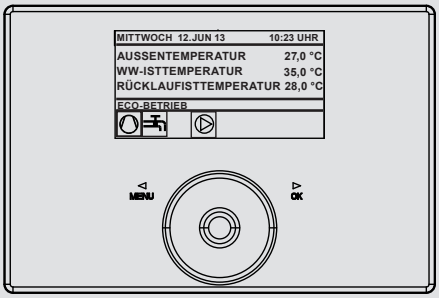
OPERATION AND INSTALLATION

Heat pump manager

» WPM 3



STIEBEL ELTRON

CONTENTS

OPERATION

1. General information

The chapter "Operation" is intended for appliance users and qualified contractors.

The chapter "Installation" is intended for qualified contractors.

Note
Read these instructions carefully before using the appliance and retain them for future reference.
Pass on the instructions to a new user if required.

1.1 Safety instructions

1.1.1 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.

1.1.2 Symbols, type of risk

Symbol	Type of risk
	Injury
	Electrocution

1.1.3 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.

1.2 Other symbols in this documentation

Note
General information is identified by the symbol shown on the left.
▶ 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.

1.3 Units of measurement

Note
All measurements are given in mm unless stated otherwise.

2. Safety

2.1 Intended use

Observe the operating limits listed in chapter "Specification".

This appliance is intended for domestic use. It can be used safely by untrained persons. The appliance can also be used in a non-domestic environment, e.g. in a small business, as long as it is used in the same way.

Any other use beyond that described shall be deemed inappropriate. Observation of these instructions and of instructions for any accessories used is also part of the correct use of this appliance.

2.2 Safety instructions

- The electrical installation and installation of the heating circuit must only be carried out by a recognised, qualified contractor or by our customer support engineers.
- The qualified contractor is responsible for adherence to all currently applicable instructions during installation and commissioning.
- Operate the appliance only when fully installed and with all safety equipment fitted.
- Protect the appliance from dust and dirt ingress during building work.

WARNING Injury
The appliance may be used by children aged 8 and up and persons with reduced physical, sensory or mental capabilities or a lack of experience and know-how, provided that they are supervised or they have been instructed on how to use the appliance safely and have understood the resulting risks. Children must never play with the appliance. Children must never clean the appliance or perform user maintenance unless they are supervised.

Note
Do not change any system-specific settings at the control unit. Your contractor has set the control unit to match the local conditions for your building and your individual requirements. The system-specific parameters are protected by a code to prevent unintentional modifications. The parameters that serve to adapt the appliance to your personal requirements are not protected by a code.

2.3 Test symbols

See type plate on the appliance.

3. Appliance description

The second generation heat pump manager, also referred to as WPM 3, is responsible for the processes that control and regulate all our heat pumps.

Connected heat pumps are controlled via the digital BUS connection that handles the bi-directional data exchange

Cascade control

Up to 6 output stages can be controlled for heat generation.

The maximum permitted configuration for cascade control is subject to the type of heat pump you are using.

- 6 single compressor heat pumps
- 3 dual compressor heat pumps with identical compressors
- From the third connected heat pump upwards, an MSM must be used to control the buffer charging pumps

Function overview

- The 4-wire data BUS enables rapid installation and system extension using the MSM mixer module
- Control of a second heat source for DHW and heating
- 9 temperature inputs as set/actual value display
- Demand-dependent control of 7 different circulation pumps
- Input of the system and heat pump frost protection limits
- At least 10 h power reserve for the clock
- Automatic pump kick control
- Reset option
- Stored fault list with precise fault code indication on the display, including date and time
- Fast and precise fault diagnosis with system analysis, incl. temperature scanning of heat pump and peripherals without additional equipment.
- Default settings for time switch programs for all heating and DHW circuits
- Solar differential controller

3.1 Heat pump types

Note
Heat pump type 5/5* cannot be connected directly to the heat pump manager.
▶ Use an indoor unit with integral WPM 3 heat pump manager for these heat pumps.

The description of individual functions varies between the different heat pump types. The types of heat pump are therefore identified in this document as HP type 1 to 5 and 1* to 5*.

Heat pumps with second internal heat source

HP type 1	HP type 2	HP type 3	HP type 4	HP type 5
WPL 13, 18, 23 cool	WPL 10 A / I / IK	WPL 15-25 A(C)(S)	WPL 33 HT	WPL 08, 12, 16 S Trend
WPL 13, 18, 23 E	WPL 33	WPL 07-17 ACS classic	WPL 33, HT (S)	WPL 22, 28 Trend
WPL 13, 20 basic		WPL 19, 24 I/IK/A		
WPL 13, 20 A basic		HPA-O 3-8 CS Plus		
WPL 13, 18 S basic		HPA-O 7-13 (C)(S) Premium		
WPL 10 AC				
WPL 10 ACS				

Heat pumps with second external heat source

HP type 1*	HP type 2*	HP type 3*	HP type 4*	HP type 5*
WPL 13, 18, 23 cool	WPF-M 10, 13, 16	WPL 15-25 A(C)(S)	WPL 33 HT	WPL 08, 12, 16 S Trend
WPL 13, 18, 23 E	WPW-M 13, 18, 22	WPL 07-17 ACS classic	WPL 33, HT (S)	WPL 22, 28 Trend
WPL 13, 20 basic	WPF 20, 27, 35, 40, 52, 66	WPL 19, 24 I/IK/A		
WPL 13, 20 A basic	WPF 27 HT	HPA-O 3-8 CS Plus		
WPL 13, 18 S basic	WPL 10 A / I / IK	HPA-O 7-13 (C)(S) Premium		
WPL 10 AC	WPL 33			
WPL 10 ACS				
WPL 34, 47, 57				

3.2 Accessories

FE7 remote control

The FE7 remote control allows you to:

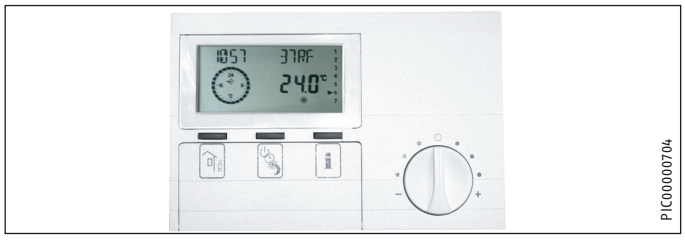
- Change the set room temperature for heating by ± 5 °C, for heating circuit 1 or heating circuit 2.
- Change the operating mode.

The FE7 remote control features the following controls:

- Rotary selector for changing the set room temperature
- Rotary selector with the following positions
- Automatic mode
- Constant setback mode
- Constant day mode

Note
The remote control is only effective in the automatic mode of the heat pump manager.

FEK remote control



The FEK remote control allows you to:

- Change the set room temperature for heating by ± 5 °C, for heating circuit 1 or heating circuit 2.
- Change the operating mode.

The device features the following controls:

- Rotary selector for changing the set room temperature
- “Away” button
- “Info” button
- Button for selecting the following operating modes:
- Standby mode
- Automatic mode
- Constant day mode
- Constant setback mode

Note
If the FEK is pre-selected for a specific heating circuit, the heating curve, room temperature and heating program parameters are not shown at the WPM 3 heat pump manager.

Internet Service Gateway (ISG)

The Internet Service Gateway (ISG) is an Ethernet gateway in a wall mounting enclosure and is connected into the LAN (local area network).

It enables the convenient operation, adjustment and checking of heat pump system data via the browser of a computer, laptop or tablet in the local home network.

If required by the customer, appliance data can be automatically transmitted to the appliance manufacturer’s Servicewelt portal via the internet.

Via services, you can access additional options such as system operation on the go with a smartphone as well as remote setting of parameters and remote diagnosis, etc.

You can find the current services on our homepage.

Mixer module MSMW

The MSM is an extension module for the WPM 3 which makes additional functions available.

The MSM can also be used as an independent mixer control. In this case, an outside temperature sensor has to be connected to the MSM as it cannot communicate with the WPM.

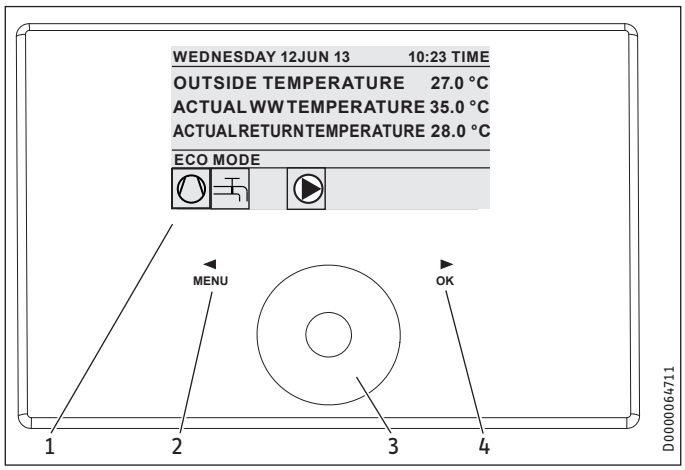
The MSM is operated in the same way as the WPM II.

MSMS 3 mixer and swimming pool module

The MSM is a control panel module for the WPMS 3 which makes additional functions available. The module does not have its own programming unit; it is operated via the WPM 3. The menus are extended accordingly.

4. Operation

4.1 Controls



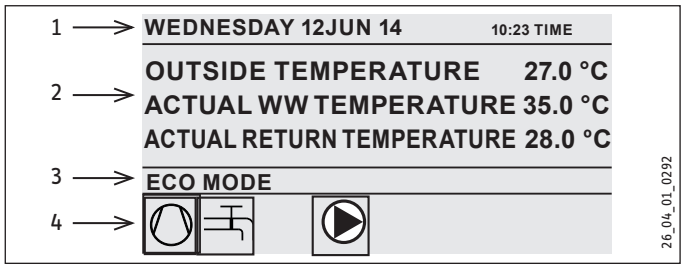
1 Display
2 MENU key
3 Scroll wheel
4 OK key

You control the system with the programming unit of the heat pump manager. Use the scroll wheel and the MENU and OK keys to navigate through the menu structure.

4.1.1 Display

The programming unit display shows the current system status and provides messages and information.

Start screen

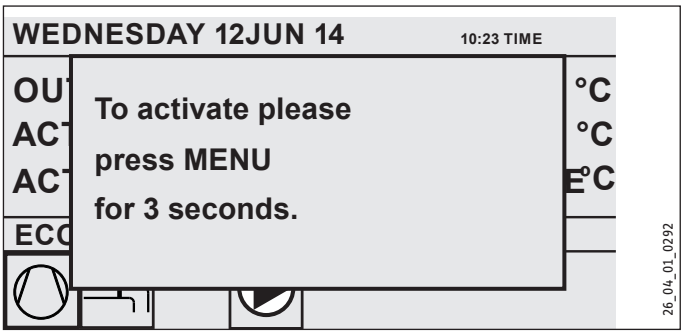


1 Date and time
2 Temperature display
3 Operating mode
4 System status picture symbols

The start screen is divided into four sections. The top field displays the date and time. The field below displays the outside temperature along with the actual DHW temperature and the actual return temperature. The third section is for selecting and displaying the operating modes. In the fourth section, picture symbols indicate the current system status.

Activating

If the scroll wheel and keys are not used for 5 minutes, the programming unit is locked.

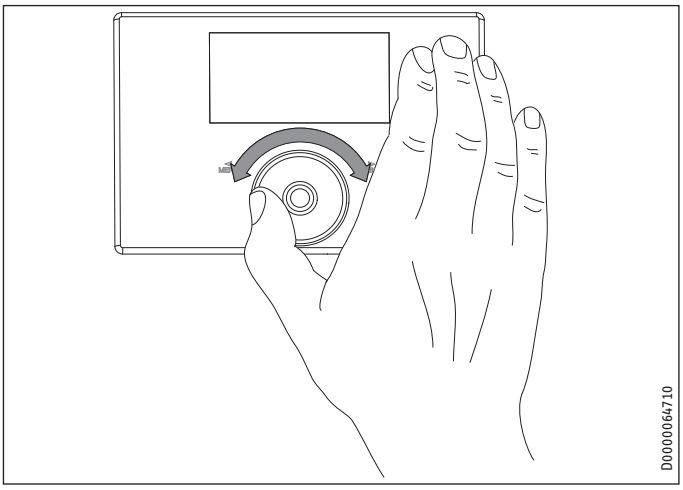


▶ Press MENU for three seconds to activate the programming unit.

Selection indicator

A selection indicator shows the current position within the menu structure at all times. The currently selected menu item is indicated by a dark background. The current menu level is indicated at the top of the display.

4.1.2 Touch wheel



The scroll wheel consists of a touch-sensitive sensor. There is a key to the left and another to the right of it. All required appliance functions are controlled and checked with the scroll wheel and the keys.

Note Sensor responsiveness
If you have gloves on, have wet hands or the programming unit is damp, this impedes the recognition of your touch and the execution of the action you require.

Your contractor can set the sensitivity to touch under SETTINGS/ GENERAL using the TOUCH SENSITIVITY parameter.

Circular movement

Move one finger clockwise over the scroll wheel to move the selection indicator downwards or to the right in the list, depending on how the menu items are arranged. Scrolling anti-clockwise moves the selection indicator to the left or upwards in the list.

Alongside navigation within the menu structure, the scroll wheel is also used to set parameters. Scrolling clockwise increases the values. Scrolling anti-clockwise decreases the values.

4.1.3 Keys

Note
Press the keys only briefly to initiate the required action. If a key is touched for too long, the programming unit does not respond.

MENU key

The MENU key has two functions:

- On the start screen, touch the MENU key to navigate to the first of the 5 menu structure levels.
- Touching the MENU key while in the menu structure will return you to the previous menu level.

OK key

The OK key has four functions:

- On the start screen, touching the OK key will activate the required operating mode previously selected with the scroll wheel.
- Within the menu structure, touching the OK key confirms the selected menu item and takes you to the next lower menu level.
- If you are already at parameter level, touching the OK key saves the currently set parameter.
- At every menu level, you will see the entry BACK. Selecting BACK takes you to the next higher menu level.

If there is no user action for more than five minutes, no scrolling and neither MENU nor OK are pressed, the programming unit display automatically reverts to the start screen.

Any recent parameter changes which had not yet been confirmed with OK are lost. The parameters retain the values previously saved.

4.1.4 Contractor access

Note
Some menu items are protected by a code and can only be accessed and adjusted by a qualified contractor.

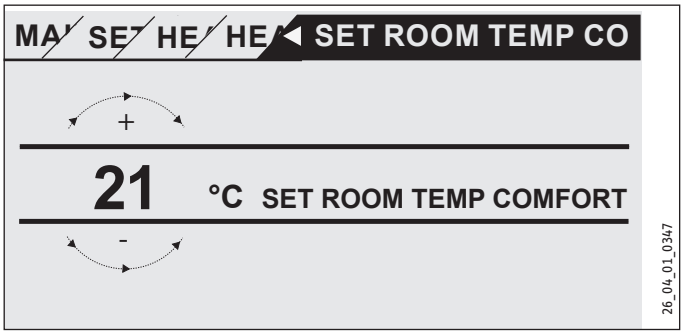
4.2 Entering parameters

Parameters are changed by scrolling with the scroll wheel. To save the new value, touch OK.

If you want to cancel the entry, touch MENU. The parameter retains the previously saved value.

Example 1

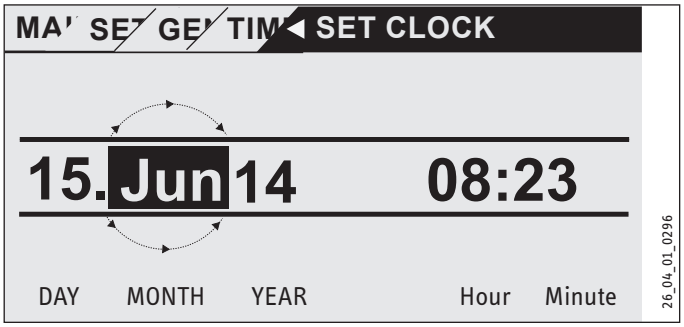
Adjusting the set room temperature.



To enter set temperatures, a number surrounded by a circle appears on the display. This indicates that you can change the value by scrolling with the scroll wheel.

Example 2

Setting the time and date.



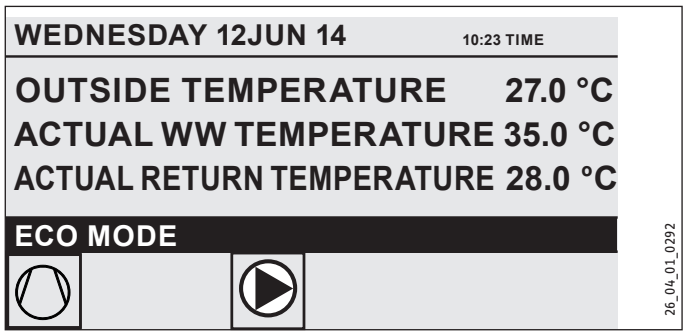
On activation, the selection indicator is over the position MONTH. Confirm with OK. Set the current month with the scroll wheel and confirm with OK. A calendar page is displayed. Move the indicated field to the required day using the scroll wheel and confirm with OK. The new value is saved when you confirm with OK. Set the year, hours and minutes the same way.

4.3 Selecting operating modes

When the start screen is activated, the current operating mode is displayed. If you want to select another operating mode, scroll with the scroll wheel. This takes you through the list of possible operating modes. The current choice (list entry) is shown in the shaded selection field.

Note
To change the appliance to this new operating mode, confirm with OK.

Note
If the selection field shows "POWER-OFF" behind the operating mode, then the heat pump will not heat or cool during the blocking time.
The compressor and the internal electric reheating stages are switched off. If a buffer cylinder is installed, the heating circuit pumps will continue running.
One external heat source can be configured for the blocking time (see chapter "SETTINGS / HEATING / EXTERNAL HEAT SOURCE / BLOCKING TIME EVU").



Since navigation to a new operating mode is always made from the currently enabled mode, you may need to scroll in an anti-clockwise direction. All operating modes, apart from DHW mode, apply to both heating and DHW.

Standby mode

Frost protection is activated for heating and DHW mode. The set DHW value is fixed at 10 °C, the set heating flow value is calculated based on a set room value of 5 °C.

Application: During prolonged periods of absence, e.g. holidays.

Programmed operation

Heating according to the time switch program (applies to heating circuit 1 and heating circuit 2). Changeover between comfort temperature and ECO temperature.

DHW heating according to the time switch program; changeover between comfort temperature and ECO temperature.

The remote control is only effective in this operating mode.

Application: When DHW and heating are required.

Comfort mode

The heating circuit (HC) is constantly held at the comfort temperature (HC 1 and HC 2). DHW heating according to time switch program.

Application: Low energy houses without setback mode.

ECO mode

The heating circuit is constantly held at the ECO temperature (applicable to HC 1 and HC 2). DHW heating according to time switch program.

Application: During weekends away.

DHW mode

DHW heating according to time switch program. If a time program is active, the water inside the DHW cylinder is heated to the set comfort temperature. At all other times, the water is heated to the set ECO temperature. Frost protection is activated for heating mode.

Application: The heating season has ended; only DHW should be provided (summer mode).

Emergency operation

This setting activates the emergency operation.

In heat pumps with an integral 2nd heat source, the NHZ stages (electric reheating stages) of the electric emergency/booster heater take over DHW and central heating irrespective of the dual mode changeover point.

For heat pumps with an external 2nd heat source, the external heat source for DHW or central heating must be set to ON under SETTINGS / HEATING or DHW. Only then can the operating mode be selected. The external heat source then takes over operation for the DHW or central heating function, irrespective of the dual mode changeover point.

4.4 Picture symbols

At the lower edge of the display, symbols provide information about the current operating status of the heat pump.

Heating circuit pump
The pump symbol is displayed when a heating circuit pump is running.

Mixer circuit pump
The mixer symbol is displayed when a mixer circuit pump is running.

Heat-up program
This symbol is displayed when the heat-up program is running.

Electric emergency/booster heater
The electric emergency/booster heater has started up. This occurs, for example, when the outside temperature has fallen below the dual mode point.

Heating
The heating symbol is displayed when the heat pump is in heating mode.

DHW heating
This symbol indicates that the heat pump is heating DHW.

Compressor
The symbol is displayed when the compressor is running.

Summer mode
The symbol is displayed when the heat pump is in summer mode.

Cooling
The symbol is displayed when the heat pump is in cooling mode.

Defrost
The symbol is displayed when the heat pump is in defrost mode.

Silent mode
Reduced noise mode
Silent mode is enabled. The associated time programs determine activation of the fan or compressor throttle.

Silent mode 1
The fan and / or compressor run with reduced output.

Silent mode 2
Compressor and fan are stopped. Heat source 2 takes over heating.
Note: This operating mode can result in higher operating costs.

5. Menu structure

After activating the programming unit, you can use the touch wheel to select alternative operating modes or use the menu key to jump to a level from which you can navigate to a specific appliance parameter.

Note
Not all appliance parameters and values are displayed in the different menus, depending on which heat pump type is connected.

Level 1	Level 2
INFO	SYSTEM
	HEAT PUMP 1-6
DIAGNOSIS	SYSTEM STATUS
	HEAT PUMP STATUS 1-6
	HEAT PUMP ANALYSIS 1-6
	SYSTEM
	INTERNAL CALCULATION
	FAULT LIST
	RELAY TEST SYSTEM
	RELAY TEST HEAT PUMP 1-6
PROGRAMS	HEATING PROGRAM
	DHW PROGRAM
	PARTY PROGRAM
	HOLIDAY PROGRAM
	HEAT-UP PROGRAM
	SILENT PROGRAM 1
	SILENT PROGRAM 2
SETTINGS	GENERAL
	HEATING
	DHW
	COOLING
	SOLAR
COMMISSIONING	ENTER CODE
	LANGUAGE
	SOURCE
	HEATING
	DHW
	COMPRESSOR
	SILENT MODE
	EMERGENCY OPERATION
	HEAT PUMP RESET
	FAULT LIST RESET
	SYSTEM RESET
	SENSOR CALIBRATION

5.1 INFO menu

In the INFO menu you can compare the set and actual values for temperatures, flow rates and pressures of the heating system and the heat pump.

Note
Please note that actual and set values can only be displayed if the appropriate sensors are connected.

5.1.1 INFO SYSTEM

Level 3	
ROOM TEMPERATURE	
ACTUAL TEMPERATURE FE7 Actual room temperature for heating circuit 1 (HC1) or heating circuit 2 (HC2) (is only displayed if the FE7 remote control is connected)	°C
SET TEMPERATURE FE7 Set room temperature for heating circuit 1 (HC1) or heating circuit 2 (HC2) (only displayed if the FE7 remote control is connected)	°C
ACTUAL TEMPERATURE FEK Actual room temperature for heating circuit 1 or heating circuit 2 (is only displayed if the FEK remote control is connected)	°C
SET TEMPERATURE FEK Set room temperature for heating circuit 1 or heating circuit 2 (is only displayed if the FE7 remote control is connected)	°C
RELATIVE HUMIDITY	%
DEW POINT TEMPERATURE Dew point temperature (is only displayed if the FEK remote control is connected)	°C
HEATING	
OUTSIDE TEMPERATURE	°C
ACTUAL TEMPERATURE HK 1 Actual heating circuit temperature, heating circuit 1	°C
SET TEMPERATURE HK 1 Set heating circuit temperature, heating circuit 1 (HC1). With fixed value control, the fixed temperature is displayed.	°C
ACTUAL TEMPERATURE HK 2 Actual heating circuit temperature, heating circuit 2	°C
SET TEMPERATURE HK 2 Set heating circuit temperature, heating circuit 1 (HK1). With fixed value control, the fixed temperature is displayed.	°C
ACTUAL FLOW TEMPERATURE HP Actual heat pump flow temperature	°C
ACTUAL FLOW TEMPERATURE NHZ Reheating stages, actual flow temperature	°C
ACTUAL RETURN TEMPERATURE WP	°C
SET FIXED TEMPERATURE	°C
ACTUAL BUFFER TEMPERATURE Actual buffer cylinder temperature	°C
SET BUFFER TEMPERATURE Set buffer cylinder temperature	°C
HEATING PRESSURE	bar
FLOW RATE	l/min
SYSTEM FROST PROTECTION	°C
DHW	
ACTUAL TEMPERATURE Actual DHW temperature	°C
SET TEMPERATURE Set DHW temperature	°C
FLOW RATE	l/min

Level 3	
COOLING	
ACTUAL TEMPERATURE FAN	°C
SET TEMPERATURE FAN	°C
ACTUAL TEMPERATURE AREA	°C
SET TEMPERATURE AREA	°C
SOLAR	
COLLECTOR TEMPERATURE	°C
CYLINDER TEMPERATURE	°C
RUNTIME	Hours
EXTERNAL HEAT SOURCE	
ACTUAL TEMPERATURE	°C
SET TEMPERATURE	°C
DUAL MODE TEMP HZG Heating dual mode point	°C
APPLICATION LIMIT HZG Heating application limit	°C
DUAL MODE TEMP DHW DHW dual mode point	°C
APPLICATION LIMIT DHW DHW application limit	°C
RUNTIME	Hours
ELECTRIC REHEATING	
DUAL MODE TEMP HZG Heating dual mode point	°C
APPLICATION LIMIT HZG Heating application limit	°C
DUAL MODE TEMP DHW DHW dual mode point	°C
APPLICATION LIMIT DHW DHW application limit	°C
SOURCE	
SOURCE TEMPERATURE	°C
MIN SOURCE TEMPERATURE	°C
SOURCE PRESSURE	bar

5.1.2 INFO HEAT PUMP 1-6

Note
The power consumption is calculated on the basis of refrigerant circuit pressure. This calculation is inappropriate for billing purposes. Together with the amount of heat it is used for a rough energy statement.

Level 3	
PROCESS DATA	
RETURN TEMPERATURE	°C
FLOW TEMPERATURE	°C
FROST PROTECTION TEMP	°C
OUTSIDE TEMPERATURE	°C
EXHAUST AIR TEMPERATURE	°C
EVAPORATOR TEMPERATURE	°C
RECUPERATOR TEMPERATURE	°C
COMP SUCTION GAS TEMP	°C
COMP SUCTION GAS TEMP ND	°C
COMP SUCTION GAS TEMP HD	°C
INTERMEDIATE INJ TEMP	°C
HOT GAS TEMPERATURE	°C
CONDENSER TEMPERATURE	°C
OIL SUMP TEMPERATURE	°C
LOW PRESSURE	bar
MEAN PRESSURE	bar
HIGH PRESSURE	bar
DIFF PRESSURE VOLT INPUT	V
DIFFERENTIAL PRESSURE	mbar
WP WATER FLOW RATE	l/min
INVERTER CURRENT ND	A
INVERTER CURRENT HD	A
INVERTER CURRENT	A
INVERTER VOLTAGE	V
SPEED ND	Hz
SET SPEED ND	Hz
SPEED HD	Hz
SET SPEED HD	Hz
ACTUAL COMPRESSOR SPEED	Hz
SET COMPRESSOR SPEED	Hz
REL FAN RATE	%
ACTUAL FAN SPEED	Hz
SET FAN SPEED	Hz
EVAPORATOR INLET TEMP.	°C

AMOUNT OF HEAT	
VD HEATING DAY Amount of compressor heat generated in heating mode since 00:00 of the current day.	kWh
VD HEATING TOTAL Total amount of compressor heat generated in heating mode.	MWh
VD DHW DAY Amount of compressor heat generated in DHW mode since 00:00 of the current day.	kWh
VD DHW TOTAL Total amount of compressor heat generated in DHW mode.	MWh
NHZ HEATING TOTAL Total amount of booster heat generated in heating mode.	MWh
NHZ DHW TOTAL Total amount of booster heat generated in DHW mode.	MWh

Level 3	
POWER CONSUMPTION	
VD HEATING DAY Amount of electric compressor output in heating mode since 00:00 of the current day.	kWh
VD HEATING TOTAL Total amount of electric compressor output in heating mode.	MWh
VD DHW DAY Amount of electric compressor output in DHW mode since 00:00 of the current day.	kWh
VD DHW TOTAL Total amount of electric compressor output in DHW mode.	MWh

RUNTIME	
VD HEATING Runtime of compressor in heating mode.	Hours
VD 1 HEATING Runtime of compressor 1 in heating mode.	Hours
VD 2 HEATING Runtime of compressor 2 in heating mode.	Hours
VD 1/2 HEATING Runtime of compressor 1 and 2 in heating mode.	Hours
VD DHW Runtime of compressor in DHW mode.	Hours
VD 1 DHW Runtime of compressor 1 in DHW mode.	Hours
VD 2 DHW Runtime of compressor 2 in DHW mode.	Hours
VD 1/2 DHW Runtime of compressor 1 and 2 in DHW mode.	Hours
VD COOLING Runtime of compressor in cooling mode.	Hours
VD DEFROST Runtime of compressor in defrost mode.	Hours
VD 1 DEFROST Runtime of compressor 1 in defrost mode.	Hours
VD 2 DEFROST Runtime of compressor 2 in defrost mode.	Hours
NHZ 1 Runtime of electric emergency/booster heater in booster stage 1.	Hours
NHZ 2 Runtime of electric emergency/booster heater in booster stage 2.	Hours
NHZ 1/2 Runtime of electric emergency/booster heater in booster stages 1 and 2.	Hours
DEFROST TIME	Minutes
DEFROST STARTS	

STARTS	
COMPRESSOR	
COMPRESSOR 1	
COMPRESSOR 2	

5.2 DIAGNOSIS menu

For heating system and heat pump troubleshooting and analysis, you can call up all important process data and BUS subscribers under DIAGNOSIS and carry out a relay test.

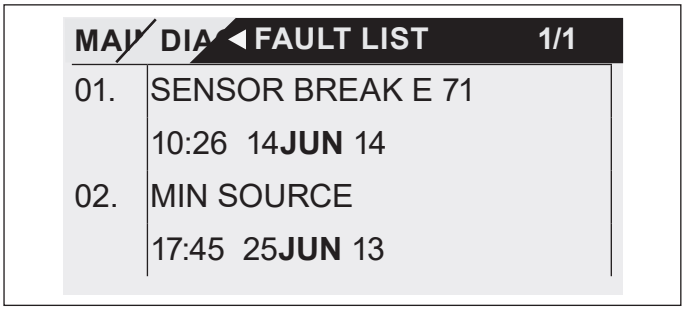
Note
Menu item RELAY TEST SYSTEM is protected by a code and can only be accessed by a qualified contractor.

Level 2	Level 3
SYSTEM STATUS	BUFFER CHARGING PUMP
	DHW VALVE
	HEATING CIRCUIT PUMP
	MIXER PUMP
	MIXER OPEN
	MIXER CLOSE
	SOURCE PUMP
	COOLING MODE
	BUFFER CHARGING PUMP 1
	BUFFER CHARGING PUMP 2
	BUFFER CHARGING PUMP 3 - 6
	DHW CHARGING PUMP
	HEAT SOURCE 2
	DHW CIRCULATION PUMP
	SOLAR CIRCUIT PUMP
	NHZ 1
	NHZ 2
	NHZ 1/2
	POWER-OFF
HEAT PUMP STATUS 1 - 6	REMAINING IDLE TIME
	COMPRESSOR
	COMPRESSOR ND
	COMPRESSOR HD
	COMPRESSOR 1
	COMPRESSOR 2
	NHZ 1
	NHZ 2
	NHZ 1/2
	DEFROST VALVE
	PRESSURE COMPENSATION
	OIL COMPENSATION
	OIL SUMP
	FAN
	RIBBON HEATER
	EXTERNAL COMPRESSOR ON
	EXTERNAL FAULT
	HD LIMITER
	HD/TEMPERATURE MONITOR
	DEFROST SIGNAL
	CENTRAL INPUT
	INVERTER POWER SUPPLY
	FAULT
	FORCED HEATING
	COOLING MODE
HEAT PUMP ANALYSIS 1-6	SET SUPERHEATING
	ACTUAL SUPERHEATING V
	CONTROL DEVIATION
	P FACTOR
	I FACTOR
	D FACTOR
	PRE-CTRL OPENING EXV
	OPENING EXV
	SET SUPERHTG SG V HD
	ACTUAL SUPERHTG SG V HD
	P FACTOR V-HD
	I FACTOR V-HD
	D FACTOR V-HD
	SET SUPERHEATING SG V-ZE
	ACTUAL SUPERHEATING SG V-ZE
	P FACTOR V-ZE
	I FACTOR V-ZE
	D FACTOR V-ZE
	V OPENING DEGREE EXV ZE
	OPENING EXV ZE
	SUPERCOOLING COND
	ACTUAL SUPERHEATING REK
	INTERMEDIATE INJ PRESSURE
	ACTUAL SUPERHEATING ZE
	AMBIENT TEMP. INVERTER
	TEMP. INV. COMPRESSOR
	TEMPERATURE INV. FAN
	MOTOR CURRENT
	BYPASS VALVE OPENING LVL
SYSTEM	BUS SUBSCRIBER
	HEAT PUMP TYPE
INTERNAL CALCULATION	INTERVAL
	LIVE STAGES
FAULT LIST	
RELAY TEST SYSTEM	DHW CIRCULATION PUMP
	BUFFER CHARGING PUMP 1
	BUFFER CHARGING PUMP 2
	DHW CHARGING PUMP
	HEATING CIRCUIT PUMP
	HEAT SOURCE 2
	WE 2 MIN OUTPUT
	WE 2 MAX OUTPUT
	MIXER OPEN
	MIXER CLOSE
	MIXER PUMP
	SOURCE PUMP
	SOLAR CIRCUIT PUMP
	COOLING MODE
	DRAIN HYD
	NHZ 1
	NHZ 2
	NHZ 3
RELAY TEST HEAT PUMP 1-6	DEFROST
	FAN
	NHZ 1
	NHZ 2
	OIL SUMP
	COMPRESSOR
	STEPPER MOTOR PHASE 1
	STEPPER MOTOR PHASE 2
	STEPPER MOTOR PHASE 3
	STEPPER MOTOR PHASE 4
	STEPPER MOTOR PHASE 1 ZE
	STEPPER MOTOR PHASE 2 ZE
	STEPPER MOTOR PHASE 3 ZE
	STEPPER MOTOR PHASE 4 ZE

Level 2	Level 3
	RIBBON HEATER
	EXTERNAL COMPRESSOR ON
	EXTERNAL FAULT
	EX VALVE CENTRE POSITION

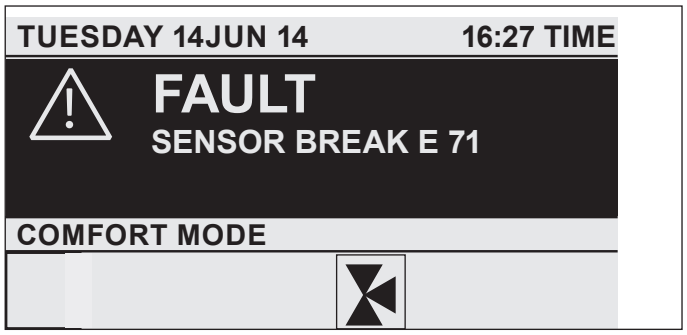
5.2.1 Fault list

The fault list provides an overview of the faults most recently registered by the appliance. The fault list contains up to 20 fault messages. The display, however, can show only 2. Scroll with the scroll wheel to access the other entries in the fault list.



5.2.2 Fault message

If the appliance registers a fault, this is clearly displayed with the message shown below.



If more than one fault occurs, the most recent fault is always shown. Notify your qualified contractor.

5.2.3 Relay test

All relay outputs of the controller and heat pump can be individually switched from here.

5.3 PROGRAMS menu

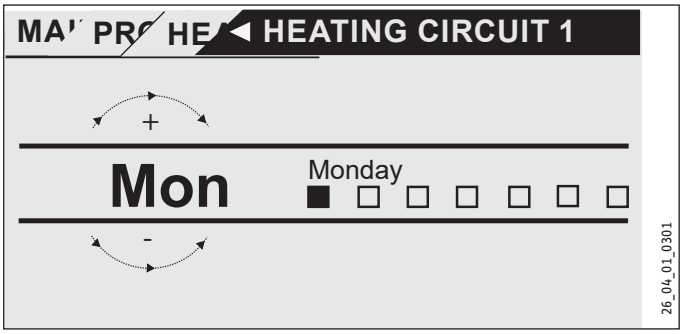
All times for the heating, DHW, holiday and party modes can be adjusted here. In addition, the heat-up program can be started.

Level 2	Level 3
HEATING PROGRAM	HEATING CIRCUIT 1
	HEATING CIRCUIT 2
DHW PROGRAM	
PARTY PROGRAM	HOURS
HOLIDAY PROGRAM	HOLIDAYS BEGINNING
	HOLIDAYS ENDING
HEAT-UP PROGRAM	LOW END TEMPERATURE
	DURATION BASE TEMP
	MAXIMUM TEMPERATURE
	MAX TEMPERATURE DURATION
	RISE PER DAY
SILENT PROGRAM 1	
SILENT PROGRAM 2	

5.3.1 HEATING PROGRAM

In menu item HEATING PROGRAM you can determine when and how often the appliance heats to the set comfort values for heating circuit 1 and heating circuit 2. At all other times, the appliance heats to the set ECO value. You can adjust the set values under menu item SETTINGS / HEATING / HEATING CIRCUIT 1 or HEATING CIRCUIT 2. Below is an explanation of how to define a time program.

First, select the days on which you want to enable the HEATING function:



You can set your heating system as follows:

- For each individual day of the week (Monday - Sunday)
- Monday to Friday (Mon - Fri)
- Saturday and Sunday (Sat - Sun)
- the whole week (Mon - Sun)

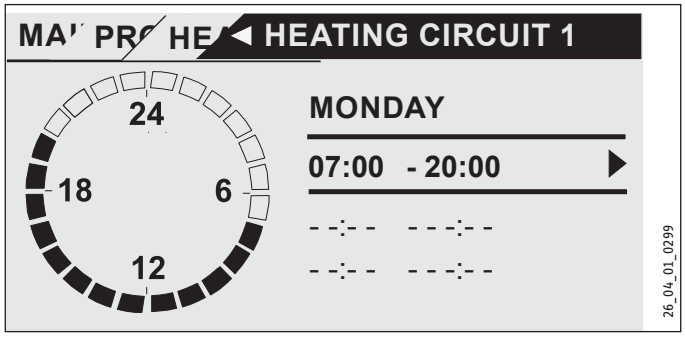
Monday is initially offered.

▶ Scroll with the scroll wheel to select another day or group of days.

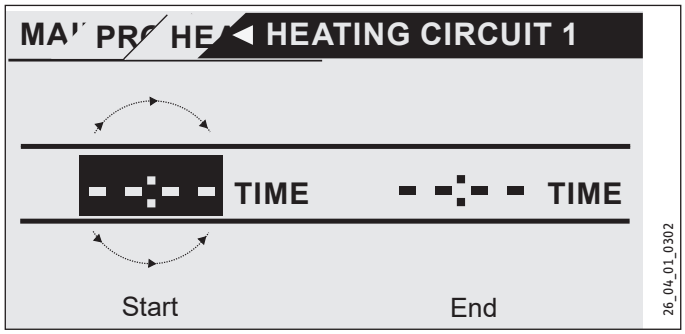
▶ Confirm your selection with OK.

You can now set three switching time pairs. The three switching time pairs are shown on the display, to the right of the clock. A

switching time pair comprises the start time and end point, at which the appliance returns to its previous state.



In this example, only one switching time pair has so far been programmed. For switching time pairs 2 and 3, short dashes are displayed instead of times. These switching time pairs are still empty. Select one of the free switching time pairs with OK to reach the area where you can set the associated start and end time. Pressing OK brings up the display shown below. Set the required time with the scroll wheel.



Times can be entered in intervals of 15 minutes. You can set 16:30 or 16:45 h, but not 16:37 h. Confirm your entry with OK.

Periods around midnight

Assume, for example, you want heating mode to be enabled from 22:00 h for four hours every Wednesday evening. This means the period does not expire until the next day, Thursday, at 02:00 h. However, since the day ends at 00:00 h, two switching time pairs are necessary for the required program. First, program the period 22:00 to 00:00 h for Wednesday, then 00:00 to 02:00 h for Thursday.

5.3.2 DHW PROGRAM

In menu item DHW PROGRAM you can determine the times during which DHW heating to the set comfort value should take place. At all other times, DHW is heated to the set ECO value. You can adjust the set values under menu item SETTINGS / DHW / DHW TEMPERATURES. The DHW circulation output is also switched in line with the times programmed here.

You can set your DHW heating as follows:

- For each individual day of the week (Monday - Sunday)
- Monday to Friday (Mon - Fri)
- Saturday and Sunday (Sat - Sun)
- the whole week (Mon - Sun)

You can set three switching time pairs for each of these options.

Exception: If you want to heat DHW from 22:00 h until 06:00 h the following day you will need two switching time pairs.

Example:

You would like to heat DHW twice daily, e.g. from 22:00 h until 06:00 h the following day, and then from 08:00 h until 09:00 h.

As the day begins at 00:00 h, programming for this example must again start at 00:00 h.

- The first switching time pair runs from 00:00 h until 06:00 h.
- The second switching time pair runs from 08:00 h until 09:00 h.
- The third switching time pair runs from 22:00 h until 24:00 h.

5.3.3 PARTY PROGRAM

In the party program you can extend the comfort mode for heating by a few hours.

5.3.4 HOLIDAY PROGRAM

In the holiday program, the heat pump system runs in ECO mode and frost protection for DHW heating is enabled.

For both the start and end of the holiday, enter the year, month and day. The start time is 0:00 h on the first day of the holiday. The end time is 24:00 h on the day the holiday ends. After the holiday period has expired, the heat pump system switches back to the previous heating and DHW program.

5.3.5 HEAT-UP PROGRAM

Note
Menu item HEAT-UP PROGRAM is protected by a code and can only be accessed and adjusted by a qualified contractor.

Heat-up program for underfloor heating systems

Use the heat-up program to dry your screed with a defined temperature profile. To prevent damage to the appliance and/or the installation, observe the following differences between air | water heat pumps (WPL) and brine | water heat pumps (WPF):

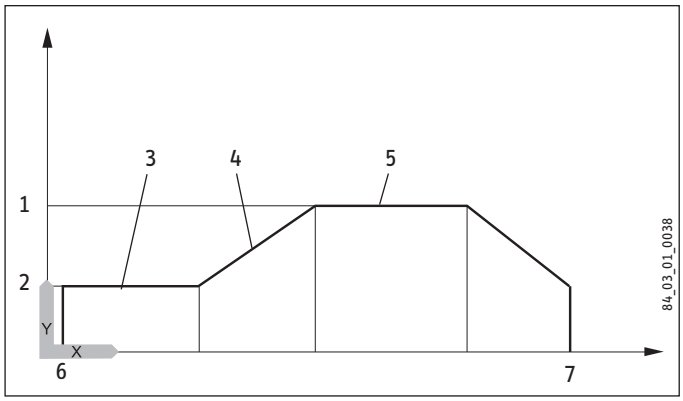
- WPL: Where return temperatures are < 25 °C, the heat-up program / screed drying must be carried out via the emergency/booster heater. The process must not be carried out via the heat pump – such low system temperatures during the defrost cycle mean that the appliance may not be protected from frost during the defrost cycle. If the return temperature rises > 25 °C the heat pump can take over screed drying. For this, set parameter “LOWER APP LIMIT HZG” to -20 °C.
- WPF: The heat-up program / screed drying must be carried out via the emergency/booster heater. Never use the heat pump to perform screed drying as this would place too high a demand on the heat source and could damage it.

If you use the heat-up program, input the following settings at the heat pump manager:

First set parameter “LOWER APP LIMIT HZG” to 30 °C.

There are a total of 6 parameters that serve to determine the temperatures and periods for the heat-up program. These 6 parameters can be adjusted in sequence as soon as the heat-up program is activated. The program is started with the HEAT-UP PROGRAM parameter and the setting ON. Please note that depending on the system temperature it may take some time to reach the required low end temperature.

The low end temperature (parameter LOW END TEMPERATURE) is held for the selected time (parameter DURATION BASE TEMP). After expiry of this period, the system heats to the maximum low end temperature (parameter MAXIMUM TEMPERATURE) using an increase K/day (parameter RISE PER DAY) and holds this maximum temperature for the selected time (parameter MAX TEMPERATURE DURATION). The system subsequently returns to the low end temperature using the same steps as for heat-up.



Y Temperature
X Time
1 Maximum temperature
2 Low end temperature
3 Low end temperature duration
4 Increase K/day
5 Max temperature duration
6 Start
7 End

If a heating buffer cylinder has been integrated into the system, the temperature in the buffer cylinder is controlled solely via the return sensor (fitted at the base of the buffer cylinder). If only the direct heating circuit 1 is operational, the set values are reduced by 5 K to even out temperature differences in the buffer cylinder. If 2 heating circuits are operational (second heating circuit is for underfloor heating system), the mixer in heating circuit 2 regulates down to the selected set values. The pump for heating circuit 1 is not controlled.

During the heat-up program the appliance often reaches maximum output. For this reason, energy consumption and noise levels are comparatively high during screed drying.

After the heat-up process all modified parameters must be reset to their standard values or system values.

Emergency operation is not possible while the heat-up program is active.

5.3.6 SILENT PROGRAM 1

For HP types 1/1* (not for WPL 34/47) and 4/4*, the fan speed is reduced. This reduces the sound level emitted by the heat pump.

For HP types 3/3* and 5/5*, both the fan speed and the compressor output can be reduced. Both options can be set independently of one another.

5.3.7 SILENT PROGRAM 2

In this program, the air source heat pump is switched off for the entire set period and only the internal or external secondary heat generator is used for heating.

PLEASE NOTE: This program may result in high electricity bills.

5.4 SETTINGS menu

Here you can set all system-specific parameters for heating, cooling and DHW modes as well as general settings such as the time.

Note
Some menu items are protected by a code and can only be accessed and adjusted by a qualified contractor.

Note
Not all appliance parameters are displayed in the different menus, depending on which heat pump type is connected.

Level 2	Level 3	Level 4	Level 5
GENERAL	TIME / DATE	TIME	
		YEAR	
		MONTH	
		DAY	
	SET SUMMER TIME	DAY BEGINNING	
		DAY ENDING	
	CONTRAST		
	BRIGHTNESS		
	TOUCH SENSITIVITY		
	TOUCH ACCELERATION		
HEATING	HEATING CIRCUIT 1	COMFORT TEMPERATURE	
		ECO TEMPERATURE	
		MINIMUM TEMPERATURE	
		ROOM INFLUENCE	
		HEATING CURVE RISE	
		HEATING CURVE VIEW	
	HEATING CIRCUIT 2	COMFORT TEMPERATURE	
		ECO TEMPERATURE	
		MINIMUM TEMPERATURE	
		MAXIMUM TEMPERATURE	
		MIXER DYNAMICS	
		ROOM INFLUENCE	
		HEATING CURVE RISE	
		HEATING CURVE VIEW	
	STANDARD SETTING	BUFFER OPERATION	
		SUMMER MODE	OUTSIDE TEMPERATURE
			BUILDING HEAT BUFFER
		FLOW PROP HEATING CIRC	
		MAXIMUM RETURN TEMP	
		MAXIMUM FLOW TEMPERATURE	
		FIXED VALUE OPERATION	
		HEATING CIRCUIT OPTIMAL	
		FROST PROTECTION	
	REMOTE CONTROL FE7	HEATING CIRC PRESELECTION	
		ROOM INFLUENCE	
		ROOM CORRECTION	
	PUMP CYCLES		
	EXTERNAL HEAT SOURCE	THREADED IMMERSION HEATER	
		BOILER	
		HZG PWM	
		HEATING CURVE GAP	

Menu structure

Level 2	Level 3	Level 4	Level 5
		SET BOILER TEMPERATURE	
		BLOCKING TIME EVU	
		LOWER APP LIMIT HZG	
		DUAL MODE TEMP HZG	
		HZG PWM	
	ELECTRIC REHEATING	LOWER APP LIMIT HZG	
		DUAL MODE TEMP HZG	
		NUMBER OF STAGES	
		DELAY	
DHW	DHW TEMPERATURES	COMFORT TEMPERATURE	
		ECO TEMPERATURE	
	STANDARD SETTING	DHW MODE	PRIORITY OPERATION
			PARALLEL OPERATION
			PARTIAL PRIORITY
		DHW HYSTERESIS	
		DHW STAGES	
		AUTOMATIC DHW CONTROL	OUTSIDE TEMPERATURE
		WW LEARNING FUNCTION	
		COMBI CYLINDER	
		WW OUTPUT WP	WW OUTPUT SUMMER
			WW OUTPUT WINTER
		MAXIMUM FLOW TEMPERATURE	
		PASTEURISATION	
	ELECTRIC REHEATING	DUAL MODE TEMP WW	
		LOWER APP LIMIT WW	
	EXTERNAL HEAT SOURCE	SUPPORTED	
		ALONE	
		INDEPENDENT	
		DUAL MODE TEMP WW	
		LOWER APP LIMIT WW	
		WW PWM	
COOLING	COOLING		
	COOLING MODE	PASSIVE COOLING	
		ACTIVE COOLING	
	STANDARD SETTING	COOLING STAGES	
		COOLING LIMIT	
		COOLING CAPACITY	
	ACTIVE COOLING	AREA COOLING	SET FLOW TEMPERATURE
			FLOW TEMP HYSTERESIS
			SET ROOM TEMPERATURE
			DYNAMICS ACTIVE
			DYNAMICS PASSIVE
		FAN COOLING	SET FLOW TEMPERATURE
			FLOW TEMP HYSTERESIS
			SET ROOM TEMPERATURE
			DYNAMICS ACTIVE
			DYNAMICS PASSIVE
	PASSIVE COOLING	AREA COOLING	SET FLOW TEMPERATURE
			FLOW TEMP HYSTERESIS
			SET ROOM TEMPERATURE
			DYNAMICS PASSIVE
		FAN COOLING	SET FLOW TEMPERATURE

Level 2	Level 3	Level 4	Level 5
			FLOW TEMP HYSTERESIS
			SET ROOM TEMPERATURE
			DYNAMICS PASSIVE
SOLAR	MAXIMUM CYLINDER TEMP		
	SOLAR DIFFERENTIAL		

5.4.1 GENERAL

TIME / DATE

Here you can set the time, year, month and day.

SET SUMMER TIME

Here you can adjust the settings for summertime.

Summertime is factory-set to begin on 25 March and to end on 25 October.

CONTRAST

Here you can adjust the display contrast.

BRIGHTNESS

Here you can adjust the display brightness.

TOUCH SENSITIVITY and TOUCH ACCELERATION

A code is required for this adjustment.

5.4.2 HEATING

HEATING CIRCUIT 1 and HEATING CIRCUIT 2

COMFORT TEMPERATURE and ECO TEMPERATURE

Here you can select the set room temperatures for comfort mode and ECO mode as well as the heating curve rise for heating circuit 1 and heating circuit 2.

Changing the set room temperature results in a parallel shift of the heating curve.

As soon as the FE7 remote control has been connected and allocated to heating circuit 1, the actual room temperature can also be called up.

As soon as the FE7 or FEK remote control has been connected and allocated to heating circuit 2, the actual room temperature can also be called up.

The display HEATING CIRCUIT 2 only appears if the mixer flow sensor for heating circuit 2 has been connected.

MINIMUM TEMPERATURE

The set MINIMUM TEMPERATURE is safeguarded by the heating circuit control unit and will never be undershot.

MAXIMUM TEMPERATURE

This setting limits the flow temperature of the mixer circuit. For example, if a higher set flow temperature is calculated from the mixer circuit data, the max. set mixer flow temperature is used to control and regulate to this value.

MIXER DYNAMICS

Mixer runtime

Setting range 60 to 240

You can use this setting to adapt the mixer characteristics. The setting 60 to 240 means 6 K to 24 K control deviation.

The scan rate is 10 s and the minimum start duration for the mixer is 0.5 s. The mixer does not respond in the dead zone of ±1 K from the set value.

Example for the setting 100 = 10 K

The control deviation (set mixer temperature – actual mixer temperature) is 5 K. The mixer opens for 5 s, then pauses for 5 s and starts again.

The control deviation (set mixer temperature – actual mixer temperature) is 7.5 K. The mixer opens for 7.5 s, then pauses for 2.5 s and starts again.

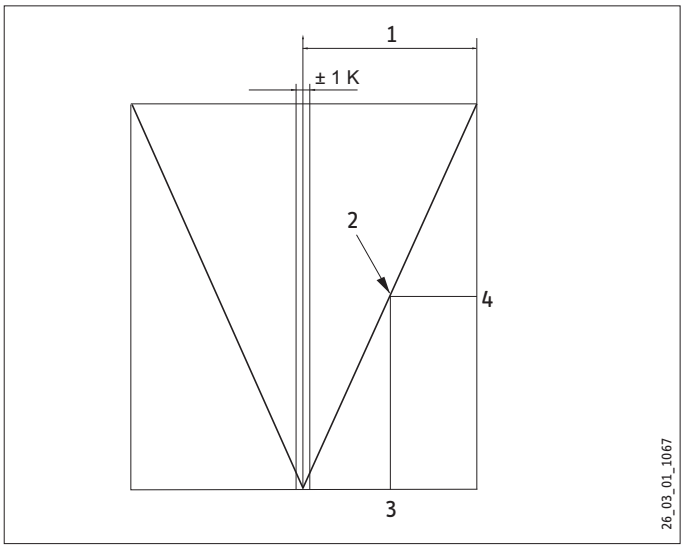
The smaller the control deviation, the shorter the mixer start duration and the longer the pauses.

A reduction of the mixer dynamics value with the control deviation unchanged increases the start duration and reduces pauses.

Example for the setting 100 and a current control deviation of 5 K.

5 K of 10 K = 50 % = start duration

Example: Control deviation



1 Setting 100 = control deviation 10 K
2 Control deviation 5 K
3 Control deviation in K
4 Start duration in %

ROOM INFLUENCE

Adjustable from 0 to 20 and OFF (standard setting: 05)

With the FE7 remote control connected, the room temperature sensor only serves to record and display the actual room temperature; it has no influence on the actual control. The remote control can be used to adjust the room temperature for heating circuit 1 or 2 by ± 5 °C in automatic mode only. This set value adjustment applies to the current heating time, not to the setback time.

At the same time, the setting “0 to 20” serves to control the room temperature-dependent night setback. This means that the heating circuit pump switches off at the changeover from the heating phase to the setback phase. It remains off until the actual room temperature falls below the set room temperature. After this, the system continues to regulate in weather-compensated mode.

If the room temperature is to be included in the control loop, the room sensor influence must be set to a value > 0. The room sensor influence has the same effect as the outside temperature sensor has on the return temperature, except that the effect is 1 to 20 times greater, depending on the factor set.

- **Room temperature-dependent return / flow temperature with weather compensation**

With this type of control, a controller cascade is formed from both weather-compensated and room temperature dependent return/flow temperature control. This means that the weather-compensated return/flow temperature control sets a default return/flow temperature that is corrected by the overriding room temperature control in accordance with the following formula:

$\Delta\vartheta_R = (\vartheta_{Rset} - \vartheta_{Ractual}) * S * K$

Because a substantial proportion of the control is already handled by the weather-compensated control, the room sensor influence K can be set lower than with pure room temperature control (K=20). The graph shows the control method with the set factor K=10 (room influence) and a heating curve S=1.2

- **Room temperature control with weather-compensation.**

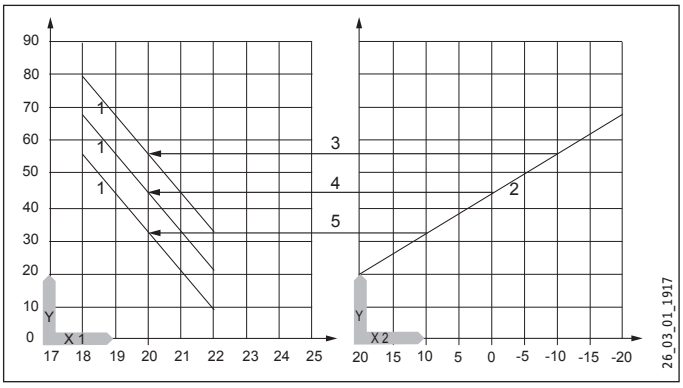
This type of control offers two main benefits:

Incorrectly set heating curves are corrected by the room sensor influence K; the smaller factor K means the control unit works in a more stable manner.

However, observe the following for all control units with room sensor influence:

- The room temperature sensor must capture the room temperature accurately.
- Open doors and windows greatly affect the control result.
- All radiator valves in the lead room must be fully open at all times.
- The temperature inside the lead room affects the entire heating circuit.

If the room temperature is to be included in the control loop, the room sensor influence must be set to a value > 0.



Y Flow temperature [°C]
X 1 Room temperature [°C]
X 2 Outside temperature [°C]
1 Room sensor influence at K = 10 and S = 1.2 and control deviation +/- 2 K
2 Heating curve S = 1.2
3 Weather-compensated set flow temperature at ϑ_A = - 10 °C
4 Weather-compensated set flow temperature at ϑ_A = 0 °C
5 Weather-compensated set flow temperature at ϑ_A = + 10 °C

HEATING CURVE RISE

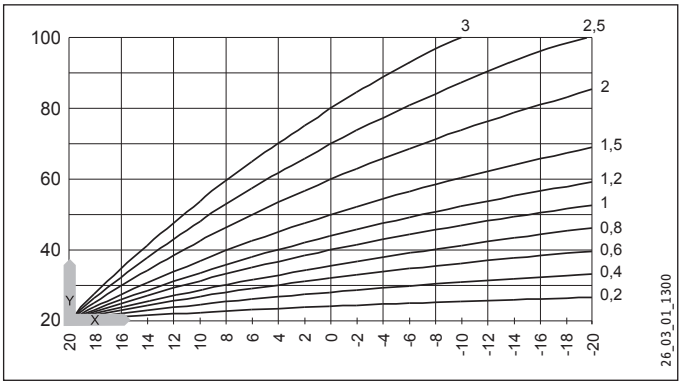
Menu item HEATING CURVE RISE enables you to set one heating curve each for heating circuits 1 and 2.

Note: Your contractor will have set a building and system-specific optimum heating curve for every heating circuit. For heating circuit 1 the curve relates to the heat pump return temperature, for heating circuit 2 to the mixer flow temperature.

When you adjust the heating curve on the heat pump manager, the calculated set return or flow temperature is shown at the top of the display, subject to the outside temperature and the set room temperature.

As soon as you have preselected a temperature in menu SETTINGS / HEATING / STANDARD SETTING under parameter FIXED VALUE OPERATION, heating curve 1 is hidden from view and the display shows SET FIXED TEMPERATURE with the relevant temperature.

At the factory, heating curve 0.6 is set for heating circuit 1 and heating curve 0.2 for heating circuit 2. These heating curves relate to a set room temperature of 20 °C.

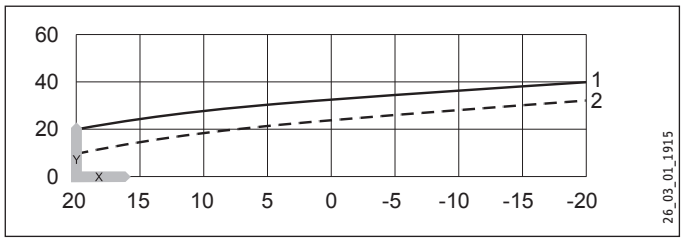


Y Heating circuit 1, heat pump return temperature [°C]
Heating circuit 2, heat pump flow temperature [°C]
X Outside temperature [°C]

HEATING CURVE VIEW

Adjustment of programmed operation – changeover between comfort and ECO mode

The diagram shows the graph with the set heating curve relating to a set room temperature for comfort mode. The second, dotted line relates to a set room temperature for ECO mode.

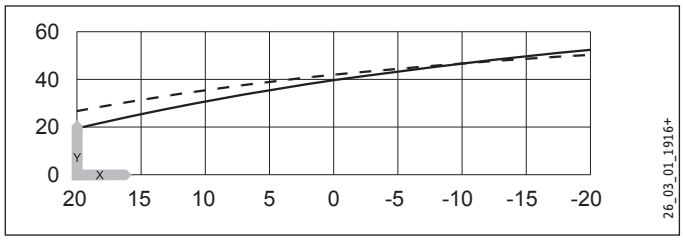


Y Return / flow temperature [°C]
X Outside temperature [°C]
1 Comfort mode
2 ECO mode

Example of adapting a heating curve:

With heating systems, the temperature in a building during the transitional periods (spring and autumn) is too low when outside temperatures are between 5 °C and 15 °C, despite open radiator valves, but is OK at outside temperatures ≤ 0 °C. This problem can be remedied with a parallel shift and a simultaneous reduction of the heating curve.

Heating curve 1.0 was initially adjusted relative to a set room temperature of 20 °C. The dotted line indicates the modified heating curve at 0.83 and a modified set room temperature of 23.2 °C.



Y Return / flow temperature [°C]
X Outside temperature [°C]

STANDARD SETTING

BUFFER OPERATION

When using a buffer cylinder, set this parameter to ON.

The buffer charging pump always operates in conjunction with the compressor.

The “buffer operation OFF” setting is intended for installations without a buffer cylinder. In this case, this pump operates as a heating circuit pump and runs constantly.

SUMMER MODE

Parameter SUMMER MODE enables you to define the point at which the heating system is to switch to summer mode. Summer mode can be switched on or off. There are 2 adjustable parameters for this function.

OUTSIDE TEMPERATURE

Adjustable outside temperature

BUILDING HEAT BUFFER

This parameter lets you choose whether an average outside temperature should be determined, according to the type of building.

You can choose from 4 settings.

Setting "0": The outside temperature is not adjusted. The average and the building-specific outside temperatures are identical to the current outside temperature; direct comparison between the selected and current outside temperature.

Setting "1": Slight adjustment of the outside temperatures (averaged over a 24 h period), e.g. for timber construction with rapid heat transfer.

Setting "2": Moderate adjustment of the outside temperature (averaged over a 48 h period), e.g. brick construction with thermal insulation and average heat transfer.

Setting "3": Major adjustment of the outside temperature (averaged over a 72 h period). House with slow heat transfer.

If the determined outside temperature is ≥ the selected outside temperature, both heating circuits (if installed) enter summer mode; reverse hysteresis –1 K.

With fixed value control, summer mode is disabled for heating circuit 1.

FLOW PROP HEATING CIRC

Flow proportion for temperature capture of heating circuit 1, heating circuit control unit

Setting range 0 to 100 %:

Here you can select flow or return temperature control

for the heating system.

Setting 0: Heating system with return temperature control

Setting 100: Heating system with flow temperature control

Setting 80: Spread control (20 % return and 80 % flow control)

Setting 50: Spread control (50 % return and 50 % flow control)

Setting 30: Spread control (70 % return and 30 % flow control)

Generally, values below 80 (recommendation: 50) should normally be set for heating circuit 1 to limit the influence of the flow temperature. Particularly in spring and autumn, the flow temperature is naturally subject to strong fluctuations because of the heat pump being switched on and off.

MAXIMUM RETURN TEMP

If the temperature at the return sensor reaches this set value during heating mode, the heat pump is immediately switched off. This safety function prevents the high pressure limiter from responding. No fault message is issued when this value is reached.

In DHW mode the return temperature is not scanned.

MAXIMUM FLOW TEMPERATURE

Maximum heat pump flow temperature for heating

This setting limits the flow temperature of the heat pump and the electric emergency/booster heater in heating mode.

FIXED VALUE OPERATION

The heat pump return is regulated to the set fixed value. The time switch program will then be ignored. The various positions of the program selector will then only affect the mixer circuit (if installed). When the program selector is set to standby and a fixed value has been selected, frost protection mode is activated and the compressor is switched off. Summer logic is disabled with fixed value control. This means that the heating circuit pump is not switched off for the direct heating circuit.

HEATING CIRCUIT OPTIMAL

When an Uponor DEM-WP module is connected, the heating curve is dynamically optimised for the heat demand of individual rooms. This involves modifying the preset heating curve by up to 50 % of its original value.

The parameter HEATING CIRCUIT OPTIMAL is only displayed when the buffer operation parameter is set to “OFF” and neither a mixer sensor nor an FE7 remote control are connected.

The parameter HEATING CIRCUIT OPTIMAL can be set to “ON” or “OFF”. The default value is “OFF”.

This parameter may only be set to “ON” when an Uponor DEM WP module is connected.

This function is only active in comfort mode, ECO mode and programmed operation.

FROST PROTECTION

To protect the heating system from frost, the heating circuit pumps start at the selected frost protection temperature; the reverse hysteresis is 1 K.

REMOTE CONTROL FE7

This menu item is only displayed when the FE7 remote control is connected.

HEATING CIRC PRESELECTION

The FE7 remote control can be selected for both heating circuits.

This parameter lets you choose which heating circuit the remote control is to act on. The actual room temperature can be called up under INFO / SYSTEM / ROOM TEMPERATURE.

ROOM INFLUENCE

See description in chapter “HEATING / HEATING CIRCUIT 1 and HEATING CIRCUIT 2 / ROOM INFLUENCE”.

ROOM CORRECTION

You can use this parameter to correct the measured room temperature.

PUMP CYCLES

- **Heating circuit pump control**

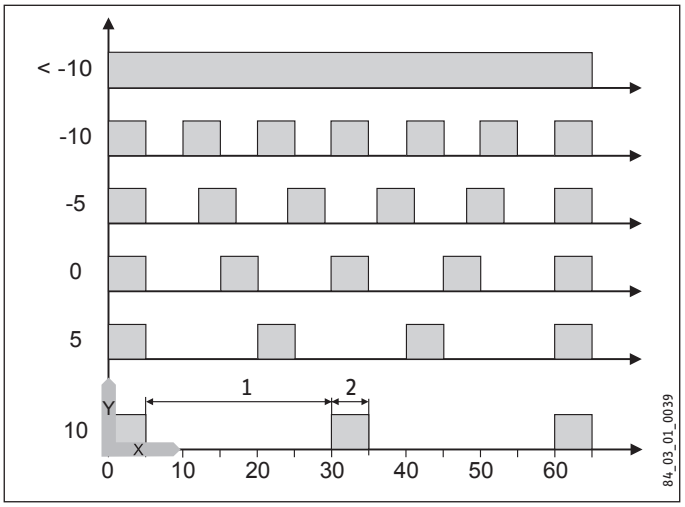
The PUMP CYCLES parameter only applies to the direct heating circuit 1, i.e. for heating circuit pump 1.

This parameter can be switched ON or OFF. In the OFF position, the heating circuit pump does not cycle. It will operate constantly. It is only switched off in summer mode.

As soon as you set the parameter to ON, the heating circuit pump is switched according to a fixed temperature curve for the outside temperature.

The heating circuit pump start pulse is always 5 minutes.

The heating circuit pump for heating circuit 1 always starts with each heat pump start. The pump runs on for 5 minutes after the heat pump has been shut down. This is where the start duration is brought to bear, e.g. at an outside temperature of 5 °C, the pump starts 3 times per hour for 5 minutes each time.



Y Outside temperature in °C
X Time in minutes
1 Pause
2 Pump runtime

- **Pump kick**

To prevent the pumps seizing up, for example over summer, the pumps are switched on for 10 seconds after every 24 hour period of inactivity. This applies to all pumps.

- **Heating circuit pump control with FE7 / FEK remote control connected**

In conjunction with the FE7 or FEK remote control, after switching condition

$\vartheta_{ACTUAL\ room} > \vartheta_{SET\ room} + 1K$

the relevant heating circuit pump is switched off and the mixer moves to CLOSE. This only applies if the room sensor influence is set to K > 0. Reverse switching is subject to the following condition:

$\vartheta_{ACTUAL\ room} > \vartheta_{SET\ room}$

The summer mode is also effective for the relevant heating circuit when operating with an FE7 or FEK remote control.

EXTERNAL HEAT SOURCE

THREADED IMMERSION HEATER

HS 2 is directly connected to the heating circuit. This can take the form of an immersion heater inside the buffer cylinder or a modulating boiler connected to the heating flow. The HS 2 sensor must be connected to the heating flow of HS 2. Subject to load, HS 2 starts below the dual mode temperature (parameter DUAL MODE TEMP HZG) as the last stage in the cascade. HS 2 regulates the temperature according to the calculated return temperature + heating curve gap (parameter HEATING CURVE GAP). Heat source 2 does not switch off until this temperature is reached. This means that even if the heat pump is already off and the set temperature for HS 2 has not yet been reached, it can still operate alone. The start conditions for HS 2 are:

– The actual temperature is below the dual mode temperature

– The heat pump operates with all stages

– Actual HS 2 temperature is < set return temperature

BOILER

No fixed value control is possible with this setting. With this setting, heating circuit 2 (mixer circuit) cannot be switched. The mixer is connected for HS 2. Connect the HS 2 sensor to the boiler and the mixer sensor to the heating flow. Subject to load, HS 2 starts below the dual mode temperature (parameter DUAL MODE TEMP HZG) as the last stage in the cascade.

The mixer is closed in heat pump mode. After HS 2 starts, the mixer regulates the temperature according to the set mixer temperature if the temperature at HS 2 is > the calculated set mixer temperature, and the actual mixer temperature is < 1 K of the set mixer temperature. HS 2 shuts down when it reaches the maximum set boiler temperature (parameter SET BOILER TEMPERATURE). It can operate alone if the heat pump is already off and the set temperature for the HS 2 has not yet been reached. The start conditions for HS 2 are:

- The temperature falls below the dual mode temperature.
- The heat pump operates with all stages.
- The actual temperature must be 5 K below the set boiler temperature.

HEATING CURVE GAP

See under parameter EXTERNAL HEAT SOURCE; setting THREADED IMMERSION HEATER and setting BOILER.

SET BOILER TEMPERATURE

See under parameter EXTERNAL HEAT SOURCE; setting BOILER

BLOCKING TIME EVU

Blocking time from power supply utility.

As the heat pump is unable to meet any heating requirements during the power-OFF period, determine how HS 2 will operate during this time. If set to OFF, HS 2 will always take over the heating function during power-OFF periods (even above the dual mode temperature). If you want HS 2 to be disabled for heating during the power-OFF period, enter the corresponding time in hours.

LOWER APP LIMIT HZG

Heat pump application limit

If the outside temperature drops below the selected lower application limit for heating, the heat pump is switched off.

Only the second external heat source provides heating.

DUAL MODE TEMP HZG

Dual mode temperature of the heat pump for heating mode

Below this outside temperature, the second external heat source switches on for heating mode, subject to load.

HZG PWM

The I component of HS 2 can be defined here in Kmin. Adjustable from 10 to 100 Kmin.

ELECTRIC REHEATING

LOWER APP LIMIT HZG

Heat pump application limit

If the outside temperature drops below the selected lower application limit for heating, the heat pump is switched off.

The electric emergency/booster heater alone provides heating.

DUAL MODE TEMP HZG

Dual mode temperature of the heat pump for heating mode

Below this outside temperature, the electric emergency/booster heater is switched on for heating mode, subject to load.

NUMBER OF STAGES

Maximum number of DHC heating stages enabled by the controller for the heating circuit.

Subject to the required heating output, between 0 and 3 DHC heating stages may be enabled.

DELAY

Start delay of the DHC heating stage demanded by the controller.

When the dual mode point is not achieved, the required DHC heating stage is delayed by the time (in minutes) selected. This reduces the comfort a little but the system operates with greater energy efficiency.

5.4.3 DHW

DHW TEMPERATURES

COMFORT TEMPERATURE and ECO TEMPERATURE

Here you can select the set DHW temperatures for comfort and ECO mode.

STANDARD SETTING

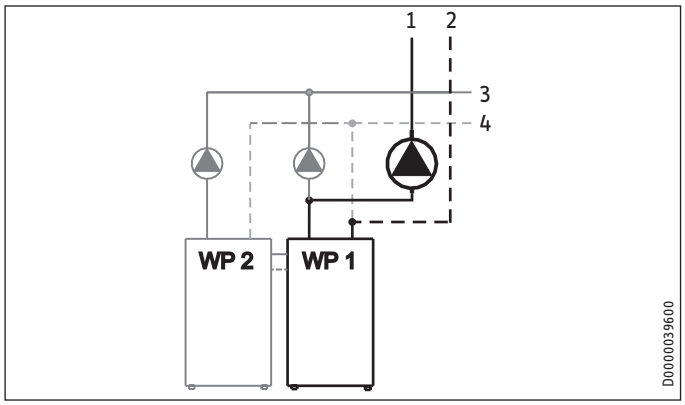
DHW MODE

Parameter DHW MODE enables 3 different setting options.

These are priority, parallel and partial priority operation.

Note
The HM(S) (Trend) hydraulic module can only run in PARALLEL OPERATION.

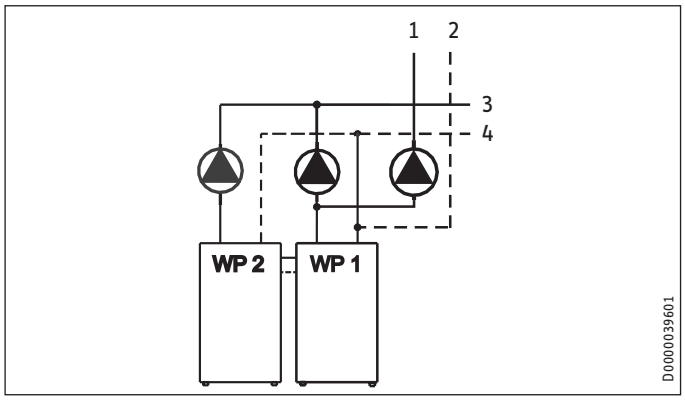
PRIORITY OPERATION



1 Heat pump DHW flow
2 Heat pump DHW return
3 Cylinder flow
4 Cylinder return

With priority operation, only the heat pump preselected for DHW remains on or is switched on. In other words, DHW heating takes priority over heating within a heat pump cascade. Only the DHW charging pump runs with the corresponding heat pump.

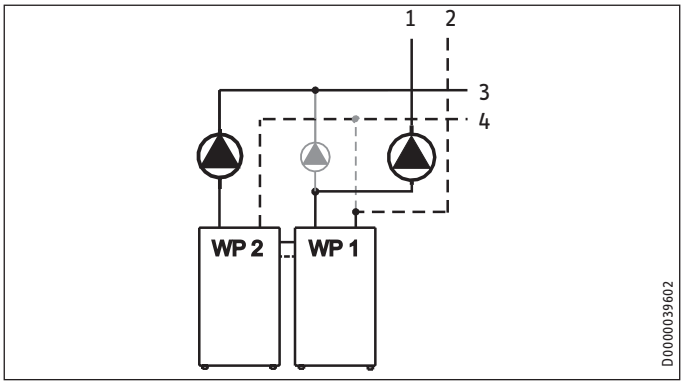
PARALLEL OPERATION



1 Heat pump DHW flow
2 Heat pump DHW return
3 Cylinder flow
4 Cylinder return

In parallel operation, all heat pumps remain switched on or the heat pumps programmed for DHW heating are switched on. The DHW and buffer charging pumps of the corresponding heat pumps operate. When operating with a heat pump in DHW mode, the DHW and buffer charging pumps are always switched on, even if there is no heat demand.

PARTIAL PRIORITY



1 Heat pump DHW flow
2 Heat pump DHW return
3 Cylinder flow
4 Cylinder return

With partial priority, all heat pumps remain switched on or the heat pumps programmed for DHW switch on with the DHW charging pump; the remaining heat pumps switch on with the buffer charging pump for heating mode. This operation is only appropriate for cascades.

DHW HYSTERESIS

This is where you determine the switching hysteresis for DHW heating.

- Starting DHW heating at the set DHW temperature minus the hysteresis value.

DHW STAGES

Heat pump stages for DHW

Here you can preselect the number of heat pump stages for DHW heating.

AUTOMATIC DHW CONTROL

Automatic DHW mode subject to the outside temperature. Menu item AUTOMATIC DHW CONTROL can be switched on or off. For multi stage WPL or in cascade mode, DHW heating takes place subject to load and outside temperature. In addition an adjustable outside temperature can be selected.

Setting range: -15 °C to + 30 °C, default setting 5 °C. Above 5.1 °C, only one heat pump stage provides DHW.

Stage 1 starts at 5.0 °C, stage 2 is added 10 s laterand so on. All DHW stages must be enabled as soon as AUTOMATIC DHW CONTROL is utilised.

OUTSIDE TEMPERATURE

The heating output of an air/water heat pump decreases as the outside temperature falls. DHW heating always starts with the first stage. To meet the energy demand for DHW heating, additional DHW stages are automatically enabled subject to the outside temperature set here.

▶ Set the outside temperature from which the additional DHW stages should be enabled.

WW LEARNING FUNCTION

When heating DHW, the system automatically adjusts the DHW temperature (self-learning function).

Setting OFF

As soon as the heat pump is shut down in DHW mode via the HP sensor or via the hot gas temperature limit, the electric emergency/booster heater is added as a booster stage until the set DHW temperature is reached. If the maximum flow temperature is achieved in this operating mode, DHW heating is terminated, and the set DHW temperature overwritten with the current actual DHW temperature.

Setting ON

As soon as the heat pump is shut down in DHW mode via the HP sensor or the hot gas temperature limit, DHW heating is terminated and the set DHW temperature overwritten with the current actual DHW temperature. This operating mode saves energy, as DHW is exclusively heated by heat pump.

COMBI CYLINDER

As soon as you set the parameter to ON, the heating circuit pumps are switched off during DHW heating.

(Only in conjunction with the SBS instantaneous water cylinder)

You should set this parameter to ON if the heating circuit pump needs to be switched off during DHW charging, due to a special hydraulic system ON/OFF switch.

WW OUTPUT WP

To reach a suitable compromise between heat pump efficiency and DHW convenience, it is advisable to specify different heat pump heating outputs in DHW mode, subject to outside temperature. This is achieved by using the two parameters WW OUTPUT SUMMERand WW OUTPUT WINTER to set the heating output of the heat pump in DHW mode for outside temperatures between - 20 °C and + 20 °C.

If during DHW heating the outside temperatures are low or the flow temperatures are rising, then the heating output of the heat pump may be below the selected heating output.

WW OUTPUT SUMMER

Output can be reduced to optimise heat pump efficiency in DHW mode.

WW OUTPUT WINTER

To achieve a short heat-up time for DHW heating when the heating energy demand is high, a higher output can be set for DHW mode.

MAXIMUM FLOW TEMPERATURE

Maximum heat pump flow temperature for heating with a flow temperature sensor connected

This setting limits the flow temperature of the heat pump and the electric emergency/booster heater in heating mode.

PASTEURISATION

The DHW cylinder is heated daily at 01:00 h to 60 °C if pasteurisation has been enabled. Pasteurisation can only occur if the electric emergency/booster heater is connected, or EXTERNAL HEAT SOURCE has been defined for DHW heating.

ELECTRIC REHEATING

DUAL MODE TEMP WW

Dual mode temperature of the heat pump for DHW heating.

Below this outside temperature, the electric emergency/booster heater is switched on for DHW heating, subject to load.

LOWER APP LIMIT WW

Lower application limit of the heat pump for DHW heating.

The heat pump is switched off at outside temperatures below the selected lower DHW application limit.

The electric emergency/booster heater alone provides DHW heating.

EXTERNAL HEAT SOURCE

As soon as the second external heat source is active for DHW heating, the DHW circulation output no longer switches according to the DHW program (see chapter “Operation / Menu structure / MenuPROGRAMS / DHW program”).

You can achieve higher temperatures for DHW heating with the second heat source (up to 80 °C).

SUPPORTED

HS 2 then backs up the heat pump during DHW heating below the dual mode point (parameter DUAL MODE TEMP WW). To control HS 2 to cover a DHW demand in this setting, the output of the DHW circulation pump is switched.

ALONE

At this setting, only HS 2 will provide DHW heating below the dual mode point. To control heat source 2 to cover a DHW demand in this setting, the output of the DHW circulation pump is switched.

INDEPENDENT

At this setting, only heat source 2 will provide DHW heating, independent of the dual mode point. To control heat source 2 to cover a DHW demand, the outputs of the DHW circulation pump + DHW charging pump are switched.

Once this setting has been selected, the DHW STAGES parameter must be set to "0", as the heat pump no longer provides DHW heating.

DUAL MODE TEMP WW

Dual mode temperature (outside temperature) of the heat pump for DHW heating.

Depending on the parameter set (SUPPORTED, ALONE, INDEPENDENT), the second heat source is responsible for DHW heating.

LOWER APP LIMIT WW

Lower application limit of the heat pump for DHW heating.

The heat pump is switched off at outside temperatures below the selected lower DHW application limit. The second heat source is solely responsible for DHW heating.

WW PWM

This is where you determine the percentage output with which HS 2 will provide DHW heating. Adjustable from 0 to 100 %.

5.4.4 COOLING

COOLING

ON / OFF

COOLING MODE

PASSIVE COOLING

ACTIVE COOLING

Standard setting

COOLING STAGES

Here, the number of cooling stages is set. You can select 1-n heat pumps.

COOLING LIMIT

If the current outside temperature falls below the temperature set here, cooling is switched off.

COOLING CAPACITY

Here, the cooling capacity for HP types 3/3* and 5/5* is set.

ACTIVE COOLING

AREA COOLING

FLOW TEMPERATURE

FLOW TEMP HYSTERESIS

SET ROOM TEMPERATURE

DYNAMICS ACTIVE

DYNAMICS PASSIVE

FAN COOLING

FLOW TEMPERATURE

FLOW TEMP HYSTERESIS

SET ROOM TEMPERATURE

DYNAMICS ACTIVE

DYNAMICS PASSIVE

PASSIVE COOLING

AREA COOLING

FLOW TEMPERATURE

FLOW TEMP HYSTERESIS

SET ROOM TEMPERATURE

DYNAMICS PASSIVE

FAN COOLING

FLOW TEMPERATURE

FLOW TEMP HYSTERESIS

SET ROOM TEMPERATURE

DYNAMICS PASSIVE

The heat pump manager enables the cooling of individual appliances (e.g. WPF M, WPF 20-66 and WPL 13,18, 23 cool) as well as appliances controlled in a cascade. Cooling is only possible in conjunction with a buffer cylinder or low loss header.

The heat pump manager must be in SUMMER MODE. The changeover from heating mode to SUMMER MODE is subject to the outside temperature and the SUMMER MODEparameter.

In addition, the analogue remote control unit with room temperature sensor FE7 or the digital remote control unit FEK with room temperature sensor and humidity sensor must be connected via a CAN BUS.

Cooling mode with the FE7

The analogue remote control unit with room temperature sensor FE7 is not equipped with dew point monitoring. It can therefore only be used in conjunction with fan convectors or ceiling cassettes with condensate drain.

Cooling mode with the FEK

The digital FEK remote control unit is equipped with dew point monitoring, and can be used with area heating systems (e.g. underfloor/wall heating systems, cooling ceilings etc.).

In passive cooling mode, the source pump and buffer charging pump start when there is a cooling demand. In the active cooling mode, the compressor is also operational.

Appliance and system damage
Wiring information: The previous solar circuit pump output becomes the cooling output. The DHW flow sensor at the bottom or the return sensor (sensor 1) becomes the cooling flow sensor. Consequently, solar mode and the heat metering function are then no longer available.

WPM 3 settings for the WPF

- Under SETTINGS/COOLING, set cooling to ON.
- Set WPF cooling to ON .
- Set COOLING MODE/PASSIVE COOLING or COOLING MODE/ ACTIVE COOLING to ON (the active mode is only available if a corresponding provision has been made on site; in active mode, the system cools first in passive mode for as long as possible. The heat pump only changes over to active mode when passive cooling becomes inadequate.)
- With the FE7: Set FAN COOLING to ON.

With the FEK: Set AREA COOLING or FAN COOLING to ON.

- With the FEK and FE7: Set AREA COOLING and/or FAN COOLING to ON.
- Cooling mode with FE7 and FEK is enabled with the standard settings.

WPM 3 settings for the WPL

- Under SETTINGS/COOLING, set cooling to ON.
- Set WPL cooling to ON.
- With the FE7: Set FAN COOLING to ON.
- With the FEK: Set AREA COOLING or FAN COOLING to ON.
- With the FEK and FE7: Set AREA COOLING and/or FAN COOLING to ON.
- For cascades: Under STANDARD SETTING cooling stages, select how many of the cascade control heat pumps should be used for cooling. You can select 1-n heat pumps.
- Cooling mode with FE7 and FEK is enabled with the standard settings.

Standard settings

Control unit setting parameters for cooling:

	Standard setting	Setting range
Set room temperature	25 °C	20 °C - 30 °C
Flow temperature	15 °C	7 °C – 25 °C
Flow temperature hysteresis	2 K	+1 K – +10 K

DYNAMICS

The DYNAMICS parameter allows you to choose how quickly the source pumps or the compressor are started in the case of cooling.

Dynamic passive cooling

(only for cascade control)

Dynamic 1: After the cooling output has been switched on, first source pumps 1-n and then buffer charging pumps 1-n start, each with a delay of one minute.

Dynamic 10: After the cooling output has been switched on, first source pumps 1-n and then buffer charging pumps 1-n start, each with a delay of five minutes. Interpolation is used between the values 1 and 10.

Dynamic active cooling

Dynamic 0: Compressor starts simultaneously with the source pump. The value for dynamic 0 can only be selected for active cooling with the WPF.

Dynamic 1: Compressor starts as soon as the source pump has been running for 10 minutes and the current flow temperature is greater than or equal to the selected set flow temperature plus hysteresis plus 0.5 K (dynamic hysteresis for value 1).

Dynamic 10: Compressor starts once the source pump has been running for 30 minutes and the current flow temperature is greater than or equal to the selected set flow temperature plus hysteresis plus 2 K (dynamic hysteresis for value 10). Interpolation is used between the values 0 and 10.

Control characteristics for passive cooling (WPF / WPC)

Cooling mode is started if the actual room temperature is higher than the set room temperature. The heating circuit pump is controlled. The “cooling” controller output is activated. Additional zone valves or diverter valves can be switched with the “cooling” controller output, for example. If the actual flow temperature is lower than the set flow temperature after 60 seconds, “buffer charging pump 1” and “source pump 1” are activated for brine/ water heat pumps.

In a cascade, the additional source and buffer charging pumps start. Whether these additional pumps are activated depends on the “dynamic cooling” settings.

Controller characteristics for active cooling WPF

Stage 1: (Passive stage)

Cooling mode is initiated when the actual room temperature is higher than the selected set room temperature. The heating circuit pump and the controller cooling output are switched on. For the first 60 seconds, only the heating circuit pump operates. The source pump and buffer charging pump 1 start when the actual flow temperature is lower than the set flow temperature. In a cascade, the source and buffer charging pumps 2-n starts subject to the passive cooling dynamics.

Stage 2: (Active stage)

The compressor starts when the flow temperature cannot be reduced further by passive cooling alone. In a cascade, the first compressor starts and, simultaneously, the source and buffer charging pumps 2-n switch off. The source pump and buffer charging pump of the first heat pump remain switched on. Subject to the active cooling dynamics, the compressors 2-n and the source and buffer charging pumps 2-n also start if the required flow temperature cannot be achieved with the first compressor alone.

Independent of the flow temperature, the source pump must run for at least 5 minutes. This ensures that at least once, only cool water enters the cooling system to achieve any cooling effect.

At a flow temperature < 15 °C, the source pump switches off in accordance with the standard settings.

If DHW heating is demanded during this minimum runtime of 5 minutes, cooling mode immediately switches over to DHW heating.

Cooling and DHW heating

As soon as a DHW or swimming pool water heating demand is issued, cooling mode is interrupted, and DHW or swimming pool water heating begins.

5.4.5 SOLAR

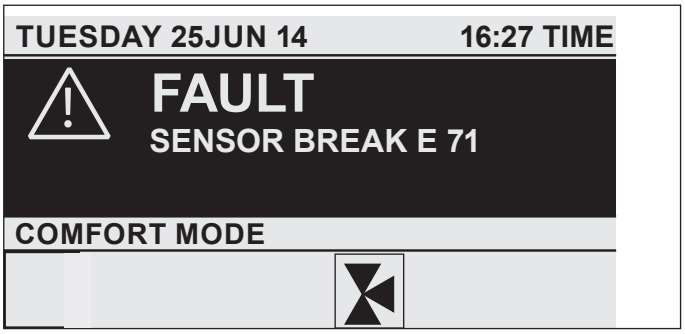
As soon as solar mode is set to ON, parameters MAXIMUM CYLINDER TEMP and SOLAR DIFFERENTIAL can be set. Sensor 1 is the bottom DHW sensor (KTY) and sensor 2 is the collector sensor (PT 1000).

The temperature differential measured by the two sensors is recorded and compared with the set temperature differential (SOLAR DIFFERENTIAL parameter). If the captured differential exceeds the set differential, the solar circuit pump is switched on. As soon as the actual value falls below the set value minus a hysteresis of 1.5 K, the solar circuit pump stops again.

In addition, the controller has an adjustable maximum cylinder limit (MAX CYLINDER TEMP parameter). If this temperature is reached at the bottom cylinder sensor, the solar circuit pump will also stop.

6. Fault message

If the appliance registers a fault, this is clearly displayed with the message shown below.



If more than one fault occurs, the most recent fault is always shown. Notify your qualified contractor.

7. Maintenance and care

Appliance and system damage
Maintenance work, such as checking the electrical safety, must only be carried out by a qualified contractor.

A damp cloth is all you need to care for the plastic parts. Never use abrasive or corrosive cleaning agents.

INSTALLATION

8. Safety

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

8.1 General safety instructions

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

8.2 Instructions, standards and regulations

Note
Observe all applicable national and regional regulations and instructions.

9. Standard delivery

The cardboard boxes contain the following components:

9.1 WPMW 3 (wall mounting)

- Wall mounting enclosure with pre-wired heat pump manager
- Programming unit
- Wiring harness
- 4 sensors (AVF 6, TF 6A and AFS 2)
- 18 wedges as strain relief

9.2 WPMS 3 (control panel mounting)

- Heat pump manager
- Programming unit
- 4 sensors (AVF 6, TF 6A and AFS 2)
- Plug

10. Installation

Note
▶ If the heat pump manager is already installed in your product, continue reading from chapter "Sensor installation".

10.1 Wall mounting WPMW 3

The WPMW 3 is intended for wall mounting only.

▶ Ensure that the back of the wall mounting enclosure is not accessible once mounted.

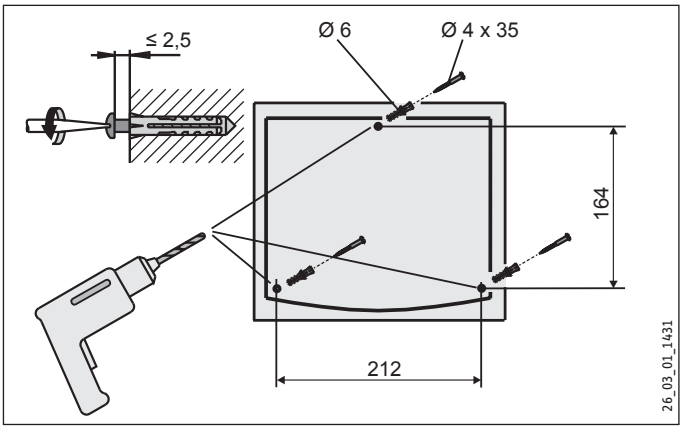
▶ Protect the appliance against humidity, dirt and damage.

Note
The permissible ambient temperature lies between 0 and 50 °C.

Determine the position for the holes to be drilled using the installation template.

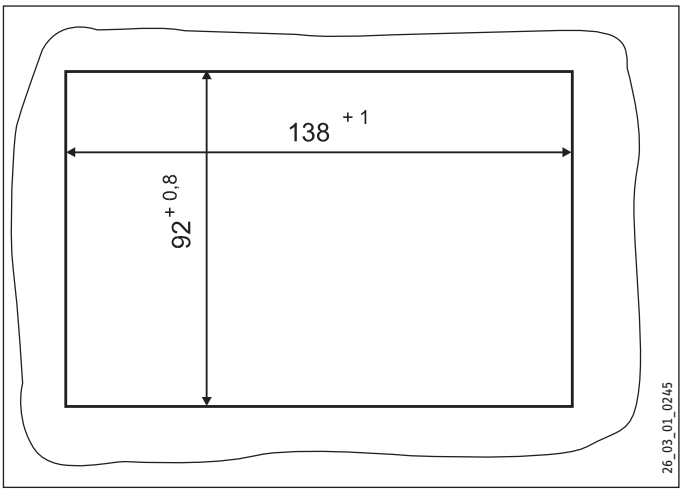
▶ For securing the top of the enclosure, insert a Ø 4 x 35 mm pan-head screw far enough into the corresponding rawl plug that the enclosure can just still be hung onto the screw head.

▶ Then secure the bottom of the enclosure with two further Ø 4 x 35 mm screws.



10.2 Control panel mounting WPMS 3

▶ Ensure that mains and low voltage power are separated.



10.3 Programming unit

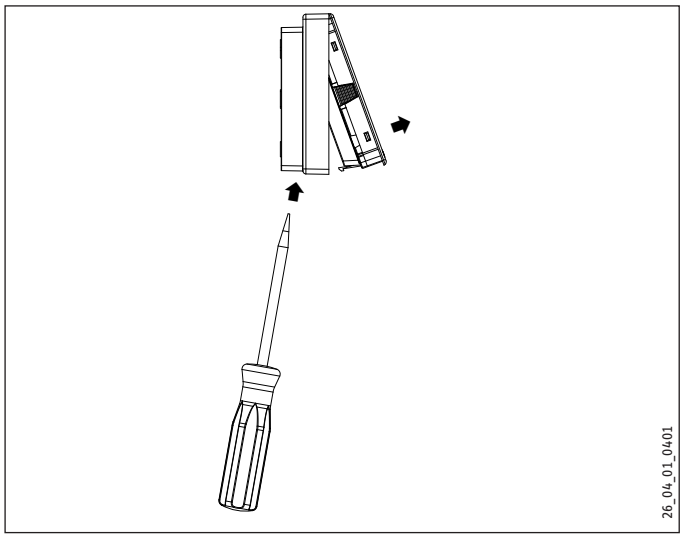
▶ Fit the programming unit to an internal wall, but not in a recess.

▶ The programming unit must not be covered up by a curtain or similar.

▶ Try to restrict the influence of other heat sources (for example from the sun, central heating or TV set).

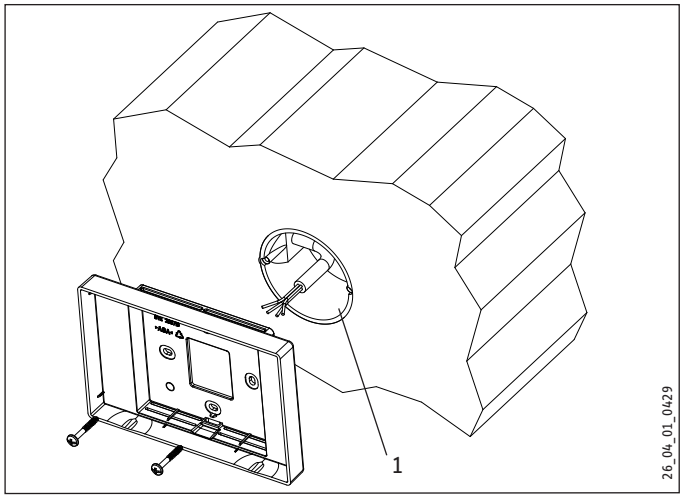
▶ Avoid direct draughts coming from windows and doors.

For installation, remove the programming unit from the wall mounting enclosure:



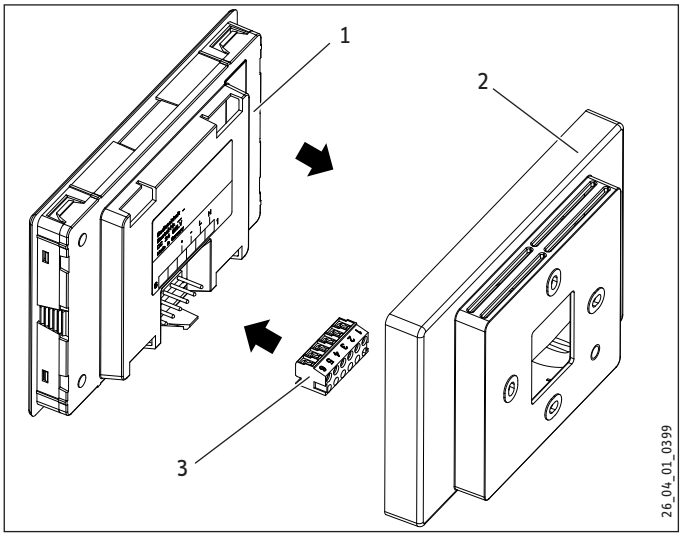
▶ Reset the snap-in tab found in the opening on the underside of the wall mounting enclosure. Press the snap-in tab with a screwdriver.

The BUS cable must protrude 20 to 30 cm out of the wall to allow installation. For securing to a wall we recommend using a flush box, which can hold this part of the BUS cable. Make sure that the screws supporting the flush box are arranged either vertically or horizontally opposite one another. The chapter "Installation options" describes installation without a flush box.



1 Flush box

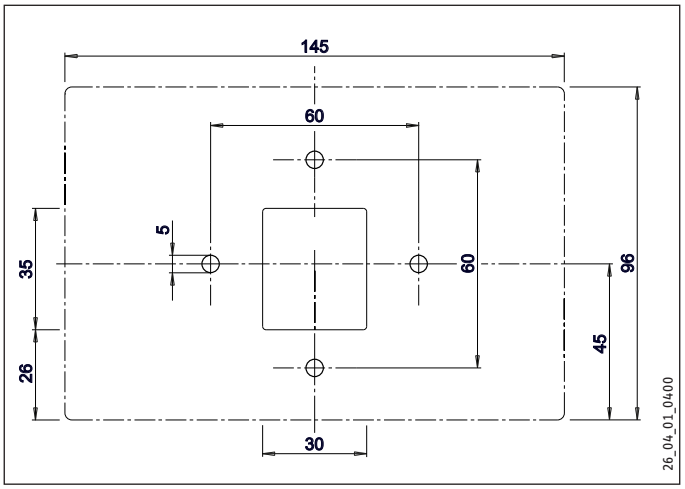
▶ Secure the wall mounting enclosure to the flush box using the screws provided.



1 Programming unit
2 Wall mounting enclosure
3 6-pole socket plug

10.3.1 Installation options

If you are not using a flush box you will have to drill four holes (Ø 5 mm) for securing the wall mounting enclosure.



When routing the BUS cable, be careful not to damage the cable when drilling the fixing holes.

In the area around the power cable entry (behind the wall mounting enclosure), a reservoir needs to be made to support 20 to 30 cm of data cable.

10.4 Electrical connection

10.4.1 General

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

WARNING Electrocution
Only use a permanent connection to the power supply. Ensure the appliance can be separated from the power supply by an isolator that disconnects all poles with at least 3 mm contact separation. This requirement can be met with 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.**

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

- When connecting the power, observe the relevant electrical connection diagram.

The supply voltage at terminal L and the phase L' – switched by the power supply utility – must be routed via the same residual current device, as they share a neutral conductor in the WPM 3.

- Ensure that L and L' are in phase.
- Disconnect all heating system poles from the mains power supply before installation.

No fuses/MCBs for connected consumers are provided in the WPM 3 or in the wall mounting enclosure. A fuse/MCB for connected consumers may be connected in series via terminal L* or pumps L (see also heat pump connection diagram).

Circulation pumps and mixers

- When making these connections, observe the maximum relay capacity (2 A/250 V AC) and the maximum controller capacity (10 A/250 V AC).

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

The DHW circulation pump relay output can be used for various purposes, subject to the parameter settings.

Material losses
- Only connect energy efficient circulation pumps approved by us.

If energy efficient circulation pumps are used that have not been approved by us, use an external relay with a breaking capacity of at least 10 A/250 V AC or our WPM-RBS relay set.

The following energy efficient circulation pumps have been approved by us for direct connection to the heat pump manager:

	Part no.:
UP 25/7.0 E	232942
UP 25/7.5 E	232943
UP 25/7.5 PCV	235949
UP 30/7.5 E	233947
WPKI-HK E	233602
WPKI-HKM E	233603

10.4.2 Electrical connection WPMW 3

The cable entries in the wall mounting enclosure are suitable for rigid and flexible cables with an outside diameter of between 6 mm and 12 mm.

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

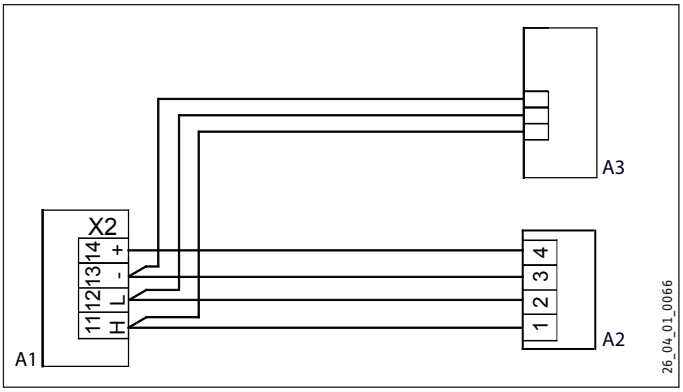
Mains and low voltage power are routed separately in the wall mounting enclosure.

- Route the low voltage leads into the left and right of the wall mounting enclosure from below.
- Route the power cables into the inlet ducts above the junction box.
- When connecting the power supply, ensure the earth conductor is correctly connected. Secure all cables to the wall immediately below the wall mounting enclosure using correct strain relief fittings. The red wedges supplied are designed to secure the cables inside the enclosure.
- Check the function of the strain relief fittings.

Connecting BUS cables

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

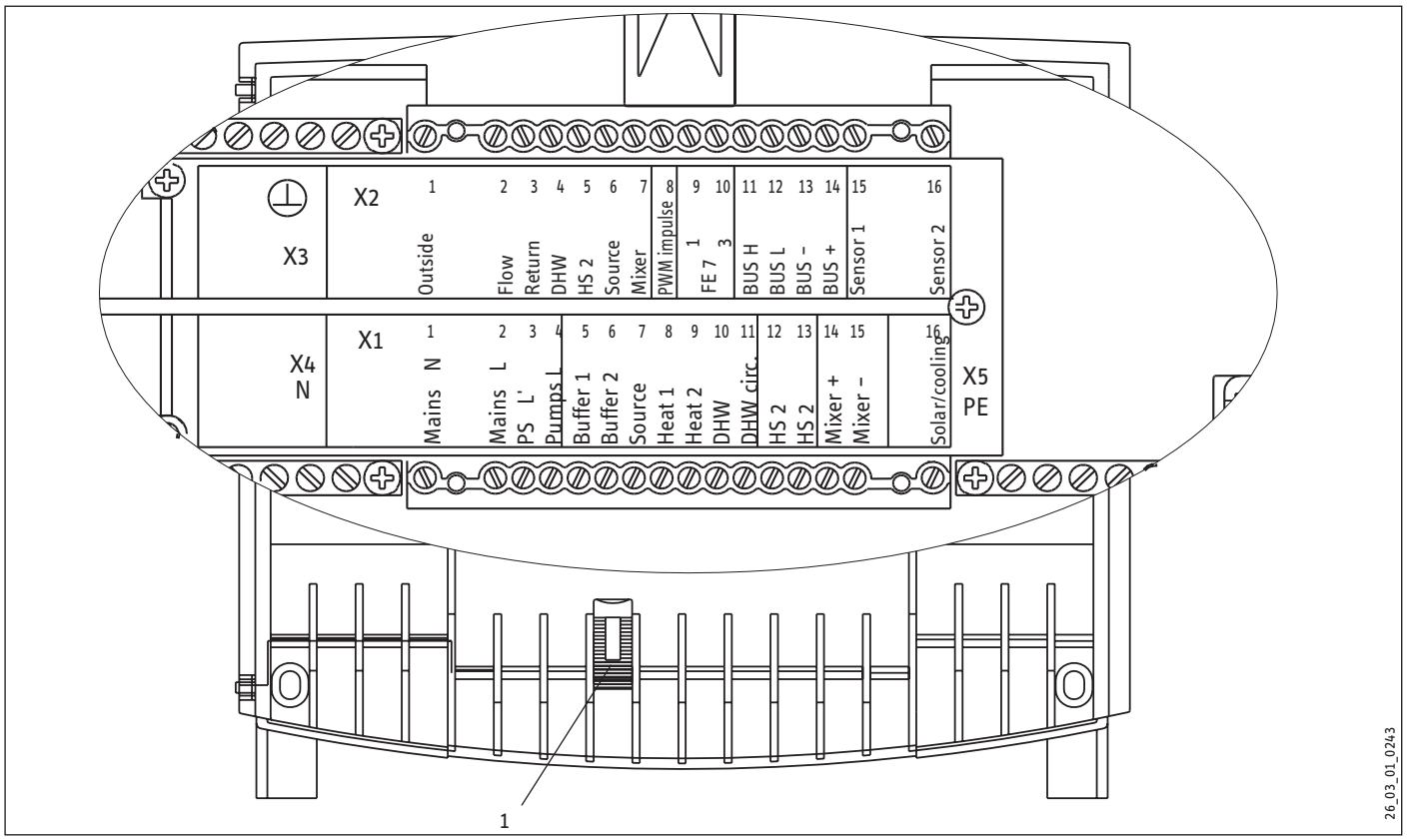
- Install a J-Y (St) 2 x 2 x 0.8 mm² cable as the BUS cable to the heat pump.



A1 WPMW 3
A2 Programming unit
A3 Heat pump

- Connect the cable screen to PE at one end and insulate the other end.

Connection array WPMW 3



1 Wedge

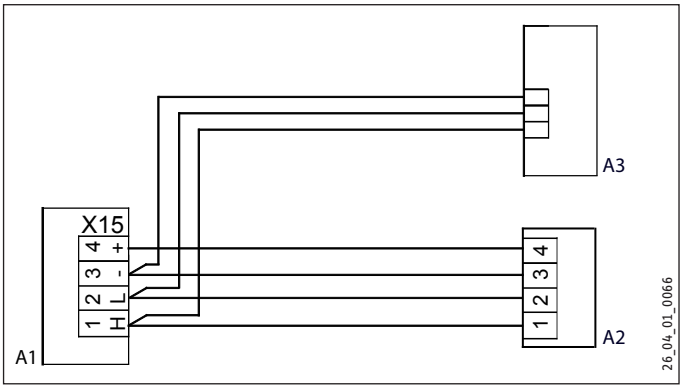
X1	Power supply voltage	
	1	N
	2	L
	3	L' Power supply utility enable signal
	4	Pumps L (voltage input for relay outputs)
	5 - 6	Buffer cylinder charging pumps
	7	Source pump
	8 - 9	Heating circuit pumps
	10	DHW charging pump
	11	DHW circulation pump
	12 - 13	Heat source 2
	14	Mixer open
	15	Mixer close
	16	Solar circuit pump / cooling output
X2	Low voltage	
	1	Sensor outside temperature
	2	Sensor, heat pump flow temperature
	3	Sensor, heat pump return temperature
	4	Sensor, DHW temperature
	5	Sensor, heat source 2
	6	Sensor heat source temperature
	7	Sensor, mixer flow temperature
	8	PWM output
	9	Terminal 1 of the FE7 remote control
	10	Terminal 3 of the FE7 remote control
	11	BUS high
	12	BUS Low
	13	BUS Earth "–"
	14	BUS "+"
	15	DHW sensor bottom, in the case of solar connection Flow sensor, in the case of cooling
	16	Collector sensor, in the case of solar connection
X3	Earth	
X4	N	
X5	PE	

10.4.3 Electrical connection WPMS 3

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

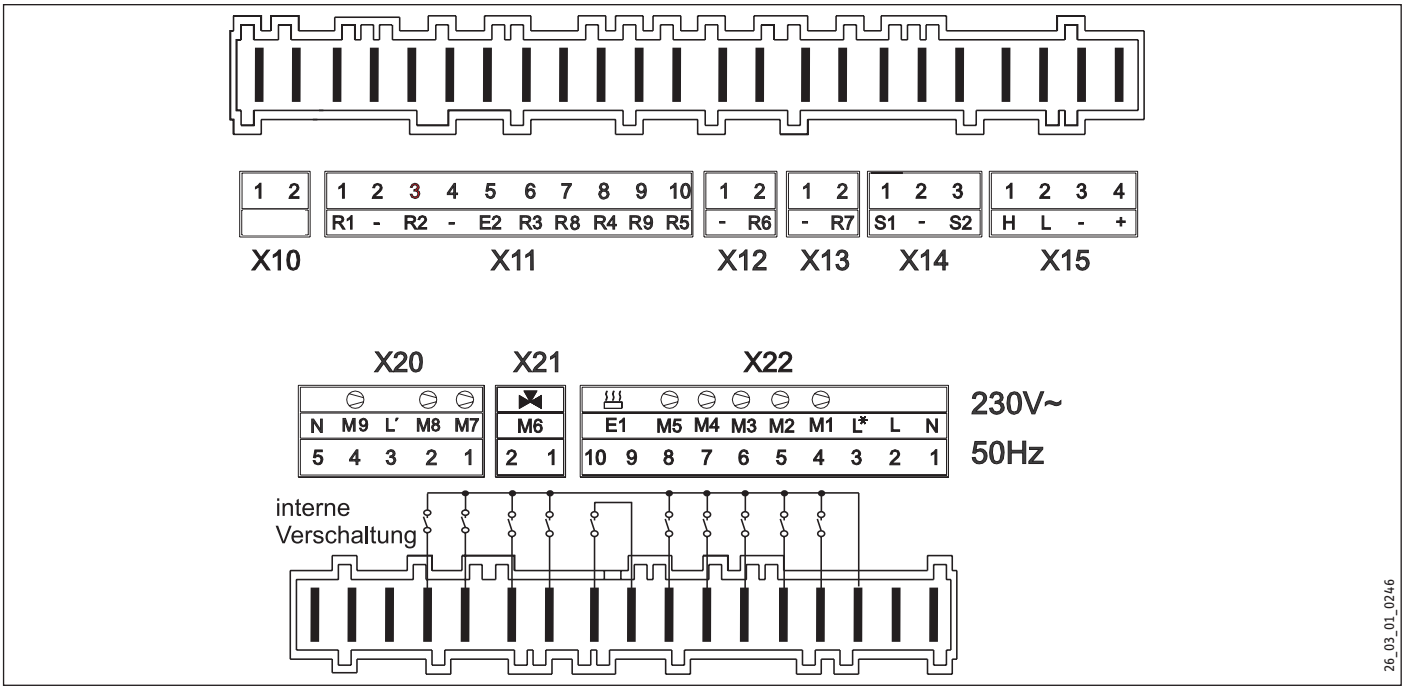
▶ Bind the appropriate cables together near the mains terminals using a cable tie. Use the supplied cable ties for this.

Connecting BUS cables



A1 WPM 3
A2 Programming unit
A3 Heat pump

10.4.4 Connection array WPMS 3



Insert the plugs supplied as follows into the WPMS 3 to provide complete assignment:

X11	Low voltage	
	1	Heat pump flow sensor
	2	Earth
	3	Heat pump return sensor
	4	Earth
	5	PWM output
	6	DHW cylinder sensor
	7	DHW sensor bottom, in the case of solar connection Flow sensor, in the case of cooling
	8	Sensor, heat source 2
	9	Collector sensor, in the case of solar connection
	10	Outside temperature sensor
X12	Low voltage	
	1	Earth
	2	Source sensor
X13	Low voltage	
	1	Earth
	2	Mixer flow sensor
X14	Low voltage	
	1	Remote control
	2	Earth
	3	Remote control
X15	Low voltage	
	1	BUS high
	2	BUS Low
	3	BUS Earth "–"
	4	BUS "+"
X20	Power supply voltage	
	1	Mixer circuit pump
	2	Source pump
	3	L' Power supply utility enable signal (must be connected)
	4	Solar circuit pump / cooling output
	5	N
X21	Power supply voltage	
	1	Mixer open
	2	Mixer close
X22	Power supply voltage	
	1	N
	2	L
	3	L* (voltage input for relay outputs)
	4	DHW circulation pump
	5	Buffer cylinder charging pump 1
	6	Buffer cylinder charging pump 2
	7	DHW charging pump
	8	Heating circuit pump 1
	9	Heat source 2 (floating contact)
	10	Heat source 2 (floating contact)

10.5 Sensor installation

10.5.1 Contact sensor AVF 6 (included in the pack supplied)

▶ Connect an additional return sensor in combination with the following heat pump types:

- WPL 13 E/cool
- WPL 18 E/cool
- WPL 10 I
- WPL 10 AC(S)
- WPL 15-25 AC(S) (only in combination with a buffer cylinder)
- WPL 08-22 (S) Trend (only in combination with a buffer cylinder)
- WPL 07-17 ACS classic (only in combination with a buffer cylinder)
- WPL 19-24 I, IK, A (only in combination with a buffer cylinder)
- HPA-O 7-13 (C)(S) Premium (only in combination with a buffer cylinder)
- HPA-O 3-8 CS Plus (only in combination with a buffer cylinder)

Note

▶ For heat metering in conjunction with the HM(S) (Trend) hydraulic module, observe the operating and installation instructions of the hydraulic module.

For systems without a buffer cylinder

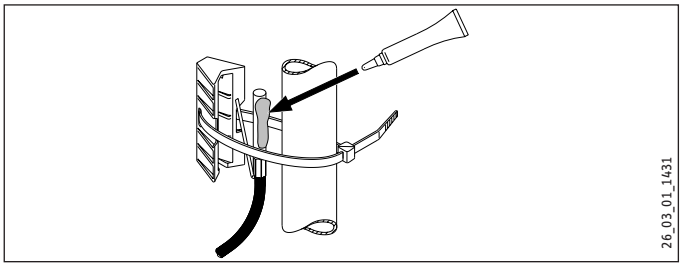
▶ Fit the sensor in the heating circuit return as a contact sensor and if necessary, downstream of any overflow valve installed.

For systems with a buffer cylinder

▶ Fit the sensor as a return temperature sensor in the buffer cylinder.

Installation:

The electrical connection is made at the user interface, specifically at the “T/Buffer” terminal.

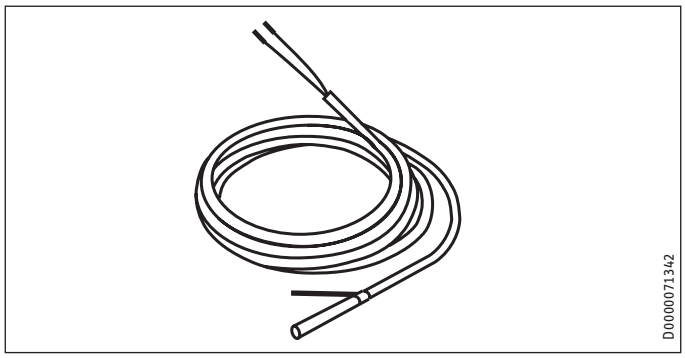


▶ Clean the pipe.

▶ Apply heat conducting paste.

▶ Secure the sensor with a cable tie.

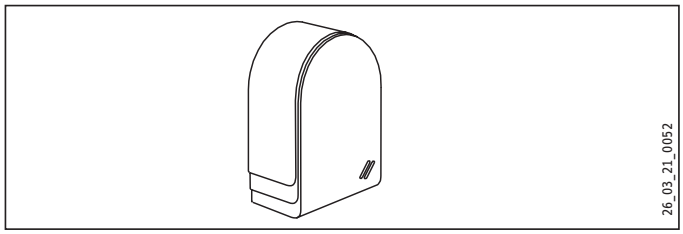
10.5.2 Immersion sensor TF 6 (in separate pack)



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

10.5.3 Outside temperature sensor AFS 2 (included in the pack supplied)

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



Install the outside temperature sensor on a north or north-eastern wall. Minimum clearances: 2.5 m above the ground, and 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.

Connect the outside temperature sensor to terminal X2 (T(A)) and to the earth block for low voltage X3 of the appliance.

Installation:

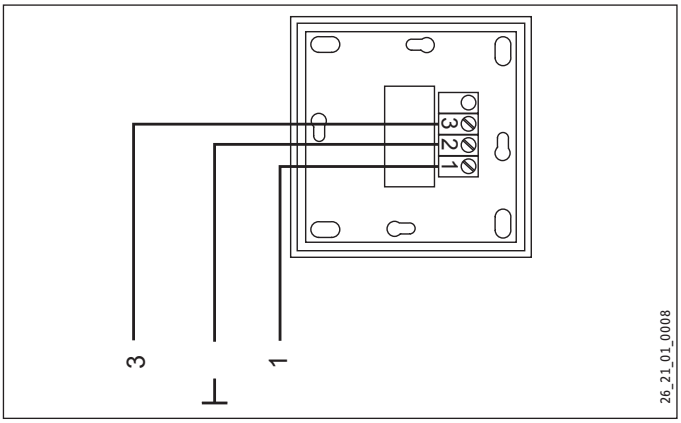
- ▶ Remove the cover.
- ▶ Secure the base with the screw supplied.
- ▶ Connect the cable.
- ▶ Replace the cover. The cover must audibly click into place.

10.5.4 Sensor resistance values

Temperature in °C	PT 1000 sensor Resistance in Ω	KTY sensor Resistance in Ω
- 30	882	1250
- 20	922	1367
-10	961	1495
0	1000	1630
10	1039	1772
20	1078	1922
25	1097	2000
30	1117	2080
40	1155	2245
50	1194	2417
60	1232	2597
70	1271	2785
80	1309	2980
90	1347	3182
100	1385	3392
110	1423	---
120	1461	---

10.6 FE7 remote control

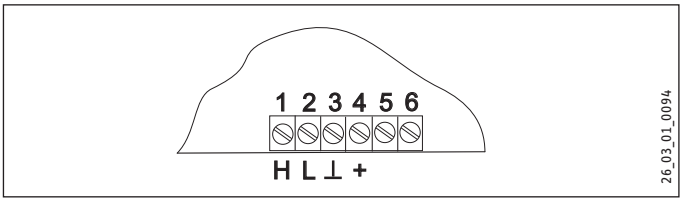
Connection array FE7



The FE7 remote control enables you to adjust the set room temperature for heating circuit 1 or heating circuit 2 by ± 5 °C in automatic mode only. You can also change the operating mode. Connect the remote control to terminals Rem.con.1 and Rem.con.3 at terminal block X2 and to the earth block for low voltage X26 of the appliance.

10.7 FEK remote control

Connection array FEK



The FEK remote control enables you to change the set room temperature for heating circuit 1 or heating circuit 2 by ± 5 °C as well as the operating mode. Connect the remote control to terminals H, L ⊥ and + to terminal block X2 of the appliance.

- ▶ Also observe the FEK operating instructions.

10.8 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 when on the go. Connect the Internet Service Gateway to terminals H, L, and ⊥ to terminal block X2 of the appliance.

The ISG power supply is not provided via the heat pump.

▶ Also observe the ISG operating instructions.

11. Commissioning

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

Commissioning must be carried out in accordance with these operating and installation instructions and the operating and installation instructions of all components belonging to the heat pump system. Our customer support can assist with commissioning, which is a chargeable service.

A heat pump system can comprise many different components. A sound knowledge of the system function is therefore essential.

BUS initialisation

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

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

▶ Connect the WPM 3 to the power supply.

▶ Switch ON the MSM power supply (if installed).

▶ Connect the heat pump to the power supply.

▶ Set the system to standby mode ⏻ to prevent an uncontrolled heat pump start during the initialisation phase.

The DIAGNOSIS/SYSTEM menu under BUS SUBSCRIBER displays all connected BUS subscribers and their current software versions.

▶ If an MSM is installed, this must be the first appliance to be connected to the WPM 3 via the BUS cable.

The DIAGNOSIS/SYSTEM menu under BUS SUBSCRIBER displays the MSM and its current software version.

After completing initialisation, use the DIAGNOSIS/SYSTEM menu under HEAT PUMP TYPES to check if all connected heat pumps are being displayed.

Heat pump modules

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.

Sequence required when installing the heat pumps

Note
Heat pumps designed to heat DHW must always be initialised first. The remaining heat pumps can then be connected in any order.

All necessary sensors must be connected before the voltage is connected to the WPM 3.

Any sensors connected later will not be recognised by the WPM 3.

Example: No DHW parameters, programs or temperatures are displayed if the DHW cylinder sensor was not connected during commissioning. No values can therefore be programmed for these parameters.

If initialisation was carried out incorrectly, all IWS must be reset, in other words, reinitialised.

The entire heat pump system will be shut down if the BUS cable between the WPM 3 and the heat pump is interrupted.

System configuration via the parameter settings (see list in chapter "Setting parameters").

The list in chapter "Setting parameters" contains all settings for the WPM 3 function.

If the system is operating incorrectly, you should first check the parameter settings in the list.

Reset options IWS

Reinitialising the IWS

Carry out this reset if commissioning or system initialisation failed.

To do so, proceed as follows:

▶ Switch OFF the WPM 3 power supply.

▶ Switch OFF the MSM power supply (if installed).

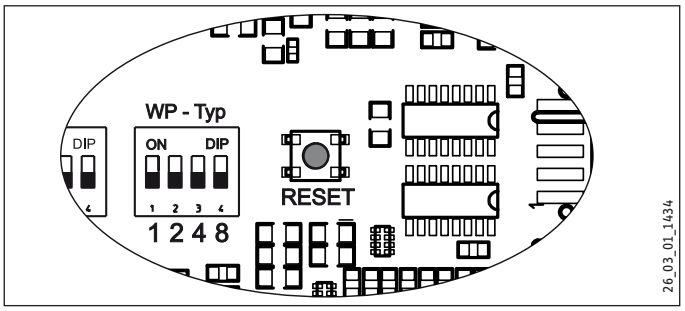
▶ Switch OFF the heat pump power supply.

▶ Disconnect the BUS.

▶ Switch the heat pump power supply back ON.

▶ Hold down the reset button until the two outer LEDs constantly illuminate and then go off again.

▶ Release the reset button. The IWS has now been reset and is ready for renewed initialisation.



▶ Switch the power supply to the components back ON.

▶ Carry out a BUS initialisation.

▶ Reset the system-specific parameters for the MSM and WPM 3.

Heat pump reset

Carry out this reset if a heat pump-specific or hardware fault occurs 5 times within 2 hours run.

▶ Activate the HEAT PUMP RESET parameter at commissioning level.

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

11.1 COMMISSIONING menu

Note
All menu items are protected by a code and can only be accessed and adjusted by a qualified contractor.

Note
Not all appliance parameters are displayed in the different menus, depending on which heat pump type is connected.

Level 2	Level 3	Level 4
ENTER CODE		
LANGUAGE	DEUTSCH	
	ENGLISH	
	FRANCAIS	
	NEDERLANDS	
	ITALIANO	
	SVENSKA	
	POLSKI	
	CESKY	
	MAGYAR	
	ESPANOL	
	SUOMI	
	DANSK	
	SLOVENSKO	
	RUSSKIA	
	NORSK	
SOURCE	MIN SOURCE TEMPERATURE	
	SOURCE MEDIUM	ETHYLENE GLYCOL
		POTASSIUM CARBONATE
		EXTRACT MODULE 0
		EXTRACT AIR MODULE 30
		EXTRACT AIR MODULE 60
		EXTRACT AIR MODULE 120
		EXTRACT AIR MODULE 180
		WATER
		GROUNDWATER MODULE
HEATING	CONTROLLER DYNAMICS	
	HYSTERESIS	
	SPREAD CONTROL	SET SPREAD
		MAXIMUM PUMP RATE
		STANDBY PUMP RATE
	HEATING CIRC PUMP RATE	
DHW	DHW CIRCUIT PUMP RATING	
COMPRESSOR	MINIMUM DEFROST TIME	
	START DEFROST	
	IDLE TIME	
	MAXIMUM CURRENT	
	MINIMUM RUNTIME	
	POWERDEFROST	
	HEATING SYSTEM SIZING	DESIGN TEMPERATURE
		HEAT DEMAND
	CONSTANT OUTPUT	
	CONDENSATE RIBBON HEATER	OUTSIDE TEMPERATURE
	SINGLE PHASE OPERATION	
	QUICK START	
SILENT MODE	FAN REDUCTION	
	OUTPUT REDUCTION	OUTPUT
		FAN
	HEAT PUMP OFF	
EMERGENCY OPERATION		
HEAT PUMP RESET		
FAULT LIST RESET		
SYSTEM RESET		
SENSOR CALIBRATION		
	ACTUAL FLOW TEMPERATURE WP	
	ACTUAL FLOW TEMPERATURE NHZ	
	ACTUAL RETURN TEMPERATURE WP	

11.1.1 ENTER CODE

To change parameters you need to set the correct four-digit code. The factory-set code is 1 0 0 0.

11.1.2 LANGUAGE

Here you can select the menu language.

11.1.3 SOURCE

Frost protection for ground source heat pumps.

MIN SOURCE TEMPERATURE

Material losses
Never operate the heat pump with source temperatures below – 9 °C.

When set to OFF, the temperature at the source sensor is not scanned.

If the actual temperature drops below the minimum source temperature, the compressor is switched off and the idle time is set. The compressor is enabled again after the idle time has expired and the fixed hysteresis of 2 K has been exceeded.

This fault MIN SOURCE TEMP is indicated by a flashing warning triangle on the display screen, and written to the fault list.

The source pump is always started 30 seconds earlier than the compressor, which starts when there is a heat demand coming from the heating or DHW side.

Note
The source pump runs on for 60 seconds after the heat pump has been shut down.

SOURCE MEDIUM

ETHYLENE GLYCOL

POTASSIUM CARBONATE

EXTRACT MODULE 0

EXTRACT AIR MODULE 30

EXTRACT AIR MODULE 60

EXTRACT AIR MODULE 120

EXTRACT AIR MODULE 180

WATER

GROUNDWATER MODULE

Note
The heat pump can only be operated as a ground source heat pump.

11.1.4 HEATING

CONTROLLER DYNAMICS

The selected controller dynamics are a measure of the switching interval between the compressor and the electric emergency/booster heater. Normally, the preselected dynamics must be sufficiently fast and without oscillation. Heating systems that respond quickly require a lower value, whilst very slow responding systems require a higher value to be set.

HYSTERESIS

Set the start-up hysteresis for the heat pump here.

SPREAD CONTROL

The flow rate for the circulation pump is controlled automatically by the heat pump.

SET SPREAD

Here, you can set the temperature differential between the flow and return sensors. The heat pump keeps the temperature differential constant at the set value by adjusting the circulation pump flow rate accordingly.

MAXIMUM PUMP RATE

With this parameter, you set the maximum flow rate and therefore the pump rate. The pump rate will not exceed the value set here. The time taken to achieve the set spread can vary on account of this setting.

STANDBY PUMP RATE

Here, you can set the minimum pump rate for the internal circulation pump while the heat pump is idle. The pump will run at the output set here as long as the heat pump does not receive a heat demand, as well as during power-OFF periods and idle times.

HEATING CIRC PUMP RATE

Set the flow rate via the heating circuit pump output. Note the “nominal heating flow rateat A2/W35 or B0/W35 and 7 K” for the heat pump (see chapter “Specification / Data table” of the heat pump).

11.1.5 DHW

DHW CIRCUIT PUMP RATING

Set the maximum flow rate via the DHW pump output. If noise occurs, reduce the output.

11.1.6 COMPRESSOR

MINIMUM DEFROST TIME

Pre-selectable time in minutes for the IWS defrost process. The selected time applies to manual or demand-dependent defrosting.

START DEFROST

Manual defrosting can only be initiated with the heat pump in operation.

The defrost signal is displayed.

Demand-dependent defrosting is initiated via a signal from the air pressure cell, the air pressure sensor, or by assessing the process value constellation in the refrigerant circuit.

During defrosting, the fan is switched off and the defrosting process is started with or without a delay.

Defrosting is terminated when the relevant heat pump type reaches its condensation pressure limit.

Defrost mode heat pump type 1/1*

As soon as defrosting is initiated via the air pressure cell, the heat pump switches to forced heating for 5 minutes.

The flow and return temperatures are monitored in the final 30 seconds of forced heating. The DEFROST fault is displayed at temperatures of < 18 °C.

Exception WPL 10 AC: Defrosting is initiated by assessing the process value constellation in the refrigerant circuit. In heating mode the heat pump switches immediately into defrost mode. In DHW mode it switches into heating mode before defrosting.

In addition, the water flow rate (calculated from heating output, flow and return temperature, and comparisons with minimum heat pump-specific flow rates) is monitored in the final 30 seconds of forced heating. The FLOW RATE fault is displayed if the average minimum flow rate value is too low.

When the heat pump is in DEFROST mode, the electric booster stages (NHZ) switch on if the temperature falls below 15 °C at the condenser (frost protection sensor) or the heat pump flow.

In addition, the temperatures for frost protection, flow and return temperature are monitored in the DEFROST operating mode. The fault DEFROSTis displayed at temperatures of < 10 °C.

Fault logic: 5 faults in 2 hours of compressor runtime will cause the heat pump to interlock.

Defrost mode heat pump type 2/2*

Once the pressure cell has responded in heating or DHW mode, the heat pump immediately switches into defrost mode.

Note the special feature with the buffer operation OFF setting and subsequent DHW demand. Once the pressure cell has responded, the heat pump switches into forced heating mode for 5 minutes. The condenser temperatures (frost protection sensor) are compared with the return temperature until defrosting is initialised.

If the differential is greater than 25 K, the heat pump is switched off with a DEFROST fault. In addition, the condenser (frost protection sensor) is monitored in the DEFROST operating mode. The DEFROST fault is displayed at temperatures < 10 °C.

Fault logic: 5 faults in 2 hours of compressor runtime will cause the heat pump to interlock.

Defrost mode heat pump type 3/3*

As soon as defrosting has been initialised in the refrigerant circuit by assessing the process value constellation, or a reference defrost is required, the heat pump switches immediately into defrost mode.

The compressor is switched off for a limited time, before restarting in defrost mode.

When the heat pump is in DEFROST mode, the electric booster stages (NHZ) switch on if the temperature falls below 15 °C at the condenser (frost protection sensor) or the heat pump flow.

In addition, the following are monitored during defrost:

- Frost protection temperature or
- Flow temperature or
- Flow rate limit

At temperatures of < 10 °C or when the flow rate limit is not reached, the fault DEFROSTis displayed.

Fault logic: 5 faults in 2 hours of compressor runtime will cause the heat pump to interlock.

Defrost mode heat pump type 4/4*

Once the pressure cell or pressure sensor has responded in heating or DHW mode, the heat pump immediately switches into defrost mode.

When the heat pump is in DEFROST mode, the electric booster stages (NHZ) switch on if the temperature falls below 15 °C at the condenser (frost protection sensor) or the heat pump flow.

In addition, the following are monitored during defrost:

- Frost protection temperature or
- Flow temperature or
- Flow rate limit

At temperatures of < 10 °C or when the flow rate limit is not reached, the fault DEFROSTis displayed.

Fault logic: 5 faults in 24 hours of compressor runtime will cause the heat pump to interlock.

Defrost mode for HP type 5/5*

As soon as defrosting has been initialised in the refrigerant circuit by assessing the process value constellation, or a reference defrost is required, the heat pump switches immediately into defrost mode.

At an outside temperature above 5 °C the compressor speed is reduced such that the evaporation temperature is > 0 °C. If this defrosting measure is unsuccessful after a runtime of 30 min, defrosting through refrigerant circuit reversal is initiated.

Below 5 °C outside temperature, the compressor is switched off for a limited time before restarting in defrost mode.

When the heat pump is in DEFROST operating mode, the electric booster stages (NHZ) switch on if the temperature is < 15 °C at the condenser (frost protection sensor) or at the heat pump flow. In addition, the following are monitored during defrosting:

- Flow temperature or
- Flow rate limit

At temperatures < 10 °C during defrosting or < 18 °C within 30 seconds before defrosting, fault DEFROST is displayed.

Fault logic: 5 faults in 24 hours of compressor runtime will cause the heat pump to interlock.

Maximum defrost time

The maximum defrost time for all heat pump types is 20 minutes. Defrosting is terminated after the maximum defrost time has elapsed. The heat pumps are then forced to operate in heating mode for 20 minutes. Only then can a new defrost process be initiated.

IDLE TIME

After a heat pump has been shut down, an idle time is set to protect the compressor. The default idle time of 10 or 20 minutes (according to heat pump type) should normally not be reduced. Where a reduction is required because of adjustments or repair work, reset the idle time back to 10 or 20 minutes after completing the necessary work.

MAXIMUM CURRENT

This parameter applies only to heat pumps with variable output.

This parameter can be used to limit the maximum power consumed by the heat pump to match it to the power supply conditions at the installation site.

It should, however, be noted that high flow temperatures or low outside temperatures will cause the heating output to drop.

MINIMUM RUNTIME

Setting range 0 to 30 minutes

Each time the compressor is switched on, a countdown starts using the selected time (in minutes). The controller can only stop the compressor after this time has elapsed, i.e. controller shutdown can be delayed. One exception is a response by the temperature limiter or pressure switch, which results in an immediate shutdown.

POWERDEFROST

Power defrost is an extension of the standard defrost process. During intensive defrost, hot air is routed through the fan nozzle.

In this parameter, you can select how often intensive defrost is carried out instead of the standard defrost process.

Example: If the parameter is set to “5”, every fifth defrost is a power defrost.

Note
During an intensive defrost, higher operating costs may be incurred.

HEATING SYSTEM SIZING

The heat demand for the house is set here, taking into consideration the lowest regional temperatures (for example 10 kW heat demand at - 14 °C outside temperature). During operation, the appliance will use this to calculate the optimum value for heat pump operation.

Please note that setting too high a heat demand here will reduce the efficiency of the whole system. Conversely, setting too low a heat demand can lead to reduced comfort.

DESIGN TEMPERATURE

Select the design temperature here. This will be the outside temperature (°C) for which heat demand was calculated, in the region where the heat pump is being used.

HEAT DEMAND

Select the heat demand calculated for the design temperature here.

CONSTANT OUTPUT

This parameter determines the heating output in fixed value and swimming pool operation and in the heat-up program. The output is then controlled to the permanently set output, irrespective of the outside temperature.

CONDENSATE RIBBON HEATER

At an outside temperature below 3 °C, the ribbon heater switches on.

OUTSIDE TEMPERATURE

Select the outside temperature here.

SINGLE PHASE OPERATION

ON / OFF

QUICK START

During commissioning, you can test the heat pump function by triggering a heat pump quick start. When calling up parameters, OFF is shown on the display. If you set it to ON and press OK, a quick start is initiated. The relevant pumps are switched on after the start. The value on the display visibly counts down from 60 to 0 s. On quick start the display then shows ON.

After that, the heat pump and the associated buffer charging pump are switched on.

11.1.7 SILENT MODE

Reduced noise mode

SILENT MODE is an operating mode for air source heat pumps in which the sound level of the heat pump is reduced.

Note
Silent mode has an effect on the heating output and efficiency of the heat pump.
When silent mode is active, higher electricity bills result.

▶ In the “PROGRAMS / SILENT PROGRAM 1” menu, set the times when the heat pump should switch to a quieter operating mode.

FAN REDUCTION

As soon as this parameter is set to ON while SILENT PROGRAM 1 is enabled, the fan speed of type 1/1* and type 4/4* heat pumps is reduced.

OUTPUT REDUCTION

As soon as this parameter is set to ON while SILENT PROGRAM 1 is enabled, the fan speed and compressor output of type 3/3* and 5/5* heat pumps can be reduced independently of each other with the following parameters.

OUTPUT

The reduction in the compressor output can be set here in %.

FAN

The reduction in the fan speed can be set here in %.

HEAT PUMP OFF

As soon as this parameter is set to ON while SILENT PROGRAM 2 is enabled, the heat pump is switched off and the internal or external heat source 2 takes over the DHW / central heating function.

11.1.8 EMERGENCY OPERATION

Characteristics when "Fatal Error" fault occurs in conjunction with emergency operation:

The EMERGENCY OPERATION parameter can be set to ON or OFF.

Emergency operation set to ON:

As soon as a Fatal Error occurs in heat pump types with internal electric reheating and the heat pump fails, the operating mode automatically switches over into emergency operation.

Every heat pump in a cascade must suffer a fatal error before the program switch automatically switches over to emergency operation.

There’s one exception: Automatic emergency operation will also be triggered if only the preselected heat pump for DHW fails.

In heat pump types with external heat source, heat source 2 must be set to ON for central heating or DHW heating; only then can it automatically change over to emergency operation when a fatal error occurs.

Emergency operation set to OFF:

As soon as faults occur in HP types with internal electric reheating and the heat pump fails, heat source 2 for central heating takes over frost protection.

11.1.9 HEAT PUMP RESET

If a fault occurs the heat pump can be reset. Setting it to ON clears the fault that has occurred. The compressor starts again. The fault remains stored in the fault list.

11.1.10 FAULT LIST RESET

ON / OFF

The entire fault list is deleted.

11.1.11 SYSTEM RESET

A system reset will reset the heat pump manager to its delivered condition (factory settings).

11.1.12 SENSOR CALIBRATION

Here, you can correct the displayed sensor temperatures.

ACTUAL FLOW TEMPERATURE WP

In menu item ACTUAL FLOW TEMPERATURE WP, you can correct the temperature shown by +/-5 °C.

ACTUAL FLOW TEMPERATURE NHZ

In menu item ACTUAL FLOW TEMPERATURE NHZ, you can correct the temperature shown by +/-5 °C.

ACTUAL RETURN TEMPERATURE WP

In menu item ACTUAL RETURN TEMPERATURE WP, you can correct the temperature shown by +/-5 °C.

11.2 Setting parameters

The following lists the parameters that can be adjusted via the programming unit.

Note
Values in the "Setting range" and "Standard" columns will vary according to the connected heat pump type, and may deviate from the indicated values.

Menu item	Options	Unit	Min.	Max.	Standard	System value
Programs / PARTY PROGRAM						
HOURS			0	24		
Programs / heat-up program						
LOW END TEMPERATURE		°C	20	40	25.0	
DURATION BASE TEMP		Days	0	5	2	
MAXIMUM TEMPERATURE		°C	20	50	40.0	
MAX TEMPERATURE DURATION		Days	0	5	0	
RISE PER DAY		K/day	1	10	1	
Settings / general						
CONTRAST			1	5	5	
BRIGHTNESS		%	0	100	50	
TOUCH SENSITIVITY			1	10	4	
TOUCH ACCELERATION			1	10	6	
Settings / heating / heating circuit 1						
COMFORT TEMPERATURE		°C	5	30	20	
ECO TEMPERATURE		°C	5	30	20	
MINIMUM TEMPERATURE	OFF	°C	10	30	OFF	
ROOM INFLUENCE			0	20		
HEATING CURVE RISE			0.2	3	0.6	
HEATING CURVE VIEW						
Settings / Heating / Heating circuit 2						
COMFORT TEMPERATURE		°C	5	30	20	
ECO TEMPERATURE		°C	5	30	20	
MINIMUM TEMPERATURE	OFF	°C	10	30	OFF	
MAXIMUM TEMPERATURE		°C	20	90	50	
MIXER DYNAMICS			30	240	100	
ROOM INFLUENCE	OFF		0	20		
HEATING CURVE RISE			0.2	3	0.2	
HEATING CURVE VIEW						

Menu item	Options	Unit	Min.	Max.	Standard	System value
Settings / heating / standard setting						
BUFFER OPERATION	ON / OFF				ON / OFF	
SUMMER MODE	ON / OFF				ON	
OUTSIDE TEMPERATURE		°C	3	30	20	
BUILDING HEAT BUFFER			0	3	1	
FLOW PROP HEATING CIRC		%	0	100		
MAXIMUM RETURN TEMP		°C	20	65	65	
MAXIMUM FLOW TEMPERATURE		°C	20	75	75	
FIXED VALUE OPERATION	OFF	°C	20	70	OFF	
HEATING CIRCUIT OPTIMAL	OFF			0.01	0.1	
FROST PROTECTION		°C	-10	10	4	
Settings / heating / remote control FE7						
HEATING CIRC PRESELECTION	Heating circuit 1 Heating circuit 2				Heating circuit 1	
ROOM INFLUENCE	OFF		0	20	5	
ROOM CORRECTION		K	-5	5	0	
Settings / heating / pump cycles						
PUMP CYCLES	ON / OFF			ON / OFF	OFF	
Settings / Heating / External heat source						
THREADED IMMERSION HEATER	ON / OFF					
BOILER	ON / OFF					
HZG PWM	ON / OFF					
HEATING CURVE GAP		K	1	15	3	
SET BOILER TEMPERATURE		°C	35	90		
BLOCKING TIME EVU	OFF	h	1	10		
LOWER APP LIMIT HZG	OFF	°C	-19.5	40	-20	
DUAL MODE TEMP HZG		°C	-20	40	-20	
HZG PWM		Kmin	10	100		
Settings / heating / electric reheating						
LOWER APP LIMIT HZG	OFF	°C	-20	40	-20	
DUAL MODE TEMP HZG		°C	-20	40	-20	
NUMBER OF STAGES			0	3	3	
DELAY	OFF	min	1	60	60	
Settings / DHW / DHW temperatures						
COMFORT TEMPERATURE		°C	10	60	50	
ECO TEMPERATURE		°C	10	60	50	
Settings / DHW / standard setting						
PRIORITY OPERATION	ON / OFF				ON	
PARALLEL OPERATION	ON / OFF				OFF	
PARTIAL PRIORITY	ON / OFF				OFF	
DHW HYSTERESIS		K	1	10	5	
DHW STAGES			1	6	1	
AUTOMATIC DHW CONTROL	ON / OFF				OFF	
OUTSIDE TEMPERATURE		°C	-5	30		
WW LEARNING FUNCTION	ON / OFF				OFF	
WW CORRECTION			0	5		
COMBI CYLINDER	ON / OFF				OFF	
WW OUTPUT SUMMER		kW	5	15	5	
WW OUTPUT WINTER		kW	5	15	5	
MAXIMUM FLOW TEMPERATURE		°C	20	75	75	
PASTEURISATION	ON / OFF				OFF	
Settings / DHW / electric reheating						
DUAL MODE TEMP WW		°C	-20	40	-20	
LOWER APP LIMIT WW	OFF	°C	-20	40	-20	
Settings / DHW / External heat source						
SUPPORTED	ON / OFF					

Menu item	Options	Unit	Min.	Max.	Standard	System value
ALONE	ON / OFF					
INDEPENDENT	ON / OFF					
DUAL MODE TEMP WW		°C	-20	40	-20	
LOWER APP LIMIT WW	OFF	°C	-19.5	40	-20	
WW PWM		%	0	100		
Settings / cooling						
COOLING	ON / OFF				OFF	
SETTINGS / COOLING / COOLING MODE						
PASSIVE COOLING	ON / OFF				OFF	
ACTIVE COOLING	ON / OFF				OFF	
SETTINGS / COOLING / STANDARD SETTING						
COOLING STAGES			1	6	6	
COOLING LIMIT		°C	15	40	20	
COOLING CAPACITY		kW	3	10	8	
SETTINGS / COOLING / ACTIVE COOLING / AREA COOLING						
SET FLOW TEMPERATURE		°C	7	25	15	
FLOW TEMP HYSTERESIS		K	1	5	5	
SET ROOM TEMPERATURE		°C	20	30	25	
DYNAMICS ACTIVE			1	10	10	
DYNAMICS PASSIVE			0	10		
Settings / cooling / active cooling / fan cooling						
SET FLOW TEMPERATURE		°C	7	25	15	
FLOW TEMP HYSTERESIS		K	1	5	5	
SET ROOM TEMPERATURE		°C	20	30	25	
DYNAMICS ACTIVE			1	10	10	
DYNAMICS PASSIVE			0	10		
Settings / cooling / passive cooling / AREA COOLING						
SET FLOW TEMPERATURE		°C	7	25	15	
FLOW TEMP HYSTERESIS		K	3	10	5	
SET ROOM TEMPERATURE		°C	20	30	25	
DYNAMICS PASSIVE			1	10		
Settings / cooling / passive cooling / fan cooling						
SET FLOW TEMPERATURE		°C	7	25	15	
FLOW TEMP HYSTERESIS		K	3	10	5	
SET ROOM TEMPERATURE		°C	20	30	25	
DYNAMICS PASSIVE			1	10		
Settings / SOLAR						
MAXIMUM CYLINDER TEMP		°C	20	85		
SOLAR DIFFERENTIAL		K	3	11		
Commissioning						
ENTER CODE			0000	9999	1000	
LANGUAGE					English	
Commissioning / Source						
MIN SOURCE TEMPERATURE	OFF	°C	-10	10	-9	
BRINE PUMP RATE		%	20	100		
Commissioning / Heating						
CONTROLLER DYNAMICS			1	600	100	
HYSTERESIS		K	1	10	1	
HD SENSOR MAX		bar	38	44		
SPREAD CONTROL	ON / OFF					
SET SPREAD		K	3	12	5	
MAXIMUM PUMP RATE		%	50	100	100	
STANDBY PUMP RATE		%	20	100	40	
HEATING CIRC PUMP RATE		%	20	100		

Menu item	Options	Unit	Min.	Max.	Standard	System value
Commissioning / WW						
DHW CIRCUIT PUMP RATING		%	20	100	100	
Commissioning / COMPRESSOR						
MINIMUM DEFROST TIME		min	1	20	1	
START DEFROST	ON / OFF				OFF	
IDLE TIME		min	1	120	20	
MAXIMUM CURRENT		A	10	30	30	
MINIMUM RUNTIME		min	0	30	10	
POWERDEFROST	ON / OFF		0	20	OFF	
HEATING SYSTEM SIZING / DESIGN TEMPERATURE		°C	-20	0	-15	
HEATING SYSTEM SIZING / HEAT DEMAND		kW	5	20	15	
CONSTANT OUTPUT		kW	5	20	10	
CONDENSATE RIBBON HEATER / OUTSIDE TEMPERATURE		°C	-10	5	5	
SINGLE PHASE OPERATION	ON / OFF				OFF	
QUICK START	ON / OFF				OFF	
Commissioning / SILENT MODE	ON / OFF				OFF	
FAN REDUCTION	ON / OFF				OFF	
OUTPUT REDUCTION / OUTPUT		%	70	100	100	
OUTPUT REDUCTION / FAN		%	70	100	100	
HEAT PUMP OFF	ON / OFF				OFF	
Commissioning / EMERGENCY OPERATION	ON / OFF				OFF	
Commissioning / HEAT PUMP RESET	ON / OFF				OFF	
Commissioning / FAULT LIST RESET	ON / OFF				OFF	
Commissioning / SYSTEM RESET	ON / OFF				OFF	
COMMISSIONING / SENSOR CALIBRATION						
ACTUAL FLOW TEMPERATURE WP		°C	-5	5	0	
ACTUAL FLOW TEMPERATURE NHZ		°C	-5	5	0	
ACTUAL RETURN TEMPERATURE WP		°C	-5	5	0	

12. Settings

12.1 Standard settings

The heat pump manager is pre-programmed at the factory with the following standard settings:

	Standard	Setting range
Switching times for heating circuit 1 and heating circuit 2 (day mode) only the 1st switching pair is pre-programmed.		
Monday - Friday	6:00 - 22:00	0:00 - 23:59
Saturday - Sunday	7:00 - 23:00	0:00 - 23:59
Settings / Heating / HEATING CIRCUIT 1 / 2 Standard settings without night setback.		
Comfort temperature	20 °C	5 - 30 °C
ECO temperature	20 °C	5 - 30 °C
Switching times for DHW program		
Monday - Sunday	0:00 - 24:00	0:00 - 23:59
Settings / DHW / DHW temperatures		
Comfort temperature	50 °C	OFF / 50 - 70 °C
ECO temperature	50 °C	OFF / 50 - 70 °C
Heating curve slope		
Heating curve 1	0.6	0 - 5
Heating curve 2	0.2	0 - 5

12.2 Settings made

Use these tables to note down the individual values set by you.

12.2.1 Heating program, heating circuit 1

	Switching time pair I	Switching time pair II	Switching time pair III
Mon			
Tue			
Wed			
Thu			
Fri			
Sat			
Sun			
Mon-Fri			
Sat-Sun			
Mon-Sun			

12.2.2 Heating program, heating circuit 2

	Switching time pair I	Switching time pair II	Switching time pair III
Mon			
Tue			
Wed			
Thu			
Fri			
Sat			
Sun			
Mon-Fri			
Sat-Sun			
Mon-Sun			

12.2.3 DHW program

	Switching time pair I	Switching time pair II	Switching time pair III
Mon			
Tue			
Wed			
Thu			
Fri			
Sat			
Sun			
Mon-Fri			
Sat-Sun			
Mon-Sun			

12.3 Appliance handover

Explain the function of the appliance to users and familiarise them with its operation.

Note
Hand over these operating and installation instructions to the user for safe-keeping. Always carefully observe all information in these instructions. They provide information on safety, operation, installation and maintenance of the appliance.

13. Troubleshooting

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

13.1 Fault display

Faults in the system or in the heat pump are indicated on the display. For heating system and heat pump troubleshooting and analysis, all important process data and BUS subscribers can be called up under DIAGNOSIS and a relay test can be carried out.

▶ For troubleshooting, analyse all available parameters before opening the heat pump control panel.

Whenever a fault occurs (except with hot gas) the heat pump switches off, the red LED on the IWS flashes for approx. 12 minutes, the idle time is set and the corresponding fault is written to the fault list.

Once the fault time on the IWS and the idle time have elapsed, the heat pump restarts. Even if the heat pump has already been reset and the flashing red LED on the IWS has gone out, the heat pump will not restart until the idle time has elapsed.

On all heat pump types, the fault inputs on the IWS are negated, in other words, 230 V is always present at the fault inputs in standard mode.

When the heat pump has been shut down (controlled shutdown) and after a period of 10 s, the 230 V signal must be present. If this is not the case, the red LED on the IWS flashes and CENTRAL FAULT is displayed.

Note
Such faults are written to the fault list, and the system is switched off. The display message will extinguish 10 min after the fault has been removed. The system will be shut down permanently if 5 heat pump-specific or hardware faults occur within 2 hours run. Under these circumstances, you can only restart the heat pump after the fault has been removed and the IWS has been reset.

13.2 Fault list

Fault list for HP TYPE 1 and 1*

Fault display	Reason for fault code being triggered	Possible cause of fault / remedy
LOW PRESSURE	The low pressure sensor has responded; switching point 1.2 bar (absolute) in heating mode within 60 seconds.	Refrigerant leak, expansion valve does not open.
ERR ND PRESSURE	5 faults in 2 hours of compressor runtime have occurred.	
LP 2	Low pressure < 0.9 bar absolute within 5 seconds.	Refrigerant leak, expansion valve does not open.
EXV LP 2	3 faults in 10 minutes of compressor runtime have occurred.	
HIGH PRESSURE	The high pressure limiter has responded; switching point 30 bar absolute.	Check the flow rate and sensor connection on the heating side.
ERR HD PRESSURE	5 faults in 2 hours of compressor runtime have occurred.	
NO OUTPUT	High pressure < low pressure + 2 bar within 30 seconds.	Phase sequence incorrect or heat pump connection fuse has blown. Remove the cause. Then carry out a WPM reset.
ERR K OUTPUT	5 faults in 2 hours of compressor runtime have occurred.	
MIN SUPERHEATING	Superheating < superheating 50 % set within 5 minutes.	Expansion valve not working correctly.
ERR M SUPERHEATING IWS	5 faults in 2 hours of compressor runtime have occurred.	
REFRIGERANT LOW	Superheating > superheating and expansion valve opening > limit.	Refrigerant leak, incorrect expansion valve function.
ERR K LOW IWS	5 faults in 2 hours of compressor runtime have occurred.	
DEFROST	In defrost mode, flow, return or frost protection is < 10 °C; before defrosting, flow or return is < 18 °C within 30 seconds.	Water flow rate too low, water temperature too low.
ERR DEFROST	5 faults in 2 hours of compressor runtime have occurred.	
HEXADECIMAL SWITCH	Heat pump type DIP switch on the IWS incorrectly set for cascade mode.	Isolate the heat pump from the power supply and set the DIP switch correctly.
HD SENSOR MAX	The high pressure sensor has responded; high pressure switching point 1 bar; calibration 1 x every 24 hours.	Heating flow rate too low, selected room temperature / heating curve too high.
MAX HOT GAS	Hot gas temperature > 125 °C.	Injection valve function incorrect, expansion valve function incorrect, refrigerant leak.
MIN FLOW COOL	Minimum flow temperature not reached; switching point 6.5 °C.	Check heating flow rate, check flow sensor for cooling.
CONTACTOR STUCK	Compressor or starting contactor stuck.	Check contactors K1 and K2.
NO IWS PARAM	Heat pump type was not transferred to the controller.	Select the heat pump type via the HEAT PUMP TYPE parameter.
FLOW RATE	Flow rate monitoring from heating output, flow temperature and return temperature.	Check flow rate.
ERR FLOW RATE	5 faults in 24 hours of compressor runtime have occurred.	
ND COOLING	The low pressure sensor has responded; switching point 4 bar (absolute) in cooling mode within 5 seconds.	Non-return valve leaks. Expansion valve not working correctly.
ERR ND COOLING	5 faults in 2 hours of compressor runtime have occurred.	
ND DEFROST	The low pressure sensor has responded; switching point 2 bar (absolute) in defrost mode within 10 seconds.	Refrigerant escaped. Expansion valve does not open.
ERR ND DEFROST	5 faults in 2 hours of compressor runtime have occurred.	
ERR T COOL IWS	Cooling/recuperator sensor	Check sensor, leads and the relevant plug-in connectors, and replace if faulty.

Fault list for HP TYPE 2 and 2*

Fault display	Reason for fault code being triggered	Possible cause of fault / remedy
LOW PRESSURE	The low pressure sensor has responded	Refrigerant leak, expansion valve does not open
ERR ND PRESSURE	5 faults in 2 hours of compressor runtime have occurred	
FROST PROTECTION	The frost protection pressure sensor has responded	Refrigerant leak, expansion valve does not open. Check source flow rate
HIGH PRESSURE	The high pressure limiter has responded	Check the flow rate and sensor connection on the heating side.
ERR HD PRESSURE	5 faults in 2 hours of compressor runtime have occurred	
NO OUTPUT	High pressure < low pressure + 3 bar within 30 seconds	Phase sequence incorrect or heat pump connection fuse has blown. Remove the cause. Then carry out a WPM reset.
ERR K OUTPUT	5 faults in 2 hours of compressor runtime have occurred	
DEFROST	Frost protection temperature < 10 °C during defrosting	Water flow rate too low, water temperature too low
ERR DEFROST	5 faults in 2 hours of compressor runtime have occurred	
HEXADECIMAL SWITCH	Heat pump type DIP switch on the IWS incorrectly set for cascade mode.	Isolate the heat pump from the power supply and set the DIP switch correctly.
HD SENSOR MAX	The high pressure sensor has responded	Heating flow rate too low; selected room temperature / heating curve too high
MAX HOT GAS	Hot gas temperature > 125 °C	Injection valve function incorrect, expansion valve function incorrect, refrigerant leak

Fault display	Reason for fault code being triggered	Possible cause of fault / remedy
CONTACTOR STUCK	Compressor or starting contactor sticks	Check contactors K1 and K2
MIN SOURCE	The defined minimum source temperature was not reached.	Check the minimum source temperature and change it if required. Check source flow rate: Check source sizing.
NO IWS PARAM	Heat pump type was not transferred to the controller	Select heat pump via heat pump type parameter

Fault list for HP TYPE 3 and 3*

Fault display	Reason for fault code being triggered	Possible cause of fault / remedy
LOW PRESSURE	The minimum low pressure limiter has been triggered (below 2 bar for 10 s)	Refrigerant escaped. Expansion valve does not open.
ERR ND PRESSURE	Multiple response from the LOW PRESSURE limiter in a defined compressor runtime	Remove the cause. Then carry out a WPM reset.
MEAN PRESSURE	The minimum mean pressure limiter has been triggered (below 2 bar for 10 s)	Refrigerant leak, expansion valve does not open
ERR MD PRESSURE	Multiple response from the MEAN PRESSURE limiter in a defined compressor runtime	Remove the cause. Then carry out a WPM reset.
HIGH PRESSURE	The high pressure limiter has responded (switching point 42 bar)	Check the flow rate and sensor connection on the heating side.
ERR HD PRESSURE	Multiple response from the HIGH PRESSURE limiter in a defined compressor runtime	Remove the cause. Then carry out a WPM reset.
NO OUTPUT	High pressure does not increase significantly above low pressure following compressor start-up and a delay time	Heat pump connection fuse has blown. Remove the cause. Then carry out a WPM reset.
ERR K OUTPUT	Multiple response from the NO OUTPUT limiter in a defined compressor runtime (high pressure < low pressure + 2 bar within 120 s)	Remove the cause. Then carry out a WPM reset.
MIN SUPERHEATING	Superheating of the refrigerant at the evaporator outlet or the compressor inlet for too long below the permissible limit (superheating is < minimum superheating value for 10 minutes)	Expansion valve not working correctly.
ERR M SUPERHEATING IWS	Multiple response from the MIN SUPERHEATING limiter in a defined compressor runtime	Remove the cause. Then carry out a WPM reset.
REFRIGERANT LOW	Unexpectedly high deviation of the expansion valve opening from the pre-control characteristic	Refrigerant leak. Expansion valve does not function correctly.
ERR K LOW IWS	Multiple response from the REFRIGERANT LOW limiter in a defined compressor runtime	Remove the cause. Then carry out a WPM reset.
SPEED DEV COMP ND	Speed deviation between set and actual compressor values for a defined time	Inverter or compressor not working correctly.
DEFROST	Flow temperature or frost protection temperature < 10 °C, or flow rate < 10 l/min (WPL 15), < 15 l/min (WPL 25) in defrost mode is too low	Water flow rate too low. Water temperature too low.
ERR DEFROST	Multiple response from the DEFROST limiter in a defined compressor runtime	Remove the cause. Then carry out a WPM reset.
HEXADECIMAL SWITCH	The heat pump type DIP switch of the IWS is set incorrectly.	Isolate the heat pump from the power supply and set the DIP switch correctly.
HD SENSOR MAX	The maximum high pressure limiter has been triggered (42 bar)	Heating system flow rate too low. Selected room temperature / heating curve too high.
MAX HOT GAS	Hot gas temperature has exceeded limit (140 °C)	Injection valve not working correctly. Expansion valve not working correctly, refrigerant leakage.
ERR T VOR IWS	Sensor value of the flow sensor outside the permissible range	Check sensor, leads and the relevant plug-in connectors, and replace if faulty.
ERR T RUE IWS	Sensor value of the return sensor outside the permissible range	Check sensor, leads and the relevant plug-in connectors, and replace if faulty.
ERR T FROS IWS	Sensor value of the frost protection sensor outside the permissible range	Check sensor, leads and the relevant plug-in connectors, and replace if faulty.
ERR T VFL IWS	Sensor value of the condenser outlet sensor outside the permissible range	Check sensor, leads and the relevant plug-in connectors, and replace if faulty.
NO IWS PARAM	Heat pump type was not transferred to the controller	Select the heat pump type via the HEAT PUMP TYPE parameter.
ERR T AUS IWS	Sensor value of the outside temperature sensor outside the permissible range	Check sensor, leads and the relevant plug-in connectors, and replace if faulty.
ERR T EXHA IWS	Sensor value of the exhaust air sensor outside the permissible range	Check sensor, leads and the relevant plug-in connectors, and replace if faulty.
ERR T EIN IWS	Sensor value of the injection temperature sensor outside the permissible range	Check sensor, leads and the relevant plug-in connectors, and replace if faulty.
ERR T SUCT	Sensor value of the compressor inlet sensor (suction gas temperature compressor) is outside the permissible range	Check sensor, leads and the relevant plug-in connectors, and replace if faulty.
ERR T VER IWS	Sensor value of the evaporator temperature sensor outside the permissible range	Check sensor, leads and the relevant plug-in connectors, and replace if faulty.
ERR T HTG IWS	Sensor value of the hot gas temperature sensor outside the permissible range	Check sensor, leads and the relevant plug-in connectors, and replace if faulty.

Troubleshooting

Fault display	Reason for fault code being triggered	Possible cause of fault / remedy
ERR T OIL S IWS	Sensor value of the oil sump temperature sensor outside the permissible range	Check sensor, leads and the relevant plug-in connectors, and replace if faulty.
ERR ND SENSOR	Sensor value of the low pressure sensor outside the permissible range	Check sensor, leads and the relevant plug-in connectors, and replace if faulty.
ERR MD SENSOR	Sensor value of the mean pressure sensor outside the permissible range	Check sensor, leads and the relevant plug-in connectors, and replace if faulty.
ERR HD SENSOR	Sensor value of the high pressure sensor outside the permissible range	Check sensor, leads and the relevant plug-in connectors, and replace if faulty.
INV N DSP AFTER COMM	Minor inverter fault: Communication between signal processor and main processor is faulty.	Inverter fault
INV N COMM AFTER DSP	Minor inverter fault: Communication between signal processor and main processor is faulty.	Inverter fault
INV N SCROLL LOW TEMP	Minor inverter fault: Temperature sensor fault, scroll temperature below the permissible range.	Inverter fault
INV N MOTOR LOW TEMP	Minor inverter fault: Temperature sensor fault, motor temperature below the permissible range.	Inverter fault
INV N BOARD LOW TEMP	Minor inverter fault: Temperature sensor fault, internal switching circuit temperature below the permissible range.	Inverter fault
INV N INV LOW TEMPERATURE	Minor inverter fault: Temperature sensor fault, inverter IGBTs below the permissible range.	Inverter fault
INV N PFC LOW TEMPERATURE	Minor inverter fault: Temperature sensor fault, PFC IGBTs below the permissible range.	Inverter fault
INV N FAULT LIMIT FATAL	Minor inverter fault: Inverter fault limit has been achieved and inverter was interlocked.	Inverter fault
SOA ND UNDERSHOT	Low pressure below SOA ND limit for impermissible length of time.	Refrigerant circuit cannot adjust operating conditions to SOA range for compressor.
SOA ND EXCEEDED	Low pressure exceeds SOA ND limit for impermissible length of time.	Refrigerant circuit cannot adjust operating conditions to SOA range for compressor.
SOA ND ALLOCATION	SOA range exceeded.	Refrigerant circuit cannot adjust operating conditions to SOA range for compressor.
SOA HD UNDERSHOT	High pressure below SOA HD limit for impermissible length of time.	Refrigerant circuit cannot adjust operating conditions to SOA range for compressor.
SOA HD EXCEEDED	High pressure exceeds SOA HD limit for impermissible length of time.	Refrigerant circuit cannot adjust operating conditions to SOA range for compressor.
SOA HD ALLOCATION	SOA range exceeded.	Refrigerant circuit cannot adjust operating conditions to SOA range for compressor.
INV H INV EXCESS CURRENT	Major inverter fault: Inverter IGBT excess current.	Inverter fault
INV H PFC EXCESS CURRENT	Major inverter fault: PFC IGBT excess current.	Inverter fault
INV H DC EXCESS VOLTAGE	Major inverter fault: DC intermediate circuit excess voltage.	Inverter fault
INV H DC UNDERVOLTAGE	Major inverter fault: DC intermediate circuit undervoltage.	Inverter fault
INV H AC EXCESS VOLTAGE	Major inverter fault: AC input excess voltage.	Inverter fault
INV H AC UNDERVOLTAGE	Major inverter fault: AC input undervoltage.	Inverter fault
INV H AC VOLTAGE BALANCE	Major inverter fault: Voltage differences between the three input phases.	Inverter fault
INV H DESATURATION	Major inverter fault: Desaturation	Inverter fault
INV H INV EXCESS TEMP	Major inverter fault: Inverter IGBTs excess temperature.	Inverter fault
INV H PFC EXCESS TEMP	Major inverter fault: PFC IGBTs excess temperature.	Inverter fault
INV H ROTOR VECTOR	Major inverter fault: Rotor does not turn as expected.	Inverter fault
INV H ARITHMETIC	Major inverter fault: Arithmetic fault in the measuring and analysis process.	Inverter fault
INV H INPUT RELAY OPEN	Major inverter fault: Input relay open.	Inverter fault
INV H INV CURRENT BALANCE	Major inverter fault: Current differences between the three inverter IGBTs.	Inverter fault
INV H PFC CURRENT BALANCE	Major inverter fault: Current differences between the three PFC IGBTs.	Inverter fault
INV H SELV RANGE EXT	Major inverter fault: LV range exceeded.	Inverter fault
INV H MOTOR EXCESS SPEED	Major inverter fault: Motor excess speed.	Inverter fault
INV N DC UNDERVOLTAGE	Minor inverter fault: DC intermediate circuit undervoltage.	Inverter fault
INV N TORQUE LIMIT	Minor inverter fault: Torque limit achieved.	Inverter fault
INV N MODBUS ERROR	Minor inverter fault: Modbus communication is faulty.	Inverter fault
INV N SCROLL EXCESS TEMP	Minor inverter fault: Compressor scroll excess temperature.	Inverter fault
INV N MOTOR EXCESS TEMP	Minor inverter fault: Compressor motor excess temperature.	Inverter fault
INV N BOARD EXCESS TEMP	Minor inverter fault: Switching circuit excess temperature.	Inverter fault
INV N INV EXCESS TEMP	Minor inverter fault: Inverter IGBTs excess temperature.	Inverter fault
INV N PFC EXCESS TEMP	Minor inverter fault: PFC IGBT excess temperature.	Inverter fault
INV N INV TEMP BALANCE	Minor inverter fault: Temperature differences between the three inverter IGBTs.	Inverter fault
INV N PFC TEMP BALANCE	Minor inverter fault: Temperature differences between the three PFC IGBTs.	Inverter fault

Troubleshooting

Fault display	Reason for fault code being triggered	Possible cause of fault / remedy
INV N ADC COMM	Minor inverter fault: Communication between analogue/digital converter and auxiliary processor is faulty.	Inverter fault
COMMUNICATION IWS INV N	Low relevance communication objects have been incorrectly transferred repeatedly between the IWS and inverter.	Inverter fault. Check wiring and associated plug-in connectors; replace if faulty. Test inverter power supply.
COMMUNICATION IWS INV H	High relevance communication objects have been incorrectly transferred repeatedly between the IWS and inverter.	Inverter fault. Check wiring and associated plug-in connectors; replace if faulty. Test inverter power supply.
INV H CENTRAL FAULT 1	INV major fault central fault 1	Inverter fault
INV H CENTRAL FAULT 2	INV major fault central fault 2	Inverter fault
INV N CENTRAL FAULT 1	INV minor fault central fault 1	Inverter fault
INV N CENTRAL FAULT 2	INV minor fault central fault 2	Inverter fault
8255	Major inverter fault: Input current limit	Inverter fault
8256	Major inverter fault: Output current limit	Inverter fault
8257	Major inverter fault: Phase loss	Inverter fault
8258	Major inverter fault: Power module	Inverter fault
8259	Major inverter fault: Mains voltage sensor	Inverter fault
8260	Major inverter fault: Motor power offset	Inverter fault
8261	Major inverter fault: PFC power offset	Inverter fault
8262	Major inverter fault: Measure motor inductance	Inverter fault
8263	Major inverter fault: Measure motor phase resistance	Inverter fault
8264	Major inverter fault: Restart	Inverter fault
8265	Major inverter fault: Motor excess current shutdown function	Inverter fault
8266	Major inverter fault: IGBT US short circuit	Inverter fault
8267	Major inverter fault: IGBT OS short circuit	Inverter fault
8268	Major inverter fault: Motor phases short circuit	Inverter fault
8269	Major inverter fault: SVM function	Inverter fault
8270	Major inverter fault: Fan inverter excess current	Inverter fault
8271	Major inverter fault: Fan SVM function	Inverter fault
8272	Major inverter fault: Fan DC excess voltage	Inverter fault
8273	Major inverter fault: Fan DC undervoltage	Inverter fault
8274	Major inverter fault: Fan inverter excess temperature	Inverter fault
8275	Major inverter fault: Fan rotor vector	Inverter fault
8276	Major inverter fault: Fan motor excess speed	Inverter fault
8277	Major inverter fault: Fan phase loss	Inverter fault
8278	Major inverter fault: Fan power module	Inverter fault
8279	Major inverter fault: Fan motor power offset	Inverter fault
8280	Major inverter fault: Fan measure motor inductance	Inverter fault
8281	Major inverter fault: Fan measure motor phase resistance	Inverter fault
8282	Major inverter fault: Fan motor excess current shutdown function	Inverter fault
8283	Major inverter fault: Fan IGBT US short circuit	Inverter fault
8284	Major inverter fault: Fan IGBT OS short circuit	Inverter fault
8285	Major inverter fault: Fan motor phases short circuit	Inverter fault
8286	Minor inverter fault: Fan DC undervoltage	Inverter fault
8287	Minor inverter fault: Fan Modbus faulty	Inverter fault
8288	Minor inverter fault: Fan inverter low temperature	Inverter fault
8289	Minor inverter fault: Fan intermediate circuit initialisation	Inverter fault
8290	Minor inverter fault: Fan central fault 1	Inverter fault
8291	Low relevance communication objects have been incorrectly transferred repeatedly between the IWS and inverter (fan section).	Inverter fault. Check wiring and associated plug-in connectors; replace if faulty. Test inverter power supply.
8292	High relevance communication objects have been incorrectly transferred repeatedly between the IWS and inverter (fan section).	Inverter fault. Check wiring and associated plug-in connectors; replace if faulty. Test inverter power supply.
(8293) ERR T VER EIN IWS	Sensor value of the evaporator inlet temperature sensor outside the permissible range	Check sensor, leads and the relevant plug-in connectors, and replace if faulty”
8294	Minor inverter fault: Fan mains undervoltage	Inverter fault
8295	Minor inverter fault: Fan motor excess temperature	Inverter fault
8296	Major inverter fault: PFC excess current shutdown function	Inverter fault
8297	Minor inverter fault: Inverter temperature control	Inverter fault
8298	Minor inverter fault: Input current control	Inverter fault
8299	Major inverter fault: High pressure sensor range undershot	Inverter fault
8300	Major inverter fault: Compressor type configuration	Inverter fault
8301	Major inverter fault: High pressure sensor configuration	Inverter fault

Troubleshooting

Fault list for HP TYPE 4 and 4*

Fault display	Reason for fault code being triggered	Possible cause of fault / remedy
LOW PRESSURE	The minimum low pressure limiter has been triggered (below 1.0 bar for 240 s).	Refrigerant escaped. Expansion valve does not open. Check fan and fuse.
ERR ND PRESSURE	Multiple response from the LOW PRESSURE limiter in a defined compressor runtime.	Remove the cause. Then carry out a WPM reset.
MEAN PRESSURE	The minimum mean pressure limiter has been triggered (below 1.0 bar for 240 s).	Refrigerant escaped. Expansion valve does not open. High pressure compressor shut-off valve does not open. Non-return valve of the low pressure compressor bypass does not open. Check fan and fuse.
ERR MD PRESSURE	Multiple response from the MEAN PRESSURE limiter in a defined compressor runtime.	Remove the cause. Then carry out a WPM reset.
HIGH PRESSURE	The high pressure limiter of the low pressure compressor (switching point 29 bar) or of the high pressure compressor (switching point 39 bar) has been triggered. The selected room temperature or heating curve is too high.	Check the flow rate and sensor connection on the heating side. Check the selected room temperature or heating curve.
ERR HD PRESSURE	Multiple response from the HIGH PRESSURE limiter in a defined compressor runtime.	Remove the cause. Then carry out a WPM reset.
NO OUTPUT	High pressure does not increase significantly above low pressure following compressor start-up and a delay time. (High pressure < low pressure + 2 bar within 120 seconds).	Heat pump connection fuse has blown. Remove the cause. Then carry out a WPM reset.
ERR K OUTPUT	Multiple response from the NO OUTPUT limiter in a defined compressor runtime.	Remove the cause. Then carry out a WPM reset.
MIN SUPERHEATING	Superheating of the refrigerant at the evaporator outlet or the compressor inlet of the high pressure compressor for too long below the permissible limit (superheating is < minimum superheating value for 5 minutes).	Expansion valve or control head not working correctly.
ERR M SUPERHEATING IWS	Multiple response from the MIN SUPERHEATING limiter in a defined compressor runtime.	Remove the cause. Then carry out a WPM reset.
REFRIGERANT LOW	Unexpectedly high deviation of the expansion valve opening from the pre-control characteristic.	Refrigerant leak, incorrect expansion valve function
ERR K LOW IWS	Multiple response from the REFRIGERANT LOW limiter in a defined compressor runtime.	Remove the cause. Then carry out a WPM reset.
SPEED DEV COMP ND	Speed deviation between set and actual compressor values for a defined time.	Inverter or compressor not working correctly. Check the inverter BUS connection.
I INV V ND	Limiter for power interruption to inverter of low pressure compressor has been triggered.	Value is reset automatically. If necessary, check the compressor wiring.
SUPERHEATING INV V ND	Temperature limiter for inverter of low pressure compressor has been triggered.	Value is reset automatically. If necessary, clean the inverter heat sink.
ROTOR KL V ND	Rotor stalled limiter for low pressure compressor has been triggered.	Value is reset automatically.
START F V ND	Start limiter – fault for low pressure compressor has been triggered.	Mains voltage for compressor supply may be too low or mains impedance of the compressor supply may be too high.
OUTL INV V ND	Outlet limiter for low pressure compressor has been triggered.	Mains voltage for compressor supply may be too low or mains impedance of the compressor supply may be too high.
I INV V HD	Limiter for power failure to inverter of high pressure compressor has been triggered.	Value is reset automatically. If necessary, check the compressor wiring.
SUPERHEATING INV V HD	Temperature limiter for inverter of high pressure compressor has been triggered.	Value is reset automatically. If necessary, clean the inverter heat sink.
ROTOR KL V HD	Rotor stalled limiter for high pressure compressor has been triggered.	Value is reset automatically.
START INV C HP	Start limiter – fault for high pressure compressor has been triggered.	Mains voltage for compressor supply may be too low or mains impedance of the compressor supply may be too high.
OUTL INV V HD	Outlet limiter for high pressure compressor has been triggered.	Mains voltage for compressor supply may be too low or mains impedance of the compressor supply may be too high.
SPEED DEV COMP HD	Speed deviation between set and actual compressor values for a defined time.	Inverter or compressor not working correctly.
DEFROST	Flow temperature or frost protection temperature < 10 °C or flow rate < 5 l/min.	Water flow rate too low, water temperature too low.
ERR DEFROST	Multiple response from the DEFROST limiter in a defined compressor runtime.	Remove the cause. Then carry out a WPM reset.
HEXADECIMAL SWITCH	The heat pump type DIP switch of the IWS is set incorrectly.	Isolate the heat pump from the power supply and set the DIP switch correctly.
HD SENSOR MAX	The high pressure sensor of the low pressure compressor (27 bar) or the high pressure sensor of the high pressure compressor (37 bar) has responded.	Heating flow rate too low, selected room temperature / heating curve too high.
MAX HOT GAS	Hot gas temperature has exceeded limit (140 °C).	Injection valve function incorrect, expansion valve function incorrect, refrigerant leak.
ERR T VOR IWS	Sensor value of the flow sensor outside the permissible range.	Check sensor, leads and the relevant plug-in connectors, and replace if faulty.
ERR T RUE IWS	Sensor value of the return sensor outside the permissible range	Check sensor, leads and the relevant plug-in connectors, and replace if faulty.
ERR T FROS IWS	Sensor value of the frost protection sensor outside the permissible range.	Check sensor, leads and the relevant plug-in connectors, and replace if faulty.

Fault display	Reason for fault code being triggered	Possible cause of fault / remedy
ERR T VFL IWS	Sensor value of the condenser outlet sensor outside the permissible range.	Check sensor, leads and the relevant plug-in connectors, and replace if faulty.
NO IWS PARAM	Heat pump type was not transferred to the controller.	Select the heat pump type via the HEAT PUMP TYPE parameter.
ERR T AUS IWS	Sensor value of the outside temperature sensor outside the permissible range.	Check sensor, leads and the relevant plug-in connectors, and replace if faulty.
ERR T EXHA IWS	Sensor value of the exhaust air sensor outside the permissible range.	Check sensor, leads and the relevant plug-in connectors, and replace if faulty.
ERR T SUCT VHD	Sensor value of the suction gas temperature sensor for high pressure compressor outside the permissible range.	Check sensor, leads and the relevant plug-in connectors, and replace if faulty.
ERR T SUCT VND	Sensor value of the suction gas temperature sensor for low pressure compressor outside the permissible range.	Check sensor, leads and the relevant plug-in connectors, and replace if faulty.
ERR T VER IWS	Sensor value of the evaporator temperature sensor outside the permissible range	Check sensor, leads and the relevant plug-in connectors, and replace if faulty.
ERR T HTG IWS	Sensor value of the hot gas temperature sensor outside the permissible range.	Check sensor, leads and the relevant plug-in connectors, and replace if faulty.
ERR T OILS IWS	Sensor value of the oil sump temperature sensor outside the permissible range.	Check sensor, leads and the relevant plug-in connectors, and replace if faulty.
ERR ND SENSOR	Sensor value of the low pressure sensor outside the permissible range.	Check sensor, leads and the relevant plug-in connectors, and replace if faulty.
ERR MD SENSOR	Sensor value of the mean pressure sensor outside the permissible range.	Check sensor, leads and the relevant plug-in connectors, and replace if faulty.
ERR HD SENSOR	Sensor value of the high pressure sensor outside the permissible range.	Check sensor, leads and the relevant plug-in connectors, and replace if faulty.
ERR EV DIFF PR	Sensor value of the differential pressure sensor outside the permissible range.	Check sensor, leads and the relevant plug-in connectors, and replace if faulty.
ERR CURRENT	Value of the current sensor outside the permissible range.	Check leads and the relevant plug-in connectors, and replace if faulty.
ERR OIL COMPENSATION	Oil compensation valve does not open/close.	Check leads and the relevant plug-in connectors, and replace if faulty.
COMM U IWS CSW	Limiter communication interruption IWS / CWS.	Check leads and the relevant plug-in connectors, and replace if faulty.

Fault list for HP type 5 and 5*

Fault display	Reason for fault code being triggered	Possible cause of fault / remedy
LOW PRESSURE	The low pressure sensor has responded; switching point 2.0 bar (absolute) in heating mode within 60 seconds	Refrigerant leak, expansion valve does not open
HIGH PRESSURE	The high pressure switch has responded; switching point 42 bar (absolute)	Check the flow rate and sensor connection on the heating side
ERR T FROS IWS	B9 - Sensor value of the frost protection sensor outside the permissible range	Check sensor, leads and the relevant plug-in connectors, and replace if faulty
DIP WP TYPE	The heat pump type DIP switch of the IWS is set incorrectly.	Isolate the heat pump from the power supply and set the DIP switch correctly.
ERR T SUCT V ND	TR5 - Sensor value of the compressor's suction gas temperature sensor outside the permissible range	Check sensor, leads and the relevant plug-in connectors, and replace if faulty
DEFROST	In defrost mode, flow, return or frost protection is < 10 °C; before defrosting, flow or return is < 18 °C within 30 seconds	Water flow rate too low, water temperature too low
ERR T HTG IWS	TR6 - Sensor value of the hot gas temperature sensor outside the permissible range	Check sensor, leads and the relevant plug-in connectors, and replace if faulty
ERR T VER IWS	TR4 - Sensor value of the evaporator temperature sensor outside the permissible range	Check sensor, leads and the relevant plug-in connectors, and replace if faulty
ERR T AUS IWS	TL2 - Sensor value of the outside temperature sensor outside the permissible range	Check sensor, leads and the relevant plug-in connectors, and replace if faulty
ERR ND PRESSURE	5 LOW PRESSURE faults occurred in 2 hours of compressor runtime	Remove the cause. Then carry out a WPM reset.
ERR HD PRESSURE	Five HIGH PRESSURE faults occurred in 2 hours of compressor runtime	Remove the cause. Then carry out a WPM reset.
MAX HOT GAS	Hot gas temperature > 130 °C	Incorrect injection valve function; incorrect expansion valve function; refrigerant leak
ERR HD SENSOR	JR1 - Sensor value of the high pressure sensor outside the permissible range	Check sensor, leads and the relevant plug-in connectors, and replace if faulty
ERR ND SENSOR	JR0 - Sensor value of the low pressure sensor outside the permissible range	Check sensor, leads and the relevant plug-in connectors, and replace if faulty
NO OUTPUT	High pressure < low pressure + 3 bar within 30 seconds after compressor start	Check all MCB/fuses.
ERR M SUPERHEATING IWS	Five MIN SUPERHTG faults occurred in 2 hours of compressor runtime	Remove the cause. Then carry out a WPM reset.

Troubleshooting

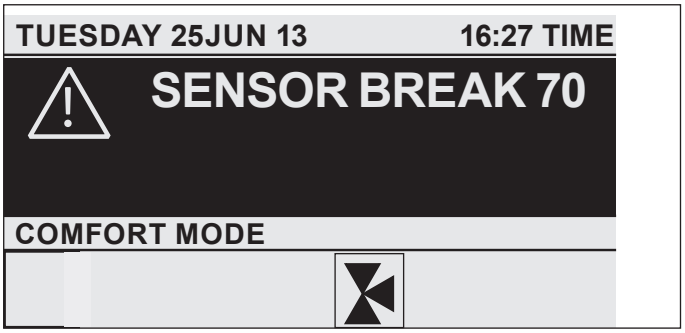
Fault display	Reason for fault code being triggered	Possible cause of fault / remedy
MIN SUPERHEATING	Superheating is < minimum value for superheating within 20 minutes, applies to both superheating of the refrigerant at the evaporator output and superheating of the refrigerant at the suction gas connection of the high pressure compressor	Expansion valve not working correctly
ERR DEFROST	Five DEFROST faults occurred in 2 hours of compressor runtime	Remove the cause. Then carry out a WPM reset.
MIN FLOW COOL	Minimum flow temperature not reached; switching point 6.5 °C.	Check heating flow rate, check flow sensor for cooling.
ERR T VFL IWS	TR3 - Sensor value of the condenser outlet sensor outside the permissible range	Check sensor, leads and the relevant plug-in connectors, and replace if faulty
INV H INV EXCESS CURRENT	INV major fault inverter excess current	Inverter fault
INV H PFC EXCESS CURRENT	INV major fault PFC excess current	Inverter fault
INV H AC EXCESS VOLTAGE	INV major fault AC excess voltage	Inverter fault
INV H AC UNDERVOLTAGE	INV major fault AC undervoltage	Inverter fault
INV H AC VOLTAGE BALANCE	INV major fault AC voltage balance	Inverter fault
INV H INV EXCESS TEMP	INV major fault inverter excess temperature	Inverter fault
INV H PFC EXCESS TEMP	INV major fault PFC excess temperature	Inverter fault
INV H ROTOR VECTOR	INV major fault rotor vector	Inverter fault
COMMUNICATION IWS INV N	Limiter low priority communication interruption IWS/INV	Inverter fault. Check wiring and associated plug-in connectors; replace if faulty. Check inverter power supply.
COMMUNICATION IWS INV H	Limiter high priority communication interruption IWS/INV	Inverter fault. Check wiring and associated plug-in connectors; replace if faulty. Check inverter power supply.
ERR T OIL S IWS	Sensor value of the oil sump temperature sensor outside the permissible range	Check sensor, leads and the relevant plug-in connectors, and replace if faulty
SOA HD EXCEEDED	High pressure above SOA HP limit for impermissible length of time	Refrigerant circuit cannot adjust operating conditions to SOA range for compressor
8167	The heat pump type set with the rotary selector does not match the installed electronic assembly	Set the rotary selector to the correct position or replace the electronic assembly
8168	4-way diverter valve does not switch to cooling	Valve jammed or faulty
8169	4-way diverter valve does not switch to heating	Valve jammed or faulty
8170	“Internal inverter errors -IPM current sampling error -DC bus live -AC input overcurrent -AC input voltage sampling error -DSP and PFC communication error -Heat sink sensor fault -DSP and MCU communication error”	Check inverter wiring/electr. connection; if necessary, replace inverter
8176	Flow and return connections have been interchanged	Check hydraulic connections
8177	Evaporator cannot dissipate enough heat in cooling mode	Cleaning the evaporator
8181	Multiple occurrence of fault "ERR HD SENSOR"	See fault "ERR HD SENSOR"
8182	Multiple occurrence of fault "ERR ND SENSOR"	See fault "ERR ND SENSOR"
8183	Multiple occurrence of fault "SOA HD EXCEEDED"	Check DHW set temperature/DHW output and reduce if necessary
8184	Multiple occurrence of fault "MAX HOT GAS"	Check output setting and reduce if necessary
8185	Multiple occurrence of fault "DEFROST" or "MIN FLOW COOL"	Check system temperatures/flow rate
8186	Multiple occurrence of fault "INV H INV EXCESS CURRENT"	See fault "INV H INV EXCESS CURRENT"
8188	Multiple occurrence of fault "8168"	See fault "8168"
8189	Multiple occurrence of fault "8169"	See fault "8169"
8191	Multiple response of inverter overcurrent relay	Inverter fault
8192	Multiple occurrence of fault "INV H PFC EXCESS CURRENT"	See fault "INV H PFC EXCESS CURRENT"
8193	Multiple occurrence of fault "INV H INV EXCESS TEMP"	See fault "INV H INV EXCESS TEMP"
8208	Multiple response of high pressure switch at inverter	See fault "HIGH PRESSURE"

Fault list for multifunction assembly MFG

Fault display	Reason for fault code being triggered	Possible cause of fault / remedy
TO T VOR NHZ MFG	The flow sensor of the electric emergency/booster heater in the MFG is faulty.	Check the communication cable terminal or replace the communication cable.
TO VOL HK MFG	Incorrect communication with the MFG.	Check the communication cable terminal or replace the communication cable.
TO P HK MFG	Incorrect communication with the MFG.	Check the communication cable terminal or replace the communication cable.
TO PU HK MFG	Incorrect communication between heating circuit pump and MFG.	Check the communication cable terminal or replace the communication cable.
TO VALVE MFG	Incorrect communication between 3-way diverter valve and MFG.	Check the communication cable terminal or replace the communication cable.
TO NHZ MFG	Incorrect communication of the electric emergency/booster heater in the MFG.	Check the communication cable terminal or replace the communication cable.
TO MFG	MFG timeout	Check the communication cable terminal or replace the communication cable.
ERR NHZ MFG	The electric emergency/booster heater in the MFG is faulty.	Check the communication cable terminal or replace the communication cable.
ERR VALVE MFG	Error 3-way diverter valve MFG.	Check the communication cable terminal or replace the communication cable.
ERR PU HZG MFG	Error heating circuit pump MFG.	Check the communication cable terminal or replace the communication cable.

13.3 Fault message – sensor break

If the appliance registers a fault, this is clearly displayed with the message shown below.



If more than one fault occurs, the most recent fault is always shown.

Fault table

System fault	Sensor
SENSOR BREAK E 70	Mixer sensor
SENSOR BREAK E 71	Source sensor
SENSOR BREAK E 72	Flow sensor
SENSOR BREAK E 73	Return sensor
SENSOR BREAK E 75	Outside temperature sensor
SENSOR BREAK E 76	DHW sensor
SENSOR BREAK E 77	HS 2 sensor
SENSOR BREAK E 80	Remote control
SENSOR BREAK E 129	Collector sensor

13.4 Heat pump-specific or hardware faults

See also chapter "Fault list".

13.4.1 The heat pump is not running

The heat pump is in standby mode.

▶ Change the system over to programmed operation.

The power supply has been blocked; POWER-OFF is displayed.

▶ Wait for the blocking time to elapse. The heat pump will automatically start up again.

There is no heat demand.

▶ Check the set and actual values under the INFO menu item.

There may be an incorrect fuse rating.

▶ See chapter "Specification / Data table".

Note
The heat pump can only be restarted after the fault has been removed and the heat pump has been reset (heat pump reset parameter).

Additional parameters available for system analysis:

- QUICK START: The quick start must only be carried out by our customer support. The heat pump compressor is checked during a quick start.
- RELAY TEST: Test for all relays in the heat pump manager.

13.4.2 The WPM display is not responding to entries

▶ Isolate the heat pump from the power supply.

▶ Restart the system.

▶ If an ISG is installed, the WPM must have completely started up before you reconnect the ISG power supply.

14. Specification

14.1 Details on energy consumption

Product datasheet: Temperature controller to regulation (EU) no. 811/2013 / (S.I. 2019 No. 539 / Schedule 2)

		WPMW 3	WPMS 3
		232980	232981
Manufacturer		STIEBEL ELTRON	STIEBEL ELTRON
Temperature controller class (in inverter heat pump)		VI	VI
Temperature controller class (in ON/OFF heat pump)		VII	VII
Contribution of temperature controller to seasonal room heating energy efficiency (in inverter heat pump)	%	4	4
Contribution of temperature controller to seasonal room heating energy efficiency (in ON/OFF heat pump)	%	3.5	3.5

14.2 Data table

		WPMW 3	WPMS 3
		232980	232981
Electrical data			
Power consumption	VA	8	8
Relay breaking capacity	A	2	2
Sensor resistance	Ω	2000	2000
Max. breaking capacity of relay output, buffer charging pumps	A	2 (1.5)	2 (1.5)
Max. breaking capacity of relay output, heating circuit pump	A	2 (1.5)	2 (1.5)
Max. breaking capacity of relay output, mixer circuit pump	A	2 (1.5)	2 (1.5)
Max. breaking capacity of relay output, DHW charging pump	A	2 (1.5)	2 (1.5)
Max. breaking capacity of relay output, DHW circulation pump	A	2 (1.5)	2 (1.5)
Max. breaking capacity of relay output, source pump	A	2 (1.5)	2 (1.5)
Max. relay output breaking capacity HS 2 contact	A	2 (1.5)	2 (1.5)
Max. breaking capacity of relay output, mixer	A	2 (1.5)	2 (1.5)
Max. breaking capacity of relay output, solar circuit pump	A	2 (1.5)	2 (1.5)
Calculation surge voltage	V	4000	4000
Max. total breaking capacity of all relay outputs	A	10 (10)	10 (10)
Power supply		1/N/PE ~ 230 V 50Hz	1/N/PE ~ 230 V 50Hz
Versions			
IP rating		IP21	IP20
Communication system		RS 232 (optical), CAN	RS 232 (optical), CAN
Number of automatic cycles		100000	100000
Level of contamination		2	2
Mode of operation		1.B	1.B
Suitable for		Wall mounting enclosure	Control panel version
Dimensions			
Height	mm	215	72
Width	mm	246	146
Depth	mm	140	96
Height of programming unit	mm	96	96
Width of programming unit	mm	145	145
Depth of programming unit	mm	31	31
Controller height	mm	215	72
Controller width	mm	246	146
Controller depth	mm	140	96
Weights			
Weight	kg	1.7	0.65

Guarantee

The guarantee conditions of our German companies do not apply to appliances acquired outside of Germany. In countries where our subsidiaries sell our products a guarantee can only be issued by those subsidiaries. Such guarantee is only granted if the subsidiary has issued its own terms of guarantee. No other guarantee will be granted.

We shall not provide any guarantee for appliances acquired in countries where we have no subsidiary to sell our products. This will not affect warranties issued by any importers.

Environment and recycling

We would ask you to help protect the environment. After use, dispose of the various materials in accordance with national regulations.

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