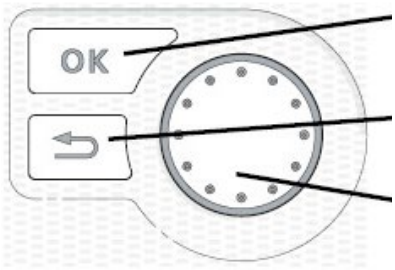
Installer and user manual

Indoor module
MHB 05

29-11-2023
31752

Quick Guide

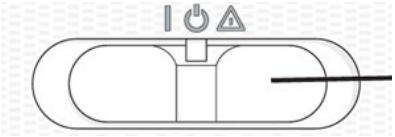
Navigation



Ok button (confirm/select)

Back Button (back/ cancel/exit)

Regulation knob (move/increase/decrease)



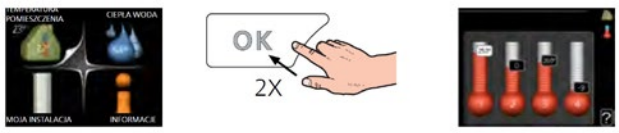
Switch (SF1)

The switch assumes three positions:

On (I)	Setting for normal operation or holiday
Standby (⏻)	Setting in case heat pump is not in operation (not able to start).
Emergency mode (⚠)	Setting in case of a fault, to enable heat by only the immersion heater.

Detailed description of button functions to be found in section Control-Introduction.
Moving about the menu and inputting various settings has been specified in the Control section.

Room temperature setting



The room temperature setting mode is selected by pressing the OK button twice from the start mode level in the main menu. More information to be found in section Room temperature setting.

Increase hot water volume

In order to temporarily increase hot water volume first turn the control knob to mark menu 2 (icon presenting water drop) and press the OK button twice. More information to be found in section Setting hot water output (function active in case a hot water tank is connected).

If the heat comfort is distorted

If there are any distortions to the heat comfort, before contacting the installation technician, you can perform some activities yourself. Appropriate instructions can be found in section Disturbances in comfort.

Table of Contents

1 Important information

Safety information

This manual contains installation and service procedures for implementation by specialists.
The manual must be left with the customer.

This appliance can be used by children aged 8 years and above and persons with reduced physical, sensory or mental capacity or lack of experience and knowledge, if they will be supervised or have received instruction concerning safe use of the appliance, and if they understand the danger involved in its use. Children must not play with the appliance. Cleaning and basic maintenance of the appliance must not be carried out by children unsupervised.

The rights to make structural changes are reserved.

System pressure	Max	Min
Heating medium	0.4 MPa (4 bar)	0.1 MPa (1 bar)

Symbols

CAUTION!

This symbol indicates danger to the appliance or person.

NOTE!

This symbol indicates important information to note while operating or maintaining the appliance.

TIP!

This symbol indicates tips that will make it easier to operate the product.

Marking

MHB 05 is CE marked and has an IP21 protection rating.

The CE mark confirms that NIBE has ensured that the product conforms to all applicable regulations specified by the relevant EU directives. The CE mark is mandatory for most products sold in the EU, regardless of where they are made.

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

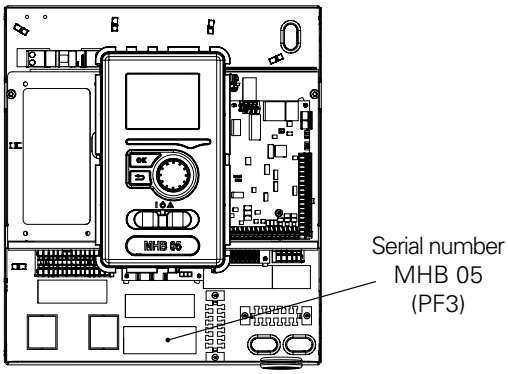
Danger to person or machine.

Read the Installer and User Manual.

The CE marking

Serial number

The serial number is located inside the MHB 05, under the control panel and consists of 14 digits.



NOTE!

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

Waste disposal

Leave the disposal of the packaging to the installer who installed the product or to a special waste disposal facility.

Do not dispose of used products with normal household waste. It must be transported to a special waste disposal facility or to a vendor who provides this type of service.

Improper disposal of the product by the user may result in administrative penalties in accordance with the applicable legislation.

Inspection of the installation

The climate system must be inspected before commissioning. The inspection must be carried out by a suitably qualified person. In addition, fill in the page for the installation data in the Installation and User Manual.

Checklist

	Description	Notes	Signature	Date
Hydraulics				
	Fill CH-system, right pressure			
	Vent CH-system, open automatic air vents			
	Check possible leakages			
	Check hydraulic connections according dockings			
	Check safety equipment			
Electric power supply				
	Communication, heat pump			
	Power connected 1,5 kW (no jumper X3)			
	Power connected 3,0 kW (jumper X3)			
	Power 0 kW (immersion heater off)			
	Outdoor temperature sensor (BT 1)			
	Roomsensor (BT 50) / RMU 40 / on-off room thermostat			
	AUX2 (on/off room thermostat)			
	Connection on/off gas boiler (hybrid)			
Hot water (optional)				
	Temperature sensor (BT 6)			
	Temperature sensor (BT 7) (optional)			
	Reversing valve (QN 10)			
	Fill DHW tank			
	Check safety equipment			
Miscellaneous				
	BT25 sensor (optional)			
	Gas boiler power reduction (minimal)			
	Setting the boiler operating temperature			
	Auxiliary heater control			
	Check the functioning of the reversing valve			
	Check the functioning of the pump			
	Completed inspection of the heat pump installation and related equipment			
	Internet connection			

2 Delivery and handling

Compatibility

The MHB 05 unit can be used with outdoor units. The compatible NIBE heat pumps are:

Indoor unit	Compatibility
MHB 05	F2120 8, 12
	F2040 6, 8, 12
	F2050 6, 10
	S2125 8, 12
	AMS 20-6, 20-10 with HBS 20
	AMS 10-6, 10-8, 10-12 with HBS 05

NOTE!
The unit cannot be cascaded with heat pumps.

More information on NIBE heat pumps available at www.nibe.eu and in dedicated installation and user manuals.
See section „Accessories" for the list of accessories to be used with MHB 05.

Transport

The MHB 05 indoor unit should be transported and stored on the side in carton box. Storage and transport location must be dry.

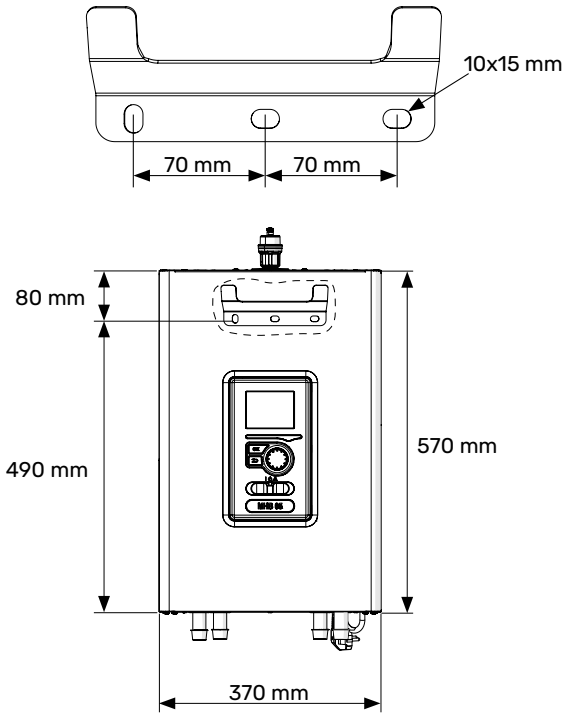
NOTE!
When the MHB 05 is stored or transported on the side in carton box, no devices / components may be stored on top of the unit. It may damage the device.

Assembly

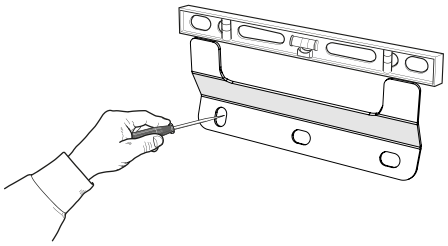
CAUTION!
The MHB 05 unit should be hung on the wall using the hanger included in the set. The device may only be mounted in a vertical position.

MHB 05 is equipped with a hanger for wall mounting. Spacing of mounting holes see the drawing below.
The MHB 05 must be hung on walls with sufficient load bearing capacity to support the weight of the filled indoor unit.

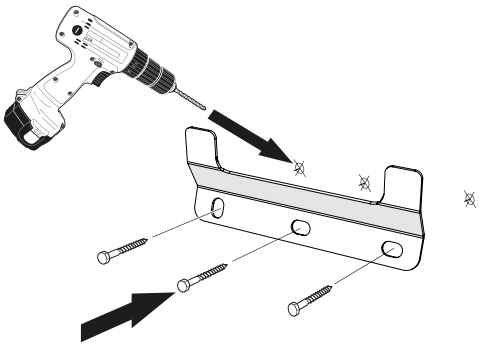
Install MHB 05 ideally in a room where noise does not matter, in order to eliminate noise problems. If possible, do not place the device near a wall of a bedroom or another room where noise might be a problem.



1. Place the included mounting hanger horizontally against the wall. Level the hanger using the spirit level. Mark the points for the mounting holes to be drilled.



2. Drill the holes in marked points.
3. Screw the attachments to the wall using the rawplugs, bolts and washers (not provided).



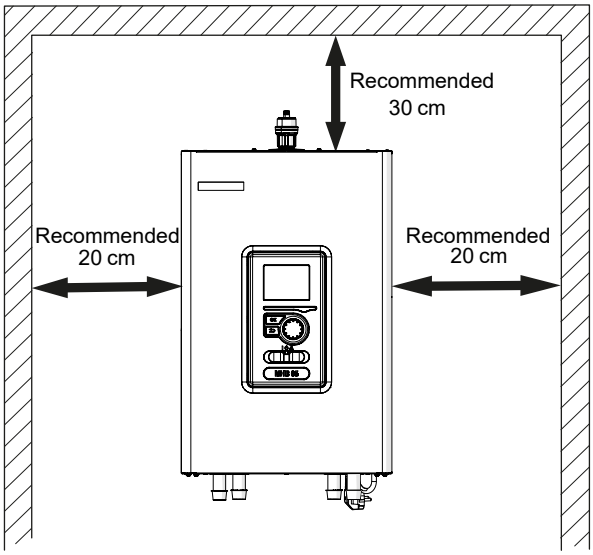
4. Install MHB 05 on the mounted hanger.
5. Level the device using the bottom adjustment screws (backside MHB 05).

NOTE!
The device should be hung in a place ensuring its stable mounting. The installer independently assesses which rawplugs are suitable for the wall on which the device is to be hanged.

Installation location

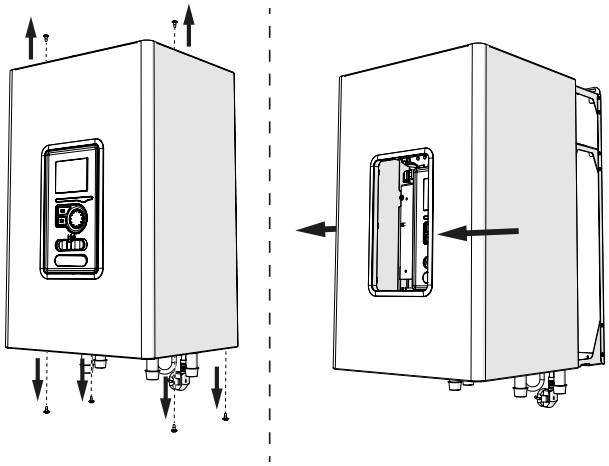
MHB 05 can be installed in any room protected against temperature drop below 0°C to avoid freezing of the heating medium. 800 mm of free space should be ensured in the front of the indoor unit for servicing. All servicing of MHB 05 can be performed from the front.

Wall placement recommendations



NOTE!
If there is a deviation from the recommended space, accessibility for service purposes will be limited.

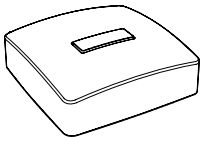
Removing the cover



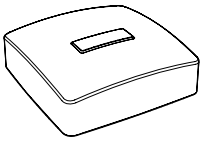
1. Unscrew the bolts from the lower edge of the front cover.
2. Unscrew the bolts from the top of the cover.
3. Remove the cover by moving it to the front and disconnect cover earthing wire, making sure it is not damaged.

NOTE!
After reassembling the cover, the earthing wire must be connected.

Supplied components

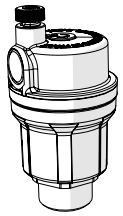


Outdoor temperature sensor BT1 (1 pc.) *

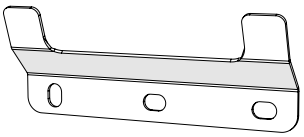


Indoor temperature sensor BT50 (1 pc.) *

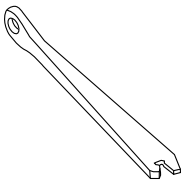
Temperature sensor BT (1 pc. / 6 meters)



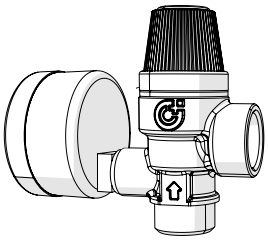
Automatic air vent (1 pc.)



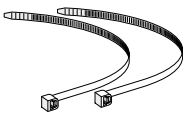
Hanger (1 pc.)



Connector tool (1 pc.)



Safety group (1/2") with safety valve (3 bar) and manometer (1 pc.)



Cable ties for the temp sensors (2 pcs.)

Installer and user manual (1 pc.)

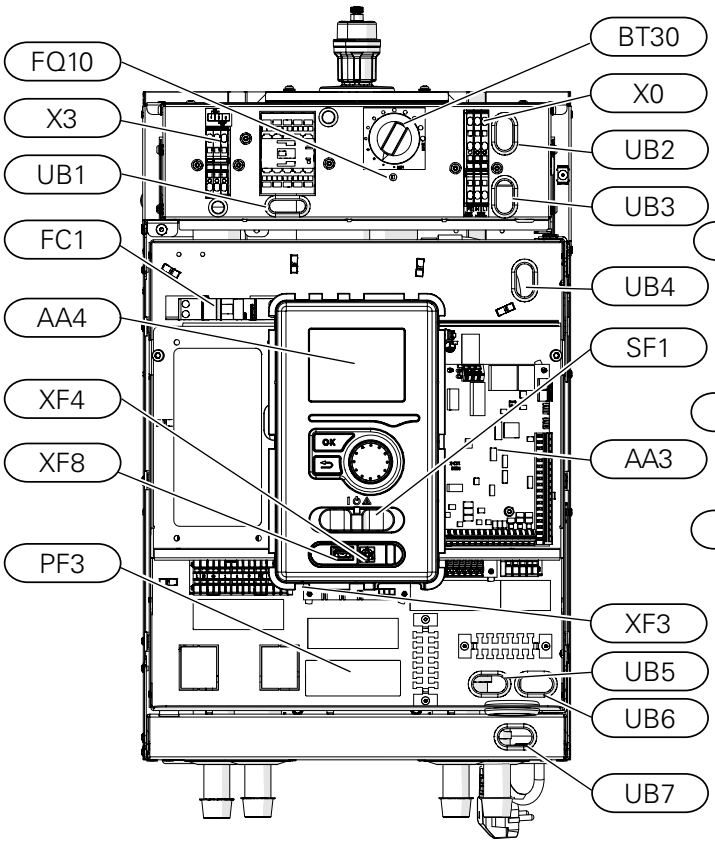
Conductive paste (1 pc.)

* - The indoor and outdoor sensors are the same.

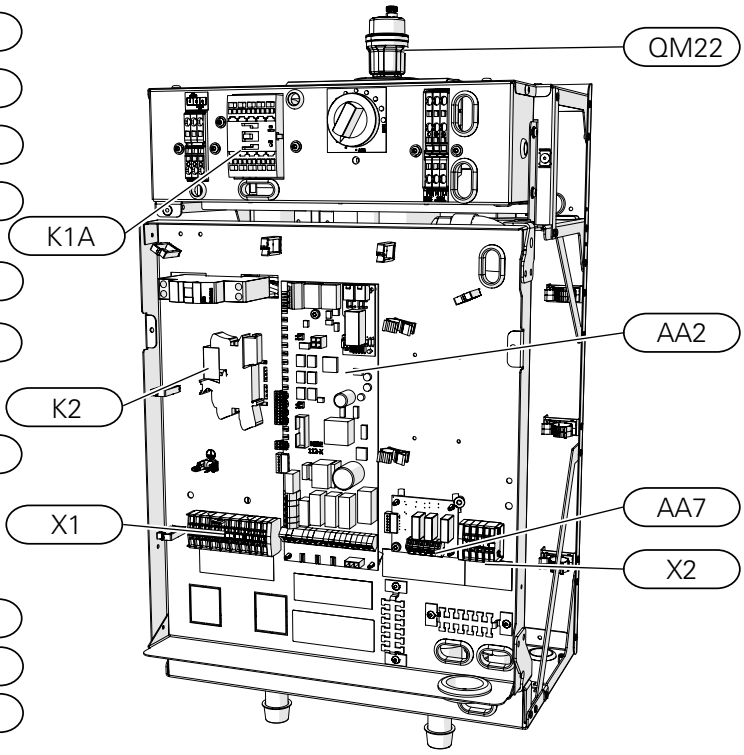
3 Design of the indoor unit

MHB 05

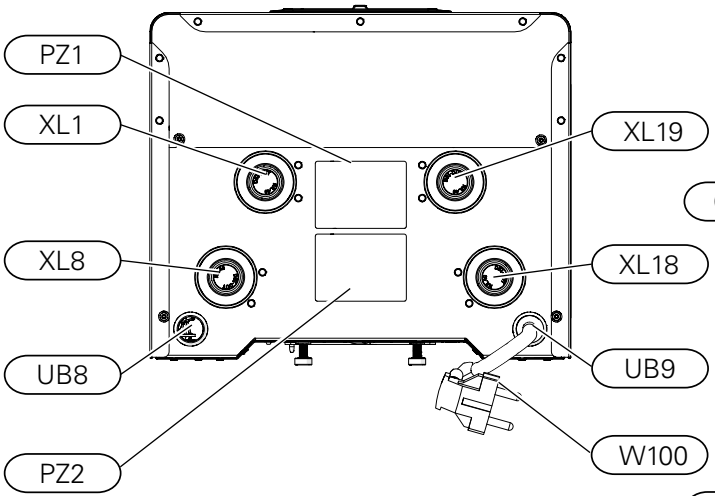
Front view



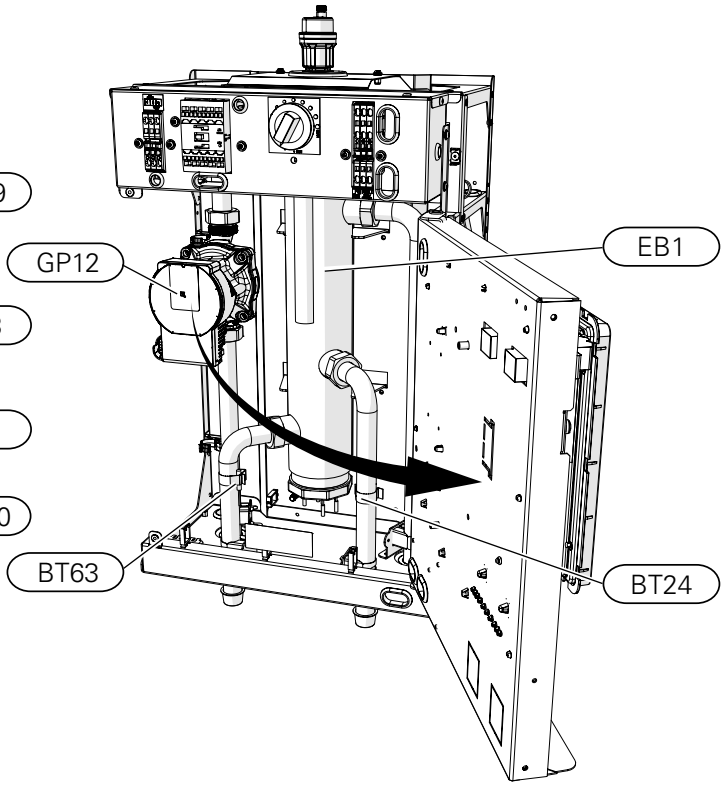
View with removed controler



Bottom view



View with opened control panel



LEGEND

Pipe connections

XL1	Connection, heating medium, supply (to CH-installation)
XL8	Connection, heating medium, return (from heat pump)
XL18	Connection, heating medium, gas boiler output
XL19	Connection, heating medium, to return gas boiler

HVAC components

QM22	Automatic air venting
GP12	Circulation pump

Sensors

BT24	Temperature sensor mounted on the supply line from the gas boiler, before the low loss header
BT63	Temperature sensor, heating medium supply after the low loss header

Electrical components

X0	Terminal block 230V~
X1	Terminal block 230V~
X2	Terminal block
X3	Terminal block - immersion heater
K1A	Contactor for electric additional heat
K2	Alarm relay
BT30	Thermostat, immersion heater
AA2	Main board
AA3	Input board
AA7	Extra relay circuit board
FQ10	Thermal circuit breaker
FC1	Miniature circuit breaker (protecting the indoor unit)
EB1	Low loss header + immersion heater
W100	Power cord (L≈ 1,35m)

Miscellaneous

SF1	Controller switch
UB1-UB9	Cable groomets
AA4	Controller
XF3	Internet connection
XF4	Service connection
XF8	USB connection
PF3	Serial number plate
PZ1	Type plate
PZ2	Hydraulic connection diagram

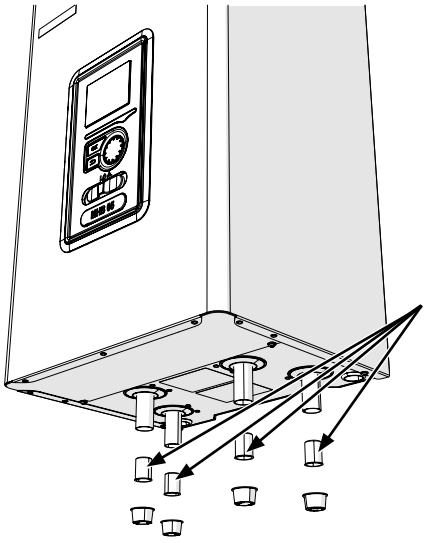
4 Pipe connections

General information

Pipe installation must be carried out in accordance with the current standards and directives.
The pipe dimensions should not be less than the recommended pipe diameter according to the table below. However, in order to achieve the recommended flow, each installation must be dimensioned individually.

Remove the plastic stops

Remove the plastic stops from the XL1, XL8, XL18 and XL19 connection pipes, but let the copper inserts in place to ensure the connection with the compression fitting is done correctly.



Copper inserts

Minimum system flow

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

Air/water heat pump	Minimum flow during defrosting (100% pump capacity [l/s])	Minimum recommended pipe dimension (DN)	Minimum recommended pipe dimension (mm)
MHB 05 / F2040 6	0,19	20	22
MHB 05 / F2040 8	0,19	20	22
MHB 05 / F2040 12	0,29	20	22
MHB 05 / F2050 6	0,19	20	22
MHB 05 / F2050 10			
MHB 05 / F2120 8	0,27	20	22
MHB 05 / F2120 12	0,35	25	28

Air/water heat pump	Minimum flow during defrosting (100% pump capacity [l/s])	Minimum recommended pipe dimension (DN)	Minimum recommended pipe dimension (mm)
MHB 05 / S2125 8	0,32	25	28
MHB 05 / S2125 12			
MHB 05 / HBS 20/ AMS 20-6	0,19	20	22
MHB 05 / HBS 20/ AMS 20-10			
MHB 05 / HBS 05/ AMS 10-6	0,19	20	22
MHB 05 / HBS 05/ AMS 10-8	0,19	20	22
MHB 05 / HBS 05/ AMS 10-12	0,29	20	22

See section '6 Commissioning and adjusting' for more information about the available pressure of the built-in central heating pump.

> CAUTION!
>
> An incorrectly dimensioned climate system can result in damage to the appliance and lead to malfunctions.

The system can be used with a low- and medium-temperature climate system. The recommended temperature of the heating medium at the dimensioned outdoor temperature DOT it is recommended to not exceed 55°C on the supply and 45°C on the return circulation from the climate system. MHB 05 can reach up to 70°C when using another peak source like a gas boiler.

Drain safety valves

An overflow pipe must be routed from the safety valve to a suitable drain. The entire length of the overflow pipe must be inclined towards the floor drain to prevent water pockets and must also be frost-proof. In order to reach maximum system efficiency, we recommend installing MHB 05 as close as possible to the outdoor heat pump.

Heating and cooling

The MHB 05 unit can be connected to a central heating system and cooling.
In case lower cooling temperatures than 18˚C are required, please use the ACS 310 accessory which will allow the heating medium to bypass the unit.

CAUTION!

Ensure that incoming heating medium is without pollution. When using a private well, it maybe necessary to supplement with an extra water filter.

CAUTION!

In the installation return, before the outdoor unit, a particulate filter dedicated to heating installations should be used. The filter will protect the unit against pollution.

CAUTION!

We recommend installing a magnetic filter before the particulate filter. This filter protects the unit from contaminants such as steel and iron oxides, as well as the resulting corrosion products.

CAUTION!

The pipelines need to be flushed out before the indoor unit is connected so that any debris cannot damage component parts.

CAUTION!

Until the system's heating/cooling circuit has been filled with heating medium, the switch (SF1) in the controller must not be set to "I" or „⚠". If you do not comply with the above instructions, many components of the MHB 05 unit may be damaged.

NOTE!

The term "climate system" which is used in this installation and user manual signifies heating and cooling operation systems that are supplied with heat or cold using heating or cooling medium from the MHB 05 unit, for heating or cooling purposes.

CAUTION!

If an oxygen diffusion-tight pipe is not used for underfloor heating, use a separation exchanger.

CAUTION!

Any high points in climate system, must be equipped with air vents.

Buffer vessel

The heat pump installation requires an appropriate volume of heating medium and a minimum, undisturbed flow.

In case of an insufficient amount of heating medium in the installation, an additional buffer vessel must be used, which will ensure adequate system volume, see subsection "Minimum climate system volumes".

An insufficient flow in the central heating system will cause malfunction of the heat pump installation and could lead to serious damage of the product.

CAUTION!

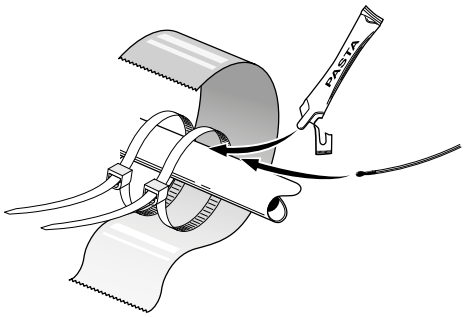
In order to obtain the minimum undisturbed flow in the climate system, use the appropriate hydraulic solutions (e.g. relief valve, low loss header, parallel buffer and/or open heating loops). Remember to always maintain the minimum required flow in the system - see the subsection "Minimum system flow".

Minimum climate system volumes

The minimum volume of the heating system depends on the external unit with which the MHB 05 works.

Refer to the installer manual of the outdoor unit used to verify the volume correctly.

Temperature sensor installation on pipe



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

Connection to outdoor unit

NOTE!

Information: refer to the section „Pipe connections" in the installer manual of the outdoor unit used in the current configuration.

System docking

The MHB 05 indoor unit together with the outdoor unit provides a complete climate system. The outdoor unit provides thermal energy for heating domestic water, powering the heating system, heating swimming pools and cooling using free energy contained in the outside air, working efficiently in the range of low temperatures down to -20 ° C.
The connection of the outdoor unit, hot water tank and the indoor unit MHB 05, with a system of pipes filled with refrigerant, protects the connection against freezing in the event of interruptions in the electric power supply to appliances. The system's operations are controlled using an advanced controller.
The MHB 05 has a build-in frost protection and for this function it must be not switched off when there is a risk of freezing.
For more information about frost protection, see the technical documentation of the outdoor unit.

NOTE!

MHB 05 is equipped with all temperature sensors as standard. The BT25 sensor (optional) can be installed on its own in the external pipeline. For location of the sensors, see the relevant point on docking the system.

NOTE!

In the event that the water volume of the central heating system is increased using a buffer vessel, you will need to check the system volume and possibly increase the volume of the existing expansion vessel.

LEGEND

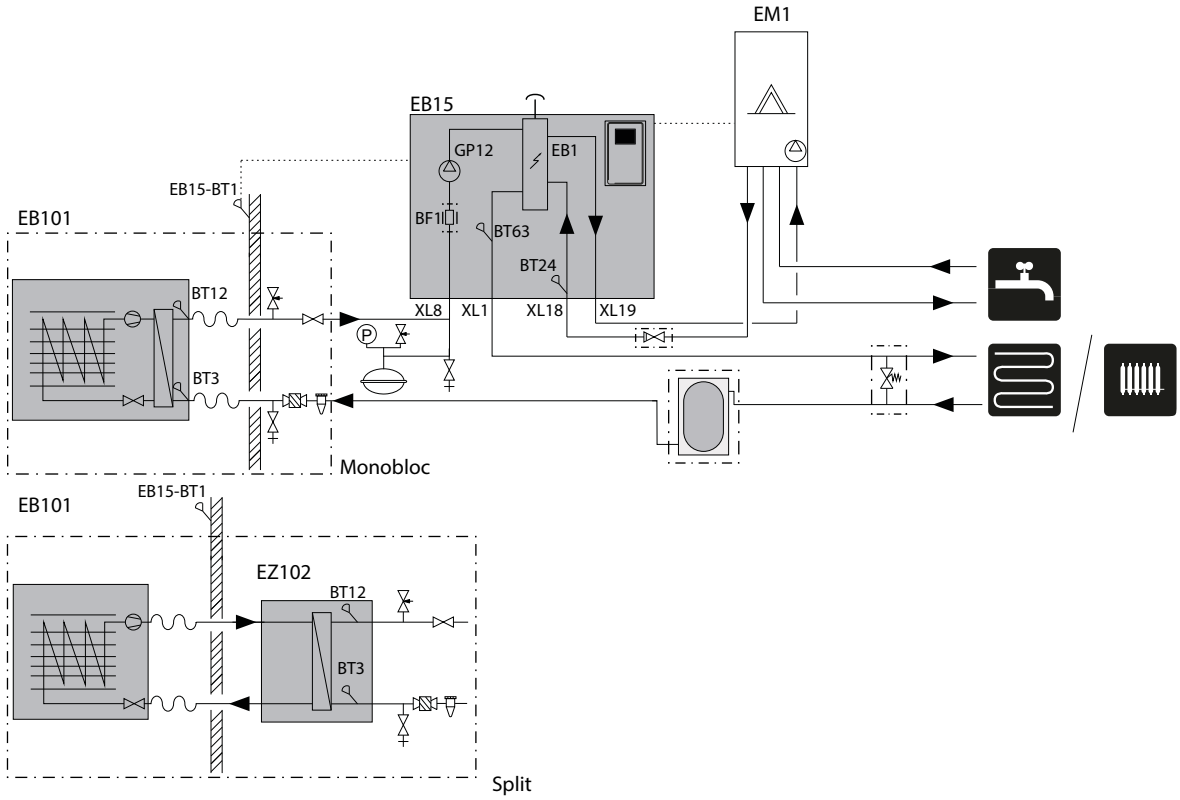
- Shut-off valve
- Non-return valve
- Reversing valve / mixing valve
- Safety valve
- Temperature sensor
- Expansion vessel
- Pressure gauge
- Automatic air vent
- Circulation pump
- Filterball
- Magnetic filter
- Electric heating / low loss heater
- Compressor
- Plate heat exchanger
- Central heating system
- Domestic hot water
- Tap valve
- Overflow valve
- Additional heat source (gas boiler)
- Buffer vessel
- Flow sensor
- Optional / alternative components
- Controller

AA25	Expansion card	BT25	CH-supply sensor	EP21	Additional climate system
BF1	Flow sensor	BT50	Room sensor	EZ 102	HBS indoor unit
BT1	Outdoor sensor	BT71	Return sensor (optional)	GP12	Circulation pump
BT2	CH-supply sensor	CP10	HW tank / buffer vesel	QN10	Reversing valve
BT3	CH-return sensor	EB15	Indoor unit	QN25	Mixing valve on additional climate system
BT6	DHW-charge sensor	EB101	Outdoor unit	QZ1	HW system
BT12	CH-supply sensor	EM1	Gas boiler		
BT7	DHW-sensor (optional)				

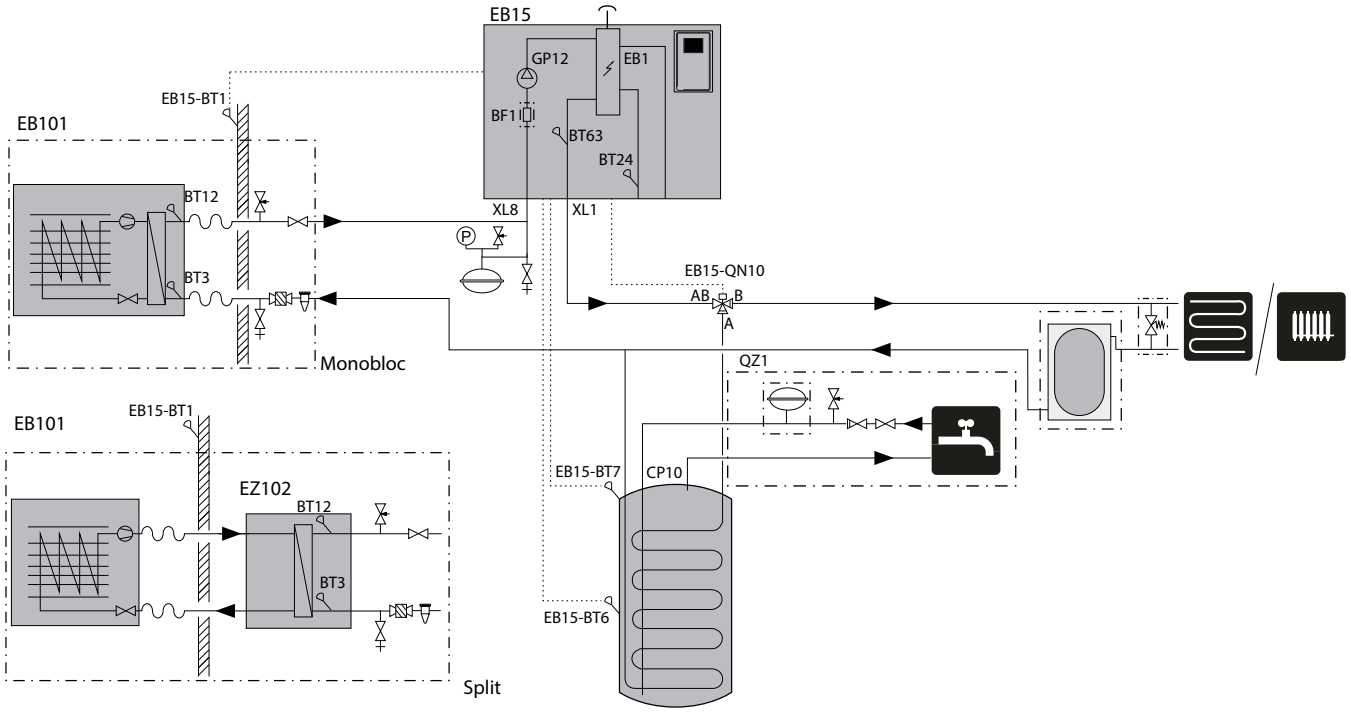
NOTE!

The installation dockings presented in the manual shows minimum necessary components and options. They are examples and do not include all system components. They do not replace the design of the building's central heating system.

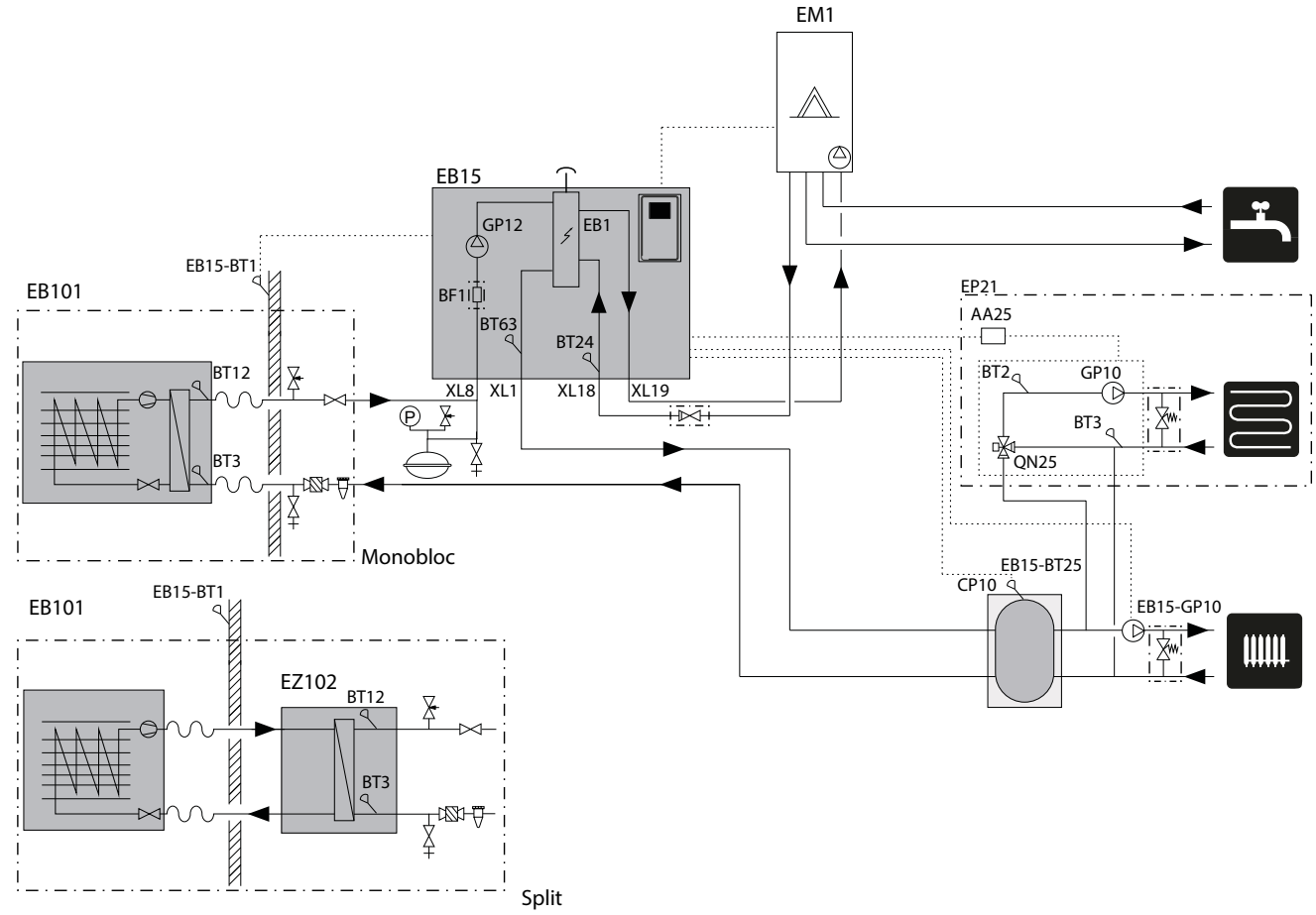
Docking principle with connection of a combi gas boiler (Hybrid), one heating circuit



Docking with a heat pump and DHW-tank (All-electric), one heating circuit.



Docking with a combi gas boiler (Hybrid), two heating circuits and a buffer



Installation alternative

Install flow meter

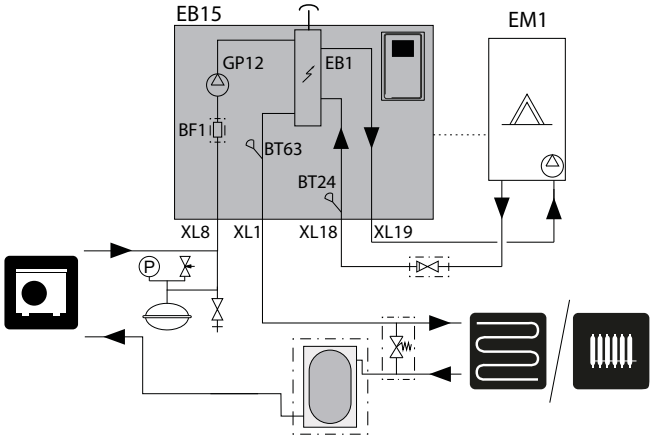
Inside the MHB 05 a flow meter can be installed to measure the delivered energy to the system. This optional accessory is the EMK 05 (BF1). For more information for installation of the EMK 05, see the accessory manual.

Shut-off valves for service purposes

The MHB 05 unit is not equipped with a shut-off valve for the central heating system. If shut-off valves are required for service purposes, make sure there are no shut-off valves installed between a heat generator (gas boiler, MHB 05 and outdoor unit) and a pressure relief valve.

Circuit with a gas boiler (hybrid)

The MHB 05 hydraulic unit allows for cooperation with gas boiler thanks to additional XL18 and XL19 connection stubs. It's not possible to place a hot water tank in a hybrid installation.

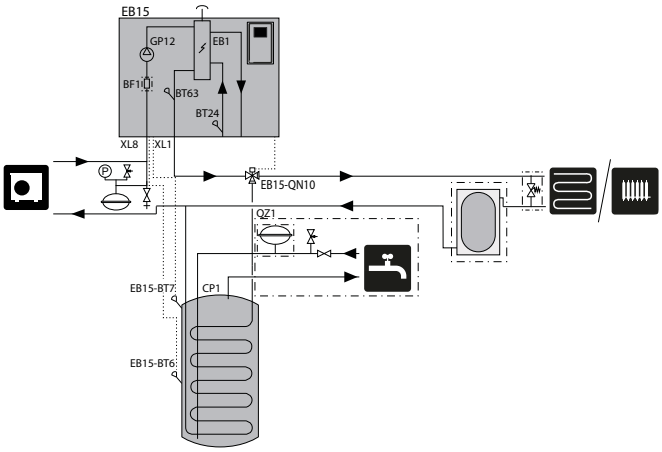


Optional non return valve

Mount a non return valve on the pipe between the MHB 05 and the gas boiler. This is only necessary in case of gas boilers without a three way valve or in case of gas boilers with a three way valve which is default in CH-position as rest position.

Circuit with sanitary hot water tank (all-electric)

The MHB 05 unit should be connected to the coil in the external hot water tank for domestic hot water (VST 06 accessory needed). The exchange area of the coil is very important when selecting it. We recommend using the selection tables available on the website. www.nibe.eu. The location of the sensors is shown in the domestic hot water connection docking. DHW tank should be connected to a water system with a water pressure recommended by the tank manufacturer. If the pressure at the inlet of cold water to the tank is higher than allowed, use a pressure reducer. When heating the water in the tank, the pressure increases, therefore each tank must be equipped with a suitable safety valve, no-return valve and closing valve (according to national standards) installed on the cold water inlet, which will protect the DHW tank against excessive pressure build-up.



NOTE!

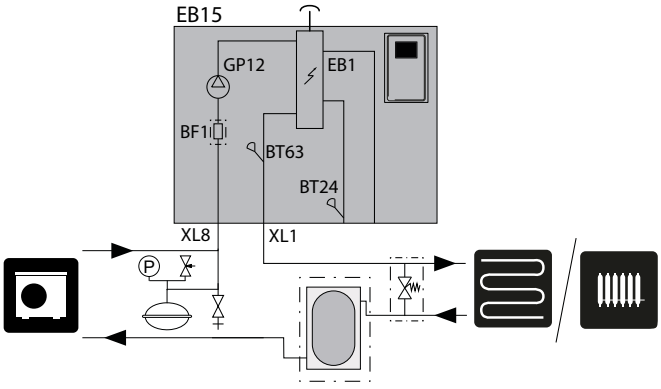
The location of the BT6 sensor should be selected based on the design of the domestic hot water tank used. Make sure that the sensor makes good contact with the wall of the sensor pocket.

CAUTION!

It is absolutely necessary to install a properly selected safety equipment on the cold water supply pipe.

Circuit with heater

The MHB 05 hydraulic unit allows for cooperation with monobloc units and split systems. The built-in electric heater functions as an auxiliary heater.



CAUTION!

Safety valve for the HW storage tank must be fitted as recommended by the storage tank manufacturer and applicable regulations.

CAUTION!

Do not use the appliance if the safety valve is blocked.

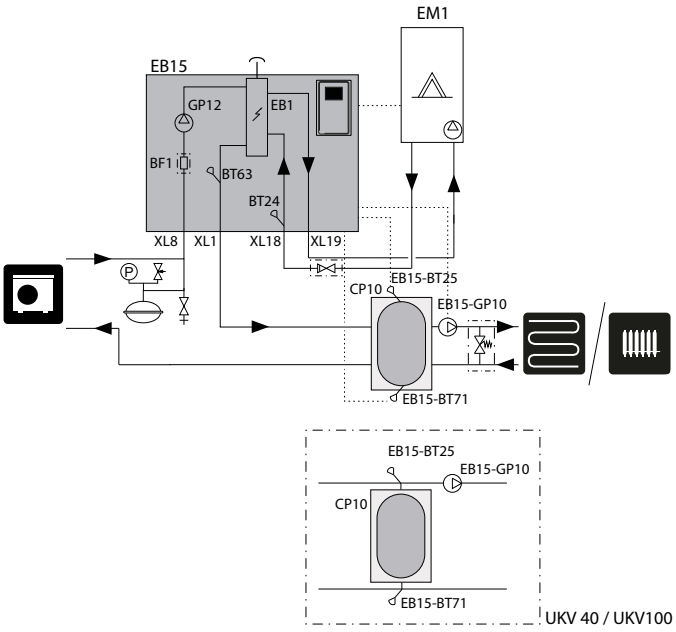
CAUTION!

It is forbidden to install any constrictors (e.g. reducers, particle filter, etc.) and shut-off valves between the storage tank and the domestic hot water safety valve. Only fitting a tee with a draining valve and a tee with an expansion vessel is permitted.

Buffer circuit

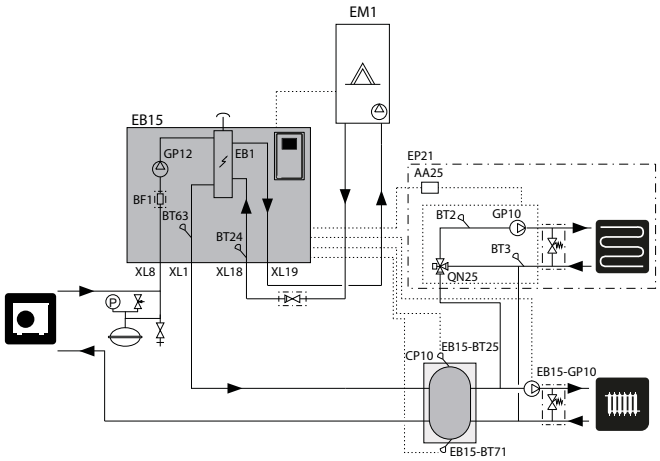
When connecting to a system with thermostatic valves on all radiators/underfloor heating pipes, use the appropriate hydraulic solutions which ensure the proper heating medium volume and minimum, undisturbed flow. See the subsection “Buffer vessel” and “Minimum system flow”.

In the case of a system equipped with a buffer installed in parallel, the BT25 sensor should be installed in the buffer or in a place that ensures a correct reading of the supply temperature to the heating system. In order to correctly read the return temperature, it is recommended to place the BT71 sensor to the lower part of the buffer or on the t-connection in the return line.



Docking an additional climate system

The system can be expanded to include additional heating/cooling circuits (EP21), provided an additional accessory AXC 40 is used. Once the AXC 40 card or ready-to-use ECS 40 / ECS 41 kit has been put into use, an additional heating/cooling circuit (EP21) can be activated using the controller.



Additional accessories and the connection options and methods for these are described in the instructions for AXC 40 and ECS 40 / ECS 41.

All accesory manuals can be found on http://nibe.eu.

Use of bypass with overflow valve

When the heating system contains valves which can block the flow completely, a overflow valve needs to be installed. Try to place this valve as far as possible from the MHB 05 and follow the needs for the minimum buffer capacity and minimum flow in the heating system. Please see the explanation for the minimum buffer capacity at “Buffer vessel” and “Minimum system flow”.
In case a parallel buffer, reaching the minimum free available volume is installed, there is no need for a bypass with an overflow valve.

5 Electrical connections

General information

Electrical installation must be carried out in accordance with the current standards and directives.

Electrical equipment, build in the MHB 05, is already connected in the factory. This chapter contains explanation about necessary and optional external electric connections of external placed electric devices in the heat pump installation. Take care that, when routing the cables through the cable grommets UB 5 to UB 7, the control panel still can be opened.

To ensure proper electrical connection:

- Disconnect the power supply of the indoor unit before insulation testing the building wiring.
- Be sure the outdoor unit is disconnected from the power supply until all electric connections are made and the heat pumps system is ready to start up.
- If the house is equipped with a residual-current device, MHB 05 should be equipped with a separate residual current breaker.
- For the indoor unit wiring diagram, see section “Electrical wiring diagram”.
- Communication and sensor cables must not be laid close to high-voltage cables.
- The minimum cross section of the communication and sensor cables to external connections must be 0.5 mm² with a length of up to 50 m, for example EKKX, LiYY or equivalent.
- Cable lying in MHB 05 should be performed with UB cable grommets (marked on the drawing). In UB1 and UB 4, the cables are laid through the entire indoor unit from the rear wall toward the front wall. UB 8 to UB 9 are the lower cable grommets.

CAUTION!

The switch (SF1) for the controller must not be set to “I” or “⚠” until the climate system has been filled with heating medium and the central heating system vented”. Otherwise, the thermal circuit breaker, thermostat and the electric additional heat may be damaged.

CAUTION!

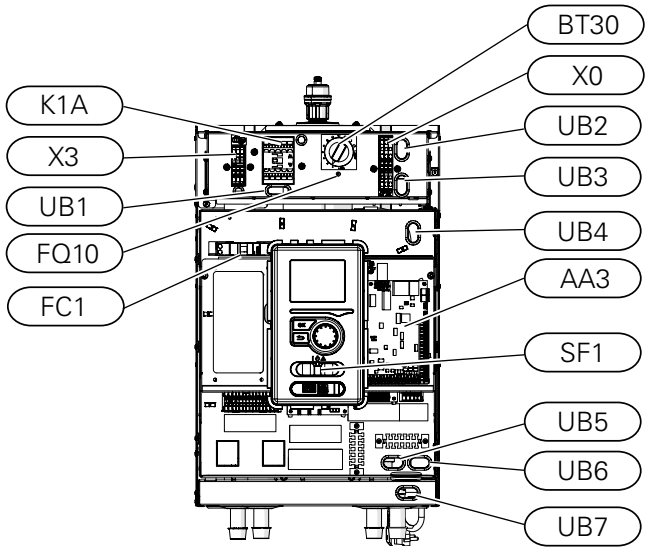
Cut off the power by using the circuit breaker (FC1) and remove the 230V power plug from the wall socket before carrying out any servicing. Electrical installation must be carried out in accordance with the current regulations by a person with the proper authorisations and qualifications.

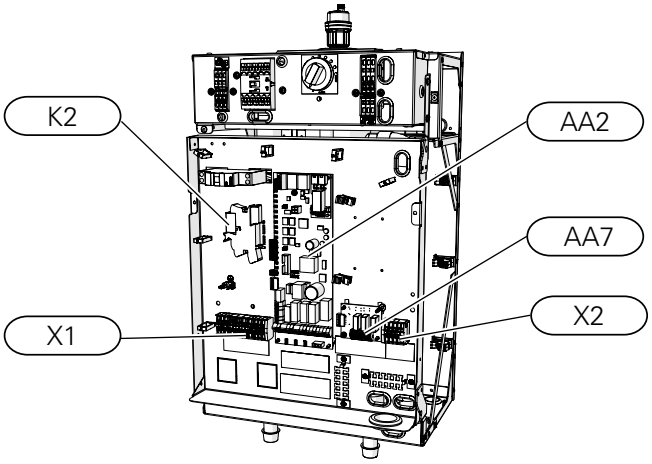
CAUTION!

An easily accessible wall socket with earthing must be used. The set power of the electrical element must be taken into account when feeding from this wall socket. If the setting of the electrical element is 3 kW, the wall socket must be suitable for 16 A. Its power supply may only serve the MHB 05 and be equipped with 2.5 mm2 wiring between the meter box and the wall socket. An 16 A fuse need to be used.

TIP!

See for electric connection of the outdoor unit in the manual of that product.



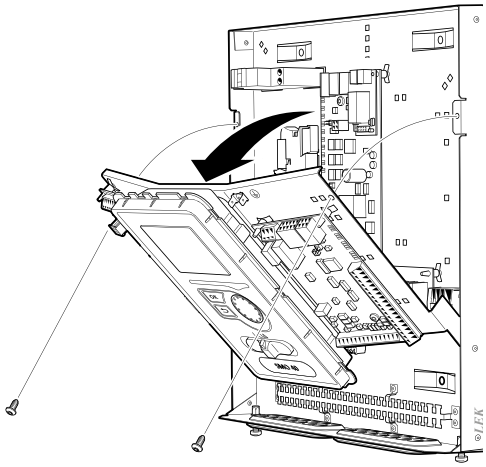


LEGEND

X0	Terminal block 230V~
X1	Terminal block 230V~
X2	Terminal block
X3	Terminal block immersion heater
FC1	Miniature circuit breaker (for the indoor unit)
K1A	Contactor for additional heat
BT30	Thermostat immersion heater
AA2	Main board
AA3	Input board
AA7	Extra relay circuit board
FQ10	Thermal circuit breaker
UB1 - UB7	Cable grommets
K2	Alarm relay
SF1	Controller switch

Accessibility, electrical connection

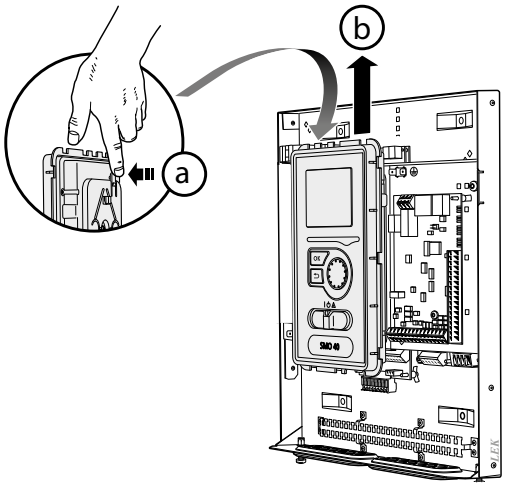
Access to PCB AA2



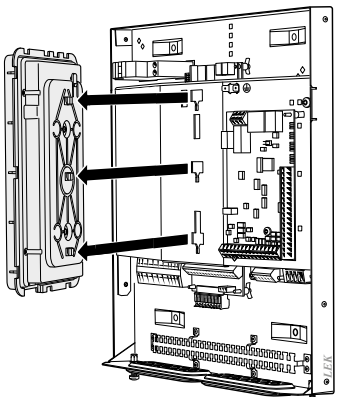
Moving the display

The display may need to be moved for easier access when connecting electrics (AA2-X4 connector). This is easily done by following these steps.

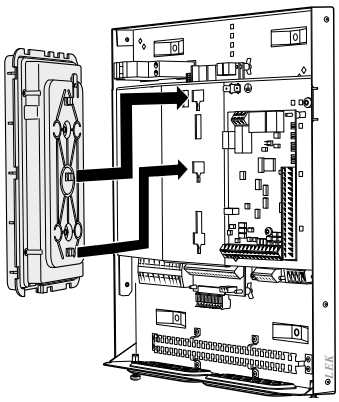
1. Press in the catch on the upper rear side of the display unit towards you (a) and move the display unit upwards (b) so that the mountings unhook from the panel.



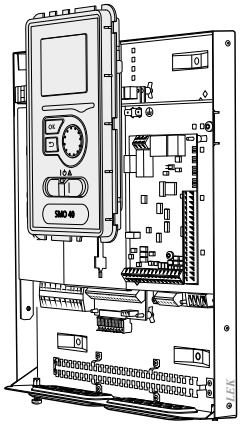
2. Lift the display unit from its mountings.



3. Align the two lower mountings on the reverse of the display unit with the two upper holes in the panel as illustrated.



4. Secure the display on the panel.

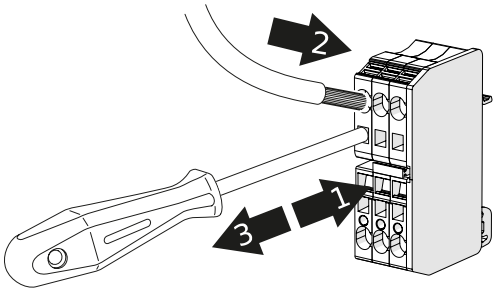


5. When the electrical connection is ready the display must be reinstalled with three mounting points again, otherwise the front cover cannot be installed

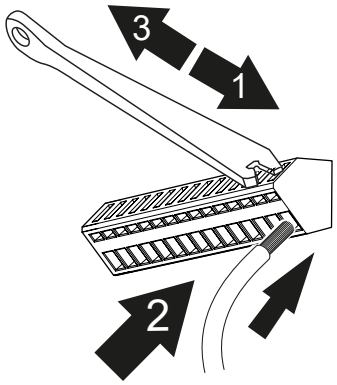
Cable key lock

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

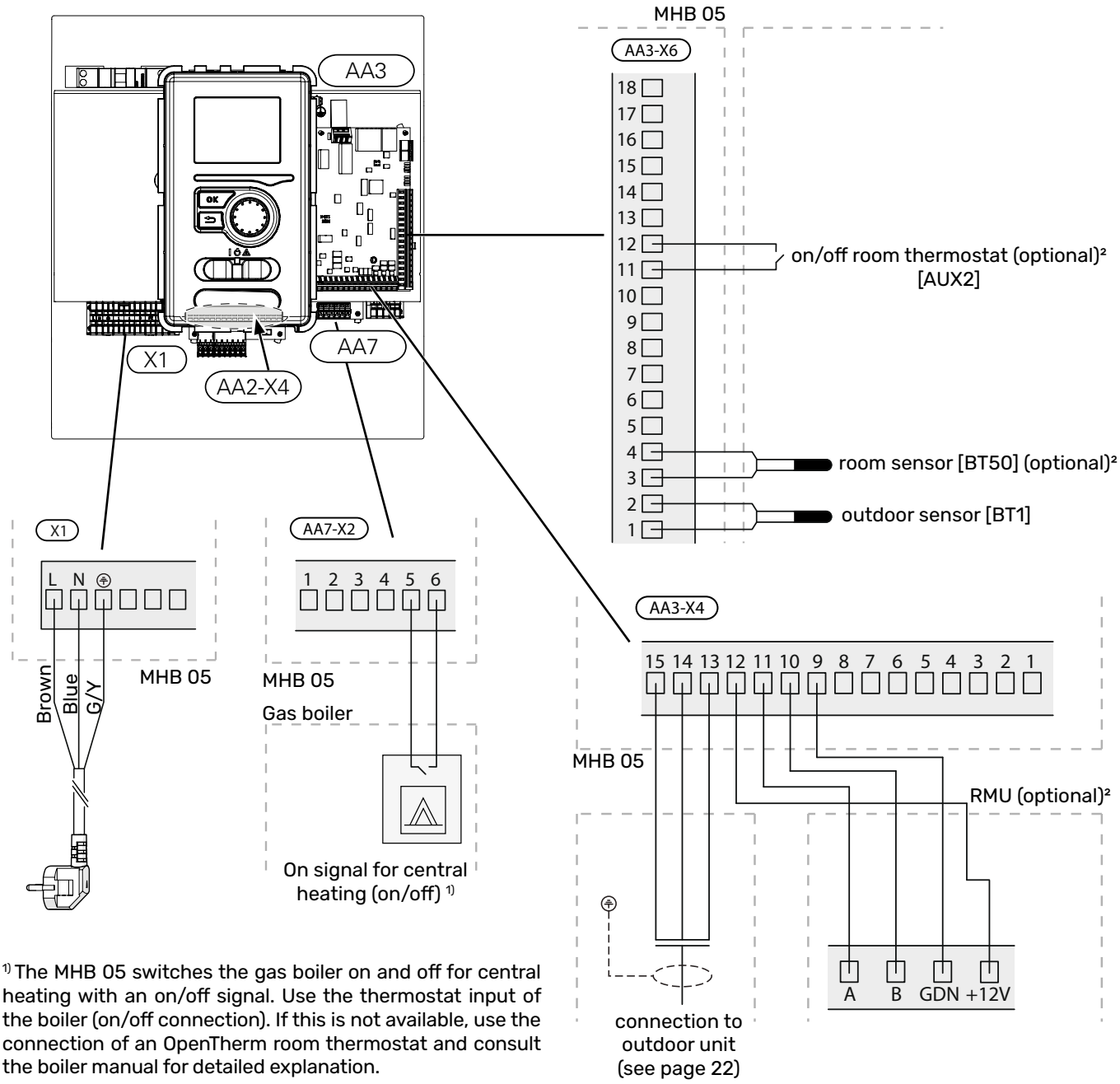
Screwdriver:



Connector tool (added to the MHB 05):



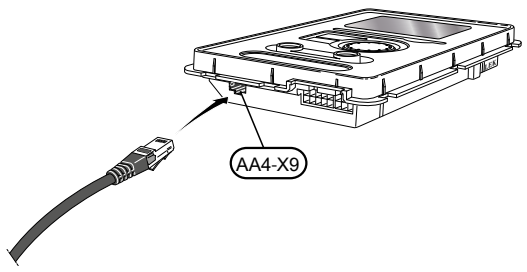
Electric connections for a hybrid installation



1) The MHB 05 switches the gas boiler on and off for central heating with an on/off signal. Use the thermostat input of the boiler (on/off connection). If this is not available, use the connection of an OpenTherm room thermostat and consult the boiler manual for detailed explanation.

Internet connection for myUplink

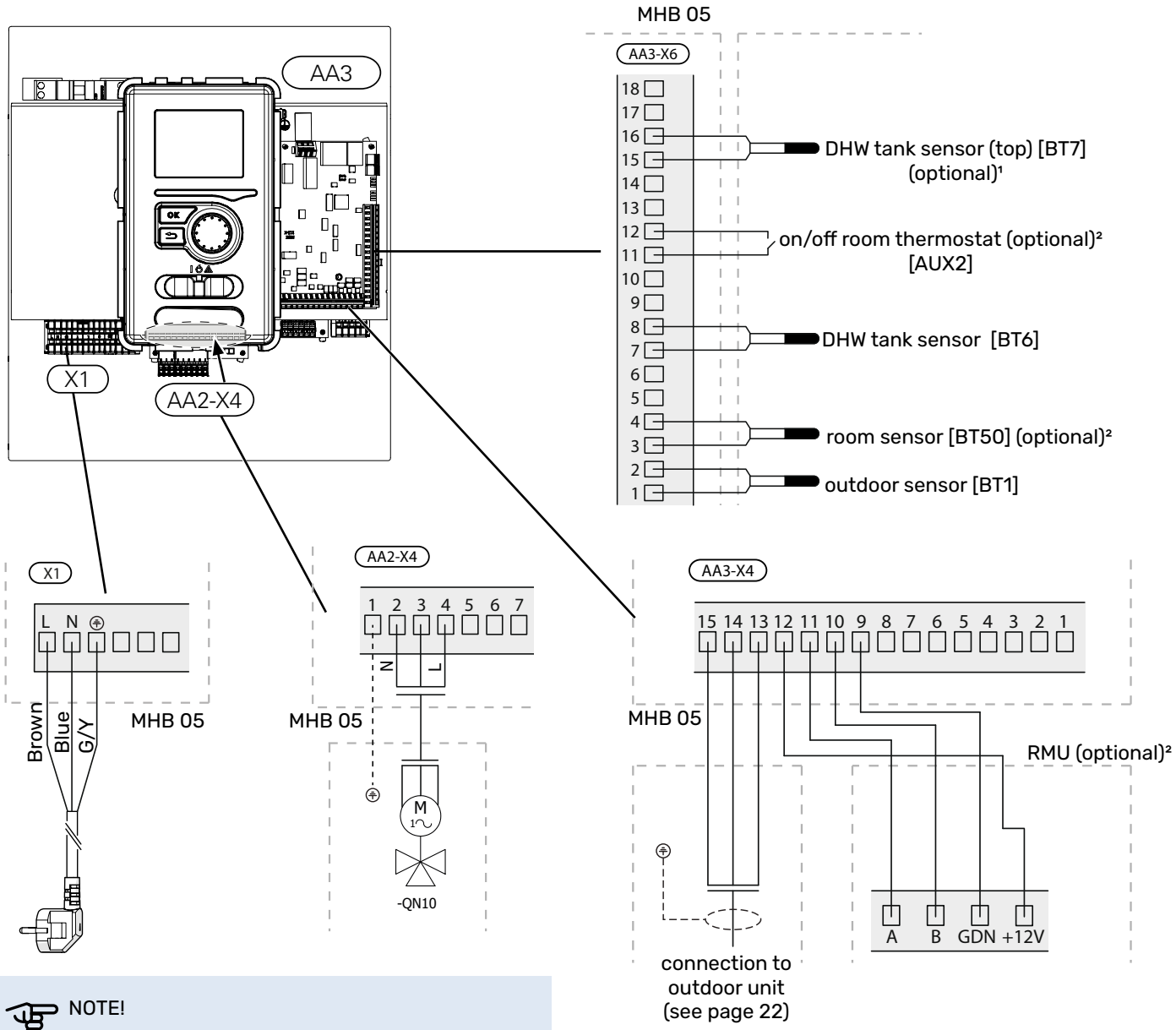
Connect the network connected cable (straight, Cat.5e UTP) with RJ45 contact (male) to contact AA4-X9 on the display unit (as illustrated). Use the cable grommets (UB7) in the MHB 05 for cable routing.



2) Room temperature control options (please chose one of these options):

- The RMU 40 room unit can be used to install in the living room (central part of the house). On this unit the room temperature can be adjusted and some other settings as well.
- An on/off room thermostat can be used and mounted in the living room (central part of the house). This thermostat can be used to adjust the room temperature, together with the curve setting in the MHB 05. The on/off thermostat should have it's own power supply.
- The room sensor BT50 (added to the MHB 05) can be used and mounted in the living room (central part of the house). Together with the myUplink app on a mobile phone or tablet, the room temperature can be controlled and adjusted.

Electric connections for an all-electric installation

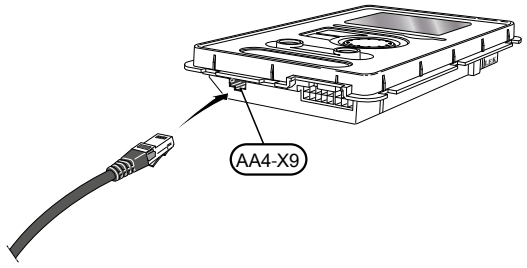


NOTE!

Using the immersion heater requires a check on the available output (1,5 kW or 3 kW) from the wall socket and fuse of it.

Internet connection for myUplink

Connect the network connected cable (straight, Cat.5e UTP) with RJ45 contact (male) to contact AA4-X9 on the display unit (as illustrated). Use the cable grommets (UB7) in the MHB 05 for cable routing.



[1] The BT7 sensor can be mounted in a sensor pocket on top of a DHW-tank to indicate the temperature in top of the boiler. It is useful to mount, not obligatory.

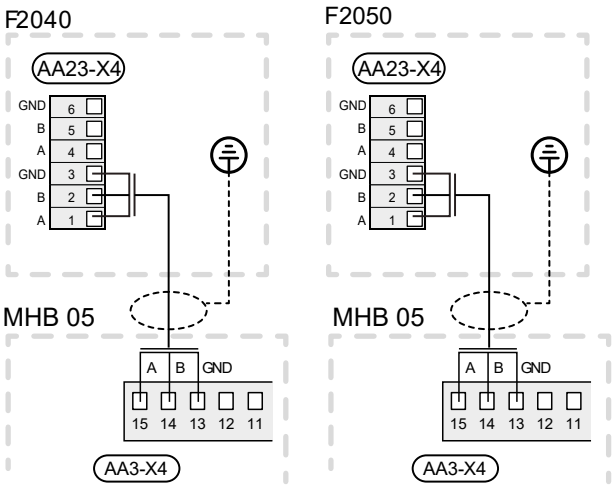
[2] Room temperature control options (please chose one of these options):

- The RMU 40 room unit can be used to install in the living room (central part of the house). On this unit the room temperature can be adjusted and some other settings as well.
- An on/off room thermostat can be used and mounted in the living room (central part of the house). This thermostat can be used to adjust the room temperature, together with the curve setting in the MHB 05. The on/off thermostat should have it's own power supply.
- The room sensor BT50 (added to the MHB 05) can be used and mounted in the living room (central part of the house). Together with the myUplink app on a mobile phone or tablet, the room temperature can be controlled and adjusted.

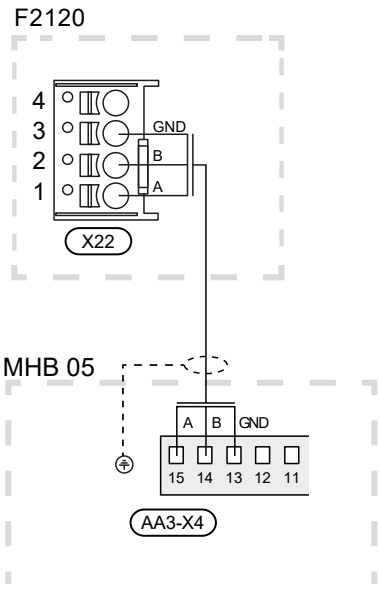
Communication with the heat pump

Connect the heat pump (EB101) with a screened three core cable to terminal block X4:15 (A), X4:14 (B) and X4:13 (GND) on the communication board (AA3) as illustrated. Connect the screened protection only on 1 side.

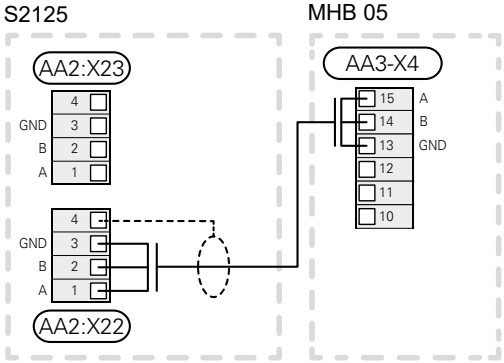
F2040 / F2050



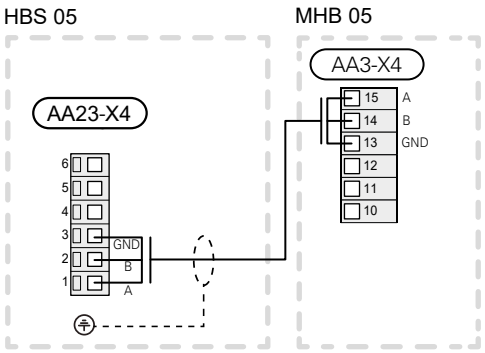
F2120



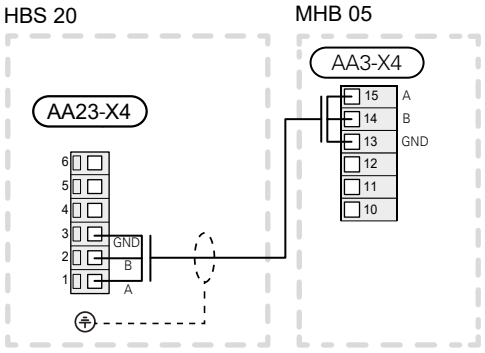
S2125



HBS 05



HBS 20



Connections

CAUTION!

External overcurrent protection should be selected by an appropriately qualified installer, based on the technical data contained in the manual, in accordance with the installed equipment system.

CAUTION!

Please try to avoid that unscreened communication cables are situated close to high voltage cables.

CAUTION!

The electrical system to which the device will be connected should be built in accordance with current regulations.

Power supply connection

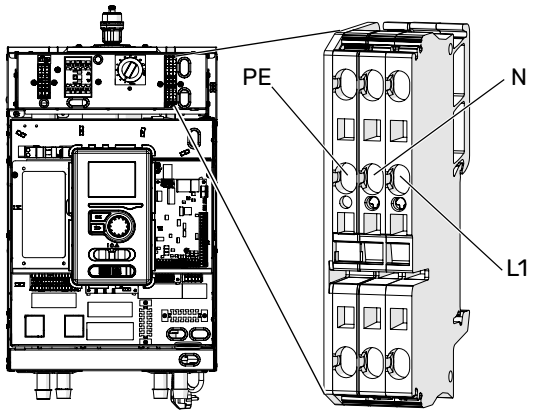
The MHB 05 is equipped with a power cord (L≈ 1,35m) with a plug. The use of the immersion heater (0kW, 1,5 kW or 3 kW) determine the needed fuse for the MHB 05. When the immersion heater is not used and switched off in all situations, the supply power is only +/- 100W. When 3 kW is chosen, the needed fuse is 16A. When 1,5 kW is chosen, the fuse can be lower than 16A. All installations must be carried out in accordance with current norms and directives.

CAUTION!

Main power cord (L≈ 1,35m) with a plug can only be replaced by an original spare part. Use of any other main power cord is forbidden.

The manufacturer is not liable for damages caused by not complying with the above provision.

Terminal block X0

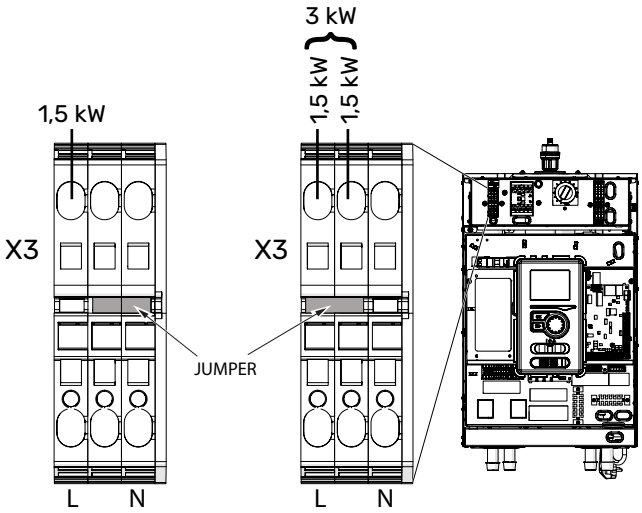


Changing the power to the additional heater

The additional immersion heater in the low loss header has two settings: 1,5 kW or 3 kW. The setting can be adjusted by the jumper in the terminal block X3. The jumper is factory connected on X3 in right position, the power supply is 1,5 kW. When the jumper is connected on X3 left position, the power supply is 3kW (1,5 + 1,5). When the immersion heater is activated in the controller, this hardware setting determines the output (1,5 or 3 kW). It's also possible not to activate the immersion heater in the controller. In this case the output is 0 kW

CAUTION!

When the immersion heater is used and the jumper is placed on 3kW power for immersion heater, the fuse for the MHB 05 shall be 16A. When the jumper is connected on 1,5kW power for immersion heater, take into account that the MHB 05 can take +/- 1,6 kW (8A) from the wall socket.

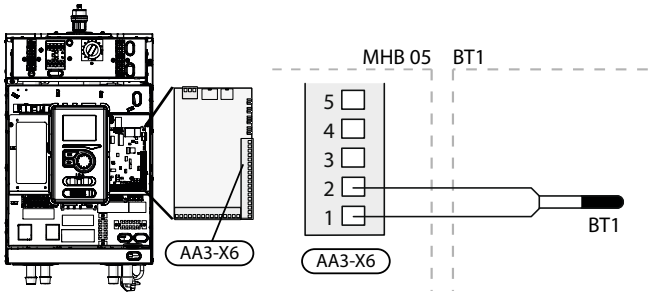


Outdoor temperature sensor (BT1)

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

Connect the sensor to terminal block X6:1 and X6:2 on the input board (AA3).

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



Emergency mode

When the controller is set to emergency mode (SF1 is set to ⚠) only the most necessary functions are activated.

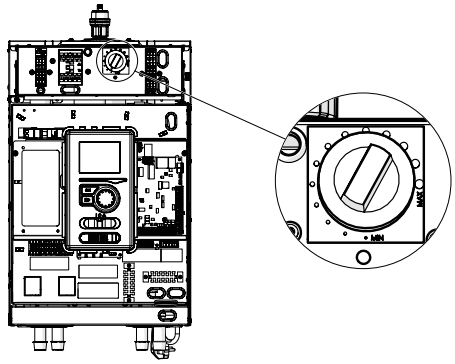
- Hot water is not heated.
- Constant temperature in the supply line, more information in the section Emergency mode thermostat.
- The gas boiler will not be switched on in emergency mode.

NOTE!

While on emergency mode, it is not possible to heat hot water.

Emergency mode thermostat

The supply temperature in emergency mode is set using a thermostat (BT30). It should be set according to the demands of the heating circuits in operation.
The adjustment range is 5 - 65°C. Please note, however, that for underfloor heating the setting should be min. 20°C, max. 35-45°C to maintain comfort in the room and efficient operation of the system.



NOTE!

The maximum available heater power in emergency mode is 3kW.

CAUTION!

The temperature on the thermostat must be set according to the system requirements. If the temperature is too high, it can damage the system.

CAUTION!

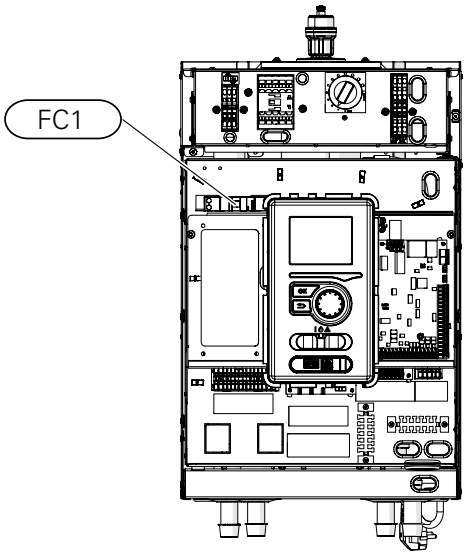
When SF1 is set to „⚠" - the MHB 05 unit switches the QN10 valve to the central heating and heating takes place according to thermostat BT30. Hot water is not heated while the switch is set to „⚠".

CAUTION!

If the system is operating at "⚠" the temperature on BT30 should be aligned with the operating temperature of the central heating system. If the temperature set on the thermostat is too high, it can damage the system.

Miniature circuit breaker

The automatic heating control system, the circulation pump and their wiring in MHB 05 are internally protected by miniature circuit breaker FC1.



Thermal circuit breaker

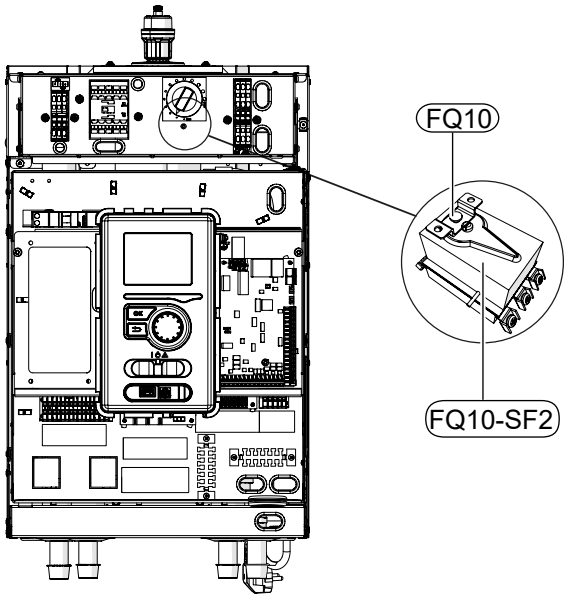
The thermal circuit breaker (FQ10) cuts off the power supply to the electric additional heat if the temperature rises to the approx. 98°C (hysteresis - 8°C).

Resetting

The thermal circuit breaker (FQ10) is accessible behind the front cover. It is reset by pressing firmly on the button (FQ10-SF2) using a small screwdriver. Press the button using max. force 15 N (approx. 1.5 kg).

CAUTION!

In the event of thermal protection activation, report this to an authorised service centre in order to diagnose the possible case.



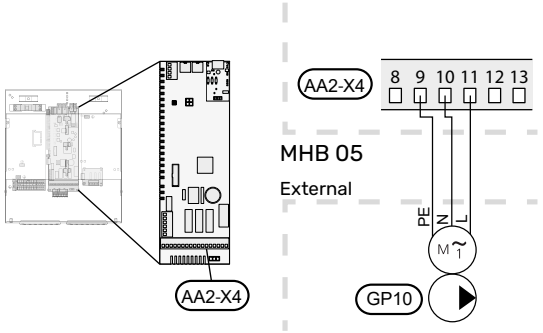
Optional connections

Connection of an additional GP10 pump

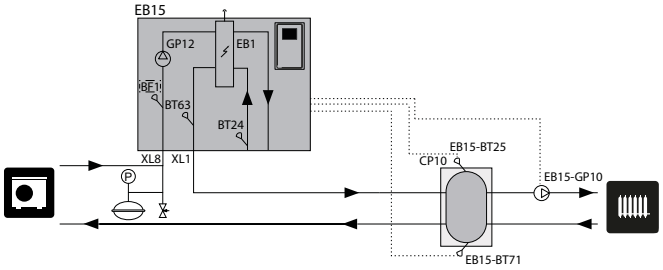
To connect an additional GP10 circulation pump, proceed as follows:

- connect wire L to the terminal block AA2-X4: 11
- connect wire N to the terminal block AA2-X4: 10
- connect wire PE to the terminal AA2-X4: 9

All connections should be made in accordance with the figure below.



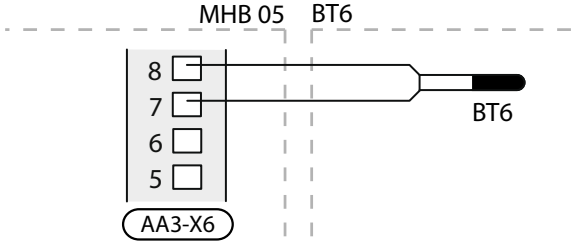
Docking with buffer tank and additional circulation pump GP10



Connecting the HW temperature sensor BT6

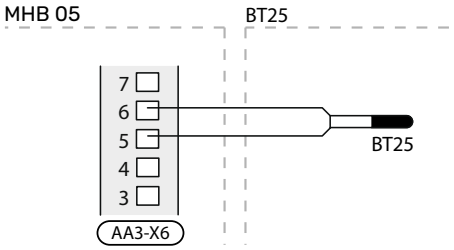
The temperature sensor, hot water charging (BT6) is placed in the submerged tube on the water heater or attached to the surface of the tank.

Connect the sensor to terminal block X6:7 and X6:8 on the input board (AA3). Use a twin core cable with a cable area of at least 0.5 mm².
Hot water charging is activated in menu 5.2 or in the start guide.



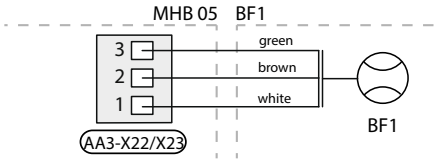
Connecting the temperature sensor BT25

The temperature sensor BT25 (included) should be connected to the MHB 05 unit via terminal block AA3-X6: 5 and AA3-X6: 6. For the location and explanation of the sensor, see the section “Installation alternative”. BT25 is necessary in case of an installed parallel buffer.



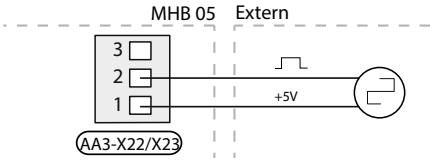
Connecting the flow sensor BF1

The flow sensor BF1 (optional) should be connected to the MHB 05 unit via terminal block AA3-X22:1 AA3-X22:2 and AA3-X22:3.
For the location of the sensor BF1, see the section “Installation alternative”. Only BF1 can be installed inside the MHB 05.



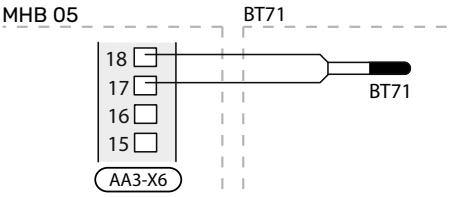
Connecting electricity / energy meter

On connection AA3-X22 or AA3-X23 the pulse output of an external (electricity) energy meter can be connected to the MHB 05.



Connecting the temperature sensor BT71

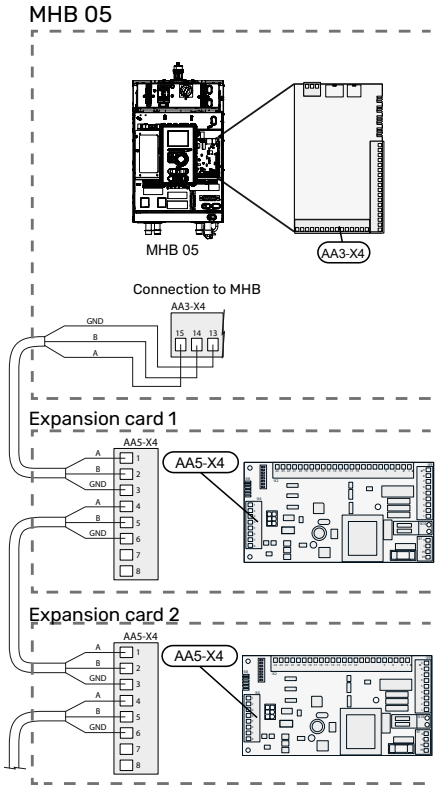
The optional BT71 sensor can be used to measure the return temperature (indicative) of the heating medium using a parallel buffer tank. The sensor should be connected via terminal block AA3-X6: 17 and AA3-X6: 18. For location of the sensor see the section “Installation alternative’.



Connecting the expansion card

Communication connection

The expansion card communication should be connected directly to the MHB 05 to the AA3 card according to the diagram below.
When connecting or installing more than one accessory, observe the following. The first expansion card should be connected directly to the AA3-X4:15-13 terminal block on the MHB 05, and the following cards should be connected in series with the previous one.
Use cables type LiYY, EKKX or similar.



For detailed information on using the expansion card, see the installer manual for the AXC 40 accessory.
The connections 13-14-15 on AA3-X4 can be used both for communication with the outdoor unit and an AA5 card.

Load monitor

When many power consumers are connected in the property at the same time as the electric additional heat is in operation, there is a risk of the property's main fuses tripping. Load monitor can installed in MHB 05 and control the power steps for the electric additional heat by disconnecting step by step in event of overload in a phase. Reconnection occurs when other current consumption is reduced.

Connecting current sensors (accessory CMS 10-050)

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

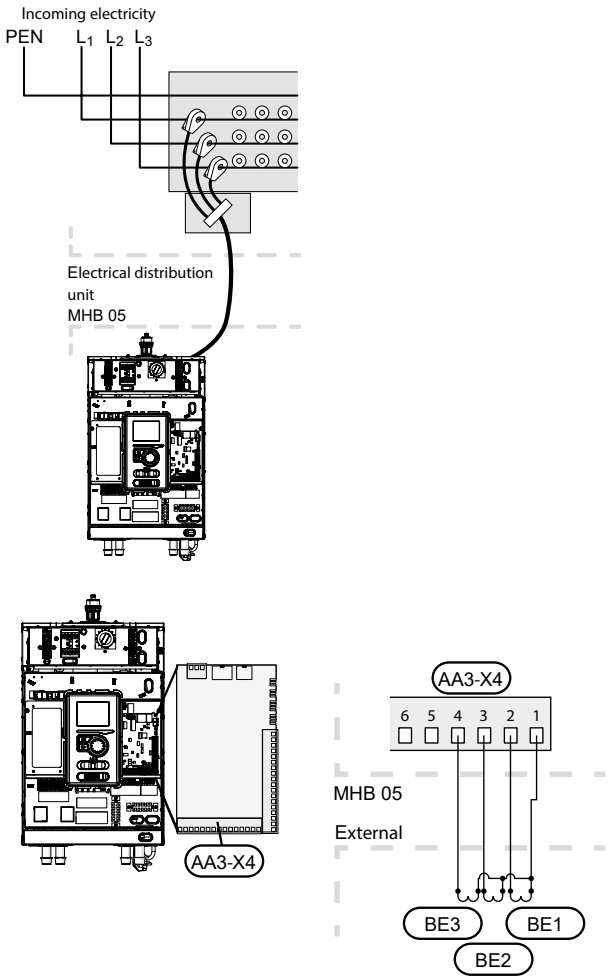
Connect the current sensors to a multi-core cable in an enclosure next to the electrical distribution unit. Use unscreened multi-core cable of at least 0.5 mm², from the enclosure toMHB 05.

Connect the cable to the input board (AA3) on terminal block X4:1-4 where X4:1 is the common terminal block for the three current sensors.

The value for the size of the fuse is set in menu 5.1.12 to correspond with the size of the property's main fuse. Here it is also possible to adjust the current sensor's transformer ratio.

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

> **CAUTION!**
> The voltage from the current sensor to the input board must not exceed 3.2 V.



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

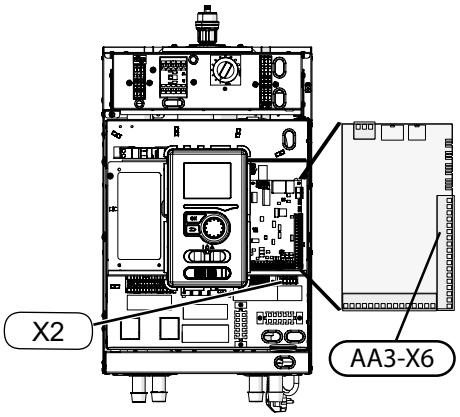
External connection options (AUX)

On the input board (AA3) and connector X2 the MHB 05 has 4 input connections and 1 output connection which can be defined and controlled by the software. Various functions can be chosen adjust the behavior of the heat pump system.

Selectable input connections
The inputs can be connect to an external switch (contact has to be potential free) or input for a temperature sensor. The functions can be selected in menu 5.4. For certain functions accessories may be required.

Selectable inputs on the input board for these functions are:

AUX1	AA3-X6:9-10
AUX2	AA3-X6:11-12
AUX3	AA3-X6:13-14
AUX4	X2:1-4



Possible selection AUX inputs

See menu 5.4 SOFT IN/OUTPUTS for selection of the function for used AUX inputs. Some functions only appear in the menu when another function, like for example 'cooling' or 'sanitary hot water' is enabled in another menu. In case a temperature sensor is connected, use a 2-core cable of at least 0,5 mm2 cable area. For NIBE sensor characteristics: see chapter 11 'Service'

NOTE!

The indicated possible selections can vary, depending on selected functions or connected accessories. This overview therefore may not be show all possible options

Not used
Right selection in case no connection is made on an AUX input.

External adjustment
The selected heating curve is increased by a defined value when the AUX contact is closed. In case of open contact, increase is no longer valid.

Temperature increase defined in menu 1.9.2. This function can be used by an on/off room thermostat for example.

NOTE!

The AUX connection do not provide electric power supply for an on/off room thermostat

Ext. sensor (BT37.1 till BT37.5)
Up to 5 temperature sensors can be connected as BT37.1 till BT 37.5, for viewing function only.

Cool/heat sensor BT74
The connected sensor (BT74) determines when it is time to switch between cooling and heating mode. Function to be selected when cooling is permitted (menu 5.11.1.1).

Flow temp cooling BT64
The connected supply cooling sensor (BT64) is used with active 4-pipe cooling. Function to be selected when cooling is permitted (menu 5.11.1.1).

EQ1 BT25
The connected external supply sensor (EQ21-BT25) is used when docking 2-pipe cooling. Function to be selected when cooling is permitted (menu 5.11.1.1).

Activate cooling / Activate heating
An external temperature controller can be used to control the heat pump for heating and (in case) for cooling. 2 AUX inputs can be used and selected in menu 5.4, one input Activate heating and one input Activate cooling. When one of the contacts is closed, the heat pump operate for the selected operation mode.

CAUTION!

For this function at least the minimum system flow (see section minimum system flow) and minimum climate system volume (see section minimum climate system volumes) are absolute necessary.

CAUTION!

The external temperature controller must not cause short running times of the heat pump.

Activate temporary lux
The function temporary lux for sanitary is activated for hot water during a closed contact.

Activate economy
The function economy for sanitary is activated for hot water during a closed contact.

Ext. alarm (NC)
An alarm output from an external device can be connected. In case the contact is open, the malfunction is presented as information message in the display. In case the contact is close, message is no longer showed.

Ext. alarm (NO)
An alarm output from an external device can be connected. In case the contact is closed, the malfunction is presented as information message in the display. In case the contact is close, message is no longer showed.

Pr switch clim system (NC)
An external pressure switch in the heating medium can be connected. An alarm (165) about 'low pressure' appears when the contact is open (only information/no action). After closing the message will disappear.

SG Ready A / SG Ready B

NOTE!

This function can only be used in main networks that support the SG Ready standard. SG Ready requires two AUX input connections.

Use 2 AUX inputs and select in menu 5.4 one input SG Ready A and one input AUX input SG Ready B. SG Ready is a smart form of tariff control, trough which your electricity supplier can affect the indoor, hot water and/or pool temperatures (if applicable) or simply block the additional heat and/or compressor in the heat pump at certain times of the day (can be selected in menu 4.1.5 after the function is activated).

Closed or open switch means one of the following (A = SG Ready A and B = SG Ready B):

- Blocking (A: Closed, B: Open) “SG Ready” is active. The compressor in the heat pump and additional heat is blocked like the day’s tariff blocking.
- Normal mode (A: Open, B: Open) “SG Ready” is not active. No effect on the system.
- Low price mode (A: Open, B: Closed) “SG Ready” is active. The system focuses on costs savings and can for example exploit a low tariff from the electricity supplier or over-capacity from any own power source (effect on the system can be adjusted in the menu 4.1.5).
- 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 4.1.5).

CAUTION!

Blocking entails a risk of freezing.

Block add. heat
Additional heating (immersion heaters and/or gas boiler) are blocked during a closed contact.

Block EB101
The compressor (of the outdoor unit) is blocked during a closed contact.

Block heating
The compressor, gas boiler and additional heater (build-in immersion heater) are blocked for heating during a closed contact.

Block gas boiler
The gas boiler is blocked during a closed contact.

Block hot water
The compressor, gas boiler and additional heater (build-in immersion heater) are blocked for hot water when the contact is closed. Any hot water circulation remains in operation.

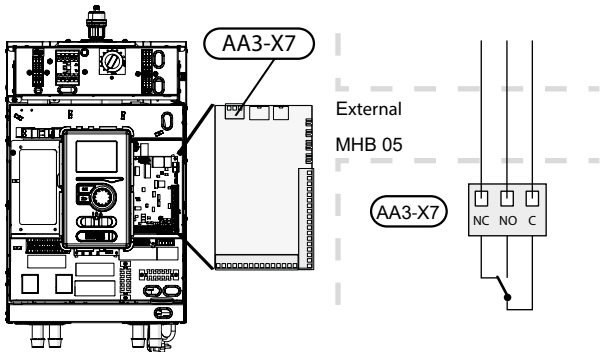
Block cooling
The compressor is blocked for cooling function when the contact is closed. Function to be selected when cooling is permitted (menu 5.11.1.1).

Tariff blocking
The compressor, gas boiler and additional heater (build-in immersion heater) are blocked for all functions during a closed contact.

Block AZ10
The compressor in the F135 is blocked when the contact is closed. Function to be selected when the F135 as accessory is connected and enabled.

Possible selection AUX output

On the board (AA3) connector X7 can be used as a relay function by potential free switching relay (max 2 A). The function can be selected in menu 5.4.



NOTE!

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

TIP!

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

Not used
Right selection in case no connection is made on the AUX output relay.

Alarm indication
During a common alarm the contact between C and NO is closed. When switch SF1 is in the “⏻” or “⚠ “ position, the relay is in the alarm position.

Cooling mode indication
During cooling the contact between C and NO is closed. Can be selected when the air/water heat pump is permitted to produce cooling and for example used to control closing the underfloor heating of a bathroom during cooling.

Holiday indication
Activation of holiday mode for “smart home”.

Away mode
Activation of away mode for “smart home”.

Hot water recirculation
Control of circulation pump for hot water circulation.

Ext heat. med. pump
Control of external circulation pump (for heating medium).

When a wire (L) is connected between AA2-X1-L to AA3-X7-C the switch provide 230V on contact NO or NC. The N-wire can be get from AA2 X1 – N.

CAUTION!

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

6 Commissioning and adjusting

CAUTION!

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

CAUTION!

Do not start MHB 05 if there is a risk that the water in the system has frozen.

Preparations

1. Check that the switch for the control module is in position „ ⏻ ".
2. Check that the unit has no 230V main power: miniature circuit breaker (FA1) is set to 0.
3. Check that the thermal circuit breaker (FD1) has not deployed.
4. Check that the draining valve(s) are fully closed.
5. Check if the automatic air vent, on top of the MHB 05, is open.
6. Check if the pump axle can rotate (not fixed).

Filling and venting the CH-system

NOTE!

Insufficient venting can damage internal components in MHB 05.

1. Set all reversing valves to a position which allows flow in all heating/cooling circuits.
2. Check if the automatic air vents are turned open (at least the one on top of the MHB 05 (QM22): leave this open during normal operation).
3. Open the filling valve and fill the CH-installation with clean sanitary water to a pressure of 1,5-2,0 bar (1,5 bar at +/- 20°C). Then close the filling valve. In case a sanitary hot water tank with a coil is connected, also the coil should be filled.
4. Vent the installation, starting at the highest point (radiators, manual air vents and in case of a hybrid system also the gas boiler).
5. In case the pressure has dropped, refill the installation to a pressure of 1,5 – 2,0 bar. Then close the filling valve.
6. Check if the connections in the CH-system are closed.

Heating water parameters

NOTE!

Ensure that incoming heating water is clean. When using a private well, it may be necessary to supplement with an extra water filter.

Filling and venting the hot water tank (sanitary water)

1. Open a hot water tap in the house.
2. Fill the hot water tank through the cold water connection.
3. When the the water that comes out of the hot water tap is no longer mixed with air, the water heater is full and the hot water tap can be closed.

Draining the CH-heating system

CAUTION!

There may be some hot water when draining the heating medium side/climate system. There is a risk of scalding.

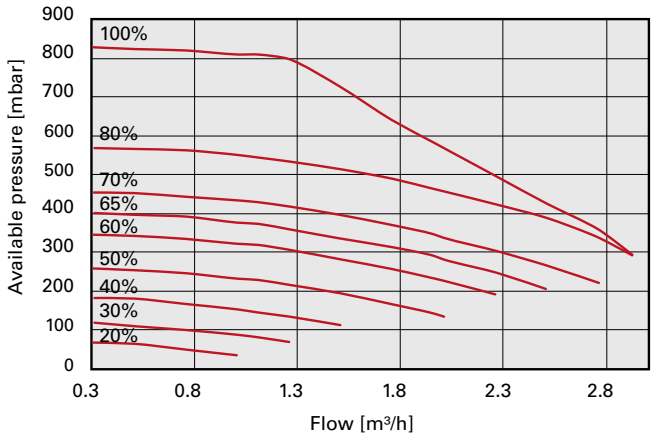
1. Connect the hose to the external drain valve of the system.
2. Then open the drain valve to empty the heating system.

Circulation pump

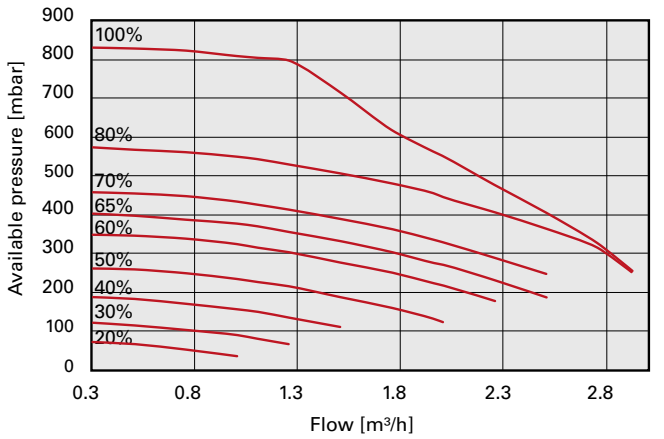
Pump speed

The circulation pump (GP12) in MHB 05 is frequency controlled and sets itself using control and based on heating / hot water demand.

Available pressure of the pump Wilo para g15-130/8-75- MHB 05
Liquid temperature 45°C without energy meter



Available pressure of the pump Wilo para g15-130/8-75- MHB 05
Liquid temperature 45°C with energy meter



Post-adjustment, venting

Initially, air is released from the hot water and venting may be necessary. If gurgling sounds can be heard from the climate system, the entire system will require additional venting. The installation is vented via vent valves (like QM22) and other climate systems through their relevant vent valves. When venting, the MHB 05 must be off (switch the control module is in position „ ⏻ " (off)).

Commissioning

CAUTION!

Commissioning of the system must be carried out by a person with appropriate authorizations and manufacturer's authorization!

For commissioning of the heat pump:

1. Switch on the power supply to MHB 05 making sure that the outdoor unit is properly connected to the power supply.
2. Follow the instructions displayed in the controller start guide or alternatively start the start guide in menu 5.7.

Commissioning

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

The start guide ensures that start-up is carried out correctly; it cannot be bypassed. The start guide can be started later in menu 5.7.

NOTE!

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

The guide will appear at each controller restart until it is disabled on the last page.

NOTE!

If starting up the system in low outdoor temperatures and a low heating medium temperature in the central heating system, the central heating system should be warmed up first, using the additional heat, to a temperature of about 20 - 25 °C.

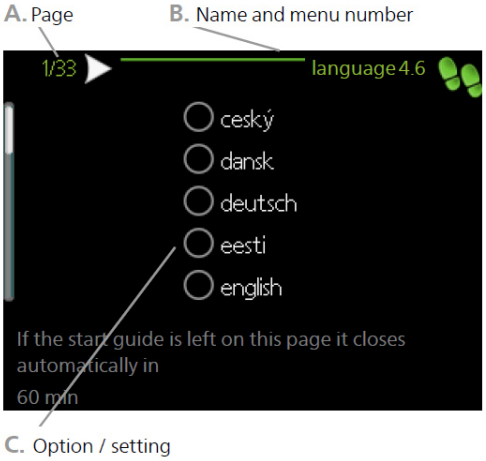
Bypass with overflow valve

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

The overflow valve adjustment procedure applies to units with a flow meter installed. It should be carried out during system commissioning as follows:

1. Fully open the overflow valve.
2. Close the flow on all heating circuits downstream of the overflow valve.
3. Go to menu 5.6 Forced control and manually set the feed pump speed to 100%.
4. Go to menu 3.1.12.
5. At quarter turn intervals of one minute, close the overflow valve while checking the flow reading in menu 3.1.12. When the „Minimum flow during defrosting" value has been reached - see table in chapter 4, subchapter „Minimum flow in the system", complete the valve closure.
6. You can then reopen the heating circuits and set the circulation pump to automatic mode in menu 5.6 Forced control.

Operating the start guide



A. Page
Here you can see the menu level in the start guide. Scroll between the pages of the start guide as follows:

1. Turn the control knob until one of the arrows in the top left corner (at the page number) has been selected.
2. Press the OK button to skip between the pages in the start guide.

B. Name and menu number
Information about the menu page, to which the start guide refers, can be found in the control system. The digits in brackets refer to the menu number in the control system.
If you want to read more about a particular menu, either consult the help menu or read the user manual.

C. Option / setting
Enter settings for the system here.

D. Help Menu

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

To view the help text:

1. Use the control knob to select the help symbol.
2. Press the OK button.

The help text often consists of several windows that you can scroll between using the control knob.

Start guide

CAUTION!

The climate system must be filled with water and vented before setting the switch to "I".

1. Set the switch (SF1) on the controller to "I".
2. Follow the instructions in the display's start guide. If the start guide does not start when you start the controller, start it manually in menu 5.7.

The start guide appears when you first start the MHB 05. You can also enable the start guide in menu 5.7. The individual settings for the start guide factory settings are described below.

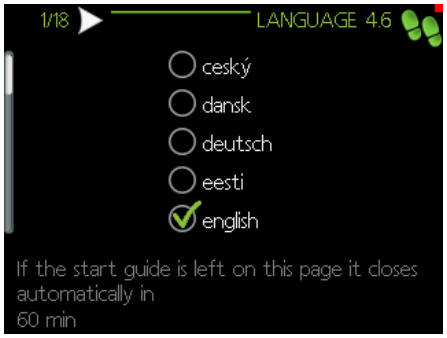
NOTE!

Please not that the amount of items in the start guide can be more in case some accessories are added and the start guide is opened a second time.

1/19 Language

In this menu, select the language of the controller.

Factory setting: english



2/19 Information

This menu displays information about the start guide.

3/19 Country

Select where the product is to be installed here.

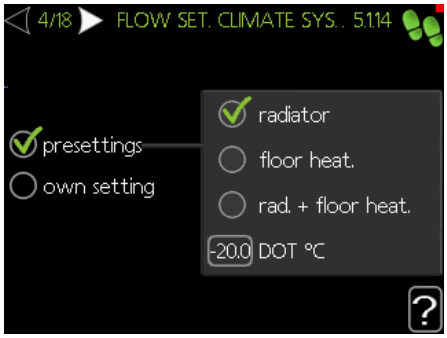
NOTE!

24 hours after exiting the menu, the selected country will be blocked and you will not be able to re-enter the menu.

4/19 Flow. set. climate sys.

In this menu there is possibility to change settings for the essential settings of the heating system. More information after selecting "?".

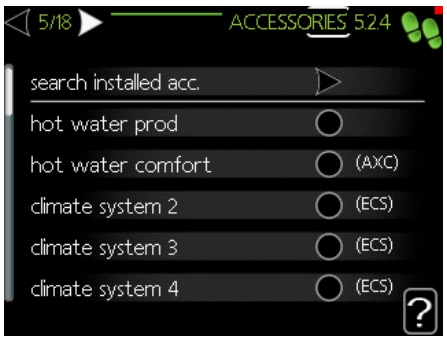
Factory setting: presettings
Factory setting:radiator
Factory setting:-20.0 DOT C



DOT = Design Outdoor temperature. Set here a temperature which is the lowest outdoor temperature in the winter used for designing the building and installation (depends of the land or region where the heat pumps will be installed).

5/19 Accessories

In this menu it is possible to activate additional connected accessories. More information after selecting "?".

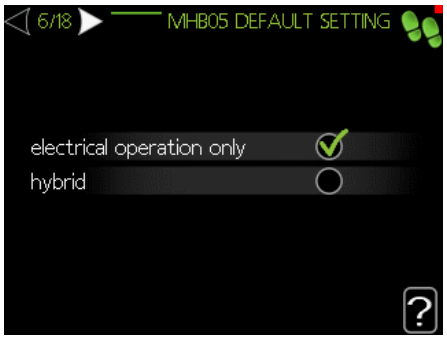


In case one or more accessories are selected, in menu 5.3 accessory settings possible settings for each selected accessory appears. See menu 5.3. when an accessory is selected.

6/19 MHB05 Default setting

In this menu you can select between two options: "hybrid" if a gas boiler is connected to the indoor unit or "electrical operation only" if there is no gas boiler connected to the indoor unit. More information after selecting "?".

Factory setting: electrical operation only



7/19 Soft in/outputs

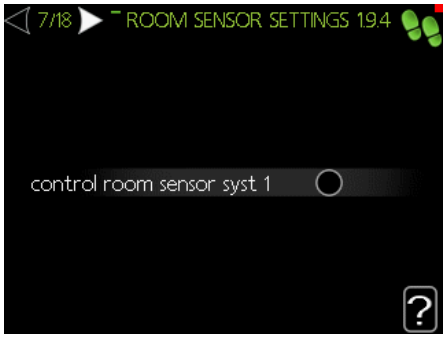
In this menu you can define the function of the hardware inputs AUX 1 -4 and output AA3-X7. This menu makes it able to chose a lot of different functions to the available hardware contacts. Please see page 26 – 28 for more information

In case an on/off room thermostat is connected to AUX 2, please chose 'external adjustment'. In case the country Holland or Belgium is chosen, the value of the offset for the curve is 5K.

8/19 Room sensor settings

In this menu you can activate and change settings for the room sensor (accessory). More information after selecting "?".

Factory setting: inactive



In case an on/off room thermostat is connected, do not enable this option.

9/19 Control of external sensors

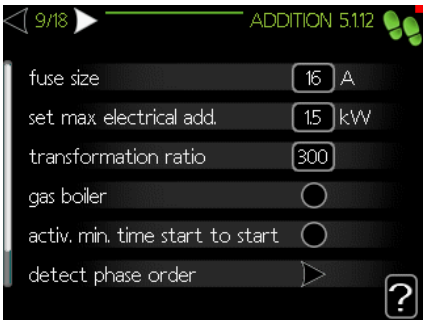
In this menu we have the possibility to check the allowed values for external sensors. More information after selecting "?".

10/19 Addition

In this menu we have the option to change settings for the additional heat (built-in electric additional heat). More information after selecting "?".

Factory setting:
fuse size: 10 A
set max electrical add.: 1,5 kW
transformation ratio: 300
gas boiler: inactive
activ. min. time start to start: inactive
detect phase order

Depending of the hardware setting of the immersion heater (jumper X3), the needed fuse is 10 A when the setting for the immersion heater is 1,5 kW or 13 A when the hardware setting is 3 kW.



11/19 Installed slaves

The function is inactive by default - one device can be selected.

Factory setting:
slave 1: active (EB101)

NOTE!

The unit cannot be cascaded with heat pumps.

12/19 Time & date

In this menu, set the current date and time. In addition, we have the ability to choose the display format and time zone.

13/19 Min. flow line temp.

In this menu it is possible to edit the minimum flow temperature of the heating system. More information after selecting "?".

Factory setting:
climate system 1: 20 C

14/19 Max flow line temp.

In this menu it is possible to edit the maximum flow temperature of the heating system. More information after selecting "?".

Factory setting:
climate system 1: 60 C

Recommended setting values are:
- + 35 for only floor heating
- + 55 for only radiator heating
- + 65 for radiator heating in hybrid installation

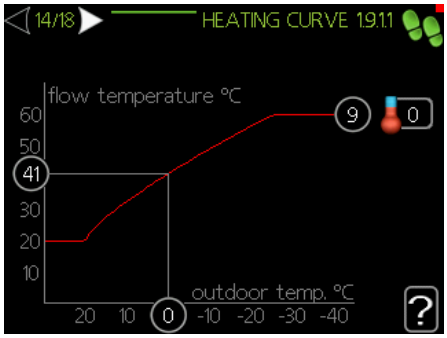
NOTE!

A lower possible value is recommended to have the highest efficiency of the heat pump installation.

15/19 Heating curve

In this menu it is possible to edit the heating curve specified for the MHB 05 unit. More information after selecting "?".

Factory setting:
Heating curve: 9



- Curve 5 provide at the designed outdoor temperature of -10°C a CH-flow temperature of 36 °C (for example to be used with underfloor heating).
- Curve 8 provide at the designed outdoor temperature of -10°C a CH-flow temperature of 46 °C (for example to be used with a low temperature radiator system)
- Curve 11 provide at the designed outdoor temperature of -10°C a CH-flow temperature of 55 °C (for example to be used with a radiator system)

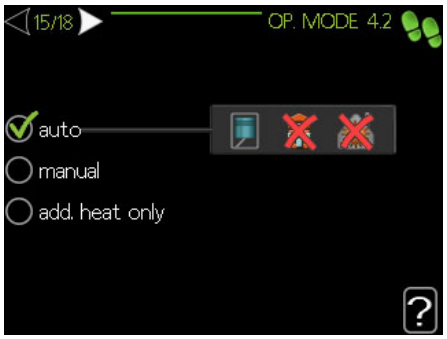
The lowest suitable value is recommended to have the highest efficiency of the heat pump installation. Take into account that when an on/off room thermostat is used, the curve setting should be lower (for example 2 curves lower at underfloor heating and 3 curves lower for a radiator system).

Detailed information on curve settings - see pt. "User settings".

16/19 Op mode

In this menu, you can select the operating mode for the MHB 05 unit. More information after selecting "?".

Factory setting: auto



NOTE!

Recommended “auto” operating mode. Editing is only possible by qualified personnel.

17/19 Alarm actions

In this menu it is possible to activate actions in case of an alarm. In case one or more of these settings is enabled, not only a warning in the display appears when a possible fault in the system occurs, but also the end user experience a lower room temperature or no hot water. This is useful to avoid that perhaps additional heat takes over the function of the compressor without being noticed. More information after selecting "?".

Factory setting:
decrease room temp: inactive
deactivate hot water: inactive

18/19 Reminder

Reminder to complete the checklist in the first chapter of the user manual.

19/19 Start guide

In this menu, we can decide whether the start guide will run again the next time the system is started.

Additional settings after finishing the Start guide

Setting temperature periodic increase (menu 5.1.1)

In case an external hot water tank is connected to the MHB 05, please set the right temperature.

Go to the main menu and hold the Back button in for 7 seconds to access the Service menu. Select menu 5.1 ‘Operating settings’ and then select menu 5.1.1. ‘Hot water settings’, scroll downwards to setting ‘stop temp. per. increase’. The default setting is 55. In some countries this value should be set higher.

Additional settings heating (menu 4.9)

Adjusted settings, related to the building where the heat pump system is installed, can improve the heat pump behavior. Go back to the main menu and select ‘My system’ and select menu 4.9 ‘advanced’.

Stop heating: At this (average) outdoor temperature, the heat pump system stops heating. In very well insulated houses, for example a setting between 12 and 16 °C can be chosen. In average insulated houses for example a setting of 17 - 19 °C can be chosen. It can be finetuned by the end user during operation.

Stop additional heat: Below this (average) outdoor temperature, the heat pump control allows the additional heat (immersion heater or gas boiler) to produce additional heat. The default setting for this setting is 5 °C. It can be finetuned by the end user during operation.

Filtering time: The heat pump control uses curves to define calculated temperatures for heating (and cooling in case it’s activated). The input for these curves is the outdoor temperature. To have a stable heating control, for this function the average outdoor temperature is calculated by means of the setting of period of hours.

7 Gas boiler settings

This chapter contains information about cooperation of the MHB 05 and the gas boiler for hybrid installations. Regarding optimalisation of the energy consumption and hassle-free cooperation it's important to choose the right settings in both devices. This chapter contains information about settings of the gas boiler.

Control from MHB 05 to the heat pump and gas boiler

NOTE!

For optimalisation of the energy consumption and hassle-free cooperation it's important to reduce the power of the gas boiler, suitable for the situation.

The room thermostat (or room sensor) is connected to the MHB 05 and together with the curve settings of the weather compensation, the MHB 05 controls the connected outdoor unit and gas boiler to deliver heat. The outdoor unit is controlled by a modulating signal and the gas boiler is controlled by an on/off signal. However, even the signal to the gas boiler is on/off, like an on/off room thermostat, the connected gas boiler itself can modulate by its own modulating control.

Three possible operation modes:

1. Only the heat pump is on. The settings in the controller of the MHB 05 see only a need to have the outdoor unit on.
2. Both the heat pump and gas boiler are on. In this case the controller foresee that only the heat pump cannot deliver enough heat, and the additional heat of the gas boiler is necessary. This option is the situation for the All-Electric Ready hybrid approach.
3. Only the gas boiler is on. In this case the heat pump is off and the gas boiler on. This can happen when the Smart Energy Source function is active, based on the settings in the controller. This option is possible when there is sometimes a preference to work only with the gas boiler.

It's also possible that the MHB 05 will switch on the build in immersion heater, but this is only necessary and possible in an All-Electric installation.

Reduced power setting of the gas boiler

NOTE!

For a good cooperation between the MHB 05, the outdoor unit and the gas boiler, it's important to reduce the max. output of the gas boiler to the desired value (recommended lowest value).

TIP!

The NIBE outdoor units (depending of the type) can function up to an outdoor temperature of -20°C or -25°C. Together with a max. CH-flow temperature of 58, 60 or 70°C (at an outdoor temperature of -7°C) it makes it possible use an (existing) radiator system in an installation.

The maximum capacity of a gas boiler is almost always higher than required for the home. With the addition of a heat pump to an installation with a gas boiler, this maximum gas boiler capacity is even more too much compared to what is required. For a good cooperation between the gas boiler and the heat pump, it is therefore necessary to limit the maximum power of the boiler.

It is possible to choose the outdoor unit, in terms of power, with the intention of switching to an all-electric installation in the future. It can also be a choice to save as much gas as possible with the help of the heat pump. In this case, the gas boiler only needs to step in occasionally and the maximum capacity of the gas boiler can be set to the lowest setting.

It is possible to use the Smart Energy Source function of the MHB 05, whereby the gas boiler can be switched on without the heat pump being on. In this case it is necessary to reduce the power of the boiler to a power that is appropriate to the minimum power required when it is -10°C outside.

NOTE!

Please look to the manual of the gas boiler to reduce the power to the needed level.

Max. CH-temperature setting of the gas boiler

NOTE!

For optimalisation of the energy consumption and hassle-free cooperation it's important to reduce the max. CH-temperature setting of the gas boiler, suitable for the situation.

It's important to choose the right heating curve and max. CH-temperature setting in the MHB 05, appropriate to the house an the CH-installation. Additional to these settings, it's important to reduce the max. CH-temperature setting of the gas boiler.

For a S2125 a max. CH-temperature setting of the gas boiler of 75°C can be chosen and for the F2040/F2050/AMS10/AMS20 the maximum setting is 70°C. When the installation is able to produce enough heat at a lower maximum temperature, it's even better to chose a value lower than 70°C or 75°C, matching with the installation.

NOTE!

Please look to the manual of the gas boiler to reduce the CH-setpoint to the needed maximum value.

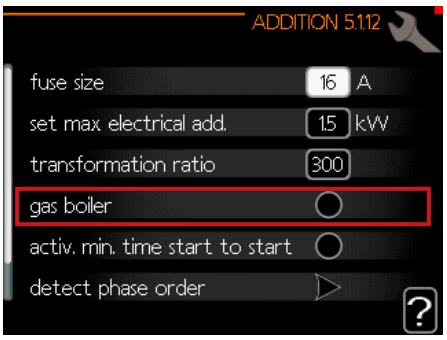
Adjust pump setting of the gas boiler

It's necessary to reduce the max. pump setting of the pump in the gas boiler.

Due to the short hydraulic circuit between the MHB 05 and the gas boiler, including the reduced output, the max. pump speed of the pump of the gas boiler should be reduced, for example to max. 50% of it's maximum speed. Check the manual of the gas boiler for further instructions.

From hybrid to All-Electric

It is possible to test in a hybrid installation whether the heat pump can achieve the required heating on its own. It is possible to temporarily switch off the gas boiler for this purpose and to enable the electrical element to switch on if necessary. Adjust the following settings in the MHB 05 control for this:



See chapter 10 for more information.
It's important, after testing, to set the settings in a reversed way.

NOTE!

The factory setting of the immersion heater output in the MHB 05 is 1.5 kW. If a jumper is placed in the appropriate connector, the element will supply 3 kW. The control-setting for immersion heater is default disabled. Make sure when the immersion heater is enabled, that the power connection is possible to deliver 1,5 or 3 kW.

8 myUplink

With myUplink you can control the installation – where and when you want. The available app on your mobile device or by use of a pc you can monitor and operate your heat pump system. For professionals myUplink Pro can be used for extensive possibilities to help check the status of your customer heat pump systems from a distance. Visit myuplink.com for more information.

Specification

You need the following in order for myUplink to be able to communicate with your MHB 05:

1. Wired internet connection
2. Register an account on with the mobile app myUplink or on a pc at myuplink.com

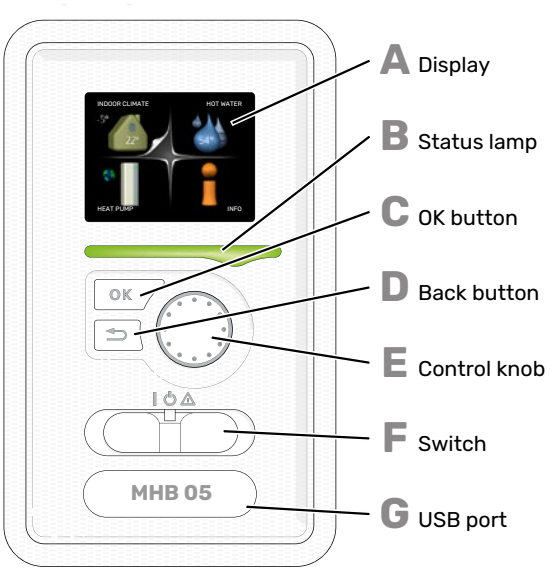
Connection

To connect your system to myUplink:

1. Navigate to menu 4 my system, select 4.1 plus functions, select 4.1.3 internet and select menu 4.1.3.1 myUplink.
2. Mark 'request new connection string' and push OK to create a connection code.
3. When a connection string has been produced, it is shown in this menu and is valid for 60 minutes.
4. Use the connection string and indicated serial number in myUplink to connect the MHB 05 to your myUplink account.

9 Control - Introduction

Display unit



There is a display unit behind the heat pump door, which is used to communicate with MHB 05. Here you:

There is a display unit behind the control module door, which is used to communicate with MHB 05. Here you:

- switch on, switch off or set the heat pump in emergency mode.
- sets the indoor climate and hot water as well as adjusts the heat pump to your needs.
- receive information about settings, status and events.
- see different types of alarms and receive instructions about how they are to be rectified.

A **DISPLAY**
Instructions, settings and operational information are shown on the display. You can easily navigate between the different menus and options to set the comfort or obtain the information you require.

B **STATUS LAMP**
The status lamp indicates the status of the heat pump. It:
- lights green during normal operation.
- lights yellow in emergency mode.
- lights red in the event of a deployed alarm.

C **OK BUTTON**
The OK button is used to:
- confirm selections of sub menus/options/set values/page in the start guide.

D **BACK BUTTON**
The back button is used to:
- go back to the previous menu.
- change a setting that has not been confirmed.

E **CONTROL KNOB**
The control knob can be turned to the right or left. You can:
- scroll in menus and between options.
- increase and decrease the values.
- change page in multiple page instructions (for example help text and service info).

F **SWITCH**
The switch assumes three positions:
- On (I)
- Standby (⏻)
- Emergency mode (⚠)

Emergency mode must only be used in the event of a fault on the heat pump. In this mode, the compressor switches off and the immersion heater engages. The heat pump display is not illuminated and the status lamp illuminates yellow.

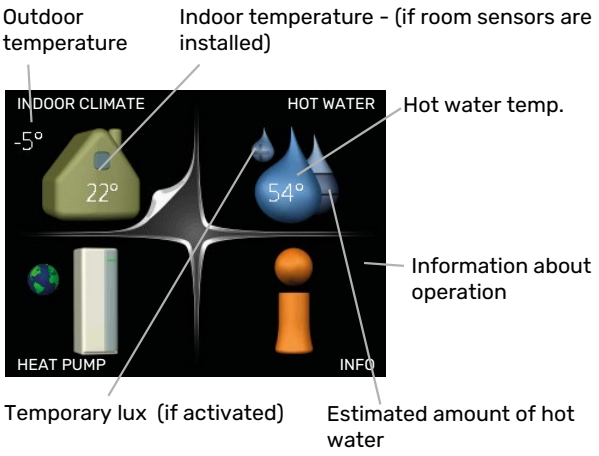
G **USB PORT**
The USB port is hidden beneath the plastic badge with the product name on it.

The USB port is used to update the software.

Visit myuplink.com and click the "Software" tab to download the latest software for your installation.

Menu system

When the door to the heat pump is opened, the menu system's four main menus are shown in the display as well as certain basic information.



MENU 1 - INDOOR CLIMATE

Setting and scheduling the indoor climate. See information in the help menu or user manual.

MENU 2 - HOT WATER

Setting and scheduling hot water production. See information in the help menu or user manual.

This menu only appears if a water heater is docked to the heat pump.

MENU 3 - INFO

Display of temperature and other operating information and access to the alarm log. See information in the help menu or user manual.

MENU 4 - HEAT PUMP

Setting time, date, language, display, operating mode etc. See information in the help menu or user manual.

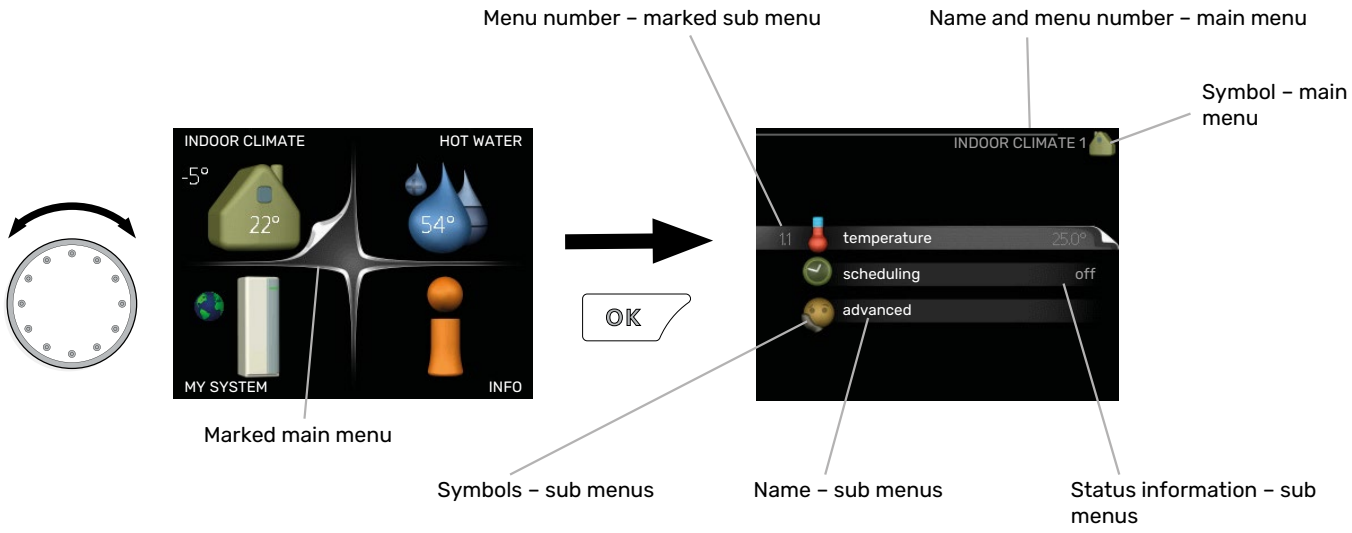
MENU 5 - SERVICE

Advanced settings. These settings are solely intended for installers or service engineers. The menu is visible when the Back button is pressed for 7 seconds, when you are in the start menu.

SYMBOLS IN THE DISPLAY

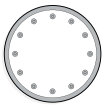
The following symbols may appear on the display during operation.

Symbol	Description
	This symbol appears by the information sign if there is information in menu 3.1 that you should note.
	These two symbols indicate whether the compressor or addition is blocked in MHB 05. These two symbols indicate if the compressor in the outdoor module or the additional heat in the installation is blocked via MHB 05. These can, for example, be blocked depending on which operating mode is selected in menu 4.2, if blocking is scheduled in menu 4.9.5 or if an alarm has occurred that blocks one of them.  Blocking the compressor.  Blocking additional heat.
	This symbol appears if periodic increase or lux mode for the hot water is activated.
	This symbol indicates whether "holiday setting" is active in 4.7.
	This symbol indicates whether MHB 05 has contact with myUplink.
	This symbol indicates the actual speed of the fan if the speed has changed from the normal setting. Accessory needed.
	This symbol is visible in installations with active solar accessories.
	This symbol indicates whether pool heating is active. Accessory needed.
	This symbol indicates whether cooling is active. Heat pump with cooling function required.



OPERATION

To move the cursor, turn the control knob to the left or the right. The marked position is white and/or has a turned up tab.

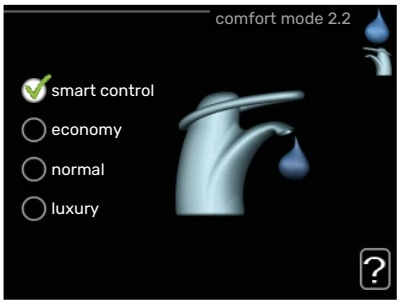


SELECTING MENU

To advance in the menu system select a main menu by marking it and then pressing the OK button. A new window then opens with sub menus.

Select one of the sub menus by marking it and then pressing the OK button.

SELECTING OPTIONS



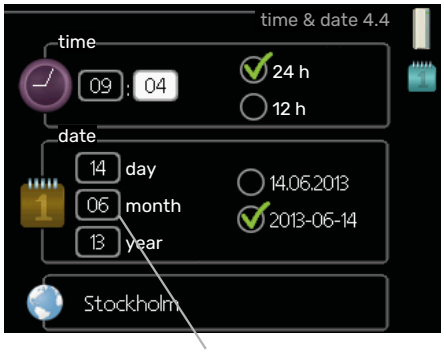
In an options menu the current selected option is indicated by a green tick.

To select another option:

1. Mark the applicable option. One of the options is pre-selected (white).

2. Press the OK button to confirm the selected option. The selected option has a green tick.

SETTING A VALUE



Values to be changed

To set a value:

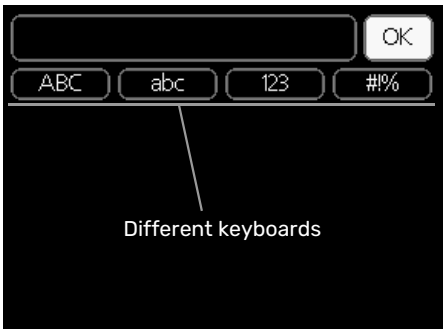
1. Mark the value you want to set using the control knob.

2. Press the OK button. The background of the value becomes green, which means that you have accessed the setting mode.

3. Turn the control knob to the right to increase the value and to the left to reduce the value.

4. Press the OK button to confirm the value you have set. To change and return to the original value, press the Back button.

USE THE VIRTUAL KEYBOARD



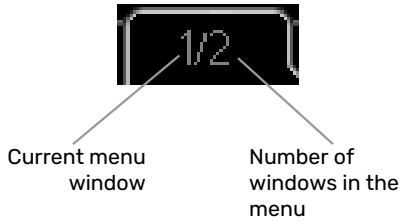
In some menus where text may require entering, a virtual keyboard is available.

Depending on the menu, you can gain access to different character sets which you can select using the control knob. To change character table, press the Back button. If a menu only has one character set the keyboard is displayed directly.

When you have finished writing, mark "OK" and press the OK button.

SCROLL THROUGH THE WINDOWS

A menu can consist of several windows. Turn the control knob to scroll between the windows.



Scroll through the windows in the start guide

Arrows to scroll through window in start guide

1. Turn the control knob until one of the arrows in the top left corner (at the page number) has been marked.
2. Press the OK button to skip between the steps in the start guide.

HELP MENU

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

To access the help text:

1. Use the control knob to select the help symbol.
2. Press the OK button.

The help text often consists of several windows that you can scroll between using the control knob.

10 Control - Menus

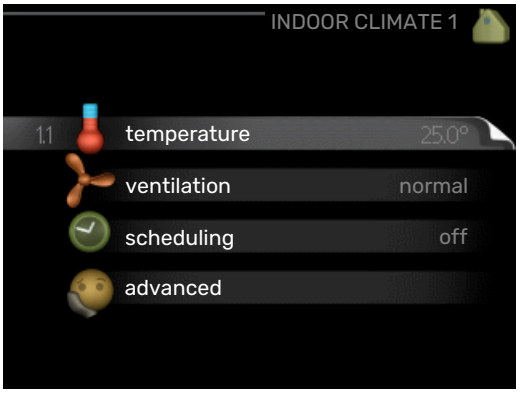
Menu 1 – INDOOR CLIMATE

OVERVIEW

1 - INDOOR CLIMATE	1.1 - temperature	1.1.1 - heating	
		1.1.2 - cooling	
	1.2 - ventilation *		
	1.3 - scheduling	1.3.1 - heating	
		1.3.2 - cooling	
		1.3.3 - ventilation *	
	1.9 - advanced	1.9.1 - curve	1.9.1.1 heating curve
			1.9.1.2 - cooling curve
		1.9.2 - external adjustment	
		1.9.3 - min. flow line temp.	1.9.3.1 - heating
			1.9.3.2 - cooling
		1.9.4 - room sensor settings	
		1.9.5 - cooling settings *	
		1.9.6 - fan return time *	
		1.9.7 - own curve	1.9.7.1 - heating
			1.9.7.2 - cooling
		1.9.8 - point offset	
		1.9.9 - night cooling *	

* Accessories are needed.

Sub-menus



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

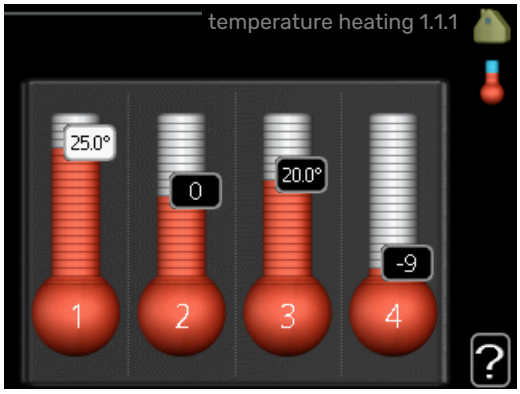
temperature Setting the temperature for the climate system. The status information shows the set values for the climate system.

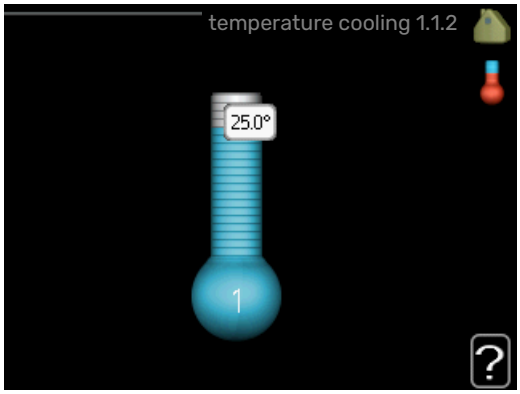
ventilation Setting the fan speed. The status information shows the selected setting. This menu is only displayed if the exhaust air module is connected (accessory).

scheduling Scheduling heating, cooling and ventilation. Status information "set" is displayed if you set a schedule but it is not active now, "holiday setting" is displayed if the vacation schedule is active at the same time as the schedule (the vacation function is prioritised), "active" displays if any part of the schedule is active, otherwise it displays " off".

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

MENU 1.1 - TEMPERATURE





If the house has several climate systems, this is indicated on the display by a thermometer for each system.

Choose between heating or cooling and then set the desired temperature in the next menu "temperature heating/cooling" in menu 1.1.

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

heating
Setting range: 5 – 30 °C

Default value: 20

cooling (accessory is required)
Setting range: 5 – 30 °C

Default value: 25

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

NOTE!

A slow heating system such as underfloor heating may not be suitable for control using the control module's room sensors.

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

Setting the temperature (without room sensors activated):

Setting range: -10 to +10

Default value: 0

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

Use the control knob to set a new value. Confirm the new setting by pressing the OK button.

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

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

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.

TIP!

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

If it is cold outdoors and the room temperature is too low, increase the curve slope in menu 1.9.1.1 by one increment.

If it is cold outdoors and the room temperature is too high, reduce the curve slope in menu 1.9.1.1 by one increment.

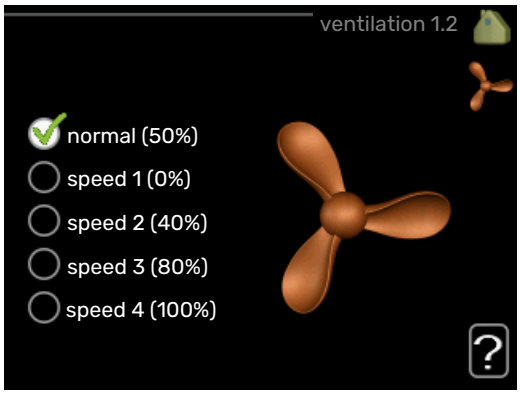
If it is warm outdoors and the room temperature is too low, increase the value in menu 1.1.1 by one increment.

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

MENU 1.2 - VENTILATION (ACCESSORY REQUIRED)

Setting range: normal and speed 1-4

Default value: normal



The ventilation in the accommodation can be temporarily increased or reduced here.

When you have selected a new speed a clock starts a count down. When the time has counted down the ventilation speed returns to the normal setting.

If necessary, the different return times can be changed in menu 1.9.6.

The fan speed is shown in brackets (in percent) after each speed alternative.

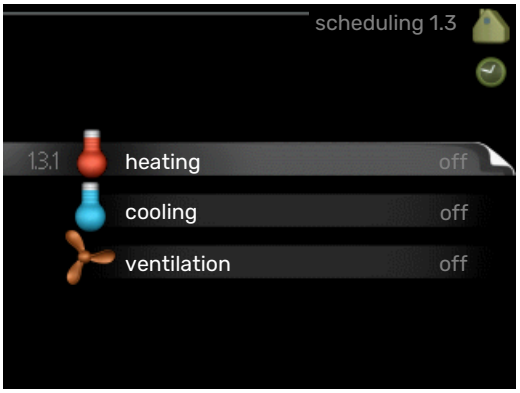
TIP!

If longer time changes are required use the holiday function or scheduling.

NOTE!

The ventilation accessory requires a minimum ventilation flow in order to work properly. An insufficient ventilation flow can result in an alarm and blocking of compressor operation.

MENU 1.3 - SCHEDULING



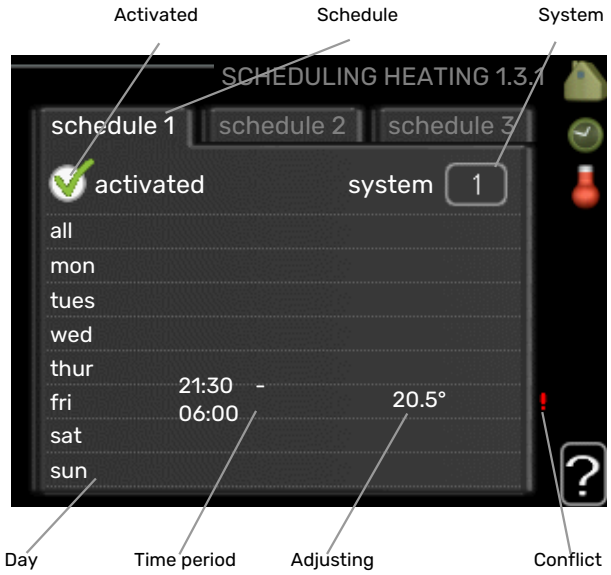
In the menu scheduling indoor climate (heating/cooling/ventilation) is scheduled for each weekday.

You can also schedule a longer time during a selected period (holiday) in menu 4.7.

MENU 1.3.1 - HEATING

Increases or decreases in the accommodation temperature can be scheduled here for up to three time periods per day. One step is usually enough to change the room temperature by one degree, but in some cases several steps may be required.

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



Schedule: The schedule to be changed is selected here.

Activated: Scheduling for the selected period is activated here. Set times are not affected at deactivation.

System: The climate system that the relevant schedule relates to is selected here. This alternative is only displayed if there is more than one climate system.

Day: Select which day or days of the week the scheduling is to apply to here. To remove the scheduling for a particular day, the time for that day must be reset by setting the start time to the same as the stop time. If the row "all" is used, all days in the period are set according to that row.

Time period: The start and stop time for the selected day for scheduling are selected here.

Adjustment: How much the heating curve is to be offset in relation to menu 1.1 during scheduling is set here. If a room sensor is installed, the desired room temperature is set in °C.

Conflict: If two settings conflict with each other, a red exclamation mark is displayed.

TIP!

If you wish to set similar scheduling for every day of the week start by filling in “all” and then changing the desired days.

TIP!

Set the stop time earlier than the start time so that the period extends beyond midnight. Scheduling then stops at the set stop time the day after.

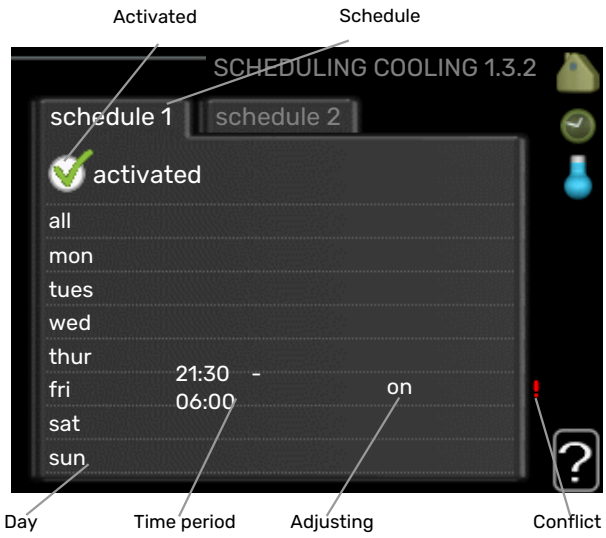
Scheduling always starts on the date that the start time is set for.

NOTE!

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

MENU 1.3.2 - COOLING

Here you can schedule when cooling is permitted in the accommodation for up to two different time periods per day.



Schedule: The schedule to be changed is selected here.

Activated: Scheduling for the selected period is activated here. Set times are not affected at deactivation.

Day: Select which day or days of the week the scheduling is to apply to here. To remove the scheduling for a particular day, the time for that day must be reset by setting the start time to the same as the stop time. If the row "all" is used, all days in the period are set according to that row.

Time period: The start and stop time for the selected day for scheduling are selected here.

Adjustment: Here, you schedule when cooling will not be permitted.

Conflict: If two settings conflict with each other, a red exclamation mark is displayed.

TIP!

If you wish to set similar scheduling for every day of the week start by filling in “all” and then changing the desired days.

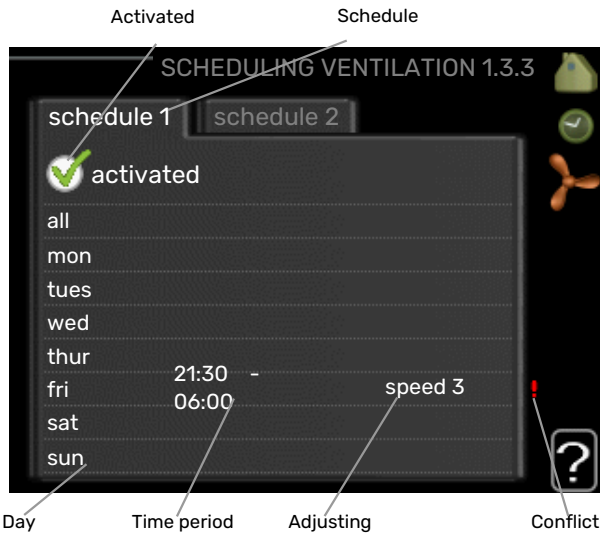
TIP!

Set the stop time earlier than the start time so that the period extends beyond midnight. Scheduling then stops at the set stop time the day after.

Scheduling always starts on the date that the start time is set for.

MENU 1.3.3 - VENTILATION (ACCESSORY REQUIRED)

Increases or decreases in the ventilation to the accommodation can be scheduled here for up to two time periods per day.



Schedule: The schedule to be changed is selected here.

Activated: Scheduling for the selected period is activated here. Set times are not affected at deactivation.

Day: Select which day or days of the week the scheduling is to apply to here. To remove the scheduling for a particular day, the time for that day must be reset by setting the start time to the same as the stop time. If the row "all" is used, all days in the period are set according to that row.

Time period: The start and stop time for the selected day for scheduling are selected here.

Adjustment: The desired fan speed is set here.

Conflict: If two settings conflict with each other, a red exclamation mark is displayed.

TIP!

If you wish to set similar scheduling for every day of the week start by filling in “all” and then changing the desired days.

TIP!

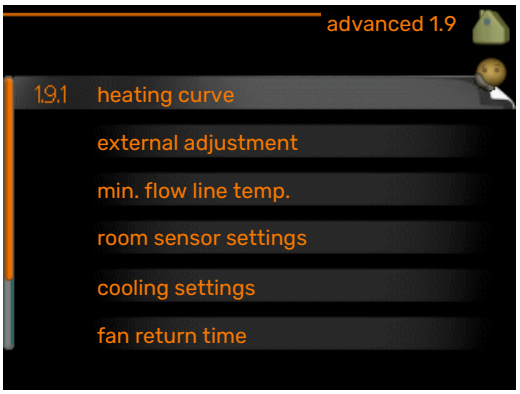
Set the stop time earlier than the start time so that the period extends beyond midnight. Scheduling then stops at the set stop time the day after.

Scheduling always starts on the date that the start time is set for.

NOTE!

A significant change over a longer period of time may cause poor indoor environment and worse operating economy.

MENU 1.9 - ADVANCED



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

curve Setting the curve slope for heating and cooling.

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

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

room sensor settings Settings regarding the room sensor.

cooling settings Settings for cooling.

fan return time Fan return time settings in the event of temporary ventilation speed change.

own curve Setting own curve for heating and cooling.

point offset Setting the offset of the heating curve or cooling curve at a specific outdoor temperature.

night cooling Setting night cooling.

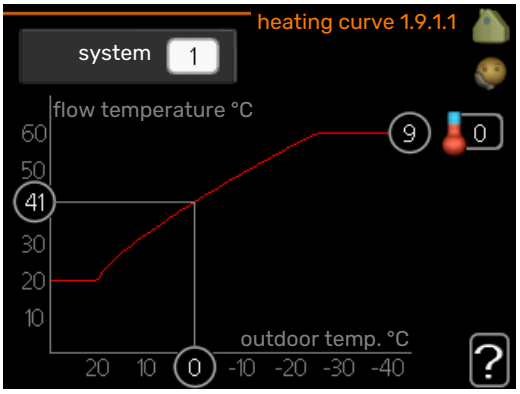
MENU 1.9.1 - CURVE

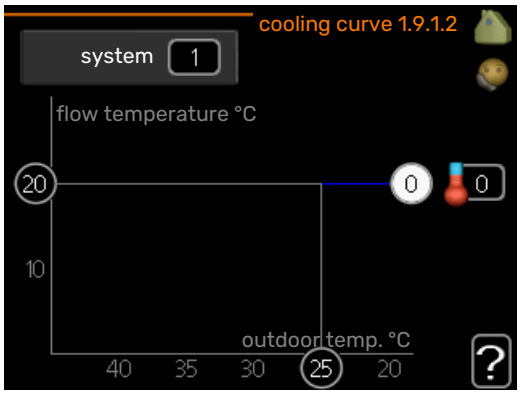
heating curve
Setting range: 0 – 15

Default value: 9

cooling curve (accessory required)
Setting range: 0 – 9

Default value: 0





The prescribed heating curve for your house can be viewed in the menu heating curve. The task of the heating curve is to give an even indoor temperature, regardless of the outdoor temperature, and thereby energy efficient operation. It is from this heating curve that the control module's control computer determines the temperature of the water to the heating system, supply temperature, and therefore the indoor temperature. Select the heating curve and read off how the supply temperature changes at different outdoor temperatures here. If there is access to cooling the same settings can be made for the cooling curve.

NOTE!

With underfloor heating systems, max flow line temperature should normally be set to between 35 and 45 °C.

With underfloor cooling, "min. flow line temp." must be restricted to prevent condensation.

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

TIP!

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

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

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

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

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

Cooling in 2-pipe system

MHB 05 contains a built-in function for operating cooling in a 2-pipe system down to 7 °C, factory setting 18 °C. This requires that the outdoor module can perform cooling. (See

the Installer Manual for your air/water heat pump.) If the outdoor module is permitted to run cooling, the cooling menus are activated in the display on MHB 05.

In order for operating mode “cooling” to be permitted, the average temperature must be above the setting value for “start cooling” in menu 4.9.2

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

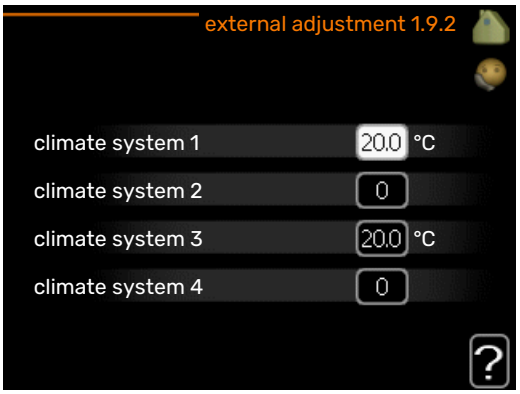
MENU 1.9.2 - EXTERNAL ADJUSTMENT

Set the temperature (with room sensor installed and activated):
Setting range: 5 – 30 °C

Default value: 20

Setting the temperature (without room sensors activated):
Setting range: -10 to +10.

Default value: 0



Connecting an external contact, for example, a room thermostat or a timer allows you to temporarily or periodically raise or lower the room temperature while heating. When the contact 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 climate system the setting can be made separately for each system.

MENU 1.9.3 - MIN. FLOW LINE TEMP.

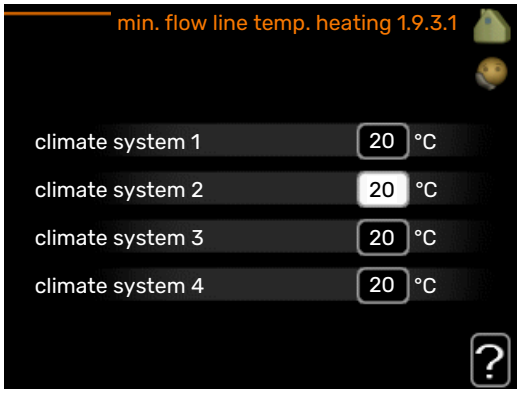
heating
Setting range: 5-70 °C

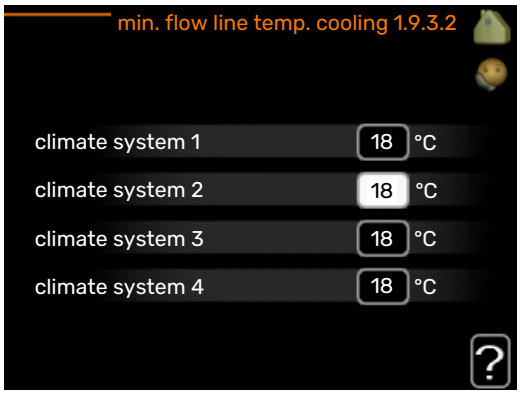
Default value: 20 °C

cooling (heat pump with cooling function required)
Depending on which cooling function (in 2-pipe system or 4-pipe system) is used, the lower limit of the setting range can vary from 7 to 18 °C.

Setting range: 7-30 °C

Factory setting: 18 °C





In menu 1.9.3 you select heating or cooling, in the next menu (min. supply temp.heating/cooling) set the minimum temperature on the supply temperature to the climate system. This means that MHB 05 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.

TIP!

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

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

MENU 1.9.4 - ROOM SENSOR SETTINGS

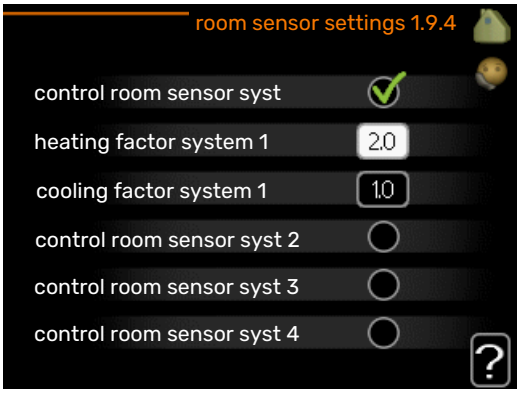
factor system

heating
Setting range: 0.0 - 6.0

Factory setting heating: 1.0

cooling (accessory required)
Setting range: 0.0 - 6.0

Factory setting cooling: 1.0



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

If the system is turned on/off by a room thermostat, "control room sensor syst" must not be activated.

NOTE!

A slow heating system such as underfloor heating may not be suitable for control using the installation's room sensors.

Here you can set a factor (a numerical value) that determines how much an over or sub normal temperature (the difference between the desired and actual room temperature) in the room is to affect the supply temperature to the climate system. A higher value gives a greater and faster change of the heating curve's set offset.

CAUTION!

Too high a set value for "factor system" can (depending on your climate system) produce an unstable room temperature.

If several climate systems are installed the above settings can be made for the relevant systems.

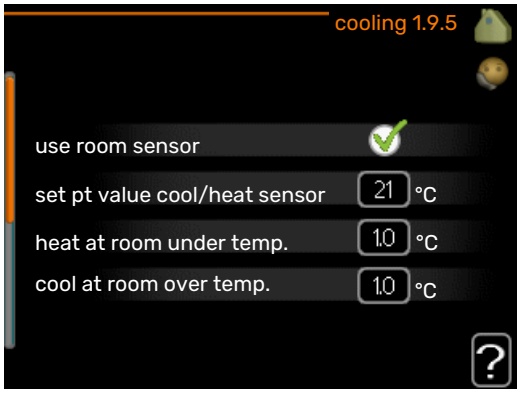
MENU 1.9.5 - COOLING SETTINGS

delta at +20 °C
Setting range: 3 – 10 °C

Factory setting: 3

delta at +40 °C
Setting range: 3 – 20 °C

Factory setting: 6



cool/heat sensor
Setting range: BT74 (BT50, RMU-BT50)

Factory setting: BT74

set pt value cool/heat sensor
Setting range: 5 – 40 °C

Factory setting: 21

heat at room under temp.
Setting range: 0.5 – 10.0 °C

Default value: 1.0

cool at room over temp.
Setting range: 0.5 – 10.0 °C

Default value: 3.0

start active cooling
Setting range: 10 – 300 DM

Factory setting: 30 DM

step difference compressors
Setting range: 10 – 150

Default value: 30

degree minutes cooling
Setting range: -3000 – 3000 cooling degree minutes

Factory setting: -1

compressor speed
Setting range: 1 – 100 %

Default value: 1

time betw. switch heat/cool (Displayed if cooling in 2-pipe system is activated.)
Setting range: 0 – 48 h

Factory setting: 2

You can use MHB 05 to control the cooling in your house during hot periods of the year.

NOTE!

Certain setting options only appear if their function is installed and activated in MHB 05.

delta at +20 °C

Set the desired temperature on the temperature difference between supply and return lines to the climate system during cooling operation when the outdoor temperature is +20 °C. MHB 05 then attempts to get as close to the set temperature as possible.

delta at +40 °C

Set the desired temperature on the temperature difference between supply and return lines to the climate system during cooling operation when the outdoor temperature is +40 °C. MHB 05 then attempts to get as close to the set temperature as possible.

cool/heat sensor

If a single room will determine how the whole installation will work, a cooling/heating sensor (BT74) is connected to MHB 05. This sensor determines when it is time to switch between cooling and heating operation for the whole installation.

NOTE!

When the heating/cooling sensors (BT74) have been connected and activated in menu 5.4, no other sensor can be selected in menu 1.9.5.

set pt value cool/heat sensor

Here you can set at which indoor temperature MHB 05 is to shift between heating respectively cooling operation.

heat at room under temp.

Here you can set how far the room temperature can drop below the desired temperature before MHB 05 switches to heating operation.

cool at room over temp.

Here you can set how high the room temperature can increase above the desired temperature before MHB 05 switches to cooling operation.

larm rumsgivare kyla

This is where you set whether MHB 05 is to initiate an alarm if the room sensor is disconnected or breaks during cooling operation.

start active cooling

Here you can set when active cooling is to start.

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

compressor speed

Here you can set at what speed the compressor is to operate at during active cooling. Set value corresponds to part of the available output.

step difference compressors

NOTE!

This setting option only appears if cooling is activated in menu 5.2.4.

The degree minute difference for controlling when the next compressor is to start is set here.

degree minutes cooling

This selection is only available when the connected accessory itself counts cooling degree minutes.

After a min or max value has been set, the system will automatically set the real value in relation to the number of compressors that are running cooling.

time betw. switch heat/cool

This selection is only available when cooling in 2-pipe systems.

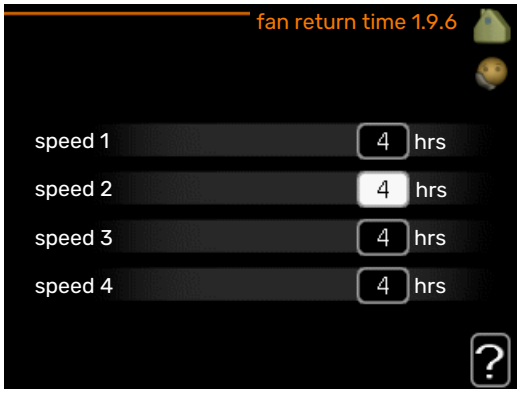
Here you can set how long MHB 05 is to wait before it returns to heating mode when the cooling demand has ceased or vice versa.

MENU 1.9.6 - FAN RETURN TIME (ACCESSORY REQUIRED)

speed 1-4

Setting range: 1 – 99 h

Default value: 4 h



Here you select the return time for temporary speed change (speed 1-4) on the ventilation in menu 1.2.

Return time is the time it takes before ventilation speed returns to normal.

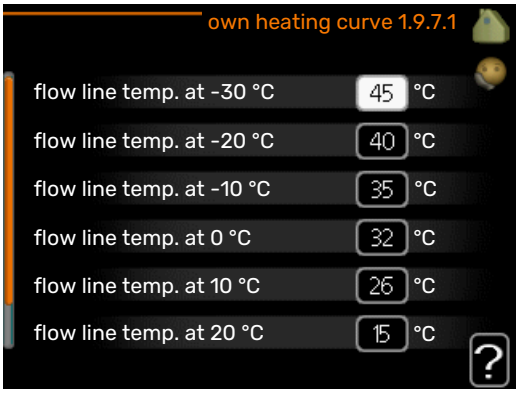
MENU 1.9.7 - OWN CURVE

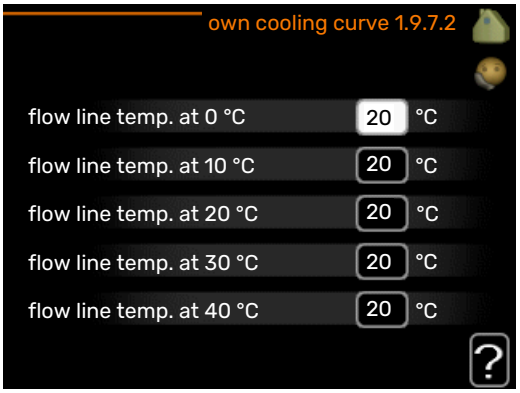
supply temperature

heating
Setting range: 5 – 80 °C

cooling (accessory required)
Depending on which accessory is used the setting range can vary.

Setting range: 7 – 40 °C





When required, create your own heating or cooling curve here, by setting the desired supply temperatures for different outdoor temperatures.

NOTE!

Curve 0 in menu 1.9.1 must be selected for own curve to apply.

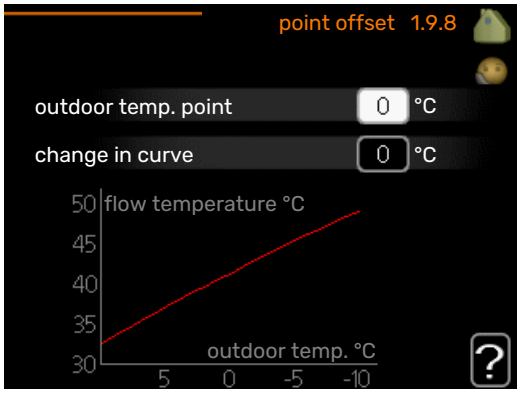
MENU 1.9.8 - POINT OFFSET

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

Default value: 0 °C

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

Default value: 0 °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 heat 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.

TIP!

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

NOTE!

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

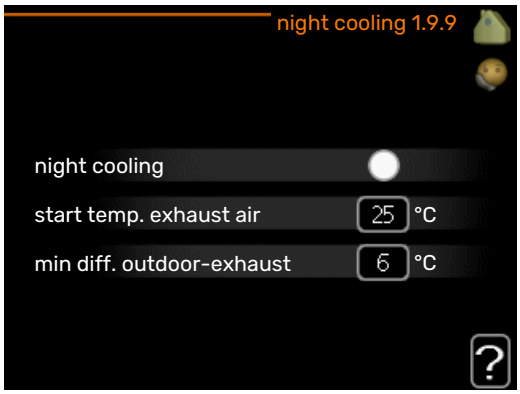
MENU 1.9.9 - NIGHT COOLING (ACCESSORY REQUIRED)

start temp. exhaust air
Setting range: 20 – 30 °C

Default value: 25 °C

min diff. outdoor-exhaust
Setting range: 3 – 10 °C

Default value: 6 °C



Activate night cooling here.

When the temperature in the house is high and the outdoor temperature is lower, a cooling effect can be obtained by forcing the ventilation.

If the temperature difference between the exhaust air and the outdoor temperature is greater than the set value ("min diff. outdoor-exhaust"), and the exhaust air temperature is higher than the set value ("start temp. exhaust air"), run the ventilation at speed 4 until one of the conditions is no longer met.

NOTE!

Night cooling can only be activated when house heating has been deactivated. This is done in menu 4.2.

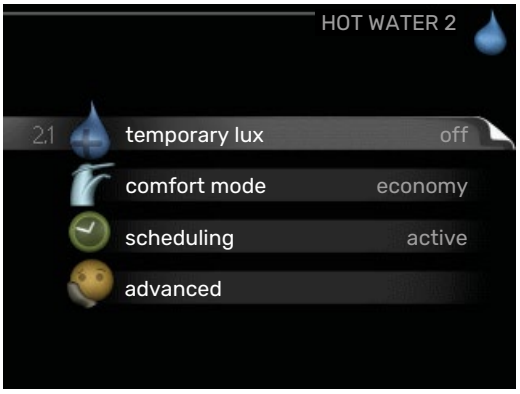
Menu 2 – HOT WATER

OVERVIEW

2 - HOT WATER*	2.1 - temporary lux	
	2.2 - comfort mode	
	2.3 - scheduling	
	2.9 - advanced	2.9.1 - periodic increase
		2.9.2 - hot water recirc. *

* Accessory needed.

Sub-menus



This menu only appears if a water heater is docked to the heat pump.

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

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

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

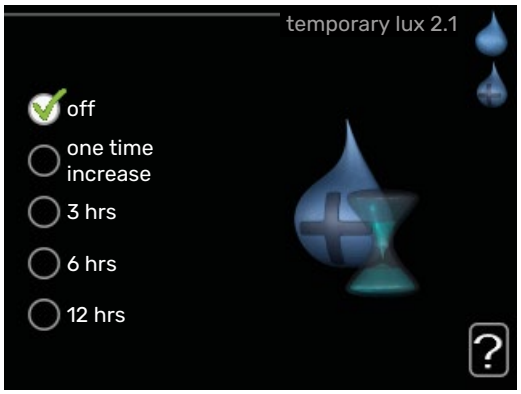
scheduling Scheduling hot water comfort. The status information "set" appears if you have set scheduling but it is not currently active, "holiday setting" appears if holiday setting is active at the same time as scheduling (when the holiday function is prioritised), "active" appears if any part of scheduling is active, otherwise "off" appears.

advanced Setting periodic increase in the hot water temperature.

MENU 2.1 - TEMPORARY LUX

Setting range: 3, 6 and 12 hours and mode "off" and "one time increase"

Default value: "off"



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

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

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

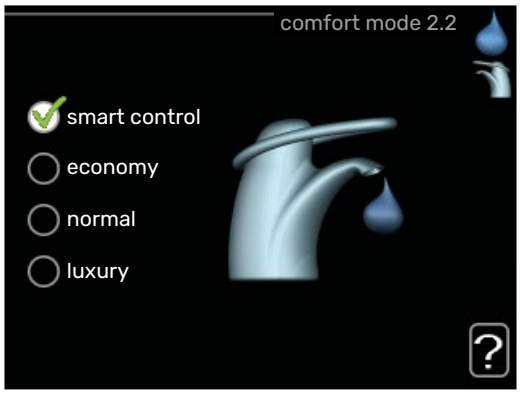
When the time has run out MHB 05 returns to the mode set in menu 2.2.

Select “off" to switch off temporary lux.

MENU 2.2 - COMFORT MODE

Setting range: smart control, economy, normal, luxury

Default value: normal



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

smart control: In this menu you activate the Smart Control function. The function learns the previous week's hot water consumption and adapts the temperature in the water heater for the coming week to ensure minimal energy consumption.

If the hot water demand is greater, there is a certain additional amount of hot water available.

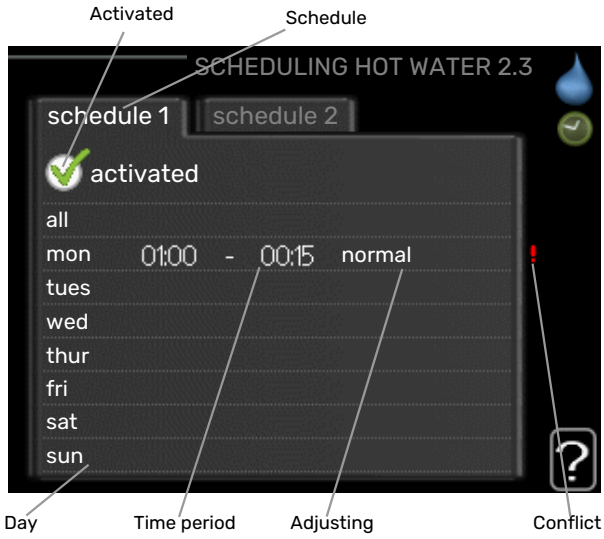
When the Smart Control function is activated, the water heater delivers the reported performance according to the energy decal.

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

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

luxury: Lux mode gives the greatest possible amount of hot water. In this mode, the immersion heater is used to heat hot water as well as the compressor, which increases operating costs.

MENU 2.3 - SCHEDULING



Two different periods of hot water comfort per day can be scheduled here.

Scheduling is activated/deactivated by ticking/unticking"activated". Set times are not affected at deactivation.

Schedule: The schedule to be changed is selected here.

Activated: Scheduling for the selected period is activated here. Set times are not affected at deactivation.

Day: Select which day or days of the week the scheduling is to apply to here. To remove the scheduling for a particular day, the time for that day must be reset by setting the start time to the same as the stop time. If the row "all" is used, all days in the period are set according to that row.

Time period: The start and stop time for the selected day for scheduling are selected here.

Adjustment: Set the hot water comfort that is to apply during scheduling here.

Conflict: If two settings conflict with each other, a red exclamation mark is displayed.

TIP!

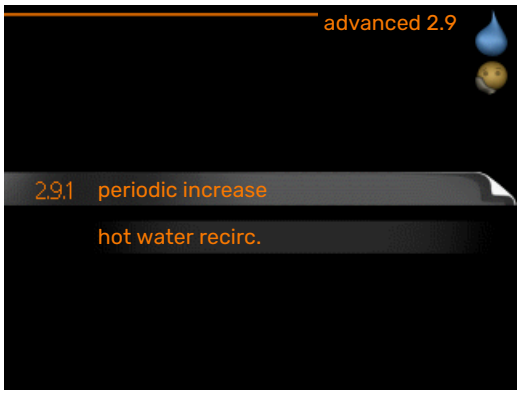
If you wish to set similar scheduling for every day of the week start by filling in "all" and then changing the desired days.

TIP!

Set the stop time earlier than the start time so that the period extends beyond midnight. Scheduling then stops at the set stop time the day after.

Scheduling always starts on the date that the start time is set for.

MENU 2.9 - ADVANCED



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

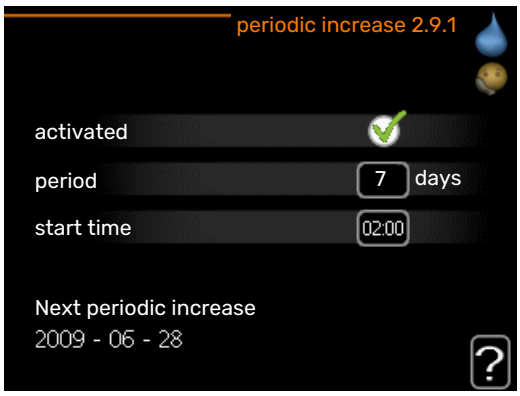
MENU 2.9.1 - PERIODIC INCREASE

period
Setting range: 1 - 90 days

Factory setting: 7 days

start time
Setting range: 00:00 - 23:00

Default value: 00:00



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

Here, you can select the length of time between increases in the hot water temperature. The time can be set between 1 and 90 days. Factory setting is 7 days. Tick/untick "activated" to start/switch off the function.

MENU 2.9.2 - HOT WATER RECIRC. (ACCESSORY REQUIRED)

operating time
Setting range: 1 - 60 min

Default value: 60 min

downtime
Setting range: 0 - 60 min

Default value: 0 min

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

"operating time" decide how long the hot water circulation pump must run per operating instance.

"downtime" decide how long the hot water circulation pump must be stationary between operating instances.

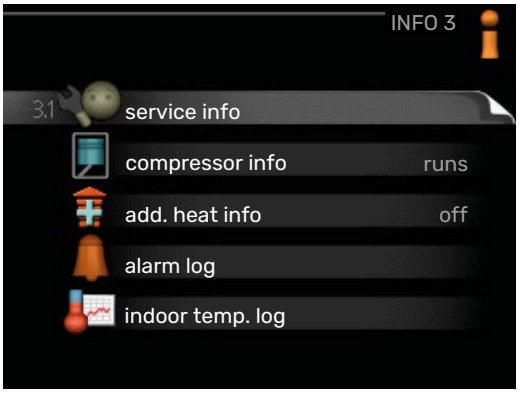
Hot water circulation is activated in menu 5.4 "soft inputs and outputs".

Menu 3 – INFO

OVERVIEW

3 - INFO	3.1 - service info
	3.2 - compressor info
	3.3 - add. heat info
	3.4 - alarm log
	3.5 - indoor temp. log

Sub-menus



For the menu INFO there are several sub-menus. No settings can be made in these menus, they just display information. Status information for the relevant menu can be found on the display to the right of the menus.

service info shows temperature levels and settings in the installation.

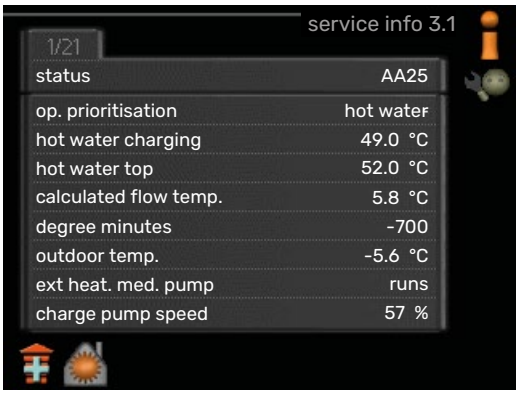
compressor info shows operating times, number of starts etc for the compressor in the heat pump.

add. heat info displays information about the additional heat's operating times etc.

alarm log shows the latest alarms.

indoor temp. log the average temperature indoors week by week during the past year.

MENU 3.1 - SERVICE INFO



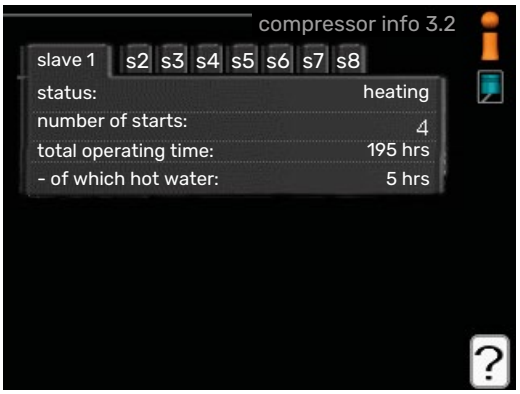
Information about the actual operating status of the installation (e.g. current temperatures etc.) can be obtained here. No changes can be made.
The information is on several pages. Turn the control knob to scroll between the pages.

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

This figure shows the number of compressors that are needed for the current demand.

Symbols in this menu:			
	Compressor		Heating
	Addition		Hot water
	Cooling		Pool
	Heating medium pump (orange)		Ventilation
	Additional heat in tank		Gas boiler
	Solar accessory		

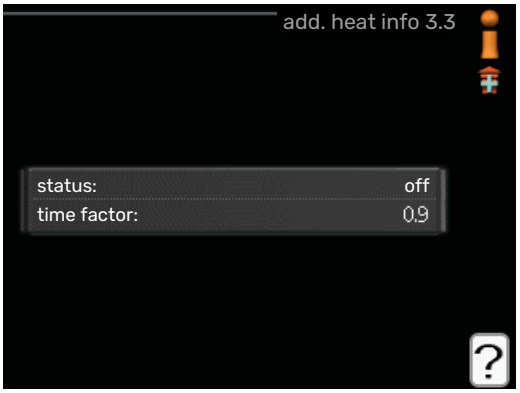
MENU 3.2 - COMPRESSOR INFO



Information about the compressor's operating status and statistics can be obtained here. No changes can be made.

The information is on several pages. Turn the control knob to scroll between the pages.

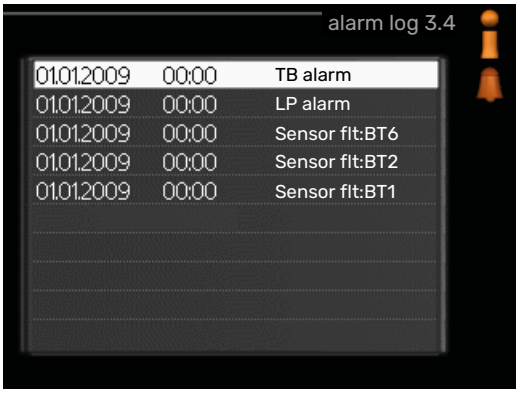
MENU 3.3 - ADD. HEAT INFO



Information about the additional heat's settings, operating status and statistics can be obtained here. No changes can be made.

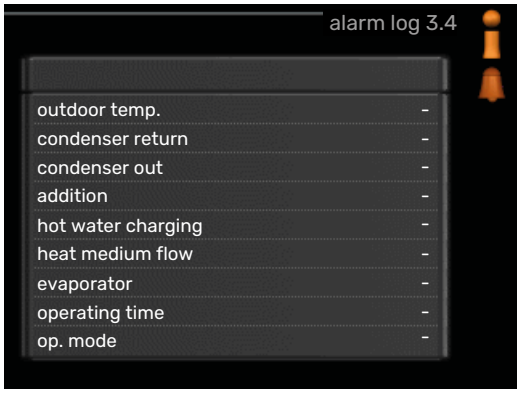
The information is on several pages. Turn the control knob to scroll between the pages.

MENU 3.4 - ALARM LOG



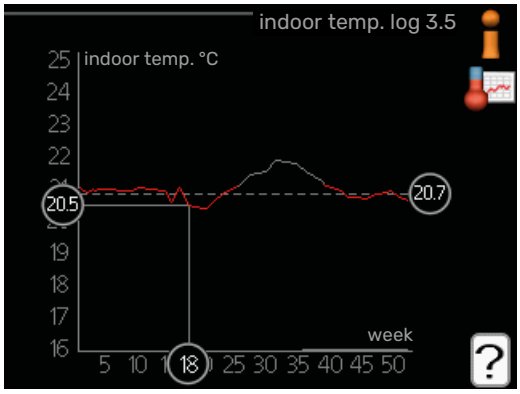
To facilitate troubleshooting, the installation's operating status at alarm alerts is stored here. You can see information for the 10 most recent alarms.

To view the run status in the event of an alarm, mark the alarm and press the OK button.



Information about an alarm.

MENU 3.5 - INDOOR TEMP. LOG



Here you can see the average temperature indoors week by week during the past year. The dotted line indicates the annual average temperature.

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

To read off an average temperature

1. Turn the control knob so that the ring on the shaft with the week number is marked.
2. Press the OK button.
3. Follow the grey line up to the graph and out to the left to read off the average indoor temperature at the selected week.
4. You can now select to take read outs for different weeks by turning the control knob to the right or left and read off the average temperature.
5. Press the OK or Back button to exit read off mode.

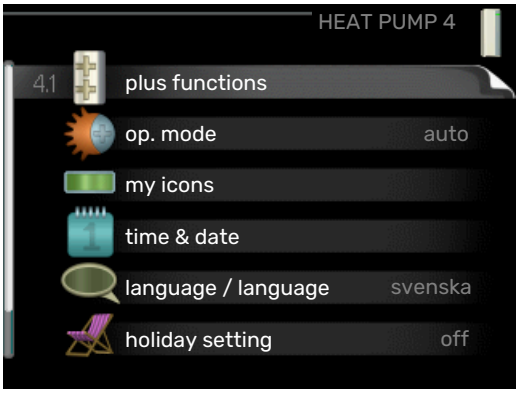
Menu 4 – HEAT PUMP

OVERVIEW

4 - MY SYSTEM	4.1 - plus functions	4.1.1 - pool *	
		4.1.3 - internet	4.1.3.1 - myUplink
			4.1.3.8 - tcp/ip settings
			4.1.3.9 - proxy settings
		4.1.5 - SG Ready	
		4.1.6 - smart price adaption™	
		4.1.7 - smart home	
		4.1.8 - smart energy source™	4.1.8.1 - settings
			4.1.8.2 - set. price
			4.1.8.3 - CO2 impact
			4.1.8.4 - tariff periods, electricity
			4.1.8.6 - tariff per, ext. shunt add
			4.1.8.7 - tariff per, ext. step add
			4.1.8.8 - tariff periods, OPT10*
			4.1.8.10 - tariff periods, gas boiler
		Menu 4.1.10 – solar electricity *	
	4.2 - op. mode		
	4.3 - my icons		
	4.4 - time & date		
	4.6 - language		
	4.7 - holiday setting		
	4.9 - advanced	4.9.1 - op. prioritisation	
		4.9.2 - auto mode setting	
		4.9.3 - degree minute setting	
		4.9.4 - factory setting user	
		4.9.5 - schedule blocking	
		4.9.6 - schedule silent mode	
		4.9.7 – tools	

* Accessory needed.

Sub-menus



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

plus functions Settings applying to any installed extra functions in the heating system.

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

my icons Settings regarding which icons in the heat pump's user interface that are to appear in the slot when the door is closed.

my icons Settings regarding which icons in the control module's user interface that are to appear on the hatch when the door is closed.

time & date Setting current time and date.

language Select the language for the display here. The status information shows the selected language.

holiday setting Vacation scheduling heating, hot water and ventilation. Status information "set" is displayed if you set a vacation schedule but it is not active at the moment, "active" is displayed if any part of the vacation schedule is active, otherwise it displays " off".

advanced Settings of control module work mode.

MENU 4.1 - PLUS FUNCTIONS

Settings for any additional functions installed in MHB 05 can be made in the sub menus.

MENU 4.1.1 - POOL (ACCESSORY IS REQUIRED)

start temp
Setting range: 5.0 - 80.0 °C

Default value: 22.0 °C

stop temperature
Setting range: 5.0 - 80.0 °C

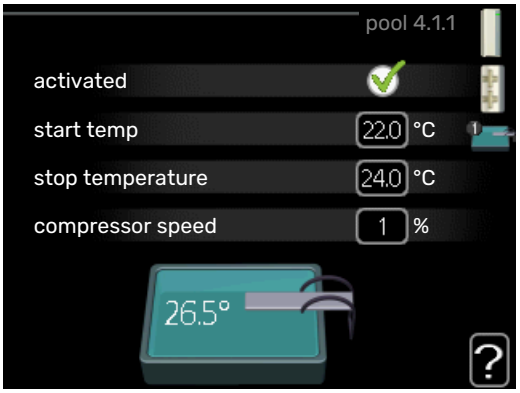
Default value: 24.0 °C

compressor speed
Setting range: 1 – 100 %

Factory setting: 1 %

maximum number of compr.
Setting range: 1 – 8

Factory setting: 8



Select whether the pool control is to be activated and within what temperatures (start and stop temperature) pool heating must occur.

Maximum number gives the possibility of restricting the number of compressors that are permitted to work with pool heating. The setting can be adjusted if requirements other than pool heating must be prioritised for example.

Here you can also set at what speed the compressor is to operate during pool heating. Set value corresponds to part of the available output.

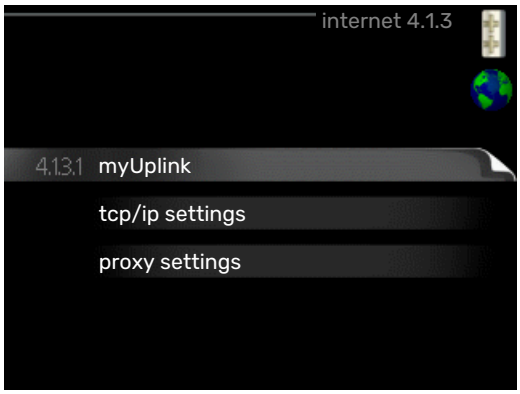
When the pool temperature drops below the set start temperature and there is no hot water or heating requirement, MHB 05 starts pool heating.

Untick "activated" to switch off the pool heating.

NOTE!

The start temperature cannot be set to a value that is higher than the stop temperature.

MENU 4.1.3 - INTERNET

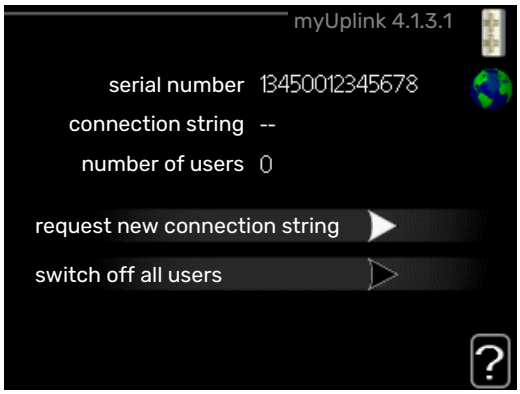


Here you make the settings for connecting MHB 05 via myUplink, which uses the Internet.

CAUTION!

For these functions to work the network cable must be connected.

MENU 4.1.3.1 - MYUPLINK



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

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

Request new connection string

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

1. Mark “request new connection string" and press the OK button.
2. The installation now communicates with myUplink to create a connection code.
3. When a connection string has been received, it is shown in this menu at "connection string" and is valid for 60 minutes.
4. Use the connection string and the product’s serial number to connect MHB 05 to your myUplink account.

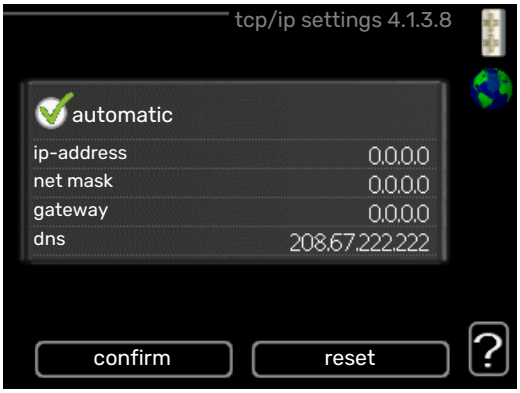
Disconnect all users

1. Mark “switch off all users" and press the OK button.

2. The installation now communicates with myUplink to release your installation from all users connected via the internet.

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

MENU 4.1.3.8 - TCP/IP SETTINGS



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

Automatic setting (DHCP)

1. Tick “automatic". The installation now receives the TCP/IP settings using DHCP.
2. Mark “confirm" and press the OK button.

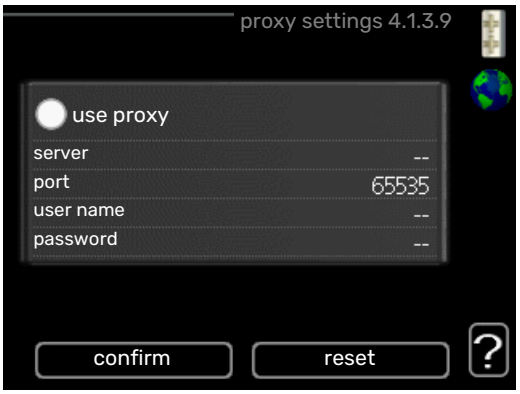
Manual setting

1. Untick "automatic", you now have access to several setting options.
2. Mark “ip-address" and press the OK button.
3. Enter the correct details via the virtual keypad.
4. Select "OK" and press the OK button.
5. Repeat 1 - 3 for "net mask", "gateway" and "dns".
6. Mark “confirm" and press the OK button.

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

> **TIP!**
>
> All settings made since opening the menu can be reset by marking "reset" and pressing the OK button.

MENU 4.1.3.9 - PROXY SETTINGS



You can set proxy settings for your installation here.

Proxy settings are used to give connection information to a intermediate server (proxy server) between the installation and Internet. These settings are primarily used when the installation connects to the Internet via a company network. The installation supports proxy authentication of the HTTP Basic and HTTP Digest type.

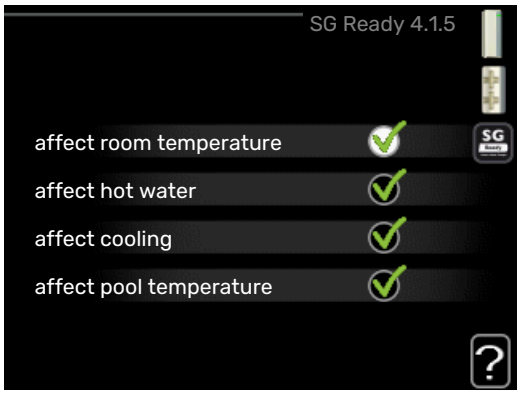
If unsure about applicable settings, contact your network administrator (or equivalent) for further information.

Setting

1. Tick “use proxy" if you do not want to use a proxy.
2. Mark “server" and press the OK button.
3. Enter the correct details via the virtual keypad.
4. Select "OK" and press the OK button.
5. Repeat 1 - 3 for "port", "user name" and "password".
6. Mark “confirm" and press the OK button.

> **TIP!**
>
> All settings made since opening the menu can be reset by marking "reset" and pressing the OK button.

MENU 4.1.5 - SG READY



This function can only be used in mains networks that support the "SG Ready"-standard .

Make settings for the function "SG Ready" here.

affect room temperature
Here you set whether room temperature should be affected when activating "SG Ready".

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

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

affect hot water
Here you set whether the temperature of the hot water should be affected when activating "SG Ready".

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).

With over capacity mode of "SG Ready" the hot water is set to "luxury" (immersion heater permitted).

affect cooling (accessory required)
Here you set whether room temperature during cooling operation should be affected when activating "SG Ready".

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

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

affect pool temperature (accessory is required)
Here you set whether pool temperature should be affected when activating "SG Ready".

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

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

> **CAUTION!**
>
> The function must be connected and activated in your MHB 05.

MENU 4.1.6 - SMART PRICE ADAPTION™

affect room temperature
Setting range: 1 - 10

Factory setting: 5

affect hot water
Setting range: 1 - 4

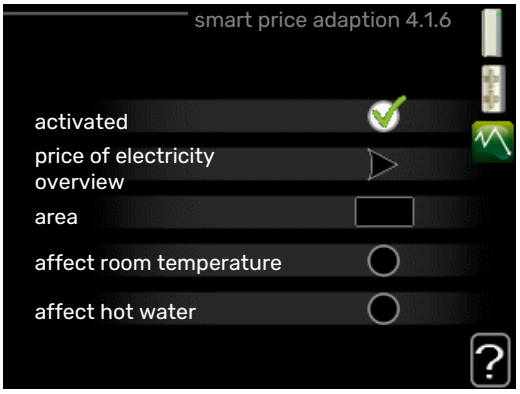
Factory setting: 2

affect pool temperature
Setting range: 1 - 10

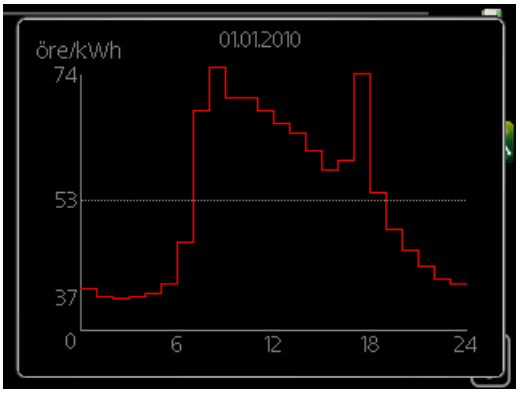
Factory setting: 2

affect cooling
Setting range: 1 - 10

Factory setting: 3



area
In this menu you state where the heat pump is located and how great a role the electricity price should play. The greater the value, the greater the effect the electricity price has and the possible savings are larger, but at the same time there is an increased risk of affecting comfort.

price of electricity overview


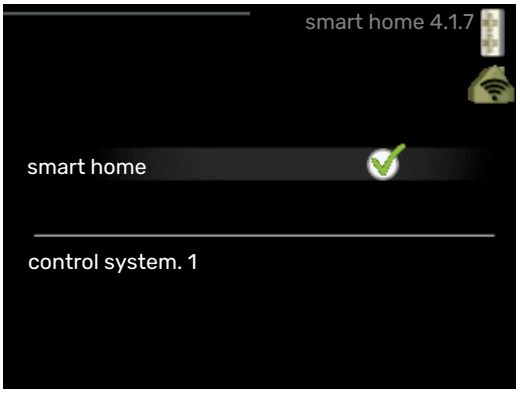
Here you can obtain information on how the electricity price varies over up to three days.

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

Deselect "activated" to switch off Smart price adaption™.

Smart price adaption™ and smart energy source™ cannot be activated at the same time.

MENU 4.1.7 - SMART HOME (ACCESSORY IS REQUIRED)



When you have a smart home system that can speak to myUplink, by activating the smart home function in this menu you can control the MHB 05 via an app.

By allowing connected units to communicate with myUplink, your heating system becomes a natural part of your homesmart home and gives you the opportunity to optimise the operation.

> **NOTE!**
>
> The smart home function requires myUplink in order to work.

MENU 4.1.8 - SMART ENERGY SOURCE™

settings

set. price

*CO2 impact**

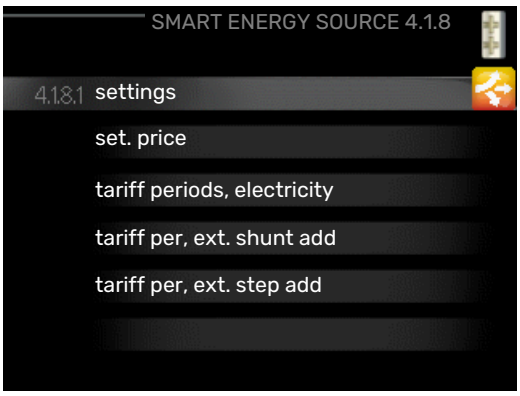
tariff periods, electricity

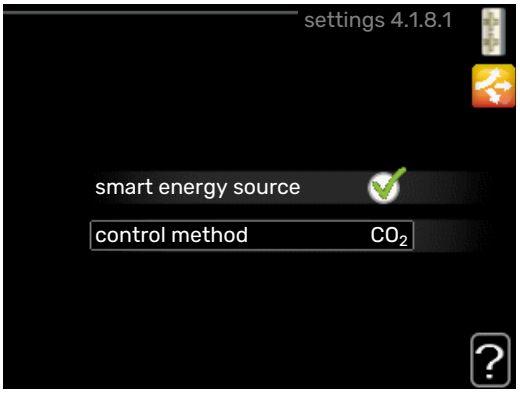
tariff per, ext. shunt add

tariff per, ext. step add

tariff periods, OPT10

tariff periods, gas boiler



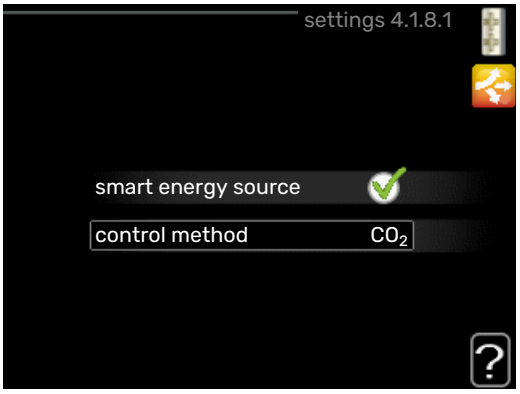


The function prioritises how / to what extent each docked energy source will be used. Here you can choose if the system is to use the energy source that is cheapest at the time. You can also choose if the system is to use the energy source that is most carbon neutral at the time.

and smart energy source™ cannot be combined with Smart price adaption™ and SG Ready.

*Select control method "CO_2" under settings to open this menu.

MENU 4.1.8.1 - SETTINGS



smart energy source™

Setting range: Off/On

Factory setting: Off

control method

Setting range: Price / CO_2

Factory setting: Price

MENU 4.1.8.2 - SET. PRICE

price, electricity

Setting range: spot, tariff, fixed price

Factory setting: fixed price

Setting range fixed price: 0–100,000*

price, extern shunt add.
Setting range: tariff, fixed price

Factory setting: fixed price

Setting range fixed price: 0–100,000*

price, extern step add.
Setting range: tariff, fixed price

Factory setting: fixed price

Setting range fixed price: 0–100,000*

price, gas boiler
Setting range: tariff, fixed price

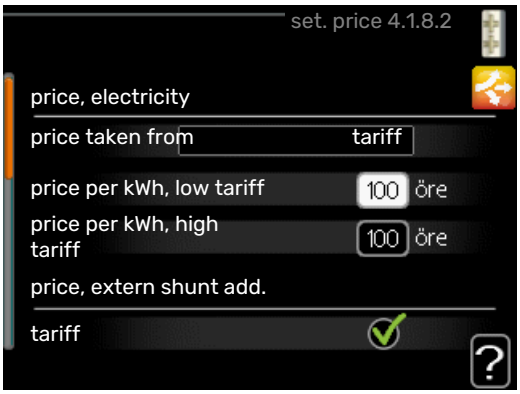
Factory setting: fixed price

Setting range fixed price: 0–100,000*

price, OPT addition.
Setting range: tariff, fixed price

Factory setting: fixed price

Setting range fixed price: 0–100,000*



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.

If gas is used as the energy source, the energy value needs to be recalculated so that it describes the system's cost per kWh during gas operation. The following information is required to perform the calculation: The gas's energy value (kWh/m³), the gas boiler's efficiency (%) and the cost of the gas (cost/m³).

Perform the following calculations:

The gas's energy value (kWh/m³) x the gas boiler's efficiency (%) = Energy value for gas operation in the system (kWh/m³)

Cost for 1 m³ gas / Energy value for gas operation in the system (kW/m³) = System's cost per kWh during gas operation

*The currency varies depending on the country selected.

MENU 4.1.8.3 - CO2 IMPACT

CO2, electricity

Setting range: 0–5

Default value: 2.5

CO2, ext. shunted contr. add.

Setting range: 0–5

Default value: 1

CO2, ext. step contr. add.

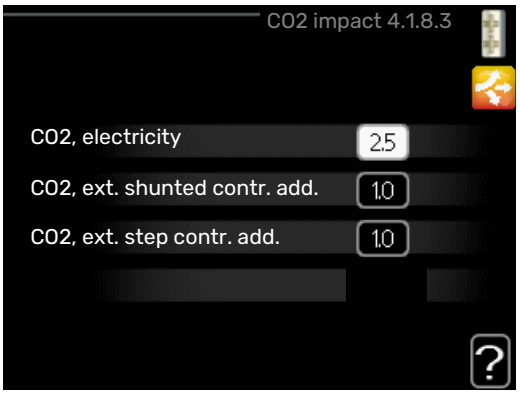
Setting range: 0–5

Default value: 1

CO2, OPT10 contr. addition

Setting range: 0–5

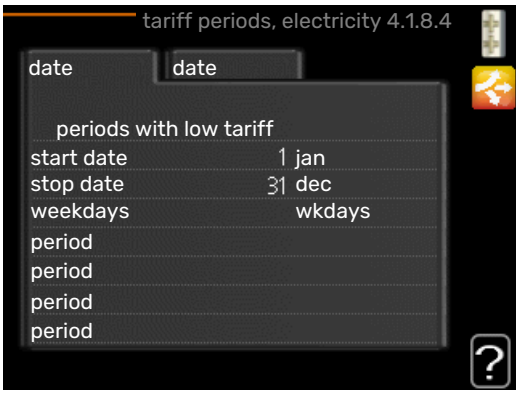
Default value: 1



Here, you set the size of the carbon footprint for each energy source.

The carbon footprint is different for different energy sources. For example, the energy from solar cells and wind turbines can be considered carbon dioxide neutral and, therefore, has a low CO_2 impact. Energy from fossil fuels can be considered to have a higher carbon footprint and, therefore, has a higher CO_2 impact.

MENU 4.1.8.4 - TARIFF PERIODS, ELECTRICITY



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 4.1.8.6 - TARIFF PER, EXT. SHUNT ADD

Here you can use tariff control for the external shunted 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 4.1.8.7 - TARIFF PER, EXT. STEP ADD

Here you can use tariff control for the external step controlled additional heat.

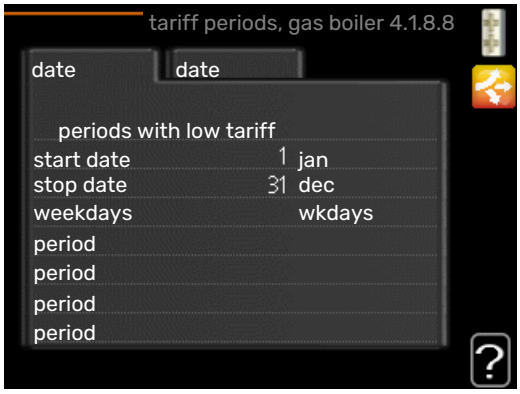
Set the lower tariff periods. It is possible to set two different date periods per year. Within these periods, it is possible to set up to four different periods on weekdays (Monday to Friday) or four different periods on weekends (Saturdays and Sundays).

MENU 4.1.8.8 - TARIFF PERIODS, OPT10

Here you can use tariff control for the OPT 10 controlled 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 4.1.8.10 - TARIFF PERIODS, GAS BOILER



Here, you can use tariff control for your gas additional heating.

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 4.1.10 - MENU 4.1.10 - SOLAR ELECTRICITY (ACCESSORY REQUIRED)

affect room temperature
Setting range: on/off

Default values: off

affect hot water
Setting range: on/off

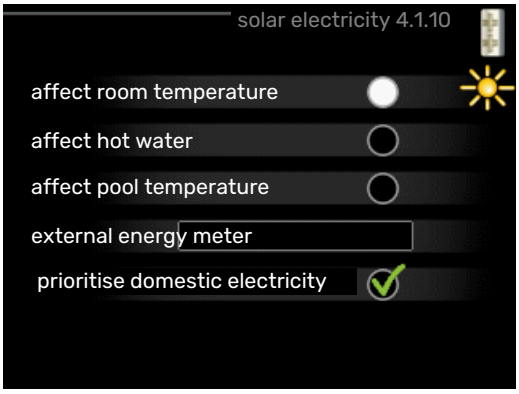
Default values: off

affect pool temperature[1]
Setting range: on/off

Default values: off

prioritise domestic electricity
Setting range: on/off

Default values: off



This is where you set which part of your installation (room temperature, hot water temperature, pool temperature) is to benefit from the solar electricity surplus.

When the solar panels produce more electricity than MHB 05 requires, the temperature in the property is adjusted and/or the temperature of the hot water is increased.

EME
In this menu you can also make settings that are specific for your EME.

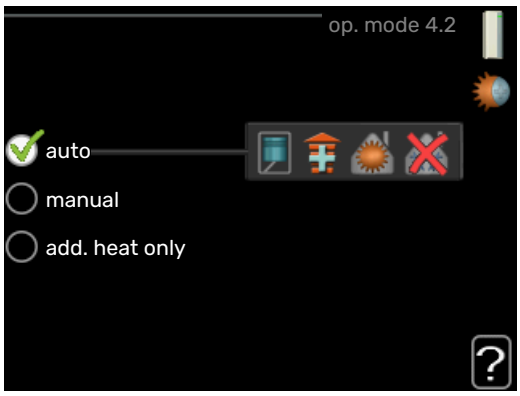
For EME 20, you can select whether you want domestic electricity to be prioritised ahead of room temperature and hot water, provided that an external energy meter is connected to MHB 05.

MENU 4.2 - OP. MODE

op. mode
Setting range: auto, manual, add. heat only

Default value: auto

functions
Setting range: compressor, addition, heating, cooling



The control module operating mode is usually set to "auto". It is also possible to set the control module to "add. heat only", when only additional heat is used, or "manual" and then select what functions are to be permitted.

Change the operating mode by marking the desired mode and pressing the OK button. When an operating mode is selected it shows what in the control module is permitted (crossed out = not permitted) and selectable alternatives to the right. To select selectable functions that are permitted or not, mark the function using the control knob and press the OK button.

Operating mode auto
In this operating mode the control module automatically selects what functions are permitted.

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

Operating mode add. heat only
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.

NOTE!

You cannot change from only additional heat if you do not have a heat pump connected.

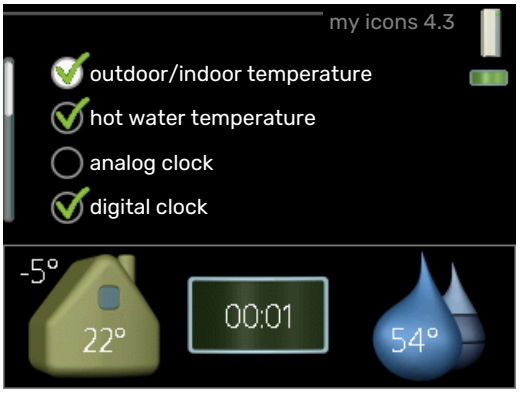
Functions
"compressor" is the unit that produces heating and hot water for the home. If "compressor" is deselected in auto mode, this is displayed with a symbol in the main menu. You cannot deselect "compressor" in manual mode.

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

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

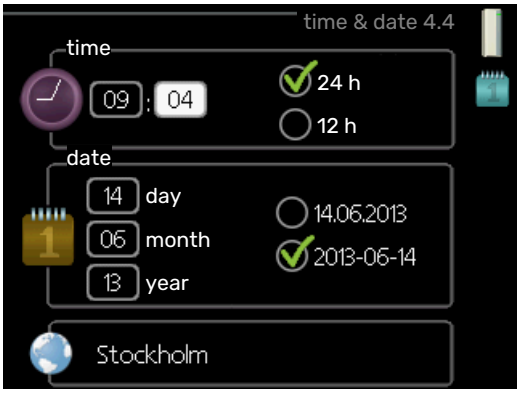
"cooling" means that you obtain cooling in the home in hot weather. This alternative requires an accessory for cooling, or for the air/water heat pump to have a built-in function for cooling, and is activated in the menu. You can deselect this function when you do not wish to have cooling in operation.

MENU 4.3 - MY ICONS



You can select what icons should be visible when the door to MHB 05 is closed. You can select up to 3 icons. If you select more, the ones you selected first will disappear. The icons are displayed in the order you selected them.

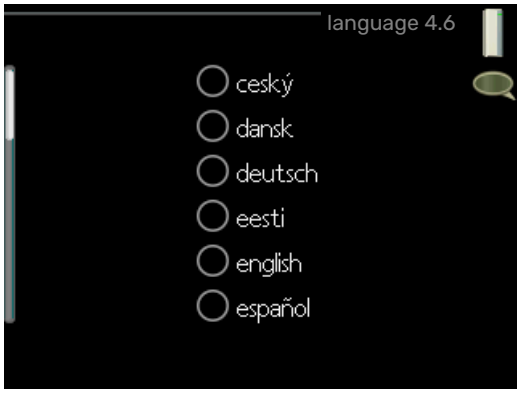
MENU 4.4 - TIME & DATE



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

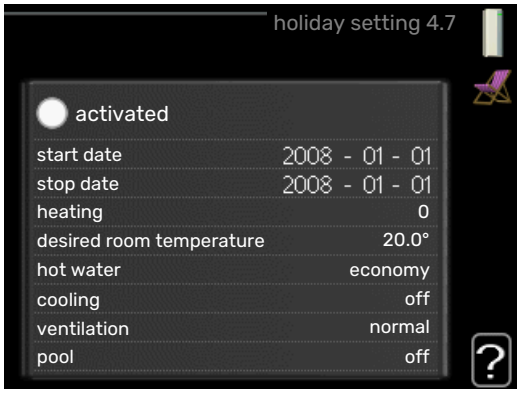
> **TIP!**
>
> Time and date are set automatically if the heat pump is connected to myUplink. To obtain the correct time, the time zone must be set.

MENU 4.6 - LANGUAGE



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

MENU 4.7 - HOLIDAY SETTING



To reduce energy consumption during a holiday you can schedule a reduction in heating and hot water temperature. Cooling, ventilation, pool and solar panel cooling can also be scheduled if the functions are connected.

If a room sensor is installed and activated, the desired room temperature (°C) is set during the time period. This setting applies to all climate systems with room sensors.

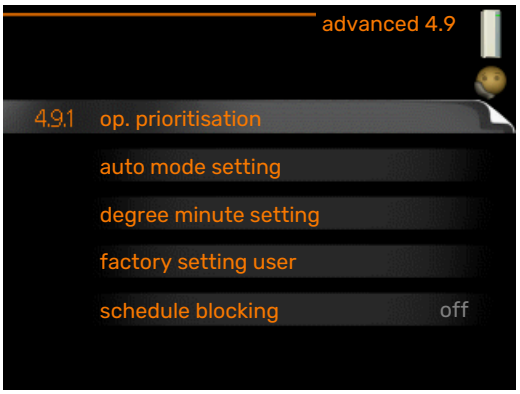
If a room sensor is not activated, the desired offset of the heating curve is set. One step is usually enough to change the room temperature by one degree, but in some cases several steps may be required. This setting applies to all climate systems without room sensors.

The vacation scheduling starts at 00:00 on the start date and stops at 23:59 on the stop date.

> **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.

> **TIP!**
>
> Set the vacation setting in advance and activate just before departure in order to maintain the comfort.

MENU 4.9 - ADVANCED

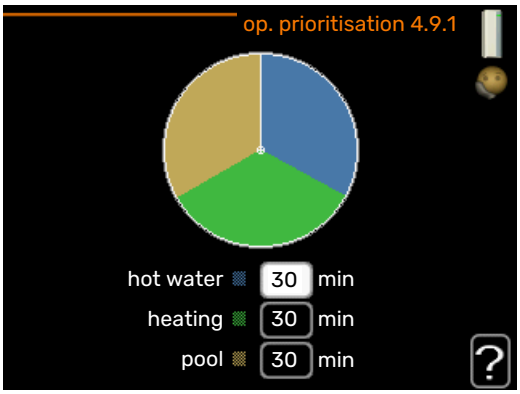


Menu advanced has orange text and is intended for the advanced user. This menu has several sub-menus.

MENU 4.9.1 - OP. PRIORITISATION

op. prioritisation
Setting range: 0 to 180 min

Default value: 30 min



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

The indicator marks where in the cycle the heat pump is.

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

MENU 4.9.2 - AUTO MODE SETTING

start cooling
Setting range: -20 – 40 °C

Factory setting: 25

stop heating
Setting range: -20 – 40 °C

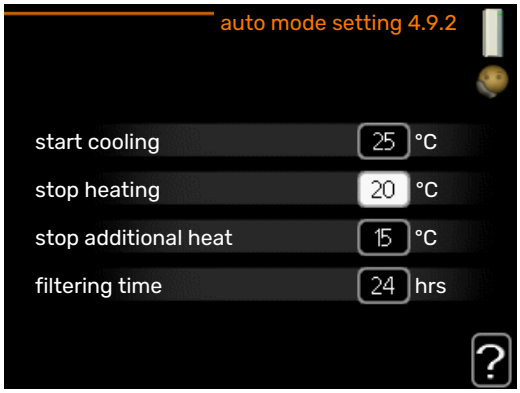
Default values: 17

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

Factory setting: 5

filtering time
Setting range: 0 – 48 h

Default value: 24 h



When the operating mode is set to "auto", the control module selects when start and stop of additional heat and heat production is permitted, depending on the average outdoor temperature. If the heat pump has the integrated cooling function and it is activated in the menu you can also select the start temperature for cooling.

Select the average outdoor temperatures in this menu.

NOTE!

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

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

MENU 4.9.3 - DEGREE MINUTE SETTING

current value
Setting range: -3000 – 3000

start compressor
Setting range: -1000 – -30

Default value: -60

start diff additional heat
Setting range: 100 – 2000

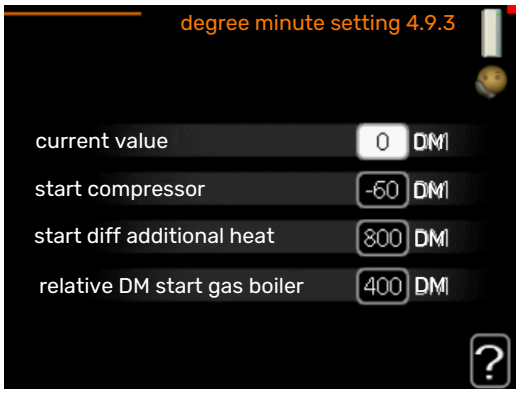
Factory setting: 800

diff. between additional steps
Setting range: 10 – 1000

Factory setting: 30

relative DM start gas boiler
Setting range: 100 – 2000

Factory setting: 400

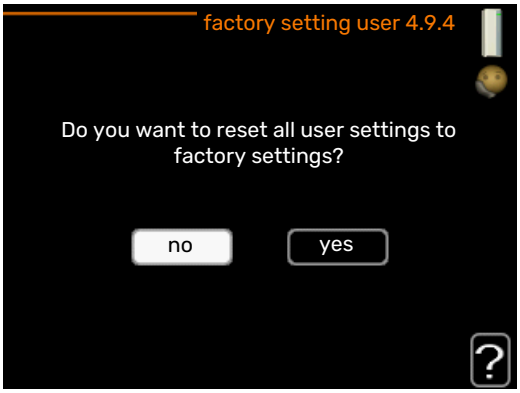


Degree minutes are a measurement of the current heating requirement in the house and determine when the compressor respectively additional heat will start/stop.

NOTE!

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

MENU 4.9.4 - FACTORY SETTING USER

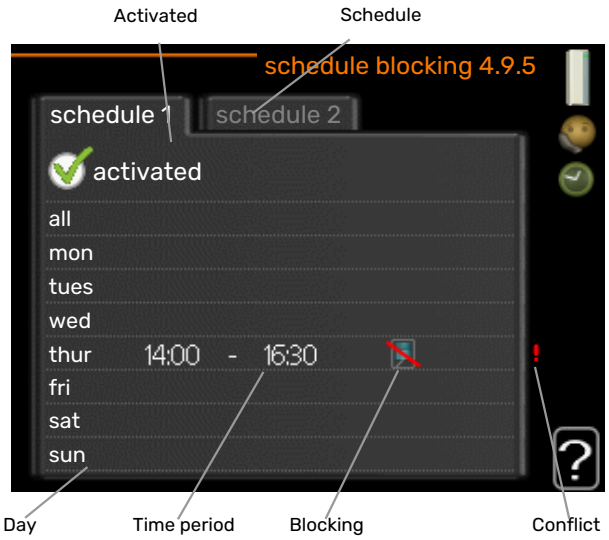


All settings that are available to the user (including advanced menus) can be reset to default values here.

NOTE!

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

MENU 4.9.5 - SCHEDULE BLOCKING



The additional heat can be scheduled to be blocked for up to two different time periods here.

When scheduling is active the relevant blocking symbol is shown in the main menu on the symbol for the control module.

Schedule: The period to be changed is selected here.

Activated: Scheduling for the selected period is activated here. Set times are not affected at deactivation.

Day: Select which day or days of the week the scheduling is to apply to here. To remove the scheduling for a particular day, the time for that day must be reset by setting the start time to the same as the stop time. If the row "all" is used, all days in the period are set according to that row.

Time period: The start and stop time for the selected day for scheduling are selected here.

Blocking: The desired blocking is selected here.

Conflict: If two settings conflict with each other, a red exclamation mark is displayed.

Blocking the compressor in the outdoor module.

Blocking additional heat.

TIP!

If you wish to set similar scheduling for every day of the week start by filling in “all” and then changing the desired days.

TIP!

Set the stop time earlier than the start time so that the period extends beyond midnight. Scheduling then stops at the set stop time the day after.

Scheduling always starts on the date that the start time is set for.

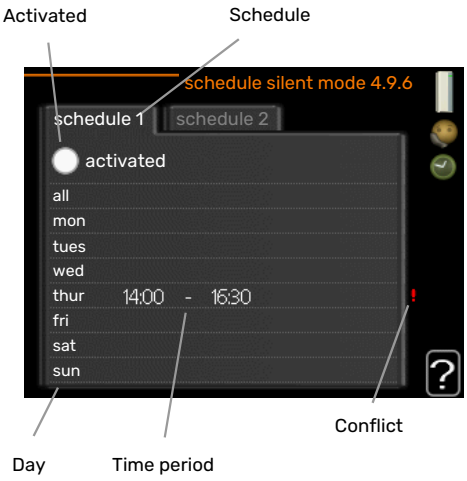
NOTE!

Long term blocking can cause reduced comfort and operating economy.

MENU 4.9.6 - SCHEDULE SILENT MODE

Here you can schedule whether the heat pump is to be set to "quiet mode" (the heat pump must support this) for up to two different time periods and two different max. frequencies. In this way, you can reduce the sound during the day and also reduce it further at night.

When scheduling is active the "quiet mode" symbol is shown in the main menu on the symbol for the control module.



Schedule: The period to be changed is selected here.

Activated: Scheduling for the selected period is activated here. Set times are not affected at deactivation.

Day: Select which day or days of the week the scheduling is to apply to here. To remove the scheduling for a particular day, the time for that day must be reset by setting the start time to the same as the stop time. If the row "all" is used, all days in the period are set according to that row.

Time period: The start and stop time for the selected day for scheduling are selected here.

Conflict: If two settings conflict with each other, a red exclamation mark is displayed.

TIP!

If you wish to set similar scheduling for every day of the week start by filling in “all” and then changing the desired days.

TIP!

Set the stop time earlier than the start time so that the period extends beyond midnight. Scheduling then stops at the set stop time the day after.

Scheduling always starts on the date that the start time is set for.

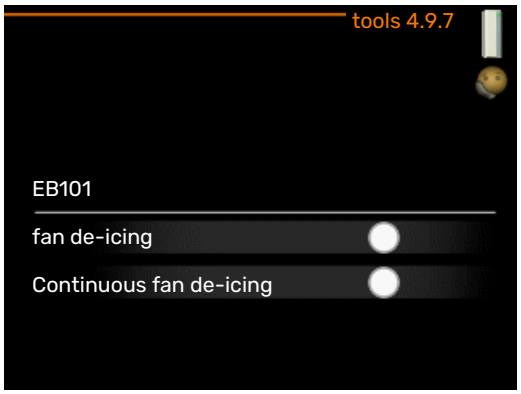
NOTE!

Long term scheduling of "quiet mode" can cause reduced comfort and operating economy.

MENU 4.9.7 - TOOLS

Fan de-icing
Setting range: off/on

Continuous fan de-icing
Setting range: off/on



This function ensures that any ice on the fan or fan grille is removed.

Fan de-icing: Here, you set whether the "fan de-icing" function will be activated during the next "active defrosting". This can be activated if ice/snow sticks to the fan, grille or fan cone, which may be noticed due to abnormal fan noise from the outdoor unit.

"Fan de-icing" means that the fan, grille and fan cone are heated using hot air from the evaporator (EP1).

Continuous fan de-icing: There is the option to set recurring de-icing. In this case, every tenth defrosting will be "Fan de-icing". (This can increase annual energy consumption.)

Menu 5 - SERVICE

OVERVIEW

5 - SERVICE	5.1 - operating settings	5.1.1 - hot water settings *	
		5.1.2 - max flow line temperature	
		5.1.3 - max diff flow line temp.	
		5.1.4 - alarm actions	
		5.1.5 - fan sp. exhaust air *	
		5.1.6 – fan sp. supply air*	
		5.1.12 - addition	
		5.1.14 - flow set. climate system	
		5.1.22 - heat pump testing	
		5.1.23 - compressor curve	
		5.1.25 - time filter alarm*	
	5.2 - system settings	5.2.2 - installed heat pump	
		5.2.4 - accessories	
	5.3 - accessory settings	5.3.2 - shunt controlled add. heat *	
		5.3.3 - extra climate system *	
		5.3.6 - step controlled add. heat	
		5.3.8 - hot water comfort *	
		5.3.11 - modbus *	
		5.3.12 - exhaust/supply air module *	
		5.3.14 - F135 *	
		5.3.16 - humidity sensor *	
		5.3.21 - flow sensor / energy meter*	
	5.4 - soft in/outputs		
	5.5 - factory setting service		
	5.6 - forced control		
	5.7 - start guide		
	5.8 - quick start		
	5.9 - floor drying function		
	5.10 - change log		
	5.11 - slave settings	5.11.1 - EB101	5.11.1.1 - heat pump
			5.11.1.2 - charge pump (GP12)
	5.12 - country		

* Accessory needed.

Go to the main menu and hold the Back button in for 7 seconds to access the Service menu.

Sub-menus

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

operating settings Operating settings for the control module.

system settings System settings for the control module, activating accessories etc.

accessory settings Operational settings for different accessories.

soft in/outputs Setting software-controlled in and outputs on the input board (AA3) and terminal block (X2).

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

forced control Forced control of the different components in the indoor module.

start guide Manual start of the start guide which is run the first time when the control module is started.

quick start Quick starting the compressor.

> **CAUTION!**
>
> Incorrect settings in the service menus can damage the installation.

MENU 5.1 - OPERATING SETTINGS

Operating settings can be made for the control module in the sub menus.

MENU 5.1.1 - HOT WATER SETTINGS

> **CAUTION!**
> The factory set tap water temperatures specified in the manual can vary due to the directives in force in different countries. From this menu, you can check the relevant settings for the system.

The hot water settings require that hot water production is activated in menu 5.2.4 accessories.

economy
Setting range start temp. economy: 5 – 55 °C

Factory setting start temp. economy: 42 °C

Setting range stop temp. economy: 5 – 60 °C

Factory setting stop temp. economy: 48 °C

normal
Setting range start temp. normal: 5 – 60 °C

Factory setting start temp. normal: 46 °C

Setting range stop temp. normal: 5 – 65 °C

Factory setting stop temp. normal: 50 °C

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

Factory setting start temp. lux: 49 °C

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

Factory setting stop temp. lux: 53 °C

stop temp. per. increase
Setting range: 55 – 70 °C

Factory setting: 55 °C

step difference compressors
Setting range: 0.5 – 4.0 °C

Factory setting: 1.0 °C

charge method
Setting range: target temp, delta temp

Default value: delta temp

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

The charge method for hot water operation is selected here. “delta temp” is recommended for heaters with charge coil, “target temp” for double-jacketed heaters and heaters with hot water coil.

MENU 5.1.2 - MAX FLOW LINE TEMPERATURE

climate system
Setting range: 5-80 °C

Default value: 60 °C

Here, you set the maximum supply temperature for the climate system. If the installation has more than one climate system, individual maximum supply temperatures can be set for each system. Climate system 2 - 8 cannot be set to a higher max supply temperature than climate system 1.

> **NOTE!**
> For underfloor heating systems, max flow line temperature should normally be set to between 35 and 45°C.
>
> Check the max temperature for your floor with your installer.

MENU 5.1.3 - MAX DIFF FLOW LINE TEMP.

max diff compressor
Setting range: 1 – 25 °C

Default value: 10 °C

max diff addition
Setting range: 1 – 24 °C

Default value: 7 °C

max diff. gas boiler
Setting range: on/off

max diff. gas boiler
Setting range: 1 - 25 °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 diff. additional heat can never exceed max diff. compressor

max diff compressor
If the current supply temperature *exceeds* the calculated supply by set value, the degree minute value is set to +2. The compressor in the heat pump stops if there is only a heating demand.

max diff addition
If “addition” is selected and activated in menu 4.2 and the current supply temperature *exceeds* the calculated temperature by the set value, the additional heat is forced to stop.

MENU 5.1.4 - ALARM ACTIONS

Select how you want the control module to alert you that there is an alarm in the display here. The different alternatives are; the heat pump stops producing hot water and/or reduces the room temperature.

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

MENU 5.1.5 - FAN SP. EXHAUST AIR (ACCESSORY IS REQUIRED)

normal and speed 1-4
Setting range: 0 – 100 %

Set the speed for the five different selectable speeds for the fan here.

NOTE!

An incorrectly set ventilation flow can damage the house and may also increase energy consumption.

MENU 5.1.6 - FAN SP. SUPPLY AIR (ACCESSORY REQUIRED)

normal and speed 1-4
Setting range: 0 – 100 %

Set the speed for the five different selectable speeds for the fan here.

NOTE!

An incorrectly set value may damage the house in the long term and possibly increase energy consumption.

MENU 5.1.12 - ADDITION

fuse size
Setting range: 1 - 400 A

Factory setting: 16 A

set max electrical add.
Setting range: 0 - 3 kW

Factory setting: 1,5 kW

transformation ratio
Setting range: 300 - 2500

Factory setting: 300

gas boiler
Setting range: on/off

Default values: off

gas boiler only, pump spd.
Setting range: Manual / auto

Factory setting: auto

manual speed
Setting range: 0 - 100%

activ. min. time start to start
Setting range: on/off

min. time start to start
Setting range: 1 - 60 min

Factory setting: 10 min

detect phase order
Starts phase detection.

Settings for additional heating are made in this menu. ACTIVATE "gas boiler" to display more setting options.

detect phase order: Here, you check which current sensor is installed on which incoming phase to the property (this only applies if you have current sensors installed, see Installer Manual). Check by selecting "detect phase order" and pressing the OK button.

TIP!

Search again if the phase detection fails. The detection process is very sensitive and is easily affected by other appliances in the accommodation.

MENU 5.1.14 - FLOW SET. CLIMATE SYSTEM

presettings
Setting range: radiator, floor heat., rad. + floor heat., DOT °C

Default value: radiator

Setting range DOT: -40.0 – 20.0 °C

The factory setting of DOT value depends on the country that has been given for the product's location. The example below refers to Sweden.

Factory setting DOT: -20.0 °C

own setting
Setting range dT at DOT: 0.0 – 25.0

Factory setting dT at DOT: 10.0

Setting range DOT: -40.0 – 20.0 °C

Factory setting DOT: -20.0 °C

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

dT at DOT is the difference in degrees between flow and return temperatures at dimensioned outdoor temperature.

MENU 5.1.22 - HEAT PUMP TESTING

CAUTION!
This menu is intended for testing MHB 05 according to different standards.

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

This menu contains several sub-menus, one for each standard.

MENU 5.1.23 - COMPRESSOR CURVE

NOTE!
This menu is only displayed if MHB 05 is connected to a heat pump with inverter controlled compressor.

Set whether the compressor in the heat pump should work to a particular curve under specific requirements or if it should work to predefined curves.

You set a curve for a demand (heat, hot water etc.) by unticking "auto", turning the control knob until a temperature is marked and pressing OK. You can now set at what temperatures the max. and min. frequencies, respectively will occur.

This menu can consist of several windows (one for each available demand), use the navigation arrows in the top left corner to change between the windows.

MENU 5.1.25 - TIME FILTER ALARM

months btwn filter alarms
Setting range: 1 – 24

Factory setting: 3

Here you set the number of months between alarms for a reminder to clean the filter in a connected accessory.

MENU 5.2 - SYSTEM SETTINGS

Make different system settings for your installation here, e.g. activate the connected heat pump and which accessories are installed.

MENU 5.2.2 - INSTALLED HEAT PUMP

If an air/water heat pump is connected to the control module, you set it here.

MENU 5.2.4 - ACCESSORIES

Set which accessories are installed on the installation here.

If the water heater is connected to MHB 05 hot water charging must be activated here.

There are two ways of activating connected accessories. You can either mark the alternative in the list or use the automatic function "search installed acc.".

search installed acc.
Mark “search installed acc." and press the OK button to automatically find connected accessories for MHB 05.

MENU 5.3 - ACCESSORY SETTINGS

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

MENU 5.3.2 - SHUNT CONTROLLED ADD. HEAT

prioritised additional heat
Setting range: on/off

Factory setting: off

start diff additional heat
Setting range: 0 – 2000 DM

Default values: 400 DM

minimum running time
Setting range: 0 – 48 h

Default value: 12 h

min temp.
Setting range: 5 – 90 °C

Default value: 55 °C

mixing valve amplifier
Setting range: 0.1 –10.0

Default value: 1.0

mixing valve step delay
Setting range: 10 – 300 s

Default values: 30 s

Set when the addition is to start, the minimum run time and the minimum temperature for external addition with shunt here. External addition with shunt is for example a wood/oil/gas/pellet boiler.

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

Selecting "prioritised additional heat" uses the heat from the external additional heat instead of the heat pump. The shunt valve is regulated as long as heat is available, otherwise the shunt valve is closed.

TIP!

See the accessory installation instructions for function description.

MENU 5.3.3 - EXTRA CLIMATE SYSTEM

use in heating mode
Setting range: on/off

Factory setting: on

use in cooling mode
Setting range: on/off

Factory setting: off

mixing valve amplifier
Setting range: 0.1 – 10.0

Default value: 1.0

mixing valve step delay
Setting range: 10 – 300 s

Default values: 30 s

Contr. pump GP10
Setting range: on/off

Factory setting: off

Here, you select which climate system (2 - 8) you wish to set.

use in heating mode: If the heat pump is connected to a climate system(s) for cooling, any condensation can take place in this/these. Check that "use in heating mode" has been selected for the climate system(s) that is/are not adapted for cooling. This setting means that the sub-shunt for the extra climate system closes when cooling operation is activated.

use in cooling mode: Select "use in cooling mode" for climate systems that are adapted to handle cooling. For 2-pipe cooling you can select both "use in cooling mode" and "use in heating mode", while for 4-pipe cooling you can only select one option.

NOTE!

This setting option only appears if the heat pump is activated for cooling operation.

mixing valve amplifier, mixing valve step delay: Here, you set the shunt amplification and shunt waiting time for the various extra climate systems that are installed.

Contr. pump GP10: Here, you can set the speed of the circulation pump manually.

See the accessory installation instructions for function description.

MENU 5.3.6 - STEP CONTROLLED ADD. HEAT

start diff additional heat
Setting range: 0 – 2000 DM

Default values: 400 DM

diff. between additional steps
Setting range: 0 – 1000 DM

Default values: 30 DM

max step
Setting range
(binary stepping deactivated): 0 – 3

Setting range
(binary stepping activated): 0 – 7

Default value: 3

binary stepping
Setting range: on/off

Factory setting: off

Make settings for step controlled addition here. Step controlled addition is for example an external electric boiler.

It is possible, for example, to select when the additional heat is to start, to set the maximum number of permitted steps and whether binary stepping is to be used.

When binary stepping is deactivated (off), the settings refer to linear stepping.

See the accessory installation instructions for function description.

MENU 5.3.8 - HOT WATER COMFORT

activating imm heater
Setting range: on/off

Factory setting: off

activ. imm heat in heat mode
Setting range: on/off

Factory setting: off

activating the mixing valve
Setting range: on/off

Factory setting: off

outgoing hot water
Setting range: 40 - 65 °C

Default value: 55 °C

mixing valve amplifier
Setting range: 0.1 – 10.0

Default value: 1.0

mixing valve step delay
Setting range: 10 – 300 s

Default values: 30 s

Make settings for the hot water comfort here.

See the accessory installation instructions for function description.

activating imm heater: The immersion heater is activated here, if installed in the water heater.

activ. imm heat in heat mode: Activate here whether the immersion heater in the tank (requires the above alternative to be activated) is to be permitted to charge hot water, if the compressors in the heat pump are prioritising heating.

activating the mixing valve: Activated if mixer valve is installed and it is to be controlled from MHB 05. When the option is active, you can set the outgoing hot water temperature, shunt amplification and shunt waiting time for the mixer valve.

outgoing hot water: Here, you can set the temperature at which the mixer valve is to restrict hot water from the water heater.

MENU 5.3.11 - MODBUS

address
Factory setting: address 1

word swap
Factory setting: not activated

As from Modbus 40 version 10, the address can be set between 1 - 247. Earlier versions have a fixed address (address 1).

Here, you can select if you want to have "word swap" instead of the preset standard "big endian".

See the accessory installation instructions for function description.

MENY 5.3.12 - EXHAUST/SUPPLY AIR MODULE

months btwn filter alarms
Setting range: 1 – 24

Default value: 3

lowest extract air temp.
Setting range: 0 – 10 °C

Default value: 5 °C

bypass at excess temperature
Setting range: 2 – 10 °C

Default value: 4 °C

bypass during heating
Setting range: on/off

Factory setting: off

cut-out val. exh. air temp.
Setting range: 5 – 30 °C

Default value: 25 °C

product
Setting range: ERS S10, ERS 20/ERS 30

Factory setting: ERS 20 / ERS 30

action level monitor
Setting range: off, blocked, level monitor

Default value: level monitor

months btwn filter alarms: Set how often the filter alarm is to be displayed.

lowest extract air temp.: Set the minimum extract air temperature to prevent the build-up of ice on the heat exchanger. The supply air fan speed reduces, if the extract air temperature is lower than the set value.

bypass at excess temperature: If a room sensor is installed, you set the over-temperature at which the bypass damper will open here.

bypass during heating: Activate whether the bypass damper will also be allowed to open during heat production.

cut-out val. exh. air temp.: If no room sensor is installed, you set the exhaust air temperature at which the bypass damper will open here.

product: Here, you set which ERS model is installed.

action level monitor: If "level monitor" is selected, the product issues an alert and the fans stop when the input closes. If "blocked" is selected, text in operating info shows that the input is closed. The fans stop until the input is open.

TIP!

See the installation instructions for ERS and HTS for a function description.

MENU 5.3.14 - F135

charge pump speed
Setting range: 1 – 100 %

Factory setting: 70 %

hot water at cooling
Setting range: on/off

Factory setting: off

Here you can set the charge pump speed for F135. You can also choose whether you want to be able to charge hot water with F135 at the same time as the outdoor module produces cooling.

NOTE!

It is necessary for “active cooling 4 pipe” to be selected in either “accessories” or “soft in/outputs” to enable activation of “hot water during cooling”. The heat pump must also be activated for cooling operation.

MENU 5.3.16 - HUMIDITY SENSOR

climate system 1 HTS
Setting range: 1–4

Default value: 1

limit RH in the room, syst.
Setting range: on/off

Factory setting: off

prevent condensation, syst.
Setting range: on/off

Factory setting: off

limit RH in the room, syst.
Setting range: on/off

Factory setting: off

Up to four humidity sensors (HTS 40) can be installed.

Here you select whether your system(s) is/are to limit the relative humidity level (RH) during heating or cooling operation.

You can also choose to limit min. cooling supply and calculated cooling supply to prevent condensation on pipes and components in the cooling system.

See the Installer Manual for HTS 40 for function description.

MENU 5.3.21 - FLOW SENSOR / ENERGY METER

Flow sensor

set mode
Setting range: EMK150 / EMK300/310/05 / EMK500

Factory setting: EMK150

energy per pulse
Setting range: 0 – 10000 Wh

Factory setting: 1000 Wh

pulses per kWh
Setting range: 1 – 10000

Factory setting: 500

Energy meter

set mode
Setting range: energy per pulse / pulses per kWh

Default value: energy per pulse

energy per pulse
Setting range: 0 – 10000 Wh

Factory setting: 1000 Wh

pulses per kWh
Setting range: 1 – 10000

Factory setting: 500

Up to two flow sensors (EMK) / energy meters can be connected on the input board AA3, terminal block X22 and X23. Select these in menu 5.2.4 - accessories.

Flow sensor (Energy measurement kit EMK)

A flow sensor (EMK) is used to measure the amount of energy produced and supplied by the heating installation for hot water and heating in the building.

The function of the flow sensor is to measure flow and temperature differences in the charge circuit. The value is presented in the display on a compatible product.

Starting from software version 8801R2 , you can select the flow sensor (EMK) you have connected in the system.

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 MHB 05.

NOTE!

The software in MHB 05 must be software version 8801R2 or later. Visit myuplink.com and click on the "Software" tab to download the latest software to your installation.

Energy meter (Electricity meter)

The energy meter(s) is used to send pulse signals every time a certain amount of energy has been consumed.

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 MHB 05.

MENU 5.4 - SOFT IN/OUTPUTS

Here you can select which in/output on the input board (AA3) and the terminal block (X2) the external switch function will be connected to.

Selectable inputs on terminal blocks AUX 1-6 (AA3-X6:9-14 and X2:1-4) and output AA3-X7.

MENU 5.5 - FACTORY SETTING SERVICE

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

NOTE!

When resetting, the start guide is displayed the next time the control module is restarted.

MENU 5.6 - FORCED CONTROL

You can force control the different components in the control module and any connected accessories here.

MENU 5.7 - START GUIDE

When the control module is started for the first time the start guide starts automatically. Start it manually here.

MENU 5.8 - QUICK START

It is possible to start the compressor from here.

NOTE!

There must be a heating, cooling or hot water demand to start the compressor.

CAUTION!

Do not quick start the compressor too many times over a short period of time, as this could damage the compressor and its surrounding equipment.

MENU 5.9 - FLOOR DRYING FUNCTION

length of period 1 – 7

Setting range: 0 – 30 days

Factory setting, period 1 – 3, 5 – 7: 2 days

Factory setting, period 4: 3 days

temp. period 1 – 7

Setting range: 15 – 70 °C

Default value:

temp. period 1	20 °C
temp. period 2	30 °C
temp. period 3	40 °C
temp. period 4	45 C
temp. period 5	40 °C
temp. period 6	30 °C
temp. period 7	20 °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.

Mark the active window to activate the underfloor drying function. A counter at the bottom shows the number of days the function has been active.

TIP!

If operating mode "add. heat only" is to be used, select it in menu 4.2.

MENU 5.10 - CHANGE LOG

Read off any previous changes to the control system here.

The date, time, ID no. (unique to particular setting) and the new set value are shown for every change.

NOTE!

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

MENU 5.11 - HEAT PUMP SETTINGS

Settings for installed heat pump can be made in the submenus.

MENU 5.11.1 - EB101

Make settings specifically for the installed heat pump and charge pump here.

MENU 5.11.1.1 - HEAT PUMP

Make settings for the installed heat pump here. To see what settings you can make, see the installation manual for the heat pump.

MENU 5.11.1.2 - CHARGE PUMP (GP12)

op. mode
Heating/cooling

Setting range: auto / intermittent

Default value: intermittent

Set the operating mode for the charge pump here.

auto: The charge pump runs according to the current operating mode for MHB 05.

intermittent: The charge pump starts and stops 20 seconds before, and after, the compressor in the heat pump.

speed during operation
heating, hot water, pool, cooling

Setting range: auto / manual

Default value: auto

Manual setting

Setting range: 1–100 %

Default values: 70 %

min. allowed speed
Setting range: 1–100 %

Default values: 1 %

speed in wait mode
Setting range: 1–100 %

Default values: 30 %

max. allowed speed
Setting range: 80–100 %

Default values: 100 %

Set the speed at which the charge pump is to operate in the present operating mode. Select "auto" if the speed of the charge pump is to be regulated automatically (factory setting) for optimal operation.

If "auto" is activated for heating operation, you can also make the setting "min. allowed speed" and "max. allowed speed", which restricts the charge pump and prevents it from running at a lower or higher speed than the set value.

For manual operation of the charge pump, deactivate "auto" for the current operating mode and set the value to between 1 and 100% (the previously set value for "max. allowed speed" and "min. allowed speed" no longer applies).

Speed in wait mode (only used if "auto" has been selected for "Operating mode") means the charge pump operates at the set speed during the time when neither compressor operation nor additional heat are required.

5.12 - COUNTRY

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

Language settings can be made regardless of this selection.

NOTE!

This option locks after 24 hours, after restarting the display and during program updating.

11 Service

Service actions

CAUTION!

Servicing should only be carried out by persons with the necessary expertise.
When replacing components in the MHB 05, only original spare parts should be used.

Emergency mode

CAUTION!

Switch (SF1) must not be put into mode „⚠" before the installation is filled with water. The compressor in the heat pump can be damaged.

Emergency mode is used in event of operational interference and in conjunction with service. Hot water is not produced in emergency mode.

Emergency mode is activated by setting switch (SF1) in mode „ ⚠ ". This means that:

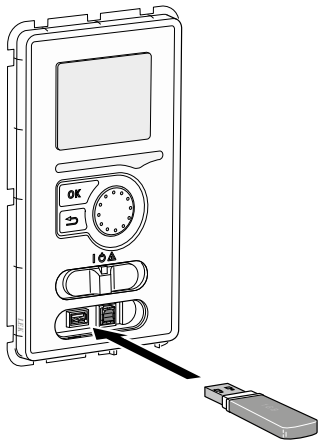
- The status lamp illuminates yellow.
- The display is not lit and the control computer is not connected.
- Hot water is not produced.
- The compressors are switched off. Charge pump (EB101-GP12) (if installed) is running.
- Accessories are switched off.
- The heating medium pump is activ.
- The emergency mode relay (K2) is active.
- Electric module available power - 1,5 kW or 3 kW.

External additional heat is active if it is connected to the emergency mode relay (K2, terminal block X1). Ensure that the heating medium circulates through the external additional heat.

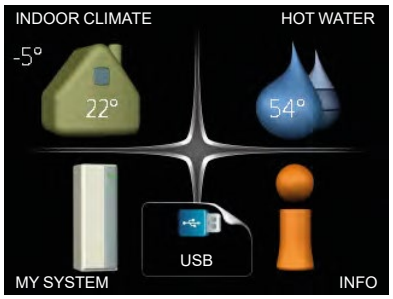
Temperature sensor data

Temperature (°C)	Resistance (kOm)	Voltage (VDC)
-40	351,0	3,256
-35	251,6	3,240
-30	182,5	3,218
-25	133,8	3,189
-20	99,22	3,150
-15	74,32	3,105
-10	56,20	3,047
-5	42,89	2,976
0	33,02	2,889
5	25,61	2,789
10	20,02	2,673
15	15,77	2,541
20	12,51	2,399
25	10,00	2,245
30	8,045	2,083
35	6,514	1,916
40	5,306	1,752
45	4,348	1,587
50	3,583	1,426
55	2,968	1,278
60	2,467	1,136
65	2,068	1,007
70	1,739	0,891
75	1,469	0,758
80	1,246	0,691
85	1,061	0,607
90	0,908	0,533
95	0,779	0,469
100	0,672	0,414

USB port



The display unit is equipped with a USB socket that can be used to update the software, save logged information and manage the settings in the controller.



When a USB memory is connected a new menu (menu 7) appears in the display

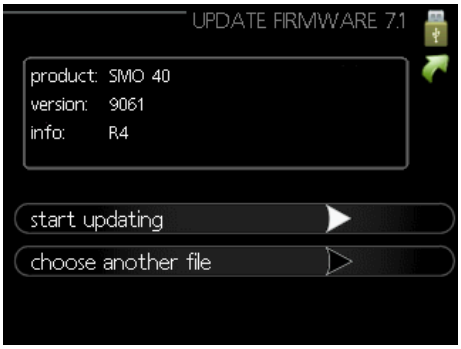
Menu 7.1 - update firmware

NOTE!

Software update can be pushed also by myUplink.

NOTE!

The most actual version of the software can be found on the website nibe.eu/myuplink'



This allows you to update the software in the controller.

CAUTION!

For the following functions to work the USB memory must contain files with software for the controller.

The fact box at the top of the display shows information (always in English) of the most probable update that the update software has selected form the USB memory. This information states which product the software is intended for, the software version and general information about them. If you wish to select another file than the one selected, the correct file can be selected by "choose another file".

start updating

Select "start updating" if you want to start the update. You are asked whether you really want to update the software. Respond "yes" to continue or "no" to undo.

If you responded"yes" to the previous question the update starts and you can now follow the progress of the update on the display. When the update is complete the controller restarts.

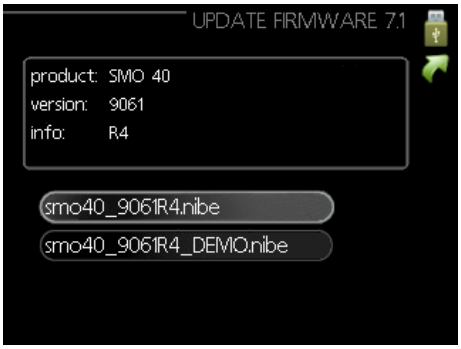
NOTE!

A software update does not reset the menu settings in the controller.

CAUTION!

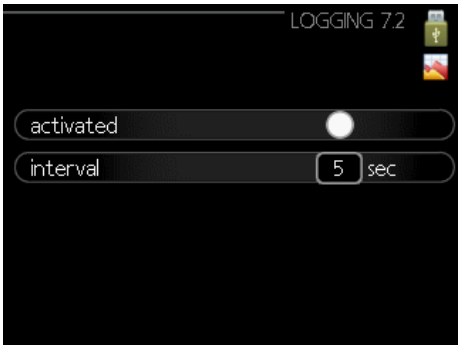
If the update is interrupted before it is complete (for example power cut etc.), the software can be reset to the previous version if the OK button is held in during start up until the green lamp starts to illuminate (takes about 10 seconds).

Choose another file



Select “choose another file" if you do not want to use the suggested software. When you scroll through the files, information about the marked software is shown in a fact box just as before. When you have selected a file with the OK button you will return to the previous page (menu 7.1) where you can choose to start the update.

Menu 7.2 - logging



Setting range: 1 s – 60 min
Factory setting range: 5 s

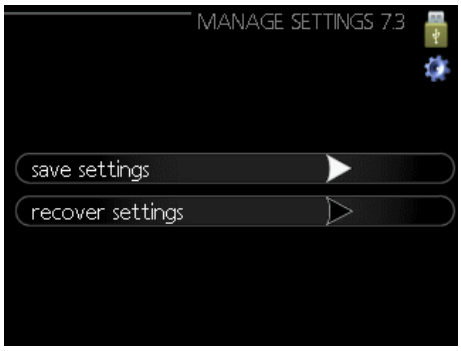
Here you can choose how current measurement values from the controller should be saved onto a log file on the USB memory.

1. Set the desired interval between loggings.
2. Tick “activated".
3. The present values from the controller are saved in a file in the USB memory at the set interval until “activated" is unticked.

NOTE!

Untick „activated” before removing the USB memory.

Menu 7.3 - manage settings



Here you can manage (save as or retrieve from) all the menu settings (user and service menus) in the controller with a USB memory.
Via "save settings" you save the menu settings to the USB memory in order to restore them later or to copy the settings to another controller.

NOTE!

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

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

CAUTION!

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

12 Disturbances in comfort

In most cases, the control module notes a malfunction and indicates this with alarms and shows instructions to rectify it in the display. See "Manage alarm" for information about managing alarms. If the malfunction does not appear in the display, or if the display is not lit, the following trouble-shooting guide can be used.

In the event of an alarm, some kind of malfunction has occurred, which is indicated by the status lamp changing from green continuously to red continuously. In addition, an alarm bell appears in the information window.

Alarm

In the event of an alarm with a red status lamp a malfunction has occurred that the heat pump and/or control module cannot remedy itself. In the display, by turning the control knob and pressing the OK button, you can see the type of alarm it is and reset it. You can also choose to set the installation to aid mode.

info / action Here you can read what the alarm means and receive tips on what you can do to correct the problem that caused the alarm.

reset alarm In many cases, it is sufficient to select “reset alarm” in order for the product to revert to normal operation. If a green light comes on after selecting “reset alarm”, the alarm has been remedied. If a red light is still visible and a menu called “alarm” is visible in the display, the problem that caused the alarm remains. If the alarm disappears and then returns, contact the installer.

reset alarm ”aid mode” is a type of emergency mode. This means that the installation produces heat and/or hot water despite there being some kind of problem. This can mean that the heat pump's compressor is not running. In this case any electrical addition produces heat and/or hot water

NOTE!

Selecting „aid mode” is not the same as correcting the problem that caused the alarm. The status lamp will therefore continue to be red.

If the alarm has not been reset, contact the installer for proper repair.

NOTE!

When reporting a fault, always enter the serial number of the product (14 digits).

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:
- The switch's position (SF1).
- The property’s earth circuit breaker.
- Group and main fuses of the accommodation.
- The control module's miniature circuit breaker (FC1).
- Correctly set load monitor (if installed).

Low hot water temperature or no hot water

This part of the fault-tracing chapter only applies if the water heater is installed in the system.
- Closed or choked filling valve for the hot water.
  – Open the valve.
- Mixing valve (if there is one installed) set too low.
  – Adjust the mixer valve.
- Control module in incorrect operating mode.
  – If mode "manual" is selected, select "addition".
- Large hot water consumption.
  – Wait until the hot water has heated up. Temporarily increased hot water capacity (temporary lux) can be activated in menu 2.1..
- Too low hot water setting.
  – Enter menu 2.2 and select a higher comfort mode
- Too low or no operating prioritisation of hot water.
  – Enter menu 4.9.1 and increase the time for when hot water is to be prioritised.

Low room temperature

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

menu 1.9.1 "heating curve" needs adjusting up.

- Too low or no operating prioritisation of heat.
  – Enter menu 4.9.1 and increase the time for when heating is to be prioritised.
- "Holiday mode" activated in menu 4.7.
  – Enter menu 4.7 and select "Off".
- External switch for changing the room heating activated.
  – Check any external switches.
- Air in the climate system.
  – Vent the climate system.
  – Open the valves (contact the installer to locate them).

High room temperature

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

The compressor does not start

- There is no heating requirement.
  – The controller does not call on heating or hot water.
- 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 30 minutes and then check if the compressor has started.
- Alarm tripped.
  – Follow the display instructions.

Error code 162

Error code 162 is displayed when only the gas boiler is working - no heat pump is active. This code is not a fault, only for information. The condenser limits are reached, but while the compressor is off, this doesn't affect the heat pump.

Not enough water in climate system

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

Additional heating only

If you are unsuccessful in rectifying the fault and are unable to heat the house, you can, while waiting for assistance, continue running the heat pump in "add. heat only". This means that additional heating only is
used to heat the house.

Set the installation to additional heat mode

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

NOTE!

When commissioning without NIBE air/water heat pump, the communication error alarm may appear in the display.
The alarm is reset if the relevant heat pump is deactivated in menu 5.2.2 („installed slaves").

13 Accessories

Extension kit VST 06

With the VST 06 accessory an external hot water tank can be connected to the MHB 05 in order to make this indoor unit all-electric and provide sanitary hot water. It can be mounted directly when installing the product or when the MHB 05 is modified from a hybrid unit with a gas boiler into and all-electric installation.
Part no. 067 943

Energy measurement kit EMK 05

With this accessory the MHB 05 can be equipped with a flow meter in order to measure the delivered energy to the installation. It measures the produced energy by the outdoor unit and immersion heater for the CH-system and the sanitary hot water tank. The EMK 05 can be installed inside the cabinet.
Part. no. 067 961

Current sensors kit CMS 10-050

The accessory CMS 10-050 contains 3 current sensors to measure the current of the 3 main power cables in the house. Settings in the MHB 05 controller can reduce the energy consumption of the immersion heater and outdoor unit in order to stay below the maximum fuse capacity in the house. This way of load balancing makes it possible to avoid a higher fuse rating in the house.
Part. no. 067 822

Room unit RMU 40

With the RMU 40 room unit the temperature in the room can be controlled, as well other settings like for sanitary hot water comfort (in case an external hot water tank is connected) and ventilation (in case an ERS heat recovery ventilation unit is connected).
Part no. 067 064

Buffer vessel UKV

The NIBE UKV accumulator tanks can be used to enlarge the content of the CH-installation to reach the necessary minimum CH-water volume.

UKV40	UKV 100
Part no. 088 470	Part no. 088 207
UKV 20-200	**UKV 200 Cooling**
Part no. 080 012	Part no. 080 321

HRV unit ERS

This accessory is used to supply the building with recovered energy from the ventilation air. The device ventilates the building and heats the supply air if necessary.

ERS S10-400	ERS 20-300
Part no. 066 163	Part no. 066 220

Communication module for solar electricity EME 20

EME 20 is used to enable communication and control between inverters for solar cells from NIBE and the MHB 05 (by Sunspec RS485 protocol)
Part no. 057 188

Exhaust air heat pump F135*

The F135 is an exhaust air heap pump specially designed to combine the recovery of mechanical exhaust air with an air/water heat pump. The MHB 05 controls the F135.
Part no. 066 075

Modbus communication module Modbus 40

MODBUS 40 enables the controller to be controlled and monitored using a BMS (building management system) in the building. Communication is then performed using MODBUS-RTU (RS 485)
Part no. 067 144

Extra shunt group ECS 40 / 41

This accessory is used when MHB 05 is installed in houses with two or more different heating systems that require different supply temperatures.

ECS 40 (max. 80m²)	ECS 41 (max. 250m²)
Part no. 067 287	Part no. 067 288

Accessory card AXC 40

The ACX 40 accessory can be used to make it able to add extra functions to the MHB 05.
Part no. 067 060

Humidity sensor HTS 40

This accessory is used to show and regulate humidity and temperature during both heating and cooling operation.
Part no. 067 538

Auxiliary relay HR 10

Auxiliary relay HR 10 is used to control external 1 to 3 phase loads such as oil burners, immersion heaters and pumps.
Part no. 067 309

ACS 310

ACS 310 is an accessory kit that makes it possible for the MHB 05 to control production of cooling (<18°C).
Part no. 067 248

Pool heating POOL 310 *

POOL 310 is an accessory that enables pool heating with MHB 05.
Part no. 067 247

External electric additional heat ELK **

ELK 9

Electric heater 9 kW
1x230V: 1,5 – 3 -4,5 kW
3x400V: 3 – 6 – 9 kW
Part no. 069 252

ELK 15

Electric heater 15 kW
3x400V: 5 – 10 – 15 kW
Part no. 069 022

BT71 sensor

Heating medium return temperature sensor.
Part no. 518 726

Hot water tanks

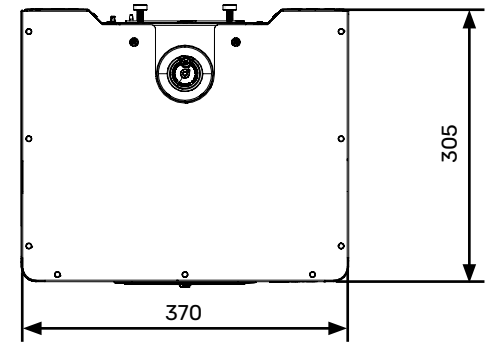
Please contact NIBE for the available and appropriate hot water tanks.

*The accessory requires that NIBE air/water heat pump is installed.
** An AXC accessory is necessary.

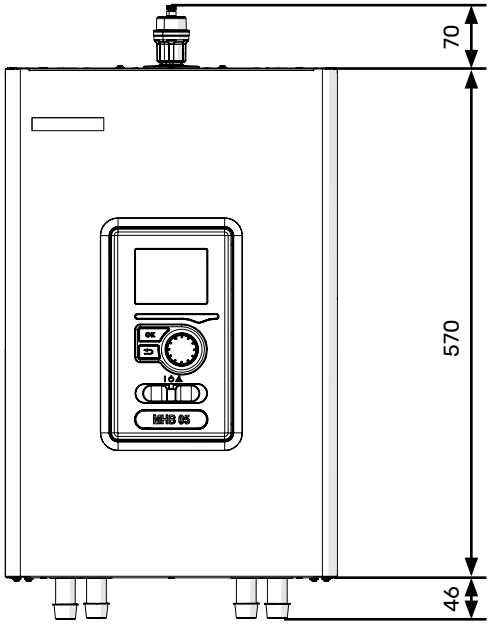
More accessories are available on the website https://www.nibe.eu

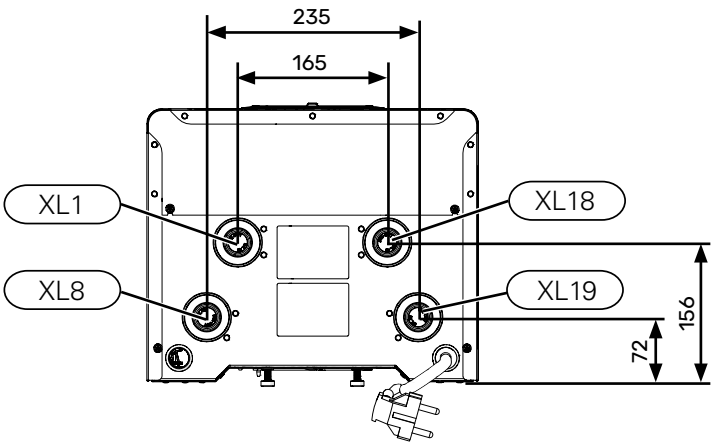
14 Technical data

Dimensions and layout of connections



Pipe connections	
XL1	Connection, heating medium, supply Ø22 mm (to central heating installation)
XL8	Connection, heating medium, return Ø22 mm (from heat pump)
XL18	Connection, heating medium, gas boiler output Ø22 mm
XL19	Connection, heating medium, to return gas boiler Ø22 mm

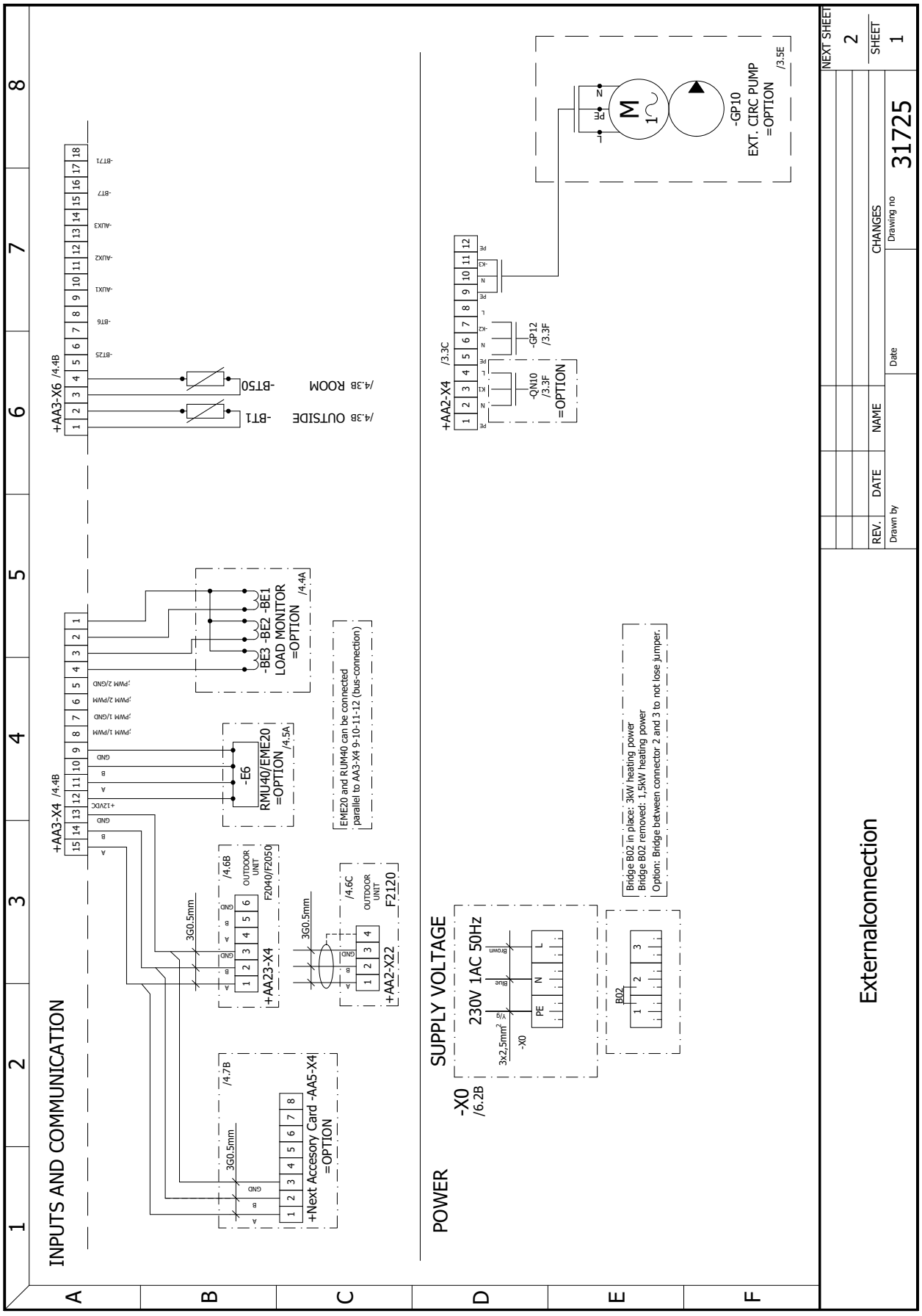


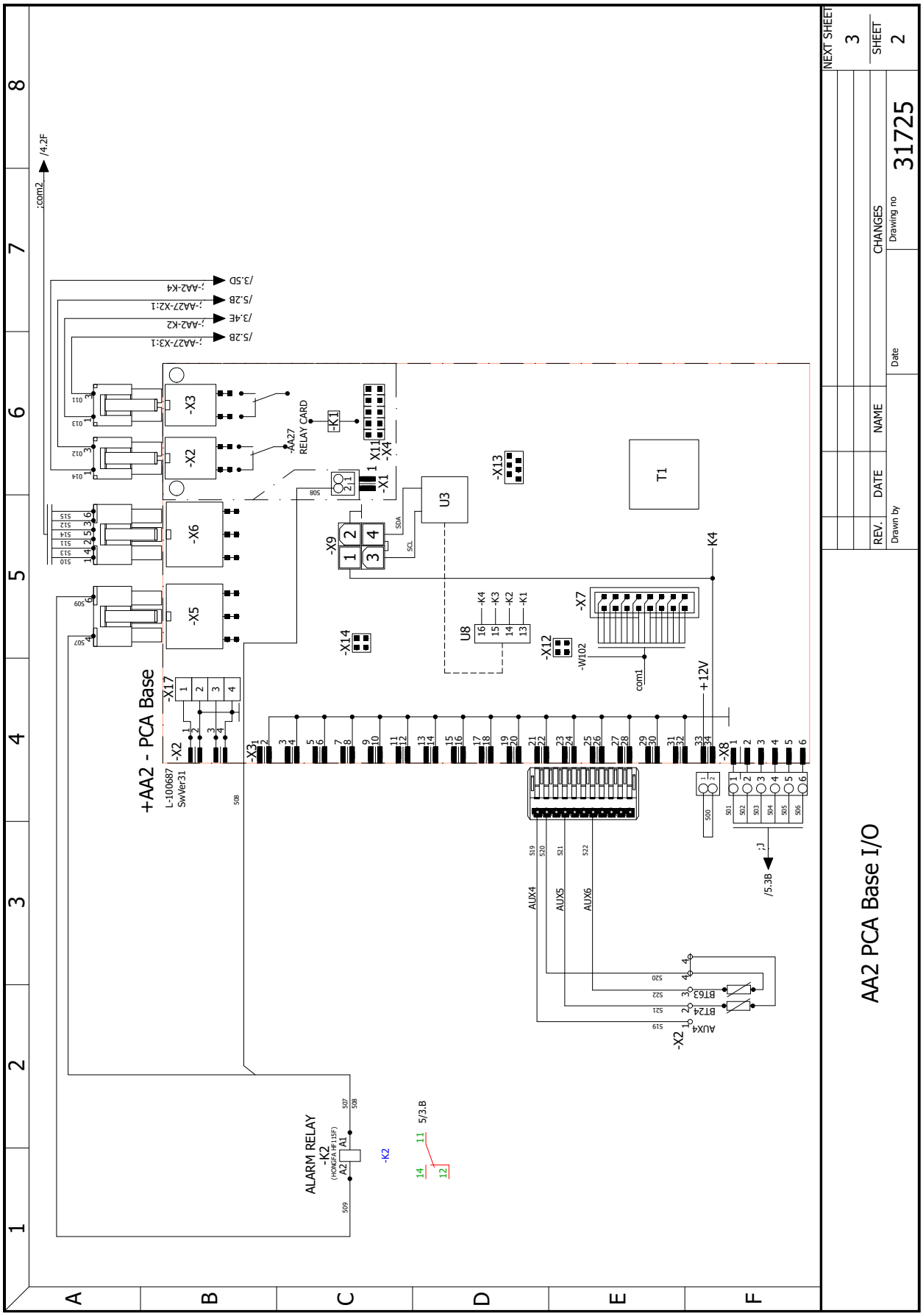


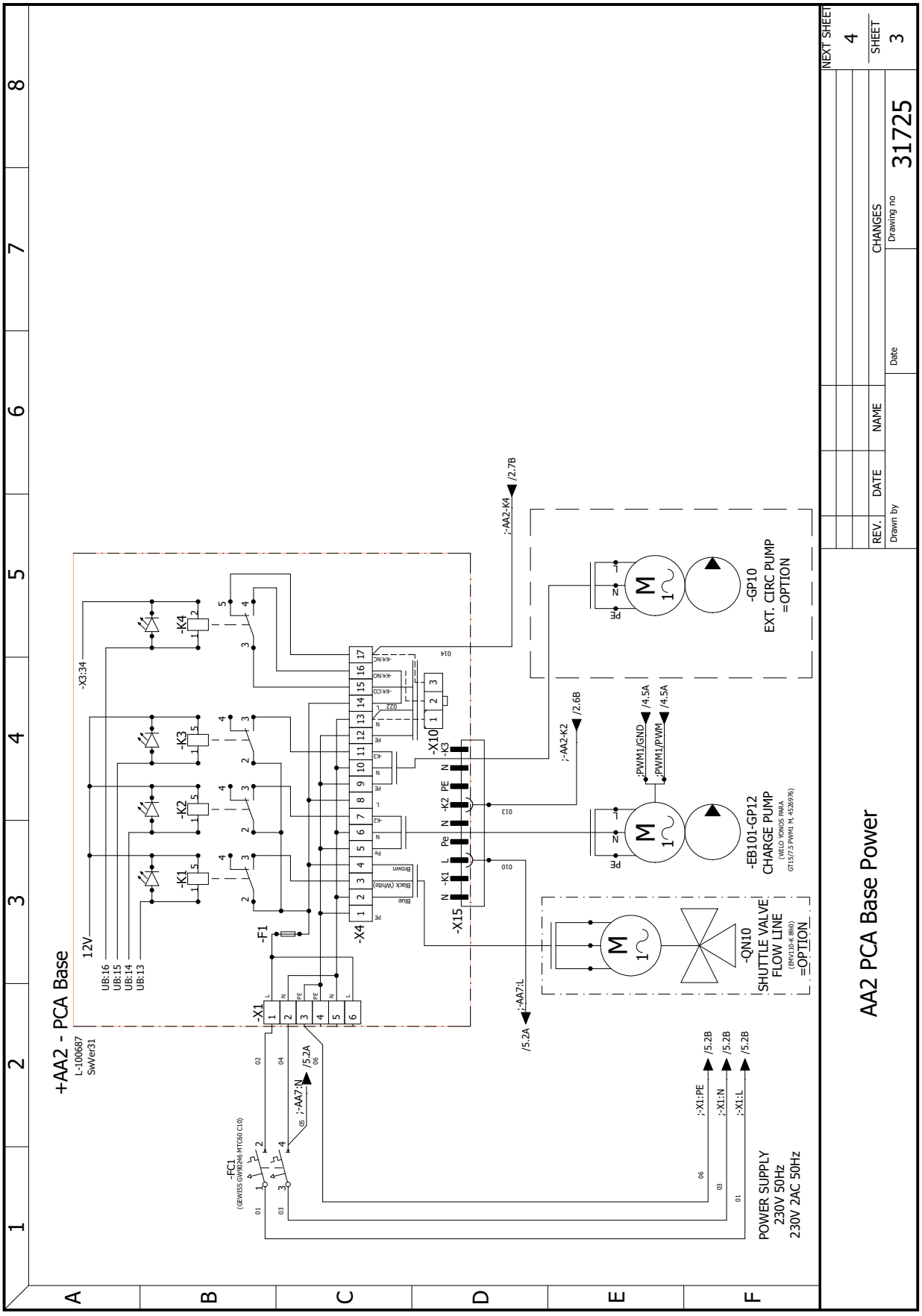
Technical data

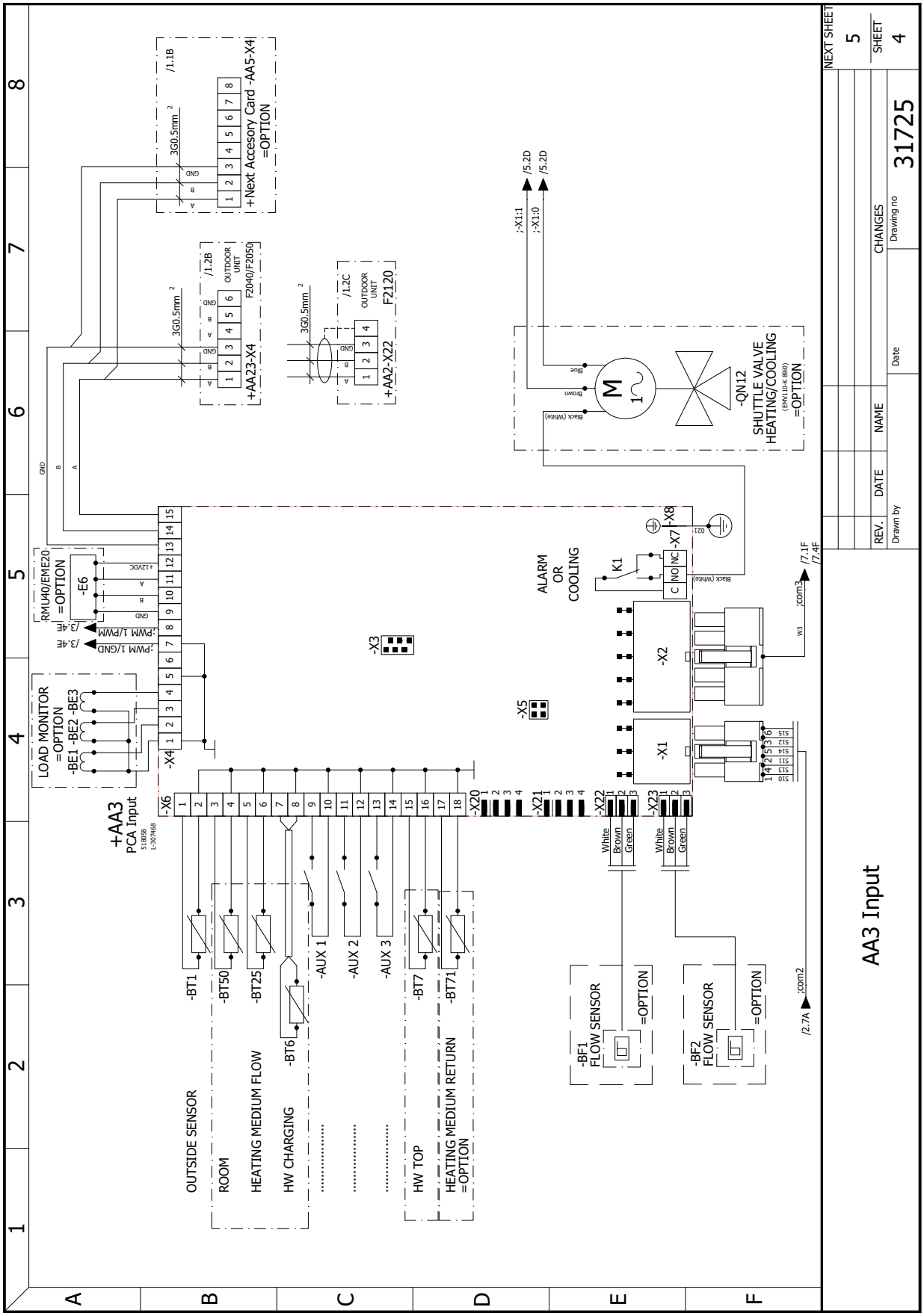
Product type	Unit	MHB 05
Height	mm	570
Width	mm	370
Depth	mm	305
Weight	kg	22 (without packaging, water and enclosed components)
Minimum operating pressure of central heating system.	bar	1
Maximum operating pressure of central heating system.	bar	4
Maximum operating temperature for central heating by immersion heater	°C	65
Maximum operating temperature by compressor	°C	depending of outdoor unit.
Low-energy circulation pump climate system	-	Yes
Safety valve climate system	-	Yes, in the safety assembly (3 bar)
Expansion vessel	l	-
Additional heat	kW	1,5 (230V) / 3 (230V)
Rated voltage	V	230V 1N AC 50Hz
Minimum cross-section of power supply cable	mm^2	3 x 2,5
Safety class	-	IP21
Part no.	-	067 942

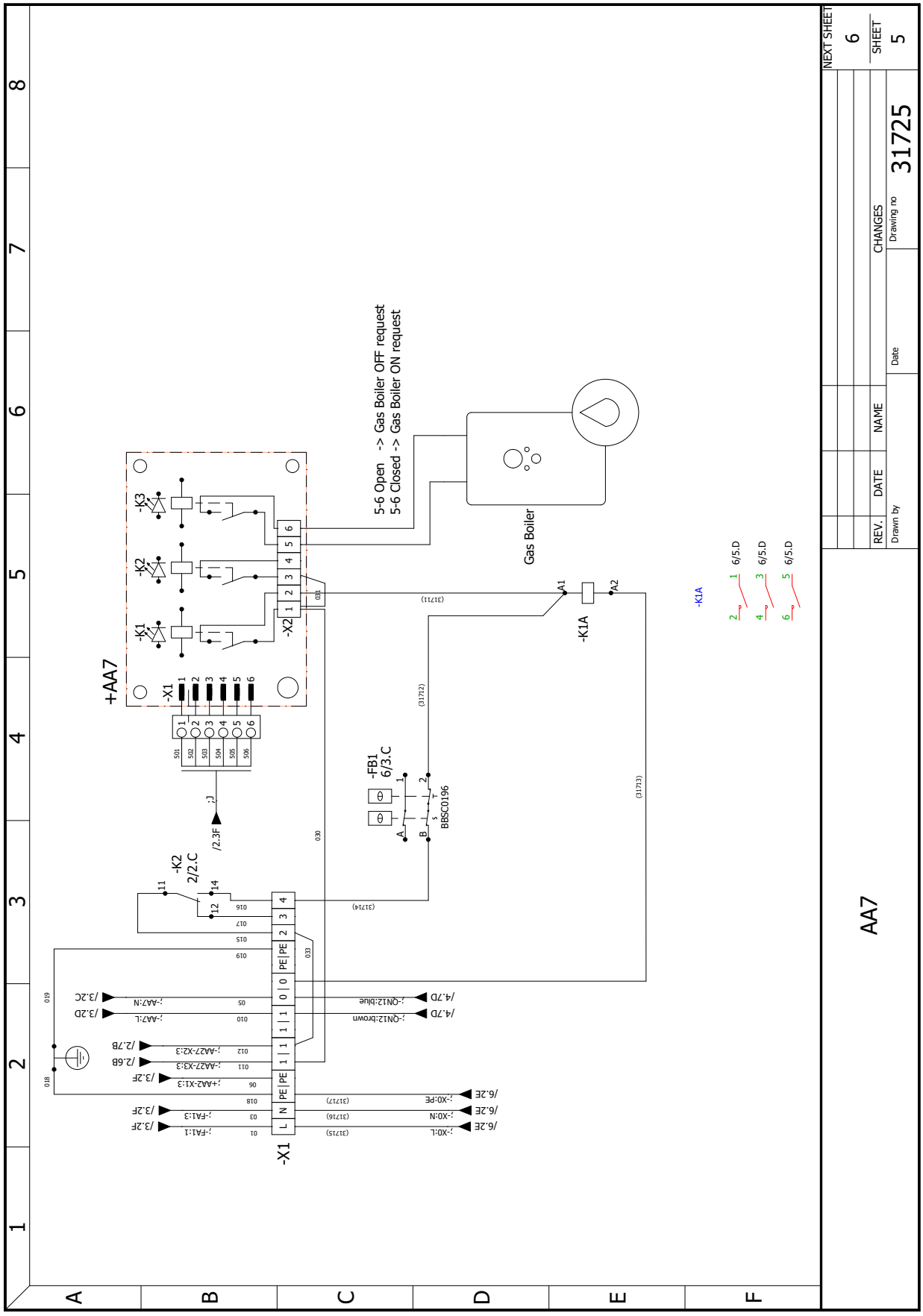
Electrical wiring diagrams

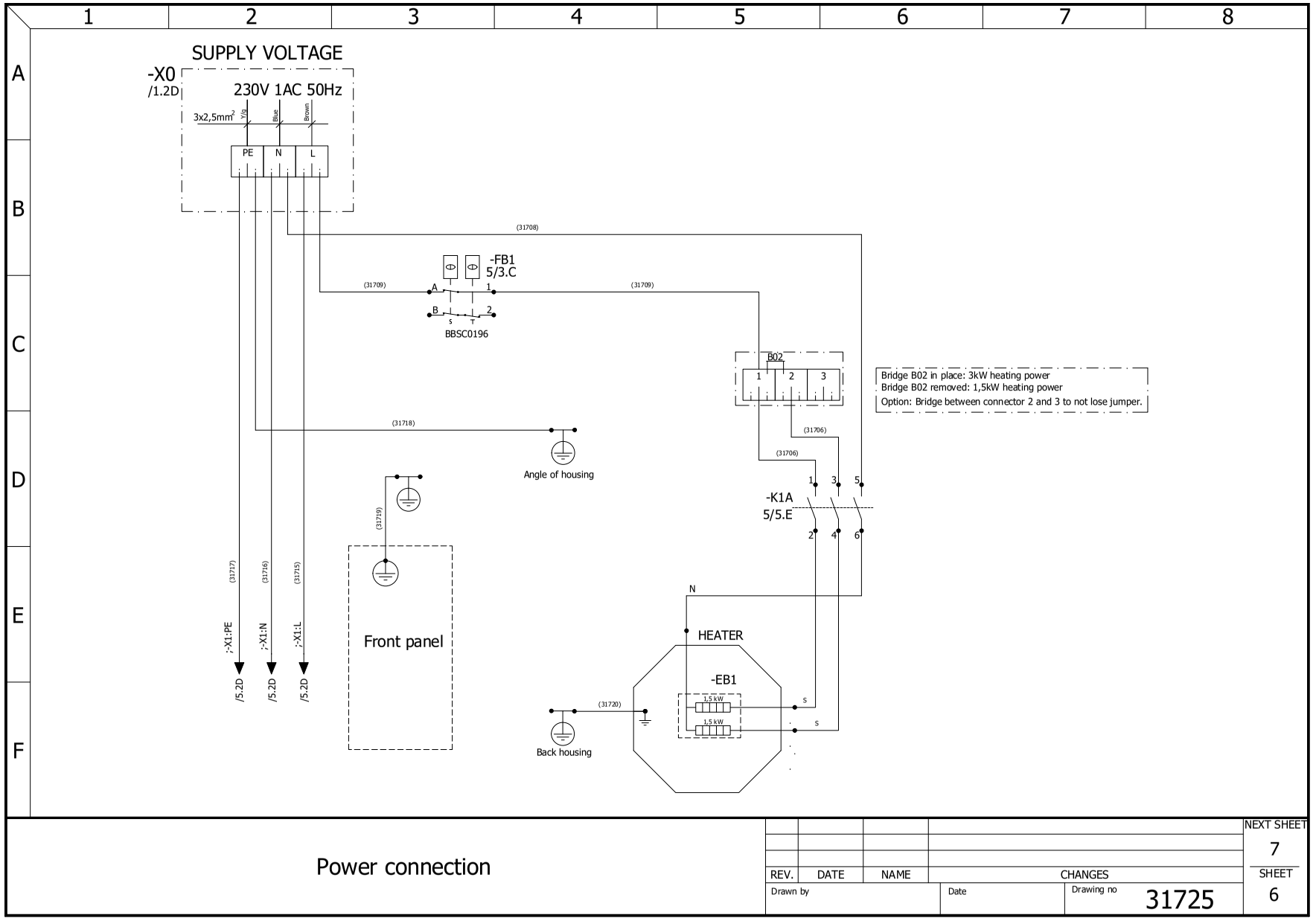



AA2 PCA Base I/O
+AA2 - PCA Base
L-100687
SwVer31
ALARM RELAY
-K2
-X1
-X2
-X3
-X4
-X5
-X6
-X7
-X8
-X9
-X11
-X12
-X13
-X14
-X17
-K1
-K2
-K3
-K4
-W102
-AA27
RELAY CARD
U3
U8
T1
K4
+12V
com1
SDA
SCL
AUX4
AUX5
AUX6
BT63
BT24
/4.2F
/5.3B
/3.5D
/5.2B
/3.4E
/5.2B
5/3.B
NEXT SHEET
SHEET
REV.
DATE
NAME
CHANGES
Drawn by
Date
Drawing no
31725


AA2 PCA Base Power
+AA2 - PCA Base
L-100687
SwVer31
12V
UB:16
UB:15
UB:14
UB:13
-X3:34
-K1
-K2
-K3
-K4
-F1
-X1
-X4
-X10
-X15
-K1
-K2
-K3
-AA2-K4 /2.7B
-AA2-K2 /2.6B
-PWM1/GND /4.5A
-PWM1/PWM /4.5A
-GP10
EXT. CIRC PUMP
=OPTION
-EB101-GP12
CHARGE PUMP
(WILO YONOS PARA
GT15/7.5 PWM1 M 4526976)
-QN10
SHUTTLE VALVE
FLOW LINE
(BNV10I-K 8R0)
=OPTION
-AA7:L /5.2A
-FC1
(GEWISS GW90246 MTC60 C10)
-AA7:N /5.2A
POWER SUPPLY
230V 50Hz
230V 2AC 50Hz
-X1:PE /5.2B
-X1:N /5.2B
-X1:L /5.2B
NEXT SHEET 4
SHEET 3
REV.
DATE
NAME
Date
CHANGES
Drawn by
Drawing no 31725


AA3 Input
+AA3
PCA Input
LOAD MONITOR
=OPTION
-BE1 -BE2 -BE3
RMU40/EME20
=OPTION
-E6
-X4
-X6
-X20
-X21
-X22
-X23
-X1
-X2
-X3
-X5
-X7
-X8
OUTSIDE SENSOR
-BT1
ROOM
-BT50
HEATING MEDIUM FLOW
-BT25
HW CHARGING
-BT6
-AUX 1
-AUX 2
-AUX 3
HW TOP
-BT7
HEATING MEDIUM RETURN
=OPTION
-BT71
-BF1
FLOW SENSOR
=OPTION
-BF2
FLOW SENSOR
=OPTION
ALARM
OR
COOLING
K1
+Next Accesory Card -AA5-X4
=OPTION
+AA23-X4
+AA2-X22
F2040/F2050
F2120
OUTDOOR UNIT
SHUTTLE VALVE
HEATING/COOLING
=OPTION
-QN12
NEXT SHEET
SHEET
CHANGES
Drawing no
31725
Date
NAME
DATE
REV.
Drawn by


5-6 Open -> Gas Boiler OFF request
5-6 Closed -> Gas Boiler ON request
Gas Boiler
+AA7
-X1
-X2
-K1
-K2
-K3
-K1A
-FB1
6/3.C
BBSC0196
-K2
2/2.C
/2.3F
-X1
AA7
NEXT SHEET
6
SHEET
5
CHANGES
Drawing no
31725
Date
REV.
DATE
NAME
Drawn by



Power connection

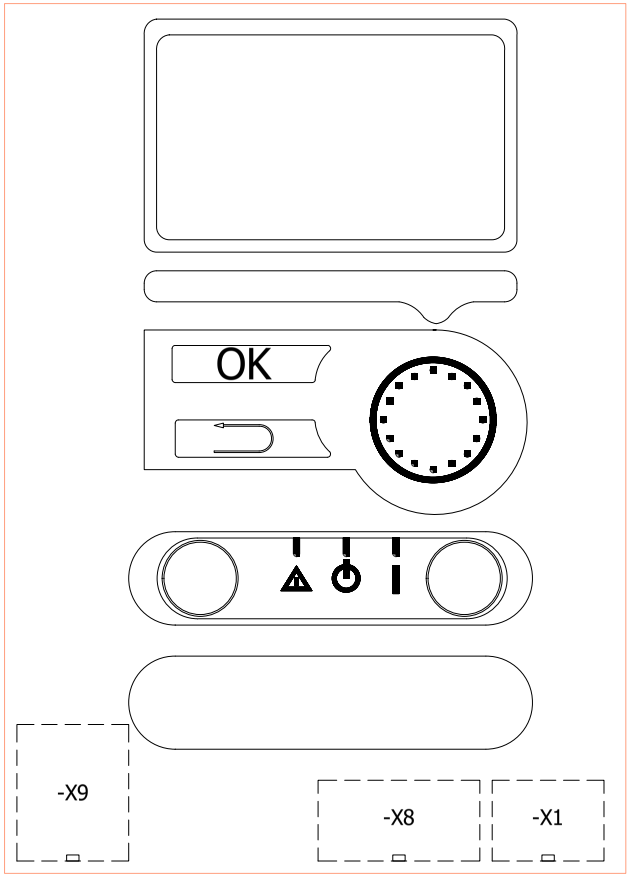
REV.	DATE	NAME	CHANGES

Drawn by | Date | Drawing no 31725

NEXT SHEET 7

SHEET 6

+AA4 - PCA Display 218702



/4.5F ;com3 W3

PCA Display

REV.	DATE	NAME	CHANGES

Drawn by | Date | Drawing no 31725

NEXT SHEET

SHEET 7

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