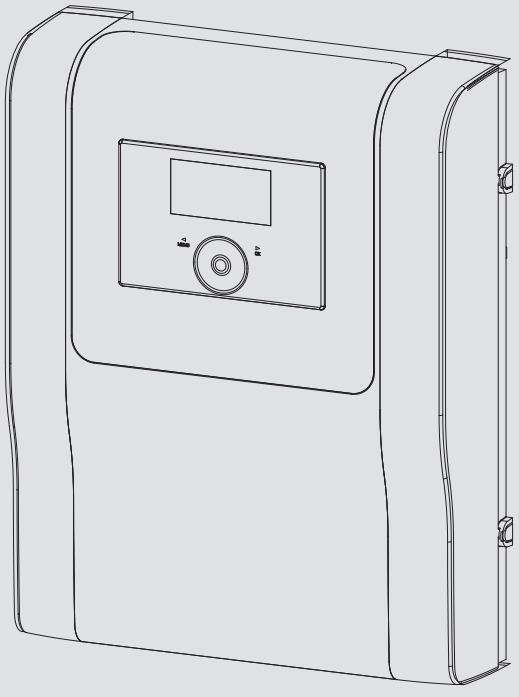
INSTALLATION

Heat pump manager

» WPM



STIEBEL ELTRON

INSTALLATION

1. General information

These instructions are intended for qualified contractors.

1.1 Relevant documents

- WPM operating instructions
- WPM commissioning instructions

Note
Please see appliance operating and installation instructions for information on the warranty, and environment and recycling guidelines.

1.2 Safety instructions

1.2.1 Structure of safety instructions

KEYWORD Type of risk
Here, possible consequences are listed that may result from failure to observe the safety instructions.
▶ Steps to prevent the risk are listed.

1.2.2 Symbols, type of risk

Symbol	Type of risk
	Injury
	Electrocution

1.2.3 Keywords

KEYWORD	Meaning
DANGER	Failure to observe this information will result in serious injury or death.
WARNING	Failure to observe this information may result in serious injury or death.
CAUTION	Failure to observe this information may result in non-serious or minor injury.

1.3 Other symbols in this documentation

Note
General information is identified by the adjacent symbol.
▶ Read these texts carefully.

Symbol	Meaning
	Material losses (appliance damage, consequential losses and environmental pollution)
	Appliance disposal

▶ This symbol indicates that you have to do something. The action you need to take is described step by step.

1.4 Units of measurement

Note
All measurements are given in inches (mm) unless stated otherwise.

2. Safety

Only a qualified contractor should carry out installation, commissioning, maintenance and repair of the appliance.

2.1 Instructions, standards and regulations

Note
Observe all applicable national and regional regulations and instructions.

2.2 General safety instructions

We guarantee trouble-free function and operational reliability only if original accessories and spare parts intended for the appliance are used.

2.3 Notes

- Electrical installation must only be carried out by a recognized and qualified contractor.
- The qualified contractor is responsible for adherence to all applicable regulations during installation and commissioning.
- The appliance should only be operated once it is fully installed and all safety equipment has been fitted.
- Protect the appliance from dust and dirt during building work.
- Observe the operating limits listed in chapter "Specification".

2.4 Test symbols

See type plate on the appliance.

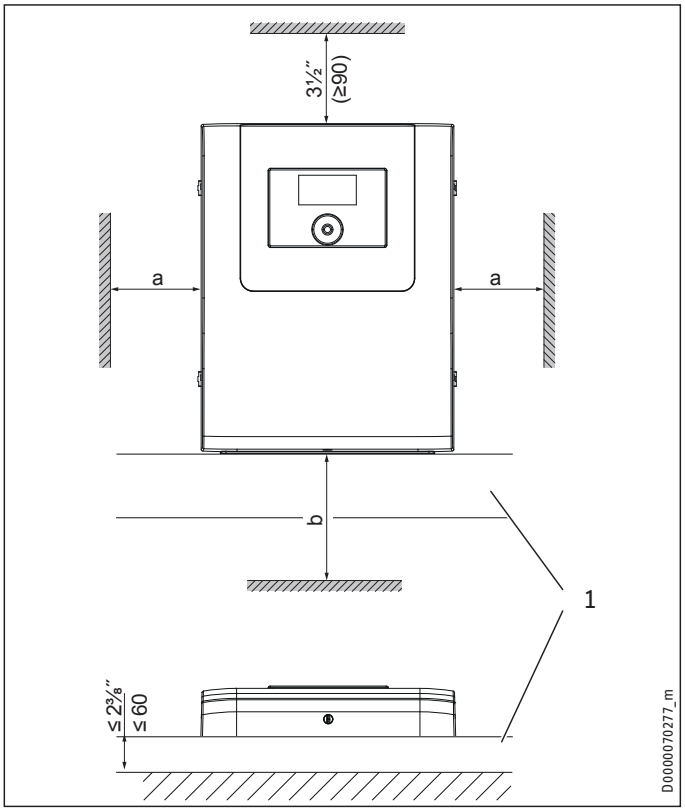
3. Appliance description

3.1 Standard delivery

- Wall mounting enclosure with pre-wired heat pump manager
- AF PT outside temperature sensor
- 3 TAF PT immersion/contact sensor
- 30 wedges for securing cables

4. Installation

4.1 Minimum clearances



1 Cable duct
a Optional space for front fascia or WPE heat pump extension
b Screwdriver space

▶ Allow sufficient space below the device to use a screwdriver.

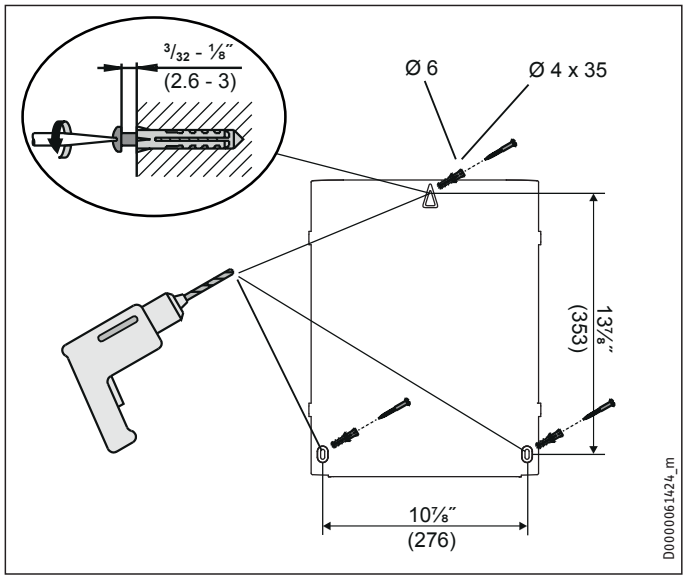
We recommend allowing enough space to the left or right of the device that when you open the device you can allow the front fascia to hang on one side or the other.

4.2 Installation location

The device is designed solely for wall mounting.

- ▶ Install the device close to the heat pump.
- ▶ Install the device on a smooth installation surface. This will make it easier to lay the electrical cables.
- ▶ Ensure that enough space is available to the left or right of the device for the WPE heat pump extension, if required.
- ▶ Ensure that the back of the wall mounting enclosure is not accessible once mounted.
- ▶ Protect the equipment in use against humidity, dirt and damage.

4.3 Wall mounting



- ▶ Mark the holes to be drilled.
- ▶ Drill the holes and insert suitable rawl plugs.
- ▶ To secure the top of the enclosure, insert a screw far enough into the corresponding rawl plug that the enclosure can just still be hung onto the screw head.
- ▶ Then secure the bottom of the enclosure with two further screws.

5. Electrical connection

5.1 General

WARNING Electrocution
Carry out all electrical connection and installation work in accordance with national and regional regulations.

WARNING Electrocution
▶ Isolate the heat pump from the power supply when carrying out any work.

WARNING Electrocution
The connection to the power supply must be in the form of a permanent connection. Ensure the appliance can be separated from the power supply by an isolator that disconnects all poles with at least 1/8″ (3 mm) contact separation. This requirement can be met by using contactors, circuit breakers, fuses/MCBs, etc.

WARNING Electrocution
Only components that operate with safety extra low voltage (SELV) and that ensure secure separation from the mains voltage supply may be connected to the low voltage terminals of the appliance.
Connecting other components can make parts of the appliance and connected components live.
▶ Only use components which have been approved by us.

Material losses
▶ When connecting up, note the maximum load capacity of the relay outputs (see chapter “Specification / Data table”).

Note
The specified voltage must match the mains voltage. Observe the type plate.

Note
In conjunction with the WPM heat pump manager, use the HSM mixer servomotor.

- ▶ When connecting the power, observe the relevant electrical connection diagram for the heat pump.
- ▶ Protect the device on site with a 6 A circuit breaker.
- ▶ Disconnect all heating system poles from the mains power supply before installation.

The terminals L´ and L* on terminal block X2.2 must be wired to the L1 terminal on terminal block X2.1.″ The system will not heat or cool without connecting these terminals.

No fuses/MCBs for connected consumers are provided in the WPM or in the wall mounting enclosure. A fuse for connected consumers may be connected in series via terminal L* or pumps L (see also heat pump connection diagram).

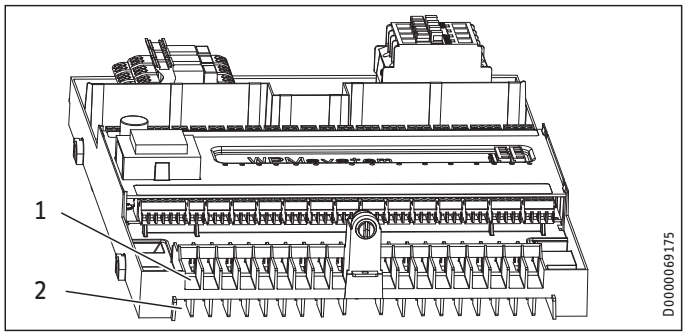
5.2 Appliance connection

The cable entries in the wall mounting enclosure are suitable for rigid and flexible cables with an outside diameter of ¼–½" (6–12 mm).

▶ Lay flexible cables in conduits or cable ducts.

Mains and low voltage power circuits are routed separately in the wall mounting enclosure.

Material losses
Bus cables, power cables and sensor leads must be installed separately.



1 Front cable entry for mains voltage
2 Rear cable entry for low voltage

▶ Route the low voltage leads from below into the rear cable entry on the device.

▶ Route the mains power cable from below into the front cable entry on the device.

▶ When connecting the mains voltage, ensure the earth conductor is correctly connected.

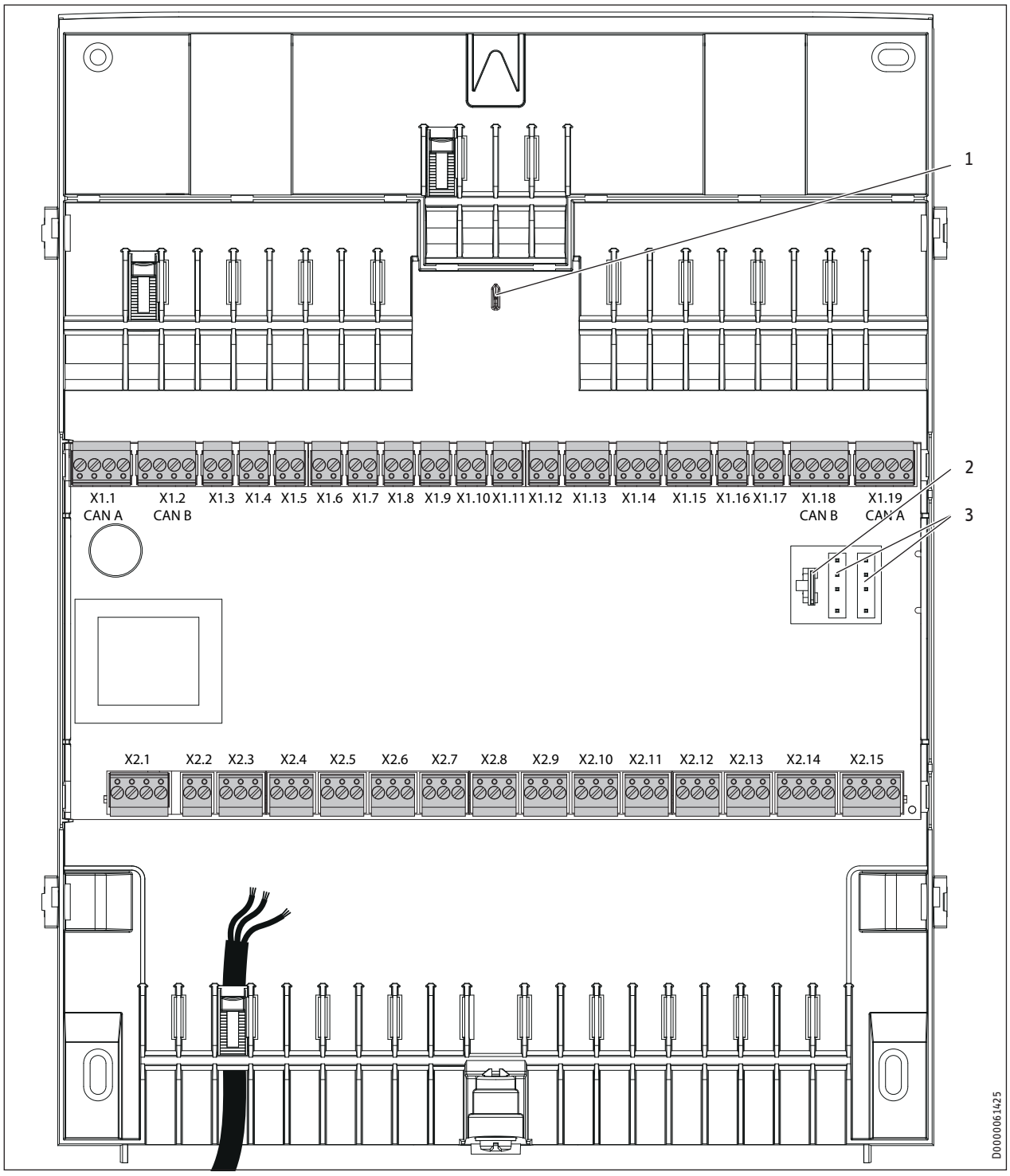
▶ Secure all electrical cables directly below the wall mounting enclosure with the red wedges supplied.

Note
The red wedges are for securing the cables.
▶ Do not use the red wedges for strain relief.

Material losses
▶ Tighten all the screws on the terminals. Screws on unconnected terminals must also be tightened.

Electrical connection

Terminal assignment



1 Retainer for connecting cable from programming unit
2 Micro-SD card slot
3 CAN bus for programming unit

► Lay the connecting cable from the programming unit over the retainer.

Electrical connection

Safety extra low voltage			
X1.1 CAN A	+ - L H	+ - L H	CAN (connection for heat pump and WPE heat pump extension)
X1.2 CAN B	+ - L H	+ - L H	CAN (connection for FET remote control and ISG Internet Service Gateway)
X1.3	Signal Earth	1 2	Outside temperature sensor
X1.4	Signal Earth	1 2	Buffer sensor (heating circuit sensor 1)
X1.5	Signal Earth	1 2	Flow sensor
X1.6	Signal Earth	1 2	Heating circuit sensor 2
X1.7	Signal Earth	1 2	Heating circuit sensor 3
X1.8	Signal Earth	1 2	DHW tank sensor
X1.9	Signal Earth	1 2	Source sensor
X1.10	Signal Earth	1 2	Heat generator 2
X1.11	Signal Earth	1 2	Cooling flow
X1.12	Signal Earth	1 2	DHW circulation sensor
X1.13	Signal Earth Signal	1 2 3	FE7 remote control / telephone remote switch / heating curve optimization / SG Ready
X1.14	Constant 12 V Input GND	+ IN ⊥	Analog input 0-10 V
X1.15	Constant 12 V Input GND	+ IN ⊥	Analog input 0-10 V
X1.16	Signal Earth	1 2	PWM output 1
X1.17	Signal Earth	1 2	PWM output 2
X1.18 CAN B	+ - L H	+ - L H	CAN (connection for FET remote control and ISG Internet Service Gateway)
X1.19 CAN A	+ - L H	+ - L H	CAN (connection for heat pump and WPE heat pump extension)

Mains voltage			
X2.1	L L N PE	L L N ⏚	Power supply
X2.2	L' (power supply utility input) L* (pumps L)	L' L* (pumps L)	L' (power supply utility input) L* (pumps L)
X2.3	L N PE	L N ⏚ PE	Heating circuit pump 1
X2.4	L N PE	L N ⏚ PE	Heating circuit pump 2
X2.5	L N PE	L N ⏚ PE	Heating circuit pump 3
X2.6	L N PE	L N ⏚ PE	Buffer charging pump 1
X2.7	L N PE	L N ⏚ PE	Buffer charging pump 2
X2.8	L N PE	L N ⏚ PE	DHW charging pump
X2.9	L N PE	L N ⏚ PE	Source pump/defrost
X2.10	L N PE	L N ⏚ PE	Fault output
X2.11	L N PE	L N ⏚ PE	DHW circulation pump / 2nd heat source DHW
X2.12	L N PE	L N ⏚ PE	2nd heat source heating
X2.13	L N PE	L N ⏚ PE	Cooling
X2.14	Mixer OPEN N PE Mixer CLOSE	▲ N ⏚ PE ▼	Mixer heating circuit 2 (X2.14.1 Mixer OPEN X2.14.2 Mixer CLOSE)
X2.15	Mixer OPEN N PE Mixer CLOSE	▲ N ⏚ PE ▼	Mixer heating circuit 3 (X2.15.1 Mixer OPEN X2.15.2 Mixer CLOSE)

Note

For every appliance fault, output X2.10 issues a 230 V signal.

In the case of temporary faults, the output switches the signal through for a specific time.

In the case of faults that result in a permanent appliance shutdown, the output switches through permanently.

▶ You can define the characteristics of the output via parameter "COMMISSIONING / I/O CONFIGURATION / OUTPUT X 2.10".

5.3 Sensor installation

Note
▶ Only use PT1000 sensors.

▶ Connect all of the required sensors before commissioning the appliance.

5.3.1 AF PT outside temperature sensor

The temperature sensors have a significant influence on the function of your heating system. Therefore ensure sensors are correctly positioned and well insulated.

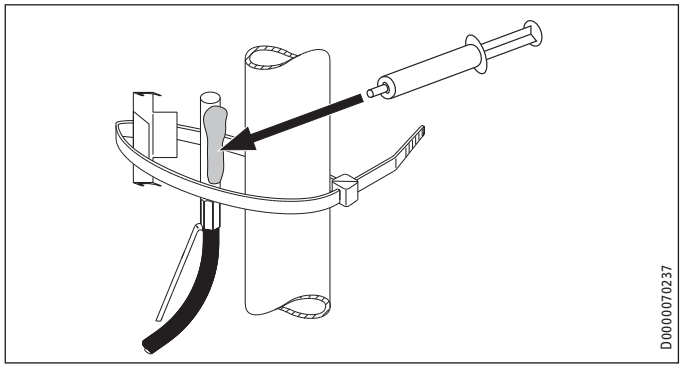
Install the outside temperature sensor on a north or north-eastern wall. Minimum clearances: 98″ (2.5 m) above the ground, and 39″ (1 m) to the side of windows and doors. The outside temperature sensor should be freely exposed to the elements but not placed in direct sunlight. Never mount the outside temperature sensor above windows, doors or air ducts.

Installation:

▶ Pierce the cable grommet at the appropriate place using a pointed object.
▶ Insert the cable grommet into the recess on the sensor retainer.
▶ Pass a connecting lead through the cable grommet.
▶ Connect the connecting lead to the terminal.
▶ Tighten the screws on the terminal.
▶ Connect the connecting cable to sensor terminal X1.3.
▶ Press the sensor retainer into the sensor enclosure until it clicks audibly into place.
▶ Secure the sensor enclosure to the wall using a screw and rawl plug.

5.3.2 TAF PT immersion/contact sensor

Installation as contact sensor

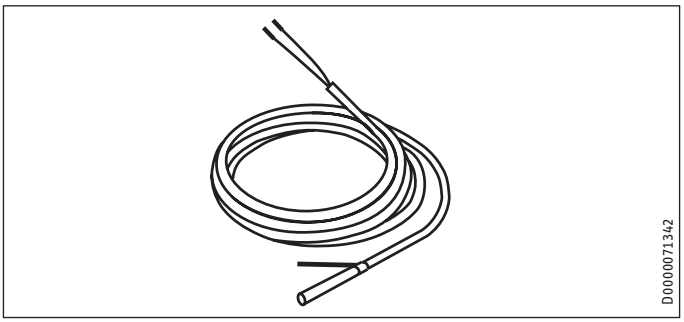


▶ Clean the pipe.

Note
The recesses on the retaining clip are of different sizes.

▶ Press the smaller recess on the retaining clip into one of the notches on the sensor.
▶ Press the larger recess of the retaining clip onto the sensor.
▶ Apply heat conducting paste to the sensor.
▶ Secure the sensor with the retaining clip and the cable tie.

Installation as an immersion sensor



The immersion sensor is required for the sensor well in the buffer tank.

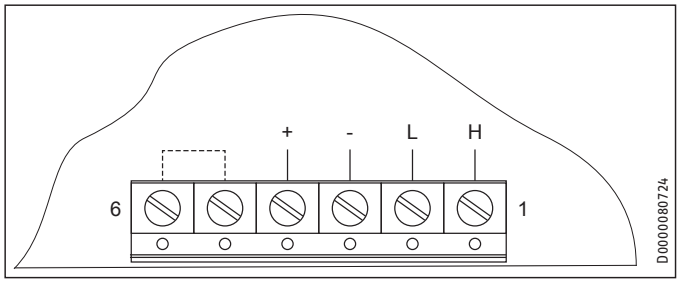
▶ Press the spring downwards. The spring is used for fixing the sensor in the sensor well.
▶ Apply heat conducting paste to the sensor.
▶ Push the sensor into the sensor well.

5.3.3 Sensor resistance values

Temperature in °F	Temperature in °C	PT 1000 sensor Resistance in Ω
-22	-30	882
-4	-20	922
14	-10	961
32	0	1000
50	10	1039
68	20	1078
77	25	1097
86	30	1117
104	40	1155
122	50	1194
140	60	1232
158	70	1271
176	80	1309
194	90	1347
212	100	1385
230	110	1423
248	120	1461

5.4 FET remote control

FET connection array



The FET digital remote control enables convenient operation of one heating zone.

- ▶ Attach the remote control to one of the CAN B terminals.
- ▶ Observe the FET operating instructions.

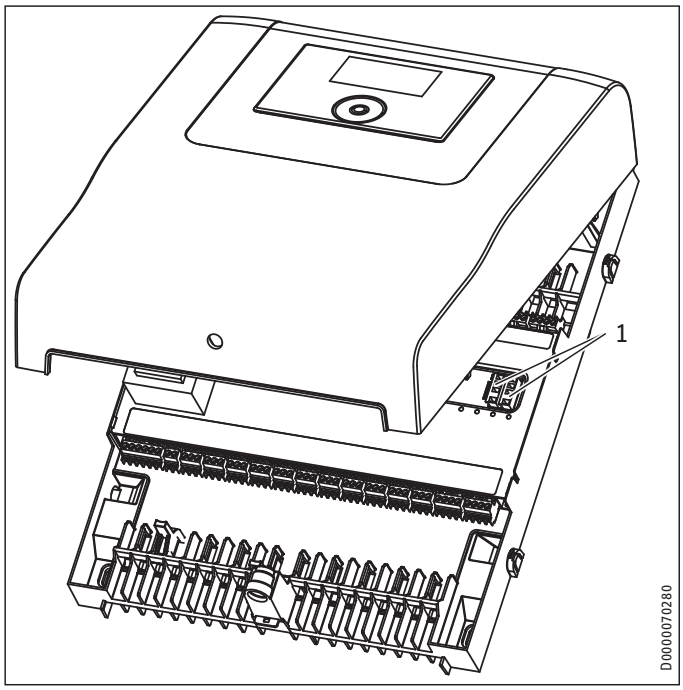
5.5 Internet Service Gateway ISG

The Internet Service Gateway ISG enables you to operate the heat pump in your local home network and via the internet whilst you are away from home.

- ▶ Attach the Internet Service Gateway to one of the CAN B terminals (not one marked "+").
- ▶ Observe the ISG operating instructions.

The ISG is not supplied with power by the heat pump.

6. Closing the front fascia



1 CAN bus for programming unit

- ▶ Connect the connecting lead from the programming unit to one of the "CAN bus for programming unit" connections.
- ▶ Attach the front fascia at the top of the device.
- ▶ Press in the bottom of the front fascia firmly.
- ▶ Secure the fascia at the bottom with the screw.

7. Commissioning

Only qualified contractors may carry out any adjustments to the heat pump manager (see list in the chapter "Settings / Setting parameters" in the heat pump manager commissioning instructions), commission the device and instruct the system user in its use.

Commissioning must be carried out in accordance with these installation instructions and the operating and installation instructions of all components belonging to the heat pump system.

Note
Our customer support can assist with commissioning.

7.1 Bus initialization

Connecting the bus cable not only establishes the electrical connection for system communication. As part of commissioning, connecting the bus cable will also assign the appliance-specific address required for switching the heat pump.

7.1.1 General information

Note
The control panel for each heat pump provides space for the connection of two 3-core BUS cables, i.e. the BUS cable between the heat pumps is wired in parallel.

Note
In a parallel array, heat pumps designed to heat DHW must always be initialized first. The remaining heat pumps can then be connected in any order.

Note
All necessary sensors must be connected before the voltage is connected to the WPM. Any sensors connected later will not be recognized by the WPM.
Example: No DHW parameters, programs or temperatures are displayed if the DHW tank sensor was not connected at the time of commissioning. No values can be programmed for these parameters.

Note
If incorrectly initialized, all IWS (internal heat pump controllers) must be reset and reinitialized (see chapter "Reset options / Reinitializing the IWS").

Note
The entire heat pump system will be shut down if the BUS cable between the WPM and the heat pump is interrupted.

7.1.2 Sequence for BUS connection

For the bus connection it is essential that you carry out the steps below in the order described:

- ▶ Connect the WPM to the mains voltage.
- ▶ Connect the WPE (if installed) to the mains voltage.

- ▶ Connect the internal heat pump controller (IWS) to the mains voltage.
- ▶ Leave the mains voltage to the compressor and emergency/ booster heater switched off, so that the heat pump does not start up uncontrolled during initialization.

In the DIAGNOSIS / SYSTEM menu, all connected BUS subscribers and their respective software versions are shown under BUS SUBSCRIBER.

After completing initialization of the heat pump, use the DIAGNOSIS / SYSTEM menu under HEAT PUMP TYPES to check that all connected heat pumps are being displayed.

7.2 System configuration through parameter settings

If the system is operating incorrectly, you should first check the parameter settings (see chapter "Settings / Parameter summary" in the commissioning instructions for the heat pump manager).

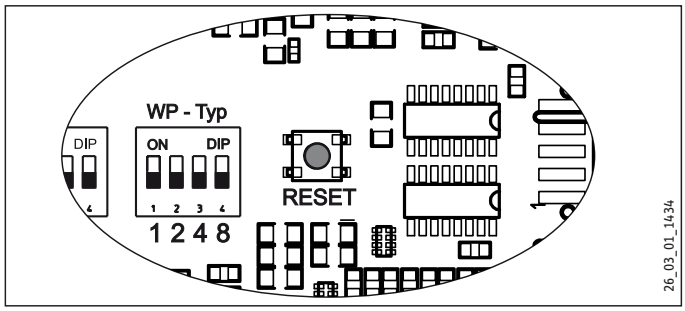
7.3 Reset options

7.3.1 Reinitializing the IWS

This reset should be performed if the system was commissioned or initialized incorrectly.

To do so, proceed as follows:

- ▶ Switch OFF the mains voltage to the WPM.
- ▶ Switch OFF the mains voltage to the WPE (if installed).
- ▶ Switch OFF the mains voltage to the heat pump.
- ▶ Disconnect the BUS connections.
- ▶ Switch ON the mains voltage to the heat pump.
- ▶ Hold the reset key until the two outer LEDs are constantly illuminated.
- ▶ Release the reset key. The IWS has now been reset and is ready for renewed initialization.



- ▶ Switch the mains voltage to the components back ON.
- ▶ Carry out BUS initialization (see chapter "Commissioning / BUS initialization").
- ▶ Reset the system-specific parameters for the WPM and WPE.

7.3.2 Heat pump reset

This reset should be performed if a heat pump-specific fault or hardware fault occurs five times in the space of two hours' runtime.

- ▶ Activate the HEAT PUMP RESET parameter in the COMMISSIONING menu.

The fault is cleared. The heat pump is ready to be returned to use.

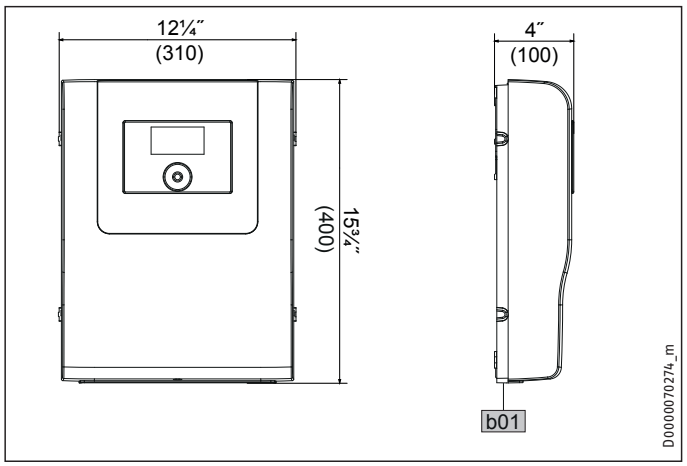
8. Troubleshooting

WARNING Electrocution
▶ **Isolate the heat pump from the power supply when carrying out any work.**

Problem	Cause	Solution
An info value is not displayed.	The sensor has not been connected correctly.	Isolate the system from the power supply. Connect the sensor. Reconnect the system to the mains voltage.

9. Specification

9.1 Dimensions and connections



	WPM
b01 Entry electrical cables	

9.2 Data table

	WPM
	234727
Electrical data	
Power consumption	8 VA
Relay breaking capacity	2 A
Sensor resistance	1000 Ω
Max. relay output breaking capacity	2 A (2 A)
Design peak voltage	4000 V
Max. total breaking capacity of all relay outputs	10 A (10 A)
Power supply	240 V, 60 Hz
Versions	
IP rating	IP21
Communication system	CAN
Number of automatic cycles	100000
Function	1.B
Suitable for	Wall mounting
Dimensions	
Height	15¾″ (400 mm)
Width	12 3/16″ (310 mm)
Depth	4″ (100 mm)
Weights	
Weight	6.4 lb (2.9 kg)
Values	
Ambient temperature	32–131 °F (0–55 °C)

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