

mitsubishi electric hydronics & it cooling systems S.p.A.

USER MANUAL

Translation of the original instructions

EVOLUTION+

Version 20

EN

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**Before carrying out any operation on the machine,
you must carefully read this manual
and make sure you understand
all the instructions and information given**

**Keep this manual in a known and easily accessible place to
refer to as necessary during the entire life-span of the unit.**

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SYMBOLS

A number of symbols are used to highlight some parts of the text that are of particular importance. These are described below.



CAUTION:

Information on the occurrence of situations/operations which, if ignored or not duly acted upon, could put not only the Unit but also the functions of the Software and the various electronic parts at risk.



OBLIGATION:

Indicates the need to take appropriate precautions/perform specific operations to avoid compromising protection of the points of access reserved for authorised operators and/or operators who guarantee the proper operation of the Unit.



INFORMATION:

Indicates technical information of particular importance which should not be neglected.

1 INTRODUCTION

1.1 SAFETY REQUIREMENTS

The software described in this document was designed for use with precision air-conditioning units such as “Close Control” units (for data processing centres).

1.2 GENERAL FUNCTIONS

Below is a non-exhaustive list of the functions of the application:

- Adjustment of room temperature and humidity according to the setpoints entered using the user terminal.
- Complete visualisation of the operating status of the unit.
- Possibility of setting the adjustment parameters, both the fundamental ones (entering the “User” password) and the more advanced ones (entering the “Service” and “Factory” password).
- Management and acoustic and visual signalling (visual only by default) of faults (alarms), events and maintenance, with memorisation of up to 200 events;
- Possibility of serial control and management.
- Possibility of operating up to 10 units connected together in a local network LAN, also with one or two time-switched backup units.

2 USER INTERFACE

2.1 USER TERMINAL

2.1.1 Technical characteristics

The user interface comprises:

- 132x64 pixel backlit LCD display (22 columns, 8 rows).
- 6 backlit buttons.

The connection between the microprocessor board and the user terminal involves a 4-pole telephone cable equipped with RJ11 jack connector. The terminal is fed directly from the control board via this cable.

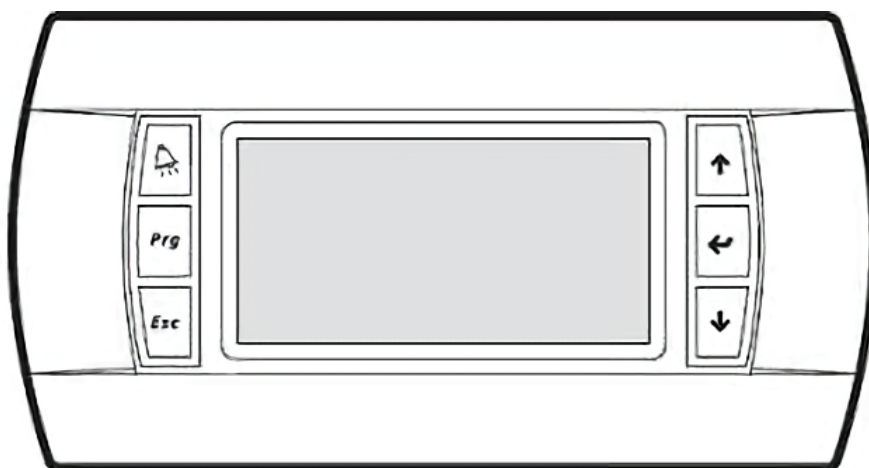


Figure 2-1: User terminal

2.1.2 Buttons functions

Key	Name	Function
	[ALARM]	• <i>Everywhere</i>: Accesses the Event menu where alarm and signalling events are displayed. • <i>In the Event menu</i>: Restores normal condition.
	[PRG]	• <i>In the main loop</i>: Accesses the Main group. • <i>In the groups</i>: Accesses the selected menu or group. • <i>In the menus</i>: Returns to the group to which the menu belongs.
	[ESC]	• <i>In the main loop and Main group</i>: Returns to the main mask. • <i>In the other groups</i>: Returns to the previous group. • <i>In the menus</i>: Returns to the group to which the menu belongs.
	[UP]	• <i>Everywhere</i>: Move around the masks and modify settable parameter values.
	[DOWN]	
	[ENTER]	• <i>In masks with a flashing cursor</i>: Accesses the settable parameters and confirms their modification. • <i>In the groups</i>: Accesses the selected menu or group.

Table 1: List of keys and related functions

Key combinations activate a set of specific functions.

Keys	Name	Description
 +  + 	[ALARM + PRG + UP]	Increase or decrease screen contrast.
 +  + 	[ALARM + PRG + DOWN]	
 + 	[ALARM + ESC]	In the shared keyboard mode, this combination allows to share screenshots and parameters among LAN connected units.
 +  + 	[UP + ENTER + DOWN]	Press for 5 seconds to set the LAN address on the user terminal.
 + 	[ALARM + UP]	With the user terminal set to 0, it allows to configure the LAN address on the control board.

Table 2: List of key combinations and related functions

2.1.3 Key LED management

The key led indicators turn on in the following instances.

Key	Name	Description
	[ALARM]	Fixed in case of alarm and flashing in case of signal. Once the [ALARM] key is pressed, the LED becomes fixed. If there are no active events, the LED is off.
	[PRG]	Fixed when the unit is operating (ventilation ON).
	[ESC]	Dixed upon turning on the unit, when pressing any key or activating an alarm/signal. They will disengage along with the rear-lighting of the screen after three minutes of inactivity on the keyboard of the user terminal.
	[UP]	
	[ENTER]	
	[DOWN]	

Table 3: List of led indicators and related meaning

2.2 GENERAL CHARACTERISTICS OF THE INTERFACE

2.2.1 Groups of masks and menu structure

The tree structures for moving around the various menus of the controller are shown below.

Within the main loop or the different menus, indicated in *italics*, the **[UP]** and **[DOWN]** keys allow you to scroll through the different masks present. Within the groups, indicated in **bold**, the **[UP]** and **[DOWN]** keys allow you to scroll through the various choices in the list.

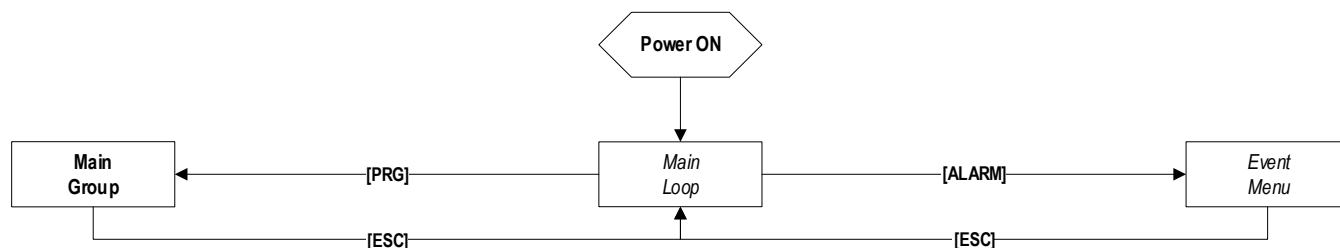


Figure 2-2: Basic movement tree

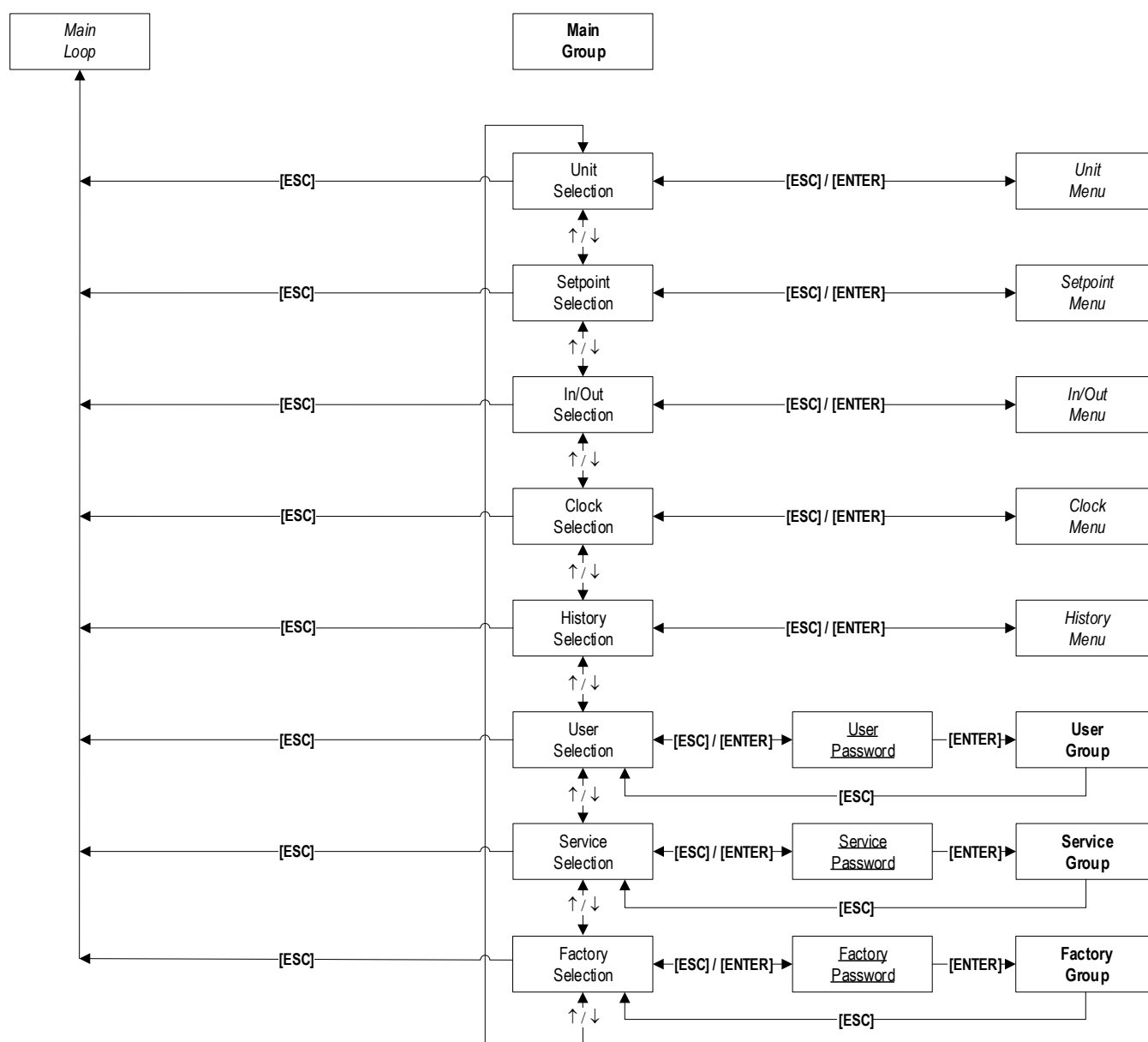


Figure 2-3: Tree for moving around the "Main" group

- The “**Unit Menu**” displays information such as temperature, pressure and circuit states.
- The “**Setpoint Menu**” is used to set the setpoints for the various available functions.
It is possible to set different setpoints depending on the available function modes (heat sources present, humidifier present, and dehumidifier present, etc.).
- The “**In/Out menu**” shows the status of the digital inputs and values read from the analogue inputs.
It also shows the status of the digital outputs and the voltage supplied to the analogue outputs.
If I/O expansions are present (depending on the configuration parameters), the inputs and outputs of the latter are also shown.
- The “**Clock menu**” is used to set and display the date and time and configure the time bands.
- The “**History menu**” is used to display the list of alarm events recorded by the unit.
- In the “**User**” group there are menus in which it is possible to display and set parameters related to the user programming of the unit.
- In the “**Service**” group there are menus in which it is possible to display and set parameters for the service configuration of the unit.
- In the “**Factory**” group there are menus in which it is possible to display and set parameters for the manufacturer's configuration of the unit.

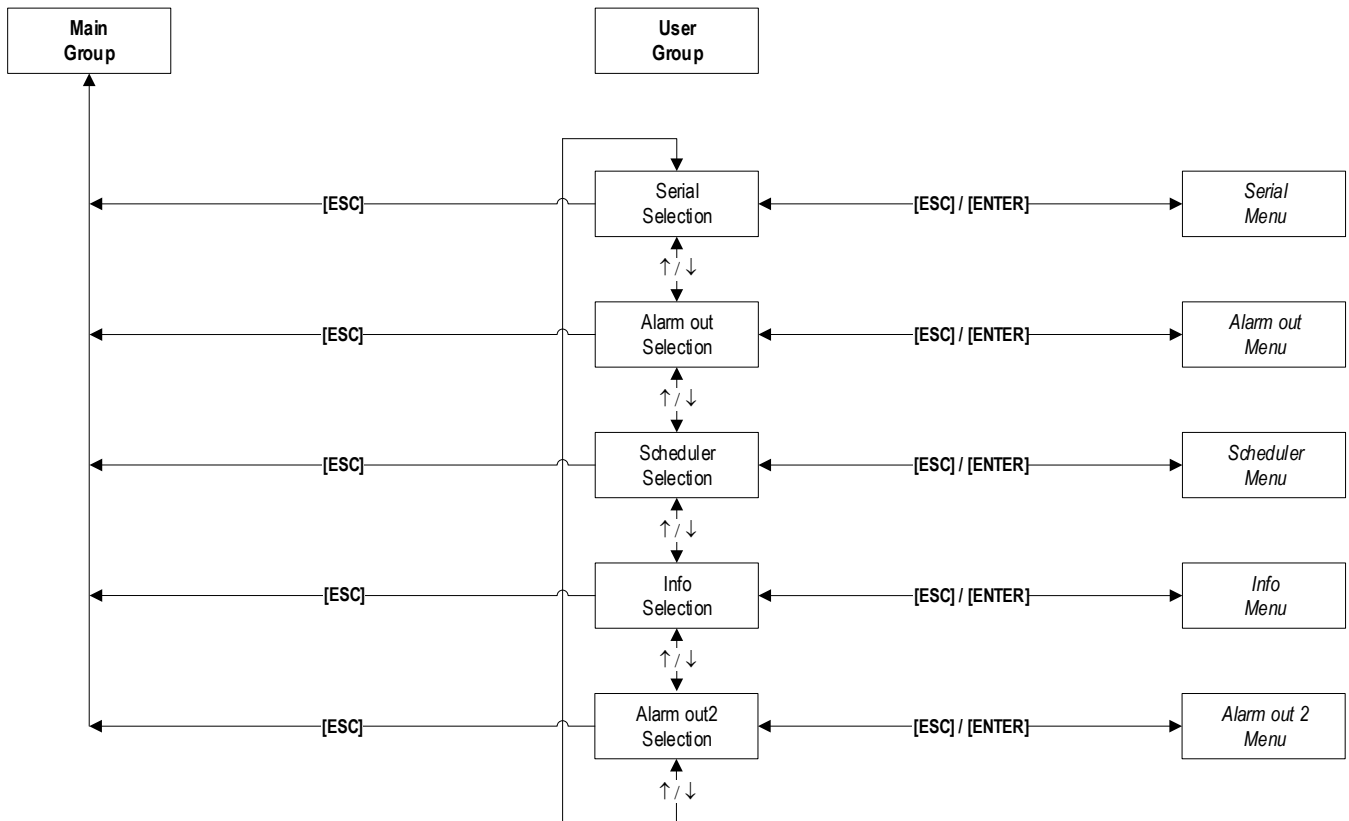


Figure 2-4: Tree for moving around the “User menu”

Access to the “**User**”, “**Service**” and “**Factory**” groups is by means of passwords, the management of which is explained in the following chapter.

2.2.2 Password management

There are three menu groups that may be accessed upon entering a numeric password. Their access levels are as follows:

- **“User”** password, for the user.
- **“Service”** password, for maintenance and assistance operators;
- **“Factory”** password, for the sole and exclusive use of the manufacturer’s employees (not to be disclosed externally).

To enter the password, type every single digit in the set order from left to right.

To move from one digit to the next, just press the **[ENTER]** key.

To move from one digit to the previous, just press the **[ESC]** key. If the cursor should be on the first digit to the left, then this brings back to the main window.

The **User password** is given below.

User Password
1234 (modifiable)

Once at the last digit of the password, by pressing the **[ENTER]** key the software will compare the entered password with those stored in its memory. If the entered password should not be correct, the message “Wrong Password” will appear for a few instants, all digits will be reset, and the cursor will move back to the first digit, on the left end of the password space.

To go back with the cursor to the previous password digit, just press the **[ESC]** key.

Pressing the **[ESC]** key with the cursor on the first digit returns you to the menu selection.

To change the **“User” password** access the **“Info” menu** inside the **“User” group** and scroll the masks until the **“User” password change** mask appears:

```
Info - Pwd change

Insert a new
User password:

          0000
```

2.2.3 Language management

The controller has an additional memory containing all the supported languages.
During programming, all the languages are loaded to the controller and the end user selects the language to display.

The table below shows the languages available and their international codes.

English	Chinese
EN	ZH

To select any one of the available languages, proceed as follows.

1)	Press [ALARM] and [ENTER] together. Hold down until the mask shown to the side appears.	> SYSTEM INFORMATION LOG DATA OTHER INFORMATION FLASH NAND FILES
2)	Press [UP] and [DOWN] to move the cursor ">" to the "FLASH NAND FILES" row and press [ENTER] to confirm the selection.	SYSTEM INFORMATION LOG DATA OTHER INFORMATION > FLASH NAND FILES
3)	The mask shown at the side will appear, to confirm access to the "FLASH NAND FILES" menu. Press [ESC] to exit the menu without changing the language. Press [UP] and [DOWN] to scroll between the various files available.	[] ME20r00xEN.iup
4)	Now select the file for the required language. Press [ENTER] to select the file, and an "X" appears between the square brackets. Press [ENTER] again to deselect the file.	[X] ME20r00xEN.iup
5)	Files with ".iup" extensions concern the language. The ".bin" file concerns the application. The ".grp" file concerns the graphic resources.	[] ME20r00x.grp
6)	It is necessary to select exclusively an ".iup" file depending on the language that you want to display (refer to the table showing the languages and international language codes).	[X] ME20r00xEN.iup
7)	Select the ".bin" file.	[X] ME20r00x.bin
8)	Select the ".grp" file.	[X] ME20r00x.grp
9)	After selecting one of the ".iup" files, the ".bin" file and the ".grp" file, press [UP] or [DOWN] to find the mask on the side and press [ENTER] .	Press Enter to start copying
9b)	When requested by the mask at the side press [ENTER] and leave "NO" indicated. This mask only appears in large size software versions. Therefore it may not appear.	Erase Log data? NO press ENTER to conf.
10)	The mask on the side will appear, indicating that the files are being copied.	copy process is running
11)	At the end of the installation process, the mask on the side appears to confirm successful copying.	ok, copy completed. wait for restart
12)	During the process, messages such as "I/O BOARD FAULT" and "NO LINK" may appear. This is caused by the application restart process. The messages will disappear after a few seconds.	I/O BOARD FAULT NO LINK
13)	Once the operation has finished, the masks will appear in the selected language. The installed language can be checked in the "About" mask of the "Unit" menu.	Unit - About Evolution+ Code ME 20.00 EN

All the steps of the procedure must be completed. If even just one file is omitted, the following faults may occur:

No ".iup" file selected. This means that no language has been selected and an empty mask will appear. Repeat the operation taking care to select a ".iup" file.	Select one iup file
No ".bin" file selected. This means that the application file has not been selected. Press [ESC] and repeat the operation taking care to select the ".bin" file.	ERROR : press menu select one blb file
No ".grp" file selected. This means that the graphics file has not been selected. The language and the application have been installed but the images will not be processed. Repeat the operation taking care to select a ".grp" file.	Select one blb file
No file has been selected.	No files selected
An error occurred while copying to the NOR memory.	Error copying files
An error occurred while reading the file from the NAND memory.	Error reading file (11)
CRC (verification code) incorrectly calculated while copying to the NOR memory.	Error reading file (12)
An error occurred while reading the file from the NAND memory.	Error reading file (13)
An error occurred while writing to the NOR memory.	Writing error (14)
The file is too large to be a correct DEV file.	DEV file not valid
The file is not a correct DEV (heading not recognised).	Code error 9
All other situations.	Code error X

**INFORMATION:**

If no key is pressed for a few seconds, the display will exit the configuration screen. In this case, the procedure must be repeated.

2.3 STATUS DISPLAY MASKS

The various status display masks:

- Provide a complete overview regarding the status of the unit.
- Provide useful information to the unit maintenance operator.

In the **main loop** there are, in addition to the main mask and the Temperature Probes mask, only the masks that allow you to view the status of the various functions active on the unit, if any. This makes the main loop dynamic and quick to consult thanks to the reduced number of masks visible at any time.

The **"Unit" menu** contains all the masks that allow you to view the status of the various operating devices of the unit. It is therefore static and complete, and intended for occasional consultation.

The Temperature Probes mask is present both in the main loop and in the "Unit" menu, and has a shortcut that allows you to switch from one to the other and vice versa simply by pressing the **[ENTER]** key.

The **"In/Out" menu** allows you to check the status of the input and output values of the controller board and I/O expansion boards, as well as the Modbus addresses used by active devices with Modbus communication.

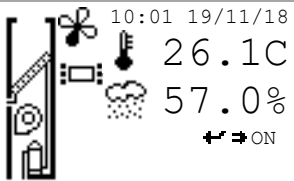
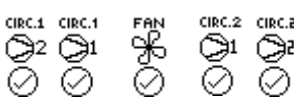
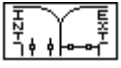
The **"History" menu** allows you to view the alarm log. See the chapter "Event History" for further information.

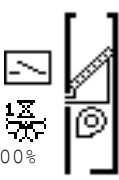
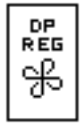
The following paragraphs list the status display masks belonging to the various menus.

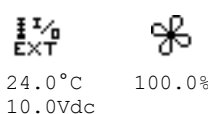
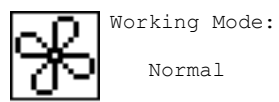
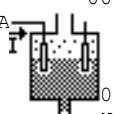
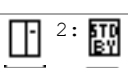
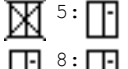
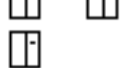
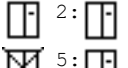
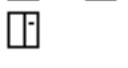
Press the **[UP]** and **[DOWN]** keys to move from one mask to another.

To return to the menu selection list or main mask, press the **[ESC]** key.

2.3.1 Main loop

Mask of the terminal	Description
	Main mask Displays the type of unit, the current date and time, the temperature and humidity currently used for adjustment, and the power-on status of the unit. For more information see the "Main mask" section.
Active Functions  Waiting for Regulation to Start	Display of the active functions in the unit. For more information see the "Active Functions Mask" section. <i>Visible only when certain functions are active</i>
Safety Reduction Load  Normal Work	Displays the status of the Safety Reduction Load function . For more information see the "Safety Reduction Load Mask" section.
Direct FreeCooling DeltaT 02.0 T.Int 25.0  T.Ext 23.0 Status: Enabled Pos.:All Internal 000%	Display of operation of the Direct Free Cooling function . Displayed: • Internal T, external T and Enabling of direct Free Cooling. • Damper position (internal only, mixing, external only) and the opening percentage. The image graphically describes the Free Cooling damper position:  Damper in internal air only position.  Damper in the internal and external air mixing position.  Damper in external air only position. <i>Visible only if the function is enabled</i>

Mask of the terminal	Description
PRECISE Functions Hot gas valve Opening: 000% OFF Compressor Compressor Max Freq. Limited to 080RPS Compressor Forced ON	Display of the status of exclusive functions for PRECISE units.
Compressor Status CIRCUIT 1 CIRCUIT 2 	Display of the compressor status for direct expansion units with two circuits. For more information see the "Compressor Status Mask" section.
Temperature Probes 24.0°C 15.0°C 35.0°C 30.0°C 10.0°C 11.0°C Go to Unit menu	Display of the values of the temperature probes. - Return temperature probe - Delivery temperature probe - External temperature probe - Hot water probe - Cold water probe circuit 1 - Cold water probe circuit 2 Pressing the [ENTER] key switches to the Temperature Probes mask in the "Unit" menu. This shortcut provides quick access to the display masks of the unit's internal devices.
Summer/Winter Mode 	Display of the Winter/Summer mode for the cooled water unit - Summer - Winter
A/B Switch Switch with: Request: 100% 000% 	Display of the status of the change coil function. <i>Visible only on Dual Coil units</i>
DF Working Mode Switch with: Active: 	Display of the status of the change cooling circuit function. <i>Visible only on Dual Fluid units</i>
Constant FlowRate Reg. Target 02500m3/h Current 02500m3/h Status On Target 	Display of operation of the Constant Capacity function. <i>Visible only if the function is enabled</i>
Constant DeltaP Regul. Target 0010Pa Current 0010Pa Status On Target 	Display of operation of the Constant Head function. <i>Visible only if the function is enabled</i>

Mask of the terminal	Description
Fan Spec. Function 01 Regulation Probe  24.0°C 100.0% 10.0Vdc	Display of the value of the control probe with active fan special function 01.
Extraction Fan  Working Mode: Normal Status: Online	Display of the operating status of the extraction fan.
Humidifier 000.0kg/h  00.0A 000µS/cm Alarm code:00 Warning code:0	Display of the operating status of the internal humidifier. <i>Visible only if internal humidifier is present</i>
Humidifier Status: OFF Request: 000.0% 	Display of the operating status of the external humidifier. <i>Visible only if external humidifier is present</i>
LAN 1: 2: 3:  4: 5: 6:  7: 8: 9:  10: ADL CB 	Local network (LAN) status display mask. This mask is displayed only at the Master unit (LAN address=1).  Unit in operation  Unit on stand-by  Unit in rescue mode  Unit not operating  Unit in Hot-Spot protection  Unit with Cold-Spot protection When enabled it is possible to view the status of the ADL function:  ADL enabled  ADL operating limit reached <i>Visible only if the local network (LAN) is enabled</i>
1 00.0 2 00.0 3 00.0 4 00.0 5 00.0 6 00.0 7 00.0 8 00.0 9 00.0 10 00.0 LAN:Local Unit Temp. (°C)	Mask that displays all the temperature values read by the units on the LAN network. This mask is displayed only at the Master unit (LAN address=1). <i>Visible only if the local network (LAN) is enabled</i>
LAN 1: 2: 3:  4: 5: 6:  7: 8: 9:  10: 	Local network (LAN) status display mask. This mask is displayed only at the Slave units (LAN address=2÷10).  Unit in operation  Unit not operating <i>Visible only if the local network (LAN) is enabled</i>

Mask of the terminal	Description
 01 LAN ADL  REG 24.0 °C  ADL 24.0 °C  LOCAL 23.9 °C	Display of the operating status of the ADL function. This mask is displayed for all the units (LAN address=1 to 10). <i>Visible only if the local network (LAN) and the ADL function are enabled</i>
 01 LAN APL Current: 0000Pa Target: 0020Pa  APL 0000Pa Local 0000Pa Status: On Target	Display of the operating status of the APL function. This mask is displayed for all the units (LAN address=1 to 10). <i>Visible only if the local network (LAN) and the APL function are enabled</i>
Climapro Average Temperature Regulation from BMS  24.5 °C Status: Online	Display of the temperature sent to BMS. If the temperature sent is not correct, the "Error" message is displayed instead of the temperature. If the BMS signal is lost, the words Signal Lost flash instead of the word Online <i>See the chapter "Adjustment with temperature provided by the Supervisor" for further details</i>

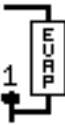
2.3.2 Unit Menu

Accessible from: "Main" Group

Mask of the terminal	Description
 Unit ← ↓	Access mask to Unit menu.
Unit - Temp. Probes  24.0 °C  15.0 °C  35.0 °C  30.0 °C  10.0 °C  11.0 °C ← → Back to Main loop	Display of the values of the temperature probes.  Return temperature probe  Delivery temperature probe  External temperature probe  Hot water probe  Cold water probe circuit 1  Cold water probe circuit 2
Unit - Rem. Probe Remote T+H Probe  24.0 °C  50.0% Status: Online	Display of the values of the Remote T+H probe. <i>Visible if the probe is enabled</i>
Unit - Pressure Probes  00.0bar  00.0bar  00.0bar  00.0bar	Display of the values of the pressure probes.  Circuit 1 low pressure probe (only with thermostatic valve)  Circuit 1 high pressure probe (only with Inverter compressor and/or condensation management)  Circuit 2 low pressure probe (only with thermostatic valve)  Circuit 2 high pressure probe (only with Inverter compressor and/or condensation management)

Mask of the terminal	Description
Unit - Water Probe  Cold: 00.0°C Out: 00.0°C 000.00kW 00.00m3/h  Cold: 00.0°C Out: 00.0°C 000.00kW 00.00m3/h	Display of the values of the water probes . There may be the measurement of water flow, cooling capacity, inlet and outlet temperature. <i>Visible if the function is enabled</i> <i>It is also possible to configure viewing only of the value of the outlet water probes</i>
Unit - Regulat. Ramps Cooling ramp: 000.0% Heating ramp: 000.0% Post Heat. ramp:000.0% Inverter ramp: 000.0% Dry Cooler ramp:000.0% FC Damper ramp: 000.0%	Regulation ramp value reading.
Unit - Internal Fan  Speed Request: 000% Regulation Type: Standard Fan RPM Speeds: Fan1:0000 Fan2:0000 Fan3:0000 Fan4:0000 Fan5:0000 Fan6:0000	Display of the required speed of the internal fans and the type of adjustment selected. If the unit has EC fans with which it communicates via Modbus protocol, the speeds of the individual fans, read in real time by the motors, are also available.
Unit - Int. Fan Status Fan 1 0000000 0000000 No alarm No warning Fan 2 0000000 0000000 No alarm No warning	Display of the status of the internal EC 1 and 2 fans communicating via Modbus. In case of alarm or signal coming from the fan, both the code (alarm on the left, signal on the right) and the corresponding description are visible. <i>Visible if the unit has EC fans with which it communicates via Modbus protocol</i>
Unit - Int. Fan Status Fan 3 0000000 0000000 No alarm No warning Fan 4 0000000 0000000 No alarm No warning	Display of the status of the internal EC 3 and 4 fans communicating via Modbus. In case of alarm or signal coming from the fan, both the code (alarm on the left, signal on the right) and the corresponding description are visible. <i>Visible if the unit has at least three EC fans with which it communicates via Modbus protocol</i>
Unit - Int. Fan Status Fan 5 0000000 0000000 No alarm No warning Fan 6 0000000 0000000 No alarm No warning	Display of the status of the internal EC 5 and 6 fans communicating via Modbus. In case of alarm or signal coming from the fan, both the code (alarm on the left, signal on the right) and the corresponding description are visible. <i>Visible if the unit has at least five EC fans with which it communicates via Modbus protocol</i>
Unit - Condensation Condensation Valve  Circuit 1 Opening: 000%  Circuit 2 Opening: 000%	Display of the opening of the condensation valve. If the second circuit is available, opening of the condensation valve of circuit 2 is also displayed. <i>If EC condensing fans are present, their speed is displayed instead of the opening of the valves, and the valve icons are replaced with the fan icons ()</i>
Unit - Dry-Cooler  Speed: 000.0%	Display of the Dry cooler speed . <i>Visible only if present</i>

Mask of the terminal	Description
Unit - Water Valve  000%  000%  000%	Display of the opening value of the water valves <i>Visible only when the water valves are present</i>
Unit - Water Valve  Current posit: 100%  Request posit: 100% In position  Current posit: 000%  Request posit: 000% In position	Display of the adjustment status of the 3 point cold water valves . <i>Visible only if the cold water valve is set as 3 points</i> <i>In Winter mode (for chilled water units) the mask shows the hot water icon</i>
Unit - Hot Water Valve  Current posit: 000%  Request posit: 000% In position	Display of the adjustment status of the 3 point hot water valves . <i>Visible only if the hot water valve is set as 3 points (only if used as (post-)heating)</i>
Unit - Inverter 1 Driver ABB ACS355  Speed:070RPS No alarm detected	Display of the status of the inverter driver ABB ACS355 for circuit 1. In the event of an alarm, the central icon is replaced by the alarm code received from the driver. <i>Visible only if compressor model is set as SIAM TNB/SNB/ANB33/ANB52/ANB78</i>
Unit - Inverter 1 Envelope Status  08.1bar  14.8bar Work Zone: 0	Display of the status of the envelope control of the inverter compressor of circuit 1 .
Unit - Inverter 1 T Discharge Function  090.0°C Zone: -Alert: N -Protect: N -Lock: N	Display of the status of the discharge temperature control of the inverter compressor of circuit 1 .
Unit - Expans. Valve 1 00.0°C SH: 05.0K (SET:05.0) 00.0bar 00.0°C MOP Opening: 000.0% Steps: 000 (0-480)	Display of the operating status of the electronic thermostatic valve of circuit 1 . Displays evaporation pressure and temperature, LOP and MOP protection status and valve opening <i>Visible only if the electronic thermostatic valve is present</i>
Unit - Inverter 2 Driver ABB ACS355  Speed:120RPS No alarm detected	Display of the status of the inverter driver ABB ACS355 for circuit 2. In the event of an alarm, the central icon is replaced by the alarm code received from the driver. <i>Visible only on units with two inverters and if the compressor model is set as SIAM TNB/SNB/ANB33/ANB52/ANB78</i>

Mask of the terminal	Description
Unit - Inverter 2 Envelope Status   08.1bar 14.8bar Work Zone: 0	Display of the status of the envelope control of the inverter compressor of circuit 2 .
Unit - Inverter 2 T Discharge Function  090.0°C Zone: -Alert: N -Protect: N -Lock: N	Display of the status of the discharge temperature control of the inverter compressor of circuit 2 .
Unit - Expans. Valve 2 00.0°C SH: 05.0K (SET:05.0) 00.0bar 00.0°C MOP Opening: 000.0% Steps: 000 (0-480) 	Display of the operating status of the electronic thermostatic valve of circuit 2 . Displays evaporation pressure and temperature, LOP and MOP protection status and valve opening <i>Only visible if the electronic thermostatic valve is installed and only on units with two circuits</i>
Unit - Energy Managem. Voltage (V) 000 Current (A) 000.0 Active Power(kW) 0000.0	Display of the values detected by the network transducer in the case of single-phase circuits. <i>Only on single-phase units.</i> <i>Visible only if the network transducer is enabled</i>
Unit - Energy Managem. Voltage (V) L1-L2 000 L2-L3 000 L3-L1 000 Neutral 1 000 Neutral 2 000 Neutral 3 000	Display of the electric values detected by the network transducer . Displays phase-phase and phase voltage (phase-neutral) values. <i>Only on three-phase units</i> <i>Visible only if the network transducer is enabled</i>
Unit - Energy Managem. Current (A) Line 1 000.0 Line 2 000.0 Line 3 000.0 Neutral 000.0	Display of the electric values detected by the network transducer . Displays phase and neutral current. <i>Only on three-phase units</i> <i>Visible only if the network transducer is enabled</i>
Unit - Energy Managem. Active Power (kW) Phase 1 0000.0 Phase 2 0000.0 Phase 3 0000.0 Total 0000.0	Display of the electric values detected by the network transducer . The phase active power is displayed. <i>Only on three-phase units</i> <i>Visible only if the network transducer is enabled</i>
Unit - Energy Managem. Energy: 0000000kWh Time: 0000000h	Network transducer active energy and hour counter display. <i>Visible only if the network transducer is enabled</i>
Unit - GSM Modem Status: Stand-by ext.modem Offline 000% Time next call: 0000s SMS Queue: 00	GSM modem status display. <i>Visible only if the GSM modem is enabled</i>

Mask of the terminal	Description
Unit - KIPLink Status: Offline WiFi Network SSID: KIPLink_032000000 IP Address: 000.000.000.000 Channel: WiFi	Display of the status and main information of the KIPLink module.
Unit - KIPLink Module type: Master-EthOFF-WiFiON	Display of the type of KIPLink module.
Unit - KIPLink Ethernet channel: IP: 192.168.030.001 Sub:255.255.255.000 Gw: 000.000.000.000	Display of information on the KIPLink Ethernet network.
Unit - KIPLink WiFi channel: IP: 192.168.030.001 Sub:255.255.255.000 Gw: 000.000.000.000	Display of information on the KIPLink Wi-Fi network.
Unit - KIPLink Network Info SSID master: KIPLink_032000000 IP master: 192.168.030.001 KIPLink ID: 01	Display of the status and main information of the network of the KIPLink Master module.
Unit - Work Hours  000000h  1 000000h  3 000000h  2 000000h  4 000000h	Display of the operating time of the fans and compressors in the various unit configurations.
Unit - Work Hours  000000h  2 000000h  3 000000h	Display of the heater and humidifier operating hours .
Unit - N° of Starts     1 0000000  3 0000000  2 0000000  4 0000000	Display of the number of compressor starts .
Unit - N° of Starts     000000h  2 000000h  3 000000h	Display of the number of heater and humidifier starts .

Mask of the terminal	Description
Unit - SN Serial Number of the Unit 032000000	Display of the serial number of the unit.
Unit - About Evolution+ Code ME 20.00 EN HW pCO5+ M  NAND 50MB Flash 2MB + 7MB + 4MB Ram 2048KB Boot 05.01 Bios 06.31	This mask contains the reference information of the software [Code ME 20.00 EN]. The closed padlock symbol shows that the board is provided with its propriety software. The hardware information is also shown, namely the size (M, L, XL), the memories (NAND, Flash and RAM), and finally the versions of the basic software of the controller (Boot and Bios).

2.3.3 In/Out Menu

Accessible from: "Main" Group

Mask of the terminal	Description
 In/Out ← ↓	Access mask to "In/Out" menu.
In/Out - Dgtl. Inputs ID1  ID5  ID2  ID6  ID3  ID7  ID4  ID8 	Displays the status of the digital inputs . <i>Visible only on units with Small control system</i>
In/Out - Dgtl. Inputs ID1  ID8  ID2  ID9  ID4  ID10  ID3  ID11  ID5  ID12  ID6  ID13  ID7  ID14 	Displays the status of the digital inputs . <i>Visible only on units with Medium control board system</i>
In/Out - Dgtl. Inputs ID1  ID7  ID13  ID2  ID8  ID14  ID4  ID9  ID15  ID3  ID10  ID16  ID5  ID11  ID17  ID6  ID12  ID18 	Displays the status of the digital inputs . <i>Visible only on units with Large control board system</i>
In/Out - Dgtl. Outputs NO1  NO5  NO2  NO6  NO3  NO7  NO4  NO8 	Displays the status of the digital outputs . <i>Visible only on units with Small control board system</i>
In/Out - Dgtl. Outputs NO1  NO8  NO2  NO9  NO3  NO10  NO4  NO11  NO5  NO12  NO6  NO13  NO7  NO14 	Displays the status of the digital outputs . <i>Visible only on units with Medium control board system</i>

Mask of the terminal	Description
In/Out - Dgtl. Outputs NO1  NO7  NO13  NO2  NO8  NO14  NO3  NO9  NO15  NO4  NO10  NO16  NO5  NO11  NO17 ND NO6  NO12  NO18 ND	Displays the status of the digital outputs . <i>Visible only on units with Large control board system</i>
In/Out - Anlg. Inputs U1 00.0bar U2 00.0bar U3 00.0bar U4 00.0bar U5 00.0bar	Displays the status of the universal inputs . <i>Visible only on units with Small control board system</i>
In/Out - Anlg. Inputs U1 00.0bar U5 00.0bar U2 00.0bar U6 00.0bar U3 00.0bar U7 00.0bar U4 00.0bar U8 00.0bar	Displays the status of the universal inputs . <i>Visible only on units with Medium control board system</i>
In/Out - Anlg. Inputs U1 00.0bar U6 00.0bar U2 00.0bar U7 00.0bar U3 00.0bar U8 00.0bar U4 00.0bar U9 00.0bar U5 00.0bar U10 ND	Displays the status of the universal inputs . <i>Visible only on units with Large control board system</i>
In/Out - Anlg. Outputs Y1 00.0V Y3 00.0V Y2 00.0V Y4 00.0V Y5 ND Y6 ND	Displays the status of the analogue outputs .
In/Out - PCOE1 DOut1 DIn1 DOut2 DIn2 DOut3 DIn3 DOut4 DIn4 Aout 000.0 AIn1 000.0 AIn3 000.0 AIn2 000.0 AIn4 000.0	Displays the status of the inputs and outputs of the I/O expansion board 1 . <i>Visible only if at least one of the functions requiring this expansion is enabled</i>
In/Out - PCOE2 DOut1 DIn1 DOut2 DIn2 DOut3 DIn3 DOut4 DIn4 Aout 000.0 AIn1 000.0 AIn3 000.0 AIn2 000.0 AIn4 000.0	Displays the status of the inputs and outputs of the I/O expansion board 2 . <i>Visible only if at least one of the functions requiring this expansion is enabled</i>
In/Out - PCOE3 DOut1 DIn1 DOut2 DIn2 DOut3 DIn3 DOut4 DIn4 Aout 000.0 AIn1 000.0 AIn3 000.0 AIn2 000.0 AIn4 000.0	Displays the status of the inputs and outputs of the I/O expansion board 3 . <i>Visible only if at least one of the functions requiring this expansion is enabled</i>
In/Out - Modbus Addr. Fan 1: 001 Fan 4: 004 Fan 2: 002 Fan 5: 005 Fan 3: 003 Fan 6: 006 Return T+H Probe: 128 Remote T+H Probe: 129 Internal Humidif: 148 Energy Analyzer 1: 031	Displays the Modbus addresses used by active devices with Modbus communication. <i>Visible only if at least one of the listed devices is enabled.</i>

Mask of the terminal	Description
In/Out - Modbus Addr. EEV Driver 1: 011 EEV Driver 2: 012 Inverter 1: 138 Inverter 2: 139 I/O Expansion 1: 008 I/O Expansion 2: 009 I/O Expansion 3: 010	Displays the Modbus addresses used by active devices with Modbus communication. <i>Visible only if at least one of the listed devices is enabled.</i>

2.3.4 History Menu

Accessible from: "Main" Group

Mask of the terminal	Description
 History  	Access mask to "Alarms Log" menu.
History Filter  for events: Location: All	Selection of the alarm type from the display history. It is possible to select from Compressor, Circuit, Unit, and System alarms. For a description of the Location field, please refer to the "Events" chapter.
15:32:28 07/11/18 pLAN Address: 01 Event n° 004 SET A003 Type: AUTO Presence of Fire/Smoke Location: Plant Action: Unit	Mask displaying the event history. Each event recorded contains the following details: • Date and time • Unit pLAN address (if there is a LAN controller network) • Event number • Engagement or disengagement event. SET, RESET • Event code • Reset: AUTO (automatic), MAN (manual) • Event description • Event location: Compressor, Circuit, Unit, Plant • Type of event block action: Compressor, Circuit, Unit, ChilledWater, Humidifier, El. Heater, Function

2.4 MAIN STATUS DISPLAY MASKS

2.4.1 Main Mask

Visible from: Main loop

The figure below shows the main mask layout, including the (numbered) areas in which it is divided.

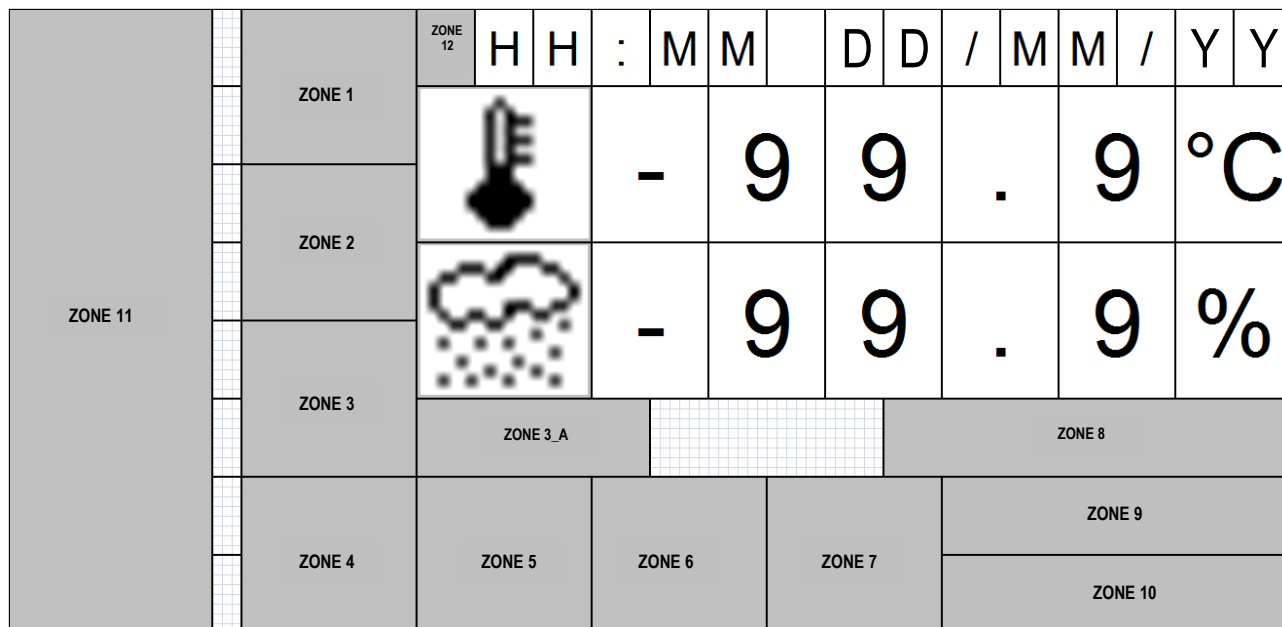


Figure 2-5: Main mask

The area above displays the hour and the date.

It also displays room humidity and temperature (only when the probe is installed) in real time (also in case the average value mode for the local LAN units connected should be active).

Following is a description of the main mask areas:

- Zone 1: General unit status
- Zone 2: Unit detail status
- Zone 3: Type of event (in case of active event)
- Zone 3_A: Event code (in case of active event)
- Zone 4: Cold Resources in operation
- Zone 5: Free Cooling Resources in operation
- Zone 6: Humidity Resources in operation
- Zone 7: Hot Resources in operation
- Zone 8: Current unit ON/OFF status
- Zone 9: BMS address of the unit
- Zone 10: LAN address of the unit
- Zone 11: The type of unit
- Zone 12: Display of active functions icon

The icons displayed in each area are listed on the following pages.

Zone 1: General unit status

	Unit off	
	Unit operating in normal mode	
	Unit operating in maximum fan speed mode for fan alarm	
	Unit operating on steady capacity mode	Normal operation
		Maximum flow reached
		Minimum flow reached
	Unit operating on steady residual ΔP mode	Normal operation
		Minimum flow reached

NOTE

If the icon  flashes and the icons   also flash at the same time, this means that the unit is on for post-ventilation of the electric heaters (see the relevant paragraph in the chapter "Heating").

Zone 2: Unit detail status

	Presence of an active alarm
	Maintenance signal
	Active manual controls
	Unit on/off from terminal
	Unit on/off from remote contact
	Unit on/off from supervision system
	Unit on/off from KIPLink
	Unit on in local LAN
	Unit turned on for LAN disconnection alarm
	Unit on stand-by

	Unit in Demand Limit mode
	Unit on for exceeding the maximum room temperature threshold
	Unit on for exceeding the minimum room temperature threshold
	Unit on for exceeding the maximum room humidity threshold
	Unit on for exceeding the minimum room humidity threshold
	Unit on for electric heater post-ventilation function
	Unit off and powered by ULTRACAP

Zone 3: Type of event, shown in case of active event

	Fire/Smoke or water leak
	Phase sequence wrong
	Water leaks (flooding)
	Lack of water flow
	High return temperature in water units
	High water temperature
	Lack of air flow
	Return temperature probe faulty
	Remote temperature probe faulty
	Return humidity probe faulty
	Remote humidity probe faulty

	Differential air pressure transducer faulty
	Feed air temperature probe faulty
	Inlet cold water temperature probe faulty
	Outlet cold water temperature probe Circuit 1 faulty
	External air temperature probe faulty
	Hot water temperature probe faulty
	Inverter compressor 1 discharge temperature probe faulty
	Electric element overheating

	Fan 1 phase sequence
	Fan 1 motor blocked
	Fan 1 voltage problem
	Fan 1 thermal problem
	Fan 1 generic alarm
	Fan 1 signal
	Fan 1 offline
	Return T+H probe offline
	Remote T+H probe offline
	Circuit 1 inverter driver offline
	I/O expansion 1 offline
	I/O expansion 2 offline
	I/O expansion 3 offline
	Humidifier driver offline
	Network analyser offline
	Circuit 1 electronic valve driver offline
	BMS1 offline
	Cold water valve not working
	Circuit 1 inverter envelope (working outside the zone)
	Inconsistent envelope
	Circuit 1 inverter compressor discharge temperature in Block zone
	Circuit 1 inverter compressor discharge temperature in Protection zone
	Circuit 1 inverter suction/discharge delta P limit alarm
	Circuit 1 inverter alarm
	Circuit 1 compressor 1 or 2 thermal load protection

	Circuit 1 high pressure switch triggered
	Circuit 1 analogue high pressure probe faulty or disconnected
	Circuit 1 HP protection function alarm
	Circuit 1 analogue low pressure probe faulty or disconnected
	Circuit 1 low pressure switch triggered
	Circuit 1 Frost-free function alarm
	Circuit 1 electronic valve faulty or disconnected
	Humidifier cylinder expiry.
	Humidifier discharge
	No water to the humidifier
	Low humidifier current
	High humidifier current
	Generic humidifier alarm
	Demand Limit active
	LAN disconnected
	ADL function at operating limit
	Low return temperature (ambient)
	High return temperature (ambient)
	Low return humidity (ambient)
	High return humidity (ambient)
	EEPROM faulty
	Maintenance request
	Filters clogged
	Extraction fan alarm
	External fire sensor triggered
	External damper alarm

NOTE

The alarm icons on circuit 1 have equivalent versions for circuit 2, if present. The same applies to the fan alarm icons.

In case of several active events, the area displays the event having higher priority of all the present events. The order of severity for the events displayed in this area reflects the order in which the alarms are reported in the events table, from the most to the least severe. The severity of the events is valued based on the consequences they imply for the operation of the conditioning unit.

*For more information see the "Events masks" section.

Area 3_A: Code of the active event

A letter corresponding to the type of event (Signal or Alarm) is also displayed to the left of the code.

Zone 4: Cold Resources currently in operation

	Cold water valve open <i>Only on chilled water units</i>
	Circuit 1 cold water valve open <i>Only on Dual Coil units</i>
	Circuit 2 cold water valve open <i>Only on Dual Coil units</i>
	Circuit 1 and 2 cold water valves open <i>Only on Dual Coil units with sharing function activated</i>
	At least one compressor is active <i>Only on units with more than one compressor</i>
	Compressor 1 active <i>Only on units with single on/off compressor</i>
	Inverter compressor active (modulating icon according to current request) <i>Only on units with single inverter compressor</i>

NOTE

In the case of a unit with more than one compressor, the icon  indicates that at least one compressor is active. There is a "Compressor Status" mask in the main loop that displays the status of each compressor. For the characteristics and explanations of this mask, see the relevant section in this chapter.

The icon  flashes to indicate that the request for compression activation is in process, though a countdown is active for safety timing.

Zone 5: Free Cooling Resources currently active

	Cold water valve open
	Direct Free Cooling Damper in adjustment

Zone 6: Humidity Resources currently active

	Dehumidifier active
	Humidifier active

When the icon  flashes intermittently, the dehumidifier activation request is in process, though a temperature block is active (high or low temperature threshold, minimum temperature threshold).

Instead, when the icon  flashes intermittently, the dehumidifier activation request is in process, though a countdown is active for compressor safety timing.

Zone 7: Hot Resources currently active

	First electrical element step active
	Second electrical element step active
	Third electrical element step active
	Hot water valve open
	Circuit 1 hot water valve open <i>Only on Dual Coil units</i>
	Circuit 2 hot water valve open <i>Only on Dual Coil units</i>
	Circuit 1 and 2 hot water valves open <i>Only on Dual Coil units with sharing function activated</i>
	Hot gas active
	Compressor in heating mode
	Electric heaters Post-Ventilation function active (flashing icon)

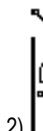
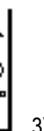
Zone 8: Current unit ON/OFF status

This indicator can also be used to switch the unit on/off.

Zone 9: BSM address of the unit (where the BMS one is engaged).

Zone 10: LAN address of the unit (where the local network (LAN) is engaged).

Zone 11: The type of unit

	Direct expansion unit	
  	Direct expansion unit with direct Free Cooling	1) In recirculation position (only internal air) 2) In internal air + external air mixing position 3) In external air-only position
	Chilled water unit	
  	Chilled water unit with direct Free Cooling	1) In recirculation position (only internal air) 2) In internal air + external air mixing position 3) In external air-only position

Zone 12: Display of active functions icon

This area shows the  icon, which indicates the presence of active functions and of the "Active functions" mask, where it is possible to see which functions are active.

For the characteristics and explanations of this mask, see the following section.

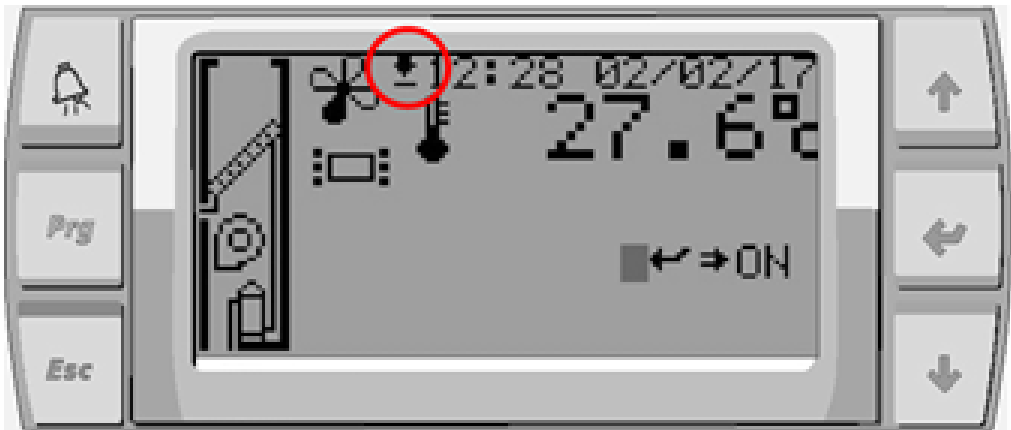
2.4.2 Active Functions Mask

Visible from: Main loop

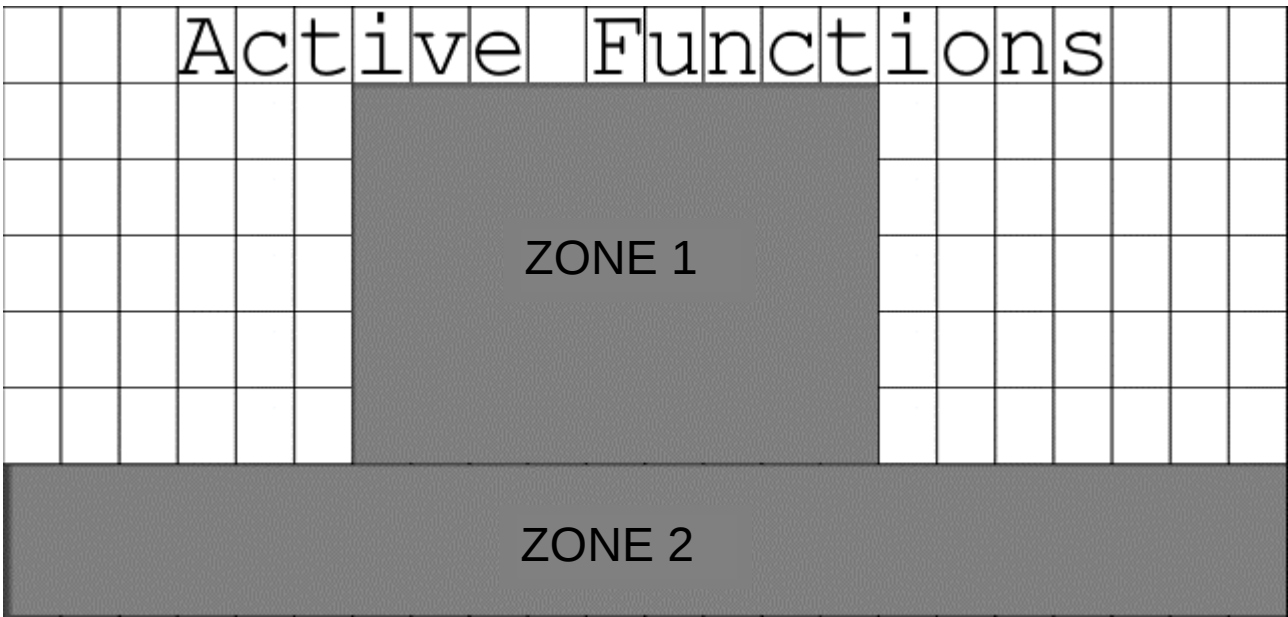


INFORMATION:
The mask can be displayed only if one of the functions described below is active.

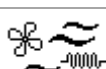
The appearance of the mask is signalled by the presence of the  icon on the main mask. It is shown below.



Press **[DOWN]** in the main mask to display the Active Functions. mask.



Zone 1 and 2: Flashing of all the active functions

Icon	Function	Meaning
 Switched Circuit for Maintenance	Switching of circuit by BMS for maintenance	The DX or CW circuit has been forced for maintenance.
 Time Bands Activated	Time bands active	Time bands active.
 Free Cooling Activated	Free Cooling active	Unit in Free Cooling mode
 Demand Limit Activated	Demand Limit active	Power limit active (Demand Limit).
 Free Cooling Disabled from Supervisor	Free Cooling is disabled from the supervisor	Direct Free Cooling is disabled from the supervisor.
 Full Load Activated	Full Load	Maximum override of at least one circuit is active (oil protection).
 Safety Reduction Load (HP) Activated	Safety Reduction Load HP active	The demand reduction of at least one circuit is active due to high condensation pressures.
 Supply Air Temp. Protection Activated	Delivery air temperature protection active	The minimum delivery air temperature protection is active.
 Dehumidify Protection Activated	Dehumidification protection active	The dehumidification protection is active (maximum or minimum temperature).
 Safety Reduction Load (LP) Activated	Safety Reduction Load LP active	The demand reduction of at least one circuit is active due to reduced evaporation pressures.
 Checking Cold Water Valve	The valve is running a cycle to control correct operation	Function for control of correct operation of the cold water valve active.
 Post-Ventilation Activated	Post-ventilation active	The heater cooling post-ventilation is active.

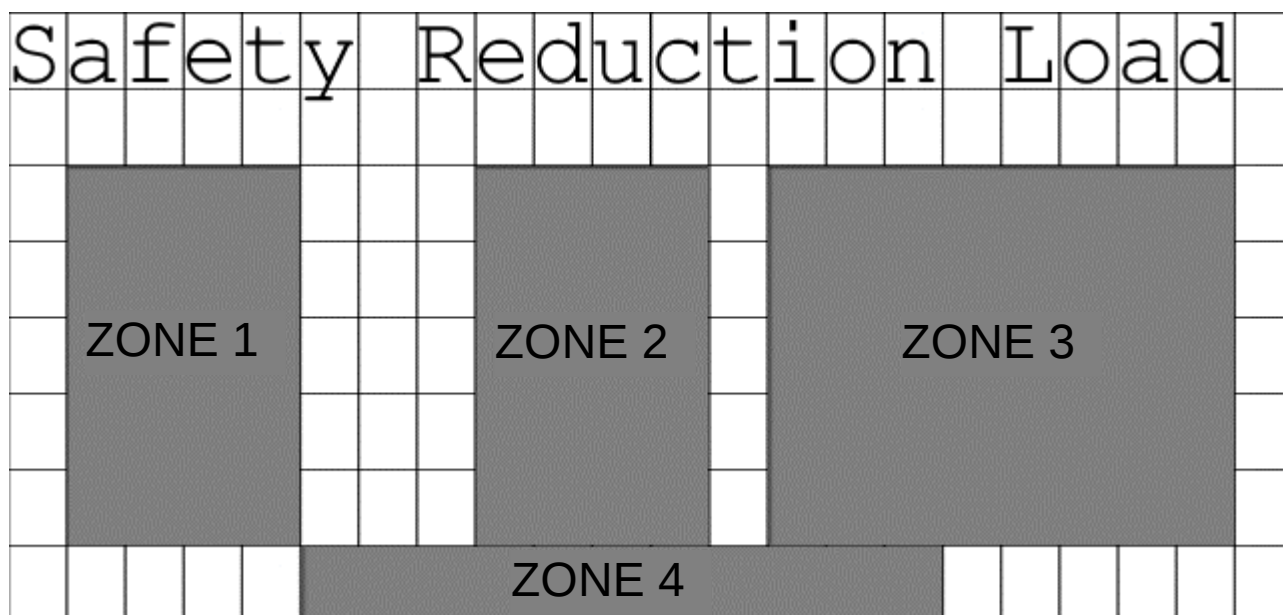
Icon	Function	Meaning
 Waiting for Regulation To Start	Delay for time obs.	One or more compressors are blocked to comply with the start-up times, or the unit is awaiting regulation.
 Oil Balance Function Activated	Oil balancing function active	One of the circuits is running the oil balancing function.
 Discharge Temperature Protection Activated	Inverter compressor 1 discharge temperature protection active	The discharge temperature protection is active for inverter compressor 1.
 Discharge Temperature Protection Activated	Inverter compressor 2 discharge temperature protection active	The discharge temperature protection is active for inverter compressor 2.
 High Temperature pLAN Rescue Activated	High temperature pLAN rescue active	The unit is in pLAN rescue mode due to the high temperature limit being exceeded.
 Low Temperature pLAN Rescue Activated	Low temperature pLAN rescue active	The unit is in pLAN rescue mode due to the low temperature limit being exceeded.
 High Humidity pLAN Rescue Activated	High humidity pLAN rescue active	The unit is in pLAN rescue mode due to the high humidity limit being exceeded.
 Low Humidity pLAN Rescue Activated	Low humidity pLAN rescue active	The unit is in pLAN rescue mode due to the low humidity limit being exceeded.
 Hot Spot Protection Activated	Hot Spot protection for an active pLAN network	The unit considers its local temperature instead of the average temperature to control the Hot Spot concerned.
 Cold Spot Protection Activated	Cold Spot protection for an active pLAN network	The unit considers its local temperature instead of the average temperature to control the Cold Spot concerned.
 Low Setpoint Precise Activated	Precise Low Setpoint Function	The power of the compressor of the PRECISE unit has been limited to prevent the low pressure (LP) from dropping any further.
 Heating Compressor PRECISE Activated	Precise compressor heating function	The compressor of the PRECISE unit is running in heating mode.
 Active Fan on Stand-By Activated	Active Fan function on Stand-by active	The unit is on standby but the fan continues to run at a set speed.

Note: All the active functions of the unit are displayed on the same mask (with the flashing of various icons).

2.4.3 Safety Reduction Load mask

Visible from: Main loop

Units with **one** inverter compressor



Zone 1: Fan status

Icon	Meaning
	Normal fan operation
	Fan in Alert mode (Flashing)

Zone 2: Inverter compressor status

Icon	Meaning
	Normal operation of the inverter compressor
	Inverter compressor in Alert mode (Flashing)
	Inverter compressor in Protection mode (Flashing)

Zone 3: On/off compressor status

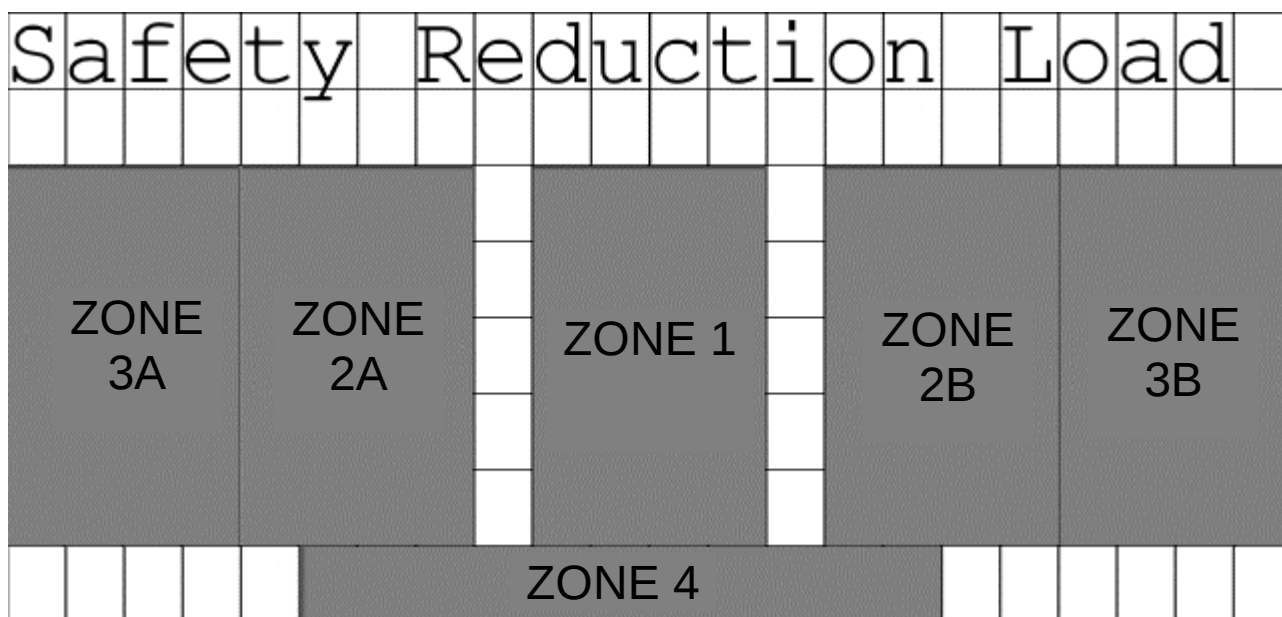
Can only be seen if circuit 2 is present.

Icon	Meaning	
	Normal operation of compressor 2	With circuit 2 with a single compressor
	Compressor 2 in Protection mode (Flashing)	
	Normal operation of compressors 2 and 3	With circuit 2 with two compressors
	Compressor 2 in Protection mode (Flashing)	
	Compressor 3 in Protection mode (Flashing)	
	Compressors 2 and 3 in Protection mode (Flashing)	

Zone 4: Protection status

Icon	Meaning
NORMAL WORK	Protection enabled but not active
(HP) → ACTIVE	SRL (HP) high pressure protection active
(LP) → ACTIVE	SRL (LP) low pressure protection active

Units with **two** inverter compressors



Zone 1: Fan status

Icon	Meaning
	Normal fan operation
	Fan in Alert mode (Flashing)

Zones 2A, 2B: Status of inverter compressors for each circuit

Icon	Meaning
	Normal compressor operation
	Compressor in Alert mode (Flashing)
	Compressor in Protection mode (Flashing)

Zones 3A, 3B: Status of on/off compressors for each circuit

Visible only with units with 2 inverter compressors and 2 on/off compressors.

Icon	Meaning
	Normal compressor operation
	Compressor in Protection mode (Flashing)

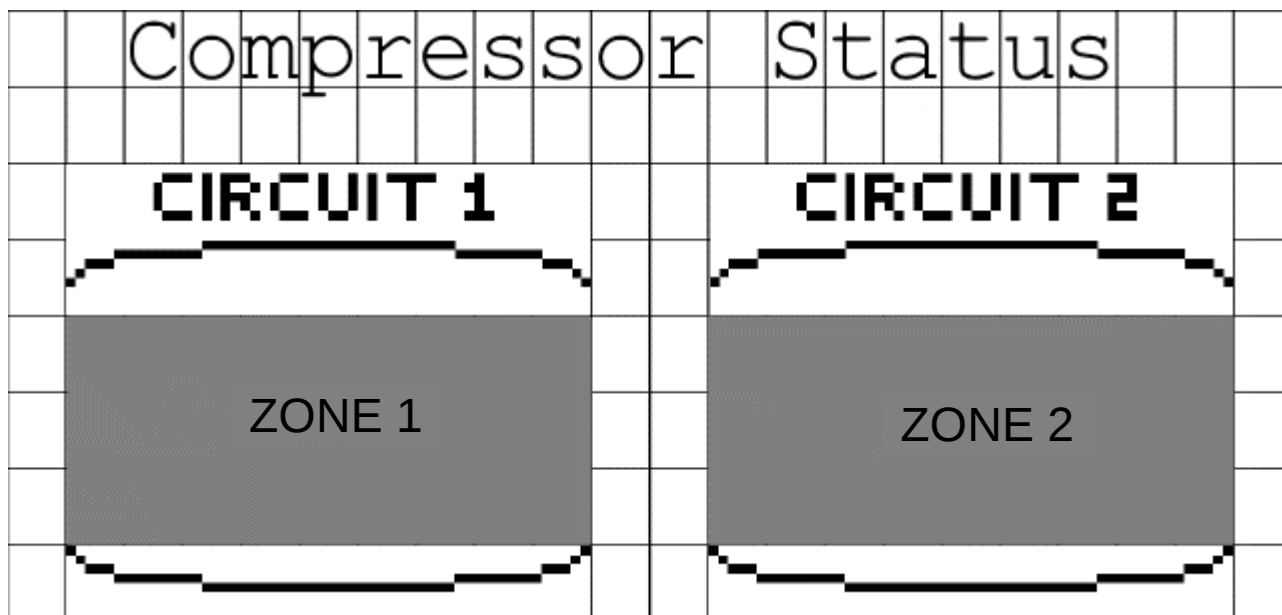
Zone 4: Protection status

Icon	Meaning
NORMAL WORK	Protection enabled but not active
(HP) → ACTIVE	SRL (HP) high pressure protection active
(LP) → ACTIVE	SRL (LP) low pressure protection active

2.4.4 Compressor Status Mask

Visible from: Main loop

This mask allows the display of the status of the direct expansion circuits. The icons shown depend on the type and number of compressors present in the unit.



Units with 2 on/off compressors

Zone 1: Circuit 1 status

Icon	Meaning
	On/Off compressor 1 off
	On/Off compressor 1 running (Flashing)

Zone 2: Circuit 2 status

Icon	Meaning
	On/Off compressor 1 off
	On/Off compressor 1 running (Flashing)

Units with 1 inverter compressor and 1 on/off compressor

Zone 1: Circuit 1 status

Icon	Meaning
	Inverter Compressor 1 off
	Inverter compressor 1 running (Inverter modulation)

Zone 2: Circuit 2 status

Icon	Meaning
	On/Off compressor 1 off
	On/Off compressor 1 running (Flashing)

Units with 2 inverter compressors

Zone 1: Circuit 1 status

Icon	Meaning
	Inverter Compressor 1 off
	Inverter compressor 1 running (Inverter modulation)

Zone 2: Circuit 2 status

Icon	Meaning
	Inverter Compressor 1 off
	Inverter compressor 1 running (Inverter modulation)

Units with 1 inverter compressor and 2 on/off compressors

Zone 1: Circuit 1 status

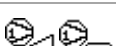
Icon	Meaning
	Inverter Compressor 1 off
	Inverter compressor 1 running (Inverter modulation)

Zone 2: Circuit 2 status

Icon	Meaning
	On/Off Compressors 1 and 2 off
	On/Off compressor 1 running (Flashing)
	On/Off compressor 2 running (Flashing)
	On/Off compressors 1 and 2 running (Flashing)

Units with 2 inverter compressors and 2 on/off compressors

Zone 1: Circuit 1 status

Icon	Meaning
	Inverter Compressor 1 and On/Off Compressor 1 off
	Inverter compressor 1 running (Inverter modulation)
	Inverter compressor 1 and On/Off Compressor 1 running (Inverter modulation and flashing)

Zone 2: Circuit 2 status

Icon	Meaning
	Inverter Compressor 1 and On/Off Compressor 1 off
	Inverter compressor 1 running (Inverter modulation)
	Inverter compressor 1 and On/Off Compressor 1 running (Inverter modulation and flashing)

Zone 5: Average pressure status

Icon	Meaning
 APL	The unit is not using the average pressure of the LAN for adjustment
 APL	The unit is using the average pressure of the LAN for adjustment

Zone 6: Local pressure status

Icon	Meaning
 Local	The unit is not using the local pressure for adjustment
 Local	The unit is using the local pressure for adjustment

Zone 7: Adjustment status

Icon	Meaning
On Target	The unit has reached the required target pressure
Regulation...	The unit is adjusting to reach the required target
Starting...	The unit is waiting for the startup time before modulation of the fans
Min Speed	The unit has reached the minimum speed
Unit OFF	The unit is off
Alarm!!	The unit is in alarm mode because expansion is offline or because the pressure transducer is not working or is disconnected

2.5 PARAMETER CHANGING MASKS

2.5.1 Access to parameter changing

The settable parameters can be distinguished according to the modification access mode, into three groups:

- Parameters that can be reached using the **“User”** group menus with the **“User”** password.
- Parameters that can be reached using the **“Service”** group menus with the **“Service”** password.
- Parameters that can be reached using the **“Factory”** group menus with the **“Factory”** password.

The following parameters are added, which do not require passwords:

- Parameters can be reached using the **"Setpoint"** menu.
- Parameters can be reached using the **"Clock"** menu.



OBLIGATION:

Observation:
The “Factory” and “Service” groups must be accessed only by authorised personnel.

To access the "Main" group, where the various menus and subgroups are visible, press the **[PRG]** key.

Press **[UP]** or **[DOWN]** to move from one mask to another inside the same menu.

Press **[ENTER]** to access the parameter, press **[UP]** or **[DOWN]** to change the value of the parameter. To confirm the change, press the **[ENTER]** key again.

To return to the menu selection list, press the **[ESC]** key.

Below are the masks of the menus used to set the parameters. In addition to the descriptions of the contents of each mask, there are also the identification numbers of the parameters present in them (column No. Par.).

2.5.2 [P30] Serial Menu

Accessible from: "User" Group

Mask of the terminal	Description	Par.N
 Serial	Access mask to "Serial" menu (Serial connections)	
← ↓ <pre> Serial ----- P30.01 BMS supervision enable: N </pre>	Enabling of the BMS supervisor.	30.01
<pre> Serial ----- P30.02 BMS address: 011 ----- P30.03 BMS protocol type: Standard </pre>	BMS address. Type of BMS Protocol. [Standard Modbus GSM Modem LON Bacnet TCP/IP WinLoad]	30.02 30.03
<pre> Serial ----- P30.04 BMS baudrate: 19200 </pre>	Baudrate for BMS communication. [1200 2400 4800 9600 19200 38400]	30.04

Mask of the terminal	Description	Par.N
Serial ----- P30.05 ON/OFF by BMS enable: N ----- P30.06 Summer/Winter by BMS enable: N	Enabling ON/OFF by BMS. Enabling Summer/Winter mode change by BMS. <i>Visible only on chilled water units</i>	30.05 30.06
Serial ----- P30.07 DX/CW changeover by BMS enable: N	Enabling DX/CW mode change by BMS. <i>Visible only on Dual Fluid units with CW resource set as main</i>	30.07
Serial ----- P30.10 Maintenance DX/CW changeover by BMS enable: N	Enabling DX/CW mode change by BMS for maintenance. <i>Visible only on Dual Fluid units</i>	30.10
Serial ----- P30.08 Coil switch by BMS enable: N	Enabling coil change by BMS. <i>Visible only on dual coil units</i>	30.08
Serial ----- P30.09 Temp. regulation from Supervisor enable: N	Enabling adjustment according to temperature provided by BMS.	30.09
Serial ----- P30.11 FC Stop by Supervisor enable: N	Enabling Free Cooling operation block by BMS. <i>Visible only on units with Direct Free Cooling</i>	30.11
Serial GSM modem management Modem password 0000 Numbers in address book Max amount: 1	GSM Modem password request. Maximum number of numbers in the phonebook.	
Serial GSM modem management Address book position: 2 Phone Number: 432100	Choice of position of the number in the phonebook. Setting the phone number in the chosen position.	
Serial GSM modem management SMS message text: ***Test message***	Entering message text. Characters 1 – 60 of the SMS message text (numbers and letters).	

Mask of the terminal	Description	Par.N
Serial GSM modem management SMS sending fuction enable: N	Enabling the SMS sending function.	
Serial GSM modem management Send Test SMS: N Hang Up: N	Sending a test SMS. Reconnecting the line.	

2.5.3 [P31] Alarm out Menu

Accessible from: "User" Group

Mask of the terminal	Description	Par.N.
 Alarm out ← ↓	Access mask to “Alarm out” menu (Addressing of alarms on the digital outputs).	
Alarm out addressing ----- P31.01 Alarm out A contact logic: _\ ----- P31.02 Alarm out B contact logic: -_ - 	Logic of alarm contact A. [NO NC] Logic of alarm contact B. [NO NC]	31.01 31.02
Alarm out addressing ----- P31.03 (003) Presence of Fire/Smoke: A	Addressing of the Fire/Smoke alarm on digital output.	31.03
Alarm out addressing ----- P31.04 (004) Wrong Phase Sequence or Supply Out of Limit: A	Addressing of the phase sequence alarm on digital output.	31.04
Alarm out addressing ----- P31.05 (013) Condenser 1 Loss of Water Flow: A ----- P31.06 (014) Condenser 2 Loss of Water Flow: A	Addressing of the condenser 1 water flow alarm on digital output. Addressing of the condenser 2 water flow alarm on digital output.	31.05 31.06
Alarm out addressing ----- P31.07 (021) Chilled Water - Loss of Flow: A ----- P31.08 (022) Chilled Water - Working Failure: A	Addressing of the water flow alarm on digital output. Addressing of the incorrect CW operation alarm on digital output.	31.07 31.08

Mask of the terminal	Description	Par.N.
Alarm out addressing ----- P31.09 (030) Chilled Water - High Water Temp.: A	Addressing of the high water temperature alarm on digital output.	31.09
Alarm out addressing ----- P31.10 (101) Loss of Air Flow: A	Addressing of the Air Flow alarm on digital output.	31.10
Alarm out addressing ----- P31.11 (120) Return Temp. Probe Fail./Disc.: A	Addressing of the return air temperature sensor alarm on digital output.	31.11
Alarm out addressing ----- P31.12 (125) Return Humidity Probe Fail./Disc.: A	Addressing of the humidity sensor alarm of the Return T+H probe on digital output.	31.12
Alarm out addressing ----- P31.13 (130) Diff. Pressure Probe Fail./Disc.: A	Addressing of the differential pressure probe alarm on digital output.	31.13
Alarm out addressing ----- P31.14 (140) Supply Air Temp. Probe Fail./Disc.: A	Addressing of the air delivery temperature probe alarm on digital output.	31.14
Alarm out addressing ----- P31.15 (142) Water In Temp. Probe Fail./Disc.: A	Addressing of the cold water temperature probe alarm on digital output.	31.15
Alarm out addressing ----- P31.16 (144) Outdoor Air Temp Probe Fail./Disc.: A	Addressing of the external air temperature probe alarm on digital output.	31.16
Alarm out addressing ----- P31.17 (146) Hot Water Temp. Probe Fail./Disc.: A	Addressing of the hot water temperature probe on digital output.	31.17

Mask of the terminal	Description	Par.N.
Alarm out addressing ----- P31.18 (150) Heaters Overheat or Heaters Contactor Failed: A	Addressing of the electric heaters alarm on digital output.	31.18
Alarm out addressing ----- P31.19 (180) Return T+H Probe Offline: A	Addressing of the Return T+H probe offline alarm on digital output.	31.19
Alarm out addressing ----- P31.20 (582) C1 EEV Driver - Driver Offline: A ----- P31.21 (583) C2 EEV Driver - Driver Offline: A	Addressing of the circuit 1 EEV driver offline alarm on digital output. Addressing of the circuit 2 EEV driver offline alarm on digital output.	31.20 31.21
Alarm out addressing ----- P31.22 (184) Inverter 1 Offline: A	Addressing of the inverter driver offline alarm on digital output.	31.22
Alarm out addressing ----- P31.23 (192) I/O Expansion 1 Offline: A ----- P31.24 (199) Energy Analyzer Offline: A	Addressing of the I/O expansion 1 offline alarm on digital output. Addressing of the network analyser offline alarm on digital output.	31.23 31.24
Alarm out addressing ----- P31.25 (195) Humidifier Board Offline: A	Addressing of the humidifier CPY board offline alarm on digital output.	31.25
Alarm out addressing ----- P31.26 (201) Inverter Comp. 1 Envelope Alarm: A	Addressing of the inverter compressor 1 envelope alarm on digital output.	31.26
Alarm out addressing ----- P31.27 (202) Inconsistent Envelope: A	Addressing of the inconsistent envelope alarm on digital output.	31.27
Alarm out addressing ----- P31.28 (204) Inverter Comp. 1 DeltaP Below Lim.: A	Addressing of the inverter compressor 1 DeltaP alarm on digital output.	31.28

Mask of the terminal	Description	Par.N.
Alarm out addressing ----- P31.29 (210) Inverter Comp. 1 Start Failed: A ----- P31.30 (211) Inverter Comp. 1 Circuit Power Alr: A	Addressing of the inverter 1 start alarm on digital output. Addressing of the inverter 1 power input alarm on digital output.	31.29 31.30
Alarm out addressing ----- P31.31 (212) Inverter Comp. 1 Motor Power Alarm: A ----- P31.32 (213) Inverter Comp. 1 Overcurrent Alarm: A	Addressing of the inverter 1 motor power input alarm on digital output. Addressing of the inverter 1 overload alarm on digital output.	31.31 31.32
Alarm out addressing ----- P31.33 (214) Inverter Comp. 1 Motor Thermal Alr: A ----- P31.34 (215) Inverter Comp. 1 Communication Alrm: A	Addressing of the inverter 1 motor heat probe alarm on digital output. Addressing of the inverter 1 power communication alarm on digital output.	31.33 31.34
Alarm out addressing ----- P31.35 (220) Inverter Comp. 1 Generic Alarm: A	Addressing of the inverter 1 generic alarm on digital output.	31.35
Alarm out addressing ----- P31.36 (310) C1 High Pressure Switch Triggered: A ----- P31.37 (320) C1 Low Pressure Switch Triggered: A	Addressing of the circuit 1 high pressure alarm from pressure switch on digital output. Addressing of the circuit 1 low pressure alarm from pressure switch on digital output. <i>Visible only in direct expansion units with single circuit</i>	31.36 31.37
Alarm out addressing ----- P31.36 (310) C1 High Pressure Switch Triggered: A ----- P31.38 (312) C2 High Pressure Switch Triggered: A	Addressing of the circuit 1 high pressure alarm from pressure switch on digital output. Addressing of the circuit 2 high pressure alarm from pressure switch on digital output. <i>Visible only in direct expansion units with dual circuit</i>	31.36 31.38
Alarm out addressing ----- P31.37 (320) C1 Low Pressure Switch Triggered: A ----- P31.39 (322) C2 Low Pressure Switch Triggered: A	Addressing of the circuit 1 low pressure alarm from pressure switch on digital output. Addressing of the circuit 2 low pressure alarm from pressure switch on digital output. <i>Visible only in direct expansion units with dual circuit</i>	31.37 31.39
Alarm out addressing ----- P31.40 (339-344) Circuit 1 EEV Driver Alarms: A ----- P31.41 (349-354) Circuit 2 EEV Driver Alarms: A	Addressing of the circuit 1 EEV alarms on digital output. Addressing of the circuit 2 EEV alarms on digital output.	31.40 31.41
Alarm out addressing ----- P31.42 (402) Humidifier Life Timer Expired: A	Addressing of the humidifier life expired alarm on digital output.	31.42

Mask of the terminal	Description	Par.N.
Alarm out addressing ----- P31.43 (404) Humidifier Drain Alarm: A	Addressing of the humidifier discharge alarm on digital output.	31.43
Alarm out addressing ----- P31.44 (406) Humidifier Loss of Water: A	Addressing of the humidifier insufficient water alarm on digital output.	31.44
Alarm out addressing ----- P31.45 (408) Humidifier Low Current: A	Addressing of the humidifier low current alarm on digital output.	31.45
Alarm out addressing ----- P31.46 (410) Humidifier High Current: A	Addressing of the humidifier high current alarm on digital output.	31.46
Alarm out addressing ----- P31.47 (412) Humidifier Generic Alarm: A	Addressing of the generic humidifier alarm on digital output.	31.47
Alarm out addressing ----- P31.48 (504) Demand Limit Mode: A ----- P31.49 (010/510) Flood Alarm/ Flood Warning: A	Addressing of the Demand Limit active alarm on digital output. Addressing of the flooding alarm/signal on digital output.	31.48 31.49
Alarm out addressing ----- P31.50 (520) LAN Interrupted: A	Addressing of the LAN interrupted alarm on digital output.	31.50
Alarm out addressing ----- P31.51 (530) Ret. Temperature Below Min. Limit: A ----- P31.52 (531) Ret. Temperature Above Max. Limit: A	Addressing of the return temperature below minimum limit alarm on digital output. Addressing of the return temperature above maximum limit alarm on digital output.	31.51 31.52
Alarm out addressing ----- P31.53 (540) Return Humidity Below Min. Limit: A ----- P31.54 (541) Return Humidity Above Max. Limit: A	Addressing of the return humidity below minimum limit alarm on digital output. Addressing of the return humidity above maximum limit alarm on digital output.	31.53 31.54

Mask of the terminal	Description	Par.N.
Alarm out addressing ----- P31.55 (601) EEPROM Error: A ----- P31.56 (610) Maintenance Needed: A	Addressing of the EEPROM alarm on digital output. Addressing of the maintenance alarm on digital output.	31.55 31.56
Alarm out addressing ----- P31.58 (630) Clogged Filters: A	Addressing of the dirty filters alarm on digital output.	31.58
Alarm out addressing ----- P31.59 (701) Inv. 1 Discharge in Protect. Zone: A	Addressing of the inverter compressor 1 discharge temperature in Protection zone alarm on digital output.	31.59
Alarm out addressing ----- P31.60 (203) Inv. 1 Discharge in Lock Zone: A	Addressing of the inverter compressor 1 discharge temperature in Block zone alarm on digital output.	31.60
Alarm out addressing ----- P31.61 (148) Inv. 1 Discharge Temp. Probe Failed or Disconnected: A	Addressing of the inverter compressor 1 discharge temperature probe alarm on digital output.	31.61
Alarm out addressing ----- P31.62 (323) Circuit 1 Frost Protection Active: A ----- P31.63 (324) Circuit 2 Frost Protection Active: A	Addressing of the circuit 1 frost-free function active alarm on digital output. Addressing of the circuit 2 frost-free function active alarm on digital output.	31.62 31.63
Alarm out addressing ----- P31.64 (143) Water Out Temp. Probe Fail./Disc.: A	Addressing of the circuit 1 outlet water probe alarm on digital output.	31.64
Alarm out addressing ----- P31.65 (311) Circ. 1 HP Probe Failed/Disconn.: A ----- P31.66 (313) Circ. 2 HP Probe Failed/Disconn.: A	Addressing of the circuit 1 high pressure transducer alarm on digital output. Addressing of the circuit 2 high pressure transducer alarm on digital output.	31.65 31.66
Alarm out addressing ----- P31.67 (711) BMS1 Bus Offline: A	Addressing of the BMS1 port offline alarm on digital output.	31.67

Mask of the terminal	Description	Par.N.
Alarm out addressing ----- P31.68 (712) BMS2 Bus Offline: A	Addressing of the BMS2 port offline alarm on digital output.	31.68
Alarm out addressing ----- P31.69 (145) Circ.2 Water Out Temp. Probe Failed or Disconnected: A	Addressing of the circuit 2 outlet water probe alarm on digital output.	31.69
Alarm out addressing ----- P31.70 (121) Remote Temp. Probe Failed or Disconnected: A	Addressing of the Remote T+H probe temperature sensor alarm on digital output.	31.70
Alarm out addressing ----- P31.71 (126) Remote Humidity Probe Failed or Disconnected: A	Addressing of the Remote T+H probe humidity sensor alarm on digital output.	31.71
Alarm out addressing ----- P31.72 (181) Remote T+H Probe Offline: A	Addressing of the Remote T+H probe offline alarm on digital output.	31.72
Alarm out addressing ----- P31.73 (525) ADL Limit Reached: A	Addressing of the Active Distribution Load (ADL) at operating limit alarm on digital output.	31.73
Alarm out addressing ----- P31.74 (720) Extraction Fan on Alarm: A	Addressing of the humidifier extraction fan alarm on digital output. <i>Visible only if extraction fan management function is enabled</i>	31.74
Alarm out addressing ----- P31.76 (725) External Fire Sensor on Alarm: A	Addressing of the fire alarm at external fire control unit on digital output. <i>Visible only if management of fire alarm at external fire control unit is enabled</i>	31.76
Alarm out addressing ----- P31.75 Extraction Fan contact logic: _\ _	Logic of extraction fan alarm contact [NO NC] <i>Visible only if extraction fan management is enabled</i>	31.75

Mask of the terminal	Description	Par.N.
Alarm out addressing ----- P31.77 External Fire Sensor contact logic: __ 	Logic of the contact for fire alarm at external fire control unit. [NO NC] <i>Visible only if management of fire alarm at external fire control unit is enabled</i>	31.77
Alarm out addressing ----- P31.78 Washing Mode contact logic: __ 	Logic of the washing request contact. [NO NC] <i>Visible only if washing mode management is enabled</i>	31.78
Alarm out addressing ----- P31.79 (305) Chilled Water - Valve Not Working: A 	Addressing of the cold water valve not working alarm on digital output. <i>Visible only if control of operation of the cold water valve for CW units is enabled</i>	31.79
Alarm out addressing ----- P31.80 External Dumper contact logic: __ 	Logic of external damper contact. [NO NC] <i>Visible only if management of the external damper alarm is enabled</i>	31.80
Alarm out addressing ----- P31.81 (730) External Dumper on Alarm: A 	Addressing of the external damper alarm on digital output. <i>Visible only if management of the external damper alarm is enabled</i>	31.81
Alarm out addressing ----- P31.82 (314) Circuit 1 HP Protection Active: A ----- P31.83 (315) Circuit 2 HP Protection Active: A 	Addressing of the circuit 1 HP Protection alarm on digital output. Addressing of the circuit 2 HP Protection alarm on digital output.	31.82 31.83
Alarm out addressing ----- P31.84 (319) Circ. 1 LP Probe Failed/Disconn.: A ----- P31.85 (321) Circ. 2 LP Probe Failed/Disconn.: A 	Addressing of the circuit 1 low pressure transducer alarm on digital output. Addressing of the circuit 2 low pressure transducer alarm on digital output.	31.84 31.85
Alarm out addressing ----- P31.86 (250) Circuit 1 On/Off Comp. 1 Motor Thermal Alarm: A 	Addressing of the circuit 1 On/Off compressor 1 thermal load alarm on digital output.	31.86
Alarm out addressing ----- P31.87 (251) Circuit 1 On/Off Comp. 2 Motor Thermal Alarm: A 	Addressing of the circuit 2 On/Off compressor 1 thermal load alarm on digital output.	31.88

Mask of the terminal	Description	Par.N.
Alarm out addressing ----- P31.88 (252) Circuit 2 On/Off Comp. 1 Motor Thermal Alarm: A	Addressing of the circuit 1 On/Off compressor 2 thermal load alarm on digital output.	31.87
Alarm out addressing ----- P31.89 (253) Circuit 2 On/Off Comp. 2 Motor Thermal Alarm: A	Addressing of the circuit 2 On/Off compressor 2 thermal load alarm on digital output.	31.89

2.5.4 [P32] Scheduler Menu

Accessible from: "User" Group

Mask of the terminal	Description	Par.N.
 Scheduler ← ↓	Access mask to the "Scheduler" menu (Time bands manager).	
Scheduler ----- P32.01 Scheduler enable: N	Enable the time bands.	32.01

2.5.5 [P--] Info Menu

Accessible from: "User" Group

Mask of the terminal	Description	Par.N.
 Info ← ↓	Access mask to "Info" menu (Information).	
Info - Pwd change Insert a new User password: 0000	Sets a new "User" password. Warning: the value set in this field is the one and only to access the "User" group.	
Info - About	This mask contains the reference information of the software [Code ME 20.00 EN]. The closed padlock symbol shows that the board is provided with its proprietary software. The hardware information is also shown, namely the size (M, L, XL), the memories (NAND, Flash and RAM), and finally the versions of the basic software of the controller (Boot and Bios).	

Mask of the terminal	Description	Par.N.
Info	Resets the password for read-only use of the KIPLink.	
Reset to default value KIPLink Supervisor ReadOnly password: N		

2.5.6 [P33] Alarm out Menu 2

Accessible from: "User" Group

Mask of the terminal	Description	Par.N.
 Alarm out 2 ← ↓	Access mask to "Alarm out 2" menu (Addressing of alarms on the digital outputs).	
Alarm out addressing 2  Alarm out 2 Parameters Not Available		
Alarm out addressing 2 ----- P33.01 (185) Inverter 2 Offline: A	Addressing of the inverter 2 driver offline alarm on digital output.	33.01
Alarm out addressing 2 ----- P33.02 (230) Inverter Comp. 2 Envelope Alarm: A	Addressing of the inverter compressor 2 envelope alarm on digital output.	33.02
Alarm out addressing 2 ----- P33.03 (207) Inverter Comp. 2 DeltaP Below Lim.: A	Addressing of the inverter compressor 2 DeltaP alarm on digital output.	33.03
Alarm out addressing 2 ----- P33.04 (232) Inverter Comp. 2 Start Failed: A ----- P33.05 (233) Inverter Comp. 2 Circuit Power Alr: A	Addressing of the inverter 2 start alarm on digital output. Addressing of the inverter 2 power input alarm on digital output.	33.04 33.05
Alarm out addressing 2 ----- P33.06 (234) Inverter Comp. 2 Motor Power Alarm: A ----- P33.07 (235) Inverter Comp. 2 Overcurrent Alarm: A	Addressing of the inverter 2 motor power input alarm on digital output. Addressing of the inverter 2 overload alarm on digital output.	33.06 33.07

Mask of the terminal	Description	Par.N.
Alarm out addressing 2 ----- P33.08 (236) Inverter Comp. 2 Motor Thermal Alr: A ----- P33.09 (237) Inverter Comp. 2 Communication Alrm: A	Addressing of the inverter 2 motor heat probe alarm on digital output. Addressing of the inverter 2 power communication alarm on digital output.	33.08 33.09
Alarm out addressing 2 ----- P33.10 (242) Inverter Comp. 2 Generic Alarm: A	Addressing of the inverter 2 generic alarm on digital output.	33.10
Alarm out addressing 2 ----- P33.11 (702) Inv. 2 Discharge in Protect. Zone: A	Addressing of the inverter compressor 2 discharge temperature in Protection zone alarm on digital output.	33.11
Alarm out addressing 2 ----- P33.12 (206) Inv. 2 Discharge in Lock Zone: A	Addressing of the inverter compressor 2 discharge temperature in Block zone alarm on digital output.	33.12
Alarm out addressing 2 ----- P33.13 (208) Inverter Comp. 2 Excessive HP-LP DeltaP at Startup: A	Addressing of the inverter compressor 2 DeltaP on start-up alarm on digital output.	33.13
Alarm out addressing 2 ----- P33.14 (149) Inv. 2 Discharge Temp. Probe Failed or Disconnected: A	Addressing of the inverter compressor 2 discharge temperature probe alarm on digital output.	33.14
Alarm out addressing 2 ----- P33.15 (151-154) All Fans - Offline Alarm: A ----- P33.16 (156-159) All Fans - Phase Fault: A	Addressing of the fans offline alarms on digital output. Addressing of the fans phase sequence alarms on digital output.	33.15 33.16
Alarm out addressing 2 ----- P33.17 (161-164) All Fans - Motor Blocked: A ----- P33.18 (166-169) All Fans - Voltage Problem: A	Addressing of the fan motor blocked alarms on digital output. Addressing of the fans voltage problem alarms on digital output.	33.17 33.18
Alarm out addressing 2 ----- P33.19 (171-174) All Fans - Heat Problem: A ----- P33.20 (176-179) All Fans - Generic Alarm: A	Addressing of the fans thermal problem alarms on digital output. Addressing of the fans generic alarms on digital output.	33.19 33.20

Mask of the terminal	Description	Par.N.
Alarm out addressing 2 ----- P33.21 (721-724) All Fans - Warning: A	Addressing of the fan signals on digital output.	33.21

2.5.7 [P50] Setpoint Menu

Accessible from: "Main" Group

Mask of the terminal	Description	Par.N.
 Setpoint ← ↓	Access mask to "Setpoint" menu (Work point).	
Setpoint - Active Set ----- Cooling setpoint: 24.0°C ----- Heating setpoint: 24.0°C	Display of the active cooling setpoint. Display of the active heating setpoint.	
Setpoint - Edit Set ----- P50.01 Cooling setpoint: 24.0°C ----- P50.02 Heating setpoint: 24.0°C	Cooling setpoint. Heating setpoint.	50.01 50.02
Setpoint ----- P50.03 Dehumidification setpoint: 55%RH ----- P50.04 Humidification setpoint: 45%RH	Dehumidification setpoint. Humidification setpoint.	50.03 50.04
Setpoint ----- P50.05 Cooling setpoint with LAN limits:30.0°C ----- P50.06 Heating setpoint with LAN limits:18.0°C	Cooling setpoint during LAN out of range. Heating setpoint during LAN out of range.	50.05 50.06
Setpoint ----- P50.07 Dehumidific. setpoint with LAN limits: 75%RH ----- P50.08 Humidific. setpoint with LAN limits: 35%RH	Dehumidification setpoint during LAN out of range. Humidification setpoint during LAN out of range.	50.07 50.08
Setpoint ----- P50.09 Min return temperature for dehumid OFF:22.0°C	Minimum room temperature for dehumidifier disable.	50.09

Mask of the terminal	Description	Par.N.
Setpoint ----- P50.12 TSupply setpoint for fan regulation with fan special function 01 enabled: 15.0°C	Delivery temperature setpoint for adjustment of the fan with the special fan function 01 enabled.	50.12
Setpoint ----- P50.13 TSupply setpoint for fan regulation with fan special function 01 enabled with LAN limits:21.0°C	Delivery temperature setpoint for adjustment of the fan with the special fan function 01 enabled during LAN out of range.	50.13
Setpoint ----- P50.14 TReturn setpoint for fan regulation with return temp. fan reg. funct. enabled: 24.0°C	Return temperature setpoint for adjustment of the fan based on the return temperature.	50.14
Setpoint ----- P50.15 TReturn setpoint for fan regulation with return temp. fan reg. funct. enabled with LAN limits:30.0°C	Return temperature setpoint for adjustment of the fan based on the return temperature during LAN out of range.	50.15

2.5.8 [P900] Clock Menu

Accessible from: "Main" Group

Mask of the terminal	Description	Par.N.
 Clock ← ↓	Access mask to "Clock" menu.	
Clock Clock card not installed	Mask indicating the lack or damage to the clock board.	
Clock Clock Config. Date Time 22/11/18 13:58	Current date and time setting.	
Clock Time bands not enabled. See user menu	Indicates that the time bands have been set correctly, though they are not enabled. To enable them, go to the "Scheduler" menu of the "User" group.	

Mask of the terminal	Description	Par.N.
Clock Time band programming: Advanced	Selecting the type of time band programming. [Standard Advanced] Advanced programming manages four different daily time bands (A, B, C, D); each type can be personalised and each is independent from the others. Standard programming only allows for the use of A-type time bands.	900.01
Clock-Weekly Timetable Monday A Tuesday B Wednesday B Thursday B Friday B Saturday C Sunday Disabled	Weekly timetable setting.	900.02 900.03 900.04 900.05 900.06 900.07 900.08
Clock Band 1A Off Time 00:00 / 06:00 Sp C 24.0°C H 20.0°C Band 2A Regulat. Time 06:00 / 20:00 Sp C 24.0°C H 20.0°C	Setting of the first and second type A daily time bands. In the example, the unit is set from 6.00 am to 8.00 pm, and it remains off all other hours.	901.01 901.02 901.03 901.04 901.05 901.07 901.08 901.09 901.10 901.11
Clock Band 3A Off Time 20:00 / 20:00 Sp C 24.0°C H 20.0°C Band 4A Off Time 20:00 / 20:00 Sp C 24.0°C H 20.0°C	Setting of the third and fourth type A daily time bands. In the example, the unit is set from 6.00 am to 8.00 pm, and it remains off all other hours.	901.13 901.14 901.15 901.16 901.17 901.19 901.20 901.21 901.22 901.23
Clock Band 5A Off Time 20:00 / 20:00 Sp C 24.0°C H 20.0°C Band 6A Off Time 20:00 / 20:00 Sp C 24.0°C H 20.0°C	Setting of the fifth and sixth type A daily time bands. In the example, the unit is set from 6.00 am to 8.00 pm, and it remains off all other hours.	901.25 901.26 901.27 901.28 901.29 901.31 901.32 901.33 901.34 901.35
Clock Band 7A Off Time 20:00 / 20:00 Sp C 24.0°C H 20.0°C Band 8A Off Time 20:00 / 20:00 Sp C 24.0°C H 20.0°C	Setting of the seventh and eighth type A daily time bands. In the example, the unit is set from 6.00 am to 8.00 pm, and it remains off all other hours.	901.37 901.38 901.39 901.40 901.41 901.43 901.44 901.45 901.46 901.47
Clock Band 9A Off Time 20:00 / 20:00 Sp C 24.0°C H 20.0°C Band 10A Off Time 20:00 / 23:59 Sp C 24.0°C H 20.0°C	Setting of the ninth and tenth type A daily time bands. In the example, the unit is set from 5.00 am to 10.00 pm, and it remains off all other hours.	901.49 901.50 901.51 901.52 901.53 901.55 901.56 901.57

Mask of the terminal	Description	Par.N.
Clock Band 1B Off Time 00:00 / 05:00 Sp C 24.0°C H 20.0°C Band 2B Off Time 05:00 / 22:00 Sp C 24.0°C H 20.0°C	Setting of the first and second type B daily time bands. In the example, the unit is set from 5.00 am to 10.00 pm, and it remains off all other hours.	902.01 902.02 902.03 902.04 902.05 902.07 902.08 902.09 902.10 902.11
Clock Band 3B Off Time 22:00 / 22:00 Sp C 24.0°C H 20.0°C Band 4B Off Time 22:00 / 22:00 Sp C 24.0°C H 20.0°C	Setting of the third and fourth type B daily time bands. In the example, the unit is set from 5.00 am to 10.00 pm, and it remains off all other hours.	902.13 902.14 902.15 902.16 902.17 902.19 902.20 902.21 902.22 902.23
Clock Band 5B Off Time 22:00 / 22:00 Sp C 24.0°C H 20.0°C Band 6B Off Time 22:00 / 22:00 Sp C 24.0°C H 20.0°C	Setting of the fifth and sixth type B daily time bands. In the example, the unit is set from 5.00 am to 10.00 pm, and it remains off all other hours.	902.25 902.26 902.27 902.28 902.29 902.31 902.32 902.33 902.34 902.35
Clock Band 7B Off Time 22:00 / 22:00 Sp C 24.0°C H 20.0°C Band 8B Off Time 22:00 / 22:00 Sp C 24.0°C H 20.0°C	Setting of the seventh and eighth type B daily time bands. In the example, the unit is set from 5.00 am to 10.00 pm, and it remains off all other hours.	902.37 902.38 902.39 902.40 902.41 902.43 902.44 902.45 902.46 902.47
Clock Band 9B Off Time 22:00 / 22:00 Sp C 24.0°C H 20.0°C Band 10B Off Time 22:00 / 23:59 Sp C 24.0°C H 20.0°C	Setting of the ninth and tenth type B daily time bands. In the example, the unit is set from 6.00 am to 8.00 pm, and it remains off all other hours.	902.49 902.50 902.51 902.52 902.53 902.55 902.56 902.57
Clock Band 1C Off Time 00:00 / 00:00 Sp C 24.0°C H 20.0°C Band 2C Off Time 00:00 / 00:00 Sp C 24.0°C H 20.0°C	Setting of the first and second type C daily time bands. In the example, the unit is always off.	903.01 903.02 903.03 903.04 903.05 903.07 903.08 903.09 903.10 903.11

Mask of the terminal	Description	Par.N.
Clock Band 3C Off Time 00:00 / 00:00 Sp C 24.0°C H 20.0°C Band 4C Off Time 00:00 / 00:00 Sp C 24.0°C H 20.0°C	Setting of the third and fourth type C daily time bands. In the example, the unit is always off.	903.13 903.14 903.15 903.16 903.17 903.19 903.20 903.21 903.22 903.23
Clock Band 5C Off Time 00:00 / 00:00 Sp C 24.0°C H 20.0°C Band 6C Off Time 00:00 / 00:00 Sp C 24.0°C H 20.0°C	Setting of the fifth and sixth type C daily time bands. In the example, the unit is always off.	903.25 903.26 903.27 903.28 903.29 903.31 903.32 903.33 903.34 903.35
Clock Band 7C Off Time 00:00 / 00:00 Sp C 24.0°C H 20.0°C Band 8C Off Time 00:00 / 00:00 Sp C 24.0°C H 20.0°C	Setting of the seventh and eighth type C daily time bands. In the example, the unit is always off.	903.37 903.38 903.39 903.40 903.41 903.43 903.44 903.45 903.46 903.47
Clock Band 9C Off Time 00:00 / 00:00 Sp C 24.0°C H 20.0°C Band 10C Off Time 00:00 / 23:59 Sp C 24.0°C H 20.0°C	Setting of the ninth and tenth type C daily time bands. In the example, the unit is always off.	903.49 903.50 903.51 903.52 903.53 903.55 903.56 903.57
Clock Band 1D Off Time 00:00 / 00:00 Sp C 24.0°C H 20.0°C Band 2D Off Time 00:00 / 00:00 Sp C 24.0°C H 20.0°C	Setting of the first and second type D daily time bands. In the example, the unit is always off.	904.01 904.02 904.03 904.04 904.05 904.07 904.08 904.09 904.10 904.11
Clock Band 3D Off Time 00:00 / 00:00 Sp C 24.0°C H 20.0°C Band 4D Off Time 00:00 / 00:00 Sp C 24.0°C H 20.0°C	Setting of the third and fourth type D daily time bands. In the example, the unit is always off.	904.13 904.14 904.15 904.16 904.17 904.19 904.20 904.21 904.22 904.23

Mask of the terminal	Description	Par.N.
Clock Band 5D Off Time 00:00 / 00:00 Sp C 24.0°C H 20.0°C Band 6D Off Time 00:00 / 00:00 Sp C 24.0°C H 20.0°C	Setting of the fifth and sixth type D daily time bands. In the example, the unit is always off.	904.25 904.26 904.27 904.28 904.29 904.31 904.32 904.33 904.34 904.35
Clock Band 7D Off Time 00:00 / 00:00 Sp C 24.0°C H 20.0°C Band 8D Off Time 00:00 / 00:00 Sp C 24.0°C H 20.0°C	Setting of the seventh and eighth type D daily time bands. In the example, the unit is always off.	904.37 904.38 904.39 904.40 904.41 904.43 904.44 904.45 904.46 904.47
Clock Band 9D Off Time 00:00 / 00:00 Sp C 24.0°C H 20.0°C Band 10D Off Time 00:00 / 23:59 Sp C 24.0°C H 20.0°C	Setting of the ninth and tenth type D daily time bands. In the example, the unit is always off.	904.49 904.50 904.51 904.52 904.53 904.55 904.56 904.57

2.6 TABLE OF PARAMETERS

The numbering of the parameters is divided by menu:

- 1x corresponds to the menus of the “Factory” group.
- 2x corresponds to the menus of the “Service” group.
- 3x corresponds to the menus of the “User” group.
- 50 corresponds to the “Setpoint” menu.
- 900 corresponds to the “Clock” menu.

The following table lists the controller parameters and the relative maximum and minimum values.



CAUTION:

The Default column of the following table shows only the values assigned to the parameters using the default procedure. Changing the value of some parameters causes the value of others to change automatically, so it is recommended to check the parameters again at the end of the parameter setting.

2.6.1 User Group

Par.N.	Description	Default	U.M.	Min.	Max.
30.01	Supervision presence configuration	0	-	0	1
30.02	BMS address configuration	11	-	1	207
30.03	BMS protocol configuration [0: Standard 1: Modbus 2: GSM Modem 3: LON 4: Bacnet 5: TCP/IP 6: WinLoad]	0	-	0	6
30.04	BMS baud rate configuration [0: 1200 1: 2400 2: 4800 3: 9600 4: 19200 5: 38400]	4	-	0	5
30.05	ON/OFF configuration from BMS [0: Disabled 1: Enabled]	0	-	0	1
30.06	Summer/Winter switch configuration from BMS [0: Disabled 1: Enabled]	0	-	0	1
30.07	DX/CW switch configuration from BMS [0: Disabled 1: Enabled]	0	-	0	1
30.10	DX/CW and CW/DX switch configuration for maintenance from BMS [0: Disabled 1: Enabled]	0	-	0	1
30.08	Coil changing configuration from BMS [0: Disabled 1: Enabled]	0	-	0	1
30.09	Enable for adjustment according to the average T calculated by Climapro [0: Disabled 1: Enabled]	0	-	0	1
30.11	Enable the block of direct free cooling from supervisor [0: Disabled 1: Enabled]	0	-	0	1
31.01	Alarm A contact status configuration [0: NO 1: NC]	0	-	0	1
31.02	Alarm B contact status configuration [0: NO 1: NC]	0	-	0	1
31.03	Fire/smoke alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.04	Phase Sequence alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.05	Condenser 1 water flow alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.06	Condenser 2 water flow alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.07	Water flow alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.08	Incorrect CW operation alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.09	High water temperature alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.10	Air flow alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.11	Ambient air temperature probe alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.12	Ambient humidity probe alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.13	Differential pressure probe alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.14	Delivery air temperature probe alarm address on digital output [0: A 1: None 2: B]	0	-	0	2
31.15	Cold water temperature probe addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.16	External air temperature probe alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.17	Hot water temperature probe addressing on digital output [0: A 1: None 2: B]	0	-	0	2

Par.N.	Description	Default	U.M.	Min.	Max.
31.18	Electric heater alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.19	T+H probe offline alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.20	EEV driver offline alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.21	Circuit 2 EEV driver offline alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.22	Inverter driver offline alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.23	Inverter IO expansion offline alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.24	Network transducer offline alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.25	Humidifier CPY offline module alarm addressing [0: A 1: None 2: B]	0	-	0	2
31.26	Envelope alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.27	Inconsistent envelope alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.28	Inverter 1 pressure delta alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.29	Inverter 1 start alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.30	Inverter 1 input alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.31	Inverter 1 motor input alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.32	Inverter 1 overload alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.33	Inverter 1 heat probe alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.34	Inverter 1 communication alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.35	Inverter 1 generic alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.36	Circuit 1 high pressure probe alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.37	Circuit 1 low pressure probe alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.36	Circuit 1 high pressure probe alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.38	Circuit 2 high pressure probe alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.36	Circuit 1 high pressure probe alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.38	Circuit 2 high pressure probe alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.37	Circuit 1 low pressure probe alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.39	Circuit 2 low pressure probe alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.40	EVO circuit 1 alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.41	EVO circuit 2 alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.42	Humidifier life expired alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.43	Humidifier discharge alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.44	Humidifier insufficient water alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.45	Humidifier low current alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.46	Humidifier high current alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.47	Humidifier generic alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.48	Emergency alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.49	Flooding alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.50	LAN alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.51	Low temperature alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.52	High temperature alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.53	Low humidity alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.54	High humidity alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.55	EEPROM alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2

Par.N.	Description	Default	U.M.	Min.	Max.
31.56	Maintenance alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.57	Active ADL alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.58	Dirty filters alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.59	Compressor discharge alarm in protection zone addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.60	Compressor discharge alarm in block zone addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.61	Circuit 1 compressor discharge temperature probe alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.62	Circuit 1 frost-free protection alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.63	Circuit 2 frost-free protection alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.64	Cold outlet water temperature probe addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.65	Circuit 1 high pressure probe alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.66	Circuit 2 high pressure probe alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.67	BMS1 serial offline alarm addressing [0: A 1: None 2: B]	0	-	0	2
31.68	BMS2 serial offline alarm addressing [0: A 1: None 2: B]	0	-	0	2
31.69	Circuit 2 cold outlet water temperature probe addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.70	Auxiliary temperature probe alarm address 129 on digital output [0: A 1: None 2: B]	0	-	0	2
31.71	Auxiliary humidity probe alarm address 129 on digital output [0: A 1: None 2: B]	0	-	0	2
31.72	Auxiliary probe offline alarm address 129 on digital output [0: A 1: None 2: B]	0	-	0	2
31.73	ADL On Limit alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.74	Extraction fan On alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.76	External Fire Sensor On alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.75	Extraction Fan contact logic [0: NO 1: NC]	0	-	0	1
31.77	Extraction Fire Sensor contact logic [0: NO 1: NC]	0	-	0	1
31.78	Washing mode contact logic [0: NO 1: NC]	0	-	0	1
31.79	Chilled Water Valve Not Working alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.80	External damper contact logic [0: NO 1: NC]	0	-	0	1
31.81	External Damper On alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.82	Circuit 1 frost-free protection alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.83	Circuit 2 frost-free protection alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.84	Circuit 1 low pressure probe alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.85	Circuit 2 low pressure probe alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.86	Compressor 1 circuit 1 Thermal Load protection alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.88	Compressor 2 circuit 1 Thermal Load protection alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.87	Compressor 1 circuit 2 Thermal Load protection alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
31.89	Compressor 2 circuit 2 Thermal Load protection alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
32.01	Time bands configuration [0: Disabled 1: Enabled]	0	-	0	1
33.01	Inverter 2 driver offline alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
33.02	Inverter 2 envelope alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
33.03	Inverter 2 pressure delta alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2

Par.N.	Description	Default	U.M.	Min.	Max.
33.04	Inverter 2 start alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
33.05	Inverter 2 input alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
33.06	Inverter 2 motor input alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
33.07	Inverter 2 overload alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
33.08	Inverter 2 heat probe alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
33.09	Inverter 2 communication alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
33.10	Inverter 2 generic alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
33.11	Inverter compressor 2 discharge alarm in protection zone addressing on digital output [0: A 1: None 2: B]	0	-	0	2
33.12	Inverter compressor 2 discharge alarm in block zone addressing on digital output [0: A 1: None 2: B]	0	-	0	2
33.13	Inverter 2 pressure DeltaP alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
33.14	Inverter compressor 2 discharge probe alarm addressing on digital output [0: A 1: None 2: B]	0	-	0	2
33.15	Addressing fan offline alarm on digital output [0: A 1: None 2: B]	0	-	0	2
33.16	Addressing fan phase sequence alarm on digital output [0: A 1: None 2: B]	0	-	0	2
33.17	Addressing fan motor blocked alarm on digital output [0: A 1: None 2: B]	0	-	0	2
33.18	Addressing fan voltage problem alarm on digital output [0: A 1: None 2: B]	0	-	0	2
33.19	Addressing fan thermal problem alarm on digital output [0: A 1: None 2: B]	0	-	0	2
33.20	Addressing fan generic alarm on digital output [0: A 1: None 2: B]	0	-	0	2
33.21	Addressing fan problem signal on digital output [0: A 1: None 2: B]	0	-	0	2

2.6.2 Setpoint menu

Par.N.	Description	Default	U.M.	Min.	Max.
50.01	Cooling setpoint	24.0	°C	P99.27	P99.28
50.02	Heating setpoint	24.0	°C	P20.26	P50.01
50.03	Dehumidification setpoint	55	%HR	P99.02	99
50.04	Humidification setpoint	45	%HR	10	P99.03
50.05	Cooling setpoint for LAN limits	30.0	°C	P50.01	50.0
50.06	Heating setpoint for LAN limits	18.0	°C	0.0	P50.02
50.07	Dehumidification setpoint for LAN limits	75	%HR	P50.03	90
50.08	Humidification setpoint for LAN limits	35	%HR	10	P50.04
50.09	Minimum room temperature for dehumidifier disable	23.0	°C	P14.10	35.0
50.12	Special fan function 01 control setpoint	15.0	°C	P20.56	P20.57
50.13	Special fan function 01 control setpoint for LAN limits	21.0	°C	P50.12	40.0
50.14	Setpoint for the adjustment of the fan using the fan adjustment based on return temperature function	24.0	°C	P20.24	P20.25
50.15	Setpoint for the adjustment of the fan using the fan adjustment based on return temperature for LAN limits function	30.0	°C	P50.14	40.0

2.6.3 Clock menu

Par.N.	Description	Default	U.M.	Min.	Max.
900.01	The type of programming of the time bands [0: Standard 1: Advanced]	0	-	0	1

Par.N.	Description	Default	U.M.	Min.	Max.
900.02	Monday time bands [0: Not used 1: Bands A 2: Bands B]	0	-	0	P99.18
900.03	Tuesday time bands [0: Not used 1: Bands A 2: Bands B]	0	-	0	P99.18
900.04	Wednesday time bands [0: Not used 1: Bands A 2: Bands B]	0	-	0	P99.18
900.05	Thursday time bands [0: Not used 1: Bands A 2: Bands B]	0	-	0	P99.18
900.06	Friday time bands [0: Not used 1: Bands A 2: Bands B]	0	-	0	P99.18
900.07	Saturday time bands [0: Not used 1: Bands A 2: Bands B]	0	-	0	P99.18
900.08	Sunday time bands [0: Not used 1: Bands A 2: Bands B]	0	-	0	P99.18
901.01	Unit status in time band 1 A [1: Off 2: Adjustment]	0	-	P99.19	P99.20
901.02	End of time band 1 A (Hours)	0	h	0	23
901.03	End of time band 1 A (Minutes)	0	min	0	59
901.04	Summer temperature setpoint in time band 1 A	0.0	°C	P99.21	P99.22
901.05	Winter temperature setpoint in time band 1 A	0.0	°C	P99.23	P99.24
901.07	Unit status in time band 2 A [1: Off 2: Adjustment]	0	-	P99.19	P99.20
901.08	End of time band 2 A (Hours)	0	h	P901.02	23
901.09	End of time band 2 A (Minutes)	0	min	0	59
901.10	Summer temperature setpoint in time band 2 A	0.0	°C	P99.21	P99.22
901.11	Winter temperature setpoint in time band 2 A	0.0	°C	P99.23	P901.10
901.13	Unit status in time band 3 A [1: Off 2: Adjustment]	0	-	P99.19	P99.20
901.14	End of time band 3 A (Hours)	0	h	P901.08	23
901.15	End of time band 3 A (Minutes)	0	min	0	59
901.16	Summer temperature setpoint in time band 3 A	0.0	°C	P99.21	P99.22
901.17	Winter temperature setpoint in time band 3 A	0.0	°C	P99.23	P99.24
901.19	Unit status in time band 4 A [1: Off 2: Adjustment]	0	-	P99.19	P99.20
901.20	End of time band 4 A (Hours)	0	h	P901.14	23
901.21	End of time band 4 A (Minutes)	0	min	0	59
901.22	Summer temperature setpoint in time band 4 A	0.0	°C	P99.21	P99.22
901.23	Winter temperature setpoint in time band 4 A	0.0	°C	P99.23	P99.24
901.25	Unit status in time band 5 A [1: Off 2: Adjustment]	0	-	P99.19	P99.20
901.26	End of time band 5 A (Hours)	0	h	P901.20	23
901.27	End of time band 5 A (Minutes)	0	min	0	59
901.28	Summer temperature setpoint in time band 5 A	0.0	°C	P99.21	P99.22
901.29	Winter temperature setpoint in time band 5 A	0.0	°C	P99.23	P99.24
901.31	Unit status in time band 6 A [1: Off 2: Adjustment]	0	-	P99.19	P99.20
901.32	End of time band 6 A (Hours)	0	h	P901.26	23
901.33	End of time band 6 A (Minutes)	0	min	0	59
901.34	Summer temperature setpoint in time band 6 A	0.0	°C	P99.21	P99.22
901.35	Winter temperature setpoint in time band 6 A	0.0	°C	P99.23	P99.24
901.37	Unit status in time band 7 A [1: Off 2: Adjustment]	0	-	P99.19	P99.20
901.38	End of time band 7 A (Hours)	0	h	P901.32	23
901.39	End of time band 7 A (Minutes)	0	min	0	59
901.40	Summer temperature setpoint in time band 7 A	0.0	°C	P99.21	P99.22
901.41	Winter temperature setpoint in time band 7 A	0.0	°C	P99.23	P99.24

Par.N.	Description	Default	U.M.	Min.	Max.
901.43	Unit status in time band 8 A [1: Off 2: Adjustment]	0	-	P99.19	P99.20
901.44	End of time band 8 A (Hours)	0	h	P901.38	23
901.45	End of time band 8 A (Minutes)	0	min	0	59
901.46	Summer temperature setpoint in time band 8 A	0.0	°C	P99.21	P99.22
901.47	Winter temperature setpoint in time band 8 A	0.0	°C	P99.23	P99.24
901.49	Unit status in time band 9 A [1: Off 2: Adjustment]	0	-	P99.19	P99.20
901.50	End of time band 9 A (Hours)	0	h	P901.44	23
901.51	End of time band 9 A (Minutes)	0	min	0	59
901.52	Summer temperature setpoint in time band 9 A	0.0	°C	P99.21	P99.22
901.53	Winter temperature setpoint in time band 9 A	0.0	°C	P99.23	P99.24
901.55	Unit status in time band 10 A [1: Off 2: Adjustment]	0	-	P99.19	P99.20
901.56	Summer temperature setpoint in time band 10 A	0.0	°C	P99.21	P99.22
901.57	Winter temperature setpoint in time band 10 A	0.0	°C	P99.23	P99.24
902.01	Unit status in time band 1 B [1: Off 2: Adjustment]	0	-	P99.19	P99.20
902.02	End of time band 1 B (Hours)	0	h	0	23
902.03	End of time band 1 B (Minutes)	0	min	0	59
902.04	Summer temperature setpoint in time band 1 B	0.0	°C	P99.21	P99.22
902.05	Winter temperature setpoint in time band 1 B	0.0	°C	P99.23	P99.24
902.07	Unit status in time band 2 B [1: Off 2: Adjustment]	0	-	P99.19	P99.20
902.08	End of time band 2 B (Hours)	0	h	P902.02	23
902.09	End of time band 2 B (Minutes)	0	min	0	59
902.10	Summer temperature setpoint in time band 2 B	0.0	°C	P99.21	P99.22
902.11	Winter temperature setpoint in time band 2 B	0.0	°C	P99.23	P99.24
902.13	Unit status in time band 3 B [1: Off 2: Adjustment]	0	-	P99.19	P99.20
902.14	End of time band 3 B (Hours)	0	h	P902.08	23
902.15	End of time band 3 B (Minutes)	0	min	0	59
902.16	Summer temperature setpoint in time band 3 B	0.0	°C	P99.21	P99.22
902.17	Winter temperature setpoint in time band 3 B	0.0	°C	P99.23	P99.24
902.19	Unit status in time band 4 B [1: Off 2: Adjustment]	0	-	P99.19	P99.20
902.20	End of time band 4 B (Hours)	0	h	P902.14	23
902.21	End of time band 4 B (Minutes)	0	min	0	59
902.22	Summer temperature setpoint in time band 4 B	0.0	°C	P99.21	P99.22
902.23	Winter temperature setpoint in time band 4 B	0.0	°C	P99.23	P99.24
902.25	Unit status in time band 5 B [1: Off 2: Adjustment]	0	-	P99.19	P99.20
902.26	End of time band 5 B (Hours)	0	h	P902.20	23
902.27	End of time band 5 B (Minutes)	0	min	0	59
902.28	Summer temperature setpoint in time band 5 B	0.0	°C	P99.21	P99.22
902.29	Winter temperature setpoint in time band 5 B	0.0	°C	P99.23	P99.24
902.31	Unit status in time band 6 B [1: Off 2: Adjustment]	0	-	P99.19	P99.20
902.32	End of time band 6 B (Hours)	0	h	P902.26	23
902.33	End of time band 6 B (Minutes)	0	min	0	59
902.34	Summer temperature setpoint in time band 6 B	0.0	°C	P99.21	P99.22

Par.N.	Description	Default	U.M.	Min.	Max.
902.35	Winter temperature setpoint in time band 6 B	0.0	°C	P99.23	P99.24
902.37	Unit status in time band 7 B [1: Off 2: Adjustment]	0	-	P99.19	P99.20
902.38	End of time band 7 B (Hours)	0	h	P902.32	23
902.39	End of time band 7 B (Minutes)	0	min	0	59
902.40	Summer temperature setpoint in time band 7 B	0.0	°C	P99.21	P99.22
902.41	Winter temperature setpoint in time band 7 B	0.0	°C	P99.23	P99.24
902.43	Unit status in time band 8 B [1: Off 2: Adjustment]	0	-	P99.19	P99.20
902.44	End of time band 8 B (Hours)	0	h	P902.38	23
902.45	End of time band 8 B (Minutes)	0	min	0	59
902.46	Summer temperature setpoint in time band 8 B	0.0	°C	P99.21	P99.22
902.47	Winter temperature setpoint in time band 8 B	0.0	°C	P99.23	P99.24
902.49	Unit status in time band 9 B [1: Off 2: Adjustment]	0	-	P99.19	P99.20
902.50	End of time band 9 B (Hours)	0	h	P902.44	23
902.51	End of time band 9 B (Minutes)	0	min	0	59
902.52	Summer temperature setpoint in time band 9 B	0.0	°C	P99.21	P99.22
902.53	Winter temperature setpoint in time band 9 B	0.0	°C	P99.23	P99.24
902.55	Unit status in time band 10 B [1: Off 2: Adjustment]	0	-	P99.19	P99.20
902.56	Summer temperature setpoint in time band 10 B	0.0	°C	P99.21	P99.22
902.57	Winter temperature setpoint in time band 10 B	0.0	°C	P99.23	P99.24
903.01	Unit status in time band 1 C [1: Off 2: Adjustment]	0	-	P99.19	P99.20
903.02	End of time band 1 C (Hours)	0	h	0	23
903.03	End of time band 1 C (Minutes)	0	min	0	59
903.04	Summer temperature set point in time band 1 C	0.0	°C	P99.21	P99.22
903.05	Winter temperature set point in time band 1 C	0.0	°C	P99.23	P99.24
903.07	Unit status in time band 2 C [1: Off 2: Adjustment]	0	-	P99.19	P99.20
903.08	End of time band 2 C (Hours)	0	h	P903.02	23
903.09	End of time band 2 C (Minutes)	0	min	0	59
903.10	Summer temperature set point in time band 2 C	0.0	°C	P99.21	P99.22
903.11	Winter temperature set point in time band 2 C	0.0	°C	P99.23	P99.24
903.13	Unit status in time band 3 C [1: Off 2: Adjustment]	0	-	P99.19	P99.20
903.14	End of time band 3 C (Hours)	0	h	P903.08	23
903.15	End of time band 3 C (Minutes)	0	min	0	59
903.16	Summer temperature set point in time band 3 C	0.0	°C	P99.21	P99.22
903.17	Winter temperature set point in time band 3 C	0.0	°C	P99.23	P99.24
903.19	Unit status in time band 4 C [1: Off 2: Adjustment]	0	-	P99.19	P99.20
903.20	End of time band 4 C (Hours)	0	h	P903.14	23
903.21	End of time band 4 C (Minutes)	0	min	0	59
903.22	Summer temperature set point in time band 4 C	0.0	°C	P99.21	P99.22
903.23	Winter temperature set point in time band 4 C	0.0	°C	P99.23	P99.24
903.25	Unit status in time band 5 C [1: Off 2: Adjustment]	0	-	P99.19	P99.20
903.26	End of time band 5 C (Hours)	0	h	P903.20	23
903.27	End of time band 5 C (Minutes)	0	min	0	59

Par.N.	Description	Default	U.M.	Min.	Max.
903.28	Summer temperature set point in time band 5 C	0.0	°C	P99.21	P99.22
903.29	Winter temperature set point in time band 5 C	0.0	°C	P99.23	P99.24
903.31	Unit status in time band 6 C [1: Off 2: Adjustment]	0	-	P99.19	P99.20
903.32	End of time band 6 C (Hours)	0	h	P903.26	23
903.33	End of time band 6 C (Minutes)	0	min	0	59
903.34	Summer temperature set point in time band 6 C	0.0	°C	P99.21	P99.22
903.35	Winter temperature set point in time band 6 C	0.0	°C	P99.23	P99.24
903.37	Unit status in time band 7 C [1: Off 2: Adjustment]	0	-	P99.19	P99.20
903.38	End of time band 7 C (Hours)	0	h	P903.32	23
903.39	End of time band 7 C (Minutes)	0	min	0	59
903.40	Summer temperature set point in time band 7 C	0.0	°C	P99.21	P99.22
903.41	Winter temperature set point in time band 7 C	0.0	°C	P99.23	P99.24
903.43	Unit status in time band 8 C [1: Off 2: Adjustment]	0	-	P99.19	P99.20
903.44	End of time band 8 C (Hours)	0	h	P903.38	23
903.45	End of time band 8 C (Minutes)	0	min	0	59
903.46	Summer temperature set point in time band 8 C	0.0	°C	P99.21	P99.22
903.47	Winter temperature set point in time band 8 C	0.0	°C	P99.23	P99.24
903.49	Unit status in time band 9 C [1: Off 2: Adjustment]	0	-	P99.19	P99.20
903.50	End of time band 9 C (Hours)	0	h	P903.44	23
903.51	End of time band 9 C (Minutes)	0	min	0	59
903.52	Summer temperature set point in time band 9 C	0.0	°C	P99.21	P99.22
903.53	Winter temperature set point in time band 9 C	0.0	°C	P99.23	P99.24
903.55	Unit status in time band 10 C [1: Off 2: Adjustment]	0	-	P99.19	P99.20
903.56	Summer temperature set point in time band 10 C	0.0	°C	P99.21	P99.22
903.57	Winter temperature set point in time band 10 C	0.0	°C	P99.23	P99.24
904.01	Unit status in time band 1 D [1: Off 2: Adjustment]	0	-	P99.19	P99.20
904.02	End of time band 1 D (Hours)	0	h	0	23
904.03	End of time band 1 D (Minutes)	0	min	0	59
904.04	Summer temperature set point in time band 1 D	0.0	°C	P99.21	P99.22
904.05	Winter temperature set point in time band 1 D	0.0	°C	P99.23	P99.24
904.07	Unit status in time band 2 D [1: Off 2: Adjustment]	0	-	P99.19	P99.20
904.08	End of time band 2 D (Hours)	0	h	P904.02	23
904.09	End of time band 2 D (Minutes)	0	min	0	59
904.10	Summer temperature set point in time band 2 D	0.0	°C	P99.21	P99.22
904.11	Winter temperature set point in time band 2 D	0.0	°C	P99.23	P99.24
904.13	Unit status in time band 3 D [1: Off 2: Adjustment]	0	-	P99.19	P99.20
904.14	End of time band 3 D (Hours)	0	h	P904.08	23
904.15	End of time band 3 D (Minutes)	0	min	0	59
904.16	Summer temperature set point in time band 3 D	0.0	°C	P99.21	P99.22
904.17	Winter temperature set point in time band 3 D	0.0	°C	P99.23	P99.24
904.19	Unit status in time band 4 D [1: Off 2: Adjustment]	0	-	P99.19	P99.20
904.20	End of time band 4 D (Hours)	0	h	P904.14	23

Par.N.	Description	Default	U.M.	Min.	Max.
904.21	End of time band 4 D (Minutes)	0	min	0	59
904.22	Summer temperature set point in time band 4 D	0.0	°C	P99.21	P99.22
904.23	Winter temperature set point in time band 4 D	0.0	°C	P99.23	P99.24
904.25	Unit status in time band 5 D [1: Off 2: Adjustment]	0	-	P99.19	P99.20
904.26	End of time band 5 D (Hours)	0	h	P904.20	23
904.27	End of time band 5 D (Minutes)	0	min	0	59
904.28	Summer temperature set point in time band 5 D	0.0	°C	P99.21	P99.22
904.29	Winter temperature set point in time band 5 D	0.0	°C	P99.23	P99.24
904.31	Unit status in time band 6 D [1: Off 2: Adjustment]	0	-	P99.19	P99.20
904.32	End of time band 6 D (Hours)	0	h	P904.26	23
904.33	End of time band 6 D (Minutes)	0	min	0	59
904.34	Summer temperature set point in time band 6 D	0.0	°C	P99.21	P99.22
904.35	Winter temperature set point in time band 6 D	0.0	°C	P99.23	P99.24
904.37	Unit status in time band 7 D [1: Off 2: Adjustment]	0	-	P99.19	P99.20
904.38	End of time band 7 D (Hours)	0	h	P904.32	23
904.39	End of time band 7 D (Minutes)	0	min	0	59
904.40	Summer temperature set point in time band 7 D	0.0	°C	P99.21	P99.22
904.41	Winter temperature set point in time band 7 D	0.0	°C	P99.23	P99.24
904.43	Unit status in time band 8 D [1: Off 2: Adjustment]	0	-	P99.19	P99.20
904.44	End of time band 8 D (Hours)	0	h	P904.38	23

2.6.4 Limiting parameters

Par.N.	Description
99.18	Advanced time band enable limit, depends on the advanced time band enable P900.01 (Equal to 1 with standard programming, 4 with advanced programming)
99.19	Minimum value that can be set for time band control (Equal to 1 - unit off)
99.20	Maximum value that can be set for time band control (Equal to 2 - unit in adjustment)
99.21	Minimum limit of summer temperature setpoint for the control of time bands depending on the active adjustment (Equal to P20.24 with adjustment in return, P20.56 with adjustment in delivery)
99.22	Maximum limit of summer temperature setpoint for the control of time bands depending on the active adjustment (Equal to P20.25 with adjustment in return, P20.57 with adjustment in delivery)
99.23	Minimum limit of winter temperature setpoint for the control of time bands (Equal to P20.26)
99.24	Maximum limit of winter temperature setpoint for the control of time bands (Equal to P50.01)
99.27	Minimum value that can be set for cooling setpoint depending on the active adjustment (Equal to P20.24 with adjustment in return, P20.56 with adjustment in delivery)
99.28	Maximum value that can be set for cooling setpoint depending on the active adjustment (Equal to P20.25 with adjustment in return, P20.57 with adjustment in delivery)

2.7 EVENTS MASKS

Press the **[ALARM]** key once to enter the “Event” menu showing the alarm and signalling event messages along with their codes.
If there is more than one event, scroll the menu using the **[UP]** and **[DOWN]** keys. Press **[ESC]** to exit this menu.

In order to reset an event, press the **[ALARM]** key another time. The event will be reset only if the condition that caused it has been solved. The event otherwise remains active.

If the **[ALARM]** key is pressed and there are no events to be displayed, the system shows the message “No Events detected”.

For each event, the following properties are defined:

- Type of Event: Reports the presence of a Signal (S) or an Alarm (A).
- Type of Reset: Indicates whether reset is manual (Manual) or automatic (Auto).
- Location: Reports where in the unit the alarm has taken place.
- Action: Indicates where the *block* caused by the alarm is located.

Some events can be configured to define their event type and whether the reset is manual or automatic, or define the number of interventions per hour after which the event automatically switches to manual reset.

Letters	Display description	Description
<i>Key to “Type of Event” column</i>		
A	Event	A### Alarm with resource/unit block. Sets the “alarm cumulative”.
Y	Event	S### Display signal. Does not set the “alarm cumulative”.
S/A	Event Event	S### A### Signal or Alarm. One mode or the other may be selected from the parameter. The “alarm cumulative” is set in the case the event is an alarm.
S*	Event	S### Display signal with “alarm cumulative” setting.
<i>Key to Type of Reset” column</i>		
A	Type: Auto	Automatic rearm (if the condition causing the alarm disappears, the alarm resets automatically).
M	Type: Manual	Manual rearm (if the condition causing the alarm disappears, the alarm must be reset from the keyboard).
A/M	Type: Auto Type: Manual	Automatic reset if the type of reset set in the parameter is automatic. Manual reset if the type of reset set in the parameter is manual.
A->M	Type: Auto Type: Manual	Automatic rearm alarm for the first N interventions in one hour, then manual.
<i>Key to “Position” column</i>		
CO	Location: Compressor	Event involving the compressor.
CI	Location: Circuit	Event involving the cooling circuit.
U	Location: Unit	Event involving the unit.
P	Location: Plant	Event involving the system.
<i>Key to “Action” column</i>		
NO		No block (row not visible on the mask).
U	Action: Unit	Unit block.
NO/U	Action: Unit	No block if the type of reset set in the parameter is automatic block (row not visible on the mask). Block of the unit if the type of reset set in the parameter is manual.
CI	Action: Circuit	Block of the cooling circuit involved in the event.
CO	Action: Compressor	Block of the compressor involved in the event.
CW	Action: ChillWater	Block of the water circuit involved in the event.
HU	Action: Humidifier	Block of the humidifier.
EH	Action: El. Heater	Block of the electric heater or heat source involved in the event.
FN	Action: Function	Block of the function involved in the event.
<i>Key of the “Action” column for the “Function” category</i>		
FC	Not Displayed	Block of the Free Cooling function
FC Ind		Block of the Indirect Free Cooling function (FC unit).
Lim		Block of the function regarding the output air temperature limit.
HU		Block of the humidity control function.
DH		Block of the dehumidifier control function.

The descriptions and codes of the events are given on the following pages.

2.7.1 Table of alarm and signalling events

Code	Display description	Details	Event Time	Reset Time	Position	Action
-	No Events detected	No event available.				
003	Event A003 Presence of Fire/Smoke	Fire/smoke detector engagement. <i>Visible only if the detecting input is present</i>	A	A/M	P	U
004	Event A004 Wrong Phase Sequence or Supply Out of Limit	Wrong connection of the phases or power supply out of limits. It completely stops the unit. <i>Not visible for the cooled water units</i>	A	A/M	P	U
010 ¹	Event A010 Flood Alarm: Check Water Connections	Flooding sensor engagement alarm. <i>Visible only if the detecting input is present</i>	A	A/M	P	NO/U
013	Event A013 Condenser 1: Loss of Water Flow	Lack of water flow on circuit 1 condenser. <i>Visible only if the detecting input is present and the condensation control valve is active</i>	A	M	P	CI
014	Event A014 Condenser 2: Loss of Water Flow	Lack of water flow on circuit 2 condenser. <i>Visible only if the detecting input is present and the condensation control valve is active</i>	A	M	P	CI
021	Event A021 Chilled Water: Loss of Water Flow	No water flow on evaporator. <i>Visible only if the detecting input is present and the unit is fed with cooled water</i>	A	M	P	U
022	Event A022 Chilled Water: Working Failure	The return temperature is above the high temperature alarm threshold. <i>Visible only on Dual Fluid units</i>	A	A	P	CW
030	Event A030 Chilled Water: High Water Temperature	Water temperature too high. <i>Visible only on Dual Fluid units or chilled water units</i>	A	A	P	NO
101	Event A101 Loss of Air Flow Check Fan/Switch	Lack of air flow on the evaporator.	A	M	U	U
120	Event A120 Return Temp. Probe Failed/Disconnected	Return temperature sensor fault (ambient). <i>This event blocks all cold resources if the adjustment is based on the return temperature</i>	A	A	U	FN FC
121	Event A121 Remote Temp. Probe Failed/Disconnected	Remote T+H probe temperature sensor fault. <i>Visible only when the Remote T+H probe is present</i>	A	A	U	NO
125	Event A125 Return Humidity Probe Failed/Disconnected	Return T+H probe humidity sensor fault. <i>Visible only when the Return T+H probe is present</i>	A	A	U	FN HU+DH
126	Event A126 Remote Humidity Probe Failed/Disconnected	Remote T+H probe humidity sensor fault. <i>Visible only when the Remote T+H probe is present</i>	A	A	U	NO
130	Event A130 Diff. Pressure Probe Failed/Disconnected	Air differential pressure probe fault. <i>Visible only if capacity or air DeltaP control is enabled</i>	A	A	U	FN
140	Event A140 Supply Air Temperature Probe Failed/Disconnected	Delivery air temperature probe fault. <i>This event blocks all cold resources if the adjustment is based on the delivery temperature</i>	A	A	U	FN Lim

¹ This event is displayed only if the P22.83 parameter is set as "Alarm - Automatic" or "Alarm - Manual".

Code	Display description	Details	Event Time	Reset Time	Position	Action
142	Event A142 Water In Temperature Probe Failed/Disconnected	Cold water temperature probe fault.	A	A	U	FN FC Ind
143	Event A143 Water Out Temperature Probe Failed/Disconnected	Circuit 1 outlet cold water temperature probe fault	A	A	U	FN
144	Event A144 Outdoor Air Temperature Probe Failed/Disconnected	External air temperature probe fault. <i>Visible only on units with Direct Free Cooling</i>	A	A	U	FN FC
145	Event A145 Circ. 2 Water Out Temperature Probe Failed/Disconnected	Circuit 2 outlet cold water temperature probe fault	A	A	U	FN
146	Event A146 Hot Water Temperature Probe Failed/Disconnected	Hot water temperature probe fault. <i>Visible only if water post-heating is present</i>	A	A	U	CW
148	Event A148 Inv.1 Discharge Temperature Probe Failed/Disconnected	Inverter compressor 1 discharge temperature probe fault. <i>Visible only if the inverter compressor is present and if the protection function is enabled</i>	A	A	U	FN
149	Event A149 Inv.2 Discharge Temperature Probe Failed/Disconnected	Inverter compressor 2 discharge temperature probe fault. <i>Visible only if the inverter compressor is present and if the protection function is enabled</i>	A	A	U	FN
150	Event A150 Heaters Overheating or Heaters Contactor Failed	Heater safety thermostat engagement. <i>Visible only if the unit is configured with heating elements</i>	A	M	U	EH
151	Event A151 Fan 1 Offline	No communication with fan 1. <i>Visible only if the unit has at least one EC fan</i>	A	A	U	NO
152	Event A152 Fan 2 Offline	No communication with fan 2. <i>Visible only if the unit has at least one EC fan</i>	A	A	U	NO
153	Event A153 Fan 3 Offline	No communication with fan 3. <i>Visible only if the unit has at least one EC fan</i>	A	A	U	NO
154	Event A154 Fan 4 Offline	No communication with fan 4. <i>Visible only if the unit has at least one EC fan</i>	A	A	U	NO
156	Event A156 Fan 1 Phase Fault	Incorrect phase sequence for fan 1. <i>Visible only if the unit has at least one EC fan</i>	A	A	U	NO
157	Event A157 Fan 2 Phase Fault	Incorrect phase sequence for fan 2. <i>Visible only if the unit has at least one EC fan</i>	A	A	U	NO
158	Event A158 Fan 3 Phase Fault	Incorrect phase sequence for fan 3. <i>Visible only if the unit has at least one EC fan</i>	A	A	U	NO
159	Event A159 Fan 4 Phase Fault	Incorrect phase sequence for fan 4. <i>Visible only if the unit has at least one EC fan</i>	A	A	U	NO
161	Event A161 Fan 1 Motor Blocked	Fan 1 motor blocked <i>Visible only if the unit has at least one EC fan</i>	A	A	U	NO

Code	Display description	Details	Event Time	Reset Time	Position	Action
162	Event A162 Fan 2 Motor Blocked	Fan 2 motor blocked <i>Visible only if the unit has at least one EC fan</i>	A	A	U	NO
163	Event A163 Fan 3 Motor Blocked	Fan 3 motor blocked <i>Visible only if the unit has at least one EC fan</i>	A	A	U	NO
164	Event A164 Fan 4 Motor Blocked	Fan 4 motor blocked <i>Visible only if the unit has at least one EC fan</i>	A	A	U	NO
166	Event A166 Fan 1 Voltage Problem	Current problem on fan 1. See the third row for details on the problem. <i>Visible only if the unit has at least one EC fan.</i>	A	A	U	NO
167	Event A167 Fan 2 Voltage Problem	Current problem on fan 2. See the third row for details on the problem. <i>Visible only if the unit has at least one EC fan</i>	A	A	U	NO
168	Event A168 Fan 3 Voltage Problem	Current problem on fan 3. See the third row for details on the problem. <i>Visible only if the unit has at least one EC fan</i>	A	A	U	NO
169	Event A169 Fan 4 Voltage Problem	Current problem on fan 4. See the third row for details on the problem. <i>Visible only if the unit has at least one EC fan</i>	A	A	U	NO
171	Event A171 Fan 1 Heat Problem	Temperature problem on fan 1. See the third row for details on the problem. <i>Visible only if the unit has at least one EC fan</i>	A	A	U	NO
172	Event A172 Fan 2 Heat Problem	Temperature problem on fan 2. See the third row for details on the problem. <i>Visible only if the unit has at least one EC fan</i>	A	A	U	NO
173	Event A173 Fan 3 Heat Problem	Temperature problem on fan 3. See the third row for details on the problem. <i>Visible only if the unit has at least one EC fan</i>	A	A	U	NO
174	Event A174 Fan 4 Heat Problem	Temperature problem on fan 4. See the third row for details on the problem. <i>Visible only if the unit has at least one EC fan</i>	A	A	U	NO
176	Event A176 Fan 1 Generic Alarm	Generic problem on fan 1. See the third row for details on the problem. <i>Visible only if the unit has at least one EC fan</i>	A	A	U	NO
177	Event A177 Fan 2 Generic Alarm	Generic problem on fan 2. See the third row for details on the problem. <i>Visible only if the unit has at least one EC fan</i>	A	A	U	NO
178	Event A178 Fan 3 Generic Alarm	Generic problem on fan 3. See the third row for details on the problem. <i>Visible only if the unit has at least one EC fan</i>	A	A	U	NO
179	Event A179 Fan 4 Generic Alarm	Generic problem on fan 4. See the third row for details on the problem. <i>Visible only if the unit has at least one EC fan</i>	A	A	U	NO
180	Event A180 Return T+H Probe Offline	Return T+H probe disconnection alarm (serial connection). <i>Visible only if the probe is enabled</i>	A	A	U	FN

Code	Display description	Details	Event Time	Reset Time	Position	Action
181	Event A181 Remote T+H Probe Offline	Remote T+H probe disconnection alarm (serial connection). <i>Visible only if the probe is enabled</i>	A	A	U	NO
184	Event A184 Inverter 1 Offline	Inverter 1 driver disconnection alarm (serial connection). <i>Visible only on units with inverter compressor.</i>	A	A	U	CI
185	Event A185 Inverter 2 Offline	Inverter 2 driver disconnection alarm (serial connection). <i>Visible only on units with inverter compressor.</i>	A	A	U	CI
192	Event A192 I/O Expansion Board 1 Offline	I/O expansion 1 disconnection alarm (serial connection). <i>Visible only if the unit requires expansion.</i>	A	A	U	FN
193	Event A193 I/O Expansion Board 2 Offline	I/O expansion 2 disconnection alarm (serial connection). <i>Visible only if the unit requires expansion.</i>	A	A	U	FN
194	Event A194 I/O Expansion Board 3 Offline	I/O expansion 3 disconnection alarm (serial connection). <i>Visible only if the unit requires expansion.</i>	A	A	U	FN
195	Event A195 Humidifier Board Offline	CPY dehumidifier board disconnection alarm (serial connection). <i>Visible only if internal control humidifier is present</i>	A	A	U	HU
199	Event A199 Energy Analyzer 1 Offline	Network analyser disconnection alarm (serial connection). <i>Visible only if the network analyser is enabled</i>	A	A	U	FN
201	Event A201 Inv.1 Envelope Alarm HP1: 00.0bar LP1: 00.0bar Zone: 00	Inverter compressor 1 working off-envelope <i>Visible only with inverter compressor</i>	A	A	CO	CI
202	Event A202 Inconsistent Envelope	Inconsistent envelope alarm. Indicates that the structural envelope points are not correct.	A	M	CO	CI
203	Event A203 Inverter Compressor 1: Discharge in Lock Zone	It indicates that the inverter compressor 1 discharge temperature is in the Block zone. <i>Visible only if the electronic thermostatic valve is present and if the compressor discharge temperature control function is enabled</i>	A	M	CO	CI
204	Event A204 Inverter Compressor 1: HP-LP DeltaP Below Minimum Limit	High – Low pressure difference below limit alarm for inverter compressor 1. <i>Visible only with inverter compressor</i>	A->M	A	CO	CI
205	Event A205 Inverter Compressor 1: Excessive HP-LP DeltaP at Startup	High – Low pressure difference excessive alarm for inverter compressor 1 in start-up. <i>Visible only with inverter compressor</i>	A	A	CO	CI
206	Event A206 Inverter Compressor 2: Discharge in Lock Zone	It indicates that the inverter compressor 2 discharge temperature is in the Block zone. <i>Visible only if the electronic thermostatic valve is present and if the compressor discharge temperature control function is enabled</i>	A	M	CO	CI
207	Event A207 Inverter Compressor 2: HP-LP DeltaP Below Minimum Limit	High – Low pressure difference below limit alarm for inverter compressor 2. <i>Visible only with inverter compressor</i>	A->M	A	CO	CI

Code	Display description	Details	Event Time	Reset Time	Position	Action
208	Event A208 Inverter Compressor 2: Excessive HP-LP DeltaP at Startup	High – Low pressure difference excessive alarm for inverter compressor 2 in start-up. <i>Visible only with inverter compressor</i>	A	A	CO	CI
210	Event A210 Inverter Compressor 1: Start Failed	The inverter 1 cannot run up to speed with the adjustment signal. <i>Visible only with inverter compressor</i>	A	M	CO	CI
211	Event A211 Inverter Compressor 1: Circuit Power Alarm	Inverter 1 power supply input alarm. <i>Visible only with inverter compressor</i>	A	M	CO	CI
212	Event A212 Inverter Compressor 1: Motor Power Alarm	Inverter compressor 1 motor power input alarm. <i>Visible only with inverter compressor</i>	A	M	CO	CI
213	Event A213 Inverter Compressor 1: Overcurrent Alarm	Inverter 1 overload. Input current too high. <i>Visible only with inverter compressor</i>	A	M	CO	CI
214	Event A214 Inverter Compressor 1: Motor Thermal Alarm	Inverter 1 motor heat probe detects too high a temperature. <i>Visible only with inverter compressor</i>	A	M	CO	CI
215	Event A215 Inverter Compressor 1: Communication Alarm	Loss of serial communication with inverter 1. <i>Visible only with inverter compressor</i>	A	M	CO	CI
220	Event A220 Inverter Compressor 1: Generic Alarm	Inverter 1 generic alarm. See alarm on respective mask in the "Unit" menu. <i>Visible only with inverter compressor</i>	A	M	CO	CI
230	Event A230 Inv.2 Envelope Alarm HP2: 00.0bar LP2: 00.0bar Zone: 00	Inverter compressor 2 working off-envelope <i>Visible only with inverter compressor</i>	A	A	CO	CI
232	Event A232 Inverter Compressor 2: Start Failed	The inverter 2 cannot run up to speed with the adjustment signal. <i>Visible only with inverter compressor</i>	A	M	CO	CI
233	Event A233 Inverter Compressor 2: Circuit Power Alarm	Inverter 2 power supply input alarm. <i>Visible only with inverter compressor</i>	A	M	CO	CI
234	Event A234 Inverter Compressor 2: Motor Power Alarm	Inverter compressor 2 motor power input alarm. <i>Visible only with inverter compressor</i>	A	M	CO	CI
235	Event A235 Inverter Compressor 2: Overcurrent Alarm	Inverter 2 overload. Input current too high. <i>Visible only with inverter compressor</i>	A	M	CO	CI
236	Event A236 Inverter Compressor 2: Motor Thermal Alarm	Inverter 2 motor heat probe detects too high a temperature. <i>Visible only with inverter compressor</i>	A	M	CO	CI
237	Event A237 Inverter Compressor 2: Communication Alarm	Loss of serial communication with inverter 2. <i>Visible only with inverter compressor</i>	A	M	CO	CI

Code	Display description	Details	Event Time	Reset Time	Position	Action
242	Event A242 Inverter Compressor 2: Generic Alarm	Inverter 2 generic alarm. See alarm on respective mask in the "Unit" menu. <i>Visible only with inverter compressor</i>	A	M	CO	CI
250	Event A250 Circuit 1 On/Off Compressor 1: Motor Thermal Alarm	Circuit 1 on/off motor 1 heat probe detects too high a temperature. <i>Visible only with the unit with 4 on/off compressors or with dual tandem on/off inverter.</i>	A	M	CO	CO
251	Event A251 Circuit 1 On/Off Compressor 2: Motor Thermal Alarm	Circuit 1 on/off motor 2 heat probe detects too high a temperature. <i>Visible only with the unit with 4 on/off compressors</i>	A	M	CO	CO
252	Event A252 Circuit 2 On/Off Compressor 1: Motor Thermal Alarm	Circuit 2 on/off motor 1 heat probe detects too high a temperature. <i>Visible only with the unit with 4 on/off compressors or with dual tandem on/off inverter.</i>	A	M	CO	CO
253	Event A253 Circuit 2 On/Off Compressor 2: Motor Thermal Alarm	Circuit 2 on/off motor 2 heat probe detects too high a temperature. <i>Visible only with the unit with 4 on/off compressors</i>	A	M	CO	CO
305	Event A305 Chilled Water: Valve Not Working	Cold water valve not working alarm. <i>Visible only on CW units.</i>	A	M	CI	NO
310	Event A310 Circuit 1 High Pressure Switch Triggered	Circuit 1 high pressure alarm from pressure switch. For circuits with inverter compressor the STO alarm is reset if it trips.	A	M	CI	CI
311	Event A311 Circuit 1 High Pressure Probe Failed/Disconnected	Circuit 1 high pressure transducer fault alarm. <i>Visible only if the transducer is present</i>	A	A	CI	FN
312	Event A312 Circuit 2 High Pressure Switch Triggered	Circuit 2 high pressure alarm from pressure switch.	A	M	CI	CI
313	Event A313 Circuit 2 High Pressure Probe Failed/Disconnected	Circuit 2 high pressure transducer fault alarm. <i>Visible only if the transducer is present</i>	A	A	CI	FN
314	Event A314 Circuit 1 HP Protection Active	Circuit 1 high pressure alarm from transducer. <i>Visible only if the transducer is present</i>	A	A->M	CI	CI
315	Event A315 Circuit 2 HP Protection Active	Circuit 2 high pressure alarm from transducer. <i>Visible only if the transducer is present</i>	A	A->M	CI	CI
319	Event A319 Circuit 1 Low Pressure Probe Failed/Disconnected	Circuit 1 low pressure transducer fault alarm. <i>Visible only if the transducer is present</i>	A	A	CI	FN
320	Event A320 Circuit 1 Low Pressure Switch Triggered	Circuit 1 low pressure alarm from pressure switch.	A	A->M	CI	CI
321	Event A321 Circuit 2 Low Pressure Probe Failed/Disconnected	Circuit 2 low pressure transducer fault alarm. <i>Visible only if the transducer is present</i>	A	A	CI	FN

Code	Display description	Details	Event Time	Reset Time	Position	Action
322	Event A322 Circuit 2 Low Pressure Switch Triggered	Circuit 2 low pressure alarm from pressure switch.	A	A->M	CI	CI
323	Event A323 Circuit 1 Frost Protection Active	Circuit 1 frost-free function protection alarm.	A	A->M	CI	CI
324	Event A324 Circuit 2 Frost Protection Active	Circuit 2 frost-free function protection alarm.	A	A->M	CI	CI
339	Event A339 Circuit 1 EEV Driver: EEPROM Damaged	Problem to circuit 1 driver. <i>Visible only on electronic thermostat units.</i>	A	A	CI	CI
340	Event A340 Circuit 1 EEV Driver: Step Motor Error	Problem to circuit 1 valve step motor. <i>Visible only on electronic thermostat units.</i>	A	A	CI	CI
341	Event A341 Circuit 1 EEV Driver: Pressure Probe Alarm or Compressor Failed	Faulty circuit 1 thermostatic valve pressure transducer. <i>Visible only on electronic thermostat units.</i>	A	A	CI	CI
342	Event A342 Circuit 1 EEV Driver: Temp. Probe Alarm	Faulty circuit 1 thermostatic valve temperature probe. <i>Visible only on electronic thermostat units.</i>	A	A	CI	CI
343	Event A343 Circuit 1 EEV Driver: MOP Protection Active (High Evap. Temp.)	Circuit 1 Maximum Operating Pressure protection alarm. <i>Visible only on electronic thermostat units.</i>	A	A	CI	CI
344	Event A344 Circuit 1 EEV Driver: LOP Protection Active (Low Evap. Temp.)	Circuit 1 Lowest Operating Pressure protection alarm. <i>Visible only on electronic thermostat units.</i>	A	A	CI	CI
349	Event A349 Circuit 2 EEV Driver: EEPROM Damaged	Problem to circuit 2 driver. <i>Visible only on electronic thermostat units.</i>	A	A	CI	CI
350	Event A350 Circuit 2 EEV Driver: Step Motor Error	Problem to circuit 2 valve step motor. <i>Visible only on electronic thermostat units and dual circuit units</i>	A	A	CI	CI
351	Event A351 Circuit 2 EEV Driver: Pressure Probe Alarm or Compressor Failed	Faulty circuit 2 thermostatic valve pressure transducer. <i>Visible only on electronic thermostat units and dual circuit units</i>	A	A	CI	CI
352	Event A352 Circuit 2 EEV Driver: Temp. Probe Alarm	Faulty circuit 2 thermostatic valve temperature probe. <i>Visible only on electronic thermostat units and dual circuit units</i>	A	A	CI	CI
353	Event A353 Circuit 2 EEV Driver: MOP Protection Active (High Evap. Temp.)	Circuit 2 Maximum Operating Pressure protection alarm. <i>Visible only on electronic thermostat units and dual circuit units</i>	A	A	CI	CI
354	Event A354 Circuit 2 EEV Driver: LOP Protection Active (Low Evap. Temp.)	Circuit 2 Lowest Operating Pressure protection alarm. <i>Visible only on electronic thermostat units and dual circuit units</i>	A	A	CI	CI
402	Event A402 Humidifier: Life Timer Expired Reset/Clean Cylinder	Humidifier cylinder expiry alarm. <i>Visible only if internal humidity control is present</i>	A	A	U	HU
404	Event A404 Humidifier: Drain Alarm	Humidifier discharge alarm. <i>Visible only if internal humidity control is present</i>	A	A	U	HU

Code	Display description	Details	Event Time	Reset Time	Position	Action
406	Event A406 Humidifier: Loss of Water	Leak of humidifier water alarm. <i>Visible only if internal humidity control is present</i>	A	A	U	HU
408	Event A408 Humidifier: Low Current	Low humidifier current alarm. <i>Visible only if internal humidity control is present</i>	A	A	U	HU
410	Event A410 Humidifier: High Current	High humidifier current alarm. <i>Visible only if internal humidity control is present</i>	A	A	U	HU
412	Event A412 Humidifier: Generic Alarm	Generic humidifier alarm. For alarm details, please refer to the chapter on internal humidifier control.	A	M	U	HU
504	Event S504 Demand Limit Mode	Reports that the unit is operating in Demand Limit mode. <i>Visible only if enabled in systems with UPS</i>	Y	A	P	NO
510 ²	Event S510 Flood Alarm: Check Water Connections	Flooding sensor engagement signal. <i>Visible only if the detecting input is present</i>	Y	A/M	P	NO
520	Event S520 LAN Interrupted Units Not Connected:	Reports a disconnection or interruption in the local network (LAN). <i>Visible only if the local network LAN management is set</i>	Y	A	P	NO
525	Event S525 ADL Limit Reached	Signals that the Active Distribution Load function is at the operating limit because the maximum number of faulty units has been reached.	Y	A	P	NO
530	Event S530 Return Temperature Below Min. Limit	Reports that the return temperature is below the minimum set level.	S*	A	P	NO
531	Event S531 Return Temperature Above Max. Limit	Reports that the return temperature is above the maximum set level.	S*	A	P	NO
540	Event S540 Return Humidity Below Min. Limit	Reports that the return humidity is below the minimum set level. <i>Visible only if humidity control is present</i>	Y	A	P	NO
541	Event S541 Return Humidity Above Max. Limit	Reports that the return humidity is above the maximum set level. <i>Visible only if humidity control is present</i>	Y	A	P	NO
582	Event S582 Circuit 1 EEV Driver Offline	Reports electronic thermostat driver is disconnected (serial connection). <i>Visible only if the electronic thermostatic valve is present</i>	Y	A	U	CI
583	Event S583 Circuit 2 EEV Driver Offline	Reports a disconnection of the circuit 2 electronic thermostatic driver (serial connection). <i>Visible only if the electronic thermostatic valve is present</i>	Y	A	U	CI
601	Event S601 EEPROM Error: Replace Control Board	Reports a problem to the controller permanent memory.	Y	A	U	NO
610	Event S610 Maintenance Needed	Request of maintenance due to operating hour limit exceeded (fan unit, compressors, heating elements, humidifier).	Y	A	U	NO
630	Event S630 Clogged Filters: Clean or Replace Filter Element	It indicates that the air filters are dirty. <i>Visible only if the detecting input is present</i>	Y	A	U	NO

This event is displayed only if the P22.83 parameter is set as "Automatic signal" or "Manual signal"

Code	Display description	Details	Event Time	Reset Time	Position	Action
701	Event S701 Inverter Compressor 1: Discharge in Protection Zone	It indicates that the discharge temperature of inverter compressor 1 is in the Protection zone. <i>Visible only if the electronic thermostatic valve is present and if the compressor discharge temperature control function is enabled.</i>	Y	A	CO	NO
702	Event S702 Inverter Compressor 2: Discharge in Protection Zone	It indicates that the discharge temperature of inverter compressor 2 is in the Protection zone. <i>Visible only if the electronic thermostatic valve is present and if the compressor discharge temperature control function is enabled.</i>	Y	A	CO	NO
711	Event S711 BMS1 Bus Offline	Signals that the BMS1 bus is disconnected (the supervisor no longer queries the controller).	Y	A	P	NO
712	Event S712 BMS2 Bus Offline	Signals that the BMS2 bus is disconnected (the KIPLink no longer queries the controller).	Y	A	P	NO
720	Event S720 Extraction Fan on Alarm	Extraction fan not working signal.	Y	A	P	NO
721	Event S721 Fan 1 Warning	Generic signal on fan 1. See the third row for details on the problem. <i>Visible only if the unit has at least one EC fan</i>	Y	A	U	NO
722	Event S722 Fan 2 Warning	Generic signal on fan 2. See the third row for details on the problem. <i>Visible only if the unit has at least one EC fan</i>	Y	A	U	NO
723	Event S723 Fan 3 Warning	Generic signal on fan 3. See the third row for details on the problem. <i>Visible only if the unit has at least one EC fan</i>	Y	A	U	NO
724	Event S724 Fan 4 Warning	Generic signal on fan 4. See the third row for details on the problem. <i>Visible only if the unit has at least one EC fan</i>	Y	A	U	NO
725	Event S725 External Fire Sensor on Alarm	Fire signal from an external sensor.	Y	A	P	NO
730	Event S730 External Dumper on Alarm	Signal from an external damper.	Y	A	P	NO

3 STARTING THE UNIT

3.1 UNIT POWER SUPPLY



CAUTION:

Connect the unit to the power supply at least 8 hours before starting it; if this is not done, the guarantee will become null and void.

When the unit is fed, wait approximately 35 seconds before the application starts to run. This time interval may not be cancelled because it is necessary for the control board to initialise the user terminal. In this phase the user terminal display is lit but does not display anything.

When starting the programme, ventilation starts automatically without any delay, unless the unit is not connected to the local LAN network. In this case, each unit of the network is activated after a delay equal to the LAN Address for a duration of 5 seconds in order to prevent all the units from starting together when the power returns after a black-out. This risk cannot be avoided if there are several units that are not connected with each other in a network.

During start-up of the direct expansion units, a control is carried out to check that the sequence of the phases is correct before ventilation is started. If it is not correct, ventilation is not started and the incorrect sequence of phases alarm is triggered.

3.2 VENTILATION START-UP

There are different procedures for starting or stopping the unit: using the user interface buttons or selecting from the display. The procedures take the following priority in case of conflicts (from highest to lowest priority):

1. On/Off from user interface.
2. On/Off from digital input.
3. On/Off from local network (LAN).
4. On/Off from time bands.
5. On/Off from supervision.

Using the user interface

The "On/Off" parameter is displayed on the main mask. "Off" means that the unit is switched off while "On" means that the unit is switched on.

Proceed as follows:

- *Switching On:* Move to the "On/Off" parameter by pressing [ENTER] and then press [UP] or [DOWN] until "On" appears. Press [ENTER] again to confirm. If "On" continues to be displayed it means that the unit has been switched on.
- *Switching Off:* Move to the "On/Off" parameter and change to "Off" using the same procedure used to switch the unit on. Press [ENTER] again to confirm. If "Off" continues to be displayed it means that the unit has been switched off.

Using the digital input

Only if the digital input is present and if the "Enable On/Off from digital input" has been set at "Yes" in the "Regulations" menu which requires the "Service" password.

Proceed as follows:

- *Switching On:* Close the remote On/Off contact. The corresponding icon is displayed on the main mask.
- *Switching Off:* Open the remote On/Off contact. The corresponding icon is displayed on the main mask.

Using local network (LAN) protocol:

This mode requires the unit to be connected in a LAN network.

The On/Off control comes from the Master, that is, the unit whose LAN address is=1.

The corresponding icon is displayed on the main mask.

Using time bands

Make sure that "Clock card not installed" is not displayed in the **"Clock"** menu.

Check that the "Scheduler config" parameter in the **"User"** menu is set to "Yes".

Proceed as follows:

- **Switching On:** Set the required switching on time in the **"Clock"** menu. The unit switches on when the set time is reached. The "On from time bands" message appears in the main mask to show that the unit has been switched on.
Note: The unit does not switch on if it is set to "Off from keypad" or "Off from digital input".
- **Switching Off:** Set the required switching off time in the **"Clock"** menu. The unit switches off when the set time is reached. The "Off from time bands" message appears in the main mask to show that the unit has been switched off.

After enabling time bands from the "Enable time bands" parameter in the **"Scheduler"** menu, time bands can be set and different setpoints can be specified according to requirements.

The following must be defined to ensure correct use of the time bands:

1. The type of programming of the time bands:
 - **Standard:** For setting a single programming category (A), with a maximum of 10 time bands, that can be assigned to each day of the week.
 - **Advanced:** For setting up to 4 different types of programming category (A, B, C and D), with a maximum of 10 different time bands, that can be assigned to each day of the week.
2. For each day of the week:
 - Disable the time bands: On the day selected, the controller runs without the time bands.
 - Enable a type of time band (A, B, C or D): On the day selected, the controller runs as programmed.
3. For each time band:
 - Unit status: OFF (unit turned off by time bands) or in adjustment mode (unit turned ON by time bands).
 - Time band start time (for the first time band, this is fixed at 00:00).
 - Time band end time (for the tenth time band, this is fixed at 23:59).
 - Cooling setpoint.
 - Heating setpoint (when applicable and configured).



INFORMATION:

The time bands B, C and D are shown only when Advanced programming is selected.



INFORMATION:

To use a smaller number of bands, simply set the time a band ends to the same time it begins. In this way, the band in question is ignored.

Below are a few examples that, in graphical form, use bands A, B and C in the **"Clock"** menu.

The weekly chart uses band A for Monday, band B for Tuesday, Wednesday, Thursday and Friday, and band C for Saturday, while for Sunday the bands are disabled.

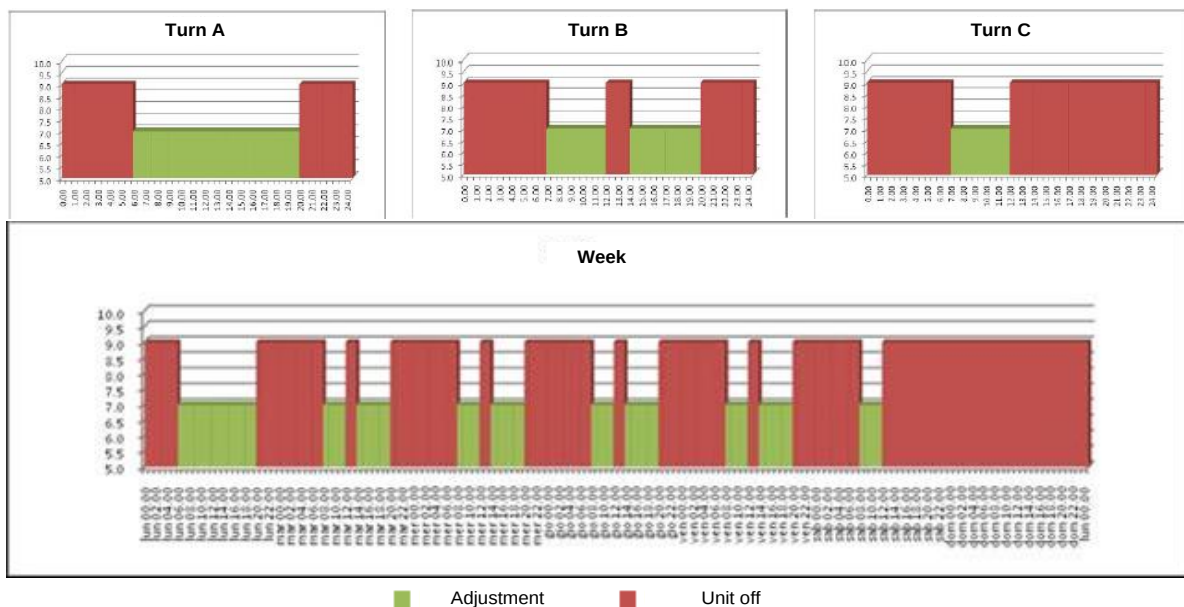


Figure 3-1: Example of daily time band settings

Using the supervision protocol

Only if the serial board is fitted.

Check in the “**User menu**” that the parameters “Serial line enabling” and “On/Off enabling from supervisor” are set at “Yes”.

Proceed as follows:

- *Switching On:* Send the switching on command from the protocol. The corresponding icon is displayed on the main mask.
Note: The unit does not switch on if it is set to “Off from keypad” or “Off from digital input”.
- *Switching Off:* Send the switching off command from the protocol. The corresponding icon is displayed on the main mask.

3.3 START OF AUTOMATIC ADJUSTMENT

Temperature and humidity adjustment is enabled 60 seconds (settable time, minimum value: 20 seconds) after the unit is activated, that is, after ventilation is started. The aim is to give the unit time to circulate the ambient air for long enough to assure correct reading of ambient temperature and humidity values.

Automatic adjustment permission is immediately withdrawn when ventilation is disabled or when the manual commands are enabled.

3.4 DEMAND LIMIT FUNCTION

The Demand Limit function was designed for those instances when the main power feed to the unit should be replaced, in case of blackout, with a UPS unit or a diesel generator. In such cases it may be necessary to report the Demand Limit status to control and disable the resources that tend to absorb a high amount of current (mostly heaters).

The parameters for configuring the Demand Limit function are in the “**Demand Limit**” menu, accessible through the “**Service**” password.



INFORMATION:

The Demand Limit function is not available for direct expansion units mounting a single compressor and chilled water units with single coil.

4 NOTES ON TEMPERATURE ADJUSTMENT

The heating and cooling resources are managed on the basis of the temperature values measured by the return or delivery probe depending on the parameter settings. This temperature is compared with the set value (set point), and based on the difference, the devices may activate. The proportional band selects the working area and may assume (as for the set points) different heating and cooling values.

4.1 REGULATION PROBE MANAGEMENT

For all the units, except the direct expansion units with only on/off compressors, it is possible to choose between the following probes for adjustment:

- Intake air probe.
- Delivery air probe.

The regulation with delivery air probe is allowed only if the heaters are not present.

5 COOLING

5.1 CHILLED WATER UNIT COOLING

5.1.1 Cold water valve management

Chilled water unit cooling is performed by opening and closing the cold water coil valve according to the cooling demand, as reported in the following diagram.

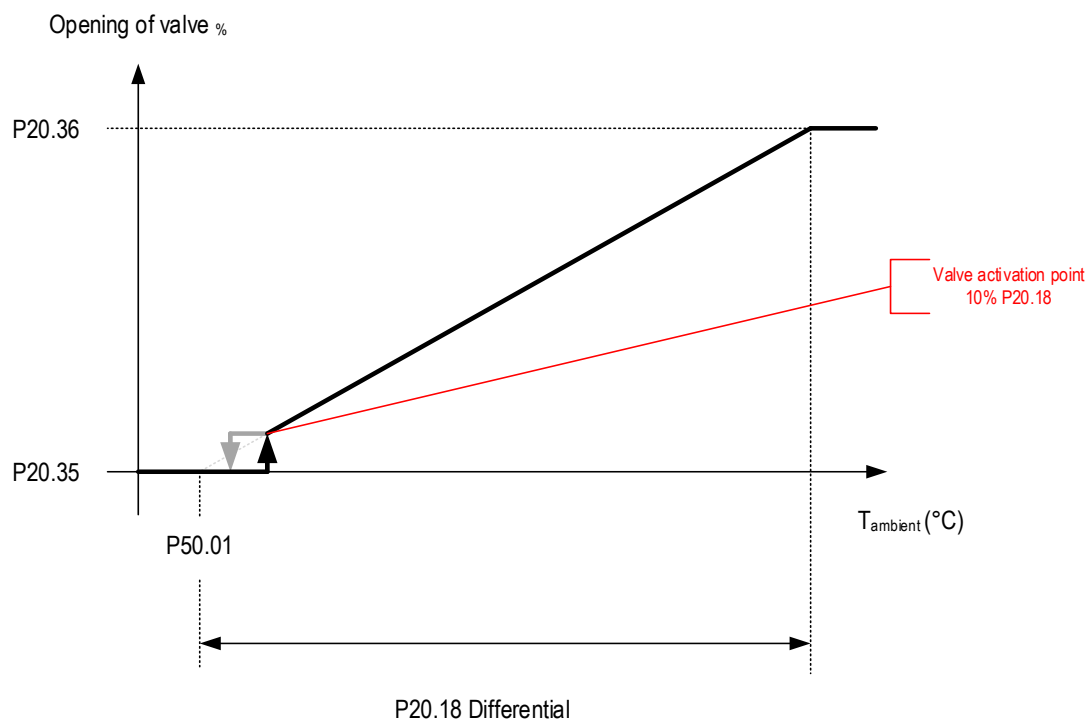


Figure 5-1: Cold water valve activation graph

The cooling Setpoint parameter is in the “**Setpoint**” menu.

The cooling proportional Band parameter is in the “**Regulations**” menu, accessible through the “**Service**” password.

For particular needs, it is also possible to set the minimum and maximum valve opening percentage by adjusting the parameters accessible through the “**Service**” password.

5.1.2 Summer/Winter management

It is possible to use the water coil to cool in the summer (with cold water from a chiller) and heat in the winter (with water from a heat pump or a boiler). In the passage between two modes of operation, the regulation logic is inverted.

It is possible to switch from a mode to another as follows:

- From a digital input.
- From the user terminal.
- From a supervisor.

If this function is enabled and the electric heaters are also present, in winter conditions are available two heat resources at the same time, namely, the hot water and the electric heaters. The choice between the two depends on the temperature of the water.

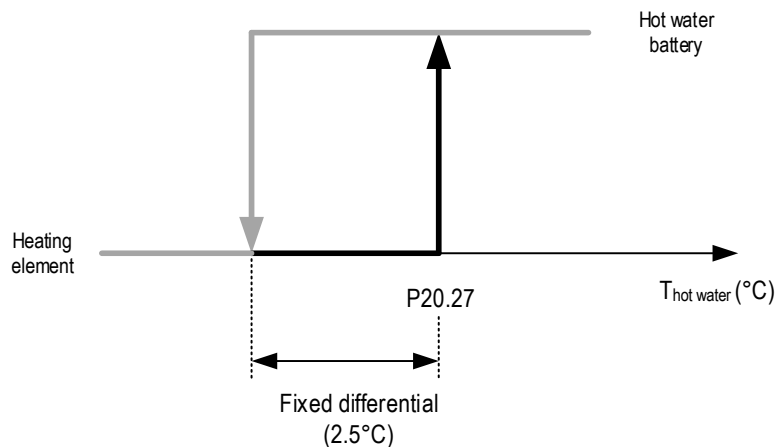


Figure 5-2: Water coil and heater use change management

The hot water set is under the **“Regulations”** menu, accessible through the **“Service”** password.

The hot water differential is fixed, may not be modified, and is set at 2.5°C.

5.1.3 Coil change management (Dual Coil units)

For Dual Coil units, or chilled water units with two coils (a main coil and a secondary backup coil), it is possible to choose from the following coil changing modes.

- By digital input (Standard mode).
- By command from supervision system.
- With water temperature.

The parameters for enabling the coil changing modes with digital contact or with water temperature are in the **“Settings” Menu** accessible by entering the **“Service” password**, while the enabling of coil changing by a command from the supervision system is in the **“Serial” menu** accessible by entering the **“User” password**.

If the coil changing mode with water temperature is activated, control is switched between the circuits if the water exceeds the set limit for the time in P14.03. The controller automatically sends the signal from the main circuit to the backup circuit. The return to the main circuit takes place automatically when the water temperature falls below the differential.

To avoid continuous switching from one coil to the other, a minimum time has been defined that must elapse between two consecutive switches. Moreover, to give the system time to stabilise during start-up, the detection of the water temperature is inhibited for the time in the parameter P20.72 (set at 10 minutes by default).

The diagram below sums up the operation of this mode.

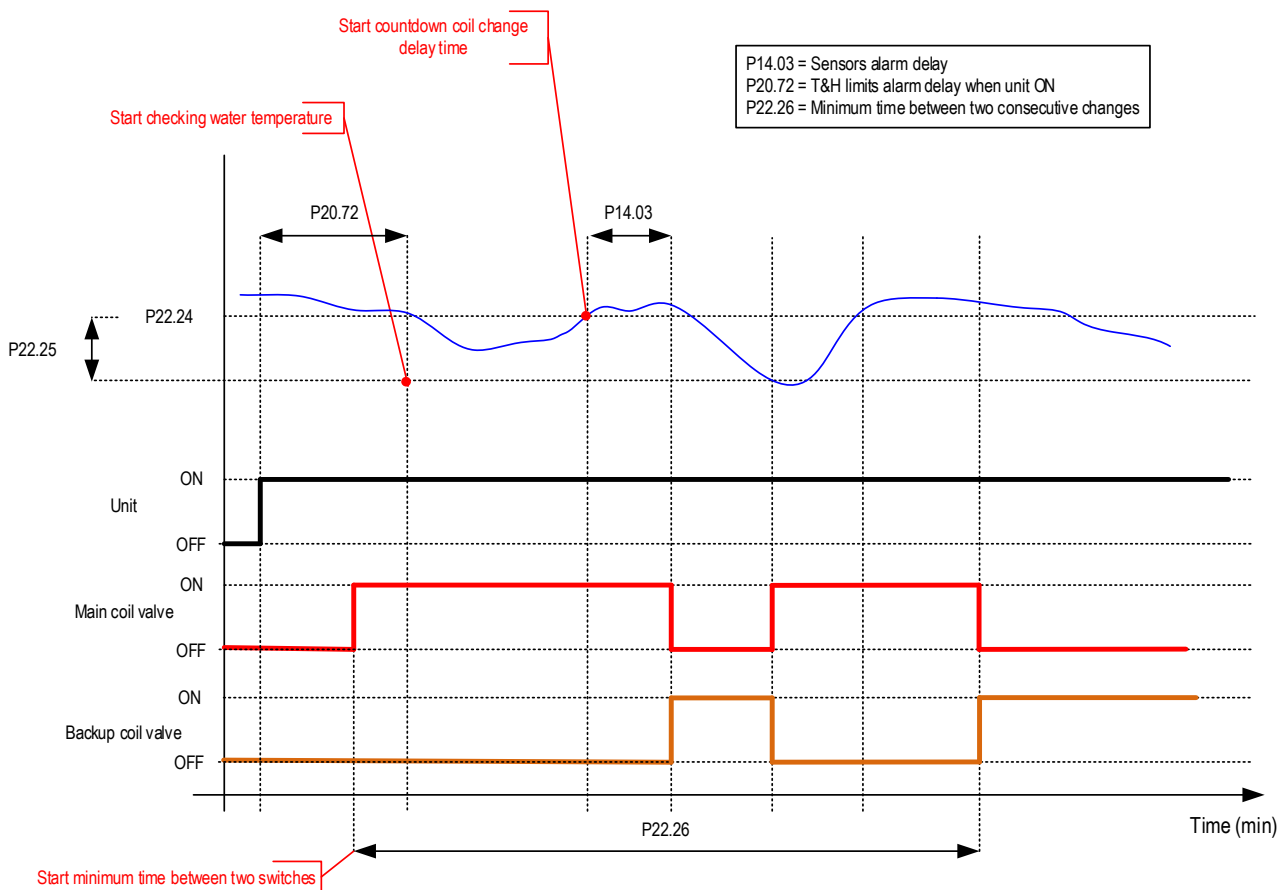


Figure 5-3: Coil change management with water temperature

The Set change parameter and the differential are in the **“Settings” menu**, accessible by entering the password **“Service”**.

If the unit is also configured for Summer/Winter management, as described previously, and Winter mode is active, the coil change takes place if the water temperature falls below the set limit for the time in P14.03.

The diagram below illustrates this mode.

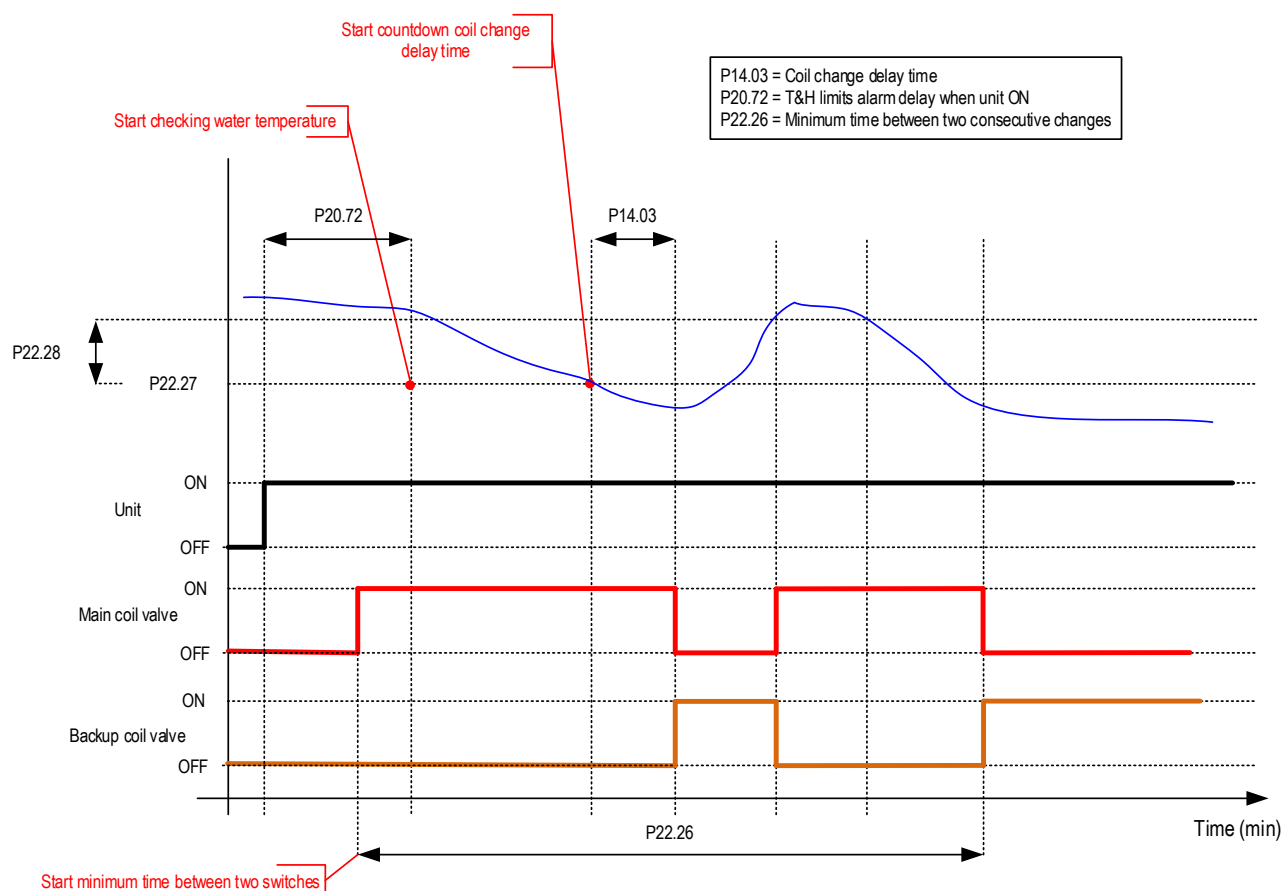


Figure 5-4: Coil change management with water temperature in Winter mode

The Set change parameter and the differential are in the “**Settings**” menu, accessible by entering the password “**Service**”.



INFORMATION:

The selection of one of the three coil changing modes automatically excludes the other two modes, and also excludes the management of coil sharing. This automatic feature cannot be forced in any way.



CAUTION:

The battery changing mode with water temperature is active only if the water probes are correctly connected and are not faulty.

5.1.4 Coil sharing management

This function allows you to balance the signal requesting the opening of the cold/hot water valve of Dual Coil units in the two circuits.

Balancing is managed by defining a "Weight" of the main coil with respect to the backup coil. In this way it is possible to define whether the main circuit is more or less performing than the backup coil, which results in a reduction of the valve opening signal of one of the coils depending on the weight value.

If one of the two coils is in alarm mode, it is disabled and adjustment is carried out with a single coil. The return to the initial sharing situation takes place automatically when the alarm condition is ended.

If an ambient high temperature alarm is activated, both circuits are activated with the maximum signal.

The diagram below represents the management of the outputs based on the value attributed to the "Weight".

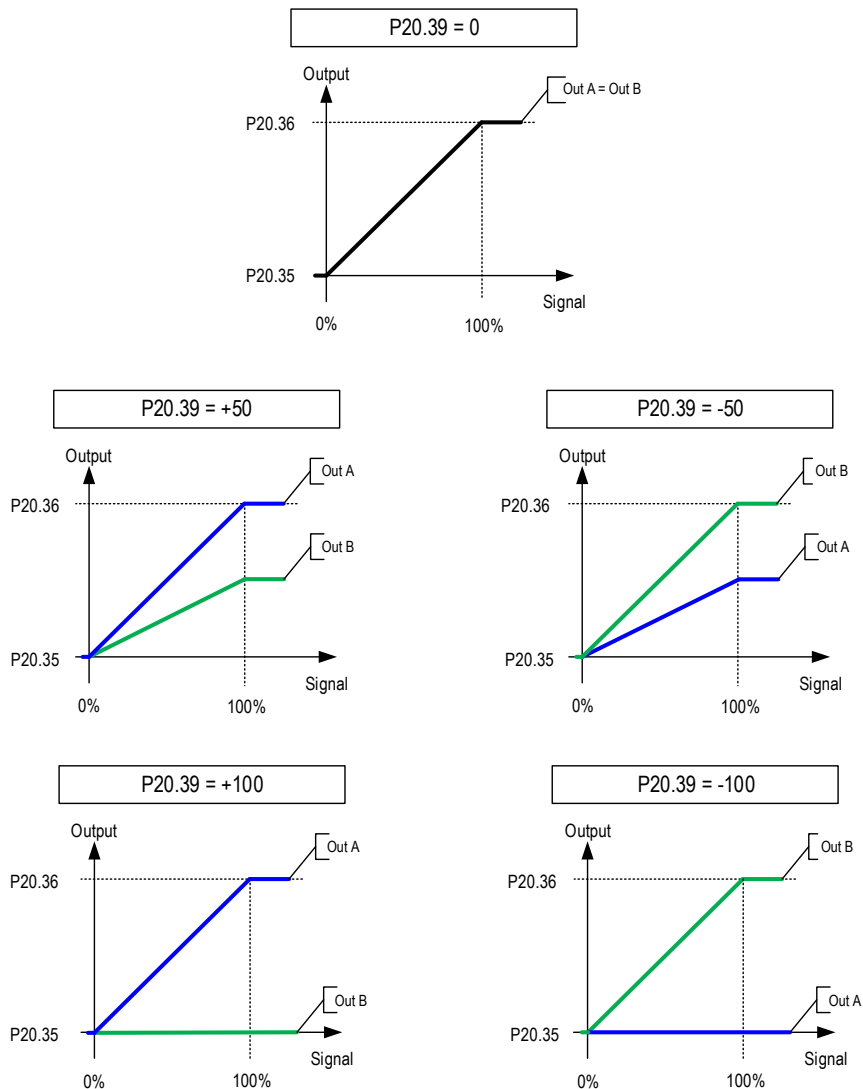


Figure 5-5: Weight value management

When starting the system, the detection of the water temperature is inhibited for the time in the parameter P20.72 (set at 10 minutes by default). When this time has elapsed, if the water temperature exceeds the limit defined by the parameter (P14.03) the outlet of the corresponding coil is zero-set immediately.

To avoid untimely signals due to the oscillation of the water temperature when the water temperature exceeds the set limit, a delay time set by parameter is counted after which the outlet of the circuit in alarm status is zero-set.

The normal situation returns when the water temperature falls below the set limit with a differential of 2°C.

The diagram below illustrates the situation just defined.

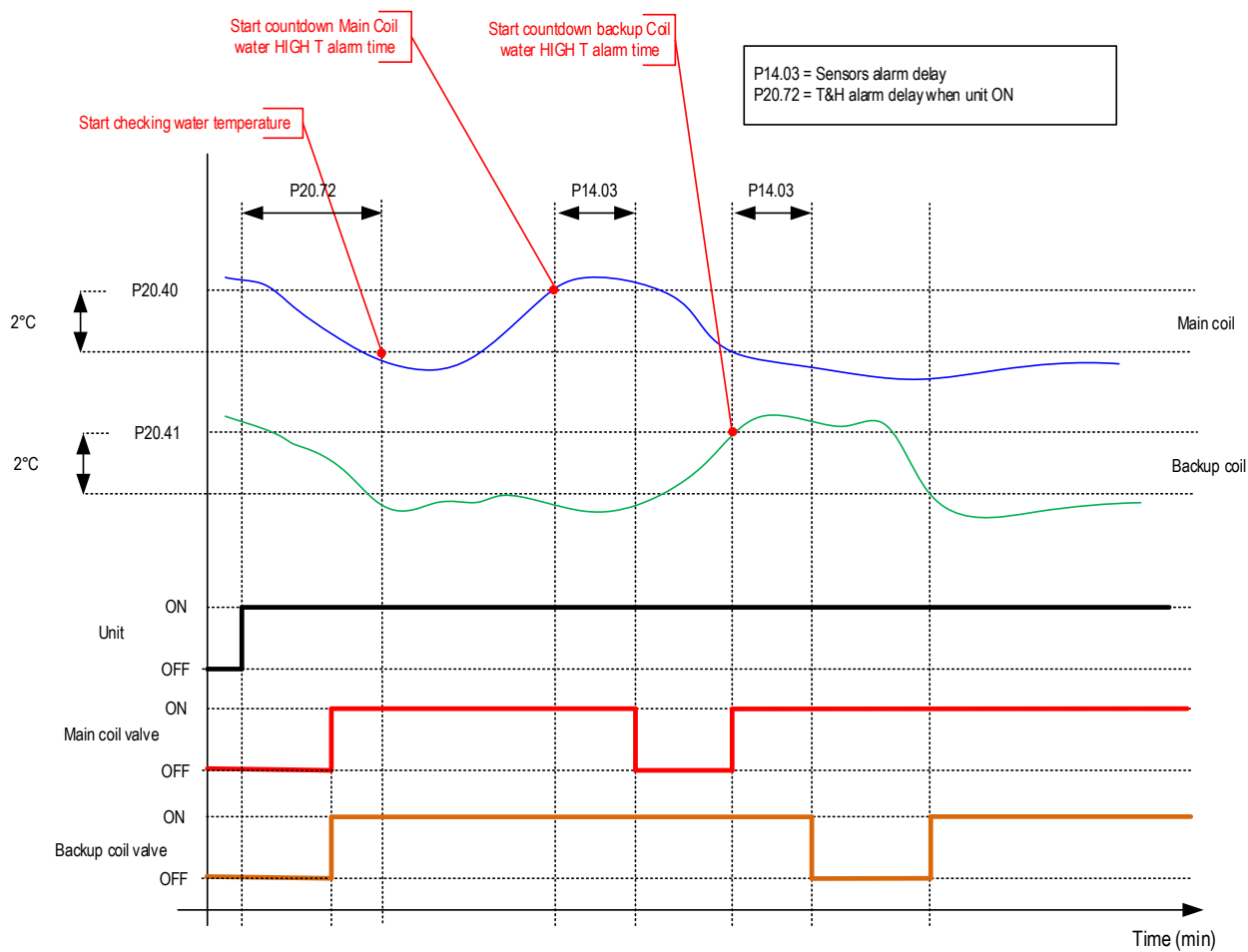


Figure 5-6: Sharing function management with High water temperature alarm

If the unit is also configured for Summer/Winter management, as described previously, and Winter mode is active, the zero-setting of the signal of the coil in alarm mode takes place if the water temperature falls below the set limit for the time in P14.03.

The normal situation returns when the water temperature rises above the set limit with a differential of 2.5°C.

The diagram below illustrates this mode.

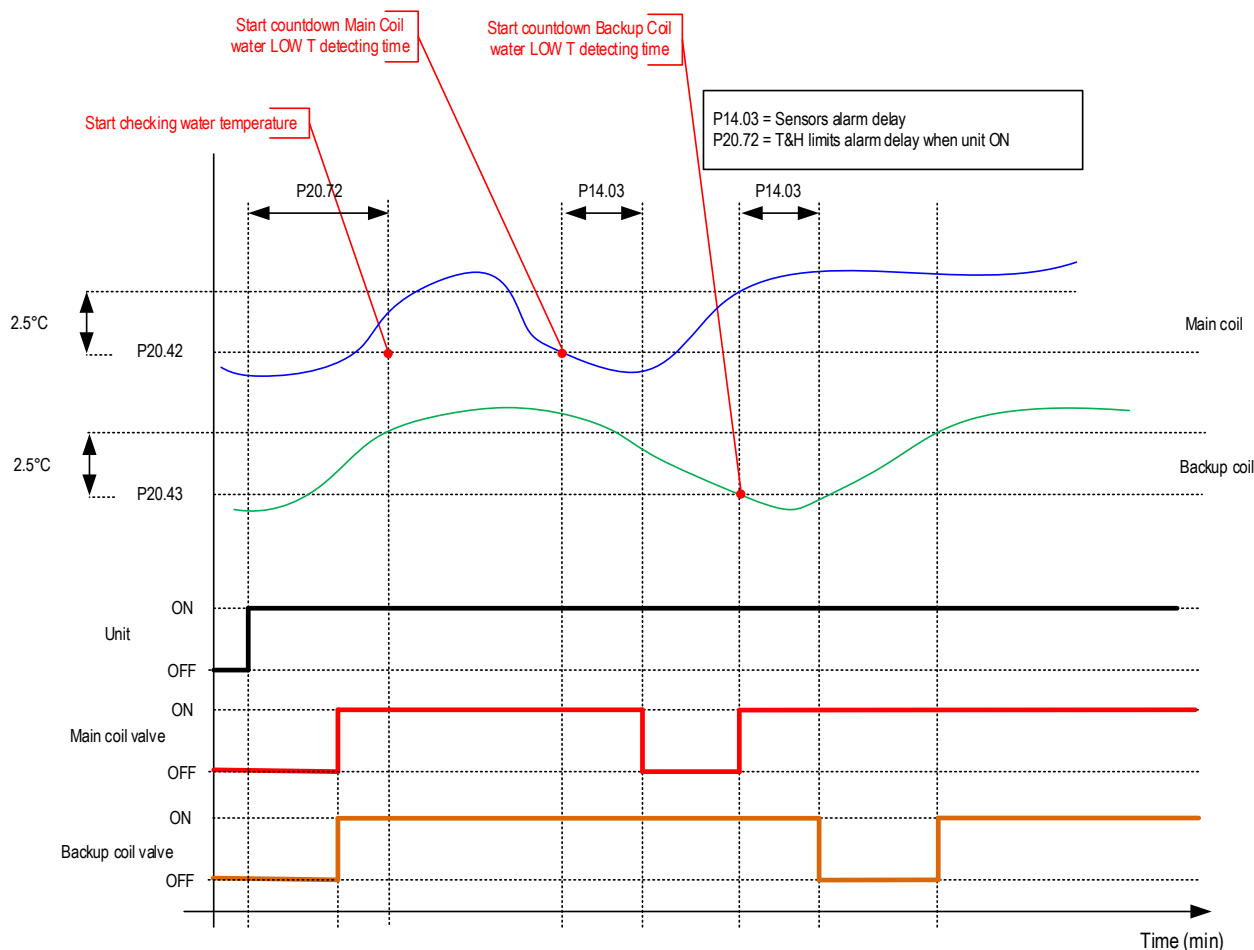


Figure 5-7: Sharing function management with LOW water temperature alarm

All the parameters for managing the coil sharing function are in the **“Regulations”** menu, accessible by entering the **“Service”** password.



INFORMATION:

The selection of sharing management automatically excludes the coil changing modes described previously. This automatic feature cannot be forced in any way.

5.2 DIRECT EXPANSION UNIT COOLING

In direct expansion units, cooling takes place by activating the compressors.

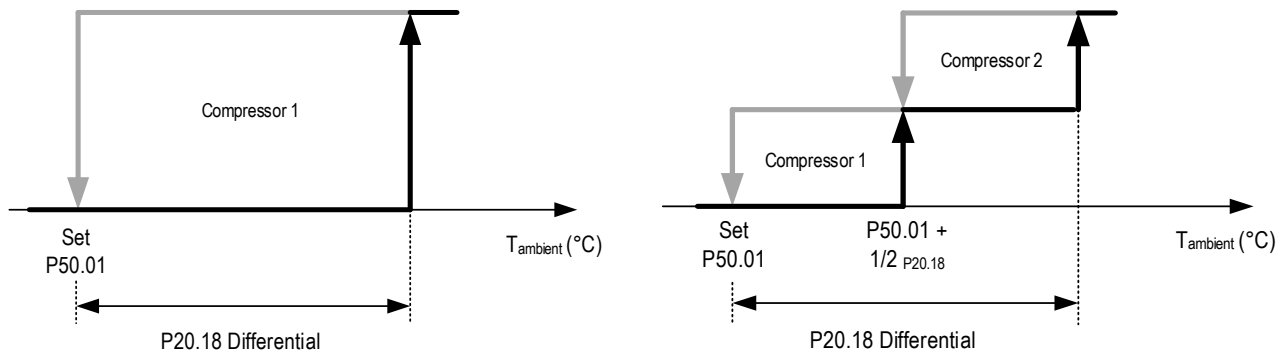


Figure 5-8: Graph of compressor activation in units with one on/off compressor and with two on/off compressors

The cooling Setpoint parameter is in the “**Setpoint**” menu.

The cooling proportional Band parameter is in the “**Regulations**” menu, accessible through the “**Service**” password.

5.3 COOLING IN DIRECT EXPANSION UNITS WITH INVERTER COMPRESSOR

The use of an inverter compressor allows to adjust the unit’s power output based on the actual demand of the dissipating load. The adjustment is performed by activating the inverter compressors and using their cooling capacity as much as possible before activating the on/off compressors.

All inverter compressors management parameters are set and tested directly by the manufacturer, so that on site parameter changes will not be necessary.

It is possible to enable fan modulation in combination with inverter regulation (enabled by default by the manufacturer). The purpose is to decrease fan absorption, therefore increasing unit efficiency.

By enabling the function, the inverter output ramp value is applied to the fan.

In order to dehumidify, the compressor will be brought up to the maximum operating frequency.

The flow of the fan is brought up to a set value.

5.4 COOLING IN INDIRECT FREE COOLING UNITS

As a principle, regulating the Indirect Free Cooling unit cooling takes place as follows: When condensation water is considered “suitably” low, the water regulation process begins based on the thermal load, just like in normal chilled water units.

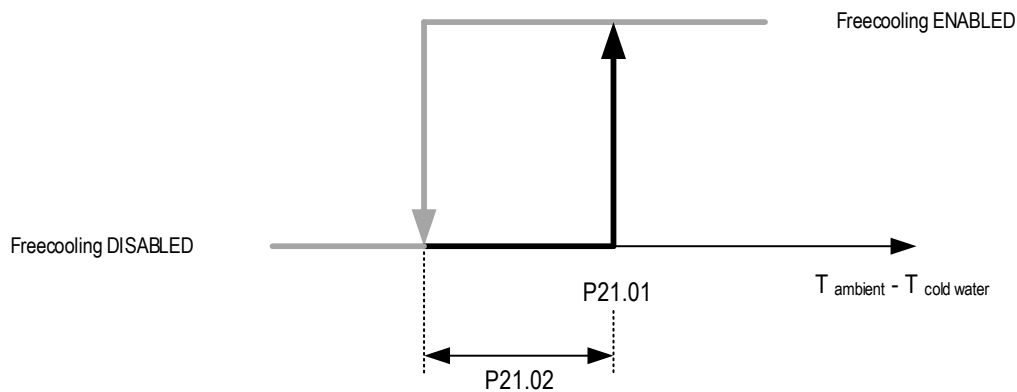


Figure 5-9: Enabling Free Cooling operation

The Set FC and differential FC parameters are under the “Free Cooling” menu, accessible through the “Service” password.

If Free Cooling alone cannot deal with the thermal load (at maximum valve opening the room temperature keeps rising), mechanical cooling also kicks in.

The proportional band is taken by the resources as indicated in the following graphs:

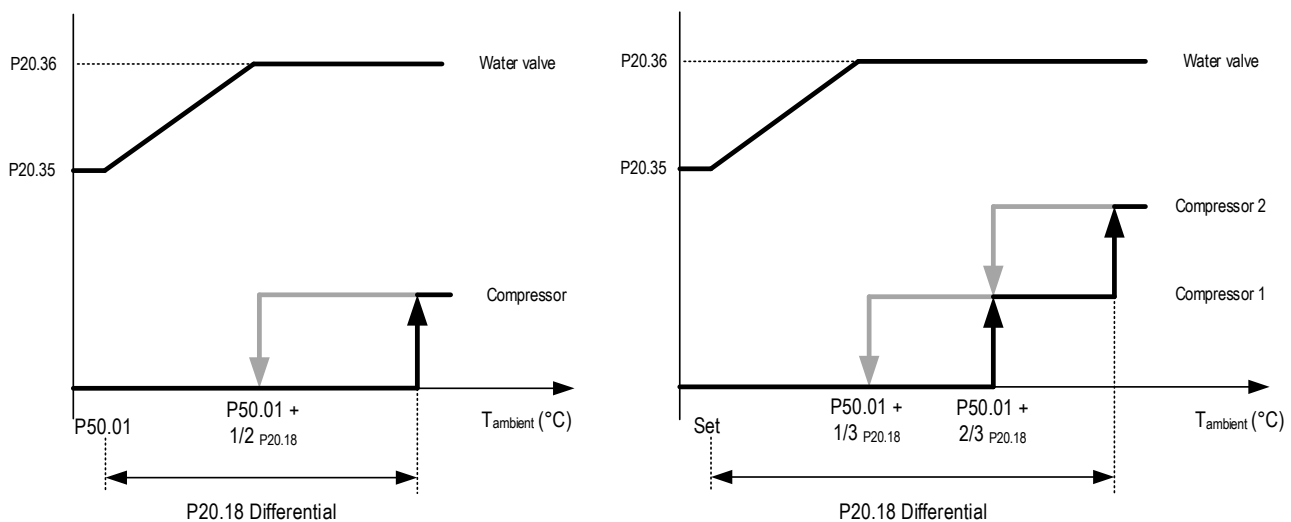


Figure 5-10: Graph of Indirect Free Cooling resources activation in units with one on/off compressor and with two on/off compressors

5.4.1 Dehumidification in Free Cooling units

In case of dehumidification, Free Cooling operation is inhibited and the unit behaves as a classic direct expansion unit.

5.4.2 Dry-cooler adjustment

The control system also includes dry-cooler fan speed adjustment by means of a 0-10 V analogue output (adjustable fans).

The adjustment takes place according to a given water temperature setting (adjustable from the user terminal) and a given differential.

The summer and winter water setting parameters are under the “Free Cooling” menu, accessible through the “Service” password.

The summer and winter water differentials are fixed, may not be changed and are set at 6°C.

5.5 DUAL-FLUID UNIT COOLING

5.5.1 Operating principle of the Dual-fluid units

Dual-fluid units feature two completely independent cooling resources integrated in the same unit:

- Main: Chilled water cooling coil (CW).
- Secondary: Direct expansion cooling coil (DX).

Usually this type of unit is employed where there is a chiller, which in turn may not guarantee chilled water at the right temperature throughout the year. This could be a way to have a backup cooling method in case of hydraulic circuit fault. In any case, this is first and foremost a chilled water unit, supported by one or more cooling circuits fitted with a compressor.

5.5.2 Switching mode

It is possible to switch between chilled water and direct expansion in any one of the following ways:

- Water temperature (standard).
- Digital contact.
- Command from supervisor.



CAUTION:

If the DX circuit is set as the primary one, none of the three switching modes are available and switching occurs only if the DX circuit is in alarm mode.

If direct expansion operation should be ruled out, then any type of switch management is ignored and the unit operates always at chilled water. The opposite applies when chilled water operation is disabled. It is not possible to disable both operation modes.



INFORMATION:

Selecting one of the three methods automatically excludes the other two. This automatic feature cannot be forced in any way.

The parameters for selecting the temperature switching methods and digital contact are in the **"Settings" Menu** accessed by entering the **"Service" password**.

The parameter for selecting the supervisor command switching method is in the **"Serial" Menu** accessed by entering the **"User" password**.

5.5.3 Switching logic based on the water temperature

The chilled water circuit is used during normal operation, with the direct expansion circuit as a backup cold source.

Main adjustment involves the constant verification of water and ambient temperature during normal operation in CW mode.

Switching to DX mode occurs only when all the following three conditions are met at the same time (with P22.74=0):

1. The water temperature is above the limit set in the parameter.
2. The difference between the ambient temperature and the water temperature is less than the value set in the parameter.
3. Direct expansion cooling is not in alarm mode.

First condition:

Continuous control of the temperature of the cold water begins and, when the temperature is above this limit:

$$\text{Cold water temperature} \geq P22.07 + P22.08$$

The first condition for switching from CW mode to DX mode is met.

The chart below illustrates the limit described above.

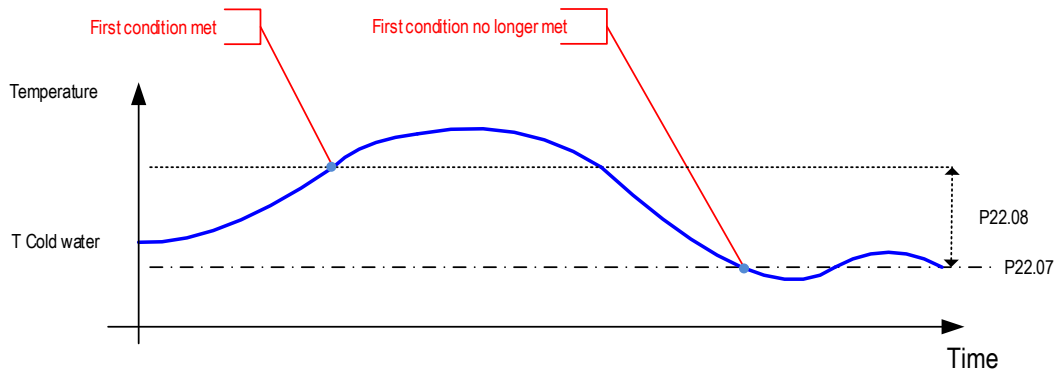


Figure 5-11: First condition for switching

Second condition:

Continuous control of the difference between ambient temperature and the temperature of the cold water begins when the difference between the two temperature values is below this limit:

$$\text{Ambient temperature} - \text{Cold water temperature} \leq P22.50 - P22.51$$

The second condition for switching from CW mode to DX mode is met.

The chart below illustrates the limit described above.

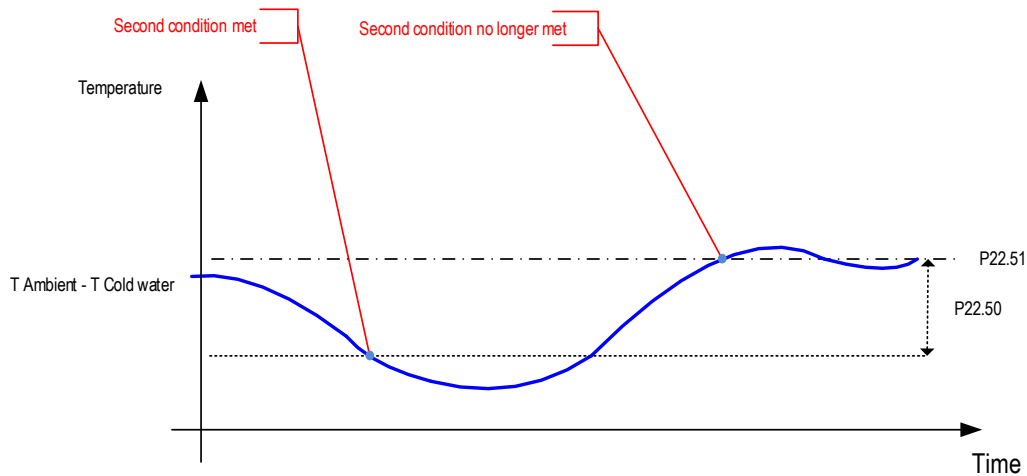


Figure 5-12: Second condition for switching

Third condition:

There are no active compressor alarms and no DX circuit high temperature alarm.

When the water temperature ceases to meet the first two conditions described above, at least 12 minutes must elapse after tripping of the most recent alarm before the unit can continue operation with chilled water. This is to avoid the switches to be too frequent between the two operation conditions, especially if the hydraulic system features frequent and high variations in water temperature.

The direct expansion operation switch happens even if one of the two following alarms goes off during chilled water operation:

- High room temperature alarm.
- Chilled water temperature probe fault alarm.

In order to switch from DX mode to CW mode, one of the following conditions must be met (with P22.74=0):

- *Cold water temperature* $\leq$ P22.07.
- *Ambient temperature* – *Cold water temperature* $\geq$ P22.50.
- *DX Circuit in alarm*.

By changing the P22.74 parameter to 1, it is possible to enable the DX circuit as the primary one and the CW circuit as back-up. In this case, the switching logic is as follows:

- Any alarm on the direct expansion circuit causes switching to CW.



CAUTION:

Switching takes place even if the CW circuit is in alarm mode. Alarms (for instance high water temperature) do not block switching.

- Return to normal operation occurs the moment that the alarms on the DX circuit stop.



INFORMATION:

All the safety times of the compressor must be respected for return to normal operation.

The parameters for enabling chilled water mode and the differential are in the “**Settings**” menu that can be accessed with the “**Service**” password. For the default values, see the parameters table.

Moreover, it is possible to define a valve opening percentage for the chilled water circuit in use when the unit is operating in DX mode (hence, with the CW circuit in standby).

This parameter is in the “**Regulations**” menu that can be accessed with the “**Service**” password.

5.5.4 Forcing direct expansion mode

It is possible to force the direct expansion mode if the regulation temperature is higher than a certain definite one.

The operating condition is expressed by the step shown in the following graph.

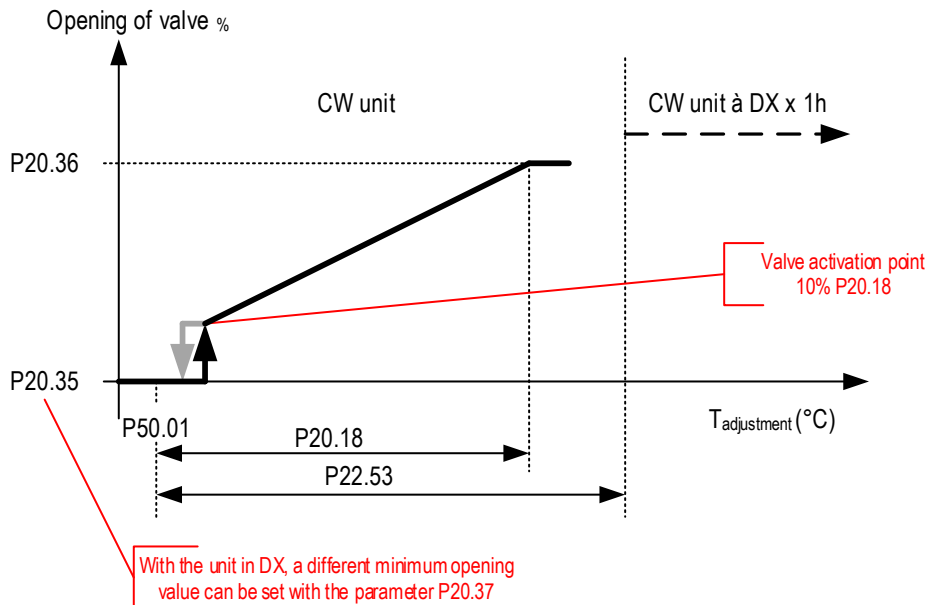


Figure 5-13: DX forcing graph

If the regulation temperature (ambient or delivery according to the configuration) exceeds the set value, the unit is forced to run in direct expansion mode for a set and not changeable time of 60 minutes.

At the end of this time the unit will go back to the correct mode if the set conditions are met.

5.5.5 Switching for maintenance from Supervisor

It is possible to enable forcing in the Dual Fluid units for switching between the two circuits for maintenance (P30.10).

The switching logic is given unequivocally when requested by the supervisor.

Refer to the Evolution+ interfacing manual for further information on the logic for managing the maintenance command from BMS.

The switch is also indicated with flashing of the function on the mask of the active functions of the unit.

Refer to the chapter "Special display of masks" for further information.

The parameters for enabling and setting the function are in the **"Serial" menu** that can be accessed with the **"User" password**.

5.6 MINIMUM DELIVERY TEMPERATURE LIMIT

Setting a minimum limit to the delivery temperature may be a request justified by the presence, very close to the unit delivery outlet, of devices that are sensitive to relatively low temperatures.

The delivery temperature may decrease excessively only because of a sudden and abrupt decrease in the cold coil temperature, which has a noticeable effect on the room temperature only after a given time interval.

As soon as the delivery temperature falls below the set value, the cooling demand is reset, and subsequently the compressor turns off in the direct expansion units or the valve in the chilled water unit closes.

This function is managed by considering the ramp of the minimum values shown in the following figure.

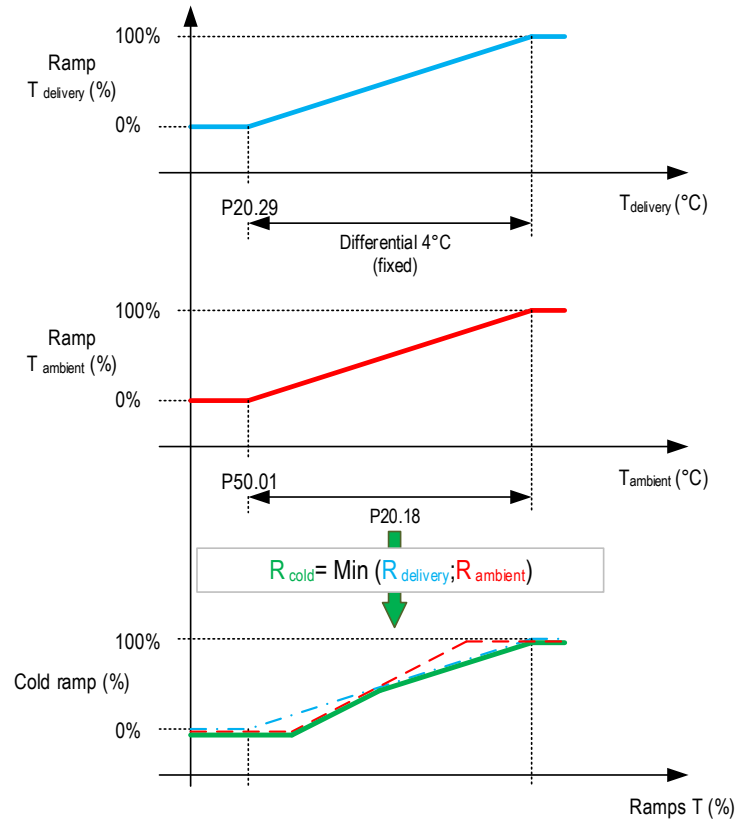


Figure 5-14: Cooling demand limit graph

The minimum delivery set parameter is in the “Regulations” menu, which can be accessed by entering the “Service” password.

6 HEATING

6.1 HEATING SOURCES

The sources available for ambient air heating are the following:

- Heating elements, managed as simple ON/OFF loads or with management of a modulating heating element.
- Hot water coil.

6.2 ON/OFF HEATING ELEMENT MANAGEMENT

The heating elements, when present, are given by two loads having different power; they are, therefore, always managed according to three heat steps, as shown in the diagram below.

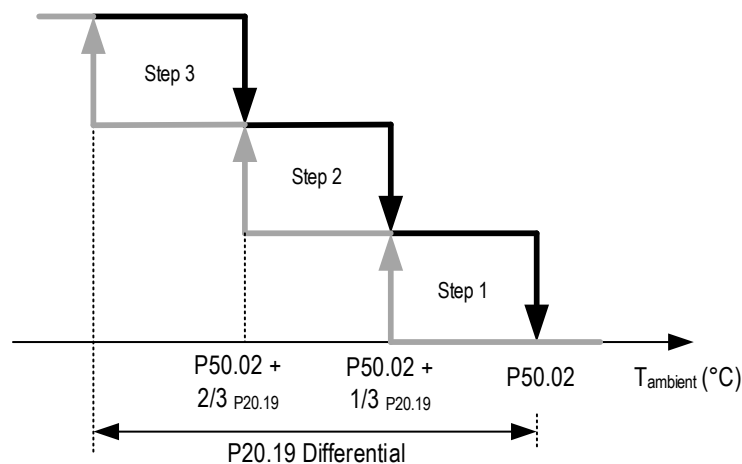


Figure 6-1: Heat sources management graph

The heating Setpoint parameter is in the **“Setpoint”** menu.

The heating differential parameter is in the **“Regulations”** menu, which can be accessed by entering the **“Service”** password.

Activating the heating elements is possible only when all the following conditions are met:

- Adjustment consent is active.
- The heating element overheating alarm is not present (from thermostat).
- The valve of the hot water coil (if any) is not open yet (when there are two sources at the same time).
- The heat gas by-pass is present (for post-heating) and the dehumidifier is active.
- None of the compressors are in cooling mode.
- The operation of the heating elements is enabled during Demand Limit (in case of active DL).

6.3 MANAGEMENT OF A MODULATING HEATING ELEMENT

Heating in the units with a modulating heating element takes place according to the heating demand, as shown in the following diagram.

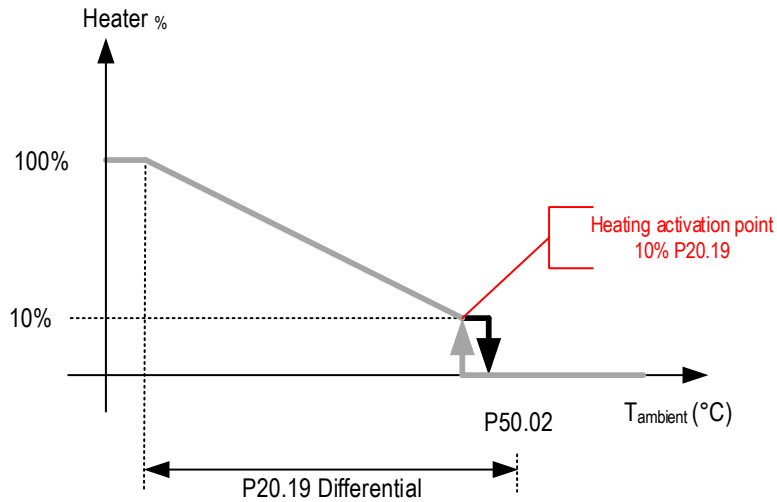


Figure 6-2: Chart of management of a modulating heating element

The heating Setpoint parameter is in the “**Setpoint**” menu.

The heating differential parameter is in the “**Regulations**” menu, which can be accessed by entering the “**Service**” password.

Activating the heating elements is possible only when all the following conditions are met:

- Adjustment consent is active.
- The heating element overheating alarm is not present (from thermostat).
- The valve of the hot water coil (if any) is not open yet (when there are two sources at the same time).
- The heat gas by-pass is present (for post-heating) and the dehumidifier is active.
- None of the compressors are in cooling mode.
- The operation of the heating elements is enabled during Demand Limit (in case of active DL).

6.4 HOT WATER COIL MANAGEMENT

Heating in the hot water coil units takes place by opening/closing the coil valve according to the heating demand, as shown in the following diagram.

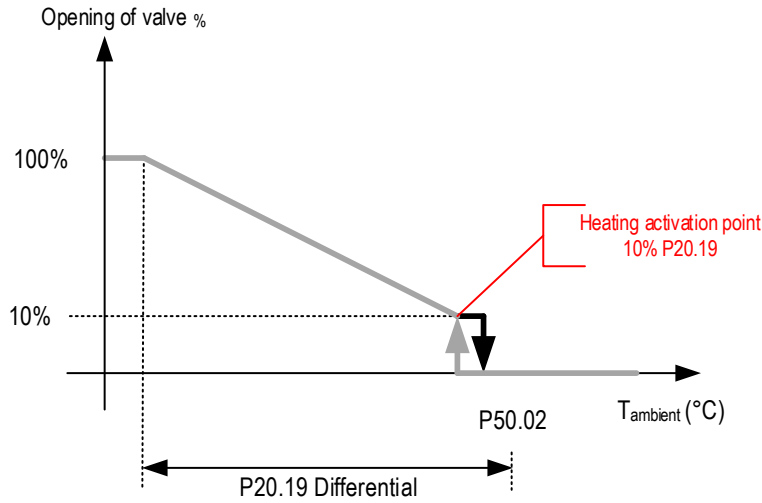


Figure 6-3: Hot water valve regulation graph

Activating the hot water coil is allowed only when all the following conditions are met:

- Adjustment consent is active.
- The heat gas by-pass is present (for post-heating) and the dehumidifier is active.
- None of the compressors are in cooling mode.
- In case the hot water temperature probe is present, if the consent step is active (see the following paragraph).

The hot water regulation enable step is shown in the following diagram.

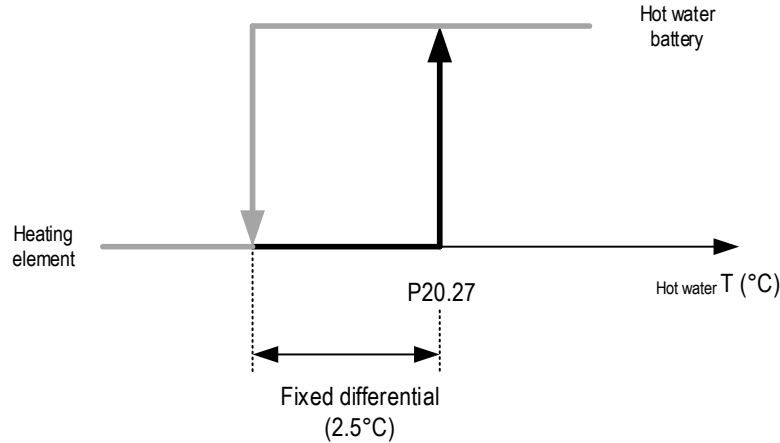


Figure 6-4: Heater/hot water coil management graph

6.5 POST-VENTILATION FUNCTION FOR THE ELECTRIC HEATERS

This function, available for all the units equipped with electric heaters, is for cooling the electric heaters when the unit is turned off and the electric heaters are still active.

When the OFF command is given (at the keyboard, by the supervisor, or remotely), the fan continues to run at nominal speed for a period of time set in the parameter.

The diagram below illustrates the function described above.

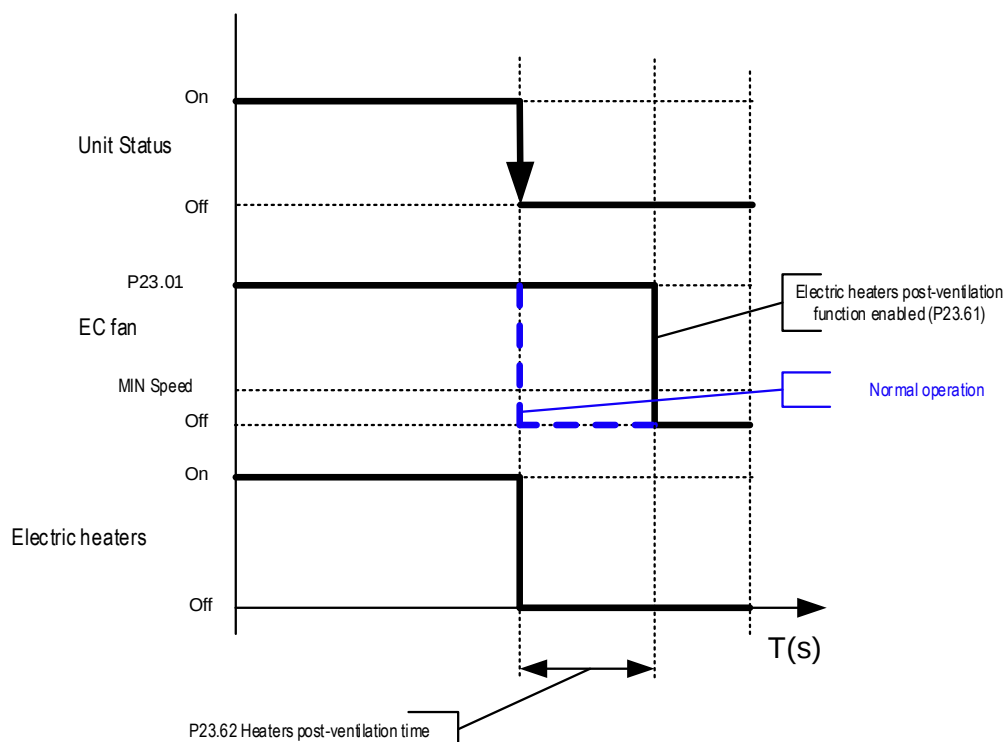


Figure 6-5: The chart illustrates the Post-Ventilation function for the electric heaters.

During the post-ventilation cycle, the icons of the electric heaters and fans flash on the main mask.

The parameters for enabling and configuring the Post-Ventilation function are in the **"Fan" menu**, which can be accessed by entering the **"Service" password**.

For the default values, see the parameters table.

7 DEHUMIDIFY

7.1 DEHUMIDIFICATION START-UP

Activating dehumidification happens through an On/Off logic according to the step reported in the following diagram.

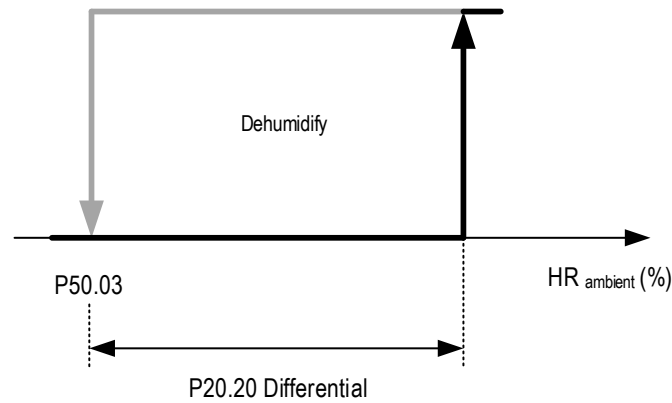


Figure 7-1: Dehumidification start-up graph

The dehumidify setting parameter is under the **“Set point”** menu.

The dehumidify differential parameter is under the **“Regulations”** menu, which can be accessed by entering the **“Service”** password.

The actions following the above step activation are enabled:

1. After regulation consent.
2. If the room humidity probe is present.
3. If the dehumidify regulation is enabled.
4. If there is no room humidity probe alarm.

The step activates only when at least 6 minutes have expired from the previous activation.

7.2 DIRECT EXPANSION UNIT DEHUMIDIFICATION

In direct expansion units, activating the dehumidification step implies the activation of cooling circuit 1.

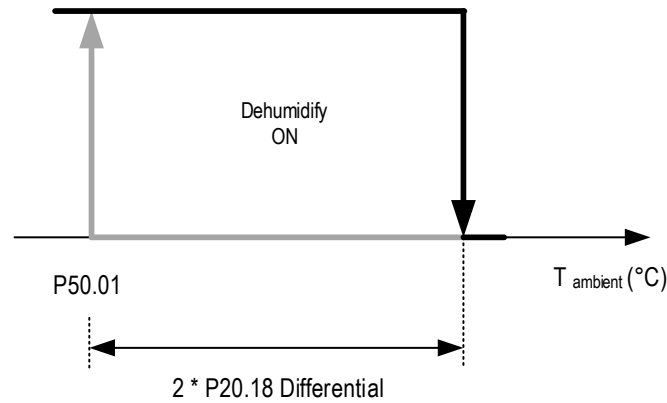
7.3 CHILLED WATER UNIT DEHUMIDIFICATION

In chilled water units, activating the dehumidification step implies full opening of the cold water valve of the circuit in use.

7.4 DEHUMIDIFICATION LIMITS

7.4.1 Upper limit

For all the units, there is an absolute upper limit managed according to the step shown in the graph below.



Dehumidification is deactivated if room temperature exceeds the limit set out in the following formula:

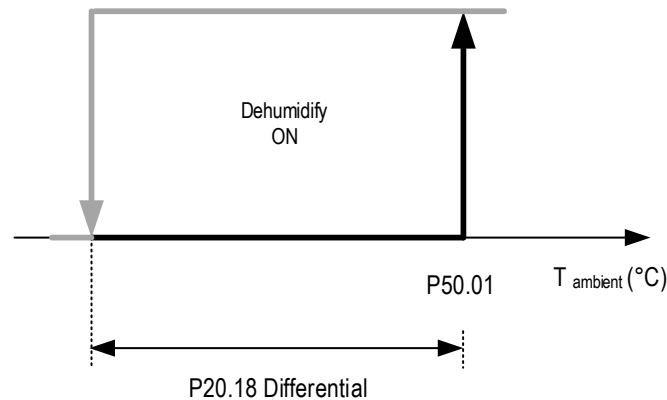
$$\text{Upper limit} = \text{Cold Set [P50.01]} + (\text{Cold differential [P20.18]} * 2)$$

The dehumidifier will restore normal operation when the room temperature value falls below the “Cooling setpoint” parameter value.

7.4.2 Lower limit

There is also an absolute lower limit for dehumidifier operation; it is managed according to a step whose position on the room temperature axis depends on the presence or absence of sources for post-heating, if any.

If there are **no** heat resources available (heaters or hot water coil), the lower limit step refers to the cooling setpoint, as shown in the following figure.



If there are heating resources available, the lower limit step refers to the heating setpoint, as shown in the following figure.

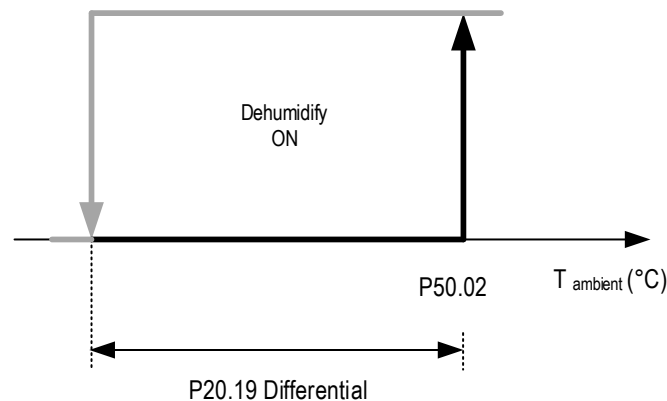


Figure 7-4: Lower dehumidification limit graph for units with heat sources

The cooling setpoint and heating setpoint parameters are in the **“Setpoint”** menu.

The heating and cooling differential parameters are in the **“Regulations”** menu, which can be accessed by entering the **“Service”** password.

Dehumidification continues as normal when the room temperature value rises above the “cooling setpoint” or “heating setpoint” parameter value.

7.4.3 Combination of the limits

Combined use of the high and low limits is shown in the graph below.

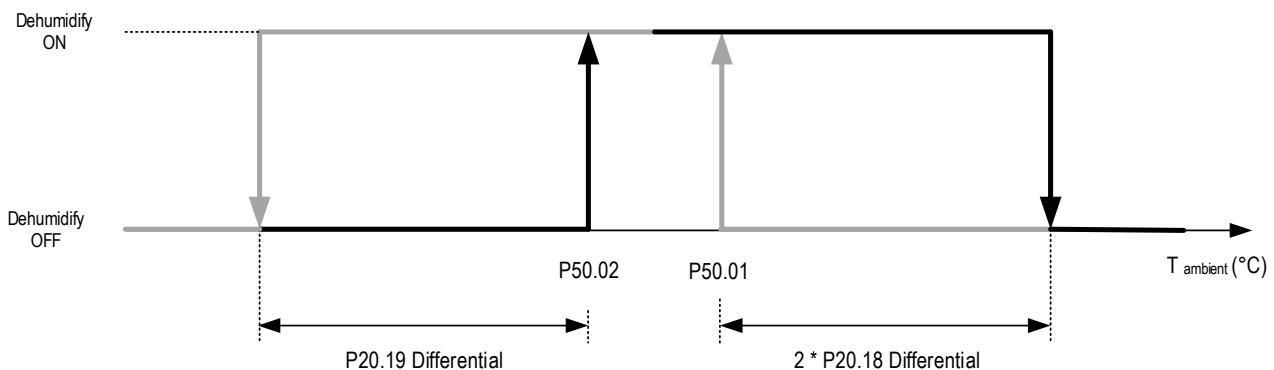


Figure 7-5: Dehumidification temperature limit graph

7.4.4 Low dehumidification temperature limit

In case of a direct expansion unit, there is another limit above which, irrespective of whether there are any heating/post heating sources, the dehumidification function is immediately inhibited.

This limit keeps the unit from operating under low evaporation conditions.

The parameter for defining the low temperature limit is under the **“Set Point”** menu.

For the default values, see the parameters table.

7.4.5 Post - heating

The heat resources available for post-heating may be:

- Electric heaters.
- Hot water coil.
- Heat gas.

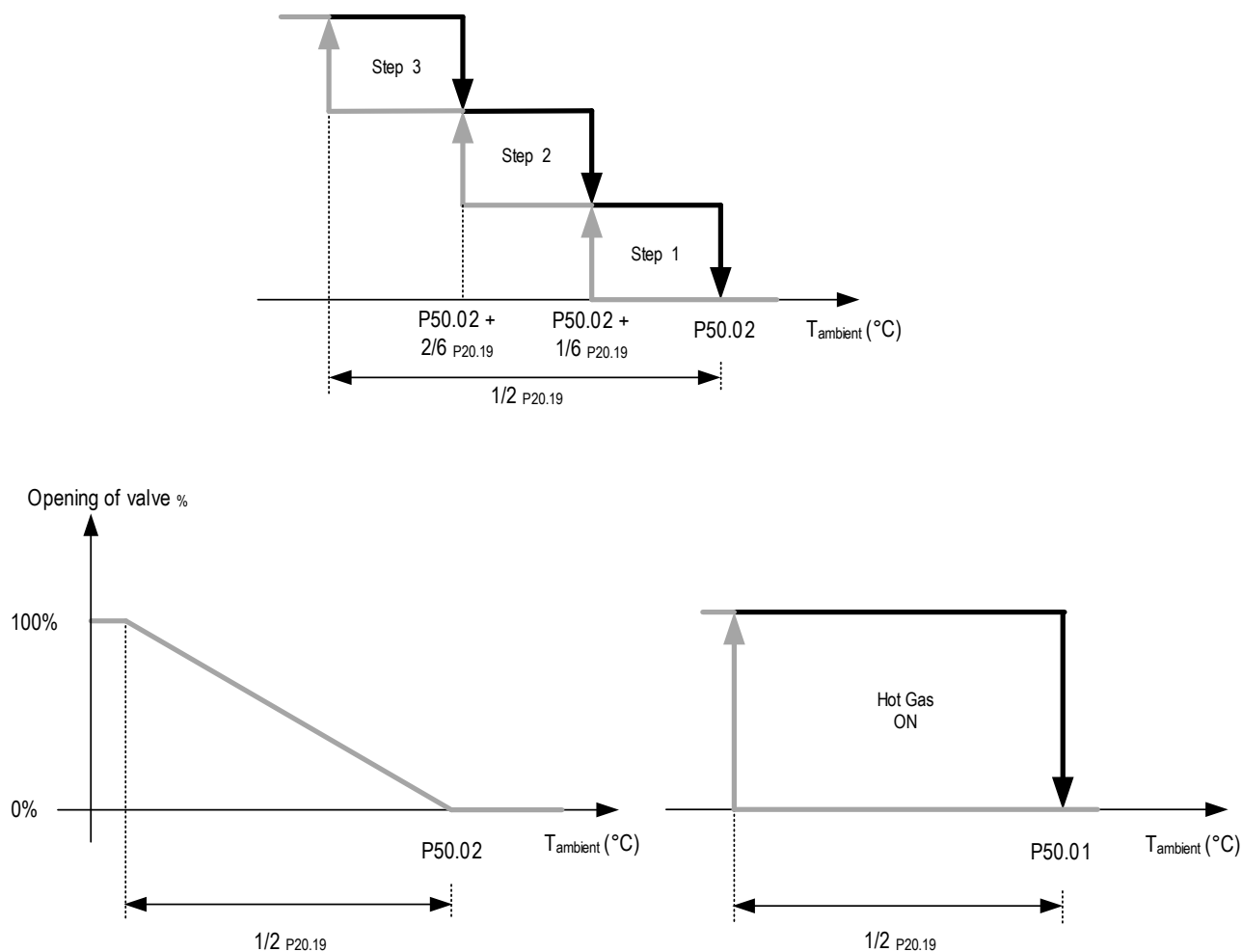


Figure 7-6: Post heating resource management

The Cooling setpoint parameter is in the “Setpoint” menu.

8 HUMIDIFY

8.1 INTRODUCTION

Activating the humidifying device is enabled only when all the following conditions are met:

- adjustment consent is active;
- There is no humidity probe alarm.
- The humidifier has not been temporarily disabled for maintenance.
- Humidifying is enabled during Demand Limit (in case of active DL).

8.2 INTEGRATED HUMIDIFIER

The immersed electrode humidifier produces vapour by heating cylinder water to ebullition. Vapour production regulation.

8.2.1 Vapour production regulation

The humidify setting parameter is under the **“Set point” menu**.

The range of values that may be set for the set point depend on the activation or deactivation of the dehumidify function. In particular:

- Dehumidification **enabled** The maximum humidify setpoint is (Dehumidify setpoint – 5)%.
- Dehumidification **disabled** The maximum humidify set point is 99%.

This avoids overlapping of the set points and not to have a dead zone on adjustment.

The humidify differential parameter (regulation band) is under the **“Regulations” menu**, which can be accessed by entering the **“Service” password**.

8.2.2 Cylinder and line initial pre-wash

Allows to clean the water lines and cylinder, most importantly after the hydraulic connections and/or replacing the cylinder.

The cylinder is filled and emptied 3 times in order to remove any impurities present in the pipes and cylinder.

8.2.3 Dilution drain

The humidifier drains and replaces automatically a part of water contained in the cylinder, in order to prevent excess concentration of salts following the evaporation process.

The drain valve is activated for a set time when internal conductivity exceeds the maximum limit.

8.2.4 Periodic drain

It is recommended that this function is enabled through parameter P27.16 when using water rich in substances such as humus and slit. The humidifier drains and automatically replaces the water in the cylinder to prevent the accumulation of these substances.

8.2.5 Drain due to inactivity

When the function is enabled, using parameter P27.18, the humidifier drains all the water in the cylinder after 3 days (P27.19) of inactivity (not producing steam) to avoid stagnation and hygiene risks.

9 TEMPERATURE AND HUMIDITY MEASUREMENT

9.1 RETURN T+H PROBE

This probe is available for all the units that require humidity control and allows the enabling of the following functions:

- Dehumidify
- Humidify

It also allows the reading of the return humidity as well as the return temperature.

9.2 REMOTE T+H PROBE

This probe is available for all units and allows the enabling of the following function:

- Return setpoint compensation

It also allows the reading of remote temperature and humidity.

10 INTERNAL AIR FAN MANAGEMENT

10.1 STANDARD OPERATION

Under normal operation conditions, the fan is operated always at the same speed, corresponding to the speed set by means of the user interface during testing.

10.2 ECONOMY FUNCTION

There is also a function, called Economy, which consists of lowering the fan speed (at a given value) when no regulation devices are active (basically, when compressors, heaters, humidifiers, etc. are not active).

The goal is to obtain energy savings, which may be remarkable if the device thermal load in the environment is arranged in different proportions depending on varying time bands.

This function can be enabled in the fan configuration masks at the user terminal.

10.3 AUTOMATIC SPEED REGULATION FUNCTION

This function allows to automatically adjust EC radial fan speed. It may follow two logics:

- Constant flow rate regulation.
- Constant residual ΔP regulation.

It is not possible to use this function for CW units in combination with series adjustment and modulating adjustment, and for DX units with modulation of the fan in relation to the speed of the compressor.

10.3.1 Constant flow rate regulation

The purpose of regulation is to keep the flow rate constant when there is an increase in the loss of load, with reference to the graph below.

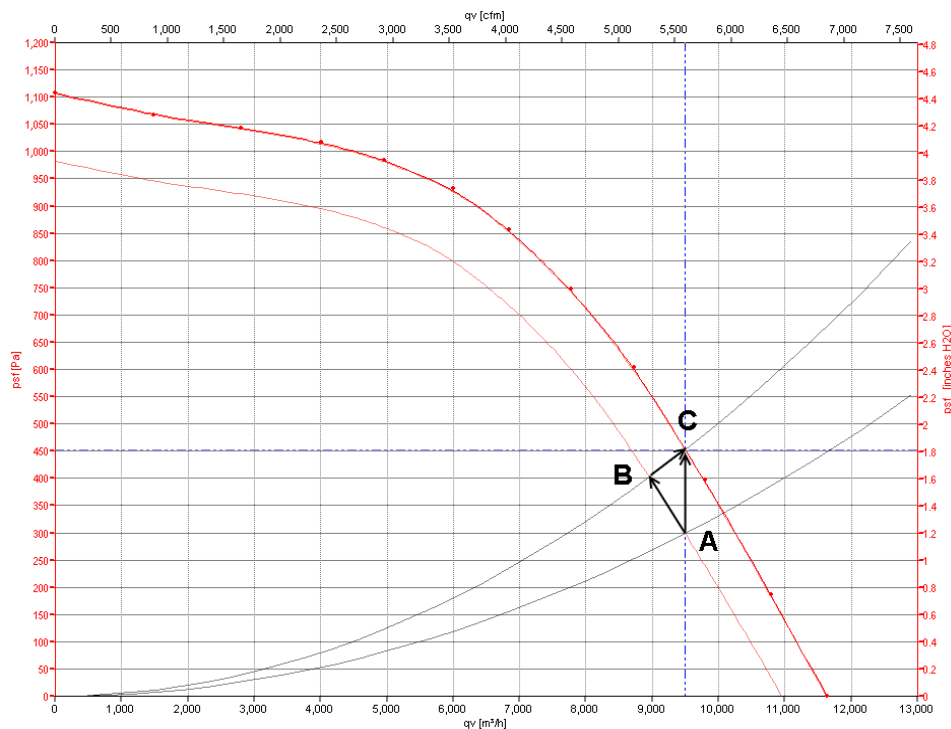


Figure 10-1: Constant flow rate fan operation curve

Starting from nominal work point (A), the increase in load loss (due, for instance, to clogged filters) from P1 and P2 causes a shift in the fan work point along the curve towards point B, with the ensuing capacity decrease. The logic tries to restore the work point by increasing the speed and move back towards work point C.

10.3.2 Constant residual ΔP regulation

The purpose of regulation is to keep the residual ΔP constant when there is an increase in the counter-pressure, with reference to the following graph.

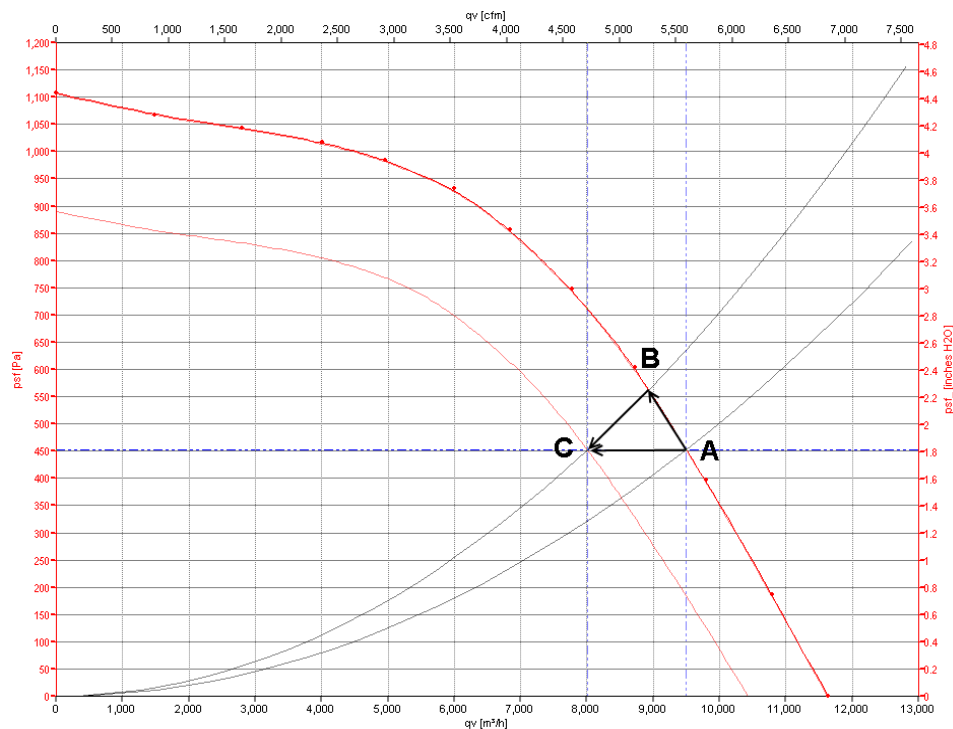


Figure 10-2: Constant head fan operation curve

Starting from nominal work point (A), the increase in counter-pressure (due, for instance to a damper closing) causes a shift in the fan work point along the curve towards point B, with the ensuing increase in pressure. The logic tries to restore the work point by decreasing the speed and move back towards work point C.

10.3.3 Operation data display

From the main mask it is possible to open the following masks that display the operation data of the two functions.

Constant FlowRate Reg. FLOW REG Target 02500m3/h Current 02500m3/h Status On Target	Display of operation of the Constant Capacity function. Visible only if the function is enabled
Constant DeltaP Regul. DP REG Target 0010Pa Current 0010Pa Status On Target	Display of operation of the Constant Head function. Visible only if the function is enabled

10.4 MANAGEMENT OF INTERNAL FAN ALARMS

In units with AC or EC fans connected via a digital output, the alarm thermal switches of the fans are connected directly to the digital contact for the Air Flow blocking alarm.

In units with EC fans connected via Modbus, the events of each fan are managed independently. The generation of the blocking alarm depends on the number of fans on the unit:

1. Machine with one fan:
Fan alarm events also trigger the Air Flow alarm, which blocks the entire unit.
2. Machine with several fans:
The alarm events of a single fan do not block the unit but bring to 100% the request sent to the remaining fans (made evident by the presence of the  icon on the main mask) in order to compensate for the decrease in flow rate.
Alarm events of at least two fans simultaneously trigger the Air Flow alarm, which blocks the entire unit.

Fan signalling events are always non-blocking.

11 CONDENSATION MANAGEMENT

The controller offers the possibility of controlling condensation pressure in direct expansion units in two ways:

- With fan for direct expansion air-cooled units with i-BRE remote condenser.
- With valve for direct expansion well water-cooled units.

It is also possible to define the number of condensation circuits present. Thus, the condensation control function manages the high pressure transducer values as follows:

- Calculating the maximum value between the two transducers in case of single condenser.
- Using the value of every transducer in case of two condensers.

During the function configuration phase, it is possible to define whether the system is controlling a fan or a valve and the number of circuits under control.

The function parameters are under the “Fan” menu, accessible through the “Service” password.

11.1 FAN CONTROL

The logic checks the condensation pressure according to the following chart.

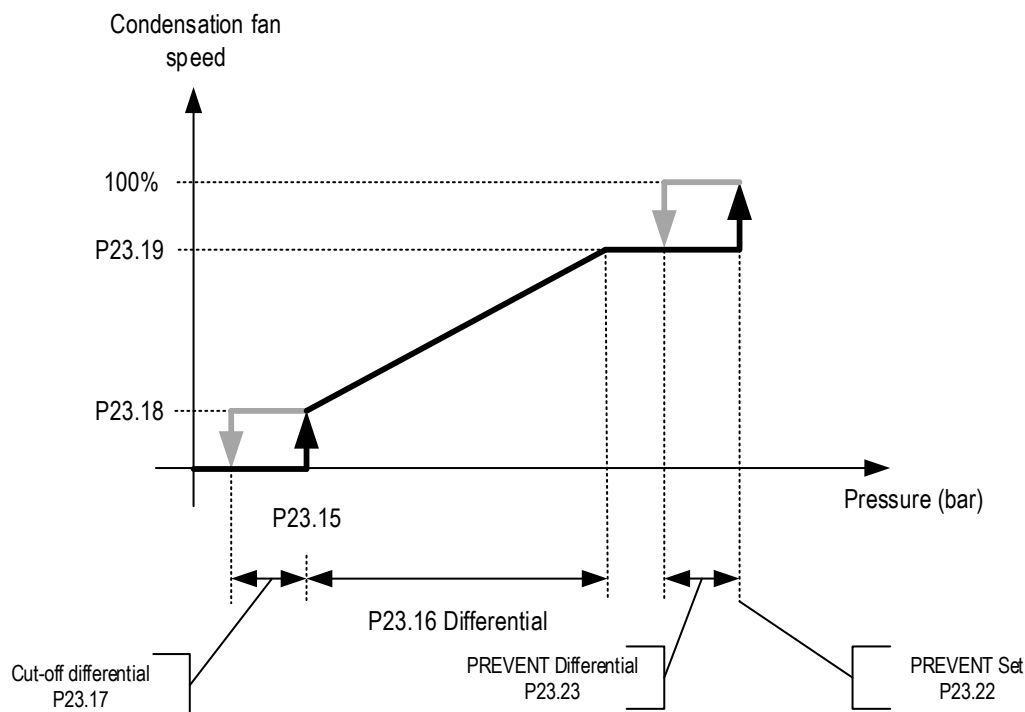


Figure 11-1: Condensation fan adjustment chart

As soon as the condensation pressure rises above the set point value at the analogue output, the “Max speed” value is applied for the time set in the parameter.

After this time has elapsed, adjustment continues as per the above chart.

When adjustment is carried out on two separate circuits, the parameters are doubled and the chart of the second circuit is as follows.

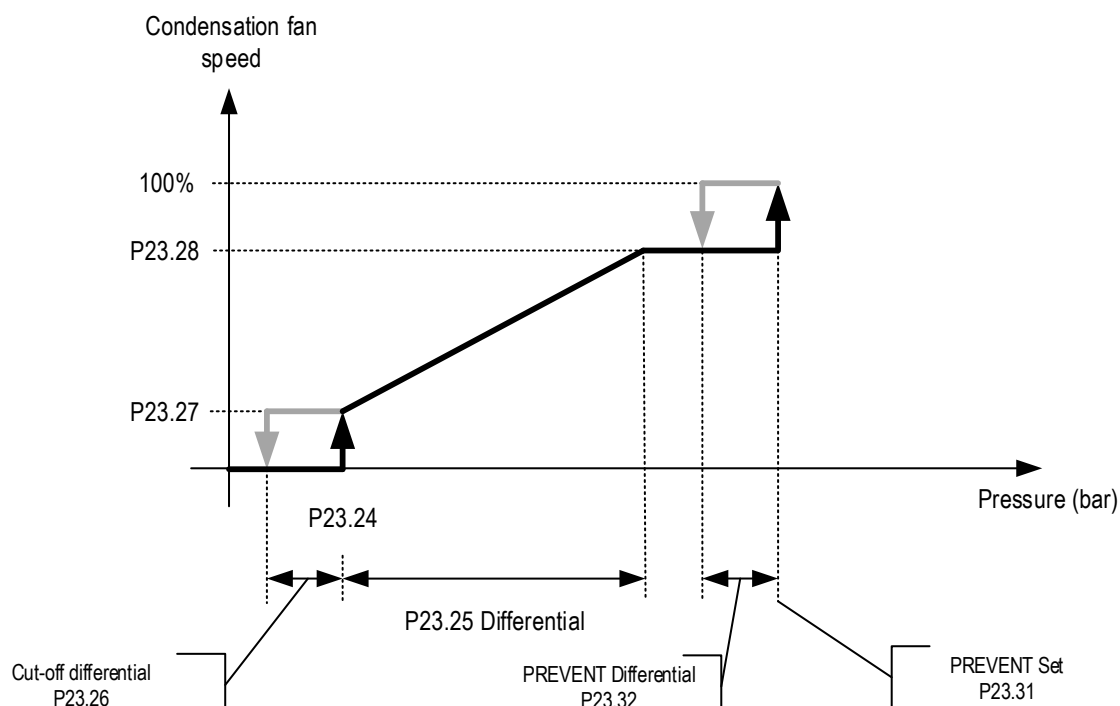


Figure 11-2: Circuit 2 condensation fan adjustment chart

11.2 VALVE CONTROL

The logic checks the condensation pressure according to the following chart.

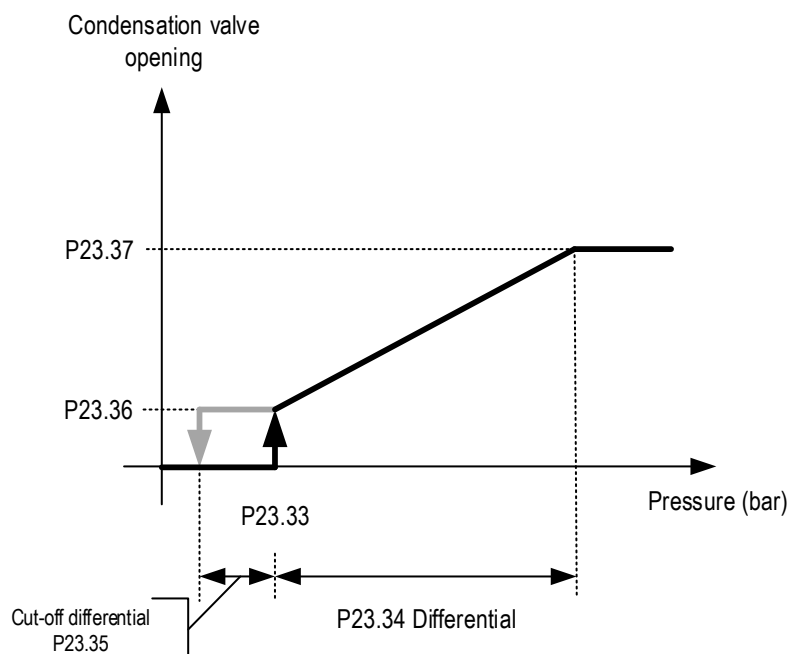


Figure 11-3: Condensation fan adjustment chart

If the unit has two water cooled direct expansion circuits and a single condensation circuit, adjustment is the same as shown above, and the condensation pressure used to generate the opening value of the valve is the highest value read on the two direct expansion circuits.

If instead the unit has two water cooled direct expansion circuits and two separate condensation circuits, the parameters will be doubled and the adjustment chart of the second condensation circuit is as follows.

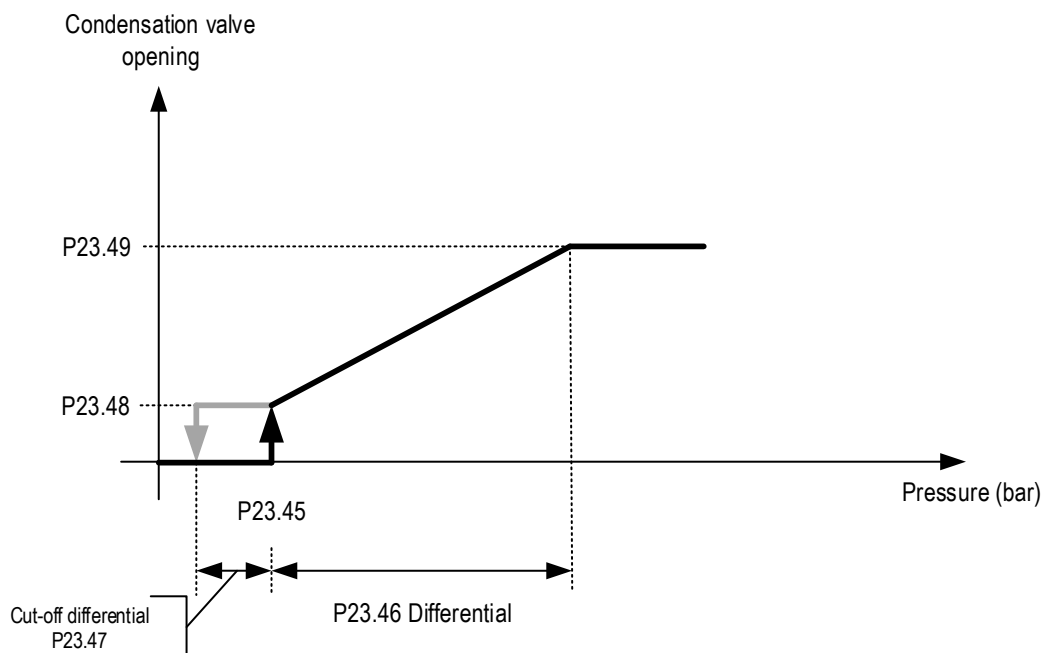


Figure 11-4: Condensation fan adjustment chart

Control of the pump can be carried out in the following ways:

- Pump always on.
- Pump on with active compressor.

In the latter case, the time elapsed between pump start-up and compressor activation may also be defined.

When managing also the digital flow meter input, the following need to be defined:

- Idle state of the flow meter contact (NO/NC).
- Activation delay time of the alarm reporting the lack of water flow to the condenser.

12 DAMPER MANAGEMENT

12.1 DELIVERY DAMPER

There is a delay before the fan is started up to allow the delivery damper to open. This involves use of the auxiliary damper contact. As soon as the damper is almost completely open, the fan is cleared for start-up.
For further details, please refer to the electrical diagrams.

12.2 DIRECT FREE COOLING DAMPER

The Direct Free Cooling damper is available for all unit types, with the exception of units with Indirect Free Cooling.

It remains shut if:

- The fan is off (unit OFF).
- Direct Freecooling is not enabled.
- The compressor or the valve are active and temporary operation is not enabled.

In all the other cases, the opening is defined by the following adjustment charts, showing the modulating (analogue, on the left) and on/off (digital, on the right) adjustments.

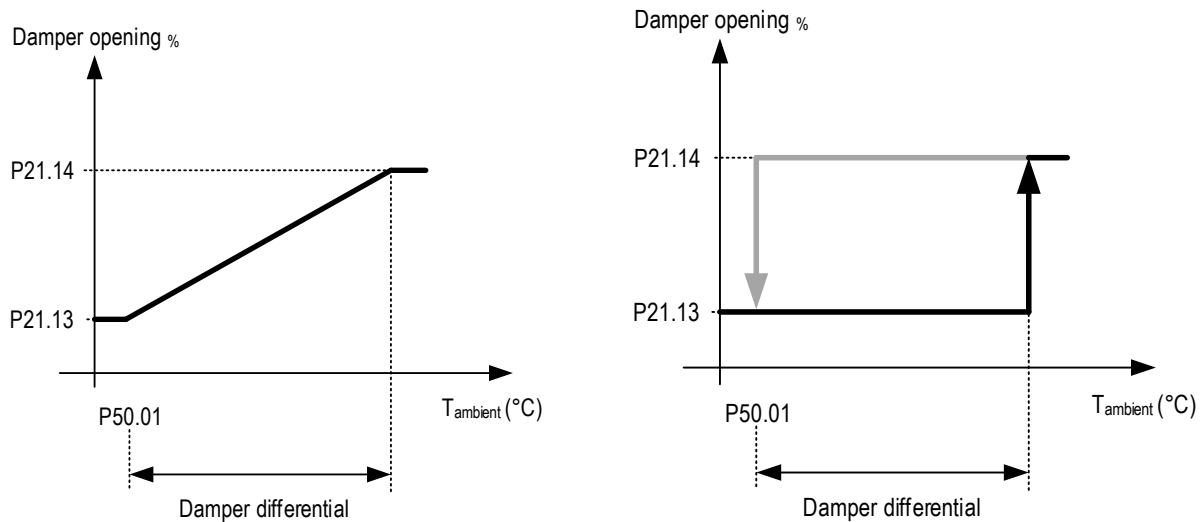


Figure 12-1: Graph of Direct Free Cooling damper adjustment

The parameters for configuring the Free Cooling function are in the **“Free Cooling”** menu, which can be accessed by entering the **“Service”** password. The setpoint and adjustment band values for all the types of units are in the **“Freecooling”** menu, which can be accessed by entering the **“Service”** password.

The temperature adjustment charts are modified as shown in the following paragraphs.

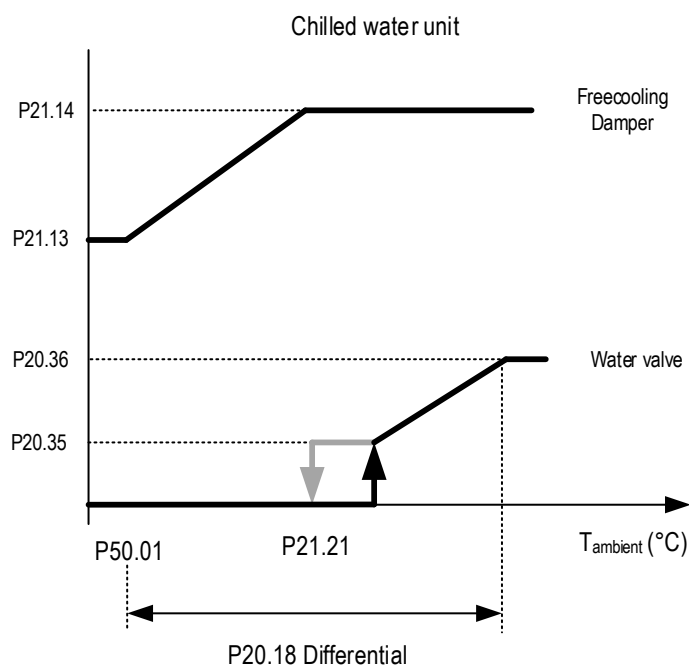


Figure 12-2: Graph of resource activation of a chilled water unit with Direct Free Cooling

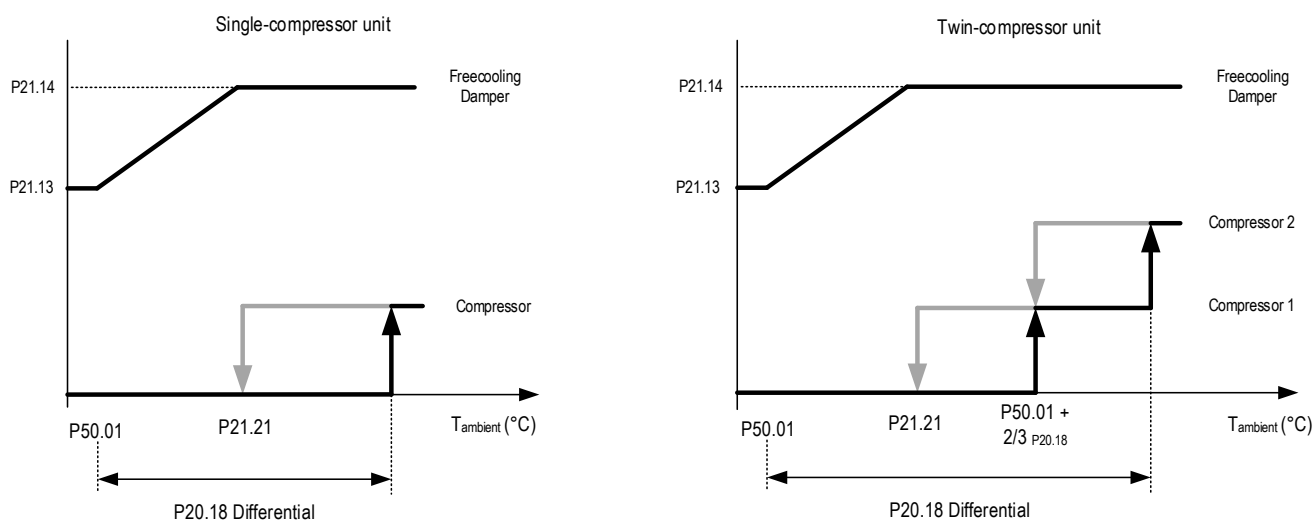


Figure 12-3: Graph of Direct Free Cooling resources activation in units with one on/off compressor and with two on/off compressors

12.3 ENABLING DIRECT FREE COOLING

Enabling Direct Free Cooling is allowed by the difference between external and room temperatures. In case the difference between room and external temperature should be higher than a set value, the Free Cooling regulation is enabled.

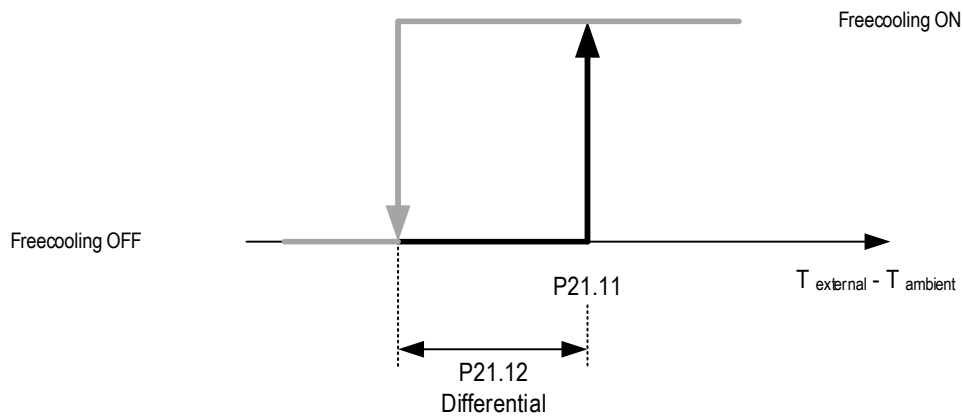


Figure 12-4: Graph of enabling the use of Direct Free Cooling

In the “Free Cooling” menu, accessible through the “Service” password, the operator can set the setpoint and the band for enabling Free Cooling. The FC and FC band parameter settings are under the “Free Cooling” menu, which can be accessed by entering the “Service” password.

12.4 DIRECT FREE COOLING DURING ACTIVE DEMAND LIMIT

In case the Demand Limit function is active, it is possible to choose whether or not to enable Direct Free Cooling mode by setting new Free Cooling damper set point and adjustment band values.

The FC and FC band set point parameters are under the “Demand Limit” menu, accessible through the “Service” password.

12.5 MAXIMUM HUMIDITY LIMIT

If the high humidity limitation function is enabled, the controller behaves according to the following chart.

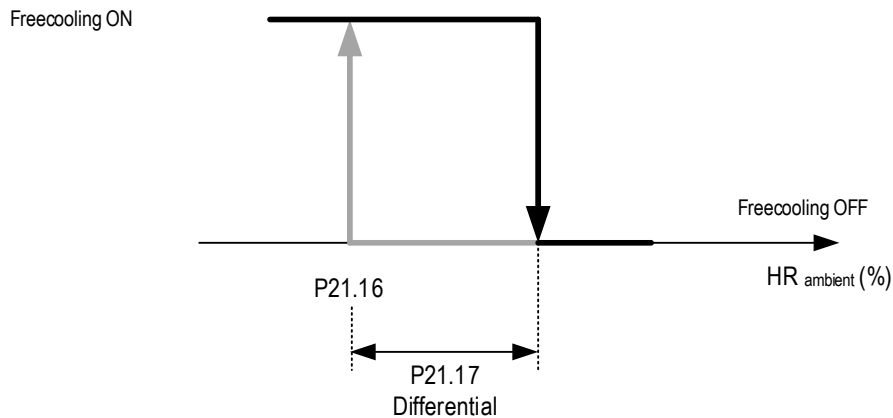


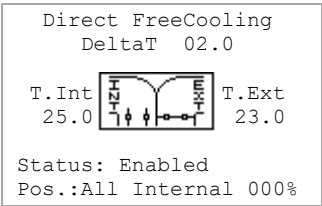
Figure 12-5: Freecooling maximum humidity chart

12.6 DIRECT FREE COOLING OPERATION DURING COLD RESOURCE ALARM

With Direct Free Cooling enabled, it is possible to select whether or not to enable Free Cooling operation when a cold resource alarm appears (compressor or water flow alarm).

12.7 DIRECT FREE COOLING STATUS DISPLAY MASK

Free Cooling status can be viewed at any time.
From the main mask, by pressing the [DOWN] key, the operator opens the following mask.



The image graphically describes the Free Cooling damper position.

	Damper in internal air only position
	Damper in mixing position indoor and outdoor air.
	Damper in external air only position.

- The following values are also reported
- External air temperature (left of the image).
 - External air temperature (right of the image).
 - Temperature difference (centre, above the image).
 - Free Cooling status (enabled or disabled).
 - Damper position (internal only, mixing, external only) and the opening percentage.

12.8 EXTRACTION FAN MANAGEMENT

In the case only of units with inverter compressor, it is possible to enable control of a fan outside the unit in order to increase the air flow of Direct Free Cooling.

12.9 EXTERNAL DAMPER

The external damper is managed by the customer, but it is possible to enable management of the fault signal from the damper itself.

12.9.1 Management of external damper alarm

There is an alarm, which is reset automatically, that does the following:

- Displays the alarm code and icon in the main mask.
- Enters a log in the alarm log and BBX.

The alarm is activated via the ID8 digital input of I/O expansion 2, which is connected to the output of the external damper used for signalling the fault.

The parameters for configuring the logic of the digital input are in the “Alarm Out” menu accessed with the password “User”.

13 CALCULATION OF POWER AND CAPACITY

This function is only available for chilled water units.

When the function is enabled, the heating power and capacity of circuit 1 can be viewed for single coil units and also of circuit 2 for dual coil units.

When instead only the temperature meter is installed, without the capacity meter, it is still possible to view the outlet water temperature of the coil of circuits 1 and 2, if present.



INFORMATION:

This function is available only if I/O expansion 2 is present.

The parameters for enabling and configuring the power and capacity are in the **"Regulations"** menu that can be accessed with the **"Service"** password.

14 DYNAMIC SET POINT MANAGEMENT (ADAPTIVE SETPOINT)

This function is available only for chilled water or Dual Fluid Close Control units connected to a Datacenter Manager 3000.

The purpose of the function is to optimise consumptions by having the external cooling unit operate at partial load in case of low load conditions, (making the most of Free Cooling, if any) , increasing the value of the water set point.

Checking the load status in the room is done by analysing water valve opening in the Close Control units. The father the opening goes from 100% (water completely treated by internal units), the lower the load on the room.

The Close Control units notify the Datacenter Manager 3000 the request to change the set point. The internal logic of the Datacenter Manager 3000 then modifies the adjustment setpoint to optimise operation of the refrigeration unit.

An operating diagram of the Adaptive Setpoint algorithm is shown below.

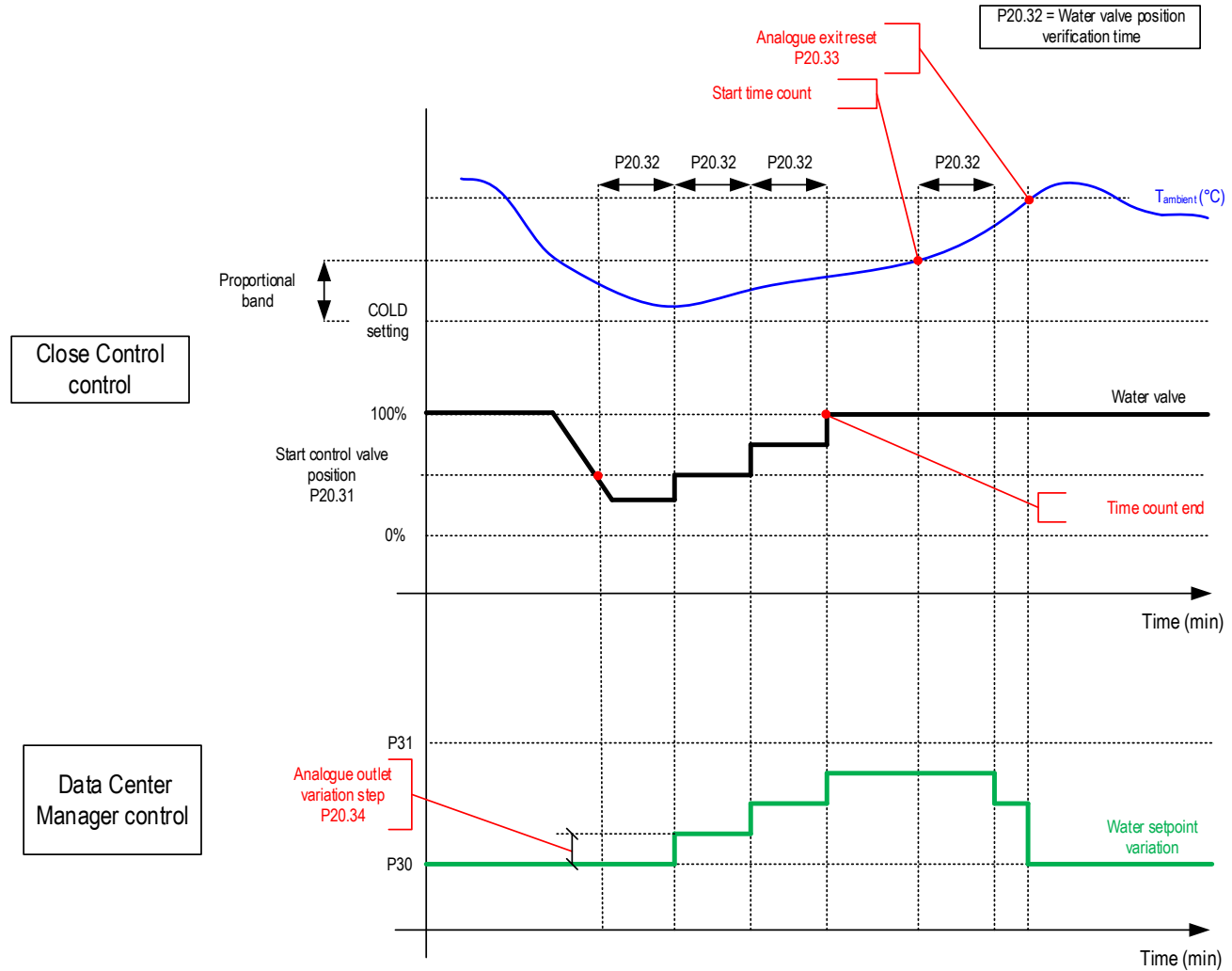


Figure 14-1: Adaptive setpoint adjustment chart

15 NETWORK ANALYSER

A Gavazzi network analyser is used to measure the main electrical variables.

The displayed variables are:

- Phase to phase voltage, only on three-phase units.
- Phase voltage (phase-neutral).
- Phase current.
- Neutral current only on three-phase units.
- Active phase power, only on three-phase units.
- Total active power.
- Active energy.
- Hour counts.

16 MANAGEMENT OF DUAL SUPPLY

Units with management of dual supply with ATS (Automatic Transfer Switch) can be combined with a buffer battery module that keeps the controller powered during automatic switch-over from one supply to the other.

17 EVENT AND MAINTENANCE MANAGEMENT

17.1 ALARM OR SIGNAL EVENTS

First of all, a distinction should be made between two types of event:

- Signal: event that does not stop anything and does not compromise the unit operation. It helps to set the alarm cumulative.
- Alarm: Event blocking a device or the whole unit. It helps to set the alarm cumulative.

In case of an event:

- The red led flashes intermittently in case of a Signal.
- The red led is fixed in case of an Alarm event.
- The main mask lights up.
- The area 2 in the main mask displays the alarm icon, represented by an operating buzzer.
- The area 3 of the main mask displays an icon reporting the cause of the alarm and, next to it, the type of event (Signal/Alarm) and the associated event code.

By pressing the **[ALARM]** key once, the event detail mask appears. This mask provides the following information:

- Event type (Signal/Alarm).
- Event code.
- Rearm type (Manual/Automatic).
- Event position (Compressor/Circuit/Unit/System).
- Action type (Compressor/Circuit/Unit/Water circuit/Heater/Humidifier/Specific function block).
- Event description.

The event is reset by pressing the **[ALARM]** key in the “Event” menu (accessed by pressing the **[ALARM]** key). If the **[ESC]** key is pressed, there is no reset and the event stays active.

For the event type details, refer to the table in the “Event Table” section of the “User interface” chapter.

17.2 EVENT SIGNALLING RELAY

The control board provides two relay outputs for signalling events.

The “**Alarm Out**” menu, which can be accessed by entering the “**User**” password, it is possible to configure the outputs differently from the default setting.

More specifically, these masks may:

- Set the idle status of the output contacts.
- Set the contact to which the signal is to be addressed.

17.2.1 Setting the output contact logic

In the “**Alarm Out**” menu, accessible through the “**User**” password, it is possible to configure the output contact idle status.

The logic may be:

- Normally open (NO) 
- Normally closed (NC)  (in this case it is possible to detect also the lack of power feed to the board)

17.2.2 Output contact setting

In the “**Alarm Out**” menu, accessible through the “**User**” password, it is possible to set, for each type of event included in the configured unit, the contact to which the signal is to be addressed. The operator may choose from:

- Output “A”.
- No outlet.
- Output “B”.

All events are addressed by default to output “A”.

17.3 EVENT HISTORY

17.3.1 General information

The recorded events are the following:

- All events.
- Every time the conditioning unit turns on, meant as controller start.
- Any activation of the Demand Limit mode (if enabled).

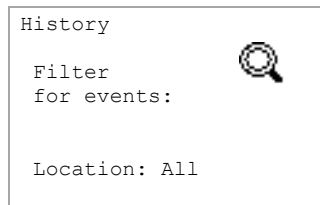
17.3.2 Viewing the events log

The log, accessed via the **“History” menu** from the “Main” group, displays all the events.

It is possible to filter the events according to position by choosing between:

- All: All events, without any distinctions in terms of position, will be displayed.
- Compressor: Only the events involving the compressor will be displayed.
- Circuit: Only the events involving the circuit will be displayed (water or gas).
- Unit: Only the events involving the unit will be displayed.
- Plant: Only the events involving the system will be displayed (external from the unit).

Below is a screenshot of the filter-setting mask:



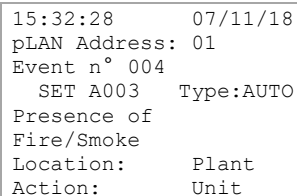
```
History

Filter for events:

Location: All
```

Once the filter to be applied has been selected, press the **[ENTER]** key to access the event log.

Once the filter has been selected, as explained in the previous chapters, the operator may access the event history mask.



```
15:32:28      07/11/18
pLAN Address: 01
Event n° 004
  SET A003    Type:AUTO
Presence of
Fire/Smoke
Location:      Plant
Action:        Unit
```

The layout contains the following information:

- Event date and time.
- Local network (LAN) address (if configured).
- Event number.
- Event status (SET / RESET).
- Event code and type (Signal / Alarm).
- Type of event reset (AUTO / MAN).
- Text describing the event.
- Location where the problem is found (Compressor, Circuit, Unit, Plant).
- Alarm block action, that is, what the event has caused to block (Compressor, Circuit, Unit, Chilled Water, Humidifier, El. Heater, Function).

18 LOCAL LAN NETWORK MANAGEMENT

18.1 PURPOSE OF THE LOCAL LAN NETWORK

The unit connection to the local network LAN allows to perform the following functions:

- Balancing the operating hours among the different units by rotating the reserve units (Stand-by).
- Turning on the reserve units in case other units should turn off due to an alarm, maintenance or power feed interruption.
- Turning on reserve units to offset the excessive thermal load.
- Checking up to 10 units with a single user terminal (shared user terminal).
- Operating with all units based on the average temperature and humidity values read by the temperature probes only in the operating units.



OBLIGATION:

To allow the LAN to operate correctly, the units must have the same software version and revision (e.g.: ME20r00). If there is more than one version, update to the latest version or create two different LAN's.



CAUTION:

The ME software is not compatible with the previous versions (LD).

18.2 PRELIMINARY OPERATIONS

For correct operation of the units connected to the local LAN network, it is necessary to perform the following operations.

18.2.1 Network cabling

For the purposes of setting a local LAN network among the units, it is necessary for the installer to lay an electrical connection among the same by means of a screened cable (not included in the supply).



INFORMATION:

it is recommended to use twisted couple of AWG24 cabling (2 wires in total) + Belden 8723 or 8102 type sheath.



CAUTION:

The electrical connections must be installed by qualified staff, when the unit is off and not fed. The LAN serial low safety voltage (SELV) cabling must be kept safely far from the power cables.



CAUTION:

The connections must be made directly on the unit main terminal board: The RX/TX+, RX/TX-, and GND connection terminals do not vary from unit to unit and are clearly indicated on the electrical diagram on board the unit.

All control boards being part of the local network are connected according to a bus arrangement.
The following image shows the type of connection to be made:

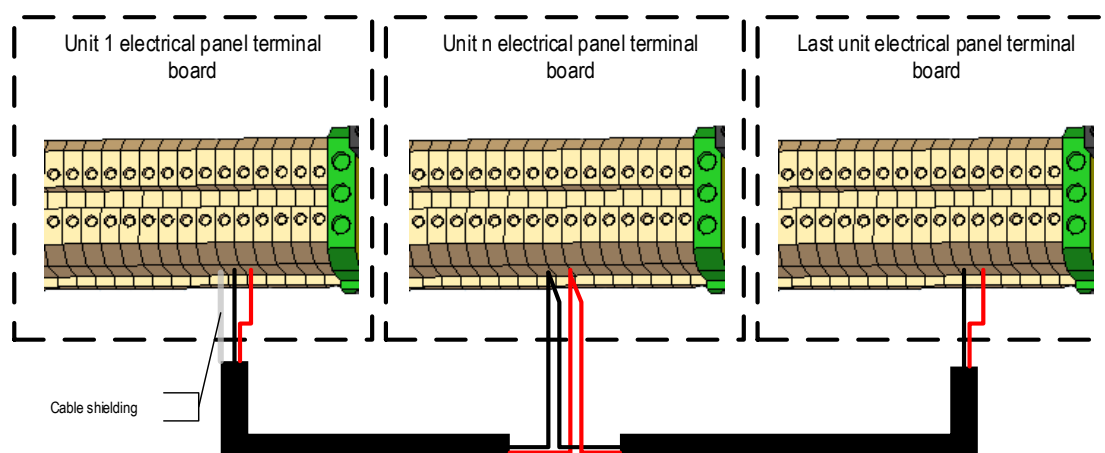


Figure 18-1: Example of local network (LAN) electrical connection

18.2.2 Network configuration

The configuration requires the following assignments.

Unit address	Managed terminals
1	11 (private) 32 (shared)
2	12 (private) 32 (shared)
3	13 (private) 32 (shared)
4	14 (private) 32 (shared)
5	15 (private) 32 (shared)
6	16 (private) 32 (shared)
7	17 (private) 32 (shared)
8	18 (private) 32 (shared)
9	19 (private) 32 (shared)
10	20 (private) 32 (shared)



INFORMATION:
The control board is supplied with LAN address = 1.

The address may be checked directly on the control board or by means of the user terminal, following the steps indicated under the following sections.

18.2.3 Addressing the control board - From the board

The control board address is displayed by 7-segment screen in the following image:

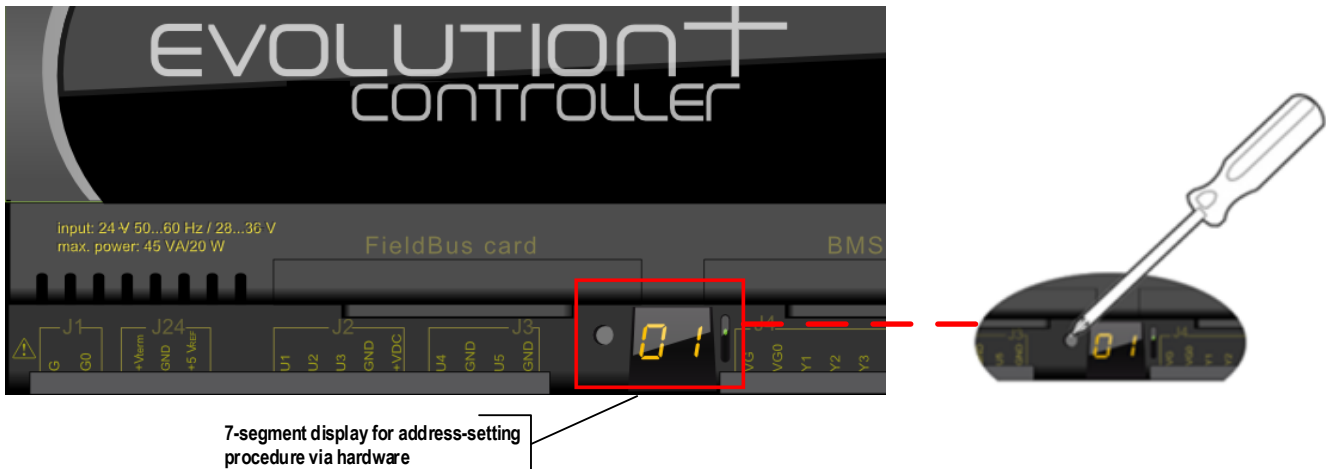


Figure 18-2: Control board addressing

In order to display the current address, press the button on the left of the display briefly (for no more than 2 seconds) using, for instance, the tip of a screwdriver (Ø < 3mm). After 5 seconds from releasing the button, the address display turns off.

In order to change the board address, follow the process below:

1.

Press the button with a screwdriver for at least 3 seconds. The saved address starts flashing.
2.

Press the button repeatedly, or press and hold it to scroll through automatically, to find the required address.
3.

Wait for at least 10 seconds. The display starts flashing quickly to indicate that the new address has been saved.
In order to cancel the operation, turn off the control within 7 seconds of pressing the button last.
4.

Turn off and restart the EVOLUTION+ controller in order to activate the new address.

18.2.4 Address setting the control board - from the user terminal

1)	Press and hold [UP]+[DOWN]+[ENTER] at the same time for at least 3 seconds to enter configuration mode. A mask is displayed with the cursor flashing in the top left corner.	Display address Setting.....: 11 I/O Board address: 01
2)	Press [ENTER] once to modify the address of the terminal (display address setting). The cursor will move to the terminal address field. Press [UP] or [DOWN] to select the value 0 and then press [ENTER] again to confirm. The value will be saved in the permanent memory of the terminal .	Display address Setting.....: 00
3)	The appearance of the mask shown at the side indicates that the keyboard address has been set.	Display Address changed
4)	Turn the board off and then on again by pressing and holding [ALARM]+[UP] at the same time. Wait until the board address setting mask appears, then release the keys.	##### selftest please wait... #####
5)	After the appearance of the mask shown at the side, press [UP] or [DOWN] to set the desired address and then press [ENTER] again to confirm. The value will be saved in the permanent memory of the controller . Turn off and restart the EVOLUTION+ controller in order to activate the new address.	pLan address: 1 UP: increase DOWN: decrease ENTER: save & exit



INFORMATION:
If no key is pressed for a few seconds, the display will exit the configuration screen. In this case, the procedure must be repeated.

18.2.5 User terminal address setting

Once the keyboard has been connected to the device, run the following procedure.

1)	Press and hold [UP]+[DOWN]+[ENTER] at the same time for at least 3 seconds to enter configuration mode. A mask is displayed with the cursor flashing in the top left corner.	Display address Setting.....: 00
2)	Press [ENTER] once to modify the address of the terminal (display address setting). The cursor will move to the terminal address field. Press [UP] or [DOWN] to select the value of the desired address and then press [ENTER] again to confirm. The value will be saved in the permanent memory of the terminal .	Display address Setting.....: 21 I/O Board address: --
3)	The appearance of the mask shown at the side indicates that the keyboard address has been set.	Display Address changed
4)	If an empty mask or a mask showing "NO LINK" appears after pressing [ESC] , it means that the keypad is not communicating with any boards. The address of the controller board needs to be set, or the LAN needs to be configured.	NO LINK



INFORMATION:

If no key is pressed for a few seconds, the display will exit the configuration screen. In this case, the procedure must be repeated.

18.3 SETTINGS ON THE USER TERMINAL

In the case of units connected to a local LAN network, indicate the total number of connected units on the Master unit, then, if needed, enable the functions provided by the LAN, which are the following:

- Regulation based on the temperature and humidity average value read by all network units.
- The presence of one (or maximum two) reserve units in rotation and, if need be, ready to kick in in the presence of extreme room temperature and humidity conditions.

The configuration parameters for the LAN network are under the **"LAN" menu**, which can be accessed by entering the **"Service" password**.

More specifically, the settable parameters are:

- Number of units connected to the local LAN network.
- Enabling average calculation functions in LAN.
- Enabling the reserve unit and the relevant rotation.
- Interval of time between one rotation and the next (in other words: stand-by time).
- Number of reserve units (fix from 1 to 3 LAN units, selectable between 1 or 2 for networks from 4 to 10 LAN units).
- Enabling the start function for the reserve units when exceeding the room temperature and humidity limits.

18.4 RESERVE UNIT MANAGEMENT (STAND-BY)

18.4.1 Introduction

In an installation made up of on units and stand-by units, there may be imbalances in the operating hours that cause the former to age faster because of the failure to use the latter. In order to solve this problem, the local network (LAN) always runs unit rotation in order to even out the operating hours. Basically, the rotation puts an active unit in stand-by and turns on a unit that was previously in stand-by.

18.4.2 Rotation management

The rotation of the reserve unit is managed entirely by the Master unit and is based on time parameters, starting from the unit with the lower address, that is, address 1, and works its way up. Two reserve units can be set, but only when there are at least three units connected to the local LAN network. In this case, the units are rotated in standby starting with the first two (addresses 1 and 2) and then the second two (2 and 3) and so forth.

The parameter for configuring the rotation time is in the **"LAN" menu**, which can be accessed by entering the **"Service" password**.

18.4.3 Reserve unit activation mode

The stand-by unit comes out of its "idle" state and activates under the following circumstances:

- An alarm blocks an active unit.
- One of the active units is turned off from the user terminal.
- Local LAN disconnection detected (including power feed disconnection of one or more units).
- Exceeding the set room temperature and humidity limits.

As regards the first two bullet points, turning on the stand-by unit is entirely managed by the unit having address = 1 (Master).

18.4.4 Reserve unit activation events

The alarms that activate the emergency unit are shown in the table below.

Code	Display description	Details	Event Time	Reset Time	Position	Action
010 ³	Event A010 Flood Alarm: Check Water Connections	Flooding sensor engagement alarm. <i>Visible only if the detecting input is present</i>	A	A/M	P	NO/U
021	Event A021 Chilled Water: Loss of Water Flow	No water flow on evaporator. <i>Visible only if the detecting input is present and the unit is fed with cooled water</i>	A	M	P	U
101	Event A101 Loss of Air Flow Check Fan/Switch	Lack of air flow on the evaporator.	A	M	U	U
120	Event A120 Return Temp. Probe Failed/Disconnected	Return temperature sensor fault (ambient). <i>This event blocks all cold resources if the adjustment is based on the return temperature</i>	A	A	U	FN FC
125	Event A125 Return Humidity Probe Failed/Disconnected	Return T+H probe humidity sensor fault. <i>Visible only when the Return T+H probe is present</i>	A	A	U	FN HU+DH
130	Event A130 Diff. Pressure Probe Failed/Disconnected	Air differential pressure probe fault. <i>Visible only if capacity or air DeltaP control is enabled</i>	A	A	U	FN
140	Event A140 Supply Air Temperature Probe Failed/Disconnected	Delivery air temperature probe fault. <i>This event blocks all cold resources if the adjustment is based on the delivery temperature</i>	A	A	U	FN Lim
142	Event A142 Water In Temperature Probe Failed/Disconnected	Cold water temperature probe fault.	A	A	U	FN FC Ind
143	Event A143 Water Out Temperature Probe Failed/Disconnected	Circuit 1 outlet cold water temperature probe fault	A	A	U	FN
144	Event A144 Outdoor Air Temperature Probe Failed/Disconnected	External air temperature probe fault. <i>Visible only on units with Direct Free Cooling</i>	A	A	U	FN FC
145	Event A145 Circ. 2 Water Out Temperature Probe Failed/Disconnected	Circuit 2 outlet cold water temperature probe fault	A	A	U	FN
146	Event A146 Hot Water Temperature Probe Failed/Disconnected	Hot water temperature probe fault. <i>Visible only if water post-heating is present</i>	A	A	U	CW

³ This event is displayed only if the P22.83 parameter is set as "Alarm - Automatic" or "Alarm - Manual".

Code	Display description	Details	Event Time	Reset Time	Position	Action
148	Event A148 Inv.1 Discharge Temperature Probe Failed/Disconnected	Inverter compressor 1 discharge temperature probe fault. <i>Visible only if the inverter compressor is present and if the protection function is enabled</i>	A	A	U	FN
149	Event A149 Inv.2 Discharge Temperature Probe Failed/Disconnected	Inverter compressor 2 discharge temperature probe fault. <i>Visible only if the inverter compressor is present and if the protection function is enabled</i>	A	A	U	FN
150	Event A150 Heaters Overheating or Heaters Contactor Failed	Heater safety thermostat engagement. <i>Visible only if the unit is configured with heating elements</i>	A	M	U	EH
184	Event A184 Inverter 1 Offline	Inverter 1 driver disconnection alarm (serial connection). <i>Visible only on units with inverter compressor.</i>	A	A	U	CO
185	Event A185 Inverter 2 Offline	Inverter 2 driver disconnection alarm (serial connection). <i>Visible only on units with inverter compressor.</i>	A	A	U	CO
192	Event A192 I/O Expansion Board 1 Offline	I/O expansion 1 disconnection alarm (serial connection). <i>Visible only if the unit requires expansion.</i>	A	A	U	FN
195	Event A195 Humidifier Board Offline	CPY dehumidifier board disconnection alarm (serial connection). <i>Visible only if internal control humidifier is present</i>	A	A	U	HU
201	Event A201 Inv.1 Envelope Alarm HP1: 00.0bar LP1: 00.0bar Zone: 00	Inverter compressor 1 working off-envelope <i>Visible only with inverter compressor</i>	A	A	CO	CI
210	Event A210 Inverter Compressor 1: Start Failed	The inverter 1 cannot run up to speed with the adjustment signal. <i>Visible only with inverter compressor</i>	A	M	CO	CI
211	Event A211 Inverter Compressor 1: Circuit Power Alarm	Inverter 1 power supply input alarm. <i>Visible only with inverter compressor</i>	A	M	CO	CI
212	Event A212 Inverter Compressor 1: Motor Power Alarm	Inverter compressor 1 motor power input alarm. <i>Visible only with inverter compressor</i>	A	M	CO	CI
213	Event A213 Inverter Compressor 1: Overcurrent Alarm	Inverter 1 overload. Input current too high. <i>Visible only with inverter compressor</i>	A	M	CO	CI
214	Event A214 Inverter Compressor 1: Motor Thermal Alarm	Inverter 1 motor heat probe detects too high a temperature. <i>Visible only with inverter compressor</i>	A	M	CO	CI
215	Event A215 Inverter Compressor 1: Communication Alarm	Loss of serial communication with inverter 1. <i>Visible only with inverter compressor</i>	A	M	CO	CI
220	Event A220 Inverter Compressor 1: Generic Alarm	Inverter 1 generic alarm. See alarm on respective mask in the "Unit" menu. <i>Visible only with inverter compressor</i>	A	M	CO	CI

Code	Display description	Details	Event Time	Reset Time	Position	Action
230	Event A230 Inv.2 Envelope Alarm HP2: 00.0bar LP2: 00.0bar Zone: 00	Inverter compressor 2 working off-envelope <i>Visible only with inverter compressor</i>	A	A	CO	CI
232	Event A232 Inverter Compressor 2: Start Failed	The inverter 2 cannot run up to speed with the adjustment signal. <i>Visible only with inverter compressor</i>	A	M	CO	CI
233	Event A233 Inverter Compressor 2: Circuit Power Alarm	Inverter 2 power supply input alarm. <i>Visible only with inverter compressor</i>	A	M	CO	CI
234	Event A234 Inverter Compressor 2: Motor Power Alarm	Inverter compressor 2 motor power input alarm. <i>Visible only with inverter compressor</i>	A	M	CO	CI
235	Event A235 Inverter Compressor 2: Overcurrent Alarm	Inverter 2 overload. Input current too high. <i>Visible only with inverter compressor</i>	A	M	CO	CI
236	Event A236 Inverter Compressor 2: Motor Thermal Alarm	Inverter 2 motor heat probe detects too high a temperature. <i>Visible only with inverter compressor</i>	A	M	CO	CI
237	Event A237 Inverter Compressor 2: Communication Alarm	Loss of serial communication with inverter 2. <i>Visible only with inverter compressor</i>	A	M	CO	CI
242	Event A242 Inverter Compressor 2: Generic Alarm	Inverter 2 generic alarm. See alarm on respective mask in the "Unit" menu. <i>Visible only with inverter compressor</i>	A	M	CO	CI
310	Event A310 Circuit 1 High Pressure Switch Triggered	Circuit 1 high pressure alarm from pressure switch. For circuits with inverter compressor the STO alarm is reset if it trips.	A	M	CI	CI
311	Event A311 Circuit 1 High Pressure Probe Failed/Disconnected	Circuit 1 high pressure transducer fault alarm. <i>Visible only if the transducer is present</i>	A	A	CI	FN
312	Event A312 Circuit 2 High Pressure Switch Triggered	Circuit 2 high pressure alarm from pressure switch.	A	M	CI	CI
313	Event A313 Circuit 2 High Pressure Probe Failed/Disconnected	Circuit 2 high pressure transducer fault alarm. <i>Visible only if the transducer is present</i>	A	A	CI	FN
319	Event A319 Circuit 1 Low Pressure Probe Failed/Disconnected	Circuit 1 low pressure transducer fault alarm. <i>Visible only if the transducer is present</i>	A	A	CI	FN
320	Event A320 Circuit 1 Low Pressure Switch Triggered	Circuit 1 low pressure alarm from pressure switch.	A	A->M	CI	CI
321	Event A321 Circuit 2 Low Pressure Probe Failed/Disconnected	Circuit 2 low pressure transducer fault alarm. <i>Visible only if the transducer is present</i>	A	A	CI	FN
322	Event A322 Circuit 2 Low Pressure Switch Triggered	Circuit 2 low pressure alarm from pressure switch.	A	A->M	CI	CI

Code	Display description	Details	Event Time	Reset Time	Position	Action
339	Event A339 Circuit 1 EEV Driver: EEPROM Damaged	Problem to circuit 1 driver. <i>Visible only on electronic thermostat units.</i>	A	A	CI	CI
340	Event A340 Circuit 1 EEV Driver: Step Motor Error	Problem to circuit 1 valve step motor. <i>Visible only on electronic thermostat units.</i>	A	A	CI	CI
341	Event A341 Circuit 1 EEV Driver: Pressure Probe Alarm or Compressor Failed	Faulty circuit 1 thermostatic valve pressure transducer. <i>Visible only on electronic thermostat units.</i>	A	A	CI	CI
342	Event A342 Circuit 1 EEV Driver: Temp. Probe Alarm	Faulty circuit 1 thermostatic valve temperature probe. <i>Visible only on electronic thermostat units.</i>	A	A	CI	CI
343	Event A343 Circuit 1 EEV Driver: MOP Protection Active (High Evap. Temp.)	Circuit 1 Maximum Operating Pressure protection alarm. <i>Visible only on electronic thermostat units.</i>	A	A	CI	CI
344	Event A344 Circuit 1 EEV Driver: LOP Protection Active (Low Evap. Temp.)	Circuit 1 Lowest Operating Pressure protection alarm. <i>Visible only on electronic thermostat units.</i>	A	A	CI	CI
349	Event A349 Circuit 2 EEV Driver: EEPROM Damaged	Problem to circuit 2 driver. <i>Visible only on electronic thermostat units.</i>	A	A	CI	CI
350	Event A350 Circuit 2 EEV Driver: Step Motor Error	Problem to circuit 2 valve step motor. <i>Visible only on electronic thermostat units and dual circuit units</i>	A	A	CI	CI
351	Event A351 Circuit 2 EEV Driver: Pressure Probe Alarm or Compressor Failed	Faulty circuit 2 thermostatic valve pressure transducer. <i>Visible only on electronic thermostat units and dual circuit units</i>	A	A	CI	CI
352	Event A352 Circuit 2 EEV Driver: Temp. Probe Alarm	Faulty circuit 2 thermostatic valve temperature probe. <i>Visible only on electronic thermostat units and dual circuit units</i>	A	A	CI	CI
353	Event A353 Circuit 2 EEV Driver: MOP Protection Active (High Evap. Temp.)	Circuit 2 Maximum Operating Pressure protection alarm. <i>Visible only on electronic thermostat units and dual circuit units</i>	A	A	CI	CI
354	Event A354 Circuit 2 EEV Driver: LOP Protection Active (Low Evap. Temp.)	Circuit 2 Lowest Operating Pressure protection alarm. <i>Visible only on electronic thermostat units and dual circuit units</i>	A	A	CI	CI
402	Event A402 Humidifier: Life Timer Expired Reset/Clean Cylinder	Humidifier cylinder expiry alarm. <i>Visible only if internal humidity control is present</i>	A	A	U	HU
404	Event A404 Humidifier: Drain Alarm	Humidifier discharge alarm. <i>Visible only if internal humidity control is present</i>	A	A	U	HU
406	Event A406 Humidifier: Loss of Water	Leak of humidifier water alarm. <i>Visible only if internal humidity control is present</i>	A	A	U	HU
408	Event A408 Humidifier: Low Current	Low humidifier current alarm. <i>Visible only if internal humidity control is present</i>	A	A	U	HU
410	Event A410 Humidifier: High Current	High humidifier current alarm. <i>Visible only if internal humidity control is present</i>	A	A	U	HU

Code	Display description	Details	Event Time	Reset Time	Position	Action
412	Event A412 Humidifier: Generic Alarm	Generic humidifier alarm. For alarm details, please refer to the chapter on internal humidifier control.	A	M	U	HU
510 ⁴	Event S510 Flood Alarm: Check Water Connections	Flooding sensor engagement signal. <i>Visible only if the detecting input is present</i>	S	A/M	P	NO
531	Event S531 Return Temperature Above Max. Limit	Reports that the return temperature is above the maximum set level.	S*	A	P	NO
601	Event S601 EEPROM Error: Replace Control Board	Reports a problem to the controller permanent memory.	S	A	U	NO

**CAUTION:**

The “High ambient temperature” event (S531) activates rotation only when the “LAN “Standby Limits” function is not activated (the function is described further on).

If one of the units in operation stops due to one of the alarms described above and causes activation of a back-up unit, calculation of the time for rotation is stopped until all the units return to normal operation and are no longer in alarm mode.

Below is an example of calculation of the time for rotation.

Assuming there are two units where U1 is the Master and U2 is the Slave, counting of the time for rotation is as follows:

A. STARTING SITUATION

- U1: Stand-by
- U2: ON

Counting of the time of unit 2 for rotation is in progress.

B. EVENT 1

- U1: ON
- U2: OFF for alarm

Counting of the time for rotation is blocked at the last value reached.

C. RETURN TO NORMAL CONDITIONS

- U1: Stand-by
- U2: ON

Counting of the time of unit 2 for rotation resumes at the last value reached before the alarm.

18.4.5 Management of two reserve units

In the presence of two reserve units, always turn on the one with the lower address, while the other reserve unit keeps rotating normally, excluding a unit in alarm, given that it may already be off or with limited performance.

In case of a second alarm event stopping another LAN local network unit, the second back-up unit also activates and the time count for rotation is suspended. If the cause that brought to the activation of the first unit in stand-by should cease, the second back-up unit reactivates and the first stays idle.

⁴This event is displayed only if the P22.83 parameter is set as “Automatic signal” or “Manual signal”

18.4.6 Exceeding the limits

The backup unit activates and deactivates automatically depending of the four activation steps shown below. It is sufficient for one of the four steps to be active to request unit activation.



CAUTION:

The setpoints in the diagrams below are different from those normally used for adjustment, and are those specifically set for the backup unit.

The differentials, on the other hand, are the same as those set for normal adjustment.

The Dehumidification and Humidification setting parameters are under the **“Set Point”** menu.

The Hot and Cold differential parameters are under the **“Regulations”** menu, which can be accessed by entering the **“Service”** password.

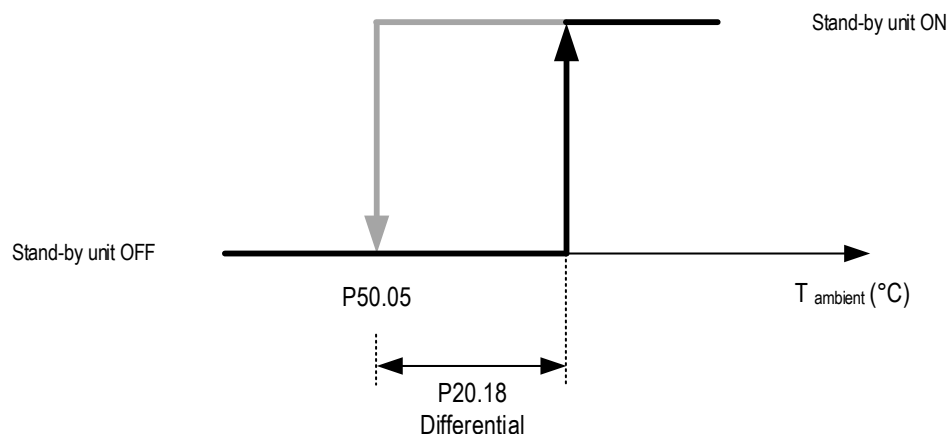


Figure 18-3: Graph of backup unit activation for exceeding cooling setpoint

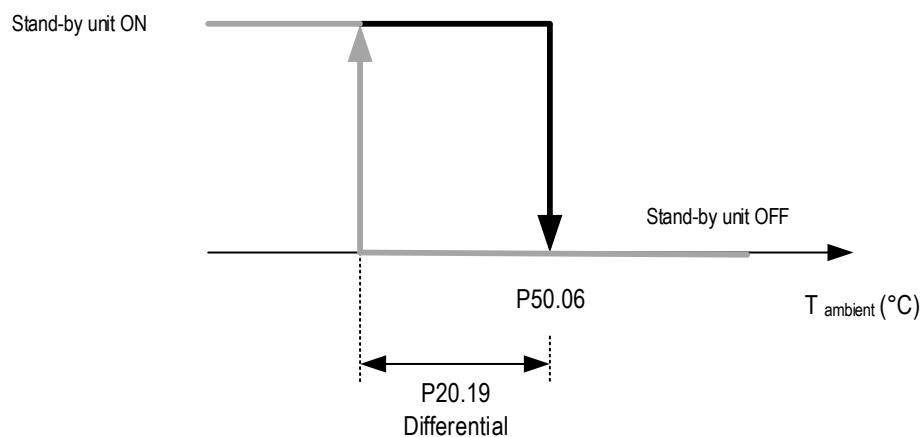


Figure 18-4: Graph of backup unit activation for exceeding heating setpoint

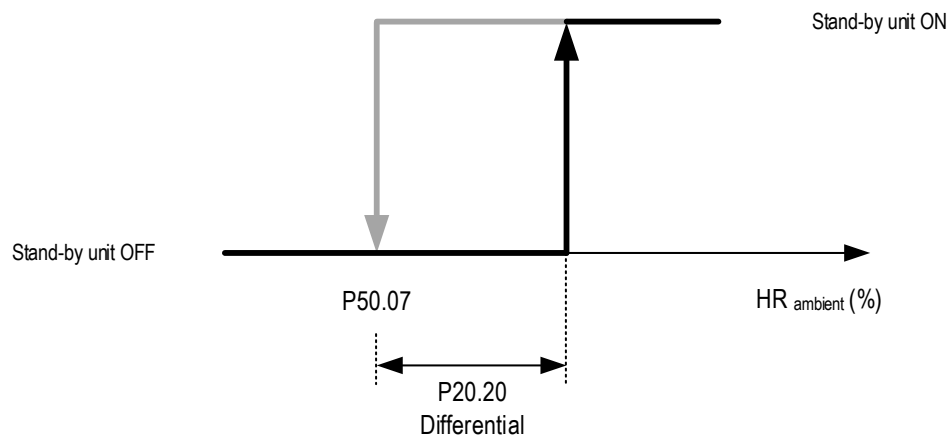


Figure 18-5: Dehumidify setting exceeding reserve unit activation graph

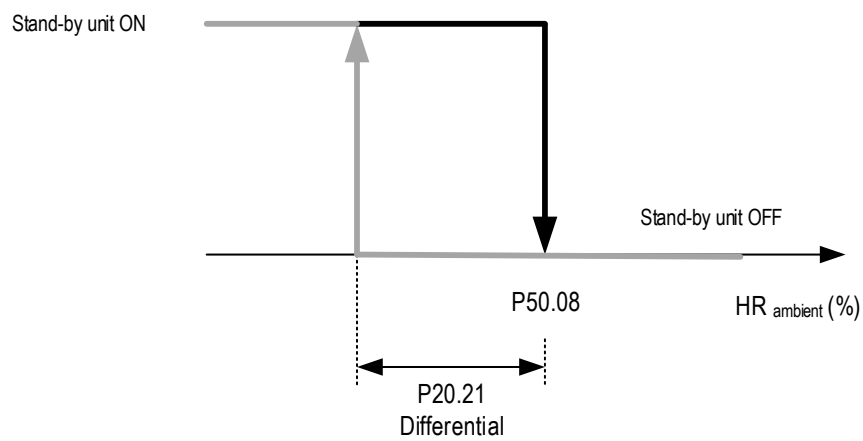


Figure 18-6: Humidify setting exceeding reserve unit activation graph

18.5 ACTIVE FAN ON STAND-BY

Adjustment is available only on units with stand-by management enabled.

18.5.1 Introduction

The function allows the use of dynamic standby: during standby, reserve units do not turn off the fan, but keep it running at the speed set in parameter P26.17. When the Master decides to turn on the unit in AFS mode, it returns to adjustment mode and the unit that will go into stand-by stops and keeps the fan running at the speed set in the parameter P26.17.

18.5.2 Operation

The following functions are used to manage the LAN network:

- Management of back-up units (Stand-by).
- Active Fan on Stand-by (AFS).

Both functions manage the LAN network as follows:

1. Management of the back-up units and their activation is managed by the Stand-by function (P26.03) according to its own rules (described in the chapter on stand-by management) for switching the back-up units on/off.
2. Operation of the units in stand-by is managed by the AFS function (P26.16) which controls dynamic stand-by.

The diagram below represents the operating mode described above.

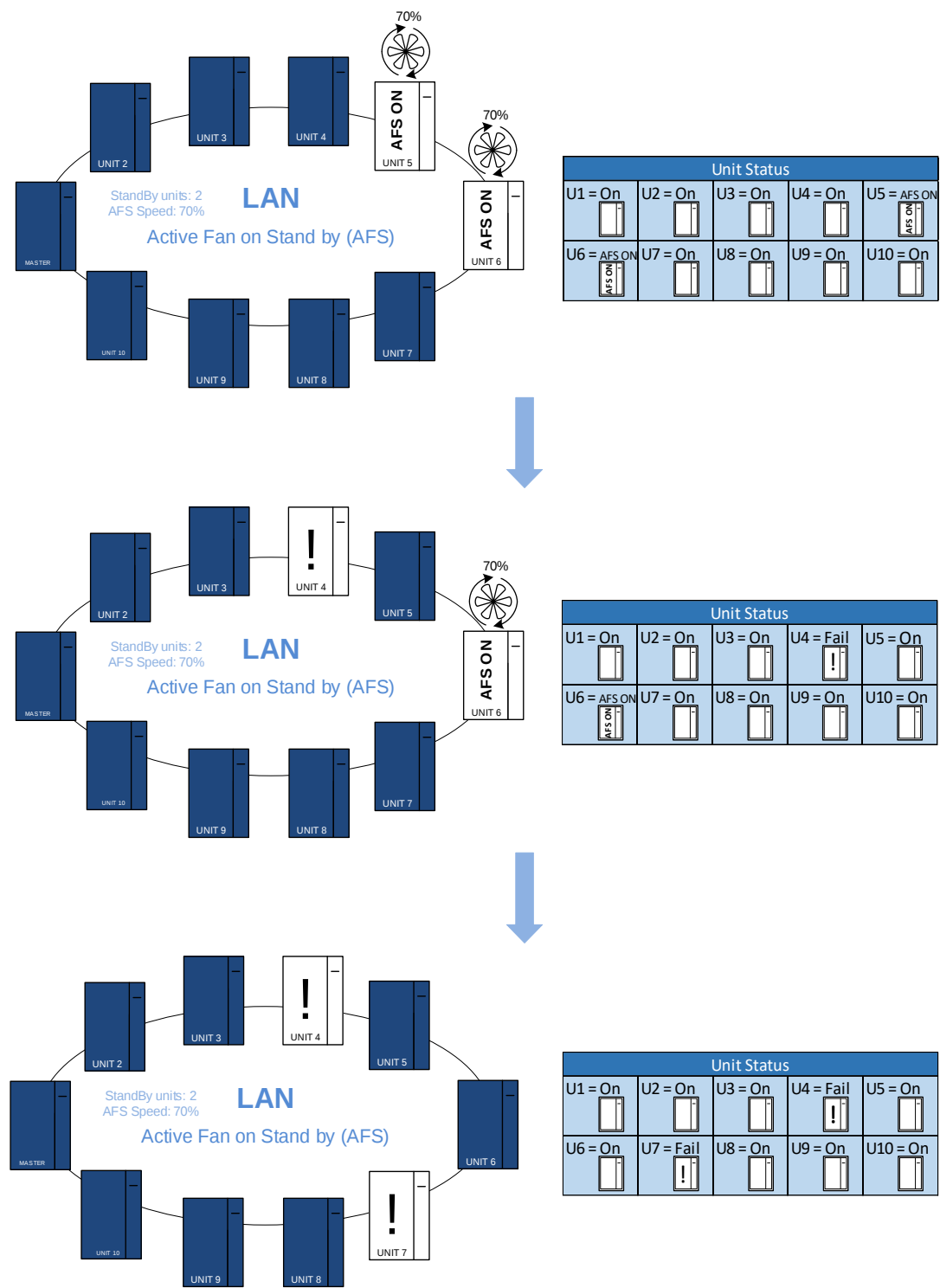


Figure 18-7: Graph showing operation of the Active Fan on Stand-by

The parameters for enabling and configuring the Active Fan on Stand-by function are in the “LAN” menu, which can be accessed by entering the “Service” password.
For the default values, see the parameters table.



INFORMATION:
The menu can be viewed only at the Master unit (Address 1).

18.6 TEMPERATURE AND HUMIDITY AVERAGE MANAGEMENT

18.6.1 Introduction

When the units are connected to a LAN network, it is possible to leverage their connection to operate them according to the average humidity and temperature value of all active units (that is, with active ventilation) not in the alarm status.

18.6.2 Average calculation

The Master unit (that is, the unit having LAN address = 1) calculates the average only if the regulation based on the average value has been enabled from the user terminal. In order to do this, the Master unit receives the room temperature and humidity values detected by the probes or all units in the LAN network, calculates the average and sends the resulting value to all units.

The average temperature and humidity consider only those units that:

- Are not in stand-by (in case the reserve unit rotation function is enabled).
- Are not in alarm (see following chapters).
- Are not off from user terminal.

The user terminal of each individual unit also displays the value read by its own temperature probe.

18.7 LAN ALARM MANAGEMENT

The network may be disconnected because of one of the following instances:

- Fault in the LAN board of the controller (integrated into the board: in this case the entire board must be replaced).
- LAN board connection cable disconnected.
- Unit or controller power feed disconnected.
- Cable broken in between the two units.

The options are two:

- One or more units are no longer visible.
- The network is broken into one (or more) sections.

Every unit constantly receives status information (namely, visibility or invisibility) of all other units that should be connected to the network (based on the number of LAN units set through the user terminal). Every unit is capable of detecting any disconnection.

18.7.1 Consequences of the alarm

When a unit detects a disconnection on the local LAN network, the following occurs:

- Signal on the main mask.
- Forced unit activation in case it is in stand-by.
- Average regulation inhibited, in case it has been previously enabled.
- Time count interruption for reserve unit rotation.

Moreover, the Master unit activates the reserve units (if they are two, then both).

18.8 SHARED USER TERMINAL

The shared user terminal (address 32) is managed by the application as follows:

- Usually, it displays the information regarding the unit selected by the user by pressing [ESC] and [ALARM] simultaneously. Whenever this is done the terminal switches onto the upper unit address.
- In case of maintenance alarm or signal on any of the units connected to the LAN network, the user terminal automatically switches onto the alarm or signal unit, in order to allow proper signalling.

Physically, the shared terminal may be connected to any of the network boards. Moreover, it may be connected both on the unit (panel terminal) or in remote position (wall terminal).

18.8.1 Connecting the remote keyboard

As a standard, there is only the on-board keyboard, directly connected to the J10 connector.
It is possible to connect a remote keyboard to the unit and it is possible to choose from different configurations.

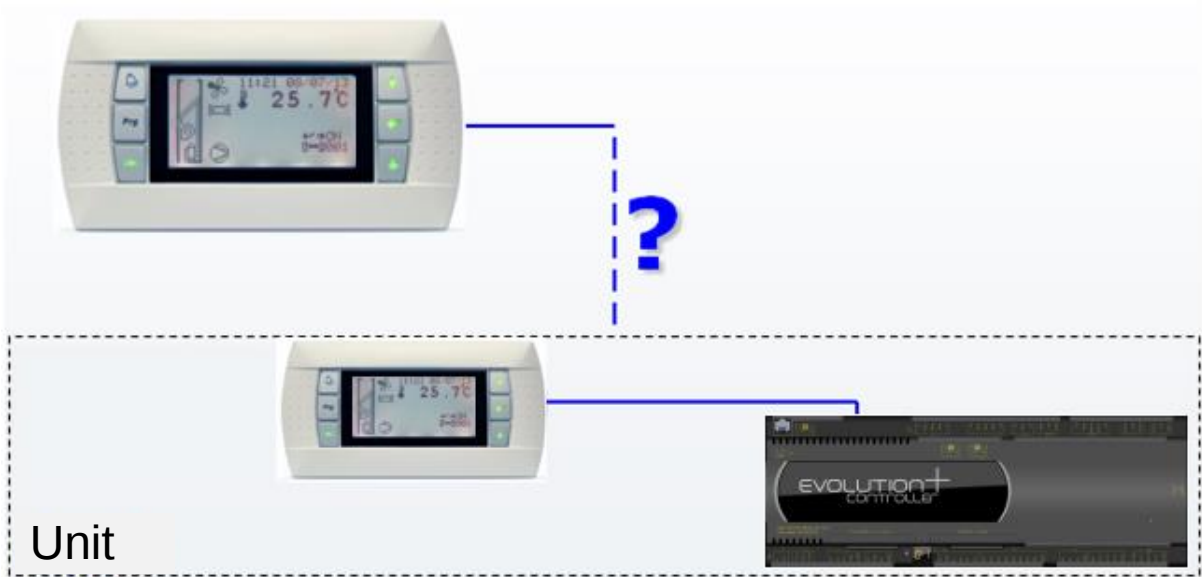
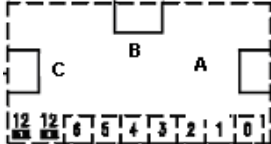


Figure 18-8: Basic scheme to connect a remote keyboard

18.8.2 “T” shunt

This is a shunt with phone connectors that is used in both the local network (LAN) and global network.
The two jumpers J14 and J15 must short circuit pins 1 and 2.
There is also a terminal board. The meanings of the various terminals are explained below.

1.	Image and wiring diagram of a T-shunt.		 J 14, J 15																
2.	Meaning of the terminal board	<table><thead><tr><th>Screw terminal</th><th>Function</th></tr></thead><tbody><tr><td>0</td><td>Earth (shielded cable sheath)</td></tr><tr><td>1</td><td>+VRL=30V</td></tr><tr><td>2</td><td>GND</td></tr><tr><td>3</td><td>Rx-/Tx-</td></tr><tr><td>4</td><td>Rx+/Tx+</td></tr><tr><td>5</td><td>GND</td></tr><tr><td>6</td><td>+VRL=30V</td></tr></tbody></table>	Screw terminal	Function	0	Earth (shielded cable sheath)	1	+VRL=30V	2	GND	3	Rx-/Tx-	4	Rx+/Tx+	5	GND	6	+VRL=30V	
Screw terminal	Function																		
0	Earth (shielded cable sheath)																		
1	+VRL=30V																		
2	GND																		
3	Rx-/Tx-																		
4	Rx+/Tx+																		
5	GND																		
6	+VRL=30V																		

18.8.3 Remote keyboard up to 200 metres

To connect a remote keyboard two "T" shunt boards must be used, one near the controller and one near the remote keyboard.

In case of a remote keyboard monitoring a single unit for a distance of less than 200 metres, the correct configuration is as follows.

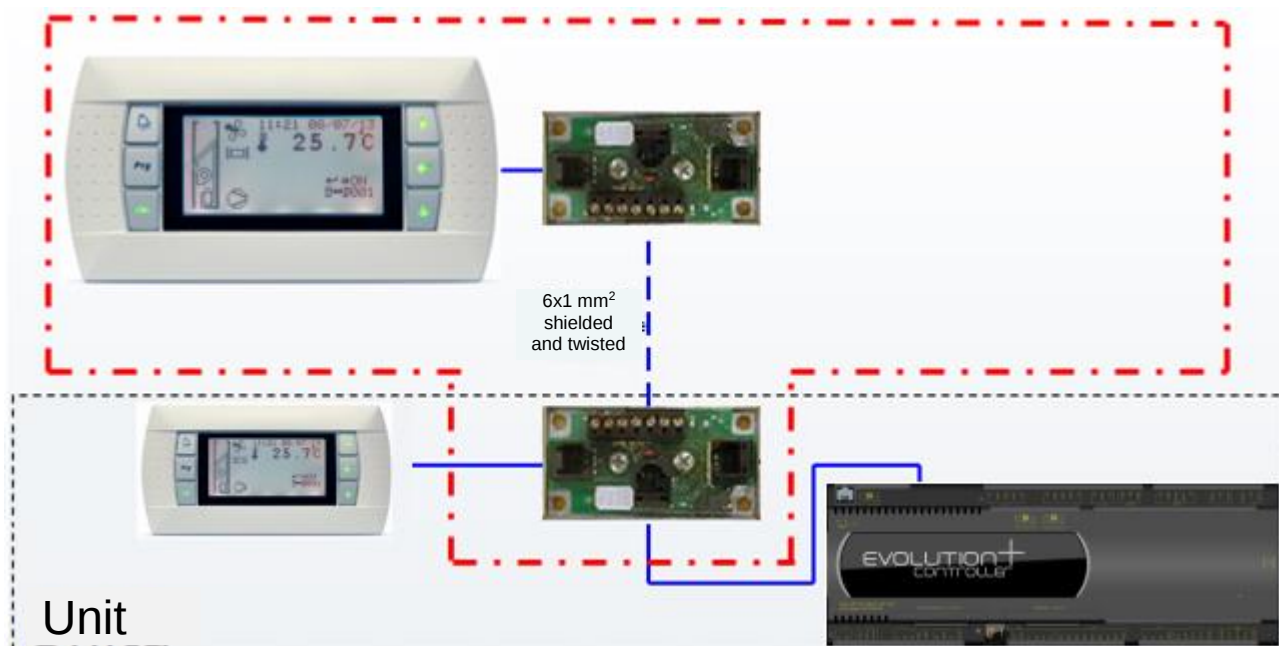


Figure 18-9: Basic scheme to connect a remote keyboard up to 200 m

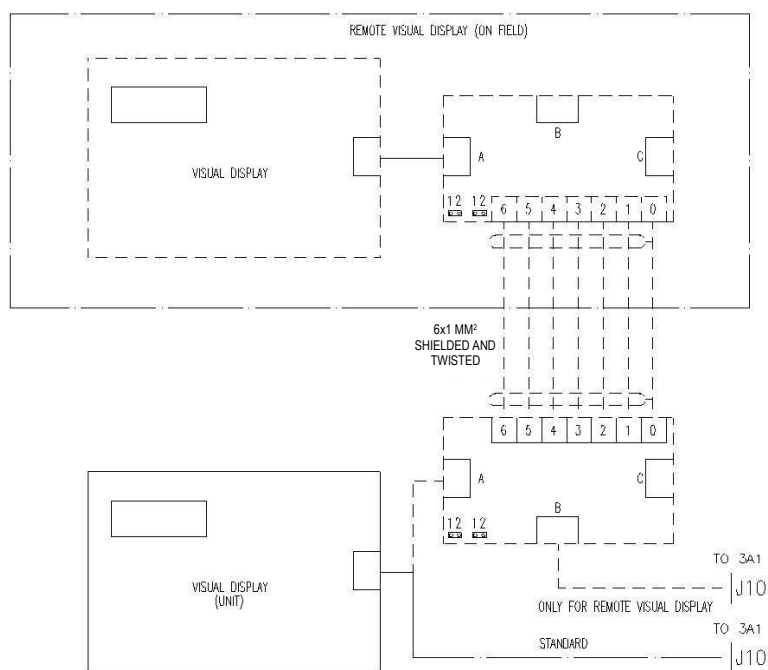


Figure 18-10: Electrical diagram to connect a remote keyboard up to 200 metres

18.8.4 Remote keyboard from 200 metres up to 500 metres

If the remote keyboard must be installed over 200m away from the local network (LAN), a power unit must be installed near the remote keyboard. The remote keyboard cannot be installed more than 500 m away.

The only difference between this and a remote keyboard up to 200 metres is that the power unit must be to terminals 1 and 2 of the T shunt (the one near the remote keyboard). In this case a 3-wire cable connecting the two T-shunts is sufficient.

If just one chiller is connected, the connection diagram is:

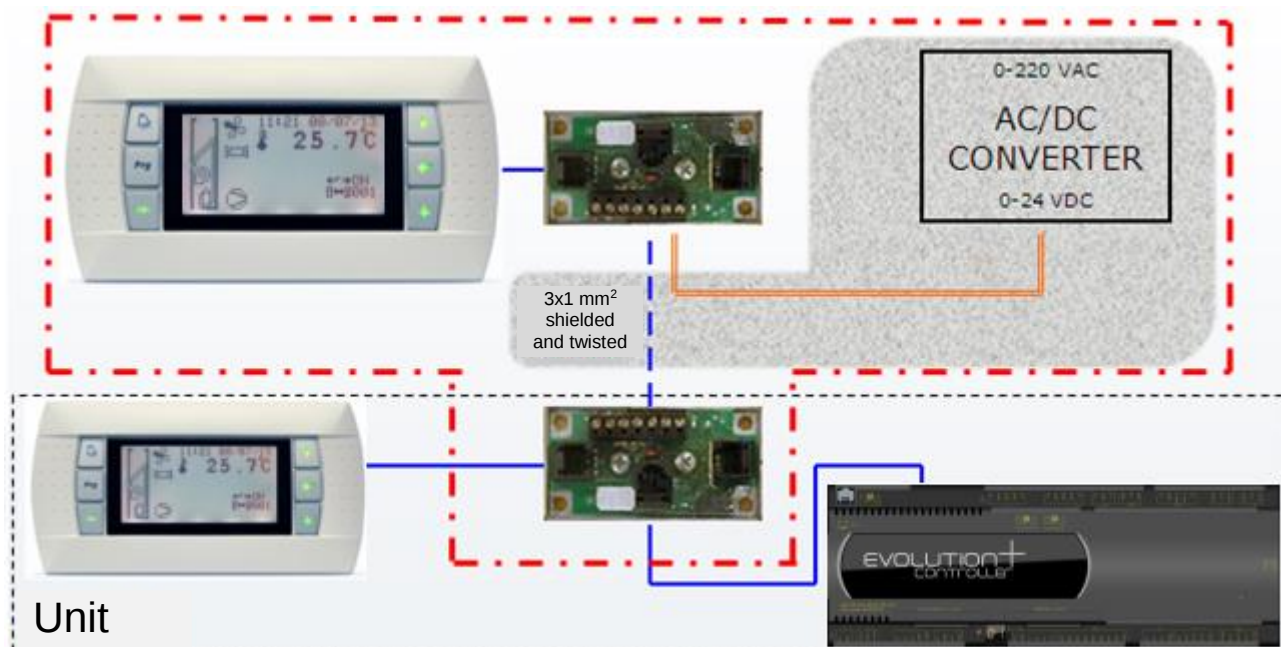


Figure 18-11: Basic scheme to connect a remote keyboard from 200 to 500 metres

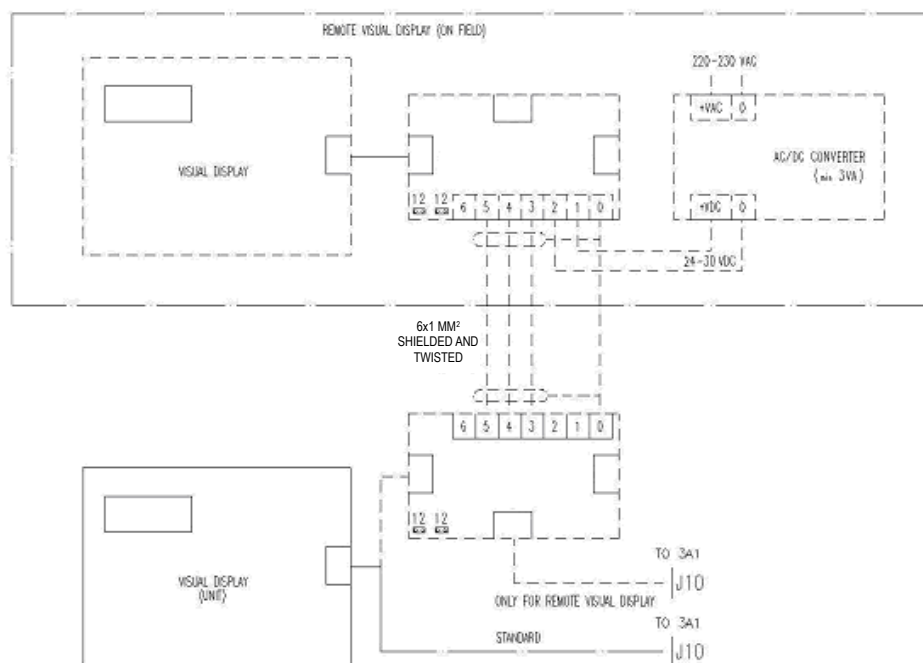


Figure 18-12: Electrical diagram to connect a remote keyboard from 200 to 500 metres

18.8.5 Remote keyboard for more than one unit

To connect more than one chiller to the same remote keyboard, connect the two boards together by jumpering connectors J11. A configuration similar to the two shown above should only be used on the first board in the network (the one nearest the remote keyboard).

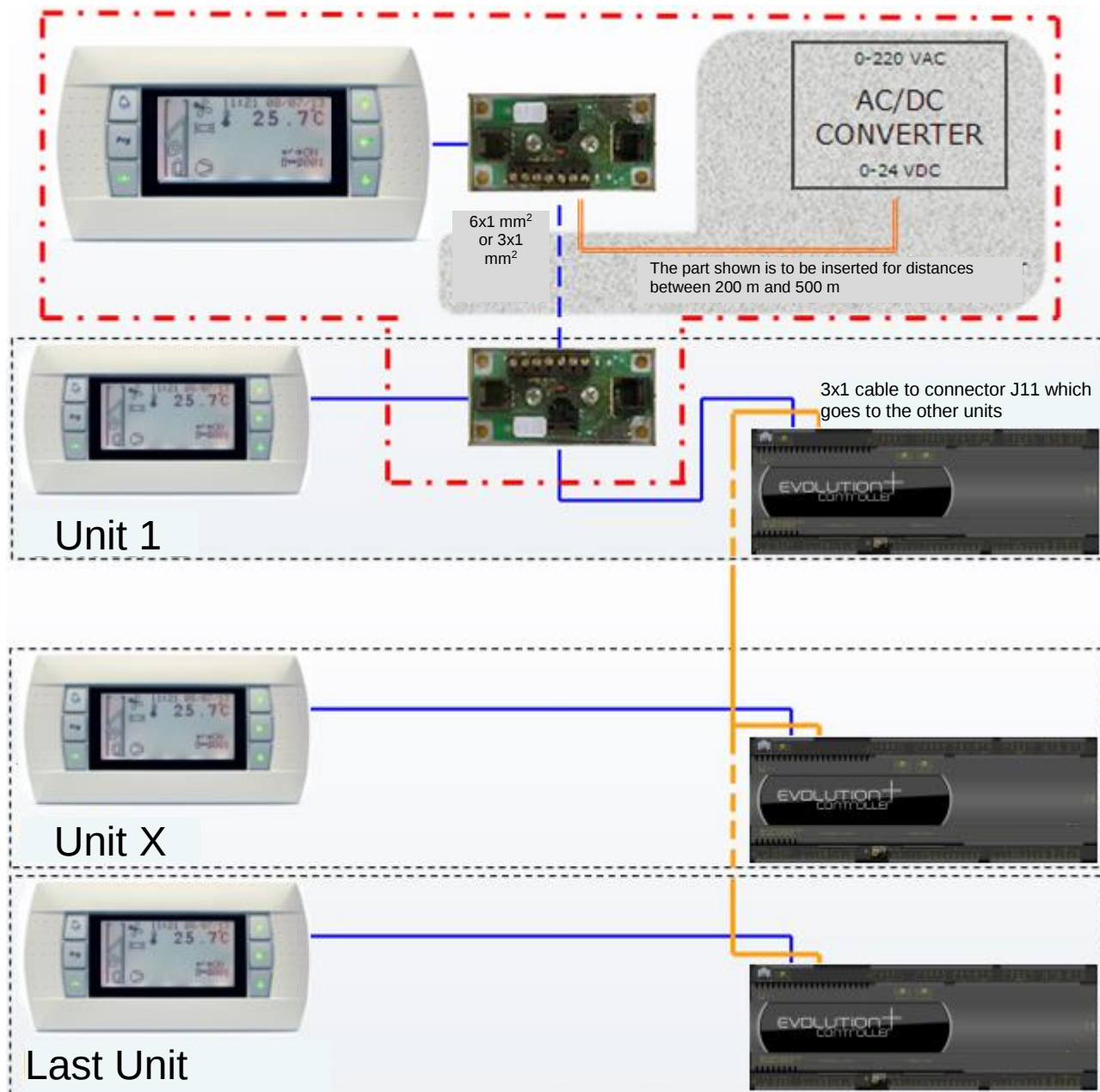


Figure 18-13: Basic scheme to connect a remote keyboard to more units



for a greener tomorrow

Eco Changes is the Mitsubishi Electric Group's environmental statement, and expresses the Group's stance on environmental management. Through a wide range of businesses, we are helping contribute to the realization of a sustainable society.



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