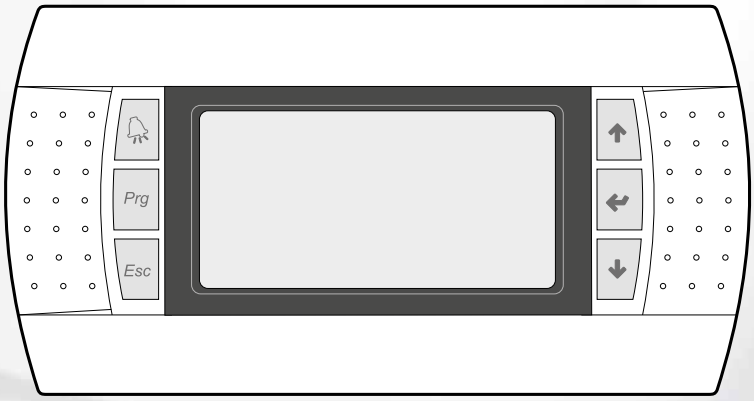
EN

22/06 – 4724311_02
Translation of Original instructions

# Multipurpose

User manual




## CARD PCO5 - PANEL PGD1

AERMEC

www.aermec.com

*Dear Customer,*
*Thank you for wanting to learn about a product Aermec. This product is the result of many years of experience and in-depth engineering research, and it is built using top quality materials and advanced technologies.*
*The manual you are about to read is meant to present the product and help you select the unit that best meets the needs of your system.*
*However, please note that for a more accurate selection, you can also use the Magellano selection program, available on our website.*
*Aermec 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.*

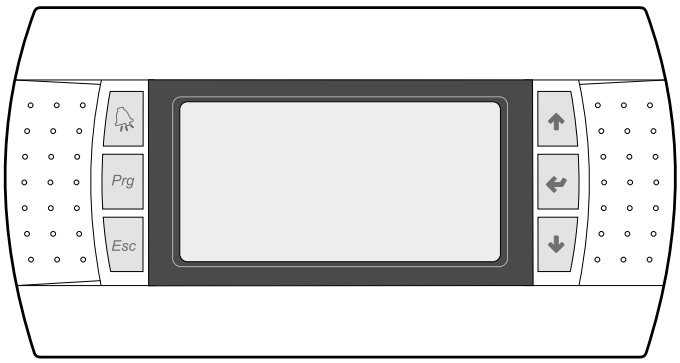
**SAFETY CERTIFICATIONS**

CE

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.

# TABLE OF CONTENTS

# 1 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.

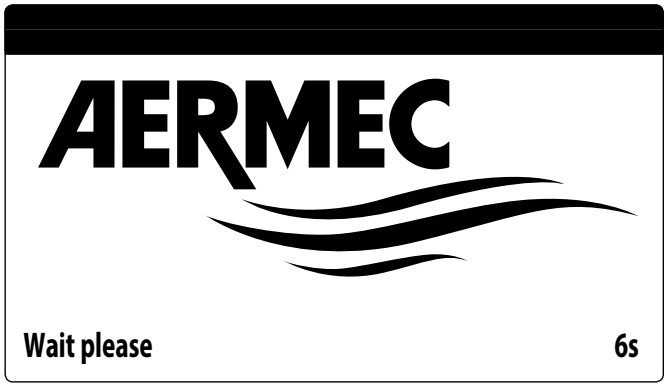
**ATTENTION:** The 2-pipe units is set up for the production of cooled water, hot water and Domestic Hot Water (D.H.W.); No Anti-legionella Cycle is included. The 4-pipe units is set up for the production of cooled water and hot water.

## 1.1 START-UP PROCEDURE

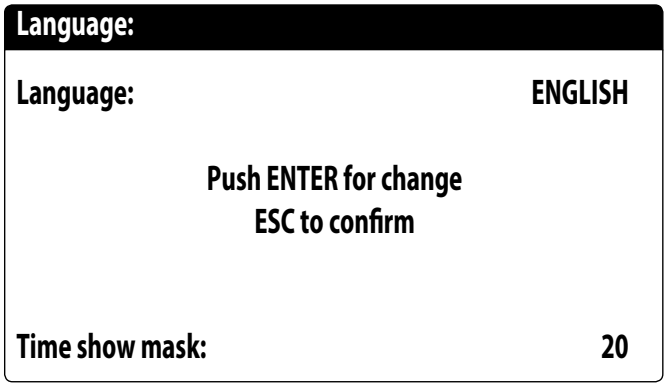
After powering the unit, the control card will perform preliminary operations before it is ready to be used; these initial procedures last about 60 seconds before they are complete; two windows are displayed during the initial loading procedures (a start window and one for selecting the system language);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

**NB:** 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.

**Start-up procedure:**




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




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

## 1.2 FUNCTION OF THE PGD1 CONTROL PANEL KEYS

**Function of the PGD1 control panel keys:**

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

: Press this key to enable navigation between the menus (fixed orange LED = winter operating mode active on system for 2-pipe+DHW machines);

*For units with a 4-pipe system, the orange LED does not light up.*

: 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;

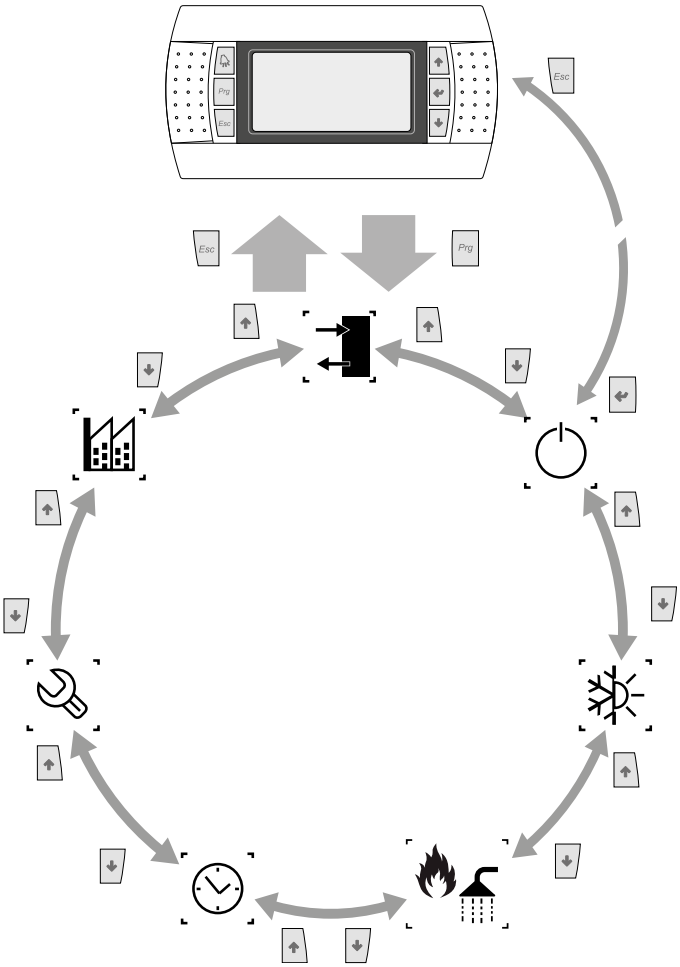
: Pressing this key can have different functions:
- Pressing this key when navigating menus enters the selected menu;
- Pressing this key when navigating parameters selects the displayed parameter and enters change mode;
- Pressing this key when changing a parameter confirms the change to the value of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

## 1.3 MENU STRUCTURE

All the functions for managing the unit as well as the information about its operation are displayed on the unit control panel; all the functions and information are organised into windows, which are in turn grouped in to menus.
When the unit is operating normally, a main menu is displayed, which is used to select other operating menus.
The menus are displayed via the rotation of the icons that represent them; once the desired icon is selected, the select menu opens, and it is possible to display or change the corresponding parameters. The procedure for navigating the menus, or changing the parameters, is explained in detail in the chapter "Operational utilisation procedures", to which reference is made for more information.
The image shows the relationships between the various menus and the keys used for navigation.

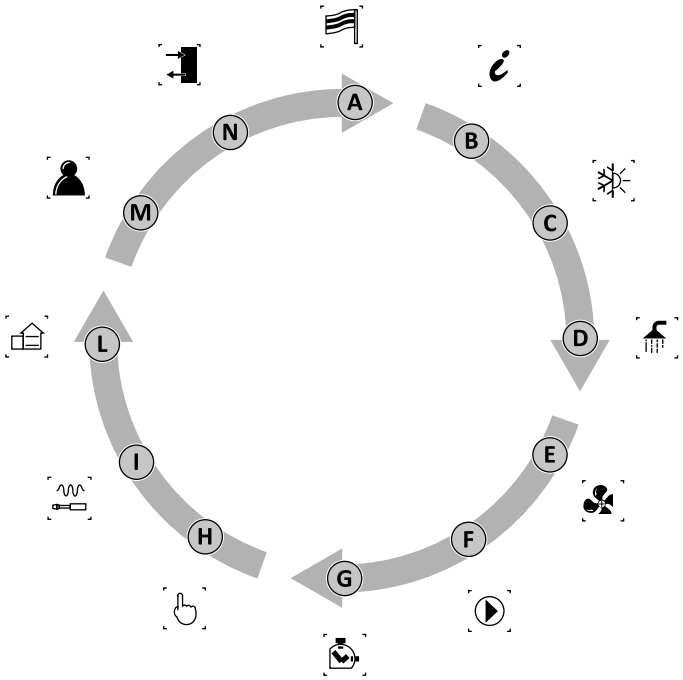
**NB:** The following pages show all the masks contained in the menus available to the user; Tampering with the parameters in the installer menu could cause the unit to malfunction, therefore it is recommended to have these parameters changed only by personnel assigned to unit installation and configuration.




**Menu icons:**

| Icon | Menu | Menu function |
|---|---|---|
| | IN/OUT | Contains the information (temperature, pressure, etc.) of the system components. |
| | ON/OFF | Switches the unit on and off and sets its functioning mode (summer/winter) and eventual time periods. |
| | **2-PIPE VERSION** | |
| | Plant | Management of the chiller parameters, standard/ energy saving work set-point. |
| | Recovery | DHW management parameters(set-point, consent, temperature, time periods, etc...). |
| | **4-PIPE VERSION** | |
| | COLD | Management of the chiller parameters, standard/ energy saving work set-point when functioning in cooling mode. |
| | HOT | Management of the chiller parameters, standard/ energy saving work set-point when functioning in heating mode. |
| | Clock | Manages all parameters linked to the system time (hour, date, etc....). |
| | Help menu (PROTECTED menu) | Protects the after-sales assistance menu with password request. |
| | Manufacturer menu (PROTECTED menu) | Protects the manufacturer menu with password request. |

## ASSISTANCE MENU (PROTECTED BY PASSWORD)




| Table of contents | Icon | Menu | Menu function |
|---|---|---|---|
| A | | LANGUAGE | Selecting the user interface language |
| B | | INFO | Information regarding the software |
| C | | **2 pipe** CHILLER | Assistance parameters for the chiller |
| | | **4 PIPES** COLD | Assistance parameters in cooling mode |
| D | | **2 pipe** RECOVERY | Assistance parameters for the DHW |
| | | **4 PIPES** HOT | Assistance parameters in heating mode |
| E | | VENTILAT. | Ventilation assistance parameters |
| | | GEOTHERMAL SIDE | Service parameters of geothermal pump |
| F | | PUMPS | Pumps assistance parameters |
| G | | HOUR METER | Devices working hours timer |
| H | | MANUAL | Manual controls forcing |
| I | | ACCESSORIES | Enabling of accessories modules |
| L | | C.SYSTEM | Definition of system features |
| M | | MISCELLANEO | Setting assistance parameters |
| N | | IN/OUT | Input and output states |

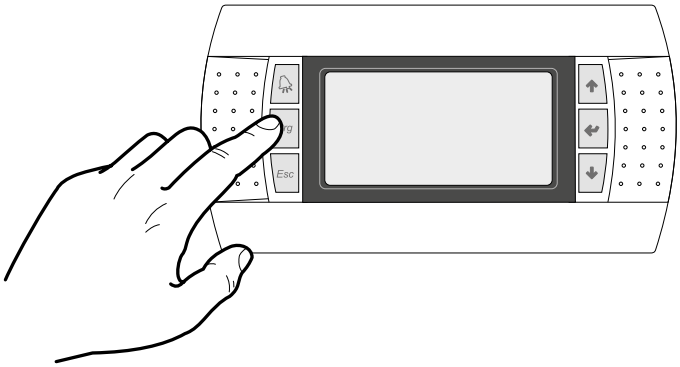
■ *Parameters can be modified by authorised personnel alone*

## 1.5 USER OPERATING PROCEDURES

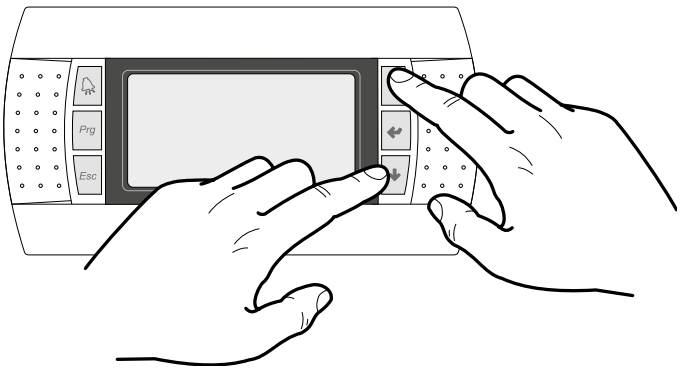
To check or modify the operating parameters of the unit it is necessary to use the interface of the control panel on the unit.
The basic operations that the user must be capable of, for the correct use of the unit, are:
— Moving between menus;
— Selecting and modifying a menu.

**Moving between menus**

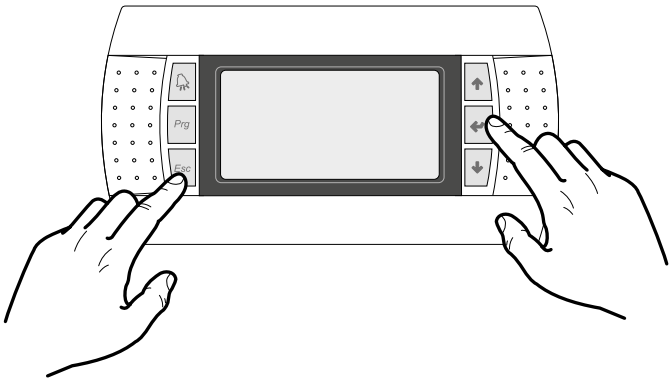
To move between the menus, the order in which they are displayed is shown in the previous page, enter the menu selection mode by pressing the key Prg;




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

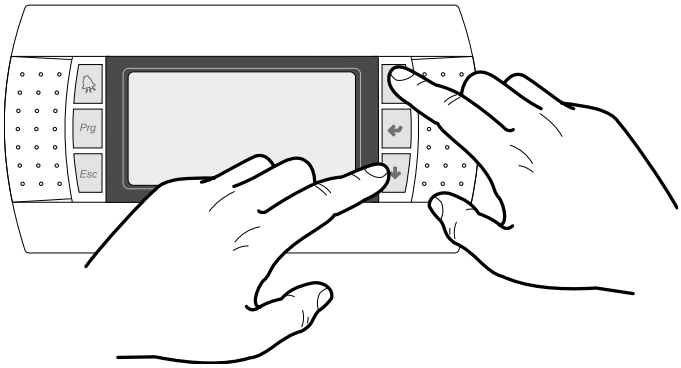



When the desired menu is seen press the key ↵ to enter the menu. Press the key Esc to return to the menu selection mode:




**Selecting and modifying a menu**

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

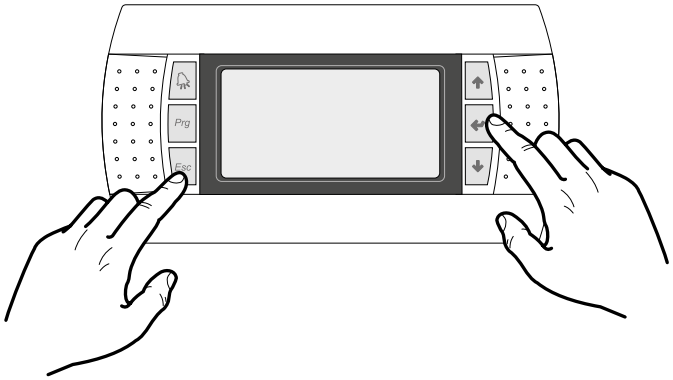



When the desired parameter is seen press the key ↵ to enter the parameter. To exit the parameter and return to the parameter selection mode press the key Esc.

**WARNING:** 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:

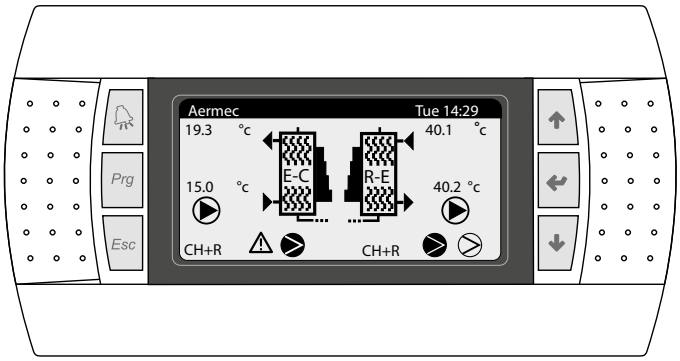
1. Pressing the key ↵ causes a flashing cursor to appear on the first modifiable field of the parameter. If no modifiable fields are displayed then the cursor will not appear.
2. Pressing the key ↑ or the key ↓, the value of the field can be increased or decreased;
3. Pressing the key ↵ confirms the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



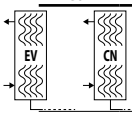
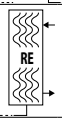
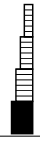
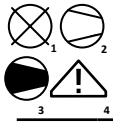

*Note: On the basis of the type of parameter selected the number of modifiable fields can change.*

# 2 MAIN DISPLAY

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




**Icons:**

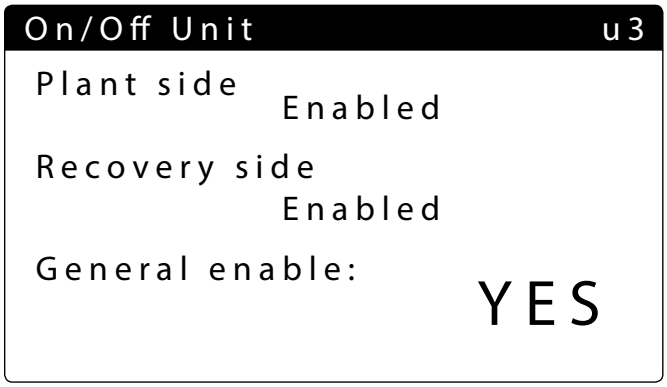
| Icon | | Meaning |
|---|---|---|
|  | | Indicates water inlet and outlet temperature (evaporator in summer and condenser in winter) |
|  | | Indicates water inlet and outlet temperature of DHW side heat exchanger (recovery). |
|  | | Indicates the percentage of water requested by the machine intended for the system or for recovery. |
|  | | Indicates which pump is running. The icon on the left refers to the pump on the system side, on the right to the heat recovery pump. The number below shows which pump is on |
|  | NRP | Indicates that the anti-freeze resistance is active |
| | NXP | Option not present |
|  | | Indicates that the flow switch is open. The compressors are turned off and the pumps release the flow switch. |
|  | | Indicates that low output temperature anti-freeze prevention is active (turns off the compressors). |
|  | | Indicates that the outlet high temperature prevention is active. Switches the compressors/mode change off. |
|  | | Indicates compressor status: disabled(1), off (2), on (3), in alarm (4). |

**Description of the status in which the circuit can be found:**

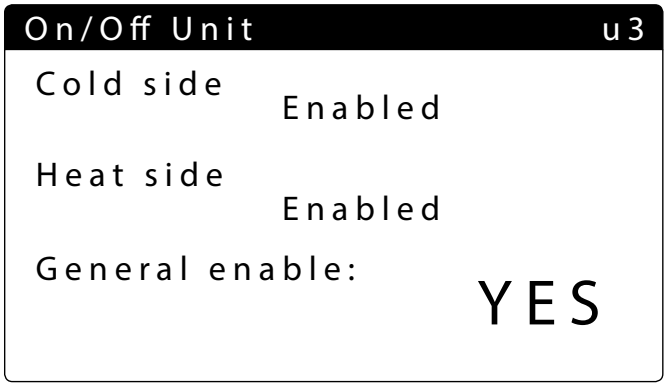
| State | Meaning |
|---|---|
| C1 C2 | The system is active and running |
| CH | Chiller operation |
| CH + R | Chiller + total recovery functioning |
| PC | Heat pump functioning |
| REC | Total recovery |
| DEFR | Defrost active |
| WAIT | The circuit is in standby because configuration is changing |
| LC | Low load: Indicates low water content or low thermal load |
| OK | Set point achieved |

## 2.1 DESCRIPTION OF THE STATUS IN WHICH THE CIRCUIT CAN BE FOUND

**NRP 2-PIPE SYSTEM:**




**NRP 4-PIPE SYSTEM:**



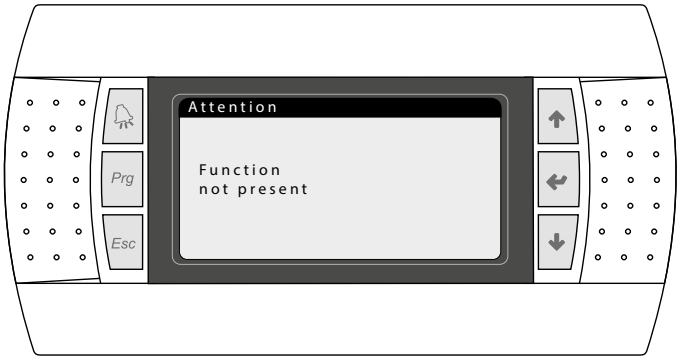

| State | | Meaning |
|---|---|---|
| Enabled | | The system is active and running |
| Off by alarm | | There is a serious alarm which stops the system (check the list of alarms, below the alarm key) |
| General Off | | The system is switched off by the terminal; check the On/Off screen |
| Off by supervisor (BMS) | | The supervision system has prevented unit start-up |
| Off by clock | | The set time bands switch off the whole system |
| Off by digital input | | The digital input (ID8) is closed, so the system switches off |
| Off by display | | System turned off by terminal. Control system screen |
| Off by Plant-side | NRP | Plant-side disable: Recovery side not working |
| | NXP | Option not present |
| Anti-freeze | NRP | Action to prevent ice formation in the water heat exchangers |
| | NXP | Option not present |
| Manual Mode | | The compressors or pumps are forced to manually |

**ATTENTION:**

- **NRP 2-pipe system - Deactivated system /Off**: also the recovery side is excluded
- **NRP 4-pipe system - Deactivated Cool Side /Off**: also the heating side is excluded

**Function not present**

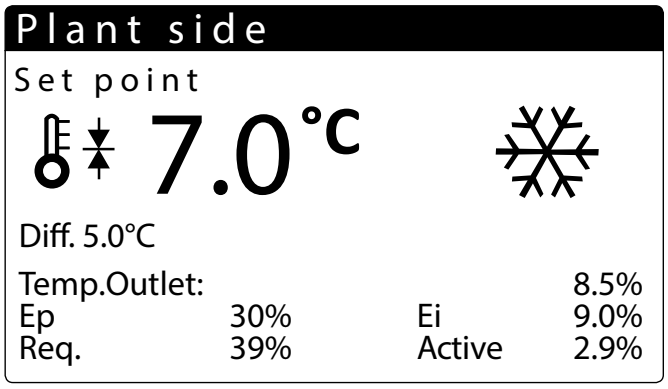
If a function is not present the folowing screen will be shown:




To return to the main screen press ESC.

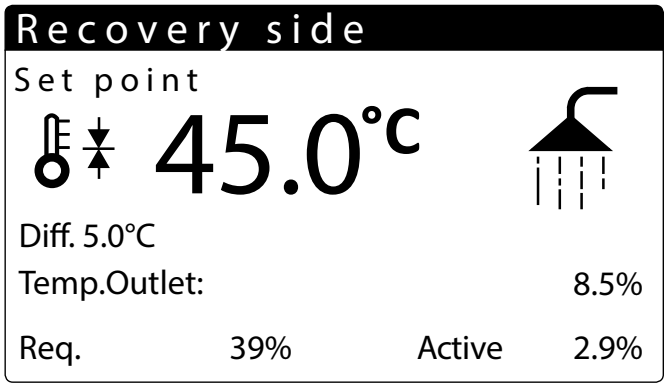
# 3 2-PIPE SYSTEM

## 3.1 INFORMATION ON SYSTEM SIDE HEAT EXCHANGER



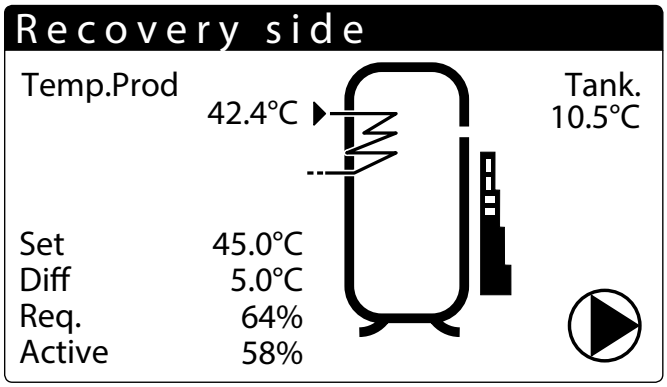

From this window it is possible to view the information relating to the heat exchanger on the system side:
— Current work set-point
— Evaporator inlet temperature
— Indicates the heat drop value
— Temperature at which machine is adjusted
— Percentage of proportional factor (if activated PID)
— Percentage of integral factor (if activated PID)
— Percentage requested by system
— The actual power percentage used

## 3.2 INFORMATION ON DHW SIDE HEAT EXCHANGER



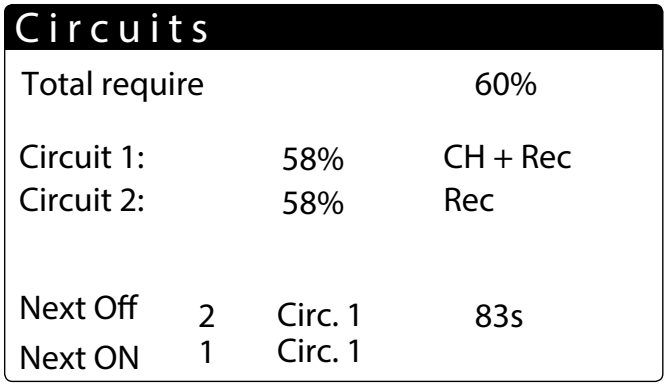

From this window it is possible to view the information relating to the heat exchanger on the DHW side
— Current work set-point
— Heat exchanger outlet temperature
— Indicates the heat drop value
— Temperature at which machine is adjusted
— Percentage requested by system
— The actual power percentage used

## 3.3 INFORMATION ON DHW STORAGE




— Leaving domestic hot water temperature
— Temperature within storage tank
— Indicates domestic hot water demand (in steps of 0 to 10)
— Is shown when the heat recovery pump is on. The number below shows which pump is on. If heat recovery and domestic hot water is enabled the pump will start if there is a demand for domestic hot water.

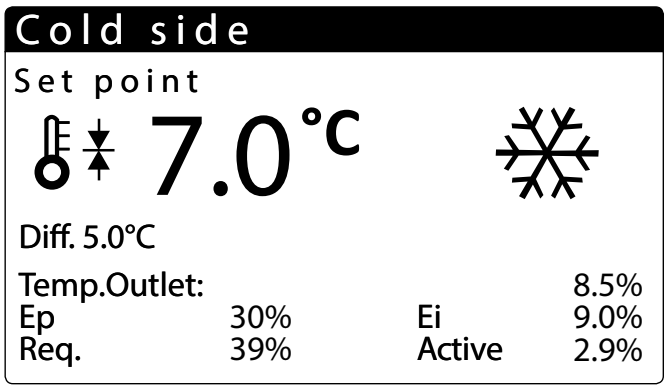
## 3.4 INFORMATION ON CIRCUITS 1 - 2




— Shows the circuit demand
— Shows the circuit status
— Shows which compressor will start/stop

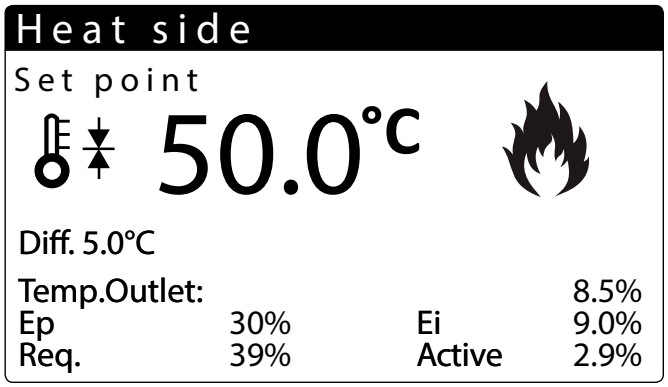
# 4 4-PIPE SYSTEM

## 4.1 INFORMATION ON COOLING SIDE HEAT EXCHANGER



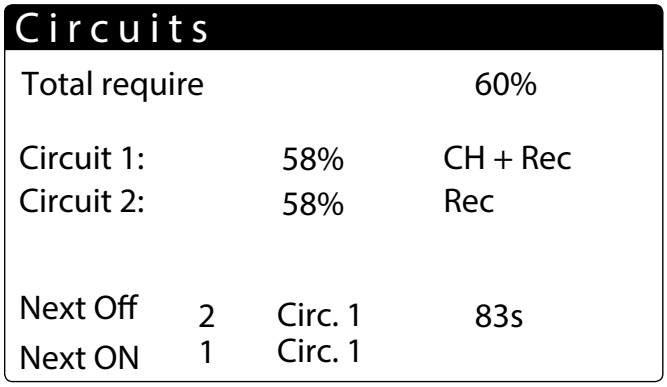

From this window it is possible to view the information relating to the heat exchanger on the system side:
— Current work set-point
— Evaporator inlet temperature
— Indicates the heat drop value
— Temperature at which machine is adjusted
— Percentage of proportional factor (if activated PID)
— Percentage of integral factor (if activated PID)
— Percentage requested by system
— The actual power percentage used

## 4.2 INFORMATION ON HEATING SIDE HEAT EXCHANGER




From this window it is possible to view the information relating to the heat exchanger on the DHW side
— Current work set-point
— Heat exchanger outlet temperature
— Indicates the heat drop value
— Temperature at which machine is adjusted
— Percentage requested by system
— The actual power percentage used

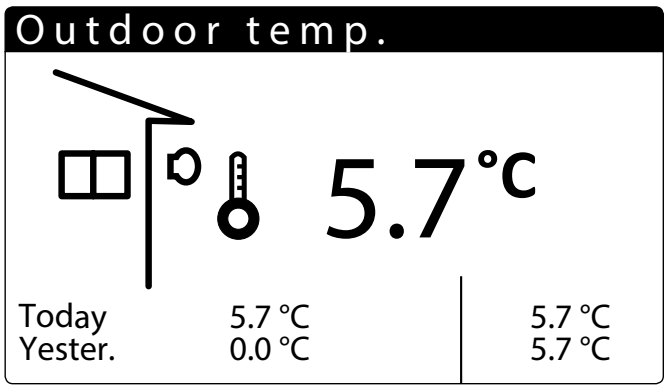
## 4.3 INFORMATION ON CIRCUITS 1 - 2




— Shows the circuit demand
— Shows the circuit status
— Shows which compressor will start/stop

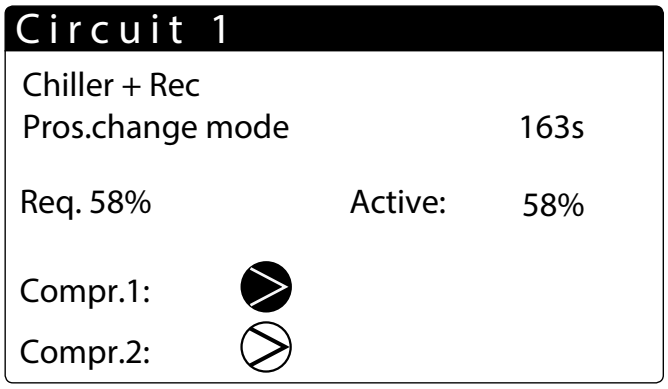
# 5 INPUT/OUTPUT MENU

## 5.1 INFORMATION REGARDING EXTERNAL TEMPERATURE




— **External temperature**: this window displays the data relative to the external temperature.
— **Today**: indicates the MIN and MAX temperature recorded during the day.
— **Yesterday**: indicates the MIN and MAX temperature recorded the previous day.
— **External temperature**: Indicates the external temperature currently detected by the outdoor air probe.

## 5.2 INFORMATION ON CIRCUIT STATUS AND CAPACITY

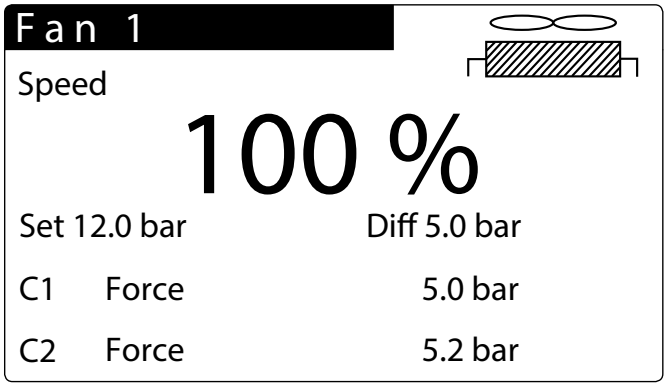


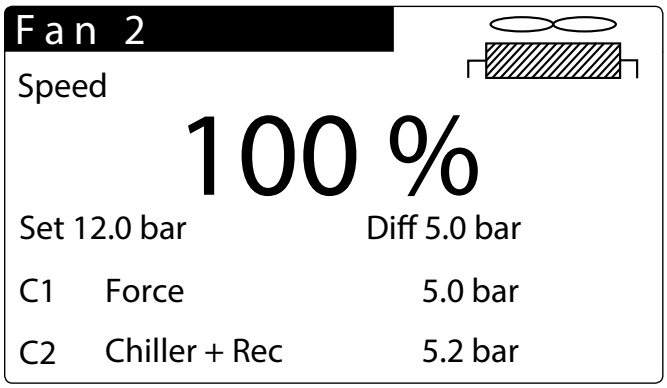

— Shows the circuit operating status:
Off
Chiller only
Chiller+Rec
Heat pump
Heat recovery only
Await part load
Mode selected
Defrost start
Await inversion VIC
Defrost
Await exit defrost
Turn on fan exit defrost
Exit defrost
No defrost System
No defrost Recovery

— Shows how many seconds until the next change of operation
— Shows the circuit demand
— Shows the compressor status:
⊘: indicates that the compressor is off;
◑: indicates that the compressor is on;
Min.On: Compressor on and in minimum run timer, right when this will finish;
Min.Off: Compressor on and in minimum stop timer, right when this will finish;
Off alarm: Compressor off due to alarm, see Alarm key.

— Shows the circuit active capacity

## 5.3 INFORMATION ON STATUS OF FANS (NRP)



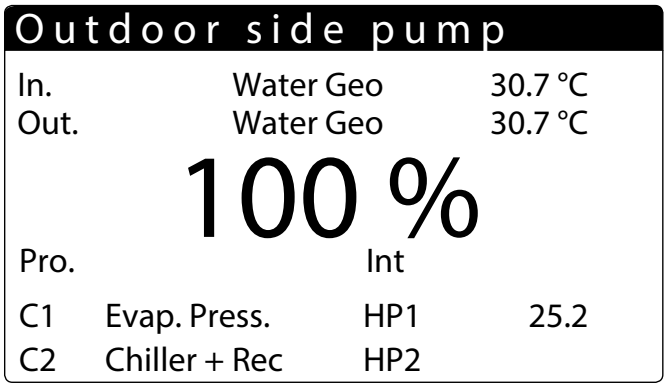

This window displays the data relative to fan operation:
**Ventilation 1**: the screen is displayed if the two circuits have the same ventilation
**Ventilation 2**: the screen is displayed if the two circuits have separate ventilation

— Indicates the speed percentage at which the fan is rotating
— Indicates the current setting
— Indicates the possible statuses of the circuit (see chapter 2 Main display p. 8)
— The Max Force mode is activated if the fans are operating in condensation and the outdoor temperature drops below the set value (assistance/fans menu).

C1 Off: Circuit off
C1 Press.Cond: Fans control to high pressure (condensing)
C1 Chiller +Rec: Fans off because unit is operating in water/water mode
C1 Forced to Max: Fans are forced to maximum because the external temperature is higher than 30°C
C1 Press.Evap: Fans control to low pressure

■ *NRP only unit*

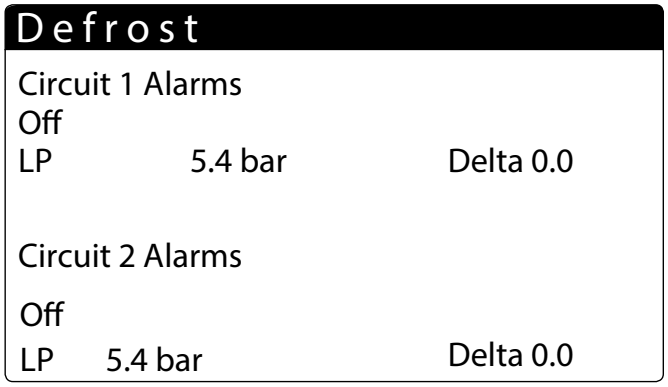
## 5.4 INFORMATIONS ABOUT GEOTHERMAL PUMP'S CONDITIONS (NXP)




— Input and output temperature on geothermal side
— Speed percentage of geothermal pump
— High pressure circuit 1 and circuit 2
— Workings mode C1 and C2
— **PRO/INT**: Parameters are visible only if PID is selected

■ *NXP only unit*

## 5.5 INFORMATION ON DEFROSTING STATUS (NRP)




— Shows the defrost status of circuits 1 and 2
— Shows if the defrost mode is operating
— Shows the circuit operating status:

Off
Chiller only
Chiller+Rec
Heat pump
Heat recovery only
Await part load
Mode selected
Defrost start
Await inversion VIC
Defrost
Await exit defrost
Turn on fan exit defrost
Exit defrost
No defrost System
No defrost Recovery

— Shows actual set point value.

The Delta value shows the drop in pressure with time. When this level is reached the defrost operating cycle is started

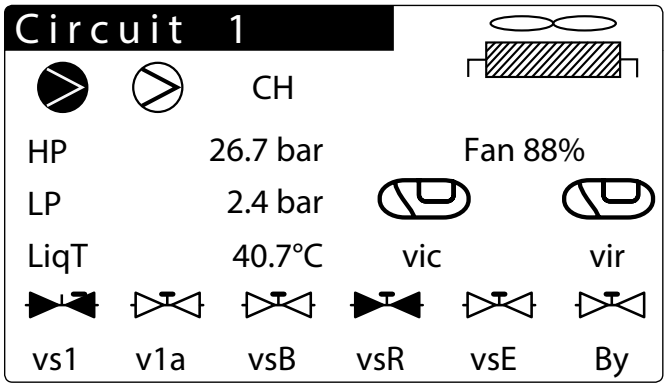
■ *NRP only unit*

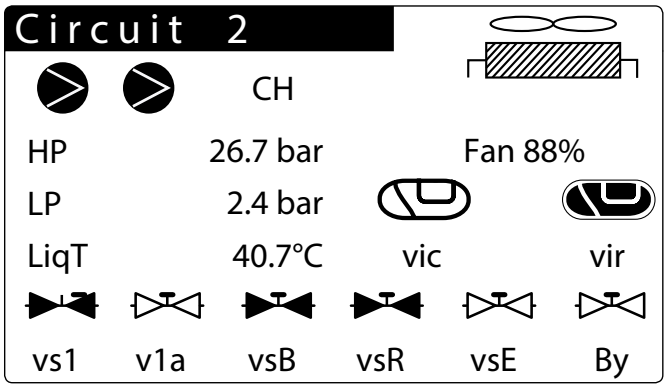
**Description of defrosting states:**

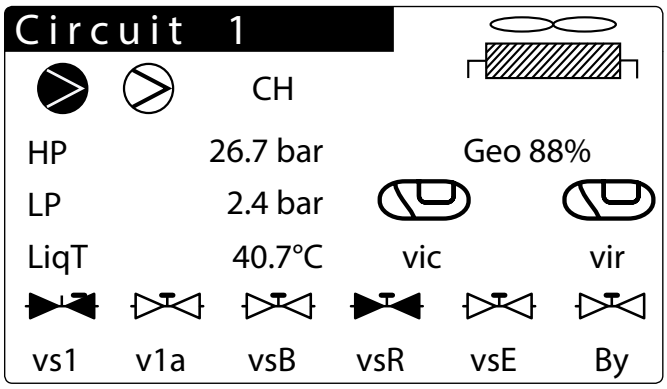
**No SBR**: No defrost
**Off**: Circuit off from display panel, or time clock, or digital input
**Defr. Activ**: Defrost active (the unit condenses in the ventilated coil)
**On Smart**: Defrost started due to drop
**On Min LP**: Defrost started due to low pressure reached
**On Reboot**: Defrost started after power loss
**On Force**: Defrost started forced from the display panel or forced by another defrost cycle
**On TGP**: Defrost started due to high discharge temperature
**Defrost stopped due to high liquid temperature**
**End Time**: Defrost stopped after maximum time reached
**End Force**: Defrost stopped forced from display panel
**Startup Cmp**: Defrost inhibited due to time after compressor start
**High evap p.**: Defrosting inhibited owing to high evaporation pressure
**High T.Ext**: Defrost inhibited due to high external temperature
**T.Bw Defr**: Defrosting inhibited for the standby time between two defrosting interventions
**Alarms**: Circuit in alarm
**On by Alarm**: Defrost started due to return to alarm

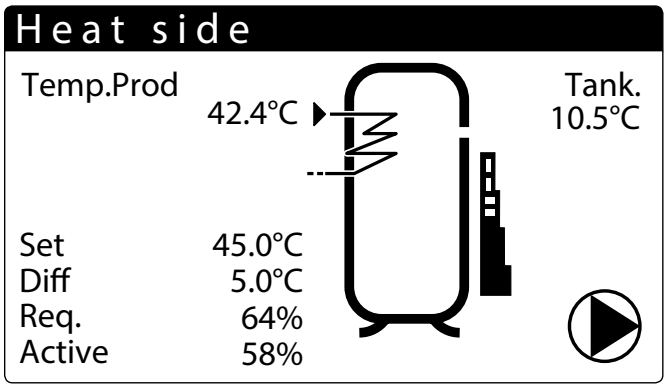
## 5.6 INDICATES THE STATUS OF THE CIRCUIT 1 AND CIRCUIT 2 VALVES

This window displays the data relative to circuit pressures and valve status:




— Displays the status of the compressors (disabled - on - off - alarm)
— Indicates the high and low pressure values of the circuit.
— Indicates the refrigerant liquid (Liq T) and pressing gas (Tgp) temperature.
— Indicates the valve status:

VIC - Cycle Reversing Valve
VIR - Recovery Reversing Valve
vs1: liquid intercept. solenoid valve
v1a: liquid intercept. solenoid valve
vsB: battery solenoid valve
vsR: recovery solenoid valve
vsE: evaporator solenoid valve
By: defrost spilling valve

— Indicates speed percentage at which the fan works.
— Indicates the speed (as a percentage) at which the geothermal pump is working

## 5.7 INPUTS/OUTPUTS LIST - PCO BOARD

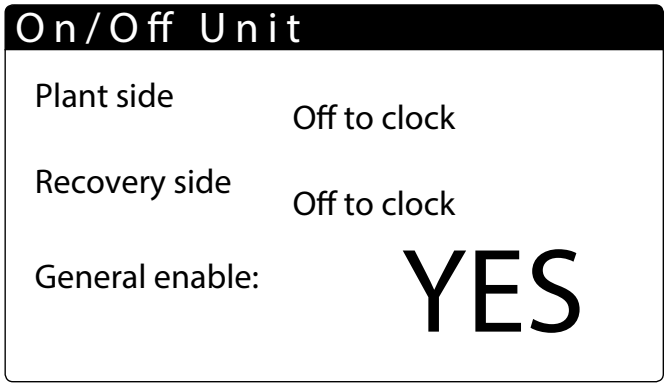
| Digital outputs | Range | Master |
|---|---|---|
| NO1 | | CP1(compressor) circuit 1 (CC1) |
| NO2 | | CP2 (compressor) circuit 1 (CC1A) |
| NO3 | | CP1 (compressor) circuit 2 (CC2) |
| NO4 | | CP2 (compressor) circuit 2 (CC2A) |
| NO5 | | VS1 (liquid interception solenoid valve) circuit 1 |
| NO6 | | VS2 (liquid interception solenoid valve) circuit 1 |
| NO7 (exchange) | | Pump 1 evaporator |
| NO8 | | Serious alarm |
| NO9 | | Pump 2 evaporator |
| NO10 | NRP | Condenser fan 1 |
| NO10 | NXP | Geothermal pump |
| NO11 | | Condenser fan 2 |
| NO12 | | VIC1 (cycle reversing valve) |
| NO13 | | VIR1 (recovery reversing valve) |
| NO14 | | VIC2 (cycle reversing valve) |
| NO15 | | VIR2 (recovery reversing valve) |
| NO16 | | Anti-freeze resistance |
| NO17 | | VS1 (liquid interception solenoid valve) circuit 2 |
| NO18 | | VS2 (liquid interception solenoid valve) circuit 2 |
| **Digital inputs** | | **Master** |
| ID1 | | High pressure circuit 1 |
| ID2 | | Low pressure circuit 1 |
| ID3 | | Remote On-Off |
| ID4 | | Remote heating/cooling |
| ID5 | | Evaporator flow switch |
| ID6 | | Circuit 1 circuit breaker CP1 (MT1) |
| ID7 | | Circuit 1 circuit breaker CP2 (MT1A) |
| ID8 | | Phase monitor alarm |
| ID9 | | High pressure circuit 2 |
| ID10 | | Low pressure circuit 2 |
| ID11 | | Circuit 2 circuit breaker CP1 (MT2) |
| ID12 | | Circuit 2 circuit breaker CP2 (MT2A) |
| ID13 | | Evaporative pump 1 circuit breaker |
| ID14 | | Evaporative pump 2 circuit breaker |
| ID15 | | Fan 1 circuit breaker |
| ID15 | | Circuit breaker of geothermal pump |
| ID16 | | Fan 2 circuit breaker |
| ID17 | | Geothermal flow switch |
| ID18 | | Multifunction input enabling |
| **Analogue outputs** | | **Master** |
| Y1 (0-10V) | | |
| Y2 (0-10V) | | Evaporator modulating pump |
| Y3 (0-10V) | NRP | Modulating 1 fan |
| Y3 (0-10V) | NXP | Geothermal modulating pump |
| Y4 (0-10V) | | Modulating 2 fan |
| **Analogue inputs** | | **Master** |
| B1 | | High pressure circuit 1 |
| B2 | | Low pressure circuit 1 |
| B3 | | Evaporator water outlet temperature |
| B4 | | Evaporator water inlet temperature |
| B5 | | Pressing line gas temperature (PT1000) Circuit1 |
| B6 | | High pressure circuit 2 |
| B7 | | Low pressure circuit 2 |
| B8 | | Multi-function input |
| B9 | | External air temperature |
| B10 | | Pressing line gas temperature (PT1000) Circuit2 |

## 5.8 INPUTS/OUTPUTS LIST - MPC BOARD

| DIGITAL outputs | Range | Master |
|---|---|---|
| NO1 | | Recovery pump 1 |
| NO2 | | Recovery pump 2 |
| NO3 | | CP3 circuit 1 (CC1B) |
| NO4 | | CP3 circuit 2 (CC2B) |
| NO5 | | VS-R (recovery solenoid valve) circuit 1 |
| NO6 | | VS-R (recovery solenoid valve) circuit 2 |
| NO7 (exchange) | | VS-B (battery solenoid valve) circuit 1 |
| NO8 | | VS-B (battery solenoid valve) circuit 2 |
| NO9 | | VS-E (evaporator solenoid valve) circuit 1 |
| NO10 | | VS-E (evaporator solenoid valve) circuit 2 |
| NO11 | | VBY circuit1 |
| NO12 | | VBY circuit2 |
| **Digital inputs** | | |
| ID1 | | Recovery flow switch |
| ID2 | | Thermomagnetic switch on pump 1 - recovery |
| ID3 | | Thermomagnetic switch on pump 2 - recovery |
| ID4 | | Circuit 1 circuit breaker CP3 (MT1B) |
| ID5 | | Circuit 2 circuit breaker CP3 (MT2B) |
| ID6 | | On/Off remote D.H.W. /Hot water |
| ID7 | | Qualify according to setpoint D.H.W. |
| ID8 | | |
| ID9 | | |
| ID10 | | |
| **ANALOGUE outputs** | | |
| Y1 (0-10V) | | |
| Y2 (0-10V) | | |
| Y3 (0-10V) | | |
| Y4 (0-10V) | | |
| **Analogue inputs** | | |
| B1 (NTC) | | Recovery inlet water temperature |
| B2 (NTC) | | Recovery 1 outlet water temperature |
| B3 (NTC) | | Evaporator common outlet water temperature (Master/Slave) |
| B4 (NTC) | | Recovery common outlet water temperature (Master/Slave) |
| B5 (NTC) | | DHW storage tank temperature (optional) |
| B6 (NTC) | | Recovery 2 outlet water temperature |
| B7 (NTC) | NRP | Liquid temperature (defrost end) Circuit 1 |
| B7 (NTC) | NXP | Geothermal's input water temperature (end of defrosting) Circuit 1 |
| B8 (NTC) | | |
| B9 (NTC; NTC HT;) | | |
| B10 (NTC) | NRP | Liquid temperature (defrost end) Circuit 2 |
| B10 (NTC) | NXP | Geothermal's output water temperature |
| B11 (0-5V) | | |
| B12 (0-5V) | | |

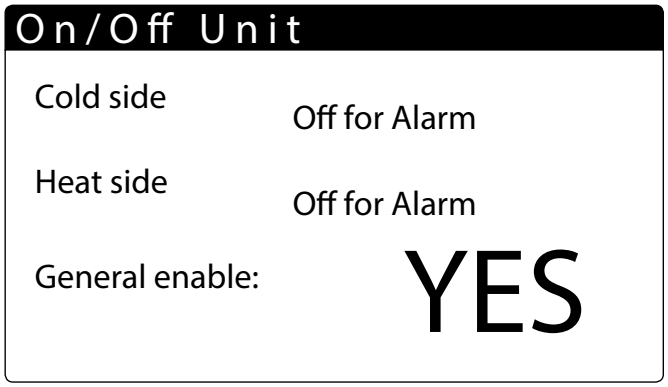
# 6 ON/OFF MENU

## 6.1 UNIT SWITCH-ON/OFF AND SETTINGS ON THE FUNCTIONING MODE (2 PIPES)




— Unit On/Off: the data relative to the status of the unit and its functioning mode are set in this window.
— General ON/Off status, enabled by user.

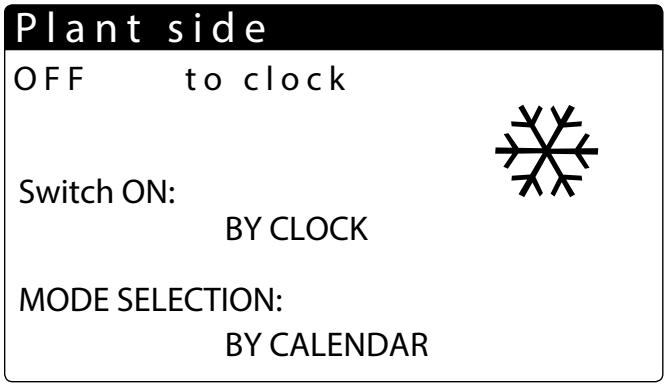
## 6.2 UNIT SWITCH-ON/OFF AND SETTINGS ON THE FUNCTIONING MODE (4 PIPES)




— Unit On/Off: the data relative to the status of the unit and its functioning mode are set in this window.
— General ON/Off status, enabled by user.

# 7 SYSTEM MENU (2 PIPES)

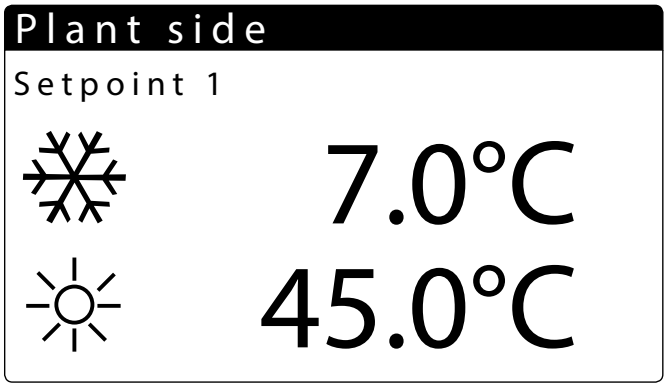
## 7.1 VISUALISATION OF CURRENT CHILLER SETTINGS




Displays the current settings of the chiller:
— **NO**: The system does not produce cold/hot water, recovery is managed separately
— **Yes**: the unit is running and the system is adjusted at the default set-point
— **Yes with set2**: the unit is running and the system is adjusted at the second set-point
— **By clock**: the system is adjusted by the set time periods, when active.

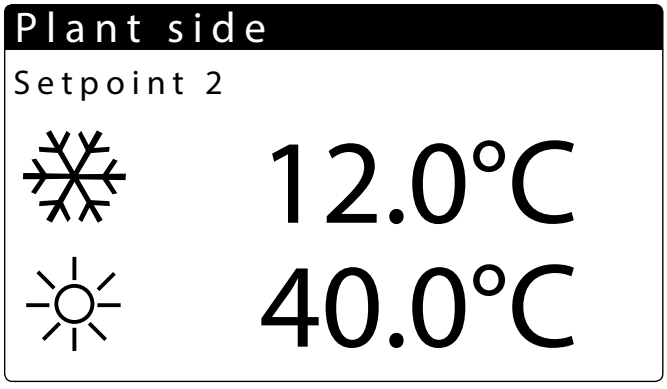
Mode selection:
— **BY SUPERV**: the unit is managed by remote control via the BMS system.
— **BY DIG INPUT**: if the digital contact (auxiliary device) closes, the heating mode is activated
— **BY EXT TEMP.**: cooling or heating mode is selected depending on the external temperature
— **BY CALENDAR**: the unit produces hot water depending on the period set
— **HEATING**: the unit produces hot water
— **COOLING**: the unit produces cold water

## 7.2 SYSTEM SET-POINT DISPLAY 1



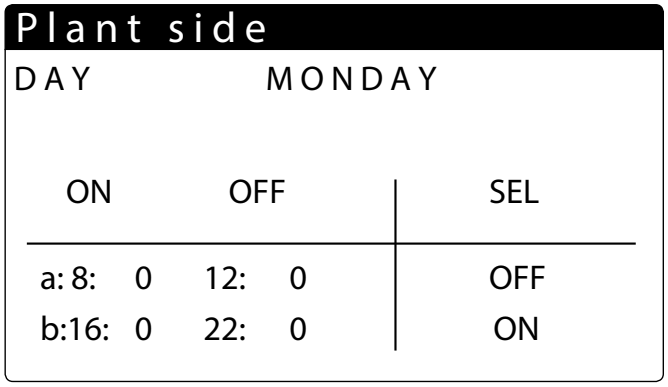

— Displays the current settings of the chiller
— Indicates the cold water production set-point
— Indicates the hot water production set-point

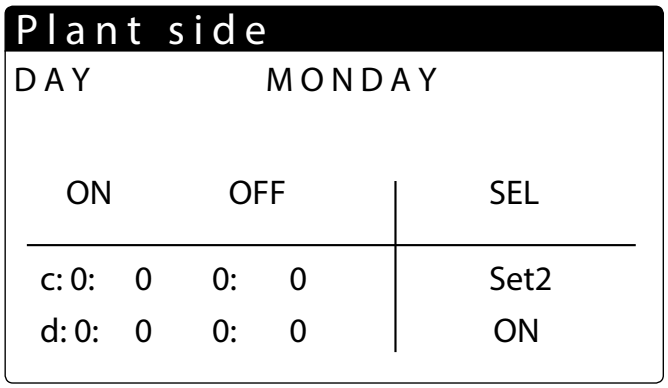
## 7.3 SYSTEM SET-POINT DISPLAY 2



— Displays set-point 2 (only if enabled)
— Indicates the set-points for production of cold water
— Indicates the set-points for production of hot water

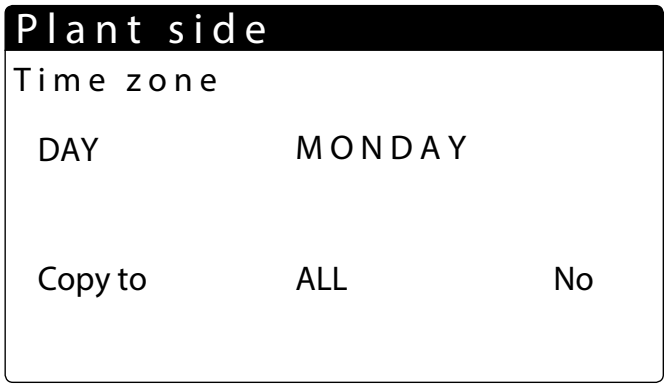
### 7.4 ENABLING: BY CLOCK



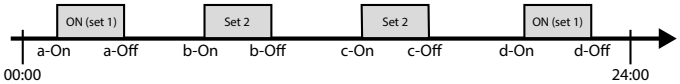

— Indicates the day of the week
— Indicates whether the unit is on or off
— Indicates the time periods of the day and can set unit switch-on and switch-off:
SEL - it is possible to select, for the relative time period, whether to leave the unit OFF or ON, using the default set-point or the second set-point (Set2)

— Indicates the day with the settings to be copied

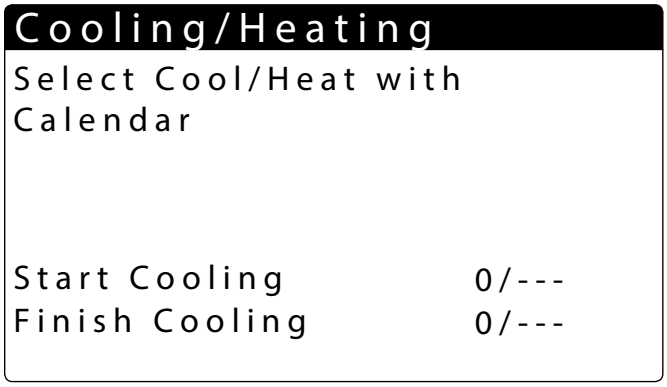



— Indicates the day where the settings must be copied.
— The settings may be copied on a single day or on all days:
No = disables the day setting copy function
Yes = enables the day setting copy function

Each program has 8 days and each day has four time periods at which the switch-on and switch-off time, set point 2 or switch-on/switch-off can be set.
Outside these 4 time periods the program will switch the system off:

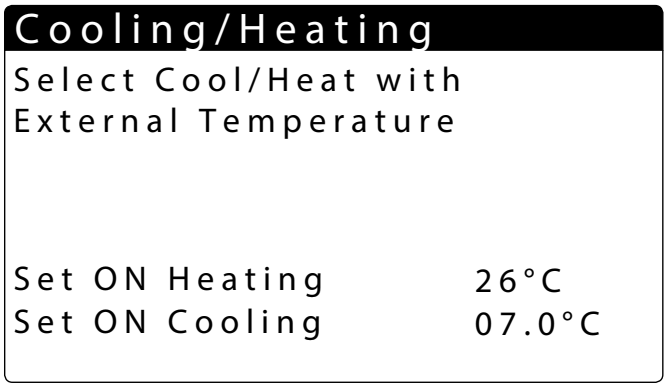



### 7.5 MODE SELECTION: BY CALENDAR




— Sets the starting date of the period at which the heating unit can be activated.
— Sets the final date of the period at which the heating unit can be deactivated.

### 7.6 MODE SELECTION: EXTERNAL TEMPERATURE

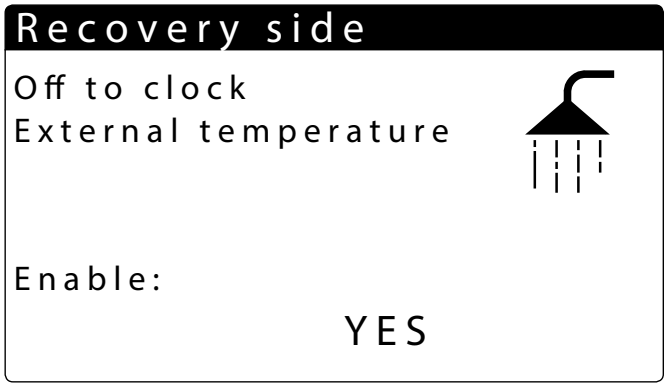



— Sets the external temperature at which the unit must be activated in cooling mode
— Sets the external temperature at which the unit must be activated in heating mode

# 8 RECOVERY MENU (2 PIPES)

**WARNING:** The NRP - 2-pipe unit è is set up for production of Domestic Hot Water (D.H.W.). No Anti-legionella Cycle is included.

## 8.1 RECOVERY SET-POINT DISPLAY

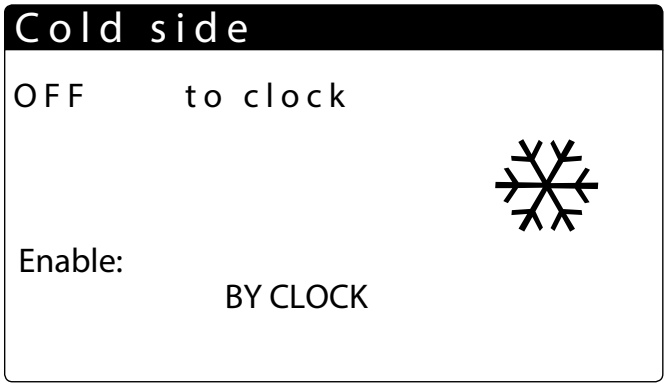



Displays the current settings of the heat exchanger.

**YES**: the unit does not produce hot water for DHW use
**NO**: the unit is running and the system is adjusted at the default set-point.
**BY CLOCK**: the system is adjusted by the set time periods, when active.
**Yes with set2**: the unit is running and the system is adjusted at the second set-point.

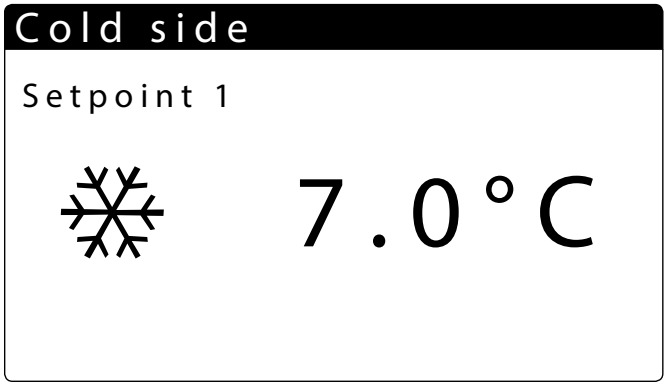

— Displays the current settings of the chiller
— Displays the heat exchanger outlet water temperature at the default set-point
— Displays the heat exchanger outlet water temperature at the second set-point

# 9 COOL MENU (4 PIPES)



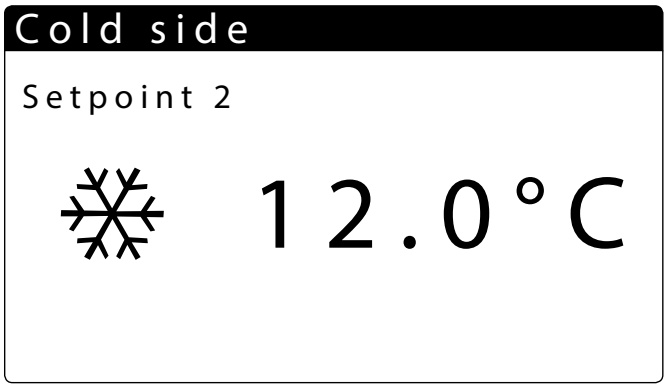

**NO**: the system does not produce cold/hot water
**Yes**: the unit is running and the system is adjusted at the default set-point
**Yes with set2**: the unit is running and the system is adjusted at the second set-point
**BY CLOCK**: the system is adjusted by the set time periods, when active.

## 9.1 DISPLAY OF COOLING SIDE HEAT EXCHANGER SET-POINT 1




— Displays the current settings of the chiller
— Indicates that the system default set-point is active
— Indicates the cooling set-point temperature

## 9.2 DISPLAY OF COOLING SIDE HEAT EXCHANGER SET-POINT 2

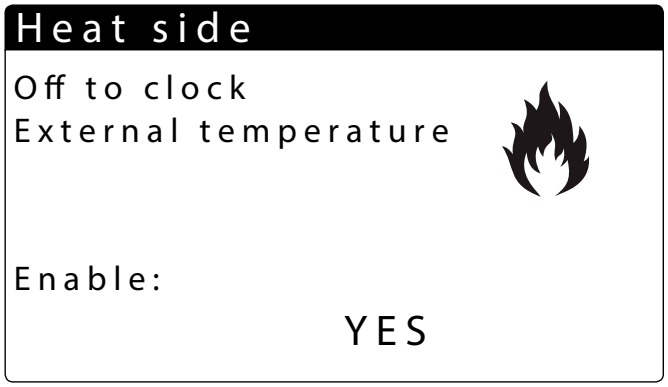



— Displays set-point 1 and set-point 2 (only if enabled)
— Indicates the set-points for production of cold water
— Indicates the set-points for production of hot water

**WARNING:** To set the time periods, see the chapter 7.4 Enabling: BY CLOCK p. 16

# 10 HEAT MENU (4 PIPES)

**ATTENTION:** The NRP 4-pipe unit is set up for production of Domestic Hot Water (D.H.W.).



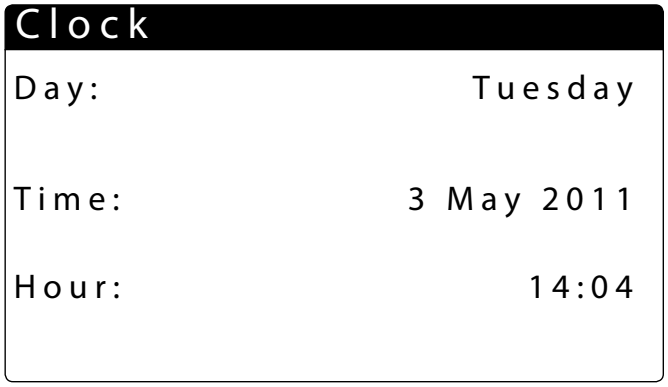

**NO**: the unit does not produce hot water on system side
**YES**: the unit is running and the system is adjusted at the default set-point.
**BY CLOCK**: the system is adjusted by the set time periods, when active.
**Yes with set2**: the unit is running and the system is adjusted at the second set-point.

## 10.1 DISPLAY OF HEATING SIDE SET-POINT


— Displays the current settings of the chiller
— Displays the heat exchanger outlet water temperature at the default set-point
— Displays the heat exchanger outlet water temperature at the second set-point

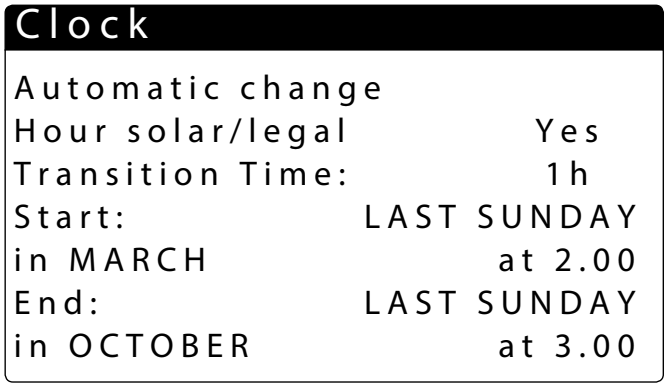
# 11 CLOCK MENU

## 11.1 SYSTEM TIME AND DATE SETTINGS



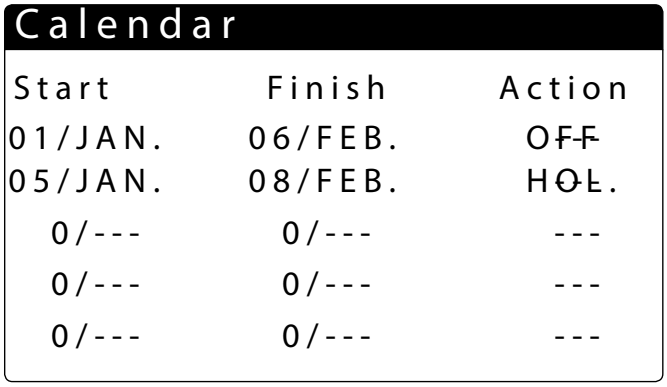

— Displays the day of the week (it cannot be changed from this window).
— The date of the system can be modified
— The time of the system can be modified

## 11.2 DAYLIGHT SAVING TIME SETTINGS




— **Clock**: the daylight saving time settings are displayed in this window.
— **Day-light saving time**: this parameter indicates whether to enable adjustment of system time based on the date, according to the subsequent settings.
— **Transition time**: This parameter indicates how much the system time must be increased or decreased based on time change (depending on whether it is the start or finish of daylight savings time).
— **Start of daylight saving time use**: this parameter indicates which day of the month you must start to use daylight saving time; in order to specify this, you must set two parts of the same parameter, the first indicating the week (first, second, third or last), the second indicating the day of the week.
— **Start month**: this parameter indicates the month in which to start to use the daylight saving time setting
— **Start time**: this parameter indicates the time in which to start to use the daylight saving time setting
— **End of daylight saving time use**: this parameter indicates which day of the month you must quit using daylight saving time; in order to specify this, you must set two parts of the same parameter, the first indicating the week (first, second, third or last), the second indicating the day of the week.
— **End month**: this parameter indicates the month in which to quit using the daylight saving time setting
— **End hour**: this parameter indicates the time in which to quit using the daylight saving time setting

## 11.3 SETTING THE CALENDAR FUNCTION



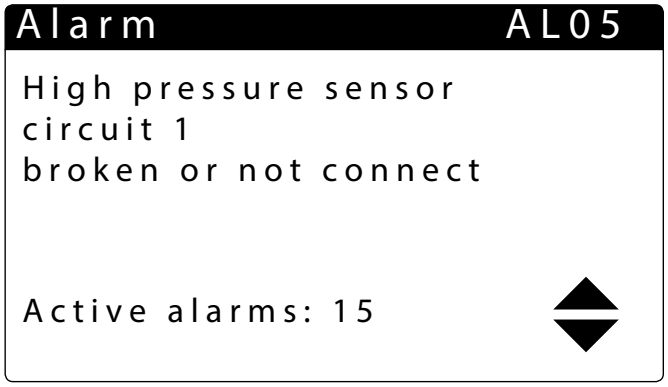

— **Calendar**: this window sets the actions to be carried out in the calendar function; this function allows you to set 5 periods, specifying the length in days, and to connect a specific action to be carried out to each one of them.
— **Start**: Indicates the start date for the 5 periods that can be set.
— **End**: Indicates the end date for the 5 periods that can be set.
— **Action**: indicates the action to be carried out for each of the 5 periods set in the calendar.
— **Time periods start date**: these parameters specify the starting date (day/month) for each period; if you set 00/00 as the start and end value, this period will be disabled.
— **Time periods end date**: these parameters specify the end date (day/month) for each period; if you set 00/00 as the start and end value, this period will be disabled.
— **Actions set for the time periods**: these parameters specify the action to be carried out corresponding to the set periods; the actions can be:

Off (unit switch-off during the period selected);
Fest (for each day of the period selected, settings relative to the time periods specified for the "HOLIDAY" will be carried out);
--- (no action).

## 12 ALARM MENU

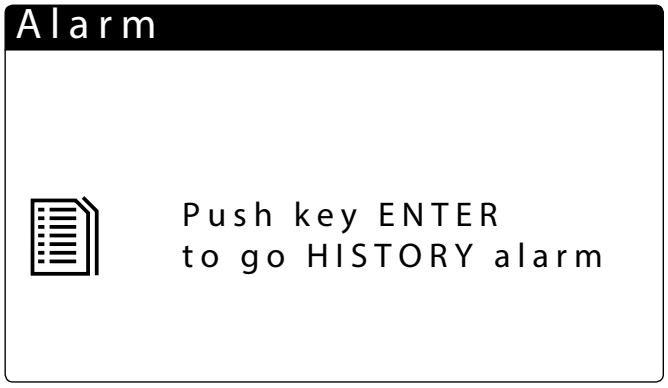
Every time an alarm is generated, it is saved in an area of memory called "alarms log", which contains the last 100 alarms recorded in the unit. For every alarm saved, different information is recorded regarding the unit situation at that time (work temperatures and pressures), so that the technical after-sales staff can have a clear view of the unit when a given alarm occurs.
To access the alarms log:

1. press the key ( ) and enter the alarms display;
2. if they are present, scroll all active alarms using the ( ) key and reach the icon that indicates the activation of the alarms log;
3. press the key ( ) to enter the alarms log;
4. to exit the alarms log, press ( ) or ( ).

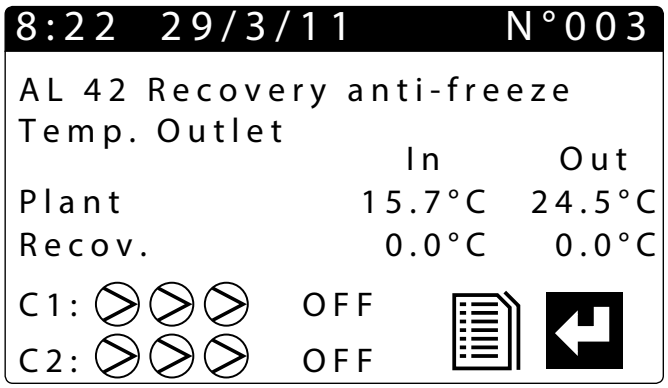


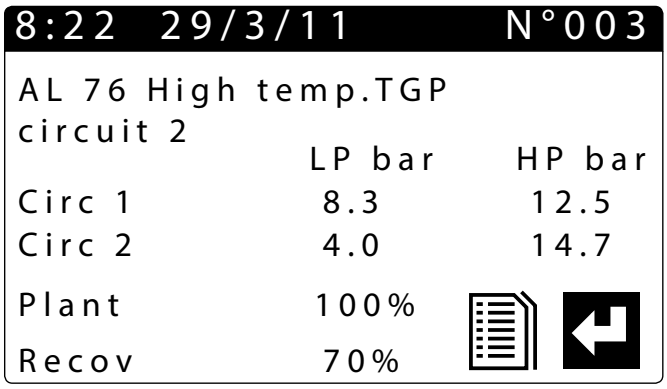

— **Alarm code**: this parameter indicates the alarm code. This code can be found in the previous pages (alarms summary table).
— **Alarm description**: this parameter indicates the description of the alarm saved.
— **Alarm number**: this value indicates the progressive number assigned to the alarm; this value goes from 0 (first alar recorded) to 99 (last alarm recorded).
— Indicates the possibility of scrolling the displays of the various active alarms signalled by pressing the keys and .

### 12.1 ALARM HISTORY




By using the keys to scroll inside the alarms menu, you access the indicated screen from whence it is possible to enter the alarms log MENU.




The following descriptions are possible for each alarm:
— Date and time of triggering
— Nature of alarm
— System side input/output temperature
— Recovery input/output temperature
— Status of compressors
— Low pressure
— Status of unit
— Status of compressors
— Status of pumps
— High pressure

# 13 LIST OF ALARMS

There are three types of alarm resets:
— **Auto**: automatic, when the event causing the alarm stops, also the alarm disappears.
— **Semi (semi-automatic)** = the alarm is automatic, but if it is triggered more than 3 times in an hour then it becomes with manual reset;
— **Manual**: manual, to restart normal operation manual acknowledgement is necessary.

**ATTENTION:** keep the  button pressed to rearm the alarm manually.

The alarms log cannot be reset and as the memory available is suitable to contain 100 alarms, once the index has reached the value of 99, its increase will start from 00 again (over-writing the oldest alarm).

| Code | Range | Description | Note | Delay | Reset |
|---|---|---|---|---|---|
| AL01 | | Clock battery faulty or not connected | | | Manual |
| AL02 | | Expansion memory damaged | | | Manual |
| AL03 | | ID8 phase monitor | | | |
| AL04 | | Board re-start from lost power | | | |
| AL05 | | High pressure sensor circuit 1 faulty or not connected | B1 | 30s | |
| AL06 | | High pressure sensor circuit 2 faulty or not connected | B6 | 30s | |
| AL07 | | Low pressure sensor circuit 1 faulty or not connected | B2 | 30s | |
| AL08 | | Low pressure sensor circuit 2 faulty or not connected | B7 | 30s | |
| AL09 | | Inlet water temp sensor evap. faulty or not connected | B4 | 30s | |
| AL10 | | Evap Out. Temp. broken or disconnected | B3 | 30s | |
| AL11 | | Outlet water temp sensor evap.com. faulty or not connected | B3 uPC | 30s | |
| AL12 | | Inlet water temp sensor recovery faulty or not connected | B1 uPC | 30s | |
| AL13 | | Outlet water temp sensor recovery1 faulty or not connected | B2 uPC | 30s | |
| AL14 | | Outlet water temp sensor recovery2 faulty or not connected | B6 uPC | 30s | |
| AL15 | | Outlet water temp sensor recovery common faulty or not connected | B4 uPC | 30s | |
| AL16 | | External temperature sensor faulty or not connected | B9 | 30s | |
| AL17 | NRP | Circuit 1 Liquid temperature probe broken or not connected | | | Manual - 30s |
| AL17 | NXP | Geothermal input's temperature probe is broken or not connected | | | Manual - 30s |
| AL18 | NRP | Liquid temperature sensor circuit 2 faulty or not connected | | | Manual - 30s |
| AL18 | NXP | Geothermal output's temperature probe is broken or not connected | | | Manual - 30s |
| AL19 | | Request for maintenance on compressors of circuit 1 | | | Manual |
| AL21 | | Circuit 1 Pump 1 Rec. maintenance | | | Manual |
| AL22 | | Circuit 1 Pump 1 Rec. maintenance | | | Manual |
| AL23 | | Circuit breaker compressor 1 circuit 1 | | | Manual |
| AL24 | | ID13 Pump 1 system overload | ID 6 | | Manual |
| AL25 | | ID14 Pump 2 system overload | | | Manual |
| AL26 | | Thermal alarm heat recovery pump 1 | | | Manual |
| AL27 | | Pump 2 rec. overload | | | Manual |
| AL28 | NRP | ID15 Fan circuit breaker circuit 1 | | | Manual |
| AL28 | NXP | ID15 Thermal geothermal pump | | | Manual |
| AL29 | | ID16 Fan circuit breaker circuit 2 | | | Manual |
| AL30 | | Low pressure indicated by pressure switch on circuit 1 | | 180s + 3s "M48" | Semi Automatic |
| AL31 | | Low pressure sensor circuit 1 | | | Semi Automatic |
| AL32 | | High pressure indicated by pressure switch on circuit 1 | | | Manual |
| AL33 | | High pressure sensor circuit 1 | | | Manual |
| AL34 | | Circuit 1 Low pressure from probe (not delayed) | | | Manual |
| AL35 | | Circuit 2 Low pressure from probe (not delayed) | | | Manual |
| AL36 | | Circ 1 prevention by probe | | | --- |
| AL37 | | Circ 2 prevention by probe | | | --- |
| AL38 | | Loss of evaporator water flow | | | Semi Automatic |
| AL39 | | Loss of heat recovery water flow | | | Semi Automatic |
| AL40 | | Anti-freeze alarm system inlet/outlet temperature | | 3°C "Ma9" | |
| AL41 | | Anti-freeze alarm system common outlet temperature | | 3°C "Ma9" | |
| AL42 | | Anti-freeze alarm heat recovery 1 inlet/outlet temperature | | 3°C "Ma12" | |
| AL43 | | Anti-freeze alarm heat recovery 2 outlet temperature | | 3°C "Ma12" | |
| AL44 | | Output temp com. rec. anti-freeze | | 3°C "Ma12" | |
| AL45 | | Expansion IO (uPC) Off-line | | 20 s | |
| AL46 | | Expansion IO (pCOe) Off-line | | 20 s | |
| AL47 | | Forcing off recovery 1 | | | |
| AL48 | | Discharge gas temperature sensor circuit 1 faulty or not connected | | 30 s | |
| AL49 | | Discharge gas temperature sensor circuit 2 faulty or not connected | | 30 s | |
| AL50 | | Board re-start from lost power | It is not an alarm | | |
| AL51 | | Circuit 1 Comp. 2 maintenance | Display only | "W18" | |
| AL52 | | Circuit 1 Comp.3 maintenance | Display only | W18" | |
| AL53 | | Circuit 2 Comp.1 maintenance | Display only | W18" | |
| AL54 | | Circuit 2 Comp.2 maintenance | Display only | W18" | |
| AL55 | | Circuit 2 Comp.3 maintenance | Display only | W18" | |
| AL56 | | Circuit 2 Fan maintenance | Display only | W18" | |
| AL57 | | Circuit 1 Pump 2 Rec. maintenance | Display only | W18" | |
| AL58 | | Circuit 1 Pump 2 syst. maintenance | Display only | W18" | |
| AL59 | | Circuit breaker compressor 2 circuit 1 | | | Manual |
| AL60 | | Circuit breaker compressor 3 circuit 1 | | | Manual |
| AL61 | | Circuit breaker compressor 1 circuit 2 | | | Manual |

| Code | Range | Description | Note | Delay | Reset |
|---|---|---|---|---|---|
| AL62 | | Circuit breaker compressor 2 circuit 2 | | | Manual |
| AL63 | | Circuit breaker compressor 3 circuit 2 | | | Manual |
| AL64 | | Pressure switch BP 2 from pressure switch | | 180s + 3s "M48" | Semi Automatic |
| AL65 | | Low pressure 2 from probe | | | Semi Automatic |
| AL66 | | High pressure pressostat circuit 2 | | | Manual |
| AL67 | | High pressure sensor circuit 2 | | | Manual |
| AL68 | | Circ.1 low pressure prevention | | | |
| AL69 | | Circ.2 low pressure prevention | | | |
| AL71 | NRP | Recovery 2 output anti-freeze | | 3°C "Ma12" | |
| AL71 | NXP | Forcing off recovery 2 | | 3°C "Ma12" | |
| AL72 | NRP | Rec. common output anti-freeze | | 3°C "Ma12" | |
| AL72 | NXP | Forcing off common recovery | | 3°C "Ma12" | |
| AL73 | | Circuit 1 TGP prevention | | "Ma39" | |
| AL74 | | Circuit 2 TGP prevention | | "Ma39" | |
| AL75 | | High discharge gas temperature circuit 1 | | "Ma54" | |
| AL76 | | High discharge gas temperature circuit 2 | | "Ma54" | |
| AL78 | | Defrost on system not available | | | |
| AL79 | | Defrost on recovery not available | | | |
| AL80 | | Alarm Offline Master board disconnected | | | |
| AL81 | | Alarm Offline NRP 2 board disconnected | | | |
| AL82 | | Alarm Offline NRP 3 board disconnected | | | |
| AL83 | | Alarm Offline NRP 4 board disconnected | | | |
| AL84 | | High system inlet temperature alarm | | | Semi Automatic |
| AL85 | | Alarm high temperature - Recovery inlet | | | Semi Automatic |
| AL86 | | Heating off forcing, circuit 1 | | | Semi Automatic |
| AL87 | | Heating off forcing, circuit 2 | | | Semi Automatic |
| AL88 | | Cooling off forcing, circuit 1 | | | Semi Automatic |
| AL89 | | Cooling off forcing, circuit 2 | | | Semi Automatic |
| AL91 | | Geothermal flow switch alarm | | | |
| AL92 | | Alarm antifreeze geo | | | |

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