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ADVANCE

Installation, user and service manual

Reversible packaged air source heat pump

HPI M

MIT-M /E
MIT-M /H

De Dietrich
SUSTAINABLE COMFORT®

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1 Safety instructions and recommendations

1.1 Safety

Operation	**Danger** 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. Cleaning and user maintenance shall not be made by children without supervision.
Electrical	Before any work on the appliance, carefully read all documents that accompany the product. These documents are also available on our website. See the last page. Install the appliance in accordance with national rules on electrical installation. A disconnection device must be fitted to the fixed wiring in accordance with installation rules. 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 obviate any danger. If the appliance is not wired in the factory, carry out the wiring according to the wiring diagram described in the chapter Electrical Connections. This appliance must be connected to the protective earthing. Earthing must comply with the prevailing installation standards. Earth the appliance before making any electrical connections. Type and calibre of the protective equipment: refer to the "Recommended cable cross-sections" chapter. To connect the appliance to the electricity mains, refer to the "Electrical Connections" chapter. In order to prevent any danger owing to the unexpected reset of the thermal circuit breaker, 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.
Hydraulics	**Caution** Respect the minimum and maximum water pressure and temperature to ensure the appliance operates correctly. See chapter on Technical Specifications.
Installation	**Important** Leave sufficient space to enable the appliance to be correctly installed. Refer to the Installation section

1.2 General instructions

The system must satisfy each point in the rules in force in the country that govern works and interventions in individual homes, blocks of flats or other buildings.

Only qualified professionals are authorised to work on the appliance and the heating installation. They must respect prevailing local and national regulations during fitting, installation and maintenance of the installation.

Commissioning must be performed by a qualified professional.

1.3 Electrical safety

Before making any electrical connections, earth the appliance in accordance with prevailing standards.

Danger
Danger of electric shock: the length of the conductors between the traction arrester device and the terminal blocks must be such that the active conductors are put under tension before the earth conductor.

Only qualified professionals may carry out electrical connections, always with the power off.

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

1.4 Hydraulic safety

When making the hydraulic connection, it is imperative that the standards and corresponding local directives be respected.

If radiators are connected directly to the heating circuit: install a differential valve between the indoor unit and the heating circuit.

Fit drainage valves between the indoor unit and the heating circuit.

Do not add any chemical products to the heating water without first consulting a water treatment specialist. For example: antifreeze, water softeners, products to increase or reduce the pH value, chemical additives and/or inhibitors. These may cause faults in the heat pump and damage the heat exchanger.

1.5 Recommendations for the installation

Install the heat pump's indoor module in a frost-free location.

Insulate the pipes to reduce heat losses to a minimum.

Keep this document close to the place where the appliance is installed.

Do not make any modifications to the heat pump without the written consent of the manufacturer.

To benefit from extended warranty cover, no modifications should be made to the appliance.

Install the heat pump indoor module and outdoor unit on a solid, stable structure able to bear its weight.

Do not install the heat pump in a place that has an atmosphere with a high salt content.

Do not install the heat pump in a place exposed to steam and combustion gases.

Do not install the heat pump in a place that may be covered in snow.

1.6 Recommendations for operation

The frost protection function does not work if the heat pump is switched off.

If the home is unoccupied for a long period and there is a risk of frost, drain the indoor unit, the heating system, the pipes between the indoor unit and the outdoor unit, and the outdoor unit.

Keep the heat pump accessible at all times.

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

Immediately replace damaged or illegible instructions and warning stickers.

Give preference to the OFF or frost protection mode rather than switching off the system to leave the following functions running:

- Anti blocking of pumps
- Frost Protection

Regularly check the presence of water and pressure in the heating system.

Do not touch radiators for long periods. Depending on the heat pump settings, the temperature of the radiators may exceed 60°C.

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.

1.7 Specific instructions for service, maintenance and breakdowns

Maintenance work must be carried out by a qualified professional.

Only a qualified professional is authorised to set, correct or replace the safety devices.

Before any work, switch off the power supply to the heat pump, the indoor unit and the hydraulic/electrical back-up.

Wait for approx. 20-30 seconds for the outdoor unit capacitors to be discharged, and check that the lights on the outdoor unit PCBs have gone out.

Before working on the refrigeration circuit, switch off the appliance and wait a few minutes. Certain items of equipment such as the compressor and the pipes can reach temperatures in excess of 100°C and high pressures, which may cause serious injuries.

Locate and correct the cause of power cut before resetting the safety thermostat.

Only genuine spare parts may be used.

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

After maintenance or repair work, check the entire heating system to ensure that there are no leaks.

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

For heat pumps with a refrigerant fluid load of more than 5 tonnes of CO_2 equivalent, the user must have an annual leak-tightness test performed on the refrigerant equipment.

1.8 Liabilities

Tab.1

Manufacturer's liability	Our products are manufactured in compliance with the requirements of the various Directives applicable. 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 the appliance. • Failure to abide by the instructions on using the appliance. • Faulty or insufficient maintenance of the appliance.
Installer's liability	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. • Give all the instruction manuals to the user.
User's liability	To guarantee optimum operation of the system, the user 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. • Ask 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 Symbols used

2.1 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.

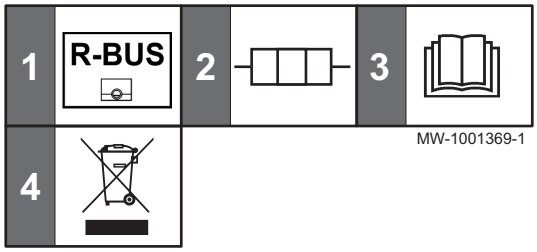
Caution
Risk of material damage.

Important
Please note: important information.

See
Reference to other manuals or pages in this manual.

2.2 Symbols used on the data plate

Fig.1



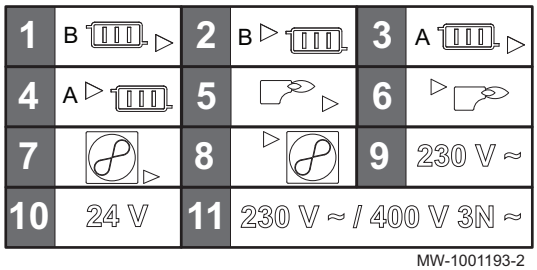
1 The symbol indicates compatibility with the SMART TC° connected thermostat.
2 Information on the electrical back-up: power supply and maximum output
3 Before installing and commissioning the appliance, carefully read the instruction manuals provided
4 Dispose of used products in an appropriate recovery and recycling structure

2.3 Symbols used on the appliance

Fig.2 Symbols used on the appliance

Caution: danger of electric shock
1 Disconnect the mains power prior to carrying out any work.
2 Work on the appliance is only authorised if carried out by a qualified engineer

Fig.3 Symbols used on the connection label



1 **CIRCB1** heating circuit flow
2 **CIRCB1** heating circuit return
3 **CIRCA0** heating circuit flow
4 **CIRCA0** heating circuit return
5 Flow to the back-up boiler
6 Return from the back-up boiler
7 Flow to the outdoor unit
8 Return from outdoor unit
9 Power cord 230 V
9 Safety extra-low voltage power supply cable
11 Power supply cable 230 V / 400 V

3 Technical specifications

3.1 Homologations

3.1.1 Directives

This product complies with the requirements of the following European Directives and Standards:

- Pressure Equipment Directive 2014/68/EU
- Low Voltage Directive 2014/35/EU
  Generic standard: EN 60335-1
  Relevant standards: EN 60335-2-21, EN 60335-2-40
- Electromagnetic Compatibility Directive 2014/30/EU
  Generic standards: EN 61000-6-3, EN 61000-6-1
  Relevant Standard: EN 55014

This product conforms to the requirements of European Directive 2009/125/EC on the ecodesign of energy-related products.

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.

■ EC Declaration of Conformity

The unit complies with the standard type described in the EC declaration of conformity. It has been manufactured and commissioned in accordance with European directives.

The original declaration of conformity is available from the manufacturer.

3.1.2 Factory test

Before leaving the factory, each indoor module is tested on the following items:

- Tightness of the heating circuit
- Electrical safety

3.2 Technical data

3.2.1 Compatible heating devices

Tab.2

Outdoor unit	Associated/compatible indoor units
MONO AWHP 6 MR	MIT-M /E MIT-M /H
MONO AWHP 8 MR	MIT-M /E MIT-M /H
MONO AWHP 11 MR	MIT-M /E MIT-M /H

3.2.2 Heat pump

The specifications are valid for a new appliance with clean heat exchangers.

Maximum operating pressure: 0.3 MPa (3 bar)

Tab.3 Outdoor unit conditions of use

		MONO AWHP 6 MR	MONO AWHP 8 MR	MONO AWHP 11 MR
Heating mode	Water (maximum temperature)	+60 °C	+60 °C	+60 °C
	Outdoor air	-20 °C / +35 °C	-20 °C / +35 °C	-20 °C / +35 °C
Cooling mode	Water (minimum temperature)	+5 °C	+5 °C	+5 °C
	Outdoor air	-5°C / +46 °C	-5 °C / +46 °C	-5°C / +46 °C

Tab.4 Heating mode: outdoor air temperature +7 °C, water temperature at the outlet +35 °C. Performances in accordance with EN 14511-2.

Measurement type	Unit	MONO AWHP 6 MR	MONO AWHP 8 MR	MONO AWHP 11 MR
Heat output	kW	6.0	9.0	11.20
Coefficient of performance (COP)		4.83	4.51	4.54
Absorbed electrical power	kWe	1.24	2.0	2.47

Tab.5 Heating mode: outdoor air temperature +2 °C, water temperature at the outlet +35 °C. Performances in accordance with EN 14511-2.

Measurement type	Unit	MONO AWHP 6 MR	MONO AWHP 8 MR	MONO AWHP 11 MR
Heat output	kW	6.0	6.80	9.0
Coefficient of performance (COP)		3.64	3.60	3.68
Absorbed electrical power	kWe	1.65	1.89	2.45

Tab.6 Heating mode: outdoor air temperature -7°C, water temperature at the outlet +35 °C. Performances in accordance with EN 14511-2.

Measurement type	Unit	MONO AWHP 6 MR	MONO AWHP 8 MR	MONO AWHP 11 MR
Heat output	kW	6	7.5	9.0
Coefficient of performance (COP)		3.11	2.69	3.27
Absorbed electrical power	kWe	1.94	2.79	2.75

Tab.7 Heating mode: outdoor air temperature +7 °C, water temperature at the outlet +55 °C. Performances in accordance with EN 14511-2.

Measurement type	Unit	MONO AWHP 6 MR	MONO AWHP 8 MR	MONO AWHP 11 MR
Heat output	kW	6.0	9.0	11.2
Coefficient of performance (COP)		2.87	2.78	2.70
Absorbed electrical power	kWe	2.09	3.24	4.15

Tab.8 Cooling mode: outdoor air temperature +35 °C, water temperature at the outlet +18 °C. Performances in accordance with EN 14511-2.

Measurement type	Unit	MONO AWHP 6 MR	MONO AWHP 8 MR	MONO AWHP 11 MR
Cooling output	kW	6	7.50	10.00
Energy efficiency ratio (EER)		4.26	4.42	4.74
Absorbed electrical power	kWe	1.408	1.70	2.11

Tab.9 Common specifications

Measurement type	Unit	MONO AWHP 6 MR	MONO AWHP 8 MR	MONO AWHP 11 MR
Total dynamic head at nominal flow rate (primary circuit)	kPa	75	65	50
Power voltage of the outdoor unit	V	230	230	230
Start-up amperage	A	9	9	12
Maximal amperage	A	16	16	28
Acoustic power - Inside(1)	dB(A)	40	40	40
Acoustic power - Outside (1)	dB(A)	58	58	60
Refrigerant fluid R410A	kg	2.4	2.4	3.3
R410A refrigerant(2)	tCO_2e	5.01	5.01	6.89

(1) Noise radiated by the envelope - Test run in accordance with the NF EN 12102 standard, temperature conditions: air 7 °C, water 55 °C (inside and outside)
(2) The quantity of refrigerant in tonnes of CO_2 equivalent is calculated using the following formula: quantity (in kg) of refrigerant x GWP/ 1000. The Global-Warming Potential (GWP) of R410A gas is 2088.

3.2.3 Heat pump weight

Tab.10 Indoor unit

Data	Unit	MIT-M /E	MIT-M /H
Weight empty	kg	57	50

Tab.11 Outdoor unit

Data	Unit	MONO AWHP 6 MR	MONO AWHP 8 MR	MONO AWHP 11 MR
Weight	kg	97	97	118

3.2.4 Technical data - Medium-temperature heat pump space heaters

Tab.12 Technical parameters for heat pump space heaters (parameters declared for medium-temperature application)

Product name			MONO AWHP 6 MR	MONO AWHP 8 MR	MONO AWHP 11 MR
Air-to-water heat pump			Yes	Yes	Yes
Water-to-water heat pump			No	No	No
Brine-to-water heat pump			No	No	No
Low-temperature heat pump			No	No	No
Equipped with a supplementary heater			Yes	Yes	Yes
Heat pump combination heater			No	No	No
Rated heat output under average conditions(1)	*Prated*	kW	6	9	10
Rated heat output under colder conditions	*Prated*	kW	4	5	7
Rated heat output under warmer conditions	*Prated*	kW	6	9	10
Declared capacity for heating for part load at an indoor temperature of 20 °C and outdoor temperature T_j					
T_j = -7 °C	*Pdh*	kW	5.3	7.5	9.0
T_j = +2 °C	*Pdh*	kW	3.2	4.6	5.7
T_j = +7 °C	*Pdh*	kW	2.9	2.9	4.7
T_j = +12 °C	*Pdh*	kW	2.7	2.9	4.1
T_j = bivalent temperature	*Pdh*	kW	5.3	7.5	9.0
T_j = operation limit temperature	*Pdh*	kW	3.5	3.8	6.5

Product name			MONO AWHP 6 MR	MONO AWHP 8 MR	MONO AWHP 11 MR
Bivalent temperature	T_{biv}	°C	-7	-7	-7
Degradation coefficient(2)	*Cdh*	—	1.0	1.0	1.0
Seasonal space heating energy efficiency under average conditions	η_s	%	129	137	133
Seasonal space heating energy efficiency under colder conditions	η_s	%	107	106	108
Seasonal space heating energy efficiency under warmer conditions	η_s	%	159	169	171
Declared coefficient of performance or primary energy ratio for part load at an indoor temperature of 20 °C and outdoor temperature T_j					
T_j = -7 °C	*COPd*	-	2.09	1.96	1.99
T_j = +2 °C	*COPd*	-	3.22	3.50	3.30
T_j = +7 °C	*COPd*	-	4.62	4.90	4.86
T_j = +12 °C	*COPd*	-	6.09	6.80	6.35
T_j = bivalent temperature	*COPd*	-	2.09	1.96	1.99
T_j = operation limit temperature	*COPd*	-	1.28	1.37	1.45
Operation limit temperature for air-to-water heat pumps	*TOL*	°C	-20	-20	-20
Heating water operating limit temperature	*WTOL*	°C	60	60	60
Electrical power consumption					
Off mode	P_{OFF}	kW	0.015	0.015	0.015
Thermostat-off mode	P_{TO}	kW	0.015	0.015	0.015
Stand-by	P_{SB}	kW	0.015	0.015	0.015
Crankcase heater mode	P_{CK}	kW	0.000	0.000	0.000
Supplementary heater					
Rated heat output	*Psup*	kW	1.1	1.9	1.6
Type of energy input			Electricity	Electricity	Electricity
Other specifications					
Capacity control			Variable	Variable	Variable
Sound power level, indoors - outdoors	L_{WA}	dB	40 - 58	40 - 58	40 - 60
Annual energy consumption under average conditions	Q_{HE}	kWh	3642	4882	5955
Annual energy consumption under colder conditions	Q_{HE}	kWh	3136	4579	6246
Annual energy consumption under warmer conditions	Q_{HE}	kWh	1791	2587	3017
Rated air flow rate, outdoors for air-to-water heat pumps	—	m^3/h	2660	2660	2700

(1) The rated heat output *Prated* is equal to the design load for heating *Pdesignh*, and the rated heat output of a supplementary heater *Psup* is equal to the supplementary capacity for heating *sup(Tj)*.
(2) If *Cdh* is not determined by measurement, the default degradation coefficient is *Cdh* = 0.9.

See
The back cover for contact details.

3.2.5 Sensor specifications

■ **Outdoor temperature sensor specifications**

Tab.13 AF60 outdoor temperature sensor

Temperature	°C	-20	-16	-12	-8	-4	0	4	8	12	16	20	24
Resistance	Ω (Ohm)	2392	2088	1811	1562	1342	1149	984	842	720	616	528	454

■ **Heating flow sensor specifications**

Tab.14 NTC heating flow sensor

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

■ **Specifications of the heat pump flow and return temperature sensors**

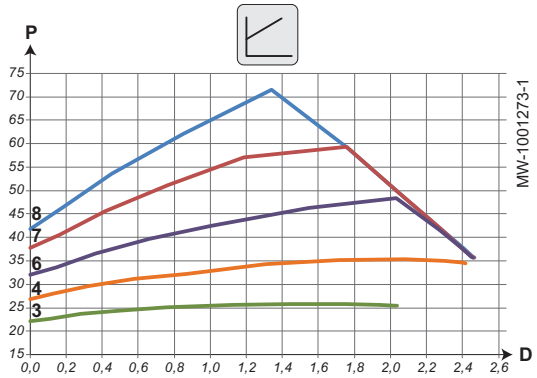
Tab.15 PT1000 temperature sensor

Temperature	°C	-10	0	10	20	30	40	50	60	70	80	90	100
Resistance	Ohm	961	1000	1039	1077	1117	1155	1194	1232	1271	1309	1347	1385

3.2.6 Circulating pump

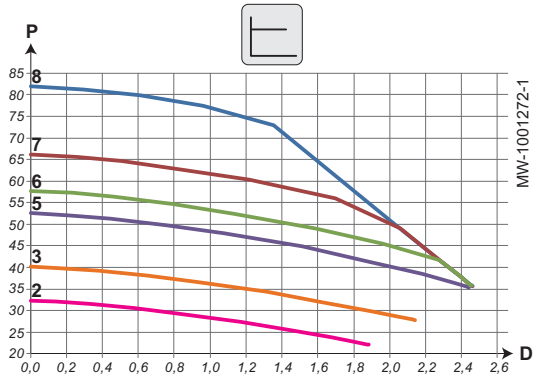
Important
The benchmark for the most efficient circulating pumps is EEI ≤ 0.20.

Fig.4 Variable pressure



P Available pressure (kPa)
D Water flow rate in cubic metres per hour (m^3/h)
3 Speed 3
4 Speed 4
6 Speed 6
7 Speed 7
8 Speed 8

Fig.5 Constant pressure

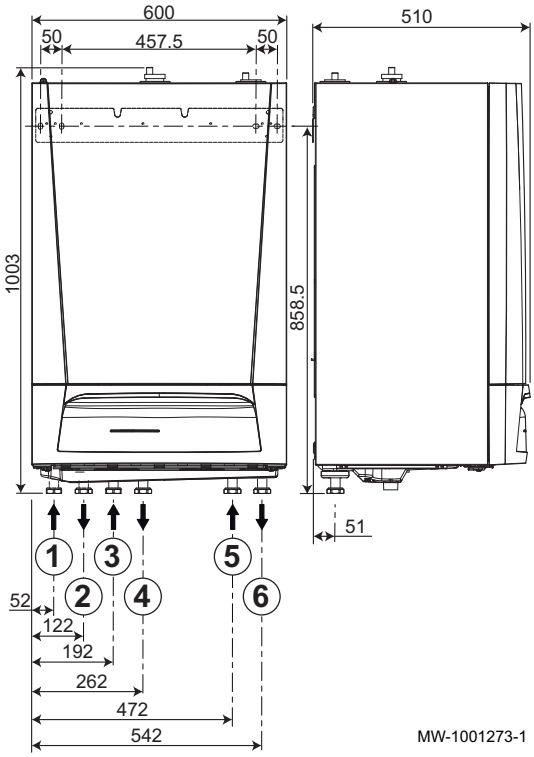


P Available pressure (kPa)
D Water flow rate in cubic metres per hour (m^3/h)
2 Speed 2
3 Speed 3
5 Speed 5
6 Speed 6
7 Speed 7
8 Speed 8

3.3 Dimensions and connections

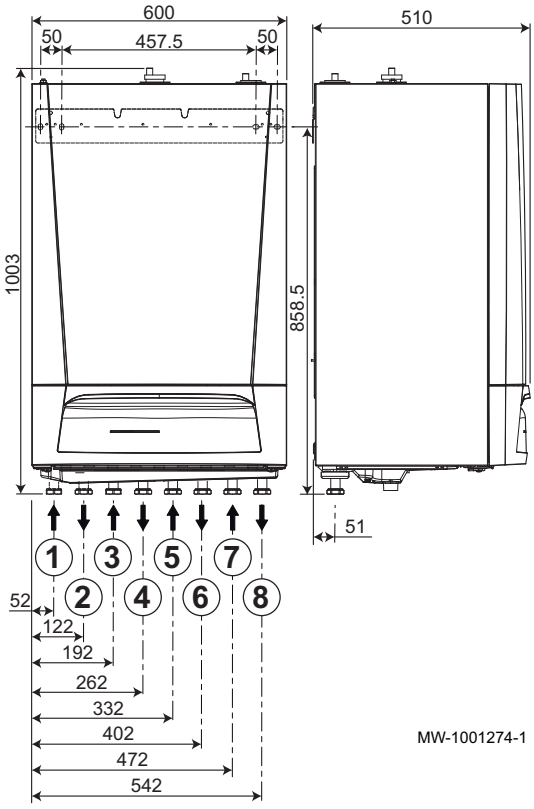
3.3.1 Indoor unit

Fig.6 With immersion heater



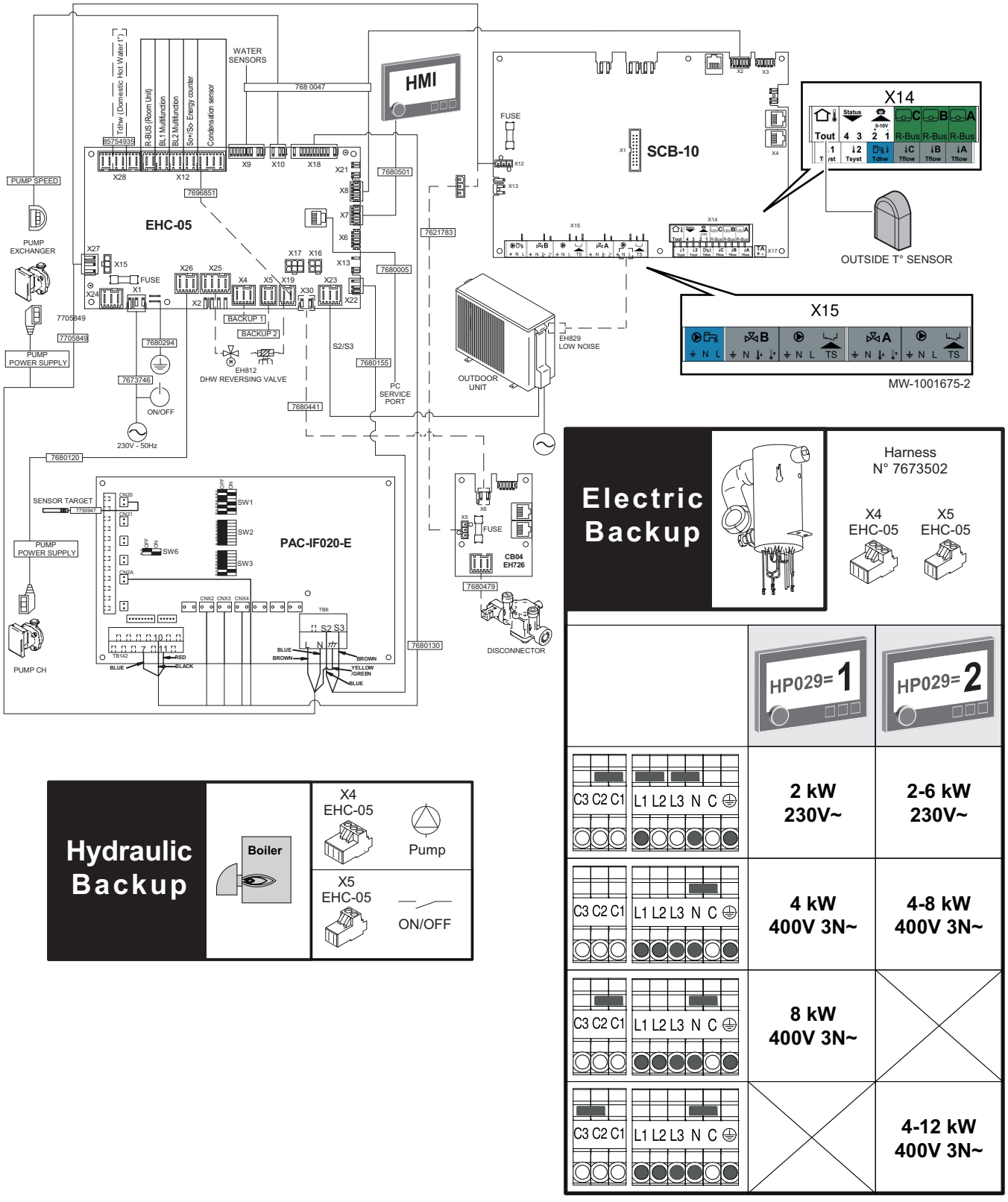
1 Three-way valve circuit return (optional) - G1"
2 Three-way valve circuit flow (optional) - G1"
3 Direct circuit return - G1"
4 Direct circuit flow - G1"
5 Return from outdoor unit - G1"
6 Flow to the outdoor unit - G1"

Fig.7 With back-up boiler connection



1 Three-way valve circuit return (optional) - G1"
2 Three-way valve circuit flow (optional) - G1"
3 Direct circuit return - G1"
4 Direct circuit flow - G1"
5 Return to the back-up boiler - G1”
6 Flow to the back-up boiler - G1”
7 Return from outdoor unit - G1"
8 Flow to the outdoor unit - G1"

3.4 Electrical diagram



Tab.16 Electrical diagram legend

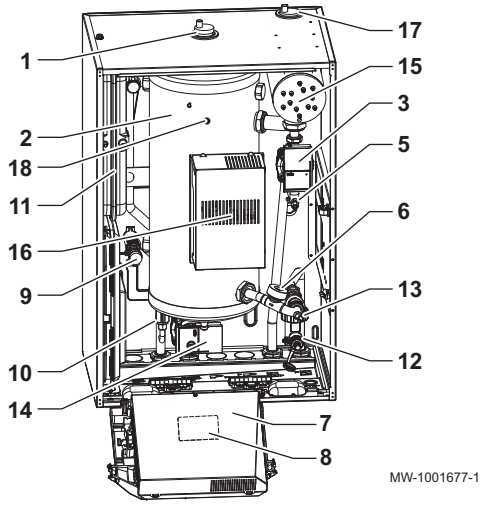
230V – 50Hz	Main power supply for the indoor unit
BACKUP 1	• Hydraulic version: Hydraulic back-up pump • Electrical version: Electrical back-up - stage 1
BACKUP 2	• Hydraulic version: Hydraulic back-up ON/OFF contact • Electrical version: Electrical back-up - stage 2
BL1 Multifonction	BL1 multifunction input

BL2 Multifonction	BL2 multifunction input
Boiler	Boiler
CB04	Automatic filling kit
Condensation Sensor	Condensation sensor
DISCONNECTOR	Disconnector
DHW REVERSING VALVE	Heating/domestic hot water reversing valve
EHC–05	Heat pump control system central unit PCB
Electric Backup	Electrical back-up
FUSE	Fuse
Harness	Harness
HMI	User interface
HP029	Backup type
HP029=1	1 Electrical Stage
HP029=2	2 Electrical Stages
Hydraulic Backup	Hydraulic back-up
LOW NOISE	Optional connection cable for Silent mode
ON/OFF	On/Off
OUTDOOR UNIT	Outdoor unit
OUTSIDE T° SENSOR	Outdoor temperature sensor
PAC-IF-020–E	PCB (interface with the outdoor unit)
PC SERVICE PORT	Service Tool connector
Pump	Circulating pump
PUMP CH	Direct heating circuit pump
PUMP EXCHANGER	Heat pump circulating pump
PUMP POWER SUPPLY	Heat pump circulating pump power supply
PUMP SPEED	Speed control signal for the heat pump circulating pump
R-BUS (Room unit)	SMART TC° connected room thermostat, on/off thermostat or OpenTherm thermostat of the **CIRCA0** direct zone
S2 S3	Bus for communicating with the outdoor unit
SCB-10	PCB for controlling the additional heating and domestic hot water circuits
SENSOR TARGET	Water temperature sensor on the plate heat exchanger outlet
So+/So- Energy counter	Electrical energy meter
Tdhw (Domestic Hot Water t°)	Domestic hot water temperature sensor
WATER SENSORS	Temperature sensors

4 Description of the product

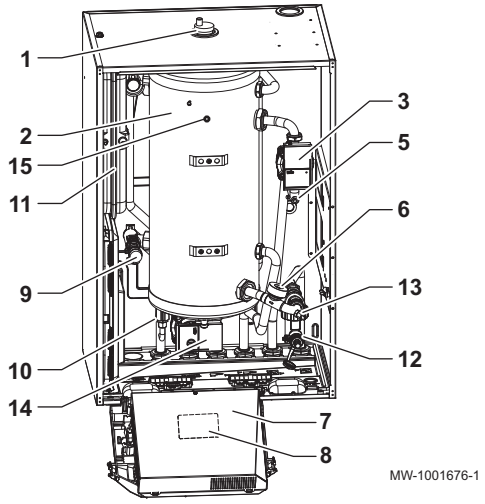
4.1 Main components

Fig.8 With electrical back-up



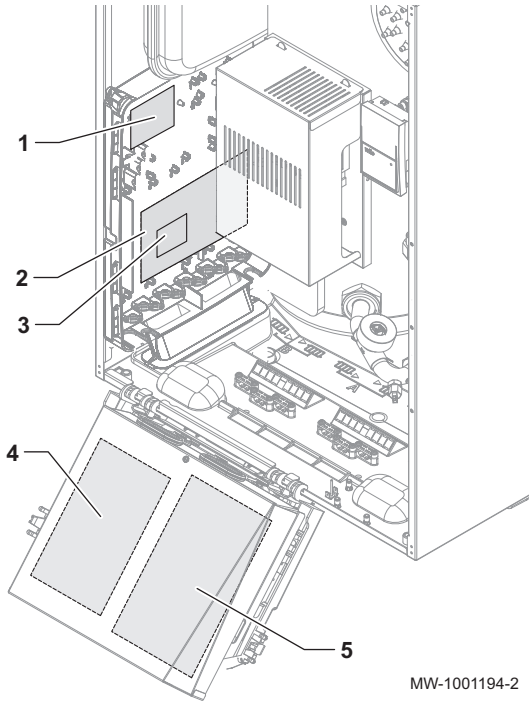
1 Automatic air vent
2 Low-loss header
3 Heat pump circulating pump
5 Heat pump flow temperature sensor (PT1000)
6 Flow meter
7 Switching control panel unit
8 Electrical diagram
9 Safety valve
10 Electronic pressure gauge
11 Expansion vessel
12 Filter
13 Heat pump return temperature sensor (PT1000)
14 Heating circulating pump
15 Electric preheater
16 PCB for controlling the electric preheater
17 Automatic air vent
18 Heating flow temperature sensor

Fig.9 With hydraulic back-up



1 Automatic air vent
2 Low-loss header
3 Heat pump circulating pump
5 Heat pump flow temperature sensor (PT1000)
6 Flow meter
7 Switching control panel unit
8 Electrical diagram
9 Safety valve
10 Electronic pressure gauge
11 Expansion vessel
12 Filter
13 Heat pump return temperature sensor (PT1000)
14 Heating circulating pump
15 Heating flow temperature sensor

Fig.10 Position of the PCBs



1 CB04 PCB (option): automatic filling kit
2 SCB-10 control system PCB: management of circuits A1, B1 and domestic hot water circuit DHW1
3 AD249 PCB (option): management of heat circuit C1 and auxiliary circuit AUX1
4 EHC–05 central unit PCB: control system for the heat pump, heating circuit A0 and domestic hot water circuit DHW
5 PAC-IF-020–E PCB: PCB for interface with the outdoor unit

5 Installation

5.1 Installation regulations

Warning
The components used for the connection to the cold water supply must comply with the prevailing standards and regulations in the country concerned.

Pursuant to Article L. 113-3 of the French Consumer Code, the installation of equipment must be done by a certified operator whenever the refrigerant load is in excess of two kilograms or when a refrigerant connection is necessary (the case with split systems, even when fitted with a quick coupling device).

Regulations for France: residential buildings

- Standard DTU 65–16: Installation of heat pumps
- Standard DTU 65-17: Hot water radiator heating system
- Standard DTU 65-14: Installation of hot water underfloor heating.
- Standard DTU 65-11: Safety devices for central heating installations relating to the building
- Set of recommendations: Hot water central heating systems - Book 3114 from the Centre Scientifique et Technique du Bâtiment (Scientific and Technical Centre for Building).
- Local Sanitary Regulations (RSD)
- For appliances connected to the electricity network: Standard NF C 15-100 - Low voltage electrical installations.

Regulations for France: establishments open to the general public

- Safety regulations against fire and panic in establishments open to the general public: Articles CH - Heating, ventilation, refrigeration, air conditioning and production of steam and domestic hot water.
- Instructions specific to each type of establishment open to the general public (hospitals, stores, etc.).

5.2 Standard delivery

Tab.17

Package	Contents
Outdoor unit	• An outdoor unit • A manual
Indoor unit	• An indoor unit • An outdoor temperature sensor • An accessories bag containing: - hoses, - gaskets - etc. • An installation, user and service manual • An outdoor unit connection manual • A user manual for the outdoor unit spare parts • Terms of warranty • A quick user guide • A list of important points for installation and commissioning

5.3 Putting the outdoor unit in place: precautions

Caution
The models concerned are as follows:

- MONO AWHP 11 MR

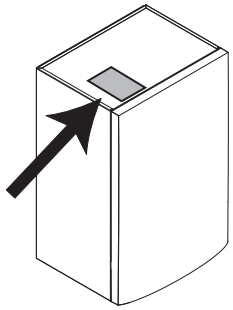
Remove the compressor's transport supports.

Failure to perform this operation may result in an increase in the appliance's operating noise.

See
Outdoor unit manual

5.4 Data plate on the indoor module

Fig.11



MW-1001195-1

The data plates identify the product and provide the following important information.

The data plates must be accessible at all times.

5.5 Positioning the indoor unit

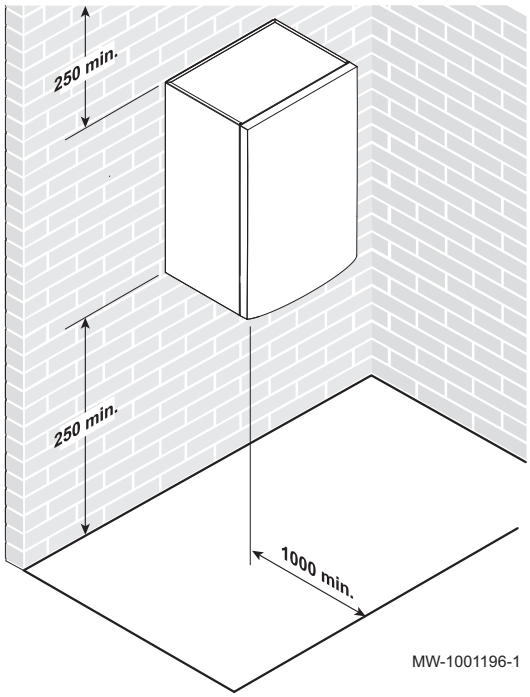
5.5.1 Selecting the location

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

1. Decide on the ideal location, bearing in mind the space the indoor unit requires, as well as any legal requirements.
2. Install the indoor unit as close as possible to the draw-off points in order to minimise energy losses through the pipes.

5.5.2 Allowing sufficient space for the indoor module

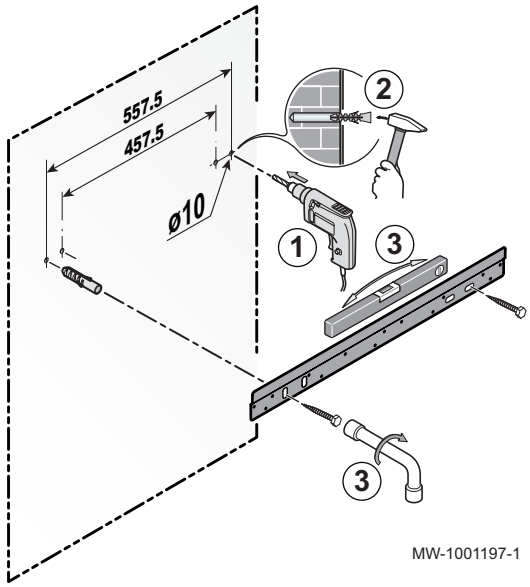
Fig.12



Allow sufficient space around the heat pump indoor module to ensure adequate access and facilitate maintenance.

5.5.3 Fitting the assembly rail

Fig.13



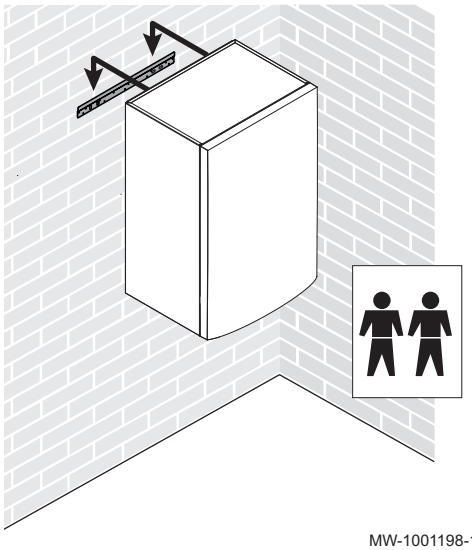
1. Drill 2 holes with a diameter of 6 mm.

Important
Extra holes are provided in case one or other of the standard locating holes prevents the correct location of the plug.

2. Put the plugs in place.
3. Fix the mounting rail to the wall using the hexagonal head screws provided for this purpose. Set the level using a spirit level.

5.5.4 Mounting the module on the wall

Fig.14



MW-1001198-1

1. Position the indoor module above the mounting rail so that it rests snugly against it.
2. Gently lower the indoor module.

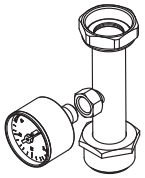
5.6 Hydraulic connections

5.6.1 List of operations to be performed before connection

Calculate the volume of water in the heating circuit and check the volume of the appropriate expansion vessel using the DTU 65–11. Use the maximum temperature of the circuit in heating mode or, failing that, a minimum of 55 °C. If the volume of the integrated expansion vessel (10 l) is not sufficient, add an external vessel to the heating circuit.

Connect the heating return for the indoor module. Place the pressure gauge and its pipe on the heating return. The pressure gauge is supplied with the indoor module.

Fig.15 Location of the pressure gauge



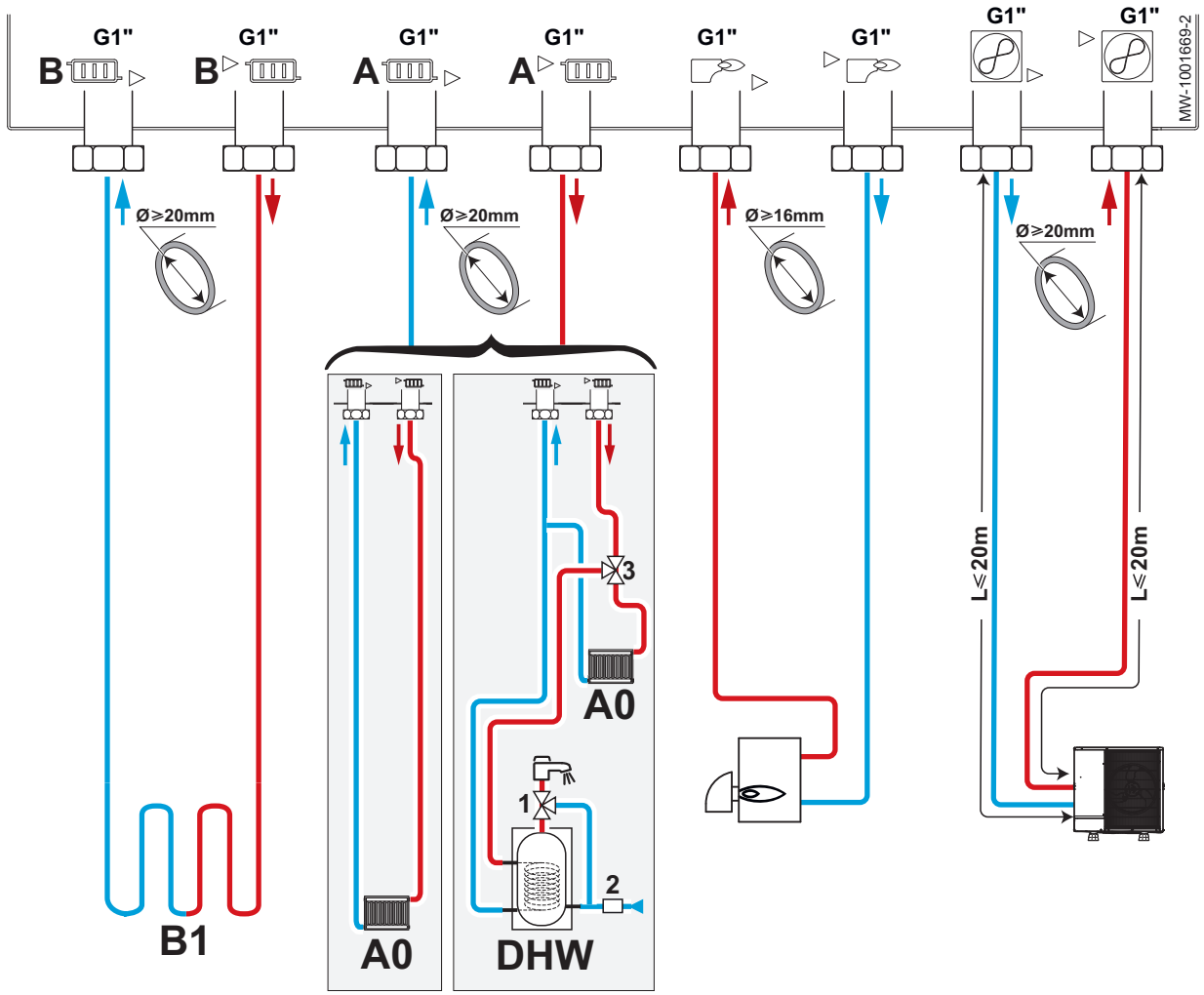
MW-1001678-1

Connect the heating flow for the indoor unit.

For more information, see
Volume of the expansion vessel, page 30

5.6.2 Possible connections: 1 or 2 circuits

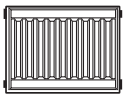
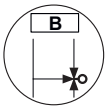
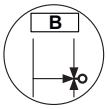
Fig.16



1 Thermostatic mixing valve
2 Safety unit
3 Heating/domestic hot water reversing valve

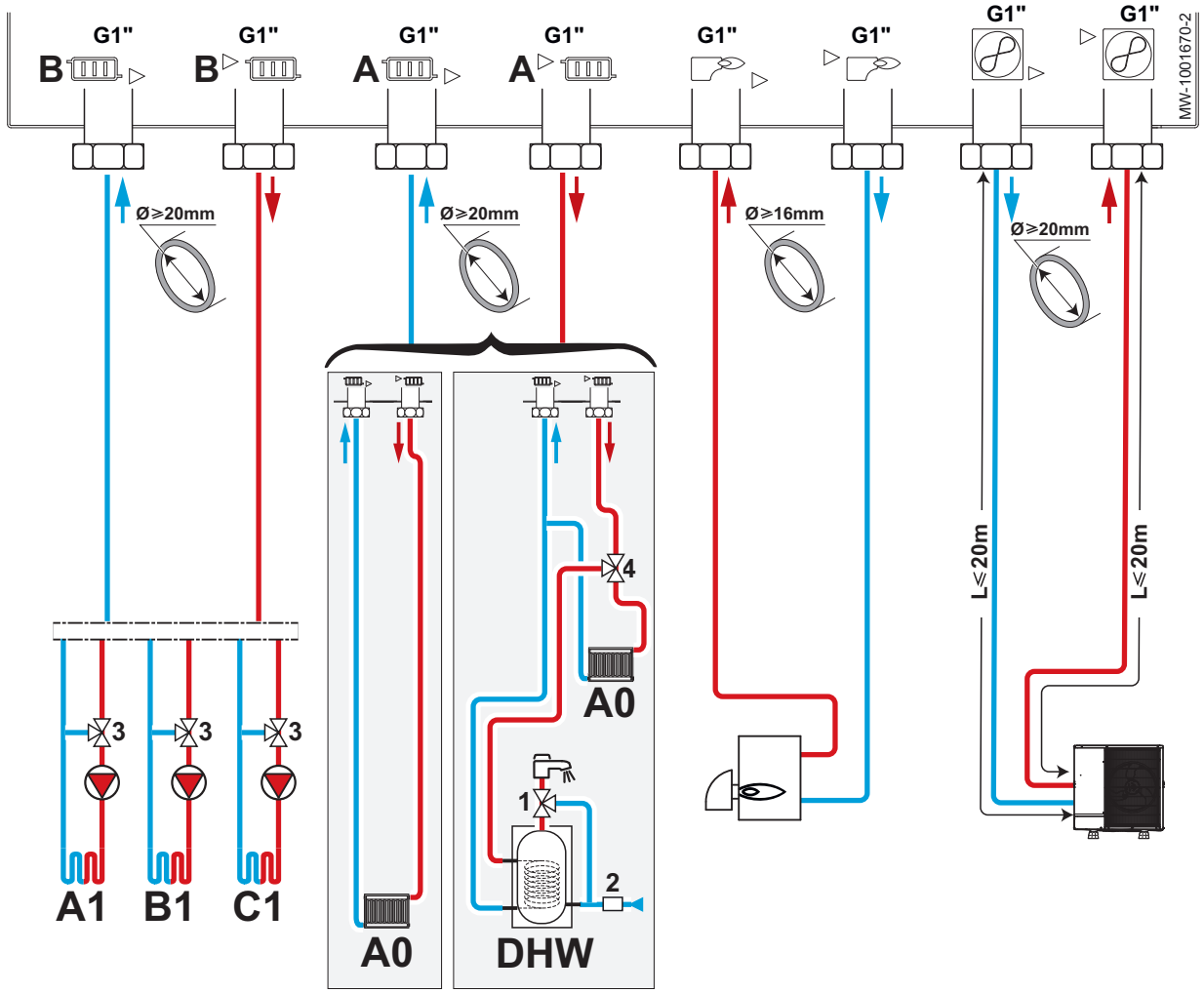
Tab.18

Hydraulic outlet	Circuit	Connections to be made
A	A0 Direct zone: 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 the HK150 differential valve if thermostatic valves are present on the radiator circuit.
	A0 Direct zone: underfloor heating	• Install an automatic air vent at the highest point on the heating circuit. • Install two isolation valves. • Install the safety thermostat wiring kit for direct underfloor heating HA255.
	DHW Domestic hot water production	• Install a domestic water thermostatic mixing valve (not supplied) on the domestic hot water tank outlet (mandatory for France). • Install the kit comprising the heating/DHW reversing valve + domestic hot water sensor EH812. • Install a safety unit on the domestic water inlet.

<table>
<tr><th>Hydraulic outlet</th><th>Circuit</th><th>Connections to be made</th></tr>
<tr><td rowspan="2">B
  </td><td>B1
 
Mixed circuit: radiators
  </td><td>Caution
Connect the circuit requiring the highest temperature on circuit A0 and the circuit requiring the lowest temperature on circuit B1.
Set the maximum temperature depending on the emitter.
• Install an automatic air vent at the highest point on the heating circuit.
• Install two isolation valves.
• Install the internal three-way valve kit (with motor) and the flow sensor for the mixing valve HK21.</td></tr>
<tr><td>B1
 
Mixed circuit: underfloor heating
  </td><td>Caution
Connect the circuit requiring the highest temperature on circuit A0 and the circuit requiring the lowest temperature on circuit B1.
Set the maximum temperature depending on the emitter.
• Install an automatic air vent at the highest point on the heating circuit.
• Install two isolation valves.</td></tr>
<tr><td> 
Back-up boiler</td><td></td><td>Caution
To ensure optimal operation of the back-up, the flow rate of the boiler must always be higher than that of the installation.
• Install the $^{3}/_{4}$" non-return valve and the $^{3}/_{4}$" nipple on the boiler return (not provided).
• Install a filter on the boiler outlet.</td></tr>
<tr><td> 
Outdoor unit</td><td></td><td>• Do not exceed the maximum authorised pipe lengths.</td></tr>
</table>

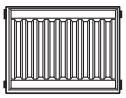
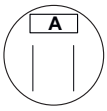
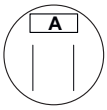
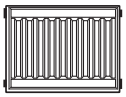
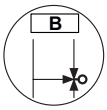
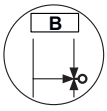
5.6.3 Connections possible up to 4 circuits without buffer tank

Fig.17



1 Thermostatic mixing valve
2 Safety unit
3 Mixing valve
4 Heating/domestic hot water reversing valve

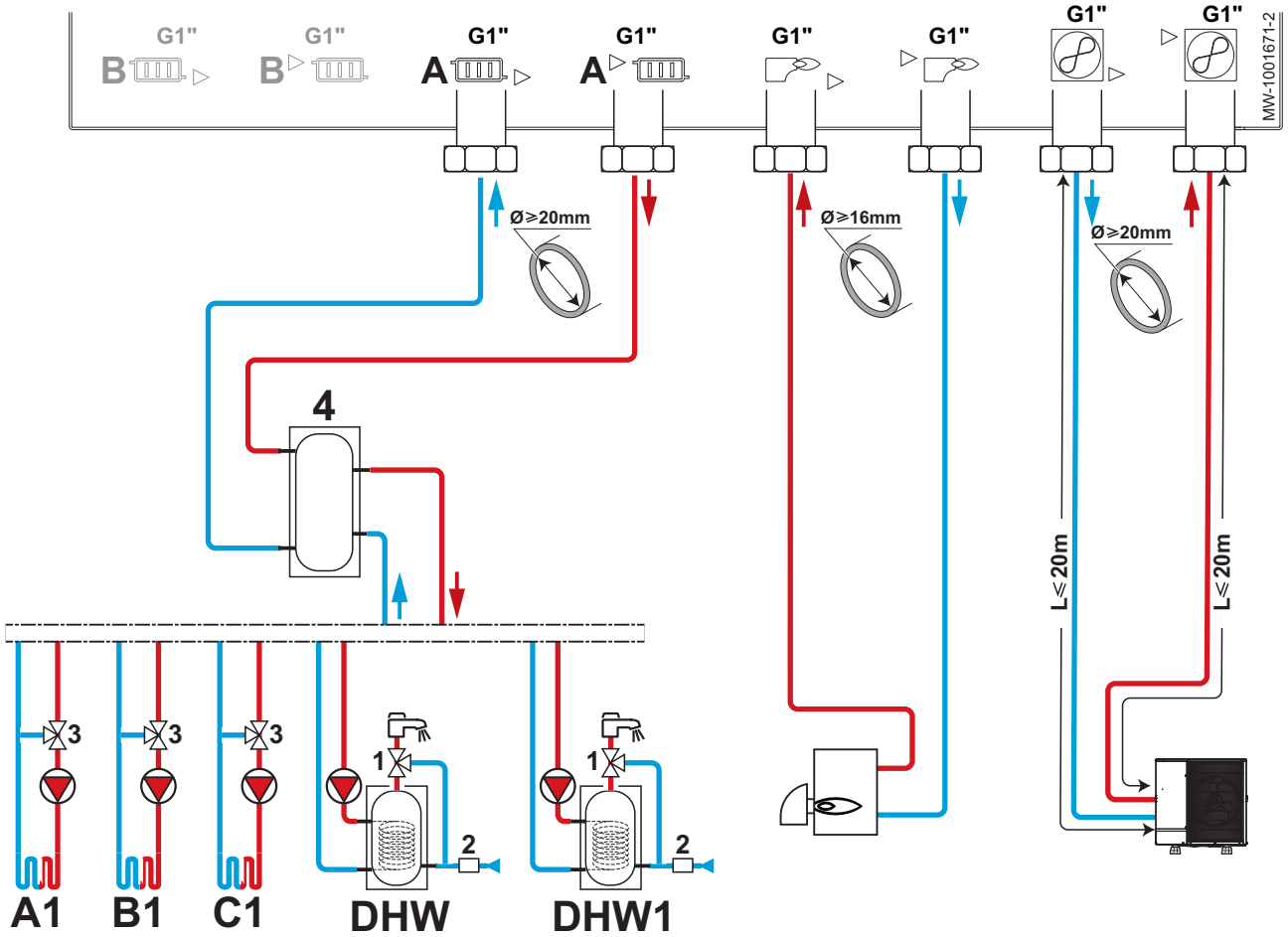
Tab.19

Hydraulic outlet	Circuit	Connections to be made
A 	A0  Direct zone: 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 the HK150 differential valve if thermostatic valves are present on the radiator circuit.
	A0  Direct zone: underfloor heating 	• Install an automatic air vent at the highest point on the heating circuit. • Install two isolation valves. • Install the safety thermostat wiring kit for direct underfloor heating HA255.
	DHW  Domestic hot water production	• Install a domestic water thermostatic mixing valve (not supplied) on the domestic hot water tank outlet (mandatory for France). • Install the kit comprising the heating/DHW reversing valve + domestic hot water sensor EH812. • Install a safety unit on the domestic water inlet.
B 	A1, B1, C1  Mixed circuit: radiators 	**For each circuit** **Caution** Connect the circuit requiring the highest temperature on the A0 circuit and the circuit requiring the lowest temperature on the A1, B1 and C1 circuits. Set the maximum temperature depending on the emitter. • Install an automatic air vent at the highest point on the heating circuit. • Install two isolation valves. • Install the internal pipe adapter kit for installing an external three-way valve HK22. • Install the hydraulic module with pump for a mixing zone EA144. **For the C1 circuit only:** • Install the PCB + sensor for the mixing valve AD249. • Connect the flow sensor to "Tflow" on the SCB-10 PCB.
	A1, B1, C1  Mixed circuit: underfloor heating 	**For each circuit** **Caution** Connect the circuit requiring the highest temperature on circuit A0 and the circuit requiring the lowest temperature on circuit B1. Set the maximum temperature depending on the emitter. • Install an automatic air vent at the highest point on the heating circuit. • Install two isolation valves. • Install the internal pipe adapter kit for installing an external three-way valve HK22. • Install the hydraulic module with pump for a mixing zone EA144. **For the C1 circuit only:** Install the PCB + sensor for the mixing valve AD249. Connect the flow sensor to "Tflow" on the SCB-10 PCB.

Hydraulic outlet	Circuit	Connections to be made
Back-up boiler		**Caution** To ensure optimal operation of the back-up, the flow rate of the boiler must always be higher than that of the installation. • Install the $^{3}/_{4}$" non-return valve and the $^{3}/_{4}$" nipple on the boiler return (not provided). • Install a filter on the boiler outlet.
Outdoor unit		• Do not exceed the maximum authorised pipe lengths.

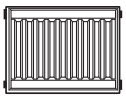
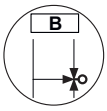
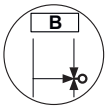
5.6.4 Connections possible up to 4 circuits with buffer tank

Fig.18



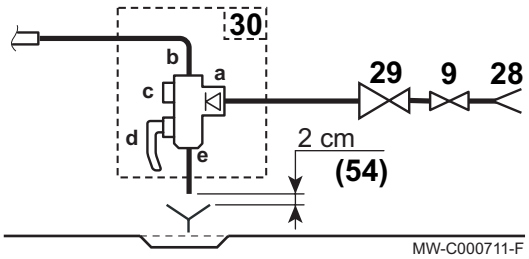
1 Thermostatic mixing valve
2 Safety unit
3 Mixing valve
4 Buffer tank

Tab.20

Hydraulic outlet	Circuit	Connections to be made
A  + Buffer tank	A1, B1, C1  Mixed circuit: radiators 	**For each circuit** • Install an automatic air vent at the highest point on the heating circuit. • Install two isolation valves. • Install the internal pipe adapter kit for installing an external three-way valve HK22. • Install the hydraulic module with pump for a mixing zone EA144. **For the C1 circuit only:** • Install the PCB + sensor for the mixing valve AD249. • Connect the flow sensor to "Tflow" on the SCB-10 PCB.
	A1, B1, C1  Mixed circuit: underfloor heating 	**For each circuit** **Caution** Connect the circuit requiring the highest temperature on circuit A0 and the circuit requiring the lowest temperature on circuit B1. Set the maximum temperature depending on the emitter. • Install an automatic air vent at the highest point on the heating circuit. • Install two isolation valves. • Install the hydraulic module with pump for a mixing zone EA144. **For the C1 circuit only:** • Install the PCB + sensor for the mixing valve AD249. • Connect the flow sensor to "Tflow" on the SCB-10 PCB.
	DHW, DHW1  Domestic hot water production	• Install a domestic water thermostatic mixing valve (not supplied) on the domestic hot water tank outlet (mandatory for France). • Install the kit comprising the heating/DHW reversing valve + domestic hot water sensor EH812. • Install a safety unit on the domestic water inlet. • Install a pump (not supplied).
 Back-up boiler		**Caution** To ensure optimal operation of the back-up, the flow rate of the boiler must always be higher than that of the installation. • Install the $^{3}/_{4}$" non-return valve and the $^{3}/_{4}$" nipple on the boiler return (not provided). • Install a filter on the boiler outlet.
 Outdoor unit		• Do not exceed the maximum authorised pipe lengths.

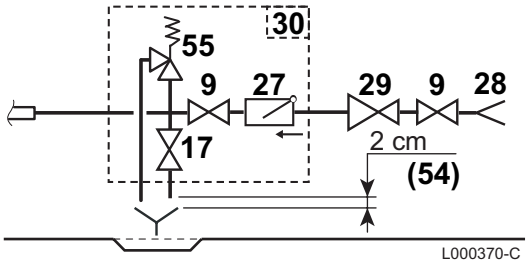
5.6.5 Safety unit (only for France)

Fig.19



9 Isolation valve
28 Domestic cold water inlet
29 Pressure reducer
30 Safety unit
54 End of the discharge pipe free and visible 2 to 4 cm above the flow funnel
a Cold water inlet with an integrated non-return valve
b Connection at the cold water inlet of the DHW tank
c Stop cock
d Safety valve 0.7 MPa (7 bar)
e Drain opening

Fig.20



5.6.6 Safety unit (except France)

9 Isolation valve
17 Drain valve
27 Non-return valve
28 Domestic cold water inlet
29 Pressure reducer
30 Safety unit
54 End of the discharge pipe free and visible 2 to 4 cm above the flow funnel
55 Safety valve 0.7 MPa (7 bar)

5.6.7 Special precautions for connecting the heating circuit

Caution
Hold the connection at the indoor unit end with a spanner to avoid twisting the pipe inside the appliance.

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 differential valve between the indoor unit and the heating circuit.
- Leave one heating circuit without a thermostatic valve and/or without a solenoid valve.
- Fit drainage valves between the indoor unit and the heating circuit.

- During connection, it is imperative that the standards and corresponding local directives be respected.
- 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 (polyethylene connection pipes or flexible hose), we recommend components with an anti-oxygen barrier.
  Germany: anti-oxygen barrier according to the DIN 4726 standard.

■ Volume of the expansion vessel

Tab.21 Underfloor heating type installation: maximum temperature of 40 °C

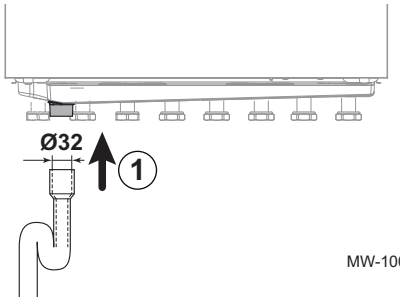
Static height	Expansion vessel inflation valve pressure	Volume of the expansion vessel depending on the volume of the installation (in litres)							
		75	100	125	150	175	200	225	250
5 m	1 bar	7	7	8	8	8	9	9	9
10 m	1.3 bar	7	8	8	9	9	10	10	11
15 m	1.8 bar	10	10	11	11	12	13	13	14

Tab.22 Radiator type installation: maximum temperature of 70 °C

Static height	Expansion vessel inflation valve pressure	Volume of the expansion vessel depending on the volume of the installation (in litres)							
		75	100	125	150	175	200	225	250
5 m	1 bar	8	9	10	11	12	13	14	15
10 m	1.3 bar	9	11	12	13	14	15	16	17
15 m	1.8 bar	12	13	15	16	18	19	21	22

5.6.8 Connecting the safety valve drain pipe

Fig.21



1. Connect the outlet pipe to the waste water discharge.

Caution
The discharge pipe in the safety valve or unit must not be blocked.

5.6.9 Checking the heating circuit

1. Check 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 contains adequate water. If necessary, top up with more water.
4. Check that the water connections are properly sealed.
5. Check that the heating circuit has been correctly purged.
6. Check that the filters are not clogged. Clean them if necessary.
7. Check that the valves and thermostatic radiator valves are open.
8. Check that all settings and safety devices are working correctly.

5.6.10 Filling the installation

■ Cleaning and flushing the installation

– Flushing procedure

Caution
To prevent impurities getting into the expansion vessel, it is recommended that the expansion vessel is separated during the flushing and filling phases.

Flush the installation to evacuate any particles that may damage certain devices such as safety valves, pumps, valves, etc.

– Flushing new installations and installations less than 6 months old

Before filling the heating installation, it is essential to remove any debris (copper, caulking, soldering flux) from the installation.

1. Clean the installation with a powerful universal cleaner.
2. Flush the installation with at least 3 times the volume of water contained in the central heating system (until the water runs clear and shows no impurities).

– Flushing an existing installation

Before filling the heating installation, it is essential to remove any sludge deposits which have accumulated in the heating circuit over the years.

1. Remove any sludge from the installation.
2. Flush the installation with at least 3 times the volume of water contained in the central heating system (until the water runs clear and shows no impurities).

■ Filling the heating circuit

Fill the heating installation once it has been cleaned and flushed.

Important
Do not use glycol. The use of glycol in the heating circuit invalidates the warranty.

1. Fill the installation until a pressure of 1.5 to 2 bars is reached. Read the pressure on the mechanical pressure gauge.

Important
The mechanical pressure gauge located on the heating return is only used when supplying the indoor unit with water. After the heat pump is switched on, the pressure will be shown on the display.

2. Check for any water leaks.
3. Completely vent the indoor unit and the installation for optimum running.

– Treatment of the heating water

In many cases, the heat pump and the heating system can be filled with mains water, without treating the water.

Caution
Do not add any chemical products to the heating water without first consulting a water treatment specialist. For example: antifreeze, water softeners, products to increase or reduce the pH value, chemical additives and/or inhibitors. These may cause faults in the heat pump and damage the heat exchanger.

The water in the installation must comply with following characteristics:

Tab.23 Heating water specifications

Specifications	Unit	Total system output
		≤ 70 kW
Hydrogen potential (pH)		7.5 - 9
Conductivity at 25°C	µS/cm	10 to 500
Chlorides	mg/litre	≤ 50
Other components	mg/litre	< 1
Total water hardness	°f	7 - 15
	°dH	4 - 8.5
	mmol/l	0.7 - 1.5

If water treatment proves necessary, De Dietrich recommends the following manufacturers:

- Cillit
- Climalife
- Fernox
- Permo
- Sentinel

5.7 Electrical connections

5.7.1 Recommendations

Warning
- Only qualified professionals may carry out electrical connections, always with the power off.
- Earth the appliance before making any electrical connections.

- Make the electrical connections on the appliance in accordance with the requirements of the prevailing standards,
- Make the electrical connections on the appliance in accordance with the information given in the electrical schematics delivered with the appliance,

- Make the electrical connections on the appliance in accordance with the recommendations of these instructions.

Important
Earthing must comply with the prevailing installation standards.

- France: NFC 15–100.

Caution

- The installation must be fitted with a main switch.

Caution
Power the appliance via a circuit that includes an omnipolar switch with contact opening distance of 3 mm or more.

- Single phase models: 230 V (+6%/-10%) 50 Hz

When making electrical connections to the mains, respect the following polarities.

Tab.24

Colour of the wire	Polarity
Brown wire	Live
Blue wire	Neutral
Green/yellow wire	Earth

Caution
Secure the cable with the cable clamp provided. Be careful that you do not invert any of the wires.

5.7.2 Recommended cable cross section

The electrical characteristics of the mains power supply available must correspond to the values given on the data plate.

The cable will be carefully chosen according to the following information:

- Maximum intensity of the outdoor unit. See table below.
- Distance of the appliance from the original power supply.
- Upstream protection.
- Neutral operating conditions.

Important
The maximum permissible current on the power supply cable of the indoor unit must not exceed 6 A.

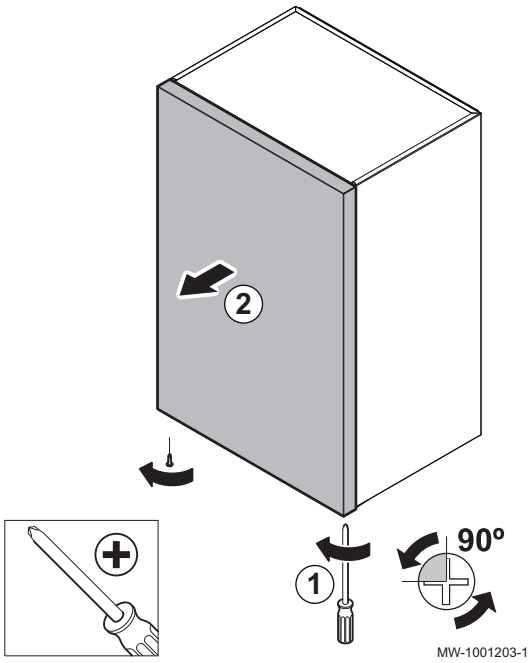
Tab.25

Appliance	Power supply type	Cable cross section (mm^2)	Circuit breaker curve C (A)	Maximum amperage (A)
Indoor unit	Single phase	Cable provided (3 x 1.5)	10	-
Electrical back-up	Single phase	3 x 6	32	-
Electrical back-up	Three phase	5 x 2.5	16	-
BUS cable(1)	-	2 x 0.75	-	-
MONO AWHP 6 MR	Single phase	3 x 2.5	16	13
MONO AWHP 8 MR	Single phase	3 x 4	25	17
MONO AWHP 11 MR	Single phase	3 x 6	32	29.5

(1) Connection cable linking the outdoor unit to the indoor unit

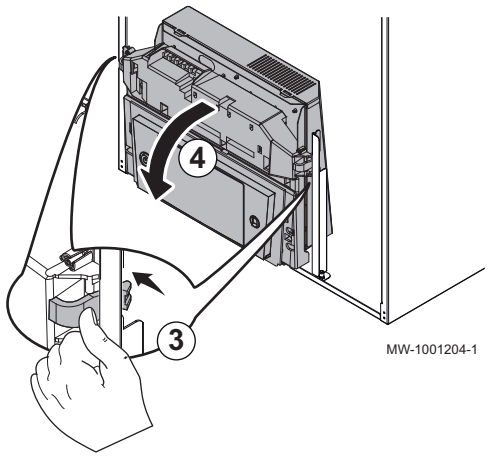
5.7.3 Accessing the PCBs

Fig.22



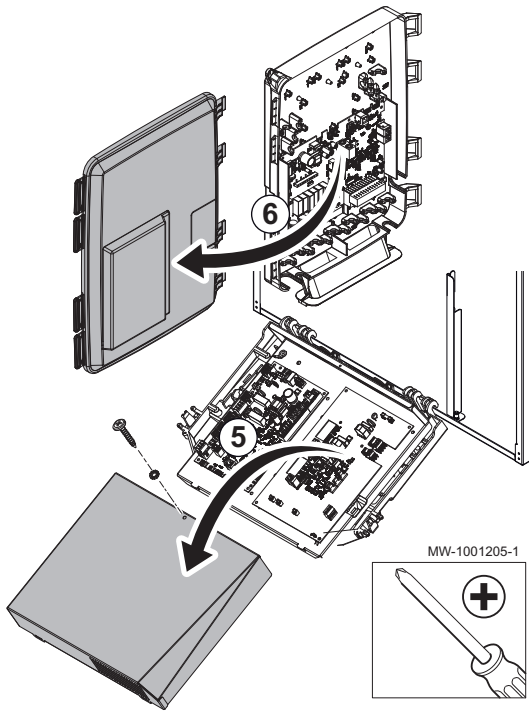
1. Unscrew the two screws under the front panel by a quarter turn.
2. Remove the front panel.

Fig.23



3. Open the holding clips located on the sides.
4. Tilt the control panel forwards.

Fig.24

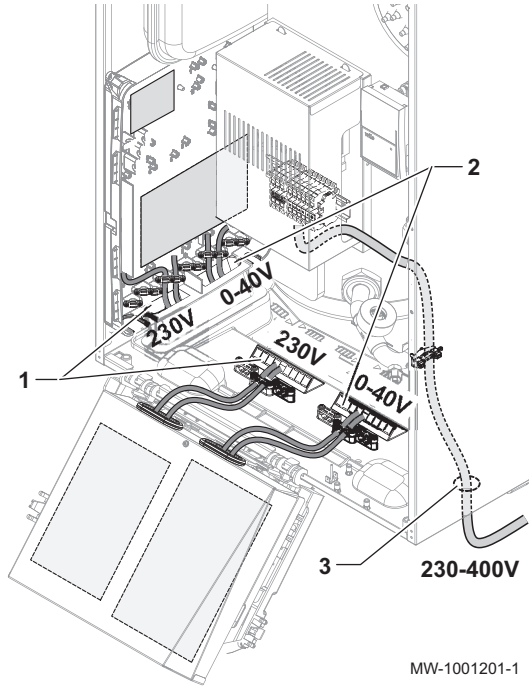


5. Remove the screw and the control panel cover.
6. Unclip the PCB cover.

5.7.4 Routing the cables

Caution
Separate the sensor cables from the 230/400 V circuit cables. Secure all the cables exiting the indoor unit using the traction arrester devices supplied in the accessories bag.

Fig.25 With immersion heater



1 230 V~ circuit cables
2 0-40 V safety extra-low voltage cables
3 230 - 400 V electrical back-up power supply cables - Only for models with an immersion heater

5.7.5 Description of the connection terminal blocks

■ Possible connections

Several heating zones can be connected to the EHC–05 and SCB-10 PCBs. The options can be increased with the optional AD249 PCB.

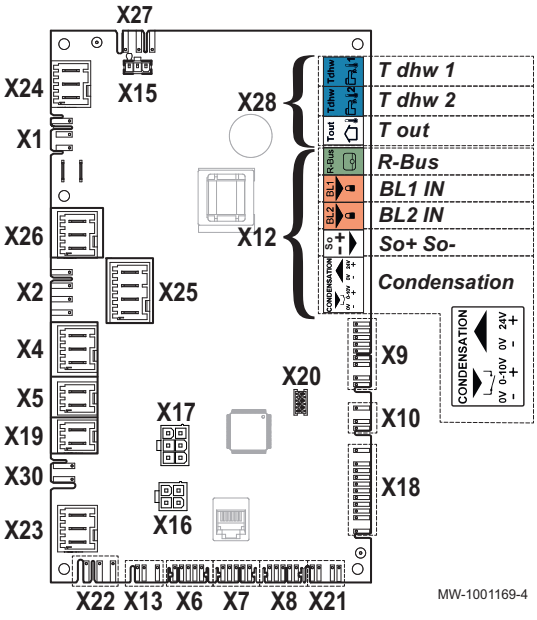
The connections for the sensors or pumps of each zone are on each PCB.

Tab.26

Circuits	CIRCA0 (EHC–05)	DHW (EHC–05)	CIRCA1 (SCB-10)	CIRCB1 (SCB-10)	CIRCC1 (with AD249 option)	CIR-CAUX1 (with AD249 option)	DHW1 (SCB-10)
Convection fan	X		X	X	X		
Underfloor heating	X (Use the direct zone underfloor heating option)		X	X	X		
Radiator	X		X	X	X		
365 day radiator	X		X	X	X		
Continuous heating	X		X	X	X		
Timer programme			X	X	X	X	X
Swimming pool			X	X	X		
Domestic hot water production		X	X	X	X	X	X
Domestic hot water production, electric only		X	X	X	X		
Stratified tank (2 sensors)		X					X
Buffer tank used as a low-loss header	X	X	X	X	X	X	X
Buffer tank for storage				X			
Deactivation	X	X	X	X	X	X	X

■ Description of the EHC–05 PCB

Fig.26



X1 Main power supply for the 230 V - 50 Hz indoor module
X4
- Hydraulic version: Hydraulic back-up pump
- Electrical version: Electrical back-up - stage 1

X5
- Hydraulic version: Hydraulic back-up ON/OFF contact
- Electrical version: Electrical back-up - stage 2

X7 Local communication bus to the SCB-10 PCB
X8 Control panel display for the indoor module
X9 Sensors
X10 Speed control signal for the heat pump circulating pump
X12 Options

- R-Bus: SMART TC° connected room thermostat, on/off thermostat, modulating thermostat or OpenTherm thermostat for the **CIRCA0** direct zone
- **BL1** / **BL2**: multifunction inputs
- So+/So- : Electric energy meter
- Condensation: condensation sensor

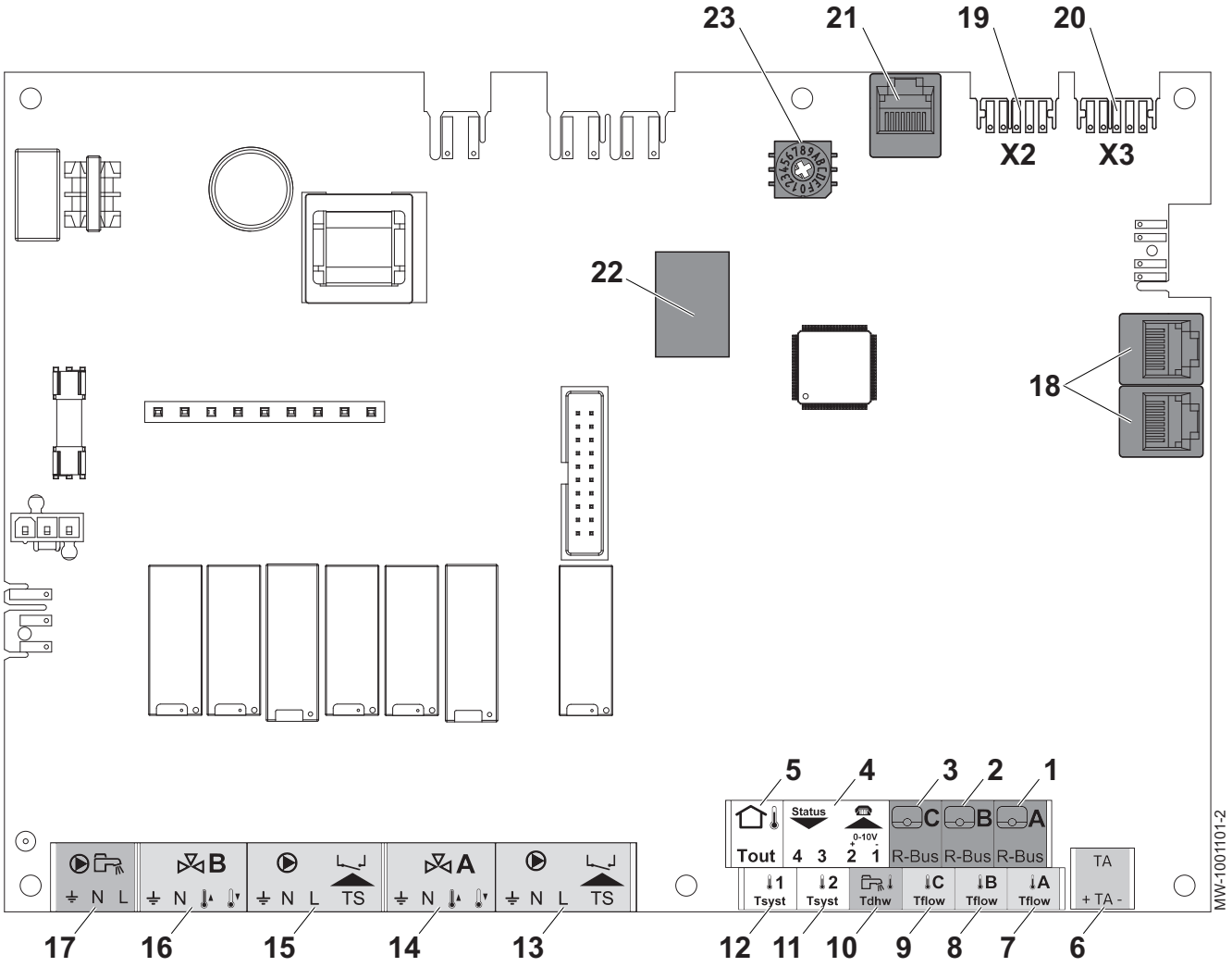
X15 Not used
X16 Not used
X17 Not used
X18 Input/output for the PAC-IF-020–E PCB
X19 Control signal for the immersion heater on the domestic hot water tank
X22 Bus for communication with the outdoor unit PAC-IF-020–E PCB
X23 Bus for communicating with the outdoor unit
X24 Not used
X25 Heating reversing valve: **CIRCA0** /Domestic hot water: **DHW**
X26 **CIRCA0** direct heating circuit pump
X27 Heat pump circulating pump power supply
X28 Temperature sensor:

- T dhw 1: Temperature sensor at the bottom of the **DHW** domestic hot water tank (optional)

- T dhw 2: Temperature sensor at the top of the **DHW** tank
- T out: not used

■ Description of the SCB-10 PCB

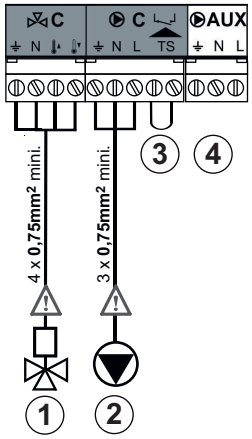
Fig.27



1 R-Bus: SMART TC° connected room thermostat, on/off thermostat, modulating thermostat or OpenTherm thermostat - **CIRCA1** circuit
2 R-Bus: SMART TC° connected room thermostat, on/off thermostat, modulating thermostat or OpenTherm thermostat - **CIRCB1** circuit
3 R-Bus: SMART TC° connected room thermostat, on/off thermostat, modulating thermostat or OpenTherm thermostat - **CIRCC1** circuit
4 Programmable and 0-10 V input
5 Outdoor temperature sensor
6 Impressed current anode
7 Flow sensor - **CIRCA1** circuit
8 Flow sensor - **CIRCB1** circuit
9 Flow sensor - **CIRCC1** circuit
10 Domestic hot water sensor on the **DHW1** second domestic hot water circuit
11 System sensor 2
12 System sensor 1
13 Pump and safety thermostat - **CIRCA1** circuit
14 Three-way valve - **CIRCA1** circuit
15 Pump and safety thermostat - **CIRCB1** circuit
16 Three-way valve - **CIRCB1** circuit
17 Domestic hot water tank pump when using a second domestic hot water circuit
18 Connectors for S-BUS cables used for cascade
19 L-BUS connection
20 L-BUS connection to EHC–05 PCB
21 Tool service connector
22 ConnectorsMod-BUS
23 Coding wheel, selects the generator number in the cascade

Description of the three-way valve and auxiliary circuit PCB AD249

Fig.28

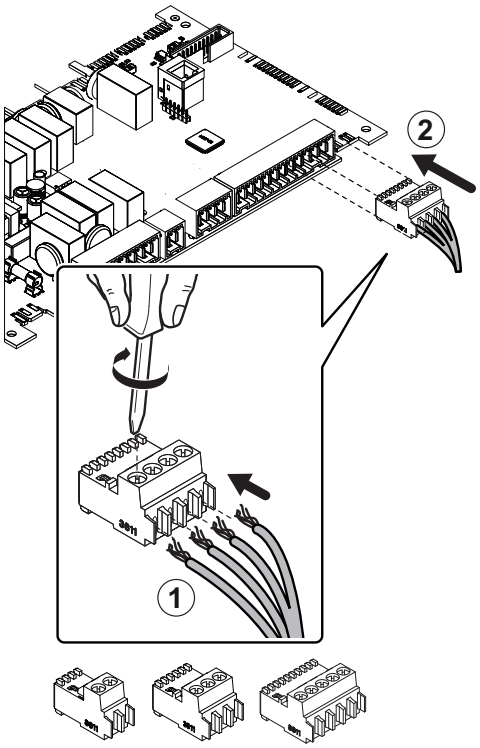


MW-1001681-1

1 **CIRCC1** three-way valve
2 **CIRCC1** circuit pump
3 **CIRCC1** safety thermostat. Factory fitted bridge
4 **CIRC AUX1** auxiliary pump

5.7.6 Connecting the cables to the PCBs

Fig.29



MW-6000148-2

Keyed connectors are present on different terminal blocks as standard. Use these to connect the cables to the PCBs If there are no connectors on the terminal block to be used, take the connector provided with the kit.

Coloured stickers are provided with certain accessories. Use these to mark each end of the cable with the same colour before passing the cables into the cable feed-throughs.

1. Insert and screw down the wires in the corresponding connector inputs.
2. Insert the connector into the corresponding terminal block.
3. Feed the cable into the cable duct and adjust the length of the cable accordingly.
4. Lock it in position with a cable clamp or a traction arrester device.

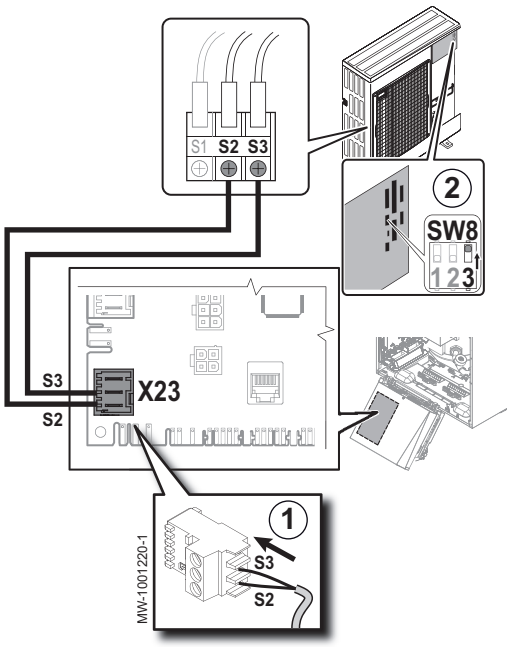
Caution
Danger of electric shock: the length of the conductors between the traction arrester device and the terminal blocks must be such that the active conductors are put under tension before the earth conductor.

5.7.7 Connecting the indoor module

1. Remove the front panel of the casing.
2. Fit the cable clamps and run the cables through the cable clamps.
3. Connect the power supply cable to the electric panel.
4. Connect the various components to the corresponding terminals on the indoor module.
5. Connect the electrical back-up.
6. Connect the hydraulic back-up.
7. Tighten the cable clamps.
8. Put the front panel back in place.

5.7.8 Connecting the outdoor unit bus

Fig.30



1. Connect the outdoor unit bus between the S2 and S3 terminals on the **X23** connector in the indoor unit's **EHC–05** central unit PCB.
2. Set the **SW8–3** switch on the outdoor unit PCB to **ON**.

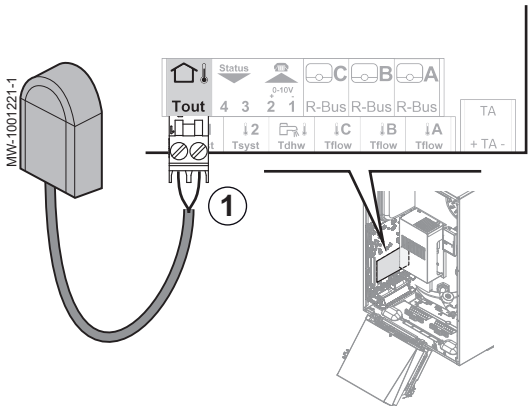
Danger
Do not connect anything to S1.

5.7.9 Connecting the outdoor temperature sensor

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

■ Connecting the outdoor temperature sensor

Fig.31

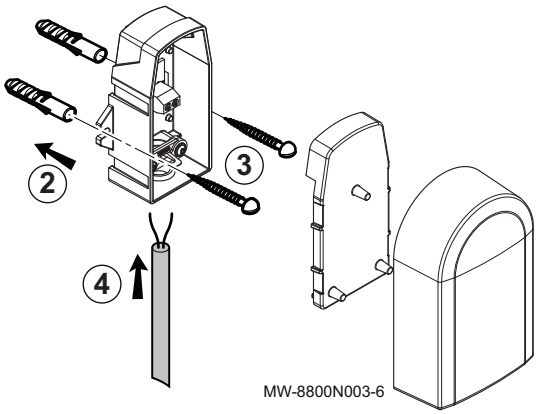


1. Connect the outdoor temperature sensor to the **T Out** input on the **SCB-10** PCB of the indoor module.

Important
Use a cable with a minimum cross-section of 2x0.35 mm^2 and a length of 30 m.

■ Fitting the outdoor sensor

Fig.32



Plugs diameter 4 mm/drill diameter 6 mm

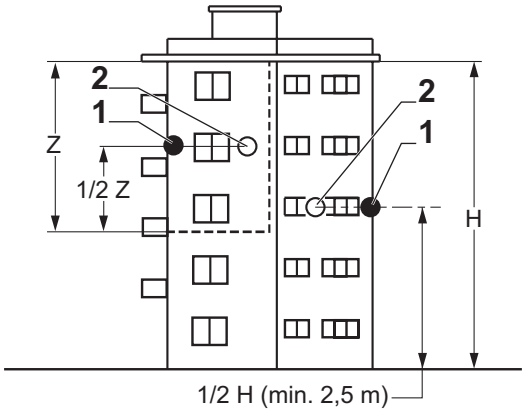
1. Choose a recommended location for the outdoor sensor.
2. Put the 2 plugs in place, delivered with the sensor.
3. Secure the sensor using the screws provided (diameter 4 mm).
4. Connect the cable to the outdoor temperature sensor.

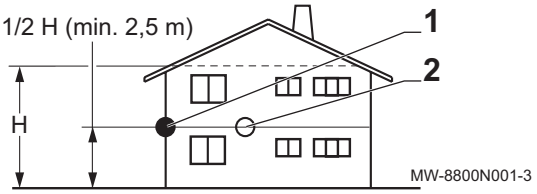
– Recommended positions

Place the outside sensor in a position that covers the following characteristics:

- On a façade of the area to be heated, on the north if possible.
- Half way up the wall of the area to be heated.
- Under the influence of changes in the weather.
- Protected from direct sunlight.
- Easy to access.

Fig.33





1 Optimum location
2 Possible position

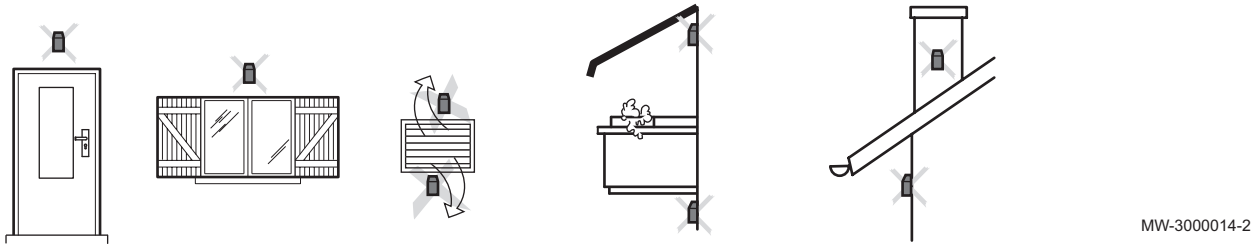
H Inhabited height controlled by the sensor
Z Inhabited area controlled by the sensor

– Positions to be avoided

Avoid placing the outside sensor in a position with the following characteristics:

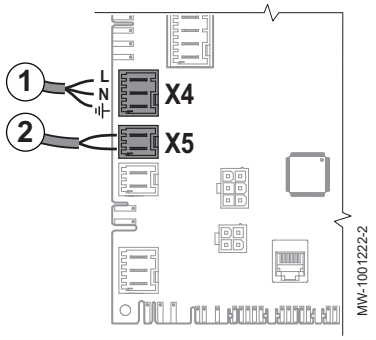
- Masked by part of the building (balcony, roof, etc.).
- Close to a disruptive heat source (sun, chimney, ventilation grid, etc.).

Fig.34



5.7.10 Connecting the hydraulic back-up.

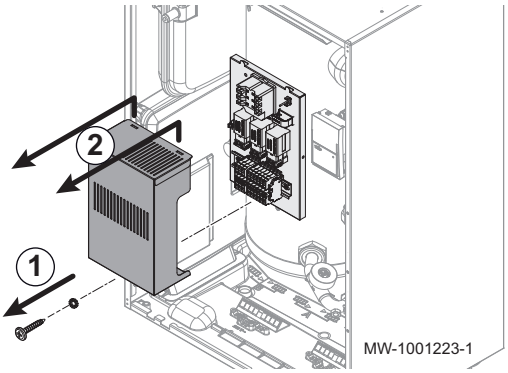
Fig.35



1. Connect the back-up boiler pump (live / neutral / earth) to the **X4** connector on the **EHC–05** central unit PCB in the indoor module.
2. Connect the dry **ON/OFF** contact in the back-up boiler to the **X5** connector in the **EHC–05** central unit PCB in the indoor module.

5.7.11 Connect and configure the power supply for the electrical back-up

Fig.36 Accessing the connection terminal blocks

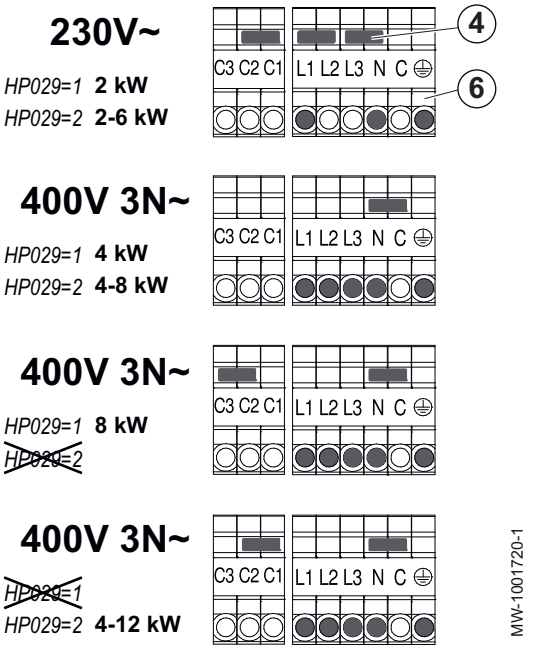


1. Remove the retaining screw.
2. Remove the protective cover.
3. Choose the total output of the electrical back-up based on the size of the home and its energy performance.

Tab.27 Bridges and output setting

Power supply mode	Maximum output	Number of bridges	Parameter settings	
			HP029 = 1 (1 Electrical Stage)	HP029 = 2 (2 Electrical Stages)
Single phase	2 kW	3	2 kW	0 kW
	6 kW	3	2 kW	4 kW
Three-phase	4 kW	2	4 kW	0 kW
	8 kW	1	8 kW	0 kW
	8 kW	1	4 kW	4 kW
	12 kW	2	4 kW	8 kW

Fig.37



4. Position the bridge or bridges.

Important
The bridges can be found in a bag affixed to the inside of the indoor unit.

5. Feed the electrical back-up power supply cable into the cable duct reserved for the 230/400 V circuit cables.
6. Connect the power supply cables using the push buttons.
   - L1: Live 1
   - L2 : Live 2
   - L3 : Live 3
   - N: Neutral
   - ⏚ : Earth

On

7. Configure the heat pump parameters

Tab.28

Access	Parameter	Description	Adjustment required
23.5 **Air Src Heat pump > Parameters, counters, signals > Adv. Parameters**	Backup type (HP029)	Type of backup used in the heat pump	• 1: 1 Electrical Stage • 2: 2 Electrical Stages

For more information, see
CN1 et CN2 parameters, page 46

5.7.12 Checking the electrical connections

1. Check the mains electricity connection to the following components:
   - Outdoor unit
   - Indoor unit
   - Electrical back-up
2. Check the connection between the indoor unit and the back-up boiler.
3. Check that the BUS cable is correctly positioned between the indoor unit and the outdoor unit, and that it is separate from the power supply cables.
4. Check the conformity of the circuit breakers used:
   - Outdoor unit circuit breaker
   - Indoor unit circuit breaker
   - Electrical back-up circuit breaker
   - Back-up boiler circuit breaker
5. Check the positioning and connection of the sensors:
   - Room temperature sensor (if present)
   - Outdoor temperature sensor
   - Flow sensor for the second circuit (if present)
6. Check the connection of the circulating pump(s).
7. Check that the wires and terminals are properly tightened or connected to the terminal blocks.
8. Check the separation of the power and safety extra-low voltage cables.
9. Check the connection of the underfloor heating safety thermostat (if used).

10. Check that traction arrester devices are used for all cables exiting the appliance.

6 Commissioning

6.1 General

The heat pump is commissioned:

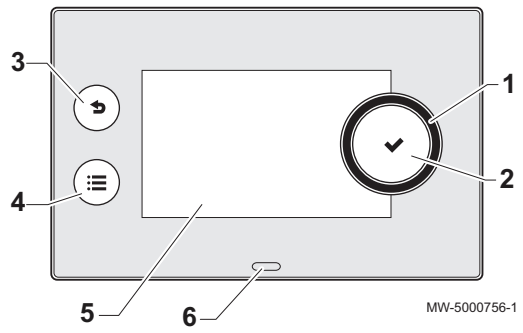
- When it is used for the first time;
- After any event that may require complete reinstallation.

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.

6.2 Control panel description

6.2.1 Description of the user interface

Fig.38



1 Rotary knob to select a menu or setting
2 Validation button ✔
3 Back key ⮌ to return to the previous level or previous menu
4 Main menu key ☰
5 Display screen
6 LED for status indication:

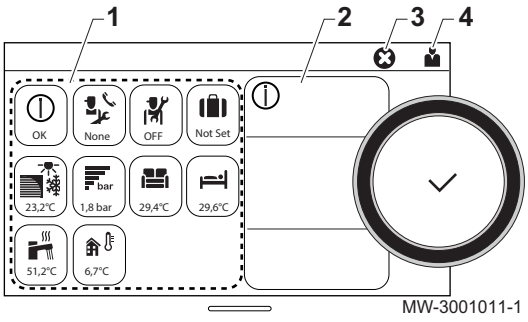
- continuous green = normal operation
- flashing green = warning
- continuous red = shutdown
- flashing red = lockout

6.2.2 Description of the home screen

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

The screen goes into standby if no key is pressed for five minutes. Press one of the buttons on the user interface to exit the standby screen and display the home screen.

Fig.39



1 Access icons for menus and parameters

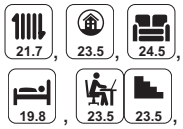
The selected icon is highlighted.
2 Information on the selected icon
3 ⊗ error notification: only visible if an error occurs
4 Navigation level:

- 👤: User level
- 🔧: Installer level.
  This level is reserved for installers and is protected by an access code. When this level is active, the Off icon becomes On.

6.2.3 Description of status icons

Tab.29 Icons indicating the appliance status

Icon	Information	Description of the icon
OK	Error status	Information on operation of the appliance
None	Maintenance status	Maintenance message
off	Installer access	Installer Level

Icon	Information	Description of the icon
	Holiday programme	Holiday mode in all circuits simultaneously
	Air source heat pump	Heat pump flow temperature display
	Water pressure	Current water pressure display
	CIRCA/CIRCB	Symbol representing the operation zone Temperature display for zone A/B
	DHW tank	Temperature display for the domestic hot water
	Outdoor temperature	Outdoor temperature display

6.3 Commissioning procedure

Caution
Initial commissioning must be performed by a qualified professional.

1. Refit all the panels, fascias and covers on the indoor unit and outdoor unit.
2. Arm the circuit breakers on the electric panel:
   - Outdoor unit circuit breaker
   - Indoor unit circuit breaker
   - Electrical back-up circuit breaker
   - Hydraulic back-up circuit breaker
3. Activate the on/off switch on the indoor unit.
   ⇨ The heat pump is switched on. The **Welcome** message is displayed.

Fig.40 Switching on

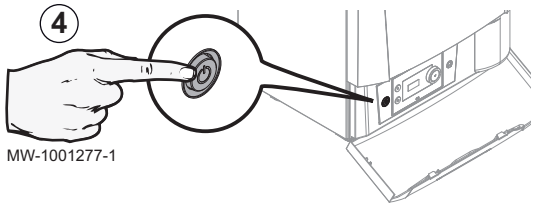
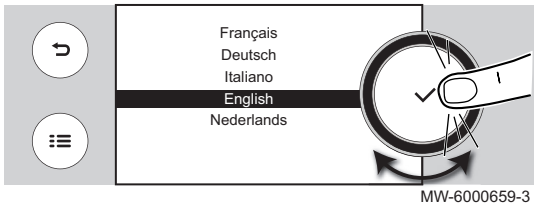


Fig.41 Language selection



4. Select the country and language.
5. Activate the **Daylight Saving Time** function.
6. Set the date and time.
7. 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 **CN1** and **CN2** parameters are used to indicate to the system the type of outdoor unit and back-up present on the installation. They can be used to preconfigure the parameters based on the installation configuration.
8. Select **Confirm** to save the settings.
9. The heat pump begins its vent cycle.

Points to check:

- After commissioning, domestic hot water production takes priority. Keep this operating mode to increase the temperature and check that the heat pump is operating correctly.
- 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 10 °C to enable the outdoor unit to start. This protects the condenser during defrosting.
  If the flow temperature is below 10 °C, the back-ups start instead of the outdoor unit. The outdoor unit takes over when the flow temperature reaches 20 °C.

6.3.1 CN1 et CN2 parameters

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

Tab.30 Configuration numbers without immersion heater, hydraulic back-up

Output of the outdoor unit	CN1	CN2
6 kW	16	7
8 kW	18	7
11 kW	20	7

Tab.31 Configuration numbers with immersion heater, electrical back-up

Output of the outdoor unit	CN1(1)	CN2
6 kW	15	7
8 kW	17	7
11 kW	19	7
(1) The default value of the Backup type parameter (HP029) is 2.		

6.4 Final instructions for commissioning

1. Check that the following installation components are switched on correctly:
   - Circulating pumps
   - Outdoor unit
   - Heating back-ups
2. Check the setting of the thermostatic mixing valve (for domestic hot water production).
3. 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 on the user interface. If necessary, top up the water level in the heating system.
   - Check the fouling level of the filter(s) present both in the heat pump and on the installation. If necessary, clean the filter(s).
4. Restart the heat pump.
5. Explain how the system works to the users.
6. Hand over all manuals to the user.

7 Settings

7.1 Menu tree

Tab.32

Menus accessible using the button
Installation Setup
Commissioning Menu
Advanced Service Menu
Error History
System Settings
Version Information

7.2 Accessing the Installer level

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. Select the Off icon.
2. Enter the code **0012**.
   ⇨ The **Installer** level is activated On. After modifying the desired settings, exit the **Installer** level.
3. To exit the Installer level, select the On icon, then **Confirm**.

If no actions are taken for 30 minutes, the system will automatically exit the Installer level.

7.3 Setting the parameters

7.3.1 Saving the installer details

The name and phone number of the installer can be saved so that the user can find it easily.

On
1. Press the ☰ key.
2. Select **System Settings** > **Installer Details**.
3. Enter the name and phone number.

7.3.2 Regional and ergonomic parameters

You can personalise your appliance by modifying the parameters linked to your geographic location and the ergonomics of the control panel.

On
1. Press the ☰ key.
2. Select **System Settings**.

3. Carry out one of the following operations:

Tab.33

Menu	Description
Set Date and Time	Setting the date and time
Select Country and Language	Select the country and language.
Daylight Saving Time	Setting the automatic change to daylight saving time. These changes will be carried out on the last Sunday in March and October
Installer Details	Display the installer details
Cost calculation	Enter the tariffs for the energy used
Set Heating Activity Names	Modify the name of activities used to program heating periods
Set Cooling Activity Names	Modify the name of activities used to program cooling periods
Set Screen Brightness	Setting the screen brightness
Set click sound	Switch the sound of the rotary knob on or off
Firmware Update	Function not available
License Information	Display the creation licenses for the internal software

7.3.3 Saving the commissioning settings

You can save all installation-specific settings. These settings can be restored if necessary, for example after replacement of the main electronic control system board.

On

1. Press the ☰ key.
2. Select **Advanced Service Menu > Save as commissioning settings**.
3. Select **Confirm** to save the settings.

When you have saved the commissioning settings, the option **Revert commissioning settings** is available in the **Advanced Service Menu**.

7.3.4 Resetting or re-establishing the parameters.

■ Configuring the type of outdoor unit and the type of back-up

The configuration numbers must be reset if the EHC–05 PCB is replaced or if there is a setting error.

To reset the configuration numbers:

On

1. Press the ☰ key.
2. Select **Advanced Service Menu > Set Configuration Numbers > EHC–05**.
3. Set the **CN1** and **CN2** parameters. The values are available on the data plate of the indoor module.
   The **CN** parameters are used to indicate the type of outdoor unit and the back-up type present on the installation.
4. Select **Confirm** to save the settings.

■ Auto-detecting options and accessories

Use this function after replacing a heat pump PCB in order to detect all the devices connected to the local CANbus.

To detect devices connected to the CAN bus:

On

1. Press the ☰ key.
2. Select **Advanced Service Menu > Auto Detect**.
3. Select **Confirm** to carry out the auto-detect.

■ Reverting to the commissioning settings

If the commissioning settings were saved, you can revert to the values specific to your installation.

To revert to the commissioning settings

On

1. Press the ☰ key.
2. Select **Advanced Service Menu > Revert commissioning settings**.

3. Select **Confirm** to revert to the commissioning settings.

■ Reverting to the factory settings

To revert to the factory settings for the heat pump:

On
1. Press the ☰ key.
2. Select **Advanced Service Menu** > **Reset to Factory Settings**.
3. Select **Confirm** to revert to the factory settings.

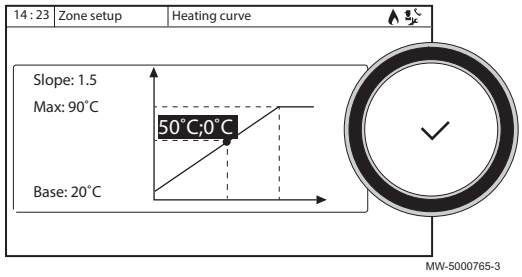
7.3.5 Setting the heating curve

The relationship between the outdoor temperature and the central heating flow temperature is controlled by a heating curve. This can be adjusted according the requirements of the installation.

To set the heating curve for a zone:

On
1. Select the icon for the **zone** to be modified; 29,4°C, for example.
2. Select **Heating Curve**.
3. Set the following parameters:

Fig.42



Tab.34

Parameter	Description
Slope:	Value of the heating curve gradient. • underfloor heating circuit: gradient between 0.4 and 0.7 • radiator circuit: gradient of approx. 1.5
Max:	Maximum temperature of the circuit
Base:	Curve base point temperature (default value: Off = automatic mode). If Base: Off, the curve base point temperature becomes equal to the room set point temperature
50 °C; 0 °C	Water temperature in the circuit for an outdoor temperature. This data is visible all along the curve.

7.3.6 Improving heating comfort

The system does not allow the simultaneous production of heating and domestic hot water.

When discomfort is experienced in heating mode, the installer may adjust the domestic hot water production setting parameters to increase heating comfort, to the detriment of domestic hot water comfort.

On
1. Adjust the following parameters:

Tab.35

Access	Parameter	Description	Adjustment required
51,2°C **DHW tank > Parameters, counters, signals > Parameters**	**Hysteresis DHW** (DP120)	Hysteresis temperature relative to the DHW temperature setpoint	Increase the set point temperature differential triggering the domestic hot water tank to be charged
	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

2. If possible, set the production of domestic hot water for overnight periods using the timer programming for the domestic hot water tank.

7.3.7 Improving domestic hot water comfort

The system does not allow the simultaneous production of heating and domestic hot water.

When discomfort is experienced in domestic hot water mode, the installer may adjust the domestic hot water production setting parameters to increase domestic hot water comfort, to the detriment of heating comfort.

Important
The consumption of electricity may rise.

1. Adjust the following parameters:

Tab.36

Access	Parameter	Description	Adjustment required
DHW tank > Parameters, counters, signals > Parameters	**Hysteresis DHW** (DP120)	Hysteresis temperature relative to the DHW temperature setpoint	Reduce the set point temperature differential triggering the domestic hot water tank to be charged.
	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
	Max. DHW duration (DP047)	Maximum duration of the domestic hot water production	Increase the maximum authorised duration for domestic hot water production

7.3.8 Configuring a hydraulic back-up

Configure the back-up boiler according to its control panel. Set the installer parameters.

1. Switch the boiler control system to 24h/24 comfort mode.
2. Heating set point temperature = Domestic hot water set point temperature + 5°C.

See
Boiler installation manual.

7.3.9 Configuring the estimated electrical energy consumption function

Tab.37 Energy meter

Connections	The electrical energy meter is connected to the **S0+/S0-** input on the **EHC–05** PCB. Do not install meters for the electrical back-ups.
Energy meter specifications	• Minimum admissible voltage: 27 V • Minimum admissible intensity: 20 mA • Minimum pulse time: 25 ms • Maximum frequency: 20 Hz • Pulse weight: between 1 and 1000 Wh If the meter impulse weight is given in number of impulses/kWh, the impulse weight must be between the following numbers: 1, 2, 4, 5, 8, 10, 20, 25, 40, 50, 100, 125, 200, 250, 500 or 1000.

Energy metering provides information on:

- electrical energy consumption,
- the production of thermal energy for heating, domestic hot water and cooling modes.

The thermal energy from the hydraulic or electrical back-up is automatically factored in by the control system to provide the full tally of restored thermal energy.

1. Configure the following parameters:

Tab.38

Access	Parameter	Description	Adjustment required
23.5 **Air Src Heat pump > Parameters, counters, signals > Adv. Parameters**	**Elec. Pulse value** (HP033)	Value of the pulse coming from the electrical counter	The adjustment depends on the type of energy meter installed. Adjustment range: 0 (no metering) to 1000 Wh. Default value: 1 Wh
	Backup 1 capacity (HP034)	Declaration of the capacity of the 1st stage of the electrical backup used for the energy counter	
	Backup 2 capacity (HP035)	Declaration of the capacity of the 2nd stage of the electrical backup used for the energy counter	

Tab.39 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

Tab.40 Output of the electrical back-ups

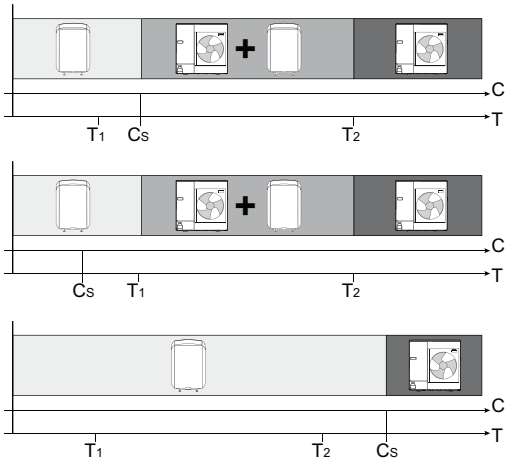
Situation	Configuration and settings to be made
If there is no immersion heater	Set the **Backup 1 capacity** (HP034) and **Backup 2 capacity** (HP035) parameters to 0.
If an immersion heater is fitted	Set the **Backup 1 capacity** (HP034) and **Backup 2 capacity** (HP035) parameters according to the configuration of the output for the electrical back-ups.

7.3.10 Configuring the hybrid operating mode of a hydraulic back-up

Hybrid operating mode is only available for appliances with a hydraulic back-up.

The hybrid function consists of an automatic switch between the heat pump and the boiler, according to the cost, the consumption or emission of CO_2 of each heat generator.

Fig.43 Influence of outdoor temperatures and bi-valency.



MW-5000542-1

C COP: Coefficient of performance

C_S Coefficient of performance threshold: If the coefficient of performance of the heat pump is higher than the coefficient of performance threshold, the heat pump takes priority. Otherwise only the boiler back-up is enabled. The heat pump coefficient of performance depends on the outdoor temperature and the heating water set point temperature.

T Outdoor temperature

T_1 **Min. Outdoor T. HP (HP051)** parameter: **Minimum outdoor temperature below which the compressor of the Heat Pump is stopped**

T_2 **Bivalent temperature parameter (HP000)**: **Bivalent temperature**

On

1. Configure the heat pump parameters

Tab.41

Access	Parameter	Description	Adjustment required
23.5 **Air Src Heat pump >** Parameters, counters, signals**>** Parameters	**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. • No Hybrid • Hybrid Cost • Primary Energy • Hybrid CO2
	Peak elec. cost (HP062)	Peak rate electricity cost (in cents)	Enter the price of electricity at peak rate. By default: 15 euro cents.
	Off-peak elec. cost (HP063)	Off-peak electricity cost (in cents)	Enter the price of electricity at off-peak rate. By default: 13 euro cents.
	Gas or oil cost (HP064)	Cost of gas per m3 or oil per litre (in cents)	Enter the price of fuel. By default: 80 euro cents.
23.5 **Air Src Heat pump >** Parameters, counters, signals **>** Adv. Parameters	**Min. Outdoor T. HP (**HP051)	Minimum outdoor temperature below which the compressor of the Heat Pump is stopped	Retain the default value: -20 °C.

2. Choose the optimisation for energy consumption

Tab.42

Value of the Hybrid mode (HP061) parameter	Description
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)** according to the primary energy consumption optimisation mode.
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. The switch between the heat pump and the boiler occurs at the value of the threshold coefficient of performance calculated according to energy cost optimisation mode with the energy cost parameters. • **Peak elec. cost (HP062)**: Energy cost in Peak rate electricity cost (in cents) • **Off-peak elec. cost** (HP063): Energy cost in Off-peak electricity cost (in cents) • **Gas or oil cost (HP064)**: Cost of fossil energy (oil or gas) – price per m^3 or per litre – Can be set from 0.01 to 2.50 €/kWh
Hybrid CO2	Optimisation of CO_2 emissions: The control system chooses the generator that emits the least CO_2. The switch between the heat pump and the boiler occurs at the value of the coefficient of performance threshold calculated according to the optimisation mode for CO_2 emissions.
No Hybrid	No optimisation: The heat pump always starts up first, regardless of the conditions. The boiler back-up starts up afterwards, if necessary.

7.3.11 Configuring underfloor cooling or a convection fan

This function is only available when the Zone Function parameter is set to **Mixing Circuit** or **Fan Convector** (Installation configuration menu > CIRCA1, CIRCB1 or CIRCC1 > Circuit function).

1. Configure the following parameters:

Tab.43

Access	Parameter	Description	Adjustment required
23.5 **Air Src Heat pump > Parameters, counters, signals > Parameters**	**CH function on** (AP016)	Enable central heating heat demand processing	Deactivating heating also deactivates cooling. On
23.5 **Air Src Heat pump > Parameters, counters, signals > Adv. Parameters**	**Cooling mode** (AP028)	Configuration of the cooling mode	Active cooling on
21.7 **CIRCA0,** 19.8 **CIRCA1, CIRCB1, CIRCC1 > Parameters, counters, signals > Parameters**	**Floor Cool. setpoint** (CP270, CP271, CP273, CP274)	Cooling flow temperature setpoint for the underfloor cooling	18 °C (default value). Set the temperature according to the type of floor and the level of humidity.
	Fan Cool. setpoint (CP280, CP281, CP283, CP284)	Cooling flow temperature setpoint for the fan convector	7 °C(default value). Set the temperature according to the type of floor and the level of humidity.
	RevContactOTH cool (CP690, CP691, CP693, CP694)	Reversed OpenTherm contact in cooling mode for heat demand per zone	• No • Yes Check the setting according to the thermostat or room sensor used.

2. If necessary, force cooling or modify the cooling temperatures for the CIRCA0, CIRCA1, CIRCB1 or CIRCC1 circuits.

7.3.12 Selecting the conditions for activating Cooling mode

In the **Scheduling** operating mode, the **Cooling** timer programme is activated automatically when the average outdoor temperature is above 22 °C. To change this temperature, proceed as follows:

On

1. Select the icon.
2. Select Summer/Winter.
3. Set the outdoor temperature at which the system should switch to Cooling mode.

7.3.13 Drying screed

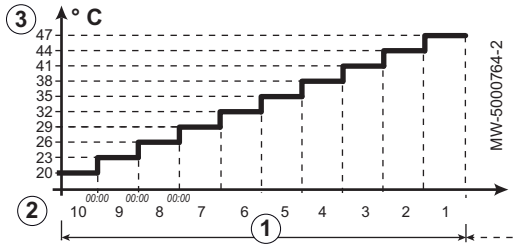
The screed drying function is used to force a constant flow temperature or a series of successive temperature levels to accelerate drying of screed for the underfloor heating. You can use this function even if the outdoor unit is not yet connected. In this case, the electrical back-up is started up automatically.

Important
Depending on the climate conditions and losses from the building, the electrical back-up alone may not be sufficient to dry the screed.

The screed drying function must be activated for each heating zone. When activated, each day at midnight, the system recalculates the set point temperature and decreases the number of days.

For the screed drying times and temperatures, follow the screed manufacturer's specifications.

Fig.44 Example



① Number of days of drying
② Drying start temperature
③ Drying end temperature

Tab.44 Example: to prepare the screed on which the floor covering will be applied, the parameters need to be adjusted every seven days

Day	① Number of days of drying	② Drying start temperature	③ Drying end temperature	Remarks
1 to 7	7	+25 °C	+55 °C or maximum authorised flow temperature	In increments of 5 K
8 to 14	7	+55 °C or maximum authorised flow temperature	+55 °C or maximum authorised flow temperature	No night reduction
15 to 21	7	+55 °C or maximum authorised flow temperature	+25 °C	In increments of 5 K

1. Set the parameters for the CIRCA0 and CIRCA1, CIRCB1 or CIRCC1 circuits.

Tab.45

Access	Parameter	Description	Adjustment required
21.7 CIRCA0, 19.8, CIRCA1, CIRCB1 or CIRCC1 > Set Screed Drying	**Zone screed drying** (CP470)	Setting of the screed drying program of the zone	① Number of days of drying
	ScreedStartTemp (CP480)	Setting of the start temperature of the screed drying program of the zone	② Drying start temperature
	ScreedStopTemp (CP490)	Setting of the stop temperature of the screed drying program of the zone	③ Drying end temperature

The screed drying programme will start immediately and continue for the selected number of days.

At the end of the programme, the selected operating mode will restart.

7.3.14 Connecting an on/off or modulating thermostat

The on/off or modulating thermostat is connected to the **R-Bus** terminals on the **EHC–05** PCB or the optional **SCB-10** 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. Configure the parameters for the circuit concerned:

Tab.46 Configuration of the **R-Bus** input for using an on/off thermostat (dry contact)

Access	Parameter	Description
21.7 CIRCA0, 19.8 CIRCA1, CIRCB1 or CIRCC1 > Parameters, counters, signals > Parameters	**OTH LogicLev contact (CP640, CP641, CP643)**	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, CP691, CP693)	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.47 **OTH LogicLev contact** and **RevContactOTH cool** parameter settings

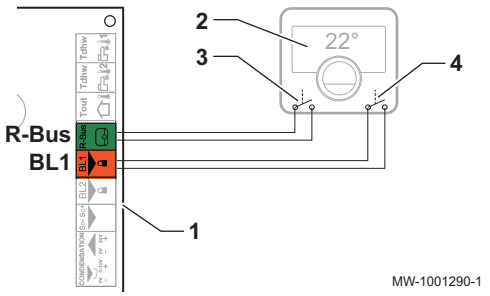
Value of the OTH LogicLev contact parameter (CP640, CP641, CP643)	Value of the RevContactOTH cool parameter (CP690, CP691, CP693)	Position of the on/off contact for heating	Position of the on/off contact for cooling
Closed (default value)	No (default value)	Closed	Closed
Open	No	Open	Open
Closed	Yes	Closed	Open
Open	Yes	Open	Closed

7.3.15 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–05** PCB. The AC thermostat is only compatible with configurations **with a single 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 **BL1** input on the **EHC–05** PCB.

1 EHC–05 PCB
2 Room thermostat
3 Output: On/Off
4 "Heating/cooling contact" output

On

2. Configure the heat pump parameters

Tab.48

Access	Parameter	Description	Adjustment required
23.5 **Air Src Heat pump > Parameters, counters, signals > Adv. Parameters**	**BL function** (AP001)	BL input function selection	Heating Cooling
	BL1 contact config. (AP098)	BL1 input contact configuration Closed: function active when BL contact is closed Open: function active when BL contact is open	• Closed or • Open

Tab.49

Access	Parameter	Description	Adjustment required
21.7 **CIRCA0> Parameters, counters, signals > Parameters**	**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

Tab.50 Configuration A - by default

Value of the OTH LogicLev contact (CP640) parameter	Value of the BL1 contact config. (AP098) parameter	The BL1 multifunction input is	Operating mode for the heat pump	If the OT contact is open	If the OT contact is closed
Closed (default value)	Closed (default value)	Open	Cooling	No cooling demand	Cooling demand
Closed (default value)	Closed (default value)	Closed	Heating	No heating demand	Heating demand

Tab.51 Configuration B

Value of the OTH LogicLev contact (CP640) parameter	Value of the BL1 contact config. (AP098) parameter	The BL1 multifunction input is	Operating mode for the heat pump	If the OT contact is open	If the OT contact is closed
Closed	Open	Open	Heating	No heating demand	Heating demand
Closed	Open	Closed	Cooling	No cooling demand	Cooling demand

Tab.52 Configuration C

Value of the OTH LogicLev contact (CP640) parameter	Value of the BL1 contact config. (AP098) parameter	The BL1 multifunction input is	Operating mode for the heat pump	If the OT contact is open	If the OT contact is closed
Open	Closed	Open	Cooling	Cooling demand	No cooling demand
Open	Closed	Closed	Heating	Heating demand	No heating demand

Tab.53 Configuration D

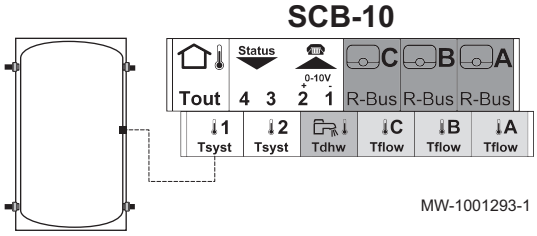
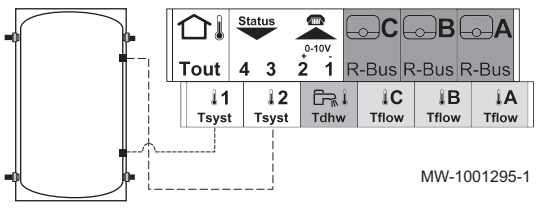
Value of the OTH LogicLev contact (CP640) parameter	Value of the BL1 contact config. (AP098) parameter	The BL1 multifunction input is	Operating mode for the heat pump	If the OT contact is open	If the OT contact is closed
Open	Open	Open	Heating	Heating demand	No heating demand
Open	Open	Closed	Cooling	Cooling demand	No cooling demand

7.3.16 Installing a buffer tank

A buffer tank is used to separate the heating circuits or to store energy. The buffer tank is used with one or two temperature sensors. The CIRCA0 circuit cannot be used at the same time as a buffer tank.

1. Connect the temperature sensor(s) for the buffer tank to the corresponding connectors:

Tab.54

Connection	Description
Fig.45 One sensor 	Buffer tank temperature sensor to the Tsyst1 connector on the SCB-10 PCB
Fig.46 Two sensors 	• Buffer tank bottom temperature sensor to the Tsyst1 connector on the SCB-10 PCB • Buffer tank top temperature sensor to the Tsyst2 connector on the SCB-10 PCB

2. Configure the pump for the **CIRCA0** zone as a system pump:

Tab.55

Access	Parameter	Adjustment required
23.5 **Air Src Heat pump > Parameters, counters, signals > Adv. Parameters**	**Boiler Pump function** (AP102)	No: all demands

3. Deactivate the CIRCA0 : circuit

Tab.56

Access	Parameter	Adjustment required
21.7 **CIRCA0**	**Zone Function** (CP020)	Disable

4. Activate the buffer tank function by selecting the number of sensors:

Tab.57

Access	Parameter	Adjustment required
☰ > Installation Setup > Buffer tank off	**Type Buffer Tank** (BP001)	Depending on the situation: • Disabled • One sensor • Two sensors

5. Select the operating mode for the buffer tank.

Buffer tank operating mode	Adjustment required
Buffer tank used as a low-loss header.	By default, the buffer tank is managed as a low-loss header and does not require any specific settings. The temperature set point for the buffer tank is equal to the maximum set point temperature value taken from all the associated circuits. Example: with the temperature set points of CIRCA1: 22 °C, CIRCB1: 21 °C and CIRCC1: 20.5 °C, the buffer tank set point will be: (Maximum temperature for CIRCA1, CIRCB1, CIRCC1) = 22 °C.
Buffer tank used in storage mode	Configure the buffer tank load. See chapter: Configuring the buffer tank for storage, page 58

7.3.17 Configuring the buffer tank for storage

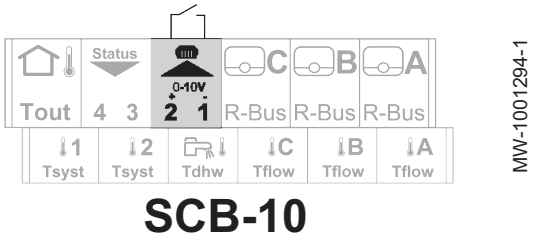
The buffer tank is used to store energy either via the buffer tank timer programme or by a contact connected to the TEL digital input. The buffer tank must be installed and configured with one or two temperature sensors.

1. Program the load timers for the buffer tank.

Tab.58

Access	Adjustment required
☰ > Installation Setup > Buffer tank > Buffer Tank Schedule	Program the **Operating** activity which will activate the buffer tank load.

Fig.47



MW-1001294-1

2. If necessary, configure and program the TEL digital input.

Tab.59

Access	Parameter	Description	Adjustment required
☰ > Installation Setup > Digital input > Parameters	**Digital input config** (EP046)	Sets the general configuration of the digital input	Buffer Tank input
	Logic level Digi In (EP056)	Sets the logic level contact of the Smart Control Board digital input	• Open: Buffer tank load when the contact is opened. • Closed: Buffer tank load when the contact is closed.

3. Select the set point temperature control mode for the buffer tank load:

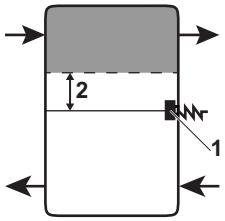
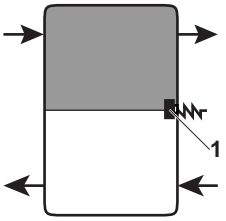
Tab.60

Access	Parameter	Description	Adjustment required
☰ > **Installation Setup** > **Buffer tank**	**Buff Tank HC Strat.** (BP002)	Heating Cooling Control strategy used with buffer tank	• Fixed setpoint • Calculated setpoint • Dedicated slope

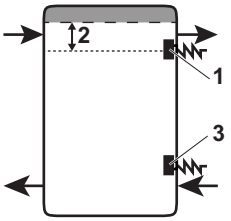
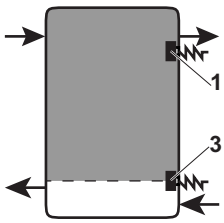
Tab.61 **Buff Tank HC Strat.** (BP002)

Adjustment required	Description
• Fixed setpoint	The buffer tank set point temperature is equal to the value for the parameter **Stp Buffertank Heat** (BP003) or **Setp Buffertank Cool** (BP004). Example: 55 °C
• **Calculated setpoint**	The buffer tank set point temperature is equal to the highest set point for the connected heating circuits with the overheating temperature set by the parameter BufferTankTcalOffset (BP013). Example: with CIRCA1: 22 °C, CIRCB1: 21 °C, the buffer tank setpoint will be: 22 °C + 10 °C = 32 °C
• Dedicated slope	The buffer tank set point temperature depends on the outdoor temperature, the parameters **Stp Buffertank Heat** (BP003) and **Buffer Tank Slope** (BP005) and the following formula: Buffer tank set point = (- outdoor temperature) x **Buffer Tank Slope** + **Stp Buffertank Heat** Example: (– -5 °C) x 1.5 + 55 °C = 62.5 °C

Tab.62 Buffer tank management with one sensor

Buffer tank status	Description
Fig.48 Buffer tank in demand  MW-1000347-2	The buffer tank is in load demand when the temperature measured by the sensor is less than the difference between the buffer tank temperature set point and the temperature hysteresis. **1** Sensor temperature = buffer tank set point temperature – **BufferTank HystStart** (BP014): Hysteresis of temperature which determines the start of Buffer Tank storage **2** **BufferTank HystStart** (BP014) : Hysteresis of temperature which determines the start of Buffer Tank storage
Fig.49 Buffer tank loaded  MW-1000346-2	The buffer tank is loaded when the temperature measured by the sensor is equal to the buffer tank temperature set point. **1** Sensor temperature = buffer tank set point temperature + **BufferTank HystStop** (BP019): Hysteresis of temperature which determines the start of Buffer Tank storage

Tab.63 Buffer tank management with two sensors (optional)

Buffer tank status	Description
Fig.50 Buffer tank in demand  MW-1000352-2	The buffer tank is in load demand when the temperature measured by the top sensor is less than the difference: temperature set point - temperature hysteresis. **1** Buffer tank top sensor temperature = buffer tank set point temperature – **BufferTank HystStart** (BP014): Hysteresis of temperature which determines the start of Buffer Tank storage **2** **BufferTank HystStart** (BP014): Hysteresis of temperature which determines the start of Buffer Tank storage) **3** Temperature of the buffer tank bottom sensor
Fig.51 Buffer tank loaded  MW-1000344-2	The buffer tank is loaded when the temperature measured by the bottom sensor is equal to the buffer tank temperature set point. **1** Temperature of the buffer tank top temperature sensor **3** Temperature of the buffer tank bottom sensor = buffer tank set point temperature + **BufferTank HystStop** (BP019): Hysteresis of temperature which determines the start of Buffer Tank storage

4. Configure the temperature set point parameters for the buffer tank load:

Tab.64 Parameters to configure

Access	Parameter	Description	Default value
> Installation Setup > Buffer tank > Parameters	**Stp Buffertank Heat** (BP003)	Temperature setpoint for buffer tank in heating mode From 5 °C to 100 °C	70 °C
	Setp Buffertank Cool (BP004)	Temperature setpoint for Buffer tank in cooling mode From 5 °C to 25 °C	18 °C
	Buffer Tank Slope (BP005)	Buffer Tank Slope From 0 to 4	1.5
	BufferTankTcalOffset (BP013)	Offset to add to the calculate Setpoint of the Buffer Tank From 0 °C to 20 °C	5 °C
	BufferTank HystStart (BP014)	Hysteresis of temperature which determines the start of Buffer Tank storage From 1 °C to 20 °C	6 °C
	BufferTank HystStop (BP019)	Hysteresis of temperature which determines the stop of buffer tank storage From -30 °C to +30 °C	0 °C Do not change the value

5. Configure the back-ups so that they will start when the buffer tank set point is greater than 60 °C:

Tab.65

Access	Parameter	Description	Adjustment required
23.5 **Air Src Heat pump > Parameters, counters, signals > Parameters**	**Bivalent temperature** (HP000)	Bivalent temperature: Above the bivalent temperature, the backup energy source is not allowed to operate	5 °C

6. Configure the parameter **Max CH flow setpoint** (AP063):

Tab.66

Access	Parameter	Description	Adjustment required
23.5 **Air Src Heat pump > Parameters, counters, signals > Adv. Parameters**	**Max CH flow setpoint** (AP063)	Maximum central heating flow temperature setpoint	Enter a temperature higher than the buffer tank set point, otherwise the buffer tank temperature will be limited by this parameter.

7.3.18 Configuring and using the CB04 auto-filling option kit

The CB04 auto-filling option kit (package EH726) is used to fill the heating circuits or to maintain the optimal pressure in the heating circuits, without human intervention. After having followed the instructions for assembly of the option kit, simply configure a few parameters to automatically obtain or maintain an optimal pressure. The heat pump does not start up during the auto-filling phase.

1. Activating the auto-filling function:

Tab.67

Access	Parameter	Adjustment required
> Installation Setup > Heating circuit autofill > Settings	**Auto Filling** (AP014)	Auto

2. If necessary, start filling the installation:

Tab.68

Access	Parameter
> Installation Setup > Heating circuit autofill >	**Start water filling**: Select this parameter to start filling the installation. The parameter **Filling Inst Timeout** (AP023) defines the maximum duration authorised to obtain a pressure of 0.3 bar during the first water fill with the auto-filling kit. It is 60 minutes.

⇨ If there is an error on the user interface, restart the auto-filling function as many times as needed.

3. Configuring the auto-filling function:

Tab.69

Access	Parameter	Description	Default value
> Installation Setup > Heating circuit autofill > Settings	**Min. water pressure** (AP006)	Appliance will report low water pressure below this value From 0 bar to 6 bar	0.3 bar
	Filling Inst Timeout (AP023)	Maximum duration authorised to obtain a pressure of 0.3 bar during the first water fill with the auto-filling kit. From 0 Min to 60 Min	60 minutes
	Filling Interval (AP051)	The minimum time that is allowed between two top-up fillings. From 0 to 65535 days	90 days
	Top up timeout (AP069)	Maximum time to top up the water in the circuit during operation. 0 Min to 65535 Min	5 minutes
	Operational Pressure (AP070)	The operational water pressure the device should be working on. From 0 bar to 2.5 bar	2 bar
	InstallMaxTimeOut (AP071)	Maximum time that is needed to fill the complete installation. From 0 Sec to 3600 Sec	3600 seconds

7.3.19 Supplying the heat pump with photovoltaic energy

When lower cost electrical energy is available, such as photovoltaic energy, the heating circuit and domestic hot water tank (if present) can be overheated. Underfloor cooling cannot be supplied with power in this way.

1. Cut off the mains electricity to the indoor unit.
2. Connect a dry contact to the **BL1** or **BL2 IN** multifunction input.
3. Switch the indoor unit back on.
4. Configure the heat pump parameters

Tab.70 Input parameters

Access	Parameter	Description	Adjustment required
23.5 **Air Src Heat pump > Parameters, counters, signals > Parameters**	**BL function** (AP001)	BL input function selection	• Photovoltaic HP Only or • PV HP And backup
	BL2 function (AP100)	BL2 input function selection	• Photovoltaic HP Only or • PV HP And backup

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

Tab.71 Voluntary overheating parameters

Access	Parameter	Description	Adjustment required
23.5 **Air Src Heat pump > Parameters, counters, signals > Parameters > Adv. Parameters**	**Offset heating - PV** (HP091)	Heating setpoint temperature offset when photovoltaic energy is available	Set the authorisation to exceed the heating set point 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 set point temperature from 0 to 30 °C

7.3.20 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.72 Operation of the heat pump in a **Smart Grid**

BL1 IN input	BL2 IN input	Operating
Inactive	Inactive	Normal: The heat pump and the electrical back-up operate normally
Active	Inactive	Shutdown: The heat pump and the electrical back-up are shut down
Inactive	Active	Economy: The heat pump voluntarily overheats the system without the electrical back-up
Active	Active	Super Economy: The heat pump voluntarily overheats the system with the electrical back-up

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

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–05 PCB. **Smart Grid** signals come from dry contacts.
3. Turn on the electricity supply and switch on the heat pump.

4. Configure the BL function parameters (AP001) and (AP100).

Tab.73

Access	Parameter	Adjustment required
23.5 **Air Src Heat pump > Parameters, counters, signals > Parameters > Adv. Parameters**	**BL function** (AP001)	Smart Grid ready
	BL2 function (AP100)	Smart Grid ready

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

5. Choose the directions of the **BL1 IN** and **BL2 IN** multifunction inputs by setting the **BL1 contact config.** (AP098) and BL2 contact config. (AP099) parameters.

Tab.74

Access	Parameter	Adjustment required
23.5 **Air Src Heat pump > Parameters, counters, signals > Parameters > Adv. Parameters**	**BL1 contact config.** (AP098)	BL1 input contact configuration • 0 = input active on Open contact • 1 = input active on Closed contact
	BL2 contact config. (AP099)	BL2 input contact configuration • 0 = input active on Open contact • 1 = input active on Closed contact

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

Tab.75

Access	Parameter	Adjustment required
23.5 **Air Src Heat pump > Parameters, counters, signals > Parameters > Adv. Parameters**	**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

7.3.21 Reducing the noise level of the outdoor unit

- Silent mode is used to reduce the noise level on the outdoor unit during programmed hours, particularly at night. This mode gives temporary precedence to silent running rather than temperature control.

1. Connect the silent running kit (package EH829) to the outdoor unit.
2. Connect the silent running kit (package EH829) to one of the CIRCA1, CIRCB1, CIRCC1 or CIRCAUX1 zone pump outlets of the SCB-10 PCB.
3. Set the timer programming for this zone: silent mode corresponds to the Sleep activity.

7.3.22 Configuring the maintenance message

The heat pump user interface is used to display a message whenever maintenance is necessary.

To configure the maintenance message:

1. Select the None **Service Status** icon.
2. Select **Service notification**.

3. Select the desired type of notification:

Type of notification:	Description
None	No maintenance message
Custom notification	The maintenance message will be displayed once the heat pump operating hours defined by the parameters in the following table have elapsed.

4. With the **Manual service** notification type, set the number of operating hours before a maintenance message is sent:

Parameter	Description
Service hours (AP009)	Number of heat generator operating hours for raising a service notification
Service hours mains (AP011)	Hours powered to raise a service notification

7.4 List of parameters

The appliance parameters are described directly in the user interface. Some of these parameters are listed in the following chapters with additional information and their default values.

7.4.1 Installation Setup > CIRCA0 > Parameters, counters, signals

The **CIRCA0** circuit is on the EHC–05 PCB.

CP : Circuits Parameters = Heating circuit parameters

Tab.76 Parameters menu

Parameter	Description	Factory setting
MaxZoneTFlowSetpoint (CP000)	Maximum Flow Temperature setpoint zone **CIRCA0**: can be set from 7 °C to 75 °C	Electrical back-up: 75 Hydraulic back-up: 75
Zone Function (CP020)	Type of CIRCA0 connected to the **EHC–05** PCB: • Disable = heating circuit deactivated • Direct = radiators. Cooling not possible. • Mixing Circuit = underfloor heating. Cooling possible. • Swimming pool = not available • High Temperature = not used • Fan Convector = convection fan. Cooling possible.	Direct
MaxReducedRoomT.Lim (CP070)	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
Zone HCZP Comfort (CP210)	Comfort footpoint of the temperature of heat curve of the circuit • can be set from 16 to 90 °C • set to 15 = the curve base temperature is set automatically and is the same as the room set point temperature	15
Zone HCZP Reduced (CP220)	Reduced footpoint of the temperature of heat curve of the circuit • can be set from 6 to 90 °C • set to 15 = the curve base temperature is set automatically and is the same as the room set point temperature	15
Zone Heating Curve (CP230)	Heating curve temperature gradient of the zone Can be set from 0 to 4	1.5
ZoneRoomUnitInfl (CP240)	Adjustment of the influence of the zone room unit Can be set from 0 to 10	3

Parameter	Description	Factory setting
TypeReducedNightMode (CP340) Parameter linked to the CP070 parameter	Type of reduced night mode, stop or maintain heating of circuit • Stop heat demand: heating is deactivated when the room set point temperature set in the timer programme is below the threshold set in CP070. • Continue heat demand: the heating set point is maintained independently of the threshold set in CP070.	Stop heat demand
Control strategy (CP780)	Selection of the control strategy for the zone • Automatic • Room Temp. based • Outdoor Temp. based • Outdoor & room based	Automatic

7.4.2 Installation Setup > CIRCA1/CIRCB1/DHW1/CIRCC1/ CIRCAUX1 > Parameters, counters, signals >

Depending on the installation configuration, only certain circuits are available. The **CIRCA1** \ **CIRCB1** \ **DHW1** \ **CIRCC1** \ **CIRCAUX1** circuits are on the **SCB-10** PCB.

Tab.77 Correspondence between the parameters and the circuits

• **CPxx0** parameters ending in **0** correspond to the **CIRCA1** circuit • **CPxx1** parameters ending in **1** correspond to the **CIRCB1** circuit • **CPxx2** parameters ending in **2** correspond to the **DHW1** circuit • **CPxx3** parameters ending in **3** correspond to the **CIRCC1** circuit • **CPxx4** parameters ending in **4** correspond to the **CIRCAUX1** circuit

Tab.78 Parameters menu

Parameter	Factory setting for each circuit	Description
MaxZoneTFlowSetpoint (**CP000** **CP001** **CP002** **CP003** **CP004**)	**CIRCA1**: Electrical back-up: 50 **CIRCA1**: Hydraulic back-up: 75 **CIRCB1**: Electrical back-up: 50 **DHW1**: Electrical back-up: 95 **CIRCC1**: Electrical back-up: 50 **CIRCAUX1**: Electrical back-up: 95 **CIRCAUX1**: Hydraulic back-up: 75	Maximum Flow Temperature setpoint zone For circuit A: Can be set from 7 °C to 100 °C
Zone Function (**CP020** **CP021** **CP022** **CP023** **CP024**)	**CIRCA1**: Direct **CIRCB1**: Disable **DHW1**: Disable **CIRCC1**: Disable **CIRCAUX1**: Disable	Functionality of the zone • Disable • Direct • Mixing Circuit • Swimming pool • High Temperature • Fan Convector • DHW tank • Electrical DHW • Time Program • ProcessHeat • DHW Layered • DHW Internal tank • DHW Commercial Tank • DHW FWS EXT
Zone HCZP Comfort (**CP210** **CP211** **CP212** **CP213** **CP214**)	**CIRCA1**: 15 **CIRCB1**: 15 **DHW1**: 15 **CIRCC1**: 15 **CIRCAUX1**: 15	Comfort footpoint of the temperature of heat curve of the circuit • Can be set from 15 °C to 90 °C • set to 15 = the curve base temperature is set automatically and is the same as the room set point temperature

Parameter	Factory setting for each circuit	Description
Zone HCZP Reduced (**CP220** **CP221** **CP222** **CP223** **CP224**)	**CIRCA1**: 15 **CIRCB1**: 15 **DHW1**: 15 **CIRCC1**: 15 **CIRCAUX1**: 15	Reduced footpoint of the temperature of heat curve of the circuit • can be set from 6 to 90 °C • set to 15 = the curve base temperature is set automatically and is the same as the room set point temperature
TypeReducedNightMode (**CP340** **CP341** **CP342** **CP343** **CP344**)	**CIRCA1**: Stop heat demand **CIRCB1**: Stop heat demand **DHW1**: Stop heat demand **CIRCC1**: Stop heat demand **CIRCAUX1**: Stop heat demand	Type of reduced night mode, stop or maintain heating of circuit • Stop heat demand • Continue heat demand
Control strategy (**CP780** **CP781** **CP782** **CP783** **CP784**)	**CIRCA1**: Automatic **CIRCB1**: Automatic **DHW1**: not used **CIRCC1**: Automatic **CIRCAUX1**: Automatic	Selection of the control strategy for the zone • Automatic • Room Temp. based • Outdoor Temp. based • Outdoor & room based

Tab.79 Adv. Parameters menu

Parameter	Factory setting for each circuit	Description
ConfigZonePumpOut (**CP290** **CP291** **CP292** **CP293** **CP294**)	**CIRCA1**: Zone output **CIRCB1**: Zone output **DHW1**: DHW mode **CIRCC1**: Zone output **CIRCAUX1**: DHW looping	Configuration of Zone Pump Output • Zone output • CH mode • DHW mode • Cooling mode • Error report • Burning • Service flag • System error • DHW looping • Primary pump • Buffer pump
Zone Buffered (**CP770** **CP771** **CP772** **CP773** **CP774**)	**CIRCA1**: Yes **CIRCB1**: Yes **DHW1**: Yes **CIRCC1**: Yes **CIRCAUX1**: Yes	The zone is after a Buffer tank • No • Yes

7.4.3 Installation Setup > Stratified DHW tank > Parameters, counters, signals

A domestic hot water sensor must be connected to the EHC–05 PCB to display these parameters. The **Stratified DHW tank** circuit is on the **EHC–05** PCB.

Tab.80 Parameters menu

Parameter	Description	Factory setting
DhwMaxTemp (DP046)	Max. flow temperature for domestic hot water production. Can be set from 10 to 70 °C	70 °C
Max. DHW duration (DP047)	Maximum authorised duration for domestic hot water production. Can be set from 1 to 10 hours	3 hours
Min. CH before DHW (DP048)	Minimum heating duration between two domestic hot water production runs. Can be set from 0 to 10 hours	2 hours

Parameter	Description	Factory setting
DHW management (DP051)	ECO mode: use of the heat pump only. Comfort mode: use of the heat pump and backup energy sources: • ECO (Only HP): use of the heat pump only • Comfort (HP+Boiler): use of the heat pump and back-ups	ECO (Only HP)
Hysteresis DHW (DP120)	Hysteresis temperature relative to the DHW temperature setpoint Can be set from 0 °C to 40 °C	15

Tab.81 Adv. Parameters menu

Parameter	Description	Factory setting
Delay StartBackupDHW (**DP090**)	Electrical back-up start-up time delay for domestic hot water. Can be set from 0 to 120 min	90 min
Delay stop BackupDHW (**DP100**)	Electrical back-up shutdown time delay for domestic hot water. Can be set from 0 to 120 min	2 min
Delay BackupStageDHW (**DP110**)	Electrical back-up second stage start-up time delay for domestic hot water. Can be set from 0 to 255 min	5 min
Gen. offset for DHW (**DP130**)	Domestic hot water set point offset. Can be set from 0 to 20 °C	**8**
DHW backup type (**DP334**)	Backup type used for domestic hot water production: • Indoor Unit: indoor unit electrical back-ups • DHW Tank : DHW tank electrical back-ups • IDU/DhwTank Cooling: Indoor unit electrical back-ups in winter/DHW tank electrical back-ups in cooling mode	Indoor Unit

7.4.4 Installation Setup > DHW tank > Parameters, counters, signals > Adv. Parameters

A domestic hot water sensor must be connected to the EHC–05 PCB to display these parameters.

DP : Domestic Hot Water Parameters = Domestic hot water tank parameters

Tab.82

Paramètres	Description of the parameters	Factory setting
Delay StartBackupDHW (DP090)	Delay time for starting the backup energy source for DHW Can be set from 0 Min to 120 Min	90
Postrun DHW pump/3wv (DP213)	Post run time of the DHW pump/3 way valve after DHW production Can be set from 0 Min to 99 Min	3

7.4.5 Installation Setup > Air Src heat pump > Parameters, counters, signals

HP : Heat-pump Parameters = Heat pump parameters

AP : Appliance Parameters = Appliance advanced parameters

Tab.83 Parameters menu

Parameter	Description	Factory setting
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
Delay StartBackup CH (**HP030**)	Start-up time delay for back-ups in central heating mode Can be set from 0 Min 600 Min	0

Parameter	Description	Factory setting
Delay stop backup CH (**HP031**)	Shutdown time delay for back-ups in central heating mode Can be set from 0 Min to 600 Min	4
Delay Min.Outdoor T. **(HP047**)	Start-up time delay for back-ups corresponding to the minimum outdoor temperature HP049. The dynamic time delay is activated when HP030=0 Can be set from 0 Min to 60 Min	8
Delay Max.Outdoor T (**HP048**)	Start-up time delay for back-ups corresponding to the maximum outdoor temperature HP050. The dynamic time delay is activated when HP030 = 0 Can be set from 0 Min 60 Min	30
Min.Outdoor T.backup (**HP049**)	Minimum outdoor temperature used to set HP047. Can be set from -30 °C to 0 °C	-10
Max.Outdoor T.backup (**HP050**)	Maximum outdoor temperature used to set HP048. Can be set from -30 °C to 20 °C	15
Min. Outdoor T. HP (**HP051**)	Minimum outdoor temperature authorising heat pump operation. Can be set from -20 °C to 5 °C	-20
Delay BackupStage CH (**HP108**)	Time delay for activating the second electrical back-up stage in central heating mode Can be set from 1 Min to 255 Min	4
Min. water pressure (**AP006**)	Appliance will report low water pressure below this value Can be set from 0 bar to 6 bar	0.3
MessMinWaterPressure (**AP058**)	Warning message indicating that pressure is low Can be set from 0 bar to 2 bar	0.8

Tab.84 Adv. Parameters menu

Parameter	Description of the advanced parameters	EHC–05 factory setting
Max. HP Flow T. (**HP002**)	Maximum flow temperature of the heat pump without backup energy sources. Can be set from 20 °C to 65 °C	65
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
Minimum flow rate (**HP010**)	Minimum flow rate. Can be set from 0 l/min to 90 l/min	5 for 6 kW 8 for 8 kW 12 for 11 kW
Flow rate warning (**HP011**)	Flow rate that triggers a warning message indicating that flow rate becomes insufficient Can be set from 0 l/min to 95 l/min	7 for 6 kW 9 for 8 kW 14 for 11 kW
Backup type (**HP029**)	Type of backup used in the heat pump: • 0 =No Backup • 1 =1 Electrical Stage • 2 =2 Electrical Stages • 3 =Boiler Backup	2
Elec. Pulse value (**HP033**)	Value of the pulse coming from the electrical counter. Can be set from 0 Wh to 1000 Wh	1
Backup 1 capacity (**HP034**)	Declaration of the capacity of the 1st stage of the electrical backup used for the energy counter. Can be set from 0 kW to 10 kW Value accepted when HP031 = 0	0
Backup 2 capacity (**HP035**)	Declaration of the capacity of the 2nd stage of the electrical backup used for the energy counter. Can be set from 0 kW to 10 kW Value accepted when HP031 = 0	0
COP Threshold (**HP054**)	COP threshold above which the heat pump is authorised to operate.	2.5
Hybrid mode (**HP061**)	Not used	0
Boiler efficiency (**HP068**)	Not used	100

Parameter	Description of the advanced parameters	EHC–05 factory setting
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
Humidity level (**HP080**)	Relative humidity level over which the offset is added to the cooling setpoint Can be set from 0 % to 100 %	70
Setpoint Hyst. Low (**HP089**)	Heat pump trip differential in relation to the set point temperature. Can be set from 0 to 10°C	4 °C
Offset heating - PV (**HP091**)	Heating setpoint temperature offset when photovoltaic energy is available Can be set from 0 °C to 30 °C	0
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
kW rating DHW backup (**HP145**)	Power supply for the domestic hot water tank electrical back-up. Can be set from 0 to 10 kW	0
BL function (**AP001**)	BL input function selection BL1: • 1 = Full blocking of the installation – frost protection not guaranteed • 2 = Partial blocking of the installation – installation frost protection • 3 = User reset locking • 4 = Backup relieved • 5 = Generator relieved • 6 =Gen.&Backup relieved • 7 =High, Low Tariff • 8 =Photovoltaic HP Only • 9 = PV HP And backup • 10 = Smart Grid ready • 11 = Heating Cooling	2
Manual Heat Demand (**AP002**)	Enable manual heat demand function. In this mode, the temperature set point used will be that for the AP026.	0
Setpoint manual HD (**AP026**)	Flow temperature setpoint for manual heat demand. Can be set from 7 to 70 °C Set point used when manual mode is active (**AP002** = 1)	40
Cooling mode (**AP028**)	Configuration of the cooling mode • 0 = Off • 1 = Active cooling on	0
Max CH flow setpoint (**AP063**)	Maximum central heating flow temperature setpoint. Can be set from 20 °C to 75 °C	Hydraulic back-up: 75 Electrical back-up: 75
Humidity sensor (**AP072**)	Humidity sensor configuration: • 0 =No • 1 =OnOff • 2 =0-10V sensor	0
BL1 contact config. (**AP098**)	BL1 input contact configuration: • 0 = input active on Open contact • 1 = input active on Closed contact	0
BL2 contact config. (**AP099**)	BL2 input contact configuration: • 0 = input active on Open contact • 1 = input active on Closed contact	0

Parameter	Description of the advanced parameters	EHC–05 factory setting
BL2 function (**AP100**)	BL2 input function selection • 1 = Full blocking of the installation – frost protection not guaranteed • 2 = Partial blocking of the installation – installation frost protection • 3 = User reset locking • 4 = Backup relieved • 5 = Generator relieved • 6 =Gen.&Backup relieved • 7 =High, Low Tariff • 8 =Photovoltaic HP Only • 9 = PV HP And backup • 10 = Smart Grid ready • 11 = Heating Cooling	2
De-aeration cycle (**AP101**)	De-air cycle settings: • 0 =No deair at power up • 1 =Always deair at pwr	1

7.4.6 Installation Setup > Air Src Heat pump > Parameters, counters, signals > Adv. Parameters

AP : Appliance Parameters = Appliance parameters

Parameters	Description of the parameters	EHC–05 factory setting
Manual Heat Demand (AP002)	Enable manual heat demand function • Off • With setpoint: in this mode, the temperature set point used will be that for the Setpoint manual HD (AP026) parameter.	0
Setpoint manual HD (AP026)	Flow temperature setpoint for manual heat demand Can be set from 7 to 80 °C Set point used when manual mode is active (Manual Heat Demand (AP002) = With setpoint)	40
Max CH flow setpoint (AP063)	Maximum central heating flow temperature setpoint Can be set from 20 °C to 75 °C	Hydraulic back-up: 75 Electrical back-up: 75

HP : Heat-pump Parameters = Heat pump parameters

Tab.85

Parameters	Description of the parameters	EHC–05 factory setting
Flow rate warning (HP011)	Flow rate that triggers a warning message indicating that flow rate becomes insufficient Can be set from 0 l/min to 95 l/min	10 for 6 kW 16 for 11 kW
CH Pump postrun time (PP015)	Central heating pump post run time Post-circulation of the heating pump: • can be set from 0 to 98 minutes • set to 99 = runs continuously	3

7.4.7 Installation Setup > Cascade management B > Parameters, counters, signals

NP : Network Parameters = Cascade parameters

Tab.86 Parameters

Parameter	Description	Factory setting SCB-10
Cascade Permutation (**NP005**)	Choice of the leading generator,.AUTO: Switching of order every 7 days Can be set from 0 127	0
Cascade Type (**NP006**)	Cascading boilers by adding successively or in parallel, the boilers function simultaneously • 0 Traditional • 1 parallel	0
CascTOutsideHeat Parl (**NP007**)	Outdoor start temperature heating of all stages in parallel mode Can be set from -10 °C to 20 °C	10
CascTPostRunGen ePump (**NP008**)	Duration of post operation of the cascade generator pump Can be set from 0 Min to 30 Min	4
CascInterStageTim e (**NP009**)	Switch on and switch off timing for the producer of the cascade Can be set from 1 Min to 60 Min	4
CascTOutsideCool Para (**NP010**)	Outdoor start temperature cooling of all stages in parallel mode Can be set from 10 °C to 40 °C	30
CascadeTypeAlgo (**NP011**)	Choice of Cascade Algorithm type, power or temperature • Temperature • Power	Temperature
CascPowerRiseTi me (**NP012**)	Cascade, Time to reach Temperature Septoint Can be set from 1 to 10	1
CascForceStop Pprim (**NP013**)	Force Primary Pump to Stop on cascade • No • Yes	No
Cascade Mode (**NP014**)	Functionnement Mode of cascade : automatic, heating or cooling • Automatic • Heating • Cooling	Automatic

Tab.87 Adv. Parameters

ADV parameter	Description of the ADV advanced parameters	Factory setting SCB-10
NP001	Hysterese high for Producer Manager Can be set from 0.5 °C to 10 °C	3
NP002	Hysterese low for Producer Manager Can be set from 0.5 °C to 10 °C	3
NP003	Maximum error gain for Producer Manager Can be set from 0 °C to 10 °C	10
NP004	Proportional Factor for cascade with Temperature algorithm Can be set from 0 to 10	1

7.4.8 Installation Setup > Outside temp > Parameters, counters, signals

Tab.88 Parameters

Parameter	Description	Factory setting SCB-10
Outdoor sensor (**AP056**)	Enable outdoor sensor • No outside sensor • AF60 • QAC34	1
Summer Winter (**AP073**)	Outdoor temperature: upper limit for heating Can be set from 15 °C to 30.5 °C	22
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 to 10 °C	4

7.4.9 Installation Setup > Digital input > Parameters, counters, signals

EP : Entry Parameters = Input parameters

Tab.89 Parameters

Parameter	Description	Factory setting SCB-10
Digital input config (**EP046**)	Sets the general configuration of the digital input • Stop heating + DHW • Stop heating • Stop DHW • Forced setpoint • Buffer Tank input	Stop heating + DHW
Logic level Digi In (**EP056**)	Sets the logic level contact of the Smart Control Board digital input • Open • Closed • Off	Closed
Req FlowSetp digi In (**EP066**)	Requested flow setpoint when digital input is configured to forced heat Can be set from 7 °C to 100 °C	80

7.4.10 Installation Setup > Analogue input > Parameters, counters, signals

EP : Entry Parameters = Input parameters

Tab.90 Adv. Parameters

ADV parameter	Description of the ADV advanced parameters	Factory setting SCB-10
Sensor input config (**EP036**)	Sets the general configuration of the sensor input Tsyst1 • Disabled • DHW tank • DHW tank top • Buffer tank sensor • Buffer Tank top • System (cascade)	Disabled
Sensor input config (**EP037**)	Sets the general configuration of the sensor input Tsyst2 • Disabled • DHW tank • DHW tank top • Buffer tank sensor • Buffer Tank top • System (cascade)	Disabled

7.4.11 Installation Setup > 0-10 V input > Parameters, counters, signals

Tab.91 EP : Entry Parameters = Input parameters

Parameter	Description	Factory setting SCB-10
SCB func. 10V PWMin (**EP014**)	Smart Control Board function 10 Volt PWM input • Off • Temperature control • Power control	Off
Max Setp Temp 0-10V (**EP030**)	Sets the minimum set point temperature for 0 - 10 volts for the Smart Control Board Can be set from 0 °C to 100 °C	0
Min Setp Power 0-10V (**EP031**)	Sets the maximum set point temperature for 0 - 10 volts for the Smart Control Board Can be set from 0.5 °C to 100 °C	100
Min Setp Volt 0-10V (**EP034**)	Minimum voltage for 0-10 V input corresponding to the minimum set point Can be set from 0 V to 10 V	0.5
Max Setp Volt 0-10V (**EP035**)	Maximum voltage for 0-10 V input corresponding to the maximum set point Can be set from 0 V to 10 V	10

7.4.12 Installation Setup > Appliance status > Parameters, counters, signals

EP : Entry Parameters = Input parameters

Tab.92 Parameters

Parameter	Description	Factory setting SCB-10
Status relay func. (**EP018**)	Status relay function • No Action • Alarm • Alarm Inverted • Compressor on • Compressor off • Reserved • Reserved • Service request • Heat pump in heating mode • Heat pump in domestic hot water mode • CH pump on • Locking or Blocking	Locking or Blocking

7.5 Description of the parameters

7.5.1 Running the back-up in heating mode

■ Start-up conditions for the back-up

The back-ups are authorised to start up normally except in the case of active back-up relief, limitation linked to bi-valency or hybrid mode operation for example.

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

The back-ups can also operate where defrosting is necessary to guarantee the safety of the plate heat exchanger, without taking into account temperature values, bivalency and the BL1 and BL2 inputs.

Conditions that allow back-up relief:

If the **BL function** (AP001) or **BL2 function** (AP100) parameters are set to Backup relieved, Gen.&Backup relieved or Photovoltaic HP Only and the corresponding **BL** input is activated, the back-ups will be deactivated.

In heating mode, the back-up is managed by the following parameters:

Tab.93 Parameter for heating production

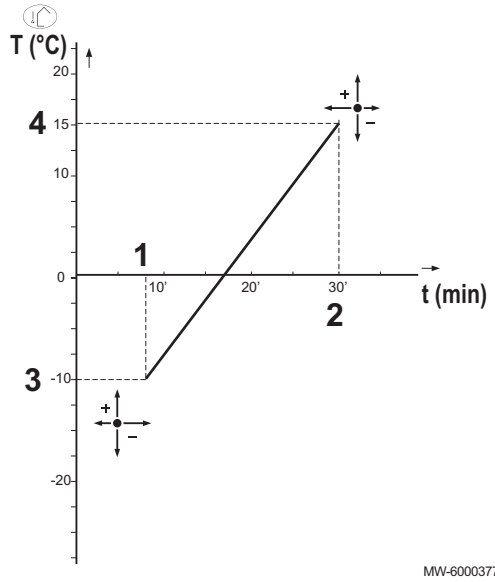
Access	Parameter	Description	Default value
23.5 **Air Src Heat pump > Parameters, counters, signals > Parameters**	**BL function** (AP001)	BL input function selection	• Backup relieved • Gen.&Backup relieved • PV HP And backup
	BL2 function (AP100)	BL2 input function selection.	

Tab.94

Access	Parameter	Description	Value
23.5 **Air Src Heat pump > Parameters, counters, signals > Parameters**	**Delay StartBackup CH** (HP030)	Delay time for starting the backup energy source for the heating circuits Can be set from 1 to 600 minutes. If the **Delay StartBackup CH** (HP030) parameter is set to 0, the time delay for activating the back-up is set depending on the outdoor temperature.	20 minutes
	Delay stop backup CH (HP031)	Delay time for stopping the backup energy source for the heating circuits	4 minutes (default value)

If the **Delay StartBackup CH** parameter is set to 0, the time delay for activating the back-up is set depending on the outdoor temperature: the lower the outdoor temperature, the quicker the back-up will be activated.

Fig.52



t Time (minutes)
T Outdoor temperature (°C)
1 Delay Min.Outdoor T. (HP047)
2 Delay Max.Outdoor T (HP048)
3 Min.Outdoor T.backup (HP049)
4 Max.Outdoor T.backup (HP050)

Tab.95 Time delay curve parameters for tripping the back-up when Delay StartBackup CH (HP030) is set to 0.

Access	Parameter	Description	Value
23.5 **Air Src Heat pump > Parameters, counters, signals > Parameters**	Delay Min.Outdoor T. (HP047)	Minimum duration of the time delay for tripping the back-up Can be set from 0 to 60 minutes	8 minutes (default value)
	Delay Max.Outdoor T (HP048)	Maximum duration of the time delay for tripping the back-up. Can be set from 0 to 60 minutes	30 minutes
	Min.Outdoor T.backup (HP049)	Minimum outdoor temperature for the time delay for tripping the back-up. Can be set from -30 to 0 °C	-10 °C
	Max.Outdoor T.backup (HP050)	Maximum outdoor temperature for the time delay for tripping the back-up. Can be set from -30 to +20 °C	15 °C

Back-up operation if an error occurs on the outdoor unit

If an error occurs on the outdoor unit during a system heating demand, the boiler or electrical back-up starts up immediately to guarantee heating comfort.

Back-up operation when defrosting the outdoor unit

When the outdoor unit is defrosting, the control unit ensures full protection of the system by starting up the back-ups if necessary.

Additional protection is provided if the water temperature falls too sharply. In this case, the outdoor unit is shut down.

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 back-up or electric boiler starts up immediately to guarantee heating comfort.

Tab.96

Access	Parameter	Description	Value
23.5 **Air Src Heat pump > Parameters, counters, signals > Adv. Parameters**	Min. Outdoor T. HP (HP051)	Minimum outdoor temperature for the heat pump to shut down.	-20 °C for 6 kW -20 °C for 8 kW -20 °C for 11 kW

7.5.2 Running the back-up in domestic hot water mode

Start-up conditions for the back-up

The start-up conditions for the back-up producing domestic hot water are described in the following table.

Tab.97

Access	Parameter	Description	Adjustment required
 **Air Src Heat pump > Parameters, counters, signals > Adv. Parameters**	**BL function** (AP001)	BL input function selection	The operation of the **BL1** blocking input can be set to: • 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
	BL1 contact config. (AP098)	BL1 input contact configuration	BL1 input contact configuration: • Open • Closed
	BL2 contact config. (AP099)	BL2 input contact configuration	BL2 input contact configuration: • Open • Closed
	BL2 function (AP100)	BL2 input function selection	The operation of the **BL2** blocking input can be set to: • 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

■ Operating description

The behaviour of the hydraulic or electrical back-up in domestic hot water mode depends on the configuration of the **DHW management parameter (DP051)**.

Tab.98 Behaviour of the hydraulic or electrical back-up

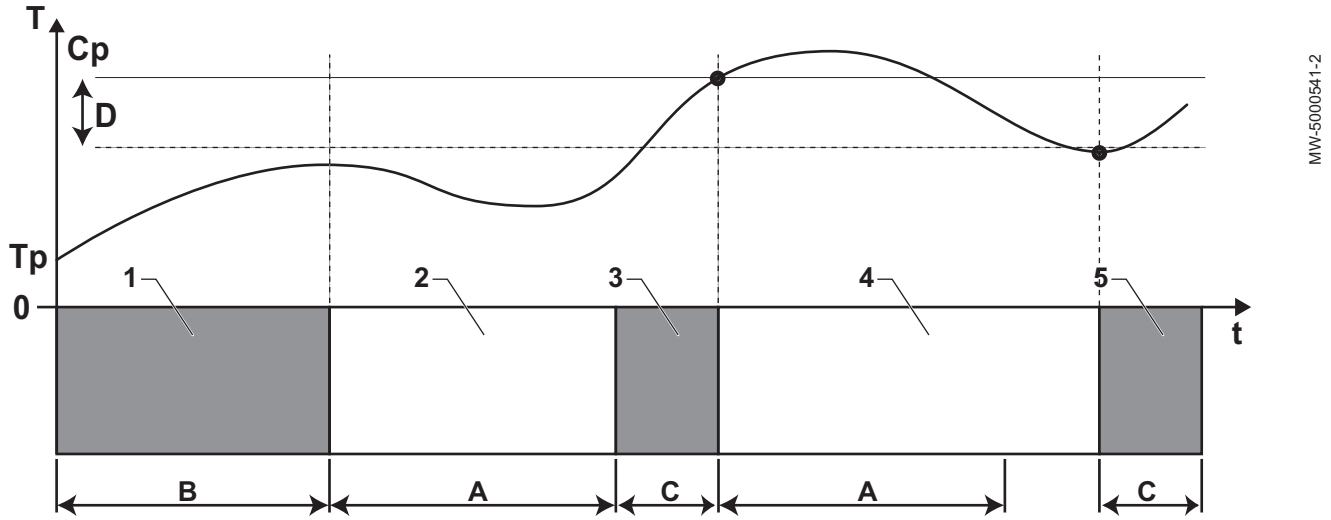
Access	Parameter	Operating description	Adjustment required
Installation Setup > DHW tank > Parameters, counters, signals > Parameters	**DHW management** (DP051)	If set to Economy: the system gives priority to the heat pump during domestic hot water production. Recourse to the hydraulic or electrical back-up is only taken if the **Delay StartBackupDHW (DP090)** time delay has elapsed in domestic hot water mode, unless hybrid mode is activated. In that case, hybrid logic takes over.	ECO (Only HP)
		If set to Comfort: domestic hot water production mode gives priority to comfort by accelerating domestic hot water production by simultaneously using the heat pump and the hydraulic or electrical back-up. In this mode, there is no maximum time for domestic hot water production as the use of the back-ups helps to ensure domestic hot water comfort more quickly.	Comfort (HP+Boiler)
Installation Setup > DHW tank > Parameters, counters, signals > Adv. Parameters	**Delay StartBackupDHW** (DP090)	Delay time for starting the backup energy source for DHW	90

7.5.3 Operation of the switch between heating and production of domestic hot water

The system does not allow the simultaneous production of heating and domestic hot water.

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

Fig.53



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" set point temperature

DHW reduced setpoint **(DP080):** Domestic hot water "Reduced" set point temperature

T Temperature

Tp DHW tank temp bottom **(DM001):** Domestic hot water temperature (lower temperature sensor)

DHW tank temp top **(DM006):** Domestic hot water temperature (upper temperature sensor)

t Time

D Hysteresis DHW **(DP120):** Set point temperature differential triggering the domestic hot water tank to be charged

Tab.99

Phase	Operating description
1	Domestic hot water production only. When switching on, if domestic hot water production is authorised and acceleration of domestic hot water production is not required, DHW management (**(DP051)** configured as ECO (Only HP)), a domestic hot water production cycle is started up for a maximum duration that can be adjusted 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 set point is not reached, a minimum heating period is forced. This period can be adjusted and defined with the Min. CH before DHW parameter **(DP048)**. After the heating period, tank loading is again enabled.
3	Domestic hot water production only. When the domestic hot water set point 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 parameter **(DP120)**. The DHW tank will then heat up the water more quickly.
5	Domestic hot water production only.

Tab.100 Configuration of the domestic hot water

Access	Parameter	Description
DHW tank > Parameters, counters, signalsParameters >	DHW management (DP051)	ECO mode: use of the heat pump only. Comfort mode: use of the heat pump and backup energy sources
	DHW comfort setpoint (DP070)	Comfort temperature setpoint from the Domestic Hot Water tank
	Hysteresis DHW (DP120)	Hysteresis temperature relative to the DHW temperature setpoint
	DHW reduced setpoint (DP080)	Reduced temperature setpoint from the Domestic Hot Water tank

Tab.101 Configuration of the duration

Access	Parameter	Description
DHW tank > Parameters, counters, signalsParameters >	Max. DHW duration (DP047)	Maximum duration of the domestic hot water production
	Min. CH before DHW (DP048)	Minimum heating duration between two periods of domestic hot water production

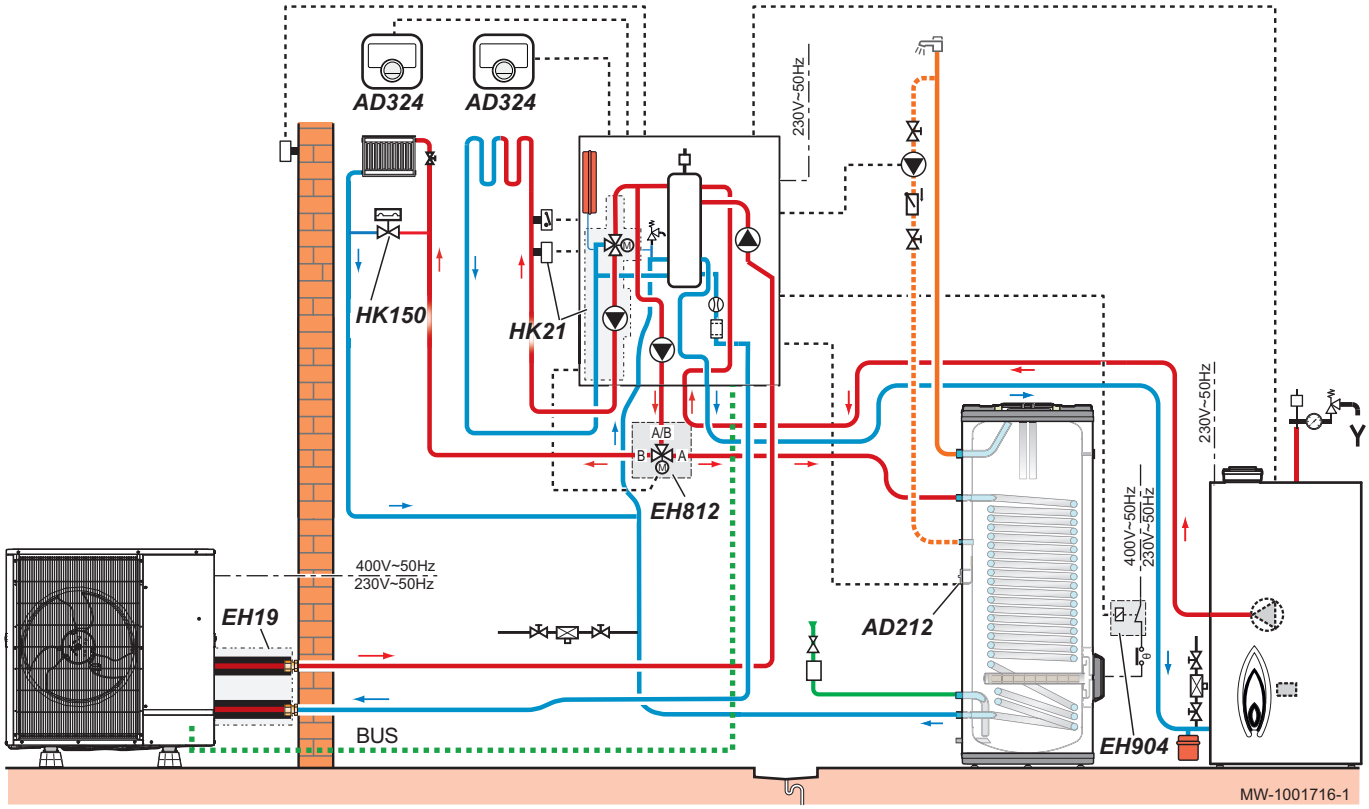
Tab.102 Temperatures

Access	Signal	Description
DHW tank > Parameters, counters, signalsSignals >	DHW tank temp bottom (DM001)	Domestic Hot Water tank temperature (bottom sensor)
	DHW tank temp top (DM006)	Domestic Hot Water tank temperature (top sensor)

8 Connection and installation examples

8.1 Installation with hydraulic back-up, two heating circuits and a domestic hot water tank

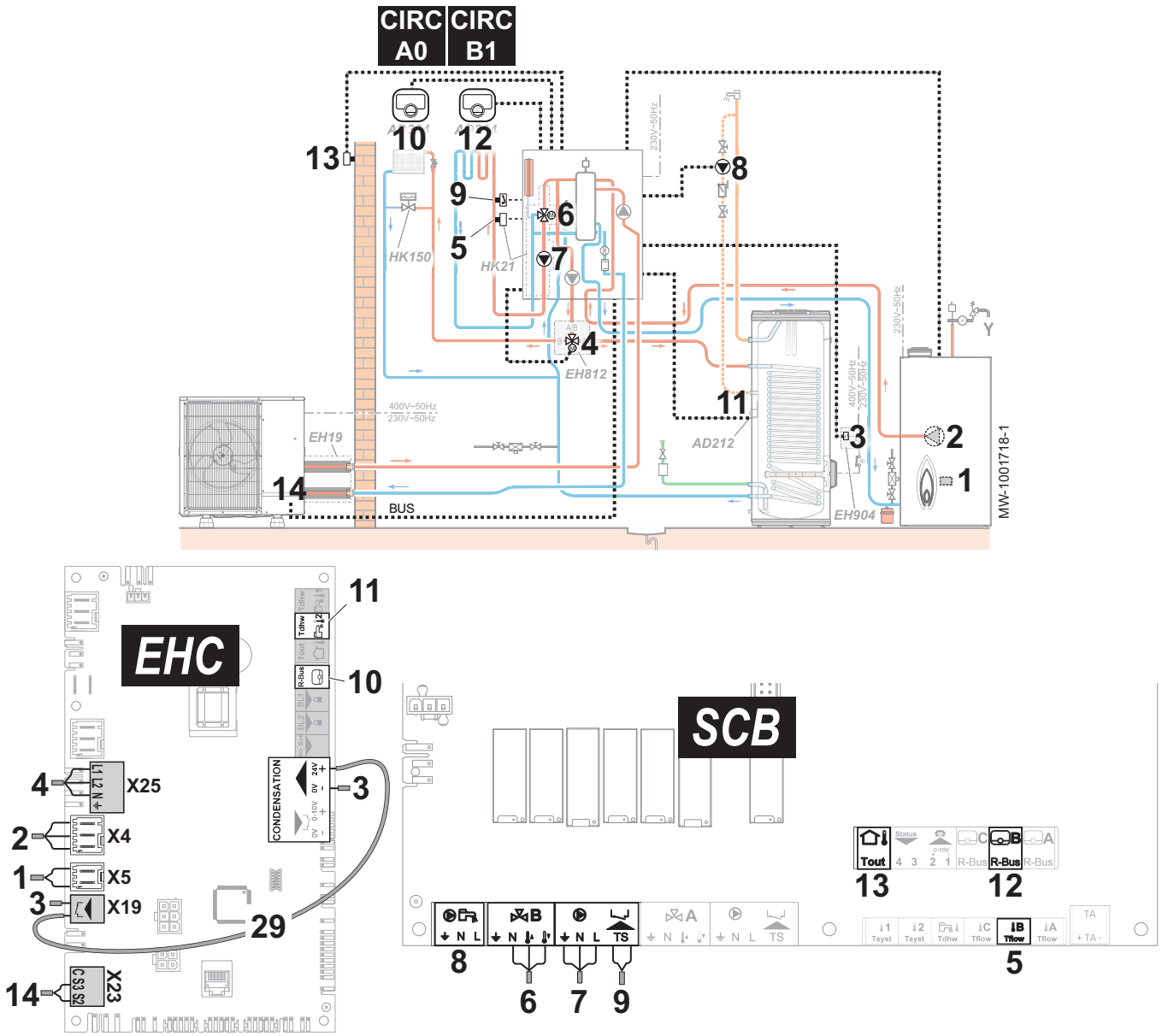
Fig.54



AD212 Domestic hot water sensor
AD324 SMART TC° connected room thermostat
EH19 Insulated hose kit
EH812 Reversing valve kit
EH904 Electrical connection kit for the domestic hot water back-up
HK21 Internal two-way valve kit (with motor) and flow sensor for mixing valve
HK150 Differential valve

8.1.1 Carrying out the electrical connections and the parameter settings

Fig.55
Connect CIRC A0 to EHC–05 and CIRC B1 to SCB-10



1 X5: Hydraulic back-up on/off contact, controls the burner for the back-up boiler
2 X4 : Control of the back-up boiler pump
3 X19: Control signal for the immersion heater, used to control the immersion heater on the domestic hot water tank with the EH904 kit
3 X12: 24 V power supply for the condensation sensor, used to control the immersion heater on the domestic hot water tank with the EH904 kit
4 X25: Reversal valve from the EH812 reversal valve kit: A0/domestic hot water circuit
5 Flow sensor – B1 circuit
6 Three-way valve – B1 circuit
7 Power supply for the B1 circuit pump
8 Domestic hot water recirculating pump
9 Safety thermostat for underfloor heating flow
10 X12 R-Bus: SMART TC° connected room thermostat on the A0 circuit
11 X28 Tdhw2: AD212 domestic hot water sensor
12 Connected room thermostat on the B1 circuit
13 Outdoor temperature sensor
14 X23: Outdoor unit bus connection

1. Connect the accessories and options to the **EHC–05** PCB, respecting the 230-400 V and 0-40 V cable feed-throughs.
2. Connect the accessories and options to the **SCB-10** PCB, respecting the 230-400 V and 0-40 V cable feed-throughs.
   ⇨ The icons corresponding to the CIRCB1 circuit and domestic hot water appear on the user interface. The CIRCA0 circuit icon is present by default.
3. To configure the back-up boiler: on first start-up or after resetting the factory settings, set the CN1 and CN2 parameters according to the output information on the data plate of the outdoor unit.

4. Configure and check the parameters of the CIRCA0 circuit.

Tab.103

Access	Parameter	Adjustment required
21.7 **CIRCA0> Parameters, counters, signals > Parameters**	**MaxZoneTFlowSetpoint** (CP000)	Maximum Flow Temperature setpoint zone: 75 °C Adjust the temperature as required
	Zone Function (CP020)	Functionality of the zone: Direct

5. Set the heating curve on the CIRCA0 circuit to a gradient of 1.5. Adapt the values of the heating curve in order to obtain optimum comfort.
6. Configure the parameters for the CIRCB1 circuit.

Tab.104

Access	Parameter	Adjustment required
19.8 **CIRCB1 > Parameters, counters, signals > Parameters**	**MaxZoneTFlowSetpoint** (CP000)	Maximum Flow Temperature setpoint zone: 40 °C Adjust the temperature according to need
	Zone Function (CP020)	Functionality of the zone: Mixing Circuit

7. Set the heating curve on the CIRCB1 circuit with a gradient between 0.4 and 0.7. Adapt the values of the heating curve in order to obtain optimum comfort.
8. Configure the parameters of the (DHW) domestic hot water tank.

Tab.105

Access	Parameter	Adjustment required
51,2°C **DHW tank > Parameters, counters, signals > Parameters**	**Max. DHW duration** (DP047) Maximum duration of the DHW production	3 hours Adjust the duration according to need
	Min. CH before DHW (DP048) Min. heating duration before DHW prod.	2 hours Adjust the duration according to need
	DHW management (DP051)	ECO (Only HP)
	Hysteresis DHW temperature setpoint (DP120)	15 °C Adjust the temperature according to need

9. Configure the heat pump parameters

Tab.106

Access	Parameter	Adjustment required
23.5 **Air Src Heat pump > Parameters, counters, signals > Adv. Parameters**	**Cooling mode** (AP028)	Configuration of the cooling mode • Off • Active cooling on

⇨ • Authorisation for cooling has been set.

10. Configure the parameters for the immersion heater on the domestic hot water tank.

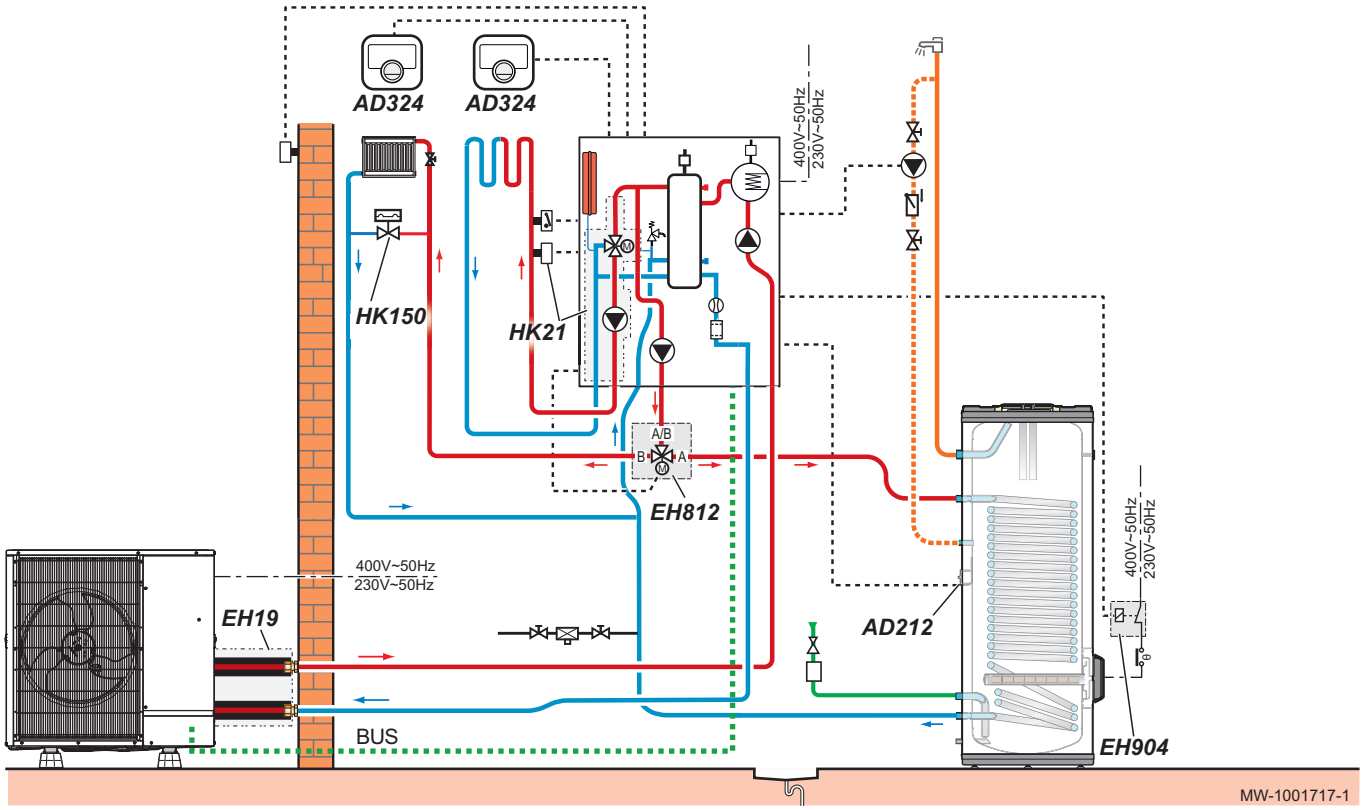
Tab.107

Access	Parameter	Adjustment required
DHW tank > Parameters, counters, signals > Adv. Parameters	**DHW backup type** (DP334)	IDU/DhwTank Cooling
Air Src Heat pump > Parameters, counters, signals > Adv. Parameters	**kW rating DHW backup** (HP145)	2.4 kW

11. Configure the timer programme for the domestic hot water 1 (DHW1) to program the operating hours of the recirculating pump.
12. Configure the timer programmes for the CIRCA0, CIRCB1 and domestic hot water circuits.

8.2 Installation with electrical back-up, two heating circuits and a domestic hot water tank

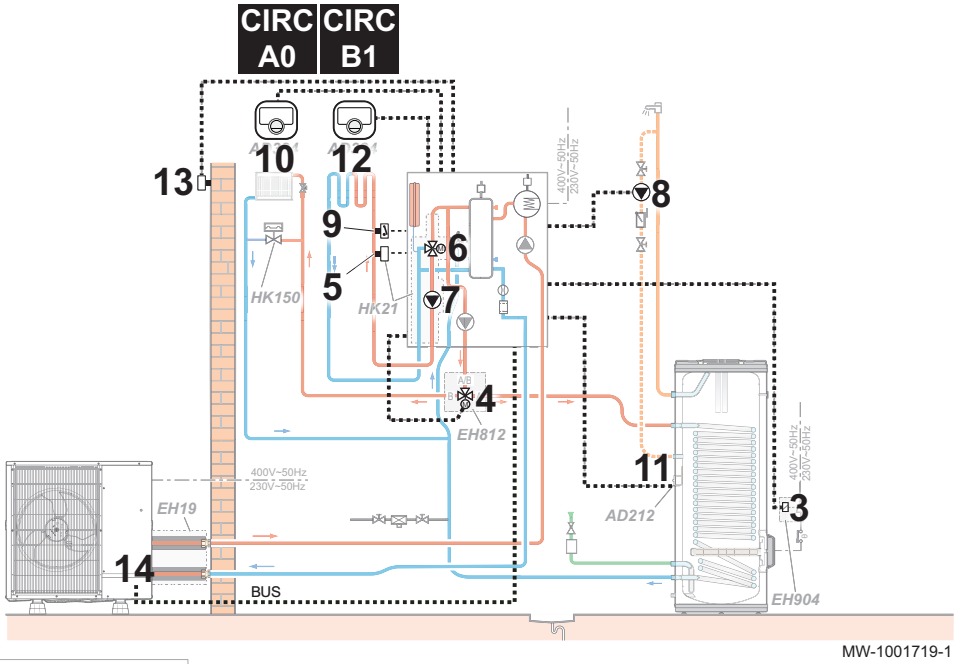
Fig.56
Connect CIRC A0 to EHC–05 and CIRC B1 to SCB-10



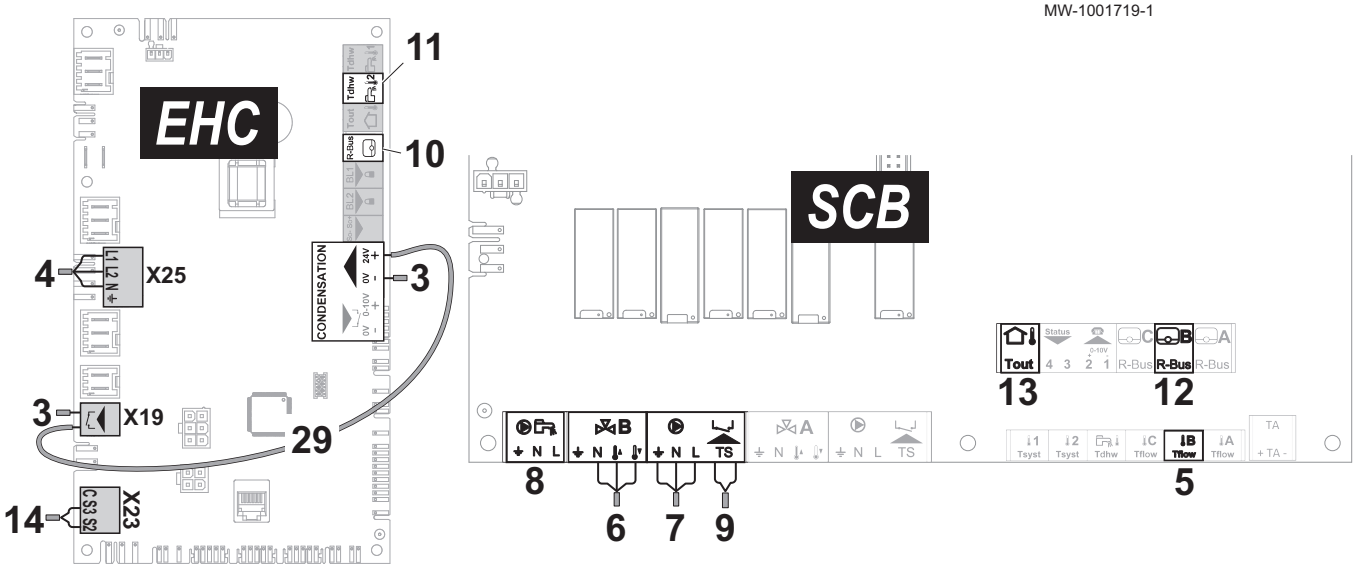
AD212 Domestic hot water sensor
AD324 SMART TC° connected room thermostat
EH19 Insulated hose kit
EH812 Reversing valve kit
EH904 Electrical connection kit for the domestic hot water back-up
HK21 Internal two-way valve kit (with motor) and flow sensor for mixing valve
HK150 Differential valve

8.2.1 Carrying out the electrical connections and the parameter settings

Fig.57
Connect CIRC A0 to EHC–05 and CIRC B1 to SCB-10



MW-1001719-1



3 X19: Control signal for the immersion heater, used to control the immersion heater on the domestic hot water tank with the EH904 kit
3 X12: 24 V power supply for the condensation sensor, used to control the immersion heater on the domestic hot water tank with the EH904 kit
4 X25: Reversal valve from the EH812 reversal valve kit: A0/domestic hot water circuit
5 Flow sensor – B1 circuit
6 Three-way valve – B1 circuit
7 Power supply for the B1 circuit pump
8 Domestic hot water recirculating pump
9 Safety thermostat for underfloor heating flow
10 X12 R-Bus: SMART TC° connected room thermostat on the A0 circuit
11 X28 Tdhw2: AD212 domestic hot water sensor
12 SMART TC° connected room thermostat on the B1 circuit
13 Outdoor temperature sensor
14 X23: Outdoor unit bus connection

1. Connect the accessories and options to the **EHC–05** PCB, respecting the 230-400 V and 0-40 V cable feed-throughs.
2. Connect the accessories and options to the **SCB-10** PCB, respecting the 230-400 V and 0-40 V cable feed-throughs.
   ⇨ The icons corresponding to the CIRCB1 circuit and domestic hot water appear on the user interface. The CIRCA0 circuit icon is present by default.

3. Configure and check the parameters of the CIRCA0 circuit.

Tab.108

Access	Parameter	Adjustment required
21.7 **CIRCA0> Parameters, counters, signals > Parameters**	**MaxZoneTFlowSetpoint** (CP000)	Maximum Flow Temperature setpoint zone: 75 °C Adjust the temperature as required
	Zone Function (CP020)	Functionality of the zone: Direct

4. Set the heating curve on the CIRCA0 circuit to a gradient of 1.5. Adapt the values of the heating curve in order to obtain optimum comfort.
5. Configure the parameters for the CIRCB1 circuit.

Tab.109

Access	Parameter	Adjustment required
19.8 **CIRCB1 > Parameters, counters, signals > Parameters**	**MaxZoneTFlowSetpoint** (CP000)	Maximum Flow Temperature setpoint zone: 40 °C Adjust the temperature according to need
	Zone Function (CP020)	Functionality of the zone: Mixing Circuit

6. Set the heating curve on the CIRCB1 circuit with a gradient between 0.4 and 0.7. Adapt the values of the heating curve in order to obtain optimum comfort.
7. Configure the parameters of the (DHW) domestic hot water tank.

Tab.110

Access	Parameter	Adjustment required
51,2°C **DHW tank > Parameters, counters, signals > Parameters**	**Max. DHW duration** (DP047) **Maximum duration of the DHW production**	3 hours Adjust the duration according to need
	Min. CH before DHW (DP048) **Min. heating duration before DHW prod.**	2 hours Adjust the duration according to need
	DHW management (DP051)	ECO (Only HP)
	Hysteresis DHW temperature setpoint (DP120)	15 °C Adjust the temperature according to need

8. Configure the heat pump parameters

Tab.111

Access	Parameter	Adjustment required
23.5 **Air Src Heat pump > Parameters, counters, signals > Adv. Parameters**	**Cooling mode** (AP028)	Configuration of the cooling mode • Off • Active cooling on

⇨ • Authorisation for cooling has been set.

9. Configure the parameters for the immersion heater on the domestic hot water tank.

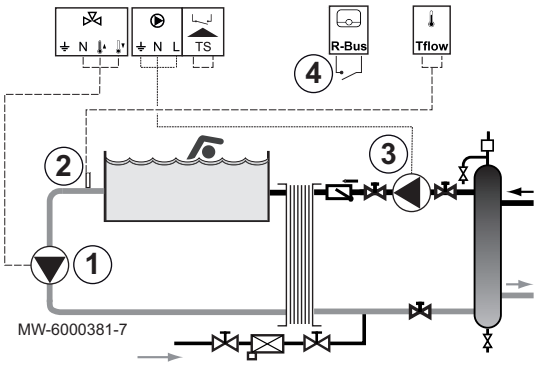
Tab.112

Access	Parameter	Adjustment required
DHW tank > Parameters, counters, signals > Adv. Parameters	**DHW backup type** (DP334)	IDU/DhwTank Cooling
Air Src Heat pump > Parameters, counters, signals > Adv. Parameters	**kW rating DHW backup** (HP145)	2.4 kW

10. Configure the timer programme for the domestic hot water 1 (DHW1) to program the operating hours of the recirculating pump.
11. Configure the timer programmes for the CIRCA0, CIRCB1 and domestic hot water circuits.

8.3 Connecting a swimming pool

Fig.58



The swimming pool is not heated when the contact is open (factory setting). Only the frost protection continues to run.

A swimming pool is electrically connected on the **CIRCA1**, **CIRCB1** or **CIRCC1** circuit.

1. Connect the swimming pool's secondary pump to the three-way valve terminal block for the **CIRCA1**, **CIRCB1** or **CIRCC1** circuit.

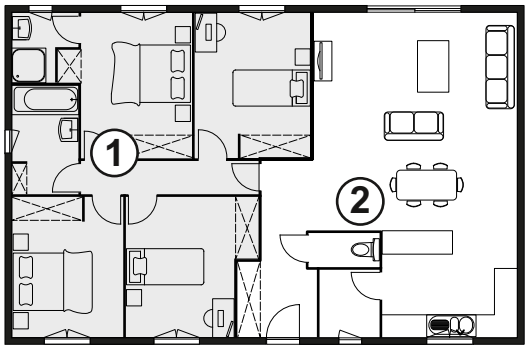
Three-way valve terminal block	Connecting the pump
Earthing connector	Earth wire
N connector	Pump neutral
Opening control connector	Power supply for pump

2. Connect the swimming pool temperature sensor to the TFlow terminal block corresponding to the selected circuit.
3. Connect the swimming pool's primary pump to the terminal block for the selected circuit (**CIRCA1**, **CIRCB1** or **CIRCC1**).
4. Connect the swimming pool heating cut-off control to the R-Bus terminal block.

9 Operation

9.1 Personalising the zones

Fig.59



MW-1001145-2

9.1.1 Definition of the term "zone"

Term given to the different hydraulic circuits (CIRCA, CIRCB). It indicates several rooms served by the same circuit.

Tab.113 Example:

Key	Zone	Factory-set name
①	Zone 1	CIRCA
②	Zone 2	CIRCB

9.1.2 Changing the name and symbol of a zone

The name and symbol for a zone are factory-set as shown in the appendix. If you desire, you can personalise the name and symbol of the zones in your installation.

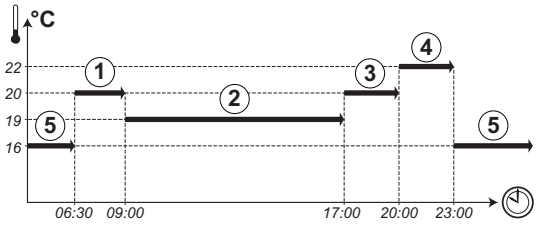
1. Select the icon for the zone to be modified, 

, for example.
2. Select **Zone configuration > Zone friendly Name**.
3. Modify the name of the zone (20 characters max.).
4. Select **Icon display zone**
5. Select the symbol to be associated with the zone.
6. Insert the chosen name and symbol in the table below:

Factory-set name	Factory-set symbol	Name and symbol defined by the customer	
CIRCA			
CIRCB			

9.2 Personalising the activities

Fig.60



MW-1001144-2

9.2.1 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.114 Example:

Start of the activity	Activity	Set point temperature
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

9.2.2 Changing the name of an activity

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

1. Press the ☰ key.
2. Select **System Settings**.
3. Select **Set Heating Activity Names** or **Set Cooling Activity Names**.
4. Select the activity you want to change.
5. Change the name of the activity (10 characters max.).

9.2.3 Changing the temperature of an activity

The temperatures for the different activities are factory-set as shown in the appendix. If you desire, you can personalise the temperatures for these activities for all of the zones in your installation. These activities are used in the timer programmes.

1. Select the icon for the zone to be programmed,  , for example.
2. Select **Set Heating Activity Temperatures**, either for heating or for cooling.
   ⇨ Information on the selected menu is given in the lower part of the screen.
3. Select the activity you want to change.
4. Modify the temperature for the activity.
5. Enter the chosen temperature in the table provided at the back of the manual.

9.3 Room temperature for a zone

9.3.1 Selecting the operating mode

To set the room temperature for the different living zones, you can choose between five operating modes. We recommend the **Scheduling** operating mode which enables the room temperature to be modulated according to your needs and to optimise your energy consumption.

1. Select the icon for the affected zone,  , for example.
2. Select the desired operating mode:

Tab.115

Mode		Description
	Scheduling	The room temperature is modulated according to the timer programme chosen. Recommended mode.
	Manual	The room temperature is constant.
	Short temperature change	The room temperature is forced for a defined period.
	Holiday	The room temperature is reduced during an absence period to save energy.
	Antifrost	The installation and equipment are protected against frost during the winter period.

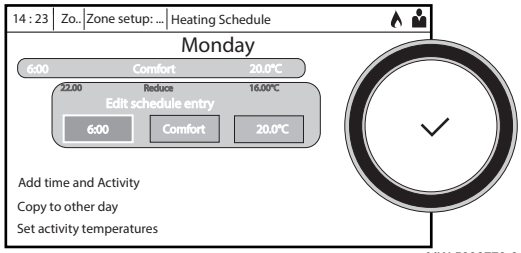
9.3.2 Activating and configuring a timer programme for heating

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.

1. Select the icon for the zone to be programmed,  , for example.
   ⇨ Information on the current operating mode is given in the upper part of the screen.

2. To activate the timer programming or to change the timer programme, select **Scheduling**.
3. Select the timer programme to be activated.
   ⇨ Information on the active timer programme is given in the upper part of the screen.
4. To modify the timer programme, select **Zone configuration** > **Heating Schedule**.
5. Select the programme to be modified.
   ⇨ 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:
   - **Modify** the timings for programmed activities.
   - **Add** a new time range.
   - **Delete** a programmed activity (choose the activity "Delete").
   - **Copy** programmed daily activities to other days.
   - **Modify temperatures** linked to an activity.

Fig.61



MW-5000770-04

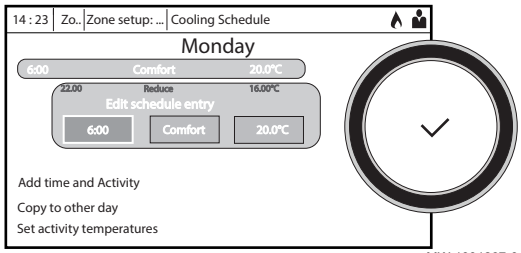
9.3.3 Activating and configuring a timer programme for cooling

You can modify the timer programme linked to the **Cooling** mode. In the **Scheduling** 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.

1. Select the icon for the zone to be programmed, 

, for example.
   ⇨ Information on the current operating mode is given in the upper part of the screen.
2. To modify the timer programme for the **Cooling** mode, select **Zone configuration** > **Cooling Schedule**.
   ⇨ The programmed activities for Monday are displayed.
   The last activity of the day remains active until the first activity of the following day.
3. Select the day to be modified.
4. Carry out the following actions according to your needs:
   - **Modify** the timings for programmed activities.
   - **Add** a new activity.
   - **Delete** a programmed activity (choose the activity "Delete").
   - **Copy** programmed daily activities to other days.
   - **Modify temperatures** linked to an activity.

Fig.62



MW-1001267-04

9.3.4 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.

1. Select the icon for the **zone** to be modified; 

, for example.
2. Select **Short temperature change**.
3. Define the duration in **Hour** and in **Minute**.
4. Set the temporary room temperature set point for the circuit selected.

9.4 Domestic hot water temperature

9.4.1 Selecting the operating mode

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

1. Select the DHW tank icon.
2. Select the desired operating mode:

Tab.116

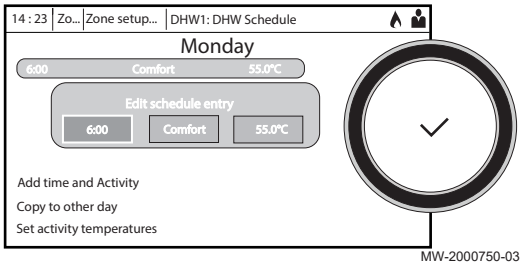
Mode		Description
	Scheduling	The domestic hot water is produced according to the timer programme chosen
	Manual	The domestic hot water temperature remains at the comfort temperature permanently
	Hot water boost	The production of domestic hot water is forced at the comfort temperature for a defined duration
	Holiday	The domestic hot water temperature is reduced during an absence period to save energy
	Antifrost	The equipment and the system are protected when the heat pump is in frost protection mode.

9.4.2 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.

1. Select the DHW tank icon.
   ⇨ Information on the current operating mode is given in the upper part of the screen.
2. To activate the timer programming or to change the timer programme, select **Scheduling**.
3. Select the timer programme to be activated.
   ⇨ Information on the active timer programme is given in the upper part of the screen.
4. To modify the timer programme, select **Zone configuration** > **DHW Schedule**.
5. Select the programme to be modified.
   ⇨ 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:
   - **Modify** the timings for programmed activities.
   - **Add** a new activity.
   - **Delete** a programmed activity (choose the activity "Delete").
   - **Copy** programmed daily activities to other days.
   - **Modify temperatures** linked to an activity.

Fig.63



MW-2000750-03

9.4.3 Forcing domestic hot water production (override)

Regardless of the selected operating mode, you can force domestic hot water production to the comfort temperature (**DHW comfort setpoint** parameter) for a defined duration.

1. Select the DHW tank icon.
2. Select **Hot water boost**.
3. Define the duration in **Hour** and in **Minute**.

9.4.4 Modifying the domestic hot water set point temperatures

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

- **DHW comfort setpoint**: used in the Scheduling, Manual and Hot water boostmodes

- **DHW reduced setpoint**: used in the Scheduling, Holiday and Antifrostmodes

You can change these set point temperature settings to adapt them to your needs.

1. Select the  **DHW tank** icon.
2. Select **Comfort DHW set point** to modify this set point.
3. Select **Zone configuration > Domestic Hot Water Setpoints > Reduced DHW set point** to modify this set point.

9.5 Managing the heating, cooling and domestic hot water production

9.5.1 Switching the central heating on/off

Your appliance will automatically deactivate the heating function and switch to cooling mode when the temperature exceeds 22 °C (factory setting). However, you can manually switch off the heating function for all circuits to save energy during the summer period, for example.

Important
If the heating function is shut off, then the cooling will also be shut off.

1. Select the  **Air Src Heat pump** icon.
2. Select **CH function on**.
3. Select the desired value:
   - **Off** to stop the heating function.
   - **On** to switch the heating function on again.

9.5.2 Forcing cooling

Your appliance will automatically switch to cooling mode when the outdoor temperature exceeds 22 °C (factory setting). However, you can force cooling mode at any time, regardless of the outdoor temperature.

1. Select the  icon.
2. Select **Force summer mode**.
3. Select **On**.

9.5.3 Periods of absence or going on holiday

If you will be absent for several weeks, you can reduce the room temperature and domestic hot water temperature in order to save energy. To do this, activate the **Holiday** operating mode for all zones, including for domestic hot water.

1. Select the  **Holiday Mode** icon.
2. Set the following parameters:

Tab.117

Parameter	Description
Start date holiday	Set the date and time for the start of the absence period.
End date holiday	Set the date and time for the end of the absence period.
Wished room temperature during holiday	Set the desired room temperature for the absence period
Reset	Restart or cancel the holiday programme

9.6 Monitoring the energy consumption

If your installation is equipped with an energy meter, you can monitor your energy consumption.

1. Select the  **Air Src Heat pump** icon.
   ⇨ The energy consumed since the last energy consumption meter reset is displayed:

Tab.118

Parameter	Description
Cool Energy consumed	Energy consumed for cooling
DHW energy consumed	Energy consumed for domestic hot water
CH Energy Consumed	Energy consumed for central heating

2. To reset the meters to zero, select **Reset counters for the energy consumption**.

9.7 Starting and stopping the heat pump

9.7.1 Starting the heat pump

1. Switch on the outdoor unit and the indoor unit.
   ⇨ The heat pump will begin an automatic vent programme (which lasts approx. three minutes), run each time the power is switched on. If there is a problem, an error message is displayed on the home screen.
2. If an error message is displayed on the home screen, contact the installer.
3. Check the hydraulic pressure in the installation indicated on the user interface.

Important
Recommended hydraulic pressure between 1.5 and 2.0 bar.

9.7.2 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 **Holiday** 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. Switch off the indoor module by pressing the on/off switch.
2. Cut the power to the indoor module, outdoor unit and back-up circuit breakers.

10 Maintenance

10.1 Precautions to be taken before maintenance operations

Important
Servicing shall be performed only as recommended by the manufacturer.

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

Maintenance operations are important for the following reasons:

- To guarantee optimum performance.
- To extend the life 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.

Caution
Before working on the refrigeration circuit, switch off the appliance and wait a few minutes. Certain items of equipment such as the compressor and the pipes can reach temperatures in excess of 100°C and high pressures, which may cause serious injuries.

Danger of electric shock
Before any work, switch off the mains electricity to the heat pump and the hydraulic or electrical back-up if present.

Danger of electric shock
Check the discharge from the capacitors of the outdoor unit.

10.2 List of inspection and maintenance operations

Tab.119 Checking the operation of the installation

Check
Heat pump and back-up in heating mode
Heat pump and back-up in cooling mode
User interface
Fault history
Operating time and number of start-ups for back-ups
Operating time and number of start-ups for compressor

Tab.120 Tightness tests

Check
Leak-tightness of the heating circuit
Leak-tightness of the DHW circuit
Leak-tightness of the hydraulic circuit separation circuit

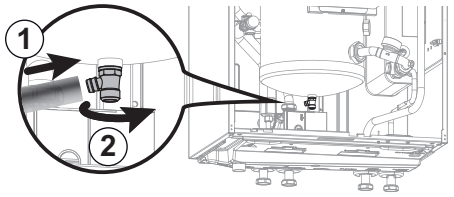
Tab.121 Inspecting the safety devices

Check	Operations to be carried out
Heating circuit safety valve	Actuate the safety valve to check that it is operating correctly.
Expansion vessel	Check and adjust the inflation pressure. France: according to DTU65.11.

Tab.122 Other inspection and maintenance operations

Check	Operations to be carried out
Electrical connections	Replace any faulty parts and cables.
Screws and nuts	Check all screws and nuts (cover, support, etc.) are correctly tightened.
Insulation	Replace any damaged sections of insulation
Filters	Clean the filters. See dedicated chapter.
Flow rate in heating mode	See dedicated chapter.
Flow rate in domestic hot water mode	See dedicated chapter.
Hydraulic pressure	Recommended hydraulic pressure: 1.5 bar to 2 bar
Casing	Clean the outside of the appliance using a damp cloth and a mild detergent.

10.3 Draining the heating circuit



1. Connect a hose (internal diameter: 8 mm) to the drain valve on the heating circuit.
2. Open the drain valve.
3. Await the complete drainage of the heating circuit.

10.4 Cleaning the magnetic filter

To prevent the plate heat exchanger from becoming clogged, the magnetic filter in the indoor unit should be cleaned every year as part of the annual maintenance.

If there is a flow fault on the installation, the filter should be fully cleaned.

10.4.1 Magnetic filter annual maintenance

1. Power off the appliance.
2. Remove the magnet from the filter.
   ⇨ The magnetic particles stuck inside the filter will drop to the bottom and be ejected via the drain.

Fig.64

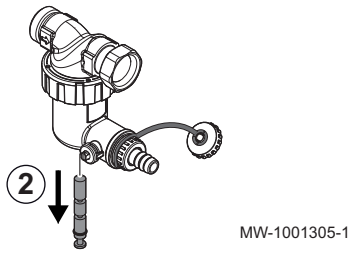


Fig.65

3. Connect a pipe to the filter valve, then open the valve by a quarter turn.

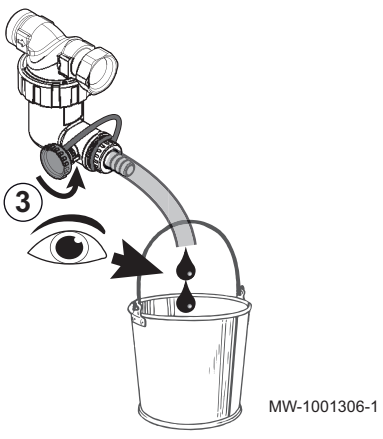
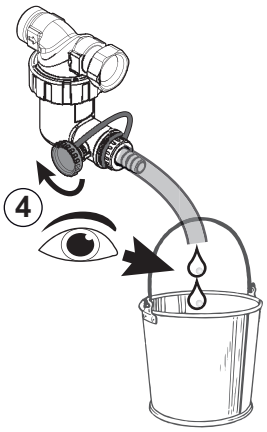


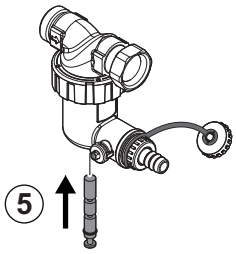
Fig.66



MW-1001307-1

4. Once the water running out of the pipe is clear, re-close the valve. If necessary, open and close the valve several times to create surges, and clean the filter better.

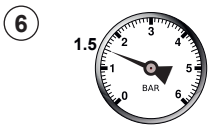
Fig.67



MW-1001308-1

5. Refit the magnet. Pushing it in fully.

Fig.68



MW-1001309-02

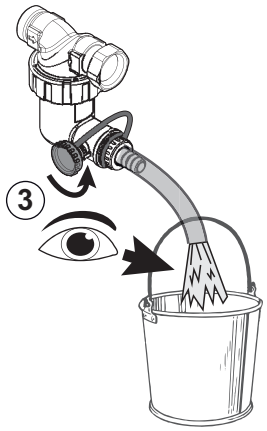
6. Check the pressure in the installation. If the pressure is less than 1.5 bar, top up the water.
7. Power the appliance back on.
8. Check the pressure in the installation. If the pressure is less than 1.5 bar, top up the water.
9. Activate the heating and check the flow rate in the installation. If the flow rate is too low, clean the filter fully.

10.4.2 Full cleaning of the magnetic filter

If the flow rate in the installation is too low, fully clean the magnetic filter. This operation requires the appliance to be fully drained.

1. Power off the appliance.
2. Isolate the appliance from the water supply.
3. Drain the appliance: connect a drain pipe to the filter nipple, then open the valve on the filter tap by a quarter turn.

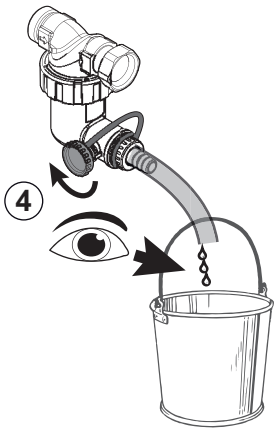
Fig.69



MW-1001310-1

Fig.70

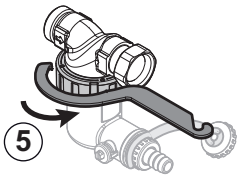
4. Once water stops running out of the pipe, close the valve on the filter.



MW-1001311-1

Fig.71

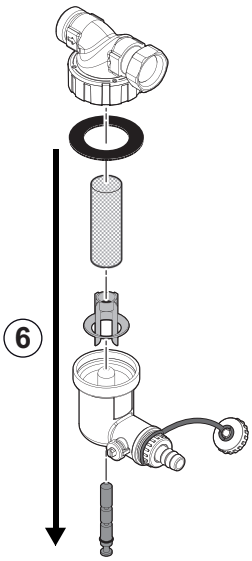
5. Unscrew the sludge container using the handling tool provide in the accessories bag.



MW-1001312-1

Fig.72

6. Disassemble the different parts of the mud pot.
   ⇨ The magnetic particles stuck inside the filter will drop to the bottom.



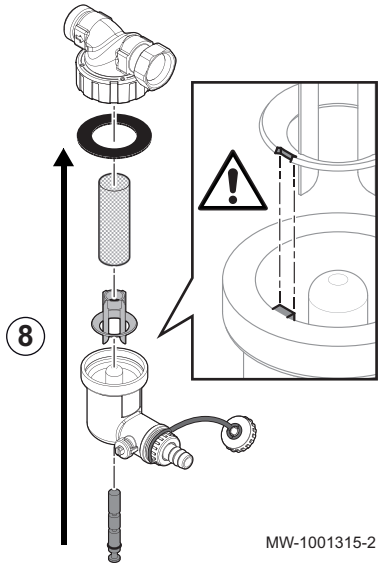
MW-1001313-1

Fig.73

7. Clean the different parts with clean water.

MW-1001314-1

Fig.74



8. Refit the sludge collector.

Caution
Risk of breakage.
- Observe the keyway of the plastic part: align the notch with the pin.
- Check that the seal is correctly positioned before tightening with the key.

9. Open the stop valves and reactivate the water supply to the appliance.
10. Re-commission the appliance.

10.5 Checking the hydraulic pressure

If the hydraulic pressure of your heating system installation is too low or too high, malfunctions and faults may appear.

Recommended hydraulic pressure: from 1.5 bar to 2 bar.

1. Check the hydraulic pressure shown on the control panel.
2. If the hydraulic pressure is too low, top up the water.

10.6 Checking operation of the appliance

This function is used to force the heat pump and back-up in heating or cooling mode, in order to check that they are working correctly.

1. Press the ☰ key.
2. Select **Commissioning Menu**.
3. Select **Load Test**.
4. Select the operating mode for which you would like to see the information. **Off**, **Medium power** or **Control unit Cooling**.
   To test operation in heating mode, it is possible to modify the system set point temperature.
   To test operating in cooling mode, the minimum set point is 10 °C but this can be set to a higher temperature.
   It is strongly advised not to leave the system in this operating mode for long periods as the heating circuits (mixing valves, pumps) are not regulated.

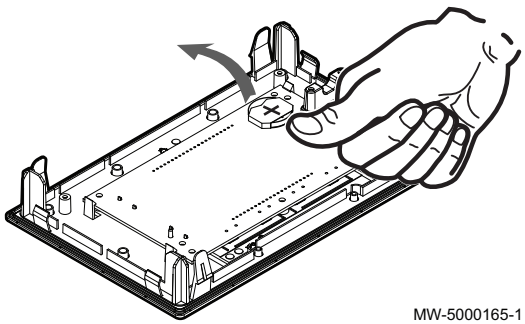
10.7 Replacing the battery in the control panel

If the indoor module is switched off, the control panel 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 by pulling firmly upwards.
2. Tilt the control panel support forwards.
3. Tilt the control panel bracket forwards and hang it in a horizontal position.

Fig.75



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4. Remove the battery located in back plate of the control panel by pushing it gently forwards.
5. Insert a new battery.

Important
Battery type:
- CR2032, 3V
- Do not use rechargeable batteries
- Do not discard used batteries in the dustbin. Take them to an appropriate collection place.

6. Re-assemble everything.

11 Troubleshooting

11.1 Tripping the safety valve

If the safety valve is tripped too often, check to ensure the expansion vessel is not blocked. Replace the expansion vessel if necessary.

11.2 Resolving operating errors

If your appliance malfunctions, the status LED flashes and/or changes colour and a message containing an error code is displayed on the main screen of the control panel. 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 the heat pump off and back on to check that the cause of the error has been removed.
4. If the code is displayed again, contact the installer.

11.2.1 Types of error code

The control panel can display three types of error codes:

Tab.123

Type of code	Code format	Colour of the status LED
Warning	Axx.xx	Green flashing
Blockage	Hxx.xx	Continuous red
Lock out	Exx.xx	Red flashing

■ Error codes

An error code is a temporary status, resulting from the detection of a heat pump anomaly. The heat pump attempts to restart automatically until it switches on.

When one of the following codes is displayed and the heat pump cannot restart automatically, contact a maintenance technician.

Tab.124 List of temporary error codes

Error code	Message	Description
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	**TOutside Open**	Outside 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. The outdoor temperature sensor must always be connected to the EHC–05 PCB. If you have mistakenly connected the outdoor temperature sensor to the SCB-10 PCB, you must reset the factory settings for the CN1 and CN2 parameters.

Error code	Message	Description
H00.33	**TOutside Closed**	Outside 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	**TOutside Missing**	Outside temperature sensor was expected but not detected • Check the wiring between the EHC–05 central unit PCB and the sensor. • Check that the outdoor temperature sensor is connected to the EHC–05 PCB. • Check that the sensor has been fitted properly. • Check the Ohmic value of the sensor. • Reset the factory settings for the CN1 and CN2 parameters. **Important** This solution also resets all the other parameters. • Replace the sensor if necessary. • Activate automatic detection of all the options and accessories.
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 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.
H00.48	**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 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.
H00.51	**THp Return Open**	Heat pump return temperature sensor is either removed or measures a temperature below range
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 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.
H00.58	**T DHW Top Closed**	Domestic Hot Water top 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.

Error code	Message	Description
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 central unit PCB and the pressure sensor. • Check the connection of 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 the AP001 and AP100. parameters.
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 the AP001 and AP100. parameters.
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 module and the installation for optimum running. Incorrect wiring: check the electrical connections. Flow meter: • 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.

Error code	Message	Description
H02.36	**Funct device lost**	Functional device has been disconnected No communication between the central unit PCB and the additional circuit PCB • Check the connection of the 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 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 occured Heat pump outdoor unit fault • Check the wiring between the central unit PCB and the communication **bus** on the outdoor unit. • Check the connection of the communication cable between the central unit PCB and the interface PCB. • Check the connection of the supply cable between the central unit PCB and the interface PCB. • Check the connection of the outdoor unit supply cable.

■ Fault codes

If a fault code is still present after several automatic start-up attempts, the heat pump switches to error mode.

The heat pump will only resume normal operation once the causes of the fault have been eliminated by the installer.

As a result of:

- a manual reset,
- a maintenance message reset.

Tab.125 List of fault codes

Error code	Message	Description
E00.00	TFlow Open	Flow temperature sensor is either removed or measures a temperature below range
E00.01	TFlow Closed	Flow temperature sensor is either shorted or measures a temperature above range

Error code	Message	Description
E02.13	Blocking Input	Blocking Input of the Control Unit from device external environment Input **BL** open. • Check the wiring. • Check the component connected to the **BL.** contact • Check the component connected to the AP001 and AP100. contact
E02.24	System flow locking	System water flow locking active 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 filters are not obstructed. • 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 module and the installation for optimum running. • Check that the automatic air vents are properly open (also check the hydroblock). Incorrect wiring: check the electrical connections. Flow meter: • Check the electrical connections and the direction of the flow meter (arrow to the right). • Replace the flow meter if necessary.

■ EHC–05 alarm codes

An alarm code is a temporary heat pump status, resulting from the detection of an anomaly. If an alarm code still remains after several automatic start-up attempts, the system goes into fault mode.

Tab.126 List of alarm codes

Error 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	Inval or miss SerNR	Invalid or missing device serial number

11.2.2 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.

To display and clear the error memory:

1. Press the ☰ key.
2. Select **Error History**.
   ⇨ The list of the 32 most recent errors is displayed with the error code, a short description and the date.
3. Carry out the following actions according to your needs:
   • Show the details of an error: select the desired error.
   • To clear the error memory, press and hold the ✔ rotary knob.

11.2.3 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.

To access:

1. Press the ☰ key.
2. Select the **Version Information** menu.
3. Select the component for which you would like to see the version information.

Version Information	Description
Appliance information	Information on the indoor unit
EHC–05	Information on the main EHC–05 PCB for the heat pump
DIEMATIC Evolution	Information on the user interface
SCB-10	Information on the SCB-10 PCB for the heat pump

12 Decommissioning and disposal

12.1 Decommissioning procedure

To decommission the heat pump temporarily or permanently:

1. Switch off the heat pump.
2. Shut off the electrical power supply to the heat pump: outdoor unit and indoor module.
3. Shut off the supply to the electrical back-up if an electrical back-up is present.
4. Shut off the supply to the boiler if hydraulic back-up is present.
5. Drain the central heating system.

12.2 Disposal and recycling

Fig.76

MW-3000179-03

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

13 Energy savings

Energy-saving advice:

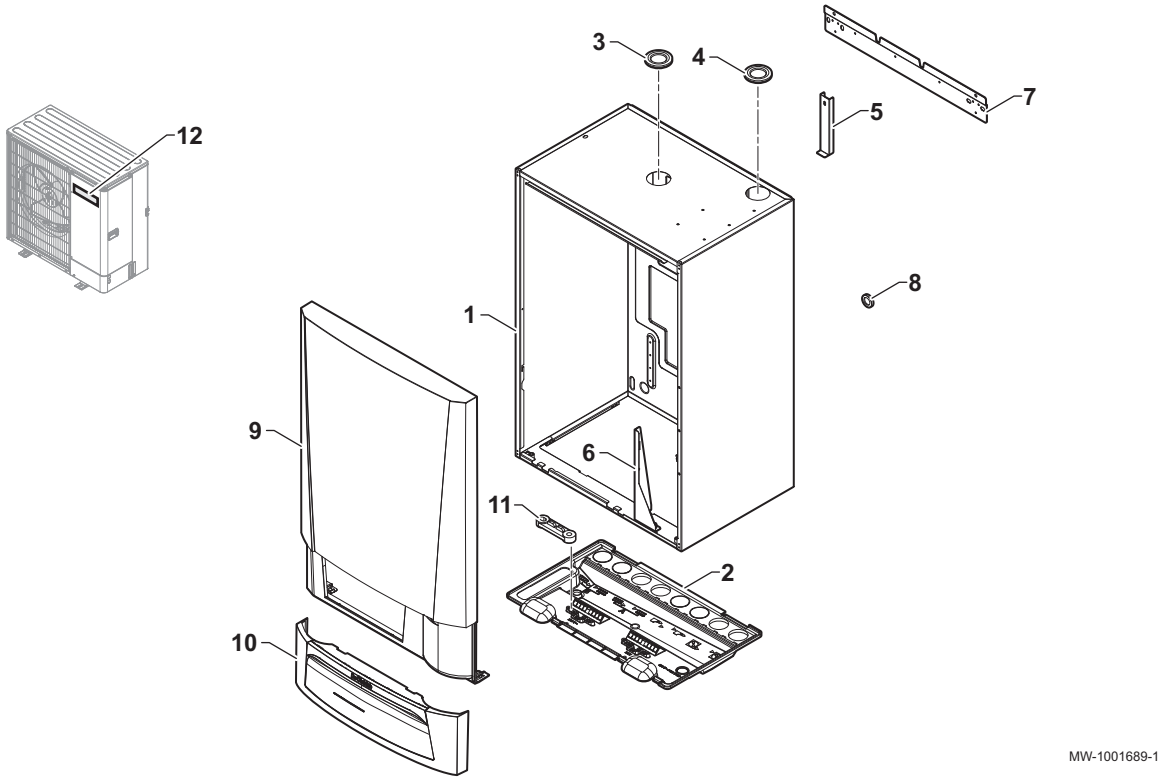
- Do not block ventilation outlets.
- Do not cover the radiators. Do not hang curtains in front of the radiators.
- Install reflective panels behind the radiators to prevent heat losses.
- Insulate the pipes in rooms that are not heated (cellars and lofts).
- Close the radiators in rooms not in use.
- Do not run hot (or cold) water pointlessly.
- Install an energy-saving shower head, which can save up to 40 % energy.
- Take showers rather than baths. A bath consumes twice as much water and energy.

14 Spare parts

14.1 Indoor module

14.1.1 Casing

Fig.77

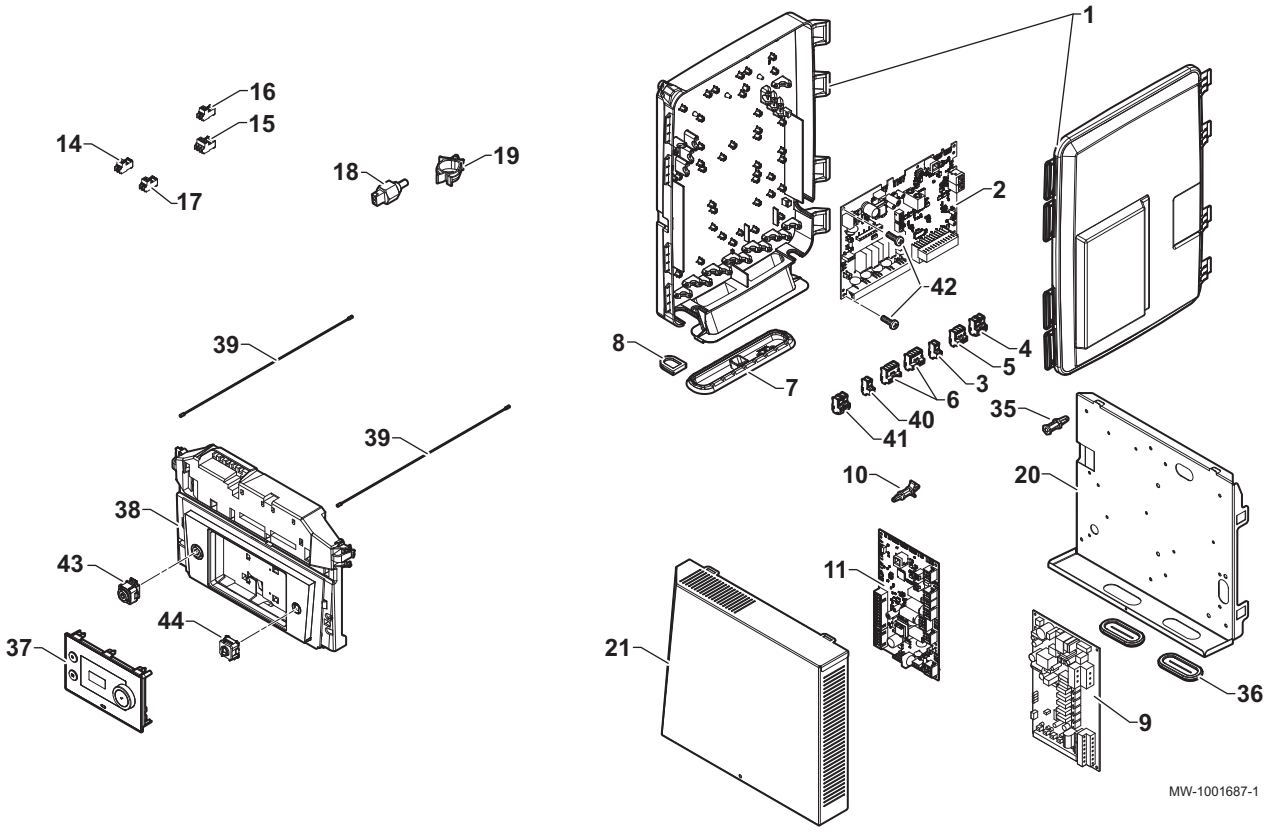


Tab.127

Markers	Reference	Description
1	300025324	Assembled casing
2	300025281	Casing bottom
3	55125	Pipe grommet 60 31/42 - 1 mm thick
4	55125	Diaphragm feed-through for electrical back-up
4	95320588	Diaphragm feed-through for hydraulic back-up
5	7666862	Tank blocking plate
6	200020022	Blocking piece for control panel
7	300027772	Casing cross-bar support
8	300025063	Diaphragm cable grommet, dg-pvc 21/e1
9	7693765	Front panel
10	7667173	HMI flap
11	‘0293359	Upper cable clamp
12	300014103	200 mm sticker logo

14.1.2 Control system

Fig.78 Control panel

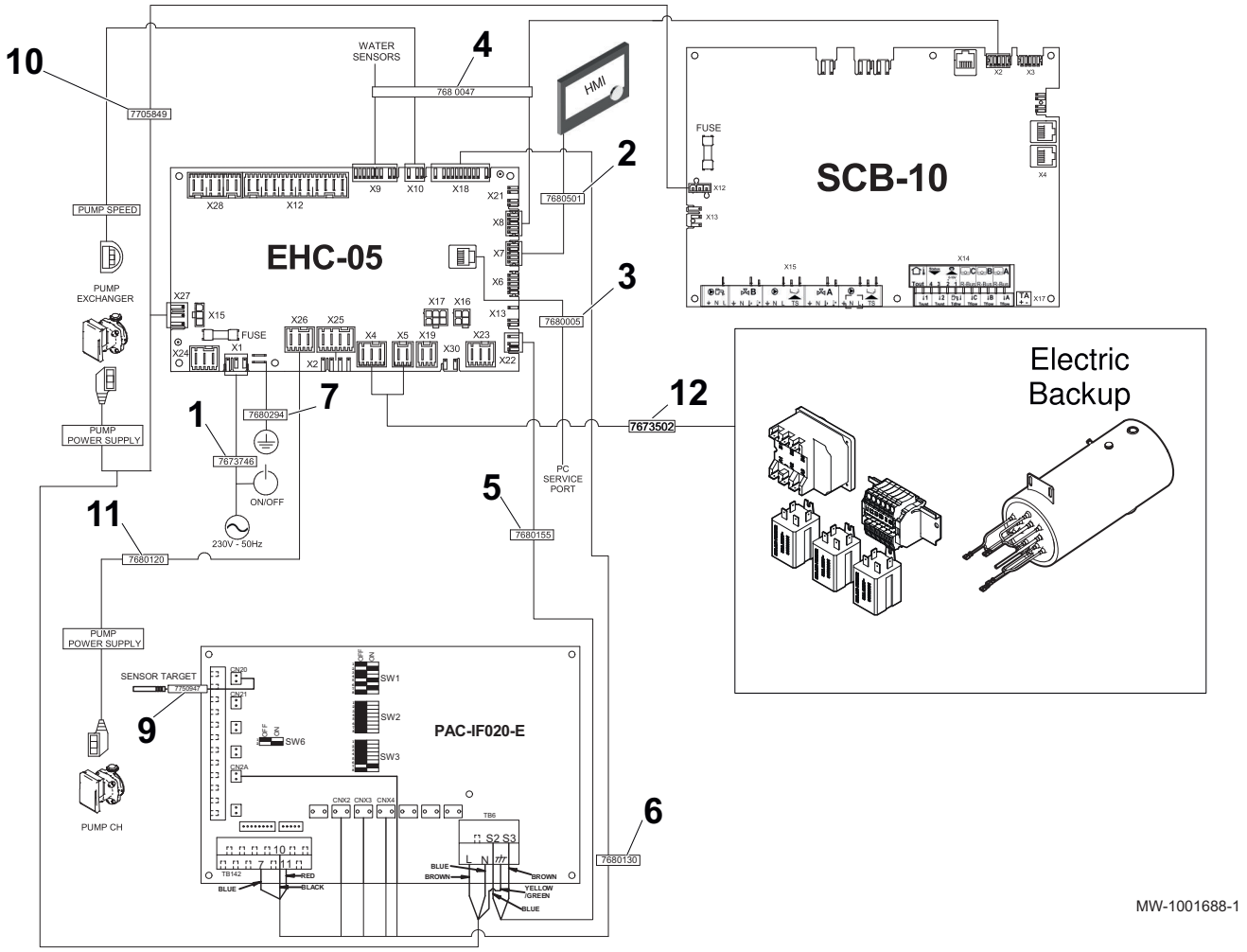


Tab.128 List of spare parts for the control panel

Marker	Reference	Description
1	S100860	SCU casing
2	7704493	SCB-10 PCB
3	7632096	White 2-pin connector
4	7632095	Green 2-pin connector
5	300009102	4-pin telephone relay connector
6	300009081	5-pin connector TS + Pump B + bridge
7	S100869	SCU gasket
8	S100862	SCU grommet (5x)
9	7726144	PAC-IF-020–E interface PCB
10	300020012	Clip-on interface PCB bracket series 100-0
11	7684855	Central unit PCB EHC-05
14	200009965	2-point BL connector (orange)
15	7685026	rast5 43 -pin connector, three-way valve
16	7638205	LUMB 361102f07k13m08 connector
17	300008957	2-pin DHW sensor connector
18	7609871	Pt1000 temperature sensor
19	95320950	Cable clamp
20	7688781	Painted card support
21	7688785	Painted panel cover
35	300020013	Clip-on interface PCB bracket series 100-2
36	7681470	Oblong grommet membrane
37	7695388	MK3 display for heat pump
38	7682509	Control panel
39	115525	Cord for control panel
40	7680712	rast5 connector, 2-pin (terminal X5)

Marker	Reference	Description
41	7680714	rast5 connector, 3-pin (terminal X4)
42	S62185	Plastic screw
43	7700064	Grey RJ BUS connector
44	7675263	Grey complete On/Off switch

Fig.79 PCBs

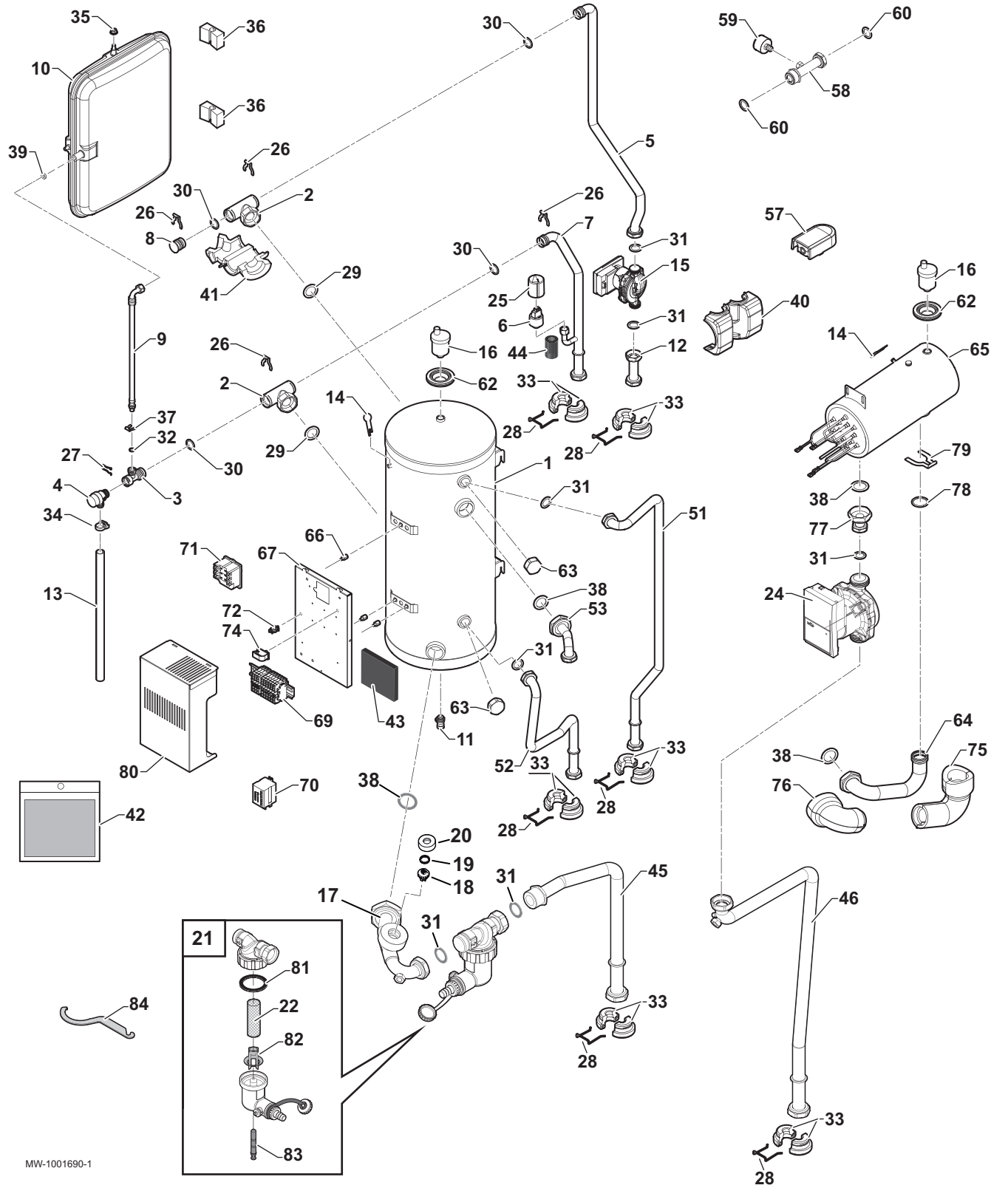


Tab.129 List of spare parts for the PCBs

Marker	Reference	Description
1	7673746	EHC power supply harness
2	7680501	L-BUS harness
3	7680005	PC operating harness
4	7680047	Sensor harness
5	7680155	S2-S3 cable
6	7680130	EHC harness — PAC-IF020-E
7	7680294	Earth wire
9	7750947	Heating sensor
10	7705849	Harness
11	7680120	EHC power supply harness - CH pump
12	7673502	EHC harness, electrical back-up

14.1.3 Other components

Fig.80



Markers	Reference	Description
1	300025284	Tank unit
2	300025388	Quick-connection T-shaped piece
3	300025387	T-shaped safety valve
4	200022010	3.5 bar safety valve
5	7674063	Heating flow pipe, tank

Markers	Reference	Description
6	7709960	Eltek screw-in pressure gauge
7	7674060	Heating return pipe
8	300025325	Quick-release T connection plug
9	300025392	DN8 flexible hose, l450
10	300025395	9510-762 expansion vessel
11	0295174	Drain valve 1/4"
12	300025257	Heating flow pipe, three-way valve
13	300003563	PVC pipe, D20x16
14	300023286	Bulb blocking pin
15	7657318	Y.P.RS15/7.5 RKA 130 9 circulating pump
16	94918138	Automatic air vent
17	7705608	Plate heat exchanger tube, tank
18	300025396	Huba detector head
19	300025363	Wave spring, CS112 l2 0 189
20	300025329	Flow detector nut
21	7697417	Filter kit
22	7715767	Filter
24	7657259	Circulating pump Y. Y.P. RS15/7.5 PWM 130 12 circulating pump
25	7700519	Pressure gauge protection
26	300023113	Pin for DN20
27	116552	Pin clip 20
28	300025361	Spacer clip
29	95013063	Fibre washer, d.38 x 27 x 2
30	95023311	21x3.5 O-ring
31	95013062	Green gasket 30x21x2
32	95023308	O-ring 9.19x2.62 EPDM
33	300025285	Spacer, dia. 22
34	300025444	Hose fastener
35	95890434	Serrated thibloc HM8 nut
36	110865	Tank support bracket
37	300024235	Blocking pin, dia. 10
38	95013064	Green gasket 44x32x2
39	95013058	14x8x2 gasket
40	7681504	Pump insulation
41	300027359	Insulation for T-shaped piece
42	7695163	Screw bag
43	7693385	Panel insulation
44	7706269	Heating return pipe insulation
45	7728354	Outdoor unit return pipe
46	7728395	Outdoor unit flow pipe
51	300025235	Return pipe, hydraulic back-up
52	300025237	Flow pipe, hydraulic back-up
53	300025244	Circulating pump pipe, tank
57	95362450	AF60 outdoor temperature sensor
58	7687503	Pipe kit with pressure gauge connector, dia. 22
59	95365106	3 bar axial pressure gauge, dia. 40
60	95013069	22x30x2 green gasket
62	55125	Grommet, dia. 60 31/42 thickness 1 mm
63	94950198	Brass plug G1" female
64	300025231	Preheater pipe, tank
65	300025332	12 kW preheater
66	300025400	Male-female hexagonal spacer

Markers	Reference	Description
67	7676000	Electrical back-up support
69	7679295	Terminal connection block, immersion heater
70	96568001	Finder relay, 220 V 30 A
71	200018815	COTHERM BSDP 0002 thermostat and syringe kit
72	95320950	Cable clamp
74	300024354	Cable clamp to clip
75	300027995	Preheater pipe insulation 1, tank
76	300027996	Preheater pipe insulation 2, tank
77	300025263	Circulating pump pipe, preheater
78	300025397	O-ring, dia. 34x4
79	300025423	Pin, dia. 35
80	7693269	Electrical back-up cover
81	7715766	Gasket
82	7715768	Plastic insert
83	7715769	Magnet + O-ring
84	7706481	Maintenance key

15 Appendix

For more information, see
Compatible heating devices, page 10

15.1 Product fiche

Tab.130 Product fiche for heat pump space heaters

		MONO AWHP 6 MR	MONO AWHP 8 MR	MONO AWHP 11 MR
Space heating energy efficiency class under average climate conditions		A+++	A++	A++
Rated heat output under average climate conditions *(Prated or Psup)*	kW	6	9	10
Seasonal space heating energy efficiency under average climate conditions	%	129	137	133
Annual energy consumption	kWh	3642	4882	5955
Sound power level L_{WA} indoors(1)	dB (A)	40	40	40
Rated heat output, under **colder - warmer** climate conditions	kW	4 - 6	5 - 9	7 - 10
Seasonal space heating energy efficiency, under **colder - warmer** climate conditions	%	107 - 159	106 - 169	108 - 171
Annual energy consumption **colder - warmer**	kWh	3136 - 1791	4579 - 2587	6246 - 3017
Sound power level L_{WA} outdoors	dB (A)	58	58	60
(1) If applicable				

See
For specific precautions about assembling, installing and maintaining: See Safety

For more information, see
Compatible heating devices, page 10

15.2 Product fiche - Temperature Controls

Tab.131 Product fiche for the Temperature controls

		DIEMATIC Evolution
Class		II
Contribution to space heating energy efficiency	%	2

For more information, see
Compatible heating devices, page 10

15.3 Package fiche

Important
'Medium-temperature application' means an application where the heat pump space heater or heat pump combination heater delivers its declared capacity for heating at an indoor heat exchanger outlet temperature of 55 °C.

Fig.81 Package fiche for medium-temperature heat pumps indicating the space heating energy efficiency of the package

Seasonal space heating energy efficiency of heat pump

(1) **'I'** %

Temperature control

from fiche of temperature control

Class I = 1%, Class II = 2%, Class III = 1.5%, Class IV = 2%, Class V = 3%, Class VI = 4%, Class VII = 3.5%, Class VIII = 5%

(2) + ☐ %

Supplementary boiler

from fiche of boiler

Seasonal space heating energy efficiency (in %)

(☐ - 'I') x 'II' = ± (3) ☐ %

Solar contribution

from fiche of solar device

Collector size (in m²) | Tank volume (in m³) | Collector efficiency (in %) | Tank rating (1): A* = 0.95, A = 0.91, B = 0.86, C = 0.83, D - G = 0.81

('III' x ☐ + 'IV' x ☐) x 0.45 x (☐ /100) x ☐ = + (4) ☐ %

(1) If tank rating is above A, use 0.95

Seasonal space heating energy efficiency of package under average climate

(5) ☐ %

Seasonal space heating energy efficiency class of package under average climate

G	F	E	D	C	B	A	A+	A++	A+++
<30%	≥30%	≥34%	≥36%	≥75%	≥82%	≥90%	≥98%	≥125%	≥150%

Seasonal space heating energy efficiency under colder and warmer climate conditions

Colder: (5) ☐ - 'V' = ☐ %

Warmer: (5) ☐ + 'VI' = ☐ %

The energy efficiency of the package of products provided for in this fiche may not correspond to its actual energy efficiency once installed in a building, as this efficiency is influenced by further factors such as heat loss in the distribution system and the dimensioning of the products in relation to building size and characteristics.

AD-3000745-01

I The value of the seasonal space heating energy efficiency of the preferential space heater, expressed in %.

II The factor for weighting the heat output of preferential and supplementary heaters of a package as set out in the following table.

III The value of the mathematical expression: 294/(11 · Prated), whereby "Prated" is related to the preferential space heater.

IV The value of the mathematical expression 115/(11 · Prated), whereby "Prated" is related to the preferential space heater.

V The value of the difference between the seasonal space heating energy efficiencies under average and colder climate conditions, expressed in %.

VI The value of the difference between the seasonal space heating energy efficiencies under warmer and average climate conditions, expressed in %.

Tab.132 Weighting of medium temperature heat pumps

Prated / (Prated + Psup)(1)(2)	II, package without hot water storage tank	II, package with hot water storage tank
0	1.00	1.00
0.1	0.70	0.63
0.2	0.45	0.30
0.3	0.25	0.15
0.4	0.15	0.06
0.5	0.05	0.02
0.6	0.02	0
≥ 0.7	0	0

(1) The intermediate values are calculated by linear interpolation between the two adjacent values.
(2) Prated is related to the preferential space heater or combination heater.

Tab.133 Package efficiency (temperature regulator + heat pump)

		MONO AWHP 6 MR	MONO AWHP 8 MR	MONO AWHP 11 MR
DIEMATIC Evolution	%	131	138	134

For more information, see
Compatible heating devices, page 10

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