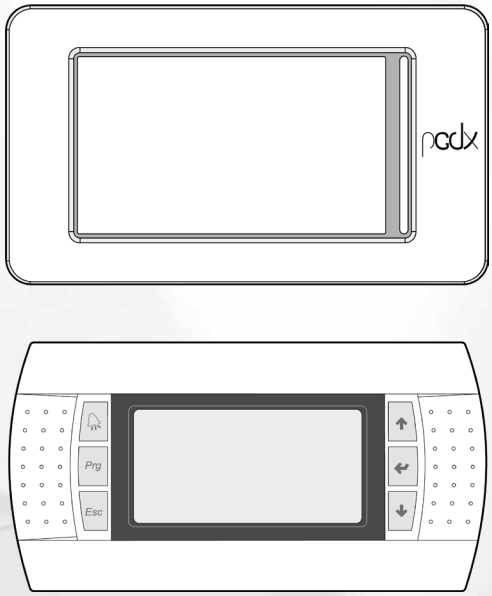
EN

25/02 - 4472017_04
Translation of Original instructions

NRG 0800-3600

User manual



CARD PCO5 - TOUCH PANEL PGDX - PANEL PGD1

AERMEC

www.aermec.com

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.

CERTIFICATIONS

COMPANY CERTIFICATIONS

SAFETY CERTIFICATIONS

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.

In accordance with Italian Legislative Decree 116 / 2020, the machine's packaging is marked; for unmarked packaging parts, the composition is as follows: **Expanded polystyrene - PS 6**

TABLE OF CONTENTS

1 USER INTERFACE (PGDX)

With the pGDx 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
	Clock 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)

1.1 INTERACTING WITH THE GRAPHIC INTERFACE

The unit command and control interface uses a touchscreen 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 of the pGDx device are described below.

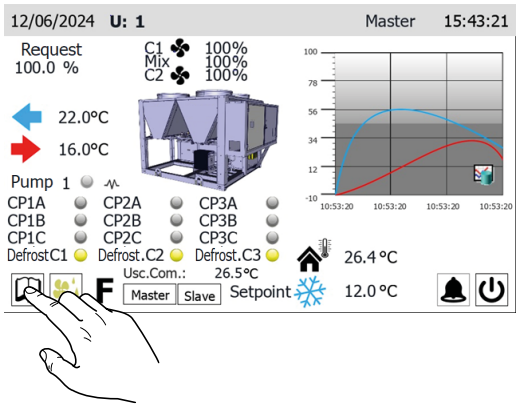
NOTICE

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;

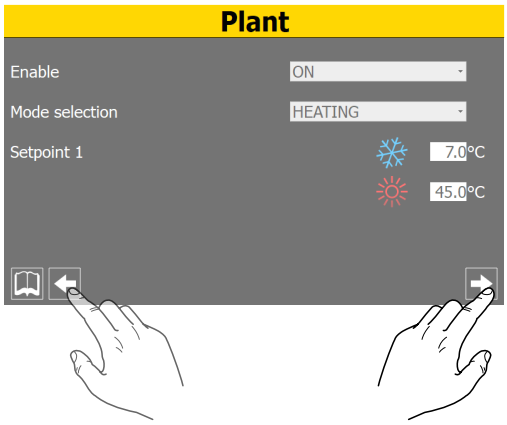
1.2 NAVIGATING BETWEEN THE PROGRAM PAGES

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:

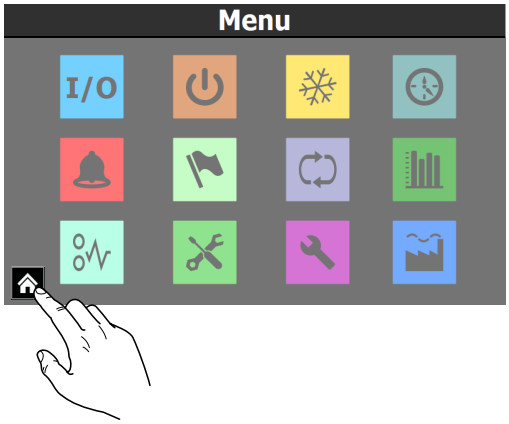
— **Access a menu**: to access a menu you must activate the menu selection page by pressing the "open book" icon (🕮) found on every page of the program. Now, just press the icon that represents the specific menu you want to access (for more information about which menus are activated by the various icons,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



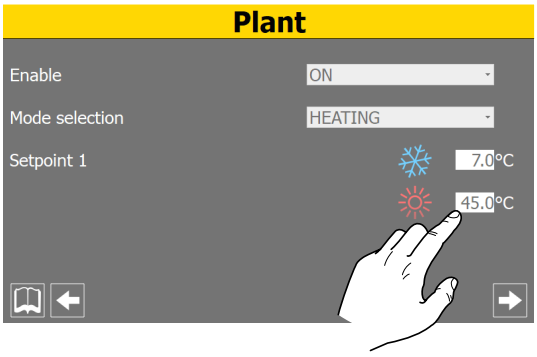
— **Return to the "Home" page**: to go back to the main (home) page, press the relative icon (🏠); Not all the program pages contain this icon, but you can find it on the menu selection page so just go to that page (as explained in the first point of this list) and from there you can reach "Home".



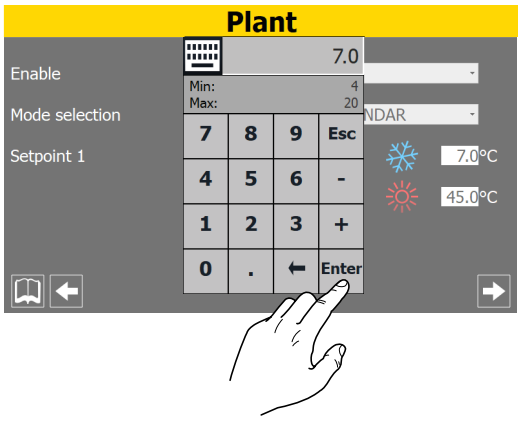
1.3 SETTING A NUMERICAL VALUE FOR A PARAMETER

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.



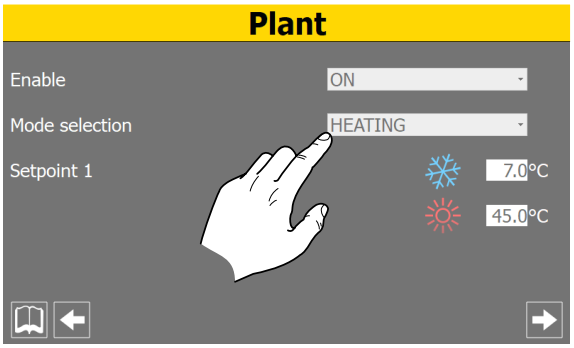
NOTICE

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.

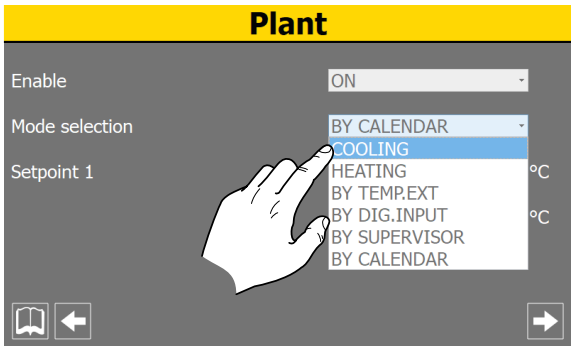
1.4 SETTING A VALUE, SELECTING IT FROM A LIST

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;

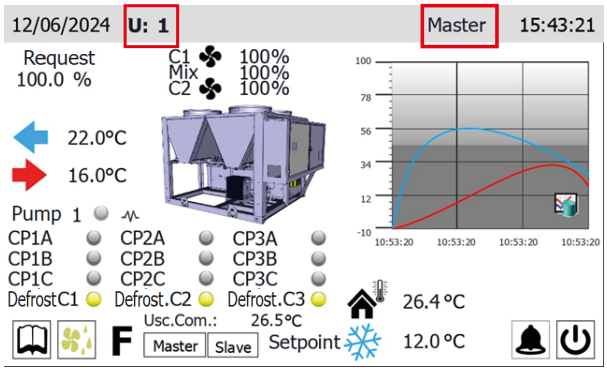


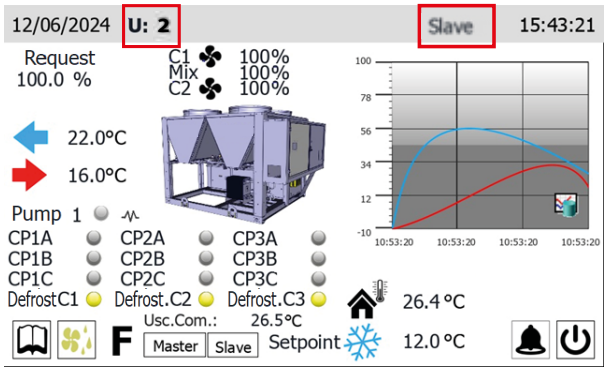
2. A small window will now appear, with a list of options;
3. Select one of the options by pressing on it. Your choice will be highlighted by a change of colour;



2 MAIN MASKS FOR NRG 2600-3600 (RANGE EXTENSION)

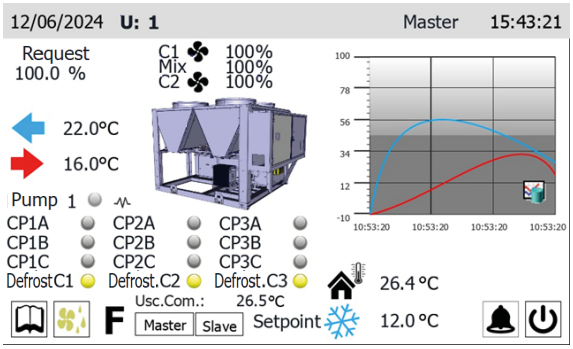
In the case of the NRG 2600-3600 triple-circuit chiller, in all panel masks pGDx U1/U2 will be displayed.
This will refer to the pCO board with which the panel is connected, and therefore the various information displayed will refer to the same board displayed at that time (except for some data exchanged between the two boards, e.g. Common Water Inlet and Common Water Outlet).
These acronyms are to be considered as:
— **U1**: pCO with pLAN Address 1 which will be allocated to the first 2 circuits.
— **U2**: pCO with pLAN address 2 which will be allocated to circuit 3.





3 MAIN PAGE (HOME)

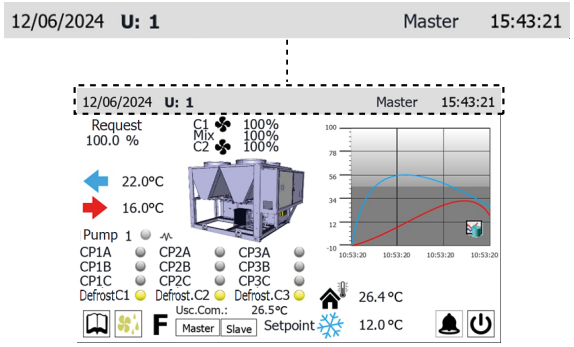
The standard display during normal operation is the "Home" page. Depending on the type of unit configured, from this window you can keep the main operating parameters under control or access direct connections to certain operating menus. We will analyse and explain below all the elements that can be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

3.1 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

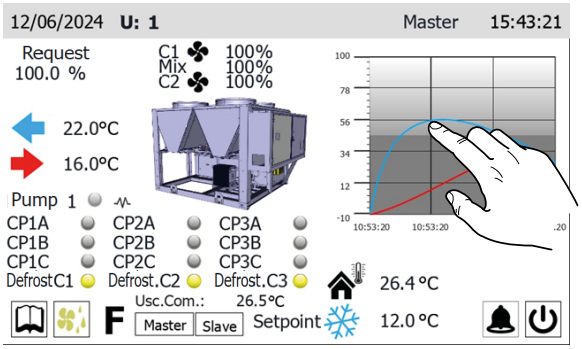
NOTICE

The units have two different timers - one integrated in the pGDx 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.

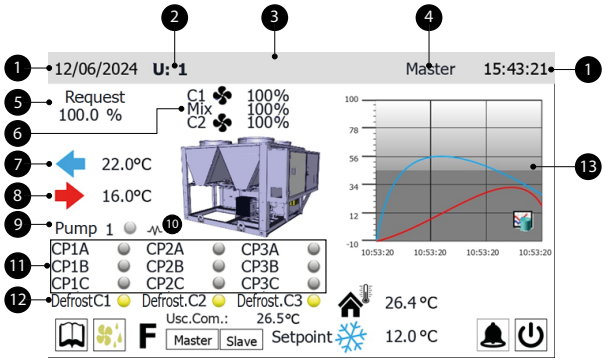
3.2 WATER INLET/OUTLET TEMPERATURE CHART

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.



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".

3.3 UNIT OPERATING STATUS INFORMATION (REAL TIME DATA)



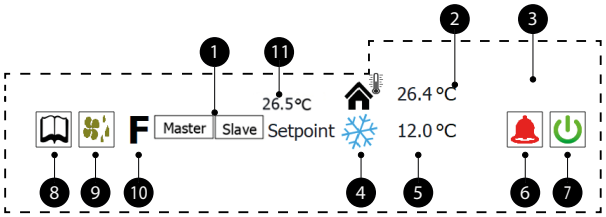
1. Date and time
2. Unit 1-2: visible only with range extension to indicate which pCO board the panel is currently communicating with.
3. Unit configurator
4. Master/Slave: If the unit is single, the text is not present. If the unit is Master or Slave, the corresponding text will be present.

5. Percentage figure showing the power request from the system
6. Percentage figure showing the speed of the fans on circuit 1, circuit 2 (only visible if the unit has 2 circuits) and "MIX"
7. Indicates the temperature of the water processed by the unit (real time figure)
8. Indicates the temperature of the water entering the unit (real time figure)
9. This label appears if the unit pump is active (if the unit has a pump component)
10. Indicates that the anti-freeze resistance is active
11. Status of compressors: the dot of the respective compressor lights up
12. Defrost status if the circuit is in this state.
13. Real time graph of inlet and outlet temperature.

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.

3.4 DATA ENTERED IN THE LOWER BAR, AND NAVIGATION KEYS



1. Indicates whether the unit is MASTER or SLAVE (only visible for NRG 2600-3600 if the unit is installed and configured as part of a multi-system, properly set up for MASTER/SLAVE management):
— By pressing “Master”, the panel will communicate with board 1 (Master).
— By pressing “Slave” the panel will communicate with board 2 (Slave)
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;
— Manual mode = compressors or pumps are forced by mask
— 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);
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. This icon is displayed if there is an active alarm on the system - press it to view the alarm menu
7. Press this key to switch the unit ON or OFF directly
8. This button, when pressed, turns on the main 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)
11. Indicates common outlet value (only visible with NRG 2600-3600 units)

NOTICE

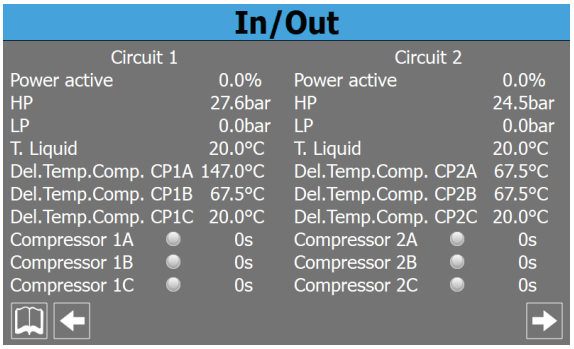
If the system uses a MASTER/SLAVE configuration, remember that up to two units can be managed with a "pLAN" serial connection (the address of the pGDx MASTER panel must be "3", and that of the SLAVE "4"). It is recommended that the two units - Master and Slave - are the same (same software version),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

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

4 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.

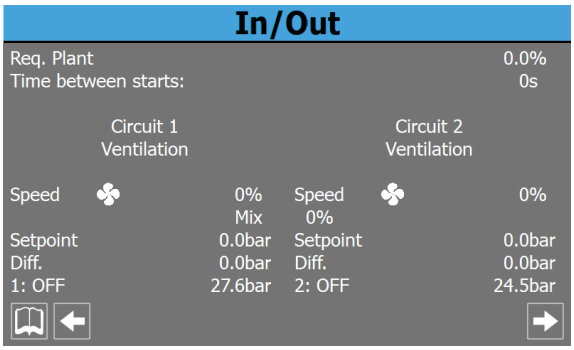
4.1 GENERAL INPUT/OUTPUT STATUS



This mask displays:

- 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).
- 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).

4.2 VENTILATION STATUS

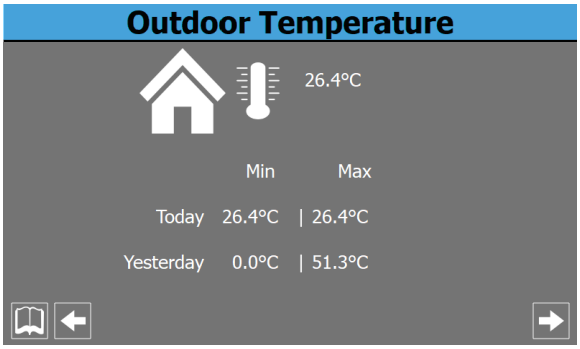


This mask displays:

- Percentage value showing the current power request from the system
- Time between starts: 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 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;

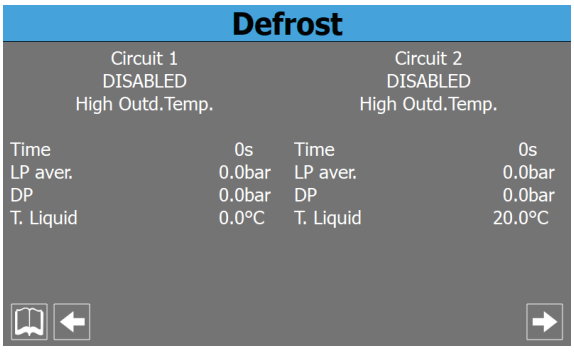
- Pre-ventilation = Indicates the pre-empted switch-on of the fans in relation to the compressors;
- High pressure = Indicates that the check on the basis of high pressure is currently active;
- Post-ventilation = Indicates the ventilation phase after compressor switch-off;
- Antifreeze = Indicates the 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;

4.3 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

4.4 DEFROSTING STATUS



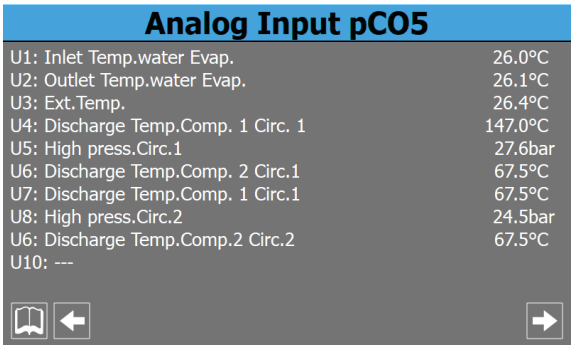
1. Indicates the current defrosting status on circuit 1 and circuit 2. The possible values are:
— Disabled = No defrosting active;
— Bypass = Indicates that the bypass phase is currently active, following compressor start-up;
— Decay calculation = Indicates that the pressure decay calculation is currently 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 and circuit 2. 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;
— Wait other circuit = indicates the phase in which the circuit, which finishes defrosting first, switches off while waiting for the other circuit to finish as well;
— 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 and circuit 2

4. Indicates the average low pressure value on circuit 1 and circuit 2
5. Indicates the accumulated delta P to determine defrost activation on circuit 1 and circuit 2
6. Indicates the liquid temperature value to determine the defrost output for circuit 1 and circuit 2

4.5 PCO5 ANALOGUE INPUT STATUS

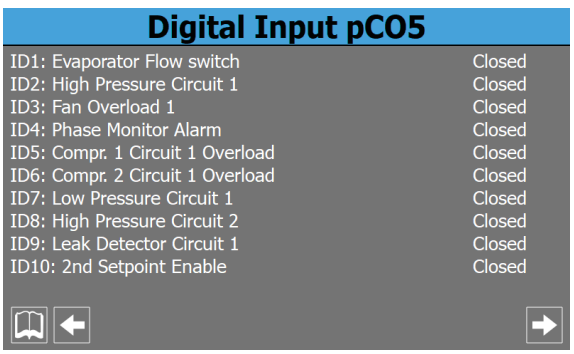


1. Indicates the current temperature value measured on the evaporator inlet
2. Indicates the current temperature value measured on the evaporator outlet
3. Indicates the current outside air temperature
4. Indicates the current temperature measured on the high-pressure side of compressor 1 circuit 1
5. Indicates the current high-pressure value of circuit 1
6. Indicates the current temperature measured on the high-pressure side of compressor 2 circuit 1
7. Indicates the current temperature measured on the high-pressure side of compressor 1 circuit 2
8. Indicates the current high-pressure value of circuit 2
9. Indicates the current temperature measured on the high-pressure side of compressor 2 circuit 2

NOTICE

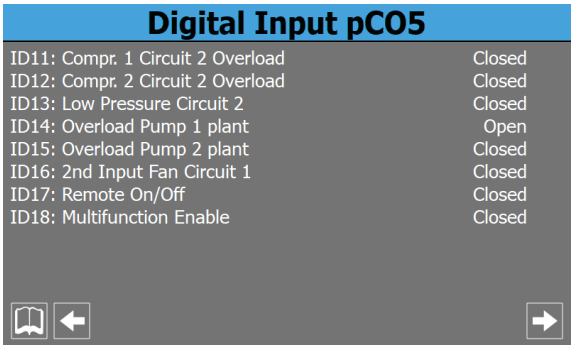
The above values may vary depending on the size of the unit.

4.6 PCO5 DIGITAL INPUT STATUS



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 low pressure switch for circuit 1
8. Indicates the status of the high-pressure switch for circuit 2
9. Indicates the status of the circuit 1 gas leak detector
10. Indicates the setting for the second set-point

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



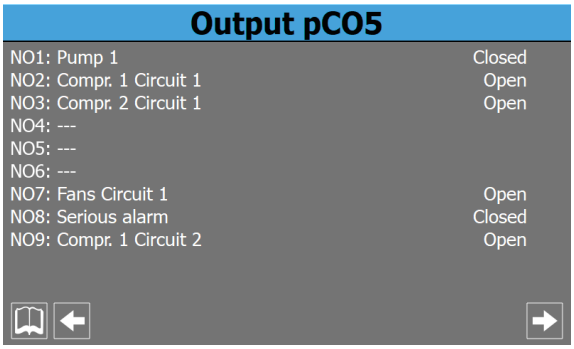
11. Indicates the status of the thermal protection on compressor 1 (circuit 2 if installed)
12. Indicates the status of the thermal protection on compressor 2 (circuit 2 if installed)
13. Indicates the status of the low pressure switch for circuit 2
14. Indicates the status of the thermal protection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

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

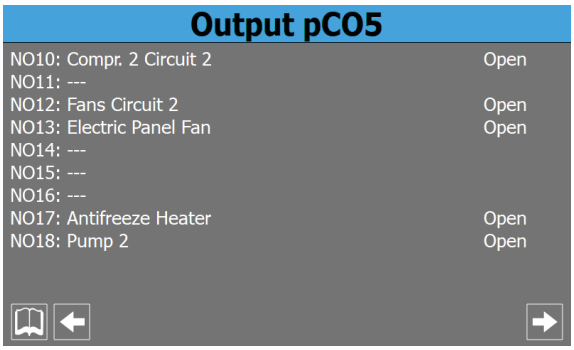
16. Indicates the status of the circuit 1 fan thermals series
17. Indicates the setting for the remote ON/OFF command
18. Indicates the setting for the multi-purpose input

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

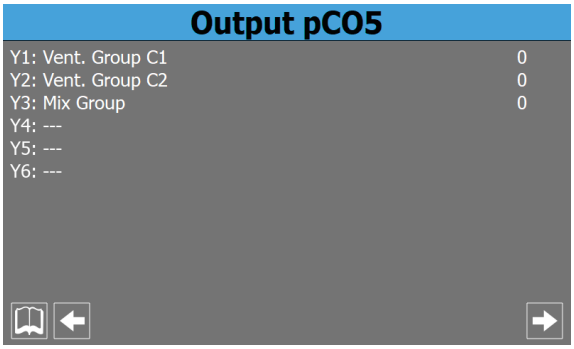
4.7 PCO5 DIGITAL OUTPUT STATUS



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. Various variables are available, therefore refer to the pCO5 I / O Tables.
5. Various variables are available, therefore refer to the pCO5 I / O Tables.
6. Various variables are available, therefore refer to the pCO5 I / O Tables.
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)



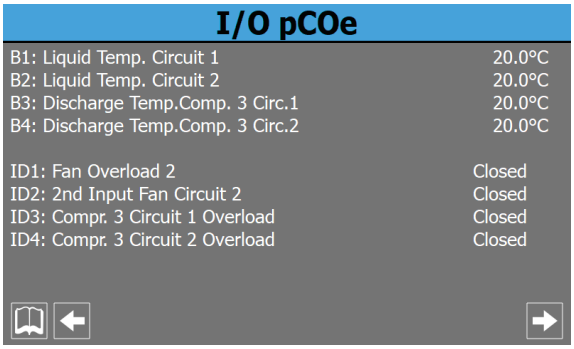
10. Indicates the status of compressor 2 (circuit 2)
11. Various variables are available, therefore refer to the pCO5 I / O Tables.
12. Indicates the status of the fans on circuit 2
13. Indicates the status of the ventilation inside the electrical panel
14. Various variables are available, therefore refer to the pCO5 I / O Tables.
15. Various variables are available, therefore refer to the pCO5 I / O Tables.
16. Various variables are available, therefore refer to the pCO5 I / O Tables.
17. Indicates the status of the antifreeze heater:
18. Indicates the status of pump 2



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

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

4.8 STATUS OF INPUTS/OUTPUTS FOR PCOE EXPANSION CARD



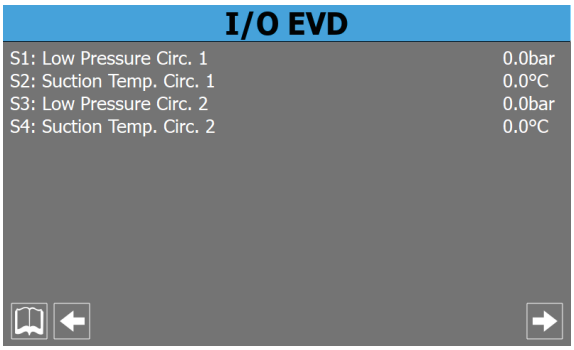
— B1: Indicates the current temperature measured by the liquid probe on circuit 1
— B2: Indicates the current temperature measured by the liquid probe on circuit 2
— B3: Indicates the current temperature measured on the high-pressure side of compressor 3 circuit 1
— B4: Indicates the current temperature measured on the high-pressure side of compressor 3 circuit 2
— ID1: Indicates the status of the thermal protection on evaporator pump 2
— ID2: Indicates the status of the circuit 2 fan thermals series
— ID3: Indicates the status of the thermal protection on compressor 3 (circuit 1)
— ID4: Indicates the status of the thermal protection on compressor 3 (circuit 2)

NOTICE

Depending on the configuration of the unit, the pCOe board can display more or fewer inputs/outputs. For all information on the inputs and outputs of the pCOe board,

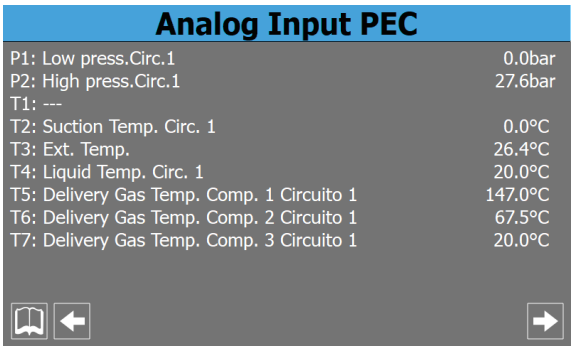
please refer to the respective tables in paragraph "23 Input and output *on page 51***".**

4.9 DIGITAL INPUT AND OUTPUT STATUS EVD

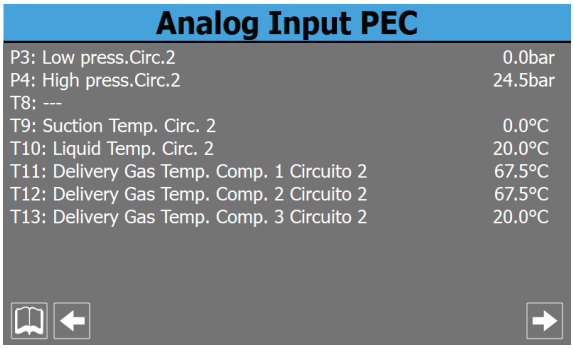


1. Indicates the current low-pressure value of circuit 1
2. Indicates the current suction temperature value on circuit 1
3. Indicates the current low-pressure value of circuit 2
4. Indicates the current suction temperature value on circuit 2

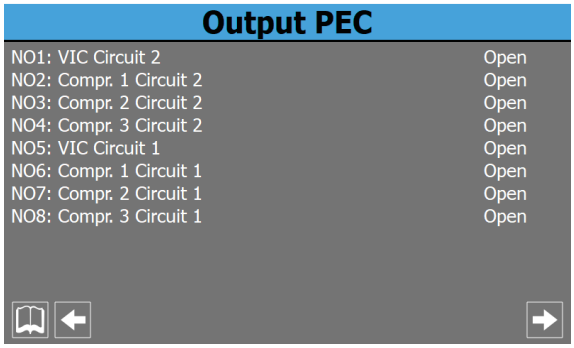
4.10 DIGITAL INPUT AND OUTPUT STATUS PEC



— P1: Indicates the current low-pressure value of circuit 1
— P2: Indicates the current high-pressure value of circuit 1
— T2: Indicates the current suction temperature value on circuit 1
— T3: Indicates the current outside air temperature
— T4: Indicates the current temperature measured by the liquid probe on circuit 1
— T5: Indicates the current temperature measured on the high-pressure side of compressor 1 circuit 1
— T6: Indicates the current temperature measured on the high-pressure side of compressor 2 circuit 1
— T7: Indicates the current temperature measured on the high-pressure side of compressor 3 circuit 1



— P3: Indicates the current low-pressure value of circuit 2
— P4: Indicates the current high-pressure value of circuit 2
— T9: Indicates the current suction temperature value on circuit 2
— T10: Indicates the current temperature measured by the liquid probe on circuit 2
— T11: Indicates the current temperature measured on the high-pressure side of compressor 1 circuit 2
— T1: Indicates the current temperature measured on the high-pressure side of compressor 2 circuit 2
— T11: Indicates the current temperature measured on the high-pressure side of compressor 3 circuit 2



1. Indicates the status of the reverse cycle valve (circuit 2)
2. Indicates the status of compressor 1 (circuit 2)
3. Indicates the status of compressor 2 (circuit 2)
4. Indicates the status of compressor 3 (circuit 2)
5. Indicates the status of the reverse cycle valve (circuit 1)
6. Indicates the status of compressor 1 (circuit 1)
7. Indicates the status of compressor 2 (circuit 1)
8. Indicates the status of compressor 3 (circuit 1)

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

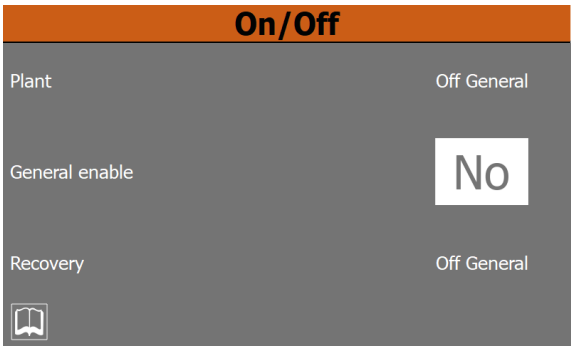
5 INPUT AND OUTPUT

For complete lists of inputs and outputs, please refer to paragraph "22 Input/output menu *on page 49*".

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:
- 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);

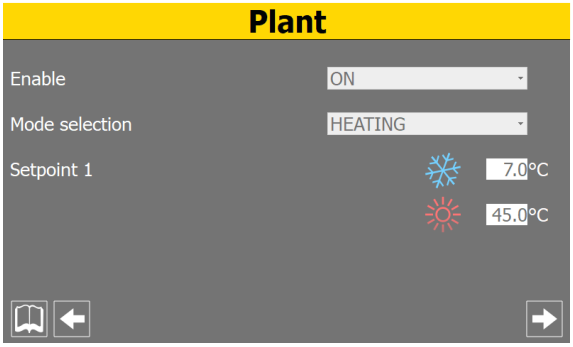
— Indicates the current value selected (YES = Unit ON; NO = Unit OFF)

— Status of the recovery circuit (if installed). This status may be:
- 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);

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

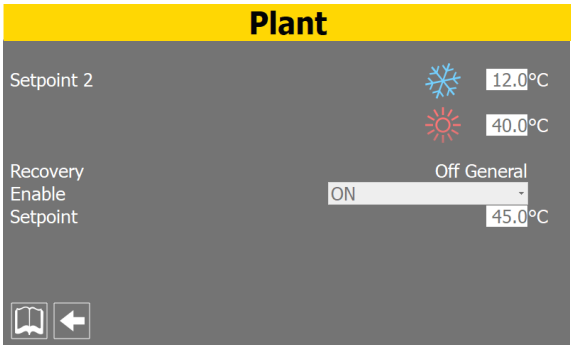


1. **Enable**:
   - Indicates which type of adjustment is currently active on the unit. This may be:
   - — ON = Unit adjustment is based on the main probe, according to the system set-point;
   - — ON with Set 2 = Unit adjustment is based on the main probe, according to set-point 2 (which can also be 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);

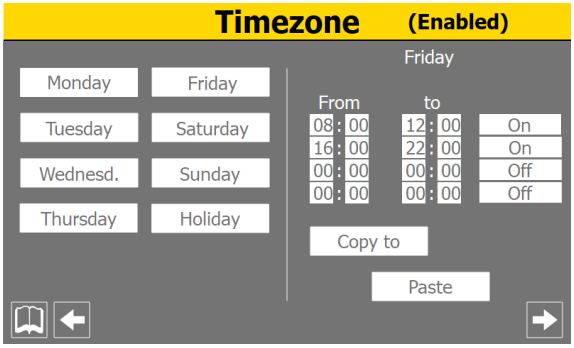
7.2 SETTING THE SECONDARY SET-POINT AND RECOVERY (IF AVAILABLE)



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 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"
- — 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 the first 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)")

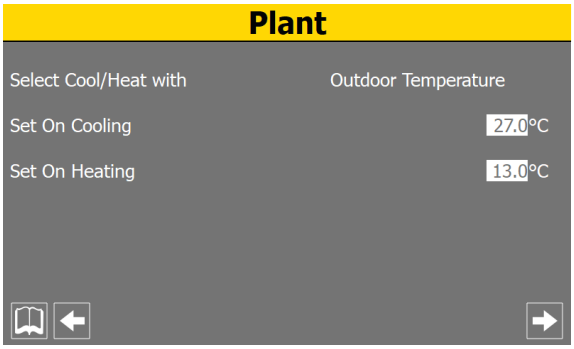
— Used to define the start and end time, and the action to be carried out, for the second time band. The possible actions are:
- ON = The unit is switched on during the time band;
- OFF = The unit is switched off during the time band;
- set-02 = The unit is switched on, and the second set-point is used during the time band (i.e. the value set on the "SYSTEM - Setting the secondary set-point and recovery (if available)")

— Used to define the start and end time, and the action to be carried out, for the third 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 define the start and end time, and the action to be carried out, for the fourth 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)")

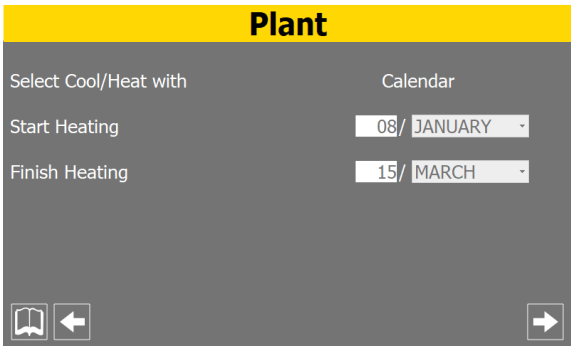
— Used to copy the time band data of the program currently visualised
— Used to paste the time band data of the currently visualised program on the required day (or days, if "All" is selected)

7.4 SETTING THE OUTSIDE TEMPERATURE FOR AUTOMATIC CHANGEOVER



— 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);

7.5 SETTING THE OPERATING MODE ON THE BASIS OF THE CALENDAR

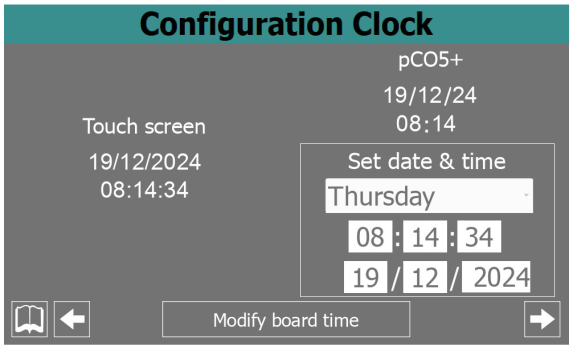


— Indicates the day of the month on which cooling mode will be activated
— Indicates the month in which cooling mode will be activated
— Indicates the day of the month on which heating mode will be activated (heat pump only)
— Indicates the month in which heating mode will be activated (heat pump only)

8 CLOCK MENU

Using the CLOCK menu it is possible to configure the clock of the pGDx panel and the pCO5 board; you can also set the calendar.

8.1 CONFIGURING CLOCK

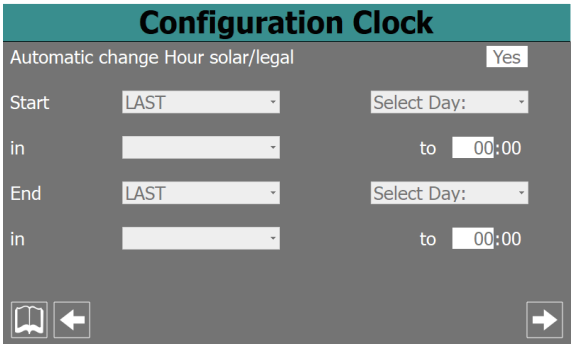


This mask allows you to change the date and time of the system. The system settings are maintained even if the machine is switched off. It is recommended, however, to regularly check that the time is set correctly.
Once the time has been entered, press the "Change the time of the card" button. It is important to set the time correctly because it will be used for the alarm history.

NOTICE

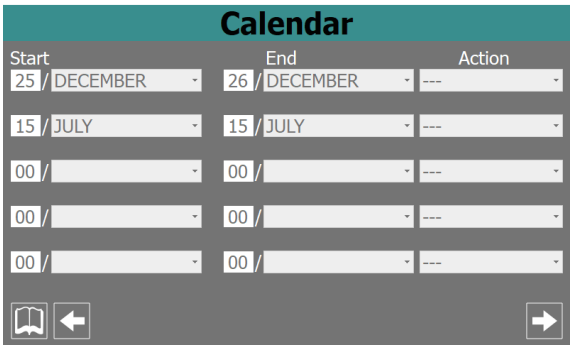
It is possible for the time of the panel and the time of the pCO card to be misaligned, in this case change the time to realign them.

8.2 CONFIGURING THE AUTOMATIC GMT/DAYLIGHT SAVING TIME CHANGEOVER



— 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

8.3 CONFIGURING THE CALENDAR

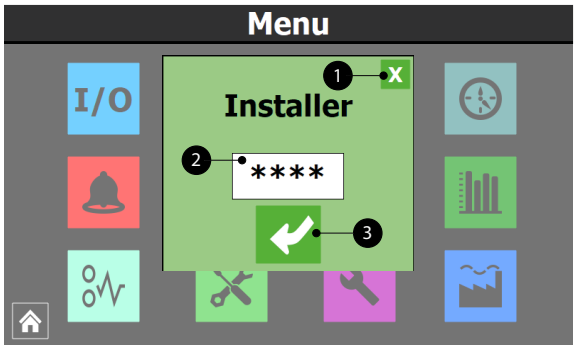


— Indicates the period 1 start date
— Indicates the period 1 end date
— Used to select the action for period 1 (OFF = unit disabled; WEEKENDS AND HOLIDAYS = "WEEKENDS AND HOLIDAYS" band enabled)
— Indicates the period 2 start date
— Indicates the period 2 end date
— Used to select the action for period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

9 INSTALLER MENU

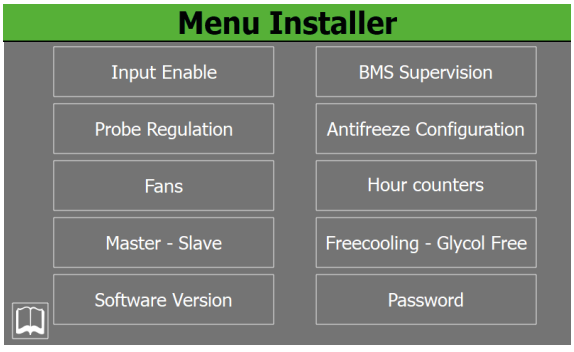
The INSTALLER menu is used to access many of the settings for operating and adjusting the unit; it may, however, contain parameters that should only be modified by persons responsible for maintenance and/or assistance on the unit or system, and for this reason it's protected by a password.

9.1 ENTERING THE PASSWORD FOR ACCESSING THE PROTECTED MENU



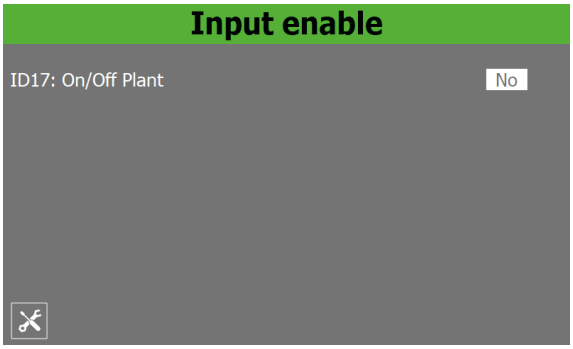
1. This key is used to quit the window and go back to the menu selection page
2. Indicates the current value of the password to be used for accessing the installer menu
3. This key is used to confirm the access password entered

9.2 SELECTING THE SUB-MENUS



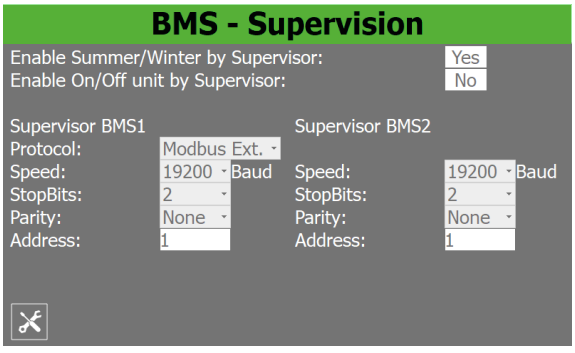
1. Input Enable:
This key is used to access the "Input enabling" sub-menu
2. Probe Regulation:
This key is used to access the "Probe adjustment and set-point" sub-menu
3. Fans:
This key is used to access the "Fans" sub-menu
4. Master - Slave:
This key is used to access the "Master-Slave" sub-menu
5. Software Version:
This key is used to access the "Software version and clock configuration" 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. Hour counters:
This key is used to access the "Hour-counter and Peak-counter" sub-menu
9. Freecooling - Glycol Free:
This key is used to access the "Free-cooling (glycol-free)" sub-menu
10. Password:
This key is used to access the "Password" sub-menu

9.3 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)

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

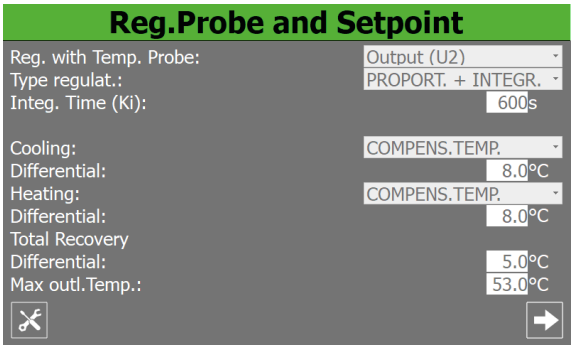


— Indicates the current setting for changeover via the supervisor (YES = function enabled; NO = function disabled)
— Indicates the current setting for ON/OFF via the supervisor (YES = function enabled; NO = function disabled)

— 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: 1200,2400,4800,9600,19200 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 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, Even, Odd.
— 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: 1200,2400,4800,9600,19200 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 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, Even, Odd.
— Indicates the current address assigned to the unit for communicating with the remote supervisor BMS2

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



— 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);

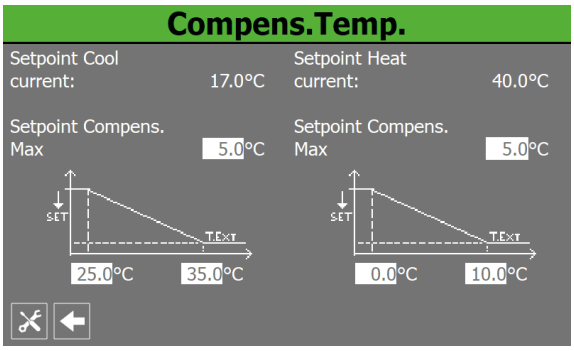
— Indicates the type of adjustment to be applied to the thermostat control. The value can be:
  - PROP+INT = PROPORTIONAL + INTEGRAL adjustment will be used;
  - PROPORTIONAL = PROPORTIONAL adjustment will be used;

— 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);

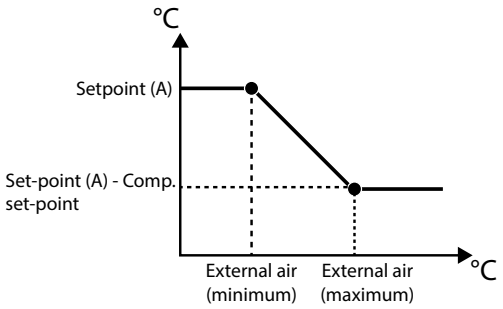
— Indicates the value assigned to the differential used in heating mode
— Indicates the value assigned to the differential used for heat recovery
— Indicates the maximum temperature of the water leaving the recovery unit, beyond which recovery mode is forcedly abandoned.

9.6 CONFIGURING THE CLIMATE CURVE



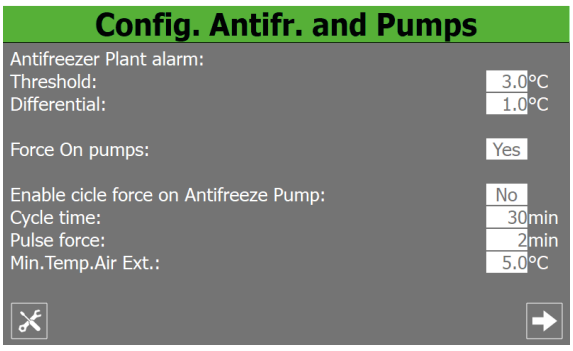
1. Indicates the current value of the cooling set-point, calculated on the basis of the climate curve
2. Indicates the value to be assigned to the compensation set-point for the climate curve used in cooling mode. This value will be subtracted from the set-point defined by the user in the system menu, 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)

9.6.1 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;

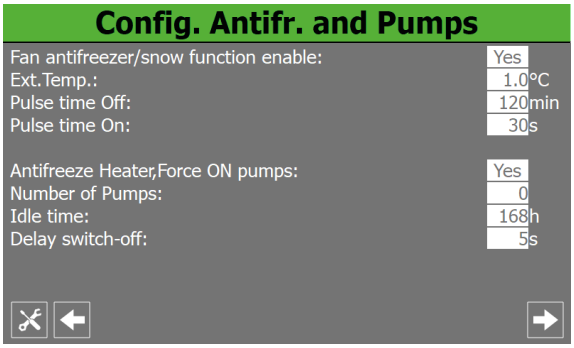
9.7 CONFIGURING THE ANTIFREEZE CONDITIONS



— 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)

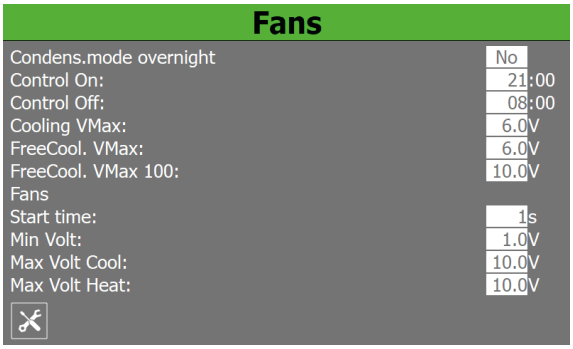
9.8 CONFIGURING THE ANTIFREEZE CONDITIONS AND THE RECOVERY PUMP (IF INSTALLED)



— 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; this value can 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.)

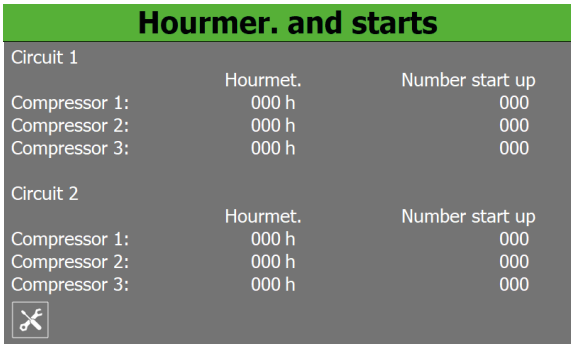
— This value is used to select the logic for managing the recovery pump (if installed):
  ◦ NO = the recovery unit is activated when the flow switch contact closes for the transit of water (the pump is not managed by the unit);
  ◦ YES = the pump is managed by the unit - it switches off when the water 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°C 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

9.9 CONFIGURAZIONE DEI VENTILATORI



— 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 value in Volts to be assigned to the fans to obtain maximum Freecooling power during the night silencing function; this value can range from 0 to 10V where 10V represents the maximum speed available for the fans
— 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

9.10 COMPRESSOR OPERATING LOG



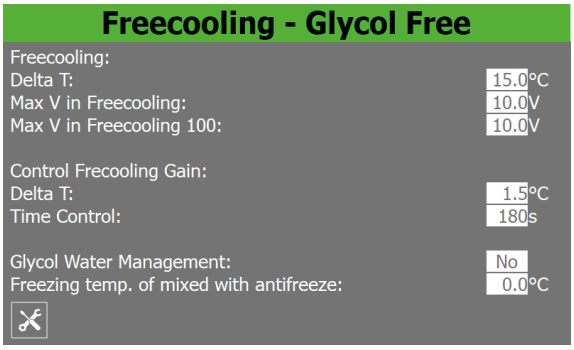
— Indicates the number of hours that compressor 1 on circuit 1 has worked
— Indicates the number of hours that compressor 2 on circuit 1 (if installed) has worked
— Indicates the number of hours that compressor 3 on circuit 1 (if installed) has worked
— Indicates the number of peaks made by compressor 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)

9.11 CONFIGURE MASTER SLAVE

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

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)

9.12 CONFIGURING THE FREE-COOLING UNIT (IF INSTALLED)

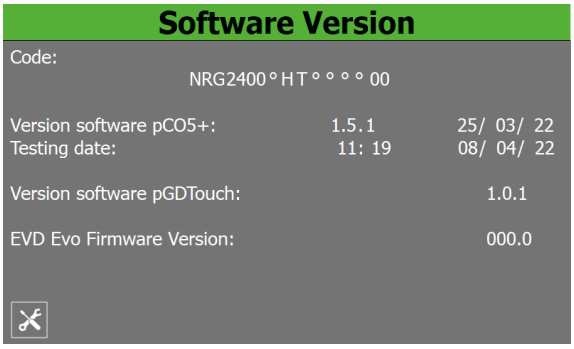


— Indicates the temperature difference (in Free-cooling) generated at the maximum fan speed
— Indicates the value (in Volts) assigned to the fans during Free-cooling. This value can range from 0 to 10V
— Indicates the value in Volts to be assigned to the fans to obtain maximum Freecooling power during the night silencing function;
— 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
— Indicates the freezing temperature of the water mixed with the antifreeze.

NOTICE

With this parameter, the following is calculated:minimum cold set point limit, anti-freeze alarm, anti-freeze resistance threshold and cold force off threshold.

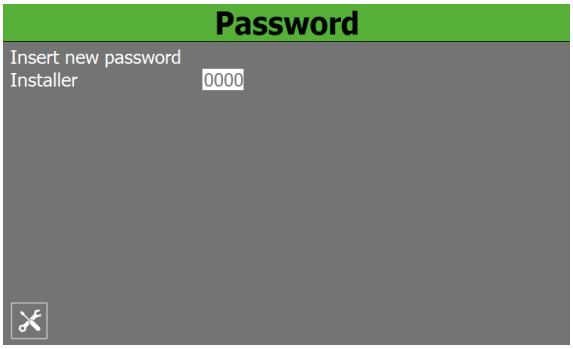
9.13 SOFTWARE VERSION - INFORMATION ABOUT THE SYSTEM



— 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 date and time of the unit test (performed in the factory)
— Indicates the software version of the panel
— Indicates the firmware version of the EVD Evo electronic valve driver

9.14 PASSWORD

Indicates the password to be entered for the installer menu:



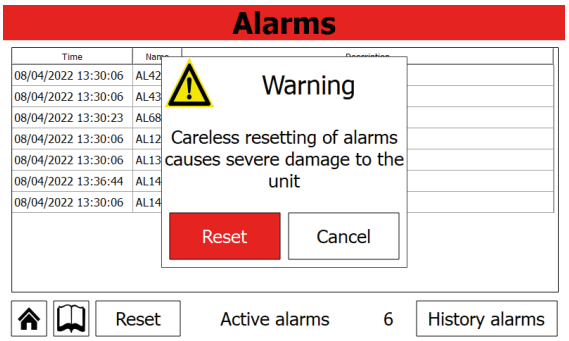
10 ALARM MENU

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).

NOTICE

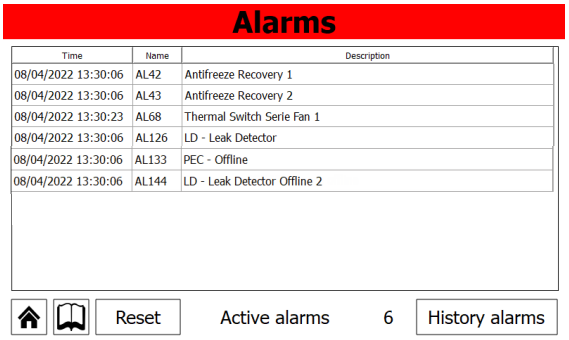
On the side of the pGDx panel there is the touch bar, which flashes red when there are active alarms while it remains off if there are no alarms.

10.1 MAIN ALARM PAGE



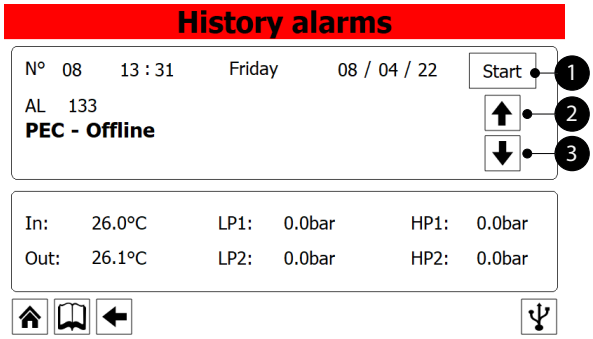
Indicates the number of alarms currently active on the unit.

10.2 ACTIVE ALARMS PAGE



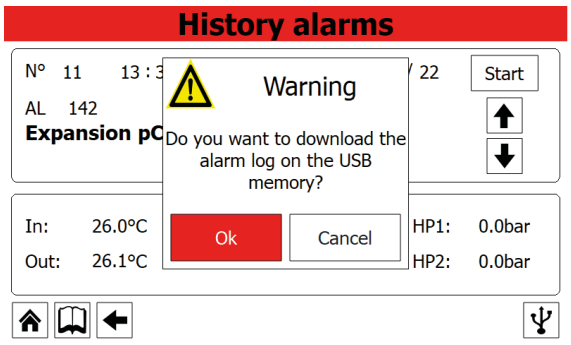
Indicates the alarms currently active on the unit providing some information on the nature of the alarm

10.3 ALARM HISTORY

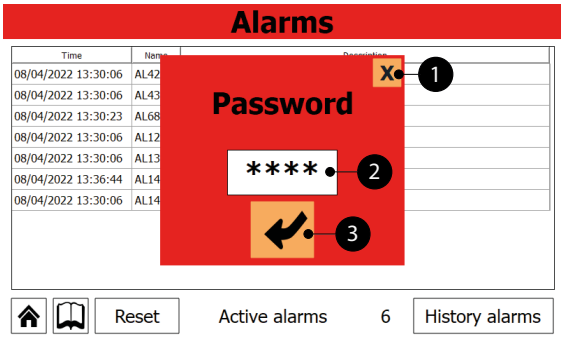


— Indicates the time and date when the alarm was triggered
— Indicates the number with which the alarm was saved in the memory
— Indicates the alarm ID code
— Indicates the short description of the alarm
— Indicates the temperature of the water entering the heat exchanger at the time of the alarm
— Indicates 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



This key allows you to confirm the download of the alarm log onto the USB memory.

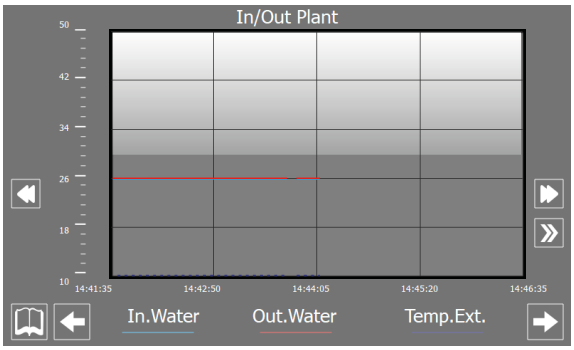


1. This key is used to quit the window and go back to the menu selection page
2. Indicates the current password value to be used for the alarms menu
3. This key is used to confirm the access password entered

11 DIAGRAM MENU

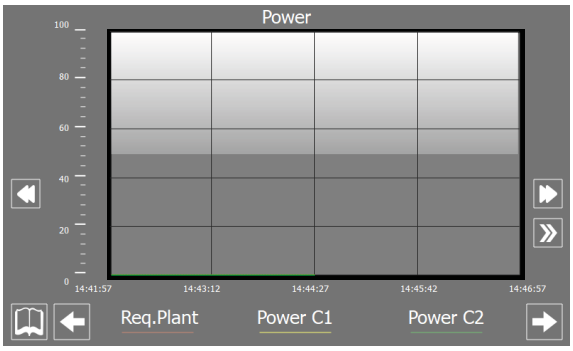
The CHART menu is used to view certain unit operating parameters, shown graphically on Cartesian axes to illustrate the value changes (temperature, power or pressure) requested over time.

11.1 CHART SHOWING TEMPERATURE TREND OF INLET/OUTLET WATER ON HEAT EXCHANGER



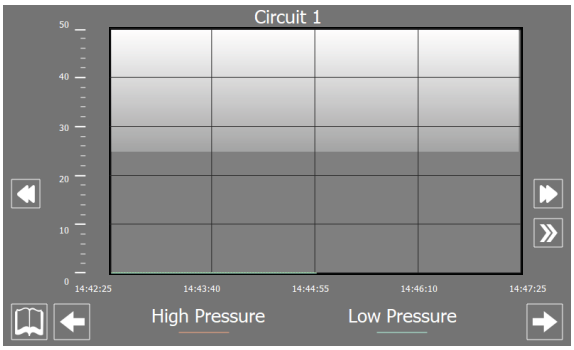
Displays a chart in real time, relating to the temperature of the water entering and leaving the heat exchanger (in the lower part you can see a key explaining the colours of the curves).

11.2 COMPRESSOR POWER TREND DIAGRAM



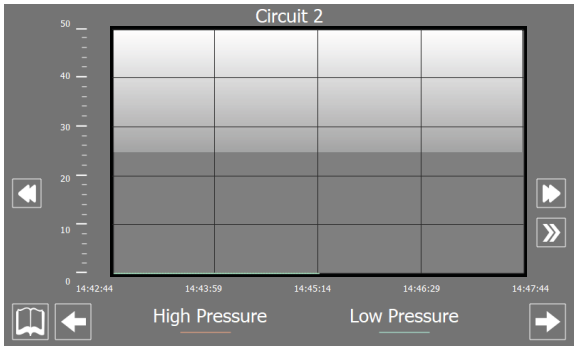
Displays a diagram in real time on the trend of the powers relating to the various circuits (in the lower part it is possible to read the key for the colors of the curves).

11.3 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).

11.4 CHART SHOWING TREND OF HIGH/LOW PRESSURE ON CIRCUIT 2 (IF INSTALLED)

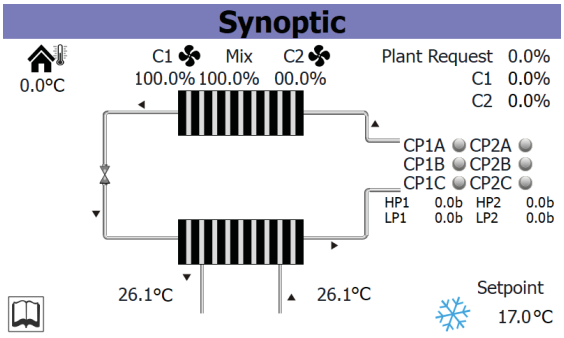


Displays a chart in real time, relating to the trend of the high/low pressure values on circuit 2 (in the lower part you can see a key explaining the colours of the curves).

12 SUMMARY MENU

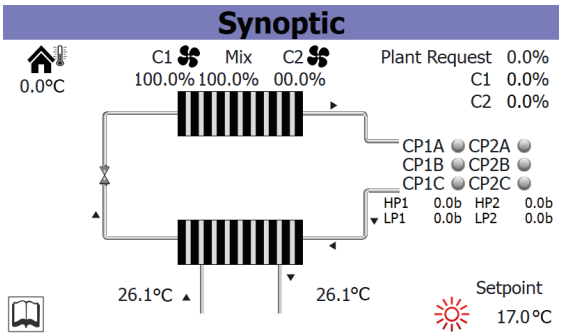
The SUMMARY menu provides a simplified representation of the unit with a selection of the operating parameters (in real time), on the basis of the feedback from the various probes installed.

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



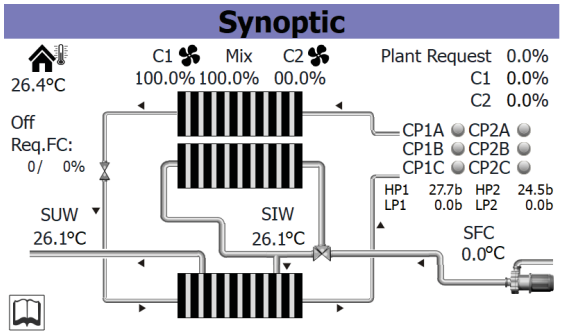
— Indicates the current outside temperature
— Indicates the current fan speed (sub-divided on the basis of the circuits - C1 for the first, C2 for the second)
— Indicates the current power value request from the system to the unit
— Indicates the power percentage supplied by circuit 1 to meet the system 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

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



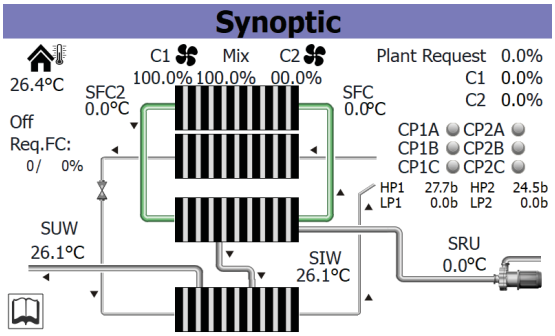
— Indicates the current outside temperature
— Indicates the current fan speed (sub-divided on the basis of the circuits - C1 for the first, C2 for the second)
— Indicates the current power value request from the system to the unit
— Indicates the power percentage supplied by circuit 1 to meet the system 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

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



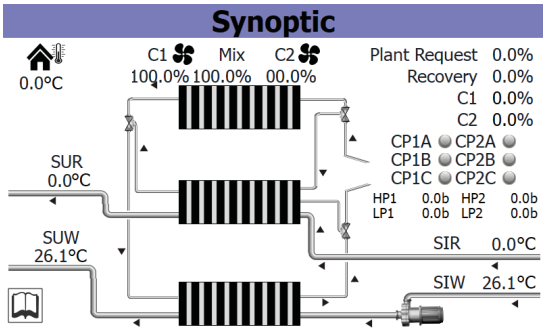
— Indicates the current outside temperature
— Indicates the current fan speed (sub-divided on the basis of the circuits - C1 for the first, C2 for the second)
— Indicates the current power value request from the system to the unit
— Indicates the power percentage supplied by circuit 1 to meet the system 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

12.4 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

12.5 PAGE RELATING TO THE UNITS WITH RECOVERY



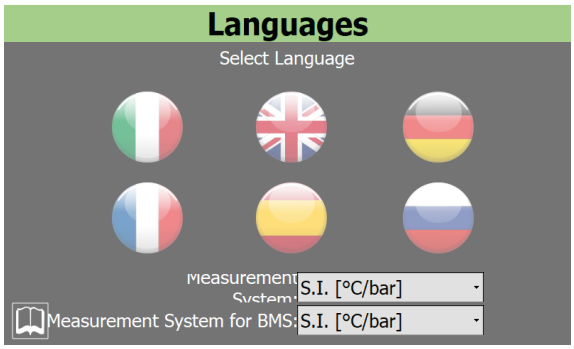
— Indicates the current outside temperature
— Indicates the current fan speed (sub-divided on the basis of the circuits - C1 for the first, C2 for the second)
— Indicates the current power value request from the system/recovery to the unit
— Indicates the power percentage supplied by circuit 1 to meet 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

13 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.

13.1 PAGE FOR SELECTING THE SYSTEM LANGUAGE



— Used to set Italian as the system language
— Used to set English as the system language
— Used to set German as the system language
— Used to set French as the system language
— Used to set Spanish as the system language
— Used to set Russian as the system language
— Allows you to change the measurement system. The available options are:°C / °F / bar / psi.

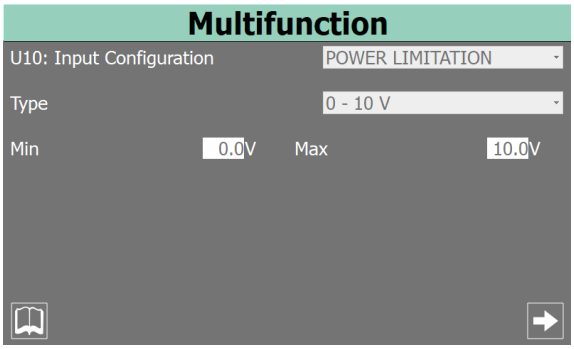
14 MULTI-PURPOSE INPUT MENU

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

NOTICE

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

14.1 GENERAL SETTING OF THE U10 MULTI-PURPOSE INPUT



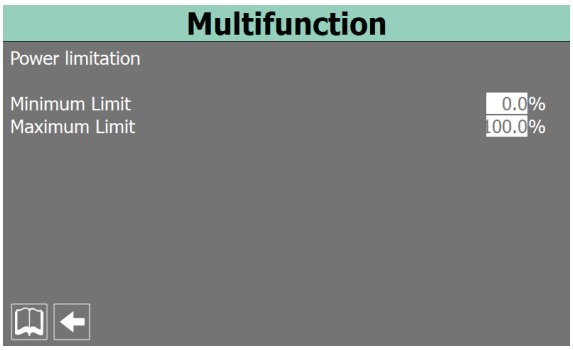
— Used to select the function to be assigned to multi-purpose input U10. The possible functions are:
- NOT PRESENT = the input is not used;
- POWER LIMITATION = the value of input U10 will determine the maximum power that the unit can supply (if this function is selected, the next window will allow you 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);

— 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)

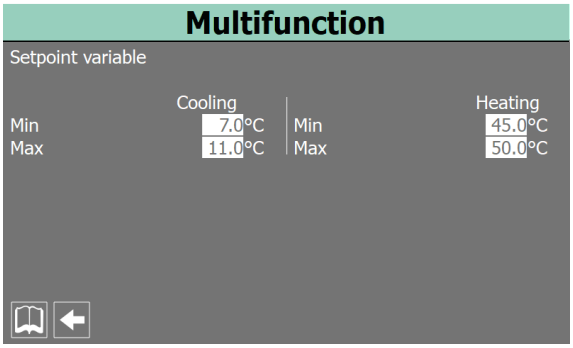
14.2 SETTING FOR POWER LIMITATION FUNCTION



— 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)

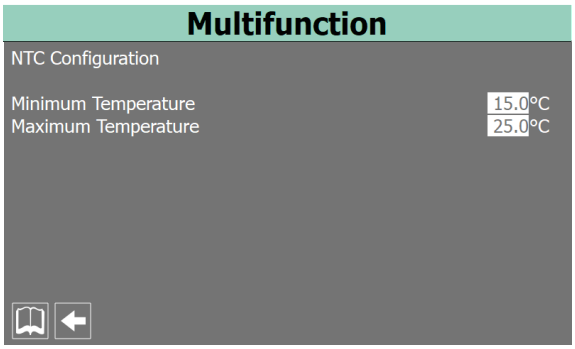
— Used to set the power value to be assigned to the maximum signal read on input U10. If voltage (0-10V) or current (4-20mA) signals are selected as the value, the maximum power limit specified in this parameter will correspond to the maximum signal value set on the "General setting of the U10 multi-purpose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

14.3 SETTING FOR VARIABLE SET-POINT FUNCTION



— 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)

14.4 SETTING FOR NTC SIGNAL TYPE



— 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

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 LIST OF ALARMS

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.

Table of contents	Meaning	Reset
AL01	Clock battery flat alarm	Auto
AL02	Incorrect PEC Firmware alarm	Auto
AL03	Phase monitor alarm	Semi-auto
AL04	Display alarm reset	---
AL05	Circ.1 high pressure faulty probe alarm	Manual
AL06	Circ. 2 high pressure faulty probe alarm	Manual
AL07	Circ. 1 low pressure faulty probe alarm	Manual
AL08	Circ. 2 low pressure faulty probe alarm	Manual
AL09	Evaporator 1 input faulty probe alarm	Manual
AL10	Evaporator 1 output faulty probe alarm	Manual
AL11	Evap. common outlet faulty probe alarm	Manual
AL12	Recovery inlet faulty probe alarm	Manual
AL13	Recovery outlet faulty probe alarm	Manual
AL14	Recovery 2 outlet faulty probe alarm	Manual
AL16	Outside temperature faulty probe alarm	Manual
AL17	Circ.1 liquid temperature faulty probe alarm	Manual
AL18	Circ.2 liquid temperature faulty probe alarm	Manual
AL22	Evap pump 1 maintenance request	Auto
AL23	Evap pump 2 maintenance request	Auto
AL24	Evaporator 1 pump thermal alarm	Manual
AL25	Evaporator 2 pump thermal alarm	Manual
AL26	Recovery pump 1 circuit breaker alarm	Manual
AL28	Ventilation unit 1 thermal alarm	Manual
AL29	Fan 2 circuit breaker alarm	Manual
AL30	Circ. 1 low pressure switch alarm	Manual with password
AL31	Circ. 1 low pressure alarm	Manual
AL32	Circ. 1 high pressure switch alarm	Manual with password
AL33	Circ. 1 high pressure alarm	Manual
AL34	Circ. 1 serious low pressure alarm	Manual
AL35	Circ. 2 serious low pressure alarm	Manual
AL38	Evaporator flow switch alarm	Manual
AL39	Recovery flow meter alarm	Manual
AL40	Evaporator anti-freeze alarm	Manual
AL41	Common evap. anti-freeze alarm	Manual
AL42	Recovery anti-freeze alarm	Manual
AL43	Recovery 2 anti-freeze alarm	Manual
AL46	Alarm offline pCOE expansion (address=2) condenser unit	Manual
AL48	Discharge gas temperature CP1A Circ.1	Manual
AL49	Discharge gas temperature CP1BB Circ.1	Manual
AL50	Discharge gas temperature CP1C Circ.1	Manual
AL51	Maintenance hours alarm CP1A circ.1	Auto
AL52	Maintenance hours alarm CP1B circ.1	Auto
AL53	Maintenance hours alarm CP1B circ.1	Auto
AL54	Maintenance hours alarm CP2B circ.2	Auto
AL55	Maintenance hours alarm CP2B circ.2	Auto
AL56	Maintenance hours alarm CP2C circ.2	Auto
AL58	Circ. 1 compressor 1 technical alarm	Manual
AL59	Circ. 1 compressor 2 technical alarm	Manual
AL60	Circ. 1 compressor 3 technical alarm	Manual

Table of contents	Meaning	Reset
AL61	Circ. 2 compressor 1 technical alarm	Manual
AL62	Circ. 2 compressor 2 technical alarm	Manual
AL63	Circ. 2 compressor 3 technical alarm	Manual
AL64	Circuit 2 low pressure gauge alarm	Manual with password
AL65	Circ. 2 low pressure alarm	Manual
AL66	Circ. 2 high pressure switch alarm	Manual with password
AL67	Circ. 2 high pressure alarm	Manual
AL68	Circuit 1 fan thermal series	Semi-auto
AL69	Circuit 2 fan thermal series	Semi-auto
AL73	Circ. 1 comp. 1 discharge gas high temp. alarm	Manual
AL74	Circ. 2 comp. 1 discharge gas high temp. alarm	Manual
AL75	Circ. 3 comp. 1 discharge gas high temp. alarm	Manual
AL76	Circ. 2 comp. 1 discharge gas high temp. alarm	Manual
AL77	Circ. 2 comp. 2 discharge gas high temp. alarm	Manual
AL78	Circ. 3 comp. 2 discharge gas high temp. alarm	Manual
AL79	Discharge gas temperature CP2A Circ.2	Manual
AL80	Discharge gas temperature CP2B Circ.2	Manual
AL81	Discharge gas temperature CP2C Circ.2	Manual
AL82	Low water content force off alarm	Auto
AL83	Air-water envelope alarm	Semi-auto
AL85	System high temperature	Manual
AL86	SAC storage tank probe faulty	Auto
AL87	Master offline	Auto
AL88	Slave offline	Auto
AL89	Incorrect master/slave SW version	Auto
AL90	Slave alarm summary	Auto
AL91	Alarm offline pCOE expansion (address=4) free cooling unit	Manual
AL92	Alarm inlet freecooling probe	Manual
AL93	Alarm oulet freecooling probe	Manual
AL94	Intermediate exchanger inlet probe alarm	Manual
AL95	Glycol Free flow switch alarm	Manual
AL96	Glycol-Free pump thermal alarm	Manual
AL97	Free cooling ouput alarm	Manual
AL98	pCOE DK expansion offline alarm (address=3)	Manual
AL99	Evaporator common outlet faulty probe alarm	Manual
AL100	Evaporator 2 output faulty probe alarm	Manual
AL102	Water inlet temp. out of operating limits	Manual
AL103	Suction probe broken or not connected circ. 1	Manual
AL104	Suction probe broken or not connected circ. 2	Manual
AL105	EVD error valve motor circuit 1	Manual
AL106	Evap. Low Temperature EVD (LOP) Circuit 1	Manual
AL107	EVD High evap. temperature (MOP) circuit 1	Manual
AL108	Overheat. low EVD (LowSH) Circuit 1	Manual
AL109	EVD Low suction temperature circuit 1	Manual
AL110	EVD High evap. temperature circuit 1	Manual
AL111	EVD Error Valve Motor Circuit 2	Manual
AL112	Evap. low temperature EVD (LOP) Circuit 2	Manual
AL113	EVD High evap. temperature (MOP) circuit 2	Manual
AL114	Overheat. low EVD (LowSH) Circuit 2	Manual
AL115	EVD Low suction temperature circuit 2	Manual
AL116	EVD S1 probe error	Manual
AL117	EVD S2 probe error	Manual
AL118	EVD S3 probe error	Manual
AL119	EVD S4 probe error	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

Table of contents	Meaning	Reset
AL126	Leak Detector Alarm	Manual with password
AL127	Leak detector sensor anomaly	Semi-auto
AL128	Leak Detector Offline	Semi-auto
AL129	Temp.Sensor liquid cond.1 broken or not connect. NRGH Monocirc.	Manual
AL130	Temp.Sensor liquid cond.2 broken or not connect. NRGH Monocirc.	Manual
AL131	High overheating of Circuit 1 (circuit discharged)	Manual
AL132	High overheating of Circuit 2 (circuit discharged)	Manual
AL133	PEC offline	Semi-auto
AL134	PEC Software - alarm set 1	---
AL135	PEC Software - alarm set 2	---
AL136	PEC Hardware - alarm set 1	---
AL137	PEC Hardware - alarm set 2	---
AL140	Expansion pCOE VPF OffLine (address=5)	Manual
AL141	Differential Transducer broken or not connected	Manual
AL142	Low SH circ.1	Manual
AL143	Low SH circ.2	Manual
AL144	EVD alarms summary Circuit 1	Manual
AL145	EVD alarms summary Circuit 2	Manual
AL146	Expansion pCOE NRG-Large (Address=6)	Manual
AL147	Leak Detector 2 Sensor Failure	Semi-auto
AL148	Leak Detector 2 offline	Semi-auto
AL149	Oil cooling cycle CP1B circuit 1	Auto
AL150	Oil cooling cycle CP2B circuit 2	Auto
AL151	Envelope circuit 1 (cold only unit)	Manual
AL152	Envelope circuit 2 (cold only unit)	Manual
AL153	Compressor 1 circ.3 circuit breaker alarm (NRG 2600-3600)	Manual
AL154	Compressor 2 circ. 3 circuit breaker alarm (NRG 2600-3600)	Manual
AL155	Compressor 3 circ. 3 circuit breaker alarm (NRG 2600-3600)	Manual
AL156	Inverted probes gas pressing line circuit 1	Manual
AL157	Inverted probes gas pressing line circuit 2	Manual

17.1 PEC ALARM

The alarms concerning the PEC each represent a group of alarms.
The tables for each group of alarms are shown below:

Software - alarm set 1

Software - alarm set 1		
Bit	**Meaning**	**Reset**
0	Circuit 1 low pressure	Manual
1	Circuit 1 low superheat	Manual
2	Circuit 1 high superheat	Auto
3	End of defrosting for Time Lapse circuit 2	Manual
4	Differential cycle reversing valve pressure circuit 2	Manual
5	NOT USED	---
6	NOT USED	---
7	NOT USED	---
8	NOT USED	---
9	NOT USED	---
10	NOT USED	---
11	NOT USED	---
12	Circuit 1 envelope alarm	Manual
13	End of defrosting for timeout circuit 1	Manual
14	Circuit 1 high discharge gas temperature compressor 1	Manual
15	Circuit 2 low superheat	Auto

Hardware - alarm set 1

Hardware - alarm set 1		
Bit	**Meaning**	**Reset**
0	P1 sensor	Manual
1	P2 sensor	Manual
2	T1 sensor	---
3	T2 sensor	Manual
4	T3 sensor	Manual
5	T4 sensor	Manual
6	T5 sensor	Manual
7	T6 sensor	Manual
8	T7 sensor	---
9	P3 sensor	Manual
10	P4 sensor	Manual
11	T8 sensor	---
12	T9 sensor	Manual
13	T10 sensor	Manual
14	T11 sensor	Manual
15	T12 sensor	Manual

Software - alarm set 2

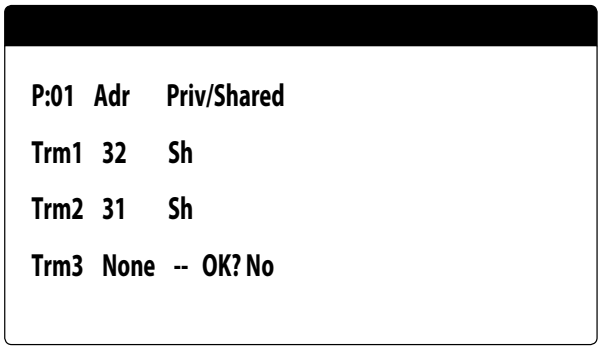
Software - alarm set 2		
Bit	**Meaning**	**Reset**
0	Circuit 2 high superheat	Manual
1	NOT USED	---
2	Circuit 1 comp. 2 discharge gas high temp.	Manual
3	Circuit 1 comp. 3 discharge gas high temp.	Manual
4	Circuit 2 low pressure	Manual
5	Circuit 2 high condensing pressure	Manual
6	Circuit 2 comp. 1 discharge gas high temp.	Manual
7	Circuit 2 comp. 2 discharge gas high temp.	Manual
8	Circuit 2 comp. 3 discharge gas high temp.	Manual
9	NOT USED	---
10	NOT USED	---
11	NOT USED	---
12	NOT USED	---
13	Circuit 2 envelope alarm	Manual
14	NOT USED	---
15	Insufficient differential pressure in reverse cycle valve	Manual

Hardware - alarm set 2

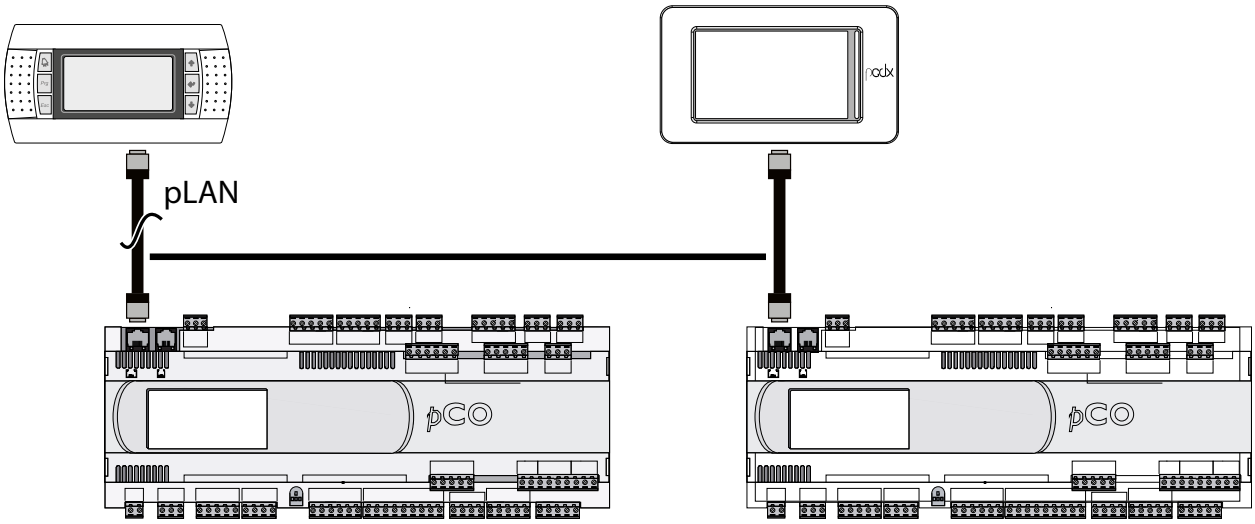
Hardware - alarm set 2		
Bit	**Meaning**	**Reset**
0	NOT USED	---
1	NOT USED	---
2	NOT USED	---
3	System controller communication timeout (60s timeout, each new communication resets the timer and cancels the alarm)	Manual
4	NOT USED	---
5	NOT USED	---
6	Safety feedback circuit 1	Manual
7	Safety feedback circuit 2	Manual
8	System Power Loss	Manual
9	NOT USED	---
10	Valve configuration alarm	Auto
11	Valve 1 alarm	Manual
12	Valve 2 alarm	Manual
13	NOT USED	---
14	Pack configuration alarm	Auto
15	NOT USED	---

18 NRG 2600-3600 LINK (RANGE EXTENSION)

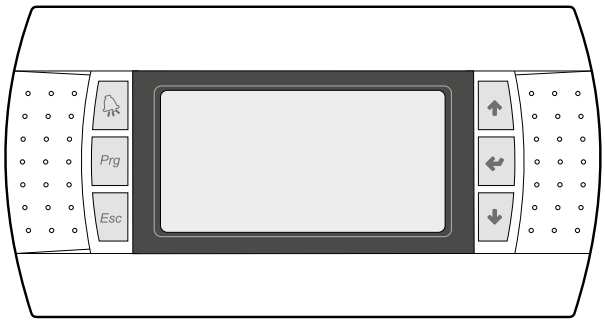
In the case of the NRG 2600-3600 triple-circuit units, the two pCO boards are connected in pLAN. When configured, they will take the following address:
— Unit 1 Dual circuit, address 1 pCO board
— Unit 2 Single-circuit (3rd circuit), address 2 pCO board
While the panel PGD1 should be configured as in the following screen:



To display the various information and menus of each board, simultaneously press the buttons and .
Instead, the pGDx panel must be configured with Address 7; once configured, the boards can be accessed. To switch from a Master to a Slave unit, or vice versa, simply press the respective "Master" or "Slave" button on the display.



19 USER INTERFACE (PGD1)



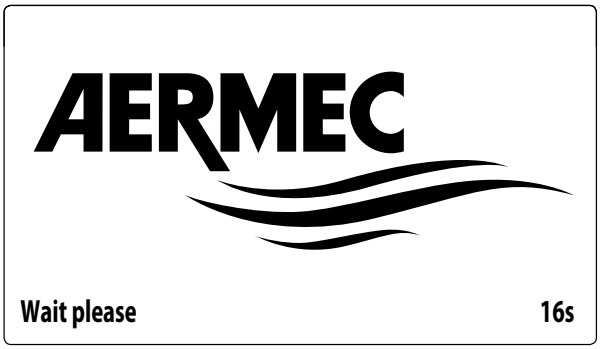
The command panel of the unit allows the rapid setting of the working parameters of the machine, and their visualisation. The card stores all the default settings and any modifications.
The installation of the remote panel PGD1 makes it possible to copy from remote all the functions and settings available 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.

19.1 START-UP PROCEDURE

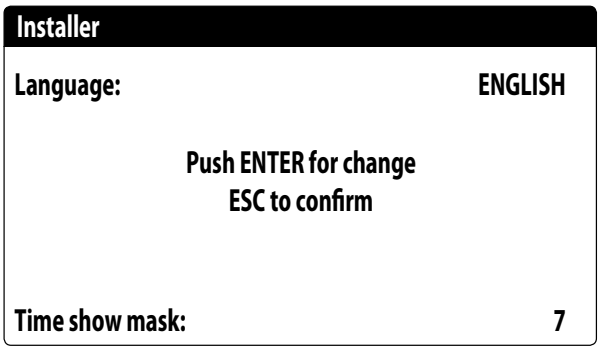
After powering the unit, the control card will perform preliminary operations before it is ready to be used; these initial procedures last about 60 seconds before they are complete; two windows are displayed during the initial loading procedures (a start window and one for selecting the system language);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

NOTICE

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.



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



This window makes it possible to select the language with which the system is started;

19.2 FUNCTION OF THE PGD1 CONTROL PANEL KEYS

: Displays the list of active alarms and the alarm log

: Pressing this key activates navigation between the menus (orange LED on = winter operating mode active);

: 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;

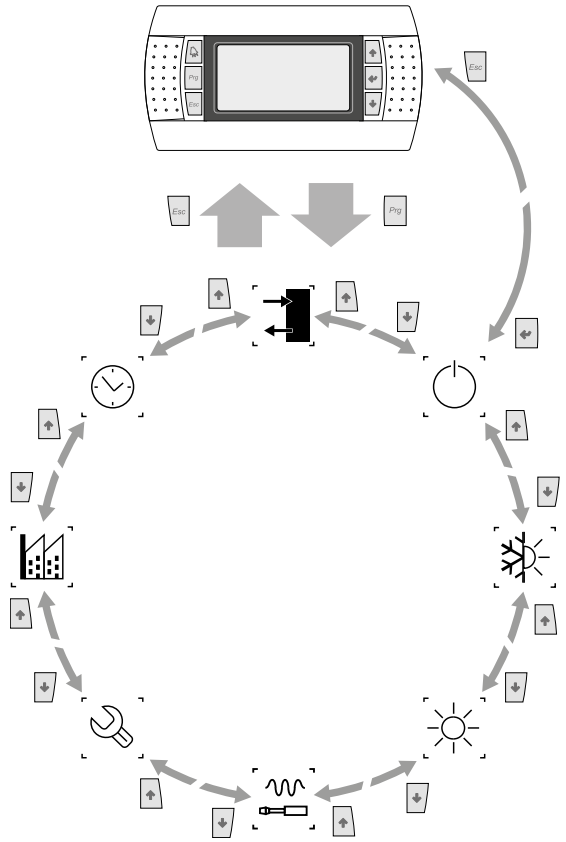
— Pressing this key when changing a parameter decreases the value of the selected parameter;

19.3 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

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;



19.3.1 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;

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

NOTICE

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

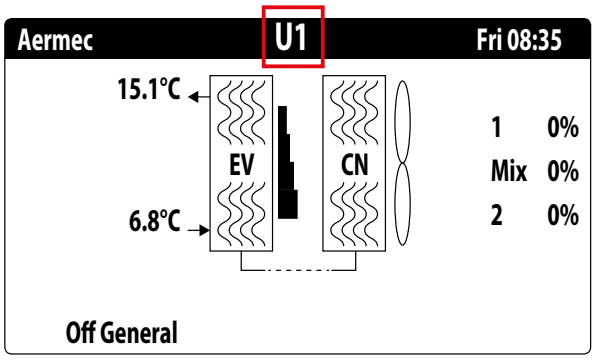
ASSISTANCE: This menu is not accessible except by authorized staff;

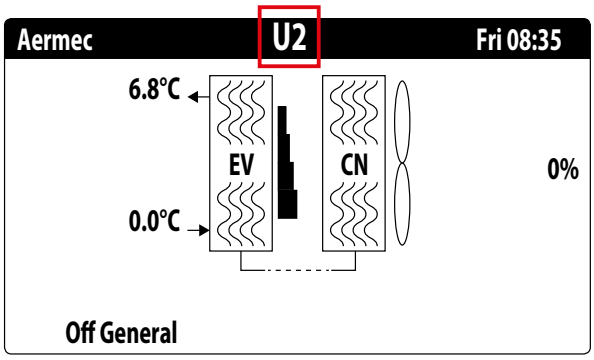
MANUFACTURER: This menu is not accessible except by authorized staff;

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

20 MAIN MASKS FOR NRG 2600-3600 (RANGE EXTENSION)

In the case of the NRG 2600-3600 triple-circuit chiller, in all panel masks PGD1 U1/U2 will be displayed.
This will refer to the pCO board with which the panel is connected, and therefore the various information displayed will refer to the same board displayed at that time (except for some data exchanged between the two boards, e.g. Common Water Inlet and Common Water Outlet).
These acronyms are to be considered as:
— **U1**: pCO with pLAN Address 1 which will be allocated to the first 2 circuits.
— **U2**: pCO with pLAN address 2 which will be allocated to circuit 3.

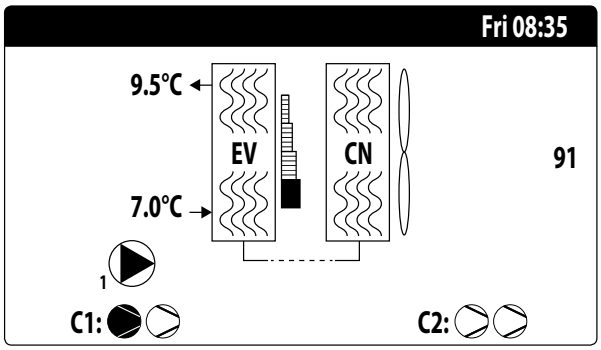




21 MAIN MENU

21.1 GENERAL MONITOR

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



— 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;
— Status of compressors ON / OFF circuit 1 and circuit 2.

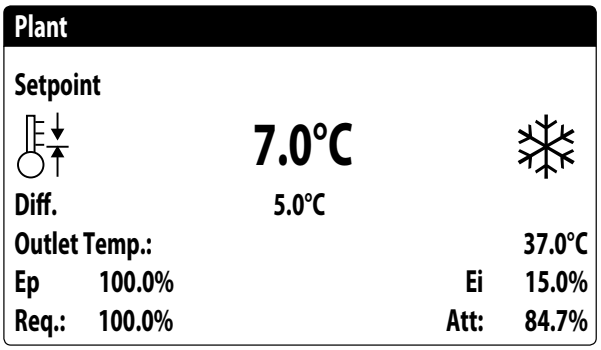
NOTICE

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

— : anti-freeze heater activation;
— (LT): Indicates that low output temperature anti-freeze prevention is active (turns off the compressors)
— (LC): indicates that the low charge function is active;
— (F): 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;
— AP: indicates a compressor alarm;
— AP: Indicates that high pressure capacity control is active;

21.2 SYSTEM MONITOR

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



— 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;

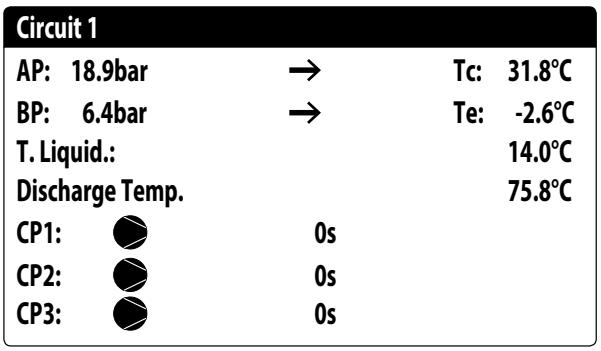
NOTICE

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

— : system chilled water production;
— : system hot water production;
— : time bands active;
— (M) : multifunction input;

21.3 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:



— **AP**: high pressure
— **BP**: low pressure
— **Tc**: condensation temperature
— **Te**: evaporating temperature
— **T.Liquid**: liquid temperature

— **T.discharge gas**: inverter compressor discharge gas temperature
— **T.discharge gas 2**: ON/OFF compressor discharge 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;
— ⊘: indicates that the compressor is on, the (remaining) time to satisfy the minimum ON time is indicated to the side;

NOTICE

If the card is restarted, there will be a 60 second wait to guarantee the minimum shut-off time necessary for the inverter compressor driver.

21.4 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%
Time between starts:	0s

— Total thermostat request;
— Power delivered by circuit 1;
— Time between starts between two compressors.

21.5 MASTER UNIT MONITOR

NOTICE

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

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%

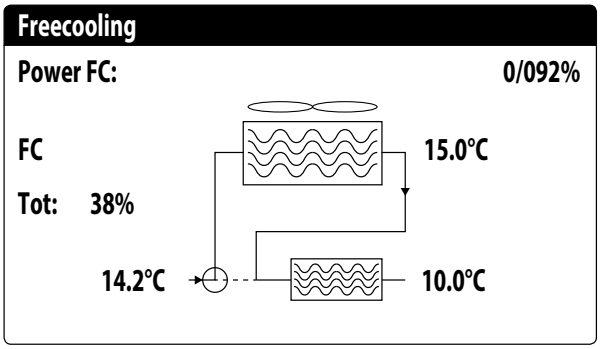
— **Common output (optional)**: probe water temperature on the common output of the two master and slave unit outputs;
— **Demand**: power calculated by the Master unit thermostat that will be distributed between the two units;
— **Unit 1**: percentage power requested of the Master unit;
— **Unit 2**: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

21.6 FREE COOLING MONITOR

NOTICE

This mask is available on free cooling units.

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;

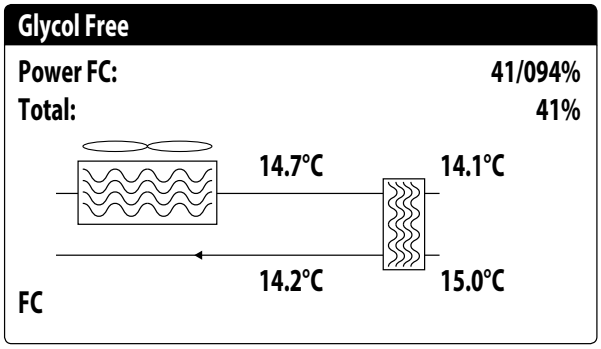
Possible operating status:
— OFF (unit off);
— FC (unit only operating in free cooling);
— FC+CP (unit in mixed operation);
— CP (unit operating with compressors only);

21.7 GLYCOL FREE MONITOR

NOTICE

This mask is available on glycolfree units.

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



— 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;

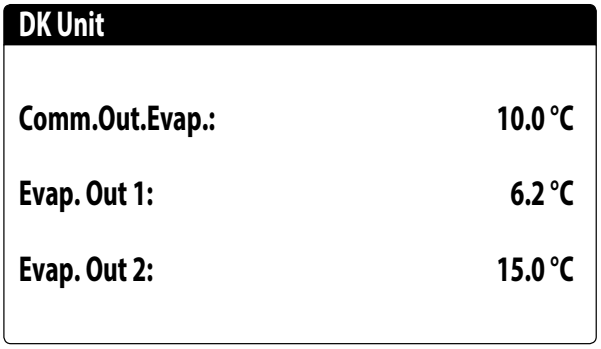
Possible operating status:
— OFF (unit off);
— FC (unit only operating in free cooling);
— FC+CP (unit in mixed operation);
— CP (unit operating with compressors only);

21.8 DK UNIT MONITOR

NOTICE

This screen is available on units with two separate circuits on the gas side. (DK)

This screen allows you to view the common temperature of the water leaving the two evaporators:



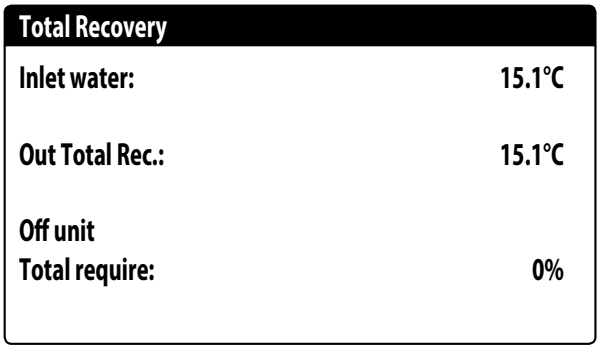
— **Evap.out 1**: Outlet water temperature evaporator 1
— **Evap.out 2**: Outlet water temperature evaporator 2

21.9 TOTAL RECOVERY MONITOR

NOTICE

This mask is available on units with total recovery.

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



— 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);

21.10 PEC PRESSURE CONTROL MONITOR

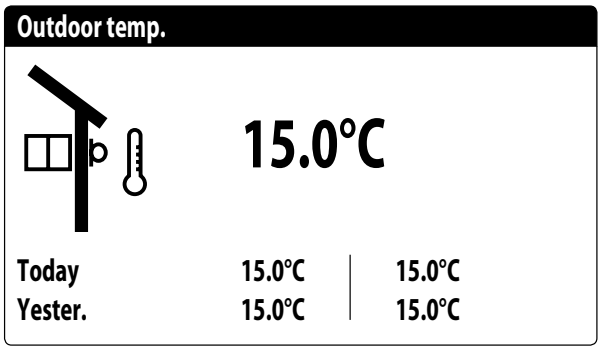
This mask is used to display the result of the control on the machine pressure delta, controlled by the PEC card:

If the result of the pressure delta control is greater than 15 bar (and the 4-way must switch), the valves must be controlled without the activation of the compressors to reduce the pressure delta; Alarms (warnings) are not generated in this situation).
If the control is less than 3 bar (hot/cold operation or a 4-way must switch), the compressors are started without the valve control in order to create the pressure delta; after 300s in this situation an alarm is generated with a machine block.

22 INPUT/OUTPUT MENU

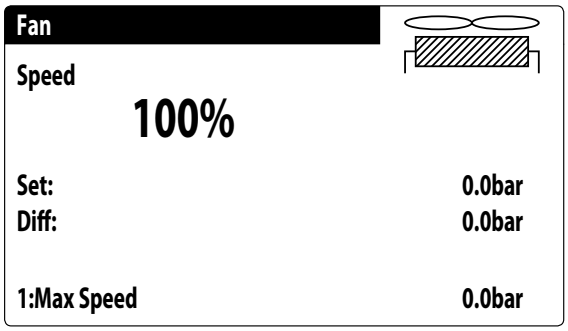
22.1 OUTSIDE TEMPERATURE MONITOR

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



22.2 FAN MONITOR

This window summarises the status of the fans and the utilised setpoints:if the unit has multiple circuits, each will have a dedicated window:

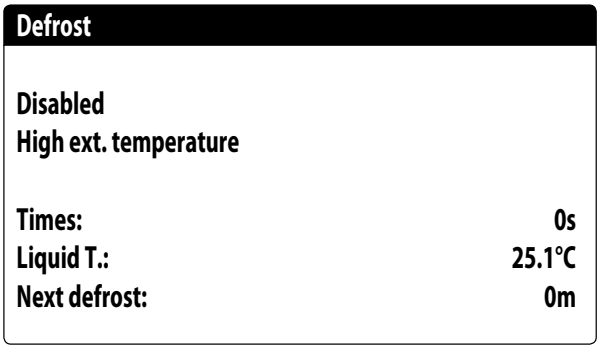


— Speed: this value indicates the current speed (as a percentage) at which the concerned fans are operating (common, circuit 1 or circuit 2);
— Set: Fan setpoint: this value indicates the current ventilation setpoint;
— Diff: Ventilation setpoint differential: this value indicates the current differential 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

22.3 DEFROSTING MONITOR

This window contains the information concerning the status of defrosting on the unit:if the unit has multiple circuits, each will have a dedicated window:



The state of defrosting is divided between two rows, the first can have the following states:
— Disabled: defrosting is disabled;
— 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;

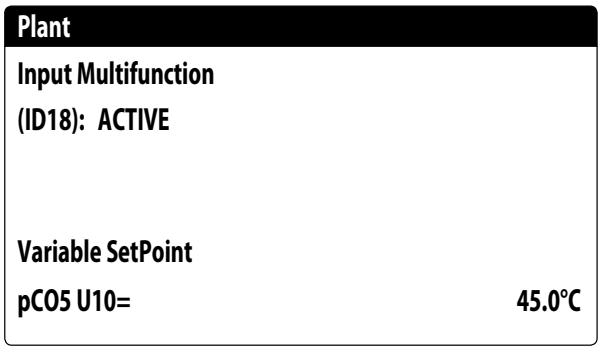
The second row can have the following states:
— High outside temperature: the air temperature is above the defrosting enabling threshold;
— Circuit off: all the compressors of the circuit are off; defrost is disabled;
— LP above the limit threshold: the low pressure is above the limit threshold to trigger 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;
— Waiting for another circuit: it is the phase in which the circuit that ends the defrost first turns off waiting for the other circuit to end (in the case of a Bicircuit);

— 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:the liquid temperature below the threshold determines the end of the 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;
— T.Liquid: temperature of the liquid to determine the defrosting output;
— Next defrosting: displays the minutes until the next defrosting;

22.4 MULTIFUNCTION INPUT MONITOR

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



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;
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;

22.5 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;
— Analogue inputs (PEC);
— Digital output (PEC);
— Analogue Inputs (EVD);
— Analogue Inputs (pCOE - free cooling models)
— Digital Inputs (pCOE - free cooling models)
— Digital outputs (pCOE - free cooling models)
— Analogue Inputs (pCOE - glycolfree models)
— Digital Inputs (pCOE - glycolfree models)
— Digital outputs (pCOE - glycolfree models)
— Analogue Inputs (pCOE - models with total recovery)
— Digital Inputs (pCOE - models with total recovery)
— Digital outputs (pCOE - models with total recovery)
— Analogue Inputs (pCOE - DK);
— Analogue Inputs (pCOE - Variable flow rate / Supplementary heater);
— Digital outputs (pCOE - Variable flow rate / Supplementary heater);
— Digital Inputs (pCOE - Variable flow rate / Supplementary heater);
— Analogue Inputs (pCOE);
— Digital inputs (pCOE);
— Digital outputs (pCOE);

NOTICE

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

23 INPUT AND OUTPUT

Key:
Dual circuit: NRG 0800-2400, unit with 2 circuits
Triple circuit: NRG 2600-3600, unit with 3 circuits

23.1 ANALOGUE INPUTS

Analogue inputs	Code	Description	Note
U1	SIW	evaporator water inlet probe	All configurations except NRG 2600-3600
	SUW_Evap2	Evaporator 2 water outlet probe (Circuit 3)	Only for NRG 2600-3600 (Circuit 3)
U2	SUW	evaporator water outlet probe	All configurations except NRG 2600-3600
	SUW_C1_C2	Evaporator water outlet probe (Circuit 1 and Circuit 2)	Only for NRG 2600-3600 (Circuit 1 and Circuit 2)
	SUW_COM	Common outlet probe of the 3 circuits	Only for NRG 2600-3600 (Circuit 3)
U3	SAE	External air sensor	Cold Single circuit/Dual circuit
			Free cooling/Glycolfree Single circuit/Dual circuit
			Recovery Single circuit/Dual circuit
	Fan Series	Fan Alarm Contacts Series	Heat pump Single circuit/Dual circuit
	---		Only for NRG 2600-3600 (Circuit 3)
U4	SGP1A	Compressor 1 Circuit 1 discharge gas probe	Cold Single circuit/Dual circuit
			Free cooling/Glycolfree Single circuit/Dual circuit
			Recovery Single circuit/Dual circuit
	---		Single Circuit/Dual circuit Heat pump and NRG 2600-3600 (both boards)
U5	TAP1	High pressure, Circuit 1 transducer	Cold Single circuit/Dual circuit
			Free cooling/Glycolfree Single circuit/Dual circuit
			Recovery Single circuit/Dual circuit
	---		Single Circuit/Dual circuit Heat pump and NRG 2600-3600 (both boards)
U6	SGP1B	Compressor 2 Circuit 1 discharge gas probe	Cold Single circuit/Dual circuit
			Free cooling/Glycolfree Dual circuit
			Recovery Single circuit/Dual circuit
	---		Free cooling/Glycolfree Single circuit
			Heat pump Single circuit/Dual circuit
U7	SL	Liquid probe	Cold Single circuit
			Recovery Single circuit
	SGP2A	Compressor 1 Circuit 2 discharge gas probe	Cold dual circuit
			Free cooling/Glycolfree Single circuit/Dual circuit
			Recovery Dual circuit
	---		Single circuit/Dual circuit heat pump and NRG 2600-3600 (both boards)
U8	TAP2	High pressure, Circuit 2 transducer	Cold dual circuit
			Free cooling/Glycolfree Single circuit/Dual circuit
			Recovery Dual circuit
	SL1B1	Circuit 1 Coil Liquid Probe	Heat pump single circuit
	---		Cold Single circuit
			Recovery Single circuit
			Dual circuit heat pump and NRG 2600-3600 (both boards)

Analogue inputs	Code	Description	Note
U9	SGP2B	Compressor 2 Circuit 2 discharge gas probe	Cooling only dual circuit
			Free cooling/Glycolfree Dual circuit
			Recovery Dual circuit
	SL1B2	Circuit 2 Coil Liquid Probe	Heat pump single circuit
	---		Cold Single circuit
			Free cooling/Glycolfree Single circuit
			Recovery Single circuit
			Dual circuit heat pump and NRG 2600-3600 (both boards)
U10	MULTI IN	Multi-function input	
	Common outlet probe	Common outlet with Master/Slave (Not available for NRG 2600-3600)	
	---		Only for NRG 2600-3600 (Circuit 3)

23.2 DIGITAL INPUTS

Digital Input	Code	Description	Note
ID1	FL	Flow switch	---
	---		Only for NRG 2600-3600 (Circuit 3)
ID2	AP1	Circuit 1 high pressure pressure switch / Circ.1 discharge gas thermostat	---
	AP3	Circuit 3 high pressure pressure switch / Circ.3 discharge gas thermostat	Only for NRG 2600-3600 (Circuit 3)
ID3	QMF1	Thermomagnetic fan switch	---
	QMF3	Circuit 3 Thermomagnetic fan switch	Only for NRG 2600-3600 (Circuit 3)
ID4	RCS	Phase monitor	All configurations except NRG 2600-3600
	---		Only for NRG 2600-3600 (Circuit 3)
ID5	QM11	Compressor 1 circuit 1 thermomagnetic switch	All configurations except NRG 2600-3600
	QM13	Compressor 1 circuit 3 thermomagnetic switch	Only for NRG 2600-3600 (Circuit 3)
ID6	QM21	Compressor 2 circuit 1 thermomagnetic switch	Cooling only Single circuit/Dual circuit
			Free cooling/Glycolfree Dual circuit
			Recovery Single circuit/Dual circuit
			Single Circuit/Dual circuit Heat pump and NRG 2600-3600 (Circuit 1 and Circuit 2)
	QM23	Compressor 2 circuit 3 thermomagnetic switch	Only for NRG 2600-3600 (Circuit 3)
	---	---	Free cooling/Glycolfree Single circuit
ID7	BP1	Circuit 1 low pressure pressure switch	---
	BP3	Circuit 3 low pressure pressure switch	Only for NRG 2600-3600 (Circuit 3)
ID8	AP2	Circuit 2 high pressure pressure switch / Circ.2 discharge gas thermostat	Cooling only dual circuit
			Free cooling/Glycolfree Single circuit/Dual circuit
			Recovery Dual circuit
			Dual circuit Heat pump and NRG 2600-3600 (Circuit 1 and Circuit 2)
	---	---	Cooling only Single circuit
			Recovery Single circuit
			Heat pump single circuit
ID9	LD1	Leak detector	All configurations
ID10	2° SET	Second setpoint	All configurations except NRG 2600-3600 (Circuit 3)

Digital Input	Code	Description	Note
ID11	QM12	Compressor 1 circuit 2 thermomagnetic switch	Cooling only dual circuit
			Free cooling/Glycolfree Single circuit/Dual circuit
			Recovery Dual circuit
			Dual circuit Heat pump and NRG 2600-3600 (Circuit 1 and Circuit 2)
	QM33	Compressor 3 circuit 3 thermomagnetic switch	Only for NRG 2600-3600 (Circuit 3)
	---	---	Cooling only Single circuit
			Recovery Single circuit
			Heat pump single circuit
ID12	QM22	Compressor 2 circuit 2 thermomagnetic switch	Cooling only dual circuit
			Free cooling/Glycolfree Dual circuit
			Recovery Dual circuit
			Heat pump dual circuit
	---	---	Cooling only Single circuit
			Free cooling/Glycolfree Single circuit
			Recovery Single circuit
			Single circuit heat pump and NRG 2600-3600 (Circuit 3)
ID13	BP2	Circuit 2 low pressure pressure switch	Cooling only dual circuit
			Free cooling/Glycolfree Single circuit/Dual circuit
			Recovery Dual circuit
			Heat pump dual circuit
	---	---	Cooling only Single circuit
			Recovery Single circuit
			Single circuit heat pump and NRG 2600-3600 (Circuit 3)
ID14	QMT1	Pump 1 thermomagnetic switch	All configurations except NRG 2600-3600 (Circuit 3)
	---		Only for NRG 2600-3600 (Circuit 3)
ID15	QMT2	Pump 2 thermomagnetic switch	---
	---		Only for NRG 2600-3600 (Circuit 3)
ID16	TV	Fans thermal switch series	In NRG 0800-2400 will refer to Circuit 1 (TV1)
	C/F	Remote hot/cold contact	HEAT PUMP
	---	Fan thermal series (Circuit 3)	Only for NRG 2600-3600 (Circuit 3)
ID17	0/1	Remote ON/OFF contact (closed = ON)	All configurations except NRG 2600-3600 (Circuit 3)
	---		Only for NRG 2600-3600 (Circuit 3)
ID18	EMF	Multifunction input enabling	All configurations except NRG 2600-3600 (Circuit 3)
	---		Only for NRG 2600-3600 (Circuit 3)

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

23.3 DIGITAL OUTPUTS

Digital Outputs	Code	Description	Note
NO1	MPE1	Pump 1 evaporator	All configurations except NRG 2600-3600 (Circuit 3)
	---		Only for NRG 2600-3600 (Circuit 3)
NO2	CP1A	Compressor 1 Circuit 1	Cooling only Single circuit/Dual circuit
			Free cooling/Glycolfree Single circuit/Dual circuit
			Recovery Single circuit/Dual circuit
	---	---	Heat pump in all configurations

Digital Outputs	Code	Description	Note
NO3	CP1B	Compressor 2 Circuit 1	Cooling only Single circuit/Dual circuit
			Free cooling/Glycolfree Dual circuit
			Recovery Single circuit/Dual circuit
	---	---	Free cooling/Glycolfree Single circuit
			Heat pump in all configurations
NO4	CP1C	Compressor 3 Circuit 1	NRG 0800-2400 Cold Only/ Total Recovery
	---		Heat pump in all configurations
NO5	VR1C1	Circ.1 Rec. bleed-off	NRG 0800-2400 Total Recovery
	Coil Res.1	Coil resistance 1	All configurations except NRG 2600-3600 (Circuit 3)
	---		NRG 2600-3600 (Circuit 3)
NO6	VB1C1	Circ.1 Cond. bleed-off	NRG 0800-2400 Total Recovery
	Coil Res.2	Coil resistance 2	All configurations except NRG 2600-3600 (Circuit 3)
	---		NRG 2600-3600 (Circuit 3)
NO7	MV1	Ventilation group	(For NRG G 0800-2400 it concerns Circuit 1)
	MV3	Ventilation unit circuit 3	Only for NRG 2600-3600 (Circuit 3)
NO8	AE	Alarm summary	---
NO9	CP2A	Compressor 1 Circuit 2	Cooling only dual circuit
			Only Free cooling/Glycolfree Single circuit/ Dual circuit
			Recovery Dual circuit
	---	---	Cold Single circuit
			Recovery Single circuit Heat pump in all configurations
	RS1	Resistance 1 Coil	NRG 0282-0804 Heat pump
NO10	CP2B	Compressor 2 Circuit 2	Cooling only dual circuit
			Free cooling/Glycolfree Dual circuit
			Recovery Dual circuit
	---	---	Cold Single circuit
			Free cooling/Glycolfree Single circuit
			Recovery Single circuit
	RS2	Resistance 2 Coil	NRG 0282-0804 Heat pump
NO11	CP2C	Compressor 3 Circuit 2	NRG 0800-2400 Only Cold/Recovery/ Freecooling/Glycol Free
	CPOR	Recovery external pump	Recovery Single circuit/Dual circuit
	---	---	Cold Single circuit/Dual circuit
			Free cooling/Glycolfree Single circuit/Dual circuit
			HEAT PUMP
NO12	MV2	Ventilation group C2	All configurations except NRG 2600-3600 (Circuit 3)
	VRT1	Recovery 3-way valve	Recovery Single circuit/Dual circuit
	---	---	Cold Single circuit/Dual circuit
			Free cooling/Glycolfree Single circuit/Dual circuit
			Heat pump in all configurations
NO13	MVP	Periodic ventilation	NRG 0800-2400
	VR1C1	Circ.1 Rec. bleed-off	NRG 0282-0804 Single Circuit/Dual circuit Recovery
	---	---	NRG 0282-0804 Cold Single Circuit/Dual circuit
			Free cooling/Glycolfree Single circuit/Dual circuit
			NRG 0282-0804 Heat pump

Digital Outputs	Code	Description	Note
NO14	VB1C1	Circ.1 Cond. bleed-off	Recovery Single circuit/Dual circuit
	CPOR	Recovery external pump	NRG 0800-2400 Recovery
	---	---	Cold Single circuit/Dual circuit
			Free cooling/Glycolfree Single circuit/Dual circuit
			HEAT PUMP
NO15	VSL1A	Oil bleed-off valve from Circuit 1 Recovery	Recovery Single circuit/Dual circuit
	VRT1	Recovery 3-way valve	NRG 0800-2400 Recovery
	---	---	Cold Single circuit/Dual circuit
			Free cooling/Glycolfree Single circuit/Dual circuit
			Heat pump in all configurations
NO16	RRT	Rec. heat exchanger heater	Recovery Single circuit/Dual circuit
	---	---	Cold Single circuit/Dual circuit
			Free cooling/Glycolfree Single circuit/Dual circuit
	ALF	Flow switch alarm	HEAT PUMP
NO17	RE	Heater exchanger	---
NO18	MPE2	Pump 2 evaporator	All configurations except NRG 2600-3600 (Circuit 3)

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

23.4 ANALOGUE OUTPUTS

ANALOGUE outputs	Code	Description	Note
Y1	FAN1	Modulating fans unit 1	---
Y2	FAN2	Modulating fans unit 2	Except NRG 2600-3600 (Circuit 3)
Y3	FAN3	Modulating fans unit 3	Except NRG 2600-3600 (Circuit 3)
Y4	---	---	---
Y5	---	---	---
Y6	RB	Tray heater	Cold Single circuit
			Free cooling/Glycolfree Single circuit
			Recovery Single circuit
			Single circuit heat pump except NRG 2600-3600 (Circuit 3)

23.5 ANALOGUE INPUTS (PEC)

Analogue Input (PEC)	Code	Description	Note
P1	TBP1	Low pressure transducer (circuit 1)	Sanhua 4÷20mA
			Single circuit/Dual circuit
P2	TAP1	High pressure transducer (circuit 1)	Sanhua 4÷20mA
			Single circuit/Dual circuit
T1	---	---	---
T2	SGA1	Intake temperature probe (circuit 1)	Shibaura NTC 10K L=3m
			Single circuit/Dual circuit
T3	SAE	External air sensor	Shibaura NTC 10K L=3m
			Single circuit/Dual circuit
T4	SL1	Liquid temperature probe (circuit 1)	Shibaura NTC 10K L=3m
			Single circuit/Dual circuit
T5	SGP1A	Compressor 1 Circuit 1 discharge gas probe	Shibaura NTC 10K L=4m
			Single circuit/Dual circuit
T6	SGP1B	Compressor 2 Circuit 1 discharge gas probe	Shibaura NTC 10K L=4m
			DOUBLE CIRCUIT

Analogue Input (PEC)	Code	Description	Note
T7	SGP1C	Pressing line gas probe Compressor 3 Circuit 1 (NRG 0800-2400)	Shibaura NTC 10K L=4m
P3	TBP2	Circuit 2 Low pressure transducer	Sanhua 4÷20mA
			DOUBLE CIRCUIT
P4	TAP2	High pressure, Circuit 2 transducer	Sanhua 4÷20mA
			DOUBLE CIRCUIT
T9	SGA2	Circuit 2 Intake temperature probe	Shibaura NTC 10K L=3m
			DOUBLE CIRCUIT
T10	SL1	Circuit 2 Liquid temperature probe	Shibaura NTC 10K L=3m
			DOUBLE CIRCUIT
T11	SGP2A	Compressor 1 Circuit 2 discharge gas probe	Shibaura NTC 10K L=4m
			DOUBLE CIRCUIT
T12	SGP2B	Compressor 2 Circuit 2 discharge gas probe	Shibaura NTC 10K L=4m
			DOUBLE CIRCUIT
T13	SGP2C	Pressing line gas probe Compressor 3 Circuit 2 (NRG 0800-2400)	Shibaura NTC 10K L=4m

23.6 DIGITAL OUTPUT (PEC)

Digital output (PEC)	Code	Description	Note
NO1	VIC1	Circuit 1 reverse cycle valve	Single circuit/Dual circuit
NO2	CP1A	Compressor 1 Circuit 1	Single circuit/Dual circuit
NO3	CP1B	Compressor 2 Circuit 1	Single circuit/Dual circuit
NO4	CP1C	Compressor 3 Circuit 1	NRG 0800-2400
NO5	VIC2	Circuit 2 reverse cycle valve	DOUBLE CIRCUIT
NO6	CP2A	Compressor 1 Circuit 2	DOUBLE CIRCUIT
NO7	CP2B	Compressor 2 Circuit 2	DOUBLE CIRCUIT
NO8	CP2C	Compressor 3 Circuit 2	NRG 0800-2400

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

23.7 ANALOGUE INPUTS (EVD)

Analogue Inputs (EVD)	Code	Description	Note
S1	TBP1	Circuit 1 Low pressure transducer	Cold single circuit/dual circuit
			Free cooling/Glycolfree Single circuit/Dual circuit
			Recovery Single circuit/Dual circuit
S2	SGA1	Circ. 1 intake temperature probe	Cold single circuit/dual circuit
			Free cooling/Glycolfree Single circuit/Dual circuit
			Recovery Single circuit/Dual circuit
S3	TBP2	Circuit 2 Low pressure transducer	Cold dual circuit
			Free cooling/Glycolfree Single circuit/Dual circuit
			Recovery Dual circuit
S4	SGA2	Circ. 2 intake temperature probe	Cold dual circuit
			Free cooling/Glycolfree Single circuit/Dual circuit
			Recovery Dual circuit

23.8 ANALOGUE INPUTS (PCOE FREE COOLING MODELS)

Analogue Inputs (pCOE)	Code	Description	Note
B1	SFC	Free cooling inlet probe	Single circuit/Dual circuit
B2	---	---	---
B3	---	---	---
B4	---	---	---

23.9 DIGITAL OUTPUTS (PCOE FREE COOLING MODELS)

Digital outputs (pCOE)	Code	Description	Note
NO1	V3V	Free cooling 3-way valve	Single circuit/Dual circuit
NO2	---	---	---
NO3	---	---	---
NO4	---	---	---

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

23.10 ANALOGUE INPUTS (PCOE - GLYCOLFREE MODELS)

Analogue Inputs (pCOE)	Code	Description	Note
B1	SFC	Free cooling inlet probe	---
B2	SFC2	Free cooling outlet probe	---
B3	SRU	Intermediate evaporator probe	---
B4	---	---	---

23.11 DIGITAL INPUTS (PCOE - GLYCOLFREE MODELS)

Digital inputs (pCOE)	Code	Description	Note
ID1	RS2	Flow switch Glycol Free side	---
ID2	MTP	Glycol Free pump thermal	---
ID3	---	---	---
ID4	---	---	---

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

23.12 DIGITAL OUTPUTS (PCOE - GLYCOLFREE MODELS)

Digital outputs (pCOE)	Code	Description	Note
NO1	MPC	Glycol Free Side pump	---
NO2	RS2	Glycol Free Side Heater	---
NO3	---	---	---
NO4	---	---	---

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

23.13 ANALOGUE INPUTS (PCOE MODELS WITH TOTAL RECOVERY)

Analogue Inputs (pCOE)	Code	Description	Note
B1	SIR	Recovery inlet probe	---
B2	SUR	Recovery outlet probe	In NRG 0800-2400 will refer to Circuit 1
B3	SUR2	Recovery Outlet Probe Circuit 2	NRG 0800-2400

Analogue Inputs (pCOE)	Code	Description	Note
B4	---	---	---

23.14 DIGITAL INPUTS (PCOE MODELS WITH TOTAL RECOVERY)

Digital inputs (pCOE)	Code	Description	Note
NO1	FLR	Recovery flow switch	---
NO2	TPR	Recovery external pump thermal switch	---
NO3	---	---	---
NO4	---	---	---

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

23.15 DIGITAL OUTPUTS (PCOE MODELS WITH TOTAL RECOVERY)

Digital inputs (pCOE)	Code	Description	Note
NO1	VR1C2	Circ.2 Rec. bleed-off	Recovery Dual circuit
	---		Recovery Single circuit
NO2	VB1C2	Circ.2 Cond. bleed-off	Recovery Dual circuit
	---		Recovery Single circuit
NO3	VRT2	Recovery 3-way valve Circuit 2	Recovery Dual circuit
	---		Recovery Single circuit
NO4	---		

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

23.16 ANALOGUE INPUTS (PCOE - DK)

Analogue inputs	Code	Description	Note
B1	SUW2	Probe Water outlet temperature according to evap.	Single circuit/Dual circuit
B2	SUC	Probe water outlet common evap.	Single circuit/Dual circuit
B3	---		
B4	---		

23.17 ANALOGUE INPUTS (PCOE - VARIABLE FLOW RATE / SUPPLEMENTARY HEATER)

Analogue inputs	Code	Description	Note
B1	VPF	Differential Transducer	Only for Variable Flow Rate
B2	---	---	
B3	SAC	Storage Tank Probe	Only for Supplementary Heater
B4	---	---	

23.18 DIGITAL OUTPUTS (PCOE - VARIABLE FLOW RATE / SUPPLEMENTARY HEATER)

Digital Outputs	Code	Description	Note
NO1	Rest.1	Integral Resistance 1 / Boiler in Replacement	Only for Supplementary Heater
NO2	Rest.2/3	Integr.resist. 2 / Integr.resist. 3	Only for Supplementary Heater
NO3	---		
NO4	---		

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

— CLOSED: load active;

23.19 DIGITAL INPUTS (PCOE - VARIABLE FLOW RATE / SUPPLEMENTARY HEATER)

Digital inputs	Code	Description	Note
Y1	VPF3V	3 Way Valve	Only for Variable Flow Rate

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

23.20 ANALOGUE INPUTS (PCOE)

Analogue inputs	Code	Description	Note
B1	SL1	Circuit 1 Liquid Probe	NRG 0800-2400 Cold Only
		----	NRG 0800-2400 Heat Pump
B2	SL2	Circuit 2 Liquid Probe	NRG 0800-2400 Cold Only
		----	NRG 0800-2400 Heat Pump
B3	SGP1C	Compressor 3 Circuit 1 discharge gas probe	NRG 0800-2400 Cold Only
		----	NRG 0800-2400 Heat Pump
B4	SGP2C	Compressor 3 Circuit 2 discharge gas probe	NRG 0800-2400 Cold Only
		----	NRG 0800-2400 Heat Pump

23.21 DIGITAL INPUTS (PCOE)

Digital inputs	Code	Description	Note
ID1	QMF2	Circuit 2 Thermomagnetic fan switch	NRG 0800-2400
ID2	TV2	Circuit 2 fan thermal series	NRG 0800-2400
ID3	QM31	Compressor 3 circuit 1 thermomagnetic switch	NRG 0800-2400
ID4	QM32	Compressor 3 circuit 2 thermomagnetic switch	NRG 0800-2400

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

23.22 DIGITAL OUTPUTS (PCOE)

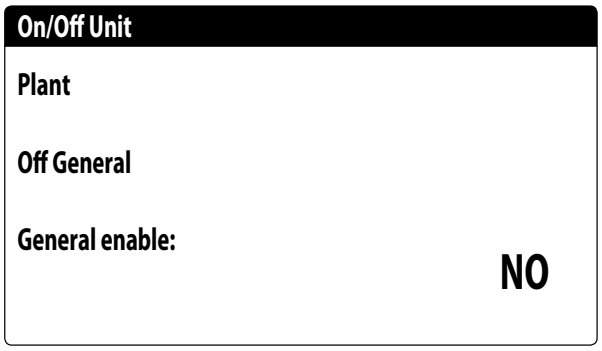
Digital Outputs	Code	Description	Note
NO1	VIC1	Cycle Reversing valve Circ. 1	NRG 0800-2400 Recovery
	----	----	NRG 0800-2400 Cold Only/Heat Pump
NO2	VIC2	Cycle Reversing valve Circ. 2	NRG 0800-2400 Recovery
	----	----	NRG 0800-2400 Cold Only/Heat Pump
NO3	VSP1	Spillage valve Circ.1	Only NRG 0800-2400 Recovery
NO4	VSP2	Spillage valve Circ.2	Only NRG 0800-2400 Recovery

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

24 ON/OFF MENU

24.1 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:



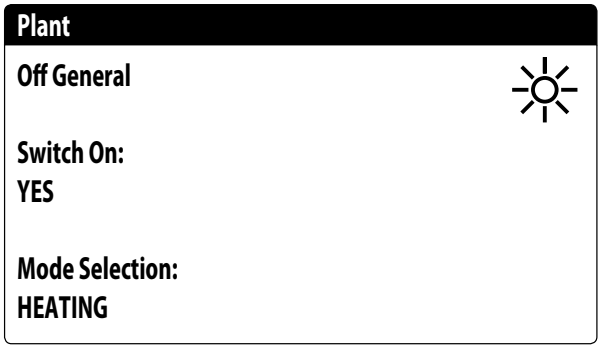
Display of the general system state:
- Enabled: the system regulates via the main probe based on the system setpoint;
- Off due to alarm: system off due to serious alarm;
- General off: system turned off by general enabling (see the paragraph described below "General enabling");
- Off by BMS: system 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;
- 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.

25 SYSTEM MENU

25.1 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:

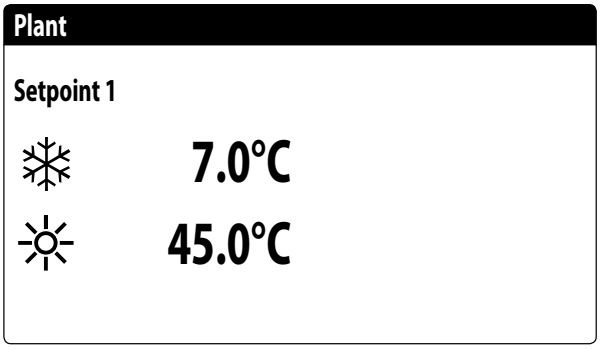


Enable: allows to select the mode with which to turn the unit on or off; the available options are:
— OFF: the system does not produce hot/chilled water;
— YES: the system regulates via the main probe based on the system setpoint;
— YES WITH SET2: the system regulates via the main probe based on setpoint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

25.2 SETTING THE VALUES FOR THE PRIMARY SETS

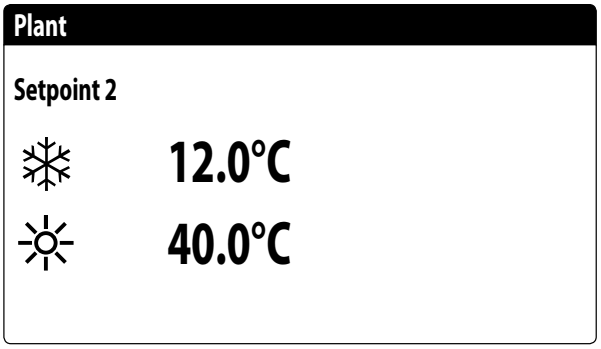
This mask is used to set the values to assign to the primary working setpoints:



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

25.3 SETTING THE VALUES FOR THE SECONDARY SETPOINTS

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



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

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

NOTICE

This mask is only visible if "BY CLOCK" is selected on the page "Selecting the system operating mode";

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

The system keeps the system off outside the time bands.

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

NOTICE

This mask is only visible if "BY CLOCK" is selected on the page "Selecting the system operating mode";

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

The system keeps the system off outside the time bands.

25.6 COPY/PASTE TIME BANDS

NOTICE

This mask is only visible if "BY CLOCK" is selected on the page "Selecting the system operating mode";

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**

25.7 SETTING THE SEASON CHANGE FROM THE CALENDAR (HEATING)

NOTICE

This mask is only visible if "BY CALENDAR" is selected on the page "Selecting the system operating mode";

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/---**

25.8 SETTING THE SEASON CHANGE FROM THE CALENDAR (COOLING)

NOTICE

This mask is only visible if "BY CALENDAR" is selected on the page "Selecting the system operating mode";

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**

26 RECOVERY MENU

26.1 ENABLING RECOVERY

NOTICE

This mask is available on units with total recovery.

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

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);

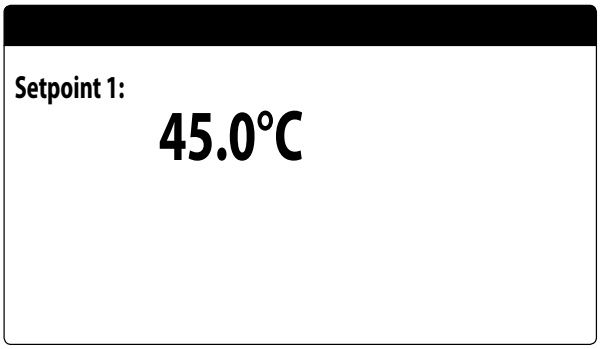
Enable: allows to enable or disable the total recovery;

26.2 SET THE RECOVERY SET VALUE

NOTICE

This mask is available on units with total recovery.

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):



27 CLOCK MENU

27.1 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**

27.2 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**

27.3 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:

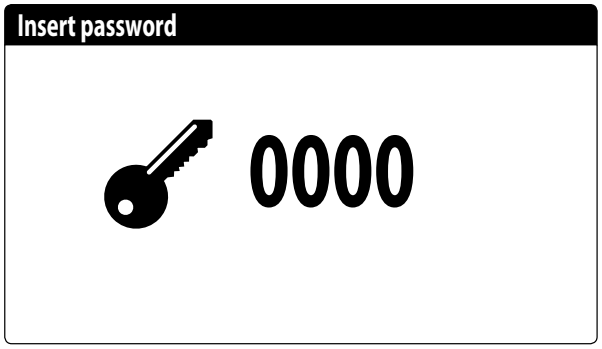
Calendar

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

28 INSTALLER MENU

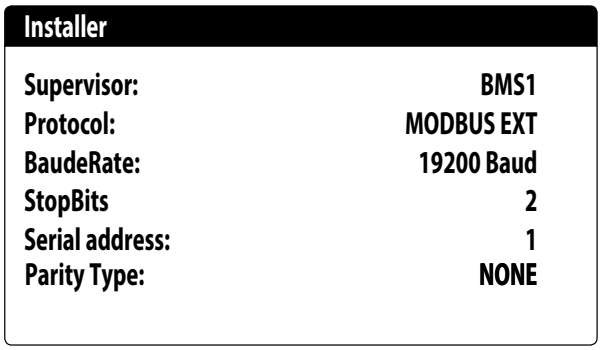
28.1 PASSWORD TO ACCESS THE INSTALLER MENU (0000)

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



28.2 SETTING THE BMS 1 PARAMETERS

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



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.

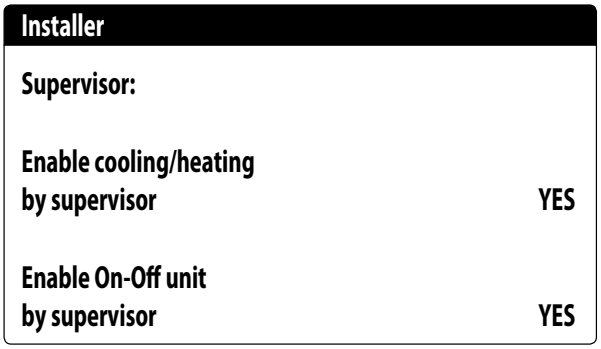
Speed: this value indicates which speed is set for serial communication; the possible selections are:
— 0: 1200 baud;
— 1: 2400 baud;
— 2: 4800 baud;
— 3: 9600 baud;
— 4: 19200 baud;
— 5: 38400 baud;

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;
— Even;
— Odd.

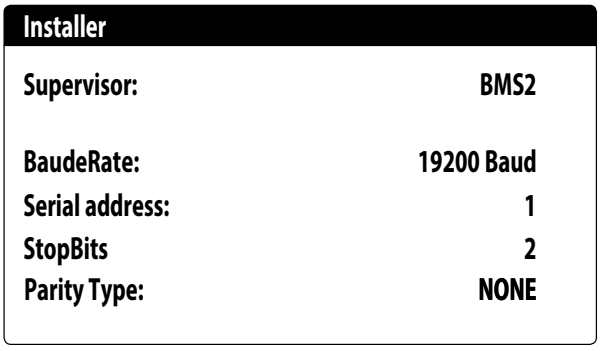
28.3 ENABLE CHANGE OVER AND ON/OFF BY SUPERVISOR

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



28.4 SETS THE BMS2 PARAMETERS

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



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 BMS1 supervision system; the values that can be set are:
— None;
— Even;
— Odd.

28.5 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

28.6 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 (U3 uPC): the probe used for adjusting the production of water is the one at the common output if there are two plate heat 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

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);

28.7 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

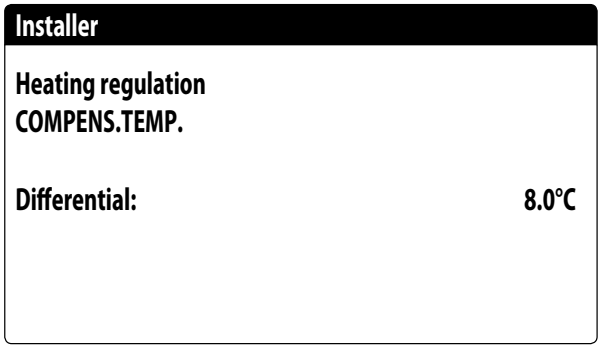
Cooling regulation
COMPENS.TEMP.

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;

28.8 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:



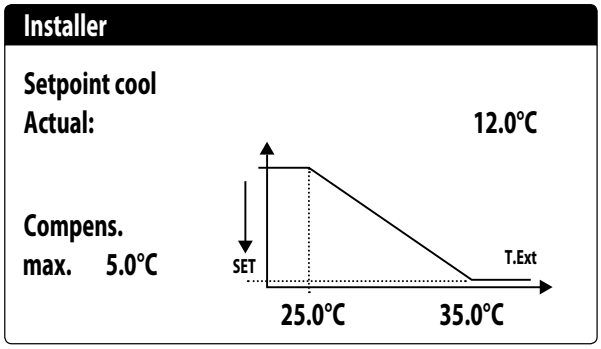
The type of setpoint indicates which logic is used for managing the working setpoint; the possible states are:

— 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;

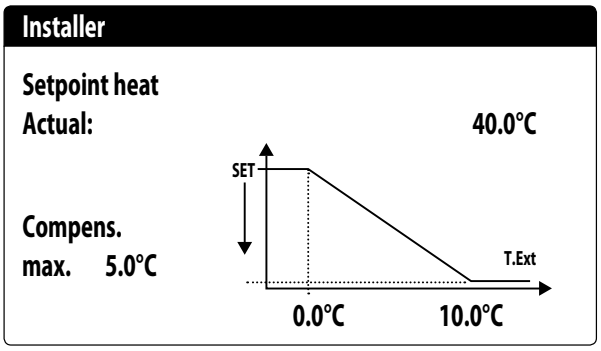
28.9 CLIMATIC CURVE CONFIGURATION IN COOLING MODE

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;



28.10 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;

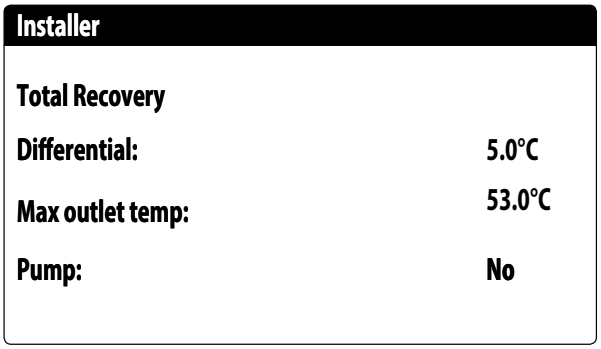


28.11 TOTAL RECOVERY CONFIGURATION

NOTICE

This mask is available on units with total recovery.

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



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;

28.12 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;

28.13 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;

28.14 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);

28.15 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	
Total recovery	
Antifreeze alarm	
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;

28.16 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

28.17 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;

28.18 MULTI-FUNCTION INPUT CONFIGURATION (U10)

NOTICE

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

This mask is used to set the function associated with multifunction 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;

28.19 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;

28.20 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);

28.21 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;

28.22 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**
Controllo On:	**21:00**
Controllo Off:	**8:00**
FC VMax:	**6.0V**
FCV Max 100:	**0.0V**

— **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;
— **FC VMax**: Maximum volts in free cooling operation with night mode control;
— **FC VMax 100**: Fan speed corresponding to 100% of free cooling power;with a set value of 6 V in this parameter, the 100% available and supplied power value will be reached when the fan speed reaches 6 V;

28.23 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;

28.24 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”;

28.25 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;

28.26 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:	0000h
Compressor 2:	0000h
Compressor 3:	0000h

28.27 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:	0000
Compressor 2:	0000
Compressor 3:	0000

28.28 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 of the fans
— **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;

28.29 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;

28.30 CONFIGURATION OF THE FAN SPEED IN FREE COOLING

NOTICE

This mask is available on free cooling units.

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

Fans	
Frecooling	
Delta T:	**15.0°C**
Max Volt:	**10.0V**
Max Volt 100:	**10.0V**

— **Delta T**: value generated at the maximum fan speed at a design external air temperature;
— **Max volts**: maximum fan voltage during the free cooling operation.Used in silenced units to reduce noise;
— **Max volts 100**: Fan speed corresponding to 100% of free cooling power.E.g. with a set value of 7 V in free cooling, the 100% available and supplied power value will be reached when the fan speed reaches 7 V;

28.31 FREE COOLING CONFIGURATION (YIELD CONTROL)

NOTICE

This mask is available on free cooling units.

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:

Fans	
Frecooling Gain control.	
Delta T:	**1.5°C**
Control 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;

28.32 GLYCOL WATER MANAGEMENT

This window is used to enable or disable the use of glycol water:

Installer	
Glycol water management.	
Enable:	**YES**
Freezing temperature of mixed with antifreeze:	**0.0°C**

Enable: this value indicates if the unit uses glycol water; the possible states are:
— No: glycol water management is disabled;
— Yes: glycol water management is disabled;

Freezing temperature of mixed with antifreeze: With this parameter, the minimum cold setpoint limit, the antifreeze alarm, the antifreeze resistance threshold and the cold force off threshold are calculated.

28.33 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;

28.34 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;

28.35 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;
— **Test bypass**: indicates the forced valve command to use as a test. set to deactivate forcing;

28.36 UNIT INFORMATION EVD

This window shows the EVD Driver firmware version:

Information

EVO n° 0

Firmware version: ---

28.37 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: NRG3600XH°°°°°00
MASTER

Ver.: 2.0.001 08/07/24

Testing date:
14:06 06/09/24

28.38 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

28.39 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]

28.40 CONFIGURES THE INSTALLER MENU PASSWORD

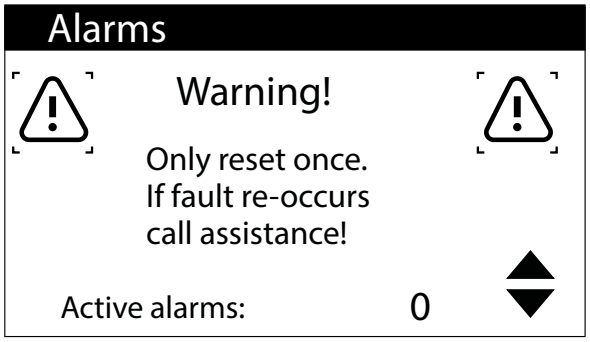
This window is used to change the "Installer" menu access parameter:

Password

New password
Installer: 0000

29 ALARM

29.1 CONTROL OF ALARMS

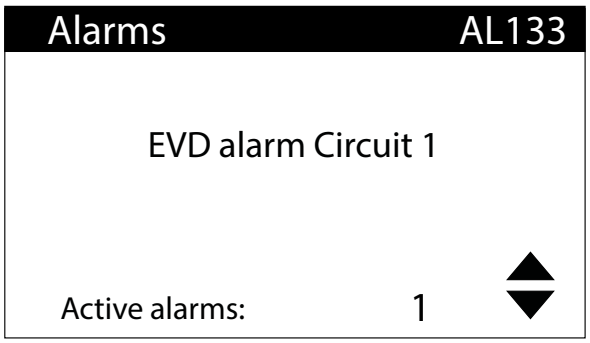


This mask displays the alarm management logic.

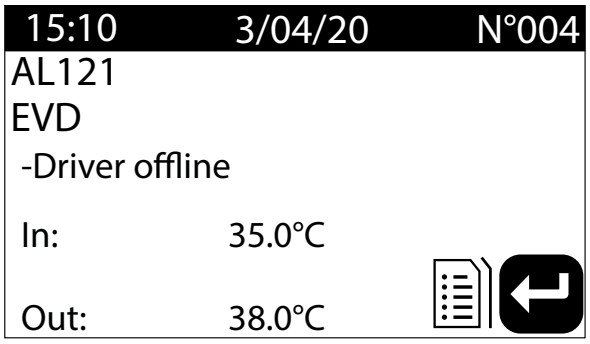
Alarms with password-protected reset are:
— Leak detector
— High pressure alarm
— Low pressure alarm

The alarm status and number of interventions remain in memory even after power failure.

29.2 ALARM HISTORY

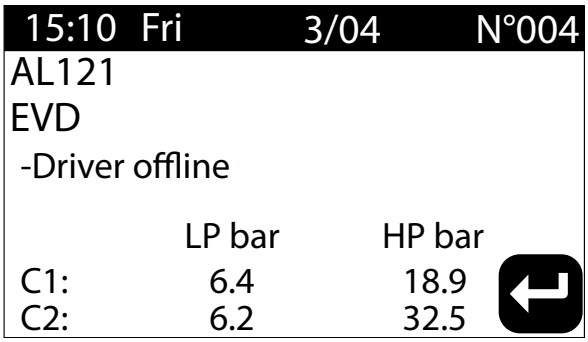


By pressing the list of active alarms is displayed.
Each alarm is uniquely identified by a 4-digit alarm code, this code can be found on the previous pages.
The last line shows how many alarms are active at that moment.



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



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

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

29.3 ALARM RESET

WARNING

The password-protected alarm reset procedure is reserved only for authorised technical personnel. If an alarm occurs, it is necessary to contact the AUTHORISED TECHNICAL SUPPORT SERVICE.

MANDATORY

In the event of an alarm, with a password-protected reset, it is necessary to contact the AUTHORISED TECHNICAL AFTER-SALES SERVICE/ASSISTANCE so that they can intervene to resolve the malfunctioning of the unit and carry out the password reset procedure.

30 LIST OF ALARMS

WARNING

The password-protected alarm reset procedure is reserved only for authorised technical personnel. If an alarm occurs, it is necessary to contact the AUTHORISED TECHNICAL SUPPORT SERVICE.

MANDATORY

In the event of an alarm, with a password-protected reset, it is necessary to contact the AUTHORISED TECHNICAL AFTER-SALES SERVICE/ASSISTANCE so that they can intervene to resolve the malfunctioning of the unit and carry out the password reset procedure.

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.

Table of contents	Meaning	Reset
AL01	Clock battery flat alarm	Auto
AL02	Incorrect PEC Firmware alarm	Auto
AL03	Phase monitor alarm	Semi-auto
AL04	Display alarm reset	---
AL05	Circ.1 high pressure faulty probe alarm	Manual
AL06	Circ. 2 high pressure faulty probe alarm	Manual
AL07	Circ. 1 low pressure faulty probe alarm	Manual
AL08	Circ. 2 low pressure faulty probe alarm	Manual
AL09	Evaporator 1 input faulty probe alarm	Manual
AL10	Evaporator 1 output faulty probe alarm	Manual
AL11	Evap. common outlet faulty probe alarm	Manual
AL12	Recovery inlet faulty probe alarm	Manual
AL13	Recovery outlet faulty probe alarm	Manual
AL14	Recovery 2 outlet faulty probe alarm	Manual
AL16	Outside temperature faulty probe alarm	Manual
AL17	Circ.1 liquid temperature faulty probe alarm	Manual
AL18	Circ.2 liquid temperature faulty probe alarm	Manual
AL22	Evap pump 1 maintenance request	Auto
AL23	Evap pump 2 maintenance request	Auto
AL24	Evaporator 1 pump thermal alarm	Manual
AL25	Evaporator 2 pump thermal alarm	Manual
AL26	Recovery pump 1 circuit breaker alarm	Manual
AL28	Ventilation unit 1 thermal alarm	Manual
AL29	Fan 2 circuit breaker alarm	Manual
AL30	Circ. 1 low pressure switch alarm	Manual with password
AL31	Circ. 1 low pressure alarm	Manual
AL32	Circ. 1 high pressure switch alarm	Manual with password
AL33	Circ. 1 high pressure alarm	Manual
AL34	Circ. 1 serious low pressure alarm	Manual
AL35	Circ. 2 serious low pressure alarm	Manual
AL38	Evaporator flow switch alarm	Manual
AL39	Recovery flow meter alarm	Manual
AL40	Evaporator anti-freeze alarm	Manual
AL41	Common evap. anti-freeze alarm	Manual
AL42	Recovery anti-freeze alarm	Manual
AL43	Recovery 2 anti-freeze alarm	Manual
AL46	Alarm offline pCOE expansion (address=2) condenser unit	Manual

Table of contents	Meaning	Reset
AL48	Discharge gas temperature CP1A Circ.1	Manual
AL49	Discharge gas temperature CP1BB Circ.1	Manual
AL50	Discharge gas temperature CP1C Circ.1	Manual
AL51	Maintenance hours alarm CP1A circ.1	Auto
AL52	Maintenance hours alarm CP1B circ.1	Auto
AL53	Maintenance hours alarm CP1B circ.1	Auto
AL54	Maintenance hours alarm CP2B circ.2	Auto
AL55	Maintenance hours alarm CP2B circ.2	Auto
AL56	Maintenance hours alarm CP2C circ.2	Auto
AL58	Circ. 1 compressor 1 technical alarm	Manual
AL59	Circ. 1 compressor 2 technical alarm	Manual
AL60	Circ. 1 compressor 3 technical alarm	Manual
AL61	Circ. 2 compressor 1 technical alarm	Manual
AL62	Circ. 2 compressor 2 technical alarm	Manual
AL63	Circ. 2 compressor 3 technical alarm	Manual
AL64	Circuit 2 low pressure gauge alarm	Manual with password
AL65	Circ. 2 low pressure alarm	Manual
AL66	Circ. 2 high pressure switch alarm	Manual with password
AL67	Circ. 2 high pressure alarm	Manual
AL68	Circuit 1 fan thermal series	Semi-auto
AL69	Circuit 2 fan thermal series	Semi-auto
AL73	Circ. 1 comp. 1 discharge gas high temp. alarm	Manual
AL74	Circ. 2 comp. 1 discharge gas high temp. alarm	Manual
AL75	Circ. 3 comp. 1 discharge gas high temp. alarm	Manual
AL76	Circ. 2 comp. 1 discharge gas high temp. alarm	Manual
AL77	Circ. 2 comp. 2 discharge gas high temp. alarm	Manual
AL78	Circ. 3 comp. 2 discharge gas high temp. alarm	Manual
AL79	Discharge gas temperature CP2A Circ.2	Manual
AL80	Discharge gas temperature CP2B Circ.2	Manual
AL81	Discharge gas temperature CP2C Circ.2	Manual
AL82	Low water content force off alarm	Auto
AL83	Air-water envelope alarm	Semi-auto
AL85	System high temperature	Manual
AL86	SAC storage tank probe faulty	Auto
AL87	Master offline	Auto
AL88	Slave offline	Auto
AL89	Incorrect master/slave SW version	Auto
AL90	Slave alarm summary	Auto
AL91	Alarm offline pCOE expansion (address=4) free cooling unit	Manual
AL92	Alarm inlet freecooling probe	Manual
AL93	Alarm oulet freecooling probe	Manual
AL94	Intermediate exchanger inlet probe alarm	Manual
AL95	Glycol Free flow switch alarm	Manual
AL96	Glycol-Free pump thermal alarm	Manual
AL97	Free cooling ouput alarm	Manual
AL98	pCOE DK expansion offline alarm (address=3)	Manual
AL99	Evaporator common outlet faulty probe alarm	Manual
AL100	Evaporator 2 output faulty probe alarm	Manual
AL102	Water inlet temp. out of operating limits	Manual
AL103	Suction probe broken or not connected circ. 1	Manual
AL104	Suction probe broken or not connected circ. 2	Manual
AL105	EVD error valve motor circuit 1	Manual
AL106	Evap. Low Temperature EVD (LOP) Circuit 1	Manual
AL107	EVD High evap. temperature (MOP) circuit 1	Manual
AL108	Overheat. low EVD (LowSH) Circuit 1	Manual
AL109	EVD Low suction temperature circuit 1	Manual
AL110	EVD High evap. temperature circuit 1	Manual
AL111	EVD Error Valve Motor Circuit 2	Manual
AL112	Evap. low temperature EVD (LOP) Circuit 2	Manual

Table of contents	Meaning	Reset
AL113	EVD High evap. temperature (MOP) circuit 2	Manual
AL114	Overheat. low EVD (LowSH) Circuit 2	Manual
AL115	EVD Low suction temperature circuit 2	Manual
AL116	EVD S1 probe error	Manual
AL117	EVD S2 probe error	Manual
AL118	EVD S3 probe error	Manual
AL119	EVD S4 probe error	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
AL126	Leak Detector Alarm	Manual with password
AL127	Leak detector sensor anomaly	Semi-auto
AL128	Leak Detector Offline	Semi-auto
AL129	Temp.Sensor liquid cond.1 broken or not connect. NRGH Monocirc.	Manual
AL130	Temp.Sensor liquid cond.2 broken or not connect. NRGH Monocirc.	Manual
AL131	High overheating of Circuit 1 (circuit discharged)	Manual
AL132	High overheating of Circuit 2 (circuit discharged)	Manual
AL133	PEC offline	Semi-auto
AL134	PEC Software - alarm set 1	---
AL135	PEC Software - alarm set 2	---
AL136	PEC Hardware - alarm set 1	---
AL137	PEC Hardware - alarm set 2	---
AL140	Expansion pCOE VPF OffLine (address=5)	Manual
AL141	Differential Transducer broken or not connected	Manual
AL142	Low SH circ.1	Manual
AL143	Low SH circ.2	Manual
AL144	EVD alarms summary Circuit 1	Manual
AL145	EVD alarms summary Circuit 2	Manual
AL146	Expansion pCOE NRG-Large (Address=6)	Manual
AL147	Leak Detector 2 Sensor Failure	Semi-auto
AL148	Leak Detector 2 offline	Semi-auto
AL149	Oil cooling cycle CP1B circuit 1	Auto
AL150	Oil cooling cycle CP2B circuit 2	Auto
AL151	Envelope circuit 1 (cold only unit)	Manual
AL152	Envelope circuit 2 (cold only unit)	Manual
AL153	Compressor 1 circuit breaker alarm circ. 3 (range extension)	Manual
AL154	Compressor 2 circuit breaker alarm circ. 3 (range extension)	Manual
AL155	Compressor 3 circuit breaker alarm circ. 3 (range extension)	Manual
AL156	Inverted probes gas pressing line circuit 1	Manual
AL157	Inverted probes gas pressing line circuit 2	Manual

30.1 PEC ALARMS

The alarms concerning the PEC each represent a group of alarms.
The tables for each group of alarms are shown below:

Software - alarm set 1

Software - alarm set 1		
Bit	**Meaning**	**Reset**
0	Circuit 1 low pressure	Manual
1	Circuit 1 low superheat	Manual
2	Circuit 1 high superheat	Auto
3	End of defrosting for Time Lapse circuit 2	Manual
4	Differential cycle reversing valve pressure circuit 2	Manual
5	NOT USED	---
6	NOT USED	Manual
7	NOT USED	---
8	NOT USED	---
9	NOT USED	---
10	NOT USED	---
11	NOT USED	---
12	Circuit 1 envelope alarm	Manual
13	End of defrosting for timeout circuit 1	Manual
14	Circuit 1 high discharge gas temperature compressor 1	Manual
15	Circuit 2 low superheat	Auto

Hardware - alarm set 1

Hardware - alarm set 1		
Bit	**Meaning**	**Reset**
0	P1 sensor	Manual
1	P2 sensor	Manual
2	T1 sensor	---
3	T2 sensor	Manual
4	T3 sensor	Manual
5	T4 sensor	Manual
6	T5 sensor	Manual
7	T6 sensor	Manual
8	T7 sensor	---
9	P3 sensor	Manual
10	P4 sensor	Manual
11	T8 sensor	---
12	T9 sensor	Manual
13	T10 sensor	Manual
14	T11 sensor	Manual
15	T12 sensor	Manual

Software - alarm set 2

Software - alarm set 2		
Bit	**Meaning**	**Reset**
0	Circuit 2 high superheat	Manual
1	NOT USED	---
2	Circuit 1 comp. 2 discharge gas high temp.	Manual
3	Circuit 1 comp. 3 discharge gas high temp.	Manual
4	Circuit 2 low pressure	Manual
5	Circuit 2 high condensing pressure	Manual
6	Circuit 2 comp. 1 discharge gas high temp.	Manual
7	Circuit 2 comp. 2 discharge gas high temp.	Manual
8	Circuit 2 comp. 3 discharge gas high temp.	Manual
9	NOT USED	---
10	NOT USED	---
11	NOT USED	---

Software - alarm set 2		
Bit	**Meaning**	**Reset**
12	NOT USED	---
13	Circuit 2 envelope alarm	Manual
14	NOT USED	---
15	Insufficient differential pressure in reverse cycle valve	Manual

Hardware - alarm set 2

Hardware - alarm set 2		
Bit	**Meaning**	**Reset**
0	NOT USED	---
1	NOT USED	---
2	NOT USED	---
3	System controller communication timeout (60s timeout, each new communication resets the timer and cancels the alarm)	Manual
4	NOT USED	---
5	NOT USED	---
6	Safety feedback circuit 1	Manual
7	Safety feedback circuit 2	Manual
8	System Power Loss	Manual
9	NOT USED	---
10	Valve configuration alarm	Auto
11	Valve 1 alarm	Manual
12	Valve 2 alarm	Manual
13	NOT USED	---
14	Pack configuration alarm	Auto
15	NOT USED	---

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