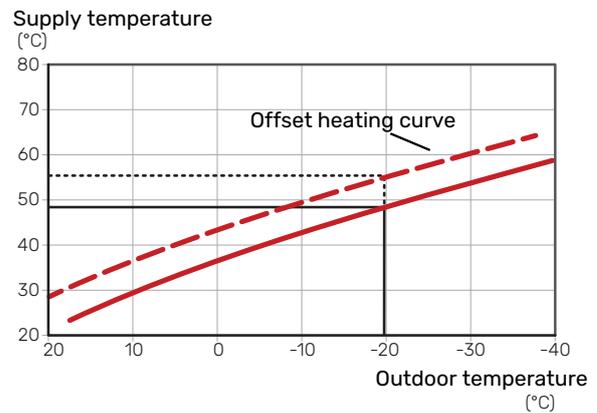
SUPPLY TEMPERATURE – MAXIMUM AND MINIMUM VALUES

Because the supply temperature cannot be calculated higher than the set maximum value or lower than the set minimum value, the curves flatten out at these temperatures.
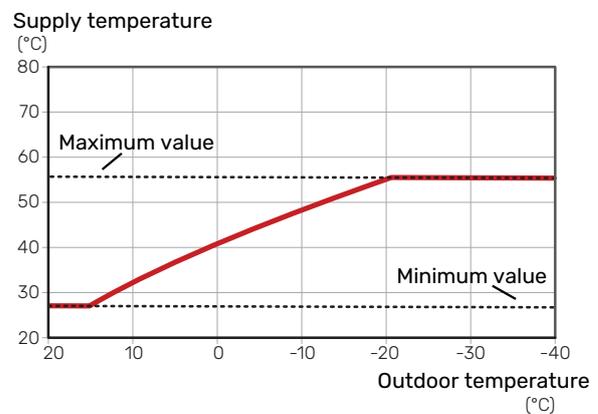
☞ NOTE!

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

☞ NOTE!

With underfloor cooling, "Min. supply temp. cooling" must be restricted to prevent condensation.

ADJUSTMENT OF CURVE

Climate system

Curve coefficient
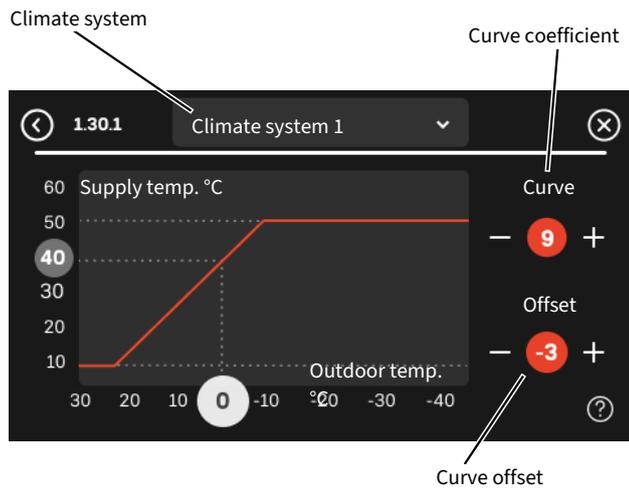
Curve offset

1. Select the climate system (if more than one) for which the curve is to be changed.

2. Select curve slope and curve offset.

3. Select max and min supply temperature.

> 👉 **NOTE!**
>
> Curve 0 means that "Own curve" is used.
>
> Settings for "Own curve" are made in menu 1.30.7.

TO READ OFF A HEATING CURVE

1. Drag in the circle on the axis with outdoor temperature.

2. Read off the value for supply temperature in the circle on the other axis.

myUplink

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

It is possible to update the software for VVM S500 via myUplink.

The possibility to view the history and to make changes depends on the myUplink subscription. You can always view and subscribe on the myUplink website.

Visit myuplink.com for more information.

Specification

You need the following in order for myUplink to be able to communicate with your VVM S500:

• wireless network or network cable

• Internet connection

• account on myuplink.com

We recommend our mobile apps for myUplink.

Connection

To connect your system to myUplink:

1. Select connection type (wifi/Ethernet) in menu 5.2.1 or 5.2.2.

2. In menu 5.1 you select "Request new connection string".

3. When a connection string has been produced, it is shown in this menu and is valid for 60 minutes.

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

5. Use the connection string to connect your installation to your user account on myUplink.

Range of services

myUplink gives you access to various levels of service. The basic level is included and, in addition to that, you can opt for additional subscriptions for a fee. Visit https://myuplink.com/store for more information.

myUplink PRO

myUplink PRO is a complete tool for offering service agreements to the end customer and for always having the latest information about the installation, as well as the option to adjust settings remotely.

With myUplink PRO, you can provide your connected customers with rapid status and remote diagnostics.

Visit pro.myuplink.com for information about what else you can do using the mobile app and online.

Control - Introduction

Display unit

THE STATUS LAMP

USB port

On/off button

Display
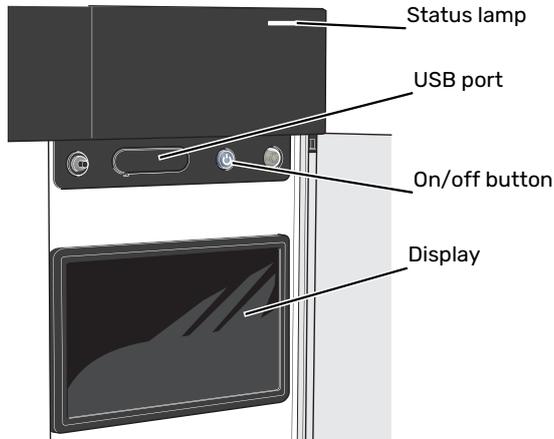
THE STATUS LAMP

The status lamp indicates current operating status. It:

- lights up white during normal operation.

- lights yellow in emergency mode.

- lights red in the event of a deployed alarm.

- flashes white during active notice.

- is blue when VVM S500 is switched off.

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

> **TIP!**
>
> You also receive this information via myUplink.

THE USB PORT

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

> **TIP!**
>
> If you connect the product to myUplink, you can update the software without using the USB port. See section "myUplink".

THE ON/OFF BUTTON

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

- start

- switch off

- activate emergency mode

To start: press the on/off button once.

To switch off, restart or activate emergency mode: press and hold the on/off button for 2 seconds. This brings up a menu with various options.

For hard switch off: press and hold the on/off button for 10 seconds.

To activate emergency mode when VVM S500 is switched off: press and hold the on/off button (SF1) for 5 seconds. (Deactivate the emergency mode by pressing once).

THE DISPLAY

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

Navigation

VVM S500 has a touchscreen where you simply navigate by pressing and dragging with your finger.

SELECT

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

BROWSE

The symbols at the bottom edge show if there are more pages.

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

SCROLL

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

CHANGE A SETTING

Press the setting you want to change.

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

Period 1
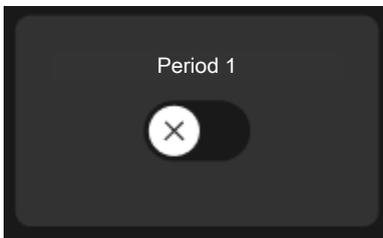
If there are several possible values, a spinning-wheel appears that you drag up or down to find the desired value.

19.0°
19.0°
19.0°
19.0°
19.0°
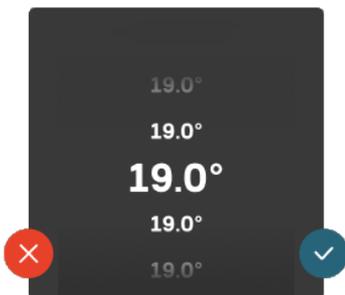
Press ✓ to save your change, or ✕ if you don't want to make a change.

FACTORY SETTING

Factory set values are marked with *.

19.0°
19.0°
19.0°*
19.0°
19.0°
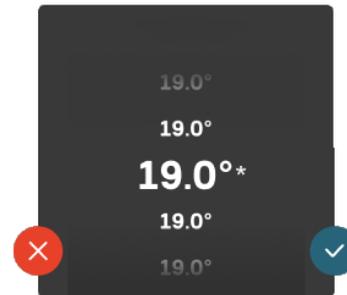
HELP MENU

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

Press the symbol to open the help text.

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

Menu types

HOME SCREENS

Smartguide

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

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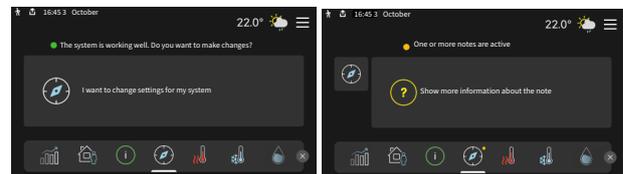
Function pages

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

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

Board   Drop-down menu   Menu tree

Current temperature

Works to set temperature

Set temperature

Drop-down menu

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

Drop-down menu

The drop-down menu shows the current status for VVM S500, what is in operation and what VVM S500 is doing at the moment. The functions that are in operation are highlighted with a frame.

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

Product overview

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

Here, you can find information about the product name, the product's serial number, the version of the software, and the contact details of the company that provides service. When there is new software to download, you can do it here (provided that VVM S500 is connected to myUplink).

Press the icons on the menu's lower edge for more information about each function. Use the scroll bar to view all information for the selected function.

💡 **TIP!**

You enter the service details in menu 4.11.1.
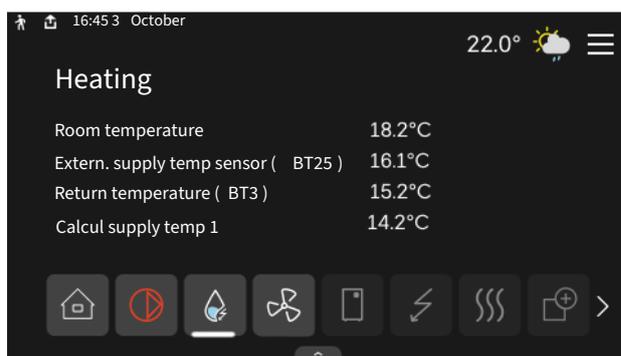
MENU TREE AND INFORMATION

In the menu tree, you can find all menus and can make more advanced settings.
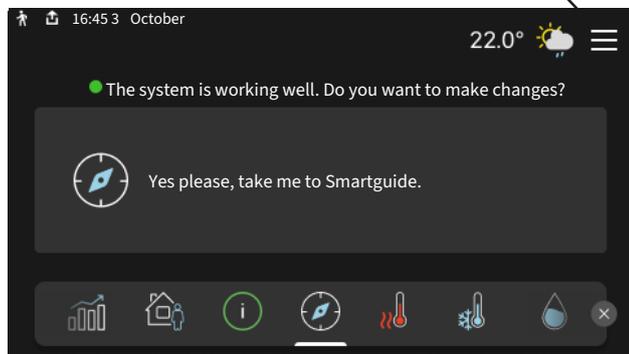
You can always press "X" to return to the home screens.
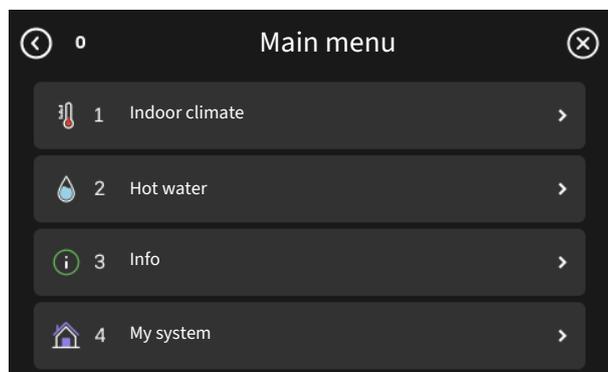
Climate systems and zones

Climate systems can be divided into multiple zones. A zone can be a specific room, and it is also possible to divide a large room into several zones, with the help of radiator thermostats.

Each zone can contain one or more accessories, e.g. room sensors or thermostats, both wired and wireless.

A zone can be set with or without the influence of the climate system's supply temperature.

OUTLINE DIAGRAM WITH TWO CLIMATE SYSTEMS AND FOUR ZONES
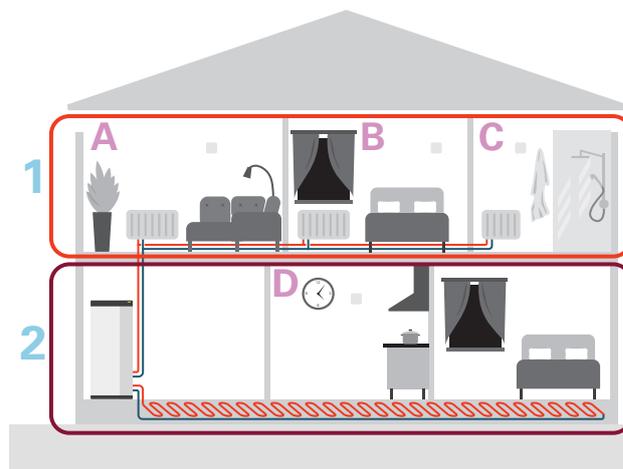
This example shows a property with two climate systems (1 and 2, two separate floors) divided into four zones (A-D, four different rooms). The temperature can be controlled individually in each zone (accessory required).

Control – Menus

Menu 1 – Indoor climate

OVERVIEW

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

[1] Consult the accessory's Installer Manual.

MENU 1.1 - TEMPERATURE

Here, you make temperature settings for your installation's climate system.

If there is more than one zone and/or climate system, the settings are made for each zone/system.

MENU 1.1.1 - INDOOR TEMPERATURE

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

> Setting range: 5 – 35°C
>
> Cooling in 2-pipe systems is activated in menu 7.3.2.1 - "Heat pump settings". To operate cooling in 4-pipe systems, accessories are needed.

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

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

Setting the temperature (without room sensors activated):

> Setting range: –10 – 10

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

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

If multiple zones in a climate system do not have activated room sensors, these will have the same curve offset.

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

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

MENU 1.3 - ROOM SENSOR SETTINGS

Here, you make your settings for room sensors and zones. The room sensors are grouped by zone.

MENU 1.3.3 - ROOM SENSOR SETTINGS

Here, you select the zone to which a sensor will belong. It is possible to connect multiple room sensors to each zone. Each room sensor can be given a unique name.

The control of heating and cooling is activated by ticking the relevant option. Which options are shown depends on which type of sensor is installed. If control is not activated, the sensor will be the displaying sensor.

Smart Room Comfort is activated, if the heating and cooling options are selected as controlling. A zone is regulated by the weather forecast and the indoor temperature.

If there is more than one zone and/or climate system, the settings are made for each zone/system.

MENU 1.3.4 - ZONES

Here, you add and name zones. You also select the climate system to which a zone is to belong.

MENU 1.5 - CLIMATE SYSTEM NAME

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

MENU 1.30 - ADVANCED

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

"*Curve, heating*" Setting the heating curve slope.

"*Curve, cooling*" Setting the cooling curve slope.

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

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

"*Lowest supply cooling*" Setting minimum permitted supply temperature during cooling operation.

"*Highest supply heat*" Setting maximum permitted supply temperature for the climate system.

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

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

MENU 1.30.1 - CURVE, HEATING

Curve, heating
Setting range: 0 – 15

The heating curve can be found in this menu. The task of the heating curve is to provide a uniform indoor temperature, regardless of the outdoor temperature, and thereby energy efficient operation. It is from the heating curve that VVM S500 determines the temperature of the water to the climate system, the supply temperature, and therefore the indoor temperature.

For houses with radiators or fan coils, a higher heating curve (e.g. curve 9) is suitable, for houses with under floor heating, a lower curve (e.g. curve 5) is suitable.

When you have selected the heating curve, you can read off how the supply temperature will change at different outdoor temperatures.

MENU 1.30.2 - CURVE, COOLING

Curve, cooling
Setting range: 0 – 9

The cooling curve can be found in this menu. The task of the cooling curve is, together with the heating curve, to provide a uniform indoor temperature, regardless of the outdoor temperature, and thereby energy-efficient operation. Based on these curves, VVM S500 determines the temperature of the water to the climate system, the supply temperature, and thus the indoor temperature.

For houses with fan coils, a higher curve (e.g. curve 9) is appropriate, for houses with under floor cooling, a lower curve (e.g. curve 5) is appropriate.

When you have selected the cooling curve, you can read off how the supply temperature will change at different outdoor temperatures.

> ☞ **NOTE!**
>
> With underfloor cooling, "Min. supply temp. cooling" must be restricted to prevent condensation.

Cooling in 2-pipe system

VVM S500 contains a built-in function for operating cooling in 2-pipe systems down to 17 °C. This requires that the air/water heat pump can perform cooling. (See the Installer Manual for your air/water heat pump.)

Cooling in 2-pipe systems is activated in menu 7.3.2.1 - "Heat pump settings".

In order for operating mode "cooling" to be permitted, the average temperature must be above the set value for "Start cooling" in menu 7.1.10.2 - "Auto mode setting". There is the option to activate cooling by selecting "Manual" operating mode in menu 4.1 - "Operating mode".

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

> ⚠ **CAUTION!**
>
> Hot water performance may be adversely affected if "Cooling in 2-pipe systems" is activated.

MENU 1.30.3 - EXTERNAL ADJUSTMENT

> **External adjustment**
> Setting range: -10 – 10
>
> Setting range (if room sensor is installed): 5 – 30 °C

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

If there is more than one zone, the setting can be made separately for each zone.

MENU 1.30.4 - LOWEST SUPPLY HEATING

> **Heating**
> Setting range: 5 – 80 °C

Set the minimum temperature on the supply temperature to the climate system. This means that VVM S500 never calculates a temperature lower than that set here.

If there is more than one climate system the setting can be made separately for each system.

MENU 1.30.5 - LOWEST SUPPLY COOLING

> **Cooling**
> Setting range: 7 – 30 °C
>
> Depending on which cooling function (2-pipe system or 4-pipe system) is used, the lower limit of the setting range can vary from 7 to 18 °C.
>
> **Alarm, room sensor during cooling operation**
> Alternative: on/off

Set the minimum temperature on the supply temperature to the climate system. This means that VVM S500 never calculates a temperature lower than that set here.

If there is more than one climate system the setting can be made separately for each system.

Here, you can receive alarms during cooling operation, for example if a room sensor malfunctions.

> ⚠ **CAUTION!**
>
> The cooling supply line must be set with regard to which climate system is connected. For example, under floor cooling with too low supply temperature can cause condensation to precipitate, which in the worst instance could lead to moisture damage.

MENU 1.30.6 - HIGHEST SUPPLY HEAT

> **Climate system**
> Setting range: 5 – 80 °C

Here, you set the highest supply temperature for the climate system. This means that VVM S500 never calculates a temperature higher than the one set here.

If there is more than one climate system the setting can be made separately for each system. Climate systems 2 – 8 cannot be set to a higher max supply temperature than climate system 1.

MENU 1.30.7 - OWN CURVE

Own curve, heat

Supply temp
Setting range: 5 – 80 °C

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

Own curve, cooling

Supply temp
Setting range: 7 – 40 °C

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

MENU 1.30.8 - POINT OFFSET

Outdoor temp. point
Setting range: -40 – 30 °C

Change in curve
Setting range: -10 – 10 °C

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

The heating curve is affected at ± 5°C from set outdoor temp. point.

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

Menu 2 – Hot water

OVERVIEW

MENU 2.1 - MORE HOT WATER

More hot water
Alternatives: 3, 6, 12, 24 and 48 hours, and modes "Off" and "One-time incr."

Quick start with imm. heater
Alternative: on/off

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

If the hot water temperature is already sufficiently high, "One-time incr." cannot be activated.

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

When the time has run out, VVM S500 returns to the set demand mode.

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

"Quick start with imm. heater" gives faster heating, but can lead to increased energy consumption.

MENU 2.2 - HOT WATER DEMAND

Options: Small, Medium, Large, Smart control

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

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

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

Large: This mode produces the most hot water at a higher temperature than the other alternatives. In this mode, the immersion heater may be used to partially heat the hot water. In this mode, hot water production is prioritised ahead of heating.

Smart control: With Smart control activated, VVM S500 continuously learns from previous hot water consumption and, in this way, adjusts the temperature in the water heater for the minimum energy consumption and maximum comfort.

MENU2.3 - EXTERNAL INFLUENCE
Information for the accessories/functions that can affect the hot water operation is shown here.

MENU 2.5 - HOT WATER CIRCULATION

Operating time
Setting range: 1 – 60 min

Downtime
Setting range: 0 – 60 min

Period

Active days
Alternatives: Monday – Sunday

Start time
Setting range: 00:00 – 23:59

Stop time
Setting range: 00:00 – 23:59

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

"*Operating time*" determines how long the hot water circulation pump will run per operating instance.

"*Downtime*" determines how long the hot water circulation pump will be stationary between operating instances.

"*Period*" Here, you set the time period during which the hot water circulation pump will run, by selecting "Active days", "Start time" and "Stop time".

⚠ CAUTION!

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

Menu 3 - Info

OVERVIEW

MENU 3.1 - OPERATING INFO

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

You can also read off operating information from all your connected wireless units.

A QR code appears on one side. This QR code indicates serial number, product name and limited operating data.

MENU 3.2 - TEMPERATURE LOG

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

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

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

MENU 3.3 - ENERGY AND POWER LOG

Here, you can select which parts of the installation will be included in the log.

MENU 3.3.1 - ENERGY LOG

Number of years
Setting range: 1 – 10 years

Months
Setting range: 1 – 24 months

Include heating
Alternative: on/off

Include hot water
Alternative: on/off

Include cooling
Alternative: on/off

Show outdoor temperature
Alternative: on/off

Show indoor temperature
Alternative: on/off

Here, you can see a diagram showing how much energy VVM S500 supplies and consumes. You can select which parts of the installation will be included in the log. It is also possible to activate display of indoor and/or outdoor temperature.

MENU 3.3.2 - POWER LOG

Here, you can see how much power the installation has consumed at a given time of day. You can choose to view either hourly or every 15 mins.

MENU 3.4 - ALARM LOG

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

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

MENU 3.5 - PRODUCT INFO, SUMMARY

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

MENU 3.6 - LICENCES

You can view licences for open source code here.

MENU 3.7 - VERSION HISTORY

Here you can see what is new and/or has been changed in different software versions.

MENU 3.8 - DATA PROTECTION INFORMATION

Here, you can see what data NIBE collects for troubleshooting and optimising the product.

Menu 4 - My system

OVERVIEW

4.1 - Operating mode		
4.2 - Plus functions	4.2.2 - Solar electricity[1]	
	4.2.3 - SG Ready	
	4.2.5 - Smart Price Adaption™	4.2.5.1 - Electricity prices
		4.2.5.2 - Transfer fees
4.3 - Profiles[1]		
4.4 - Weather control		
4.5 - Away mode		
4.6 - Smart Energy Source™		
4.7 - Energy price	4.7.1 - Variable electricity price	
	4.7.3 - Shunt-controlled additional heat[1]	
	4.7.4 - Step-controlled additional heat[1]	
	4.7.6 - External additional heat[1]	
4.8 - Time and date		
4.9 - Language		
4.10 - Country		
4.11 - Tools	4.11.1 - Installer details	
	4.11.2 - Sound when pressing button	
	4.11.3 - Fan de-icing[1]	
	4.11.4 - Home screen	
4.30 - Advanced	4.30.4 - Fact. settings user	

[1] Consult the accessory's Installer Manual.

MENU 4.1 - OPERATING MODE

> **Operating mode**
> Alternative: Auto, Manual, Add. heat only
>
> **Manual**
> Alternative: Compressor, Add. heat, Heating, Cooling
>
> **Add. heat only**
> Alternative: Heating

The operating mode for VVM S500 is normally set to "Auto". It is also possible to select operating mode "Add. heat only". Select "Manual" to choose that functions will be activated.

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

Operating mode "Auto"
In this operating mode, VVM S500 automatically selects which functions are permitted.

Operating mode "Manual"
In this operating mode you can select what functions are permitted.

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

"Add. heat" is the unit that helps the compressor to heat the property and/or the hot water when it cannot manage the entire demand alone.

"Heating" ensures you obtain heating in the property. You can deselect the function, when you do not wish to have the heating on.

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

> **NOTE!**
> If you deselect "Add. heat", it may result in you not obtaining sufficient hot water and/or heating in the property.

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

> **NOTE!**
> If you choose mode "Add. heat only" the compressor is deselected and there is a higher operating cost.

MENU 4.2 - PLUS FUNCTIONS

Settings for any additional functions installed in VVM S500 can be made in the sub menus.

MENU 4.2.3 - SG READY

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

Affect room temp heating

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

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

Affect hot water

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

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

Affect room temp cooling

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

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

> ⚠ **CAUTION!**
>
> The function must be connected to two AUX inputs and be activated in menu 7.4 "Selectable in/outputs".

MENU 4.2.5 - SMART PRICE ADAPTION™

> **Activated**
> Alternative: on/off
>
> **Price source**
> Options: "Spot price", "Manual"
>
> **Affect heating**
> Options: "Off", "Comfort", "Saving", "Saving PLUS"
>
> **Affect room temp cooling**
> Options: "Off", "Comfort", "Saving", "Saving PLUS"
>
> **Affect hot water**
> Alternative: on/off
>
> **With smart control activated in menu 2.2**
> Options: "Off", "Comfort", "Saving", "Saving PLUS"

This function can only be used if you have an active account on myUplink and your electricity supplier supports electricity contracts that are based on the current spot price.

Smart Price Adaption™ adjusts some of the installation's consumption throughout the day to those periods that have the cheapest electricity prices, which can provide savings if you are on a spot price electricity contract. The function is based on downloading the electricity prices for the coming 24 hours via myUplink.

Price source: Here, you can choose whether to use spot prices or to enter prices manually.

Degree of effect: The greater the saving your select, the greater the effect the electricity price has.

RPP 10 can also be affected by Smart Price Adaption™.

> ⚠ **CAUTION!**
>
> Increased savings can lead to a negative impact on the comfort.

MENU 4.2.5.1 - ELECTRICITY PRICES

If you have selected "Manual" in option "Price source" in menu 4.2.5 - Smart Price Adaption™, you can enter the electricity price for individual time periods.

MENU 4.2.5.2 - TRANSFER FEES

If you have selected "Spot price" in menu 4.2.5 - Smart Price Adaption™ you can define transfer fees and assign them to specific time periods. The changes take effect the following day.

MENU 4.4 - WEATHER CONTROL

> **Activate weath. contr.**
> Alternative: on/off
>
> **Factor**
> Setting range: 0 – 10

You can select whether you want VVM S500 to adjust the indoor temperature based on the weather forecast.

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

> 👉 **NOTE!**
>
> This menu is only visible if the installation is connected to myUplink and if a climate system is not using room control.

MENU 4.5 - AWAY MODE

In this menu, you activate/deactivate "Away mode".

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

• the setting for heating is lowered slightly

• the setting for cooling is raised slightly

- the hot water temperature is lowered if demand mode "large" or "medium" is selected
- The AUX function "Away mode" is activated

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

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

MENU 4.6 –SMART ENERGY SOURCE™

> ⚠ **CAUTION!**
> Smart Energy Source™ requires external additional heat.

> **Smart Energy Source™**
> Alternative: on/off
>
> **Control method**
> Setting options: Price per kWh / CO2

If Smart Energy Source™ is activated, VVM S500 prioritises how/to what extent each docked energy source will be used. Here, you can select whether the system will use the energy source that is cheapest at the time or the one that is currently the most carbon dioxide neutral.

> ☞ **NOTE!**
> Your choices in this menu affect menu 4.7 - "Energy price".

MENU 4.7 - ENERGY PRICE

Here you can use tariff control for your additional heat.

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

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

> ☞ **NOTE!**
> This menu can only be seen if Smart Energy Source™ is activated.

MENU 4.7.1 - VARIABLE ELECTRICITY PRICE

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

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

MENU 4.8 - TIME AND DATE

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

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

MENU 4.9 - LANGUAGE

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

MENU 4.10 - COUNTRY

Here, you specify the country in which the product has been installed. This allows access to country-specific settings in your product.

Language settings can be made regardless of this selection.

> ⚠ **CAUTION!**
> This option locks after 24 hours, restart of display or program updating. Afterwards, it is not possible to change the country selected in this menu without first replacing components in the product.

MENU 4.11 - TOOLS

Here, you can find tools for use.

MENU 4.11.1 - INSTALLER DETAILS

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

Afterwards, the details are visible in the home screen, "Product overview".

MENU 4.11.2 - SOUND WHEN PRESSING BUTTON

> Alternative: on/off

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

MENU 4.11.4 - HOME SCREEN

> Alternative: on/off

Here, you choose which home screens you want to be displayed.

The number of options in this menu varies depending on which products and accessories are installed.

MENU 4.30 – ADVANCED

Menu "Advanced" is intended for advanced users.

MENU 4.30.4 - FACT. SETTINGS USER

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

> **NOTE!**
>
> After the factory setting, personal settings such as the heating curve must be reset.

Menu 5 - Connection

OVERVIEW

MENU 5.1 – MYUPLINK

Here, you obtain information about the installation's connection status, serial number and how many users and service partners are connected to the installation. A connected user has a user account in myUplink, which has been given permission to control and/or monitor your installation.

You can also manage the installation's connection to my-Uplink and request a new connection string.

It is possible to switch off all users and service partners who are connected to the installation via myUplink.

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

MENU 5.2 – NETWORK SETTINGS

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

Here, you can set TCP/IP settings for your installation.

To set the TCP/IP settings with the aid of DHCP, activate "Automatic".

During manual setting, select "IP address" and enter the correct address using the keyboard. Repeat this procedure for "Network mask", "Gateway" and "DNS".

> ☞ **NOTE!**
>
> The installation cannot connect to the Internet without the correct TCP/IP settings. If you are unsure about applicable settings, use the "Automatic" mode or contact your network administrator (or equivalent) for further information.

> 💡 **TIP!**
>
> All settings made since opening the menu can be reset by selecting "Reset".

MENU 5.4 – WIRELESS UNITS

In this menu you connect wireless devices, and manage settings for connected devices.

Add the wireless unit by pressing "Add unit". For the quickest identification of a wireless unit, it is recommended that you put your master unit in search mode first. Then put the wireless unit in identification mode.

MENU 5.10 – TOOLS

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

MENU 5.10.1 – DIRECT CONNECTION

If you have a user account in myUplink PRO, you can activate direct connection via wifi. This means that the installation will lose communication with the relevant network, and that you instead make settings via your mobile unit, which you connect to the installation.

Menu 6 - Scheduling

OVERVIEW

MENU 6.1 - HOLIDAY

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

You can also schedule settings for certain installed accessories.

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

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

> ### TIP!
> Stop the holiday setting about a day before your return so that room temperature and hot water have time to return to their usual levels.

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

MENU 6.2 - SCHEDULING

In this menu, you schedule repeated changes of heating and hot water, for example.
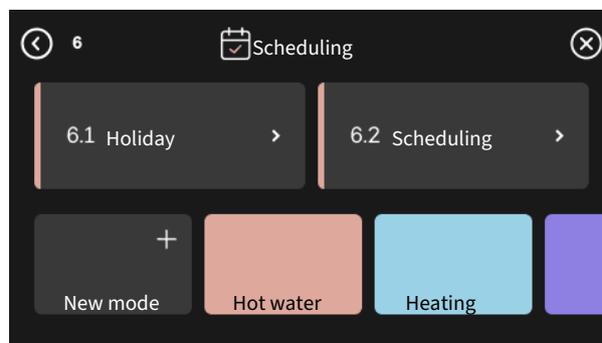
You can also schedule settings for certain installed accessories.

> ### NOTE!
> Scheduling is repeated according to the selected setting (e.g. every Monday) until you manually deactivate it in the menu.

A mode contains settings that will apply to scheduling. Create a mode with one or more settings by pressing "New mode".

Select the settings that the mode will contain. Drag to the left with your finger to select mode name and colour to make it unique and to distinguish it from other modes.
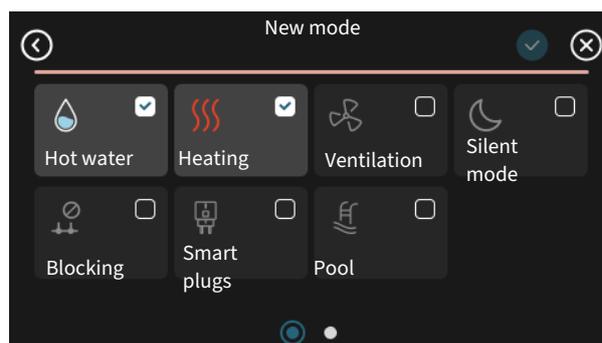
Select an empty row and press it to schedule a mode, and adjust as required. You can enter a tick, if a mode is to be active during the day or overnight.
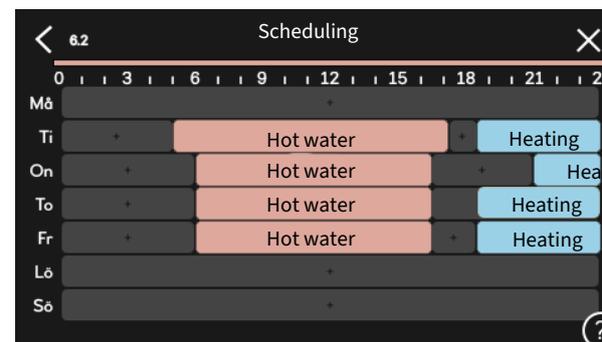
If a room sensor is installed and activated, the desired room temperature (°C) is set during the time period.

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

Menu 7 - Service

OVERVIEW

7.1 - Operating settings	7.1.1 - Hot water	7.1.1.1 - Temperature setting
		7.1.1.2 - Operating settings
	7.1.2 - Circulation pumps	7.1.2.2 - Pp sp. heating medium GP1
		7.1.2.4 - Pump speed charge pump
	7.1.4 - Ventilation[1]	7.1.4.1 - Fan speed, exhaust air[1]
		7.1.4.2 - Fan speed, supply air[1]
		7.1.4.3 - Fine-tuning the ventilation[1]
		7.1.4.4 - Demand contr. ventilation[1]
	7.1.5 - Add. heat	7.1.5.1 - Int elec add heat
	7.1.6 - Heating	7.1.6.1 - Max diff supply temp
		7.1.6.2 - Flow settings, climate sys
		7.1.6.3 - Power at DOT
	7.1.7 - Cooling [1]	7.1.7.1 - Cooling settings[1]
		7.1.7.2 - Humidity control[1]
		7.1.7.3 - System settings cooling[1]
		7.1.7.5 - Largest diff. cooling[1]
	7.1.8 - Alarms	7.1.8.1 - Alarm actions
		7.1.8.2 - Emergency mode
	7.1.9 - Load monitor	
	7.1.10 - System settings	7.1.10.1 - Operating prioritisation
		7.1.10.2 - Auto mode setting
		7.1.10.3 - Degree minute settings
7.2 - Accessory settings[1]	7.2.1 - Add/remove accessories	
	7.2.19 - External energy meter	
7.3 - Multi-installation	7.3.1 - Configure	
	7.3.2 - Installed heat pumps	
	7.3.3 - Name heat pump	
	7.3.4 - Docking	
	7.3.5 - Serial number	
7.4 - Selectable in/outputs	7.4.1 - Enter a name BT37.x	
	7.4.2 - External power limiting	
7.5 - Tools	7.5.1 - Heat pump, test	7.5.1.1 - Test mode
	7.5.2 - Underfloor drying function	
	7.5.3 - Forced control	
	7.5.8 - Screen lock	
	7.5.9 - Modbus TCP/IP	
	7.5.13 - Third-party integration	7.5.13.1 - Modbus TCP/IP Ext.
		7.5.13.2 - EEBUS
7.6 - Factory setting service		
7.7 - Start guide		
7.8 - Quick start		
7.9 - Logs	7.9.1 - Change log	
	7.9.2 - Extended alarm log	
	7.9.3 - Black box	

[1] Consult the accessory's Installer Manual.

MENU 7.1 - OPERATING SETTINGS

Make operating settings for the system here.

MENU 7.1.1 - HOT WATER

This menu contains advanced settings for hot water operation.

MENU 7.1.1.1 - TEMPERATURE SETTING

Start temperature

Demand mode, small/medium/large
Setting range: 5 – 70 °C

Stop temperature

Demand mode, small/medium/large
Setting range: 5 – 70 °C

Start temp. and stop temp. demand mode, small/medium/large: Here, you set the start and stop temperature of the hot water for the different demand modes (menu 2.2).

MENU 7.1.1.2 - OPERATING SETTINGS

Step diff. compressor
Setting range: 0.5 – 4.0 °C

If several compressors are available, set the difference between their engagement and disengagement during hot water charging.

MENU 7.1.2 - CIRCULATION PUMPS

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

MENU 7.1.2.2 - PP SP. HEATING MEDIUM GP1

Heating

Auto
Alternative: on/off

Manual speed
Setting range: 1 - 100 %

Minimum permitted speed
Setting range: 1 - 50 %

Maximum permitted speed
Setting range: 80 - 100 %

Speed in wait mode
Setting range: 1 - 100 %

Cooling

Auto
Alternative: on/off

Manual speed
Setting range: 1 - 100 %

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

Heating

Auto: Here, you set whether the heating medium pump is to be regulated automatically or manually.

Manual speed: If you have opted to control the heating medium pump manually, you set the desired pump speed here.

Minimum permitted speed: Here, you can restrict the pump speed to ensure that the heating medium pump is not allowed to operate at a lower speed in auto mode than the set value.

Maximum permitted speed: Here, you can restrict the pump speed to ensure that the heating medium pump is not allowed to operate at a higher speed than the set value.

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

Cooling

Auto: Here, you set whether the pump speed will be regulated automatically or manually.

Manual speed: Here, you set the desired pump speed for active cooling.

MENU 7.1.2.4 - PUMP SPEED CHARGE PUMP

Heating

Auto
Alternative: on/off

Manual speed
Setting range: 1 - 100 %

Minimum permitted speed
Setting range: 1 - 50 %

Maximum permitted speed
Setting range: 80 - 100 %

Hot water

Auto
Alternative: on/off

Manual speed
Setting range: 1 - 100 %

> **Cooling**
>
> **Auto**
> Alternative: on/off
>
> **Manual speed**
> Setting range: 1 - 100 %
>
> **Active cooling.**
> Setting range: 1 – 100%
>
> **Minimum permitted speed**
> Setting range: 1 – 50%
>
> **Maximum permitted speed**
> Setting range: 80 – 100%

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

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

Manual speed: If you have opted to control the charge pump manually, you set the desired pump speed here.

Minimum permitted speed: Here, you can restrict the pump speed, to prevent the charge pump from operating at a lower speed than the set value.

Maximum permitted speed: Here, you can restrict the pump speed, to prevent the charge pump from operating at a higher speed than the set value.

MENU 7.1.5 - ADD. HEAT
This menu contains sub-menus where you can make advanced additional heat settings.

MENU 7.1.5.1 - INT ELEC ADD HEAT

> **Max. set electrical power**
> Setting range 1x230 V: 0 – 7 kW
>
> Setting range 3x400V: 0 – 9 kW
>
> **Max set el power (SG Ready)**
> Setting range 1x230 V: 0 – 4.5 kW
>
> Setting range 3x400 V: 0 – 6.5 kW

Here you set the max electrical power for the internal electric additional heat in VVM S500, during normal operation and in overcapacity mode (SG Ready).

MENU 7.1.6 - HEATING
This menu contains sub-menus where you can make advanced settings for heating operation.

MENU 7.1.6.1 - MAX DIFF SUPPLY TEMP

> **Max diff compressor**
> Setting range: 1 – 25 °C
>
> **Max diff additional heat**
> Setting range: 1 – 24 °C
>
> **BT12 offset heat pump 1 – 2**
> Setting range: -5 – 5 °C

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

Max diff compressor: If the current supply temperature *exceeds* the calculated supply line by the set value, the degree minute value is set to 1. The compressor stops when there is only a heating demand.

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

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

MENU 7.1.6.2 - FLOW SETTINGS, CLIMATE SYS

> **Setting**
> Options: Radiator, Underfl heating, Rad + Und. heat., Own setting
>
> **DOT**
> Setting range DOT: -40.0 – 20.0 °C
>
> **Delta temp at DOT**
> Setting range dT at DOT: 1.0 – 25.0 °C

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

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

MENU 7.1.6.3 - POWER AT DOT

> **Manually selected power at DOT**
> Alternative: on/off
>
> **Power at DOT**
> Setting range: 1 – 1,000 kW

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

If you choose not to activate "Manually selected power at DOT", the setting is made automatically, i.e. VVM S500 calculates suitable power at DOT.

MENU 7.1.7.5 - LARGEST DIFF. COOLING

> **Largest diff. cooling**
> Setting range: 0 - 4

Here, you set the permitted difference between the supply temperature and the lowest calculated supply temperature for cooling. The selected value determines how far below the value in menu 1.30.5 - "Lowest supply cooling" the supply line may operate before the compressor stops.

MENU 7.1.8 - ALARMS

In this menu, you make settings for the safety measures that VVM S500 will implement in the event of any operational disruption.

MENU 7.1.8.1 - ALARM ACTIONS

> **Reduce room temperature**
> Alternative: on/off
>
> **Stop producing HW**
> Alternative: on/off
>
> **Audio signal on alarm**
> Alternative: on/off

Select how you want the VVM S500 to alert you that there is an alarm in the display here.

The different alternatives are that VVM S500 stops producing hot water and/or reduces the room temperature.

If an alarm action is selected, it is possible to select "Start auxiliary mode". For more information, see "Malfunctions".

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

MENU 7.1.8.2 - EMERGENCY MODE

> **Immersion heater output**
> Setting range 1x230 V: 4 – 4.5 kW
>
> Setting range 3x400 V: 4 – 6.5 kW

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

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

MENU 7.1.9 - LOAD MONITOR

> **Fuse size**
> Setting range: 1 – 400 A
>
> **Transformer ratio**
> Setting range: 300 – 3,000
>
> **Detect phase sequence**
> Here, you activate the phase detection.

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

Here, you can also check which current sensor is installed on which incoming phase to the property (this requires the current sensors to be installed). Perform the check by selecting "Detect phase sequence".

> ☀ **TIP!**
>
> Search again, if the phase detection fails. The detection process is very sensitive and is easily affected by other appliances in the property.

MENU 7.1.10 - SYSTEM SETTINGS

You make your various system settings for your installation here.

MENU 7.1.10.1 - OPERATING PRIORITISATION

> **Auto mode**
> Alternative: on/off
>
> **Min**
> Setting range: 0 – 180 minutes

Here, you select how long the installation will work with each demand, if there are several simultaneous demands.

"Operating prioritisation" is normally set in "Auto mode", but it is also possible to set prioritisation manually.

Auto mode: In auto mode, VVM S500 optimises operating times between different requirements.

Manual: You select how long the installation will work with each demand, if there are several demands at the same time.

If there is only one demand, the installation works with that demand.

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

MENU 7.1.10.2 - AUTO MODE SETTING

Start cooling
Setting range: 15 – 40 °C

Stop heating
Setting range: -20 – 40 °C

Stop additional heat
Setting range: -25 – 40 °C

Filtering time heating
Setting range: 0 – 48 h

Filtering time, cooling
Setting range: 0 – 48 h

Time betw. cooling and heating
Setting range: 0 – 48 h

Cooling/heat sensor
Setting range: None, BT74, Zone 1 - x

Set point value cool/heat sensor
Setting range: 5 – 40 °C

Heating at subnormal room temp
Setting range: 0.5 – 10.0 °C

Cooling at excess room temp
Setting range: 0.5 – 10.0 °C

Start cooling, Stop heating, Stop additional heat: In these menu options, you set the temperatures that the system will use for control in auto mode.

> ☞ NOTE!
>
> It cannot be set "Stop additional heat" higher than "Stop heating".

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

Time betw. cooling and heating: Here, you can set how long VVM S500 will wait before it returns to heating mode when the cooling demand has ceased or vice versa.

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

Set point value cool/heat sensor: Here, you can set the indoor temperature at which VVM S500 will shift between heating and cooling operation.

Heating at subnormal room temp: Here, you can set how far the room temperature may drop below the desired temperature before VVM S500 switches to heating operation.

Cooling at excess room temp: Here, you can set how high the room temperature may rise above the desired temperature before VVM S500 switches to cooling operation.

MENU 7.1.10.3 - DEGREE MINUTE SETTINGS

Current value
Setting range: -3,000 – 3,000 DM

Heating, auto
Alternative: on/off

Start compressor
Setting range: -1,000 – (-30) DM

Relative DM start additional heat
Setting range: 100 – 2,000 DM

Diff. between add heat steps
Setting range: 10 – 1,000 DM

Cooling, auto
Alternative: on/off

Start active cooling
Alternatives: 10 – 300 DM

Stepping diff compressors
Setting range: 10 – 2,000 DM

DM = degree minutes

Degree minutes (DM) are a measure of the current heating/cooling demand in the property and determine when the compressor or additional heat will start/stop.

> ☞ NOTE!
>
> Higher value on "Start compressor" gives more compressor starts, which increase wear on the compressor. Too low value can give uneven indoor temperatures.

Start active cooling: Here, you set when active cooling will start.

MENU 7.2 - ACCESSORY SETTINGS
The operating settings for accessories that are installed and activated are made in the sub-menus for this.

MENU 7.2.1 - ADD/REMOVE ACCESSORIES
Here, you tell VVM S500 which accessories are installed.

To identify connected accessories automatically, select "Search for accessories". It is also possible to select accessories manually from the list.

MENU 7.2.19 - PULSE ENERGY METER

Activated
Alternative: on/off

Set mode
Alternatives: Energy per pulse / Pulses per kWh

Energy per pulse
Setting range: 0 – 10000 Wh

Pulses per kWh
Setting range: 1 – 10000

Up to two electricity meters or energy meters (BE6–BE7) can be connected to VVM S500.

Energy per pulse: Here you set the amount of energy to which each pulse will correspond.

Pulses per kWh: Here, you set the number of pulses per kWh that are sent to VVM S500.

> ### TIP!
> "Pulses per kWh" is set and presented in whole numbers. If a higher resolution is required, use "Energy per pulse".

MENU 7.3 - MULTI-INSTALLATION
In the sub-menus here, you make settings for the heat pumps that are connected to VVM S500.

MENU 7.3.1 - CONFIGURE
Search installed heat pumps: Here, you can search for, activate or deactivate connected heat pumps.

In systems with multiple air/water heat pumps, each air/water heat pump must have a unique address. This is set using a DIP switch in each air/water heat pump that is connected to VVM S500.

MENU 7.3.2 - INSTALLED HEAT PUMPS
Here, you select the settings that you want to make for each heat pump.

MENU 7.3.3 - NAME HEAT PUMP
Here, you name the heat pumps that are connected to VVM S500.

MENU 7.3.4 - DOCKING
Here you set how your system is docked in respect of pipes, in relation to heating the property and any accessories.

> ### TIP!
> Examples of docking alternatives can be found at nibe.eu.

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

Marking frame

Main unit/heat pump

Selectable components
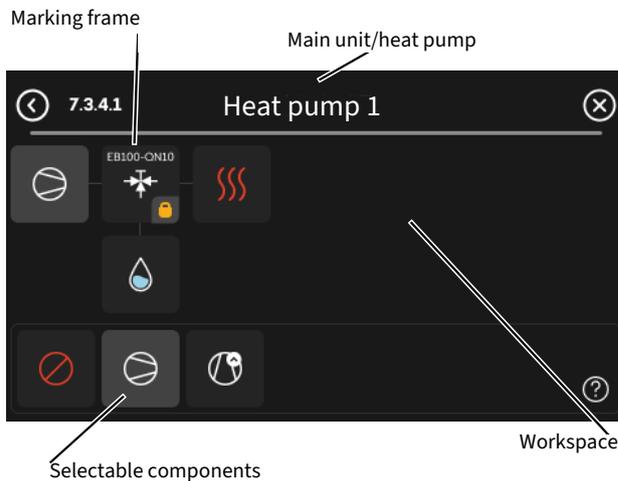
Workspace

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

Workspace for docking: The system docking is drawn here.

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

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

Symbol	Description
	Blocked
	Compressor (standard)
	Diverter valve The designations above the diverter valve indicate where it is electrically connected (EB101 = Heat pump 1, EB102 = Heat pump 2, etc).
	Hot water charging. For a multi-installation: hot water with the main unit and/or shared hot water from several different heat pumps.
	Hot water charging with subordinate heat pump in multi-installation.
	Pool 1
	Pool 2
	Heating (heating the building, includes any extra climate system)
	Cooling

MENU 7.3.5 - SERIAL NUMBER

Here, you allocate a serial number for the system's air/water heat pumps. This menu is only shown if at least one connected air/water heat pump does not have a serial number, e.g. after a circuit board has been replaced.

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

MENU 7.4 - SELECTABLE IN/OUTPUTS

Here, you state where the external switch function has been connected, either to one of the AUX inputs on terminal block X28 or to the AUX output on terminal block X27.

MENU 7.4.1 - ENTER A NAME BT37.X

In this menu, you can change the name of your AUX-connected BT37 sensors.

The sensor's designation (BT37.1, BT37.2, BT37.3, BT37.4, BT37.5, BT37.6) will be added to the name you give the sensor.

MENU 7.4.2 - EXTERNAL POWER LIMITING

> **Power limiting**
> Setting range: 1.1 – 100.0 kW

For markets where the mains network operator requires dynamic control of the mains network's load.

In this menu, you set the fixed value to which the compressor's and the immersion heater's operating power will be limited.

This function is suitable for use during the hours when the property is using the most electricity.

MENU 7.5 - TOOLS

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

MENU 7.5.1 - HEAT PUMP, TEST

> **CAUTION!**
> This menu and its sub-menus are intended for testing the heat pump.
>
> Use of this menu for other reasons may result in your installation not functioning as intended.

MENU 7.5.2 - UNDERFLOOR DRYING FUNCTION

> **Length period 1 – 7**
> Setting range: 0 – 30 days
>
> **Temperature period 1 – 7**
> Setting range: 15 – 70 °C

Set the function for under floor drying here.

You can set up to seven time periods with different calculated supply temperatures. If fewer than seven periods are to be used, set the remaining periods to 0 days.

When the underfloor drying function has been activated, a counter is displayed showing the number of full days the function has been active. The function counts degree minutes in the same way as during normal heating operation, but for the supply temperatures that are set for the respective period.

> **TIP!**
>
> If operating mode "Add. heat only" is to be used, select it in menu 4.1.
>
> For a more uniform supply temperature, the additional heat can be started earlier by setting "Relative DM start additional heat" in menu 7.1.10.3 to -80. When set under floor drying periods have finished, reset the menus 4.1 and 7.1.10.3 as per previous settings.

MENU 7.5.3 - FORCED CONTROL

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

If the compressor needs to be preheated, forced control is not allowed.

> **CAUTION!**
>
> Forced control is only intended to be used for troubleshooting purposes. Using the function in any other way may cause damage to the components in your installation.

MENU 7.5.8 - SCREEN LOCK

Here, you can choose to activate the screen lock for VVM S500. During activation, you will be asked to enter the required code (four digits). The code is used when:

- deactivating the screen lock.
- changing the code.
- starting up the display when it has been inactive.
- restarting/starting up VVM S500.

MENU 7.5.9 - MODBUS TCP/IP

> Alternative: on/off

Here, you activate Modbus TCP/IP. Read more on page 58.

MENU 7.5.13 - THIRD-PARTY INTEGRATION

Here, you manage connections to external services.

MENU 7.5.13.1 - MODBUS TCP/IP EXT.

> Alternative: on/off

Here, you activate Modbus TCP/IP for external services.

MENU 7.5.13.2 - EEBUS

Alternative: on/off

Here, you can activate EEBUS communication.

MENU 7.6 - FACTORY SETTING SERVICE

Here, you can reset all settings (including settings available to the user) to factory values

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

> ⚠ **CAUTION!**
>
> When resetting, the start guide is displayed the next time VVM S500 restarts.

MENU 7.7 - START GUIDE

When VVM S500 is started for the first time, the start guide is automatically activated. From this menu, you can start it manually.

MENU 7.8 - QUICK START

You can quick start the compressor here.

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

• heating

• hot water

• cooling

• pool (accessory is required)

> ☞ **NOTE!**
>
> Too many quick starts in a short space of time may damage the compressor and its auxiliary equipment.

MENU 7.9 - LOGS

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

MENU 7.9.1 - CHANGE LOG

Read off any previous changes to the control system here.

> ⚠ **CAUTION!**
>
> The change log is saved at restart and remains unchanged after factory setting.

MENU 7.9.2 - EXTENDED ALARM LOG

This log is intended to be used for troubleshooting.

MENU 7.9.3 - BLACK BOX

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

Service

Service actions

> ⚠️ **CAUTION!**
>
> Servicing and maintenance should only be carried out by persons with the necessary expertise.
>
> When replacing components on VVM S500 only replacement parts from NIBE may be used.

EMERGENCY MODE

> ⚠️ **CAUTION!**
>
> Do not start the system before filling up with water. Components in the system could be damaged.

Emergency mode is used in event of operational interference and in conjunction with service.

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

You can activate the emergency mode both when VVM S500 is running and when it is switched off.

To activate when VVM S500 is running: press and hold the on/off button (SF1) for 2 seconds and select "Emergency mode" from the shutdown menu.

To activate emergency mode when VVM S500 is switched off: press and hold the on/off button (SF1) for 5 seconds. (Deactivate the emergency mode by pressing once).

When VVM S500 is put in emergency mode, the display is switched off and the most basic functions are active:

• The immersion heater works to maintain the calculated supply temperature. If there is no outdoor temperature sensor (BT1), the immersion heater works to maintain the maximum supply temperature, set in menu 1.30.6 - "Highest supply heat".

EMPTYING THE HOT WATER COIL

The hot water coil is most easily drained by detaching the cold water pipe at the coils's entry to the reservoir.

> ⚠️ **CAUTION!**
>
> There may be some hot water, risk of scalding.

DRAINING THE CLIMATE SYSTEM

In order to carry out service on the climate system, it may be easier to drain the system first.

> ⚠️ **CAUTION!**
>
> There may be some hot water, risk of scalding.

1. Connect a hose to the drain valve for heating medium (QM1).

2. Open the drain valve for the heating medium (QM1).

DATA FOR TEMPERATURE SENSOR IN THE INDOOR UNIT

Temperature (°C)	Resistance (kOhm)	Voltage (VDC)
-10	56.20	3.047
0	33.02	2.889
10	20.02	2.673
20	12.51	2.399
30	8.045	2.083
40	5.306	1.752
50	3.583	1.426
60	2.467	1.136
70	1.739	0.891
80	1.246	0.691

USB SERVICE OUTLET

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

Menu 8.1 - "Update the software"
You can update the software with a USB memory in menu 8.1 - "Update the software".

> ⚠ **CAUTION!**
>
> In order to update using a USB memory, the memory must contain a file with software for VVM S500 from NIBE.
>
> Software for VVM S500 can be downloaded from myuplink.com.

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

> 💡 **TIP!**
>
> A software update does not reset the menu settings in VVM S500.

> ☞ **NOTE!**
>
> If the update is interrupted before it is complete (e.g. during a power cut), the software is automatically restored to the previous version.

Menu 8.2 - Logging

> **Interval**
> Setting range: 1 s – 60 min

Here you can choose how current measurement values from VVM S500 should be saved onto a log file on the USB memory.

1. Set the desired interval between loggings.

2. Select "Start logging".

3. The relevant measurement values from VVM S500 are now saved in a file on the USB memory at the set interval until you select "Stop logging".

> ☞ **NOTE!**
>
> Select "Stop logging" before removing the USB memory.

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

• Make sure that "Underfloor drying function" is activated in menu 7.5.2.

• A log file is now created, where the temperature and the immersion heater output can be read off. Logging continues until "Underfloor drying function" is stopped.

> ☞ **NOTE!**
>
> Close "Underfloor drying function" before removing the USB memory.

Menu 8.3 - Manage settings

> **Save settings**
> Alternative: on/off
>
> **Display backup**
> Alternative: on/off
>
> **Restore settings**
> Alternative: on/off

In this menu, you save/upload menu settings to/from a USB memory stick.

Save settings: Here, you save menu settings in order to restore them later or to copy the settings to another VVM S500.

Display backup: Here, you save both menu settings and measurement values, such as energy data.

> ☞ **NOTE!**
>
> When you save menu settings to the USB memory, you replace any previously saved settings on the USB memory.

Restore settings: Here, you upload all menu settings from the USB memory stick.

> ☞ **NOTE!**
>
> Resetting of menu settings from the USB memory cannot be undone.

Manual restoring of software
If you want to restore the software to the previous version:

1. Switch off VVM S500 via the shutdown menu. The status lamp goes out, off/on button light up blue.

2. Press the on/off button once.

3. When the on/off button changes colour from blue to white, press and hold the on/off button.

4. When the status lamp changes to green, release the on/off button.

> 👉 **NOTE!**
>
> If the status lamp should turn yellow at any time, VVM S500 has ended up in emergency mode and the software has not been restored.

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

Menu 8.5 - Export energy logs

From this menu, you can save your energy logs to a USB memory.

MODBUS TCP/IP

VVM S500 has built-in support for Modbus TCP/IP, which is activated in menu 7.5.9 - "Modbus TCP/IP".

TCP/IP settings are set in menu 5.2 - "Network settings". Only connections from IP addresses within the local address space as specified below:

10.0.0.0 - 10.255.255.255

172.16.0.0 - 172.31.255.255

192.168.0.0 - 192.168.255.255

Modbus protocol uses port 502 for communication.

Readable	ID	Description
Read	0x04	Input Register
Read writable	0x03	Holding Register
Writable multiple	0x10	Write multiple registers
Writable single	0x06	Write single register

Available registers are shown in the display for the currect product and its installed and activated accessories.

Export register

1. Insert a USB memory.

2. Go to menu 7.5.9 and choose "Export most used re-gisters"or"Export all registers". These will then be stored on the USB memory in CSV format. (These options is only shown when a USB memory in inserted in the display).

IP address restriction

1. Go to menu 7.5.9 and choose IP address restriction.

2. Enter the IP address that is allowed to communicate with the system.

> ⚠ **CAUTION!**
>
> Modbus/TCP communication over the open internet is very risky and is not recommended!

MAC address

Go to menu 3.1.13 - "Connections" to see the MAC address.

Reading only

Reading Modbus only means that no values can be sent to the system, only reading of values is possible.

LOCAL REST API

REST API is a secure, local alternative to MODBUS TCP/IP. REST API is well-known, self-descriptive and lists parameters, as well as being easy to integrate with other systems.

Go to menu 7.5.15 - "Local REST API" to activate the function.

Disturbances in comfort

In most cases, the VVM S500 notes a malfunction and indicates this with alarms and presents action instructions in the display.

Info-menu

All the indoor module's measured values are gathered under menu 3.1 - "Operating info" in the indoor module's menu system. Examining the values in this menu can often make it easier to identify the source of the fault.

Manage alarm

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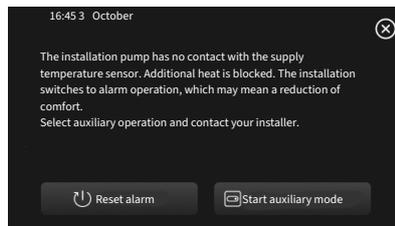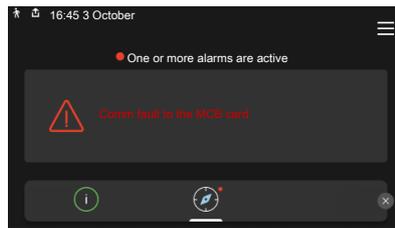
ALARM

In the event of an alarm with a red status lamp, a malfunction has occurred that VVM S500 cannot remedy itself. On the display, you can see what type of alarm it is and reset it.

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

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

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

> **NOTE!**
>
> To select "Start auxiliary mode", an alarm action must be selected in the menu 7.1.8.1 - "Alarm actions".

> **NOTE!**
>
> Selecting "Start auxiliary mode" is not the same as correcting the problem that caused the alarm. Therefore, the status lamp will remain red.

Troubleshooting

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

BASIC ACTIONS

Start by checking the following items:

- Group and main fuses of the building.
- The building's earth circuit breaker.
- Indoor unit's RCD.
- Miniature circuit-breaker for VVM S500 (FC1)[1].
- Temperature limiter for VVM S500 (FQ10).
- Correctly set load monitor.

[1] Only VVM S500 1x230 V.

LOW HOT WATER TEMPERATURE OR A LACK OF HOT WATER

- Closed or throttled externally mounted filling valve for the hot water.
  - Open the valve.

- Mixing valve (if there is one installed) set too low.
  - Adjust the mixer valve.

- VVM S500 in incorrect operating mode.
  - Enter menu 4.1 - "Operating mode". If "Auto" mode is selected, select a higher value for "Stop additional heat" in menu 7.1.10.2 - "Auto mode setting".
  - Hot water is produced with VVM S500 in "Manual" mode. If there is no air/water heat pump, "Additional heat" must be activated.

- Large hot water consumption.
  - Wait until the hot water has heated up. Temporarily increased hot water capacity can be activated in the "Hot water" home screen, in menu 2.1 - "More hot water" or via myUplink.

- Too low hot water setting.
  - Enter menu 2.2 - "Hot water demand" and select a higher demand mode.

- Low hot water access with the "Smart Control" function active.
  - If the hot water usage has been low for an extended period of time, less hot water than normal will be produced. Activate "More hot water" via the "Hot water" home screen, in menu 2.1 - "More hot water" or via myUplink.

- Too low or no operating prioritisation of hot water.

– Enter menu 7.1.10.1 - "Operating prioritisation" and increase the time for when hot water is to be prioritised. Note that, if the time for hot water is increased, the time for heating production is reduced, which can give lower/uneven room temperatures.

- "Holiday" activated in menu 6.

  – Enter menu 6 and deactivate.

LOW ROOM TEMPERATURE

- Closed thermostats in several rooms.

  – Set the thermostats to max in as many rooms as possible. Adjust the room temperature via the "Heating" home screen, rather than turning down the thermostats.

- VVM S500 in incorrect operating mode.

  – Enter menu 4.1 - "Operating mode". If "Auto" mode is selected, select a higher value for "Stop heating" in menu 7.1.10.2 - "Auto mode setting".

  – If mode "Manual" is selected, select "Heating". If this is not enough, also select "Additional heat".

- Too low set value on the automatic heating control.

  – Adjust via the smart guide or home screen "Heating"

  – If the room temperature is only low in cold weather, the curve slope in menu 1.30.1 - "Curve, heating" may need to be adjusted upwards.

- Too low or no operating prioritisation of heat.

  – Enter menu 7.1.10.1 - "Operating prioritisation" and increase the time for when heating is to be prioritised. Note that if the time for heating is increased, the time for hot water production is reduced, which can give a smaller amount of hot water.

- "Holiday" activated in menu 6 - "Scheduling".

  – Enter menu 6 and deactivate.

- External switch for changing room temperature activated.

  – Check any external switches.

- Air in the climate system.

  – Vent the climate system.

- Closed valves to the climate system.

  – Open the valves.

HIGH ROOM TEMPERATURE

- Too high set value on the automatic heating control.

  – Adjust via the smart guide or home screen "Heating"

  – If the room temperature is only high in cold weather, the curve slope in menu 1.30.1 - "Curve, heating" may need to be adjusted downwards.

- External switch for changing room temperature activated.

  – Check any external switches.

- Value set too low on the automatic cooling control.

– Adjust via the Smartguide or home screen "Cooling".

– If the room temperature is only high in cold weather, the curve slope in menu 1.30.2 - "Curve, cooling" may need to be adjusted downwards.

UNEVEN ROOM TEMPERATURE.

- Incorrectly set heating curve.

  – Fine-tune the heating curve in menu 1.30.1.

- Too high set value on "DOT"..

  – Enter menu 7.1.6.2 - "flow set. climate system" and reduce the value of "DOT".

- Uneven flow over the radiators.

  – Adjust the flow distribution over the radiators.

LOW SYSTEM PRESSURE

- Not enough water in the climate system.

  – Fill the climate system with water and check for leaks (see chapter "Filling and venting").

THE OUTDOOR UNIT'S COMPRESSOR DOES NOT START

- There is no heating or hot water demand, nor cooling demand.

  – VVM S500 does not call on heating, hot water or cooling.

- Compressor blocked due to the temperature conditions.

  – Wait until the temperature is within the product's working range.

- Minimum time between compressor starts has not been reached.

  – Wait for at least 30 minutes and then check if the compressor has started.

- Alarm tripped.

  – Follow the display instructions.

Accessories

Detailed information about the accessories and complete accessories list available at nibe.eu.

Not all accessories are available on all markets.

ACTIVE COOLING ACS 310[1]

ACS 310 is an accessory that enables VVM S500 to control the production of cooling.

Part no. 067 248

[1] The accessory requires that NIBE outdoor unit is installed.

DOCKING KIT DEH 41

There is a separate docking kit available for connecting other heat sources to VVM S500.

DEH S500

Docking kit wood/oil/pellets.

Part no. 067 963

ENERGY MEASUREMENT KIT EMK 300

This accessory is installed externally and used to measure the amount of energy that is supplied to the hot water/heating/cooling for the house.

Part no. 067 314

EXTERNAL ELECTRIC ADDITIONAL HEAT ELK

These accessories require accessory AXC 40 (step controlled additional heat) or DEH S500 (external additional heat).

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

ELK 26
26 kW, 3 x 400 V
Part no. 067 074

ELK 42
42 kW, 3 x 400 V
Part no. 067 075

ELK 213
7–13 kW, 3 x 400 V
Part no. 069 500

EXTRA SHUNT GROUP ECS

This accessory is used when VVM S500 is installed in houses with two or more different climate systems that require different supply temperatures.

ECS 40
Max 80 m²

Part no 067 287

ECS 41
Approx. 80-250 m²

Part no 067 288

HUMIDITY AND TEMPERATURE SENSOR HTS 40

This accessory is used to show and regulate humidity and temperatures during both heating and cooling operation.

Part no. 067 538

EXHAUST AIR UNIT S135[1]

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

Part no. 066 161

[1] The accessory requires that NIBE outdoor unit is installed.

HRV UNIT ERS

This accessory is used to supply the accommodation with energy that has been recovered from the ventilation air. The unit ventilates the house and heats the supply air as necessary.

ERS S10-400[1]
Part no. 066 163

ERS 20-250[2]
Part no. 066 068

ERS 30-400[3]
Part no. 066 165

ERS S40-400
Part no. 066 242

[1] A preheater may be required.
[2] A preheater may be required.
[3] A preheater may be required.

AUXILIARY RELAY

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

HR 10
Recommended max fuse for control current 10 A.
Part no 067 309

HR 20
Recommended max fuse for control current 20 A.
Part no. 067 972

COMMUNICATION MODULE FOR SOLAR ELECTRICITY EME 20

EME 20 is used to enable communication and control between inverters for solar cells from NIBE and VVM S500.

Part no. 057 215

POOL HEATING POOL 500[1]

POOL 500 is an accessory that enables pool heating with VVM S500.

Part no. 067 181

[1] The accessory requires that NIBE outdoor unit is installed.

ROOM UNIT RMU S40

The room unit is an accessory with a built-in room temperature sensor and humidity sensor, which allows the control and monitoring of VVM S500 to be carried out in a different part of the property to where it is located.

Part no. 067 650

SOLAR PACKAGE NIBE PV

NIBE PV is a modular system comprising solar panels, assembly parts and inverters, which is used to produce your own electricity.

ACCESSORY CARD AXC 40

This accessory is used to enable connection and control of shunt-controlled additional heat, step-controlled additional heat or external circulation pump.

Part no. 067 060

WIRELESS ACCESSORIES

It is possible to connect wireless accessories to VVM S500, e.g. room, humidity, CO_2 sensors.

BUFFER VESSEL UKV

A buffer vessel is an accumulator tank that is suitable for connection to a heat pump or another external heat source, and can have several different applications.

UKV 40
Part no. 088 470

UKV 100
Part no. 088 207

UKV 200 Cooling
Part no. 080 321

UKV 300 Cooling
Part no. 080 330

Technical data

Dimensions
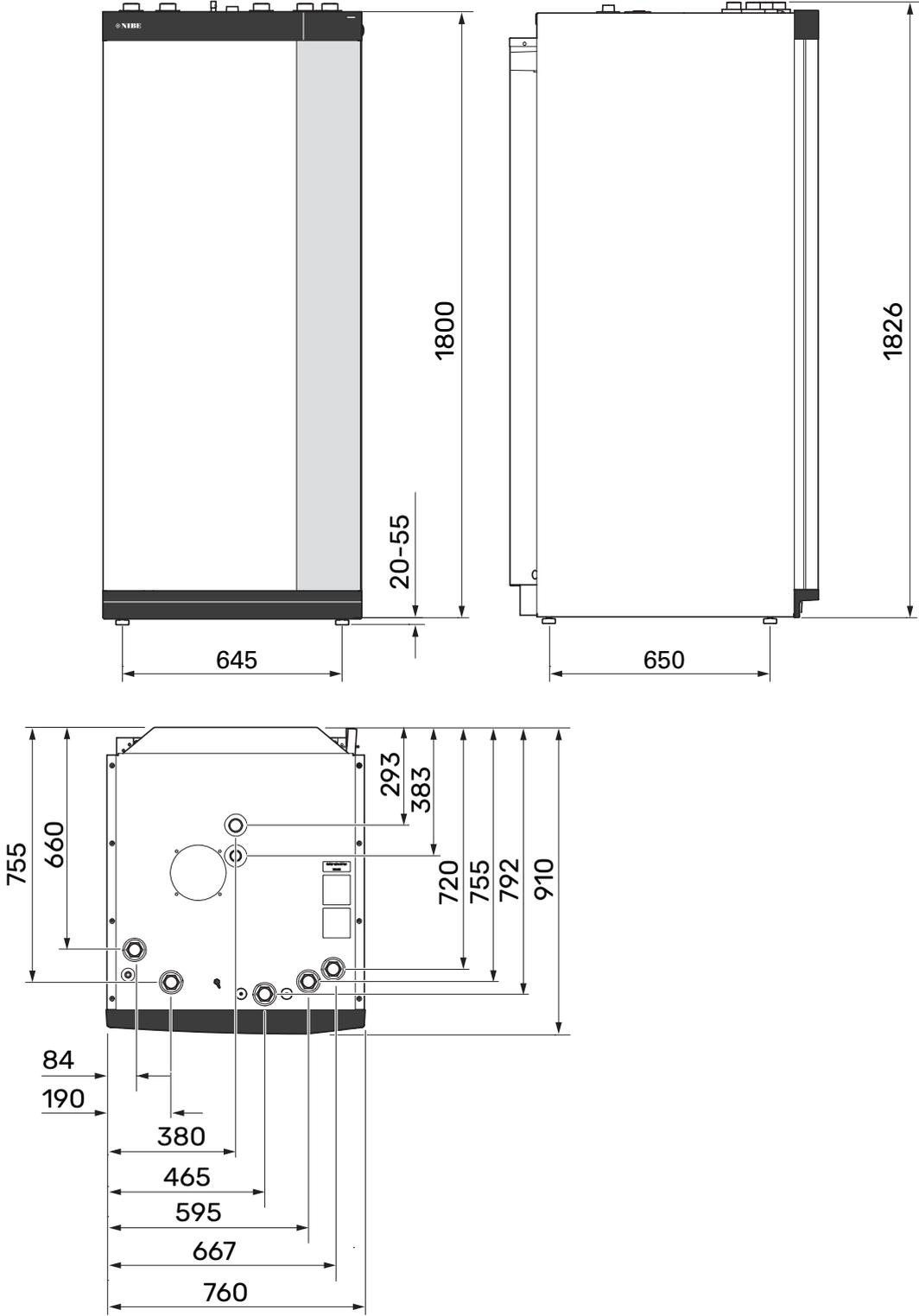
Technical specifications

Voltage		1 x 230 V	3 x 400 V
Electrical data			
Max power, immersion heater (factory setting)	kW	7 (7)	9 (9)
Rated voltage		230 V ~ 50 Hz	400 V 3N ~ 50 Hz
Max operating current	A	31.6 A	16.2 A
Fuse	A	35 A	20 A
Output, heating medium pump (GP1)	W	2 – 75	
Output, heating medium pump (GP1)	W	2 – 75	
Output, charge pump for hot water (GP12)	W	2 – 75	
Enclosure class		IPX1B	
Equipment Compliant with IEC 61000-3-12			
For Connection Design Purposes, Compliant with IEC 61000-3-3 technical requirements			
WLAN			
2.412 - 2.484 GHz max power	dbm	11	
Wireless units			
2.405 - 2.480 GHz max power	dbm	4	
Heating medium circuit			
Min pressure in the heating medium circuit	MPa (bar)	0.05 (0.5)	
Max pressure in the heating medium circuit	MPa (bar)	0.6 (6)	
Opening pressure, safety valve	MPa (bar)	0.25 (2.5)	
Max. heating medium temperature	°C	80	
Pipe connections			
Heating medium ext θ		G1 int	
Hot water connection ext θ		G1 int	
Cold water connection ext θ		G1 int	
Heat pump connections ext θ		G1 int	
Hot water and heating section			
Volume hot water coil	litre	22.8	
Volume, total indoor	litre	500	
Volume buffer vessel	litre	80	
Cut-off pressure, hot water coil	MPa (bar)	1.0 (10)	
Max permitted pressure in the indoor module	MPa (bar)	0.6 (6)	
Capacity, hot water heating according to EN 16 147			
Tap volume 40 °C (comfort mode Medium)	litre	390	
Dimensions and weight			
Width	mm	760	
Depth	mm	910	
Height	mm	1,846	
Required ceiling height	mm	1,942	
Weight	kg	218	
Corrosion protection		Stainless	
Part no.			
Part no.		069 277	069 276

Electrical circuit diagram

1X230 V

WIRING DIAGRAM VVM S500
ELSCHEMA VVM S500, 230V
INPUT

Drawing no
051304 Rev **1**

Sheet: 3
Next sheet: 4

Dimension
230V 50Hz, 7kW
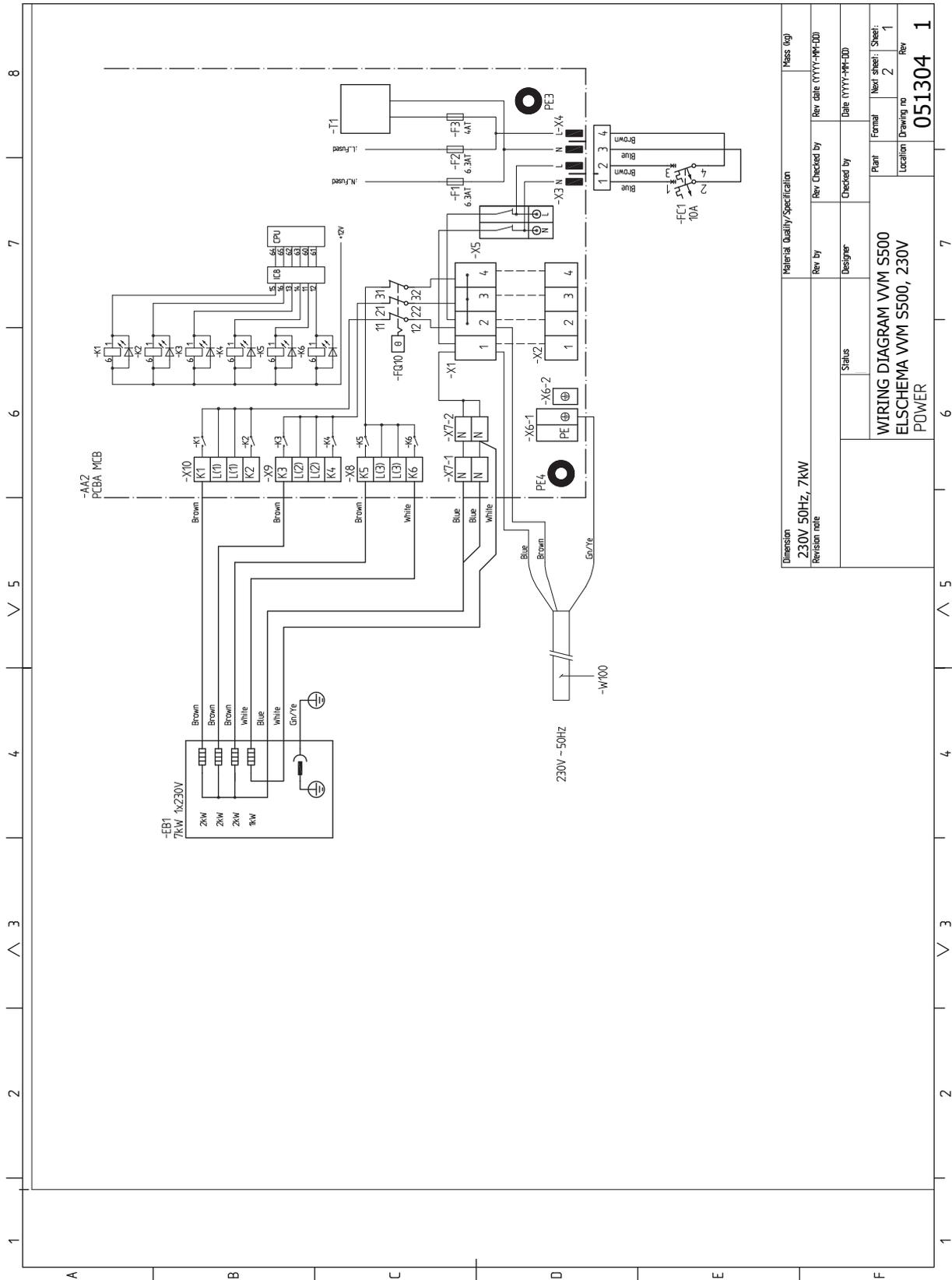
Revision note

Material Quality/Specification

Mass (kg)

Status

Rev by | Rev Checked by | Rev date (YYYY-MM-DD)
Designer | Checked by | Date (YYYY-MM-DD)
Plant | | Format
Location | | Drawing no

Internal Flowmeter
As part of
Energymeter

-BF1
1 White
2 Brown
3 Green

-AA2
PCBA MLB

-X34 +5V Flow 1
3 2 1

-X35 +5V Flow 2
3 2 1

Green
Brown
White
3 2 1

-W133

-X27
NO
C
NC
Alarm /
Aux

-K90
A
(CPU.69)
+12V

-X24

-X28 A5-0 | A5+ | GND
1 2 3

-X29 GND | +12V | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12
AUX1 AUX2 AUX3 AUX4 AUX5 AUX6 AUX7 AUX8 AUX9 BT50 BT1

-X30 GND | +12V | B | A | 0-5V | +5V | GND | +5V | EXT COM | INT COM | BE1 | BE2 | BE3
1 2 3 4 5 6 7 8 9 10 11 12

0T+ 0T+

PWM 0
PWM 1
CPU
ERROR
POWER

-S1
Reset

PE2

-X20 Temp
1 2 3 4 5 6 7 8 9 10 11 12 13 14

-X19 Temp

-X18 PWM0 FB | PWM0 SP | PWM1 FB | PWM1 SP
1 2 3 4 5 6

White (-BT63)
White (-BT6)
Green (-BT7)
Green (-BT6)
Red (-BT2)
Red (-BT6)
Blue (-BT2)
Violet (-BT3)
Yellow (-BT5)
Yellow (-BT5)

-X23
ACC DE
ACC RX
ACC TX
GND
+12V
INT B
INT A

-X21
GND
N12V HMI
+12V
R12V HMI
INT A

-X22
GND
N12V HMI
+12V
R12V HMI
INT B
INT A

-W108

-W115

/4.2F HMI AA4

10 White
9 Grey
8 Violet
7 Blue
6 Green
5 Yellow
4 Orange
3 Red
2 Brown
1 Black

-BT63 White
-BT7 Green
-BT5 Yellow
-BT6 Red
-BT2 Blue
-BT3 Violet

WIRING DIAGRAM VVM S500
ELSCHEMA VVM S500, 230V
DISPLAY

Dimension
230V 50Hz, 7kW

Drawing no
051304

Rev
1

Sheet:
4

3X400 V

WIRING DIAGRAM VVM S500
ELSCHEMA VVM S500
POWER

Drawing no 051302

WIRING DIAGRAM VVM S500
ELSCHEMA VVM S500
DISPLAY

Dimension
400V 3N~ 50Hz, 9kW

Drawing no
051302

-AA4
PCBA HMI

-SF1

-XF3

-XF8

-XF5

-W1f5

/3.4D HMI AA4

Item register

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