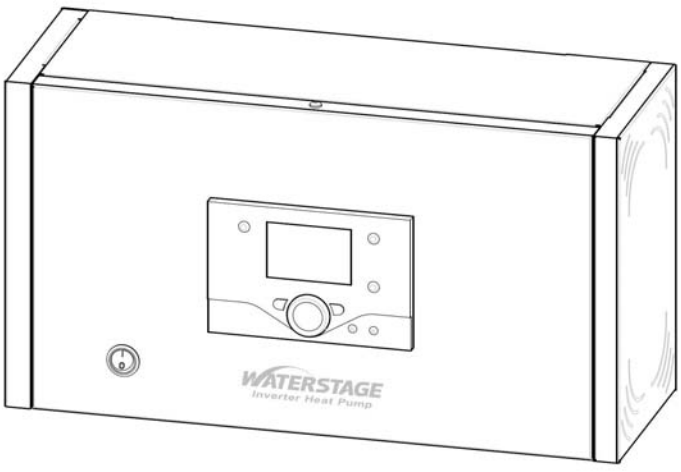
WATERSTAGE™

Air to water heat pump

Control Box Monobloc system (Single phase type)

UTW-SCB*A



Document 1399-1 ~ 21/04/2010

FR NL DE **EN** IT

Maintenance Document

Intended for professional use

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1 Installation Rules

1.1 Installation

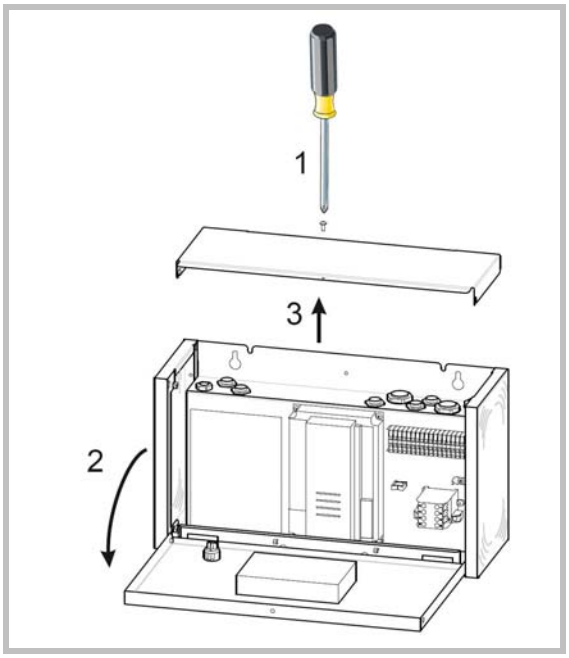


Figure 1- Access

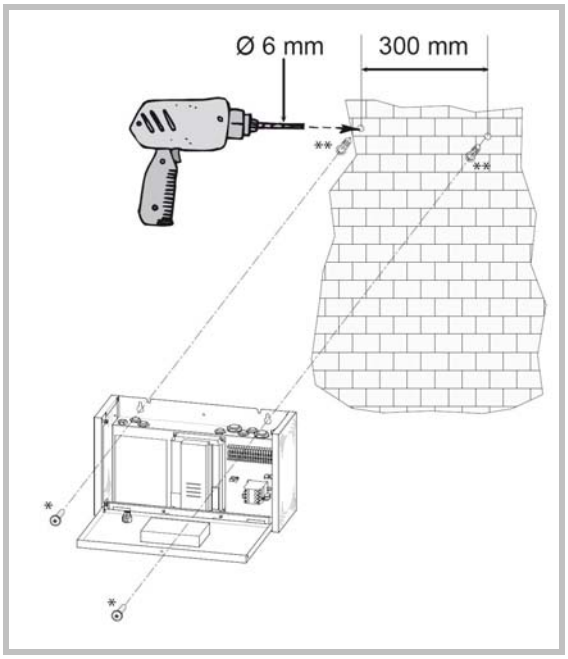


Figure 2 - Installing the box

1.1.1 Installation of the control box

Install at a place that can withstand the weight of the control box and install positively so that the box will not topple or fall.

1.1.2 Outdoor sensor

The outdoor sensor is required for the heat pump to operate correctly.
Consult the fitting instructions on the packaging.
Place the sensor on the coldest part, generally the northern or north-eastern side.
In any case, it must not be exposed to the morning sun.
It must be installed so as to be easily accessible but at least 2,5 m from the floor.
It is essential that it avoid any sources of heat such as flues, the upper parts of doors and windows, proximity to extraction vents, the underneath of balconies and under-eave areas which would isolate the sensor from variations in the outdoor air temperature.
- Connect the outdoor sensor to the M and B9 terminals on the heat pump control board.

1.1.3 Room thermostat (option)

Consult the fitting instructions on the packaging.
The sensor must be installed in the living room area on a very uncluttered wall, 1.5 m above the floor.
Avoid direct sources of heat (chimney/flue, television, cooking hobs), draughty areas (ventilation, door, etc.).
Air leaks in the seals in the constructions are often translated into cold air blowing through the electrical conduits. Lag the electrical conduits if there is a cold draught on the back of the IR sensor.
- Connect the sensor to one of the **CL+** and **CL**terminals.

1.1.4 Room control unit (option)

Consult the fitting instructions on the packaging.
The room control unit must be installed in the living area to approximately 1,5 m above the ground, a wall well clear.
Avoid direct sources of heat (chimney/flue, television, cooking hobs), draughty areas (ventilation, door, etc.).
Air leaks in the seals in the constructions are often translated into cold air blowing through the electrical conduits. Lag the electrical conduits if there is a cold draught on the back of the IR sensor.
- Connect the room control unit : terminals **CL+** on (**1**), **CL-** on (**2**) and **G+** on (**3**)

1.1.5 DHW sensor

If the installation is equipped with a DHW tank (with electric back-up).
--Place the domestic hot water sensor in the housing for the cylinder sensors.
- Connect the domestic hot water sensor to terminal BX1 and M.

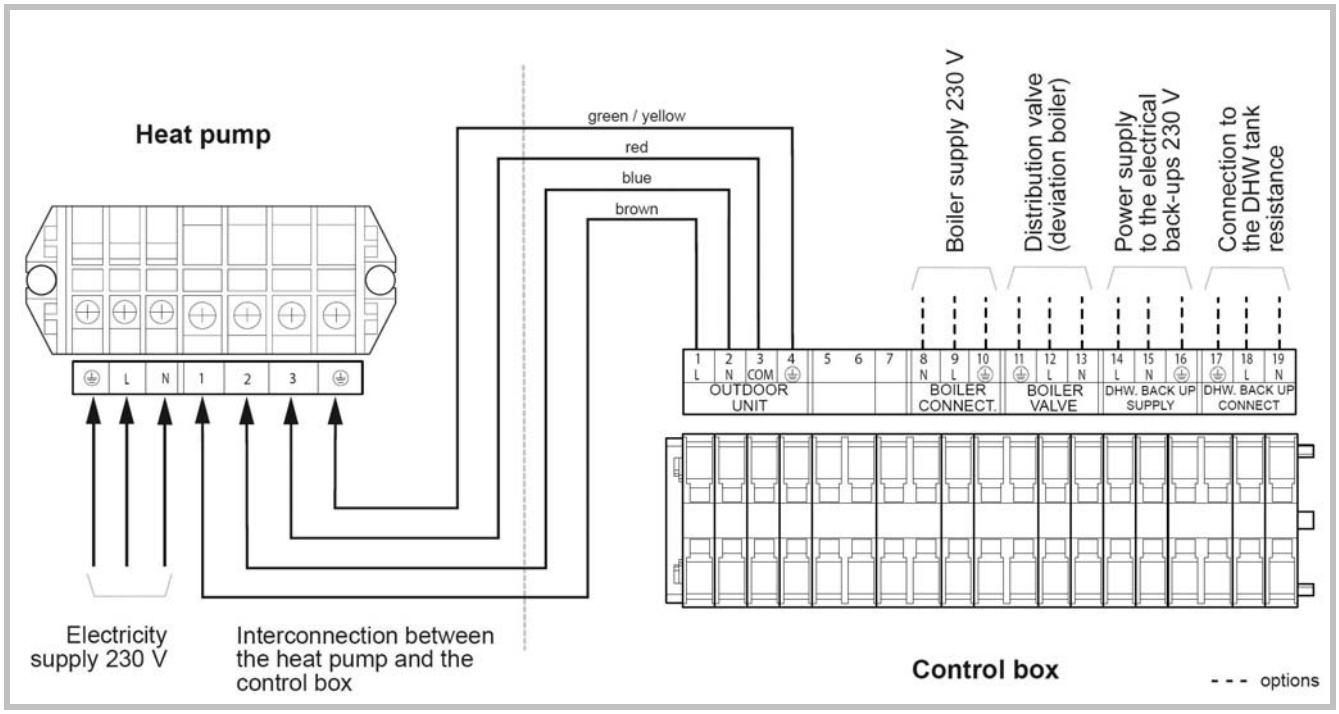


Figure 3 - Connections to terminals

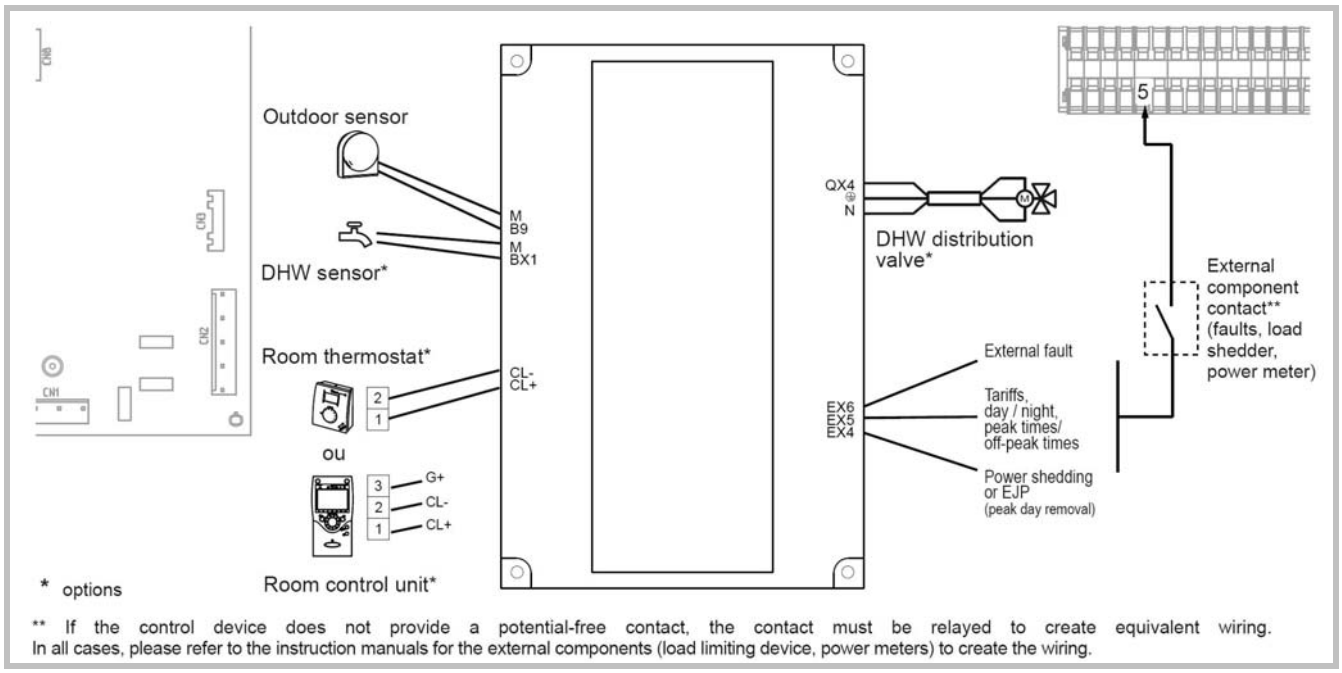


Figure 4 - Connections to regulator (accessories and options)

• Cable section for outdoor sensor, room thermostat and room control unit
For the outdoor sensor, use a 2 x 0,75 mm² cable.
For the room thermostat, use a 2 x 0,5 mm² telephone type cable.
For the room control unit, use a 3 x 0,5 mm² telephone type cable.

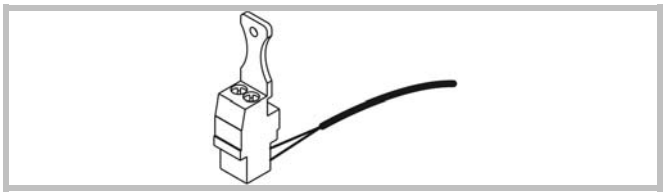
1.2 Electrical connections

The electrical installation must be conducted in accordance with the prevailing regulations.
The electrical connections must only be made when all the other fitting operations have been completed (fixing, assembly, etc.).
The heat pump must be supplied with power by special protected leads from the electric panel via 2-pole circuit breakers specially dedicated to the heat pump : Curve D.
The electrical installation must necessarily be equipped with a 30mA differential protection.

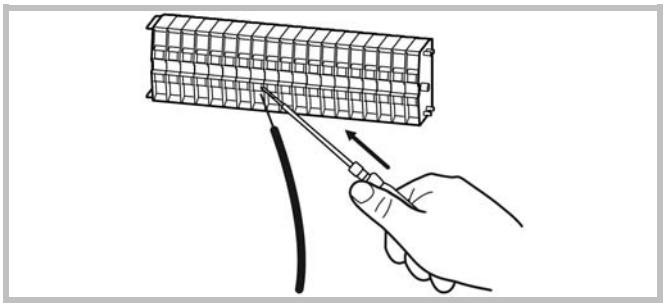
- Ensure that the general electrical power supply has been cut off before starting any repair work.
- It is essential to maintain the live-neutral polarity when making the electrical connections.
- Tighten the cables using the cable glands to prevent the conductors from disconnecting accidentally.
- Ensure that the ground wire is longer to prevent accidental disconnections.

Do not place the sensor lines and the sector supply lines in parallel in order to avoid interferences due to voltage points in the sector supply.

• Connecting to regulation cards
--Remove the corresponding connector and make the connection.



• Connecting to spring terminals :
Rigid wires
--Strip away around 10 mm from the end of the wire.
--Slide the wire into the opening provided for this purpose.
--Push the spring with a screwdriver so that the wire enters the cage.
--Remove the screwdriver and then check that the wire is jammed in the cage by pulling on it.
Flexible wires
--Use the ends and proceed as before.



1.2.1 Electrical connections on the control box side

Make the connections in accordance with the diagram Figure 3 - Connections to terminals.

- Connect the interconnection cable between terminals 1, 2, 3 and 4 (earth) of the control box and the terminals 1, 2, 3 and earth of the heat pump.

DHW tank with electrical back-up heating (option)

- Connect the distribution valve to connector QX4, eath and N.
- Connect the domestic water sensor to terminal BX1 and M.
- Conect the DHW back-up to terminals 17 (earth), 18 and 19.
- Connect the back-up electrical supply to terminals 14, 15 and 16 (earth).

Boiler connection :

- Connect the distribution valve (deviation boiler) to the termianls 11 (earth), 12 and 13.
- Connect the boiler supply to terminals 8, 9 and 10 (earth).

Floor heating system
Heated floor thermal safety fuse.

- The installer is responsible for connecting the heated floor's safety system. Thermal safety will stop the heat pump if the temperature in the floor is too high.

The heated floor's safety system must cut the electrical supply of the heat pump with a relay.

Contract with the power provider :
The heat pump's operation can be controlled to suit special contracts (e.g. off-peak, day/night).
In particular, domestic hot water (DHW) at Nominal temperature will be produced during the off-peak hours when electricity is cheaper.

- Connect the "Power Provider" contact to input EX5.
- Set the parameter (1620) to "Off-peak hours".

230V on input EX5 = "Peak hours" information activated (Basic setting / Modification possible line 5989, menu Configuration).

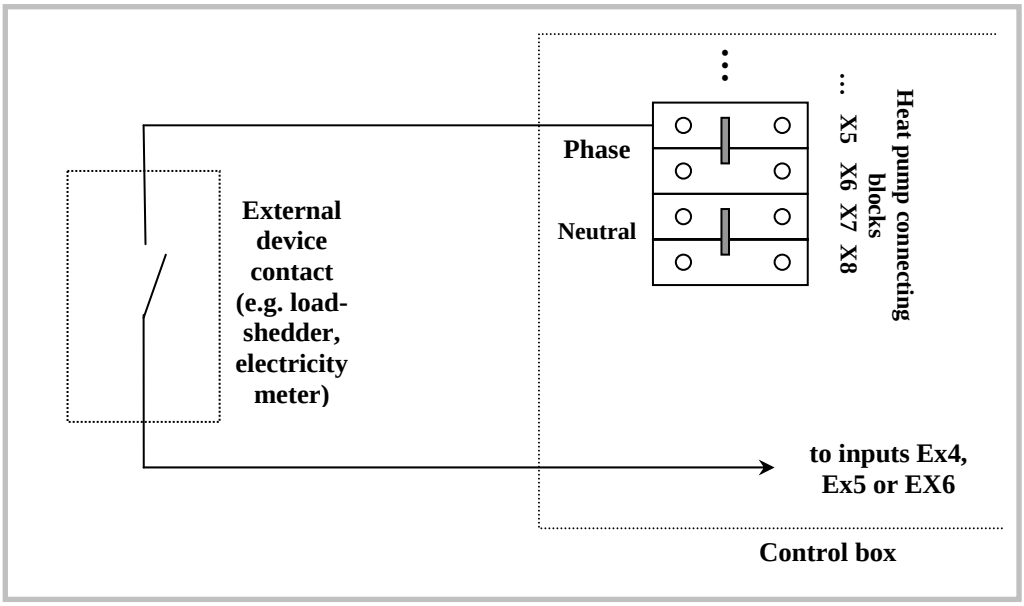
Power limitation or EJP (peak day removal) :
Power limitation is intended to reduce electrical consumption when this is too high compared to the contract with the power provider.

- Connect the power limiting device to input EX4, the back-ups for the heat pump and the DHW stop in the event of over-consumption by the dwelling.

230 V on input EX4 = power limitation in progress. (Basic setting / Modification possible line 5987, menu Configuration). (Operating line 2920)

External faults the heat pump :
Any component of carryforward of information (thermostat, pressure switch, etc.) may signal an external problem and stop the heat pump.

- Connect the external component to input EX6.
- 230 V on input EX6 = stoppage of heat pump (the system displays Error 369).



Typical Wiring of External Devices

1.3 Start up

- Ensure that the startup switch of the control box is set to **0**.
- Close the installation's main circuit breaker.

On first commissioning (or in winter), in order to allow the compressor to pre-heat, engage the installation's main circuit breaker (power supply to the heat pump) some hours before starting up the tests.

- Switch-on the startup switch of the control box (**position 1**).

To ensure that inputs EX4, EX5 and EX6 operate correctly : Check that the live-neutral polarity of the electrical supply is correct.

When the power is switched on and every time that the ON/OFF button is switched off and then switched on again, the heat pump will take approximately 4 minutes to start up, even if the setting is requesting heating.

During the regulator initialisation phase, the display shows all the symbols and then "Data, update" and then "State heat pump".

- Make all the specific adjustments to the setting (Installation configuration) :
- Press the key OK.
- Hold down the key for 3s and select the level of access used with the aid of the knob.
- Confirm with the key OK.

Parameter the heat pump's setting.

In case of error 10, the regulating system uses an average initial outdoor temperature of 0°C and requires some time to update this temperature.

To avoid this situation, the sensor must be connected correctly. Re-initialise parameter 8703 (commissioning level, consumer diagnostic menu).

1.4 Configuring room thermostat

To configure the room thermostat and connect it to the appropriate heating zone :

- Hold down the presence key for more than 3 seconds. The room thermostat displays RU and a number flashes.
- Turn the wheel to choose the zone 1.
- Hold down the presence key, the room thermostat displays P1 and a flashing number.

1 : Automatic recording: a correction of the setting with the button is adopted without any particular confirmation (timeout) or by pressing the mode key.

2 : Recording with confirmation: a correction of the setting with the button is not adopted until the mode key is pressed.

- Press the presence key again, the room thermostat displays P2 and a flashing number.

0 : OFF : all the operating elements are engaged.

1 : ON : the following operating elements are locked :

Switching over the heating circuit's operating mode

Adjusting the comfort setting

Changing the operating level

The room thermostat displays OFF for 3 seconds when a locked button is pressed.

1.5 Configuring room control unit

During commissioning, after an initialisation period of approx. 3 minutes, the user's language must be set :

- Press the key OK.
- Choose menu "Operator section".
- Choose language.
- Select the language (**English**, Deutsch, Français, Italiano, Nederlands, Español, Português, Dansk…)

2 Regulation system

2.1 Room thermostat (option)

The room thermostat gives the user access to the following basic functions:

- Adjustment of the room temperature setting by simply turning the knob
- Selection of the heating mode
- Switching to comfort temperatures by simply actuating the occupancy switch.

In addition, the room thermostat shows the user the following information:

- the current temperature
- the heating mode
- the presence of a fault, when displaying the symbol

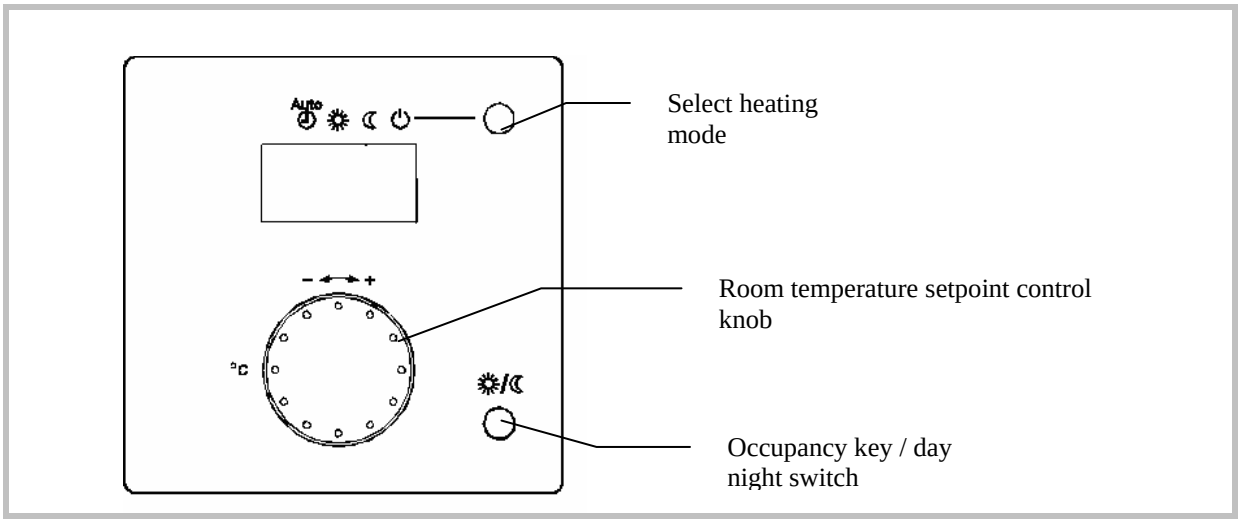


Figure 5 - Room thermostat

2.2 User interface

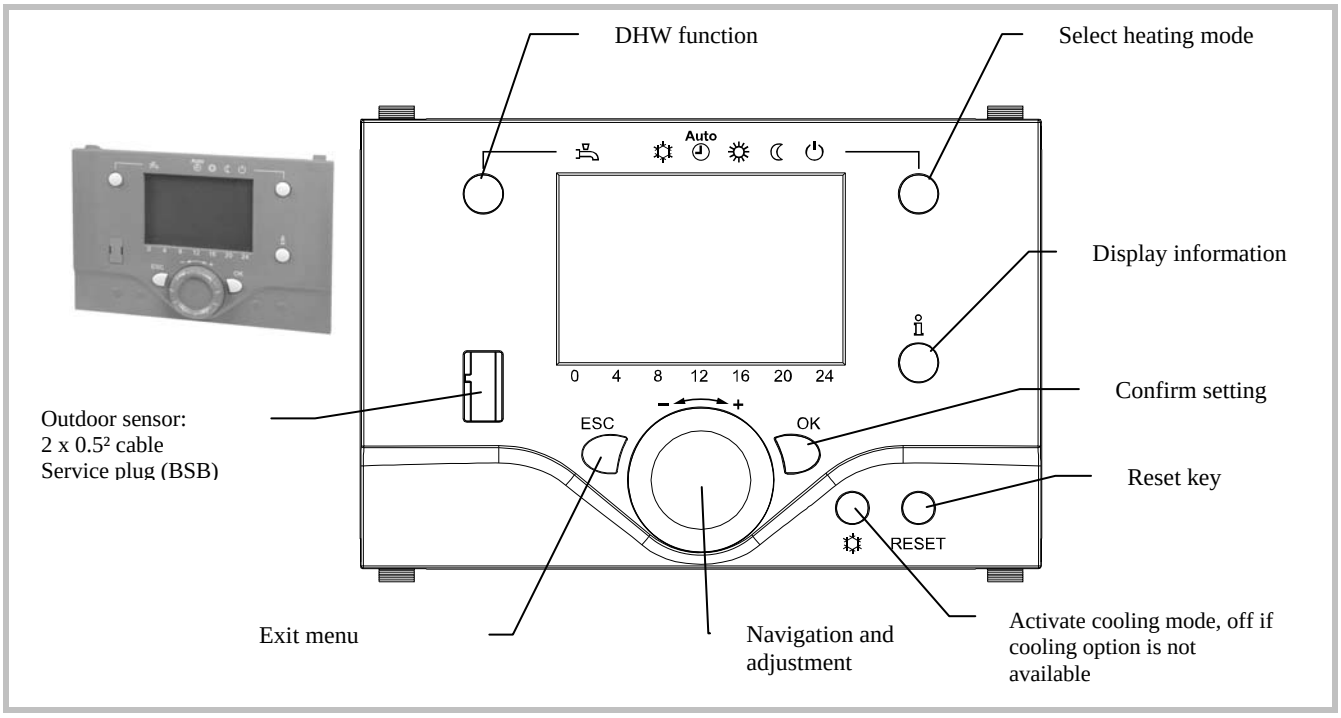
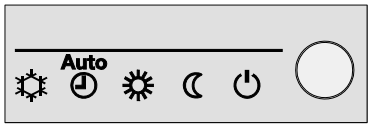


Figure 6 - User interface



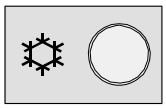
Select heating mode

Auto mode AUTO:
The temperature is controlled automatically:
- Heating mode according to time program
- Automatic summer/winter changeover

Continuous operating modes ☼ or ☾:
The temperature setpoint is maintained:
- ☼: Heating to the comfort setpoint
- ☾: Heating to the reduced setpoint

Heating with no time program, no summer/winter automatic changeover

Protection mode ⏻:
The installation is maintained at the frost protection temperature, on condition that the heat pump supply voltage is not interrupted.



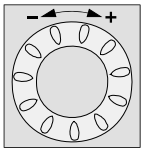
Activate cooling mode :

Cooling mode ❄
The "Cooling" mode adjusts the room temperature according to the time program.
Cooling mode properties:
- Manual cooling mode
- Cooling mode according to time program
- Temperature setpoint according to "Comfort setpoint cooling"
- Protective functions active
- Summer/winter auto changeover active
- Summer compensation

DHW Function

This key stops or allows the production of DHW and activates the "boost" mode, which allows the nominal temperature to be reached at any time, regardless of the time program. Electric auxiliaries are activated if necessary be to reach the DHW temperature setpoint. In general they are not activated for daytime boosting at the reduced temperature setpoint, as long as the temperature remains below 43°C.
On: DHW is produced according to the time program
Off ---: no DHW is produced, the frost protection function is active

To start the boost function keep the key pressed for 3 seconds. DHW production comes "on" again when the nominal setpoint has been reached.



Adjust comfort setpoint temperature

The comfort setpoint is adjusted directly by turning the knob, the value must be confirmed with the OK key.

Adjustment of the reduced setpoint will be described in detail in the "control settings" section.

Display information

The information key displays various items of information.

Error message symbol.

This symbol appears whenever there is a fault in the installation. Press the info key for details.

Symbol for maintenance or special operating mode, press the info key for details.

Reset symbol.

Keep the key pressed less than 3s for a reset: this resets all error messages. This function must not be used in normal operating conditions.

3 Getting Started

3.1 Checks

3.1.1 Heat pump

- Unit is secured to a stable surface
- Unit is raised in regions of regular snowfall
- Distances to potential obstacles or hazards are maintained
- A condensate drain line is connected
- There is enough space for maintenance around the unit
- There is free access to the unit
- There are no leaks

3.1.2 Hydraulic System

- Check the conformity of connections
- The use of flexible connections is recommended
- The system must be flushed
- Check the expansion vessel pre-charging (1 bar)
- Check the system's pressure and purge
- Check that the pump(s) is/are not locked

3.1.3 Electrical System

- Check the conformity of connections to local standards
- Check that the lines are protected (two C curve circuit breakers for "heat pump" and "auxiliaries", lines must be separate)
- Differential protection is required (up to 300 mA).
- Check that connections are properly tightened (flexible wire tips)
- Check the main power supply voltage and make sure the polarity is correct
- Find out what type of contract has been subscribed with the power company (load shedding)

3.2 Settings

Depending on their associated functions, the control settings are not accessed at the same level. There are 4 levels of access:

U: end-user level
I: commissioning level (installer start-up)
S: engineer level (specialist)
C: OEM level (manufacturer)

To get to the level of access desired:

- Press OK: you are now on the main menu
- Press the info key for 3s (pressing continuously)
- To select the desired level, turn the control knob
- Press OK to confirm: this takes you back to the main menu, with the rights associated to that level. If you exit the main menu by returning to the main page, the access level goes back to U (end-user level)

To adjust the various settings:

- From the main menu, after obtaining the desired level
- turn the control knob to scroll the menu
- When the desired menu appears, press OK to confirm
- Turn the control knob to adjust the setting
- Press OK to confirm the setting

If not setting has been made for 8 minutes, the screen automatically returns to the basic display.

3.3 Operating Modes

Heat pumps are controlled according to the heating curve principle, i.e., the setpoint temperature of the heating circuit water is adjusted as a function of the outdoor temperature.
In heating mode, the choice of the heating curve best suited to the machine's operating conditions can be made automatically by the machine (auto-adapt) or adjusted manually by the installation technician (Settings 720, 721 and 726).

3.3.1 Manual Adjustment

During installation the heating curve must be defined according to the emitters and the home's insulation.

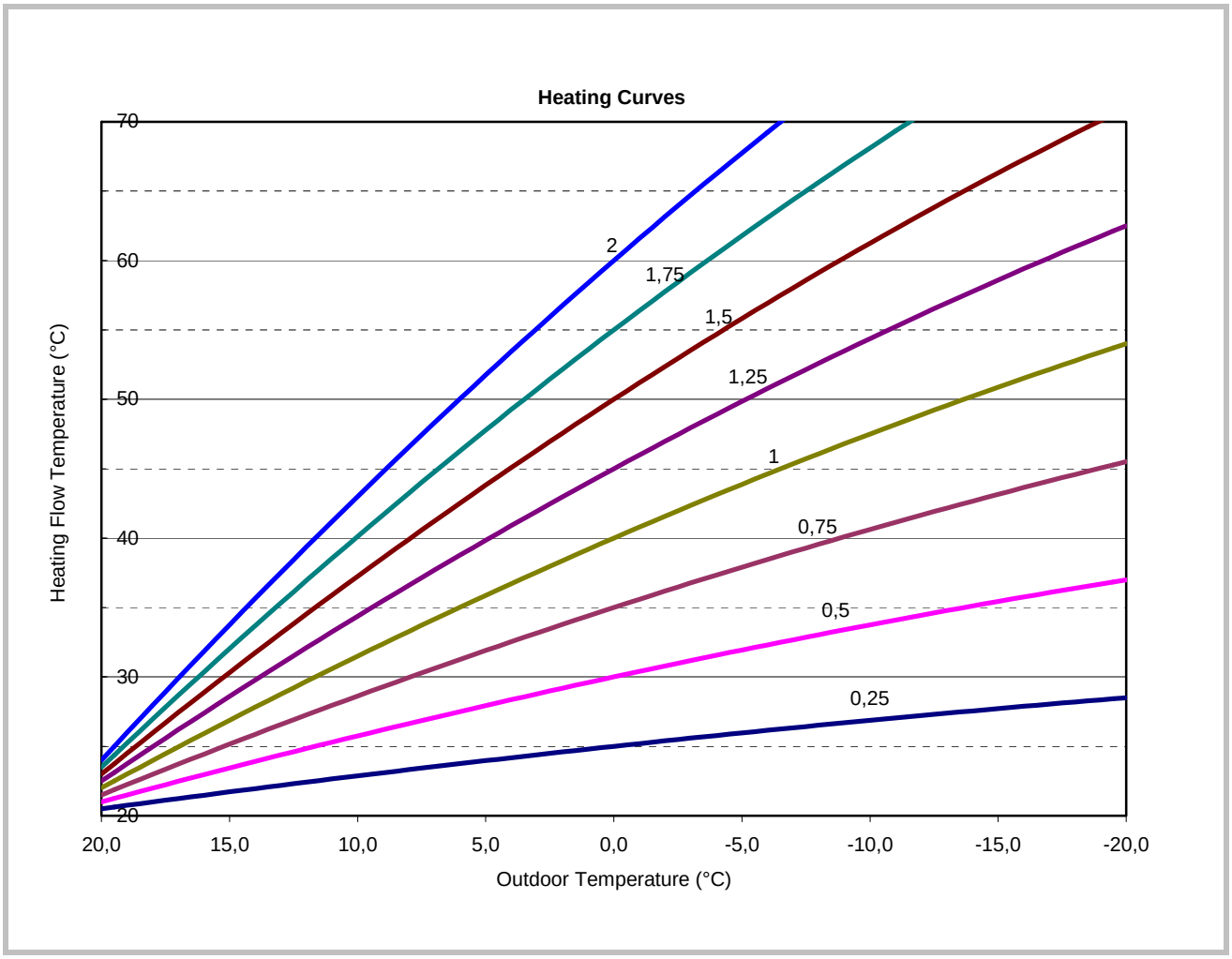


Figure 7 - Heating curves

The heating curves shown above refer to a 20°C room temperature setpoint.
The heating curve slope (setting 720) determines the impact of outdoor temperature variations on heating flow temperature variations. The steeper the slope, the higher will be the increase in the heating circuit water flow temperature which occurs when the outdoor temperature increases slightly.

The heating curve offset (setting 721) changes the flow temperature of all curves, without the slope being modified.

The corrective actions in case of discomfort are listed in the following table:

Feeling of discomfort		**Corrective action**	
By mild weather	**By cold weather**	**Heating curve slope**	**Offset**
Too cold	Too warm	Decrease	Increase
Too cold	OK	Decrease	Increase
Too cold	Too cold	OK	Increase
OK	Too warm	Decrease	OK
OK	OK	OK	OK
OK	Too cold	Increase	OK
Too warm	Too warm	OK	Decrease
Too warm	OK	Increase	Decrease
Too warm	Too cold	Increase	Decrease

3.3.2 Auto Adapt Adjustment

When this function has been activated (setting 726) the heating curve is automatically adjusted, and therefore, there is no need to change the slope or offset of the heating curve.
In order for the auto adapt feature to be operational:

- a room sensor must be connected
- the room influence parameter must be set between 1 and 99 (setting 750) (depending on the system, the room sensor may influence the heating curve adjustment to a greater or lesser extent)
- the room in which the room sensor is installed must not contain any thermostatic valves. If it does, these valves must be fully opened.

This function may cause some feeling of discomfort. This is because in order for the function to be valid, the system needs time to stabilize, which can take more or less time depending on the weather conditions. In general it takes at least a week, without the room temperature setpoint being changed, for the auto-adaptive control to be operational.

3.4 Control of Electric Backups

	H 3 Heat pump Fault **(370)**	**EX 4** Load-shedding (EJP)			**EX 5** Off-peak/peak hours		**EX 6** External fault (**369**)	
		0 V	**230 V "released"**	**230 V "locked"**	**0 V**	**230 V**	**0 V**	**230 V**
EJP lock signal (I 2920)								
HEAT PUMP	OFF	ON	ON	OFF	ON	ON	ON	OFF
DHW auxiliary	ON (1)	ON	OFF	OFF	ON	OFF	ON	OFF
1st stage elec. auxiliary	ON (2)	ON	OFF	OFF	ON	ON	ON	OFF
2nd stage elec. auxiliary	ON (2)	ON	OFF	OFF	ON	ON	ON	OFF
Boiler backup	ON (2)	ON	ON	ON	ON	ON	ON	OFF

*(1) subject to authorization by **EX5***
*(2) provided the outdoor temperature is less than the setting on "**2884** or **3700**" (+2° from the beginning)*

3.5 Domestic Hot Water

The heat pump may be connected to a combined heating device (heat exhanger + electric auxiliaries) for domestic hot water.
DHW handling requires a DHW kit. This kit includes a 3-way selection valve and a temperature sensor.

Warning: the maximum DHW temperature reached with the heat pump does not exceed 55°C. Therefore, the tank must be equipped with an electric auxiliary, especially for legionella protection cycles.

3.5.1 Principle of Operation

DHW production starts when the temperature inside the tank is 7°C less than the setpoint temperature. The setpoint can be either a "reduced" or a "nominal" setpoint, depending on time program 4. During the programmed time periods it is the nominal setpoint which is active, and outside of these periods it is the reduced setpoint which is active. Thus, to avoid accidental DHW charge boosting outside of the nominal time periods, we recommend having a reduced setpoint as low as possible in order to avoid the starting of DHW production outside the programmed time period.

- $T_{reduced}$: the temperature outside the time period. This DHW temperature can be reached with the heat pump alone. This requires that the temperature does not exceed 35°C.
- $T_{nominal}$: the temperature within time period 4, which is approached first with the heat pump then with the electric auxiliaries or the boiler backup (if necessary). Both of these temperatures are adjustable (settings 1610 and 1612).

If the installation's power supply contract includes a Peak/Off-Peak rate subscription, the heaters will be controlled by the power rates and $T_{nominal}$ will be reached only during Off-Peak Hours. This requires that input EX5 is wired as shown on “Typical Wiring of External Devices”.
If no special power supply contract has been subscribed to, or if the DHW input is not wired, $T_{nominal}$ will be reached according to time program 4 / DHW. The $T_{nominal}$ temperature can thus be reached at any time, including during the day.
During the day, DHW has priority over heating, however, DHW production is controlled by cycles which regulate the times allocated to heating and to DHW production in case of simultaneous demands.

A DHW boost function is available on the user interface front panel. This DHW boost enables the DHW to be heated up to $T_{nominal}$ at any time during the day. The boost function is automatically cancelled after a given time (which can be configured). The boost function can be used only if DHW programming has been performed. If the DHW is in nominal mode (nominal T) the boost function is obviously inoperative.
Legionella protection cycles can be programmed.

3.6 Test Mode

3.6.1 Sensor and Input Test Mode

LINE	SENSOR	INPUT	WATERSTAGE
7730	B9		Outdoor temperature
7820	BX1		DHW temperature
7823	BX4		Heat pump flow temperature
7824	BX5		Heat pump return temperature
7830	BX21 (1)		
7831	BX22 (1)		
7832	BX21 (2)		Swimming pool return temperature
7833	BX22 (2)		
7841		H1	defrost information
7846		H2	swimming pool operation (*1)
7855		H3	Heat pump fault (370)
7914		EX4	Auxiliary load-shedding (EJP)
7915		EX5	Peak/Off-peak rates
7916		EX6	External fault (369)

(*1) Parameter setting is required; see "Input H2 function" in para 5.3.10

3.6.2 Output Test Mode

LINE	OUTPUT	WATERSTAGE
7700	QX23 (1)	
	QX21 (1)	
	QX22 (1)	
	QX1	
	QX2	DHW heating circulation pump (if connected)
	QX3	Heating circuit 1 circulation pump
	QX4	DHW selection valve
	QX5	Boiler selection valve (or heater 1)
	QX6	Boiler (or heater 2)
	QX23 (2)	Swimming pool selection valve
	QX21 (2)	
	QX22 (2)	
	QX7	DHW electrical auxiliary
7710	UX	Output test UX %
7711	UX	Voltage signal UX
7721	DO 1	Heating (or cooling) mode
7722	DO 2	Outdoor unit operation

4 Troubleshootings

Depending on whether the fault comes from the hydraulic circuit or heat pump, the fault may be indicated by the digital display or the diode on the heat pump.

4.1 Faults displayed on the control box

Faults or breakdowns on the hydraulic circuit are indicated by the display on the user interface of the control box.

The display shows the "Bell" symbol.

Press the Info key for more details on the origin of the fault.
When the error has been resolved, the faults are re-initialised at zero automatically.

Control box : Fault visible on the digital display

Error number	Error contents	Error location	Heat pump operation despite the error
-	No connection.	Failure to comply with room thermostat's polarity.	No
10	Outdoor sensor.	B9	Yes with OT = 0 °C
33	Heat pump flow temperature sensor error.	B21	Yes
44	Heat pump return temperature sensor error.	B71	Yes
50	DHW temperature sensor.	B3	Yes
60	Ambient temperature sensor 1.		Yes
105	Maintenance message.		Yes
121	Flow temperature for (HC1) not reached.		Yes
127	Anti-legionella temperature not reached.		Yes
369	External fault (safety component).		No
370	Heat pump error (Refer to the service manual of the heat pump).		No

4.2 Information display

Various data can be displayed by pressing the info button.
Depending on the type of unit, configuration and operating state, some of the info lines listed below may not appear.
- Possible error messages from the error code list.
- Possible service messages from the maintenance code list.
- Possible special mode messages.
- Various data (see below).

Designation	Line
Floor drying current setpoint.	-
Current drying day.	-
Terminated drying days.	-
State heat pump.	8006
State supplementary source.	8022
State DHW.	8003
State swimming pool.	8011
State heating circuit 1.	8000
State cooling circuit 1.	8004
Outdoor temperature.	8700
Room temperature 1. Room setpoint 1.	8740
Flow temperature 1. Flow temperature setpoint1.	8743
DHW (domestic hot water) temperature.	8830
Heat pump return temperature. Setpoint (return) HP.	8410
Heat pump flow temperature. Setpoint (flow) HP.	8412
Swimming pool temperature. Swimming pool temperature setpoint.	8900

4.1 Sensor Values

4.1.1 Heat pump Temperature Sensors

Defrost, outdoor, suction, outgoing and return circulating water

Temperature (°C)	0	5	10	15	20	25	30	35	40
Resistance value (kΩ)	31	24	19	15	12	10	8	6.7	5.5

Temperature (°C)	45	50	55
Resistance value (kΩ)	4.6	3.8	3.2

Discharge

Temperature (°C)	10	20	35	40	50	80
Resistance value (kΩ)	1000	600	300	250	160	50

5 Control Settings

5.1 General

The settings described below are those which can be modified by the user.
We wish to remind you that changing the settings below may cause the heat pump to behave in an undesirable way. A testing period should be conducted before the permanent settings of the heat pump are confirmed. This may require a number of changes to be made by the installer.

There are 4 access levels:

U: end-user level
I: commissioning level (installer start-up)
S: engineer level (specialist)
C: OEM level (manufacturer) (not available)

5.2 Function Table

COMMAND LINE	ACCESS LEVEL	FUNCTION	SETTING RANGE	FACTORY SETTING
		Time of day and date		
1	U	Hour/minutes	00:00…23:59	
2	U	Day/month	01.01…31.12	
3	U	Year	1900…2099	
5	S	Start of summertime	01.01…31.12	25.03
6	S	End of summertime	01.01…31.12	25.10
		Operator section		
20	U	Language		English
22	S	Info	Temporarily / Permanent	Temporarily
26	S	Operation lock	Off/on	Off
27	S	Programming lock	Off/on	Off
28	I	Direct adjustment	Auto/confirm	Confirm
46	I	Operation HCP	Commonly with HC1	
54	I	Readjustment room sensor		
70	S	Software version		
		Time prog heating circuit 1		
500	U	Preselection	Mon-Sun ¦ Mon-Fri ¦ Sat - Sun ¦ Mon ¦ Tue ¦ Wed ¦Thu ¦ Fri ¦ Sat ¦Sun	Mon-Sun
501	U	1st phase on	00:00…--:--	6:00
502	U	1st phase off	00:00…--:--	22:00
503	U	2nd phase on	00:00…--:--	--:--
504	U	2nd phase off	00:00…--:--	--:--
505	U	3rd phase on	00:00…--:--	--:--
506	U	3rd phase off	00:00…--:--	--:--
516	U	Default values	No/yes	No
		Time program 4 / DHW		
560	U	Preselection	Mon-Sun ¦ Mon-Fri ¦ Sat - Sun ¦ Mon ¦ Tue ¦ Wed ¦Thu ¦ Fri ¦ Sat ¦Sun	Mon-Sun
561	U	1st phase on	00:00…--:--	00:00
562	U	1st phase off	00:00…--:--	05:00
563	U	2nd phase on	00:00…--:--	--:--
564	U	2nd phase off	00:00…--:--	--:--
565	U	3rd phase on	00:00…--:--	--:--
566	U	3rd phase off	00:00…--:--	--:--
576	U	Default values	No/yes	No
		Time program 5 / Cooling circuit		
600	U	Preselection	Mon-Sun ¦ Mon-Fri ¦ Sat - Sun ¦ Mon ¦ Tue ¦ Wed ¦Thu ¦ Fri ¦ Sat ¦Sun	Mon-Sun
601	U	1st phase on	00:00…--:--	8:00
602	U	1st phase off	00:00…--:--	20:00
603	U	2nd phase on	00:00…--:--	--:--
604	U	2nd phase off	00:00…--:--	--:--
605	U	3rd phase on	00:00…--:--	--:--
606	U	3rd phase off	00:00…--:--	--:--
616	U	Default values	No/yes	No
		Holidays heating circuit 1		
641	U	Preselection	Period 1…8	Period 1
642	U	Start	01.01…31.12	
643	U	End	01.01…31.12	
648	U	Operating level	Frost protection ¦ Reduced	Frost protection
		Heating circuit 1		
710	U	Comfort heating setpoint	Reduced temp to 35°C	20°C

COMMAND LINE	ACCESS LEVEL	FUNCTION	SETTING RANGE	FACTORY SETTING
712	U	Reduced setpoint		18°C
714	U	Frost protection setpoint	4°C to Reduced temp	8°C
716	S	Comfort setpoint max	20°C…35°C	28°C
720	I	Heating curve slope	0,1…4	0,5
721	I	Heating curve displacement	-4,5°C…4,5°C	0°C
726	I	Heating curve adaptation	Off, on	Off
730	I	Summer/winter heating limit	8°C…30°C	18°C
732	S	24-Hour heating limit	-10°C…10°C	-3°C
740	S	Flow temp setpoint min (for fan convectors)	8°C… 95°C	8°C
741	S	Flow temp setpoint max	8°C… 95°C	55°C
		Floor heating system = 55 °C / Higher temperature radiator = 65 °C		
750	S	Room influence	1%...100%	20%
790	S	Optimum start control max	0…360min	120 min
791	S	Optimum stop control max	0…360min	120 min
800	S	Reduced setpoint increase start	---/-5~10°C	---
801	S	Reduced setpoint increase end	-30°C…10°C	-5°C
830	S	Mixing valve boost	0…50°C	0
834	S	Actuator running time	30…873s	240s
850	I	Floor curing function	0…5	Off
851	I	Floor curing setpoint manually	0°C…95°C	25°C
856	I	Floor curing day current	0…32	
857	I	Floor curing days completed	0…32	
900	S	Optg mode changeover		Protection mode
		Cooling circuit 1		
901	U	Operating mode	Off … automatic	Off
902	U	Comfort cooling setpoint	17…40	24°C
907	U	Release	24h/day Heating circuit time pgm Time program 5	Time program 5
908	I	Flow temp setp at OT 25°C	6…35°C	20°C
909	I	Flow temp setp at OT 35°C	6…35°C	16°C
912	I	Cooling limit at OT	8…35°C	24°C
913	S	Lock time after end of heating	8…100h	24h
918	S	Summer comp start at OT	20…50°C	26°C
919	S	Summer comp end at OT	20…50°C	40°C
920	S	Summer comp setp increase	1…10°C	4°C
923	S	Flow temp setp min at OT 25°C	6…35°C	18°C
924	S	Flow temp setp min at OT 35°C	6…35°C	18°C
928	S	Room influence	1…100%	80%
932	S	Room temperature limitation	0,5…4°C	0,5°C
938	S	Mixing valve decrease	0…20°C	0°C
941	S	Actuator running time	30…873s	240s
945	S	Mixing valve in heating mode	Control Open	Control
946	S	Lock time dewpoint limiter	10…600min	60min
947	S	Flow temp setp incr hygro	1…20°C	10°C
948	S	Flow setp incr start at r.h.	0…100%	60%
950	S	Flow temp diff. dewpoint	0…5°C	2°C
963	S	With prim contr/system pump	No Yes	No
969	S	Optg mode changeover	None ; Off ; Automatic	Off
		Domestic hot water		
1610	U	Nominal setpoint	Thc…65°C	50°C
1612	U	Reduced setpoint	8°C….Thc	25°C

COMMAND LINE	ACCESS LEVEL	FUNCTION	SETTING RANGE	FACTORY SETTING
1620	I	Release	24h/day Heating circ time pgms Time program 4/DHW Off-peak rate 4: Time pgm 4/DHW or Off-peak rate	Time program 4/DHW
1640	I	Legionella function	Off Periodic Fixed day in week	Off
1641	I	Legionella funct periodically	1 to 7	7
1642	I	Legionella funct weekday	Mon,…Sun	Saturday
1644	I	Legionella funct time	00:00…23:50	--:--
1645	I	Legionella funct setpoint	55°C…95°C	65°C
1646	I	Legionella funct duration	10min…360min	30
1647	I	Legionella funct circ pump	On/off	On
1660	I	Circulation pump release	Time program 3/HCP DHW release Time program 4/DHW	DHW release
		Swimming pool		
2056	U	Setpoint source heating	8…80	22
		Heat pump		
2844	S	Switch-off temp max Floor heating system = 55 °C / Higher temperature radiator = 65 °C	8°C… 100°C	55°C
2882	S	Release integr electric flow	0… 500°Cmin	100°Cmin
2884	S	Release el flow at OT	-30°C…30°C	2°C
2910	S	Release above OT	---/-30°C…30°C	---
2920	S	With electrical utility dock	Lock/release	Released
		Supplementary source		
3700	S	Release below outside temp	-50…50°C	2°C
3705	S	Overrun time	0...120min	20
3720	S	Switching integral	0… 500°Cmin	100°Cmin
		DHW storage tank		
5020	S	Flow setpoint boost	0…30°C	5°C
5024	S	Switching differential	0…20°C	7°C
5030	S	Charging time limitation	10…600min	90 min
5060	S	El imm heater optg mode	Substitution Summer Always Cooling mode	Substitution
5061	S	Electric immersion heater release	24h/day DHW release Time program 4/DHW	DHW release
		Configuration		
5700	I	Preselection	1 to 12	1
5711	S	Cooling circuit 1	Off 4-pipe system 2-pipe system	Off
5870	S	Combi storage tank	No/yes	No
5987	S	Cont type input EX4	Normally-closed contact (NC) Normally-opened contact (NO)	NO
5989	S	Cont type input EX5	Normally-closed contact (NC) Normally-opened contact (NO)	NC
6046	I	Function Input H2	HC+DHW op mode change HC op mode change HC1 op mode change Error/alarm msg Dewpoint monitoring Pool release	Dewpoint monitoring
6047	I	Contact type H2	Normally closed Normally open	Normally open
6048	S	Function value Contact H2	0…130°C	45°C
6100	S	Readjustm outside sensor	-3…3°C	0°C
6120	S	Frost protection for the plant	On/off	On
6205	S	Reset to default parameters	No/yes	No

COMMAND LINE	ACCESS LEVEL	FUNCTION	SETTING RANGE	FACTORY SETTING
6220	S	Software version	0…99	0
		Errors		
6711	U	Reset HP	No/yes	No
6740	S	Flow temp 1 alarm	10…240min	---
6741	S	Flow temp 2 alarm	10…240min	---
6745	S	DHW charging alarm	1…48h	---
6746	S	Flow temp cooling 1 alarm	10…240min	---
6800	S	History 1	Date/time/code	
6802	S	History 2	Date/time/code	
6804	S	History 3	Date/time/code	
6806	S	History 4	Date/time/code	
6808	S	History 5	Date/time/code	
6810	S	History 6	Date/time/code	
6812	S	History 7	Date/time/code	
6814	S	History 8	Date/time/code	
6816	S	History 9	Date/time/code	
6818	S	History 10	Date/time/code	
		Service / special operation		
7070	S	HP interval	1..240 months	---
7071	S	HP time since maint	0..240 months	0
7072	S	Max starts compr1/hrs run	0,1…12	---
7073	S	Cur starts compr1/hrs run	0…12	0
7076	S	Diff condens max/week	1…250	---
7077	S	Cur diff condens max/week	0…250	0
7078	S	Diff condens min/week	1…250	---
7079	S	Cur diff condens min/week	0…250	0
7090	S	DHW storage tank interval	1…240	---
7091	S	DHW stor tank since maint	0…240	0
7141	U	Emergency operation	On/off	Off
7142	S	Emergency operation function type	Manual/auto	Manual
7150	I	Simulation outside temp	-50…50°C	---
7181	I	Phone no. responsibility 1	0…255	
7183	I	Phone no. responsibility 2	0…255	
		Input / output test		
7700	I	Relay test	No test All OFF Relay output QX23 module 1 Relay output QX21 module 1 Relay output QX22 module 1 Relay output QX1 Relay output QX2 Relay output QX3 Relay output QX4 Relay output QX5 Relay output QX6 Relay output QX23 module 2 Relay output QX21 module 2 Relay output QX22 module 2 Relay output QX7	No test
7710	I	Output test UX	0…100%	---%
7711	I	Voltage signal UX	0…10volt	0 volt
7720	I	Digital output test	No test All OFF Digital output DO1 Digital output DO2	No test
7721	I	Digital output DO1	Cooling mode Heating mode	Heating mode
7722	I	Digital output DO2	On/off	Off
7730	I	Outside temp B9	-50…50°C	0°C
7820	I	Sensor temp BX1	-28…350°C	0°C
7823	I	Sensor temp BX4	-28…350°C	0°C
7824	I	Sensor temp BX5	-28…350°C	0°C
7830	I	Sensor temp BX21 module 1	-28…350°C	0°C

COMMAND LINE	ACCESS LEVEL	FUNCTION	SETTING RANGE	FACTORY SETTING
7831	I	Sensor temp BX22 module 1	-28…350°C	0°C
7832	I	Sensor temp BX21 module 2	-28…350°C	0°C
7833	I	Sensor temp BX22 module 2	-28…350°C	0°C
7841	I	Contact state H1	Open/closed	Open
7846	I	Contact state H2	Open/closed	Open
7855	I	Contact state H3	Open/closed	Open
7914	I	Input Ex4	0/230V	0
7915	I	Input Ex5	0/230V	0
7916	I	Input Ex6	0/230V	0
		State of plant		
8000	I	State heating circuit 1		0
8003	I	State DHW		0
8004	I	State cooling circuit 1		0
8006	I	State heat pump		0
8011	I	State swimming pool		0
8022	I	State supplementary source		0
8050	I	History 1	Date/time/code	
8052	I	History 2	Date/time/code	
8054	I	History 3	Date/time/code	
8056	I	History 4	Date/time/code	
8058	I	History 5	Date/time/code	
8060	I	History 6	Date/time/code	
8062	I	History 7	Date/time/code	
8064	I	History 8	Date/time/code	
8066	I	History 9	Date/time/code	
8068	I	History 10	Date/time/code	
		Diagnostics heat source		
8402	I	El imm heater 1 flow	Off/on	Off
8403	I	El imm heater 2 flow	Off/on	Off
8406	I	Condenser pump	Off/on	Off
8410	U	Return temp HP	0…140°C	0°C
8412	U	Flow temp HP	0…140°C	0°C
8413	U	Compressor modulation	0…100%	0%
8425	I	Temp diff condenser	-50…140°C	0°C
8454	S	Locking time HP	0…2730h	00:00:00
8455	S	Counter number of locks HP	0…65535	0
8456	S	Hours run el flow	0…2730h	00:00:00
8457	S	Start counter el flow	0…65535	0
		Diagnostics consumers		
8700	U	Outside temperature	-50…50°C	0°C
8701	U	Outside temp min	-50…50°C	50°C
8702	U	Outside temp max	-50…50°C	-50°C
8703	I	Outside temp attenuated	-50…50°C	0°C
8704	I	Outside temperature composite	-50…50°C	0°C
8730	I	heating circuit pump 1	Off/on	0
8731	I	Heating circ mix valve 1 open	Off/on	0
8732	I	Heat circ mix valve I close	Off/on	0
8740	U	Room temp 1	0…50°C	20°C
8743	U	Flow temp 1	0…140°C	50°C
8756	U	Flow temperature cooling 1	0…140°C	0°C
8820	I	DHW pump	Off/on	0
8821	I	Electric immersion heater DHW	Off/on	0
8830	U	DHW temp 1	0…140°C	0°C
8840	S	Hours run DHW pump	0…2730h	00:00:00
8841	S	Start counter DHW pump	0…2730h	0
8842	S	Hours run el DHW	0…2730h	00:00:00
8843	S	Start counter el DHW	0…65535	0

COMMAND LINE	ACCESS LEVEL	FUNCTION	SETTING RANGE	FACTORY SETTING
8900	U	Swimming pool temp	0…140°C	0°C
8950	I	Common flow temp	0…140°C	0°C
8957	I	Common flow setp refrig	0…140°C	0°C
9031	I	Relay output QX1	Off/on	0
9032	I	Relay output QX2	Off/on	0
9033	I	Relay output QX3	Off/on	0
9034	I	Relay output QX4	Off/on	0
9035	I	Relay output QX5	Off/on	0
9036	I	Relay output QX6	Off/on	0
9037	I	Relay output QX7	Off/on	0
9050	I	Relay output QX21 module 1	Off/on	0
9051	I	Relay output QX22 module 1	Off/on	0
9052	I	Relay output QX23 module 1	Off/on	0
9053	I	Relay output QX21 module 2	Off/on	0
9054	I	Relay output QX22 module 2	Off/on	0
9055	I	Relay output QX23 module 2	Off/on	0

5.3 Adjustment Function Details

5.3.1 Date and Time Functions

The controller has an annual clock which contains the time, the day of the week and the date.

In order for the function to operate, the time and date must be set properly on the clock.

LINE NO.	PROGRAMMING LINE
1	Hour/minutes
2	Day/month
3	Year
5	Start of summertime
6	End of summertime

NOTE: Summer time/winter time change
Dates have been set for changing to summer time or to winter time. The time changes automatically from 2am (winter time) to 3am (summer time) or from 3am (summer time) to 2am (winter time) on the first Sunday following the respective date.

5.3.2 User Interface Functions

LINE NO.	PROGRAMMING LINE
20	Language
22	Info
26	Operation lock
27	Programming lock
28	Direct adjustment

Info (22):

- **Temporary**:

After pressing the Info key, the information display returns to the basic "predefined" display after 8 minutes or when pressing the operating mode key.

- **Permanent**:

After pressing the Info key, the information display returns to the "new" standard display after a maximum of 8 minutes. The last selected information value is shown in the new basic display.

Operation lock (26):

If the operating lock is activated, the following control elements can no longer be adjusted:
Heating circuit mode, DHW mode, room temp comfort setpoint (knob), occupancy key.

Programming lock (27):

If the programming lock is activated, the setting values are displayed but may no longer be changed.

- **Temporary Suspension of Programming**

The programming lock can be temporarily deactivated at programming level. To do this, simultaneously press the OK and ESC keys for at least 3 seconds. The temporary suspension of the programming lock remains in effect until you exit the programming.

- **Permanent Suspension of Programming**

First perform a temporary suspension, then cancel "Programming lock" on line 27.

Direct adjustment (28):

- **Automatic Save**

Correction of the setpoint with the knob is adopted without a particular confirmation (timeout) or by pressing the OK key.

- **Confirm save**

Correction of the setpoint with the knob will be adopted only after pressing the OK key.

Heating Circuit Assignment

LINE NO.	PROGRAMMING LINE
46	Operation HCP
54	Readjustment room sensor
70	Software version

Operation HCP

The control action (operating mode key or knob) can be defined either on room unit 1, on the user interface, or on the operating unit for heating circuit P.

- **Commonly with HC1**

The control for heating circuit is shared.

- **Independently**

Changes in the operating mode or adjustment of the nominal temperature setpoint must be made in the programming.

Readjustment room sensor

The room sensor indication can be corrected.

Software version

The indication shows the current version of the user interface.

5.3.3 Time Program Functions (heating circuit, DHW, cooling)

Several control programs are available for the heating circuit and the production of DHW. They are initiated in "Automatic" mode and control the change in temperature levels (and therefore the associated setpoints, reduced and comfort) via the adjusted changeover times.

Enter changeover times:

Changeover times can be adjusted in a combined way, i.e., identical times for several days or distinct times for certain days. Preselecting groups of days (e.g., Mon...Fri and Sat...Sun) having the same changeover times makes adjustment of the changeover program considerably shorter.

Changeover Points

Line no.			Programming line
HC1	4/DHW	5	
500	560	600	Preselection *(Mon-Sun / Mon-Fri / Sat – Sun / Mon...Sun)*
501	561	601	1st phase On
502	562	602	1st phase Off
503	563	603	2nd phase On
504	564	604	2nd phase Off
505	565	605	3rd phase On
506	566	606	3rd phase Off

Standard Program

Line no.	Programming line
516, 576, 616	Default values *(No /Yes)*

All time programs can be reset to factory settings. Each time program has its own command line for this reset action.

In this case, individual settings will be lost!

Holidays:

Line no. HC1	Programming line
642	Start
643	End
648	Operating level

The holiday program enables changing the heating circuit over to a selected operating level according to the date (calendar).

Important !
The holiday program can be used only in the automatic mode.

5.3.4 Heating Circuit Functions

Operating Mode

For heating circuit there are several functions available

Operation of heating circuit is directly controlled via the operating mode key.

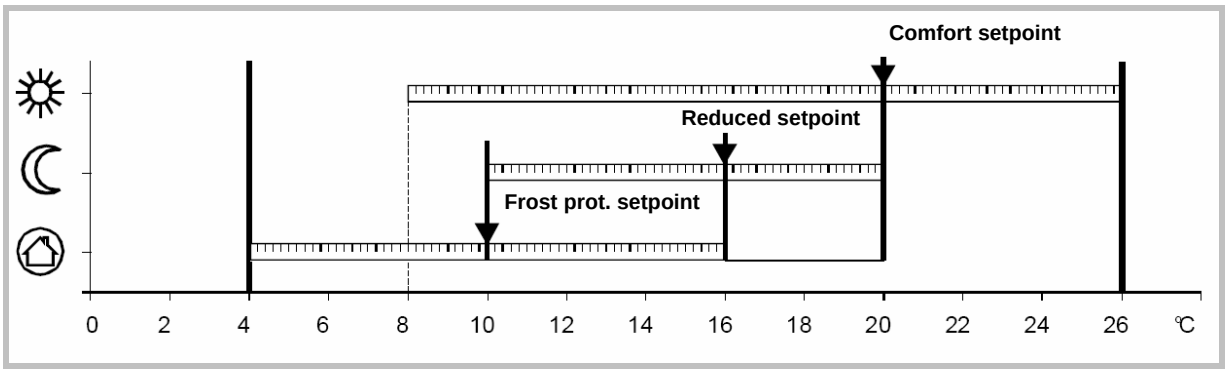
Setpoint Values

Line no. HC1	Programming line
710	Comfort heating setpoint
712	Reduced setpoint
714	Frost protection setpoint
716	Comfort setpoint max

Room Temperature:

Room temperature can be set according to different setpoint values. Depending on the selected mode, these setpoints are activated and provide different temperature levels in the rooms.

The ranges of configurable setpoints are defined by their interdependencies, as shown in the graph below.



Frost protection:

The protection mode automatically prevents an excessively sharp drop in room temperature.

In this case the control adopts the frost protection room setpoint.

Heating Curve

Line no. HC1	Programming line
720	Heating curve slope
721	Heating curve displacement
726	Heating curve adaptation

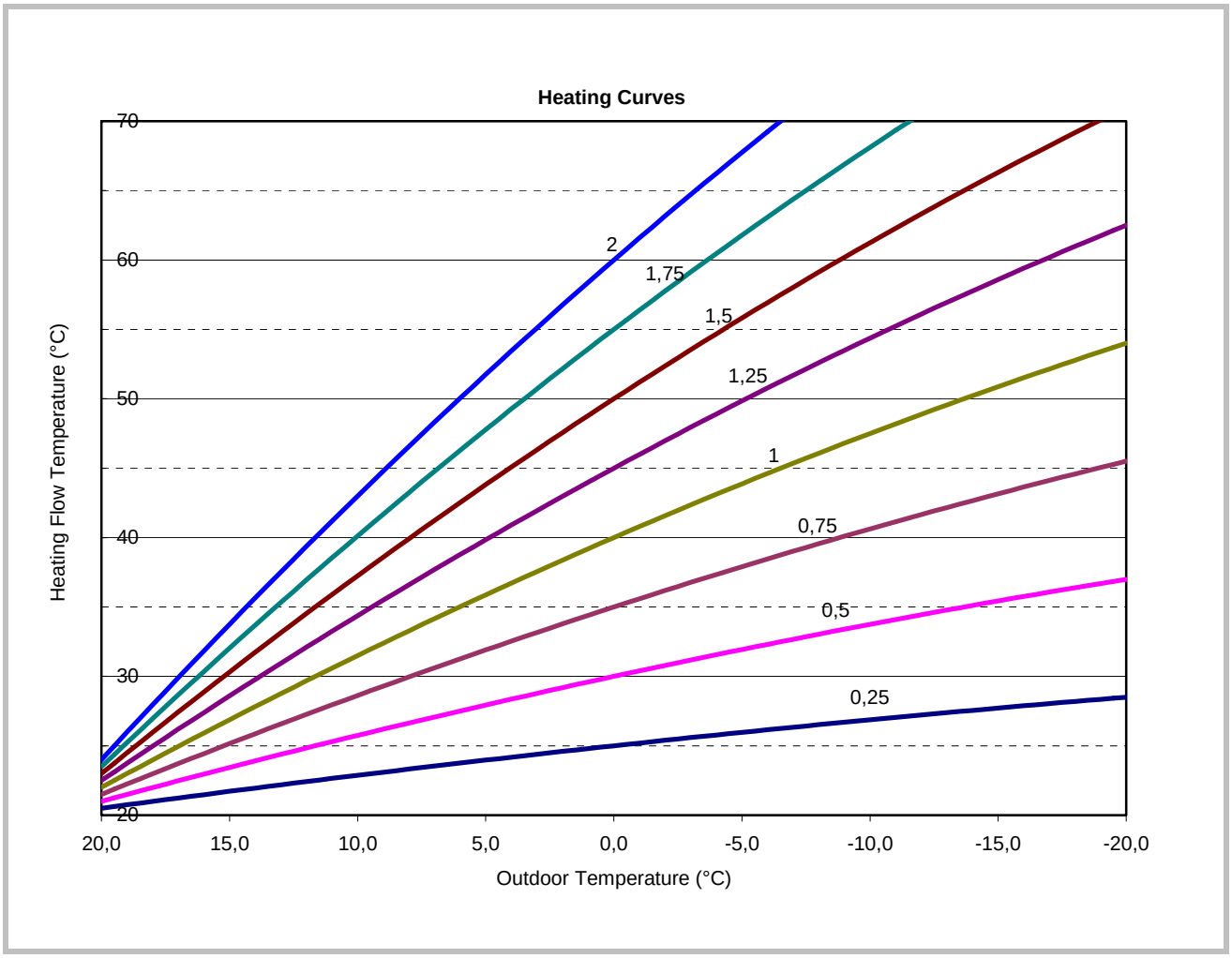
Heating curve slope:

Based on the heating characteristic, the controller computes the flow temperature setpoint which will be used for controlling the flow temperature in consideration of atmospheric conditions. Different settings can be used to adapt the heating characteristic so that the heating capacity, and therefore the room temperature, will match the individual needs.

The colder the outdoor temperature, the greater the extent to which the slope will modify the flow temperature. In other words, the slope should be corrected if the room temperature shows a difference when the outdoor temperature is low, but not when it is high.

o Increase the setting:
The flow temperature is increased mainly when the outdoor temperatures are low.
o Decrease the setting:
The flow temperature is lowered mainly when the outdoor temperatures are low.

Warning:
The heating curve is adjusted in relation to a room temperature setpoint of 20°C. If the room temperature setpoint is modified, the flow temperature setpoint is automatically recomputed. This will not modify the setting and amounts to automatically adapting the curve.



Heating curve displacement

The curve shift (offset) modifies the flow temperature in a general and even manner over the full range of outdoor temperature. In other words, the shift should be corrected when the room temperature is generally too high or too low.

Heating curve adaptation

Adaptation enables the controller to automatically adapt the heating curve to the present conditions. This correction may only be activated or deactivated.
In the latter case, there is no need to correct the slope and shift.

Information:
To ensure operation, the following requirements must be met:
- A room sensor must be connected.
- The "room influence" parameter must be set between 1 and 99.
- The reference room (where the room sensor is installed) must not contain adjusted thermostatic valves. If present in the room, these valves must be fully open.
- Operation of this function requires an adaptation period which can take more or less time (approx. 1 week) depending on weather conditions and on the stability of the room temperature setpoint.

Eco Functions

Line no. HC1	Programming line
730	Summer/winter heating limit
732	24-Hour heating limit

Summer/winter heating limit

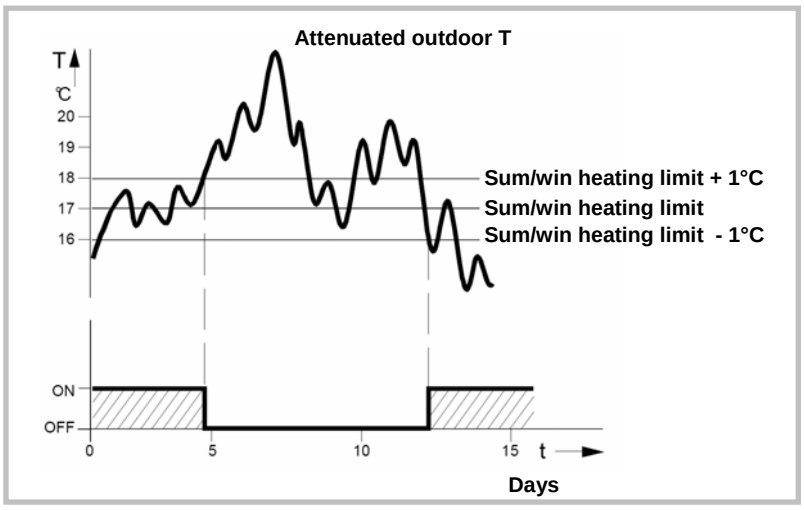
The summer/winter heating limit switches the heating on or off through the year according to the temperature ratio. Changeover is performed automatically when in automatic mode and thus avoids the user having to turn the heating on or off. Changing the input value makes the respective annual periods (summer/winter) shorter or longer.
- If the value is increased:

Changing to winter operating mode is advanced, changing to summer mode is delayed
- If the value is decreased:

Changing to winter mode is delayed; changing to summer mode is advanced.

Information:
This function does not work in "Continuous Comfort temperature" mode. (Sunlight)
The controller displays "ECO".
The outdoor temperature is attenuated to take the building's dynamics into account.

Example:



24-Hour heating limit

The 24-hour heating limit is used to switch the heating on and of in the course of the day, depending on the outside temperature.This function is used mainly during intermediate seasons (spring and fall) to react rapidly in case of fluctuating temperatures.

Thus, in the following example the changeover temperature will be 18°C, computed as follows:

Comfort heating setpoint (710)	22°C
24-Hour heating limit (732)	-3°C
Changeover temperature (710 – 732) Heating off	=19°C
Differential (Fixed)	-1°C
Changeover temperature Heating on	=18°C

Changing the input value makes the respective heating periods shorter or longer.

- If the value is increased: changeover to heating mode is advanced; changeover to ECO is delayed.
- If the value is decreased: changeover to heating mode is delayed; changeover to ECO is advanced.

Information:
This function will not work in "Continuous Comfort temperature" mode.
The display will show "ECO".
The outdoor temperature is attenuated to take the building's thermal dynamics into account.

Flow temperature setpoint

Line no. HC1	Programming line
740	Flow temp setpoint min (for fan convectors)
741	Flow temp setpoint max

This limitation allows to define a range for the orders to start. When instructed to start the heating circuit reaches the threshold, this record remains permanently at the maximum or minimum, even if the heat demand continues to increase or decrease.

Room Influence

Line no. HC1	Programming line
750	Room influence

Control types:
When using a room temperature sensor there are 3 different types of control to choose from.

SETTING	CONTROL TYPE
- - - %	Simple control according to outdoor conditions *
1...99 %	Control according to outdoor conditions with room influence *
100 %	Control according to room temperature only

** Requires the connection of an outdoor sensor*

Simple control according to outdoor conditions

The flow temperature is computed via the heating curve according to the averaged outdoor temperature.
This type of control requires proper adjustment of the heating curve, as the control does not take the room temperature into account for this adjustment.

Control according to outdoor conditions with room influence

The difference between the room temperature and the setpoint value is measured and taken into account for temperature control. This enables taking into account possible heat inputs and ensures a more even room temperature.

The influence of the difference is defined as a percentage. The better the installation in the reference room (accurate room temperature, correct installation location, etc.) the higher will be the value that can be set.

Example:

Approx 60%: the reference room is appropriate
Approx 20 %: the reference room is inappropriate

Information:

Activation of the function requires taking into account the following requirements:

- A room sensor must be connected.
- The "room influence" parameter must be set between 1 and 99.
- The reference room (where the room sensor is installed) must not contain adjusted thermostatic valves. If present in the room, these valves must be fully open.

Control according to room temperature only

The flow temperature is adjusted according to the room temperature setpoint, the current room temperature and its evolution. A slight increase in room temperature, for example, causes an immediate drop in the flow temperature.

Information:

Activation of the function requires taking into account the following requirements:

- A room sensor must be connected.
- The "room influence" parameter must be set to 100%.

The reference room (where the room sensor is installed) must not contain adjusted thermostatic valves. If present in the room, these valves must be fully open.

Optimisation at switch-on and switch-off

Line no. HC1	Programming line
790	Optimum start control max
791	Optimum stop control max

Optimum start control max

The change in temperature levels is optimised in such a way as to reach the comfort setpoint during changeover times.

Optimum stop control max

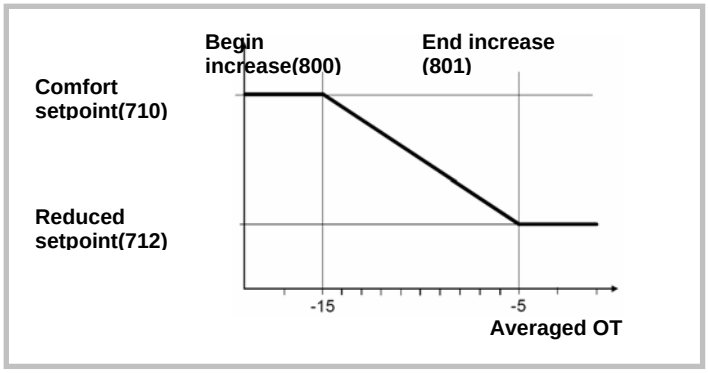
The change in temperature levels is optimised in such a way as to reach the comfort setpoint -1/4 °C during changeover times.

Reduced Setpoint Increase

Line no. HC1	Programming line
800	Reduced setpoint increase start
801	Reduced setpoint increase end

This function is used mainly in heating installations that do not have high supplies of power (e.g. low energy homes). In that case, when outdoor temperatures are low, adjusting the temperature would be too long.

Increasing the reduced setpoint prevents excessive cooling of the rooms in order to shorten the temperature adjustment period when changing over to the comfort setpoint.



Mixing Valve Control

Line no. HC1	Programming line
830	Mixing valve boost
834	Actuator running time

These parameters are not used in this system.

Controlled floor drying function

Line no. HC1	Programming line
850	Floor curing function
851	Floor curing setpoint manually
856	Floor curing day current
857	Floor curing days completed

This function is used in the controlled drying of floors. It adjusts the flow temperature to a temperature profile. Drying is performed by floor heating via the heating circuit with a pump.

"Controlled floor curing" function

- **Off:**

The function is deactivated.

- **Heating operational (Fh):**

The first part of the temperature profile is automatically completed.

- **Heating "ready for occupancy" (Bh)**

The second part of the temperature profile is handled automatically..

- **Heating "ready for occupancy" / Heating operational**

The full temperature profile (1st and 2nd part) is performed automatically.

- **Manual**

No temperature profile is performed, but the control is performed according to the "manual controlled drying setpoint". The function is automatically terminated after 25 days

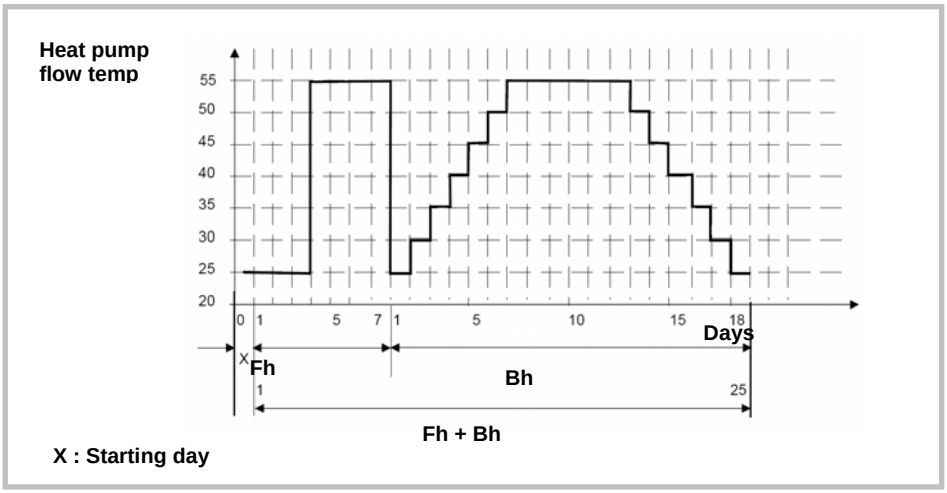
Important

o The standards and directions of the building contractor must be followed!

o This function will not work properly unless the installation has been adequately made (hydraulics, electricity, settings). Otherwise, the floors to be dried may be damaged!

o The function may be prematurely interrupted by setting it to Off.

o The maximum flow temperature limitation remains active.



"Manual controlled curing" setpoint

The flow temperature setpoint for the "Manual" controlled floor drying function can be adjusted separately for each heating circuit.

Current controlled curing setpoint

Displays the current flow temperature setpoint for the controlled floor drying function

Current day of controlled curing

Displays the current day of the controlled floor drying function

Important:
After a power outage, the installation resumes the controlled drying function as it was when the outage occurred.

Operating Mode Changeover

Line no. HC1	Programming line
900	Optg mode changeover *(None / Frost protection mode / Reduced / Comfort / Automatic)*

This function is applicable when parameter 6046 is set to “Operating mode changeover”.
In case of an external changeover via input H2 (on the extension module for a swimming pool input only) the operating mode to which the changeover will be performed must be defined on “Frost protection mode”.

Heating Circuit Frost Protection

The heating circuit frost protection is continuously activated (protection mode ⏻) and is not adjustable.

Heating circuit frost protection in heating mode

If the flow temperature is below 5°C, the controller initiates the production of heat and starts the heating pumps, regardless of the current heating mode.

If the flow temperature rises again above 7°C, the controller waits another 5 minutes, and then stops the production of heat and the heating pumps.

Heating circuit frost protection in cooling mode

See Cooling mode

5.3.5 Cooling Circuit 1 Functions

The cooling sequence is automatically started when the room temperature is higher than the comfort setpoint in cooling mode (line 902). The cooling function must be activated (command line 901 = Auto) and is triggered by the programming clock (Command line 907).
The cooling sequence is interrupted as soon as heating circuit indicates a need for heat or in the presence of a heat demand signal from a DHW circuit or other heating circuit (only if cooling is active).

The following settings apply to the hydraulic circuit in zone 1 (HC1).

The controller measures the current room temperature and compares it with the room temperature setpoint to compute the flow temperature setpoint. If the temperature is not low enough the heat pump is started to provide cooling.

WARNING:
Cooling mode is prohibited on all radiators, heating-only floors, or any emitters not intended for this purpose.

Operating Mode

Line no.	Programming line
901	Operating mode *(Off / Automatic)*

The cooling key on the user interface enables switching between operating modes.

- **Off:**

The cooling function is deactivated.

- **Automatic:**

The cooling function is automatically activated by the time program (command line 907), the holiday program, the occupancy key, or according to the need.

Comfort cooling setpoint

Line no.	Programming line
902	Comfort cooling setpoint

In cooling mode the room temperature control follows the comfort setpoint adjusted under this setting. The cooling comfort setpoint can be displayed with a knob on the room unit.

In summer the comfort setpoint is gradually increased in relation to the outdoor temperature (see lines 918-920).

Release:

Line no.	Programming line
907	Release *(24h/day / heating circuit time pgm / Time program 5)*

The "Release" setting determines the time program according to which cooling is released.

- **24h/day:**

Cooling is continuously activated (24h/day).

- **heating circuit time program:**

Cooling is activated according to the heating circuit time program.

- **Time program 5:**

Cooling is released according to time program 5.

Cooling Characteristic

Line no.	Programming line
908	Flow temp setp at OT 25°C
909	Flow temp setp at OT 35°C

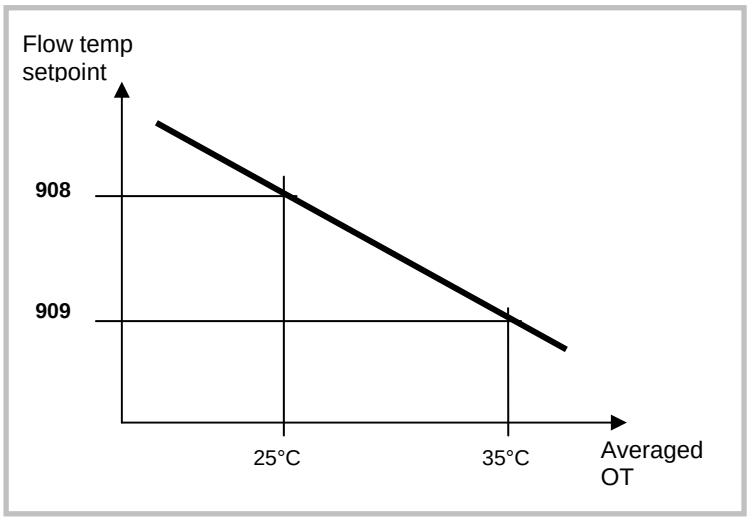
The controller computes the flow temperature required for a given averaged outdoor temperature based on the cooling characteristic. This is defined by two reference points (flow setpoint at 25°C and at 35°C).

Flow temp setp at OT 25°C

This is the cooling flow temperature required when the averaged outdoor temperature is 25°C, without summer compensation.

Flow temp setp at OT 35°C

This is the cooling flow temperature required when the averaged outdoor temperature is 35°C, without summer compensation.



The cooling characteristic is adjusted for a 25°C room temperature setpoint. If the room temperature setpoint is changed the curve will automatically adapt.

Eco

Line no.	Programming line
912	Cooling limit at OT
913	Lock time after end of heating

Cooling limit at OT

If the composite outdoor temperature is higher than the cooling limit, cooling is released. If the composite outdoor temperature falls at least 0.5°C below the cooling limit, cooling is locked.

Lock time after end of heating

To avoid a quick start of cooling after termination of heating, the cooling function is locked for a time period which can be adjusted with this setting. The lock time starts when there is no valid heating demand from heating circuit. Heating demands from heating circuit P are ignored.

Information:
Switching off and switching on again the mode selection key causes the lock time to be interrupted

Summer Compensation

Line no.	Programming line
918	Summer comp start at OT
919	Summer comp end at OT
920	Summer comp setp increase

In summer the "cooling comfort setpoint" (902) is gradually increased according to the outdoor temperature. This saves on cooling power and prevents the differences between the ambient temperature of the room and the outdoor temperature being too high.

The resulting "room temperature setpoint" (cooling) can be viewed in the Info section.

Summer compensation start at OT

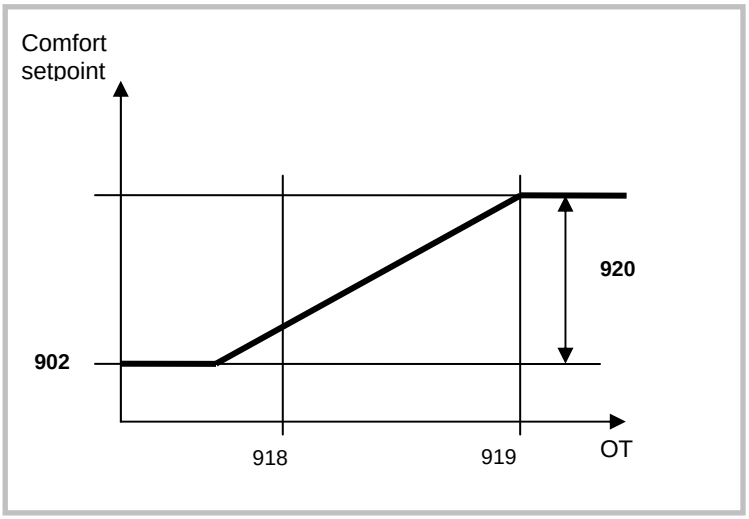
Summer compensation starts to be active from the outdoor temperature defined here. If the outdoor temperature continues to rise, the comfort setpoint will be gradually increased.

Summer compensation end at OT

At this outdoor temperature the summer compensation reaches its peak efficiency (920). If the outdoor temperature continues to rise, it will no longer influence the comfort setpoint.

Summer compensation setpoint increase

This setting defines the highest value to which the comfort setpoint can be increased.



Flow Setpoint Limitation

Line no.	Programming line
923	Flow temp setp min at OT 25°C
924	Flow temp setp min at OT 35°C

It is possible to assign a lower limit to the cooling flow temperature.
The limitation line will be defined by two reference points.
In addition the resulting flow setpoint will have a lower limit and may not be less than 5 °C.

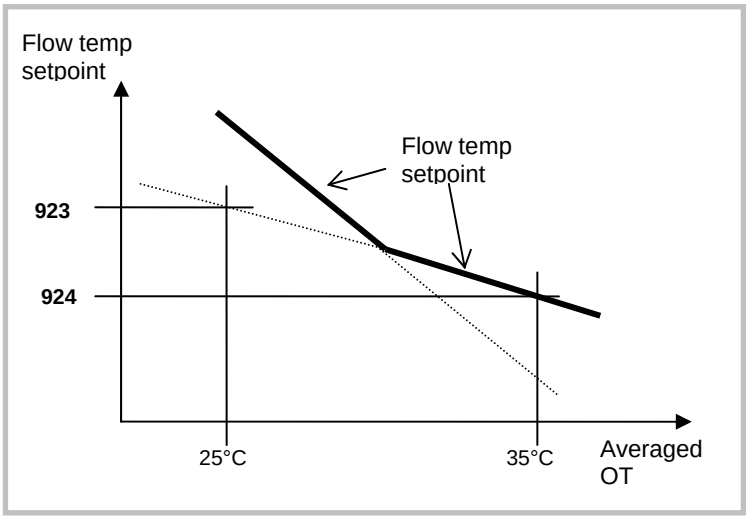
Flow temp setp min at OT 25°C

Determines the lowest flow temperature for a composite outdoor temperature of 25°C.

Flow temp setp min at OT 35°C

Determines the lowest flow temperature for a composite outdoor temperature of 35°C.

Warning:
If no outdoor temperature is available, the controller will use the "Min. flow setpoint at OT= 35°C" parameter.



Room Influence

Line no.	Programming line
928	Room influence

When using a room temperature sensor there are 3 different types of control to choose from.

SETTING	CONTROL TYPE
- - - %	Simple control according to outdoor conditions *
1...99 %	Control according to outdoor conditions with room influence *
100 %	Control according to room temperature only

** Requires the connection of an outdoor sensor*

Simple control according to outdoor conditions

The flow temperature is obtained from the composite outdoor temperature on the basis of the cooling characteristic.

This type of control requires the cooling curve to be properly adjusted, as the control does not take the room temperature into account for this adjustment.

Control according to outdoor conditions with room influence

The difference between the room temperature and the setpoint value is measured and taken into account for temperature control. This enables taking into account possible heat inputs and ensures a more even room temperature. Thus the differences with the room temperature are taken into account and the room temperature becomes more stable. The influence of the difference is defined as a percentage. The better the installation in the reference room (accurate room temperature, correct installation location, etc.) the higher will be the value that can be set.

Example:

- Approx 60%: the reference room is appropriate
- Approx 20 %: the reference room is inappropriate

Activation of the function requires taking into account the following requirements:

- A room sensor must imperatively be connected.
- The "room influence" parameter must be set between 1 and 99.
- The reference room (where the room sensor is installed) must not contain adjusted thermostatic valves. Any thermostatic valves present in the rooms must be fully open.

Control according to room temperature only

The flow temperature is adjusted according to the room temperature setpoint, the current room temperature and its evolution. A slight increase in room temperature, for example, causes an immediate drop in the flow temperature.

Activation of the function requires taking into account the following requirements:

- A room sensor must imperatively be connected.
- The "room influence" parameter must be set to 100%.
- The reference room (where the room sensor is installed) must not contain adjusted thermostatic valves. Any thermostatic valves present in the rooms must be fully open.

Room Temperature Limitation

Line no.	Programming line
932	Room temperature limitation

The "room temperature limitation" function enables shutting off the cooling circuit pump if the room temperature falls below the adjusted room temperature setpoint (with summer compensation line 920) by more than the adjusted differential.

The cooling circuit pump is reinitiated as soon as the room temperature rises again above the current room temperature setpoint.

If the room temperature limitation function is active, no cooling demand will be transmitted to production.

The function is deactivated if:

- no room temperature sensor is available
- "Room influence limit." = ---
- "Room influence" (928) = --- (simple control according to outdoor conditions)

Mixing Valve Control

Line no.	Programming line
938	Mixing valve cooling offset
941	Actuator running time
945	Mixing valve in heating mode

These parameters are not used in this system.

Dewpoint Monitoring

Line no.	Programming line
946	Lock time dewpoint limiter
947	Flow temp setp incr hygro
948	Flow setp incr start at r.h.
950	Flow temp diff. dewpoint

These parameters are not used in this system.

With prim controller/system pump

Line no.	Programming line
963	With prim contr/system pump *(no / yes)*

This setting specifies whether the cooling circuit is supplied from the primary controller or from the primary pump (depending on the installation).

Optg mode changeover

Line no.	Programming line
969	Optg mode changeover *(none / Off / Automatic)*

This function is applicable when parameter 6046 is set to “Operating mode changeover”.
When a swimming pool extension is installed, the parameter must be set on “none”.

In case of an external change via inputs H2 the operating mode to which the changeover will be performed must be previously defined

5.3.6 DHW Functions

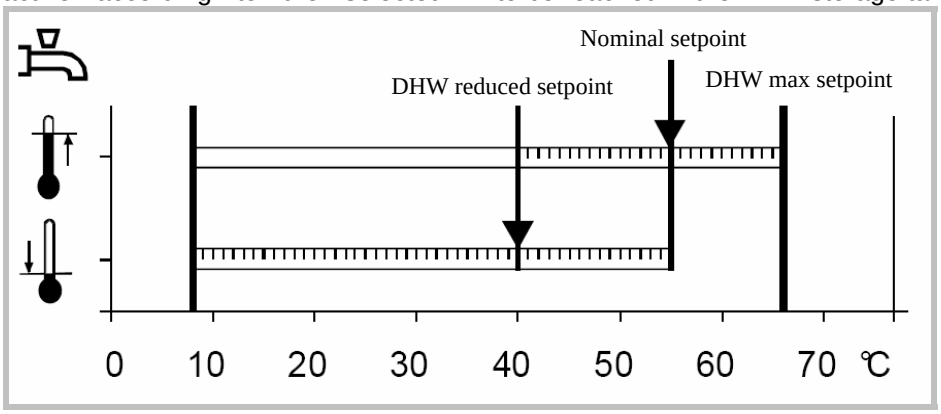
The control sets the DHW temperature, according to the time program or continuously, to the desired setpoint. The priority of DHW charging over room heating is adjustable in this case.

The controller has a configurable legionella function designed for protection against legionella in the storage tank and the pipes. The circulation pump is controlled according to the current time program and operating mode.

Setpoint value

Line no.	Programming line
1610	Nominal setpoint
1612	Reduced setpoint

The DHW is heated to various setpoint values. These setpoints are active according to the selected operating mode and allow the desired temperatures to be reached in the DHW storage tank.



Important:
For optimal operation we recommend reducing the setpoints to the lowest value.
Setpoints which are too high may interfere with heating and cause some discomfort. In this case DHW/Heating changeover cycles may successively occur.

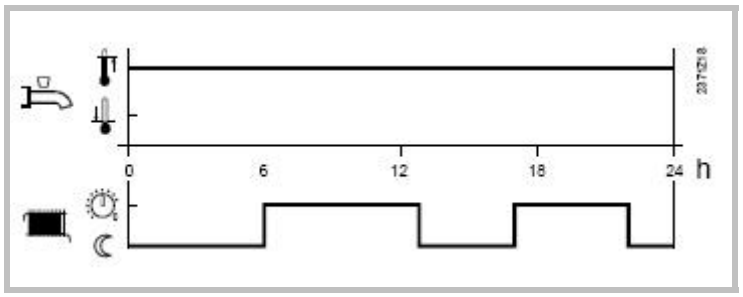
If DHW charge boosting is not desired during the day, we recommend adjusting the reduced temperature setpoint to 15°C. Full charging will occur during the night at the nominal temperature.

Release

Line no.	Programming line
1620	Release *(24h/day / Heating circ time pgm / Time program 4/DHW / Low-tariff/ Time pgm 4/DHW or Low-tariff)*

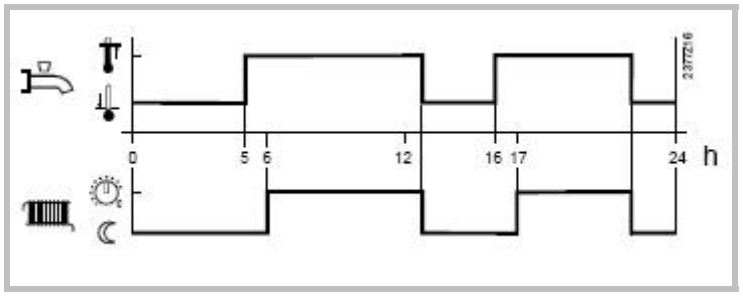
24h/day

(Not recommended)
Regardless of the time programs, the temperature of the domestic hot water is continuously maintained at the DHW nominal setpoint temperature.
Example:



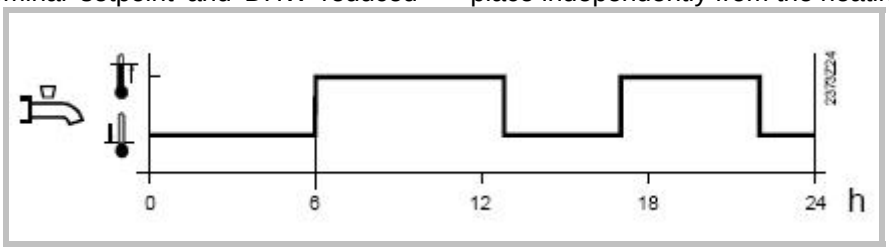
Heating circuit time programs:

(Not recommended)
Depending on the heating circuit time programs, the DHW setpoint is changed between the DHW temperature nominal setpoint and the DHW temperature reduced setpoint. The first switch-on point of each phase is advanced by one hour each time.
Example:



Time program 4 / DHW:

(Recommended)
Time program 4 of the local controller is taken into account for the DHW mode. The changeover between DHW nominal setpoint and DHW reduced setpoint occurs on the changeover times of this program. Thus, domestic hot water charging takes place independently from the heating circuit.



Low tariff

Released when the low tariff input is active (Input Ex5)

Time pgm 4/DHW or low tariff

Released when DHW program 4 is set to "Nominal" or if the low tariff input is active.

DHW mode	Holiday status	Release (settings 1620)	Time pgm status (Pgm 4)	Low tariff status (Ex5)	DHW mode level
Off	x	x	x	x	Frost protection
On	Yes	x	x	x	Frost protection
On	No	…	…	x	…
On	No	Low tariff (OPK)	x	Inactive	Reduced
On	No	Low tariff (OPK)	x	Active	Nominal
On	No	Time pgm 4 or OPK	Nominal	Inactive	Nominal
On	No	Time pgm 4 or OPK	Reduced	Inactive	Reduced
On	No	Time pgm 4 or OPK	Nominal	Active	Nominal
On	No	Time pgm 4 or OPK	Reduced	Active	Nominal

x = indifferent

Information:
Release by low tariff input always triggers forced DHW charging

If the low tariff input EX5 has not been configured and release via OPK has nevertheless been set, the DHW level will either continuously remain on reduced or will follow time program 4.

Legionella Function

Line no.	Programming line
1640	Legionella function
1641	Legionella funct periodically
1642	Legionella funct weekday
1644	Legionella funct time
1645	Legionella funct setpoint
1646	Legionella funct duration
1647	Legionella funct circ pump

Legionella function:

- **Periodic**

The legionella function occurs repeatedly according to the adjusted periodicity (command line 1641).

- **Fixed weekday**

The legionella function can be activated on a fixed day of the week (command line 1642). With this setting, heating up to the legionella setpoint occurs on the scheduled day of the week, regardless of the storage tank temperatures during the previous period.

Legionella function circulation pump:

The DHW circulation pump can be activated during the period of time the legionella function is performed.

Important:
During the period of time legionella function is carried out, there is a risk of scalding when opening the taps.

Circulation Pump

Line no.	Programming line
1660	Circulation pump release

Circulation pump release

The "DHW release" setting switches on the circulation pump when DHW production is released.

5.3.7 Swimming Pool Functions

Line no.	Programming line
2056	Setpoint source heating

The controller enables a swimming pool to be heated by the heat pump. An individual setpoint can be set by means of parameter 2056, which appears when the swimming pool function is activated by parameter 6046 being set to "Swimming pool release".

Use of input H2 requires an extension to be connected to the control. The pool extension switches must always be addressed as "module2".

5.3.8 Heat Pump Functions

Line no.	Programming line
2844	Switch-off temp max
2882	Release integr electric flow
2884	Release el flow at OT
2910	Release above OT
2920	With electrical utility dock

Switch-off temp max

If the flow or the return temperature exceeds the maximum switch off temperature, the compressor will be switched off.

Release integr electric flow

After the release of the 1st stage (K25), the controller compares the temperature measured with the point of engagement and forms an integral and includes a possible deficit of heat. Once the value of the integral reaches the maximum value (2882), the 2nd stage is engaged (Stop K25, K26 regulates). The controller continuously compares the temperature measured at the point of engagement and new features to the deficit of heat in the full release. When the full release reaches the value set (2882), the 3rd stage of the heater is triggered (K25 and K26 regulates fixed).

Flow elec. release at OT

The heater will be activated only if the attenuated outdoor temperature is below the temperature set here.

Warning:
If this setting is too low, there may be a feeling of discomfort due to the fact that the heat pump is unable to meet the heating requirements alone at low outdoor temperatures, and heaters are not switched on.

Release above OT

The heat pump is released only when the composite outside temperature lies above the value set here. Below this outside temperature level, the amount of heat required must be delivered by some other heat source.

With electrical utility dock

This setting relates to input Ex4 (load-shedding or peak day clearing) and allows the electric heaters to be locked as follows:

- **Locked:**

The heat pump and all electric heaters are locked, both heat pump stages and the DHW tank electric auxiliary.
Only the boiler backup, if installed, continues to operate

- **Released**

The heat pump operates and all electric heaters are locked, both heat pump stages and the DHW tank electric auxiliary.
The boiler backup, if installed, continues to operate.

5.3.9 DHW Tank Functions

DHW charging at the nominal setpoint temperature (1610) always takes place in two stages. In the first stage, only the heating pump heats the DHW tank. The power supplied during this time is at its peak. Then, when the heat pump is no longer able to supply enough heat to reach the setpoint value, it switches on the DHW tank auxiliary if authorised. The auxiliary will be cut off when charging is complete.
While the DHW tank charging process via the electric auxiliary is finishing, the heat pump resumes heating.

Charging Control

Line no.	Programming line
5020	Flow setpoint boost
5024	Switching differential
5030	Charging time limitation

Flow setpoint boost :

The DHW demand made to the generator is comprised of the current DHW setpoint plus the adjustable setpoint boost.

Switching differential :

If the DHW temperature is lower than the current setpoint minus the differential set here, the DHW charging process is launched.
It ends when the temperature reaches the current setpoint.

Information:
Forced charging is triggered on the first DHW release of the day.
Charging is also launched when the DHW temperature is within the differential, and as long as it is not less than 1K above the setpoint.

Charging time limitation

During charging, the room heating (depending on the charging priority defined on line 1630 and on the hydraulic circuit) may be stopped or insufficient. Therefore it is often advisable to limit the charging process timewise to enable heating.

If "**- - -**" has been selected the charging time limitation will be deactivated. The DHW will be heated to the nominal setpoint, even if the room heating has not received enough power in the meantime.

If a value between 10 and 600 is selected, charging will be suspended after the time period set in minutes, and will remain suspended over that time before resuming. The generator power remains available in the meantime to heat the room. This cycle is repeated until the DHW nominal setpoint has been reached.

Information:
When the room heating is stopped (summer mode, economy function, etc.), DHW charging remains active, regardless of the setting.

Heater

Line no.	Programming line
5060	El imm heater optg mode
5061	Electric immersion heater release

El imm heater optg mode

- **Substitution**

The heater performs DHW charging as soon as the heat pump is stopped or becomes inoperative, or if the heat pump has finished charging without reaching the setpoint.
The DHW tank heater switch-on point is calculated so as to optimise the changeover level.
If the DHW temperature falls below the current setpoint (1610 or 1612) minus the differential (5024) the heat pump will resume operation.

- **Summer**

When heating circuit changes to summer mode, the heater performs DHW charging starting on the next day. The heat pump therefore stays off in summer mode.
Production of DHW by the heat pump will resume only if the heating circuit changes over to heating mode. In that case, the heater operating mode is the same as described in the "Substitution" setting.

- **Always**

DHW charging is always carried out by means of the heater.

- **Cooling mode**

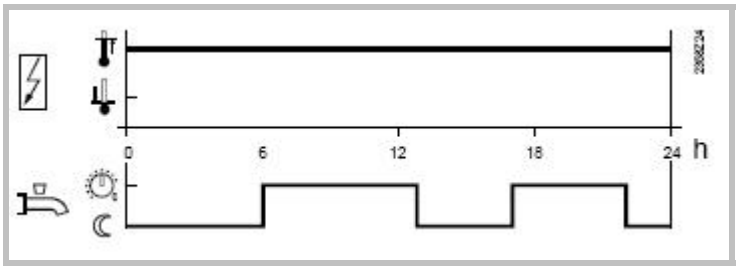
When the heat pump operates in cooling mode, it is possible to specify whether a DHW charging is to be carried out via the heater, without cooling being interrupted.
The DHW is prepared by the heater, if the heat pump is in cooling mode or is not available (e.g. out of order).

Information:
The DHW mode selection key also acts on the heater. In order for DHW charging to take place, the DHW key must be on.

Electric immersion heater : release

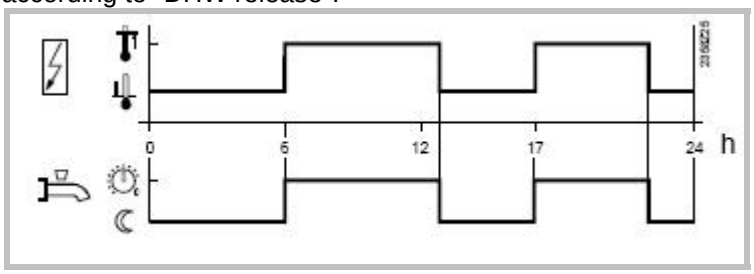
- **24h/day**

The heater is continuously active regardless of time programs.



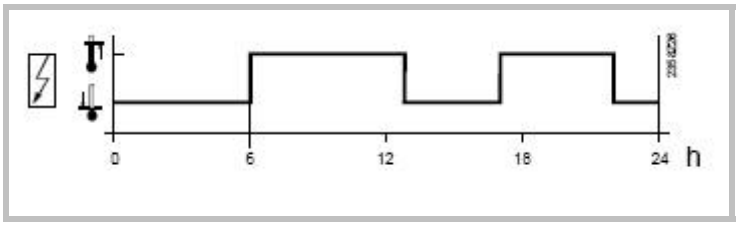
- **DHW release**

The heater is controlled according to "DHW release".



- **Time program 4/DHW**

Time program 4/DHW of the local controller is taken into account for the heater.



Information:
Switch-on will actually be in effect only if the heater is able to operate according to the "heater operating mode" setting.

5.3.10 Configuration Functions

When an installation is started up, the hydraulic diagram presetting for that installation must be entered.

Presettings

Line no.	Programming line
5700	Preselection

Cooling Circuit 1

Line no.	Programming line
5711	Cooling circuit 1 *(Off / 4-pipe system / 2-pipe system)*

Off
The cooling circuit is deactivated.

4-pipe system:
Not compatible with this system. This setting relates to passive cooling.

2-pipe system:
Activates the heat pump cooling mode.

Information:
Switching on the cooling mode causes the menu "'Cooling circuit 1" to appear.

Combi storage tank

Line no.	Programming line
5870	Combi storage tank

Cont type input EX

Line no.	Programming line
5987	Cont type input EX4
5989	Cont type input EX5

Input H2 Function

Input H2 is available only on the extension module for a swimming pool.

Line no.	Programming line
6046	Function Input H2
6047	Contact type H2
6048	Function value Contact H2

Function Input H2

- **Operating mode changes:**
- **Error/alarm message**
- **Dewpoint monitor**

These options are not applicable to this system.

- **Swimming pool release**

This function enables the swimming pool to be directly heated with the boiler and pump H2 via an external device (e.g. manual switch).
Direct charging always requires release on input H2.
For configuration: set input H2 to "Swimming pool release" and wire the contact.

Information:
It is recommended to set line 6046 to “Dewpoint monitor” when the swimming pool extension is not installed.

Contact type H2

- **Normally closed**

The contact is normally closed and must be open to activate the selected H2 function.

- **Normally open**

The contact is normally open and must be closed to activate the selected H2 function.

Function value Contact H2

The function value contact H2 is operated only when the parameter 6046 is setting on “release swimming pool”. This function allows to set the temperature of the water which goes on the swimming pool heat exchanger.

Sensor Corrections

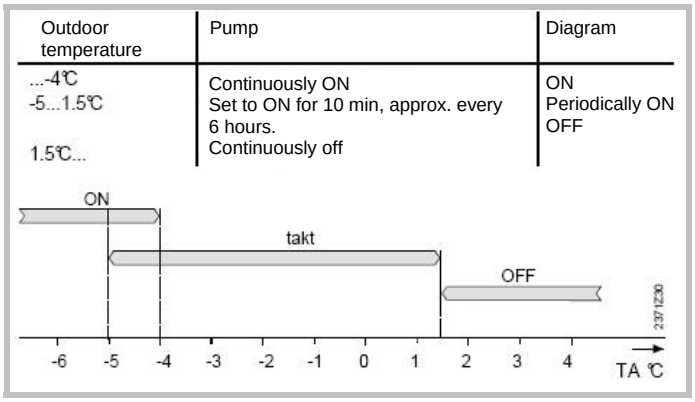
Line no.	Programming line
6100	Readjustm outside sensor

The outdoor temperature measuring value can be corrected within a range of +/- 3 K.

Installation Frost Protection

Line no.	Programming line
6120	Frost protection for the plant

According to the outdoor temperature, the heating circuit pump and the condenser pump are switched on although there is no demand for heat



Miscellaneous

Line no.	Programming line
6205	Reset to default parameters
6220	Software version

Reset to default parameters :

All parameters can be reset to factory settings, except when it comes to the following pages: Time and date, User interface and all time programs, as well as the operating hours and the various counters.

Software version:

The software version represents the controller software status at the time the unit is being produced. It is printed on the back of the unit.
The first two digits represent the software version, and the third is the revision number (e.g. 01.0)

5.3.11 Error Functions

When a fault occurs, the symbol appears and it is possible to display an error message in the Info section by pressing the Info key.

The display shows what caused the fault.

Reset (unlock) Heat Pump

Line no.	Programming line
6711	Reset HP

This line is used to clear the heat pump error messages. The predetermined switch-on delay in case of a failure is therefore ignored, which avoids waiting periods during servicing / troubleshooting.

This option should not be used in normal operating conditions.

Fault Indication Function

Line no.	Programming line
6740	Flow temp 1 alarm
6741	Flow temp 2 alarm
6745	DHW charging alarm
6746	Flow temp cooling 1 alarm

The difference between the setpoint value and the current temperature value is monitored. Any difference which continues after the set time period has elapsed will trigger an error message.

Fault History

Line no.	Programming line
6800 to 6818	Time stamp and history of faults 1 -10

The controller saves the last 10 faults which have occurred to a non volatile memory. Any new entry will delete the oldest entry from the memory.
A fault code and a time are saved for each fault.

Error Code List

Designation of error
The error designations in the table below are displayed in plain text on the user interface.
Location
The sensor or contact associated to the error message.
Reset
Reset is either automatic or manual, depending on the type of error (see table below with error messages).
Manual reset
Errors which are displayed in the Info section and accompanied by the "Reset?" question can be manually reset.
Press the "OK" key once, "yes" flashes on the display. Press the "OK" key again to confirm the "yes" and the error will be reset.
Automatic reset
Automatic clearing occurs after a previously set time (OEM setting) has elapsed. After this timeout (6 hours by default) has elapsed, the controller will attempt to reset the error.
If "Number" appears in the table, it is possible to define how many times the fault can be reset before the heat pump is declared out of order.

Heat pump operation

Shows whether or not the heat pump can continue to operate when the error occurs.

Yes
The heat pump continues to operate despite the error message.

No
The error interrupts operation of the heat pump.

No with glycol water
This error stops glycol water heat pumps, but does not prevent operation of water or air heat pumps.

No with water
This error stops water heat pumps, but does not prevent operation of glycol water heat pumps

No with air
This error stops air heat pumps, but does not prevent operation of water heat pumps or glycol water heat pumps.

Per diagram
The heat pump will be stopped according to the current installation diagram.

Alarm messages
Errors are ranked by priority. From priority 5 onward (i.e. priority levels 5 - 9) the alarm messages used in remote control (OCI) are sent. In addition, the alarm relay is switched on.

Table of error messages which can be displayed:

No.	Designation of error	Location	Reset		HP oper.	Priority
			Manual	Automatic		
0	No fault					
10	Outdoor sensor	B9	No	No	Yes	6
30	Flow sensor 1	B1	No	No	Yes	6
31	Cooling flow sensor 1	B16	No	No	Yes	6
32	Flow sensor 2	B12	No	No	Yes	6
33	Heat pump flow temp sensor error	B21	No	No	Yes	6
44	Heat pump return temp sensor error	B71	No	No	per diagram	6
50	DHW temp sensor 1	B3	No	No	Yes	6
60	Room sensor 1		No	No	Yes	6
65	Room sensor 2		No	No	Yes	6
76	Special sensor 1	BX	No	No	Yes	3
83	BSB wire short-circuit		No	No	Yes	8
84	BSB, address collision		No	No	Yes	3
85	Radio communication error		No	No	Yes	8
98	Extension module 1		No	No	Yes	8
99	Extension module 2		No	No	Yes	8
100	2 master clocks on bus		No	No	Yes	3
102	Clock without running supply		No	No	Yes	3
105	Maintenance message		No	No	Yes	5
121	HC1 flow temp too low		No	No	Yes	6
126	DHW charge monitoring		No	No	Yes	6
127	Anti-legionella temperature		No	No	Yes	6
134	Heat pump alarm summary	E20	Yes	Number *	No	9
138	No heat pump control sensor		No	Yes	No	1
146	Sensor / control device configuration		No	No	Yes	3
171	Alarm contact 1 activated		No	No	Yes	6
172	Alarm contact 2 activated	H2	No	No	Yes	6
176	Hydraulic pressure 2 too high	H2	No	No	Yes	6
177	Hydraulic pressure 2 too low	H2	No	No	No	6
178	HC1 safety thermostat		No	No	Yes	3
201	Frost alarm	B21/71	Yes	No	No	9
243	Swimming pool sensor	B13	No	No	Yes	6
325	BX/ext unit: same sensors		No	No	Yes	3
327	Ext modules: same functions		No	No	Yes	3
329	Ext modules/mixing grp: same functions		No	No	Yes	3
330	BX1 no function		No	No	Yes	3
331	BX2 no function		No	No	Yes	3
332	BX3 no function		No	No	Yes	3
333	BX4 no function		No	No	Yes	3
334	BX5 no function		No	No	Yes	3
335	BX21 no function		No	No	Yes	3
336	BX22 no function		No	No	Yes	3
357	cooling circuit flow temp not reached		No	No	Yes	6
359	no cooling valve Y21		No	No	Yes	3
360	no process reversing valve Y22		No	No	Yes	3

		Reset		
364: Heat pump cooling system error	No	No	Yes	3
369: External fault			No	
370: Heat pump fault			No	

Number* If such statuses or events occur for the first time, they will not directly generate a fault message, but only a status message.

Only if the anomaly occurs repeatedly over a predefined time period and at a given frequency (number) will an error message be generated.

5.3.12 Maintenance / Special Operating Mode Functions

Maintenance

Maintenance functions can be used as a preventive step for periodically monitoring the installation. All maintenance functions can be individually activated / deactivated.

The controller automatically generates maintenance messages if the settings defined are either exceeded or fail to be reached.

Line no.	Programming line
7070	HP interval
7071	HP time since maint
7072	Max starts compr1/hrs run
7073	Cur starts compr1/hrs run
7076	Diff condens max/week
7077	Cur diff condens max/week
7078	Diff condens min/week
7079	Cur diff condens min/week
7090	DHW storage tank interval
7091	DHW stor tank since maint

HP interval :

Defines the maintenance frequency (in months) for the heat pump.

HP time since maint :

Displays the time (months) elapsed since the last maintenance. If the value exceeds the "heat pump interval" setting (Line 7070), the symbol will be displayed and a maintenance message will appear in the Info section:
17: Heat pump maintenance Interval (Priority 6)

This setting can be reset with the associated rights of access.

Max starts compr1/hrs run :

Defines the maximum number of compressor 1 startups per hour of operation.

Cur starts compr1/hrs run :

The average number of compressor startups per hour of operation, obtained over a period of 6 weeks.
If the value exceeds the "Comp1 max startups/hr op" adjusted setting, the symbol will be displayed and a maintenance message will appear in the Info section:
8: Too many compressor 1 startups (Priority 9)

This setting can be reset with the associated rights of access.

Diff condens max/week :

This setting indicates how many times over 7 days the maximum temperature difference on the condenser can be exceeded.

Cur diff condens max/week:

Number of times the maximum temperature difference on the condenser has been exceeded during a 7-day period. If the value exceeds the setting "Max cond diff/week" (line 7076), the symbol will be displayed and a maintenance message will appear in the Info section:
13: Max cond diff (Priority 3)

This setting can be reset with the associated rights of access.

Diff condens min/week :

Indicates how many times over 7 days the minimum temperature difference on the condenser may fail to be reached.

Cur diff condens min/week (7079):

The number of times the minimum temperature difference on the condenser has not been reached over a 7 period. If the value is higher than the setting "Min cond diff/wk" the symbol will be displayed and a maintenance message will appear in the Info section:
14: Min cond diff (Priority 3)
This setting can be reset with the associated rights of access.

DHW storage tank interval (7090):

Adjustment of the maintenance frequency (in months) of the DHW tank.

DHW stor tank since maint (7091):

The time elapsed (in months) since the last maintenance. If the value is greater than the setting "DHW tank interval" (Line 7090), this symbol will be displayed and a maintenance message will appear in the Info section:
11: TWW DHW tank period (Priority 6)

Emergency mode

If the heat pump is not operating properly, a emergency service can be maintained. The emergency mode enables the installation to be run with the available heaters (flow, storage tank, DHW tank). In this case the compressor will remain off.

Line no.	Programming line
7141	Emergency operation
7142	Emergency operation function type

Emergency operation (7141):

Emergency operation can be activated and deactivated manually.

- **Off:**

Emergency operation is deactivated.

- **On:**

Emergency operation is activated.

Emergency operation function type (7142):

- **Manual:**

Emergency operation can be activated/deactivated only through the Emergency operation setting on line 7141.

- **Automatic:**

As soon as a fault occurs on the heat pump, emergency operation is automatically switched on. It stops when the fault is removed and, if necessary, cleared (reset). Emergency mode may however be activated / deactivated manually via the "Emergency operation" setting on line 7141.

Simulation

Line no.	Programming line
7150	Simulation outside temp

Simulation outside temp (7150):

To make the starting-up and troubleshooting processes easier, it is possible to simulate an outdoor temperature in the range of -50...+50°C. During simulation, the current, composite and attenuated outdoor temperatures are ignored and substituted with the adjusted simulation temperature.

Computation of the three outdoor temperatures based on the actual outdoor temperature continues to be performed during the simulation, and these temperatures are available again when the simulation is over.

This function can be deactivated by selecting -.- on this line or automatically, after a 5 hour waiting period.

Person in charge

Line no.	Programming line
7181, 7183	Telephone number of person in charge

These lines are used to specify the telephone numbers associated with the corresponding alarms.

5.3.13 Input / Output Testing Functions

Input/output testing is used to ensure that the connected components are in working order.

Relay Output Testing

Selection of a setting from relay testing closes the corresponding relay and therefore switches on the connected component. This makes it possible to check that the relays are in working order and that the wiring has been performed correctly.

Line no.	Programming line
7700	Relay test *(No test / All OFF / Relay output QX23 Module 1 / Relay output QX21 module 1 / Relay output QX22 module 1 / Relay output QX1 / Relay output QX2 / Relay output QX3 / Relay output QX4 / Relay output QX5 / Relay output QX6 / Relay output QX23 Module 2 / Relay output QX21 Module 2 / Relay output QX22 Module 2 / Relay output QX7)*

Warning:
During testing of an output, the heat pump is stopped, all outputs are "off" and only the controlled output is on.

Analog Input/Output Testing

Line no.	Programming line
7710	Output test UX
7711	Voltage signal UX
7720	Digital output test
7721	Digital output DO1
7722	Digital output DO2

Output test UX

Enables testing the outdoor unit control.

Voltage signal UX

Displays the voltage value at the UX output.

Digital output test

Enables testing outputs DO1 and DO2

Digital output DOx

Shows the output status.

Sensor Input Testing

Line no.	Programming line
7730	Outside temp B9
7820	Sensor temp BX1
7823	Sensor temp BX4
7824	Sensor temp BX5
7830	Sensor temp BX21 module 1
7831	Sensor temp BX22 module 1
7832	Sensor temp BX21 module 2
7833	Sensor temp BX22 module 2

Displays the temperature of each sensor.

H1, H2, H3 Input Testing

Line no.	Programming line
7841	Contact state H1
7846	Contact state H2
7855	Contact state H3

Displays the momentary status of contact Hx.

Input Testing

Line no.	Programming line
7914	Input EX4
7915	Input EX5
7916	Input EX6

If a test setting is selected, the associated input is displayed and can thus be checked.
The "0 V" display means that there is no voltage and that the respective input is currently inactive. The "230 V" display indicates that a 230 V voltage is present on the associated input and therefore, that the input is active.

5.3.14 Status Functions

The current operating status of the installation can be viewed by means of status displays.

Messages

Line no.	Programming line
8000	State heating circuit 1
8003	State DHW
8004	State cooling circuit 1
8006	State heat pump
8022	State supplementary source

State heating circuit

End user (Info level)	Commissioning, Engineer
Thermostat response	Thermostat response
Manual action active	Manual action active
Controlled drying active	Controlled drying active
Heating mode restriction	Overeating protection active Restriction, Boiler protection Restriction, DHW priority Restriction, storage tank
Forced draft	Forced draft, storage tank Forced draft, DHW Forced draft generator Forced draft Switch-off delay active
Comfort heating mode	Optimis. at switch-on + accelerated heating Optimisation at switch-on Accelerated heating Comfort heating mode
Reduced heating mode	Optimisation at switch-off Reduced heating mode
Frost protection active	Room frost protection Flow frost protection active Install. frost protection active
Summer mode	Summer mode
Off	Eco day active Reduced decrease Frost protection decrease Room temperature limitation Off

State DHW (8003):

End user (Info level)	Commissioning, Engineer
Thermostat response	Thermostat response
Manual action active	Manual action active
Draw-off mode	Draw-off mode
Adiabatic cooling active	Adiabatic cooling by collector adiabatic cooling via gen/HC
Charging lock active	Discharge protection active Charging duration limit. active Charging locked
Forced charging active	Forcing, DHW tank max temp Forcing, max charging temp Forcing, anti-legion. setpoint Forcing, comfort setpoint
Charging by heater	Charging by heater, anti-legion. setpoint Charging by heater, Comfort setpoint Charging by heater, Reduced setpoint Charging by heater, frost protection setpoint Heater released
Accelerated charging active	Flow active Anti-legion. accelerated charging
Charging active	Charging, anti-legion. setpoint Charging, Comfort setpoint Charging, Reduced setpoint
Frost protection active	Frost protection active
Switch-off delay active	Switch-off delay active
Charging on standby	Charging on standby
Charged	Charged, max tank temp Charged, max charging temp Charged, anti-legionella temp Charged, comfort temp Charged, reduced temp
Off	Off
Ready	Ready

State cooling circuit (8004):

End user (Info level)	Commissioning, Engineer
Dewpoint sensor activated	Dewpoint sensor activated
Manual action active	Manual action active
Fault	Fault
Frost protection active	Flow frost protection active
Cooling mode locked	Locked, heating mode Lock time after heating Locked, generator Locked, storage tank
Cooling mode restricted	Flow temp setpoint increase by hygrostat Dewpoint flow min limit Outdoor temp flow min limit
Comfort cooling mode	Comfort cooling mode Switch-off delay active
Cooling protection mode	Cooling protection mode
Frost protection active	Frost protection active
OT cooling limit activated	OT cooling limit activated
Off	Off Room temperature limitation Flow limit reached
Cooling mode off	Cooling mode off

State heat pump (8006):

End user (Info level)	Commissioning, Engineer
Emergency mode	Emergency mode
Fault	Fault
Locked	Locked, outdoor temperature Locked, external Locked, economy mode
Lim. time active	Consumer flow rate controller Min outdoor temp use limit Max outdoor temp use limit Max switchoff temp lim Max OT limit cooling Min switchoff temp limit Comp min switchoff time active Excess heat compensation
Frost protection active	Heat pump frost protection
Defrosting activated	Defrosting activated
Cooling mode active	Comp min ON time active Comp 1 ON
Heating	Comp min ON time active Heat deficiency compensation Max cond diff limit Min cond diff limit Comp.1 and heater ON Comp 1 ON Heater ON
Frost protection active	Install. frost protection active
Off	Flow active Switch-off delay active No demand

State supplementary source (8022):

End user (Info level)	Commissioning, Engineer
Locked	Locked, solid fuel boiler Locked, outside temperature Locked, economy mode
In operation for HC, DHW	In operation for HC, DHW
Released for HC, DHW	Released for HC, DHW
In operation for DHW	In operation for DHW
Released for DHW	Released for DHW
In operation for heating circuit	In operation for heating circuit
In operation for HC, DHW	In operation for HC, DHW
Released for HC, DHW	Released for HC, DHW
In operation for DHW	In operation for DHW
Released for DHW	Released for DHW
In operation for heating circuit	In operation for heating circuit
Released for HC	Released for HC
Overrun active	Overrun active
Off.	Off.

History:

Line no.	Programming line
8050 —8068	Timestamping and history status coding of faults 1 - 10

The last 10 status messages are saved and displayed with the associated codes. The most recent message is saved to History 1, the oldest to History 10.

Information:
Status displays for the end user can be viewed directly in the Info section on the room unit.

5.3.15 Generator Diagnosis Functions

Various setpoints and actual values, relay switch status data can be displayed for purposes of diagnosis.

Heat Pump:

Line no.	Programming line
8402	El imm heater 1 flow
8403	El imm heater 2 flow
8406	Condenser pump

These command lines are used to check the operating mode of the components controlled by the heat pump relays. The display "0" means that the associated components are currently disconnected. The display "1" means that the associated components are currently switched on.

Information
This information applies to relays defined as normally open contacts. For normally closed contacts, the action is reversed.

Setpoints and Measured Values

Line no.	Programming line
8410	Return temp HP
8412	Flow temp HP
8413	Compressor modulation
8425	Temp diff condenser

These lines allow the various setpoints and measured values for the heat pump to be viewed.

Hour / Startup Counter

Line no.	Programming line
8454	Locking time HP
8455	Counter number of locks HP
8456	Hours run el flow
8457	Start counter el flow

Locking time HP

Displays the cumulative locking time since start-up by the electrical services (via EX6).

Heat pump lock counter

Displays the cumulative locks since start-up by the electrical services (via EX6).

Hours run el flow, Start counter el flow

These lines are used to view the hours of operation and the number of startups of electric heater.

5.3.16 Consumer Diagnosis Functions

Various setpoints and actual values, relay switch status and timing status data can be displayed for purposes of diagnosis.

Outdoor Temperatures

Line no.	Programming line
8700	Outside temperature
8701	Outside temp min
8702	Outside temp max
8703	Outside temp attenuated
8704	Outside temperature composite

The current, minimum, maximum, attenuated and composite outdoor temperatures are displayed.

Heating Circuit

Line no.	Programming line
8730	heating circuit pump
8731	Heating circ mix valve open
8732	Heat circ mix valve close
8740	Room temp
8743	Flow temp

The display "Off" means that the associated components are currently disconnected. The display "On" means that the associated components are currently switched on.

Cooling Circuit

Line no.	Programming line
8756	Flow temperature cooling 1

The actual values of the cooling mode are displayed.

The cooling mode room setpoint is displayed on programming line 8741.

Domestic Hot Water

Line no.	Programming line
8821	Electric immersion heater DHW
8830	DHW temp 1
8840	Hours run DHW pump
8841	Start counter DHW pump
8842	Hours run el DHW
8843	Start counter el DHW

The measured values, the DHW circulation pump and charging temperature, operating hour and startup counters are displayed, as well as temperatures of the primary controllers and DHW heater.

Swimming Pool

Line no.	Programming line
8900	Swimming pool temp

The current temperature of the swimming pool is displayed.

Line

Line no.	Programming line
8950	Common flow temp

Multifunction Relay Status

Line no.	Programming line
9031	Relay output QX1
9032	Relay output QX2
9033	Relay output QX3
9034	Relay output QX4
9035	Relay output QX5
9036	Relay output QX6
9037	Relay output QX7

The switching status of multifunction relays 1 - 6 can be viewed individually on these lines. The display "Off" means that the components assigned to this output are currently disconnected. The display "On" means that the associated components are currently switched on.

Status of Relays for Extension Modules 1 and 2

Line no.	Programming line
9050	Relay output QX21 module 1
9051	Relay output QX22 module 1
9052	Relay output QX23 module 1
9053	Relay output QX21 module 2
9054	Relay output QX22 module 2
9055	Relay output QX23 module 2

The switching status of the relays connected to extension modules 1 and 2 can be viewed on these programming lines.

The display "Off" means that the components assigned to this output are currently disconnected. The display "On" means that the associated components are currently switched on.

6 Annual Maintenance Services

6.1 Heat pump

- clean filter (if any)
- inspect heating system (system pressure, purging, leak test)
- inspect expansion vessel (preload with nitrogen at 1 bar)
- fix any leaks
- clean heat exchanger
- clean refrigeration and ventilation compartment
- check for correct condensation drain

6.2 Electrical

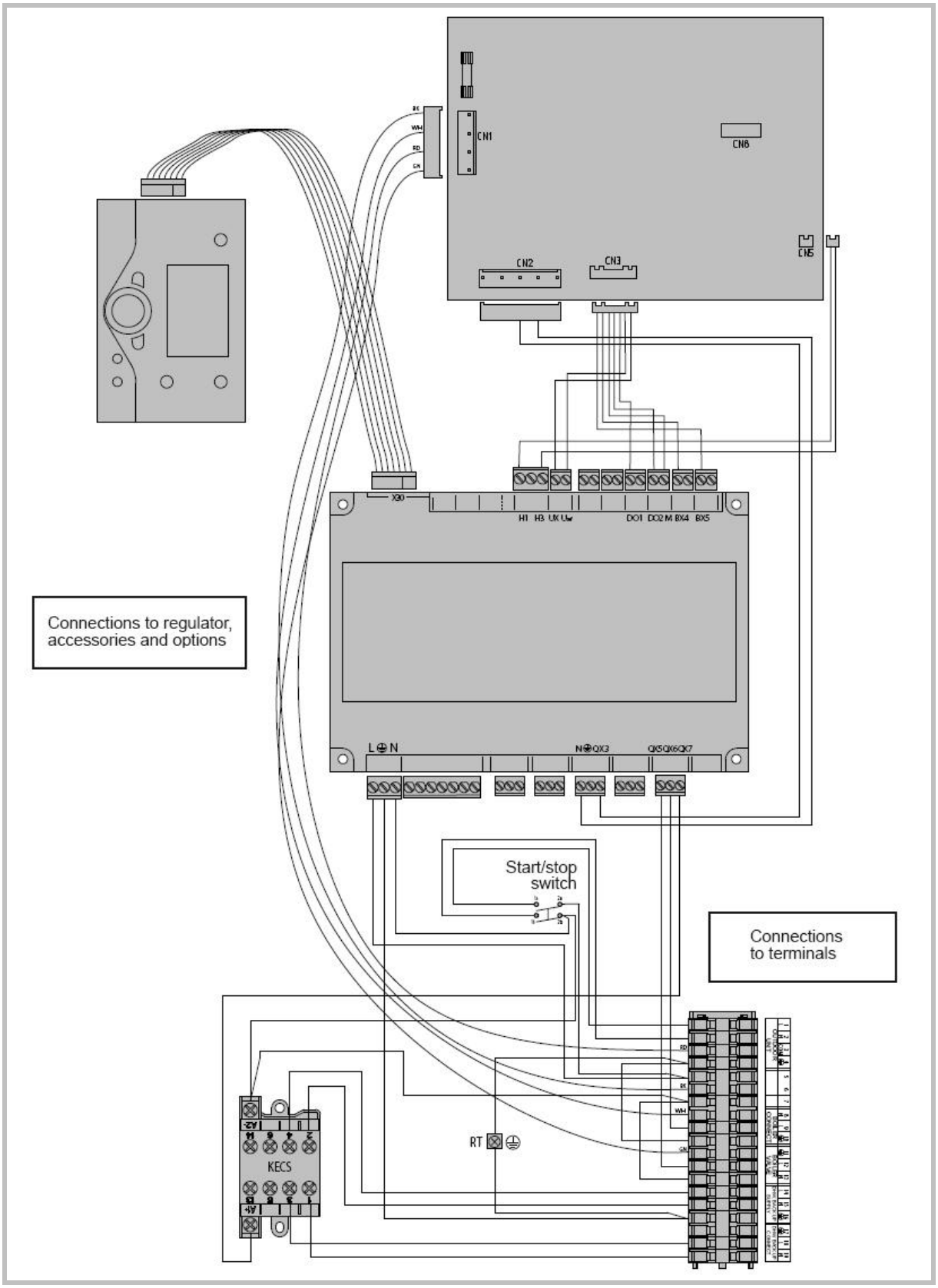
- Inspect connections and tighten where appropriate
- Check condition of wires and boards

6.3 Operating checks

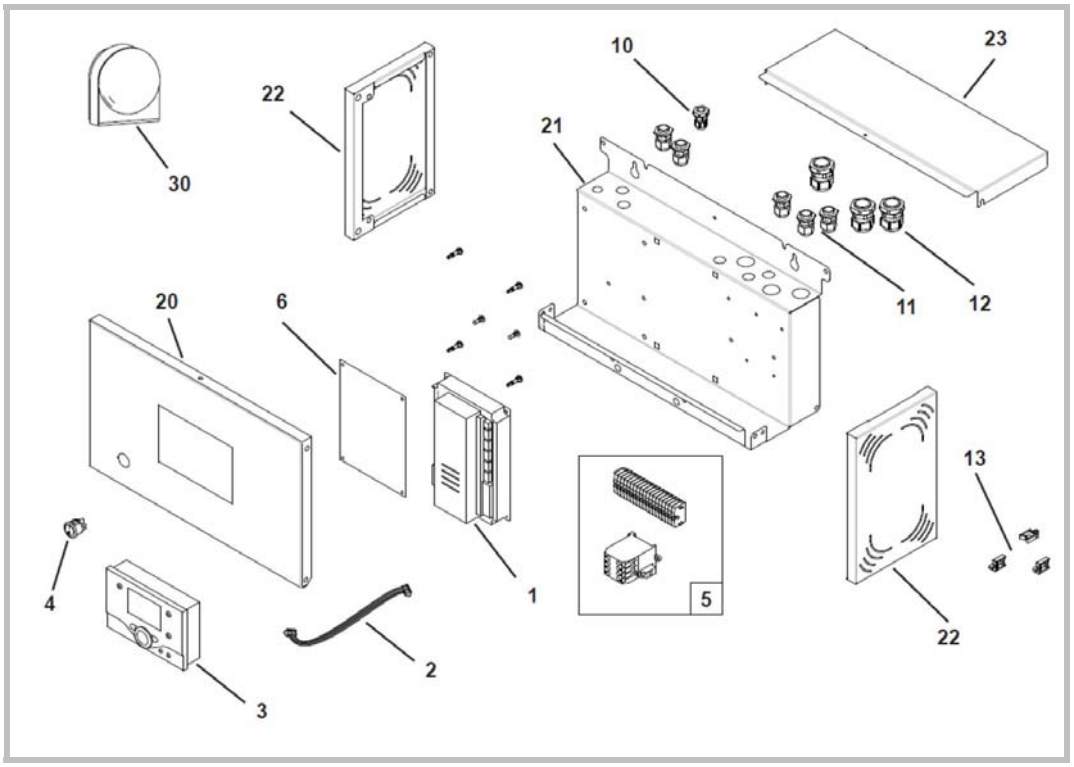
- conduct refrigeration readings at temperatures
- in case of malfunction, install pressure gauges for refrigeration diagnosis
- check voltage, current and control

7 Connection Diagrams

7.1 Connection Diagram of Control Box



8 Spare Parts



N°	Code	Designation		Qty
1	102163	Regulator		01
2	153014	Flat cable		01
3	102167	Display		01
4	139252	Switch		01
5	106478	Relay + terminal blocks		01
6	700712	Regulation card		01
10	161021	Cable glands		01
11	161016	Cable glands		05
12	161020	Cable glands		03
13	100634	Cable grommet		03
20	937278	Front panel	Fujitsu	01
20	937279	Front panel	General	01
22	912472	Sinde panels		02
23	952673	Cover		01
30	198747	Outdoor sensor	QAC 34	01

9 Accessories

9.1 DHW kit

See installation instructions "DHW kit" no. 1316.

9.2 Swimming pool kit

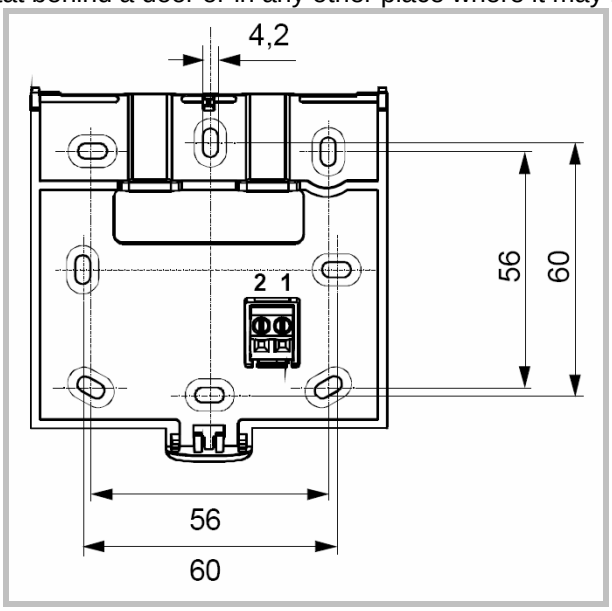
See installation instructions "Swimming Pool Kit" no. 1341.

9.3 Room Sensor

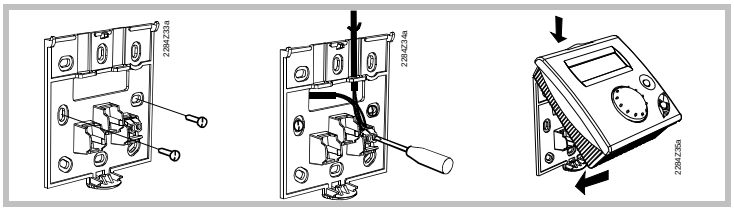
9.3.1 Room thermostat

The room thermostat is optional. Select an appropriate place for the room thermostat by following these rules:

- Central room
- Installation height, approx. 1.5 m
- Inner wall
- Away from drafts
- Away from direct sunlight
- Do not install the thermostat behind a door or in any other place where it may receive shocks.



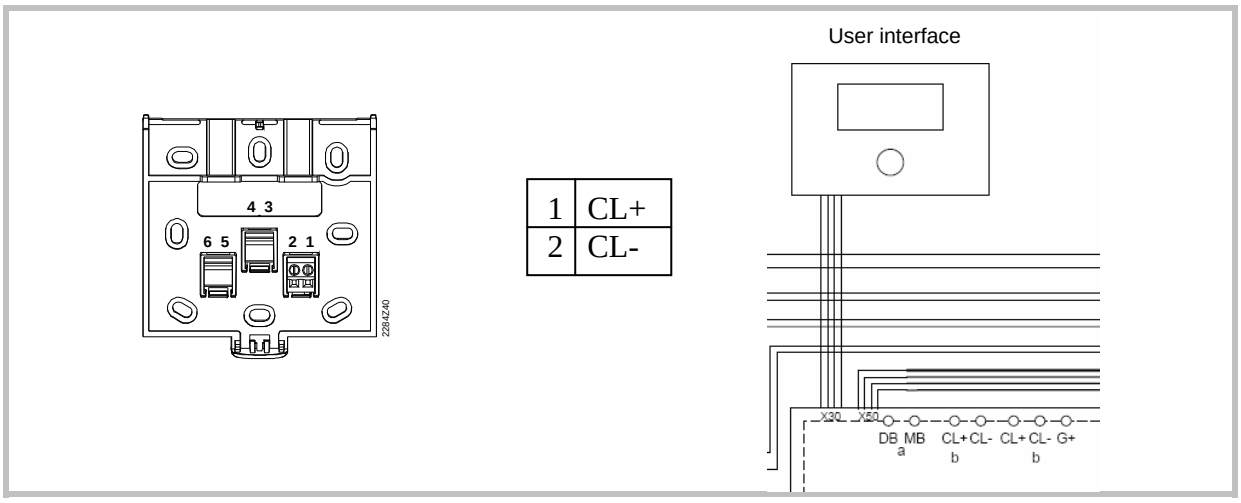
Air tightness faults in buildings often result in cold air being blown through the electrical sheathing. Do not hesitate to seal them off if a cold air draft comes into the back of the thermostat.



Connection:

The room thermostat must be connected to one of the terminals b (CL+, CL-) of the heat pump controller board. To do this, you can use a 0.5mm² cable of the two-pair telephone cable type.

If the cable is shielded, the shielding can be connected to the controller CL- terminal. It may under no circumstances be connected on both sides, i.e. controller side and room unit side.

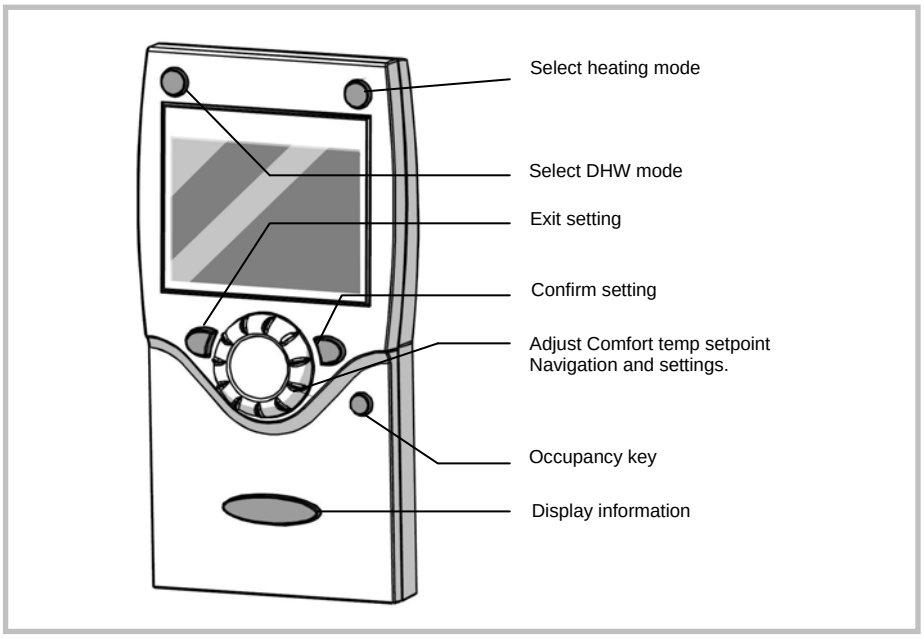


If the installation is equipped with 2 room thermostats, the second thermostat must be connected to the second terminal block b.

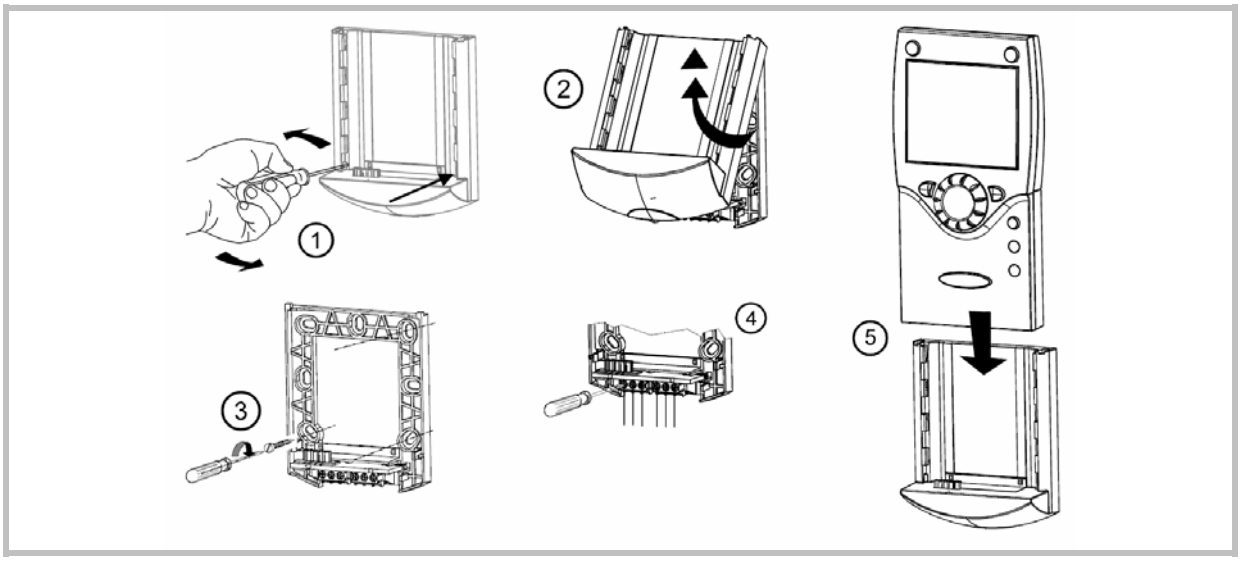
Configuration:
Gain access to the settings by continuously pressing the "Heating mode" key
fs = 1 (factory setting) → The room unit is addressed as ZONE 1
fs = 2 → The room unit is addressed as ZONE 2
fs = 3 → The room unit is addressed as ZONE 3 (factory setting)
P1 = 1 (factory setting) Automatic save:
Correction of the setpoint using the knob is accepted without special confirmation (timeout) or by pressing the operating mode key.
P1 = 2 Confirm save
Correction of the setpoint with the knob is accepted only after pressing the operating mode key.

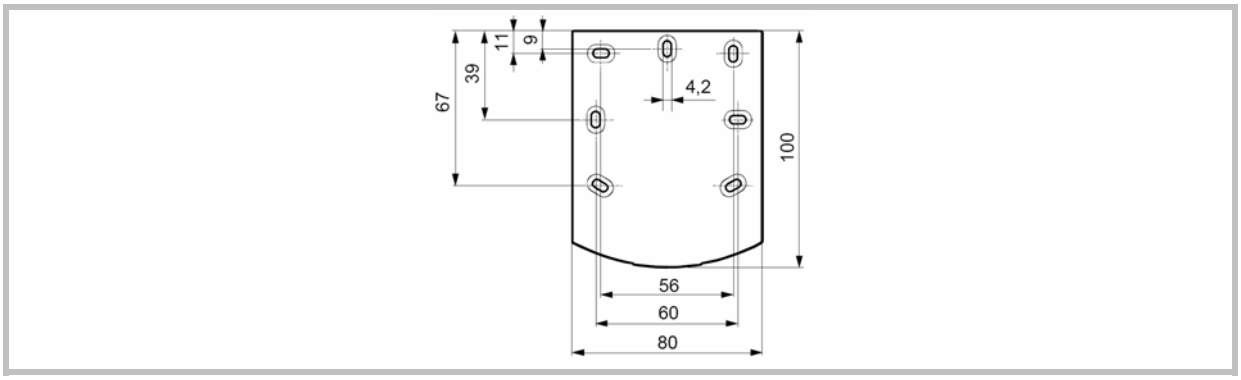
9.3.2 Remote control

The remote control includes the functions of the room unit together with those of the user interface mounted in series on the Control box.
It can be used, therefore, not only to measure the room temperature, but also to view the operating status of the heat pump, to enter the pump settings appropriate to the house and to the application's hydraulic circuit.



Installation





Connections

The room central unit must be connected to terminal b (CL+, CL-, G+) of the heat pump controller board. To do this, you can use a 0.5mm² cable of the two-pair telephone cable type.

If the cable is shielded, the shielding can be connected to the controller CL- terminal. It may under no circumstances be connected on both sides, i.e. controller side and room unit side.

Terminal T75	Control terminal	Function
1	CL+	BSB data
2	CL-	BSB ground
3	G+	Power supply 12

9.4 Boiler connection kit

An oil or gas boiler may be connected to the heat pump. Such a connection requires the purchase of the backup kit module, which includes a 3-way selection valve designed to isolate the boiler, and a pressure breaker.

When a boiler is connected to the heat pump, the electric auxiliaries installed in the heat pump must not be connected, as it is the boiler which provides additional heating on the coldest days.

The boiler is controlled by the heat pump. If the boiler has its own control system, you must disconnect or disable the system by assigning it the highest setpoint.

9.5 Heat exchanger for swimming pool

See installation instructions "Heat exchanger for swimming pool" no. 1345.

9.6 DHW tank

See installation instructions "DHW tank".

9.7 Balancing vessel

See installation instructions "Balancing vessel".

10 Start up

10.1 Quick-Start Procedure

Before switching on the control box :
• Check the electric wiring.
• Check the pressure of the hydraulic circuit (1-2 bar), check that the heat pump is purged, and the rest of the installation.

- Turn **ON** the start/stop switch.
- Configure the hydraulic circuit (setting 5700) :
Presettings :
1. 1 heating circuit (by default).
2. 1 heating circuit and DHW tank.
5. Boiler backup and 1 heating circuit.
7. Boiler backup, 1 heating circuit and DHW tank.

- Time, Date and time programs for HC1, DHW if different than default values (settings 500 – 576).
- Ajust the heating curve slope (720) and curve off-set (721).

The heat pump is ready for operation !

You can also :
1. Adjust the heating circuit setpoints if different than default values (710 – 714).
2. Adjust the DHW setpoints if different than default values (1610-1612).
3. Start a legionella cycle (1640-1647).
4. Perform floor drying (850-857).

10.2 Startup Checklist

Date: ..... **Installation identification:** .....
.....
After Sales Service identification: **Installer identification:** .....
....
Unit reference number: ..... **Serial number:** .....

BEFORE STARTING UP

Sight Checks

Heat pump:
(See "Heat pump Installation" section of "Installation" instructions)

	OK	NON COMPLIANT	
location and fittings, condensate evacuation			
compliance with distances from obstacles			

Hydraulic Checks

Hydraulic circuit:

	OK	NON COMPLIANT	VALUE
connection of pipes, valves and pumps (heating circuit and DHW)			
installation water volume (expansion vessel of adequate capacity?)			
No leaks			
Main system pressure and degassing (0.3b > Exp vessel pre-loading)			

Electrical Checks

Heat pump:
See "*Electrical Connections*" section of "Installation" instructions)

	OK	NON COMPLIANT	VALUE
230v main power supply			
Protection by rated circuit breaker			
Cable cross-section			
Connection to earth			

Control box:
*(*See *" Electrical Connections"* section of "Installation" instructions*)*

	OK	NON COMPLIANT	
Connection with Heat pump (3 + Earth)			
Connection of Sensors (positioning and connections)			
Connection of 3-way valve and pumps.			
Power supply and protection of electric auxiliary			

OBSERVATIONS

ALL PERSONS PRESENT AT STARTUP MUST SIGN			
USER	INSTALLER	VENDOR	AFTER SALES

STARTING UP

Switching On

(See "Starting up" section of "Installation" instructions)

	OK	NON COMPLIANT	
Switching on			
Initialisation for a few seconds			
Operation of the pumps			
Outdoor unit starts after 3mins			

Heat pump checks

	OK	NON COMPLIANT	VALUE
Operation of fan, compressor			
Current measurement			
After a few minutes, measurement of air temp delta			
Check condensation and evaporation pressure/temperature			
After 15 minutes of operation			
primary water temp delta			
DHW priority (switching of selection valve)			
Operation of heating, mixing valve, boiler backup, etc.			
Control settings			

Room Control

(See "Room Sensor Configuration" section of "Installation" instructions)

	OK	NON COMPLIANT	
Settings, manipulations, checks			
Setpoint display			
Explanations on use			

OBSERVATIONS
_____
_____
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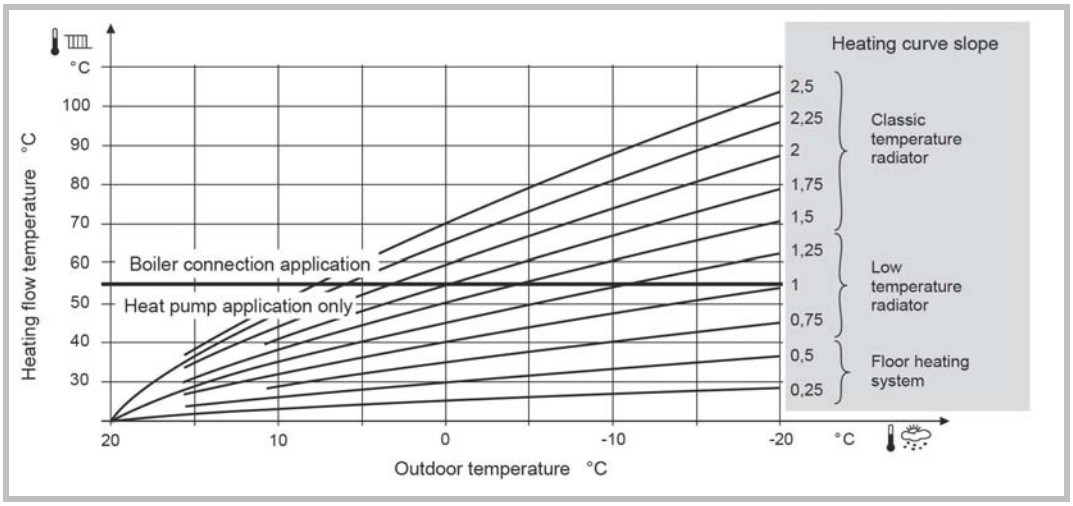
ALL PERSONS PRESENT AT STARTUP MUST SIGN			
USER	INSTALLER	VENDOR	AFTER SALES

10.3 Settings Sheet

Setting	Description	set to	Menus
	Preliminary settings		
20	language		*Op. section*
1	hour / minutes		*time and date*
2	day / month		*time and date*
3	year		*time and date*
5700	Preselection		*configuration*
	Heating circuit		
710	Comfort heating setpoint		*Heat. circuit 1*
712	Reduced setpoint		*Heat. circuit 1*
720	Heating curve slope		*Heat. circuit 1*
741	Flow temp setpoint max		*Heat. circuit 1*
750	Room influence		*Heat. circuit 1*
790 / 791	Opt start/stop control max		*Heat. circuit 1*
850 / 851	Floor curing		*Heat. circuit 1*
501 to 516	time programs		*HC1 time pgm*
642 to 648	holiday programs		*Hol. HC1*
	Domestic Hot Water (if DHW kit)		
1610	Nominal setpoint		*DHW*
1612	Reduced setpoint		*DHW*
1620	Release		*DHW*
1640 to 1647	Legionella cycle		*DHW*
1660	Circulation pump release		*DHW*
5020	Flow setpoint boost		*DHW stor. tank*
5024	Switching differential		*DHW stor. tank*
5030	Charging time limitation		*DHW stor. tank*
5060	El imm heater optg mode	fill	*DHW stor. tank*
5061	Elec imm. heater:release		*DHW stor. tank*

Setting	Description	set to	Menus
	Boiler backup		
3700	Release below out. temp		*Suppl. source.*
3705	Overrun time		*Suppl. source.*
	Miscellaneous		
6046	Function Input H2		*configuration*
6100	Readjustm outside sensor		*configuration*
6120	Frost protect. for the plant		*configuration*
6205	Reset to default param.		*configuration*
6220	software version		*configuration*
6711	Reset HP		*errors*
7070 to 7183	maintenance		*Serv / special op.*
7700 to 7916	input/output testing		*I/O test*
8402 to 8457	generator diagnosis		*Diagn. heat source*
8700 to 9055	consumer diagnosis		*Diagn.consumers*
	Cooling		
5711	Cooling circuit 1	2 pipes	*configuration*
901 to 969	cooling settings		*cooling circuit 1*
	Faults **If a fault occurs, press "Info" key**		
No. 10	outdoor sensor		
No. 33	flow temp sensor		
No. 44	return temp sensor		
No. 50	DHW temp sensor		
No. 60	room sensor 1		
No. 65	room sensor 2		
No. 105	maintenance message		
No. 121	HC1 flow T not reached		
No. 127	Leg. prot. T not reached		
No. 369	external fault (EX6)		
No. 370	Heat pump error		
6740 to 6746	alarm timeout		*errors*
6800 to 6818	last 10 alarms history		*errors*
6711	reset HP		*errors*
	Heat Pump		
2844	Switch-off temp max		*heat pump*
2884	Release el flowat OT		*heat pump*
2920	In case of peak day clearing signal lock (EX4)		*heat pump*
	Swimming Pool (with"sw pool" kit option)		
2056	Setpoint source heating		*sw pool*



10.4 Startup Data Sheet

Site:		**Installer:**	

Heat pump	Serial no.:		**Control box**	Serial no.:	
	Model:			Model:	

Refrigerant type:			Refrigerant charge:	kg	

Checks

- Compliance with positioning distances ☐
- Condensate evacuation correct ☐
- Electric connections/connections tightness ☐
- No GAS leaks (Unit ID No.: _____) ☐
- Installation of refrigeration connection correct (length: m)

Reading in HEATING operating mode (refer to the service manual of the heat pump)

- Compressor discharge temperature: _____°C
- Compressor rotating frequency : _____Hz
- Input power : _____W
- Water flow temp : _____°C
- Water return temp : _____°C

Hydraulic system on Hydraulic Unit:

Secondary system:
- Low temp heating floor ☐
- LT Radiators ☐
- Fan coils ☐

} Pump brand: _____ Type:_____

Domestic hot water: tank type =_____ ☐ Pump brand: _____ Type:_____

Estimated water volume of secondary system: _____ L

Options & Accessories:

- Power supply for connected electric auxiliary ☐
- Operation in cooling mode possible ☐
- Location of room sensor correct ☐
- Swimming pool kit ☐
- DHW kit ☐

Room thermostat C 55 ☐
Remote control C75 ☐

Boiler kit: _____

Details:

Control Settings:

Configuration type:

Essential settings:

Observations

Startup Date	Name and signature of person in attendance	Name and signature of Technician

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