AERMEC
air conditioning

ELECTRONIC REGULATION

BOOKLET

MULTI CONTROL

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

CE

GB

4598010_00

4598010_00 / A5 - 1201

Index

AERMEC S.p.A.
I-37040 Bevilacqua (VR) Italy – Via Roma, 996
Tel. (+39) 0442 633111
Telefax 0442 93730 – (+39) 0442 93566
www .aermec. com - info @aermec. com

MULTI CONTROL

SERIAL NUMBER	

CE DECLARATION OF CONFORMITY

We, the undersigned, hereby declare under our own responsibility that the assembly in question, defined as follows:

NAME MULTI CONTROL

TYPE Remote panel

To which this declaration refers, complies with the following harmonised standards:

IEC EN 60730-1 Safety standard

IEC EN 61000-6-1
IEC EN 61000-6-3 Immunity and electromagnetic emissions for residential environments

Thereby, compliant with the essential requirements of the following directives:

- LVD Directive: 2006/95/EC
- Electromagnetic Compatibility Directive 2004/108/EC

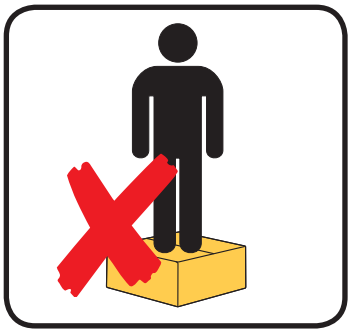
Bevilacqua 15/01/2011

Marketing Manager
Signature

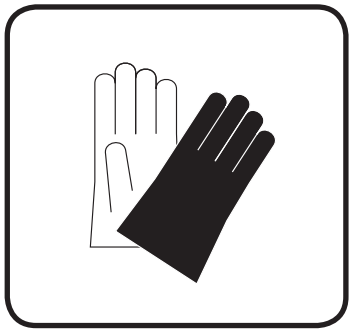
Precautions and Safety Standards

Keep package dry

DO NOT step on the packaging



Handle with care



Indications regarding waste disposal

Attention: this product contains electric and electronic appliances that cannot be disposed of through normal municipal collection channels. There are special collection centres for these products.

The electric and electronic appliances must be treated separately and in compliance with the laws in force in the country of use.
Batteries or accumulators present in the appliances must be disposed of separately according to the provisions of the municipality of use.

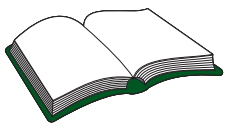
Safety symbols

Voltage hazard

Attention

Danger moving parts

Notes concerning manuals



Keep the manuals in a dry place, in order to prevent deterioration, for at least 10 years for any further reference.

Read all of the information contained in this manual carefully and completely. Pay particular attention to the user regulations accompanied by "DANGER" or "ATTENTION" in so much as, if not complied with, the unit or objects may be damaged and/or persons injured. For anomalies not contemplated by this manual, contact the area After-sales Service as soon as possible.
The appliance must be installed in such a way that maintenance and/or repair operations are possible.

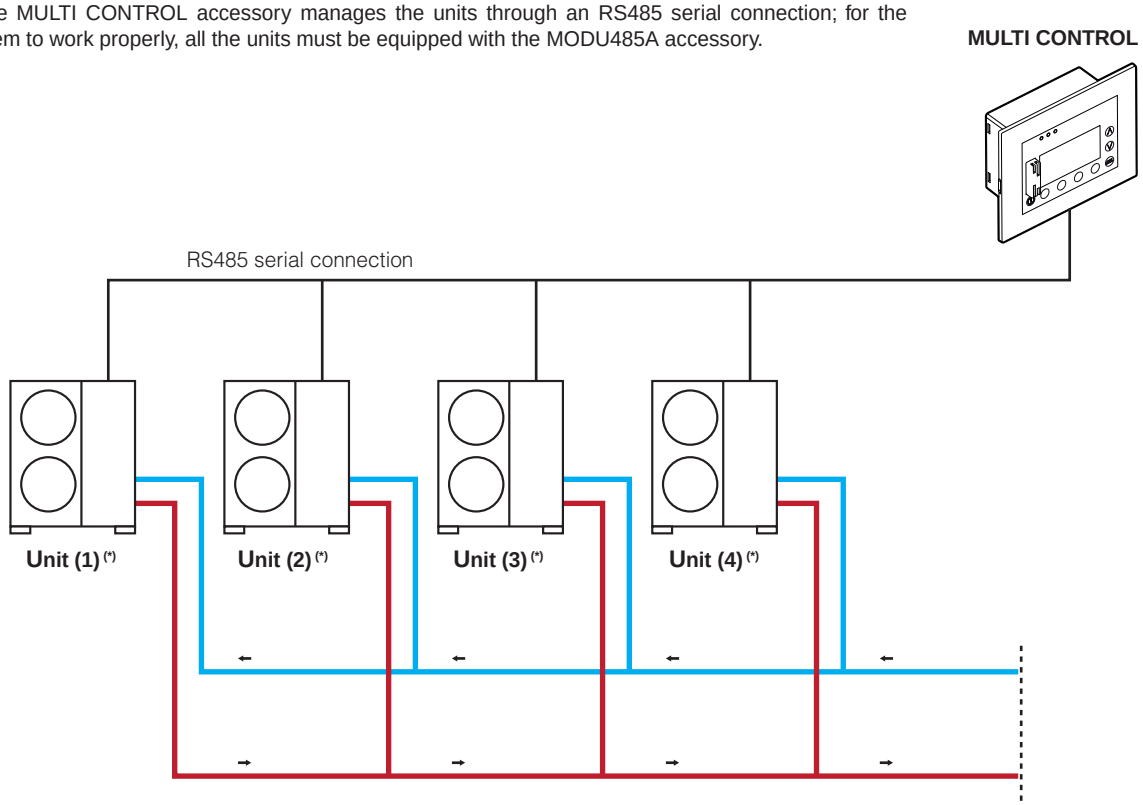
The appliance warranty does not cover the costs for ladders, scaffolding, or other elevation systems that may become necessary for carrying out servicing under warranty. AERMEC S.p.A. declines all responsibility for any damage due to improper use of the machine, partial or hasty reading of the information contained in this manual.

Type of systems managed by MULTI CONTROL

• Systems without additional VMF CRP modules:

- System for the production of water only for cooling/heating systems.
- Possibility of implementing and managing 2-pipe or 4-pipe systems.
- Management of units based on the thermostats of each appliance.
- No remote control besides the MULTI CONTROL accessory panel.
- Compensation of work setting by means of outdoor air available only on units equipped with outdoor air probe.

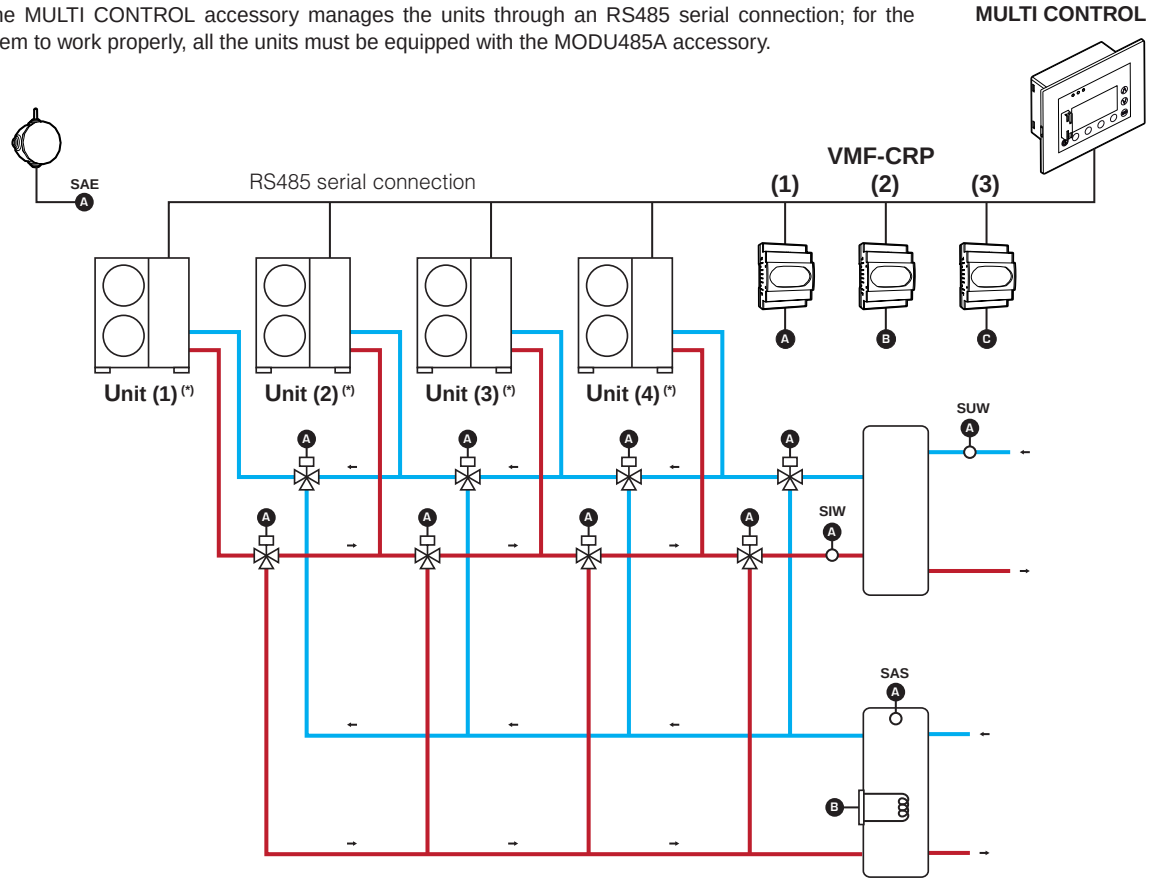
(*) The MULTI CONTROL accessory manages the units through an RS485 serial connection; for the system to work properly, all the units must be equipped with the MODU485A accessory.



• Systems with additional VMF CRP modules:

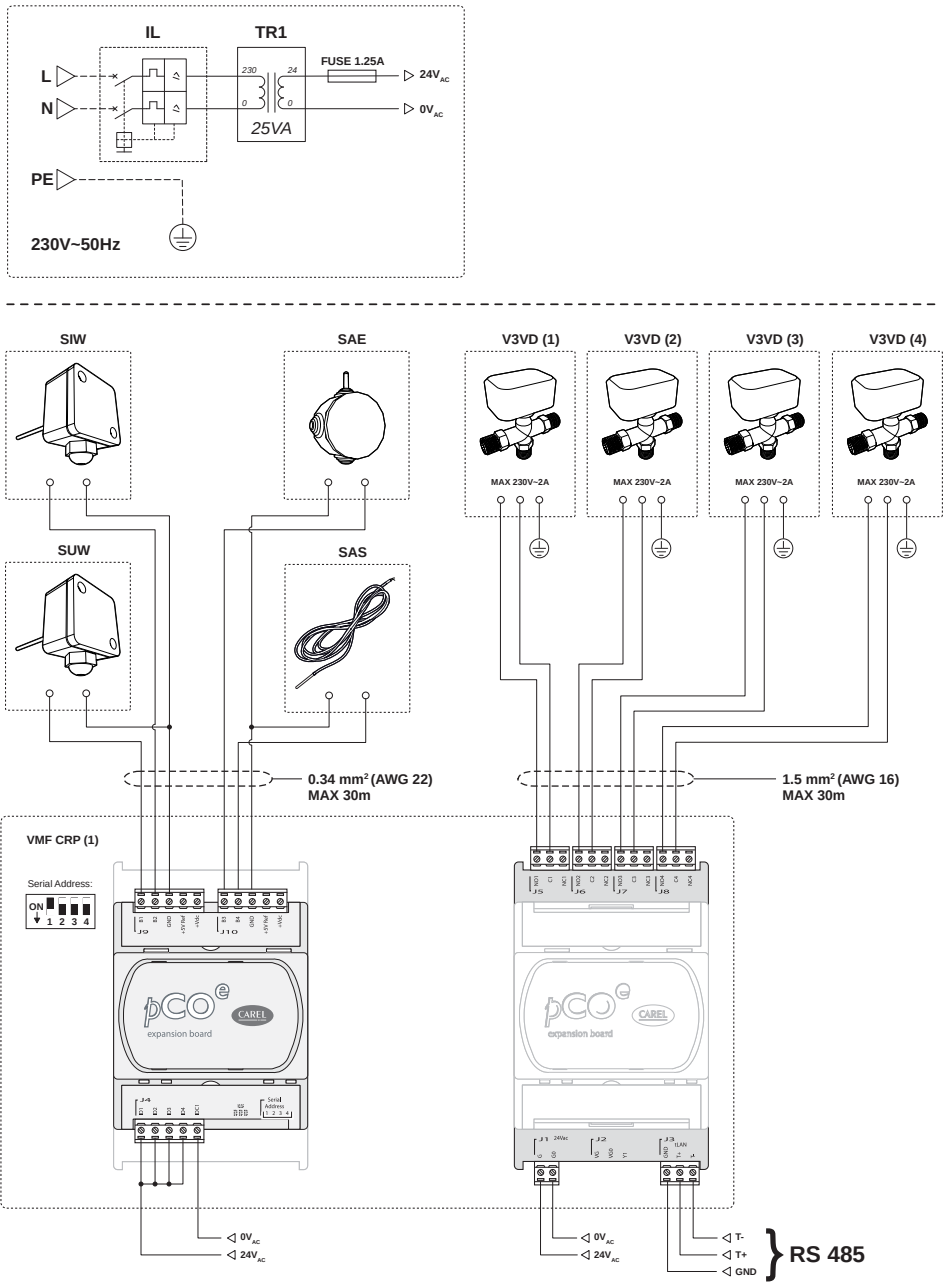
- System for production of domestic hot water, managed by 3-way diverter valves, and supplementary electric resistance to reach temperatures suitable for execution of the anti-legionella cycle.
- Possibility of implementing and managing 2-pipe or 4-pipe systems.
- Management of units based on:
• thermostats of each appliance.
• DELTA T on system.
- Remote control through VMF CRP number 3.
- Compensation of work setting through outdoor air available by means of KSAE accessory.

(*) The MULTI CONTROL accessory manages the units through an RS485 serial connection; for the system to work properly, all the units must be equipped with the MODU485A accessory.



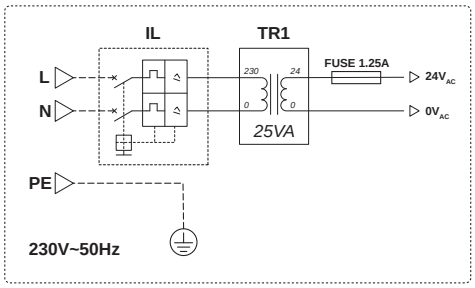
Component	Function
VMF CRP (1)	Accessory module for management of: - 3-way diverter valves. - System inlet and outlet water probe (SIW, SUW). - DHW storage tank water probe (SAS). - KSAE accessory for outdoor air temperature (SAE).
VMF CRP (2)	Accessory module for management of supplementary electric resistance in DHW storage tank.
VMF CRP (3)	Accessory module making it possible to remotely manage some functions: - System On/Off, Alarm reset, Season changeover (via Inputs). - Alarm summary, Alarm presence, System status (ON/OFF), Season status (HEATING/COOLING), Season changeover (via Outputs).

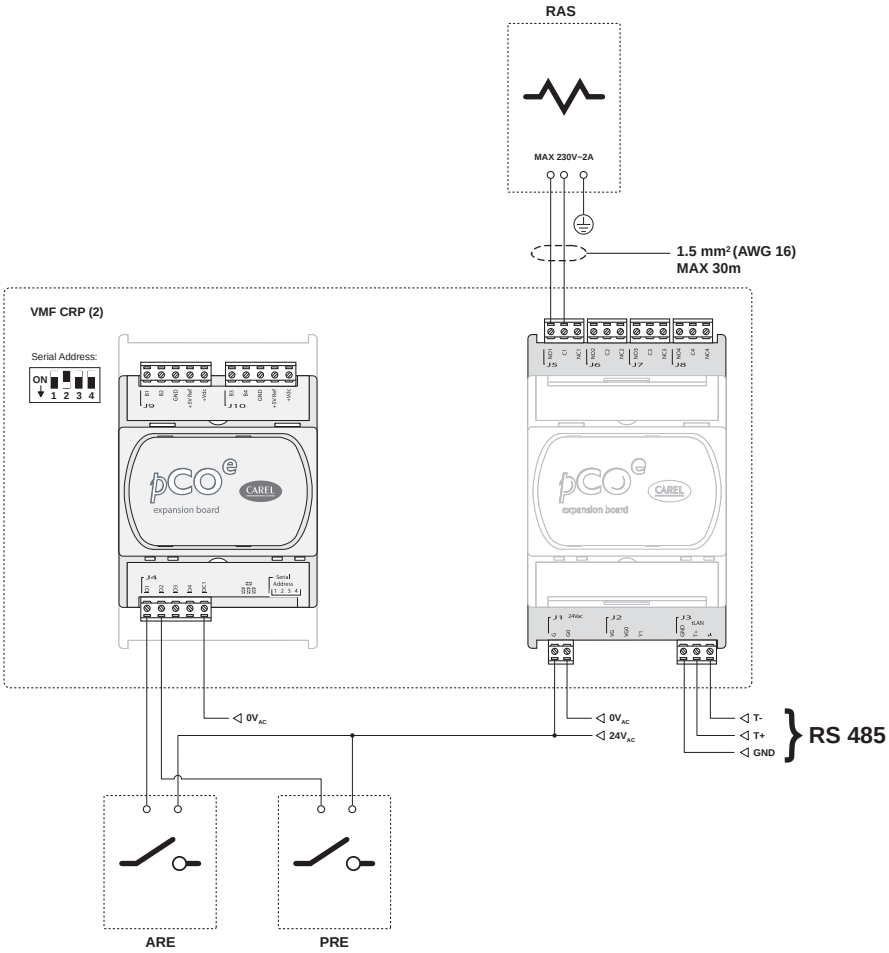
• VMF CRP 1 connections (3-way valves and probes management):



Code	Component	Input to enable probe	Available as
SIW	Primary hydraulic circuit INLET water probe	ID1 (CLOSED) on terminal board J4	**SPLW (1)** accessory
SUW	Secondary hydraulic circuit OUTLET water probe	ID2 (CLOSED) on terminal board J4	**SPLW (2)** accessory
SAE	External air probe	ID3 (CLOSED) on terminal board J4	**KSAE** accessory
SAS	DHW storage tank probe	ID4 (CLOSED) on terminal board J4	**SDHW** accessory
V3VD (1)	3-way diverter valve unit 1	/	Component NOT supplied
V3VD (2)	3-way diverter valve unit 2	/	Component NOT supplied
V3VD (3)	3-way diverter valve unit 3	/	Component NOT supplied
V3VD (4)	3-way diverter valve unit 4	/	Component NOT supplied

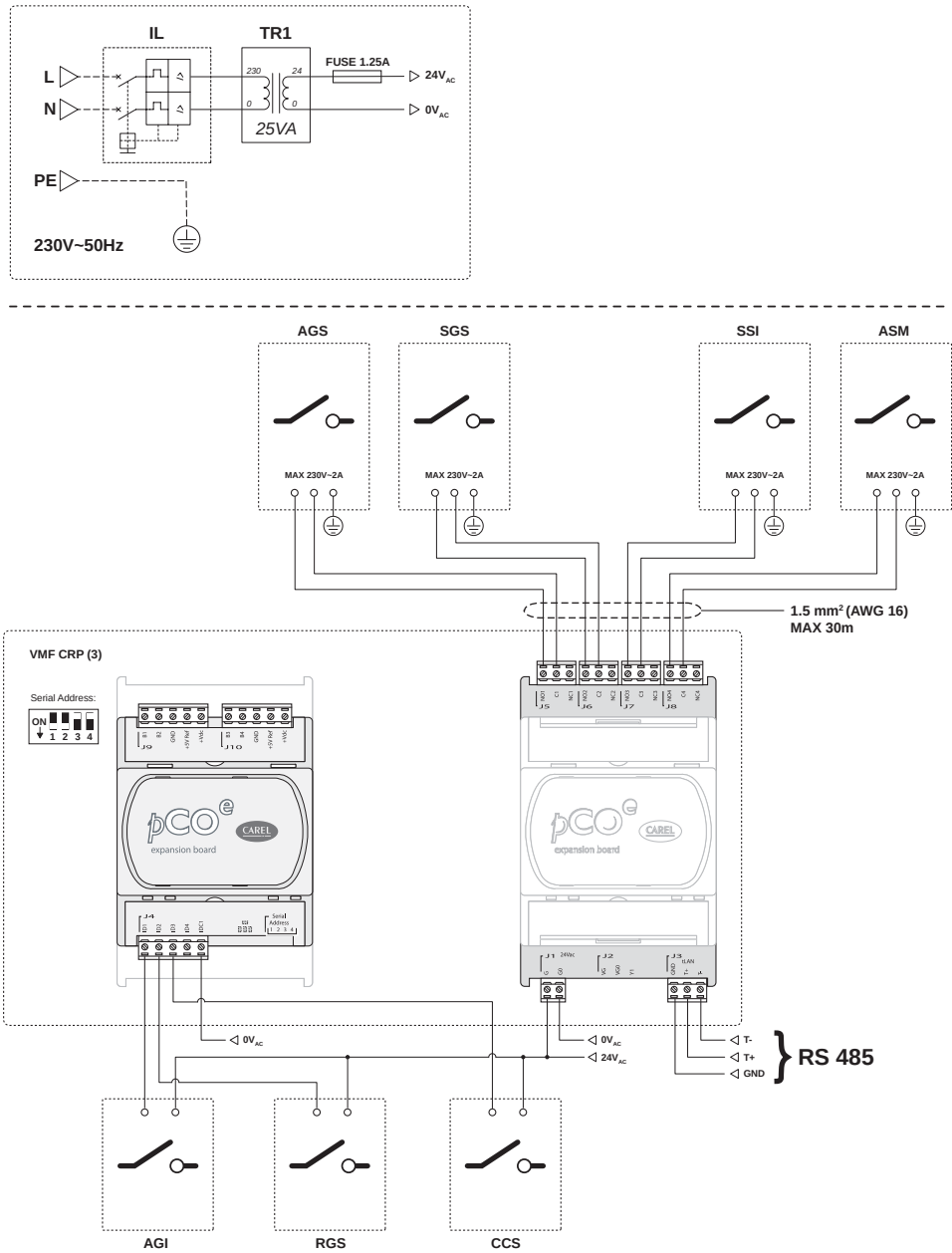
• VMF CRP 2 connections (supplementary resistance management on DHW):





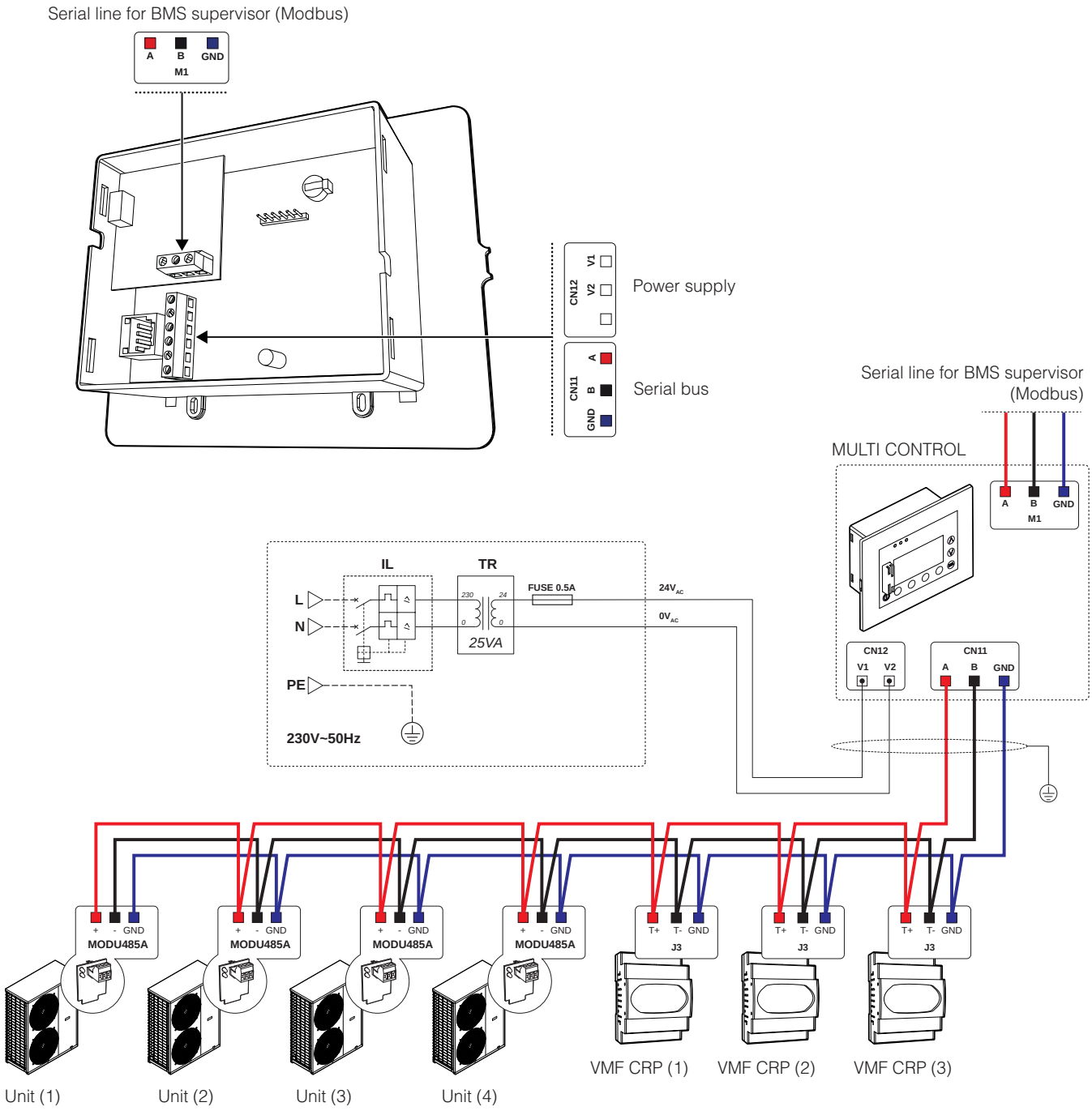
Code	Component	Available as
RAS	Supplementary electric resistance for DHW	Component NOT supplied
ARE	Resistance alarm presence output CLOSED = Alarm OPEN = No alarm	Component NOT supplied
PRE	Resistance presence output CLOSED = Resistance present in system OPEN = No resistance in system	Component NOT supplied

• VMF CRP 3 connections (remote control management):



Code	Function	Description
ASG	General System Alarm	Closed = Alarm in system Open = No alarm in system
SGS	General System Status	Closed = System ON Open = System OFF
SSI	System Season Situation	Closed = WINTER Open = SUMMER
ASM	General system alarm	Closed = Alarm in progress Open = No alarm in progress
AGI	General System Enabling	Closed = Switch system on Open = Switch system off
RGS	General System Reset	Closed = reset system
CCS	Season Changeover Control	Closed = Set WINTER Open = Set SUMMER

MULTI CONTROL serial connection



ATTENTION:
IN ORDER TO BE MANAGED BY THE MULTI CONTROL ACCESSORY, ALL THE UNITS MUST BE SUPPLIED WITH THE ACCESSORY MODU485A BOARD.

Information concerning installation of MULTI CONTROL panel:

- **The MULTI CONTROL panel must be installed indoors.**
- **All of the components required for the power supply (transformers) and to position the panel inside be electric control board, ARE NOT supplied.**
- **We recommend complying with standards in force for installation of the components outside of the MULTI CONTROL panel, entrusting installation to properly trained technical personnel.**

MULTI CONTROL panel user interface

The MULTI CONTROL accessory makes it possible to control and manage up to 4 chillers (equipped with MODUCONTROL circuit board). This accessory allows the user to manage:

• **Switching units ON/OFF** (according to the management logic selected).

• **Reading chiller parameters** (Working temperatures and pressures, working set-point, etc...).

• **Time periods** (the system allows to set up to two daily time periods, diversified by days of the week).

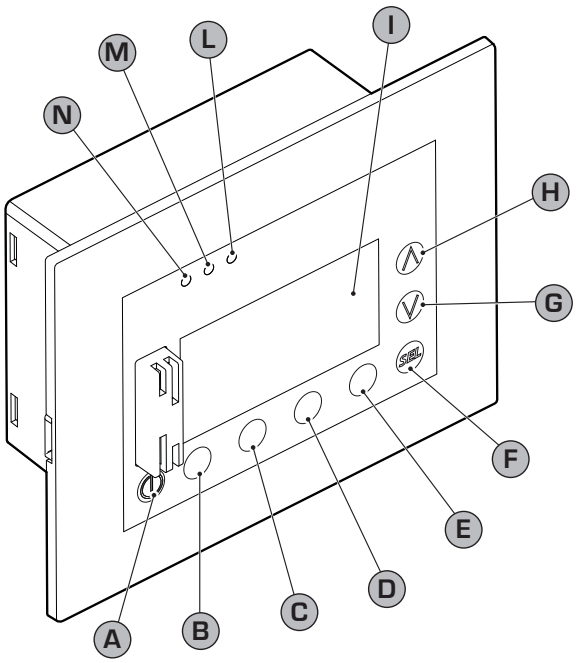
• **Domestic hot water** (domestic hot water production, DHW hourly program, anti-legionella cycle, etc...).

• **Functioning modes** (heating or cooling mode).

• **Alarm log** (the system allows to record the last 10 alarms triggered in the system).

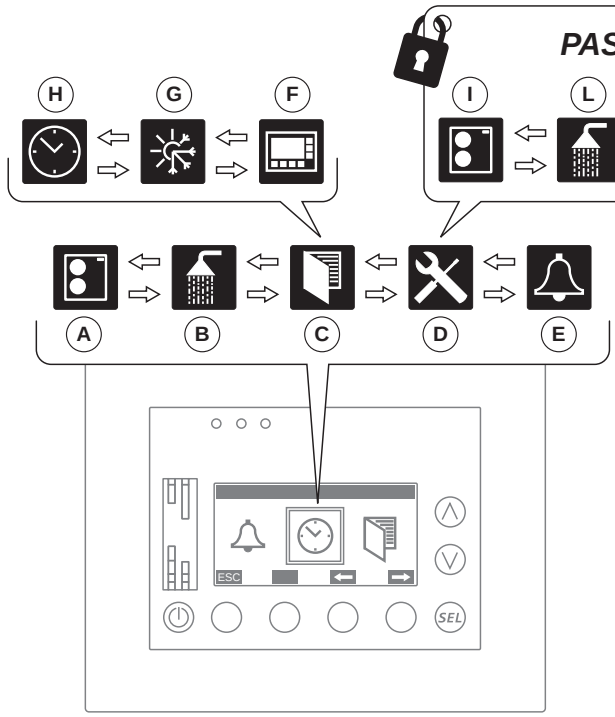
Attention: the use of one or more additional VMF-CRP modules is required to use some functions, as indicated in the system layouts.

• Interface control keys:



Key	Function
A	ON/OFF key
B	Multi-function keys; the functionality associated to each one changes according to the page viewed on the display
C	
D	
E	
F	Confirmation key (Enter)
G	Key for decreasing the value (-)
H	Key for increasing the value (+)
I	Backlit white LCD display 128 x 64 pixel
L	LED not used
M	LED not used
N	Red LED for signalling alarm in progress

Structure of MULTI CONTROL menus



PASSWORD:

USER password: ***101***

INSTALLER password: ***303***

ATTENTION: Incorrect INSTALLER parameter settings can cause the entire system to malfunction; only personnel authorised for assistance or to install the unit is allowed to modify these parameters.

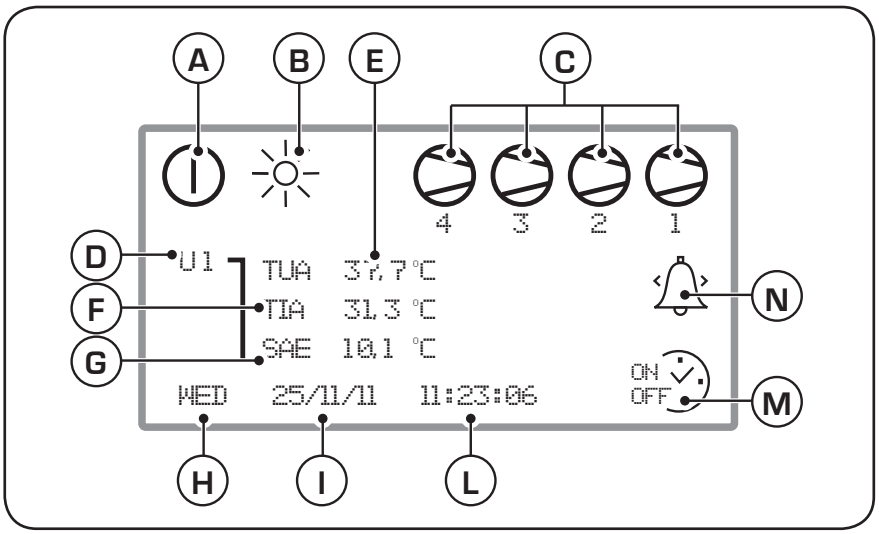
Index	Menu	Description
A	Unit synoptic	This menu gathers all the information regarding the chillers in the system.
B	DHW synoptic	This menu gathers information concerning production of domestic hot water (this menu is only visible if the system includes production of domestic hot water).
C	User menu	This menu contains three submenus F, G and H where the user can set the basic user parameters.
D	Setup menu	This menu contains three submenus I, L, M and N where the user can set the user/installer parameters protected by password.
E	Alarms memory	In this menu, the user can access the log of the last 10 alarms triggered in the system.
F	Display menu	In this menu it is possible to set the basic features for the graphical interface.
G	Operating season menu	In this menu it is possible to select the chiller functioning mode.
H	Date time menu	In this menu it is possible to set the system time and date.
I	Chiller/HP setup	In this menu it is possible to set the operating parameters of the chillers based on the selected level (USER or INSTALLER).
L	DHW setup	In this menu it is possible to set the chillers for the production of domestic hot water, based on the selected level (USER or INSTALLER).
M	System setup	In this menu it is possible to set the parameters for communication of the MULTI CONTROL accessory with the components of the system (USER or INSTALLER).
N	Plant setup	In this menu it is possible to set management of the chillers for the plant based on the selected level (USER or INSTALLER).

Main MULTI CONTROL display

During normal operation of the system, the MULTI CONTROL accessory display shows the standard window. This window contains information on the system status and this information will allow the user to have a clear indication regarding functioning of the chillers as well as supply any error and/or malfunctioning messages.

Should the user enter a menu and not press any key for a time longer than that set in the screensaver function, the system will automatically return to view the main screen.

• Main MULTI CONTROL screen:

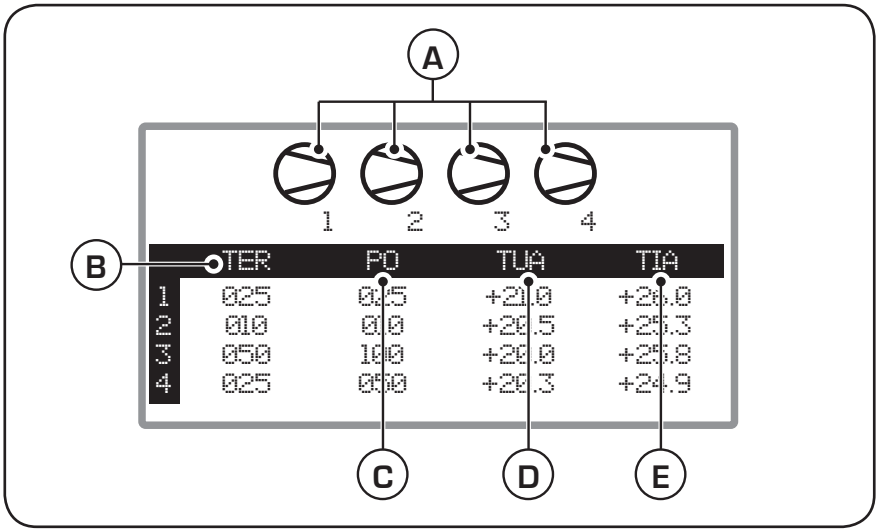


Icon	Function
A	Indicates the status of the system: - if the icon (⏻) is present, the system is on; - if no icon is present, the system is off.
B	Indicates the selected season for the system: - the icon (❄) indicates that the system is working in summer mode; - the icon (☼) indicates that the system is working in winter mode.
C	Indicates the status of the connected chillers (the number below the symbol indicates which chiller the information refers to): - the icon (⏻) indicates that the chiller is on; - the icon (OFF) indicates that the chiller is off; - the icon (SB) indicates that the chiller is standby mode; - the icon (▶) indicates that the chiller pump is on; - the icon(⊗) indicates that the chiller is not communicating with the modbus network of the system; - the icon (!) indicates a failure in the chiller; - the icon (≋) indicates that the chiller is defrosting.
D	Indicates which chiller the data currently displayed on the main window refers to (E, F and G): this parameter could indicate: - U1: indicates that the data refers to chiller 1; - U2: indicates that the data refers to chiller 2; - U3: indicates that the data refers to chiller 3; - U4: indicates that the data refers to chiller 4; - MIX: indicates that the data refers to the SUW and SIW probes of VMF CRP expansion board (1).
E	Indicates the temperature of the water produced by the chiller currently viewed (the number of the chiller currently viewed as indicated by the parameter D).
F	Indicates the inlet temperature of the chiller currently viewed (the number of the chiller currently viewed as indicated by the parameter D).
G	Indicates the outside air temperature detected by the chiller currently viewed (the number of the chiller currently viewed as indicated by the parameter D).
H	Indicates the day of the week.
I	Indicates the system date (day/month/year).
L	Indicates the system time (hours/minutes/seconds).
M	Indicates whether the time period has been set in the system (for the chiller currently viewed in the parameter D).
N	Indicates an alarm status. this indication can represent different situations which can be recognised by the type of icon displayed: - No icon means that no alarms are currently active; - (🔔) an alarm not yet viewed in the alarm log is in progress; - (🔔) an alarm already viewed in the alarm log is in progress. Should an alarm be triggered, these icons will appear until the cause of the alarm has been found.

The MONITOR mode is an additional screen to the main one. It makes it possible to keep the working status of the system chillers under control.

The procedure for accessing this screen is explained on the next page (Basic procedures, Enter in MONITOR mode).

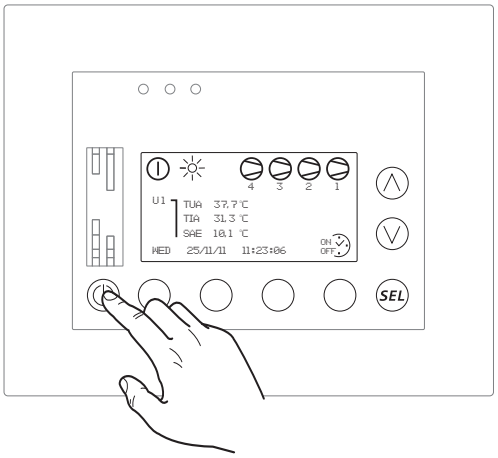
• MONITOR mode screen:



Icon	Function
A	Indicates the status of the connected chillers (the number below the symbol indicates which chiller the information refers to): - the icon [] indicates that the chiller is on; - the icon [] indicates that the chiller is off; - the icon [] indicates that the chiller is standby mode; - the icon [] indicates that the chiller pump is on; - the icon[] indicates that the chiller is not communicating with the modbus network of the system; - the icon [] indicates a failure in the chiller; - the icon [] indicates that the chiller is defrosting.
B	Indicates the percentage of power requested by the thermostat of each chiller (each line is numbered with the chiller index to which it refers).
C	Indicates the percentage of power supplied by the compressor of each chiller (each line is numbered with the chiller index to which it refers).
D	Indicates the outlet temperature from each chiller (each line is numbered with the chiller index to which it refers).
E	Indicates the inlet temperature from each chiller (each line is numbered with the chiller index to which it refers).

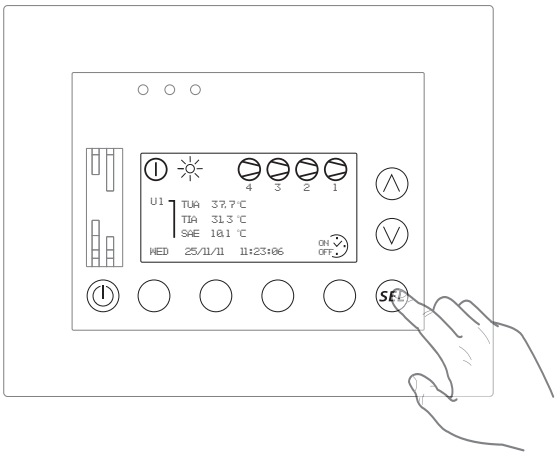
BASIC use procedures

• System ON/OFF:



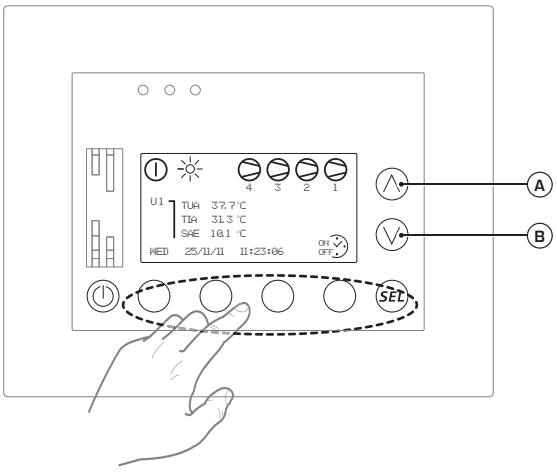
In order to switch the entire system on or off, from the Main screen you must press the indicated key for at least 5 seconds.
Attention: the indicated key is active ONLY while the main screen is viewed.

• Entering menu selection:



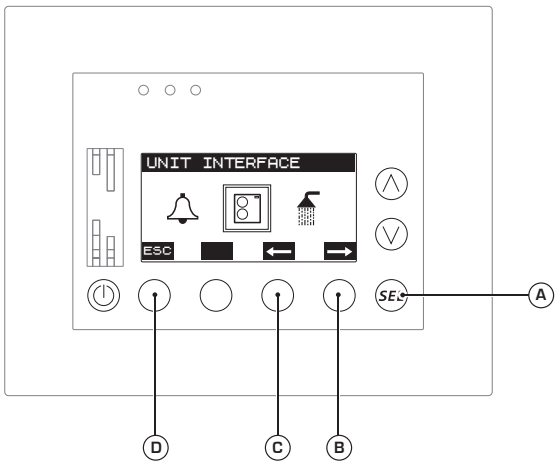
To pass from the main screen to the selection of the menus, just press the key indicated in the figure.

• Entering MONITOR mode:



To pass from the main screen to the monitor mode, just press one of the keys indicated in the figure. Once entered in monitor mode, pressing the key (Ⓐ) will return to the main screen, while pressing the key (Ⓑ) will pass on to menu selection.

• Browsing and choice of a menu:

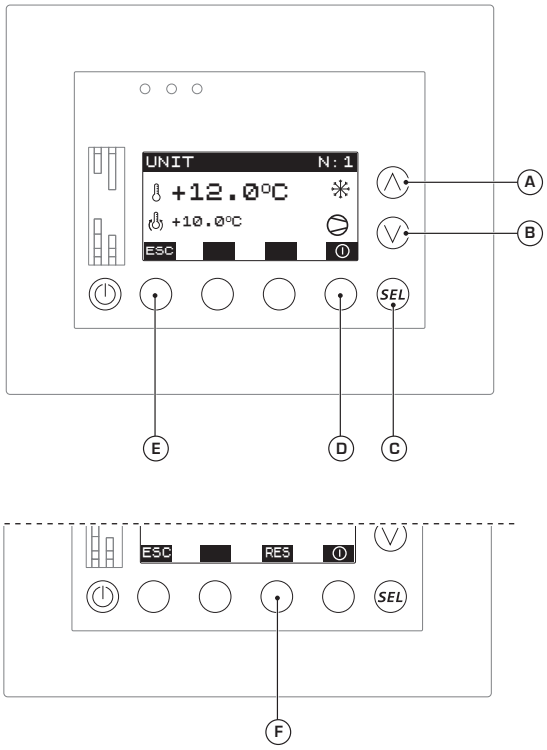


Once you have entered the menu selection mode, an icon inside a frame will appear in the centre of the display. This icon represents the menu which can be currently selected (the label of the menu is also viewed at the top of the display); at this moment the possible operations are:
- Enter the selected menu (by pressing the Ⓐ key).
- Select the subsequent menu (by pressing the Ⓑ key).
- Select the previous menu (by pressing the Ⓒ key).
- Exit the menu selection mode, returning to the main screen (by pressing the Ⓓ key).

ATTENTION: the succession of the menus is indicated in full in the chapter “structure of the MULTI CONTROL menus”.

UNIT SYNOPTIC menu procedures

• Checking status of chillers present in the system:



The first window of the UNIT SYNOPTIC menu allows the user to monitor the status and settings of the chillers installed in the system; this window displays the following information:

- **Chiller currently selected** (1): indicates which chiller the displayed data refers to (1st, 2nd, 3rd or 4th chiller).

- **Active functioning mode** (2): indicates which functioning mode is currently set on the chiller selected; the symbols which may be viewed are:
- ☼ (chiller mode = WINTER).
- ❄ (chiller mode = SUMMER).

- **Chiller status** (3): indicates the status of the chiller currently selected; the symbols which can be viewed are:
- the icon ( ) indicates that the chiller is on;
- the icon ( ) indicates that the chiller is off;
- the icon ( ) indicates that the chiller is standby mode;
- the icon ( ) indicates that the chiller pump is on;
- the icon( ) indicates that the chiller is not communicating with the modbus network of the system;
- the icon ( ) indicates that the chiller has an alarm;
- the icon ( ) indicates that the chiller is defrosting.

- **Water outlet temperature** (4): indicates the temperature of the water currently produced by the selected chiller. If the chiller has a fault, the icon ( ) will be replaced by the icon ( ). Furthermore, in place of the temperature value, there will be the alarm code currently active. By pressing the key (F) a reset control can be sent to the faulty unit.

- **Current work setting** (5): indicates the work setting currently used by the chiller selected.

From this window it is possible to:

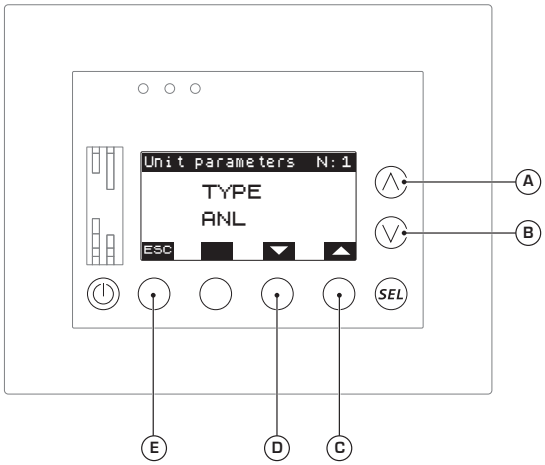
(1) Select one of the chillers of the system:
by pressing the key (C) the number of the chiller currently selected is highlighted (1); after which pressing the key (A) will pass on to the subsequent chiller, while pressing the key (B) will select the previous chiller; press the key (C) to confirm the choice.

(2) Enable or disable the selected chiller:
by pressing the key (D), the chiller can be enabled or disabled; the icons above the key (D) which represent these two states are:
- ⏻ (represents the ENABLED status);
- ○ (represents the DISABLED status).
If the unit is ENABLED, it will be managed based on the settings supplied by its work set point and by the eventual hourly program associated; if on the other hand this unit is DISABLED, it will be forced to remain in the OFF status until it is enabled once again.

(3) Pass on to the next window:
to go to the next window of this menu, press the key (B).

(4) Exit this window:
press the keys (A) or (E) to return to the selection of the menus.

• Reading of characteristic parameters of chillers:



The second window of the UNIT SYNOPTIC menu allows the user to read the values of the main operating parameters of the selected chiller; this window displays the following information:

- **Chiller currently selected** (1): indicates which chiller the displayed data refers to (1st, 2nd, 3rd or 4th chiller); this choice can ONLY be modified on the page prior to this menu.

- **Parameter label** (2): indicates which parameter the displayed value refers to; the table on the next page matches the parameter labels and their descriptions.

- **Parameter value** (3): indicates the current value of the displayed parameter.

From this window it is possible to:

(1) Pass on to the next parameter:
pressing the key (C) displays the next parameter, identified by a new label and relative value.

(2) Go back to the previous parameter:
pressing the key (D) displays the previous parameter, identified by a new label and relative value.

(3) Pass on to the next window:
to go to the next window of this menu, press the key (B).

(4) Go back to the previous window:
to go back to the previous window of this menu, press the key (A).

(5) Exit this window:
press the (E) key to return to the selection of the menus.

Matching between operating parameters and units:

Label	Description	ANL	ANLi	ANR ANF SRPV1	ANL-C	WRL [1]	ANKi
TYPE	Type of unit	✔	✔	✔ [2]	✔	✔	✔
TIA	Water inlet temperature	✔	✔	✔	✔	✔	✔
TUA	Water outlet temperature	✔	✔	✔	✔	✔	✔
TSB	Coil temperature	✔	✔	✔	✔	✖	✔
TGP	Pressing gas temperature	✔	✔	✔	✔	✖	✔
SIWH	Condenser inlet water temperature	✖	✖	✖	✖	✔	✖
SUWH	Condenser outlet water temperature	✖	✖	✖	✖	✔	✖
TAE	External air temperature	✔	✔	✔	✔	✔	✔
AP	High pressure	✔	✔	✔	✔	✔	✔
BP	Low pressure	✔	✔	✔	✔	✔	✔
HCO	Primary circuit compressor operating hours	✔	✔	✔	✔	✔	✔
SPO	Primary circuit compressor start-ups	✔	✔	✔	✔	✔	✔
REL	Software relay (MAIN)	✔	✔	✔	✔	✔	✔
BLD	Software relay (SECONDARY)	✔	✔	✔	✔	✔	✔
SET	Current work setting of chiller	✔	✔	✔	✔	✔	✔
HC1	Secondary circuit compressor operating hours	✔	✔	✔	✔	✔	✔
SP1	Secondary circuit compressor start-ups	✔	✔	✔	✔	✔	✔
STF	Set-point at cooling	✔	✔	✔	✔	✔	✔
STC	Set-point at heating	✔	✔	✔	✔	✔	✔
SAS	Set-point at DHW	✔	✔	✔	✔	✔	✔
PT	Power percentage requested by the thermostat	✔	✔	✔	✔	✔	✔
PO	Power supply by unit (On-Off) or frequency in use (units with inverter compressors)	✔	✔	✔	✔	✔	✔

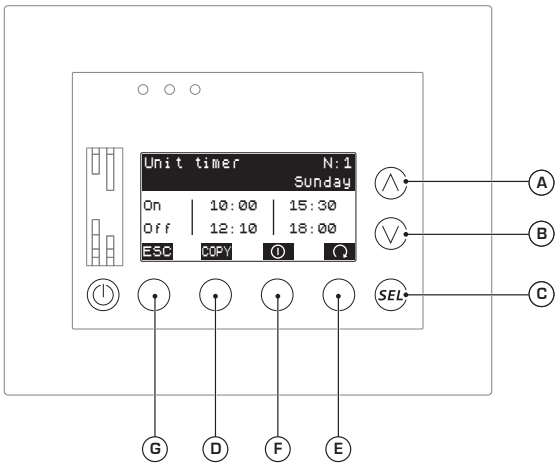
[1] Only models with MODUCONTROL board (WRL cooling only from size 025 to size 160).

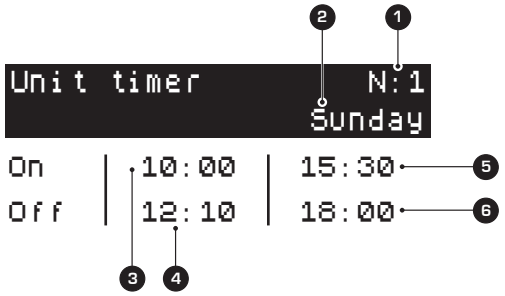
[2] For these units, the TYPE parameter will read the generic R407.

Parameter present = ✔

Parameter NOT present = ✖

• Setting a daily time period:





ATTENTION: The setting of the time periods must have coherent data; the logic to be respected can be summarised with the following relation:

❸ < ❹ < ❺ < ❻

If this relation is not respected, when all the data has been entered a "DATA ERROR" message will appear on the display, disabling the entire daily time period.

If you would like to delete one or more time periods, it is necessary to set the start and end of that time period at 00:00.

The third window of the UNIT SYNOPTIC menu allows the user to set daily time periods (maximum of two for each day of the week) for the chiller currently selected; once the time periods have been activated, the chiller will only run during the time periods (in the set mode), while outside of them it will be off; this window displays the following information:

- **Chiller currently selected** (❶): indicates which chiller the displayed data refers to (1st, 2nd, 3rd or 4th chiller); this choice can ONLY be modified on the first page of this menu.

- Day of the week (❷): indicates which day of the week is managed by the specified time periods.

- First time period ON (❸): indicates the time at which the first time period must start.

- First time period OFF (❹): indicates the time at which the first time period must end.

- Second time period ON (❺): indicates the time at which the second time period must start.

- Second time period OFF (❻): indicates the time at which the second time period must end.

From this window it is possible to:

(1) Activate or deactivate the time periods for the chiller currently selected: to activate or deactivate the time periods for the chiller currently selected, press the key (F); pressing this key will change the symbol highlighted above it according to one of the following states:
- (○) time periods DISABLED for the selected chiller;
- (◐) time periods ENABLED for the selected chiller.
If at least one chiller of the system has the time periods enabled, the symbol ( ) will appear on the main window.

(2) Select a day of the week at which to set the time periods: pressing the key (E) will make it possible to scroll all the days of the week; the day currently selected will appear at the top part of the display (❷).

(3) Set the time periods for the selected day: pressing the key (C) will allow you to enter modification mode and the starting TIME for the first daily time period will be highlighted; at this point, the procedure for setting the time periods will be:
a) press the keys (A) or (B) to increase or decrease the selected value.
b) press the key (C) to confirm and pass on to the subsequent data.
If you wish to set only one daily time period, you must set 00:00 for the start (❺) and for the end (❻) of time period two.

(4) Disable the time periods for the selected day: to disable the time periods on the selected day, ALL time period start and end values must be set at 00:00.

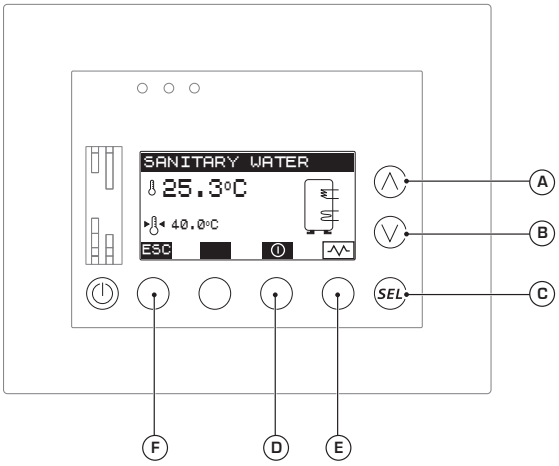
(5) Copy the time periods of the day currently selected on ALL the days of the week: to copy the same settings as the day currently displayed for ALL days of the week, press the key (D).

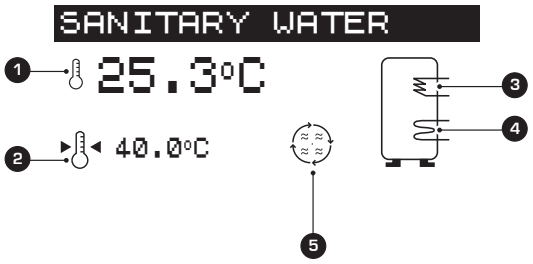
(6) Go back to the previous window:
to go back to the previous window of this menu, press the key (A).

(7) Exit this window:
press the (G) key to return to the selection of the menus.

DOMESTIC HOT WATER SYNOPTIC menu procedures

• Checking status of chillers for the production of domestic hot water:





ATTENTION: this menu is displayed only if the system has heat pumps suitable for the production of domestic hot water.
To manage the production of domestic hot water in a suitable fashion, at least two VMF-CRP modules must be inserted in the system (one for management of the 3-way diverter valves and the other for management of the supplementary electric resistance).

The first window of the DHW SYNOPTIC menu allows the user to monitor the status and settings for production of domestic hot water in the system; this window displays the following information:

- **DHW** storage temperature (1): indicates the current temperature detected inside the DHW storage tank.

- **Set temperature for DHW** (2): Indicates the temperature the system must bring the water inside the DHW storage tank to.

- **Status of water production from heat pump**(3): indicates the status of the heat pump, which can be:
- Fixed image ( ) (this means that the heat pump is not active).
- Flashing image ( ) (this means that the heat pump is active).

- **Status of integration for domestic hot water**(4): indicates the status of any integrations to DHW; the integration can be performed by means of an electrical resistance or a boiler; the supplementary heat sources are represented in the system by the same symbol, which can be:
- NOT DISPLAYED (this means that no supplementary heat source for the production of domestic hot water has been installed).
- Fixed image ( ) (this means that the supplementary heat source is not active).
- Flashing image ( ) (this means that the supplementary heat source is active).

- **DHW system indications** (5): this area indicates particular states during the production of domestic hot water:
- ( ) indicates the absence of communication between the MULTI CONTROL accessory and the heat pump.
- ( ) indicates that the anti-legionella cycle is currently in progress.

From this window it is possible to:

(1) Activate or deactivate the production of domestic hot water: to activate or deactivate the production of domestic hot water, press the key (D); pressing this key will change the symbol highlighted above it according to one of the following states:
- (○) function DISABLED;
- (⏻) function ENABLED.

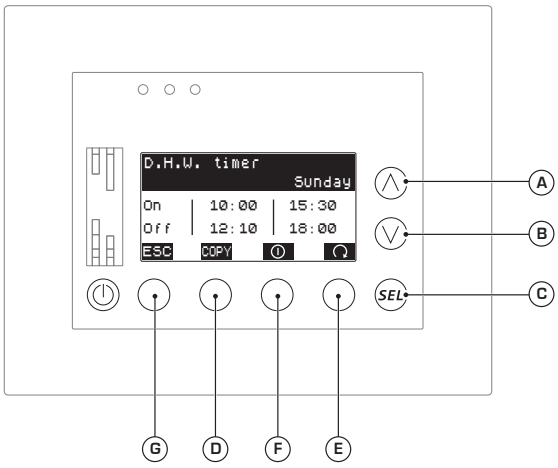
(2) Setting domestic hot water: pressing the key (C) will allow you to enter the modification mode and the value will be highlighted; by pressing the keys (A) or (B) it will be possible to modify the set value, while pressing the key (C) will confirm this choice.

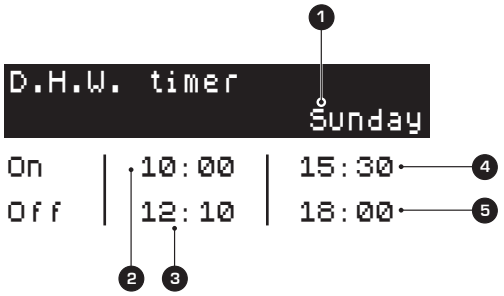
(3) Manually activate or deactivate the integrative heat source: to manually activate or deactivate a supplementary heat source, press the key (E); pressing this key will change the symbol highlighted above it according to one of the following states:
- ( ) supplementary heat source DEACTIVATED;
- ( ) supplementary heat source ACTIVATED.

(4) Pass on to the next window:
to go to the next window of this menu, press the key (B).

(5) Exit this window:
press the keys (A) or (F) to return to the selection of the menus.

• Setting a daily time period for the production of domestic hot water:





ATTENTION: The setting of the time periods must have coherent data; the logic to be respected can be summarised with the following relation:

❷ < ❸ < ❹ < ❺

If this relation is not respected, when all the data has been entered a "DATA ERROR" message will appear on the display, disabling the entire daily time period.

If you would like to delete one or more time periods, it is necessary to set the start and end of that time period at 00:00.

The second window of the DHW SYNOPTIC menu allows the user to set daily time periods (maximum of two for each day of the week) for DHW production; when the time periods are activated, the heat pump will only produce hot water during the time periods; this window displays the following information:

- Day of the week (❶): indicates which day of the week is managed by the specified time periods.

- First time period ON (❷): indicates the time at which the first time period must start.

- First time period OFF (❸): indicates the time at which the first time period must end.

- Second time period ON (❹): indicates the time at which the second time period must start.

- Second time period OFF (❺): indicates the time at which the second time period must end.

From this window it is possible to:

(1) Activate or deactivate the time periods for the production of DHW: to activate or deactivate the time periods for the chiller currently selected, press the key (F); pressing this key will change the symbol highlighted above it according to one of the following states:
- (O) time periods DISABLED;
- (I) time periods ENABLED.
If the system has the time periods enabled, the symbol ( ) will appear on the main window.

(2) Select a day of the week at which to set the time periods: pressing the key (E) will make it possible to scroll all the days of the week; the day currently selected will appear at the top part of the display (❶).

(3) Set the time periods for the selected day: pressing the key (C) will allow you to enter modification mode and the starting TIME for the first daily time period will be highlighted; at this point, the procedure for setting the time periods will be:
a) press the keys (A) or (B) to increase or decrease the selected value.
b) press the key (C) to confirm and pass on to the subsequent data;
If you wish to set only one daily time period, you must set 00:00 for the start (❹) and for the end (❺) of time period two.

(4) Disable the time periods for the selected day: to disable the time periods on the selected day, ALL time period start and end values must be set at 00:00.

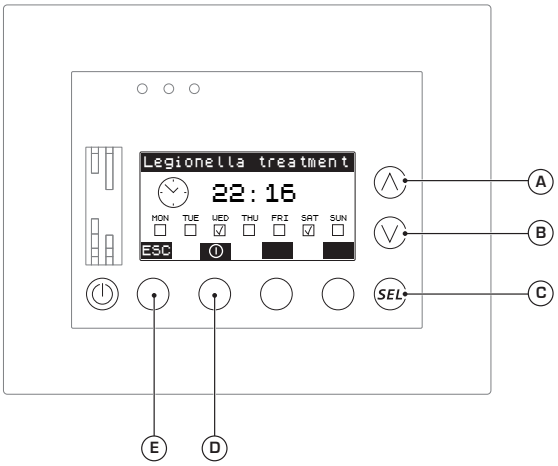
(5) Copy the time periods of the day currently selected on ALL the days of the week: to copy the same settings as the day currently displayed for ALL days of the week, press the key (D).

(6) Go back to the previous window:
to go back to the previous window of this menu, press the key (A).

(7) Pass on to the next window:
to go to the next window of this menu, press the key (B).

(8) Exit this window:
press the (G) key to return to the selection of the menus.

• Setting the anti-Legionella cycle:



ATTENTION: In systems which use a storage tank for the production of domestic hot water, the anti-Legionella cycle must be ACTIVE.

TO CORRECTLY EXECUTE THE ANTI-LEGIONELLA CYCLE, THE SYSTEM MUST HAVE A SUPPLEMENTARY HEAT SOURCE (RESISTANCE OR BOILER) BY MEANS OF WHICH IT IS POSSIBLE TO REACH THE TEMPERATURE NECESSARY FOR THE ANTI-LEGIONELLA CYCLE (65°C).

The third window of the DHW SYNOPTIC menu allows the user to set the time and days on which to carry out the anti-legionella cycle; this window displays the following information:

- Anti-legionella cycle starting time (1): indicates the time at which the anti-legionella cycle will be carried out (for all the days selected).

- Days on which to carry out the anti-legionella cycle (2): indicates the days on which the anti-legionella cycle must be carried out.

From this window it is possible to:

(1) Set the anti-legionella cycle: pressing the key (C) will allow you to enter modification mode and the starting TIME for the anti-legionella cycle will be highlighted; at this point, the procedure for setting the anti-legionella cycle will be:
a) Press the key (A) to increase the selected value or the key (B) to decrease it.
b) Press the key (C) to confirm the selection and pass on to set the minutes.
c) Press the key (A) to increase the selected value or the key (B) to decrease it.
d) Press the key (C) to confirm the selection and to pass on to set the days in which the cycle will be performed; the first day of the week will be highlighted.
e) Press the key (A) or (B) to select (☑) or to clear (☐) the day highlighted.
f) Press the key (C) to confirm the selection and pass on to set the next day.
g) Repeat points **(f)** and **(g)** for all the days of the week; after having confirmed the selection or cleared Friday, the setting of the anti-legionella cycle will be concluded.

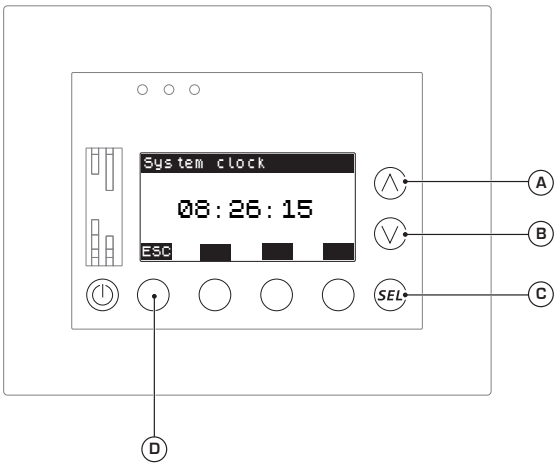
(2) Activate or deactivate the anti-legionella cycle: to activate or deactivate the anti-legionella cycle, press the key (D); pressing this key will change the symbol highlighted above it according to one of the following states:
- (○) anti-legionella cycle DISABLED;
- (◐) anti-legionella cycle ENABLED.

(3) Go back to the previous window:
to go back to the previous window of this menu, press the key (A).

(5) Exit this window:
press the (E) key to return to the selection of the menus.

User manual - Date time MENU PROCEDURES

• Setting the time of the system:



The first window of the DATE TIME MENU allows the user to set the time of the system; this window displays the following information:

- Current time set in the system (1): indicates the time set for the system; all the timers of the MULTI CONTROL panel will be managed by using the time set in this parameter.

From this window it is possible to:

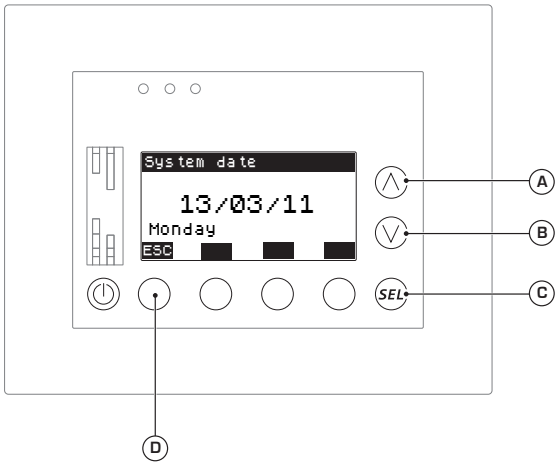
(1) Set system time: pressing the key (C) will allow you to enter modification mode and the TIME will be highlighted; at this point, the procedure for setting the system time will be:
a) Press the key (A) to increase the hour or the key (B) to decrease it.
b) Press the key (C) to confirm the selection and pass on to set the minutes.
c) Press the key (A) to increase the selected value or the key (B) to decrease it.
d) Press the key (C) to confirm the selection and pass on to set the seconds.
c) Press the key (A) to increase the selected value or the key (B) to decrease it.
d) Press the key (C) to confirm the selection and exit time modification mode.

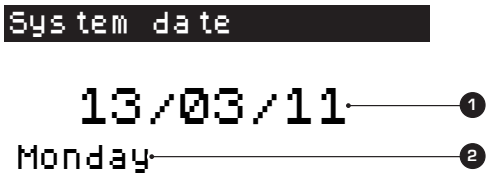
(2) Pass on to the next window:
to go to the next window of this menu, press the key (B).

(3) Exit this window:
press the key (A) to return to the selection of the USER menus.

(4) Exit this window:
press the key (D) to return to the selection of the main menus.

• Setting the date of the system:





The second window of the DATE TIME MENU allows the user to set the date of the system; this window displays the following information:

- Current date set in the system (1): indicates the date set for the system; all the timers of the MULTI CONTROL panel will be managed by using the date set in this parameter.

From this window it is possible to:

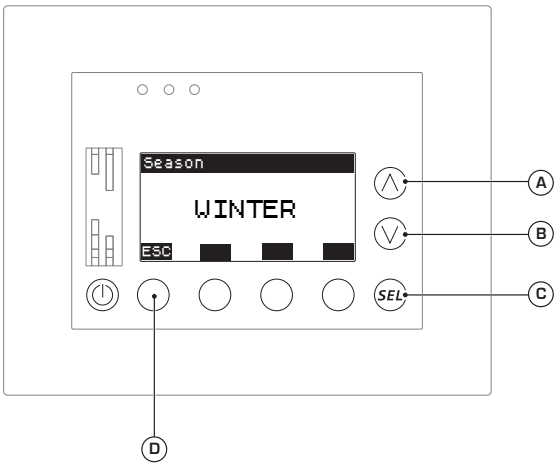
(1) Set system date: pressing the key (C) will allow you to enter modification mode and the DAY will be highlighted; at this point, the procedure for setting the system date will be:
a) Press the key (A) to increase the day or the key (B) to decrease it.
b) Press the key (C) to confirm the selection and pass on to set the month.
c) Press the key (A) to increase the selected value or the key (B) to decrease it.
d) Press the key (C) to confirm the selection and pass on to set the year.
e) Press the key (A) to increase the selected value or the key (B) to decrease it.
f) Press the key (C) to confirm the selection and pass on to set the day of the week.
g) Press the key (A) to increase the selected value or the key (B) to decrease it.
h) Press the key (C) to confirm the selection and exit date modification mode.

(2) Go back to the previous window:
to go back to the previous window of this menu, press the key (A).

(3) Exit this window:
press the key (D) to return to the selection of the main menus.

User manual - SEASON MENU PROCEDURES

• Setting the season of the system:



The first window of the SEASON MENU allows the user to set the functioning mode; this window displays the following information:

- Season set in the system (1): indicates the season set for the system; the chillers of the system will be managed according to that set in this parameter (if the functioning logic foresees it).

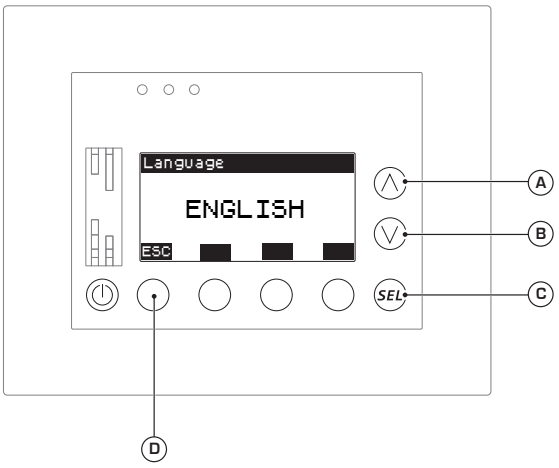
From this window it is possible to:

(1) Set system season: pressing the key (C) will allow you to enter the modification mode and the season will be highlighted; by pressing the keys (A) or (B) it will be possible to modify the season, while pressing the key (C) will confirm this choice; the values possible are:
- WINTER (heating mode; this mode is only possible if the units of the system are heat pumps or heating only units).
- SUMMER (cooling mode; this mode is NOT possible if the units of the system are heat pumps or heating only units).

(2) Exit this window:
press the key (A) to return to the selection of the USER menus.

(3) Exit this window:
press the key (D) to return to the selection of the main menus.

• Setting the language of the system:



The first window of the DISPLAY MENU allows the user to set the interface language; this window displays the following information:

- Language set in the system (1): indicates the language set for the system interface.

From this window it is possible to:

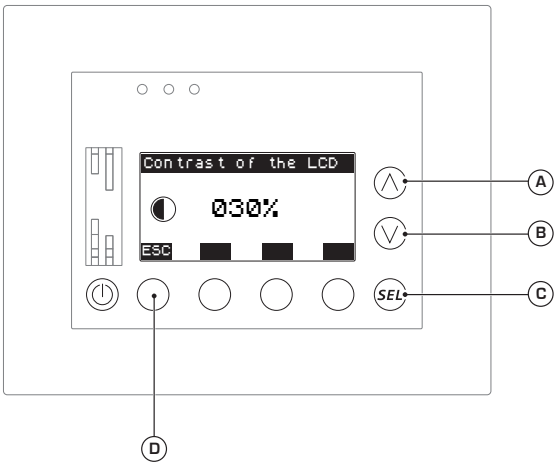
(1) Set system language: pressing the key (C) will allow you to enter the modification mode and the language will be highlighted; by pressing the keys (A) or (B) it will be possible to modify the language, while pressing the key (C) will confirm this choice.

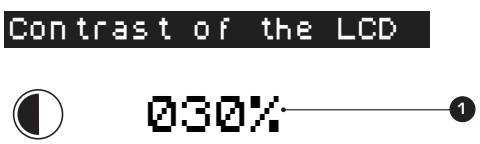
(2) Exit this window:
press the key (A) to return to the selection of the USER menus.

(3) Pass on to the next window:
to go to the next window of this menu, press the key (B).

(4) Exit this window:
press the key (D) to return to the selection of the main menus.

• Setting the visual contrast of the display:





The second window of the DISPLAY MENU allows the user to set the display contrast mode; this window displays the following information:

- Display contrast (1): indicates the percentage of contrast currently defined for the display.

From this window it is possible to:

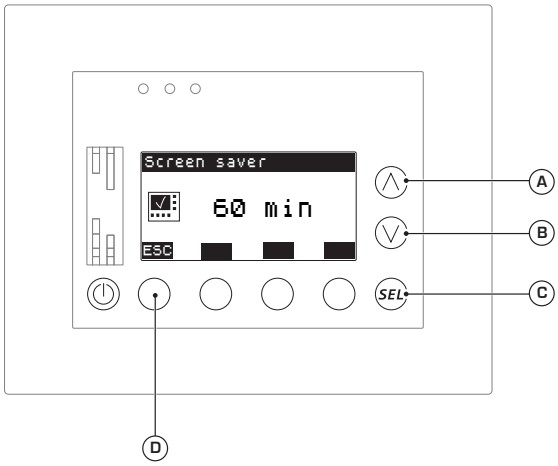
(1) Set the display contrast: pressing the key (C) will allow you to enter the modification mode and the value will be highlighted; by pressing the keys (A) or (B) it will be possible to modify the contrast value, while pressing the key (C) will confirm this choice.

(2) Go back to the previous window:
to go back to the previous window of this menu, press the key (A).

(3) Pass on to the next window:
to go to the next window of this menu, press the key (B).

(4) Exit this window:
press the key (D) to return to the selection of the main menus.

• Setting the screen saver:



The third window of the DISPLAY MENU allows the user to set the idle time after which the screen saver will be activated (namely return automatically to the main screen); this window displays the following information:

- Screen saver activation time (1): indicates the idle time after which the screen saver switches on.

From this window it is possible to:

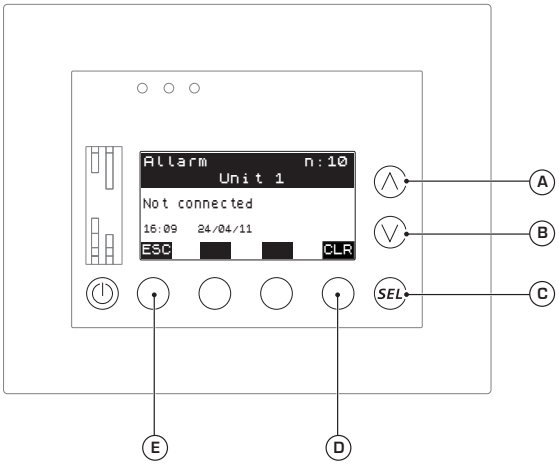
(1) Set the activation time of the screen saver: pressing the key C will allow you to enter the modification mode and the value will be highlighted; by pressing the keys A or B it will be possible to modify the value, while pressing the key C will confirm this choice.

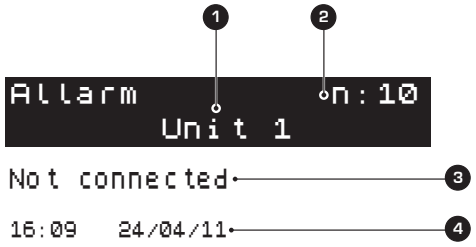
(2) Go back to the previous window:
to go back to the previous window of this menu, press the key A.

(3) Exit this window:
press the key D to return to the selection of the main menus.

ALARMS MEMORY menu procedures

• Alarm log display:





The windows of the ALARMS MEMORY menu allow the user to view the cards of the last ten alarms triggered in the system; this window displays the following information:

- **Unit from which the alarm was triggered** (1): indicates which unit the alarm described in the card currently displayed refers to.

- **Alarm card index** (2): indicates the index of the alarm card currently displayed; the alarm memory can contain a maximum of 10 alarm cards, displayed in chronological order (from the most to the least recent), therefore the first card displayed will have a larger index; each new alarm (after the first 10) automatically cancels the card of the oldest alarm recorded (namely the alarm with index 1).

- **Alarm label** (3): indicates the type of alarm which occurred; this label makes the alarm easy to recognise, the list of which is carried in the table on the next page.

- **Time and date of the alarm** (4): indicates the time and date when the alarm occurred.

From this window it is possible to:

(1) Scroll the alarm cards: the alarm log can store a maximum of 10 alarm cards (each card represents one alarm), displayed in chronological order (therefore from the larger to the smaller index); to scroll the cards, it is necessary to:
a) Press the key (A) to go back to the previous card.
b) Press the key (B) to pass on to the next card.

(2) Cancel the alarm log: press the key (D) to cancel the alarm log.

ATTENTION: cancelling the alarm log DOES NOT reset the alarm, but only cancels its history card.

(3) Exit this window:
press the keys (A) or (E) to return to the selection of the menus.

Description label alerts:

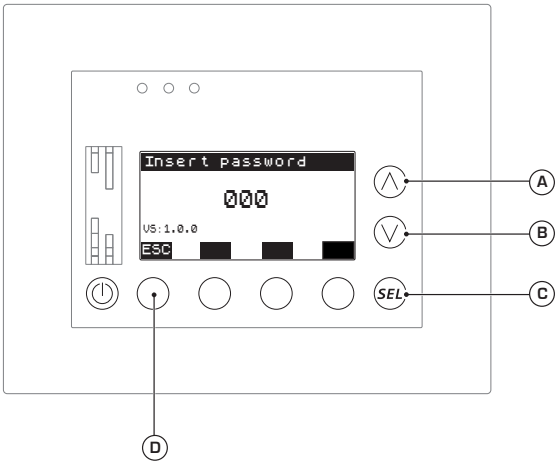
Origin of alarm [1]	Alarm label [2]	Description
System	EEPROM error	Incorrect initialisation of MULTI CONTROL panel memory.
Unit (n°)	Not connected	Unit not connected to MULTI CONTROL RS485 network.
	AL XXXX (in this case the code associated to the alarm is transmitted by the chiller board; for further information concerning chiller alarm codes, refer to the user manual of the unit)	Alarm defined by unit.
DHW	No anti-legionella	The anti-legionella cycle did not conclude properly.
	No hot water	The domestic hot water production cycle did not conclude properly.
	Incorrect DHW setting	The operating setting is greater than the maximum operating temperature of the HP and there is no RAS.
VMF CRP 1	Exp not connected	Expansion board not connected to MULTI CONTROL RS485 network.
	SUW probe faulty	Mix water outlet temperature probe faulty.
	SIW probe faulty	Mix water inlet temperature probe faulty.
	SAS probe faulty	DHW probe faulty.
	SAE probe faulty	External air temperature probe faulty.
VMF CRP 2	Exp not connected	Expansion board not connected to MULTI CONTROL RS485 network.
	Resistance faulty	RAS resistance broken.
VMF CRP 3	Exp not connected	Expansion board not connected to MULTI CONTROL RS485 network.

[1] This parameter is displayed in the alarm cards at index (1).

[2] This parameter is displayed in the alarm cards at index (3).

SETUP MENU procedures

• Entering password for level selection:



The first window of the SETUP MENU allows the user to enter the password to access the protected parameters of the MULTI CONTROL device; there are two levels:
- **USER level** (contains the operating parameters which can freely be set by the user).
- **INSTALLER level** (contains both the operating parameters of the user level and the specific parameters the setting or modification of which is RESERVED to installation or assistance personnel of the units insofar as an incorrect setting of the values in these parameters could cause the units to be damaged or malfunction); this window displays the following information:

- **Password** (1): indicates the password to access the various submenus.

- **Software version** (2): indicates the software version currently installed on the device.

From this window it is possible to:

(1) Enter an access password: pressing the key (C) will allow you to enter the modification mode and the value of the password will be highlighted; by pressing the keys (A) or (B) it will be possible to modify the first digit, while pressing the key (C) will confirm the value, automatically selecting the next digit; the selection and confirmation procedure will be repeated for all three digits; after the third digit has been confirmed, you will access the submenus of the level to which the password referred, or, if the password is incorrect, an error message will appear.

(3) Exit this window:
press the keys (A) or (D) to return to the selection of the menus.

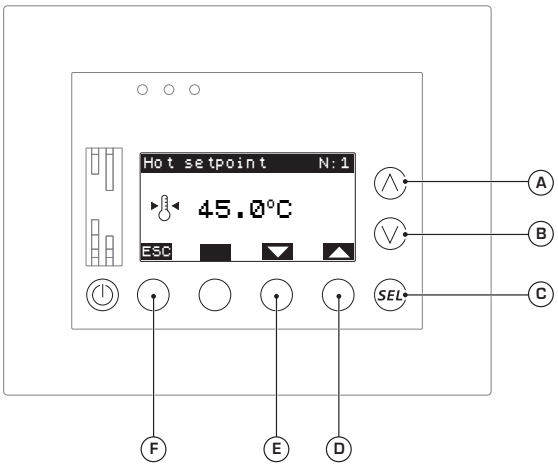
The password values are:

USER LEVEL = 101

INSTALLER LEVEL = 303

Setup menu - UNIT SETUP procedures

• Setting working mode at HEATING (Password 101 or 303):



The first window of the UNIT SETUP allows the user to set the working mode at heating (valid if heat pump units or heating only units are installed in the system); this window displays the following information:

- Index of the unit to which the setting refers (1): indicates which unit (1, 2, 3 or 4) the work setting refers to.

- Heating setting (2): indicates the heating operating set-point of the units managed by MULTI CONTROL.

From this window it is possible to:

(1) Select a unit to set at heating mode: pressing the keys (D) or (E) decreases or increases the index which indicates which unit the work setting currently displayed refers to (1); remember that each unit can be set with different work settings.

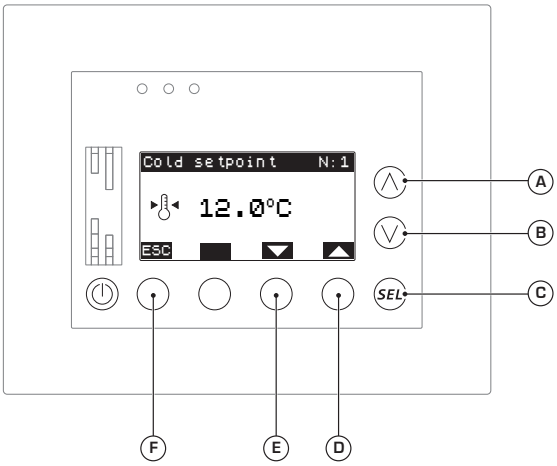
(2) Setting at heating mode: pressing the key (C) will allow you to enter the modification mode and the value will be highlighted; by pressing the keys (A) or (B) it will be possible to modify the set value, while pressing the key (C) will confirm this choice.

(3) Pass on to the next window:
to go to the next window of this menu, press the key (B).

(4) Exit this window:
press the key (A) to return to the selection of the SETUP menus.

(5) Exit this window:
press the key (F) to return to the selection of the USER menus.

• Setting working mode at COOLING (Password 101 or 303):



The second window of the UNIT SETUP allows the user to set the working mode at cooling (invalid if heating only units are installed in the system); this window displays the following information:

- Index of the unit to which the setting refers (1): indicates which unit (1, 2, 3 or 4) the work setting refers to.

- Cooling setting (2): indicates the cooling operating set-point of the units managed by MULTI CONTROL.

From this window it is possible to:

(1) Select a unit to set at cooling mode: pressing the keys (D) or (E) decreases or increases the index which indicates which unit the work setting currently displayed refers to (1); remember that each unit can be set with different work settings.

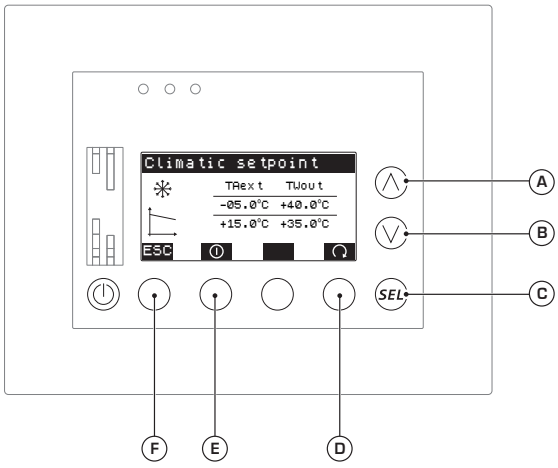
(2) Setting at cooling mode: pressing the key (C) will allow you to enter the modification mode and the value will be highlighted; by pressing the keys (A) or (B) it will be possible to modify the set value, while pressing the key (C) will confirm this choice.

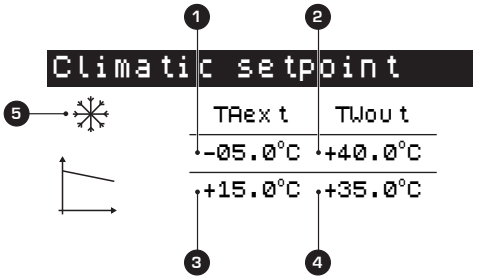
(3) Pass on to the next window:
to go to the next window of this menu, press the key (B).

(4) Go back to the previous window:
to go back to the previous window of this menu, press the key (A).

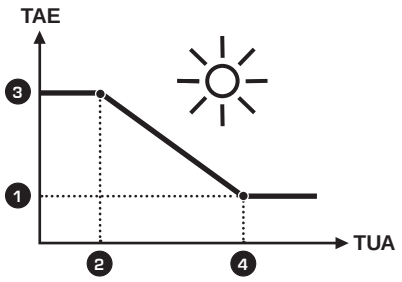
(5) Exit this window:
press the key (F) to return to the selection of the USER menus.

• Setting the compensation function of the working mode (Password 303):



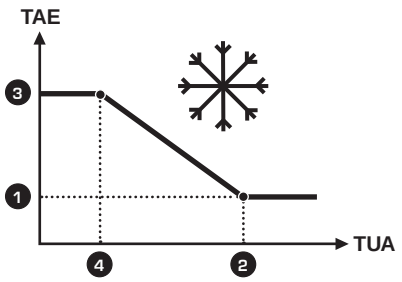


Compensation logic at COOLING:



ATTENTION: 1 < 3, 2 < 4

Compensation logic at HEATING:



ATTENTION: 1 < 3, 2 > 4

TAE = External air temperature.
TUA = Produced water temperature.

The third window of the UNIT SETUP allows the installer to set the compensation function on the work setting based on the external air temperature; this window displays the following information:

- External air temperature value (1) (1): indicates the minimum external air temperature value which the compensation function refers to; depending on the functioning mode (heating or cooling) this value will be connected to the maximum or minimum produced water setting, as indicated in the curves below.

- Work setting value (1) (2): indicates the maximum or minimum work setting value (depending on the heating or cooling functioning mode) connected to the MINIMUM external air value.

- External air temperature value (2) (3): indicates the maximum external air temperature value which the compensation function refers to; depending on the functioning mode (heating or cooling) this value will be connected to the minimum or maximum produced water setting, as indicated in the curves below.

- Work setting value (2) (4): indicates the minimum or maximum work setting value (depending on the heating or cooling functioning mode) connected to the MAXIMUM external air value.

- Compensation label (5): indicates whether the data displayed refers to cooling or heating compensation:
- compensation at COOLING (☼);
- compensation at HEATING (✻).

From this window it is possible to:

(1) Select compensation at heating or at cooling: by pressing the key (D) the data displayed will pass from that referred to heating compensation to that referred to cooling; this data is identified by the relative labels (5).

(2) Set the values for the compensation function: pressing the key (C) will allow you to enter the modification mode and the value (1) will be displayed; by pressing the keys (A) or (B) it will be possible to modify the value, while pressing the key (C) will confirm the choice, automatically selecting the value (2), which can be modified the same way as the previous value; whenever a value is confirmed by pressing the key (C), the next value will be selected until all four values have been entered.

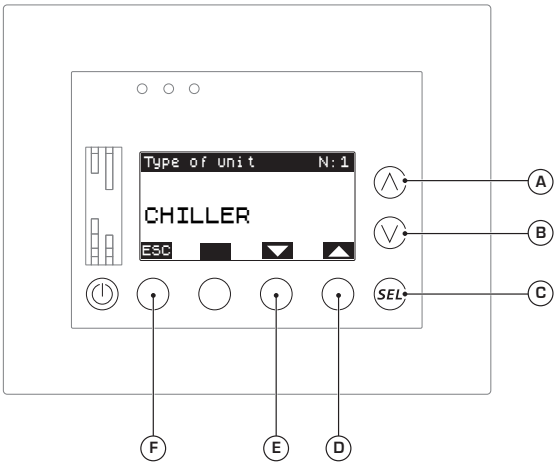
(3) Activate or deactivate the compensation function: to activate or deactivate compensation (both heating and cooling, as it is not possible to activate or deactivate them individually), press the key (E); when this key is pressed, the symbol highlighted above it will change, according to one of the following states:
- (O) compensation DISABLED;
- (I) compensation ENABLED.

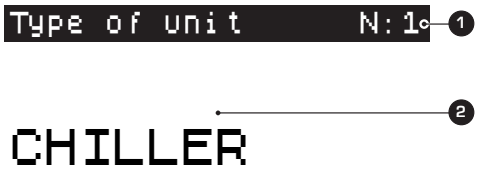
(3) Pass on to the next window:
to go to the next window of this menu, press the key (B).

(4) Go back to the previous window:
to go back to the previous window of this menu, press the key (A).

(5) Exit this window:
press the key (F) to return to the selection of the USER menus.

• Setting the type of units installed (Password 303):





The fourth window of the UNIT SETUP allows the user to set the type of unit installed in the system; this window displays the following information:

- Index of the unit to which the type of unit refers (1): indicates which unit (1, 2, 3 or 4) the data currently displayed refers to.

- Type of unit (2): indicates which type of unit has been installed (numbered in the system based on the index 1).

From this window it is possible to:

(1) Select a unit for which to set the type: pressing the keys D or E decreases or increases the index indicating which unit the work setting currently displayed refers to (1).

(2) Setting type: pressing the key C will allow you to enter the modification mode and the value will be highlighted; by pressing the keys A or B it will be possible to modify the parameter value, while pressing the key C will confirm this choice; the types of units possible are:
- COOLING ONLY.
- HEATING ONLY.
- HEAT PUMP.

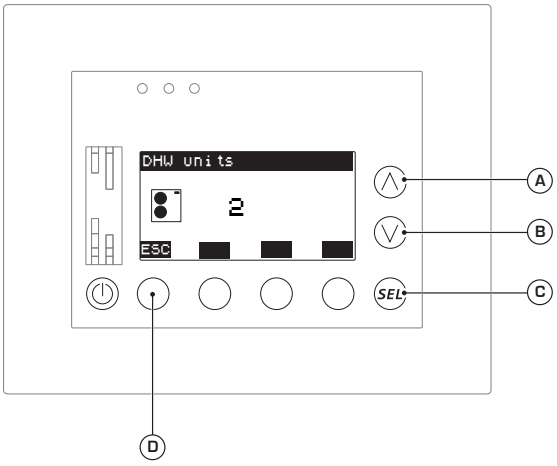
Obviously if the system only has COOLING ONLY units, all the settings linked to heating and DHW production will be deactivated.

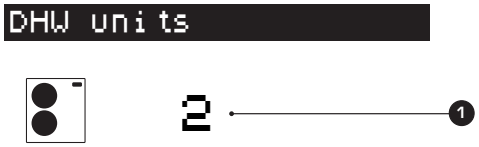
(3) Go back to the previous window:
to go back to the previous window of this menu, press the key A.

(4) Exit this window:
press the key F to return to the selection of the USER menus.

Setup menu - DHW SETUP procedures

• Setting number of units for DHW production (Password 303):





The first window of the DHW SETUP allows the installer to set the number of units producing domestic hot water; this window displays the following information:

- Number of units to produce DHW (1): indicates which units will be used to produce domestic hot water; this parameter also includes any reserve units (if the relative parameter specifies their presence: Setup menu - SYSTEM SETUP procedures - Presence of reserve chiller).

From this window it is possible to:

(1) Set the number of units for DHW production: pressing the key (C) will allow you to enter the modification mode and the value will be highlighted; by pressing the keys (A) or (B) it will be possible to modify the value currently displayed, while pressing the key (C) will confirm this choice.

(2) Pass on to the next window:
to go to the next window of this menu, press the key (B).

(3) Exit this window:
press the key (A) to return to the selection of the SETUP menus.

(4) Exit this window:
press the key (D) to return to the selection of the USER menus.

ATTENTION: to correctly set management of units for DHW production, the following guidelines must be respected:

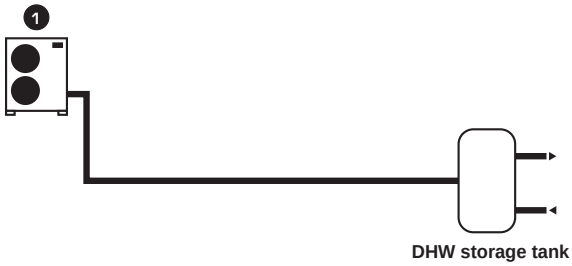
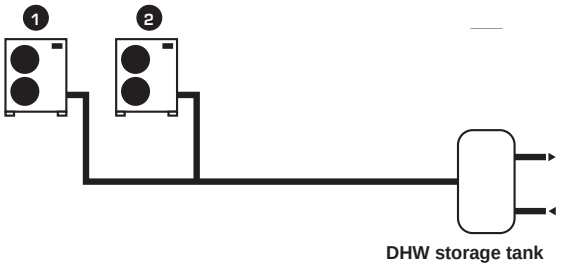
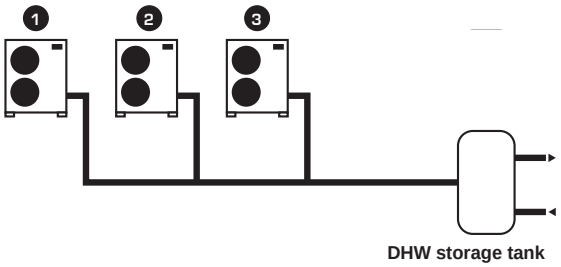
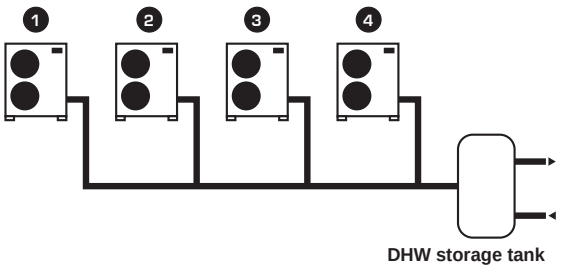
(1) Modbus address of units: the units must have a specific modbus address to be able to be managed properly by the MULTI CONTROL accessory; this address can only be set from the panel on the unit (for further information on procedures for setting a serial address on the units, refer to its user manual); the addresses to be set on the units depend on the number and function which the units perform in the system; to clarify which are the correct addresses to be applied to the units for DHW production, see the summary table on the next page.

(2) Type of unit: if the system is provided with a reserve chiller, this unit will be the one with the highest modbus address (as indicated in the summary table on the next page); moreover, if the system envisions the both possibility of a reserve chiller and DHW production enabling, ALL the units of the system must be capable of producing domestic hot water (therefore they must all be heat pumps or heating only units).

Modbus addresses for units for DHW production (without reserve chiller):

Type of systems for DHW production:
The first three types of systems have one or more units for DHW production, however they can have other COOLING ONLY chillers for the system (MULTI CONTROL manages a maximum of 4 units); in this case, it is MANDATORY that the units used for production of domestic hot water be set with the addresses specified in this table and that eventual cooling only chillers be set with the serial addresses remaining available.

Remember that to identify the units managed by MULTI CONTROL, the addresses available are:
Unit number 1 = Modbus Address 200.
Unit number 2 = Modbus Address 201.
Unit number 3 = Modbus Address 202.
Unit number 4 = Modbus Address 203.

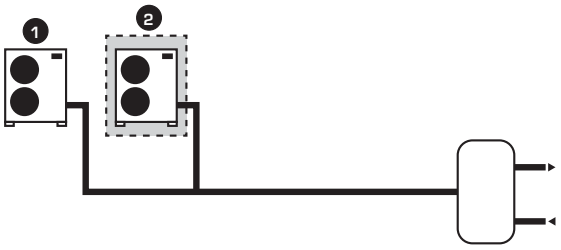
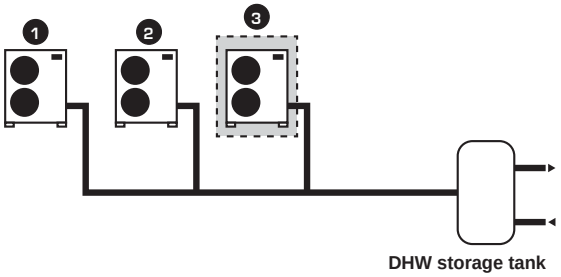
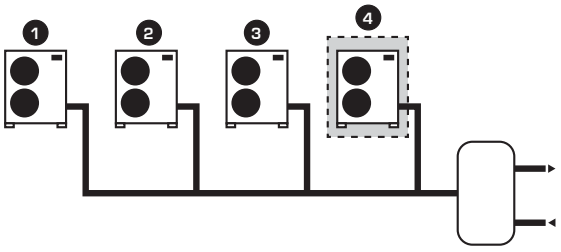
Number of units for DHW	Type of system	Modbus serial addresses [1]			
		❶	❷	❸	❹
1		200	/	/	/
2		200	201	/	/
3		200	201	202	/
4		200	201	202	203

[1] The Modbus serial addresses must be set on the units by means of their on-board control panel.

Modbus addresses for units for DHW production (with reserve chiller):

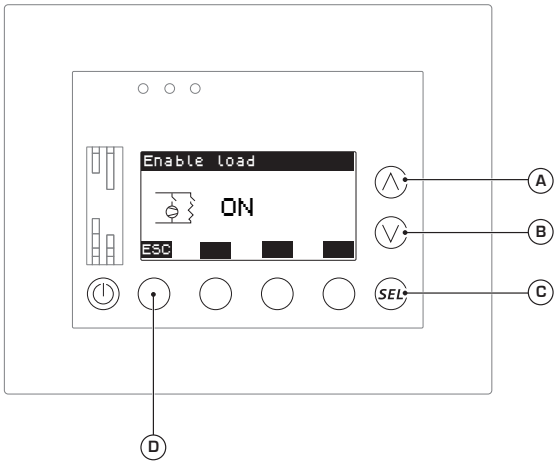
Type of systems for DHW production:
In these types of units where DHW also has a reserve unit, ALL the units managed by MULTI CONTROL must be capable to produce domestic hot water (HEAT PUMPS or HEATING ONLY); the reserve unit is always the last one, namely the one with the highest serial address; this unit will not be activated during the request for domestic hot water, but will only intervene if one or more of the main units are unusable.

Remember that to identify the units managed by MULTI CONTROL, the addresses available are:
Unit number 1 = Modbus Address 200.
Unit number 2 = Modbus Address 201.
Unit number 3 = Modbus Address 202.
Unit number 4 = Modbus Address 203.

Number of units for DHW	Type of system	Modbus serial addresses [1]			
		❶	❷	❸	❹
1		200	/	/	/
2		200	201 Reserve	/	/
3		200	201	202 Reserve	/
4		200	201	202	203 Reserve

[1] The Modbus serial addresses must be set on the units by means of their on-board control panel.

• Setting simultaneous loads in DHW production (Password 101 or 303):



The second window of the DHW SETUP allows the user to set consent for simultaneous loads in the system; this function will make it possible to simultaneously activate (or to prevent this possibility) both the unit (compressor and electric resistance inside the unit) and the supplementary electric resistance RAS inside the DHW storage tank; this window displays the following information:

- Simultaneous load enabling (1): indicates the current status of simultaneous load enabling during the production of domestic hot water.

From this window it is possible to:

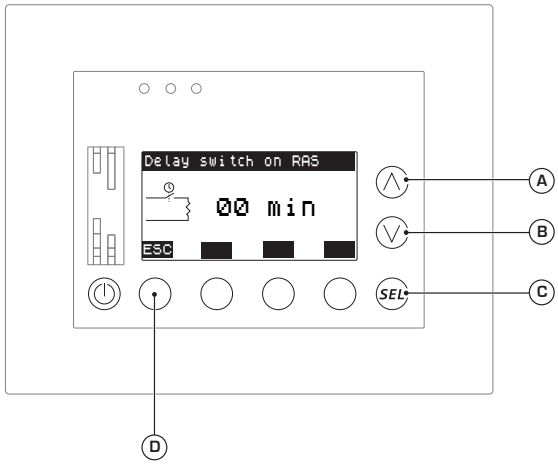
(1) Enable or disable simultaneous loads: pressing the key (C) will allow you to enter the modification mode and the value will be highlighted; by pressing the keys (A) or (B) it will be possible to modify the value currently displayed, while pressing the key (C) will confirm this choice; the values that can be set are:
- ON (Enable simultaneous loads);
- OFF (Disable simultaneous loads).

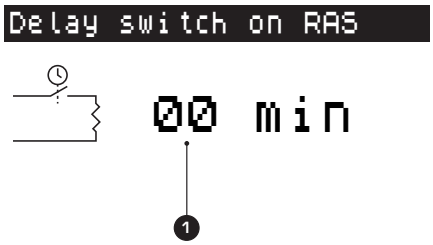
(2) Pass on to the next window:
to go to the next window of this menu, press the key (B).

(3) Go back to the previous window:
to go back to the previous window of this menu, press the key (A).

(4) Exit this window:
press the key (F) to return to the selection of the USER menus.

• Setting RAS activation delay for DHW production (Password 101 or 303):





The third window of the DHW SETUP allows the user to set the delay in activation of the RAS (DHW storage tank resistance); this function will make it possible to activate the RAS after a set amount of time if in the meantime the unit has not met the DHW demand; this window displays the following information:

- RAS switch-on delay time (1): indicates the time currently set before the RAS switches on for the production of domestic hot water; if set at 0, the function is disabled.

From this window it is possible to:

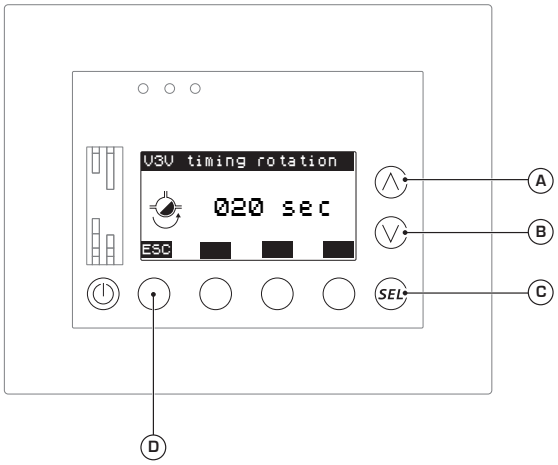
(1) Set an RAS switch-on delay time: pressing the key (C) will allow you to enter the modification mode and the value will be highlighted; by pressing the keys (A) or (B) it will be possible to modify the value currently displayed, while pressing the key (C) will confirm this choice.

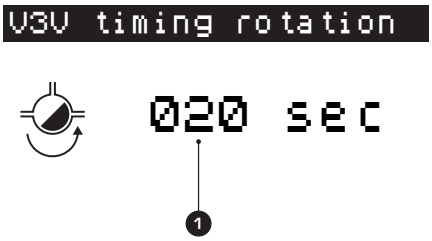
(2) Pass on to the next window:
to go to the next window of this menu, press the key (B).

(3) Go back to the previous window:
to go back to the previous window of this menu, press the key (A).

(4) Exit this window:
press the key (F) to return to the selection of the USER menus.

• Setting diverter valve activation time for DHW production (Password 303):





The fourth window of the DHW SETUP allows the installer to set the rotation time of the 3-way diverter valve; this function will keep the unit from triggering a flow switch alarm during rotation of the 3-way diverter valve (this valve is used to divert the production of water from the system to the DHW storage tank); this window displays the following information:

- Diverter valve rotation time (1): indicates the time of rotation of the diverter valves installed in the system; within this time range, the heat pump which is activated for the production of domestic hot water is OFF to avoid problems with the flow switch.

From this window it is possible to:

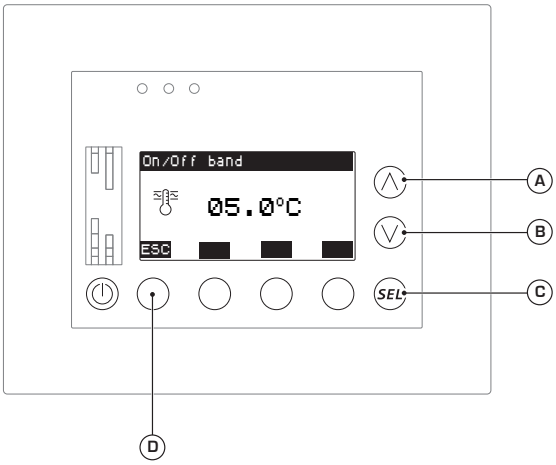
(1) Set a rotation time for the diverter valve: pressing the key (C) will allow you to enter the modification mode and the value will be highlighted; by pressing the keys (A) or (B) it will be possible to modify the value currently displayed, while pressing the key (C) will confirm this choice.

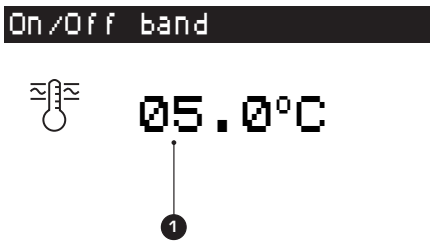
(2) Pass on to the next window:
to go to the next window of this menu, press the key (B).

(3) Go back to the previous window:
to go back to the previous window of this menu, press the key (A).

(4) Exit this window:
press the key (F) to return to the selection of the USER menus.

• Setting ON/OFF band in DHW production (Password 101 or 303):





The fifth window of the DHW SETUP allows the user to set the DHW production ON/OFF band; this function makes it possible to set the minimum and maximum deviation from the domestic hot water setting, in order to activate or deactivate DHW demand; this window displays the following information:

- On/Off band to be applied to the DHW setting (1): indicates the value to be subtracted from or added to the DHW setting, to establish the temperatures at which the system activates or deactivates domestic hot water production.

From this window it is possible to:

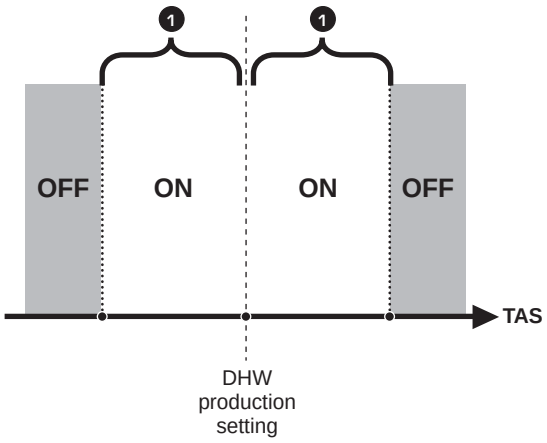
(1) Set a band to be applied to the DHW setting: pressing the key (C) will allow you to enter the modification mode and the value will be highlighted; by pressing the keys (A) or (B) it will be possible to modify the value currently displayed, while pressing the key (C) will confirm this choice.

(2) Pass on to the next window:
to go to the next window of this menu, press the key (B).

(3) Go back to the previous window:
to go back to the previous window of this menu, press the key (A).

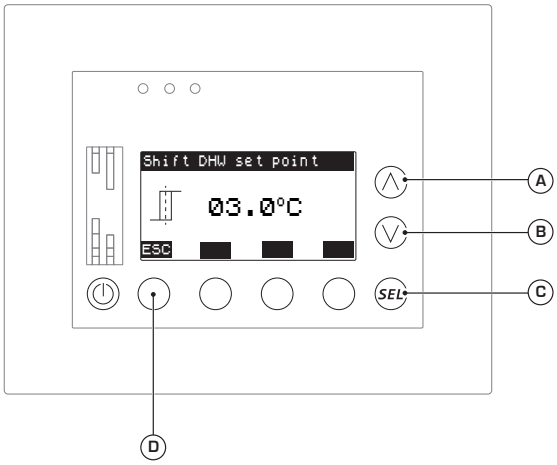
(4) Exit this window:
press the key (F) to return to the selection of the USER menus.

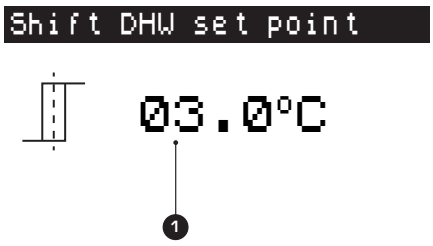
DHW production logic



TAS = DHW storage tank temperature.

• Setting a hysteresis delta in DHW production with several units (Password 303):





The sixth window of the DHW SETUP allows the installer to set a delta to be applied to the DHW setting of the units used for the production of domestic hot water; this function makes it possible to partialise units which produce domestic hot water (when there are several units producing domestic hot water), by moving the settings of these units by the value specified in this parameter; this window displays the following information:

- Hysteresis delta to be applied to the units (1): indicates the value with which to shift the DHW production settings of the secondary units, as indicated in the layout below.

From this window it is possible to:

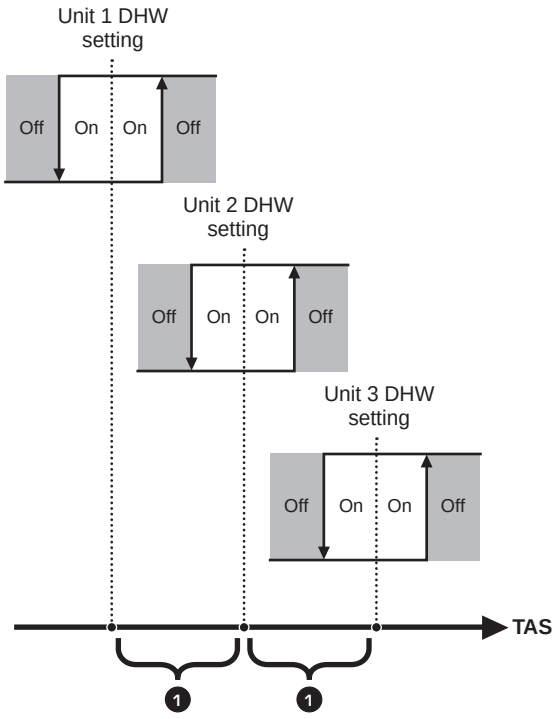
(1) Set a hysteresis delta: pressing the key (C) will allow you to enter the modification mode and the value will be highlighted; by pressing the keys (A) or (B) it will be possible to modify the value currently displayed, while pressing the key (C) will confirm this choice.

(2) Pass on to the next window:
to go to the next window of this menu, press the key (B).

(3) Go back to the previous window:
to go back to the previous window of this menu, press the key (A).

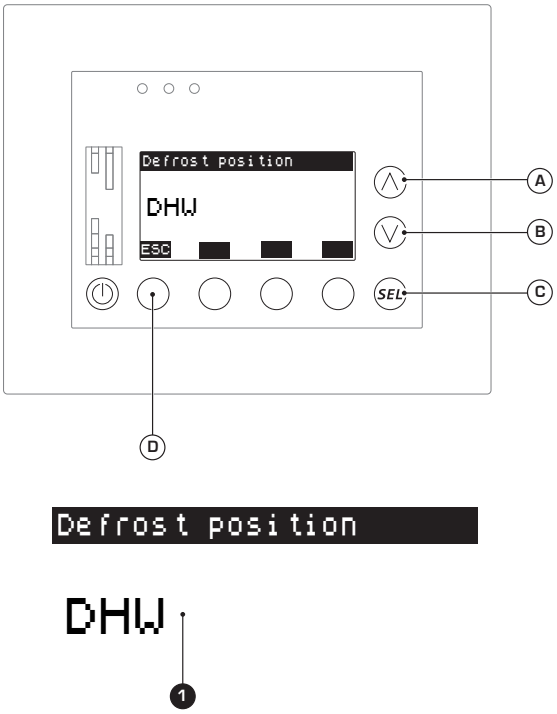
(4) Exit this window:
press the key (F) to return to the selection of the USER menus.

DHW production logic with hysteresis delta



TAS = DHW storage tank temperature.

• Setting the defrosting direction during DHW production (Password 303):



The seventh window of the DHW SETUP allows the installer to set the defrosting direction (on the system or on DHW) should defrosting occur during DHW production; this window displays the following information:

- Defrosting direction (1): indicates the current direction given to the produced water if a defrosting cycle is triggered during DHW production.

From this window it is possible to:

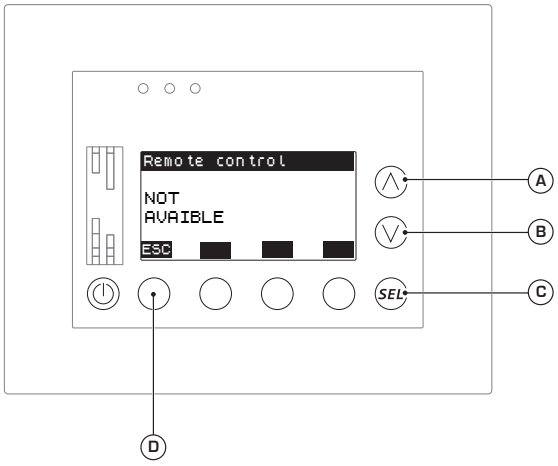
(1) Set defrosting direction during DHW production: pressing the key (C) will allow you to enter the modification mode and the value will be highlighted; by pressing the keys (A) or (B) it will be possible to modify the value currently displayed, while pressing the key (C) will confirm this choice; the values can be:
- DHW (the water flow will remain in the DHW circuit);
- SYSTEM (the water will flow towards the system; in this case the flow rate control will be disabled for the amount of time specified in the relative parameter to keep flow switch alarms from being triggered during the quick change of the valve).

(2) Go back to the previous window:
to go back to the previous window of this menu, press the key (A).

(3) Exit this window:
press the key (F) to return to the selection of the USER menus.

Setup menu - SYSTEM SETUP procedures

• Setting remote control (Password 101 or 303):



The first window of the SYSTEM SETUP allows the user to set the type of remote control (if present) to be applied to the MULTI CONTROL; this window displays the following information:

- Type of remote control (1): indicates which type of remote control is currently applied to the MULTI CONTROL accessory.

From this window it is possible to:

(1) Set the type of remote control: pressing the key C will allow you to enter the modification mode and the value will be highlighted; by pressing the keys A or B it will be possible to modify the value currently displayed, while pressing the key C will confirm this choice; the values that can be set with this parameter are:
- BY VMF CRP 3 MODULE (indicates that remote control is performed by the installed VMF CRP 3 accessory module; for further information, see the installation section of the components of the system in this manual).
- BY MODBUS SERIAL (indicates that the system is controlled by a BMS supervision system; this system is implemented by using the list of variables specified on the following pages).
- NOT PRESENT (no remote control included).

(2) Pass on to the next window:
to go to the next window of this menu, press the key B.

(3) Exit this window:
press the key A to return to the selection of the SETUP menus.

(4) Exit this window:
press the key D to return to the selection of the USER menus.

Modbus addresses for the creation of a BMS system:

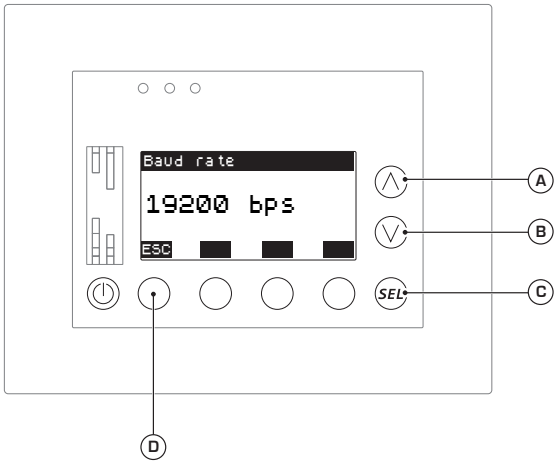
Address	Type of access	MIN. value	MAX value	Unit of measurement	0x03	0x06	0x10	Description
0	R/W	0	1	//	Yes	Yes	Yes	General system On-Off
1	R/W	0	1	//	Yes	Yes	Yes	Unit 1 enabling
2	R/W	0	1	//	Yes	Yes	Yes	Unit 2 enabling
3	R/W	0	1	//	Yes	Yes	Yes	Unit 3 enabling
4	R/W	0	1	//	Yes	Yes	Yes	Unit 4 enabling
5	R/W	0	1	//	Yes	Yes	Yes	Domestic hot water production enabling
6	R/W	0	1	//	Yes	Yes	Yes	Forced enabling of DHW supplementary resistance
7	R/W	200	700	$^1/_{10}$ °C	Yes	Yes	Yes	DHW set temperature
8	R/W	0	1	//	Yes	Yes	Yes	Anti-legionella cycle enabling
9	R/W	0	1	//	Yes	Yes	Yes	System functioning season
10	R/W	200	700	$^1/_{10}$ °C	Yes	Yes	Yes	Heating mode setting for unit 1
11	R/W	-100	300	$^1/_{10}$ °C	Yes	Yes	Yes	Cooling mode setting for unit 1
12	R/W	200	700	$^1/_{10}$ °C	Yes	Yes	Yes	Heating mode setting for unit 2
13	R/W	-100	300	$^1/_{10}$ °C	Yes	Yes	Yes	Cooling mode setting for unit 2
14	R/W	200	700	$^1/_{10}$ °C	Yes	Yes	Yes	Heating mode setting for unit 3
15	R/W	-100	300	$^1/_{10}$ °C	Yes	Yes	Yes	Cooling mode setting for unit 3
16	R/W	200	700	$^1/_{10}$ °C	Yes	Yes	Yes	Heating mode setting for unit 4
17	R/W	-100	300	$^1/_{10}$ °C	Yes	Yes	Yes	Cooling mode setting for unit 4
18	R	0	1	//	Yes	No	No	Hourly program enabling for unit 1
19	R	0	1	//	Yes	No	No	Hourly program enabling for unit 2
20	R	0	1	//	Yes	No	No	Hourly program enabling for unit 3
21	R	0	1	//	Yes	No	No	Hourly program enabling for unit 4
22	R	0	127	//	Yes	No	No	Days on which the anti-legionella cycle is enabled
23	R	0	5947	//	Yes	No	No	Anti-legionella cycle start time
24	R	0	1	//	Yes	No	No	DHW production program enabling
25	R	0	4	//	Yes	No	No	Language selected for displays
26	R	0	100	%	Yes	No	No	LCD contrast
27	R	0	60	s	Yes	No	No	Screen saver
28	R	0	4	//	Yes	No	No	Number of units present in system
29	R	0	1	//	Yes	No	No	Presence of reserve unit
30	R	0	1	//	Yes	No	No	Type of rotation chosen for units
31	R	0	2	//	Yes	No	No	Type of control chosen for unit management
32	R	0	360	s	Yes	No	No	Subsequent unit switch-on delay
33	R	0	360	s	Yes	No	No	Unit switch-off delay
34	R	0	100	%	Yes	No	No	Power threshold percentage for subsequent unit switch-on
35	R	0	100	%	Yes	No	No	Power threshold percentage for subsequent unit switch-off
36	R	-100	300	$^1/_{10}$ °C	Yes	No	No	Cooling mode switch-on temperature during "Delta T Control" functioning
37	R	200	700	$^1/_{10}$ °C	Yes	No	No	Heating mode switch-on temperature during "Delta T Control" functioning
38	R	-100	300	$^1/_{10}$ °C	Yes	No	No	Cooling switch-off temperature of first unit during "Delta T Control" functioning

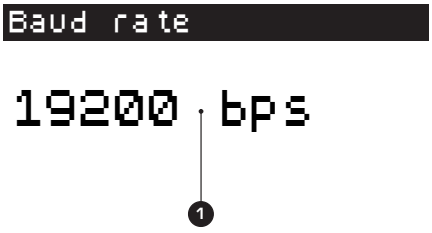
39	R	200	700	1/10 °C	Yes	No	No	Heating switch-off temperature of first unit during "Delta T Control" functioning
40	R	-100	300	1/10 °C	Yes	No	No	Cooling switch-off temperature of second unit during "Delta T Control" functioning
41	R	200	700	1/10 °C	Yes	No	No	Heating switch-off temperature of second unit during "Delta T Control" functioning
42	R	-100	300	1/10 °C	Yes	No	No	Cooling switch-off temperature of third unit during "Delta T Control" functioning
43	R	200	700	1/10 °C	Yes	No	No	Heating switch-off temperature of third unit during "Delta T Control" functioning
44	R	-100	300	1/10 °C	Yes	No	No	Cooling switch-off temperature of fourth unit during "Delta T Control" functioning
45	R	200	700	1/10 °C	Yes	No	No	Heating switch-off temperature of fourth unit during "Delta T Control" functioning
46	R	-200	700	1/10 °C	Yes	No	No	External air temperature threshold Px1 during summer mode
47	R	-200	700	1/10 °C	Yes	No	No	Water outlet temperature threshold Py1 during summer mode
48	R	-200	700	1/10 °C	Yes	No	No	External air temperature threshold Px2 during summer mode
49	R	-200	700	1/10 °C	Yes	No	No	Water outlet temperature threshold Py2 during summer mode
50	R	-200	700	1/10 °C	Yes	No	No	External air temperature threshold Px1 during winter mode
51	R	-200	700	1/10 °C	Yes	No	No	Water outlet temperature threshold Py1 during winter mode
52	R	-200	700	1/10 °C	Yes	No	No	External air temperature threshold Px2 during winter mode
53	R	-200	700	1/10 °C	Yes	No	No	Water outlet temperature threshold Py2 during winter mode
54	R	0	1	//	Yes	No	No	Climatic curve enabling
55	R	0	2	//	Yes	No	No	Unit 1 type
56	R	0	2	//	Yes	No	No	Unit 2 type
57	R	0	2	//	Yes	No	No	Unit 3 type
58	R	0	2	//	Yes	No	No	Unit 4 type
59	R	0	4	//	Yes	No	No	Number of units for domestic hot water production
60	R	0	1	//	Yes	No	No	Simultaneous loads
61	R	0	60	m	Yes	No	No	RAS switch-on delay
62	R	0	120	s	Yes	No	No	Valve rotation time
63	R	20	100	1/10 °C	Yes	No	No	DHW mode setting band
64	R	0	50	1/10 °C	Yes	No	No	DHW mode setting delta
65	R	0	1	//	Yes	No	No	Type of defrosting
66	R	0	2	//	Yes	No	No	Remote control enabling
67	R	0	3	//	Yes	No	No	Baud rate
68	R	0	200	//	Yes	No	No	Address
69	R	0	1	//	Yes	No	No	Presence of expansion module 1
70	R	0	1	//	Yes	No	No	Presence of expansion module 2
71	R	0	1	//	Yes	No	No	Presence of expansion module 3
100	W	0	1	//	Yes	Yes	No	Force reset of units in system

101	R	-200	700	1/10 °C	Yes	No	No	Water outlet temperature
102	R	-200	700	1/10 °C	Yes	No	No	Water inlet temperature
103		-200	700	1/10 °C	Yes	No	No	External air temperature
104		-30	150	1/10 °C	Yes	No	No	Pressing gas temperature
105		-30	150	1/10 °C	Yes	No	No	Coil temperature
106		0	42	bar	Yes	No	No	High Pressure
107		0	42	bar	Yes	No	No	Low Pressure
108		0	150	Hertz or %	Yes	No	No	Inverter instant frequency/power
109	R	-200	700	1/10 °C	Yes	No	No	Instant control setting
110	R	0	6	//	Yes	No	No	Unit status (0:OFF, 1:STAND_BY, 2:PUMP_ON, 3:COMPRESSOR_ON, 4:DEFROSTING, 5: NOT CONNECTED, 6: ALARM PRESENCE)
111	R	0	1	//	Yes	No	No	Unit season (0:cooling, 1:heating)
112	R	0	255	//	Yes	No	No	Alarm code
113	R	-200	700	1/10 °C	Yes	No	No	Water outlet temperature
114	R	-200	700	1/10 °C	Yes	No	No	Water inlet temperature
115		-200	700	1/10 °C	Yes	No	No	External air temperature
116		-30	150	1/10 °C	Yes	No	No	Pressing gas temperature
117		-30	150	1/10 °C	Yes	No	No	Coil temperature
118		0	42	bar	Yes	No	No	High Pressure
119		0	42	bar	Yes	No	No	Low Pressure
120		0	150	Hertz or %	Yes	No	No	Inverter instant frequency/power
121	R	-200	700	1/10 °C	Yes	No	No	Instant control setting
122	R	0	6	//	Yes	No	No	Unit status (0:OFF, 1:STAND_BY, 2:PUMP_ON, 3:COMPRESSOR_ON, 4:DEFROSTING, 5: NOT CONNECTED, 6: ALARM PRESENCE)
123	R	0	1	//	Yes	No	No	Unit season (0:cooling, 1:heating)
124	R	0	255	//	Yes	No	No	Alarm code
125	R	-200	700	1/10 °C	Yes	No	No	Water outlet temperature
126	R	-200	700	1/10 °C	Yes	No	No	Water inlet temperature
127		-200	700	1/10 °C	Yes	No	No	External air temperature
128		-30	150	1/10 °C	Yes	No	No	Pressing gas temperature
129		-30	150	1/10 °C	Yes	No	No	Coil temperature
130		0	42	bar	Yes	No	No	High Pressure
131		0	42	bar	Yes	No	No	Low Pressure
132		0	150	Hertz or %	Yes	No	No	Inverter instant frequency/power
133	R	-200	700	1/10 °C	Yes	No	No	Instant control setting
134	R	0	6	//	Yes	No	No	Unit status (0:OFF, 1:STAND_BY, 2:PUMP_ON, 3:COMPRESSOR_ON, 4:DEFROSTING, 5: NOT CONNECTED, 6: ALARM PRESENCE)
135	R	0	1	//	Yes	No	No	Unit season (0:cooling, 1:heating)
136	R	0	255	//	Yes	No	No	Alarm code
137	R	-200	700	1/10 °C	Yes	No	No	Water outlet temperature
138	R	-200	700	1/10 °C	Yes	No	No	Water inlet temperature
139		-200	700	1/10 °C	Yes	No	No	External air temperature
140		-30	150	1/10 °C	Yes	No	No	Pressing gas temperature
141		-30	150	1/10 °C	Yes	No	No	Coil temperature
142		0	42	bar	Yes	No	No	High Pressure
143		0	42	bar	Yes	No	No	Low Pressure
144		0	150	Hertz or %	Yes	No	No	Inverter instant frequency/power
145	R	-200	700	1/10 °C	Yes	No	No	Instant control setting

146	R	0	6	//	Yes	No	No	Unit status (0:OFF, 1:STAND_BY, 2:PUMP_ON, 3:COMPRESSOR_ON, 4:DEFROSTING, 5: NOT CONNECTED, 6: ALARM PRESENCE)
147	R	0	1	//	Yes	No	No	Unit season (0:cooling, 1:heating)
148	R	0	255	//	Yes	No	No	Alarm code
149	R	-200	700	1/10 °C	Yes	No	No	Mix water output temperature
150	R	-200	700	1/10 °C	Yes	No	No	Mix water input temperature
151	R	-200	700	1/10 °C	Yes	No	No	External air probe temperature
152	R	-200	700	1/10 °C	Yes	No	No	DHW temperature
153	R	0	1	//	Yes	No	No	DHW status (0: OFF, 1:ON)
154		0	0xFFFF	//	Yes	No	No	Presence of alarms in system
155		0	1	//	Yes	No	No	Alarm summary flag

• Setting the baud rate of the serial port of the supervisor (Password 303):





The second window of the SYSTEM SETUP allows the installer to set the communication speed of the serial port used for BMS systems; this window displays the following information:

- BMS serial line communication speed (1): indicates the baud rate currently set for the serial port of the supervision systems.

From this window it is possible to:

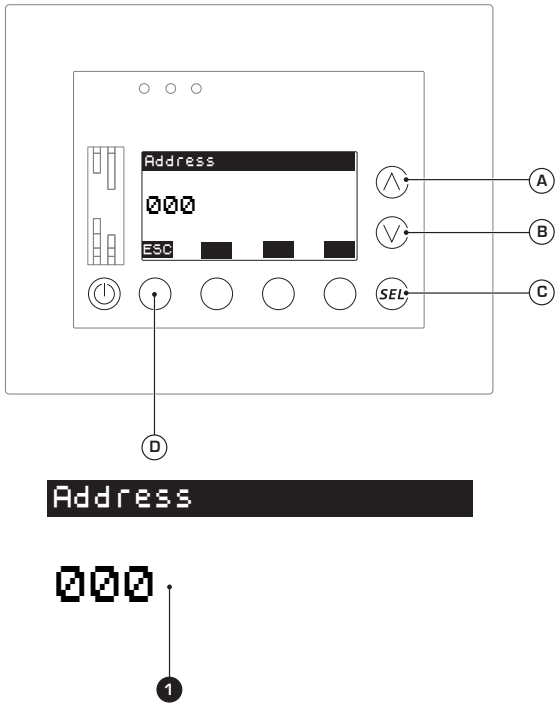
(1) Set the baud rate for the supervisor serial port: pressing the key (C) will allow you to enter the modification mode and the value will be highlighted; by pressing the keys (A) or (B) it will be possible to modify the value currently displayed, while pressing the key (C) will confirm this choice; the values that can be set with this parameter are:
- 9600 bit/s.
- 19200 bit/s.
- 38400 bit/s.

(2) Pass on to the next window:
to go to the next window of this menu, press the key (B).

(3) Go back to the previous window:
to go back to the previous window of this menu, press the key (A).

(4) Exit this window:
press the key (D) to return to the selection of the USER menus.

• Setting the address of the serial port of the supervisor (Password 303):



The third window of the SYSTEM SETUP allows the installer to set the address of the serial port used for BMS systems; this window displays the following information:

- Current address of BMS serial port (1): indicates the address currently set for the serial port of the supervision systems.

From this window it is possible to:

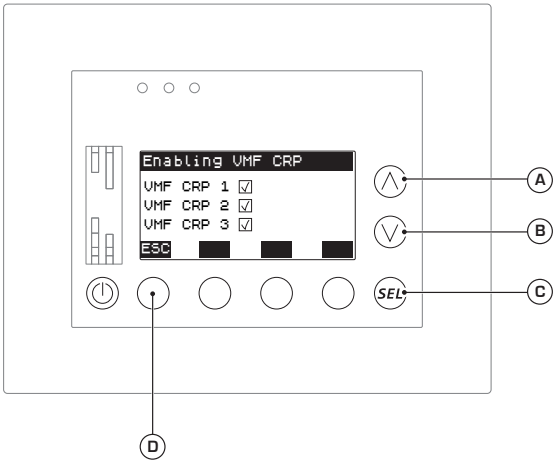
(1) Set the address of the BMS serial port: pressing the key (C) will allow you to enter the modification mode and the value will be highlighted; by pressing the keys (A) or (B) it will be possible to modify the value currently displayed, while pressing the key (C) will confirm this choice; the values possible for this parameter are within the range 0~247.

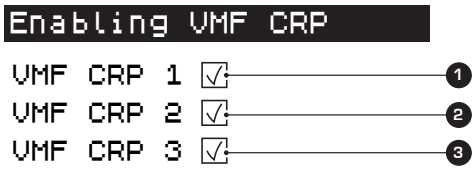
(2) Pass on to the next window:
to go to the next window of this menu, press the key (B).

(3) Go back to the previous window:
to go back to the previous window of this menu, press the key (A).

(4) Exit this window:
press the key (D) to return to the selection of the USER menus.

• Setting the presence of expansion modules (Password 303):





The fourth window of the SYSTEM SETUP allows the installer to set whether the accessory VMF CRP modules are present or not; there can be a maximum of 3 of these modules, and each one performs special functions; this window displays the following information:

- Presence of additional VMF CRP 1 module (1): indicates if a VMF CRP 1 module is installed in the system; index 1, indicates that this accessory module is used to manage:
- Up to 4 three-way diverter valves to manage hot water production between the system and DHW.
- Probes for reading inlet and outlet water (SIW and SUW).
- Probes for water reading in DHW storage tank (SAS).
- Probes for external air reading (SAE).

- Presence of additional VMF CRP 2 module (2): indicates if a VMF CRP 2 module is installed in the system; index 2, indicates that this accessory module is used to manage:
- A supplementary resistance for DHW production (manages enabling, control and resistance alarm).

- Presence of additional VMF CRP 3 module (2): indicates if a VMF CRP 3 module is installed in the system; index 3, indicates that this accessory module is used to manage MULTI CONTROL by remote control; if installed, this module makes it possible to remotely manage:
- System On-Off (INPUT).
- Alarm reset (INPUT).
- Season changeover (INPUT).
- Alarm summary (OUTPUT).
- Current system status (On/Off) (OUTPUT).
- Current system season (OUTPUT).
- Presence of alarm in one of the units (OUTPUT).

From this window it is possible to:

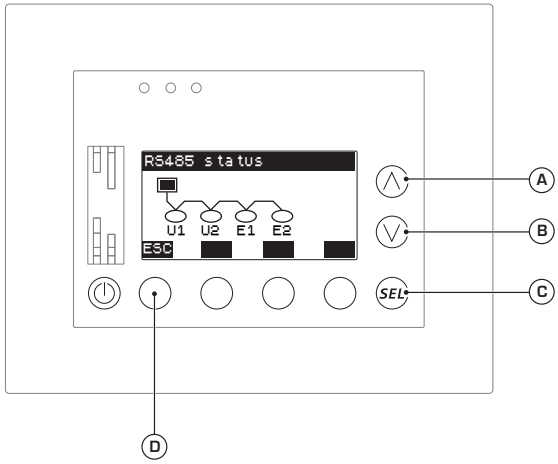
(1) Set the presence of the accessory modules: pressing the key (C) will allow you to enter the modification mode and the flag relative to the first VMF CRP module will be highlighted; by pressing the keys (A) or (B) it will be possible to modify the status of the flag currently displayed, while pressing the key (C) will confirm this choice, pressing on to the next flag; the values possible for these flags are:
- (☐) module NOT present in the system.
- (☑) module present in the system.

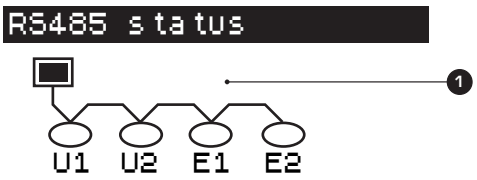
(2) Pass on to the next window:
to go to the next window of this menu, press the key (B).

(3) Go back to the previous window:
to go back to the previous window of this menu, press the key (A).

(4) Exit this window:
press the key (D) to return to the selection of the USER menus.

• Viewing network status (Password 101 or 303):





The fifth window of the SYSTEM SETUP allows the user to check the status of the network linked to the MULTI CONTROL; this window displays the following information:

- Graphic on the situation of the serial network (1): indicates the elements of the system and their communication; the network graphic is generated depending on that set by the installer in the various menus (number of units installed and number of VMF CRP modules installed); the user can also check the status of communication based on the symbol displayed above the words (no symbol means there is no communication and there is probably an error in progress; if an ellipse is displayed, it means that communication is correct); the following words can be displayed:
- U1 (Unit 1).
- U2 (Unit 2).
- U3 (Unit 3).
- U4 (Unit 4).
- E1 (Additional VMF CRP 1 module).
- E2 (Additional VMF CRP 2 module).
- E3 (Additional VMF CRP 3 module).

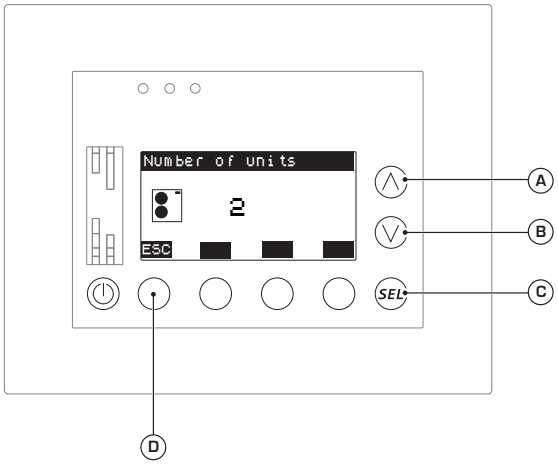
From this window it is possible to:

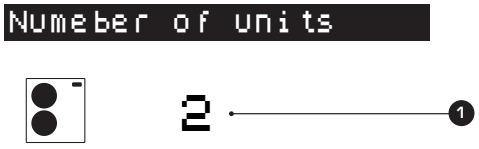
(1) Go back to the previous window:
to go back to the previous window of this menu, press the key (A).

(2) Exit this window:
press the key (D) to return to the selection of the USER menus.

Setup menu - PLANT SETUP procedures

• Setting the number of units installed (Password 303):





The first window of the PLANT SETUP allows the installer to set the number of units connected to MULTI CONTROL; this window displays the following information:

- Number of units installed in plant (1): indicates how many units will be managed by MULTI CONTROL.

From this window it is possible to:

(1) Set the number of units of the plant: pressing the key (C) will allow you to enter the modification mode and the value will be highlighted; by pressing the keys (A) or (B) it will be possible to modify the value currently displayed, while pressing the key (C) will confirm this choice.

(2) Pass on to the next window:
to go to the next window of this menu, press the key (B).

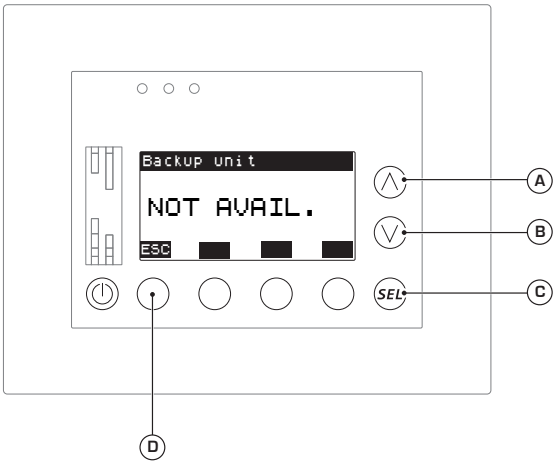
(3) Exit this window:
press the key (A) to return to the selection of the SETUP menus.

(4) Exit this window:
press the key (D) to return to the selection of the USER menus.

ATTENTION: to correctly set management of the units by the MULTI CONTROL accessory, they must have a correctly set serial address; the values with which the units must be set are:

Unit number 1 = Modbus Address 200.
Unit number 2 = Modbus Address 201.
Unit number 3 = Modbus Address 202.
Unit number 4 = Modbus Address 203.

• Setting the reserve chiller function (Password 303):



The second window of the PLANT SETUP allows the installer to use a unit as a reserve chiller (this unit will not be activated by a demand by the system, but only to compensate a breakdown of the main units); this window displays the following information:

- Reserve unit (1): indicates whether the reserve chiller option is currently active; if activated, the chiller set with the highest serial address will be considered the reserve chiller and therefore it will only switch on if the main chillers have a failure.

From this window it is possible to:

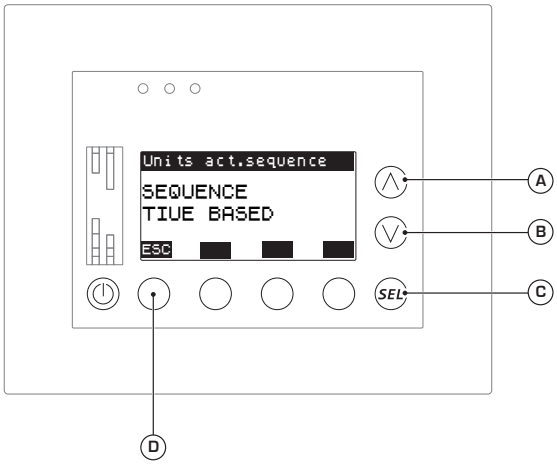
(1) Activate or deactivate the reserve chiller function: pressing the key (C) will allow you to enter the modification mode and the value will be highlighted; by pressing the keys (A) or (B) it will be possible to modify the value currently displayed, while pressing the key (C) will confirm this choice.

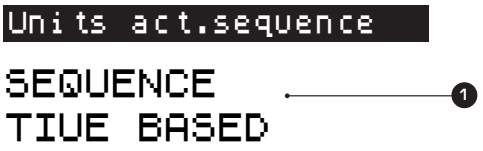
(2) Pass on to the next window:
to go to the next window of this menu, press the key (B).

(3) Go back to the previous window:
to go back to the previous window of this menu, press the key (A).

(4) Exit this window:
press the key (D) to return to the selection of the USER menus.

• Setting type of unit rotation (Password 303):





The third window of the PLANT SETUP allows the installer to set the logic with which to manage rotation of switching units on and off according to the load requested by the plant; this window displays the following information:

- Type of logic for rotation of units (1): indicates which option is currently active to manage switching on or off rotation.

From this window it is possible to:

(1) Activate or deactivate the reserve chiller function: pressing the key (C) will allow you to enter the modification mode and the value will be highlighted; by pressing the keys (A) or (B) it will be possible to modify the value currently displayed, while pressing the key (C) will confirm this choice; the possible logics which can be activated are:
- FIXED SEQUENCE: in this logic, the units will be switched on according to a fixed sequence (Unit 1, Unit 2, Unit 3, Unit 4), and switched off again according to a fixed sequence (Unit 4, Unit 3, Unit 2, Unit 1).
- BALANCED SEQUENCE: in this logic, the units will be switched on and off according to the actual working hours; the unit with the least working hours will be switched on first, then continuing the remaining units with the same logic, while the unit with the most working hours will be switched off first, applying the same logic for switching the units off; this rotation method assures that all the units are switched on and off in order to balance the operating hours.

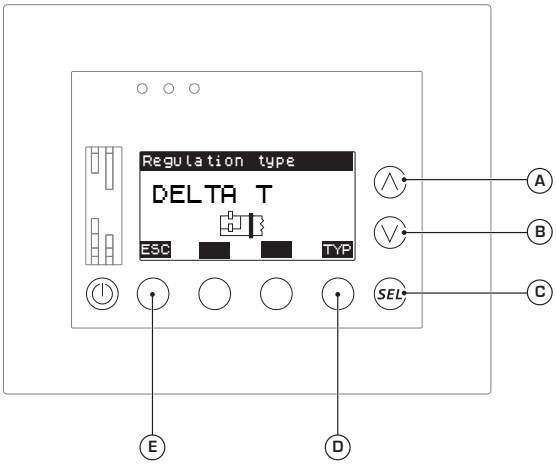
(2) Pass on to the next window:
to go to the next window of this menu, press the key (B).

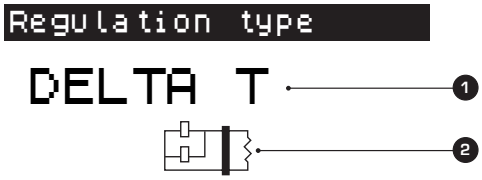
(3) Go back to the previous window:
to go back to the previous window of this menu, press the key (A).

(4) Exit this window:
press the key (D) to return to the selection of the USER menus.

The "type of rotation" parameter is not taken into consideration for switching the heat pumps on and off during the DHW production procedure. In this mode, the rule managing rotation is FIFO (first in first out) and is linked to the index of the unit (ModBus serial address).

• Setting the control logic of the units (Password 303):





The fourth window of the PLANT SETUP allows the user to set the logic with which the units are managed; this window displays the following information:

- Unit management logic (1): indicates which management logic is currently set for the system; the management logics can be:

- **FREE:**

With the "FREE" control, the units are managed independently; the following are determined for each one:

• Enabling according to the plant.
• Operating setting (fixed or with compensation).
• Unit diagnostics.

In this mode, the units are not subject to be switched on/off according to the load, but are controlled independently by their own thermostat; one example of this type of control are "4-pipe" systems (simultaneous generation of hot and cold water).

- **LOAD:**

With the "LOAD" control, the units are managed according to the operating season and to the actual load demand determined by analysing the thermostats of the units actually on; the following are determined for each one:

• Enabling according to the plant.
• Enabling according to the operating season.
• Switch-on depending on the load demands and according to the sequence implemented by the type of rotation.
• Operating setting (fixed or with compensation).
• Unit diagnostics.

To correctly configure operation of the units in this mode, the following parameters must be set:

• On/Off delay.
• On/Off power.

- **DELTA T:**

With the "DELTA T" control, the units are managed according to the operating season and the outlet and inlet temperature of the group. The VMF-CRP1 expansion module must be inserted to be able to use this control method. In this mode, the following are determined for each unit:

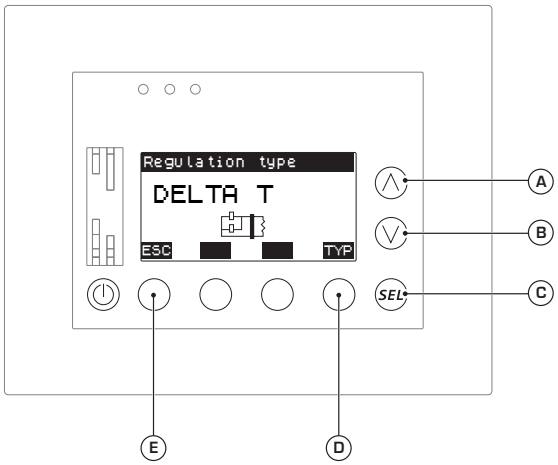
• Enabling according to the plant.
• Enabling according to the operating season.
• Switch-on depending on the temperature trend of the water produced by the group and according to the sequence implemented by the type of rotation.
• Operating setting (fixed or with compensation).
• Unit diagnostics.

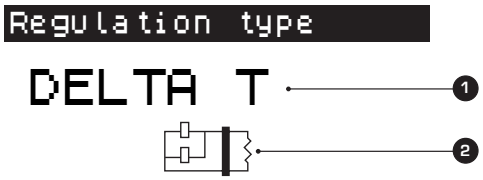
As mentioned previously, in this control mode the installer must set the type of system appropriately (single/double ring); this parameter is fundamental to correctly control the outdoor units. In fact for double ring systems, and more precisely for all systems in which water in the secondary circuit is circulated by an independent pump, it is guaranteed that the SUW probe appropriately reads the liquid temperature thus ensuring correct functioning of the control (activation of the units); in these types of installations, when the load has been satisfied, all the units can therefore be switched off (even the pumps); for single ring systems on the other hand, the water flow (with consequent reading of the SUW probe) must be guaranteed by the circulating pumps in the units; in these installations, even when the load has been satisfied, at least one unit must always operate.

To correctly configure operation of the units in this mode, the following parameters must be set:

• On/Off delay.
• Temperature On.
• Off Temperature.
• Type of plant.

⚠ **The DELTA T mode is guaranteed if the following conditions are respected:**
• Presence of VMF CRP 1.
• SUW probe on.
• SIW probe on.
If one of these requirements is missing, the system will change to FREE mode.





From this window it is possible to:

(1) Select the type of control to be applied to the plant: pressing the key (C) will allow you to enter the modification mode and the value will be highlighted; by pressing the keys (A) or (B) it will be possible to modify the value currently displayed, while pressing the key (C) will confirm this choice.

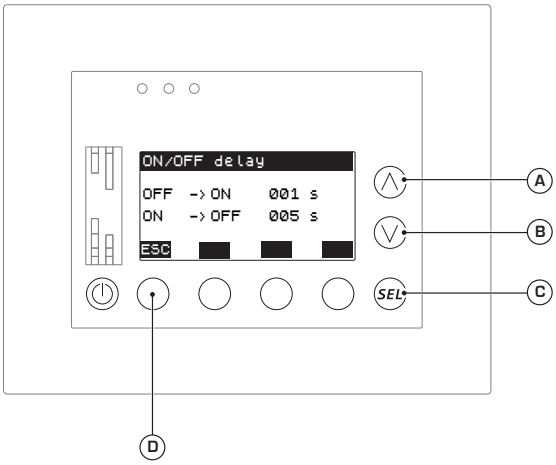
(2) Select the type of hydraulic system for DELTA T control: pressing the key (D) will allow you to enter to pass from single ring system to double ring system; the setting is visible (if the type of logic set is for DELTA T) through the icon 2; this icon can be:
- ( ) Single water ring.
- ( ) Double water ring.

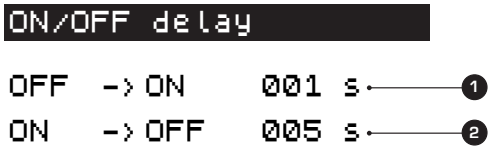
(3) Pass on to the next window:
to go to the next window of this menu, press the key (B).

(4) Go back to the previous window:
to go back to the previous window of this menu, press the key (A).

(5) Exit this window:
press the key (E) to return to the selection of the USER menus.

• Setting ON/OFF delay (Password 101 or 303):





The fifth window of the PLANT SETUP allows the user to set the delay time for switching the units on and off; this window displays the following information:

- Delay time in switching units on (1): indicates the time which must pass between the system requesting power and the actual enabling of the units involved.

- Delay time in switching units off (2): indicates the time which must pass between the system reaching the requested power and the units actually switching off.

From this window it is possible to:

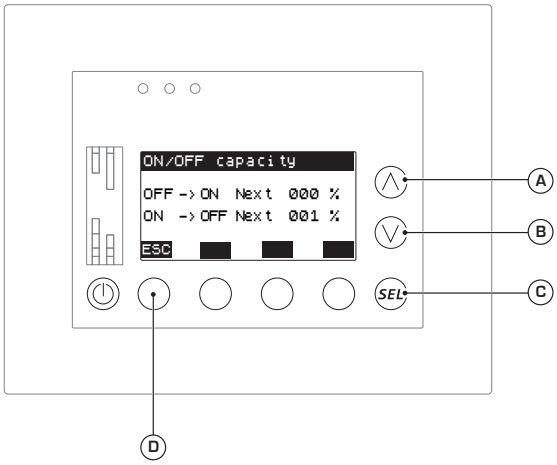
(1) Set an ON/OFF delay: pressing the key (C) will allow you to enter the modification mode and the switch-on delay time will be highlighted (1); by pressing the keys (A) or (B) it will be possible to modify the value currently displayed, while pressing the key (C) will confirm this choice, automatically shifting the cursor to the switch-off delay (2); by pressing the keys (A) or (B) it will be possible to modify the value currently displayed, while pressing the key (C) will confirm this choice.

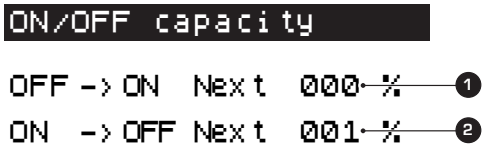
(2) Pass on to the next window:
to go to the next window of this menu, press the key (B).

(3) Go back to the previous window:
to go back to the previous window of this menu, press the key (A).

(4) Exit this window:
press the key (D) to return to the selection of the USER menus.

• Setting ON/OFF power threshold (Password 101 or 303):





The sixth window of the PLANT SETUP allows the user to set the power threshold percentage (calculated by the thermostats of the various units) necessary to request the secondary units to switch on or off; this window displays the following information:

- Power threshold necessary to switch another unit on (1): indicates the minimum percentage which must be requested by each thermostat of the active units to be able to switch another on.

- Power threshold necessary to switch another unit off (2): indicates the maximum percentage which must be requested by each thermostat of the active units to be able to switch the last unit off.

From this window it is possible to:

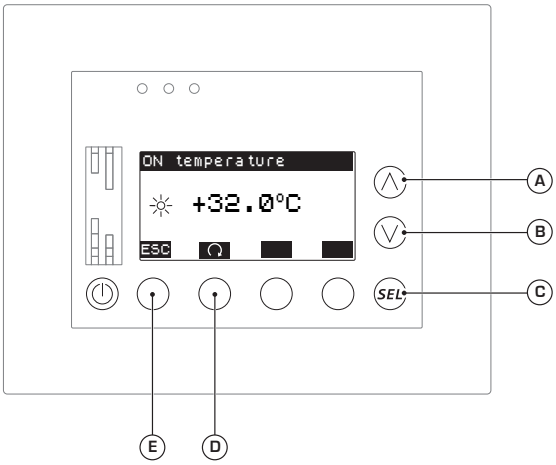
(1) Set an ON/OFF power percentage threshold: pressing the key (C) will allow you to enter the modification mode and the percentage threshold to switch another unit on will be highlighted (1); by pressing the keys (A) or (B) it will be possible to modify the value currently displayed, while pressing the key (C) will confirm this choice, automatically shifting the cursor to the percentage threshold for switching off (2); by pressing the keys (A) or (B) it will be possible to modify the value currently displayed, while pressing the key (C) will confirm this choice.

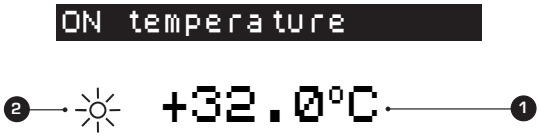
(2) Pass on to the next window:
to go to the next window of this menu, press the key (B).

(3) Go back to the previous window:
to go back to the previous window of this menu, press the key (A).

(4) Exit this window:
press the key (D) to return to the selection of the USER menus.

• Setting activation with DELTA T control (Password 101 or 303):





The sixth window of the PLANT SETUP allows the user to set the temperature at which to activate the units if the installer has set the management logic according to DELTA T; this window displays the following information:

- Unit activation setting (1): indicates the temperature (at the SUW probe) of the water in the secondary circuit considered the unit activation threshold (depending on the season, the demand will be activated above or below the threshold set in this parameter).

- Unit activation setting season (2): indicates which season the temperature setting currently displayed refers to.

From this window it is possible to:

(1) Set a temperature to activate the units during DELTA T mode: pressing the key (C) will allow you to enter the modification mode and the current activation setting will be highlighted (1); by pressing the keys (A) or (B) it will be possible to modify the value currently displayed, while pressing the key (C) will confirm this choice.

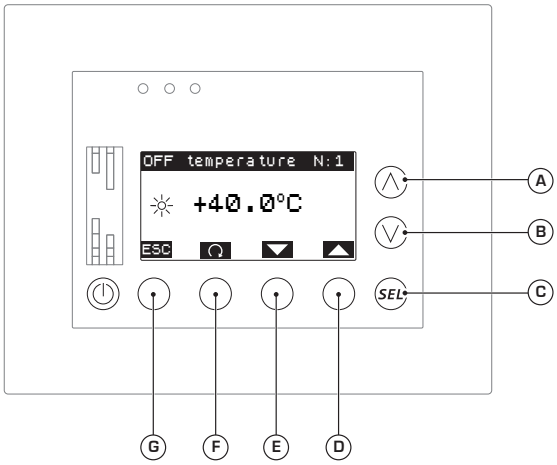
(2) Select heating or cooling setting: by pressing the key (D) you will switch from viewing the cooling setting (✻) to the heating setting (☼).

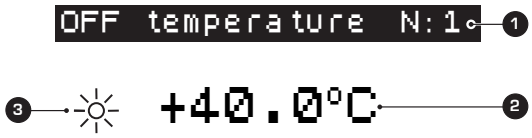
(3) Pass on to the next window:
to go to the next window of this menu, press the key (B).

(4) Go back to the previous window:
to go back to the previous window of this menu, press the key (A).

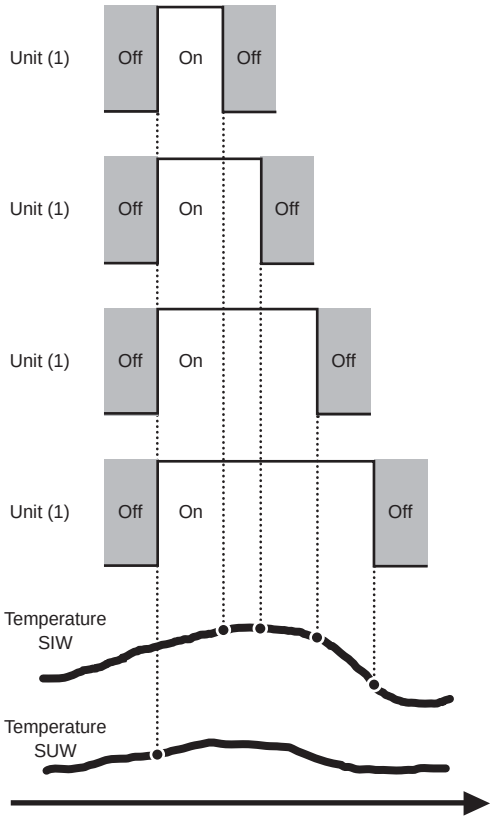
(5) Exit this window:
press the key (E) to return to the selection of the USER menus.

• Setting deactivation with DELTA T control (Password 101 or 303):





Deactivation logic with DELTA T control



The sixth window of the PLANT SETUP allows the user to set the temperature at which to deactivate each unit (a switch-off value is set for each unit) if the installer has set the management logic according to DELTA T; this window displays the following information:

- Unit currently selected (1): indicates which unit is currently selected which the displayed data refers to.

- Unit deactivation setting (2): indicates the temperature (at the SIW probe) of the water returning from the primary circuit considered the deactivation threshold of the corresponding unit (depending on the season, the demand will be activated above or below the threshold set in this parameter).

- Unit activation setting season (3): indicates which season the temperature setting currently displayed refers to.

From this window it is possible to:

(1) Select a unit for which to set switch-off: pressing the keys (D) or (E) decreases or increases the index which indicates which unit the work setting currently displayed refers to (1); remember that each unit can be set with different deactivation settings.

(2) Set a temperature to switch the units off during DELTA T mode: pressing the key (C) will allow you to enter the modification mode and the current deactivation setting will be highlighted (2); by pressing the keys (A) or (B) it will be possible to modify the value currently displayed, while pressing the key (C) will confirm this choice.

(3) Select heating or cooling setting: by pressing the key (D) you will switch from viewing the cooling setting (✳) to the heating setting (☼).

(4) Go back to the previous window:
to go back to the previous window of this menu, press the key (A).

(5) Exit this window:
press the key (E) to return to the selection of the USER menus.

AERMEC S.p.A.
I-37040 Bevilacqua (VR) - Italia
Via Roma, 996 - Tel. (+39) 0442 633111
Telefax (+39) 0442 93730 - (+39) 0442 93566
www .aermec. com - info @aermec. com