UNIFLAIR
Instruction manual

UG40/MP40 CONTROL AND LOCAL NETWORK

EN

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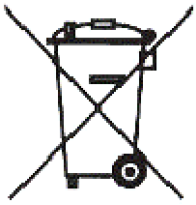


Disposal: the product is made up of metal parts and plastic parts.
In reference to European Union directive 2002/96/EC issued on 27 January 2003 and the related national legislation, please note that:

- 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:
A.Munari 06/11/2008		

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 and heating) and humidity (both when dehumidifying and humidifying) which can be modified from a remote terminal;
- 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

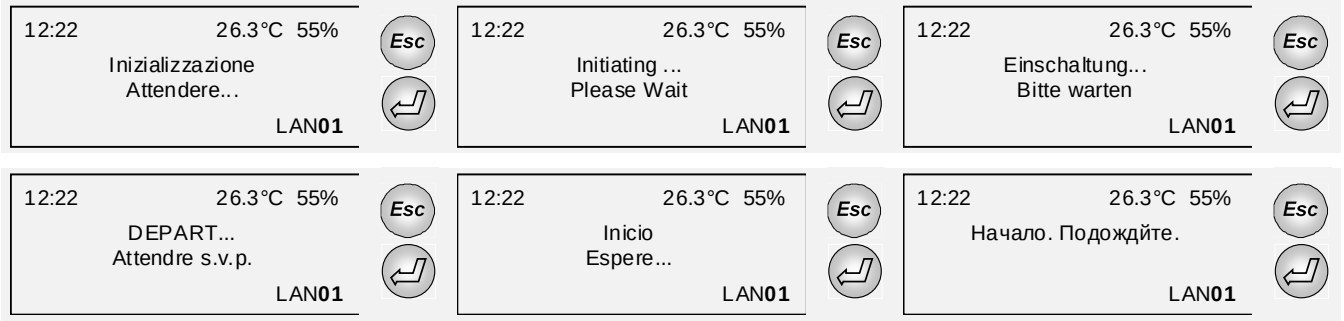
UP: to move around the menu

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 ↵ .



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

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.

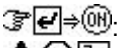
Family	Release	Language	Update	LAN Version
CDZNEW	v 2.7	GB	19/01/2009	LAN

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:

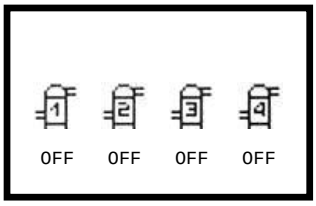
1.  : press enter to switch on
2.  : switched off by remote contact
3.  : switched off by supervision system
4.  : switch on with timer
5.  : unit in automatic inversion cycle
6.  : switch off by fire/smoke contact
7.  : switch off by flooding contact
8.  : setback mode
9.  : unit switched off by air flow alarm
10.  : unit switched off by general alarm
11.  : manual shut down of the unit
12.  : 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).

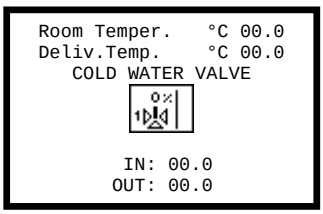
SYMBOL	DESCRIPTION
	Evaporator fan on
	Alarm signalling also from the red flashing ALARM key
	Mechanical cooling activated
	Compressor status (if more than 1, the number is shown inside)

	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
	Manual switch-on
	Unit manually ON
	Manual switch-off
	Unit switched on or off by remote terminal
	Unit switched on by supervisory system

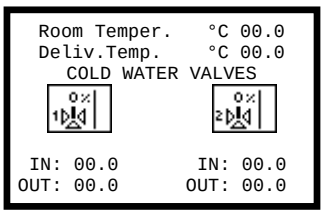
In versions Dx, Tc and Es, after the main screen, a second screen is displayed that indicates the number and status of the compressors.



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.



CW Version



CW Dual Coil Version

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.

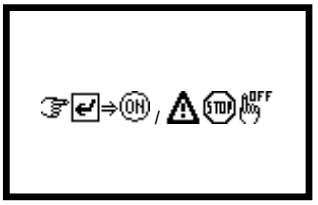
VISUALISTAION OF THE UNIT STATE

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 :

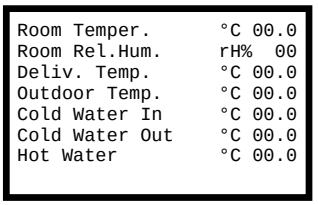
SWITCH ON UNIT/SWITCH OFF UNIT

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.



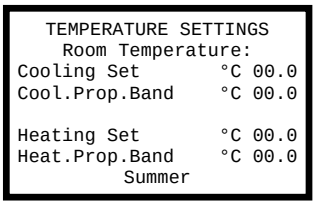
INPUT/OUTPUT

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…).



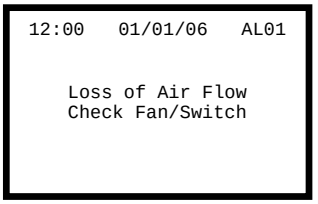
SETPOINTS

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.



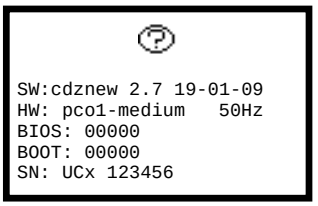
ALARMS HISTORY

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.



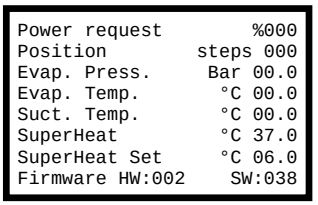
SOFTWARE INFO

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.



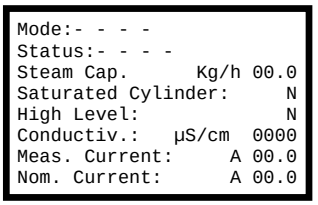
EXV VALVE STATUS

This screen and the following display the information from the electronic expansion valve driver boards.



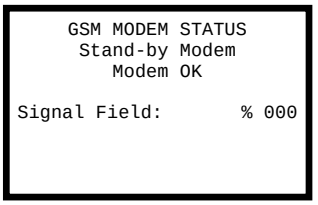
HUMIDIFIER STATUS

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



MODEM GSM STATUS

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



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
- heating set point (if a heating device is fitted)
- heating proportional band
- the status of the operating season (CW mode only)

```
   TEMPERATURE SETTINGS
     Room Temperature:
Cooling Set        °C 00.0
Cool.Prop.Band     °C  0.0
Heating Set        °C 00.0
Heat.Prop.Band     °C  0.0

 Status:            Summer
```

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.Prop.Band     rH% 00
Humid.Set           rH% 00
Humid.Prop.Band     rH% 00
```

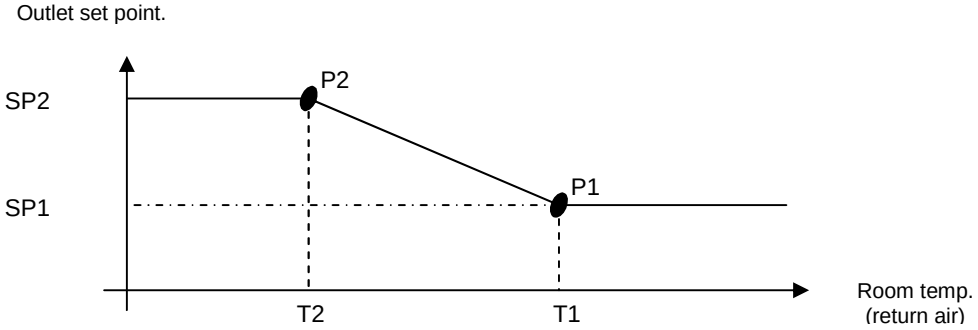
This screen displays the second temperature and humidity control set point.

```
  2nd SET-POINT SETTINGS
2nd Cool.Set       °C 00.0
2nd Heating Set    °C 00.0
2nd Dehumid.Set     rH% 00
2nd Humid.Set       rH% 00
```

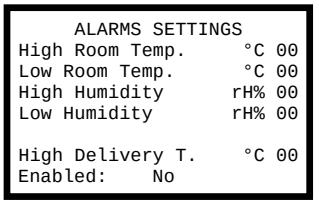
This screen displays whether the compensation set point is enabled, when the outlet probe is used for room temperature control.

```
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



This screen displays the activation set point for the high and low temperature and humidity alarms in the room.

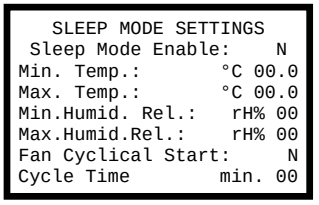


SLEEP MODE

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);

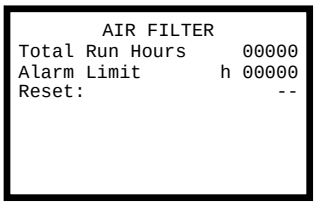
Intervention of the set back function, must control the room conditions – although with larger tolerances – even if the whole system is in stand-by; it's intervention therefore is independent and not conditioned by signals from remote systems..
It is possible to program that during the set back function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



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:
1. Air recycling fans ;
2. Compressors;
3. Electrical Heaters;
4. Air filters;
5. Humidifier

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.

EVACUATING THE HUMIDIFIER CYLINDER

The steam cylinder needs to be periodically cleaned from limescale 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:

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

- 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;

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

…… after 2 minutes

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:
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.

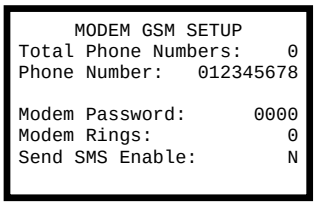
```
    SERIAL PARAMETERS
Serial Address:       001
Serial Speed:        1200
Protocol:      STANDARD
```

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 protocoll of comunication Standard or Modbus.

Note: with the LON protocol, set the serial address to 1 and the serial speed to 4800.

This screen and the following are used to define the parameters for the operation of a GSM modem connected to the unit.



LAN SETTINGS

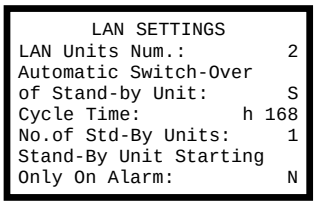
For units with pCO control, the microprocessor is enabled for the automatic management of a local network connected to more than one unit (up to a maximum of ten), of which some in operation and others in stand-by (in ***stand-by***) up to a maximum of two units.

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.

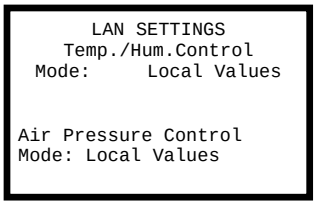
In this screen states:

- 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.



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:

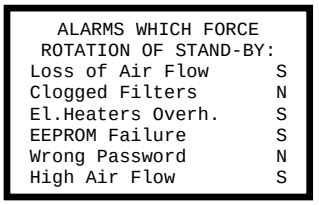
- Mode: Local: Unit control of the temperature and humidity values read by the sensors in the unit
- Mode: Mean: Unit control of the temperature and humidity values read by the sensors in the active connected units in the local network.Whatever the difference between the mean value and the sensor reading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



The 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.



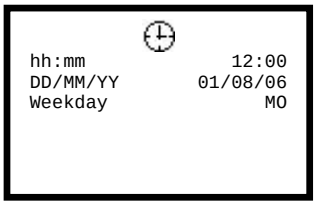
CLOCK SETTINGS

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.



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

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

This screen is used to configure:
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;

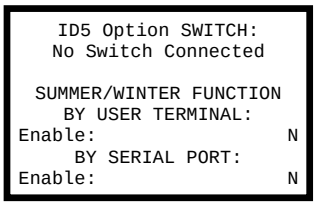
```
Extern.Hum. (on/off):    N
Humidif. 0-10V:          N
Valve: Mechanical
Dual Coil:               N
Water Valve Type:     2Way
```

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).

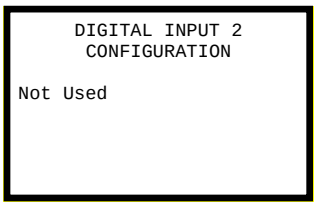
```
     ANALOGIC INPUT 1
      CONFIGURATION:
Deliv.Temp.Sensor:       N
Setp.Remote Control:     N
```

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
```



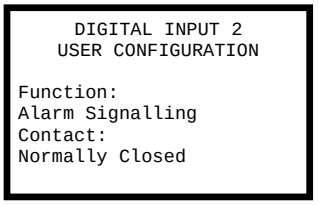
This screen is used to configure digital input 5 as:
No switch connected: no connection;
Summer/Winter Switch: change operating season in the CW version;
Water Flow Switch: water flow switch;
In the CW version, the operating season can be changed over, in alternative to the digital input, from the user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



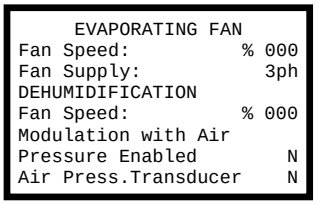
This screen and the following are used to configure digital inputs 2/4/6.
This procedure allows the activation of digital inputs ID2-4-6 if optional kits are fitted subsequently. The kits include fire and smoke sensors, flood sensors and high and low outside temperature and humidity sensors that must 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	**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.



This screen used to establish:
Fan Speed: rated fan speed;
Fan Supply: number of phases in the fan power supply
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;

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, 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 (CW version only)
Minimum Speed: minimum fan control speed
Maximum Speed: maximum fan control speed

```
     EVAPORATING FAN
  SPEED MODULATION WITH
      VALVE OPENING
Enable:                 Y
Minimun Speed:       % 00
Maximun Speed:      % 000
```

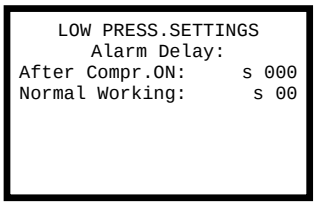
This screen used to establish which resources remain active in the event of emergency operation, activated by a multifunction digital input ID2/4/6 configured as ***USER CONFIGURATION*** - ***Emergency Working.***

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

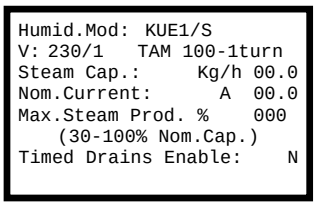
This screen, displayed only when the electronic expansion valve is fitted, is used to establish the activation of the low pressure alarm by the pressure transducer connected to the driver, setting:
Normal Limit: rated operating pressure;
Alarm Diff.: differential pressure due to the activation of alarm 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
```

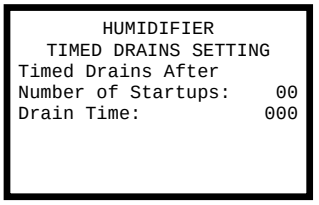
This screen, displayed only when the mechanical expansion valve is fitted, is used to establish the activation of the low pressure alarm by the pressure switch connected to ID6, setting:
Alarm Delay After Compr. ON: alarm BP activation delay time from compressor ON
Alarm Delay Normal Working: alarm BP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



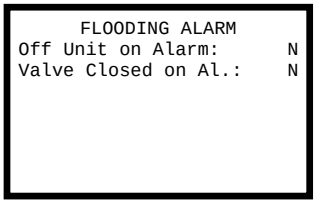
This screen is used to set the parameters for the operation of the humidifier inside the unit, defining:
Humid. Model.: model installed;
V.: operating voltage;
TAM: model of current transformer used
Steam Cap.: number of kg of steam generated in 1 hour;
Nom.Current: rated current;
Max Steam Prod.: maximum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



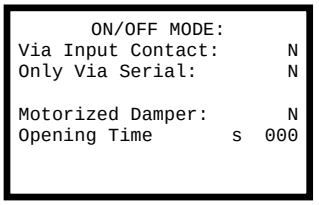
This screen, displayed only if the cylinder cleaning procedure is enabled, is used to set:
Timed drains after number of startups: number of humidifier starts before draining the cylinder;
Drain Time: cylinder drain procedure activation time



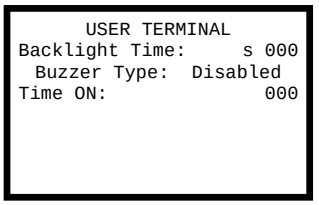
This screen, displayed only if the multifunction digital input is enabled, is used to set:
Off Unit on Alarm: enables the shutdown of the unit if the flood alarm is activated;
Valve Closed on Al.: enables the closing of the water valve if the flood alarm is activated;



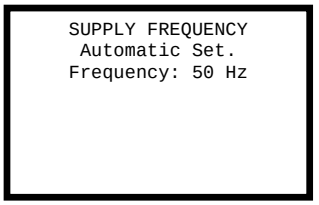
This screen is used to set:
ON/OFF mode Via input contact: enables unit on/off via the multifunction digital input;
ON/OFF mode only Via serial: enables unit on/off from BMS;
Motorized Damper: enables operation of the damper;
Opening Time: damper opening time. During this period the start of the fan and the air flow alarm are ignored.



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



This screen is used to set the mains frequency, automatically or manually.



SOFTWARE SETTINGS

This screen is used to set:
Integral Time: integral time;
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.
Dehumid.Control: enables dehumidification control (only if the humidity probe is fitted)
Deliv.T. Low Limit: enables minimum air outlet temperature control.
Deliv.T. Set Limit: minimum air outlet temperature set point

```
     GENERAL SETTINGS
Integral Time:     s 0000
Anti-Hunting Time
Constant:          min 00
Dehumid.Control:        Y

Deliv.T.Low Limit:      Y
Deliv.T.Set Limit °C   00
```

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
```

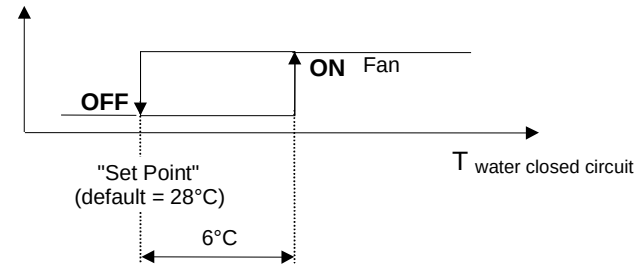
These screens are used to make the settings for the condensing circuit:

- 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
```

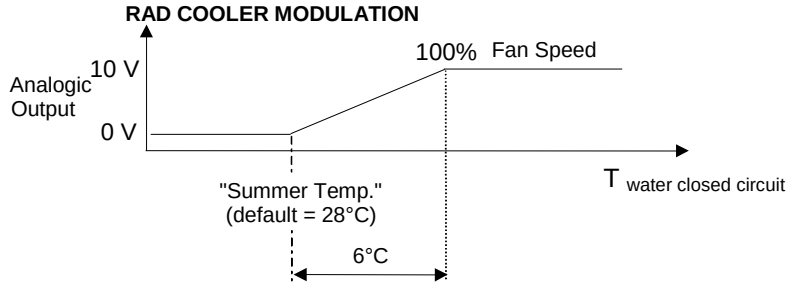
RAD COOLER ON/OFF - Unit DX, DX/S, TC.




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

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

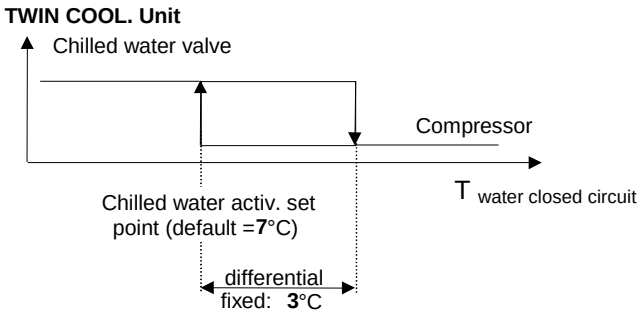
The temperature is controlled by managing the operation of the remote radiator fans (”Rad-Cooler”) connected to the indoor unit; control can be:

- "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.



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
```



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 in CW mode:
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
```

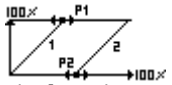
```
   CHILLED WATER SETUP
 High Water Temperature
         Alarm
    Valves Forced: Y
 Valve 1 Opened %  000
 Valve 2 Opened %  000
```

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%
```

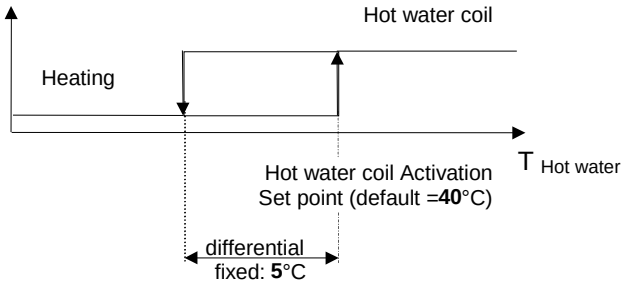
This screen is only available in the CW Dual Coil version with the pCOE connected and is used to control the opening of the water valve, with three different solutions:

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.

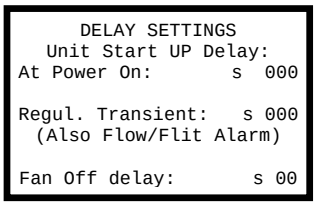
```
   DUAL COIL PARAMETERS
    Valves Enabled By
DI1 and DI2 pCOE

Digital Input Config.:
V.1 ON with  DI1:
V.2 ON with  DI2:
```

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.

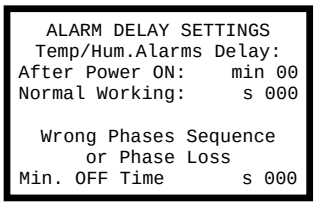
```
      HOT WATER COIL
      ACTIVATION SET
Hot Water Temp.      °C 00
```



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.

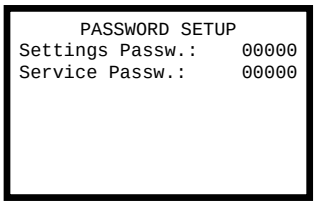


This screen is used to set:
T+H Al. Delay': delay in signalling room alarms when starting the unit and in normal operation.
Wrong Phases Sequence or Phase Loss: minimum unit OFF time if the alarm is activated



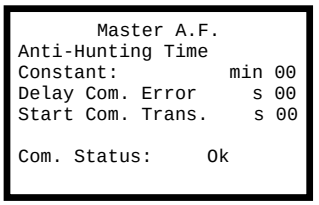
This screen is used to change the access passwords:
- for the **settings** ("SETTINGS" password);
- for the **configuration** ("CONFIGURATIONS" password or "SERVICE" password).

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.



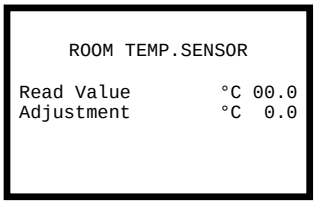
This screen is used to set:
Anti-Hunting Time Constant: control time constant;
Delay Com. Error: delay for the communication error between the unit and the Master Control;
Start Com. Trans.: initial communication transient

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



SENSORS ADJUSTMENT

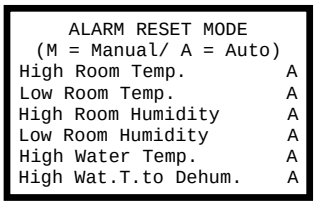
This screen and later, it is allow to correct the reading of the **temperature sensors** ("ROOM TEMP.", "EXT. AIR TEMP.", "DELIVERY TEMP.", "CHILLED WATER CLOSED and HOT WATER", "ROOM HUMIDITY") in case a difference between the measured value of the sensor and the effective value is detected, measured 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.

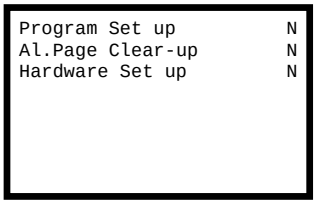
ALARM RESET MODE

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



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.

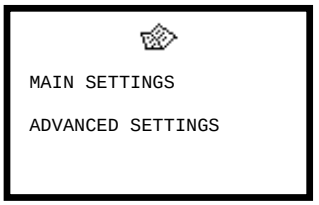
IMPORTANT: when modified also if only a parameter of the configuration (and therefore also for Flash EPROM substitution) it is necessary to empty also the RAM memory by cutting off the power to the control for a few seconds.

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.

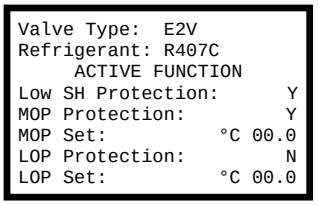
EXV VALVE SETTINGS

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

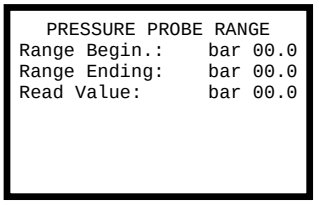


MAIN SETTINGS

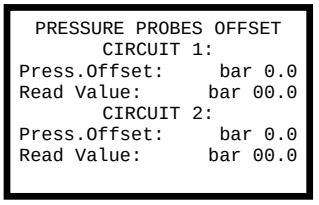
This screen is used to set:
Valve Type: model of electronic valve used:
Refrigerant: type of refrigerant gas used;
Low SH Protection: enables low superheating protection
MOP Protection: enables maximum operating pressure protection
MOP Set: maximum operating pressure set point
LOP Protection: enables minimum operating pressure protection
LOP Set: minimum operating pressure set point



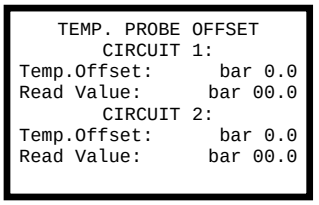
This screen is used to set:
Range Begin.: start scale for the evaporation pressure transducer reading;
Range Ending: end scale for the evaporation pressure transducer reading;
Read Value: the value read, i.e. the measurement sent by the probe.



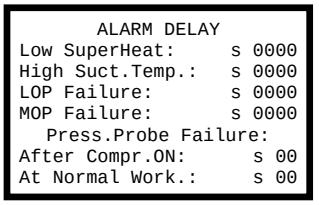
This screen is used to set:
Press.Offset: the correction, i.e. the value added or subtracted to achieve the correct reading, measured using a precision instrument.
Read Value: the value read, i.e. the measurement sent by the transducer, already corrected.



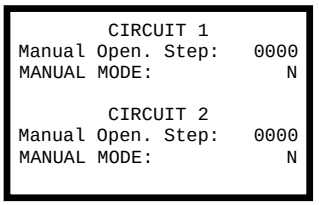
This screen is used to set:
Temp.Offset: the correction, i.e. the value added or subtracted to achieve the correct reading, measured using a precision instrument.
Read Value: the value read, i.e. the measurement sent by the probe, already corrected.



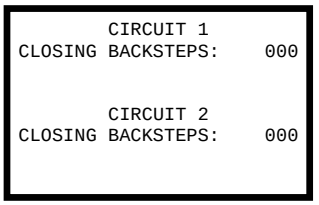
This screen is used to set:
Low Superheat: low superheat alarm activation delay time;
High Suct.Temp.: high suction temperature alarm activation delay time;
LOP Failure: minimum operating pressure alarm activation delay time;
MOP Failure: maximum operating pressure alarm activation delay time;
Press.Probe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



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

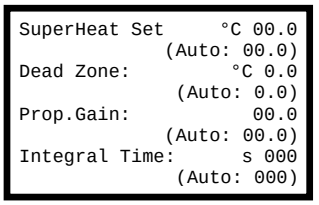


This screen is used to set the opening steps for the electronic expansion valve when there is no cooling request.

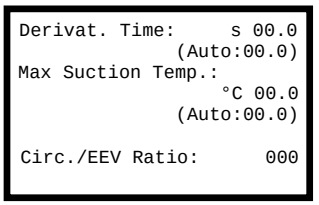


ADVANCED SETTINGS

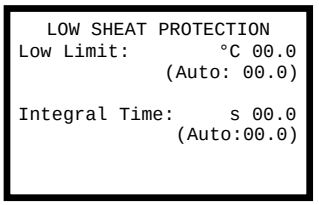
This screen is used to set:
Superheat Set: superheat set point;
Dead Zone: dead band;
Prop.Gain: proportional gain;
Integral Time: integral time.



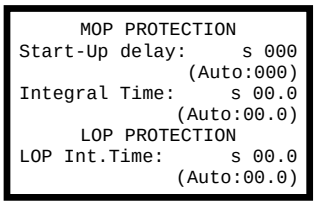
This screen is used to set:
Derivat. Time: derivative time;
Max Suction temp.: maximum suction temperature;
Circ./EEV Ratio: relationship of the refrigerant circuit to the type of electronic valve inserted.



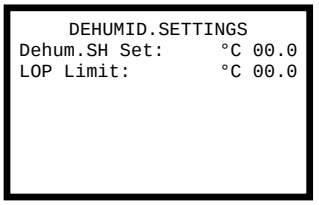
This screen is used to set:
Low limit: low superheat minimum limit;
Integral Time: integral time.



This screen is used to set:
Start-up delay: maximum operating pressure protection delay time when starting;
Integral Time: integral time;
LOP Integral Time: minimum operating pressure protection integral time



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.



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*);
- activate the 0/1 analogue output on DX, TC, ES units (*Y0/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:
Unit Start-Up           N
Compressor 1            N
Compressor 2            N
Compressor 3            N
Compressor 4            N
Dehumidification        N
Humidifier – Drain      N
```

```
     Manual Override:
Reheating 1             N
Reheating 2             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.

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

     Dual Coil – pCOE
Y1 Ramp              % 000
```

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

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 sistema 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.

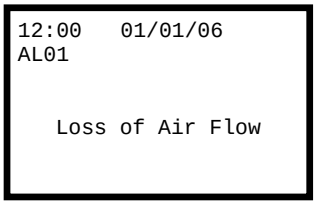
ALARMS

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.

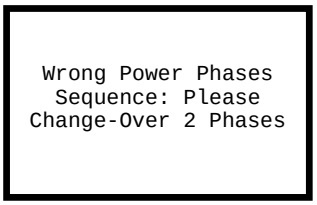


The alarms activated when the counter threshold is exceeded are not memorized and therefore are not able to be read.

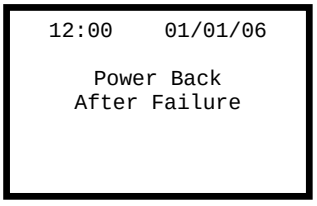
DESCRIPTION OF ALARM EVENTS

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.



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.



EXCEEDING TEMPERATURE OR HUMIDITY LIMITS

These are alarms which are activated when the thermohygrometric 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)

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

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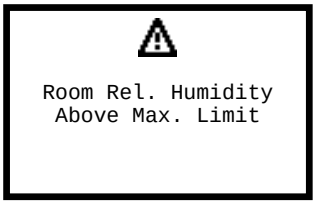
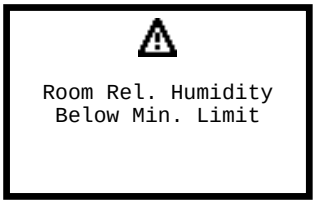


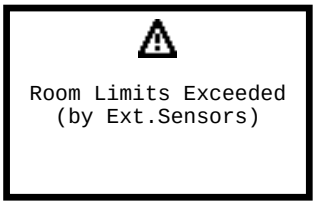
Signal only. This can be delayed during the unit start-up phase (the default delay is 15 minutes)



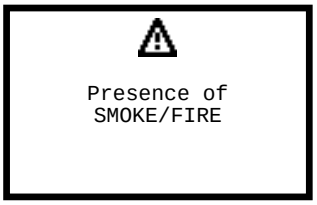
OPTIONAL SENSOR OR DIGITAL INPUT ALARMS

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)

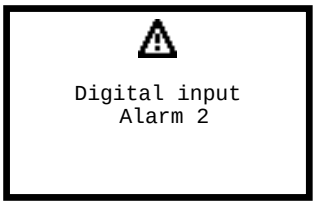


Activated by the Smoke / Fire sensors and always causes the unit to switch off.

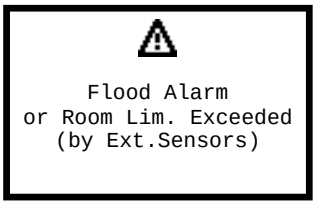


Activated by the flooding control module or from the condensing discharge pump alarm contact; only causes the unit to switch off if it has been chosen as a second level alarm, but it does not activate the stand-by unit.

Activated by a digital input configured as “Alarm Signalling”.
(ID2, ID4, ID6)



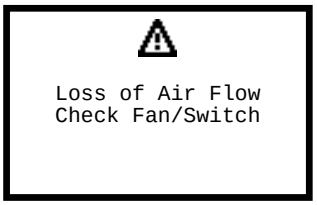
Activated by the flooding control module, the external temperature or humidity sensors.
(For Amico DX units)



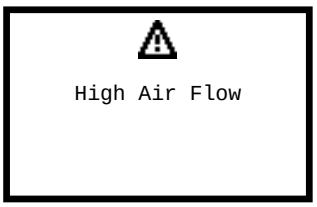
UNIT FUNCTION ALARMS

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

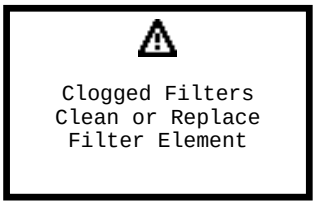
Fan alarm: Activated by the differential air flow pressure switch (FS). Causes all of the devices to switch off (compressors, electrical heaters, humidifier, fans).



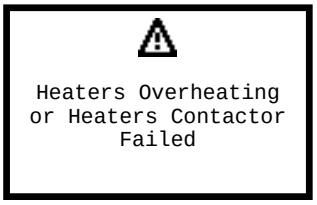
Activated by the differential high air flow (FSA).
Causes all of the devices to switch off (compressors, electrical heaters, humidifier, fans).



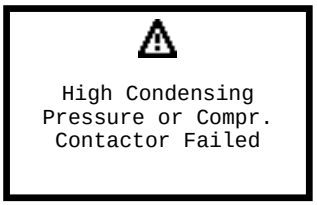
Activated by the differential dirty filter pressure switch (PFS); only causes an alarm signal, without unit operation being affected. Indicates that the air filter needs to be cleaned or replaced.



Alarm signal activated by from the safety thermostat (TSR); causes the electrical heaters to switch off.

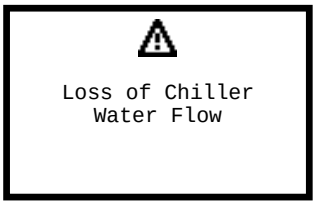


DX, ES, TC units only. Causes the compressors to switch off on the circuit indicated (1 or 2). Check the refrigerant circuit and/or refrigerant charge and high pressure switch.

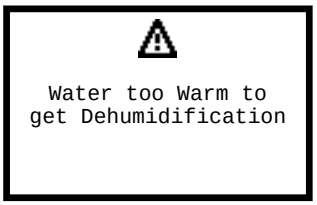


DX, ES, TC units only. Causes the compressors to switch off on the circuit indicated (1 or 2). Check the refrigerant circuit and/or refrigerant charge and high pressure switch. Also specifies the number of the circuit.

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

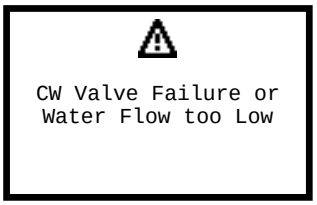


CW units only (signal only). Activated by the chilled water temperature sensor when the set point value is not reached within 15 minutes of the dehumidification request.

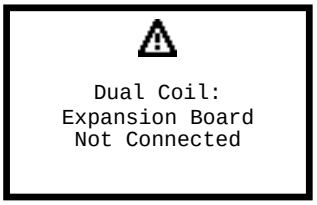


CW units only (signal only). Activated by the chilled water temperature sensor when the high temperature limit is exceeded.

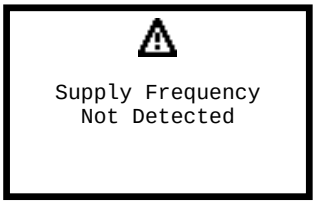
TC units only: causes the changeover from chilled water operation (CW) to direct expansion (DX). It is also displayed when the ambient temperature sensor detects that the limit set has been exceeded for the first time.



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



Active when the controller cannot automatically detect the mains frequency.



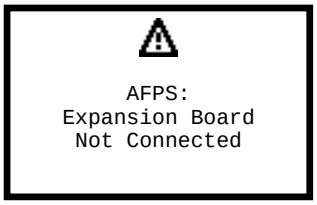
AFPS SENSOR ALARMS

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.

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.

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



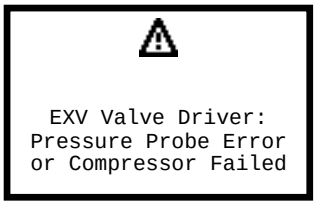
ELECTRONIC EXPANSION VALVE ALARMS (DX,TC,ES units only)

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

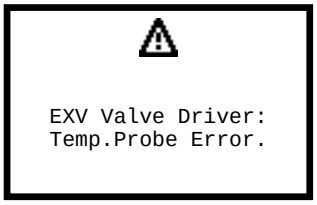
Activated when there is low evaporation pressure, or rather, when the LOP is lower than the threshold which has been set, for a period which is longer than the Alarms Delay LOP. Also specifies the number of the circuit.

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.

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.

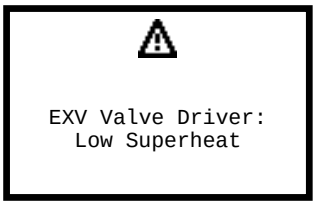


Activated following an error in the signal given by the NTC low pressure temperature sensor for the superheating reading. Also specifies the number of the circuit.

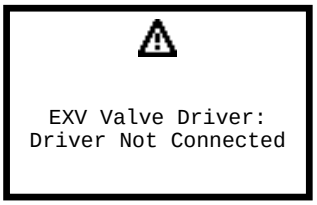


Activated following an error in the EEPROM memory of the driver. Also specifies the number of the circuit.

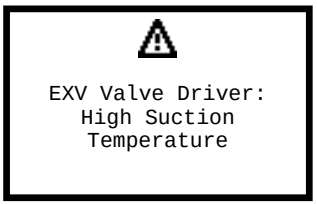
Activated when there is low superheating, for a period which is longer than the Alarms Delay Low SH. Also specifies the number of the circuit.



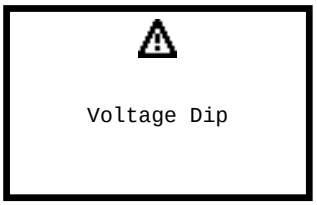
Activated following an error in the tLAN connection between the EVD400 driver and the PCO1 control board. Also specifies the number of the circuit.



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.

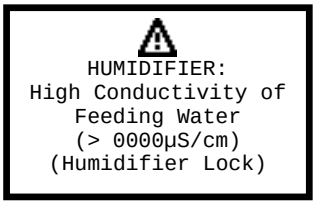


This is only displayed in the alarm history when the driver is without power for more than 5 seconds when the compressor is operating. Also specifies the number of the circuit.



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.

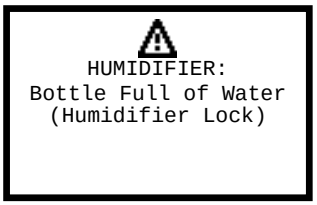


This may be shown in the following three cases:

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.

Active if the water touches the high level electrodes in one of the following cases:

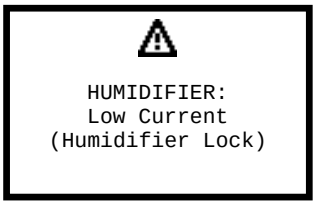
1. the unit is disabled or shutdown (remote control switch, fill and drain OFF);
2. before the start of the first pre-wash cycle (consisting of 10 minutes of simultaneous drain and fill cycles)



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.

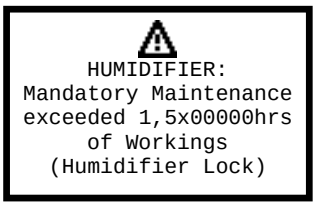
This alarm is displayed if the following events occur in sequence:

- 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.



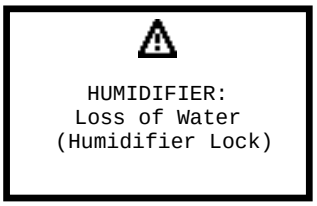
If during low production (after a drain due to high level) the end fill current is lower than a certain threshold calculated on the rated current.

Number of cylinder operating hours exceeded. Replace the cylinder

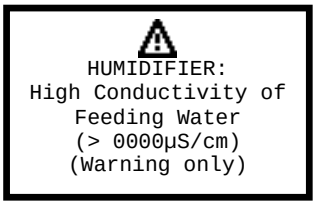


This may be shown in the following two cases:

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



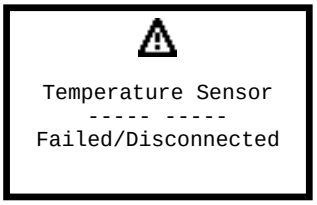
Warning only



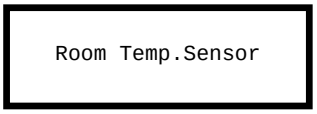
SENSOR ALARMS

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.



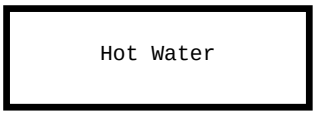
Causes the compressors and electric heaters to switch off, keeping only the fans switched on.



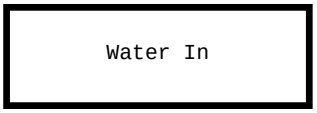
Disables the free-cooling operation control (only ES units)

Disables the re-heat electric heaters

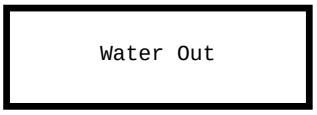
Disables the hot water re-heat electric heaters (optional)



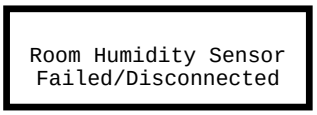
Signal only



Signal only



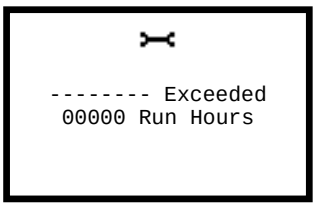
Disables humidification / dehumidification operation



SERVICE NOTE

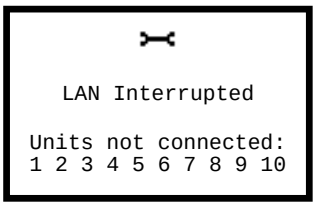
These are signalling alarms which are activated when the operating hours of the component are exceeded. This type of alarm, which continues until the counter is reset, is not however memorized in the historical alarm sequence.

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.



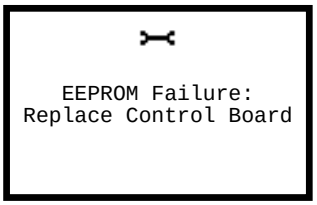
"LAN" INTERUPTED ALARM

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.



SYSTEM ALARMS

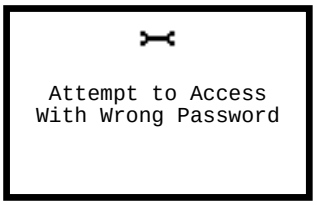
Indicates a writing error in the EEPROM memory, probably due to the cancelling/writing cycle being exceeded. The board needs to be replaced.



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.



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.

DEFAULT VALUES

CONFIGURATION	
PARAMETER DESCRIPTION	**DEF.**
CONTROL PARAMETERS	
Heating	No
Hot water coil	No
Hot gas coil	No
External Humidifier (On/Off)	No
External Humidifier (0-10V)	No
Delivery sensor	No
2nd Cooling SetP. of the remote	No
Flooding	No
Smoke/Fire	No
External sensor	No
AFPS	No
Disable BP transitory start limit	No
Off unit with flood alarm	No
Off water valve with flood alarm	No
Remote On/Off of via digital input	No
Remote On/Off of via serial	No
Motorized damper	No
Buzzer enabled	Yes
Dehumidification	Yes
Humidification	No
SetP. change of the Dehum. CW	No
Enabled High T.Delivery alarm	No
SetP. compen. of the CW working	Yes
Enabled Set Back mode	No
Enabled Fan Cyclical Start	No
Enabled ON/OFF cycle	No
"A" AND "B" ALARMS TYPES	
Loss of Air Flow	A
Clogged Filters	A
Heaters Overheating	A
EEPROM Failure	A
Wrong Password	A
High Air Flow	A
High Cond.Pressure	A
Low Evap.Pressure	A
EXV Valve Failure	A
High Room Temp.	A
Low Room Temp.	A
High Room Humidity	A
Low Room Humidity	A

NUMERICAL PARAMETERS				
PARAMETER DESCRIPTION	**VAL.**	**DEF.**	**MIN.**	**MAX.**
SET POINT				
Cooling Set point				
with Room Temperature	°C	23.0	17.0	35.0
Cooling Propor. Band	°C	1.5	0.5	9.9
2nd cooling set point	°C	17.5	17	35
Cooling Set point				
with Delivery Temperature	°C	17.0	17.0	35.0
Cooling Propor. Band	°C	15.0	0.5	18.0
Heating Set point	°C	23.0	12.0	30.0
Heating Propor. Band	°C	1.5	0.5	9.9
Dehumidifier Set point	rH %	55	20	90
Dehumidifier Propor. Band	rH %	05	03	15
Humidifier Set point	rH %	45	20	90
Humidifier Propor. Band	rH %	05	03	20
Delivery T. Set Limit	°C	14.0	10.0	25.0
SETPOINT COMPENSATION				
P1:Delivery SetP.	°C	17.0	14.0	35.0
P1:Room Temp.	°C	22.0	17.0	35.0
P2: Delivery SetP.	°C	18.0	14.0	35.0
P2: Room Temp.	°C	20.0	17.0	35.0
SET ALARMS				
High Room Temp.	°C	30.0	20.0	40.0
Low Room Temp.	°C	10.0	0.0	32.0
High Room Humidity	rH %	80	40	99
Low Room Humidity	rH %	30	0	65
High Delivery Temp.	°C	23.0	10.0	40.0
SET BACK MODE				
Min. Room Temp.	°C	16.0	5.0	24.0
Max. Room Temp	°C	28.0	20.0	35.0
Min. Room Humidity	rH %	35	20	60
Max. Room Humidity	rH %	75	50	90
Fan cyclical start time	min	30	15	99
TIMER THRESHOLD				
Timer threshold	h	0	0	32000
CHANGE PASSWORD ***(password found in the envelope enclosed with the manual)**				
Password Settings	n°	xxxxx	00000	32000
Password Service	n°	xxxxx	00000	32000
LAN SETTINGS				
Lan units number	n°	0	2	10
Cycle time	h	168	1	98
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	-	-

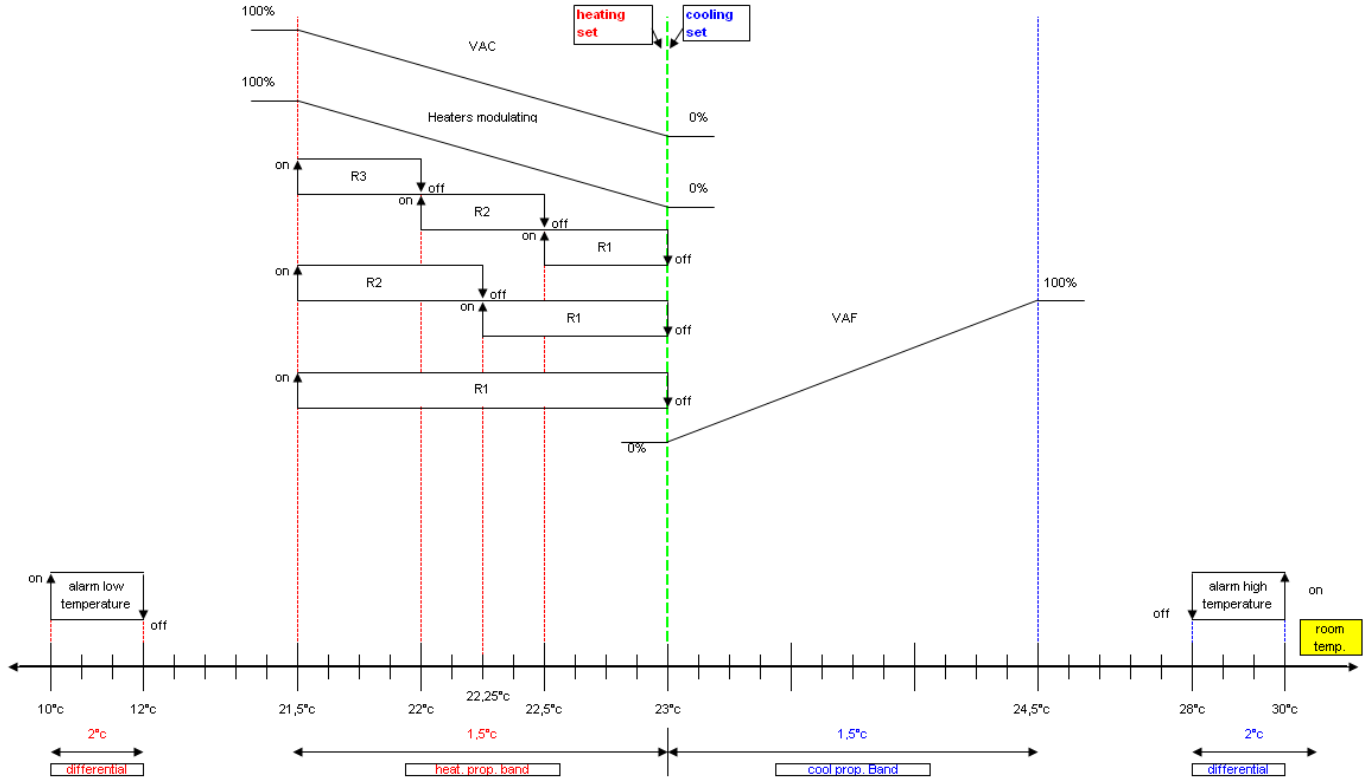
CONFIGURATION	
PARAMETER DESCRIPTION	**DEF.**
SUPERVISION	
Serial Address	01
Serial Speed (1200-19200)	1200
Protocol	Std
Twin Cool CALIBRATION	
Enabled CW working	
Also On DX Alarm	Yes
Only By ID Contact	No
Only By Serial	No
Cooling Water CALIBRATION	
Sensor of regulation	RoomT.
Valve Off of the alarm 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

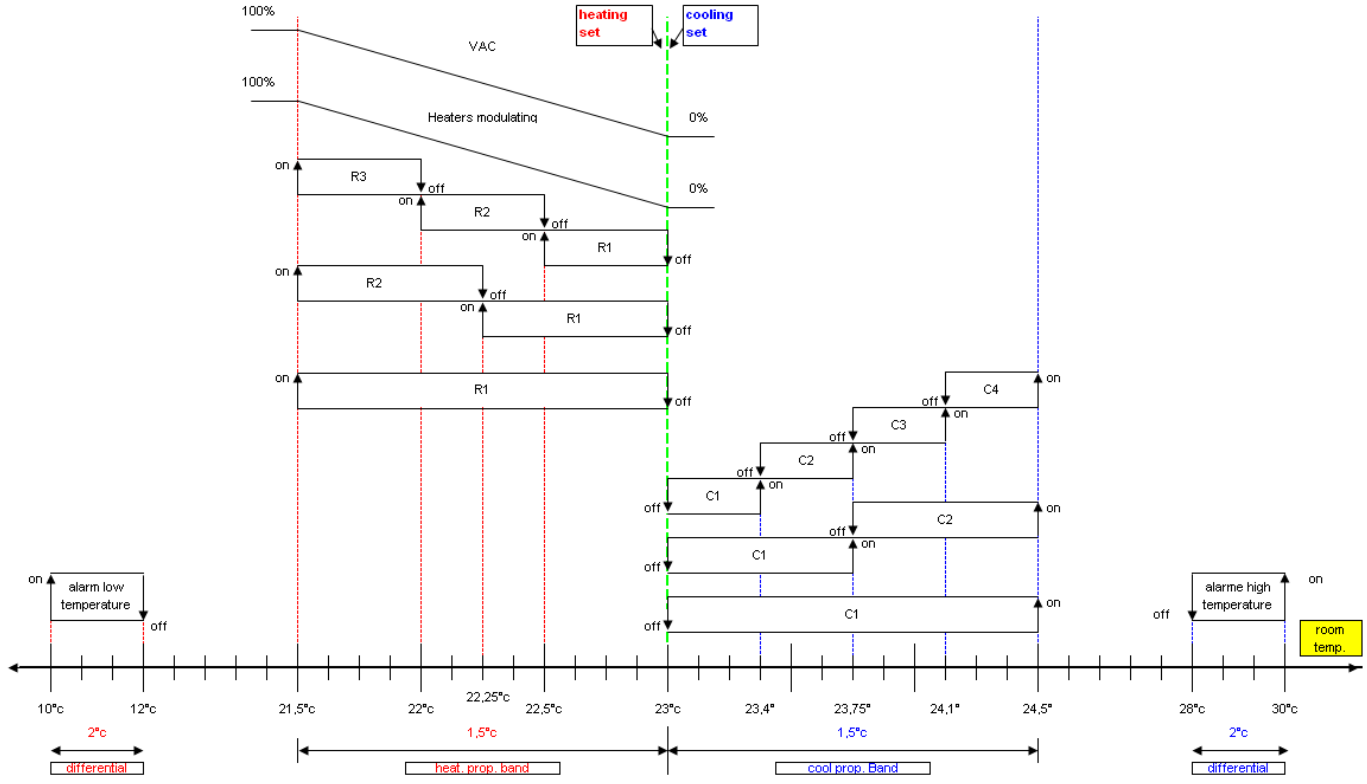
LOW PRESSURE SETTINGS WITH THE REFRIGERANT TYPE							
		R22	***R407C***	***R410A***	***R134a***	***MIN***	***MAX***
Transitori limit	bar	0,2	0,2	0,5	0,2	0,1	5,0
Normal limit	bar	2,0	2,0	4,6	1,0	0,9	5,0
Alarm differential	bar	1,3	1,3	2,0	1,3	0,1	5,0
Alarm delay after compr. ON	s	180	180	180	180	30	240
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

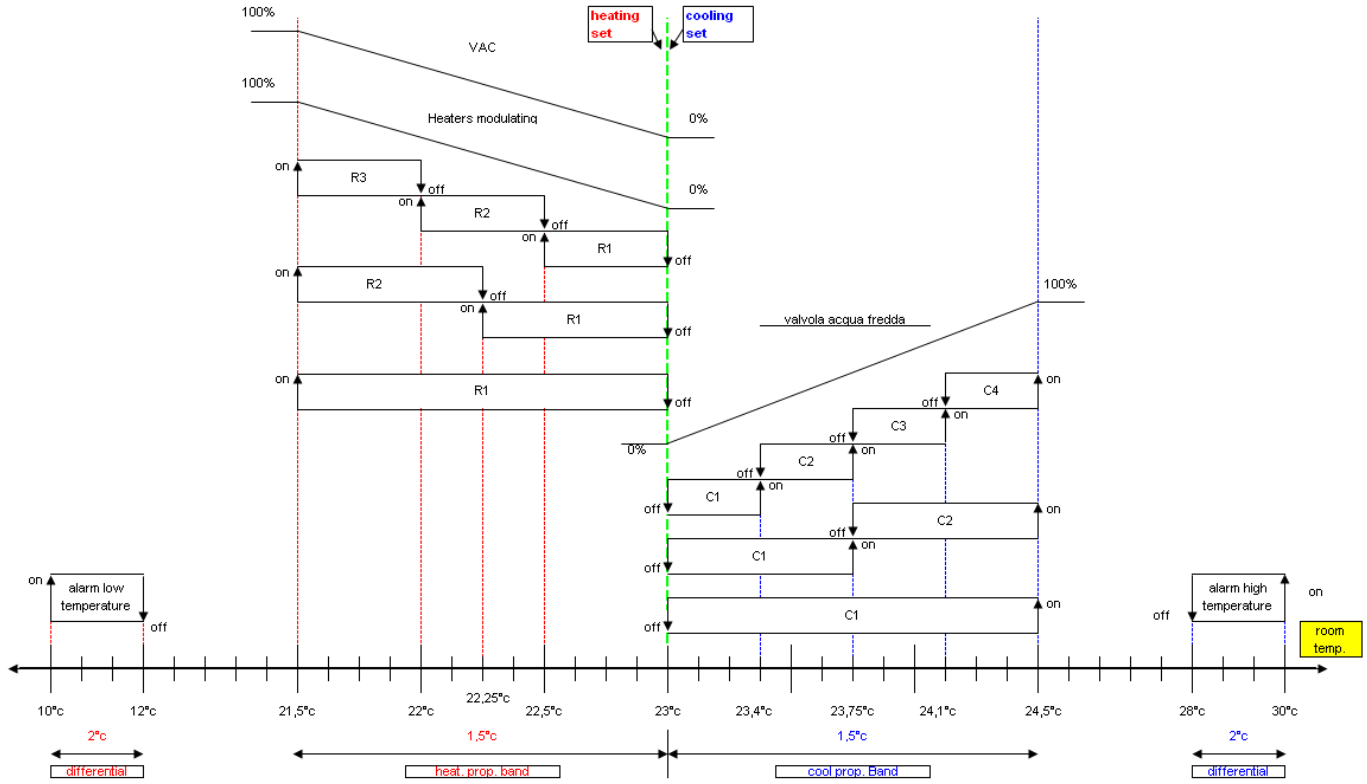
CHILLED WATER VERSION (CW)



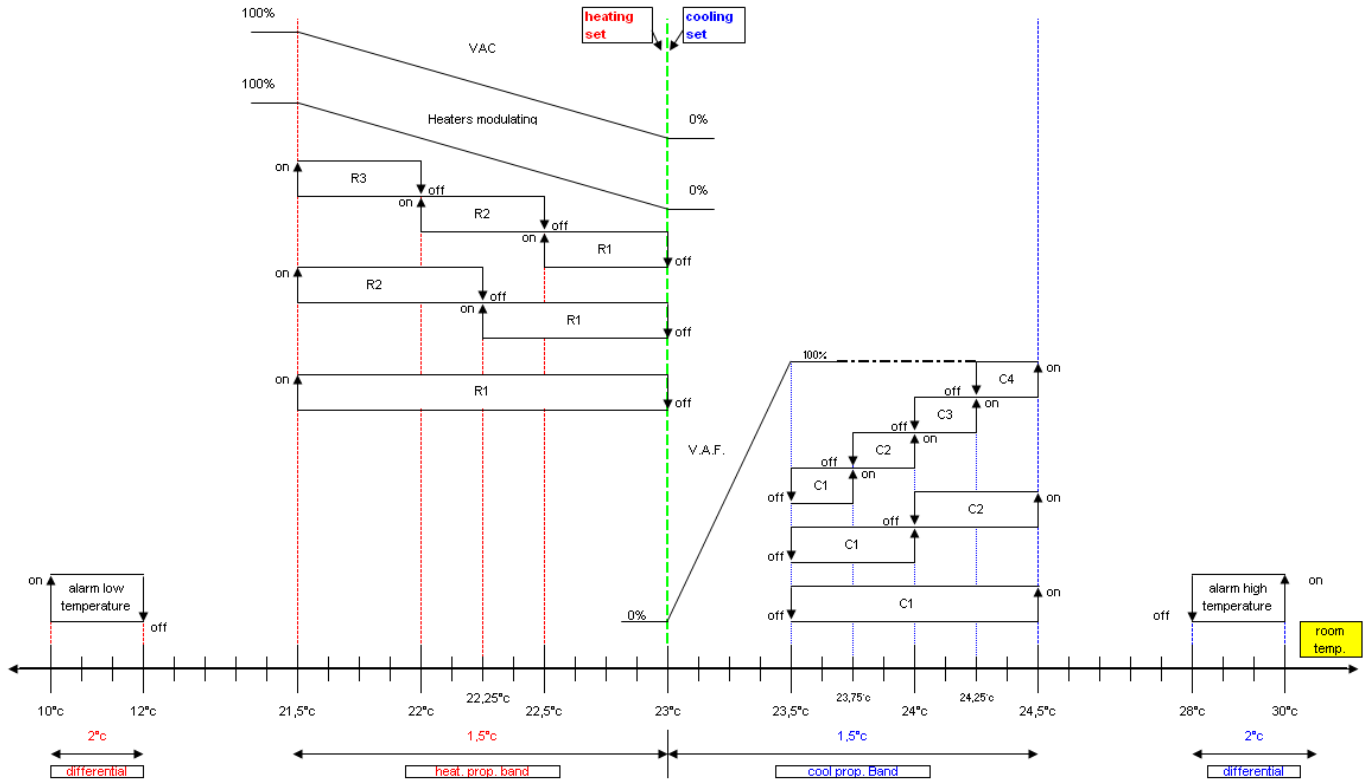
DIRECT EXPANSION VERSION (DX)



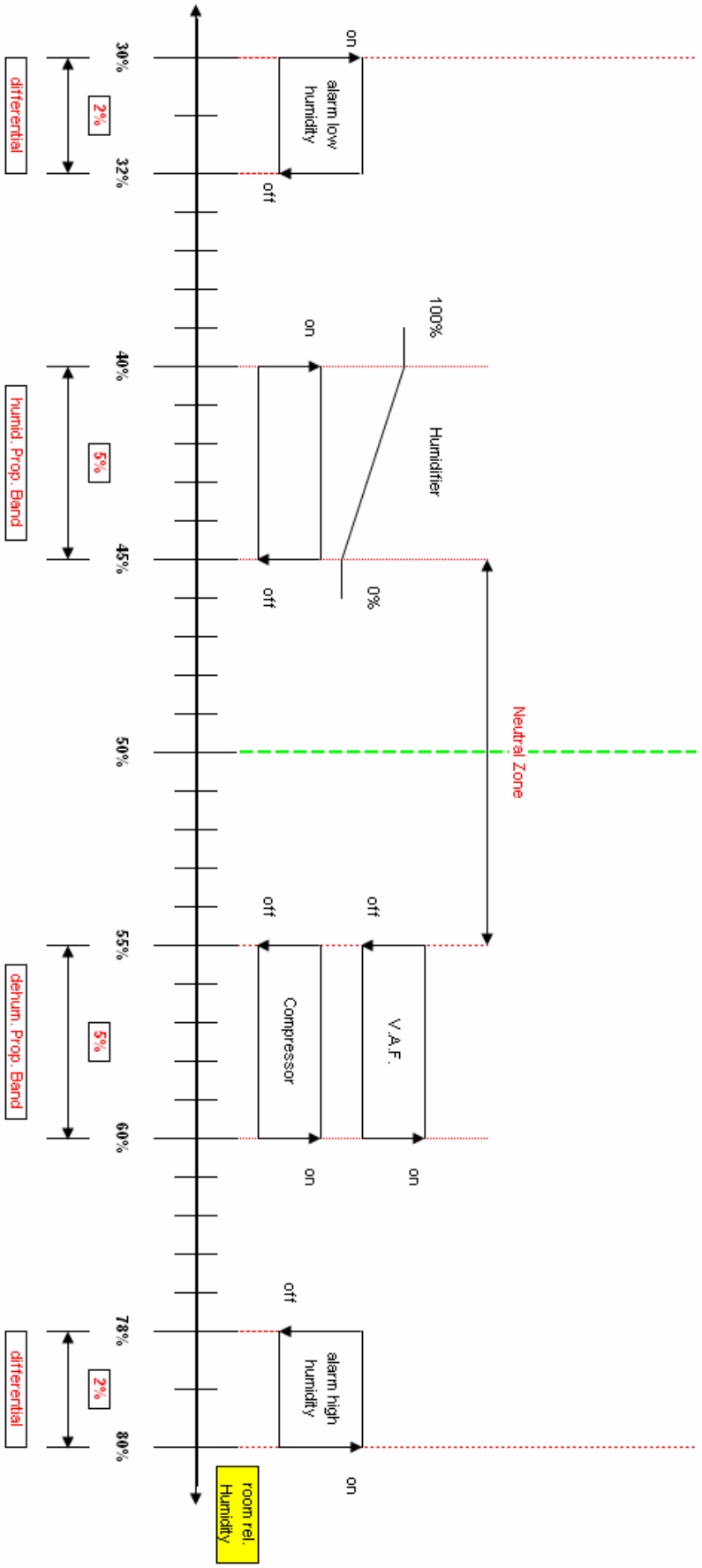
TWIN COOL VERSION (TC)



ENERGY SAVING VERSION (ES)



AMBIENT HUMIDITY REGULATION DIAGRAM



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.

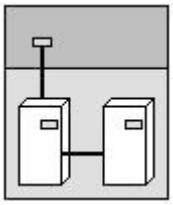


Fig. 1.

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

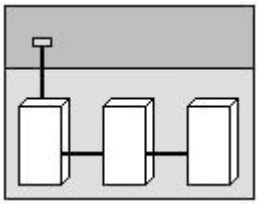


Fig. 2.

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.

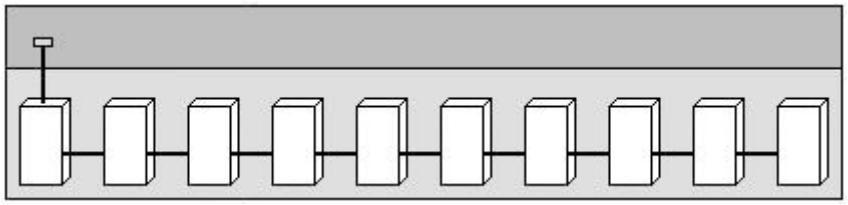


Fig. 3.

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.

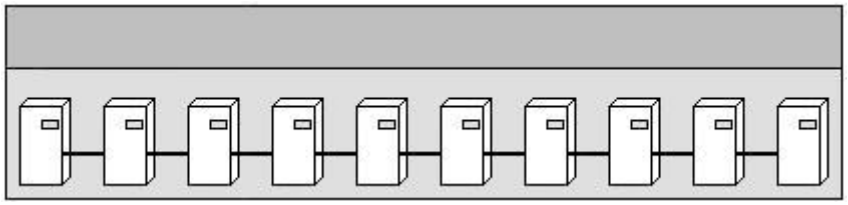


Fig. 4.

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

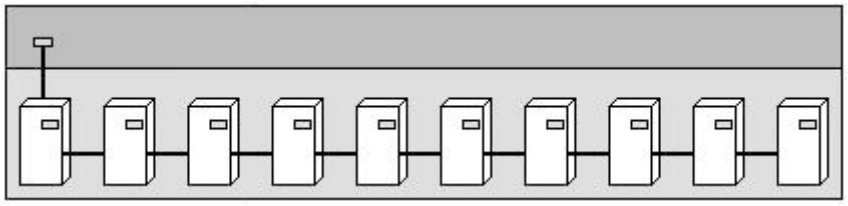


Fig. 5.

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.

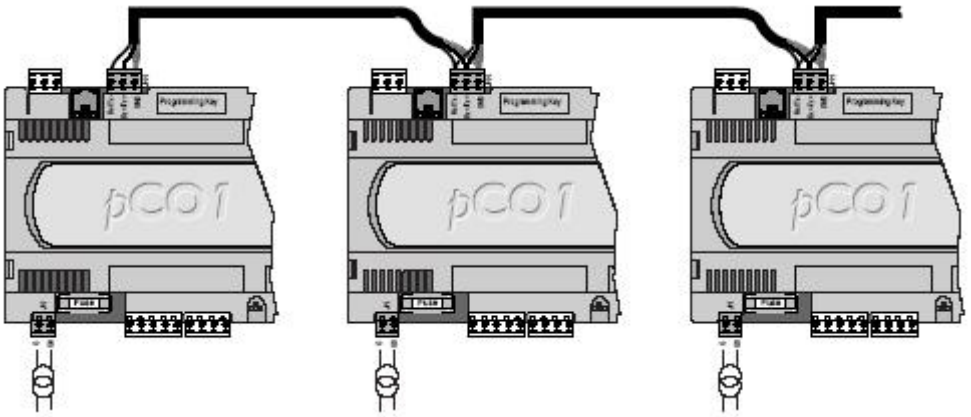


Fig. 6

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.

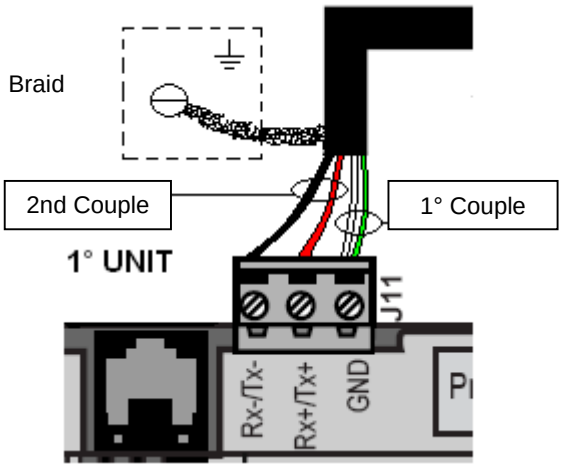


Fig. 7

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.

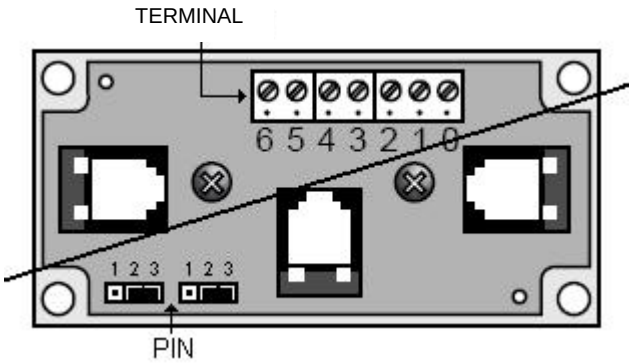


Fig. 8

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.

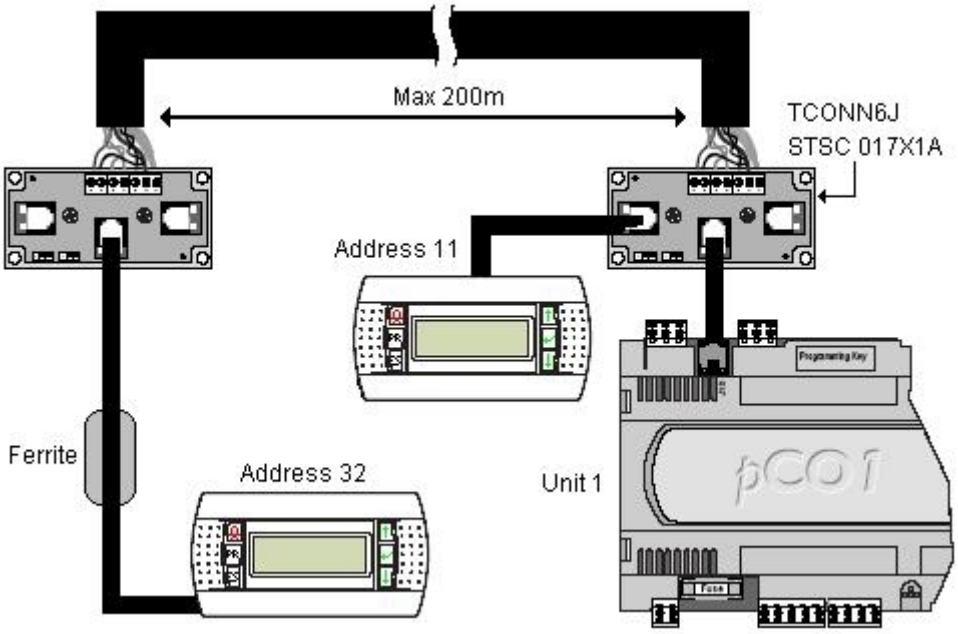


Fig.9

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.

Fig. 11

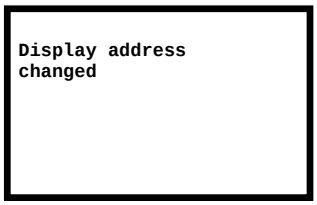


Fig. 12

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

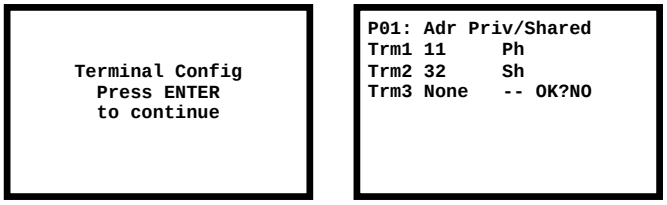


Fig. 13

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:

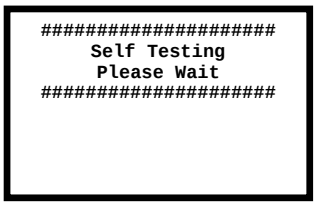


Fig. 14

and then:

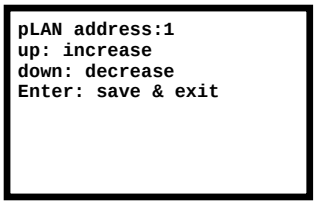


Fig. 15

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;

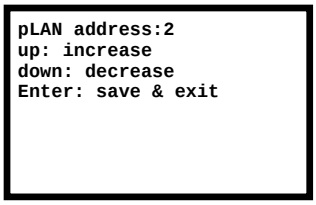


Fig. 16

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

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
11	1
12	2
13	3
14	4
15	5

Terminal Address	pCO Board Address
16	6
17	7
18	8
19	9
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.

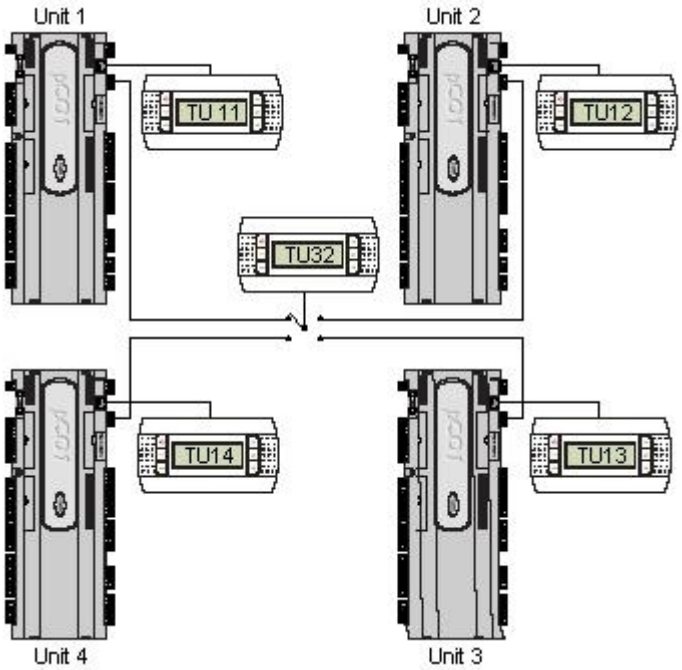
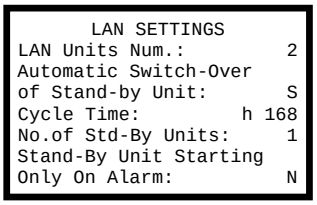


Fig. 17

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.

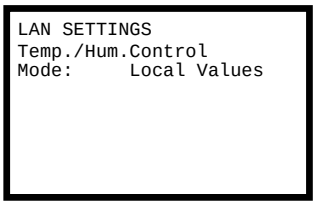
1. Set the number of units connected to the Lan network;
2. Activate the automatic exchange of the unit in stand-by;
3. Set the cycle time to carry out the rotation of the units; if the hour is set at 000, a simple test will be carried out putting the units in rotation with an interval of 2 minutes;
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.



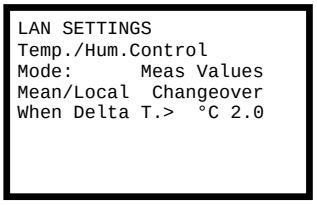
NOTE: All of these settings are automatically passed on to the other units which are connected.

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”.

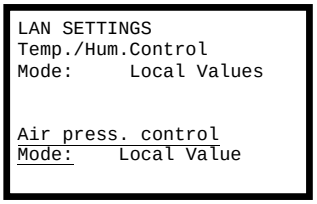


o



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

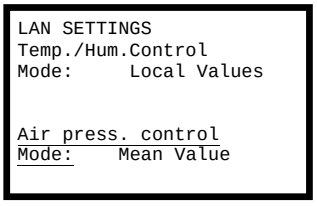
Air pressure control configuration screen
If a series of units are connected in the LAN, the fan speed can be modulated based on a local probe reading or alternatively by calculating the average reading of all the probes connected and configured for each active unit. This setting must be made in the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

O



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.

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.

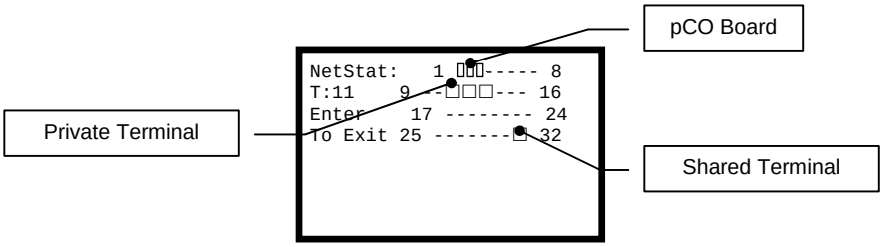


Fig. 18

▯ = 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:

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