

Heating schedule

Applicable for all models.

Define a heating schedule of the room temperature in [1.2] **Heating schedule**.

See "11.4.3 Schedule screen: Example" [▶ 139].

Cooling schedule

Only applicable for reversible models.

Define a cooling schedule of the room temperature in [1.3] **Cooling schedule**.

See "11.4.3 Schedule screen: Example" [▶ 139].

Antifrost

[1.4] **Antifrost** prevents the room from getting too cold. This setting is applicable when [2.9] **Control=Room thermostat**, but also offers functionality for leaving water temperature control and external room thermostat control. In case of the latter two, **Antifrost** can be activated by setting field setting [2-06]=1.

Room frost protection, when enabled, is not guaranteed when there is no room thermostat that can activate the heat pump. This is the case when:

- [2.9] **Control=External room thermostat** and [C.2] **Space heating/cooling=Off**, or if
- [2.9] **Control=Leaving water**.

In the above cases, **Antifrost** will heat the space heating water to a reduced setpoint when the outdoor temperature is lower than 6°C.

Main zone unit control method [2.9]	Description
Leaving water temperature control ([C-07]=0)	Room frost protection is NOT guaranteed.
External room thermostat control ([C-07]=1)	Allow for the external room thermostat to take care of room frost protection: ▪ Set [C.2] Space heating/cooling=On.
Room thermostat control ([C-07]=2)	Allow for the dedicated Human Comfort Interface (BRC1HHDA used as room thermostat) to take care of room frost protection: ▪ Set antifrost [1.4.1] Activation=Yes. ▪ Set the temperature of the antifrost function in [1.4.2] Room setpoint.



NOTICE

If the system does NOT contain a backup heater, then:

- Make sure that the room antifrost control is activated ([2-06]=1).
- Do NOT change the default room antifrost temperature [2-05].
- Make sure that the water pipe freeze prevention is activated ([4-04]≠2).



INFORMATION

If a U4 error occurs, room frost protection is NOT guaranteed.

**NOTICE**

If the room **Antifrost** setting is active and a U4 error occurs, the unit will automatically start the **Antifrost** function via the backup heater. If the backup heater is not allowed for room frost protection during a U4 error, the room **Antifrost** setting **MUST** be disabled.

**NOTICE**

Room frost protection. Even if you turn OFF space heating/cooling operation ([C.2]: Operation > Space heating/cooling), room frost protection operation –if enabled– can still activate. However, for leaving water temperature control and external room thermostat control, the protection is NOT guaranteed.

For more detailed information about room frost protection in relation to the applicable unit control method, see the sections below.

Leaving water temperature control ([C-07]=0)

Under leaving water temperature control, room frost protection is NOT guaranteed. However, if room antifrost [2-06] is activated, limited frost protection by the unit is possible:

If...	Then...
▪ Space heating/cooling=Off, and ▪ Outdoor ambient temperature drops below 6°C	▪ The unit will supply leaving water to the heat emitters to heat up the room again, and ▪ the temperature setpoint of the leaving water will be lowered.
▪ Space heating/cooling=On, and ▪ Operation mode=Heating	The unit will supply leaving water to the heat emitters to heat up the room according to normal logic.
▪ Space heating/cooling=On, and ▪ Operation mode=Cooling	There is no room frost protection.

External room thermostat control ([C-07]=1)

Under external room thermostat control, room frost protection is guaranteed by the external room thermostat, provided that:

- [C.2] Space heating/cooling=On, and
- [9.5.1] Emergency=Automatic or auto SH normal/DHW off.

However, if [1.4.1] **Antifrost** is activated, limited frost protection by the unit is possible.

In case of 1 leaving water temperature zone:

If...	Then...
▪ Space heating/cooling=Off, and ▪ Outdoor ambient temperature drops below 6°C	▪ The unit will supply leaving water to the heat emitters to heat up the room again, and ▪ the temperature setpoint of the leaving water will be lowered.

If...	Then...
▪ Space heating/cooling=On, and ▪ The external room thermostat is "Thermo OFF", and ▪ Outdoor temperature drops below 6°C	▪ The unit will supply leaving water to the heat emitters to heat up the room again, and ▪ the temperature setpoint of the leaving water will be lowered.
▪ Space heating/cooling=On, and ▪ The external room thermostat is "Thermo ON"	Room frost protection is guaranteed by the normal logic.

In case of 2 leaving water temperature zones:

If...	Then...
▪ Space heating/cooling=Off, and ▪ Outdoor ambient temperature drops below 6°C	▪ The unit will supply leaving water to the heat emitters to heat up the room again, and ▪ the temperature setpoint of the leaving water will be lowered.
▪ Space heating/cooling=On, and ▪ Operation mode=Heating, and ▪ The external room thermostat is "Thermo OFF", and ▪ Outdoor temperature drops below 6°C	▪ The unit will supply leaving water to the heat emitters to heat up the room again, and ▪ the temperature setpoint of the leaving water will be lowered.
▪ Space heating/cooling=On, and ▪ Operation mode=Cooling	There is no room frost protection.

Room thermostat control ([C-07]=2)

During room thermostat control, room frost protection [2-06] is guaranteed when activated. If so, and the room temperature drops below the room antifrost temperature [2-05], the unit will supply leaving water to the heat emitters to heat up the room again.

#	Code	Description
[1.4.1]	[2-06]	Activation: ▪ 0 No: Antifrost functionality is OFF. ▪ 1 Yes: Antifrost functionality is on.
[1.4.2]	[2-05]	Room setpoint: ▪ 4°C~16°C



INFORMATION

When the dedicated Human Comfort Interface (BRC1HHDA used as room thermostat) is disconnected (because of incorrect wiring or damage of the cable), then room frost protection is NOT guaranteed.

**NOTICE**

If **Emergency** is set to **Manual** ([9.5.1]=0), and the unit is triggered to start emergency operation, the unit will stop and needs to be recovered manually via the user interface. To recover operation manually, go to the **Malfunctioning** main menu screen, and confirm emergency operation before starting.

Room frost protection is active even if the user does not confirm emergency operation.

Setpoint range

Only applicable in room thermostat control.

To save energy by preventing overheating or undercooling the room, you can limit the range of the room temperature for heating and/or cooling.

**NOTICE**

When adjusting the room temperature ranges, all desired room temperatures are also adjusted to guarantee they are between the limits.

#	Code	Description
[1.5.1]	[3-07]	Heating minimum
[1.5.2]	[3-06]	Heating maximum
[1.5.3]	[3-09]	Cooling minimum
[1.5.4]	[3-08]	Cooling maximum

Room sensor offset

Only applicable in room thermostat control.

To calibrate the (external) room temperature sensor, give an offset to the value of the room thermistor as measured by the Human Comfort Interface (BRC1HHDA used as room thermostat) or by the external room sensor. The setting can be used to compensate for situations where the Human Comfort Interface or the external room sensor cannot be installed at the ideal location.

See "6.7 Setting up an external temperature sensor" [► 58].

#	Code	Description
[1.6]	[2-0A]	Room sensor offset (Human Comfort Interface (BRC1HHDA used as room thermostat)): Offset on the actual room temperature measured by the Human Comfort Interface. ▪ -5°C~5°C, step 0.5°C
[1.7]	[2-09]	Room sensor offset (external room sensor option): Only applicable if the external room sensor option is installed and configured. ▪ -5°C~5°C, step 0.5°C

Room comfort setpoint

Restriction: Only applicable if:

- Smart Grid is enabled ([9.8.4]=**Smart grid**), and
- Room buffering is enabled ([9.8.7]=**Yes**)

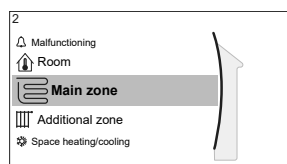
If room buffering is enabled, the extra energy from photovoltaic panels is buffered in the DHW tank and in the space heating/cooling circuit (i.e. heat up or cool down the room). With the room comfort setpoints (cooling/heating) you can modify the maximum/minimum setpoints that will be used when buffering the extra energy in the space heating/cooling circuit.

#	Code	Description
[1.9.1]	[9-0A]	Heating comfort setpoint ▪ [3-07]~[3-06]°C
[1.9.2]	[9-0B]	Cooling comfort setpoint ▪ [3-09]~[3-08]°C

11.6.3 Main zone

Overview

The following items are listed in the submenu:



[2] Main zone

Setpoint screen

[2.1] Schedule

[2.2] Heating schedule

[2.3] Cooling schedule

[2.4] Setpoint mode

[2.5] Heating WD curve

[2.6] Cooling WD curve

[2.7] Emitter type

[2.8] Setpoint range

[2.9] Control

[2.A] Ext thermostat type

[2.B] Delta T

[2.C] Modulation

[2.E] WD curve type

Setpoint screen

Control the leaving water temperature for the main zone via setpoint screen [2] **Main zone**.

See "11.3.5 Setpoint screen" [► 133].

Schedule

Indicate if the temperature of the leaving water is defined according to a schedule or not.

Influence of the LWT setpoint mode [2.4] is as follows:

- In **Fixed** LWT setpoint mode, the scheduled actions consist of desired leaving water temperatures, either preset or custom.
- In **Weather dependent** LWT setpoint mode, the scheduled actions consist of desired shift actions, either preset or custom.

#	Code	Description
[2.1]	N/A	Schedule: ▪ 0: No ▪ 1: Yes

Heating schedule

Define a heating temperature schedule for the main zone via [2.2] **Heating schedule**.

See "11.4.3 Schedule screen: Example" [► 139].

Cooling schedule

Define a cooling temperature schedule for the main zone via [2.3] **Cooling schedule**.

See "11.4.3 Schedule screen: Example" [► 139].

Setpoint mode

Define the setpoint mode:

- **Fixed:** the desired leaving water temperature does not depend on the outdoor ambient temperature.
- In **WD heating, fixed cooling** mode, the desired leaving water temperature:
 - depends on the outdoor ambient temperature for heating
 - does NOT depend on the outdoor ambient temperature for cooling
- In **Weather dependent** mode, the desired leaving water temperature depends on the outdoor ambient temperature.

#	Code	Description
[2.4]	N/A	Setpoint mode: ▪ Fixed ▪ WD heating, fixed cooling ▪ Weather dependent

When weather dependent operation is active, low outdoor temperatures will result in warmer water and vice versa. During weather dependent operation, the user can shift the water temperature up or down by a maximum of 10°C.

Heating WD curve

Set weather-dependent heating for the main zone (if [2.4]=1 or 2):

#	Code	Description
[2.5]	[1-00] [1-01] [1-02] [1-03]	Set weather-dependent heating: Note: There are 2 methods to set the weather dependent curve. See "11.5.2 2-points curve" [► 145] and "11.5.3 Slope-offset curve" [► 146]. Both curve types require 4 field settings to be configured according to the figure below. ▪ T_t: Target leaving water temperature (main zone) ▪ T_a: Outdoor temperature ▪ [1-00]: Low outdoor ambient temperature. – $40^{\circ}\text{C}\sim+5^{\circ}\text{C}$ ▪ [1-01]: High outdoor ambient temperature. $10^{\circ}\text{C}\sim25^{\circ}\text{C}$ ▪ [1-02]: Desired leaving water temperature when the outdoor temperature equals or drops below the low ambient temperature. $[9-01]^{\circ}\text{C}\sim[9-00]^{\circ}\text{C}$ Note: This value should be higher than [1-03] as for low outdoor temperatures warmer water is required. ▪ [1-03]: Desired leaving water temperature when the outdoor temperature equals or rises above the high ambient temperature. $[9-01]^{\circ}\text{C}\sim\min(45, [9-00])^{\circ}\text{C}$ Note: This value should be lower than [1-02] as for high outdoor temperatures less warm water is required.

Cooling WD curve

Set weather-dependent cooling for the main zone (if [2.4]=2):

#	Code	Description
[2.6]	[1-06] [1-07] [1-08] [1-09]	Set weather-dependent cooling: Note: There are 2 methods to set the weather dependent curve. See "11.5.2 2-points curve" [▶ 145] and "11.5.3 Slope-offset curve" [▶ 146]. Both curve types require 4 field settings to be configured according to the figure below. ▪ T_t: Target leaving water temperature (main zone) ▪ T_a: Outdoor temperature ▪ [1-06]: Low outdoor ambient temperature. 10°C~25°C ▪ [1-07]: High outdoor ambient temperature. 25°C~43°C ▪ [1-08]: Desired leaving water temperature when the outdoor temperature equals or drops below the low ambient temperature. [9-03]°C~[9-02]°C Note: This value should be higher than [1-09] as for low outdoor temperatures less cold water is required. ▪ [1-09]: Desired leaving water temperature when the outdoor temperature equals or rises above the high ambient temperature. [9-03]°C~[9-02]°C Note: This value should be lower than [1-08] as for high outdoor temperatures colder water is required.

Emitter type

Heating up or cooling down the main zone can take longer. This depends on:

- The water volume of the system
- The heater emitter type of the main zone

The setting **Emitter type** can compensate for a slow or a quick heating/cooling system during the heat up/cool down cycle. In room thermostat control, **Emitter type** influences the maximum modulation of the desired leaving water temperature, and the possibility for usage of the automatic cooling/heating changeover based on the indoor ambient temperature.

It is important to set **Emitter type** correctly and in accordance with your system layout. The target delta T for the main zone depends on it.

#	Code	Description
[2.7]	[2-0C]	Emitter type: ▪ 0: Underfloor heating ▪ 1: Fancoil unit ▪ 2: Radiator

The setting **Emitter type** influences the space heating setpoint range and the target delta T in heating as follows:

Emitter type Main zone	Space heating setpoint range [9-01]~[9-00]	Target delta T in heating [1-0B]
0: Underfloor heating	Maximum 55°C	Variable (see [2.B.1])
1: Fancoil unit	Maximum 55°C	Variable (see [2.B.1])
2: Radiator	Maximum 60°C	Fixed 8°C



NOTICE

The maximum setpoint in space heating depends on the emitter type as can be seen in above table. If there are 2 water temperature zones, then the maximum setpoint is the maximum of the 2 zones.



NOTICE

NOT configuring the system in the following way can cause damage to the heat emitters. If there are 2 zones, it is important that in heating:

- the zone with the lowest water temperature is configured as the main zone, and
- the zone with the highest water temperature is configured as the additional zone.



NOTICE

If there are 2 zones and the emitter types are wrongly configured, water of high temperature can be sent towards a low temperature emitter (underfloor heating). To avoid this:

- Install an aquastat/thermostatic valve to avoid too high temperatures towards a low temperature emitter.
- Make sure you set the emitter types for the main zone [2.7] and for the additional zone [3.7] correctly in accordance with the connected emitter.



NOTICE

Average emitter temperature = Leaving water temperature – (Delta T)/2

This means that for a same leaving water temperature setpoint, the average emitter temperature of radiators is lower than that of underfloor heating because of a bigger delta T.

Example radiators: $40 - 8/2 = 36^{\circ}\text{C}$

Example underfloor heating: $40 - 5/2 = 37.5^{\circ}\text{C}$

To compensate, you can:

- Increase the weather-dependent curve desired temperatures [2.5].
- Enable leaving water temperature modulation and increase the maximum modulation [2.C].

Setpoint range

To prevent a wrong (i.e. too hot or too cold) leaving water temperature for the main leaving water temperature zone, limit its temperature range.



NOTICE

In case of a floor heating application it is important to limit the:

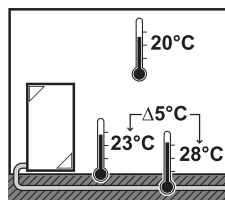
- maximum leaving water temperature at heating operation according to the specifications of the floor heating installation.
- the minimum leaving water temperature at cooling operation to 18~20°C to prevent condensation on the floor.



NOTICE

- When adjusting the leaving water temperature ranges, all desired leaving water temperatures are also adjusted to guarantee they are between the limits.
- Always balance between the desired leaving water temperature with the desired room temperature and/or the capacity (according to the design and selection of the heat emitters). The desired leaving water temperature is the result of several settings (preset values, shift values, weather-dependent curves, modulation). As a result, too high or too low leaving water temperatures could occur which lead to overtemperatures or capacity shortage. By limiting the leaving water temperature range to adequate values (depending on the heat emitter), such situations can be avoided.

Example: In heating mode, leaving water temperatures must be sufficiently higher than the room temperatures. To avoid that the room cannot heat up as desired, set the minimum leaving water temperature to 28°C.



#	Code	Description
Leaving water temperature range for the main leaving water temperature zone (= the leaving water temperature zone with the lowest leaving water temperature in heating operation and the highest leaving water temperature in cooling operation)		
[2.8.1]	[9-01]	Heating minimum: ▪ 15°C~37°C
[2.8.2]	[9-00]	Heating maximum: ▪ [2-0C]=2 (emitter type main zone = radiator) 37°C~60°C ▪ Else: 37°C~55°C
[2.8.3]	[9-03]	Cooling minimum: ▪ 5°C~18°C
[2.8.4]	[9-02]	Cooling maximum: ▪ 18°C~22°C

Control

Define how the operation of the unit is controlled.

Control	In this control...
Leaving water	Unit operation is decided based on the leaving water temperature regardless the actual room temperature and/or heating or cooling demand of the room.
External room thermostat	Unit operation is decided by the external thermostat or equivalent (e.g. heat pump convector).
Room thermostat	Unit operation is decided based on the ambient temperature of the dedicated Human Comfort Interface (BRC1HHDA used as room thermostat).

#	Code	Description
[2.9]	[C-07]	▪ 0: Leaving water ▪ 1: External room thermostat ▪ 2: Room thermostat

Ext thermostat type

Only applicable in external room thermostat control.



NOTICE

If an external room thermostat is used, the external room thermostat will control the room frost protection. However, the room frost protection is only possible if [C.2] Space heating/cooling=On.

#	Code	Description
[2.A]	[C-05]	External room thermostat type for the main zone: ▪ 1: 1 contact: The used external room thermostat can only send a thermo ON/OFF condition. There is no separation between heating or cooling demand. The room thermostat is connected to only 1 digital input (X2M/35). Select this value in case of a connection to the heat pump convector (FWXV). ▪ 2: 2 contacts: The used external room thermostat can send a separate heating/cooling thermo ON/OFF condition. The room thermostat is connected to 2 digital inputs (X2M/35 and X2M/34). Select this value in case of connection to multi-zoning wired controls (see "5.2.1 Possible options for the outdoor unit" [► 21]), wired room thermostats (EKRTWA) or wireless room thermostats (EKTRTB).

Leaving water temperature: Delta T

In heating for the main zone, the target delta T (temperature difference) depends on the selected emitter type for the main zone.

Delta T is the absolute value of the temperature difference between the leaving water and entering water.

The unit is designed to support underfloor loops operation. The recommended leaving water temperature for underfloor loops is 35°C. In such case, the unit will realize a temperature difference of 5°C, which means that the entering water temperature is around 30°C.

Depending on the installed type of heat emitters (radiators, heat pump convector, underfloor loops) or situation, you can change the difference between entering and leaving water temperature.

Note: The pump will regulate its flow to keep the delta T. In some special cases, the measured delta T can differ from the set value.



INFORMATION

When only the backup heater is active in heating, delta T will be controlled according to the fixed capacity of the backup heater. It is possible that this delta T is different from the selected target delta T.



INFORMATION

In heating, the target delta T will only be achieved after some operation time, when the setpoint is being reached, because of the big difference between leaving water temperature setpoint and inlet temperature at startup.



INFORMATION

If the main zone or the additional zone has a heating demand, and this zone is equipped with radiators, then the target delta T that the unit will use in heating operation will be 8°C fixed.

If the zones are not equipped with radiators, then in heating the unit will give priority to the target delta T for the additional zone, if there is a heating demand in the additional zone.

In cooling the unit will give priority to the target delta T for the additional zone, if there is a cooling demand in the additional zone.

#	Code	Description
[2.B.1]	[1-0B]	Delta T heating: A minimum temperature difference is required for proper operation of heat emitters in heating mode. ▪ If [2-0C]=2, this is fixed to 8°C ▪ Else: 3°C~10°C
[2.B.2]	[1-0D]	Delta T cooling: A minimum temperature difference is required for proper operation of heat emitters in cooling mode. ▪ 3°C~10°C

Leaving water temperature: Modulation

Only applicable in case of room thermostat control.

When using the room thermostat functionality, the customer needs to set the desired room temperature. The unit will supply hot water to the heat emitters and the room will be heated.

Additionally, also the desired leaving water temperature must be configured: if **Modulation** is enabled, the unit automatically calculates the desired leaving water temperature. These calculations are based on:

- the preset temperatures, or
- the desired weather-dependent temperatures (if weather-dependent is enabled)

Moreover, with **Modulation** enabled, the desired leaving water temperature is lowered or raised in function of the desired room temperature and the difference between the actual and the desired room temperature. This results in:

- stable room temperatures, exactly matching the desired temperature (higher comfort level)
- less on/off cycles (lower noise level, higher comfort and higher efficiency)
- water temperatures as low as possible to match the desired temperature (higher efficiency)

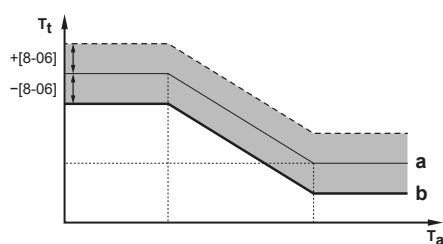
If **Modulation** is disabled, set the desired leaving water temperature via [2] **Main zone**.

#	Code	Description
[2.C.1]	[8-05]	Modulation: ▪ 0 No (disabled) ▪ 1 Yes (enabled) Note: The desired leaving water temperature can only be read out on the user interface.
[2.C.2]	[8-06]	Max modulation: ▪ 0°C~10°C This is the temperature value by which the desired leaving water temperature is increased or decreased.



INFORMATION

When leaving water temperature modulation is enabled, the weather-dependent curve needs to be set to a higher position than [8-06] plus the minimum leaving water temperature setpoint required to reach a stable condition on the comfort setpoint for the room. To increase efficiency, modulation can lower the leaving water temperature setpoint. By setting the weather-dependent curve to a higher position, it cannot drop below the minimum setpoint. See the illustration below.



- a** Weather-dependent curve
- b** Minimum leaving water temperature setpoint required to reach a stable condition on the comfort setpoint for the room.

WD curve type

The weather-dependent curve can be defined using the **2-points** method or the **Slope-Offset** method.

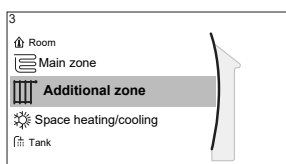
See "11.5.2 2-points curve" [▶ 145] and "11.5.3 Slope-offset curve" [▶ 146].

#	Code	Description
[2.E]	N/A	▪ 2-points ▪ Slope-Offset

11.6.4 Additional zone

Overview

The following items are listed in the submenu:



[3] Additional zone

Setpoint screen

[3.1] Schedule

[3.2] Heating schedule

[3.3] Cooling schedule

[3.4] Setpoint mode

[3.5] Heating WD curve

[3.6] Cooling WD curve

[3.7] Emitter type

[3.8] Setpoint range

[3.9] Control

[3.A] Ext thermostat type

[3.B] Delta T

[3.C] WD curve type

Setpoint screen

Control the leaving water temperature for the additional zone via setpoint screen [3] **Additional zone**.

See "11.3.5 Setpoint screen" [► 133].

Schedule

Indicates if the desired leaving water temperature is according to a schedule.

See "11.6.3 Main zone" [► 155].

#	Code	Description
[3.1]	N/A	Schedule: ▪ No ▪ Yes

Heating schedule

Define a heating temperature schedule for the additional zone via [3.2] **Heating schedule**.

See "11.4.3 Schedule screen: Example" [► 139].

Cooling schedule

Define a cooling temperature schedule for the additional zone via [3.3] **Cooling schedule**.

See "11.4.3 Schedule screen: Example" [► 139].

Setpoint mode

The setpoint mode of the additional zone can be independently set from the setpoint mode of the main zone.

See "Setpoint mode" [▶ 156].

#	Code	Description
[3.4]	N/A	Setpoint mode: ▪ Fixed ▪ WD heating, fixed cooling ▪ Weather dependent

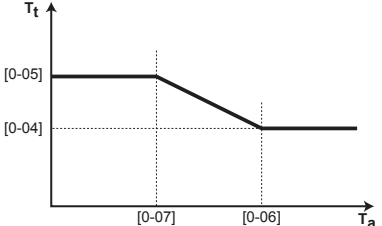
Heating WD curve

Set weather-dependent heating for the additional zone (if [3.4]=1 or 2):

#	Code	Description
[3.5]	[0-00] [0-01] [0-02] [0-03]	Set weather-dependent heating: Note: There are 2 methods to set the weather dependent curve. See "11.5.2 2-points curve" [▶ 145] and "11.5.3 Slope-offset curve" [▶ 146]. Both curve types require 4 field settings to be configured according to the figure below. The graph shows a piecewise linear function for the heating curve. The vertical axis is T_t (Target leaving water temperature) and the horizontal axis is T_a (Outdoor temperature). The curve starts at a constant value $[0-01]$ for T_a values from $[0-03]$ down to a lower limit. At $T_a = [0-02]$, the curve changes slope and reaches the value $[0-00]$. For T_a values above $[0-02]$, the curve remains constant at $[0-00]$. ▪ T_t: Target leaving water temperature (additional zone) ▪ T_a: Outdoor temperature ▪ [0-03]: Low outdoor ambient temperature. $-40^{\circ}\text{C} \sim +5^{\circ}\text{C}$ ▪ [0-02]: High outdoor ambient temperature. $10^{\circ}\text{C} \sim 25^{\circ}\text{C}$ ▪ [0-01]: Desired leaving water temperature when the outdoor temperature equals or drops below the low ambient temperature. $[9-05]^{\circ}\text{C} \sim [9-06]^{\circ}\text{C}$ Note: This value should be higher than [0-00] as for low outdoor temperatures warmer water is required. ▪ [0-00]: Desired leaving water temperature when the outdoor temperature equals or rises above the high ambient temperature. $[9-05] \sim \min(45, [9-06])^{\circ}\text{C}$ Note: This value should be lower than [0-01] as for high outdoor temperatures less warm water is required.

Cooling WD curve

Set weather-dependent cooling for the additional zone (if [3.4]=2):

#	Code	Description
[3.6]	[0-04] [0-05] [0-06] [0-07]	Set weather-dependent cooling: Note: There are 2 methods to set the weather dependent curve. See "11.5.2 2-points curve" [▶ 145] and "11.5.3 Slope-offset curve" [▶ 146]. Both curve types require 4 field settings to be configured according to the figure below.  ▪ T_t: Target leaving water temperature (additional zone) ▪ T_a: Outdoor temperature ▪ [0-07]: Low outdoor ambient temperature. 10°C~25°C ▪ [0-06]: High outdoor ambient temperature. 25°C~43°C ▪ [0-05]: Desired leaving water temperature when the outdoor temperature equals or drops below the low ambient temperature. [9-07]°C~[9-08]°C Note: This value should be higher than [0-04] as for low outdoor temperatures less cold water is required. ▪ [0-04]: Desired leaving water temperature when the outdoor temperature equals or rises above the high ambient temperature. [9-07]°C~[9-08]°C Note: This value should be lower than [0-05] as for high outdoor temperatures colder water is required.

Emitter type

For more information about **Emitter type**, see "11.6.3 Main zone" [▶ 155].

#	Code	Description
[3.7]	[2-0D]	Emitter type: ▪ 0: Underfloor heating ▪ 1: Fancoil unit ▪ 2: Radiator

The setting of the emitter type has an influence on the space heating setpoint range and the target delta T in heating as follows:

Emitter type Additional zone	Space heating setpoint range [9-05]~[9-06]	Target delta T in heating [1-0C]
0: Underfloor heating	Maximum 55°C	Variable (see [3.B.1])
1: Fancoil unit	Maximum 55°C	Variable (see [3.B.1])
2: Radiator	Maximum 60°C	Fixed 8°C

Setpoint range

For more information about **Setpoint range**, see "11.6.3 Main zone" [► 155].

#	Code	Description
Leaving water temperature range for the additional leaving water temperature zone (= the leaving water temperature zone with the highest leaving water temperature in heating operation and the lowest leaving water temperature in cooling operation)		
[3.8.1]	[9-05]	Heating minimum: 15°C~37°C
[3.8.2]	[9-06]	Heating maximum ▪ [2-0D]=2 (emitter type additional zone = radiator) 37°C~60°C ▪ Else: 37°C~55°C
[3.8.3]	[9-07]	Cooling minimum ▪ 5°C~18°C
[3.8.4]	[9-08]	Cooling maximum ▪ 18°C~22°C

Control

The control type for the additional zone is read only. It is determined by the control type of the main zone.

See "11.6.3 Main zone" [► 155].

#	Code	Description
[3.9]	N/A	Control: ▪ Leaving water if the control type of the main zone is Leaving water. ▪ External room thermostat if the control type of the main zone is: - External room thermostat, or - Room thermostat.

Ext thermostat type

Only applicable in external room thermostat control.

Also see "11.6.3 Main zone" [► 155].

#	Code	Description
[3.A]	[C-06]	External room thermostat type for the additional zone: ▪ 1: 1 contact. Connected to only 1 digital input (X2M/35a) ▪ 2: 2 contacts. Connected to 2 digital inputs (X2M/34a and X2M/35a)

Leaving water temperature: Delta T

For more information, see "11.6.3 Main zone" [► 155].

#	Code	Description
[3.B.1]	[1-0C]	Delta T heating : A minimum temperature difference is required for the good operation of heat emitters in heating mode. ▪ If [2-0D] = 2, this is fixed to 8°C ▪ Else: 3°C~10°C
[3.B.2]	[1-0E]	Delta T cooling : A minimum temperature difference is required for the good operation of heat emitters in cooling mode. ▪ 3°C~10°C

WD curve type

There are 2 methods to define the weather-dependent curves:

- **2-points** (see "11.5.2 2-points curve" [► 145])
- **Slope-Offset** (see "11.5.3 Slope-offset curve" [► 146])

In [2.E] **WD curve type**, you can choose which method you want to use.

In [3.C] **WD curve type**, the chosen method is shown read-only (same value as in [2.E]).

#	Code	Description
[2.E] / [3.C]	N/A	▪ 2-points ▪ Slope-Offset

11.6.5 Space heating/cooling

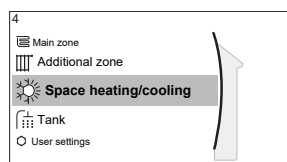


INFORMATION

Cooling is only applicable in case of reversible models.

Overview

The following items are listed in the submenu:



[4] Space heating/cooling

- [4.1] Operation mode
- [4.2] Operation mode schedule
- [4.3] Operation range
- [4.4] Number of zones
- [4.5] Pump operation mode
- [4.6] Unit type
- [4.7] or [4.8] Pump limitation
- [4.9] Pump outside range
- [4.A] Increase around 0°C
- [4.B] Overshoot
- [4.C] Antifrost

About space operation modes

Your unit can be a heating or a heating/cooling model:

- If your unit is a heating model, it can heat up a space.
- If your unit is a heating/cooling model, it can both heat up and cool down a space. You have to tell the system which operation mode to use.

To determine if a heating/cooling heat pump model is installed

1	Go to [4]: Space heating/cooling .	
2	Check if [4.1] Operation mode is listed and editable. If so, a heating/cooling heat pump model is installed.	

To tell the system which space operation to use, you can:

You can...	Location
Check which space operation mode is currently used.	Home screen
Set the space operation mode permanently.	Main menu
Restrict automatic changeover according to a monthly schedule.	

To check which space operation mode is currently used

The space operation mode is displayed on the home screen:

- When the unit is in heating mode, the icon is shown.
- When the unit is in cooling mode, the icon is shown.

The status indicator shows if the unit is currently in operation:

- When the unit is not in operation, the status indicator will show a blue pulsation with an interval of approximately 5 seconds.
- While the unit is in operation, the status indicator will light up blue constantly.

To set the space operation mode

1	Go to [4.1]: Space heating/cooling > Operation mode	
----------	---	--

2	Select one of the following options: ▪ Heating: Only heating mode ▪ Cooling: Only cooling mode ▪ Automatic: The operation mode changes automatically between heating and cooling based on the outdoor temperature. Restricted per month according to the Operation mode schedule [4.2].	
----------	---	---

When **Automatic** is selected, the unit switches its operation mode, based on the **Operation mode schedule** [4.2]. In this schedule, the end user indicates which operation is allowed for each month.

To restrict automatic changeover according to a schedule

Conditions: You set the space operation mode to **Automatic**.

1	Go to [4.2]: Space heating/cooling > Operation mode schedule .	
2	Select a month.	
3	For each month, select an option: ▪ Reversible: Not restricted ▪ Heating only: Restricted ▪ Cooling only: Restricted	
4	Confirm the changes.	

Example: Changeover restrictions

When	Restriction
During cold season. Example: October, November, December, January, February and March.	Heating only
During warm season. Example: June, July and August.	Cooling only
In-between. Example: April, May and September.	Reversible

The unit determines its operation mode by the outdoor temperature if:

- **Operation mode=Automatic**, and
- **Operation mode schedule=Reversible**.

The unit determines its operation mode in such a way that it will always stay within the following operation ranges:

- **Space heating off temperature**
- **Space cooling off temperature**

The outdoor temperature is time-averaged. If the outdoor temperature drops, the operation mode will switch to heating and vice versa.

If the outdoor temperature is between the **Space heating off temperature** and the **Space cooling off temperature**, the operation mode remains unchanged.

Operation range

Depending on the average outdoor temperature, the operation of the unit in space heating or space cooling is prohibited.

#	Code	Description
[4.3.1]	[4-02]	Space heating off temperature: When the averaged outdoor temperature rises above this value, space heating is turned off. ^(a) ▪ 14°C~35°C
[4.3.2]	[F-01]	Space cooling off temperature: When the averaged outdoor temperature drops below this value, space cooling is turned off. ^(a) ▪ 10°C~35°C

^(a) This setting is also used in automatic heating/cooling changeover.



NOTICE

Maximum value [4-02]. For models without integrated backup heater:

- Default value [4-02]=22°C. You can change this value, but do NOT exceed the maximum value.
- If the external backup heater kit is installed: Maximum value [4-02]=35°C
- If the external backup heater kit is NOT installed: Maximum value [4-02]=25°C

Exception: If the system is configured in room thermostat control with one leaving water temperature zone and quick heat emitters, the operation mode will change based on the measured indoor temperature. Besides the desired heating/cooling room temperature, the installer sets a hysteresis value (e.g. when in heating, this value is related to the desired cooling temperature) and an offset value (e.g. when in heating, this value is related to the desired heating temperature).

Example: A unit is configured as following:

- Desired room temperature in heating mode: 22°C
- Desired room temperature in cooling mode: 24°C
- Hysteresis value: 1°C
- Offset: 4°C

Changeover from heating to cooling will occur when the room temperature rises above the maximum of the desired cooling temperature added by the hysteresis value (thus 24+1=25°C) and the desired heating temperature added by the offset value (thus 22+4=26°C).

Oppositely, changeover from cooling to heating will occur when the room temperature drops below the minimum of the desired heating temperature subtracted by the hysteresis value (thus 22-1=21°C) and the desired cooling temperature subtracted by the offset value (thus 24-4=20°C)

Guard timer to prevent too frequent changing from heating to cooling and vice versa.

#	Code	Description
		Changeover settings related to the indoor temperature. Only applicable when Automatic is selected and the system is configured in room thermostat control with 1 leaving water temperature zone and quick heat emitters.

#	Code	Description
N/A	[4-0B]	Hysteresis: ensures that changeover is only done when necessary. The space operation only changes from heating to cooling when the room temperature rises above the desired cooling temperature added by the hysteresis value. ▪ Range: 1°C~10°C
N/A	[4-0D]	Offset: ensures that the active desired room temperature is always reached. In heating mode, the space operation only changes when the room temperature rises above the desired heating temperature added by the offset value. ▪ Range: 1°C~10°C

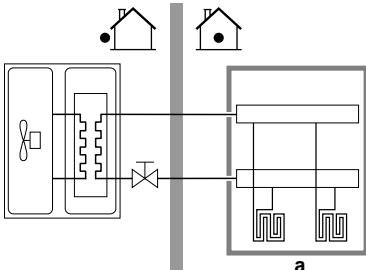
Number of zones

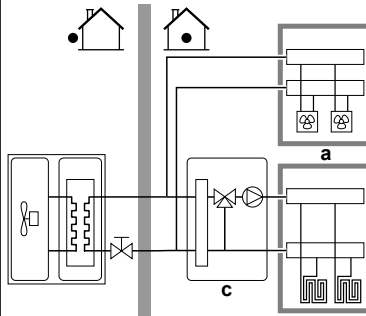
The system can supply leaving water to up to 2 water temperature zones. During configuration, the number of water zones must be set.



INFORMATION

Mixing station. If your system layout contains 2 LWT zones, you need to install a mixing station in front of the main LWT zone.

#	Code	Description
[4.4]	[7-02]	▪ 0: Single zone Only one leaving water temperature zone:  a Main LWT zone

#	Code	Description
[4.4]	[7-02]	▪ 1: Dual zone Two leaving water temperature zones. The main leaving water temperature zone consists of the higher load heat emitters and a mixing station to achieve the desired leaving water temperature. In heating:  a Additional LWT zone: Highest temperature b Main LWT zone: Lowest temperature c Mixing station

**NOTICE**

NOT configuring the system in the following way can cause damage to the heat emitters. If there are 2 zones, it is important that in heating:

- the zone with the lowest water temperature is configured as the main zone, and
- the zone with the highest water temperature is configured as the additional zone.

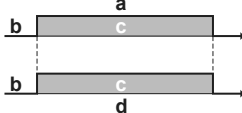
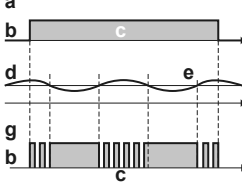
**NOTICE**

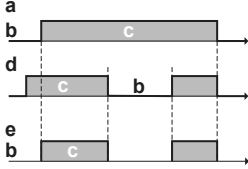
If there are 2 zones and the emitter types are wrongly configured, water of high temperature can be sent towards a low temperature emitter (underfloor heating). To avoid this:

- Install an aquastat/thermostatic valve to avoid too high temperatures towards a low temperature emitter.
- Make sure you set the emitter types for the main zone [2.7] and for the additional zone [3.7] correctly in accordance with the connected emitter.

Pump operation mode

When the space heating/cooling operation is OFF, the pump is always OFF. When space heating/cooling operation is ON, you have the choice between these operation modes:

#	Code	Description
[4.5]	[F-0D]	Pump operation mode: ▪ 0 Continuous: Continuous pump operation, regardless of thermo ON or OFF condition. Remark: Continuous pump operation requires more energy than sample or request pump operation.  a Space heating/cooling control b Off c On d Pump operation
[4.5]	[F-0D]	▪ 1 Sample: The pump is ON when there is heating or cooling demand as the leaving water temperature has not yet reached the desired temperature yet. When thermo OFF condition occurs, the pump runs every 3 minutes to check the water temperature and demand heating or cooling if necessary. Remark: Sample is ONLY available in leaving water temperature control.  a Space heating/cooling control b Off c On d LWT temperature e Actual f Desired g Pump operation

#	Code	Description
[4.5]	[F-0D]	▪ 2 Request: Pump operation based on request. Example: Using a room thermostat and thermostat creates thermo ON/OFF condition. Remark: NOT available in leaving water temperature control.  a Space heating/cooling control b Off c On d Heating demand (by external room thermostat or room thermostat) e Pump operation

Unit type

In this part of the menu it can be read out which type of unit is used:

#	Code	Description
[4.6]	[E-02]	Unit type: ▪ 0 Reversible ▪ 1 Heating only

Pump limitation

Pump speed limitation [9-0D] defines the maximum pump speed. In normal conditions, the default setting should NOT be modified. The pump speed limitation will be overruled when the flow rate is in the range of the minimum flow (error 7H).

In most cases, instead of using [9-0D], you can prevent flow noises by performing hydraulic balancing.

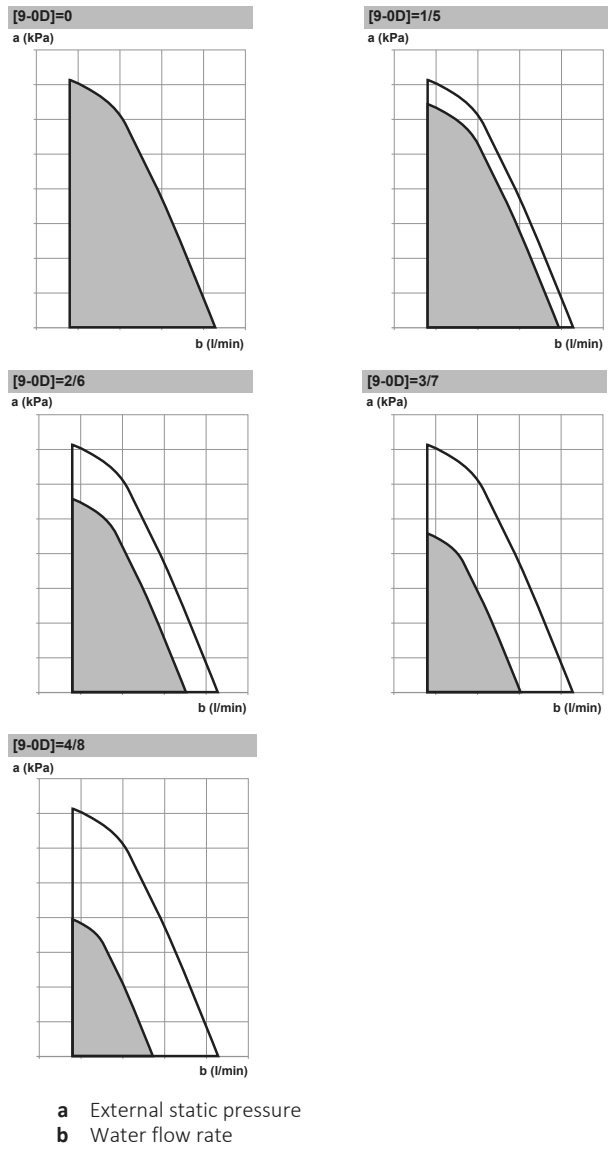
#	Code	Description
[4.7]	[9-0D]	Pump limitation Possible values: see below.

Possible values:

Value	Description
0	No limitation
1~4	General limitation. There is limitation in all conditions. The required delta T control and comfort are NOT guaranteed. ▪ 1: 90% pump speed ▪ 2: 80% pump speed ▪ 3: 70% pump speed ▪ 4: 60% pump speed

Value	Description
5~8	Limitation when no actuators. When there is no heating output, the pump speed limitation is applicable. When there is heating output, the pump speed is only determined by delta T in relation to the required capacity. With this limitation range, delta T is possible and the comfort is guaranteed. During sampling operation the pump runs for a short time to measure the water temperatures, which indicate if operation is required or not. ▪ 5: 90% pump speed during sampling ▪ 6: 80% pump speed during sampling ▪ 7: 70% pump speed during sampling ▪ 8: 60% pump speed during sampling

The maximum values depend on the unit type:



Pump outside range

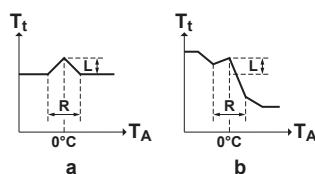
When the pump operation function is disabled the pump will stop if the outdoor temperature is higher than the value set by the **Space heating off temperature** [4-02] or if the outdoor temperature drops below the value set by the **Space cooling off temperature** [F-01]. When the pump operation is enabled, the pump operation is possible at all outdoor temperatures.

#	Code	Description
[4.9]	[F-00]	Pump operation: 0: Disabled if outdoor temperature is higher than [4-02] or lower than [F-01] depending on heating/cooling operation mode. 1: Possible at all outdoor temperatures.

Increase around 0°C

Use this setting to compensate for possible heat losses of the building due to the evaporation of melted ice or snow. (e.g. in cold region countries).

In heating operation, the desired leaving water temperature is locally increased around an outdoor temperature of 0°C. This compensation can be selected when using an absolute or a weather dependent desired temperature (see illustration below).



a Absolute desired LWT
b Weather dependent desired LWT

#	Code	Description
[4.A]	[D-03]	Increase around 0°C: 0: No 1: increase 2°C, span 4°C 2: increase 4°C, span 4°C 3: increase 2°C, span 8°C 4: increase 4°C, span 8°C

Overshoot

Restriction: This function is only applicable in heating mode.

This function defines how much the water temperature may rise above the desired leaving water temperature before the compressor stops. The compressor will start up again when the leaving water temperature drops below the desired leaving water temperature.

#	Code	Description
[4.B]	[9-04]	Overshoot: 1°C~4°C

Undershoot

Restriction: This function is only applicable in cooling mode during compressor startup. It is NOT applicable for stable operation.

This function defines how much the water temperature may drop below the desired leaving water temperature before the compressor stops. The compressor will start up again when the leaving water temperature rises above the desired leaving water temperature.

#	Code	Description
N/A	[9-09]	Undershoot: ▪ 1°C~18°C

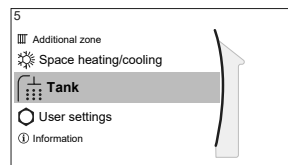
Antifrost

Antifrost [1.4] or [4.C] prevents the room from getting too cold. For more information about room frost protection, see "11.6.2 Room" [► 150].

11.6.6 Tank

Overview

The following items are listed in the submenu:



[5] Tank

Setpoint screen

[5.1] **Powerful operation**

[5.2] **Comfort setpoint**

[5.3] **Eco setpoint**

[5.4] **Reheat setpoint**

[5.5] **Schedule**

[5.6] **Heat up mode**

[5.7] **Disinfection**

[5.8] **Maximum**

[5.9] **Hysteresis**

[5.A] **Hysteresis**

[5.B] **Setpoint mode**

[5.C] **WD curve**

[5.D] **Margin**

[5.E] **WD curve type**

Tank setpoint screen

You can set the domestic hot water temperature using the setpoint screen. For more information about how to do this, see "11.3.5 Setpoint screen" [► 133].

Powerful operation

You can use powerful operation to immediately start heating up the water to the preset value (Storage comfort). However, this consumes extra energy. If powerful operation is active, will be shown on the home screen.

To activate powerful operation

Activate or deactivate **Powerful operation** as follows:

1	Go to [5.1]: Tank > Powerful operation	
2	Turn powerful operation Off or On .	

Usage example: You immediately need more hot water

If you are in the following situation:

- You already consumed most of your hot water.
- You cannot wait for the next scheduled action to heat up the DHW tank.

Then you can activate DHW powerful operation.

Advantage: The DHW tank immediately starts heating up the water to the preset value (Storage comfort).



INFORMATION

When powerful operation is active, the risk of space heating/cooling and capacity shortage comfort problems is significant. In case of frequent domestic hot water operation, frequent and long space heating/cooling interruptions will happen.

Comfort setpoint

Only applicable when domestic hot water preparation is **Schedule only** or **Schedule + reheat**. When programming the schedule, you can make use of the comfort setpoint as a preset value. When you later want to change the storage setpoint, you only have to do it in one place.

The tank will heat up until the **storage comfort temperature** has been reached. It is the higher desired temperature when a storage comfort action is scheduled.

Additionally, a storage stop can be programmed. This feature puts a stop to tank heating even if the setpoint has NOT been reached. Only program a storage stop when tank heating is absolutely undesirable.

#	Code	Description
[5.2]	[6-0A]	Comfort setpoint: ▪ 30°C~[6-0E]°C

Eco setpoint

The **storage economic temperature** denotes the lower desired tank temperature. It is the desired temperature when a storage economic action is scheduled (preferably during day).

#	Code	Description
[5.3]	[6-0B]	Eco setpoint: ▪ 30°C~min(50,[6-0E])°C

Reheat setpoint

Desired reheat tank temperature, used:

- in **Schedule + reheat** mode, during reheat mode: the guaranteed minimum tank temperature is set by the **Reheat setpoint** minus the reheat hysteresis. If the tank temperature drops below this value, the tank is heated up.
- during storage comfort, to prioritize the domestic hot water preparation. When the tank temperature rises above this value, domestic hot water preparation and space heating/cooling are executed sequentially.

#	Code	Description
[5.4]	[6-0C]	Reheat setpoint: ▪ 30°C~min(50,[6-0E])°C

Schedule

You can set the tank temperature schedule using the schedule screen. For more information about this screen, see "11.4.3 Schedule screen: Example" [► 139].

Heat up mode

The domestic hot water can be prepared in 3 different ways. They differ from each other by the way the desired tank temperature is set and how the unit acts upon it.

#	Code	Description
[5.6]	[6-0D]	Heat up mode: ▪ 0: Reheat only: Only reheat operation is allowed. ▪ 1: Schedule + reheat: The domestic hot water tank is heated according to a schedule and between the scheduled heat up cycles, reheat operation is allowed. ▪ 2: Schedule only: The domestic hot water tank can ONLY be heated according to a schedule.

See the operation manual for more details.



INFORMATION

Risk of space heating capacity shortage for domestic hot water tank without internal booster heater: In case of frequent domestic hot water operation, frequent and long space heating/cooling interruption will happen when selecting the following:

Tank > Heat up mode > Reheat only.

Disinfection

Applies only to installations with a domestic hot water tank.

The disinfection function disinfects the domestic hot water tank by periodically heating the domestic hot water to a specific temperature.

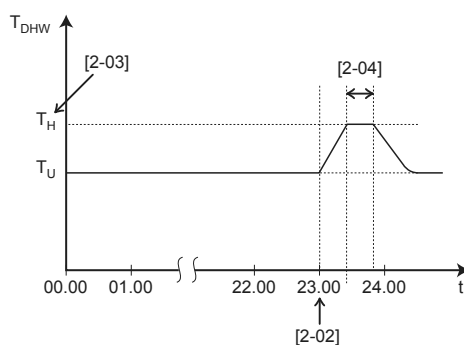


CAUTION

The disinfection function settings **MUST** be configured by the installer according to the applicable legislation.

#	Code	Description
[5.7.1]	[2-01]	Activation: ▪ 0: No ▪ 1: Yes

#	Code	Description
[5.7.2]	[2-00]	Operation day: ▪ 0: Every day ▪ 1: Monday ▪ 2: Tuesday ▪ 3: Wednesday ▪ 4: Thursday ▪ 5: Friday ▪ 6: Saturday ▪ 7: Sunday
[5.7.3]	[2-02]	Start time
[5.7.4]	[2-03]	Tank setpoint: 55°C~75°C
[5.7.5]	[2-04]	Duration: 5~60 minutes



T_{DHW} Domestic hot water temperature
 T_U User setpoint temperature
 T_H High setpoint temperature [2-03]
 t Time



WARNING

Be aware that the domestic hot water temperature at the hot water tap will be equal to the value selected in field setting [2-03] after a disinfection operation.

When the high domestic hot water temperature can be a potential risk for human injuries, a mixing valve (field supply) shall be installed at the hot water outlet connection of the domestic hot water tank. This mixing valve shall secure that the hot water temperature at the hot water tap never rise above a set maximum value. This maximum allowable hot water temperature shall be selected according to the applicable legislation.



CAUTION

Make sure that the disinfection function start time [5.7.3] with defined duration [5.7.5] is NOT interrupted by possible domestic hot water demand.

**CAUTION**

BSH allowance schedule [9.4.2] is used to restrict or allow booster heater operation based on a weekly program. Advice: In order to avoid unsuccessful disinfection function, at least allow the booster heater (by the weekly program) for minimum 4 hours starting from the scheduled start-up of disinfection. If the booster heater is restricted during disinfection, this function will NOT be successful and the applicable warning AH will be generated.

**NOTICE**

Disinfection mode. Even if you turn OFF tank heating operation ([C.3]: **Operation > Tank**), disinfection mode will remain active. However, if you turn it OFF while disinfection is running, an AH error occurs.

**INFORMATION**

In case of error code AH and no interruption of the disinfection function occurred due to domestic hot water tapping, following actions are recommended:

- When the **Reheat only** or **Schedule + reheat** mode is selected, it is recommended to program the start-up of the disinfection function at least 4 hours later than the last expected large hot water tapping. This start-up can be set by installer settings (disinfection function).
- When the **Schedule only** mode is selected, it is recommended to program an **Eco** action 3 hours before the scheduled start-up of the disinfection function to preheat the tank.

**INFORMATION**

Disinfection function is restarted in case the domestic hot water temperature drops 5°C below the disinfection target temperature within the duration time.

Maximum DHW temperature setpoint

The maximum temperature that users can select for the domestic hot water. You can use this setting to limit the temperatures at the hot water taps.

**INFORMATION**

During disinfection of the domestic hot water tank, the DHW temperature can exceed this maximum temperature.

**INFORMATION**

Limit the maximum hot water temperature according to the applicable legislation.

#	Code	Description
[5.8]	[6-0E]	Maximum: The maximum temperature that users can select for the domestic hot water. You can use this setting to limit the temperature at the hot water taps. The maximum temperature is NOT applicable during disinfection function. See disinfection function.

Hysteresis (heat pump ON hysteresis)

Applicable when domestic hot water preparation is reheat only. When the tank temperature drops below the reheat temperature minus the heat pump ON hysteresis temperature, the tank heats up to the reheat temperature.

The minimum ON temperature is 20°C, even if setpoint hysteresis is smaller than 20°C.

#	Code	Description
[5.9]	[6-00]	Heat pump ON hysteresis ▪ 2°C~40°C

Hysteresis (reheat hysteresis)

Applicable when domestic hot water preparation is scheduled+reheat. When the tank temperature drops below the reheat temperature minus the reheat hysteresis temperature, the tank heats up to the reheat temperature.

#	Code	Description
[5.A]	[6-08]	Reheat hysteresis ▪ 2°C~20°C

Setpoint mode

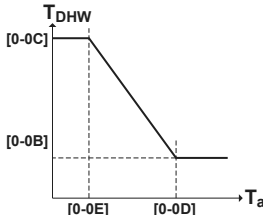
#	Code	Description
[5.B]	N/A	Setpoint mode: ▪ Fixed ▪ Weather dependent

WD curve

When weather-dependent operation is active the desired tank temperature is determined automatically depending on the averaged outdoor temperature: low outdoor temperatures will result in higher desired tank temperatures as the cold water tap is colder and vice versa.

In case of **Schedule only** or **Schedule + reheat** domestic hot water preparation, the storage comfort temperature is weather-dependent (according to the weather-dependent curve), the storage economic and reheat temperature are NOT weather-dependent.

In case of **Reheat only** domestic hot water preparation, the desired tank temperature is weather-dependent (according to the weather-dependent curve). During weather-dependent operation, the end-user cannot adjust the desired tank temperature on the user interface. Also see "11.5 Weather-dependent curve" [► 145].

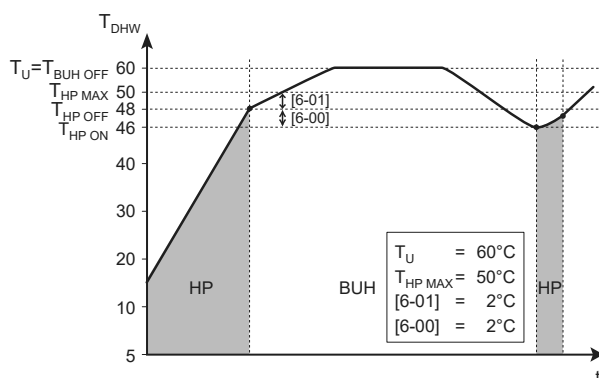
#	Code	Description
[5.C]	[0-0E] [0-0D] [0-0C] [0-0B]	WD curve: Note: There are 2 methods to set the weather dependent curve. See "11.5.2 2-points curve" [▶ 145] and "11.5.3 Slope-offset curve" [▶ 146] for more information about the different curve types. Both curve types require 4 field settings to be configured according to the figure below.  ▪ T_{DHW}: The desired tank temperature. ▪ T_a: The (averaged) outdoor ambient temperature ▪ [0-0E]: low outdoor ambient temperature: $-40^{\circ}\text{C} \sim 5^{\circ}\text{C}$ ▪ [0-0D]: high outdoor ambient temperature: $10^{\circ}\text{C} \sim 25^{\circ}\text{C}$ ▪ [0-0C]: desired tank temperature when the outdoor temperature equals or drops below the low ambient temperature: $45^{\circ}\text{C} \sim [6-0E]^{\circ}\text{C}$ ▪ [0-0B]: desired tank temperature when the outdoor temperature equals or rises above the high ambient temperature: $35^{\circ}\text{C} \sim [6-0E]^{\circ}\text{C}$

Margin

In domestic hot water operation, the following hysteresis value can be set for the heat pump operation:

#	Code	Description
[5.D]	[6-01]	The temperature difference determining the heat pump OFF temperature. Range: $0^{\circ}\text{C} \sim 10^{\circ}\text{C}$

Example: setpoint (T_u) > maximum heat pump temperature – [6-01] ($T_{HP\ MAX} - [6-01]$)



BUH Backup heater

HP Heat pump. If heating up time by the heat pump takes too long, auxiliary heating by the backup heater can take place

$T_{BUH\ OFF}$ Backup heater OFF temperature (T_U)

$T_{HP\ MAX}$ Maximum heat pump temperature at sensor in domestic hot water tank

$T_{HP\ OFF}$ Heat pump OFF temperature ($T_{HP\ MAX} - [6-01]$)

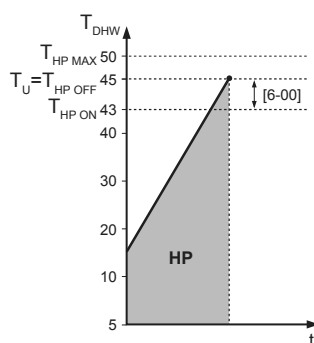
$T_{HP\ ON}$ Heat pump ON temperature ($T_{HP\ OFF} - [6-00]$)

T_{DHW} Domestic hot water temperature

T_U User setpoint temperature (as set on the user interface)

t Time

Example: setpoint (T_U) $\leq$ maximum heat pump temperature $- [6-01]$ ($T_{HP\ MAX} - [6-01]$)



HP Heat pump. If heating up time by the heat pump takes too long, auxiliary heating by the backup heater can take place

$T_{HP\ MAX}$ Maximum heat pump temperature at sensor in domestic hot water tank

$T_{HP\ OFF}$ Heat pump OFF temperature ($T_{HP\ MAX} - [6-01]$)

$T_{HP\ ON}$ Heat pump ON temperature ($T_{HP\ OFF} - [6-00]$)

T_{DHW} Domestic hot water temperature

T_U User setpoint temperature (as set on the user interface)

t Time



INFORMATION

The maximum heat pump temperature depends on the ambient temperature. For more information, see the operation range.

WD curve type

There are 2 methods to define the weather-dependent curves:

- **2-points** (see "11.5.2 2-points curve" [► 145])
- **Slope-Offset** (see "11.5.3 Slope-offset curve" [► 146])

In [2.E] **WD curve type**, you can choose which method you want to use.

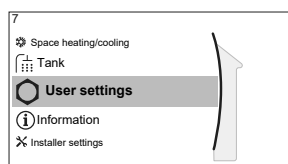
In [5.E] **WD curve type**, the chosen method is shown read-only (same value as in [2.E]).

#	Code	Description
[2.E] / [5.E]	N/A	▪ 0: 2-points ▪ 1: Slope-Offset

11.6.7 User settings

Overview

The following items are listed in the submenu:



[7] User settings

[7.1] Language

[7.2] Time/date

[7.3] Holiday

[7.4] Quiet

[7.5] Electricity price

[7.6] Gas price

Language

#	Code	Description
[7.1]	N/A	Language

Time/date

#	Code	Description
[7.2]	N/A	Set the local time and date



INFORMATION

By default, daylight savings time is enabled and clock format is set to 24 hours. These settings can be changed during initial configuration or via the menu structure [7.2]: **User settings > Time/date.**

Holiday

About holiday mode

During your holiday, you can use the holiday mode to deviate from your normal schedules without having to change them. While holiday mode is active, space heating/cooling operation and domestic hot water operation will be turned off. Room frost protection, water pipe freeze prevention and anti-legionella operation will remain active.

Typical workflow

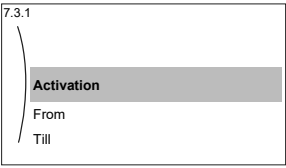
Using holiday mode typically consists of the following stages:

- 1 Activating the holiday mode.
- 2 Setting the starting date and ending date of your holiday.

To check if holiday mode is activated and/or running

If is displayed on the home screen, holiday mode is active.

To configure the holiday

1	Activate the holiday mode.	—
	Go to [7.3.1]: User settings > Holiday > Activation. 	
	Select On.	
2	Set the first day of your holiday.	—
	Go to [7.3.2]: From.	
	Select a date.	 
	Confirm the changes.	
3	Set the last day of your holiday.	—
	Go to [7.3.3]: Till.	
	Select a date.	 
	Confirm the changes.	

Quiet**About quiet mode**

You can use quiet mode to decrease the sound of the outdoor unit. However, this also decreases the heating/cooling capacity of the system. There are multiple quiet mode levels.

The installer can:

- Completely deactivate quiet mode
- Manually activate a quiet mode level
- Enable the user to program a quiet mode schedule

If enabled by the installer, the user can program a quiet mode schedule.

**INFORMATION**

If the outdoor temperature is below zero, we recommend to NOT use the most quiet level.

To check if quiet mode is active

If  is displayed on the home screen, quiet mode is active.

To use quiet mode

1	Go to [7.4.1]: User settings > Quiet > Mode.	
2	Do one of the following:	—

If you want to...	Then...	
Completely deactivate quiet mode	Select Off . Result: The unit never runs in quiet mode. The user cannot change this.	
Manually activate a quiet mode level	Select Manual .	
	Go to [7.4.3] Level and select the applicable quiet mode level. Example: Most quiet. Result: The unit always runs in the selected quiet mode level. The user cannot change this.	
Enable the user to program a quiet mode schedule	Select Automatic . Result: The unit runs in quiet mode according to a schedule. The user (or you) can program the schedule in [7.4.2] Schedule . For more information about scheduling, see "11.4.3 Schedule screen: Example" [► 139].	

Electricity prices and gas price

Only applicable in combination with the bivalent function. See also "Bivalent" [► 211].

#	Code	Description
[7.5.1]	N/A	Electricity price > High
[7.5.2]	N/A	Electricity price > Medium
[7.5.3]	N/A	Electricity price > Low
[7.6]	N/A	Gas price



INFORMATION

Electricity price can only be set when bivalent is ON ([9.C.1] or [C-02]). These values can only be set in menu structure [7.5.1], [7.5.2] and [7.5.3]. Do NOT use overview settings.

To set the gas price

1	Go to [7.6]: User settings > Gas price .	
2	Select the correct gas price.	
3	Confirm the changes.	



INFORMATION

Price value ranging from 0.00~990 valuta/kWh (with 2 significant values).

To set the electricity price

1	Go to [7.5.1]/[7.5.2]/[7.5.3]: User settings > Electricity price > High/Medium/Low .	
2	Select the correct electricity price.	

3	Confirm the changes.	
4	Repeat this for all three electricity prices.	—

**INFORMATION**

Price value ranging from 0.00~990 valuta/kWh (with 2 significant values).

**INFORMATION**

If no schedule is set, the **Electricity price** for **High** is taken into account.

To set the electricity price schedule timer

1	Go to [7.5.4]: User settings > Electricity price > Schedule .	
2	Program the selection using the scheduling screen. You can set the High , Medium and Low electricity prices according to your electricity supplier.	—
3	Confirm the changes.	

**INFORMATION**

The values correspond with the electricity price values for **High**, **Medium** and **Low** previously set. If no schedule is set, the electricity price for **High** is taken into account.

About energy prices in case of an incentive per kWh renewable energy

An incentive can be taken into account when setting the energy prices. Although the running cost can increase, the total operation cost, taking into account the reimbursement will be optimized.

**NOTICE**

Make sure to modify the setting of the energy prices at the end of the incentive period.

To set the gas price in case of an incentive per kWh renewable energy

Calculate the value for the gas price with the following formula:

▪ Actual gas price+(Incentive/kWh×0.9)

For the procedure to set the gas price, see "To set the gas price" [► 188].

To set the electricity price in case of an incentive per kWh renewable energy

Calculate the value for the electricity price with following formula:

▪ Actual electricity price+Incentive/kWh

For the procedure to set the electricity price, see "To set the electricity price" [► 188].

Example

This is an example and the prices and/or values used in this example are NOT accurate.

Data	Price/kWh
Gas price	4.08
Electricity price	12.49

Data	Price/kWh
Renewable heat incentive per kWh	5

Calculation of the gas price

Gas price=Actual gas price+(Incentive/kWh×0.9)

Gas price=4.08+(5×0.9)

Gas price=8.58

Calculation of the electricity price

Electricity price=Actual electricity price+Incentive/kWh

Electricity price=12.49+5

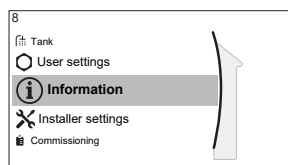
Electricity price=17.49

Price	Value in breadcrumb
Gas: 4.08 /kWh	[7.6]=8.6
Electricity: 12.49 /kWh	[7.5.1]=17

11.6.8 Information

Overview

The following items are listed in the submenu:



[8] Information

- [8.1] Energy data
- [8.2] Malfunction history
- [8.3] Dealer information
- [8.4] Sensors
- [8.5] Actuators
- [8.6] Operation modes
- [8.7] About
- [8.8] Connection status
- [8.9] Running hours
- [8.A] Reset

Dealer information

The installer can fill in his contact number here.

#	Code	Description
[8.3]	N/A	Number that users can call in case of problems.

Reset

Reset the configuration settings stored in the MMI (user interface delivered as accessory).

Example: Energy meterings, holiday settings.



INFORMATION

This does not reset the configuration settings and field settings of the hydro module of the outdoor unit.

#	Code	Description
[8.A]	N/A	Reset the MMI EEPROM to factory default

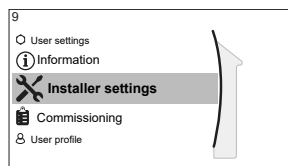
Possible read-out information

In menu...	You can read out...
[8.1] Energy data	Produced energy, consumed electricity, and consumed gas
[8.2] Malfunction history	Malfunction history
[8.3] Dealer information	Contact/helpdesk number
[8.4] Sensors	Room temperature, outside temperature, leaving water temperature,...
[8.5] Actuators	Status/mode of each actuator Example: Unit pump ON/OFF
[8.6] Operation modes	Current operation mode Example: Defrost/oil return mode
[8.7] About	Version information about the system
[8.8] Connection status	Information about the connection status of the unit, the room thermostat and WLAN.
[8.9] Running hours	Running hours of specific system components

11.6.9 Installer settings

Overview

The following items are listed in the submenu:



[9] Installer settings

- [9.1] Configuration wizard
- [9.2] Domestic hot water
- [9.3] Backup heater
- [9.4] Booster heater
- [9.5] Emergency
- [9.6] Balancing
- [9.7] Water pipe freeze prevention
- [9.8] Benefit kWh power supply
- [9.9] Power consumption control
- [9.A] Energy metering
- [9.B] Sensors
- [9.C] Bivalent
- [9.D] Alarm output
- [9.E] Auto restart
- [9.F] Power saving function
- [9.G] Disable protections
- [9.H] Forced defrost
- [9.I] Overview field settings
- [9.N] Export MMI settings
- [9.P] Bizone kit

Configuration wizard

After first power ON of the system, the user interface will guide you using the configuration wizard. This way you can set the most important initial settings. This way the unit will be able to run properly. Afterwards, more detailed settings can be done via the menu structure if required.

To restart the configuration wizard, go to **Installer settings > Configuration wizard** [9.1].

Domestic hot water

This part only applies to systems with an optional domestic hot water tank installed.

Domestic hot water

The following setting determines if the system can prepare domestic hot water or not, and which tank is used. Set this setting according to the actual installation.

#	Code	Description
[9.2.1]	[E-05] ^(a) [E-06] ^(a) [E-07] ^(a)	▪ No DHW No tank installed. ▪ EKHWS/E, small volume Tank with booster heater installed at the side of the tank, with a volume of 150 l or 180 l. ▪ EKHWS/E, big volume Tank with booster heater installed at the side of the tank, with a volume of 200 l, 250 l or 300 l. ▪ EKHWP/HYC Tank with optional booster heater installed at the top of the tank. ▪ 3rd party, small coil Third-party tank with a coil size larger than 1.05 m². ▪ 3rd party, big coil Third-party tank with a coil size larger than 1.80 m².

^(a) Use the menu structure instead of the overview settings. Menu structure setting [9.2.1] replaces the following 3 overview settings:

- [E-05]: Can the system prepare domestic hot water?
- [E-06]: Is a domestic hot water tank installed in the system?
- [E-07]: What kind of domestic hot water tank is installed?

In case of EKHWP, we recommend to use the following settings:

#	Code	Item	EKHWP
[9.2.1]	[E-07]	Tank type	5: EKHWP/HYC
N/A	[4-05]	Thermistor type	0: Automatic
[5.8]	[6-0E]	Maximum tank temperature	≤70°C

In case of EKHWS*D* / EKHWSU*D*, we recommend to use the following settings:

#	Code	Item	EKHWS*D* / EKHWSU*D*	
			150/180	200/250/300
[9.2.1]	[E-07]	Tank type	0: EKHWS/E, small volume	3: EKHWS/E, big volume
N/A	[4-05]	Thermistor type	0: Automatic	
[5.8]	[6-0E]	Maximum tank temperature	≤60°C	≤75°C

In case of a third-party tank, we recommend to use the following settings:

#	Code	Item	Third-party tank	
			Coil≥1.05 m ²	Coil≥1.8 m ²
[9.2.1]	[E-07]	Tank type	7: 3rd party, small coil	8: 3rd party, big coil
N/A	[4-05]	Thermistor type	0: Automatic	

#	Code	Item	Third-party tank	
			Coil≥1.05 m ²	Coil≥1.8 m ²
[5.8]	[6-0E]	Maximum tank temperature	≤60°C	≤75°C

DHW pump

#	Code	Description
[9.2.2]	[D-02]	DHW pump: ▪ 0: No DHW pump: NOT installed ▪ 1: Instant hot water: Installed for instant hot water when water is tapped. The user sets the operation timing of the domestic hot water pump using the schedule. Control of this pump is possible with the user interface. ▪ 2 Disinfection: Installed for disinfection. It runs when the disinfection function of the domestic hot water tank is running. No further settings are needed. ▪ 3 Circulation : Installed for tank preheating. Necessary for systems without backup heater. It runs when the domestic hot water tank is being preheated. No further settings are needed. ▪ 4 Circulation and disinfection: Combination of 2 and 3. It runs when the disinfection function of the domestic hot water tank is running, or when the domestic hot water tank is being preheated. No further settings are needed.

See also:

- "6.4.4 DHW pump for instant hot water" [► 45]
- "6.4.5 DHW pump for disinfection" [► 46]
- "6.4.6 DHW pump for tank preheating" [► 47]

DHW pump schedule

Program a schedule for the DHW pump (**only for field supplied domestic hot water pump for secondary return**).

Program a domestic hot water pump schedule to determine when to turn on and off the pump.

When turned on, the pump runs and makes sure hot water is instantly available at the tap. To save energy, only turn on the pump during periods of the day when instant hot water is necessary.

Backup heater

Besides the type of backup heater, the voltage, configuration and capacity must be set on the user interface.

The capacities for the different steps of the backup heater must be set for the energy metering and/or power consumption feature to work properly. When measuring the resistance value of each heater, you can set the exact heater capacity and this will lead to more accurate energy data.

Backup heater type

- For models with integrated backup heater, this is fixed to **3V**.
- For other models, this can be set to **No heater**, or **External heater** (i.e. when the optional external backup heater kit is installed).

#	Code	Description
[9.3.1]	[E-03]	0: No heater 1: External heater 2: 3V

Voltage

- For a **3V** model, this is fixed to **230V, 1ph**.
- The optional external backup heater can be set to **230V, 1ph** or **400V, 3ph**.

#	Code	Description
[9.3.2]	[5-0D]	0: 230V, 1ph 2: 400V, 3ph

Configuration

The backup heater can be configured in different ways. It can be chosen to have a 1-step only backup heater or a backup heater with 2 steps. If 2 steps, the capacity of the second step depends on this setting. It can also be chosen to have a higher capacity of the second step in emergency.

- For a **3V** model, this is fixed to Relay 1.
- The optional external backup heater can be set to the following:

#	Code	Description
[9.3.3]	[4-0A]	0: Relay 1 1: Relay 1 / Relay 1+2 2: Relay 1 / Relay 2 3: Relay 1 / Relay 2 Emergency Relay 1+2



INFORMATION

Settings [9.3.3] and [9.3.5] are linked. Changing one setting influences the other. If you change one, check if the other is still as expected.



INFORMATION

During normal operation, the capacity of the second step of the backup heater at nominal voltage is equal to [6-03]+[6-04].



INFORMATION

If [4-0A]=3 and emergency mode is active, the power usage of the backup heater is maximal and equal to 2×[6-03]+[6-04].

Capacity step 1

#	Code	Description
[9.3.4]	[6-03]	▪ The capacity of the first step of the backup heater at nominal voltage.

Additional capacity step 2

Restriction: Only applicable in case the external backup heater kit is installed.

#	Code	Description
[9.3.5]	[6-04]	▪ The capacity difference between the second and first step of the backup heater at nominal voltage. Nominal value depends on backup heater configuration.

Equilibrium

#	Code	Description
[9.3.6]	[5-00]	Equilibrium: Deactivate backup heater (or external backup heat source in case of a bivalent system) above the equilibrium temperature for space heating? ▪ 0: No ▪ 1: Yes
[9.3.7]	[5-01]	Equilibrium temperature: Outdoor temperature below which operation of the backup heater (or external backup heat source in case of a bivalent system) is allowed. Range: -15°C~35°C

**INFORMATION**

Applicable if [5-00]=1:

Above 10°C ambient temperature, the heat pump will operate until 55°C. Configuring a higher setpoint with an ambient temperature that is higher than the set equilibrium temperature will prevent the backup heater from assisting. The backup heater will **ONLY** assist if you increase the equilibrium temperature [5-01] to the required ambient temperature you need to reach the higher setpoint.

Operation

#	Code	Description
[9.3.8]	[4-00]	Backup heater operation: ▪ 0: Restricted ▪ 1: Allowed ▪ 2: Only DHW: Backup heater operation is enabled for domestic hot water and disabled for space heating.

**INFORMATION**

When heating of the DHW by the heat pump is too slow, it may affect a comfortable operation of the space heating/cooling circuit. If so, allow the backup heater to assist during DHW operation by setting [4-00]=1 or 2.

Booster heater

Capacity

The capacity of the booster heater must be set for the energy metering and/or power consumption control feature to work properly. When measuring the resistance value of the booster heater, you can set the exact heater capacity and this will lead to more accurate energy data.

#	Code	Description
[9.4.1]	[6-02]	Capacity [kW]. Only applies to domestic hot water tank with an internal booster heater. The capacity of the booster heater at nominal voltage. Range: 0~10 kW

BSH allowance schedule

Program when the booster heater can operate. You can set a schedule for the booster heater here using the schedule screen. Two actions per day are allowed in a week schedule. For more information, see "11.4.3 Schedule screen: Example" [► 139].

Example: Only allow the booster heater to operate during the night.

BSH eco timer

#	Code	Description
[9.4.3]	[8-03]	Booster heater delay timer. Start-up delay time for the booster heater when domestic hot water mode is active. - When domestic hot water mode is NOT active, the delay time is 20 minutes. - The delay time starts from booster heater ON temperature. - By adapting the booster heater delay time versus the maximum running time, you can find an optimal balance between the energy efficiency and the heat up time. - If the booster heater delay time is set too high, it might take a long time before the domestic hot water reaches its set temperature. - The setting [8-03] is only meaningful if setting [4-03]=1. Setting [4-03]=0/2/3/4 limits the booster heater automatically in relation to heat pump operation time in domestic water heating mode. - Make sure that [8-03] is always in relation with the maximum running time [8-01]. Range: 20~95 minutes

Operation

#	Code	Description
[9.4.4]	[4-03]	Defines the operation permission of the booster heater depending on ambient, domestic hot water temperature or operation mode of heat pump. This setting is only applicable in reheat mode for applications with separate domestic hot water tank. When setting [4-03]=1/2/3/4, the booster heater operation can still be restricted by the booster heater allowance schedule.
[9.4.4]	[4-03]	▪ 0 Restricted: Booster heater operation is NOT allowed except for "Disinfection function" and "Powerful domestic water heating". Only use this in case the heat pump capacity can cover the heating requirements of the house and domestic hot water during the complete heating season. The booster heater will not be allowed to operate when $T_a < [5-03]$ and $[5-02]=1$. The domestic hot water temperature can be maximum the heat pump OFF temperature.
[9.4.4]	[4-03]	▪ 1 Allowed: Booster heater operation is allowed when required.
[9.4.4]	[4-03]	▪ 2 Overlap: The booster heater is allowed outside the operation range of the heat pump for domestic hot water operation. Booster heater operation is only allowed if: - Ambient temperature is out of the operating range: $T_a < [5-03]$ or $T_a > 35^\circ\text{C}$ The booster heater is only allowed to operate when $T_a < [5-03]$ if space heating priority is enabled ($[5-02]=1$). - Domestic hot water temperature is 2°C lower than the heat pump OFF temperature. If bivalent operation is enabled ($[C-02]=1$) and permission signal for auxiliary boiler is ON, the booster heater will be restricted even when $T_a < [5-03]$.
9.4.4	[4-03]	▪ 3 Compressor off: The booster heater is allowed when the heat pump is NOT active in domestic hot water operation. Same as setting 1, but simultaneous heat pump domestic hot water operation and booster heater operation is not allowed.

#	Code	Description
9.4.4	[4-03]	4 Legionella only: Booster heater operation is NOT allowed except for "Disinfection function". Only use this in case the capacity of the heat pump can cover the heating requirements of the house and domestic hot water over the complete heating season. The booster heater will not be allowed to operate when $T_a < [5-03]$ and $[5-02]=1$. The domestic hot water temperature can be maximum the heat pump OFF temperature.

Emergency

Emergency

When the heat pump fails to operate, the backup heater and/or booster heater can serve as an emergency heater. It then takes over the heat load either automatically or by manual interaction.

- When **Emergency** is set to **Automatic** and a heat pump failure occurs, the backup heater automatically takes over the heat load, and the booster heater in the optional tank takes over the domestic hot water production.
- When **Emergency** is set to **Manual** and a heat pump failure occurs, the domestic hot water heating and space heating stops.

To manually recover it via the user interface, go to the **Malfunctioning** main menu screen and confirm whether the backup heater and/or booster heater can take over the heat load or not.

- Alternatively, when **Emergency** is set to:
 - auto SH reduced/DHW on**, space heating is reduced but domestic hot water is still available.
 - auto SH reduced/DHW off**, space heating is reduced and domestic hot water is NOT available.
 - auto SH normal/DHW off**, space heating operates as normally but domestic hot water is NOT available.

Similarly as in **Manual** mode, the unit can take the full load with the backup heater and/or booster heater if the user activates this via the **Malfunctioning** main menu screen.

To keep energy consumption low, we recommend to set **Emergency** to **auto SH reduced/DHW off** if the house is unattended for longer periods.

#	Code	Description
[9.5.1]	[4-06]	0: Manual 1: Automatic 2: auto SH reduced/DHW on 3: auto SH reduced/DHW off 4: auto SH normal/DHW off

**INFORMATION**

The auto emergency setting can be set in the menu structure of the user interface only.

**INFORMATION**

If a heat pump failure occurs and **Emergency** is set to **Manual**, the room frost protection function, the underfloor heating screed dryout function, and the water pipe antifreeze function will remain active even if the user does NOT confirm emergency operation.

Compressor forced off

Compressor forced off mode can be activated to only allow the backup heater to provide domestic hot water and space heating. When this mode is activated:

- Heat pump operation is NOT possible
- Cooling is NOT possible

#	Code	Description
[9.5.2]	[7-06]	Activation of the Compressor forced off mode: ▪ 0: disabled ▪ 1: enabled

Glycol filled system**Glycol Filled system**

This setting gives the installer the possibility to indicate whether the system is filled with glycol or water. This is important in case glycol is used to protect the water circuit against freezing. If NOT set correctly, the liquid in the piping can freeze.

#	Code	Description
N/A	[E-0D]	Glycol Filled system: Is the system filled with glycol? ▪ 0: No ▪ 1: Yes

**NOTICE**

If you add glycol to the water, you also need to install a flow switch (EKFLSW2).

Balancing**Priorities**

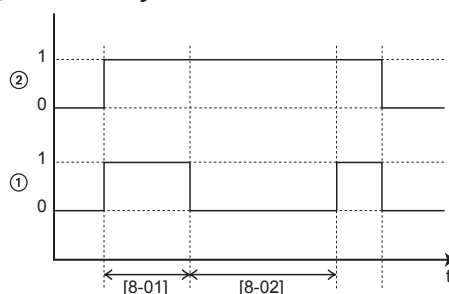
For systems with a separate domestic hot water tank.

#	Code	Description
[9.6.1]	[5-02]	Space heating priority: Defines whether domestic hot water is made by booster heater only when outdoor temperature is below space heating priority temperature. ▪ 0: Off (default) ▪ 1: On Please do NOT change the default value. [5-01] Equilibrium temperature and [5-03] Space heating priority temperature are related to backup heater. So, you must set [5-03] equal or a few degrees higher than [5-01].
[9.6.2]	[5-03]	Priority temperature: Defines the outdoor temperature which below the domestic hot water will be heated by booster heater only. Please do NOT change the default value. Range: $-15^{\circ}\text{C} \sim 35^{\circ}\text{C}$
[9.6.3]	[5-04]	Offset BSH setpoint: Setpoint correction for domestic hot water temperature: setpoint correction for the desired domestic hot water temperature, to be applied at low outdoor temperature when space heating priority is enabled. The corrected (higher) setpoint will make sure that the total heat capacity of the water in the tank remains approximately unchanged, by compensating for the colder bottom water layer of the tank (because the heat exchanger coil is not operational) with a warmer top layer. Range: $0^{\circ}\text{C} \sim 20^{\circ}\text{C}$

Timers

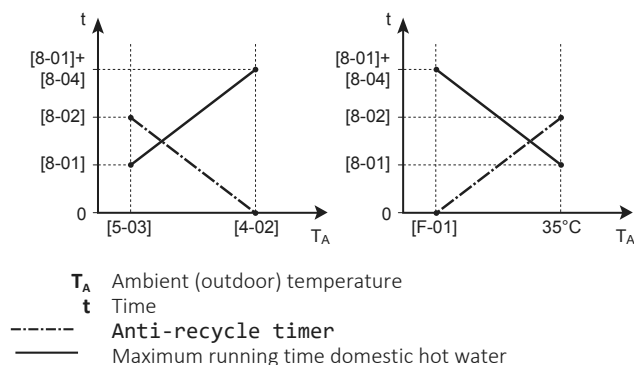
For simultaneous space and domestic hot water operation request.

[8-02]: Anti-recycle timer



- 1 Heat pump domestic water heating mode (1=active, 0=not active)
- 2 Hot water request for heat pump (1=request, 0=no request)
- t Time

[8-04]: Additional timer at [4-02]/[F-01]



#	Code	Description
[9.6.4]	[8-02]	Anti-recycle timer: Minimum time between two cycles for domestic hot water. The actual anti-recycling time also depends on setting [8-04]. Range: 0~10 hours Remark: The minimum time is 0.5 hours even when the selected value is 0.
[9.6.5]	[8-00]	Minimum running timer: Do NOT change.
[9.6.6]	[8-01]	Maximum running timer for domestic hot water operation. Domestic hot water heating stops even when the target domestic hot water temperature is NOT reached. The actual maximum running time also depends on setting [8-04]. ▪ When Control=Room thermostat: This preset value is only taken into account if there is a request for space heating or cooling. If there is NO request for space heating/cooling, the tank is heated until the setpoint has been reached. ▪ When Control≠Room thermostat: This preset value is always taken into account. Range: 5~95 minutes Remark: It is NOT allowed to set [8-01] to a value below 10 minutes.
[9.6.7]	[8-04]	Additional timer: Additional running time for the maximum running time depending on the outdoor temperature [4-02] or [F-01]. Range: 0~95 minutes

Water pipe freeze prevention

Only relevant for installations with water piping outdoors. This function tries to protect outdoor water piping from freezing.

#	Code	Description
[9.7]	[4-04]	Water pipe freeze prevention: ▪ 0: Continuous pump operation. Do NOT use. ▪ 1: Non continuous pump operation ▪ 2: Off

**NOTICE**

If the system does NOT contain a backup heater, then:

- Make sure that the room antifrost control is activated ([2-06]=1).
- Do NOT change the default room antifrost temperature [2-05].
- Make sure that the water pipe freeze prevention is activated ([4-04]≠2).

**NOTICE**

Water pipe freeze prevention. Even if you turn OFF space heating/cooling operation ([C.2]: Operation > Space heating/cooling), water pipe freeze prevention –if enabled– will remain active.

**NOTICE**

ONLY disable water pipe freeze prevention if glycol is used. For more information on freeze protection by glycol, see "8.2.4 To protect the water circuit against freezing" [► 80].

Benefit kWh power supply

#	Code	Description
[9.8.2]	[D-00]	Restriction: Only applicable if [9.8.4] is NOT set to Smart grid. Allow heater: Which heaters are allowed to operate during preferential kWh rate power supply? ▪ 0 No: None ▪ 1 Only BSH: Booster heater only ▪ 2 Only BUH: Backup heater only ▪ 3 All: All heaters See also below table (Allowed heaters during preferential kWh rate power supply). Setting 2 is only meaningful if the preferential kWh rate power supply is of type 1 or the hydro module is connected to a separate normal kWh rate power supply (via X2M/5-6) and the backup heater is NOT connected to the preferential kWh rate power supply.
[9.8.3]	[D-05]	Restriction: Only applicable if [9.8.4] is NOT set to Smart grid. Allow pump: ▪ 0 No: Pump is forced off ▪ 1 Yes: No limitation

#	Code	Description
[9.8.4]	[D-01]	Connection to a Benefit kWh power supply or a Smart grid: ▪ 0 No: The outdoor unit is connected to a normal power supply. ▪ 1 Open: The outdoor unit is connected to a preferential kWh rate power supply. When the preferential kWh rate signal is sent by the electricity company, the contact will open and the unit will go in forced off mode. When the signal is released again, the voltage-free contact will close and the unit will restart operation. Therefore, always enable the auto restart function. ▪ 2 Closed: The outdoor unit is connected to a preferential kWh rate power supply. When the preferential kWh rate signal is sent by the electricity company, the contact will close and the unit will go in forced off mode. When the signal is released again, the voltage-free contact will open and the unit will restart operation. Therefore, always enable the auto restart function. ▪ 3 Smart grid: A Smart Grid is connected to the system
[9.8.5]	N/A	Restriction: Only applicable if [9.8.4]=Smart grid. Shows the Smart Grid operation mode sent by the 2 incoming Smart Grid contacts. Smart grid operation mode: ▪ Free running ▪ Forced off ▪ Recommended on ▪ Forced on See also below table (Smart Grid operation modes).
[9.8.6]	N/A	Restriction: Only applicable if [9.8.4]=Smart grid. To set if electrical heaters are allowed. Allow electrical heaters: ▪ No ▪ Yes

#	Code	Description
[9.8.7]	N/A	Restriction: Only applicable in case of room thermostat control, and if [9.8.4]=Smart grid. To set if room buffering will be enabled. Enable room buffering: ▪ No: The extra energy from the photovoltaic panels is only buffered in the DHW tank (i.e. heat up the DHW tank). ▪ Yes: The extra energy from the photovoltaic panels is buffered in the DHW tank, and in the space heating/cooling circuit (i.e. heat up or cool down the room).
[9.8.8]	N/A	Limit setting kW Restriction: Only applicable if: ▪ [9.8.4]=Smart grid. ▪ There is no pulse meter (power meter) for photovoltaic panels available ([9.A.2] Electricity meter 2 = None) Normally, when a pulse meter is available, the following happens: ▪ The pulse meter measures the power produced by the photovoltaic panels. ▪ The unit limits its power consumption during the Smart Grid's "Recommended ON" mode to only use the power provided by the photovoltaic panels. However, when the pulse meter is not available, you can still limit the unit's power consumption using this setting (Limit setting kW). This prevents overconsumption and thus requiring the use of power from the grid.

Allowed heaters during preferential kWh rate power supply

[D-00]	Booster heater	Backup heater	Compressor
0	Forced OFF	Forced OFF	Forced OFF
1	Permitted		
2	Forced OFF	Permitted	
3	Permitted		

Smart Grid operation modes

The 2 incoming Smart Grid contacts (see "9.2.14 To connect a Smart Grid" [► 117]) can activate the following Smart Grid modes:

Smart Grid contact		[9.8.5] Smart grid operation mode
①	②	
0	0	Free running
0	1	Forced off

Smart Grid contact		[9.8.5] Smart grid operation mode
①	②	
1	0	Recommended on
1	1	Forced on

Free running:

The Smart Grid function is NOT active.

Forced off:

- The unit forces OFF the compressor and the heaters (backup heater, booster heater).
- The protective functions (water pipe freeze prevention, drain prevention, room frost protection, tank disinfection) and defrost are NOT overruled (capacity will not be limited for these functions)

Recommended on:

- In case the space heating/cooling request is OFF and the tank temperature setpoint is reached, the unit can choose to buffer energy from the photovoltaic panels in the room (only in case of room thermostat control) or in the DHW tank instead of putting the photovoltaic panel energy on the grid.

In case of room buffering, the room will heat up or cool down to the comfort setpoint. In case of tank buffering, the tank will heat up to the maximum tank temperature.

- The goal is to buffer the energy from the photovoltaic panels. Therefore, the capacity of the unit is limited to what the photovoltaic panels are providing:

If Smart Grid pulse meter is...	Then the limit is...
Available	Decided by the unit based on the input of the Smart Grid pulse meter.
Not available	Decided by [9.8.8] Limit setting kW

- The protective functions (water pipe freeze prevention, drain prevention, room frost protection, tank disinfection) and defrost are NOT overruled (capacity will not be limited for these functions)

Forced on:

Similar to **Recommended on**, but there is no capacity limitation. The goal is NOT to use the grid as much as possible.

Emergency mode. In case emergency mode is active, buffering with electrical heater is NOT possible in **Forced on** and **Recommended on** operation modes.

Power consumption control**Power consumption control**

See "6 Application guidelines" [► 26] for detailed information about this functionality.

#	Code	Description
[9.9.1]	[4-08]	Power consumption control: 0 No: Disabled. 1 Continuous: Enabled: You can set one power limitation value (in A or kW) to which the system power consumption will be limited for all the time. 2 Inputs: Enabled: You can set up to four different power limitation values (in A or kW) to which the system power consumption will be limited when the corresponding digital input asks.
[9.9.2]	[4-09]	Type: 0 Amp: The limitation values are set in A. 1 kW: The limitation values are set in kW.

Limit when [9.9.1]=**Continuous** and [9.9.2]=**Amp**:

#	Code	Description
[9.9.3]	[5-05]	Limit: Only applicable in case of full time current limitation mode. 0 A~50 A

Limits when [9.9.1]=**Inputs** and [9.9.2]=**Amp**:

#	Code	Description
[9.9.4]	[5-05]	Limit 1: 0 A~50 A
[9.9.5]	[5-06]	Limit 2: 0 A~50 A
[9.9.6]	[5-07]	Limit 3: 0 A~50 A
[9.9.7]	[5-08]	Limit 4: 0 A~50 A

Limit when [9.9.1]=**Continuous** and [9.9.2]=**kW**:

#	Code	Description
[9.9.8]	[5-09]	Limit: Only applicable in case of full time power limitation mode. 0 kW~20 kW

Limits when [9.9.1]=**Inputs** and [9.9.2]=**kW**:

#	Code	Description
[9.9.9]	[5-09]	Limit 1: 0 kW~20 kW
[9.9.A]	[5-0A]	Limit 2: 0 kW~20 kW
[9.9.B]	[5-0B]	Limit 3: 0 kW~20 kW
[9.9.C]	[5-0C]	Limit 4: 0 kW~20 kW

Priority heater

#	Code	Description
[9.9.D]	[4-01]	Power consumption control DISABLED [4-08]=0 0 None : Backup heater and booster heater can operate simultaneously. 1 Booster heater: The booster heater is prioritised. 2 Backup heater: The backup heater is prioritised. Power consumption control ENABLED [4-08]=1/2 0 None : Depending on the power limitation level, the booster heater will be limited first, before the backup heater is limited. 1 Booster heater: Depending on the power limitation level, the backup heater will be limited first, before the booster heater is limited. 2 Backup heater: Depending on the power limitation level, the booster heater will be limited first, before the backup heater is limited.

Note: In case power consumption control is DISABLED (for all models) the setting [4-01] defines whether backup heater and booster heater can operate simultaneously, or if the booster heater/backup heater has priority over the backup heater/booster heater.

In case power consumption control is ENABLED, the setting [4-01] defines the priority of the electrical heaters depending on applicable limitation.

BBR16

See "6.6.4 BBR16 power limitation" [► 57] for detailed information about this functionality.



INFORMATION

Restriction: BBR16 settings are only visible when the language of the user interface is set to Swedish.



NOTICE

2 weeks to change. After you activated BBR16, you only have 2 weeks to change its settings (**BBR16 activation** and **BBR16 power limit**). After 2 weeks, the unit freezes these settings.

Note: This is different from the permanent power limitation, which is always changeable.

BBR16 activation

#	Code	Description
[9.9.F]	[7-07]	BBR16 activation: ▪ 0: disabled ▪ 1: enabled

BBR16 power limit

#	Code	Description
[9.9.G]	[N/A]	BBR16 power limit: This setting can only be modified via the menu structure. ▪ 0 kW~25 kW, step 0.1 kW

Energy metering**Energy metering**

If energy metering is performed by the use of external power meters, configure the settings as described below. Select the pulse frequency output of each power meter in accordance with the power meter specifications. It is possible to connect up to 2 power meters with different pulse frequencies. If only 1 or no power meter is used, select 'None' to indicate the corresponding pulse input is NOT used.

#	Code	Description
[9.A.1]	[D-08]	Electricity meter 1: ▪ 0 None: NOT installed ▪ 1 1/10kWh: Installed ▪ 2 1/kWh: Installed ▪ 3 10/kWh: Installed ▪ 4 100/kWh: Installed ▪ 5 1000/kWh: Installed
[9.A.2]	[D-09]	Electricity meter 2: ▪ 0 None: NOT installed ▪ 1 1/10kWh: Installed ▪ 2 1/kWh: Installed ▪ 3 10/kWh: Installed ▪ 4 100/kWh: Installed ▪ 5 1000/kWh: Installed In case of pulse meter for photovoltaic panels: ▪ 6 100/kWh for PV panel: Installed ▪ 7 1000/kWh for PV panel: Installed

Sensors

External sensor

#	Code	Description
[9.B.1]	[C-08]	External sensor: When an optional external ambient sensor is connected, the type of the sensor must be set. ▪ 0 None : NOT installed. The thermistor in the user interface and in the outdoor unit are used for measurement. ▪ 1 Outdoor: Connected to the hydro PCB of the outdoor unit measuring the outdoor temperature. Remark: For some functionality, the temperature sensor in the outdoor unit is still used. ▪ 2 Room: Connected to the hydro PCB of the outdoor unit measuring the indoor temperature. The temperature sensor in the user interface is NOT used anymore. Remark: This value has only meaning in room thermostat control.

Ext. amb. sensor offset

ONLY applicable in case an external outdoor ambient sensor is connected and configured.

You can calibrate the external outdoor ambient temperature sensor. It is possible to give an offset to the thermistor value. This setting can be used to compensate for situations where the external outdoor ambient sensor cannot be installed on the ideal installation location.

#	Code	Description
[9.B.2]	[2-0B]	Ext. amb. sensor offset: Offset on the ambient temperature measured on the external outdoor temperature sensor. ▪ $-5^{\circ}\text{C} \sim 5^{\circ}\text{C}$, step 0.5°C

Averaging time

The average timer corrects the influence of ambient temperature variations. The weather-dependent setpoint calculation is done on the average outdoor temperature.

The outdoor temperature is averaged over the selected time period.

#	Code	Description
[9.B.3]	[1-0A]	Averaging time: ▪ 0: No averaging ▪ 1: 12 hours ▪ 2: 24 hours ▪ 3: 48 hours ▪ 4: 72 hours

**INFORMATION**

If the power saving function is activated (see [E-08]), the average outdoor temperature calculation is only possible in case the external outdoor temperature sensor is used. See "6.7 Setting up an external temperature sensor" [► 58].

Bivalent**Bivalent**

Only applicable in case of auxiliary boiler.

**NOTICE**

Bivalent operation is only possible if:

- Space heating is turned ON, and
- DHW tank operation is turned OFF.

**INFORMATION**

Bivalent is only possible in case of 1 leaving water temperature zone with:

- room thermostat control, OR
- external room thermostat control.

About bivalent

The purpose of this function is to determine which heating source can/will provide the space heating, either the heat pump system or the auxiliary boiler.

#	Code	Description
[9.C.1]	[C-02]	Bivalent: Indicates if the space heating is also performed by means of another heat source than the system. ▪ 0 No: Not installed ▪ 1 Yes: Installed. The auxiliary boiler (gas boiler, oil burner) will operate in space heating when the outdoor ambient temperature is low. During bivalent operation, the heat pump will run in domestic hot water operation when tank heat-up is required, or is turned OFF. Set this value in case an auxiliary boiler is used.

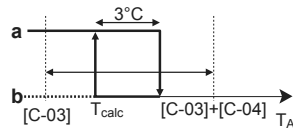
- If **Bivalent** is enabled: When the outdoor temperature drops below the bivalent ON temperature (fixed or variable based on energy prices), the space heating by the heat pump stops automatically and the permission signal for the auxiliary boiler is active.
- If **Bivalent** is disabled: Space heating is only done by the heat pump within the operation range. The permission signal for the auxiliary boiler is always inactive.

The switch-over between the heat pump system and the auxiliary boiler is based on the following settings:

- [C-03] and [C-04]
- Electricity price: [7.5.1], [7.5.2], [7.5.3]
- Gas price: [7.6]

[C-03], [C-04], and T_{calc}

Based on the settings above, the heat pump system calculates a value T_{calc} which is variable between $[C-03]$ and $[C-03]+[C-04]$.



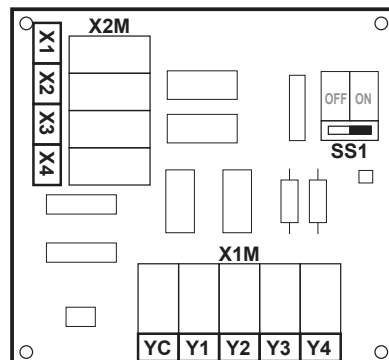
- T_A Outdoor temperature
- T_{calc} Bivalent ON temperature (variable). Below this temperature, the auxiliary boiler will always be ON. T_{calc} can never go below $[C-03]$ or above $[C-03]+[C-04]$.
- 3°C Fixed hysteresis to prevent too much switching between heat pump system and auxiliary boiler
- a** Auxiliary boiler active
- b** Auxiliary boiler inactive

If the outdoor temperature...	Then...	
	Space heating by the heat pump system...	Bivalent signal for the auxiliary boiler is...
Drops below T_{calc}	Stops	Active
Rises above $T_{calc}+3^{\circ}\text{C}$	Starts	Inactive



INFORMATION

The permission signal for the auxiliary boiler is located on the EKR1HBAA (digital I/O PCB). When it is activated, the contact X1, X2 is closed and open when it is deactivated. See illustration below for the schematic location of this contact.



#	Code	Description
9.C.3	[C-03]	Range: -25°C ~ 25°C (step: 1°C)
9.C.4	[C-04]	Range: 2°C ~ 10°C (step: 1°C) The higher the value of [C-04], the higher the accuracy of the switch-over between the heat pump system and the auxiliary boiler.

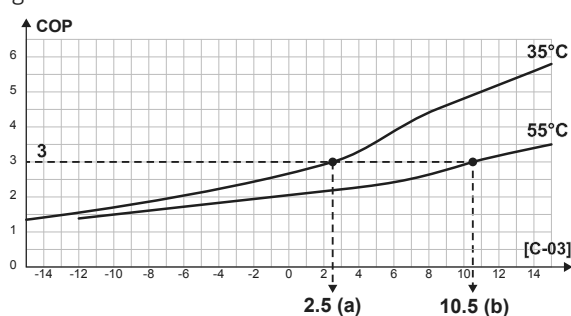
To determine the value of [C-03], proceed as follows:

- Determine the COP (= coefficient of performance) using the formula:

Formula	Example
$\text{COP} = (\text{Electricity price} / \text{gas price})^{(a)} \times \text{boiler efficiency}$	If: ▪ Electricity price: 20 c€/kWh ▪ Gas price: 6 c€/kWh ▪ Boiler efficiency: 0.9 Then: $\text{COP} = (20/6) \times 0.9 = 3$

^(a) Make sure to use the same units of measurement for the electricity price and gas price (example: both c€/kWh).

- 2 Determine the value of [C-03] using the graph. For an example, see the table legend.



- a [C-03]=2.5 in case of COP=3 and LWT=35°C
b [C-03]=10.5 in case of COP=3 and LWT=55°C



NOTICE

Make sure to set the value of [5-01] at least 1°C higher than the value of [C-03].

Electricity and gas prices



INFORMATION

To set electricity and gas price values, do NOT use overview settings. Set them in the menu structure instead ([7.5.1], [7.5.2], [7.5.3], and [7.6]). For more information on how to set the energy prices, see the operation manual and the user reference guide.



INFORMATION

Solar panels. If solar panels are used, set the electricity price value very low to promote the use of the heat pump.

#	Code	Description
[7.5.1]	N/A	User settings > Electricity price > High
[7.5.2]	N/A	User settings > Electricity price > Medium
[7.5.3]	N/A	User settings > Electricity price > Low
[7.6]	N/A	User settings > Gas price

Boiler efficiency

Depending on the used boiler, this should be chosen as follows:

#	Code	Description
[9.C.2]	[7-05]	▪ 0: Very high ▪ 1: High ▪ 2: Medium ▪ 3: Low ▪ 4: Very low

Alarm output

Alarm output

#	Code	Description
[9.D]	[C-09]	Alarm output: Indicates the logic of alarm output on digital I/O PCB during high level indoor unit error malfunctioning. Low level errors (caution/warning) will NOT be transmitted to alarm output. ▪ 0 Abnormal: The alarm output will be powered when an alarm occurs. By setting this value, a distinction is made between the detection of an alarm, and the detection of a power failure. ▪ 1 Normal: The alarm output will NOT be powered when an alarm occurs. See also table below (Alarm output logic).

Alarm output logic

[C-09]	Alarm	No alarm	No power supply to unit
0	Closed output	Open output	Open output
1	Open output	Closed output	

Auto restart

Auto restart

When power returns after a power supply failure, the auto restart function reapplies the user interface settings at the time of the power failure. Therefore, it is recommended to always enable the function.

If the preferential kWh rate power supply is of the type that power supply is interrupted, always enable the auto restart function. Continuous hydro module control can be guaranteed independent of the preferential kWh rate power supply status, by connecting the hydro module to a separate normal kWh rate power supply.

#	Code	Description
[9.E]	[3-00]	Auto restart: ▪ 0: Manual ▪ 1: Automatic

Power saving function

Power saving function

Defines whether the power supply to the compressor module can be interrupted (internally by hydro module control) during stand-still conditions (no space heating/cooling nor domestic hot water demand). The final decision to allow power interruption of the compressor module during standstill depends on the ambient temperature, compressor conditions and minimum internal timers.

To enable the power saving function setting, [E-08] needs to be enabled on the user interface.

#	Code	Description
[9.F]	[E-08]	Power saving function for compressor module: ▪ 0: No ▪ 1: Yes

Disable protections



INFORMATION

Protective functions – "Installer-on-site mode". The software is equipped with protective functions, such as room antifrost. The unit automatically runs these functions when necessary.

During installation or service this behaviour is undesired. Therefore, the protective functions can be disabled:

- **At first power-on:** The protective functions are disabled by default. After 12 hours they will be automatically enabled.
- **Afterwards:** An installer can manually disable the protective functions by setting [9.G]: **Disable protections=Yes**. After his work is done, he can enable the protective functions by setting [9.G]: **Disable protections=No**.

#	Code	Description
[9.G]	N/A	Disable protections: ▪ 0: No ▪ 1: Yes

Forced defrost

Forced defrost

Manually start a defrost operation.

#	Code	Description
[9.H]	N/A	Do you want to start a defrost operation? ▪ Back ▪ OK



NOTICE

Forced defrost start-up. You can only start forced defrost when the heating operation has been running for a while.

Overview field settings

Almost all settings can be done using the menu structure. If for any reason it is required to change a setting using the overview settings, then the overview settings can be accessed in the field settings overview [9.I]. See "To modify an overview setting" ► 125].

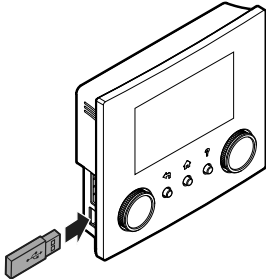
Export MMI settings

About exporting the configuration settings

Export the configuration settings of the unit to a USB memory stick, via the MMI (the user interface delivered as accessory). When troubleshooting, these settings can be provided to our Service department.

#	Code	Description
[9.N]	N/A	Your MMI settings will be exported to the connected storage device: ▪ Back ▪ OK

To export MMI settings

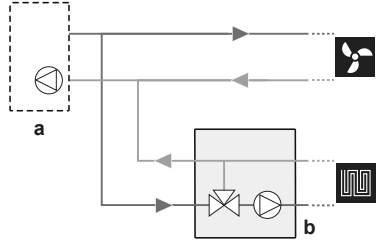
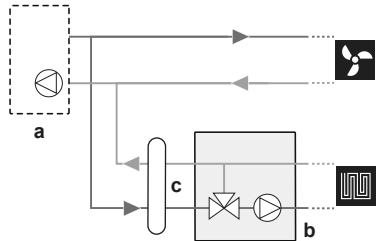
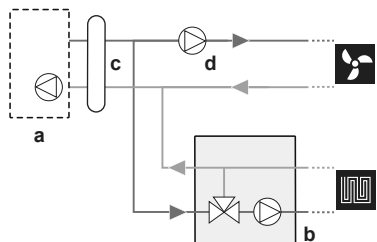
1	Insert a USB memory stick in the user interface.	—
		
2	On the user interface, go to [9.N] Export MMI settings.	🔍...○
3	Select OK.	🔍...○
4	Remove the USB memory stick.	—

Bizone kit

Bizone kit installed

#	Code	Description
[9.P.1]	[E-OB]	Bizone kit installed: ▪ 0 No : The system only has a main zone. ▪ 1 N/A ▪ 2 Yes: A bizone kit is installed in order to add an additional temperature zone.

Bizone kit system type

#	Code	Description
[9.P.2]	[E-0C]	Bizone system type ▪ 0 Without hydraulic separator / no direct pump  ▪ 1 With hydraulic separator / no direct pump  ▪ 2 With hydraulic separator / with direct pump  a: Indoor unit; b: Mixing station; c: Hydraulic separator; d: Direct pump

Additional zone pump fixed PWM

The speed of the additional zone pump can be fixed with this setting.

#	Code	Description
[9.P.3]	[7-0A]	Add zone pump fixed PWM: Fixed pump speed for additional (direct) zone. ▪ 20~95% (default: 95)

Main zone pump fixed PWM

The speed of the main zone pump can be fixed with this setting.

#	Code	Description
[9.P.4]	[7-0B]	Main zone pump fixed PWM: Fixed pump speed for main (mixed) zone. ▪ 20~95% (default: 95)

Mixing valve turning time

If a third party mixing valve is installed in combination with controller EKMIKPOA, the valve turning time must be set accordingly.

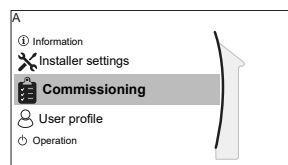
For this setting, space heating/cooling and tank operation **MUST** be off: [C.2] **Space heating/cooling=0 (Off)** and [C.3] **Tank=0 (Off)**. See "11.6.12 Operation" [► 218].

#	Code	Description
[9.P.5]	[7-0C]	Mixing valve turning time: Time in seconds for the mixing valve to turn from one side to the other. ▪ 20~300 sec (default: 125)

11.6.10 Commissioning

Overview

The following items are listed in the submenu:



[A] Commissioning

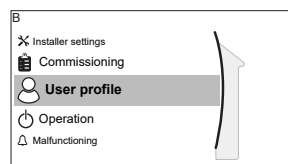
- [A.1] Operation test run
- [A.2] Actuator test run
- [A.3] Air purge
- [A.4] UFH screed dryout
- [A.5] Pump down

About commissioning

See: "12 Commissioning" [► 224]

11.6.11 User profile

[B] **User profile:** See "To change the user permission level" [► 124].

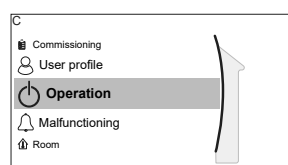


[B] User profile

11.6.12 Operation

Overview

The following items are listed in the submenu:



[C] Operation

- [C.2] Space heating/cooling
- [C.3] Tank

To enable or disable functionalities

In the operation menu, you can separately enable or disable functionalities of the unit.

#	Code	Description
[C.2]	N/A	Space heating/cooling: ▪ 0: Off ▪ 1: On
[C.3]	N/A	Tank: ▪ 0: Off ▪ 1: On

11.6.13 WLAN

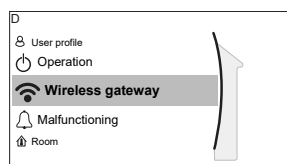


INFORMATION

Restriction: WLAN settings are only visible when a WLAN cartridge is inserted in the user interface.

Overview

The following items are listed in the submenu:



[D] Wireless gateway

[D.1] Mode

[D.2] Reboot

[D.3] WPS

[D.4] Remove from cloud

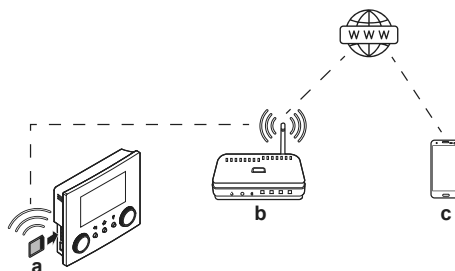
[D.5] Home network connection

[D.6] Cloud connection

About the WLAN cartridge

The WLAN cartridge connects the system to the internet. The user can then control the system via the ONECTA app.

This needs the following components:



a	WLAN cartridge	The WLAN cartridge needs to be inserted in the user interface. See the installation manual of the WLAN cartridge.
b	Router	Field supply.

c	Smartphone + app 	The ONECTA app needs to be installed on the user's smartphone. See: http://www.onlinecontroller.daikineurope.com/ 
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Configuration

To configure the ONECTA app, follow the in-app instructions. While doing this, the following actions and information are needed on the user interface:

Mode: Turn AP mode ON (= WLAN adapter active as access point) or OFF.

#	Code	Description
[D.1]	N/A	Enable AP mode: - No - Yes

Reboot: Reboot the WLAN cartridge.

#	Code	Description
[D.2]	N/A	Reboot the gateway: - Back - OK

WPS: Connect the WLAN cartridge to the router.

#	Code	Description
[D.3]	N/A	WPS: - No - Yes



INFORMATION

You can only use this function if it is supported by the software version of the WLAN, and the software version of the ONECTA app.

Remove from cloud: Remove the WLAN cartridge from the cloud.

#	Code	Description
[D.4]	N/A	Remove from cloud: - No - Yes

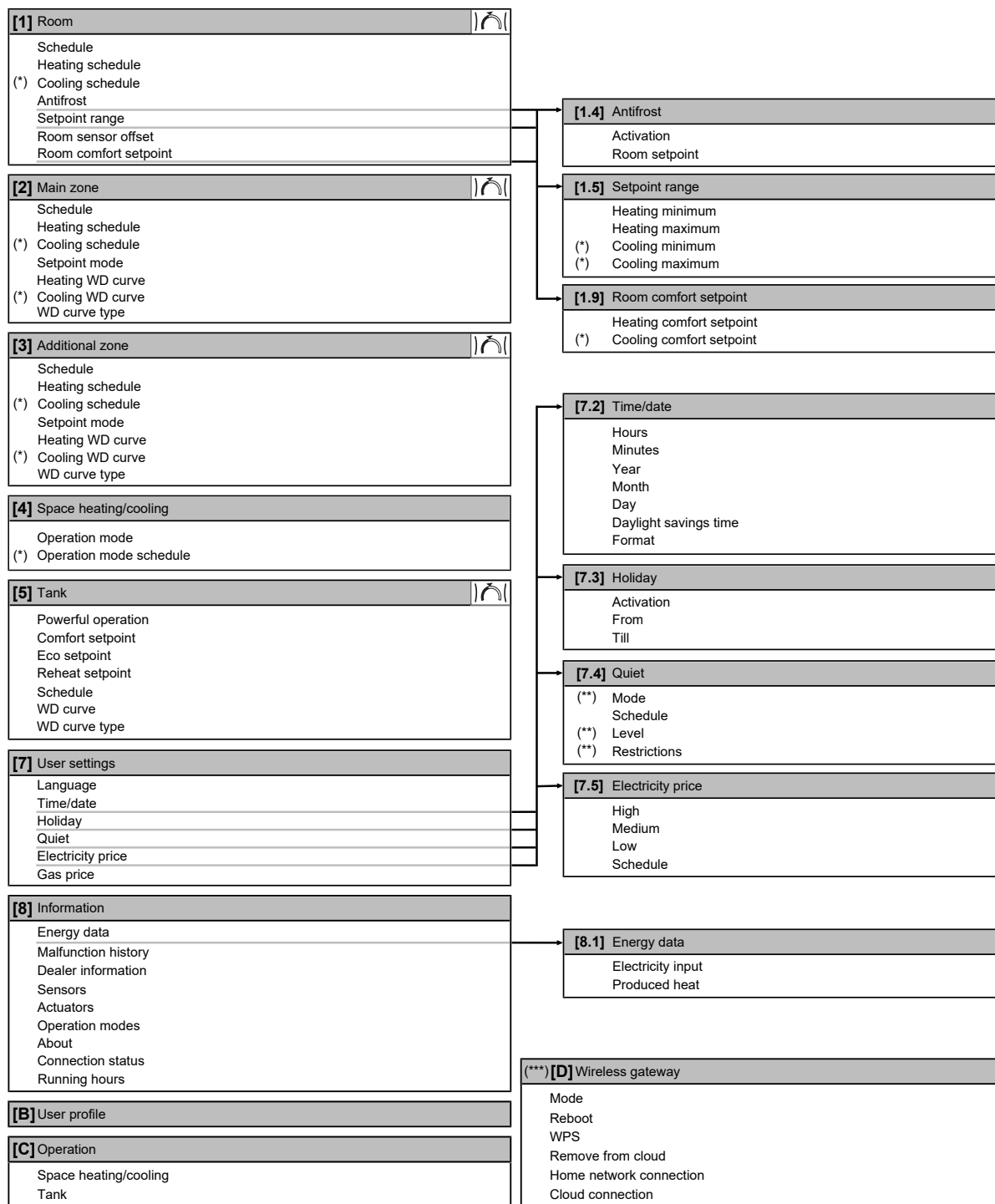
Home network connection: Read out the status of the connection to the home network.

#	Code	Description
[D.5]	N/A	Home network connection: - Disconnected from [WLAN_SSID] - Connected to [WLAN_SSID]

Cloud connection: Read out the status of the connection to the cloud.

#	Code	Description
[D.6]	N/A	Cloud connection: ▪ Not connected ▪ Connected

11.7 Menu structure: Overview user settings

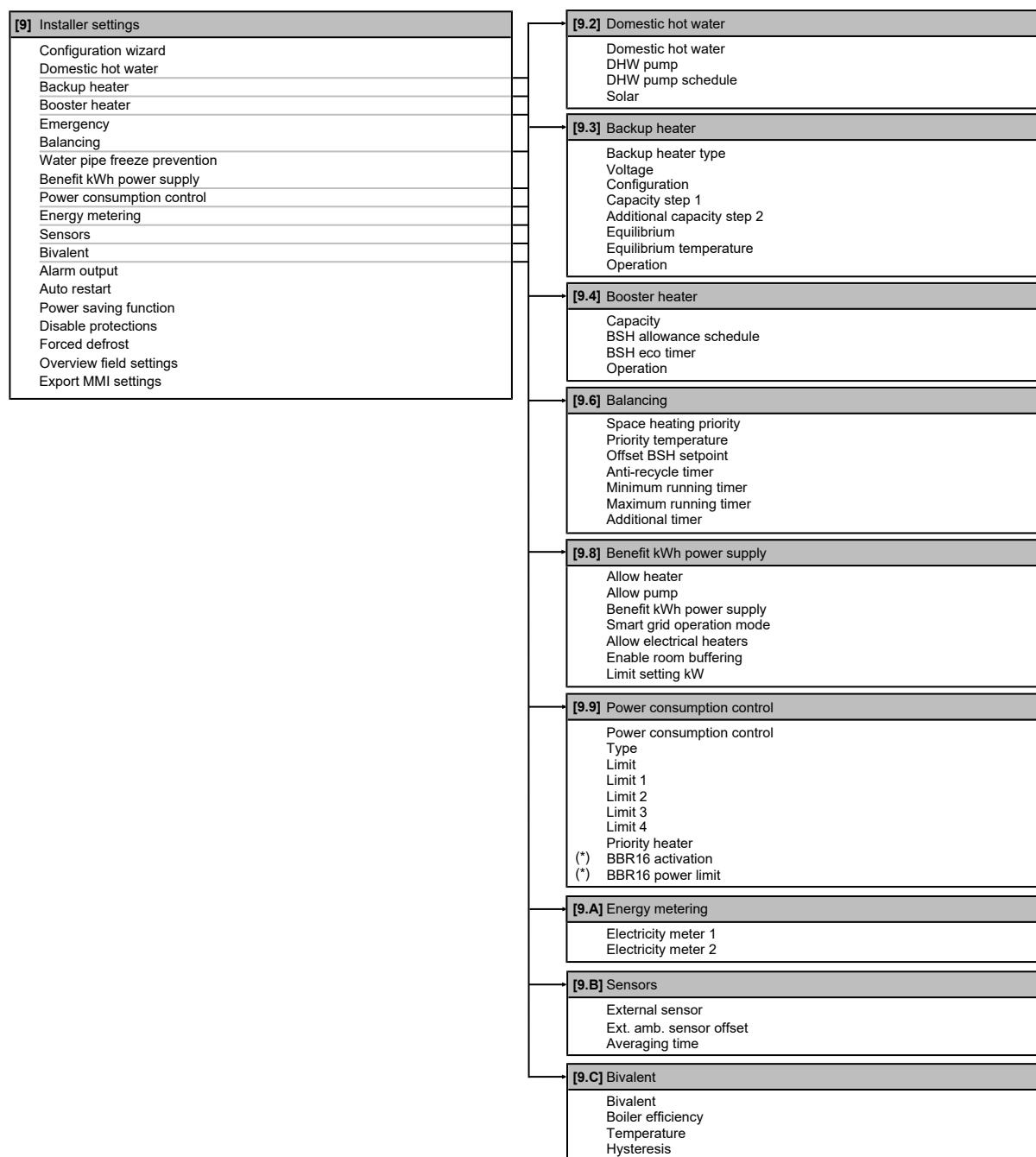


- Setpoint screen
 (*) Only applicable for models where cooling is possible
 (**) Only accessible by installer
 (***) Only applicable when WLAN is installed

**INFORMATION**

Depending on the selected installer settings and unit type, settings will be visible/invisible.

11.8 Menu structure: Overview installer settings



(*) Only applicable in Swedish language.



INFORMATION

Depending on the selected installer settings and unit type, settings will be visible/invisible.

12 Commissioning



NOTICE

General commissioning checklist. Next to the commissioning instructions in this chapter, a general commissioning checklist is also available on the Daikin Business Portal (authentication required).

The general commissioning checklist is complementary to the instructions in this chapter and can be used as a guideline and reporting template during the commissioning and hand-over to the user.



NOTICE

The unit contains an automatic air purge valve. Make sure it is open. All automatic air purge valves in the system (in the unit, and in the field piping – if any) must remain open after commissioning.



INFORMATION

Protective functions – "Installer-on-site mode". The software is equipped with protective functions, such as room antifrost. The unit automatically runs these functions when necessary.

During installation or service this behaviour is undesired. Therefore, the protective functions can be disabled:

- **At first power-on:** The protective functions are disabled by default. After 12 hours they will be automatically enabled.
- **Afterwards:** An installer can manually disable the protective functions by setting [9.G]: **Disable protections=Yes**. After his work is done, he can enable the protective functions by setting [9.G]: **Disable protections=No**.

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12.1 Overview: Commissioning

This chapter describes what you have to do and know to commission the system after it is installed and configured.

Typical workflow

Commissioning typically consists of the following stages:

- 1 Checking the "Checklist before commissioning".
- 2 Performing an air purge.
- 3 Performing a test run for the system.
- 4 If necessary, performing a test run for one or more actuators.
- 5 If necessary, performing an underfloor heating screed dryout.

12.2 Precautions when commissioning



INFORMATION

During the first running period of the unit, the required power may be higher than stated on the nameplate of the unit. This phenomenon is caused by the compressor, that needs a continuous run time of 50 hours before reaching smooth operation and stable power consumption.



NOTICE

Before starting up the system, the unit **MUST** be energised for at least 6 hours. At negative ambient temperatures, the compressor oil needs to be heated to avoid oil shortage and compressor breakdown during startup.



NOTICE

ALWAYS operate the unit with thermistors and/or pressure sensors/switches. If **NOT**, burning of the compressor might be the result.

12.3 Checklist before commissioning

- 1 After the installation of the unit, check the items listed below.
- 2 Close the unit.
- 3 Power up the unit.

☐	You read the complete installation instructions, as described in the installer reference guide .
☐	The outdoor unit is properly mounted.
☐	The switchbox is rotated back and correctly engaged in the switchbox holder.
☐	Field wiring Be sure that the field wiring has been carried out according to the instructions described in the chapter "9 Electrical installation" [► 86], according to the wiring diagrams and according to the applicable legislation.
☐	The system is properly earthed and the earth terminals are tightened.
☐	The fuses or locally installed protection devices are installed according to this document, and have NOT been bypassed.
☐	The power supply voltage matches the voltage on the identification label of the unit.
☐	There are NO loose connections or damaged electrical components in the switch box.
☐	There are NO damaged components or squeezed pipes on the inside of the outdoor unit.

☐	Only for models with integrated backup heater (F1B: field supply), or if the external backup heater kit (F1B: factory-mounted in the backup heater kit) is installed: Backup heater circuit breaker F1B is turned ON.
☐	Only for tanks with built-in booster heater: Booster heater circuit breaker F2B (field supply) is turned ON.
☐	The correct pipe size is installed and the pipes are properly insulated.
☐	There are no water leaks inside the outdoor unit.
☐	The shut-off valves are properly installed and fully open.
☐	The automatic air purge valve is open.
☐	The pressure relief valve purges water when opened. Clean water MUST come out.
☐	The minimum water volume is guaranteed in all conditions. See "To check the water volume and flow rate" in "8.1 Preparing water piping" [► 71].
☐	(if applicable) The domestic hot water tank is filled completely.

12.4 Checklist during commissioning

☐	The minimum flow rate is guaranteed in all conditions. See "To check the water volume and flow rate" in "8.1 Preparing water piping" [► 71].
☐	To perform an air purge .
☐	To perform a test run .
☐	To perform an actuator test run .
☐	Underfloor screed dryout function The underfloor screed dryout function is started (if necessary).

12.4.1 Minimum flow rate

Purpose

For a correct operating unit, it is important to check if the minimum flow rate is reached. If needed, modify the bypass valve setting.

If operation is...	Then the minimum required flow rate is...
Cooling	10 l/min
Heating	6 l/min
BUH operation	12 l/min
Heating defrost	12 l/min
DHW	25 l/min

To check the minimum flow rate

1	Check the hydraulic configuration to find out which space heating loops can be closed by mechanical, electronic, or other valves.	—
2	Close all space heating loops that can be closed.	—

3	Start the pump test run (see "12.4.4 Actuator test run" [► 229]).	—
4	Read out the flow rate ^(a) and modify the bypass valve setting to reach the minimum required flow rate + 2 l/min.	—

^(a) During pump test run, the unit can operate below the minimum required flow rate.

12.4.2 Air purge function

Purpose

When commissioning and installing the unit, it is very important to remove all air in the water circuit. When the air purge function is running, the pump operates without actual operation of the unit and the removal of air in the water circuit will start.



NOTICE

Before starting the air purge, open the safety valve and check if the circuit is sufficiently filled with water. Only if water escapes the valve after opening it, you can start the air purge procedure.

Manual or automatic

There are 2 modes for purging air:

- Manual: You can set the pump speed to low or high. You can set the circuit (the position of the 3-way valve) to Space or Tank. Air purge must be performed for both space heating and tank (domestic hot water) circuits.
- Automatic: The unit automatically changes the pump speed and switches the position of the 3-way valve between the space heating and the domestic hot water circuit.

Typical workflow

Purging the air from the system should consist of:

- 1 Performing a manual air purge
- 2 Performing an automatic air purge



NOTICE

When purging air with the manual air purge valve of the unit, collect any fluid that might leak out of the valve. If this fluid is NOT collected, it might drip on internal components and damage the unit.



INFORMATION

- To purge air, use all air purge valves present in the system. This includes the automatic or manual air purge valve of the outdoor unit, as well as any field-supplied valves.
- If the system contains an external backup heater kit, also use the air purge valve of the backup heater.
- If the system contains valve kit EKMBHBP1, it is required to – during the air purge – manually switch the position of the valve kit's 3-way valve by turning its knob, this to prevent air from remaining in the bypass. For more information, see "9.2.4 External backup heater kit" [► 100].

**INFORMATION**

Start by performing a manual air purge. When almost all the air is removed, perform an automatic air purge. If necessary, repeat performing the automatic air purge until you are sure that all air is removed from the system. During air purge function, pump speed limitation [9-0D] is NOT applicable.

The air purge function automatically stops after 30 minutes.

**INFORMATION**

For best results, air purge each loop separately.

To perform a manual air purge

Conditions: Make sure all operation is disabled. Go to [C]: **Operation** and turn off **Space heating/cooling** and **Tank operation**.

1	Set the user permission level to Installer . See "To change the user permission level" [► 124].	—
2	Go to [A.3]: Commissioning > Air purge .	
3	In the menu, set Type = Manual .	
4	Select Start air purge .	
5	Select OK to confirm. Result: The air purge starts. It stops automatically when ready.	
6	During manual operation: ▪ You can change the pump speed. ▪ You must change the circuit. To change these settings during the air purge, open the menu and go to [A.3.1.5]: Settings .	
	▪ Scroll to Circuit and set it to Space/Tank .	
	▪ Scroll to Pump speed and set it to Low/High .	
7	To stop the air purge manually:	—
1	Open the menu and go to Stop air purge .	
2	Select OK to confirm.	

To perform an automatic air purge

Conditions: Make sure all operation is disabled. Go to [C]: **Operation** and turn off **Space heating/cooling** and **Tank operation**.

1	Set the user permission level to Installer . See "To change the user permission level" [► 124].	—
2	Go to [A.3]: Commissioning > Air purge .	
3	In the menu, set Type = Automatic .	
4	Select Start air purge .	
5	Select OK to confirm. Result: The air purge starts. It stops automatically when done.	

6	To stop the air purge manually:		—
	1	In the menu, go to Stop air purge .	
	2	Select OK to confirm.	

12.4.3 Operation test run

Purpose

Perform test runs on the unit and monitor the leaving water and tank temperatures to check if the unit is working correctly. The following test runs should be made:

- Heating
- Cooling (if applicable)
- Tank

To perform an operation test run

Conditions: Make sure all operation is disabled. Go to [C]: **Operation** and turn off **Space heating/cooling** and **Tank** operation.

1	Set the user permission level to Installer . See "To change the user permission level" [► 124].	—
2	Go to [A.1]: Commissioning > Operation test run .	
3	Select a test from the list. Example: Heating .	
4	Select OK to confirm.	
	Result: The test run starts. It stops automatically when ready (± 30 min).	
	To stop the test run manually:	—
	1 In the menu, go to Stop test run .	
	2 Select OK to confirm.	



INFORMATION

If the outdoor temperature is outside the range of operation, the unit may NOT operate or may NOT deliver the required capacity.

To monitor leaving water and tank temperatures

During test run, the correct operation of the unit can be checked by monitoring its leaving water temperature (heating/cooling mode) and tank temperature (domestic hot water mode).

To monitor the temperatures:

1	In the menu, go to Sensors .	
2	Select the temperature information.	

12.4.4 Actuator test run

Purpose

Perform an actuator test run to confirm the operation of the different actuators. For example, when you select **Pump**, a test run of the pump will start.

To perform an actuator test run

Conditions: Make sure all operation is disabled. Go to [C]: **Operation** and turn off **Space heating/cooling** and **Tank operation**.

1	Set the user permission level to Installer. See "To change the user permission level" [► 124].	—
2	Go to [A.2]: Commissioning > Actuator test run .	
3	Select a test from the list. Example: Pump .	
4	Select OK to confirm. Result: The actuator test run starts. It stops automatically when ready (± 30 min). To stop the test run manually:	
1	In the menu, go to Stop test run .	
2	Select OK to confirm.	

Possible actuator test runs

- **Booster heater test**
- **Backup heater 1 test**
- **Backup heater 2 test**
- **Pump test**

**INFORMATION**

Make sure that all air is purged before executing the test run. Also avoid disturbances in the water circuit during the test run.

- **Diverter valve test** (3-way valve for switching between space heating and tank heating)
- **Bivalent signal test**
- **Alarm output test**
- **C/H signal test**
- **DHW pump test**

12.4.5 Underfloor heating screed dryout

About underfloor heating screed dryout**Purpose**

The underfloor heating (UFH) screed dryout function is used for drying out the screed of an underfloor heating system during the construction of the building.

**NOTICE**

The installer is responsible for:

- contacting the screed manufacturer for the maximum allowed water temperature, to avoid cracking the screed,
- programming the underfloor heating screed dryout schedule according to the initial heating instructions of the screed manufacturer,
- checking the proper functioning of the setup on a regular basis,
- performing the correct program complying with the type of the used screed.

UFH screed dryout after installation of outdoor unit

If the outdoor ambient temperature and [4-02] setting > 25°C the backup heater will perform the screed dryout and supply the leaving water without heat pump operation.

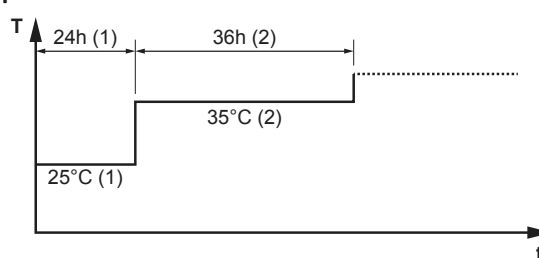
To program an underfloor heating screed dryout schedule

Duration and temperature

The installer can program up to 20 steps. For each step he needs to enter:

- 1 the duration in hours, up to 72 hours,
- 2 the desired leaving water temperature, up to 55°C.

Example:



- T** Desired leaving water temperature (15~55°C)
t Duration (1~72 h)
(1) Action step 1
(2) Action step 2

Steps

1	Set the user permission level to Installer . See "To change the user permission level" [► 124].	—
2	Go to [A.4.2]: Commissioning > UFH screed dryout > Program .	
3	Program the schedule: To add a new step, select the next empty line and change its value. To delete a step and all steps below it, decrease the duration to "—". ▪ Scroll through the schedule. ▪ Adjust the duration (between 1 and 72 hours) and temperatures (between 15°C and 55°C).	—
4	Press the left dial to save the schedule.	

To perform an underfloor heating screed dryout



INFORMATION

- If **Emergency** is set to **Manual** ([9.5]=0), and the unit is triggered to start emergency operation, the user interface will ask confirmation before starting. The underfloor heating screed dryout function is active even if the user does NOT confirm emergency operation.
- During underfloor heating screed dryout, pump speed limitation [9-0D] is NOT applicable.

**NOTICE**

To perform an underfloor heating screed dryout, room frost protection needs to be disabled ([2-06]=0). By default, it is enabled ([2-06]=1). However, due to the "installer-on-site" mode (see "Commissioning"), room frost protection will be automatically disabled for 12 hours after the first power-on.

If the screed dryout still needs to be performed after the first 12 hours of power-on, manually disable room frost protection by setting [2-06] to "0", and KEEP it disabled until the screed dryout has finished. Ignoring this notice will result in cracking of the screed.

**NOTICE**

For the underfloor heating screed dryout to be able to start, make sure the following settings are met:

- [4-00]=1
- [C-02]=0
- [D-01]=0
- [4-08]=0
- [4-01]≠1

Steps

Conditions: An underfloor heating screed dryout schedule has been programmed. See "To program an underfloor heating screed dryout schedule" [► 231].

Conditions: Make sure all operation is disabled. Go to [C]: **Operation** and turn off **Space heating/cooling** and **Tank** operation.

1	Set the user permission level to Installer . See "To change the user permission level" [► 124].	—
2	Go to [A.4]: Commissioning > UFH screed dryout .	
3	Select Start UFH screed dryout .	
4	Select OK to confirm. Result: The underfloor heating screed dryout starts. It stops automatically when done.	
5	To stop the underfloor heating screed dryout manually:	—
1	Open the menu and go to Stop UFH screed dryout .	
2	Select OK to confirm.	

To read out the status of an underfloor heating screed dryout

Conditions: You are performing an underfloor heating screed dryout.

1	Press the back button. Result: A graph is displayed, highlighting the current step of the screed dryout schedule, the total remaining time, and the current desired leaving water temperature.	
2	Press the left dial to open the menu structure and to:	
1	View the status of sensors and actuators.	—
2	Adjust the current program	—

To stop an underfloor heating (UFH) screed dryout

U3-error

When the program is stopped by an error or an operation switch off, the U3 error will be displayed on the user interface. To resolve the error codes, see "15.4 Solving problems based on error codes" [► 245].

In case of a power failure, the U3 error is not generated. When power is restored, the unit automatically restarts the latest step and continues the program.

Stop UFH screed dryout

To manually stop underfloor heating screed dryout:

1	Go to [A.4.3]: Commissioning > UFH screed dryout	—
2	Select Stop UFH screed dryout .	
3	Select OK to confirm. Result: The underfloor heating screed dryout is stopped.	

Read out UFH screed dryout status

When the program is stopped due to an error, an operation switch-off, or a power failure, you can read out the underfloor heating screed dryout status:

1	Go to [A.4.3]: Commissioning > UFH screed dryout > Status	
2	You can read out the value here: Stopped at + the step where the underfloor screed dryout was stopped.	—
3	Modify and restart the execution of the program ^(a) .	—

^(a) If the UFH screed dryout program was stopped due to a power failure and the power resumes, the program will automatically restart the last implemented step.

13 Hand-over to the user

Once the test run is finished and the unit operates properly, please make sure the following is clear for the user:

- Fill in the installer setting table (in the operation manual) with the actual settings.
- Make sure that the user has the printed documentation and ask him/her to keep it for future reference. Inform the user that he can find the complete documentation at the URL mentioned earlier in this manual.
- Explain the user how to properly operate the system and what to do in case of problems.
- Show the user what to do for the maintenance of the unit.
- Explain the user about energy saving tips as described in the operation manual.

14 Maintenance and service

**NOTICE**

General maintenance/inspection checklist. Next to the maintenance instructions in this chapter, a general maintenance/inspection checklist is also available on the Daikin Business Portal (authentication required).

The general maintenance/inspection checklist is complementary to the instructions in this chapter and can be used as a guideline and reporting template during maintenance.

**NOTICE**

Maintenance **MUST** be done by an authorised installer or service agent.

We recommend performing maintenance at least once a year. However, applicable legislation might require shorter maintenance intervals.

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14.1 Maintenance safety precautions

**DANGER: RISK OF ELECTROCUTION**

**DANGER: RISK OF BURNING/SCALDING**

**NOTICE: Risk of electrostatic discharge**

Before performing any maintenance or service work, touch a metal part of the unit in order to eliminate static electricity and to protect the PCB.

14.2 Yearly maintenance

14.2.1 Yearly maintenance outdoor unit: overview

- Check the following at least once a year:
- Heat exchanger
 - Water filter
 - Water pressure
 - Water pressure relief valve
 - Pressure relief valve of the domestic hot water tank
 - Switch box

14.2.2 Yearly maintenance outdoor unit: instructions

Heat exchanger

The heat exchanger of the outdoor unit can get blocked up due to dust, dirt, leaves, etc. It is recommended to clean the heat exchanger yearly. A blocked heat exchanger can lead to too low pressure or too high pressure leading to worse performance.

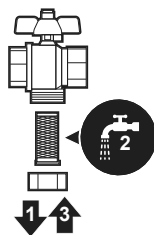
Water filter

Close the valve. Clean and rinse the water filter.



NOTICE

Handle the filter with care. To prevent damage to the mesh of the filter, do NOT use excessive force when you reinsert it.



Water pressure

Keep water pressure above 1 bar. If it is lower, add water.

Water pressure relief valve

Open the valve and check if it operates correctly. **The water may be very hot!**

Checkpoints are:

- The water flow coming from the relief valve is high enough, no blockage of the valve or in between piping is suspected.
- Dirty water coming out of the relief valve:
 - open the valve until the discharged water does NOT contain dirt anymore
 - flush the system

It is recommended to do this maintenance more frequently.

Pressure relief valve of the domestic hot water tank (field supply)

Open the valve.



CAUTION

Water coming out of the valve may be very hot.

- Check if nothing blocks the water in the valve or in between piping. The water flow coming from the relief valve must be high enough.
- Check if the water coming out of the relief valve is clean. If it contains debris or dirt:
 - Open the valve until the discharged water does not contain debris or dirt anymore.
 - Flush and clean the complete tank, including the piping between the relief valve and cold water inlet.

To make sure this water originates from the tank, check after a tank heat up cycle.

**INFORMATION**

It is recommended to perform this maintenance more than once a year.

Switch box

- Carry out a thorough visual inspection of the switch box and look for obvious defects such as loose connections or defective wiring.
- Using an ohmmeter, check if contactors K1M, K2M, K3M and K5M (depending on your installation) operate correctly. All contacts of these contactors must be in open position when the power is turned OFF.

**WARNING**

If the internal wiring is damaged, it has to be replaced by the manufacturer, its service agent or similarly qualified persons.

15 Troubleshooting

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15.1 Overview: Troubleshooting

This chapter describes what you have to do in case of problems.

It contains information about:

- Solving problems based on symptoms
- Solving problems based on error codes

Before troubleshooting

Carry out a thorough visual inspection of the unit and look for obvious defects such as loose connections or defective wiring.

15.2 Precautions when troubleshooting



WARNING

- When carrying out an inspection on the switch box of the unit, ALWAYS make sure that the unit is disconnected from the mains. Turn off the respective circuit breaker.
- When a safety device was activated, stop the unit and find out why the safety device was activated before resetting it. NEVER shunt safety devices or change their values to a value other than the factory default setting. If you are unable to find the cause of the problem, call your dealer.



DANGER: RISK OF ELECTROCUTION



WARNING

Prevent hazards due to inadvertent resetting of the thermal cut-out: power to this appliance MUST NOT be supplied through an external switching device, such as a timer, or connected to a circuit that is regularly turned ON and OFF by the utility.

**DANGER: RISK OF BURNING/SCALDING**

15.3 Solving problems based on symptoms

15.3.1 Symptom: The unit is NOT heating or cooling as expected

Possible causes	Corrective action
The temperature setting is NOT correct	Check the temperature setting on the remote controller. Refer to the operation manual.
The water flow is too low	Check and make sure that: ▪ All shut-off valves of the water circuit are completely open. ▪ The water filter is clean. Clean if necessary. ▪ There is no air in the system. Purge air if necessary. You can purge air manually (see "To perform a manual air purge" [► 228]) or use the automatic air purge function (see "To perform an automatic air purge" [► 228]). ▪ The water pressure is >1 bar. ▪ The expansion vessel is NOT broken. ▪ The resistance in the water circuit is NOT too high for the pump (see the ESP curve). If the problem persists after you have conducted all of the above checks, contact your dealer. In some cases, it is normal that the unit decides to use a low water flow.
The water volume in the installation is too low	Make sure that the water volume in the installation is above the minimum required value (see "8.1.3 To check the water volume and flow rate" [► 74]).

15.3.2 Symptom: Hot water does NOT reach the desired temperature

Possible causes	Corrective action
One of the tank temperature sensors is broken.	See the service manual of the unit for the corresponding corrective action.

15.3.3 Symptom: The compressor does NOT start (space heating or domestic water heating)

Possible causes	Corrective action
The unit must start up out of its operation range (the water temperature is too low)	If the system contains a backup heater: If the water temperature is too low, the unit uses the backup heater to reach the minimum water temperature first (15°C). Check and make sure that: ▪ The power supply to the backup heater is correctly wired. ▪ The backup heater thermal protector is NOT activated. ▪ The backup heater contactors are NOT broken. If the system does NOT contain a backup heater: It may be required to start up with a small water volume. To do this, gradually open the heat emitters. As a result, the water temperature will gradually rise. Monitor the inlet water temperature and make sure it does NOT drop below 25°C. If the problem persists after you have done all of the above checks, contact your dealer.
The preferential kWh rate power supply settings and electrical connections do NOT match	This should match with the connections as explained in: ▪ "9.2.2 To connect the main power supply" [► 96] ▪ "9.1.4 About preferential kWh rate power supply" [► 88] ▪ "9.1.5 Overview of electrical connections except external actuators" [► 89]
The preferential kWh rate signal was sent by the electricity company	In the user interface of the unit, go to [8.5.B] Information > Actuators > Forced off contact. If Forced off contact is On, the unit is operating under the preferential kWh rate. Wait for the power to return (maximum 2 hours).
Domestic hot water (including disinfection) and space heating operation are scheduled to start at the same time.	Change the schedule to not start both operation modes at the same moment.

15.3.4 Symptom: The system is making gurgling noises after commissioning

Possible cause	Corrective action
There is air in the system.	Purge air from the system. ^(a)
Incorrect hydraulic balance.	To be performed by the installer: 1 Perform hydraulic balancing to assure that the flow is correctly distributed between the emitters. 2 If hydraulic balancing is not sufficient, change the pump limitation settings ([9-0D] and [9-0E] if applicable).
Various malfunctions.	Check if  or  is displayed on the home screen of the user interface. See "15.4.1 To display the help text in case of a malfunction" [► 245] for more information about the malfunction.

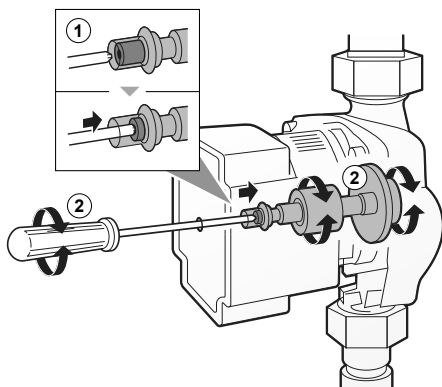
^(a) We recommend to purge air with the air purge function of the unit (to be performed by the installer). If you purge air from the heat emitters or collectors, mind the following:

**WARNING**

Air purging heat emitters or collectors. Before you purge air from heat emitters or collectors, check if  or  is displayed on the home screen of the user interface.

- If not, you can purge air immediately.
- If yes, make sure that the room where you want to purge air is sufficiently ventilated. **Reason:** Refrigerant might leak into the water circuit, and subsequently into the room when you purge air from the heat emitters or collectors.

15.3.5 Symptom: The pump is blocked

Possible causes	Corrective action
If the unit has been powered off for a long time, lime might block the rotor of the pump.	Use a Philips No. 2 screwdriver to push the deblocking screw of the rotor in (0.5 cm). Then turn the deblocking screw back and forth until the rotor is deblocked.^(a) Note: Do NOT use excessive force. 

^(a) If you cannot deblock the rotor of the pump with this method, you will need to disassemble the pump and turn the rotor by hand.

15.3.6 Symptom: The pump is making noise (cavitation)

Possible causes	Corrective action
There is air in the system	Purge air manually (see "To perform a manual air purge" [► 228]) or use the automatic air purge function (see "To perform an automatic air purge" [► 228]).
The water pressure at the pump inlet is too low	Check and make sure that: ▪ The water pressure is >1 bar. ▪ The water pressure sensor is NOT broken. ▪ The expansion vessel is NOT broken. ▪ The pre-pressure setting of the expansion vessel is correct (see "8.1.4 Changing the pre-pressure of the expansion vessel" [► 77]).

15.3.7 Symptom: The pressure relief valve opens

Possible causes	Corrective action
The expansion vessel is broken	Replace the expansion vessel.
The water volume in the installation is too high	Make sure that the water volume in the installation is below the maximum allowed value (see "8.1.3 To check the water volume and flow rate" [► 74] and "8.1.4 Changing the pre-pressure of the expansion vessel" [► 77]).
The water circuit head is too high	The water circuit head is the difference in height between the outdoor unit and the highest point of the water circuit. If the outdoor unit is located at the highest point of the installation, the installation height is considered 0 m. The maximum water circuit head is 5 m. Check the installation requirements.

15.3.8 Symptom: The water pressure relief valve leaks

Possible causes	Corrective action
Dirt is blocking the water pressure relief valve outlet	Check whether the pressure relief valve works correctly by turning the red knob on the valve counterclockwise: ▪ If you do NOT hear a clacking sound, contact your dealer. ▪ If the water keeps running out of the unit, close both the water inlet and outlet shut-off valves first and then contact your dealer.

15.3.9 Symptom: The space is NOT sufficiently heated at low outdoor temperatures

Possible causes	Corrective action
If the system contains a backup heater: The backup heater operation is not activated	Check the following: ▪ The backup heater operation mode is enabled. Go to: [9.3.8]: Installer settings > Backup heater > Operation [4-00] ▪ The backup heater overcurrent circuit breaker is on. If not, turn it back on. ▪ The thermal protector of the backup heater is NOT activated. If it has, check the following, and then press the reset button in the switch box: - The water pressure - Whether there is air in the system - The air purge operation
If the system contains a backup heater: The backup heater equilibrium temperature has not been configured correctly	Increase the equilibrium temperature to activate the backup heater operation at a higher outdoor temperature. Go to: [9.3.7]: Installer settings > Backup heater > Equilibrium temperature [5-01]
There is air in the system.	Purge air manually or automatically. See the air purge function in the chapter "12 Commissioning" [► 224].

Possible causes	Corrective action
Too much heat pump capacity is used for heating domestic hot water (applies only to installations with a domestic hot water tank)	Check if the Space heating priority settings have been configured appropriately: - Make sure that the Space heating priority has been enabled. Go to [9.6.1]: Installer settings > Balancing > Space heating priority [5-02] - Increase the "space heating priority temperature" to activate backup heater operation at a higher outdoor temperature. Go to [9.6.3]: Installer settings > Balancing > Offset BSH setpoint [5-03]

15.3.10 Symptom: The pressure at the tapping point is temporarily unusually high

Possible causes	Corrective action
Failing or blocked pressure relief valve.	- Flush and clean the complete tank including the piping between pressure relief valve and the cold water inlet. - Replace the pressure relief valve.

15.3.11 Symptom: Tank disinfection function is NOT completed correctly (AH-error)

Possible causes	Corrective action
The disinfection function was interrupted by domestic hot water tapping	Program the start-up of the disinfection function when the coming 4 hours NO domestic hot water tapping is expected.
Large domestic hot water tapping happened recently before the programmed start-up of the disinfection function	If in [5.6] Tank > Heat up mode the mode Reheat only or Schedule + reheat is selected, it is recommended to program the start-up of the disinfection function at least 4 hours later than the last expected large hot water tapping. This start-up can be set by installer settings (disinfection function). If in [5.6] Tank > Heat up mode the mode Schedule only is selected, it is recommended to program a Eco action 3 hours before the scheduled start-up of the disinfection function to preheat the tank.
The disinfection operation was stopped manually: [C.3] Operation > Tank was turned off during disinfection.	Do NOT stop tank operation during disinfection.

15.4 Solving problems based on error codes

If the unit runs into a problem, the user interface displays an error code. It is important to understand the problem and to take measures before resetting an error code. This should be done by a licensed installer or by your local dealer.

This chapter gives you an overview of most possible error codes and their descriptions as they appear on the user interface.



INFORMATION

See the service manual for:

- The complete list of error codes
- A more detailed troubleshooting guideline for each error

15.4.1 To display the help text in case of a malfunction

In case of a malfunction, the following will appear on the home screen depending on the severity:

- : Error
- : Malfunction

You can get a short and a long description of the malfunction as follows:

1	Press the left dial to open the main menu and go to Malfunctioning . Result: A short description of the error and the error code is displayed on the screen.	
2	Press ? in the error screen. Result: A long description of the error is displayed on the screen.	?

15.4.2 Error codes of the unit

• = Compressor module, = Hydro module

Error code	Description
7H-01	Water flow problem
7H-04	Water flow problem during domestic hot water production
7H-05	Water flow problem during heating/sampling
7H-06	Water flow problem during cooling/defrost
7H-07	Water flow problem. Pump deblocking active
7H-08	Pump abnormality during operation (pump feedback)
80-00	Returning water temperature sensor problem
81-00	Leaving water temperature sensor problem
81-01	Mixed water thermistor abnormality.

Error code		Description
89-01		Heat exchanger freeze-up protection activated during defrost (error)
89-02		Heat exchanger freeze-up protection activated during heating / DHW operation. (warning)
89-03		Heat exchanger freeze-up protection activated during defrost (warning)
89-05		Heat exchanger freeze-up protection activated during cooling operation. (error)
89-06		Heat exchanger freeze-up protection activated during cooling operation. (warning)
8F-00		Abnormal increase outlet water temperature (DHW)
8H-00		Abnormal increase outlet water temperature
8H-01		Overheating mixed water circuit
8H-02		Overheating mixed water circuit (thermostat)
8H-03		Overheating water circuit (thermostat)
A1-00		Zero cross detection problem
A5-00		OU: High pressure peak cut / freeze protection problem
AA-01		Backup heater overheated or BUH power cable not connected
AC-00		Booster heater overheated
AH-00		Tank disinfection function not completed correctly
AJ-03		Too long DHW heat-up time required
C0-00		Flow sensor malfunction
C0-01		Flow sensor malfunction
C0-02		Flow sensor malfunction
C4-00		Heat exchanger temperature sensor problem
C5-00		Heat exchanger thermistor abnormality
CJ-02		Room temperature sensor problem
E1-00		OU: PCB defect
E2-00		Leakage current detection error
E3-00		OU: Actuation of high pressure switch (HPS)
E3-24		High pressure sensor abnormality
E4-00		Abnormal suction pressure
E5-00		OU: Overheat of inverter compressor motor

Error code	Description	
E6-00		OU: Compressor startup defect
E7-00		OU: Malfunction of outdoor unit fan motor
E8-00		OU: Power input overvoltage
E9-00		Malfunction of electronic expansion valve
EA-00		OU: Cool/heat switchover problem
EC-00		Abnormal increase tank temperature
EC-04		Tank preheating
F3-00		OU: Malfunction of discharge pipe temperature
F6-00		OU: Abnormal high pressure in cooling
FA-00		OU: Abnormal high pressure, actuation of HPS
H0-00		OU: Voltage/current sensor problem
H1-00		External temperature sensor problem
H3-00		OU: Malfunction of high pressure switch (HPS)
H5-00		Malfunction of compressor overload protection
H6-00		OU: Malfunction of position detection sensor
H8-00		OU: Malfunction of compressor input (CT) system
H9-00		OU: Malfunction of outdoor air thermistor
HC-00		Tank temperature sensor problem
HC-01		Second tank temperature sensor problem
HJ-10		Water pressure sensor abnormality
J3-00		OU: Malfunction of discharge pipe thermistor
J6-00		OU: Malfunction of heat exchanger thermistor
J6-07		OU: Malfunction of heat exchanger thermistor
J8-00		Malfunction of refrigerant liquid thermistor
JA-00		OU: Malfunction of high pressure sensor
JA-17		Refrigerant pressure sensor abnormality
L1-00		Malfunction of INV PCB
L3-00		OU: Electrical box temperature rise problem
L4-00		OU: Malfunction of inverter radiating fin temperature rise
L5-00		OU: Inverter instantaneous overcurrent (DC)
L8-00		Malfunction triggered by a thermal protection in the inverter PCB

Error code		Description
L9-00		Prevention of compressor lock
LC-00		Malfunction in communication system of outdoor unit
P1-00		Open-phase power supply imbalance
P3-00		Abnormal direct current
P4-00		OU: Malfunction of radiating fin temperature sensor
PJ-00		Capacity setting mismatch
U0-00		OU: Shortage of refrigerant
U1-00		Malfunction by reverse phase/open-phase
U2-00		OU: Defect of power supply voltage
U3-00		Underfloor heating screed dryout function not completed correctly
U4-00		Indoor/outdoor unit communication problem
U5-00		User interface communication problem
U7-00		OU: Transmission malfunction between main CPU-INV CPU
U8-02		Connection with room thermostat lost
U8-03		No connection with room thermostat
U8-04		Unknown USB device
U8-05		File malfunction
U8-06		MMI/bizone kit communication problem
U8-07		P1P2 communication error
U8-09		MMI software version {version_MMI_software} / Indoor unit [version_IU_modelname] compatibility error
U8-11		Connection with the Wireless gateway lost
UA-00		Indoor unit, outdoor unit matching problem
UA-17		Tank type problem
UF-00		Reversed piping or bad communication wiring detection.

**INFORMATION**

In case of error code AH and no interruption of the disinfection function occurred due to domestic hot water tapping, following actions are recommended:

- When the **Reheat only** or **Schedule + reheat** mode is selected, it is recommended to program the start-up of the disinfection function at least 4 hours later than the last expected large hot water tapping. This start-up can be set by installer settings (disinfection function).
- When the **Schedule only** mode is selected, it is recommended to program an **Eco** action 3 hours before the scheduled start-up of the disinfection function to preheat the tank.

**NOTICE**

When the minimum water flow is lower than described in the table below, the unit will temporarily stop operation and the user interface will display error 7H-01. After some time, this error will reset automatically and the unit will resume operation.

If operation is...	Then the minimum required flow rate is...
Cooling	10 l/min
Heating	6 l/min
BUH operation	12 l/min
Heating defrost	12 l/min
DHW	25 l/min

**INFORMATION**

If error 89-05 or 89-06 occurs, check the minimum water volume during cooling.

**INFORMATION**

Error AJ-03 is reset automatically from the moment there is a normal tank heat-up.

**INFORMATION**

If an U8-04 error occurs, the error can be reset after a successful update of the software. If the software is not successfully updated then you must make sure that your USB device has the FAT32 format.

**INFORMATION**

Error EC-04 is reset automatically from the moment the domestic hot water tank is preheated to a sufficiently high temperature.

**INFORMATION**

If the booster heater overheats and is disabled by the thermostatic safety, the unit will not give an error directly. Check if the booster heater is still in operation if you experience one or more of the following errors:

- Powerful operation takes a very long time to heat up and the error code AJ-03 is displayed.
- During anti-legionella operation (weekly), the error code AH-00 is displayed because the unit cannot reach the requested temperature required for tank disinfection.

**INFORMATION**

A malfunctioning booster heater will have an impact on energy metering and power consumption control.

**INFORMATION**

The user interface will display how to reset an error code.

16 Disposal



NOTICE

Do NOT try to dismantle the system yourself: dismantling of the system, treatment of the refrigerant, oil and other parts **MUST** comply with applicable legislation. Units **MUST** be treated at a specialised treatment facility for reuse, recycling and recovery.

In this chapter

16.1	Overview: Disposal	251
16.2	To pump down.....	251

16.1 Overview: Disposal

Typical workflow

Disposing of the system typically consists of the following stages:

- 1 Pumping down the system.
- 2 Bringing the system to a specialized treatment facility.



INFORMATION

For more details, see the service manual.

16.2 To pump down

Example: To protect the environment, pump down when relocating the unit or when disposing of the unit.



DANGER: RISK OF EXPLOSION

Pump down – Refrigerant leakage. If you want to pump down the system, and there is a leak in the refrigerant circuit:

- Do NOT use the unit's automatic pump down function, with which you can collect all refrigerant from the system into the outdoor unit. **Possible consequence:** Self-combustion and explosion of the compressor because of air going into the operating compressor.
- Use a separate recovery system so that the unit's compressor does NOT have to operate.



NOTICE

During pump down operation, stop the compressor before removing the refrigerant piping. If the compressor is still running and the stop valve is open during pump down, air will be sucked into the system. Compressor breakdown or damage to the system can result due to abnormal pressure in the refrigerant cycle.

**NOTICE**

Before pump down. Before using the unit's automatic pump down function, do the following settings:

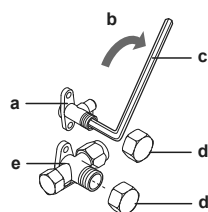
- Set [7-02]=1 (or [4.4]: **Space heating/cooling > Number of zones = Dual zone**)
- Set [C-07]=0 (or [2.9]: **Main zone > Control = Leaving water**)
- Set [E-08]=0 (or [9.F]: **Installer settings > Power saving function = No**)

Pump down operation will extract all refrigerant from the system into the outdoor unit.

- 1 Remove the valve lid from the liquid stop valve and the gas stop valve.
- 2 Install a manifold on the gas stop valve.
- 3 Start the pump down operation via the user interface integrated in the indoor unit:

1	Set the user permission level to Installer . See "To change the user permission level" [► 124].	—
2	Go to [A.5]: Commissioning > Pump down .	
3	Select Pump down .	
4	Select OK to confirm. Result: The pump down operation starts. It stops automatically when done. To stop the pump down operation manually:	
1	In the menu, go to Stop pump down .	
2	Select OK to confirm.	

- 4 After 5 to 10 minutes (after only 1 or 2 minutes in case of very low ambient temperatures ($<-10^{\circ}\text{C}$)), close the liquid stop valve with a hexagonal wrench.
- 5 Check on the manifold if the vacuum is reached.
- 6 After 2-3 minutes, close the gas stop valve and stop the pump down operation.



- a Liquid stop valve
- b Closing direction
- c Hexagonal wrench
- d Valve lid
- e Gas stop valve

17 Technical data

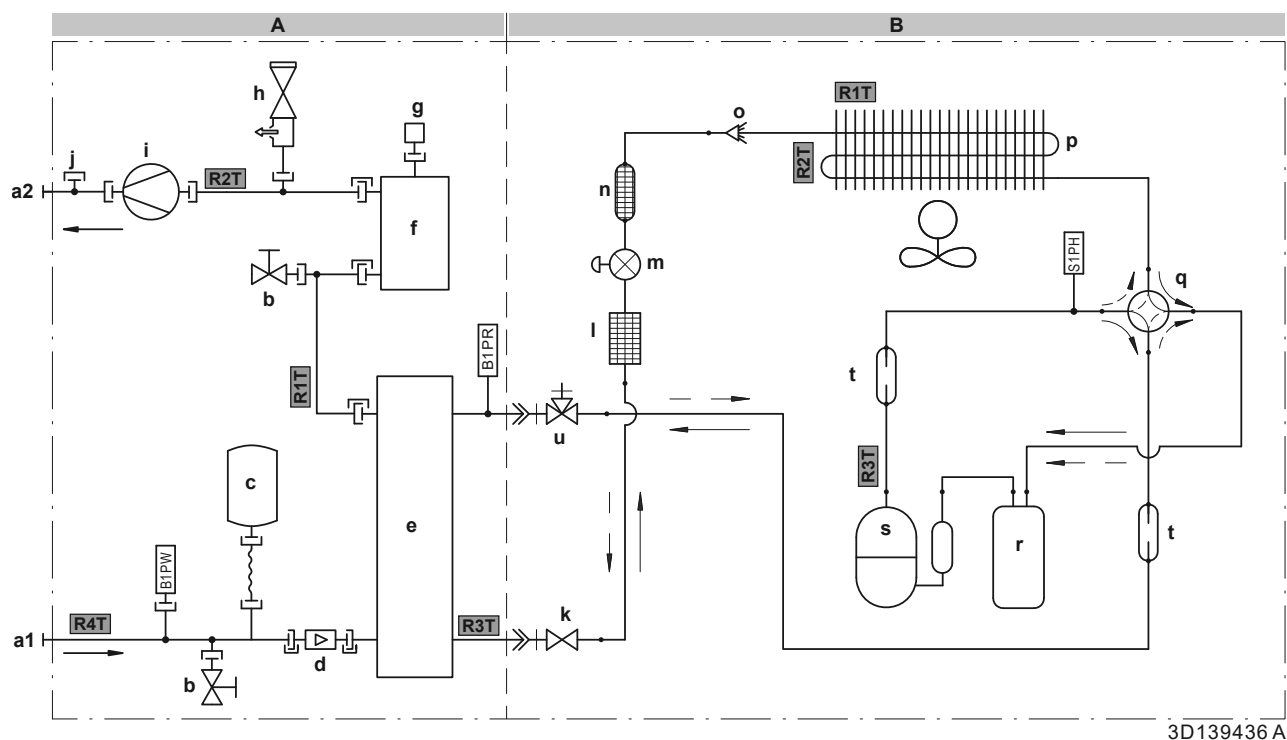
A **subset** of the latest technical data is available on the regional Daikin website (publicly accessible). The **full set** of latest technical data is available on the Daikin Business Portal (authentication required).

In this chapter

17.1	Piping diagram: Outdoor unit.....	254
17.2	Wiring diagram: Outdoor unit.....	256
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17.1 Piping diagram: Outdoor unit

EBLA04~08E23V3, EDLA04~08E23V3



3D139436 A

A Hydro module**B Compressor module**

- A1** Water IN (screw connection, male, 1")
A2 Water OUT (screw connection, male, 1")
b Drain valve (water circuit)
c Expansion vessel
d Flow sensor
e Plate heat exchanger
f Backup heater
g Automatic air purge valve
h Safety valve
i Pump
j Connection for optional flow switch
k Liquid stop valve
l Filter
m Electronic expansion valve
n Muffler with filter
o Distributor
p Heat exchanger
q 4-way valve
r Accumulator
s Compressor
t Muffler
u Gas stop valve with service port

B1PW Space heating water pressure sensor**B1PR** Refrigerant pressure sensor**S1PH** High pressure switch**Thermistors (hydro module):****R1T** Outlet water heat exchanger**R3T** Refrigerant liquid side**R4T** Inlet water**Thermistors (compressor module):****R1T** Outdoor air**R2T** Air heat exchanger**R3T** Compressor discharge**Refrigerant flow:**

→ Heating

- -> Cooling

Connections:

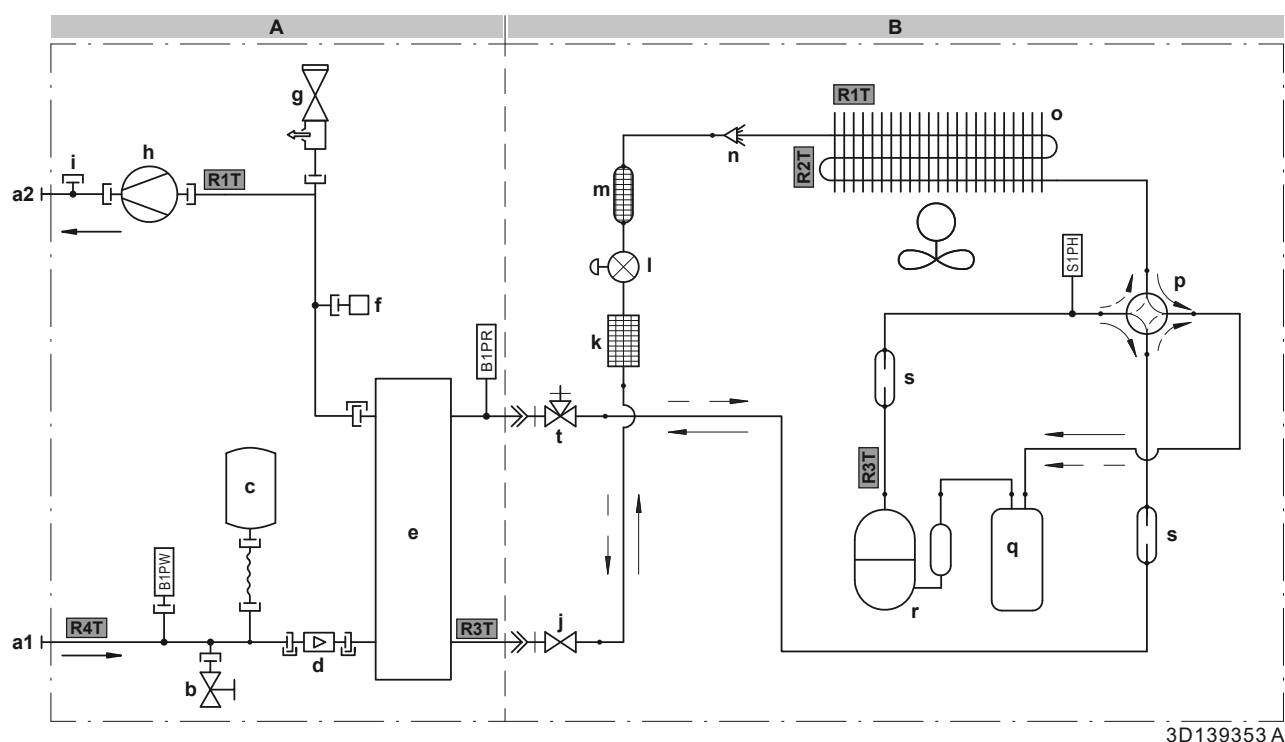
—|— Screw connection

—|— Flare connection

—|— Quick coupling

—●— Brazed connection

EBLA04~08E2V3, EDLA04~08E2V3



3D139353A

A Hydro module**B Compressor module**

- a1** Water IN (screw connection, male, 1")
a2 Water OUT (screw connection, male, 1")
b Drain valve (water circuit)
c Expansion vessel
d Flow sensor
e Plate heat exchanger
f Automatic air purge valve
g Safety valve
h Pump
i Connection for optional flow switch
j Liquid stop valve
k Filter
l Electronic expansion valve
m Muffler with filter
n Distributor
o Heat exchanger
p 4-way valve
q Accumulator
r Compressor
s Muffler
t Gas stop valve with service port

- B1PW** Space heating water pressure sensor
B1PR Refrigerant pressure sensor
S1PH High pressure switch

Thermistors (hydro module):

- R1T** Outlet water heat exchanger
R3T Refrigerant liquid side
R4T Inlet water

Thermistors (compressor module):

- R1T** Outdoor air
R2T Compressor discharge
R3T Compressor suction

Refrigerant flow:

- Heating
 ⇄ Cooling

Connections:

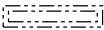
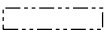
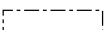
- Screw connection
 — Flare connection
 — Quick coupling
 — Brazed connection

17.2 Wiring diagram: Outdoor unit

Compressor module

See the internal wiring diagram supplied with the unit (on the inside of the top plate). The abbreviations used are listed below.

Translation of text on wiring diagram:

English	Translation
(1) Connection diagram	(1) Connection diagram
Outdoor	Outdoor
Hydro	Hydro module
(2) Notes	(2) Notes
	Connection
X1M	Main terminal
-----	Earth wiring
-----	Field supply
	Option
	Wiring depending on model
	Switch box
	PCB
	Protective earth
	Field wire
(3) Legend	(3) Legend
	*: Optional; #: Field supply
A1P	Hydro kit main PCB
AL*	Connector
C*	Capacitor
DB*	Rectifier bridge
DC*	Connector
DP*	Connector
E*	Connector
F1U	Fuse T 6.3 A 250 V
FU1, FU2	Fuse T 3.15 A 250 V
FU3	Fuse T 30 A 250 V
H*	Connector
IPM*	Intelligent power module
L	Connector
LED A	Pilot lamp
L*	Reactor
M1C	Compressor motor

English		Translation
M1F		Fan motor
MR*		Magnetic relay
N		Connector
PCB1		Printed circuit board (main)
PS		Switching power supply
Q1L		Thermal protector
Q1DI	#	Earth leakage circuit breaker
Q*		Insulated gate bipolar transistor (IGBT)
R1T		Thermistor (air)
R2T		Thermistor (heat exchanger)
R3T		Thermistor (discharge)
RTH2		Resistor
S		Connector
S1PH		High pressure switch
S2~80		Connector
SA1		Surge arrestor
SHM		Terminal strip fixed plate
U, V, W		Connector
V3, V4, V401		Varistor
X*A		Connector
X*M		Terminal strip
Y1E		Electronic expansion valve
Y1S		Solenoid valve (4-way valve)
Z*C		Noise filter (ferrite core)
Z*F		Noise filter

NOTES:

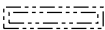
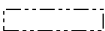
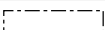
- 1 When operating, do not short-circuit protection device(s) S1PH and Q1L.
- 2 Colours: BLK: black; RED: red; BLU: blue; WHT: white; GRN: green; YLW: yellow

Hydro module

The wiring diagram is delivered with the unit, located at the inside of the service cover.

Translation of text on wiring diagram:

English	Translation
(1) Connection diagram	(1) Connection diagram
Hydro	Hydro module
Outdoor	Outdoor
1N~, 230 V, 3/6 kW	1N~, 230 V, 3 kW or 6 kW
3N~, 400 V, 6/9 kW	3N~, 400 V, 6 kW or 9 kW
2-point SPST valve	2-point SPST valve
Booster heater power supply	Booster heater power supply
Compressor switch box	Compressor switch box
External BUH	External backup heater
For DHW tank option (only ***)	For DHW tank option (only ***)
For external BUH option	For external backup heater option
For normal power supply (standard)	For normal power supply (standard)
For preferential kWh rate power supply (outdoor)	For preferential kWh rate power supply (outdoor)
Hydro SWB power supplied from compressor SWB	Hydro switch box power supplied from compressor switch box
Normal kWh rate power supply	Normal kWh rate power supply
SWB	Switch box
Use normal kWh rate power supply for hydro SWB	Use normal kWh rate power supply for hydro switch box
(2) Hydro SWB layout	(2) Hydro switch box layout
For external BUH model	For external backup heater model
For internal BUH model	For internal backup heater model
Rear	Rear
(3) Notes	(3) Notes
X1M	Main terminal
X2M	Field wiring terminal for AC
X3M	External backup heater terminal
X4M	Booster heater power supply terminal
X5M	Field wiring terminal for DC
X9M	Internal backup heater power supply terminal
X10M	Smart Grid terminal
-----	Earth wiring
-----	Field supply

English		Translation
①		Several wiring possibilities
		Option
		Wiring depending on model
		Switch box
		PCB
Legend		(4) Legend
		*: Optional; #: Field supply
A1P		Main PCB
A2P	*	ON/OFF thermostat (PC=power circuit)
A3P	*	Heat pump convector
A4P	*	Digital I/O PCB
A8P	*	Demand PCB
A11P		MMI (= standalone user interface delivered as accessory) – Main PCB
A13P	*	LAN adapter
A14P	*	User interface PCB
A15P	*	Receiver PCB (wireless ON/OFF thermostat)
CN* (A4P)	*	Connector
DS1 (A8P)	*	DIP switch
E*P (A9P)		Indication LED
F1B	#	Overcurrent fuse backup heater
F2B		Overcurrent fuse booster heater
F1U, F2U (A4P)	*	Fuse 5 A 250 V for digital I/O PCB
K1A, K2A	*	High voltage Smart Grid relay
K1M		Contactor backup heater
K3M	*	Contactor booster heater
K*R (A4P)		Relay on PCB
M2P	#	Domestic hot water pump
M2S	#	2-way valve for cooling mode
M3S	*	3-way valve for floorheating / domestic hot water
M4S	*	Valve kit
PC (A15P)	*	Power circuit
PHC1 (A4P)	*	Optocoupler input circuit
Q2L	*	Thermal protector booster heater
Q4L	#	Safety thermostat
Q*DI	#	Earth leakage circuit breaker

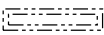
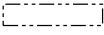
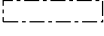
English		Translation
R1H (A2P)	*	Humidity sensor
R1T (A2P)	*	Ambient sensor ON/OFF thermostat
R1T (A14P)	*	Ambient sensor user interface
R2T (A2P)	*	External sensor (floor or ambient)
R5T	*	Domestic hot water thermistor
R6T	*	External indoor or outdoor ambient thermistor
S1L	*	Flow switch
S1S	#	Preferential kWh rate power supply contact
S2S	#	Electricity meter pulse input 1
S3S	#	Electricity meter pulse input 2
S4S	#	Smart Grid feed-in
S6S~S9S	*	Digital power limitation inputs
S10S, S11S	#	Low voltage Smart Grid contact
SS1 (A4P)	*	Selector switch
TR1		Power supply transformer
X4M	*	Terminal strip (booster heater power supply)
X8M	#	Terminal strip (power supply at client side)
X9M		Terminal strip (integrated backup heater power supply)
X10M	*	Terminal strip (Smart Grid power supply)
X*, X*A, X*Y		Connector
X*M		Terminal strip
Z*C		Noise filter (ferrite core)
(5) Option PCBs		(5) Option PCBs
Alarm output		Alarm output
Changeover to ext. heat source		Changeover to external heat source
For demand PCB option		For demand PCB option
For digital I/O PCB option		For digital I/O PCB option
Max. load		Maximum load
Min. load		Minimum load
Power limitation digital inputs: 12 V DC / 12 mA detection (voltage supplied by PCB)		Power limitation digital inputs: 12 V DC / 12 mA detection (voltage supplied by PCB)
Options: ext. heat source output, alarm output		Options: external heat source output, alarm output

English	Translation
Options: On/OFF output	Options: On/OFF output
Space C/H On/OFF output	Space cooling/heating On/OFF output
SWB	Switch box
(6) Options	(6) Options
230 V AC Control Device	230 V AC control device
Continuous	Continuous current
DHW pump output	Domestic hot water pump output
Electric pulse meter input: 12 V DC pulse detection (voltage supplied by PCB)	Electric pulse meter input: 12 V DC pulse detection (voltage supplied by PCB)
Ext. ambient sensor option (indoor or outdoor)	External ambient sensor option (indoor or outdoor)
For cooling mode	For cooling mode
For HP tariff	For heat pump tariff
For HV smartgrid	For high voltage Smart Grid
For LV smartgrid	For low voltage Smart Grid
For safety thermostat	For safety thermostat
For smartgrid	For Smart Grid
For ***	For ***
Inrush	Inrush current
NO valve	Normal open valve
Only for LAN adapter	Only for LAN adapter
Optional for ***	Optional for ***
Preferential kWh rate power supply contact: 16 V DC detection (voltage supplied by PCB)	Preferential kWh rate power supply contact: 16 V DC detection (voltage supplied by PCB)
Remote user interface	Remote user interface
Safety thermostat contact: 16 V DC detection (voltage supplied by PCB)	Safety thermostat contact: 16 V DC detection (voltage supplied by PCB)
Smartgrid contacts	Smart Grid contacts
Smartgrid PV power pulse meter	Smart Grid photovoltaic power pulse meter
SWB	Switch box
(7) External On/OFF thermostats and heat pump convector	(7) External On/OFF thermostats and heat pump convector
Additional LWT zone	Additional leaving water temperature zone
Main LWT zone	Main leaving water temperature zone
Only for ext. sensor (floor or ambient)	Only for external sensor (floor or ambient)

English	Translation
Only for heat pump convector	Only for heat pump convector
Only for wired On/OFF thermostat	Only for wired On/OFF thermostat
Only for wireless On/OFF thermostat	Only for wireless On/OFF thermostat
Only for ***	Only for ***

Hydro module — Internal backup heater

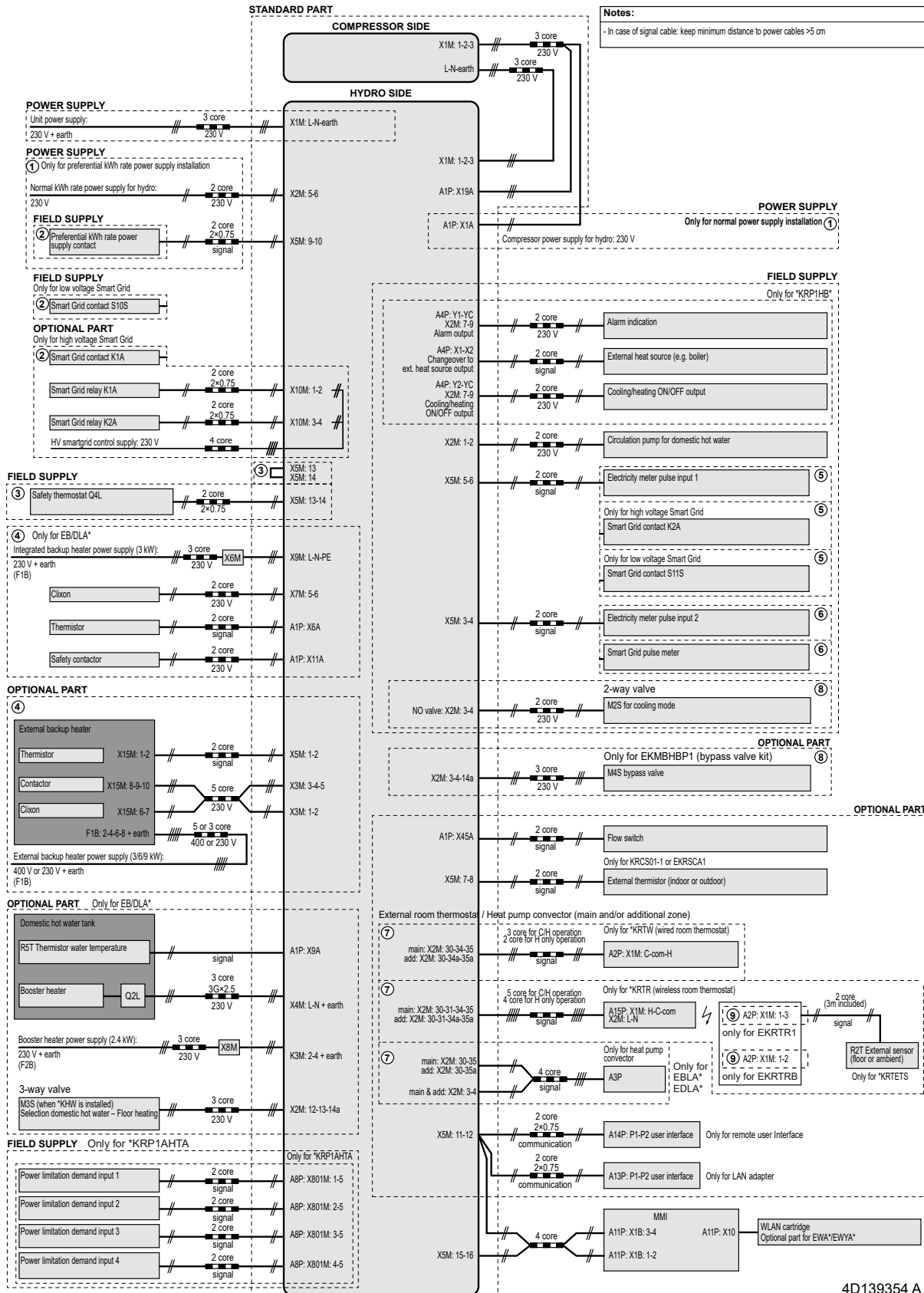
Translation of text on wiring diagram:

English	Translation
(1) Connection diagram	(1) Connection diagram
For internal BUH option	For models with integrated backup heater
Hydro	Hydro module
Outdoor	Outdoor
SWB	Hydro switch box
(2) Notes	(2) Notes
X1M	Terminal (main)
X2M	Terminal (field wiring for AC)
X4M	Terminal (booster heater power supply)
X5M	Terminal (field wiring for DC)
X9M	Terminal (integrated backup heater power supply)
X10M	Terminal (Smart Grid)
-----	Earth wiring
-----	Field supply
①	Several wiring possibilities
	Option
	Wiring depending on model
	Switch box
	PCB
(3) BUH switch box	(3) Backup heater switch box
Rear	Rear
(4) Legend	(4) Legend
	*: Optional; #: Field supply
A1P	Main PCB
A4P	* Digital I/O PCB
A8P	* Demand PCB
F1B	# Overcurrent fuse backup heater
K1A, K2A	* High voltage Smart Grid relay
K1M	Safety contactor backup heater

English		Translation
K3M	*	Contactor booster heater
Q1DI	#	Earth leakage circuit breaker
TR1		Power supply transformer
X4M	*	Terminal strip (booster heater power supply)
X6M	#	Terminal strip (power supply at client side)
X9M		Terminal strip (integrated backup heater power supply)
X10M	*	Terminal (high voltage Smart Grid)
X*A		Connector
X*M		Terminal strip

Electrical connection diagram

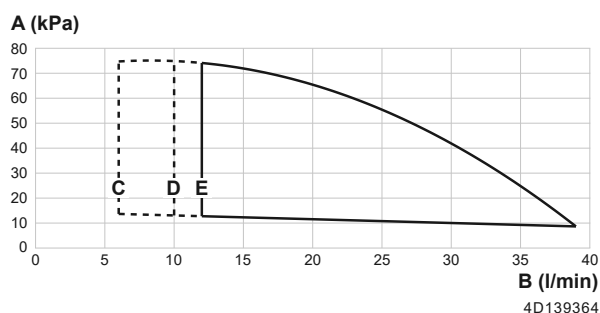
For more details, please check the unit wiring.



4D139354 A

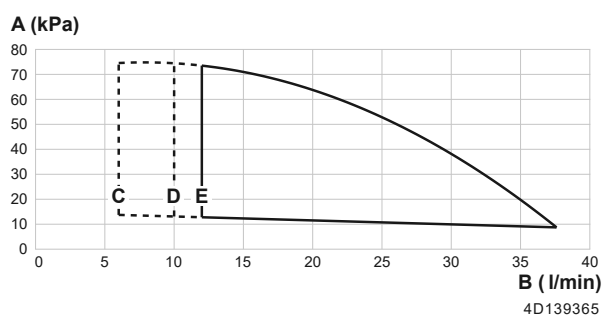
17.3 ESP curve: Outdoor unit

Note: A flow error will occur when the minimum water flow rate is not reached.



- A** External static pressure
- B** Water flow rate
- C** Minimum flow during normal operation
- D** Minimum flow during Cooling operation
- E** Minimum flow during Defrost and Backup heater operation

With built-in BUH:



- A** External static pressure
- B** Water flow rate
- C** Minimum flow during normal operation
- D** Minimum flow during Cooling operation
- E** Minimum flow during Defrost and Backup heater operation

Notes:

- Selecting a flow outside the operating area can damage the unit or cause the unit to malfunction. See also the minimum and maximum allowed water flow range in the technical specification.
- Water quality must be according to EU directive 2020/2184.

18 Glossary

Dealer

Sales distributor for the product.

Authorised installer

Technical skilled person who is qualified to install the product.

User

Person who is owner of the product and/or operates the product.

Applicable legislation

All international, European, national and local directives, laws, regulations and/or codes that are relevant and applicable for a certain product or domain.

Service company

Qualified company which can perform or coordinate the required service to the product.

Installation manual

Instruction manual specified for a certain product or application, explaining how to install, configure and maintain it.

Operation manual

Instruction manual specified for a certain product or application, explaining how to operate it.

Maintenance instructions

Instruction manual specified for a certain product or application, which explains (if relevant) how to install, configure, operate and/or maintain the product or application.

Accessories

Labels, manuals, information sheets and equipment that are delivered with the product and that need to be installed according to the instructions in the accompanying documentation.

Optional equipment

Equipment made or approved by Daikin that can be combined with the product according to the instructions in the accompanying documentation.

Field supply

Equipment NOT made by Daikin that can be combined with the product according to the instructions in the accompanying documentation.

Field settings table

Applicable indoor units

EBLA04E23V3
 EDLA04E23V3
 EBLA06E23V3
 EDLA06E23V3
 EBLA08E23V3
 EDLA08E23V3
 EBLA04E2V3
 EDLA04E2V3
 EBLA06E2V3
 EDLA06E2V3
 EBLA08E2V3
 EDLA08E2V3

Notes

- (*1) EBLA*
- (*2) EDLA*
- (*3) *23V3
- (*4) *2V3

Field settings table					Installer setting at variance with default value	
Breadcrumb	Setting name		Range, step	Default value	Date	Value
Room						
└ Antifrost						
1.4.1	[2-06]	Activation	R/W	0: No 1: Yes		
1.4.2	[2-05]	Room setpoint	R/W	4~16°C, step: 1°C 12°C		
└ Setpoint range						
1.5.1	[3-07]	Heating minimum	R/W	12~18°C, step: 1°C 12°C		
1.5.2	[3-06]	Heating maximum	R/W	18~30°C, step: 1°C 30°C		
1.5.3	[3-09]	Cooling minimum	R/W	15~25°C, step: 1°C 15°C		
1.5.4	[3-08]	Cooling maximum	R/W	25~35°C, step: 1°C 35°C		
Room						
1.6	[2-09]	Room sensor offset	R/W	-5~5°C, step: 0,5°C 0°C		
1.7	[2-0A]	Room sensor offset	R/W	-5~5°C, step: 0,5°C 0°C		
└ Room comfort setpoint						
1.9.1	[9-0A]	Heating comfort setpoint	R/W	[3-07]~[3-06]°C, step: 0,5°C 23°C		
1.9.2	[9-0B]	Cooling comfort setpoint	R/W	[3-09]~[3-08]°C, step: 0,5°C 23°C		
Main zone						
2.4		Setpoint mode		0: Fixed 1: WD heating, fixed cooling 2: Weather dependent		
└ Heating WD curve						
2.5	[1-00]	Low ambient temp. for LWT main zone heating WD curve.	R/W	-40~5°C, step: 1°C -10°C		
2.5	[1-01]	High ambient temp. for LWT main zone heating WD curve.	R/W	10~25°C, step: 1°C 15°C		
2.5	[1-02]	Leaving water value for low ambient temp. for LWT main zone heating WD curve.	R/W	[9-01]~[9-00], step: 1°C [2-0C]=0 35°C [2-0C]=1 45°C [2-0C]=2 60°C		
2.5	[1-03]	Leaving water value for high ambient temp. for LWT main zone heating WD curve.	R/W	[9-01]~min(45, [9-00])°C, step: 1°C [2-0C]=0 25°C [2-0C]=1 35°C [2-0C]=2 40°C		
└ Cooling WD curve						
2.6	[1-06]	Low ambient temp. for LWT main zone cooling WD curve.	R/W	10~25°C, step: 1°C 20°C		
2.6	[1-07]	High ambient temp. for LWT main zone cooling WD curve.	R/W	25~43°C, step: 1°C 35°C		
2.6	[1-08]	Leaving water value for low ambient temp. for LWT main zone cooling WD curve.	R/W	[9-03]~[9-02]°C, step: 1°C [2-0C]=0 22°C [2-0C]=1 15°C [2-0C]=2 22°C		
2.6	[1-09]	Leaving water value for high ambient temp. for LWT main zone cooling WD curve.	R/W	[9-03]~[9-02]°C, step: 1°C [2-0C]=0 18°C [2-0C]=1 7°C [2-0C]=2 18°C		
Main zone						
2.7	[2-0C]	Emitter type	R/W	0: Underfloor heating 1: Fancoil unit 2: Radiator		
└ Setpoint range						
2.8.1	[9-01]	Heating minimum	R/W	15~37°C, step: 1°C 25°C		
2.8.2	[9-00]	Heating maximum	R/W ([2-0C] ≠ 2) R/O ([2-0C] = 2)	[2-0C]=2: 37~70, step: 1°C 65°C [2-0C]≠2: 37~55, step: 1°C 55°C		
2.8.3	[9-03]	Cooling minimum	R/W	5~18°C, step: 1°C 5°C		
2.8.4	[9-02]	Cooling maximum	R/W	18~22°C, step: 1°C 22°C		
Main zone						
2.9	[C-07]	Control	R/W	0: Leaving water 1: External room thermostat 2: Room thermostat		
2.A	[C-05]	Ext Thermostat type	R/W	1: 1 contact 2: 2 contacts		
└ Delta T						
2.B.1	[1-0B]	Delta T heating	R/W ([2-0C] ≠ 2) R/O ([2-0C] = 2)	3~10°C, step: 1°C [2-0C] ≠ 2 (Radiator) 5°C [2-0C] = 2 (Radiator) 10°C		
2.B.2	[1-0D]	Delta T cooling	R/W	3~10°C, step: 1°C 5°C		

Field settings table					Installer setting at variance with default value	
Breadcrumb	Setting name		Range, step Default value		Date	Value
└─ Modulation						
2.C.1	[8-05]	Modulation	R/W	0: No 1: Yes		
2.C.2	[8-06]	Max modulation	R/W	0~10°C, step: 1°C 5°C		
Main zone						
2.E		WD curve type	R/W	0: 2-points 1: Slope-Offset		
Additional zone						
3.4		Setpoint mode		0: Fixed 1: WD heating, fixed cooling 2: Weather dependent		
└─ Heating WD curve						
3.5	[0-00]	Leaving water value for high ambient temp. for LWT add zone heating WD curve.	R/W	[9-05]~min(45,[9-06])°C, step: 1°C [2-0C]=0 25°C [2-0C]=1 35°C [2-0C]=2 40°C		
3.5	[0-01]	Leaving water value for low ambient temp. for LWT add zone heating WD curve.	R/W	[9-05]~[9-06]°C, step: 1°C [2-0C]=0 35°C [2-0C]=1 45°C [2-0C]=2 60°C		
3.5	[0-02]	High ambient temp. for LWT add zone heating WD curve.	R/W	10~25°C, step: 1°C 15°C		
3.5	[0-03]	Low ambient temp. for LWT add zone heating WD curve.	R/W	-40~5°C, step: 1°C -10°C		
└─ Cooling WD curve						
3.6	[0-04]	Leaving water value for high ambient temp. for LWT add zone cooling WD curve.	R/W	[9-07]~[9-08]°C, step: 1°C [2-0C]=0 18°C [2-0C]=1 7°C [2-0C]=2 18°C		
3.6	[0-05]	Leaving water value for low ambient temp. for LWT add zone cooling WD curve.	R/W	[9-07]~[9-08]°C, step: 1°C [2-0C]=0 22°C [2-0C]=1 15°C [2-0C]=2 22°C		
3.6	[0-06]	High ambient temp. for LWT add zone cooling WD curve.	R/W	25~43°C, step: 1°C 35°C		
3.6	[0-07]	Low ambient temp. for LWT add zone cooling WD curve.	R/W	10~25°C, step: 1°C 20°C		
Additional zone						
3.7	[2-0D]	Emitter type	R/O	0: Underfloor heating 1: Fancoil unit 2: Radiator		
└─ Setpoint range						
3.8.1	[9-05]	Heating minimum	R/W	15~37°C, step: 1°C 25°C		
3.8.2	[9-06]	Heating maximum	R/W ([2-0C] ≠ 2) R/O ([2-0C] = 2)	[2-0C]=2: 37~70, step: 1°C 65°C [2-0C]≠2: 37~55, step: 1°C 55°C		
3.8.3	[9-07]	Cooling minimum	R/W	5~18°C, step: 1°C 7°C		
3.8.4	[9-08]	Cooling maximum	R/W	18~22°C, step: 1°C 22°C		
Additional zone						
3.A	[C-06]	Thermostat type	R/W	1: 1 contact 2: 2 contacts		
└─ Delta T						
3.B.1	[1-0C]	Delta T heating	[2-0D] ≠ 2 R/W [2-0D] = 2 R/O	[2-0D] ≠ 2 (Radiator) 3~10°C, step: 1°C 5°C [2-0D] = 2 (Radiator) 10°C		
3.B.2	[1-0E]	Delta T cooling	R/W	3~10°C, step: 1°C 5°C		
Additional zone						
3.C		WD curve type	R/O	0: 2-points 1: Slope-Offset		
Space heating / cooling						
└─ Operation range						
4.3.1	[4-02]	Space heating OFF temp	R/W	14~35°C, step: 1°C 22°C		
4.3.2	[F-01]	Space cooling OFF temp	R/W	10~35°C, step: 1°C 20°C		
Space heating / cooling						
4.4	[7-02]	Number of zones	R/W	0: Single zone 1: Dual zone		
4.5	[F-0D]	Pump operation mode	R/W	0: Continuous 1: Sample 2: Request		
4.6	[E-02]	Unit type	R/W (*1) R/O (*2)	0: Reversible (*1) 1: Heating only (*2)		

Field settings table					Installer setting at variance with default value	
Breadcrumb	Setting name		Range, step Default value		Date	Value
4.7	[9-0D]	Pump speed limitation	R/W	0~8, step:1 0 : No limitation 1~4 : 90~60% pump speed 5~8 : 90~60% pump speed during sampling 6 80% pump speed		
Space heating / cooling						
4.9	[F-00]	Pump outside range	R/W	0: Restricted 1: Allowed		
4.A	[D-03]	Increase around 0°C	R/W	0: No 1: increase 2°C, span 4°C 2: increase 4°C, span 4°C 3: increase 2°C, span 8°C 4: increase 4°C, span 8°C		
4.B	[9-04]	Overshoot	R/W	1~4°C, step: 1°C 1°C		
4.C	[2-06]	Antifrost	R/W	0: No 1: Yes		
Tank						
5.2	[6-0A]	Comfort setpoint	R/W	30~[6-0E]°C, step: 1°C 60°C		
5.3	[6-0B]	Eco setpoint	R/W	30~min(50, [6-0E])°C, step: 1°C 45°C		
5.4	[6-0C]	Reheat setpoint	R/W	30~min(50, [6-0E])°C, step: 1°C 45°C		
5.6	[6-0D]	Heat up mode	R/W	0: Reheat only 1: Schedule + reheat 2: Schedule only		
└ Disinfection						
5.7.1	[2-01]	Activation	R/W	0: No 1: Yes		
5.7.2	[2-00]	Operation day	R/W	0: Each day 1: Monday 2: Tuesday 3: Wednesday 4: Thursday 5: Friday 6: Saturday 7: Sunday		
5.7.3	[2-02]	Start time	R/W	0~23 hour, step: 1 hour 1		
5.7.4	[2-03]	Tank setpoint	R/W	60°C 60°C		
5.7.5	[2-04]	Duration	R/W	40~60 min, step: 5 min 10 min		
Tank						
5.8	[6-0E]	Maximum	R/W	E-07 = 0 40~ 60°C, step: 1°C 60°C E-07 = 3 40~ 75°C, step: 1°C 75°C E-07 = 5 40~ 80°C, step: 1°C 80°C E-07 = 7 40~ 60°C, step: 1°C 60°C E-07 = 8 40~ 75°C, step: 1°C 75°C		
5.9	[6-00]	Hysteresis	R/W	2~40°C, step: 1°C 8°C		
5.A	[6-08]	Reheat hysteresis	R/W	2~20°C, step: 1°C 10°C		
5.B		Setpoint mode	R/W	0: Fixed 1: Weather dependent		
└ WD curve						
5.C	[0-0B]	Leaving water value for high ambient temp. for DHW WD curve.	R/W	35~[6-0E]°C, step: 1°C 55°C		
5.C	[0-0C]	Leaving water value for low ambient temp. for DHW WD curve.	R/W	Min(45~[6-0E])~[6-0E]°C, step: 1°C 60°C		
5.C	[0-0D]	High ambient temp. for DHW WD curve.	R/W	10~25°C, step: 1°C 15°C		
5.C	[0-0E]	Low ambient temp. for DHW WD curve.	R/W	-40~5°C, step: 1°C -10°C		
Tank						
5.D	[6-01]	Margin	R/W	0~10°C, step: 1°C 2°C		
5.E		WD curve type	R/O	0: 2-points 1: Slope-Offset		
User settings						
└ Quiet						
7.4.1		Mode	R/W	0: OFF 1: Manual 2: Automatic		
7.4.3		Level	R/W	0: Quiet 1: More Quiet 2: Most Quiet		
└ Electricity price						
7.5.1		High	R/W	0,00~990/kWh 1/kWh		
7.5.2		Medium	R/W	0,00~990/kWh 1/kWh		
7.5.3		Low	R/W	0,00~990/kWh 1/kWh		
User settings						
7.6		Gas price	R/W	0,00~990/kWh 0,00~290/MBtu 1,0/kWh		

Field settings table				Installer setting at variance with default value	
Breadcrumb	Setting name	Range, step	Default value	Date	Value
Installer settings └─ Configuration wizard └─ System					
9.1.3.2	[E-03]	BUH type	R/O (*3) R/W (*4) 0: No heater (*4) 1: External heater 2: 3V (*3)		
9.1.3.3	[E-05] [E-06] [E-07]	Domestic hot water	R/W E-05=0 No DHW E-07 = 0 EKHWS/E, small volume E-07 = 3 EKHWS/E, big volume E-07 = 5 EKHWP/HYC E-07 = 7 3rd party, small coil E-07 = 8 3rd party, big coil		
9.1.3.4	[4-06]	Emergency	R/W 0: Manual 1: Automatic 2: Auto SH reduced/ DHW ON 3: Auto SH reduced/ DHW OFF 4: Auto SH normal/ DHW OFF		
9.1.3.5	[7-02]	Number of zones	R/W 0: Single zone 1: Dual zone		
9.1.3.6	[E-0D]	Glycol Filled system	R/W 0: No 1: Yes		
9.1.3.7	[6-02]	BSH capacity	R/W 0~10kW, step: 0,2kW 3kW		
9.1.3.8	[C-02]	Bivalent	R/W 0: NO 1: Yes		
9.2.4	[D-07]	Solar	R/W 0: No 1: Yes (DHW)		
└─ Backup heater					
9.1.4.1	[5-0D]	Voltage	R/O(*3) R/W(*4) 0: 230V, 1~ (*3) 1: 230V, 3~ 2: 400V, 3~		
9.1.4.2	[4-0A]	Configuration	R/W 0: 1 1: 1/1+2 2: 1/2 3: 1/2 + 1/1+2 in emergency		
9.1.4.3	[6-03]	Capacity step 1	R/W 0~10kW, step: 0,2kW 0kW (*4) 3kW (*3)		
9.1.4.4	[6-04]	Additional capacity step 2	R/W (*4) R/O (*3) 0~10kW, step: 0,2kW 0kW (*3)		
└─ Main zone					
9.1.5.1	[2-0C]	Emitter type	R/W 0: Underfloor heating 1: Fancoil unit 2: Radiator		
9.1.5.2	[C-07]	Control	R/W 0: Leaving water 1: External room thermostat 2: Room thermostat		
9.1.5.3		Setpoint mode	R/W 0: Fixed 1: WD heating, fixed cooling 2: Weather dependent		
9.1.5.4		Schedule	R/W 0: No 1: Yes		
9.1.5.5		WD curve type	R/W 0: 2-points 1: Slope-Offset		
9.1.6	[1-00]	Low ambient temp. for LWT main zone heating WD curve.	R/W -40~5°C, step: 1°C -10°C		
9.1.6	[1-01]	High ambient temp. for LWT main zone heating WD curve.	R/W 10~25°C, step: 1°C 15°C		
9.1.6	[1-02]	Leaving water value for low ambient temp. for LWT main zone heating WD curve.	R/W [9-01]~[9-00], step: 1°C [2-0C]=0 35°C [2-0C]=1 45°C [2-0C]=2 60°C		
9.1.6	[1-03]	Leaving water value for high ambient temp. for LWT main zone heating WD curve.	R/W [9-01]~min(45, [9-00])°C, step: 1°C [2-0C]=0 25°C [2-0C]=1 35°C [2-0C]=2 40°C		
9.1.7	[1-06]	Low ambient temp. for LWT main zone cooling WD curve.	R/W 10~25°C, step: 1°C 20°C		
9.1.7	[1-07]	High ambient temp. for LWT main zone cooling WD curve.	R/W 25~43°C, step: 1°C 35°C		
9.1.7	[1-08]	Leaving water value for low ambient temp. for LWT main zone cooling WD curve.	R/W [9-03]~[9-02]°C, step: 1°C [2-0C]=0 22°C [2-0C]=1 15°C [2-0C]=2 22°C		
9.1.7	[1-09]	Leaving water value for high ambient temp. for LWT main zone cooling WD curve.	R/W [9-03]~[9-02]°C, step: 1°C [2-0C]=0 18°C [2-0C]=1 7°C [2-0C]=2 18°C		
└─ Additional zone					

Field settings table					Installer setting at variance with default value	
Breadcrumb	Setting name	Range, step	Default value	Date	Value	
9.1.8.1	[2-0D]	Emitter type	R/W	0: Underfloor heating 1: Fancoil unit 2: Radiator		
9.1.8.3		Setpoint mode	R/W	0: Fixed 1: WD heating, fixed cooling 2: Weather dependent		
9.1.8.4		Schedule	R/W	0: No 1: Yes		
9.1.9	[0-00]	Leaving water value for high ambient temp. for LWT add zone heating WD curve.	R/W	[9-05]~min(45,[9-06])°C, step: 1°C [2-0C]=0 25°C [2-0C]=1 35°C [2-0C]=2 40°C		
9.1.9	[0-01]	Leaving water value for low ambient temp. for LWT add zone heating WD curve.	R/W	[9-05]~[9-06]°C, step: 1°C [2-0C]=0 35°C [2-0C]=1 45°C [2-0C]=2 60°C		
9.1.9	[0-02]	High ambient temp. for LWT add zone heating WD curve.	R/W	10~25°C, step: 1°C 15°C		
9.1.9	[0-03]	Low ambient temp. for LWT add zone heating WD curve.	R/W	-40~5°C, step: 1°C -10°C		
9.1.A	[0-04]	Leaving water value for high ambient temp. for LWT add zone cooling WD curve.	R/W	[9-07]~[9-08]°C, step: 1°C [2-0C]=0 18°C [2-0C]=1 7°C [2-0C]=2 18°C		
9.1.A	[0-05]	Leaving water value for low ambient temp. for LWT add zone cooling WD curve.	R/W	[9-07]~[9-08]°C, step: 1°C [2-0C]=0 22°C [2-0C]=1 15°C [2-0C]=2 22°C		
9.1.A	[0-06]	High ambient temp. for LWT add zone cooling WD curve.	R/W	25~43°C, step: 1°C 35°C		
9.1.A	[0-07]	Low ambient temp. for LWT add zone cooling WD curve.	R/W	10~25°C, step: 1°C 20°C		
└ Tank						
9.1.B.1	[6-0D]	Heat up mode	R/W	0: Reheat only 1: Schedule + reheat 2: Schedule only		
9.1.B.2	[6-0A]	Comfort setpoint	R/W	30~[6-0E]°C, step: 1°C 60°C		
9.1.B.3	[6-0B]	Eco setpoint	R/W	30~min(50, [6-0E])°C, step: 1°C 45°C		
9.1.B.4	[6-0C]	Reheat setpoint	R/W	30~min(50, [6-0E])°C, step: 1°C 45°C		
9.1.B.5	[6-08]	Reheat hysteresis	R/W	2~20°C, step: 1°C 10°C		
└ Domestic hot water						
9.2.1	[E-05] [E-06] [E-07]	Domestic hot water	R/W	E-05=0 No DHW E-07 = 0 EKHWS/E, small volume E-07 = 3 EKHWS/E, big volume E-07 = 5 EKHWP/HYC E-07 = 7 3rd party, small coil E-07 = 8 3rd party, big coil		
9.2.2	[D-02]	DHW pump	R/W	0: No DHW pump 1: Instant hot water 2: Disinfection 3: Circulation 4: Circulation and disinfection		
9.2.4	[D-07]	Solar	R/W	0: No 1: Yes (DHW)		
└ Back up heater						
9.3.1	[E-03]	BUH type	R/O (*3) R/W (*4)	0: No heater (*4) 1: External heater 2: 3V (*3)		
9.3.2	[5-0D]	Voltage	R/O(*3) R/W(*4)	0: 230V, 1~ (*3) 1: 230V, 3~ 2: 400V, 3~		
9.3.3	[4-0A]	Configuration	R/W	0: 1 1: 1/1+2 2: 1/2 3: 1/2 + 1/1+2 in emergency		
9.3.4	[6-03]	Capacity step 1	R/W	0~10kW, step: 0,2kW 0kW (*4) 3kW (*3)		
9.3.5	[6-04]	Additional capacity step 2	R/W (*4) R/O (*3)	0~10kW, step: 0,2kW 0kW (*3)		
9.3.6	[5-00]	Equilibrium: Deactivate backup heater (or external backup heat source)	R/W	0: No 1: Yes		
9.3.7	[5-01]	Equilibrium temperature	R/W	-15~35°C, step: 1°C 0°C		
9.3.8	[4-00]	Operation	R/W	0: Restricted 1: Allowed 2: Only DHW		

Field settings table					Installer setting at variance with default value	
Breadcrumb	Setting name		Range, step Default value		Date	Value
└─ Booster heater						
9.4.1	[6-02]	Capacity	R/W	0~10kW, step: 0,2kW 3kW		
9.4.3	[8-03]	BSH eco timer	R/W	20~95 min, step: 5 min 50 min		
9.4.4	[4-03]	Operation	R/W	0: Restricted 1: Allowed 2: Overlap 3: Compressor off 4: Legionella only		
└─ Emergency						
9.5.1	[4-06]	Emergency	R/W	0: Manual 1: Automatic 2: Auto SH reduced/ DHW ON 3: Auto SH reduced/ DHW OFF 4: Auto SH normal/ DHW OFF		
9.5.2	[7-06]	HP forced OFF	R/W	0: Disabled 1: Enabled		
└─ Balancing						
9.6.1	[5-02]	Space heating priority	R/W	0: OFF 1: ON		
9.6.2	[5-03]	Priority temperature	R/W	-15~35°C, step: 1°C 0°C		
9.6.3	[5-04]	Offset BSH setpoint	R/W	0~20°C, step: 1°C 10°C		
9.6.4	[8-02]	Anti-recycle timer	R/W	0~10 hour, step: 0,5 hour 3 hour		
9.6.5	[8-00]	Minimum running timer	R/W	0~20 min, step 1 min 1 min		
9.6.6	[8-01]	Maximum running timer	R/W	5~95 min, step: 5 min 30 min		
9.6.7	[8-04]	Additional timer	R/W	0~95 min, step: 5 min 95 min		
Installer settings						
9.7	[4-04]	Water pipe freeze prevention	R/W	0: Continuous pump operation 1: Non continuous pump operation 2: OFF		
└─ Benefit kWh power supply						
9.8.2	[D-00]	Allow heater	R/W	0: No 1: Only BSH 2: Only BUH 3: All		
9.8.3	[D-05]	Allow pump	R/W	0: No 1: Yes		
9.8.4	[D-01]	Benefit kWh power supply	R/W	0: No 1: Open 2: Closed 3: Smart Grid		
9.8.6		Allow electric heaters	R/W	0: No 1: Yes		
9.8.7		Enable Room buffering	R/W	0: No 1: Yes		
9.8.8		Limit setting kW	R/W	0~20 kW, step: 0,5 kW 2 kW		
└─ Power consumption control						
9.9.1	[4-08]	Power consumption control	R/W	0: No 1: Continuous 2: Inputs 3: Current Sensor		
9.9.2	[4-09]	Type	R/W	0: Amp 1: kW		
9.9.3	[5-05]	Limit	R/W	0~50 A, step: 1 A 50 A		
9.9.4	[5-05]	Limit 1	R/W	0~50 A, step: 1 A 50 A		
9.9.5	[5-06]	Limit 2	R/W	0~50 A, step: 1 A 50 A		
9.9.6	[5-07]	Limit 3	R/W	0~50 A, step: 1 A 50 A		
9.9.7	[5-08]	Limit 4	R/W	0~50 A, step: 1 A 50 A		
9.9.8	[5-09]	Limit	R/W	0~20 kW, step: 0,5 kW 20 kW		
9.9.9	[5-09]	Limit 1	R/W	0~20 kW, step: 0,5 kW 20 kW		
9.9.A	[5-0A]	Limit 2	R/W	0~20 kW, step: 0,5 kW 20 kW		
9.9.B	[5-0B]	Limit 3	R/W	0~20 kW, step: 0,5 kW 20 kW		
9.9.C	[5-0C]	Limit 4	R/W	0~20 kW, step: 0,5 kW 20 kW		
9.9.D	[4-01]	Priority heater	R/W	0: None 1: Booster Heater 2: Backup Heater		
9.9.F	[7-07]	BBR16 activation* *BBR16 settings are only visible when the language of the user interface is set to Swedish.	R/W	0: No 1: Yes		
└─ Energy metering						
9.A.1	[D-08]	Electricity meter 1	R/W	0: No 1: 0,1 pulse/kWh 2: 1 pulse/kWh 3: 10 pulse/kWh 4: 100 pulse/kWh 5: 1000 pulse/kWh		

Field settings table					Installer setting at variance with default value	
Breadcrumb	Setting name		Range, step Default value		Date	Value
9.A.2	[D-09]	Electricity meter 2 / PV meter	R/W	0: No 1: 0,1 pulse/kWh 2: 1 pulse/kWh 3: 10 pulse/kWh 4: 100 pulse/kWh 5: 1000 pulse/kWh 6: 100 pulse/kWh (PV meter) 7: 1000 pulse/kWh (PV meter)		
└ Sensors						
9.B.1	[C-08]	External sensor	R/W	0: No 1: Outdoor 2: Room		
9.B.2	[2-0B]	Ext. amb. sensor offset	R/W	-5~5°C, step: 0,5°C 0°C		
9.B.3	[1-0A]	Averaging time	R/W	0: No 1: 12 h 2: 24 h 3: 48 h 4: 72 h		
└ Bivalent						
9.C.1	[C-02]	Bivalent	R/W	0: NO 1: Yes		
9.C.2	[7-05]	Boiler efficiency	R/W	0: Very high 1: High 2: Medium 3: Low 4: Very low		
9.C.3	[C-03]	Temperature	R/W	-25~25°C, step: 1°C 0°C		
9.C.4	[C-04]	Hysteresis	R/W	2~10°C, step 1°C 3°C		
Installer settings						
9.D	[C-09]	Alarm output	R/W	0: Abnormal 1: Normal		
9.E	[3-00]	Auto restart	R/W	0: manual 1: automatic		
9.F	[E-08]	Power saving function	R/W	0: No 1: Yes		
9.G		Disable protections	R/W	0: No 1: Yes		
└ Overview field settings						
9.I	[0-00]	Leaving water value for high ambient temp. for LWT add zone heating WD curve.	R/W	[9-05]~min(45,[9-06])°C, step: 1°C [2-0C]=0 25°C [2-0C]=1 35°C [2-0C]=2 40°C		
9.I	[0-01]	Leaving water value for low ambient temp. for LWT add zone heating WD curve.	R/W	[9-05]~[9-06]°C, step: 1°C [2-0C]=0 35°C [2-0C]=1 45°C [2-0C]=2 60°C		
9.I	[0-02]	High ambient temp. for LWT add zone heating WD curve.	R/W	10~25°C, step: 1°C 15°C		
9.I	[0-03]	Low ambient temp. for LWT add zone heating WD curve.	R/W	-40~5°C, step: 1°C -10°C		
9.I	[0-04]	Leaving water value for high ambient temp. for LWT add zone cooling WD curve.	R/W	[9-07]~[9-08]°C, step: 1°C [2-0C]=0 18°C [2-0C]=1 7°C [2-0C]=2 18°C		
9.I	[0-05]	Leaving water value for low ambient temp. for LWT add zone cooling WD curve.	R/W	[9-07]~[9-08]°C, step: 1°C [2-0C]=0 22°C [2-0C]=1 15°C [2-0C]=2 22°C		
9.I	[0-06]	High ambient temp. for LWT add zone cooling WD curve.	R/W	25~43°C, step: 1°C 35°C		
9.I	[0-07]	Low ambient temp. for LWT add zone cooling WD curve.	R/W	10~25°C, step: 1°C 20°C		
9.I	[0-0B]	Leaving water value for high ambient temp. for DHW WD curve.	R/W	35~[6-0E]°C, step: 1°C 55°C		
9.I	[0-0C]	Leaving water value for low ambient temp. for DHW WD curve.	R/W	Min(45~[6-0E])~[6-0E]°C, step: 1°C 60°C		
9.I	[0-0D]	High ambient temp. for DHW WD curve.	R/W	10~25°C, step: 1°C 15°C		
9.I	[0-0E]	Low ambient temp. for DHW WD curve.	R/W	-40~5°C, step: 1°C -10°C		
9.I	[1-00]	Low ambient temp. for LWT main zone heating WD curve.	R/W	-40~5°C, step: 1°C -10°C		
9.I	[1-01]	High ambient temp. for LWT main zone heating WD curve.	R/W	10~25°C, step: 1°C 15°C		
9.I	[1-02]	Leaving water value for low ambient temp. for LWT main zone heating WD curve.	R/W	[9-01]~[9-00], step: 1°C [2-0C]=0 35°C [2-0C]=1 45°C [2-0C]=2 60°C		

Field settings table					Installer setting at variance with default value	
Breadcrumb	Setting name		Range, step Default value	Date	Value	
9.I	[1-03]	Leaving water value for high ambient temp. for LWT main zone heating WD curve.	R/W	[9-01]~min(45, [9-00])°C, step: 1°C [2-0C]=0 25°C [2-0C]=1 35°C [2-0C]=2 40°C		
9.I	[1-04]	Weather dependent cooling of the main leaving water temperature zone.	R/W	0: Disabled 1: Enabled		
9.I	[1-05]	Weather dependent cooling of the additional leaving water temperature zone	R/W	0: Disabled 1: Enabled		
9.I	[1-06]	Low ambient temp. for LWT main zone cooling WD curve.	R/W	10~25°C, step: 1°C 20°C		
9.I	[1-07]	High ambient temp. for LWT main zone cooling WD curve.	R/W	25~43°C, step: 1°C 35°C		
9.I	[1-08]	Leaving water value for low ambient temp. for LWT main zone cooling WD curve.	R/W	[9-03]~[9-02]°C, step: 1°C [2-0C]=0 22°C [2-0C]=1 15°C [2-0C]=2 22°C		
9.I	[1-09]	Leaving water value for high ambient temp. for LWT main zone cooling WD curve.	R/W	[9-03]~[9-02]°C, step: 1°C [2-0C]=0 18°C [2-0C]=1 7°C [2-0C]=2 18°C		
9.I	[1-0A]	What is the averaging time for the outdoor temp?	R/W	0: No 1: 12 h 2: 24 h 3: 48 h 4: 72 h		
9.I	[1-0B]	What is the desired delta T in heating for the main zone?	R/W ([2-0C] ≠ 2) R/O ([2-0C] = 2)	3~10°C, step: 1°C [2-0C] ≠ 2 (Radiator) 5°C [2-0C] = 2 (Radiator) 10°C		
9.I	[1-0C]	What is the desired delta T in heating for the additional zone?	[2-0D] ≠ 2 R/W [2-0D] = 2 R/O	[2-0D] ≠ 2 (Radiator) 3~10°C, step: 1°C 5°C [2-0D] = 2 (Radiator) 10°C		
9.I	[1-0D]	What is the desired delta T in cooling for the main zone?	R/W	3~10°C, step: 1°C 5°C		
9.I	[1-0E]	What is the desired delta T in cooling for the additional zone?	R/W	3~10°C, step: 1°C 5°C		
9.I	[2-00]	When should the disinfection function be executed?	R/W	0: Each day 1: Monday 2: Tuesday 3: Wednesday 4: Thursday 5: Friday 6: Saturday 7: Sunday		
9.I	[2-01]	Should the disinfection function be executed?	R/W	0: No 1: Yes		
9.I	[2-02]	When should the disinfection function start?	R/W	0~23 hour, step: 1 hour 1		
9.I	[2-03]	What is the disinfection target temperature?	R/W	60°C 60°C		
9.I	[2-04]	How long must the tank temperature be maintained?	R/W	40~60 min, step: 5 min 10 min		
9.I	[2-05]	Room antifrost temperature	R/W	4~16°C, step: 1°C 12°C		
9.I	[2-06]	Room frost protection	R/W	0: No 1: Yes		
9.I	[2-09]	Adjust the offset on the measured room temperature	R/W	-5~5°C, step: 0,5°C 0°C		
9.I	[2-0A]	Adjust the offset on the measured room temperature	R/W	-5~5°C, step: 0,5°C 0°C		
9.I	[2-0B]	What is the required offset on the measured outdoor temp.?	R/W	-5~5°C, step: 0,5°C 0°C		
9.I	[2-0C]	What emitter type is connected to the main LWT zone?	R/W	0: Underfloor heating 1: Fancoil unit 2: Radiator		
9.I	[2-0D]	What emitter type is connected to the additional LWT zone?	R/W	0: Underfloor heating 1: Fancoil unit 2: Radiator		
9.I	[2-0E]	What is the maximum allowed current over the heatpump ?	R/W	20~50 A, step: 1 A 50 A		
9.I	[3-00]	Is auto restart of the unit allowed?	R/W	0: manual 1: automatic		
9.I	[3-01]	--	R/W	0		
9.I	[3-02]	--	R/W	1		
9.I	[3-03]	--	R/W	4		
9.I	[3-04]	--	R/W	2		
9.I	[3-05]	--	R/W	1		
9.I	[3-06]	What is the maximum desired room temperature in heating?	R/W	18~30°C, step: 1°C 30°C		
9.I	[3-07]	What is the minimum desired room temperature in heating?	R/W	12~18°C, step: 1°C 12°C		
9.I	[3-08]	What is the maximum desired room temperature in cooling?	R/W	25~35°C, step: 1°C 35°C		
9.I	[3-09]	What is the minimum desired room temperature in cooling?	R/W	15~25°C, step: 0,5 1°C 15°C		

Field settings table					Installer setting at variance with default value	
Breadcrumb	Setting name		Range, step Default value	Date	Value	
9.I	[3-0A]	What is the pump model	R/O	0: pump model 0 1: pump model 1		
9.I	[4-00]	What is the BUH operation mode?	R/W	0: Restricted 1: Allowed 2: Only DHW		
9.I	[4-01]	Which electric heater has priority?	R/W	0: None 1: Booster Heater 2: Backup Heater		
9.I	[4-02]	Below which outdoor temperature is heating allowed?	R/W	14~35°C, step: 1°C 22°C		
9.I	[4-03]	Operation permission of the booster heater.	R/W	0: Restricted 1: Allowed 2: Overlap 3: Compressor off 4: Legionella only		
9.I	[4-04]	Water pipe freeze prevention	R/W	0: Continuous pump operation 1: Non continuous pump operation 2: OFF		
9.I	[4-05]	--		0		
9.I	[4-06]	Emergency	R/W	0: Manual 1: Automatic 2: Auto SH reduced/ DHW ON 3: Auto SH reduced/ DHW OFF 4: Auto SH normal/ DHW OFF		
9.I	[4-07]	--		3		
9.I	[4-08]	Which power limitation mode is required on the system?	R/W	0: No 1: Continuous 2: Inputs 3: Current Sensor		
9.I	[4-09]	Which power limitation type is required?	R/W	0: Amp 1: kW		
9.I	[4-0A]	Backup heater configuration	R/W	0: 1 1: 1/1+2 2: 1/2 3: 1/2 + 1/1+2 in emergency		
9.I	[4-0B]	Automatic cooling/heating changeover hysteresis.	R/W	1~10°C, step: 0,5°C 1°C		
9.I	[4-0D]	Automatic cooling/heating changeover offset.	R/W	1~10°C, step: 0,5°C 3°C		
9.I	[4-0E]	--		6		
9.I	[5-00]	Equilibrium: Deactivate backup heater (or external backup heat source in case of a bivalent system) above the equilibrium temperature for space heating?	R/W	0: No 1: Yes		
9.I	[5-01]	What is the equilibrium temperature for the building?	R/W	-15~35°C, step: 1°C 0°C		
9.I	[5-02]	Space heating priority.	R/W	0: OFF 1: ON		
9.I	[5-03]	Space heating priority temperature.	R/W	-15~35°C, step: 1°C 0°C		
9.I	[5-04]	Set point correction for domestic hot water temperature.	R/W	0~20°C, step: 1°C 10°C		
9.I	[5-05]	What is the requested limit for DI1?	R/W	0~50 A, step: 1 A 50 A		
9.I	[5-06]	What is the requested limit for DI2?	R/W	0~50 A, step: 1 A 50 A		
9.I	[5-07]	What is the requested limit for DI3?	R/W	0~50 A, step: 1 A 50 A		
9.I	[5-08]	What is the requested limit for DI4?	R/W	0~50 A, step: 1 A 50 A		
9.I	[5-09]	What is the requested limit for DI1?	R/W	0~20 kW, step: 0,5 kW 20 kW		
9.I	[5-0A]	What is the requested limit for DI2?	R/W	0~20 kW, step: 0,5 kW 20 kW		
9.I	[5-0B]	What is the requested limit for DI3?	R/W	0~20 kW, step: 0,5 kW 20 kW		
9.I	[5-0C]	What is the requested limit for DI4?	R/W	0~20 kW, step: 0,5 kW 20 kW		
9.I	[5-0D]	Backup heater voltage	R/O(*3) R/W(*4)	0: 230V, 1~(*3) 1: 230V, 3~ 2: 400V, 3~		
9.I	[5-0E]	--		1		
9.I	[6-00]	The temperature difference determining the heat pump ON temperature.	R/W	2~40°C, step: 1°C 8°C		
9.I	[6-01]	The temperature difference determining the heat pump OFF temperature.	R/W	0~10°C, step: 1°C 2°C		
9.I	[6-02]	What is the capacity of the booster heater?	R/W	0~10kW, step: 0,2kW 3kW		
9.I	[6-03]	What is the capacity of the backup heater step 1?	R/W	0~10kW, step: 0,2kW 0kW (*4) 3kW (*3)		
9.I	[6-04]	What is the capacity of the backup heater step 2?	R/W (*4) R/O (*3)	0~10kW, step: 0,2kW 0kW (*3)		
9.I	[6-07]	--		0		
9.I	[6-08]	What is the hysteresis to be used in reheat mode?	R/W	2~20°C, step: 1°C 10°C		
9.I	[6-09]	--		0		
9.I	[6-0A]	What is the desired comfort storage temperature?	R/W	30~[6-0E]°C, step: 1°C 60°C		
9.I	[6-0B]	What is the desired eco storage temperature?	R/W	30~min(50, [6-0E])°C, step: 1°C 45°C		
9.I	[6-0C]	What is the desired reheat temperature?	R/W	30~min(50, [6-0E])°C, step: 1°C 45°C		
9.I	[6-0D]	What is the desired DHW production type?	R/W	0: Reheat only 1: Schedule + reheat 2: Schedule only		

Field settings table				Installer setting at variance with default value	
Breadcrumb	Setting name		Range, step Default value	Date	Value
9.I	[6-0E]	What is the maximum temperature setpoint?	R/W E-07 = 0 40~ 60°C, step: 1°C 60°C E-07 = 3 40~ 75°C, step: 1°C 75°C E-07 = 5 40~ 80°C, step: 1°C 80°C E-07 = 7 40~ 60°C, step: 1°C 60°C E-07 = 8 40~ 75°C, step: 1°C 75°C		
9.I	[7-00]	Domestic hot water booster heater overshoot temperature.	R/W 0~4°C, step: 1°C 0°C		
9.I	[7-01]	Domestic hot water booster heater hysteresis.	R/W 2~40°C, step: 1°C 2°C		
9.I	[7-02]	How many leaving water temperature zones are there?	R/W 0: Single zone 1: Dual zone		
9.I	[7-03]	--	2.5		
9.I	[7-04]	--	0		
9.I	[7-05]	Boiler efficiency	R/W 0: Very high 1: High 2: Medium 3: Low 4: Very low		
9.I	[7-06]	HP forced OFF	R/W 0: Disabled 1: Enabled		
9.I	[7-07]	BBR16 activation* *BBR16 settings are only visible when the language of the user interface is set to Swedish.	R/W 0: No 1: Yes		
9.I	[7-09]	How much is the minimum pump PWM value.	R/W 20%		
9.I	[7-0A]	Additional zone fixed pump PWM, in case a bizon kit is installed.	R/W 20~95%, step 5% 95%		
9.I	[7-0B]	Main zone fixed pump PWM, in case a bizon kit is installed.	R/W 20~95%, step 5% 95%		
9.I	[7-0C]	Time needed by the mixing valve to turn from one side to the other, in case a bizon kit is installed.	R/W 20~300 seconds, step 5 sec 125 seconds		
9.I	[8-00]	Minimum running time for domestic hot water operation.	R/W 0~20 min, step 1 min 1 min		
9.I	[8-01]	Maximum running time for domestic hot water operation.	R/W 5~95 min, step: 5 min 30 min		
9.I	[8-02]	Anti-recycling time.	R/W 0~10 hour, step: 0,5 hour 3 hour		
9.I	[8-03]	Booster heater delay timer.	R/W 20~95 min, step: 5 min 50 min		
9.I	[8-04]	Additional running time for the maximum running time.	R/W 0~95 min, step: 5 min 95 min		
9.I	[8-05]	Allow modulation of the LWT to control the room temp?	R/W 0: No 1: Yes		
9.I	[8-06]	Leaving water temperature maximum modulation.	R/W 0~10°C, step: 1°C 5°C		
9.I	[8-07]	What is the desired comfort main LWT in cooling?	R/W [9-03]~[9-02], step: 1°C 18°C		
9.I	[8-08]	What is the desired eco main LWT in cooling?	R/W [9-03]~[9-02], step: 1°C 20°C		
9.I	[8-09]	What is the desired comfort main LWT in heating?	R/W [9-01]~[9-00], step: 1°C 35°C		
9.I	[8-0A]	What is the desired eco main LWT in heating?	R/W [9-01]~[9-00], step: 1°C 33°C		
9.I	[8-0B]	--	13		
9.I	[8-0C]	--	10		
9.I	[8-0D]	--	16		
9.I	[9-00]	What is the maximum desired LWT for main zone in heating?	R/W ([2-0C] ≠ 2) 37~70, step: 1°C 65°C R/O ([2-0C] = 2) [2-0C]÷2: 37~55, step: 1°C 55°C		
9.I	[9-01]	What is the minimum desired LWT for main zone in heating?	R/W 15~37°C, step: 1°C 25°C		
9.I	[9-02]	What is the maximum desired LWT for main zone in cooling?	R/W 18~22°C, step: 1°C 22°C		
9.I	[9-03]	What is the minimum desired LWT for main zone in cooling?	R/W 5~18°C, step: 1°C 5°C		
9.I	[9-04]	Leaving water temperature overshoot temperature.	R/W 1~4°C, step: 1°C 1°C		
9.I	[9-05]	What is the minimum desired LWT for add. zone in heating?	R/W 15~37°C, step: 1°C 25°C		
9.I	[9-06]	What is the maximum desired LWT for add. zone in heating?	R/W ([2-0C] ≠ 2) 37~70, step: 1°C 65°C R/O ([2-0C] = 2) [2-0C]÷2: 37~55, step: 1°C 55°C		
9.I	[9-07]	What is the minimum desired LWT for add. zone in cooling?	R/W 5~18°C, step: 1°C 7°C		
9.I	[9-08]	What is the maximum desired LWT for add. zone in cooling?	R/W 18~22°C, step: 1°C 22°C		
9.I	[9-09]	What is the allowed LWT undershoot during cooling start-up?	R/W 1~18°C, step: 1°C 18°C		
9.I	[9-0A]	What is the room buffering temperature in heating?	R/W [3-07]~[3-06]°C, step: 0,5°C 23°C		
9.I	[9-0B]	What is the room buffering temperature in Cooling?	R/W [3-09]~[3-08]°C, step: 0,5°C 23°C		

Field settings table					Installer setting at variance with default value	
Breadcrumb	Setting name		Range, step	Default value	Date	Value
9.I	[9-0C]	Room temperature hysteresis.	R/W	1-6°C, step: 0,5°C 1 °C		
9.I	[9-0D]	Pump speed limitation	R/W	0-8, step:1 0 : No limitation 1~4 : 90~60% pump speed 5~8 : 90~60% pump speed during sampling 6 80% pump speed		
9.I	[9-0E]	--		6		
9.I	[C-00]	Domestic heating water priority.	R/W	0: Solar priority 1: Heat pump priority		
9.I	[C-01]	--		0		
9.I	[C-02]	Is an external backup heat source connected?	R/W	0: NO 1: Yes		
9.I	[C-03]	Bivalent activation temperature.	R/W	-25~25°C, step: 1°C 0°C		
9.I	[C-04]	Bivalent hysteresis temperature.	R/W	2~10°C, step 1°C 3°C		
9.I	[C-05]	What is the thermo request contact type for the main zone?	R/W	1: 1 contact 2: 2 contacts		
9.I	[C-06]	What is the thermo request contact type for the add. zone?	R/W	1: 1 contact 2: 2 contacts		
9.I	[C-07]	What is the unit control method in space operation?	R/W	0: Leaving water 1: External room thermostat 2: Room thermostat		
9.I	[C-08]	Which type of external sensor is installed?	R/W	0: No 1: Outdoor 2: Room		
9.I	[C-09]	What is the required alarm output contact type?	R/W	0: Abnormal 1: Normal		
9.I	[C-0A]	--		0		
9.I	[C-0B]	--		0		
9.I	[C-0C]	--		0		
9.I	[C-0D]	--		0		
9.I	[C-0E]	--		0		
9.I	[D-00]	Which heaters are permitted if prefer. kWh rate PS is cut?	R/W	0: No 1: Only BSH 2: Only BUH 3: All		
9.I	[D-01]	Contact type of preferential kWh rate PS installation?	R/W	0: No 1: Open 2: Closed 3: Smart Grid		
9.I	[D-02]	Which type of DHW pump is installed?	R/W	0: No DHW pump 1: Instant hot water 2: Disinfection 3: Circulation 4: Circulation and disinfection		
9.I	[D-03]	Leaving water temperature compensation around 0°C.	R/W	0: No 1: increase 2°C, span 4°C 2: increase 4°C, span 4°C 3: increase 2°C, span 8°C 4: increase 4°C, span 8°C		
9.I	[D-04]	Is a demand PCB connected?	R/W	0: No 1: Pwr consmp ctrl		
9.I	[D-05]	Is the pump allowed to run if prefer. kWh rate PS is cut?	R/W	0: No 1: Yes		
9.I	[D-07]	Is a solar kit connected?	R/W	0: No 1: Yes (DHW)		
9.I	[D-08]	Is an external kWh meter used for power measurement?	R/W	0: No 1: 0,1 pulse/kWh 2: 1 pulse/kWh 3: 10 pulse/kWh 4: 100 pulse/kWh 5: 1000 pulse/kWh		
9.I	[D-09]	Is an external kWh meter used for power measurement, kWh meter used for smart grid?	R/W	0: No 1: 0,1 pulse/kWh 2: 1 pulse/kWh 3: 10 pulse/kWh 4: 100 pulse/kWh 5: 1000 pulse/kWh 6: 100 pulse/kWh (PV meter) 7: 1000 pulse/kWh (PV meter)		
9.I	[D-0A]	--		2		
9.I	[D-0B]	--		2		
9.I	[D-0C]	--		0		
9.I	[D-0D]	--		0		
9.I	[D-0E]	--		0		
9.I	[E-00]	Which type of unit is installed?	R/O	0~5 2: Monobloc		
9.I	[E-01]	Which type of compressor is installed?	R/O	0		
9.I	[E-02]	What is the indoor unit software type?	R/W (*1) R/O (*2)	0: Reversible (*1) 1: Heating only (*2)		
9.I	[E-03]	What is the number of backup heater steps?	R/O (*3) R/W (*4)	0: No heater (*4) 1: External heater 2: 3V (*3)		
9.I	[E-04]	Is the power saving function available on the outdoor unit?	R/O	0: No 1: Yes		
9.I	[E-05]	Can the system prepare domestic hot water?	R/W	0: No 1: Yes		
9.I	[E-06]	--		1		

Field settings table					Installer setting at variance with default value	
Breadcrumb	Setting name		Range, step Default value		Date	Value
9.I	[E-07]	What kind of DHW tank is installed?	R/W	0-8 0 OSO tank 150/180 1 FS with BUH 2 FS with BSH 3 OSO tank 200/250/300 4 Rotex without BSH (HYB) 5 Rotex with BSH 6 Third party tank for HYB 7 Third party tank, coil >= 1,05m2 8 Third party tank, coil >= 1,8m2		
9.I	[E-08]	Power saving function for outdoor unit.	R/W	0: No 1: Yes		
9.I	[E-09]	--		1		
9.I	[E-0B]	Is a bi-zone kit installed?	R/W	0: not installed 1: - 2: Bizone kit installed		
9.I	[E-0C]	What bizone kit system type is installed?	R/W	0: Without hydraulic separator / no direct pump 1: With hydraulic separator / no direct pump 2: With hydraulic separator / with direct pump		
9.I	[E-0D]	Is the system filled with glycol ?	R/W	0: No 1: Yes		
9.I	[E-0E]	--		0		
9.I	[F-00]	Pump operation allowed outside range.	R/W	0: Restricted 1: Allowed		
9.I	[F-01]	Above which outdoor temperature is cooling allowed?	R/W	10-35°C, step: 1°C 20°C		
9.I	[F-02]	--		3		
9.I	[F-03]	--		5		
9.I	[F-04]	--		0		
9.I	[F-05]	--		0		
9.I	[F-09]	Pump operation during flow abnormality.	R/W	0: Disabled 1: Enabled		
9.I	[F-0A]	--		0		
9.I	[F-0B]	--	R/W	0		
9.I	[F-0C]	--	R/W	1		
9.I	[F-0D]	What is the pump operation mode?	R/W	0: Continuous 1: Sample 2: Request		
Bi-zone kit settings						
9.P.1	[E-0B]	Bi-zone kit installed	R/W	0: not installed 1: - 2: Bizone kit installed		
9.P.2	[E-0C]	Bi-zone kit system type	R/W	0: Without hydraulic separator / no direct pump 1: With hydraulic separator / no direct pump 2: With hydraulic separator / with direct pump		
9.P.3	[7-0A]	Add zone pump fixed PWM	R/W	20-95%, step 5% 95%		
9.P.4	[7-0B]	Main zone pump fixed PWM	R/W	20-95%, step 5% 95%		
9.P.5	[7-0C]	Mixing valve turning time	R/W	20-300 sec, step 5 sec 125 sec		