



Installation, user and service manual

Indoor unit

ASHP Control

Please keep these instructions in a safe place.
If you move house, please hand them over to the next occupier.

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1 Safety instructions

General safety instructions

This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance. Children must not carry out any unsupervised cleaning or maintenance operations.

Before any work, read the documents provided with the appliance carefully. These documents are also available on our website. See the back cover.

Keep these documents close to the place where the appliance is installed.

Only qualified professionals are authorised to carry out installation, commissioning, maintenance, repair or removal work on the appliance. They must follow the prevailing local and national regulations.

Do not make any modifications to the appliance without the written consent of the manufacturer. To benefit from warranty cover, no modifications should be made to the appliance.

Installation location

The indoor unit must be installed in a frost-free room.

Allow sufficient space around the appliance to ensure adequate accessibility to the appliance to facilitate maintenance. See "Installation" chapter.

Instructions for using glycol water

Ensure that all the installation components are compatible with the use of glycol water.

Only use high-quality food-grade glycol water solutions based on monopropylene glycol (MPG).

Use a monopropylene glycol solution concentration which is compatible with the appliance. See the chapter on Precautions to take when filling with glycol water.

Electrical connections

Only a qualified installer or a qualified technician is authorised to work on the appliance's electrical system, as an incorrectly performed intervention may cause electrical shocks and/or electrical leakage.

Install the appliance in accordance with national rules on electrical installation.

In order to avoid the danger of an unexpected thermal circuit breaker reset, this appliance must not be powered through an external switch, such as a timer, or be connected to a circuit which is regularly switched on and off by the electricity provider.

Before any wiring work on the electrical circuit, switch off the power supply, check that no voltage is present and secure the circuit breaker with a circuit breaker lockout.

Use wiring that meets the specifications in the installation manual and local regulations and laws. Use of wiring which does not meet the specifications may give rise to electric shocks, electrical leakage, smoke and/or a fire.

This appliance must be connected to the protective earthing in accordance with prevailing installation standards. Earth the appliance before making any electrical connections. Incomplete grounding can cause a malfunction or electric shock.

To avoid electric shock, check that the length of the conductors between the cable clamp and the terminal blocks is such that the active conductors are put under tension before the earth conductor.

Install a circuit breaker that meets the specifications in the installation manual and local regulations and laws.

If a power supply cable comes with the appliance and it turns out to be damaged, it must be replaced by the manufacturer, its after-sales service or persons with similar qualifications in order to avoid danger.

Separate the extra-low voltage cables from the 230/400 V power supply cables.

See the Electrical connections chapter for the following operations:

- Choosing the type and calibre of the protective equipment
- Connection to the electrical network
- Wiring the appliance

Maintenance and repair work

Remove the casing only to perform maintenance and repair work. Put the casing back in place after maintenance and repair work.

Repair and maintenance of electrical components must include initial safety checks and component inspection procedures. In the event of a fault that could compromise safety, no power supply may be connected to the circuit until said fault has been dealt with satisfactorily. If the fault cannot be corrected immediately but it is necessary to continue operation, an appropriate temporary solution must be adopted. This shall be reported to the owner of the equipment to ensure all parties are duly informed.

Initial safety checks shall include:

- Discharging of the capacitors: this shall be done in a safe manner to avoid any possibility of sparking
- Ensuring no live electrical components and wiring are exposed while charging, recovering or draining the system
- Ensuring the continuity of the earth bonding.

Before any work, switch off the power supply for all the components of your installation.

Use only original spare parts.

Guidelines for the user

If you do not need to heat your home for a long period, deactivate the heating mode. Do not switch off the heat pump in order to guarantee the frost protection of the installation.

If you do need to switch off the heat pump and if there is a risk that the temperature inside and/or outside the building will fall below zero:

- Installation filled with mains water: drain the water pipes of the installation (heat pump, underfloor heating, etc.) to prevent the system from freezing
- Installation filled with glycol water: the installation is protected against freezing

Keep the appliance accessible at all times to allow work to be performed.

Never remove or cover the labels and data plates affixed to appliances. These must be legible throughout the entire lifetime of the appliance.

Manufacturer's liabilities

Our products are manufactured in compliance with the requirements of the various applicable directives. They are therefore delivered with the **CE** marking and any documents necessary. In the interests of the quality of our products, we strive constantly to improve them. We therefore reserve the right to modify the specifications given in this document.

Our liability as manufacturer may not be invoked in the following cases:

- Failure to abide by the instructions on installing, commissioning and maintaining the appliance
- Failure to abide by the instructions on using the appliance
- Faulty or insufficient maintenance of the appliance

Responsibilities of the installer

The installer is responsible for the installation and initial commissioning of the appliance. The installer must observe the following instructions:

- Read and follow the instructions given in the manuals provided with the appliance
- Install the appliance in compliance with prevailing legislation and standards
- Carry out initial commissioning and any checks necessary
- Explain the installation to the user
- If maintenance is necessary, warn the user of the obligation to check the appliance and keep it in good working order
- Hand over all manuals to the user

Responsibilities of the user

To guarantee optimum operation of the system, you must abide by the following instructions:

- Read and follow the instructions given in the manuals provided with the appliance
- Call on a qualified professional to carry out installation and initial commissioning
- Get your installer to explain your installation to you
- Have the required inspections and maintenance carried out by a qualified installer
- Keep the instruction manuals in good condition close to the appliance

2 Standard delivery

Tab.1

Package	Contents
Indoor unit	• An indoor unit • An outdoor temperature sensor (cable not supplied) • A bag containing: - 5 cable clamps and 10 screws - 3 quick-release clips - 11 cable glands and 11 nuts - 2 quarter turn fasteners - 4 screws, 4 wall plugs and 4 washers • A bag containing: - A domestic hot water temperature sensor and sensor pocket separator - Two temperature sensors, two clamps and two tubes of heat-conducting silicone paste - 5 RAST connectors • An installation, user and service manual • Terms of warranty • A quick user guide • The EU Declaration of Conformity • A list of important points to ensure successful installation

3 Symbols used

3.1 Symbols used in the manual

This manual uses various danger levels to draw attention to special instructions. We do this to improve user safety, to prevent problems and to guarantee correct operation of the appliance.



Danger

Risk of dangerous situations that may result in serious personal injury.



Danger of electric shock

Risk of electric shock.



Warning

Risk of dangerous situations that may result in minor personal injury.



Caution

Risk of material damage.



Important

Please note: important information.

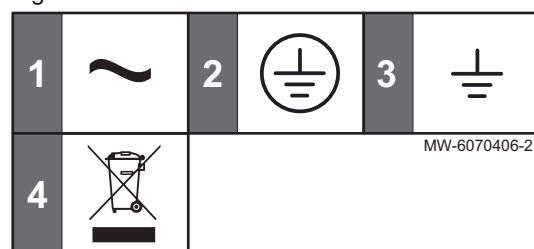


See

Reference to other manuals or pages in this manual.

3.2 Symbols used on the indoor unit

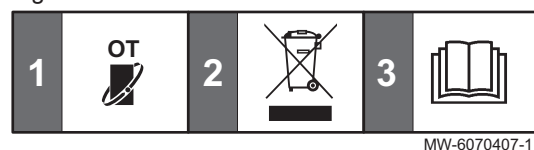
Fig.1



- 1 Alternating current
- 2 Protective earthing
- 3 Earth
- 4 Dispose of used products in an appropriate recovery and recycling structure

3.3 Symbols used on the data plate

Fig.2



- 1 Compatibility with the uSense connected thermostat
- 2 Dispose of used products in an appropriate recovery and recycling structure
- 3 Before installing and commissioning the appliance, carefully read the instruction manuals provided

4 Technical specifications

4.1 Homologations

4.1.1 Directives

BAXI hereby declares that the ASHP Control radio-electrical type equipment is a product principally designed for domestic use and compliant with the following directives and standards. It has been manufactured and put into circulation in accordance with the requirements of the European Directives.

The full text of the EU declaration of conformity is supplied separately with your appliance.

In addition to the legal requirements and guidelines, the supplementary guidelines in this manual must also be followed.

Supplements or subsequent regulations and guidelines that are valid at the time of installation shall apply to all regulations and guidelines specified in this manual.

4.1.2 Factory test

Before each indoor unit leaves the factory, its electrical safety is tested.

4.2 Technical data

4.2.1 Indoor unit

Tab.2

	ASHP Control
Storage temperature	-25 to 60 °C
Relative humidity (non condensing)	0 to 95%
Weight	3 kg
Power supply voltage	230 V AC
Maximum current consumption	6 A

4.2.2 Sensor specifications

■ Outdoor temperature sensor specifications

Tab.3

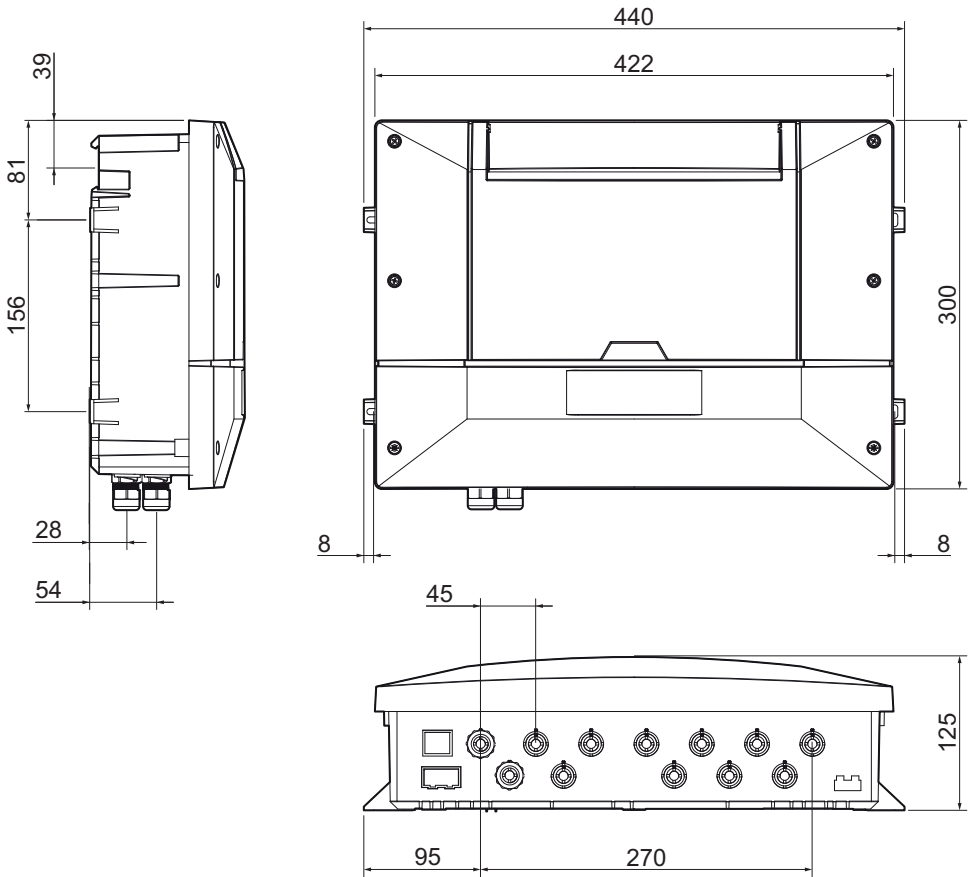
Temperature	°C	-20	-15	-10	-5	0	5	10	15	20	25	30	40	50
Resistance	Ω	3895	2987	2312	1799	1411	1117	891	715	577	470	384	257	172

■ Specifications of the domestic hot water and heating flow temperature sensors

Temperature	°C	0	10	20	25	30	40	50	60	70	80	90
Resistance	Ω	32014	19691	12474	10000	8080	5372	3661	2535	1794	1290	941

4.3 Dimensions

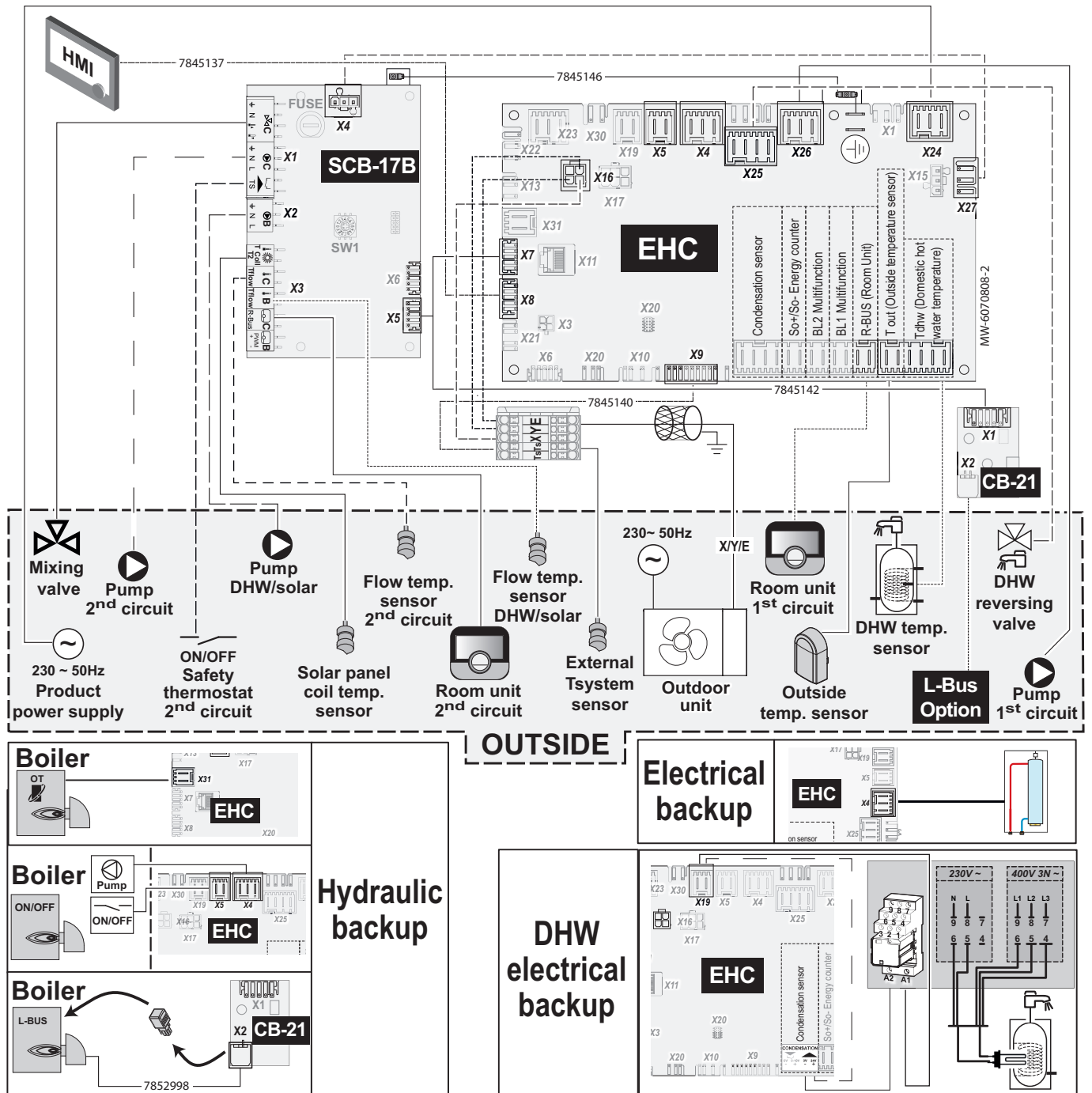
Fig.3



MW-6070355-02

4.4 Electrical diagram

Fig.4



Tab.4

Key	Description
BL1 Multifunction	BL1 multifunction input
BL2 Multifunction	BL2 multifunction input
CB-21	Interface PCB between the EHC-16 PCB and an external L-BUS connection
Condensate sensor	Condensation sensor
DHW electrical backup	Domestic hot water electrical backup: immersion heating element
DHW reversing valve	Domestic hot water diverter valve
DHW temp. sensor	Domestic hot water temperature sensor
EHC-16	Main PCB for the heat pump
Electrical backup	Electrical backup
External Tsystem sensor	Heating flow temperature sensor

Key	Description
Flow temp. sensor 2nd circuit	Second circuit heating flow temperature sensor
Flow temp. sensor DHW/solar	Domestic hot water recirculation loop/solar circuit temperature sensor
Hydraulic backup	Hydraulic backup
HMI	User interface
Mixing Valve	Mixing valve
L-Bus Option	L-Bus option
ON/OFF	On/Off - On/Off switch
Outdoor Unit	Outdoor unit
OUTSIDE	OUTDOOR - Components outside the indoor unit
Product power supply	Main power supply
Pump 1st circuit	First circuit pump - in case a low loss header is used
Pump 2nd circuit	Second circuit pump
Pump DHW/solar	Domestic hot water/solar circuit recirculation pump
Room Unit 1st circuit / 2nd circuit R-Bus (Room Unit)	Room temperature sensor, uSense thermostat, on/off thermostat, modulating thermostat or OpenTherm thermostat on first/second circuit
Safety thermostat 2nd circuit	Second circuit safety temperature limiter
SCB-17B	PCB for controlling an additional circuit
SO+/SO- Energy counter	SO+/SO- Energy meter
Solar panel coil temp. sensor	Solar panel heating coil temperature sensor
Tdwh (Domestic hot water temperature)	Domestic hot water temperature sensor
T out (Outside temperature sensor)	Outdoor temperature sensor

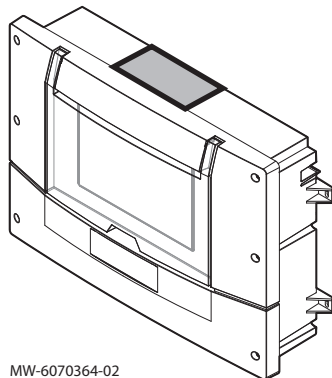
**See also**

Connecting the hydraulic backup, page 34
Connecting a backup electric heater, page 35

5 Description of the product

5.1 Data plate

Fig.5



The data plate must be accessible at all times.

The data plate identifies the product and provides the following information:

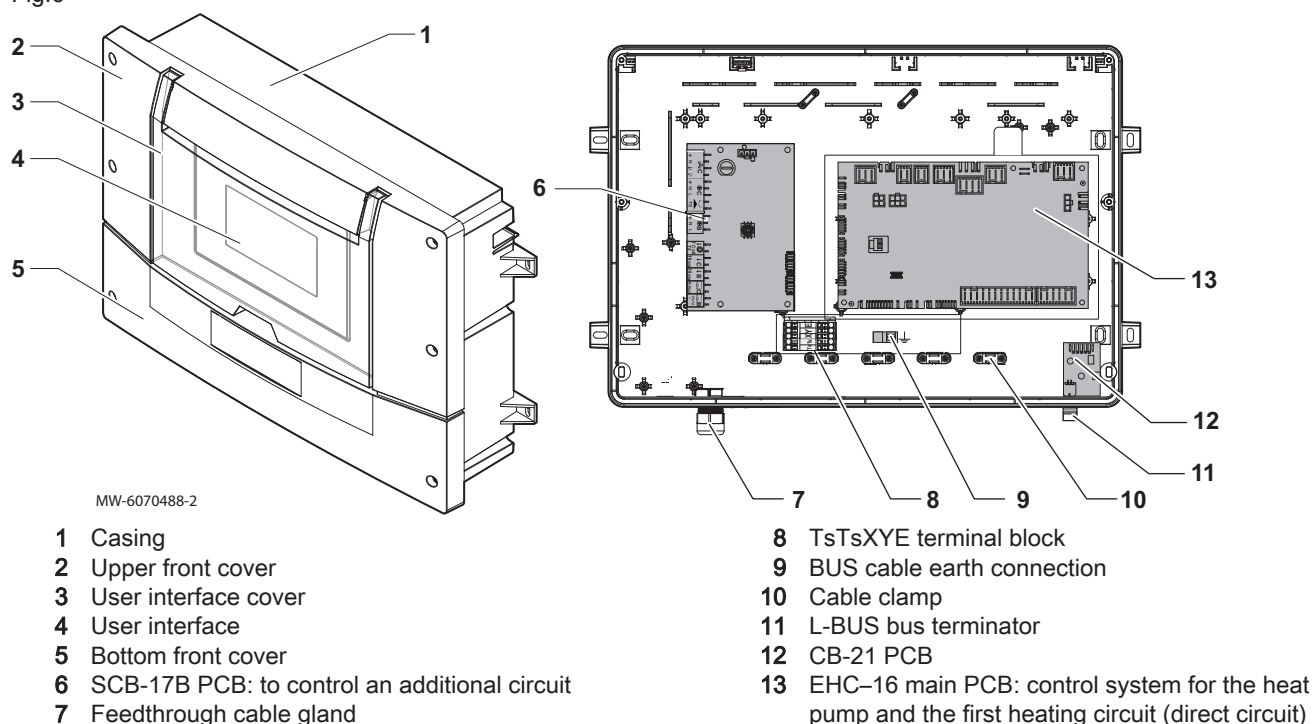
- Appliance type
- Serial number
- Electrical power supply

**Important**

- Never remove or cover the data plate and labels affixed to the appliance
- The data plate and labels must be legible throughout the entire lifetime of the appliance. Immediately replace damaged or illegible instructions and warning labels

5.2 Main components

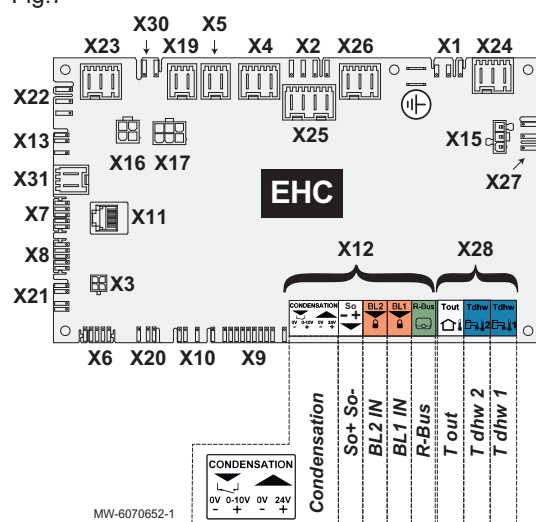
Fig.6



5.3 Terminal blocks

5.3.1 Main PCB EHC-16

Fig.7



- X1 Do not use
X2 Do not use
X3 Do not use
X4 - 230V control for hydraulic backup pump actuated in ON/OFF mode
- 230V control for the backup electric heater
X5 ON/OFF contact for the hydraulic backup
X6 Do not use
X7-X8 L-Bus
X10 Do not use
X11 L-Bus / CAN / service port
X12 Options
- Condensation: condensation sensor
- So+ / So-: electricity meter
- BL1 IN / BL2 IN: multifunction inputs
- R-Bus: uSense smart room thermostat, 24 V on/off thermostat, OpenTherm thermostat
X13 Do not use
X15 Do not use
X16 Outdoor unit bus connection
X17 Do not use
X19 Multifunction output - on/off signal (dry contact)
X20 LIN pump BUS Zone1
X21 Do not use
X22 Do not use
X23 Do not use
X24 230 V - 50 Hz power supply
X25 Heating/domestic hot water 3-way directional valve connection
X26 Do not use
X27 - Power supply for the main pump on the SCB-17B PCB via the power supply terminal block on the indoor unit

- LIN CIRCA pump power supply via the indoor unit power supply terminal block
- X28** - T out: outdoor temperature sensor
- T dhw 1: Tank with a sensor: do not use
- T dhw 1: Tank with two sensors: top sensor
- T dhw 2: Tank with one sensor: hot water sensor
- T dhw 2: Tank with two sensors: bottom sensor
- X30** Do not use
- X31** Connecting an Opentherm backup boiler

5.3.2 Terminal block for outdoor unit connection

Fig.8



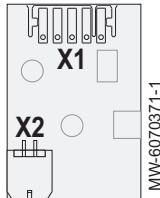
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- Ts** Heating flow temperature sensor
- Ts** Heating flow temperature sensor
- X** Outdoor unit bus connection
- Y** Outdoor unit bus connection
- E** Outdoor unit bus connection

5.3.3 CB-21 PCB

The CB-21 PCB is used to connect external options.

Fig.9

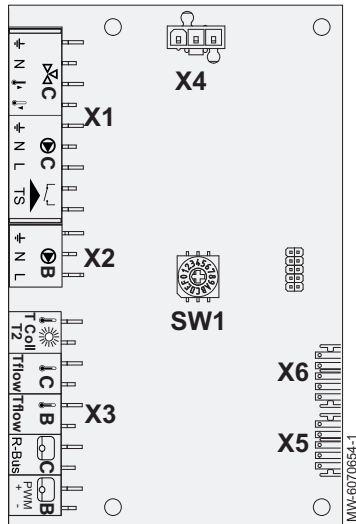


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- X1** L-BUS to the EHC-16 and SCB-17B PCBs
- X2** L-BUS to external options

5.3.4 SCB-17B second circuit PCB

Fig.10



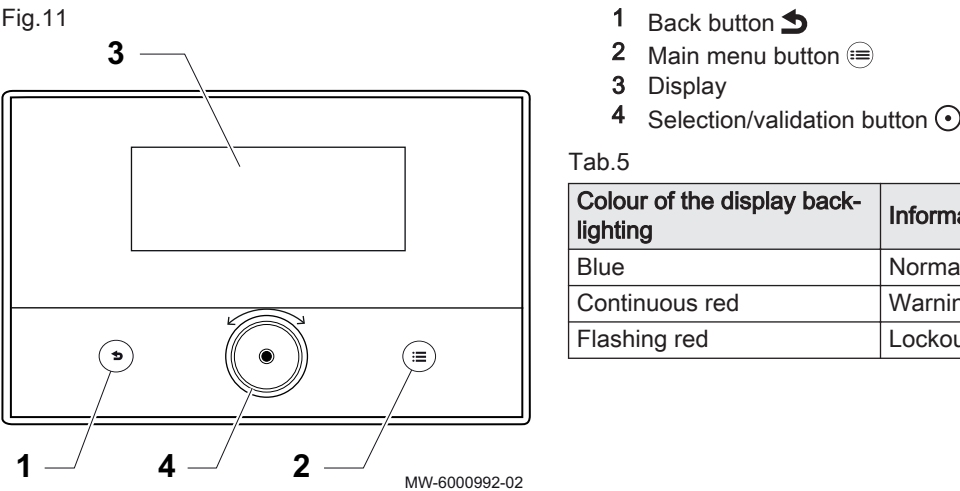
MW-6070654-1

- SW1** Do not use
- X1** Mixing valve / central heating pump power supply - maximum 300 W / second circuit safety thermostat input
- X2** Do not use
- X3**
 - TColl: solar collector temperature sensor
 - C-Tflow: second circuit flow temperature sensor
 - B-Tflow: do not use
 - R-Bus : smart room thermostat uSense, on/off thermostat, OpenTherm thermostat, second circuit
 - PWM + -: do not use
- X4** 230 V power supply
- X5** L-Bus
- X6** L-Bus

5.4 User interface

5.4.1 Description of the interface

Fig.11

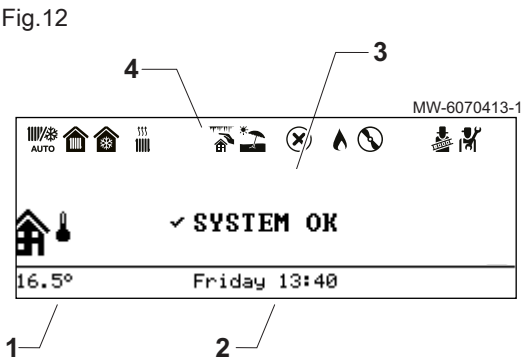


Tab.5

Colour of the display back-lighting	Information
Blue	Normal operation
Continuous red	Warning or blockage
Flashing red	Lockout

5.4.2 Description of the standby screen

Fig.12



The user interface on your appliance automatically goes into standby mode if no buttons are pressed for a period of 5 minutes: the backlighting is switched off and information relating to the general status of the appliance is displayed.

Press one of the buttons on the interface to switch standby off.

- 1 Temperature measured by the outdoor temperature sensor
- 2 Day and time
- 3 General status of the appliance
- 4 Icons indicating the appliance status

5.4.3 Description of status icons

Tab.6

Icons	Description
	Automatic switch from heating mode to cooling mode
	- Steady symbol: heating active - Flashing symbol: heating in progress
	- Steady symbol: cooling active - Flashing symbol: cooling in progress
	- Steady symbol: domestic hot water available - Flashing symbol: domestic hot water production in progress
	Frost protection activated
	Summer mode activated. No heating possible: cooling and domestic hot water production only.
	Error detected
	The hydraulic backup is running
	The heat pump compressor is running
	The heating circuit heating element is running

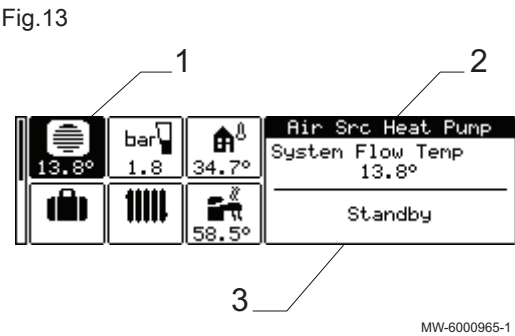
Icons	Description
	Operating test mode activated
	Installer level activated

5.4.4 Description of the home screen

The home screen is displayed automatically after the appliance is started up.

The screen automatically goes into standby if no button is pressed for five minutes.

Press one of the buttons on the user interface to exit the standby screen and display the home screen.

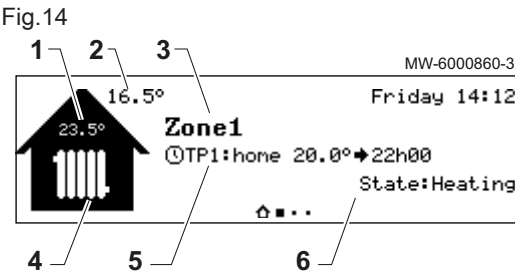


- 1 Access icons for main functions
- The selected icon is highlighted
- 2 Information on the selected icon
- 3 Status

Tab.7 Icons on the home screen and information

Icon	Information	Description of the icon
	Heat Pump	Heat pump flow temperature display
	Water pressure	Current water pressure display
	Holiday	Holiday mode in all circuits simultaneously
	Zone1 / Zone3	Symbol representing the operation zone Temperature display for the zone
	Tank DHW	Temperature display for the domestic hot water
	Outdoor temperature	Outdoor temperature display

5.4.5 Description of the Zone display



- From the home screen, turn the  button to access the screens for the various zones within your installation.
- 1 Room temperature (if a room unit is installed)
 - 2 Outdoor temperature
 - 3 Name of the zone
 - 4 Zone symbol
 - 5 Operating mode currently active
 - 6 Information on the circuit status

5.4.6 Description of the carousel

Fig.15



The carousel is used to quickly access the user interface menus. The displayed menus depend on the system configuration.

Display the carousel by pressing the Main menu button .

Scroll through the menu by turning the  button.

Tab.8

Symbol menu	Description of the symbols	Description
	Operating mode	Switching the central heating on/off, and/or the cooling if applicable
	Domestic Hot Water On/Off	Switching domestic hot water production on/off
	Heating temperature	Setting the activities temperature
	Water temperature	Modifying the domestic hot water setpoint temperatures
	Temporary heating temperature change	Temporarily modifying the requested room temperature until the next set-point temperature in the timer programme
	Hot water boost	Forcing domestic hot water production (override)
	System holiday mode	Periods of absence or going on holiday
	User settings	Accessing the list of parameters available to users
	Test mode	Performing an operating test on the heating or cooling
	Installer	Menu not accessible to the user Installer level: List of Installer menu parameters
	Finder	Menu not accessible to the user Installer level: Using the parameter search
	Signals overview	Menu not accessible to the user Installer level: Displaying the measured values
	Energy overview	Monitoring the energy consumption
	System settings	Customising the user interface
	Version information	Version information

6 Installation

6.1 Installation regulations

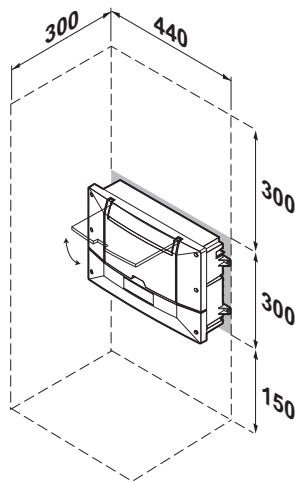

Caution

The appliance must be installed by a qualified professional in accordance with applicable local and national regulations.

6.2 Positioning the indoor unit

6.2.1 Choosing the location of the indoor unit

Fig.16



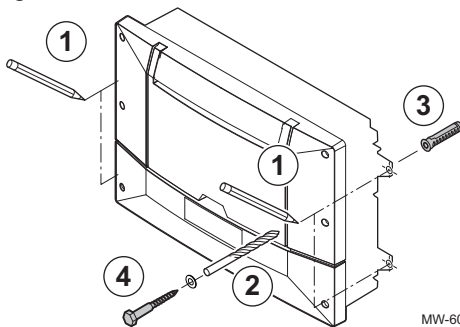
MW-6070411-3

The location of the indoor unit must guarantee safety, be accessible for maintenance, allow the front panel to be removed and the cover on the user interface to be flipped up.

1. Take account of the dimensions shown opposite when choosing the location of the indoor unit.
2. Choose a location that complies with the following specifications:
 - not exposed to water or dust
 - close to a wall socket with protective earthing
 - allow sufficient space for work on the indoor unit

6.2.2 Affixing the indoor unit

Fig.17



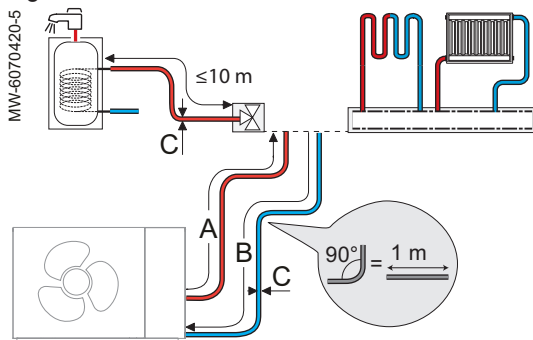
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Once the location has been chosen for the unit, affix the indoor unit using the side tabs.

1. Mark the positions of the 4 holes.
2. Drill the Ø 6 mm holes.
3. Insert the Ø 6 mm wall plugs.
4. Secure the indoor unit using Ø 3.5 mm screws.

6.3 Respect the maximum pipe length between the outdoor unit and the heating zone

Fig.18



To ensure correct operation of the heat pump:

1. Identify the output of the outdoor unit using the data plate.
2. Respect the maximum pipe length between the outdoor unit and the heating zone.
The equivalent flue length to a 90° bend is 1 metre.
3. The maximum pipe length between the diverter valve and the domestic hot water cylinder must not exceed 10 metres.
The equivalent flue length to a 90° bend is 1 metre.
4. Respect the internal diameter of the pipes.

Tab.9 Glycol-free installation - Assure HP55 or HP60 outdoor units

	Assure HP55-4-1- PHMB HP60-4-1- PHMB	Assure HP55-6-1- PHMB HP60-6-1- PHMB	Assure HP55-8-1- PHMB HP60-8-1- PHMB	Assure HP55-11-1- PHMB HP60-11-1- PHMB	Assure HP55-11-3- PHMB HP60-11-3- PHMB	Assure HP55-13-1- PHMB HP60-13-1- PHMB	Assure HP55-13-3- PHMB HP60-13-3- PHMB
Maximum pipe length A + B	100 m	100 m	80 m	60 m	60 m	60 m	60 m
Minimum internal diameter of the pipes C	25 mm	25 mm	32 mm	32 mm	32 mm	32 mm	32 mm

Tab.10 Installation with glycol - Assure HP55 or HP60 outdoor units

	Assure HP55-4-1- PHMB HP60-4-1- PHMB	Assure HP55-6-1- PHMB HP60-6-1- PHMB	Assure HP55-8-1- PHMB HP60-8-1- PHMB	Assure HP55-11-1- PHMB HP60-11-1- PHMB	Assure HP55-11-3- PHMB HP60-11-3- PHMB	Assure HP55-13-1- PHMB HP60-13-1- PHMB	Assure HP55-13-3- PHMB HP60-13-3- PHMB
Maximum pipe length A + B	100 m	100 m	60 m	50 m	50 m	40 m	40 m
Minimum internal diameter of the pipes C	25 mm	25 mm	32 mm	32 mm	32 mm	32 mm	32 mm

Tab.11 Glycol-free installation - HP50 or HP40 outdoor units

	HP50-4-1P HMB HP40-4-1P HMB	HP50-5-1P HMB HP40-5-1P HMB	HP50-7-1P HMB HP40-7-1P HMB	HP50-8-1P HMB HP40-8-1P HMB	HP50-11-1P HMB HP40-11-1P HMB	HP50-11-3P HMB HP40-11-3P HMB	HP50-13-1P HMB HP40-13-1P HMB	HP50-13-3P HMB HP40-13-3P HMB
Maximum pipe length A + B	100 m	100 m	100 m	80 m	60 m	60 m	60 m	60 m
Minimum internal diameter of the pipes C	25 mm	25 mm	32 mm	32 mm	32 mm	32 mm	32 mm	32 mm

Tab.12 Installation with glycol - HP50 or HP40 outdoor units

	HP50-4-1P HMB HP40-4-1P HMB	HP50-5-1P HMB HP40-5-1P HMB	HP50-7-1P HMB HP40-7-1P HMB	HP50-8-1P HMB HP40-8-1P HMB	HP50-11-1P HMB HP40-11-1P HMB	HP50-11-3P HMB HP40-11-3P HMB	HP50-13-1P HMB HP40-13-1P HMB	HP50-13-3P HMB HP40-13-3P HMB
installation with glycol Maximum pipe length A + B	100 m	100 m	100 m	60 m	50 m	50 m	40 m	40 m
Minimum internal diameter of the pipes C	25 mm	25 mm	32 mm	32 mm	32 mm	32 mm	32 mm	32 mm



See also
Data plate, page 12

6.4 Hydraulic connections

6.4.1 Special precautions for the connection of the heating circuit



Caution

The hydraulic installation must be capable of handling a minimum flow rate at all times:

- If radiators are connected directly to the heating circuit, install a pressure actuated bypass valve between the outdoor unit and the heating circuit,
 - Otherwise, leave the heating circuit without a thermostatic valve and/or without a solenoid valve.
- When making the connection, always comply with the applicable local standards and directives.
 - Ensure that the EPDM sealing elements do not come into contact with substances containing mineral oil. Products containing mineral oil will cause permanent serious damage to the material, causing it to lose its impermeability.
 - If components made from composite materials are used (for example, polyethylene connection pipes or flexible hose), we recommend components with an anti-oxygen barrier.

6.4.2 Minimum volume of water

The volume of water in the installation must be sufficient to avoid short cycle operation and to enable optimal defrosting.



Important

The minimum volume of water in circulation must be available at any time, even if there is no heating demand or when all the valves are closed.

If the volume of water in circulation is not sufficient, it is necessary to install a buffer tank with the additional volume.

Tab.13 Glycol-free installation - Assure HP55 or HP60 outdoor units

Minimum volume of water in circulation (l)	Assure HP55-4-1-PHMB HP60-4-1-PHMB	Assure HP55-6-1-PHMB HP60-6-1-PHMB	Assure HP55-8-1-PHMB HP60-8-1-PHMB	Assure HP55-11-1-PHMB HP60-11-1-PHMB	Assure HP55-11-3-PHMB HP60-11-3-PHMB	Assure HP55-13-1-PHMB HP60-13-1-PHMB	Assure HP55-13-3-PHMB HP60-13-3-PHMB
35°C application Underfloor heating	27	29	77	81	81	91	91
45°C application Low temperature radiators or convection fans	23	23	49	54	54	59	59
55°C application Medium temperature radiators	26	26	42	49	49	51	51
65°C application High temperature radiators	26	26	38	49	49	49	49

Tab.14 Installation with glycol - Assure HP55 or HP60 outdoor units

Minimum volume of glycol water in circulation (l)	Assure HP55-4-1-PHMB HP60-4-1-PHMB	Assure HP55-6-1-PHMB HP60-6-1-PHMB	Assure HP55-8-1-PHMB HP60-8-1-PHMB	Assure HP55-11-1-PHMB HP60-11-1-PHMB	Assure HP55-11-3-PHMB HP60-11-3-PHMB	Assure HP55-13-1-PHMB HP60-13-1-PHMB	Assure HP55-13-3-PHMB HP60-13-3-PHMB
35°C application Underfloor heating	31	34	89	94	94	105	105
45°C application Low temperature radiators or convection fans	27	27	57	63	63	68	68
55°C application Medium temperature radiators	30	30	49	57	57	59	59
65°C application High temperature radiators	30	30	44	57	57	57	59

**Important**

The values given below take precedence over those given in the installation manuals for the HP50 and HP40 outdoor units.

Tab.15 Glycol-free installation - HP50 or HP40 outdoor units

Minimum volume of water in circulation (l)	HP50-4-1P HMB HP40-4-1P HMB	HP50-5-1P HMB HP40-5-1P HMB	HP50-7-1P HMB HP40-7-1P HMB	HP50-8-1P HMB HP40-8-1P HMB	HP50-11-1 PHMB HP40-11-1 PHMB	HP50-11-3 PHMB HP40-11-3 PHMB	HP50-13-1 PHMB HP40-13-1 PHMB	HP50-13-3 PHMB HP40-13-3 PHMB
35°C application Underfloor heating	32	38	44	48	53	53	61	61
45°C application Low temperature radiators or convection fans	18	22	26	29	40	40	41	41
55°C application Medium temperature radiators	17	18	29	30	50	50	54	54

Tab.16 Installation with glycol - HP50 or HP40 outdoor units

Minimum volume of glycol water in circulation (l)	HP50-4-1P HMB HP40-4-1P HMB	HP50-5-1P HMB HP40-5-1P HMB	HP50-7-1P HMB HP40-7-1P HMB	HP50-8-1P HMB HP40-8-1P HMB	HP50-11-1 PHMB HP40-11-1 PHMB	HP50-11-3 PHMB HP40-11-3 PHMB	HP50-13-1 PHMB HP40-13-1 PHMB	HP50-13-3 PHMB HP40-13-3 PHMB
35°C application Underfloor heating	37	44	51	56	61	61	71	71
45°C application Low temperature radiators or convection fans	21	26	30	34	46	46	48	48
55°C application Medium temperature radiators	20	21	34	35	58	58	63	63

6.4.3 Low loss header

Depending on the output of the outdoor unit, it is necessary to install a low loss header between the outdoor unit and the heating circuit to compensate for pressure drops in the installation.

Tab.17 Assure HP55 or HP60 outdoor units

	Assure HP55-4-1- PHMB HP60-4-1- PHMB	Assure HP55-6-1- PHMB HP60-6-1- PHMB	Assure HP55-8-1- PHMB HP60-8-1- PHMB	Assure HP55-11-1- PHMB HP60-11-1- PHMB	Assure HP55-11-3- PHMB HP60-11-3- PHMB	Assure HP55-13-1- PHMB HP60-13-1- PHMB	Assure HP55-13-3- PHMB HP60-13-3- PHMB
35 °C applica- tion - underfloor heating	not required	not required	not required	compulsory	compulsory	compulsory	compulsory
45 °C applica- tion - convection fans	not required	not required	not required	compulsory	compulsory	compulsory	compulsory
55 °C applica- tion - radiators	not required	not required	not required	not required	not required	not required	not required
65°C application - radiators	not required	not required	not required	not required	not required	not required	not required

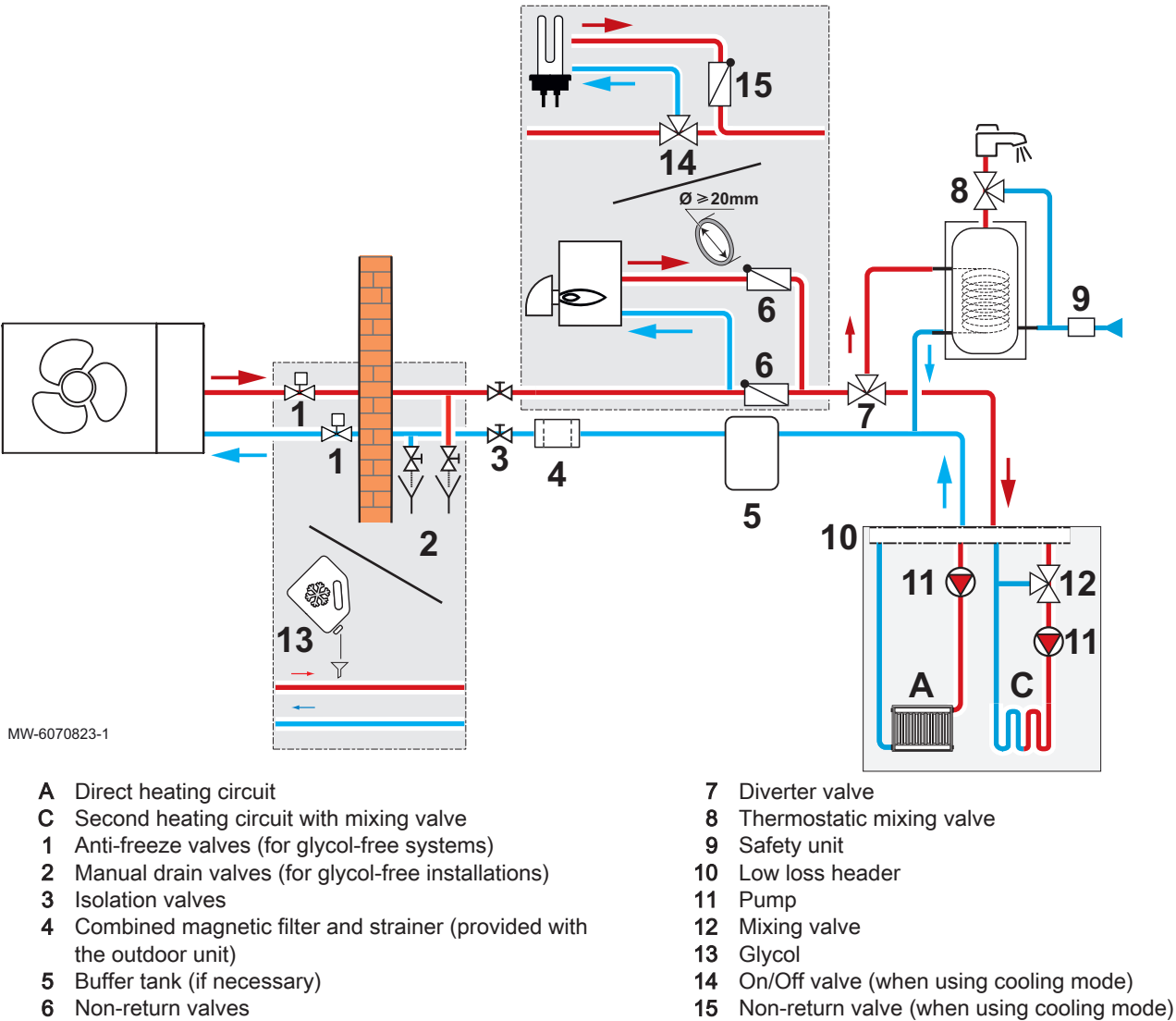
Tab.18 HP50 or HP40 outdoor units

	HP50-4-1P HMB HP40-4-1P HMB	HP50-5-1P HMB HP40-5-1P HMB	HP50-7-1P HMB HP40-7-1P HMB	HP50-8-1P HMB HP40-8-1P HMB	HP50-11-1P HMB HP40-11-1P HMB	HP50-11-3P HMB HP40-11-3P HMB	HP50-13-1P HMB HP40-13-1P HMB	HP50-13-3P HMB HP40-13-3P HMB
35 °C applica- tion - under- floor heating	not required	not required	not required	not required	compulsory	compulsory	compulsory	compulsory
45 °C applica- tion - convec- tion fan	not required	not required	not required	not required	compulsory	compulsory	compulsory	compulsory
55 °C applica- tion - radiators	not required	not required	not required	not required	not required	not required	not required	not required

6.4.4 Recommendations for hydraulic connection

For an installation with two heating circuits, connect the circuit that requires the highest temperature to circuit A and the circuit that requires the lowest temperature to the second circuit, circuit C.

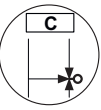
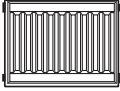
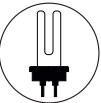
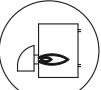
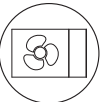
Fig.19



i Important
To prevent any risk of condensation when using the cooling function, install the necessary protection on the installation.

Tab.19

Circuit		Connections to be made
A Direct heating 	 Radiators	Caution In case of a direct circuit with radiators fitted with thermostatic valves, install a differential valve to ensure flow. • Install an automatic air vent at the highest point on the heating circuit. • Install two isolation valves. • Install a non-return valve on the heating flow if a second circuit is installed.
	 Underfloor heating	• Install an automatic air vent at the highest point on the heating circuit. • Install two isolation valves. • Connect the safety temperature limiter. • Install a non-return valve on the heating flow if a second circuit is installed. • If the underfloor heating also includes a cooling function, we recommend that you connect: - either a condensation detection sensor - or a 0-10 V condensation detector.

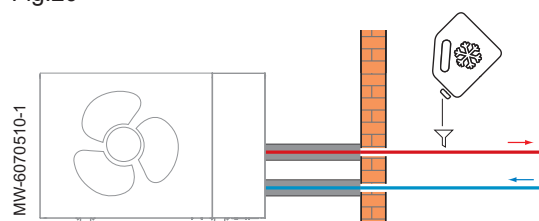
Circuit	Connections to be made
C Second mixing zone   Radiators  Underfloor heating	 Caution In case of a circuit with radiators fitted with thermostatic valves, install a differential valve to ensure flow. • Install an automatic air vent at the highest point on the heating circuit. • Install two isolation valves. • Install the second circuit control system PCB kit SCB-17B. • Install the second circuit kit with mixing valve.
Electrical backup 	If the installation is used in cooling mode: • install a non-return valve on the flow pipe • install an on/off diverter valve
Backup boiler 	• Install a non-return valve (available as an accessory) on the flow pipe. • Install a pressure gauge (if not present).
Domestic Hot Water 	• Install a temperature limiting device, for example a domestic water thermostatic mixing valve (not supplied) on the domestic hot water outlet. • Install a safety unit on the domestic hot water inlet. • Install the kit comprising the heating/DHW diverter valve + domestic hot water sensor. • It is essential to install an immersion heating element if there is no other backup.
Outdoor unit 	• It is essential to install frost protection, such as the use of glycol or anti-freeze valves on the heating flow and return. The anti-freeze valves are available as an accessory. • A magnetic filter must be fitted on the heating return pipe. The combined magnetic filter and strainer is provided with the outdoor unit. • If a hydraulic backup is required, install a non-return valve (available as an accessory) on the flow pipe. • Respect the distance between the outdoor unit and the heating circuit. • Insulate the pipes.


See also

Connection and installation examples, page 75

6.4.5 Outdoor unit frost protection

Fig.20



In normal operation, the outdoor unit and the heating circuit are protected from frost.

To protect the outdoor unit during prolonged power outages and outdoor temperatures below zero, one of the following solutions must be installed:

Solution using glycol

Addition of glycol to the heating circuit.

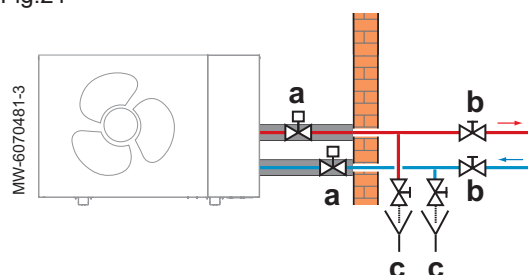
Refer to local regulations and system component manuals to check compatibility.

Automatic draining solution

Installation of two anti-freeze valves on the flow and return of the heating circuit as close as possible to the outdoor unit, outside the building.

The automatic draining solution is not compatible with the use of glycol.

Fig.21



The anti-freeze valves must have the following specifications:

- Opening of the valves at a heating water temperature of +3 °C or less
- Sufficient flow rate to drain the installation before it can freeze



See

Installation manual for anti-freeze valves

The automatic draining solution must be equipped with two isolation valves and two drain valves used to drain the outdoor part of the heating circuit.

- a** Anti-freeze valve
- b** Isolation valve
- c** Drain valve



Caution

In the event of a prolonged power cut (10 hours or more) with negative outdoor temperatures, manual draining is required.

6.4.6 Installing a domestic hot water cylinder

It is possible to connect a domestic hot water cylinder to the heating installation:

1. Identify the output of the outdoor unit using the data plate.
2. Choose a domestic hot water cylinder with sufficient volume and heat exchange surface area.

Tab.20 Assure HP55 or HP60 outdoor units

Outdoor unit	Assure HP55-4-1- PHMB HP60-4-1- PHMB	Assure HP55-6-1- PHMB HP60-6-1- PHMB	Assure HP55-8-1- PHMB HP60-8-1- PHMB	Assure HP55-11-1- PHMB HP60-11-1- PHMB	Assure HP55-11-3- PHMB HP60-11-3- PHMB	Assure HP55-13-1- PHMB HP60-13-1- PHMB	Assure HP55-13-3- PHMB HP60-13-3- PHMB
Recommended volume of domestic hot water cylinder	100 - 290 l	100 - 290 l	150 - 490 l	175 - 500 l	175 - 500 l	175 - 500 l	175 - 500 l
Minimum exchange surface area	> 1.7 m ²	> 1.7 m ²	> 1.7 m ²	> 1.7 m ²	> 1.7 m ²	> 1.7 m ²	> 1.7 m ²

Tab.21 HP50 or HP40 outdoor units

Outdoor unit	HP50-4-1P HMB HP40-4-1P HMB	HP50-5-1P HMB HP40-5-1P HMB	HP50-7-1P HMB HP40-7-1P HMB	HP50-8-1P HMB HP40-8-1P HMB	HP50-11-1 PHMB HP40-11-1 PHMB	HP50-11-3 PHMB HP40-11-3 PHMB	HP50-13-1 PHMB HP40-13-1 PHMB	HP50-13-3 PHMB HP40-13-3 PHMB
Recommended volume of domestic hot water cylinder	100 - 250 l	100 - 250 l	150 - 300 l	150 - 300 l	175 - 500 l	175 - 500 l	175 - 500 l	175 - 500 l
Minimum exchange surface area	> 1.7 m ²	> 1.7 m ²	> 1.7 m ²	> 1.7 m ²	> 1.7 m ²	> 1.7 m ²	> 1.7 m ²	> 1.7 m ²

3. Use an external 3-way valve for the connection.



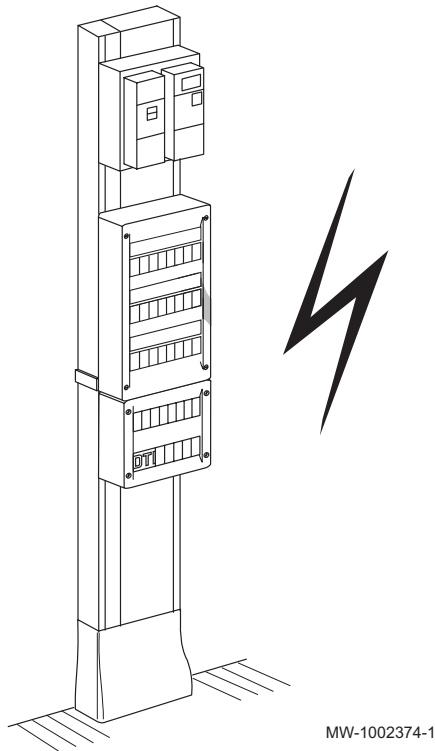
See

Domestic hot water cylinder instructions

6.5 Electrical connections

6.5.1 Checking and preparing the electrical installation

Fig.22



Caution
Only a qualified professional is authorised to work on the electrical part of the installation.

- 1. Always switch off the electrical installation before making any connections.
- 2. Respect the requirements of the prevailing standards when selecting the cables and circuit breakers.

Tab.22 Prevailing standards

Country	Standard
Great Britain	BS 7671

- 3. Check the electrical specifications of the mains power supply available and compare these to the specifications indicated on the data plates on the appliances. The electrical specifications must be compatible.
- 4. Read and follow the instructions in the manual and the electrical diagrams supplied with the appliance.
- 5. Select the cables used for the various connections. The cable cross-sections must:
 - Meet the needs of the installation
 - Conform to the prevailing standards to withstand the maximum amperage of the outdoor unit
 - Take into account the distance between the appliances and the electrical panel
 - Take into account the earthing system
- 6. Supply the appliance via a circuit with an omnipolar switch with an opening gap distance of more than 3 mm. The installation must be equipped with a main switch.
- 7. Check the compliance of the protective earthing before making any electrical connections.

6.5.2 Connecting the electrical circuits

Fig.23 Assure HP55 / outdoor units HP60

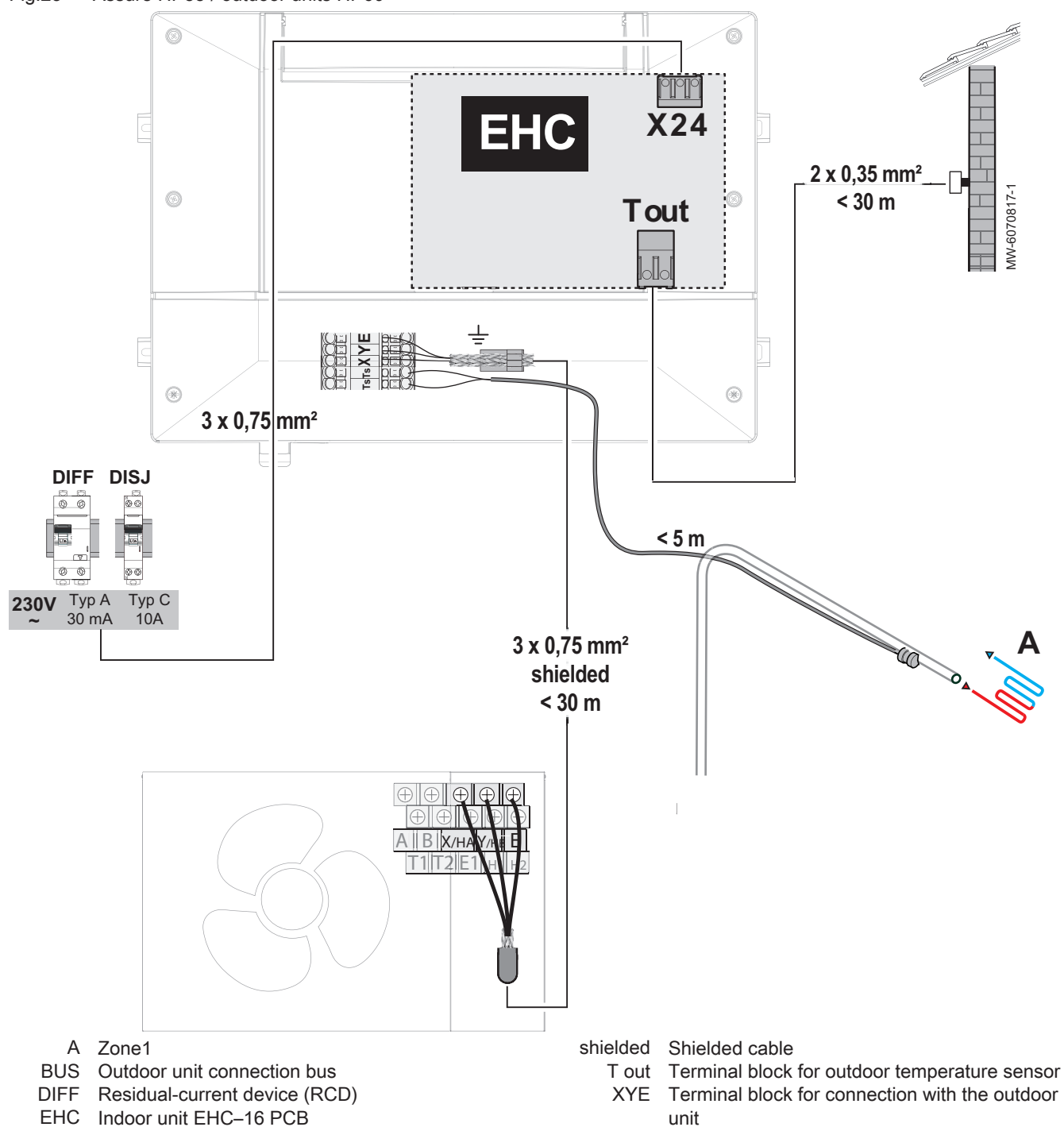
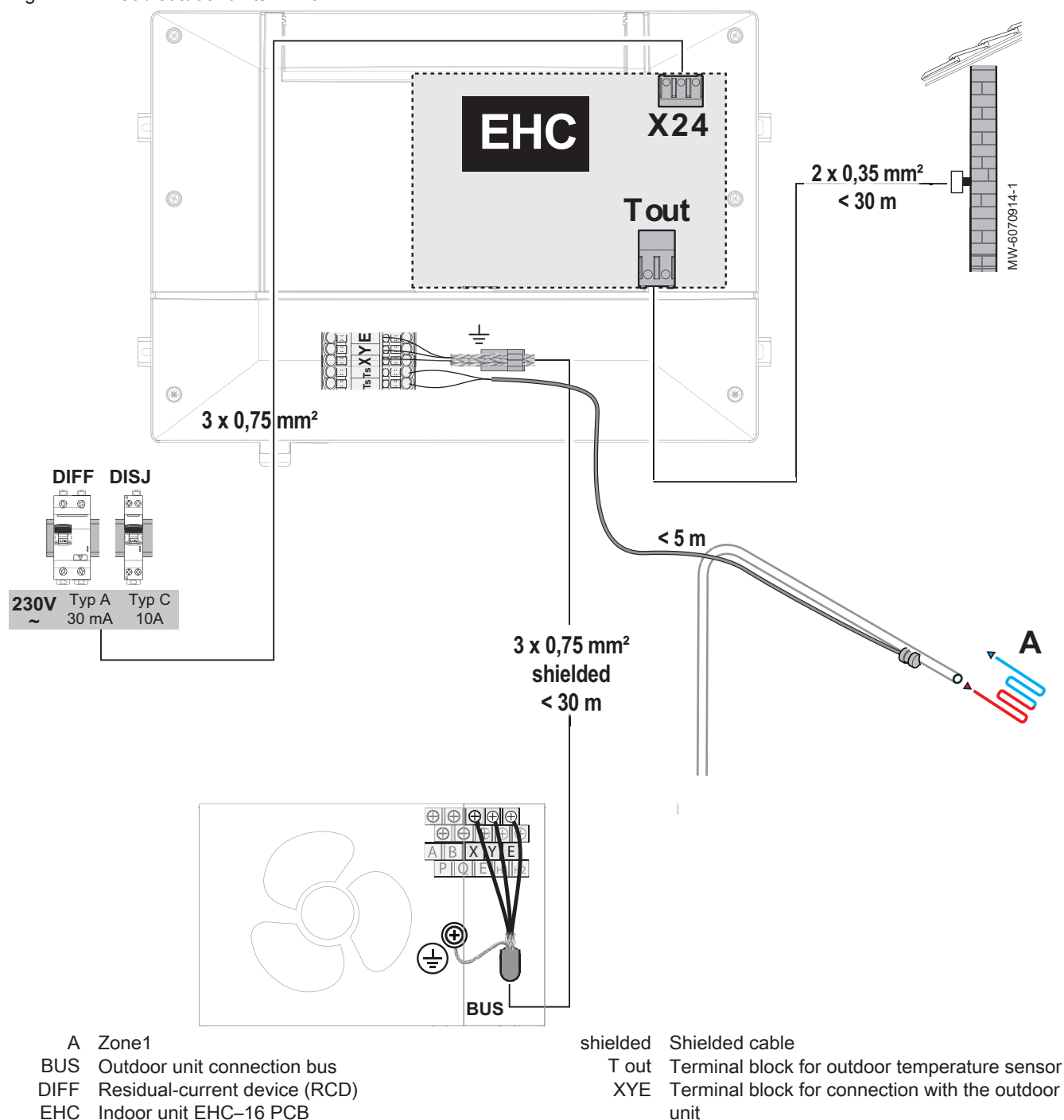


Fig.24 HP50 / outdoor units HP40

**Important**

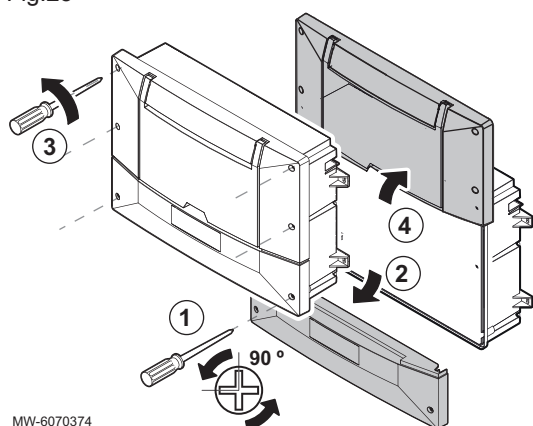
The cable cross-sections are given as a guide only.
Use a shielded cable for the BUS connection between the indoor unit and the outdoor unit to avoid communication problems.

**See also**

Connecting the hydraulic backup, page 34
Connecting a backup electric heater, page 35
Installation with direct circuit and domestic hot water cylinder with electric heating element, page 84

6.5.3 Accessing the indoor unit connectors

Fig.25



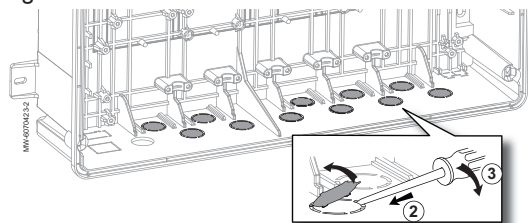
MW-6070374

1. Unscrew the 2 screws on the front lower cover by a quarter turn.
2. Take off the front lower cover.
3. Unscrew the 4 screws on the front upper cover.
4. Position the front upper cover in the maintenance position.

⇒ The connectors for the printed circuit boards are now accessible.

6.5.4 Creating the cable gland openings

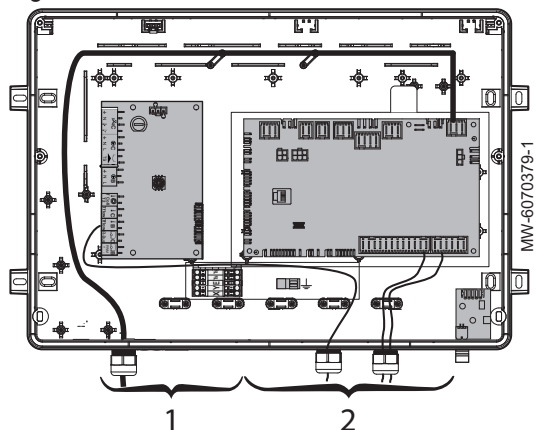
Fig.26



1. Locate the slot to open.
2. Insert a flat screwdriver in the cable gland slot from the inside of the indoor unit.
3. Use the screwdriver as a lever to detach the pre-cut part.

6.5.5 Routing the cables

Fig.27



- 1 230 V power supply cables
- 2 0 - 40 V signal cables

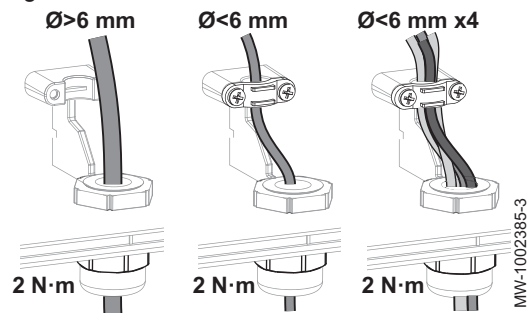


Important

For cable feedthroughs to the outside, always use the cable glands and cut-outs designed for this purpose.

Use left-hand cable glands for the power cables and right-hand cable glands for the signals.

Fig.28



MW-1002385-3

Use the cable clamps placed upstream of the cable glands when:

- a cable has a diameter of less than 6 mm
- a cable gland is used for multiple cables

The cable clamps can hold up to 4 cables with a diameter of less than 6 mm.



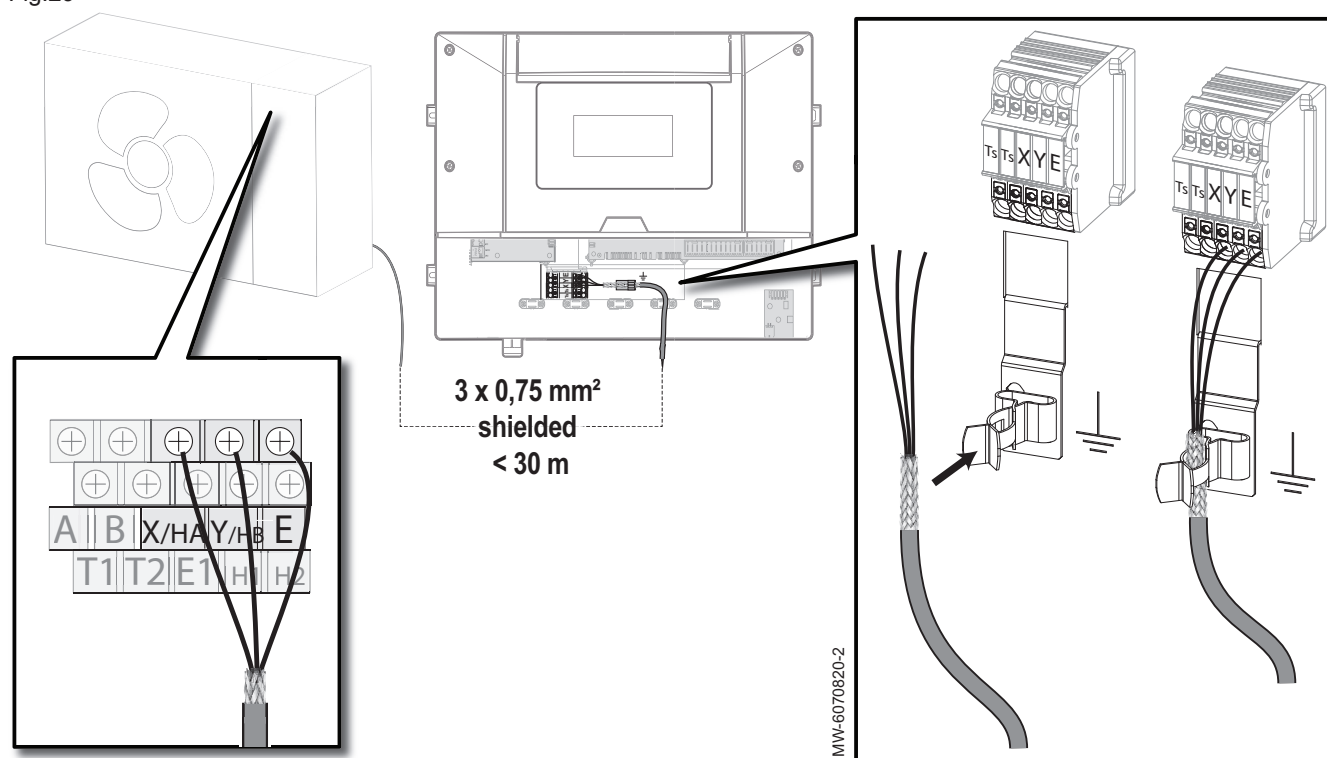
Important

Cable glands and cable clamps must be used with cables that are free from grease.

Tighten the cable glands to 2 N.m.

6.5.6 Connect the Assure HP55 / HP60 outdoor unit to the indoor unit

Fig.29

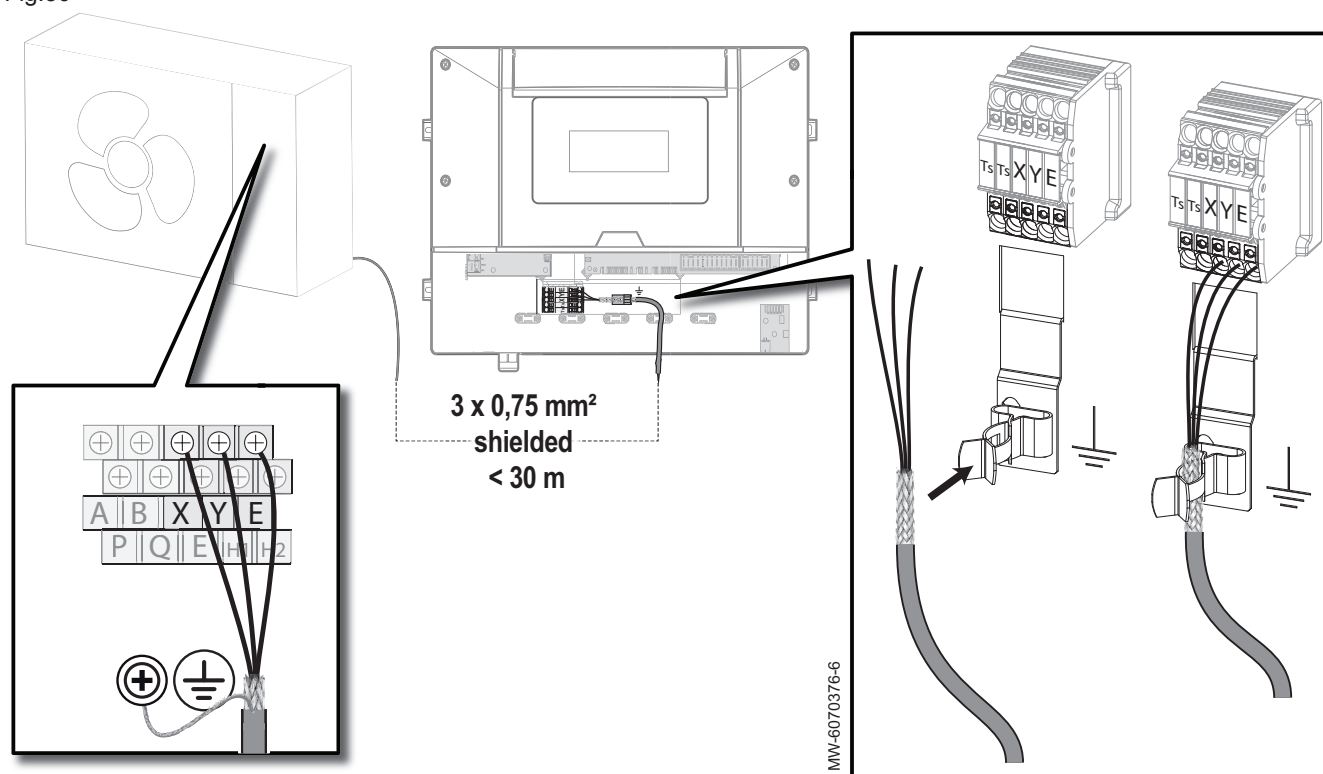


shielded Shielded cable for connection with the outdoor unit

1. Remove the service panel from the outdoor unit.
2. Connect a shielded BUS cable (minimum diameter: 3 x 0.75 mm²) between the terminal block X/Y/E of the outdoor unit and the terminal block X/Y/E of the indoor unit.
3. Insert the shielded BUS cable into the ground connection on the indoor unit.
4. Put the outdoor unit service panel back in place.

6.5.7 Connect the HP50 / HP40 outdoor unit to the indoor unit

Fig.30

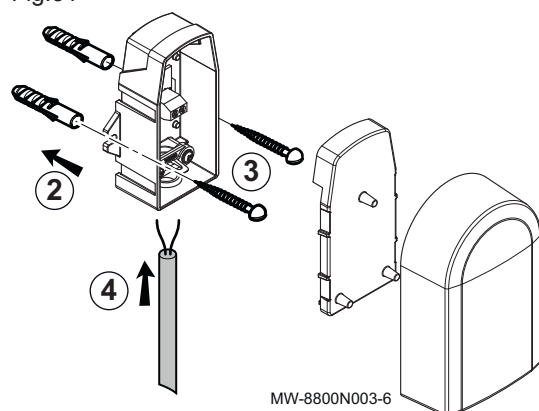


shielded Shielded cable for connection with the outdoor unit

1. Remove the service panel from the outdoor unit.
2. Connect a shielded BUS cable (minimum diameter: $3 \times 0.75 \text{ mm}^2$) between the terminal block X/Y/E of the outdoor unit and the terminal block X/Y/E of the indoor unit.
3. Insert the shielded BUS cable into the ground connection on the indoor unit.
4. Connect the shielding to the earth connection in the outdoor unit.
5. Put the outdoor unit service panel back in place.

6.5.8 Installing and connecting the AF60 outdoor temperature sensor

Fig.31



The connection of an outdoor temperature sensor is mandatory to ensure the correct operation of the appliance.

1. Choose a recommended location for the outdoor temperature sensor.
2. Fit the two wall plugs (diameter 6 mm) delivered with the outdoor temperature sensor.
3. Secure the sensor using the screws provided (diameter 4 mm).
4. Connect the cable (not supplied) to the outdoor temperature sensor.

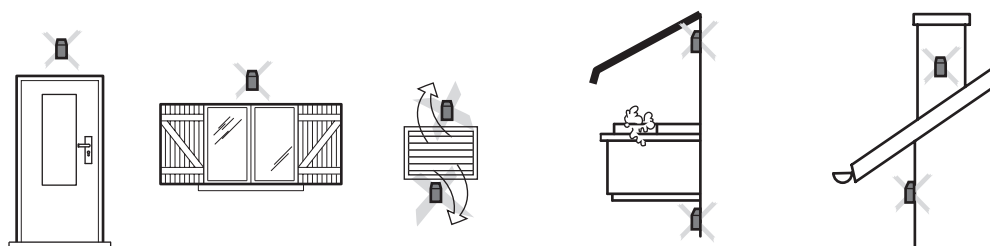
■ Positions to be avoided

Avoid placing the outdoor temperature sensor in a position with the following characteristics:

- Masked by a building element (balcony, roof, etc.).

- Close to a disturbing heat source (sun, chimney, ventilation grille, air flow from outdoor unit, etc.)

Fig.32



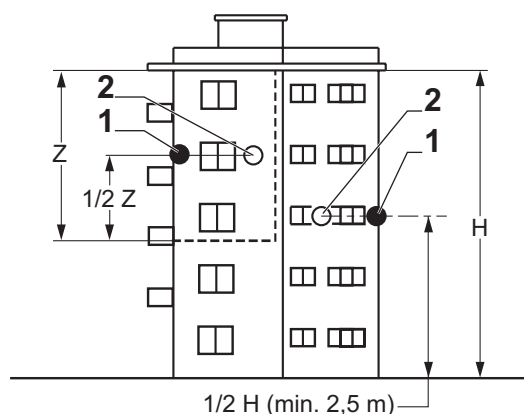
MW-3000014-2

■ Recommended positions

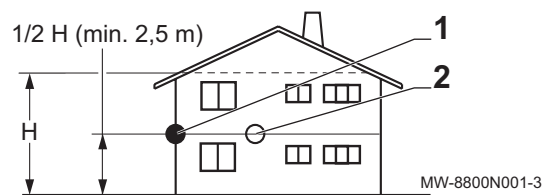
Place the outdoor temperature sensor in a position that covers the following characteristics:

- On a façade of the area to be heated, on the north if possible.
- Halfway up the wall of the area to be heated
- Affected by changes in the weather
- Protected from direct sunlight.
- Easy to access.

Fig.33



- 1 Optimum location
2 Possible position



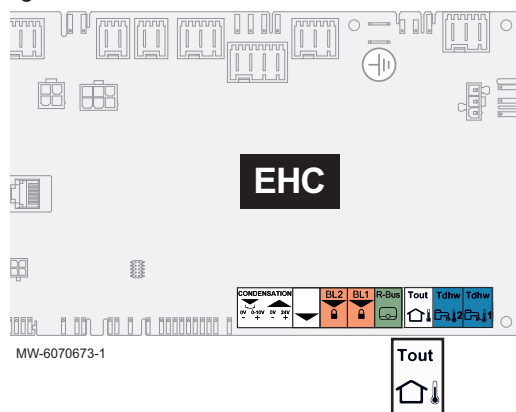
MW-8800N001-3

- H Inhabited height controlled by the sensor
Z Inhabited area controlled by the sensor

■ Connecting the outdoor temperature sensor

1. Use a cable with a minimum cross section of $2 \times 0.35 \text{ mm}^2$ and a maximum length of 30 metres.
2. Connect the outdoor temperature sensor to the **Tout** input on the **X28** connector for the **EHC-16** central unit PCB on the indoor unit.

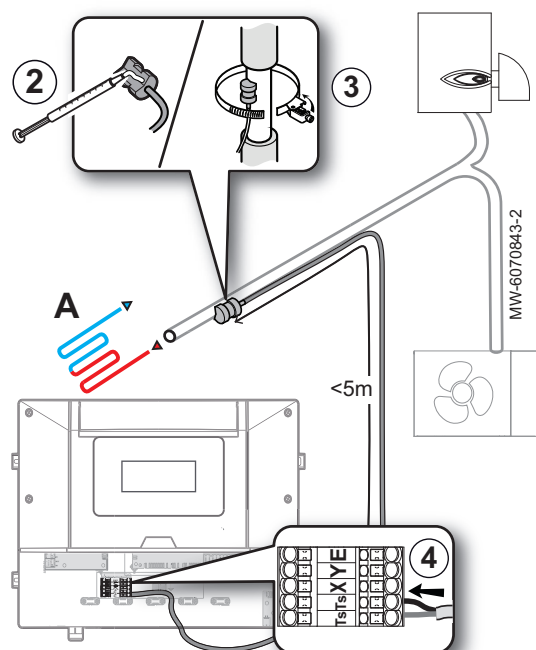
Fig.34



MW-6070673-1

6.5.9 Fitting the heating flow temperature sensor

Fig.35



Choosing the correct location and positioning the temperature sensor correctly limits discomfort due to incorrect reading of the temperature

1. Choose a location on a metal pipe that is permanently irrigated, whatever the heat generator in operation, and no more than 5 metres from the indoor unit.
2. Apply the heat-conducting silicone paste to the temperature sensor.
3. Secure the heating flow temperature sensor with the clamp.
4. Insulate the heating flow temperature sensor.
5. Connect the temperature sensor to the indoor unit Ts terminal blocks.

6.5.10 Scenarios when a backup is necessary



Caution

If no backup is connected, the comfort in heating and domestic hot water mode and frost protection of the appliance may not be guaranteed, the life of the heat pump may be reduced and safety problems may be caused.

A backup is mandatory in the following cases:

- The heat pump is not designed to cover 100% of the building's heat loss.
- The outside air temperature may be outside the heat pump's operating limits.
- The domestic hot water setpoint is above 53 °C without an immersion heater in the domestic hot water cylinder.
- Anti-legionella treatment is necessary in a domestic hot water cylinder without an immersion heater.
- The water temperature in the heating circuit may be below 5 °C:
 - When commissioning the heat pump.
 - If the heat pump is not used for a long time.
 - During a prolonged power cut.



See also

Outdoor unit frost protection, page 24

6.5.11 Connecting the hydraulic backup



See also

Configuring the backup boiler, page 44

■ Connecting an OpenTherm backup boiler

1. Connect the boiler to terminal block **X31** on the main **EHC-16** PCB.
2. Connect the pumps, temperature sensors and circuit valves to the indoor unit.

Fig.36

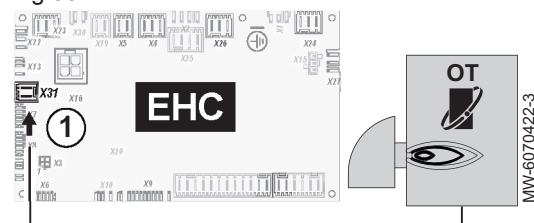
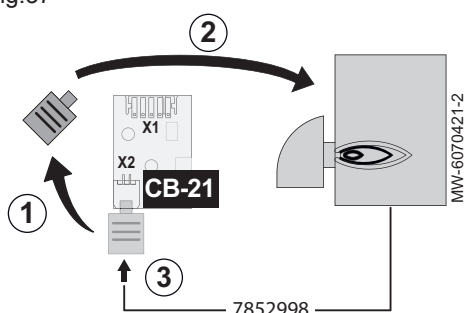


Fig.37



■ Connecting an L-BUS backup boiler

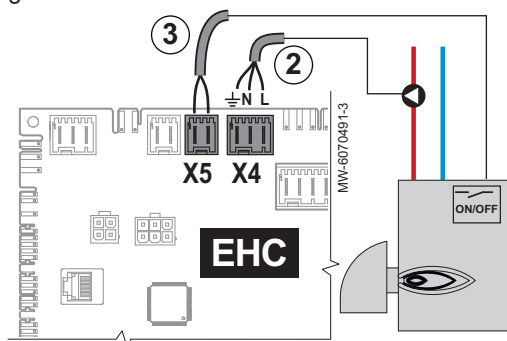
1. Disconnect the L-BUS bus terminator from terminal block X2 on the CB-21 PCB.
2. Connect the L-BUS bus terminator to the backup boiler PCB.
3. Use the optional cable 7852998 to connect the backup boiler to terminal block X2 on the CB-21 PCB.



See

See the boiler manual.

Fig.38



■ Connecting a backup boiler controlled via a dry contact

The backup boiler is connected to the **EHC-16** central unit PCB of the indoor unit:

1. Connect the RAST connectors provided in the accessories bag **X4** and **X5** for the **EHC-16** PCB.
- 2.

Location of the circulation pump	Connection to be carried out
External circulation pump to the backup boiler	Connect the backup boiler pump to X4 .
Internal circulation pump to the backup boiler	Do not connect anything to X4

3. Connect the dry contact **ON/OFF** to **X5**.
⇒ This dry contact will control the activation and deactivation of the backup boiler.
4. Connect the pumps, temperature sensors and circuit valves to the indoor unit.

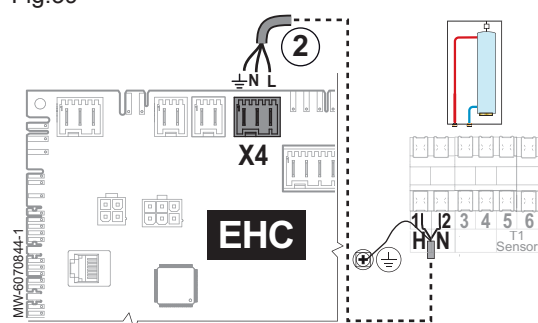


See also

Configuring the parameters of an On/Off backup boiler, page 44

6.5.12 Connecting a backup electric heater

Fig.39



The optional backup electric heater is connected to the indoor unit's **EHC-16** board:

1. Connect the RAST connector supplied in the accessory bag to the **X4** terminal on the **EHC-16** board.
2. Connect the terminals **1/H** and **2/N** and the earth connection of the heating element to the terminal **X4** on the **EHC-16** board.

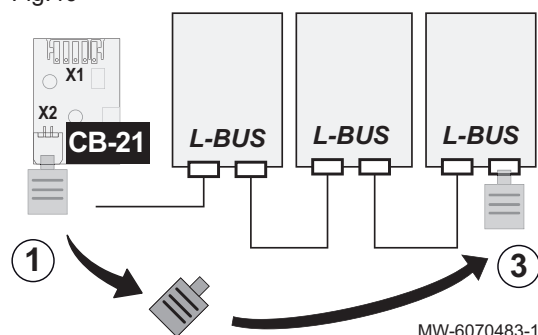


See

See the manual for the backup electric heater.

6.5.13 Connecting the external options

Fig.40



The external options are connected to the **CB-21** external options connection PCB of the indoor unit :

1. Recover the factory-connected L-BUS bus terminator, on the terminal block **X2** on the **CB-21** PCB.
2. Connect the options to form an L-BUS chain from the **CB-21** PCB.
3. Connect the L-BUS bus terminator to the last element in the L-BUS chain.

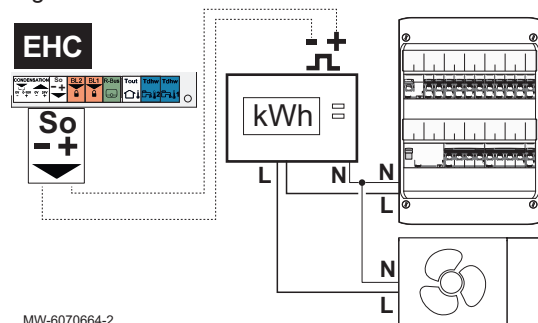


See

Option installation instructions

6.5.14 Connecting an energy meter

Fig.41



Connecting an energy meter to the outdoor unit's power supply means you can accurately measure the electrical energy consumed.

- Do not install an energy meter on the power supply of the heating element
- Do not install an energy meter on the power supply of the indoor unit

1. Choose an EN 62053-31 standard pulse-type energy meter.
2. Connect the energy meter to the power supply of the outdoor unit to measure the electricity consumption.

Outdoor unit power supply	Type of energy meter to be connected
Single phase	Single phase
Three phase	Three phase

3. Connect the **S0+/S0-** output of the energy meter to the **S0+/S0-** input on the **EHC-16** PCB of the indoor unit for pulse counting.



See also

Configuring the electrical energy consumption function, page 52

6.5.15 Checking the electrical connections

1. Check the mains electricity connection to the following components:
 - Outdoor unit
 - Indoor unit
 - Heating element or backup boiler depending on the appliance model
2. If installing with a backup boiler, check the connection between the backup boiler and the indoor unit: backup boiler pump control and heating demand or burner start-up control.

3. Check the bus cable between the indoor unit and the outdoor unit:
 - Shielded cable
 - Cable separated from power supply cables
 - Cable correctly connected on both sides
4. Check the compliance of the circuit breakers and residual current devices (RCD) used:
 - Circuit breaker and residual current device (RCD) of the outdoor unit
 - Heating element or backup boiler circuit breaker depending on the appliance model
5. Check the positioning and connection of the sensors:
 - Outdoor temperature sensor
 - Heating flow temperature sensor
 - Flow temperature sensor for the second circuit (if present)
 - Domestic hot water temperature sensor (if present)
6. Check the connection of the circulating pump(s).
7. Check the connection of the different options.
8. Check that the wires and terminals are properly tightened or connected to the terminal blocks.
9. Check the separation of the 230 V power cables and extra-low voltage cables.
10. Check that cable clamps are used for all cables exiting the appliance.
11. Check the connection of the underfloor heating safety temperature limiter (if used).

6.6 Filling and checking the installation

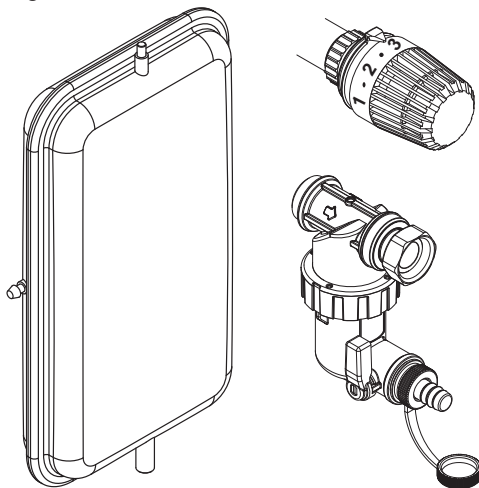
6.6.1 Filling the heating circuit

After flushing the installation and checking that the filters are clean, you can fill the heating circuit with water from the distribution network.

1. Check that the automatic bleed valve present on the outdoor unit is open (at least 2 turns).
2. Fill the installation until a pressure of 2 bar is reached.
3. Check that there are no leaks.
4. Bleed the installation fully for optimal operation.

6.6.2 Checking the heating circuit

Fig.42



1. Check that the volume of the expansion vessel(s) is sufficient for the volume of water in the heating installation.
2. Check the inflation pressure of the expansion vessel(s).
3. Check that the heating circuit has a sufficient water fill level. If necessary, top up the water.
4. Check that the water connections are properly sealed.
5. Check that the heating circuit has been properly vented.
6. Check that the filter is not clogged. Clean it if necessary.
7. Check that the condensates are being correctly drained from the outdoor unit.
8. Check that the valves and thermostatic radiator valves are open.
9. Check that all settings and safety devices are working correctly.
10. Check the water quality, after a few operating hours.
11. Vent the heating circuit again.

12. Check the pressure in the heating circuit.

Measured pressure Pm	Action to be taken
Pm < 0.15 MPa (Pm < 1.5 bar)	• Heating circuit filled with pure water: top up with pure water. • Heating circuit filled with glycol water: top up with glycol water, using the same mix as the product initially used.
0.15 MPa ≤ Pm ≤ 0.2 MPa (1.5 bar ≤ Pm ≤ 2 bar)	No action to be taken.
Pm > 0.2 MPa (Pm > 2 bar)	Drain a small amount of water from the circuit to reduce the pressure.

7 Commissioning

7.1 General

The commissioning procedure for the heat pump is performed:

- The first time it is used
- After a prolonged period of shutdown

Commissioning of the heat pump allows the user to review the various settings and checks to be made to start up the heat pump in complete safety.

7.2 Action to be taken before commissioning



Caution

The following steps must only be performed by a qualified professional prior to commissioning.

1. Refit all the panels, fascias and covers on the indoor unit and outdoor unit.
2. Arm the outdoor unit circuit breakers on the electrical panel.
3. Connect the indoor unit.
⇒ The **Welcome** message is displayed.

7.3 Commissioning procedure with smartphone



Caution

Commissioning must only be performed by a qualified professional.

To commission and configure the installation via the **Baxi START** smartphone app, a **Bluetooth®** connection must be established between the smartphone and the heat pump indoor unit. The **Bluetooth®** connection is only possible in one of the following scenarios:

- The indoor unit is factory fitted with the **BLE Smart Antenna PCB**.
- The **GTW-35** service tool is connected to the indoor unit.

1. Download the **Baxi START** application on **Google Play** or on the **App Store**.
2. Activate **Bluetooth®** in the smartphone settings.
3. Start the application.
4. Follow the instructions for the application on the smartphone for commissioning and configuring the heating installation.

Once the procedure is complete, the installation is fully configured. The **Bluetooth®** on the appliance can be deactivated.

Fig.43



MW-1001598-2

7.4 Commissioning procedure without smartphone

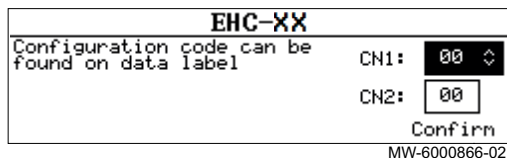


Caution

Commissioning must only be performed by a qualified professional.

1. Select Country and language.
2. Configure Date and time.
3. Configure the Enable daylight save function.
4. Set the **CN1** and **CN2** parameters. The values are available on the data plate of the indoor unit. They are also shown in the table below.
 - The parameters **CN1** and **CN2** indicate to the system the output of the outdoor unit.
 - These parameters can also be accessed after commissioning:

Fig.44



Tab.23

Menu path	
 >  Installer > Installer code 0012 > Advanced menu > Set configuration code > EHC-16	

5. Select **Confirm** to save the settings.
6. The heat pump begins its vent cycle.

Points to check:

- Read the flow temperature.

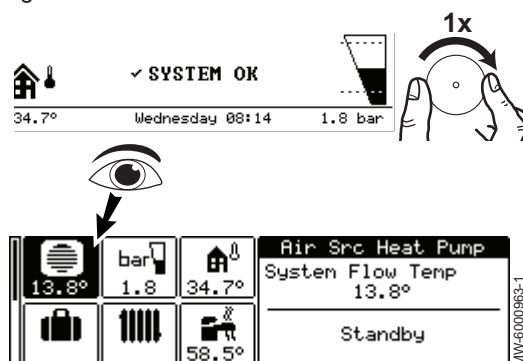
At the end of the vent cycle, if the heat pump does not start, check the flow temperature on the user interface. The flow temperature must be above 6 °C to enable the outdoor unit to start in heating mode.



Important

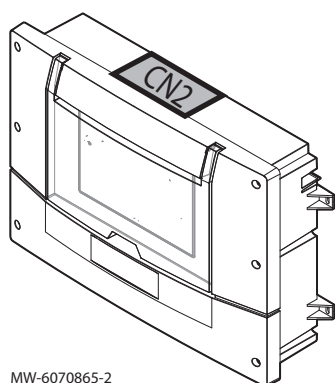
With a flow temperature below 6 °C, the backup and then the outdoor unit operate to protect the system from low temperatures.

Fig.45



7.5 CN1 and CN2 parameters

Fig.46



The **CN1** and **CN2** parameters are used to configure the heat pump based on the output of the installed outdoor unit.

Tab.24 With a Assure HP55 or HP60 outdoor unit

Outdoor unit	CN1	CN2
Assure HP55-4-1-PHMB HP60-4-1-PHMB	13	2
Assure HP55-6-1-PHMB HP60-6-1-PHMB	14	2
Assure HP55-8-1-PHMB HP60-8-1-PHMB	15	2

Outdoor unit	CN1	CN2
Assure HP55-11-1-PHMB HP60-11-1-PHMB	16	2
Assure HP55-11-3-PHMB HP60-11-3-PHMB	18	2
Assure HP55-13-1-PHMB HP60-13-1-PHMB	17	2
Assure HP55-13-3-PHMB HP60-13-3-PHMB	19	2

Tab.25 With a HP50 or HP40 outdoor unit

Outdoor unit	CN1	CN2
HP50-4-1PHMB HP40-4-1PHMB	4	2
HP50-5-1PHMB HP40-5-1PHMB	5	2
HP50-7-1PHMB HP40-7-1PHMB	6	2
HP50-8-1PHMB HP40-8-1PHMB	7	2
HP50-11-1PHMB HP40-11-1PHMB HP50-11-3PHMB HP40-11-3PHMB	8	2
HP50-13-1PHMB HP40-13-1PHMB HP50-13-3PHMB HP40-13-3PHMB	9	2



See also
Data plate, page 12

7.6 Configuring the backup type

Configuring the backup type enables more accurate energy metering.

1. Follow the access path below.

Menu path
 >  Installer > Installation setup > Heat Pump > Backup

2. Configuring the backup type

Parameter	Description	Adjustment required
Backup type HP029	Type of backup used in the heat pump	• Without heating backup + domestic hot water immersion heating element: No Backup • Without heating backup and without domestic hot water cylinder: No Backup • Heating element: 1 Electrical Stage • Boiler Backup
Delay startbackup CH HP030	Delay time for starting the backup energy source for the heating circuits Can be set from 0 Min to 600 Min Set to 0 Min: The backup is started automatically based on the outdoor temperature	Factory set to 0 Min: The backup is started automatically based on the outdoor temperature

**See also**

Connecting the hydraulic backup, page 34
 Connecting a backup electric heater, page 35
 Installation with direct circuit and domestic hot water cylinder with electric heating element, page 84
 Hydraulic diagram, page 84
 Connecting and configuring the heat pump, page 85

7.7 Setting the flow rate of the direct circuit

Heating installations must be able to guarantee a minimum flow rate at all times. If the flow rate is too low, the heat pump may shut itself down for its own protection and the heating and cooling functions are then no longer guaranteed.

- For installations with underfloor heating, check that the collector pipe valves open.
 - For an installation with radiators, set the flow rate using the compulsory pressure actuated bypass valve.
1. If there is a second circuit, set it to frost protection mode to shut down the heat demand.
 2. Close the thermostatic valves on all the radiators in the first circuit.
 3. Follow the access path below.

Menu path

> **Installer > Signals > Heat Pump**

4. Access the measurement of the water flow rate in the circuit in heating mode:

Signal	Description
Flow rate AM056	Water flow rate in the system

5. Check that the flow rate measured at **Flow rate** AM056 is higher than the minimum flow rate, depending on the power of the outdoor unit.

Tab.26 Assure HP55 or HP60 outdoor units

	Assure HP55-4-1- PHMB HP60-4-1- PHMB	Assure HP55-6-1- PHMB HP60-6-1- PHMB	Assure HP55-8-1- PHMB HP60-8-1- PHMB	Assure HP55-11-1- PHMB HP60-11-1- PHMB	Assure HP55-11-3- PHMB HP60-11-3- PHMB	Assure HP55-13-1- PHMB HP60-13-1- PHMB	Assure HP55-13-3- PHMB HP60-13-3- PHMB
Minimum flow rate	6.6 l/min	6.6 l/min	6.6 l/min	11.7 l/min	11.7 l/min	11.7 l/min	11.7 l/min

Tab.27 HP50 or HP40 outdoor units

	HP50-4-1P HMB HP40-4-1P HMB	HP50-5-1P HMB HP40-5-1P HMB	HP50-7-1P HMB HP40-7-1P HMB	HP50-8-1P HMB HP40-8-1P HMB	HP50-11-1P HMB HP40-11-1P HMB	HP50-11-3P HMB HP40-11-3P HMB	HP50-13-1P HMB HP40-13-1P HMB	HP50-13-3P HMB HP40-13-3P HMB
Minimum flow rate	6.6 l/min	6.6 l/min	6.6 l/min	6.6 l/min	11.7 l/min	11.7 l/min	11.7 l/min	11.7 l/min

7.8 Final instructions for commissioning

1. Check that the following installation components are switched on correctly:
 - Circulating pumps
 - Outdoor unit
2. Check the flow rate in the installation.
3. Check the setting of the temperature limiting device.

4. Shut down the heat pump and carry out the following operations:
 - After about 10 minutes, vent the air in the heating system.
 - Check the hydraulic pressure. If necessary, top up the water level in the heating system.
 - Check the clogging of the filter or filters present on the installation. If necessary, clean the filter(s).
5. Restart the heat pump.
6. Explain the operation of the installation to the user.
7. Hand over all manuals to the user.

8 Settings

8.1 Accessing the Installer level

Fig.47

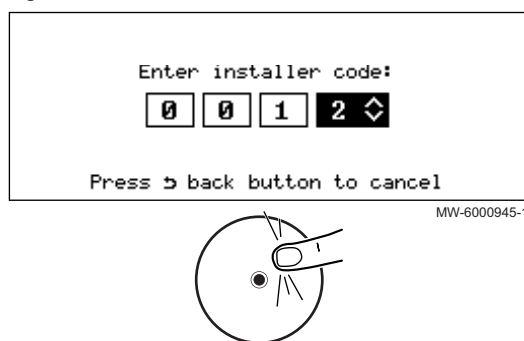


Certain parameters, which may affect the operation of the appliance, are protected by an access code. Only the installer is authorised to modify these parameters.

To access the Installer level:

1. Press the  button until the carousel screen appears.
2. Select  **Installer**.

Fig.48



3. Enter the code **0012**.
 - ⇒ The Installer level is now activated. All the functions and parameters are accessible.

If no action is taken for 30 minutes, the system will automatically exit the Installer level.

8.2 Searching for a parameter or a measured value

If you know the code for a parameter or a measured value, using the  Search function is the easiest way to access it directly.

1. Follow the access path described below.

Access path

 >  Search

2. Enter the Installer access code (**0012**) if you are prompted to do so.
3. Enter the code for the required parameter or measured value using the  button.
4. Press the  button to start the search.
 - ⇒ The measured value or parameter is displayed.

8.3 Setting the circuit function

Set the circuit function based on the constituent components of the heating circuit.

1. Follow the access path described below.

Menu path	
	>  Installer > Installation setup > Zone1 or Zone3 > Zone Function (CP020)

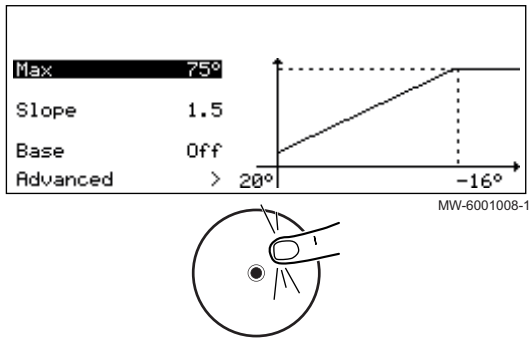
2. Select the value that corresponds to the type of circuit selected:

Value	Description	Zone1 EHC-16	Zone3 SCB-17B
Disable	No circuit connected	available	available
Direct	Direct heating circuit, without mixing valve	available	available
Mixing Circuit	Heating circuit for direct underfloor heating (Zone1) Heating circuit with mixing valve (Zone3)	available	available
Swimming pool	Swimming pool heating	not available	available
High Temperature	Heating a circuit in summer, for example for a towel rail	available	available
Fan Convector	Heating circuit with convection fans	available	available
DHW tank	Heating a domestic hot water tank	not available	available
Electrical DHW	Controlling the electric heating element on a water heater	not available	available
Time Program	Controlling an electrical circuit based on the timer programme	not available	available
ProcessHeat	Heating a circuit without a timer programme	not available	available

8.4 Configuring the heating circuit

8.4.1 Setting the heating curve

Fig.49



The heating curve is set when the installation is commissioned, thermostatic valves open if necessary. In event of major losses from the building, it is necessary to adjust the gradient of the curve mid-season then mid-winter in increments of 0.1 every 24 hours (building inertia).

1. Follow the menu path described below.

Menu path	
	>  Installer > Installation setup > Zone1 or Zone3 > Heat curve

2. Set the following parameters.

Parameter	Description	Adjustment required
Zone Heating Curve CP230 CP231 for Zone3	Value of the heating curve gradient	- Underfloor heating circuit: gradient between 0.4 and 0.7 - Radiator circuit: gradient of approx. 1.5
Zone HCZP Comfort CP210 CP211 for Zone3	Curve base temperature in Comfort mode If the curve base temperature in comfort mode is set to 15 °C, then it becomes equal to the Wished room temperature setpoint of the zone CM190 CM191 for Zone3	Default value: 17 °C = CM190 / CM191
Zone HCZP Reduced CP220 CP221 for Zone3	Curve base temperature in Reduced mode If the curve base temperature in comfort mode is set to 15 °C, then it becomes equal to the Required room setpoint temperature for the circuit CM190 CM191 for Zone3	Default value: 17 °C = CM190 / CM191
MaxZoneTFlowSetpoint CP000 CP001 for Zone3	Maximum Flow Temperature setpoint zone Can be set from 7 °C to 75 °C	75 °C

8.4.2 Configuring cooling mode

Cooling mode is used to lower the temperature in the selected zone to below the outdoor temperature. Cooling of the zone is only possible if it is equipped with underfloor heating (parameter **Zone Function** (CP020) set to **Mixing Circuit**).

1. Follow the access path described below to access the heat pump parameters.

Menu path
 >  Installer > Installation setup > Heat Pump > General

2. To allow cooling of the heating zone, activate the heat pump heating function by configuring the parameter **CH function on** (AP016).

Parameter	Description	Adjustment required
CH function on AP016	Enable central heating demand processing	On

3. Follow the menu path described below to access the parameters for Cooling mode.

Menu path
 >  Installer > Installation setup > Heat Pump > Cooling

4. To enable cooling of the zone in question, configure the parameter **Cooling mode** (AP028) or **Forced cooling mode** (AP015).

Parameter	Description	Adjustment required
Cooling mode AP028	Configuration of the cooling mode Only enables cooling when the mode is active, by default when the outdoor temperature exceeds 22 °C: value can be modified via the parameter Summer Winter (AP073).	Active cooling on
Forced cooling mode AP015	The cooling mode is always enabled and no longer controlled by the outdoor temperature Forced cooling mode mode allows cooling regardless of the outdoor temperature.	Yes

5. Follow the access path described below to access the cooling setpoint temperatures for the desired zone.

Menu path

 >  Installer > Installation setup > Zone1 or Zone3 > General

6. Configure the parameters linked to cooling of each corresponding zone.

Parameter	Description	Adjustment required
Parameter for under-floor heating: Floor cool setpoint CP270 CP271 for Zone3	Cooling flow temperature setpoint for the underfloor cooling Can be set from 11 °C to 23 °C	18 °C (default value). Set the temperature according to the type of floor and the level of humidity.
Parameter for a circuit with convection fan: Fan cool setpoint CP280 CP281 for Zone3	Cooling flow temperature setpoint for the fan convector Can be set from 7 °C to 23 °C	7 °C (default value). Set the temperature according to the convection fans used.
RevContactOTH cool CP690 Only for Zone1	Reversed OpenTherm contact in cooling mode for heat demand per zone	• No • Yes Check the setting depending on the thermostat or room temperature sensor used.
Parameter for under-floor heating in Zone1: Humidity sensor AP072	Humidity sensor configuration	• No • OnOff • 0-10V Check the setting according to the sensor used.

8.5 Configuring the backup boiler



See also

Connecting the hydraulic backup, page 34

8.5.1 Configuring the parameters of an On/Off backup boiler

To ensure optimal performance of the heat pump system with a backup boiler, it is necessary to configure the parameters of the backup boiler.

1. Adjust the boiler in 24/7 comfort mode or set a fixed setpoint.
2. Adjust the heating setpoint temperature to a temperature 5 °C above the domestic hot water setpoint temperature or the setpoint temperature for the anti-legionella function.



See

Boiler installation manual



See also

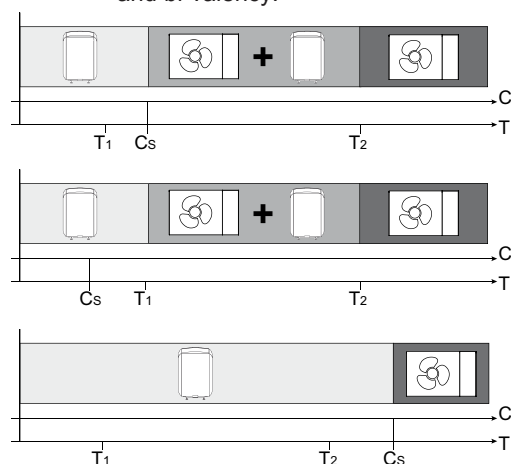
Connecting a backup boiler controlled via a dry contact, page 34

8.5.2 Configuring the hybrid operating mode for a backup boiler

Hybrid operating mode is only available for appliances with a backup boiler.

The hybrid function consists of an automatic switch between the heat pump and the boiler, depending on the cost, the consumption or emission of CO₂ of each heat generator.

Fig.50 Influence of outdoor temperatures and bi-valency.



MW-5000542-2

C COP: Coefficient of performance

C_S Threshold COP: if the coefficient of performance of the heat pump is higher than the threshold coefficient of performance, the heat pump takes priority. Otherwise only the boiler backup is enabled. The heat pump COP depends on the outdoor temperature and the heating water setpoint temperature.

T Outdoor temperature

T₁ **Min outdoor T HP** (HP051) parameter: Minimum outdoor temperature below which the compressor of the heat pump is stopped

T₂ **Bivalent temperature** (HP000) parameter: Bivalent temperature. Above the bi-valency, the backup is cut off: only the heat pump is authorised to function.

1. Follow the menu path below.

Menu path

☰ > Installer > Installation setup > Heat Pump

2. Configure the heat pump parameters.

Parameter	Description	Adjustment required
Bivalent temperature HP000	Bivalent temperature	5 °C
Hybrid mode HP061	Hybrid mode selection to choose on what basis the hybrid system will optimise	Set according to the optimisation required. See following table. • HP First • Hybrid Cost • Primary Energy • Hybrid CO2
Peak elec cost HP062	Peak rate electricity cost	Enter the price of electricity at peak rate. By default: 0.19
Off-peak elec cost HP063	Off-peak rate electricity cost	Enter the price of electricity at off-peak rate. By default: 0.15
Gas or oil cost HP064	Cost of gas per m3 or oil per litre	Enter the price of fuel. By default: 0.9

3. Choose energy consumption optimisation.

Value of the Hybrid mode (HP061) parameter	Description
HP First	No optimisation: the heat pump always starts up first, regardless of the conditions. The boiler back-up starts up afterwards, if necessary.
Hybrid Cost	Optimisation of energy costs for the consumer (factory setting): the control system chooses the cheapest generator according to the coefficient of performance of the heat pump and according to energy cost.
Primary Energy	Optimisation of primary energy consumption: the control system chooses the generator that consumes the least primary energy. The switch between the heat pump and the boiler occurs at the value of the coefficient of performance threshold COP Threshold (HP054) .
Hybrid CO2	Optimisation of CO ₂ emissions: the control system chooses the generator that emits the least CO ₂ .

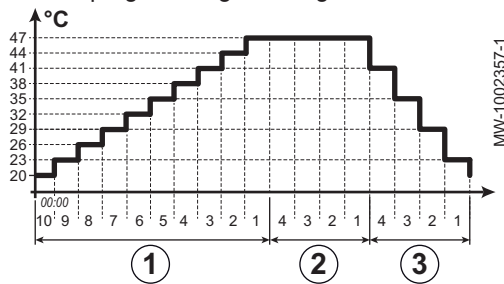
8.6 Drying the screed

The **Screed drying** function is set in 3 stages. Each stage is defined by:

- A start setpoint temperature in °C
- An end setpoint temperature in °C
- A duration in days

The screed drying times and temperatures are to be defined according to the screed manufacturer's specifications.

Fig.51 Example of screed drying programming in 3 stages.



- ① Stage 1
- ② Stage 2
- ③ Stage 3

1. Follow the path described below to access the screed drying parameters for the zone in question:

Tab.28

Access path

☰ > Installer > Installation setup > Zone1 or Zone3 > Screed drying

2. Configure the screed drying parameters for stage 1:

Parameter	Description	Adjustment required
Screed drying time 1 ZP000 ZP001 for Zone3	Set the number of days spent in the first screed drying step	Number of days of drying for stage 1
Screed start temp 1 ZP010 ZP011 for Zone3	Set the start temperature for the first step of screed drying	Drying start temperature for stage 1
Screed end temp 1 ZP020 ZP021 for Zone3	The end temperature for the first step of screed drying	Drying end temperature for stage 1

3. Configure the screed drying parameters for stage 2:

Parameter	Description	Adjustment required
Screed drying time 2 ZP030 ZP031 for Zone3	Set the number of days spent in the second screed drying step	Number of days of drying for stage 2
Screed start temp 2 ZP040 ZP041 for Zone3	Set the start temperature for the second step of screed drying	Drying start temperature for stage 2
Screed end temp 2 ZP050 ZP051 for Zone3	The end temperature for the second step of screed drying	Drying end temperature for stage 2

4. Configure the screed drying parameters for stage 3:

Parameter	Description	Adjustment required
Screed drying time 3 ZP060 ZP061 for Zone3	Set the number of days spent in the third screed drying step	Number of days of drying for stage 3
Screed start temp 3 ZP070 ZP071 for Zone3	The end temperature for the third step of screed drying	Drying start temperature for stage 3
Screed start temp 3 ZP070 ZP071 for Zone3	Enable the screed drying of the zone	Drying end temperature for stage 3

5. Activate screed drying:

Parameter	Description	Adjustment required
Screed drying enable ZP090 ZP091 for Zone3	Enable the screed drying of the zone	On

⇒ The screed drying programme will start immediately and continue for the number of days selected for each stage.
The system evaluates the setpoint temperature every 24 hours and redefines it based on the remaining time for the stage.

To find out the setpoint temperature, start and end date and time for the **Screed drying** function and the remaining drying time, at any moment, refer to the following signals and counters:

Signals/Counters	Description
Screed temp setpoint ZM000 ZM001 for Zone3	The current flow temperature setpoint for screed drying
Screed start time ZM010 ZM011 for Zone3	The start date and time of the screed drying procedure
Screed end time ZM020 ZM021 for Zone3	The projected end date and time of the screed drying procedure
Screed dry remaining ZC000 ZC001 for Zone3	The remaining duration of screed drying in days

8.7 Configuring a room thermostat

8.7.1 Configuring an on/off or modulating thermostat

The on/off or modulating thermostat is connected to the **R-Bus** terminals on the **EHC-16** PCB or the optional **SCB-17B** PCB.

The PCBs are delivered with a bridge on the **R-Bus** terminals.

The **R-Bus** input can be configured to add the flexibility of using several types of on/off thermostat or OpenTherm (OT).

1. Follow the access path described below.

Access path
 >  Installer > Installation setup > Zone1 > General

2. Configure the **R-Bus** input for using an on/off thermostat (24 V dry contact)

Parameter	Description
OTH LogicLev contact CP640	Configuration of the on/off input contact direction for heating mode. • Closed (default value): heating demand when contact is closed • Open: heating demand when contact is open
RevContactOTH cool CP690	Reversal of the direction of the logic in cooling mode compared to heating mode. • No (default value): cooling demand uses the same logic as the heating demand • Yes: cooling demand uses the reverse logic to the heating demand

Tab.29 Setting the **OTH LogicLev contact (CP640)** and **RevContactOTH cool (CP690)** parameters

Value of the CP640 parameter	Value of the CP690 parameter	Position of the on/off contact for heating	Position of the on/off contact for cooling
Closed (default value)	No (default value)	Closed	Closed
Open	No	Open	Open

Value of the CP640 parameter	Value of the CP690 parameter	Position of the on/off contact for heating	Position of the on/off contact for cooling
Closed	Yes	Closed	Open
Open	Yes	Open	Closed

8.7.2 Configuring a thermostat with a heating/cooling control contact

The AC thermostat (air conditioning) is always connected to the **R-Bus** and **BL1** terminals on the **EHC-16** PCB.

The AC thermostat is not compatible with the **SCB-17B** PCB, which is used to control a second heating circuit.

Priority will be given to the AC thermostat input over the other Summer/Winter modes (Auto/Manual).

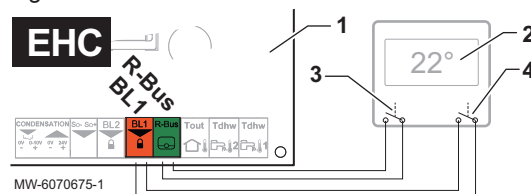
The PCBs are delivered with a bridge on the R-Bus terminals.

1. Connect the AC thermostat to the **EHC-16** PCB.

- 1 **EHC-16** PCB
- 2 AC thermostat
- 3 ON/OFF output
- 4 "Heating/cooling contact" output

2. Follow the menu path described below.

Fig.52



Menu path

☰ > 🛠️ Installer > Installation setup > Zone1 > General

3. Configure the parameters on **Zone1**.

Parameter	Description	Adjustment required
OTH LogicLev contact CP640	OpenTherm Logic level contact of the zone • Closed: heating demand when contact is closed • Open: heating demand when contact is open	• Closed or • Open
RevContactOTH cool CP690	Reversed OpenTherm contact in cooling mode for heat demand per zone • No: follows the heating logic • Yes: follows the reverse of the heating logic	• Yes or • No

4. Follow the menu path described below.

Menu path

☰ > 🛠️ Installer > Installation setup > Heat Pump > Blocking input

5. Configure the heat pump parameters.

Parameter	Description	Adjustment required
BL input setting AP001	Blocking input setting (1: Full blocking, 2: Partial blocking, 3: User reset locking) (BL1)	Heating Cooling
BL1 contact config AP098	BL1 input contact configuration • Closed: cooling active when BL contact is closed • Open: cooling active when BL contact is open	• Closed or • Open

8.8 Configuring a buffer tank

In installations equipped with a low loss header or a buffer tank connected as a low loss header, it is necessary to activate the **Buffer tank** function.

1. Follow the access path below.

Access path
 >  Installer > Installation setup > Heat Pump > General

2. Configure the buffer tank parameters.

Parameter	Description	Adjustment required
Buffer tank HP086	Installation with a low-loss header or a buffer tank connected as a low-loss header	Yes
Buffer tank hyst HP087	Temperature hysteresis to start or stop heating the buffer tank	Default value: 3 °C Do not modify.

8.9 Improving comfort

8.9.1 Improving domestic hot water or heating comfort

The system does not allow the simultaneous production of heating and domestic hot water. It is possible to alter the parameters to adapt the operation of the product to your needs.

1. The timer programming for domestic hot water production can be altered based on your night-time habits, for example.
2. Change the parameters to facilitate heating or domestic hot water production if changing the timer programming is not sufficient.

Access path
 >  Installer > Installation setup > Domestic Hot Water > General

3. Adjust the following parameters based on the required comfort:

Tab.31 Improving hot water comfort

Parameter	Description	Adjustment required
Max DHW duration DP047	Maximum duration of the domestic hot water production.	Increase the maximum authorised duration for domestic hot water production. Longer period of hot water production.
Min CH before DHW DP048	Minimum heating duration between two periods of domestic hot water production.	Reduce the minimum heating duration between two domestic hot water production runs. The time between two periods of hot water production is decreased.
Hysteresis DHW DP120	Hysteresis temperature relative to the DHW temperature setpoint	Reduce the setpoint temperature differential triggering the domestic hot water tank load. More frequent period of hot water production.

Tab.32 Improving heating comfort

Parameter	Description	Adjustment required
Max DHW duration DP047	Maximum duration of the domestic hot water production.	Reduce the maximum authorised duration for domestic hot water production. Shorter period of hot water production.
Min CH before DHW DP048	Minimum heating duration between two periods of domestic hot water production.	Increase the minimum heating duration between two domestic hot water production runs. The time between two periods of hot water production is increased.
Hysteresis DHW DP120	Hysteresis temperature relative to the DHW temperature setpoint	Increase the setpoint temperature differential triggering the domestic hot water tank to be charged. Less frequent period of hot water production.

4. Check the improvement in comfort over one week.
5. Readjust the parameters as needed.

8.9.2 Configuring silent mode

Silent mode is used to reduce the noise level of the outdoor unit during specified programmed hours. This mode limits the performance of the heat pump.

1. Follow the access path described below to access the parameters for setting silent mode.

Access path

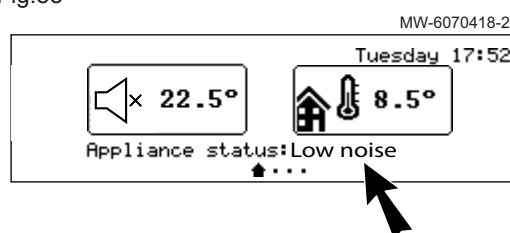
☰ >  Installer > Installation setup > Heat Pump > HP silent mode

2. Set the parameters for silent mode.

Parameter	Description	Adjustment required
HP silent mode HP058	Heat pump silent mode level 3 choices are possible: • No silent mode : normal operation • Silent mode level 1: level 1 sound reduction • Silent mode level 2: level 2 sound reduction, significant noise reduction	Silent mode level 1 or Silent mode level 2
Low noise start time HP094	Start time of the heat pump low noise function	Set to the user requirements.
Low noise end time HP095	End time of the heat pump low noise function	Set to the user requirements.

⇒ The home screen displays the status of the appliance in silent mode.

Fig.53



8.10 Configuring the anti-legionella function

The anti-legionella function is used to bring the water in the DHW tank to a temperature above the normal setpoint to eliminate Legionella bacteria. This function is disabled by default.

To guarantee the efficiency of the anti-legionella programme, the heating element or the backup boiler (depending on the installation) must be able to take over from the heat pump to achieve the requested setpoint temperature.

1. Follow the access path described below to access the parameters for setting the anti-legionella function. Adapt the anti-legionella function parameters based on the recommendations applicable in your country.

Menu path

☰ >  Installer > Installation setup > Domestic Hot Water > Anti-legionella

2. Activate the anti-legionella function.

Parameter	Description	Adjustment required
Anti-legionella DP004	Function to protect the DHW cylinder against Legionella bacteria.	• Weekly • Daily

3. Adjust the setpoint temperature.

Parameter	Description	Adjustment required
DhwMaxTemp DP046	Maximum temperature of the water circulating in the exchanger of the DHW cylinder	75 °C
DHW AntiLeg Setpoint DP160	Setpoint temperature for the anti-legionella function.	Can be set from 60 °C to 70 °C

4. Adjust the duration of the anti-legionella programme cycle.

Parameter	Description	Adjustment required
DHW anti-leg runtime DP410	Duration for maintaining the setpoint temperature. Duration for which the setpoint temperature can be maintained to ensure Legionella bacteria are eliminated.	Can be set from 0 Min to 360 Min

5. Choose the day and time to start the anti-legionella programme.

Parameter	Description	Adjustment required
Start day anti-leg DP430	Day to start the DHW anti-legionella program. Only for weekly activation.	Can be set from Monday to Sunday
Start time anti-leg DP440	Starting time for the DHW anti-legionella program.	Can be set from 00:00 to 23:50 in increments of 10 minutes.

8.11 Configuring a DHW circulation loop

The **SCB-17B** board can be used to configure a DHW circulation loop. The DHW circulation loop is used to circulate hot water through the pipes using a dedicated pump. The DHW circulation loop is used to reduce the time spent waiting for hot water at the draw-off points. The DHW circulation loop also guarantees the elimination of Legionella bacteria in the entire circuit if the DHW circulation loop option is activated during the anti-legionella cycle.

1. Follow the access path described below.

Menu path
 >  Installer > Installation setup > Zone2 > Zone Function

2. Configure the Zone2 function to enable the DHW circulation loop.

Parameter	Description	Adjustment required
Zone Function CP020	Functionality of the zone	Disable

3. Follow the access path described below to authorise the **DHW circulation** function.

Menu path
 >  Installer > Installation setup > Mixed/circul. DHW

4. Activate the **DHW circulation** function.

Parameter	Description	Adjustment required
DHW circulation DP450	DHW circulation zone enabled	On

5. Follow the access path described below to access the parameters for setting the **DHW circulation** function.

Menu path
 >  Installer > Installation setup > Mixed/circul. DHW > Circulation

6. Set the DHW circulation function and authorise the domestic hot water circulation option during the anti-legionella cycle.

Parameter	Description	Adjustment required
Circulation mode DP050	DHW circulation pump mode selection	Pump for DHW comfort
Circ pump on time DP052	DHW circulation pump cyclic ON time	2 minutes
Circ pump off time DP053	DHW circulation pump cyclic OFF time	4 minutes
Circ pump anti leg DP054	Activation of the DHW circulation loop pump when the anti-legionella function is active.	On

8.12 Configuring sources of energy

8.12.1 Configuring the electrical energy consumption function

In order for the energy metering to work, adjust the parameter **Value of the pulse coming from the electrical counter** (HP157) relating to the energy meter.

- Note the energy meter pulse value according to standard EN 62053-31.
- Follow the access path described below.

Menu path
 >  Installer > Installation setup > Heat Pump > Energy management

3. Configure the following parameters:

Parameter	Description	Adjustment required
HP energy consumpt HP157	Method selection to calculate the electrical consumption of the heat pump	Measured: the consumption for the outdoor unit is measured by the energy meter. The consumptions for the indoor unit and the heating element remain estimated.
Elec pulse value HP033	Value of the pulse coming from the electrical counter Adjustment range: 0 (no metering) to 1000 Wh. Default value: 1 Wh	The adjustment depends on the type of energy meter installed.

Tab.33 Parameter value based on the type of energy meter

Number of pulses per kWh	Values to be configured for the Elec pulse value HP033 parameter
1000	1
500	2
250	4
200	5
125	8
100	10
50	20
40	25
25	40
20	50
10	100
8	125
5	200
4	250
2	500
1	1000

- ⇒ The electricity readings are displayed on the meters **CH consumed** (AC005), **DHW consumed** (AC006) and **Cooling consumed** (AC007).

The thermal energy from the backup boiler or heating element is factored in to provide the full tally of restored thermal energy.



See also

Connecting an energy meter, page 35

8.12.2 Supplying the heat pump with photovoltaic energy

When lower cost electrical energy, such as photovoltaic energy, is available, the heating circuit and domestic hot water tank can be overheated. This option is not available in cooling mode.

1. Activate authorisation for overheating of the heating circuit or the domestic hot water tank by adjusting the **BL input setting** (AP001) parameter or the **BL2 function** (AP100) parameter.
2. Connect a dry contact to the **BL1** input.
⇒ The **BL1** input is activated. The heating circuit and the domestic hot water tank will be overheated using the heat pump.
3. Connect a dry contact to the **BL2** input.
⇒ The **BL2** input is activated. The heating circuit and the domestic hot water tank will be overheated using the heat pump and backups.
4. Follow the access path described below.

Access path

 >  **Installer > Installation setup > Heat Pump > Blocking input**

5. Configure the heat pump input parameters.
The BL input setting (AP001) parameter corresponds to the **BL1** input.

Parameter	Description	Adjustment required
BL input setting AP001	Blocking input setting (1: Full blocking, 2: Partial blocking, 3: User reset locking)	Photovoltaic HP Only
BL2 function AP100	BL2 input function selection	PV HP And backup

6. In order to voluntarily overheat the installation and benefit from low-tariff electricity, set the setpoint temperatures that can be exceeded.

Parameter	Description	Adjustment required
Offset heating - PV HP091	Heating setpoint temperature offset when photovoltaic energy is available	Set the authorisation to exceed the heating setpoint temperature from 0 to 30 °C
Offset DHW - PV HP092	Domestic hot water setpoint temperature offset when photovoltaic energy is available	Set the authorisation to exceed the domestic hot water setpoint temperature from 0 to 30 °C

8.12.3 Connecting the installation to a Smart Grid

The heat pump can receive and manage control signals from the "smart" energy distribution network (**Smart Grid Ready**). Based on the signals received by the terminals of the **BL1 IN** and **BL2 IN** multifunction inputs, the heat pump shuts down or voluntarily overheats the heating system in order to optimise electricity consumption.

Tab.34 Operation of the heat pump in a **Smart Grid**

BL1 IN input	BL2 IN input	Operating
Inactive	Inactive	Normal: the heat pump and the backup electric heater operate normally
Active	Inactive	Off: the heat pump and the electric heating element are switched off
Inactive	Active	Economy: the heat pump voluntarily overheats the system without the backup electric heater
Active	Active	Super Economy: the heat pump voluntarily overheats the system with the electric heating element

Overheating is activated depending on whether the dry contact on inputs BL1 and BL2 is open or closed, and on the settings of the **BL1 contact config** (AP098) and **BL2 contact config**. (AP099) parameters which control the activation of functions with respect to the open or closed position of the contacts.

1. Switch off the power supply to the indoor unit.
2. Connect the **Smart Grid** signal inputs to the **BL1 IN** and **BL2 IN** inputs on the EHC-16 PCB. **Smart Grid** signals come from dry contacts.
3. Turn on the electricity supply and switch on the heat pump.
4. Follow the access path described below.

Menu path

 >  Installer > Installation setup > Heat Pump > Blocking input

5. Configure the heat pump input parameters.
The BL input setting (AP001) parameter corresponds to the **BL1** input.

Parameter	Adjustment required
BL input setting AP001	Smart Grid ready
BL2 function AP100	Smart Grid ready

⇒ The heat pump is ready to receive and manage **Smart Grid** signals.

6. Follow the access path described below to choose the direction of the **BL1 IN** and **BL2 IN** multifunction inputs.

Menu path

 >  Installer > Installation setup > Heat Pump > Blocking input

7. Configure the **BL1 contact config** (AP098) and **BL2 contact config**. (AP099) parameters.

Parameter	Adjustment required
BL1 contact config AP098	BL1 input contact configuration • Open = input active on Open contact • Closed = input active on Closed contact
BL2 contact config. AP099	BL2 input contact configuration • Open = input active on Open contact • Closed = input active on Closed contact

8. Follow the access path described below for

Menu path

 >  Installer > Installation setup > Heat Pump > Blocking input

9. Configure the temperature offsets for the voluntary overheating by configuring the **Offset heating - PV** (HP091) and **Offset DHW - PV** (HP092) parameters.

Parameter	Adjustment required
Offset heating - PV HP091	Heating setpoint temperature offset when photovoltaic energy is available
Offset DHW - PV HP092	Domestic hot water setpoint temperature offset when photovoltaic energy is available

8.13 Configuring the multifunctional output

The multifunctional output **X19** for the **EHC-16** PCB can send a signal based on the status of the **DHW Backup**, **Cooling mode**, **Defrosting mode** or **Silent Mode**.

1. Follow the access path described below.

Menu path	
 >  Installer > Installation setup > Heat Pump > Advanced	

2. Configure the following parameter:

Parameter	Description	Adjustment required
Multifunct output HP188	Configure the function of the multifunctional output • DHW Backup • Cooling mode • Defrosting mode • Silent Mode	Configure the parameter based on the required status information.

8.14 Resetting or re-establishing the parameters

8.14.1 Resetting the configuration numbers

If you have replaced the PCB or made an error during setting, you must reset the configuration numbers CN1 and CN2. Thanks to these numbers, the system recognises the outdoor unit output and the type of backup present on the installation.

To reset the configuration numbers:

1. Press the  button.
2. Select  **Installer**.
3. Select **Advanced menu** > **Set configuration code** > **EHC-16**.
4. Set the **CN1** and **CN2** parameters. The values are available on the data plate of the indoor unit.
5. Select **Confirm** to save the settings.



See also

CN1 and CN2 parameters, page 38

8.14.2 Auto-detecting options and accessories

Use this function after replacing a power circuit board on the heat pump in order to detect all the devices connected to the L-BUS communication bus.

To detect devices connected to the L-BUS communication bus:

1. Press the  button.
2. Select  **Installer**.
3. Select **Advanced menu** > **Auto detect**.
4. Select **Confirm** to carry out the auto-detect.

8.14.3 Reverting to the factory settings

To revert to the factory settings for the heat pump:

1. Press the  button.
2. Select  **Installer**.
3. Select **Advanced menu** > **Reset to factory settings**.
4. Select **Confirm** to revert to the factory settings.

9 Parameters

9.1 List of parameters

The appliance parameters are described directly in the user interface. The following chapters include additional information on some of these parameters as well as their default values (factory settings).

9.1.1 > Installer > Installation setup > Heat Pump

In the Heat Pump sub-menu, you will find all parameters related to the behaviour of the heat pump.

Tab.35 > General

Parameters	Description of the parameters	Factory setting EHC-16
CH function on AP016	Enable central heating demand processing • Off • On	On
DHW function on AP017	Enable domestic hot water heat demand processing • Off • On	On
Max CH flow setpoint AP063	Maximum central heating flow temperature setpoint Can be set from 20 °C to 75 °C	Backup boiler: 75 °C Heating element: 75 °C
Appliance pump funct AP102	Configuration of the appliance pump as zone pump or system pump (feed lowloss header) • No • Yes	No
Buffer tank HP086	Enable the hydraulic management of the buffer tank • No • Yes	No
Buffer tank hyst HP087	Temperature hysteresis to start or stop heating the buffer tank Can be set from 0 to 30 °C	3 °C
CH Pump postrun time PP015	Central heating pump postrun time • Can be set from 0 Min to 99 Min • Set to 99 Min: continuous operation	3 Min

Tab.36 > Water flow and pressure

Parameters	Description of the parameters	Factory setting EHC-16
MessMinWaterPressure AP058	Warning message indicating that pressure is low Can be set from 0 bar to 2 bar	0.8 bar
Deaeration program AP101	Deaeration program settings • No deair at power up • Always deair at pwr	Always deair at pwr
Min CH pump speed PP018	Minimum central heating pump speed (%) Can be set from 40 % to 100 %	40%

Tab.37 > Backup

Parameters	Description of the parameters	Factory setting EHC-16
DHW backup type DP334	Backup type used for domestic hot water production • Indoor Unit • DHW Tank • IDU/DhwTank Cooling	Indoor Unit
Bivalent temperature HP000	Above the bivalent temperature, the backup energy source is not allowed to operate Can be set from -10 °C to 20 °C	5 °C
Backup type HP029	Type of backup used in the heat pump • No Backup • 1 Electrical Stage • 2 Electrical Stages • Boiler Backup	1 Electrical Stage
Delay startbackup CH HP030	Delay time for starting the backup energy source for the heating circuits Can be set from 0 Min to 600 Min Set to 0 Min: The backup is started automatically based on the outdoor temperature	0 Min
Delay stop backup CH HP031	Delay time for stopping the backup energy source for the heating circuits Can be set from 2 Min to 600 Min	4 min
Backup 1 capacity HP034	Setting of the capacity of the first stage of the electrical backup used for the energy counter Can be set from 0 kW to 10 kW	0 kW
Backup 2 capacity HP035	Setting of the capacity of the second stage of the electrical backup used for the energy counter Can be set from 0 kW to 10 kW	0 kW
Delay min outdoor T HP047	Delay for starting the backup when the outdoor temp is equal to the parameter Min outdoor T backup Can be set from 5 Min to 60 Min	30 min
Delay max outdoor T HP048	Delay for starting the backup when the outdoor temp is equal to the parameter max outdoor T backup Can be set from 5 Min to 60 Min	60 min
Minimum outdoor temperature for backup HP049	Minimum outdoor temperature related to the parameter delay min outdoor T Can be set from -30 °C to 0 °C	-10 °C
Maximum outdoor temperature for backup HP050	Maximum outdoor temperature related to the parameter delay max outdoor T Can be set from -30 °C to 20 °C	15 °C

Tab.38 > Cooling

Parameters	Description of the parameters	Factory setting EHC-16
Forced cooling mode AP015	The cooling mode is always enabled and no longer controlled by the outdoor temperature • No • Yes	No
Cooling mode AP028	Configuration of the cooling mode • Off • Active cooling on	Off
Cooling permission AP029	Grant permission for the heat pump to be able to deliver cooling Not adjustable	Allowed

Parameters	Description of the parameters	Factory setting EHC-16
Humidity sensor AP072	Humidity sensor configuration • No • OnOff • 0-10V	No
Min HP cooling T HP003	Minimum flow temperature of the heat pump in cooling mode Can be set from 5 °C to 30 °C	5 °C
Cool setpoint offset HP079	Maximum offset applied to the cooling setpoint when a 0-10V humidity sensor is used Can be set from 0 °C to 15 °C	5 °C
Humidity level HP080	Relative humidity level over which the offset is added to the cooling setpoint Can be set from 0 % to 100 %	50%

Tab.39 > Energy management

Parameters	Description of the parameters	Factory setting EHC-16
Elec pulse value HP033	Value of the pulse coming from the electrical counter Can be set from 0 Wh to 5 °C	1 Wh
Min outdoor T HP HP051	Minimum outdoor temperature below which the compressor of the heat pump is stopped Can be set from -25 °C to 5 °C	-20 °C
COP Threshold HP054	COP threshold above which the heat pump is authorised to operate Can be set from 1 to 5	2.5
Hybrid mode HP061	Hybrid mode selection to choose on what basis the hybrid system will optimise • HP First • Hybrid Cost • Primary Energy • Hybrid CO2	HP First
Peak elec cost HP062	Peak rate electricity cost Can be set from 0.01 to 655.35 cents per kWh	0.19 cents per kWh
Off-peak elec cost HP063	Off-peak rate electricity cost Can be set from 0.01 to 655.35 cents per kWh	0.15 cents per kWh
Gas or oil cost HP064	Cost of gas per m3 or oil per litre Can be set from 0.01 to 655.35 cents	0.9 cents
HP energy consumpt HP157	Method selection to calculate the electrical consumption of the heat pump • Estimated • Measured	Estimated

Tab.40 > Blocking input (BL input)

Parameters	Description of the parameters	Factory setting EHC-16
BL input setting AP001	Blocking input setting (1: Full blocking, 2: Partial blocking, 3: User reset locking) (BL1) • Not used • Full blocking • Partial blocking • User reset locking • Backup relieved • Generator relieved • Gen.&Backup relieved • High, Low Tariff • Photovoltaic HP Only • PV HP And backup • Smart Grid ready • Heating Cooling	Partial blocking
BL1 contact config AP098	BL1 input contact configuration • Open • Closed	Open
BL2 contact config. AP099	BL2 input contact configuration • Open • Closed	Open
BL2 function AP100	BL2 input function selection • Not used • Full blocking • Partial blocking • User reset locking • Backup relieved • Generator relieved • Gen.&Backup relieved • High, Low Tariff • Photovoltaic HP Only • PV HP And backup • Smart Grid ready • Heating Cooling	Partial blocking
Offset heating - PV HP091	Heating setpoint temperature offset when photovoltaic energy is available Can be set from 0 °C to 30 °C	0 °C
Offset DHW - PV HP092	Domestic hot water setpoint temperature offset when photovoltaic energy is available Can be set from 0 °C to 30 °C	0 °C

Tab.41 > Manual heat demand

Parameters	Description of the parameters	Factory setting EHC-16
Manual Heat Demand AP002	Enable manual heat demand function • Off • With setpoint: in this mode, the temperature setpoint used will be that for the Manual Heat Demand (AP026) parameter • Outdoor temp based	Off
Setpoint manual HD AP026	Flow temperature setpoint for manual heat demand Can be set from 7 °C to 75 °C	40 °C

Tab.42 > HP silent mode

Parameters	Description of the parameters	Factory setting EHC-16
HP silent mode HP058	Heat pump silent mode level • No silent mode • Silent mode level 1 • Silent mode level 2	No silent mode
Low noise start time HP094	Start time of the heat pump low noise function	22:00
Low noise end time HP095	End time of the heat pump low noise function	06:00

Tab.43 > Service settings

Parameters	Description of the parameters	Factory setting EHC-16
Service hours AP009	Number of heat generator operating hours before raising a service notification Can be set from 0 Hours to 65534 Hours	4000 hours
Service notification AP010	Select the type of service notification • None • Custom notification	None
Service hours mains AP011	Hours powered to raise a service notification Can be set from 0 Hours to 65534 Hours	8700 hours

Tab.44 > Advanced

Parameters	Description of the parameters	Factory setting EHC-16
Ext pressure sensor HP180	Select the external pressure sensor • No • Yes	No
Multifunct output HP188	Configure the function of the multifunctional output • DHW Backup • Cooling mode • Defrosting mode • Silent Mode • DHW pump	Cooling mode
LIN pump function HP210	LIN pump configuration for system hydraulics • Off • DHW • Zone • DHW & Zone • System	Zone

9.1.2 Installer > Installation setup > Zone1 or Zone3

The parameters of the Zone1 circuit are linked to the EHC-16 board and the parameters of the Zone3 circuit are linked to the SCB-17B board.

Tab.45 > Zone

Parameters	Description of the parameters	Factory setting Zone1	Factory setting Zone3
Zone Function CP020 CP021 for Zone3	Functionality of the zone • Disable • Direct = radiators. Cooling not possible. • Mixing Circuit = underfloor heating for Zone1 and underfloor heating with mixing valve for Zone3. Cooling possible. • Swimming pool. Only available for Zone3. • High Temperature = not used. • Fan Convector Cooling possible.	Mixing Circuit	Mixing Circuit

Tab.46 > Set heating temperatures / Set cooling temperatures

Parameters	Description of the parameters	Factory setting Zone1	Factory setting Zone3
User T.Room Activity CP080 CP086 for Zone3	Desired room temperature setpoint for Sleep mode Can be set from 5 °C to 30 °C	16 °C	16 °C
User T.Room Activity CP081 CP087 for Zone3	Desired room temperature setpoint for Home mode Can be set from 5 °C to 30 °C	20 °C	20 °C
User T.Room Activity CP082 CP088 for Zone3	Desired room temperature setpoint for Away mode Can be set from 5 °C to 30 °C	6 °C	6 °C
User T.Room Activity CP083 CP089 for Zone3	Desired room temperature setpoint for Morning mode Can be set from 5 °C to 30 °C	21 °C	21 °C
User T.Room Activity CP084 CP090 for Zone3	Desired room temperature setpoint for Evening mode Can be set from 5 °C to 30 °C	22 °C	22 °C

Tab.47 > Heat curve > Advanced

Parameters	Description of the parameters	Factory setting Zone1	Factory setting Zone3
MaxZoneTFlowSetpoint CP000 CP001 for Zone3	Maximum Flow Temperature setpoint zone • For Zone1: Can be set from 7 °C to 75 °C • For Zone3: Can be set from 7 °C to 100 °C	75 °C	50 °C
Zone HCZP Comfort CP210 CP211 for Zone3	Comfort footpoint of the temperature of heat curve of the circuit Can be set from 15 °C to 90 °C	15 °C	15 °C
Zone HCZP Reduced CP220 CP221 for Zone3	Reduced footpoint of the temperature of heat curve of the circuit Can be set from 15 °C to 90 °C	15 °C	15 °C
Zone Heating Curve CP230 CP231 for Zone3	Heating curve temperature gradient of the zone Can be set from 0 to 4	1.5	0.7

Tab.48 > General

Parameters	Description of the parameters	Factory setting Zone1	Factory setting Zone3
Bandwidth mix valve CP030 CP031 for Zone3	Bandwidth of mixing valve zone where modulation takes place. Can be set from 4 °C to 16 °C	-	12 °C
Postrun zone pump CP040 CP041 for Zone3	Pump post runtime of the zone Can be set from 0 Min to 20 Min	3 Min	4 Min
Mixing Valve shift CP050 CP051 for Zone3	Shift between calculated setpoint and mixing valve circuit setpoint Can be set from 0 °C to 16 °C	-	4 °C
MaxReducedRoomT.Lim CP070 CP071 for Zone3	Max Room Temperature limit of the circuit in reduced mode, that allows switching to comfort mode Can be set from 5 °C to 30 °C	16 °C	16 °C
Floor cool setpoint CP270 CP271 for Zone3	Cooling flow temperature setpoint for the underfloor cooling Can be set from 11 °C to 23 °C	18 °C	18 °C
Fan cool setpoint CP280 CP281 for Zone3	Cooling flow temperature setpoint for the fan convector Can be set from 7 °C to 23 °C	7 °C	10 °C
TypeReducedNightMode CP340 CP341 for Zone3	Type of reduced night mode, stop or maintain heating of circuit • Stop heat demand • Continue heat demand	Continue heat demand	Stop heat demand
Pump type CP450 CP451 for Zone3	The connected pump type • On/Off • Modulating PWM • Modulating LIN	Modulating PWM	On/Off
OTH LogicLevel contact CP640 CP641 for Zone3	Opentherm Logic level contact of the zone • Open • Closed	Closed	Closed
Icon display zone CP660 CP661 for Zone3	Choice icon to display this zone • None • All • Bedroom • Livingroom • Study • Outdoor • Kitchen • Basement • Swimming Pool • DHW Tank • DHW Electrical Tank • DHW Layered Tank • Internal Boiler Tank • Time Program	None	Livingroom

Parameters	Description of the parameters	Factory setting Zone1	Factory setting Zone3
RevContactOTH cool CP690 CP691 for Zone3	Reversed OpenTherm contact in cooling mode for heat demand per zone - No - Yes	No	No
Control strategy CP780 CP781 for Zone3	Selection of the control strategy for the zone - Automatic : adapts the regulation strategy based on the sensors present - Room temp based : use if there is no outdoor temperature sensor. Does not allow the heating curve to be used - Outdoor temp based : use if there is no room thermostat. Allows the heating curve to be used. If the gradient is not configured correctly, it will cause discomfort - Outdoor & room based : allows the heating curve to be used. If the gradient is not configured correctly, the setpoint temperature will be corrected using the room temperature sensor measurement.	Automatic	Automatic

Tab.49 > Screed drying

Parameters	Description of the parameters	Factory setting Zone1	Factory setting Zone3
Screed drying time 1 ZP000 ZP001 for Zone3	Set the number of days spent in the first screed drying step Can be set from 0 Days to 30 Days	3 days	3 days
Screed start temp 1 ZP010 ZP011 for Zone3	Set the start temperature for the first step of screed drying Can be set from 7 °C to 60 °C	20 °C	20 °C
Screed end temp 1 ZP020 ZP011 for Zone3	The end temperature for the first step of screed drying Can be set from 7 °C to 60 °C	32 °C	32 °C
Screed drying time 2 ZP030 ZP031 for Zone3	Set the number of days spent in the second screed drying step Can be set from 0 Days to 30 Days	11 days	11 days
Screed start temp 2 ZP040 ZP031 for Zone3	Set the start temperature for the second step of screed drying Can be set from 7 °C to 60 °C	32 °C	32 °C
Screed end temp 2 ZP050 ZP031 for Zone3	The end temperature for the second step of screed drying Can be set from 7 °C to 60 °C	32 °C	32 °C
Screed drying time 3 ZP060 ZP031 for Zone3	Set the number of days spent in the third screed drying step Can be set from 0 Days to 30 Days	2 days	2 days
Screed start temp 3 ZP070 ZP071 for Zone3	Set the start temperature for the third step of screed drying Can be set from 7 °C to 60 °C	32 °C	32 °C

Parameters	Description of the parameters	Factory setting Zone1	Factory setting Zone3
Screed end temp 3 ZP080 ZP081	Set the start temperature for the third step of screed drying Can be set from 7 °C to 60 °C	24 °C	24 °C
Screed drying enable ZP090 ZP091 for Zone3	Enable the screed drying of the zone • Off • On	Off	Off

Tab.51 > Advanced

Parameters	Description of the parameters	Factory setting Zone1	Factory setting Zone3
Opening Valve Time CP330 CP331 for Zone3	The time needed by the valve to be fully opened Can be set from 0 Sec to 240 Sec	-	60 Sec
Zone Power setpoint CP520 CP521 for Zone3	Power setpoint per zone Can be set from 0 % to 100 %	-	100%
ConfPairing RU Zone CP680 CP681 for Zone3	Select the Bus channel of the room unit for this zone Can be set from 0 to 255	0	0
MaxZone Preheat time CP750 CP751 for Zone3	Maximum zone preheat time Can be set from 0 Min to 240 Min	0 Min	0 Min
Zone Buffered CP770 CP771 for Zone3	The zone is after a Buffer tank • No • Yes	-	Yes

9.1.3 Installer > Installation setup > Domestic Hot Water (Domestic Hot Water)

Tab.52 > Set Domestic Hot Water temperatures

Parameters	Description of the parameters	Factory setting EHC-16
DHW comfort setpoint DP070	Comfort temperature setpoint for the Domestic Hot Water tank Can be set from 40 °C to 65 °C	53 °C
DHW eco setpoint DP080	Eco friendly temperature setpoint from the Domestic Hot Water tank Can be set from 10 °C to 60 °C	10 °C

Tab.53 > General

Parameters	Description of the parameters	Factory setting EHC-16
Hysteresis DHW DP120	Hysteresis temperature relative to the DHW temperature setpoint Can be set from 0 °C to 40 °C	8°C
DHW load type DP140	DHW load type (0 = Combi, 1 = Solo) • Combi • Solo • Layered cylinder • Process heat • External	Solo

Parameters	Description of the parameters	Factory setting EHC-16
Max DHW temp DP046	Maximum Domestic Hot Water temperature Can be set from 10 °C to 75 °C	75 °C
Max DHW duration DP047	Maximum duration of the domestic hot water production Can be set from 1 Hours to 10 Hours	3 Hours
Min CH before DHW DP048	Minimum heating duration between two periods of domestic hot water production Can be set from 0 Hours to 10 Hours	2 Hours
Postrun DHW pump/3 way valve DP213	Post run time of the DHW pump/3 way valve after DHW production Can be set from 0 Min to 99 Min	3 Min
DHW holiday setpoint DP337	Holiday temperature setpoint from the Domestic Hot Water tank Can be set from 10 °C to 60 °C	10 °C

Tab.54 > Backup

Parameters	Description of the parameters	Factory setting EHC-16
Delay time for starting backup for DHW DP090	Delay time for starting the backup energy source for DHW Can be set from 10 Min to 120 Min	30 min
DHW management DP051	ECO mode; Use of the heat pump only, Comfort mode; Use of the heat pump and backup energy sources • HP only • Auto (HP + Boiler)	HP only

Tab.55 > Anti-legionella

Parameters	Description of the parameters	Factory setting EHC-16
Anti-legionella DP004	Function to protect the DHW cylinder against Legionella bacteria. • Disabled • Weekly • Daily • External	Disabled
DHW AntiLeg Setpoint DP160	Setpoint for DHW anti legionella Can be set from 60 °C to 70 °C	65 °C
DHW anti-leg runtime DP410	Duration for maintaining the setpoint temperature. Duration for which the setpoint temperature can be maintained to ensure Legionella bacteria are eliminated. Can be set from 0 Min to 360 Min	20 Min
Start day anti-leg DP430	Day to start the DHW anti-legionella program Only visible if the Weekly mode for the anti-legionella function is activated. • Saturday • Sunday • Monday • Tuesday • Wednesday • Thursday • Friday	Saturday
Start time anti-leg DP440	Starting time for the DHW anti-legionella program Only visible if the Weekly mode or the Daily mode for the anti-legionella function is activated. Can be set from 00:00 to 23:50 in increments of 10 minutes.	03:00

9.1.4 > Installer > Installation setup > Mixed/Circul. DHW

The following parameters are linked to the SCB-17B board.

Tab.56 > DHW circulation

Parameters	Description of the parameters	Factory setting
DHW circulation DP450	DHW circulation zone enabled • Off • On	On

Tab.57 > Circulation

Parameters	Description of the parameters	Factory setting
DHW pump hysteresis DP336	DHW circulation pump hysteresis temperature Can be set from 1 °C to 60 °C	3 °C
Circulation mode DP050	DHW circulation pump mode selection • Pump is off • Pump on time program • Pump for DHW comfort	Pump is off
Circ pump on time DP052	DHW circulation pump cyclic ON time Can be set from 0 Min to 20 Min	0 Min
Circ pump off time DP053	DHW circulation pump cyclic OFF time Can be set from 0 Min to 20 Min	20 Min
Delta DHW tank temp DP026	Maximum temperature difference between the top and bottom of the DHW tank Can be set from 0 °C to 100 °C	6 °C
Circulation Tsensor DP473	DHW circulation temperature sensor connected • No • Yes	Yes
Circ pump anti leg DP054	DHW circulation pump anti legionella • Off • On	On
Circulation Toffset DP057	DHW circulation offset temperature Can be set from 0 °C to 20 °C	6 °C

9.1.5 > Installer > Installation setup > Outdoor temperature

In the **Outdoor temperature** sub-menu, you will find all parameters related to the behaviour of the system depending on the outdoor temperature.

Tab.58

Parameters	Description of the parameters	Factory setting Zone1
Outdoor sensor AP056	Enable outdoor sensor • No outdoor sensor • AF60 • QAC34	AF60
Summer Winter AP073	Outdoor temperature; Upper limit for heating • Can be set from 10 °C to 30.5 °C in increments of 0.5 °C • When set to 30.5 °C, automatic switching is deactivated, the system remains in Winter mode and heating is active.	22°C
Force summer mode AP074	The heating is stopped, Hot water is maintained, Force summer mode • Off • On	Off
Season cross-over AP075	Temperature variance from set outdoor upper temp limit in which the generator will not heat or cool Can be set from 0 °C to 20 °C	4 °C

Parameters	Description of the parameters	Factory setting Zone1
Building Inertia AP079	Inertia of the building used for heat up speed Can be set from 0 to 10 • 0 = 10 hours for a building with low thermal inertia, • 3 = 22 hours for a building with normal thermal inertia, • 10 = 50 hours for a building with high thermal inertia. Only modify the factory setting if the inertia of the building is known.	3
Frost min out temp AP080	Outdoor temperature below which the antifreeze protection is activated Can be set from -30 °C to 30.5 °C	3 °C
Outdoor sens source AP091	Type of outdoor sensor connection to be used • Auto • Wired sensor • Wireless sensor • Internet measured • None	Auto

9.1.6 Installer > Signals

You can display several measured values concerning the current state of the heating system such as temperatures, status of the appliance, etc.

Certain signals are displayed:

- according to certain system configurations,
- according to the options, circuits or sensors actually connected.

Tab.59 > Zone1

Signals	Description of the signals
Status Pump zone CM050	Status of the Pump of zone • No • Yes
Zone Tflow Setpoint CM070	Current Flow temperature setpoint of zone in °C
ZoneCurrentMode CM120	Zone Current Mode • Scheduling • Manual • Off • Anti legionella
Current activity of the zone CM130	Current activity of the zone • Off • Eco • Comfort • Anti legionella
Zone Troom setpoint CM190	Wished room temperature setpoint of the zone in °C
ZoneCurrentHeatMode CM200	Displaying current operating mode of the zone • Standby • Heating • Cooling
ZoneTout temp CM210	Current outdoor temperature of the zone in °C
Screed temp setpoint ZM000	The current flow temperature setpoint for screed drying in °C

Signals	Description of the signals
Screed start time ZM010	The start date and time of the screed drying procedure
Screed end time ZM020	The projected end date and time of the screed drying procedure

Tab.60 > Zone3

Signals	Description of the signals
Zone Tflow /DHW temp CM041	Measure Zone Flow Temperature or DHW temperature in °C
Zone Tflow Setpoint CM071	Current Flow temperature setpoint of zone in °C
ZoneCurrentMode CM121	Zone Current Mode • Scheduling • Manual • Off • Anti legionella
Current activity of the zone CM131	Current activity of the zone • Off • Eco • Comfort • Anti legionella
Zone Troom setpoint CM191	Wished room temperature setpoint of the zone in °C
ZoneTout temp CM211	Current outdoor temperature of the zone in °C

Tab.61 > Domestic Hot Water

Signals	Description of the signals
DHW activity DM019	Domestic Hot Water current activity • Off • Eco • Comfort • Anti legionella
DHW setpoint DM029	Domestic Hot Water temperature setpoint in °C
DHW active AM001	Is the appliance currently in domestic hot water production mode? • Off • On

Tab.62 > Heat Pump

Signals	Description of the signals
Status Appliance AM012	Current main status of the appliance.
Sub status Appliance AM014	Current sub status of the appliance.
System Flow Temp AM016	Flow temperature of appliance. in °C
3 way valve AM037	Status of the three way valve • CH • DHW
Flow rate AM056	Water flow rate in the system in l/min
Internal setpoint AM101	Internal system flow temperature setpoint in °C

Signals	Description of the signals
HP flow T. HM001	Heat pump flow temperature in °C
HP return T. HM002	Heat pump return temperature in °C
BL1 contact position HM004	BL1 contact position • Open • Closed • Off
BL2 contact position HM005	BL2 contact position • Open • Closed • Off
Compressor HM008	Compressor operation • Off • On
Backup1 HM012	First stage of backup operation • Off • On
HP cooling setpoint HM033	Heat pump flow temperature setpoint in cooling mode in °C

Tab.63 > Outdoor temperature

Signals	Description of the signals
Outdoor temperature AM027	Instantaneous outdoor temperature in °C
SeasonMode AM091	Seasonal mode active (summer / winter) • Winter • Frost protection • Summer neutral band : cooling is not possible • Summer : cooling is possible
Out sensor detected AP078	Outdoor sensor detected in the application • No • Yes

Tab.64 > Heat Pump > Groupe extérieur

Signals	Description of the signals
HP flow T setpoint HM003	Heat pump flow temperature setpoint in °C
ODU defrost HM009	ODU defrost mode in progress • No • Yes
Comm quality HM024	Quality of the communication between the outdoor unit and indoor unit in %
Start compressor HM030	Request to start compressor • No • Yes

9.1.7 Installer > Counters

Tab.65

Meters	Description of the meters
Service run hours AC002	Number of hours that the appliance has been producing energy since last service
Hours since service AC003	Number of hours since the previous servicing of the appliance
Starts since service AC004	Number of heat generator starts since the previous servicing.
CH consumed AC005	Energy consumed for central heating (kWh)
DHW consumed AC006	Energy consumed for domestic hot water (kWh)
Cooling consumed AC007	Energy consumed for cooling (kWh)
CH energy delivered AC008	Thermal energy delivered for central heating (kWh)
DHW energy delivered AC009	Thermal energy delivered for domestic hot water (kWh)
Cool energy deliver AC010	Thermal energy delivered for cooling (kWh)
Average SPF AC013	Current average seasonal performance factor (kWh)
Pump running hours AC026	Counter that shows the number of pump running hours
Pump starts AC027	Counter that shows the number of pump starts
Backup 1 hours AC028	Number of operating hours of the first electrical backup stage
Backup 1 starts AC030	Number of starts of the first electrical backup stage
Standby used energy AC032	Energy consumed by the appliance in standby mode (kWh)
Zone Pump Run Hours CC001	Numbers of pump operating hours of the zone
Zone Nbr Pump Starts CC010	Numbers of times the pump of the zone has started
Heating producer hrs PC000	Number of producer operating hours in central heating
Total starts PC002	Total number of heat generator starts for heating and domestic hot water
Heat gen run hrs PC003	Total duration of heat production in heating mode
Cooling producer hrs PC005	Total duration of cooling production in cooling mode
Screed dry remaining ZC000	The remaining duration of screed drying in days

9.2 Description of the parameters

9.2.1 Frost protection operation

The frost protection function is dependent on the outdoor temperature.

Tab.66 Safety levels

Level 1	If the water flow temperature is below a temperature threshold, the outdoor unit circulating pump starts up to prevent the water from freezing in the pipes.
Level 2	If the outdoor temperature drops further, the heat pump starts up to protect the zone from frost.

9.2.2 Running the back-up in heating mode

■ Start-up conditions for the backup

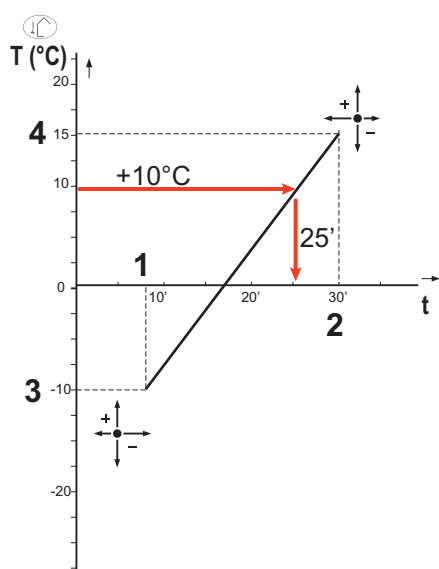
The backups are authorised to start up normally except in cases of power cut-off or limitation linked to bivalency (**Bivalent temperature** - HP000).

If the heat pump should also be limited, the backups are nevertheless authorised to operate to guarantee heating comfort.

In heating mode, the backup is managed by the parameters: **Bivalent temperature** (HP000) and **Delay startbackup CH** (HP030).

If **Delay startbackup CH** (HP030) is set to 0, the time delay for start-up of the backup is set depending on the outdoor temperature: the lower the outdoor temperature, the quicker the backup will be activated.

Fig.54 Time delay curve for starting the backup



MW-6000377-7

- t Time (minutes)
- T Outdoor temperature (°C)
- 1 Delay min outdoor T (HP047) = 8 minutes
- 2 Delay max outdoor T (HP048) = 30 minutes
- 3 Min outdoor T backup (HP049) = -10 °C
- 4 Max outdoor T backup (HP050) = 15 °C

In this example of a time delay in starting the backup when **Delay startbackup CH** HP030 is set to 0, if the outdoor temperature is 10 °C, the backup will start 25 minutes after the heat pump's outdoor unit.

■ Backup operation if an error occurs on the outdoor unit

If an error occurs on the outdoor unit during a system heat demand, the backup boiler or heating element starts up immediately to guarantee heating comfort.

■ Operation when the outdoor temperature falls below the operating threshold of the outdoor unit

If the outdoor temperature is below the minimum operating temperature of the outdoor unit as defined by the **Min outdoor T HP** (HP051) parameter, the outdoor unit is not authorised to operate.

If the system has a demand pending, the backup boiler or the electric heating element (if present) starts up immediately to guarantee heating comfort.

9.2.3 Running the back-up in domestic hot water mode

■ Start-up conditions for the backup

The start-up conditions for the backup for domestic hot water production depend on the **BL input setting** (AP001) and **BL2 function** (AP100) parameters for the blocking inputs **BL1** and **BL2** respectively.

■ Operating description

The behaviour of the backup boiler or the electric heating element in domestic hot water mode depends on the configuration of the **DHW management**(DP051) parameter.

If **DHW management** (DP051) is set to **HP only** the system gives priority to the heat pump during domestic hot water production. The backup boiler or the electric heating element is used only if the start-up time delay for the backup during domestic hot water production **Delay StartBackupDHW** (DP090) has elapsed in domestic hot water mode, unless the hybrid mode is activated. In this case, hybrid logic takes over.

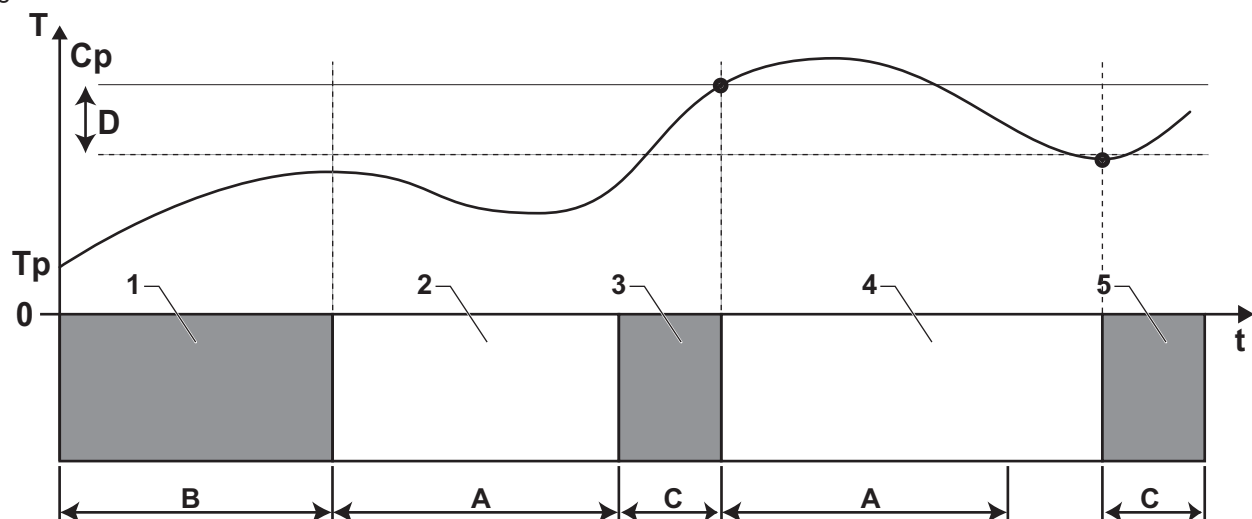
If **DHW management** (DP051) is set to **Auto (HP + Boiler)** the domestic hot water production mode gives priority to comfort by accelerating domestic hot water production by simultaneously using the heat pump and the backup boiler or the electric heating element. In this mode, there is no maximum time for domestic hot water production as the use of the backups helps to ensure domestic hot water comfort more quickly.

9.2.4 Operation of the switch between heating and DHW generation

The system does not allow simultaneous central heating and generation of domestic hot water, unless the domestic hot water cylinder is equipped with an immersion heating element.

The switch logic between domestic hot water mode and heating mode operates as follows:

Fig.55



- A** **Min CH before DHW** DP048: Minimum heating duration between two domestic hot water production runs
- B** **Max DHW duration** DP047: Maximum authorised duration for domestic hot water production
- C** Duration for producing domestic hot water (less than DP047) to reach the DHW set point
- Cp** **DHW comfort setpoint** DP070: Domestic hot water "Comfort" setpoint temperature

- DHW eco setpoint** DP080: Domestic hot water "Reduced" setpoint temperature
- T** Temperature
- Tp** **DHW T DM001**: Domestic hot water temperature
- t** Time
- D** **Hysteresis DHW** DP120: Setpoint temperature differential triggering the domestic hot water tank to be charged

MW-5000541-2

Tab.67

Phase	Description of the phase	Operating description
1	Domestic hot water production only	When the system is switched on, if domestic hot water production is authorised and the parameter DHW management (DP051) is configured to HP only, a domestic hot water production cycle is started up for a maximum duration that can be set and fixed by the Max DHW duration (DP047) parameter. In the event of insufficient heating comfort, the heat pump is running too long in domestic hot water mode: reduce the maximum duration of domestic hot water production.
2	Heating only	Production of domestic hot water is off. Even if the domestic hot water setpoint is not reached, a minimum heating period is forced. This period can be set and defined with the Min CH before DHW (DP048) parameter. After the heating period, tank loading is enabled again.
3	Domestic hot water production only	When the domestic hot water setpoint is reached, a period in heating mode begins.
4	Heating only	When the Hysteresis DHW (DP120) differential is reached, domestic hot water production is triggered. If there is not enough domestic hot water (e.g. if the domestic hot water does not heat up quickly enough): reduce the trip differential (hysteresis) by modifying the value of the Hysteresis DHW (DP120) parameter. The heat pump will start heating up the domestic hot water more often.
5	Domestic hot water production only	When the domestic hot water setpoint is reached, a period in heating mode begins.

9.2.5 Operation of the heating curve

The relationship between the outdoor temperature and the circuit flow heating water temperature is controlled by a heating curve or water temperature setpoint. This can be adjusted according to the requirements of the installation.

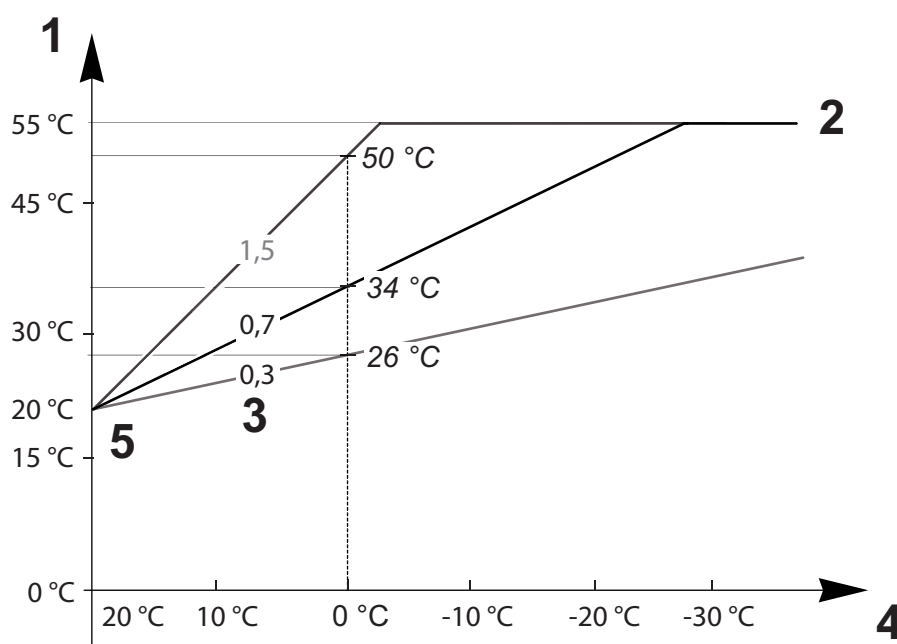


Important

Regulation via the heating curve is only possible when the **regulation strategy** CP780 is set on the modes "Acc. to Ext. T." and "Acc. to Ext. T and Room T.".

Fig.56

MW-6070170-1



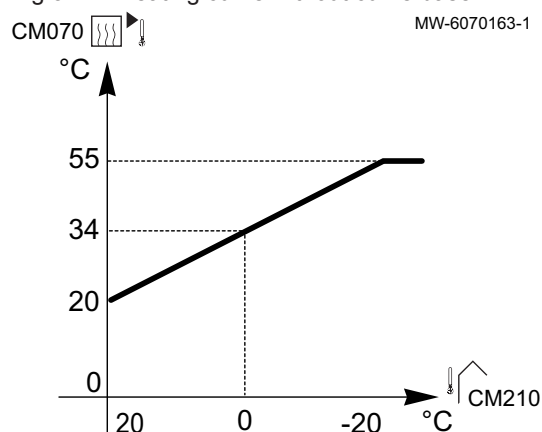
- 1 **Current Flow temperature setpoint of zone** CM070
- 2 **Maximum Flow Temperature setpoint zone**
CP000 = 55 °C
- 3 **Heating curve temperature gradient of the zone**
CP230

- 4 **Outdoor temperature** CM210
- 5 **Curve base temperature** CP210 / CP220 = 20 °C

Tab.68

Parameters	Description of the parameters
Maximum Flow Temperature setpoint zone CP000	The flow setpoint temperature for the circuit CM070 is limited by the maximum flow temperature setpoint for the circuit CP000. When using a room thermostat, the setpoint retained is the lowest temperature between the flow setpoint temperature for the circuit CM070 and the maximum flow temperature setpoint for the circuit CP000.
Heating curve temperature gradient of the zone CP230	The steeper the gradient of the heating temperature curve for the circuit CP230, the quicker the flow setpoint temperature for the circuit CM070 will increase. Decrease the gradient of the heating temperature curve for the circuit CP230 in case of over-heating in mid-winter. Example: for an outdoor temperature CM210 of 0 °C: if CP230 = 0.7 then CM070 = 34 °C if CP230 = 1.5 then CM070 = 50 °C
Curve base temperature CP210 / CP220	Increase the curve base temperature CP210 / CP220 when the heating is insufficient for mild outdoor temperatures. CP210 corresponds to the curve base temperature in comfort mode. CP220 corresponds to the curve base temperature in reduced mode. If the curve base temperature CP210 / CP220 is set to 15 °C, then it becomes equal to the Required room setpoint temperature for the circuit CM190. Example: if CP210 = 15 °C then CM190 = the room setpoint temperature for the activity/timer programme.
Wished room temperature setpoint of the zone CM190	Calculated setpoint temperature, taken from the timer programming, manual mode or the override
Outdoor temperature CM210	The outdoor temperature CM210 is affected by the position of the outdoor temperature sensor: check the sensor is positioned correctly.
Current Flow temperature setpoint of zone CM070	The flow setpoint temperature for the circuit CM070 is calculated according to the heating curve parameters: - Without setting of the curve base temperature (CP210 / CP220 set to 15 °C): $CM070 = (CM190 - CM210) \times CP230 + CM190$ - With setting of the curve base temperature (CP210 / CP220 > 15 °C): $CM070 = (CM190 - CM210) \times CP230 + (CP210 \text{ or } CP220)$

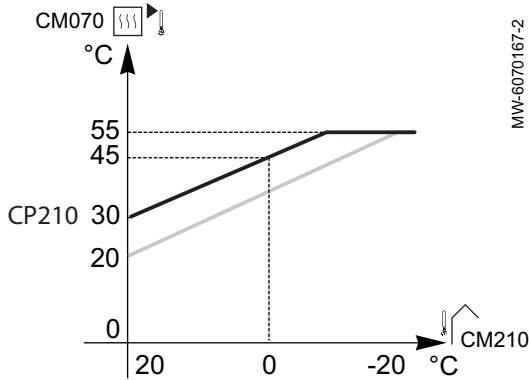
Fig.57 Heating curve without curve base



Without setting of the **curve base temperature** (CP210 / CP220 set to 15 °C): an **outdoor temperature** CM210 of 0 °C will give a **flow setpoint temperature for the circuit** CM070 of 34 °C.

If CP210 = 15 °C, then CP210 becomes the **required room setpoint temperature** CM190 (in our example CM190 = 20 °C).

Fig.58 Heating curve with curve base



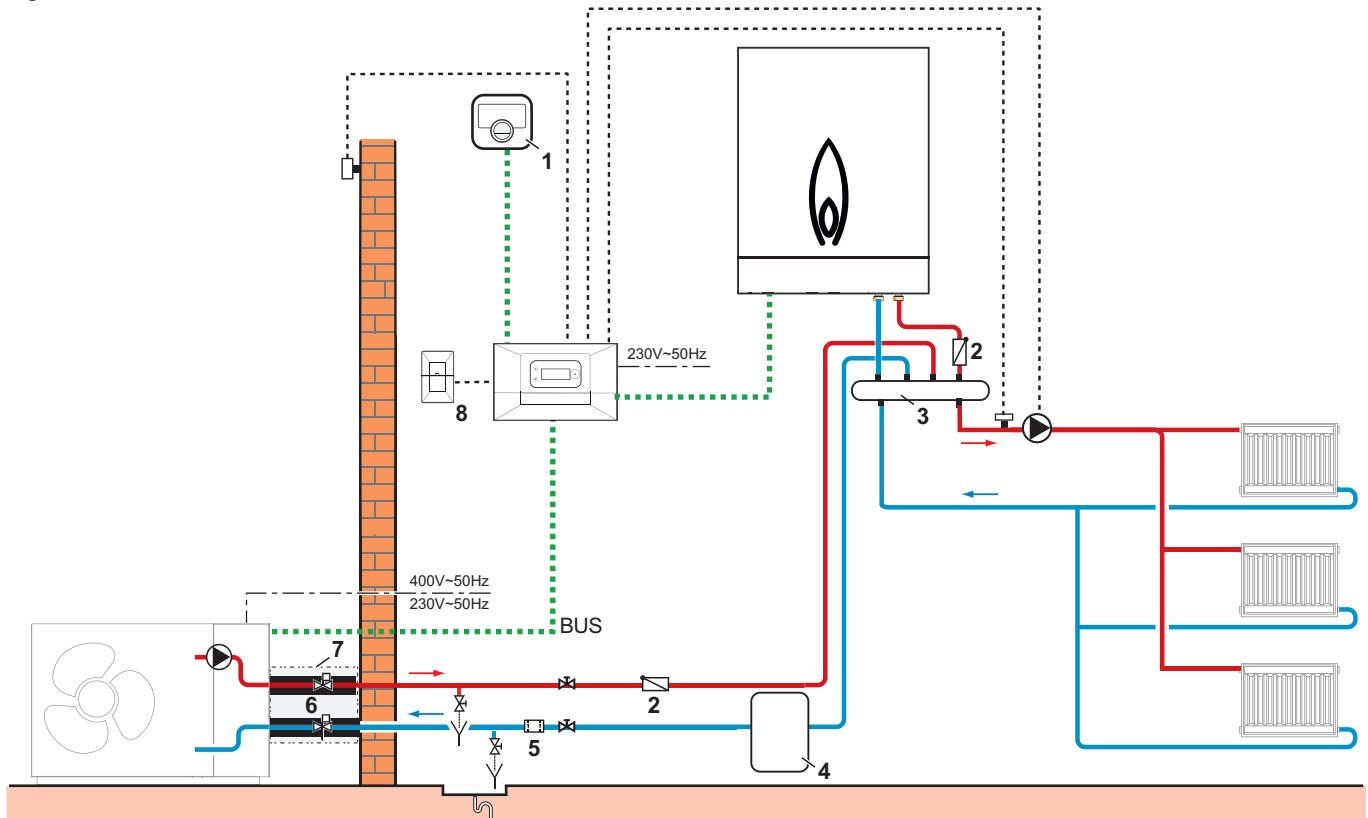
With setting of the **curve base temperature** (CP210 / CP220) to 30 °C: an **outdoor temperature** CM210 of 0 °C will give a **flow setpoint temperature** for the circuit CM070 of 45 °C.

10 Connection and installation examples

10.1 Installation with one backup boiler and one low loss header

10.1.1 Hydraulic diagram

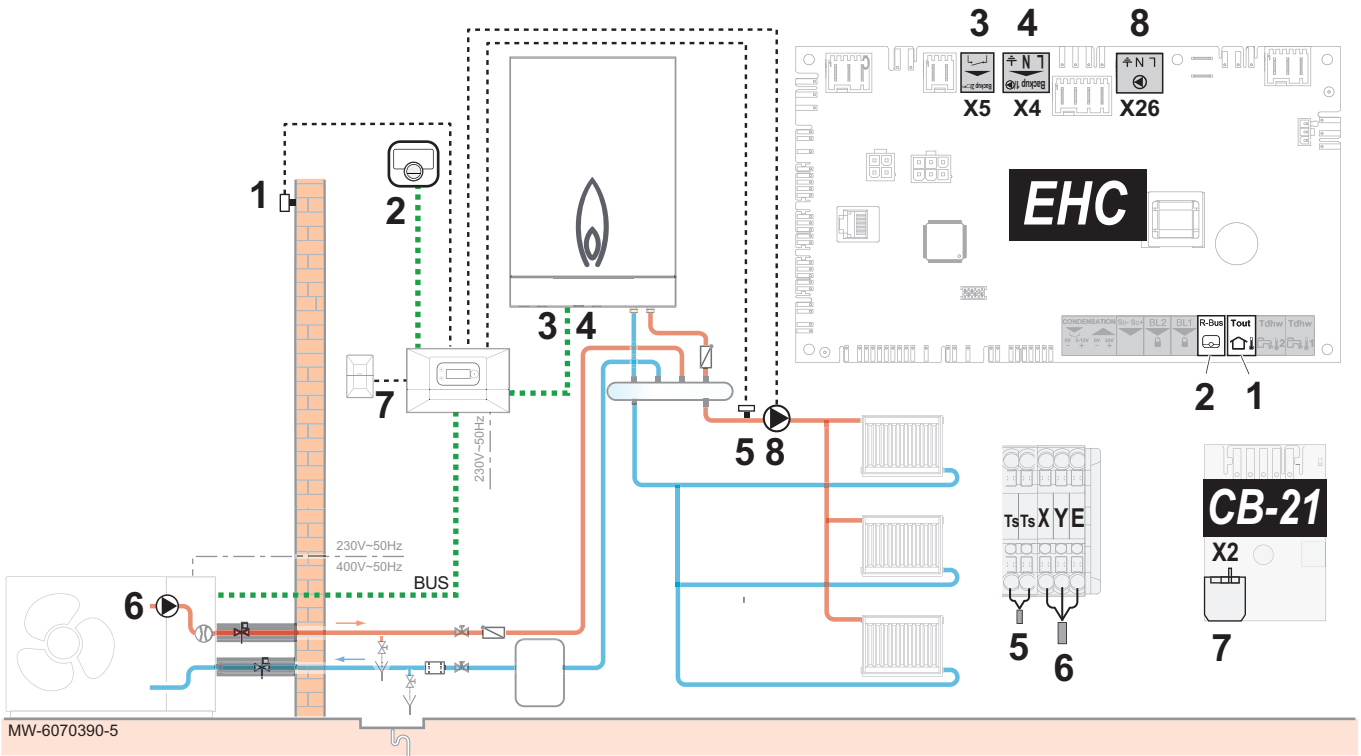
Fig.59



- | | |
|--|----------------------------|
| 1 uSense connected thermostat | 6 Anti-freeze valves |
| 2 Non-return valves | 7 Insulated hose kit |
| 3 Low loss header | 8 GTW-30 communication PCB |
| 4 Buffer tank (if necessary) | |
| 5 Combined magnetic filter and strainer (provided with the outdoor unit) | |

10.1.2 Connecting and configuring the heat pump

Fig.60



MW-6070390-5

- 1 Outdoor temperature sensor

2 uSense smart room thermostat

3 ON/OFF contact for the hydraulic backup

4 Hydraulic backup pump power supply
- 5 Heating flow temperature sensor

6 Outdoor unit BUS connection

7 GTW-30 bus connection

8 Pump power supply (maximum output: 450 W)

1. Connect the accessories and options to the **EHC-16** PCB, respecting the 230-400 V and 0-40 V cable feedthroughs.
2. On initial start-up, or following a reset of the factory parameters, set the CN1 and CN2 parameters according to the output of the outdoor unit.
3. Follow the menu path described below to access the parameters for the backup.

Menu path	
 >  Installer > Installation setup > Heat Pump> Backup	

4. Configure the backup type.

Parameter	Description	Adjustment required
Backup type HP029	Type of backup used in the heat pump	Boiler Backup

5. Follow the menu path described below to access the radiator circuit parameters (**Zone1**).

Menu path	
 >  Installer > Installation setup > Zone1	

6. Configure the radiator circuit parameters (**Zone1**).

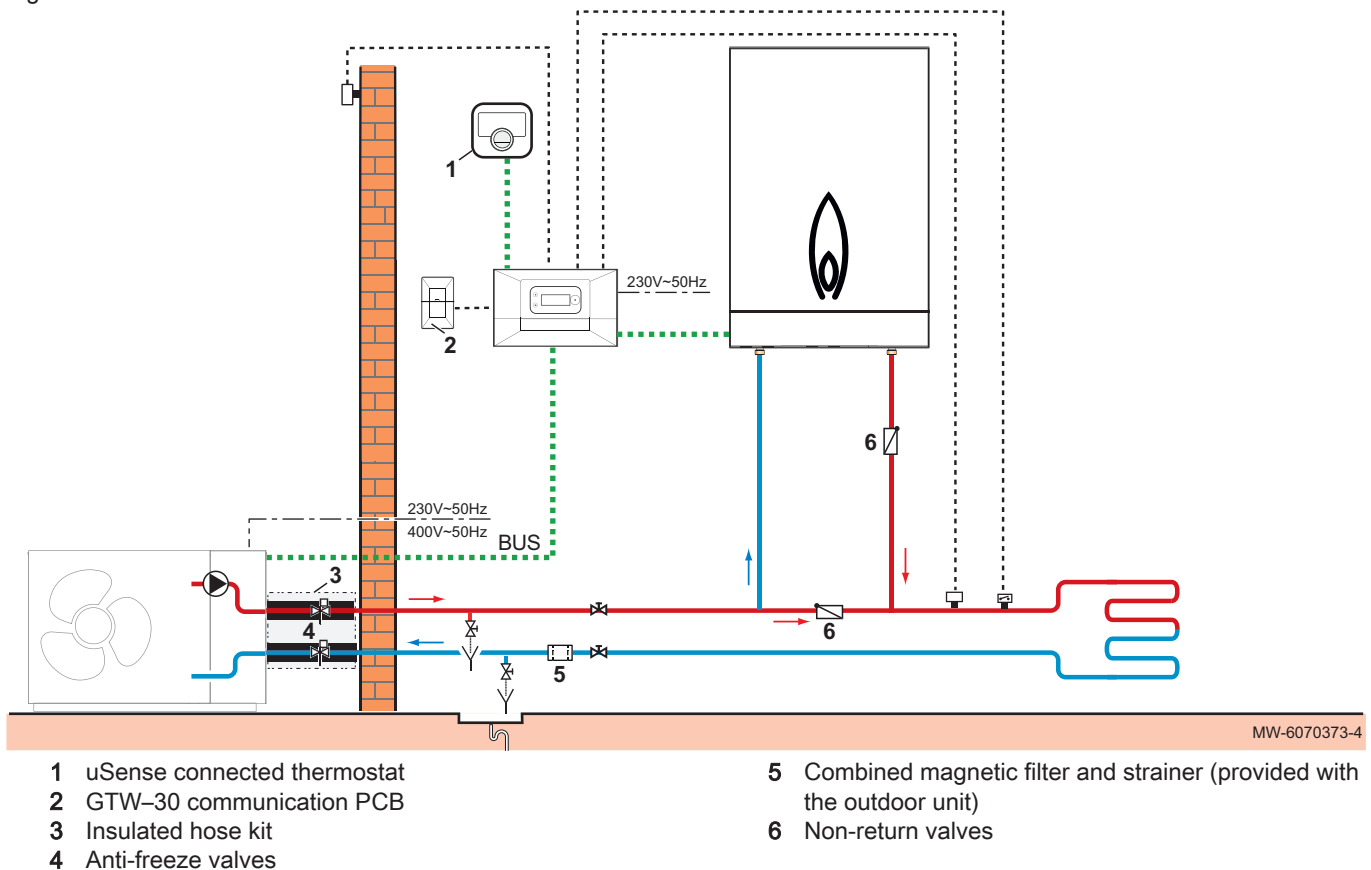
Parameter		Description	Adjustment required
Zone Function CP020		Functionality of the zone	Direct (factory setting) This setting does not enable cooling.
Heat curve	Zone Heating Curve CP230	Value of the heating curve gradient.	1.5 (for a radiator circuit) Adapt the values of the heating curve in order to obtain optimum comfort.
	MaxZoneTFlowSetpoint CP000	Maximum Flow Temperature setpoint zone	75 °C (factory setting) Adjust the temperature as required.

**See also**

Configuring the backup boiler, page 44

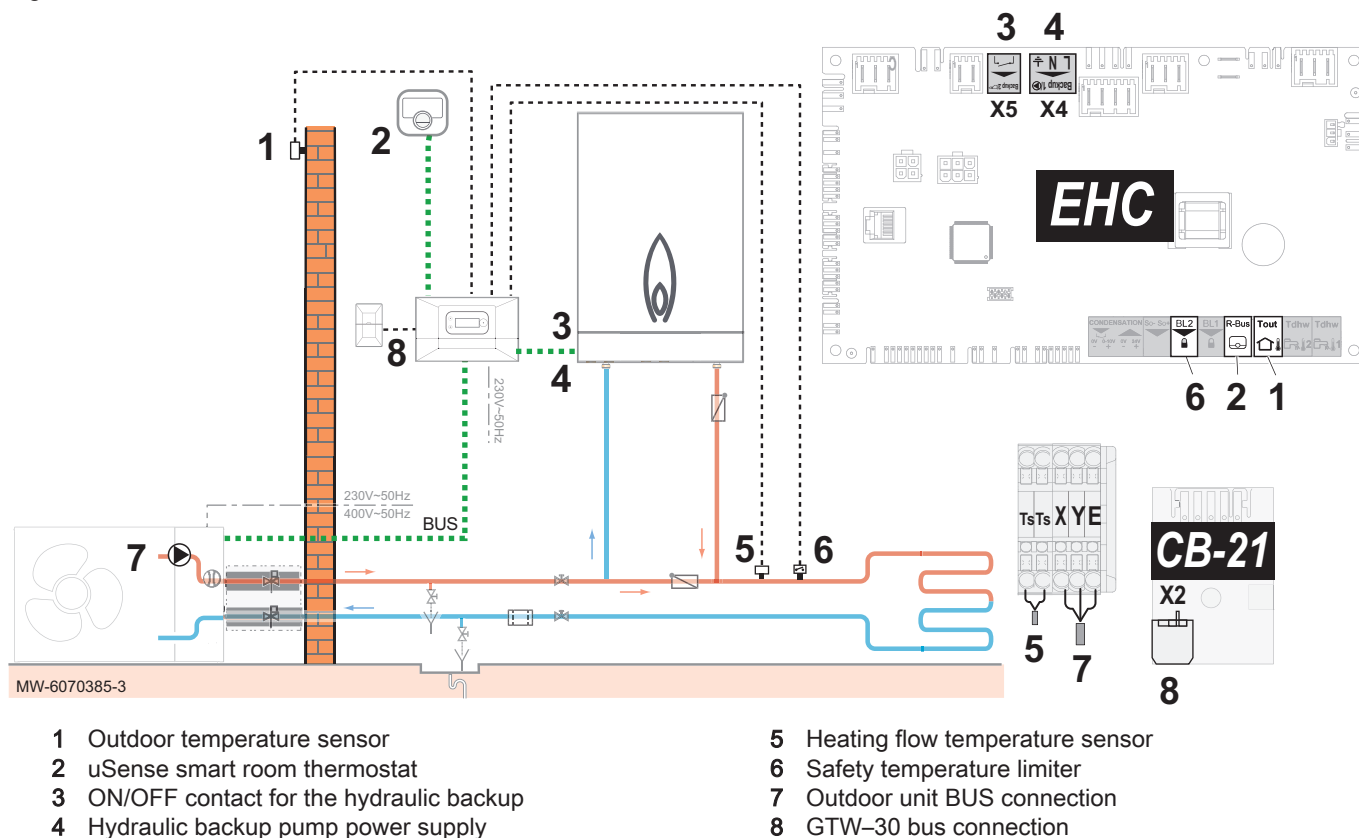
10.2 Installation with backup boiler and one direct circuit**10.2.1 Hydraulic diagram**

Fig.61



10.2.2 Connecting and configuring the heat pump

Fig.62



1. Connect the accessories and options to the **EHC-16** PCB, respecting the 230-400 V and 0-40 V cable feedthroughs.
2. On initial start-up, or following a reset of the factory parameters, set the CN1 and CN2 parameters according to the output of the outdoor unit.
3. Follow the menu path described below to access the parameters for the backup.

Menu path

☰ >  Installer > Installation setup > Heat Pump > Backup

4. Configure the backup type.

Parameter	Description	Adjustment required
Backup type HP029	Type of backup used in the heat pump	Boiler Backup

- ### 5. Configure the parameters for **Zone1**

Menu path

☰ >  Installer > Installation setup > Zone1

6. Set the main heating parameters.

Parameter		Description	Adjustment required
Zone Function CP020		Functionality of the zone	Factory setting: Direct Set the parameter depending on your installation: • Mixing Circuit • Fan Convector Only these 2 settings are used for cooling.
Heat curve	Zone Heating Curve CP230	Value of the heating curve gradient	Set it between 0.4 and 0.7 (for an underfloor heating circuit). Adapt the values of the heating curve in order to obtain optimum comfort.
	MaxZoneTFlowSetpoint CP000	Maximum Flow Temperature setpoint zone	40 °C Adjust the temperature as required.

7. Follow the menu path described below to access the BL2 multifunction input parameters

Menu path	
 > 	Installer > Installation setup > Heat Pump > Blocking input (BL input)

8. Configure the BL2 multifunction input

Parameter	Description	Adjustment required
BL2 function AP100	BL2 input function selection	Full blocking
BL2 contact config. AP099	BL2 input contact configuration	Closed

9. Configure the authorisation for cooling.

**Important**

To prevent any risk of condensation when using the cooling function, install the necessary protection on the installation.

Menu path	
 > 	Installer > Installation setup > Heat Pump > Cooling

Parameter	Description	Adjustment required
Cooling mode AP028	Configuration of the cooling mode	• Off • Active cooling on

10. Set up the backup boiler.

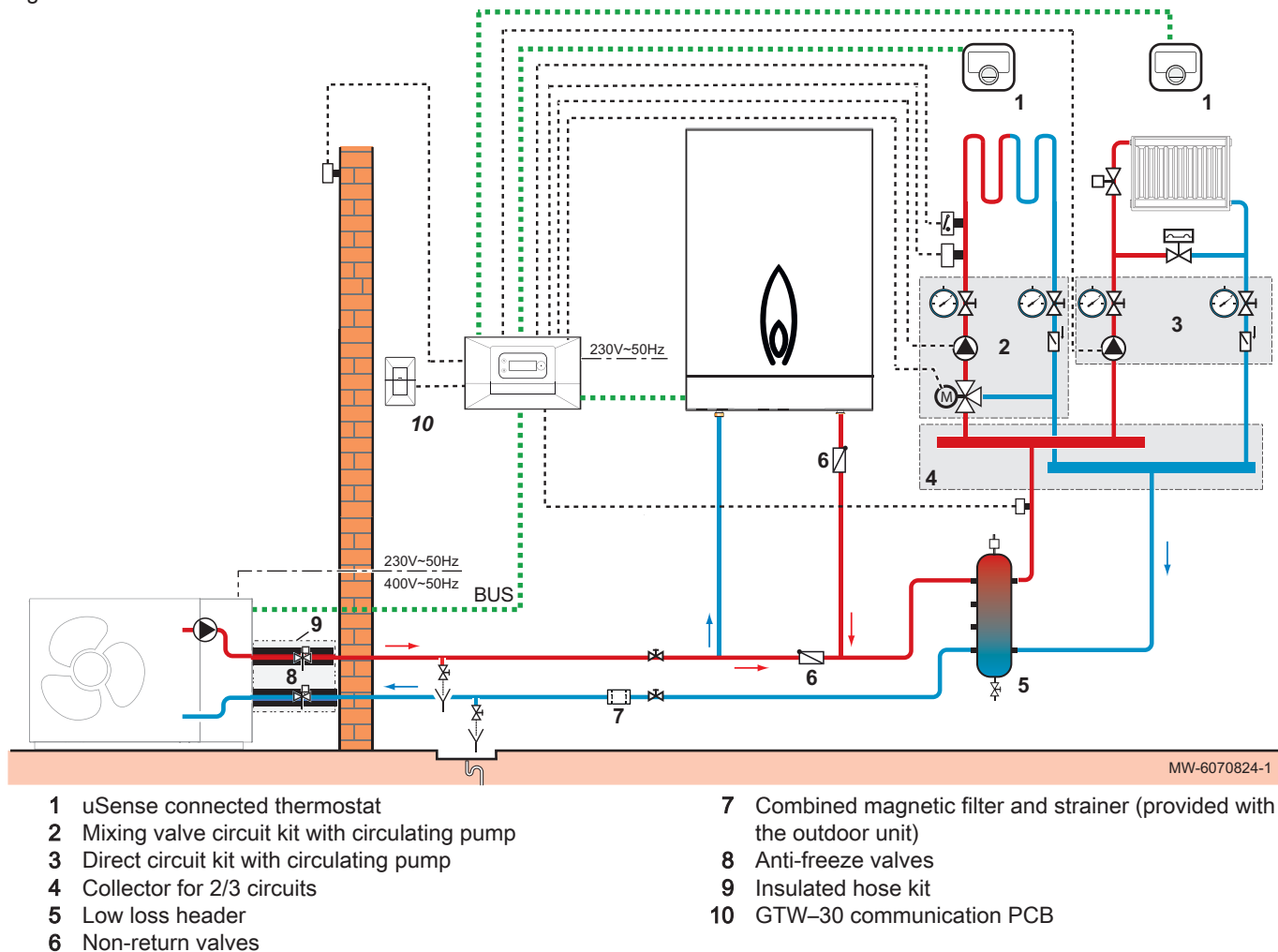
**See also**

Configuring the backup boiler, page 44

10.3 Installation with backup boiler, two circuits and a low loss header

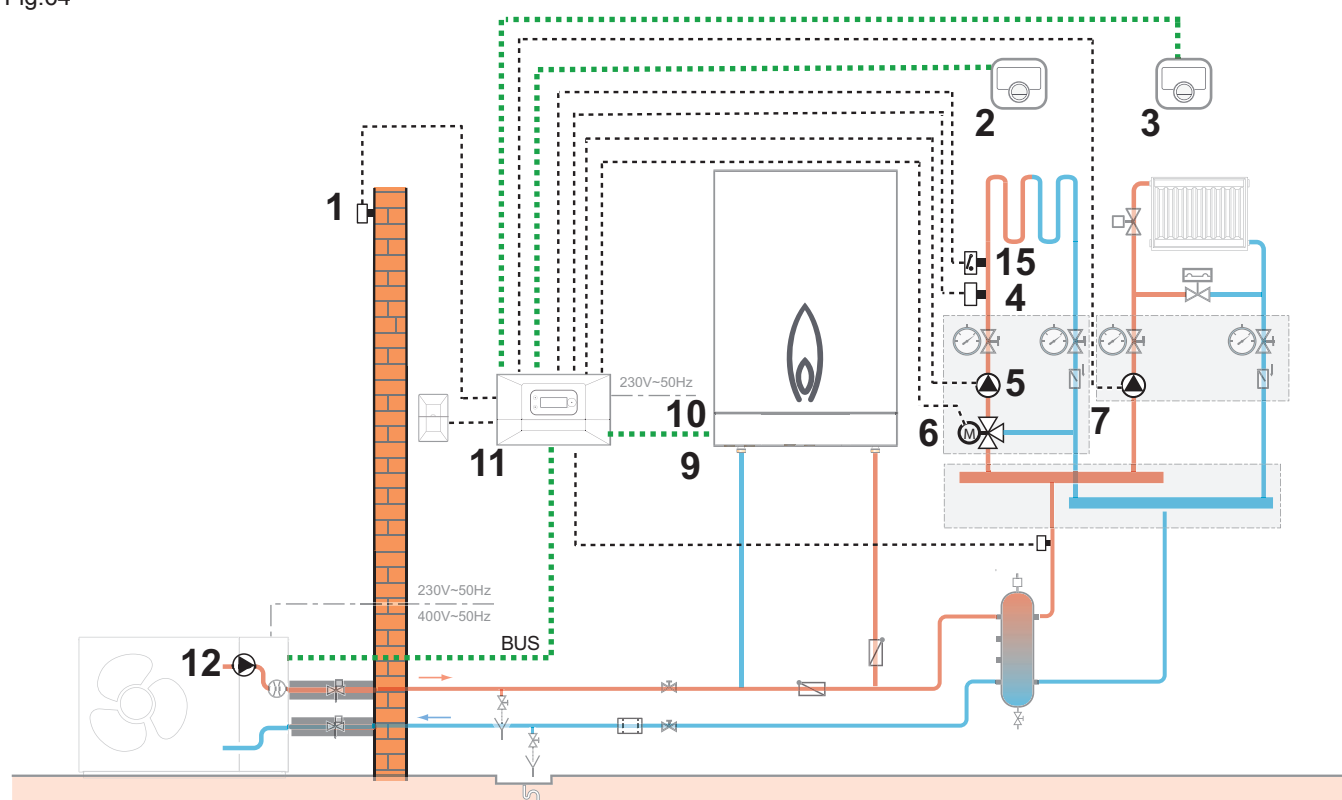
10.3.1 Hydraulic diagram

Fig.63

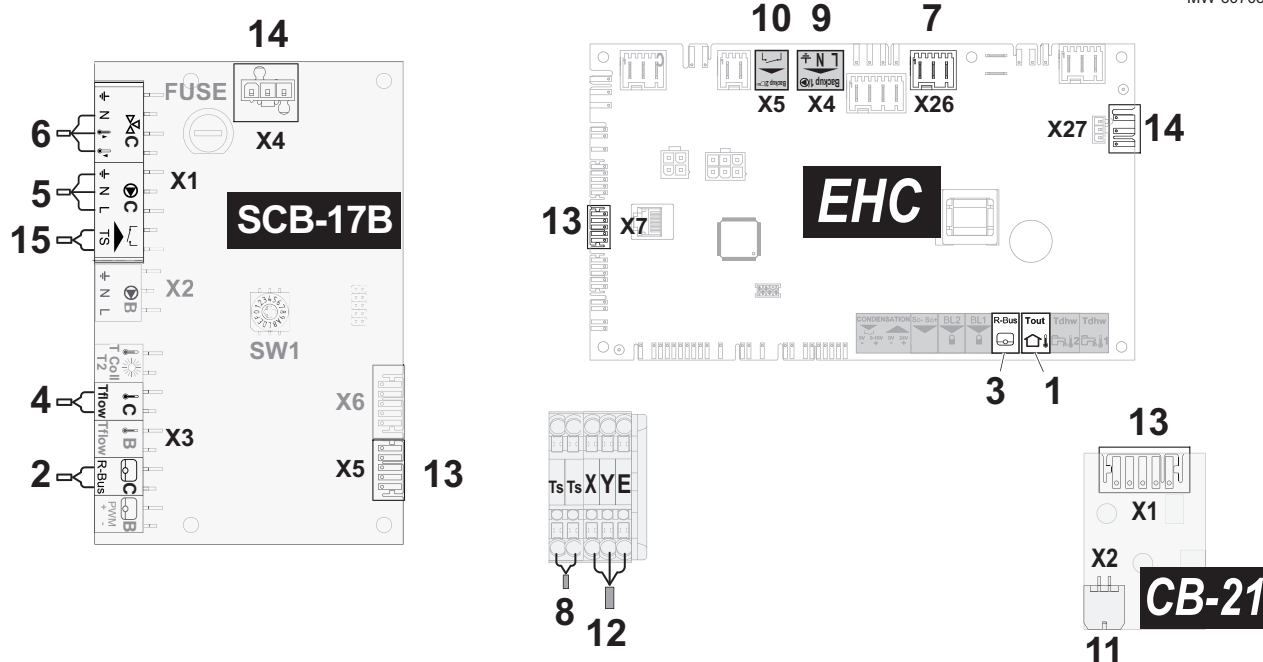


10.3.2 Connecting and configuring the heat pump

Fig.64



MW-6070386-3



- | | |
|--|--|
| 1 Outdoor temperature sensor | 7 Power supply of the pump on the radiator circuit. The pump output is limited to 450 W. |
| 2 uSense smart room thermostat for the underfloor heating circuit | 8 Heating flow temperature sensor |
| 3 uSense smart room thermostat for the radiator circuit | 9 Hydraulic backup pump power supply |
| 4 Flow temperature sensor on the underfloor heating circuit | 10 ON/OFF contact for the hydraulic backup |
| 5 Power supply of the pump on the underfloor heating circuit | 11 BUS connection linking the CB-21 and GTW-30 PCBs |
| 6 Power supply of the mixing valve on the underfloor heating circuit | 12 Outdoor unit bus connection |
| | 13 BUS connection linking the EHC-16, SCB-17B and CB-21 PCBs |

14 230 V power supply connection between the EHC-16 and SCB-17B PCBs

15 Safety temperature limiter for underfloor heating flow

1. Connect the accessories and options to the **EHC-16** PCB, respecting the 230-400 V and 0-40 V cable feedthroughs.
2. Connect the accessories and options to the **SCB-17B** PCB, respecting the 230-400 V and 0-40 V cable feedthroughs.
3. Follow the menu path described below to access the parameters for the backup.

Menu path

 >  Installer > Installation setup > Heat Pump > Backup

4. Configure the backup type.

Parameter	Description	Adjustment required
Backup type HP029	Type of backup used in the heat pump	Boiler Backup

5. Follow the menu path described below to access the radiator circuit parameters (**Zone1**).

Menu path

 >  Installer > Installation setup > Zone1

6. Configure the radiator circuit parameters (**Zone1**).

Parameter	Description	Adjustment required
Zone Function CP020	Functionality of the zone	Direct (factory setting) This setting does not enable cooling.
Heat curve	Zone Heating Curve CP230	Value of the heating curve gradient. 1.5 (for a radiator circuit) Adapt the values of the heating curve in order to obtain optimum comfort.
	MaxZoneTFlowSetpoint CP000	Maximum Flow Temperature setpoint zone 75 °C (factory setting) Adjust the temperature as required.

7. Follow the menu path given below to access the parameters for the second circuit underfloor heating (**Zone3**) on the user interface.

Menu path

 >  Installer > Installation setup > Zone3

8. Configure the parameters for the second circuit underfloor heating, displayed (**Zone3**) on the user interface.

Parameter	Description	Adjustment required
Zone Function CP021	Functionality of the zone	• Mixing Circuit • Fan Convactor Only these 2 settings are used for cooling.
Heat curve	Zone Heating Curve CP231	Value of the heating curve gradient. Set it between 0.4 and 0.7 (for an underfloor heating circuit) Adapt the values of the heating curve in order to obtain optimum comfort.
	MaxZoneTFlowSetpoint CP001	Maximum Flow Temperature setpoint zone 40 °C Adjust the temperature as required.

9. Follow the menu path described below to activate the second circuit safety temperature limiter, displayed (**Zone3**) on the user interface.

Menu path

 >  Installer > Installation setup > Zone3 > Advanced

10. Activate the underfloor heating safety temperature limiter for the second circuit, displayed (**Zone3**) on the user interface.

Parameter	Description	Adjustment required
Safety thermostat CP191	Zone safety thermostat configuration	On

11. Set the authorisation for cooling.



Important

To prevent any risk of condensation when using the cooling function, install the necessary protection on the installation.

Menu path
 >  Installer > Installation setup > Heat Pump > Cooling

Parameter	Description	Adjustment required
Cooling mode AP028	Configuration of the cooling mode	Active cooling on

12. Follow the menu path described below to access the low loss header parameters.

Menu path
 >  Installer > Installation setup > Heat Pump > General

13. Configure the low loss header parameters.

Parameter	Description	Adjustment required
Buffer tank HP086	Activation of hydraulic management mode for the configuration with a low loss header, or for a buffer tank connected as a low loss header	Yes
Buffer tank hyst HP087	Temperature hysteresis to start or stop heating the buffer tank	Default value: 3 °C Do not modify.

14. Set up the backup boiler.



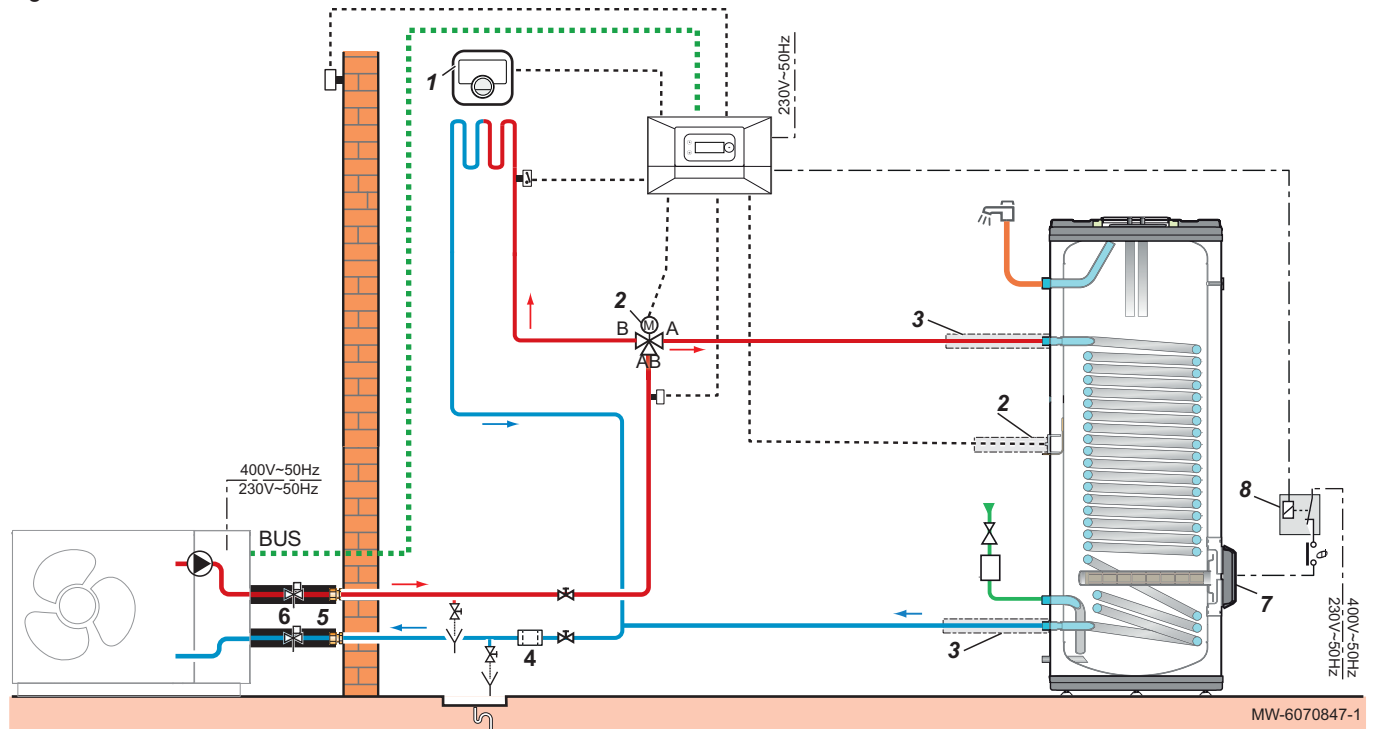
See also

Configuring the backup boiler, page 44

10.4 Installation with direct circuit and domestic hot water cylinder with electric heating element

10.4.1 Hydraulic diagram

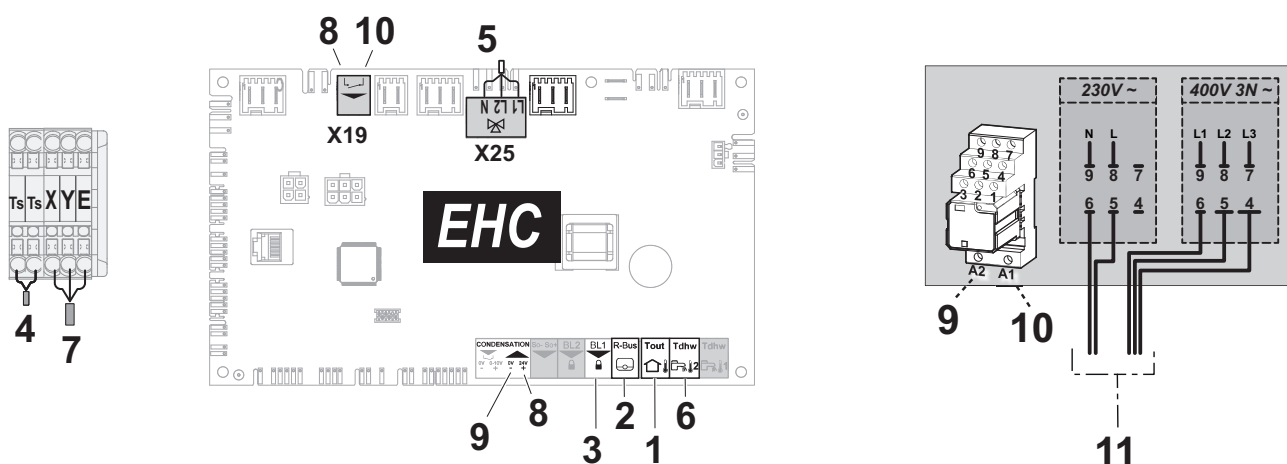
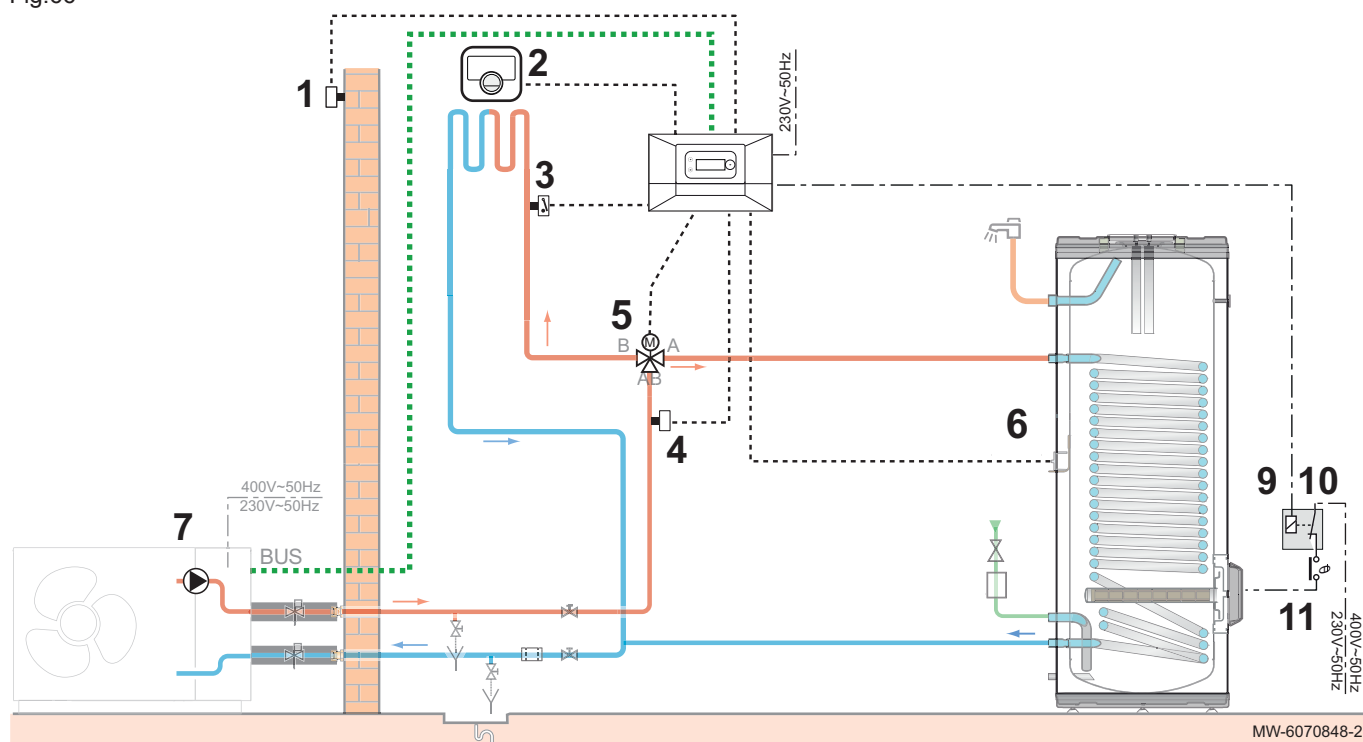
Fig.65



- | | |
|---|---|
| <p>1 uSense smart room thermostat first circuit</p> <p>2 Heating/DHW diverter valve and domestic hot water sensor kit</p> <p>3 Hydraulic connection kit for a domestic hot water tank</p> | <p>4 Combined magnetic filter and strainer (provided with the outdoor unit)</p> <p>5 Anti-freeze valves</p> <p>6 Insulated hose kit</p> <p>7 Immersion heating element</p> <p>8 Power relay</p> |
|---|---|

10.4.2 Connecting and configuring the heat pump

Fig.66



- | | |
|---|--|
| 1 Outdoor temperature sensor | 8 Electrical bridge between X19 and the +24V terminal on the EHC-16 PCB |
| 2 uSense smart room thermostat | 9 Connection between the -0V terminal on the EHC-16 PCB and A2 on the power relay |
| 3 Safety temperature limiter | 10 Connection between the X19 terminal on the EHC-16 PCB and A1 on the power relay |
| 4 Heating flow temperature sensor | 11 Immersion heating element power supply |
| 5 Heating/domestic hot water diverter valve | |
| 6 Domestic hot water sensor | |
| 7 Outdoor unit BUS connection | |

1. Connect the accessories and options to the EHC-16 PCB, respecting the 230-400 V and 0-40 V cable feedthroughs.
2. On initial start-up, or following a reset of the factory parameters, set the CN1 and CN2 parameters according to the output of the outdoor unit.
3. Follow the menu path described below to access the parameters for the backup.

Menu path

☰ > 🛠️ Installer > Installation setup > Heat Pump > Backup

4. Configure the backup type.

Parameter	Description	Adjustment required
Backup type HP029	Type of backup used in the heat pump	No Backup

5. Configure the parameters for **Zone1**.

Menu path
 >  Installer > Installation setup > Zone1

6. Set the main heating parameters.

Parameter	Description	Adjustment required
Zone Function CP020	Functionality of the zone	Factory setting: Direct Set the parameter depending on your installation: • Mixing Circuit • Fan Convactor Only these 2 settings are used for cooling.
Heat curve	Zone Heating Curve CP230	Value of the heating curve gradient
	MaxZoneTFlowSetpoint CP000	Maximum Flow Temperature setpoint zone
		Set it between 0.4 and 0.7 (for an underfloor heating circuit). Adapt the values of the heating curve in order to obtain optimum comfort.
		40 °C Adjust the temperature as required.

7. Follow the menu path described below to access the BL2 multifunction input parameters

Menu path
 >  Installer > Installation setup > Heat Pump > Blocking input (BL input)

8. Configure the BL2 multifunction input

Parameter	Description	Adjustment required
BL2 function AP100	BL2 input function selection	Full blocking
BL2 contact config. AP099	BL2 input contact configuration	Closed

9. Configure the authorisation for cooling.

**Important**

To prevent any risk of condensation when using the cooling function, install the necessary protection on the installation.

Menu path
 >  Installer > Installation setup > Heat Pump > Cooling

Parameter	Description	Adjustment required
Cooling mode AP028	Configuration of the cooling mode	• Off • Active cooling on

10. Follow the menu path described below to access the parameters for the multifunction output

Menu path
 >  Installer > Installation setup > Heat Pump > Advanced

11. Configure the multifunction output to control the power relay of the immersion heating element

Parameter	Description	Adjustment required
Multifunct output HP188	Configure the function of the multifunctional output	DHW Backup

12. Follow the menu path given below to access the parameters for the domestic hot water cylinder (**Domestic Hot Water**).

Menu path
 >  Installer > Installation setup > Domestic Hot Water

13. Configure the type of backup for domestic hot water

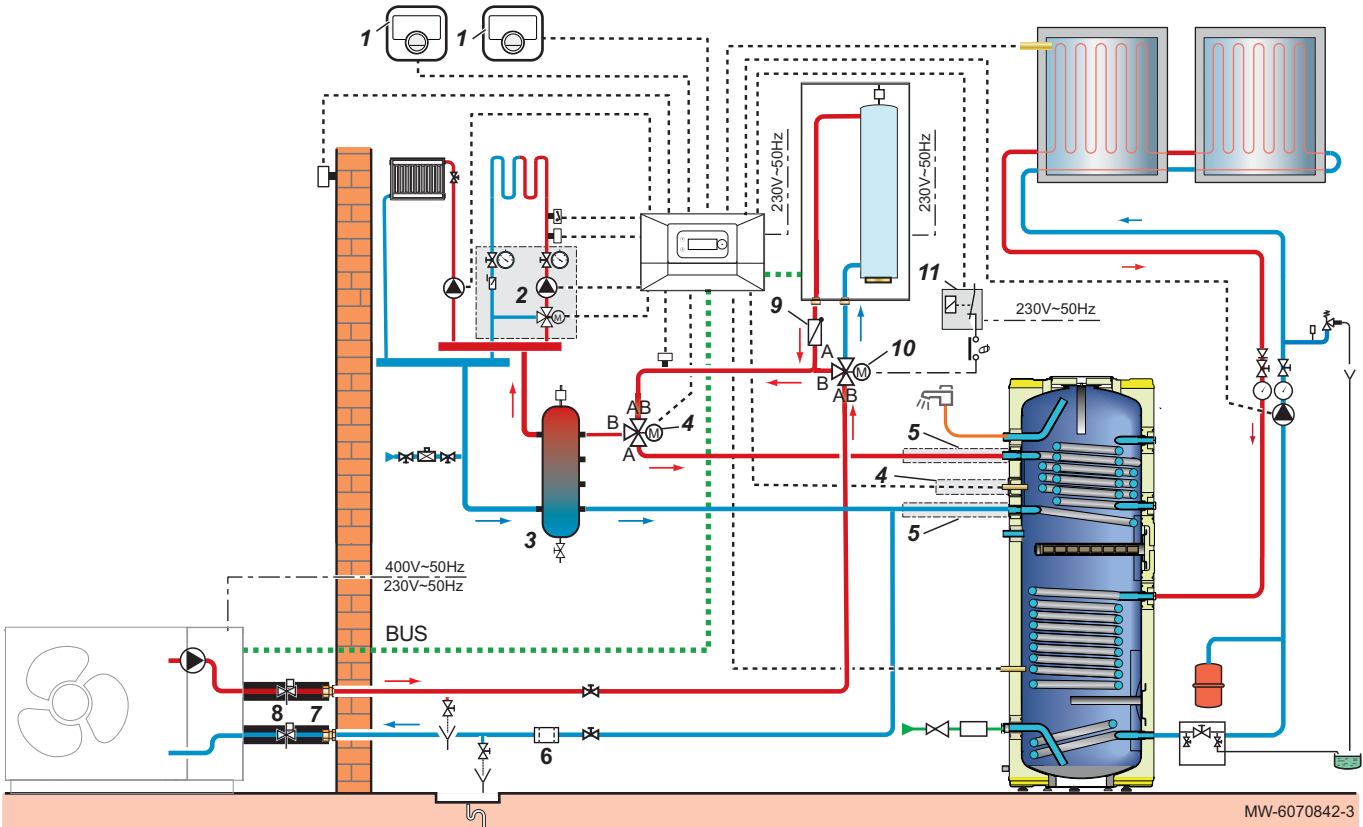
Parameter	Description	Adjustment required
DHW backup type DP334	Backup type used for domestic hot water production	DHW Tank

14. Configure the parameters of the DHW cylinder (**Domestic Hot Water**) as required by the user.

10.5 Installation with heating element, two circuits and one domestic hot water cylinder with solar panels

10.5.1 Hydraulic diagram

Fig.67



- 1 uSense smart room thermostat first circuit

2 Mixing valve circuit kit with circulating pump

3 Low loss header

4 Heating/DHW diverter valve and domestic hot water sensor kit

5 Hydraulic connection kit for a domestic hot water tank
- 6 Combined magnetic filter and strainer (provided with the outdoor unit)

7 Anti-freeze valves

8 Insulated hose kit

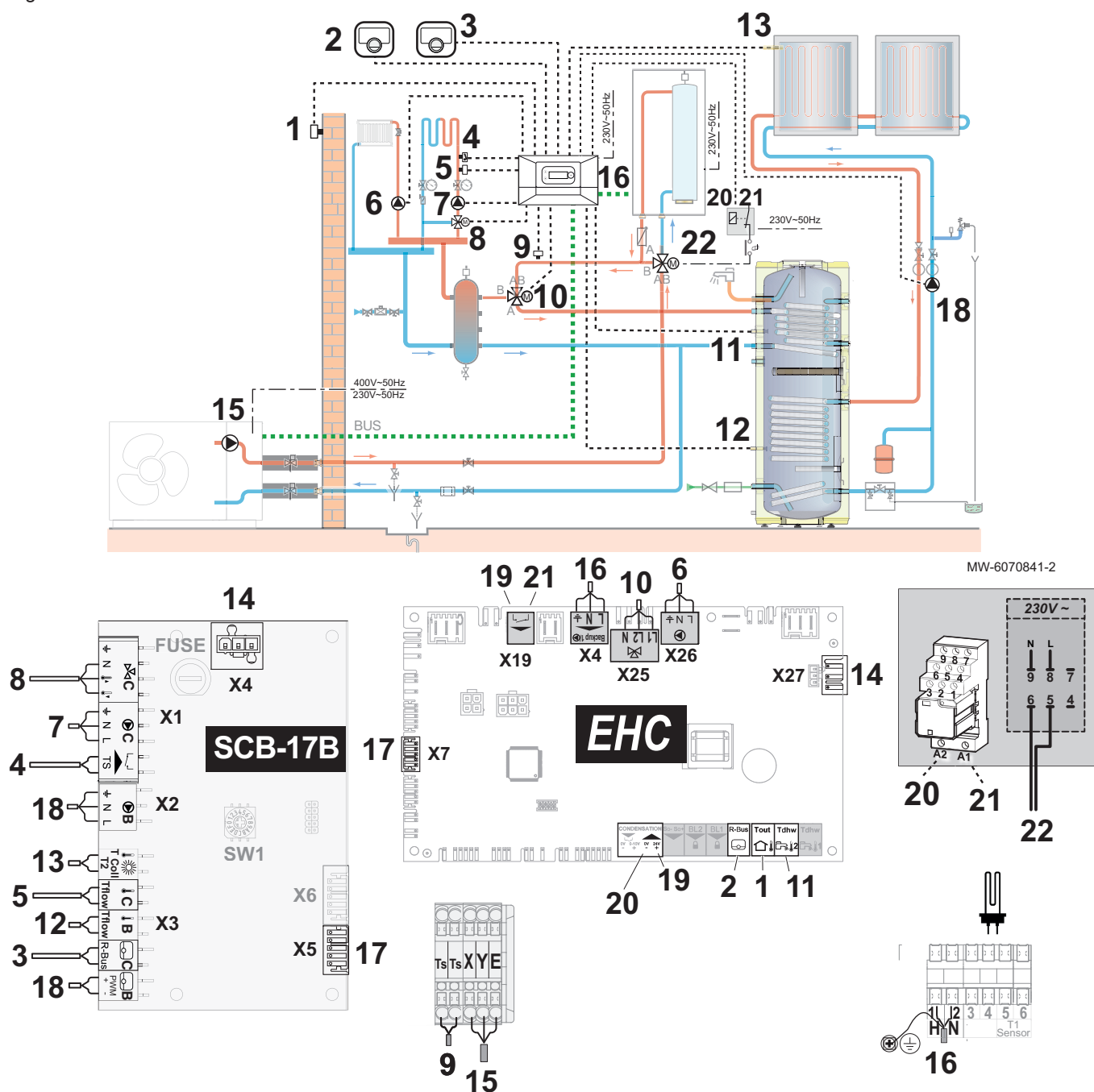
9 Non-return valve (when using cooling mode)

10 3-way on/off valve (when using cooling mode)

11 Power relay

10.5.2 Connecting and configuring the heat pump

Fig.68



MW-6070841-2

- | | |
|---|---|
| 1 Outdoor temperature sensor | 13 Solar collector sensor |
| 2 uSense smart room thermostat for the underfloor heating circuit | 14 230 V power supply for the SCB-17B PCB |
| 3 uSense smart room thermostat for the radiator circuit | 15 Outdoor unit bus connection |
| 4 Safety temperature limiter | 16 ON/OFF contact for the electrical backup |
| 5 Flow sensor on the underfloor heating circuit | 17 BUS connection linking the EHC-16 and SCB-17B PCBs |
| 6 Power supply of the pump on the radiator circuit. The pump output is limited to 450 W | 18 Pump power supply (maximum output: 300 W) - PWM pump control |
| 7 Power supply of the pump on the underfloor heating circuit | 19 Electrical bridge between X19 and the +24V terminal on the EHC-16 PCB |
| 8 Power supply of the mixing valve on the underfloor heating circuit | 20 Connection between the -0V terminal on the EHC-16 PCB and A2 on the power relay |
| 9 Heating flow temperature sensor | 21 Connection between the X19 terminal on the EHC-16 PCB and A1 on the power relay |
| 10 Heating/domestic hot water reversal valve | 22 3-way on/off valve |
| 11 Domestic hot water sensor | |
| 12 Solar circuit domestic hot water flow sensor | |

1. Connect the accessories and options to the **EHC-16** PCB, respecting the 230-400 V and 0-40 V cable feedthroughs.
2. Connect the accessories and options to the **SCB-17B** PCB, respecting the 230-400 V and 0-40 V cable feedthroughs.
3. Follow the access path described below to access the configuration number for the SCB-17B PCB and preconfigure the parameters for the solar installation.

Menu path

 >  **Installer > Advanced menu > Set configuration code > SCB-17B**

4. Select the configuration number and preconfigure the parameters for the solar installation:

Parameter	Description	Adjustment required
CN1	Configuration number	3: Standard solar installation

5. Follow the access path described below to access the installation parameters for the solar installation.

Menu path

 >  **Installer > Installation setup > Solar systems > Installation Type**

6. Configuring the type of sensor for the solar installation.

Parameter	Description	Adjustment required
Solar sensor type SP011	Selecting the solar collector sensor type. Determine the type of solar collector temperature sensor.	Depending on the sensor: • NTC sensor • PT1000 sensor

7. Follow the access path described below to access the parameters for the solar installation pump.

Menu path

 >  **Installer > Installation setup > Solar systems > Advanced**

8. Configure the parameters for the solar installation pump.

Parameter	Description	Adjustment required
Solar pump type SP129	The solar pump type selection Determine the type of solar collector pump.	PWM pump

9. Follow the menu path described below to access the radiator circuit parameters (**Zone1**).

Menu path

 >  **Installer > Installation setup > Zone1**

10. Configure the radiator circuit parameters (**Zone1**).

Parameter	Description	Adjustment required
Zone Function CP020	Functionality of the zone	Direct (factory setting) This setting does not enable cooling.
Heat curve	Zone Heating Curve CP230	Value of the heating curve gradient.
	MaxZoneTFlowSetpoint CP000	Maximum Flow Temperature setpoint zone
		1.5 (for a radiator circuit) Adapt the values of the heating curve in order to obtain optimum comfort.
		75 °C (factory setting) Adjust the temperature as required.

11. Follow the menu path given below to access the parameters for the second circuit underfloor heating (**Zone3**) on the user interface.

Menu path

 >  **Installer > Installation setup > Zone3**

12. Configure the parameters for the second circuit underfloor heating, displayed (**Zone3**) on the user interface.

Parameter		Description	Adjustment required
Zone Function CP021		Functionality of the zone	• Mixing Circuit • Fan Convactor Only these 2 settings are used for cooling.
Heat curve	Zone Heating Curve CP231	Value of the heating curve gradient.	Set it between 0.4 and 0.7 (for an underfloor heating circuit) Adapt the values of the heating curve in order to obtain optimum comfort.
	MaxZoneTFlowSetpoint CP001	Maximum Flow Temperature setpoint zone	40 °C Adjust the temperature as required.

13. Follow the menu path described below to activate the second circuit safety temperature limiter, displayed (**Zone3**) on the user interface.

Menu path	
 >  Installer > Installation setup > Zone3 > Advanced	

14. Activate the underfloor heating safety temperature limiter for the second circuit, displayed (**Zone3**) on the user interface.

Parameter	Description	Adjustment required
Safety thermostat CP191	Zone safety thermostat configuration	On

15. Set the authorisation for cooling.



Important

To prevent any risk of condensation when using the cooling function, install the necessary protection on the installation.

Menu path	
 >  Installer > Installation setup > Heat Pump > Cooling	

Parameter	Description	Adjustment required
Cooling mode AP028	Configuration of the cooling mode	Active cooling on

16. Follow the menu path described below to access the parameters for the multifunction output

Menu path	
 >  Installer > Installation setup > Heat Pump > Advanced	

17. Configure the multifunction output to control the power relay of the 3-way on/off valve

Parameter	Description	Adjustment required
Multifunct output HP188	Configure the function of the multifunctional output	Cooling mode

18. Follow the menu path given below to access the parameters for the domestic hot water cylinder (**Domestic Hot Water**).

Menu path	
 >  Installer > Installation setup > Domestic Hot Water	

19. Configure the parameters of the DHW cylinder (**Domestic Hot Water**) as required by the user.

11 Solar installations

An installation with solar collectors allows the solar energy to be collected to heat a DHW cylinder and/or a buffer tank used in storage mode. The control system for the various elements of the solar circuit is used to optimise energy collection.

11.1 Selecting the solar installation type

The **SCB-17B** PCB allows an installation to be used with solar collectors for heating the domestic hot water. The **CN1** parameter is used to configure the heat pump according to the type of solar installation.

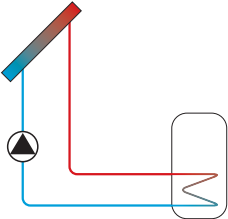
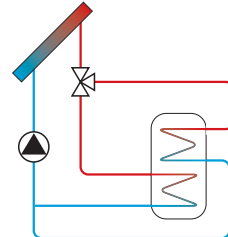
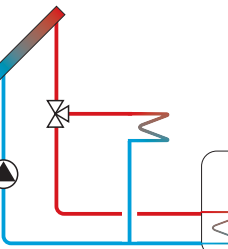
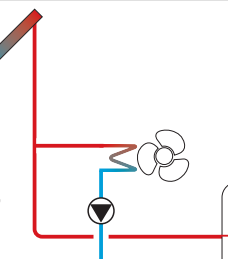
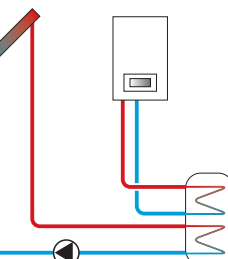
1. Determine the schematic diagram and the type of installation corresponding to the existing solar installation.
2. Follow the access path described below to access the configuration number for the **SCB-17B** PCB and preconfigure the parameters for the installation.

Menu path

 >  Installer > Advanced menu > Set configuration code > SCB-17B

3. Select the configuration number for the type of installation to be configured:

Tab.69

Schematic diagram	Description	Configuration number CN1 on the SCB-17B PCB
 MW-1002489-1	Standard solar installation	3
 MW-1002488-1	Solar installation with stratified heating	4
 MW-6070600-1	Standard solar installation with heat sink	5
 MW-6070601-1	Standard solar installation with fan coil unit	6
 MW-6070602-1	Standard solar installation with the heat pump as backup	3

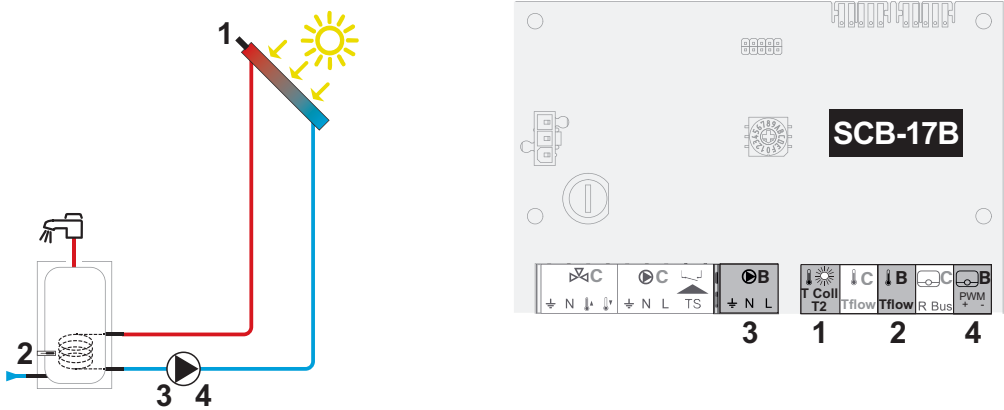
⇒ The parameters linked to the type of installation are preconfigured and appear in the **Solar systems** menu.

11.2 Connection and installation examples

11.2.1 Connecting and configuring a standard solar installation

■ Connecting diagram

Fig.69



MW-6070586-1

- 1

Solar collector temperature sensor: NTC10K or PT1000 sensor
- 2

Solar tank temperature sensor: NTC sensor
- 3

Solar circuit circulating pump power supply (depending on the installation: PWM or On/Off pump)
- 4

Signal for PWM pump only, if present

■ Configuring the installation

1. Follow the access path described below to access the configuration number for the SCB-17B PCB and preconfigure the parameters for the installation.

Access path	
 >  Installer > Advanced menu > Set configuration code > SCB-17B	

2. Select the configuration number:

Parameter	Description	Adjustment required
CN1	Configuration number	3: Standard solar installation

3. Follow the access path described below to access the parameters for the installation.

Access path	
 >  Installer > Installation setup > Solar systems > Installation Type	

4. Configure the type of solar collector temperature sensor.

Parameter	Description	Adjustment required
Solar sensor type SP011	Selecting the solar collector sensor type Determine the type of solar collector temperature sensor.	Depending on the sensor: • NTC sensor • PT1000 sensor

5. Follow the access path described below to access the parameters for the pump.

Access path	
 >  Installer > Installation setup > Solar systems > Advanced	

6. Configure the pump parameters.

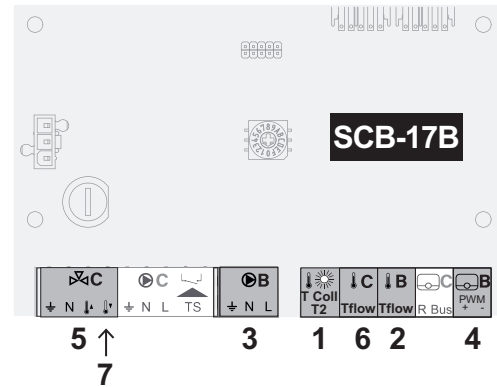
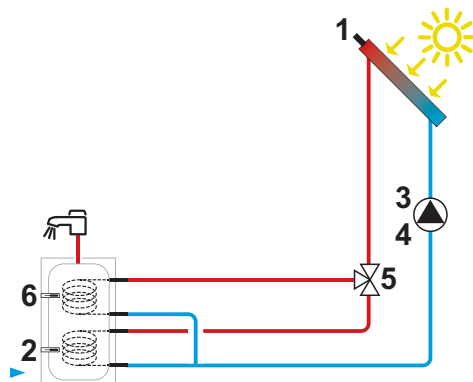
Parameter	Description	Adjustment required
Solar pump type SP129	The solar pump type selection Determine the type of solar collector pump.	Depending on the pump: • PWM pump • On off

7. Change the default values for the temperature parameters and pump configuration if needed.

11.2.2 Connecting and configuring a solar installation with stratified heating

■ Connecting diagram

Fig.70



MW-6070608-3

- 1 Solar collector temperature sensor: NTC10K or PT1000 sensor
- 2 Solar tank bottom temperature sensor: NTC sensor
- 3 Solar circuit circulating pump power supply (depending on the installation: PWM or On/Off pump)

- 4 Signal for PWM pump only, if present
- 5 Diverter valve
- 6 Solar tank top temperature sensor: NTC sensor
- 7 Permanent phase power supply terminal block

■ Configuring the installation

1. Follow the access path described below to access the configuration number for the SCB-17B PCB and preconfigure the parameters for the installation.

Access path

☰ > Installer > Advanced menu > Set configuration code > SCB-17B

2. Select the configuration number:

Parameter	Description	Adjustment required
CN1	Configuration number	4: Solar installation with stratified heating

3. Follow the access path described below to access the parameters for the installation.

Access path

☰ > Installer > Installation setup > Solar systems > Installation Type

4. Configure the parameters for the installation.

Parameter	Description	Adjustment required
Solar sensor type SP011	Selecting the solar collector sensor type Determine the type of solar collector temperature sensor.	Depending on the sensor: • NTC sensor • PT1000 sensor
Permanent phase 3WV SP289	The 3-way valve has a permanent phase	Depending on the valve: • No • Yes

5. Follow the access path described below to access the parameters for the pump.

Access path
☰ > 🛠️ Installer > Installation setup > Solar systems > Advanced

6. Configure the pump parameters.

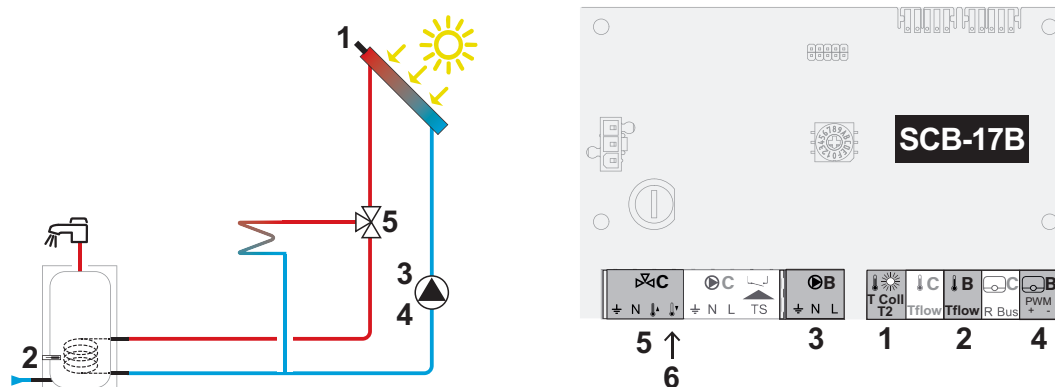
Parameter	Description	Adjustment required
Solar pump type SP129	The solar pump type selection Determine the type of solar collector pump.	Depending on the pump: • PWM pump • On off

7. Change the default values for the temperature parameters and pump configuration if needed.

11.2.3 Connecting and configuring a standard solar installation with a heat sink

■ Connecting diagram

Fig.71



MW-6070587-2

- | | |
|--|--|
| <p>1 Solar collector temperature sensor: NTC10K or PT1000 sensor</p> <p>2 Solar tank temperature sensor: NTC sensor</p> <p>3 Solar circuit circulating pump power supply (depending on the installation: PWM or On/Off pump)</p> | <p>4 Signal for PWM pump only, if present</p> <p>5 Diverter valve</p> <p>6 Permanent phase power supply terminal block</p> |
|--|--|

■ Configuring the installation

1. Follow the access path described below to access the configuration number for the SCB-17B PCB and preconfigure the parameters for the installation.

Access path
☰ > 🛠️ Installer > Advanced menu > Set configuration code > SCB-17B

2. Select the configuration number:

Parameter	Description	Adjustment required
CN1	Configuration number	5: Standard solar installation with heat sink

3. Follow the access path described below to access the parameters for the installation.

Access path
☰ > 🛠️ Installer > Installation setup > Solar systems > Installation Type

4. Configure the parameters for the installation.

Parameter	Description	Adjustment required
Solar sensor type SP011	Selecting the solar collector sensor type Determine the type of solar collector temperature sensor.	Depending on the sensor: • NTC sensor • PT1000 sensor
Permanent phase 3WV SP289	The 3-way valve has a permanent phase	Depending on the valve: • No • Yes

5. Follow the access path described below to access the parameters for the pump.

Access path
☰ >  Installer > Installation setup > Solar systems > Advanced

6. Configure the pump parameters.

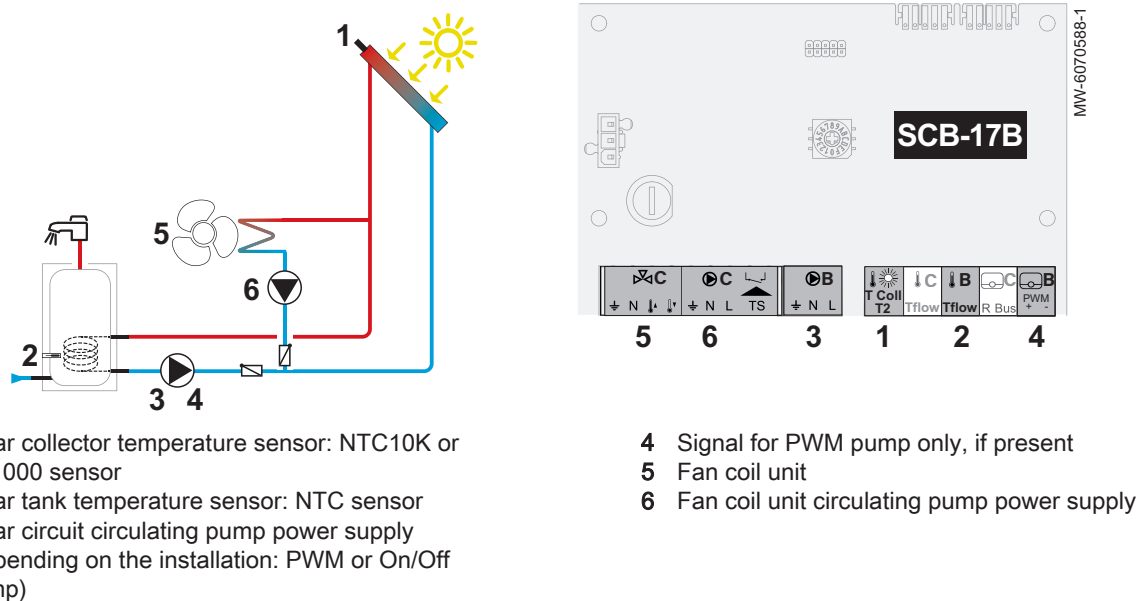
Parameter	Description	Adjustment required
Solar pump type SP129	The solar pump type selection Determine the type of solar collector pump.	Depending on the pump: • PWM pump • On off

7. Change the default values for the temperature parameters and pump configuration if needed.

11.2.4 Connecting and configuring a standard solar installation with fan coil unit

■ Connecting diagram

Fig.72



■ Configuring the installation

1. Follow the access path described below to access the configuration number for the SCB-17B PCB and preconfigure the parameters for the installation.

Access path
☰ >  Installer > Advanced menu > Set configuration code > SCB-17B

2. Select the configuration number:

Parameter	Description	Adjustment required
CN1	Configuration number	6: Standard solar installation with fan coil unit

3. Follow the access path described below to access the parameters for the installation.

Access path
☰ > 🛠️ Installer > Installation setup > Solar systems > Installation Type

4. Configure the installation parameters:

Parameter	Description	Adjustment required
Solar sensor type SP011	Selecting the solar collector sensor type Determine the type of solar collector temperature sensor.	Depending on the sensor: • NTC sensor • PT1000 sensor
Heat dump type SP362	The used heat dump type, either a radiator or a fancoil (or ventillator)	Fan coil

5. Follow the access path described below to access the parameters for the pump.

Access path
☰ > 🛠️ Installer > Installation setup > Solar systems > Advanced

6. Configure the pump parameters.

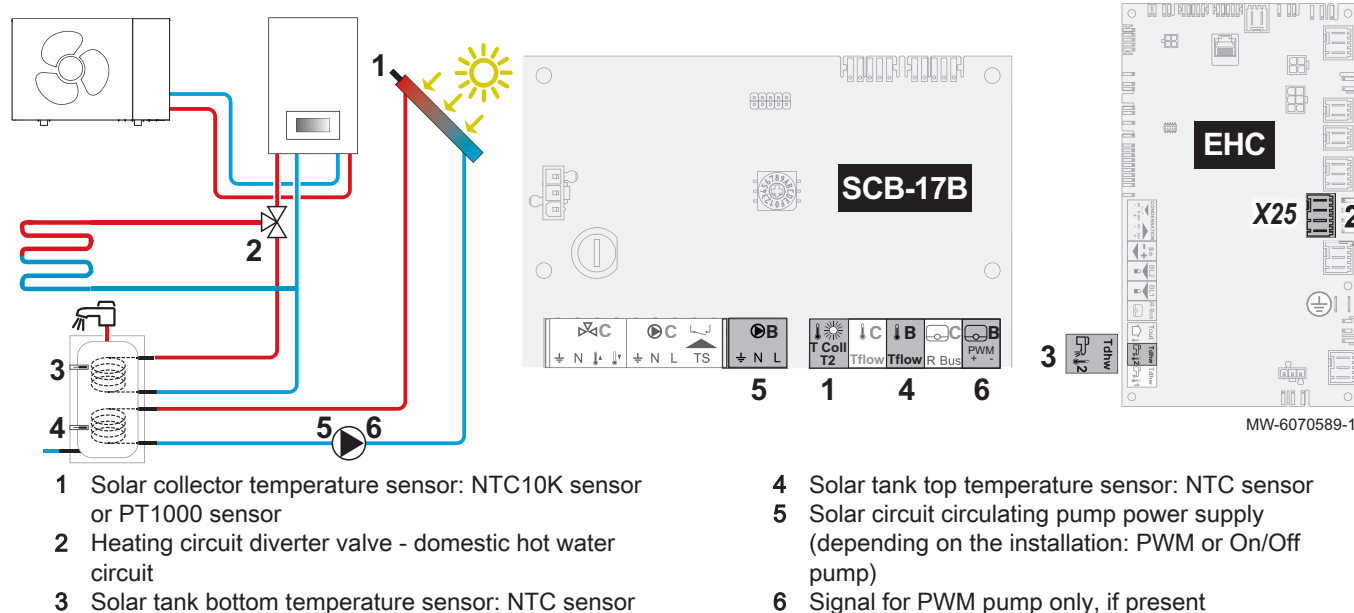
Parameter	Description	Adjustment required
Solar pump type SP129	The solar pump type selection Determine the type of solar collector pump.	Depending on the pump: • PWM pump • On off

7. Change the default values for the temperature parameters and pump configuration if needed.

11.2.5 Connecting and configuring a solar installation with the heat pump as backup

■ Connecting diagram

Fig.73



■ Configuring the installation

1. Follow the access path described below to access the configuration number for the SCB-17B PCB and preconfigure the parameters for the installation.

Access path
☰ > 🛠️ Installer > Advanced menu > Set configuration code > SCB-17B

2. Select the configuration number:

Parameter	Description	Adjustment required
CN1	Configuration number	3: Standard solar installation

3. Follow the access path described below to access the parameters for the installation.

Access path
 >  Installer > Installation setup > Solar systems > Installation Type

4. Configure the parameters for the installation.

Parameter	Description	Adjustment required
Solar sensor type SP011	Selecting the solar collector sensor type. Determine the type of solar collector temperature sensor.	Depending on the sensor: • NTC sensor • PT1000 sensor

5. Follow the access path described below to access the parameters for the pump.

Access path
 >  Installer > Installation setup > Solar systems > Advanced

6. Configure the pump parameters.

Parameter	Description	Adjustment required
Solar pump type SP129	The solar pump type selection Determine the type of solar collector pump.	Depending on the pump: • PWM pump • On off

7. Change the default values for the temperature parameters and pump configuration if needed.

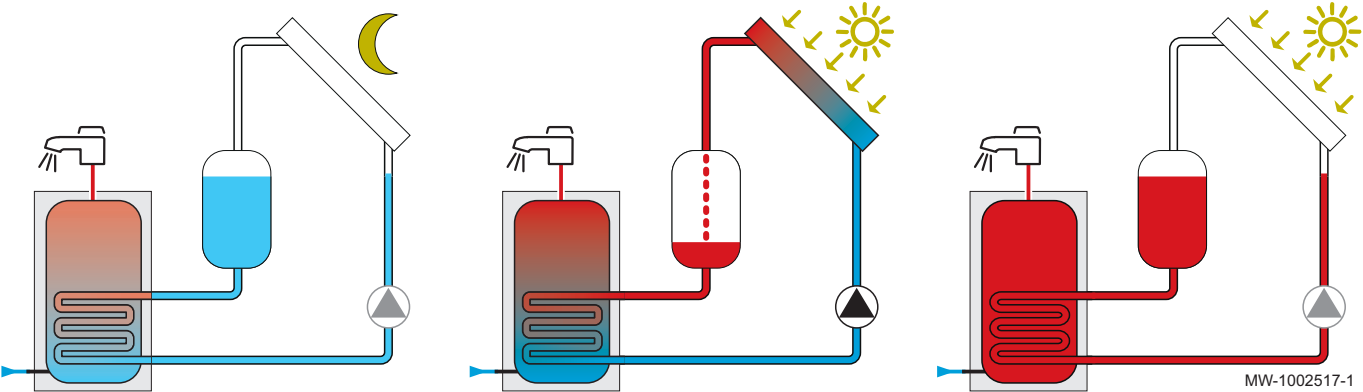
11.3 Functions of the solar systems

11.3.1 Solar installations with the DrainBack drainage system

■ DrainBack

The DrainBack is a system with a reservoir that allows the solar collectors to drain by gravity whenever the pump stops. The solar collectors are thereby protected from freezing and overheating. The control system is used to determine the minimum and maximum operating temperatures for the pump.

Fig.74



■ Configuring an installation with a Drainback system

If the solar installation is equipped with a Drainback system, it must be activated and configured alongside the parameters for the type of solar installation.

1. Follow the access path described below to access the Drainback option.

Access path
 >  Installer > Installation setup > Solar systems > Installation Type

2. Configure the activation parameter for the Drainback option.

Tab.70

Parameter	Description	Adjustment required
Drainback option SP294	Activate the Drainback option	Yes

3. Follow the access path described below to configure the parameters linked to the Drainback option.

Access path
 >  Installer > Installation setup > Solar systems > Drainback solaire

4. Change the default values for the following parameters, if needed.

Tab.71

Parameter	Description	Adjustment required
Drainback on delay SP295	Time delay needed for drainback function to switch on solar pump after fulfilling temp conditions	can be set from 0 Sec to 100 Sec
Solar fill duration SP296	The filling duration of the solar panel	can be set from 1 Min to 30 Min
Stabilisation time SP297	The duration of the stabilisation time delay after the filling of the solar panel	can be set from 1 Min to 15 Min
Solar empty duration SP298	The emptying duration of the solar panel	can be set from 1 Min to 30 Min
Drainback off delay SP309	Time delay for the drainback function to switch off the solar pump after fulfilling temp conditions	can be set from 1 Sec to 10 Sec

11.3.2 Solarfirst

The Solarfirst system reduces the setpoint temperature for the heat pump to facilitate solar heating once there is sufficient sunlight. To activate this function, the drop in the heat pump setpoint temperature must be configured using one or two parameters in the following table depending on whether the solar system comprises a buffer tank, a DHW tank or both.

Menu path
 >  Installer > Installation setup > Solar systems > Installation Type

Tab.72

Parameter	Description	Adjustment required
Max CH reduction SP282	CH buffer setpoint reduction when incoming heat from solar collector is at its maximum Factory setting: 0 °C	from 1 to 20 °C

Menu path
 >  Installer > Installation setup > Solar systems

Tab.73

Parameter	Description	Adjustment required
Max DHW reduction SP283	DHW setpoint reduction when incoming heat from solar collector is at its maximum Factory setting: 0 °C	from 1 to 20 °C

11.3.3 Solar cooling

The solar cooling system transfers the excess heat from the storage tank to the solar collectors. Cooling mode is set with the parameter **Tanks recooling** (SP051) which determines the period during which cooling will be authorised.

This function is only activated if the temperature of the solar collectors is below the maximum cooling temperature determined by the parameter **Tmax recooling mode** (DP052). If the temperature of the tank continues to increase during cooling, it will stop for a set period of two hours. The relevant parameters for configuring this function are given in the following table.

Menu path
 >  Installer > Installation setup > Solar systems > Installation Type

Tab.74

Parameter	Description	Adjustment required
Tanks recooling SP051	The recooling mode for the DHW and CH solar tanks • Off : Cooling deactivated • Nightly: Cooling is activated at night only all year round • Summer: Cooling is activated at night only in summer • Temperature: year-round cooling based on a calculation of the temperature differences between the solar collectors and the storage tank	Depending on the required case: • Nightly • Summer • Temperature

Menu path
 >  Installer > Installation setup > Solar systems

Tab.75

Parameter	Description	Adjustment required
Tmax recooling mode SP052	Maximum temperature for solar collector in recooling mode	can be set from 8 °C to 90 °C
Recooling time delay SP053	Time delay during which the solar collector temperature can be below its maximum (SP052) The temperature of the solar collectors must be below Tmax recooling mode (SP052) during this period to allow cooling to start.	can be set from 0 Min to 60 Min
Recooling mode time SP054	The recooling mode time for DHW and CH solar tanks	can be set from 0 Min to 240 Min
DHW recooling temp SP055	DHW solar cylinder target temperature when the solar collector is in recooling mode	can be set from 8 °C to 90 °C
CH recooling temp SP056	CH solar tank target temperature when the solar collector is in recooling mode	can be set from 8 °C to 90 °C

Parameter	Description	Adjustment required
Tank recool prio SP057	Tank priority for solar collector recooling mode This parameter is used to define the priority for cooling in the case of an installation with a solar DHW tank and a buffer tank. • CH: The buffer tank is cooled as a priority to the setpoint temperature defined by CH recooling temp (SP056) before cooling of the solar DHW tank. • DHW: The solar DHW tank is cooled as a priority to the setpoint temperature defined by DHW recooling temp (SP055) before cooling of the buffer tank.	CH or DHW
Hyst recooling temp SP281	Hysteresis temperature for recooling mode	can be set from 1 °C to 40 °C

11.4 List of solar parameters

The appliance parameters are described directly in the user interface. The following chapters include additional information on some of these parameters as well as their default values (factory settings).

11.4.1 > Installer > Installation setup > Solar systems

The configuration of the solar parameters is controlled by the SCB-17B PCB. The parameters displayed differ according to the configuration of the circuits, the options and the sensors connected.

Tab.76

Parameter	Description	Factory setting
Tmax heat medium SP000	Maximum solar pump temperature for heat conducting medium can be set from 60 °C to 200 °C	130 °C
Tmax heat medium SP001	Maximum solar pump temperature for heat conducting medium can be set from 60 °C to 200 °C	130 °C
Solar operating mode SP010	Selecting the operating mode for the solar • Off • DHW • CH • DHW + CH	DHW
Solar sensor type SP011	Selecting the solar collector sensor type • NTC sensor • PT1000 sensor • PT100 sensor	NTC sensor
Solar sensor type SP012	Selecting the solar collector sensor type • NTC sensor • PT1000 sensor • PT100 sensor	NTC sensor
Toffset evaporation SP021	Offset evaporation temperature of the solar collector can be set from 5 °C to 40 °C	5 °C
Toffset evaporation SP022	Offset evaporation temperature of the solar collector can be set from 5 °C to 40 °C	5 °C
Tmin solar collector SP031	Minimum temperature in solar collector to avoid freezing -31°C : Antifreeze protection disabled can be set from -31 °C to 5 °C	2 °C
Frost protect hyst SP032	Frost protection hysteresis temperature of solar collector can be set from 5 °C to 40 °C	5 °C
Tmax solar collector SP034	Maximum temperature allowed for solar collector can be set from 60 °C to 200 °C	110 °C
Tmax solar collector SP035	Maximum temperature allowed for solar collector can be set from 60 °C to 200 °C	110 °C

Parameter	Description	Factory setting
Tsetp DHW charge SP044	The setpoint temperature for DHW cylinder charge can be set from 8 °C to 60 °C	45 °C
Tsetp max DHW charge SP045	Setpoint maximum temperature for DHW cylinder charge can be set from 8 °C to 90 °C	60 °C
Tsetp DHW limit SP046	The setpoint for DHW cylinder limit temperature can be set from 40 °C to 95 °C	75 °C
Tsetp nom CH charge SP047	Setpoint nominal temperature for CH tank charge can be set from 8 °C to 60 °C	45 °C
Tsetp max CH charge SP048	Setpoint maximum temperature for CH tank charge can be set from 8 °C to 90 °C	75 °C
Tsetp CH limit SP049	The setpoint for CH tank limit temperature can be set from 40 °C to 95 °C	85 °C
Tank charge prio SP050	Tank charge priority for storing solar energy • CH • DHW	DHW
Tanks recooling SP051	The recooling mode for the DHW and CH solar tanks • Off • Nightly • Summer • Temperature	Temperature
Tmax recooling mode SP052	Maximum temperature for solar collector in recooling mode can be set from 8 °C to 90 °C	60 °C
Recooling time delay SP053	Time delay during which the solar collector temperature can be below its maximum (SP052) can be set from 0 Min to 60 Min	40 min
Recooling mode time SP054	The recooling mode time for DHW and CH solar tanks can be set from 0 Min to 240 Min	120 min
DHW recooling temp SP055	DHW solar cylinder target temperature when the solar collector is in recooling mode can be set from 8 °C to 90 °C	65 °C
CH recooling temp SP056	CH solar tank target temperature when the solar collector is in recooling mode can be set from 8 °C to 90 °C	80 °C
Tank recool prio SP057	Tank priority for solar collector recooling mode • CH • DHW	CH
Tmin tank charge SP058	Minimum solar collector temperature before DHW or CH tanks will be charged by solar energy can be set from 8 °C to 90 °C	30 °C
Solar collector mode SP059	The solar tube collector mode • Off • Time • On	Off
Solar collector mode SP060	The solar tube collector mode • Off • Time • On	Off
Solar collect start SP069	The solar collector function start time	00:00
Solar collect start SP070	The solar collector function start time	00:00
Solar collect stop SP079	The solar collector function stop time	00:00
Solar collect stop SP080	The solar collector function stop time	00:00
Max delay solar pump SP089	Maximum delay time to force the solar collector pump to ON can be set from 0 Min to 60 Min	30 min

Parameter	Description	Factory setting
Max delay solar pump SP090	Maximum delay time to force the solar collector pump to ON can be set from 0 Min to 60 Min	30 min
Solar gradient SP099	Maximum gradient for rising solar collector temperature can be set from 0 °C/min to 20 °C/min	3 °C/min
Solar gradient SP100	Maximum gradient for rising solar collector temperature can be set from 0 °C/min to 20 °C/min	3 °C/min
Toffset solar pump SP109	Offset temperature between solar collector temperature and DHW or CH solar tank temperature can be set from 1 °C to 40 °C	6 °C
Toffset solar pump SP110	Offset temperature between solar collector temperature and DHW or CH solar tank temperature can be set from 1 °C to 40 °C	6 °C
Hyst temp solar pump SP119	Solar pump hysteresis temperature between solar collector and DHW or CH solar tank temperature can be set from 1 °C to 40 °C	2 °C
Hyst temp solar pump SP120	Solar pump hysteresis temperature between solar collector and DHW or CH solar tank temperature can be set from 1 °C to 40 °C	2 °C
Solar pump type SP129	The solar pump type selection • PWM pump • LIN pump • On off	PWM pump
Solar pump type SP130	The solar pump type selection • PWM pump • LIN pump • On off	PWM pump
Solar pumps/panel SP151	The number of solar pumps per solar panel can be set from 0 to 255	1
Solar pump speed min SP162	Solar pump minimum speed expressed as a percentage of the maximum speed can be set from 20 % to 95 %	30%
Solar pump speed min SP163	Solar pump minimum speed expressed as a percentage of the maximum speed can be set from 20 % to 95 %	30%
Solar pump speed max SP172	Solar pump maximum speed expressed as a percentage can be set from 25 % to 100 %	100%
Solar pump speed max SP173	Solar pump maximum speed expressed as a percentage can be set from 25 % to 100 %	100%
Pump rise step temp SP182	Minimum positive dT (temperature rise step) leading to a pump speed increase by 10% can be set from 1 °C to 20 °C	2 °C
Pump rise step temp SP183	Minimum positive dT (temperature rise step) leading to a pump speed increase by 10% can be set from 1 °C to 20 °C	2 °C
Pump fall step temp SP192	Minimum negative dT (temperature fall step) leading to a pump speed decrease by 10% can be set from 0 °C to 30 °C	0 °C
Pump fall step temp SP193	Minimum negative dT (temperature fall step) leading to a pump speed decrease by 10% can be set from 0 °C to 30 °C	0 °C
Pump step dT speed SP202	Solar pump speed steps (expressed as a percentage) for deltaT control can be set from 0 % to 100 %	10%
Pump step dT speed SP203	Solar pump speed steps (expressed as a percentage) for deltaT control can be set from 0 % to 100 %	10%
3-way valves total SP233	Number of 3-way valves in the installation can be set from 0 to 10	0

Parameter	Description	Factory setting
Hyst recooling temp SP281	Hysteresis temperature for recooling mode can be set from 1 °C to 40 °C	5 °C
Max CH reduction SP282	CH buffer setpoint reduction when incoming heat from solar collector is at its maximum can be set from 0 °C to 20 °C	0 °C
Max DHW reduction SP283	DHW setpoint reduction when incoming heat from solar collector is at its maximum can be set from 0 °C to 20 °C	0 °C
Tdiff extra tank SP284	Parameter for setting the heat exchange switch-on temperature difference can be set from 1 °C to 20 °C	6 °C
Solar hydraulic type SP287	Select the solar hydraulic installation type. • No solar • 1layered tank-1valve • 1 tank - 1 pump • 2 tanks-1 valve • East/West - 1 tank • 2 tanks-2 pumps • 2 tanks-1 heat exch	No solar
Ext energy counter SP288	Activate or deactivate external energy counter • Estimated • Measured	Estimated
Permanent phase 3WV SP289	The 3-way valve has a permanent phase • No • Yes	Yes
Tsolar tank min SP290	The minimum temperature in the solar tanks can be set from 5 °C to 20 °C	5 °C
Pump frost ON-time SP291	The solar pump ON-time for frost protection can be set from 1 Min to 5 Min	2 min
Recooling start time SP292	Starting time for the recooling mode	22:00
Recooling end time SP293	End time for the recooling mode	06:00
Drainback option SP294	Enable (1) or disable (0) the drainback option • No • Yes	No
Drainback on delay SP295	Time delay needed for drainback function to switch on solar pump after fulfilling temp conditions can be set from 0 Sec to 100 Sec	60 Sec
Solar fill duration SP296	The filling duration of the solar panel can be set from 1 Min to 30 Min	5 min
Stabilisation time SP297	The duration of the stabilisation time delay after the filling of the solar panel can be set from 1 Min to 15 Min	2 min
Solar empty duration SP298	The emptying duration of the solar panel can be set from 1 Min to 30 Min	15 min
Extra solar tank SP301	Enable/disable the presence of an additional solar tank • No • Yes	No
Hyst solar tanks SP306	The hysteresis temperature used for the solar tank setpoints (nominal, maximal and limit) can be set from 1 °C to 40 °C	3 °C
Drainback off delay SP309	Time delay for the drainback function to switch off the solar pump after fulfilling temp conditions can be set from 1 Sec to 10 Sec	1 Sec
Temp gradient sample SP310	Duration of the temperature gradient sampling period can be set from 1 Sec to 3600 Sec	10 Sec
Toffset extra tank SP311	Parameter for setting the heat exchange switch-off temperature difference can be set from 1 °C to 20 °C	4 °C

Parameter	Description	Factory setting
Tmax extra tank SP312	Parameter for setting the limit temperature of the solar heat exchange destination tank can be set from 0 °C to 95 °C	60 °C
Solar tube ON-time SP313	The solar pump ON-time for solar tube collector function can be set from 5 Sec to 600 Sec	30 Sec
Tmax offset collect SP322	The maximum offset temperature of the solar collector. can be set from 5 °C to 40 °C	5 °C
Tmax offset collect SP323	The maximum offset temperature of the solar collector. can be set from 5 °C to 40 °C	5 °C
Min solar pump power SP332	Minimum solar power at minimum pump speed can be set from 0 kW to 65.535 kW	0 kW
Min solar pump power SP333	Minimum solar power at minimum pump speed can be set from 0 kW to 65.535 kW	0 kW
Max solar pump power SP342	Maximum solar power at maximum pump speed can be set from 0 kW to 65.535 kW	5 kW
Max solar pump power SP343	Maximum solar power at maximum pump speed can be set from 0 kW to 65.535 kW	5 kW
Pulse energy counter SP352	Pulse valency of external energy counter(s) can be set from 0 Wh to 65535 Wh	1 Wh
Heat dump type SP362	The used heat dump type, either a radiator or a fancoil (or ventillator) • None • Radiator • Fan coil	None

11.4.2 > Installer > Signals > Solar systems

Tab.77

Signals	Description of the signals
3-way valve(s) state SM000	The current status for each 3-way valve • Off • On
Solar sensor status SM010	The status of the solar collector sensor • No • Yes
Solar boiler status SM020	The current solar boiler status • Off • Standby • Frost protection • Pump protection • Panel protection • DHW loading • CH loading • Recooling • Solar tube
DHW cylinder status SM021	The current DHW solar cylinder status • Off • Ready for loading • Loading nominal temp • Loading maximum temp • Loading limit temp

Signals	Description of the signals
CH tank status SM022	The current CH solar tank status • Off • Ready for loading • Loading nominal temp • Loading maximum temp • Loading limit temp
Solar collector temp SM023	The current solar collector temperature in °C
DHW bottom temp SM033	The current DHW solar cylinder bottom temperature in °C
CH bottom temp SM034	The current CH solar tank bottom temperature in °C
Solar pump status SM037	The current status for each solar pump • Off • On
Solar pump speed % SM047	Solar pump speed expressed as a percentage for each pump. in %
Anti seize delay SM057	The pump anti seize delay time in min
DHW top temperature SM069	The solar domestic hot water cylinder top temperature in °C
CH buffer top temp SM070	The solar central heating tank top temperature in °C

11.4.3 > Installer > Counters > Solar systems

Tab.78

Meters	Description of the meters
Solar pump hours SC000	Operating hours of the solar pump
Solar pump starts SC010	Number of starts of the solar pump
DHW solar energy SC067	Total solar thermal energy collected for DHW
Total solar energy SC129	Total solar thermal energy collected for DHW and CH

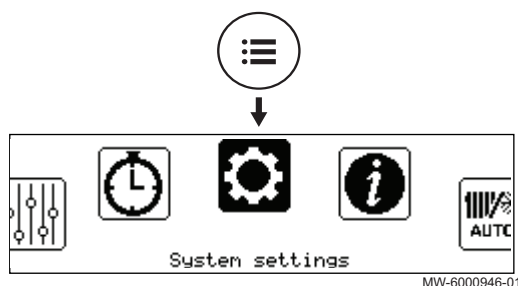
12 Operation

12.1 Activate/deactivate the child lock

The child lock prevents children from accidentally altering the settings. The child lock is only active when the screen has gone to sleep.

When the child lock is active, the settings can be temporarily accessed by briefly pressing the  and  buttons simultaneously.

Fig.75



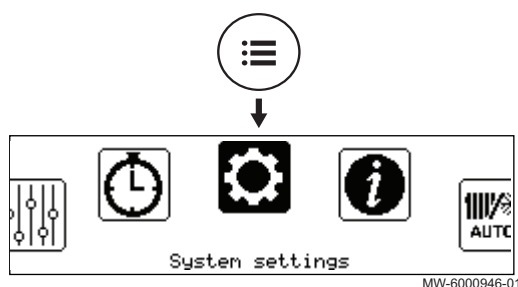
1. Press the button.
2. Select **System settings**.
3. Select **Display settings**.
4. Modify the value of the **Child lock** parameter:

Yes	Child lock activated
No	Child lock deactivated

12.2 Regional and ergonomic parameters

You can customise your appliance by modifying the parameters linked to your geographic location and the ergonomics of the user interface.

Fig.76



1. Press the button.
2. Select **System settings**.
3. Perform the required settings.

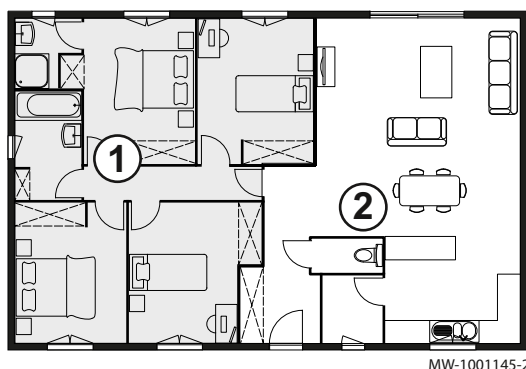
Tab.79 List of settings

Menu	Setting
Country and language	Select the country and language
Date and time	Set the date and time, then the automatic switch between summer and winter time
Installer details	Save the name and phone number of the installer
Activity names	Modify the name of activities used to program the heating or cooling periods
Display settings	Set the display settings: • Set the display contrast • Activate/deactivate the child lock

12.3 Personalising the zones

12.3.1 Definition of the term "zone"

Fig.77



Zone: term given to the different hydraulic circuits. It indicates several rooms served by the same circuit.

Tab.80 Example:

Key	Zone	Factory-set name
①	Zone 1	Zone1
②	Zone 2	Zone2

12.3.2 Changing the name and symbol for a zone

The name of the different zones is factory-set. If required, you can customise the name and symbol used for the zones in your installation.

Fig.78

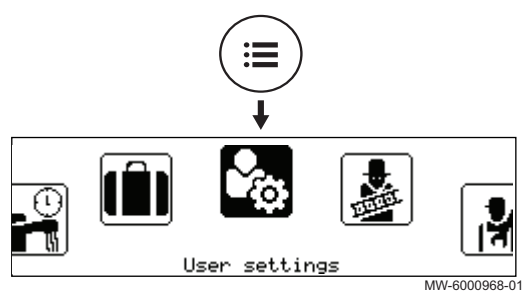
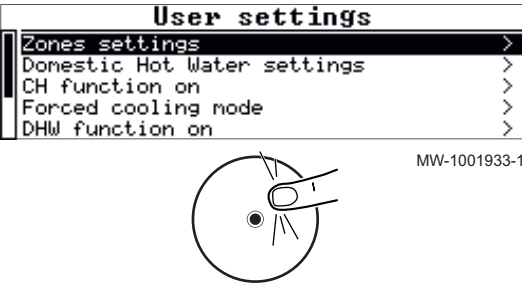


Fig.79



1. Press the button.
2. Select **User settings**.

3. Select **Zones settings**.
4. If necessary, select the zone to be changed.
5. Select **General** to access the parameters enabling the name and symbol for the zone to be changed.
6. Change the name (10 characters max.) and/or the symbol for the zone.

12.4 Personalising the activities

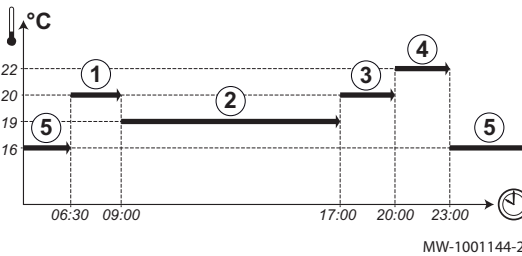
12.4.1 Definition of the term "Activity"

Activity: this term is used when programming time ranges. It refers to the client's desired comfort level for different activities during the course of the day. One set point temperature is associated to each activity. The last activity of the day remains valid until the first activity of the following day.

Tab.81 Example

Start of the activity	Activity	Room temperature set-point
6:30	Morning ①	20 °C
9:00	Away ②	19 °C
17:00	Home ③	20 °C
20:00	Evening ④	22 °C
23:00	Sleep ⑤	16 °C

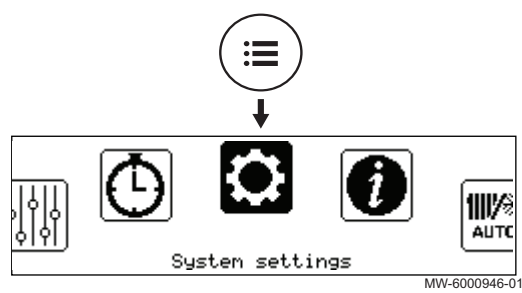
Fig.80



12.4.2 Changing the name of an activity

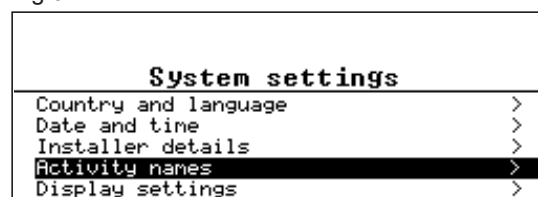
The name of the different activities is factory-set: Morning, Sleep, Home, Evening, Away and Custom. If you wish, you can personalise the name of the activities for all of the zones in your installation.

Fig.81



1. Press the button.
2. Select **System settings**.

Fig.82



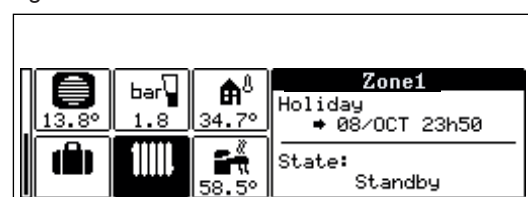
MW-6000993-1

3. Select **Activity names**.
4. Select **Set heating activity names** or **Set cooling activity names**.
5. Select the activity you want to change.
6. Change the name of the activity (10 characters max.) and confirm with **OK**.

12.4.3 Changing the temperature of an activity

The activities are used in the timer programming to define the temperature required at different times of the day. You can customise the temperature associated with each activity for each zone within your installation.

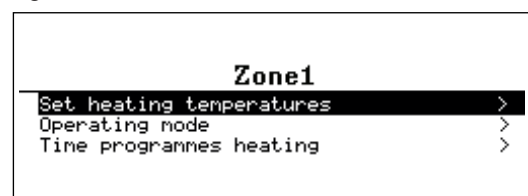
Fig.83



MW-6000950-2

1. On the home screen, select the icon for the relevant zone.
2. Press the  button.

Fig.84



MW-6000995-2

3. Select one of the following menus:
 - **Set heating temperatures** to change the temperature for the activities used for programming the heating mode
 - **Set cooling temperatures** to change the temperature for the activities used for programming the cooling mode
4. Select the activity you want to change.
5. Modify the temperature for the activity.

12.5 Room temperature for a zone

To set the room temperature for the different living zones, you can choose between five operating modes.

If you are using a programmable on/off thermostat, we recommend selecting the **Manual** operating mode for the heat pump.

If you are using any other kind of thermostat, we recommend the **Scheduling** operating mode which enables the room temperature to be modulated according to your needs and optimises your energy consumption.

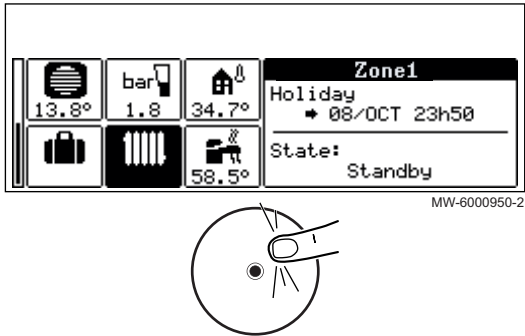
Tab.82

Operating mode	Description
Scheduling	The room temperature is regulated according to the selected timer programme. Recommended mode.
Manual	The room temperature is constant.

Operating mode	Description
Temporary	The room temperature is forced for a defined period.
Holiday	The room temperature is reduced during an absence period to save energy.
Off	The selected zone within the installation is protected from frost in winter.

12.5.1 Defining a constant room temperature

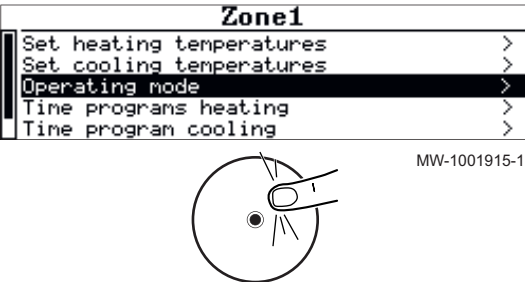
Fig.85



Manual mode is used to define a constant temperature in a selected zone.

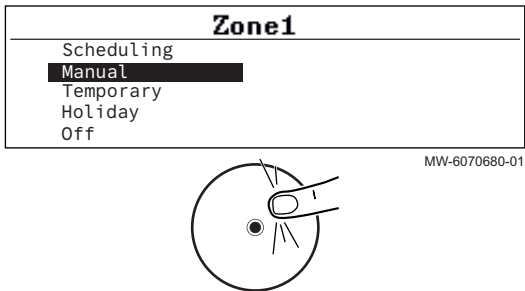
1. On the home screen, select the icon for the relevant zone.
2. Press the  button.

Fig.86



3. Select **Operating mode**.

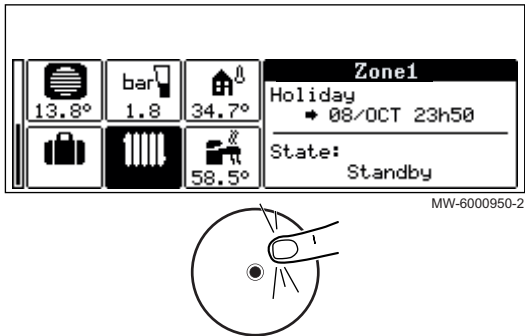
Fig.87



4. Select **Manual**.
5. Set the desired temperature for the zone.
6. Select **Confirm** to confirm the temperature.

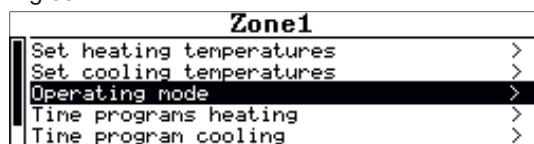
12.5.2 Selecting the operating mode

Fig.88



1. On the home screen, select the icon for the relevant zone.
2. Press the  button.

Fig.89



MW-1001915-1

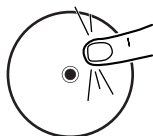
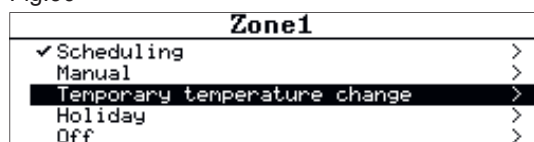
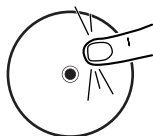
3. Select **Operating mode**.

Fig.90



MW-1001934-1

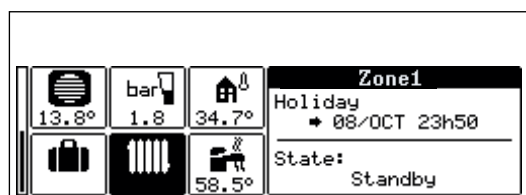


4. Select the desired operating mode.

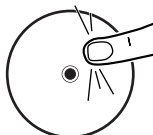
12.5.3 Activating and configuring a timer programme for heating

A timer programme can be used to vary the room temperature in a living zone depending on activities during the day. This can be programmed for each day of the week.

Fig.91

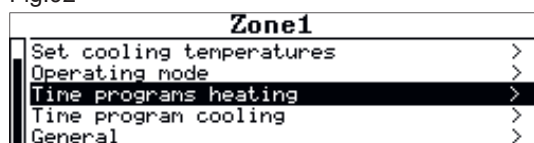


MW-6000950-2

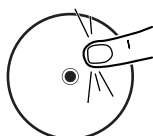


1. On the home screen, select the icon for the relevant zone.
2. Press the  button.

Fig.92

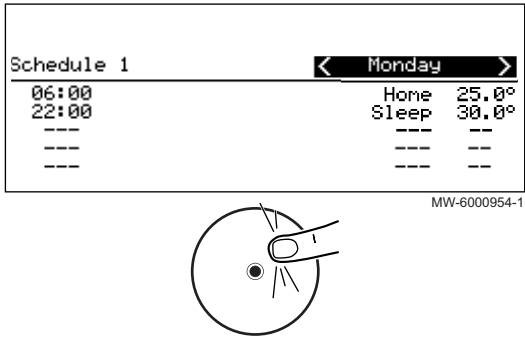


MW-1001916-1



3. Select **Time programs heating**.
⇒ Three timer programmes are available. The programme that is currently active is marked with a tick.
4. To activate another timer programme, select **ZoneTimeProg Select**.

Fig.93



- 5. To change the timer programming, select the programme you wish to change.
⇒ The programmed activities for Monday are displayed.
The last activity of the day remains active until the first activity of the following day.
- 6. Select the day to be modified.
- 7. Carry out the following actions according to your needs:

Tab.83

Action	Procedure
Modify the timer settings for programmed activities.	• Select a programmed activity. • Press the button. • Change the start time and/or the associated activity. • Select Confirm to save the modification.
Add a new time range.	• Move the cursor to an empty line. • Press the button. • Select the start time for the activity. • Select the activity required at this time. • Select Confirm to save the new time range.
Deleting a programmed activity	• Select the activity you want to delete. • Press the button. • Select Delete to delete the activity.
Copying programmed daily activities to other days	• Position the cursor on the Copy to other days line which appears at the end of the empty lines. • Press the button. • Check the days of the week which are to follow the same timer programming as the current day. • Select Confirm to apply the current timer programme to all of the selected days.

12.5.4 Activating and configuring a timer programme for cooling

In the **Programming** operating mode, the Cooling timer programme is activated automatically when the average outdoor temperature over a 24-hour period has been greater than 22 °C. If you would prefer that this mode is triggered at a different temperature, ask your installer to modify this parameter in your installation or use the **Forced cooling mode** mode.

Important
To guarantee comfort in **Cooling** mode, the uSense connected room unit must be installed.

The timer programme linked to the **Cooling** mode can be modified.

- 1. On the home screen, select the icon for the relevant zone.
- 2. Press the .

Fig.94

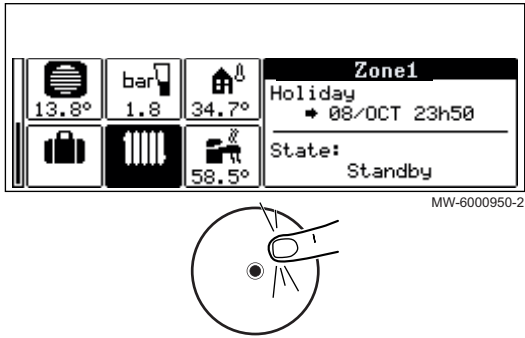
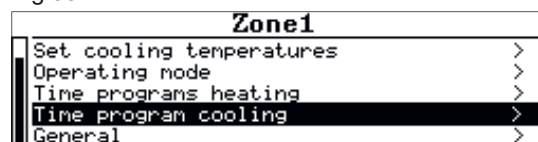
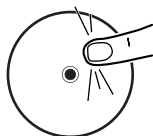


Fig.95



MW-1001917-1

3. Select **Time program cooling**.

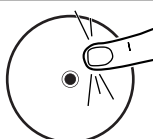
⇒ The programmed activities for Monday are displayed.

The last activity of the day remains active until the first activity of the following day.

Fig.96

Schedule 1		< Monday >	
06:00	Home	25.0°	
22:00	Sleep	30.0°	
---	---	---	---
---	---	---	---

MW-6000954-1



4. Select the day to be modified.

5. Carry out the following actions according to your needs:

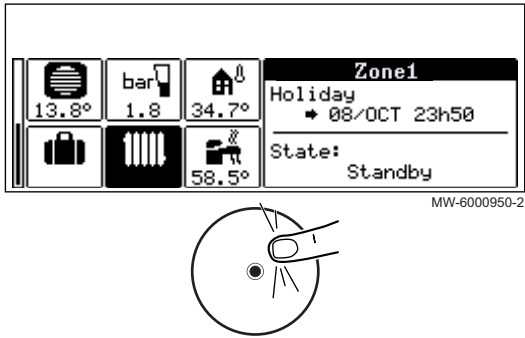
Tab.84

Action	Procedure
Modify the timer settings for programmed activities.	• Select a programmed activity. • Press the  button. • Change the start time and/or the associated activity. • Select Confirm to save the modification.
Add a new time range.	• Move the cursor to an empty line. • Press the  button. • Select the start time for the activity. • Select the activity required at this time. • Select Confirm to save the new time range.
Deleting a programmed activity	• Select the activity you want to delete. • Press the  button. • Select Delete to delete the activity.
Copying programmed daily activities to other days	• Position the cursor on the Copy to other days line which appears at the end of the empty lines. • Press the  button. • Check the days of the week which are to follow the same timer programming as the current day. • Select Confirm to apply the current timer programme to all of the selected days.

12.5.5 Changing the room temperature temporarily

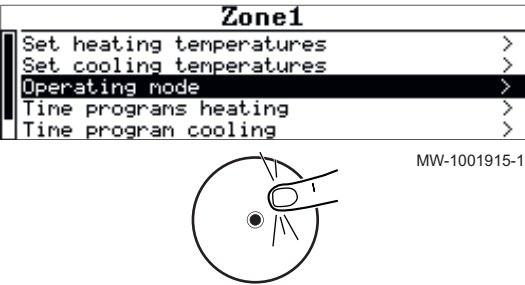
Regardless of the operating mode selected for a zone, it is possible to modify the room temperature for a defined period. Once this time has elapsed, the selected operating mode will restart.

Fig.97



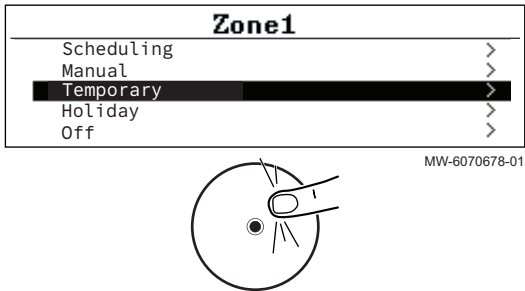
1. On the home screen, select the icon for the relevant zone.
2. Press the  button.

Fig.98



3. Select **Operating mode**.

Fig.99



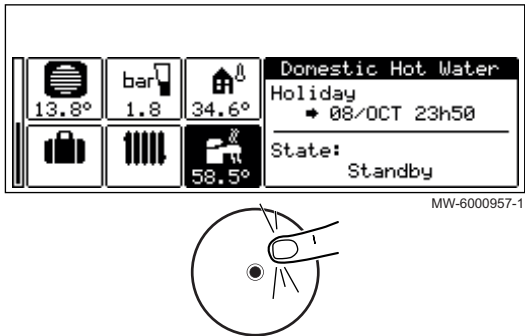
4. Select **Temporary**.
5. Indicate the temperature required throughout the override period.
6. Indicate the time when the override will end.
7. Select **Confirm** to confirm the override.

12.6 Domestic hot water temperature

12.6.1 Selecting the operating mode

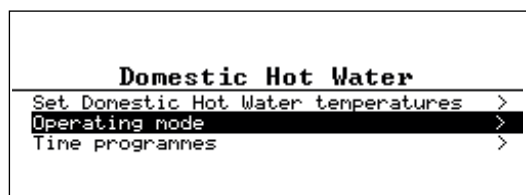
For the production of domestic hot water, you can choose between five operating modes. We recommend the **Programming** mode which enables domestic hot water production periods to be programmed according to your needs and optimises your energy consumption.

Fig.100

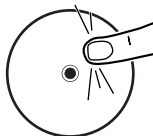


1. On the home screen, select the icon for the relevant zone.
2. Press the  button.

Fig.101



MW-6000958-1



3. Select **Operating mode**.
4. Select the desired operating mode:

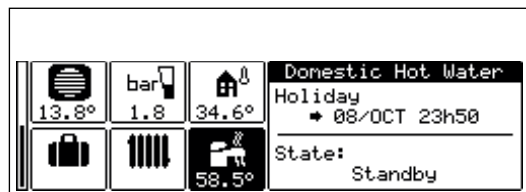
Tab.85

Operating mode	Description
Programming	The domestic hot water is produced according to the defined timer programme.
Manual	The domestic hot water temperature remains at the comfort temperature permanently
Override	The production of domestic hot water is forced to the comfort temperature until the defined time
Holiday	The domestic hot water temperature is reduced during an absence period to save energy.
Off	The installation and equipment are protected during the winter period.

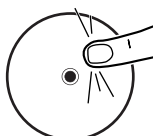
12.6.2 Activating and configuring a timer programme for domestic hot water

A timer programme can be used to vary the domestic hot water temperature depending on activities during the day. This can be programmed for each day of the week.

Fig.102



MW-6000957-1

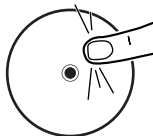


1. On the home screen, select the icon for the relevant zone.
2. Press the  button.

Fig.103

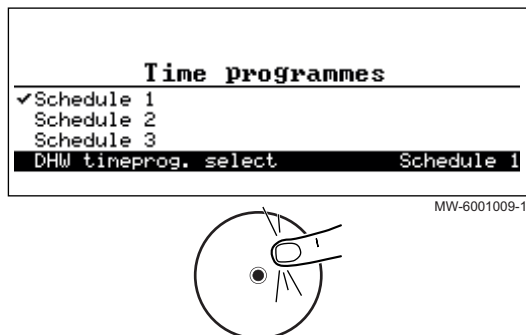


MW-6000971-1



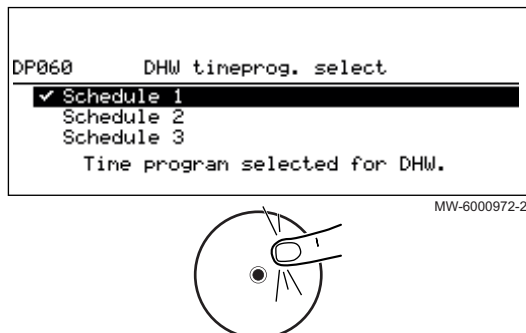
3. Select **Time programs**.
⇒ Three timer programmes are available. The programme that is currently active is marked with a tick.

Fig.104



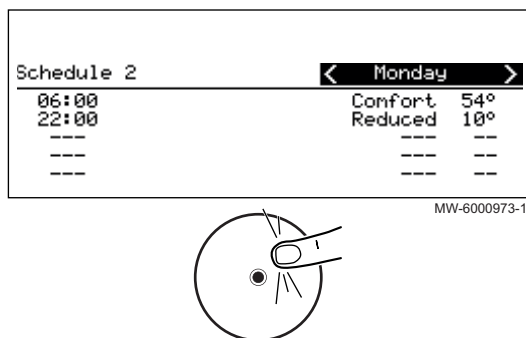
4. To activate another timer programme, select **DHW timeprog. select**.

Fig.105



5. To change the timer programming, select the programme you wish to change.
 ⇒ The programmed activities for Monday are displayed.
 The last activity of the day remains active until the first activity of the following day.

Fig.106



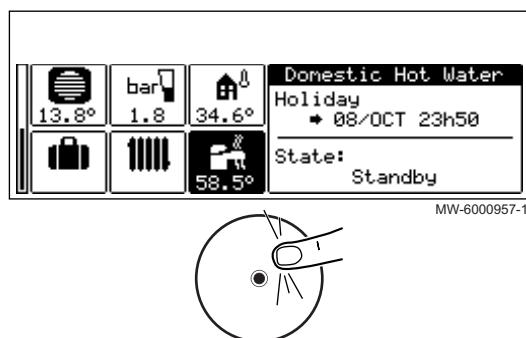
6. Select the day to be modified.
 7. Carry out the following actions according to your needs:

Tab.86

Action	Procedure
Modify the timer settings for programmed activities	• Select a programmed activity. • Press the button. • Change the start time and/or the associated activity. • Select Confirm to save the modification.
Add a new time range	• Move the cursor to an empty line. • Press the button. • Select the start time for the activity. • Select the activity required at this time. • Select Confirm to save the new time range.
Deleting a programmed activity	• Select the activity you want to delete. • Press the button. • Select Delete to delete the activity.
Copying programmed daily activities to other days	• Position the cursor on the Copy to other days line which appears at the end of the empty lines. • Press the button. • Check the days of the week which are to follow the same timer programming as the current day. • Select Confirm to apply the current timer programme to all of the selected days.

12.6.3 Forcing domestic hot water production (override)

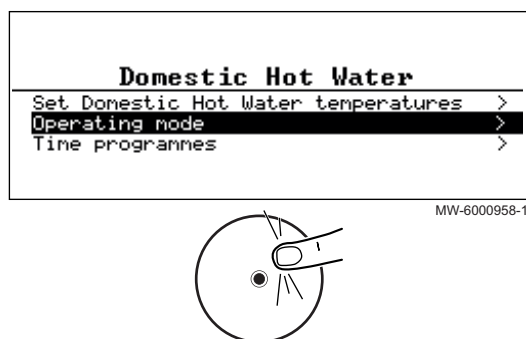
Fig.107



Regardless of the selected operating mode, you can force domestic hot water production to the comfort temperature (**DHW comfort setpoint** parameter) until the required time.

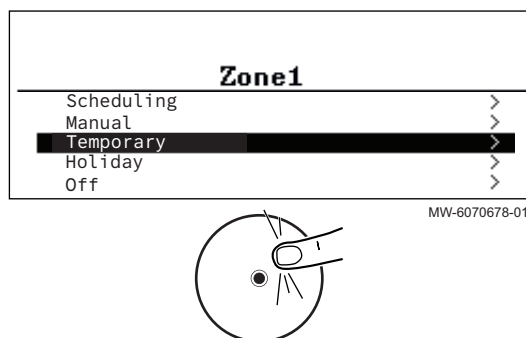
1. On the home screen, select the icon for the relevant zone.
2. Press the  button.

Fig.108



3. Select **Operating mode**.

Fig.109



4. Select **Hot water boost**.
5. Indicate the time when the override will end.
6. Select **Confirm** to confirm the override.

To cancel the override, select another operating mode.

12.6.4 Modifying the domestic hot water setpoint temperatures

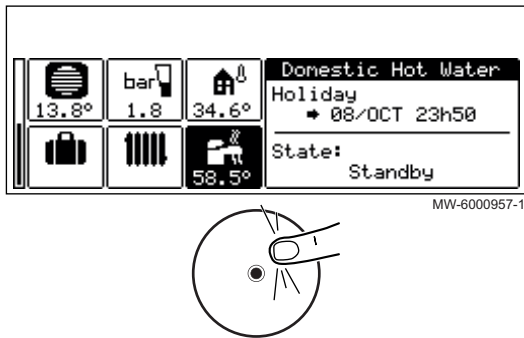
The production of domestic hot water operates with two setpoint temperature parameters:

Tab.87

DHW comfort setpoint	Used in the Programming , Manual and Temporary modes This is the water temperature for your comfort: optimal operating temperature.
DHW eco setpoint	Used in the Programming , Holiday and Off modes This is the minimum hot water temperature maintained when absent.

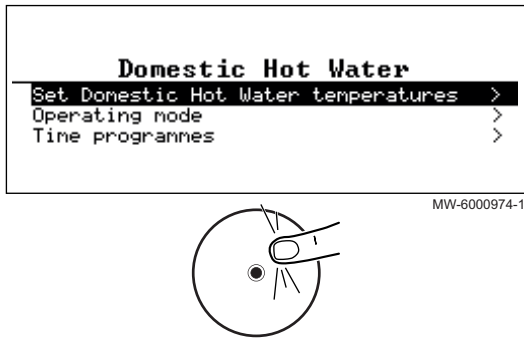
You can change these setpoint temperatures to adapt them to your needs.

Fig.110



1. On the home screen, select the icon for the relevant zone.
2. Press the  button.

Fig.111



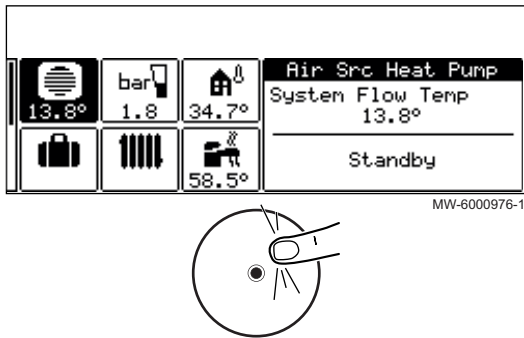
3. Select **DHW temperature setting**.
4. Change the required set point temperature:
 - DHW comfort setpoint
 - DHW eco setpoint

12.7 Managing the heating, cooling and domestic hot water production

12.7.1 Shutting off the heating and cooling

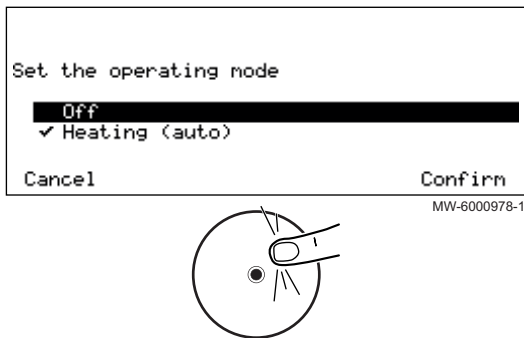
Your appliance will automatically regulate the heating and cooling based on the outdoor temperature. If you prefer, you can shut off the heating and cooling regardless of the outdoor temperature whilst maintaining production of domestic hot water.

Fig.112



1. On the home screen, select the icon for the relevant zone.

Fig.113

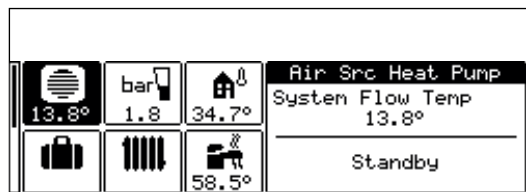


2. Select **Define the mode**.
3. Select the desired value:
 - **Off** : heating and cooling are shut off.
 - **Heating/Cooling (auto)** : heating and cooling are automatically regulated based on the outdoor temperature.
4. Select **Confirm** to confirm the modification.

12.7.2 Forcing cooling

In the Programming operating mode, the Cooling timer programme is activated automatically when the average outdoor temperature has been greater than 22 °C. If you wish, you can force Cooling mode on regardless of the outdoor temperature.

Fig.114



MW-6000976-1

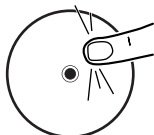
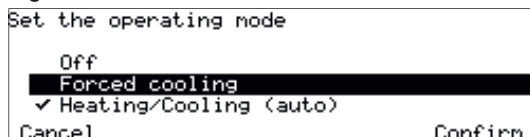
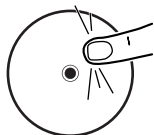


Fig.115



MW-6000977-2

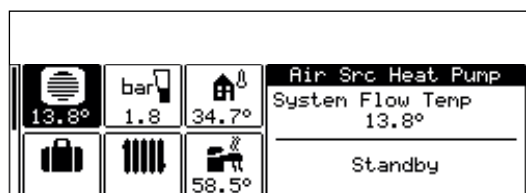


1. On the home screen, select the icon for the relevant zone.
2. Select **Forced cooling On/Off**.
3. Select the desired value:
 - **Yes** : cooling is active, regardless of the outdoor temperature.
 - **Heating/Cooling (auto)** : the system automatically activates cooling based on the outdoor temperature.
4. Select **Confirm** to confirm the modification.

12.7.3 Shutting off the heating in summer

Your appliance will automatically regulate the heating based on the outdoor temperature. If you prefer, you can shut off the heating regardless of the outdoor temperature whilst continuing to use the domestic hot water and cooling functions.

Fig.116



MW-6000976-1

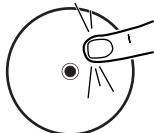
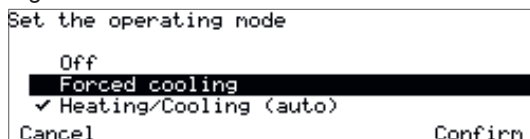
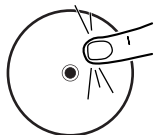


Fig.117



MW-6000977-2



2. Select **Forced cooling**.
3. Select **Confirm** to confirm the modification.

12.7.4 Periods of absence or going on holiday



Important

Do not power off, disconnect, or switch off the indoor unit so that the heating pump anti-blocking function is able to run and protect the installation against freezing.

Your appliance will automatically regulate the heating based on the outdoor temperature. If you prefer, you can shut off the heating regardless of the outdoor temperature whilst continuing to use the domestic hot water and cooling functions.

If you are away from home for several weeks, you can reduce the room temperature and domestic hot water temperature in order to save energy. For this, activate the **System holiday mode** operating mode for all zones, including the domestic hot water, or the **Holiday** operating mode for each zone individually.

■ Activating holiday mode for all zones

If you are away from home for several weeks, activate the **System holiday mode** operating mode for all zones, including domestic hot water. The room setpoint temperature is lowered to 6 °C and the domestic hot water setpoint is set to the DHW eco setpoint parameter.

The outdoor unit will maintain the flow water temperature at 25 °C to protect the system when the outdoor air temperature is below 5 °C.

1. From the home screen, press the  button.

Fig.118

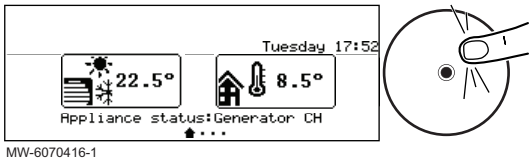
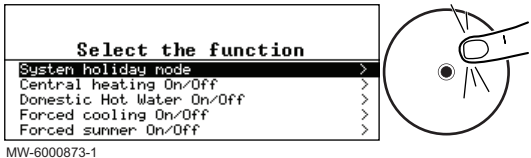


Fig.119



2. Select **System holiday mode**.
3. Enter the start and end dates and times for the absence period.
4. Select **Confirm** to confirm the setting.

■ Activating Holiday mode for a zone

If you will not be using a zone within your home for several weeks, you can reduce the room or domestic hot water temperature in this zone to save energy. To do this, activate the **System holiday mode** operating mode for this zone.

1. From the home screen, access the screen for the relevant zone.
2. Press the  button.

Fig.120

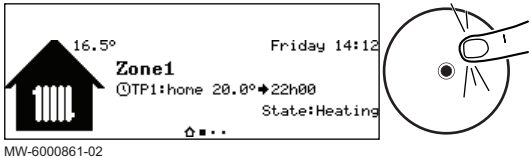
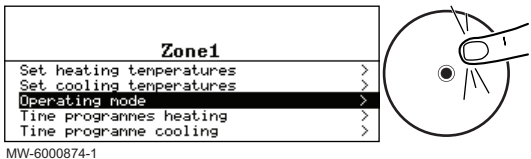
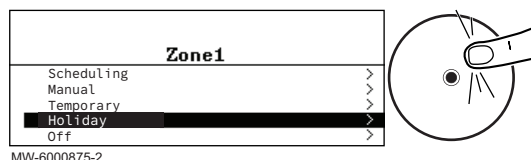


Fig.121



3. Select **Operating mode**.

Fig.122



4. Select **Holiday**.
5. Enter the start and end dates and times for the absence period.
6. Indicate the temperature required throughout the absence period.

**Important**

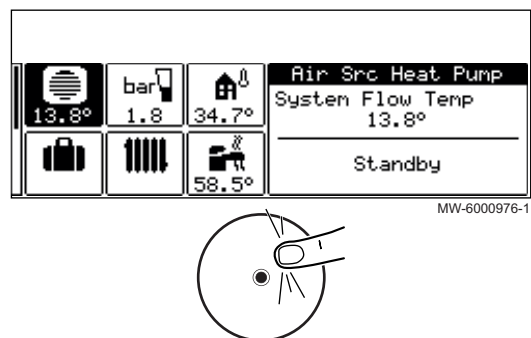
For a domestic hot water zone, the setpoint temperature during an absence period is set automatically to the DHW eco setpoint parameter.

7. Select **Confirm** to confirm the setting.

12.7.5 Shutting off domestic hot water production

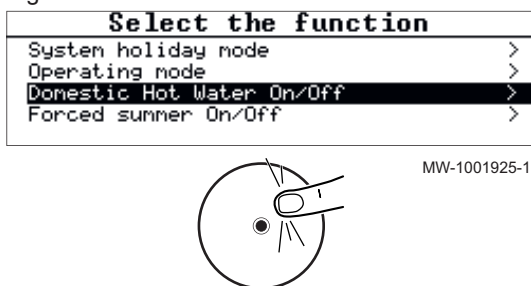
If you wish, you can shut off the domestic hot water production whilst continuing to use the heating and cooling functions.

Fig.123



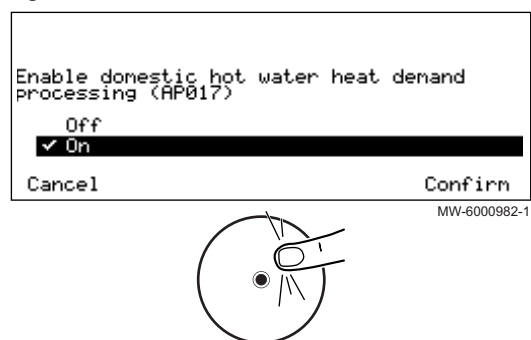
1. From the home screen, press the button.

Fig.124



2. Select **Domestic Hot Water On/Off**.

Fig.125



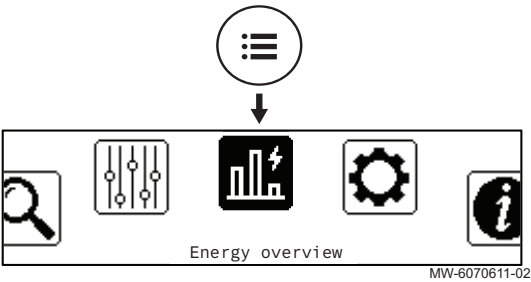
3. Select the desired value:
 - **Off** : domestic hot water production is shut off. Heating and cooling are maintained.
 - **On** : domestic hot water production is active.
4. Select **Confirm** to confirm the modification.

12.8 Monitoring energy consumption and production

You can monitor your energy consumption and your energy production with or without installing an energy meter.

- without an energy meter: the energy consumption and production is calculated based on the coefficient of performance of your heat pump, and is approximate
- with an energy meter: the energy consumption and production is measured directly based on the use of the outdoor unit, and is more precise in this case.

Fig.126



1. Press the  button.
2. Select  **Energy overview**.
⇒ The energy consumed and produced since the last energy consumption meter reset is displayed:

Tab.88

Parameter	Description
CH consumed	Energy consumed for central heating (kWh)
DHW consumed	Energy consumed for domestic hot water (kWh)
Cooling consumed	Energy consumed for cooling (kWh)
CH energy delivered	Thermal energy delivered for central heating (kWh)
DHW energy delivered	Thermal energy delivered for domestic hot water (kWh)
Cool energy deliver	Thermal energy delivered for cooling (kWh)
Total energy consume	Total energy consumed (kWh)
Total energy deliver	Total thermal energy delivered (kWh)

12.9 Starting and stopping the heat pump

12.9.1 Starting the heat pump

1. Switch on the outdoor unit and the indoor unit.
⇒ The heat pump will begin an automatic vent cycle (which lasts approx. three minutes), run each time the power is switched on.
2. Switch on the backup boiler, if fitted.

12.9.2 Shutting down the heat pump

The heat pump must be shut down in certain situations, for example during any intervention on the equipment. In other situations, such as an extended absence period, we recommend that the **System holiday mode** operating mode is used in order to benefit from the heat pump anti-blocking function and to protect the installation from frost.

To shut down the heat pump:

1. Shut off the heating or the cooling.
2. Switch off the power to the outdoor unit.
3. Switch off the power to the indoor unit.
4. Switch off the backup boiler, if fitted.

13 User instructions

13.1 Prolonged power outage in winter

A prolonged power outage at outdoor temperatures below zero may damage your heating installation. Action may be required, depending on the configuration of your installation:

- Installation with glycol: no action required.
- Installation equipped with anti-freeze valves: drain the outdoor part of the heating installation during a prolonged power outage (10 hours or more) at outdoor temperatures below zero.



Important

If in doubt about the draining and filling procedure, contact your installer.

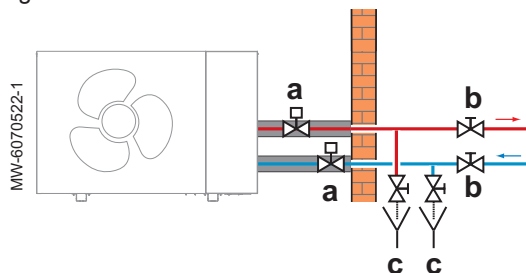
**See also**

Outdoor unit frost protection, page 24

13.2 Draining an installation equipped with anti-freeze valves

A power outage of 10 hours or more at outdoor temperatures below zero may damage your heating installation. The outdoor section of the heating installation must be drained using the manual drain valves.

Fig.127



1. Switch off the outdoor unit at the electrical panel.
2. Locate the anti-freeze valves (a) installed outdoors, near the outdoor unit.
3. Check whether water runs out of the anti-freeze valves.

Water runs out	Action to be taken
Yes	No immediate risk of freezing. Regularly check the anti-freeze valves until the power is restored.
No	Follow the procedure with steps 4 to 7.

4. Locate the isolation valves (b) installed indoors, on the heating circuit.
5. Close the isolation valves to isolate the outdoor unit from the indoor section of the heating circuit.
6. Locate the drain valves (c) installed indoors, on the heating circuit between the isolation valves and the outdoor unit, at the lowest point in the heating circuit.
7. Open the drain valves and drain the outdoor section of the heating circuit.
⇒ The outdoor unit is protected from frost.
8. Contact the installer to perform recommissioning.

**See also**

Outdoor unit frost protection, page 24

14 Maintenance

14.1 General

An annual inspection with a leak-tightness check of the heating installation in accordance with prevailing standards is obligatory.

Maintenance operations are important for the following reasons:

- To guarantee optimum performance
- To extend the life span of the equipment
- To provide an installation which offers the user optimum comfort over time

**Caution**

Only qualified professionals are authorised to carry out maintenance work on the heat pump and the heating system.

**Danger of electric shock**

Before any work, switch off the power supply to the heat pump and the backup boiler or the heating element, if present.

**Danger of electric shock**

Check the discharge from the capacitors of the outdoor unit.

**Caution**

Do not drain the installation, except in cases of absolute necessity. E.g.: several months' absence with the risk of temperatures in the building falling below freezing.

**Important**

- Maintenance must be performed as recommended by the manufacturer.
- Replace any damaged component.

14.2 Checking operation of the appliance

You can force the heating or cooling mode for the heat pump and backup in order to check that they are working correctly.

1. Press the  button.
2. Select  **Installer**.
3. Select **Commissioning > Test mode > Func test status**.
4. Select the operating mode to be tested.

14.3 Replacing the user interface battery

If the indoor unit is switched off, the user interface battery takes over to keep the correct time.

The battery must be replaced when the time is no longer saved.

1. Remove the front panel.
2. Remove the battery located in back plate of the user interface by pushing it gently forwards.
3. Insert a new battery. Battery format: CR2032, 3 V

**Important**

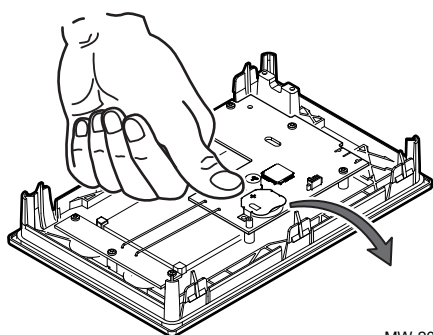
- Do not use rechargeable batteries
- Do not discard used batteries in the dustbin. Take them to an appropriate collection place.

4. Re-assemble everything.

**See also**

Accessing the indoor unit connectors, page 29

Fig.128



MW-2001032-1

15 Troubleshooting

15.1 Resolving operating errors

When your appliance malfunctions, the display turns red and may flash. A message is displayed with an error code on the home screen.

This error code is important for the correct and rapid diagnosis of the type of malfunction and for any technical assistance that may be needed.

If an error occurs:

1. Make a note of the code displayed on the screen.
2. Remedy the problem described by the error code or contact the installer.
3. Switch off the outdoor unit and the indoor unit.
4. Switch on the indoor unit then the outdoor unit to check that the cause of the error has been removed.
5. If the code is displayed again, contact the installer.

15.1.1 Types of error code

The user interface can display three types of error code:

Tab.89

Type of code	Code format	Colour of the display
Warning	Axx.xx	Indication of the error code with no change in the colour of the screen
Blockage	Hxx.xx	Continuous red
Lockout	Exx.xx	Flashing red

15.1.2 Warning codes linked to the EHC–16 main PCB

A warning code signals that the optimal operating conditions are not fulfilled. The system continues to operate safely, but there is a risk of shutdown if the situation continues to deteriorate.

If the situation improves, the warning code may disappear spontaneously.

Tab.90 List of warning codes

Code	Message	Description
A02.06	Water Press Warning	Water Pressure Warning active
A02.18	OBD Error	Object Dictionary Error
A02.22	System flow warning	System water flow warning active
A02.55	Invalid or miss SerNR	Invalid or missing device serial number
A06.111	HP unit failure	Heat Pump unit failure occurred This error is generated by the outdoor unit. To view the specific error code for the outdoor unit, refer to the error details.
A06.112	HP EEPROM error	Hydronic system EEPROM error in the heat pump module This error is generated by the outdoor unit. To view the specific error code for the outdoor unit, refer to the error details.
A06.113	HP frost protection	Water side heat exchanger frost protection This error is generated by the outdoor unit. To view the specific error code for the outdoor unit, refer to the error details.
A06.114	HP flow Temp error	Flow temperature sensor error in the heat pump module This error is generated by the outdoor unit. To view the specific error code for the outdoor unit, refer to the error details.
A06.115	HP EEPROM error	Heat pump inverter module EEPROM error This error is generated by the outdoor unit. To view the specific error code for the outdoor unit, refer to the error details.
A06.116	Water flow error	Water flow is not detected by the heat pump module This error is generated by the outdoor unit. To view the specific error code for the outdoor unit, refer to the error details.
A06.117	ODU backup error	Electric heating plate relay adhesion failure in the internal backup heater PCB This error is generated by the outdoor unit. To view the specific error code for the outdoor unit, refer to the error details.
A06.118	ODU current error	Current transformer error or internal backup heater open circuit protection This error is generated by the outdoor unit. To view the specific error code for the outdoor unit, refer to the error details.

15.1.3 List of blocking codes linked to the EHC–16 main PCB

A blocking code signals an anomaly affecting the heating system.

Several possibilities:

- The system automatically attempts to correct the error (for example in the event of a fault related to the flow rate).
- The error is still present and the system functions in defect mode (for example, in the event of a fault affecting the outdoor unit, then the backup electric heater or the backup boiler is started up).
- The system is shut down but automatically switches on again when the error disappears.

Tab.91

Code	Message	Description
H00.16	DHW sensor Open	Domestic Hot Water tank temperature sensor is either removed or measures a temperature below range • Check the wiring between the central unit PCB and the sensor. • Check that the sensor has been fitted properly. • Check the Ohmic value of the sensor. • Replace the sensor if necessary.
H00.17	DHW sensor Closed	Domestic Hot Water tank temperature sensor is either shorted or measures a temperature above range • Check the wiring between the central unit PCB and the sensor. • Check that the sensor has been fitted properly. • Check the Ohmic value of the sensor. • Replace the sensor if necessary.
H00.32	TOutdoor Open	Outdoor temperature sensor is either removed or measures a temperature below range • Check the wiring between the central unit PCB and the sensor. • Check that the sensor has been fitted properly. • Check the Ohmic value of the sensor. • Replace the sensor if necessary.
H00.33	TOutdoor Closed	Outdoor temperature sensor is either shorted or measures a temperature above range • Check the wiring between the central unit PCB and the sensor. • Check that the sensor has been fitted properly. • Check the Ohmic value of the sensor. • Replace the sensor if necessary.
H00.34	TOutdoor Missing	Outdoor temperature sensor was expected but not detected Wired sensor: • Check the wiring between the central unit PCB and the sensor. • Check that the sensor has been fitted properly. • Check the Ohmic value of the sensor. • Replace the sensor if necessary. • Reset the values CN1 and CN2. This solution also resets all the other parameters. Radio-controlled outdoor temperature sensor: • Check the wiring between the radio receiver and the central unit PCB (R-Bus line). • Check that the radio gateway is supplied with power. • Perform a pairing sequence. • If necessary, perform a new pairing sequence and reduce the distance between the outdoor radio sensor and the radio receiver. • Replace the sensor if necessary. • Replace the radio receiver if necessary.
H00.47	HP flow sensor removed or below range	Heat pump flow temperature sensor is either removed or measures a temperature below range • Check the wiring between the EHC-16 main PCB and the sensor. • Check that the sensor has been fitted properly. • Check the Ohmic value of the sensor. • Replace the sensor if necessary.
H00.48	THp Flow Closed	Heat pump flow temperature sensor is either shorted or measures a temperature above range • Check the wiring between the central unit PCB and the sensor. • Check that the sensor has been fitted properly. • Check the Ohmic value of the sensor. • Replace the sensor if necessary.
H00.49	THp Flow Missing	Heat pump flow temperature sensor was expected but not detected • Check the wiring between the main PCB and the sensor. • Check that the sensor has been fitted correctly. • Check the Ohmic value of the sensor. • Replace the sensor if necessary.

Code	Message	Description
H00.51	THp Return Open	Heat pump return temperature sensor is either removed or measures a temperature below range • Check the wiring between the central unit PCB and the sensor. • Check that the sensor has been fitted properly. • Check the Ohmic value of the sensor. • Replace the sensor if necessary.
H00.52	THp Return Closed	Heat pump return temperature sensor is either shorted or measures a temperature above range • Check the wiring between the central unit PCB and the sensor. • Check that the sensor has been fitted properly. • Check the Ohmic value of the sensor. • Replace the sensor if necessary.
H00.57	T DHW Top Open	Domestic Hot Water top temperature sensor is either removed or measures a temperature below range • Check the wiring between the EHC-16 main PCB and the sensor. • Check that the sensor has been fitted properly. • Check the Ohmic value of the sensor. • Replace the sensor if necessary.
H00.58	T DHW Top Closed	The DHW tank top sensor is short-circuited or a temperature above the range has been detected • Check the wiring between the EHC-16 main PCB and the sensor. • Check that the sensor has been fitted properly. • Check the Ohmic value of the sensor. • Replace the sensor if necessary.
H02.02	Wait Config Number	Waiting For Configuration Number Waiting for configuration parameters to be entered: • Configure CN1 / CN2 depending on the output of the outdoor unit installed (CNF menu). Central unit PCB replaced: heat pump not configured.
H02.03	Conf Error	Configuration Error The configuration parameters entered are incorrect: • Configure CN1 / CN2 depending on the output of the outdoor unit installed (CNF menu).
H02.04	Parameter Error	Parameter Error • Restore the factory settings. • If the error is still present: change the central unit PCB.
H02.05	CSU CU mismatch	CSU does not match CU type • Software change (software number or version parameter inconsistent with the memory).
H02.07	Water Press Error	Water Pressure Error active • Check the hydraulic pressure in the heating circuit. • Check the wiring between the EHC-16 main PCB and the pressure sensor. • Check the connection to the pressure sensor.
H02.09	Partial block	Partial blocking of the device recognized BL input on the central unit PCB terminal block open: • Check the contact on the BL input. • Check the wiring. • Check parameters AP001 and AP100.
H02.10	Full Block	Full blocking of the device recognized BL input on the central unit PCB terminal block open: • Check the contact on the BL input. • Check the wiring. • Check parameters AP001 and AP100.

Code	Message	Description
H02.23	System flow error	System water flow error active Flow problem Insufficient flow: open a radiator valve. The circuit is clogged: • Check that the filters are not obstructed and clean them if necessary. • Clean and flush the installation. No circulation: • Check that the valves and thermostatic valves are open, • Check that the circulating pump is working, • Check the wiring, • Check the pump supply: if the pump does not work, replace it. Too much air: completely vent the indoor unit and the installation for optimum running. Incorrect wiring: check the electrical connections. Flow rate sensor: • Check the electrical connections and the direction of the flow meter (arrow to the right). • Replace the flow meter if necessary.
H02.25	ACI error	Titan Active System short-circuited or on an open circuit • Check the connection cable. • Check that the anode has not short-circuited and is not broken.
H02.36	Funcnt device lost	Functional device has been disconnected No communication between the central unit PCB and the additional circuit PCB: • Check the connection of the power supply cable between the PCBs. • Check the connection of the BUS cable between the PCBs. • Run automatic detection.
H02.37	Uncritic device lost	Uncritical device has been disconnected No communication between the central unit PCB and the additional circuit PCB: • Check the connection of the power supply cable between the PCBs. • Check the connection of the BUS cable and the PCBs. • Run automatic detection.
H02.60	Unsupported function	The zone doesn't support the selected function
H06.01	HP Unit Failure	Heat Pump Unit Failure occurred This error is generated by the outdoor unit. To view the specific error code for the outdoor unit, refer to the error details.
H06.06	BL CompHighPressure	A high pressure anomaly has stopped the compressor
H06.07	BL CompLowPressure	A low pressure anomaly has stopped the compressor This error is generated by the outdoor unit. To view the specific error code for the outdoor unit, refer to the error details. • The system's refrigerant level is too low. Add the appropriate quantity. • In heating or DHW mode, the outdoor heat exchanger is dirty or clogged. Clean the exchanger. • The water flow rate is too low in cooling mode. Increase the water flow rate.
H06.17	DeltaT CH max limit	The Delta Temperature on the central heating side exceeds the maximum overshoot. This error is generated by the outdoor unit. To view the specific error code for the outdoor unit, refer to the error details. • Check whether the water filter needs cleaning. • Make sure that there is no air in the system (venting). • Check the water pressure. The water pressure must be above 1 bar (0.1 MPa) (at low temperature). • Check that the pump's speed setting is the highest speed. • Make sure that the expansion vessel is not broken. • Check that the resistance in the hydraulic circuit is not too high for the pump.
H06.21	Tret heat pump	Heat pump return temperature sensor error • Check the wiring between the EHC-16 PCB and the sensor. • Check that the sensor has been fitted properly. • Check the Ohmic value of the sensor. • Replace the sensor if necessary.

Code	Message	Description
H06.22	Heating error	Heating operation error
H06.23	Refr pressure	Refrigerant pressure sensor error This error is generated by the outdoor unit. To view the specific error code for the outdoor unit, refer to the error details. • Check the wiring between the EHC-16 PCB and the sensor. • Check that the sensor has been fitted correctly. • Reconnect the sensor connector, if necessary. • Check the ohmic value of the sensor. • Replace the sensor if necessary.
H06.24	Refr high pressure	The refrigerant high pressure protection is activated This error is generated by the outdoor unit. To view the specific error code for the outdoor unit, refer to the error details. Heating/DHW mode: • The water flow rate is low, the water temperature is high: if there is air in the water system, release the air. • The water pressure is below 0.1 MPa: add water to the circuit until the pressure is between 0.15 and 0.2 MPa. • The refrigerant level is too high. Adjust the quantity of refrigerant. • The electric expansion valve is locked or the winding connector is loose. Tap the valve body and connect/disconnect the connector several times to check that the valve is working correctly. Fit the winding in the correct position. DHW mode: the water tank's heat exchanger is smaller. Cooling mode: • The heat exchanger cover has not been taken off: remove the cover • The heat exchanger is dirty or clogged. Clean the heat exchanger.
H06.25	Tflow heat pump	Heat pump flow temperature sensor error • Check the wiring between the EHC-16 PCB and the sensor. • Check that the sensor has been fitted properly. • Check the Ohmic value of the sensor. • Replace the sensor if necessary.
H06.26	HP liquid temp	Heat pump liquid temperature sensor error This error is generated by the outdoor unit. To view the specific error code for the outdoor unit, refer to the error details. • Check the wiring between the EHC-16 PCB and the sensor. • Check that the sensor has been fitted properly. • Check the Ohmic value of the sensor. • Replace the sensor if necessary.
H06.27	Frost protection	The heat pump frost protection is activated
H06.28	Comm IDU - ODU	Communication error between the indoor unit and outdoor unit This error is generated by the outdoor unit. To view the specific error code for the outdoor unit, refer to the error details. • The main PCB B and the main control PCB of the hydraulic module are not connected. Connect the wire. • Check the value of signal HM024. If the value of HM024 is less than 75%, the communication errors are too severe. It is essential to use a shielded communication cable. If there is a strong magnetic field or strong interference, (e.g. lifts, powerful transformers), add a barrier to protect the unit or move the unit to another location. 1. Switch off the outdoor unit and the indoor unit. 2. Wait 3 minutes for the outdoor unit capacitors to discharge. 3. Switch on the indoor unit then the outdoor unit.
H06.29	ODU-interface	Mismatch between the outdoor unit and the interface board
H06.30	ODU temperature	The outdoor unit temperature is anomalous This error is generated by the outdoor unit. To view the specific error code for the outdoor unit, refer to the error details. • The discharge temperature sensor connector is loose. Reconnect it. • The discharge temperature sensor connector is wet or contains water. Drain the water, dry the connector and add waterproof adhesive. • The discharge temperature sensor is faulty. Replace it.

Code	Message	Description
H06.31	ODU temp sensor	Outdoor unit temperature sensor error • Check the wiring between the main PCB and the sensors. • Check that the sensors have been fitted correctly. • Check the Ohmic value of the sensors. • Replace the sensors if necessary.
H06.32	ODU temp sensor	Outdoor unit temperature sensor error • Check the wiring between the main PCB and the sensors. • Check that the sensors have been fitted correctly. • Check the Ohmic value of the sensors. • Replace the sensors if necessary.
H06.33	ODU heatsink temp	Outdoor unit heatsink temperature is anomalous Heat sink = radiator This error is generated by the outdoor unit. To view the specific error code for the outdoor unit, refer to the error details.
H06.34	ODU power module	Outdoor unit power module is anomalous This error is generated by the outdoor unit. To view the specific error code for the outdoor unit, refer to the error details. • The power supply voltage of the unit is low, increase the power supply voltage to the required range. • The space between the units is too narrow for heat exchange. Increase the space between the units. • The heat exchanger is dirty or clogged. Clean the exchanger. • The fan is not running. The fan motor or the fan is broken. Replace it. • The refrigerant level is too high. Adjust the quantity of refrigerant. • The water flow rate is low, there is air in the system or the pump stroke is insufficient. Release the air and reselect the pump. • The water outlet temperature sensor has come loose or is broken; reconnect or replace it. • The wires or screws on the module are loose. Reconnect the wires and tighten the screws. The thermally conductive adhesive has dried out or has fallen off. Add a little thermally conductive adhesive. • The wire connection is loose or has fallen off. Reconnect the wire. • The inverter module board is faulty, replace it. • If you find that there is no problem with the control system, then the compressor is faulty, replace it with a new one. • The isolation valves are closed, open them.
H06.35	ODU superheat	The outdoor unit superheat is anomalous
H06.36	Fan motor	Outdoor unit fan motor is anomalous. This error is generated by the outdoor unit. To view the specific error code for the outdoor unit, refer to the error details. • A strong wind is blowing against the fan, making it turn in the opposite direction. Reorient the unit or shelter it to prevent the wind from blowing against the fan. • The fan motor is broken, replace it.
H06.37	Overheat protection	The outdoor unit overheat protection is activated
H06.38	ODU pressure	The outdoor unit pressure is anomalous
H06.39	ODU overcurrent	Compressor overcurrent in the outdoor unit This error is generated by the outdoor unit. To view the specific error code for the outdoor unit, refer to the error details. • See possible causes and action list for code H06.24. • The power supply voltage of the unit is low. Increase the power voltage to the required range.
H06.40	ODU current sensor	Current sensor error in the outdoor unit
H06.41	ODU Tinl water	The outdoor unit inlet water temperature is anomalous
H06.42	ODU refrigerant	Outdoor unit refrigerant is anomalous
H06.43	DIP switch	The DIP switch on the interface board has a configuration error interface panel = EHC-16 PCB
H06.53	Tambient air minimum	The ambient air temperature is below the allowed minimum

Code	Message	Description
H06.58	HP outdoor temp	Heat pump outdoor temperature sensor error This error is generated by the outdoor unit. To view the specific error code for the outdoor unit, refer to the error details.
H06.59	HP suction temp	Heat pump compressor suction temperature sensor error This error is generated by the outdoor unit. To view the specific error code for the outdoor unit, refer to the error details. • The connector of sensor Th is loose. Reconnect it. • The connector of temperature sensor Th is wet or contains water. Drain the water, dry the connector and add waterproof adhesive. • The temperature sensor Th is faulty. Replace it.
H06.60	HP inverter voltage	The inverter voltage of the heat pump is too low This error is generated by the outdoor unit. To view the specific error code for the outdoor unit, refer to the error details. • Check the power supply. • If the power supply is correct, check that the LED indicator light is ok. Check the PN voltage: if it is 380 V, the source of the problem is generally the motherboard. If the indicator light is off, switch off the power supply, check the IGBT, check the dioxides, if the voltage is not correct, the inverter board is damaged, replace it. • If there is no problem with the IGBT, this means that there are no problems with the inverter board. Check the bridge rectifier to see if the bridge voltage is correct. (Same method as for the IGBT, disconnect the power supply, check if the dioxides are damaged. • normally, if F1 is present when the compressor is started up, the motherboard could be the problem. If F1 is present when the fan is started up, this could be due to the inverter board.
H06.61	HP supply voltage	The heat pump power supply voltage is out of range This error is generated by the outdoor unit. To view the specific error code for the outdoor unit, refer to the error details. • Check that the power supply input is in the available range. • Switch off and on again several times in quick succession. The unit should remain off for more than 3 minutes before being switched back on. • The part in the circuit on the main control board is faulty. Replace it with a new main PCB.
H06.62	HP discharge temp	Heat pump compressor discharge temperature sensor error This error is generated by the outdoor unit. To view the specific error code for the outdoor unit, refer to the error details. • See possible causes and action list for code H06.24. • The temperature sensor TWout is loose. Reconnect it. • The temperature sensor T1 is loose. Reconnect it. • The temperature sensor T5 is loose. Reconnect it.
H06.63	HP EEPROM error	Heat pump Inverter module EEPROM error This error is generated by the outdoor unit. To view the specific error code for the outdoor unit, refer to the error details. • Error in the EEprom parameter, rewrite EEprom data. • The part in the EEprom chip is broken, replace it. • The main PCB is broken, replace it.
H06.64	HP inverter com	Communication error between the outdoor main control unit and the inverter module of the heat pump This error is generated by the outdoor unit. To view the specific error code for the outdoor unit, refer to the error details. • If there is a power supply connected to the PCB and to the drive board. Check whether the PCB LED is on or off. If the LED is off, reconnect the power supply wire. • If the LED is on, check the wire connection between the main PCB and the drive PCB. If the wire is loose or broken, reconnect the wire or replace it. • Fit a new main PCB or drive board.

Code	Message	Description
H06.65	HP high temp cooling	HP refrigerant outlet temperature is too high in cooling mode This error is generated by the outdoor unit. To view the specific error code for the outdoor unit, refer to the error details. • The heat exchanger cover has not been taken off. Remove it. • The heat exchanger is dirty or clogged. Clean the exchanger. • There is insufficient space around the unit for heat exchange. • The fan motor is broken, replace it.
H06.66	HP gas temp	Heat pump gas temperature sensor error This error is generated by the outdoor unit. To view the specific error code for the outdoor unit, refer to the error details. • Check the sensor resistance • The connector for sensor T2B is loose. Reconnect it. • The connector for sensor T2B is wet or contains water. Drain the water and dry the connector. Add a waterproof adhesive. • Sensor T2B is faulty, replace it with a new sensor.
H06.67	ODU return high flow	The heat pump return temperature is higher than the flow temperature in the outdoor unit This error is generated by the outdoor unit. To view the specific error code for the outdoor unit, refer to the error details. • Check the resistance of the two Tw_out - Tw_in sensors • Check the position of the two sensors. • The water inlet/outlet sensor (TWJn/TW_out) is broken, replace it with a new sensor. • The 4-way valve is jammed. Restart the unit again to allow the valve to change the direction. • The 4-way valve is broken, replace it with a new valve.
H06.68	ODU air temp sensor	Refrigerant outlet temperature sensor error in air side of heat exchanger of the outdoor unit This error is generated by the outdoor unit. To view the specific error code for the outdoor unit, refer to the error details. • The connector for sensor T3 is loose. Reconnect it. • The connector for sensor T3 is wet or contains water. Drain the water and dry the connector. Add a waterproof adhesive. • Sensor T3 is faulty, replace it with a new sensor.
H06.69	3 phase sequence	Invalid phase sequence in the 3 phase heat pump power supply This error is generated by the outdoor unit. To view the specific error code for the outdoor unit, refer to the error details. • Check that the power supply cables are correctly connected and avoid phase loss. • Check whether the connections of the neutral and live wires have been reversed.
H06.75	ODU flow error	Water flow error active in the outdoor unit module This error is generated by the outdoor unit. To view the specific error code for the outdoor unit, refer to the error details. • Check whether the water filter needs cleaning. • Make sure that there is no air in the system (venting). • Check the water pressure. The water pressure must be greater than 1 bar (0.1 MPa). • Check that the pump's speed setting is the highest speed. • Make sure that the expansion vessel is not broken. • Check that the resistance in the hydraulic circuit is not too high for the pump. • If this error occurs during operation in Defrost mode (when heating spaces or domestic water), make sure that the power supply to the backup electric heater is correctly cabled and the fuses are not blown. • Check that the pump fuse and the PCB fuse are not blown. • The electric circuit is short circuited or open. Reconnect the wire correctly. • The water flow rate is too low. • The water flow rate controller is faulty, it is continuously open or closed. Switch the water flow rate controller.

Code	Message	Description
H06.76	ODU return temp err	Return temperature sensor is on error in the outdoor unit This error is generated by the outdoor unit. To view the specific error code for the outdoor unit, refer to the error details. • Check the sensor resistance • The connector for the Tw_in sensor is loose. Reconnect it. • The connector for the Tw_in sensor is wet or contains water. Drain the water and dry the connector. Add a waterproof adhesive • The Tw_in sensor is faulty. Replace it with a new sensor.
H06.77	ODU EEPROM error	EEPROM error in hydronic system main control board in the outdoor unit This error is generated by the outdoor unit. To view the specific error code for the outdoor unit, refer to the error details. • The EEprom parameter is incorrect. Rewrite the EEprom data. • The EEprom chip is broken. Replace it with a new EEprom chip. • The main control PCB for the hydraulic module is broken. Replace it with a new PCB.
H06.78	ODU internal com Err	Communication error between refrigerant system and hydronic system main control boards This error is generated by the outdoor unit. To view the specific error code for the outdoor unit, refer to the error details. • The cable is not connecting the main PCB B and the main control PCB of the hydraulic module. Connect the cable. • The communication cable order is incorrect. Reconnect the cables in the correct order. • There is significant magnetic or electrical interference caused by lifts, large electrical transformers, etc. Add shielding to protect the unit or move the unit.
H06.79	ODU flow temp err	Flow temperature sensor is on error in the outdoor unit This error is generated by the outdoor unit. To view the specific error code for the outdoor unit, refer to the error details. • The connector for sensor Tw_out is loose. Reconnect it. • The connector for sensor Tw2 is loose. Reconnect it. • The connector for sensor Tw2 is wet or contains water. Drain the water and dry the connector. Add a waterproof adhesive. • sensor Tw2 is faulty. Replace it with a new sensor.
H06.80	HE frost protection	ODU water side heat exchanger anti-freeze protection This error is generated by the outdoor unit. To view the specific error code for the outdoor unit, refer to the error details.
H06.81	Evaporator error	Evaporator error in the outdoor unit
H06.99	Compressor alarm	Alarm related to the compressor raised by the inverter This error is generated by the outdoor unit. To view the specific error code for the outdoor unit, refer to the error details.

15.1.4 List of blocking codes linked to the EHC–16 main PCB

A lockout code signals a major anomaly affecting the heating system: the heating system is shut down as the safety conditions are not fulfilled.

Two operations are necessary for the system to resume normal operation:

1. Remove the causes of the anomaly.
2. Acknowledge the error message manually on the user interface.

When one of the codes below is displayed, contact the professional responsible for maintenance of the heat pump.

Tab.92 List of lockout codes

Code	Message	Description
E00.00	TFlow Open	Flow temperature sensor is either removed or measures a temperature below range - Poor sensor connection: - Check the wiring between the PCB and the sensor - Check that the sensor has been correctly fitted - Sensor failure: - Check the Ohmic value of the sensor - Replace the sensor if necessary
E00.01	TFlow Closed	Flow temperature sensor is either shorted or measures a temperature above range - Poor sensor connection: - Check the wiring between the PCB and the sensor - Check that the sensor has been correctly fitted - Sensor failure: - Check the Ohmic value of the sensor - Replace the sensor if necessary
E02.13	Blocking Input	Blocking Input of the Control Unit from device external environment - Check the wiring - Check the component connected to the BL contact
E02.24	System flow locking	System water flow locking active
E06.03	Locking HydrauBackup	Locking Hydraulic Backup
E06.110	HP flow error	Water flow error active in the heat pump module This error is generated by the outdoor unit. To view the specific error code for the outdoor unit, refer to the error details.

15.2 Displaying and clearing the error memory

The error memory stores the 32 most recent errors. You can check the details of each error and then clear it from the error memory.

1. Follow the access path described below to display and clear the error memory.

Access path
 >  Installer > Error history

- ⇒ The list of the 32 most recent errors is displayed with the error code, a short description and the date.
- 2. Carry out the following actions according to your needs:
 - Show the details of an error: select the desired error and press the  button.
 - Clear the error memory, press and hold the  button.

15.3 Accessing information on the hardware and software versions

Information about the hardware and software versions of the different appliance components is stored in the user interface.

1. Follow the access path described below to access this information.

Access path
 >  Version information

2. Select the component for which you would like to see the version information.

Tab.93

Component	Description
EHC-16	Main PCB for the heat pump
MK2.2	User interface
SCB-17B	PCB for managing additional circuits
CB-21	PCB for connecting external options

16 Decommissioning and disposal

16.1 Decommissioning procedure

1. Turn the indoor unit off.
2. Shut off the electrical power supply to the outdoor and indoor units.
3. Switch off the power supply to the electric heating element, if present.
4. Switch off the power supply to the backup boiler, if present.
5. Isolate the system electrically.
6. Drain all the heating circuits.

16.2 Disposal and recycling

Fig.129



Warning

Removal and disposal of the heat pump must be carried out by a qualified professional in accordance with prevailing local and national regulations.

1. Switch off the heat pump.
2. Cut the mains supply to the heat pump.
3. Recover the refrigerant in accordance with prevailing regulations



Important

Do not allow the refrigerant to escape into the atmosphere.

4. Close the water mains.
5. Drain the installation.
6. Dismantle all hydraulic connections.
7. Dismantle the heat pump.
8. Scrap or recycle the heat pump in accordance with applicable local and national regulations.

17 Appendix

17.1 Name and symbol of the zones

Tab.94

Factory-set name	Factory-set symbol	Name and symbol defined by the customer	
Zone1			
Zone3			

17.2 Name and temperature of the activities

Tab.95 Name and temperature of the activities for heating

Activities	Factory-set name	Factory-set temperature	Name and temperature defined by the customer	
Activity 1	Sleep	16 °C		
Activity 2	Home	20 °C		
Activity 3	Away	6 °C		
Activity 4	Morning	21 °C		
Activity 5	Evening	22 °C		
Activity 6	Custom	20 °C		

Tab.96 Name and temperature of the activities for cooling

Activities	Factory-set name	Factory-set temperature	Name and temperature defined by the customer	
Activity 1	Sleep	30 °C		
Activity 2	Home	25 °C		
Activity 3	Away	25 °C		
Activity 4	Morning	25 °C		
Activity 5	Evening	25 °C		
Activity 6	Custom	25 °C		

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