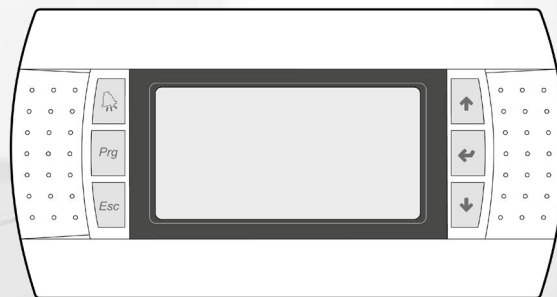
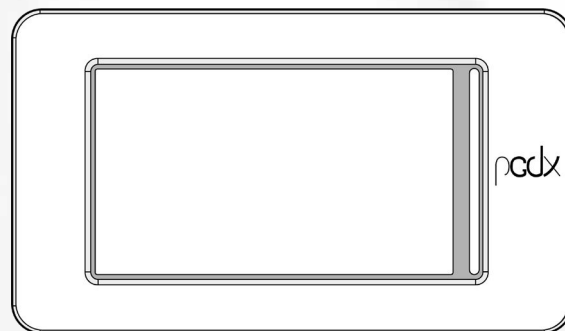


EN

26/06 - 4424411\_03  
Translation of Original instructions

# Screw w/w range



---

■ CARD PC05 - TOUCH PANEL PGDX - PANEL  
PGD1



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Dear Customer,

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

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

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

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

Thank you again.

Aermec S.p.A.

#### SAFETY CERTIFICATIONS



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.



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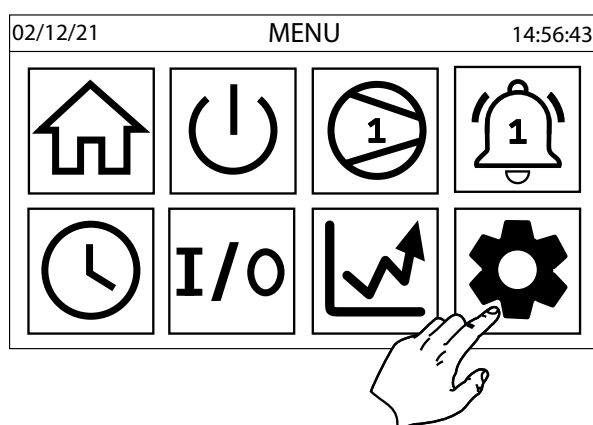
# 1 USER INTERFACE (PGDX)

The user has the pGDx panel available with a 4.3" touch screen, which is used to display the complete machine status and change the parameters to configure it.

The structure of the various menus and displays is designed to be functional and easy to use.

The card stores all the default settings and any modifications.

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



## 1.1 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. Once the desired icon is selected, the select menu opens, and it is possible to display or change the corresponding parameters.

### CAUTION



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 MENU ICONS

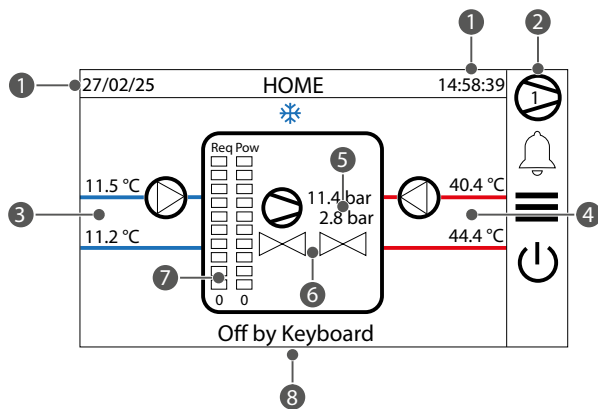
The following table contains the menu icons for the pGDx panel:

| Icon | Meaning                                                                                                                                                                                                                                                                     |
|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|      | <b>Home:</b><br>Pressing this key displays the machine summary, where it is possible to find operating information such as temperature, pressures, setpoint, status.                                                                                                        |
|      | <b>Chiller:</b><br>Pressing this key displays the Chiller menu, which is the main menu where it is possible to display and change the operating mode of the machine and the adjustment setpoints.                                                                           |
|      | <b>Unit selection:</b><br>Pressing this key makes it possible to select the compressor unit with which to dialogue.<br>As each compressor is managed by a control card, each operating parameter must be programmed in all the cards.                                       |
|      | <b>Alarms:</b><br>Pressing this key displays the list of active alarms, it permits accessing the alarm log and resetting the alarms when they are no longer active.                                                                                                         |
|      | The key icon is red when there is at least one active alarm, and it turns black when there are no alarms.<br>The number above it informs the user of which compressor is involved with the alarm.                                                                           |
|      | <b>Time:</b><br>Pressing this key displays the current time of the control card and the touch display and makes it possible to synchronise them.<br>It is also possible to enable and program the weekly time bands to manage the chiller activity.                         |
|      | <b>Inputs/outputs:</b><br>Pressing this key displays the Input/Output menu to consult the status of all inputs (probes, contacts) and outputs (analogue, loads) of the control card and the peripherals connected to it (electronic valve driver, inverter, leak detector). |
|      | <b>Diagrams:</b><br>Pressing this key displays some diagrams that characterise machine operation.<br>The water input, output values, power output by the individual compressors and the compressor envelope if it is not the inverter type are present.                     |



| Icon                                                                              | Meaning                                                                                                                                                                                                                                                                                                                                                             |
|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <p>Home:</p> <p>Pressing this key displays the machine summary, where it is possible to find operating information such as temperature, pressures, setpoint, status.</p>                                                                                                                                                                                            |
|  | <p><b>Settings:</b></p> <p>Pressing this key displays the Settings submenu where it is possible to access:</p> <ul style="list-style-type: none"><li>• System language</li><li>• Installer menu (password required)</li><li>• Service menu (password required)</li><li>• Manufacturer menu (password required)</li><li>• Configurator (password required)</li></ul> |

## 2 HOME MENU



This mask displays:

### General unit status:

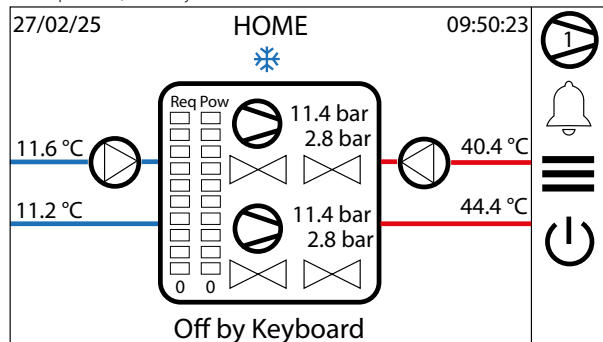
1. Current date and time
2. Control card whose parameters are displayed (pCO5+)
3. Evaporator (EV) input temperature;
3. Evaporator (EV) output temperature;
4. Condenser inlet temperature (CN);
4. Condenser outlet temperature (CN);
5. High, low pressure and compressor status;
6. Electronic valve status;
7. Request and power output;

### 8. The machine operating status:

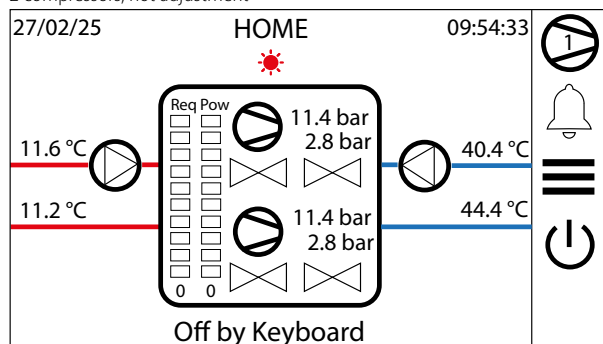
- ON: machine on
- PUMPDOWN: pumpdown cycle in progress
- OFF BY KEY: machine turned off by the keypad command
- OFF BY DIG. IN.: machine turned off by remote contact
- OFF BY SUPERVISOR.: machine turned off by supervisor
- OFF BY TIME BAND: machine turned off by the timer
- OFF BY ALARM: machine turned off by alarm
- OFF BY SER.OFFL: machine turned off due to failure of adjustment probe from supervisor

Depending on the number of compressors and the position of the adjustment probe, the Home page can appear differently.

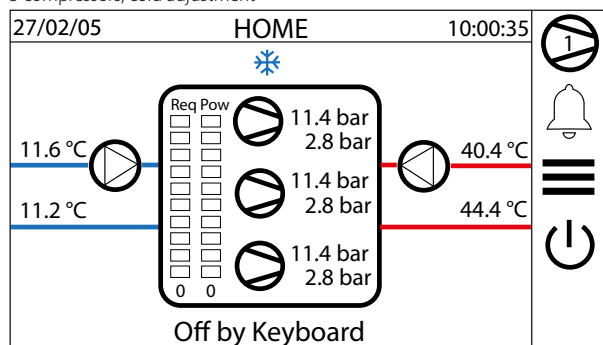
2 compressors, cold adjustment



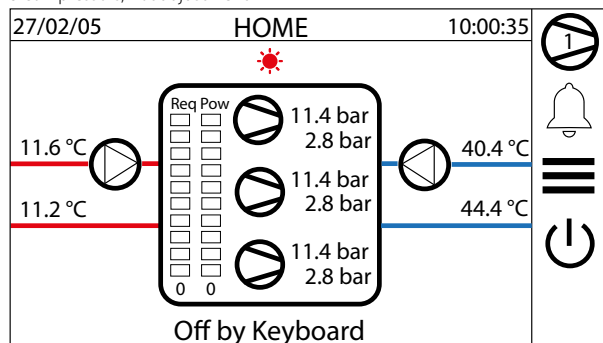
2 compressors, hot adjustment



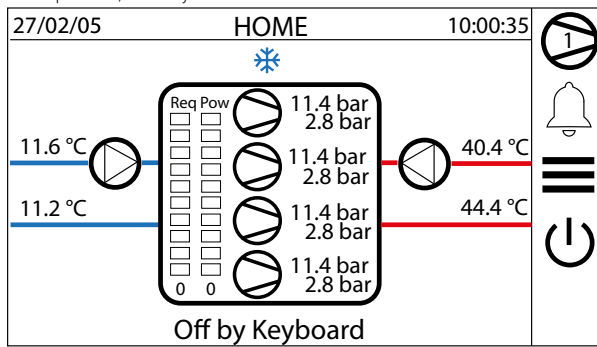
3 compressors, cold adjustment



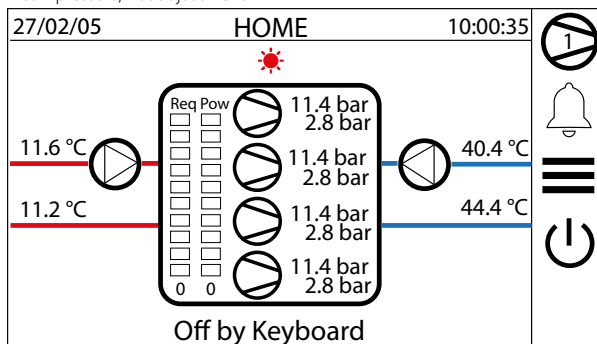
3 compressors, hot adjustment



4 compressors, cold adjustment



4 compressors, hot adjustment



## 2.1 HOME MENU ICONS

The icons identify the main machine users such as compressors, electronic valves, pumps and communicate their status:

| Icon | Description                                              | Note                                                                                                                                                                  |
|------|----------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|      | Pump                                                     | There are different types of pump icons:<br><b>White:</b> pump stopped<br><b>Red:</b> pump alarm<br><b>Green:</b> pump operating                                      |
|      | Valve                                                    | There are different types of valve icons:<br><b>White:</b> electronic valve stopped<br><b>Red:</b> electronic valve alarm<br><b>Green:</b> electronic valve operating |
|      | Compressor                                               | There are different types of compressor icons:<br><b>White:</b> compressor stopped<br><b>Red:</b> compressor alarm<br><b>Green:</b> compressor operating              |
|      | Compressor disabled                                      |                                                                                                                                                                       |
|      | Compressor reduced for prevention or safety differential |                                                                                                                                                                       |
|      | Compressor in pulldown phase                             |                                                                                                                                                                       |

### 3 CHILLER MENU

The Chiller menu makes it possible to identify the machine status and change the general enabling.

| 1/2             | ON/OFF                                 | 10:04:11 |  |
|-----------------|----------------------------------------|----------|--|
| General Enable  | <input type="button" value="Off"/>     |          |  |
| Status          | Off by Keyboard                        |          |  |
| Mode            | <input type="button" value="Cooling"/> |          |  |
| Actual Setpoint | 7.0 °C                                 |          |  |

Machine operating status:

- **ON:** machine on
- **PUMPDOWN:** pumpdown cycle in progress
- **OFF BY KEY:** machine turned off by the keypad command
- **OFF BY DIG. IN.:** machine turned off by remote contact
- **OFF BY SUPERVISOR.:** machine turned off by supervisor
- **OFF BY TIME BAND:** machine turned off by the timer
- **OFF BY ALARM:** machine turned off by alarm
- **OFF BY SER.OFFL:** machine turned off due to failure of adjustment probe from supervisor

When a request is made to change the operating status, a window appears that requests operator confirmation:

| 1/2 | ON/OFF | 10:04:11 |  |
|-----|--------|----------|--|
|     |        |          |  |
|     |        |          |  |
|     |        |          |  |
|     |        | 7.0 °C   |  |

#### NOTICE



The general enabling is requested also if On/Off is enabled by the digital contact or by the supervisor.

#### 3.1 OPERATING MODE MONITOR

| 1/2             | ON/OFF                                 | 10:04:11 |  |
|-----------------|----------------------------------------|----------|--|
| General Enable  | <input type="button" value="Off"/>     |          |  |
| Status          | Off by Keyboard                        |          |  |
| Mode            | <input type="button" value="Cooling"/> |          |  |
| Actual Setpoint | 7.0 °C                                 |          |  |

| 1/2             | ON/OFF                                 | 10:04:11 |  |
|-----------------|----------------------------------------|----------|--|
| General Enable  | <input type="button" value="On"/>      |          |  |
| Status          | On                                     |          |  |
| Mode            | <input type="button" value="Heating"/> |          |  |
| Actual Setpoint | 50.0 °C                                |          |  |

These masks are used to:

- Set general enabling
- View the machine operating status
- Select the operating mode
- View and change the current setpoint in use for adjustment

|                 |                                    |            |  |
|-----------------|------------------------------------|------------|--|
| 1/2             | ON/OFF                             | 10:04:11   |  |
| General Enable  | <input type="button" value="Off"/> |            |  |
| Status          | Off by Keyboard                    |            |  |
| Mode            |                                    | Supervisor |  |
| Actual Setpoint | 50.0 °C                            |            |  |

|                 |                                    |               |  |
|-----------------|------------------------------------|---------------|--|
| 1/2             | ON/OFF                             | 10:04:11      |  |
| General Enable  | <input type="button" value="Off"/> |               |  |
| Status          | Off by Keyboard                    |               |  |
| Mode            |                                    | Digital Input |  |
| Actual Setpoint | 7.0 °C                             |               |  |

These masks are used to:

- Select the operating mode from supervisor
- Select the operating mode from digital input

### 3.2 MAIN SETPOINT MONITORS

|                        |                                      |                        |                                      |
|------------------------|--------------------------------------|------------------------|--------------------------------------|
| 2/2                    | SETPOINT                             | 14:27:57               |                                      |
| Cooling Setpoint       | <input type="text" value="7.0"/> °C  | Heating Setpoint       | <input type="text" value="50.0"/> °C |
| Cooling Setpoint 2     | <input type="text" value="11.0"/> °C | Heating Setpoint 2     | <input type="text" value="45.0"/> °C |
| Limit                  | 100 %                                | External Demand        | 0 %                                  |
| Multifunction Input    |                                      |                        |                                      |
| Cooling Setpoint (ext) | 7.0 °C                               | Heating Setpoint (ext) | 45.0 °C                              |

This mask displays:

- Cooling setpoint or heating setpoint setting (enabled if it is a heat pump machine)
- Double cooling setpoint or double heating setpoint setting
- Limit: Limit of the power, owing to serial or multifunction input request
- External demand: power request due to serial or multifunction input request
- Multifunction input enabled for setpoint setting
- Cooling setpoint set from multifunction input
- Heat Setpoint set from multifunction input

### 3.3 MULTIFUNCTION INPUT MONITOR

|                        |        |                        |         |  |
|------------------------|--------|------------------------|---------|--|
| Multifunction Input    |        |                        |         |  |
| Power Limit (ext)      | 0 %    |                        |         |  |
| Multifunction Input    |        |                        |         |  |
| Demand Limit (ext)     | 0 %    |                        |         |  |
| Cooling Compens. (ext) | 7.0 °C | Heating Compens. (ext) | 45.0 °C |  |

This mask displays:

- Multifunction input enabled for cooling capacity limitation
- Maximum limit of the cooling capacity expressed as a percentage
- Multifunction input enabled for cooling capacity request
- Value of the cooling capacity requested as a percentage
- Multifunction input enabled for setpoint compensation
- Compensation to add to or deduct from the cooling set in °C
- Compensation to add to or deduct from the heating set in °C

## 4 UNIT SELECTION MENU

The Unit Selection menu makes it possible to select the compressor unit with which to dialogue.

Each compressor is controlled by a single separate control card. As a result, bi-compressor and tri-compressor machines have 2 or 3 control cards, each with its sizes and parameters.

When the machine is configured, via the Configurator menu, each card is automatically parametrised to be ready for use without any need for changes by the user/installer.

### NOTICE

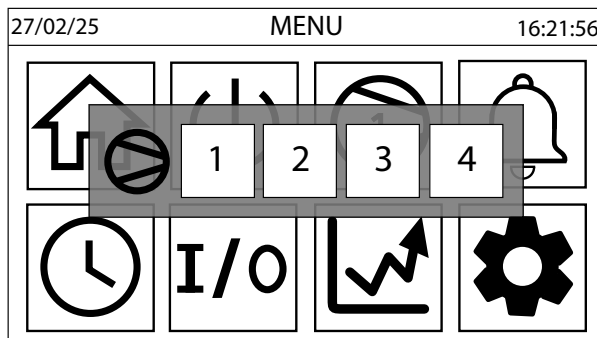
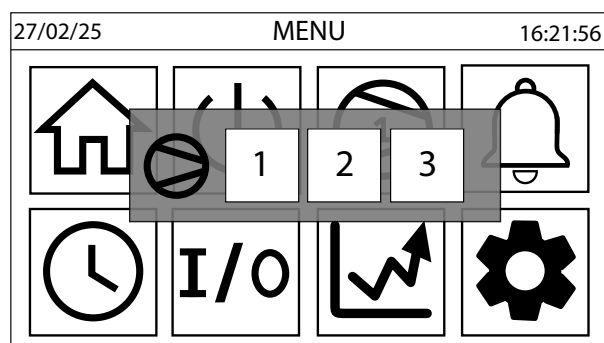
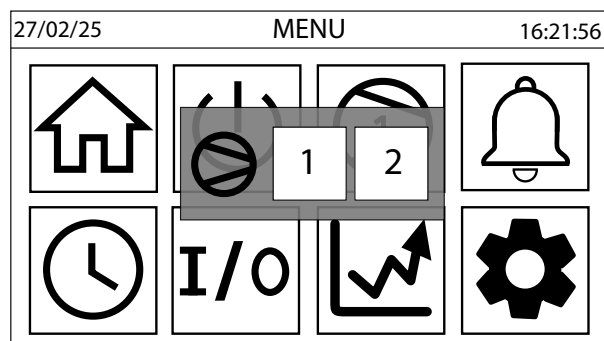


**If it is necessary to change a parameter, it must be modified on each of the cards present.**

The display touch screen can dialogue with each of the cards present via the unit selection menu.

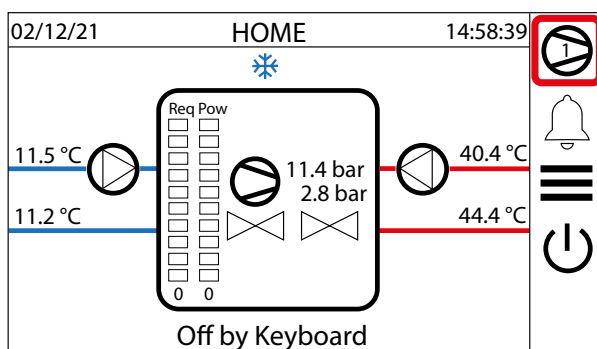
Pressing the key  opens a pop-up where it is possible to

select which card to dialogue with, those present (2 cards for a bi-compressor, 3 cards for a tri-compressor, 4 cards for a quadri-compressor):



The same key also presents the user with information on which card was selected for communication.

There is a key (circled in red) on the side bar to the right with the same functionality:



The pGDx panel manages up to 4 cards:



**Card 1:** Controls compressor 1



**Card 2:** Controls compressor 2



**Card 3:** Controls compressor 3



**Card 4:** Controls compressor 4

### NOTICE



**Refer to the "Home menu" paragraph for the meanings of the compressor icons.**

## 5 ALARM MENU

It is possible to consult the list of active alarms in this section.

| 03/12/21            |       | ALARMS                    |  | 10:08:57 | <br><br><br>Reset<br> |
|---------------------|-------|---------------------------|--|----------|-----------------------|
| Time                | Name  | Description               |  |          |                       |
| 03/12/2021 09:57:24 | AL121 | INV - Communication Fault |  |          |                       |
| 03/12/2021 09:46:51 | AL069 | LD - Sensor 1 Offline     |  |          |                       |
| 03/12/2021 09:46:51 | AL071 | LD - Sensor 2 Offline     |  |          |                       |
| 03/12/2021 09:47:28 | AL091 | EVD - Driver Offline      |  |          |                       |

Each line represents a single alarm that occurred in the unit at the selected moment.

Some alarms are only present on the master card (address 1), whereas others can occur on any card.

Each line indicates:

- Date and time the alarm occurred;
- Univocal alarm ID code;
- Detailed alarm description.

| Icon | Meaning                                                                                                                                                                                                           |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|      | <b>Alarm warning:</b><br>Signals the presence of alarms.<br>The key icon is red when there is at least one active alarm, and it turns white when there are no alarms.                                             |
|      | The number above it informs the user of which compressor is involved with the alarm.                                                                                                                              |
|      | <b>Alarm reset:</b><br>Pressing this key enters an alarm reset request.<br>If the cause of the alarm is no longer present, the line disappears; if no more alarms are present, the global alarm signal turns off. |
|      | <b>Alarm log:</b><br>Pressing this key displays the alarm log page.                                                                                                                                               |

### 5.1 ALARM HISTORY

The menu shows the last 25 alarms that occurred together with some parameters stored at the moment the alarm occurred.

| 27/02/25                 |          | ALARMS HISTORY          |         | 10:09:30       | <br><br><br> |
|--------------------------|----------|-------------------------|---------|----------------|--------------|
| #24                      | 09:57    | 03/12/21                | AL063   | Unit 3 Offline |              |
| Evaporator Inlet Temp.   | 11.6 °C  | Evaporator Outlet Temp. | 11.2 °C |                |              |
| Condenser Inlet Temp.    | 11.4 bar | Condenser Outlet Temp.  | 2.8 bar |                |              |
| Cond. Comm. Outlet Temp. | 43.0 °C  | Discharge Temperature   | 7.0 °C  |                |              |
| High Pressure            | 5.0 °C   | Low Pressure            | 3.8 °C  |                |              |

#### NOTICE



The alarm history cannot be reset because the storage to memory is circular so each new alarm registered overwrites the oldest of the 25 stored to memory.

The parameters are:

— **Time and date**

— **SIW:**

Evaporator inlet temperature

— **SUW:**

Evaporator outlet temperature

— **SIWH:**

Condenser Inlet Temperature

— **SUWH:**

Condenser Outlet Temperature

— **SUWHC:**

Common condenser outlet temperature

— **SGP:**

Permanent gas temperature

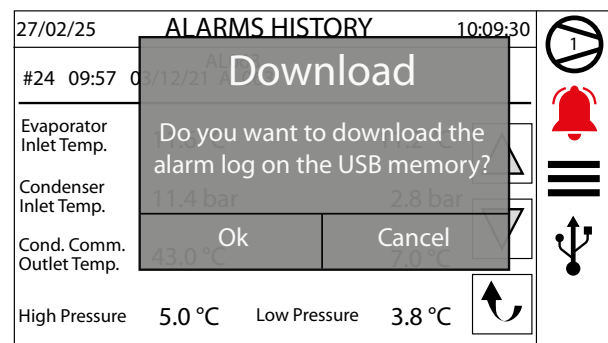
— **HP:**

Condensing pressure

— **LP:**

Evaporating Pressure

Pressing the USB key makes it possible to request the download of the alarm log to a USB support connects to the panel:



#### NOTICE



The downloaded alarm history (USB) will only include the information about the alarms that occurred and their date and time; the values shown on the display will not be saved.

## 6 CLOCK MENU

This menu is used to view and modify the following parameters:

- Time
- Date
- Day of the week
- Programmer timer and time bands for every day of the week

### 6.1 TIME, DATE AND DAY DISPLAY MONITOR

| 1/2 TIMEZONE      |                 | 10:21:07 |  |
|-------------------|-----------------|----------|--|
| Display Date Time | Board Date Time |          |  |
| 10 : 21 : 07      | 10 : 21 : 07    |          |  |
| 03 / 12 / 2021    | 03 / 12 / 2021  |          |  |
| Friday            | Friday          |          |  |
| Copy              |                 |          |  |

This mask is used to display and modify the time, date and day of the week parameters.

#### NOTICE



**The time on the touch screen display is automatically synchronised with the time on the control card. There is a copy key that is used to copy the time on the display to the control card.**

### 6.2 TIMER ENABLING MONITOR

| 2/2 TIMEZONE     |                                     | 10:21:08 |  |
|------------------|-------------------------------------|----------|--|
| Enable Timezones | <input checked="" type="checkbox"/> |          |  |
| Select Day       | Sunday                              |          |  |
| Start 1          | 00 : 00 Stop 1                      | 00 : 00  |  |
| Start 2          | 00 : 00 Stop 2                      | 00 : 00  |  |
| Save             |                                     |          |  |

This mask is used to enable the weekly time band timer.

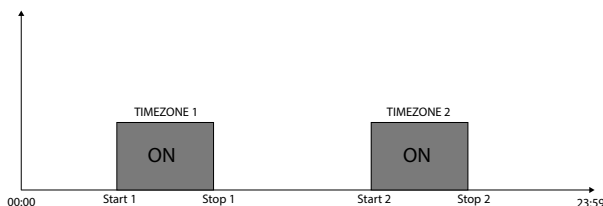
If the time bands are enabled:

- Changes the day of the week being programmed
- Changes the time zone 1
- Changes the time zone 2

### 6.3 OPERATING ZONE DIAGRAM

If enabled, the weekly time band timer is used to set 2 operating zones for each day of the week (if one zone has the same start and stop time, it is disabled).

The diagram below shows an example of two operating zones:

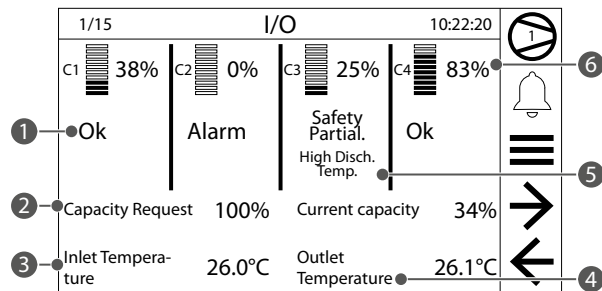




## 7 INPUT/OUTPUT MENU

This menu is used to display the state of the inputs and outputs, both digital as well as analogue.

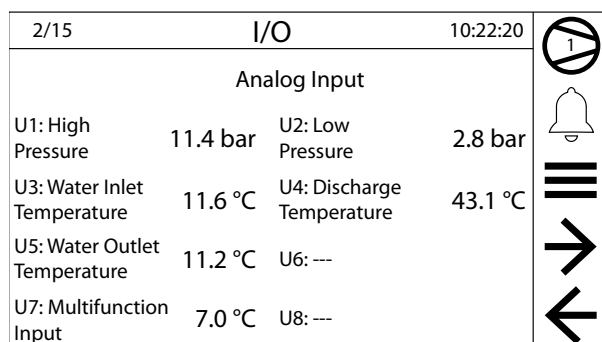
The first mask, which is present only in the master card parameters, summarises the machine status with a graphic indication of the compressor power, input temperature, master water output and circuit operating status.



This mask displays:

- Status indication of circuits from 1 to 4:
  - ok: operative
  - Disabled: not enabled for operation
  - Alarm: stopped due to alarm
  - Safety capacity control: safety
  - Safety differential: wait for safety differential
  - PullDown: wait for PullDown
- Requested and output power
- Water Inlet Temperature
- Water Outlet Temperature
- Indication of safety capacity control active
- Cooling capacity of the compressors present from 1 to 4, expressed as a percentage

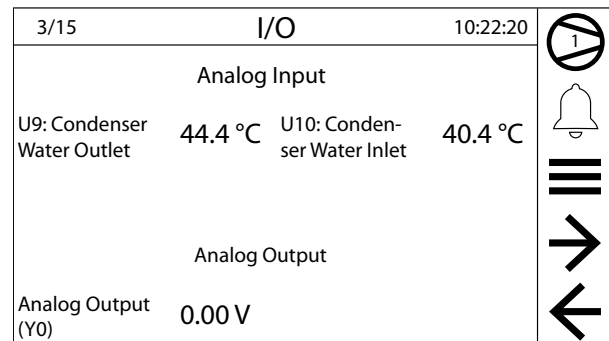
### 7.1 TRANSDUCER AND PROBE READING MONITOR



- **U1**: high pressure transducer reading
- **U2**: low pressure transducer reading
- **U3**: evaporator water inlet temperature probe reading (master only)
- **U3**: common water inlet temperature probe reading (in case of adjustment at the outlet with multiple parallel connected evaporators) (unit 2 only)

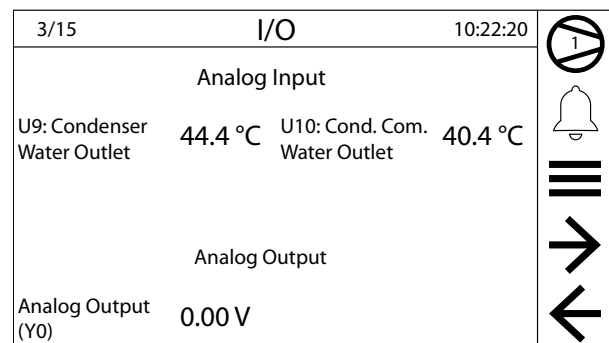
- **U4**: discharge gas temperature probe reading
- **U5**: evaporator water outlet temperature probe reading
- **U6**: Ammetric transformer inlet (A)
- **U7**: Multifunction input (master only)
- **U8**: evaporator input gas temperature probe reading

### 7.2 CONDENSER WATER INLET AND OUTLET TEMPERATURE MONITOR



- **U9**: condenser water outlet temperature
- **U10**: condenser water inlet temperature (master only)
- Voltage value at analogue output Y0

### 7.3 CONDENSER WATER OUTLET MONITOR



- **U9**: condenser water outlet temperature
- **U10**: common condenser water outlet temperature (unit 2 only)
- Voltage value at analogue output Y0

### 7.4 DIGITAL INPUT/OUTPUT GENERAL MONITOR

Digital input and output status:

| 4/15                        | I/O | 10:22:20                  |   |
|-----------------------------|-----|---------------------------|---|
| Digital Input               |     |                           |   |
| ID1: Remote On/Off          | 1   | ID2: Remote Cool./Heat.   | 2 |
| ID3: Enable Double Setpoint | 3   | ID4: Phase Monitor        | 4 |
| ID5: Evaporator Flow Switch | 5   | ID6: Evap. Pump Overload  | 6 |
| ID7: ---                    | 7   | ID8: High Pressure Switch | 8 |

| 5/15                          | I/O | 10:22:20                     |    |
|-------------------------------|-----|------------------------------|----|
| Digital Input                 |     |                              |    |
| ID9: Low Pressure Switch      | 9   | ID10: Compressor Overload    | 10 |
| ID11: Condenser Pump Overload | 11  | ID12: Oil Level Switch       | 12 |
| ID13: ---                     | 13  | ID14: Compressor Enable      | 14 |
| ID15: Leakage Alarm           | 15  | ID16: Electronic Valve Alarm | 16 |

| 6/15                        | I/O | 10:22:20                         |    |
|-----------------------------|-----|----------------------------------|----|
| Digital Input               |     |                                  |    |
| ID17: Condenser Flow Switch | 17  | ID18: Multifunction Input Enable | 18 |
| Digital Output              |     |                                  |    |
| NO1: Evaporator Pump        | 1   | NO2: Antifreeze Heater           | 2  |
| NO3: Electronic Valve       | 3   | NO4: Coast                       | 4  |

| 7/15                        | I/O | 10:22:20                   |    |
|-----------------------------|-----|----------------------------|----|
| Digital Output              |     |                            |    |
| NO5: ---                    | 5   | NO6: ---                   | 6  |
| NO7: Liquid Injection Valve | 7   | NO8: General Alarm         | 8  |
| NO9: Power Decrease Valve   | 9   | NO10: Power Increase Valve | 10 |
| NO11: Economizer Valve      | 11  | NO12: ---                  | 12 |

| 8/15                        | I/O | 10:22:20                    |    |
|-----------------------------|-----|-----------------------------|----|
| Digital Output              |     |                             |    |
| NO13: Condenser Pump        | 13  | NO14: Bypass Solenoid Valve | 14 |
| NO15: Cycle Inversion Valve | 15  | NO16: ---                   | 16 |
| NO17: ---                   | 17  | NO18: ---                   | 18 |

## 7.5 PUMP AND COMPRESSOR OPERATING HOURS MONITOR

| 9/15            | I/O | 10:25:05 |  |
|-----------------|-----|----------|--|
| Hour Counters   |     |          |  |
| Evaporator Pump |     | 000      |  |
| Condenser Pump  |     | 000      |  |
| Compressor      |     | 000      |  |

- Evaporator pump operating hours
- Condenser pump operating hours
- Compressor operating hours

## 7.6 COMPRESSED STATUS MONITOR (A)

| 10/15               | I/O    | 10:26:50              |        |
|---------------------|--------|-----------------------|--------|
| Bitzer Inverter     |        |                       |        |
| Suction Temperature | 0.0 °C | Discharge Temperature | 0.0 °C |
| Oil Temperature     | 0.0 °C | Gas Type              |        |
| Speed Setpoint      | 0 rpm  | Speed                 | 0 rpm  |
| Min On Time         | 0 s    | Min Off Time          | 0 s    |

- Intake temperature read by the compressor
- Delivery temperature read by the compressor
- Oil temperature read by the compressor
- Type of gas set in the compressor
- Speed set from card setpoint
- No. of revs read by the compressor
- Minimum operating time remaining
- Minimum switching off time remaining

## 7.7 COMPRESSED STATUS MONITOR (B)

|                  |          |                    |          |          |  |  |
|------------------|----------|--------------------|----------|----------|--|--|
| 11/15            |          | I/O                |          | 10:26:50 |  |  |
| Bitzer Inverter  |          |                    |          |          |  |  |
| Output Current   | 0.0 A    | Output Power       | 0.0 kW   |          |  |  |
| Suction Pressure | -0.1 bar | Discharge Pressure | -0.1 bar |          |  |  |
|                  |          |                    |          |          |  |  |

- Inverter compressor output current
- Inverter compressor output power
- Suction pressure read by inverter compressor
- Discharge pressure read by the inverter compressor

## 7.8 COMPRESSED STATUS MONITOR (C)

|                 |                       |         |                       |          |                       |                                |  |
|-----------------|-----------------------|---------|-----------------------|----------|-----------------------|--------------------------------|--|
| 12/15           | I/O                   |         |                       | 10:27:35 |                       |                                |  |
| Bitzer Inverter |                       |         |                       |          |                       |                                |  |
| State           | Stopped               |         |                       |          |                       |                                |  |
| Envelope        | Ok                    |         |                       |          |                       |                                |  |
| Alarm           | <input type="radio"/> | Warning | <input type="radio"/> | Disabled | <input type="radio"/> |                                |  |
| Enabled         | <input type="radio"/> | Ready   | <input type="radio"/> | Running  | <input type="radio"/> | Setpoint <input type="radio"/> |  |

This mask displays:

### 1. Status:

- Stopped: compressor stopped
- Starting: compressor starting
- ON: compressor operating
- Switching off: compressor switching off
- War IN: out of envelope warning in warning zone
- War OUT: out of envelope warning in critical zone
- Alarm: compressor alarm

### 2. Envelope zone:

- Ok
- Suction Low, Discharge Low
- Suction Low
- Suction Low, Discharge High
- Discharge High
- Suction High, Discharge High
- Suction High
- Suction High, Discharge Low
- Discharge Low

### 3. Compressor status summary:

- Alarm: alarm
- Warning: Warning

- Disabled: emergency stop
- Enable: enabled to start
- Ready: starting up
- ON: OPERATING
- Setpoint setpoint reached

## 7.9 VALVE STATUS MONITOR

| 13/15                          |                                     | I/O                     |                                     | 10:26:50 |  |  |
|--------------------------------|-------------------------------------|-------------------------|-------------------------------------|----------|--|-------------------------------------------------------------------------------------|
| Electronic Valve EVD Evolution |                                     |                         |                                     |          |  |                                                                                     |
| S1: Pressure Transducer        | 16.0 bar                            | S2: Suction Temperature | 21.8 °C                             |          |  |  |
| Digital Input                  | <div><div>1</div><div>2</div></div> | Digital Output          | <div><div>1</div><div>2</div></div> |          |  |  |
| EEV 1 Position                 | 0.0 %                               | EEV 2 Position          | 0.0 %                               |          |  |  |
| Superheating                   | -38.8K                              |                         |                                     |          |  |  |

- Valve driver pressure and temperature
- Valve driver digital inputs
- Valve driver digital outputs
- Valve 1 position
- Valve 2 position
- Overheating

## 7.10 FLAMMABLE GAS AND SOFTWARE VERSION MONITOR

|                              |       |                              |          |  |
|------------------------------|-------|------------------------------|----------|--|
| 14/15                        | I/O   |                              | 10:25:36 |  |
| Leak Detector                |       |                              |          |  |
| Leak Detector 1<br>Gas Level | 0 ppm | Leak Detector 2<br>Gas Level | 0 ppm    |  |
|                              |       |                              |          |  |
|                              |       |                              |          |  |
|                              |       |                              |          |  |

- Concentration of flammable gas detected by sensor 1
- Concentration of flammable gas detected by sensor 2

| 15/15                  | I/O                             |              | 10:25:36 |  |
|------------------------|---------------------------------|--------------|----------|--|
| pCO5+ Software Version | 1.4.1                           | Release Date | 28/02/25 |  |
| pGDx Software Version  | 1.4.1                           | Release Date | 28/02/25 |  |
| Code                   | WFN1401°AX°°°°°<br>Master/Slave |              |          |  |

- Control card software version and version date



## WFGI-WFGN-WFI-WFN-HSWG/H

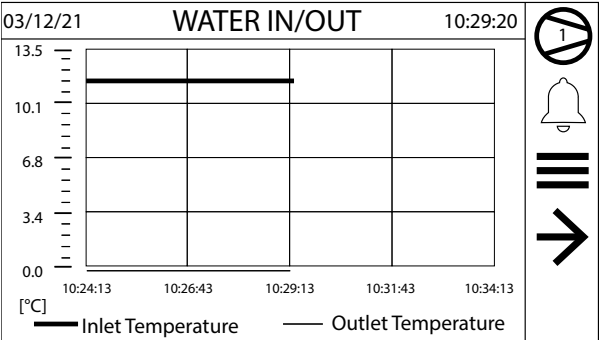
26/06 4424411\_03

- Display software version and version date
- Unit ID

## 8 DIAGRAM MENU

In this menu it is possible to consult the live updated diagrams of some sizes, which are relevant for machine operation.

### 8.1 WATER INLET AND OUTLET TEMPERATURE MONITOR

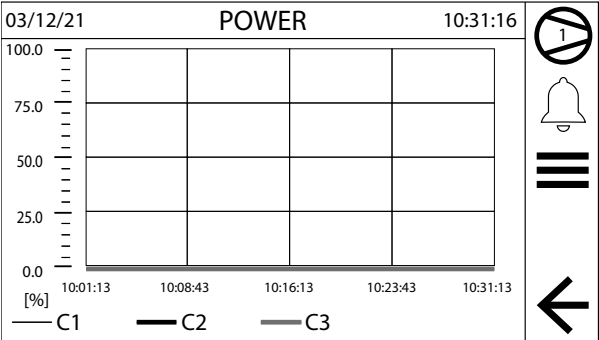


This mask is used to view the water inlet and outlet temperature.

NOTICE

The diagram samples the values every 5 seconds and displays 30 minutes of the log.

### 8.2 COOLING CAPACITY MONITOR



Cooling capacity output by each compressor:

- Unit 1 (C1)
- Unit 2 (C2)
- Unit 3 (C3)
- Unit 4 (C4)

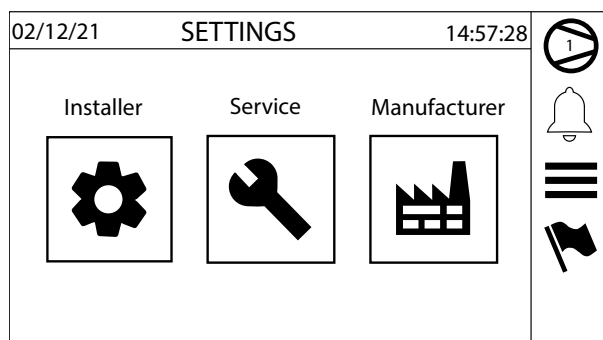
NOTICE

The diagram samples the values every 5 seconds and displays 30 minutes of the log.

The graph in the figure is provided only for exemplary purposes.

## 9 SETTINGS MENU

This menu is used to enter the submenus that contain the machine configuration parameters.



### CAUTION



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;

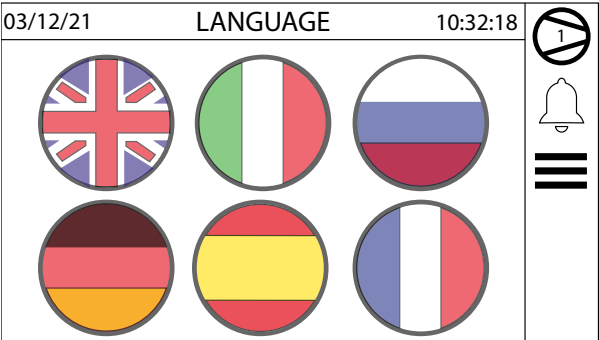
### 9.1 ICONS

The parameters are organised in the following categories:

| Icon                                                                                | Meaning                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    | <b>Selection of language and measurement system:</b><br>Pressing this key displays the system language selection page, using the flag of the selected language, and the page for selecting the measurement system.                                                                                                                                                                                                                                      |
|  | <b>Installer menu (password required):</b><br>Pressing this key makes it possible to access the first level parameters, those that the machine installed can change for system requirements.                                                                                                                                                                                                                                                            |
|  | <b>Service menu (password required):</b><br>Pressing this key makes it possible to access the second level parameters, those that the after sales service can change for special problem solving interventions.                                                                                                                                                                                                                                         |
|  | <b>Manufacturer menu (password required):</b><br>pressing this key makes it possible to access the third level parameters, those that the manufacturer can change for special requirements.<br><br><b>Warning: these parameters concern machine adjustment and operation; if the user changes these parameters, this can affect system integrity and therefore changing them is prohibited.</b>                                                         |
|                                                                                     | <b>Configurator menu (password required):</b><br>this section can be accessed by pressing any of the Installer, Service, Manufacturer keys, using the appropriate password.<br>This menu is used to enter the machine model to configure the parameters to the correct default settings.<br><br><b>Warning: an incorrect configuration of this section can affect system integrity and therefore they cannot be changed by unauthorised personnel..</b> |

### 9.2 LANGUAGE SELECTION MENU

This menu is used to select the system language.  
All the descriptions and messages will be automatically translated into the selected language.



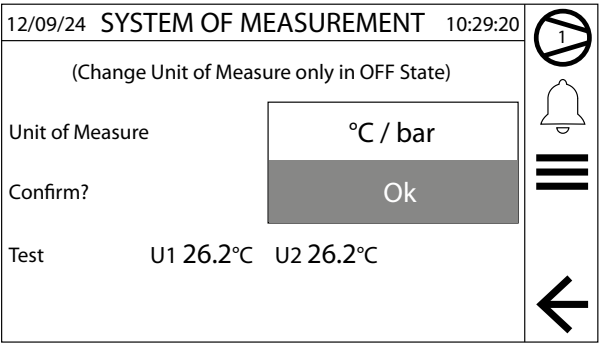
NOTICE



The card does not need to be restarted after the change.

### 9.3 MEASUREMENT SYSTEM SELECTION MENU

This menu is used to select the measurement system for the machine, either the International System (°C / bar) or the Imperial System (°F / psi). After confirming the change, all the temperature and pressure values will be recalculated into the new unit of measure; The change also applies to the values read via the BMS.



NOTICE



It is recommended to change the unit of measure when the machine is OFF and after performing its configuration. After changing the unit of measure, alarms could occur. In that case, reset them.

## 9.4 INSTALLER MENU

This menu contains the parameters necessary for the machine configuration and its functions.

### 9.4.1 Password monitor to access the installer menu

Enter the password to access the menu (the password is 0000).

|                                                                           |          |          |          |
|---------------------------------------------------------------------------|----------|----------|----------|
| 03/12/21                                                                  | SETTINGS | 10:33:04 |          |
| <div style="text-align: center;"> <h1>Installer</h1> <h2>****</h2> </div> |          |          | <br><br> |
| Ok                                                                        |          | Cancel   |          |

### 9.4.2 Digital input and supervisor command enabling monitor

|                          |                          |                                  |                          |
|--------------------------|--------------------------|----------------------------------|--------------------------|
| INSTALLER                |                          | 10:38:37                         |                          |
| On/Off by Digital Input  | <input type="checkbox"/> | Heating/Cooling by Digital Input | <input type="checkbox"/> |
| On/Off by Supervisor     | <input type="checkbox"/> | Heating/Cooling By Supervisor    | <input type="checkbox"/> |
|                          |                          | Demand Limit by Supervisor       | <input type="checkbox"/> |
| Enable Double Setpoint   | <input type="checkbox"/> | Alarm Relay Logic Inversion      | Open                     |
| Pump Off With Compressor | <input type="checkbox"/> | Evaporator Pump Circuit Breaker  | <input type="checkbox"/> |
|                          |                          | <br><br>                         |                          |

- Digital input ON/OFF command enabling.
- Digital input cooling/heating command enabling.
- Supervisor ON/OFF command enabling.
- Supervisor cooling/heating command enabling.
- Modbus serial data maximum cooling power limit enabling.
- Double setpoint use enabling. If enabled via the ID3 digital input, if the setpoint is selected (contact open = normal setpoint, contact closed = double setpoint)
- Alarm relay logic inversion
- Pump heater alarm enabling. **(SLAVE ONLY)**
- Enabling at switching off of the evaporator pump with the compressor off relative to the pump output of the individual slave cards. **(SLAVE ONLY)**

### 9.4.3 Adjusting temperature monitor

|                             |                          |                                 |        |
|-----------------------------|--------------------------|---------------------------------|--------|
| INSTALLER                   |                          | 10:41:52                        |        |
| Regulation                  |                          |                                 |        |
| Regulation Band             | 5.0 °C                   | Regulation Temperature          | Outlet |
| Regulation Type             | PI                       | Integration Time                | 600 s  |
| Glycolated Water            |                          |                                 |        |
| Glycolated Water Management | <input type="checkbox"/> | Glycolated Water Freezing Temp. | 0 °C   |
|                             |                          | <br><br>                        |        |

These masks are used to view and modify the following parameters:

- Proportional band for the adjustment of the work thermostat.**
- Adjusting temperature selection:**
  - INLET: Water inlet
  - OUTLET: Water outlet
- Type of adjustment:**
  - P: Proportional
  - I: Integral
  - PI: Proportional+ integral
- Integration time valid for PI or I adjustment.**
- Glycol water management enabling.**
- Water-glycol mixture freezing temperature (TCMA).**

When the function is enabled, the following parameters are calculated automatically and cannot be changed:

- minimum limit of the cooling setpoint (TCMA + 4°C)
- antifreeze prevention setpoint (TCMA + 3.8°C)
- antifreeze alarm setpoint (TCMA + 3°C)
- antifreeze heater activation setpoint (TCMA + 3.5°C)
- cooling force-off setpoint (TCMA + 3.5°C)

### 9.4.4 BMS and BMS2 parameters monitor

|           |        |          |           |
|-----------|--------|----------|-----------|
| INSTALLER |        | 10:40:53 |           |
| BMS       | Modbus |          |           |
| Address   | 1      | Baudrate | 19200 bps |
| Stop Bits | 2      | Parity   | None      |
|           |        | <br>     |           |



1. Type of protocol used for communication with the supervisor:
  - Lon
  - Modbus
2. Serial address **BMS** for supervisor.
3. Communication speed.
4. Communication stop bit
5. Communication parity

I12

| INSTALLER                           |   | 10:40:53 |  |
|-------------------------------------|---|----------|-----------------------------------------------------------------------------------|
| Probe 7 Multifunction Configuration |   |          |                                                                                   |
| Function                            |   | Modbus   |                                                                                   |
| Address                             | 1 | Baudrate | 19200 bps                                                                         |
| Stop Bits                           | 2 | Parity   | None                                                                              |

1. Type of protocol used for communication with the supervisor:
  - Lon
  - Modbus
2. Serial address **BMS2** for supervisor.
3. Communication speed.
4. Communication stop bit
5. Communication parity

#### 9.4.5 Multifunction input monitor

I15

| INSTALLER                           |         | 10:43:40         |  |
|-------------------------------------|---------|------------------|-------------------------------------------------------------------------------------|
| Probe 7 Multifunction Configuration |         |                  |                                                                                     |
| Function                            | None    | Type             | NTC                                                                                 |
| Temperature Low                     | 20.0 °C | Temperature High | 35.0 °C                                                                             |
| —                                   | —       | —                | —                                                                                   |

Multifunction input (**MASTER ONLY**) on input B7 active on master.

##### Function:

- None: no functionality
- Setpoint: working setpoint selection
- Limit: limitation of the cooling capacity
- Compensation: Setpoint compensation with temperature

##### Input signal type:

- NTC: input with temperature and probe NTC10K
- 0-10V: input 0-10 volt dc
- 4-20mA: Input 4-20mA

#### NTC type multifunction input enabled:

- NTC probe minimum temperature
- NTC probe maximum temperature

#### 9.4.6 Input voltage monitor

I15

| INSTALLER                           |       | 10:44:04  |  |
|-------------------------------------|-------|-----------|-------------------------------------------------------------------------------------|
| Probe 7 Multifunction Configuration |       |           |                                                                                     |
| Function                            | None  | Type      | 0-10V                                                                               |
| Volt Low                            | 0.0 V | Volt High | 10.0 V                                                                              |
| —                                   | —     | —         | —                                                                                   |

#### 0 –10 volt type multifunction input enabled:

- Minimum input voltage
- Maximum input voltage

#### 9.4.7 Input current monitor

I15

| INSTALLER                           |        | 10:45:11 |  |
|-------------------------------------|--------|----------|---------------------------------------------------------------------------------------|
| Probe 7 Multifunction Configuration |        |          |                                                                                       |
| Function                            | None   | Type     | 4-20mA                                                                                |
| mA Low                              | 4.0 mA | mA High  | 20.0 mA                                                                               |
| —                                   | —      | —        | —                                                                                     |

#### 4-20mA type multifunction input enabled:

- Minimum input current
- Maximum input current

#### 9.4.8 Heating and cooling setpoint monitor

I15

| INSTALLER                           |          | 10:45:44              |  |
|-------------------------------------|----------|-----------------------|---------------------------------------------------------------------------------------|
| Probe 7 Multifunction Configuration |          |                       |                                                                                       |
| Function                            | Setpoint | Type                  | 4-20mA                                                                                |
| mA Low                              | 4.0 mA   | mA High               | 20.0 mA                                                                               |
| Setpoint Low Cooling                | 7.0 °C   | Setpoint High Cooling | 12.0 °C                                                                               |
| Setpoint Low Heating                | 45.0 °C  | Setpoint High Heating | 50.0 °C                                                                               |

Multifunction input enabled with Setpoint function:

- Cooling setpoint corresponding to the minimum size of the input
- Cooling setpoint corresponding to the maximum size of the input
- Heating setpoint corresponding to the minimum size of the input
- Heating setpoint corresponding to the maximum size of the input

#### 9.4.9 Multifunction input with cooling capacity limit monitor

I15

| INSTALLER                           |       |      |            | 10:46:11 |    |
|-------------------------------------|-------|------|------------|----------|----|
| Probe 7 Multifunction Configuration |       |      |            |          |    |
| Function                            | Limit | Type | 4-20mA     |          |    |
| mA Low                              | 4.0   | mA   | mA High    | 20.0     | mA |
| Limit Low                           | 0     | %    | Limit High | 100      | %  |

Multifunction input enabled with cooling capacity limit function:

- Power limit corresponding to the minimum size of the input
- Power limit corresponding to the maximum size of the input

#### 9.4.10 Multifunction input with setpoint compensation monitor (A)

I15

| INSTALLER                           |              |      |                           | 10:46:57 |    |
|-------------------------------------|--------------|------|---------------------------|----------|----|
| Probe 7 Multifunction Configuration |              |      |                           |          |    |
| Function                            | Compensation | Type | 4-20mA                    |          |    |
| mA Low                              | 4.0          | mA   | mA High                   | 20.0     | mA |
| Compensation Low Cooling            | 7.0          | °C   | Compensation High Cooling | 12.0     | °C |
| Compensation Low Heating            | 45.0         | °C   | Compensation High Heating | 50.0     | °C |

Multifunction input enabled with setpoint compensation with temperature probe function:

- Cooling setpoint compensation corresponding to the minimum size of the input
- Cooling setpoint compensation corresponding to the maximum size of the input
- Heating setpoint compensation corresponding to the minimum size of the input
- Heating setpoint compensation corresponding to the maximum size of the input

#### 9.4.11 Digital contact enabling and setting monitor

I18

| INSTALLER        |                          |        |                  | 10:47:38 |  |
|------------------|--------------------------|--------|------------------|----------|--|
| Digital Demand   |                          |        |                  |          |  |
| Enable           | <input type="checkbox"/> | Step 1 | 40               | %        |  |
| Step 2           | 75                       | %      | Step 3           | 100      |  |
| Pulldown Enable  | <input type="checkbox"/> |        |                  |          |  |
| Delay Compressor | 180                      | s      | Temperature Rate | 1.0      |  |
|                  |                          |        |                  | °C/m     |  |

Power request enabling from digital contacts ID 16, ID 17, ID 18.

Digital contact power step setting:

- Power step 1 ID 16
- Power step 2 ID 17
- Power step 3 ID 18

Pull Down control:

- Enabling
- Water temperature variation rate below which the activation of new steps is enabled
- Delay time between the activation of two subsequent steps

#### 9.4.12 New password for installer menu monitor

I21

| INSTALLER           |                          |                     |         | 10:48:10 |  |
|---------------------|--------------------------|---------------------|---------|----------|--|
| Enable energy meter | <input type="checkbox"/> | Energy meter status | Offline |          |  |
| Installer Password  | 0000                     |                     |         |          |  |

- Enabling "energy meter" reading
- Communication status with "energy meter"
- Entering a new password for the installer menu

## 10 ALARM

The alarms are divided into the following categories:

1. Signal only alarms (only a signal on the display, alarm relay)
2. Circuit alarms (they deactivate only the relative circuit, signal on the display, alarm relay)
3. Serious alarms (they deactivate all the system circuits, signal on the display, alarm relay)
4. Gas alarms (alarms related to the management of flammable gas)

The alarms must be considered as being manually reset, except for those specified otherwise.

### 10.1 SIGNAL ONLY ALARMS

| Alarm                         | Source        | Features           |
|-------------------------------|---------------|--------------------|
| Pump maintenance              | Count         | Settable threshold |
| Compressor maintenance        | Count         | Settable threshold |
| Anti-freeze                   | Digital input |                    |
| Envelope (On/Off compressors) | Transducers   |                    |
| Excessive entries in memory T | System        |                    |
| T Memory Error                | System        |                    |

### 10.2 CIRCUIT ALARMS

| Alarm                             | Source                        | Features                                                                                                                                                                                  |
|-----------------------------------|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| High pressure                     | Pressure switch<br>Transducer | Settable threshold and differential                                                                                                                                                       |
| Low pressure                      | Transducer                    | Delayed with respect to compressor start<br>Bypassed during and after the pumpdown cycle<br>Settable alarm bypass time from compressor start<br>Settable alarm threshold and differential |
| Low pressure LOW                  | Transducer                    | Enabled from the menu<br>Settable threshold and differential                                                                                                                              |
| Compressor thermal                | Digital input                 |                                                                                                                                                                                           |
| Oil differential                  | Digital input                 | Delayed at acquisition<br>Settable acquisition delay time                                                                                                                                 |
| Condenser pump thermal            | Digital input                 |                                                                                                                                                                                           |
| Evaporator antifreeze             | Probe                         | Settable threshold and differential                                                                                                                                                       |
| Condenser antifreeze              | Probe                         | Settable threshold and differential                                                                                                                                                       |
| Discharge refrigerant temperature | Probe                         | Settable threshold and differential                                                                                                                                                       |
| Pressure differentials            | Transducers                   | Settable threshold and delay from start                                                                                                                                                   |
| Probes faulty                     | Probes                        |                                                                                                                                                                                           |
| Evaporator gas antifreeze         | Probe                         | Settable threshold and differential                                                                                                                                                       |
| Increment/decrement relay         | A.T.                          |                                                                                                                                                                                           |
| A.T. fault                        | A.T.                          |                                                                                                                                                                                           |
| Anti-freeze                       | Probe                         | Settable threshold and differential                                                                                                                                                       |
| Unit offline                      |                               |                                                                                                                                                                                           |
| Refrigerant drain circuit         |                               |                                                                                                                                                                                           |
| Electronic valve alarms           | Valve driver                  |                                                                                                                                                                                           |
| Inverter alarms                   | Inverter                      |                                                                                                                                                                                           |

### 10.3 SERIOUS ALARMS

| Alarm                     | Source        | Features                                              |
|---------------------------|---------------|-------------------------------------------------------|
| Configurator error        |               |                                                       |
| Phase monitor             | Digital input |                                                       |
| Evaporator pump thermal   | Digital input |                                                       |
| Water inlet probe failure | Probe         |                                                       |
| Water flow failure        | Flow switch   | Settable bypass from pump start and acquisition delay |

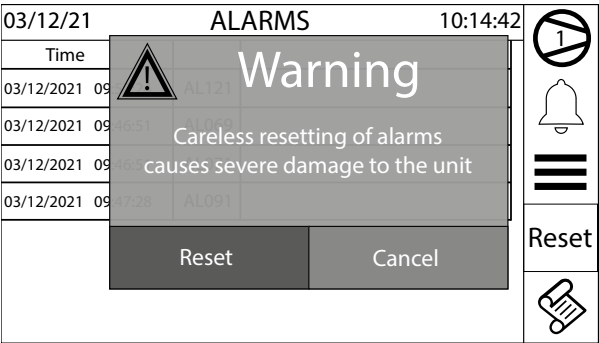
| Alarm                   | Source          | Features                                                                                                                                     |
|-------------------------|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| Low pressure            | Pressure switch | Delayed with respect to compressor start<br>Bypassed during and after the pumpdown cycle<br>Settable alarm bypass time from compressor start |
| Condenser High Pressure | Transducer      | Settable threshold and duration of permanence above the threshold                                                                            |

## 10.4 GAS ALARMS

| Alarm         | Source          | Features |
|---------------|-----------------|----------|
| High pressure | Pressure switch |          |
| Low pressure  | Pressure switch |          |
| Gas Leakage   | Leak detector   |          |

10.5 ALARM RESET

Pressing the reset key activates the request to reset the active alarms.



To reset the alarms, simply press the Reset key .

10.6 GAS ALARM RESET

In the machines that use flammable gas, there are some alarms that require a password to be reset. This safety measure guarantees that the machine will be put back into operation only after the risk conditions have been eliminated by expert and prepared personnel.

The gas alarms are reset when the correct password is entered:



It is possible to reset the alarms using the dynamic password generated with the token, after activating the function in the Manufacturer menu.

The dynamic password is valid for one reset, then a new token will be generated that will be associated with a new password:



## 10.7 LIST OF ALARMS

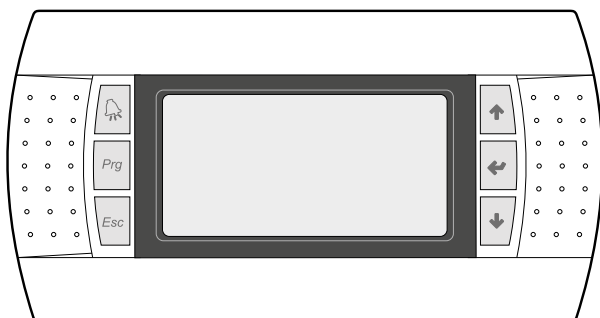
Key:

- **Type 1:** alarm transmitted via Modbus from leak detector sensor
- **Type 2:** alarm transmitted via Modbus from the electronic expansion valve driver EVD evolution
- **Type 3:** alarm transmitted via Modbus from the inverter

| Code  | Description                      | Note                                                                           | Type |
|-------|----------------------------------|--------------------------------------------------------------------------------|------|
| AL001 | Configurator error               |                                                                                |      |
| AL002 | Phase monitor                    | Monitor contact<br>Can be enabled from the master or the slave                 |      |
| AL003 | Anti-freeze                      | Evaporator water outlet probe < setpoint                                       |      |
| AL004 | Compressor Overload              | Thermomagnetic switch contact                                                  |      |
| AL005 | Evaporator flow switch           | Flow switch contact<br>Can be enabled from the master or the slave             |      |
| AL007 | Compressor Oil Level             | Pressure switch contact                                                        |      |
| AL008 | Low Differential Pressure        | Difference between high and low pressure < setpoint                            |      |
| AL009 | High pressure                    | • Pressure switch contact<br>• In machines "G" reset with password is required |      |
| AL010 | High pressure                    | High pressure > setpoint                                                       |      |
| AL011 | Low pressure                     | • Pressure switch contact<br>• In machines "G" reset with password is required |      |
| AL012 | Low pressure                     | Low pressure < setpoint                                                        |      |
| AL013 | High Discharge Temperature       | Discharge temperature > setpoint                                               |      |
| AL016 | Condenser Pump Overload          | Thermomagnetic switch contact                                                  |      |
| AL017 | Evaporator Pump Overload         | Thermomagnetic switch contact                                                  |      |
| AL020 | Evaporator pump maintenance      | Hours of operation reached warning                                             |      |
| AL021 | Condenser pump maintenance       | Hours of operation reached warning                                             |      |
| AL022 | Compressor maintenance           | Hours of operation reached warning                                             |      |
| AL031 | Probe U1 broken or disconnected  | Probe reading out of scale                                                     |      |
| AL032 | Probe U2 broken or disconnected  | Probe reading out of scale                                                     |      |
| AL033 | Probe U3 broken or disconnected  | Probe reading out of scale                                                     |      |
| AL034 | Probe U4 broken or disconnected  | Probe reading out of scale                                                     |      |
| AL035 | Probe U5 broken or disconnected  | Probe reading out of scale                                                     |      |
| AL036 | Probe U6 broken or disconnected  | Probe reading out of scale                                                     |      |
| AL037 | Probe U7 broken or disconnected  | Probe reading out of scale                                                     |      |
| AL038 | Probe U8 broken or disconnected  | Probe reading out of scale                                                     |      |
| AL039 | Probe U9 broken or disconnected  | Probe reading out of scale                                                     |      |
| AL040 | Probe U10 broken or disconnected | Probe reading out of scale                                                     |      |
| AL044 | Antifreeze from digital input    | Digital input contact                                                          |      |
| AL045 | Capacity Decrease Relay          | Capacity control decrease relay fault                                          |      |
| AL046 | Capacity Increase Relay          | Capacity control increase relay fault                                          |      |
| AL047 | Amperometric transformer         | Feeding voltage transformer reading out of range                               |      |
| AL055 | Offline "energy meter"           | Communication error with "energy meter"                                        |      |
| AL056 | Evaporator flow switch blocked   | Failure to open the flow switch after the unit has stopped                     |      |
| AL061 | Unit 1 offline                   | Communication error with address card 1                                        |      |
| AL062 | Unit 2 offline                   | Communication error with address card 2                                        |      |
| AL063 | Unit 3 offline                   | Communication error with address card 3                                        |      |
| AL064 | Unit 4 offline                   | Communication error with address card 4                                        |      |
| AL065 | T Memory Excessive Writings      | An excessive number of entries in EEPROM detected                              |      |
| AL066 | T Memory Error                   | Error in the EEPROM memory of card pCO5+                                       |      |
| AL067 | Gas Leakage                      | • Leak detector contact<br>• In machines "G" reset with password is required   |      |
| AL068 | Leak detector – sensor error     | Sensor fault communicated by leak detector                                     | 1    |
| AL069 | Leak detector – sensor offline   | Communication error with leak detector                                         | 1    |
| AL070 | Leak detector – sensor error 2   | Sensor fault communicated by leak detector                                     | 1    |
| AL071 | Leak detector – sensor offline 2 | Communication error with leak detector                                         | 1    |
| AL072 | Gas antifreeze                   | Evaporator gas temperature < setpoint                                          |      |
| AL073 | Refrigerant drain circuit        | Overheating > setpoint                                                         |      |

| Code  | Description                              | Note                                                                                                                                                                                                                                          | Type |
|-------|------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|
| AL074 | Compressor out of envelope               | Work conditions of the compressor out of limits                                                                                                                                                                                               |      |
| AL075 | Condenser High Pressure                  | High pressure > setpoint for the wait period                                                                                                                                                                                                  |      |
| AL076 | Low pressure LOW                         | <ul style="list-style-type: none"> <li>Low pressure &lt; setpoint</li> <li>Enabled from the menu</li> </ul>                                                                                                                                   |      |
| AL077 | Anti-freeze/adjustment probe failure     | No water outlet probe enabled                                                                                                                                                                                                                 |      |
| AL078 | Flowswitch condenser                     | Flow switch contact                                                                                                                                                                                                                           |      |
| AL079 | Condenser antifreeze                     | Condenser outlet temperature < setpoint                                                                                                                                                                                                       |      |
| AL080 | Electronic expansion valve               | Valve driver contact                                                                                                                                                                                                                          |      |
| AL081 | EVD - Configuration Error                | Incorrect software configuration                                                                                                                                                                                                              | 2    |
| AL082 | EVD - EEPROM error                       |                                                                                                                                                                                                                                               | 2    |
| AL083 | EVD - motor fault                        |                                                                                                                                                                                                                                               | 2    |
| AL084 | EVD - LOP alarm                          |                                                                                                                                                                                                                                               | 2    |
| AL085 | EVD - MOP alarm                          |                                                                                                                                                                                                                                               | 2    |
| AL086 | EVD - Low overheating                    |                                                                                                                                                                                                                                               | 2    |
| AL087 | EVD - Low suction temperature            |                                                                                                                                                                                                                                               | 2    |
| AL088 | EVD - High Condensation Temperature      |                                                                                                                                                                                                                                               | 2    |
| AL089 | EVD - probe S1 fault                     |                                                                                                                                                                                                                                               | 2    |
| AL090 | EVD - probe S2 fault                     |                                                                                                                                                                                                                                               | 2    |
| AL091 | EVD - driver offline                     |                                                                                                                                                                                                                                               | 2    |
| AL092 | EVD - low battery                        |                                                                                                                                                                                                                                               | 2    |
| AL093 | EVD - motor 2 fault                      |                                                                                                                                                                                                                                               | 2    |
| AL094 | EVD - LOP 2 alarm                        |                                                                                                                                                                                                                                               | 2    |
| AL095 | EVD - MOP 2 alarm                        |                                                                                                                                                                                                                                               | 2    |
| AL096 | EVD - Low overheating 2                  |                                                                                                                                                                                                                                               | 2    |
| AL097 | EVD - Low suction temperature 2          |                                                                                                                                                                                                                                               | 2    |
| AL100 | Inverter – envelop init error            | The compressor is working out of envelope                                                                                                                                                                                                     | 3    |
| AL101 | Inverter – fault                         |                                                                                                                                                                                                                                               | 3    |
| AL102 | Inverter – overcurrent                   |                                                                                                                                                                                                                                               | 3    |
| AL103 | Inverter - over voltage                  |                                                                                                                                                                                                                                               | 3    |
| AL104 | Inverter – over temperature              | <ul style="list-style-type: none"> <li>Too high temperature of the inverter</li> <li>Check valve liquid and / or refrigerant charge. The valve is activated when the oil exceeds 100 ° C, and turns off when it falls below 95 ° C</li> </ul> | 3    |
| AL105 | Inverter – under voltage                 |                                                                                                                                                                                                                                               | 3    |
| AL106 | Inverter – power supply fault            | Failure of a phase or imbalance between phases                                                                                                                                                                                                | 3    |
| AL107 | Inverter – hardware fault                |                                                                                                                                                                                                                                               | 3    |
| AL108 | Inverter – temperature sensor fault      | Fault inverter temperature sensors. Check engine oil sensor and sensor.                                                                                                                                                                       | 3    |
| AL109 | Inverter – hardware configuration error  | Incorrect hardware configuration                                                                                                                                                                                                              | 3    |
| AL110 | Inverter – configuration data error      | Incorrect software configuration                                                                                                                                                                                                              | 3    |
| AL111 | Inverter – configuration parameter error | Incorrect inverter parameters                                                                                                                                                                                                                 | 3    |
| AL112 | Inverter – motor thermal overload        | Motor winding temperature exceeds the limits                                                                                                                                                                                                  | 3    |
| AL113 | Inverter – motor overload                |                                                                                                                                                                                                                                               | 3    |
| AL115 | Inverter – motor phase failed            |                                                                                                                                                                                                                                               | 3    |
| AL116 | Inverter – high oil temperature          | <ul style="list-style-type: none"> <li>High oil temperature (check oil heater)</li> <li>Warning if greater than 115°C</li> <li>Fault if greater than 120°C</li> <li>Reset alarm if less than 105°C</li> </ul>                                 | 3    |
| AL117 | Inverter – low oil temperature           |                                                                                                                                                                                                                                               | 3    |
| AL118 | Inverter - Compressor Short Cycling      | Compressor starting is requested before the minimum time between two starts has passed. This occurs only at the Warning level                                                                                                                 | 3    |
| AL119 | Inverter – envelope error                | The compressor is working out of envelope                                                                                                                                                                                                     | 3    |
| AL120 | Inverter – serial control timeout        | Power request from card pCO5+ to inverter timeout                                                                                                                                                                                             | 3    |
| AL121 | Inverter – communication error           |                                                                                                                                                                                                                                               | 3    |
| AL122 | Inverter – datalog error                 |                                                                                                                                                                                                                                               | 3    |
| AL123 | Inverter – pressure sensor fault         |                                                                                                                                                                                                                                               | 3    |

## 11 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.

### 11.1 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.**

# AERMEC

Wait please

16s

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

Language: ENGLISH

Push ENTER for change  
ESC to confirm

Time show mask: 7

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

### 11.2 FUNCTION OF THE PGD1 CONTROL PANEL KEYS



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



: Pressing this key activates navigation between the menus;



: 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;

### 11.3 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 image shows the relationships between the various menus and the keys used for navigation.

#### CAUTION



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

#### Menu icons:



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



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



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



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

**WARNING: this menu is password protected, the value to be set for access is: 0000**



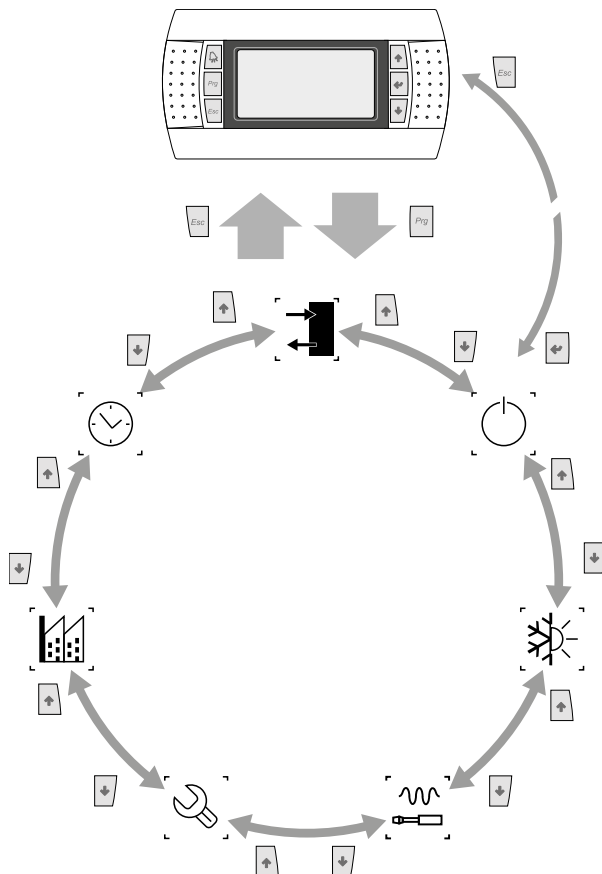
**ASSISTANCE:** This menu is not accessible except by authorized staff;



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



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



## 11.4 USER OPERATING PROCEDURES

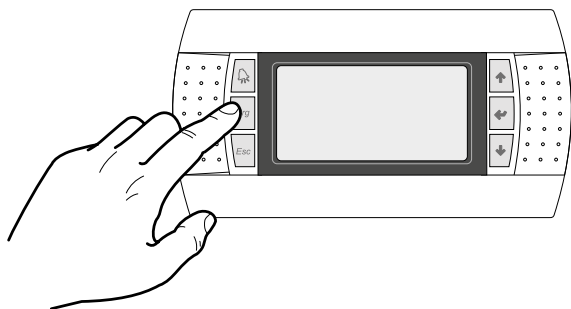
To check or modify the operating parameters of the unit it is necessary to use the interface of the control panel on the unit.

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

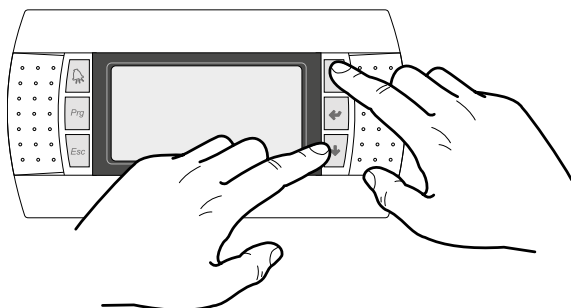
- Moving between menus;
- Selecting and modifying a menu.

### 11.4.1 Moving between menus

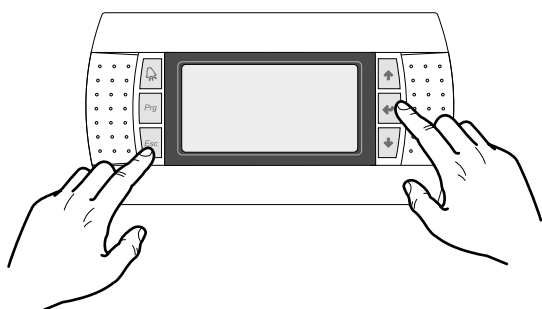
To move between the menus, the order in which they are displayed is shown in the previous page, enter the menu selection mode by pressing the key ;



Once in the menu selection mode it is possible to move between menus using the arrow keys: the key  to move to the previous menu, and the key  to move to the next menu:

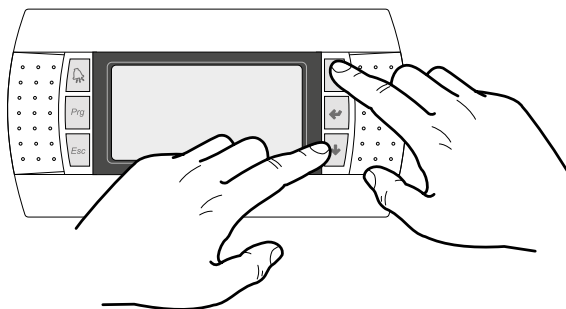


When the desired menu is seen press the key  to enter the menu. Press the key  to return to the menu selection mode:



### 11.4.2 Selecting and modifying a menu

Once in the menu selected, by following the procedure, it is possible to move between the screens using the arrow keys: the key  to move to the previous parameter, and the key  to move to the next parameter:



When the desired parameter is seen press the key  to enter the parameter. To exit the parameter and return to the parameter selection mode press the key .

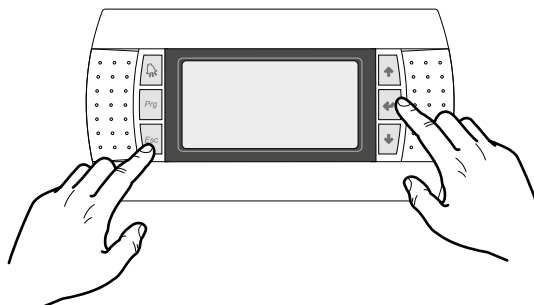
#### NOTICE



Once a parameter is selected by pressing the key , the parameter selection mode is automatically accessed.

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

1. Pressing the key  causes a flashing cursor to appear on the first modifiable field of the parameter. If no modifiable fields are displayed then the cursor will not appear.
2. Pressing the key  or the key , the value of the field can be increased or decreased;
3. Pressing the key  confirms the modification of the field value, saving it in memory.

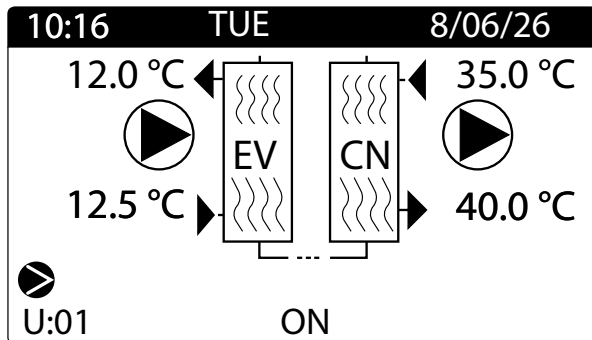


#### NOTICE



On the basis of the type of parameter selected the number of modifiable fields can change.

## 12 MAIN MENU



This mask displays:

### 1. General unit status:

- Current date and time
- 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);
- Evaporator (EV) output temperature;
- Condenser inlet temperature (CN);
- Condenser outlet temperature (CN);
- Machine model.

### 2. The machine operating status:

- ON: machine on
- PUMPDOWN: pumpdown cycle in progress
- OFF BY KEY: machine turned off by the keypad command
- OFF BY DIG. IN.: machine turned off by remote contact
- OFF BY SUPERV.: machine turned off by supervisor
- OFF BY TIME BAND: machine turned off by the timer
- OFF BY ALARM: machine turned off by alarm
- OFF BY SER.OFFL: machine turned off due to failure of adjustment probe from supervisor

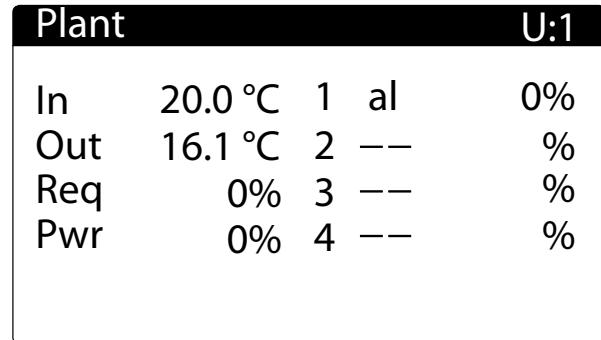
### NOTICE



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

- : indicates that the compressor is on;
- : indicates that the compressor is off;
- : indicates that the pump is on.

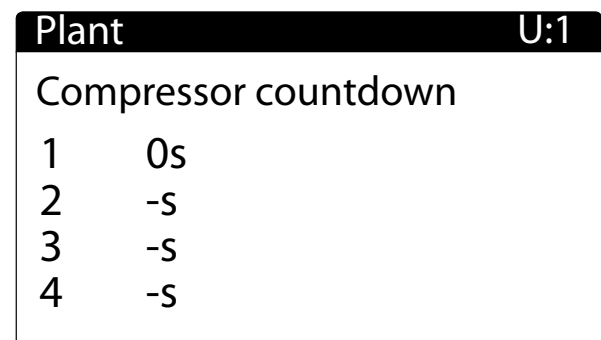
The second mask, which is present only in the master card parameters, summarises the machine status with a graphic indication of the compressor power (no. capacity controls), input temperature, master water output and circuit operating state.



This mask displays:

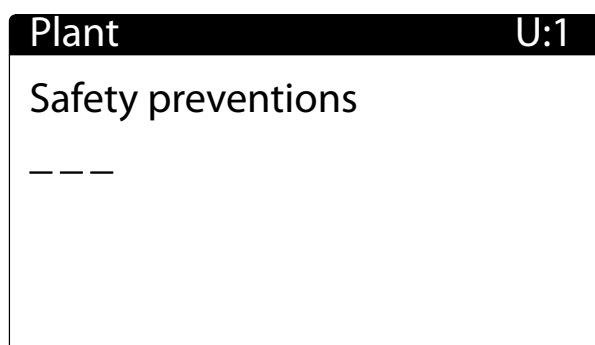
1. In: water inlet temperature (master)
2. Out: water outlet temperature (master)
3. Req: thermostat request
4. Pwr: output power
5. Cooling capacity of the compressors present from 1 to 4, expressed as a percentage
6. Status indication of circuits from 1 to 4:
  - ok: operative
  - al: stopped due to alarm
  - --: No present
  - sp: safety reducer
  - WW: wait for safety differential
  - PD: wait for PullDown

## 12.1 COMPRESSOR COUNTING MONITOR



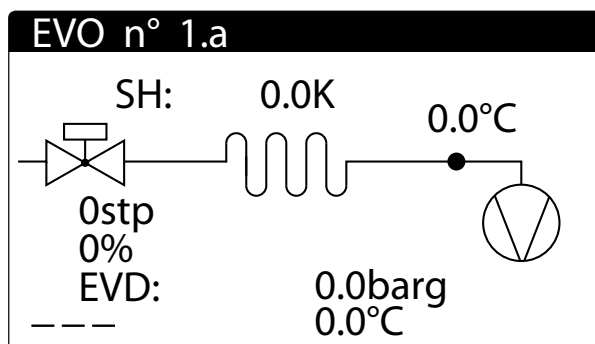
This screen shows the count of the minimum time for starting the compressors.

## 12.2 SAFETY CAPACITY CONTROL MONITOR



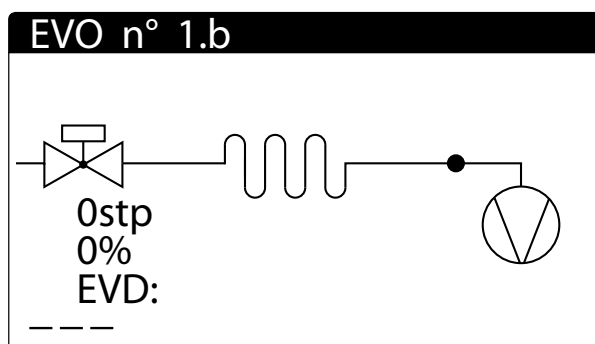
This mask displays the state of the safety capacity controls, indicating which one tripped.

## 12.3 VALVE 1 STATUS MONITOR



This mask displays the pressure, temperature, overheating and position of valve 1.

## 12.4 VALVE 2 STATUS MONITOR



This mask displays the position of valve 2.

## 13 ALARM LOG MENU

To display the alarm log menu, press the button .

The menu shows the last 25 alarms that occurred together with some parameters stored at the moment the alarm occurred.

| Alarms history |       | #00006  |      |
|----------------|-------|---------|------|
| AL121          | 16:36 | 8/06/26 |      |
| SIW            | 12.5  | SUW     | 12.0 |
| SIWH           | 13.5  | SUWH    | 03.0 |
| SUWHC          | 074.0 | SGP     | 07.0 |
| HP             | 05.0  | LP      | 03.8 |

### NOTICE



The alarm history cannot be reset because the storage to memory is circular so each new alarm registered overwrites the oldest of the 25 stored to memory.

The parameters are:

— **Time and date**

— **SIW:**

Evaporator inlet temperature

— **SUW:**

Evaporator outlet temperature

— **SIWH:**

Condenser Inlet Temperature

— **SUWH:**

Condenser Outlet Temperature

— **SUWHC:**

Common condenser outlet temperature

— **SGP:**

Permanent gas temperature

— **HP:**

Condensing pressure

— **LP:**

Evaporating Pressure

## 14 CLOCK MENU

This menu is used to view and modify the following parameters:

- Time
- Date
- Day of the week
- Programmer timer and time bands for every day of the week

### 14.1 TIME, DATE AND DAY DISPLAY MONITOR

| Clock config. |          | U:01 |
|---------------|----------|------|
| Time          | 08:42    |      |
| Date          | 16/09/21 |      |
| Day           | FRIDAY   |      |

This mask is used to display and modify the time, date and day of the week parameters.

### 14.2 TIMER ENABLING MONITOR

| Clock config.            |   | U:01 |
|--------------------------|---|------|
| Enable weekly time zones | N |      |

This mask is used to enable the weekly time band timer (Y = enabled, N = disabled).

### 14.3 TIME ZONE 1 CHANGE MONITOR

| Timezones |        | U:01 |
|-----------|--------|------|
| Day       | Zone 1 |      |
| FRIDAY    |        |      |
| Start     | Stop   |      |
| 00:00     | 00:00  |      |

This mask is used to modify the day of the week and the times of zone 1 (see the Zone diagram).

### 14.4 TIME ZONE 2 CHANGE MONITOR

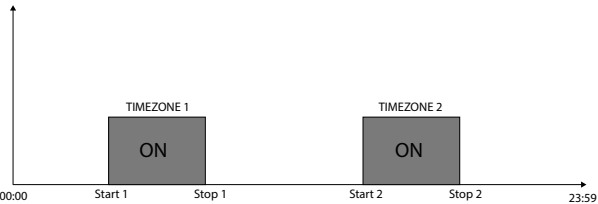
| Timezones |        | U:01 |
|-----------|--------|------|
| Day       | Zone 2 |      |
| FRIDAY    |        |      |
| Start     | Stop   |      |
| 00:00     | 00:00  |      |

This mask is used to modify the times of zone 2 (see the Zone diagram).

### 14.5 OPERATING ZONE DIAGRAM

If enabled, the weekly time band timer is used to set 2 operating zones for each day of the week (if one zone has the same start and stop time, it is disabled).

The diagram below shows an example of two operating zones:



## 15 INPUT/OUTPUT MENU

This menu is used to display the state of the inputs and outputs, both digital as well as analogue.

### 15.1 DIGITAL INPUT/OUTPUT GENERAL MONITOR

| I/O                | U:01 |
|--------------------|------|
| Digital inputs     |      |
| CCC000C00000CC000C |      |
| Digital outputs    |      |
| 0000000C0000000000 |      |

- **Digital input state:** starting from the left to the right, they are ID1 - ID18 (O = open; C = closed)
- **Digital output state:** starting from the left to the right, they are C1 - C18 (O = open; C = closed)

### 15.2 TRANSDUCER HIGH AND LOW PRESSURE MONITOR

| I/O           | U:01     |
|---------------|----------|
| Analog inputs |          |
| TAP (U1):     | 13.2 bar |
| TBP (U2):     | 6.7 bar  |

- **TAP (U1):** high pressure transducer reading
- **TBP (U2):** low pressure transducer reading

### 15.3 SIW, SUWHC AND SGP PROBE VALUES MONITOR

| I/O           | U:01     |
|---------------|----------|
| Analog inputs |          |
| SIW (U3):     | 12.5 °C  |
| SGP (U4):     | 107.9 °C |

- **SIW (U3):** evaporator water inlet temperature probe reading (master only)
- **SUWHC (U3):** common water inlet temperature probe reading (in case of adjustment at the outlet with multiple parallel connected evaporators) (unit 2 only)
- **SGP (U4):** discharge gas temperature probe reading

### 15.4 TRANSFORMER INLET AND EVAPORATOR WATER OUTLET TEMPERATURE MONITOR

| I/O           | U:01    |
|---------------|---------|
| Analog inputs |         |
| SUW (U5):     | 12.4 °C |
| TA (U6):      | 0.0 A   |

- **SUW (U5):** evaporator water outlet temperature probe reading
- **TA (U6):** Ammetric transformer inlet (A)

### 15.5 EVAPORATOR INLET GAS TEMPERATURE AND MULTIFUNCTION INPUT MONITOR

| I/O           | U:01     |
|---------------|----------|
| Analog inputs |          |
| MULTI (U7):   | - °C     |
| SEV (U8):     | 999.9 °C |

- **MULTI (U7):** Multifunction input (master only)
- **SEV (U8):** evaporator input gas temperature probe reading

### 15.6 CONDENSER WATER INLET/ OUTLET TEMPERATURE MONITOR

| I/O           | U:01    |
|---------------|---------|
| Analog inputs |         |
| SUWH (U9):    | 40.0 °C |
| SIWH (U10):   | 35.0 °C |

- **SUWH (U9):** condenser water outlet temperature
- **SIWH (U10):** condenser water inlet temperature (master)

### 15.7 CONDENSER WATER OUTLET MONITOR

| I/O           | U:02    |
|---------------|---------|
| Analog inputs |         |
| SUWH (U9):    | 40.0 °C |
| SUWHC (U10):  | 35.0 °C |

- **SUWH (U9):** condenser water outlet temperature
- **SUWHC (U10):** common condenser water outlet temperature (unit 2 only)

### 15.8 ANALOGUE OUTPUT VOLTAGE VALUE MONITOR

| I/O           | U:01  |
|---------------|-------|
| Analog inputs |       |
| Y1:           | 0.0 V |

Voltage value at analogue output Y1.

### 15.9 PUMP HOUR COUNTER MONITOR

| Plant        | U:1  |
|--------------|------|
| Hour counter |      |
| Pump evap.   | 0000 |
| Pump cond.   | 0000 |

Running hours pump evaporator and condenser pump.

### 15.10 COMPRESSOR HOUR COUNTER MONITOR

| Plant        | U:1  |
|--------------|------|
| Hour counter |      |
| Compressor   | 0000 |

Compressor operating hours.

### 15.11 COMPRESSED STATUS MONITOR (A)

| I/O        | U:1     |
|------------|---------|
| Inverter   |         |
| Speed Set. | 0 RPM   |
| Speed      | 0 RPM   |
| Env.Status | stopped |
| Env.Zone   | OK      |
| Gas Type   | 0       |

- Speed set from card setpoint
- No. of revs read by the compressor
- Status: Stopped, Start, On, Switch off, war IN, war OUT, alarm
- Envelope zone: OK, SLDL, SL, SLDH, DH, SHDH, SH, SHDL, DL
- Type of gas set in the compressor

**15.12 COMPRESSED STATUS MONITOR (B)**

| I/O      | U:1 |          |   |
|----------|-----|----------|---|
| Inverter |     |          |   |
| Alarm    | N   | Enabled  | N |
| Warning  | N   | Ready    | N |
| Disabled | N   | Running  | N |
|          |     | Setpoint | N |

This mask is used to view the compressor status summary.

**15.13 COMPRESSED STATUS MONITOR (C)**

| I/O          | U:1    |
|--------------|--------|
| Inverter     |        |
| Suction T.   | 0.0 °C |
| Discharge T. | 0.0 °C |
| Oiltemp.     | 0.0 °C |
| Min On Time  | 0 s    |
| Min Off Time | 0 s    |

- Intake temperature read by the compressor
- Delivery temperature read by the compressor
- Oil temperature read by the compressor
- Minimum operating time remaining
- Minimum switching off time remaining

**15.14 COMPRESSOR STATUS MONITOR (D)**

| I/O         | U:01      |
|-------------|-----------|
| Inverter    |           |
| Current     | 000.0 A   |
| Power       | 0000.0 kW |
| Suction P.  | 53.5 bar  |
| Discharge P | 53.5 bar  |

- Inverter current consumption
- Inverter power
- Suction pressure read by inverter compressor
- Discharge pressure read by the inverter compressor

**15.15 GAS STATUS MONITOR (A)**

| I/O           | U:01    |
|---------------|---------|
| Leak Detector |         |
| Gas Level     | 000 ppm |

Concentration of flammable gas detected by sensor 1.

**15.16 GAS STATUS MONITOR (B)**

| I/O             | U:01    |
|-----------------|---------|
| Leak Detector 2 |         |
| Gas Level       | 000 ppm |

Concentration of flammable gas detected by sensor 2.

**15.17 VALVE 1 (A) STATUS MONITOR**

| Input/Output    |          |
|-----------------|----------|
| EVD n°01.a      |          |
| Valve status:   | ---      |
| Valve opening:  | 000.0%   |
| Valve position: | 0000 stp |
| Cool. capacity: | 000%     |
| Superheat:      | 000.0K   |

- Valve status
- Opening valve
- Valve position
- Cooling capacity
- Overheating



**15.18 VALVE (B) STATUS MONITOR**

| Input/Output     |        |
|------------------|--------|
| EVD n°01         |        |
| Discharge SH:    | 000.0K |
| Disch.SH Set:    | 035.0K |
| Disch. temp.:    | 000.0K |
| Disch. Tmp. Set: | 105.0K |

- Calculated overheating value
- Superheat setpoint
- Discharge temperature value
- Discharge temperature setpoint

**15.19 VALVE 2 (C) STATUS MONITOR**

| Input/Output    |          |
|-----------------|----------|
| EVD n°01.b      |          |
| Valve status:   | ---      |
| Valve opening:  | 000.0%   |
| Valve position: | 0000 stp |
| Cool. capacity: | 000%     |
| Superheat:      | 000.0K   |

- Valve status
- Opening valve
- Valve position
- Cooling capacity
- Overheating

**15.20 VALVE (D) STATUS MONITOR**

| Input/Output         |      |
|----------------------|------|
| EVD n°01             |      |
| Digital input status |      |
| DI1:                 | Open |
| DI2:                 | Open |

Displays the state of the EVD driver digital inputs.

**15.21 VALVE (E) STATUS MONITOR**

| Information       |     |
|-------------------|-----|
| EVD n°01          |     |
| Firmware version: | --- |

Displays the firmware version of the EVD driver.

**15.22 SOFTWARE STATUS MONITOR**

| I/O                         | U:1 |
|-----------------------------|-----|
| Software Version:           |     |
| 2.0.00                      |     |
| Release Date:               |     |
| 4/06/26                     |     |
| Code:                       |     |
| HWSG0901XH <sup>00000</sup> |     |

Software version, version date and unit code.

## 16 ON/OFF MENU

The On/Off menu makes it possible to identify the machine status and change the general enabling.

| Plant Main On/Off | U:1 |
|-------------------|-----|
| General Enable:   |     |
| <b>OFF</b>        |     |
| OFF BY KEYB.      |     |

This mask is used to view the machine operating status:

- **ON**: machine on
- **PUMPDOWN**: pumpdown cycle in progress
- **OFF BY KEY**: machine turned off by the keypad command
- **OFF BY DIG. IN.**: machine turned off by remote contact
- **OFF BY SUPERV.**: machine turned off by supervisor
- **OFF BY TIMER**: machine turned off by timer
- **OFF BY ALARM**: machine turned off by alarm
- **OFF BY SER.OFFL**: machine turned off due to failure of adjustment probe from supervisor

### NOTICE



**General enabling is requested also if On/Off is enabled from digital contact or from the supervisor.**

## 17 CHILLER MENU

The Chiller menu makes it possible to identify the machine status and change the general enabling.

### 17.1 OPERATING MODE MONITOR

| Chiller          | U:01                                                                              |
|------------------|-----------------------------------------------------------------------------------|
| Working mode     |                                                                                   |
| <b>Cooling</b>   |  |
| Current setpoint | 7.0 °C                                                                            |

1. Selection of operating mode:

- Heat/Cool
- BMS
- Digital input

2. Actual setpoint in use for adjustment

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

- ❄ : system chilled water production;
- ❄ : system hot water production.

### 17.2 MAIN SETPOINT MONITORS

| Chiller          | U:01    |
|------------------|---------|
| Cooling setpoint | 07.0 °C |
| Heating setpoint | 50.0 °C |

- Setting of cooling set
- Setting of heating set (enabled for heat pump machine)

### 17.3 DOUBLE SET SETTING MONITOR

| Chiller                 | U:01    |
|-------------------------|---------|
| Cooling double setpoint | 11.0 °C |
| Heating double setpoint | 45.0 °C |

- Double cooling set setting (window enabled if the double setpoint is enabled see the manufacturer menu)
- Double heating set setting (window enabled if the double setpoint is enabled see the manufacturer menu)

### 17.4 CURRENT SETPOINT MONITOR

| Chiller          | U:01     |
|------------------|----------|
| Current setpoint | 10.0 °C  |
| Limit            | 100 %    |
| Ext. Demand      | -- 000 % |

- Setpoint currently used, selected from those possible (hot, cold, double hot, double cold, multifunction input, serial)
- Limit: Limit of the power, owing to serial or multifunction input request
- The string Ext demand is visible only if the Supervisor demand function is enabled
- The symbol >> indicates that communication is active, and the percentage figure of requested power is valid.

## 17.5 MULTIFUNCTION INPUT MONITOR (A)

| Multifunction | Off      | U:01 |
|---------------|----------|------|
| Input         | 000.0 °C |      |
| Cooling Setp  | 007.0 °C |      |
| Heating Setp  | 045.0 °C |      |

- Input value in the size selected
- Compensation to add to/deduct from the cooling set in °C
- Compensation to add to/deduct from the heating set in °C

- Multifunction input enabled for setpoint setting
- Input value in the size selected
- Cooling setpoint set from multifunction input
- Heat Setpoint set from multifunction input

## 17.6 MULTIFUNCTION INPUT MONITOR (B)

| Multifunction | Off      | U:01 |
|---------------|----------|------|
| Input         | 000.0 °C |      |
| Power Limit   | 000 %    |      |

- Multifunction input enabled for cooling capacity limitation
- Input value in the size selected
- Maximum limit of the cooling capacity expressed as a percentage

## 17.7 MULTIFUNCTION INPUT MONITOR (C)

| Multifunction | Off      | U:01 |
|---------------|----------|------|
| Input         | 000.0 °C |      |
| Cooling Comp. | 07.0 °C  |      |
| Heating Comp. | 45.0 °C  |      |

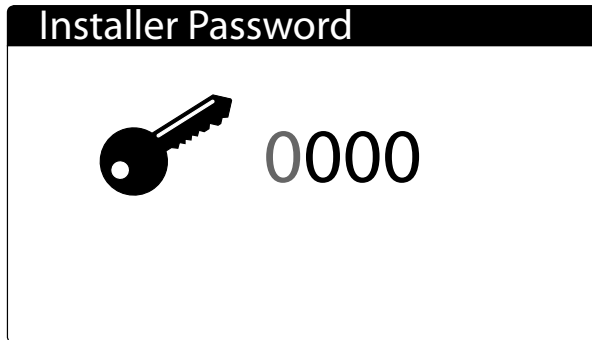
- Multifunction input enabled for setpoint compensation

## 18 INSTALLER MENU

This menu contains the parameters necessary for the machine configuration and its functions.

### 18.1 PASSWORD MONITOR TO ACCESS THE INSTALLER MENU

Enter the password to access the menu (the password is 0000).



### 18.2 DIGITAL INPUT COMMAND ENABLING MONITOR

| Installer U:01                       |   |
|--------------------------------------|---|
| Digital input remote on/off          | N |
| Digital input remote Cooling/Heating | N |

— Digital input ON/OFF command enabling (**MASTER ONLY**).

— Digital input cooling/heating command enabling

### 18.3 SUPERVISOR COMMAND ENABLING MONITOR

| Installer U:01                 |   |
|--------------------------------|---|
| Enable on/off by supervisor    | N |
| Enable cool/heat by supervisor | N |

— Supervisor ON/OFF command enabling

— Supervisor cooling/heating command enabling

### 18.4 ALARM RELAY LOGIC MONITOR

| Installer U:1               |      |
|-----------------------------|------|
| Logic inversion alarm relay | OPEN |

General alarm contact logic inversion.

### 18.5 SUPERVISOR FUNCTIONALITY ENABLING MONITOR

| Installer U:1              |   |
|----------------------------|---|
| Demand Limit by Supervisor | N |

If enabled, the power request is acquired not via a temperature probe and work set, but via Modbus serial data. Modbus serial data maximum cooling power limit enabling. (**MASTER ONLY**).

### 18.6 DOUBLE SETPOINT ENABLING MONITOR

| Installer U:01         |   |
|------------------------|---|
| Enable double setpoint | Y |

Double setpoint use enabling (**MASTER ONLY**).

If enabled via the ID3 digital input, if the set is selected (contact open = normal setpoint, contact closed = double setpoint)

## 18.7 HEATER ALARM ENABLING MONITOR

| Installer U:02           |   |
|--------------------------|---|
| Evaporator pump :        |   |
| Circuit breaker          | N |
| Pump off with compressor | N |

- Pump thermal alarm enabling (**SLAVE ONLY**).
- Enabling at switching off of the evaporator pump with the compressor off relative to the pump output of the individual slave cards

## 18.8 THERMOSTAT ADJUSTMENT MONITOR

| Installer U:01   |         |
|------------------|---------|
| Temperature band | 05.0 °C |

Proportional band for the adjustment of the work thermostat (**MASTER ONLY**).

## 18.9 ADJUSTING TEMPERATURE MONITOR

| Installer U:01  |        |
|-----------------|--------|
| Regulation Type | OUTLET |

Adjusting temperature selection (**MASTER ONLY**):

- **INLET**: Water inlet
- **OUTLET**: Water outlet

## 18.10 TYPE OF ADJUSTMENT MONITOR

| Installer U:01  |       |
|-----------------|-------|
| regulation type |       |
| Type            | PI    |
| Integration t.  | 0600s |

- Type of adjustment (**MASTER ONLY**) PROP = proportional, INT = integral, PI = proportional + integral.
- Integration time valid for PI or INT adjustment

## 18.11 GLYCOL WATER TEMPERATURE AND ENABLING MONITOR

| Installer U:01                  |         |
|---------------------------------|---------|
| Glycolated water management     | N       |
| Glycolated water freezing temp. | 00.0 °C |

Glycol water management enabling.

Water-glycol mixture freezing temperature (TCMA).

When the function is enabled, the following parameters are calculated automatically and cannot be changed:

- minimum limit of the cooling setpoint (TCMA + 4°C)
- antifreeze prevention setpoint (TCMA + 3.8°C)
- antifreeze alarm setpoint (TCMA + 3°C)
- antifreeze heater activation setpoint (TCMA + 3.5°C)
- cooling force-off setpoint (TCMA + 3.5°C)

**18.12 BMS PARAMETERS MONITOR**

| Installer  | U:1    |
|------------|--------|
| Supervisor | (BMS)  |
| Protocol   | Modbus |
| Address    | 1      |
| Baudrate   | 19200  |
| Stop bits  | 2      |
| Parity     | N      |

- Type of protocol used for communication with the supervisor: Lon, pCOWeb, Modbus
- Serial address 1 for supervisor
- Speed of communication
- Communication stop bit
- Communication parity

**18.13 BMS2 PARAMETERS MONITOR**

| Installer  | U:1    |
|------------|--------|
| Supervisor | (BMS2) |
| Protocol   | Modbus |
| Address    | 1      |
| Baudrate   | 19200  |
| Stop bits  | 2      |
| Parity     | N      |

- Serial address 2 for supervisor
- Speed of communication
- Communication stop bit
- Communication parity

**18.14 MULTIFUNCTION INPUT MONITOR**

| Installer       | U:01 |
|-----------------|------|
| Probe 7 config. |      |
| Function        | None |
| Type            | NTC  |

Multifunction input (**MASTER ONLY**) on input B7 active on master.

**Function:**

- None: no functionality

- Setpoint: working setpoint selection
- Limit: limitation of the cooling capacity
- Comp.Ext: Setpoint compensation with temperature

**Type:**

- NTC: input with temperature and probe NTC10K
- 0-10V: input 0-10 volt dc
- 4-20mA: Input 4-20mA

**18.15 NTC PROBE TEMPERATURE MONITOR**

| Installer       | U:01    |
|-----------------|---------|
| Probe 7 config. |         |
| NTC Type        |         |
| Temp. Low       | 20.0 °C |
| Temp. High      | 35.0 °C |

- NTC type multifunction input enabled (**MASTER ONLY**)
- NTC probe minimum temperature
- NTC probe maximum temperature

**18.16 INPUT VOLTAGE MONITOR**

| Installer       | U:01   |
|-----------------|--------|
| Probe 7 config. |        |
| 0-10 Volt Type  |        |
| Volt Low        | 00.0 V |
| Volt High       | 10.0 V |

- 0 –10 volt type multifunction input enabled (**MASTER ONLY**)
- Minimum input voltage
- Maximum input voltage

**18.17 INPUT CURRENT MONITOR**

| Installer U:01  |         |
|-----------------|---------|
| Probe 7 config. |         |
| 4-20 mA    Type |         |
| mA Low          | 04.0 mA |
| mA High         | 20.0 mA |

- 4 -20mA type multifunction input enabled (**MASTER ONLY**)
- Minimum input current
- Maximum input current

**18.18 COOLING SETPOINT MONITOR**

| Installer U:01    |         |
|-------------------|---------|
| Probe 7 config.   |         |
| External Setpoint |         |
| Cool Set Low      | 07.0 °C |
| Cool Set High     | 12.0 °C |

- Multifunction input enabled with Setpoint function (**MASTER ONLY**)
- Cooling setpoint corresponding to the minimum size of the input
- Cooling setpoint corresponding to the maximum size of the input

**18.19 HEATING SETPOINT MONITOR**

| Installer U:01    |         |
|-------------------|---------|
| Probe 7 config.   |         |
| External Setpoint |         |
| Heat Set Low      | 45.0 °C |
| Heat Set High     | 50.0 °C |

- Multifunction input enabled with Setpoint function (**MASTER ONLY**)
- Heating setpoint corresponding to the minimum size of the input

- Heating setpoint corresponding to the maximum size of the input

**18.20 MULTIFUNCTION INPUT WITH COOLING CAPACITY LIMIT MONITOR**

| Installer U:01  |       |
|-----------------|-------|
| Probe 7 config. |       |
| External Limit  |       |
| Limit Low       | 000 % |
| Limit High      | 100 % |

- Multifunction input enabled with cooling capacity limit function (**MASTER ONLY**)
- Power limit corresponding to the minimum size of the input
- Power limit corresponding to the maximum size of the input

**18.21 MULTIFUNCTION INPUT WITH SETPOINT COMPENSATION MONITOR (A)**

| Installer U:01     |         |
|--------------------|---------|
| Probe 7 config.    |         |
| Ext. Cooling Comp. |         |
| Comp. Low          | 07.0 °C |
| Comp. High         | 12.0 °C |

- Multifunction input enabled with setpoint compensation with temperature probe function (**MASTER ONLY**)
- Cooling set compensation corresponding to the minimum size of the input
- Cooling set compensation corresponding to the maximum size of the input



## 18.22 MULTIFUNCTION INPUT WITH SETPOINT COMPENSATION MONITOR (B)

| Installer U:01     |         |
|--------------------|---------|
| Probe 7 config.    |         |
| Ext. Heating Comp. |         |
| Comp. Low          | 45.0 °C |
| Comp. High         | 50.0 °C |

- Multifunction input enabled with setpoint compensation with temperature probe function (**MASTER ONLY**)
- Heating set compensation corresponding to the minimum size of the input
- Heating set compensation corresponding to the maximum size of the input

## 18.23 DIGITAL CONTACT ENABLING MONITOR

| Installer U:01        |   |
|-----------------------|---|
| Enable Digital Demand | N |

Power request enabling from digital contacts ID 16, ID 17, ID 18 (**MASTER ONLY**).

## 18.24 DIGITAL CONTACT SETTING MONITOR

| Installer U:01 |       |
|----------------|-------|
| Digital Demand | Step  |
| Step1          | 040 % |
| Step2          | 075 % |
| Step3          | 100 % |

Digital contact power step setting (**MASTER ONLY**):

- Power step 1 ID 16
- Power step 2 ID 17
- Power step 3 ID 18

## 18.25 PULL DOWN CONTROL ENABLING MONITOR

| Installer U:01 |          |
|----------------|----------|
| Pull Down      | N        |
| Temp. Rate     | 0.1 °C/m |
| Delay Comp.    | 0180 s   |

Pull Down control enabling (**MASTER ONLY**):

- Water temperature variation rate below which the activation of new steps is enabled
- Delay time between the activation of two subsequent steps

## 18.26 LANGUAGE SELECTION MONITOR

| Language              |         |
|-----------------------|---------|
| Language:             | ENGLISH |
| Push ENTER for change |         |

This mask is used to select the language:  
ENGLISH, ITALIANO, DEUTSCHE, ESPANOL, FRANCAISE.

## 18.27 UNIT OF MEASURE MONITOR

| Installer U:01                       |        |
|--------------------------------------|--------|
| (Change unit of measur in OFF state) |        |
| Unit of measure °C/bar               |        |
| Confirm?                             | N      |
| Set                                  | 7.0 °C |

This mask is used to select the unit of measure.

**NOTICE**



**Change the unit of measure when the machine is OFF and after performing its configuration.**

**18.28 NEW PASSWORD FOR INSTALLER  
MENU MONITOR**

| Installer                            | U:01 |
|--------------------------------------|------|
| Insert another<br>installer password |      |
|                                      | 0000 |

Entering a new password for the installer menu.

## 19 ALARM

The alarms are divided into the following categories:

1. Signal only alarms (only a signal on the display, alarm relay)
2. Circuit alarms (they deactivate only the relative circuit, signal on the display, alarm relay)
3. Serious alarms (they deactivate all the system circuits, signal on the display, alarm relay)
4. Gas alarms (alarms related to the management of flammable gas)

The alarms must be considered as being manually reset, except for those specified otherwise.

### 19.1 SIGNAL ONLY ALARMS

| Alarm                         | Source        | Features           |
|-------------------------------|---------------|--------------------|
| Pump maintenance              | Count         | Settable threshold |
| Compressor maintenance        | Count         | Settable threshold |
| Anti-freeze                   | Digital input |                    |
| Envelope (On/Off compressors) | Transducers   |                    |
| Excessive entries in memory T | System        |                    |
| T Memory Error                | System        |                    |

### 19.2 CIRCUIT ALARMS

| Alarm                             | Source                        | Features                                                                                                                                                                                  |
|-----------------------------------|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| High pressure                     | Pressure switch<br>Transducer | Settable threshold and differential                                                                                                                                                       |
| Low pressure                      | Transducer                    | Delayed with respect to compressor start<br>Bypassed during and after the pumpdown cycle<br>Settable alarm bypass time from compressor start<br>Settable alarm threshold and differential |
| Low pressure LOW                  | Transducer                    | Enabled from the menu<br>Settable threshold and differential                                                                                                                              |
| Compressor thermal                | Digital input                 |                                                                                                                                                                                           |
| Oil differential                  | Digital input                 | Delayed at acquisition<br>Settable acquisition delay time                                                                                                                                 |
| Condenser pump thermal            | Digital input                 |                                                                                                                                                                                           |
| Evaporator antifreeze             | Probe                         | Settable threshold and differential                                                                                                                                                       |
| Condenser antifreeze              | Probe                         | Settable threshold and differential                                                                                                                                                       |
| Discharge refrigerant temperature | Probe                         | Settable threshold and differential                                                                                                                                                       |
| Pressure differentials            | Transducers                   | Settable threshold and delay from start                                                                                                                                                   |
| Probes faulty                     | Probes                        |                                                                                                                                                                                           |
| Evaporator gas antifreeze         | Probe                         | Settable threshold and differential                                                                                                                                                       |
| Increment/decrement relay         | A.T.                          |                                                                                                                                                                                           |
| A.T. fault                        | A.T.                          |                                                                                                                                                                                           |
| Anti-freeze                       | Probe                         | Settable threshold and differential                                                                                                                                                       |
| Unit offline                      |                               |                                                                                                                                                                                           |
| Refrigerant drain circuit         |                               |                                                                                                                                                                                           |
| Electronic valve alarms           | Valve driver                  |                                                                                                                                                                                           |
| Inverter alarms                   | Inverter                      |                                                                                                                                                                                           |

### 19.3 SERIOUS ALARMS

| Alarm                     | Source        | Features                                              |
|---------------------------|---------------|-------------------------------------------------------|
| Configurator error        |               |                                                       |
| Phase monitor             | Digital input |                                                       |
| Evaporator pump thermal   | Digital input |                                                       |
| Water inlet probe failure | Probe         |                                                       |
| Water flow failure        | Flow switch   | Settable bypass from pump start and acquisition delay |

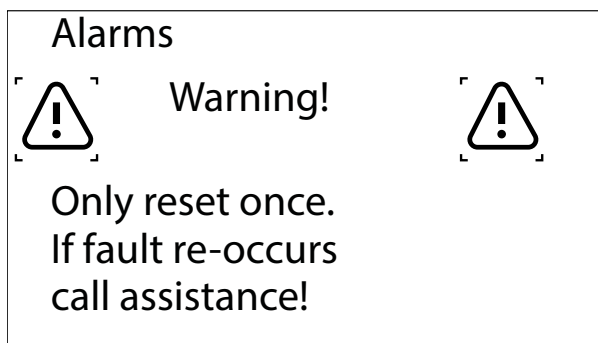
| Alarm                   | Source          | Features                                                                                                                                     |
|-------------------------|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| Low pressure            | Pressure switch | Delayed with respect to compressor start<br>Bypassed during and after the pumpdown cycle<br>Settable alarm bypass time from compressor start |
| Condenser High Pressure | Transducer      | Settable threshold and duration of permanence above the threshold                                                                            |

## 19.4 GAS ALARMS

| Alarm         | Source          | Features |
|---------------|-----------------|----------|
| High pressure | Pressure switch |          |
| Low pressure  | Pressure switch |          |
| Gas Leakage   | Leak detector   |          |

## 19.5 ALARM RESET

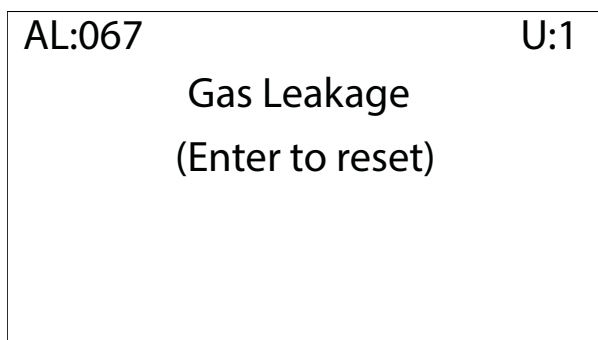
To reset the alarms, simply press the key .



The list of active alarms can be accessed using the arrows  and .

## 19.6 GAS ALARM RESET

In the machines that use flammable gas, there are some alarms that require a password to be reset. This safety measure guarantees that the machine will be put back into operation only after the risk conditions have been eliminated by expert and prepared personnel.

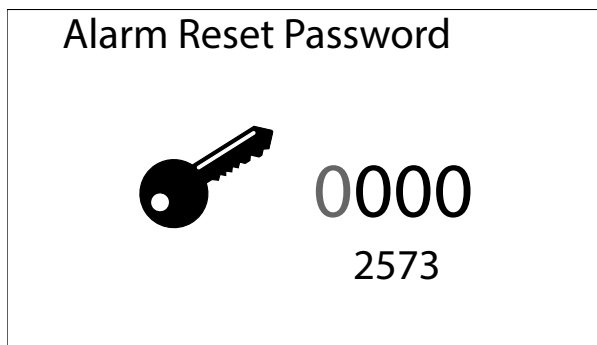


To reset the alarms, simply press the key .

The gas alarms are reset when the correct password is entered.

It is possible to reset the alarms using the dynamic password generated with the token, after activating the function in the Manufacturer menu.

The dynamic password is valid for one reset, then a new token will be generated that will be associated with a new password:



## 19.7 LIST OF ALARMS

Key:

- **Type 1:** alarm transmitted via Modbus from leak detector sensor
- **Type 2:** alarm transmitted via Modbus from the electronic expansion valve driver EVD evolution
- **Type 3:** alarm transmitted via Modbus from the inverter

| Code  | Description                      | Note                                                                           | Type |
|-------|----------------------------------|--------------------------------------------------------------------------------|------|
| AL001 | Configurator error               |                                                                                |      |
| AL002 | Phase monitor                    | Monitor contact<br>Can be enabled from the master or the slave                 |      |
| AL003 | Anti-freeze                      | Evaporator water outlet probe < setpoint                                       |      |
| AL004 | Compressor Overload              | Thermomagnetic switch contact                                                  |      |
| AL005 | Evaporator flow switch           | • Flow switch contact<br>• Can be enabled from the master or the slave         |      |
| AL007 | Compressor Oil Level             | Pressure switch contact                                                        |      |
| AL008 | Low Differential Pressure        | Difference between high and low pressure < setpoint                            |      |
| AL009 | High pressure                    | Pressure switch contact<br>In machines "G" reset with password is required     |      |
| AL010 | High pressure                    | High pressure > setpoint                                                       |      |
| AL011 | Low pressure                     | • Pressure switch contact<br>• In machines "G" reset with password is required |      |
| AL012 | Low pressure                     | Low pressure < setpoint                                                        |      |
| AL013 | High Discharge Temperature       | Discharge temperature > setpoint                                               |      |
| AL016 | Condenser Pump Overload          | Thermomagnetic switch contact                                                  |      |
| AL017 | Evaporator Pump Overload         | Thermomagnetic switch contact                                                  |      |
| AL020 | Evaporator pump maintenance      | Hours of operation reached warning                                             |      |
| AL021 | Condenser pump maintenance       | Hours of operation reached warning                                             |      |
| AL022 | Compressor maintenance           | Hours of operation reached warning                                             |      |
| AL031 | Probe U1 broken or disconnected  | Probe reading out of scale                                                     |      |
| AL032 | Probe U2 broken or disconnected  | Probe reading out of scale                                                     |      |
| AL033 | Probe U3 broken or disconnected  | Probe reading out of scale                                                     |      |
| AL034 | Probe U4 broken or disconnected  | Probe reading out of scale                                                     |      |
| AL035 | Probe U5 broken or disconnected  | Probe reading out of scale                                                     |      |
| AL036 | Probe U6 broken or disconnected  | Probe reading out of scale                                                     |      |
| AL037 | Probe U7 broken or disconnected  | Probe reading out of scale                                                     |      |
| AL038 | Probe U8 broken or disconnected  | Probe reading out of scale                                                     |      |
| AL039 | Probe U9 broken or disconnected  | Probe reading out of scale                                                     |      |
| AL040 | Probe U10 broken or disconnected | Probe reading out of scale                                                     |      |
| AL044 | Antifreeze from digital input    | Digital input contact                                                          |      |
| AL045 | Capacity Decrease Relay          | Capacity control decrease relay fault                                          |      |
| AL046 | Capacity Increase Relay          | Capacity control increase relay fault                                          |      |
| AL047 | Amperometric transformer         | Feeding voltage transformer reading out of range                               |      |
| AL055 | Offline "energy meter"           | Communication error with "energy meter"                                        |      |
| AL056 | Evaporator flow switch blocked   | Failure to open the flow switch after the unit has stopped                     |      |

| Code  | Description                              | Note                                                                                                                                                                                                                                          | Type |
|-------|------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|
| AL061 | Unit 1 offline                           | Communication error with address card 1                                                                                                                                                                                                       |      |
| AL062 | Unit 2 offline                           | Communication error with address card 2                                                                                                                                                                                                       |      |
| AL063 | Unit 3 offline                           | Communication error with address card 3                                                                                                                                                                                                       |      |
| AL064 | Unit 4 offline                           | Communication error with address card 4                                                                                                                                                                                                       |      |
| AL065 | T Memory Excessive Writings              | An excessive number of entries in EEPROM detected                                                                                                                                                                                             |      |
| AL066 | T Memory Error                           | Error in the EEPROM memory of card pCO5+                                                                                                                                                                                                      |      |
| AL067 | Gas Leakage                              | <ul style="list-style-type: none"> <li>Leak detector contact</li> <li>In machines "G" reset with password is required</li> </ul>                                                                                                              |      |
| AL068 | Leak detector – sensor error             | Sensor fault communicated by leak detector                                                                                                                                                                                                    | 1    |
| AL069 | Leak detector – sensor offline           | Communication error with leak detector                                                                                                                                                                                                        | 1    |
| AL070 | Leak detector – sensor error 2           | Sensor fault communicated by leak detector                                                                                                                                                                                                    | 1    |
| AL071 | Leak detector – sensor offline 2         | Communication error with leak detector                                                                                                                                                                                                        | 1    |
| AL072 | Gas antifreeze                           | Evaporator gas temperature < setpoint                                                                                                                                                                                                         |      |
| AL073 | Refrigerant drain circuit                | Overheating > setpoint                                                                                                                                                                                                                        |      |
| AL074 | Compressor out of envelope               | Work conditions of the compressor out of limits                                                                                                                                                                                               |      |
| AL075 | Condenser High Pressure                  | High pressure > setpoint for the wait period                                                                                                                                                                                                  |      |
| AL076 | Low pressure LOW                         | <ul style="list-style-type: none"> <li>Low pressure &lt; setpoint</li> <li>Enabled from the menu</li> </ul>                                                                                                                                   |      |
| AL077 | Anti-freeze/adjustment probe failure     | No water outlet probe enabled                                                                                                                                                                                                                 |      |
| AL078 | Flowswitch condenser                     | Flow switch contact                                                                                                                                                                                                                           |      |
| AL079 | Condenser antifreeze                     | Condenser outlet temperature < setpoint                                                                                                                                                                                                       |      |
| AL080 | Electronic expansion valve               | Valve driver contact                                                                                                                                                                                                                          |      |
| AL081 | EVD - Configuration Error                | Incorrect software configuration                                                                                                                                                                                                              | 2    |
| AL082 | EVD - EEPROM error                       |                                                                                                                                                                                                                                               | 2    |
| AL083 | EVD - motor fault                        |                                                                                                                                                                                                                                               | 2    |
| AL084 | EVD - LOP alarm                          |                                                                                                                                                                                                                                               | 2    |
| AL085 | EVD - MOP alarm                          |                                                                                                                                                                                                                                               | 2    |
| AL086 | EVD - Low overheating                    |                                                                                                                                                                                                                                               | 2    |
| AL087 | EVD - Low suction temperature            |                                                                                                                                                                                                                                               | 2    |
| AL088 | EVD - High Condensation Temperature      |                                                                                                                                                                                                                                               | 2    |
| AL089 | EVD - probe S1 fault                     |                                                                                                                                                                                                                                               | 2    |
| AL090 | EVD - probe S2 fault                     |                                                                                                                                                                                                                                               | 2    |
| AL091 | EVD - driver offline                     |                                                                                                                                                                                                                                               | 2    |
| AL092 | EVD - low battery                        |                                                                                                                                                                                                                                               | 2    |
| AL093 | EVD - motor 2 fault                      |                                                                                                                                                                                                                                               | 2    |
| AL094 | EVD - LOP 2 alarm                        |                                                                                                                                                                                                                                               | 2    |
| AL095 | EVD - MOP 2 alarm                        |                                                                                                                                                                                                                                               | 2    |
| AL096 | EVD - Low overheating 2                  |                                                                                                                                                                                                                                               | 2    |
| AL097 | EVD - Low suction temperature 2          |                                                                                                                                                                                                                                               | 2    |
| AL100 | Inverter – envelop init error            | The compressor is working out of envelope                                                                                                                                                                                                     | 3    |
| AL101 | Inverter – fault                         |                                                                                                                                                                                                                                               | 3    |
| AL102 | Inverter – overcurrent                   |                                                                                                                                                                                                                                               | 3    |
| AL103 | Inverter - over voltage                  |                                                                                                                                                                                                                                               | 3    |
| AL104 | Inverter – over temperature              | <ul style="list-style-type: none"> <li>Too high temperature of the inverter</li> <li>Check valve liquid and / or refrigerant charge. The valve is activated when the oil exceeds 100 ° C, and turns off when it falls below 95 ° C</li> </ul> | 3    |
| AL105 | Inverter – under voltage                 |                                                                                                                                                                                                                                               | 3    |
| AL106 | Inverter – power supply fault            | Failure of a phase or imbalance between phases                                                                                                                                                                                                | 3    |
| AL107 | Inverter – hardware fault                |                                                                                                                                                                                                                                               | 3    |
| AL108 | Inverter – temperature sensor fault      | Fault inverter temperature sensors. Check engine oil sensor and sensor.                                                                                                                                                                       | 3    |
| AL109 | Inverter – hardware configuration error  | Incorrect hardware configuration                                                                                                                                                                                                              | 3    |
| AL110 | Inverter – configuration data error      | Incorrect software configuration                                                                                                                                                                                                              | 3    |
| AL111 | Inverter – configuration parameter error | Incorrect inverter parameters                                                                                                                                                                                                                 | 3    |
| AL112 | Inverter – motor thermal overload        | Motor winding temperature exceeds the limits                                                                                                                                                                                                  | 3    |
| AL113 | Inverter – motor overload                |                                                                                                                                                                                                                                               | 3    |
| AL115 | Inverter – motor phase failed            |                                                                                                                                                                                                                                               | 3    |

| Code  | Description                         | Note                                                                                                                                                                                                                  | Type |
|-------|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|
| AL116 | Inverter – high oil temperature     | <ul style="list-style-type: none"> <li>• High oil temperature (check oil heater)</li> <li>• Warning if greater than 115°C</li> <li>• Fault if greater than 120°C</li> <li>• Reset alarm if less than 105°C</li> </ul> | 3    |
| AL117 | Inverter – low oil temperature      |                                                                                                                                                                                                                       | 3    |
| AL118 | Inverter - Compressor Short Cycling | Compressor starting is requested before the minimum time between two starts has passed. This occurs only at the Warning level                                                                                         | 3    |
| AL119 | Inverter – envelope error           | The compressor is working out of envelope                                                                                                                                                                             | 3    |
| AL120 | Inverter – serial control timeout   | Power request from card pCO5+ to inverter timeout                                                                                                                                                                     | 3    |
| AL121 | Inverter – communication error      |                                                                                                                                                                                                                       | 3    |
| AL122 | Inverter – datalog error            |                                                                                                                                                                                                                       | 3    |
| AL123 | Inverter – pressure sensor fault    |                                                                                                                                                                                                                       | 3    |

The alarms read by the compressor inverter card can have three levels, as indicated in the example window:

AL: XXX
U:01

Inverter  
ALARM NAME  
(Warning/Critical/Fault)

- **Warning:** pre-alarm condition
- **Critical:** becomes Fault after 30"
- **Fault:** compressor OFF manual reset alarm

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