Utek

indoor air quality and energy saving

EVO PH TOUCH PANEL

Software version 4.24

EVO-PH

T-UR

ELECTRONIC CONTROLS MICROPROCESSOR

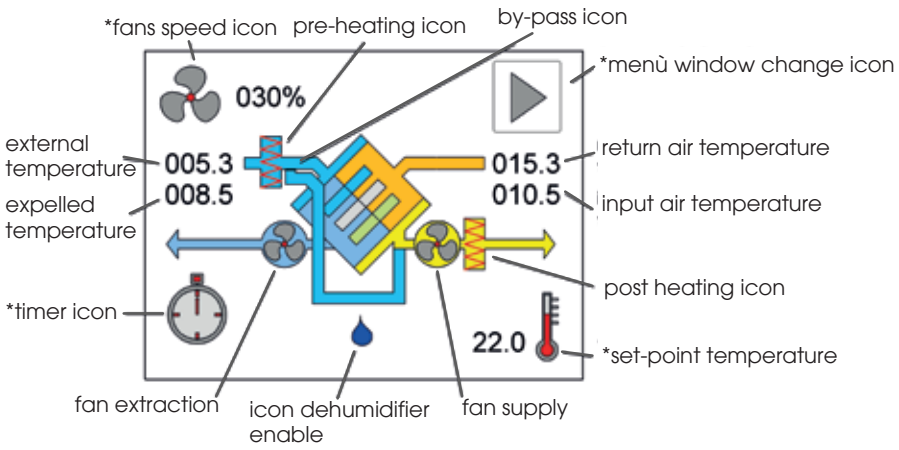
Dear Customer

Thanks for your attention to the product UTEK, designed and manufactured to ensure the real values to the User :
Quality, Safety and Savings on working.

CONTENT

MAIN WINDOW

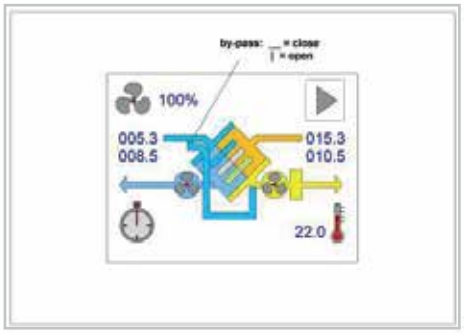
The touch-screen control panel has been designed to control Controlled Mechanical Ventilation units with Heat Return (VMC-RC) in a simple and intuitive way. The user controls the unit by slightly pressing the graphic display icons; the arrow keys that appear after pressing a changeable parameter enable the user to interact with the unit by scrolling menu items and changing values. All changes or selections must be confirmed by pressing OK. When an icon is pressed, its color turns green and the relevant parameter can be changed. When an item in a submenu is highlighted, it looks white on a black background: if OK is pressed, the writing turns green and changes can be made using the arrow keys.



***= modifiable parameters**

The main window is a detailed graphic representation of the machine status, from which all available functions can be activated. Press the menu window change icon to change window and access the other menus. From the other windows, select the window change icon and press OK to go back to the previous window. For energy saving purposes, the control enters a stand-by mode (the screen goes off) after one minute of inactivity. When any point of the screen is touched, the display restarts automatically. In case of alarms, instead, the display lights up for about half a second every ten seconds.

Unit without By-pass



Unit with By-pass

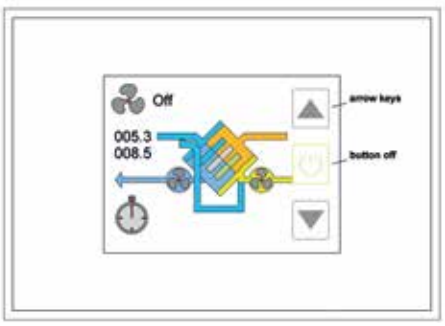
FAN SPEED CONTROL AT CONSTANT FLOW OR PRESSURE

Through this parameter is possible to manage fans settings. In order to change it, press the top left icon in the synoptic display to select it (it will turn green and the arrow keys will appear). Then, press the up arrow key icon to increase or the down arrow key to reduce the value on its side; once the desired value is found, press OK to confirm your selection. At first is possible turn off the unit directly by pressing the center button, it automatically disappears by pressing the arrow keys.
In detail, the possible options are as follows:
- **off**: fans are motionless with this option, but watch out that the unit is live anyway; this value is achieved by going below the minimum speed value that can be set;
- **xxx%**: if the unit is equipped with continuously variable speed fans, a fan speed percentage, flow or a full-scale pressure (for units not equipped with a specific kit, yet with a cop/cav version with a different sensor) value can be set starting from the minimum value (factory setting) up to 100% of the available speed with 5% steps (1% on request);
- **1, 2 or 3**: if the unit is equipped with 3-speed fans, one of the available speeds can be selected: speed 1, speed 2 or speed 3.
- timer: with this option, the fan speed is controlled according to the weekly schedule (see Program menu). This value is achieved by selecting a greater value than the maximum speed (100% or 3);
- **auto**: this option is only available when a sensor (CO2, CO2-VOC or RH relative humidity) is available on whose measure depends the fan speed. If an external signal (0-10V) is used to control the fan speed, this value is obtained by selecting a greater value than clock.
- **xxx m3/h**: if the unit is in constant flow version (CAV) with kit, the desired value can be set in m3/h of flow. Fans will automatically run at the speed corresponding to this flow according to the change in the load.
- **xxxPa**: if the unit is in constant pressure version (COP) with kit, the desired value can be set in pascal of pressure. Fans will automatically run at the speed corresponding to this pressure according to the change in the load.

Changing fan speed as a percentage

Changing air flow

Changing pressure



Turning off

In detail, the possible options are as follows:
- **off:** fans are motionless with this option, but watch out that the unit is live anyway; this value is achieved by going below the minimum speed value that can be set;
- **xxx (%):** if the unit is equipped with continuously variable speed fans, a fan speed percentage, flow or a full-scale pressure (for units not equipped with a specific kit, yet with a cop/cav version with a different sensor) value can be set starting from the minimum value (factory setting) up to 100% of the available speed with 5% steps (1% on request);
-**1, 2 or 3**: if the unit is equipped with 3-speed fans, one of the available speeds can be selected: speed 1, speed 2 or speed 3.
- **clock**: with this option, the fan speed is controlled according to the weekly schedule (see Program menu). This value is achieved by selecting a greater value than the maximum speed (100% or 3);
- **auto**: this option is only available when a sensor (CO_2, CO_2-VOC or RH relative humidity) is available on whose measure depends the fan speed. If an external signal (0-10V) is used to control the fan speed, this value is obtained by selecting a greater value than clock.
- **xxx (m^3/h)**: if the unit is in constant flow version (CAV) with kit, the desired value can be set in m3/h of flow. Fans will automatically run at the speed corresponding to this flow according to the change in the load.
- **xxx (Pa)**: if the unit is in constant pressure version (COP) with kit, the desired value can be set in pascal of pressure. Fans will automatically run at the speed corresponding to this pressure according to the change in the load.

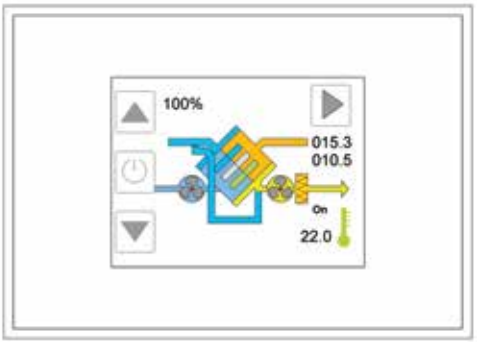
BOOSTER FUNCTION

The booster function is accessed when the bottom left icon is selected; a time period (from minimum 1 minute to maximum 4 hours) can be selected, in which the unit can run at the maximum power. The booster function has the priority over any other fan speed control method.

After you select the function, a digital chronometer is displayed (hours.minutes.seconds), which is preset on a 10 minute value. This value can be changed by means of the arrow keys on the right side of the screen: up to increase the booster time and down to reduce that time. After selecting the desired time, press OK to start the functionality: the display shows the remaining time to the end of the procedure. When the 00.00.00 value is reached, fans return to be controlled in the previously selected way. When you want to stop the procedure, just repeat the booster setting operations and select a 0-minute time and press OK.

SET POINT TEMPERATURE

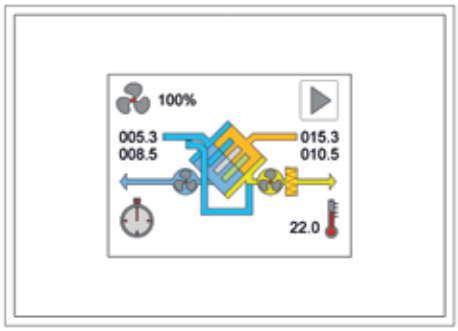
The temperature set-point is given by the thermometer icon (located at the bottom right of the screen like images next paragraph) that can be red (heat mode) or blue (cooling mode). When the bottom icon is selected, the desired interior temperature set-point (Ts) function is accessed: the user can increase the Ts value by the up arrow key or, vice versa, reduce it by the down arrow key. With the central button, which appears at first, is possible to deactivate the set-point (and so treatment air). Once the desired value is achieved, the selection is confirmed by pressing OK. Ts can take values between 5.0°C and 30.0 °C with 0.1°C steps. The icon also appears when a post-treatment system is not installed, in this case the set is used to manage the by-pass in free-heating \ cooling. The temperature reference is return (Tr).



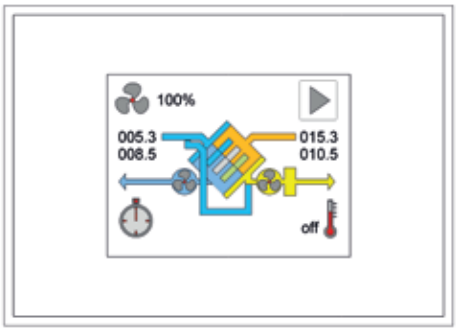
Post-heasting modification

AIR POST-TREATMENT CONTROL

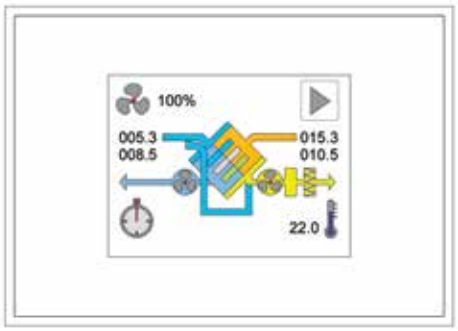
The control can run an air post-treatment system with either a water coil or an electric resistance. A box representing the post treatment appears on the supply airflow. The symbol inside, if red, indicates that heating is being worked on. While if blue indicates that it is working in cooling. If there are two post-treatment elements, the boxes become two with the corresponding red \ blue symbols for each one. The writing on-off (which only appears in the presence of a post-treatment) indicates only that the function is enabled \ disabled. So even if we find it "on "the post treatment it is not necessarily active.



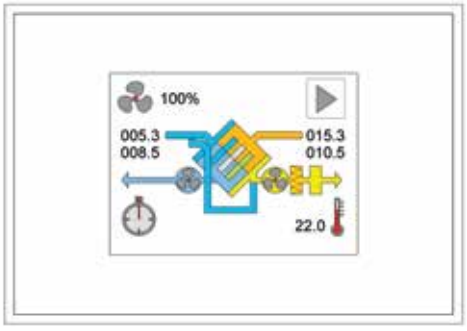
Post-heating on



Post-heating off



Post-cooling on



Post-cooling off

PRE-HEATING CONTROL

In addition to post-heating, the EVO-PH control can run an electric pre-heating system to prevent the formation of ice in the heat exchanger. The control starts the anti-frost procedure automatically when the temperature detected by the expelled probe (Tx) drops below 3°C. The heater is powered at the minimum power, if the Tx temperature keeps dropping, the pre-heater power is increased step-by-step up to 100% if Tx reaches 1°C. When Tx exceeds 3°C, the procedure stops. The main window shows the preheating status: the preheating status is displayed in the main window:

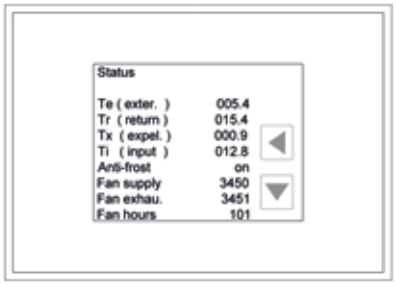
Pre-heating on

Pre-heating off

MENU SELECTION WINDOW

The menu window is accessed from the main window by touching the specific icon (window change icon right icon indicates it is selected). Then, scroll with the down arrow key and then press OK on the desired item. When the menus are selected (press the down arrow key up to highlight the desired option and press OK to confirm the selection), the various detailed information of the system is accessed. When the last voice of menu is reached the down key disappear, instead when the first voice of menu is reached appear a left arrow icon. To return in previous menu press the up key until is displayed the arrows left and press it.

Menu selection window



window change icon

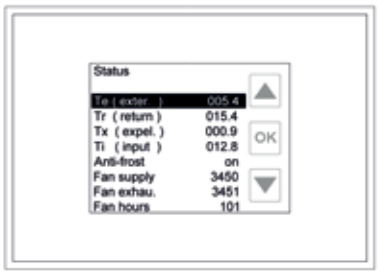
The functions listed here below can be accessed from the menu window:
- **Status**;
- **Program**;
- **Clock**;
- **Alarms**;
- **Installer**;
- **Factory** (password protected, can only be accessed by the factory).

The main window is accessed from the Menu window by pressing the up arrow key until the window change icon is displayed, then press on it.

STATUS MENU: OPERATING STATUS

If the remote control panel is used to run several units (master-slave mode), a screen will be displayed in the menu with the list of available machines (max 4):

Selection of units to be monitored, master/slave configuration



Display of the Status menu with fan speed

In order to display the status of one unit, you must select this unit (move by means of the arrow keys and confirm your selection by pressing OK).

If the control is configured to run one unit, when this menu is accessed, the status of this unit can be seen right away and the values of the characterizing parameters are displayed; all parameters can be scrolled by using the up and down arrow keys. Pressure and flow parameters are referred to machines with cop/cav kit:

Te (exter.)	Te (esterna)	Temperature of external air in °C
Tr (return)	Tr (ripresa)	Temperature of return air in °C
Tx (expelled)	Tx (espulsa)	Temperature of expelled air in °C
Ti (input)	Ti (ingresso)	Temperature of input air in °C
Tw(water)	Tw(acqua)	It is on if water coil post-heating is available: it shows the temperature of the water coil in °C.
Wat.nofrost	Antig. Acqua	It is on if post-heating is set through water coil and indicates whether the anti-frost mode is active. The anti-frost function for the water coil starts when the temperature detected by the Tw probe drops below 3°C and then goes off when the temperature returns above 3°C. When a temperature lower than 3° C is detected, the control valve (hot water) is fully opened in order to prevent ice formation in the elements. If this temperature remains and Tw drops below 1°C, also the fans will be stopped and an alarm will be notified (see ALARMS paragraph).
Anti-frost	Antighiaccio	Anti-frost function status (ON-OFF). The anti-frost function starts automatically when the temperature detected by the Tx probe drops below 1°C and then goes off when the temperature rises above 3°C. The purpose is to avoid ice formation in the heat exchanger. It can be managed by unbalancing fans(default),from a resistance, or by modulating by-pass.

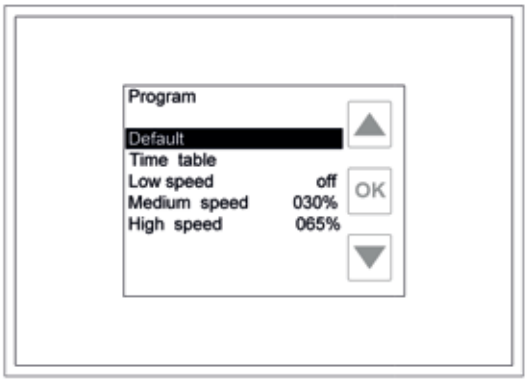
Fan supply	Vent. ingr.	Supply fan speed value, which is expressed in: - revolutions per minute (RPMs) if fans with tachometric signal are installed; - percentage if variable speed fans without tachometric signal are installed (Off when the fan is off); - Off, 1 ,2 or 3 for 3-speed fans.
FanS. Remote		Only Evo-d. If "on" indicates active the independent regulation from Modbus of supply fan
Flow supply	Portata ingr.	Only for constant-flow units with control of two flows or with flow sensor. Value in m3\h of the supply flow.
Dp Supply	Pressione ingr.	For constant pressure units with control of two flows only. Pressure value downstream of the supply fan expressed in pascal.
Fan exhau.	Vent. estr.	Exhaust fan speed, see input fan.
FanE. Remote		Only Evo-d. If "on" indicates active the independent regulation from Modbus of exhaust fan
Flow exhau.	Portata estr.	Only for constant-flow units with control of two flows or with flow sensor. Value in m3\h of the exhaust flow.
DpExhau	Pressione estr.	For constant pressure units with control of two flows only. Pressure value upstream of the exhaust fan expressed in pascals.
Flow	Portata	For constant flow units with control of one flow only. Value of the supply fan flow expressed in m3/h.
Dp	Pressione	For constant pressure units with control of one flow only. Pressure value downstream of the supply fan expressed in pascal.
Fan (exhau.)		Expulsion fan speed, see above.
Fan hours	Ore Vent.	Unit operation hours.
Bypass	Bypass	It is on if the by-pass is configured: - On By-pass open; - Off By-pass closed. - Mod By-pass modulated (only if set in factory).
Heating\Cooling On\Off	Riscald./raffreddam./on/off	It is on if the water or electric air post-treatment is configured: - Heating on\off : post-heating on\off ; - Cooling on\off : post-cooling on\off.
CO_2 /VOC ppm	CO_2 /VOC ppm	It is on if a CO2 or CO2\VOC probe is present: it indicates the CO2 or CO2\VOC concentration in parts per million (ppm) detected by the air quality probe: it can take values between 0 and 2000.
RH Sensor %	Umidità %	It is on if a relative humidity probe is present: it indicates the percentage relative humidity value detected by the probe. It can take values between 0 and 100.
Ext. signal %		It is on if the automatic operation of fans is configured through a 0-10V external signal. It indicates the percentage value of the external signal (10V corresponds to 100%).
Remote	Remote	It is on if one digital input (DI) is configured as remote (this parameter can be set in the factory): - Off if the DI is open the fans are stopped - On if the DI is closed the fans run at the speed set on the remote panel;

Boost	Boost	It is on if one digital input (DI) is configured as booster (this parameter can be set in the factory): - end the DI is open and a longer time than Boost min. has lapsed after the last change of DI status (from closed to open), booster off (fans at the speed set by the control); - Max the DI has been closed with a pulse or the Boost min. time (1->240 minutes) has not lapsed yet since the DI has received the pulse, booster on (fans at the maximum speed).
PIR	PIR	It is on if one digital input (DI) is configured as PIR (this parameter can be set in the factory): - min the DI is open (fans at minimum speed); - max the DI is closed (fans at the maximum speed) and the PIR min. time (1 240 minutes) fixed in the installer menu has not lapsed yet ; - off the DI is closed (fans at the speed set by the user on the control) and the PIR min. has lapsed after the DI input has closed.
Summer	Estate	It is on if one digital input is configured as summer (from the factory). - No the DI is open, the winter season is set; - Yes the DI is closed, the summer season is set.
Humidity	Umidità	It is on if one digital input is configured as humidity (from the factory). - Yes the DI is open, the humidity threshold of the hygrostat has been overcome; - No the DI is closed, the hygrostat humidity threshold has been not overcome.
Fire	Fuoco	It is on if one digital input is configured as fire (from the factory). - Yes the DI is open (exhaust fan at the maximum speed and supply fan off). - No the DI is closed (fans at the speed set).
PFanSupply.	PVent.Ingr	It is on if fan alarm is configured as 2Press (from the factory). - off the alarm contact is open, fan supply is stopped or not running; - on the alarm contact is closed, fan supply is running;
PFanExhau.	PVent. Estr.	It is on if fan alarm is configured as 2Press (from the factory). - off the alarm contact is open, fan exhaust is stopped or not running; - on the alarm contact is closed, fan exhaust is running;
Recircul.Req. Off\On	Rich.Ricirc Off\on	It is on if one digital input is configured as Ricircul (from the factory,when recirculation dampers are installed) - off the contact is open, standard management air recirculation - on the contact is closed, maximum recirculation air
Dehumidif. Off\On	Deumidif. on/off	It is on if the control is configured to manage the dehumidification system - on dehumidify function active - off dehumidify function not active
DWat. NoFrost Off\On		It is active if the post-treatment is set by water coil. Indicates if nofrost mode detected by an on-off thermostat (set to 1 °C and connected to a digital input) is running. In this case the control valve is fully open and stopped both fans. At the same time an alarm appears in its menu.
Td (Dehum.)		It is on if is configured as AI1 \ AI2 the Dehumid. AI parameter (from factory, when there is provided a dehumidification system). Air temperature after the cooling coil in ° C.
StopExt.		It is on if is configured as StopExt. one of the digital input (factory) - off the contact is open, standard management air - on the contact is closed : fan extraction turned off, fan supply run at speed set

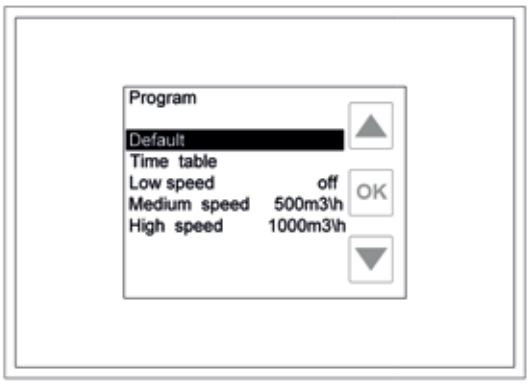
The digital input \ output can be programmed from the factory menu requiring password to the constructor and instructions about the functions. available.

PROGRAM MENU: WEEKLY PROGRAM CONTROL

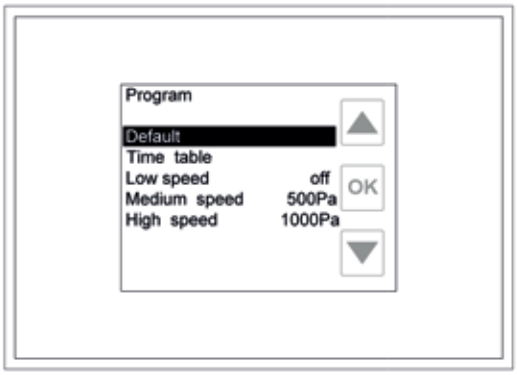
This menu controls the fan speed (on three levels), which is expressed as a percentage for variable speed machines (or full-scale pressure or flow machines without cop/cav kit), in pascal for constant pressure machines, and in m3/h for constant flow machines with kit. Moreover, the air after-treatment (if available) can be enabled/disabled in a different way for each day of the week, by time period (1 to 8 time periods that can be defined by the user in 30-minute steps). To access the program control functions, select the Program item by the arrow keys, highlight it and press OK.



Program menu with fan speed



Program menu with flow



Program menu with pressure

DEFAULT

When this menu item is selected and OK is pressed, unit control parameters are automatically assigned default values:

Program valid Monday through Friday

TIME TABLE			
	Time period	Fan speed/flow/pressure	Air after-treatment status: (ON / OFF)
C1	00:00 -> 06:29	Medium	OFF
C2	06:30 -> 07:59	Medium	ON
C3	08:00 -> 11:29	Low	ON
C4	11:30 -> 12:59	High	ON
C5	13:00 -> 17:59	Low	ON
C6	18:00 -> 21:59	High	ON
C7	22:00 -> 00:00	Medium	OFF
C8	Not used	-	-

Program valid Saturday and Sunday

TIME TABLE			
	Time period	Fan speed/flow/pressure	Air after-treatment status: (ON / OFF)
C1	00:00 -> 07:29	Medium	OFF
C2	07:30 -> 07:59	Medium	ON
C3	08:00 -> 11:29	Medium	ON
C4	11:30 -> 12:59	High	ON
C5	13:00 -> 17:59	Medium	ON
C6	18:00 -> 21:59	High	ON
C7	22:00 -> 00:00	Medium	OFF
C8	Not used	-	-

SPEED LEVELS

Low speed: OFF

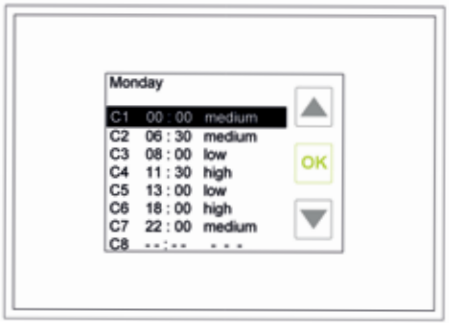
Medium speed:
030 (%) if the unit is equipped with variable speed fans;
1 if the unit is equipped with 3-speed fans;
auto if the unit is equipped with a CO_2 or relative humidity probe, or is controlled through a 0-10V external signal.
0200 (m³\h) if it is a constant flow unit with cop/cav kit. This value also depends on the settings in the factory menu based on the performance of the unit.
010Pa if it is a constant pressure unit with cop/cav kit. This value also depends on the settings in the factory menu based on the performance of the unit.

High speed:
065 (%) if the unit is equipped with variable speed fans;
2 if the unit is equipped with 3-speed fans;
auto if the unit is equipped with a CO_2 or relative humidity probe, or is controlled through a **0-10V** external signal.
20000 (m³\h) if it is a constant flow unit with cop/cav kit. This value also depends on the settings in the factory menu based on the performance of the unit.
1000 (Pa) if it is a constant pressure unit with cop/cav kit. This value also depends on the settings in the factory menu based on the performance of the unit.
cop/cav kit. This value also depends on the settings in the factory menu based on the performance of the unit.

TIMETABLE

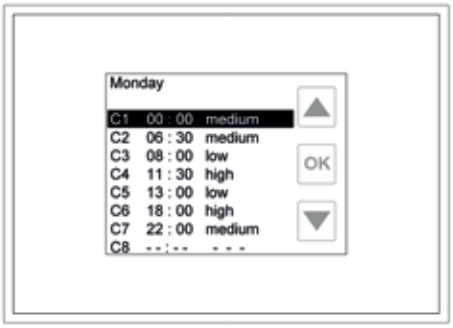
When this menu item is selected and OK is pressed, the summary display of each day of the week subdivided into 24 hours is accessed.

Time table: summary display

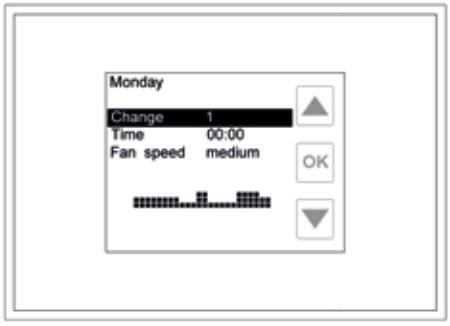


Time table: detail of one day of the week

In order to change the settings of each day, just select the day in the summary display window and press OK; now, the detail screen of the selected day is displayed with the list of the eight possible time periods (C1 C8), while the selected day of the week is displayed in the top left corner of the screen.



Selecting the time period to be changed

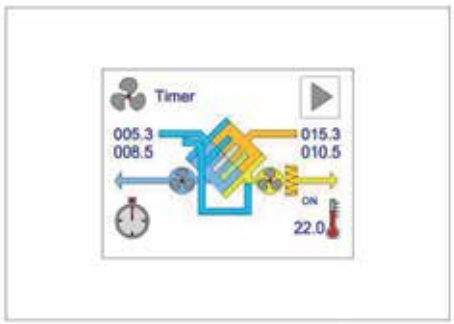


Changeable parameters in the selected time period

You can change the content of a time period by selecting the period and pressing OK in the time period change screen; the graphic summary of the program for the entire day is displayed in addition to the selected day (top left corner).
The parameters that can be changed are as follows:

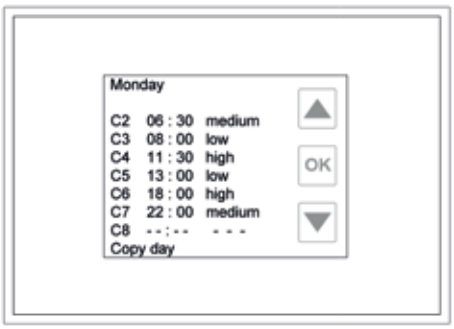
- **Change**: change the time period you are working on without returning to the previous page by selecting this line and pressing OK: scroll the several time periods (1->8) using the arrow keys and just press OK when you reach the desired period.
- **Time hh.mm**: set the starting time of the current time period by selecting this line and pressing OK: the arrows keys increase (up arrow) or decrease (down arrow) the time by 30-minute steps; press OK when you find the desired value; the value of this parameter can be comprised between the beginning of the previous time period and the beginning of the next time period.
- **Fan speed xxx**: set the fan speed (or the full-scale pressure/flow for machines without cop/cav kit), the flow per unit at constant pressure or the pressure for units at constant pressure with cop/cav kit required for the current time period by selecting this line and pressing OK: scroll the three possible values (low, medium and high) using the arrows keys; press OK when you find the desired value. These values match the settings according to next paragraph (Speed level setting).
- **Heat/Cool on/off**: this parameter is only visible if the control is configured to run an air post-treatment device; enable (on) or disable (off) the air post-treatment device by selecting this line and pressing OK. Scroll the two possible values (on and off) using the arrow keys: press OK when you find the desired value. When the timer modality is selected is visible on the screen if the post-heating hourly is enable (Ton) or disable (Toff).

Post-heating disable

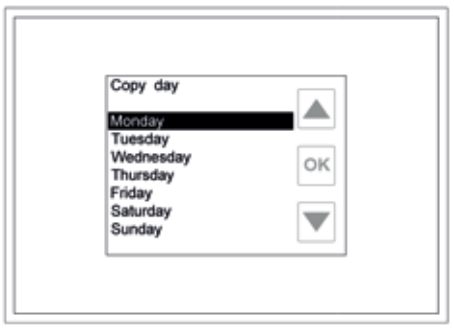


Post-heating enable

After customizing one day of the week according to your need (for instance, Monday), you can copy your program to another day without repeating the procedure described above. In the time period summary window, select the day you want to copy the previous program to (for instance, Tuesday), and press OK. Now, the detail window of the time periods of the selected day is displayed. Scroll all of the time periods using the down arrow key and reach the Copy day line (it will be after the C8 time period): highlight this line and press OK.



Selecting the copy day function



Copy day: selecting the day to be copied

After accessing the Copy day page (as displayed in the top left corner of the screen), you can select the day you want to copy the program from using the arrow keys to scroll the various days. After identifying the selected day (Monday in our example), press OK to confirm the copy and you are automatically taken to the simplified display page of the time periods (in our case, the Monday program will have been copied to Tuesday). This operation can be repeated for other days of the week.

SETTING SPEED LEVELS

To change the preset values for the three speed levels (low, medium and high) used for the weekly program, reach the main page of the Program menu, highlight the speed level to be changed (for example, Low-speed) using the arrow keys and press OK. Scroll the possible values by using the arrow keys and, after finding the desired value, confirm your choice by pressing OK. Possible values for these three parameters are as follows:
- **off:** fans off. It can be set by pressing the down arrow key for a few seconds (off is below the minimum speed value that can be set);
- **xxx%**: for units equipped with variable speed fans, you can select a percentage value between the minimum (factory setting) and 100%;
- **1, 2 or 3**: for units equipped with 3-speed fans, you can choose among speed 1, 2 or 3;
- auto: for units equipped with an air quality or relative humidity probe or controlled through a 0-10V external signal, the fan speed will be automatically controlled by one of these devices. It can be reached by pressing the up arrow for a few seconds (auto is above the maximum speed value that can be set).
- **xxx m3/h**: if the unit is in constant flow version with kit, the desired value can be set in m3/h of flow.
- **Xxx Pa**: if the unit is in constant pressure version (COP) with kit, the desired value can be set in pascal of pressure.

MENU CLOCK: CLOCK CONFIGURATION

You can set the day of the week and the current time for the proper control of the weekly time program through this menu.

Clock menu

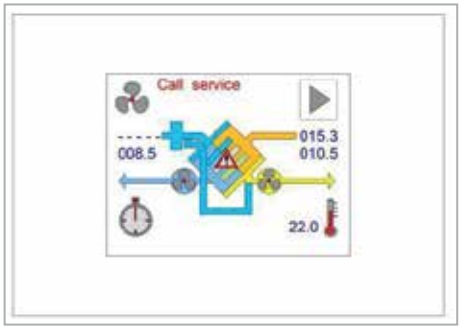
Setting the Day
Select the day line and press OK: the color of the writing of the current day configured will turn green. Scroll by means of the arrow keys to find the desired day. Press OK to confirm your choice: the color of the day will turn from green to black.

Setting the Hour
Select the hours line and press **OK**: the color of the writing of the current hour configured will turn green. Scroll by means of the arrow keys to find the desired day. Press **OK** to confirm your choice: the color of the day will turn from green to black.

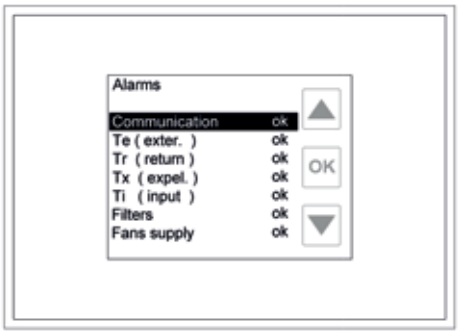
Setting the Minutes
Select the minutes line and press **OK**: the color of the writing of the minutes will turn green. Scroll by means of the arrow keys to find the desired day. Press **OK** to confirm your choice: the color of the day will turn from green to black.

ALARMS MENU: DISPLAY OF THE ALARM STATUS

If the control detects an abnormal status, the latter is indicated in the main control screen by a specific flashing icon and a red writing at the top of the screen (Call service o DirtyFilters). If the alarm is detected when the screen is in stand-by mode, the display flashes at about 10-second intervals. Alarms on pressure sensors are available for machines with cop/cav kits only.



Signaling an alarm: external air temperature probe



Alarms menu

If an alarm is being signaled, you can reach the specific menu directly by touching the screen. Otherwise you must select the Alarms item in the menu selection page and press OK. If the control is interlocked to several units (master/slave mode), you must select the unit you want to monitor (see Status menu), otherwise you direct access to the detail alarms page.

LIST OF ALARMS

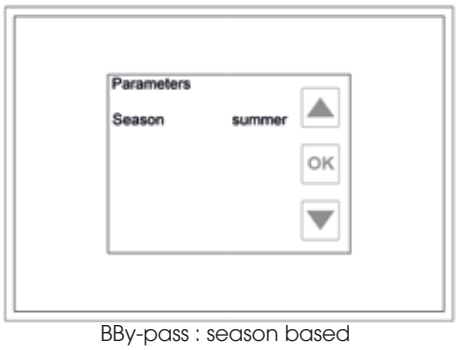
Parameter	Val	Status
Configuration/Configurazione)	ok	The configuration of the digital input is ok
	ko	The configuration of the digital input is wrong, this happen when a new control panel is mounted on an old card with digital input configured. To solve the problem reconfigure in menu factory EXTDI.
Communication/Comunicazione	ok	The communication between the machine cardsand the remote control panel works properly
	ko	Problem with the communication among cards and remote panel: 1) check electrical connections between electric panel and remote panel (see wiring diagram); 2) if the problem is not solved, check electrical connections between the cards (see wiring diagram); 3) if the problem is not solved, check the dipswitch position in both cards only 1 unit: X540 only 1=on ; X531 only 2= on, X541 card all off . 4) if the problem is not solved, replace the electronic cards.
Te (external) Te (esterna)	ok	The external air temperature sensor works properly
	ko	Problem with the external air temperature sensor: 1) check electrical connections of the temperature probe (see wiring diagram); 2) if the problem is not solved, replace the temperature probe 3) if the problem is not solved, replace the electronic card.

Tr (return)	Tr (ripresa)	ok	The return air temperature sensor works properly
		ko	Problem with the return air temperature sensor: 1) check electrical connections of the temperature probe (see wiring diagram); 2) if the problem is not solved, replace the temperature probe 3) if the problem is not solved, replace the electronic card.
Tx (expelled)	Tx (espulsa)	ok	The exhaust air temperature sensor works properly
		ko	Problem with the expelled air temperature sensor: 1) check electrical connections of the temperature probe (see wiring diagram); 2) if the problem is not solved, replace the temperature probe 3) if the problem is not solved, replace the electronic card.
Ti (input)	Ti (immessa)	ok	The input air temperature sensor works properly
		ko	Problem with the input air temperature sensor: 1) check electrical connections of the temperature probe (see wiring diagram); 2) if the problem is not solved, replace the temperature probe 3) if the problem is not solved, replace the electronic card.
Tw (water)	Tw (acqua)		It is present only if the air after-treatment control is equipped with a water powered battery (Factory menu)
		ok	The water coil temperature sensor works properly
		ko	Problem with the water-powered battery temperature sensor: 1) check electrical connections of the temperature probe (see wiring diagram); 2) if the problem is not solved, replace the temperature probe 3) if the problem is not solved, replace the electronic card.
Tw (water) low	Tw (acqua bassa)		It is present only if the air after-treatment control is equipped with a water coil (Factory menu)
		ok	The temperature of the water from the battery is higher than a safety threshold, there is no risk of water freezing in the battery
		ko	Risk of liquid freezing in the water-powered battery
Filters	Filtri		It is present only if the filter status alarm with differential pressure switch is configured or is based on the machine operation hours (Factory menu)
		ok	Clean filters
		ko	Clogged filters: replace filters. If the filters alarm is based on the machine operation hours, you must reset the Filter Hours parameter (Installer menu)
Fans	Ventilatori		It is present only if the fan status alarm is configured with differential pressure switch, with tachometric signal of fans or with fan Digital Output (Factory menu)
		ok	Fans OK
		ko	Possible failure of the fans
CO_2 VOC			It is present only if the fan speed automatic control is configured with a CO_2 o CO_2-VOC sensor (Installer menu)
		ok	Probe OK
		ko	Possible failure of the probe or of the connector
RH sensor	Sensore UR		It is present only if the fan speed automatic control is configured with a relative humidity sensor (Installer menu)
		ok	Probe OK
		ko	Possible failure of the probe or of the connector

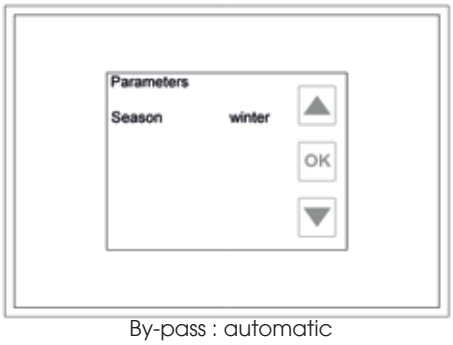
			It is present only if the fan speed control is configured with an external 0-10V analog signal (Installer menu)
Ext.signal	Segnale est	ok	The external signal source works properly
		ko	External signal not present (voltage at the clamps = 0V): 1) check electrical connections of the external source (see electric diagram); 2) if the problem is not solved, check whether the external signal is present (tester) and its value is greater than 0V; 3) if the problem is not solved, replace the electronic card..
			It is present only if the machine is in the constant flow version with control on both flows
FlowSupply	Port.Ingr.	ok	The supply pressure sensor works properly
		ko	Possible anomaly in the supply pressure sensor
			It is present only if the machine is in the constant flow version with control on both flows
FlowExhaust	Port.Estr.	ok	The return pressure sensor works properly
		ko	Possible anomaly in the return pressure sensor
			It is present only if the machine is in the constant flow version with control on one flow
Flow	Portata	ok	The pressure sensor works properly
		ko	Possible anomaly in the pressure sensor
			It is present only if the machine is in the constant pressure version with control on both flows
DpSupply	DpIngr.	ok	The supply pressure sensor works properly
		ko	Possible anomaly in the supply pressure sensor
			It is present only if the machine is in the constant flow version with control on both flows
DpExhaust	DpEstr.	ok	The return pressure sensor works properly
		ko	Possible anomaly in the return pressure sensor
			It is present only if the machine is in the constant pressure version with control on one flow
Dp	Dp	ok	The pressure sensor works properly
		ko	Possible anomaly of the pressure sensor
			It is present only if the fan speed automatic control alarm is configured with a CO_2 o CO_2 -VOC sensor (Installer menu) or it is present an excess of CO_2 in the environment
Autominutes	Autominuti	ok	The sensor works properly
		ko	Possible anomaly in the sensor
			It is active if the unit can't exit from anti-frost modality after then two minutes are elapsed.
Anti-frost	Antigelo	ok	The unit works properly
		ko	Two minutes are elapsed from anti-frost heat exchanger modality and expelled temperature does not rise up to 3 C°. For speed management the control stops fan supply and set to max speed fan exhaust .For heat stops fan supply ,fan exhaust runs at speed set in control panel. For by-pass stop fan exhaust and leave by-pass in its modulated position.
			It is on when the control is configured to manage a dehumidification system
Td(Dehumid.)		ok	Air temperature sensor after the cool water coil is working properly
		ko	Problem with the input air temperature sensor: 1) check electrical connections of the temperature probe (see wiring diagram); 2) if the problem is not solved, replace the temperature probe 3) if the problem is not solved, replace the electronic card.
			It is present only if a digital input is configures ad Min speed (Factory)
Min speed		ok	DI open, unit works normally.
		ko	DI closed, unit works at min speed.

PARAMETERS MENU: SETTING USER PARAMETERS

By parameters menu it is possible to set the current season for the management of the by-pass . The control automatically adjusts regulations basing, as regards the by-pass, on the external temperature, return and the selected season. If a dehumidification system is installed, it is possible, in this menu, to enable\disable it and set the relative humidity threshold value for activation.



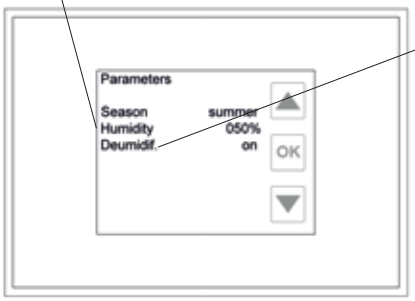
BBy-pass : season based



By-pass : automatic

Humidity (%)

This parameter is available only when there is a dehumidification system. It represents the threshold value above which the dehumidify is enabled. The default value is 50%. The Dehumidify system can be forced also from a digital input .



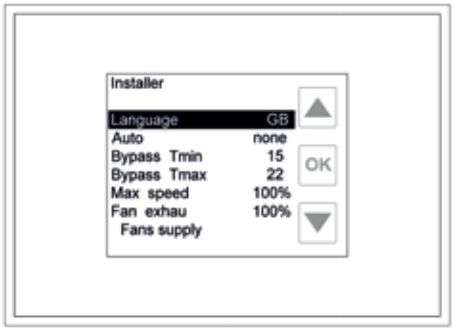
Dehumidif.

This parameter is available only when there is a dehumidification system. By this, can be enabled (Yes) or less (No) the dehumidification system. It can be used, for example, in the winter season if is not wished to dehumidify.

INSTALLER MENU: CONFIGURATION OF SYSTEM PARAMETERS

You must enter a password (5678) to access this menu: this is a measure to prevent inexperienced users from unintentionally changing parameters, an event that may jeopardize the proper operation of the system.

Entering the password



Installer menu

In order to enter the password, press the down arrow key: the line where the password must be entered is highlighted. Press OK. Select the desired value for the first digit using the up/down arrow keys and press OK when you reach the desired value. Repeat this operation for the three remaining figures.If you have entered the correct password, the installer menu is displayed; otherwise, if the password is wrong, you are redirected to the password entry page. To change the parameters of this menu, highlight the desired parameter by scrolling up/down the arrow keys and press OK. The color of the currently set value for this parameter is green: now, you can change this value using the up/down arrow keys. When you reach the desired value, press OK to confirm your selection. The parameters relevant to flows/pressure coefficients and values are our only available for machines with kit.

PARAMETERS AVAILABLE IN THE INSTALLER MENU

Language
With this parameter, you can select the language of all menus (except for the Factory menu, which will always be in English).

GB	English language (default)
FR	French language
ES	Spanish language
IT	Italian language
NL	Dutch language
DE	German language
HU	Hungary language
DK	Danish language
PT	Portuguese language
SI	Slovenian language

Auto1\2
With this parameter, you can configure a device that automatically adjusts the fan speed. See the wiring diagram for the connection of the device

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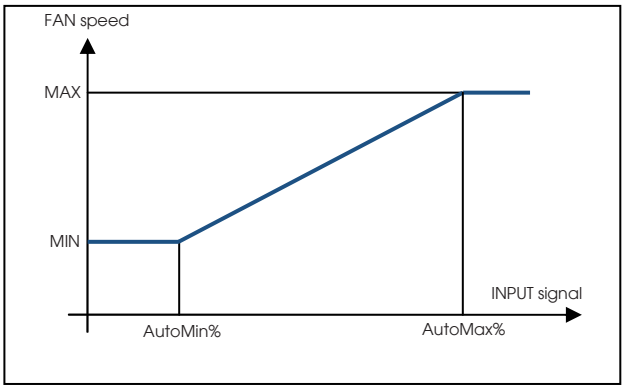
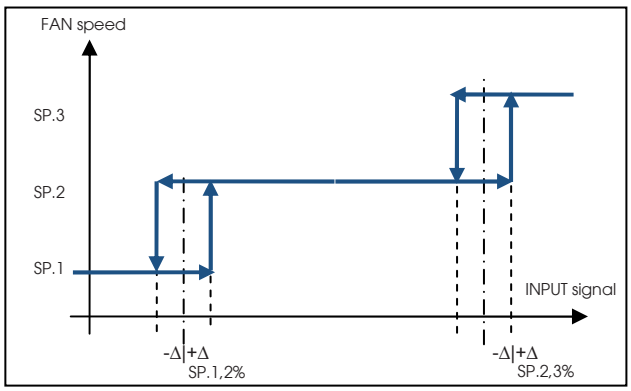
External signal. The fan speed will be controlled through an external 0-10V analog signal (default value); if the external signal takes the 0V value, the control will indicate a problem with the source of the external signal. For a unit equipped with adjustable speed fans.



AutoMin% corresponds to the input signal percentage value for which fans must run at the minimum speed,
AutoMax% corresponds to the input signal percentage value for which fans must run at the maximum speed.

For a unit equipped with 3-speed fans.



SP.1,2% SP.2,3% and Δ values depend on the values of parameters AutoMin% and AutoMax% according to the following formulas:

$$SP.\ 1,2\% = \frac{Automax\% - AutoMin\%}{5} + AutoMin\%$$

$$SP.\ 2,3\% = \frac{7}{10} \times (AutoMax\% - AutoMin\%) + AutoMin\% \quad +$$

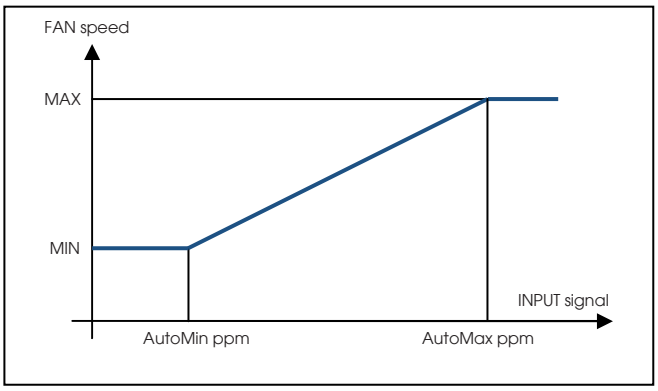
$$\Delta = \frac{Automax\% - AutoMin\%}{12}$$

UR sensor

The fan speed will be controlled by a relative humidity (RH) sensor with 0-10V output and will have a linear trend between 0 and 100% RH (0V corresponds to 0% RH and 10V corresponds to 100% RH); if the external signal of the RH sensor takes the 0V value, the control will display a problem with the sensor. See graphs of the segnale es parameter. In this case, AutoMin% corresponds to the relative humidity value for which the air quality is held to be excellent , AutoMax% corresponds to the relative humidity value for which the air quality is held to be very bad.

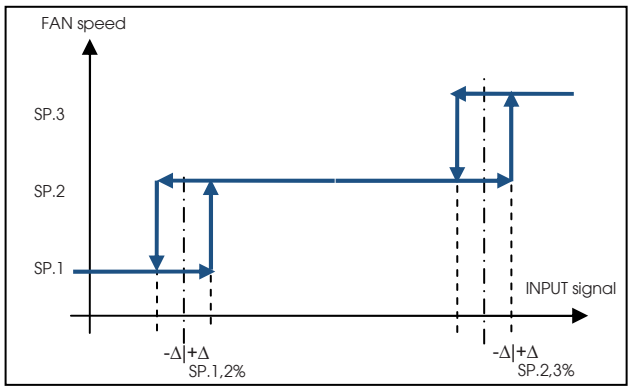
CO2 VOC

The fan speed will be controlled by a CO2 (or CO2-VOC) sensor with a 0-10V output and will have a linear trend between 0 and 2000 ppm (0V corresponds to 0% ppm and 10V corresponds to 2000 ppm); if the external signal of the CO2 sensor takes the 0V value, the control will display a problem with the sensor. For a unit equipped with adjustable speed fans.



Where AutoMin ppm corresponds to the CO_2 (CO_2-VOC) concentration for which the air quality is held to be excellent, AutoMax ppm corresponds to the CO_2 (CO_2- VOC) concentration for which the air quality is held to be very bad.

For a unit equipped with 3-speed fans.



SP.1,2% SP.2,3% and Δ values depend on the values of both parameters AutoMin ppm and AutoMax ppm according to the following formulas:

$$\text{SP. 1,2\%} = \frac{\text{Automax ppm - AutoMin ppm}}{5} + \text{AutoMin ppm}$$

$$\text{SP. 2,3\%} = \frac{7}{10} \times (\text{AutoMax ppm - AutoMin ppm}) + \text{AutoMin ppm}$$

$$\Delta = \frac{\text{Automax ppm - AutoMin ppm}}{12}$$

None (Default value) no device is installed for the automatic operation of the fan speed.

AutoMin % This parameter is only available if the auto parameter is set on ext. signal or UR sensor. It can take values between 0 and 99% (1% steps) with the following limit: AutoMin%<AutoMax% For a unit equipped with variable speed fans: If auto ext. signal corresponds to the input signal percentage value for which fans turn at the minimum speed; below this value, fans remain set at the minimum speed. For instance, the value AutoMin% 030 corresponds to a 3V (30% of 10V) input signal. If auto UR sensor corresponds to the (percentage) relative humidity for which fans turn at the minimum speed; below this value, fans remain set at the minimum speed. For a unit equipped with 3-speed fans, referring to the second image of the auto ext. signal parameter, after fixing the SP.1,2% and SP.2,3% values (the nominal values at which speed changes from 1 to 2 and from 2 to 3), the appropriate value to be assigned to the parameter can be obtained as follows:

$$\text{AutoMin\%} = \frac{7 \times SP.1,2\% - 2 \times SP.2,3\%}{5}$$

AutoMax % This parameter is only available if the auto parameter is set on ext. signal or UR sensor. It can take values between 0 and 99% (1% steps) with the following limit: **AutoMin%<AutoMax%** For a unit equipped with variable speed fans: If auto ext. signal, corresponds to the input signal percentage value for which fans turn at the maximum speed; above this value, fans remain set at the maximum speed. For instance, the value **AutoMin% 080** corresponds to an 8V (80% of 10V) input signal. If **auto UR sensor**, corresponds to the (percentage) relative humidity for which fans turn at the maximum speed; below this value, fans remain set at the maximum speed. For a unit equipped with 3-speed fans, referring to the second image of the auto ext. signal parameter, after fixing the SP.1,2% and SP.2,3% values (the nominal values at which speed changes from 1 to 2 and from 2 to 3), the correct value to be assigned to the parameter can be obtained as follows:

$$\text{AutoMax\%} = \frac{8 \times SP.2,3\% - 3 \times SP.1,2\%}{5}$$

AutoMin ppm This parameter is only available if the auto parameter is set on **CO_2 VOC**. It can take values between 0 ppm and 1980 ppm (20ppm steps) with the following limit: **AutoMin ppm<AutoMax ppm** For a unit equipped with variable speed fans, it corresponds to the CO_2 (CO_2-VOC) concentration, expressed in ppm, for which fans turn at the minimum speed; below this value, fans remain set at the minimum speed. For a unit equipped with 3-speed fans, referring to the second image of the auto CO_2 VOC parameter, after fixing the SP.1,2% and SP.2,3% values (the nominal values at which speed changes from 1 to 2 and from 2 to 3), the correct value to be assigned to the parameter can be obtained as follows:

$$\text{AutoMin ppm} = \frac{7 \times SP.1,2\% - 2 \times SP.2,3\%}{5}$$

AutoMax ppm This parameter is only available if the auto parameter is set on **CO_2 VOC**. It can take values between 20 ppm and 2000 ppm (20ppm steps) with the following limit: **AutoMin ppm<AutoMax** ppm For a unit equipped with variable speed fans, it corresponds to the CO_2 (CO_2-VOC) concentration, expressed in ppm, for which fans turn at the maximum speed; below this value, fans remain set at the maximum speed. For a unit equipped with 3-speed fans, referring to the second image of the **auto CO_2 VOC** parameter, after fixing the SP.1,2% and SP.2,3% values (the nominal values at which speed changes from 1 to 2 and from 2 to 3), the correct value to be assigned to the parameter can be obtained as follows:

$$\text{AutoMax ppm} = \frac{8 \times SP.2,3\% - 3 \times SP.1,2\%}{5}$$

AutoMinutes
No
000->240 This parameter is only available if the **auto** is set at a value different from **none**. (default value) it does not affect the system operation. Its value is expressed in minutes and represents the interval lapsed from the time when the signal of the extern device for the auto mode has achieved or exceeded the **AutoMax%**, or **Auto Max ppm** value, without dropping below this value, beyond which an anomaly to the external device (CO2, HR probe or external signal) is notified.

AutoOn %
000->100 This parameter is only available if the **auto** parameter is set on ext. signal or UR sensor and the digital output is configured as **auto cmp** (**Factory** menu). Default value **050**, is expressed in %; for values of HR% as read by the relative humidity sensor (or for values of the 0-10V external signal expressed as a percentage) lower than the set value, the digital output changes its status.

AutoOff%
000->100 This parameter is only available if the **auto** parameter is set on **ext. signal or UR sensor** and the digital output is configured as **auto cmp** (**Factory** menu). Default value **050**, it is expressed in %; for values of HR% as read by the relative humidity sensor (or for values of the 0-10V external signal expressed as a percentage) higher than the set value, the digital output dedicates returns to its standard status.

AutoOn ppm
0000->2000 This parameter is only available if the **auto** parameter is set on **CO_2 VOC** and the digital output is configured as **auto cmp** (**Factory** menu). Default value **0500**, it is expressed in ppm; for ppm values as read by the CO_2 probe lower than the set value, the digital output dedicated changes its status.

AutoOff ppm 0000->2000

This parameter is only available if the **auto** parameter is set on **CO2 VOC** and the digital output is configured as **auto cmp** (**Factory** menu). Default value **0500**, it is expressed in ppm; for higher values of ppm as read by the CO_2 probe than the set one, the digital output dedicated returns to its standard status.

Bypass Tmin 12->18

This parameter is on if the by-pass is configured as **Universal** (**Factory** menu). Default value 15, it is expressed in degrees centigrade. It is the minimum temperature value (T min) if **By-pass automat**. is set in **Parameters** menu. In summer season is the minimum return temperature below which the system will close the bypass.

Bypass Tmax 20->30

This parameter is on if the by-pass is configured as **Universal** (**Factory** menu).Default value **22**, it is expressed in degrees centigrade. It is the maximum temperature value (T max) if **By-pass automat**. is set in **Parameters** menu. In winter season is the maximum return temperature above which the system will close the bypass.

Filter hours 00000->99999

This parameter is on when the clogged filters alarm is based on the hours of operation of the unit (**Factory** menu). Default value **02000**, it is expressed in hours. It represents the number of operation hours of the unit after which the clogged filters alarm is triggered. In order to reset the alarm, the installer will have to set the new limit at which the alarm must be signaled (check the current operation hours in the parameters status menu **Fan hours**):
Filters hours = Fan hours + hours for a new alarm

Max speed 055%->100%

This parameter is available if the control is set to run variable speed fans (Factory menu). Default value **100%**, it is the maximum fan speed expressed as a percentage of the nominal value (reduction of the maximum speed). The maximum speed that can be set in the main window will always be 100% also for **Vel.max** values lower than 100%; what changes is the minimum speed value that can be set by the final user:

$$\text{Velocità minima} = INT_{ECCESSO}\left(\frac{V_{MIN} \times 100}{V_{MAX} \times step}\right) \times step$$

$$\begin{cases} V_{MAX} = \dfrac{\text{Max speed} \times V_E}{100} & \text{se } V_E \leq 100 \\ V_{MAX} = \dfrac{\text{Max speed} \times 100}{V_E} & \text{se } V_E \geq 100 \end{cases}$$

VE= percentage of exhaust fan speed vs input fan (see next paragraph)
INTECCESSO = rounds up to the next integer
VMIN = minimum speed set in the Factory menu
step = discrete values of the speed values that can be set (5%, it can be set at 1% on specific request, Factory menu)a)

UserPassword

With this parameter it is possible to enable a password for modifying the set-points, value is 1234.
Yes/No
Setting the parameter to yes you must enter the code in the installer menu access screen to make changes to the sets. The time available for modifies is 5 minutes, elapsed this password must be entered again.

Press. Max

This parameter is only available for units with constant pressure (Factory menu) **1000Pa**

Dpexhau. =XXX% Dpsupply 067%->150%

This parameter is only available for constant pressure units with control on both flows (**Factory** menu). Default value **100%**, expresses, as a percentage, the desired ratio between the exhaust fan pressure and the supply fan pressure, which creates an imbalance between the pressures of both flows.

Kp DpS

This parameter is only available for constant pressure units with control on both flows (**Factory** menu). (default **040)** It is the value of the proportional coefficient relevant to the input flow.

Tau DpS sec.

This parameter is only available for constant pressure units with control on both flows (**Factory** menu). (default **030)** It is the value of the integral time relevant to the input flow.

Kp DpE

This parameter is only available for units constant pressure with control on both flows (**Factory** menu). (default **040)** It is the value of the proportional coefficient relevant to the return flow.

Tau DpE sec.

This parameter is only available for constant pressure units with control on both flows (**Factory** menu). (default **030)** It is the value of the integral time relevant to the return flow.

Kp Dp

This parameter is only available for constant pressure units with control on one flow **0.40** It is the value of the proportional coefficient relevant to the flow.

Tau Dp sec.

This parameter is only available for constant pressure units with control on one flow. **030** It is the value of the integral time relevant to the flow.

Max Flow

This parameter is only available for units with constant pressure (**Factory** menu). **20000 m³\h**

Flow Exhau. =XXX% Flow supply. 067%->150%

This parameter is only available for units with constant pressure controlled on both flows. Default value **100%**, expresses, as a percentage, the desired ratio between the exhaust and the supply fan flow, which creates an imbalance between the flows of both flows.

Kp Flow Sup

This parameter is only available for constant flow units with control on both flows (**Factory** menu). (default **040)** It is the value of the proportional coefficient relevant to the input flow.

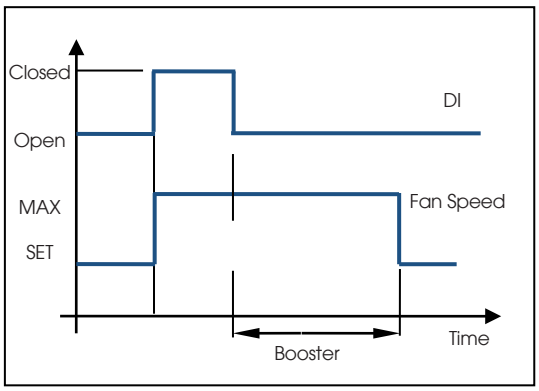
Tau Flow Su s

This parameter is only available for constant flow units with control on both flows (**Factory** menu). It is the (default **030)** value of the integral time relevant to the input flow.

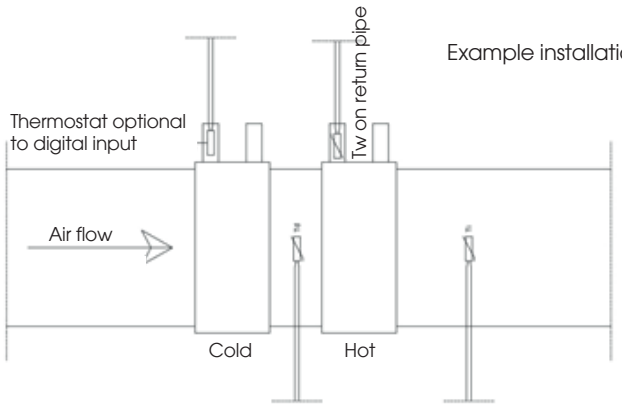
Kp Flow Exh

This parameter is only available for constant flow units with control on both flows (**Factory** menu). (default **040)** It is the value of the proportional coefficient relevant to the return flow.

Tau Flow Ex s	This parameter is only available for constant flow units with control on both flows (**Factory** menu). (default **030)** It is the value of the integral time relevant to the return flow.
Kp Flow	This parameter is only available for constant pressure units with control on one flow (**Factory** menu). (default **040)** It is the value of the proportional coefficient relevant to the detected flow.
Tau Flow sec	This parameter is only available for constant pressure units with control on one flow (**Factory** menu). (default **030)** It is the value of the integral time relevant to the detected flow.
Adjust zero Dp\Flow	The pressure sensor can be reset through this parameter. This operation must be carried out when the fans are off, and it is preferable to carry it out on a regular basis to correct any reading errors.
Fan exhau. = XXX% Fan supply 067%->150%	This parameter is available if the control is set to run variable speed fans (**Factory** menu). Default value **100%**, it expresses, in a percentage format, the desired ratio between the exhaust fan speed and the input fan speed that generates an imbalance between the air flows. The maximum speed that can be set in the main window will always be 100%, what changes is the minimum speed value that can be set by the final user (see **Max. speed**).
Valv. sec 60->600	This parameter is available if the control is set to run a modulated water-based post heating/cooling system. Default value **120**, it is expressed in seconds; it indicates the opening/closing time of the solenoid valve 3 points, it is adjustable in 10-second steps.
Pir.Min 001->240	This parameter is available if one digital input is configured at the **PIR** value (presence detector, see **Factory** menu). Default value **10**, it is expressed in minutes; it is the time during which the fans run at the maximum speed after the pulse (closing of a NO contact) from a presence detector. After this lapse, the fans will return to run at the speed set from the control panel until the pulse from the presence detector is lost; since now on, the fans will run at the minimum speed.
Boost min 001->240	This parameter is available if one digital input is configured at the booster value (Factory menu) Default value 10, is expressed in minutes; after the pulse from an external contact (closing of a NO contact) the fans run at the maximum speed (booster). When the pulse from the external contact is lost (external contact open), the fans keep running at the maximum speed for the time fixed by this parameter. When the booster function is off, the fans run at the speed set on the control panel.



Dehum.DTd -002->-020	This parameter is available if Dehumid.AI is configured as AI1 \ AI2 from factory menu (dehumidification enabled). Default value is 12 expressed in °C. It represents the differential, respect to the return temperature, to which the control will refer to adjust the valve installed on the cold side. For example, if Tr is 22 C° and the differential is 12, the control will adjust the valve so that ,the temperature detected from the probe after the cold water coil (Td) is around 10 C°.



Example installation water coils for dehumidify

DFans
000%->100%
000Pa
0000m³\h
0-1-2-3

Default value 0. It represents the percentage speed value of the fans to be added to the one set to obtain the desired increase during dehumidification. For example, if the fan speed is 20% and this parameter is set to 30%, when the dehumidification is enabled, the speed changes to 50% (20 + 30). If the machine is set to work under pressure or constant flow, this value is expressed in Pascal or in cubic meters now. The value to be passed depends on the set full scale. For 3-speed units, it is expressed in simple numerical form (0-1-2-3) corresponding to the next speed increment to be set.

COMMUNICATION (ONLY TOUCH PANEL WITH MODBUS)

It is available a version of touch panel which support protocol Modbus Tcp-ip or Modbus RTU by an additional card (see control panel wirings paragraph) .In this item of menu installer is possible to change configuration parameters :

Default
Restore the factory default values.

Modbus
Allow the user to choose between Modbus Tcp-ip or Rs485 (additional card).

Address
Only for RS485 protocol. It is the address of the unit (default=1).

Baud rate
Only for RS485 protocol. It is the baud rate of serial communication (default =9600).

Parity
Only for RS485 protocol. It is the parity value of the serial communication (default=even).

Stop bits
Only for RS485 protocol. It is the bits stop value of the serial communication (default=1).

Conn . to (s) 10sec
It is the reading time of the modbus registers. This value indicates the maximum time after which, if no registers are accessed from the master device, the changes made by the modbus are reset. You can disable it, but for safety reasons the reset will take place anyway once the machine is switched off.

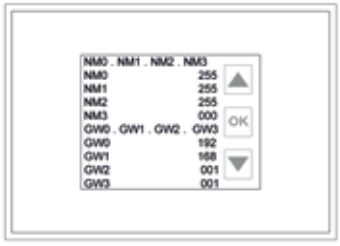
IP0.IP1.IP2.IP3
It is the ip address of the unit (default=192.168.1.243 modifiable).

NM0.NM1.NM2.NM3
It is the subnet mask address of the unit (default=255.255.255.0 modifiable).

GW0.GW1.GW2.GW3
It is the gate away address of the unit (default=192.168.1.1 modifiable).

Reset
After changing of any address through reset the modify is confirmed without power cycle the unit. IP address

IP address

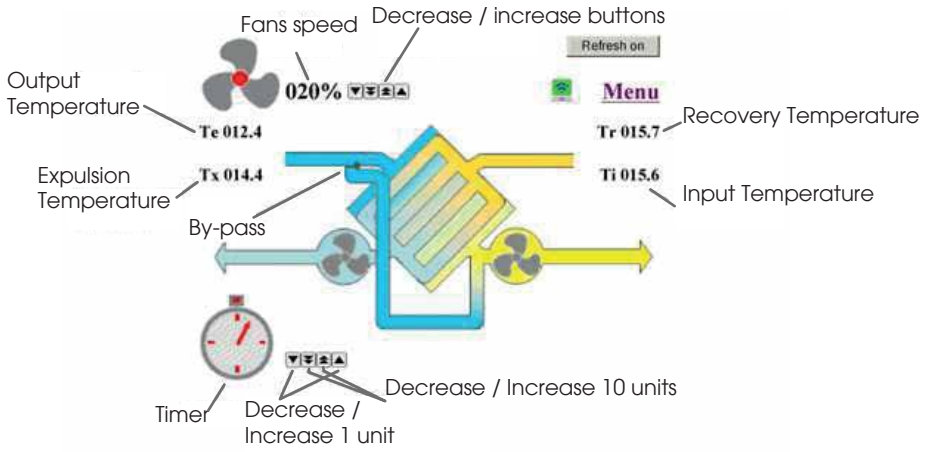


Subnet mask-Gateway

Protocol Modbus specification
MODBUS Tcp-ip:
Baud Rate: 10/100 Mbit/s,
Automatic baud rate negotiation,
Auto –MDIX (automatic swap for crossed cables),
Disconnection after 10 seconds without accessing the registers (changeable via MODBUS)
Maximum number of simultaneous connections: 8
Default address:
IP: 192.168.1.243
MASK: 255.255.255.0
GATEWAY: 192.168.1.1

MODBUS-RTU:
Baud Rate: 9600 bit/s,
1 stop bit,
parity even,
disconnection after 10 sec without access to the registers. (modifiable via MODBUS)
close jumper on rs485 card ,insert if the unit is at the end of bus line..

Web server
A Web server installed allows us to monitor the machine status and change its parameters permanently through the PC. In order for the connection with the Web server to be successful, the initial three fields of the IP address must match. For instance, if your address is 192.168.1.243, the PC address must be 192.168.1.xxx. To start the web server after connecting the machine to the web, start your browser and type http\\192.168.1.243 (or the address modified) in the address bar.



Main web server screen

On the main mask we find a reproduction of the classic touch panel screen, the difference are the changes that are performed using the arrow keys.You can increase or decrease the values by one unit clicking the single-arrow key, otherwise you can increase or decrease them by several units clicking the double-arrow key. Clicking on the middle button you can turn off directly post-heat ,fans, or timer. Changes are automatically saved after 5 seconds. The writing of the Holding Registers via modbus is disabled for 60 seconds after each change made through the Web server. In order for the webpage to be continuously updated, click the "refresh on" key: the writing will become "refresh off", so the page will be updated every five seconds. Should the machine be equipped with a post-heating system, also the desired set-point temperature will be displayed: When you click the Menu icon, a list of available choices will appear, which can be selected by the arrow keys. For the description of the several menus, refer to the previous items.

Modbus Interaction table

				Function Code
Data access	Bit access	Physical Discrete Inputs	Read Discrete Inputs	02
		Internal Bits Or Physical coils	Read Coils	01
			Write Single Coil	05
			Write Multiple Coils	15
	16 bits access	Physical Input Registers	Read Input Register	04
		Internal Registers Or Physical Output Registers	Read Holding Registers	03
			Write Single Register	06
			Write Multiple Registers	16
			Read/Write Multiple Registers	23
			Mask Write Register	22
			Read FIFO queue	24
	File record access		Read File record	20
			Write File record	21
Diagnostics			Read Exception status	07
			Diagnostic	08
			Get Com event counter	11
			Get Com Event Log	12
			Report Slave ID	17
			Read device Identification	43
Other			Encapsulated Interface Transport	43

Configuration parameters, set-points, and input signals, statuses and alarms are in format word 16 Bit and are accessible as:

Read Holding Registers	03
Write Single Register	06
Write Multiple Registers	16
Read/Write Multiple Registers	23

BXX is the XXth bit of a word (XX is a value comprised between 00 and 15). R indicates the word is just readable, while R/W indicates the word is readable and writable. R/W values are reset to the values set by the Web server or if the register access time is exceeded or the unit is switched off. The most significant bit is characterized by the highest value: for instance, between B00 and B15 the latter is the most significant one. Standard addressing (Gould) is zero based in the protocol message. That means that if you want to read the first register, holding register 1, the starting register field in the message will be 0000. Below the modus table

ADDRESS	WORD ID	FORMAT	R/W	VALUE DESCRIPTION WHEN SWITCHING THE UNIT ON OR OFF
CONFIGURATION				
1	SW_PN_0	SW TYPE 0	R	SW MODEL
2	SW_PN_1	SW TYPE 1	R	SW MODEL
3	SW_PN_2	SW VER 0 (AAMM)	R	SW VERSION
4	SW_PN_3	SW VER 1 (DDPP)	R	SW VERSION
5	REMOTE CONTROL	B00: R/W DEVICE_RESET (1=RESET)		PCB RESET NOTICE BIT: PCB RESET NOTICE BIT: DEFAULT=1 , IF SET AT 0 AND A 1 IS FOUND LATER ON, IT MEANS A RESET OF THE CARD HAS TAKEN PLACE.
		B01: R TERMINAL_ACTIVE (1=ACTIVE)		CONNECTION TO TERMINAL
		B02: R TERM_RS485_ACTIVE (1=ACTIVE)		CONNECTION TO TERMINAL RS485
		B04: R/W CONNECTION_LOST (1=LOST)		DISCONNECTION NOTICE BIT: DEFAULT=0, IF AT 1 IS FOUND LATER ON, IT MEANS
		B13: R/W CMD DEVICE RESET (1=RESET)		DISCONNECTION HAS TAKEN PLACE. DEFAULT=0; IF SET AT 1, THE CARD IS RESET.
		B14: R/W WR_APP_CONF (1=WRITE PENDING)		ENABLE BIT FOR STORING CONFIGURATION IN NOVRAM (IF=1 AFTER WRITE REG)
		B15: R/W WR_SP (1=WRITE OENDING)		ENABLE BIT FOR STORING SET-POINT IN NOVRAM (IF=1 AFTER WRITE REG)
14	SPEED_ BALANCE	67-150 (%)	R/W	FAN UNBALANCE (EXHAUST = % DELIVERY)
20	PARAMETER FLAGS**	B00-01: R/W SEASON 0: SEASON_ND 1: SEASON_WINTER 2: SEASON SUMMER	R/W	SETTING SEA SON BYPASS B00-01 0=UNDEF./AUTO 1= WINTER 2=SUMMER
		B02-03: R/W BYPASS 0: BYPASS_AUTO 1: BYPASS_OFF 2:BYPASS_ON		UNIVERSAL (B02 B03) 1= MANUAL OFF 1=MANUAL=ON
		B04: DEHUMIDIFIER SWITCH OFF 0: DEHUMIDIFIER ON 1: DEHUMIDIFIER OFF		BIT ON-OFF DEHUMIDIFIER
		B05: SPEED SWITCH OFF 0: SPEED ON 1: SPEED OFF		BIT ON-OFF FANS
		B06: POST TEMPERATURE MANAGING SWITCH OFF 0: POST ON 1: POST OFF		BIT ON-OFF AIR POST TREATMENT
24	UNIT_1_M AX_FILT HOURS**	0-199 (500h)	R/W	HOUR FILTERS ALARM THRESHOLD UNIT1
25	UNIT_2_M AX_FILT HOURS**	0-199 (500h)	R/W	HOUR FILTERS ALARM THRESHOLD UNIT2
26	UNIT_3_M AX_FILT HOURS**	0-199 (500h)	R/W	HOUR FILTERS ALARM THRESHOLD UNIT3
27	UNIT_4_M AX_FILT HOURS**	0-199 (500h)	R/W	HOUR FILTERS ALARM THRESHOLD UNIT4
COMMANDS				
51	SPEED_SE T_POINT**	FOR VARIABLE SPEED VERSION: 0-100 % ; 101=TIMER ; 102=AUTO. FOR THREE SPEED VERSION: 1-2-3 ; 4=TIMER ; 5=AUTO . FOR CAV\COP UNITS: PASCAL-M3\H TIMER(65634) AUTO(65535).	R/W	FAN SPEED SET-POINT: FOR VAV UNIT: 0-100 % ; 101=HOUR PROGRAM; 102=AUTO. FOR UNIT 3 SPEEDS: 1-2-3; 4= HOUR PROGRAM; 5=AUTO. FOR CAV \ COP UNITS: PASCAL-M3\H TIMER=65634; AUTO=65535.

52	TEMPERATURE SET_POINT**	OFF(0) or 50-300 (0,1 °C)	R/W	TEMPERATURE SET POINT (IF AIR POST-TREATMENT IS PRESENT ONLY)
53	TIMER	0-14400 (sec.)	R/W	MAXIMUM FAN SPEED
54	SPEEDS REMOTE CONTROL	B00-06: REMOTE_SUPPLY_SPEED 0-100% B07: SUPPLY_SPEED_REMOTE_CONTROL 0: OFF 1: ON B14-08: REMOTE_ EXHAUST_SPEED 0-100% B15: EXHAUST_SPEED_REMOTE_CONTROL 0: OFF 1: ON	R/W	PARAMETER TO COMMAND INDEPENDENTLY FANS SPEED FROM THE LOGIC CONTROL .
55	RHUMIDITY_-SET_POINT	0-100%	R/W	HUMIDITY SET-POINT (IF DEHUMIDIFY FUNCTION PRESENT ONLY)
56	TEMPERATU-RE_FREE SET_POINT**	50-400 (0,1 °C)	R/W	SET TEMPERATURE AS 52, ARE CORRELATED. THE DIFFERENCE IS THAT CAN NOT BE SET TO 0 BECAUSE REPRESENT ALSO FREE COOL\HEAT SET.

UNIT_1_DATA

81	TEMP_E	(0,1 °C)	R	EXTERNAL AIR TEMPERATURE
82	TEMP_R	(0,1 °C)	R	EXHAUST AIR TEMPERATURE
83	TEMP_X	(0,1 °C)	R	EXPELLED AIR TEMPERATURE
84	TEMP_I	(0,1 °C)	R	INPUT AIR TEMPERATURE
85	TEMP_W	(0,1 °C)	R	WATER TEMPERATURE
86	STATUS_ FLAGS	B00: BY-PASS	R	BYPASS STATUS.
		B01: SUPPLY_SPEED_REM_CONT_ACTIVE		SUPPLY FAN INDIPENTENTLY CONTROL ENABLE
		B02: EXHAUST_SPEED_REM_CONT_ACTIVE		RECOVERY FAN INDIPENTENTLY CONTROL ENABLE
		B03: DEHUM_OM		DEHUMIDIFY FUNCTION ENABLE
		B04: NOFROST_ACTIVE		ANTIFROST HEAT EXCHANGER STATUS
		B05: EXT_DI_HUMIDITY		DIGITAL INPUT STATUS: HUMIDITY
		B06: EXT_DI_PIR_MIN		DIGITAL INPUT STATUS: PIR
		B07: EXT_DI_REMOTE_OFF		DIGITAL INPUT STATUS: REMOTE
		B08: HEAT_1		DIGITAL INPUT STATUS: HEATING/COOLING
		B09: HEAT_2		STAGE 2 STATUS POST-HEATING
		B10: TEMP_WATER_LOW		WATER COIL POWERED ANTIFROST STATUS
		B11: EXT_DI_SUMMER		DIGITAL INPUT STATUS: SEASON
		B12: EXT_DI_FIRE		DIGITAL INPUT STATUS: FIRE
		B13: EXT_DI_WATER_NOFROST		DIGITAL INPUT STATUS: WATER COIL POWERED ANTIFROST STATUS
		B14: EXT_DO_AUTO_COMPARE		DIGITAL OUTPUT STATUS: AUTO CMP
87	SPEED_C_ VALUE	IF FANS_FAIL_TACH (REG 7-B08) IS SET TO 1 RPM, OTHERWISE %	R	DELIVERY FAN SPEED IN REVOLUTIONS OR PERCENTAGE - SEE REG. 7-B08
88	SPEED_D_ VALUE	IF FANS_FAIL_TACH (REG 7-B08) IS SET TO 1 RPM, OTHERWISE %	R	EXHAUST FAN SPEED IN REVOLUTIONS OR PERCENTAGE SEE REGISTER 7-B08
89	AUTO_INP UT_VALUE	(%)	R	PERCENTAGE OF INPUT VALUE FOR: QUALITY SENSOR HUMIDITY SENSOR EXT SIGNAL
90	ALARMS 1	B00: COMM_X540_FAIL	R	COMMUNICATION ERROR IN X540 BOARD.
		B01: TE_FAIL		EXTERNAL AIR PROBE LINE FAILURE.
		B02: TR_FAIL		RETURN AIR PROBE LINE FAILURE.
		B03: TX_FAIL		EXPELLED AIR PROBE LINE FAILURE.
		B04: FILTERS_FAIL		CLOGGED FILTERS ALARM.
		B05: FANS_FAIL		FAN FAILURE .
		B06: AUTO_FAIL		AIR/HUMIDITY QUALITY SENSOR FAILURE.
		B07: TI_FAIL		INPUT PROBE LINE FAILURE.

		B08: COMM_X531_FAIL B09: TW_FAIL B10: TW_LOW		COMMUNICATION ERROR IN X531 BOARD. WATER COIL FROST ALARM.
		B11: AUTO_TO_FAIL		AIR/HUMIDITY QUALITY PROBE TIMEOUT ALARM.
		B12: COMM_X570_DPE_FAIL		COMMUNICATION ERROR IN X570 BOARD DELIVERY.
		B13: COMM_X570_DPE_FAIL		COMMUNICATION ERROR IN X570 BOARD EXHAUST.
		B14: DPSUPPLY_FAIL		DELIVERY PRESSURE SENSOR FAILURE.
		B15: DPEXHAUST_FAIL		EXHAUST PRESSURE SENSOR FAILURE.
91	DP_SUPPLY	(Pa)	R	FOR COP UNIT = PRESSURE VALUE OF DELIVERY FAN SIDE
92	DP_EXHAUST	(Pa)		FOR COP UNIT = PRESSURE VALUE OF RETURN FAN SIDE
93	FLOW_ SUPPLY	(m^3/h)	R	FOR CAV UNIT = AIR FLOW VALUE OF DELIVERY FAN SIDE
94	FLOW_ EXHAUST	(m^3/h)	R	FOR CAV UNIT = AIR FLOW VALUE OF RETURN FAN SIDE
95	FAN_ HOURS_H	(65536 h)	R	FAN OPERATION TIME (FAN_HOURS_H * 65536+ FAN_HOURS_L)
96	FAN_ HOURS_L	(h)	R	
97	ALARMS 2	B00: CONFIGURATION_FAIL B01: ANTI_ICE_ B02: EXT_AI2_FAIL B03: TD_FAIL B04: COMM_X570_EDPS_FAIL B05: COMM_X570_EDPE_FAIL B06: EDPS_FAIL B07: EDPE_FAIL B08: AUTO2_TO_FAIL B09: MIN_SPEED	R R	ERROR CONFIG. ANTI ICE ALARM ERRORE INGRESSO ANALOGICO 2 DEW POINT PROBE LINE FAILURE (TD). COM. ERROR IN X570 EXTRAFLOW SENSE BOARD DELIVERY. COM. ERROR IN X570 EXTRAFLOW SENSE BOARD EXHAUST. FAULT X570 BOARD DELIVERY. FAULT X570 BOARD DELIVERY. AIR/HUMIDITY QUALITY PROBE ON INPUT 2 TIMEOUT ALARM UNIT RUN AT MIN SPEED FROM DIGITAL INPUT
98	PRE-HEAT	(%)	R	PERCENTAGE OF REGULATION PRE-HEATING
99	POST-HEAT	(%)	R	PERCENTAGE OF REGULATION POST-HEATING
100	TEMP_D	(0,1°C)	R	AIR TEMPERATURE AFTER COOL COIL IN DEUMIDIFY SYSTEM

UNIT_2_DATA

101	TEMP_E		R	

UNIT_4_DATA

221	TEMP_E		R	

TIMETABLE PROGRAM

1001 1002 1003	TIME_TABLE_SPEED_0** TIME_TABLE_SPEED_1** TIME_TABLE_SPEED_2**	IF CONFIG_FLAGS_1.MODULE_ FLAG = 0 : 0-1-2-3 or TIMER (4) or AUTO(5) IF CONFIG_FLAGS_1.MODULE_ FLAG = 1 and PRESS_FLOW_ REG_PRESENT = 0 : 0-100% or TIMER (101) or AUTO(102) IF CONFIG_FLAGS_1.MODULE_ FLAG = 1 and PRESS_FLOW_ REG_PRESENT = 1 : 0 - SPEED_ RANGE or TIMER(65634) or AUTO(65535)	R/W	SELECTION TIMETABLE SPEED
1017- 1024	MONDAY-CHANGE-0/7**	B00-10: TIME - MINUTES B11-13: SPEED SELECTION 000: TIME_TABLE_SPEED_0 001: TIME_TABLE_SPEED_1 002: TIME_TABLE_SPEED_2 B14-15: TEMPERATUE REG. ENABLE 00: OFF 01: ON	R/W	SETTING TIMETABLE IN MINUTES MINUTES FROM 00.00 (ES:60=1.00) SELECTION SPEED SELECTION ENABLE POST-HEATING\COOLING
1025-1032	TUESDAY-CHANGE - 0/7**		R/W	LIKE PREVIOUS
1033-1040	WEDNESDAY-CHANGE - 0/7**		R/W	LIKE PREVIOUS
1041-1048	THURSDAY-CHANGE - 0/7**		R/W	LIKE PREVIOUS
1049-1056	FRIDAY-CHANGE - 0/7**		R/W	LIKE PREVIOUS
1057-1064	SATURDAY-CHANGE - 0/7**		R/W	LIKE PREVIOUS
1065-1072	SUNDAY-CHANGE - 0/7**		R/W	LIKE PREVIOUS

SERVICE-DATA				
8502	BAUD RATE*	(100 bit/s)	R/W	DEFAULT = 96
8503	TIME OUT*	(SEC)	R/W	DISCONNECTION TIME DEFAULT = 10 SEC. 65535 DISABLES DISCONNECTION IN CASE OF FAILURE TO READ REGISTERS
8555	DAY * **	1 (MONDAY) -7 (SUNDAY)		SET DAY
8556	HOUR * **	1-24		SET HOUR
8557	MINUTES * **	0-59		SET MINUTES
8559	PASSWORD		R/W	INSTALLER:5678 INSERT TO MODIFY PARAMETERS MENU INSTALLER

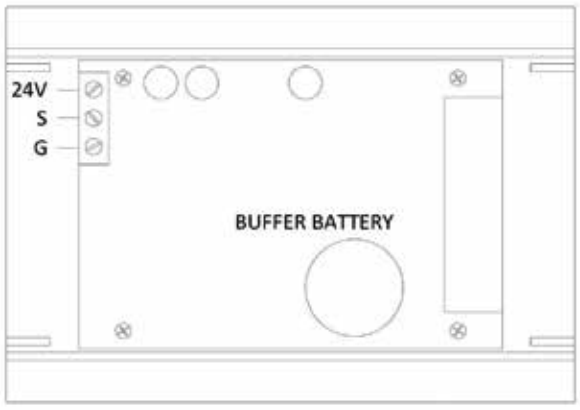
* Access limited by password installer, to modify write before it in register 8559
** For writing, set before Bit 14 \ 15 of Reg 5 = 1, alternatively web server or touch panel

INSTALLATION

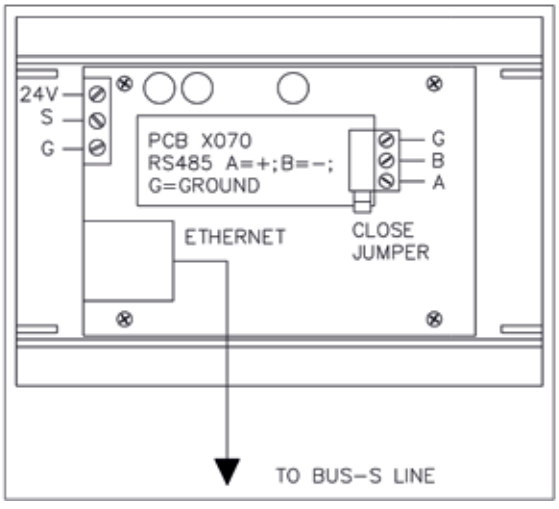
Installation must be carried out by expert staff. For the best operation, the remote panel must be fixed to an indoor wall about 1.5 m above the floor, far from heating sources (radiators, stoves, etc.), and must be not exposed to direct sun rays. It must be not installed near doors, which might damage the electronics if slammed. The maximum distance from the main electric box is 70m.

CONTROL PANEL WIRING

Connect the power supply to the 24V and G terminals, matching the correct polarity. Connect the BUS to the S terminal. Using a min. 0.3 mm2 section shielded cable is recommended. In case of communication errors, check the connections between the remote panel and the electronic card. For panel with Modbus tcp-ip connect the Ethernet cable in the connector, with rs485 additional card use 3x0,3mm2 shielded cable.



Remote panel: rear view



Connection Tcp-ip \Rs485 additional card

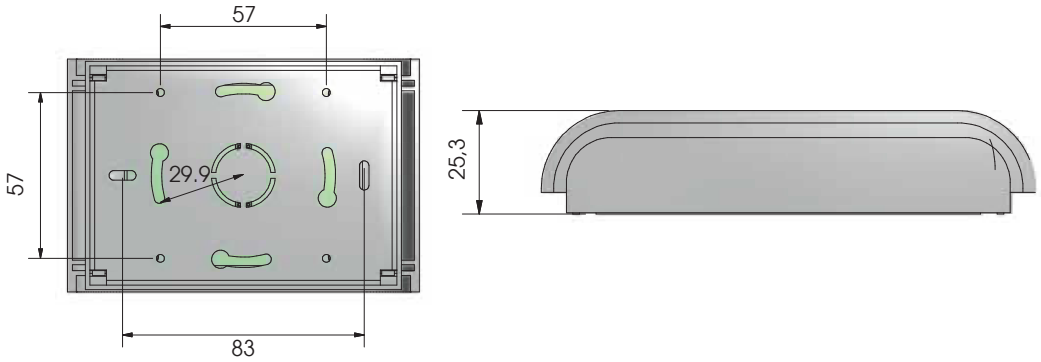
CONTROL CHARACTERISTICS

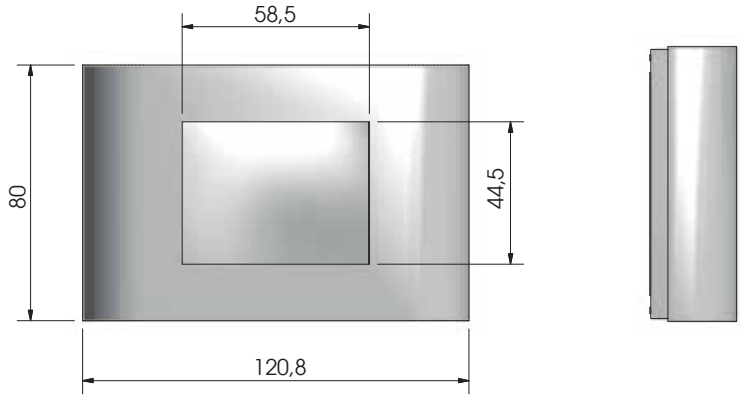
Power: 9 / 30 VDC 250mW, operating temperature between 0° and 50 °C; storage temperature between -20 °C and 70 °C.

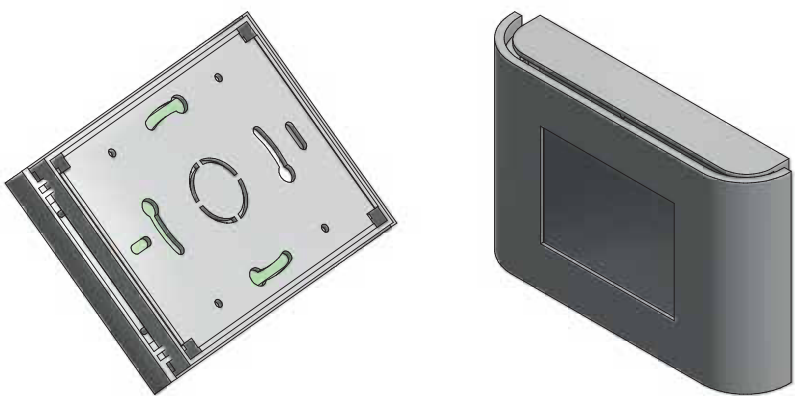
TERMS OF GUARANTEE

The two-year (24-month) guarantee period starts from the receipt of the equipment: the date of receipt must be indicated in the purchase invoice. In the guarantee term, the manufacturer will repair all defects arising from manufacturing mistakes or material faults free of charge. It will replace defective parts or the whole equipment at its own discretion. Any other request for guarantee service is excluded. The manufacturer also waives any liability for subsequent damages. Goods that are claimed to be defective must be shipped to the manufacturer through the dealer, together with a detailed description of the fault written by the dealer. Shipment cost will be charged to the customer. The manufacturer shall bear the cost of returning the repaired goods. In no case will the manufacturer be responsible for defects caused by improper use that does not comply with the user manual provided, and natural catastrophic events like lightning, floods, earthquakes, fire, etc. The manufacturer also waives any liabilities for repairs or changes to the equipment made by any people foreign to the manufacturing company.

DIMENSIONS (mm)



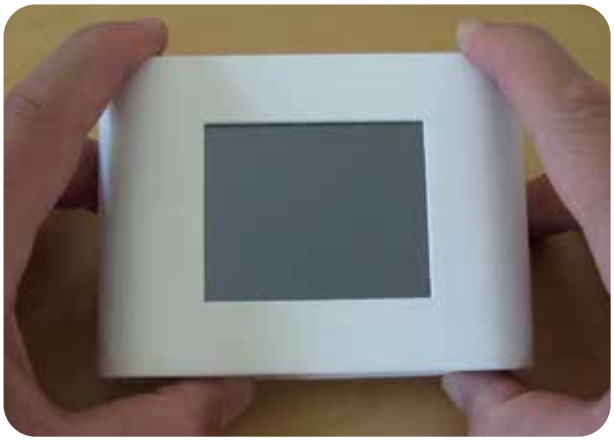




MOUNTING (mm)

Insert two sticks in the left and the right of the touch panel

Insert bottom touch panel in the support



Press the support up and the touch panel down then insert also the top touch panel in the support

Dear Customer

Thanks for your attention to the product UTEK , designed and manufactured to ensure the real values to the User: Quality, Safety and Savings on working.

Made in Italy

COMPANY WITH QUALITY SYSTEM CERTIFIED BY DNV GL
ISO 9001

the Dealer

User manual
Release No.: Rev. 00 08/01/19
Software version 4.24

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ELECTRONIC CONTROLS MICROPROCESSOR

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