

# Installation and use manual

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## Comfort Control Interface





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NOTE

Read the indications contained in this manual carefully; they give important information concerning safe installation, operation and maintenance: **Keep this manual safe for all further consultation.**  
 The manufacturer may not be held responsible for any damage arising from improper, incorrect or unreasonable use of the appliance.

## 1 GENERAL WARNINGS

This manual is an integral and essential part of the product and must be delivered to the end user.

**The installation of the Comfort Controller Interface must be carried out by professionally qualified**, personnel in compliance with current regulations and according to the manufacturers instructions, as an incorrect installation may cause damaged to people, animals or things (or directly to the component), for which the manufacturer cannot be held responsible.

The professionally qualified personnel must have specific technical competence in the sector of electrical systems.

This device must be used only for the purposes for which it has been expressly designed. Any other use must be considered inappropriate and therefore dangerous.

The manufacturer is exempt from any contractual or extra-contractual responsibility for damage caused by errors of installation, use and in any case the non-observance of the instructions supplied by the manufacturer itself.

In the event of failure and/or poor operation of the Comfort Controller Interface, do not attempt to repair it under any circumstances any repair must be carried out solely by a ROBUR Technical Assistance Centre, using only original replacement parts.

The non-observance of the foregoing warnings may compromise the safety of the device.

It is not possible to install the Comfort Controller Interface and the E3 series of gas absorption units without consulting the Installation Manual included with the unit and the Installation and Programming Instructions which follow.

## 1.1 GENERAL INFORMATION

The Comfort Controller Interface is a device that is applicable as a panel, and which is able to show, on a backlit graphical LCD display (128x64 pixels) all the status, operating and error conditions of each individual unit to which it is linked. The CCI (Comfort Controller Interface) performs the adjustment of the water temperature by controlling the switching on and off of the unit, as well as the modulation control of the units to which it is linked.

The Comfort Controller Interface can handle up to three E3-GS/WS type units (in 2 pipe mode) or up to three units of the E3-A type. The management is performed through communication on a suitable CAN Bus.

In combination with an external plant controller, the Comfort Controller Interface supports the heating and hot domestic water production functions with units of the E3-GS/WS and E3-A type; It also supports the Free Cooling function with the E3-GS/WS units.

Robur provides a preassembled electric panel which enables the Comfort Controller Interface to be installed in conjunction with the Siemens RVS61 external plant controller (Comfort Controller) (Albatros II series).

For information concerning the installation and use of the Siemens RVS61 Comfort Controller please refer to the provided documentation.



## 2 QUICK USER GUIDE

### 2.1 GENERAL CHARACTERISTICS OF THE COMFORT CONTROLLER INTERFACE

The Comfort Controller Interface is a device that is able to show, on a backlit graphic LCD display (128x64 pixels), all the status, operating and error conditions of each individual unit to which it is linked. The CCI (Comfort Controller Interface) also handles the temperature regulation of the outlet and inlet collector water thanks to the on/off switching control and the modulation of the units to which it is linked.

The following elements are present on the front of the panel:

- **Graphic display** on which all the parameters necessary to control, program and configure the plants managed by the CCI are shown (see detail A in Figure 1).
- **Selector knob (Encoder)**: is the instrument with which it is possible to interact with the CCI. It allows the operator to select options, set parameters etc. (see detail B Figure 1).
- **RS 232 serial port** is used to connect the CCI to a PC (see detail C in Figure 1).

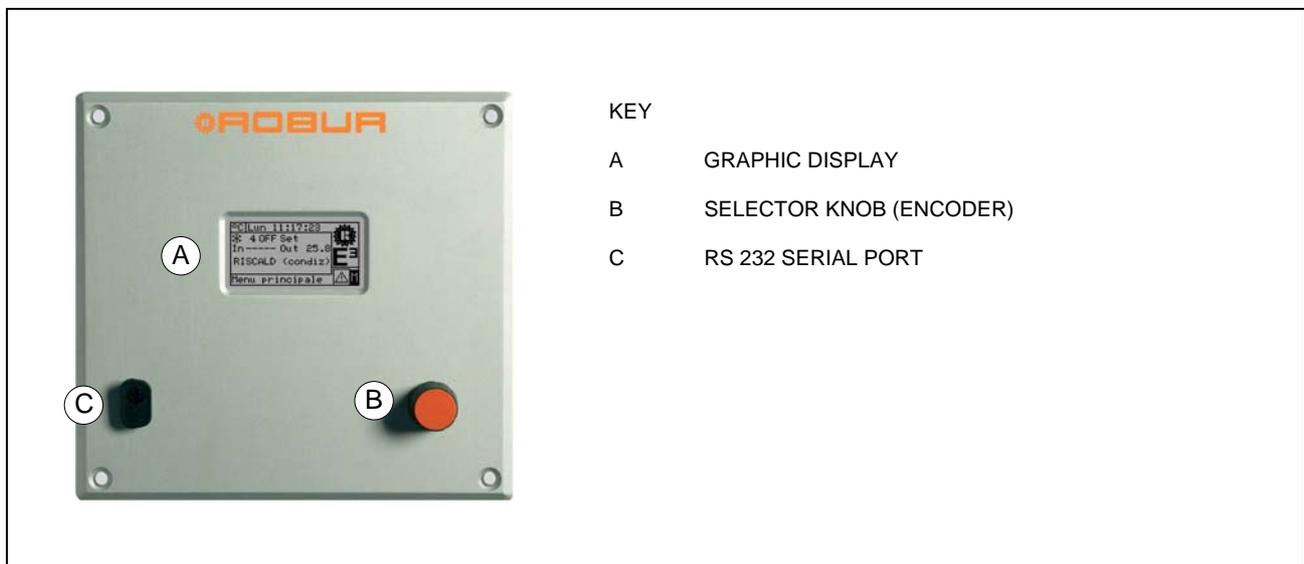


Figure 1 – FRONT VIEW OF THE COMFORT CONTROLLER INTERFACE.

## 2.2 MAIN SCREEN

La Comfort Controller Interface is equipped with a backlit LCD graphic display (128x64 pixels), able to display the operating conditions of the plants and each individual unit to which it is linked

The Comfort Controller Interface display, during normal operation, can visualises the following parameters:

- Zone 1** The upper zone of the display which shows, upon activation, the time, day and symbol of the unit of measurement of temperature used to the water temperatures of each plant controlled.
- Zone 2** The symbol appears or and, lower down, the bold type inscription HEATING or COOLING; in this instance the zone is visualising the operating parameters for an alternating (2 line) hot or chilled water production plant for heating/cooling. In the initial screen, upon first activation of the CCI, the message PLANT NOT CONFIG appears. During operation, the plant collector's delivery and return water temperatures and the setpoint value are displayed (if the plant is ON).

**NOTE a few dashes are displayed replacing the unavailable collector temperature.**

B: ON/OFF status of plant; B: plant identification code (0-15).

- Zone 3** The symbol appears to indicate that the zone displays the operation parameters for a plant producing hot water exclusively for heating purposes. In the initial screen, upon first activation of the CCI, the message PLANT NOT CONFIG appears. During operation, the plant collector's delivery and return water temperatures and the setpoint value are displayed (if the plant is ON).

B: ON/OFF status of plant; B: plant identification code (0-15).

- Zone 4** The last row displays a message that briefly describes the icon on which the cursor is positioned. The icon allows access to the "error" menu; The icon allows access to the "Main menu".

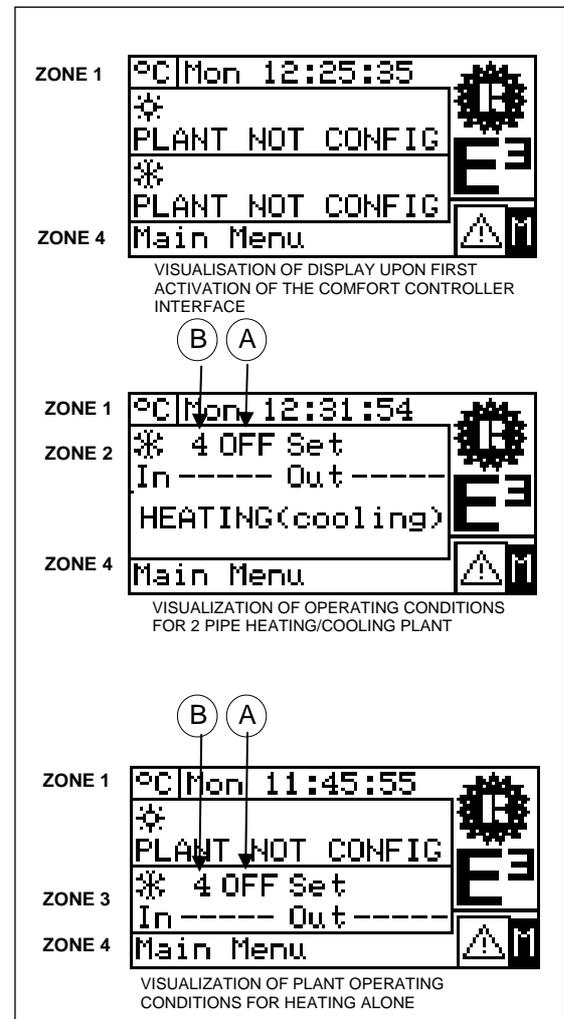
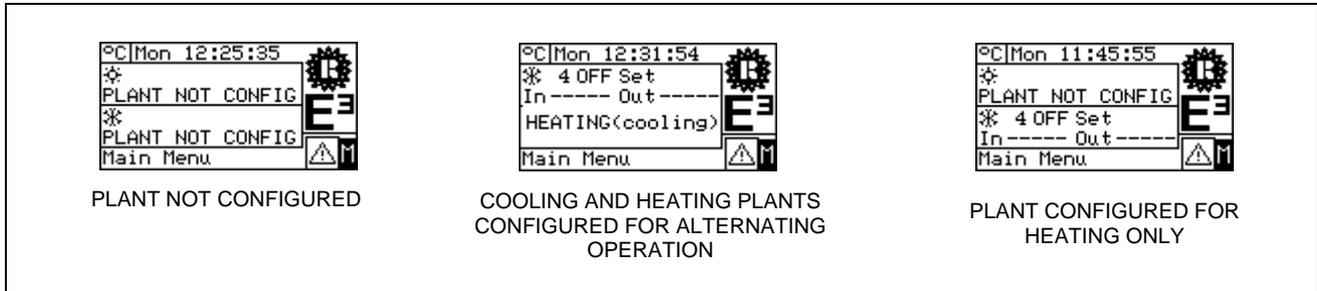


Figure 2 - EXAMPLES OF MAIN SCREEN DISPLAY

The symbols used to represent the heating and/or cooling plant are the following:

- ☀ Sun icon: represents the production of hot water (HEATING);
- ❄ Snowflake icon: represents the production of chilled water (COOLING).

The main display screen for the CCI, **depending on the type of plant configured**, may appear as follows:



**NOTE**

If the setpoint is configured on inlet water, on the display, beneath the indication of the same setpoint, the inlet water temperature appears (In).

In the event of errors occurring in the units of the plant(s), the following appears on the main screen:

- Select  flashes;
- The display illumination flashes;
- The device (if ON) emits an intermittent beep (see Paragraph 3.4.2.4 – “Alarm Beeper” on page. 24).

**WARNING**

- 1 – La CCI reverts to the main screen after 30 minutes of inactivity (no operation on the Encoder).
- 2 – The backlighting of the display is switched off after 15 minutes of inactivity (see also Paragraph 3.4.2.5 – “Display Options” on page 25).
- 3 – If the encoder is turned while the display’s backlight is flashing, it stops flashing; it resumes flashing again after 25 seconds of inactivity, if the error conditions persist.

In all other screens the display’s illumination will be seen to be flashing.

## 2.3 USING THE ENCODER

The main user interface for management, programming and control of the Comfort Controller Interface is the knob located on the front of the Comfort Controller Interface (Encoder).

The operations that may be performed with the encoder can be summarised as follows:

- 1 - Rotate the encoder in a clockwise or anti-clockwise direction to position the cursor on the icons to be selected on the display or to modify the value of a numerical field.
- 2 - Press the encoder to access the menu selected or to confirm the operation being carried out.

Each time instructions in this manual indicate that an icon, parameter etc. should be **selected**, it is necessary to carry out the **two** operations described above.



ROTATING THE ENCODER



PRESSING THE ENCODER

## 2.4 ALERTS MENU

This menu allows the user to visualise any anomalies in the units of the plant(s).

To access the alerts menu, select  from the main screen.

The figure below indicates the alerts menu screen.

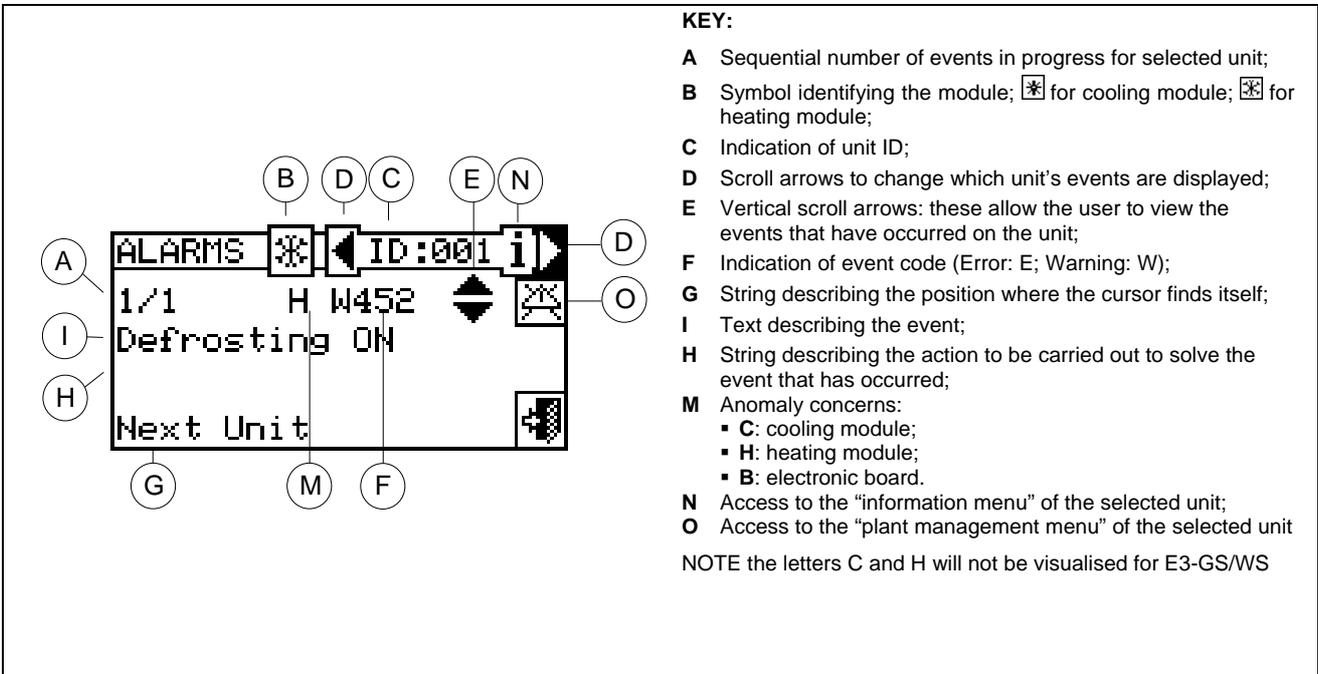
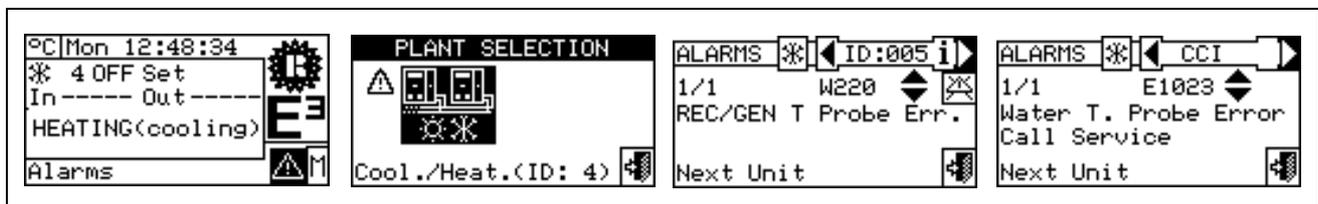


Figure 3 – EXAMPLE OF ALERTS MENU SCREEN

In the alerts menu, **events in progress** are displayed: It is possible to display the type of event (warning or error) for each type of unit.

Instructions to access the alerts menu:

- 1 - Select  from the main screen to access the main menu.
- 2 - From the main menu, select .
- 3 - Select the plant in which the events occurred:  for two-line cooling/heating plants  for hot water production plants. The symbol  that appears next to a plant icon indicates that anomalies are present in that plant.
- 4 - To locate the unit where the error has occurred, select  (detail "D" of Figure 3). If no error has occurred, the message "No error" appears.
- 5 - Use the vertical scroll arrows  (detail "E" in Figure 3) to view all the events present on the unit.



The key  gives access to the "UNITS MANAGEMENT" menu, should it be necessary to perform an error reset or to reset the Flame Control unit

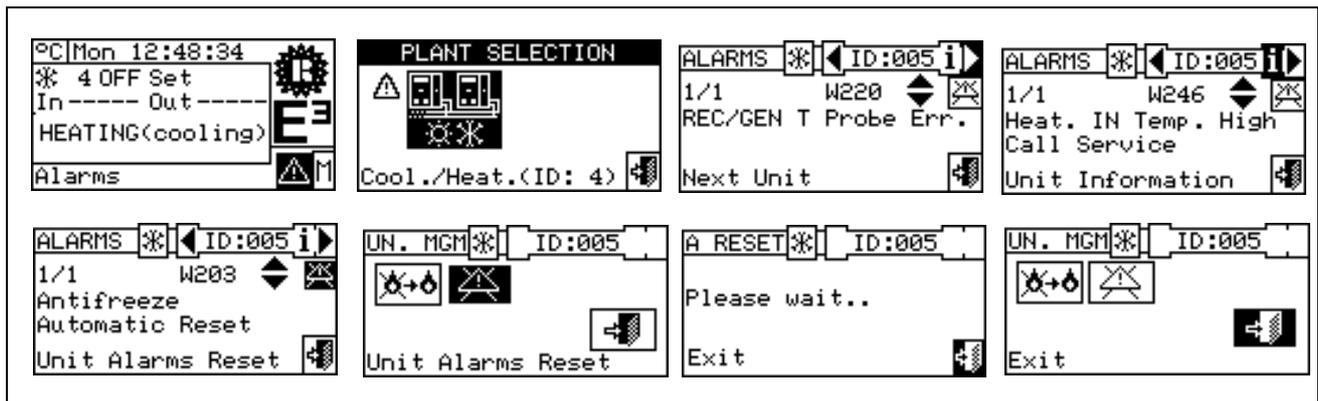
The key **i** allows access to the "INFORMATION MENU" relative to the selected unit.

## 2.5 ERROR RESET

This option allows anomalies present in the selected unit to be reset (except in the case the flame control unit is blocked).

To carry out an Error Reset, follow the instructions below:

- 1 - Select from the main screen to access the "ALERTS" menu.
- 2 - Select the plant in which the events occurred: for the heating plant, or if the CCI is configured to manage a 2 pipe cooling/heating plant.  
The symbol that appears next to a plant icon indicates that anomalies are present in that plant.
- 3 - Select to view the screen that relates to the unit where the error has occurred
- 4 - Select to access the "INFORMATION MENU" relative to the selected unit.
- 5 - Select to access the "UNIT MANAGEMENT" menu directly.
- 6 - Position the cursor on and press the knob to perform an error reset.
- 7 - Wait for the operation to be completed. If the operation is successful, the message "OK" appears on the display.
- 8 - To exit, select .



### NOTE

An error reset does not reset the Flame Control unit. To reset the flame control unit you must position the cursor on and press the knob to perform the reset of the flame control of the selected unit.

### WARNING

Error resets for which the message "Contact Technical Assistance" appears must only be carried out by qualified personnel

## 2.6 FLAME CONTROL UNIT RESET

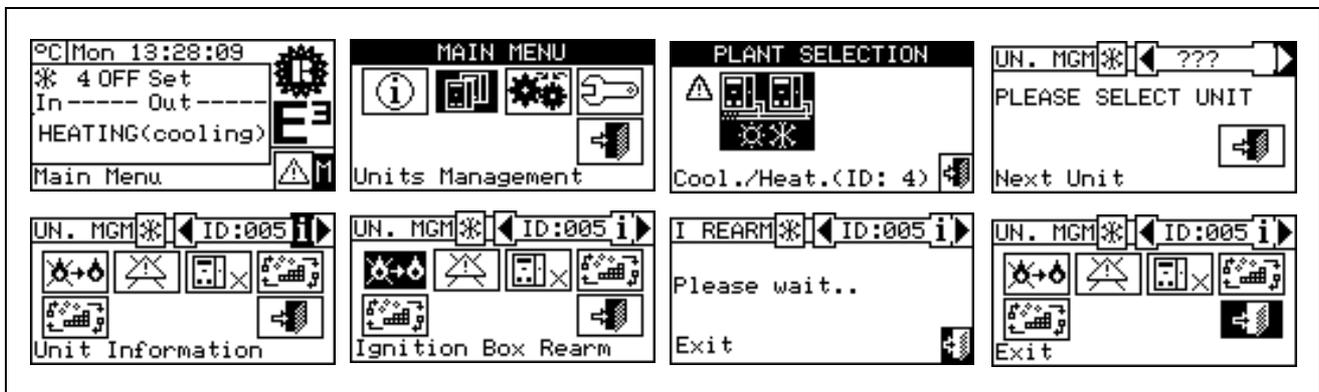
This option allows the flame control unit of the selected unit to be reset in the event of arrest.

To carry out a reset of the flame control unit if the burner ceases to function, follow the instructions below:

- 1 - Select  from the main screen to access the main menu.
- 2 - From the main menu, select  to access the "UNITS MANAGEMENT" menu.
- 3 - Select the plant  or  if the CCI is configured to manage a single cooling/heating plant.
- 4 - Select the unit, using  or . The unit's identification number is shown between the arrows.
- 5 - Select  to access the "INFORMATION MENU" relative to the selected unit.
- 6 - Position the cursor on  and press the knob to perform the flame control reset.
- 7 - Wait for the operation to be completed. If the operation is successful, the message "OK" appears on the display.
- 8 - To exit, select .

**NOTE**

Current regulations entail that no more than 5 attempts to reactivate the burner are allowed within the space of 15 minutes. If more attempts are made, the function is disabled and all further attempts can only be carried out by operating exclusively on the unit in question, as described in pertinent manual.



The reset of the flame control unit can be carried out through the "Error" menu  accessed via the main menu (for further details, see paragraph 2.5 ERROR RESET on page 9).

**NOTE**

The error reset can also be carried out from this menu: to do so move the cursor onto  and press the knob to perform the reset of the anomaly of the selected unit.

### 3 FUNCTIONS OF THE COMFORT CONTROLLER INTERFACE

#### 3.1 MAIN MENU

Select .

The main menu is made up of 5 sections, as indicated in the figure:

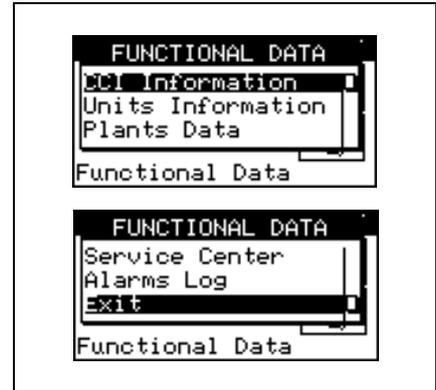
-  Functional data.
-  unit management
-  User Settings
-  Installation (see Installation" Section)
-  Exit



### 3.2 FUNCTIONAL DATA

By “Functional Data” menu provides access to a scrolling menu that allows the user to access all information concerning the plants and the units managed by the CCI. The options in this submenu are listed below:

- CCI Information
- Unit information
- Plant data
- Service Center
- Alarms Log
- Exit

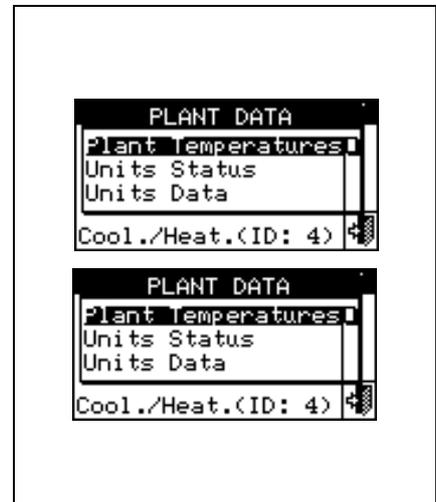


#### 3.2.1 CCI INFORMATION

By gaining access to two screens, some data concerning the CCI can be displayed: network ID assigned to the CCI, power supply voltage, serial ID. The second screen contains HW revision, revision of Boot Loader FW, revision of application FW.

To access the “CCI Information” menu follow the instructions below:

- 1 - Select from the main screen to access the main menu.
- 2 - Select to gain access to the “Functional Data” menu;
- 3 - Turn the knob to select the “CCI Information” menu, and press the knob to access the menu
- 4 - Select “1/2” to move to the second screen. To go back to the first screen, select “2/2”.
- 5 - To exit, select .

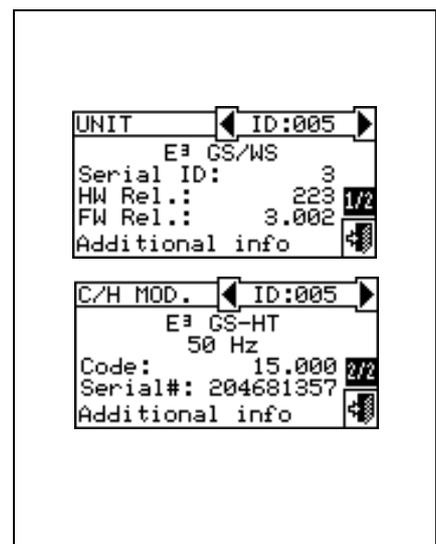


#### 3.2.2 UNITS INFORMATION

By gaining access to two or three screens some specific data concerning the units can be displayed (unit type, serial ID of the unit board, revisions of the on board HW and FW electronics) as well as other detailed data concerning the module or the two modules that comprise the unit (detailed module denomination, primary and secondary main codes, separated by a “.”, and finally its serial number).

To access the “Unit information” menu, follow the instructions below:

- 1 - Select from the main screen to access the main menu.
- 2 - Select to gain access to the “Functional Data” menu;
- 3 - Turn the knob to select the “Units Information” then press the knob to access it.
- 4 - Select the unit by using or . The network ID of the selected unit is indicated between the arrows; the first screen (“1/3”, or “1/2”) containing the unit data is shown.
- 5 - Select “1/3” or “1/2” to move to the second screen, containing the data of the first module.
- 6 - If the unit consists of two modules, select “2/3” to move to the third screen, containing the data of the second module.



7 - Select "3/3" (or "2/2" in case of units consisting of one module only) to go back to the first screen

8 - To exit, select

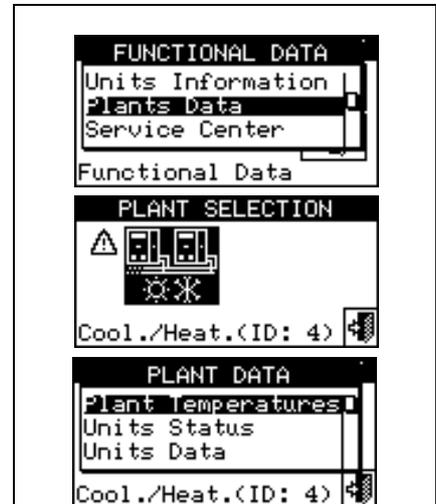
### 3.2.3 PLANT DATA

Once the units have been configured (see Section 4, "INSTALLATION"), it is possible to view the functional data of the managed plants. To enter the plants submenu, select "Plant Data" from the drop-down menu.

To view the plant operating data, select the desired icon. Either the heating plant icon will appear or the icon if it is a 2 pipe heating/cooling plant.

Select the plant for which one wishes to display the operating data. A drop-down menu will allow the user to select which data to view:

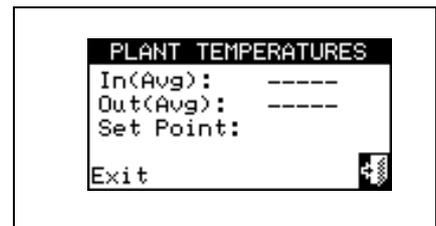
- Plant Temperatures
- unit status
- unit data
- Exit



#### 3.2.3.1 Plant temperatures

The plant inlet and outlet water temperature is displayed together with the set set-point value (with plant in operation).

To exit, select



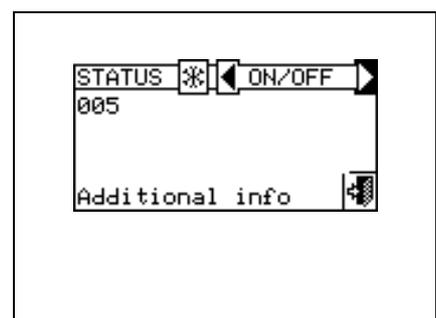
#### 3.2.3.2 unit status

The "Unit status" menu provides a complete overview of both operating units and units currently in error mode. Each unit is identified by its own network ID.

Two screens are available: "ACTIVATION" and "ERROR". Next to the unit ID, in the "ACTIVATION" screen, the following symbols appear:

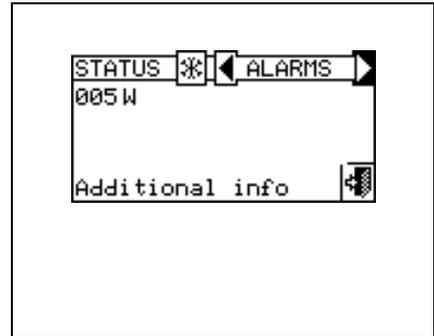
- 1 - if the unit is on.
- 2 - If the unit is off, no symbol appears next to the unit ID.
- 3 - if the unit has been excluded from the plant via the options available in the Units management menu.
- 4 - if the unit is carrying out a Defrosting cycle. Option only for the E3-A unit.
- 5 - if the unit is off because it has reached the thermostat limit temperature.

Select to view units in error or warning status. If an error has occurred in the unit, the letter E will appear next to the unit's ID.

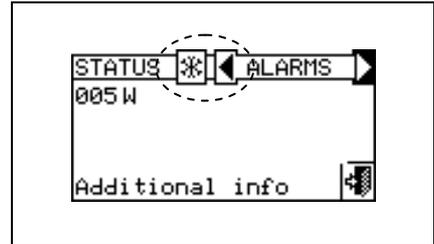


In the "Error" screen next to the unit ID, the following symbols appear:

- 1 - E if an error has occurred in the unit;
- 2 - W if a warning has occurred for the unit;
- 3 - □ ("off-line") if there are connection problems between the unit and the CCI (there are many conditions that may lead to off-line status: the unit is not receiving electrical power, there are problems with the connection cable, the unit's electronic board is faulty and thus is unable to communicate with the CCI);
- 4 - If no error is present no symbol appears next to the unit ID.

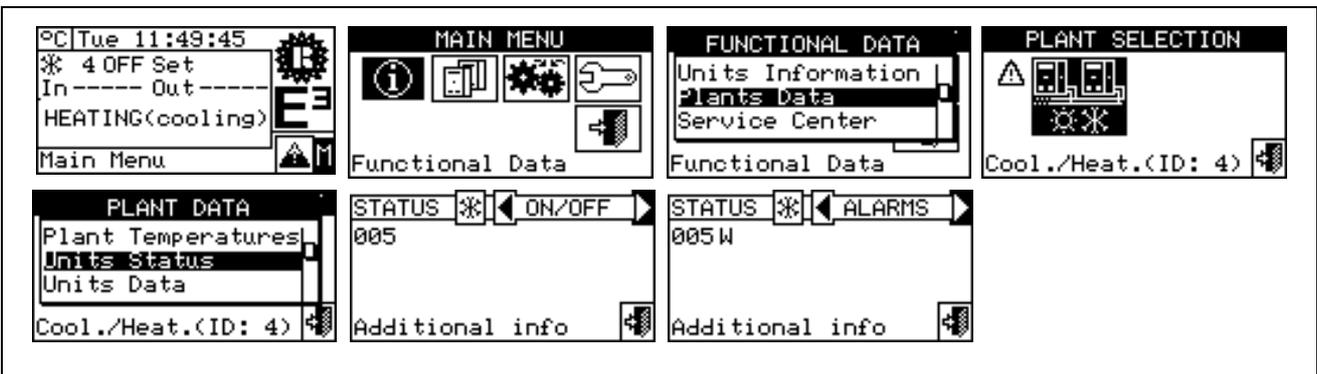


For 2 pipe heating/cooling plants, i.e the ones designed for the production of alternating hot/chilled water the symbol or symbols are active. Select to shift to the display screen relative to the modules dedicated to the production of chilled water ( will be displayed). Select to view the screens relating to modules dedicated to the production of hot water ( is displayed).



To access the menu, follow the instructions below:

- 1 - Select from the main screen to access the main menu.
- 2 - Select to gain access to the "Functional Data" menu.
- 3 - Turn the knob to select the "Plants Data" menu, and press the knob to enter the menu.
- 4 - Select the plant for which the unit status is to be viewed: for two-line cooling/heating plants for hot water production plants. The symbol that appears next to a plant icon indicates that anomalies are present.
- 5 - Turn the knob to select the "Unit status" menu, and press the knob to access the menu.
- 6 - Select to shift to the Error screen: next to the identification number for each unit (ID = unit), the letter E indicates that an error is present.
- 7 - From either of the two screens a unit ID can be selected by turning the knob and by pressing it, access is gained to the "unit Information" menu.
- 8 - To exit, select .



NOTE

Warning: having carrying out the configuration, with every activation CCI searches for all the configured units. If they are not found the CCI considers the units to be "off-line".

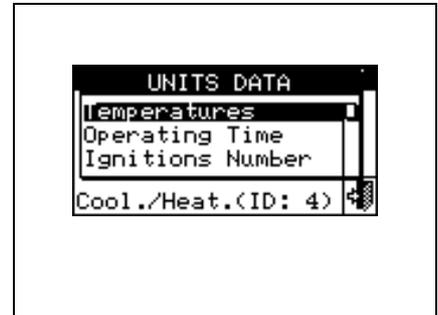
**3.2.3.3 unit data**

In this menu the user may view typical unit operating data depending

on the plant selected or .

The parameters that may be viewed are:

- *Temperatures*
- *Operating Time*
- *Activation count*
- *Defrostings count*
- *Other data*



**Temperatures**

An overview of all the operating temperatures of the unit selected. The unit's ID is indicated between .

To view the operating temperatures of another unit, select .

Which temperatures may be viewed depends on the type of unit selected (E3 GS/WS, E3 A):

A list of the temperatures that may be viewed on the screen is provided below:

- 1- **In** Unit inlet water temperature;
- 2- **Out** Unit outlet water temperature;
- 3- **Ext** External air temperature,
- 4- **Cnd** Condenser temperature;
- 5- **Gen** Generator temperature;
- 6- **Eva** Evaporator temperature;
- 7- **TA1 TA2** Auxiliary sensors if available.

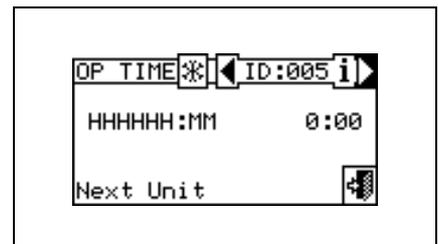
To exit, select .

**Operating Time**

This screen shows the unit operating time in hours and minutes.

To view the operating time of another unit, select .

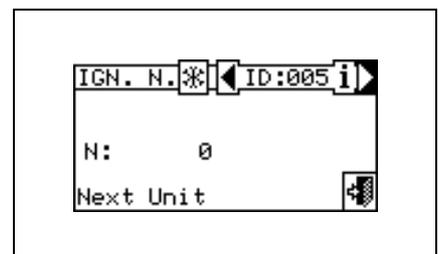
To exit, select .



**Activation count**

This screen indicates the number of times the unit has been switched on.

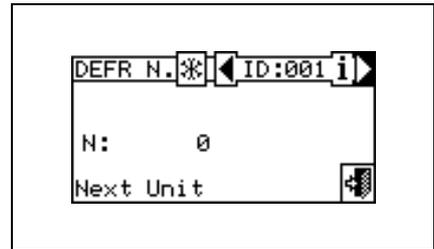
To exit, select .



**Defrostings Count**

Reports the number of times the unit has been defrosted (E3-A plants only).

To exit, select .



**Other data**

Additional data, arranged on two screens.

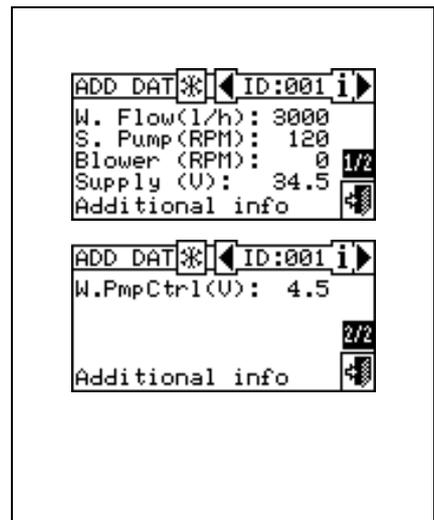
The available data is:

- Water flow (litres/hour); for E3-GS/WS: available on hydraulic heating circuit only.
- Solution pump rev speed (revs per minute)
- Combustion blower rev speed (revs per minute)
- S61 board power supply voltage (Volt)
- Output signal level (0-10V) for modulating water circulator (Volt); for E3-GS/WS: available for both water circuits.

To shift from one screen to the next select 1/2 or 2/2.

To shift between data relative to one hydraulic circuit to that of another (E3-GS/WS only) select  or .

To exit, select .



**3.2.4 TECHNICAL ASSISTANCE**

This screen gives information about the nearest Technical Assistance Centre. See paragraph 4.2.1.6 - “**Technical assistance information**” for technical assistance data programming.

To exit, select .



### 3.2.5 ALARMS LOG

In this screen, it is possible to view all the parameters that characterise a warning or error event. All the events are in chronological order with the most recent first, showing the times at which the event occurred and ended. For each event, the following indications are given as can be seen from Figure 4: date, time, unit ID, error or warning code, indication of which module (if required: “C” = Cooling, “H” = Heating) generated the event; the ON signal refers to the appearance of an warning or error event; the OFF signal refers to its disappearance. In addition, in the central area of the display there is a brief description of the type of event that occurred.

Events that occur are memorised in the “Alarms Log” menu.

Figure 4 shows the Event history menu screen.

**KEY:**

- A Date event detected;
- B Time event detected;
- C Number of events: the first number indicates the position in the chronological order of the event being viewed; the second shows the total number of events memorized by the CCI;
- D Vertical scroll arrows: Use these to scroll through the events that have occurred in the system in chronological order;
- E Event status: **ON** shows the moment that the event occurred; **OFF** shows the moment that it was called-off;
- F Numerical code identifying type of event;
- G Text describing the function highlighted by the cursor.
- H Text describing the event.
- I Unit ID or CCI ID on which the event displayed arose
- L Module that has given rise to the anomaly:
  - C: cooling module;
  - H: heating module;
  - B: electronic board.

NOTE the letters C and H will not be visualised for E3-GS/WS units.

Figure 4 – EXAMPLE OF EVENT HISTORY MENU SCREEN

Instructions for accessing the “Alarms Log” menu are shown below:

- 1 - From the main menu, select
- 2 - Select to gain access to the “Functional Data” menu.
- 3 - Turn the knob to select the “Alarms Log” menu, and press the knob to access the menu.
- 4 - Position the cursor on the vertical scroll arrows (see detail “D” in Figure 4) to scroll through the events, from the latest to the earliest.
- 5 - To exit, select

### 3.3 UNITS MANAGEMENT

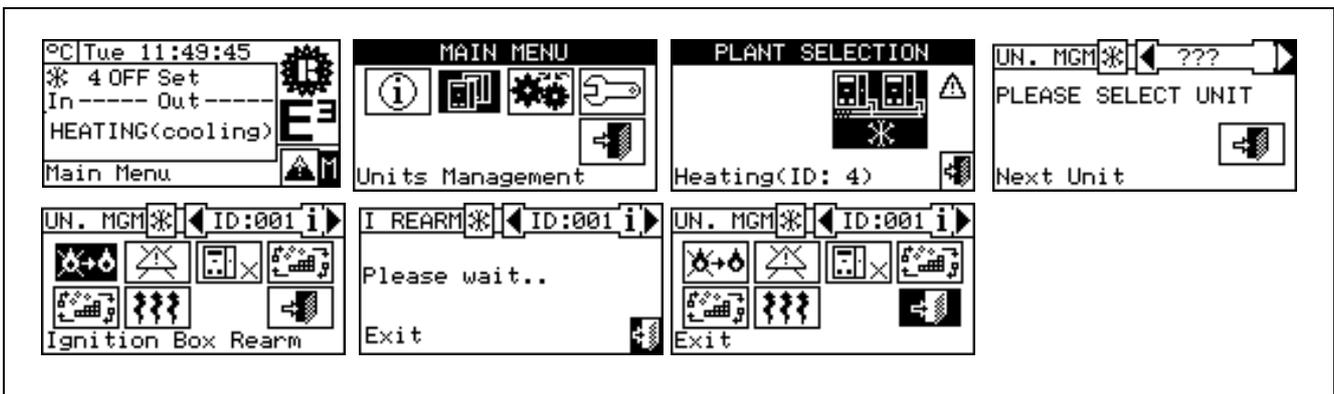
The menu allows the user to carry out certain operations upon the units controlled by the CCI. Each unit has a screen associated with it in the “Units management” menu, which contains 5 icons that allow the unit to be managed.

	<b>Flame control unit reset:</b> this option allows the flame control unit of the selected unit to be reset in the event of arrest.
	<b>Error Reset:</b> this option allows anomalies present in the selected unit to be reset (except in the case the flame control unit is blocked).
	<b>Unit exclusion:</b> this option allows the selected unit to be excluded from the plant.
	<b>Modify set of parameters:</b> this option allows the parameters set on the unit's electronic board to be modified. For a list of the parameters, consult the unit's installation manual.
	<b>Default set of parameters:</b> this option allows the default parameters memorised in the unit's electronic board to be reset.
	<b>Manual defrosting:</b> the option allows the defrosting cycle to be carried out for the selected unit (for E3-A only).

#### 3.3.1 FLAME CONTROL UNIT RESET

To carry out a flame control unit reset when the burner ceases to function, follow the instructions below:

- 1 - Select  from the main screen to access the main menu.
- 2 - From the main menu, select .
- 3 - Select the plant  or  if the CCI is configured to manage a 2 pipe cooling/heating plant.
- 4 - Select the unit, using  or . The unit's identification number is shown between the arrows.
- 5 - Position the cursor on  and press the knob to perform the flame control reset.
- 6 - Wait for the operation to be completed. If the operation is successful, the message “OK” appears on the display.
- 7 - To exit, select .

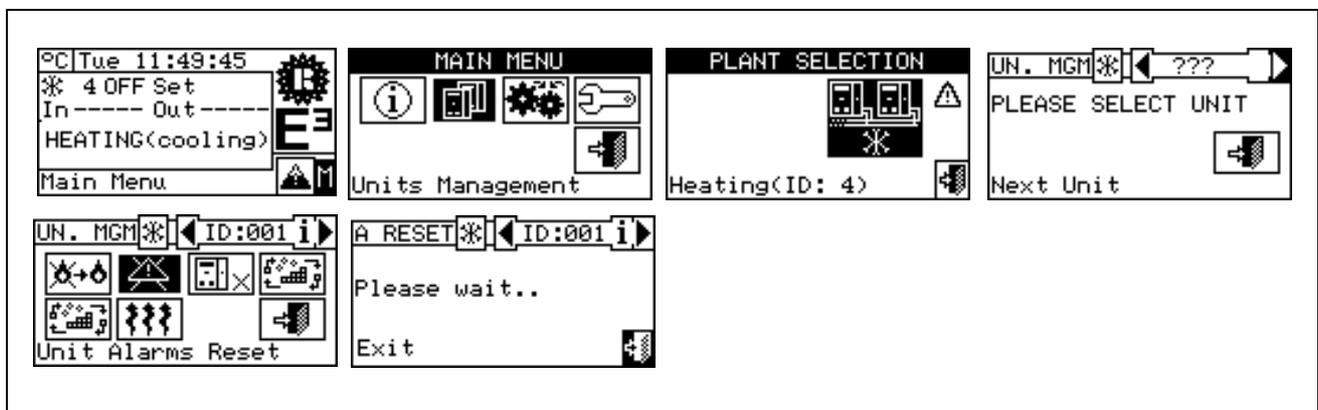


### 3.3.2 ERROR RESET

To carry out an Error Reset, follow the instructions below:

- 1 - Select  from the main screen to access the main menu.
- 2 - From the main menu, select .
- 3 - Select the plant  or  if the CCI is configured to manage a 2 pipe cooling/heating plant.
- 4 - Select the unit, using  or . The unit's identification number is shown between the arrows.
- 5 - Position the cursor on  and press the knob to perform an error reset.
- 6 - Wait for the operation to be completed. If the operation is successful, the message "OK" appears on the display.

To exit, select .

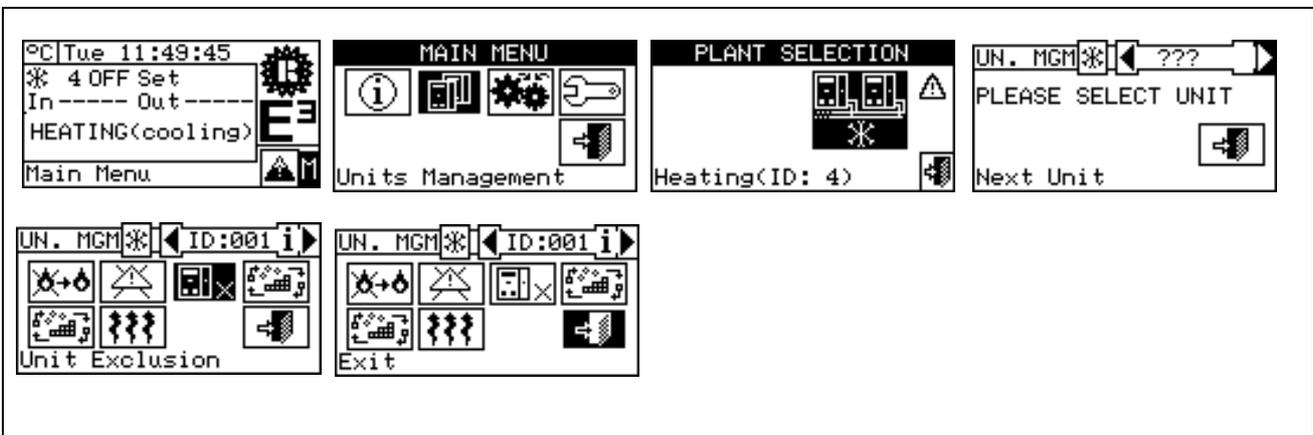


The reset does not perform a flame control unit reset.

**3.3.3 UNIT EXCLUSION**

To exclude the unit from the plant, follow the instructions below:

- 1 - Select  from the main screen to access the main menu.
- 2 - From the main menu, select .
- 3 - Select the plant  or  if the CCI is configured to manage a 2 pipe cooling/heating plant.
- 4 - Select the unit, using  or . The unit's identification number is shown between the arrows.
- 5 - Position the cursor on  and press the knob to exclude the unit. Wait for the operation to be completed. The symbol  indicates that the unit is now excluded from the plant. To include the unit in the plant once again, select  and press the knob. The symbol  indicates that the unit is now included in the plant.
- 6 - To exit, select .



**NOTE**

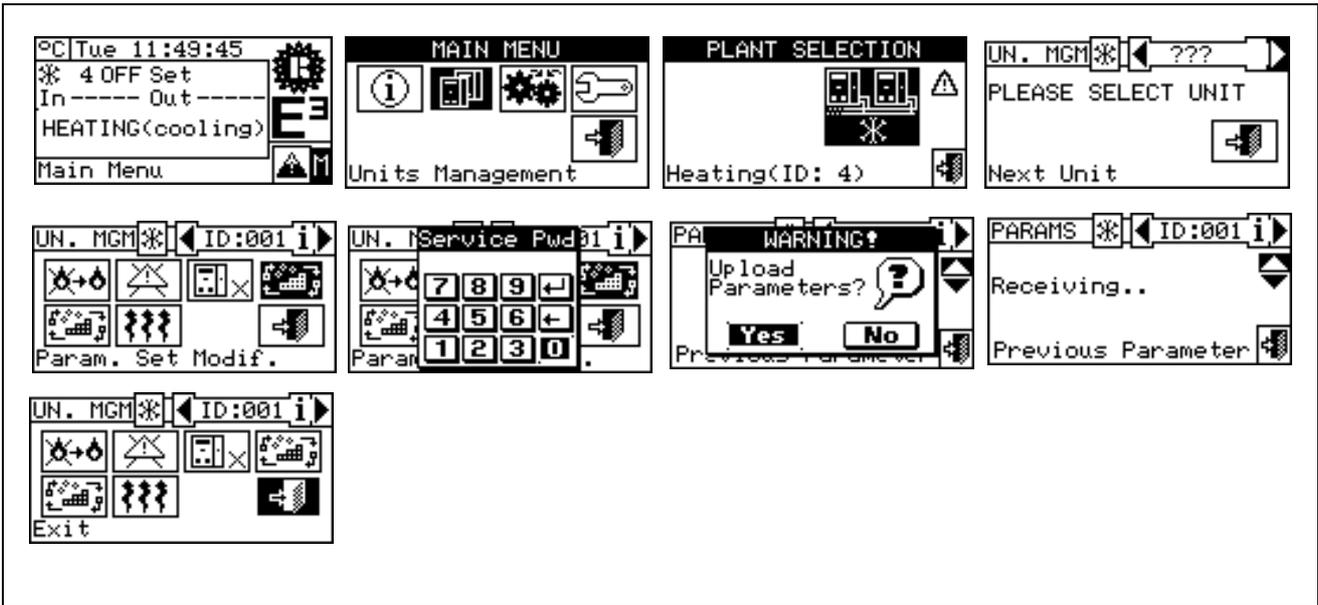
When the unit is excluded, the CCI considers it unusable; In addition, any anomalies are not indicated.

**3.3.4 MODIFY SET OF PARAMETERS (Technical Assistance Centres only)**

This option allows the modification of some parameters that are set on the unit's built-in electronic board. The Comfort Controller Interface communicates with the unit's electronic board and receives information on the parameters set on it. The operator may modify some of these parameters via the CCI and transmit them again to the unit's electronic board.

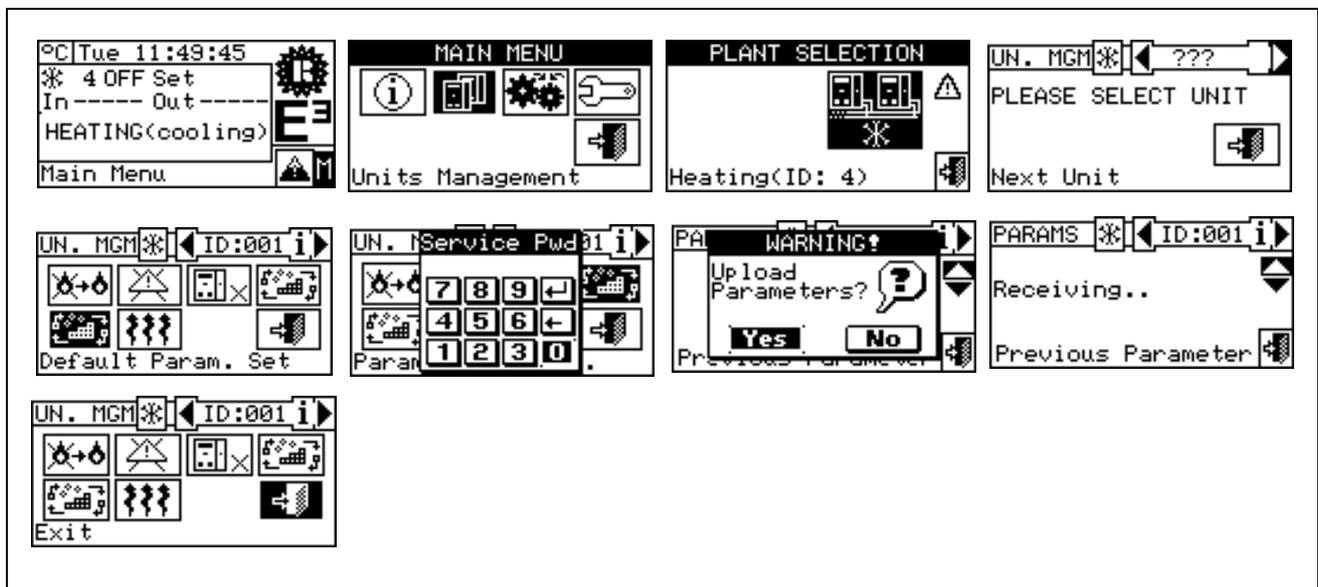
The option is protected by an installer password.

The figure below shows an example of a parameter modification, and the sequence of operations that need to be performed connected on the screens shown on the display.



### 3.3.5 DEFAULT SET OF PARAMETERS (Technical Assistance Centres only)

This option allows the **factory settings** memorised on the unit's electronic board to be restored via the CCI. La Comfort Controller Interface communicates with the electronic board and receives information on the **default parameters** (factory settings) set on it (beware: the default parameters are read-only and cannot be modified). The operator may modify some of these parameters via the CCI and transmit them again to the unit's electronic board. The parameters transmitted are used by the board for the unit's operation but this transmission will have no influence on the default settings memorised on board the unit. The option is protected by an installer password.

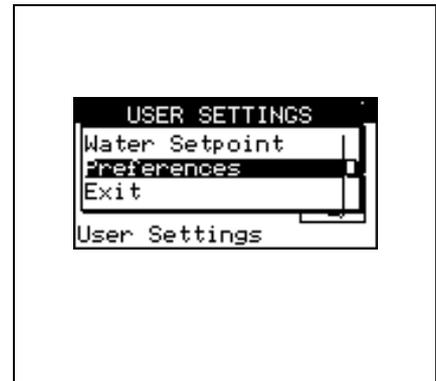


### 3.4 USER SETTINGS

From the main menu, select . If requested, enter the user password on the numerical keypad that appears on the display then select  to confirm. If the wrong password is entered, the display reverts to the main menu screen.

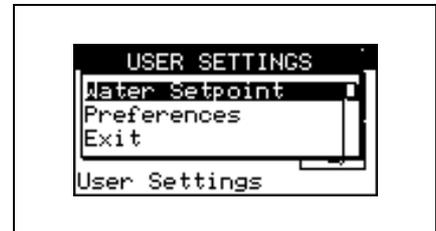
Accessing this menu allows the following parameters to be consulted/set:

- 3.4.1 WATER SETPOINT
- 3.4.2 PREFERENCES
- 3.4.3 Exit



#### 3.4.1 WATER SETPOINT

Select “**Water setpoint**” from the drop-down menu. Select the plant  or  depending on the kind of plant configured. This allows access to the screen for the setting of the water setpoint/s.



This screen displays the water setpoint temperatures for cooling and/or heating operation according to the type of plant configured.

	<p>Hot water production plant. The setpoint represents the desired temperature for water leaving the unit when, in the System installation thermostating has been set on the outlet water; if the opposite applies, the temperature setpoint represents the desired temperature for the unit's inlet water.</p>	
	<p>Plant for alternate production of hot or chilled water.                  Cooling Setpoint: Water temperature when the plant produces chilled water.                  Heating Setpoint: Water temperature when the plant produces hot water.                  The two setpoints described above may refer to outlet or inlet water, depending on the settings, which may be different the one from the other, as set in the installer menu.</p>	

In order to set the setpoint temperature for the heating and/or cooling services, follow the instructions below:

- 1 - Place the cursor on the temperature value to be modified (Cooling or Heating)
- 2 - Press the knob to enable the change of the selected value.
- 3 - Turn the knob to modify the temperature value.
- 4 - Press the knob to confirm the set value.
- 5 - To exit, select .

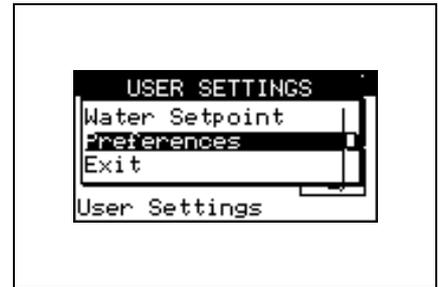
**NOTE**

This water setpoint is used when the 0-10 V inlet is not active to acquire an external setpoint (see Paragraph 4.2.2.2 – “*Water setpoint input*”).

### 3.4.2 PREFERENCES

From the user settings menu, select “Preferences” to access the drop-down menu where it is possible to set the following parameters:

- 3.4.2.1 *Language*
- 3.4.2.2 *Date and Time*
- 3.4.2.3 *Temperature Measurement Unit*
- 3.4.2.4 *Alarm Beeper*
- 3.4.2.5 *Display Options*
- 3.4.2.6 *User Password Setup*



#### 3.4.2.1 Language

The following languages are available for viewing the indications on the display: Italian, English, French, German and Spanish.

Select “Exit” to return to the list of preferences.



If a language is selected by mistake, wait for 30 minutes until the CCI returns automatically to the main screen, then proceed as follows:

- 1 - Select  from the main screen to access the main menu.
- 2 - Select  to gain access to the User Settings menu.
- 3 - Position the cursor by turning the knob on the second line of the drop-down menu, and press the knob.
- 4 - A second drop-down menu appears. Simply select the first line by pressing the knob.
- 5 - Turn the knob to choose the language and press the knob to confirm the choice.
- 6 - Wait for the shift to the selected language.
- 7 - To exit, select .

#### 3.4.2.2 Date and Time

In this screen, current time and date may be viewed and modified.



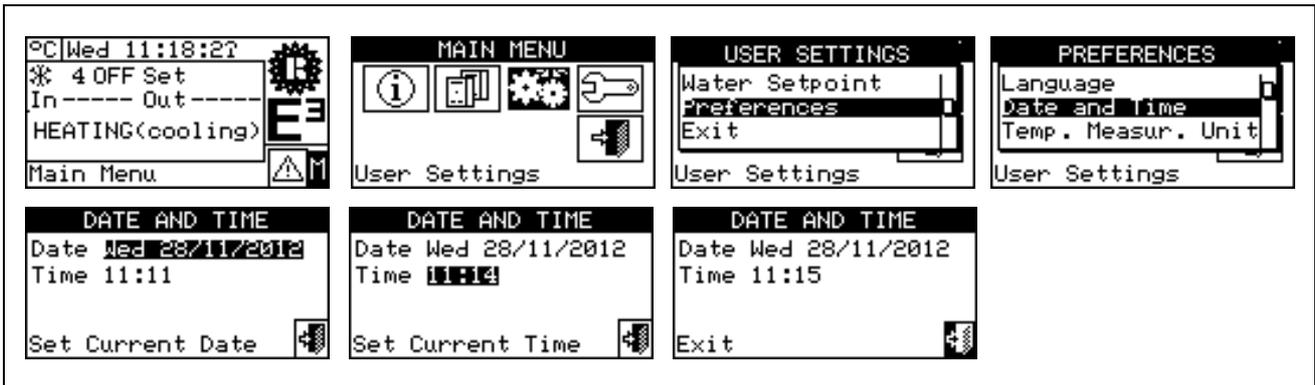
#### **Setting current date and time**

- 1 - Select  from the main screen to access the main menu.
- 2 - Select  to gain access to the User Settings menu.
- 3 - If requested, enter the user password on the numerical keypad that appears on the display.
- 4 - Select “**Preferences**” from the drop-down menu.

- 5 - Turn the knob to scroll the cursor downwards until “Date and Time” is highlighted and press the knob to access the submenu.
- 6 - To modify the date and/or time, turn the knob to position the cursor on the value to be modified.
- 7 - Press the knob. The figure selected will start to flash.
- 8 - Turn the knob to modify the value and press the knob to confirm.
- 9 - To exit, select .

NOTE

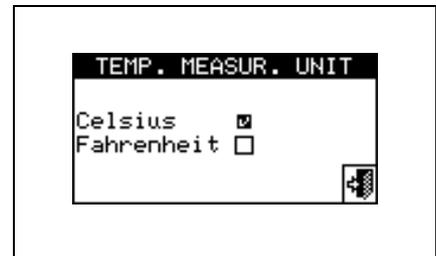
The clock is restarted once the exit button has been pressed  and if at least one of the two fields has been selected.



**3.4.2.3 Temperature Measurement Unit**

This screen shows the current unit measurement for temperature. To modify the measurement unit, position the cursor on  and press the knob to confirm.

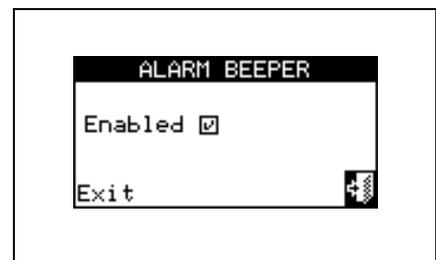
To exit, select .



**3.4.2.4 Alarm Beeper**

La Comfort Controller Interface is equipped with an alarm buzzer that is activated every time an operating alarm for one of the managed units takes place. To disable the Beeper select  and press the knob to visualise .

To exit, select .



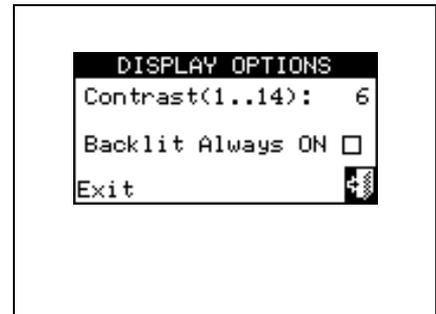
### 3.4.2.5 Display Options

This option allows the user to adjust the contrast of the graphic display.

To adjust the contrast:

1. Position the cursor on the contrast level.
2. Press the knob. The number starts to flash.
3. Turn the knob to modify the value.
4. Press the knob to confirm the contrast level chosen.
5. If "Backlight always on" is selected, the backlight stays on otherwise it will go out after 15 minutes of inactivity of the Encoder.

To exit, select

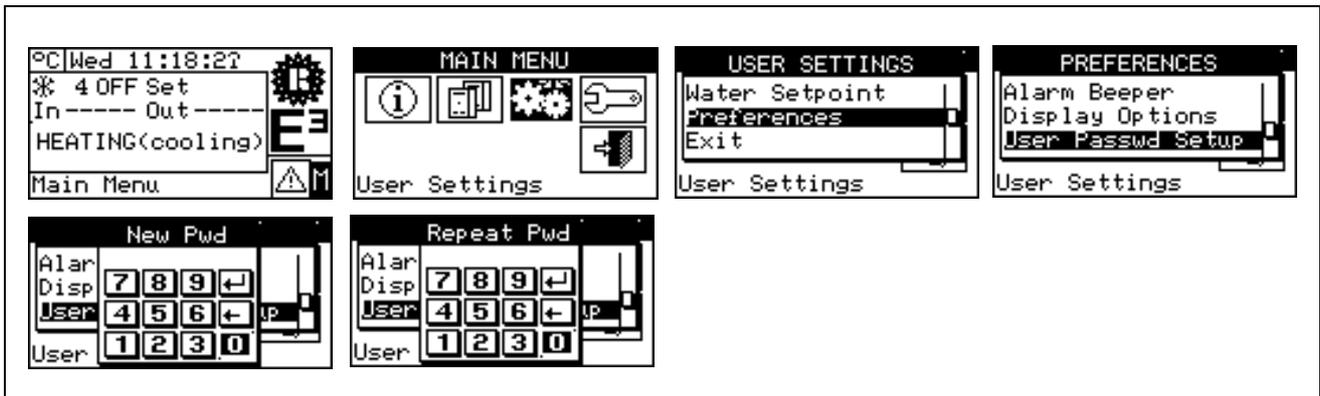


### 3.4.2.6 User Password Setup

This option allows the user to set/disable the user password.

To set the user password, follow the instructions below:

- 1 - Select from the main screen to access the main menu.
- 2 - Select to gain access to the User Settings menu.
- 3 - Select "Preferences" from the drop-down menu.
- 4 - Select "User Passwd Setup" from the drop down menu.
- 5 - Enter the password requested and select to confirm.
- 6 - Enter the new password again and select to confirm.



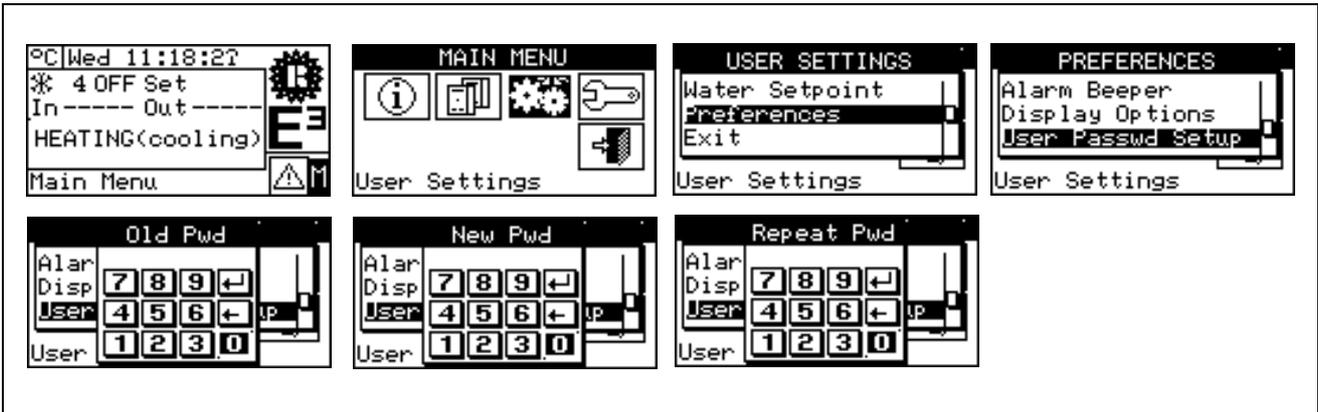
Once the password has been enabled, it must be entered every time it is necessary to access the **User setting menu** ().

Each time the password is entered to access the User settings menu, it remains enabled for 10 minutes after exiting from the menu.

Instructions for modifying or disabling the user password follow.

- 1 - Select from the main screen to access the main menu.
- 2 - Select to gain access to the User Settings menu.
- 3 - If requested, enter the user password on the numerical keypad that appears on the display.
- 4 - Select "Preferences" from the drop-down menu.
- 5 - Select "User Passwd Setup" from the drop down menu.
- 6 - If a user password is present, a numerical keypad appears on the CCI screen. Enter the old password via this keypad and then select to confirm.
- 7 - The screen asks for the new password to be entered; enter it and select .

8 - To confirm the new password, enter it again and select .



**NOTE**

To disable the password, do not enter a new password at steps 7 and 8 - simply select .  
 If the user password is disabled, it is not necessary to enter it to access the "User settings. Menu".

If an incorrect password is entered, press Enter. The CCI returns to the previous menu.

## 4 INSTALLATION

### 4.1 COMFORT CONTROLLER INTERFACE CONNECTIONS

#### WARNING

Before proceeding with operations for the creation of the electrical system, the professionally qualified personnel concerned is urged to read carefully the “Warnings” 11 GENERAL **WARNINGS**”, of this manual: it provides important indications regarding *installation safety* and *references to current regulations*.

**Incorrect installation may cause damage to persons, animals or things, for which the manufacturer may not be deemed responsible.**

#### 4.1.1 GENERAL INFORMATION

The connection of the Comfort Controller Interface (**CCI**) includes:

- The connection of the Comfort Controller Interface to a power supply
- Connection of the CCI and all units via a CAN-BUS cable
- The connection of a Comfort Controller by means of a series of signals described below

#### NOTE

BEFORE CARRYING OUT ANY OPERATION TO CONNECT THE COMFORT CONTROLLER INTERFACE, DISCONNECT THE POWER SUPPLY FROM THE UNITS BY MEANS OF THE MAIN POWER SWITCH PROVIDED BY THE ELECTRICAL INSTALLATION TECHNICIAN.

#### Connection of the Comfort Controller Interface to an electrical power supply

The Comfort Controller interface must be powered using a 230/24 V.a.c. 50/60 Hz safety transformer (according to Norm EN 61558-2-6) - with a minimum power rating of 20 VA (not supplied).

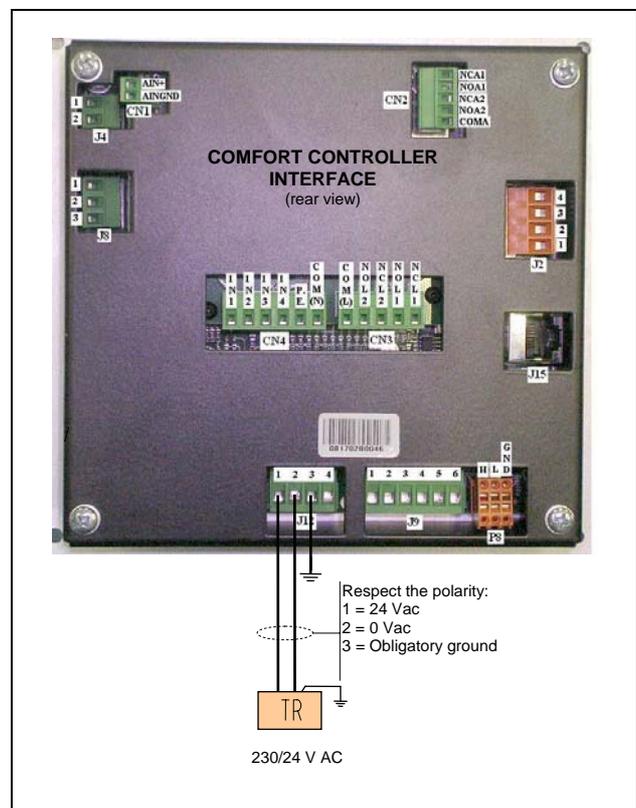
Use a 2 x 0,75 mm electrical connecting cable<sup>2</sup> (maximum length 1 m) and make the connections on the terminals of the 4-pole connector located at the bottom left of the rear of the CCI, respecting the polarity as in the diagram on the right:

- terminal 1 = 24 V;
- terminal 2 = 0 V;
- terminal 3 = ground.

**Warning:** in any case, terminal 3 of the CCI's 4-pole connector must be connected to a safety ground (RCO < 1Ω).

**Warning:** The terminals 2 and 3 are connected to each other internally; therefore even terminal 2 is grounded. Bear this in mind if the transformer powers other loads.

La Comfort Controller Interface is also provided with a backup battery which, if the power supply fails, is capable of storing set values in the memory. **the backup battery life is approx. 7 years**, after which it is necessary to replace it (by contacting a **ROBUR Technical Assistance Centre**).



**Connection of the Comfort Controller Interface to the units**

La Comfort Controller Interface must be connected to the units using a CAN-BUS cable, so as to create a data communication network, featuring a series of “n” nodes as shown in the example in Figure 5. **The maximum number of nodes that can be connected on a Bus is 4, meaning 3 E3 units and one CCI. The same Bus cannot be used to connect other units, Robur CCI's or DDC's**

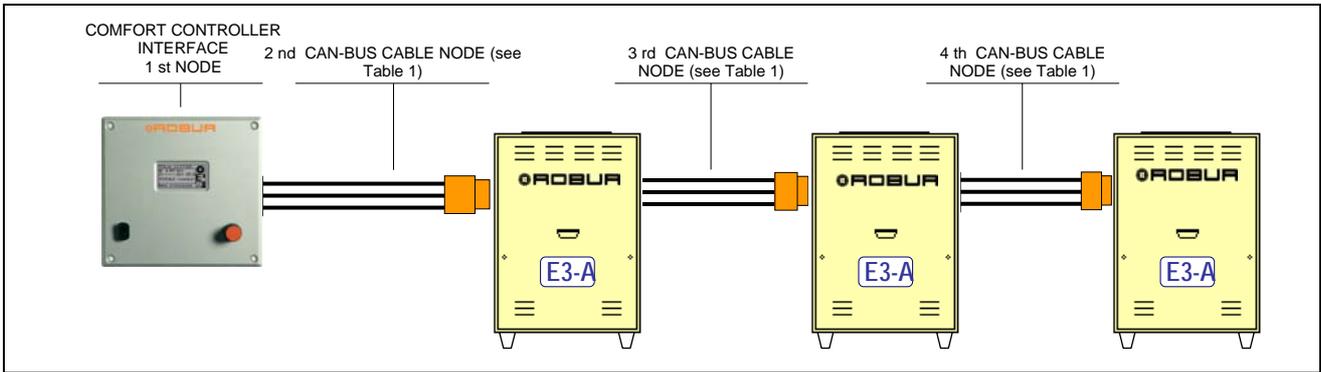


Figure 5 – EXAMPLE OF THE CONNECTION OF A COMFORT CONTROLLER INTERFACE TO MORE E3 SERIES UNITS

For a total cable length of up to 200 m a simple screened 3 x 0,75 mm cable can be used<sup>2</sup>; In all other cases, use a CAN-BUS cable, available as a ROBUR accessory, or follow the specifications given below.

NAME OF CABLE	MARKINGS / COLOURS			MAX. LENGTH	note	
<b>Robur</b>						
ROBUR NETBUS	H=BLACK	L= WHITE	GND= BROWN	450 m	-----	
<b>Honeywell SDS 1620</b>						
BELDEN 3086A	H=BLACK	L= WHITE	GND= BROWN	450 m	<b>In all cases, the fourth conductor must not be used</b>	
TURCK type 530						
<b>DeviceNet Mid Cable</b>						
TURCK type 5711	H= BLUE	L= WHITE	GND= BLACK	450 m		
<b>Honeywell SDS 2022</b>						
TURCK type 531	H=BLACK	L= WHITE	GND= BROWN	200 m		

Table 1 - EXAMPLES OF CAN-BUS CABLES FOR THE CONNECTION OF THE DIRECT DIGITAL CONTROLLER TO GA AND GAHP SERIES UNITS

**WARNING**

**Diagrams and procedures for connecting the Comfort Controller Interface to the units are contained in the specific Installation, Operation, Activation and Maintenance Manuals supplied with the units themselves.**

**For all CCI connecting operations reference should be made to this specific documentation.**

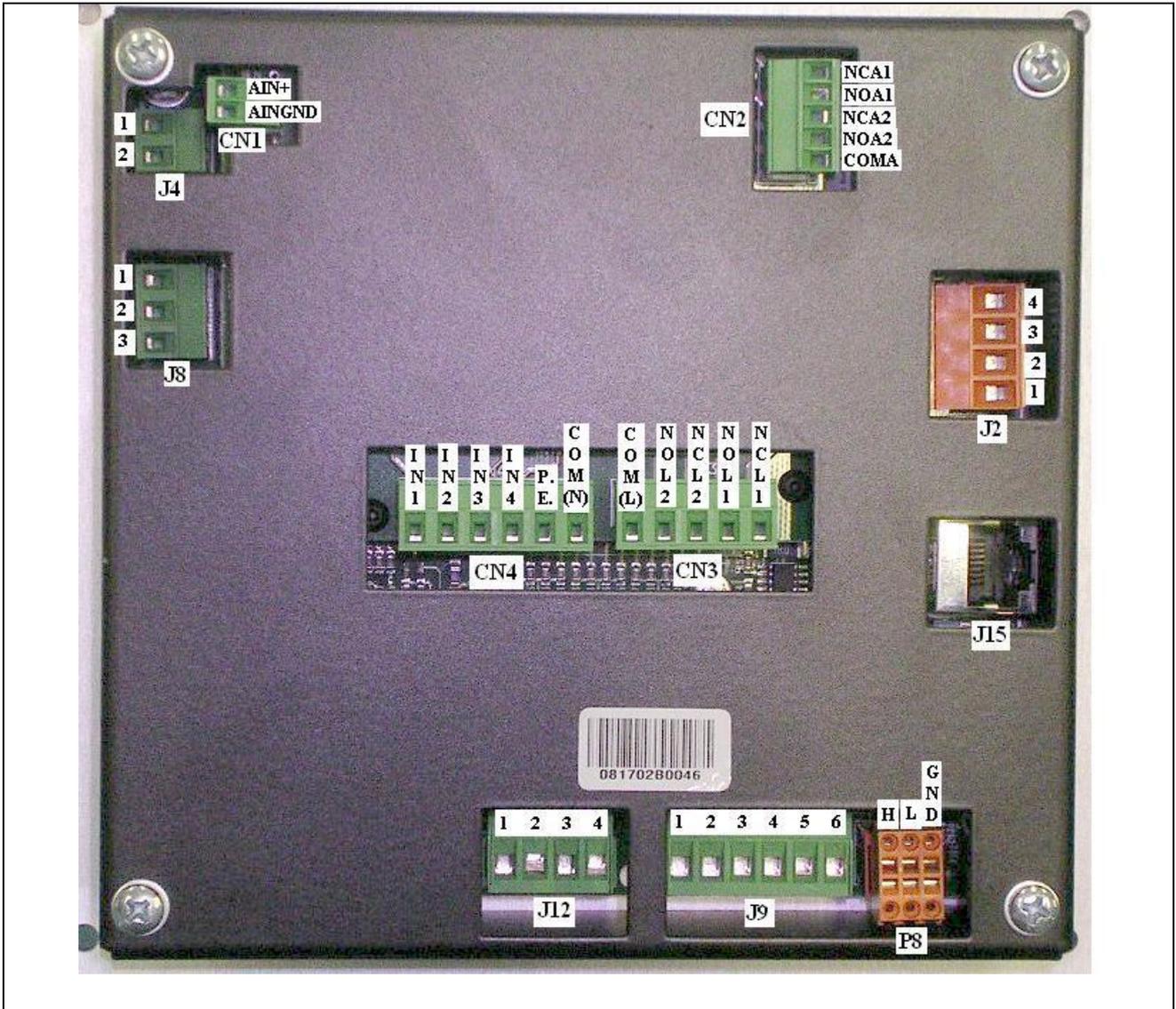
**4.1.2 COMFORT CONTROLLER INTERFACE CONNECTIONS**

In the rear of the Comfort Controller Interface there are the connection terminals shown in Figure 6 and described in the following table. One can power up the CCI unit via these terminals, connect it to E3 units in a CAN-Bus communication network and interface it with an external plant controller in order to create an integrated controller system. For all connections the maximum lengths indicated in the first column of the following table must be respected.

Conn.	Terminal	Description	Notes
CN1 < 10m	AIN+	0-10V input for setpoint requests	0 V equals: 0 °C
	AINGND	Ground reference (GND) for 0-10V input	10 V equals: 70 °C
J4 < 100 m	1 and 2	Outlet and inlet collector temperature sensor inputs	NTC 10k sensor No polarity inputs
CN4 < 10 m	IN1	Input ( <b>phase 230 V</b> ) E3 unit activation request	0 V: units OFF 230 V: units ON
	IN2	Input ( <b>phase 230 V</b> ) DHW service request; is ignored if IN1 = 0 V	0 V: Heating service 230 V: DHW service
	IN3	Input ( <b>phase 230 V</b> ) – Not used	Not used. <b>Do not connect</b>
	IN4	Input ( <b>phase 230 V</b> ) Free Cooling service request	0 V: Request not active 230 V: Request active
	P.E.	Safety ground terminal	
	COM(N)	Reference ( <b>neutral 230 V</b> ) Inputs IN1-IN4	Connect to the 230 V grid neutral
J9 < 10 m	1	Reference ( <b>24 VAC, SELV</b> ) for terminal 2 input	Use clean contact for open/close 1 - 2
	2	Input ( <b>24 VAC, SELV</b> ) for signaling of auxiliary heat generator in operation	1 - 2 open: generator off 1 - 2 closed: generator on
	3, 4, 5, 6	Not used	Not used. <b>Do not connect</b>
CN3 < 10 m	COM(L)	Common contact ( <b>phase or neutral 230V, or very low voltage</b> ) for L1 and L2 relay outlets	<b>Where very low voltage is used, the (SELV) safety feature where present is not maintained</b>
	NOL2	Output signal for impossibility of continuing DHW service with E3 units	COM(L) - NOL2 closed with signal active
	NCL2	Output signal for impossibility of continuing ACS service with E3 units	COM(L) - NCL2 open with signal active
	NOL1	General alarm output signal (the E3 generation system cannot provide any service)	COM(L) - NOL1 open with alarm state on
	NCL1	General alarm output signal (the E3 generation system cannot provide any service)	COM(L) - NCL1 closed with alarm state on
J8 < 10 m	1	Common contact ( <b>very low safety voltage (SELV)</b> ) for relay output	<b>Only use very low safety voltage (SELV)</b>
	2	First E3 unit alarm signal output	1 - 2 open with alarm state on
	3	First E3 unit alarm signal output	1 - 3 closed with alarm state on
CN2 < 10 m	COMA	Common contact ( <b>very low security voltage (SELV)</b> ) for A1 and A2 relay output	<b>Only use very low safety voltage (SELV)</b>
	NOA2	Third E3 unit alarm signal output	COMA - NOA2 closed with alarm state on
	NCA2	Third E3 unit alarm signal output	COMA - NCA2 open with alarm state on
	NOA1	Second E3 unit alarm signal output	COMA – NOA1 closed with alarm state on
	NCA1	Second E3 unit alarm signal output	COMA – NCA1 open with alarm state on
J12 < 1 m	1	24 VAC, 20 VA safety power supply ( <b>SELV</b> )	<b>Only use very low safety voltage (SELV)</b>
	2	Power supply feedback 0 VAC	Completely grounded
	3	Safety ground terminal	
	4	Not used	Not used. <b>Do not connect</b>
P8 < 450 m (*)	H	Connection terminal to the CAN-Bus Data H signal	
	L	Connection terminal to the CAN-Bus Data L signal	
	GND	Common reference data signal CAN-Bus connection terminal (third wire of the CAN-Bus cable)	<b>Connect only to the CAN return connector (not to the screen/ground)</b>

J2	1	Connection terminal A (TXD/RXD+), port RS485	
	2	Connection terminal B (TXD/RXD-), port RS485	
	3	Common connection terminal port RS485 (connected to the general common and to the ground)	
	4	Cable shield port RS485 (connected to the general common and to the ground)	

(\*) Maximum overall length of all the CAN Bus cable sections, including the ones among the appliances.



**Figure 6 – REAR VIEW OF THE COMFORT CONTROLLER INTERFACE AND DETAIL OF ELECTRICAL CONNECTIONS**

A standard male 9-way connector (RS232 serial port) is located on the front of the Comfort Controller Interface for connection to a PC (see Figure 1 on page 4).

The section 4.4 “E3 SYSTEM CONTROL VIA CCI AND EXTERNAL CONTROLLER ” on page 47 describes the various system operating modes.

### 4.1.3 INSTALLATION OF THE COMFORT CONTROLLER INTERFACE

For indoor installation the Comfort Controller Interface must be installed in a dedicated panel by carrying out the following operations (see Figure 7):

- Create a 155 by 151 mm rectangular opening;
- position the Comfort Controller Interface in the opening created and mark the 4 points where the holes go for the fastening screws;
- Open n. 4 holes of dia. 4 mm;
- proceed with the fastening of the Comfort Controller Interface in the panel aperture by fastening with screws and nuts (provided with the equipment).

#### WARNING

Once installed, access to the back of the Comfort Controller Interface must be possible only through the disassembling or opening of parts of the panel by tools. This precaution is essential in order to satisfy the requirements of ruling Norms about electrical safety.



Figure 7 – FASTENING HOLE DISTANCE FOR COMFORT CONTROLLER INTERFACE

#### WARNING

##### Operating conditions of the Comfort Controller Interface:

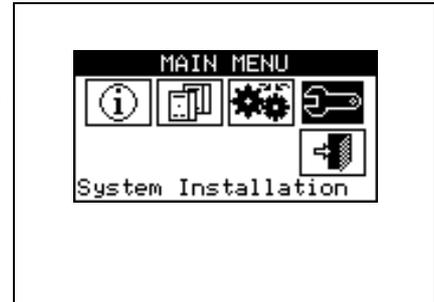
- **Temperature: 0 ÷ 50 °C**
- **Relative Humidity (RH): 5 ÷ 90 % without condensate**

## 4.2 SYSTEM INSTALLATION

Only professionally qualified personnel may access this menu. To access the menu select  from the main menu as shown in the figure on the right, then enter, if requested, the installer password on the numerical keypad that appears on the display.

The options available in this menu are indicated below:

- 4.2.1 CCI
- 4.2.2 PLANTS



### 4.2.1 CCI

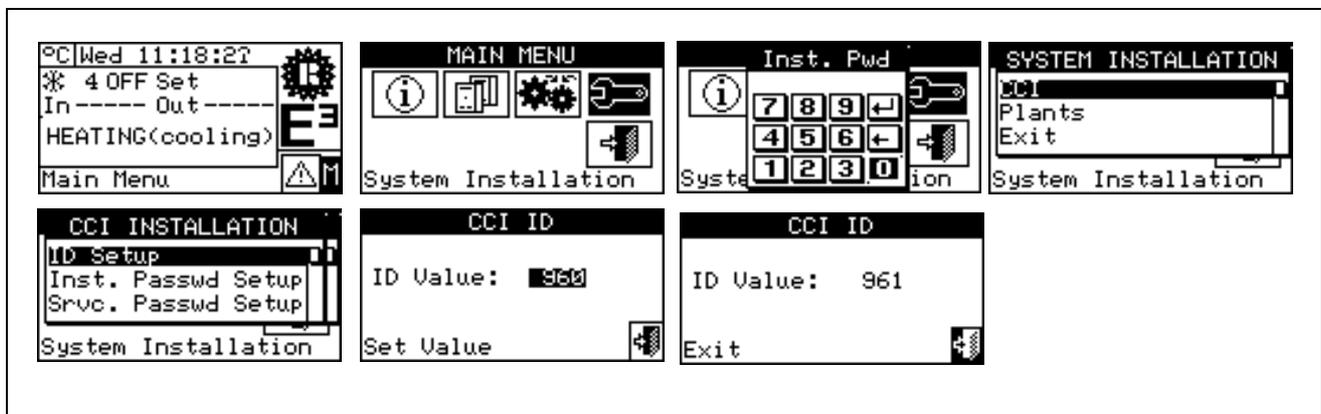
To access the menu, select CCI from the drop-down menu



#### 4.2.1.1 Setting ID

The option enables the assigning of the Comfort Controller Interface ID. The setting is not strictly necessary, seeing as a default setting will be assigned of ID=960. To set the ID, follow the instructions below.

- 1 - Select  from the main screen to access the main menu.
- 2 - Select  to gain access to the System installation.
- 3 - Enter the installer password on the numerical keypad that appears on the display.
- 4 - From the drop down menu select "CCI".
- 5 - Select "ID Setup" from the drop-down menu.
- 6 - Position the cursor on the number to the left of the text "ID value:". Press the knob: The number starts to flash. Turn the knob to modify the value and press the knob to confirm.
- 7 - To exit, select .



### 4.2.1.2 Setting the installer password

This option allows the user to set/disable the installer password.

Once the password has been set it must be inserted to access:

- **System Installation** ( );

**NOTE**

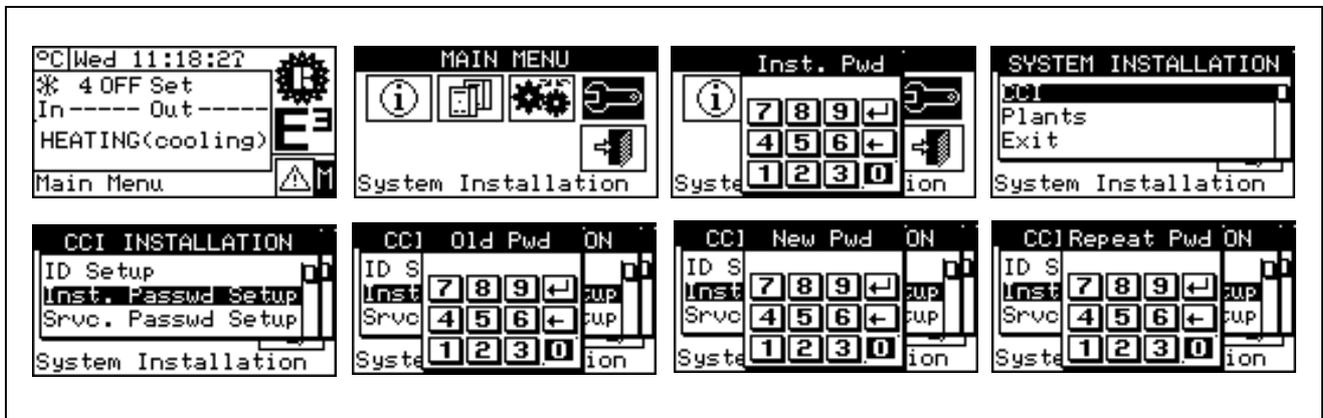
Each time a menu is exited under password protection, the installer password remains active for a period of 10 minutes. At the end of this period it will be necessary to enter the installer password once again to access any of the menus mentioned above.

To set or change the installation password, follow the instructions below:

- 1 - Select from the main screen to access the main menu.
- 2 - Select to gain access to the System installation.
- 3 - Enter the installer password, if requested, on the numerical keypad that appears on the display;
- 4 - From the drop down menu select “**CCI**”.
- 5 - Select “**Inst. Passwd Setup**” from the drop down menu
- 6 - If an installer password is present, a numerical keypad appears on the CCI screen. Enter the old password via this keypad and then select to confirm.
- 7 - Enter the new password again and select to confirm.
- 8 - Enter the new password again and select to confirm.

**NOTE**

To **disable** the installer password, do not enter the new password at points 7 and 8 – instead, simply select .



If the installation password is disabled, it is no longer necessary to enter it in order to gain access to the following menus: “**System installation**”.

**4.2.1.3 Service password setup**

This option permits to set/disable the assistant's password.

Once the password has been set it must be inserted to access:

- **Modifying Set of Parameters** (option present in Units management menu );
- **Default Set of Parameters** (option present in Units management menu .

**NOTE**

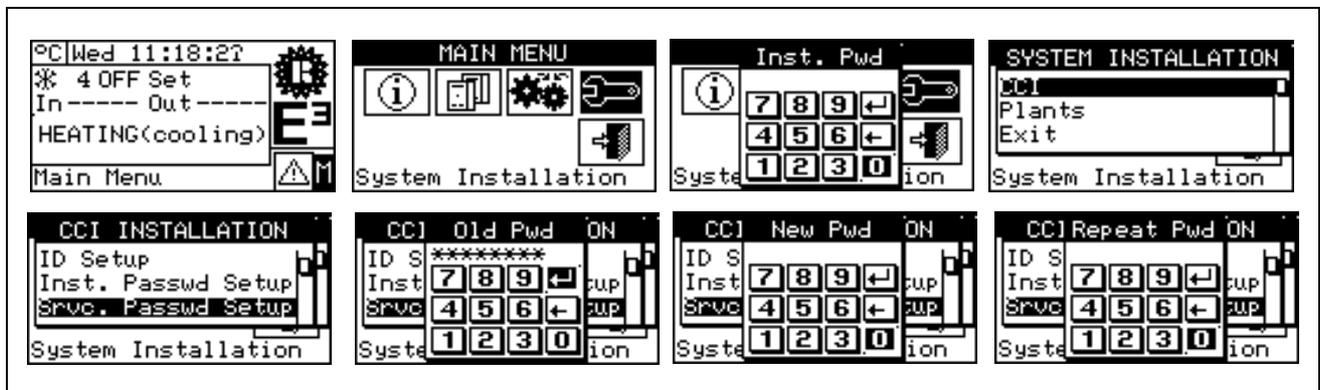
Every time a menu is left with active password, the assistant's password is kept enabled for a period equal to 10 min. At the end of this period, the assistant's password must be entered again to gain access to one of the above mentioned menus.

To set or change the installation password, follow the instructions below:

- 1 - Select  from the main screen to access the main menu.
- 2 - Select  to gain access to the System installation.
- 3 - Enter the installer password, if requested, on the numerical keypad that appears on the display;
- 4 - From the drop down menu select **“CCI”**.
- 5 - Select **“Srcv. Passwd Setup”** from the drop down menu.
- 6 - If an assistant password is present, a numerical keypad appears on the CCI screen. Enter the old password via this keypad and then select  to confirm.
- 7 - Enter the new password again and select  to confirm.
- 8 - Enter the new password again and select  to confirm.

**NOTE**

To **disable** the Assistant's password, do not enter the new password at steps 7 and 8, but select only .



#### 4.2.1.4 Unit configuration

Before performing these operations, make sure that all the built-in S61 electronic boards have been configured, i.e. have had an **ID (identifier = network address)** assigned to them and have been assigned to a plant.

Moreover make sure that each unit has been assigned the group number 0, meaning “Part of the Base Plant (see board S61 programming manual).

Make sure all units are electrically powered up when activating the Comfort Controller Interface (CCI).

#### Description of the screen.

Figure 8 shows an example screen from the Unit configuration menu.

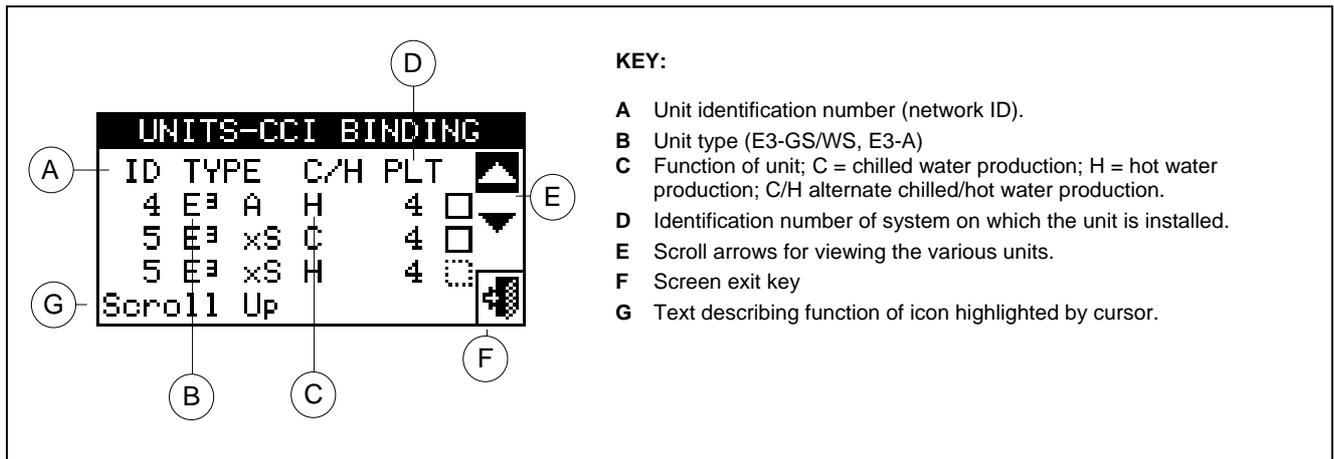


Figure 8 – EXAMPLE OF SCREEN DISPLAY FOR UNIT CONFIGURATION MENU

The system that will be managed by the CCI is acknowledged by the systems on which the units assigned to the CCI itself have been configured.

If the CCI is only assigned to hot plants (E3-A), the CCI assumes that it has to manage that specific hot plant.

If 2 pipe heating/cooling units are assigned to it, the CCI will assume that it is to manage a 2 pipe heating cooling plant.

#### NOTE

Management of two-line heating/cooling is required for E3-GS/WS units which **must** have both modules assigned to the same plant ID.

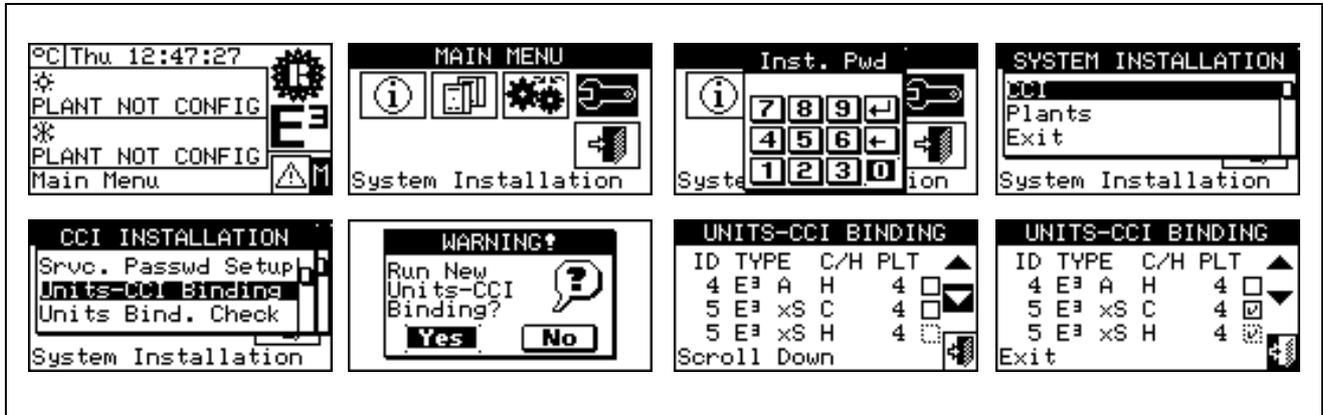
The screen in Figure 8, shows the existing units, indicating for each one its unit ID, unit type, function (heating and/or cooling) and the plant number (ID) to which they have been assigned.

To assign the units to the CCI follow the instructions below:

- 1 - Select  from the main screen to access the main menu.
- 2 - Select  to gain access to the System installation.
- 3 - Enter the installer password on the numerical keypad that appears on the display.
- 4 - From the drop down menu select “CCI”.
- 5 - Rotate the knob to scroll the cursor downwards until “Units-CCI Binding” is highlighted then press to knob to access the screen.
- 6 - Select “Yes” to carry out a new configuration. WARNING: EACH TIME A NEW CONFIGURATION IS PERFORMED, THE PREVIOUS CONFIGURATION IS CANCELLED.
- 7 - Position the cursor on  then turn the knob to assign the unit to the system. The symbol  indicates that the unit has been assigned to the system.
- 8 - Select  or  to view other units to be assigned to the system or systems.

9 - Repeat the operations described in steps 7 and 8 until all the units that need to be managed have been assigned.

10 - To exit “**Config. Units**” select .

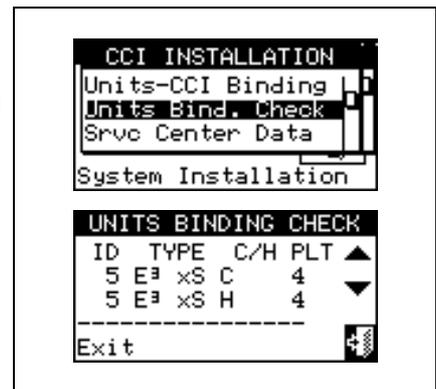


**4.2.1.5 Checking unit configuration**

Via this menu, existing unit configurations may be checked:

To carry out a configuration check:

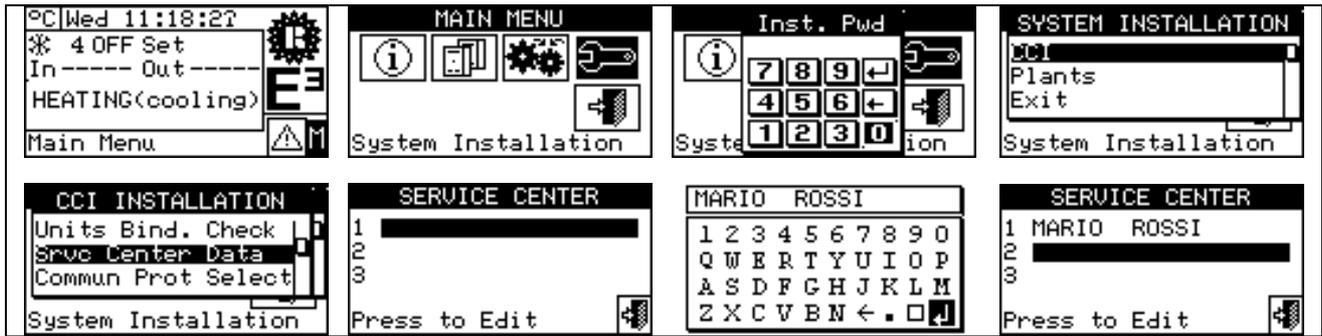
- 1 - Turn the knob to position the cursor on “**Units Bind. Check**”, and press the knob to access the screen.
- 2 - Select  or  to view all the units assigned to this CCI
- 3 - To exit, select .



**4.2.1.6 Technical assistance information**

This option allows the user to set the data for the Technical Assistance Centre to contact if necessary via the information menu (see paragraph 3.2.4 - “**Technical**”).

- 1 - Select  from the main screen to access the main menu.
- 2 - Select  to gain access to the System installation menu.
- 3 - Enter the installer password on the numerical keypad that appears on the display.
- 4 - From the drop down menu select “**CCI**”.
- 5 - Turn the knob to scroll the cursor downwards until “**Srvc Center Data**” is highlighted then press the knob to access the screen.
- 6 - To modify the data that will then be displayed in the information menu (3.2.4 - “**Technical**”), turn the knob to position the cursor on the row to be modified.
- 7 - Press the knob: a numerical keypad appears that allows up to 18 characters to be entered.
- 8 - When the text has been entered, select  to confirm and exit.
- 9 - Repeat the operations described above to enter the other two rows.
- 10 - To exit, select .



#### 4.2.1.7 Communication protocol selection

This option is used to set up the communication protocol that the CCI uses on the RS-232 and RS-485 serial connection port.

As far as the RS-232 port is concerned, "PC Terminal" can be chosen if a link exists with a Personal Computer provided with terminal emulation software. With this it is possible to give pre-set commands with the keyboard and view the results on the terminal; if you select the Modbus RTU (v1.0 or v2.0) protocol, you will be able to connect any appropriately configured Modbus Master to the CCI for data exchange (the CCI always works as Modbus Slave), using this protocol (the difference between Modbus v1.0 and v2.0 concerns the mapping of the Modbus logs; normally the most recent version is used (v2.0), however v1.0 is maintained for a question of compatibility with older devices).

As far as the RS-485 port is concerned, the "PC Terminal" option is not available, while options Modbus v1.0 and v2.0 are available.

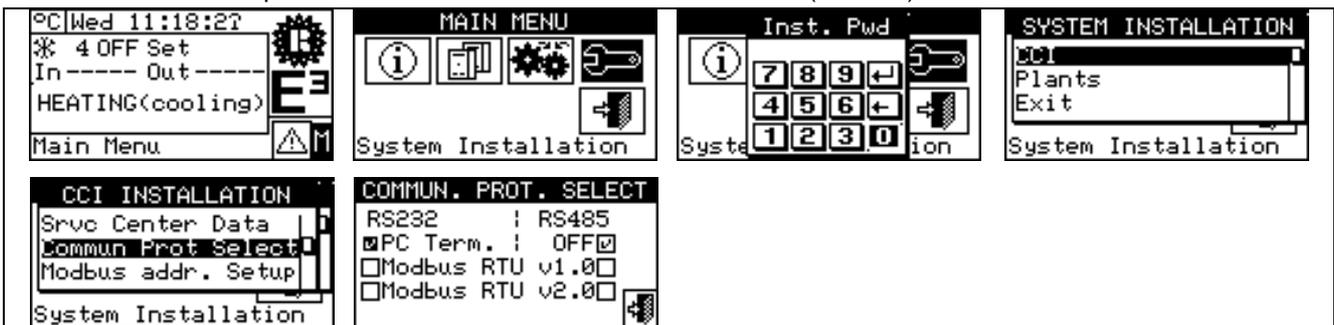
**NOTE**

It is not possible to select a Modbus option for both ports: if a Modbus option is chosen for the RS-232 port, the OFF option (no protocol) is automatically forced on the RS-485 port; on the other hand, selecting a Modbus option for the RS-485 port, the "PC Terminal" option is forced for the RS-232 port.

**NOTE**

The document describing the mapping and meaning of the Modbus logs implemented on the CCI is available on request.

- 1 - Select from the main screen to access the main menu.
- 2 - Select to gain access to the System installation.
- 3 - Enter the installer password on the numerical keypad that appears on the display.
- 4 - From the drop down menu select "CCI".
- 5 - Turn the knob to scroll the cursor downwards until "Select Communic. prot" and press the knob to access the screen.
- 6 - Select the required entry in the left column for RS-232, and in the right column for RS-485; for example:
  - Select "PC Terminal" in the left column (RS-232) if you wish to communicate with a Personal Computer with a terminal emulator, for example to download the events log. Select this also if you must update the CCI software (operation reserved for authorised Technical Assistance Centres).
  - Select a Modbus option (typically, Modbus v2.0) in the left or right column, if using a Master Modbus connected respectively to the RS-232 or RS-485 port of the CCI. Robur WISE and Robur Monitor devices require Modbus V2.0 to be set in the left column (RS-232).



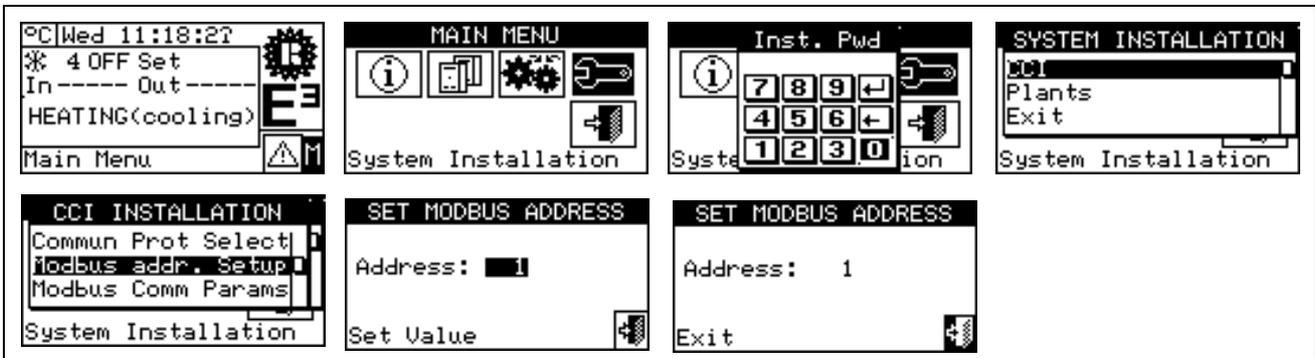
**4.2.1.8 Modbus address setting**

This option enables the Modbus address to be set, that is to say the address used by the CCI to answer the requests coming from the Master Modbus. Please note that the CCI operates as a modbus slave.

The default value is 1 and usually it doesn't need changing, except for links with bus 485 instead of 232. By using bus 485 one can in fact have more CCI's linked on the same bus and, to distinguish them, different addresses have to be assigned. With bus 232 only one CCI can be connected to the Master Modbus, so one can leave the default value.

The address can be set with values from 1 to 247.

- 1 - Select  from the main screen to access the main menu.
- 2 - Select  to gain access to the System installation menu.
- 3 - Enter the installer password on the numerical keypad that appears on the display.
- 4 - From the drop down menu select “**CCI**”.
- 5 - Turn the knob to scroll the cursor downwards until “**Modbus addr. Setup**” is highlighted then press to knob to access the screen.
- 6 - Select the desired address.



**4.2.1.9 Modbus communication parameters**

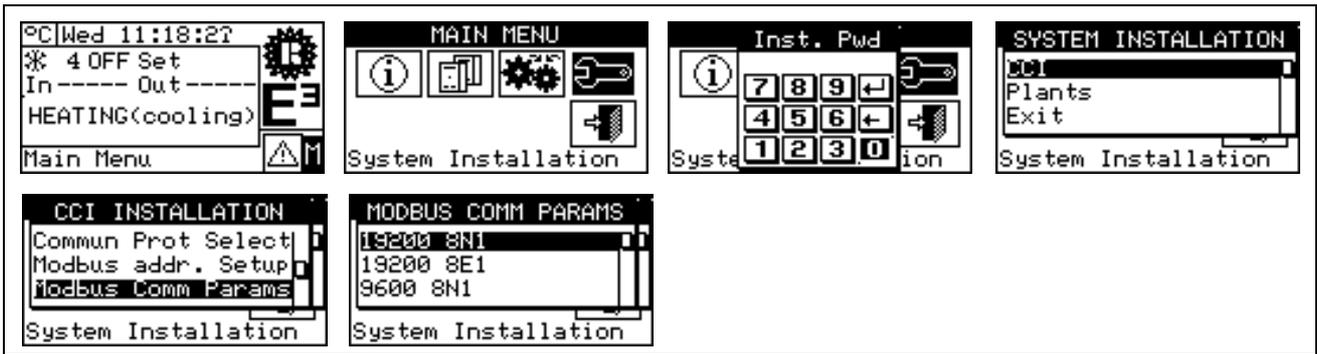
This option permits the parameters of the Modbus communication to be set.

In particular, communication speed, number of data bits, stop bits and parity check can be set. The choice is limited to 6 possible combinations:

- a) 19.200 baud, 8 data bits, 1 stop bit, no parity (19200 8N1)
- b) 19.200 baud, 8 data bits, 1 stop bit, pair parity (19200 8E1)
- c) 19.200 baud, 8 data bits, 2 stop bits, no parity (19200 8N2) (not available on RS-485)
- d) 9.600 baud, 8 data bits, 1 stop bit, no parity (9600 8N1)
- e) 9.600 baud, 8 data bits, 1 stop bit, pair parity (9600 8E1)
- f) 9.600 baud, 8 data bits, 2 stop bits, no parity (9600 8N2) (not available on RS-485)

Choose the desired combination, that must correspond to the setting on the master modbus device connected to the CCI.

- 1 - Select  from the main screen to access the main menu.
- 2 - Select  to gain access to the System installation menu.
- 3 - Enter the installer password on the numerical keypad that appears on the display.
- 4 - From the drop down menu select “**CCI**”.
- 5 - Turn the knob to scroll the cursor downwards until “**Modbus. Com. params**” is highlighted then press to knob to access the screen.
- 6 - Select the desired communication parameters.



#### 4.2.1.10 Erase Alarms Log (for Technical Assistance Centres only)

Allows the event history to be completely deleted without the need to perform a general reset of the CCI.

#### 4.2.1.11 Factory Settings

This option allows the factor settings to be restored for the entire CCI. All settable parameters are returned to their default values.

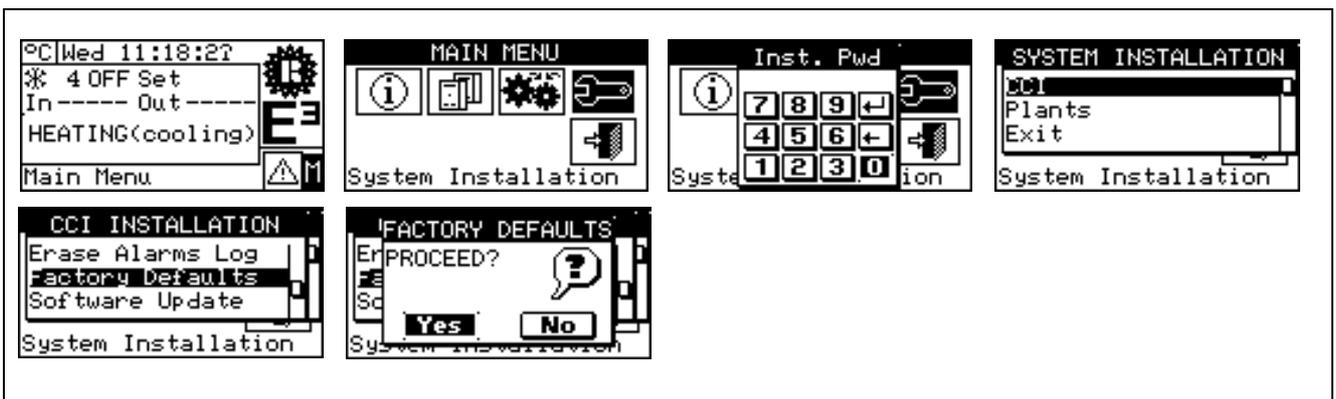
To carry out the reset, follow the instructions below:

- 1 - Select from the main screen to access the main menu.
- 2 - Select to gain access to the System installation menu.
- 3 - Enter the installer password on the numerical keypad that appears on the display.
- 4 - From the drop down menu select “CCI”.
- 5 - Turn the knob to scroll the cursor downwards until “**Factory. settings**” is highlighted then press to knob to access the screen.
- 6 - Select “**YES**” to confirm the reset, “**NO**” to return to the drop-down menu.

**NOTE**

This function causes also the loss of unit configuration and event history.

A short message appears on the screen to confirm that the operation has been performed successfully.



#### 4.2.1.12 Software Update (for Technical Assistance Centres only)

This option, via a link to a PC, is used to update of the software loaded inside the CCI's electronic board. The operation may be carried out only by qualified ROBUR personnel.

**4.2.2 PLANTS**

Select “**Plants**” from the drop-down menu, then select the plant. The options available in this menu are:

- 4.2.2.1 *BUS access setup*
- 4.2.2.2 *Water setpoint input*
- 4.2.2.3 *Max water setpoint*
- 4.2.2.4 *Min water setpoint*
- 4.2.2.5 *ON/OFF controller*
- 4.2.2.6 *DHW service units number*
- 4.2.2.7 *Advanced settings*

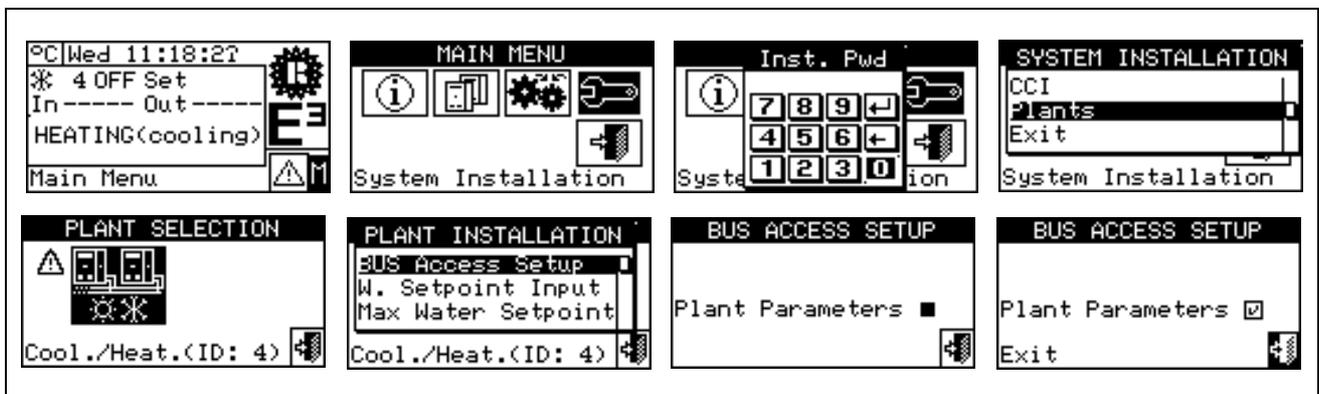
**4.2.2.1 BUS access setup**

Allows bus access to be enabled for the modification of the operating parameters of the plant itself.

**Plant parameters**

By selecting the item “Plant parameters” one can set the plant water setpoint via bus.

See also 4.2.1.7 “Communication protocol selection” on page 37, 4.2.1.8 “Modbus address setting” on page 38 and 4.2.1.9 Modbus communication parameters on page 38.



**4.2.2.2 Water setpoint input**

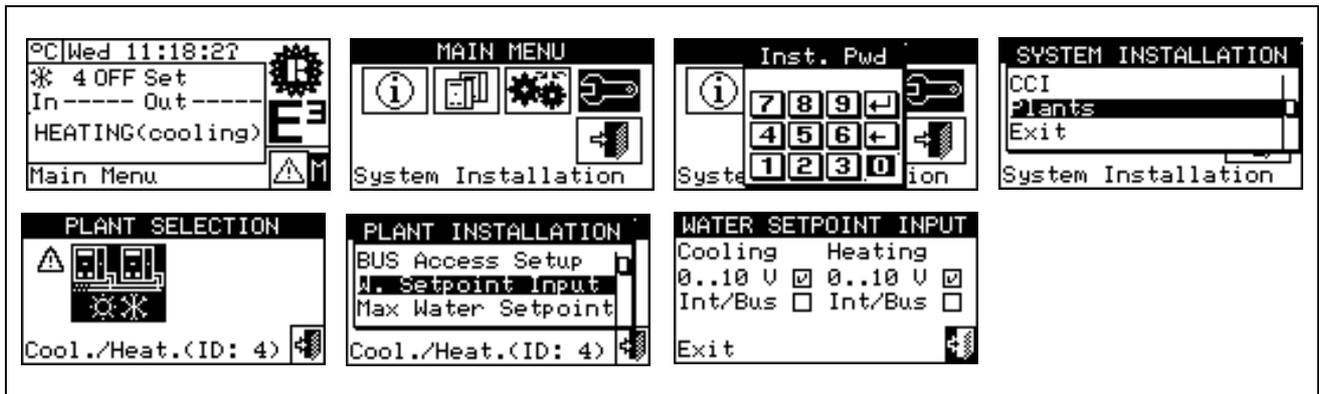
This option allows the water setpoint acquisition mode to be specified.

There are two possible options:

- **0..10 V**: the water setpoint is acquired from the analog input 0..10 V (see 4.1.2 “COMFORT CONTROLLER INTERFACE CONNECTIONS” on page 28)
- **Internal/Bus**: The setpoint used is the one set by the user in the Water setpoint menu (see 3.4.1 “WATER SETPOINT” on page 22) or set via ModBus Bus (see 4.2.2.1 “BUS access setup” on page 40)

To modify the setpoint limits, follow the instructions below:

- 1 - Select  from the main screen.
- 2 - Select  to gain access to the “**System installation menu**”.
- 3 - Enter the installer password on the numerical keypad that appears on the display.
- 4 - Select “**Plants**” from the drop-down menu.
- 5 - Select the symbol  for two-line cooling/heating plants;  for hot water production plants.
- 6 - Select “Water setpoint input” and press the knob to access the screen.
- 7 - Position the cursor on  depending on the option one wishes to select and press the knob to make the selection. The symbol  shows the selected option.
- 8 - To exit, select .



#### 4.2.2.3 Max water setpoint

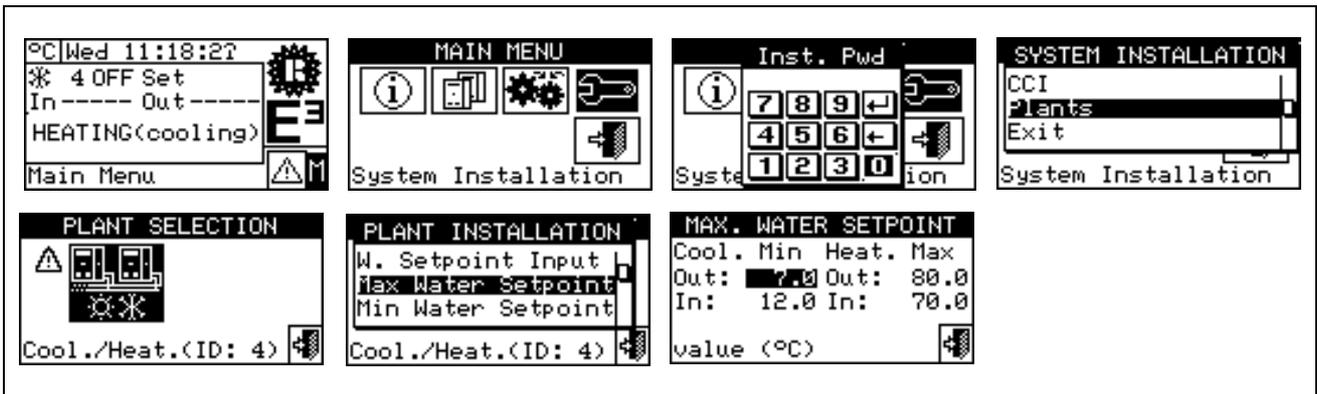
This option present in the system installation menu allows the **maximum setpoint temperature limits** (for inlet and outlet) to be set for both cooling and heating. These limits are applied independently of whether the setpoint is set via the 0-10V input, or if the setpoint is set via Bus or by the user through the “**User settings**” menu. In particular it is possible to set the **minimum** temperature for the production of chilled water within the range of -30. 20 °C (for outlet, -25 .. 25 °C for inlet) and the **maximum** temperature for the production of hot water within the range 35 .. 95 °C (for outlet, 25 .. 85 °C for inlet). For instance, should a value of 5°C be set for chilled water production plant, the user can define a setpoint temperature value greater or equal to 5 °C; In the case of a hot water production plant, the setting of a temperature value equal to 60°C will allow the user to choose a hot water setpoint value lower or equal to 60°C.

#### NOTE

The setpoint limits for the thermostating on outlet and inlet are set separately; the actual effective limits are those relative to the kind of thermostating set.

To modify the setpoint limits, follow the instructions below:

- 1 - Select  from the main screen.
- 2 - Select  to gain access to the “**System installation menu**”.
- 3 - Enter the installer password on the numerical keypad that appears on the display.
- 4 - Select “**Plants**” from the drop-down menu.
- 5 - Select the symbol  for two-line cooling/heating plants;  for hot water production plants.
- 6 - Select “Max water setpoint” and press the knob to access the screen.
- 7 - Position the cursor on the temperature value to be modified.
- 8 - Press the knob to enable the change of the selected value.
- 9 - Turn the knob to modify the temperature value.
- 10 - Press the knob to confirm the set value.
- 11 - To exit, select .



#### 4.2.2.4 Min water setpoint

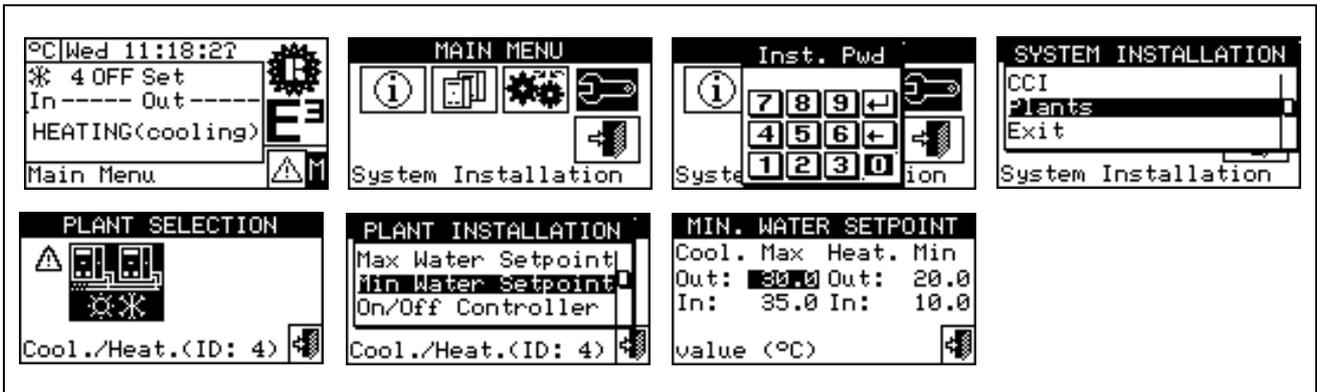
This option present in the system installation menu allows the **minimum setpoint temperature limits** for inlet and outlet) to be set for both cooling and heating. These limits are applied independently of whether the setpoint is set via the 0-10V input, or if the setpoint is set via Bus or by the user through the “**User settings**” menu. In particular it is possible to set the **minimum** temperature for the production of chilled water within the range of 20 .. 40 °C (for outlet, 25 .. 45 °C for inlet) and the **maximum** temperature for the production of hot water within the range 15 .. 35 °C (for outlet, 5 .. 25 °C for inlet). For instance, should a value of 30 °C be set for chilled water production plant, the user can define a setpoint temperature value lower or equal to 30 °C; In the case of a hot water production plant, the setting of a temperature value equal to 25 °C will allow the user to choose a hot water setpoint value higher or equal to 25 °C.

**NOTE**

The setpoint limits for the thermostating on outlet and inlet are set separately; the actual effective limits are those relative to the kind of thermostating set.

To modify the setpoint limits, follow the instructions below:

- 1 - Select  from the main screen.
- 2 - Select  to gain access to the “**System installation menu**”.
- 3 - Enter the installer password on the numerical keypad that appears on the display.
- 4 - Select “**Plants**” from the drop-down menu.
- 5 - Select the symbol  for two-line cooling/heating plants;  for hot water production plants.
- 6 - Select “Min water setpoint” and press the knob to access the screen.
- 7 - Position the cursor on the temperature value to be modified.
- 8 - Press the knob to enable the change of the selected value.
- 9 - Turn the knob to modify the temperature value.
- 10 - Press the knob to confirm the set value.
- 11 - To exit, select .



#### 4.2.2.5 ON/OFF controller

This option enables the water temperature regulation mode to be changed **when the power required is less than the minimum amount suppliable by the system** (minimum modulation level).

There are two possible options:

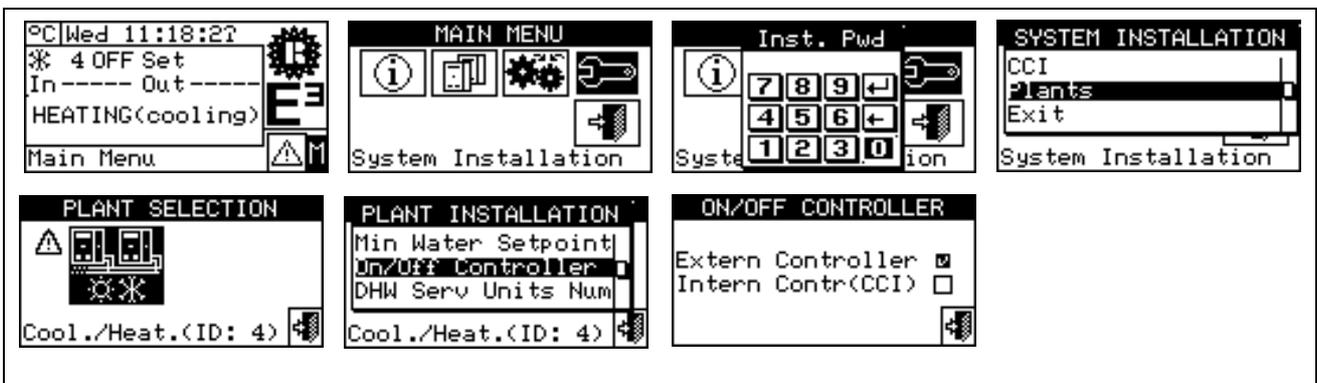
- **External controller:** the CCI does not control the water temperature, and assumes that the external controller operates the regulation by requesting the switching off and the subsequent reactivation of the units via deactivation and activation of the activation request signal.
- **Internal controller (CCI):** the CCI carries out the regulation in ON/OFF mode by switching the system on and off at the lowest possible suppliable power level, to maintain the water temperature close to the required setpoint.

**NOTE**

For further information see 4.1.2 "COMFORT CONTROLLER INTERFACE CONNECTIONS" on page 28 and 4.4 "E3 SYSTEM CONTROL VIA CCI AND EXTERNAL CONTROLLER" on page 47.

To set this parameter follow the instructions below:

- 1 - Select from the main screen.
- 2 - Select to gain access to the "System installation menu".
- 3 - Enter the installer password on the numerical keypad that appears on the display.
- 4 - Select "Plants" from the drop-down menu.
- 5 - Select the symbol for two-line cooling/heating plants; for hot water production plants.
- 6 - Select "Controller On/Off" and press the knob to access the screen.
- 7 - Position the cursor on  depending on the option one wishes to select and press the knob to make the selection. The symbol  shows the selected option.
- 8 - To exit, select .



**4.2.2.6 DHW service units number**

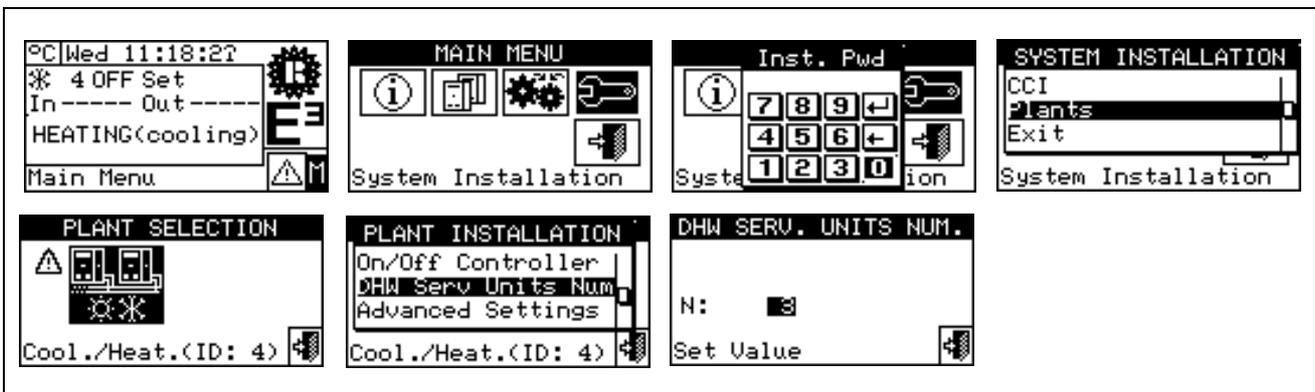
Via this option one can establish the number of units that must be used for the production of domestic hot water (DHW).

**NOTE**

For further information see 4.1.2 "COMFORT CONTROLLER INTERFACE CONNECTIONS" on page 28 and 4.4 "E3 SYSTEM CONTROL VIA CCI AND EXTERNAL CONTROLLER " on page 47.

To set this parameter follow the instructions below:

- 1 - Select  from the main screen.
- 2 - Select  to gain access to the "System installation menu".
- 3 - Enter the installer password on the numerical keypad that appears on the display.
- 4 - Select "Plants" from the drop-down menu.
- 5 - Select the symbol  for two-line cooling/heating plants;  for hot water production plants.
- 6 - Select "Number of units DHW service" and press the knob to access the screen.
- 7 - Press the knob to enable the change of the selected value.
- 8 - Turn the knob to modify the value.
- 9 - Press the knob to confirm the set value.
- 10 - To exit, select .



**4.2.2.7 Advanced settings**

By accessing this menu one can modify certain settings that can have an effect on the system water temperature regulation functions.

The settings that can be accessed through this menu are:

- **Regulating parameters**  
This allows the modification of the various parameters that govern the response of the regulators in heating mode and for the production of domestic hot water.
- **Water thermostating mode**  
This enables the water temperature regulation to be shifted from the outlet water line (preset or default setting) to the inlet water line.

This menu may be accessed by using a special password which should be requested from the "Robur Technical Assistance Centre". Before contacting the "Robur Technical Assistance Centre", one must first take note of the CCI's serial ID number, by following the instructions provided in paragraph 3.2.1 "CCI INFORMATION" on page 12.

The “Robur Technical Assistance Centre” provides the required password and the support if one needs to introduce any variations in the preset settings.

**WARNING**

The preset (default) settings are optimized for the majority of plant installations and in particular for the ones described in the “E3 system design manual”. It is therefore not usually necessary to introduce any changes.

## 4.3 INSTRUCTIONS FOR CCI-PLANT CONFIGURATION

### 4.3.1 INTRODUCTION

The CCI has been designed to control up to a maximum of three E3-GS/WS units or three E3/A units.

#### NOTE

Before carrying out the CCI-Plant configuration, ensure that all connections have been made correctly and that the unit's electronic boards have been configured correctly (see S61 electronic board programming sheet)

CCI-Plant configuration is basically carried out in two stages, the second of which is optional:

- The first stage is represented by the configuration of the plant's CCI. In this stage the CCI acquires information about the units that they are to manage;
- The second stage concerns the modification of certain parameters that influence the plant's operation.

#### WARNING

Once the CCI and plant configuration stages have been completed, before activating the plant it may still be necessary (see Paragraph 4.2.2.2) to define the water setpoint which may be accessed through the "User settings" menu 

### 4.3.2 CCI CONFIGURATION INSTRUCTIONS

In this stage the CCI identifies the units in order to be able to assign them to the CCI itself.

Before carrying out this step, ensure that:

- All the units that the CCI must manage are powered and on
- The configuration of the electronic board of each unit has been carried out according to the instructions provided in the S61 installation manual;
- The CCI has been correctly connected, according to the instructions contained in Paragraph 4.1.2 - "**COMFORT CONTROLLER INTERFACE CONNECTIONS**".

To complete this initial configuration stage, follow the instructions provided in the following paragraphs:

1 - 4.2.1.4 - "**Unit configuration**".

2 - 4.2.1.5 - "**Checking unit configuration**" to verify the outcome of the recently performed configuration.

Once this configuration stage is complete, if necessary proceed to paragraph 4.3.3 - "**PLANT CONFIGURATION INSTRUCTIONS**" where one can modify the operating mode of the system itself.

### 4.3.3 PLANT CONFIGURATION INSTRUCTIONS

At this stage it is possible to modify certain settings that affect system operation. Instructions on how to change these settings are provided in paragraphs 4.2.2.1, 4.2.2.2, 4.2.2.3, 4.2.2.4, 4.2.2.5 and 4.2.2.6. The section 4.4 "E3 SYSTEM CONTROL VIA CCI AND EXTERNAL CONTROLLER" on page 47 describes how the system operates and the difference these changes may make.

#### WARNING

**For a normal use of the CCI in combination with the Siemens Comfort Controller provided as an integral part of the E3 system, it is not necessary to modify the preset(default) settings with the possible exception of the number of machines used for the DHW service (see 4.2.2.6 on page 44)**

## 4.4 E3 SYSTEM CONTROL VIA CCI AND EXTERNAL CONTROLLER

### Premise

The aim of the following paragraphs is to describe the general operating logic behind the CCI. It is presumed that the reader is familiar with the hydraulic plant system plans involved, described in the “E3 system design manual”. It should also be pointed out that the exposition does not include the water circulation control systems of the units as these are managed directly by the units themselves. For information on this subject, we suggest you refer to the “Installation, use and maintenance manual” of the E3 units used by the system.

### Heating operation

To obtain the activation for heating production of one or more units managed by the CCI, an external plant controller must activate a request signal connected to the IN1 input of the CN4 connector.

Furthermore, if the CCI is configured to receive the setpoint value from outside (see paragraph 4.2.2.2 “Water setpoint input” on page 40), the external controller must specify the water setpoint value through an analog 0-10V signal connected to the AIN+ and AINGND inputs of the CN1 connector; otherwise the setpoint value will be set as described in paragraph 3.4.1 “WATER SETPOINT” on page 22 or acquired via the ModBus (see paragraph 4.2.2.1 “BUS access setup” on page 40).

#### NOTE

The mapping function between the voltage value applied at the 0-10V analog input and the requested setpoint temperature is fixed and established by a straight line passing through the two points shown in the table:

Voltage	Setpoint temperature
0 V	0 °C
10 V	70 °C

#### NOTE

Once the setpoint has been acquired via the 0-10V input of the ModBus bus the maximum and minimum limits, previously set according to the instructions described in the paragraphs 4.2.2.3 “Max water setpoint ” on page 41 and 4.2.2.4 “Min water setpoint” on page 42, are applied.

At this point the CCI activates the management of the E3 units configured with the aim of adjusting the water temperature (measured by the sensor connected to the inputs 1 and 2 of the J4 connector) to the setpoint values:

- in the first 5 minutes following the activation request signal, the CCI requires that the minimum energy level be supplied;
- and subsequently performs the regulation by modulating the power supplied to the units, and, when managing more than one unit, by switching some of them on and off.

In this way, the CCI is capable of continuously regulating a power supply that ranges approximately between 30% (50% for a system using a single E3 unit) and 100% of the available power.

When the power requirement of the system is lower than the minimum suppliable power, the regulation takes place according to one or other of two possible modes, depending on the setting described in paragraph 4.2.2.5 “ON/OFF controller” on page 43:

- if the setting is “External Controller” (default setting), the CCI stops controlling the temperature and assumes that the external controller operates the regulation by requesting the switching off and the subsequent reactivation of the machines via deactivation and activation of the request signal connected to the IN1 input. This setting is useful for example in the instance where the external controller manages energy accumulation in a storage tank (“accumulator”) by monitoring the water temperature inside it: when the water temperature in the storage tank reaches a certain value (usually the requested setpoint value increased by a “boost” value of 2-3 °C), the external controller deactivates the request signal connected to

the IN1 input; subsequently, when the temperature drops below the required setpoint value, the controller once again activates the request signal.

NOTE The system in any case guarantees the stoppage of the units if the outlet or inlet water temperature reaches its respective limit value.

- if the setting is “Internal controller (CCI)”, the CCI shifts into ON/OFF control mode and regulates by switching the system on and off at the minimum suppliable power level, to maintain the water temperature close to the required setpoint. When, by increasing the load once more, the water temperature drops below the setpoint with the system constantly active at the minimum suppliable power level, the CCI shifts back to a modulating regulation mode and goes back to controlling the power supplied to the units.

### Heating integration management with an auxiliary heat generator

The CCI does not have direct control of any auxiliary heat generators (such as a boiler for example). Therefore, if requested, this function must be performed by the controller external to the system. It must therefore assess the existence of a deficit in thermal power, based for example on a continuous deviation between the water setpoint temperature and the one actually measured, and consequently activate the auxiliary generator.

However, the CCI is provided with a signal (terminal 1 and 2 of the J9 connector, to be connected to a clean contact) input “Auxiliary heat generator in operation”. The external controller can use this signal to inform the CCI that it has activated the auxiliary heat generator. If this signal is active at the same time as the heating request signal, the CCI steps up its power supply level to the E3 units to 100%; this power increase is maintained for as long as the signal remains active.

This function is useful as it ensures that the E3 generation system constantly delivers the maximum power when the auxiliary heat generator is also active, seeing as the latter is less efficient from an energy consumption point of view.

### Operation during the production of Domestic Hot Water (DHW)

To obtain the activation for the production of DHW by one of more of the units managed by the CCI, an external system controller must activate (or maintain active) the request signal connected to the IN1 input of the CN4 connector as well as the DHW service request signal connected to the IN2 input of the same connector.

Furthermore, if the CCI is configured to receive the setpoint value from outside (see paragraph 4.2.2.2 “Water setpoint input” on page 40), the external controller must specify the water setpoint value through an analog 0-10 V signal connected to the AIN+ and AINGND inputs of the CN1 connector; otherwise the setpoint value will be set as described in paragraph 3.4.1 “WATER SETPOINT” on page 22 or acquired via the ModBus (see paragraph 4.2.2.1 “BUS access setup” on page 40).

#### NOTE

Once the setpoint has been acquired via the 0-10V input of the ModBus bus the maximum and minimum limits, previously set according to the instructions described in the paragraphs 4.2.2.3 “Max water setpoint ” on page 41 and 4.2.2.4 “Min water setpoint” on page 42 are applied.

During operation for the production of DHW, the CCI does not manage the system in a modulatory fashion, but operates according to an ON/OFF control basis with power supply constant in order to keep the circuit water temperature at around the set setpoint. For systems with only a single E3 unit, the power delivered is always the maximum available (unit on full power). For systems with more units, it is possible to specify from a CCI menu the number of units to be used to provide the DHW service (see paragraph 4.2.2.6 “DHW service units number” on page 44). In both instances, the units actually used are always operated on full power.

When the request for DHW production is satisfied, that is to say when the request temperature of the domestic hot water accumulation storage tank has been reached, the external controller must deactivate the DHW signal request and, if there is no request present for heating, even the E3 unit activation request; if there is an active heating request, the external controller can keep the E3 unit activation request signal active and, if applicable, set a new level for the analogic 0-10 V signal to modify the water setpoint.

**Integrated management of the Domestic Hot Water production with the auxiliary heat generator.**

If one wishes to produce domestic hot water at a particularly high temperature, it is possible that the E3 units are not capable of completing the service request; this happens when the outlet and/or inlet water temperature of one or more units has reached the limit value.

In this case the CCI activates the relay L2 output signal connected to the COM(L), NOL2 and NCL2 terminals of the CN3 connector. The external controller must behave as it does when satisfying the request for DHW service, as described in the previous paragraph; and, if the system is equipped with an auxiliary heat generator, the external controller may activate it in order to complete the service request.

**Free cooling operation (for E3-GS/WS units only)**

The free cooling function, which consists in dissipating the thermal energy removed from the environment via geothermal sensors or wells, is managed by the external plant controller. Seeing as the E3-GS/WS units manage the cold water source circulation themselves, it is essential that the external controller warn the CCI that the function has been activated. To do so the external controller must activate the free cooling request signal connected to the IN4 input of the CN4 connector; when this signal is activated, the CCI requests that the E3 units activate their cold water circulators.

**NOTE**

If the hydraulic plan does not require the activation of water circulators connected to the cold water source and managed by the units, one only has to avoid connecting the free cooling request signal to the IN4 input.

**NOTE**

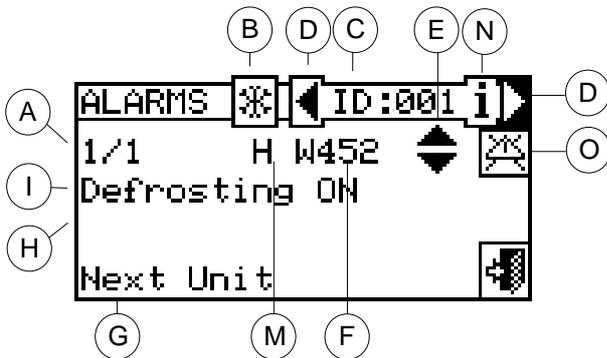
When the system is the free cooling operation mode the status of the system on the main CCI screen is OFF.

### 4.5 MANAGEMENT AND DISPLAY OF WARNINGS AND ANOMALIES

Any operating anomalies of the E3 series units linked to the Comfort Controller Interface are signalled and displayed on it via:

- **Error menu;**
- **Alarms Log** (see Paragraph 3.2.5 on page 17);
- **Unit status** (see Paragraph 3.2.3.2 on page 13).

To access the error menu, select  from the main screen. Figure 9 shows the alerts menu screen.



**KEY:**

- A** Sequential number of events in progress for selected unit;
- B** Symbol identifying the module;  for cooling module;  for heating module;
- C** Indication of unit ID;
- D** Scroll arrows to change which unit's events are displayed;
- E** Vertical scroll arrows: these allow the user to view the events that have occurred on the unit;
- F** Indication of event code (Error: E; Warning: W);
- G** String describing the selected function.
- I** Text describing the event.
- H** String describing the action to be taken for each particular event that has taken place.
- M** Anomaly concerns:
  - **C:** cooling module;
  - **H:** heating module;
  - **B:** electronic board.
- N** Access to the "unit information" of the selected unit
- O** Access to the "plant management menu" of the selected unit

NOTE the letters C and H will not be visualised for E3-GS/WS units

Figure 9 – EXAMPLE OF ERROR MENU SCREEN

In the error menu, **events in progress** are displayed: It is possible to display the type of event (warning or error) for each type of unit.

Instructions on how to access the alerts menu:

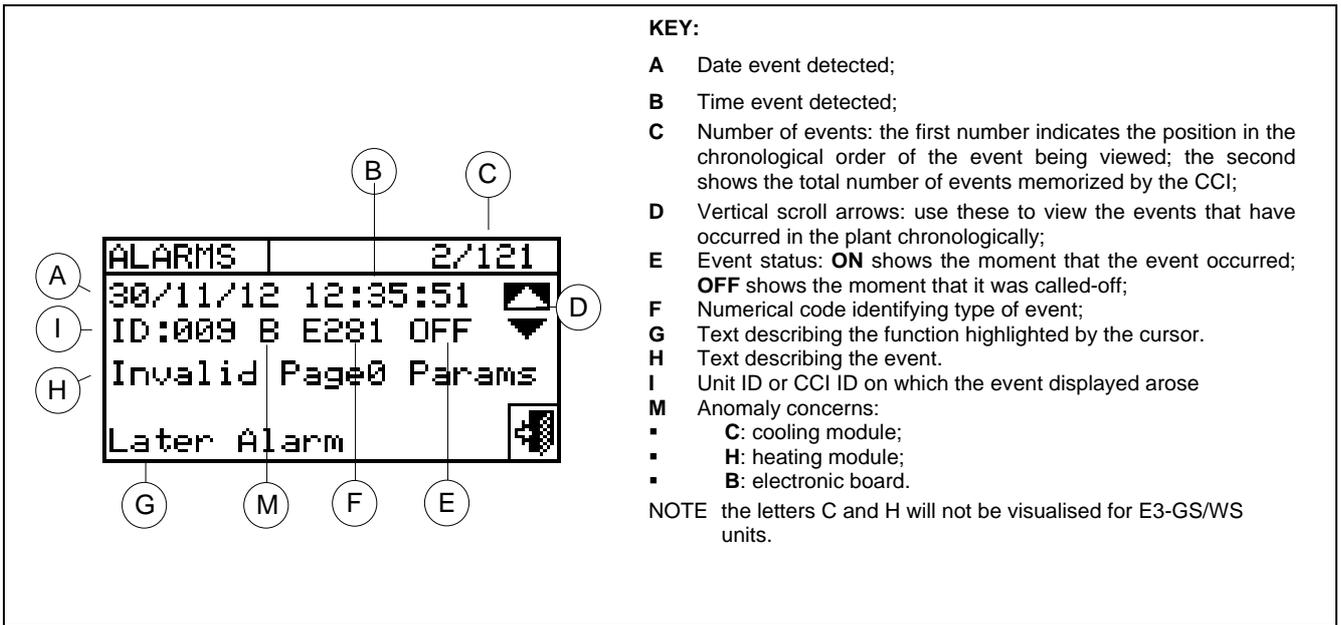
- 1 - Select from the main screen .
- 2 - Select the plant where the events have taken place:  for two-line cooling/heating plants, or  for hot water production plants. The symbol  that appears next to the plant icon indicates that anomalies are present in that plant.
- 3 - To locate the unit where the error has occurred, select . If no error has occurred, the message "No error" appears.
- 4 - Use the vertical scroll arrows  to view all the events present on the unit.

The key  gives access to the "Units management" menu, should it be necessary to perform an error reset or reset of the "Flame control unit".

The key **i** allows access to the "INFORMATION MENU" relative to the selected unit.

Events that occur are memorised in the "Alarms Log" menu.

The figure below shows the screen of the Event history menu.



**KEY:**

- A** Date event detected;
- B** Time event detected;
- C** Number of events: the first number indicates the position in the chronological order of the event being viewed; the second shows the total number of events memorized by the CCI;
- D** Vertical scroll arrows: use these to view the events that have occurred in the plant chronologically;
- E** Event status: **ON** shows the moment that the event occurred; **OFF** shows the moment that it was called-off;
- F** Numerical code identifying type of event;
- G** Text describing the function highlighted by the cursor.
- H** Text describing the event.
- I** Unit ID or CCI ID on which the event displayed arose
- M** Anomaly concerns:
  - **C**: cooling module;
  - **H**: heating module;
  - **B**: electronic board.

NOTE the letters C and H will not be visualised for E3-GS/WS units.

Figure 10 – EXAMPLE OF ALARMS LOG MENU SCREEN

Instructions for accessing the “Alarms Log” menu are shown below.

- 1 - Select from the main screen
- 2 - Select to gain access to the “Functional Data” menu.
- 3 - Turn the knob to select the “Alarms Log” menu, and press the knob to access the menu.
- 4 - Position the cursor on the vertical scroll arrows (see detail “D” in Figure 10) to scroll through the events, from latest to earliest.
- 5 - To exit, select .

Via the “Unit status” menu, it is possible to have a general overview of which units are operating correctly and in which units errors have arisen.

Two screens are available: “ACTIVATION” and “ERROR”. Next to the unit ID, in the “ACTIVATION” screen, the following symbols appear:

	if the unit is on
	If the unit is off, no symbol appears next to the unit ID.
	If the unit has been excluded from the plant via the options available in the Units management menu.
	if the unit is carrying out a Defrosting cycle. Option only for the E3-A unit.
	If the unit is off because the limit thermostating temperature value has been reached.

Select to view units in error or warning status.

In the “Error” screen next to the unit ID, the following symbols appear:

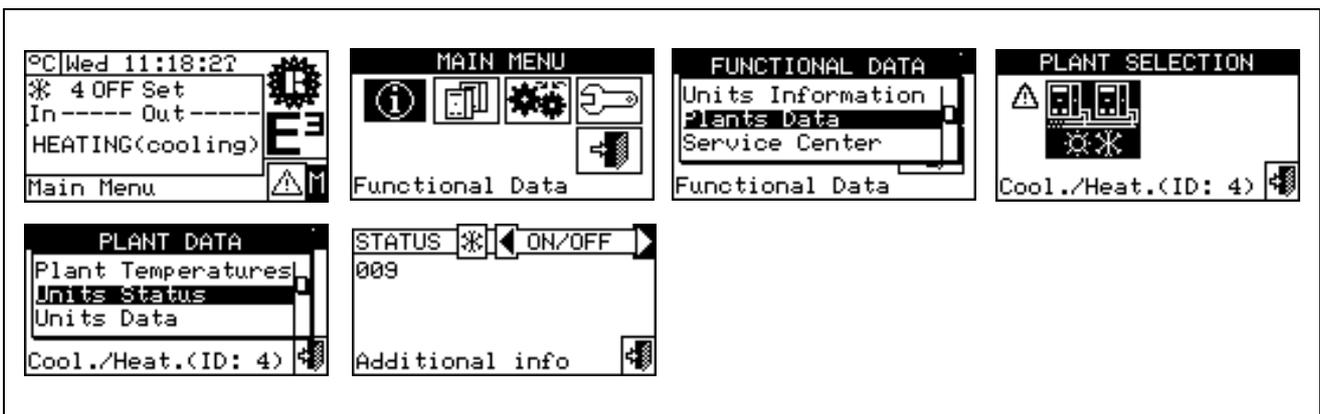
<b>E</b>	if an error has occurred in the unit
<b>O</b>	“Off-line”. If there are connection problems between the unit and the CCI (there are many conditions that may lead to off-line status: the unit is not receiving electrical power, there are problems with the connection cable, the unit’s electronic board is faulty and is thus unable to communicate with the CCI);
<b>W</b>	if a warning has occurred for the unit.
	If the unit is not in error no symbol will appear beside the unit ID.

For two-line hot/cold plants, i.e. for the alternate production of hot/chilled water, the symbol  or  will be active.

Select  to shift to the display screen relative to the modules dedicated to the production of chilled water ().  
 Select  to shift to the display screen relative to the modules dedicated to the production of hot water ().

To access the menu, follow the instructions below:

- 1 - Select from the main screen .
- 2 - Select  to gain access to the “**Functional Data**”.
- 3 - Turn the knob to select the “Plants” menu, and press the knob to access the menu.
- 4 - Select the plant for which the unit status is to be viewed:  for two-line cooling/heating plants, or  for hot water production plants. The symbol  that appears next to the plant icon indicates that anomalies are present in that plant.
- 5 - Turn the knob to select the “**Unit status**” menu, and press the knob to access the menu.
- 6 - Select  to shift to the Error screen: next to the identification number for each unit (ID = unit), the letter E indicates that an error is present.
- 7 - From either of the two screens a unit ID can be selected by turning the knob and pressing it, access is gained to the “Unit Information” menu.
- 8 - To exit, select .



Operating anomalies may be of two types: warnings or errors.

If a **WARNING** event arises, the following occurs:

- The warning is signalled in the “**Error menu**” (to access the menu, select  from the main screen);

- The warning is reported to the “**Alarms Log**” menu;
- The relative “warning ON” is memorised in the event history list.

When the warning event is reset, the following occurs:

- The warning signals (see above) are reset;
- The relative “warning OFF” is memorised in the event history list.

If an **ERROR** event arises, the following occurs:

- The event is shown in the “Error menu” (to access the menu, select  from the main screen);
- The display's backlight and the icon flash ;
- A beep sounds, if programmed in the “**Alarm beeper**” menu (see Paragraph 3.4.2.4 on page. 24);
- Activation of one or more alarm warning relays (single unit alarm warning and/or general alarm warning)
- The error status is signalled in the “**Unit status**” menu;
- The error is reported in the “**Alarms Log**” menu;
- The relative “error ON” is memorised in the event history list.

When the event is reset, the following occurs:

- The display and signaling of the error are reset;
- The alarm beep is reset;
- The flashing signal of the display is reset;
- The signal relay is reset;
- The “error OFF” status is memorised in the event history list.

The codes that identify the anomalies are subdivided depending on the type of unit from which they originate, according to the indications shown in the table below.

UNIT'	ERROR	WARNING	Notes
CCI	10--	10--	This code, for errors generated by the CCI, is made up of four figures: the first two indicate the type of unit in error (10 for the CCI) the other two refer to the kind of error
E3-GS/WS.	2--	2--	The anomaly code for the E3-GS/WS module is comprised of 3 figures: the first defines the type of unit (2 for E3-GS/WS), the other two identify the kind of error.
E3-A	4--	4--	The anomaly code for the E3 module is comprised of 3 figures: the first identifies the type of unit (4 for E3-A), while the other two figures identify the type of error.

**WARNING**

Consult the installation manual of the individual units for a detailed list of anomalies of the various kinds of unit.

The table below indicates the main anomalies experienced by the CCI, as well as possible actions that may be taken to right them.

CODE	ALARM DESCRIPTION
W 1000	<p><b>“New configuration” - New local configuration</b></p> <p>This warning signals that a new local configuration has been carried out. It is never shown in the <b>“Alerts menu”</b>  but only in <b>“Alarms Log”</b>, where it constitutes a kind of divider between events prior to it (which belong to a previous configuration, now modified, of the CCI) and those subsequent to it. It is possible that certain <b>“ON”</b> events which preceded a W1000 warning, and which still have such status at the moment that the new configuration is carried out, may not have a corresponding <b>“OFF”</b> event.</p>
W 1001	<p><b>“Off-line” – Module off-line</b></p> <p>This warning occurs for a specific module if communication between it and the CCI is interrupted (connection problems, electrical power supply missing for the module, etc.)</p> <p>This warning is signalled in the <b>“Alerts menu”</b>  by the message <b>“off-line”</b>, while in the event history it is indicated in a very similar way to a module error.</p>
E 1002	<p><b>“All mod. off-line” – All plant modules off-line</b></p> <p>This error occurs if communication is interrupted between the CCI and <u>all</u> plant modules.</p>
E 1007	<p><b>“Config. conflict” – Configuration conflict on one module</b></p> <p>This error is signalled for a specific module if a board with a known network ID is present on the communication bus, among those handled by the CCI, but with a configuration that is different from what one would expect. This may be caused by an S61 board-side modification to the configuration of a module assigned to the CCI in question (without a machine configuration having been performed on the CCI itself), or by the introduction of a new board on the communication bus whose ID conflicts with one that is already present. The latter case does not compromise the operation of the previous board.</p> <p>Relevant elements, given a board ID, for identifying the conflict are: unit type, major firmware version of board, major module type, and plant ID.</p> <p>In the <b>“Alerts Menu”</b> this error is indicated in the section dedicated to the CCI itself, with the ID of the module in question shown in the second line of the description; in the event history it appears very much like a module error.</p>
W 1010	<p><b>Event history cancelled</b></p> <p>This event indicates that the event history has been cancelled by the user.</p> <p>The event is instantaneous even for plants configured for two-line C/H operation.</p>
W 1011	<p><b>CCI activation</b></p> <p>The event indicates that the CCI has been electrically activated.</p> <p>The event is instantaneous even for plants configured for two-line C/H operation.</p>
W 1012	<p><b>Event history restarted</b></p> <p>This event indicates that the event history has been restarted. This currently occurs after the CCI has been restarted electrically, and is therefore always accompanied by a W1011 code.</p> <p>The purpose of this event is to act as a <b>“divider”</b> in the event history analysis, one should in fact note that:</p> <ul style="list-style-type: none"> <li>• some OFF entries, corresponding to ON entries contained in the event history before the restart, may have been <b>“lost”</b> (those that occurred logically while the CCI was off)</li> <li>• ON entries contained in the event history before the restart may have been <b>“duplicated”</b> immediately after the restart, if the event is still present.</li> </ul> <p>In other words, if the event history is used to determine the <u>current status</u> of the plant, the analysis must begin from the last W1012 code, ignoring events preceding it.</p> <p>The event is instantaneous and single in two-line C/H plants.</p>
E 1023	<p><b>Faulty Water T sensor</b></p> <p>This error is generated when a water temperature sensor of an outlet or inlet sensor of the CCI is faulty or missing (meaning it reports values outside the operating range).</p>
E1024	<p><b>0-10V input fault</b></p> <p>This error is generated by the presence of a fault in the 0-10V input of the CCI, used to acquire the water setpoint from the external controller.</p>
E1026	<p><b>ID conflict CCI</b></p> <p>This error is generated only in case two or more plants, each one controlled by a CCI, are connected on the same CANBus, and two or more CCI are configured with the same ID</p>

Table 1 – OPERATING ANOMALY CODES

To carry out an error reset, consult Paragraph 2.5 **“Error Reset”** on page 9 and Paragraph 2.6 **“Flame Control Unit reset”** on page 10.

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With the aim of continuously improving the quality of its products, Robur S.p.A. reserves the right to modify the data and contents of this manual without prior notice.

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