AERMEC
air conditioning

Quick Reference

WATER / WATER Heat pump

USER MANUAL

pCO5

AERMEC
COMPANY QUALITY SYSTEM
ICIM
ISO 9001:2000 - Cert. n° 0128/5
CISQ IQNet
AERMEC S.P.A.

CE

EN

4472051_00 - 1707

Index

User interface (PGD1) 4
Start-up procedure 5
Start-up procedure 5
Menu structure and navigation 6
User operating procedures 7

Main menu 8
MAIN Menu - General monitor 8
Main menu - System monitoring 9
Main menu - Circuit 1 monitoring 9
Main menu - Circuit 2 monitoring (visible if present) 10
Main menu - General circuits monitoring 10

Input/output menus 11
IN/OUT Menu - Analogue input monitor (1) 11
IN/OUT Menu - Analogue input monitor (2) 11
IN/OUT Menu - Analogue input monitor (3) 11
IN/OUT menu - Analogue input monitor (4) (only on units with two circuits) 11
IN/OUT Menu - Analogue input monitor (5) 12
IN/OUT Menu - Analogue input monitor (6) 12
IN/OUT Menu - Analogue input monitor (7) 12
IN/OUT Menu - Analogue input monitor (8) 12
IN/OUT Menu - Digital input monitor (1) 13
IN/OUT Menu - Digital input monitor (2) 13
IN/OUT Menu - Digital input monitor (3) 13
IN/OUT Menu - Digital input monitor (4) 14
IN/OUT Menu - Digital input monitor (5) 14
IN/OUT Menu - Digital input monitor (6) 14
IN/OUT Menu - Digital output monitor (1) 15
IN/OUT Menu - Digital output monitor (2) 15
IN/OUT Menu - Digital output monitor (3) 15
IN/OUT Menu - Digital output monitor (4) 15
IN/OUT Menu - Digital output monitor (5) 16
IN/OUT Menu - Digital output monitor (6) 16
IN/OUT Menu - Amnalogue output monitor (6) 16

ON / OFF Menu 17
ON / OFF Menu - Switching unit on or off 17

SYSTEM Menu 17
PLANT Menu - Selecting operation mode 17
PLANT Menu - Setting values for the main setpoints 18
PLANT Menu - Setting values for the secondary setpoints 18
SYSTEM Menu - Time-clock settings (A) and (B) 19
SYSTEM Menu - Time-clock settings (C) and (D) 19
SYSTEM Menu - Copy time-clock settings function 20

INSTALLER Menu(Password 0000) 21
INSTALLER Menu- Insert password to access menus 21
INSTALLER Menu- Enabling digital inputs ID3 and ID4 21
INSTALLER Menu - Addresses the BMS supervision system 22
INSTALLER Menu - Enable primary commands from BMS 22
INSTALLER Menu- Addressing secondary supervisor system (not opto-isolated) 22
INSTALLER Menu- Selecting control for water production 23
INSTALLER Menu- Setting parameters for cooling control 23
INSTALLER Menu - Evaporator antifreeze alarm management configuration 24
INSTALLER Menu - Condenser antifreeze alarm management configuration 24
INSTALLER Menu - Pump configuration 24

INSTALLER Menu- Setting pump anti-freeze function 25
INSTALLER Menu- Setting pump operation during use of anti-freeze heaters 25
INSTALLER Menu- Setting multi-function input (WRK) 25
INSTALLER Menu- Configuration of capacity limit from multi-function input (if enabled) 26
INSTALLER MANUAL - Configures variable multi-function input setpoints (if this function is enabled) 26
INSTALLER Menu- Monitoring compressor hour counter circuit 1 26
INSTALLER Menu- Monitoring compressor hour counter circuit 2 (if present) 27
INSTALLER Menu- Monitoring number of compressor starts circuit 1 27
INSTALLER Menu- Monitoring number of compressor starts circuit 2 (if present) 27
INSTALLER MENU - Configures water valve status with unit in stand-by (NYB/NRV) 28
INSTALLER MENU - Unit configuration monitor and test info 28
INSTALLER Menu- Monitoring unit configurator and test info 29
INSTALLER MENU - Select the type of unit of measurement 29
INSTALLER MENU - Changing the Installer menu password 29

CLOCK Menu 30
CLOCK Menu - Setting system date and time 30
CLOCK Menu - Setting automatic time change (summer/winter time) 30
CLOCK Menu - Setting holidays 31

Alarm summary table 32

Alarm history and memory 35

Alarm history 35

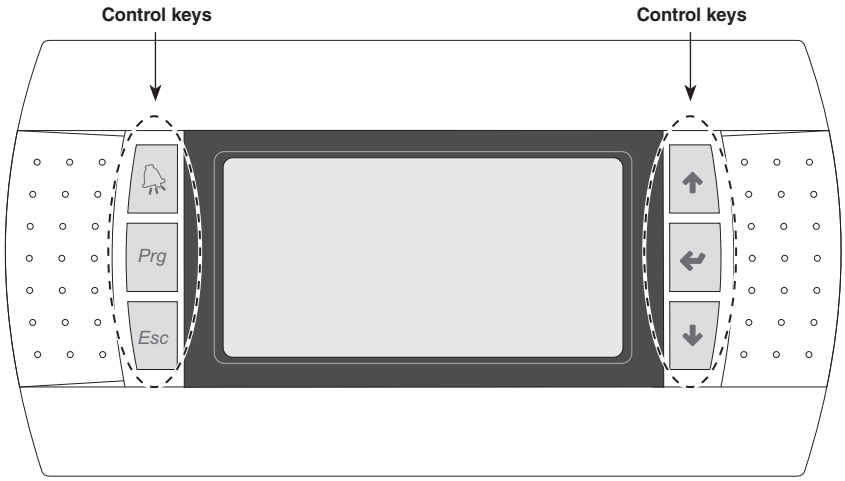
Quick reference 38

User interface (PGD1)

The unit control panel allow the quick setting and display of the unit's operating parameters. The board memorises all the default settings and any modifications. By installing the remote control panel PGD1 it is possible to remotely replicate all the functions and the settings available on the unit. After a power failure the unit is capable of an automatic restart, retaining the original settings.

The user interface consists of a graphic display with six navigation keys; the display is arranged through a menu hierarchy, activated by pressing the navigation keys. The default display of these menus is the main screen. The navigation between the various parameters is by using the arrow keys located to the right of the display. These keys are also used for the modification of the selected parameter.

INTERFACE CONTROL KEYS:

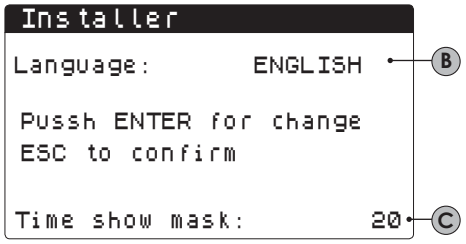


Key	Function
	ALARM key Displays the list of active and historical alarms (red LED on = active alarm)
Prg	**MENU ACTIVATION key** • Pressing this key activates the navigation between menus (orange LED on = winter operating mode active)
Esc	**EXIT MENU key** • Pressing this key returns to the previous menu
	NAVIGATION (+) key • Pressing this key when navigating between menu/parameters passes to the next menu/parameter • Pressing this key when modifying a parameter increases the value of the selected parameter
	NAVIGATION (enter) key • Pressing this key when navigating between menus allows entry to the selected menu • Pressing this key when navigating between parameters allows selection of the parameter displayed to modify it • Pressing the key when modifying a parameter confirms the modification of the parameter value selected
	NAVIGATION (-) key • Pressing this key when navigating between menu/parameters passes to the previous menu/parameter • Pressing this key when modifying a parameter decreases the value of the selected parameter

Start-up procedure

After having powered up the unit the control board will carry out preliminary operations before being ready for use. This initial procedure takes around 60 seconds to complete. During the initial loading procedure two screens are displayed: a start-up screen and a screen to select the system language. These screens are detailed in the table below.

WARNING: The system language can be set on the screen displayed at the start-up or can be modified at any time through the appropriate screen contained in the Installer menu.

Start-up procedure		
Display on the unit	**Index**	**Display/Parameter**
	A	**Remaining time for software loading:** this value shows the remaining time to starting the software loaded on the unit, and passing the to system language selection
	B	**System language:** this parameter shows the current language set for the system. To change the language follow the instructions shown on the screen.
	C	**Remaining time to select the language:** this value shows the remaining time to modify the language. When the time elapses the display goes to the main screen (Main screen - General monitoring). **WARNING: It is possible to modify the system language at any time using the appropriate screen contained in the Installer menu. (Menu password = 0000).**

Menu structure and navigation

Both the functions to control the unit and the operating information are displayed on the unit mounted control panel. All the functions and information are arranged in screens which in turn are grouped into menus.

During the normal operation of the unit the main screen is displayed, from which it is possible to access the selection of the other operating menus.

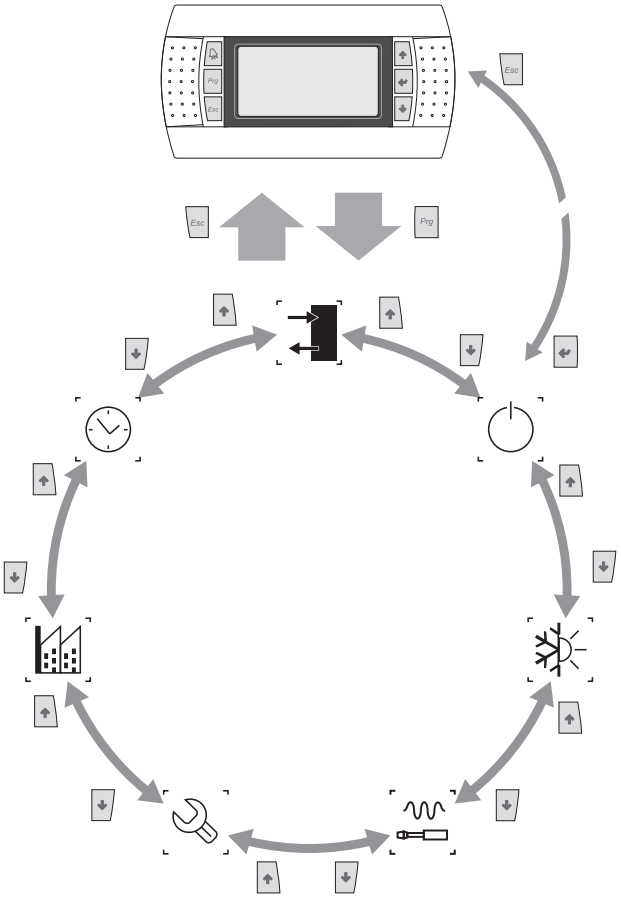
The menus are displayed through the rotation of the icons that they represent. Once the desired icon is selected the chosen menu is entered, permitting the display or modification of the parameters that it is made up from. The procedure for navigating the menus, or changing parameters, is explained in detail in the chapter “User operating procedures”.

The adjacent drawing shows the relation between the various menus and the navigation keys used.

⚠ **WARNING: The following pages contain all the masks in the menus available to the user. The values contained in each mask represent the default values set in the system (except the main menu and the IN/OUT menu, which contain data read by the unit rather than operating parameters);**

⚠ **WARNING: Improper selection of the parameters in the Installer menu may cause malfunctions of the unit. It is recommended that these parameters are only modified by personnel qualified in the installation and configuration of the unit.**

The operating menus are arranged as in the following drawing:



Index	Icon	Menu	Menu functions
A	---	Main	The windows contained in this menu are used to check current unit conditions (unit status, settings, circuit data, etc ...);
B		IN/OUT	This menu contains advanced information about operating the unit;
C		ON/OFF	This menu is used to activate or deactivate the unit; it also provides status information;
D		PLANT	This menu is used to set the operating mode, the set points for water production and the time bands to be applied to the system;
E		INSTALLER	This menu contains settings useful for the installer (Digital input enabling, BMS configuration, adjustments, pumps, etc ...); **ATTENTION: this menu is password protected. The value to be set for access is: 0000**
F		ASSISTANCE	This menu is not accessible except by authorized staff;
G		MANUFACTURER	This menu is not accessible except by authorized staff;
H		CLOCK	This menu contains the time settings for system management (date and time, calendar);

User operating procedures

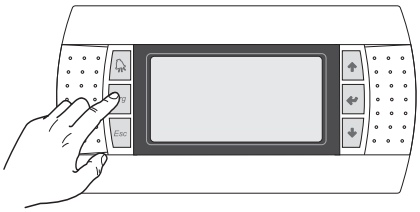
To check or modify the operating parameters of the unit it is necessary to use the interface of the control panel on the unit. The basic operations that the user must be capable of, for the correct use of the unit, are:

(1) Moving from one menu to the next.
(2) Selecting and modifying a parameter.
In this manual the parameters that can be modified by the user are identified by the icon ( ).

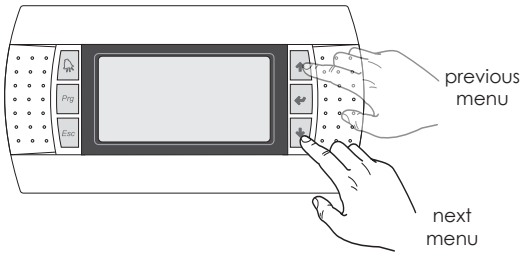
1

Moving between menus

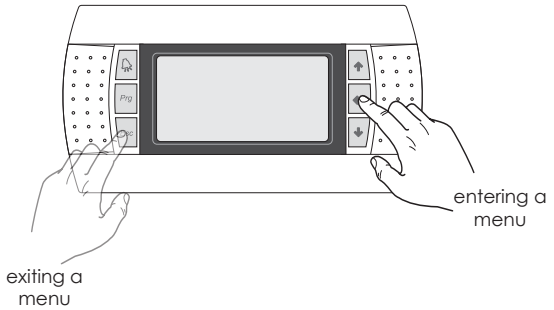
(a) To move between the menus, the order in which they are displayed is shown in the previous page, enter the menu selection mode by pressing the key ( ).



(b) 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.



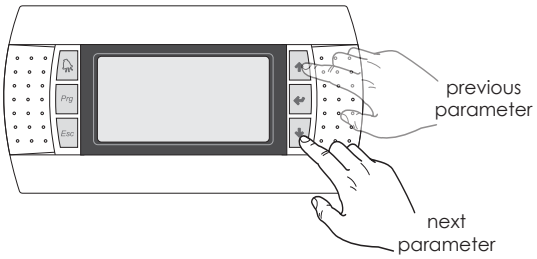
(c) When the desired menu is seen press the key ( )to enter the menu. Press the key( ) to return to the menu selection mode.



2

Selecting and modifying a menu

(a) 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.



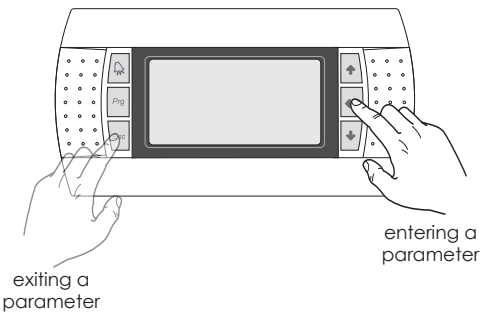
(c) When the desired parameter is seen press the key ( ) to enter the parameter. To exit the parameter and return to the parameter selection mode press the key ( ).

WARNING: Once a parameter is selected by pressing the key ( ), the parameter selection mode is automatically accessed and 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.

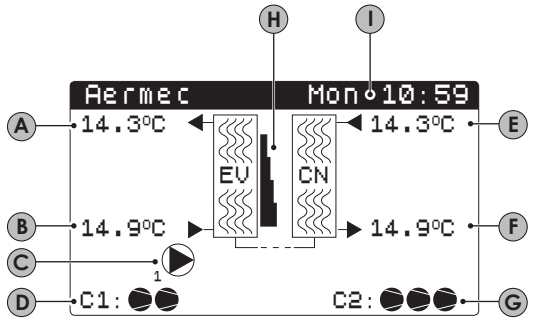
(3) Pressing the key ( ) confirms the modification of the field value, saving it in memory. **On the basis of the type of parameter selected the number of modifiable fields can change.**



Main menu

During normal operation the first screen of the Main menu is displayed on the unit. This menu consists of several screens with different information on the operating status of the system which can be navigated using the arrow keys. In these screens the information is read only and no parameters can be changed.

WARNING: If no keys are pressed for at least 5 minutes during the use of the control panel the software automatically return to the main screen of this menu.

MAIN Menu - General monitor		
Viewing on the display of the unit	**Index**	**View/Parameter**
	A	**Plant water delivery flow temperature:** this value indicates the temperature of the water leaving the heat exchanger
	B	**System return water flow temperature:** this value indicates the temperature of the water entering the heat exchanger
	C	**Pump active:** this icon appears if the unit's pump is running; if the unit has several pumps, the number next to the icon indicates which one is active
	D	**Status of compressors - circuit 1:** these icons indicate the current status of the compressors on circuit 1; these statuses can be as follows: • On (●) • Off (○) • Disenabled (⊗) • Alarm (⚠) • Capacity control (duration 10 minutes) running (P)
	E	**Temperature of return water - source side:** this value indicates the temperature of the water entering the heat exchanger - source side
	F	**Temperature of delivery water - source side:** this value indicates the temperature of the water delivered from the heat exchanger - source side
	G	**Status of compressors - circuit 2:** these icons indicate the current status of the compressors on circuit 2 (statuses are the same as those available for circuit 1)
	H	**Plant power requirement:** this element indicates the power required by the system and is displayed as a bar graph from 0 to 10;
	I	**Date and time:** indicates the current day and time.

⚠ **ATTENZIONE: alcune icone possono comparire in questa finestra, indicando determinati stati dell'impianto, queste icone possono essere:**

(LT) Indica che è attiva la prevenzione di antigelo bassa temperatura di uscita (Spegne i compressori);

(HT) indica che è attiva la prevenzione di alta temperatura di uscita (spegne i compressori);

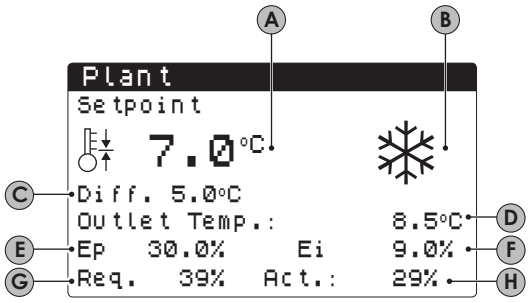
(LC) indica che è attiva la funzione basso carico;

(-⩛-) indica che è attiva la resistenza antigelo (set point: 4,0°C - differenziale: 1,0°C)

(↘) Indica che la temperatura di ritorno sta scendendo e che quindi sono disabilitate nuove richieste di carico a freddo;

(↗) Indica che la temperatura di ritorno sta salendo e che quindi sono disabilitate nuove richieste di carico a caldo;

(-F-) Indica che il flussostato è aperto. I compressori saranno spenti e le pompe proveranno a sbloccare il flussostato;

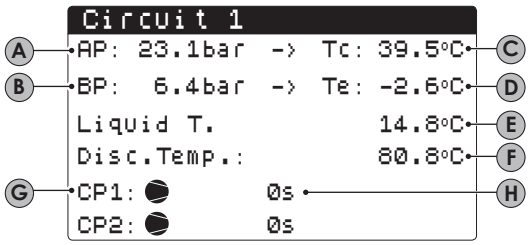
Main menu - System monitoring		
Display on the unit	**Index**	**Display/Parameter**
	A	**Current setpoint:** shows the current system setpoint
	B	**Operating mode:** the icon shows the current operating mode of the system (❄ = cooling, ☼ = heating)
	C	**Differential:** shows the current system working differential
	D	**Control sensor:** these values show the sensor on which the control is based (inlet or outlet), and the current value read by the selected sensor
	E	**Proportional error:** if the Proportional + Integral function is active, this shows the proportional value
	F	**Integral error:** if the Proportional + Integral function is active, this shows the integral value
	G	**Load request:** shows the percentage load required by the system
	H	**Capacity output:** shows the percentage output to the system

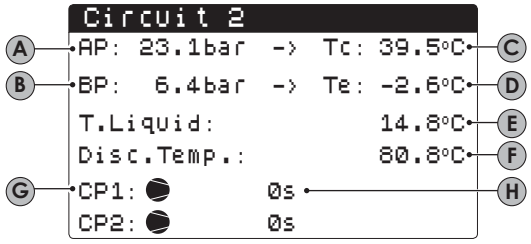
⚠ **WARNING: Several icons can appear in this screen to show specific states of the system, and the icons can be:**

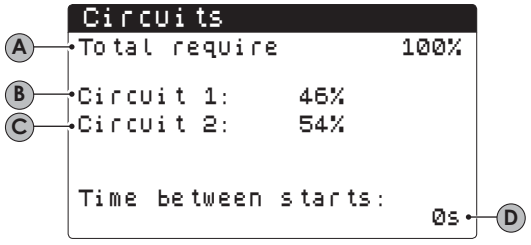
(OFF) time-clock is active

(M) multi-function input is active

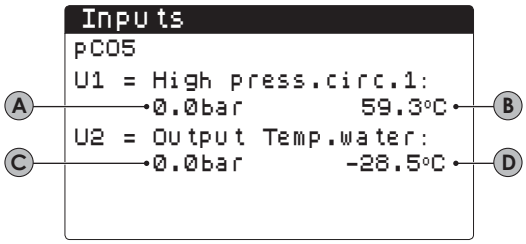
(LC) low load function is active

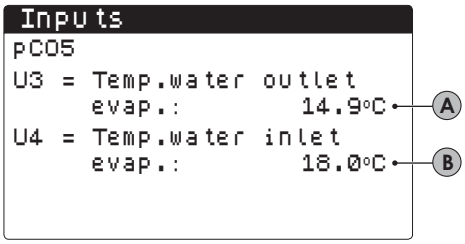
Main menu - Circuit 1 monitoring		
Display on the unit	**Index**	**Display/Parameter**
	A	**High pressure:** shows the discharge pressure of the circuit
	B	**Low pressure:** shows the suction pressure of the circuit
	C	**Condensing temperature:** shows the condensing temperature
	D	**Evaporating temperature:** shows the evaporating temperature
	E	**Liquid temperature:** shows the liquid temperature (displayed only for heat pumps models)
	F	**Discharge temperature:** shows the discharge temperature
	G	**Compressor status:** the icon represents the compressor status of the circuit. Each compressor is numbered with the code CP, and for each the current status is shown, being: • On (●) • Off (○)
	H	**Minimum residual time:** the value shows how many seconds remain until minimum required On or Off time elapses for the current status of each compressor

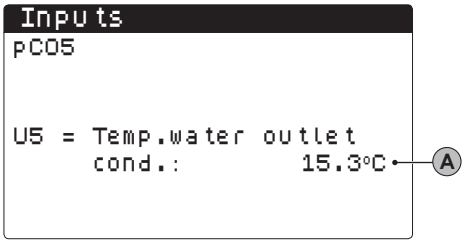
Main menu - Circuit 2 monitoring (visible if present)		
Display on the unit	**Index**	**Display/Parameter**
	A	**High pressure:** shows the discharge pressure of the circuit
	B	**Low pressure:** shows the suction pressure of the circuit
	C	**Condensing temperature:** shows the condensing temperature
	D	**Evaporating temperature:** shows the evaporating temperature
	E	**Liquid temperature:** shows the liquid temperature
	F	**Discharge temperature:** shows the discharge temperature (displayed only for heat pumps models or unit with total heat recovery)
	G	**Compressor status:** the icon represents the compressor status of the circuit. Each compressor is numbered with the code CP, and for each the current status is shown, being: • On (●) • Off (○)
	H	**Minimum residual time:** the value shows how many seconds remain until minimum required On or Off time elapses for the current status of each compressor

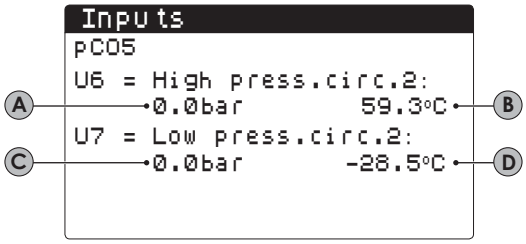
Main menu - General circuits monitoring		
Display on the unit	**Index**	**Display/Parameter**
	A	**Total capacity request:** shows the current value of total capacity request from the system
	B	**Capacity output of circuit 1:** shows the current capacity output of the circuit to satisfy the system request
	C	**Capacity output of circuit 2:** shows the current capacity output of the circuit to satisfy the system request
	D	**Residual time to next compressor:** shows the remaining time before the next compressor is turned on, if required

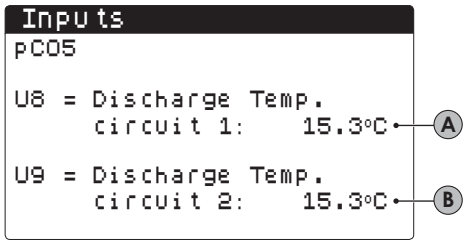
Input/output menus

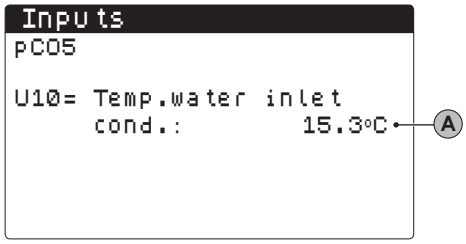
IN/OUT Menu - Analogue input monitor (1)		
Viewing on the display of the unit	**Index**	**View/Parameter**
	A	**Analogue input U1:** this is the value read by the high pressure transducer on circuit 1
	B	**HP Temperature Conversion:** this value indicates the conversion into temperature of data read by the high pressure transducer on circuit 1
	C	**Analogue input U2:** this is the value read by the low pressure transducer on circuit 1
	D	**BP Temperature Conversion:** this value indicates the conversion into temperature of data read by the low pressure transducer on circuit 1

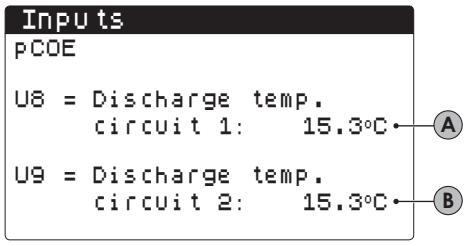
IN/OUT Menu - Analogue input monitor (2)		
Viewing on the display of the unit	**Index**	**View/Parameter**
	A	**Analogue input U3:** this value indicates the temperature of water leaving the evaporator
	B	**Analogue input U4:** this value indicates the temperature of water entering the evaporator

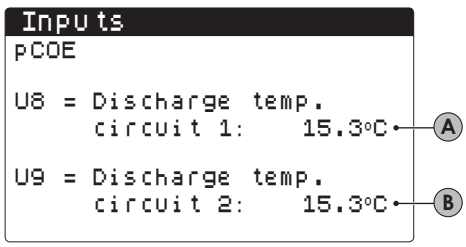
IN/OUT Menu - Analogue input monitor (3)		
Viewing on the display of the unit	**Index**	**View/Parameter**
	A	**Analogue input U5:** this value represents the temperature at the condenser output

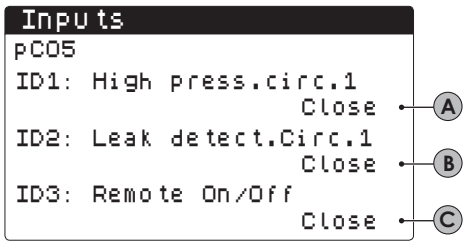
IN/OUT menu - Analogue input monitor (4) (only on units with two circuits)		
Viewing on the display of the unit	**Index**	**View/Parameter**
	A	**Analogue input U6:** this is the value read by the high pressure transducer on circuit 2
	B	**HP Temperature Conversion:** this value indicates the conversion into temperature of data read by the high pressure transducer on circuit 2
	C	**Analogue input U7:** this is the value read by the low pressure transducer on circuit 2
	D	**BP Temperature Conversion:** this value indicates the conversion into temperature of data read by the low pressure transducer on circuit 2

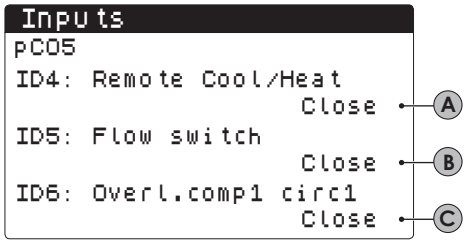
IN/OUT Menu - Analogue input monitor (5)		
Viewing on the display of the unit	**Index**	**View/Parameter**
	A	**Analogue input U8:** this value represents the temperature of the high force gas in circuit 1
	B	**Analogue input U9:** this value represents the temperature of the high force gas in circuit 2 (if present)

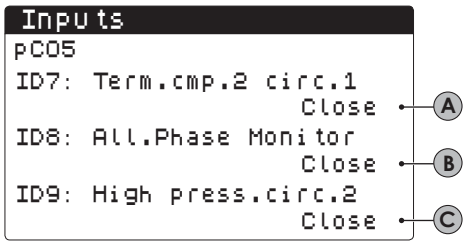
IN/OUT Menu - Analogue input monitor (6)		
Viewing on the display of the unit	**Index**	**View/Parameter**
	A	**Analogue input U10:** this value represents the temperature at the condenser input

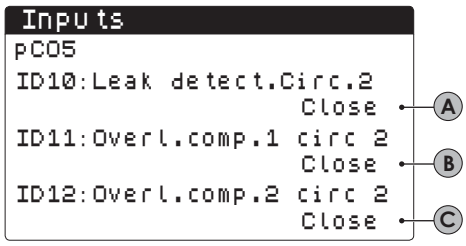
IN/OUT Menu - Analogue input monitor (7)		
Viewing on the display of the unit	**Index**	**View/Parameter**
	A	**Analogue Input B1:** this value represents the temperature of the high force gas in circuit 1
	B	**Analogue Input B2:** this value represents the temperature of the high force gas in circuit 2 (if present)

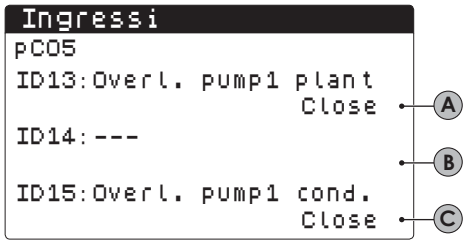
IN/OUT Menu - Analogue input monitor (8)		
Viewing on the display of the unit	**Index**	**View/Parameter**
	A	**Analogue Input B1:** this value represents the temperature of the high force gas in circuit 1
	B	**Analogue Input B2:** this value represents the temperature of the high force gas in circuit 2 (if present)

IN/OUT Menu - Digital input monitor (1)		
Viewing on the display of the unit	**Index**	**View/Parameter**
	A	**Digital Input ID1:** this value indicates the status of the digital input connected to the high pressure switch on circuit 1. The following statuses are possible: • OPEN: high pressure switch in alarm condition • CLOSED: Normal operation
	B	**Digital Input ID2:** this value indicates the status of the digital input connected to the leak detectoin device on circuit 1. The following statuses are possible: • OPEN: leak detectoin device in alarm condition; • CLOSED: Normal operation
	C	**Digital Input ID3:** this value indicates the status of the digital input connected to the remote ON/OFF function. The following statuses are possible: • OPEN: ON/OFF remote control not activated; • CLOSED: ON/OFF remote control activated NB: To manage this function, the installer must use the ID17 digital input as a clean contact for remote ON/OFF activation

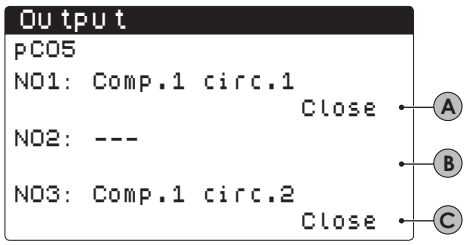
IN/OUT Menu - Digital input monitor (2)		
Viewing on the display of the unit	**Index**	**View/Parameter**
	A	**Digital Input ID4:** this value indicates the status of the digital input connected to the remote change season function. The following statuses are possible: • OPEN: remote season change not activated; • CLOSED: remote season change activated; NB: To manage this function, the installer must use the ID16 digital input as a clean contact for remote season change activation
	B	**Digital Input ID5:** this value indicates the status of the digital input connected to the flow meter on the evaporator . The following statuses are possible: • OPEN: flow meter alarm • CLOSED: Normal operation
	C	**Digital Input ID6:** this value indicates the status of the digital input connected to the compressor 1 thermo-magnetic switch on circuit 1. The following statuses are possible: • OPEN: thermomagnetic switch alarm; • CLOSED: Normal operation

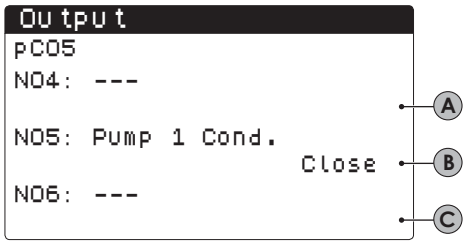
IN/OUT Menu - Digital input monitor (3)		
Viewing on the display of the unit	**Index**	**View/Parameter**
	A	**Digital Input ID7:** this value indicates the status of the digital input connected to the compressor 3 thermo-magnetic switch on circuit 1. The following statuses are possible: • OPEN: high thermomagnetic switch alarm; • CLOSED: Normal operation
	B	**Digital Input ID8:** this value indicates the status of the digital input connected to the phase control device . The following statuses are possible: • OPEN: high pressure switch in alarm condition • CLOSED: Normal operation
	C	**Digital Input ID9:** this value indicates the status of the digital input connected to the high pressure switch on circuit 2. The following statuses are possible: • OPEN: phase control device alarm; • CLOSED: Normal operation

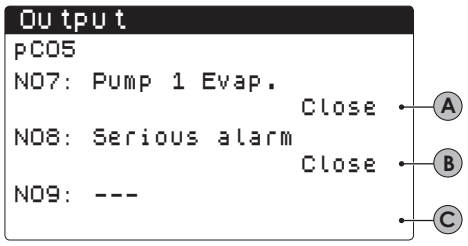
IN/OUT Menu - Digital input monitor (4)		
Viewing on the display of the unit	**Index**	**View/Parameter**
	A	**Digital Input ID10:** this value indicates the status of the digital input connected to the leak detection device on circuit 2. The following statuses are possible: • OPEN: leak detectoin device in alarm condition; • CLOSED: Normal operation
	B	**Digital Input ID8:** this value indicates the status of the digital input connected to the compressor 1 thermo-magnetic switch on circuit 2. The following statuses are possible: • OPEN: thermomagnetic switch alarm; • CLOSED: Normal operation
	C	**Digital Input ID9:** this value indicates the status of the digital input connected to the compressor 2 thermo-magnetic switch on circuit 2. The following statuses are possible: • OPEN: thermomagnetic switch alarm; • CLOSED: Normal operation

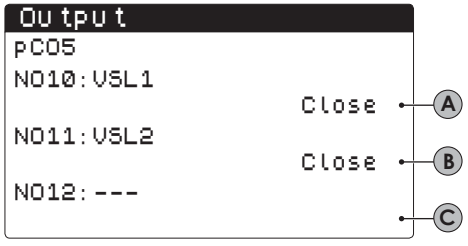
IN/OUT Menu - Digital input monitor (5)		
Viewing on the display of the unit	**Index**	**View/Parameter**
	A	**Digital Input ID13:** this value indicates the status of the digital input connected to the thermo-magnetic switch on the evaporator pump. The following statuses are possible: • OPEN: high thermomagnetic switch alarm; • CLOSED: Normal operation
	B	**Not used**
	C	**Digital Input ID15:** this value indicates the status of the digital input connected to the thermo-magnetic switch on the condenser pump. The following statuses are possible: • OPEN: high thermomagnetic switch alarm; • CLOSED: Normal operation

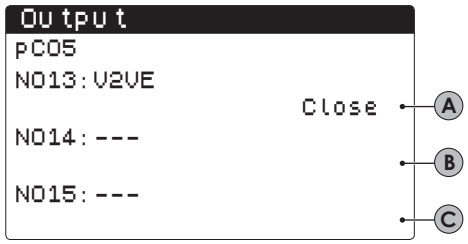
IN/OUT Menu - Digital input monitor (6)		
Viewing on the display of the unit	**Index**	**View/Parameter**
	A	**Not used**
	B	**Not used**
	C	**Not used**

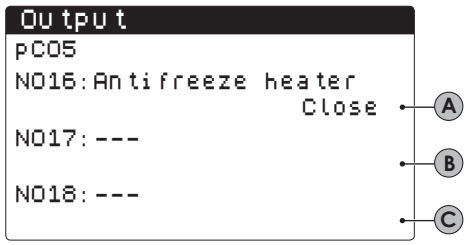
IN/OUT Menu - Digital output monitor (1)		
Viewing on the display of the unit	**Index**	**View/Parameter**
	A	**Digital output NO1:** this value indicates the status of the digital output connected to the compressor 1 thermo-magnetic switch on circuit 1. The following statuses are possible: • OPEN: compressor not active; • CLOSED: Delay Active
	B	**Not used**
	C	**Digital output NO3:** this value indicates the status of the digital output connected to the compressor 1 thermo-magnetic switch on circuit 2. The following statuses are possible: • OPEN: compressor not active; • CLOSED: Delay Active

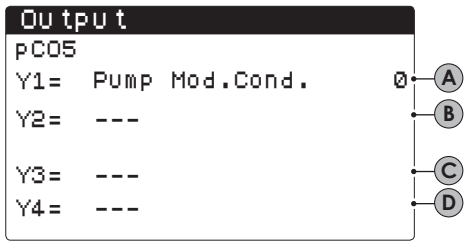
IN/OUT Menu - Digital output monitor (2)		
Viewing on the display of the unit	**Index**	**View/Parameter**
	A	**Not used**
	B	**Digital output NO5:** this value indicates the status of the digital output connected to the condenser pump. The following statuses are possible: • OPEN: pump not active; • CLOSED: pump active
	C	**Not used**

IN/OUT Menu - Digital output monitor (3)		
Viewing on the display of the unit	**Index**	**View/Parameter**
	A	**Digital output NO7:** this value indicates the status of the digital output connected to the evaporator pump. The following statuses are possible: • OPEN: pump not active; • CLOSED: pump active
	B	**Digital output NO8:** this value indicates the status of the digital output connected if a serious alarm condition occurs. The following statuses are possible: • OPEN: alarm not present; • CLOSED: alarm present
	C	**Not used**

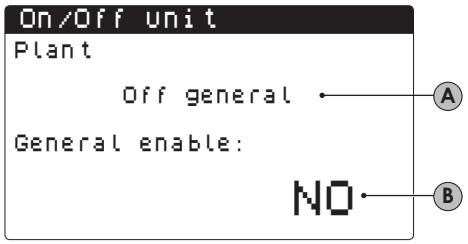
IN/OUT Menu - Digital output monitor (4)		
Viewing on the display of the unit	**Index**	**View/Parameter**
	A	**Digital output NO10:** this value indicates the status of the digital output connected to the fluid solenoid 1. The following statuses are possible: • OPEN: valve not active; • CLOSED: valve active
	B	**Digital output NO11:** this value indicates the status of the digital output connected to the fluid solenoid 2. The following statuses are possible: • OPEN: valve not active; • CLOSED: valve active
	C	**Not used**

IN/OUT Menu - Digital output monitor (5)		
Viewing on the display of the unit	**Index**	**View/Parameter**
	A	**Digital output NO13:** this value indicates the status of the digital output connected to the 2-way solenoid. The following statuses are possible: • OPEN: valve not active; • CLOSED: valve active
	B	**Not used**
	C	**Not used**

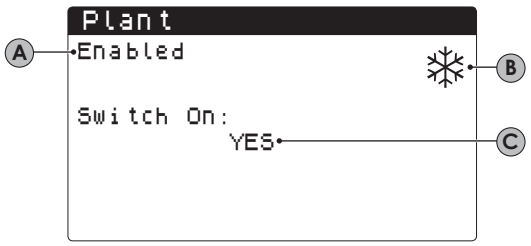
IN/OUT Menu - Digital output monitor (6)		
Viewing on the display of the unit	**Index**	**View/Parameter**
	A	**Digital output NO16:** this value indicates the status of the digital output connected to the antifreeze resistance. The following statuses are possible: • OPEN: resistance not active; • CLOSED: resistance active
	B	**Not used**
	C	**Not used**

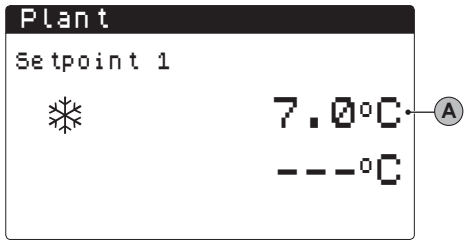
IN/OUT Menu - Amnalogue output monitor (6)		
Viewing on the display of the unit	**Index**	**View/Parameter**
	A	**Analogue Output Y1:** this value indicates the current value of the signal applied to the modulating pump on the condenser
	B	**Not used**
	C	**Not used**
	D	**Not used**

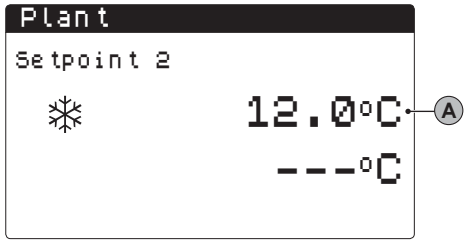
ON / OFF Menu

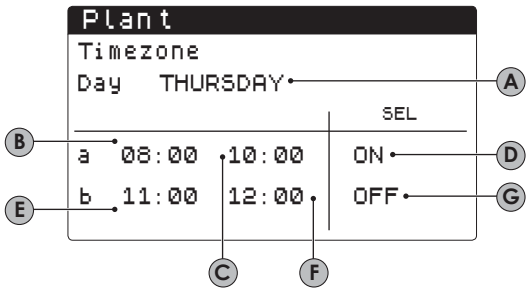
ON / OFF Menu - Switching unit on or off		
Display on the unit	**Index**	**Display/Parameter**
	A	**Current status:** shows the current status of the unit: • ENABLED: unit on • OFF GENERAL: unit in standby • OFF FOR ALARM: unit in standby due to an alarm • OFF BY BMS: unit in standby, disabled by the BMS • OFF BY CLOCK: unit in standby, disabled by time-clock settings • OFF BY DIG. IN: unit in standby, disabled by digital input ID8 • OFF BY DISPLAY: unit in standby, disabled from the terminal • ANTI-ICING: unit forced on to avoid icing
	B	**Switching unit on or off:** by modifying this parameter it is possible to switch the unit on or off: • YES: unit on • NO: unit off
User modifiable parameters		

SYSTEM Menu

PLANT Menu - Selecting operation mode		
Viewing on the display of the unit	**Index**	**View/Parameter**
	A	**Current status:** this value indicates the current status of the unit: • ENALBED: unit ON; • OFF - MAIN SWITCH: unit in standby; • OFF - ALARM: unit in standby because of an alarm; • OFF - BMS: unit in standby-off from BMS system; • OFF - CLOCK: unit in standby-off from settings in hourly programming; • OFF FROM DIG.INP: unit in standby-off from digital input (digital input ID8); • OFF FROM DISPLAY: unit in standby-off from terminal; • ANTIFREEZE: unit forced to switch on to avoid freezing
	B	**Active Season:** this symbol indicates the current active operating mode: • (❄): cooling mode
User modifiable parameters	C	**Enable Unit:** this value indicates whether the unit is enabled for operation. The following statuses are possible: • OFF: the plant is not enabled for operation; • ON: the plant is enabled for operation; • ON WITH SET2: the plant is enabled for operation using secondary setpoints; • HOURLY TIME BANDS: the plant is enabled for operation in accordance with the system's hourly time programming

PLANT Menu - Setting values for the main setpoints		
Viewing on the display of the unit	**Index**	**View/Parameter**
 **User modifiable parameters**	A	**Main cooling setpoint:** this value indicates the main operating set used in cooling mode

PLANT Menu - Setting values for the secondary setpoints		
Viewing on the display of the unit	**Index**	**View/Parameter**
 **ATTENTION: in order to use the secondary set, the system envisages two possibilities:** **• Enable the system with set 2 by setting it as an option (ON with SET 2) in the first plant menu template;** **• Use the ID10 digital input, which activates the use of the secondary setpoint if it is closed** **User modifiable parameters**	A	**Secondary cooling setpoint:** this value indicates the secondary operating set used in cooling mode

SYSTEM Menu - Time-clock settings (A) and (B)		
Display on the unit	**Index**	**Display/Parameter**
	A	**Day to set:** this shows the day for which the first two time-clock values (a) and (b) are programmed. This value can be any day of the week or a HOLIDAY day
	B	**Time-clock start (a):** shows the value of the start of the first time-clock
	C	**Time-clock stop (a):** shows the value of the stop of the first time-clock
	D	**Action associated with time-clock (a):** shows the action carried out with the first time-clock, which can be: • ON: unit enabled with main setpoint • SET2: unit enabled with secondary setpoint • OFF: unit in standby
	E	**Time-clock start (b):** shows the value of the start of the second time-clock
	F	**Time-clock stop (b):** shows the value of the stop of the second time-clock
	G	**Action associated with time-clock (b):** shows the action carried out with the first time-clock, which can be: • ON: unit enabled with main setpoint • SET2: unit enabled with secondary setpoint • OFF: unit in standby

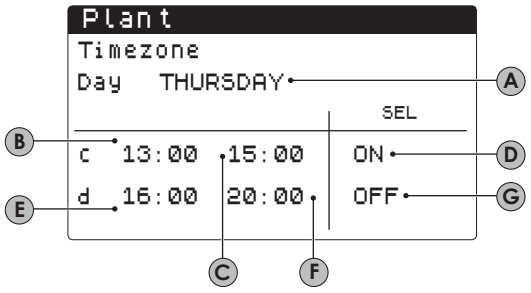
WARNING: All the screens for time-clock programming are only visible if activated in the main screen of the System menu (Enabling = TIME-CLOCK)

WARNING: The values selected for the time-clock (a) and (b) must follow logically:

B < C < E < F

NOTE: Outside of the four possible time-clock programmes the system will remain OFF

User modifiable parameters

SYSTEM Menu - Time-clock settings (C) and (D)		
Display on the unit	**Index**	**Display/Parameter**
	A	**Day to set:** this shows the day for which the last two time-clock values (c) and (d) are programmed. This value can be any day of the week or a HOLIDAY day
	B	**Time-clock start (c):** shows the value of the start of the third time-clock
	C	**Time-clock stop (c):** shows the value of the stop of the third time-clock
	D	**Action associated with time-clock (c):** shows the action carried out with the first time-clock, which can be: • ON: unit enabled with main setpoint • SET2: unit enabled with secondary setpoint • OFF: unit in standby
	E	**Time-clock start (d):** shows the value of the start of the fourth time-clock
	F	**Time-clock stop (d):** shows the value of the stop of the fourth time-clock
	G	**Action associated with time-clock (d):** shows the action carried out with the first time-clock, which can be: • ON: unit enabled with main setpoint • SET2: unit enabled with secondary setpoint • OFF: unit in standby

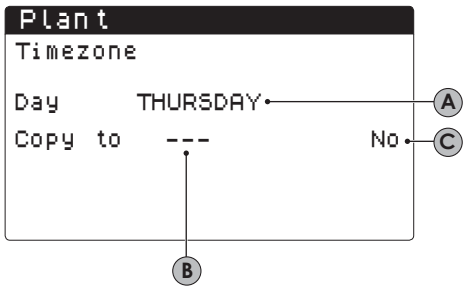
WARNING: All the screens for time-clock programming are only visible if activated in the main screen of the System menu (Enabling = TIME-CLOCK)

WARNING: The values selected for the time-clock (a) and (b) must follow logically:

B < C < E < F

NOTE: Outside of the four possible time-clock programmes the system will remain OFF

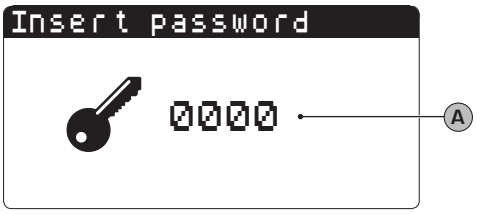
User modifiable parameters

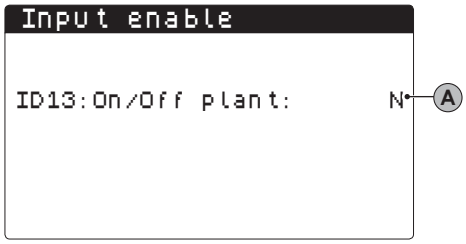
SYSTEM Menu - Copy time-clock settings function		
Display on the unit	**Index**	**Display/Parameter**
	A	**Day to copy from:** shows from which day the four time-clock programmes are to be copied
	B	**Day to copy to:** shows to which day to copy to the selected settings. The time-clock from the reference day can be copied to an individual day of the week, to all remaining days or only for holidays
	C	**Make copy:** by changing this value to requested copy from the reference day is made for the requested days

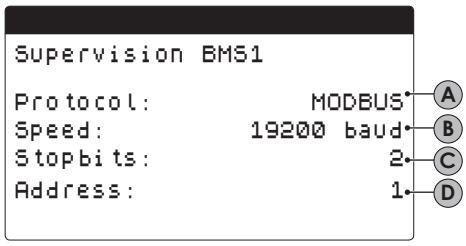
⚠ **WARNING: All the screens for time-clock programming are only visible if activated in the main screen of the System menu (Enabling = TIME-CLOCK)**

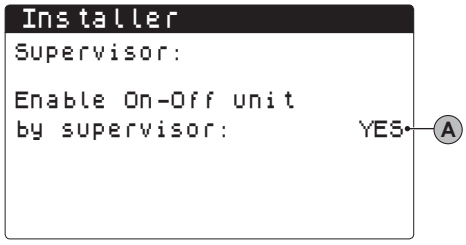
User modifiable parameters

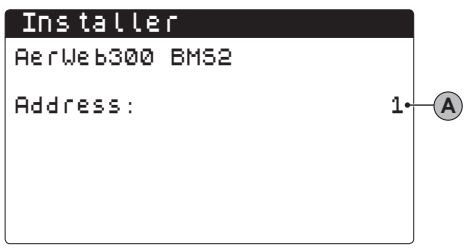
INSTALLER Menu(Password 0000)

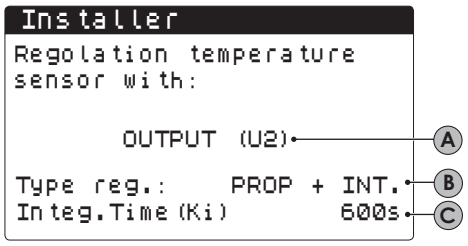
INSTALLER Menu- Insert password to access menus		
Display on the unit	**Index**	**Display/Parameter**
 User modifiable parameters	A	**Access password to menus:** the password to be used to access the Installer menus is the default value (0000)

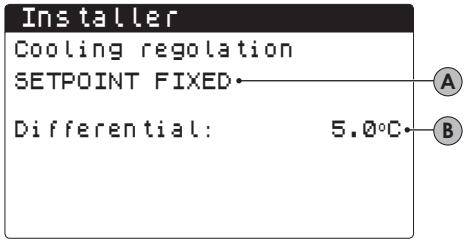
INSTALLER Menu- Enabling digital inputs ID3 and ID4		
Display on the unit	**Index**	**Display/Parameter**
 User modifiable parameters	A	**Enabling ID17:** shows if the digital input ID3 is enabled for the remote ON/OFF control function (ON = closed, OFF = open)

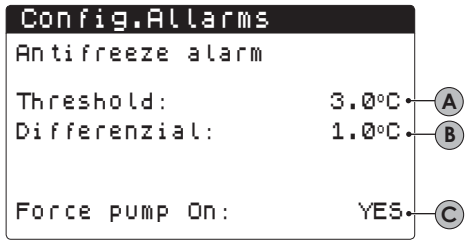
INSTALLER Menu - Addresses the BMS supervision system		
Display on the unit	**Index**	**Display/Parameter**
 User modifiable parameters	A	**Select protocol:** this value indicates which protocol is used to communicate with the BMS supervision system; the support protocols are: • MODBUS: Modbus/rs485 protocol; • CAREL: protocol for expansions; • pCOWEB: protocol for pCOWEB expansions; • LON: protocol for LON expansion • MODBUS EXT: Modbus in extended version with more available addresses. By selecting this protocol you will have the same addresses available on BMS2 for AerWeb or other supervisor.
	B	**Transmission speed:** this value indicates which speed is set for serial communication
	C	**Stopbits:** this value indicates the number of bits used to indicate the bitstop in serial communication
	D	**Address:** this value indicates the address assigned to the BMS supervision system towards which communication will be made

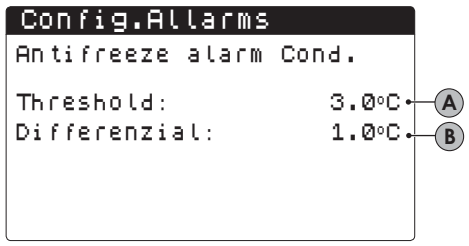
INSTALLER Menu - Enable primary commands from BMS		
Viewing on the display of the unit	**Index**	**View/Parameter**
 User modifiable parameters	A	**Enable ON/OFF from BMS:** this value indicates whether or not to enable or disable the unit's remote power-on and shut-down command using BMS

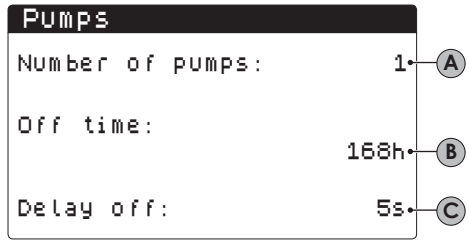
INSTALLER Menu- Addressing secondary supervisor system (not opto-isolated)		
Display on the unit	**Index**	**Display/Parameter**
 User modifiable parameters	A	**Address:** shows the value of the address for the secondary supervisor system for communications (this serial interface is not opto-isolated so the connection distance permitted is less than the main serial interface) **NOTE: The use of the second serial link is intended for transmission via the web (AerWeb300), although the serial link can be to a second supervisor system in addition to the main one (BMS1)**

INSTALLER Menu- Selecting control for water production		
Display on the unit	**Index**	**Display/Parameter**
 **User modifiable parameters**	A	**Control sensor:** shows which sensor the system bases the control of water produced, which can be: • OUTLET(U2): the sensor used to control the production of water is that leaving the heat exchanger • INLET(U1): the sensor used to control the production of water is that entering the heat exchanger • COMMON OUTLET SENSOR (U3 uPC): the sensor used to control the production of water is the common leaving sensor in the event there are two heat exchangers **WARNING: Selecting the control based on the entering temperature means that the correct setting for the operating setpoints must consider the addition or subtraction (based on cooling or heating mode) of the differential temperature to the operating setpoint**
	B	**Type of control:** shows the logic used for the control, which can be: • PROP+INT: applies proportional and integral control • PROP: applies proportional control only
	C	**Integral time:** shows the integral time to add to the proportional control (in the event the type of control selection is proportional and integral)

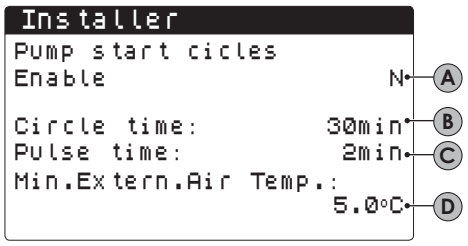
INSTALLER Menu- Setting parameters for cooling control		
Display on the unit	**Index**	**Display/Parameter**
 **User modifiable parameters**	A	**Type of setpoint:** shows what type of logic is used for the control of the operating setpoint, which can be: • FIXED SETPOINT: the system will use as the operating setpoint the values set by the user in the System menu screen (main and secondary setpoints) • AMBIENT CURVE: the operating setpoint is calculated automatically based on the selected ambient curve
	B	**Differential:** shows the differential applied between the water inlet and outlet, where such value depends on the flow rate the system operates at

INSTALLER Menu - Evaporator antifreeze alarm management configuration		
Viewing on the display of the unit	**Index**	**View/Parameter**
 **User modifiable parameters**	A	**Anti-freeze alarm activation threshold:** this value indicates the activation or deactivation threshold (by adding or subtracting the specified value specified as the differential) of the antifreeze alarm on the evaporator;
	B	**Differential:** this value indicates the differential to be added or subtracted to/from the temperature value below which the antifreeze alarm is activated
	C	**Pump ON power:** this value indicates whether or not to force active pumps during the anti-freeze alarm

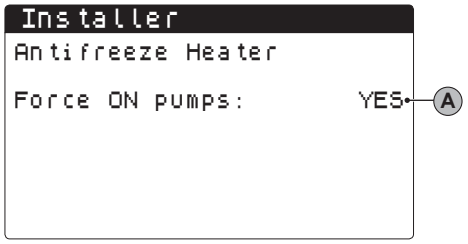
INSTALLER Menu - Condenser antifreeze alarm management configuration		
Viewing on the display of the unit	**Index**	**View/Parameter**
 **User modifiable parameters**	A	**Anti-freeze alarm activation threshold:** this value indicates the activation or deactivation threshold (by adding or subtracting the specified value specified as the differential) of the antifreeze alarm on the condenser;
	B	**Differential:** this value indicates the differential to be added or subtracted to/from the temperature value below which the antifreeze alarm is activated

INSTALLER Menu - Pump configuration		
Display on the unit	**Index**	**Display/Parameter**
 **User modifiable parameters**	A	**Number of pumps:** this value indicates the number of pumps managed by the unit; **WARNING: if this parameter is modified, the system may not be able to manage the loads installed on the unit, excluding any pumps installed**
	B	**Off time:** this value indicates the off time for a pump, after which the pump is activated (if there are several pumps installed on the unit this prevents limescale build-up in the pump in the case of an extended stop)
	C	**Delay Off:** this value indicates the delay in turning off the pump after disabling the compressors or other sources (resistors, freecooling, etc.)

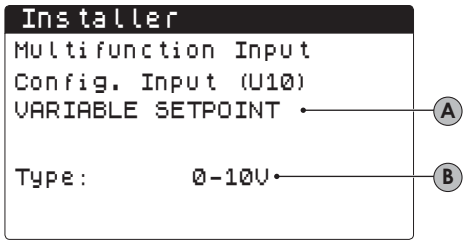
INSTALLER Menu- Setting pump anti-freeze function

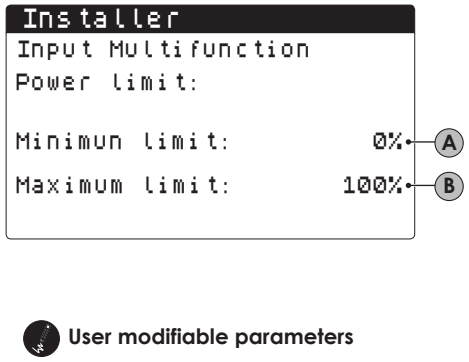
Display on the unit	Index	Display/Parameter
 User modifiable parameters	A	**Enabling anti-freeze function:** shows whether to enable the anti-freeze cycle function which activates the pump
	B	**Time cycle:** shows the time interval between pump activations
	C	**Pump activation time:** shows the time period that the pump will be activated for the anti-freeze function
	D	**External air temperature limit:** shows the temperature below which the anti-freeze cycle is activated (if enabled)

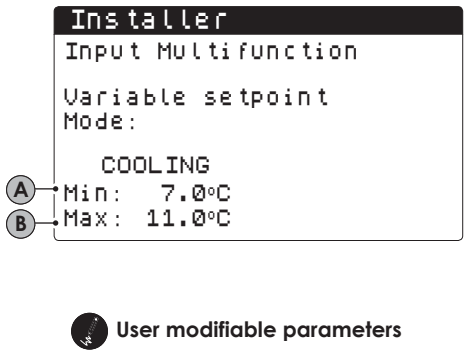
INSTALLER Menu- Setting pump operation during use of anti-freeze heaters

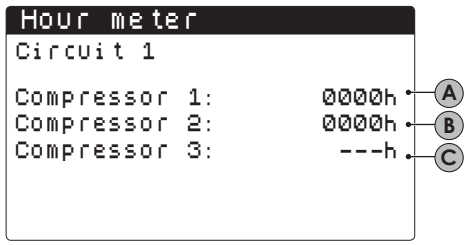
Display on the unit	Index	Display/Parameter
 User modifiable parameters	A	**Pump enable:** shows whether the pump is activated during the operation of the electric anti-freeze heaters

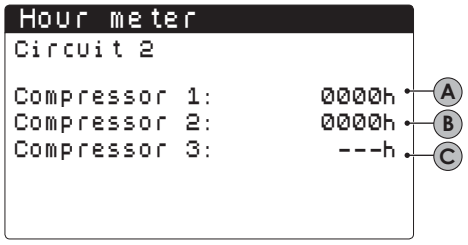
INSTALLER Menu- Setting multi-function input (WRK)

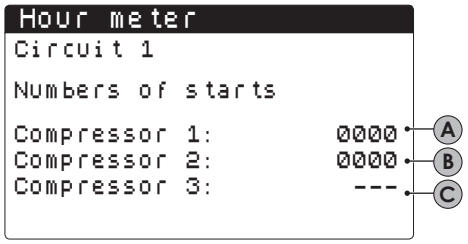
Display on the unit	Index	Display/Parameter
 User modifiable parameters	A	**Multi-function input:** shows which function is assigned to the multi-function input U10, which can be: • NOT PRESENT: multi-function input disabled • CAPACITY LIMIT: the input U10 is used to limit the capacity of the unit in a manner proportional to the signal applied at the input U10 (the configuration of the capacity range controlled is available in the next screen, if this option is activated) • VARIABLE SETPOINT: the input U10 is used to vary the operating setpoint in a manner proportional to the signal applied at the input U10 (the configuration of the variation to the setpoint range is available in the next screen, if this option is activated) **WARNING: If the multi-function input is enabled then the status of the input to U10 will shown in the In/Out menu**
	B	**Type:** shows the type of signal used for the multi-function input, which can be: • 0-10V: input signal 0-10V • NTC: input signal NTC • 4-20mA: input signal 4-20mA

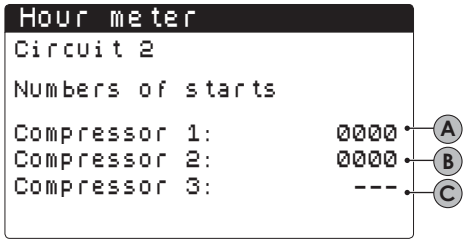
INSTALLER Menu- Configuration of capacity limit from multi-function input (if enabled)		
Display on the unit	**Index**	**Display/Parameter**
	A	**Minimum capacity limit:** shows the minimum capacity limit as a function of the input signal
	B	**Maximum capacity limit:** shows the maximum capacity limit as a function of the input signal

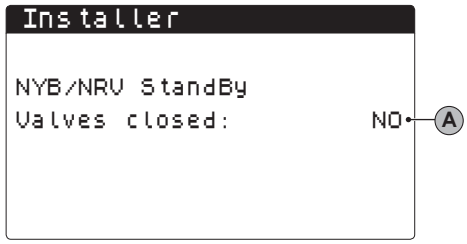
INSTALLER MANUAL - Configures variable multi-function input setpoints (if this function is enabled)		
Viewing on the display of the unit	**Index**	**View/Parameter**
	A	**Minimum cooling setpoint:** this value indicates the minimum cooling setpoint set in relation to the input signal (on the multi-function input U10)
	B	**Maximum cooling setpoint:** this value indicates the maximum cooling setpoint set in relation to the input signal (on the multi-function input U10)

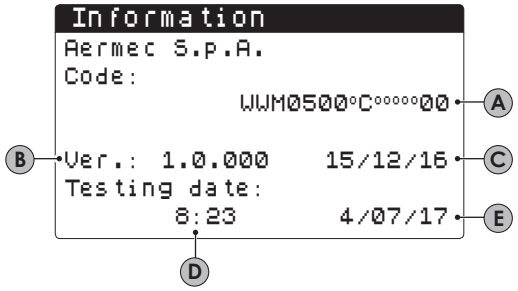
INSTALLER Menu- Monitoring compressor hour counter circuit 1		
Display on the unit	**Index**	**Display/Parameter**
	A	**Compressor 1 hour counter:** shows the number of running hours for compressor 1 on circuit 1
	B	**Compressor 2 hour counter:** shows the number of running hours for compressor 2 on circuit 1 (if present)
	C	**Compressor 3 hour counter:** shows the number of running hours for compressor 3 on circuit 1 (if present)

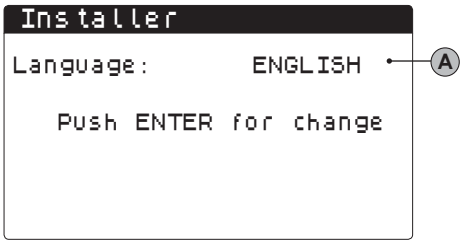
INSTALLER Menu- Monitoring compressor hour counter circuit 2 (if present)		
Display on the unit	**Index**	**Display/Parameter**
	A	**Compressor 1 hour counter:** shows the number of running hours for compressor 1 on circuit 2
	B	**Compressor 2 hour counter:** shows the number of running hours for compressor 2 on circuit 2 (if present)
	C	**Compressor 3 hour counter:** shows the number of running hours for compressor 3 on circuit 2 (if present)

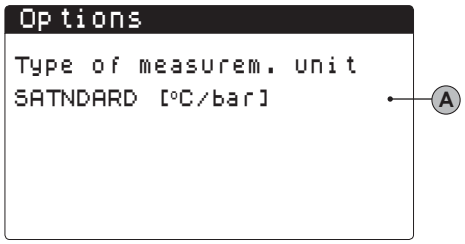
INSTALLER Menu- Monitoring number of compressor starts circuit 1		
Display on the unit	**Index**	**Display/Parameter**
	A	**Compressor 1 number of starts:** shows the number of starts for compressor 1 on circuit 1
	B	**Compressor 2 number of starts:** shows the number of starts for compressor 2 on circuit 1
	C	**Compressor 3 number of starts:** shows the number of starts for compressor 3 on circuit 1

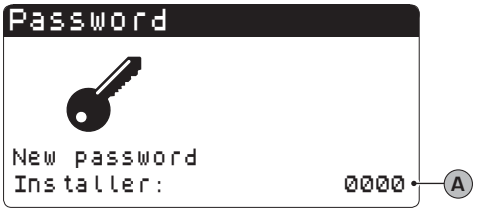
INSTALLER Menu- Monitoring number of compressor starts circuit 2 (if present)		
Display on the unit	**Index**	**Display/Parameter**
	A	**Compressor 1 number of starts:** shows the number of starts for compressor 1 on circuit 2
	B	**Compressor 2 number of starts:** shows the number of starts for compressor 1 on circuit 2
	C	**Compressor 3 number of starts:** shows the number of starts for compressor 3 on circuit 2

INSTALLER MENU - Configures water valve status with unit in stand-by (NYB/NRV)		
Viewing on the display of the unit	**Index**	**View/Parameter**
 **User modifiable parameters**	A	**Valves closed:** this value indicates whether or not to close the valves on the water side while the units are in standby mode;

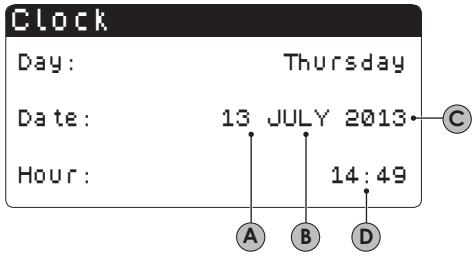
INSTALLER MENU - Unit configuration monitor and test info		
Viewing on the display of the unit	**Index**	**View/Parameter**
	A	**Configuration code:** this value indicates the commercial code identifying the unit and its configuration
	B	**Software Version:** this value indicates the version of the software installed on the unit
	C	**Software Version date:** this value indicates the date of the software version installed on the unit
	D	**Time of test:** this value indicates the time when the unit was tested in the factory
	E	**Date of test:** this value indicates the date when the unit was tested in the factory

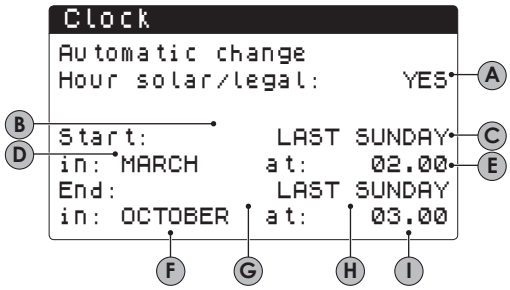
INSTALLER Menu- Monitoring unit configurator and test info		
Display on the unit	**Index**	**Display/Parameter**
	A	**System language:** shows the system language in use, which can be modified by following the instructions on the screen (ENTER to modify the language)

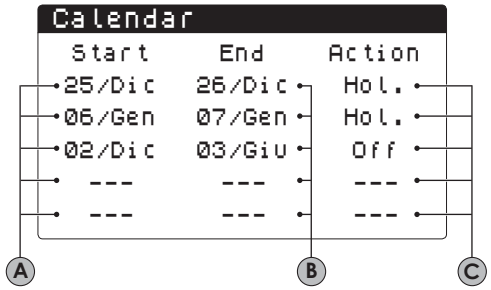
INSTALLER MENU - Select the type of unit of measurement		
Viewing on the display of the unit	**Index**	**View/Parameter**
	A	**Unit of Measure:** this value indicates the type of unit of measure used to display temperature and pressure values; the following statuses are possible: • STANDARD: temperature measured in (°C) and pressure in (bar); • IMPERIAL: temperature measured in (°F) and pressure in (psi);

INSTALLER MENU - Changing the Installer menu password		
Viewing on the display of the unit	**Index**	**View/Parameter**
 **User modifiable parameters**	A	**New password:** this value indicates the new password to use to access the installer menu;

CLOCK Menu

CLOCK Menu - Setting system date and time		
Display on the unit	**Index**	**Display/Parameter**
 User modifiable parameters	A	**System day: s**hows the day of the system
	B	**System month:** shows the month of the system
	C	**System year:** shows the year of the system
	D	**System clock:** shows the time of the system

CLOCK Menu - Setting automatic time change (summer/winter time)		
Display on the unit	**Index**	**Display/Parameter**
 User modifiable parameters	A	**Enable automatic control:** shows if the time change between summer and winter time is carried out automatically
	B	**Time change week:** shows which week of the month that the time change is made
	C	**Time change day:** shows which day of the week that the time change is made
	D	**Time change month:** shows which month the time change is made
	E	**Time change hour:** shows what hour that the time change is made
	F	**Return time change week:** shows which week of the month that the return time change is made
	G	**Return time change day:** shows which day of the week that the return time change is made
	H	**Return time change month:** shows which month the return time change is made
	I	**Return time change hour:** shows what hour that the return time change is made

CLOCK Menu - Setting holidays		
Display on the unit	**Index**	**Display/Parameter**
 **User modifiable parameters**	A	**Start date:** shows the date of the start of the holiday. The calender can control a maximum of 5 days defined as hli-days, during which time specific actions are carried out
	B	**End date:** shows the date of the end of the holiday. The calender can control a maximum of 5 days defined as holi-days, during which time specific actions are carried out
	C	**Action to associate with holiday:** shows which action the unit will take during the holiday, which may be: • OFF: unit will be off during the days selected • FEST.: unit will be controlled as specified in the time-clock programme called HOLIDAY (for further information refer to the function of the time-clock) • --- : if no action is specified the unit will be controlled by the manual settings

Alarm summary table

The unit provides a display of the possible faults, announced by the flashing of the alarm key with the bell symbol located on the left of the display. Pressing the bell key displays the alarm. The reset of the alarm can be automatic, manual or semi-automatic on the basis of the type and severity of the alarm. To reset the alarm message it is necessary to press the bell key again, but this does not reset the cause of the alarm, but only acknowledges it.

The following table lists the faults that can be generated by the unit and a brief explanation of the possible cause.

Alarm reset types:

Manual reset:
Unit is reset manually by removing and re-applying power.

Automatic reset:
The unit is reset automatically

Semi-automatic reset:
The unit is reset semi-automatically if the alarm is repeated a maximum of three times consecutively, and after a further alarm requires manual reset.

Recapitulatory table of ALARMS			
Code	**Alarm description**	**Restart**	**Notes**
AL38	evaporator flow meter alarm		---
AL24	Evaporator 1 pump thermic alarm		---
AL25	Evaporator 2 pump thermic alarm		---
AL40	Evaporator anti-freeze alarm.	---	---
AL31	Circuit 1 low pressure alarm		---
AL65	Circuit 2 low pressure alarm		---
AL34	Circuit 1 serious low pressure alarm		---
AL35	Circuit 2 serious low pressure alarm		---
AL32	Circuit 1 high pressure switch alarm		---
AL66	Circuit 2 high pressure switch alarm		---
AL33	Circuit 1 high pressure alarm		---
AL67	Circuit 2 high pressure alarm		---
AL03	Phase monitor alarm		---
AL10	Evaporator 1 output probe fault alarm		---

AL09	Evaporator 1 intput probe fault alarm		---
AL05	Circuit 1 high pressure probe fault alarm		---
AL07	Circuit 1 low pressure probe fault alarm		---
AL06	Circuit 2 high pressure probe fault alarm		---
AL08	Circuit 2 low pressure probe fault alarm		---
AL48	High force gas 1 temperature probe fault alarm		---
AL49	High force gas 2 temperature probe fault alarm		---
AL17	Circuit 1 fluid temp. probe fault alarm		---
AL18	Circuit 2 fluid temp. probe fault alarm		---
AL01	Clock battery low alarm		---
AL02	PCO memory error alarm		---
AL23	Circuit 1 compressor 1 thermic alarm		---
AL59	Circuit 1 compressor 2 thermic alarm		---
AL61	Circuit 2 compressor 1 thermic alarm		---
AL62	Circuit 2 compressor 2 thermic alarm		---
AL75	Circuit 1 high force gas high temp. alarm		---
AL76	Circuit 2 high force gas high temp. alarm		---
AL85	Plant high temperature		---
AL95	Common evaporator output probe broken or not connected		---
AL96	Evaporator output probe 2 broken or not connected		---
AL102	Water input temperature outside operating limits		---
AL103	Circuit 1 DeltaP alarm		---
AL104	Circuit 2 DeltaP alarm		---
AL105	Pcoe WWM expansion off-line alarm		---
AL106	Cond. Input Probe Alarm		---
AL107	Cond. Output Probe Alarm		---
AL108	Cond. 1 pump thermic alarm		---
AL109	Cond. 2 pump thermic alarm		---
AL112	Condenser freeze alarm		---
AL113	Condenser High Temperature		---

AL114	Condenser Input Low Temp		---
AL115	Circ.1 Gas Leak		---
AL116	Circ.2 Gas Leak		---
AL117	.Huba Diff. Transmit. Alarm		---
AL118	Huba probe alarm		---
AL119	Cond. Flow Meter Alarm		---

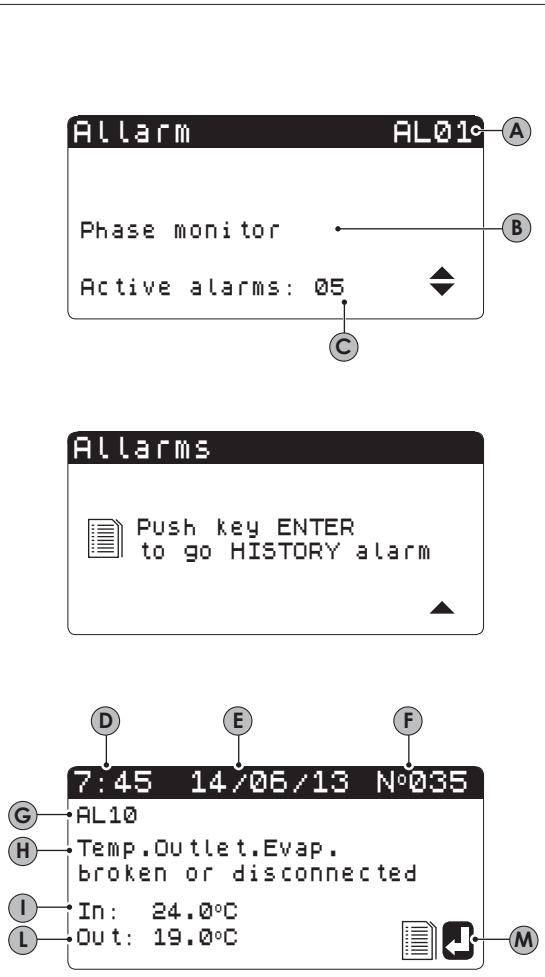
Alarm history

Each time an alarm is generated it is saved in the “alarm history” memory. This memory contains the last 100 alarms recorded. For each alarm saved the inlet and outlet water temperatures are also recorded, so that the service personnel can have a clear picture of the unit at the time the alarm occurred.

To access the alarm history:
(a) Press the key ( ) and enter the alarm display.
(b) If any are present, go through the active alarms with the key ( ) and reach the icon that gives access to the alarm history.
(3) Press the key ( ) to enter the alarm history.

(4) To exit the alarm history press the key ( ) or the key ( ).

Alarm history and memory

Display on the unit	Index	Display/Parameter
	A	**Code of active alarm:** shows the code for the active alarm currently displayed
	B	**Description of active alarm:** shows the description of the active alarm currently displayed
	C	**Total number of active alarms:** shows the total number of active alarms. Active alarms are announced by a red light on the bell labelled key
	D	**Alarm history - Alarm time:** shows the time of the alarm occurring
	E	**Alarm history - Alarm date**: shows the date of the alarm occurring
	F	**Alarm history - Alarm index:** shows the index of alarm (maximum 100) in the alarm history
	G	**Alarm history - Alarm code:** shows the identifying code of thee alarm
	H	**Alarm history - Alarm description:** shows the description of the alarm
	I	**Alarm history - Temperature IN:** shows the water inlet temperature at the time the alarm occurred
	L	**Alarm history - Temperature OUT:** shows the outlet water tempe ature at the time the alarm occurred
	M	**Alarm history - Refrigerant circuit pressure info:** pressing the enter key during the display of the alarm history the water temperature data is replaced by the high (HP) and low (LP) pressure values measured on the refrigerant circuit at the time the alarm occurred **Note: further pressing of the enter key alternates between the water temperatures and the circuit refrigerant pressures**

THE ALARM HISTORY CANNOT BE CANCELLED and having a limit of 100 alarm histories, any additional new alarms after the index value 99 will incrementally start with the index value 00 and overwrite the old data.

Quick reference

WARNING: This table refers to the specific pages only for the basic operation of the unit and for further information refer to the index of the manual.

Function	Page
Switching the unit on or off	17
---	---
---	---
Programming time-clock	30

Tutte le specifiche sono soggette a modifiche senza preavviso. Sebbene sia stato fatto ogni sforzo per assicurare la precisione, Aermec non si assume alcuna responsabilità per eventuali errori od omissioni.

Toutes les spécifications sont sujets à changement sans préavis. Bien que tous les efforts ont été faits pour assurer l'exactitude, Aermec ne assume aucune responsabilité ou responsabilité pour les erreurs ou omissions éventuelles.

All specifications are subject to change without prior notice. Although every effort has been made to ensure accuracy, Aermec does not assume responsibility or liability for eventual errors or omissions.

Alle specificaties kunnen zonder voorafgaande kennisgeving worden gewijzigd. Hoewel alle moeite is gedaan om de nauwkeurigheid te garanderen, heeft Aermec niet verantwoordelijk of aansprakelijk voor eventuele fouten of omissies nemen.

Todas las especificaciones están sujetas a cambios sin previo aviso. Aunque se han hecho todos los esfuerzos para asegurar la precisión, Aermec no asume responsabilidad alguna por errores u omisiones eventuales.

AERMEC S.p.A. Via Roma, 996 - 37040 Bevilacqua (VR) Italy

T. (+39) 0442 633111 F. (+39) 0442 93577

sales@aermec.com www.aermec.com