UNIFLAIR
Instruction manual

UG40/MP40 CONTROL AND LOCAL NETWORK

EN

UNIFLAIR™

UNIFLAIR SpA policy is one of continuous technological innovation. The Company therefore reserves the right to amend any data herein without prior notice.

Disposal: the product is made up of metal parts and plastic parts.
In reference to European Union directive 2002/96/EC issued on 27 January 2003 and the related national legislation, please note that:

- WEEE cannot be disposed of as municipal waste and such waste must be collected and disposed of separately;
- The public or private waste collection systems defined by local legislation must be used. In addition, the equipment can be returned to the distributor at the end of its working life when buying new equipment.
- The equipment may contain hazardous substances: the improper use or incorrect disposal of such may have negative effects on human health and on the environment;
- The symbol (crossed-out wheeled bin) shown on the product or on the packaging and on the instruction sheet indicates that the equipment has been introduced onto the market after 13 August 2005 and that it must be disposed of separately;
- In the event of illegal disposal of electrical waste, the penalties are specified by local disposal legislation.

READ AND SAVE THESE INSTRUCTIONS

Drafted by:	Checked by:	Approved by:
Munari Andrea 20/10/2011		

U UNIFLAIR™

CONTENTS

PART I:
UG40/MP40 CONTROL MANUAL

GENERAL FEATURES

The microprocessor control manages unit operation.
The control is essentially formed of:
- a microprocessor control board, housed inside the electrical panel;
- a graphic user interface.

Control board

Graphic user interface

The microprocessor control board contains the settings programme and all the stored operating parameters which can be viewed and set on the user interface.

The control system has the following functions:
- temperature and humidity control based on set-points programmed on the user interface;
- possibility of setting a dual set-point for temperature in both cooling;
- complete alarm signalling system;
- recording of all alarms;
- alarm signal contacts configured on the user interface;
- programming of automatic restart after power is restored;
- remote unit switch on/off;
- control of all timings for compressor operation and their switching on in rotation, to guarantee efficiency and reliability;
- setting of the electronic thermostat valve with signalling of any irregularities;
- 2 levels for password (settings and service);
- possibility of communicating with a supervision system using the RS485 serial board, LON FTT10,by TREND and PCOWEB (optional);
- control of clock/date (clock card optional);
- calculation of operating hours and the number of times the most important parts start up;
- symbols appear to show the status of all unit parts with the possibility of viewing all the values recorded by the probes connected to the control board;
- differentiated weekly operating times for switching on/off (with optional clock board): Weekdays – Days before holidays – Holidays
- management of local network with possibility of programming the rotation of one or two stand-by units and the operation of these units setback mode settings based on average temperatures;
- *"override"* function which allows manual control of main parts without excluding possible remote control;

USER INTERFACE

The user interface is made up of:
- 1 backlit 132x64 pixel LCD display with buzzer;
- 6 backlit keys to move between and change parameters.

The microprocessor board is connected to the user interface by a 6 pole telephone cable with a RJ11 jack connector.

ALARM: to view and reset alarms; flashes red when an alarm triggers

PRG: to enter configuration menu

ESC: to exit the screens

UP: to move around the menu

ENTER: to confirm

DOWN: to move around the menu

LANGUAGE SELECTION

Normally the display uses the language that has been defined by the regulation programme selected in the Flash memory: IT = Italian, EN = English, DE = German, FR = French , SP = Spanish, RU = Russian and the possibility of selecting a different language at any moment , by pressing on Esc and ↵ .

12:22	26.3°C 55%	Esc
Inizializzazione		
Attendere...		↵
	LAN01	

12:22	26.3°C 55%	Esc
Initiating ...		
Please Wait		↵
	LAN01	

12:22	26.3°C 55%	Esc
Einschaltung...		
Bitte warten		↵
	LAN01	

12:22	26.3°C 55%	Esc
DEPART...		
Attendre s.v.p.		↵
	LAN01	

12:22	26.3°C 55%	Esc
Inicio		
Espere...		↵
	LAN01	

12:22	26.3°C 55%	Esc
Начало. Подождйте.		
		↵
	LAN01	

NOTE: With exception of the masks which are reserved for use by Assistance Technicians ("SERVICE MENU"), which always appear in English.

Also, from the CDZNEW 2.9 software version, it is possible to directly select the wanted language, using the appropriate screen.
The initial of the current language will appear in the bottom-right corner.

To display this screen, press the PRG *Prg* key and select the LANGUAGE menu

```
⇨ GERMAN
⇨ FRENCH
⇨ ITALIAN
⇨ PORTUGUESE
⇨ RUSSIAN
⇨ SPANISH
                    EN
```
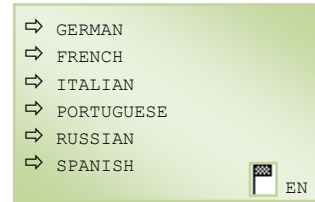
PROGRAM IDENTIFICATION

This manual describes the standard regulation characteristics for air conditioning units. Some characteristics of special-order units may be different from those described in this manual.

Family	Release	Language	Update	LAN Version
CDZNEW	v 3.1	GB	25/10/2011	LAN

INFORMATION ON DISPLAY

The user interface normally displays a screen (hereafter referred to as "main screen") with essential information on the system state.

A
B
C

A displays the time, date (if the clock card is inserted) and number of the unit in the LAN network.
B displays room temperature and the percentage of humidity (if the probe is fitted).
C displays the information regarding unit status.
When the unit is not in operation, the following symbols can be seen on the display:

1. : press enter to switch on
2. : switched off by remote contact
3. : switched off by supervision system
4. : switch on with timer
5. : unit in automatic inversion cycle
6. : switch off by fire/smoke contact
7. : switch off by flooding contact
8. : setback mode
9. : unit switched off by air flow alarm

10. ⚠🛑✋ᴼᶠᶠ : manual shut down of the unit

11. ⚠🛑⊠: unit switched off by high air flow alarm

During operation, various types of symbols are displayed, which indicate the operating status of the unit. If it is flashing, it indicates that there is a call in progress, but they are respecting the operating schedules (see the table below).

SYMBOL	DESCRIPTION
050 % ✚	Evaporating fan switched on indicating the speed %
50 Hz	Power Frequency
◁)))	Alarm signalling also from the red flashing ALARM key
✳	Mechanical cooling activated
⊓ ⊓ OFF ON	Compressor status (if more than 1, the number is shown inside)
⟋	Heaters on (if in stages, a number will appear by its side)
❄	Cold water valve on
❄	Hot water valve on
☀	Hot gas valve on
❄	Dehumidification on
⬡⬡	Humidifier on
⚠	Generic alarm activated
↻	Activation of time rotation
⧅	Excluded from time-based rotation
✋ᴼᴺ	Manual switch-on
✋	Unit manually ON
✋ᴼᶠᶠ	Manual switch-off
⊞	Unit switched on or off by remote terminal
🖵	Unit switched on by supervisory system
▭	Ultracapacitor charge status

In versions Dx, Tc and Es, after the main screen, a second screen is displayed that indicates the number and status of the compressors.

UNIFLAIR™

In versions CW and CW Dual Coil, the screen displayed indicates the number of cold water valves, their opening and the water inlet and outlet temperature.

```
Room Temper.   °C 00.0
Deliv.Temp.    °C 00.0
    COLD WATER VALVE
        ┌────┐
        │0%  │
        │1▶◀ │
        └────┘
     IN: 00.0
     OUT: 00.0
```
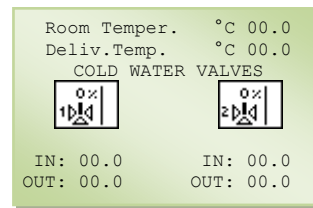
```
Room Temper.   °C 00.0
Deliv.Temp.    °C 00.0
    COLD WATER VALVES
   ┌────┐       ┌────┐
   │0%  │       │0%  │
   │1▶◀ │       │2▶◀ │
   └────┘       └────┘
 IN: 00.0     IN: 00.0
 OUT: 00.0    OUT: 00.0
```
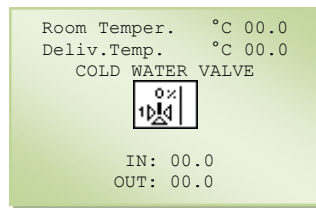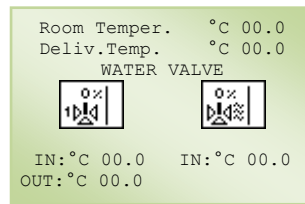
CW Version   CW Dual Coil Version

In the CW version, if the hot water valve is also present, the corresponding icon is indicated on the screen with the opening percentage.

```
Room Temper.   °C 00.0
Deliv.Temp.    °C 00.0
      WATER VALVE
   ┌────┐       ┌────┐
   │0%  │       │0%  │
   │1▶◀ │       │▶◀▒ │
   └────┘       └────┘
 IN:°C 00.0    IN:°C 00.0
OUT:°C 00.0
```
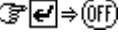
UNIT START UP CONDITIONS

The following operations must be performed before the user can start the unit:
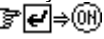
- check that the light on the display is on (controller powered);
- check that the red light on the 🔔 button is off (no alarms active);
- check that the unit switches on after pressing the ⏎ button, alternatively:

  ➢ check that the unit is started when the remote digital input **ID2/4/6** contact is closed;
  ➢ check that the unit is started by the supervisory system if this connected and configured (if serial card inserted)
  ➢ check that the unit is started by the daily or weekly time bands (if clock card inserted)
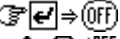
SWITCHING UNIT ON AND OFF

The unit can be **SWITCHED ON** in any of the following ways:

1   **Using the keypad**: press **ENTER** to switch on the unit; a moving bar will appear ▐█████▌ followed by fan symbol ✿. To switch the unit off, go to first screen, press **UP** or **DOWN** then **ENTER** to confirm **SWITCH OFF UNIT**. The symbol ☞↵⇒ⓄⒻⒻ will appear. Press **ENTER** again to confirm.

2   **Automatic mode**: the unit can be switched on by:
   - a remote on\off contact 🗗
   - a supervision system 🖳 (only serial card inserted)
   - a timer system 🕐 (only clock card inserted)
   - an automatic inversion cycle ↻

If the unit is programmed to setback mode, it will automatically switch on even when it exceeds the set thermal hygrometric temperature limits 🌙.

When in automatic mode, the unit can only be switched on by overriding it. Go to the first screen, press **UP** or **DOWN**, confirm **SWITCH ON UNIT** and the symbol ☞↵⇒ⓄⓃ will appear. Press **ENTER** to confirm, key in the password and press **ENTER** again. The override switch on symbol 🖐 will appear on the first screen.

To **SWITCH OFF** go to the first screen, press **UP** or **DOWN**, confirm on the line **SWITCH OFF UNIT**. The symbol ☞↵⇒ⓄⒻⒻ will appear. Press **ENTER** to confirm, enter the password and press **ENTER** again. The override switch off symbol ⚠🛑🖐 will appear on the first screen.

VARIATION OF PARAMETERS

Modification of set parameters and/or configuration in a subroutine (set point, differential…), is as follows:

1. **proceed to screens in the programming method;**

2. select with the ⬆ or ⬇ buttons the screen that shows the parameter ; the cursor (_) flashes in the top left corner;

3. press the ↵ button to move the cursor to the parameter to be modified;

4. to vary the parameter value – this may be numerical or Boolean (YES/NO) – with the ⬆ or ⬇ button (numeric values can be varied only within the set control limits);

5. **finally press the ↵ button to confirm the value**.

   - To return to the previous screen, press the *Esc* button.
   - To modify parameters in other screens press the ↵ button until the cursor is at the start of the first line; press the ⬆ or ⬇ button to move to the desired screen.

UNIFLAIR™

VISUALISTAION OF THE UNIT STATE

This program allows you to view information on the operation of the machine; **however it is to be noted that only the information or data relative to the chosen configuration appears.**

From the main screen press the ⬆ or ⬇ button until reaching the menu that groups the items described below, select the desired option and confirm by pressing ⬅ :

SWITCH ON UNIT/SWITCH OFF UNIT

This screen is used to switch the unit on and off. Based on the current status of the unit, a different icon will be displayed, indicating the operation to be performed.
In the event of forced activation/deactivation, in automatic mode (remote contact, supervisor, time bands), the settings password will be required for confirmation.

```
☞ ↵ ⇒ ⓞⓝ ,  ⚠ 🛑 💧OFF
```

INPUT/OUTPUT

This screen and later, it is possible to verify the the state of the input and output boards.
The initials visualised in the display are the same used to identify components within the unit and in the relative documentation (electrical diagrams, refrigerant diagrams, etc…).

```
Room Temper.      °C 00.0
Room Rel.Hum.     rH% 00
Deliv. Temp.      °C 00.0
Outdoor Temp.     °C 00.0
Cold Water In     °C 00.0
Cold Water Out    °C 00.0
Hot Water         °C 00.0
```
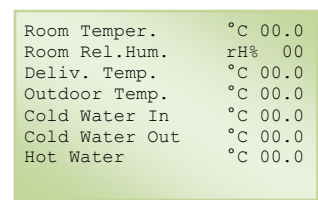
SETPOINTS

This screen and the following are used to check the set point and the other calibration parameters for the correct operation of the unit. These parameters are read-only and as a result the values cannot be changed.
To set the values, access the parameters in programming mode and enter the "SETTINGS" password.
All variables are pre-set in the factory so that the control functions correctly, maintaining standard conditions the room temperature.

```
   TEMPERATURE SETTINGS
     Room  Temperature
Cooling  Set      °C 00.0
Cool. K Prop.Gain. °C 0.0



Status:         Summer
```
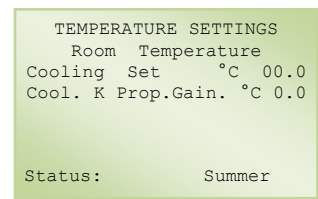
ALARMS HISTORY

This screen and the following display the historical sequence of the alarms activated; the microprocessor stores the last 100 events in its memory.
All the alarms saved can be read in sequence by pressing the UP or DOWN button; if the clock card is fitted (optional), the date and time is recoded for each alarm event.

```
 12:00   01/01/06   AL01


   Loss of Air Flow
   Check Fan/Switch
```
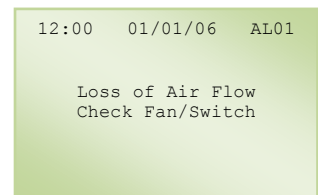
SOFTWARE INFO

This screen and the following display the software version, bios, boot and unit serial number.
This information is essential when adding a new unit to a group of units connected in the LAN, as all the controllers must have the same program version.
When contacting a service centre, the version of the control program saved on the control board must be indicated precisely.

```
          ⓘ

SW:cdznew  3.1 25-10-11
HW:  pco1-medium    50Hz
BIOS:  00000
BOOT:  00000
SN:  UCx  123456
```
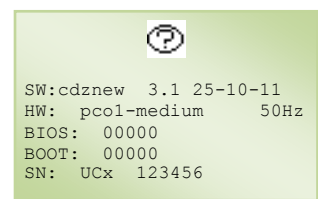
EXV VALVE STATUS
This screen and the following display the information from the electronic expansion valve driver boards.

```
Power request        %000
Position        steps 000
Evap. Press.    Bar 00.0
Evap. Temp.     °C 00.0
Suct. Temp.     °C 00.0
SuperHeat       °C 37.0
SuperHeat Set   °C 06.0
C.1 Firm.HW:002    SW:038
```

HUMIDIFIER STATUS
This screen and the following display the information from the humidifier board.

```
Mode:- - - -
Status:- - - -
Steam Cap.      Kg/h 00.0
Saturated Cylinder:    N
High Level:            N
Conductiv.:   µS/cm  0000
Meas. Current:    A 00.0
Nom. Current:     A 00.0
```

MODEM GSM STATUS
This screen and the following display the information on the operating status of the GSM MODEM and any error signals.

```
   GSM MODEM STATUS
   Stand-by Modem
      Modem OK

Signal Field:      % 000
```

DESCRIPTION SETTINGS MENU

This part of the program is used to set the unit operating and signal parameters.

To access the section, press (Prg), select the parameters menu and confirm, enter the settings password by pressing (↑) or (↓) (the password is provided inside the envelope enclosed with this manual), and confirm by pressing (⏎).

OPERATIVE SETTINGS
All variables are pre-set in the factory so that the control functions correctly, maintaining standard conditions in the room.
This screen visualised:

- the probe used for temperature control;
- cooling set point
- cooling proportional band
- Kp proportional cooling gain
- The adjustment offset derived from remote set-point (remote set-point 0-10V present)
- Set active after the sum of the cooling set plus offset
- the status of the operating season (CW mode only)

```
   TEMPERATURE SETTINGS
    Room Temperature:
Cooling Set        °C 00.0
Cool. K Prop.Gain.°C  0.0
Offset             °C 00.0
Active Set         °C 00.0

Status:   Summer
```
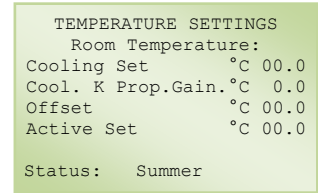
This screen is displayed in case of presence of electric resistances, indicating:

- heating set
- Kp proportional heating gain

```
   TEMPERATURE SETTINGS
    Room Temperature:
Heating Set        °C 00.0
Heat. K Prop.Gain.°C  0.0
```
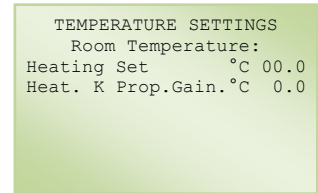
This screen is displayed if the unit is connected to a system, called MASTER CONTROL, which is used to manage the cooling installation by optimising the operation of all the devices.

```
   TEMPERATURE SETTINGS
    Room Temperature:
Cooling Set        °C 00.0
Max.Offset A.F.    °C  0.0

Offset A.F.        °C 00.0
Active Set         °C 00.0
```
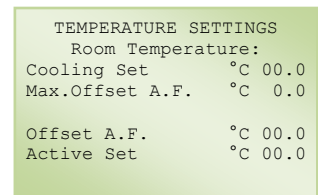
This screen displays the humidity control set point.

```
    HUMIDITY SETTINGS
Dehumid.Set        rH% 00
Dehum.K.Prop.Gain  rH% 00
Humid.Set          rH% 00
Humid.K.Prop.Gain  rH% 00
```
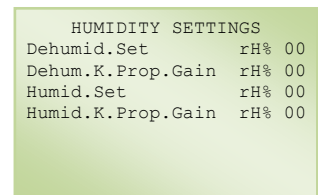
This screen displays the second temperature control set point.

```
  2nd SET-POINT SETTINGS
2nd Cool.Set       °C 00.0
```
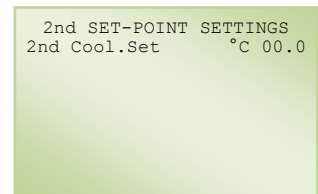
This screen displays whether the compensation set point is enabled, when the outlet probe is used for room temperature control.

```
COMPENSATION SETPOINT
Enabled: No
 Deliv.SP      Room T.
P1: 00.0°C    at  00.0°c
P2: 00.0°C    at  00.0°C
     (P1 min value)
     (P2 max value)
```

Graph of the compensation function

Outlet set point.
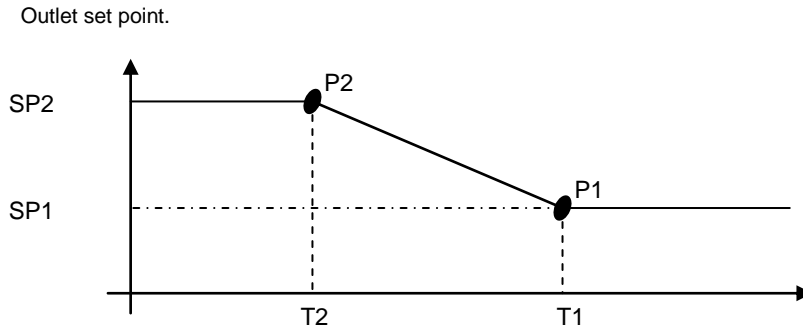
This screen displays the activation set of the alarms:
- of high room temperature
- of low room temperature
- of high room humidity
- of low room humidity
- of high delivery temperature plus alarm enabling.

```
   ALARMS SETTINGS
High Room Temp.    °C 00
Low Room Temp.     °C 00
High Humidity     rH% 00
Low Humidity      rH% 00

High Delivery T.   °C 00
Enabled:   No
```

SLEEP MODE
The set back function, which can be either activated or de-activated by using the control panel o BMS, consists of an automatic start-up of the stand-by unit – **yet powered** – to exceed the following programmable limits for at least 30 seconds:
- Minimum temperature;
- Maximum temperature;
- Minimum relative humidity (only with optional humidity sensor);
- Maximum relative humidity (only with optional humidity sensor);

Intervention of the set back function, must control the room conditions – although with larger tolerances – even if the whole system is in stand-by; it's intervention therefore is independent and not conditioned by signals from remote systems..

It is possible to program that during the set back function the fan runs in cycles to allow that the temperature sensor is blown by the air within the room.

Intervention of the set back function is not considered as an alarm situation.

```
  SLEEP MODE SETTINGS
 Sleep Mode Enable:    N
Min. Temp.:        °C 00.0
Max. Temp.:        °C 00.0
Min.Humid. Rel.:  rH% 00
Max.Humid.Rel.:   rH% 00
Fan Cyclical Start:    N
Cycle Time       min. 00
```

When the unit is in setback mode, in the STATUS MASK the symbol ◐ is displayed.
Normal operating conditions are re-set automatically when the temperature values return to values set for **[TEMP. MIN. + 2°C]** and for **[MAX. TEMP. - 2°C]**.
A minimum time of 15 minutes passes before the unit exits the set back mode; this enables stable conditions to be reached and avoid continuous switching on and off of the fans.

When normal conditions return, the ⚠🛑◐ icon is displayed, alternating with other icons depending on the previous status.

HOURMETER SETTINGS

This part of the programme enables the setting of maintenance intervals for the components of the unit, establishing a threshold for operation hours. When the device concerned reaches that limit, the microprocessor signals the maintenance request, activating an alarm and displaying the symbol "🔧" on the STATUS SCREEN.
Relate to the following unit components:

```
          AIR FILTER
Total Run Hours      00000
Alarm Limit       h  00000
Reset:                  --
```

1. Air recycling fans;
2. Compressors
3. Electrical Heaters;
4. Air filters;
5. Humidifier
6. Dehumidifier
7. Stand-by

In TwinCool version the hours of functioning in DX and CW mode is displayed.

For each of them is possible
- reading of the cumulative number of service hours;
- setting of the SERVICE intervention threshold for maintenance; **setting the threshold at 0 inhibits the signalling of the SERVICE request**;
- zeroing of the timer (RESET = "**OK/YES**"), e.g. after the service intervention and/or the replacement of the component.

Values can be changed only in the context of permitted setting fields.

ULTRACAPACITOR MANAGEMENT

Ultracapacitor module is an optional electronic device that guarantees temporarily supply to the control in case of lack of power.
The module is implemented by buffer Ultracap capacitors, which recharge is autonomously managed by the module. Furthermore, it does not require special safety and pollution provisions, as lead acid batteries are not used.
When a lack of power occurs , capacitors release the stored energy until it is not exhausted. When power is reset, the capacitors start re-charging. 4 minutes of continuous charge is required, to have enough energy to guarantee the active control until the subsequent lack of power.

This device must be set in the appropriate screen found in the "Hardware Settings" loop. This setting does not activate/deactivate the device and does not alternate its operation; it is used only to activate the following functions.
The operation of the Ultracapacitor depends on the internal capacitors, which supply the main control board, during the absence of power and then recharges when the latter is restored.

```
12:00   01/01/11
°C  23.0    rH%  50

    ⚠ 🛑 🔲
                      ▬
```

On the right low corner of the main screen, an icon of the Ultracapacitor charge status is displayed, where:
▭ ▬ (flashing icon) = Ultracapacitor Charge is not complete (if the unit is powered when displayed) / Operating Ultracapacitor (if the unit is not powered when displayed)
▬ (fix icon) = Ultracapacitor Charge complete

```
          ULTRACAP
Full Charge
Last Power Fail.     000s
```

For further details on the operation status, access to the screen on the "Hourmeter settings" loop, which can be displayed as shown below

Power is active (from over 600 seconds) and Ultracapacitor charge is complete. The duration of the last operation is displayed.

```
          ULTRACAP
UCAP in charge...    027s
Last Power Fail.     000s
```
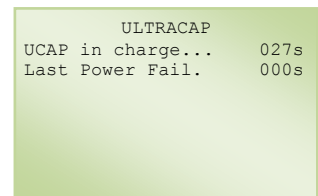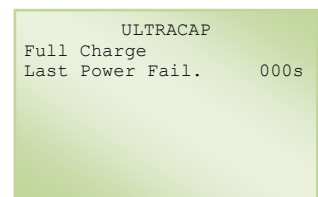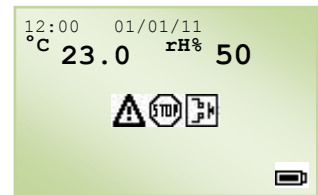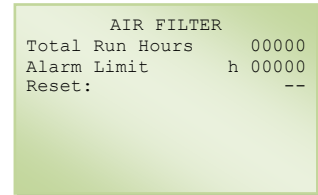
Power is active (from less than 600 seconds) and the Ultracapacitor is charging. Recharge time is displayed together with the duration of the last operation.

```
      ULTRACAP
Power Supply Fail.
UCAP on working      015s
```
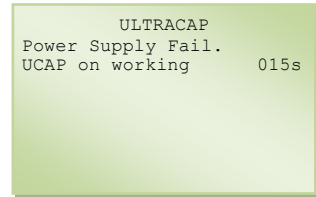
Lack of power on the power line, the Ultracapacitor keeps working maintaining the board powered. For how long the situation persists is displayed

In units where one of the configured digital inputs (ID2; ID4; ID6) has been set as "Emergency Working" function, at the exchange of the contact caused by the lack of power, the hour meter is displayed on the main screen from where such operation mode persists as well as the icon previously described.

```
12:00   01/01/11
°C  23.0   rH%  50
      △ ⊕ ⊞
       004s
                      ▰
```
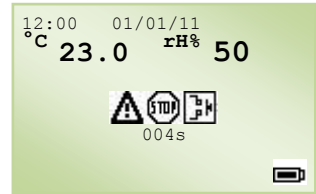
NOTE: When this function is activated, all the operation units must be switched off and all the alarms disabled.

EVACUATING THE HUMIDIFIER CYLINDER

The steam cylinder needs to be periodically cleaned from lime scale deposits; before removing the cylinder for replacement or cleaning it is necessary to completely drain all of the water from the boiler.

To carry out this operation it is necessary to access the masks and scroll through them until the correct mask is shown:

8. press Enter and position the curser on the command which is to be selected;

- press the UP or Down keys to display " YES " ad confirm by pressing Enter;
- a message saying "Wait…" will appear on the screen;
- wait for about 2 minutes, and the following message will be displayed "Cylinder empty, Press Enter to Exit";
- open the magnetothermal general shut off switch of the humidifier and carry out the cleaning/replacement of the cylinder;
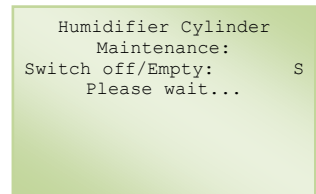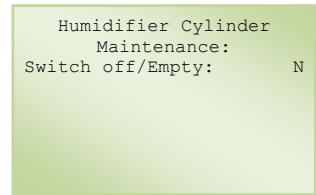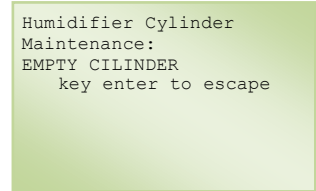
Only after having carried out all of the maintenance operations on the cylinder press Enter to return to normal operating conditions of the humidifier.

```
  Humidifier Cylinder
      Maintenance:
Switch off/Empty:      N
```

```
  Humidifier Cylinder
      Maintenance:
Switch off/Empty:      S
     Please wait...
```

…… after 2 minutes

```
Humidifier Cylinder
Maintenance:
EMPTY CILINDER
   key enter to escape
```

ALARM RELAY SELECTION

This screen is used to change the status of the alarm signal contact, type "A" and "B"

```
    ALARM RELAYS
   TYPE OF CONTACTS:
 Alarm A Contact:   N.O.
 Alarm B Contact:   N.O.

Legend:
N.O.: Normally Opened
N.C.: Normally Closed
```
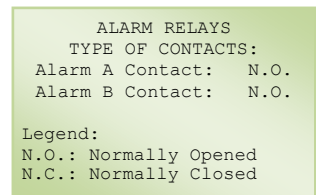
This screen and the following are used to determine the digital output that signals the alarm. The configuration of an alarm does **not** affect the action performed by the controller (signal only on the display or shutdown of the device affected by the alarm).

```
    ALARM RELAYS:
   TYPE A/B ALARMS
Loss of Air Flow      A
Clogged Filters       A
Heaters Overheating   A
EEPROM Failure        A
Wrong Password        A
High Air Flow         A
```
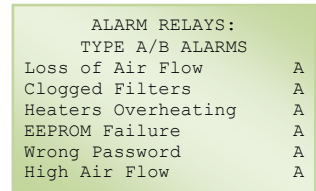
SERIAL/MODEM SETTINGS

SUPERVISION SYSTEM: a supervision system exchanges data via a serial cable with the board of the unit that is commanded and controlled from remote: for this purpose an optional *Serial card* is available which permits the interface to a net RS232/RS485 for the transmission of data (see Supervision System manual).

Both for an external supervision system (with the possibility to turn ON/OFF the unit) or with a closed-circuit monitoring system (only data transmission) the units serial address must be set and the transmission speed.

```
      SERIAL PARAMETERS
Serial Address:        001
Serial Speed:         1200
Protocol:       STANDARD
```

This screen allows you to determine
- the serial address of the unit connected to the supervision serial network (must be the same as the serial address set in the supervision program);
- the speed of data transmission ('Vel. Ser.'): 1200, 2400, 4800 for RS232 or 1200, 2400, 4800, 9600 and 19200 for RS485.
- the protocol of comunication Standard Modbus, Modem GSM or Master A.F.

Note: with the LON protocol, set the serial speed to 4800 and the protocol to Standard.
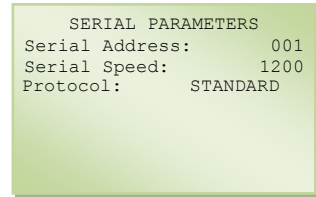
MODEM GSM

This screen enables setting the parameters for the functioning of the GSM modem connected to the machine through RS232 serial board inserted in UpCO1 board.
The parameters are:
Total Phone Number: identifies the maximum number of telephone numbers present in contacts (max 4);
Phone Number: enter the contacts progressive number and subsequently the telephone number to be memorised; In case of alarm, the modem will start sending the text message (SMS) to the first number memorised in contacts. In case of failed connection, the modem attempts sending the message (twice max) again after 60 seconds, to then move on to successive number memorised in contacts.
Modem Password: password from remote
Modem Rings: enter the number of rings to make
Send SMS Enable: enable the sending of a text message (SMS) in case of an alarm activation.

```
     MODEM GSM SETUP
Total Phone Numbers:     0
Phone Number:            1
+390123456789
Modem Password:       0000
Modem Rings:             0
Send SMS Enable:         N
```
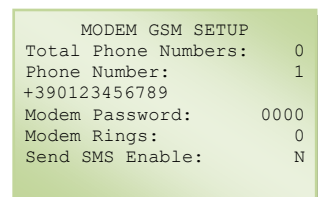
This screen enables entering a text message to be combined with the activated alarm message, to then be sent to the addressee of the numbers memorised in the previous screen.
The alarms activating the sending of the SMS are:
"Loss of Air Flow","Compressor Alarm","Smoke-Fire Alarm","EXV Valve Failure","Heaters Overheating","Clogged Filter","Flooding Alarm","Room Humid.Limits","Room Temp.Limits","Control Failure","LAN Disconnected","Humid.Sensor Failure","Temp.Sensor Failure","High Air Flow","Chilled Water Alarm","Humidifier Alarm","Dig.Input 6 Alarm","Dig.Input 4 Alarm","Dig.Input 2 Alarm","Wrong Password","Low Air Pressure","Frequency N.D."

```
        SMS TEXT
Centrale Server Padova
```
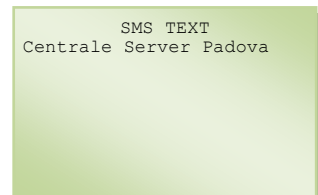
EXAMPLE

Below is an example of how an application managing the GSM modem may define an alarm message:
<< Centrale Server Padova >> <<Loss of Air Flow >>
The first part of the message shows the unit allocation position (see SMS Text), the second part shows the type of alarm activated (see alarms list)

This screen enables performing a functioning test of the modem by means of sending a text message (SMS) written in previous screen (SMS Text).
Hang Up enables ending the made call.

```
       MODEM TEST
Send SMS Test:           N
Hang Up:                 N
```
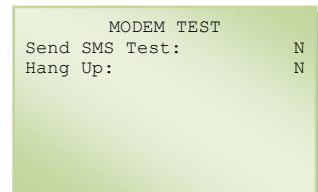
SMS MESSAGE RECEIPT

The application enables receiving SMS messages to perform functioning or alarm reset controls. The messages must be sent to mobile telephones and **not** via Internet.
The sent messages must have the following format:

.pCO1.0000.D.005.000001&

1. **.pCO1**: message heading
2. **.0000**: remote password that must coincide with the value entered in the MODEM PASSWORD parameter
3. **.D**: type of variable to be set between "A" Analogical, "I" Full and "D" Digital
4. **.005**: index of the variable to be set
5. **.000001**: value with which the variable is to be set, must always be of 6 digits, the first of which represents the symbol, and the others are made of the digits '0'… '9'.
   For example, if the full variable has value 12, Value will be '000012' or '+00012'.
   Whereas, if the value of the variable is -243, Value will be '-00243'.
   For the analogical variables, the sent value is the effective value of the variable multiplied by 10. For example, the value '-00243' will correspond to –24.3.
   For the digital variables, the possible values are '000000' or '000001'.

With only one SMS message it is possible to manage more variables simultaneously with a maximum number of 11, this so as not to exceed the threshold of 160 characters per message.
The string will be made up as follows:

.pCO1   .0000   .D.005.000001   .A.001.+00023   .I.007.000001&
                    1st variable   2nd variable   3rd variable

WARNINGS.
- The SMS message must not contain spaces.
- The message starts with a dot.
- The message fields are separated by a dot.
- The message ends with the character "&" not preceded by a dot.

RESULT OF THE MESSAGE RECEIPT

The control board, at regular intervals of about 2 minutes, downloads all newly received SMS messages.
If the received message is correct, the control activates its processing every 15 seconds without incoming or outgoing calls. If the message is not correct in the syntax or in the password, it is deleted.
During the time necessary for processing the correct messages (about 7 seconds), the incoming calls are inhibited to then be re-enabled at the end of processing each message.
If during the downloading phase of the new SMS messages the memory reserved to SMS receipt becomes full, all received messages will be lost. If so, eventual alarms remain active.
The possible causes of filling of the memory are:
- receipt of three or more messages of the maximum length (for the setting of 11 variables) within 2 minutes;
- receipt of 7 or more short messages (for the setting of a variable) within 2 minutes.

LAN SETTINGS

For units with pCO control, the microprocessor is enabled for the automatic management of a local network connected to more than one unit (up to a maximum of ten), of which some in operation and others in stand-by (in **stand-by**) up to a maximum of two units.
In the default configuration this is set to "NO LAN".
Nonetheless, a single unit can operate temporarily if the address of the board is equal to 1.
In this screen states:

- the number of units in the local network has to be set (up to a maximum of ten units);
- the start-up of the stand-by unit in the event of malfunctions on a unit connected in the LAN;
- the rotation time to allow the workload to be shared between the units at programmable time intervals. By setting cycle time = h **000**, the controller runs a **test**, rotating the units at two-minute intervals.
- the possibility of have 1 or 2 units in standby;
- the possibility to start the stand-by unit only in the event of alarms. The rotation time is disabled.

NOTE:
We declare that the maximum accuracy of the "cycle time" is of 1 second per hour; therefore, the actual rotation time can be affected by an error, which can lead to an anticipation or delay for every cycle hour, equal to 1 second.

The next screen, displayed only if the local network is set, gives the possibility to control unit operation **with a mean temperature** measured in the room or with the "**local**" value measured the sensor inside the unit:

- <u>Mode: Local</u>: Unit control of the temperature and humidity values read by the sensors in the unit
- <u>Mode: Mean:</u> Unit control of the temperature and humidity values read by the sensors in the active connected units in the local network.Whatever the difference between the mean value and the sensor reading exceeds the value "MEAN/LOC.DIFF." (default equal to 2°C), the control automatically exchanges from the "MEAN" mode to the "LOCAL" mode.

The "Exclude from rotation" parameter enables excluding the unit from the rotation time management by working in Stand-alone. If required, this function must be enabled for individual unit.

The second parameter, displayed only if the AFPS system is configured, is used to manage underfloor air pressure control, in local mode or with mean values.

STAND-BY ROTAT. ALARMS

This screen and the following are only displayed if the local network is configured, and are used to manage the start-up of the stand-by unit if an alarm is activated.

```
       LAN SETTINGS
LAN Units Num.:      01
Automatic Switch-Over
of Stand-by Unit:      S
Cycle Time:       h 168
No.of Std-By Units:    1
Stand-By Unit Starting
Only On Alarm:         N
```

```
       LAN SETTINGS
Exclude from Rotat.    N
   Temp./Hum.Control
  Mode:    Local Values


Air Pressure Control
Mode: Local Values
```

```
   ALARMS WHICH FORCE
  ROTATION OF STAND-BY:
Loss of Air Flow       S
Clogged Filters        N
El.Heaters Overh.      S
EEPROM Failure         S
Wrong Password         N
High Air Flow          S
```

CLOCK SETTINGS

If the microprocessor is fitted with the optional clock circuit the date, time and weekday is shown in the STATUS screen.
It is possible the time with:

- start up and shut down of the unit according to timed program;
- memorisation of the alarm events.

Setting of the time and date and the programming of the time bands is possible by using the following screens dedicated.

SETTING OF THE CLOCK - CALENDAR

In screen, it is possible to set:
• time of day (hours, minutes);
• date (day, month, year);
• weekday classification.

```
           🕐
hh:mm                  12:00
DD/MM/YY            01/08/06
Weekday                   MO
```
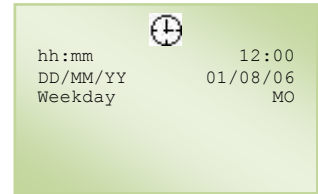
SETTING OF THE TIME BANDS

Using this device it is possible to set the automatic start up and shut down of the unit on a temporary basis (time bands) to obtain:

- up to 3 on-off daily cycles, each with start-up and stop time;
- a weekly cycle distinguishing the daily cycles divided into regular days N (default is from Monday to Friday), pre-holiday P (default is on Saturday), holidays F (default is on Sunday).

```
Unit On-Off Cycle:        Y
```
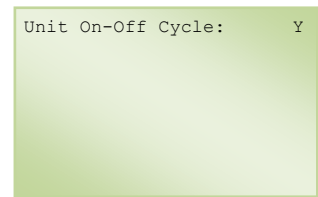
By setting "YES" in screen 101 the time bands device is activated; in field C of the STATUS screen "TIMED" icon appears. Screens 104, 105, 106 it is possible to program the time cycles - characterized by a start time (ON) and a stop time (OFF) – of the regular days (N) , pre-holidays (P), holidays (F).

A stopped unit, "PROGRAMMED STOP - RE-START. AT ..." the icon appears in the display with the time and weekday that is programmed for the next start-up. By setting 00:00 in the ON or OFF the cycle is ignored.

```
       REGUALAR DAY
ON  08:15      OFF 12:30
ON  13:15      OFF 18:20
ON  20:00      OFF 22:30
```

```
    SATURDAY / PREHOLIDAY
ON  08:15      OFF 12:30
ON  13:15      OFF 18:20
ON  20:00      OFF 22:30
```

```
     SUNDAY AND HOLIDAY
ON  08:15      OFF 12:30
ON  13:15      OFF 18:20
ON  20:00      OFF 22:30
```

CLASSIFICATION OF THE WEEKDAYS

This is automatic, however it can be modified using screen on the side; the screen appears when the time bands device is activated ("Unit On-Off Cycle:" YES).
The present day is shown – at the end of the programming of the time bands:
- N: regular day or holiday;
- P: pre-holiday;
- F: holiday
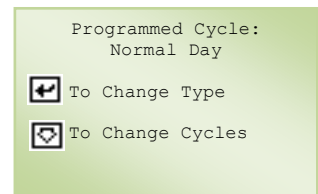
Whenever it is necessary to change the classifications, press the ⏎ button to

move to next screen, otherwise press the ⬇ button.

```
     Programmed Cycle:
        Normal Day
 ↵  To Change Type

 �ই  To Change Cycles
```

WEEKLY PROGRAM

Unless it is different set, in the microprocessor memory are classified:

- regular days (**N**) all week days from Monday to Friday;
- pre-holidays (**P**) Saturday;
- holiday (**F**) Sunday.

```
PROGRAM. MO      01/01/10
 MO TU WE TH FR SA SU
 N  N  N  N  N  P  F
```

By using screen (moving from previous screen by pressing the ⏎ button) it is possible to change the classification of the seven days to come, including the actual day that is shown on the first line of the screen.

Under each day there is a memorized classification (N or P or F) that can be modified by pressing the ⬆ or ⬇ button until finding the wanted classification; by pressing the ⏎ button the set classification is confirmed and the next day is selected. If the classification differs from the standard the symbol **>** appears automatically before the classification.
The selected time bands will be the same as days of same classification.

The selection of the time bands is cancelled automatically once the day for which it was activated has passed.

To exit from the time-calendar and time bands screens press the Esc button.

DESCRIPTION SERVICE MENU

This part of the program is used to configure the devices installed on the unit and their operation; these operations should be performed by qualified personnel.

Note that the manual describes the functions of the program in general and that based on the configuration set, the fields and configuration screens may be enabled or disabled;

To access this section, press (Prg), select SERVICE MENU and confirm, enter the service password by pressing (↑) or (↓)

(the password is provided inside the envelope enclosed with this manual), and confirm by pressing (↵).

HARDWARE SETTINGS

The unit regulation program, after having cleared the memory if necessary, needs to be "configured", that is adapted to the unit in which it is installed; in this phase it is necessary to define all the elements of the unit and that the microprocessor must control.

As a rule this intervention is only required when the control is installed inside the unit and therefore is carried out in the factory during final inspections; it can however be necessary to intervene due to further unit modifications.

The screens that refer to configuration are in the English language and are **reserved for technicians**:

Small Unit: Yes for Amico model; **NO** for Leonardo Evolution model;

Unit Type: identifies the type of unit between DX, CW, ES, TC;

Compressors: identifies the number of compressors installed on the unit (max 4);

Refrigerant Circuits: identifies the number of refrigerant circuits (max 2);

Compressor Type: identifies the type of compressor installed (Amico versions only);

Heaters: identifies the number of operating stages of the electric heaters installed;

Hot Water Coil: enables operation of the hot water coil/valve;

Hot Water Coil Out: enables the hot water coil/valve functioning through analogical output Y4.

```
Small Unit:            N
Unit Type:            DX
Compressors:           1
Refrigerant Circuits:  1
Compress.Type:    Scroll
Heaters:          1 Step
Hot Water Coil:        N
Hot Water Coil Out:    N
```

This screen is used to configure:

Hot Gas Coil: enables operation of the hot gas coil/valve in the direct expansion versions.

Exter.Hum. (on/off): enables operation of external humidifier via an on/off contact from a digital output on the control board;

Humidif. 0-10V: enables operation of the external humidifier via the 0-10 Volt analogue output Y2;

Valve: determines the type of expansion valve installed in the unit's refrigerant circuit (parameter only available on the Amico model);

Dual Coil: enables the configuration for CW Dual Coil units;

Water Valve Type: determines the number of pins on the water valves in the CW version;

Phases Seq. Control: enables the possibility of managing the phases sequence control in the CW version units.

Ultracap: enables the presence of Ultracapacitor device to keep the control powered in case of lack of power supply (see paragraph **ULTRACAPACITOR MANAGEMENT**).

```
Hot Gas Coil:          N
Extern.Hum. (on/off):  N
Humidif. 0-10V:        N
Valve: Mechanical
Dual Coil:             N
Water Valve Type:   2Way
Phases Seq. Control    N
Ultracap               N
```

This screen is used to configure analogue input 1 as an outlet temperature sensor (Deliv.Temp.Sensor) or as the set point remote control (Setp.Remote Control).

```
    ANALOGIC INPUT 1
    CONFIGURATION:
Deliv.Temp.Sensor:     N
Setp.Remote Control:   N
```

This screen is used to configure analogue input 6 as an outlet temperature sensor (Deliv.Temp.Sensor) or as a hot water sensor (Hot Water Sensor) or as an outlet water temperature sensor (Water Out Sensor). Only on units with UpCO1 Small controllers.

```
     ANALOGIC INPUT 6
       CONFIGURATION:
Deliv.Temp.Sensor:      N
Hot Water Sensor:       N
Water Out Sensor:       N
```
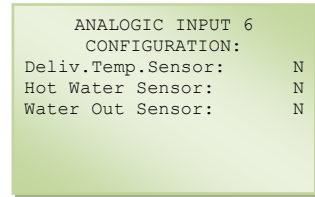
This screen is used to configure digital input 5 as:
No switch connected: no connection;
Summer/Winter Switch: change operating season in the CW version;
Water Flow Switch: water flow switch;
In the CW version, the operating season can be changed over, in alternative to the digital input, from the user terminal, on the set point screen, or via serial connection (supervisor).

```
   ID5 Option SWITCH:
    No Switch Connected

  SUMMER/WINTER FUNCTION
    BY USER TERMINAL:
Enable:                 N
      BY SERIAL PORT:
Enable:                 N
```
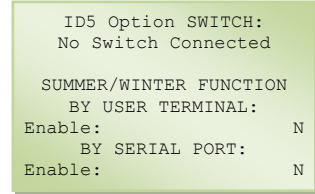
This screen and the following are used to configure digital inputs 2/4/6.
This procedure allows the activation of digital inputs ID2-4-6 if optional kits are fitted subsequently. The kits include fire and smoke sensors, flood sensors and high and low outside temperature and humidity sensors that must be connected to a specific input.
First check that the input is not already occupied, given that these are multifunction inputs.
The table below shows a detailed description of each input, with the corresponding function:

```
    DIGITAL INPUT 2
     CONFIGURATION

Not Used
```
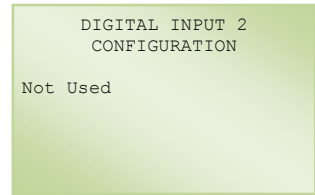
Digital Input 2	Digital Input 4	Digital Input 6
Not Used	Not Used	Not Used

1. Flooding Sensor (*)
2. Remote ON/OFF
3. Change Setpoint
4. User Configuration:
   • Alarm Signalling
   • DX/CW Switch-Over
   • Emergency Working
	1. Smoke-Fire Sensor
	2. Remote ON/OFF
	3. Change Setpoint
	4. User Configuration:
	   • Alarm Signalling
	   • DX/CW Switch-Over
	   • Emergency Working
		1. External Limit Sensor
		2. Remote ON/OFF
		3. Change Setpoint
		4. User Configuration:
		   • Alarm Signalling
		   • DX/CW Switch-Over
		   • Emergency Working

(*) For AMICO units in the DX configuration with mechanical thermostatic valve, the same digital input will be used for connection to both the flood sensor and the outside limit sensors, as input ID6 is used to control the status of the low pressure switch in the refrigerant circuit. The alarm signal will also be different (see the section on ALARMS FROM OPTIONAL SENSORS OR DIGITAL INPUTS)

If the digital input chosen is configured as USER CONFIGURATION, the following screen is used to select the other functions:
Alarm signalling: alarm signal coming from a component outside of the unit;
DX/CW Switch-Over: external digital contact for changing over operating mode of the unit (Twin Cool version only)
Emergency Working: signal coming from a component outside of the unit. The Status screen will display the ⚠ icon.
In addition, the status of the contact can be defined, N.O. or N.C.

```
   DIGITAL  INPUT  2
   USER  CONFIGURATION

Function:
Alarm  Signalling
Contact:
Normally  Closed
```
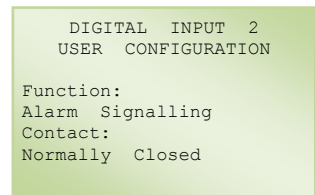
This screen is displayed if the unit is configured in Cooling Water version with the Dual Coil option enabled, and allows enabling the remote set point control, through analogical input 3 of the pCOE expansion board.

```
   DUAL  COIL  - pCOE
   ANALOGIC  INPUT  3
     CONFIGURATION:
Setp.Remote  Control:   N
```
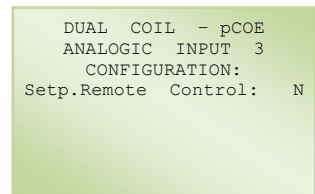
This screen is displayed if the remote set point control is enabled.
It enables setting the parameters relating to the remote modulating control of the unit's functioning value.
The zero adjustment is automatic using the "Hardware Setup" function.

It enables determining:
- the minimum and maximum signal in Vcc (from 0 to 10Vcc);
- the minimum and maximum offset to be calculated depending on Vcc in input

EXAMPLE:
At a minimum value set that with 0 Vcc there is an offset of 0.0°C, whereas to a maximum value of 10Vcc set an offset of 5.0°C. The control, depending on the signal sent to it and read through the used analogical input, calculates the offset to be added to functioning set point.

The Anti-Hunting Time enables setting the anti-hunting time of the final calculated set point.
Active signal: active signal in tension read by the analogical input of the board.
Active offset: the active offset calculated based on the set SIGNAL V and OFFSET °C parameters.

```
    OFFSET SETPOINT
     CONFIGURATION
 SIGNAL(V)   Offset(°C)
   00.0         00.0
   00.0         00.0
 Anti-Hunt. Time   min 00
 Active Signal     V 00.0
 Active Offset     °C 00.0
```

This screen, available if the underfloor air pressure transducer (AFPS) is fitted, is used to define:
Range Begin.: transducer reading start range value
Range End.: transducer reading end range value
Read Value: value read by the sensor
Delta: maximum variation of the input without activating the filter
Time: duration of the filter
Value: value read by the sensor

```
  AIR PRESS. TRANSDUCER
 Range Begin.    Pa 000.0
 Range End.      Pa 000.0
 Read Value      Pa 000.0
     INPUT FILTER
 Delta           Pa   0.0
 Time            s     00
 Value           Pa 000.0
```

This screen used to establish:
Speed by Control B.: enables the management of the fan speed by means of Upco1 control board
Fan Speed: rated fan speed;
Dehumidification Fan Speed: rated speed in the dehumidification phase (for Amico units with mechanical thermostatic valve only);
Modulation with Air Pressure Enabled: enables fan speed modulation with the AFPS system;
Air Press. Transducer: determines whether the transducer is fitted on the unit;

```
    EVAPORATING FAN
 Speed by Control B.    Y
 Fan Speed:        % 000

 DEHUMID.Fan Speed%:  000
 Modulation with Air
 Pressure Enabled       N
 Air Press.Transducer   N
```

This screen used to establish:
Fan Signal: signal for modulating the fan speed

```
    EVAPORATING FAN
 Fan Signal:  PWM+CONV.
```

This screen, available if the underfloor air pressure transducer (AFPS) is fitted, is used to define:
Minimum Speed-DX: minimum speed in version TC only
Minimum Speed: minimum fan control speed
Maximum Speed: maximum fan control speed

```
 EVAPORATING FAN REGUL.
      MODULATION
 Minimum Speed-DX:  %  00
 Minimun Speed:     %  00
 Maximun Speed:     % 000
```

This screen, available if the underfloor air pressure transducer (AFPS) is fitted, is used to define:
Set point: reference pressure value to be maintained by modulating the fan speed;
Dead Band: control dead band;
Regul. Band: control proportional band
Integral Time: integral time
Derivat. Time: derivative time
Air pressure: value read by the sensor
Evaporating Fan: evaporator fan control percentage

```
 EVAPORATING FAN REGUL.
 Setpoint       Pa 000.0
 Dead Band      Pa 000.0
 Regul. Band    Pa 000.0
 Integral Time   s 000
 Derivat.Time    s 000
 Air Pressure   Pa 000.0
 Evaporating Fan % 000
```

This screen, available if the underfloor air pressure transducer (AFPS) is fitted, is used to define:
Alarm Level: low air pressure alarm activation threshold
Alarm Delay: low air pressure alarm activation delay time

```
 EVAPORATING FAN REGUL.
Alarm Level      Pa 000.0
Alarm Delay       s 000
```
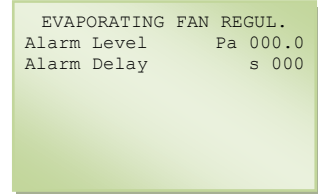
This screen used to establish:
Enable: enables fan speed control associated with the opening of the water valve (TC and CW version only)

By enabling this function, two different operation logics can be selected:
Together: where the allowed minimum and maximum values of the fan speed are set, which (during the cooling phase) will be linked to the water valve opening, according to the following graph:

```
 EVAP. FAN SPEED MOD.
   WITH VALVE OPENING
Enable: Y  Type: Togeth.
      FAN
 MAX
 MIN
             W.U.
```
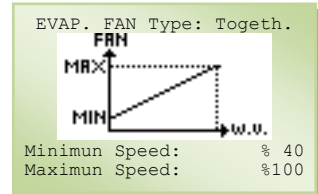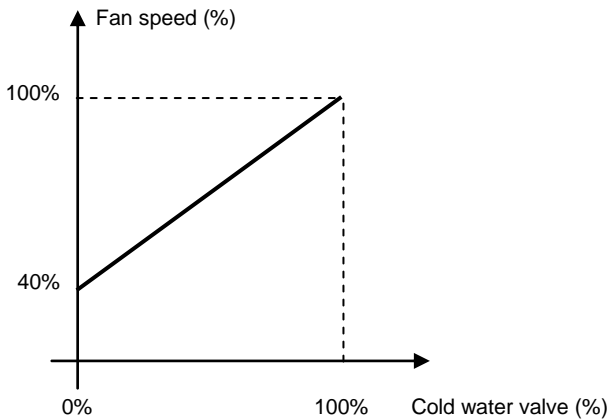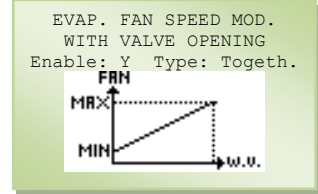
```
EVAP. FAN Type: Togeth.
      FAN
 MAX
 MIN
             W.U.
Minimun Speed:     % 40
Maximun Speed:     %100
```
Together logical

During the dehumidification phase, the speed of the fan is reset to the minimum value.

Sequence: where the allowed minimum and maximum values of the fan speed are set together with the relative proportional band. During the cooling phase, the fan speed will be linked to the valve opening, according to the following graph:
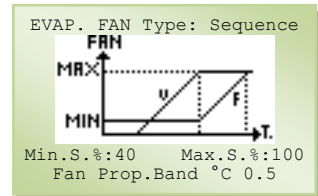
```
EVAP. FAN Type: Sequence
      FAN
 MAX
 MIN           U    F
                    T.
Min.S.%:40   Max.S.%:100
  Fan Prop.Band °C 0.5
```
Sequence logical
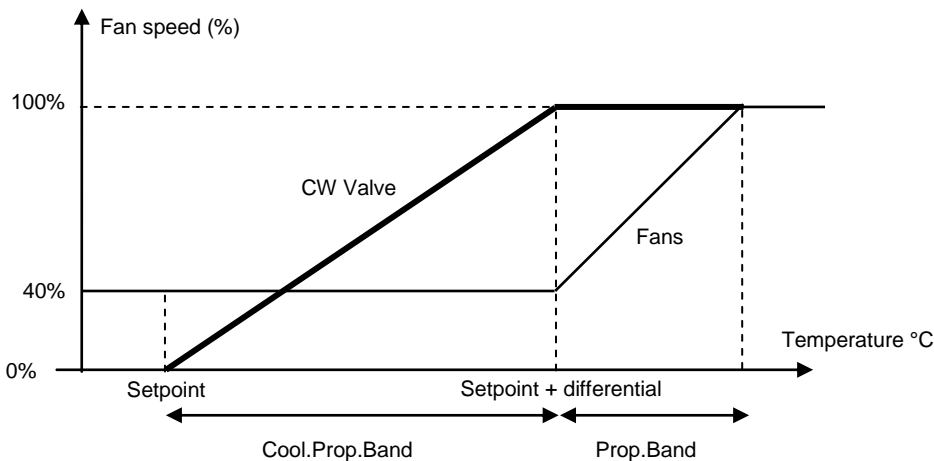
During the dehumidification phase, the speed of the fan is reset to the minimum value.

This screen allows enabling fan start-up at maximum speed (100%) for a maximum time of 10 seconds, in units with single-phase fan.

```
   EVAPORATING FAN
  Quick Start:  N
```
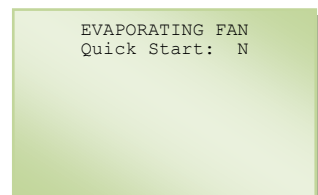
This screen used to establish which resources remain active in the event of emergency operation, activated by a multifunction digital input ID2/4/6 configured as *USER CONFIGURATION* - *Emergency Working.*

```
   ACTIVE SOURCES DURING
    EMERGENCY WORKING:
Fan:                    Y
Compressor:             Y
Heaters:                N
Humidifier:             N
```

This screen, displayed only when the electronic expansion valve is fitted, is used to establish the activation of the low pressure alarm by the pressure transducer connected to the driver, setting:
Normal Limit: rated operating pressure;
Alarm Diff.: differential pressure due to the activation of alarm BP
Alarm Delay After Compr. ON: alarm BP activation delay time from compressor ON
Alarm Delay Normal Working: alarm BP activation delay time during normal operation

```
   LOW PRESS.SETTINGS
Normal Limit:     bar 0.0
Alarm Diff.:      bar 0.0
     Alarm Delay:
After Compr.ON:     s 000
Normal Working:     s 00
```

This screen, displayed only when the mechanical expansion valve is fitted, is used to establish the activation of the low pressure alarm by the pressure switch connected to ID6, setting:
Alarm Delay After Compr. ON: alarm BP activation delay time from compressor ON
Alarm Delay Normal Working: alarm BP activation delay time during normal operation

```
   LOW PRESS.SETTINGS
     Alarm Delay:
After Compr.ON:     s 000
Normal Working:     s 00
```

This screen is used to set the parameters for the operation of the humidifier inside the unit, defining:
Humid. Model.: model installed;
V.: operating voltage;
TAM: model of current transformer used
Steam Cap.: number of kg of steam generated in 1 hour;
Nom.Current: rated current;
Max Steam Prod.: maximum rated percentage of steam to deliver
Timed drains enable: enables the procedure for draining the cylinder to avoid the formation of scale inside

```
Humid.Mod: KUE1/S
V: 230/1   TAM 100-1turn
Steam Cap.:    Kg/h 00.0
Nom.Current:      A 00.0
Max.Steam Prod. %    000
   (30-100% Nom.Cap.)
Timed Drains Enable:   N
```

This screen, displayed only if the cylinder cleaning procedure is enabled, is used to set:
Timed drains after number of startups: number of humidifier starts before draining the cylinder;
Drain Time: cylinder drain procedure activation time

```
      HUMIDIFIER
   TIMED DRAINS SETTING
Timed Drains After
Number of Startups:   00
Drain Time:          000
```

This screen, displayed only if the multifunction digital input is enabled, is used to set:
Off Unit on Alarm: enables the shutdown of the unit if the flood alarm is activated;
Valve Closed on Al.: enables the closing of the water valve if the flood alarm is activated;

```
    FLOODING ALARM
Off Unit on Alarm:     N
Valve Closed on Al.:   N
```

This screen is used to set:
ON/OFF mode Via input contact: enables unit on/off via the multifunction digital input;
ON/OFF mode only Via serial: enables unit on/off only via BMS;
Motorized Damper: enables operation of the damper;
Opening Time: damper opening time. During this period the start of the fan and the air flow alarm are ignored.
Mot. Damper Output: the damper control output.
Output Contact: the status of 'digital output control of the damper, where NO = Normally Open, NC = Normally Closed

```
      ON/OFF MODE:
Via Input Contact:     N
Only Via Serial:       N

Motorized Damper:      N
Opening Time     s 000
Mot.Damper Output:    Y4
Output Contact:    N.O.
```

This screen is used to set:
Backlight Time: time the display backlighting remains on. This time also coincides with the timeout for entering the password.
Buzzer Type: enables operation of the buzzer.
Time ON: time the buzzer remains on

```
     USER TERMINAL
Backlight Time:     s 000
  Buzzer Type:  Disabled
Time ON:              000
```
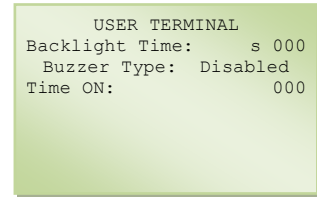
This screen is used to set the mains frequency, automatically or manually.

```
   SUPPLY FREQUENCY
   Automatic Set.
   Frequency: 50 Hz
```
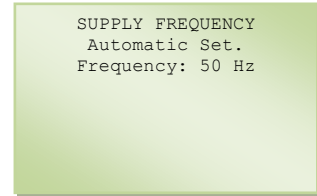
This screen enables setting the machine **SERIAL NUMBER**.
The serial number is present on the silver data plate found inside the electrical board.

```
  Unit Serial Number

    UCx  000000
```
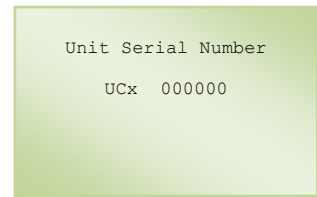
SOFTWARE SETTINGS

This screen allows selecting the number of languages of the software inside the control board.
All the languages of the software are loaded by default, so that the final customer can select the desired language.
In case of intervention on site of a technician, because the software must be replaced for updates, one language can be entered to speed up the upload operations.
In this case, select a language in this screen and the option LANGUAGE on the menu screen will be disabled.

```
   GENERAL SETTINGS



Number Languages: 1
```

```
  ▷ SETTINGS MENU

  ▷ SERVICE MENU
```
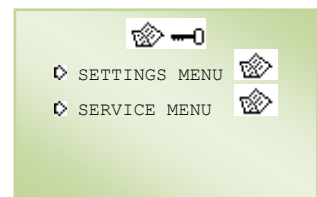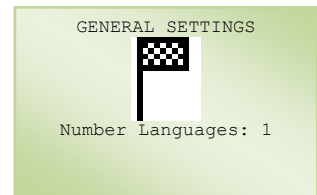
This screen is used to set:
Anti-Hunting time constant: anti-swing time constant, that is, the time constant for the temperature control action to avoid excessive temperature swings around the set point. The higher the thermal inertia of the air-conditioned environment, the higher the value needs to be set.
Humid.C.Type: the humidity control type between relative (rH%) or absolute (g/Kg)
Dehumid.Control: enables dehumidification control (only if the humidity probe is fitted)
Dehum.Open Valve: the maximum opening percentage of the cold water valve during dehumidification phase in Cooling Water mode
Capacity Limitation: activation of the capacity of the water coil in the Cooling Water units during dehumidification phase.
Cap. Lim.: the capacity logic of the water battery between STANDARD, ADVANCED 1 or ADVANCED 2 logic

```
   GENERAL SETTINGS
Anti-Hunting Time
Constant:        min 00
Humid.C.Type: Relative
Dehumid.Control:       Y
Dehum.Open Valve %   000
Capacity Limitation:  Y
Cap.Lim.: Standard
```
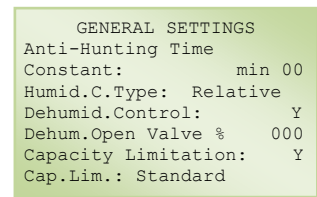
This screen enables setting the parameters for the ADVANCED 1 adjustment logic of dehumidification.
EXAMPLE:
If the opening of the valve is greater than the *Threshold Valve* value equal to a time of *Observ.Time*, it means that the heat load is high and, therefore, the coil is not partialised, whereas if opening is lower, the water coil is partialised.

```
   DEHUMIDIFICATION
   COOLING CAPACITY
  LIMITATION ADVANCED 1
Threshold Valve   % 00
Observ. Time    min 00
```
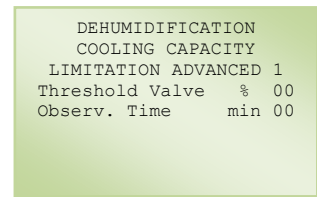
This screen enables setting the parameters for the ADVANCED 2 adjustment logic of dehumidification.

This mode automatically calculates the value of the water valve opening during the dehumidification phase, as shown below: the opening is assessed during the cooling phase, when the dehumidification is called and it is multiplied by a K factor. Subsequently, if the temperature lowers, this value is reduced in relation to the value of the temperature derivate through time d(time)/dt. Eventually, if despite the presence of this derivative action the temperature should reach the Low Limit (cooling-band set point) or High Limit (cooling+band set point), the dehumidification process is interrupted.

values to be set are:

En.Deh.Cool.Open: is the maximum opening of the water valve during the cooling phase, assessed when the dehumidification is called;

Delay Open.Valve: is the delay of the modulating valve (0-10Vdc command) in activating in relation of the activation of the step regulation valve of the battery;

K Opening: is the constant for which the modulating valve opening is multiplied and that determines the (initial) opening in dehumidification.

Min.Open Start-up:% minimum opening modulating valve instantly taken by calling the dehumidification

Min.: minimum opening of the valve allowed during the dehumidification

Max.: maximum opening of the valve allowed during the dehumidification

```
     DEHUMIDIFICATION
   COOLING CAPACITY
  LIMITATION ADVANCED 2
En.Deh.Cool.Open:% 100
Delay Open.Valve: s 45
K Opening:         1.5
Min.Open.Start-up:% 10
Min.:% 05   Max.:% 100
```

This screen enables setting the atmospheric pressure (millibar) depending on the different geographical areas for calculating the absolute humidity value in g/Kg.

```
   ABSOLUTE HUMIDITY
        SETUP
Ambient Pres.mbar    0000
Room Temper.      °C 00.0
Room Rel.Hum.     rH% 00

Room Abs.Hum. g/Kg   00.0
```

This screen is used to set:

Deliv.T. Low Limit: enables minimum air outlet temperature control.

Deliv.T. Set Limit: minimum air outlet temperature set point. If the function is enabled and the delivery air temperature is near Deliv.T. Set Limit setpoint, control starts to disable the active resources, meaning switch-off the compressors for the Direct expansion units or close the valves for the cooling water units.

```
Deliv.T.Low Limit:      Y
Deliv.T.Set Limit °C   14
```

This screen enables setting the PID adjustment parameters in Cooling and Heating mode:

Integral time: it is the time constant of the integral action
Derivative Time: it is the time constant of the derivative action
Dead Zone: it is the dead adjustment zone

```
  COOLING AND REHEATING
Integral Time: s   0000
Derivative Time:s    00
Dead Zone       °C  0.0
       HEATING
Integral Time: s   0000
Derivative Time:s    00
Dead Zone       °C  0.0
```

This screen is used to set the type of control for the operation of the external humidifier via the 0-10V signal sent by the board.

```
   HUMIDIFIER 0-10V
      SETTINGS
   Regulation Type:
Proportional+Integral
Integral Time:     s 000
```

These screens are used to make the settings for the condensing circuit:
- on direct expansion units;
- on twin cool or energy saving units, during the mechanical cooling phase (with only the compressors on).

The controller keeps the water temperature in the closed circuit at a suitable value for condensation, between the set point and the set point + a fixed differential of 6°C.

```
   RADCOOLER SETTINGS
Temp.E.S.          °C 00.0
Set Point          °C 00.0
Radcooler Type:     On-Off
```

RAD COOLER ON/OFF - Unit DX, DX/S, TC.


```
 ENERGY SAVING SETUP:
   Room T.- Ext.T.
   Radcooler Fan Speed
Change Set:        °C 00.0

   Room T. - Water T.
ES Setpoint:       °C 00.0
```

The temperature is controlled by managing the operation of the remote radiator fans ("Rad-Cooler") connected to the indoor unit; control can be:

- **"On-Off"**: operation of the radiator fans is either on or off;
- modulating (**"Modul"**): control of the 0-10 V signal sent via analogue output Y1 to manage the radiator speed.

RAD COOLER MODULATION
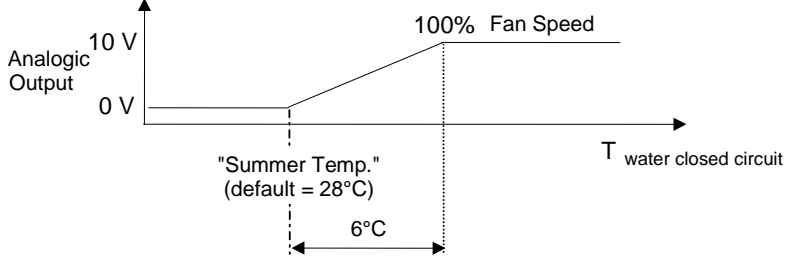
This screen is only available in the Twin-cool version and is used to manage the settings for activating the changeover from mechanical cooling operation to operation with chilled water.
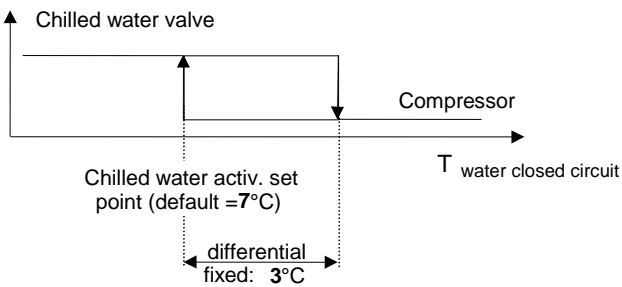
```
 CW ENABLE CONDITIONS
 Activation Point at:
Water Temp. <      °C 00.0
 Disactivation Point at
 Activ.Point  + °C 0.0
```

TWIN COOL. Unit

To avoid continuously alternating between the two operating modes, there is a minimum interval of 30 minutes between two consecutive activations of the cold water valve.

If the high room temperature limit is exceeded (default: 30°C), the unit automatically switches from 'CW' operation to 'DX' operation, signalling the "High cold water temperature or valve fault" alarm.

This screen is only available in the Twin-cool version and is used to enable CW operation only if the alarm is activated in DX mode or via multifunction digital contact or by BMS.

```
  ENABLE CW WORKING:
Also On DX Alarm:      N
Only By ID Contact:    N
Only By Serial:        N
```

This screen is used to set the type of control :
Room Temperature: the unit controls the return air temperature;
Delivery Temperature: the unit controls the outlet air temperature

```
  CHILLED WATER SETUP
Regulation:
Room Temperature
```

This screen is only available in the CW version and is used to establish the dehumidification settings on chilled water units and calibrate the high temperature alarm (only if the inlet water temperature probe is installed).

During the dehumidification phase, a special control function is activated, which acts as follows:

- the controller sends the water chiller a request for water at a lower temperature to allow dehumidification; this is done by instantly activating digital output **DO7**;
- the temperature probe located on the chilled water inlet is read;
- when the value read reaches the "**SET POINT**" as set on the screen, the valve is opened to the maximum position settable on the following screen;
- if vice-versa the "SET POINT" is not reached, after 15 minutes an alarm is signalled ("*Chilled water too warm to dehumidify"*).

The temperature probe on the chilled water inlet is also used to control the "*High chilled water temp.*" alarm, when the temperature exceeds the '**HIGH TEMP.**' value set on the screen, signalling a possible fault on the water chiller.

```
  CHILLED WATER SETUP
 Dehumidification Cycle
Start Set:       °C 00.0

  High Water Temp. C1
Alarm Set:       °C 00.0
  High Water Temp. C2
Alarm Set:       °C 00.0
```

```
  CHILLED WATER SETUP
 High Water Temperature
        Alarm
   Valves Forced: Y
 Valve 1 Opened %  000
 Valve 2 Opened %  000
```
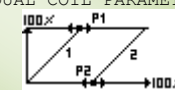
This screen is only available in the TC version and is used to enable the variation in the chiller cooling set point for dehumidification.

```
  CHILLED WATER SETUP
Dehumidification
Change Set Chiller     N
```

This screen is only available in the CW Dual Coil version and is used to establish the operating parameters for the water valves in circuits 1 and 2. The default configuration is P1=100 % and P2= 0 %, that is, both valves open with the same control ramp.

```
 DUAL COIL PARAMETERS



 P1 (valve 1):   100%
 P2 (valve 2):   000%
```

This screen is only available in the CW Dual Coil version with the pCOE connected and is used to control the opening of the water valve, with five different solutions:
1. no open control;
2. via ID1 and ID2 on the pCOE board and establishing the status of the contact;
3. via ID1 used as a switch over contact.
4. through interchange logic on time basis and on high water temperature alarm of the active circuit
5. through interchange logic only on high water temperature alarm of the active circuit basis

```
 DUAL COIL PARAMETERS
    Valves Enabled By
DI1 and DI2 pCOE
Cycle Time:      h 000
Digital Input Config.:
V.1 ON with  DI1:
V.2 ON with  DI2:
```

It is also possible to set:

- Time Changed: the time in which the high water temperature alarm persists before its automatic reset and, therefore, this is the time in which the circuits remain exchanged before attempting to return to the condition prior to the alarm;
- Observ.Time: observation period within which if a number of events occur equal to Al.Events max., the "High Water Temperature" alarm becomes permanent and automatic reset attempts are not longer performed, thus the circuits remain in the post-alarm situation.
- Al.Events Max: number of maximum alarm events which when reached (within the observation period), the high water temperature alarm no longer automatically resets and the circuits remain in the post-alarm situation

```
   DUAL COIL PARAMETERS

        ⟲↻

   Water Alarms Setting
Time Changed      min. 000
Observ.Time         h 00
Al.Events max.      n. 0
```
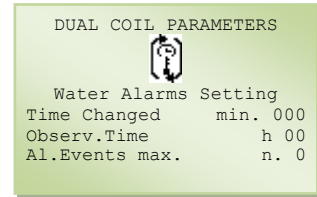
This screen is displayed only if the unit is fitted with both electric heaters ('ELECTRIC REHEAT' > 0) and a hot water coil ('HOT WATER COIL Yes').
It is used to set the set point for switching between these two heating systems.

```
    HOT WATER COIL
    ACTIVATION SET
Hot Water Temp.     °C 00
```

Heating

Hot water coil

T Hot water

Hot water coil Activation
Set point (default =**40**°C)

differential
fixed: **5**°C
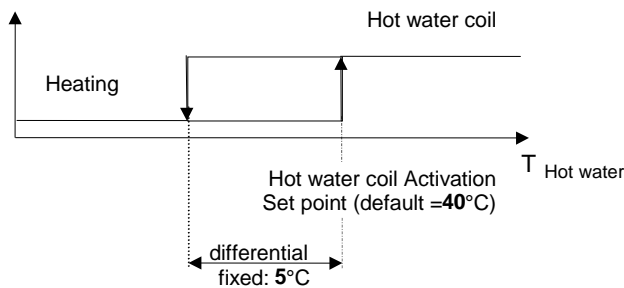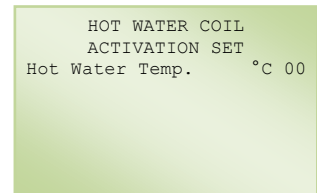
Allows you to set the set point that triggers the switching between the two heating systems.

This screen concerns the behaviour during the initial transients and is used to set:
At Power On: delay in restarting the unit after a power failure; this is used to prevent simultaneous starts in multiple installations. Units in the LAN automatically feature a sequence start-up progressive (unit 1, unit 2, …) with 5 second intervals between one unit and the next.
Regul. Transient: period of time between when the unit starts and control commences; this is the initial period required for the control system to become stable. In this period the reading of the air flow switch FS is also ignored; this allows - above all on units with motor-driven dampers - the unit to start without the "*No air flow*" alarm being activated.
Fan Off Delay: fan shutdown delay.

```
    DELAY SETTINGS
  Unit Start UP Delay:
At Power On:      s 000

Regul. Transient:  s 000
  (Also Flow/Flit Alarm)

Fan Off delay:     s 00
```
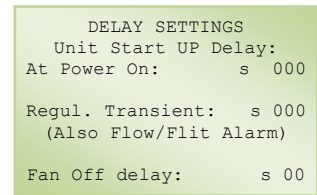
This screen is used to set:
T+H Al. Delay': delay in signalling room alarms when starting the unit and in normal operation.
Wrong Phases Sequence or Phase Loss: minimum unit OFF time if the alarm is activated

```
  ALARM DELAY SETTINGS
  Temp/Hum.Alarms Delay:
After Power ON:    min 00
Normal Working:     s 000

  Wrong Phases Sequence
      or Phase Loss
Min. OFF Time       s 000
```
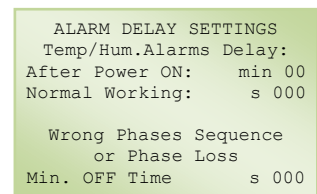
This screen enables setting the minimum OFF time of the electric resistance after activation of the "Heaters Overheating" alarm.

```
  HEATERS OVERHEATING
        ALARM
Min. OFF Time     s 000
```
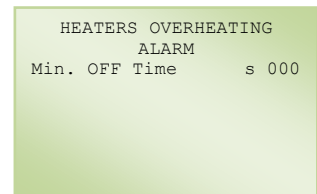
This screen is used to change the access passwords:
- for the **settings** ("SETTINGS" password);
- for the **configuration** ("CONFIGURATIONS" password or "SERVICE" password).

Since access to the HARDWARE menu is denied unless the corresponding password is known, *the new password should be written down* before changing the old one.

```
     PASSWORD SETUP
Settings Passw.:    00000
Service Passw.:     00000
```

This screen is used to set:
Anti-Hunting Time Constant: control time constant;
Delay Com. Error: delay for the communication error between the unit and the Master Control;
Start Com. Trans.: initial communication transient

The last line indicates the status of communication between the unit and the Master Control.

```
     Master A.F.
Anti-Hunting Time
Constant:        min 00
Delay Com. Error   s 00
Start Com. Trans.  s 00

Com. Status:     Ok
```

SENSORS ADJUSTMENT

This screen and later, it is allow to correct the reading of the **temperature sensors** ("ROOM TEMP.", "EXT. AIR TEMP.", "DELIVERY TEMP.", "CHILLED WATER CLOSED and HOT WATER", "ROOM HUMIDITY") in case a difference between the measured value of the sensor and the effective value is detected, measured with a precision instrument.
The adjustments can be done at intervals of 0.1 °C and the maximum adjustment possible is between -9.9°C and +9.9 °C.

The **Read value** is the measurement transmitted by the sensor already corrected.
The adjustment ("**Adjustment**") is the quantity that needs to be added or subtracted to obtain the correct value, measured with a precision instrument.

```
    ROOM TEMP.SENSOR

Read Value      °C 00.0
Adjustment      °C  0.0
```

ALARM RESET MODE

This screen and the following are used to set the alarm resets to manual or automatic;

```
   ALARM RESET MODE
  (M = Manual/ A = Auto)
High Room Temp.        A
Low Room Temp.         A
High Room Humidity     A
Low Room Humidity      A
High Water Temp.       A
High Wat.T.to Dehum.   A
```

MEMORY OPERATIONS

This screen manages the data contained in the microprocessor Flash EPROM.

PROGRAM SET UP. This is an operation that is carried out the event of Flash EPROM substitution. It can be useful if data is 'damaged' (set-point, configurations, etc.) as it is possible to **clean the memory** (including data relative to the unit HARDWARE configuration); where **all the set point** values reset **automatically** (see paragraph "DEFAULT VALUES").
After this operation it is necessary to re-configure the control and to proceed to the setting of the set-point when different from those of the default.

IMPORTANT: when modified also if only a parameter of the configuration (and therefore also for Flash EPROM substitution) it is necessary to empty also the RAM memory by cutting off the power to the control for a few seconds.

AL. PAGE CLEAR-UP: historical alarms cleaning permits to cancel the last 100 alarm event saved in the memory.

HARDWARE SET UP Possibility to carry out an automatic identification of the devices connected to the control. This operation is useful when an optional device must be connected to the board, or when substituting a sensor or when the display shows "NC" as the reading of the temperature sensor.

```
Program Set up        N
Al.Page Clear-up      N
Hardware Set up       N
```

EXV VALVE SETTINGS

This screen and the following are only displayed if the electronic expansion valve is configured, and are used to access the valve operating settings.

```
MAIN SETTINGS

ADVANCED SETTINGS
```
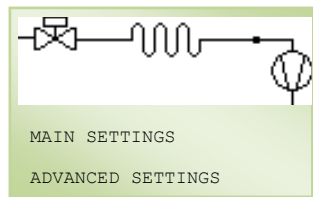
MAIN SETTINGS

This screen enables choosing the electronic thermostatics different for the two refrigerating circuits:
Valve Type: model of electronic valve used:
Refrigerant: type of refrigerant gas used;

```
        CIRCUIT 1
Valve Type: E2V
        CIRCUIT 2
Valve Type: E2V

Refrigerant: R407C
```

This screen is used to set:
Low SH Protection: activate the LowSH protection that quickly acts by closing the valve in case of too low overheating, avoids liquid returning to compressor;
MOP Protection: activate the MOP protection that moderately acts by closing the valve to limit the evaporation temperature in case it reaches excessive values to avoid the compressor stopping for thermal protection.
MOP Set: the MOP activation set.
LOP Protection: activate the LOP protection that quickly acts by opening the valve when the evaporation temperature is too low, it avoids the compressor stopping for low pressure;
LOP Set: the LOP activation set.

```
    ACTIVE FUNCTION
Low SH Protection:     Y
MOP Protection:        Y
MOP Set:          °C 00.0
LOP Protection:        N
LOP Set:          °C 00.0
```

This screen is used to set:
Range Begin.: start scale for the evaporation pressure transducer reading;
Range Ending: end scale for the evaporation pressure transducer reading;
Read Value: the value read, i.e. the measurement sent by the probe.
COND.PRESS.RANGE: enabling of reading of the condensation pressure.
Range Begin.: start scale for the condensation pressure transducer reading;
Range Ending: end scale for the condensation pressure transducer reading;
Read Value: the value read, i.e. the measurement sent by the probe.

```
     EVAP.PRESS.PROBE
Range Begin.:      bar 00.0
Range Ending:      bar 00.0
Read Value:        bar 00.0
   COND.PRESS.RANGE: Y
Range Begin.:      bar 00.0
Range Ending:      bar 00.0
Read Value:        bar 00.0
```

This screen, it is allow to correct the reading of the **pressure evaporating sensor.** In case a difference between the measured value of the sensor and the effective value is detected, measured with a precision instrument. The maximum adjustment possible is between -9.9°C and +9.9 °C.
The Read value is the measurement transmitted by the pressure evaporating sensor <u>already corrected</u>.

```
  EVAP.PRESS.PROBEOFFSET
       CIRCUIT 1:
Press.Offset:     bar 0.0
Read Value:       bar 00.0
       CIRCUIT 2:
Press.Offset:     bar 0.0
Read Value:       bar 00.0
```

This screen, it is allow to correct the reading of the **temperature evaporating sensor.** In case a difference between the measured value of the sensor and the effective value is detected, measured with a precision instrument. The maximum adjustment possible is between -9.9°C and +9.9 °C.
The Read value is the measurement transmitted by the temperature evaporating sensor <u>already corrected.</u>

```
  EVAP.TEMP.PROBE OFFSET
       CIRCUIT 1:
Temp.Offset:      bar 0.0
Read Value:       bar 00.0
       CIRCUIT 2:
Temp.Offset:      bar 0.0
Read Value:       bar 00.0
```

This screen, it is allow to correct the reading of the **pressure condensating sensor.** In case a difference between the measured value of the sensor and the effective value is detected, measured with a precision instrument. The maximum adjustment possible is between -9.9°C and +9.9 °C.
The Read value is the measurement transmitted by the pressure evaporating sensor <u>already corrected</u>.

```
  COND.PRESS.PROBEOFFSET
       CIRCUIT 1:
Press.Offset:     bar 0.0
Read Value:       bar 00.0
       CIRCUIT 2:
Press.Offset:     bar 0.0
Read Value:       bar 00.0
```

This screen is used to set:
Low Superheat: low superheat alarm activation delay time;
High Suct.Temp.: high suction temperature alarm activation delay time;
LOP Failure: minimum operating pressure alarm activation delay time;
MOP Failure: maximum operating pressure alarm activation delay time;

Press.Probe Failure After Compr. ON: pressure probe disconnected or not working alarm activation delay time after the compressor starts;
Press.Probe Failure At Normal Work.: pressure probe disconnected or not working alarm activation delay time in normal operation;

```
       ALARM DELAY
Low SuperHeat:      s 0000
High Suct.Temp.:    s 0000
LOP Failure:        s 0000
MOP Failure:        s 0000
  Press.Probe Failure:
After Compr.ON:     s 00
At Normal Work.:    s 00
```

This screen is used to manually set the opening steps for the electronic expansion valve.

```
        CIRCUIT 1
Manual Open. Step:   0000
MANUAL MODE:            N

        CIRCUIT 2
Manual Open. Step:   0000
MANUAL MODE:            N
```

This screen is used to set the opening steps for the electronic expansion valve when there is no cooling request.

```
        CIRCUIT 1
CLOSING BACKSTEPS:    000


        CIRCUIT 2
CLOSING BACKSTEPS:    000
```

ADVANCED SETTINGS
This screen enables setting the **SuperHeat set** for individual circuit: overheating set point.

```
          CIRCUIT 1
SuperHeat Set      °C 00.0
            (Auto: 00.0)
          CIRCUIT 2
SuperHeat Set      °C 00.0
            (Auto: 00.0)
```

This screen is used to set for circuit 1:
Dead Zone: dead band;
Prop.Gain: proportional gain;
Integral Time: integral time.

```
          CIRCUIT 1
Dead Zone:         °C 0.0
            (Auto: 0.0)
Prop.Gain:           00.0
            (Auto: 00.0)
Integral Time:      s 000
            (Auto: 000)
```

This screen is used to set:
Derivat. Time: derivative time;

```
          CIRCUIT 1
Derivat. Time:     s 00.0
            (Auto:00.0)
```

This screen is used to set for circuit 2:
Dead Zone: dead band;
Prop.Gain: proportional gain;
Integral Time: integral time.

```
          CIRCUIT 2
Dead Zone:         °C 0.0
            (Auto: 0.0)
Prop.Gain:           00.0
            (Auto: 00.0)
Integral Time:      s 000
            (Auto: 000)
```

This screen is used to set:
Derivat. Time: derivative time;

```
          CIRCUIT 2
Derivat. Time:     s 00.0
            (Auto:00.0)
```

This screen enables setting for individual circuit:
Max Suct. Temp.: maximum suction temperature
Circ./EEV Ratio: It is the ratio expressed in percentage between the maximum cooling capacity of the circuit regulated by the EVDriver and that obtainable with maximum opening of the expansion valve, in the same operational conditions.

```
Max Suct.Temp.:    °C 00.0
            (Auto:00.0)

          CIRCUIT 1
Circ./EEV Ratio:      000
          CIRCUIT 2
Circ./EEV Ratio:      000
```

This screen is used to set:
Low limit: low superheat minimum limit;

```
  LOW SHEAT PROTECTION
Low Limit:         °C 00.0
            (Auto: 00.0)
```

This screen is used to set for single circuit:
Integral Time: integral time to low superheat.

```
  LOW SHEAT PROTECTION
          CIRCUIT 1
Integral Time:     s 00.0
            (Auto:00.0)
          CIRCUIT 2
Integral Time:     s 00.0
            (Auto:00.0)
```

This screen is used to set:
Start-up delay: maximum operating pressure protection delay time when starting;

```
      MOP PROTECTION
Start-Up delay:    s 000
                 (Auto:000)
```

This screen is used to set for single circuit:
Integral Time: integral time for MOP protection;

```
      MOP PROTECTION
         CIRCUIT 1
Integral Time:    s 00.0
                (Auto:00.0)
         CIRCUIT 1
Integral Time:    s 00.0
                (Auto:00.0)
```

This screen is used to set for single circuit:
LOP Integral Time: integral time for LOP protection;

```
      LOP PROTECTION
         CIRCUIT 1
Integral Time:    s 00.0
                (Auto:00.0)
         CIRCUIT 2
Integral Time:    s 00.0
                (Auto:00.0)
```

This screen is used to set:
Dehum.SH Set: superheat set point in the dehumidification phase;
LOP Limit: minimum operating pressure limit in the dehumidification phase.

```
     DEHUMID.SETTINGS
Dehum.SH Set:     °C 00.0
LOP Limit:        °C 00.0
```

This screen enables setting the regulation transient parameters of the expansion valve for circuit 1:
Enable: enables the regulating mode
Time s: it is the maximum activation time of the regulation transient parameters of the expansion valve after the ON of the compressor
SuperHeat Set: it is the overheating set point.
Dead Zone: it is the dead adjustment zone.
Prop. Gaing: it is the proportional regulation gain.
Integral Time: it is the integral regulation time.
Derivat.Time: it is the derivative regulation time.

```
   REGULATION TRANSIENT
Enable:N       Time:s 00
         CIRCUIT 1
SuperHeat Set:    °C 00.0
Dead Zone:        °C  0.0
Prop.Gain:           00.0
Integral Time:    s  000
Derivat.Time:     s 00.0
```

This screen enables setting the regulation transient parameters of the expansion valve for circuit 2.
See circuit 1 description

```
   REGULATION TRANSIENT
Enable:N       Time:s 00
         CIRCUIT 2
SuperHeat Set:    °C 00.0
Dead Zone:        °C  0.0
Prop.Gain:           00.0
Integral Time:    s  000
Derivat.Time:     s 00.0
```

MANUAL CONTROL

During normal operation, all the components fitted on the unit are managed automatically, nonetheless, to assist maintenance and checks or in cases of emergency, the individual components can be **activated manually** - and independently of the control process.

- unit fan (*Unit start-Up*);
- compressor 1/2/3/4 (*Compressor 1/2/3/4*);
- (on CW units) analogue output 0/1 (*Y0/Y1Ramp %*);
- dehumidification function (*Dehumidification*);
- first electric heater stage (*Reheating 1*);
- second electric heater stage (*Reheating 2*);
- external Radcooler activation
- activate the 0/1 analogue output on DX, TC, ES units (*Y0/Y1Ramp*);
- forces analogue output 1 in CW Dual Coil units (*Y1Ramp*);

The safety devices are also active during manual operation

AUTOMATIC / MANUAL OPERATING MODES

To change the operating mode of a component, simply move the cursor to the corresponding line, press ⬇ or ⬆ to change from automatic ("**No**") to manual ("**Yes**") or vice-versa, and confirm by pressing ⏎ .

```
    Manual Override:
Motorized Damper      N
Unit Start-Up         N
Compressor 1          N
Compressor 2          N
Compressor 3          N
Compressor 4          N
Dehumidification      N
```

```
    Manual Override:
Humidifier – Drain    N
Reheating 1           N
Reheating 2           N
Radcooler             N
```

The next screen can also be used to set, as a percentage, the opening of the devices connected to analogue outputs Y1, Y2 and Y3.

If the pCOE is connected in the CW Dual version Coil, the setting of analogue output Y1 will also be displayed.

When activating one or more components manually, the STATUS screen will show the 👆 icon.

```
    Manual Override:
Y1 Ramp          % 000
Y2 Ramp          % 000
Y3 Ramp          % 000

    Dual Coil – pCOE
Y1 Ramp          % 000
```

UPDATING THE PROGRAM

The following systems can be used to update and acquire the firmware and the logs on the pCO controllers:
1. Winload;
2. SmartKey programming key.

Winload
On all pCO system controllers the resident software can be updated using a PC. For this purpose, UNIFLAIR S.p.A. provides the WinLoad32.exe program and a serial converter with USB-RS485 output to connect to the pCO via the telephone connector. The special driver must be installed on the PC, this too supplied by UNIFLAIR S.p.A. The WinLoad32.exe program is installed together with the pCO Manager program. The installation includes, as well as WinLoad32.exe, the user manual and the driver for the USB-RS485 converter.

SmartKey
The new SMARTKEY programming key is used to emulate the operation of the parallel programming key on pCO models where this is not available (pCOXS, pCO3), with the sole exception of the BOOT, which is not loaded by the SMARTKEY. Specifically, the key can clone the contents of a pCO and then copy these to another pCO that is identical to the first, via the telephone connector on the terminals (the pLAN must be disconnected). As well as this, the key can also copy the data logged by a series of pCO devices to a PC. On the PC, using the "SMARTKEY PROGRAMMER", the key can be configured to run certain operations: acquire logs, program applications, program the Bios, etc.
Below are some pictures showing examples of downloading the program to the pCO control board.

Inside the kit is a CD and a manual with step-by-step explanations of how to best use these accessories.
The program files, on the other hand, will be sent by e-mail or CD, indicating the name of the application when ordering.

ALARMS

ACTIVE ALARMS

By pressing this button the alarm will be silenced and a description of the alarm will be displayed. If the cause of the alarm has been eliminated, the last alarm message can be reset by pressing the button for several seconds; the red light on the key will turn off immediately. If the cause of the alarm has not been eliminated, the alarm buzzer will be activated again.

ALARM HISTORY

In order to be able to reconstruct the alarm history sequence, the microprocessor holds 100 alarm events in its memory. All of the alarms which are memorized can be read in series by entering the status masks by pressing the UP and DOWN keys and choosing the ALARM HISTORY option; if there is a clock card (optional) the time and date will also be recorded of each alarm event.

```
12:00          01/01/06
AL01


  Loss  of  Air  Flow
```

The alarms activated when the counter threshold is exceeded are not memorized and therefore are not able to be read.

DOWNLOAD OF THE ALARM RECORD

The alarm record can be downloaded. To use this function, the unit must be equipped with the appropriate memory expansion board:

and special configuration files (xxx.PVT e xxx.LCT) must be loaded.
The alarm record contained in this board is an exact copy of the one which is accessed with the user terminal, with the advantage that, while the latter is a circular BUFFER of 100 events (i.e. when 100 events are exceeded, it starts overwriting the oldest event), that contained in this board is a 2Mb circular Buffer and the number of guaranteed events is 5000.
The presence of this board is indicated by a special icon found in the reading screens of the alarm record; therefore, there can be 3 different indications, as described below:

indicates the presence of the memory expansion board and so:
- The sequence of the alarm events can be read from the user terminal
- Date and hour of the alarm events can be read from the user terminal
- The alarm record can be downloaded.

```
12:00   01/01/06   AL01



      Loss   of
      Air  Flow
```
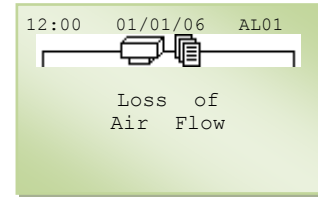
Indicates the absence of both the memory expansion board and the clock board and so:
- The sequence of the alarm events can be read from the user terminal
- Date and hour of the alarm events cannot be read from the user terminal
- The alarm record cannot be downloaded.

```
                   AL01



      Loss   of
      Air  Flow
```

NOTE: It is reminded that the memory expansion board serves as clock board also; therefore, when the expansion board is installed, the clock one must be removed. (for further details see paragraph MEMORY EXPANSION BOARD)

DESCRIPTION OF ALARM EVENTS

All of the possible alarm messages which can be displayed on the user terminal are shown below.
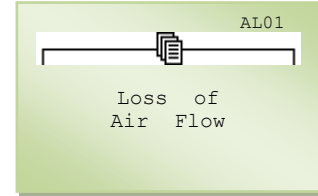For active alarms (and therefore not memorized in the alarm history sequence), some possible suggestions will appear for solving the problem in the last two lines of the display.

Incorrect Phase Sequence
The Scroll compressor must rotate in the correct direction otherwise there will be a loss of efficiency. In single units with three-phase power supply it is possible that the phase sequence of the network forces a rotation direction is different to that which has been planned; in this case, as soon as the unit is connected to the power supply, the microprocessor immediately enters into an alarm state blocking any other type of operation. In this case, disconnect the power supply and invert the two phases of the power supply.

```
Wrong Power Phases
  Sequence: Please
Change-Over 2 Phases
```
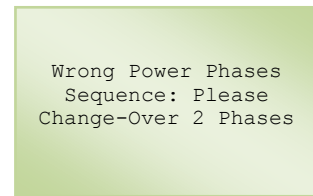
Power Supply Return Signal
When the power supply is restored following a break in the power supply the control memorizes the mask which is shown here in the alarm history sequence.

```
12:00    01/01/06

   Power Back
  After Failure
```
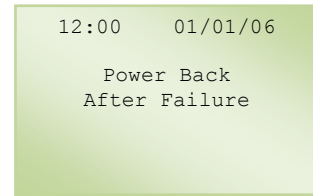
EXCEEDING TEMPERATURE OR HUMIDITY LIMITS

These are alarms which are activated when the thermo hygrometric limits which have been set are exceeded (see the Operating Parameters mask).

Signal only. This can be delayed during the unit start-up phase (the default delay is 15 minutes)

```
        ⚠

  Room Temperature
  Above Max. Limit
```

Signal only. This can be delayed during the unit start-up phase (the default delay is 15 minutes)

```
        ⚠

  Room Temperature
  Below Min. Limit
```

Signal only. This can be delayed during the unit start-up phase (the default delay is 15 minutes)

```
          ⚠
       Delivery
    Air Temperature
   Above Max.Limit
```

Signal only. This can be delayed during the unit start-up phase (the default delay is 15 minutes).

```
          ⚠
  Room Rel. Humidity
   Above Max. Limit
```

Signal only. This can be delayed during the unit start-up phase (the default delay is 15 minutes)

```
          ⚠
  Room Rel. Humidity
   Below Min. Limit
```
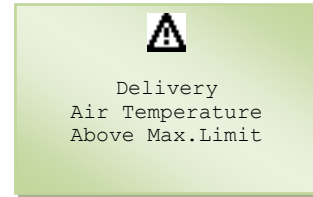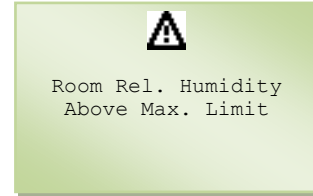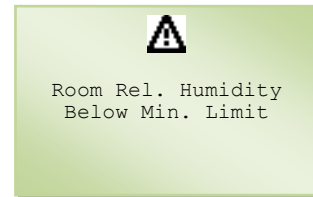
OPTIONAL SENSOR OR DIGITAL INPUT ALARMS

These alarms are connected to the optional sensors and/or the configurable digital inputs (see the Hardware Settings mask).

Signal only.
(For Leonardo Evolution units and Amico CW units)

```
          ⚠
  Room Limits Exceeded
    (by Ext.Sensors)
```

Activated by the Smoke / Fire sensors and always causes the unit to switch off.

```
          ⚠
  Presence of SMOKE/FIRE
```
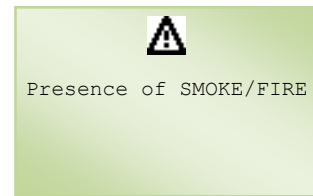
Activated by the flooding control module or from the condensing discharge pump alarm contact; only causes the unit to switch off if it has been chosen as a second level alarm, but it does not activate the stand-by unit.

```
          ⚠
     Flood Alarm
```
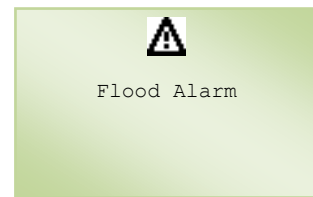
Activated by a digital input configured as "Alarm Signalling".
(ID2, ID4, ID6)

```
          ⚠
    Digital input
      Alarm 2
```
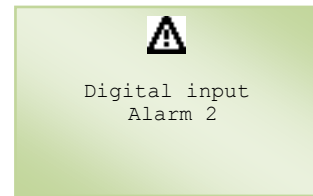
Activated by the flooding control module, the external temperature or humidity sensors.
(For Amico DX units)

```
          ⚠
     Flood Alarm
 or Room Lim. Exceeded
    (by Ext.Sensors)
```

UNIT FUNCTION ALARMS

These are alarms connected to the unit components and which are caused by the intervention of a protection device.

Fan alarm: Activated by the differential air flow pressure switch (FS). Causes all of the devices to switch off (compressors, electrical heaters, humidifier, fans).

⚠️
Loss of Air Flow
Check Fan/Switch
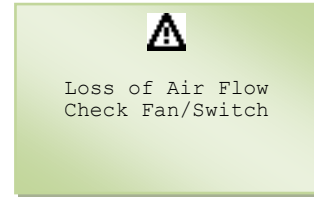
Activated by the differential high air flow (FSA).
Causes all of the devices to switch off (compressors, electrical heaters, humidifier, fans).

⚠️
High Air Flow

Activated by the differential dirty filter pressure switch (PFS); only causes an alarm signal, without unit operation being affected. Indicates that the air filter needs to be cleaned or replaced.

⚠️
Clogged Filters
Clean or Replace
Filter Element

Alarm signal activated by from the safety thermostat (TSR); causes the electrical heaters to switch off.
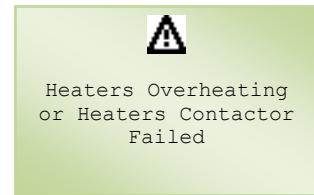
⚠️
Heaters Overheating
or Heaters Contactor
Failed

DX, ES, TC units only. Causes the compressors to switch off on the circuit indicated (1 or 2). Check the refrigerant circuit and/or refrigerant charge and high pressure switch.

⚠️
High Condensing
Pressure or Compr.
Contactor Failed
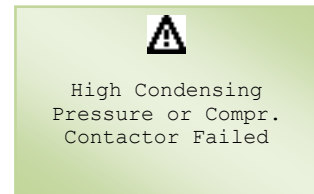
DX, ES, TC units only. Causes the compressors to switch off on the circuit indicated (1 or 2). Check the refrigerant circuit and/or refrigerant charge and high pressure switch. Also specifies the number of the circuit.

⚠️
Low Evaporating
Pressure

CW units only. Activated by the chilled water air flow pressure switch which signals a lack of water within the hydraulic circuit.

⚠️
Loss of Chiller
Water Flow
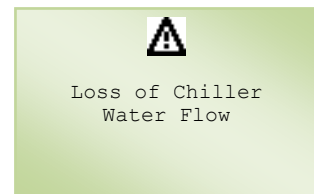
CW units only (signal only). Activated by the chilled water temperature sensor when the set point value is not reached within 15 minutes of the dehumidification request.

⚠️
Water too Warm to
get Dehumidification
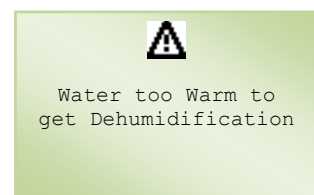
CW units only (signal only). Activated by the chilled water temperature sensor when the high temperature limit is exceeded.

⚠
High Chilled Water
Temperature

TC units only: causes the changeover from chilled water operation (CW) to direct expansion (DX). It is also displayed when the ambient temperature sensor detects that the limit set has been exceeded for the first time.
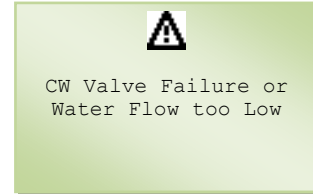
⚠
CW Valve Failure or
Water Flow too Low

Active on a loss in communication between the UpCO1 control board and the UpCOE expansion board in the Cooling Water Dual Coil version

⚠
Dual Coil:
Expansion Board
Not Connected
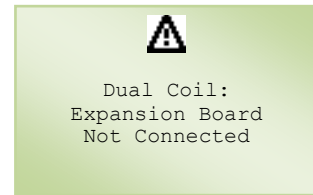
Active when the controller cannot automatically detect the mains frequency.

⚠
Supply Frequency
Not Detected
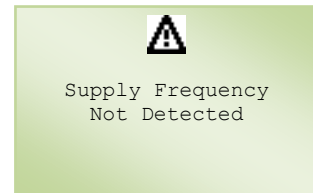
AFPS SENSOR ALARMS

Alarms relating to the AFPS system.

Active in the event of a fault on the underfloor sensor, with the evaporator fan activated at maximum speed.

⚠
Air Pressure Sensor
Failed/Disconnected
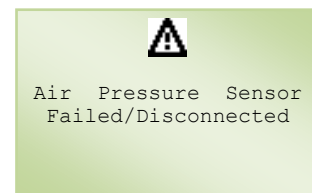
Active when, after the threshold and the alarm activation delay time set have been exceeded, there is low underfloor air pressure, with the evaporator fan activated at maximum speed.

⚠
Low Air
Pressure

Active on a loss in communication between the UpCO1 control board and the UpCOE expansion board in the AFPS system

⚠
AFPS:
Expansion Board
Not Connected

ELECTRONIC EXPANSION VALVE ALARMS (DX,TC,ES units only)

These are alarms which are connected to the driver of the EVD400 electronic expansion valve, causing the compressor/s to switch off.

Activated when there is low evaporation pressure, or rather, when the LOP is lower than the threshold which has been set, for a period which is longer than the Alarms Delay LOP. Also specifies the number of the circuit.

⚠
EXV LOP Protection
Failed
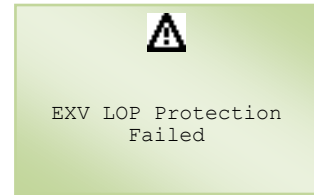
Activated when there is excessive evaporation pressure, or rather, when the MOP is higher than the threshold which has been set, for a period longer than the Alarms Delay MOP. Also specifies the number of the circuit.

⚠
EXV MOP Protection
Failed
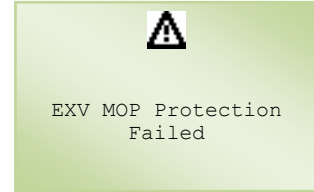
Activated following an error in the signal given by the low pressure ratiometric pressure transducer or a lack of working pressure caused by the compressors not being switched on.

⚠
EXV Valve Driver:
Pressure Probe Error
or Compressor Failed
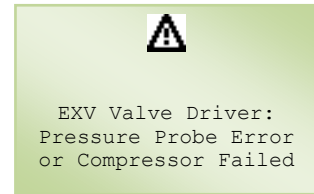
Activated following an error in the signal given by the NTC low pressure temperature sensor for the superheating reading. Also specifies the number of the circuit.

⚠
EXV Valve Driver:
Temp.Probe Error.
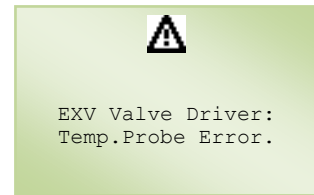
Activated following an error in the EEPROM memory of the driver. Also specifies the number of the circuit.

⚠
EXV Valve Driver:
Eeprom error
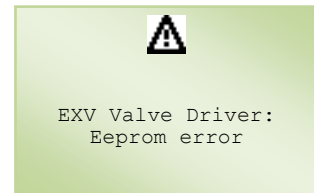
Activated when there is low superheating, for a period which is longer than the Alarms Delay Low SH. Also specifies the number of the circuit.

⚠
EXV Valve Driver:
Low Superheat
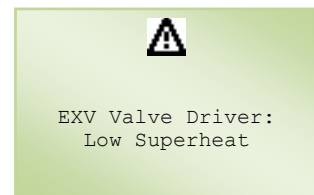
Activated following an error in the tLAN connection between the EVD400 driver and the PCO1 control board. Also specifies the number of the circuit.

⚠
EXV Valve Driver:
Driver Not Connected
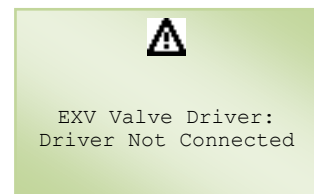
Activated following a temperature measurement taken by the EVD400 sensor, which is higher than the threshold value set in the High SH. Also specifies the number of the circuit.

⚠️

EXV Valve Driver:
High Suction
Temperature

This is only displayed in the alarm history when the driver is without power for more than 5 seconds when the compressor is operating. Also specifies the number of the circuit.

⚠️

Voltage Dip
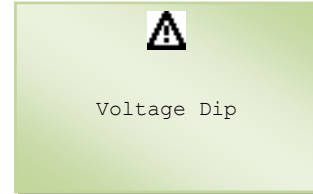
HUMIDIFIER ALARMS

Active when the corresponding threshold is exceeded for more than an hour, or alternatively instantly when the conductivity of the supply water is three times higher than the corresponding high conductivity threshold. Disables operation of the humidifier.

⚠️

HUMIDIFIER:
High Conductivity of
Feeding Water
(> 0000µS/cm)
(Humidifier Lock)
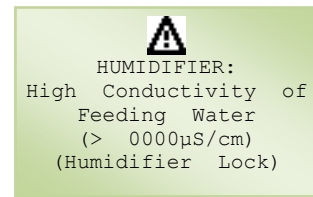
This may be shown in the following three cases:
1. drain to dilute, if a sufficient decrease in current is not measured and if the evaporation time is below certain limits;
2. wash-antifoam status, if at the end of the drain cycle the water touches the high level electrodes;
3. pre-wash status, if during the period in which 10 minutes of simultaneous drain and fill cycles are performed, the water touches the high level electrodes.

⚠️

HUMIDIFIER:
Drain Malfunction
(Humidifier Lock)
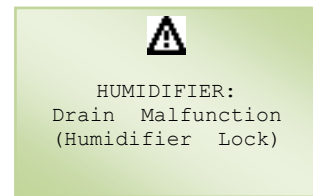
Active if the water touches the high level electrodes in one of the following cases:
1. the unit is disabled or shutdown (remote control switch, fill and drain OFF);
2. before the start of the first pre-wash cycle (consisting of 10 minutes of simultaneous drain and fill cycles)

⚠️

HUMIDIFIER:
Bottle Full of Water
(Humidifier Lock)
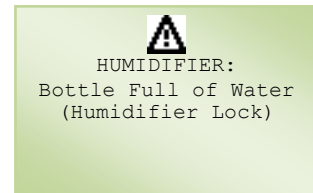
The current running through the electrodes is checked constantly during the operation of the humidifier. Nonetheless, whenever the unit restarts following a production request, the current is checked to see if it exceeds a precise current profile.

⚠️

HUMIDIFIER:
High Current
(Humidifier Lock)
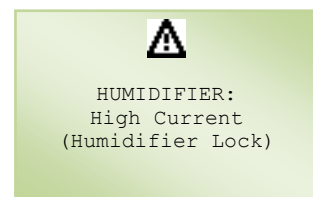
This alarm is displayed if the following events occur in sequence:
- in the fill phase
- the difference between the current measured and the start fill current is lower than a threshold calculated on the current target or in steady operation
- the water touches the high level electrodes
- the current measured is lower than a threshold calculated on the rated current.

⚠️

HUMIDIFIER:
Low Current
(Humidifier Lock)
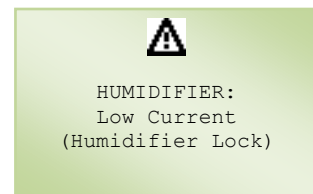
If during low production (after a drain due to high level) the end fill current is lower than a certain threshold calculated on the rated current.

```
        ⚠

    HUMIDIFIER:
   Low Production
 (Humidifier Lock)
```
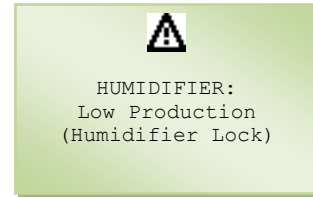
Number of cylinder operating hours exceeded. Replace the cylinder

```
        ⚠

    HUMIDIFIER:
Mandatory Maintenance
exceeded 1,5x00000hrs
    of Workings
 (Humidifier Lock)
```
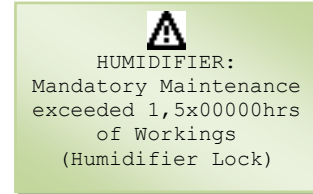
This may be shown in the following two cases:
1. Fill phase:
    a. if the maximum fill time has elapsed
    b. if the current measured does not reflect normal fill operation
2. Pre-wash status:
    a. if during the fill phase the water level does not touch the high level electrodes within the maximum fill time

```
        ⚠

    HUMIDIFIER:
   Loss of Water
 (Humidifier Lock)
```

Warning only
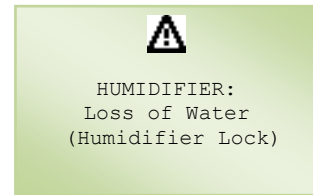
```
        ⚠

    HUMIDIFIER:
High Conductivity of
  Feeding Water
   (> 0000µS/cm)
  (Warning only)
```
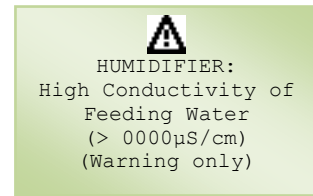
SENSOR ALARMS

These are activated when there is a malfunction of the sensors, or they have been incorrectly connected to the main board. If one of these alarms is activated, check the exact configuration set, that the sensor is present and that the connections have been made and are operating correctly.

Activated following an error signal from the sensor which is connected, disabling the unit operation linked with the reading.

```
        ⚠

Temperature  Sensor
 -----  -----
Failed/Disconnected
```
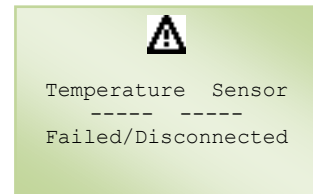
Causes the compressors and electric heaters to switch off, keeping only the fans switched on.

```
Room  Temp.Sensor
```

Disables the free-cooling operation control (only ES units)

```
Outdoor  Temp.
```
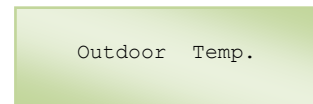
Disables the re-heat electric heaters

```
Delivery  Air
```

Disables the hot water re-heat electric heaters (optional)

```
Hot  Water
```

Signal only

```
        Water  In
```

Signal only

```
        Water  Out
```
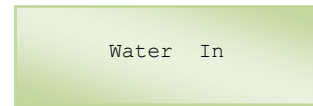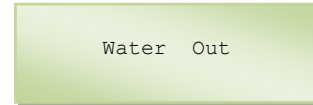
Disables humidification / dehumidification operation

```
Room  Humidity  Sensor
   Failed/Disconnected
```

SERVICE NOTE

These are signalling alarms which are activated when the operating hours of the component are exceeded. This type of alarm, which continues until the counter is reset, is not however memorized in the historical alarm sequence.

Signal only. This may concern the air filters, the unit, the compressors, the electric heaters and the humidifier. To reset the alarm it is necessary to zero the counter. **NOTE:** the mask for setting the alarm thresholds and zero the counter can be found in the parameters menu.If the threshold is set at 0 hours, the alarm will not be activated.

```
         ⋈
--------  Exceeded
 00000  Run  Hours
```
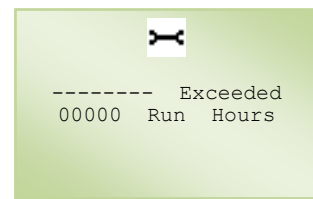
"LAN" INTERUPTED ALARM

Indicates problems of communication between units in the LAN and specifies which units are not connected. This may be due to a break in the power supply, a malfunction in the serial card or an interruption in the electrical connections between the units.
The alarm appears on the units with lower addresses in the network, both up and downstream of the interruption.

```
         ⋈
   LAN Interrupted

Units not connected:
1 2 3 4 5 6 7 8 9 10
```
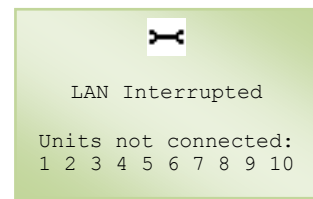
SYSTEM ALARMS

Indicates a writing error in the EEPROM memory, probably due to the cancelling/writing cycle being exceeded. The board needs to be replaced.

```
         ⋈
  EEPROM Failure:
Replace Control Board
```
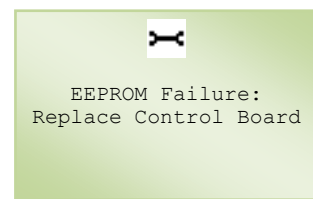
ACCESS ALARMS

This refers to an attempt at accessing the setting or configuration masks by entering the password incorrectly 3 consecutive times.

NOTE:

To reset the alarm, carry out the following procedure:

1. press the **Prg** key and select the **Service Menu**;
2. enter the correct password and confirm by pressing **Enter**;
3. exit by pressing the **Esc** key until the main mask is reached;
4. press the **Alarm** key again to reset the cycle and then keep it pressed for another 3 seconds to reset the alarm completely.

```
        ⋈
 Attempt to Access
 With Wrong Password
```
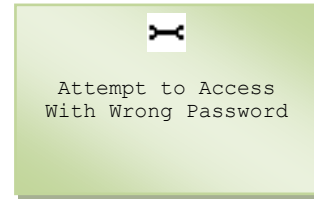
REMOTE ALARM SIGNALLING

For remote signalling of the alarm status, the following voltage free dry contacts are available on the microprocessor control board (see electrical diagram attached):

1. type A alarm
2. type B alarm

If there are several units, the wiring of the dry contacts must be carried out independently for each unit.

To select the type A or B and the state of the contact, enter the Parameter Menu and choose the Alarm Contact option.

MEMORY EXPANSION BOARD

MAIN FEATURES

PCO100CEF0 board is an option of the pCO1 electronic control board, which allows having real time Clock, E2prom memory and Flash memory expansion simultaneously:

- real time Clock manages the hour, date (day, month, year) and a RAM buffered for the applicative software (52byte);
- E2prom is an added volatile memory;
- Flash memory is used only to manage the records.

Warnings:

- Remove the PCO100CLK0 board, if present, when PCO100CEF0 should be used: never use them simultaneously;
- even if electrically compatible, its use with pCOC is not recommended, as the latter is not provided with a plastic container, so it does not guarantee the mechanical retention;
- this option cannot be used as pCO1 start-up key.

ASSEMBLY

With reference to Fig. 1 and 2, the connection of the option to pCO1 is performed according to the following procedures:
- switch off the pCO1 and open the transparent panel;
- remove the PCO100CLK0 board if present;
- place the option in the corresponding connector, ensuring it fits completely (until the bottom);
- to remove it, pull it with energy.
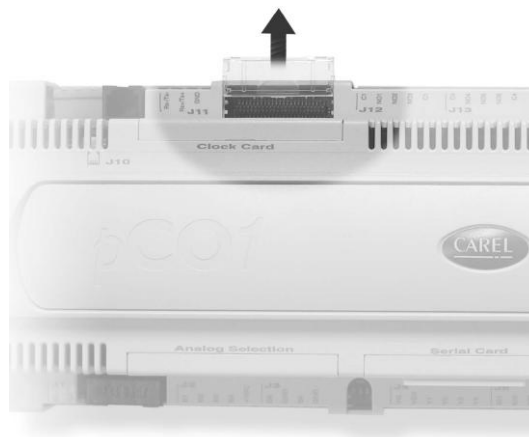
Fig. 1

Fig. 2

UPLOAD FILE

APPLICATIVE UPLOAD

In every 16 bit controller of the pCO System, the relative software can be updated using a PC. For this purpose, UNIFLAIR Spa provides the WinLoad32.exe program and a serial converter with RS485 output to be connected to the pCO. The appropriate driver must be installed on the PC, which is always provided by UNIFLAIR Spa.

Generally, the sequence of operations to start the communication between Winload in graphic mode and pCO is the following:
1. connect the serial converter or USB to the PC and pCO;
2. once any options have been activated by means of the control lines, open the pCOManager program and then Winload on the PC with a double click on the icon.
3. set the serial port on the main screen of the PC where the serial converter is connected together with pLAN address of the pCO, which is used to communicate;
4. power the pCO;
5. wait until the online icon appears at the bottom left of the main screen;
6. at this point, select the proper folder (Application) on the main screen to perform the desired operation;
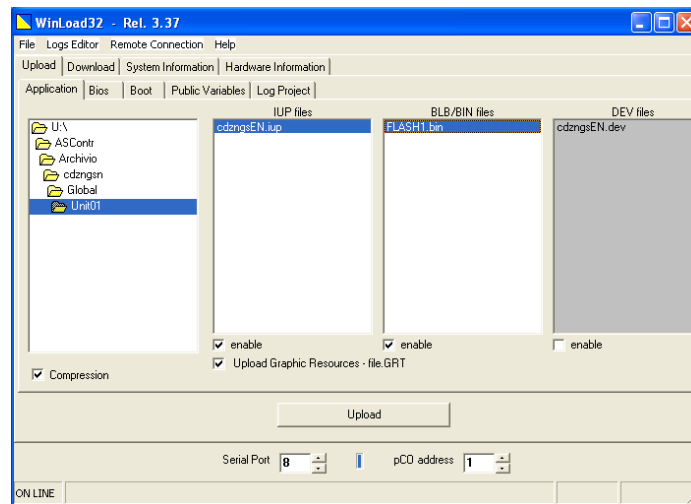
7. press the Unload key and wait until the file operation is completed, which is indicated by >>OK – UPLOAD COMPLETED SUCCESSFULLY<<;
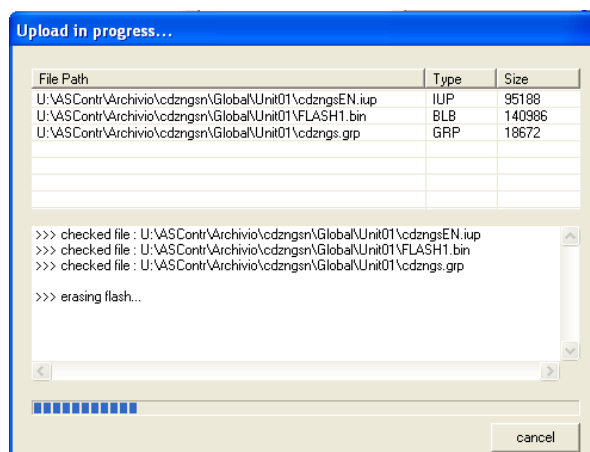
8. press key >>Done<<;
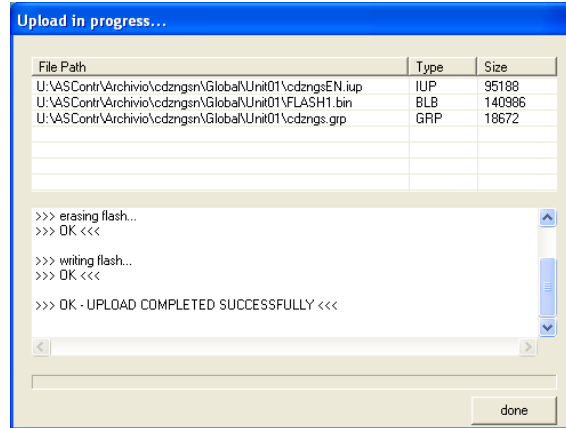
UPLOAD FILE PVT

File PVT (Public Variable Table) defines which variables of the applicative software are public and so available to be stored.
To load file PVT, follow steps from 1 to 5 of the previous paragraph (Applicative Upload) and then proceed as follows:

1. Select the proper folder (Public Variables) on the main screen to perform the desired operation;
   ATTENTION: If the indicated folder is not displayed, it means that the memory expansion board on the pCO board is not fully inserted;
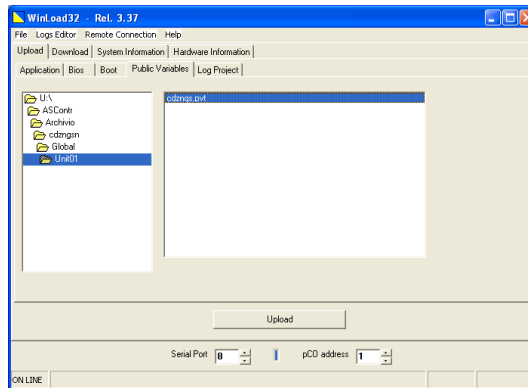
2. press the Unload key and wait until the file operation is completed, which is indicated by >>OK – UPLOAD COMPLETED SUCCESSFULLY<<;
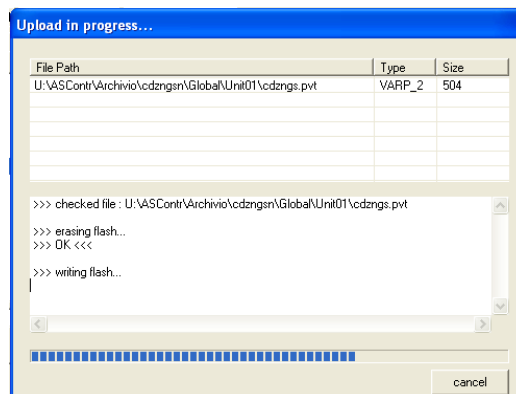
3. press key >>Done<<;
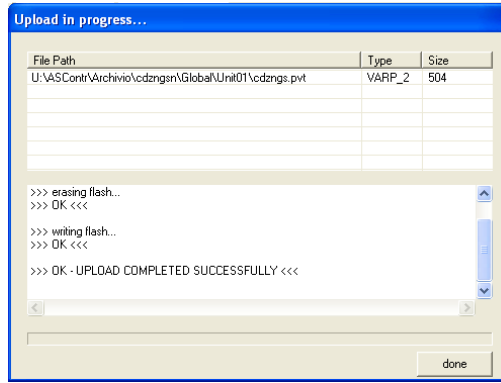
UPLOAD FILE LCT

File LCT (Log Configuration Table) defines which variable, previously defined in file PVT, is stored and in addition sets the main features of such storage. It defines if the sampling must occur depending on the event or time duration. For the latter case, the sampling frequency and its time duration are defined.
To load file LCT, follow steps from 1 to 5 of the previous paragraph (Applicative Upload) and then proceed as follows:

1. Select the proper folder (Log Project) on the main screen to perform the desired operation;
   ATTENTION: If the indicated folder is not displayed, it means that the memory expansion board on the pCO board is not fully inserted;

2. press the Unload key and wait until the file operation is completed, which is indicated by >>OK – UPLOAD COMPLETED SUCCESSFULLY<<;

3. press key >>Done<<;

Upload in progress…

File Path	Type	Size
U:\ASContr\Archivio\cdzngs\cdzngs_2MB.LCT	LOG_2	312

>>> erasing flash...
>>> OK <<<

>>> writing flash...
>>> OK <<<
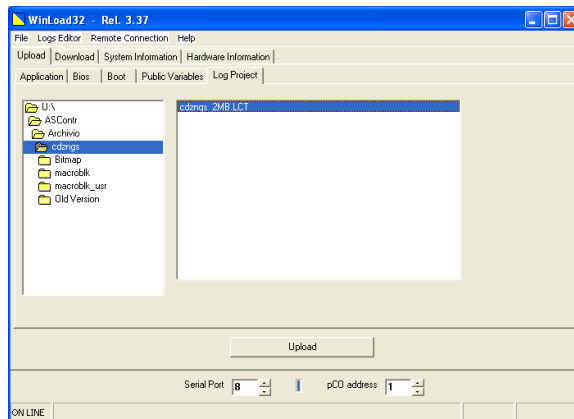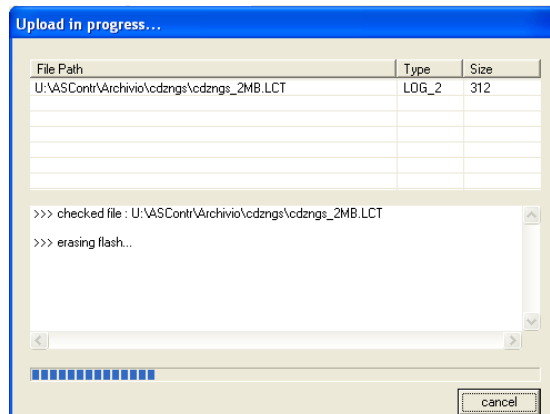
>>> OK - UPLOAD COMPLETED SUCCESSFULLY <<<

done
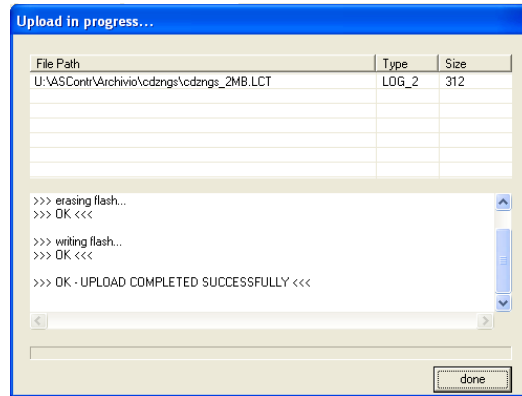
DOWNLOAD FILE

DOWNLOAD FILE LOG

The "Log Data on Expansion Memory" selection allows downloading some data registrations, which are found in the appropriate Flash memory expansion card.
To download file LOG Data, follow steps from 1 to 5 of the previous paragraph (Applicative Upload) and then proceed as follows:

1. Select the proper folder (Download) on the main screen to perform the desired operation, select LOG DATA ON EXPANSION MEMORY and then the Download key.
   ATTENTION: If the subdirectory LOG DATA ON EXPANSION MEMORY is not displayed, it means that the memory expansion board on the pCO board is not fully inserted;

WinLoad32 - Rel. 3.37
File   Logs Editor   Remote Connection   Help
Upload   Download   System Information   Hardware Information

- Permanent Memory (T memory)
- Extended Permanent Memory (P memory)
- LOG DATA ON EXPANSION MEMORY

Download

Serial Port 8   pCO address 1

ON LINE
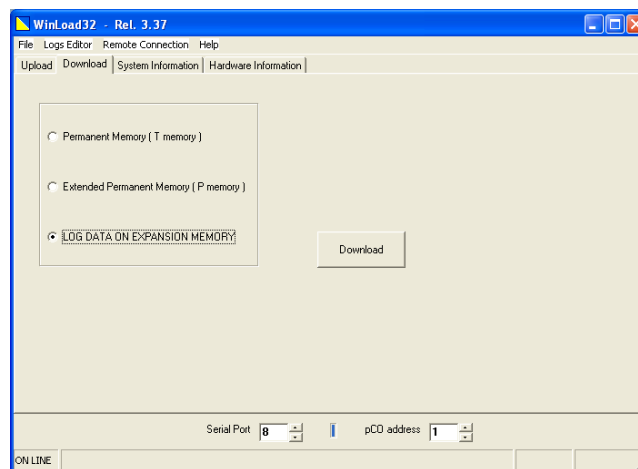
2. select the format (.csv) of the data table to be created, between the standard or ordered by columns with name of the variable and the sampling time;

WinLoad32 - Rel. 3.37
File   Logs Editor   Remote Connection   Help
Upload   Download
Downloading Log Data…
Flash device : external

Which data format do you like?
- standard (not formatted)
- sorted by time and by variable names

Create NEW Log archive   Update EXISTING Log archive

cancel
ON LINE

WinLoad32 - Rel. 3.37
File   Logs Editor   Remote Connection   Help
Upload   Download
Downloading Log Data…
Flash device : external

Which data format do you like?
- standard (not formatted)
- sorted by time and by variable names

Create NEW Log archive   Update EXISTING Log archive

cancel
ON LINE

3. click on >>Create NEW Log archive<< and create a new archive or overwrite an existing one, selecting the directory to save the file;
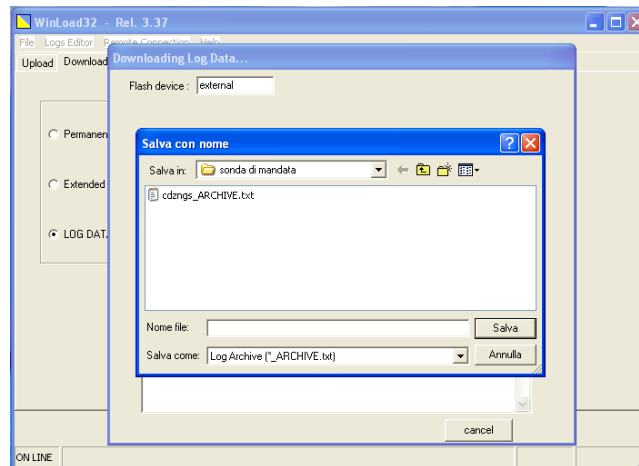
Once the Download is complete, Winload32 will create 5 files inside the folder:
- 1 Binary file
- 1 Text file
- 1 file PVT
- 1 file LCT
- 1 file CSV

The file involved is >>*namefile.csv*<< and it can be consulted using the EXCEL program.
The following figures show two types of files *.csv* that can be created selecting Standard or Sorted by time...., as described in point 2 of this paragraph:

Standard File

File Sorted by Time….

To download historical files, the Smart-Key and SmartKey Programmer can also be used, configuring the appropriate key selecting "D-Lettura Storici" ["S-Historical File Reading"] mode. (See software screen detail below)
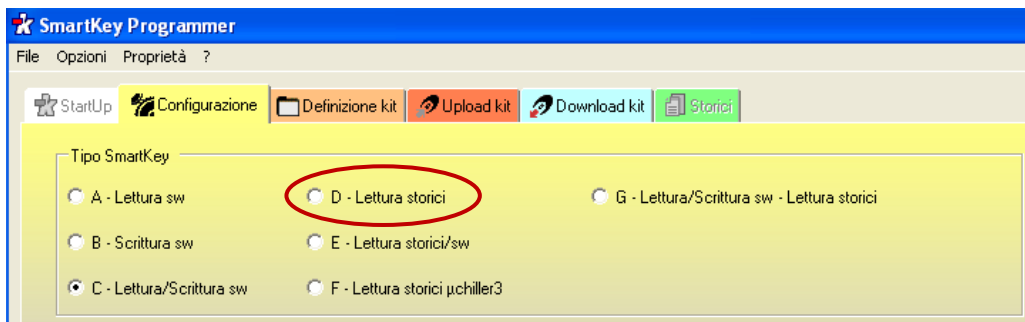
Once the key has been configured correctly, switch off the unit and connect it to the control board, power it again and wait until the arrow ⬇ switches on and subsequently press the "START" button. Once the operation is complete, the buzzer sounds continuously for 2 seconds. (for further details refer to the illustrative sheet attached to the Smart-Key)

DEFAULT VALUES

CONFIGURATION		NUMERICAL PARAMETERS				
PARAMETER DESCRIPTION	**DEF.**	**PARAMETER DESCRIPTION**	**VAL.**	**DEF.**	**MIN.**	**MAX.**
CONTROL PARAMETERS		**SET POINT**				
Heating	No	Cooling Set point				
Hot water coil	No	with Room Temperature	°C	23.0	17.0	35.0
Hot gas coil	No	Cooling Propor. Band	°C	1.5	0.5	9.9
External Humidifier (On/Off)	No	2nd cooling set point	°C	17.5	17	35
External Humidifier (0-10V)	No	Cooling Set point				
Delivery sensor	No	with Delivery Temperature	°C	17.0	17.0	35.0
2nd Cooling SetP. of the remote	No	Cooling Propor. Band	°C	15.0	0.5	18.0
Flooding	No	Heating Set point	°C	23.0	12.0	30.0
Smoke/Fire	No	Heating Propor. Band	°C	1.5	0.5	9.9
External sensor	No	Dehumidifier Set point	rH %	55	20	90
AFPS	No	Dehumidifier Propor. Band	rH %	05	03	15
Disable BP transitory start limit	No	Humidifier Set point	rH %	45	20	90
Off unit with flood alarm	No	Humidifier Propor. Band	rH %	05	03	20
Off water valve with flood alarm	No	Delivery T. Set Limit	°C	14.0	10.0	25.0
Remote On/Off of via digital input	No	**SETPOINT COMPENSATION**				
Remote On/Off of via serial	No	P1:Delivery SetP.	°C	17.0	14.0	35.0
Motorized damper	No	P1:Room Temp.	°C	22.0	17.0	35.0
Buzzer enabled	Yes	P2: Delivery SetP.	°C	18.0	14.0	35.0
Dehumidification	Yes	P2: Room Temp.	°C	20.0	17.0	35.0
Humidification	No	**SET ALARMS**				
SetP. change of the Dehum. CW	No	High Room Temp.	°C	30.0	20.0	40.0
Enabled High T.Delivery alarm	No	Low Room Temp.	°C	10.0	0.0	32.0
SetP. compen. of the CW working	Yes	High Room Humidity	rH %	80	40	99
Enabled Set Back mode	No	Low Room Humidity	rH %	30	0	65
Enabled Fan Cyclical Start	No	High Delivery Temp.	°C	23.0	10.0	40.0
Enabled ON/OFF cycle	No	**SET BACK MODE**				
"A" AND "B" ALARMS TYPES		Min. Room Temp.	°C	16.0	5.0	24.0
Loss of Air Flow	A	Max. Room Temp	°C	28.0	20.0	35.0
Clogged Filters	A	Min. Room Humidity	rH %	35	20	60
Heaters Overheating	A	Max. Room Humidity	rH %	75	50	90
EEPROM Failure	A	Fan cyclical start time	min	30	15	99
Wrong Password	A	**TIMER THRESHOLD**				
High Air Flow	A	Timer threshold	h	0	0	32000
High Cond.Pressure	A	**CHANGE PASSWORD** *(password found in the envelope enclosed with the manual)				
Low Evap.Pressure	A	Password Settings	n°	xxxxx	00000	32000
EXV Valve Failure	A	Password Service	n°	xxxxx	00000	32000
High Room Temp.	A	**LAN SETTINGS**				
Low Room Temp.	A	Lan units number	n°	0	2	10
High Room Humidity	A	Cycle time	h	168	1	98
Low Room Humidity	A	Number of Stand-by units	n°	1	1	2

CONFIGURATION	
PARAMETER DESCRIPTION	**DEF.**
High Water Temp. (C1/C2)	A
Low Air Pressure	A
AFPS: Expansion Board	A
CW Dehumid. Failure (C1/C2)	A
D.C.: Expansion Board	A
Supply Frequency	A
Wrong Phases Seq.	A
Room Temp.Sensor	A
Room Humid.Sensor	A
Delivery Temp. Sensor	A
Outdoor temp. Sensor	A
Water IN Temp. Sensor (C1/C2)	A
Water OUT Temp. Sensor (C1/C2)	A
Hot Water Temp. Sensor	A
Air Pressure Sensor	A
Loss of Water Flow	A
Smoke/Fire	A
Flooding	A
Local Network	A
Humidifier Failure	A
External Sensors	A
High Delivery Temp	A
Unit Run Hours	A
Filter Run Hours	A
Compress.Run Hours	A
El.Heaters Run Hours	A
Humidif.Run Hours	A
Alarm By ID2	A
Alarm By ID4	A
Alarm By ID6	A
STAND-BY ROTAT. ALARMS	
Loss of Air Flow	Yes
Clogged Filters	No
Heaters Overheating	Yes
EEPROM Failure	Yes
Wrong Password	No
High Air Flow	Yes
High Cond.Pressure	Yes
Low Evap.Pressure	Yes
EXV Valve Failure	No
High Room Temp.	No
Low Room Temp.	No
High Room Humidity	No
Low Room Humidity	No
High Water Temp. (C1/C2)	No

NUMERICALS PARAMETERS				
PARAMETER DESCRIPTION	**VAL.**	**DEF.**	**MIN.**	**MAX.**
DELAY SETTINGS				
Integral Time	s	600	0	2000
Anti-hunting time constant	min	1	0	30
Unit Start Up Delay At Power On	s	0	0	300
Regulation Transient	s	60	15	200
Fan Off delay	s	10	10	60
Temp/Hum.Alarms Delay				
After Power ON	min	10	0	99
Normal Working	s	60	0	999
Wrong Phases Sequence Min.OFF Time	s	60	5	999
OTHER RESOURCES				
Motorized damper time	s	120	20	300
Backlight Time	s	300	30	999
Buzzer On Time	min	5	1	999
SENSOR ADJUSTMENT				
Adjustment	°C	0.0	-9.9	+9.9
COMPRESSOR				
Transitori limit BP	bar	0.2	0.1	5.0
BP Alarm normal limit	bar	2.0	0.9	5.0
BP Alarm differential	bar	1.3	0.1	5.0
BP Alarm after compress. ON	s	180	30	240
BP Alarm at normal work	s	6	2	10
Minimum OFF compr. time	s	60	60	600
Minimum OFF compr. time	s	60	0	999
Minimum time 2 starting	s	360	360	600
AFPS				
Air trasducer press Range Begin.	Pa	0	-6250	6250
Air trasducer press Range End.	Pa	100	0	6250
Delta Input Filter	Pa	4.0	-9.9	+9.9
Time Input Filter	s	1	0	99
Min. speed fan	%	55	40	100
Max. speed fan	%	100	40	100
Setpoint	Pa	20.0	0	6250
Dead Band	Pa	0.0	0	6250
Regul. band	Pa	160.0	0	9999
Integral time	s	40	0	999
Derivat. Time	s	0	0	999
Alarm level	Pa	15.0	0	6250
Alarm delay	s	60	0	999
Energy Saving SETTINGS				
Energy Saving Temp.	°C	8.0	5.0	24.0
Summer Temp.	°C	28.0	15.0	40.0
Actived radcooler Set point	°C	28.0	15.0	40.0
ON Radcooler fan at E.S.	°C	8.0	1.0	15.0
E.S. Set point (Room T.-Water T.)	°C	6.0	1.0	15.0

CONFIGURATION	
PARAMETER DESCRIPTION	**DEF.**
Low Air Pressure	No
AFPS: Exapnsion Board	No
Room Temp.Sensor	Yes
Humidity Sensor	Yes
Deliv.Temp.Sensor	No
Outdoor Temp.Sensor	No
Water In Temp.Sens. (C1/C2)	No
Water Out Temp.Sens. (C1/C2)	No
Hot Water Temp.Sens.	No
Air Pressure Sensor	No
Loss of Water Flow	No
Flooding	No
External Sensors	No
Humidifier Failure	Yes
High Delivery Temp.	No
CW Dehumid.Failure (C1/C2)	No
D.C.: Expansion Board	No
Alarm By ID2	No
Alarm By ID4	No
Alarm By ID6	No
ALARMS RESET MODE	
High Room Temp.	Auto
Low Room Temp.	Auto
High Room Humidity	Auto
Low Room Humidity	Auto
High Water Temp. (C1/C2)	Auto
Loss of Air Flow	Man.
High Air Flow	Man.
Low Evap.Pressure	Auto
EXV Valve Failure	Auto
External Sensors	Man.
Loss of Water Flow	Man.
Humidifier Failure	Man.
Smoke-Fire	Man.
Alarm By ID2	Man.
Alarm By ID4	Man.
Alarm By ID6	Man.
High Delivery Temp.	Auto
Low Air Pressure	Auto
AFPS: Expansion Board	Auto
High Wat.T.to Deh. (C1/C2)	Auto
Dual Coil: Exp.Board.	Auto

NUMERICALS PARAMETERS				
PARAMETER DESCRIPTION	**VAL.**	**DEF.**	**MIN.**	**MAX.**
Twin Cool SETTINGS				
CW enable Setpoint	°C	7.0	7.0	25.0
CW disactivation Setpoint	°C	3.0	0.0	9.9
Cooling Water SETTINGS				
Dehumidification set point	°C	7.0	5.0	20.0
High water temp. alarm (C1/C2)	°C	15.0	5.0	80.0
Open valve at alarm (C1/C2)	%	0	0	50
P1 Dual Coil	%	100	0	100
P2 Dual Coil	%	0	0	100
Hot Water Coil set point	°C	40	25	60
EXV VALVE				
MOP Set	°C	14.0	-50.0	70.0
LOP set	°C	02.0	-50.0	70.0
Pressure Probe Range Begin.	bar	-01.0	-99	999
Pressure Probe Range Ending	bar	09.1	0	999
Pressure Probe Offset	bar	0.0	-9.9	+9.9
Temperature Probe Offset	°C	0.0	-9.9	+9.9
Low SH	s	120	0	600
High Suction Temp.	s	0	0	600
LOP Failure	s	0	0	600
MOP Failure	s	0	0	600
Press. Probe Failure after comp. ON	s	20	0	99
Press. Probe Failure at norm. work	s	10	0	99
Manual open Step	n°	265	0	2625
Closing Backsteps	n°	5	0	100
Superheat set	°C	6.0	2.0	40.0
Superheat set Auto	°C	6.0	-	-
Dead Zone	°C	0.0	0	99
Dead Zone Auto	°C	0.0	-	-
Prop. Gaing.		3.0	0	999
Prop. Gaing. Auto		2.6	-	-
Integral Time	s	30	0	999
Integral Time Auto	s	35	-	-
Derivat. Time	s	1.5	0	999
Derivat. Time Auto	s	1.5	-	-
Max Suction Temp.	°C	30.0	0	999
Max Suction Temp. Auto	°C	20.0	-	-
Circ/EEV Ratio.	%	50	0	100
Low Sheat protection limit	°C	0.5	-0.4	21.0
Low Sheat protection limit Auto	°C	2.0	-	-
Low Sheat protection Integral Time	s	15.0	0	300
Low Sheat protec. Integ. Time Auto	s	0.8	-	-
MOP Protection Start-up delay	s	30	0	600
MOP Protection Start-up delay Auto	s	30	-	-
MOP Protection Integral Time	s	3.5	0	999
MOP Protection Integral Time Auto	s	2.5	-	-

06MC053@00B0140
20/10/2011

CONFIGURATION	
PARAMETER DESCRIPTION	**DEF.**
SUPERVISION	
Serial Address	01
Serial Speed (1200-19200)	1200
Protocol	Std
Twin Cool CALIBRATION	
Enabled CW working	
Also On DX Alarm	Yes
Only By ID Contact	No
Only By Serial	No
Cooling Water CALIBRATION	
Sensor of regulation	RoomT.
Valve Off of the alarm High water Temp.	Yes
Enabled Change Set Chiller of Dehumi.	No
EXV VALVE	
Valve type	E2V
Refrigerant Type	R407C
Low SH Protection	Yes
MOP Protection	Yes
LOP Protection	Yes
Manual open Step	No

NUMERICALS PARMETERS				
PARAMETER DESCRIPTION	**VAL.**	**DEF.**	**MIN.**	**MAX.**
LOP Protection Integral Time	s	15.0	0	600
LOP Protection Integral Time Auto	s	1.5	-	-
Dehumid. SH Set	°C	20.0	2.0	40.0
Dehumid. LOP limit	°C	2.0	-50.0	70.0

LOW PRESSURE SETTINGS WITH THE REFRIGERANT TYPE							
		R22	*R407C*	*R410A*	*R134a*	*MIN*	*MAX*
Transitori limit	bar	0,2	0,2	0,5	0,2	0,1	5,0
Normal limit	bar	2,0	2,0	4,6	1,0	0,9	5,0
Alarm differential	bar	1,3	1,3	2,0	1,3	0,1	5,0
Alarm delay after compr. ON	s	180	180	180	180	30	240
Alarm delay normal working	s	06	06	06	06	02	10
LOW PRESSURE TRASDUCER RANGE							
Range Begin:	bar	-1,0	-1,0	-0,4	-1,0	-9,9	99,9
Range Ending:	bar	9,1	9,1	34,3	9,1	0,0	99,9

AMBIENT TEMPERATURE REGULATION DIAGRAM

CHILLED WATER VERSION (CW)
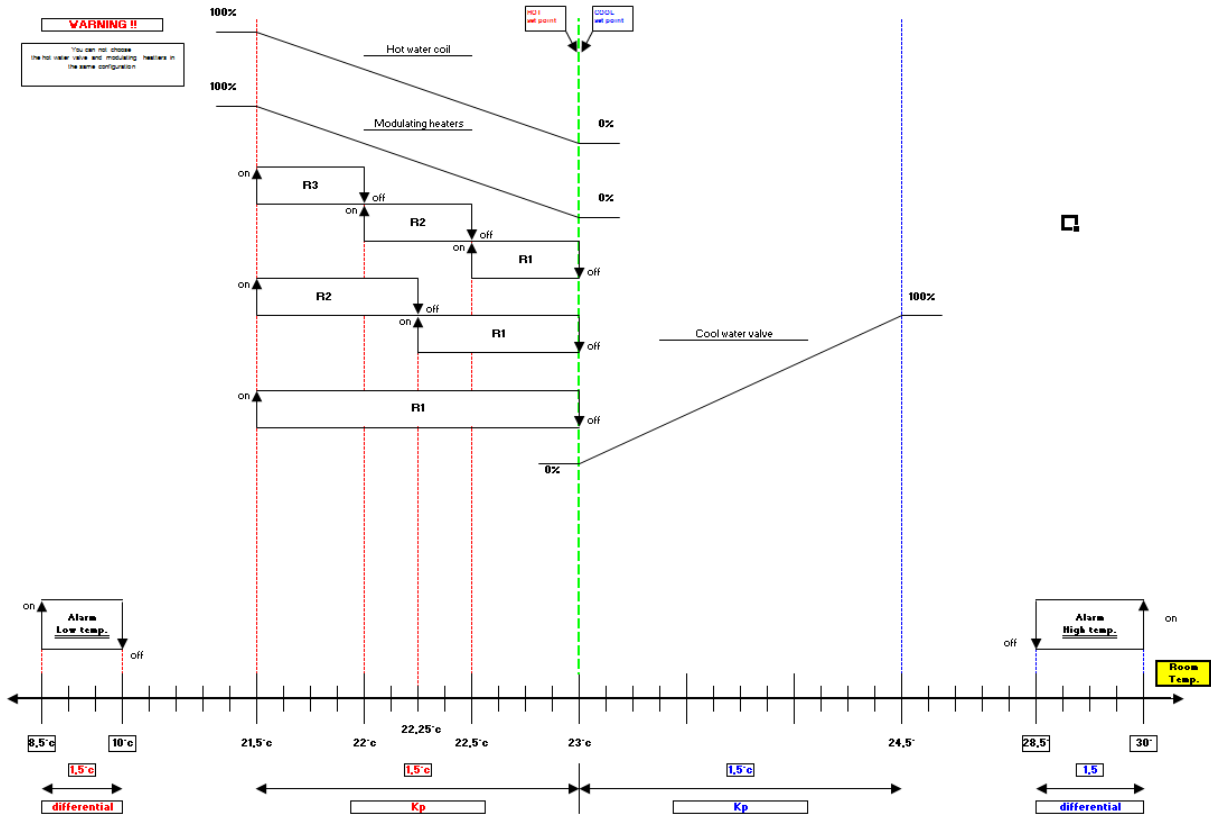
CHILLED WATER VERSION (CW Dual Coil)

06MC053@00B0140
20/10/2011

DIRECT EXPANSION VERSION (DX)

VARNING !!

You can not choose the hot water valve and modulating heaters in the same configuration

100%

100%

Hot water coil

Modulating heaters

0%

0%

on R3 off
on R2 off
on R1 off

on R2 off
on R1 off

on R1 off

C4 on
off C3 on
off C2 on
off C1 on

off C2 on
off C1 on

off C1 on

on Alarm Low temp. off

Alarm High temp. on

Room Temp.

8,5°c   10°c   21,5°c   22°c 22,25°c 22,5°c   23°c   23,4° 23,75° 24,1°   24,5°   28,5°   30°

1,5°c   1,5°c   1,5°c   1,5

differential   Kp   Kp   differential

TWIN COOL VERSION (TC)

VARNING !!

You can not choose the hot water valve and modulating heaters in the same configuration

100%

100%

Hot water coil

Modulating heaters

0%

0%

on R3 off
on R2 off
on R1 off

on R2 off
on R1 off

on R1 off

VARNING !!

The valve is activated if the inlet water temperature is below 7 ° C

100%

Cool water coil

0%

C4 on
off C3 on
off C2 on
off C1 on

off C2 on
off C1 on

off C1 on

on Alarm Low temp. off

Alarm High temp. on

Room Temp.

8,5°c   10°c   21,5°c   22°c 22,25°c 22,5°c   23°c   23,4° 23,75° 24,1°   24,5°   28,5°   30°

1,5°c   1,5°c   1,5°c   1,5

differential   Kp   Kp   differential

ENERGY SAVING VERSION (ES)

WARNING !!
You can not choose the hot water valve and modulating heaters in the same configuration

Hot water coil — 100%

HOT set point   COOL set point

100% — Modulating heaters — 0%

0%

on R3 off
on R2 off
on R1 off

on R2 off
on R1 off

on R1 off

100%
V.A.F.
0%

C1 off
C1 off
C1 off

on C2 off
on C3 off
on C4 off

on C1
on C2
on C1

Alarm Low temp. — on / off
Alarm High temp. — off / on

Room Temp.

8,5°c 10°c 21,5°c 22°c 22,25°c 22,5°c 23°c 23,5°c 23,75° 24°c 24,25°c 24,5°c 28,5 30°

1,5°c — differential
1,5°c — Kp
1,5°c — Kp
1,5 — differential

AMBIENT HUMIDITY REGULATION DIAGRAM

Neutral Zone

100% — Humidifier — 0%

on alarm low humidity off

on Humidifier off

off V.A.F. on
off Compressor on

on alarm high humidity off

room rel. Humidity

30% 32% 40% 45% 50% 55% 60% 78% 80%

2% — differential
5% — Kp
5% — Kp
2% — differential
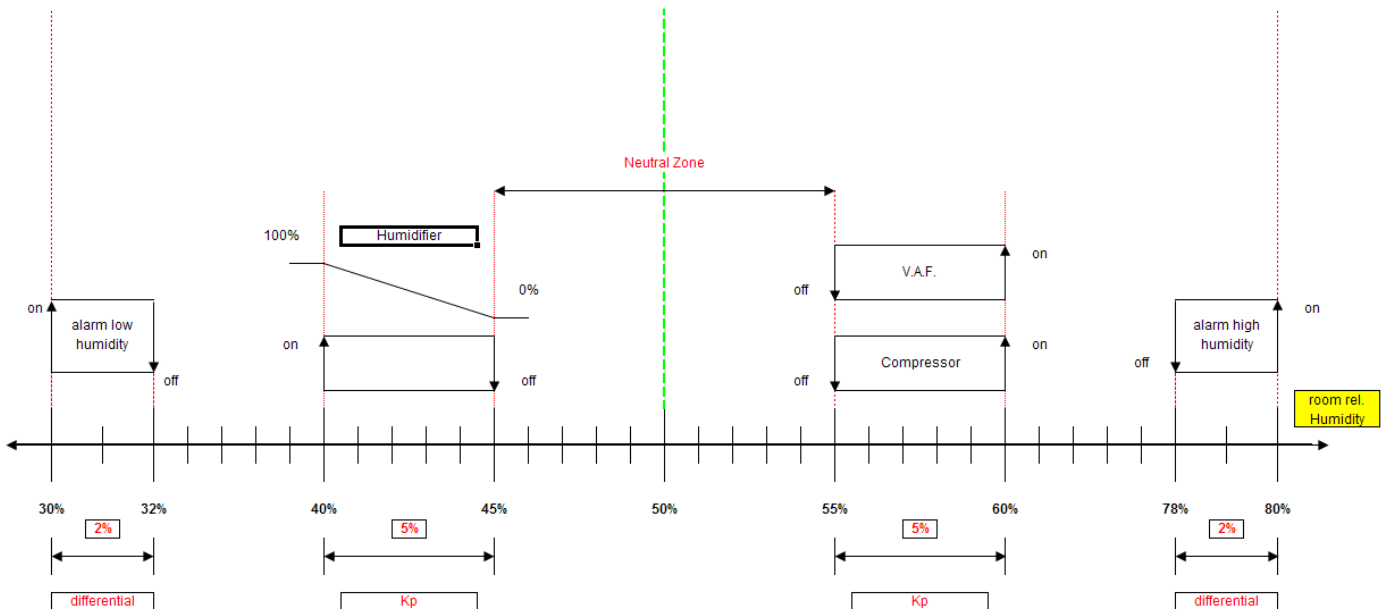
PART II:
LOCAL NETWORK
GENERAL INFORMATION AND DEFINITIONS

1. Several air conditioners installed in the same room or several liquid chillers connected in parallel in the same system can be managed by connecting them to a local network.
2. The number of connected units depends on the programme managing the network, stored in the Flash Eprom memory.
3. Units in a network can be connected at a max. **500 metres**.
4. All the units connected to the network must have the **same programme version** on the Flash Memory on the board.
5. A terminal can be configured as "private" or "shared".
    ➢ a **private terminal** shows the status of the single unit connected to it by a telephone cable;
    ➢ a **shared terminal** shows the status of all the units connected to the network.
6. Each board can "talk" to 3 terminals at the most; there are usually no more than two in normal operating conditions: one fitted in the unit and one possibly in a remote location.
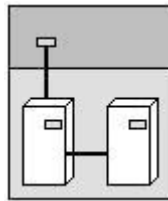

Fig. 1.

Alarm signals always have priority over the terminal, even if the parameters of another unit are being viewed when the alarm is triggered.
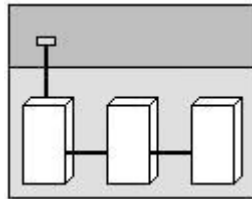

Fig. 2.

7. To communicate on the local network, the units must be "configured" so that each of them can convey the information necessary to operate properly.
    To achieve this, the separate units must first be numbered progressively (1,2,3,...10) and then the various terminals and LAN boards correctly addressed to them. The electrical connections must also be made, step by step, as described below.

MOST COMMON pLAN NETWORK CONFIGURATIONS

1.   Up to 10 units connected to the network with a single terminal.
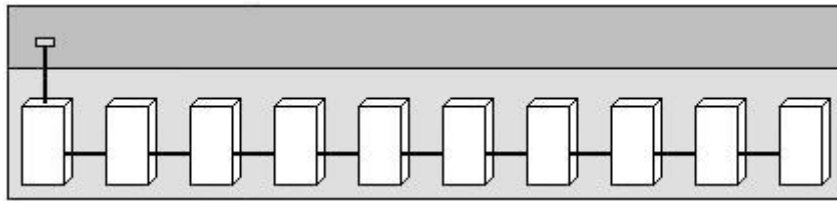

Fig. 3.

In this configuration, should power fail in the first unit, the terminal would close down. It would therefore not be possible to read any information regarding the units in the network. However, the other units in the network would continue to operate normally.

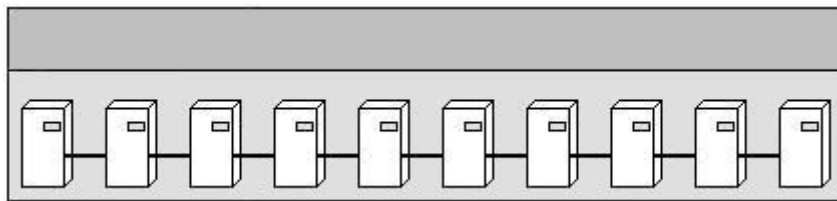**2.   Up to 10 units each with its own terminal.**

Fig. 4.

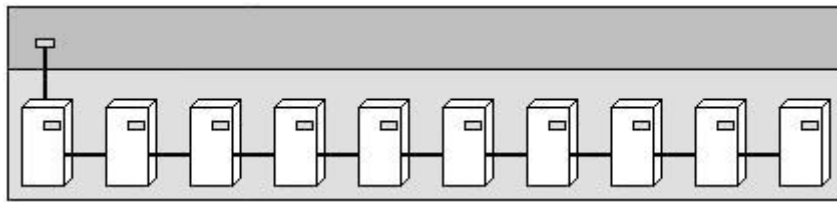**3.   Up to 10 units with a single shared remote terminal.**

Fig. 5.

pLAN CONNECTION BETWEEN pCO BOARDS

In figure 6, a simple parallel connection is shown for more than one pCO boards of the pLAN network, using a shielded cable with two twisted pairs and an internal screen. The cable is connected to all of the boards through the J11 terminal respecting the indicated polarity.
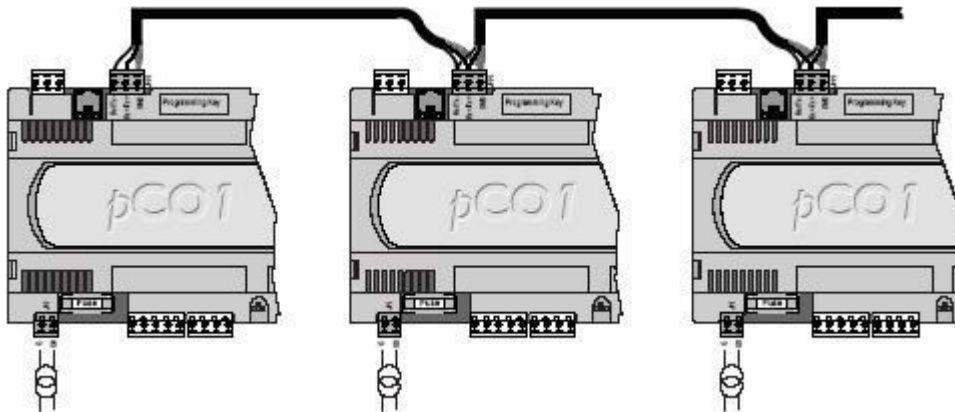

Fig. 6

WARNING: Network polarity must be respected: the RX/TX+ of one board must be connected to the RX/TX+ of the other boards; the same applies to RX/TX- and the GND.

Board Terminal	Cable Connection
GND	First couple (both wires)
Rx+ / Tx+	Second couple
Rx- / Tx-	Second couple

The screen should be connected to the earth on the first unit at a metal point using a screw and a washer and the length of the screen should be as short as possible.

Fig. 7

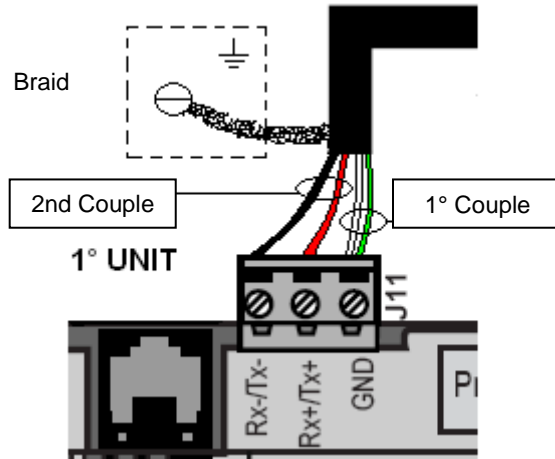# REMOTE TERMINAL CONNECTIONS

IMPORTANT WARNINGS

Electrical connections must be carried out when the unit is switched off and unplugged.
The network can be configured differently depending on the maximum distance of the board and remote terminal connections; it may be necessary to use a 'T' shunt **TCONN6J** (as shown in Fig. 8) to connect the remote terminal to the main board.
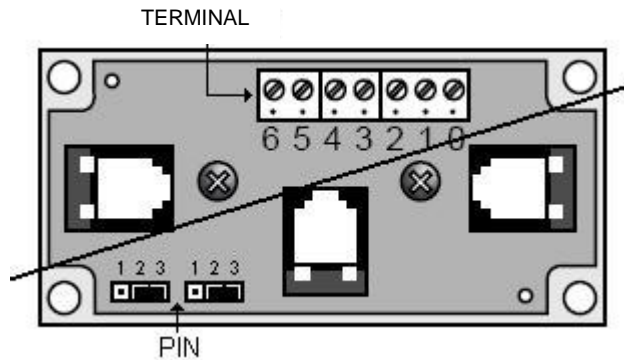

Fig. 8

Cable AWG24 3x2		
Terminal	**Cable operation**	**Connections**
0	Earth (screen)	shielded
1	+ VRL (≈ 30 Vcc)	1° twin A
2	Gnd	2° twin A
3	Rx/Tx-	3° twin A
4	Rx/Tx+	3° twin B
5	Gnd	2° twin B
6	+ VRL (≈ 30 Vcc)	1° twin B

If both of the pin-strip jumpers are between 2 and 3, the passage of the current is interrupted between the connectors which are separated by a dashed line. If power is needed to be supplied to all of the connectors, both of the jumpers must be between 1 and 2.

The 0 terminal is support terminal which can be used to connect the screen to the earth of the shielded cable; the "T" derivative may however be connected to a metallic part of the unit, already connected to the earth.

MAXIMUM DISTANCES BETWEEN THE TERMINAL AND THE BOARD

1. For local terminals the connection with the base board is already made with a 3 pair cable with a 6 way telephone connector. The length of this cable should not be longer than 3 metres.
2. The remote terminals should be connected to the base board with a telephone cable such as that which has been described in point 1 for a distance of up to 50 metres. For connections of up to 6 metres the cable can be supplied, on request, by UNIFLAIR SpA.

Cable length	Uniflair code
m 1,5	Meco 110X1A
m 3,0	Meco 130X1A
m 6,0	Meco 140X1A

3. For longer distances, up to a maximum of 200 metres, a screened cable must be used (a twisted pair cable with a screen AWG24, resistance < 80ohm/M). The cable can be a three or two twisted pair depending on if it has to transfer power to the terminals.

CABLE FOR LAN AND SUPERVISION CONNECTION

For connection to both LAN and supervision networks, it is advisable to use a cable which has the following specifications:
Multi-coupled cables with internal flexible conductors made from tin plated copper (AWG 22/7), insulated with polypropylene, singularly coupled, screened with aluminium/polyester tape + continuity wire in tin plated copper (AWG 24/7) connected on a common axis to reduce the diameter and protected by an external sheath in PVC.

Technical features

Article	Ø external om.	Conduct. resist. max.	Impedence	Capacity (pF/m)		Operating voltage	Operating temp.
	(mm)	(ohm/km)	(ohm)	C1	C2	(V)	(°C)
Y08723 2x2xAWG22/7	4,50	54,8	50	108	198	300	-10/+60

EXAMPLE OF A CONNECTION TO THE REMOTE TERMINAL FROM THE BOARD

In this configuration it is necessary to:

1. use the two TCONN6J 'T' joints: one installed on the unit and one near the remote terminal;
2. use a three pair screened cable for two, so that the remote terminal is also supplied by the board of unit 1 to which it is connected by the TCONN6J;
3. place the ferrite near the terminal in order to reduce the possibility of electromagnetic disturbances.
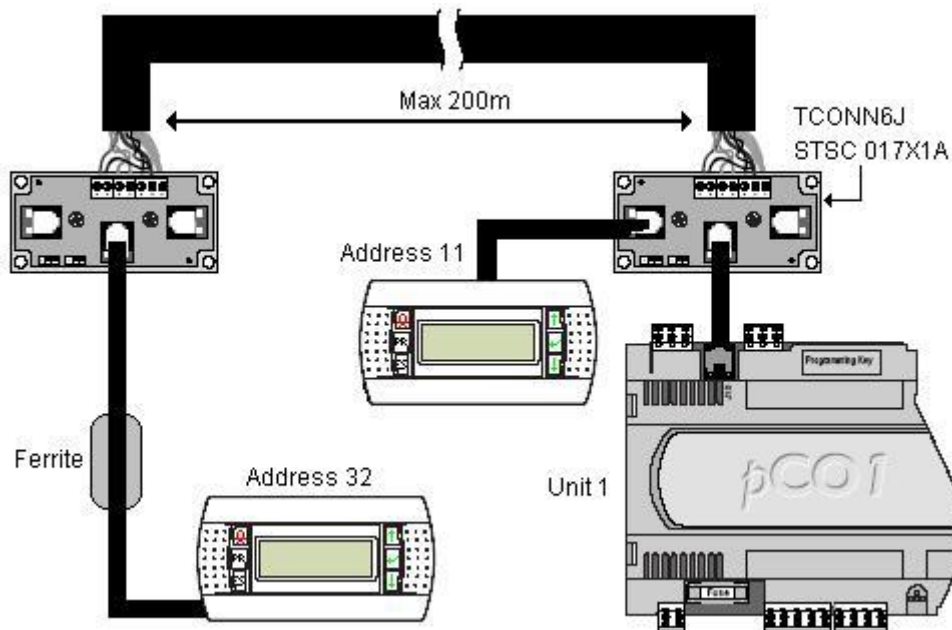

Fig.9

Ferrite Cod.: MEFL 030X1A

Fig. 10

CONFIGURATION OF THE TERMINAL AND THE pCO BOARD ADDRESSING THE LOCAL NETWORK

Before carrying out the configuration of the addresses, it is advised that the LAN connection between the boards should be checked as well as the connection with the remote or shared terminal and the electric supply connections of the unit.

It is possible to configure the address of the terminal only after having connected it to the power supply by using the RJ11 telephone connector. To enter in configuration mode press the **UP**, **ENTER** and **DOWN** keys at the same time for at least 5 seconds (these keys are present on all versions); the mask shown in Fig. 11 will be displayed with a flashing curser in the left hand top corner:

➢ To modify the address of the terminal (display address settings) press the **ENTER** key once and the curser will move to the address field (nn).
➢ By using the **UP** and **DOWN** keys, select the desired value and press **ENTER** to confirm. If the selected value is different from that previously memorized in the mask in fig.12 will appear and the new value will be memorized in the permanent memory of the display.

If 0 is entered as a value in the nn field, the terminal will communicate with the pCO board using the "point-point" protocol (not pLAN) and the field XX will disappear since it has no meaning.
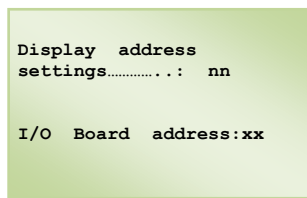
```
Display  address
settings…………..:  nn


I/O  Board  address:xx
```
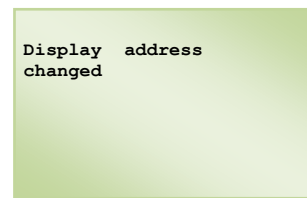
Fig. 11

```
Display  address
changed
```

Fig. 12

pCO: ASSIGNING THE LIST OF PRIVATE AND SHARED TERMINALS

If it is necessary at this point to modify the list of terminals associate to each single pCO board, the following procedure should be carried out:
• enter in the configuration mode using the **UP ENTER** and **DOWN** keys as described in the previous paragraph;
• press the **ENTER** key until the curser is positioned in the XX field (I/O board address) Fig. 11;
• Use the **UP** and **DOWN** keys to choose the address of the desired pCO board. The values which can be selected will be only those of the pCO boards which are effectively on line. If the pLAN network is not working correctly, or if there are no pCO boards connected, it will not be possible to modify the field and only "—" will be shown;
• Pressing the key again will display the sequence of masks as shown in Fig. 13;
• The **ENTER** key moves the cursor from one field to another and the **UP** and **DOWN** keys change the value of the chosen field. The Pxx field: this shows the address of the selected board; in the example in fig. 13, P01 has been selected. To exit from the configuration procedure and memorize the data, select the "OK ?" field and set it to YES and then press **ENTER** to confirm. The fields in the "Adr" column represent the addresses of the terminals associated with the pCO board, address 11 for the local terminal and 32 for the shared terminal, while the column Priv/Shared indicates the type of terminal.

Warning: the terminals of the UG40/MP40 line cannot be configured as "Sp" (shared printer) as they do not have a printer output.

If the terminal remains inactive for more than 30 seconds (no key has been pressed) it exits automatically from the configuration procedure without memorizing any eventual changes.

ASSIGNING THE LIST OF PRIVATE AND SHARED TERMINALS

```
     Terminal  Config
       Press  ENTER
       to  continue
```

```
P01: Adr Priv/Shared
Trm1 11     Ph
Trm2 32     Sh
Trm3 None   -- OK?NO
```
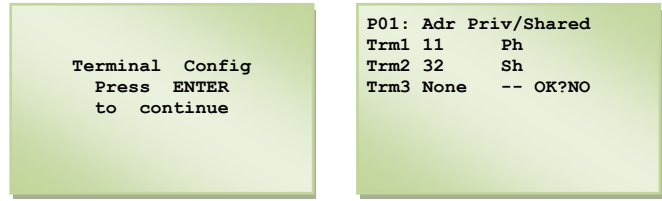
Fig. 13

LAN ADDRESS OF THE pCO BOARD

The address of the board is selected as illustrated below:
1. Disconnect the power supply to the PCO board;
2. Disconnect the J11 terminal clamps (Rx/Tx-, Rx/Tx+, GND);
3. Connect a user terminal with the address = 0 to the board of unit 1; (see paragraph Configuration of the Terminal);
4. Reconnect the power supply and press the **ALARM** and **UP** keys at the same time until the following mask appears:
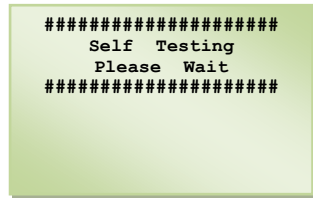
```
#####################
     Self  Testing
     Please  Wait
#####################
```

Fig. 14

and then:

```
pLAN  address:1
up:  increase
down:  decrease
Enter:  save  &  exit
```
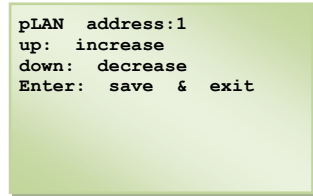
Fig. 15

5. Press the **ENTER** key to accept the value of the address of the proposed board on the display or the **UP** and **DOWN** keys to modify it: set the "pLAN address: 1" on unit n. 1.
   (NOTE: if a key is not pressed within 15 seconds the mask will disappear from the display and it will be necessary to repeat the procedure described in point 1.).
6. Press **ENTER** to confirm;
7. Disconnect the power supply;
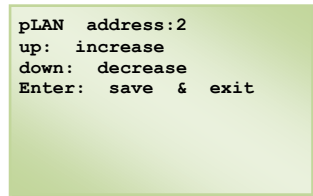8. Repeat the procedure set out in points 1 to 6 on unit n. 2 and for the other units in the network;

```
pLAN  address:2
up:  increase
down:  decrease
Enter:  save  &  exit
```

Fig. 16

9. Reposition the J11 terminal clamps (Rx/Tx-, Rx/Tx+, GND) on the board.

UNIFLAIR™

TABLE FOR UNIT ADDRESS

Unit	Address
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10

TABLE FOR TERMINAL AND PCO BOARD ADDRESSES

Terminal Address	pCO Board Address	Terminal Address	pCO Board Address
11	1	16	6
12	2	17	7
13	3	18	8
14	4	19	9
15	5	20	10

Terminal Address	pCO Board Address
32	All addresses

In Fig. 17 a network of 4 units each with its own local user terminal and a shared 32 remote user terminal displaying the information of unit 1.
To move from showing the display of unit 1 to that of unit 2, press the **ESCAPE + DOWN** keys at the same time and in succession for the other units.
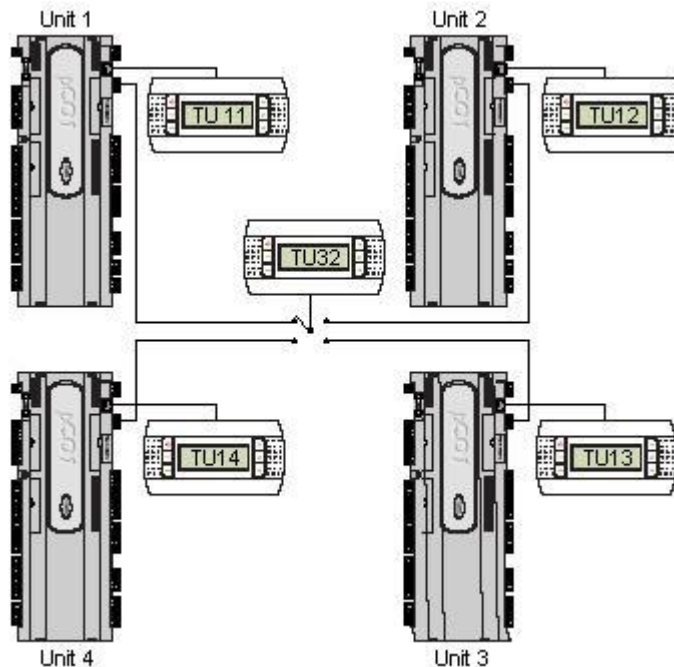

Fig. 17

LAN PARAMETER CONFIGURATION

After having carried out the configuration of the remote and shared user terminals, the operating parameters of the LAN network must be set. This must only be carried out on the unit with the address LAN1, because the information will automatically be passed on to the other units which are connected.

The parameters which need to be set are inside the connected units mask; some of the settings which need to be carried out are described below.

1. Set the number of units connected to the Lan network;
2. Activate the automatic exchange of the unit in stand-by;
3. Set the cycle time to carry out the rotation of the units; if the hour is set at 000, a simple test will be carried out putting the units in rotation with an interval of 2 minutes;
4. Set the number of units in stand-by (max 2):
5. If the last line is set to YES, it enables the stand-by unit to be switched on in the event of an alarm.

NOTE: All of these settings are automatically passed on to the other units which are connected.

```
       LAN SETTINGS
LAN Units Num.:        2
Automatic Switch-Over
of Stand-by Unit:      S
Cycle Time:        h 168
No.of Std-By Units:    1
Stand-By Unit Starting
Only On Alarm:         N
```

The mask shown here is shown only if the local network has been configured, allowing management of the unit operation with the average temperature value measured from the active units connected in the local network or with the local value measured by the sensor present inside the unit.

> ➢ *Method: Local Value*: control of the unit is entrusted to the temperature values read by the sensor present on the air conditioner;
> ➢ *Method: Average Value*: control of the unit is entrusted to the average temperature read by the sensor present on the active units connected in the local network. If the difference between the average value and the reading of the sensor itself is more than the "AVERAGE/LOC.DIFF." value, the control will automatically move from "AVERAGE" to "LOCAL".

The "Exclude from rotation" parameter enables excluding the unit from the rotation time management by working in Stand-alone. If required, this function must be enabled for individual unit.

NOTE: This setting is not passed on to the other units, so it needs to be set individually on each unit..

```
LAN SETTINGS
Exclude from Rotat.    N
Temp./Hum.Control
Mode:     Local Values
```

or

```
LAN SETTINGS
Exclude from Rotat.    N
Temp./Hum.Control
Mode:      Meas Values
Mean/Local  Changeover
When Delta T.>  °C 2.0
```

Air pressure control configuration screen

If a series of units are connected in the LAN, the fan speed can be modulated based on a local probe reading or alternatively by calculating the average reading of all the probes connected and configured for each active unit. This setting must be made in the LAN setting screens for each individual unit.

Air press. control:

Local value: the fan speed is modulated based on the pressure value read by the probe fitted to the unit only;

Mean value: the fan speed is modulated based on the mean pressure value read by the probes on the units that are activated and connected to the local network.

```
LAN SETTINGS
Exclude from Rotat.    N
Temp./Hum.Control
Mode:     Local Values

Air press. control
Mode:     Local Value
```

o

```
LAN SETTINGS
Exclude from Rotat.    N
Temp./Hum.Control
Mode:     Local Values

Air press. control
Mode:     Mean Value
```

VISUALIZATION OF THE NETWORK FROM THE TERMINAL

From any terminal in the network, the mask << NetSTAT >> will appear when the **UP + ENTER + DOWN** keys are pressed at the same time for at least 10 seconds (see Fig. 18).
The NetSTAT mask indicates all of the pCO boards with a LAN address and all of the terminals present in the network, including the remote shared terminal, and its relative addresses.
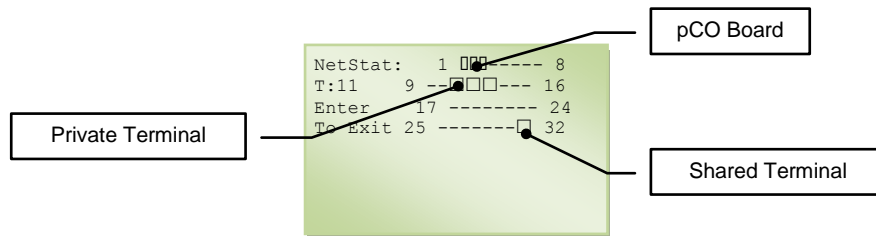


```
NetStat:    1 ▯▯▯----- 8
T:11     9 --▮▢▢--- 16
Enter    17 -------- 24
To Exit 25 -------▢ 32
```

Fig. 18

▯ = board

▢ = terminal

In the example the result is that the network is composed of 3 LAN boards with the address 1,2,3 and of 4 user terminals with the address 11,12,13 and 32.

NOTE:

NOTE:

06MC053@00B0140
20/10/2011

Manual code @ digit: **06MC053@00B0140**
OCTOBER 2011