

INSTALLATION, USE AND MAINTENANCE MANUAL



HIGH EFFICIENCY HEAT RECOVERY WITH AIR TREATMENT
INTEGRATED

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1.1.1 INTRODUCTION

This manual was conceived with the aim of making the installation and management of your system as simple as possible.

By reading and applying the suggestions in this manual, you will be able to obtain the best performance from the product purchased.

We would like to thank you for the choice you made with the purchase of our product.

Read this manual carefully before carrying out any operation on the unit.

You must not install the unit, nor carry out any work on it, if you have not first carefully read and understood this manual in all its parts. In particular, all precautions listed in the manual must be adopted.

The documentation accompanying the unit must be delivered to the system manager so that he can keep it carefully (at least 10 years) for any future assistance, maintenance and repairs.

The installation of the unit must take into account both the purely technical requirements for good operation and any local legislation in force and specific provisions.

Make sure that when the unit is delivered, there are no obvious signs of damage caused by transport. In this case, indicate it on the delivery note.

This manual reflects the state of the art at the time the machine was marketed and cannot be considered inadequate because it was subsequently updated based on new experiences. The Manufacturer reserves the right to update production and manuals, without the obligation to update the previous ones, except in exceptional cases.

Contact the Manufacturer's Sales Office to receive further information or updates to the technical documentation and for any proposal to improve this manual. All reports received will be rigorously examined.

1.1.2 FUNDAMENTAL SAFETY RULES








We remind you that the use of products that use electricity and water requires compliance with some fundamental safety rules:

- The use of the appliance by disabled and unaided people is prohibited
- It is forbidden to touch the appliance with bare feet or with wet or damp parts of the body
- Any cleaning operation is prohibited before having disconnected the appliance from the electrical power supply by positioning the system's main switch to off
- It is forbidden to modify the safety or regulation devices without the authorization and indications of the appliance manufacturer
- It is forbidden to pull, detach or twist the electrical cables protruding from the appliance, even if it is disconnected from the electrical power supply.
- It is forbidden to introduce objects and substances through the air intake and delivery grilles.
- It is forbidden to open the access doors to the internal parts of the appliance without first having set the main switch of the system to off.
- It is forbidden to disperse and leave the packaging material within the reach of children as it can be a potential source of danger.
- Respect the safety distances between the machine and other equipment or structures to ensure sufficient access space to the unit for maintenance and assistance operations as indicated in this booklet.
- The unit must be powered with electrical cables of a section suitable for the power of the unit. The voltage and frequency values must correspond to those indicated for the respective machines; all machines must be earthed as per the regulations in force in the various countries.
- Do not release R134A into the atmosphere: R134A is a fluorinated greenhouse gas, referred to in the Kyoto Protocol, with a global warming potential (GWP)=1975.








1.1.3 SYMBOLS





The symbols shown in the following booklet allow you to quickly provide information necessary for the correct use of the unit.

Safety related symbols

	ATTENTION Only authorized personnel	Warns that the operations indicated are important for the safe operation of the machines
	DANGER Risk of electric shock	Warns that failure to comply with the instructions poses a risk of electric shock.
	DANGER	Warns that failure to comply with the requirements entails a risk of harm to exposed people.
	WARNING	Warns that failure to comply with the instructions entails a risk of damage to the unit or system.
	DANGER	It warns that there are moving parts and poses a risk of harm to exposed people

1.1.4 WARNINGS

	The installation of the unit must be carried out by qualified and authorized personnel according to the regulations in force in the various countries. If the installation is not carried out it could become a dangerous situation
	Avoid installing the unit in very humid rooms or with large heat sources.
	On the electrical side, to prevent any risk of electrocution, it is essential to disconnect the main switch before carrying out electrical connections and any maintenance operations.
	In the event of water leaks inside the unit, set the main switch of the system to "Off", close the taps of the water and contact the technical service
	It is recommended to use a dedicated power circuit; Never use a shared power supply with other appliances.
	It is recommended to install a ground leakage breaker; Failure to install this device may cause shock electric.
	To connect, use a cable of sufficient length to cover the entire distance, without any connection; do not use extension cords and do not apply other loads to the power supply but use a dedicated power circuit.

	After connecting the electrical cables, make sure that the cables are routed so as not to exert excessive forces on the covers or electrical panels; any incomplete connection of the covers may cause the terminals to overheat.
	Make sure the earth connection is made; do not earth the appliance on distribution pipes. High intensity momentary surges could damage the unit
	Installations carried out outside the warnings in this manual or use outside the operating limits will void the warranty the guarantee instantly.
	Make sure that the first commissioning is carried out by personnel authorized by the company (see first commissioning request form)

1.1.5 COMPLIANCE

The CE marking (present on each machine) certifies compliance with the following community standards:

- Low Voltage Directive 2014/35/EC
- Electromagnetic Compatibility Directive 2014/30/EC
- Ecodesign 2009/125/EC
- RoHS2 2011/65/EU
- WEEE 2012/19/EC

1.1.6 RANGE

	- 1-	- 2-	- 3-	- 4-
URA R DOMO	30/15	H	K	D

1) Defines the total flow rate and the fresh air flow rate

Models from 300/150 m³/h to 500/250 m³/h

3) Electronic type

K: K version electronics

2) Type of installation

H: Horizontal

4) Construction type

D: Version for neutral air dehumidification (isothermal)

DC: Version for dehumidification and integration in cold and heat

1.1.7 IDENTIFICATION



- The unit is identifiable by the plate located on the lower front panel of the unit.
- On the packaging there will be an additional identification plate with the model of the unit and the shipping references.
- The plate on the packaging has no value for the traceability of the product in the years following the sale.

The removal, deterioration and illegibility of the plate placed on the unit causes major problems in the identification of the machine, in the availability of spare parts and therefore in any future maintenance.

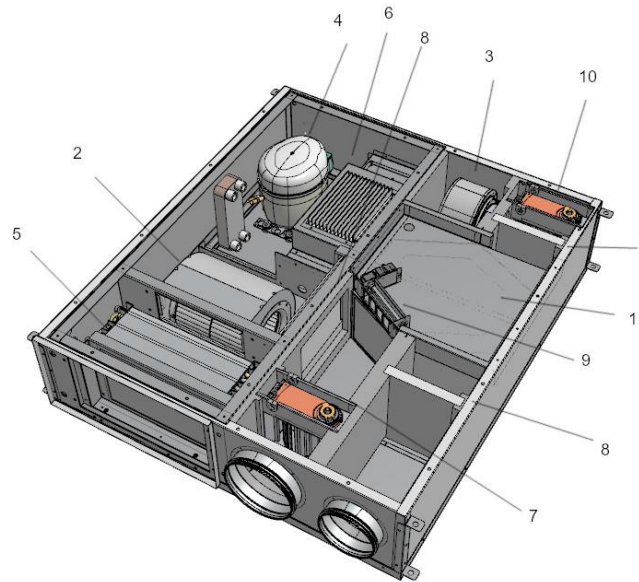
1.1.8 CONSTRUCTION FEATURES

The URA R DOMO is a controlled mechanical ventilation unit with high efficiency heat recuperator, air treatment section with dehumidification, cooling and heating. The unit is particularly suitable for residential, commercial or collective residential buildings and is supplied plug-and-play for quick and simplified installation.

The unit is made up of a monobloc including every component for correct operation and allows operation with wide external temperature ranges.

RECOVERY SECTION:	High efficiency countercurrent polypropylene exchanger >90%. Summer and winter operation.
VENTILATION:	Brushless centrifugal fans with electronic motor and modulating control. Very high efficiency and low noise levels Compliant with the Erp2018 regulation. Constant flow regulation
AIR TREATMENT SECTION:	The unit can be equipped with a refrigeration circuit for dehumidification or the integration of cooling and heating. In the various configurations, it will be possible to select the desired type of air treatment between dehumidification only or dehumidification with heating and cooling of the primary air.
FILTRATION:	PM1 80% filters easily removable on the external air intake on the extraction air. Coarse filters with low pressure drop easily removable on the recirculated air.
STRUCTURE:	Paneling made of self-supporting sheet metal painted matt RAL9003 with high density EPS interior. Self-supporting perimeter structure in galvanized sheet metal. The insulation of the panels is made with high-performance insulation 20 and 30mm thick.
REFRIGERATING CIRCUIT:	Made of brazed copper complete with: High efficiency compressor, Dryer filter, finned coils, water exchanger, solenoid valves, lamination device, liquid receiver, high and low pressure switches and thermal insulation of pipes.
ADJUSTMENT:	K VERSION Electrical panel on board the unit with microprocessor and dedicated regulation. Fan management, display of internal machine temperature probes, timed dirty filter management, management of recirculation and renewal air. Possibility of controlling the unit with these three solutions: 1: Management through external commands and 0-10vdc signal to control air flow from minimum to maximum; 2: Management via remote panel with integrated T/H sensor 3 : MODBUS RTU RS 485 communication

1.1.9 MAIN COMPONENTS OF THE UNIT



1. Heat recuperator

2. Inlet fan

3. Exhaust fan

4. Compressor and refrigeration circuit compartment

5. Finned batteries

6. Electrical panel

7. Recirculation air damper

8. Air filters

9. Free cooling damper

10 Optional external air damper

1.1.10 PACKAGING AND TRANSPORT

The units are supplied for transport fixed on a wooden pallet and inserted in cardboard boxes. To facilitate movement, the units are equipped with a wooden pallet and hooks on the base that allow them to be lifted and positioned on the installation site. The unit can be stored in a room protected from atmospheric agents with temperatures not lower than 0°C, up to a maximum of 40°C.

1.1.11 RECEPTION, CONTROL AND HANDLING



The unit is shipped completely pre-loaded with refrigerant gas in the circuits and non-freeze oil in the compressors. Under no circumstances may there be water in the hydraulic circuits, since after testing the unit is carefully emptied. Upon arrival, the customer is required to inspect the unit also in the internal areas to verify that it has not suffered any damage during transport; the unit left the factory in perfect condition. Otherwise, it is necessary to immediately take action against the carrier by reporting the extent of the damage in detail on the delivery note, producing photographic evidence of the apparent damage and notifying the shipper of any apparent damage by registered mail. The manufacturer does not assume responsibility for damage due to transport even if he himself provided the shipment. Great care must be taken when handling the units during unloading and positioning on site, in order to avoid damage to the casing and more delicate internal components such as compressors, exchangers, etc. In any case, keep the unit in a horizontal position without tilting it. All the indications regarding the necessary precautions to ensure that no damage occurs to the unit and the indication of its weight are shown on the packaging. The materials that make up the packaging can be of various types such as wood, cardboard or polyethylene (plastic). It is good practice to send them for disposal or recycling through specialized companies to reduce their environmental impact.

1.1.12 DISASSEMBLY AND DISPOSAL



Do not disassemble or dispose of the product yourself. The dismantling, demolition and disposal of the product must be carried out by authorized personnel in accordance with local regulations.



2 INSTALLATION

2.1.1 INSTALLATION CONDITIONS



The unit must be installed according to national and local regulations regulating the use of electrical devices and according to the following indications:

- install the unit inside residential buildings with an ambient temperature between 0°C and 45°C;
- avoid areas near sources of heat, steam, flammable and/or explosive gases and particularly dusty areas;
- install the unit in a place not subject to frost (the condensation water must be discharged without freezing, at a certain inclination, using a siphon);
- do not install the unit in areas with a high level of relative humidity (such as the bathroom or toilet) to avoid condensation on the external surface;
- choose an installation location where there is sufficient space around the unit for the air duct connections and to be able to carry out maintenance work;
- check the consistency of the ceiling/wall/floor where the unit will be installed so that it is suitable for the weight of the unit and does not cause vibrations.

In the environment chosen for installation there must be:

- air duct connections;
- 230V single-phase electrical connection
- connection for condensate drain
- hydraulic connection

2.1.2 UNIT POSITIONING

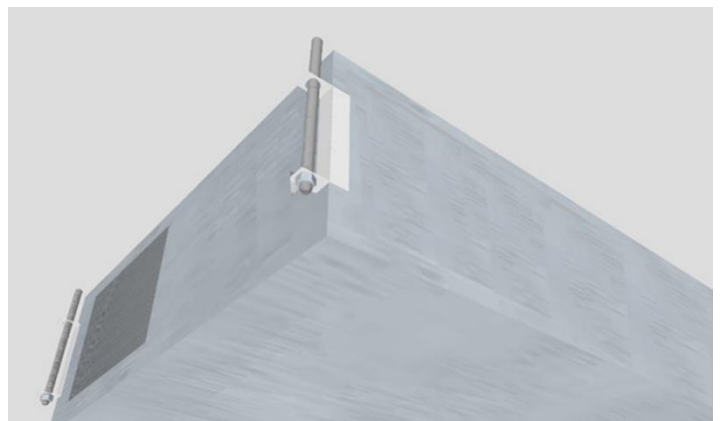


Ceiling mounting

To mount the unit on the ceiling you will need:

- Place 4 threaded rods inside the brackets provided on the 4 corners of the unit;
- Fix the unit to the ceiling, via the brackets, using suitable anchoring systems (plugs, chains...) and check its leveling with the help of a level.
- Ensure sufficient space for carrying out maintenance activities: the opening of the unit cover (from below) must be guaranteed.

Do not mount the unit with the sides in direct contact with the walls to avoid possible contact noise, insert rubber or neoprene strips in this case.



Ceiling mounting

Floor mounting

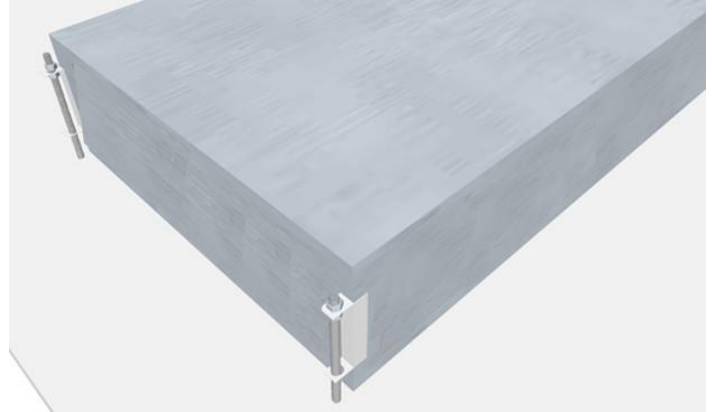
To mount the unit on the floor you will need:

Place 4 threaded rods inside the brackets provided on the 4 corners of the unit;

Secure the unit to the floor through the brackets, using suitable ones anchoring systems (plugs, chains...) and check their leveling with the help of a level.

Ensure sufficient space for carrying out maintenance activities: the opening of the unit cover (from below) must be guaranteed.

Do not mount the unit with the sides in direct contact with the walls to avoid possible contact noise, insert rubber or neoprene strips in this case.



Floor mounting

2.1.3 CONDENSATE DRAIN CONNECTION



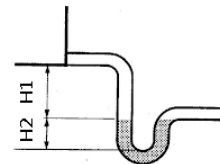
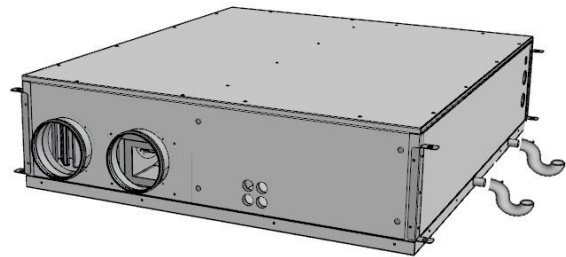
Due to the heat recovery system (the expelled hot air is cooled by the incoming air inside the heat exchanger), and the dehumidification coils, the humidity contained in the internal air condenses inside the 'unit.

For the correct functioning of the heat recuperator, it is therefore necessary to connect two condensate drains to the plumbing system (drain) of the house. Furthermore, to allow the correct flow of condensation water and avoid air suction, the condensate drains must be equipped with special siphons to be supplied and installed by the installer;

For the installation of the condensate drain, respect the following regulations:

- give a slope of at least 2% to the drain pipe;
- provide for the possibility of disconnecting the exhaust pipe for any maintenance (in particular in the case of ceiling installation);
- make sure that the drain end of the hose is at least below the water level of the siphon;
- make sure that the siphon respects the following rules and is always full of water:

$$H1 > 40\text{mm} \quad H2 > 40\text{mm}$$



Condensate drain connection

AREALIC CONNECTIONS

2.1.4 AREA ORIENTATIONS



The unit is equipped with 4 male circular rear connections of different Ø and a front rectangular spout depending on the size;
For the correct connection of the air ducts, refer to the following diagram and the stickers placed on the unit.

Table of unit aeraulic connection diameters

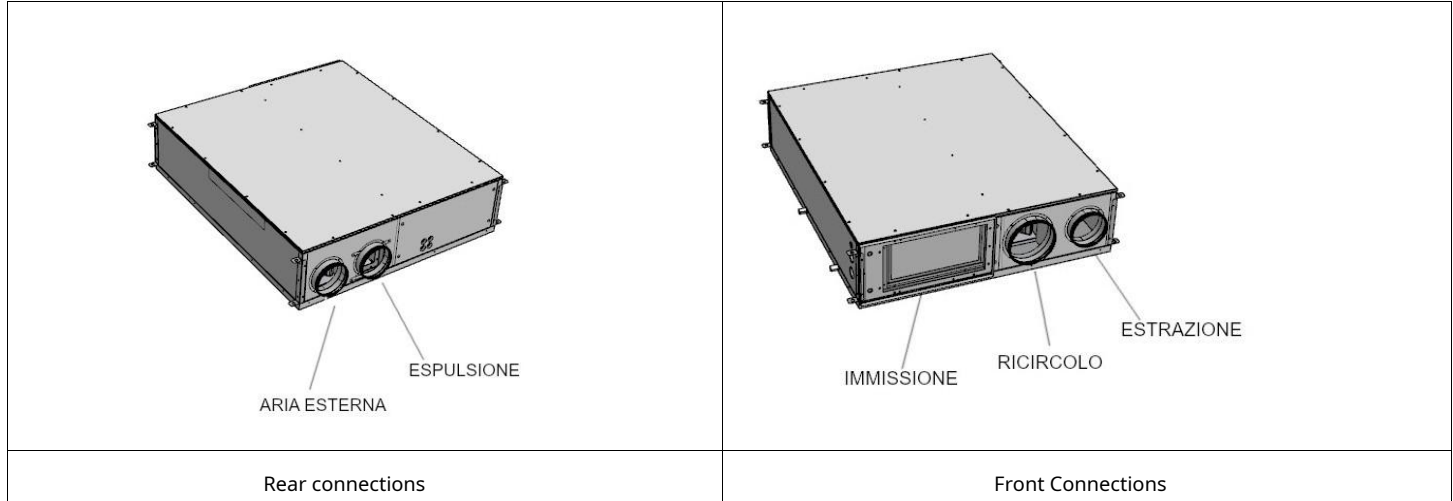
SIZE	30/15	50/25
Ø Recirculation mm	160	200
Ø Stale air mm		
Ø External air mm	160	160
Ø Expulsion mm		
Inlet section mm	350x180	490x255

We recommend installing at least 500mm of flexible pipe to avoid vibration entrainment and annoying noises due to installation.

According to the system in which the unit is to be installed, it will be possible to appropriately orient the four aeraulic connections.

Below is the configuration:

STANDARD VERSION CONFIGURATIONS





3.1.1 GENERAL INFORMATION

- The units are equipped with hydronic coils with water-air exchange;
- The connections on the units, even in different applications and versions, are always common to all units.
- Make sure you respect the flows indicated on the plates: inlet (water entering the unit), outlet (water leaving the unit)
- Make sure that the weight of the pipes does not weigh on the connections provided
- Provide shut-off valves on the delivery and return pipes to the system
- All chilled water pipes must be insulated to minimize unwanted heat exchanges and the formation of condensation.
- Before filling the pipes, make sure that they do not contain foreign materials: such as sand, stones, rust flakes, welding drops, slag, etc. Otherwise, wash the hydraulic circuit by-passing the unit.
- Absolutely avoid pump cavitation and the consequent presence of air in the hydraulic circuit.

Chemical-physical characteristics of water

Incompatible chemical-physical characteristics could compromise the integrity of the hydraulic parts of the unit.

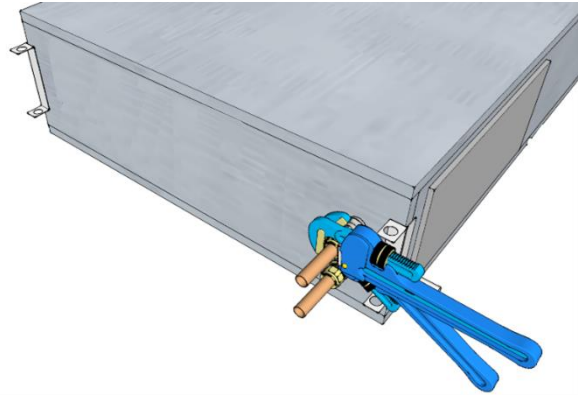
Check the characteristics of the water;

DESCRIPTION	Limit value
Hardness	< 10°F
PH value	7.5 / 9
Oxygen	< 2 mg/l
Conductivity	<500 uS/cm
Iron	< 2 mg/l
Manganese	< 1 mg/l
Nitrate	< 70 mg/l
Sulphate	< 70 mg/l
Chlorine compounds	< 300 mg/l
Free radical carbon dioxide	< 10 mg/l
Ammonium	< 20 mg/l

3.1.2 CONNECTION POSITIONING AND PROCEDURES

<p>The hydraulic connections are positioned on the side of the unit;</p> <p>The connections are with female thread;</p> <p>Respect IN as water inlet to the unit and OUT as water outlet from the unit</p>	
--	--

Connect the pipes with a threaded male fitting and tighten it with dedicated tools;
Be careful not to twist or twist the piping coming from inside the unit;
Rotating the pipes during connection could damage the connections inside the unit and cause water leaks during operation;



3.1.3 2-3 WAY VALVE CONNECTION

The connections of the optional 2/3-way valves must be carried out as indicated;
Be careful to respect the indications on the valve!

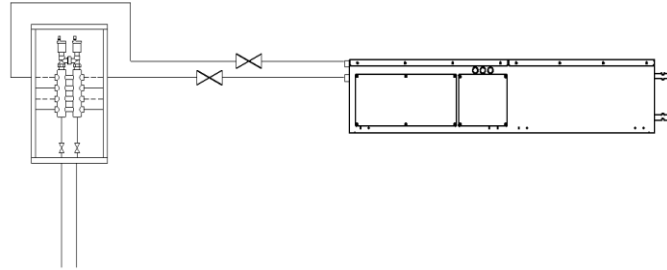


3.1.4 RECOMMENDED CONNECTION DIAGRAMS

- CONNECTION TO THE RADIANT SYSTEM MANIFOLD:

The unit is powered by a collector circuit of the radiant system. Make sure there is the necessary flow rate on the circuit.

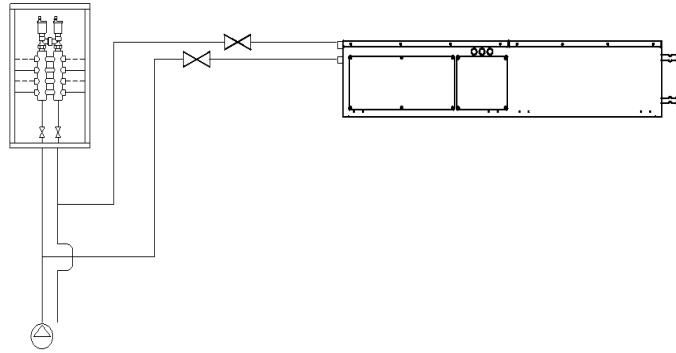
NB: With this type of installation it is necessary to guarantee the machine the nominal flow rate described in the technical data sheet;



RECOMMENDED INSTALLATION- CONNECTION BEFORE THE RADIANT SYSTEM MANIFOLD:

The unit is powered in parallel to the radiant system manifold, thus guaranteeing the water flow rate necessary for correct operation.

NB: In both cases, the failure of the nominal water flow rate of the unit will cause the unit to block.



3.1.5 WELL REFRIGERATING SCHEMES

VERSION D

CO	Compressor
PH	High pressure switch
PS	Service outlet
CN1	Air condenser
EV	Evaporator
BA	Water battery
FI	Filter drier
LM	Rolling organ

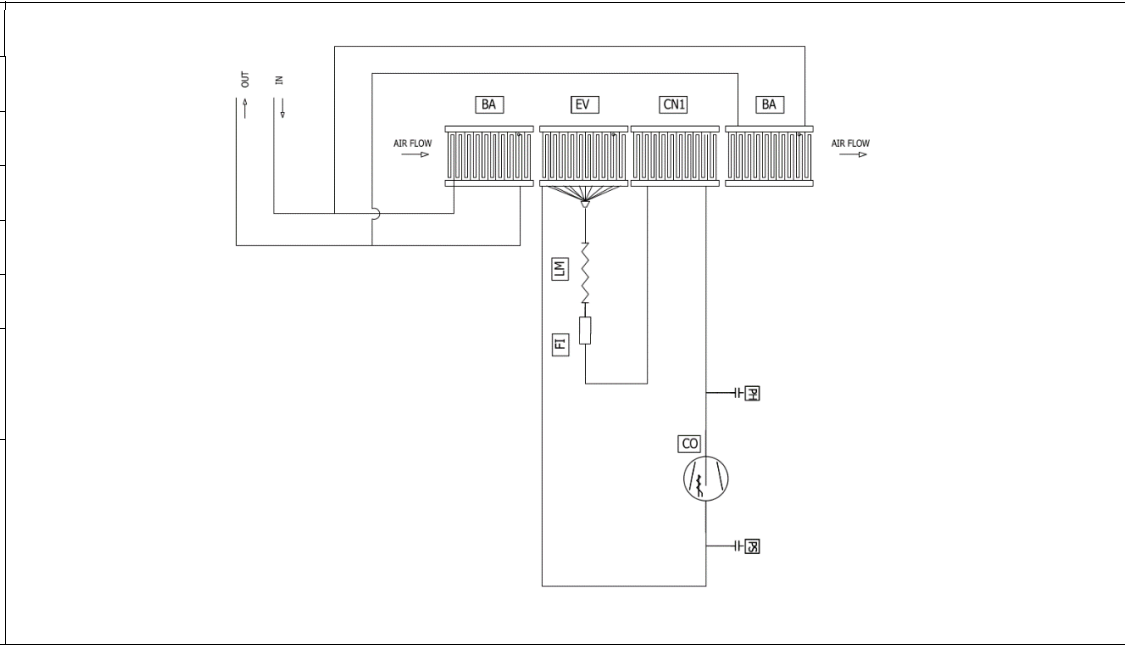
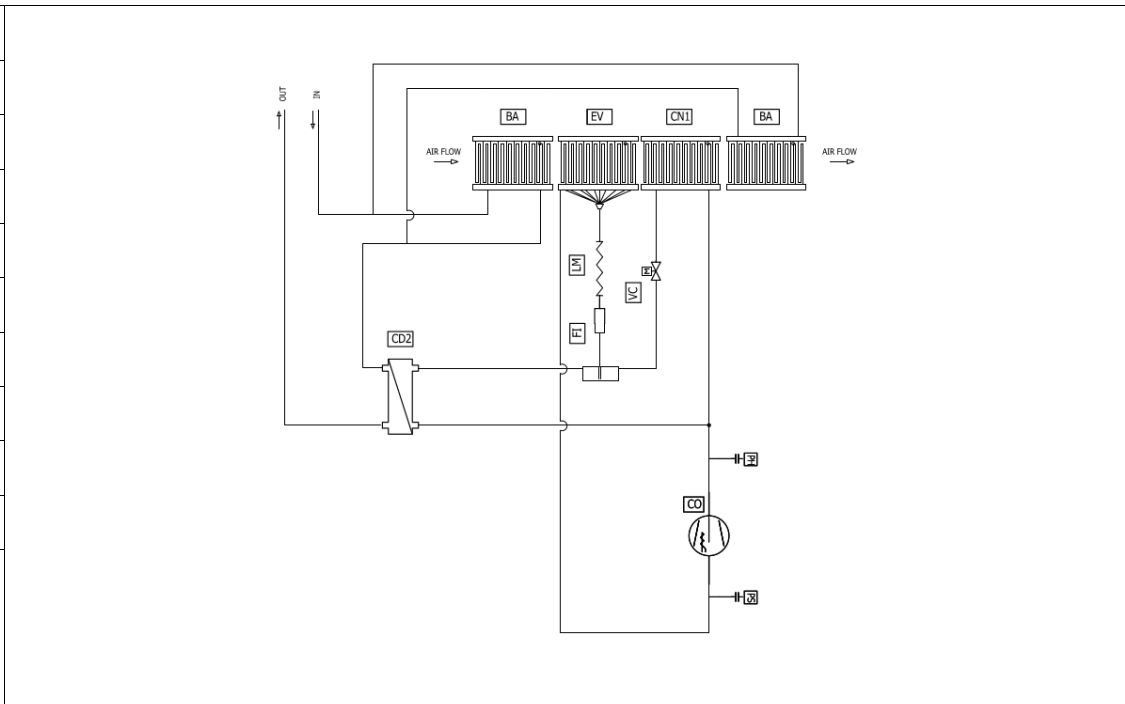


Diagram Version D

DC VERSION

CO	Compressor
PH	High pressure switch
PS	Service outlet
CN1	Air condenser
EV	Evaporator
BA	Water battery
FI	Filter drier
LM	Rolling organ
CD2	Water condenser
LM	Rolling organ
VC	Solenoid valve



DC Version Diagram

ELECTRICAL CONNECTIONS



3.1.6 GENERAL INFORMATION

- Before starting any operation to make the electrical connection, make sure that the unit is not electrically powered
- Carry out the necessary electrical connections by consulting exclusively the electrical diagram attached to this manual.
- Install a suitable interruption and differential protection device to exclusively serve the unit.
- It is essential that the unit is connected to an earthed socket.
- Check that the electrical components chosen for the installation (main switch, circuit breakers, cable section and terminals) are suitable for the electrical power of the installed unit and that they take into account the inrush currents of the compressor as well as the maximum load that can be reached. The relevant data is indicated on the attached wiring diagram and on the unit's identification plate.
- It is forbidden to enter the unit with electrical cables unless specified in this document.
- Use cables and electrical conductors of adequate cross-section and compliant with the regulations in force in the various countries.
- Absolutely avoid running electrical cables in direct contact with pipes or components inside the unit
- After the first few moments of operation, check the tightening of the power terminal screws

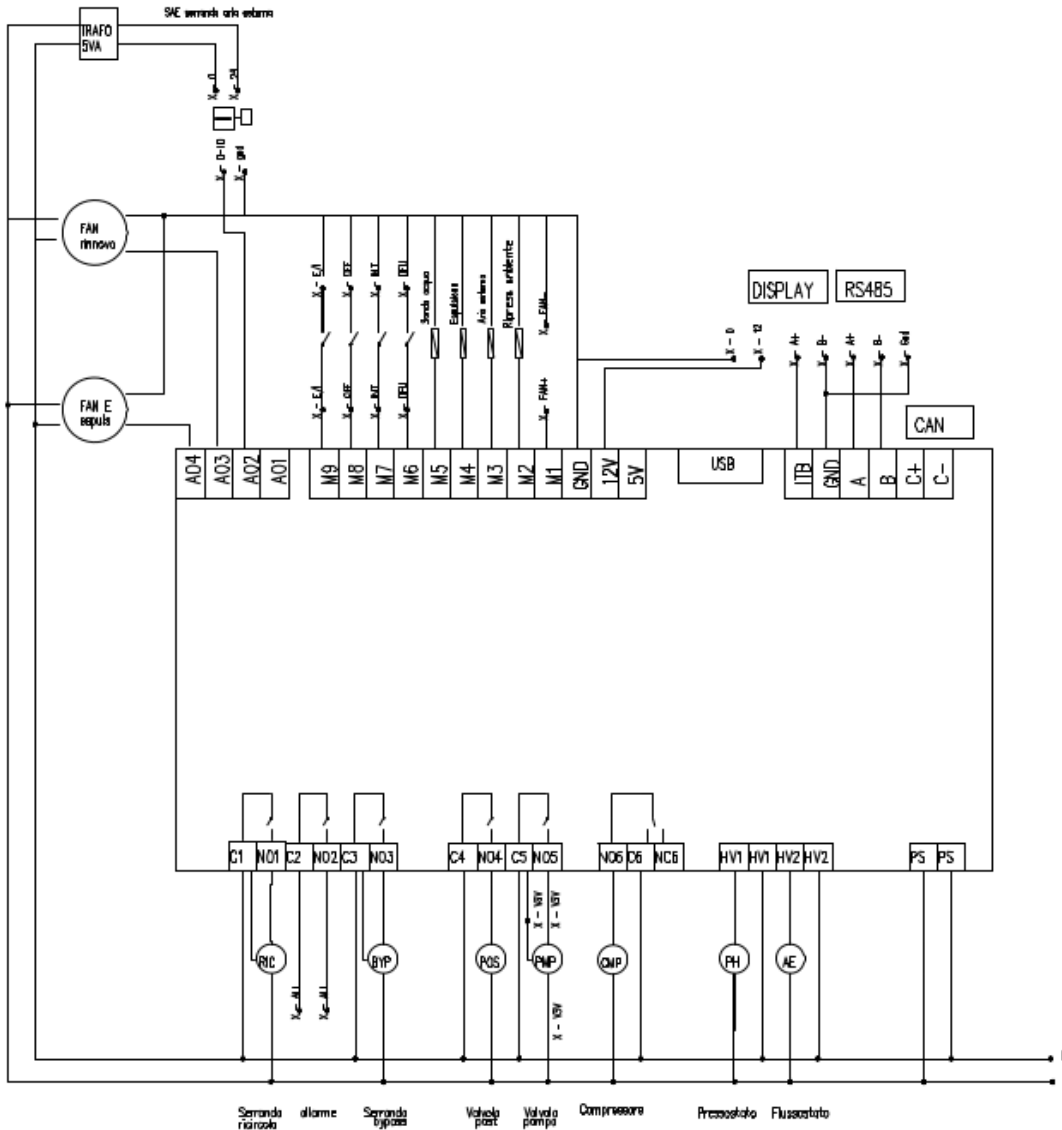
Table for sizing the power supply line

<i>CUT</i>		<i>30/15</i>	<i>50/25</i>
Diet	V/Ph/Hz	230/1/50	
Max current absorbed	TO	3.5	5.9

3.1.7 CONNECTION POSITIONING AND PROCEDURES

<p>The electrical cable entry is positioned on the side of the unit;</p> <p>Four passages dn20mm are prepared;</p>	

3.1.8 UNIT ELECTRICAL DIAGRAMS



ALIMENTAZIONE

L	PE	N
---	----	---

VALVOLA ON OFF

M3V	L1
M3V	N
M3V	L2
PM	N
PM	L2

COMANDI

OFF	OFF
E/I	E/I
E/I	E/I
DEU	DEU
INT	INT
INT	INT
FAN -	FAN +
ALL	ALL
ALL	ALL

SERRANDA ARIA EST

Q	24	Y	GND
---	----	---	-----

DISPLAY

12	D	+	-
----	---	---	---

RS485 MODBUS

RS+	RS-	GND
-----	-----	-----

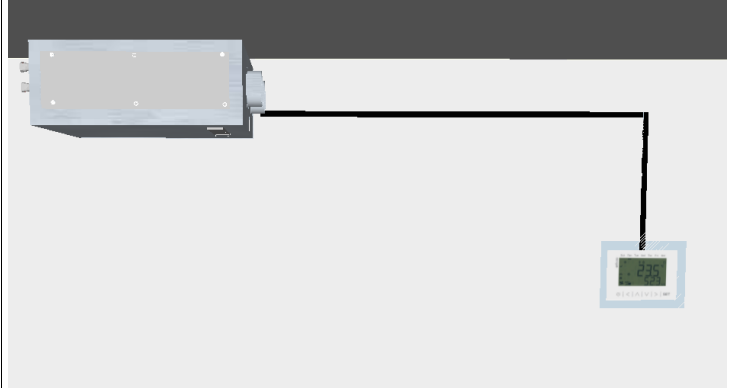
CONNECTIONS BY THE CUSTOMER		
L - PE - N	Unit power supply	230 / 1 / 50
V3V (L1) - V3V (N) - V3V (L2)	2-point valve control	L1-N Fixed voltage L2 - Command
PM - PM	Pump control	230/1/50 Max (2A)
OFF - OFF	Remote On Off command	Contact Closed unit ON
E/I - E/I	Summer / winter command	Contact closed / winter
DEU - DEU	Dehumidification control	Contact closed / function active
INT - INT	Integration command	Contact closed / function active
FAN- FAN+	Air flow adjustment	0-10vdc signal input
ALL - ALL	Generic unit or high humidity alarm signal	Contact closed unit in alarm
0 - 24 - Y - GND	Modulating external air damper control	24Vac power supply - 0-10vdc signal
RS+ - RS- - GND	Modbus RTU	RS485 RTU connection
12 - 0 - A+ B-	Remote display connection (optional)	12-0 Power A+ B- Communication

3.1.9 POSSIBLE OPERATING MODES AND CONFIGURATIONS FOR THE UNIT

The unit has been designed to be managed with three operating modes;

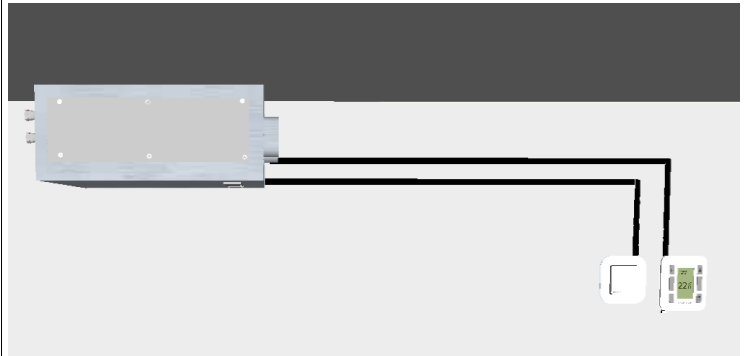
1 OPERATION WITH STAND ALONE REMOTE PANEL

The unit operates via the temperature / humidity control panel (OPTIONAL) where it is possible to select set point, fan speed, activation, time bands and all unit parameters



2 OPERATION WITH CONTROLS

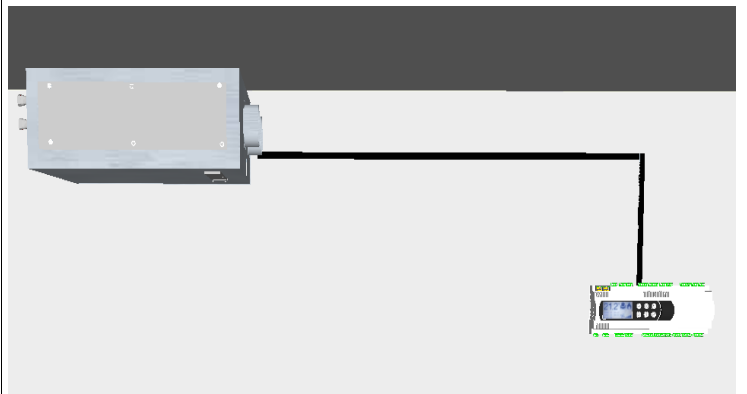
Like a classic dehumidifier, the unit can be managed via digital controls; The ON OFF, SUMMER, WINTER, DEHUMIDIFICATION, INTEGRATION functions can be activated, receive an ALARM signal, and adjust the fan speed via the 0-10vdc signal; The inputs can also be activated by classic wall thermostats/humidistats;



3 OPERATION WITH MODBUS RS485 RTU

The unit can also be controlled via RS485 modbus always present on the unit;

Through serial communication from an external Master device it will be possible to activate and modify all the functions of the unit;





3.1.10 ELECTRICAL CONNECTIONS VERSION

ELECTRONIC BOARD CONNECTION TO CNU TERMINAL

The electronics installed on the unit include a semi-graphic remote terminal with capacitive keys and a temperature/humidity sensor inside;

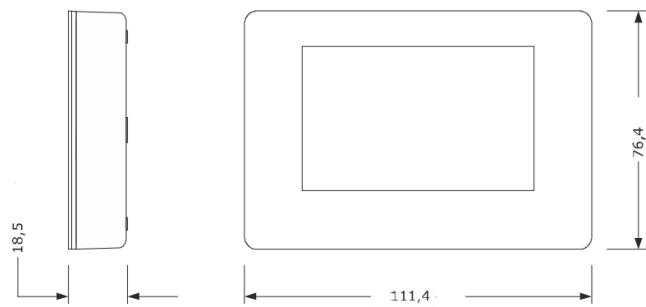
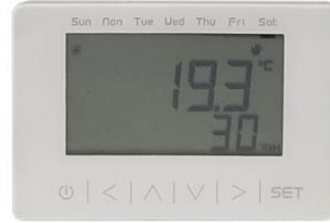
The graphic terminal can be mounted on the wall or outside the 503 box;

The terminal is always supplied in a configuration for wall mounting or on a 503 box, which protrudes from the wall;

For the connection, use a shielded/braided cable (min. 1mm) with a maximum distance of 15m between the remote terminal and the board on the unit.

- 12 - Diet
- 0 - Diet
- A+ - Communication
- B- - Communication

Check the type of connection according to the installation distance in the following diagrams:



Dimensions in mm

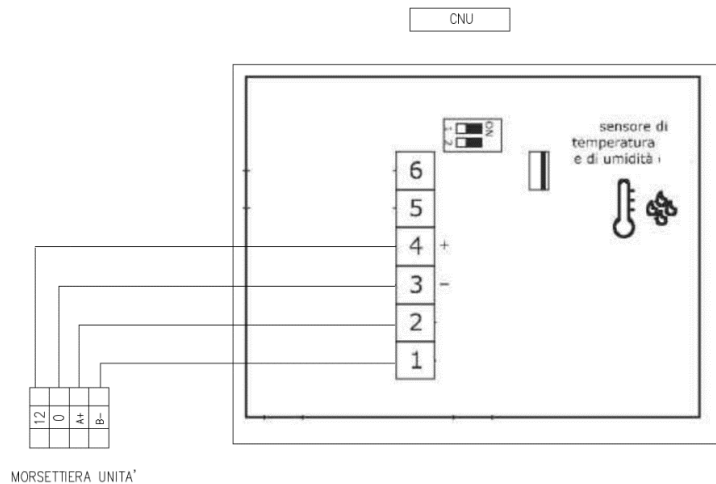
CNU display connection

CONNECTION UP TO 15MT WITH DIRECT POWER SUPPLY FROM THE UNIT

The display can be connected directly to the unit up to distances of 15m;

This connection provides both the power supply and the communication signal to the display;

NB Do not reverse the connections on the display. This could cause damage to both the display and the unit;



Recommended cable = 4 x 0.75mm

Display connection (up to 15m)

CONNECTION OVER 15MT UP TO 100MT WITH EXTERNAL POWER SUPPLY

If the connection distance is greater than 15m, it becomes necessary to power the display from an external power supply to be supplied by the installer;

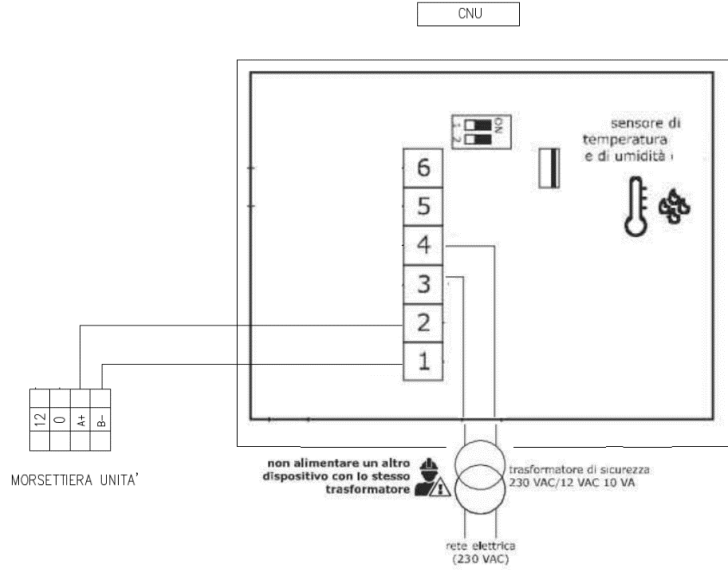
The power supply must be:

Voltage = 12vdc

Power = 10VA

This connection only the two-wire signal connection between unit and display;

NB Do not reverse the connections on the display;
This could cause damage to both the display and the unit;



Recommended cable 2 x 0.75mm

Display connection with external power supply (over 15m)

Auxiliary Connections

Some auxiliary functions have been implemented in the card that can be connected through the following descriptions:

REMOTE UNIT SWITCH ON/OFF CONNECTION

The unit can be connected via a dry contact to a device for turning the unit on/off remotely such as a switch or a timer.

With closed contact: the unit will be ON, with open contact the unit will be forced OFF remotely.



OFF OFF

Screw terminals



Recommended wire = 2x0.5mm / 2 x 0.75mm

Remote on off command

SUMMER / WINTER CONNECTION

The unit can be connected via a dry contact to a device for selecting the operating season;

With closed contact: the unit will be in winter, with open contact the unit will be forced in summer;

Through the remote control it will be possible to enable or disable this function;



E/I E/I



Screw terminals

Recommended wire = 2x0.5mm / 2 x 0.75mm

Contact summer winter

CODE HUMIDIFICATION REQUEST CONNECTION

It is possible to connect a humidistat or dehumidification control to the unit which forces the unit into dehumidification mode;

Contact is provided through a standard thermostat with clean output contact;

Contact Closed: unit in dehumidification

Through the remote control, it will be possible to enable or disable this function;



DEU DEU



Screw terminals

Recommended wire = 2x0.5mm / 2 x 0.75mm

Temperature request contact

TEMPERATURE REQUEST CONNECTION

It is possible to connect a thermostat to the unit which forces the unit into integration mode;

Contact is provided through a standard thermostat with clean output contact;

Contact Closed: unit integrating

Through the remote control, it will be possible to enable or disable this function;



INT INT



Screw terminals

Recommended wire = 2x0.5mm / 2 x 0.75mm

Temperature request contact

FAN+ / FAN - CONNECTION

The unit can be managed through a 0-10vdc signal to increase and decrease the speed of the fans;

Each phase of the unit, ventilation, dehumidification and integration has a minimum and a maximum;



FAN- FAN+



The input signal is linear and goes from:

Min fans = 10%

Max fans = 100%

Screw terminals

Recommended wire = 2x0.5mm / 2 x 0.75mm

Fan regulation contact

GENERIC ALARM SIGNAL CONNECTION

The unit can signal a machine alarm through the generic alarm contact; the contact is a clean contact;

Contact Closed: alarm signal active;



ALL ALL



Screw terminals

Recommended wire = 2x0.5mm / 2 x 0.75mm

Alarm contact to the outside

PUMP / GENERATOR CONTROL

The unit includes the control of a generator or a post battery, a 230v control on the terminal block;

Contact closed: 230v present, with active request;



PM PM



Screw terminals

Recommended wire = 2x0.5mm / 2 x 0.75mm

Pump / generator control

2/3 POINT VALVE CONTROL

The unit provides the control of a 2/3 point On-off valve/battery through the controls provided on the terminal board:

- V3V (N) - Neutral
- V3V (L1) - Fixed power supply
- V3V (L2) - Opening command



V3V V3V V3V



Screw terminals

Recommended wire = 3x0.75mm / 3 x 1mm

Water Valve Connection

MODULATING EXTERNAL AIR DAMPER CONTROL

The unit provides for the command and management of a modulating damper to be installed on the external air with a 0-10v control signal, through the controls provided on the terminal board;

- 0 - Power
- 24 - Nutrition
- Y - 0-10vdc signal
- Gnd - Reference signal for 4-wire dampers



The damper has the function of partitioning the external air according to the summer relative humidity to allow greater dehumidification;



0 24 Y GND



Screw terminals

Recommended wire = 3 x 0.75mm or 4 x 0.75mm
Shielded

Modulating damper connection

4 COMMISSIONING AND HOW TO USE

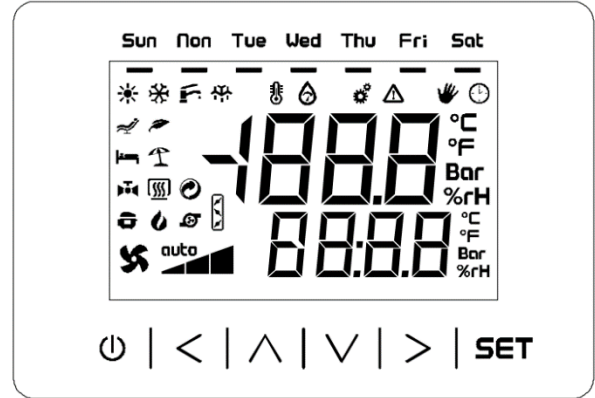
4.1.1 OPERATION OF -K- VERSION CNU REMOTE PANEL









4.1.1.1 CONTROL PANEL - DESCRIPTION AND FUNCTIONALITY OF KEYS

The control panel of the units is a graphic keyboard with a screen resolution of 82x156mm and IP65 front protection. The interface is structured through masks, in which there are writings, graphic symbols and numbers. The keys are located on the black bar at the bottom of the display. From the main screen you can view the day of the week in the top part, the room temperature in the top line and the room humidity in the bottom line. There are also status LEDs, which indicate the current operation of the unit according to the table described below.

The keyboard is equipped with 6 navigation keys and value editing keys with the following functions (black background for the built-in display commands while white background for the LCD display commands):

When alarm pages are displayed, if pressed, the ENTER key scrolls through all active alarms.



	allows you to change the parameters or otherwise move the cursor		displays the pages placed on the same level in succession
	confirms the value or otherwise sends commands associated with the text on which the cursor is positioned.		If pressed and held for approximately 2 seconds it allows access to the main menu.
	If held down while an alarm page is displayed, this key allows you to reset the alarm.		clears the value or otherwise requests the default page that may be associated with the current page
	If pressed and held for approximately 2 seconds, the ESC key allows you to turn the machine on or off.		If pressed when you are on the main page, the button allows you to access the list of active alarms

Mainstage

4.1.1.2 GRAPHIC ICON DISPLAYS

<p>- The unit can be enabled and disabled in two different ways.</p> <p>1) Through a clean contact connected to a device for turning the unit on/off remotely, such as a switch or a timer. With the contact closed the unit will follow the actions indicated in point 2, while with the contact open the machine will remain off and display the "OFF Di" status.</p>	
<p><i>Graphic icon display</i></p>	

LEDs	Meaning	LEDs	Meaning
	- If on, the machine is in summer operation.		- If off, the water valve is closed. - If on, the water valve is open.
	- - If on, the machine is in winter operation.		- If off, defrost is not active. - If flashing, the dripping phase is active. - If on, defrost is active.
	- If off, there are no active alarms. - If flashing, there are new alarms not yet displayed. - If on, at least one alarm is active.		- If flashing, it indicates which day the bands are being modified hours. - If lit, indicates the day of the week.
	- If off, you are in the main view. - If on, you have entered the setting menus.		- If on, the comfort band is active.
	- If off, the time bands are active. - If on, the machine is in manual operation.		- If flashing, the Economy digital input is active. - If on, the economy band is active.
	- If off, the machine is in manual operation. - If on, the time bands are active.		If on, the night band is active.
	- If off, there is no dehumidification request. - If on, there is a dehumidification request.		If on, the holiday is active.
	- If off, the fans are off. - If flashing, the supply or return fan is waiting switching on or off according to safety times. - If on, at least one fan is active.		- If off, there is no effective request for heat integration. - If on, there is an actual request for heat integration.
	- If off, the compressor is off. - If flashing slowly, the compressor is waiting to be turned on or shutdown according to safety times. - If flashing quickly, the compressor is in manual operation. - If on, the compressor is active.		Current supply fan speed. - No step on, fan speed is less than 33%. - First step on, fan speed is 33% higher - Second step on, the fan speed is 67% higher. - Third step on, the fan speed is equal to 100%.
	- If off, the recuperator is off. - If on, the recuperator is active.		- If off, the shutters are closed. - If on, at least one damper is open (external air or recirculation).

4.1.1.3 SWITCHING THE UNIT ON AND OFF

The unit can be enabled and disabled in two different ways:

1) Through a clean contact connected to a device for turning the unit on/off remotely, such as a switch or a timer. With the contact closed the unit will follow the actions indicated in point 2, while with the contact open the machine will remain off and display the "OFF Di" status.



2) Through the button in the main display screen. If the contact described in point 1 is closed, the wording "OFF KEY" will be displayed. By pressing the button for approximately 2 seconds the machine will turn on; pressing the button again will turn it off



On off

4.1.1.4 GENERAL MENU

The general menu has no level and is the access point for all the other menus of the system. To access, press and hold the interface **SET** for 2 seconds from each point button. The available menus are as follows

- USER (USEr)**
- TIME Slots (tb)**
- MAINTENANCE TEACHER (MAIn)**
- INSTALLER (InSt)**
- MANUFACTURER (CONs)**
- RTC (rtc)**
- ALARMS (ALAr)**
- HISTORY (HISt)**
- SAVE PARAMETERS (SAvE)**
- RESTORE PARAMETERS (rESt)**
- INFO (InFO)**

From this menu you can choose the menu you want to view by pressing the keys

↓ ↑, followed by the key **SET** to confirm.



General menu

4.1.1.5 SEASONAL CHANGE






- The unit with connected remote panel provides seasonal change through the same remote panel; If the remote panel is not present, the seasonal change occurs via digital input (unit closed contact in summer)

- Press the button **SET** for 2 seconds to access the USER menu;

- Press the button **SET** to enter the user menu;

- The MODE parameter and the operating season between HEAT (winter) and COOL (summer) will appear on the display



- To change season, press the button  , then press the keys  
to select the season and confirm with the button  ;
To exit the menu press the button 



Seasonal change

4.1.1.6 SET – POINT SETTING

- If the panel is present, the temperature and humidity will be detected via the internal sensors of the CNU; However, the forcing dehumidification and integration functions from digital inputs on the terminal board will also remain active; Settings of the various set points are therefore possible;

- Press the button **SET** for 2 seconds to access the USER menu;

- Press the button **SET** to enter the user menu;

- The MODE parameter will appear on the display, then press the   keys to select the set points to modify;



The following will be displayed in sequence:


STC = Summer temperature set point

STH = Winter temperature set point

UO1 = Humidity set point

To change the sets, press the key **SET** on the desired parameter, then press i

keys   to select the desired value and confirm with the button


SET ; to exit the menu press the button 



Setpoint setting

4.1.1.7 SETTING THE FAN SPEED

- Inside the units there are (except in the version without recirculation) EC fans with modulating brushless motors; The minimum and maximum speeds are already configured in the factory but through the 0-10vdc input, or through the CNU command if present, it will be possible to select the most suitable speed with respect to the system ducts to obtain the best

performance / noise ratio; press the button for 2 seconds  For

decrease the speed while the button  to increase speed;

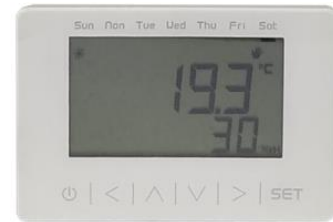
The bar with 3 segments indicated, , reports the indications as described below:

- No step on, fan speed is less than 33%.

- First step on, fan speed is 33% higher

- Second step on, the fan speed is 67% higher.

- Third step on, the fan speed is equal to 100%.



Fan speed setting

4.1.1.8 CLOCK SETTING (RTC)

This menu contains the functions of the RTC (Real Time Clock) system.



When the controller is left without power for a few days, the RTC system clock loses active time. When restarting you will need to reset the current date and time. In this case, when the machine is turned on, the pages for setting the time displayed alongside are presented.

For



configure the clock: Press the key **SET** for 2 seconds to access the USER menu;

then press the keys   to select the rtc menu

- Press the button **SET** to enter the Rtc menu

- Set RTC will appear on the display, then press the keys   For select day, month, year, hour and minute to modify;

To change the values, press the key **SET** on the desired parameter, then press i

keys   to select the desired value and confirm with the button

SET ;

Once the clock has been configured, press the ENTER button on "SAVE".



If the "AL26 - RTC Alarm" alarm does not disappear, disconnect and reconnect the power and repeat the procedure.










To exit the menu press the button



Clock setting (RTC)

USER MENU

This section contains the parameters visible and modifiable by the user, listed alongside.

- Press the key to access  for 2 seconds per the USER menu;
- Press the user  to enter the menu key;
- The MODE parameter will appear on the display, then press the keys   For select and display the parameters of the user menu;
- To modify the parameters, press the key  on the desired parameter, then press i keys   to select the value desired and confirm with the button  ;
- To exit the menu press the button 



(MOD)	summer/winter operation	(STC)	Set point for summer operation
(STH)	Set point for winter operation	(UO1)	Room humidity set point
(SCC)	Comfort range cold set point	(SCH)	Comfort band hot set point
(OEC)	cold offset economy range	(OEH)	hot offset economy range
(ONC)	cold offset night band	(ONH)	warm offset night band
(SDC)	Cold set point forced by DI	(SDH)	Hot set point forced by DI
(FSC)	Comfort range fan set point	(ESF)	Economy range fan set point
(FSN)	Set point for night range fans	(BYN)	backlight display mode
(BYU)	display backlight percentage	(BYT)	backlight display timeout
(BYU)	Cold set point forced by DI	(BYT)	Hot set point forced by DI
(PS1)	user password		

User menu parameters

4.1.1.9 VIEWING STATUS PAGES

With unit ON, by pressing the buttons , it is possible view the status pages of each family. On every page / family of states, the information can be viewed by pressing the keys .

The available screens are:

SET display of time bands and release of the current band

On these screens you can:

- enable time band regulation via "Etb".
- view the time band currently in progress via "tb" ("----" = no band active, "OFF" = OFF band active, "COMF" = comfort band active, "ECO" = economy band active, "nIGH" = active night band, "H" = active holiday band),
- view and modify the set currently in use via "SEt". With time band regulation, the modification of the current set will only be valid for the band currently in progress.

FAN fan status display

In these screens you can view:

- the status ("----" = fan disabled, "OFF" = fan off, "tOn" = fan waiting to be switched on, "On" = fan on, "tOFF" = fan waiting to be switched off)
- the status and speed of the supply fan indicated with "SUP" and of the exhaust fan indicated with the "rEt" label.

CMP compressor status display

In these screens you can see whether it is present or not:

- the "dEH" dehumidification request
- the humidity set point "SEt"
- the status of the compressor "StS" ("----" = compressor disabled, "ALrM" = compressor in alarm, "MAnU" = compressor in manual operation, "tOn" = compressor waiting to be switched on, "On" = compressor on, "tOFF" = compressor waiting to be turned off, "OFF" = compressor off)
- the status of the digital output of the compressor on/off,
- the status of the air condensation valve "Air" and the status of the water condensation valve "H2O".

H2O water valve status display

In these screens it is possible to view the status of the water valve ("----" = valve disabled, "OFF" = valve closed, "On" = valve open).

DAMP display of shutter status

In these screens it is possible to view: the status of the recirculation damper "rEC" and the status of the external air damper "StS" ("----" = damper disabled, "OFF" = damper closed, "tOFF" = damper closing, "On" = damper open)

- the opening percentage of the modulating external air damper "AO" **RECO heat recovery status display** In this screen you can view:

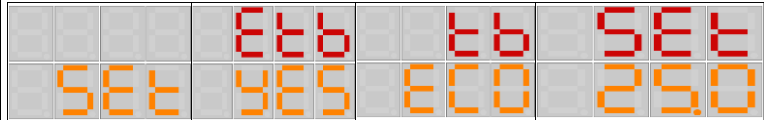
- the "EFC" efficiency value
- the status of the recuperator "StS" ("----" = recuperator disabled, "OFF" = recuperator off, "OFFd" = recuperator off for defrosting, "OFCH" = recuperator off for free-cooling/heating, "On" = recuperator active)

- the status of the digital output "dO".

PROB probe status display In these screens it is possible to view the status of the sensors indicated with the following wording: "trE" = T.room/intake, "tOd" = T.external, "tUA" = T.water, "tEH" = Exhaust T., , "HUM" = Room humidity, "FAn" = Fan remote potentiometer input value.



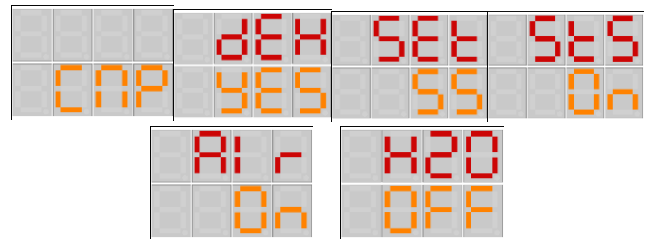
Time slots screen



Fans screen



Compressor screen



Water valve screen



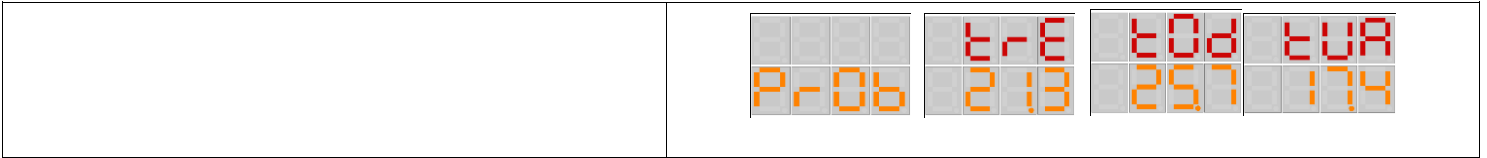
Shutters screen




Recuperator screen



Sensor status screen



4.1.1.10 ALARMS MENU

Pressing the button  in the main display mask allows you to access the alarms menu; the writing ALM PAGE will be displayed. By pressing the SET button it is possible to view the alarms in progress. Two types of writing will be displayed:


- No ALAR: No alarm present
- ALM Alxx: Indicates the presence of an alarm, where xx indicates the error code. For further information, refer to the Alarm Table section.

There are two types of alarms, those with manual reset and those with automatic reset, and both will be displayed in the alarms menu. Once the conditions for which the alarm occurred are restored, if the alarm has automatic reset the alarm will reset without the user having to intervene; in the case of manual reset, the following must be done to perform the reset:

- Position yourself with the keys   on the page of the alarm to be reset

- keep the button pressed  for about 2 seconds

At this point, if there are no other alarms, the wording "No ALAR" will be displayed; the alarm icon will go off and the machine will return to normal operation, or the page relating to the next active alarm will be displayed.


To exit the menu press the button 






Display menu and information

4.1.1.11 ALARM HISTORY MENU

This section contains the history of alarms stored by the controller:


Press the key  for 2 seconds to access the USER menu;

- then press the   to select the HIST menu and press  keys to access it;

This menu allows you to view the alarm history.

The ALARM HISTORY page shows the latest alarm. To be able to view alarms

previous ones, press the button . By repeating this procedure you scroll through all the elements of the history until the first alarm is displayed. The history display is circular.

To exit the menu press the button 



Alarm history menu display

4.1.1.12 MAINTENANCE TECHNICIAN / INSTALLER / MANUFACTURER MENU



In this section it is possible to access the reserved menus for the MAINTENANCE TECHNICIAN / INSTALLER / MANUFACTURER level settings:

- press the button **SET** for 2 seconds to access the USER menu;

- then press the keys **▽** **△** to select the desired menu e

press **SET** to access it;

This menu is protected by a password which is required before accessing it;

press the button **SET**, then press the keys **▽** **△** For

select the password and confirm with **SET**

To exit the menu press the button **⏻**

WARNING: Modifications to these parameters involve an unapproved and dangerous modification to the operation of the unit; Contact authorized personnel only!



Maintenance / installer / manufacturer menu

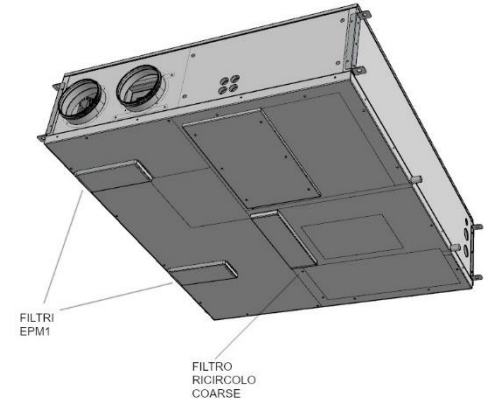
To always guarantee the correct and optimal functioning of the unit, it is necessary to periodically carry out all maintenance operations.

5.1.1 CLEANING OR REPLACING FILTERS

To replace the filters or clean them, proceed as follows:

- remove power to the unit;
- open the filter covers through
- remove dirty filters;
- gently insert the new filters;
- close the lid with the dedicated knobs;

If the conditions of the filters allow it, they can be cleaned using a vacuum cleaner or a low pressure compressor.



Filter extraction view

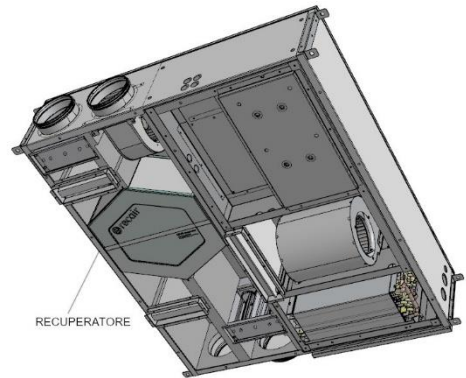
5.1.2 CLEANING THE HEAT EXCHANGER

It is advisable to check the condition of the heat exchanger at each cleaning/change of filters and to clean it if deemed appropriate. This operation must only be carried out by qualified personnel (installer).

To clean the heat exchanger proceed as follows:

- remove power from the unit
- in case of ceiling installation, disconnect the condensate drain pipe;
- open the unit cover by unlocking the fixing hooks and removing the screws;
- extract the heat exchanger using the appropriate green band/strapping;
- proceed with cleaning very delicately using a vacuum cleaner or a low pressure compressor (to prevent dirt from entering the heat exchanger, clean in the opposite direction to that of the air flow);
- insert the exchanger back into place;
- close the cover, locking it in position by locking the fixing hooks and inserting the screws;

Attention! Never touch the fins of the exchanger, handle the exchanger by holding it only on the closed sides.



View for exchanger extraction

5.1.3 GENERAL CLEANING OF THE UNIT

It is advisable to occasionally check and, if necessary, clean the fans, the condensate drain and the internal walls of the unit. These operations must only be carried out by qualified personnel (installer).

To carry out the above operations, proceed as follows:

remove power from the unit

in case of ceiling installation, disconnect the condensate drain pipe;

open the unit cover by unlocking the fixing hooks on it;

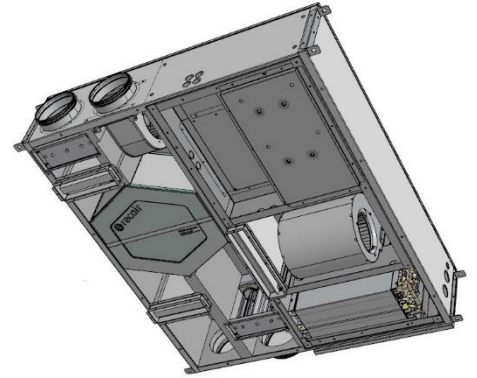
proceed to check and, if necessary, clean the fans, the condensate drain and the walls;

close the cover, locking it with the fixing hooks on the unit

connect the power cord and turn on the unit from the switch on the side panel.

For cleaning you can use a vacuum cleaner, a cloth slightly moistened with water, a soft bristle brush or a low pressure compressor.

Attention! There are small metal clips on the blades for balancing the blades themselves, DO NOT remove them.



Views unit for general cleaning

6 ALARMS

6.1.1 GENERAL INFORMATION

In the event of problems or faults, take note of any error code that appears on the display of the electronic control unit or remote control, take note of the model and serial number of the unit you have (present on the identification plate attached to the side of the unit) and contact the installer.

6.1.2 PROBLEMS WITHOUT ERROR INDICATION ON THE DISPLAY

PROBLEM	CAUSES	REMEDIES
Display off	No power (light switch off)	Check the connection to the electrical network.
Poor air flow o absent The rooms remain humid	Clogged filters	Replace the filters
	Clogged exchanger	Clean the exchanger
	Ice cream exchanger	Take the exchanger to a warm place and wait for it to thaw, not heat with direct heat sources.
	Dirty fan	Clean the fan
	Clogged fan ducts	Clean the ventilation ducts
	Outside temperature below 0°C	The unit may be in antifreeze mode, please wait until the outside temperature increases or consider installing one electric pre-heater.
High noise	Noise coming from the unit	Check for cracks and/or air leaks from the panels of the unit Check the siphon connection Check whether the motors rotate correctly (bearings)
	Noise coming from the ducts	Check for cracks on the intake ducts / entry/expulsion
Vibrations Elevate	Vibrating panels	Check the integrity of the panels and profiles of the unit Check that the unit cover and panel are closed properly which covers the electronic board Check that there are no walls that could transmit vibrations to the wall/floor/countertops
	Unbalanced fan blades	Check the integrity of the blades Clean the fans Check that the small clips in are still present on the fans metal for balancing the blades themselves
Condensation leak	Clogged condensate drain	Clean the condensate drain
	Condensate does not flow from the exhaust pipe into the collection tray	Check that the unit is perfectly flat Check that the condensate drain connections are not clogged

TABLE OF ALARMS SIGNALLED BY THE DISPLAY

Below is a list of all the alarms managed by the application.

The presentation order is the same as the order in which alarms appear when active. The alarms can all be viewed even with the machine turned off.

CODE	ALARM DESCRIPTION	REARM	CONSEQUENCE
AL01	High humidity warning	Automatic Manual later PA22events/time	Stops the return fan Closing of the external air damper if digital Partialization of the external air damper if analogue
AL02	High humidity alarm	Manual	Viewing only
AL03	High water temperature in summer	Automatic	Heat integration inhibition Dehumidification inhibition if PU03=0
AL04	Low water temperature in winter	Automatic	Heat integration inhibition
AL12	Compressor high pressure switch.	Automatic Manual later PA35events/time	Stops the compressor
AL16	Antifreeze	Automatic	Stop the fans
AL18	Generic alarm	Auto/Manual	Turns off all devices
AL19	Generic warning	Auto/Manual	Report only
AL22	Dirty filter alarm	Manual	Reporting only
AL25	I/O configuration error	Automatic	Turns off all devices
AL26	Faulty or disconnected RTC clock	Auto/Manual	Inhibition of time band management
AL28	Room/intake temperature probe faulty or disconnected	Automatic	Inhibition of adjustments dependent on it
AL29	External temperature probe faulty or disconnected	Automatic	Inhibition of adjustments dependent on it
AL30	Water temperature probe faulty or disconnected	Automatic	Inhibition of adjustments dependent on it
AL31	Exhaust temperature probe faulty or disconnected	Automatic	Inhibition of adjustments dependent on it
AL34	Room/intake humidity probe faulty or disconnected	Automatic	Inhibition of adjustments dependent on it
AL36	Fan remote potentiometer faulty or disconnected	Automatic	Inhibition of adjustments dependent on it

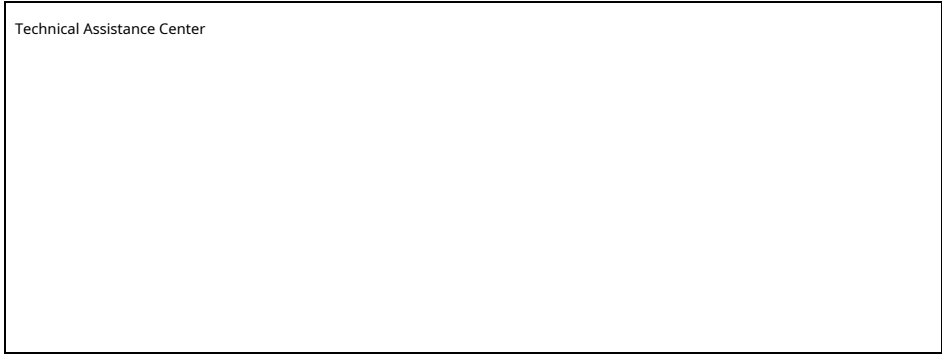
NOTES

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03 - 2023

N420929A-01

Technical Assistance Center



The data contained in this manual may be changed by the manufacturer without prior notice.

