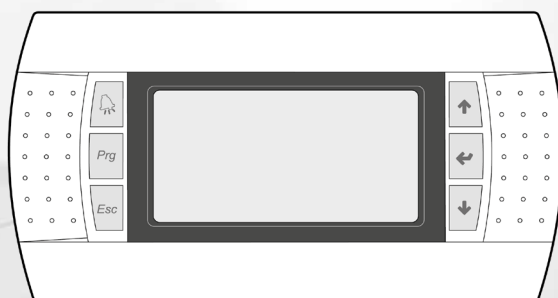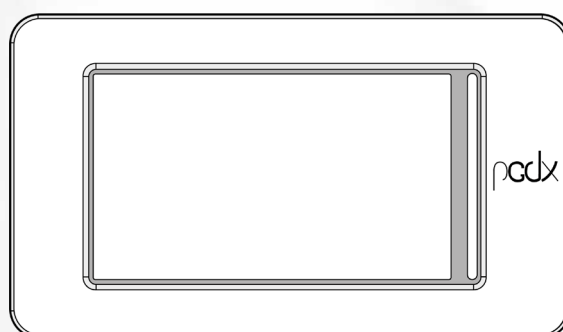# Range a/w scroll-Touch

CARD PCO5 - TOUCH PANEL - PANEL PGD1

AERMEC

Dear Customer,

Thank you for wanting to learn about a product Aermec. This product is the result of many years of experience and in-depth engineering research, and it is built using top quality materials and advanced technologies.

The manual you are about to read is meant to present the product and help you select the unit that best meets the needs of your system.

However, please note that for a more accurate selection, you can also use the Magellano selection program, available on our website.

Aermec, always attentive to the continuous changes in the market and its regulations, reserves the right to make all the changes deemed necessary for improving the product, including technical data.

Thank you again.

Aermec S.p.A.

SAFETY CERTIFICATIONS

$C \epsilon$

This marking indicates that this product should not be disposed with other household wastes throughout the EU. To prevent possible harm to the environment or human health from uncontrolled disposal of Waste Electrical and Electronic Equipment (WEEE), please return the device using appropriate collection systems, or contact the retailer where the product was purchased. Please contact your local authority for further details. Illegal dumping of the product by the user entails the application of administrative sanctions provided by law.

All specifications are subject to change without prior notice. Although every effort has been made to ensure accuracy, Aermec shall not be held liable for any errors or omissions.

TABLE OF CONTENTS

1   QUICK REFERENCE

This manual describes all the windows found in the control software of the Touch panel, but the list below contains all the basic operations that the user might need, referring him/her to the relative page of the manual where there is a description of that specific function (for all other information, refer to the contents page):

A   Switching the unit ON/OFF (6.1 Switching the unit ON/OFF p. 19)

B   Selecting the operating mode (7.1 Setting the operating mode and the main set-points p. 20)

C   Setting a main operating set-point (7.1 Setting the operating mode and the main set-points p. 20)

D   Setting the time bands (8 Time band menu p. 22)

E   Applying a timed program (8.1 Page for creating timed programs p. 22)

F   Changing the system language (10.1 Page for selecting the system language p. 26)

2   STRUCTURE OF THE MENUS

With the touch panel, the user can manage all the operating parameters of the unit via a touchscreen graphic interface. The use of the information is easy and straightforward, thanks to the "home" page showing the main unit operating parameters. The more specific parameters and settings can be found in the various menus, accessed via the relative selection page that identifies each menu with a specific icon. These icons are highlighted below:

Icon	Menu
	Input/output menu
	ON/OFF menu
	System menu
	Time band menu
	Alarm Menu
	Language menu
	Summary menu
	Diagram menu
	Multi-purpose input menu
	Installer menu (password 0000)
	Help menu (PROTECTED menu)
	Manufacturer menu (PROTECTED menu)

3 USER INTERFACE (PGDX)

3.1 INTERACTING WITH THE GRAPHIC INTERFACE

The unit command and control interface uses a touch-screen display. This interface is designed to be simple and user-friendly; the absence of actual keys means the program is managed purely by touching the screen directly, which makes it far more accessible for the user. The software manages a great deal of information, with the various items grouped into separate pages that in turn are managed via specific menus, but there are certain fundamental features that apply to all the operations, such as selecting a window, moving on to the next window, or entering a precise numerical value. The basic operations that can be carried out via the touchscreen interface are described below.

NOTICE

ⓘ **The following pages show all the masks contained in the menus available to the user; Tampering with the parameters in the installer menu could cause the unit to malfunction, therefore it is recommended to have these parameters changed only by personnel assigned to unit installation and configuration;**

3.2 NAVIGATING BETWEEN THE PROGRAM PAGES

As already mentioned on the previous pages, the unit operating information is sub-divided into various menus, each containing several pages. The basic operations for navigating between the menus are as follows:

— **Access a menu**: to access a menu you must activate the menu selection page by pressing the "open book" icon (📖) found on every page of the program. Now, just press the icon that represents the specific menu you want to access (for more information about which menus are activated by the various icons, refer to the diagram on the previous page).

— **Scroll to the next or previous page of a menu**: once you have accessed a menu, you can pass from one page to another by pressing the "right arrow" icon (➡) to go forward, or the "left arrow" icon (⬅) to go back (unless the menu in question has just one page).
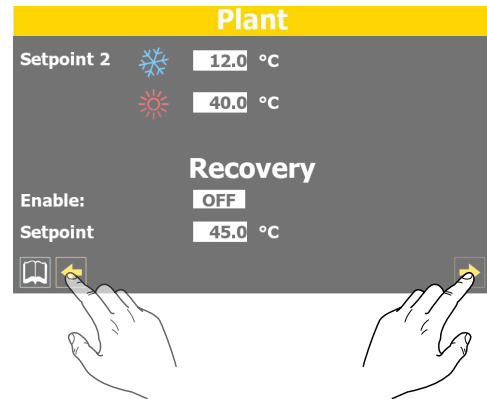
— **Return to the "Home" page**: to go back to the main (home) page, press the relative icon (🏠); Not all the program pages contain this icon, but you can find it on the menu selection page so just go to that page (as explained in the first point of this list) and from there you can reach "Home".
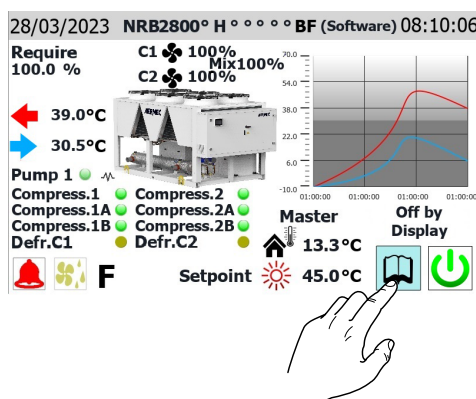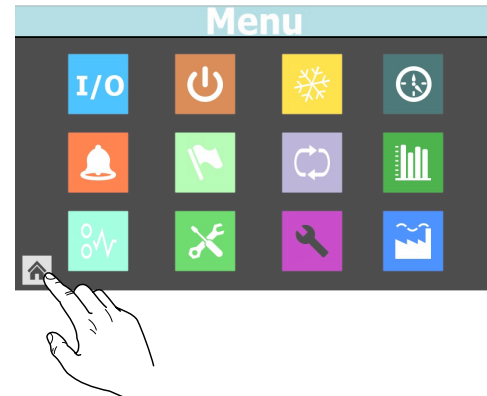
3.3 SETTING A NUMERICAL VALUE FOR A PARAMETER

Many parameters (e.g. the seasonal operating set-points) require the user to enter a numerical value. In these cases, proceed as follows:

1. Once you have accessed a page containing an editable numerical value (e.g. the operating set-points), press on the value already displayed.
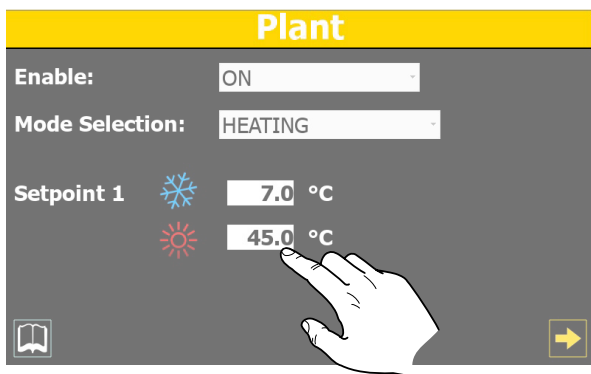
2. A numerical keypad will now appear, where you can enter a new value;
3. Press "Enter" on the keypad to confirm and apply the new value, or press "Esc" to delete the operation.
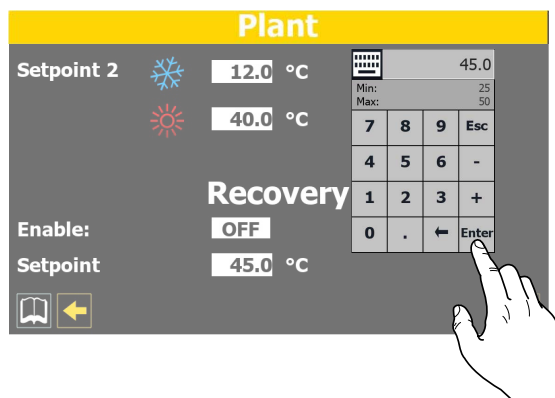
NOTICE

ⓘ **Once you have selected the numerical value to be modified, the numerical keypad will show the Minimum and Maximum values that can be set for that parameter.**

3.4 SETTING A VALUE, SELECTING IT FROM A LIST

Certain parameters (such as the operating mode) require the user to choose an option from a list. In these cases, proceed as follows:

1. Once you have accessed a page containing an editable value (e.g. the operating mode), press on the option already displayed;
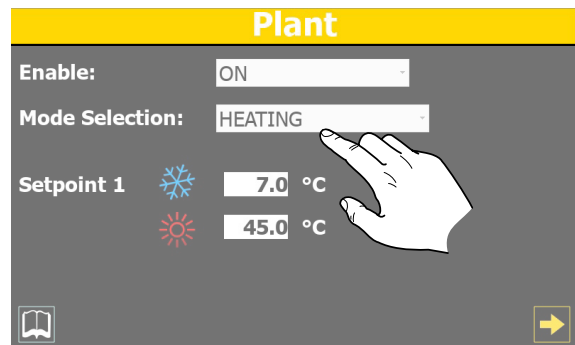
2. A small window will now appear, with a list of options;
3. Select one of the options by pressing on it. Your choice will be highlighted by a change of colour;
4. Press "OK" to apply the chosen option, or press "Cancel" to quit the selection page without altering the previous value;
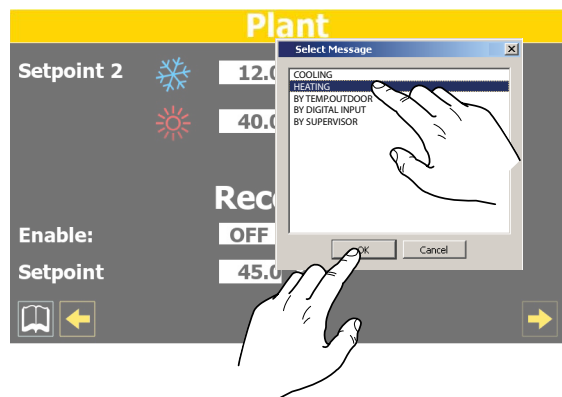
4 MAIN PAGE (HOME)

The standard display during normal operation is the "Home" page. Depending on the type of unit configured, from this window you can keep the main operating parameters under control or access direct connections to certain operating menus. We will analyse and explain below all the elements that can be viewed and/or managed via the Home page.
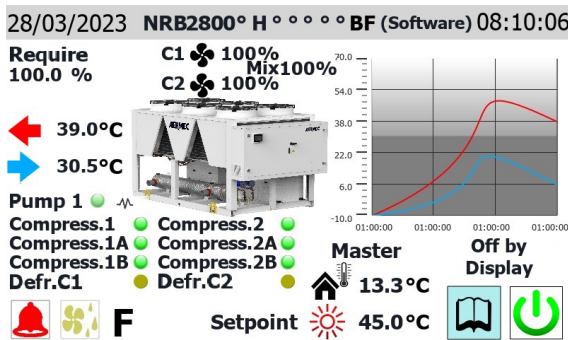
NOTICE

ⓘ **Certain information is only visible if it is available on the unit (for example data relating to the Free-cooling circuit).**

4.1 DATA ENTERED IN THE UPPER BAR
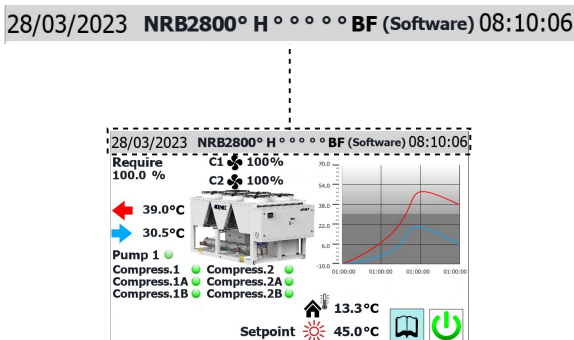
— Date set on the system
— String corresponding to the unit configurator (for more information about the unit configurator, refer to the technical manual of the unit itself).
— Time set on the system

NOTICE

ⓘ **The units have two different timers - one integrated in the touch panel and the other relating to the electric control card of the units. These timers can have different time settings (which can be seen on the "Clock configuration" page of the installer menu), to ensure the correct time is shown for any alarms saved in the log. You are advised to**

check them regularly to make sure they coincide, synchronising them if necessary.

ⓘ **The configured unit code is entered in the factory, and cannot be altered by the user.**

4.2 WATER INLET/OUTLET TEMPERATURE CHART

The chart on the homepage shows the temperature trend of the water entering and leaving the unit. The colours will depend on the unit operating mode: in cooling mode, BLUE indicates the outlet water and RED the inlet water; on the contrary, in heating mode RED indicates the processed water and BLUE the water returning from the system.
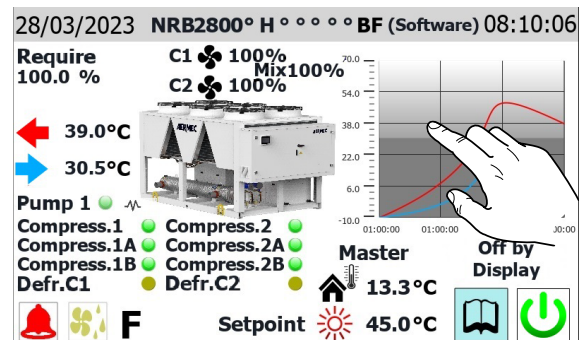
NOTICE

ⓘ **Click on the chart to directly open the "chart menu", where you can see a log of the various charts available. To return to the main page, you must first go to the menu selection page and from there select "Home".**

4.3 UNIT OPERATING STATUS INFORMATION (REAL TIME DATA)
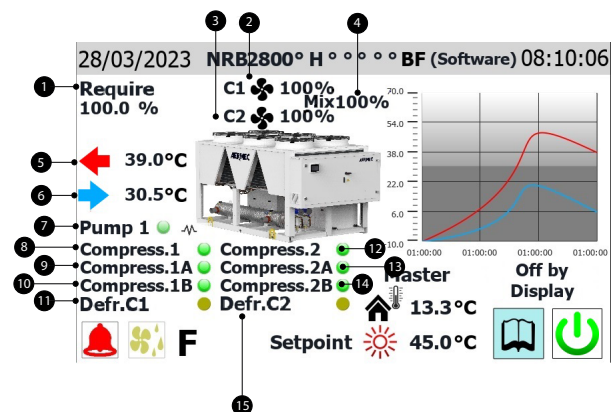
1. Percentage figure showing the power request from the system
2. Percentage figure showing the speed of the fans on circuit 1
3. Percentage figure showing the speed of the fans on circuit 2 (only visible if the unit has 2 circuits)
4. Percentage figure showing the speed of the shared fans in V-BLOCK units (only visible on V-BLOCK units)
5. Indicates the temperature of the water processed by the unit (real time figure)
6. Indicates the temperature of the water entering the unit (real time figure)
7. This label appears if the unit pump is active (if the unit has a pump component)
8. This label appears if unit compressor 1 is active
9. This label appears if unit compressor 1A is active (if installed)
10. This label appears if unit compressor 1B is active (if installed)
11. This label appears if defrosting is in progress on circuit 1
12. This label appears if unit compressor 2 is active (if installed)
13. This label appears if unit compressor 2A is active (if installed)
14. This label appears if unit compressor 2B is active (if installed)
15. This label appears if defrosting is in progress on circuit 2 (on two-circuit units only)

NOTICE

ⓘ **Much of the information in this section is linked to the type of unit:** the presence of a second circuit or a hydronic side pump, or the number of compressors managed by the system, will depend on the type of unit.

4.4 DATA ENTERED IN THE LOWER BAR, AND NAVIGATION KEYS
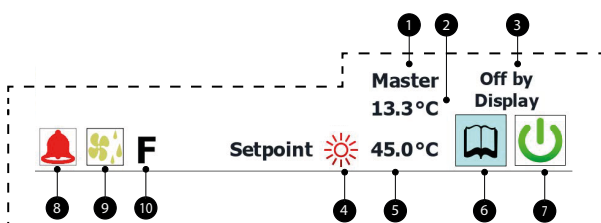
1. Indicates whether the unit is MASTER or SLAVE (only visible if the unit is installed and configured as part of a multiple system set up for MASTER/SLAVE management)
2. Value of the outside air temperature (real time value)
3. Current unit status (if the status is ON, no status will be indicated). The possible info shown on the unit is:

— No info = Unit operating;
— General OFF via key = Unit switched off using key (7);
— Unit OFF via alarm = Unit switched off due to an alarm condition;
— OFF via supervisor = Unit switched off via BMS;
— Off from time periods = Unit switched off because required by currently active time period;
— OFF via digital input = Unit switched off due to a digital input signal (ID17);
— Antifreeze = Unit operating in antifreeze mode;
— OFF via Master = Unit switched off via the MASTER unit;
— Outside operating limits = Unit switched off because it was working outside its operating limits (for more information about the unit operating limits, refer to the technical manual of the unit);
— Boiler replacement = Unit switched off because replaced by the boiler for hot water production;

4. This icon indicates the current set-point being used (summer or winter) on the basis of the selected operating mode
5. Indicates the current value for the operating set-point
6. Press this key to visualise the menu selection page
7. Press this key to switch the unit ON or OFF directly
8. This icon is displayed if there is an active alarm on the system - press it to view the alarm menu
9. This icon indicates that the defrosting cycle is in progress (on at least one of the circuits, in the case of two-circuit units) - press it to view the defrosting page on the Input/Output menu
10. If visible, this icon indicates that Free-cooling mode is currently active (for Free-cooling units only)

NOTICE

ⓘ **If the system uses a MASTER/SLAVE configuration, remember that up to two units can be managed with a "pLAN" serial connection (the address of the touch MASTER panel must be "3", and that of the SLAVE "4"). It is recommended that the two units - Master and Slave - are the same (same software version), so they can be used in a balanced manner;**

ⓘ **It is essential that the Master and Slave units have the same software version.**

5 INPUT/OUTPUT MENU

The input/output menu shows many of the values measured by the various probes and transducers on the unit. You cannot set any values via this menu, but it gives important operating information such as the defrosting status and so on.

5.1 GENERAL INPUT/OUTPUT STATUS

In/Out					
Total Req.Plant	100.0 %		Outd.Temp.		13.2°C
Circuit 1			Circuit 2		
Power active	50.0	%	Power active	50.0	%
HP	27.1	bar	HP	36.5	bar
LP	8.1	bar	LP	6.7	bar
T. Liquide	70.0	°C	T. Liquide	75.0	°C
Del.Temp.Comp.	85.9	°C	Del.Temp.Comp.	42.3	°C
Compressor1 ●	0	s	Compressor2 ●	0	s
Compressor1A ●	0	s	Compressor2A ●	0	s
Compressor1B ●	0	s	Compressor2B ●	0	s
📖 ←		Time between starts:	0 s		➡

This mask displays:
— Percentage value showing the current power request from the system
— Current outside temperature value
— Percentage value of the current load on circuit 1
— Current pressure value measured on the high-pressure side of the refrigerant circuit
— Current pressure value measured on the low-pressure side of the refrigerant circuit
— Current temperature value measured on the low-pressure side of the refrigerant circuit
— Current temperature value measured on the high-pressure side of the refrigerant circuit
— Indication of the status (ON or OFF) of the compressors of circuit 1; if a compressor is ON, there will be a green dot next to the label. For each compressor, there is also a value in seconds, indicating (with a countdown) the minimum ON or OFF time (in both cases, if the value is 0s this means the compressor has already respected the minimum ON or OFF time and can respond to a request from the system instantaneously).
— Indicates the minimum time that must pass between two compressor peaks; the time is shown by means of a countdown, after which consent for the next compressor peak is enabled.
— Percentage value of the current load on circuit 2 (if installed)
— Current pressure value measured on the high-pressure side of refrigerant circuit 2 (if installed)
— Current pressure value measured on the low-pressure side of refrigerant circuit 2 (if installed)
— Current temperature value measured on the low-pressure side of refrigerant circuit 2 (if installed)
— Current temperature value measured on the high-pressure side of refrigerant circuit 2 (if installed)

— Indication of the status (ON or OFF) of the compressors of circuit 2; if a compressor is ON, there will be a green dot next to the label. For each compressor, there is also a value in seconds, indicating (with a countdown) the minimum ON or OFF time (in both cases, if the value is 0s this means the compressor has already respected the minimum ON or OFF time and can respond to a system request instantaneously).

5.2 VENTILATION STATUS

In/Out				
Circuit 1		Mix 100 %	Circuit 2	
Ventilation			Ventilation	
Speed	✲ 100 %		Speed	✲ 100 %
Set:	0.0 bar		Set:	0.0 bar
Diff.:	0.0 bar		Diff.:	0.0 bar
1:SILENT MOD	27.3 bar		2:SILENT MOD	36.8 bar
📖 ←				➡

This mask displays:
— Percentage value of the current speed of the fans on circuit 1
— Current pressure value measured for the operating set-point of the fans on circuit 1
— Current pressure value measured for the differential to be applied to the operating set-point of the fans on circuit 1
— Status of the fans on circuit 1. This status may be:
Off = Fans switched off;
Pre-ventilation = Indicates the pre-empted switch-on of the fans in relation to the compressors;
High pressure = Indicates that the check on the basis of high pressure is currently active;
Post-ventilation = Indicates the ventilation phase after compressor switch-off;
Antifreeze = Indicates the ventilation phase for preventing the build-up of snow and the formation of ice;
Defrosting = Indicates the defrosting phase;
Low pressure = Indicates that the check on the basis of low pressure is currently active;
Maximum speed = Indicates that the fans are currently turning at their maximum speed;
Low noise = Indicates that partialised speed is active, to reduce the noise level;

— Percentage value of the current speed of the fans on circuit 2 (if installed)
— Current pressure value measured for the operating set-point of the fans on circuit 2 (if installed)
— Current pressure value measured for the differential to be applied to the operating set-point of the fans on circuit 2 (if installed)

— Status of the fans on circuit 2 (if installed). This status may be:

Off = Fans switched off;

Pre-ventilation = Indicates the pre-empted switch-on of the fans in relation to the compressors;

High pressure = Indicates that the check on the basis of high pressure is currently active;

Post-ventilation = Indicates the ventilation phase after compressor switch-off;

Antifreeze = Indicates the ventilation phase for preventing the build-up of snow and the formation of ice;

Defrosting = Indicates the defrosting phase;

Low pressure = Indicates that the check on the basis of low pressure is currently active;

Maximum speed = Indicates that the fans are currently turning at their maximum speed;

Low noise = Indicates that partialised speed is active, to reduce the noise level;

5.3   OUTSIDE TEMPERATURE STATUS
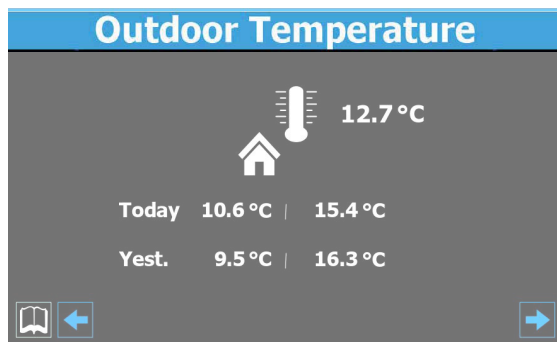
This mask displays:
— Current temperature value measured for the outside air
— Minimum outside air temperature recorded today
— Maximum outside air temperature recorded today
— Minimum outside air temperature recorded yesterday
— Maximum outside air temperature recorded yesterday

5.4   DEFROSTING STATUS

1. Indicates the current defrosting status on circuit 1. The possible values are:
— Disabled = No defrosting active;

— Bypass = Indicates that the bypass phase is currently active, following compressor start-up;
— Decay calculation = Indicates that the pressure decay calculation is currently in progress;
— Cycle reversal standby = Indicates that the pause is active, prior to the cycle valve reversal;
— Defrosting start-up = Indicates that the defrosting cycle is beginning;
— Defrosting in progress = Indicates that the defrosting cycle is currently in progress;
— Defrosting end = Indicates that the defrosting cycle is ending;
— First defrosting = Indicates that the first defrosting after a blackout is active;

2. Gives additional information about the defrosting status of circuit 1. This information may be:
— High outside temperature = Indicates that the outside air temperature is above the defrosting enabling threshold;
— Circuit OFF = Indicates that the circuit compressors are switched off and defrosting is disabled;
— BP above limit threshold = Indicates that the low pressure value ("BP") is above the limit threshold for triggering the defrosting cycle;
— Min time between defrosting cycles = Indicates that the defrosting cycle is currently disabled in order to respect the minimum time between two cycles;
— CP start-up = Indicates that the compressor has just been started up and the bypass time before calculating the pressure decay is in progress;
— New BP reference = Indicates that a new low pressure value has been taken as the reference for calculating the decay;
— Start-up for BP limit = Indicates that defrosting has been activated in order to exceed the low pressure limit threshold;
— Start-up for P-delta = Indicates that defrosting has been activated in order to exceed the low pressure decay value;
— Liquid temp. OK = Indicates that the liquid temperature has exceeded the threshold for determining the end of the defrosting cycle;
— Min. defrosting times = Indicates that defrosting continues until the minimum set time has been exceeded, even if the output conditions have already been reached;
— Standby for other circuit = In the case of a single ventilation unit, indicates the phase in which the circuit that ends the defrosting cycle first switches off, waiting for the other circuit to end too;
— First start-up bypass = Indicates that the first defrosting cycle after a blackout can only start after the compressor has been working for a specific time;
— Low liquid temp. = Indicates that the liquid temperature is below the threshold for determining the end of the defrosting cycle;
— Start-up for TGP = Indicates that the defrosting cycle has been activated because the temperature threshold for the force gas has been exceeded;

— Forced = In the case of a single ventilation unit, indicates that the circuit has been forced to defrost by the other circuit.

3. Indicates the defrosting times for circuit 1

4. Indicates the average low pressure value on circuit 1

5. Indicates the accumulated P-delta for determining defrosting activation on circuit 1

6. Indicates the liquid temperature value for determining the defrosting end on circuit 1

7. The same as point (1), but with reference to circuit 2 (if installed)

8. The same as point (2), but with reference to circuit 2 (if installed)

9. Indicates the defrosting times for circuit 2 (if installed)

10. Indicates the average low pressure value on circuit 2 (if installed)

11. Indicates the accumulated P-delta for determining defrosting activation on circuit 2 I(if installed)

12. Indicates the liquid temperature value for determining the defrosting end on circuit 2 (if installed)

5.5 PCO5 ANALOGUE INPUT STATUS

Analog Input pCO5	
U1: Inlet Temp.water Evap.	15.3°C
U2: Outlet Temp.water Evap.	13.7°C
U3: Ext.Temp.	12.7°C
U4: Discharge Temp.Circ.1	86.2°C
U5: High press.Circ.1	27.4bar
U6: Low press.Circ.1	8.3bar
U7: Discharge Temp.Circ.2	42.5°C
U8: High press.Circ.2	36.8bar
U9: Low press.Circ.2	6.8bar

1. Indicates the current temperature value measured on the evaporator inlet

2. Indicates the current temperature value measured on the evaporator outlet

3. Indicates the current outside air temperature

4. Indicates the current temperature measured on the high-pressure side of circuit 1

5. Indicates the current high-pressure value of circuit 1

6. Indicates the current low-pressure value of circuit 1

7. Indicates the current temperature measured on the high-pressure side of circuit 2

8. Indicates the current high-pressure value of circuit 2

9. Indicates the current low-pressure value of circuit 2

5.6 UPC ANALOGUE INPUT STATUS

Analog Input uPC			
B1=	13.5°C	B11=	16.4°C
B2=	11.3°C	B12=	18.7°C
B3=	19.8°C		
B4=	24.1°C		
B5=	12.6°C		
B6=	22.3°C		
B7=	14.9°C		
B8=	10.4°C		
B9=	21.2°C		
B10=	17.6°C		

1. Not used

2. Not used

3. Not used

4. Not used

5. Not used

6. This figure may refer to various values, depending on the type of unit:

— Unit with total heat recovery = Indicates the temperature of the water entering the total recovery unit;

— Free-cooling unit = Indicates the inlet temperature on the Free-cooling unit;

7. This figure may refer to various values, depending on the type of unit:

— Unit with total recovery = Indicates the temperature of the water leaving the total recovery unit (heat exchanger 1);

— Free-cooling unit (glycol-free) = Indicates the outlet temperature on the Free-cooling unit (glycol-free);

8. This figure may refer to various values, depending on the type of unit:

— Unit with total recovery = Indicates the temperature of the water leaving the total recovery unit (heat exchanger 2);

— Free-cooling unit = Indicates the temperature measured by the probe on the intermediate heat exchanger;

9. Indicates the current temperature value for water leaving evaporator 2

10. Not used

11. Indicates the current water temperature on the common evaporator outlet

12. Not used

5.7 PCO5 DIGITAL INPUT STATUS

Digital Input pCO5	
ID1: Flow switch	Closed
ID2: High press.circ.1	Closed
ID3: Fan Overload 1	Closed
ID4: AL.Phase Monitor	Closed
ID5: Overl.Comp.1 Circ1	Closed
ID6: Overl.Comp.2 Circ1	Closed
ID7: Overl.Comp.3 Circ1	Closed
ID8: High press.circ.2	Closed
ID9: Fan Overload 2	Closed
ID10: 2nd Set enable	Open

1. Indicates the status of the evaporator flow switch
2. Indicates the status of the high-pressure switch for circuit 1
3. Indicates the status of the thermal protection on fan 1
4. Indicates the status of the phase monitor
5. Indicates the status of the thermal protection on compressor 1 (circuit 1)
6. Indicates the status of the thermal protection on compressor 2 (circuit 1)
7. Indicates the status of the thermal protection on compressor 3 (circuit 1)
8. Indicates the status of the high-pressure switch for circuit 2
9. Indicates the status of the thermal protection on fan 2
10. Indicates the setting for the second set-point

■ *Closed = normal operation; Open = fault in progress;*

Digital Input pCO5	
ID11: Overl.Comp.1 Circ2	Closed
ID12: Overl.Comp.2 Circ2	Closed
ID13: Overl.Comp.3 Circ2	Closed
ID14: Overl.Pump1 plant	Closed
ID15: Overl.Pump2 plant	Closed
ID16: Remote Cool/Heat	Open
ID17: Remote On-Off	Closed
ID18: Multifunct.Enable	Closed

11. Indicates the status of the thermal protection on compressor 1 (circuit 2 if installed)
12. Indicates the status of the thermal protection on compressor 2 (circuit 2 if installed)
13. Indicates the status of the thermal protection on compressor 3 (circuit 2) (if installed)
14. Indicates the status of the thermal protection on evaporator pump 1
15. Indicates the status of the thermal protection on evaporator pump 2

■ *Closed = normal operation; Open = fault in progress;*

16. Indicates the setting for the remote season changeover command
17. Indicates the setting for the remote ON/OFF command
18. Indicates the setting for the multi-purpose input

■ *Closed = input enabled; Open = input not enabled;*

5.8 PCO5 DIGITAL OUTPUT STATUS

Output pCO5	
NO1: Pump 1	Closed
NO2: Compr. 1 Circuit 1	Closed
NO3: Compr. 2 Circuit 1	Closed
NO4: Compr. 3 Circuit 1	Closed
NO5: VSL Circuit 1	Closed
NO6: VIC Circuit 1	Closed
NO7: Fans Circuit 1	Closed
NO8: Serious alarm	Open
NO9: Compr.1 Circut 2	Closed

1. Indicates the status of pump 1
2. Indicates the status of compressor 1 (circuit 1)
3. Indicates the status of compressor 2 (circuit 1)
4. Indicates the status of compressor 3 (circuit 1)
5. Indicates the status of the liquid solenoid valve (circuit 1)
6. Indicates the status of the reverse cycle valve (circuit 1)
7. Indicates the status of the fans on circuit 1
8. Indicates the status of the "serious alarm" signal
9. Indicates the status of compressor 1 (circuit 2)

Output pCO5			
NO10: Compr. 2 Circuit 2	Closed	Y1= DCP1	1000
NO11: Compr. 3 Circuit 2	Closed	Y2= DCP2	1000
NO12: VSL Circuit 2	Closed	Y3= DCP3	0
NO13: Fans Circuit 2	Closed	Y4= - - - -	1000
NO14: VIC Circuit 2	Closed		
NO15: VSB Circuit 1	Open		
NO16: VSB Circuit 2	Open		
NO17: Antifreeze Heater	Open		
NO18: Pump 2	Open		

10. Indicates the status of compressor 2 (circuit 2)
11. Indicates the status of compressor 3 (circuit 2)
12. Indicates the status of the liquid solenoid valve (circuit 2)
13. Indicates the status of the fans on circuit 2
14. Indicates the status of the reverse cycle valve (circuit 2)
15. Indicates the status of the thermostat bypass solenoid valve (circuit 1)
16. Indicates the status of the thermostat bypass solenoid valve (circuit 2)
17. Indicates the status of the antifreeze heater:
18. Indicates the status of pump 2

■ *Closed = load operating; Open = load not operating;*

19. Indicates the voltage value applied to the DCP1 modulating fan unit (from 0 to 10,00V)
20. Indicates the voltage value applied to the DCP2 modulating fan unit (from 0 to 10,00V)

21. Indicates the voltage value applied to the DCP3 (or DCP1+DCP2) modulating fan unit (from 0 to 10,00V)

22. Indicates the voltage value applied to the modulating fan unit of circuit 1 that switches off in the event of low outside temperatures

5.9 UPC DIGITAL OUTPUT STATUS

Output uPC			
NO1:	Open	NO10:	Open
NO2:	Open	NO11:	Open
NO3:	Open	NO12:	Open
NO4:	Open		
NO5:	Open		
NO6:	Open		
NO7:	Open		
NO8:	Open		
NO9:	Open		

1. Indicates the status of the coil disconnector valve on circuit 1

2. Can indicate the (Closed = operating; Open = not operating) status of various loads, depending on the unit configuration:
— Unit with total recovery = status of the recovery exchanger resistor;
— Free-cooling unit (glycol-free) = status of the heater (glycol side)

3. Can indicate the (Closed = operating; Open = not operating) status of various loads, depending on the unit configuration:
— Unit with total recovery = external recovery pump;
— Free-cooling unit (glycol-free) = coil bleed valve on circuit 1;

4. Can indicate the (Closed = operating; Open = not operating) status of various loads, depending on the unit configuration:
— Unit with total recovery = bleed valve on circuit 1 (from recovery unit);
— Free-cooling unit (glycol-free) = coil bleed valve on circuit 1;

5. Can indicate the (Closed = operating; Open = not operating) status of various loads, depending on the unit configuration:
— Unit with total recovery = bleed valve on circuit 1 (from condenser);
— Free-cooling unit (glycol-free) = coil bleed valve on circuit 2;

6. Can indicate the (Closed = operating; Open = not operating) status of various loads, depending on the unit configuration:
— Unit with total recovery = bleed valve on circuit 2 (from recovery unit);
— Free-cooling unit (glycol-free) = coil bleed valve on circuit 2;

7. Can indicate the (Closed = operating; Open = not operating) status of various loads, depending on the unit configuration:
— Unit with total recovery = bleed valve on circuit 2 (from condenser)
— Free-cooling unit (glycol-free) = 3-way valve (on Free-cooling);

8. Can indicate the (Closed = operating; Open = not operating) status of various loads, depending on the unit configuration:
— Unit with total recovery = 3-way valve on total heat recovery unit, circuit 1;
— Free-cooling unit (glycol-free) = coil disconnector valve on circuit 1

9. Can indicate the (Closed = operating; Open = not operating) status of various loads, depending on the unit configuration:
— Unit with total recovery = 3-way valve on total heat recovery unit, circuit 2;
— Free-cooling unit (glycol-free) = coil disconnector valve on circuit 2;

10. Indicates the status of the coil disconnector valve on circuit 2 (for Free-cooling units)

11. Can indicate the (Closed = operating; Open = not operating) status of various loads, depending on the unit configuration:
— Unit with total recovery = second solenoid valve;
— Free-cooling unit (glycol-free) = pump (glycol side);

12. Indicates the status of the second solenoid valve (for units with total heat recovery)

■ *Closed = load operating; Open = load not operating;*

5.10 STATUS OF INPUTS/OUTPUTS FOR PCOE EXPANSION CARD

Expansion pCOE				
Input:			**Outp.:**	
B1=	13.8	°C	NO01:	Open
B2=	17.3	°C	NO02:	Open
B3=	-4.7	°C	NO03:	Open
B4=	0.0	°C	NO04:	Open

1. B1: Indicates the current temperature measured by the liquid probe on circuit 1

2. B2: Indicates the current temperature measured by the liquid probe on circuit 2

3. B3: Indicates the current temperature measured by the accumulation tank probe

4. B4: Not used

5. Can indicate the (Closed = operating; Open = not operating) status of various loads, depending on the unit configuration:

— Unit with supplementary heater = supplementary heaters (RI1);
— Free-cooling unit (glycol-free) = consent for replacement boiler;

6. Indicates the status of the RI2/RI3 supplementary heaters (for units with supplementary heaters)
7. Indicates the status of the tray heater
8. Indicates the status of the 3-way valve for domestic hot water (requested via modbus)

■ *Closed = load operating; Open = load not operating;*

5.11 STATUS OF INPUTS/OUTPUTS FOR TOTAL RECOVERY OR DK UNIT

In/Out	
Total Recovery:	
Inlet Water:	13.2 °C
Outlet Water:	10.9 °C
Request:	100.0 %
Unit DK:	
Comm.Out.Evap.:	18.5 °C
Evap.Out 1:	17.5 °C
Evap.Out 2:	19.5 °C

— Indicates the current temperature of water entering the total recovery unit (if available)
— Indicates the current temperature of water leaving the total recovery unit (if available)
— Percentage value of the current power request to the total recovery unit (if available)
— Indicates the current temperature measured on the common outlet of the two evaporators (if available)
— Indicates the current temperature of water leaving evaporator 1 (if available)
— Indicates the current temperature of water leaving evaporator 2 (if available)

6 ON/OFF MENU

The ON/OFF menu is used to switch the unit on or off. It also provides further information about the current status of the machine.

6.1 SWITCHING THE UNIT ON/OFF
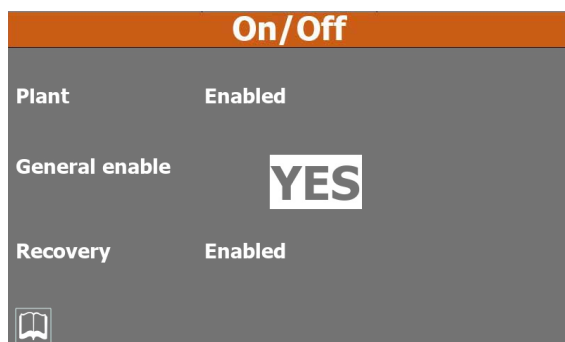
— System status. This status may be:
- No info = Unit operating;
- General OFF via key = Unit switched off via the interface;
- Unit OFF via alarm = Unit switched off due to an alarm condition;
- OFF via supervisor = Unit switched off via BMS;
- OFF via time bands = Unit switched off due to the current time band setting;
- OFF via digital input = Unit switched off due to a digital input signal (ID17);
- Antifreeze = Unit operating in antifreeze mode;
- OFF via Master = Unit switched off via the MASTER unit;
- Outside operating limits = Unit switched off because it was working outside its operating limits (for more information about the unit operating limits, refer to the technical manual of the unit);
- Boiler replacement = Unit switched off because replaced by the boiler for hot water production;

— Indicates the current value selected (YES = Unit ON; NO = Unit OFF)

— Status of the recovery circuit (if installed). This status may be:
- No info = Unit operating;
- General OFF via key = Unit switched off via the interface;
- Unit OFF via alarm = Unit switched off due to an alarm condition;
- OFF via supervisor = Unit switched off via BMS;
- OFF via time bands = Unit switched off due to the current time band setting;
- OFF via digital input = Unit switched off due to a digital input signal (ID17);
- Antifreeze = Unit operating in antifreeze mode;
- OFF via Master = Unit switched off via the MASTER unit;
- Outside operating limits = Unit switched off because it was working outside its operating limits (for more information about the unit operating limits, refer to the technical manual of the unit);

- Boiler replacement = Unit switched off because replaced by the boiler for hot water production;

7 SYSTEM MENU

The SYSTEM menu is used to set the operating mode and the set-point values for the various modes.

7.1 SETTING THE OPERATING MODE AND THE MAIN SET-POINTS
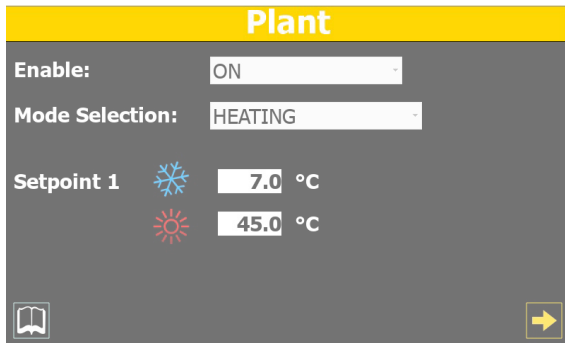
1. Enable:
Indicates which type of adjustment is currently active on the unit. This may be:
— OFF = The unit is not producing water;
— ON = Unit adjustment is based on the main probe, according to the system set-point;
— ON with Set 2 = Unit adjustment is based on the main probe, according to set-point 2 (which can also be activated via digital input ID10, or the time bands);
— Time bands = Unit adjustment is based on the timed program currently active (for more information about the timed programs, refer to the "Time band menu");

2. Mode selection:
Indicates which operating mode is currently active on the unit. This may be as follows (the choice is only available for heat pump units):
— Cooling = The unit produces cold water on the basis of the current operating set-point;
— Heating = The unit produces hot water on the basis of the current operating set-point;
— Via ext. temp. = The unit chooses whether to activate cooling mode or heating mode on the basis of the outside air temperature;
— Via dig. input = The unit chooses whether to activate cooling mode or heating mode (Open = cooling; Closed = heating) on the basis of the status of digital input ID16;
— Via superv. = The mode is set by the supervisor (BMS);
— Via calendar = The mode is set according to the value shown in the window (of this menu) for the dates when cooling or heating mode should be activated;

3. Setpoint 1:
Indicates the current value of the main cooling set-point;
Indicates the current value of the main heating set-point (on heat pump only);

7.2 SETTING THE SECONDARY SET-POINT AND RECOVERY (IF AVAILABLE)
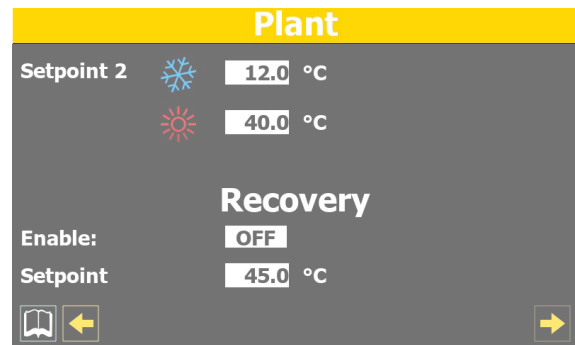
1. Setpoint 2:
Indicates the current value of the secondary cooling set-point;
Indicates the current value of the secondary heating set-point (on heat pump only);

2. Recovery Enable Setpoint:
Indicates the current setting for recovery (YES = recovery enabled; NO = recovery disabled);
Indicates the current value of the recovery set-point (if installed);

7.3 SETTING THE OUTSIDE TEMPERATURE FOR AUTOMATIC CHANGEOVER

Plant
Select Cool/Heat with
Outdoor temperature
Set ON cool.:	7.0	°C
Set ON heat.:	45.0	°C

— Indicates the current outside air temperature at which cooling mode will be activated;
— Indicates the current outside air temperature at which heating mode will be activated (on heat pump only);

7.4 SETTING THE OPERATING MODE ON THE BASIS OF THE CALENDAR

Plant
Select Cool/Heat with
Calendar
Start Heating	01 / DECEMBER
Finish Heating	15 / MARCH

— Indicates the day of the month on which cooling mode will be activated
— Indicates the month in which cooling mode will be activated
— Indicates the day of the month on which heating mode will be activated (heat pump only)
— Indicates the month in which heating mode will be activated (heat pump only)

8   TIME BAND MENU

The TIME BAND menu is used to set the bands for timed unit programming. The time bands created on this page can then be enabled and used via the SYSTEM menu (7.1 Setting the operating mode and the main set-points p. 20) or via the calendar in the INSTALLER menu (14.16 Configuring the calendar p. 39).

8.1   PAGE FOR CREATING TIMED PROGRAMS

— Used to select the time settings for "Monday"
— Used to select the time settings for "Tuesday"
— Used to select the time settings for "Wednesday"
— Used to select the time settings for "Thursday"
— Used to select the time settings for "Friday"
— Used to select the time settings for "Saturday"
— Used to select the time settings for "Sunday"
— Used to select the time settings for "Weekends and holidays"
— Used to select every day (from Monday to "Weekends and holidays") for the application of the time bands previously copied
— Indicates which day the visualised time settings apply to
— Used to define the start and end time, and the action to be carried out, for each time band. The possible actions are:
  ○ ON = The unit is switched on during the time band;
  ○ OFF = The unit is switched off during the time band;
  ○ set-02 = The unit is switched on, and the second set-point is used during the time band (i.e. the value set on the "SYSTEM - Setting the secondary set-point and recovery (if available)")

— Used to copy the time band data of the program currently visualised
— Used to see which day has been selected for applying the previously copied data;

NOTICE

ⓘ **After pressing the "Copy in" key, you must press one of the keys with a day label, on the left of the screen, in order to see the relative day in this field!**

— Used to paste the time band data of the currently visualised program on the required day (or days, if "All" is selected)

Each program has 8 days and each day has four time periods at which the switch-on and switch-off time, set point 2 or switch-on/switch-off can be set.

Outside these 4 time periods the program will switch the system off:

9   ALARM MENU

The ALARM menu is used to view (and reset, if necessary) the alarm conditions that may arise on the unit while it's working. The alarms are divided into various categories according to their seriousness. Remember that some of them can cause serious damage to the unit so, before performing a reset, it's important to be sure about the nature of the alarm and the reason it was triggered (contacting specialised technical personnel if necessary).

9.1   MAIN ALARM PAGE
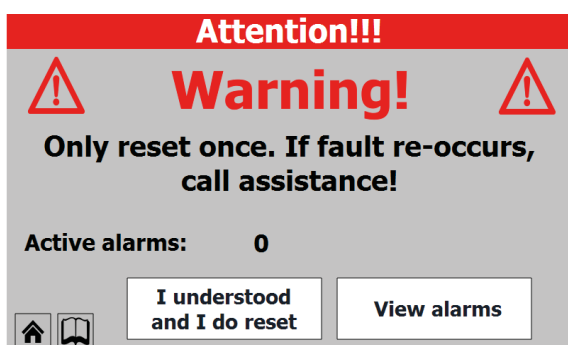
Indicates the number of alarms currently active on the unit.

9.2   ACTIVE ALARMS PAGE
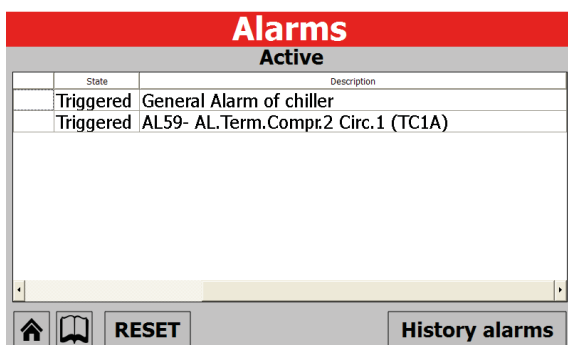
Indicates the alarms currently active on the unit providing some information on the nature of the alarm

9.3   ALARM HISTORY
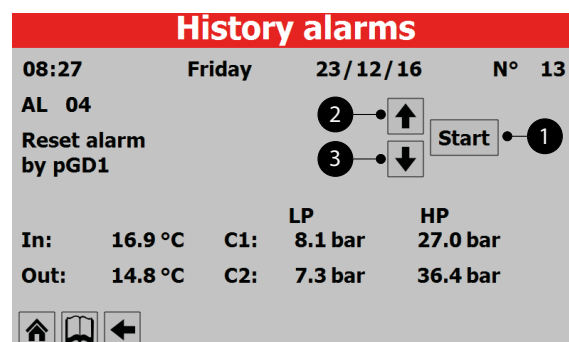
—Indicates the time and date when the alarm was triggered
—Indicates the number with which the alarm was saved in the memory
—Indicates the alarm ID code
—Indicates the short description of the alarm
—Indicates the temperature of the water entering the heat exchanger at the time of the alarm
—Indicates the temperature of the water leaving the heat exchanger at the time of the alarm
—Indicates the low pressure value on circuit 1 at the time of the alarm
—Indicates the high pressure value on circuit 1 at the time of the alarm
—Indicates the low pressure value on circuit 2 (if installed) at the time of the alarm
—Indicates the high pressure value on circuit 2 (if installed) at the time of the alarm
1. Used to go to the first alarm in the alarm log
2. Used to go back to the previous alarm in the alarm log
3. Used to move on to the next alarm in the alarm log

9.4   LIST OF ALARMS

Code	Description	Reset	Note
AL01	Clock battery faulty or not connected	Automatic	---
AL02	Expansion memory damaged	Automatic	---
AL03	Phase monitor	Semi-Automatic	---
AL04	Display alarm reset	---	---
AL05	High pressure sensor circuit 1 faulty or not connected	Manual	Analog input U5
AL06	High pressure sensor circuit 2 faulty or not connected	Manual	Analogue input U8
AL07	Low pressure sensor circuit 1 faulty or not connected	Manual	Analogue input U6
AL08	Low pressure sensor circuit 2 faulty or not connected	Manual	Analog input U9
AL09	Inlet water temp sensor evap.1 faulty or not connected	Manual	Analog input U1
AL10	Outlet water temp sensor evap.1 faulty or not connected	Manual	Analog input U2
AL11	Outlet water temp sensor evap.com. faulty or not connected	Manual	---
AL12	Inlet water temp sensor recovery faulty or not connected	Manual	---
AL13	Outlet water temp sensor recovery1 faulty or not connected	Manual	---
AL14	Outlet water temp sensor recovery2 faulty or not connected	Manual	---
AL15	Outlet water temp sensor recovery common faulty or not connected	Manual	---
AL16	External temperature sensor faulty or not connected	Manual	---
AL17	Circuit 1 Liquid temperature probe broken or not connected	Manual	---
AL18	Liquid temperature sensor circuit 2 faulty or not connected	Manual	---
AL19	Circuit 1 compressor 1 maintenance request	Manual	---
AL23	Circuit breaker compressor 1 circuit 1	Manual	---
AL24	Thermal alarm system pump 1	Manual	---
AL25	Thermal alarm system pump 2	Manual	---
AL26	Thermal alarm heat recovery pump 1	Manual	---
AL28	Fans circuit breaker circuit 1	Manual	---
AL29	Fans circuit breaker circuit 2	Manual	---
AL31	Low pressure sensor circuit 1	Manual	---
AL32	High pressure from Circuit 1 pressure switch or EVD electronic valve alarm	Manual	---
AL33	High pressure sensor circuit 1	Manual	---
AL34	Circuit 1 low pressure sensor (serious)	Manual	---
AL35	Circuit 2 low pressure sensor (serious)	Manual	---
AL38	Loss of evaporator water flow	Manual	---
AL39	Loss of heat recovery water flow	Manual	---
AL40	Anti-freeze alarm system inlet/outlet temperature	Manual	---
AL41	Anti-freeze alarm system common outlet temperature	Manual	---
AL42	Anti-freeze alarm heat recovery 1 inlet/outlet temperature	Manual	---
AL43	Anti-freeze alarm heat recovery 2 outlet temperature	Manual	---
AL45	Expansion IO (uPC) Off-line	Semi-Automatic	---
AL46	Expansion IO (pCOe) Off-line	Semi-Automatic	---
AL48	Discharge gas temperature sensor circuit 1 faulty or not connected	Manual	---
AL49	Discharge gas temperature sensor circuit 2 faulty or not connected	Manual	---
AL50	Board re-start from lost power	Manual	It is not an alarm
AL51	Circuit 1 compressors 2 maintenance request	Manual	---
AL52	Circuit 1 compressors 3 maintenance request	Manual	---
AL53	Circuit 2 compressors 1 maintenance request	Manual	---
AL54	Circuit 2 compressors 2 maintenance request	Manual	---
AL55	Circuit 2 compressors 3 maintenance request	Manual	---
AL59	Circuit breaker compressor 2 circuit 1	Manual	---
AL60	Circuit breaker compressor 3 circuit 1	Manual	---
AL61	Circuit breaker compressor 1 circuit 2	Manual	---
AL62	Circuit breaker compressor 2 circuit 2	Manual	---
AL63	Circuit breaker compressor 3 circuit 2	Manual	---
AL65	Low pressure sensor circuit 2	Manual	---
AL66	High pressure pressostat circuit 2	Manual	---

Code	Description	Reset	Note
AL67	High pressure sensor circuit 2	Manual	---
AL75	High discharge gas temperature circuit 1	Manual	---
AL76	High discharge gas temperature circuit 2	Manual	---
AL85	High system inlet temperature alarm	Manual	---
AL86	SAC alarm storage tank probe broken or disconnected	Manual	---
AL87	Master Offline	Manual	---
AL88	Slave Offline	Manual	---
AL89	Incorrect Master/Slave software version (the two cards don't have the same software version)	Manual	---
AL90	Free cooling ouput alarm	Manual	---
AL91	Slave alarm summary	Manual	---
AL92	Glycol Free Flow switch	Manual	---
AL93	Glycol Free pump thermal	Manual	---
AL94	pCOE expansion offline (address=3) Unit DK	Manual	---
AL95	Common evaporator output probe broken or not connected (DK)	Manual	---
AL96	Evaporator 2 output probe broken or not connected	Manual	---
AL97	Free-cooling inlet probe faulty or not connected	Manual	---
AL98	Free cooling output probe broken or not connected	Manual	---
AL99	Heat exchanger input probe damaged or not connected	Manual	---
AL100	Offline pCOE expansion (address=4) condenser unit	Manual	---
AL101	Offline pCOE expansion (address=5) NYB Freecooling	Manual	---
AL102	Water input outside operating limits	Manual	---
AL103	DeltaP alarm Circuit 1	Manual	---
AL104	DeltaP alarm Circuit 2	Manual	---
AL105	EVD Error Valve Motor A	Manual	---
AL106	Evap. low temperature EVD (LOP) A	Manual	---
AL107	EVD High evap. (MOP) A	Manual	---
AL108	Overheat. low EVD (LowSH) A	Manual	---
AL109	EVD Low intake temp. A	Manual	---
AL110	EVD High evap. condens. A	Manual	---
AL111	EVD Error Valve Motor B	Manual	---
AL112	Evap. low temperature EVD (LOP) B	Manual	---
AL113	EVD High evap. (MOP) B	Manual	---
AL114	Overheat. low EVD (LowSH) B	Manual	---
AL115	EVD Low intake temp. B	Manual	---
AL116	EVD alarm probe S1	Manual	---
AL117	EVD alarm probe S2	Manual	---
AL118	EVD alarm probe S3	Manual	---
AL119	EVD alarm probe S4	Manual	---
AL120	EVD EEPROM alarm	Manual	---
AL121	EVD Driver offline	Manual	---
AL122	EVD Battery discharged	Manual	---
AL123	EVD Parameter transmission error	Manual	---
AL124	EVD Firmware not compatible	Manual	---
AL125	Battery 2 battery liquid temperature probe broken or not connected	Manual	---
AL126	Expansion IO (pCOe) OffLine (address=6)	Manual	---
AL127	Circuit 1 intake temperature probe broken or not connected	Manual	---
AL128	Circuit 2 intake temperature probe broken or not connected	Manual	---
AL129	Expansion IO (pCOe) OffLine (address=7)	Manual	---
AL130	Differential transducer broken or not connected	Manual	---
AL131	High overheating of Circuit 1 (Circuit discharged)	Manual	---
AL132	High overheating of Circuit 2 (Circuit discharged)	Manual	---
AL133	EVD alarms summary Circuit 1	Manual	---
AL134	EVD alarms summary Circuit 2	Manual	---
AL137	Valve alarm Driver circuit 1	Manual	---
AL138	Valve alarm Driver circuit 2	Manual	---

There are three types of alarm resets:

—**Auto**: automatic, when the event causing the alarm stops, also the alarm disappears.
—**Manual**: manual, to restart normal operation manual acknowledgement is necessary.
—**Semi-auto**: semi-automatic, the alarm is automatic but if it is present more than "n" times, it then becomes manual. The interventions are decreased by one unit every hour. Furthermore, there is a "timeout", after which the alarm becomes manual, even if the maximum number of interventions is reached.

10   LANGUAGE MENU

The LANGUAGE menu is used to modify the interface language for the various menus. The system language is usually set in the factory, according to the country where the unit will be used, but it can be altered at any time via this menu.

10.1   PAGE FOR SELECTING THE SYSTEM LANGUAGE
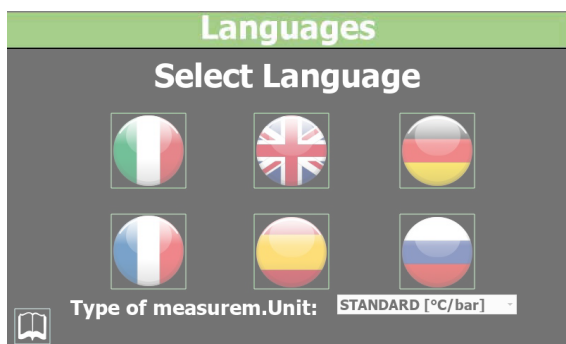
1. Used to set Italian as the system language
2. Used to set English as the system language
3. Used to set German as the system language
4. Used to set French as the system language
5. Used to set Spanish as the system language
6. Used to set Russian as the system language

In the last line there is the possibility to select the unit of measurement on the display and the selection is possible between:
— STANDARD: °C and bar
— ANGLO-SAXON: °F and psi

This setting will only change the touch display, it will not change the units read by the supervisor.

11 SUMMARY MENU

The SUMMARY menu provides a simplified representation of the unit with a selection of the operating parameters (in real time), on the basis of the feedback from the various probes installed.

11.1 PAGE RELATING TO THE COOLING-ONLY UNITS (OR HEAT PUMP WITH COOLING OPERATION)

— Indicates the current outside temperature
— Indicates the current fan speed (sub-divided on the basis of the circuits - C1 for the first, C2 for the second)
— Indicates the current power value request from the system to the unit
— Indicates the power percentage supplied by circuit 1 to meet the system request
— Indicates the power percentage supplied by circuit 2 to meet the system request
— Indicates the current situation of the compressors, divided on the basis of the circuit - those of circuit 1 on the left, those of circuit 2 on the right. (the compressors shown are the ones that are currently active; if no compressor is ON, no labels will be displayed)
— Indicates the current situation of the pressure values on the unit circuits (AP1 = high pressure ("AP") on circuit 1, AP2 = high pressure on circuit 2, BP1 = low pressure on circuit 1, BP2 = low pressure on circuit 2)
— Indicates the current operating set-point for the unit
— Indicates the status of the pump (if it's active, the relative label is displayed) and the temperature of the water entering the heat exchanger
— Indicates the temperature of the water leaving the heat exchanger

11.2 PAGE RELATING TO THE COOLING-ONLY UNITS (OR HEAT PUMP WITH HEATING OPERATION)

— Indicates the current outside temperature
— Indicates the current fan speed (sub-divided on the basis of the circuits - C1 for the first, C2 for the second)
— Indicates the current power value request from the system to the unit
— Indicates the power percentage supplied by circuit 1 to meet the system request
— Indicates the power percentage supplied by circuit 2 to meet the system request
— Indicates the current situation of the compressors, divided on the basis of the circuit - those of circuit 1 on the left, those of circuit 2 on the right. (the compressors shown are the ones that are currently active; if no compressor is ON, no labels will be displayed)
— Indicates the current situation of the pressure values on the unit circuits (AP1 = high pressure ("AP") on circuit 1, AP2 = high pressure on circuit 2, BP1 = low pressure on circuit 1, BP2 = low pressure on circuit 2)
— Indicates the current operating set-point for the unit
— Indicates the status of the pump (if it's active, the relative label is displayed) and the temperature of the water entering the heat exchanger
— Indicates the temperature of the water leaving the heat exchanger

11.3 PAGE RELATING TO THE UNITS WITH FREE-COOLING (1)

— Indicates the current outside temperature
— Indicates the current fan speed (sub-divided on the basis of the circuits - C1 for the first, C2 for the second)
— Indicates the current power value request from the system to the unit
— Indicates the power percentage supplied by circuit 1 to meet the system request
— Indicates the power percentage supplied by circuit 2 to meet the system request
— Indicates the current situation of the compressors, divided on the basis of the circuit - those of circuit 1 on the left, those of circuit 2 on the right. (the compressors shown are the ones that are currently active; if no compressor is ON, no labels will be displayed)
— Indicates the current situation of the pressure values on the unit circuits (AP1 = high pressure ("AP") on circuit 1, AP2 = high pressure on circuit 2, BP1 = low pressure on circuit 1, BP2 = low pressure on circuit 2)
— Indicates the current operating set-point for the unit
— Indicates the status of the pump (if it's active, the relative label is displayed) and the temperature of the water entering the heat exchanger
— Indicates the temperature of the water leaving the heat exchanger
— Indicates the current operating set-point in Free-cooling

11.4 PAGE RELATING TO THE UNITS WITH FREE-COOLING (2)

— Indicates the current outside temperature
— Indicates the current fan speed (sub-divided on the basis of the circuits - C1 for the first, C2 for the second)
— Indicates the current power value request from the system to the unit
— Indicates the power percentage supplied by circuit 1 to meet the system request
— Indicates the power percentage supplied by circuit 2 to meet the system request
— Indicates the current situation of the compressors, divided on the basis of the circuit - those of circuit 1 on the left, those of circuit 2 on the right. (the compressors shown are the ones that are currently active; if no compressor is ON, no labels will be displayed)
— Indicates the current situation of the pressure values on the unit circuits (AP1 = high pressure ("AP") on circuit 1,

AP2 = high pressure on circuit 2, BP1 = low pressure on circuit 1, BP2 = low pressure on circuit 2)
— Indicates the current operating set-point for the unit
— Indicates the status of the pump (if it's active, the relative label is displayed) and the temperature of the water entering the heat exchanger
— Indicates the temperature of the water leaving the heat exchanger
— Indicates the current temperature of the water leaving the recovery unit
— Indicates the current operating set-point in Free-cooling

11.5 PAGE RELATING TO THE UNITS WITH RECOVERY
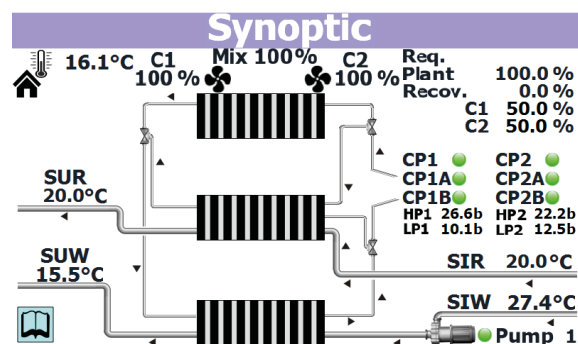
— Indicates the current outside temperature
— Indicates the current fan speed (sub-divided on the basis of the circuits - C1 for the first, C2 for the second)
— Indicates the current power value request from the system/recovery to the unit
— Indicates the power percentage supplied by circuit 1 to meet the system request
— Indicates the power percentage supplied by circuit 2 to meet the system request
— Indicates the current situation of the compressors, divided on the basis of the circuit - those of circuit 1 on the left, those of circuit 2 on the right. (the compressors shown are the ones that are currently active; if no compressor is ON, no labels will be displayed)
— Indicates the current situation of the pressure values on the unit circuits (AP1 = high pressure ("AP") on circuit 1, AP2 = high pressure on circuit 2, BP1 = low pressure on circuit 1, BP2 = low pressure on circuit 2)
— Indicates the current temperature of the water entering the heat exchanger
— Indicates the status of the pump (if it's active, the relative label is displayed)
— Indicates the temperature of the water leaving the heat exchanger
— Indicates the current temperature of the water entering the recovery unit
— Indicates the current temperature of the water leaving the recovery unit

12 DIAGRAM MENU

The CHART menu is used to view certain unit operating parameters, shown graphically on Cartesian axes to illustrate the value changes (temperature, power or pressure) requested over time.

12.1 CHART SHOWING TEMPERATURE TREND OF INLET/OUTLET WATER ON HEAT EXCHANGER
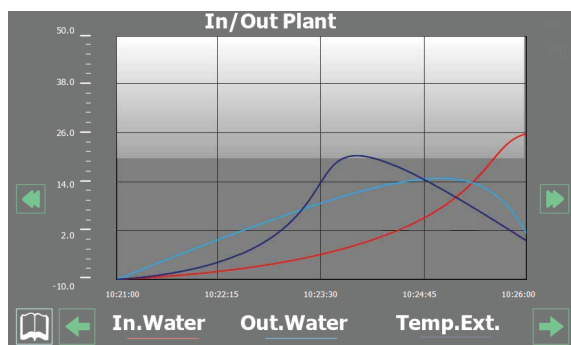
Displays a chart in real time, relating to the temperature of the water entering and leaving the heat exchanger (in the lower part you can see a key explaining the colours of the curves).

12.2 CHART SHOWING TREND OF COMPRESSORS ON CIRCUIT 1
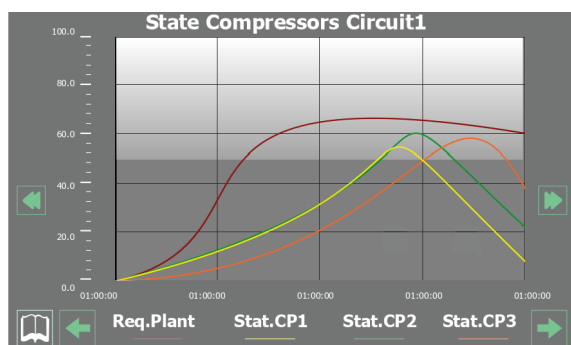
Displays a chart in real time, relating to the trend of the power values for the compressors of circuit 1 (in the lower part you can see a key explaining the colours of the curves)

12.3 CHART SHOWING TREND OF COMPRESSORS ON CIRCUIT 2 (IF INSTALLED)
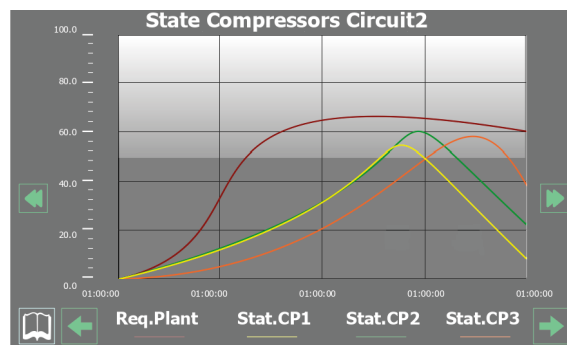
Displays a chart in real time, relating to the trend of the power values for the compressors of circuit 2 (in the lower part you can see a key explaining the colours of the curves)

12.4 CHART SHOWING TREND OF HIGH/LOW PRESSURE ON CIRCUIT 1
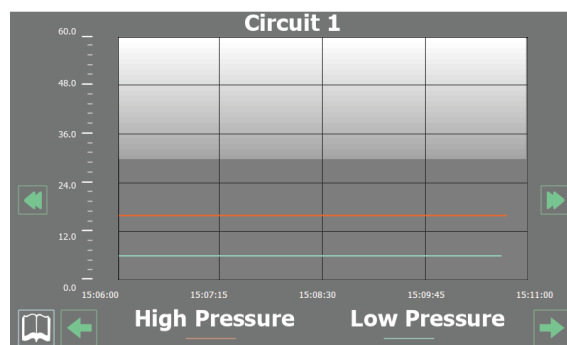
Displays a chart in real time, relating to the trend of the high/low pressure values on circuit 1 (in the lower part you can see a key explaining the colours of the curves).

12.5 CHART SHOWING TREND OF HIGH/LOW PRESSURE ON CIRCUIT 2 (IF INSTALLED)
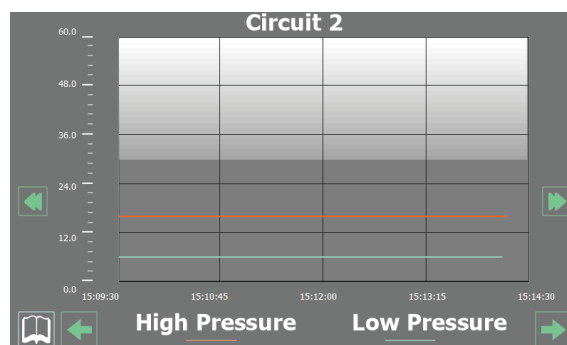
Displays a chart in real time, relating to the trend of the high/low pressure values on circuit 2 (in the lower part you can see a key explaining the colours of the curves).

13 MULTI-PURPOSE INPUT MENU

The MULTI-PURPOSE INPUT menu is used to set the function assigned to the multi-purpose input U10.

NOTICE
ℹ️ **In order to use the multi-purpose input, you must enable it by closing the contact on digital input ID18.**

13.1 GENERAL SETTING OF THE U10 MULTI-PURPOSE INPUT

U10: Configuration input:
— Used to select the function to be assigned to multi-purpose input U10. The possible functions are:
NOT PRESENT = the input is not used;
POWER LIMITATION = the value of input U10 will determine the maximum power that the unit can supply (if this function is selected, the next window will allow you to set the minimum and maximum percentage power values for the selected signal);
VARIABLE SET-POINT = the value of input U10 will determine the set-point for the unit (if this func-tion is selected, the next window will allow you to define the minimum and maximum set-point values for the selected signal);

Type:
— Used to select the value for interpreting the U10 multi-purpose input signal. The possible values are:
0-10V = input U10 will read a voltage input signal between 0 and 10V;
4-20mA = input U10 will read a current input signal between 4 and 20mA;
NTC = input U10 will read an input signal provided by an NTC temperature probe;

— Used to select the minimum value for the signal read on input U10 (only if "0-10V" or "4-20mA" has been selected as the type of signal)
— Used to select the maximum value for the signal read on input U10 (only if "0-10V" or "4-20mA" has been selected as the type of signal)

13.2 SETTING FOR POWER LIMITATION FUNCTION

— Used to set the power value to be assigned to the minimum signal read on input U10. If voltage (0-10V) or current (4-20mA) signals are selected as the value, the minimum power limit specified in this parameter will correspond to the minimum signal value set on the "General setting of the U10 multi-purpose input" page of this menu; if the value is "NTC signal", the parameter will correspond to the minimum temperature measured by the NTC probe (the minimum and maximum temperature values measured by the NTC probe are specified in a window that is only visible if the "NTC" option is chosen)
— Used to set the power value to be assigned to the maximum signal read on input U10. If voltage (0-10V) or current (4-20mA) signals are selected as the value, the maximum power limit specified in this parameter will correspond to the maximum signal value set on the "General setting of the U10 multi-purpose input" page of this menu; if the value is "NTC signal", the parameter will correspond to the maximum temperature measured by the NTC probe (the minimum and maximum temperature values measured by the NTC probe are specified in a window that is only visible if the "NTC" option is chosen)

13.3 SETTING FOR VARIABLE SET-POINT FUNCTION

Multifunction

SetPoint variable:
Mode:	Cool:			Heat:		
Min:	5.0	°C		Min:	17.0	°C
Max:	10.0	°C		Max:	25.0	°C

—Used to define the set-point (for cooling mode) to be assigned to the minimum signal read on input U10. If voltage (0-10V) or current (4-20mA) signals are selected as the value, the minimum set-point specified in this parameter will correspond to the minimum signal value set on the "General setting of the U10 multi-purpose input" page of this menu; if the value is "NTC signal", the parameter will correspond to the minimum temperature measured by the NTC probe (the minimum and maximum temperature values measured by the NTC probe are specified in a window that is only visible if the "NTC" option is chosen)

—Used to define the set-point (for cooling mode) to be assigned to the maximum signal read on input U10. If voltage (0-10V) or current (4-20mA) signals are selected as the value, the maximum set-point specified in this parameter will correspond to the maximum signal value set on the "General setting of the U10 multi-purpose input" page of this menu; if the value is "NTC signal", the parameter will correspond to the minimum temperature measured by the NTC probe (the minimum and maximum temperature values measured by the NTC probe are specified in a window that is only visible if the "NTC" option is chosen)

—Used to define the set-point (for heating mode) to be assigned to the minimum signal read on input U10. If voltage (0-10V) or current (4-20mA) signals are selected as the value, the minimum set-point specified in this parameter will correspond to the minimum signal value set on the "General setting of the U10 multi-purpose input" page of this menu; if the value is "NTC signal", the parameter will correspond to the minimum temperature measured by the NTC probe (the minimum and maximum temperature values measured by the NTC probe are specified in a window that is only visible if the "NTC" option is chosen)

—Used to define the set-point (for heating mode) to be assigned to the maximum signal read on input U10. If voltage (0-10V) or current (4-20mA) signals are selected as the value, the maximum set-point specified in this parameter will correspond to the maximum signal value set on the "General setting of the U10 multi-purpose

input" page of this menu; if the value is "NTC signal", the parameter will correspond to the minimum temperature measured by the NTC probe (the minimum and maximum temperature values measured by the NTC probe are specified in a window that is only visible if the "NTC" option is chosen)

13.4 SETTING FOR NTC SIGNAL TYPE

Multifunction

Configurat.NTC:
Min. Temperature:	15.0	°C
Min. Temperature:	25.0	°C

—Used to set the temperature value measured by the NTC probe which should be assigned to the minimum signal read on input U10
—Used to set the temperature value measured by the NTC probe which should be assigned to the maximum signal read on input U10

14 INSTALLER MENU

The INSTALLER menu is used to access many of the settings for operating and adjusting the unit; it may, however, contain parameters that should only be modified by persons responsible for maintenance and/or assistance on the unit or system, and for this reason it's protected by a password.
USER PASSWORD: 0000

14.1 ENTERING THE PASSWORD FOR ACCESSING THE PROTECTED MENU
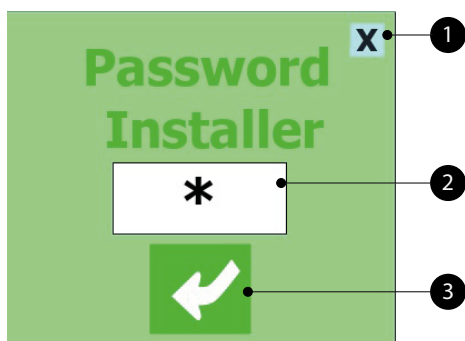
1. This key is used to quit the window and go back to the menu selection page
2. Indicates the current value of the password to be used for accessing the installer menu
3. This key is used to confirm the access password entered

If the password is wrong, an error message will be displayed:
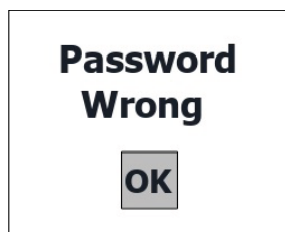
14.2 SELECTING THE SUB-MENUS
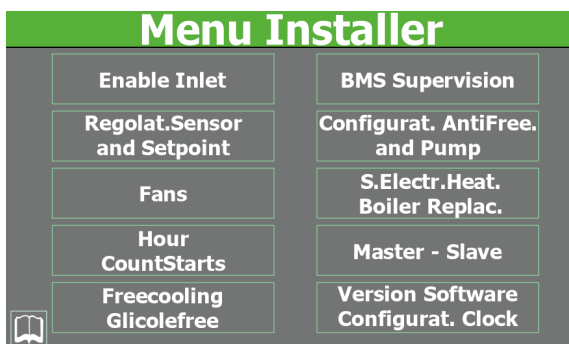
1. **Input Enable**:

This key is used to access the "Input enabling" sub-menu
2. **Probe Regulation**:
This key is used to access the "Probe adjustment and setpoint" sub-menu
3. **Fans**:
This key is used to access the "Fans" sub-menu
4. **Hour counters**:
This key is used to access the "Hour-counter and Peak-counter" sub-menu
5. **Freecooling - Glycol Free**:
This key is used to access the "Free-cooling (glycol-free)" sub-menu
6. **BMS Supervision**:
This key is used to access the "BMS supervision" sub-menu
7. **Antifreeze Configuration**:
This key is used to access the "Antifreeze and pump configuration" sub-menu
8. **Supplementary heaters/replacement boiler**:
This key is used to access the "Supplementary heaters and replacement boiler" sub-menu
9. **Master - Slave**:
This key is used to access the "Master-Slave" sub-menu
10. **Software version/clock configuration**:
This key is used to access the "Software version and clock configuration" sub-menu

14.3 ENABLING ON/OFF VIA DIGITAL INPUT ID17
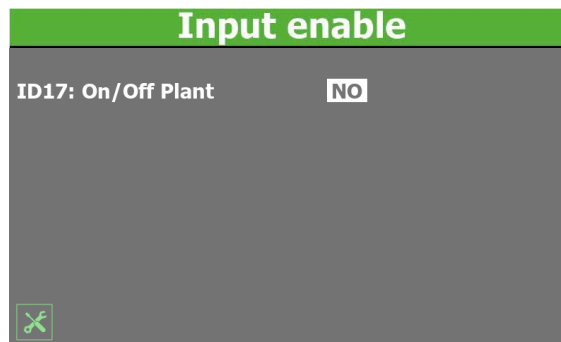
Indicates the current setting for the "On/Off via digital input ID17" function (YES = function enabled; NO = function disabled)

14.4 ENABLING AND SETTING CONTROL VIA THE REMOTE SUPERVISOR (BMS)

BMS - Supervisor

Enable cool./heat. of Supervisor:	YES
Enable On/Off unit of Supervisor:	NO
Supervisor BMS:	STANDARD [°C/bar]

Supervisor BMS1
Protocol: Modbus Ext.
Parity Type: NONE   Speed: 19200 Baud
StopBits: 2
Address: 1

Supervisor BMS2
Speed: 19200 Baud
Parity Type: NONE   StopBits: 2
Address: 1

— Indicates the current setting for changeover via the supervisor (YES = function enabled; NO = function disabled)
— Indicates the current setting for ON/OFF via the supervisor (YES = function enabled; NO = function disabled)
— May indicate the current protocol selected for communication between the unit and BMS. The protocols available are:
  ○ Modbus = RS485 modbus supervisor;
  ○ Carel = communication protocol for controlling the expansion cards;
  ○ pCOWeb = communication protocol for the pCOWeb expansion card;
  ○ Lon = communication protocol for controlling the Lon expansion cards;
  ○ Modbus Ext = extended modbus communication protocol (if you select this protocol, you will have the same addresses available on BMS2 for AERNET or another supervisor);

— Indicates the current communication speed between the unit and the supervision system BMS1. The values that can be set are: 1200, 19200 or 38400 Baud
— Indicates the current number of stop bits for communication between the unit and the supervision system BMS1. The values that can be set are: 1 or 2
— Indicates the current address assigned to the unit for communicating with the remote supervisor BMS1
— Indicates the current communication speed between the unit and the supervision system BMS2. The values that can be set are: 1200, 19200 or 38400 Baud
— Indicates the current number of stop bits for communication between the unit and the supervision system BMS2. The values that can be set are: 1 or 2
— Indicates the current address assigned to the unit for communicating with the remote supervisor BMS2

14.5 CONFIGURING THE THERMOSTAT AND THE TYPE OF OPERATING SET-POINT

Reg.sensor and Setpoint

Reg.sensor Outd.	Output (U2)
Type regolat.:	PROPORT. + INTEGR.
Integ. Time (Ki):	600 s

Cooling:	Heating:
COMPENS.TEMP.	COMPENS.TEMP.
Differential:	**Differential:**
5.0 °C	5.0 °C

Total Recovery
Differential: 5.0 °C
Max outl.Temp.: 53.0 °C

— Indicates which probe should be used for the thermostat control of the processed water. The value can be:
  ○ OUTLET (U2) = thermostat control will be carried out on the evaporator outlet probe;
  ○ INLET (U1) = thermostat control will be carried out on the evaporator inlet probe;
  ○ COMMON OUTLET PROBE = thermostat control will be carried out on the probe on the common outlet of the evaporators (if envisaged);
  ○ ACCUMULATION (U1) = thermostat control will be carried out on the accumulation tank probe (if installed);

— Indicates the type of adjustment to be applied to the thermostat control. The value can be:
  ○ PROP+INT = PROPORTIONAL + INTEGRAL adjustment will be used;
  ○ PROPORTIONAL = PROPORTIONAL adjustment will be used;

— Indicates the value assigned to the integration time, used to calculate the integral error
— Used to select the type of set-point to be used for cooling. The possible values are:
  ○ FIXED SET-POINT = the adjustment will use a fixed set-point with a value defined by the user on the relative page of the "System menu";
  ○ CLIMATE CURVE = the adjustment will be made automatically, calculating the set-point on the basis of the outside temperature (according to the setting made on the "climate curve" page of this menu);

— Indicates the value assigned to the differential used in cooling mode
— Used to select the type of set-point to be used for heating. The possible values are:
  ○ FIXED SET-POINT = the adjustment will use a fixed set-point with a value defined by the user on the relative page of the "System menu";
  ○ CLIMATE CURVE = the adjustment will be made automatically, calculating the set-point on the basis of the outside temperature (according to the setting made on the "climate curve" page of this menu);

— Indicates the value assigned to the differential used in heating mode
— Indicates the value assigned to the differential used for heat recovery
— Indicates the maximum temperature of the water leaving the recovery unit, beyond which recovery mode is forcedly abandoned.

14.6 CONFIGURING THE CLIMATE CURVE

COMPENS.TEMP.

Setpoint Cool actual:	12.0 °C	Setpoint Heat actual:	40.0 °C
Setpoint Compens. Max	5.0 °C	Setpoint Compens. Max	5.0 °C
25.0 °C	35.0 °C	0.0 °C	10.0 °C
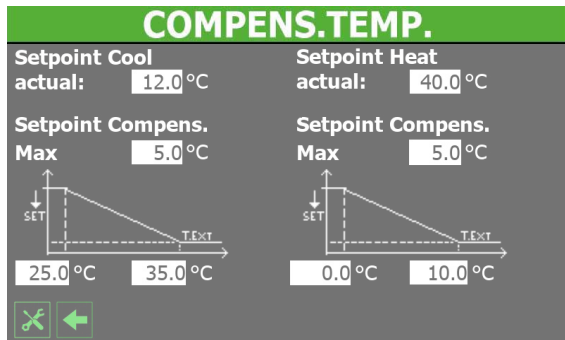
1. Indicates the current value of the cooling set-point, calculated on the basis of the climate curve
2. Indicates the value to be assigned to the compensation set-point for the climate curve used in cooling mode. This value will be subtracted from the set-point defined by the user in the system menu, and associated with the maximum outside air temperature specified in parameter (4)
3. Indicates the minimum outside air temperature (the starting point of the climate curve in cooling mode) to which set-point 1 (cooling) (defined by the user in the system menu) must correspond
4. Indicates the maximum outside air temperature (the end point of the climate curve in cooling mode) to be associated with the result of the subtraction of set-point 1 (defined by the user in the system menu) from the compensation set-point defined in parameter (2)
5. Indicates the current value of the heating set-point, calculated on the basis of the climate curve
6. Indicates the value to be assigned to the compensation set-point for the climate curve used in heating mode. This value will be subtracted from the set-point defined by the user in the system menu, and associated with the maximum outside air temperature specified in parameter (7)
7. Indicates the minimum outside air temperature (the starting point of the climate curve in heating mode) to which set-point 1 (heating) (defined by the user in the system menu) must correspond
8. Indicates the maximum outside air temperature (the end point of the climate curve in heating mode) to be associated with the result of the subtraction of set-point 1 (defined by the user in the system menu) from the compensation set-point defined in parameter (6)

14.6.1 Logic used for calculating the set-point via climate curve
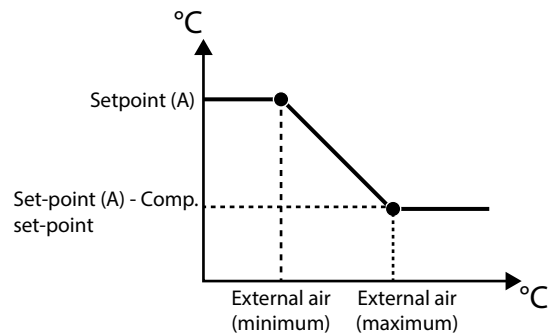
1. The set-point (A) indicates the value defined (in both cooling and heating mode, given that the calculation logic is the same) for normal operation (remember that this setting is defined on the first page of the system menu);
2. The set-point (A) is defined so as to correspond to the minimum outside air temperature (specified in the relative parameter on the climate curve (cooling/heating) page;
3. The maximum outside air temperature (specified in the relative parameter on the climate curve (cooling/heating) page) is associated with the result of the subtraction of set-point (A) from the compensation set-point (defined on the climate curve (cooling/heating) page);
4. For outside air temperatures lower than the value indicated as "minimum", the operating set-point will be equal to the set-point (A);
5. For outside air temperatures between the minimum and maximum indicated, the set-point will be calculated automatically on the basis of the straight section of the climate curve;
6. For outside air temperatures higher than the maximum value, the operating set-point will be the result of the subtraction of set-point (A) from the compensation set-point;

14.7 CONFIGURING THE ANTIFREEZE CONDITIONS

14.7.1 System and pump configuration

Config. Antifr.and Pump

Antifreezer Plant alarm:		
Threshold:	0.0 °C
Differential:	1.0 °C
Force ON pumps:	YES
Enable cicle force on Antifreeze Pump	NO
Cicle time:	30 minute
Pulse force:	2 minute
Min.Temp.Air Ext.:	5.0 °C

— Indicates the temperature value for thermostat control (evaporator inlet or outlet), below which the antifreeze alarm is activated

— Indicates the value of the differential, to be added to the inlet temperature on the recovery tank (if installed), for quitting the recovery antifreeze alarm condition

— This value is used to choose whether to automatically switch on the pump if the antifreeze heater is activated (YES = pumps activated together with the heater; NO = pumps not activated)

— This value is used to choose whether to activate the cyclic pump activation function on the basis of the outside temperature. This prevents the formation of ice if the outside temperature falls very low (YES = cyclic pump activation enabled; NO = cyclic pump activation not enabled)

— Indicates the time gap between two consecutive fan switch-on operations (if cyclic fan activation is enabled)

— Indicates the duration of the pump cycle (if cyclic pump activation is enabled)

— Indicates the outside air temperature below which cyclic pump activation is launched (if cyclic pump activation is enabled)

14.7.2 Fan and pump configuration

Config.Antifr.and Pumps

Fan antifreezer/snow function enable:	YES
Temp.Air Ext.:	1.0 °C
Puls.time Off:	120 minute
Puls.time On:	30 s
Antifreeze Heater,Force ON pumps:	YES
Number of Pumps:	2
Idle time:	168 h
Delay switch-off:	5 s

— This value is used to choose whether to activate the cyclic fan activation function on the basis of the outside temperature. This prevents the accumulation of snow in the fans, and therefore the risk of ice formation, if the outside temperature falls very low (YES = cyclic fan activation enabled; NO = cyclic fan activation not enabled)

— Indicates the outside air temperature below which cyclic fan activation is launched (if cyclic fan activation is enabled)

— Indicates the time gap between two consecutive fan switch-on operations (if cyclic fan activation is enabled)

— Indicates the duration of the fan cycle (if cyclic fan activation is enabled)

— This value is used to choose whether to automatically switch on the pump if the antifreeze heater is activated (YES = pumps activated together with the heater; NO = pumps not activated)

— Indicates the number of pumps (only necessary if the pumps are outside the unit). This value may be 1 or 2

— Indicates the pump inactivity time - i.e. the time in which one of the two pumps is deactivated while the

other is operating. Once this time has elapsed, a pump rotation operation is performed (to prevent lockout) with automatic compressor switch-off and reactivation. To reduce the cases of forced unit switch-off, rotation is carried out every time the unit is reactivated after a switch-off (standby), even if the set time has not passed

— Indicates the pump switch-off delay after the deactivation of the compressors or other sources (heaters, Free-cooling, etc.)

14.7.3 Configuring recovery pump (if installed)

Config.Antifr.and Pumps

Enable Recovery Pump:	NO
Antifreeze Recovery Alarm:	
Thr.:	3.0 °C
Differential:	1.0 °C

— This value is used to select the logic for managing the recovery pump (if installed):

○ NO = the recovery unit is activated when the flow switch contact closes for the transit of water (the pump is not managed by the unit);

○ YES = the pump is managed by the unit - it switches off when the water entering the recovery unit reaches the temperature set-point (remote access to the probe in the domestic hot water accumulation tank). The pump switches back on when the temperature of the recovery tank inlet probe falls more than 3℃ below the recovery set-point. Apart from the flow switch, the pump thermoswitch (if installed) is also managed; this triggers the deactivation of the pump and lets you quit recovery mode.

— Indicates the temperature on the recovery tank inlet (if installed), below which the antifreeze alarm is activated on the recovery tank

— Indicates the value of the differential, to be added to the inlet temperature on the recovery tank (if installed), for quitting the recovery antifreeze alarm condition

14.8 VPF MANAGEMENT (GENERAL PARAMETERS)

VPF		
Enable: YES		
Differential pressure	Pressure:	290 mbar
Set: 280 mbar	By-pass	
Diff: 1 mbar	Proportional:	60.0 %
Integral: 60 s	Integral:	25.0 %
Bypass min: 0.0 V	Opening valve:	8.0 V
Bypass max: 10.0 V	Test Bypass:	0.0 V
Transd. 4mA: 200 mbar		
Transd. 20mA: 1000 mbar		

This window is used to set the general parameters for the VPF (Variable Primary Flow):

Enable: this value indicates whether to activate or deactivate this mode; the possible states are:
— No: VPF management disabled;
— Yes: VPF management enabled;

Setpoint: indicates the pressure value that the regulation tries to maintain at the ends of the evaporator, by opening and closing the bypass valve;

Diff.: differential used when regulating the bypass valve;

Integral: integral time used when regulating the bypass valve;

Bypass min: this value indicates the minimum Volts corresponding to the minimum water bypass. All the water passes through the system;

Bypass max: this value indicates the maximum Volts corresponding to the maximum water bypass. All the water recirculates through the bypass;

Transd. 4mA: this value indicates the mbar at 4mA read by the differential transducer;

Transd. 20mA: this value indicates the mbar at 20mA read by the differential transducer;

Pressure: indicates the current value measured by the differential transducer;

Proportional: indicates the proportional component when calculating the bypass opening;

Integral: indicates the integral component when calculating the bypass opening;

Opening: indicates the current valve opening command;

Bypass valve test: this value indicates the forced command to use as a test (set the value 0.0V to deactivate forcing).

14.9 CONFIGURAZIONE DEI VENTILATORI

Fans		
Condens.mode overnight No		Fans
Control On: 21:00	Start time:	1 s
Control Off: 08:00	Min Volt:	1.0 V
Cooling VMax: 6.0 V	Max Volt Cool:	10.0 V
FreeCool. VMax: 6.0 V	Max Volt Heat:	10.0 V

— This value is used to choose whether or not to limit the fan speed during the specified time band (YES = fans limited according to the specifications; NO = standard fan operation)

— Indicates the start time for the program in which the fans work at reduced speed (if this function has been activated)

— Indicates the end time for the program in which the fans work at reduced speed (if this function has been activated)

— Indicates the value (in Volts) for the maximum fan speed (in cooling mode) during night-time low noise operation. This value can range from 0 to 10V, with 10V representing the maximum possible speed

— Indicates the value (in Volts) for the maximum fan speed (in Free-cooling mode) during night-time low noise operation. This value can range from 0 to 10V, with 10V representing the maximum possible speed

— Indicates the time for which the 4V peak should be maintained at fan start-up (during normal fan operation)

— Indicates the value (in Volts) for the minimum fan speed during normal operation. This value can range from 0 to 10V, with 10V representing the maximum possible speed

— Indicates the value (in Volts) for the maximum fan speed during normal operation in cooling mode. This value can range from 0 to 10V, with 10V representing the maximum possible speed

— Indicates the value (in Volts) for the minimum fan speed during normal operation in heating mode. This value can range from 0 to 10V, with 10V representing the maximum possible speed

14.10 CONFIGURING THE SUPPLEMENTARY HEATERS AND REPLACEMENT BOILER (IF INSTALLED)

Config.Resist.Integ. and Boiler

Conf.Suppl.el.heat.and Boiler:	0
Power Resistance:	10 %
Number Suppl.el.heaters:	NO
Integration Air Temp.:	5.0 °C
Integration Air Temp.:	-5.0 °C

—This value indicates the number of supplementary heaters managed by the unit (via a connection with the pCOe expansion card). This value can range from 0 to 3

—Indicates the power of the minimum step in relation to the unit power (as a percentage value) (only if the unit is a heat pump)

—This value is used to manage a replacement boiler (on heat pump units only) for hot water production when the outside air temperature falls below a set limit (YES = boiler enabled; NO = boiler not enabled)

—Indicates the outside air temperature below which the unit works alongside the supplementary electric heaters (above this temperature value, the unit works without the heaters)

—Indicates the outside air temperature below which the unit is completely replaced (it goes into standby) by the supplementary heaters or (if configured) the boiler for hot water production

14.11 COMPRESSOR OPERATING LOG

Hourm.and starts

Circuit 1		
	Hourmet.	Number start up
Compressor 1:	20 h	4
Compressor 2:	20 h	4
Compressor 3:	20 h	4
Circuit 2		
	Hourmet.	Number start up
Compressor 1:	20 h	4
Compressor 2:	20 h	4
Compressor 3:	19 h	4

—Indicates the number of hours that compressor 1 on circuit 1 has worked

—Indicates the number of hours that compressor 2 on circuit 1 (if installed) has worked

—Indicates the number of hours that compressor 3 on circuit 1 (if installed) has worked

—Indicates the number of peaks made by compressor 1 on circuit 1

—Indicates the number of peaks made by compressor 2 on circuit 1 (if installed)

—Indicates the number of peaks made by compressor 3 on circuit 1 (if installed)

—Indicates the number of hours that compressor 1 on circuit 2 (if installed) has worked

—Indicates the number of hours that compressor 2 on circuit 2 (if installed) has worked

—Indicates the number of hours that compressor 3 on circuit 2 (if installed) has worked

—Indicates the number of peaks made by compressor 1 on circuit 2 (if installed)

—Indicates the number of peaks made by compressor 2 on circuit 2 (if installed)

—Indicates the number of peaks made by compressor 3 on circuit 2 (if installed)

14.12 MASTER SLAVE - CONFIGURING POWER CONTROL IN THE CASE OF TWO-UNIT SYSTEMS

This window is used to configure the parameters for unit Master/Slave management:

Master-Slave

Unit:	MASTER
Step Power:	1.0 %
Pump Slave Off with CP Off:	NO
Common Output:	100.0 °C
Request:	0.0 %
Unit 1:	0.0 %
Unit 2:	0.0 %

1. Used to choose whether the unit is part of a Master/Slave system. The possible values are:

—SINGLE = the unit is single so no connection is activated and there is no Master/Slave control;

—MASTER = the unit is part of a two-unit system (and connected via pLAN). The current setting indicates that the unit is the Master;

—SLAVE = the unit is part of a two-unit system (and connected via pLAN). The current setting indicates that the unit is a Slave;

2. Indicates the percentage of the system power request that will be divided between the Master and the Slave. This value can range from 1 to 100%, with 1% indicating that the two units will work in parallel and 100% indicating that the units will be used in a sequential manner (the power of the Slave will only be used when all the Master power has been used)

3. Choose whether to activate the Slave pump only if the Slave unit is involved in the power request, or activate it whenever a request is received from the system (YES =

Slave pump disabled if there is no request on the Slave unit; NO = Slave pump always enabled in response to a request)

4. Indicates the temperature measured on the common outlet of the Master and Slave units
5. Indicates the power value currently requested by the system (as a percentage)
6. Indicates the power value currently supplied by the Master in response to a request from the system (as a percentage)
7. Indicates the power value currently supplied by the Slave in response to a request from the system (as a percentage)

14.13 CONFIGURING THE FREE-COOLING UNIT (IF INSTALLED)

Freecooling - Glicole Free

Freecooling:

Delta T: 15.0 °C
Max V in Freecooling: 10.0 V
Control of gain Frecooling:
                    Delta T: 1.5 °C
                    Time Control: 180 s
Freecooling, NYB StandBy, Valvole Close: NO

— Indicates the temperature difference (in Free-cooling) generated at the maximum fan speed
— Indicates the value (in Volts) assigned to the fans during Free-cooling. This value can range from 0 to 10V
— Indicates the value to be assigned to the temperature difference at the maximum fan speed during Free-cooling. This parameter is part of the constant check that the Free-cooling coil produces a T-delta (used as a safety check on 3-way valve operation)
— Indicates the bypass time from Free-cooling start-up before beginning the Free-cooling output check
— This value is used to manage the logic of the valves on the NYB. This may be:
YES = no transit of water during unit standby;
NO = transit of water in the evaporator during unit standby;

14.14 DATE AND TIME SETTINGS ON THE MAIN BOARD AND ON THE TOUCH DISPLAY BOARD

Configuration Clock

Clock Panel Touch	Clock Sched pCO5+
Friday	Friday
16:24:30	16:24:30
25/11/2016	25/11/2016
	Modif.Clock of sched.

— Indicates the current day of the week on the touch display board timer
— Indicates the current time on the touch display board timer
— Indicates the current date on the touch display board timer
— Indicates the current day of the week on the pCO5 timer
— Indicates the current time on the pCO5 timer
— Indicates the current date on the pCO5 timer

14.15 CONFIGURING THE AUTOMATIC GMT/DAYLIGHT SAVING TIME CHANGEOVER

Configuration Clock

Automatic change Hour solar/legal: YES

Start: LAST   Sunday
    in   MARCH   to   02:00

End: LAST   Sunday
    in   OCTOBER   to   03:00

— Choose whether to activate the automatic changeover between GMT and Daylight Saving Time (YES = enable automatic changeover; NO = disable automatic changeover)
— Used to select on which day (of the month) to switch to Daylight Saving Time
— Used to select on which day (of the week) to switch to Daylight Saving Time
— Used to select in which month to switch to Daylight Saving Time
— Used to select at what time to switch to Daylight Saving Time
— Used to select on which day (of the month) to switch to GMT

— Used to select on which day (of the week) to switch to GMT
— Used to select in which month to switch to GMT
— Used to select at what time to switch to GMT

14.16 CONFIGURING THE CALENDAR

— Indicates the period 1 start date
— Indicates the period 1 end date
— Used to select the action for period 1 (OFF = unit disabled; WEEKENDS AND HOLIDAYS = "WEEKENDS AND HOLIDAYS" band enabled)
— Indicates the period 2 start date
— Indicates the period 2 end date
— Used to select the action for period 2 (OFF = unit disabled; WEEKENDS AND HOLIDAYS = "WEEKENDS AND HOLIDAYS" band enabled)
— Indicates the period 3 start date
— Indicates the period 3 end date
— Used to select the action for period 3 (OFF = unit disabled; WEEKENDS AND HOLIDAYS = "WEEKENDS AND HOLIDAYS" band enabled)
— Indicates the period 4 start date
— Indicates the period 4 end date
— Used to select the action for period 4 (OFF = unit disabled; WEEKENDS AND HOLIDAYS = "WEEKENDS AND HOLIDAYS" band enabled)
— Indicates the period 5 start date
— Indicates the period 5 end date
— Used to select the action for period 5 (OFF = unit disabled; WEEKENDS AND HOLIDAYS = "WEEKENDS AND HOLIDAYS" band enabled)

14.17 SOFTWARE VERSION - INFORMATION ABOUT THE SYSTEM

— Indicates the code that identifies the unit
— Indicates the current software version for the pCO5 card
— Indicates the date of the pCO5 software
— Indicates the software version of the Touch panel
— Indicates the date and time of the unit test (performed in the factory)

15   HELP MENU

Menu protected and blocked by a password.

NOTICE
ⓘ This menu contains parameters that may cause malfunctioning if they are incorrectly set. For this reason, only technical maintenance personnel or other authorised personnel may access this menu. For more information, contact After Sales Service.

16   MANUFACTURER MENU

Menu protected and blocked by a password.

NOTICE
ⓘ This menu contains parameters that may cause malfunctioning if they are incorrectly set. For this reason, only technical maintenance personnel or other authorised personnel may access this menu. For more information, contact After Sales Service.

17 USER INTERFACE (PGD1)
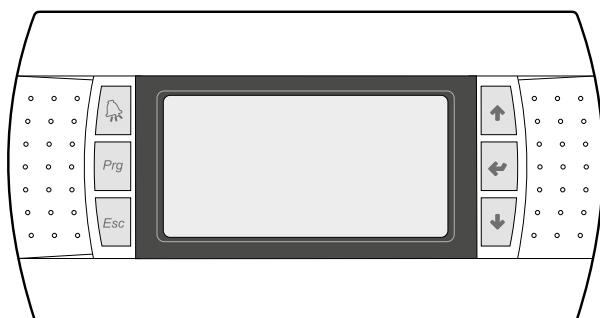
The command panel of the unit allows the rapid setting of the working parameters of the machine, and their visualisation. The card stores all the default settings and any modifications.

The installation of the remote panel PGD1 makes it possible to copy from remote all the functions and settings available on the machine.

After the absence of voltage for any period of time, the unit is able to start up again automatically, maintaining the original settings.

The main user interface is a graphic monitor with six navigation keys; the displays are organised with a menu hierarchy, which is activated by pressing the navigation keys. The default view of these menus is represented by the main menu; you can navigate between the various parameters by using the arrow keys on the right-hand side of the panel; these keys are also used to change the selected parameters.

17.1 START-UP PROCEDURE

After powering the unit, the control card will perform preliminary operations before it is ready to be used; these initial procedures last about 60 seconds before they are complete; two windows are displayed during the initial loading procedures (a start window and one for selecting the system language); these windows are specified below in the table.

NOTICE
ℹ️ **The system language can be set in the window shown at start-up, or at any moment by changing the window contained in the installer menu.**

Wait please   **16s**

This window indicates the seconds remaining until the software loaded in the unit starts up (switching to the system language selection);

Installer	
Language:	**ENGLISH**
Push ENTER for change	
ESC to confirm	
Time show mask:	**7**
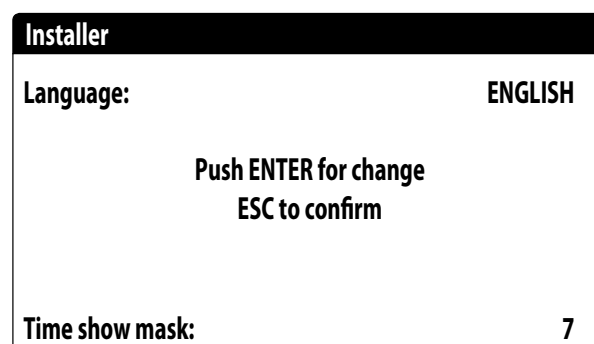
This window makes it possible to select the language with which the system is started.

17.2 FUNCTION OF THE PGD1 CONTROL PANEL KEYS

🔔 : Displays the list of active and historical alarms (red LED on = active alarm);

Prg : Pressing this button activates menu navigation (orange LED lit = winter operation mode active; orange LED flashing = defrosting in progress);

Esc : Pressing this key returns to the previous window;

⬆ : Pressing this key can have different functions:
— Pressing this key when navigating menus/parameters passes to the next menu/parameter;
— Pressing this key when changing a parameter increases the value of the selected parameter;

⬅ : Pressing this key can have different functions:
— Pressing this key when navigating menus enters the selected menu;
— Pressing this key when navigating parameters selects the displayed parameter and enters change mode;
— Pressing this key when changing a parameter confirms the change to the value of the selected parameter;

⬇ : Pressing this key can have different functions:

— Pressing this key when navigating menus/parameters passes to the previous menu/parameter;
— Pressing this key when changing a parameter decreases the value of the selected parameter;

17.3   MENU STRUCTURE

All the functions for managing the unit as well as the information about its operation are displayed on the unit control panel; all the functions and information are organised into windows, which are in turn grouped in to menus.

When the unit is operating normally, a main menu is displayed, which is used to select other operating menus.

The menus are displayed via the rotation of the icons that represent them; once the desired icon is selected, the select menu opens, and it is possible to display or change the corresponding parameters. The procedure for navigating the menus, or changing the parameters, is explained in detail in the chapter "Operational utilisation procedures", to which reference is made for more information.

The image shows the relationships between the various menus and the keys used for navigation.
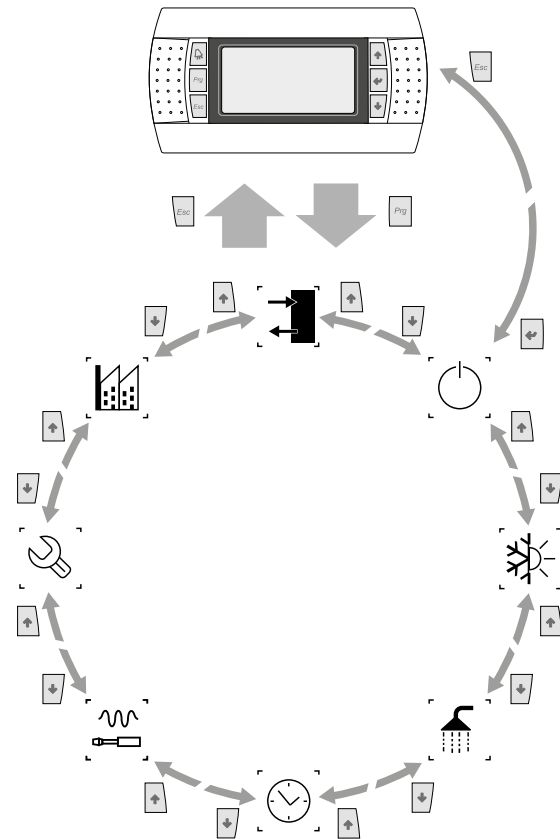
NOTICE
i	**The following pages show all the masks contained in the menus available to the user; Tampering with the parameters in the installer menu could cause the unit to malfunction, therefore it is recommended to have these parameters changed only by personnel assigned to unit installation and configuration;**

Menu icons:

IN/OUT: This menu contains advanced information about operating the unit;

ON/OFF: This menu is used to activate or deactivate the unit; it also provides state information;

System: This menu is used to set the operating mode, the setpoints for water production and the time bands to be applied to the system;

RECOVERY (if present in the unit):This menu allows to set the parameters related to the recovery management;

CLOCK: This menu contains the time settings for system management (date and time, calendar);

INSTALLER: This menu contains settings useful for the installer (Digital input enabling, BMS configuration, adjustments, pumps, etc ...);

NOTICE
i	**This menu is password protected. The value to be set for access is:** 0000.

ASSISTANCE: This menu is not accessible except by authorized staff;

MANUFACTURER: This menu is not accessible except by authorized staff;

17.4 USER OPERATING PROCEDURES

To check or modify the operating parameters of the unit it is necessary to use the interface of the control panel on the unit.

The basic operations that the user must be capable of, for the correct use of the unit, are:

— Moving between menus;
— Selecting and modifying a menu.

17.4.1 Moving between menus

To move between the menus, the order in which they are displayed is shown in the previous page, enter the menu selection mode by pressing the key [Prg] ;
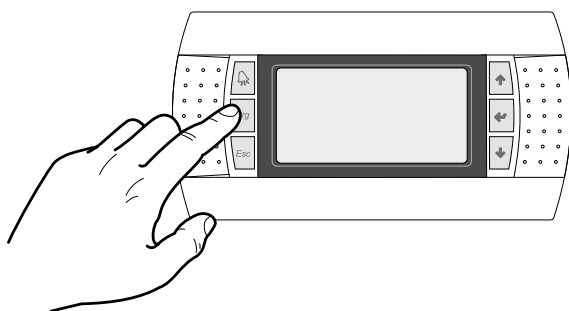
Once in the menu selection mode it is possible to move between menus using the arrow keys: the key [↑] to move to the previous menu, and the key [↓] to move to the next menu:
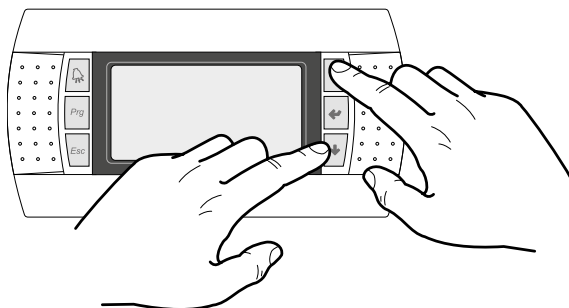
When the desired menu is seen press the key [↵] to enter the menu. Press the key [Esc] to return to the menu selection mode:
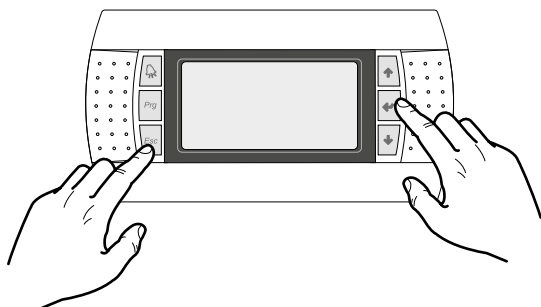
17.4.2 Selecting and modifying a menu

Once in the menu selected, by following the procedure, it is possible to move between the screens using the arrow keys: the key [↑] to move to the previous parameter, and the key [↓] to move to the next parameter:
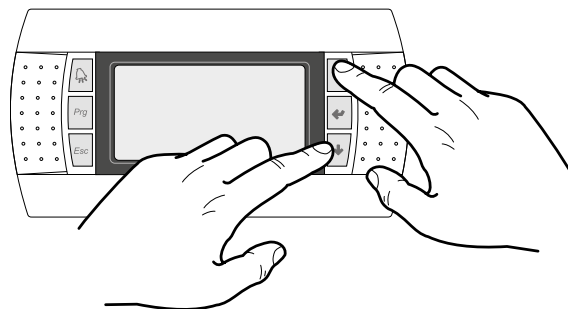
When the desired parameter is seen press the key [↵] to enter the parameter. To exit the parameter and return to the parameter selection mode press the key [Esc].

NOTICE
ⓘ **Once a parameter is selected by pressing the key [↵] , the parameter selection mode is automatically accessed.**

In this mode the desired parameter values can be set with the following procedure:

1. Pressing the key [↵] causes a flashing cursor to appear on the first modifiable field of the parameter. If no modifiable fields are displayed then the cursor will not appear.

2. Pressing the key [↑] or the key [↓] , the value of the field can be increased or decreased;

3. Pressing the key [↵] confirms the modification of the field value, saving it in memory.
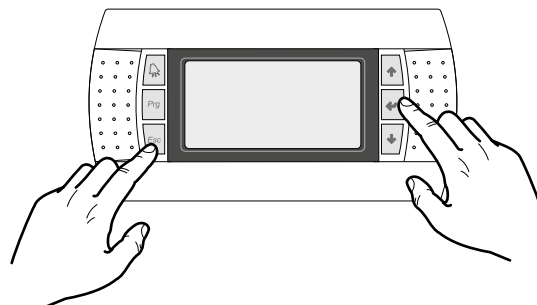
NOTICE
ⓘ **On the basis of the type of parameter selected the number of modifiable fields can change.**

18   MAIN MENU

18.1   GENERAL MONITOR

This mask is used to display the unit's general status:

Aermec		Fri 08:35
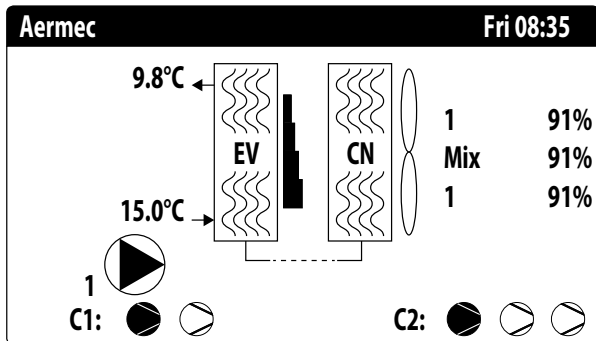
—Current date and time
—Evaporator (EV) output temperature;
—Evaporator (EV) input temperature; when it is just below the value relative to the evaporator input temperature, the icon of the currently active pump will appear (with the relative number);
—Percentage of power (displayed graphically with a bar to the right of the evaporator) requested by the system;
—Fan speed; percentage value displayed to the right of the condenser;
—Circuit 1 (C1) or 2 (C2) compressor status;
—▶ Pump active: this icon appears if the unit's pump is running; if the unit has several pumps, the number next to the icon indicates which one is active.

NOTICE
ⓘ   **Some icons can appear in the window, indicating certain system states::**

—⋀⋁ : anti-freeze heater activation;
—Ⓛ: Indicates that low output temperature anti-freeze prevention is active (turns off the compressors)
—Ⓕ: Indicates that the flow switch is open. The compressors are turned off and the pumps release the flow switch
—◕ : indicates that the compressor is on;
—◌ : indicates that the compressor is off;
—⚠ : indicates a compressor alarm;
    AP
—⚠: Indicates that high pressure capacity control is active;

18.2   SYSTEM MONITOR

This mask is used to display the system's general status:

Plant		
Setpoint	7.0°C	❄
Diff.	5.0°C	
Outlet Temp.:		37.0°C
Ep 100.0%		Ei 15.0%
Req.: 100.0%		Att: 84.7%
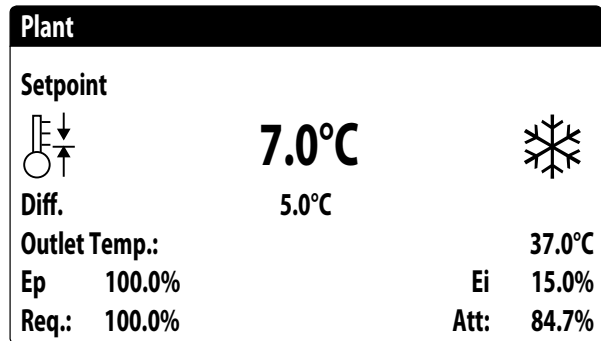
—Current working setpoint;
—Current working differential;
—Temperature probe for machine regulation;
—If a PI function is active, also the proportional factor "Ep" and the integral factor "Ei" will be displayed;
—Requested percentage of power and percentage of power actually active on the system side;

NOTICE
ⓘ   **Some icons can appear in the window, indicating certain system states::**

—❄ : system chilled water production;
—☀ : system hot water production;
—🕐 : time bands active;
—Ⓛⓒ: indicates that the low charge function is active;
—Ⓜ : multifunction input;

18.3   CIRCUIT MONITORS

This mask is used to display the cooling circuit's general status; if the unit has multiple circuits, each will have a dedicated window:

Circuit 1			
AP: 18.9bar	→	Tc:	31.8°C
BP: 6.4bar	→	Te:	-2.6°C
T. Liquid.:			14.0°C
Discharge Temp.			75.8°C
CP1:	◕	0s	
CP2:	◕	0s	
CP3:	◕	0s	
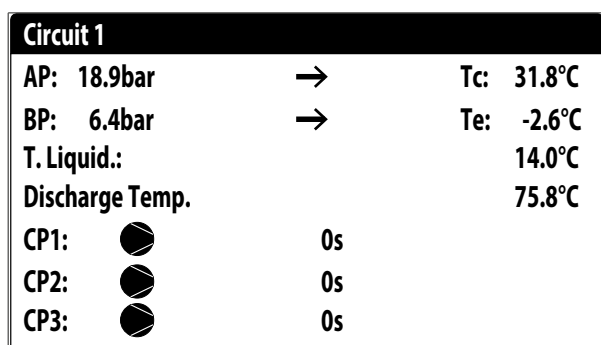
—**AP**: high pressure
—**BP**: low pressure
—**Tc**: condensation temperature
—**Te**: evaporating temperature
—**T.Liquid**: liquid temperature

— **Pressing line Gas T.**: compressor pressing line gas temperature

The status of the compressors can be:
— ⊘: indicates that the compressor is off, the (remaining) time to satisfy the minimum OFF time is indicated to the side;

If flashing = Compressor switched off but will soon be switched on.

— ◗: indicates that the compressor is on, the (remaining) time to satisfy the minimum ON time is indicated to the side;

18.4 POWER DEMAND MONITOR

This mask is used to display the data related to the power demand on the indicated circuit; if the unit has multiple circuits, each will have a dedicated window:

Circuits	
Total require	100.0%
Circuit 1:	50.0%
Circuit 2:	50.0%
Heaters:	0%
Time between starts:	0s

— Total thermostat request;
— Power delivered by circuit 1 and 2;
— Resistance: This is the percentage of integral resistance active at that moment (only visible with Integral resistance configuration);
— Seconds remaining until the next compressor is switched on.

18.5 FREE COOLING MONITOR

This mask is used to display the status of the free cooling circuit:
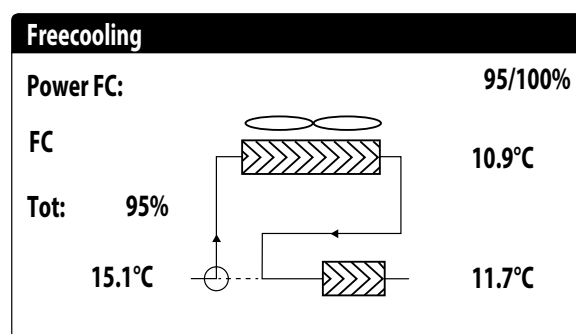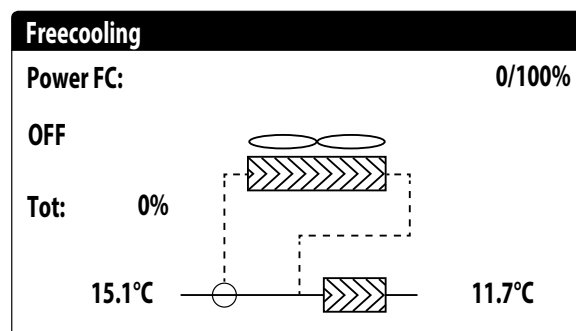
— Activation of the 3-way valve with the display of moving arrows for pump status and water circulation;
— Power delivered by the free cooling based on that available;
— Operating status;
— Tot: total power as a percentage delivered by the unit. If only free cooling, corresponds to the total power delivered by free cooling, if mixed operation the total power is the sum of the power delivered by free cooling and the compressors;
— Display of the values of the free cooling input (lower left), evaporator input (if FC on, upper right) and evaporator output (lower right) probes;

Possible operating status:
— OFF (unit off);
— FC (unit only operating in free cooling);
— FC+CP (unit in mixed operation);
— CP (unit operating with compressors only);

> **NOTICE**
> ℹ **This mask is available on free cooling units.**

18.6 GLYCOL FREE MONITOR

This mask is used to display the status of the glycolfree circuit:

```
┌─────────────────────────────────────┐
│ Glycol Free                          │
├─────────────────────────────────────┤
│ Power FC:                    0/100%  │
│ Total:                          0%   │
│                                      │
│         ⬭ ⬭    15.1°C    15.1°C       │
│       ▨▨▨▨▨                          │
│                                      │
│                15.1°C    10.9°C       │
│ OFF                                  │
└─────────────────────────────────────┘
```

```
┌─────────────────────────────────────┐
│ Glycol Free                          │
├─────────────────────────────────────┤
│ Power FC:                   96/100%  │
│ Total:                         96%   │
│                                      │
│         ⬭ ⬭    15.1°C    15.1°C       │
│       ▨▨▨▨▨                          │
│                                      │
│                15.1°C    10.9°C       │
│ FC                                   │
└─────────────────────────────────────┘
```
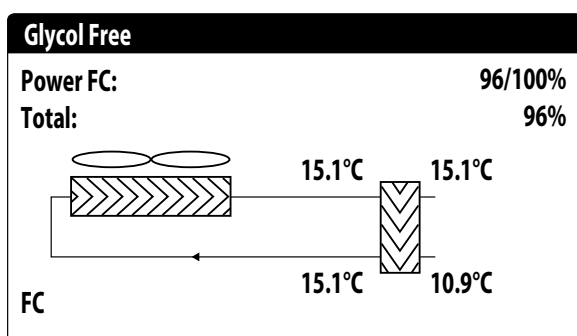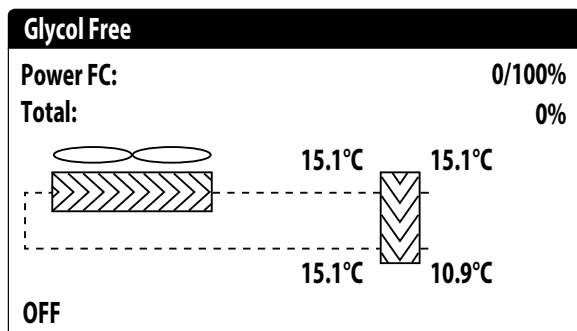
— Activation of the branch containing glycol with the display of moving arrows for pump status and water circulation;
— Power delivered by the free cooling based on that available;
— Tot: total power as a percentage delivered by the unit. If only free cooling, corresponds to the total power delivered by free cooling, if mixed operation the total power is the sum of the power delivered by free cooling and the compressors;
— Display of the values of the free cooling output (upper left), free cooling input (lower left), intermediate evaporator (upper right) and evaporator input (lower right) probes;
— Operating status;

Possible operating status:
— OFF (unit off);
— FC (unit only operating in free cooling);
— FC+CP (unit in mixed operation);
— CP (unit operating with compressors only);

NOTICE
ℹ️ **This mask is available on glycolfree units.**

18.7 MASTER UNIT MONITOR

This mask is used to display the data related to the system's total power demand and the relative power percentages divided among the units connected to the system:

```
┌─────────────────────────────────────┐
│ Master                               │
├─────────────────────────────────────┤
│ Common Outlet:                ---°C  │
│                                      │
│ Total require                100.0%  │
│                                      │
│ Circuit 1:                   100.0%  │
│ Circuit 2:                   100.0%  │
│                                      │
└─────────────────────────────────────┘
```

— **Common output (optional)**: probe water temperature on the common output of the two master and slave unit outputs;
— **Demand**: power calculated by the Master unit thermostat that will be distributed between the two units;
— **Unit 1**: percentage power requested of the Master unit;
— **Unit 2**: percentage power requested of the Slave unit;

NOTICE
ℹ️ **This mask is only available on the Master unit, if the system has a Master/Slave configuration with multiple units.**

18.8 TOTAL RECOVERY MONITOR

This mask is used to display the status of the total recovery:

```
┌─────────────────────────────────────┐
│ Total Recovery                       │
├─────────────────────────────────────┤
│ Inlet water:                  15.1°C │
│                                      │
│ Out Total Rec.:               15.1°C │
│                                      │
│ Off unit                             │
│ Total require:                   0%  │
│                                      │
└─────────────────────────────────────┘
```

— Display of the water temperature value of the total recovery input probe;
— Display of the water temperature value of the total recovery output probe;
— Total recovery status:
  ○ flow switch open (water is not circulating in the hydraulic circuit of the recovery system and therefore it is disabled);
  ○ enabled (water is circulating in the hydraulic circuit of the recovery system and therefore it is enabled);

○ general off (the whole unit is in stand-by), off from the display (general disabling of the unit from the pGD1 button);

— Demand: this value indicates the actual power requested for total recovery

NOTICE
ⓘ **This mask is available on units with total recovery.**

18.9 DK MONITOR (ONLY ON UNITS WITH 2 SEPARATE GAS-SIDE CIRCUITS)

DK Unit	
Comm.Out.Evap.:	10.0 ℃
Evap.Out 1:	6.2 ℃
Evap.Out 2:	15.0 ℃

— **Evaporator common output**: indicates the current temperature value read by the probe placed on the common output connection from the two evaporators.
— **Evaporator water output 1**: indicates the current temperature value for water leaving the evaporator 1.
— **Evaporator water output 2**: indicates the current temperature value for water leaving the evaporator 2.

19 INPUT/OUTPUT MENU

19.1 FAN MONITOR

This window summarises the state of the fans and the utilised setpoints:

```
┌─────────────────────────────────────┐
│ Fan                           ⬭⬭     │
│ Speed              � ▨▨▨▨▨▨▨▨ ▪       │
│            100%                      │
│                                      │
│ Set:                       0.0bar    │
│ Diff:                      0.0bar    │
│                                      │
│ 1:Preventil.              18.9bar    │
├─────────────────────────────────────┤
│ Fan                           ⬭⬭     │
│ Speed              � ▨▨▨▨▨▨▨▨ ▪      │
│            100%                      │
│                                      │
│ Set:                       0.0bar    │
│ Diff:                      0.0bar    │
│                                      │
│ 2:Preventil.              32.5bar    │
└─────────────────────────────────────┘
```
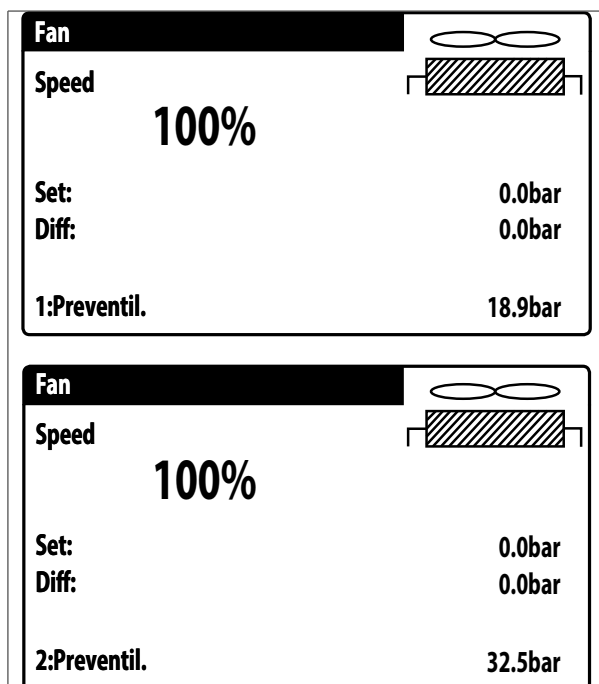
— **Speed**: this value indicates the current speed (as a percentage) at which the concerned fans are operating (common, circuit 1 or circuit 2);
— **Set**: Fan setpoint: this value indicates the current ventilation setpoint;
— **Diff**: Ventilation setpoint differential: this value indicates the current differential applied to the ventilation setpoint;

The state of the fans (displayed on the row at the bottom of the window), can be:
— **OFF**: fans off;
— **PREVENTILATION**: fans ON before the compressors;
— **high pressure**: control based on high pressure;
— **POSTVENTILATION**: ventilation after compressor OFF;
— **ANTI-FREEZE**: ventilation phase to prevent the accumulation of snow or the formation of ice;
— **DEFROSTING**: defrosting phase in progress;
— **Equalisation**: control based on low temperature;
— **MAXIMUM SPEED**: fans at maximum speed;
— **SILENCED**: speed reduced to reduce noise

19.2 OUTSIDE TEMPERATURE MONITOR

This window indicates the value of the outside temperature detected by the unit:

```
┌─────────────────────────────────────┐
│ Outdoor temp.                        │
│   ╲                                  │
│    ╲                                 │
│  ┌─┬─┐ o  ▯  15.0°C                  │
│  └─┴─┘    ▮                          │
│                                      │
│ Today         15.0°C   │  15.0°C    │
│ Yester.       15.0°C   │  15.0°C    │
└─────────────────────────────────────┘
```
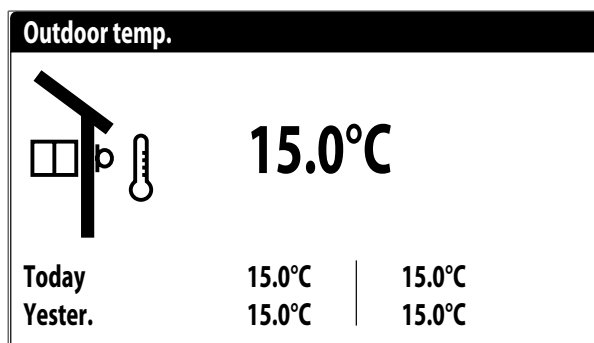
19.3 DEFROSTING MONITOR

This window contains the information concerning the state of defrosting on the unit:

```
┌─────────────────────────────────────┐
│ Defrost C1                           │
│                                      │
│ Disabled                             │
│ High ext. temperature                │
│                                      │
│ Times:                        0s     │
│ LP aver:       6.4bar   DP:   0.0    │
│ Liquid Temp.:              14.0°C    │
├─────────────────────────────────────┤
│ Defrost C2                           │
│                                      │
│ Disabled                             │
│ High ext. temperature                │
│                                      │
│ Times:                        0s     │
│ LP aver:       6.2bar   DP:   0.0    │
│ Liquid Temp.:              14.0°C    │
└─────────────────────────────────────┘
```
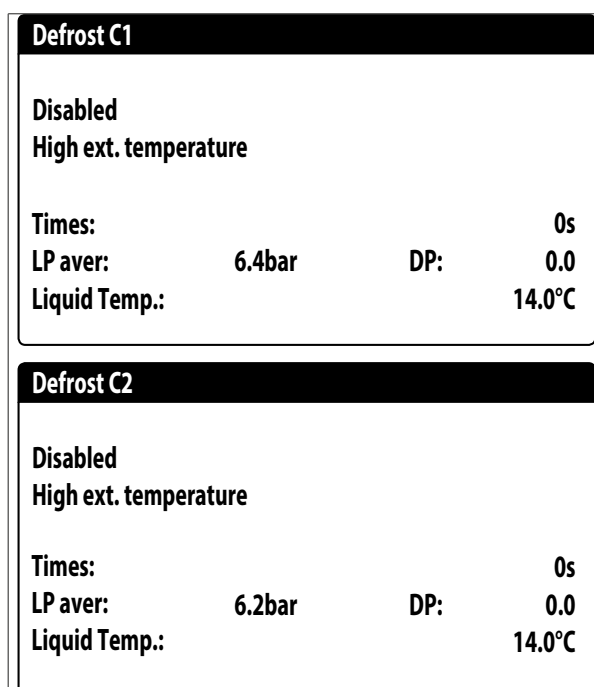
The state of defrosting is divided between two rows, the first can have the following states:
— **Disabled**: defrosting is disabled;
— **Bypass**: bypass phase after the compressor start;
— **Decreasing calculation**: phase calculating the decrease of pressure;
— **Wait for cycle inversion**: pause before inversion of the cycle valve;
— **Defrosting start**: defrosting during the start phase;
— **Defrosting in progress**: defrosting phase;
— **End of defrosting**: conclusion of defrosting;

— **First defrost**: shows the first defrost phase after a power loss.

The second row can have the following states:
— **High outside temperature**: the air temperature is above the defrosting enabling threshold;
— **Circuit off**: all the compressors of the circuit are off; defrost is disabled;
— **LP above the limit threshold**: the low pressure is above the limit threshold to trigger defrosting;
— **Min times between defrosting procedures**: the defrosting is disabled to respect the minimum time between defrosting procedures;
— **Start CP**: compressor just started, wait for defrosting bypass time;
— **New LP reference**: a new low pressure value has been taken as reference for the calculation of decreasing pressure;
— **Start for LP limit**: start of the defrosting due to exceeding the low pressure limit threshold;
— **Start for Delta P**: start of defrost to overcome the decreasing value of low pressure;
— **Liquid Temp OK**: the temperature of the liquid exceeded the threshold for determining the end of defrosting;
— **Min defrosting times**: defrosting continues until exceeding the minimum defrosting time even if the output conditions were already reached;
— **Awaiting other circuit**: occurs if the fans are common to both circuits and the first circuit to finish defrost awaits the second circuit to finish;
— **Bypass first start**: the first defrost after a power loss can only occur after the compressor has run for the determined time;
— **Liquid temp. Low**: liquid temperature below the level that determines the end of defrost;
— **Start for TGP**: defrosting was activated due to exceeding the temperature threshold of the discharge gas;
— **Forced**: defrosting was forced by the user;

The following data is available in the lower part of the window:
— **Times**: displays the seconds related to the defrosting times;
— **Low average pressure**: shows the average low pressure in the last minute;
— **Delta pressure**: shows the accumulated delta pressure to determine activation of defrost;
— **T.Liquid**: temperature of the liquid to determine the defrosting output.

19.4 MULTIFUNCTION INPUT MONITOR

This window contains the information concerning the state of the multifunction input:

Plant	
Input Multifunction	
(ID18): ACTIVE	
Power limitation	
pCO5 U10=	**57.0%**

Digital Input ID18: this value indicates the state of the digital input connected to multifunction input (U10) enabling, whose states can be:
— OPEN: multifunction input (U10) NOT ENABLED;
— CLOSED: multifunction input (U10) ENABLED;

> **NOTICE**
>
> (i) **The functions currently selected for the multifunction input U10 are displayed at the bottom of the window; to set that function, refer to the dedicated paragraph in the installer menu.**

19.5 I/O MONITOR

The status of the available inputs and outputs will be shown on the display, divided into successive pages; the following paragraphs will contain the tables with the various analogue and digital inputs and outputs (in the order in which they will be listed on the display of the unit) available on the software;

The order in which the masks will be available will be as follows:
— Analogue inputs;
— Digital inputs;
— Digital outputs;
— Analogue outputs;
— Inputs and outputs (uPC medium expansion for Chiller with Freecooling/Glycol Free or Recovery);
— Inputs and Outputs (pCOE Expansion for Heat Pumps and Two-circuit);
— Inputs and outputs (pCOE expansion for DK versions);
— Inputs and Outputs (pCOE expansion for Motor condensing);
— Inputs and Outputs (pCOE Expansion for 60Hz Two-circuit);
— Inputs and outputs (pCOE expansion for "Variable Primary Flow").

> **NOTICE**
>
> (i) **The displays may or may not be present (or change) depending on the model of the unit.**

20   INPUT AND OUTPUT

20.1   ANALOGUE INPUTS

Analogue inputs	Code	Range	Description
U1	SIW		evaporator water inlet probe
	33%	Condensing units up to 6 CP	Step switch on contact
U2	SUW		evaporator water outlet probe
	16%	Condensing units up to 6 CP	Step switch on contact
U3	SAE		External air sensor
U4	SGP1		Discharge temperature sensor circuit 1
U5 (4-20mA)	AP1		High pressure transducer circuit 1
U6 (4-20mA)	BP1		Low pressure transducer circuit 1
U7	SGP2		Discharge temperature sensor circuit 2
U8 (4-20mA) o (NTC)	AP2		High pressure circuit 2 transducer
U9 (4-20mA) o (NTC)	BP2		Low pressure transducer circuit 2
U10	Multifunction		Multi-function input
	Common outlet probe	Slave Unit	Common output with Master/Slave

20.2   DIGITAL INPUTS

Digital inputs	Code	Range	Description
ID1	FL		Flow switch
ID2	AP1		Circuit 1 high pressure pressure switch / discharge gas thermostat
ID3	TV1		Fan circuit breaker circuit 1
ID4	RCS		Phase monitor
ID5	TC1		Overload compressor 1 circuit 1
ID6	TC1A		Overload compressor 2 circuit 1
ID7	TC1B		Overload compressor 3 circuit 1
ID8	AP2		Circuit 2 high pressure pressure switch /discharge gas thermostat
ID9	TV2		Fan circuit breaker circuit 2
ID10	SET2		Second setpoint
ID11	TC2		Overload compressor 1 circuit 2
ID12	TC2A		Overload compressor 2 circuit 2
ID13	TC2B		Overload compressor 3 circuit 2
ID14	TMP1		Overload pump 1
ID15	TMP2		Overload pump 2
ID16	C/H		Remote season contact (closed= summer mode)
	Anti-freeze	Cooling-only condensing unit	Anti-freeze contact
ID17	ON/OFF		Remote ON/OFF contact (closed=ON)
ID18	Enable Multifunction		Multifunction input enabling

The possible status for each digital input or output can be:
OPEN: load not active;
CLOSED: load active;

20.3 DIGITAL OUTPUTS

Digital outputs	Code	Range	Description
N01	MPO1		Pump 1 evaporator
N02	CP1		Compressor 1 Circuit 1
N03	CP1A		Compressor 2 Circuit 1
N04	CP1B		Compressor 3 Circuit 1
N05	VSL1		Liquid solenoid valve circuit 1
N06	VIC1	With heat pump	Circuit 1 reverse cycle valve
N07	MV1		Fans group 1
N08	AE		Alarm summary
N09	CP2		Compressor 1 Circuit 2
N010	CP2A		Compressor 2 Circuit 2
N011	CP2B		Compressor 3 Circuit 2
N012	VSL2		Solenoid valve circuit 2
N013	MV2		Fans group 2
N014	VIC2	With heat pump	Circuit 2 reverse cycle valve
N015	VSB1	With heat pump	Thermostatic bypass solenoid valve circuit 1
N016	VSB2	With heat pump	Thermostatic bypass solenoid valve circuit 2
N017	RE		Heater exchanger
N018	MPO2		Pump 2 evaporator

The possible status for each digital input or output can be:
OPEN: load not active;
CLOSED: load active;

20.4 ANALOGUE OUTPUTS

Analogue outputs	Code	Range	Description
Y1	DCP1		Modulating fans unit 1
Y2	DCP2		Modulating fans unit 2
Y3	DCP3		Modulating fan group 1+2 or 3 (with 3 ventilation groups)
Y4	DCP4	NRB	Circuit1 modulating fan unit that switches off at low outdoor temperatures
Y5	DCP5	NRB	Circuit2 modulating fan unit that switches off at low outdoor temperatures
Y6			

20.5 INPUTS AND OUTPUTS (UPC MEDIUM EXPANSION FOR CHILLER WITH FREECOOLING/GLYCOL FREE OR RECOVERY)

Analogue inputs	Code	Range	Description
B1 (NTC)			
B2 (NTC)			
B3 (NTC)			
B4 (NTC)			
B5 (NTC)			
B6 (NTC)	SIR	With total recovery	Total recovery inlet water temperature
	SFC	With Freecooling	Free cooling inlet probe
B7 (NTC)	SUR	With total recovery	Total recovery outlet water temperature
	SFC2	With Freecooling	Free cooling outlet probe (Glycol Free)
B8 (NTC)	SUR2	With total recovery	Total recovery outlet water temperature
	SRU	With Freecooling	Intermediate evaporator probe
B9 (NTC; NTC HT;)	SUW2	DK	Evaporator 2 water outlet probe
B10 (NTC,4-20mA)			
B11 (NTC, 0-5V)	SUC	DK	Common evaporator outlet probe
B12 (NTC, 0-5V)			
Digital inputs			

Analogue inputs	Code	Range	Description
ID1	TPR	With total recovery	External heat recovery pump (new management proposed)
	FLC	With Freecooling/Glycol Free	Flow switch side heater
ID2	FLR	With total recovery	Recovery flow switch
	MTP	With Freecooling/Glycol Free	Glycol Side Pump thermomagnetic
ID3			
ID4			
ID5			
ID6			
ID7			
ID8			
ID9			
ID10			
Digital outputs			
NO1	VA1_40	With Freecooling	Coil disconnecting valve circuit 1
NO2	RS2	With total recovery	Heater recovery exchanger
	RS2	With Freecooling/Glycol Free	Glycol Side Heater
NO3	VB1_40	With Freecooling	Coil spillage valve circuit 1
NO4	VR1	With total recovery	Circuit 1 spillage from Recovery
	VB1_60	With Freecooling	Coil spillage valve circuit 1
NO5	VB1	With total recovery	Circuit 1 spillage from Condenser
	VB2_40	With Freecooling	Coil spillage valve circuit 2
NO6	VR2	With total recovery	Circuit 2 spillage from Recovery
	VB2_60	With Freecooling	Coil spillage valve circuit 2
NO7	VB2	With total recovery	Circuit 2 spillage from Condenser
	VSFR3V	With Freecooling	Free cooling 3-way valve
	MPG	Glycol Free	Glycol Free pump
NO8	VRT1	With total recovery	Total recovery 3-way valve circuit 1
	VA1_60	With Freecooling	Coil disconnecting valve circuit 1
NO9	VRT2	With total recovery	Total recovery 3-way valve circuit 2
	VA2_40	With Freecooling	Coil disconnecting valve circuit 2
NO10	VA2_60	With Freecooling	Coil disconnecting valve circuit 2
NO11	VSL1A	With total recovery	Oil spillage valve from recovery circuit 1
NO12	VSL2A	With total recovery	Oil spillage valve from recovery circuit 2
Analogue outputs			
Y1			
Y2			
Y3			
Y4			

Note: Modbus address=11

The possible status for each digital input or output can be:
OPEN: load not active;
CLOSED: load active;

20.6   INPUTS AND OUTPUTS (PCOE EXPANSION FOR HEAT PUMPS AND TWO-CIRCUIT)

Analogue inputs	Code	Range	Description
B1 (NTC)	SL1		Circuit 1 Liquid temperature probe
B2 (NTC)	SL2		Circuit 2 Liquid temperature probe
B3 (NTC)	SAC	With supplementary heater	Storage tank probe
B4 (NTC)			
Digital inputs			
ID1			
ID2			
ID3			
ID4			
Digital outputs			
NO1	RI1	With supplementary heater	Output1 Integral resistance
		With replacement boiler	Replacement boiler consent output
NO2	RI2/RI3	With supplementary heater	Output2 Integral resistance
NO3	Tray heater		Command also on output 0_10V Y6
NO4	V3V		Domestic hot water 3-way valve (required via Modbus)
Analogue outputs			
Y1			
Y2			
Y3			
Y4			

Note: Modbus address pCOE=2, DIP2=ON.

The possible status for each digital input or output can be:
OPEN: load not active;
CLOSED: load active;

20.7   INPUTS AND OUTPUTS (PCOE EXPANSION FOR DK VERSIONS)

Analogue inputs	Code	Range	Description
B1 (NTC)	SUW2	DK	Second evaporator water outlet temperature probe
B2 (NTC)	SUC	DK	Evaporator common outlet temperature probe
B3 (NTC)			
B4 (NTC)			
Digital inputs			
ID1			
ID2			
ID3			
ID4			
Digital outputs			
NO1			
NO2			
NO3			
NO4			
Analogue outputs			
Y1			
Y2			
Y3			
Y4			

Analogue inputs	Code	Range	Description

Note: Modbus address pCOE=3, DIP1=ON, DIP2=ON.

The possible status for each digital input or output can be:
OPEN: load not active;
CLOSED: load active;

20.8 INPUTS AND OUTPUTS (PCOE EXPANSION FOR MOTOR CONDENSING)

Analogue inputs	Percentage	Range	Description
B1 (NTC)			
B2 (NTC)			
B3 (NTC)			
B4 (NTC)			
Digital inputs			
ID1	100%	Condensing units up to 4 CP	Compressor or step switch on contact
	100%	Condensing units up to 6 CP	
ID2	75%	Condensing units up to 4 CP	Compressor or step switch on contact
	83%	Condensing units up to 6 CP	
ID3	50%	Condensing units up to 4 CP	Compressor or step switch on contact
	66%	Condensing units up to 6 CP	
ID4	25%	Condensing units up to 4 CP	Compressor or step switch on contact
	50%	Condensing units up to 6 CP	
Digital outputs			
NO1			
NO2			
NO3			
NO4			
Analogue outputs			
Y1			
Y2			
Y3			
Y4			

Note: Modbus address pCOE=4, DIP3=ON.

The possible status for each digital input or output can be:
OPEN: load not active;
CLOSED: load active;

20.9 INPUTS AND OUTPUTS (PCOE EXPANSION FOR 60HZ TWO-CIRCUIT)

Analogue inputs	Code	Range	Description
B1 (NTC)	SL1		Circuit 1 Liquid temperature probe
B2 (NTC)	SL2		Circuit 2 Liquid temperature probe
B3 (NTC)	SGA1		Intake temperature probe circuit 1
B4 (NTC)	SGA2		Circuit 2 Intake temperature probe
Digital inputs			
ID1			
ID2			
ID3			
ID4			

Analogue inputs	Code	Range	Description
Digital outputs			
NO1			Thermostatic expansion valve exchange C1
NO2			Thermostatic expansion valve exchange C2
NO3	Tray heater		Command also on output 0_10V Y6
NO4	V3V		Domestic hot water 3-way valve (required via Modbus)
Analogue outputs			
Y1			
Y2			
Y3			
Y4			

Note: Modbus address pCOE=6, DIP2=ON, DIP4=ON.

The possible status for each digital input or output can be:
OPEN: load not active;
CLOSED: load active;

20.10 INPUTS AND OUTPUTS (PCOE EXPANSION FOR "VARIABLE PRIMARY FLOW")

Analogue inputs	Description	Note
B1 (NTC)	Differential pressure	Differential transducer
B2 (NTC)		
B3 (NTC)		
B4 (NTC)		
Digital inputs		
ID1		
ID2		
ID3		
ID4		
Digital outputs		
NO1		
NO2		
NO3		
NO4		
Analogue outputs		
Y1	Bypass VPF	valve control Bypass opening
Y2		
Y3		
Y4		

Note: Modbus address pCOE=7, DIP1=ON, DIP2=ON, DIP4=ON.

The possible status for each digital input or output can be:
OPEN: load not active;
CLOSED: load active;

21 ON/OFF MENU

21.1 GENERAL ON/OFF

This window makes it possible to view the general state of the system as well as to turn the unit on or off:

On/Off Unit
Plant
Off General
General enable:
NO

Display of the general system state:
— Flow switch open: the chiller's flow switch is open;
— Enabled: the system regulates via the main probe based on the system setpoint;
— Off due to alarm: system off due to serious alarm;
— General off: system turned off by general enabling (see the paragraph described below "General enabling");
— Off by BMS: system turned off by the supervision system;
— Off by clock: system turned off by time bands;
— Off by dig. input: system turned off by digital input (ID17);
— Off by display: system turned off by terminal, control system screen;
— Antifreeze: unit forcibly switched on to prevent freezing;
— Off by master: system turned off by master in master/slave configuration;
— Out of operating limits: system out of machine operating limits;
— Replacement boiler: replacement boiler active;

It is possible to change the unit state in the last row. If NO is selected, the entire system will be put in stand-by mode, if YES is selected the machine is turned on.

22 SYSTEM MENU

22.1 SELECTING THE SYSTEM OPERATING MODE

This mask is used to display the current unit state, to turn the unit on or off and to select the operating mode:

Plant
Off General ☼
Switch On: **YES**
Mode Selection: **HEATING**

Enable: allows to select the mode with which to turn the unit on or off; the available options are:
— OFF: the system does not produce hot/chilled water;
— YES: the system regulates via the main probe based on the system setpoint;
— YES WITH SET2: the system regulates via the main probe based on setpoint 2;
— BY CLOCK: the system regulates only when time bands are active;

Mode selection: allows to select the operating mode used to operate the unit; the available options are:
— COOLING: the system is in cooling mode;
— HEATING: the system is in heating mode;
— FROM OUTSIDE TEMP.: summer or winter mode is selected based on the outside temperature;
— FROM DIG. INPUT: if the digital contact closes, the hot mode is selected;
— BY SUPERVIS.: the BMS system controls remotely;
— BY CALENDAR: hot mode is selected by the calendar;

22.2 SETTING THE VALUES FOR THE PRIMARY SETS

This mask is used to set the values to assign to the primary working setpoints:

Plant
Setpoint 1
❄   **7.0°C**
☀   **45.0°C**

The primary working setpoints are:
— ❄ : setpoint 1 for cooling mode;
— ☀ : setpoint 1 for heating mode;

22.3 SETTING THE VALUES FOR THE SECONDARY SETPOINTS

This mask is used to set the values to assign to the secondary working setpoints:

Plant
Setpoint 2
❄   **12.0°C**
☀   **40.0°C**

The secondary working setpoints are:
— ❄: setpoint 2 for cooling mode;
— ☀: setpoint 2 for heating mode;

NOTICE
ℹ **There are two possibilities for using the secondary setpoint of the system:**

— Enable the system with the secondary setpoint as an option (ON CON SET 2) in the first screen of the System menu;
— Use the digital input ID10, which activates the secondary setpoint when closed.

22.4 SETTING THE TIME BANDS (A) AND (B)

This mask is used to set the times and action to assign to the time bands (a) and (b):

Plant			
Timezone			
Day		MONDAY	
			SEL
a	08:00	12:00	ON
b	16:00	22:00	ON

It is possible to assign up to four time bands (a, b, c, d) for each day of the week, during which a specific action can be selected:
— ON: system on with setpoint 1 (nominal);
— SET2: system on with setpoint 2;
— OFF: system off;

NOTICE
ℹ️ **The system keeps the system off outside the time bands.**
ℹ️ **All the screens for time-clock programming are only visible if activated in the main screen of the System menu (Enabling = TIME-CLOCK);**

22.5   SET THE TIME BANDS (C) AND (D)

This mask is used to set the times and action to assign to the time bands (c) and (d):

Plant			
Timezone			
Day		**MONDAY**	
			SEL
c	08:00	12:00	ON
d	16:00	22:00	ON

It is possible to assign up to four time bands (a, b, c, d) for each day of the week, during which a specific action can be selected:
— ON: system on with setpoint 1 (nominal);
— SET2: system on with setpoint 2;
— OFF: system off;

NOTICE
ℹ️ **The system keeps the system off outside the time bands.**
ℹ️ **All the screens for time-clock programming are only visible if activated in the main screen of the System menu (Enabling = TIME-CLOCK);**

22.6   COPY/PASTE TIME BANDS

This mask is used to copy and paste the time bands set for a day of the week to another (or to all other days):

Plant		
Timezone		
Day	**MONDAY**	
Copy to	**---**	**NO**

Each program has 8 days and each day has four time periods at which the switch-on and switch-off time, set point 2 or switch-on/switch-off can be set.
Outside these 4 time periods the program will switch the system off:
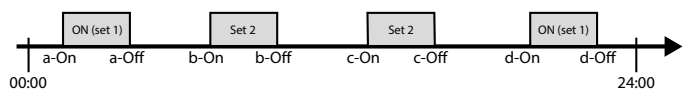
NOTICE
ℹ️ **All the screens for time-clock programming are only visible if activated in the main screen of the System menu (Enabling = TIME-CLOCK);**

22.7   SETTING THE SEASON CHANGE FROM THE CALENDAR (HEATING)

This mask is used to set the start and end date for heating mode:

Cooling/Heating	
Select Cool/Heat with	
Calendar	
Start Heating	**0/---**
Finish Heating	**0/---**

NOTICE
ℹ️ **This screen for automatic control based on calender is only visible if activated in the main screen of the System menu (Selection mode = BY CALENDAR)**

22.8 SETTING THE SEASON CHANGE FROM THE CALENDAR (COOLING)

This mask is used to set the start and end date for cooling mode:

Cooling/Heating	
Select Cool/Heat with	
Outdoor temperature	
Set ON cooling	**27.0°C**
Set ON heating	**13.0°C**

NOTICE

ⓘ **This screen for automatic control based on external air temperature is only visible if activated in the main screen of the System menu (Selection mode = BY EXT. TEMP.)**

23 RECOVERY MENU

23.1 ENABLING RECOVERY

This mask is used to display the actual status of the total recovery, and to enable or disable the total recovery:

Off General	
Switch On:	
YES	

The mask displays the total recovery status; the available options are:
— flow switch open (water is not circulating in the hydraulic circuit of the recovery system and therefore it is disabled);
— enabled (water is circulating in the hydraulic circuit of the recovery system and therefore it is enabled);
— general off (whole unit in stand-by);
— off from display (general disabling of the unit from the pGD1 button);

Enable: allows to enable or disable the total recovery;

NOTICE

ⓘ **This mask is available on units with total recovery.**

23.2 SET THE RECOVERY SET VALUE

This mask allows to view and set the value to be assigned to the recovery work set (default value 45° C, setting range 30~50° C):

Setpoint 1:	
	45.0°C

NOTICE

ⓘ **This mask is available on units with total recovery.**

24   CLOCK MENU

24.1   SETTING SYSTEM DATE AND TIME

This mask is used to set the system date and time:

Clock	
Day:	**MONDAY**
Time:	**16 MARZ 2020**
Hour:	**16:29**

24.2   SETTING THE AUTOMATIC SUMMER/WINTER TIME CHANGE

This mask is used to set the automatic change between summer and winter time, it is also possible to define the day the change is made:

Clock			
Automatic change			
Hour solar/legal:			**YES**
Start:			
	LAST	**SUNDAY**	
in	**March**	**alle**	**02:00**
End:	**LAST**	**SUNDAY**	
in	**October**	**alle**	**03:00**

24.3   SETTING THE PUBLIC HOLIDAYS ON THE CALENDAR

This mask is used to set the days (up to 5 intervals) to mark as "holidays" (therefore to activate the relative time programming previously specified for the holiday time band), or set the off mode for the system:

Calendar		
Start	**Finish**	**Action**
25/DIC.	**26/DIC.**	**---**
15/LUGL	**15/LUGL**	**---**
0/---	**0/---**	**---**
0/---	**0/---**	**---**
0/---	**0/---**	**---**

This mask displays:
Start date: shows the date of the start of the holiday. The calender can control a maximum of 5 days defined as hlidays, during which time specific actions are carried out.
End date: shows the date of the end of the holiday. The calender can control a maximum of 5 days defined as holidays, during which time specific actions are carried out.
Action to associate with holiday: shows which action the unit will take during the holiday, which may be:
— OFF: unit will be off during the days selected;
— FEST.: unit will be controlled as specified in the time-clock programme called HOLIDAY (for further information refer to the function of the time-clock);
— --- : if no action is specified the unit will be controlled by the manual settings.

25 INSTALLER MENU

25.1 PASSWORD TO ACCESS THE INSTALLER MENU (0000)

This mask is used to enter the password necessary for accessing the installer menu (the password is 0000):

Insert password

🔑 **0000**

25.2 ENABLES SYSTEM ON/OFF FROM DIGITAL INPUT (ID17)

This mask is used to enable unit on/off via the digital input (ID17):

Input enable

ID17: ON/OFF plant
NO

25.3 SETTING THE BMS 1 PARAMETERS

This mask is used to set the parameters related to the serial communication dedicated to BMS1:

Installer

Supervisor:	**BMS1**
Protocol:	**MODBUS EXT**
BaudeRate:	**19200 Baud**
StopBits	**2**
Serial address:	**1**
Parity Type:	**NONE**

Protocol: this value indicates which protocol is used to communicate with the BMS supervision system; the support protocols are:
— 0: CAREL: protocol for expansions;
— 1: MODBUS: Modbus/RS485 supervisor;
— 2: pCOWeb: protocol for pCOWeb expansion;
— 3: LON: protocol for LON expansion;
— 4: MODBUS EXT: Modbus in extended version with several addresses available.

Speed: this value indicates which speed is set for serial communication; the possible selections are:
— 0: 1200 baud;
— 1: 2400 baud;
— 2: 4800 baud;
— 3: 9600 baud;
— 4: 19200 baud;
— 5: 38400 baud;

Stopbits: this value indicates the number of bits used to indicate the bitstop in serial communication;
Address: this value indicates the address assigned to the BMS supervision system towards which communication will be made;
Parity: indicates the actual value assigned to the number of parity bits for communication between the unit and the BMS1 supervision system; the values that can be set are:
— None
— Odd
— Even

25.4 ENABLE CHANGE OVER AND ON/OFF BY SUPERVISOR

This mask is used to enable or disable the change over (season change) and unit on/off via BMS:

Installer

Supervisor:

Enable cooling/heating
by supervisor   **YES**

Enable On-Off unit
by supervisor   **YES**

25.5 SETS THE BMS2 PARAMETERS

This mask is used to set the parameters related to the serial communication dedicated to BMS2:

Installer

Supervisor:	BMS2
BaudeRate:	19200 Baud
Serial address:	1
StopBits	2
Parity Type:	NONE

Protocol: this value indicates which protocol is used to communicate with the BMS supervision system; the support protocols are:
— 0: CAREL: protocol for expansions;
— 1: MODBUS: Modbus/RS485 supervisor;
— 2: pCOWeb: protocol for pCOWeb expansion;
— 3: LON: protocol for LON expansion;
— 4: MODBUS EXT: Modbus in extended version with several addresses available.

Speed: this value indicates which speed is set for serial communication; the possible selections are:
— 0: 1200 baud;
— 1: 2400 baud;
— 2: 4800 baud;
— 3: 9600 baud;
— 4: 19200 baud;
— 5: 38400 baud;

Address: this value indicates the address assigned to the BMS supervision system towards which communication will be made;

Stopbits: this value indicates the number of bits used to indicate the bitstop in serial communication;

Parity: indicates the actual value assigned to the number of parity bits for communication between the unit and the BMS2 supervision system; the values that can be set are:
— None
— Odd
— Even

25.6 SETTING THERMOSTAT REGULATION

This mask is used to select the parameters for managing the operating thermostat:

Installer

Regulation temperature sensor with:
OUTPUT

Type reg.:	**PROP.+INT.**
Integ. Time(Ki)	**600s**

Regulation with temperature probe: this value indicates on which probe the system bases its adjustment when producing water; The possible values are:
— OUTPUT (U2): the probe used for adjusting the production of water is the one at the output of the plate heat exchanger;
— INPUT (U1): the probe used for adjusting the production of water is the one at the input of the plate heat exchanger;
— COMMON OUTPUT PROBE(U1): the probe used to regulate water production is the one located at the common outlet if there are two plate exchangers;
— STORAGE TANK (U1): evaporator inlet probe remotely mounted on storage tank. In this way, when the thermostat does not require the compressor to be switched on, the pump is switched off.

NOTICE

ℹ **If selecting input based adjustment, in order to set a correct work setpoint, keep in mind the addition or the subtraction (based on if hot or cold operation) of the water production differential to or from the work setpoint.**

Type of reg.: this value indicates which logic is used for managing the adjustment; The possible values are:
— PROP+INT: applies proportional control + integral;
— PROP: applies only proportional control;

Integ. time (Ki): this value indicates the integral time to add to the proportional control (if the regulation type proportional + integral was selected);

25.7 SETS THE LOGIC FOR THE SETPOINT AND DIFFERENTIAL IN COOLING MODE

This mask is used to select the logic to apply to the working setpoint, and the value to assign to the differential for cooling operation:

Installer

Cooling regulation
COMPENS.TEMP.

Differential:	**8.0°C**

The type of setpoint indicates which logic is used for managing the working setpoint; the possible states are:
— **FIXED SETPOINT**: the system uses the values set by the user in the windows of the set menu as the work setpoint (main and secondary setpoints);

— **CLIMATIC CURVE**: the working setpoint is calculated automatically based on the data entered in the climatic curve;
— **Differential**: this value indicates the differential applied between the water input and output; this value depends on the flow rate value at which the system operates;

25.8 SETS THE LOGIC FOR THE SETPOINT AND DIFFERENTIAL IN HEATING MODE

This mask is used to select the logic to apply to the working setpoint, and the value to assign to the differential for heating operation:

Installer	
Heating regulation COMPENS.TEMP.	
Differential:	8.0°C

The type of setpoint indicates which logic is used for managing the working setpoint; the possible states are:
— **FIXED SETPOINT**: the system uses the values set by the user in the windows of the set menu as the work setpoint (main and secondary setpoints);
— **CLIMATIC CURVE**: the working setpoint is calculated automatically based on the data entered in the climatic curve;
— **Differential**: this value indicates the differential applied between the water input and output; this value depends on the flow rate value at which the system operates;

25.9 CLIMATIC CURVE CONFIGURATION IN COOLING MODE

This window is used to set the temperatures (minimum and maximum) and the maximum differential that will be applied to the working setpoint in cooling mode based on the minimum outside air temperature;

25.10 CLIMATIC CURVE CONFIGURATION IN HEATING MODE

This window is used to set the temperatures (minimum and maximum) and the maximum differential that will be applied to the working setpoint in heating mode based on the minimum outside air temperature;

25.11 TOTAL RECOVERY CONFIGURATION

This window allows to set the temperatures (minimum and maximum and differential) for the recovery management, in addition to the pump management logic:

Installer	
Total recovery	
Differential:	5.0°C
Max outlet temp.:	53.0°C
Pump:	No

Differential: indicates the differential used in the adjustment to calculate the power necessary for recovery;
Max output temp: indicates the recovery water output temperature above which it is forced out from the recovery system, it can re-enter when the water output temperature returns below this threshold minus 3° C;
Pump management:
— No: recovery activates when the flow switch contact closes for water passage. The pump is not managed by the unit;
— Yes: The pump is managed by the unit. It turns off when the recovery inlet temperature setpoint is reached. It turns back on when the temperature of the water at the recovery input drops 3°C below the recovery setpoint. In addition to the flow switch, a possible pump thermal switch is also managed that causes the shutdown;

25.12 ANTI-FREEZE ALARM CONFIGURATION

This window is used to configure the system anti-freeze alarm:

Config.Alarms	
Antifreeze alarm	
plant	
Threshold:	3.0°C
Differential:	1.0°C
Force ON pumps:	YES

Threshold: this value indicates the temperature of the inlet or outlet water (based on the type of regulation selected), below which the anti-free alarm activates;

Differential: this value indicates the differential to apply to the anti-freeze activation threshold; when the water temperature (inlet or outlet) is higher than the threshold value plus the differential, the anti-freeze alarm is deactivated;

Pump ON power: by changing this value, it is possible to decide whether to automatically activate or deactivate the pumps during the anti-freeze alarm;

25.13 MANAGING THE PUMPS

This mask is used to manage the pumps inside and outside the unit:

Installer	
Number of Pumps:	0
Idle time:	
	168h
Delay switch-off:	
	5s

Number of pumps: this parameter indicates if there are pumps outside the unit;

Off time: this value indicates the off time for a pump, after which the pump is activated (if there are several pumps installed on the unit this prevents limescale build-up in the pump in the case of an extended stop);

Delay off: this value indicates the pump turn off delay after deactivating the compressors;

25.14 CONFIGURE ANTI-FREEZE MANAGEMENT VIA THE PUMP

This mask is used to configure the cyclical activation of the pump for the anti-freeze function:

Installer	
Cycles pump start	
Antifreeze Enable:	N
Cycle time	30min
Pulse time	2min
Min.Extern.Air Temp.	
	5.0°C

Enable pump cyclical start-up for anti-freeze: this value indicates whether to enable the pump start-up cycle for the anti-freeze function;

Cycle time: this value indicates the interval time between pump activation periods;

Forced duration: this value indicates the time the pumps will be made to operate for the anti-freeze function;

Outside temp threshold: this value indicates the temperature for the outside air below which the anti-freeze cycle activates (if enabled);

25.15 CONFIGURATION OF THE ANTI-FREEZE ALARM ON THE TOTAL RECOVERY

This mask allows to set the parameters for managing the anti-freeze alarm control on the total recovery:

Installer	
Antifreeze alarm	
Recovery	
Threshold:	3.0°C
Differential:	1.0°C

Threshold: the anti-freeze alarm is generated below the temperature of the recovery input or recovery output probes;

Differential: once the anti-freeze alarm has been triggered, it can be reset when the temperature of the probe that caused the alarm rises beyond the Threshold value + the value of this parameter;

25.16 CONFIGURE FANS AT LOW TEMPERATURES

This mask is used to configure the cyclical start-up of the fans to eliminate any accumulation of snow:

Fans	
Fan antifreezer/snow function enable	YES
Ext.Air temp.:	1.0°C
Pulse time Off:	120min
Pulse time On :	30s

Enable: this value indicates whether to enable the anti-freeze function on the fans,
Outside Temp: this value indicates the temperature for the outside air below which the anti-freeze cycle activates on the fans (if enabled);
Off period: this value indicates the interval time between fan activation periods during the anti-freeze function;
On period: this value indicates the time for which the fans will be made to operate for the anti-freeze function

25.17 SETS PUMP START-UP FOR ANTI-FREEZE

This mask is used to set pump start-up if the electric heater turns on:

Installer	
Antifreeze Heater	
Force ON pumps:	
	YES

Pump ON power: this value indicates whether or not to activate the system pumps during operation of the anti-freeze electric heater;

25.18 MULTI-FUNCTION INPUT CONFIGURATION (U10)

This mask is used to set the function associated with multi-function input U10:

Installer	
Multifunction Input	
Config. Input (U10):	
NOT PRESENT	
Type:	4-20mA
Min: 4.0mA	Max: 20.0mA

U10: this value indicates which function to assign to the multifunction input U10; the possible states are:
— NOT PRESENT: the multifunction input is disabled;
— POWER LIMITATION: input U10 is used to limit the unit power proportionally to the signal applied to input U10 (the configuration of the managed power range is available on the next window if this option is active);
— VARIABLE SETPOINT: input U10 is used to vary the unit work setpoint proportionally to the signal applied to input U10 (the configuration of the range for setpoint variation is available on the next window if this option is active);

Type: this value indicates the type of signal applied to the multifunction input; the possible states are:
— 0-10V: input signal 0-10V;
— NTC: input signal NTC;
— 4-20mA: input signal 4-20mA

NOTICE

ⓘ **If option (1) or (2) is selected as "Type", it will be possible to set the minimum and maximum signal value;**

ⓘ **To use this function, close the contact on input ID18;**

25.19 CONFIGURATION OF POWER LIMITATION FOR INPUT (U10)

This mask is used to set the "POWER LIMITATION" function for input U10:

Installer	
Multifunction Input	
Power limit	
Minimun Limit :	0%
Maximum Limit :	100%

Minimum limit: this value indicates the minimum power level that can be reached based on the input signal;

Maximum limit: this value indicates the maximum power level that can be reached based on the input signal;

25.20 CONFIGURATION OF VARIABLE SETPOINT FOR INPUT (U10)

This mask is used to set the "VARIABLE SETPOINT" function for input U10:

Installer		
Variable SetPoint		
Mode :		
	COOLING	**HEATING**
Min:	7.0°C	45.0°C
Max:	11.0°C	50.0°C

On this mask it will be possible to set the minimum and maximum setpoint limits (cooling and heating) based on the U10 input signal;

25.21 CONFIGURATION OF THE NTC SIGNAL FOR INPUT (U10)

This mask is used to set the "NTC" function (for the type) on input U10:

Installer	
Multifunction Input	
Config. NTC	
Minimum temp.:	15.0°C
Maximum temp.:	25.0°C

Minimum temp.: this value indicates the minimum temperature (NTC signal) to assign to the minimum value for the function set on the multifunction input (power limitation or variable setpoint);
Maximum temp: this value indicates the maximum temperature (NTC signal) to assign to the maximum value for the function set on the multifunction input (power limitation or variable setpoint);

25.22 CONFIGURE NIGHT MODE CONTROL

This mask is used to set the night mode function to lower the noise level of the fans:

Fans	
Condensation mode	
overnight	**NO**
On:	21:00
Off:	8:00
Cooling VMax:	6.0V
FreeCool. VMax:	6.0V

Night-time silenced control: this value indicates if the night mode function should be activated; this function enables silenced operation during the time band specified in the following parameters;
Control on: if night-time silenced operation is active, this parameter indicates the time after which this operation will be activated;
Control off: if night-time silenced operation is active, this parameter indicates the time after which this operation will be deactivated;
Cooling VMax: if night-time silenced operation is active, this parameter indicates the maximum Volt applied to the cold condensation control;
FC VMax: Maximum volts in free cooling operation with night mode control;

25.23 CONFIGURATION OF THE SUPPLEMENTARY ELECTRIC HEATERS

This mask is used to set the operation of the supplementary heaters in case of low outside temperatures:

Installer	
Suppl.electric heaters	
Number:	0
Power:	
	10%

Number of supplementary heaters: this value indicates the number of installed electric heaters (minimum zero, maximum three);
Heater power: this value specifies the percentage power of the individual heater with respect to the unit's total power;

25.24 SETS THE BOILER AS A REPLACEMENT

This mask is used to set the replacement boiler:

```
Installer

Boiler in replacement.
Ÿ
Enable:                              NO
```

Boiler enabled as replacement: this parameter indicates whether to activate the boiler if the outside temperature drops down below the "replacement" value specified in the following window, or if the heat pump has a "total alarm";

> **NOTICE**
>
> ℹ **To manage the boiler on NRK models, it is necessary to provide the accessory VMF-CRP**

25.25 CONFIGURATION OF HEATER INTEGRATION OR REPLACEMENT

This mask is used to set the outside air temperature limits for heater replacement and integration:

```
Installer

Integration air temp.:
                                   5.0°C

Replacement air temp.:
                                  -5.0°C
```

Integration air temp.: this value indicates the outside temperature above which the heat pump functions without the aid of the electric heaters, whereas if the outside temperature is lower than this value, but still higher than the replacement temperature, the heat pump functions TOGETHER with the heaters;
Replacement air temp. aria: this value indicates the outside temperature below which the heat pump stops and the electric heaters or, if enabled, the boiler, are used for heating;

25.26 COMPRESSOR HOUR COUNTER MONITOR

This window displays the data relative to the operating hours of the compressors on the unit:

```
Hour meter

Circuit 1

Compressor 1:                      0002h
Compressor 2:                      0002h
Compressor 3:                      0002h
```

```
Hour meter

Circuit 2

Compressor 1:                      0002h
Compressor 2:                      0002h
Compressor 3:                      0002h
```

25.27 COMPRESSOR START-UP MONITOR

This window displays the data relative to the compressor start-ups on the unit:

```
Hour meter

Circuit 1
Number of starts

Compressor 1:                      0003
Compressor 2:                      0002
Compressor 3:                      0002
```

```
Hour meter

Circuit 2
Number of starts

Compressor 1:                      0003
Compressor 2:                      0002
Compressor 3:                      0002
```

25.28 CONFIGURATION OF THE FAN SPEED

This window is used to configure the inverter fan signals:

Fans	
Fans	
Start time:	**1s**
Minimum V:	**1.0**
Max V cooling:	**10.0**
Max V heating:	**10.0**

Duration of the initial start: this value indicates the duration of the start at 4V when the fans are started;
Min volt: this value indicates the voltage at minimum speed before shutdown;
Max volt cold: this value indicates the voltage at maximum speed during cooling mode;
Max volt hot: this value indicates the voltage at maximum speed during heating mode;

25.29 CONFIGURE MASTER SLAVE

This window is used to configure the parameters for unit Master/Slave management:

Installer	
Master/Slave	
Unit:	**ALONE**
Step:	**1.0%**
Slave Pump off with	
Compressor off:	**NO**

(**Unit**: this value indicates the type of setting for the unit; this type can be:
— SINGLE: unit without Master/Slave connection;
— MASTER: identifies the master unit;
— SLAVE: identifies the slave unit;
Power step: the required power calculated by the thermostat is divided between the master and slave units based on this parameter; (E.G.: 1% = the units work in parallel; 100%= the units work in sequential mode (first all the power of one is used and then all the power of the other is used);
Slave pump Off with CP Off: this value indicates management of the pump on the slave unit; this management can be:
— YES: the slave pump turns off if there is no request on the slave;

—NO: the slave pump turns on and shuts down together with the master;

25.30 CONFIGURATION OF THE FAN SPEED IN FREE COOLING

This window is used to configure the inverter fan signals during the free cooling operation:

Fans	
Freecooling	
Delta T:	**15.0°C**
Max V Freecooilng:	**10.0V**

Delta T: value generated at the maximum fan speed at a design external air temperature;
Max volts Freecooling: maximum fan voltage during the free cooling operation.Used in silenced units to reduce noise;

NOTICE
ℹ **This mask is available on free cooling units.**

25.31 FREE COOLING CONFIGURATION (YIELD CONTROL)

This window allows to set the parameters related to the free cooling yield control management;this check constantly verifies that the free cooling coil generates a delta T; Used as a safety check on the operation of the 3-way valve. The control is active only with ventilation at maximum air flow:

Installer	
Freecooling **Control of gain**	
Delta T:	**1.5°C**
Time:	**180s**

Delta T: delta T generated at the maximum fan speed;
Control time: yield control bypass time given by the input in free cooling;

NOTICE
ℹ **This mask is available on free cooling units.**

25.32 VPF MANAGEMENT (GENERAL PARAMETERS)

This window is used to set the general parameters for the VPF (Variable Primary Flow):

Variable primary flow	
Enable:	**NO**
Differential pressure.	
Setpoint:	**150mbar**
Diff.:	**100mbar**
Integral:	**180s**

Enable: this value indicates whether to activate or deactivate this mode; the possible states are:
— No: VPF management disabled;
— Yes: VPF management enabled;

Setpoint: indicates the pressure value that the regulation tries to maintain at the ends of the evaporator, by opening and closing the bypass valve;
Diff.: differential used when regulating the bypass valve;
Integral: integral time used when regulating the bypass valve;

25.33 VPF MANAGEMENT (BYPASS 1 PARAMETERS)

This window is used to set the bypass parameters for the VPF (Variable Primary Flow):

Variable primary flow	
Bypass min:	**4.0V**
Bypass max:	**8.0V**
Transd. 4mA:	**0mbar**
Transd. 20mA:	**1000mbar**

Bypass min: this value indicates the minimum Volts corresponding to the minimum water bypass. All the water passes through the system;
Bypass max: this value indicates the maximum Volts corresponding to the maximum water bypass. All the water recirculates through the bypass;
Transd. 4mA: this value indicates the mbar at 4mA read by the differential transducer;
Transd. 20mA: this value indicates the mbar at 20mA read by the differential transducer;

25.34 VPF MANAGEMENT (BYPASS 2 PARAMETERS)

This window is used to set the bypass parameters for the VPF (Variable Primary Flow):

Variable primary flow	
Pressure:	**647mbar**
Valve by-pass.	
Proportional:	**100.0%**
Integral:	**0.0%**
Opening:	**0.0V**
By-pass test:	**0.0V**

Pressure: indicates the current value measured by the differential transducer;
Proportional: indicates the proportional component when calculating the bypass opening;
Integral: indicates the integral component when calculating the bypass opening;
Opening: indicates the current valve opening command;
Bypass valve test: this value indicates the forced command to use as a test (set the value 0.0V to deactivate forcing).

25.35 UNIT INFORMATION MONITOR

This window contains information concerning the unit code, the software version and the machine test date:

Information	
Aermec S.p.A.	
Code:	
NRB3600°H°°°°°°00	
Ver.:	**2.6.003 03/03/20**
Testing date:	**11:22 03/04/20**

25.36 EVD VALVE INFORMATION MONITOR

```
Information

EVD n°1

Firmw. version.:                              ---


```

This mask displays information concerning the EVD valve connected in Modbus (if present).

25.37 SETS THE INTERFACE LANGUAGE

This window is used to select the display language. Press "ENTER" to cycle the available languages:

```
Installer

 Language:   ENGLISH


            Push ENTER for change


```

25.38 CONFIGURATION OF THE UNITS OF MEASURE

This window is used to set the units of measure to use in the system:

```
Options

Type of measurem.unit
STANDARD [°C/bar]

Supervisor BMS
STANDARD [°C/bar]


```

Type of units of measure: indicates the units of measure shown on the display; the possible states are:
— STANDARD [°C/bar]
— ANGLO-SAXON [°F/psi]

BMS supervisor: indicates the units of measure read by the supervisor; the possible states are:
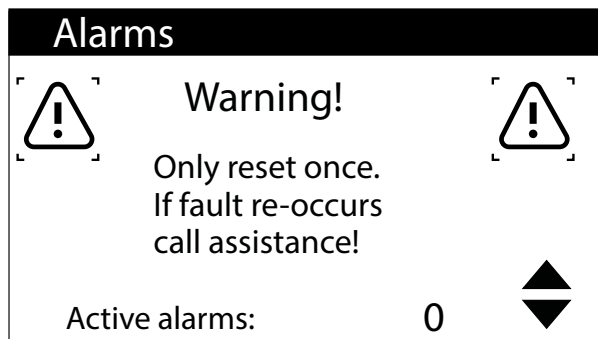
— STANDARD [°C/bar]
— ANGLO-SAXON [°F/psi]

25.39 CONFIGURES THE INSTALLER MENU PASSWORD

This window is used to change the "Installer" menu access parameter:

```
Password




New password
Installer:                                0000

```

26   ALARM

26.1   CONTROL OF ALARMS

```
┌─────────────────────────────────┐
│ Alarms                          │
│  ┌─┐                      ┌─┐    │
│  │!│    Warning!          │!│    │
│  └─┘                      └─┘    │
│        Only reset once.         │
│        If fault re-occurs       │
│        call assistance!    ▲    │
│                            ▼    │
│   Active alarms:        0       │
└─────────────────────────────────┘
```
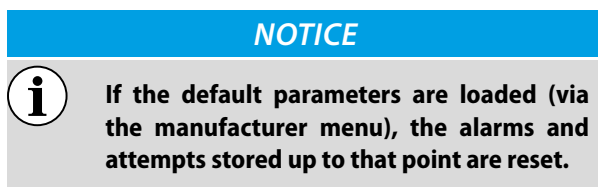
This mask displays the alarm management logic.

Alarms with password-protected reset are:
— Anti-freeze alarm
— High pressure alarm
— Low pressure alarm
— Flow switch alarm
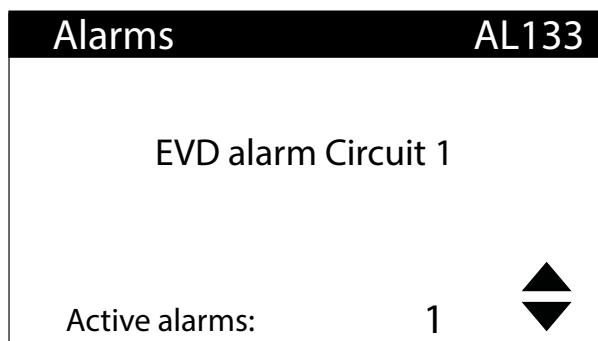— High Discharge Temperature alarm

All other alarms are automatic reset.

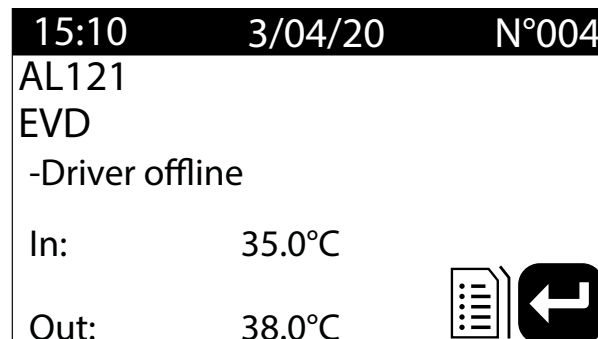Password reset can be disabled from the menu under password.
The alarm status and number of interventions remain in memory even after power failure.

NOTICE
i   If the default parameters are loaded (via the manufacturer menu), the alarms and attempts stored up to that point are reset.

26.2   ALARM HISTORY

```
┌─────────────────────────────────┐
│ Alarms                   AL133  │
│                                 │
│       EVD alarm Circuit 1       │
│                                 │
│                            ▲    │
│                            ▼    │
│   Active alarms:        1       │
└─────────────────────────────────┘
```
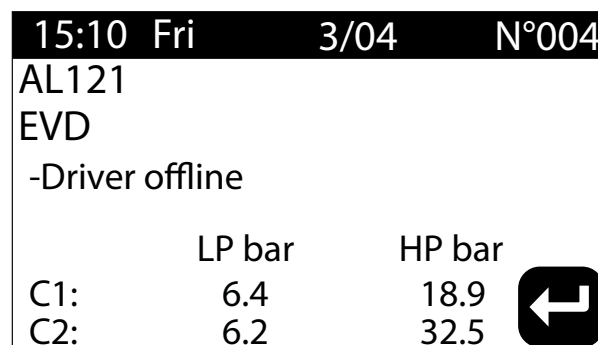
By pressing [⌨] the list of active alarms is displayed.
Each alarm is uniquely identified by a 4-digit alarm code, this code can be found on the previous pages.
The last line shows how many alarms are active at that moment.

```
┌─────────────────────────────────┐
│ 15:10      3/04/20      N°004   │
│ AL121                           │
│ EVD                             │
│  -Driver offline                │
│                                 │
│ In:          35.0°C             │
│                          ▤  ↵   │
│ Out:         38.0°C             │
└─────────────────────────────────┘
```

At any time it is possible to view the history of the last 100 alarms that have occurred in the system.

This mask displays:
— Date and time of intervention (alarm start)
— Alarm number and brief description
— Input/output temperature
— Compressor status in the two circuits

```
┌─────────────────────────────────┐
│ 15:10  Fri      3/04    N°004   │
│ AL121                           │
│ EVD                             │
│  -Driver offline                │
│          LP bar      HP bar     │
│ C1:       6.4         18.9  ↵   │
│ C2:       6.2         32.5      │
└─────────────────────────────────┘
```

This mask displays:
— Date and time of triggering
— Nature of alarm triggered
— High pressure in both circuits
— Low pressure in both circuits

When the last position in the alarm history is reached, the software will overwrite the first one with the last one that occurred.

NOTICE
i   It is not possible for a normal user to reset the alarm history.

26.3   LIST OF ALARMS

Code	Description	Reset	Note
AL01	Clock battery faulty or not connected	Automatic	---
AL02	Expansion memory damaged	Automatic	---
AL03	Phase monitor	Semi-Automatic	---
AL04	Display alarm reset	---	---
AL05	High pressure sensor circuit 1 faulty or not connected	Manual	Analog input U5
AL06	High pressure sensor circuit 2 faulty or not connected	Manual	Analogue input U8
AL07	Low pressure sensor circuit 1 faulty or not connected	Manual	Analogue input U6
AL08	Low pressure sensor circuit 2 faulty or not connected	Manual	Analog input U9
AL09	Inlet water temp sensor evap.1 faulty or not connected	Manual	Analog input U1
AL10	Outlet water temp sensor evap.1 faulty or not connected	Manual	Analog input U2
AL11	Outlet water temp sensor evap.com. faulty or not connected	Manual	---
AL12	Inlet water temp sensor recovery faulty or not connected	Manual	---
AL13	Outlet water temp sensor recovery1 faulty or not connected	Manual	---
AL14	Outlet water temp sensor recovery2 faulty or not connected	Manual	---
AL15	Outlet water temp sensor recovery common faulty or not connected	Manual	---
AL16	External temperature sensor faulty or not connected	Manual	---
AL17	Circuit 1 Liquid temperature probe broken or not connected	Manual	---
AL18	Liquid temperature sensor circuit 2 faulty or not connected	Manual	---
AL19	Circuit 1 compressor 1 maintenance request	Manual	---
AL23	Circuit breaker compressor 1 circuit 1	Manual	---
AL24	Thermal alarm system pump 1	Manual	---
AL25	Thermal alarm system pump 2	Manual	---
AL26	Thermal alarm heat recovery pump 1	Manual	---
AL28	Fans circuit breaker circuit 1	Manual	---
AL29	Fans circuit breaker circuit 2	Manual	---
AL31	Low pressure sensor circuit 1	Manual	---
AL32	High pressure from Circuit 1 pressure switch or EVD electronic valve alarm	Manual	---
AL33	High pressure sensor circuit 1	Manual	---
AL34	Circuit 1 low pressure sensor (serious)	Manual	---
AL35	Circuit 2 low pressure sensor (serious)	Manual	---
AL38	Loss of evaporator water flow	Manual	---
AL39	Loss of heat recovery water flow	Manual	---
AL40	Anti-freeze alarm system inlet/outlet temperature	Manual	---
AL41	Anti-freeze alarm system common outlet temperature	Manual	---
AL42	Anti-freeze alarm heat recovery 1 inlet/outlet temperature	Manual	---
AL43	Anti-freeze alarm heat recovery 2 outlet temperature	Manual	---
AL45	Expansion IO (uPC) Off-line	Semi-Automatic	---
AL46	Expansion IO (pCOe) Off-line	Semi-Automatic	---
AL48	Discharge gas temperature sensor circuit 1 faulty or not connected	Manual	---
AL49	Discharge gas temperature sensor circuit 2 faulty or not connected	Manual	---
AL50	Board re-start from lost power	Manual	It is not an alarm
AL51	Circuit 1 compressors 2 maintenance request	Manual	---
AL52	Circuit 1 compressors 3 maintenance request	Manual	---
AL53	Circuit 2 compressors 1 maintenance request	Manual	---
AL54	Circuit 2 compressors 2 maintenance request	Manual	---
AL55	Circuit 2 compressors 3 maintenance request	Manual	---
AL59	Circuit breaker compressor 2 circuit 1	Manual	---
AL60	Circuit breaker compressor 3 circuit 1	Manual	---
AL61	Circuit breaker compressor 1 circuit 2	Manual	---
AL62	Circuit breaker compressor 2 circuit 2	Manual	---
AL63	Circuit breaker compressor 3 circuit 2	Manual	---
AL65	Low pressure sensor circuit 2	Manual	---
AL66	High pressure pressostat circuit 2	Manual	---

Code	Description	Reset	Note
AL67	High pressure sensor circuit 2	Manual	---
AL75	High discharge gas temperature circuit 1	Manual	---
AL76	High discharge gas temperature circuit 2	Manual	---
AL85	High system inlet temperature alarm	Manual	---
AL86	SAC alarm storage tank probe broken or disconnected	Manual	---
AL87	Master Offline	Manual	---
AL88	Slave Offline	Manual	---
AL89	Incorrect Master/Slave software version (the two cards don't have the same software version)	Manual	---
AL90	Free cooling ouput alarm	Manual	---
AL91	Slave alarm summary	Manual	---
AL92	Glycol Free Flow switch	Manual	---
AL93	Glycol Free pump thermal	Manual	---
AL94	pCOE expansion offline (address=3) Unit DK	Manual	---
AL95	Common evaporator output probe broken or not connected (DK)	Manual	---
AL96	Evaporator 2 output probe broken or not connected	Manual	---
AL97	Free-cooling inlet probe faulty or not connected	Manual	---
AL98	Free cooling output probe broken or not connected	Manual	---
AL99	Heat exchanger input probe damaged or not connected	Manual	---
AL100	Offline pCOE expansion (address=4) condenser unit	Manual	---
AL101	Offline pCOE expansion (address=5) NYB Freecooling	Manual	---
AL102	Water input outside operating limits	Manual	---
AL103	DeltaP alarm Circuit 1	Manual	---
AL104	DeltaP alarm Circuit 2	Manual	---
AL105	EVD Error Valve Motor A	Manual	---
AL106	Evap. low temperature EVD (LOP) A	Manual	---
AL107	EVD High evap. (MOP) A	Manual	---
AL108	Overheat. low EVD (LowSH) A	Manual	---
AL109	EVD Low intake temp. A	Manual	---
AL110	EVD High evap. condens. A	Manual	---
AL111	EVD Error Valve Motor B	Manual	---
AL112	Evap. low temperature EVD (LOP) B	Manual	---
AL113	EVD High evap. (MOP) B	Manual	---
AL114	Overheat. low EVD (LowSH) B	Manual	---
AL115	EVD Low intake temp. B	Manual	---
AL116	EVD alarm probe S1	Manual	---
AL117	EVD alarm probe S2	Manual	---
AL118	EVD alarm probe S3	Manual	---
AL119	EVD alarm probe S4	Manual	---
AL120	EVD EEPROM alarm	Manual	---
AL121	EVD Driver offline	Manual	---
AL122	EVD Battery discharged	Manual	---
AL123	EVD Parameter transmission error	Manual	---
AL124	EVD Firmware not compatible	Manual	---
AL125	Battery 2 battery liquid temperature probe broken or not connected	Manual	---
AL126	Expansion IO (pCOe) OffLine (address=6)	Manual	---
AL127	Circuit 1 intake temperature probe broken or not connected	Manual	---
AL128	Circuit 2 intake temperature probe broken or not connected	Manual	---
AL129	Expansion IO (pCOe) OffLine (address=7)	Manual	---
AL130	Differential transducer broken or not connected	Manual	---
AL131	High overheating of Circuit 1 (Circuit discharged)	Manual	---
AL132	High overheating of Circuit 2 (Circuit discharged)	Manual	---
AL133	EVD alarms summary Circuit 1	Manual	---
AL134	EVD alarms summary Circuit 2	Manual	---
AL137	Valve alarm Driver circuit 1	Manual	---
AL138	Valve alarm Driver circuit 2	Manual	---

There are three types of alarm resets:

— **Auto**: automatic, when the event causing the alarm stops, also the alarm disappears.
— **Manual**: manual, to restart normal operation manual acknowledgement is necessary.
— **Semi-auto**: semi-automatic, the alarm is automatic but if it is present more than "n" times, it then becomes manual. The interventions are decreased by one unit every hour. Furthermore, there is a "timeout", after which the alarm becomes manual, even if the maximum number of interventions is reached.
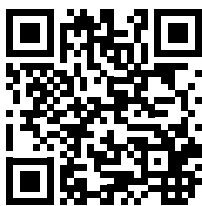
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