AERMEC

air conditioni

MULTI-PURPOSE FOR 2|4 PIPE SYSTEMS

USER MANUAL

NRP

EN

AERMEC
COMPANY QUALITY SYSTEM
ICIM
ISO 9001:2008 - Cert. n° 0128
CISQ IQNet
AERMEC S.P.A.

CE

4 7 2 4 3 1 1 _ 0 0

INRPUY .1311. 4724311_00

CONTENT

1. USER INTERFACE (pGD1)

The NRP unit control panel allows quick setting of the machine functioning parameters and their display.

The display is made up from a graphical matrix with 132 x 64 pixel in order to signal the type of functioning, displaying set parameters and any alarms that have intervened.

All default settings and any modifications are memorised in the board.

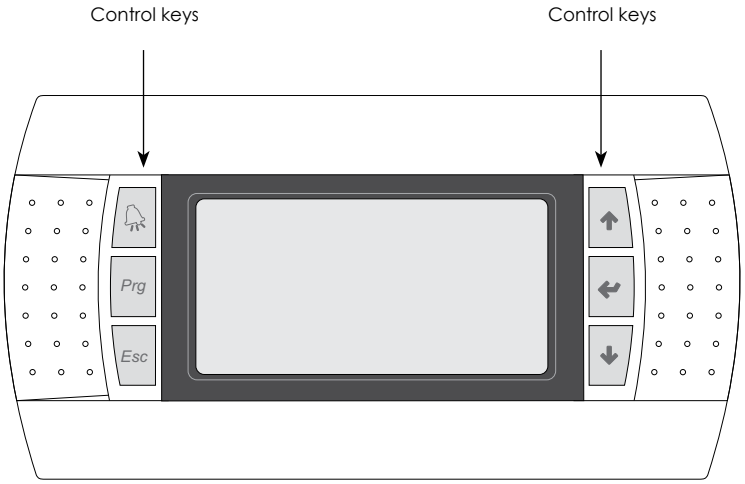
With the installation of the PGD1 remote panel, all of the functions and settings available on the machine can be replicated at a distance.

After a power cut, the unit can re-start automatically keeping the original settings.

The user interface is represented by a graphic display with six keys for navigation.
The displays are organised via a menu hierarchy, which can be activated by pressing the navigation keys. The default for displaying these menus is represented by the main menu.

Navigation between the various parameters takes place using the arrow keys positioned on the right side of the panel. These keys are also used to modify the parameters selected.

INTERFACE CONTROL KEYS



KEY	FUNCTION
	**ALARMS KEY** Displays the list of alarms and the alarms log;
	**MENU ACTIVATION KEY** • Pressing this key activates navigation among the menus;
	**MENU EXIT KEY** • Pressing this key leads to the display of the previous window;
	**NAVIGATION KEY (+)** • Pressing this key during navigation through the menus/ parameters, allows to pass to the next menu/parameter; • Pressing this key during parameter modification, increases the value of the parameter modified;
	**NAVIGATION KEY (ENTER)** • Pressing this key during navigation through the menus, allows to enter the selected menu; • Pressing this key during navigation through the parameters, allows to select the parameter displayed and enter the modification mode; • Pressing this key during parameter modification, confirms the modification to the value of the parameter selected;
	**NAVIGATION KEY (-)** • Pressing this key during navigation through the menus/ parameters, allows to pass to the previous menu/parameter; • Pressing this key during parameter modification, decreases the value of the parameter modified;

ATTENTION

*The **2-pipe NRP** 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 NRP** is set up for the production of cooled water and hot water.*

WARNING
Tampering of parameters contained in the assistance and the manufacturer menu can cause unit malfunctioning. It is therefore recommended that these parameters are modified only by authorised staff.

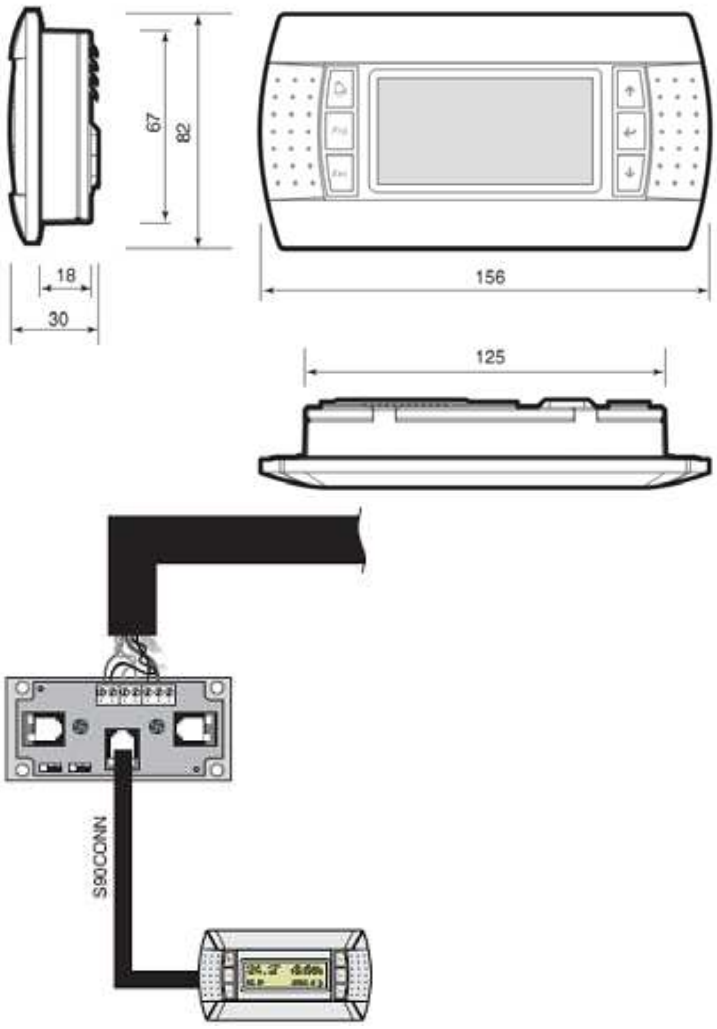
2. REMOTE TERMINAL (pGD1)

The terminal can be remote-controlled up to 50 m using a telephone cable, while using a shielded twin cable, a TCONN6J000 and a separate power supply it can be remote-controlled as far as 500 m.

> ⚠ ***ATTENTION***
> *The cable must always be shielded for domestic use of the terminal.*

Address configuration
If two pGD1 terminals are connected to the same board, the second terminal must be assigned with a different address than the first (which is 32).
1. Power the pGD1 with the telephone connector.
2. Pressi ↓↑ Enter simultaneously for at least 5 seconds.
3 To modify the terminal address (display address setting) press
Enter once: the cursor will move onto the address field (nn).
4 Use the ↓↑ keys to select the desired value and confirm by pressing
Enter.

> ⚠ ***ATTENTION***
> *For further information concerning installation of the remote terminal, see the instructions inside the accessory.*



3. USE OPERATIONAL PROCEDURES

To manage or modify the NRP unit operational parameters, the control board interface on the machine must be used. The fundamental operations that the user must be able to perform for correct use of the unit are:

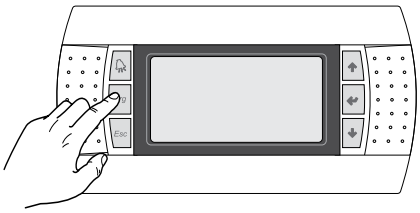
(1) To pass from one menu to another;

(2) To select and modify a parameter;

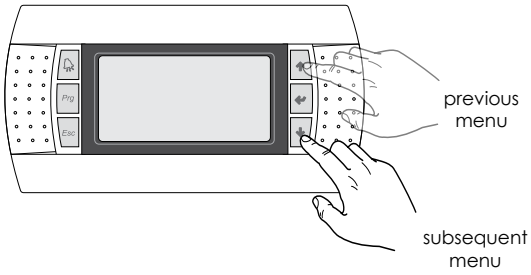
1

To pass from one menu to another

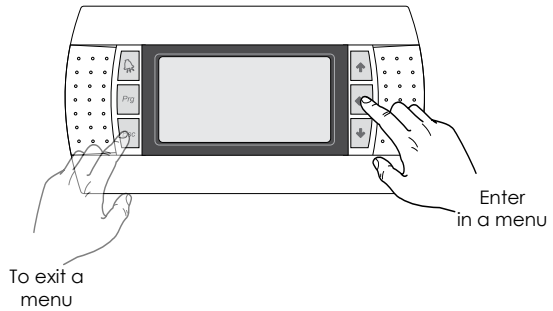
(a) In order to scroll the various menus (the order with which the menus are displayed is represented in the previous page) it is first necessary to enter the menu selection mode, pressing the (Prg) key;



(b) Once the menu selection mode has been entered, these can be scrolled using the arrow keys: the (↑) key to pass to the previous menu and the (↓) key to pass to the next menu;



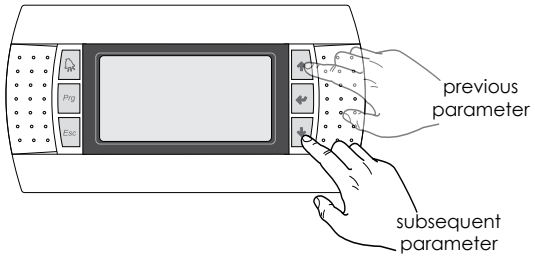
(c) When the desired menu is displayed, press the (↵) key to enter the menu. To exit the menu and go back to menu selection mode, press the (Esc) key;



2

To select and modify a parameter

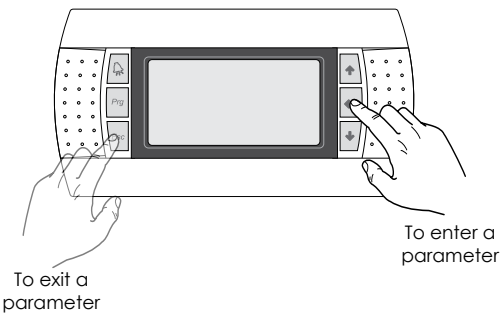
(a) Once the selected menu has been entered (following the procedure (1)) it is possible to scroll the windows that make it up, using the arrow keys, using the (↑) key to pass to the previous parameter and the(↓) key to pass to the next parameter;



(c) When the desired parameter is displayed, press the (↵) key to enter the parameter. To exit the parameter and go back to parameters selection mode, press the (Esc) key;

ATTENTION:
Once a parameter has been selected, press the (↵) key to automatically enter the modification mode of that parameter. From this mode it is possible to set the desired values for the parameters, following the procedure below:
(1) by pressing the (↵) key, a flashing cursor will appear near the first modifiable field of the parameter (if fields that can be modified do not appear, no cursor will appear);
(2) by pressing the (↑) key or the (↓)key the value in the field will be increased or decreased;
(3) by pressing the (↵) key, the modifications to the field value will be confirmed, saving in the memory;

On the basis of the type of the type of parameter selected, the number of fields that can be modified could vary;

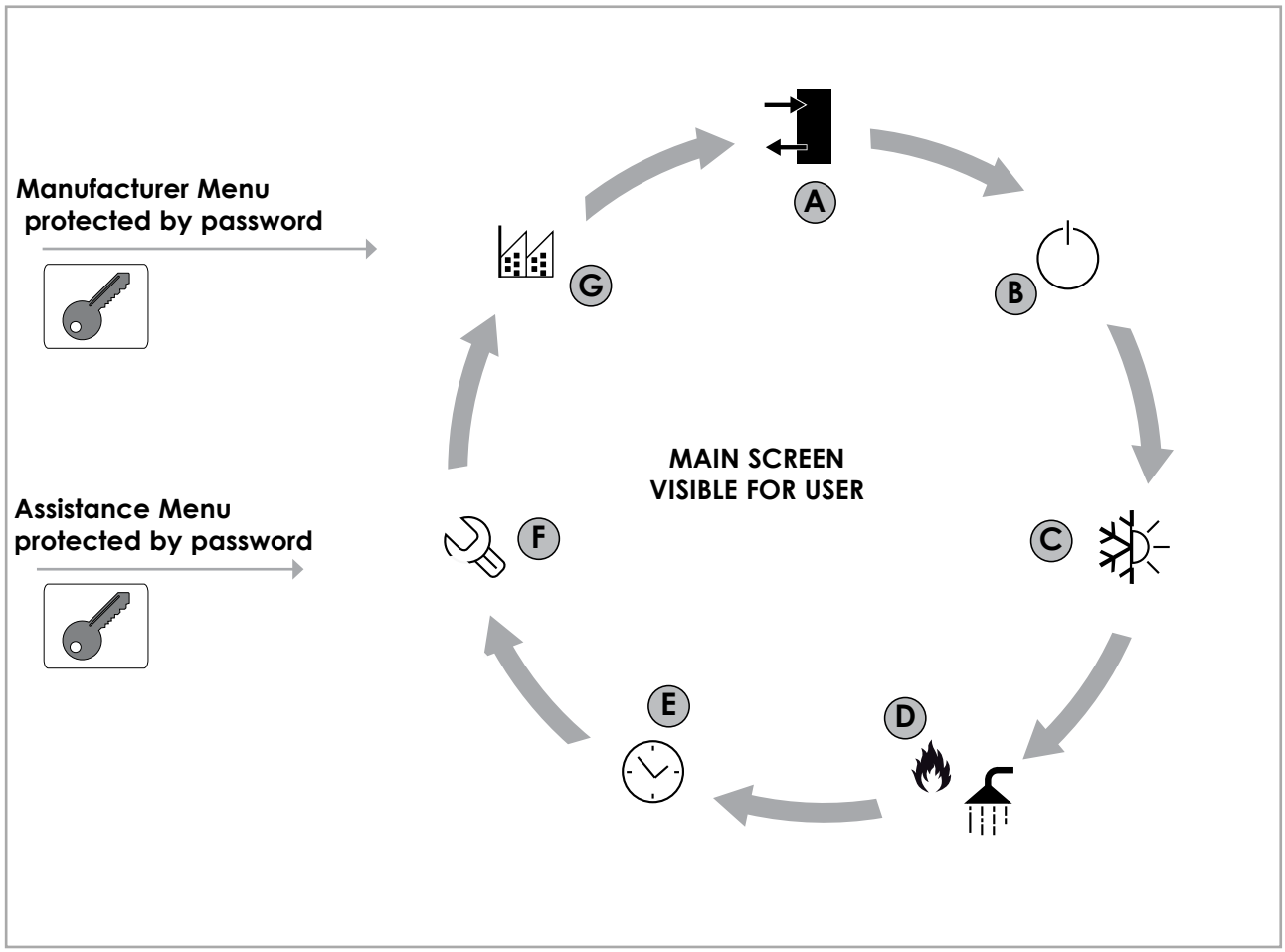


⚠ ***ATTENTION***
*To adjust **display contrast**, press **Alarm + Prg** simultaneously and use the ↑ ↓ keys to increase or decrease contrast.*

4. MENU STRUCTURE AND NAVIGATION

Menu display is organised by rotation of the icons representing them.
Having selected the desired icon, you enter the chosen menu, allowing you to view or modify the parameters making it up.
The procedure for navigating the menus or modifying the parameters is explained in detail in the chapter "Use operational procedures". See it for further information.

User Menu

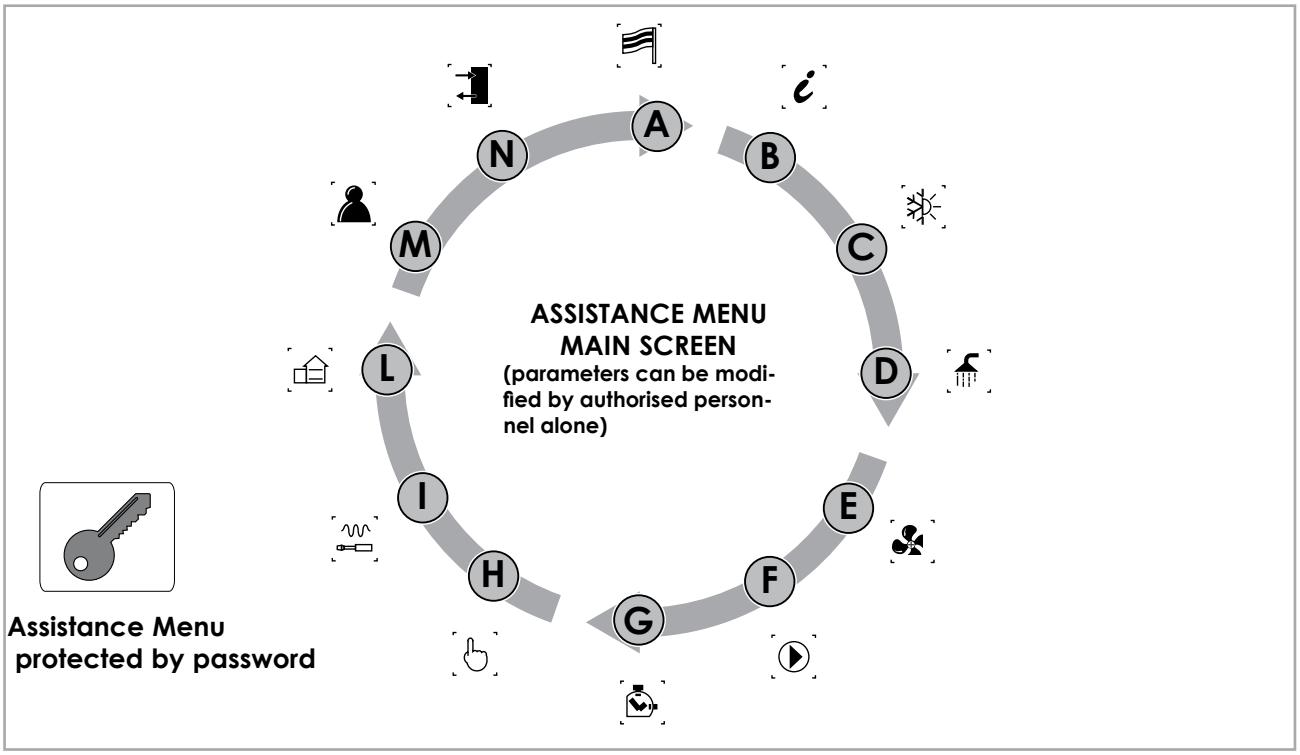


MAIN SCREEN VISIBLE FOR USER

Index	Icon	Menu	Menu function
A		IN/OUT	Contains the information (temperature, pressure, etc.) of the system components.
B		ON/OFF	Switches the unit on and off and sets its functioning mode (summer/winter) and eventual time periods.
2-PIPE VERSION			
C		SYSTEM	Management of the chiller parameters, standard/energy saving work set-point.
D		RECOVERY	DHW management parameters(set-point, consent, temperature, time periods, etc...).
4-PIPE VERSION			
C		COLD	Management of the chiller parameters, standard/ energy saving work set-point when functioning in cooling mode.
D		HOT	Management of the chiller parameters, standard/ energy saving work set-point when functioning in heating mode.

Index	Icon	Menu	Menu function
E		CLOCK	Manages all parameters linked to the system time (hour, date, etc....).
F		AFTER-SALES ASSISTANCE	Protects the after-sales assistance menu with password request.
G		MANUFACTURER	Protects the manufacturer menu with password request.

Assistance Menu (protected by password)

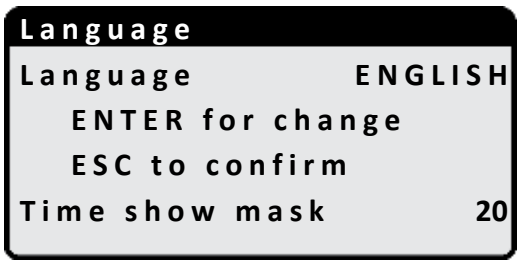


ASSISTANCE MENU MAIN SCREEN
(parameters can be modified by authorised personnel alone)

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

5. DISPLAYS - SWITCHING UNIT ON

The following table shows the windows visible for the user when the unit is powered.

Displays - Switching Unit on		
Unit display	Index	Display/Parameter
	A	Introductory window, visible 30 seconds after unit is switched on. The seconds remaining before passing on to the language choice menu are indicated at the bottom right.
	B	Indicates the possibility of choosing the desired language. The seconds remaining before passing on to the main screen are indicated at the bottom right. After 20 seconds have elapsed, it will no longer be possible to modify the language until the next time the board is restarted. ⚠ **The language can be modified by qualified personnel alone, using the ASSISTANCE MENU.**

WARNING
tampering of parameters contained in the assistance and the manufacturer menu can cause unit malfunctioning. It is therefore recommended that these parameters are modified only by authorised staff.

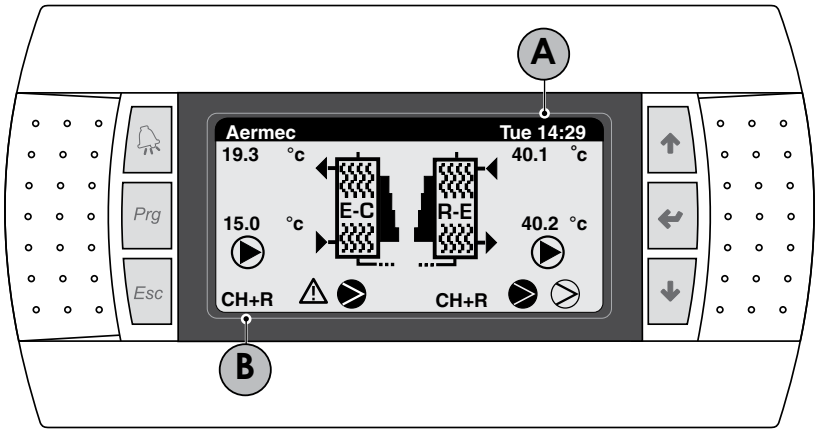
6. MAIN DISPLAY

During normal functioning of the unit, the PGD1 panel display shows the main window. This window contains the information on the system status and this information will allow the user to have a clear indication regarding functioning of the NRP unit as well as to supply any error and/or malfunctioning messages.

Depending on the functioning mode, different information can be displayed concerning the current status of the unit, user settings, etc.

To have a clear interpretation of the icons present in the main window, refer to the table below.

MAIN WINDOW DISPLAY



Description of icons displayed on main window

Icon	Meaning
A	Indicates the day of the week and the time.
EV CN	Indicates water inlet and outlet temperature (evaporator in summer and condenser in winter).
RE	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
	Indicates that the anti-freeze resistance is active.
F	Indicates that the flow switch is open. If it remains open too long the compressors switch off. The pumps will release the flow switch.

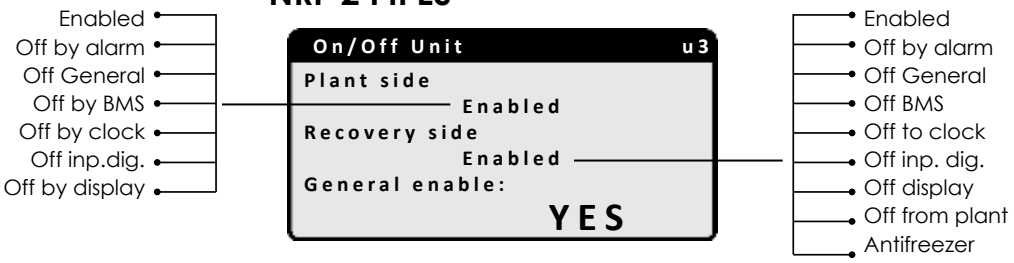
Icon	Meaning
LT	Indicates that the outlet low temperature antifreeze prevention is active. Switches compressors off.
HT	Indicates that the outlet high temperature prevention is active. Switches the compressors/mode change off.
B	Indicates the states in which the circuit can be found Indicates the status in which the unit can be found.
1 2 3 4	Indicates compressor status: disabled(1), off (2), on (3), in alarm (4).

Description of the status in which the circuit can be found

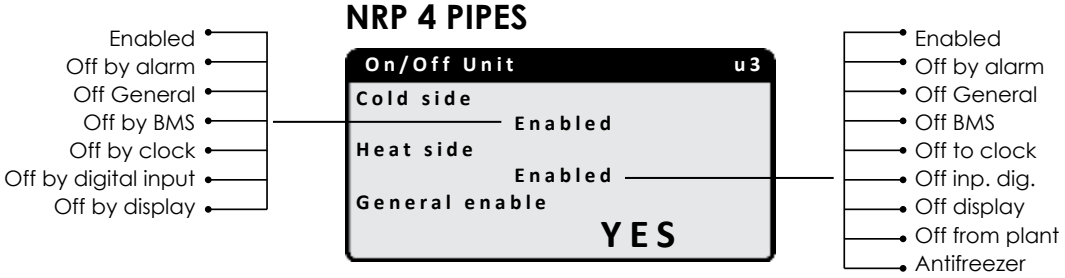
State	Meaning
C1 C2	The system is active and running
CH	Chiller functioning
CH + R	Chiller + total recovery functioning
PC	Heat pump functioning
REC	Total recovery
DEFR	Defrost active
WAIT	The circuit is in standby because configuration is changing
LC	Low load: Indicates low water content or low thermal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

Description of the status in which the circuit can be found

NRP 2 PIPES



NRP 4 PIPES



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	Le fasce orarie impostate impongono l'OFF del intero sistema
Off by digital input	L'ingresso digitale (ID8) è chiuso e pone il sistema in OFF
Off by display	L'impianto e' in OFF da terminale. Controllare la schermata IMPIANTO
Off by Plant-side/Cold side	Plant-side/Cold side disable/off: Recovery/Heat side not working
Anti-freeze	Azione di prevenzione gelo all''interno degli scambiatori d'acqua
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

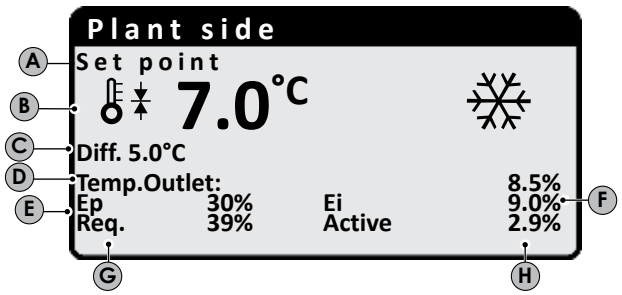
Function not present

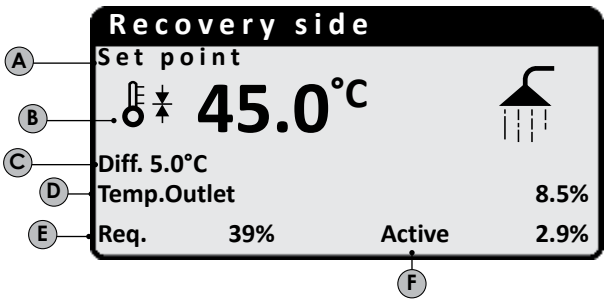
If a function is not present the folowing screen will be shown.

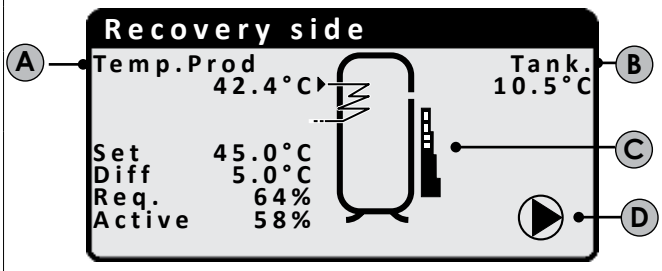
To return to the main screen press ESC.

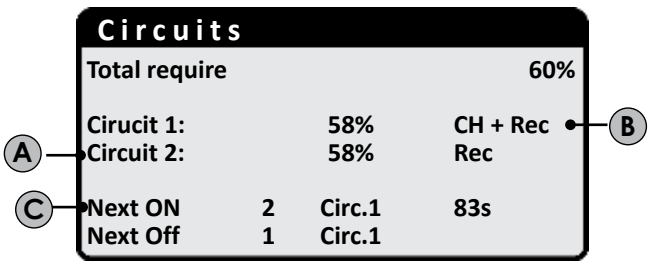
NRP 2 PIPES

By pressing the ↑ ↓ keys it is possible to access other displays of the main window

Main window - Information on system side heat exchanger		
Unit display	**Index**	**Display/Parameter**
	From this window it is possible to view the information relating to the heat exchanger on the system side	
	A	Current work set-point
	B	Evaporator inlet temperature
	C	Indicates the heat drop value
	D	Temperature at which machine is adjusted
	E	Percentage of proportional factor (if activated PID)
	F	Percentage of integral factor (if activated PID)
	G	Percentage requested by system
	H	The actual power percentage used

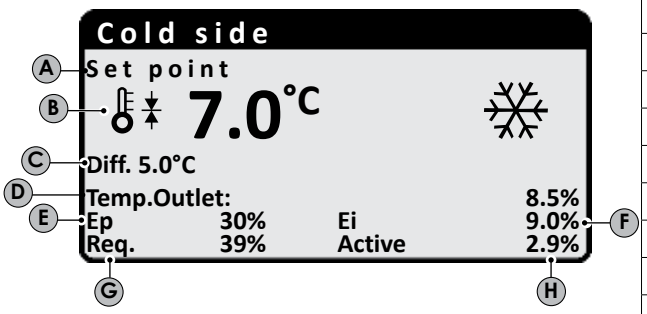
Main window - Information on DHW side heat exchanger		
Unit display	**Index**	**Display/Parameter**
	From this window it is possible to view the information relating to the heat exchanger on the DHW side	
	A	Current work set-point
	B	Heat exchanger outlet temperature
	C	Indicates the heat drop value
	D	Temperature at which machine is adjusted
	E	Percentage requested by system
	F	The actual power percentage used

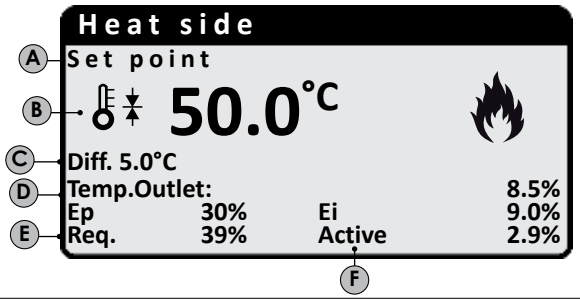
Main window - Information on DHW side heat exchanger		
Unit display	**Index**	**Display/Parameter**
	A	Leaving domestic hot water temperature
	B	Temperature within storage tank
	C	Indicates domestic hot water demand (in steps of 0 to 10)
	D	Is shown when the heat recovery pump is on. The number below 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.

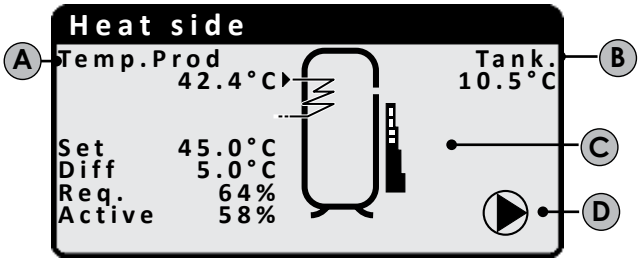
Main window - Information on circuits 1 - 2		
Unit display	**Index**	**Display/Parameter**
	A	Shows the circuit demand
	B	Shows the circuit status
	C	Shows which compressor will start/stop

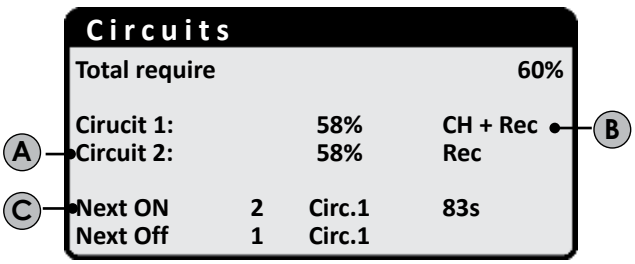
NRP 4 PIPES

By pressing the ↑ ↓ keys it is possible to access other displays of the main window

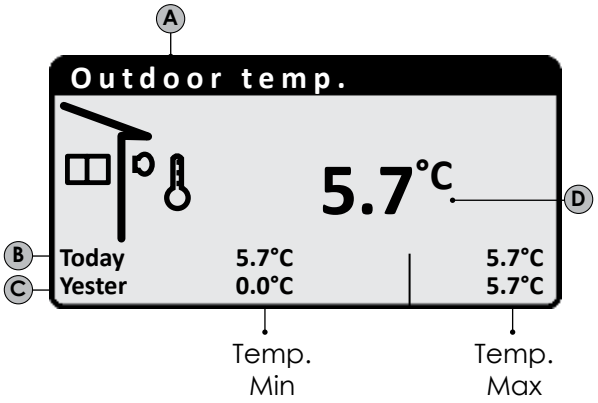
Main window - Information on cooling side heat exchanger		
Unit display	**Index**	**Display/Parameter**
	From this window it is possible to view the information relating to the heat exchanger on the system side	
	A	Current work set-point
	B	Evaporator inlet temperature
	C	Indicates the heat drop value
	D	Temperature at which machine is adjusted
	E	Percentage of proportional factor (if activated PID)
	F	Percentage of integral factor (if activated PID)
	G	Percentage requested by system
	H	The actual power percentage used

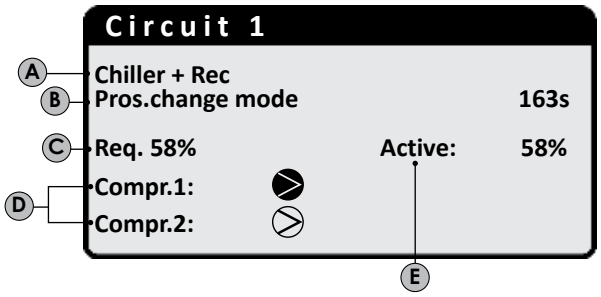
Main window - Information on heating side heat exchanger		
Unit display	**Index**	**Display/Parameter**
	From this window it is possible to view the information relating to the heat exchanger on the system side	
	A	Current work set-point
	B	Heat exchanger outlet temperature
	C	Indicates the heat drop value
	D	Temperature at which machine is adjusted
	E	Percentage requested by system
	F	The actual power percentage used

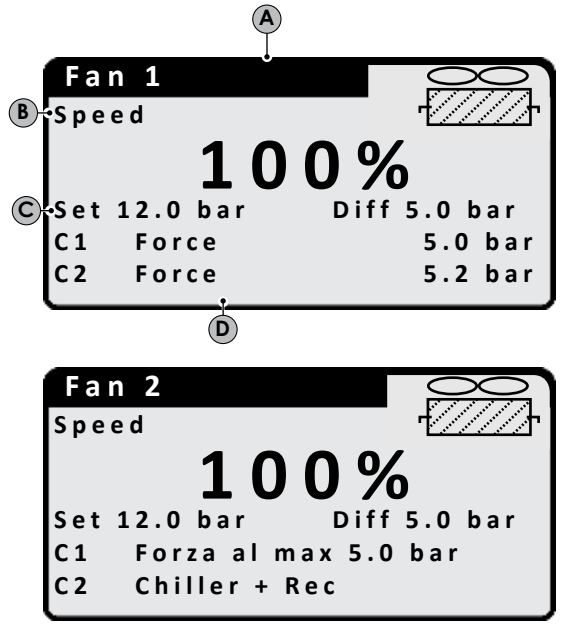
Main window - Information on DHW side heat exchanger		
Unit display	**Index**	**Display/Parameter**
	A	Leaving domestic hot water temperature
	B	Temperature within storage tank
	C	Indicates domestic hot water demand (in steps of 0 to 10)
	D	Is shown when the heat recovery pump is on. The number below 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.

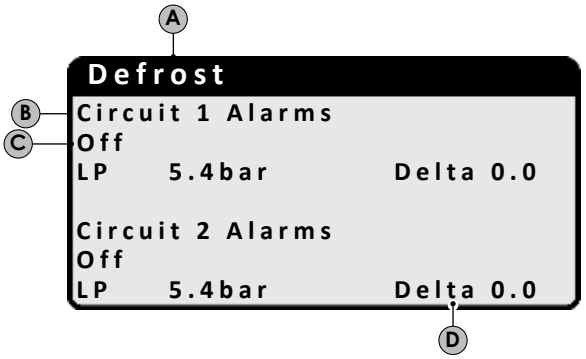
Main window - Information on circuits 1 - 2		
Unit display	**Index**	**Display/Parameter**
	A	Shows the circuit demand
	B	Shows the circuit status
	C	Shows which compressor will start/stop

7. IN/OUT MENU

IN/OUT menu - Information regarding external temperature		
Unit display	**Index**	**Display/Parameter**
	A	External temperature: this window displays the data relative to the external temperature.
	B	Today: indicates the MIN and MAX temperature recorded during the day.
	C	Yesterday: indicates the MIN and MAX temperature recorded the previous day.
	D	External temperature: Indicates the external temperature currently detected by the outdoor air probe.

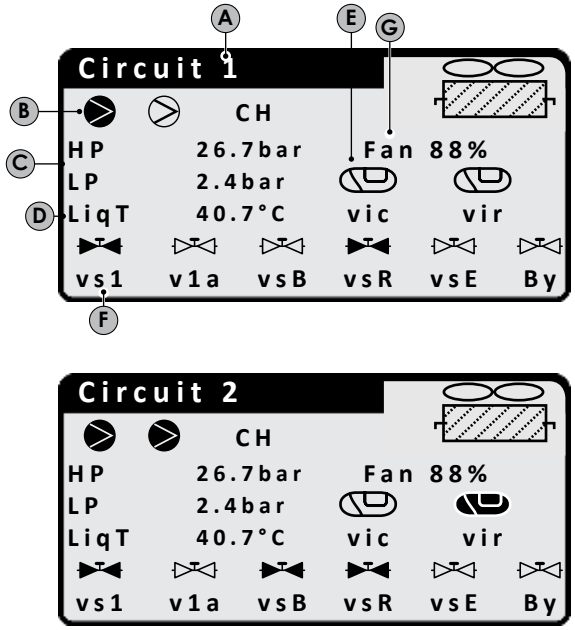
Menu IN/OUT - Information on circuit status and capacity			
Display shown on the unit	**Index**	**Display/Parameter**	
	A	**Shows the circuit operating status**	
		• Off • Chiller only • Chiller+Rec • Heat pump • Heat recovery only • Await part load • Mode selected • Defrost start	• Await inversion VIC • Defrost • Await exit defrost • Turn on fan exit defrost • Exit defrost • No defrost System • No defrost Recovery
	B	Shows how many seconds until the next change of operation	
	C	Shows the circuit demand	
	D	**Shows the compressor status**	
			Compressor off
			Compressor 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
	E	Shows the circuit active capacity	

<table>
<tr><th colspan="4">IN/OUT menu - Information on status of fans</th></tr>
<tr><th>Unit display</th><th>Index</th><th colspan="2">Display/Parameter</th></tr>
<tr><td rowspan="8"> 
</td><td>A</td><td colspan="2">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.</td></tr>
<tr><td>B</td><td colspan="2">Indicates the speed percentage at which the fan is rotating.</td></tr>
<tr><td>C</td><td colspan="2">Indicates the current setting.</td></tr>
<tr><td rowspan="5">D</td><td colspan="2">Indicates the status in which the circuit can be found (see Main Display chapter)
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).</td></tr>
<tr><td>C1 Off</td><td>Circuit off</td></tr>
<tr><td>C1 Press.Cond</td><td>Fans control to high pressure (condensing)</td></tr>
<tr><td>C1 Chiller +Rec</td><td>Fans off because unit is operating in water/water mode</td></tr>
<tr><td>C1 Forced to Max</td><td>Fans are forced to maximum because the external temperature is higher than 30°C</td></tr>
<tr><td>C1 Press.Evap</td><td>Fans control to low pressure</td></tr>
</table>

<table>
<tr><th colspan="3">IN/OUT menu - Information on defrosting status</th></tr>
<tr><th>Unit display</th><th>Index</th><th>Display/Parameter</th></tr>
<tr><td rowspan="4"> 
</td><td>A</td><td>Shows the defrost status of circuits 1 and 2
see (1) Description of defrost status</td></tr>
<tr><td>B</td><td>Shows if the defrost mode is operating</td></tr>
<tr><td rowspan="2">C</td><td colspan="2">Shows the circuit operating status</td></tr>
<tr><td>• Off
• Chiller only
• Chiller+Rec
• Heat pump
• Heat recovery only
• Await part load
• Mode selected
• Defrost start</td><td>• Await inversion VIC
• Defrost
• Await exit defrost
• Turn on fan exit defrost
• Exit defrost
• No defrost System
• No defrost Recovery</td></tr>
<tr><td>D</td><td colspan="2">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</td></tr>
</table>

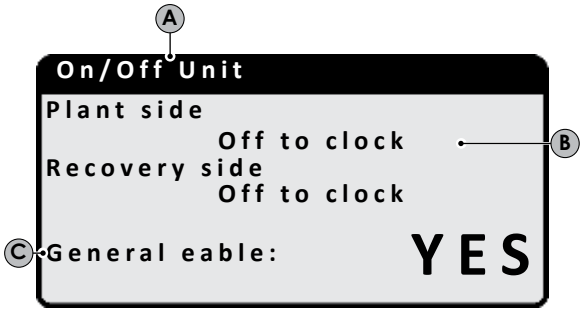
Description of defrosting states

States	Description
No SBR	No defrost
Off	Circuit off from display panel, or time clock, or digital input
Sbr.Attivo	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
End Liq.T	Defrost stopped due to high liquid temperature
End Tempo	Defrost stopped after maximum time reached
End Force	Defrost stopped forced from display panel
Startup Cmp	Defrost inhibited due to time after compressor start
Alta P.Evap	Defrost inhibited due to high evaporating pressure
Alta T.Ext	Defrost inhibited due to high external temperature
T.Bw Sbr	Defrost inhibited due to delay timer between two defrost cycles
Allarmi	Circuit in alarm
On da Alarm	Defrost started due to return to alarm

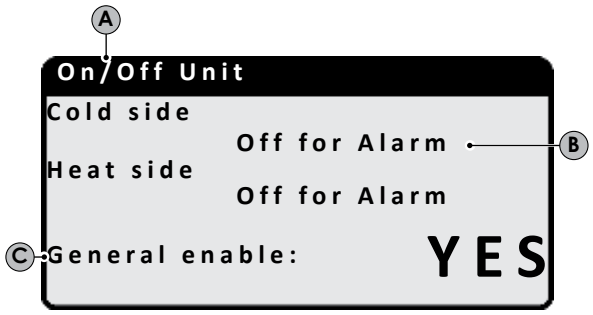
IN/OUT menu - Indicates the status of the circuit 1 and circuit 2 valves		
Unit display	**Index**	**Display/Parameter**
	A	This window displays the data relative to circuit pressures and valve status.
	B	Displays the status of the compressors (disabled - on - off - alarm).
	C	Indicates the high and low pressure values of the circuit.
	D	Indicates the refrigerant liquid (Liq T) and pressing gas (Tgp) temperature.
	E	Indicates the valve status: VIC - Cycle Reversing Valve. VIR - Recovery Reversing Valve. ON OFF
	F	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. ON OFF
	G	Indicates speed percentage at which the fan works.

8. ON/OFF MENU

NRP 2 PIPES

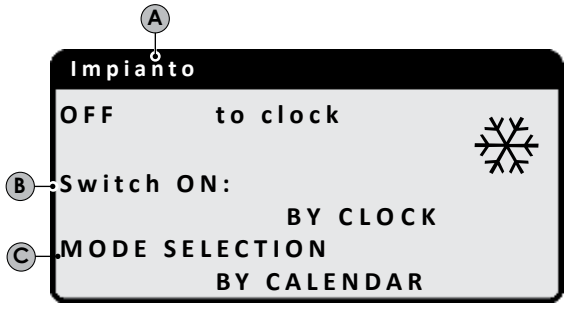
ON/OFF menu - Unit switch-on/off and settings on the functioning mode		
Unit display	**Index**	**Display/Parameter**
	A	**Unit On/Off**: the data relative to the status of the unit and its functioning mode are set in this window.
	B	FOR the description of the unit status see **CHAPTER 6 - *Main Display - Description of the status in which the unit can be found.***
	C	**General ON/Off** status, enabled by user.

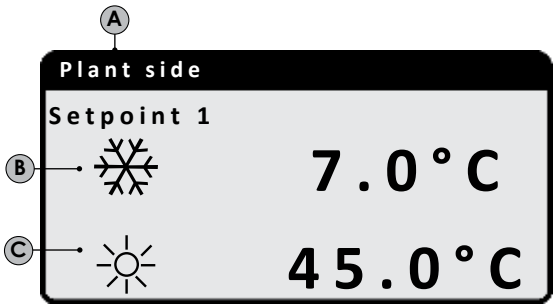
NRP 4 PIPES

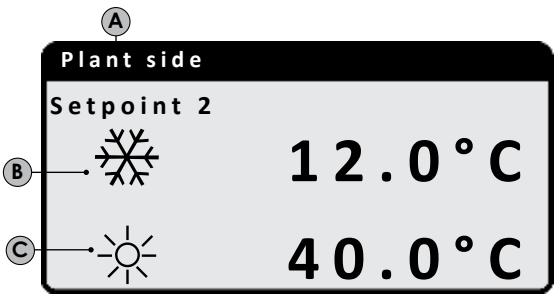
ON/OFF menu - Unit switch-on/off and settings on the functioning mode		
Unit display	**Index**	**Display/Parameter**
	A	**Unit On/Off**: the data relative to the status of the unit and its functioning mode are set in this window.
	B	FOR the description of the unit status see **CHAPTER 6 - *Main Display - Description of the status in which the unit can be found.***
	C	**General ON/Off** status, enabled by user.

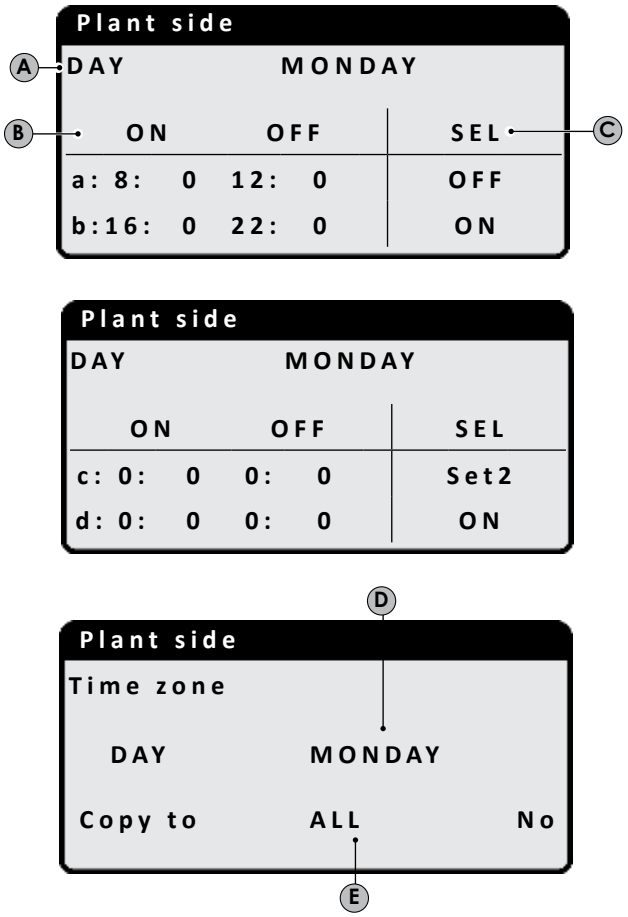
ATTENTION
NRP 2-pipe system - Deactivated system /Off: also the recovery side is excluded
NRP 4-pipe system - Deactivated Cool Side /Off: also the heating side is excluded

9. PLANT (2 PIPES)

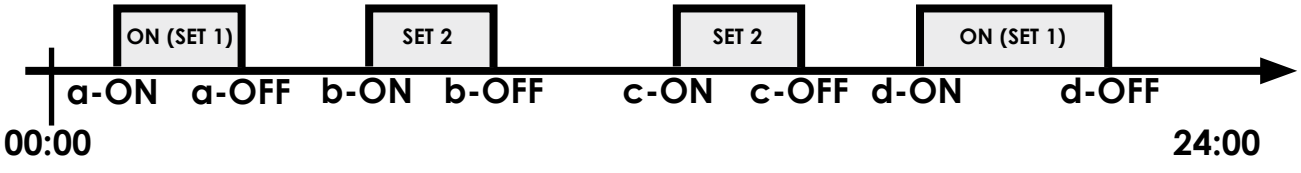
SYSTEM menu - System set-point display		
Unit display	**Index**	**Display/Parameter**
	A	**Displays the current settings of the chiller.**
	B	**NO:** The system does not produce cold/hot water, recovery is managed separately. **Yes:** the unit is running and the system is adjusted at the default set-point. **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.
	C	**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.

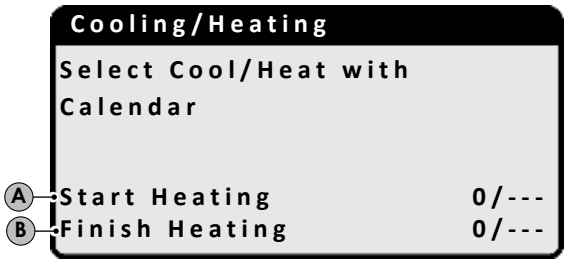
SYSTEM menu - System set-point display		
Unit display	**Index**	**Display/Parameter**
	A	Displays the current settings of the chiller.
	B	Indicates the cold water production set-point.
	C	Indicates the hot water production set-point.

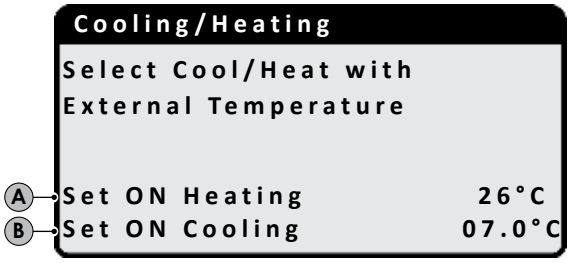
SYSTEM menu - System set-point display		
Unit display	**Index**	**Display/Parameter**
	A	Displays set-point 2 (only if enabled)
	B	Indicates the set-points for production of cold water.
	C	Indicates the set-points for production of hot water.

SYSTEM menu - Enabling: BY CLOCK		
Unit display	**Index**	**Display/Parameter**
	A	Indicates the day of the week.
	B	Indicates whether the unit is on or off.
	C	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).
	D	Indicates the day with the settings to be copied.
	E	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

ATTENTION: *Each program has **8 days** and each day is divided into **4 time periods** at which the recovery switch-on and switch-off time, set-point2 or switch-on/switch-off can be set.*
ATTENTION: outside of the 4 time periods the program will switch the system off.



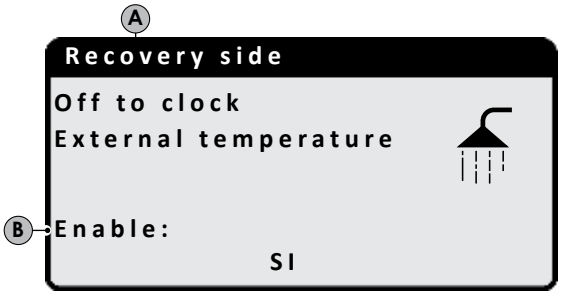
SYSTEM menu - Mode Selection: BY CALENDAR		
Unit display	**Index**	**Display/Parameter**
	A	Sets the starting date of the period at which the heating unit can be activated.
	B	Sets the final date of the period at which the heating unit can be deactivated.

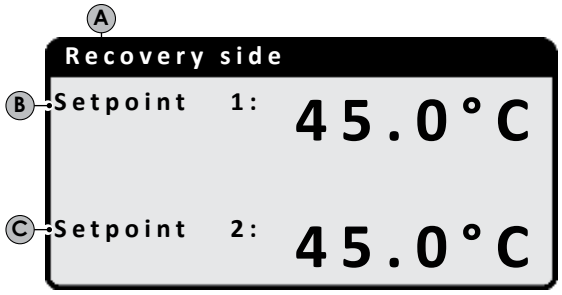
SYSTEM menu - Mode Selection: EXTERNAL TEMPERATURE		
Unit display	**Index**	**Display/Parameter**
	A	Sets the external temperature at which the unit must be activated in cooling mode.
	B	Sets the external temperature at which the unit must be activated in heating mode.

10. RECOVERY MENU (2 PIPES)

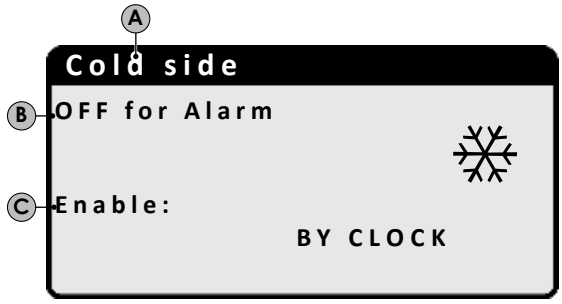
WARNING

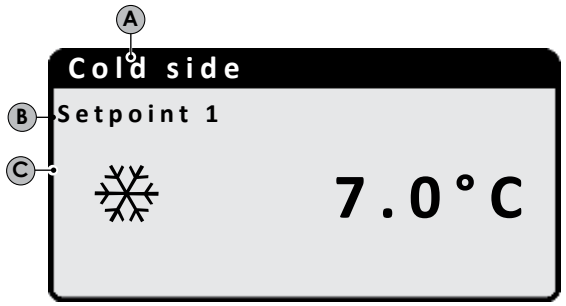
*– The **NRP - 2-pipe** unit è is set up for production of **Domestic Hot Water (D.H.W.).***
*– **No Anti-legionella Cycle is included.***

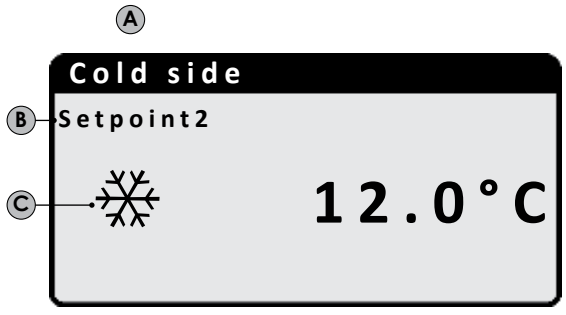
RECOVERY menu - Recovery set-point display		
Unit display	**Index**	**Display/Parameter**
	A	**Displays the current settings of the heat exchanger.**
	B	**YES:** the unit does not produce hot water for DHW use. **NO:** the unit is running and the system is adjusted at the default set-point. **BY CLOCK:** 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.

RECOVERY menu - Recovery set-point display		
Unit display	**Index**	**Display/Parameter**
	A	Displays the current settings of the chiller.
	B	Displays the heat exchanger outlet water temperature at the default set-point.
	C	Displays the heat exchanger outlet water temperature at the second set-point.

11. COOL MENU (4PIPES)

COOLING menu - Display of cooling side heat exchanger set-point		
Unit display	**Index**	**Display/Parameter**
	**A**	**Displays the current settings of the chiller.**
	B	**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.

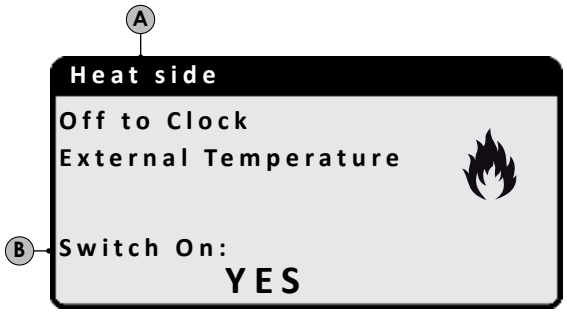
COOLING menu - Display of cooling side heat exchanger set-point		
Unit display	**Index**	**Display/Parameter**
	A	Displays the current settings of the chiller.
	B	Indicates that the system default set-point is active.
	C	Indicates the cooling set-point temperature.

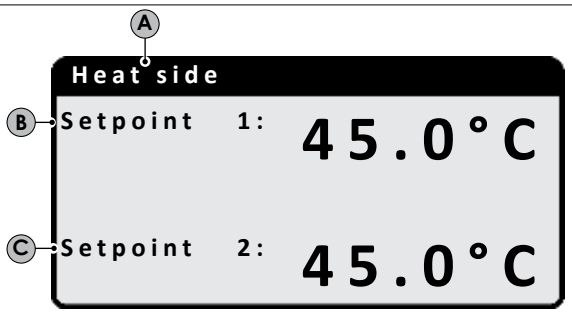
Menù FREDDO - Visualizzazione set point scambiatore lato freddo		
Visualizzazione sul display dell'unità	**Indice**	**Visualizzazione/Parametro**
	A	Displays the current settings of the chiller.
	B	Indicates that the system default set-point is active.
	C	Indicates the cooling set-point temperature.

WARNING
To set the time periods, see the chapter relative to ***system menu (2 pipes) enabling: by clock.***

12. HEAT MENU (4 PIPES)

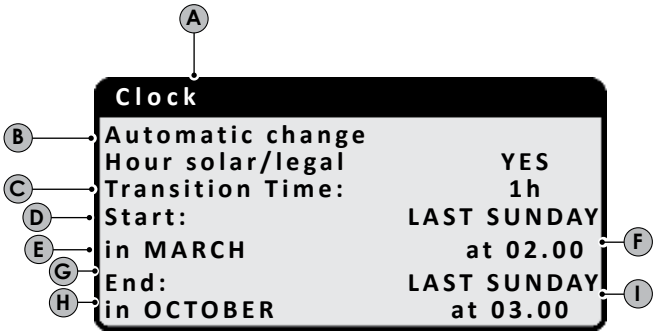
ATTENTION
*The **NRP - 4-pipe** unit is set up for production of **Domestic Hot Water (D.H.W.).***

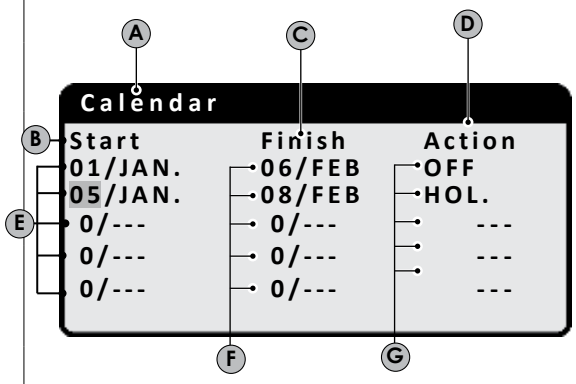
HEATING menu - Display of heating side set-point		
Unit display	**Index**	**Display/Parameter**
	A	**Displays the current settings of the heat exchanger.**
	B	**NO:** the unit does not produce hot water on system side. **YES:** the unit is running and the system is adjusted at the default set-point. **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.

RECOVERY menu - Display of heating side set-point		
Unit display	**Index**	**Display/Parameter**
	A	Displays the current settings of the chiller.
	B	Displays the heat exchanger outlet water temperature at the default set-point.
	C	Displays the heat exchanger outlet water temperature at the second set-point.

13. CLOCK MENU

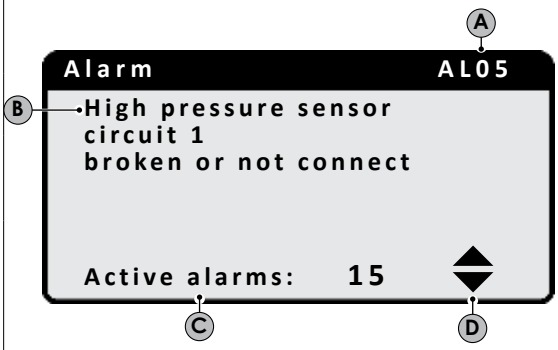
Clock Menu - System time and date settings		
Unit display	**Index**	**Display/Parameter**
	A	Displays the day of the week (it cannot be changed from this window).
	B	THE date of the system can be modified.
	C	THE time of the system can be modified.

Clock Menu - Daylight saving time settings		
Unit display	**Index**	**Display/Parameter**
	A	**Clock:** the daylight saving time settings are displayed in this window.
	B	**Day-light saving time:** this parameter indicates whether to enable adjustment of system time based on the date, according to the subsequent settings.
	C	**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).
	D	**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.
	E	**Start month:** this parameter indicates the month in which to start to use the daylight saving time setting.
	F	**Start time:** this parameter indicates the time in which to start to use the daylight saving time setting.
	G	**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.
	H	**End month:** this parameter indicates the month in which to quit using the daylight saving time setting.
	I	**End hour:** this parameter indicates the time in which to quit using the daylight saving time setting.

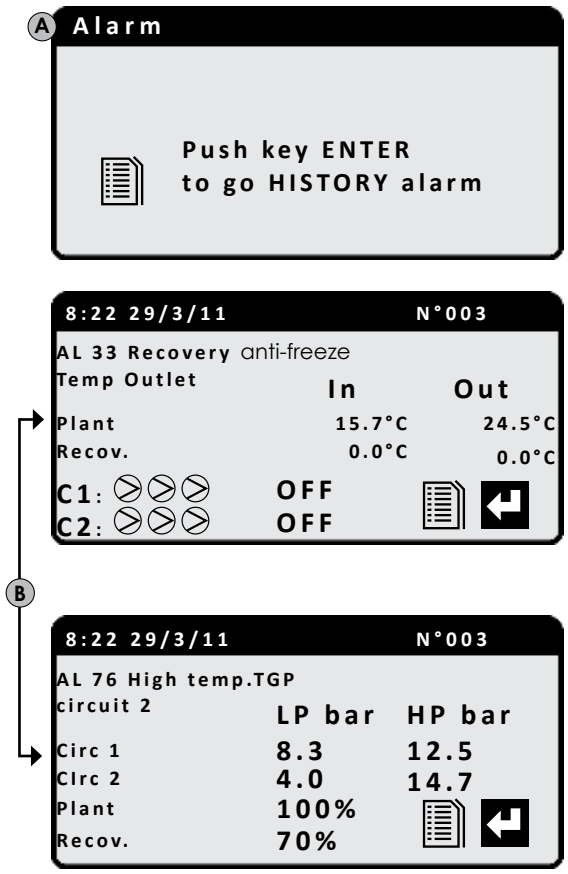
CLOCK menu - Setting the calendar function		
Unit display	**Index**	**Display/Parameter**
	A	**Calendar:** this window sets the actions to be carried out in the calendar function; this function allows you to set 5 periods, specifying the length in days, and to connect a specific action to be carried out to each one of them.
	B	**Start:** Indicates the start date for the 5 periods that can be set.
	C	**End:** Indicates the end date for the 5 periods that can be set.
	D	**Action:** indicates the action to be carried out for each of the 5 periods set in the calendar.
	E	**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.
	F	**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.
	G	**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).

14. ALARMS 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:
(a) press the key ( ) and enter the alarms display;
(b) 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 ( ).

ALARMS Menu		
Unit display	**Index**	**Display**
	A	**Alarm code:** this parameter indicates the alarm code. This code can be found in the previous pages (alarms summary table).
	B	**Alarm description:** this parameter indicates the description of the alarm saved.
	C	**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).
	D	Indicates the possibility of scrolling the displays of the various active alarms signalled by pressing the keys .

15. ALARMS LOG MENU

ALARMS Menu - Alarms Log		
Unit display	**Index**	**Display/Parameter**
	A	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.**
	B	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

TYPE OF REARMING
AUTO= *automatic, the alarm is rearmed automatically as the event which generated it ceases.*

SEMI = *semiautomatic, the alarm is rearmed automatically, but if the event that generated it repeats itself more than 3 times in one hour, it must be rearmed manually.*

MAN = *manual, the alarm is only rearmed by means of the manual control.*

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

ATTENTION: *the alarms log display always starts from the latest alarm generated. To navigate through the alarms saved, use the (↑) and (↓) arrow keys.*

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).*

16. ALARMS LIST

Code	Log Text	Note	Delay	Manual Reset
AL01	Clock battery discharged error			Yes
AL02	Flash memory error			Yes
AL03	ID8 phase monitor			
AL04	Automatic restart after power supply cut off	not alarm		
AL05	Circ1 high pressure broken or disconnected	B1	30s	
AL06	Circ2 high pressure broken or disconnected	B6	30s	
AL07	Circ1 low pressure broken or disconnected	B2	30s	
AL08	Circ2 low pressure broken or disconnected	B7	30s	
AL09	Evap In. Temp. broken or disconnected	B4	30s	
AL10	Evap Out. Temp. broken or disconnected	B3	30s	
AL11	Evap Out. Temp. broken or disconnected	B3 uPC	30s	
AL12	Rec. In. Temp. broken or disconnected	B1 uPC	30s	
AL13	Rec. 1 Out. Temp. broken or disconnected	B2 uPC	30s	
AL14	Rec. 2 Out. Temp. broken or disconnected	B6 uPC	30s	
AL15	Com. Out.Rec. Temp. broken or disconnected	B4 uPC	30s	
AL16	External Air Temp broken or disconnected	B9	30s	
AL17	Circ1 Liquid Temp broken or disconnected		30s	
AL18	Circ2 Liquid Temp broken or disconnected		30s	
AL19	Circuit 1 Comp.1 maintenance			Yes
AL21	Circuit 1 Pump 1 Rec. maintenance			Yes
AL22	Circuit 1 Pump 1 system maintenance			Yes
AL23	Circuit 1 Compres.1 overload			Yes
AL24	ID13 Pump 1 system overload	ID 6		Yes
AL25	ID14 Pump 2 system overload			Yes
AL26	Pump 1 rec. overload			Yes
AL27	Pump 2 rec. overload			Yes
AL28	ID15 Fan 1 overload			Yes
AL29	ID16 Fan 2 overload			Yes
AL30	Circuit 1 LP 1 pressure switch		180s + 3s “M48”	Semi automatic
AL31	Low pressure probe			Semi automatic
AL32	HP 1 pressure switch by digital input			Yes
AL33	High pressure 1 by probe			Yes
AL34	Low pressure 1 by probe (serious)			Yes
AL35	Low pressure 2 by probe (serious)			Yes
AL36	Circ 1 prevention by probe			---
AL37	Circ 2 prevention by probe			---
AL38	Syst. flow meter			Semi automatic
AL39	Rec. flow switch			Semi automatic
AL40	Evap. output temp system anti-freeze		3°C “Ma9”	
AL41	Evap. output temp com. system anti-freeze		3°C “Ma9”	
AL42	Output temp recovery 1 anti-freeze		3°C “Ma12”	

Code	Log Text	Note	Delay	Manual Reset
AL43	Output temp recovery 2 anti-freeze		3°C "Ma12"	
AL44	Output temp com. rec. anti-freeze		3°C "Ma12"	
AL45	Expansion IO (uPC) OffLine		20 s	
AL46	Expansion IO (pCOe) OffLine		20 s	
AL48	Circ. 1 high discharge temperature broken or disconnected		30 s	
AL49	Circ. 2 high discharge temperature broken or disconnected		30 s	
AL50	Automatic restart after power supply cut off	not 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 1 Compres.2 overload			Yes
AL60	Circuit 1 Compres.3 overload			Yes
AL61	Circuit 2 Compres.1 overload			Yes
AL62	Circuit 2 Compres.2 overload			Yes
AL63	Circuit 2 Compres.3 overload			Yes
AL64	LP 2 pressure switch		180s + 3s "M48"	Semi automatic
AL65	Low pressure 2 by probe			Semi automatic
AL66	High pressure 2 by pressure switch			Yes
AL67	High pressure 2 by probe			Yes
AL68	Circ.1 low pressure prevention			
AL69	Circ.2 low pressure prevention			
AL70	---			
AL71	Recovery 2 output anti-freeze		3°C "Ma12"	
AL72	Rec. common output anti-freeze		3°C "Ma12"	
AL73	Circuit 1 TGP prevention		"Ma39"	
AL74	Circuit 2 TGP prevention		"Ma39"	
AL75	Circ. 1 high discharge temperature		"Ma54"	
AL76	Circ. 2 high discharge temperature		"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	Alarm high temperature - System inlet			Semi automatic
AL85	Alarm high temperature - Recovery inlet			Semi automatic

17. INPUTS/OUTPUTS LIST

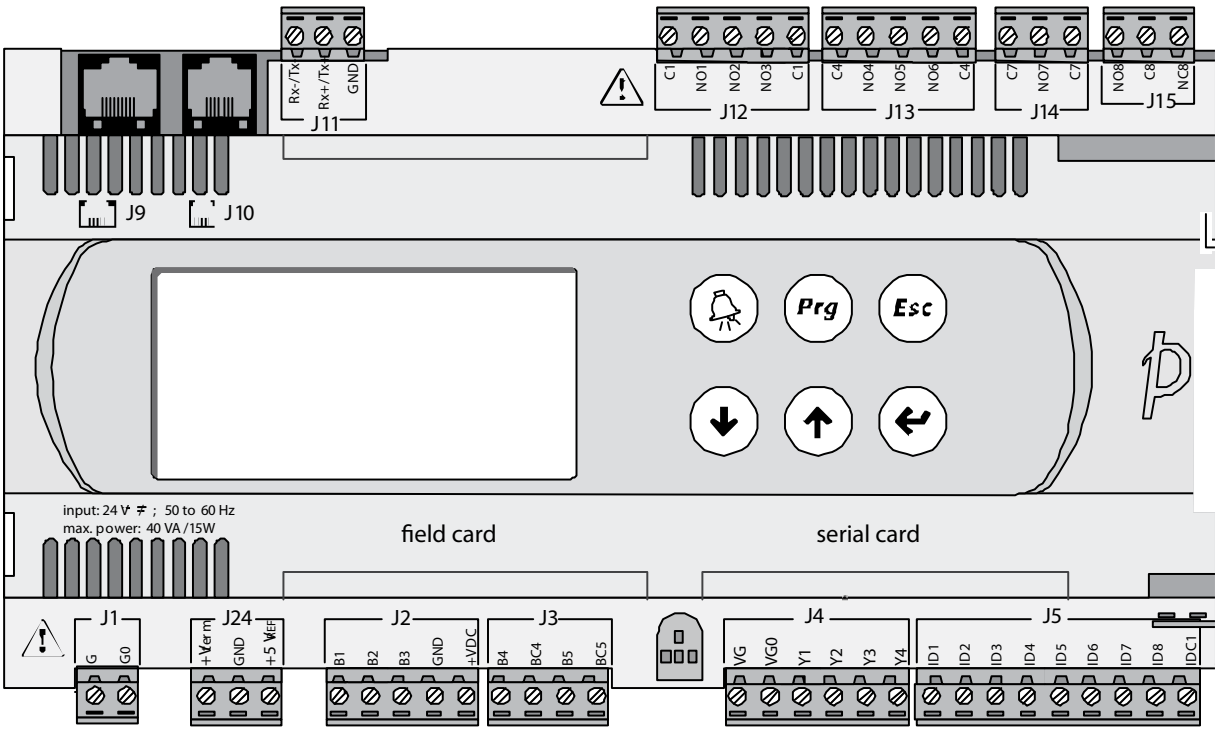
17.1. INPUTS/OUTPUTS LIST - PCO3 LARGE BOARD

DIGITAL OUTPUTS	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)	Evaporator pump 1
NO8	Serious alarm
NO9	Evaporator pump 2
NO10	Condenser fan 1
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
ID16	Fan 2 circuit breaker
ID17	
ID18	Multi-function input enabling

ANALOGUE OUTPUTS	MASTER
Y1 (0-10V)	
Y2 (0-10V)	Evaporator modulating pump
Y3 (0-10V)	Modulating 1 fan
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

ATTENTION: *The basic configuration includes a pCO3 large board.*
In addition a series of accessories can be managed through a µPC board.

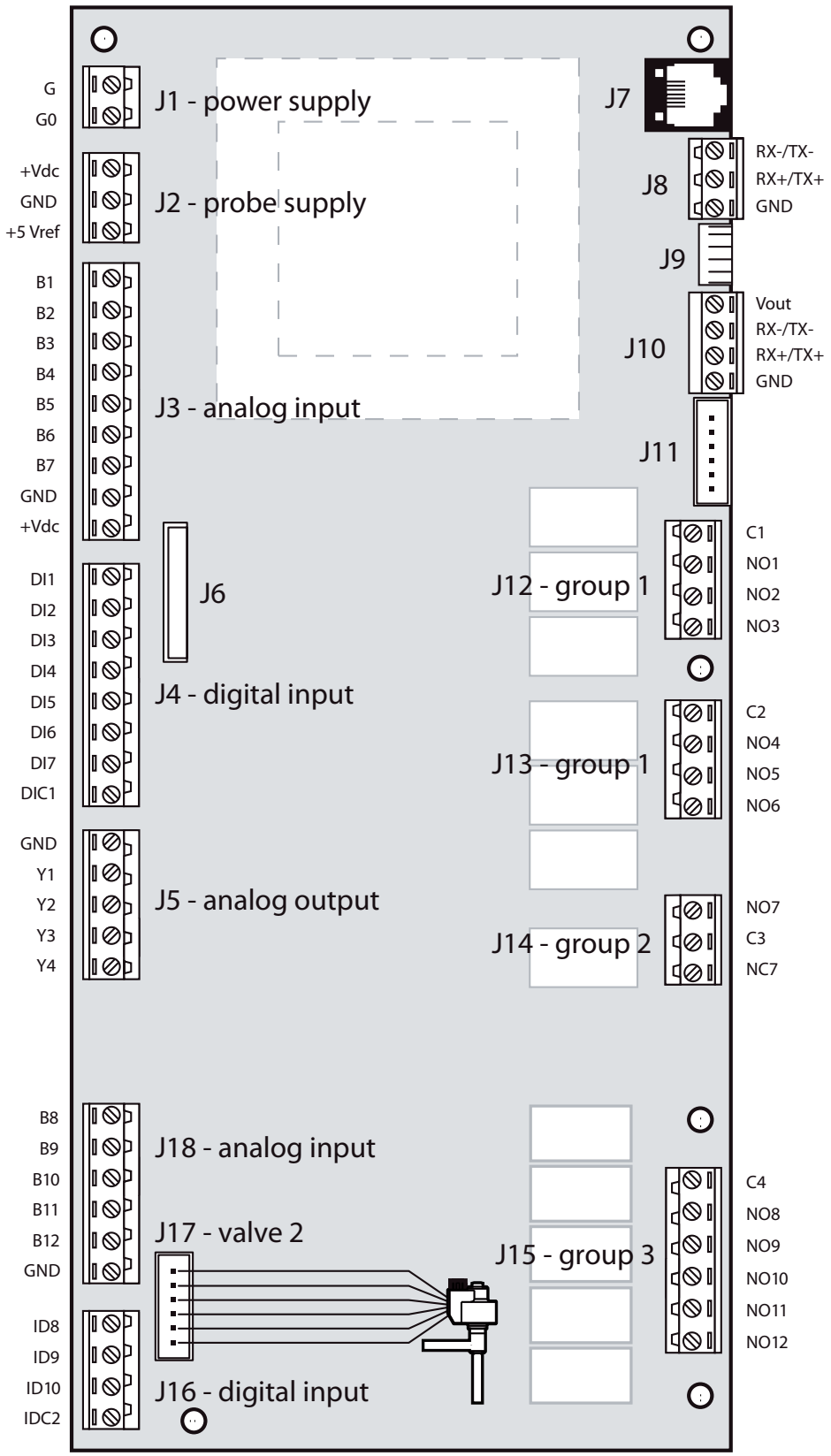
pCO3 LARGE BOARD



17.2. µPC BOARD

DIGITAL OUTPUTS	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 (bypass solenoid valve) circuit1
NO12	VBY (bypass solenoid valve) circuit2
DIGITAL INPUTS	
ID1	Recovery flow switch
ID2	Recovery pump 1 circuit breaker
ID3	Recovery pump 2 circuit breaker
ID4	Circuit 1 circuit breaker CP3 (MT1B)
ID5	Circuit 2 circuit breaker CP3 (MT2B)
ID6	
ID7	
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; NTC HT; 0-1V; 4-20 mA)	
B6 (NTC)	Recovery 2 outlet water temperature
B7 (NTC)	Liquid temperature (defrost end) Circuit 1
B8 (NTC)	
B9 (NTC; NTC HT;)	
B10 (NTC)	Liquid temperature (defrost end) Circuit 2
B11 (0-5V)	
B12 (0-5V)	

µPC BOARD


G
G0
J1 - power supply
+Vdc
GND
+5 Vref
J2 - probe supply
B1
B2
B3
B4
B5
B6
B7
GND
+Vdc
J3 - analog input
J6
DI1
DI2
DI3
DI4
DI5
DI6
DI7
DIC1
J4 - digital input
GND
Y1
Y2
Y3
Y4
J5 - analog output
B8
B9
B10
B11
B12
GND
J18 - analog input
J17 - valve 2
ID8
ID9
ID10
IDC2
J16 - digital input
J7
J8
RX-/TX-
RX+/TX+
GND
J9
J10
Vout
RX-/TX-
RX+/TX+
GND
J11
J12 - group 1
C1
NO1
NO2
NO3
J13 - group 1
C2
NO4
NO5
NO6
J14 - group 2
NO7
C3
NC7
J15 - group 3
C4
NO8
NO9
NO10
NO11
NO12

AERMEC
la prima per il clima
37040 Bevilacqua (VR) - Italy
Via Roma, 996 - Tel. (+39) 0442 633111
Telefax (+39) 0442 93730 - (+39) 0442 93566
www.aermec.com

carta reciclata
recycled paper
papier recyclé
recycled papier