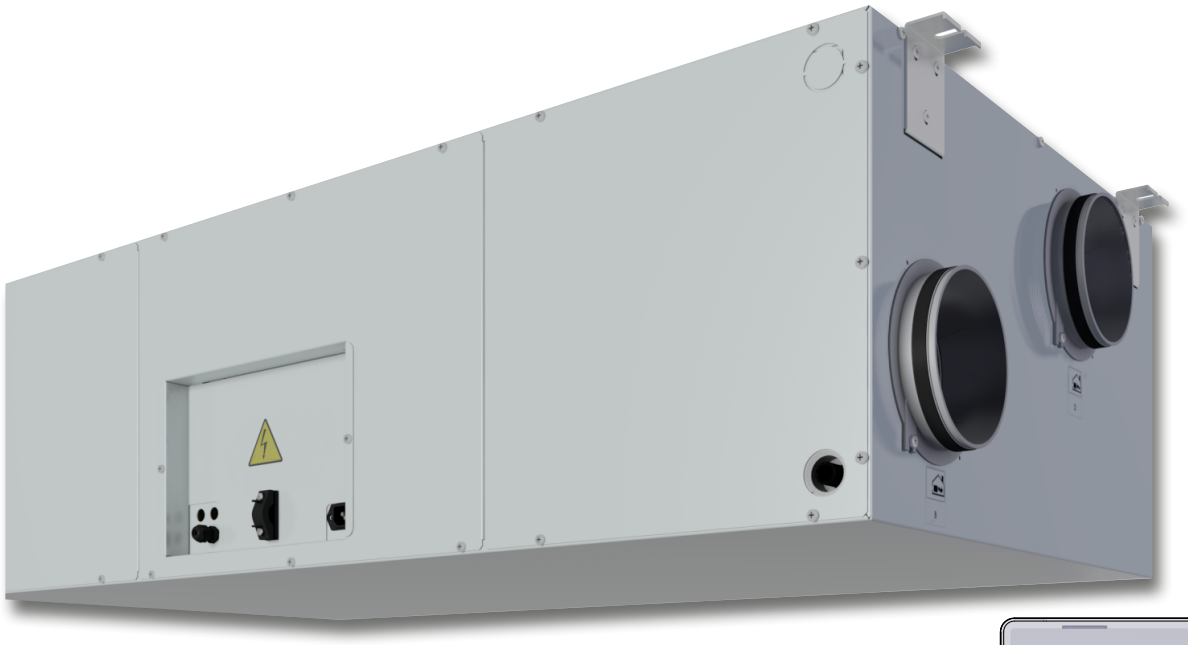
INSTALLATION, USE AND MAINTENANCE INSTRUCTIONS

Units for residential ventilation



ENERGY SHP-170

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E 09/19
D 09/19
Cod. 4051063

IT

Gentile cliente,
la ringraziamo per la fiducia accordataci con l'acquisto di un nostro prodotto.
Se Lei avrà la costanza di seguire attentamente le indicazioni contenute nel presente manuale, siamo certi che potrà apprezzare nel tempo e con soddisfazione la qualità della nostra macchina.
La preghiamo di leggere attentamente le indicazioni contenute nel manuale che riguardano l'uso corretto del nostro prodotto, in conformità alle prescrizioni essenziali di sicurezza.

UK

We thank you for your custom in the purchase of this product.
By carefully following the instructions contained in this manual you will be sure to appreciate the quality of our machine.
Please therefore carefully read the instructions of use contained in this manual, which comply with essential safety regulations.

You can download the manual from the website www.sabiana.it

DE

Sehr geehrter Kunde,
wir danken Ihnen für das uns durch den Erwerb eines unserer Produkte entgegengebrachte Vertrauen.
Wenn Sie die Ausdauer haben, aufmerksam die im vorliegenden Handbuch enthaltenen Hinweise zu beachten, sind wir gewiß, daß Sie lange und mit Zufriedenheit die Qualität unserer Maschine schätzen werden können. Wir bitten Sie, aufmerksam die im Handbuch enthaltenen Hinweise bezüglich der richtigen Verwendung unseres Produktes in Übereinstimmung mit den wesentlichen Sicherheitsvorschriften zu lesen.

Sie können das Handbuch von der Website www.sabiana.it herunterladen

FR

Cher client,
Nous vous remercions de la confiance que vous nous avez manifestée en achetant notre produit.
Si vous suivez attentivement les indications contenues dans le présent manuel, nous sommes certains que vous apprécierez la qualité de notre machine.
Nous vous prions de lire attentivement les indications contenues dans le manuel sur l'utilisation correcte de notre produit, en conformité avec les prescriptions essentielles de sécurité.

Vous pouvez télécharger le manuel sur le site Web www.sabiana.it

Carefully read the following instruction booklet before starting up the machine.

Attention! Carefully turn off the electrical supply before removing the protections

Attention! Carefully turn off the electrical supply before removing the protections

Operations which may be carried out by the user

Interventions to be carried out exclusively by an installer or authorised technician.

- ESSENTIAL SAFETY RULES

It is dangerous to touch the unit with parts of your body wet and with bare feet.

Do not perform any type of intervention or maintenance without first having disconnected power to the unit.

Do not tamper with or modify the adjustment or safety devices without being authorised and without instructions.

Do not twist, detach or pull the power cords coming out of the unit even if not plugged in.

Do not pour or spray water on the unit.

Do not put anything into the air intake and supply grids.

Do not remove any protection without first having disconnected power to the unit.

Do not throw or leave any residual packing material within the reach of children, as it is a potential risk of danger.

Do not install the unit in explosive or corrosive atmospheres, in moist areas, outdoors or in extremely dusty environments.

- SAFETY REQUIREMENTS

The unit can be used by children no younger than 8 years old and by persons with reduced physical, sensory or mental capabilities, or lack of necessary experience and knowledge as long as they are supervised or after they have received instructions regarding safe use of the unit and understanding the hazards related to it.

Children must not play with the unit.

The cleaning and maintenance to be carried out by the user cannot be done by children without supervision.

Before performing any operation, make sure to:

1 - Disconnect electric power to the unit.

2 - Close the water supply valve of the coil and let it cool off (pre-and post-heating coils if installed as accessories).

3 - Install a circuit breaker switch in an easily accessible position near the unit or units.

⚠ RISK OF INJURY!

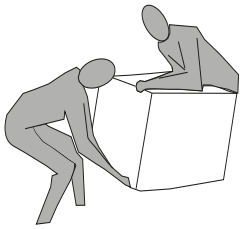
For safety purposes, during installation, maintenance and repairs, abide by the following:

• Always wear work gloves.

• Do not be exposed to flammable gases.

⚠RISK OF INJURY/MATERIAL DAMAGE /DAMAGE TO UNIT!

The unit is very heavy.



Lifting it can cause injuries.

Have another person help you lift it in order to carry the machine.

Lift it slowly and pay attention that it does not fall.

The fans can reach a speed of 3000 rpm.

Do not insert objects or your hands into the electric fan.

Do not remove the safety labels inside the unit. If illegible, have them replaced.

Make sure to earth the unit.

Always request original spare parts when replacing components.

The installation site must be chosen so that there is sufficient space for the connections of the air pipes and to allow maintenance to be carried out conveniently.

Make sure there is at least 500/600 m of free space all around the unit to allow for maintenance operations.

If the unit is hung on a wall, make sure the wall has a surface mass of at least 200 kg/m^2.

Do not install the unit near bedrooms.

To improve environmental comfort, install silencers on the ambient air input and return piping.

The units cannot be installed in environments cooler than < 12°C.

The residential ventilation systems are designed for constant operation to avoid the formation of condensation and mould in the environments. The units can only be switched off for scheduled maintenance.

The units cannot be used to dry structures and masonry of new homes.

ATTENTION!: It is strictly forbidden to operate the unit before having connected the 4 air ducts to the ducting system.

- USE AND STORAGE OF THE MANUAL

This instruction manual is intended for the machine user, owner and technical installer and must always be available for consultation.

The instruction manual indicates the intended use of the machine, its technical features and provides indications as to its correct use, cleaning and adjustments. It also provides important indications for maintenance, for residual risks and anyhow to carry out operations with particular attention.

This manual must be considered as a part of the machine and must be ***KEPT FOR FUTURE REFERENCE*** until the final scrapping of the machine.

The instruction manual must always be available for consultation and preserved in a dry and protected area.

Should it be lost or damaged, the user can request a new manual from the manufacturer or retailer, indicating the model and serial number of the machine shown on its rating plate.

This manual reflects the state of technology at the moment it was drafted. The manufacturer reserves the right to update production and following manuals without being obliged to update previous versions as well.

The manufacturer will not be held liable in case of:
- improper use or misuse of the machine
- use nonconforming to that expressly specified in this publication
- serious shortcomings in intended and recommended maintenance
- changes to the machine or any unauthorised intervention
- use of non-original spare parts or not specific for the model
- total or partial failure to comply with the instructions
- exceptional events

- SCOPE

BEFORE INSTALLING THE UNIT
READ THIS MANUAL CAREFULLY

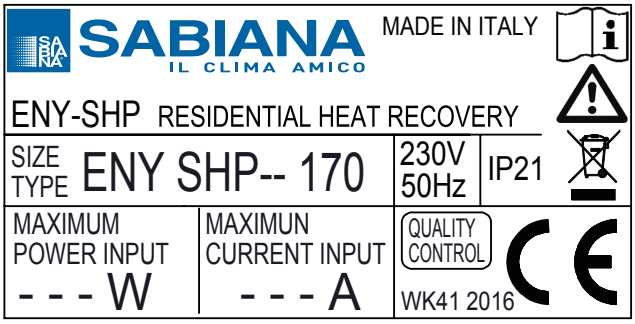
Residential ventilation units convey fresh air through the cross-flow heat exchanger and distribute it to the different rooms by means of a duct distribution system.

Moist and stale air is suctioned and then, again passing through the cross-flow heat exchanger, is exhausted to the outside of the unit by residential ventilation.

- MACHINE IDENTIFICATION

There is an identification label on each unit bearing the data of the manufacturer and the machine type. (See Figure "A")

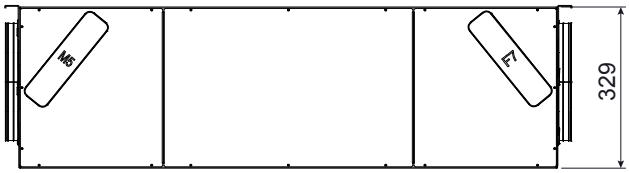
Fig."A"

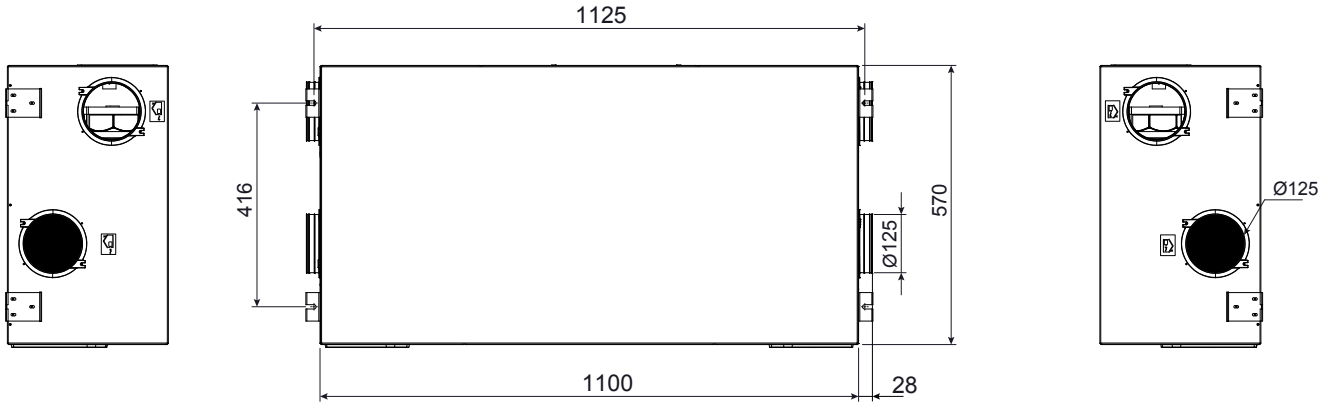


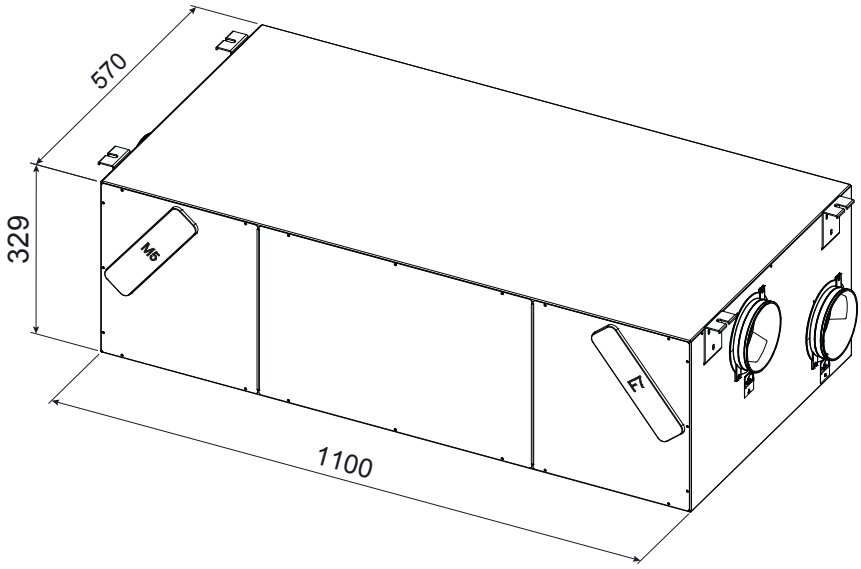
- WASTE DISPOSAL

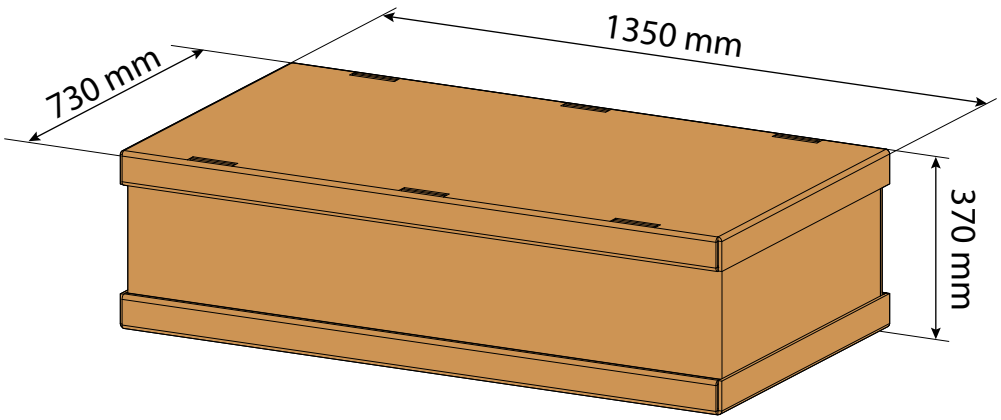
Consumables and replaced parts should be disposed of safely and in accordance with the environmental protection legislation.

DIMENSIONS


M5
F1
329


1125
416
570
Ø125
1100
28
Ø125


570
329
M6
F1
1100


1350 mm
730 mm
370 mm

RANGE

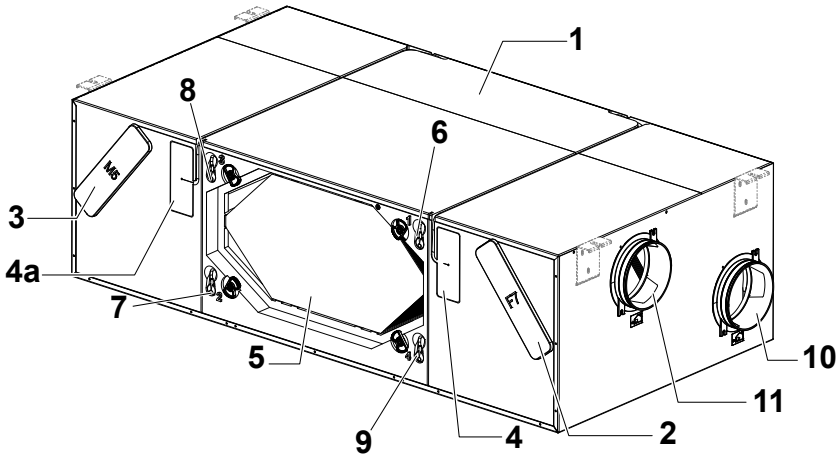
Model	Integrated Modulating Electric Resistance	Flow Configuration	Integrated Humidity Sensor	Energy Class	Electric Resistance Power
-				-	Watt
ENY-SHP-170 ENY-SHPM-170*	-	Default RH Reversible	*	A+	-
ENY-SHPER-170 ENY-SHPMER-170*	X	RH	*	A+	600
ENY-SHPEL-170 ENY-SHPMEL-170*	X	LH	*	A+	600

* Models fitted with enthalpy heat exchangers

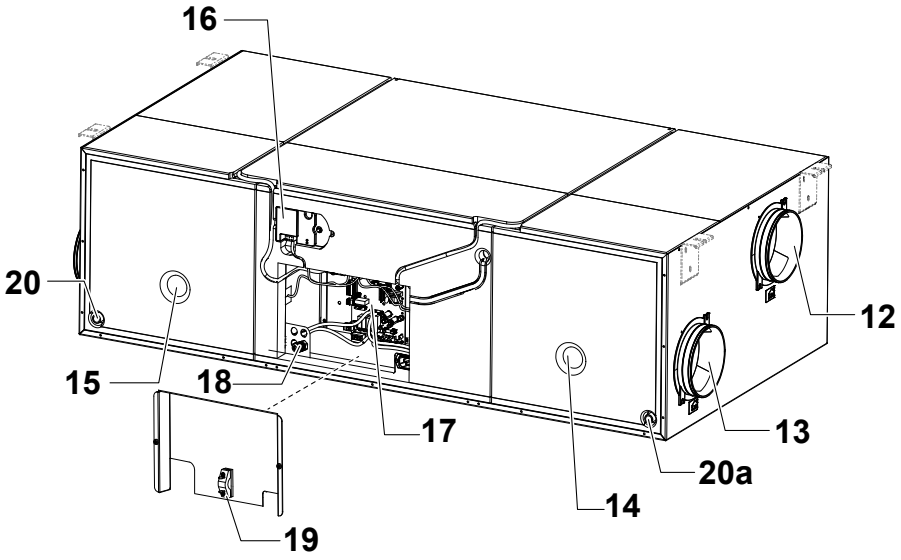
TECHNICAL DATA

Model		ENY SHP 170	ENY SHPM 170
Length	mm	1100	1100
Width	mm	570	570
Height	mm	329	329
Diameter of Connections	-	DN125	DN125
Weight	kg	32	37
Weight with packaging	kg	35	40
Maximum Flow Rate	m^3/h	170	170
Available static pressure at maximum flow rate	Pa	100	100
Reference Flow Rate	m^3/h	120	120
Available static pressure at reference flow rate	Pa	50	50
Minimum flow rate	m^3/h	60	60
Maximum available static pressure	Pa	230	230
Thermal Efficiency at flow rate of reference EN 13141-7	%	92%	81.9%
Thermal hygromeric at flow rate of reference EN 13141-7	%	/	63.3%
Filtering Efficiency EN779 - ISO 16890		F7 supply - M5 exhaust ePM1 70% - ePM10 50%	
Type of fan	-	Centrifugal with EC brushless motor - Blades back - Curves at constant speed	
Maximum power output (fans and controllers)	W	50	50
Maximum current output (fans and controllers)	A	0,6	0,6
Electric power supply	-	Single phase -230 V – 50 Hz	
Consumption in standby	-	< 1W	
Safety property	-	Protection: IP21 EC Compliant	
Integrated modulating electric resistance	-	**ENY-SHPER-170 ENY-SHPEL-170**	**ENY-SHPMER-170 ENY-SHPMEL-170**
Preheating resistance power	W	600	600
Maximum current output with preheating resistance	A	3 A	3 A

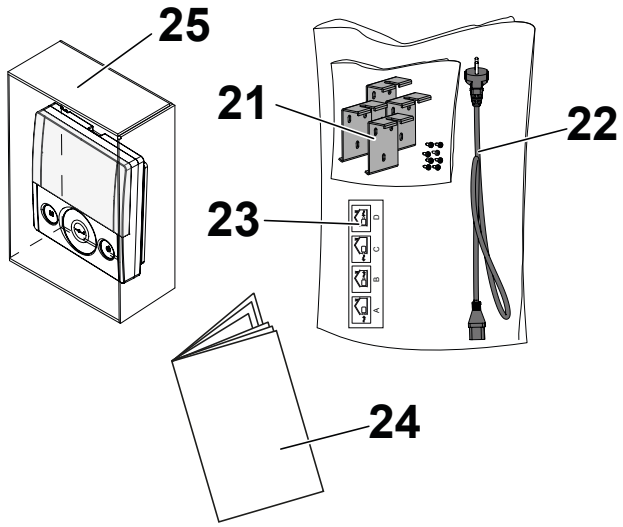
DESCRIPTION OF MACHINE COMPONENTS (STANDARD configuration)



1 - Unit for residential ventilation
2 - Filter class F7 (fresh air)
3 - Filter class M5 (extracted stale air)
4 - Electric heating element (accessory)
4a - Housing compartment for electric resistance (accessory) inverse machine version
5 - Heat exchanger
6/7 - Heat exchanger pressure connections
Supply air
8/9 - Heat exchanger pressure connections
Extraction flow
10 - Exhaust air connection
11 - Fresh air connection



12 - Extracted stale air connection
13 - Supply air connection
14 - Input fan (V1)
15 - Extraction fan (V2)
16 - Bypass Damper System
17 - Power board
18 - Cable gland PG7
19 - Cable lock
20 - Condensate drain
20a - Condensate drain for Inverse machine



21 - Suspension brackets
22 - Power cord
23 - Shanks label (to be used for inverse connection)
24 - Use and maintenance manual
25 - T-EP display controller

INSTALLATION
(OPERATION CARRIED OUT EXCLUSIVELY BY QUALIFIED PERSONNEL)

Attention!: Installation of the unit for residential ventilation must only be carried out by qualified personnel to avoid damage or injury.

Attention!: To protect the system against filth and humidity, all the openings must remain closed until commissioning, for example using protective covers.

INSTALLATION INSTRUCTIONS

- The residential ventilation unit can be installed in dry environments with the temperature above 12°C, for example in a utility room. Installation temperature: from +12 °C to +40 °C.
- Relative humidity (installation environment): max. 60%.
- Storage temperature: -20°C to +60°C.

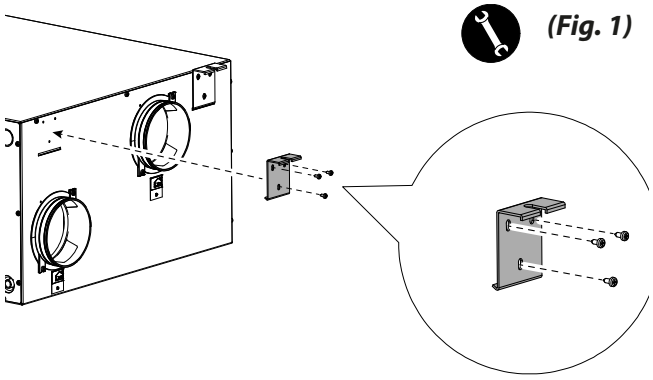
PLEASE NOTE: *if the temperature in the installation room drops below 12°C, there could occasionally be condensate on the external covering of the unit.*

- Position the unit so that the section up to the external outlet of the fresh air and exhaust air inlet ducts is as short as possible.
- The vibrations produced by the residential ventilation unit must be dampened. The installed unit must be soundproofed.
- The residential ventilation unit is mounted with suspension brackets (supplied with the machine).
- The residential ventilation unit must be accessible to perform maintenance and repairs.
- Air flow rates must be set correctly in compliance with standard DIN 1946, part 6.
- The unit can be commissioned after having completed installation of the entire residential ventilation system.

INSTALLATION OF THE UNIT

- Fastening the suspension brackets

(Fig. 1)



Install the four suspension brackets on the sides of the unit with the screws provided (Fig.1).

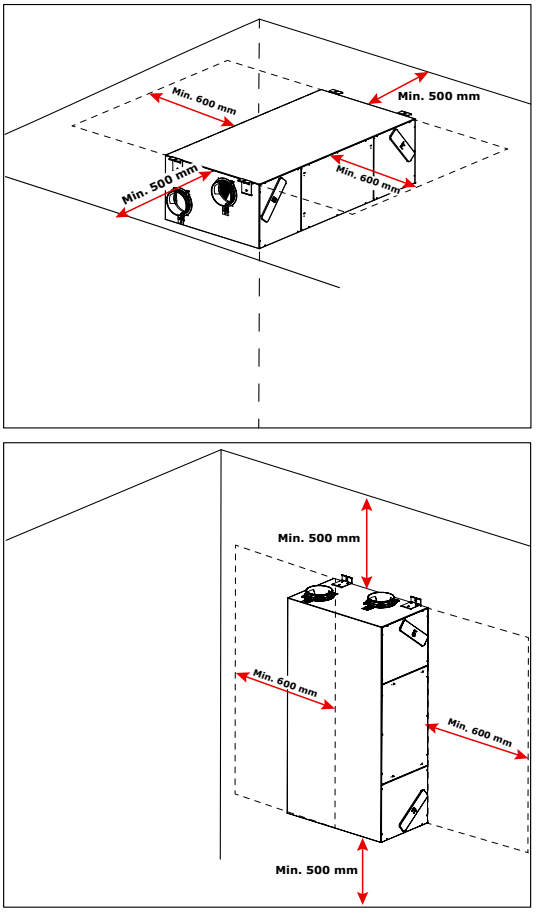
The residential heat recovery unit can be installed in two ways:

- On the ceiling;
- On the wall.

PLEASE NOTE!: *the screws for installation on the wall or ceiling are not supplied.*
Choose the screws and relative plugs based on the type of wall.

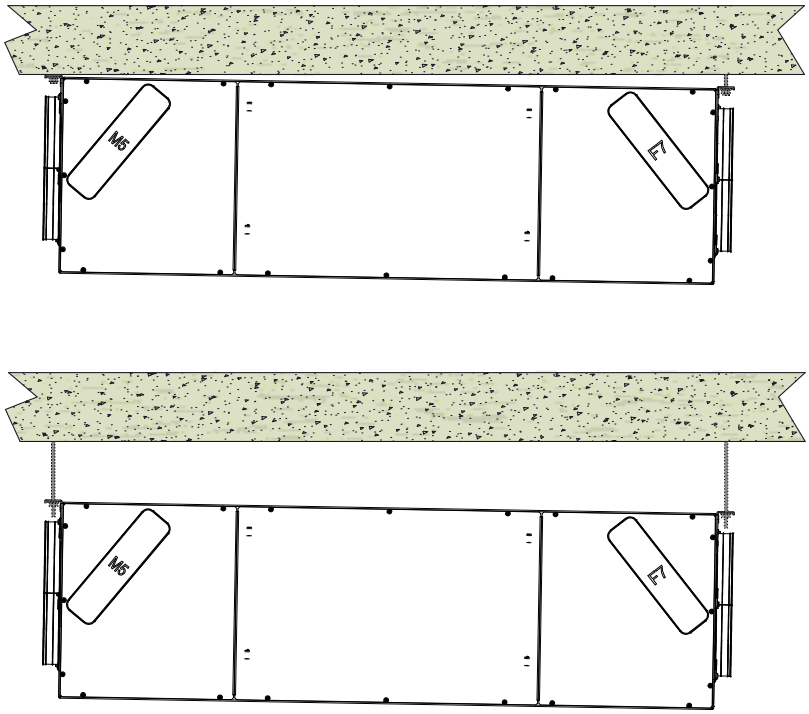
IMPORTANT! Make sure there is enough space around the residential heat recovery unit for any maintenance work (see "FIG.2").

(Fig. 2)



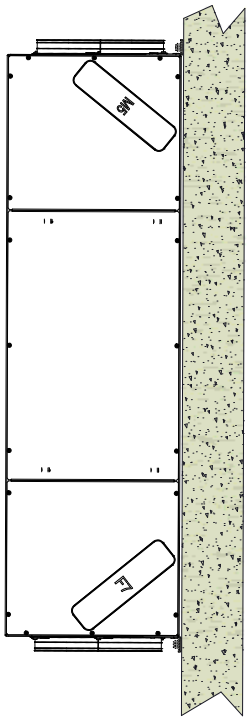
- Ceiling Installation

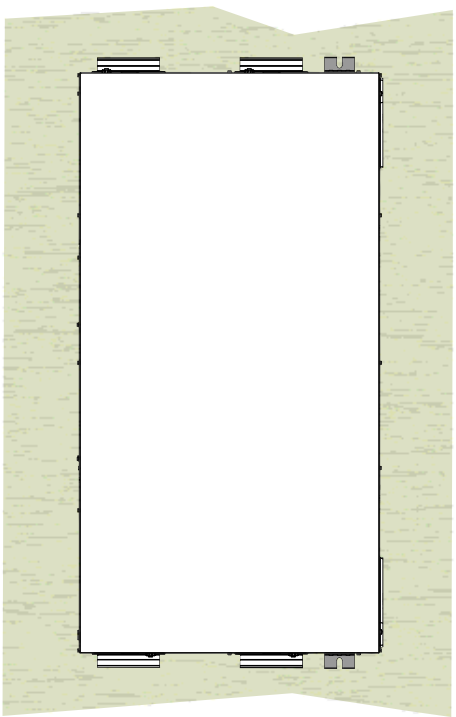
1. Install the heat recovery unit on a ceiling with a mass of at least 200 kg/m^2.
2. Mark the position for the fastening points on the ceiling.
3. Position the unit in suspension.
Take into consideration a minimum incline of 2% towards the condensate drain.
4. Connect the condensate drain to the domestic sewage system using a duct or pipe (siphoned).



- Wall Installation

1. Install the heat recovery unit on a wall with a mass of at least 200 kg/m^2.
2. Mark the position for the fastening points on the wall.
3. Position the unit.
4. Connect the condensate drain to the domestic sewage system using a duct or pipe (siphoned).





- Condensate drain connection

Connection of the condensate drain depends on the type of machine installation (standard or inverse / ceiling or wall).

Connect the condensate drain to the domestic sewage system using a duct or pipe (siphoned).

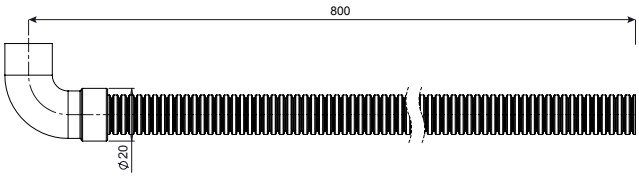
Condensate must be drained from a minimum height of 100 mm.

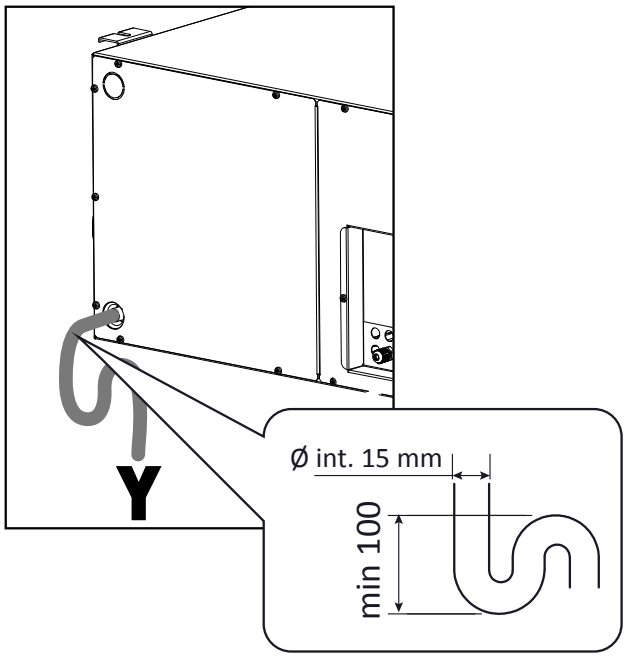
A flexible and corrugated drainage pipe is included within the unit delivery, having the purpose to let the installation easier in case of horizontal application.

Component is 800 mm long and is prefitted with a 90° bend, as it is shown into figure 1.

Siphon can be made using this flexible pipe supported by a metal wire.

(Fig.1)



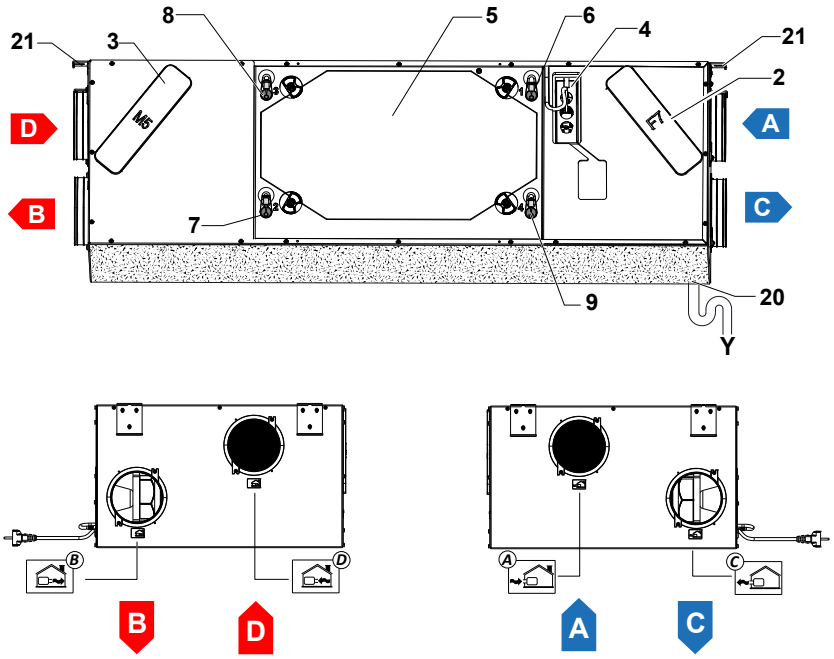


PLEASE NOTE!: if you choose the "**Inverse**" configuration, plug the standard drain and use the opposite drain (see **"Transformation from standard to inverse" paragraph).**

Connections must only be carried out by qualified personnel to avoid damage or injury

TYPES OF INSTALLATION

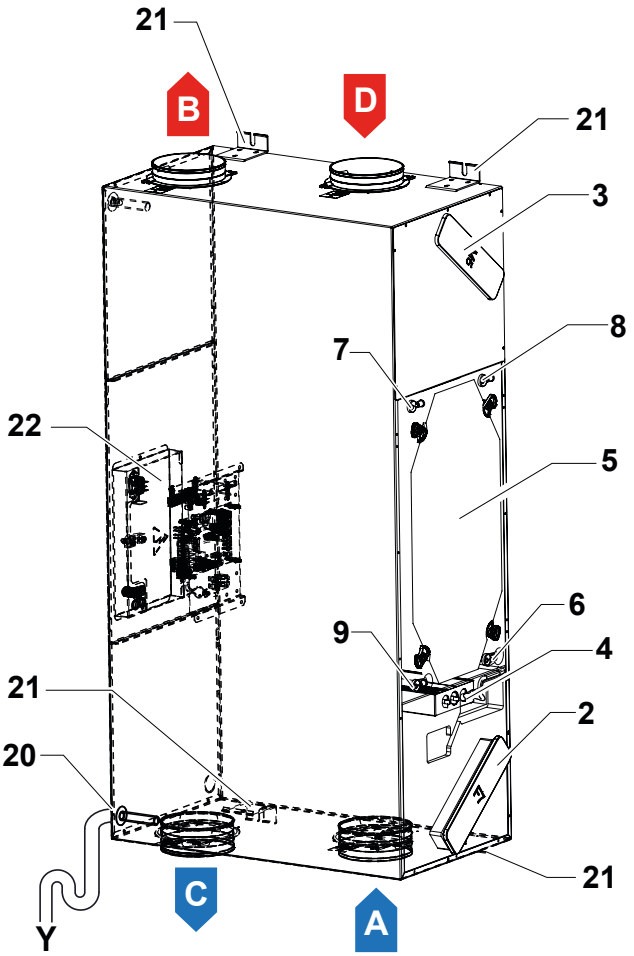
INSTALLATION OF THE STANDARD HORIZONTAL (RH) UNIT



2 - Filter class F7 (fresh air)
3 - Filter class M5 (extracted stale air)
4 - Electric Resistance
(ENY-SHPEL / ENY-SHPER option)
5 - Heat exchanger
6/7 - Heat exchanger pressure connections
Supply air
8/9 - Heat exchanger pressure connections
Extraction flow
20 - Condensate drain
21 - Suspension brackets

A = Fresh air
B = Supply air
C = Exhaust air
D = Extracted stale air

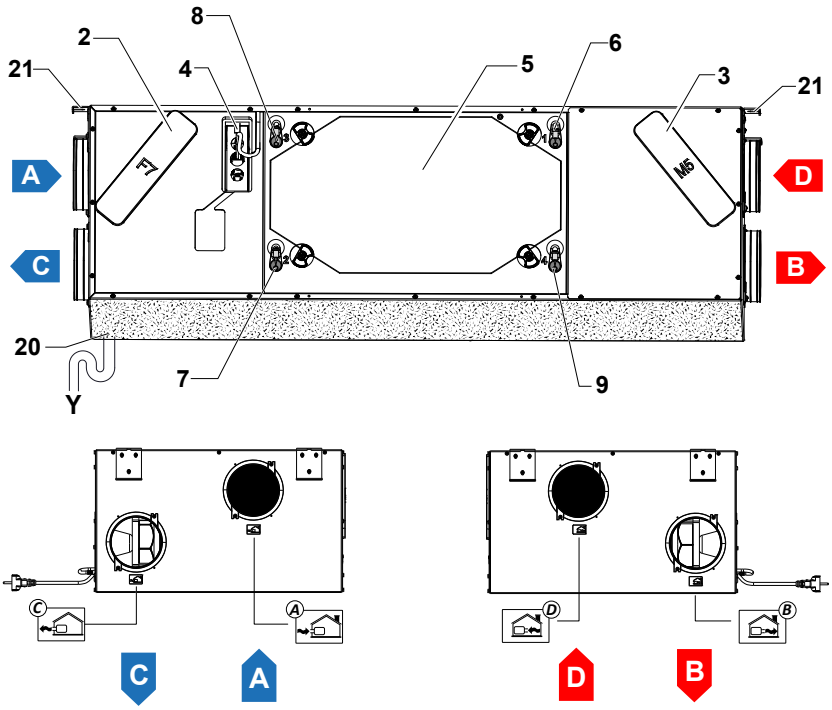
INSTALLATION OF THE STANDARD VERTICAL UNIT



2 - Filter class F7 (fresh air)
3 - Filter class M5 (extracted stale air)
4 - Electric Resistance
(ENY-SHPEL / ENY-SHPER option)
5 - Heat exchanger
6/7 - Heat exchanger pressure connections
Supply air
8/9 - Heat exchanger pressure connections
Extraction flow
20 - Condensate drain
21 - Suspension brackets
22 - Electrical box

A = Fresh air
B = Supply air
C = Exhaust air
D = Extracted stale air

INSTALLATION OF THE "INVERSE" HORIZONTAL (LH) UNIT

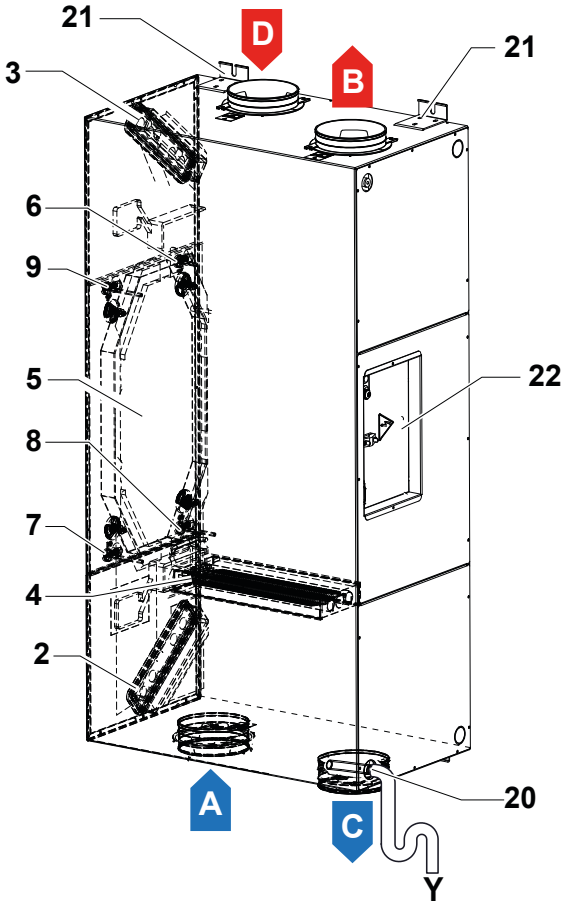


Follow the instructions below to invert the unit

2 - Filter class F7 (fresh air)
3 - Filter class M5 (extracted stale air)
4 - Electric Resistance
(ENY-SHPEL / ENY-SHPER option)
5 - Heat exchanger
6/7 - Heat exchanger pressure connections
Extraction flow
8/9 - Heat exchanger pressure connections
Supply air
20 - Condensate drain
21 - Suspension brackets

A = Fresh air
B = Supply air
C = Exhaust air
D = Extracted stale air

INSTALLATION OF THE "INVERSE" VERTICAL UNIT



Follow the instructions below to invert the unit

2 - Filter class F7 (fresh air)
3 - Filter class M5 (extracted stale air)
4 - Electric Resistance
(ENY-SHPEL / ENY-SHPER option)
5 - Heat exchanger
6/7 - Heat exchanger pressure connections
Extraction flow
8/9 - Heat exchanger pressure connections
Supply air
20 - Condensate drain
21 - Suspension brackets
22 - Electrical box

A = Fresh air
B = Supply air
C = Exhaust air
D = Extracted stale air

ATTENTION!: With respect to the standard configuration, make sure the F7 filter and the condensate drain are positioned low down

TRANSFORMATION FROM "INVERSE" TO STANDARD

Only for Units not equipped with internal modulating electric resistance (ENY-SHP 170).

The connections can be swapped to allow for flexible installation of the units for residential ventilation.
The difference in the connections regards the position of the air connections, of the filters and of the condensate drain and RH humidity sensor.

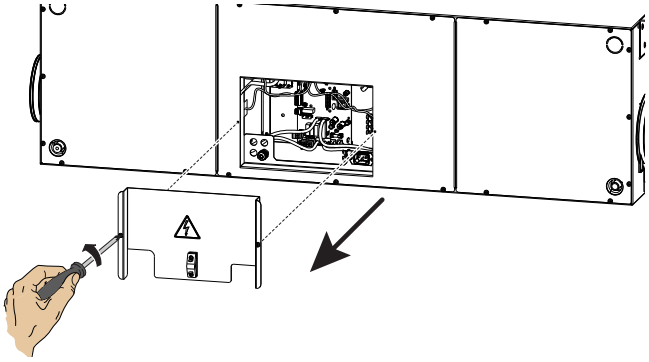
- How to change connection

The default unit is set in the version with **standard connections.**
Follow the procedure below to transform the unit into the "**inverse**" version:

Always disconnect power before accessing the machine.

ATTENTION! With respect to the standard configuration, make sure the F7 filter and the condensate drain are positioned low down.

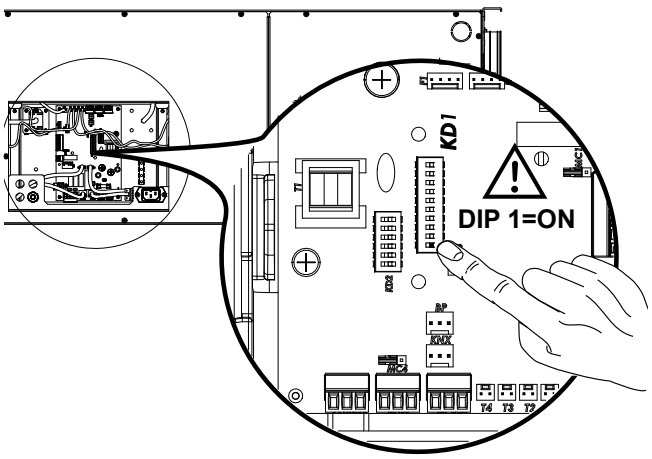
1. Remove the screws from the electrical box to access the power board.



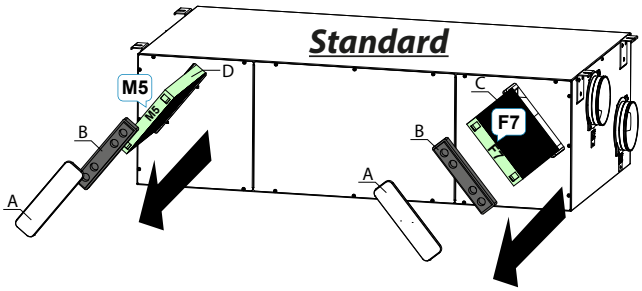
2. Put the DIP n°1 of the power board "ON":

DIP 1 = OFF Standard installation (default)

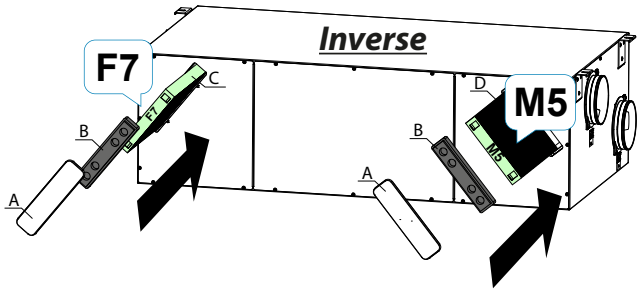
DIP 1 = ON "INVERSE" installation



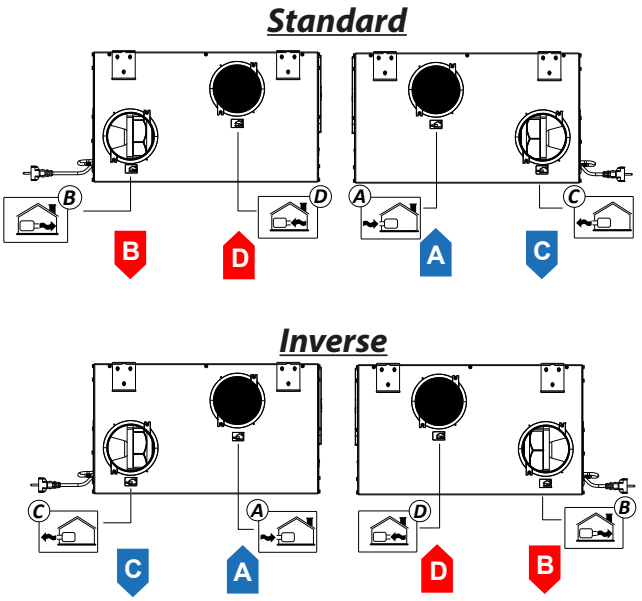
3. Swap the filters: remove the cover (A), the closing cap (B) and pull the filters (C) and (D) out;



Now the filters can be swapped positioning them as shown in the figure below

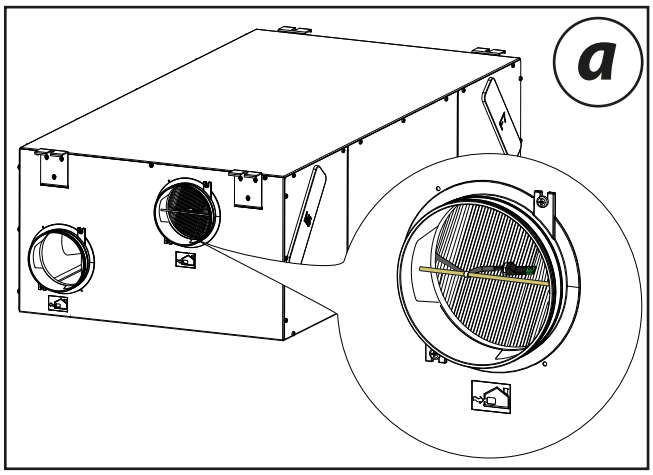


4. Apply the air connection labels, provided with the machine, according to the new configuration replacing the ones already on the unit.

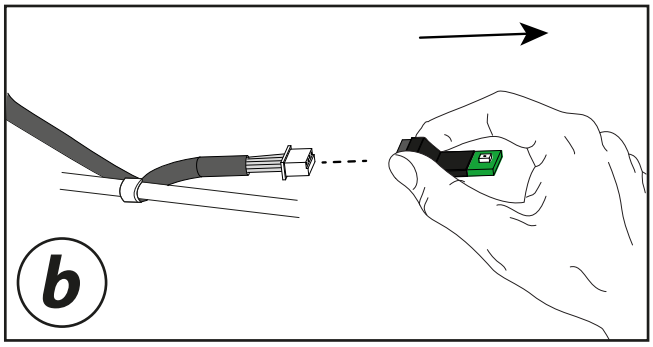


5. Move the humidity sensor :

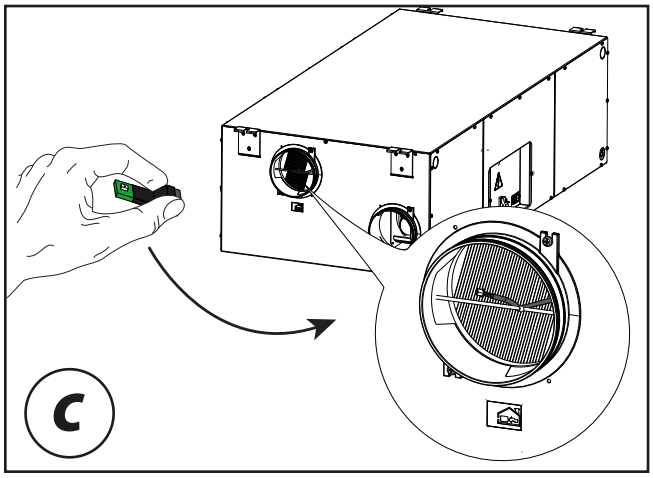
a) After swapping them and changing the shanks labels, the humidity sensor is now on the Fresh Air shank.



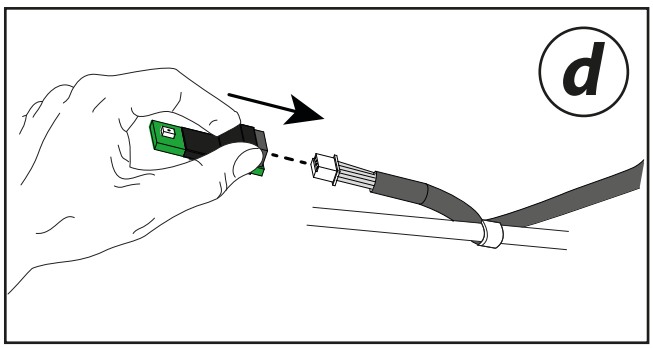
b) Remove the sensor from the cable.



c) identify the extracted stale air shank on the machine.

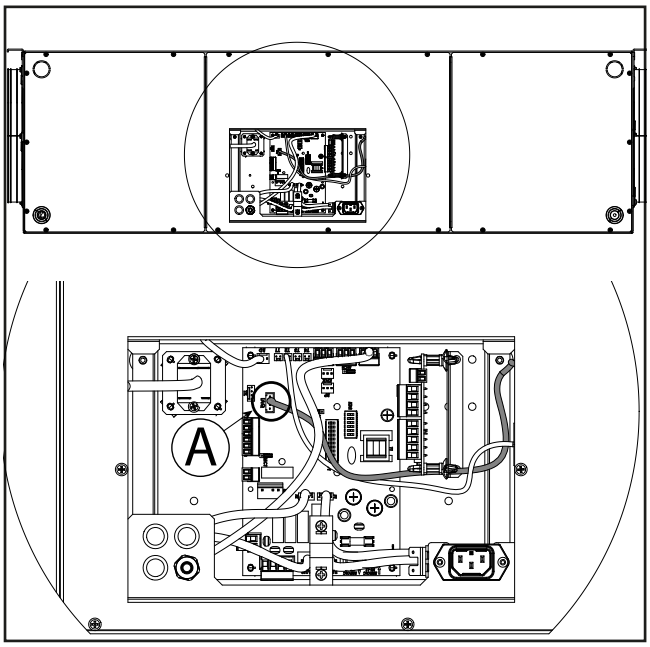


d) connect the sensor to the cable.

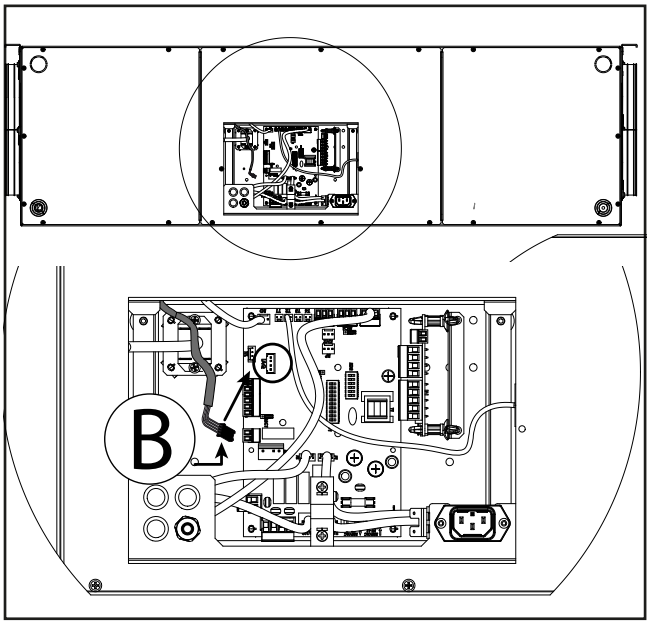


6. Connect the humidity sensor :

a) Access the electric compartment; remove the „A“ connector from the IAQ terminal on the power board

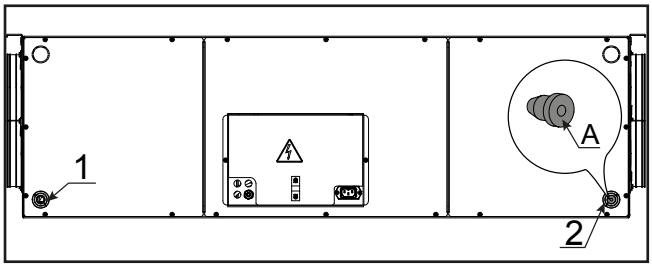


b) Insert the connector „B“ into the IAQ terminal on the power board



7. Position the condensate drain: unscrew the closing cap (A) and insert it into the condensate drain (1).

Connect the condensate drain (2) to the domestic sewage system using a duct or pipe (siphoned) (see **Types of installation** paragraph).



ELECTRICAL CONNECTIONS

General requirements

• Before installing the unit, make sure that the rated supply voltage is **230V - 50 Hz.**

• Make sure that the electric system is suitable to supply, in addition to the operating current required by the unit, the current necessary to supply the household units and equipment already in use.

• Perform the electrical connections according to national laws and standards in force.

• Install an omnipolar switch upstream of the unit with a minimum contact distance of 3.5 mm.

• The unit must always be earthed.

• Check the power cord is in perfect condition. In no case must you repair a damaged cord with insulation tape or clamps.

• If the power cord is damaged, it must be replaced by the Technical Assistance Service or anyhow by an individual with a similar qualification to prevent any risk.

• The units for residential ventilation are provided with the display controller supplied.

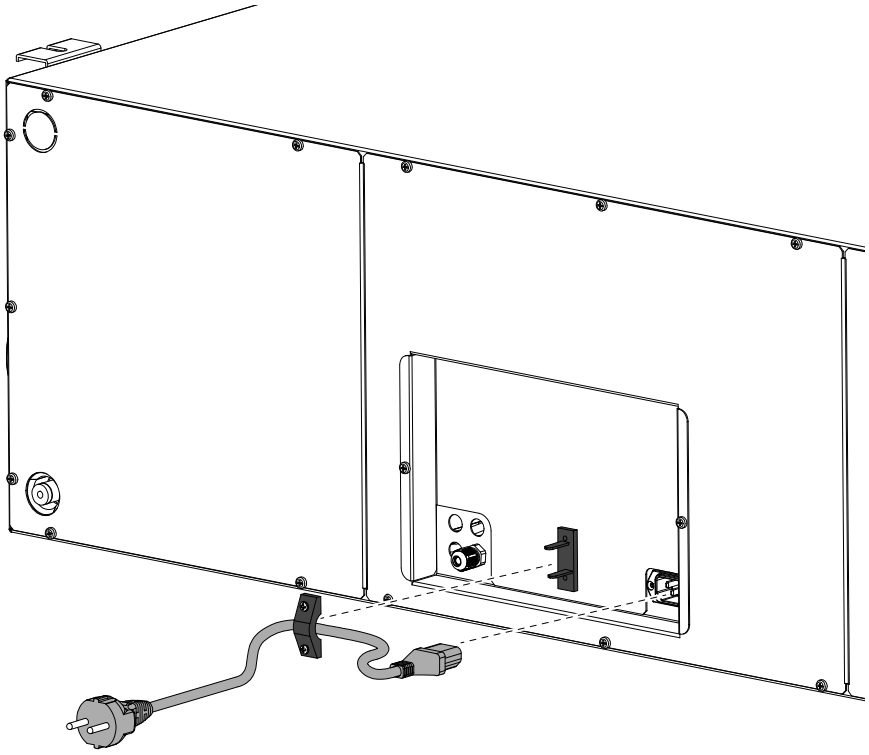
• When the unit is connected electrically the controller is also powered.

• Make sure the controller is connected properly, according to the requirements in the Manual.

• Take the power cord from the accessory bag.

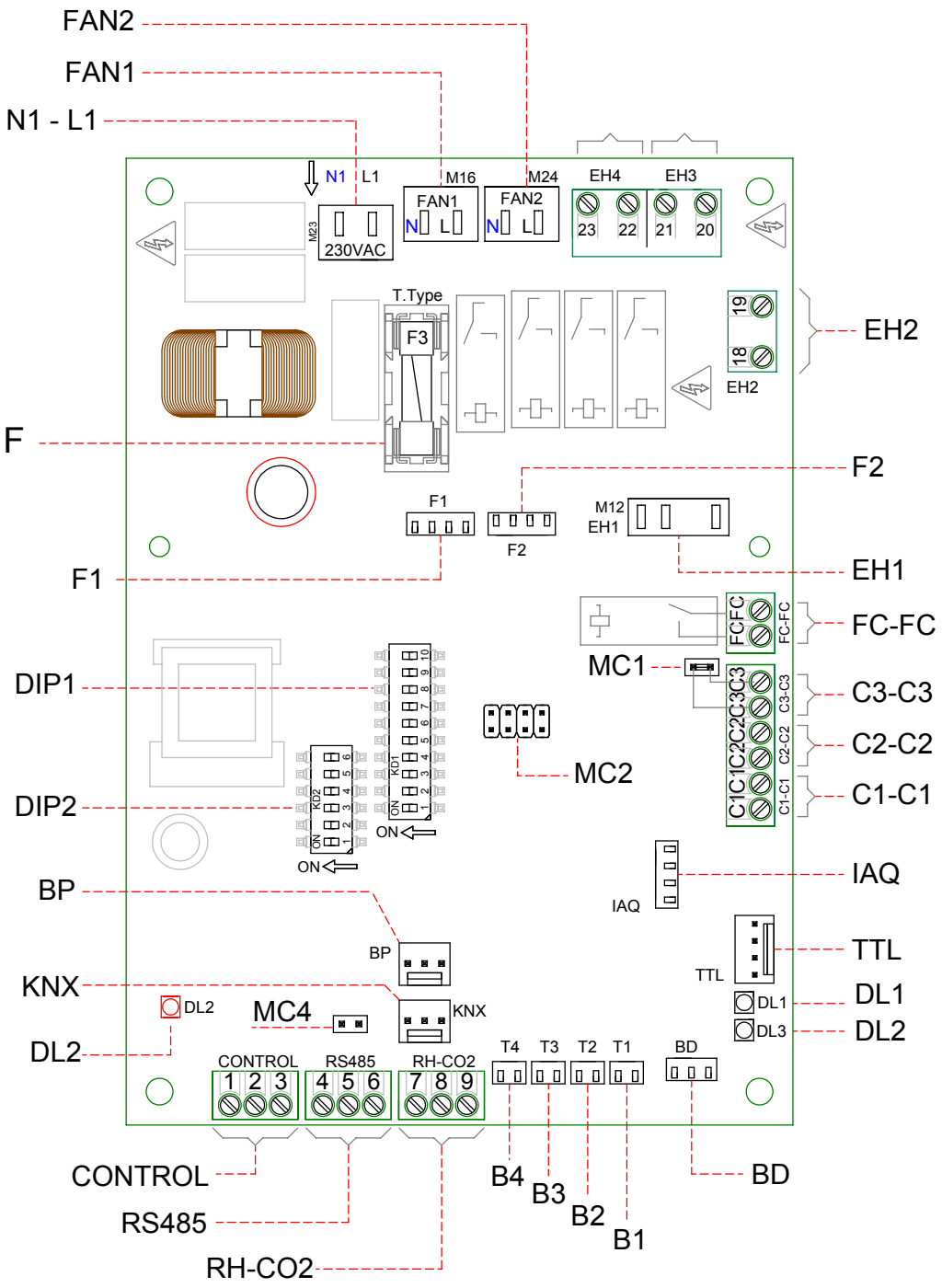
• Couple the cord to the machine.

• Plug in the power cord.



230Volt
50 Hz

POWER BOARD


FAN2
FAN1
N1 - L1
F
F1
DIP1
DIP2
BP
KNX
DL2
CONTROL
RS485
RH-CO2
B4
B3
B2
B1
BD
TTL
IAQ
DL1
DL2
FC-FC
C3-C3
C2-C2
C1-C1
EH2
EH1
F2
MC1
MC2
MC4
N1
L1
M16
M24
FAN1
FAN2
230VAC
EH4
EH3
T.Type
F3
M12
EH1
ON
CONTROL
RS485
RH-CO2
T4
T3
T2
T1
BD
BP
KNX
DL2
IAQ
TTL
DL1
DL3

LEGEND:

Item	*Description*	*Notes*
N1-L1	230 Volt power terminals	/
F	Fuse 5x20	/
FAN 1	230 Volt Power Supply - Fan 1	/
FAN 2	230 Volt Power Supply - Fan 2	/
F1	0-10 Volt Signal - Fan 1	Fan 2 with "inverse" configuration
F2	0-10 Volt Signal - Fan 2	Fan 1 with "inverse" configuration
B1 ÷ B4	Temperature sensors	*** see table below
CONTROL	Control Panel	T-EP controller supplied with unit
C1-C1	NO potential.free contact (input)	Remote On/Off function – unit Off when the contact is closed
C2-C2	NO potential.free contact (input)	Booster function active when the contact is closed
C3-C3	NC potential-free contact (input) (active only if JUMPER MC1 open)	See Fireplace and Boiler functions
FC-FC	SPST Potential-Free Contact	/
IAQ	Internal Relative Humidity Sensor	/
RS485	Modbus Connection	/
DIP 1	Configuration Dip Switch	See Configuration Dip Switch table
DIP 2	Address Dip Switch for ModBus networks	8 Dip Switches - for max 60 units
MC4	Master/slave jumper or Modbus network	The network must be closed on the last unit in case of RS485 connection (Master/ Slave or Modbus). It is closed by closing Jumper MC4.
BD	By-pass damper system (FreeCooling)	/
TTL	Connection for additional boards	Accessory/Optional
EH1	PWM control preheating output	/
EH2	Pre-Treatment output for controlling 230 Volt ON/OFF actuators or enabling external modulating resistance	Antifreeze with external systems
DL2	Power on LED	/
DL3	Status and alarm LED	See alarm table

***	*STANDARD version*	*INVERSE version*
B1	Fresh air temperature probe	Extracted stale air temperature probe
B2	Supply air temperature probe	Exhaust air temperature probe
B3	Extracted stale air temperature probe	Fresh air temperature probe
B4	Exhaust air temperature probe	Supply air temperature probe

CONFIGURATION DIP SWITCH

DIP NO.	*DEFAULT*	*OFF*	*ON*
1	**OFF**	***STANDARD*** flow config	***INVERSE*** flow config
2	**OFF**	No Pre-treatment	With Pre-treatment
3	**OFF**	If DIP2 ON Modulating electric resistance	If DIP2 ON and **DIP7 OFF** Electric resistance ON/OFF Hot water coil with valve ON/OFF
4	**OFF**	N/A	N/A
5	**OFF**	N/A	N/A
6	**OFF**	FC-FC transmits error signal to remote control unit	N/A
7	**OFF**	No Geothermal Hydronic Coil	**If DIP2 and DIP3 ON** Geothermal Hydronic Coil Present
8	**OFF**	Contact C3-C3 with function that prevents negative ambient pressure in presence of chimney	Contact C3-C3 with atmospheric boiler start-up booster
9	**OFF**	**Internal modulating** preheating resistance	**If DIP2 ON, DIP3 OFF** External modulating **preheating resistance**
10	**OFF**	N/A	N/A

T-EP display controller connection

Electrically connect the display controller provided with the unit as described below.

Perform the connection to position the controller, respecting the sequence of the terminal numbers:

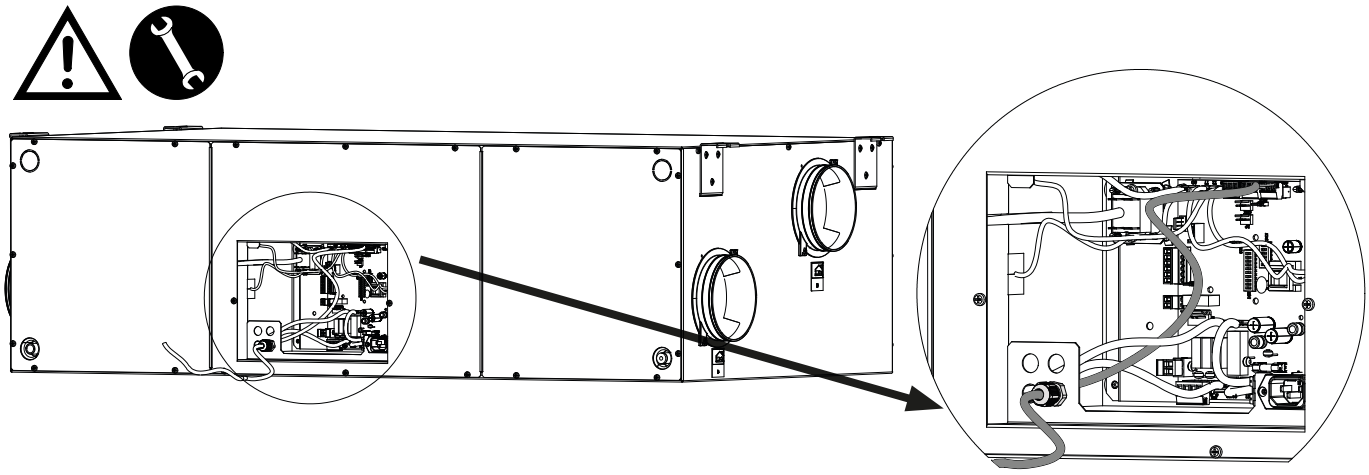
Use a 3x0.5 mm^2 cable.

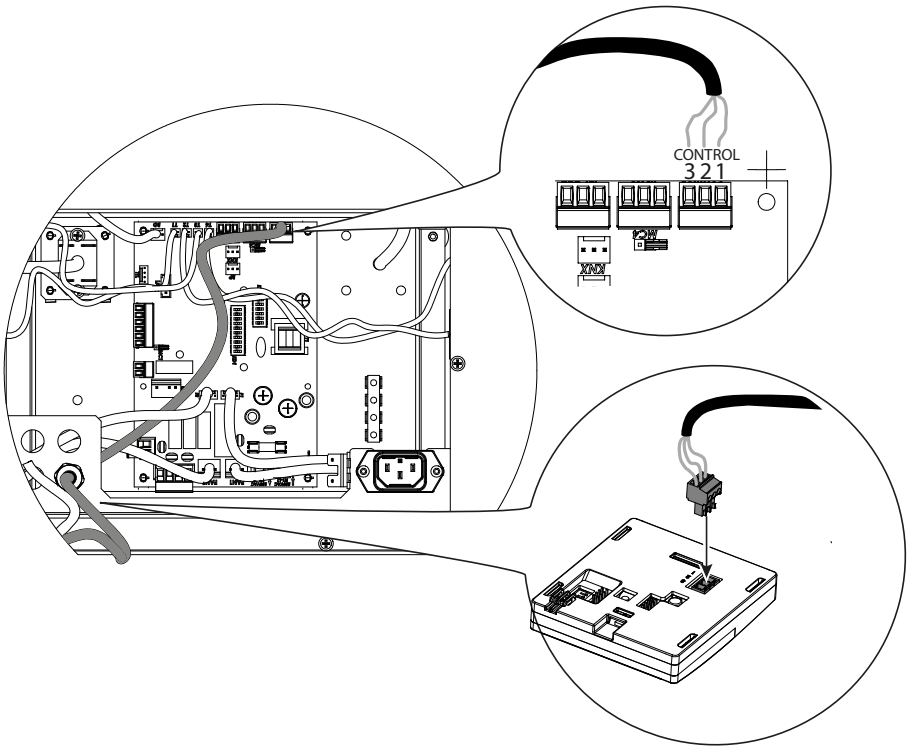
The maximum length of the cable from the unit to the display controller must not be longer than 20 metres.

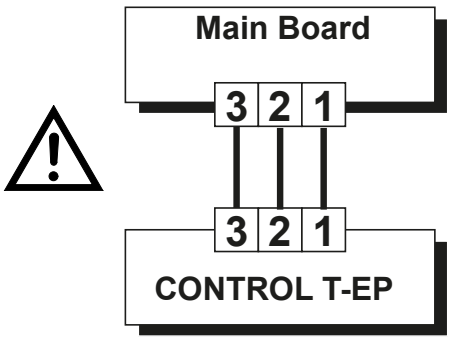
a)connect the cable to the "***CONTROL***" connector on the power board through the cable gland;

b) fix the cable in the cable gland;

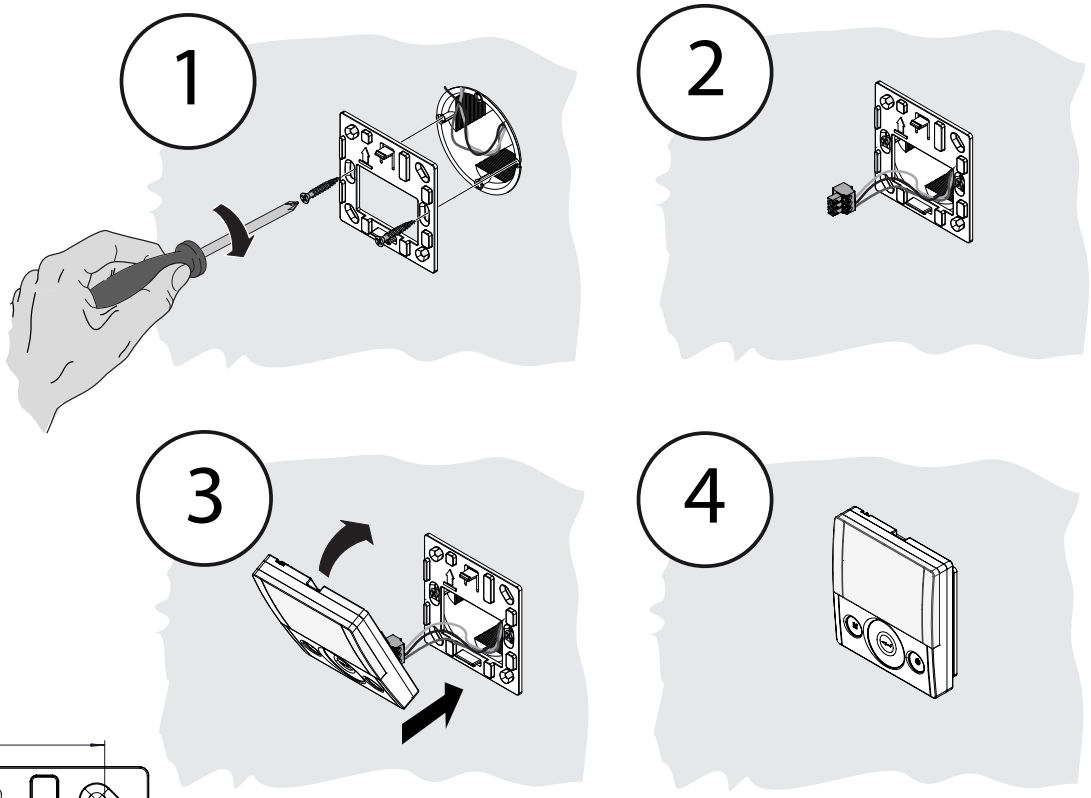
c) connect the cable to terminals 1-2-3 on the controller, following the sequence of numbers/colours.

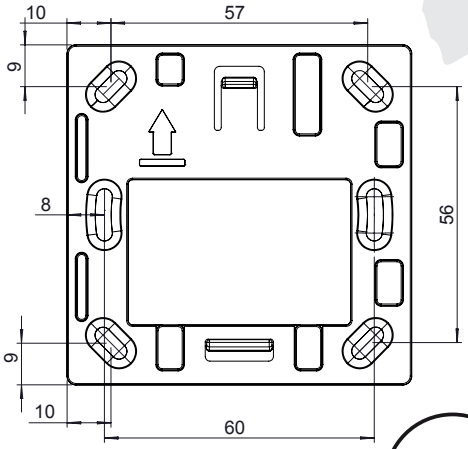


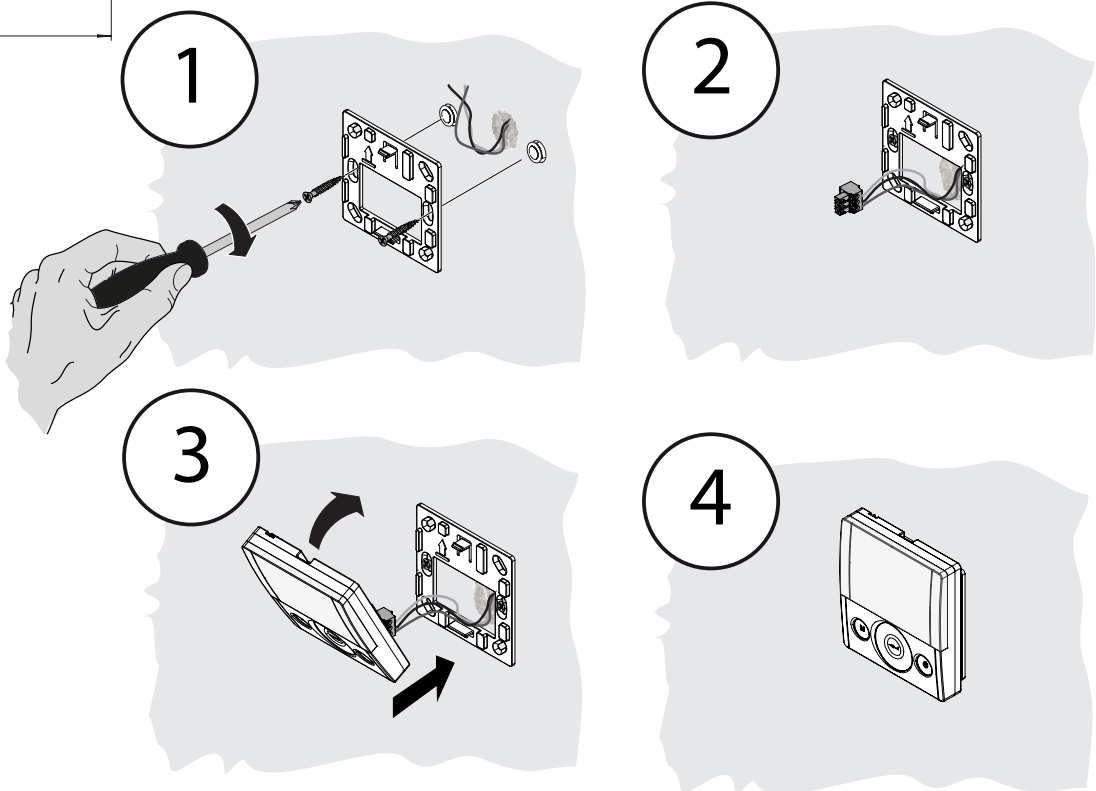




Installing controller on the wall







T-EP TOUCH CONTROLLER

Introduction

This unit was designed for the remote control of controlled mechanical ventilation units. It is suitable for ***ENY-SHP-170*** units.

The Main Screen on the control panel permits access to two settings sub-menus:

1. ***USER*** Settings Menu where the user can select the operating mode and set the clock;

2. ***TECHNICAL*** Settings Menu where the installer can calibrate the flow rate, change the standard unit operating parameters and monitor the operating state.

On the main screen, the user can view alarm reports and readings of the environmental temperature and humidity.

The USER Settings Menu offers these options:

1. Manual selection of preset ventilation speed:

a) ***Party Mode***- Intensive timed ventilation

b) ***Holiday Mode*** - Permanent Anti-mould ventilation

2. Activation/deactivation of ***Automatic Mode***. An icon indicates activation of "**Automatic *Mode***".

3. Customised selection of desired air flow rate in manual mode:

a) 100% - Nominal ventilation (standard)

b) 70% - Reduced ventilation (nighttime)

c) 45% - Humidity Control for High Humidity Rate Environments

d) 25% - Humidity Control for Low Humidity Rate Environments

4. Weekly Programming.

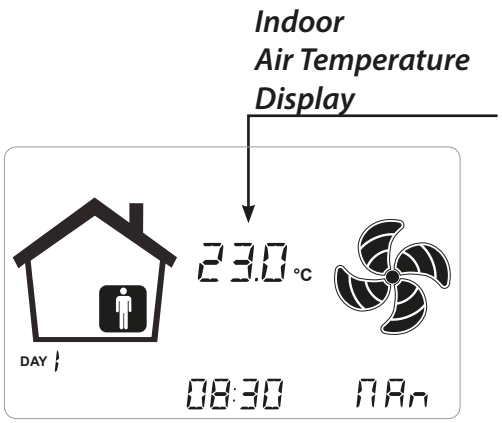
The MAIN SCREEN features the following options:

1. Activation of the Weekly Program [4].

2. The preheating icon indicates activation of Antifreeze mode.

3. A timed warning icon blinks to suggest replacing the filters.

4. A damper bypass icon indicates automatic activation of free-cooling mode.



The TECHNICAL Menu offers these options:

1. Option of confirming or editing the operating parameters.

2. Monitoring of work conditions.

3. Setting the nominal calibration speed of the fans.

4. Input and Selection of the Weekly Program available to the user.

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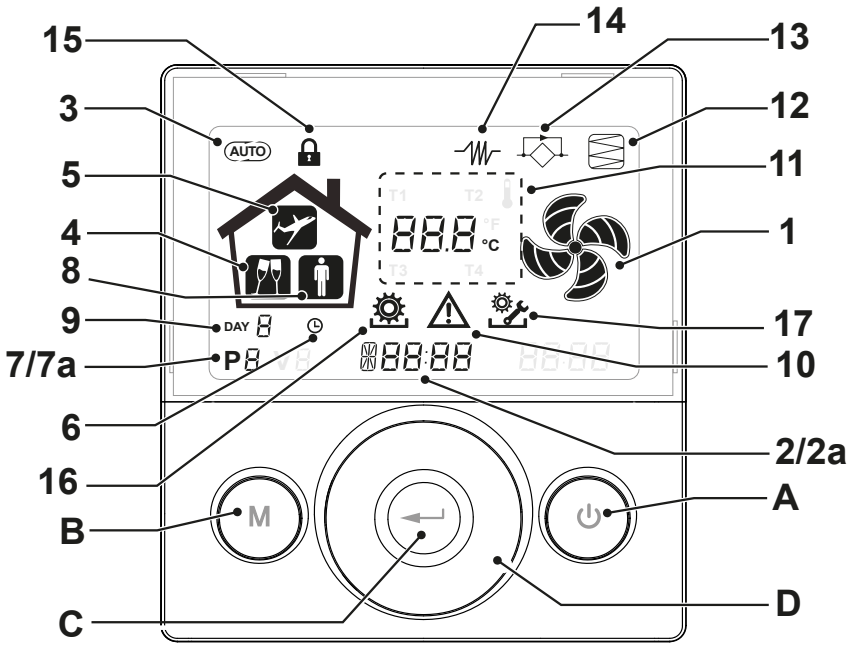
[4] The 4 Weekly Programs can be set by the installer and another 4 weekly programs can be set up according to the user's specific requirements.

The User Settings menu allows the user to enable or disable the Weekly Program configured by the installer.

Description of the Controller



Keys:

A		• Start and Stop the machine; • Access Technical Menu (only authorised staff): when the unit is ON, press the keys and at the same time for 5 seconds to access the menu.
B	M	• Access User Menu; • Access Technical Menu (only authorised staff): when the unit is ON, press the keys and at the same time for 5 seconds to access the menu; • Exit Menu.
C		• Confirm.
D		• Move a finger on the ***TOUCH PAD*** to: • Increase/decrease the ventilation speed; or the setting parameters; • Scroll between functions.

Display - Functions

1	MAn	• Manual Ventilation function.
2	boost	• Booster function
3	AUTO	• Automatic mode.
4		• Preset ventilation: Party mode
5		• Preset ventilation: Holiday mode
6		• Time setting • Current day setting
7	P	• Weekly program activation • Weekly program deactivation

Display - Alerts and alarms

2a	88:88	• Display of current time • Text field
7a	P8	• Number of current program
8		• Presence of Person
9	DAY 8	• Current day
10		• Alarm alert
11	88.8 °C	• Value alert (Temperature, voltage)
12		• Filter Maintenance/Dirty filter
13		• Bypass in use - Free-cooling mode
14		• Preheating - Antifreeze mode icon
15		• Function lock activated
16		• User Menu active
17		• Installer settings menu active

COMMISSIONING

Once the unit has been installed and powered and the display controller has been connected, it needs to be commissioned.

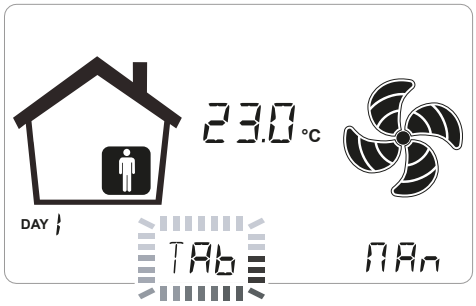
FOLLOW THE PROCEDURE FOR THE MACHINE VERSION CHOSEN: STANDARD OR INVERSE.

SETTING THE FLOW RATES

Before setting flowrates, fans are run at factory default speed.

Before setting flowrates, Touch Pad is inithbited to perform any speed modulation. This is communicated by the message "**Tab**" blinking in the central field of the display.

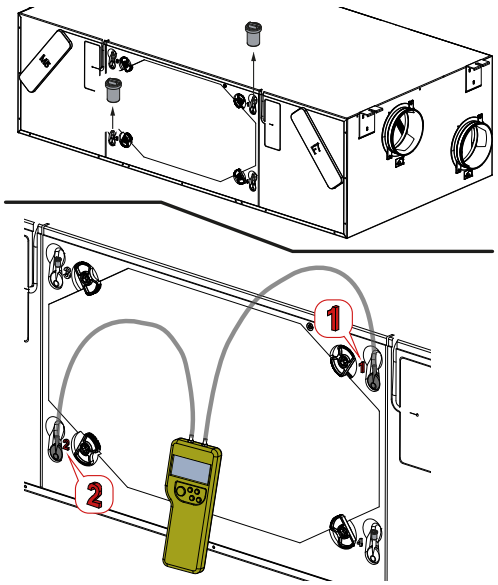
WARNING!: no speed regulation is possible without first flowrate setting



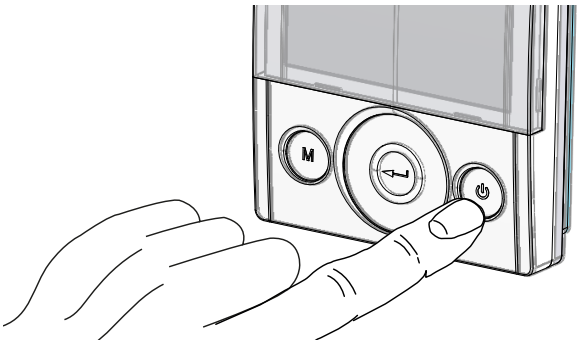
STANDARD VERSION

Setting of air flow rate based on fan rpm.

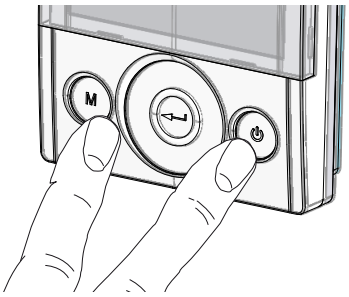
1. Use a screwdriver to remove the heat exchanger panel cover.
2. Remove the rubber caps of the connections 1 and 2 relative to fan V1.
3. Connect the differential pressure gauge to connections 1 and 2.



4. Turn on the unit at the ON/OFF key on the display.



5. Press the ON/OFF and "M" Menu keys at the same time to access the **TECHNICAL MENU**.



6. Use the ***TOUCH PAD*** to select the installer menu .

Press the Enter key to confirm .

Select the "**V**" symbol and confirm .

The message V1 flashes;

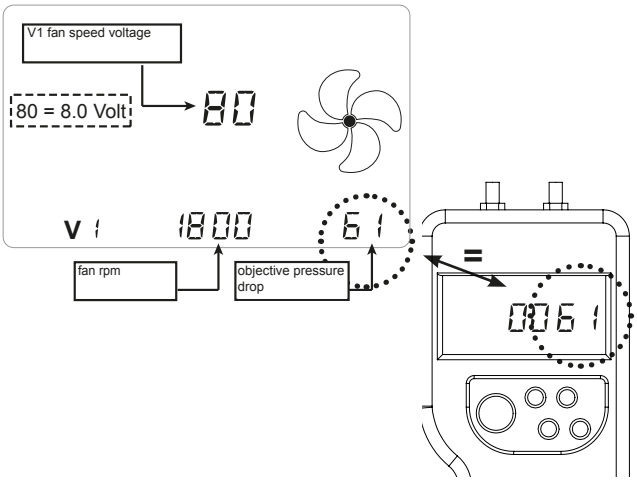
Perform the setting of the fan V1;

access the menu by pressing enter, the display shows:

set the nominal design flow rate (m^3/h) using the ***TOUCH PAD*** .

Press the Enter key to confirm .

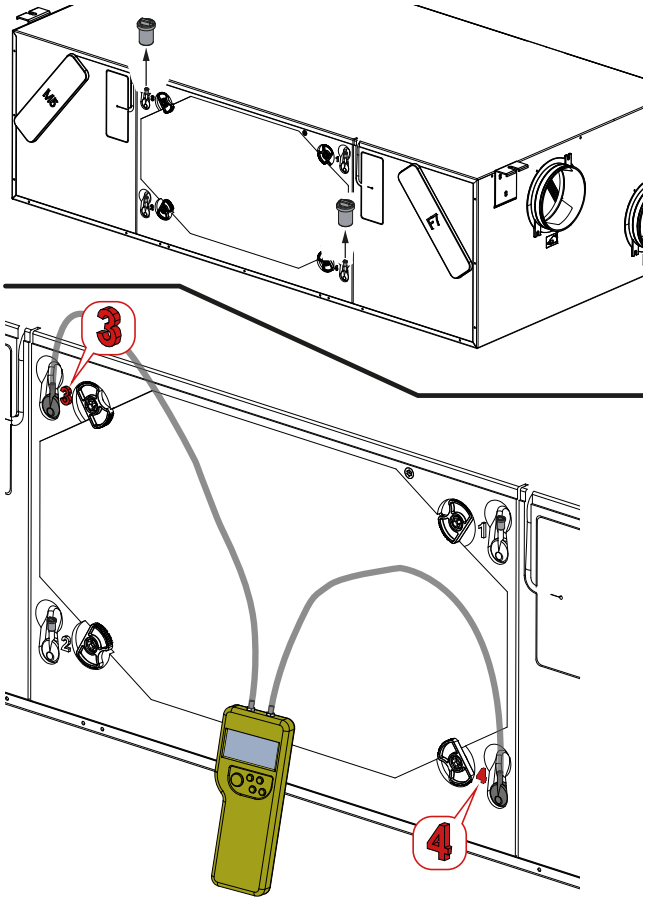
Change the voltage value relative to the fan speed using the ***TOUCH PAD*** until the differential pressure gauge displays a value equal to the value of the objective pressure drop shown on the display.



Press the Enter key to confirm .

Before going on to set the fan V2, you must disconnect the differential pressure gauge from connections 1 and 2 and put the rubber caps back in place.

Now proceed with connection of the differential pressure switch to connections 3 and 4.



" V1 " currently flashes on the control display; use the ***TOUCH PAD*** to select fan " **V2** " and confirm by pressing enter.

Carry out the procedure described above for V1 also for fan V2.

When fan V2 has been set as well, go back to the main screen by pressing "M" (M) 3 times.

Disconnect the differential pressure gauge and put the rubber caps and the cover of the heat exchanger panel back in place.

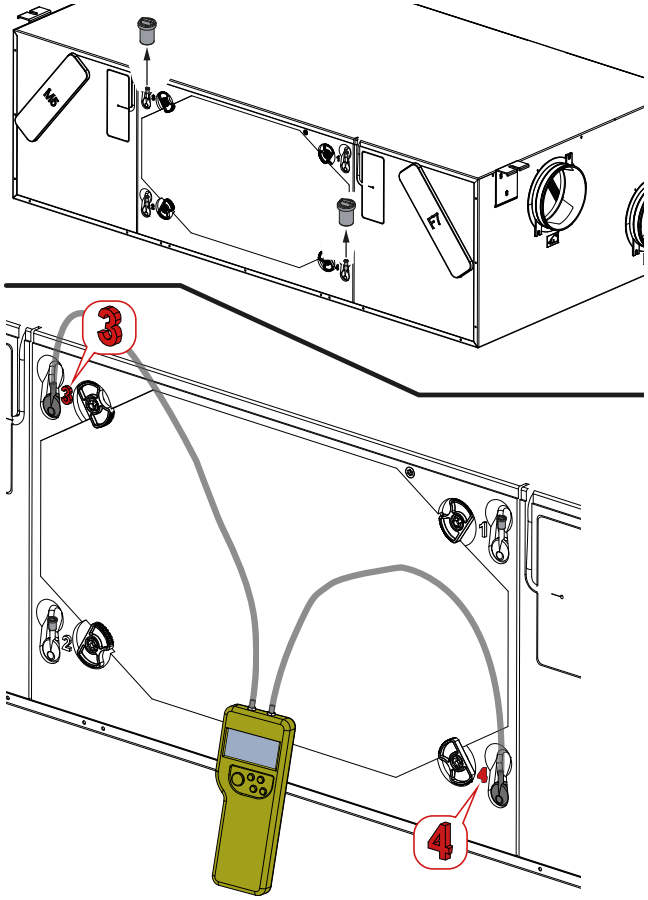
INVERSE VERSION

Setting of air flow rate based on fan rpm.

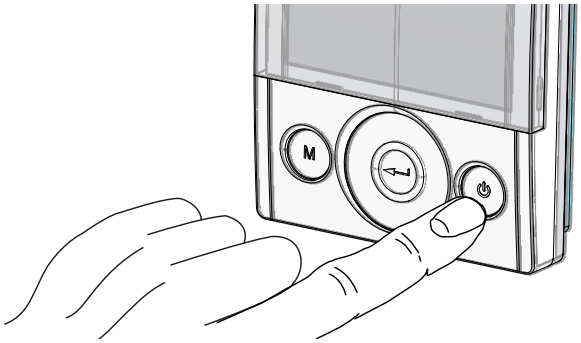
1. Use a screwdriver to remove the heat exchanger panel cover.

2. Remove the rubber caps of the connections 3 and 4 relative to fan V1.

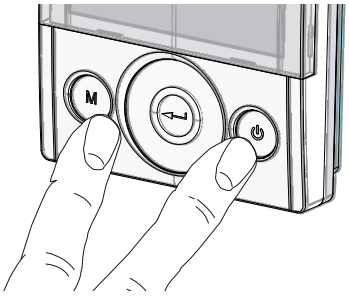
3. Connect the differential pressure gauge to connections 3 and 4.



4. Turn on the unit at the ON/OFF key on the display.



5. Press the ON/OFF and "M" Menu keys at the same time to access the **TECHNICAL MENU**.

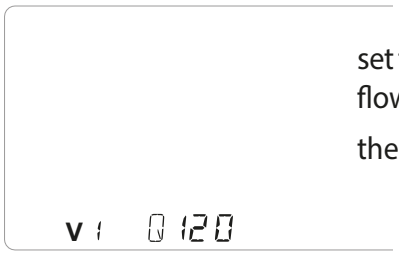


6. Use the ***TOUCH PAD*** to select the installer menu .

Press the Enter key to confirm .

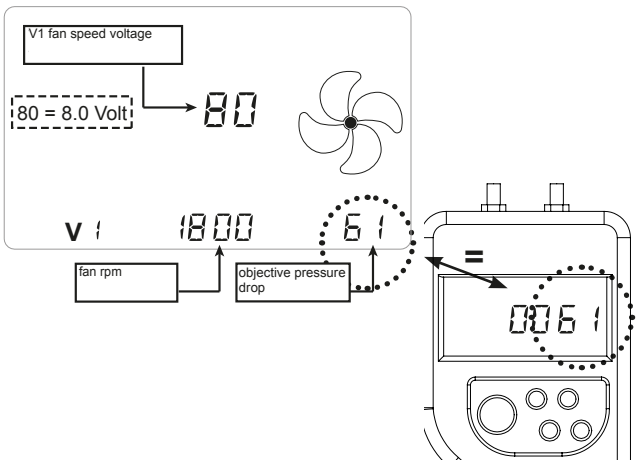
Select the "**V**" symbol and confirm .

The message V1 flashes; Perform the setting of the fan V1; access the menu by pressing enter, the display shows:



Press the Enter key to confirm .

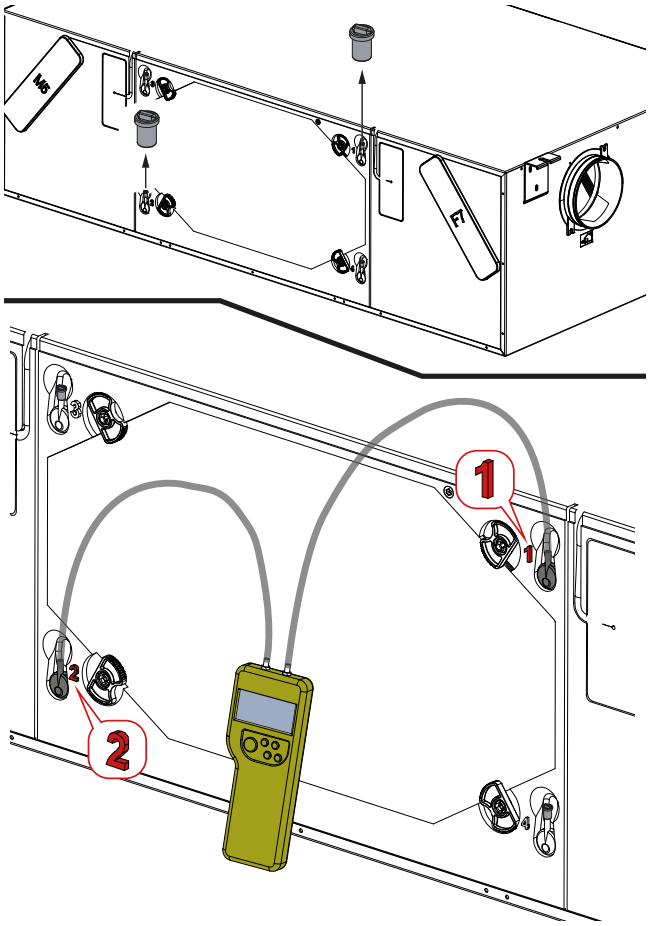
Change the voltage value relative to the fan speed using the ***TOUCH PAD*** until the differential pressure gauge displays a value equal to the value of the objective pressure drop shown on the display.



Press the Enter key to confirm .

Before going on to set the fan V2, you must disconnect the differential pressure gauge from connections 3 and 4 and put the rubber caps back in place.

Now proceed with connection of the differential pressure switch to connections 1 and 2.



" V1 " currently flashes on the control display; use the ***TOUCH PAD*** to select fan " **V2** " and confirm by pressing enter.

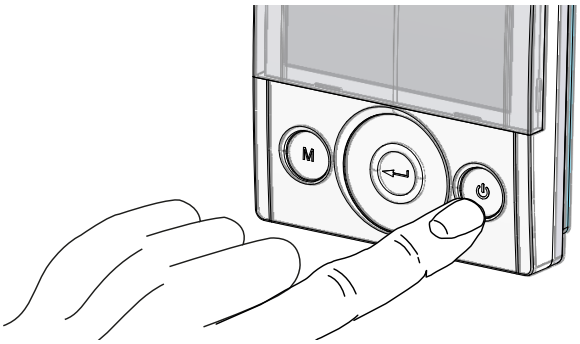
Carry out the procedure described above for V1 also for fan V2.

When fan V2 has been set as well, go back to the main screen by pressing "M" (M) 3 times.

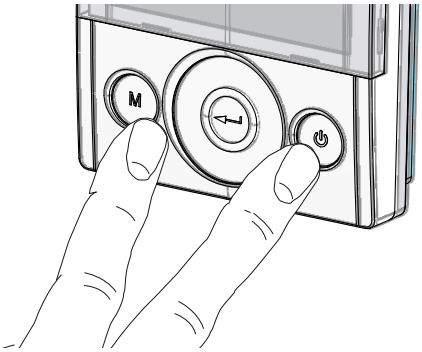
Disconnect the differential pressure gauge and put the rubber caps and the cover of the heat exchanger panel back in place.

Setting the clock and day of the week

1. Turn on the unit at the ON/OFF key on the display.



2. Press the ON/OFF and "M" Menu keys at the same time to access the **TECHNICAL MENU**.



3. Use the ***TOUCH PAD*** to select the "**clock**" icon; " " starts to blink.

Press the "**enter**" key to confirm.

Use the***TOUCH PAD*** to set the current hour.

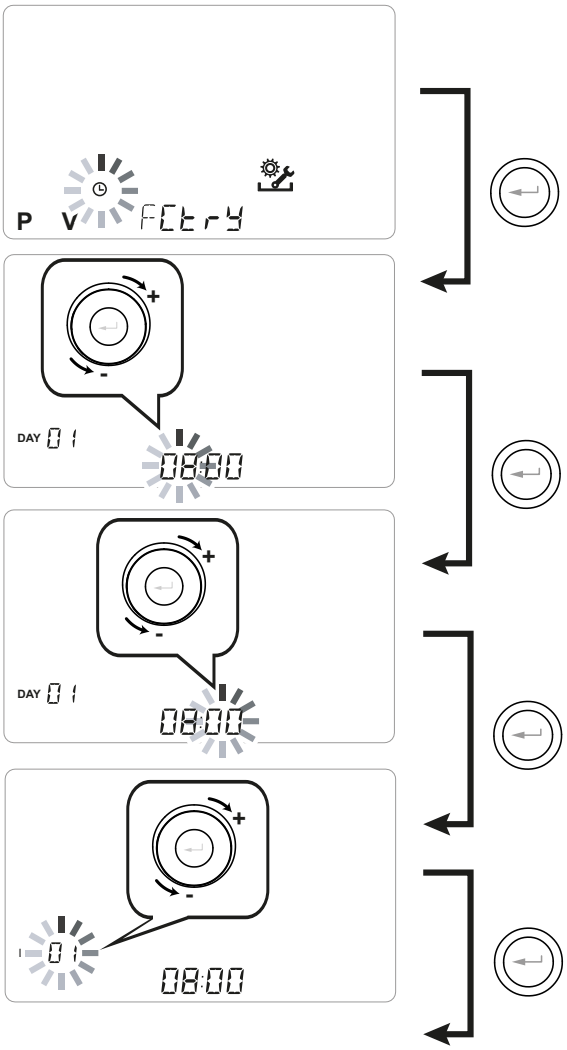
Press the "**enter**" key to confirm.

Use the ***TOUCH PAD*** to set the current minutes.

Press the "**enter**" key to confirm.

Use the***TOUCH PAD*** to set the current day.

Press the "**enter**" key to confirm.



Use the ***TOUCH PAD*** to increase or decrease the value.

Use the Confirm button to confirm and move to the next setting.

Set the day of the week as follows:

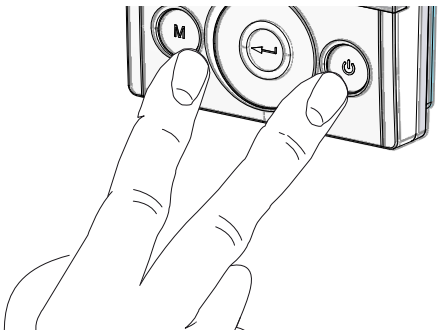
day 1 = Monday / day 2 = Tuesday
day 3 = Wednesday ... ... day 7 = Sunday

Setting of the weekly program

There is a choice of 8 weekly programs: 4 preset programs and 4 free programs that can be modified at will.

Selection of the preset weekly program: Programs P1-P2-P3-P4

1. Turn on the unit at the ON/OFF key.
2. Press the ON/OFF and "M" Menu keys at the same time.



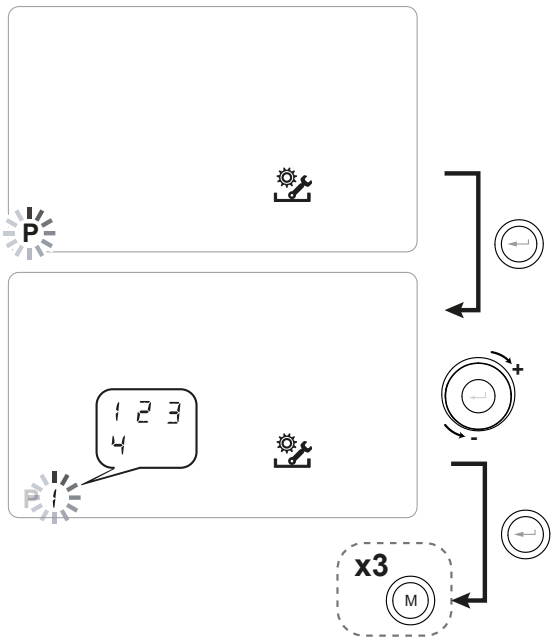
3. Use the ***TOUCH PAD*** to select the installer menu .

Press the Enter key to confirm .

4. Select the "**P**" symbol and confirm .

Now choose the program to be set from P1 - P2 - P3 and P4 (see the schedules on the next page).

5. Press "M" three times to return to the



main screen.

Tables of settings for the preset weekly program

P1 *- Weekly program, family with children, both parents work away from home during the day.*

DAY	Monday – Friday																							
TIME	0 – 1	1 – 2	2 – 3	3 – 4	4 – 5	5 – 6	6 – 7	7 – 8	8 – 9	9 – 10	10 – 11	11 – 12	12 – 13	13 – 14	14 – 15	15 – 16	16 – 17	17 – 18	18 – 19	19 – 20	20 - 21	21 - 22	22 - 23	23 - 24
SPEED																								
45%									■	■	■	■	■	■	■	■								
70%	■	■	■	■	■	■																	■	■
100%							■	■									■	■	■	■	■	■		

DAY	Saturday – Sunday																							
TIME	0 – 1	1 – 2	2 – 3	3 – 4	4 – 5	5 – 6	6 – 7	7 – 8	8 – 9	9 – 10	10 – 11	11 – 12	12 – 13	13 – 14	14 – 15	15 – 16	16 – 17	17 – 18	18 – 19	19 – 20	20 - 21	21 - 22	22 - 23	23 - 24
SPEED																								
45%																								
70%	■	■	■	■	■	■	■	■																■
100%									■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	

P2 *- Weekly program, family with steady presence at home during the day.*

DAY	Monday – Sunday																							
TIME	0 – 1	1 – 2	2 – 3	3 – 4	4 – 5	5 – 6	6 – 7	7 – 8	8 – 9	9 – 10	10 – 11	11 – 12	12 – 13	13 – 14	14 – 15	15 – 16	16 – 17	17 – 18	18 – 19	19 – 20	20 - 21	21 - 22	22 - 23	23 - 24
SPEED																								
45%																								
70%	■	■	■	■	■	■	■	■																■
100%									■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	

P3 *- Weekly program, working family who comes home for lunch.*

DAY	Monday – Friday																							
TIME	0 – 1	1 – 2	2 – 3	3 – 4	4 – 5	5 – 6	6 – 7	7 – 8	8 – 9	9 – 10	10 – 11	11 – 12		12 – 13	13 – 14	14 – 15	15 – 16	16 – 17	17 – 18	18 – 19	19 – 20	20 - 21	21 - 22	22 - 24
SPEED																								
45%									■	■	■	■				■	■	■	■					
70%	■	■	■	■	■	■																		■
100%							■	■					■	■	■					■	■	■	■	

DAY	Saturday - Sunday																							
TIME	0 – 1	1 – 2	2 – 3	3 – 4	4 – 5	5 – 6	6 – 7	7 – 8	8 – 9	9 – 10	10 – 11	11 – 12	12 – 13	13 – 14	14 – 15	15 – 16	16 – 17	17 – 18	18 – 19	19 – 20	20 - 21	21 - 22	22 - 23	23 - 24
SPEED																								
45%																								
70%	■	■	■	■	■	■	■	■																■
100%									■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	

P4 *- Weekly program, office used from Monday to Friday.*

DAY	Monday - Friday																							
TIME	0 – 1	1 – 2	2 – 3	3 – 4	4 – 5	5 – 6	6 – 7	7 – 8	8 – 9	9 – 10	10 – 11	11 – 12	12 – 13	13 – 14	14 – 15	15 – 16	16 – 17	17 – 18	18 – 19	19 – 20	20 - 21	21 - 22	22 - 23	23 - 24
SPEED																								
45%	■	■	■	■	■	■	■												■	■	■	■	■	■
70%																								
100%								■	■	■	■	■	■	■	■	■	■	■						

Creation of the free weekly program: Programs P5-P6-P7-P8.

It is possible to create 4 weekly programs at will, according to your habits and needs.

Proceed as follows:

1. Turn on the appliance at the ON/OFF key.

2. Press the ON/OFF and "M" Menu keys at the same time.

3. Use the ***TOUCH PAD*** to select the installer menu .

Press ***enter*** to confirm .

4. Select the " **P** " symbol and confirm

Now select the first free program to be created from among P5 - P6 - P7 or P8.

5. Once the program number is defined, following scheduling should be done:

- define the day

- define fan speed at the first time step, which starts by default at 00:00.

Use the ***TOUCH PAD*** with the purpose to set 4 available speeds plus Party Mode speed.

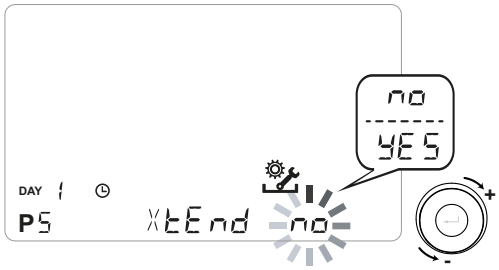
Blades are displayed into fan icon accordingly.

- define hour of first time step end

- repeat procedure for next time step

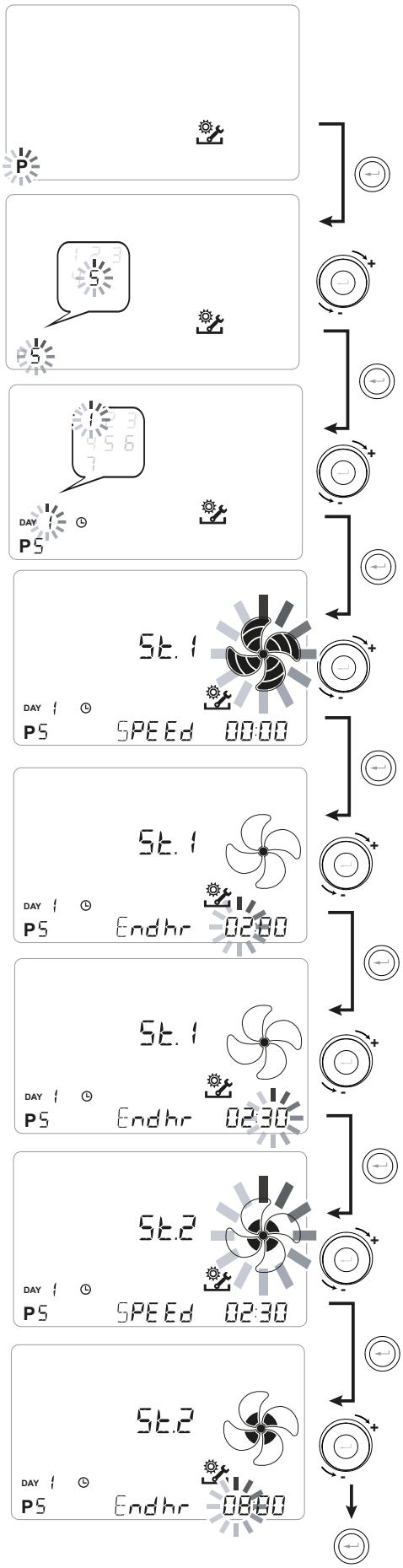
- maximum number of time steps is 8

6. After programming the first day, press "M" to move to the next day; it is possible to extend the program created for the first day to the other days of the week (Xtend= extend):



If you select "**YES**" the program is automatically copied to the other days of the week; if instead you select "**no**", you can then use the ***TOUCH PAD*** to select a day and repeat the programming process.

PLEASE NOTE: the daily hourly program is set by default at OFF.



P .....

DAY	Monday - Friday																							
TIME	0 – 1	1 – 2	2 – 3	3 – 4	4 – 5	5 – 6	6 – 7	7 – 8	8 – 9	9 – 10	10 – 11	11 – 12	12 – 13	13 – 14	14 – 15	15 – 16	16 – 17	17 – 18	18 – 19	19 – 20	20 - 21	21 - 22	22 - 23	23 - 24
SPEED																								
Low																								
Nominal																								

DAY	Saturday - Sunday																							
TIME	0 – 1	1 – 2	2 – 3	3 – 4	4 – 5	5 – 6	6 – 7	7 – 8	8 – 9	9 – 10	10 – 11	11 – 12	12 – 13	13 – 14	14 – 15	15 – 16	16 – 17	17 – 18	18 – 19	19 – 20	20 - 21	21 - 22	22 - 23	23 - 24
SPEED																								
Low																								
Nominal																								

P .....

DAY	Monday - Friday																							
TIME	0 – 1	1 – 2	2 – 3	3 – 4	4 – 5	5 – 6	6 – 7	7 – 8	8 – 9	9 – 10	10 – 11	11 – 12	12 – 13	13 – 14	14 – 15	15 – 16	16 – 17	17 – 18	18 – 19	19 – 20	20 - 21	21 - 22	22 - 23	23 - 24
SPEED																								
Low																								
Nominal																								

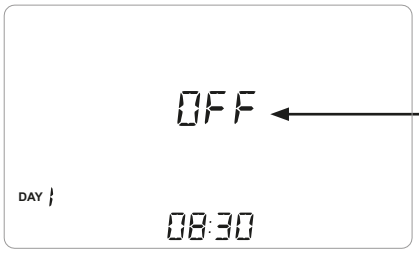
DAY	Saturday - Sunday																							
TIME	0 – 1	1 – 2	2 – 3	3 – 4	4 – 5	5 – 6	6 – 7	7 – 8	8 – 9	9 – 10	10 – 11	11 – 12	12 – 13	13 – 14	14 – 15	15 – 16	16 – 17	17 – 18	18 – 19	19 – 20	20 - 21	21 - 22	22 - 23	23 - 24
SPEED																								
Low																								
Nominal																								

IMPORTANT!: complete the table(s) with the configuration of the program created.

OPERATIONAL PROCEDURES
USER

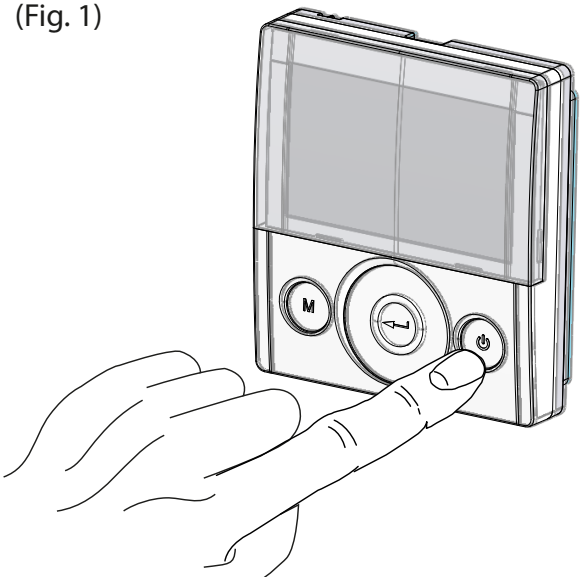
START AND STOP THE HEAT RECOVERY UNIT

To turn the unit on, press the ON/OFF power key as shown in the figure to the right (Fig. 1).



If this icon is present, the unit is off.

(Fig. 1)

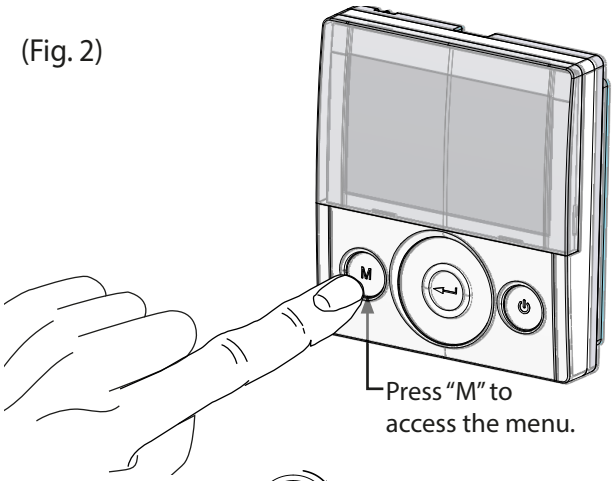


SELECTING THE OPERATING MODE ON THE T-EP CONTROLLER

Press "M" to access the User Settings Menu (Fig. 2). The following options are available:

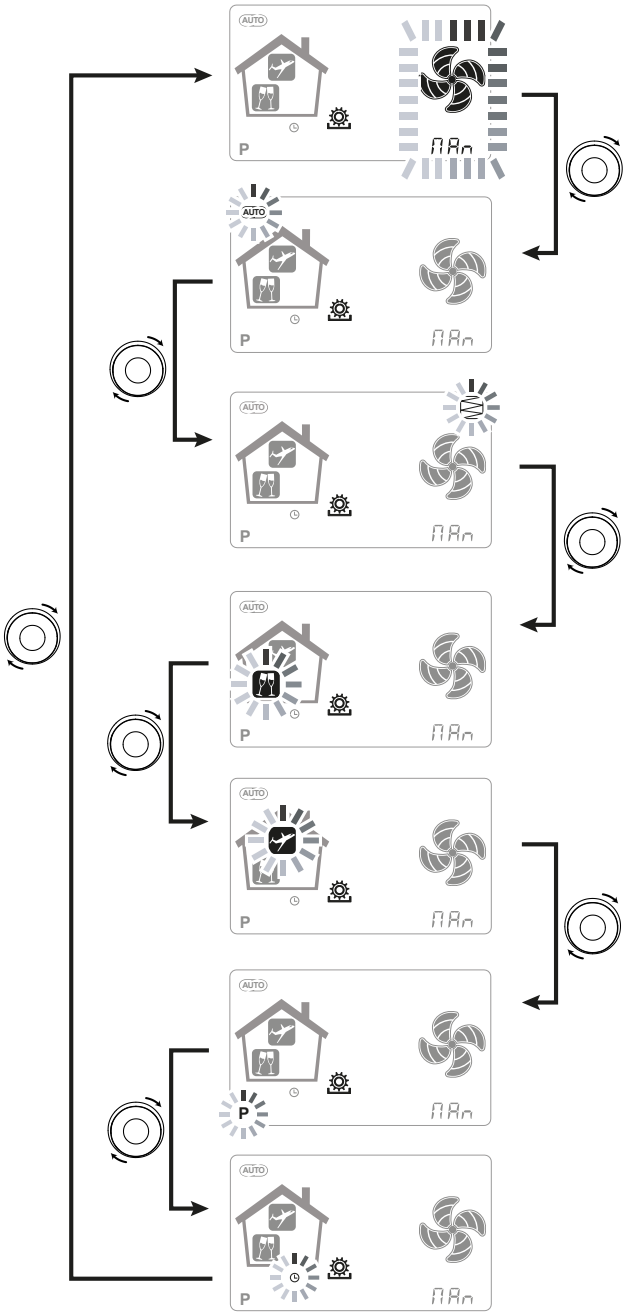
- MANUAL VENTILATION FUNCTION;
- PRESET VENTILATION FUNCTIONS:
  - PARTY;
  - HOLIDAY;
- AUTO AUTOMATIC MODE;
- FILTER LIFETIME RESET
- WEEKLY PROGRAM ACTIVATION;
- CURRENT DAY AND TIME SETTING.

(Fig. 2)



Use the ***TOUCH PAD*** to pass from one function to another.

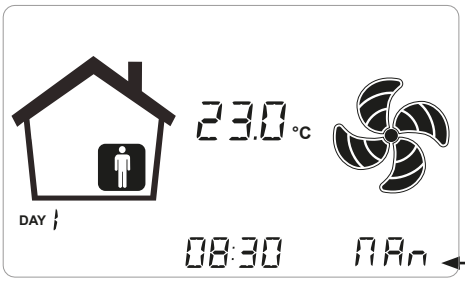
To access the desired function, please press the confirmation button .



• *MANUAL VENTILATION FUNCTION*;

Press "M" and scroll with the ***TOUCH PAD*** until the "Manual ventilation" mode starts flashing.

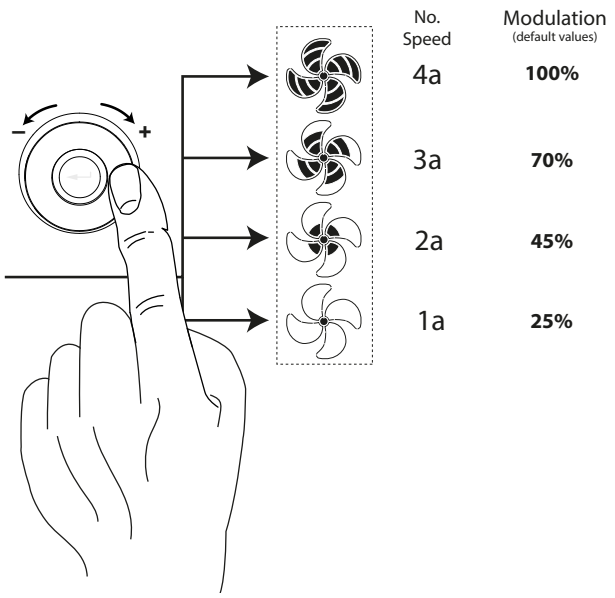
Then press "Confirm" .



If this icon is present, the operating mode is MANUAL

With the "Manual ventilation" mode enabled, the speed of the fan at the various points can be adjusted by scrolling with the ***TOUCH PAD***.
Rotating the key clockwise on the pad increases the speed of the fan while anticlockwise decreases the speed of the fan.

"Manual ventilation" mode at 100% is the standard operating mode, corresponding to the nominal air flow rates set by the installer upon initial configuration.

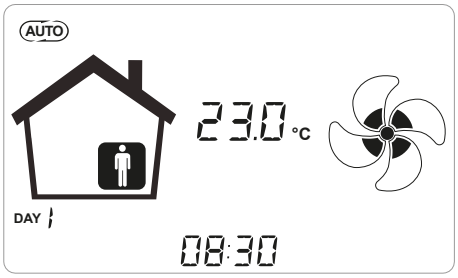


• *AUTOMATIC MODE*;

Press "M" and scroll with the ***TOUCH PAD*** until the AUTOMATIC mode starts flashing.

Then press "Confirm" .

If this icon is present, the operating mode is AUTOMATIC



The advanced centralised control systems are equipped with an RH% humidity sensor or else an external CO_2 sensor.

When" ***Automatic Mode***" is enabled, fan speed is controlled by an automatic control cycle relative to internal instantaneous humidity and CO_2 variations.

• *AUTOMATIC MODE WITH HUMIDITY SENSOR*

The fan speed is set according to the interval relating to the ambient relative humidity detected by the sensor.

If the ambient humidity is compatible with the ambient comfort (typically between 25% and 50%), then a special control for air exchange is not necessary and the user can control the speed of the fans as in Manual Mode.

If the ambient humidity temporarily goes beyond the ambient comfort range, then an automatic variable flow control mode is engaged, for tracking an ambient humidity target value.
The target value is continuously calculated by the system as a daily average of the ambient humidity. This way the system reacts automatically to restore as much as possible the comfort conditions lost due to an extraordinary event, such as steam production caused by a hot shower or a pot while cooking.

In variable-flow automatic control mode, the user can manually change the fan speed at any time, as required.

The automatic mode will be restored at the next significant ambient humidity variation.

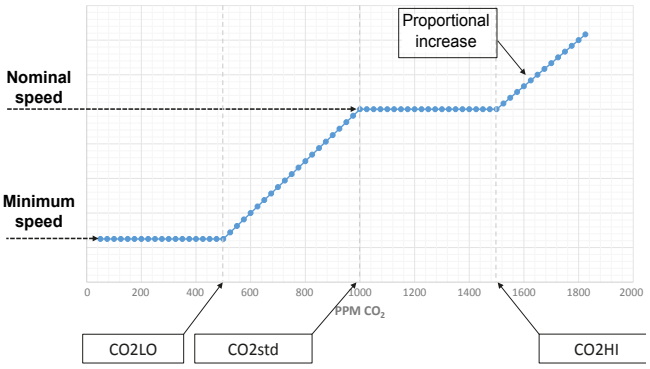
If, however, the poor comfort conditions persist, then it will mean that the low or high humidity is not due

to extraordinary and temporary events, but depends on harsh weather conditions, such as winter frost or extreme heat.
In these extreme conditions, the automatic mode sets the fan at minimum speed, in order to isolate as much as possible the internal environment from the external one and at the same time preserve the ambient comfort.
Low humidity emergency speed can be modified by installer by the mean of "**ErHs**", included into "**Par**" menu.
Wet climate ventilation mode is effective in case a cooling system with dehumidification is in place. In thic case it is advisable to eneable the function by operating on variable **HrHis**.

• *AUTOMATIC MODE WITH CO_2 SENSOR*

The variable flow rate control based on the CO_2 detected acts according to fixed parameters, though they can be modified by the installer, according to the following diagram:

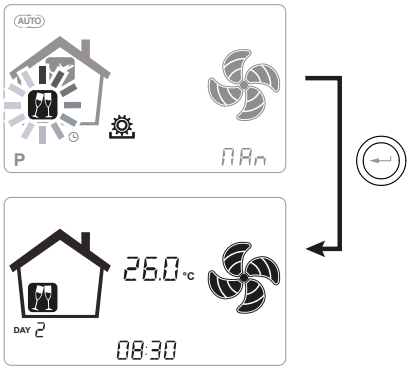
FLOW MANAGEMENT LOGIC CHART IN RELATION TO PPM CO_2



• *PARTY MODE*

Press "M" and scroll with the ***TOUCH PAD*** until "PARTY" mode starts the flash.

Then press "Confirm" .



If "PARTY" mode is enabled, fan speed is increased respect to the nominal speed.

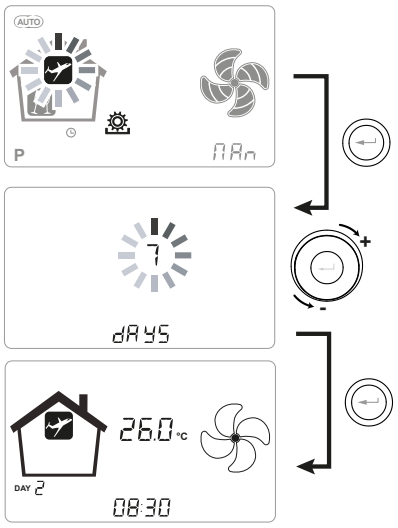
"PARTY" mode is a timed function (default 3 hours.

The speed percentage of the "PARTY" mode is set as a parameter by the installer according to the customisations requested by the user, starting from the standard value of 130% compared to the nominal speed.

• *HOLIDAY MODE*

Press "M" and scroll with the ***TOUCH PAD*** until the "HOLIDAY" mode starts flashing.

Then press "Confirm" .



"***HOLIDAY***" mode speed is the minimum.

Once "***HOLIDAY***" mode is enabled, control device asks for the period duration in days.

In case where duration is unknow, user can enter nothing in the field of duration.

This way permanent "***HOLIDAY***" Mode is enabled.

In any case, "***HOLIDAY***" mode can be stopped by changing mode within User Menu.

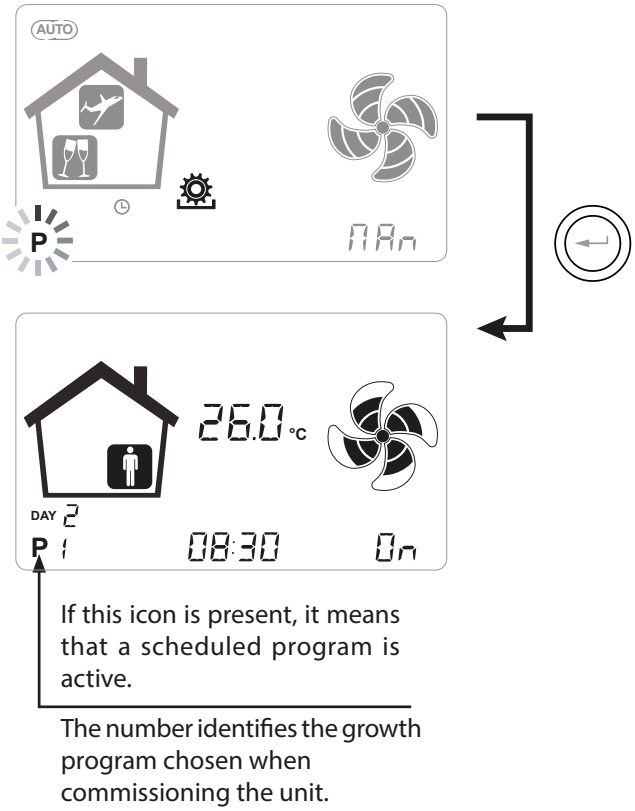
PLEASE NOTE: the operating parameters of "***HOLIDAY***" mode can be changed by the installer (Parameters Menu section).

ACTIVATION OF WEEKLY PROGRAM

Press "M" (M); scroll with the ***TOUCH PAD*** until the function " **P** " starts flashing and confirm by pressing "Confirm" (↵).

When confirmed, the preset program is activated.

The display shows the chosen program number when the unit is "put into service".



If this icon is present, it means that a scheduled program is active.

The number identifies the growth program chosen when commissioning the unit.

The activation of the weekly program does not preclude the user's ability to manually change the speed of the fans.

In fact, despite a program in time slots is active, the user can still operate on the TOUCH PAD, increasing or decreasing the speed as desired.

The manual override applied to the weekly program will remain operational until the next time slot, when automatic programming will become active again.

SETTING THE CLOCK AND THE DAY OF THE WEEK

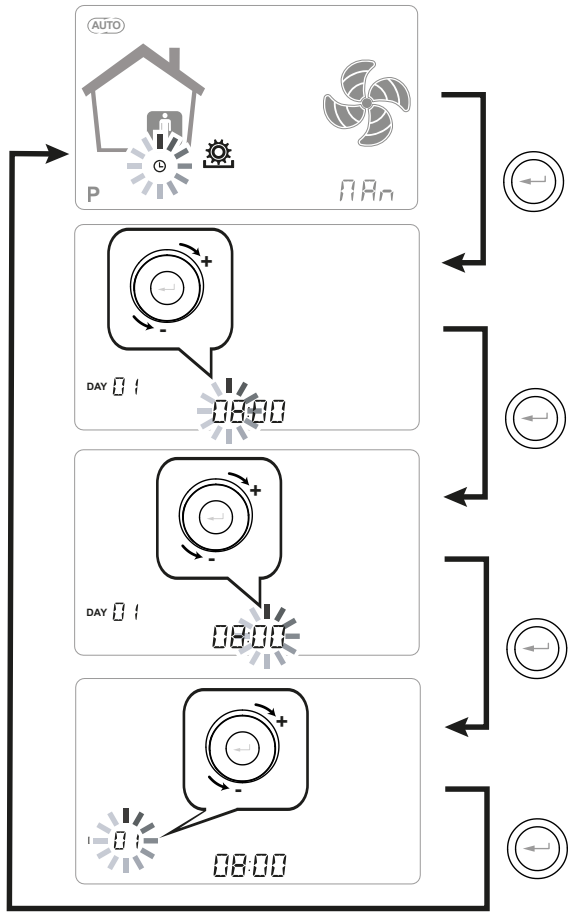
Press "**M**"; scroll with the wheel until the "**clock**" icon starts flashing " (🕒) ".

Then press "**Confirm**" (↵).

Scroll with the wheel to set the hour.

Press "**Confirm**" (↵) and scroll again to set the minutes.

Press "**Confirm**" (↵) and scroll to set the current date.



(+ −) Use the ***TOUCH PAD*** to increase or decrease the value.

(↵) Use the Confirm button to confirm and move to the next setting.

Set the day of the week as follows:

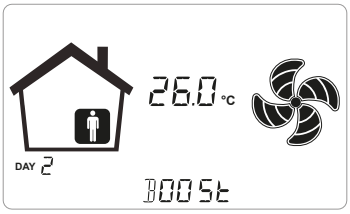
day 1 = Monday / day 2 = Tuesday
day 3 = Wednesday ... ... day 7 = Sunday

SUPPLEMENTARY FUNCTIONS

• BOOSTER MODE

This is enabled by a remote control normally located in a bathroom or kitchen.

The power board of the centralised unit receives the pulse from the outside and enables the "Booster Mode".
In this case the "Boost" icon appears as a notification on the screen of the unit's control panel.



Like for "***Party Mode"***, "***Booster Mode***" determines an increase in the timed speed respect to the nominal speed.

The percentage of the duration and of the speed increase of the ventilation unit can be configured by the installer upon a specific request of the user.

The standard duration is 3 hours (default) and the standard percentage is 130% beyond the nominal speed.

Before standard duration ends, user can stop ***Booster*** mode by repeating the command on the remote switch.

• FIREPLACE FUNCTION

If the unit is interfaced with a negative pressure ambient pressure switch and works in the specific configuration recommended in presence of a natural draught chimney, the unit is automatically turned off when the ignition of the fireplace causes negative pressure in the room.

This occurs in order to prevent the ambient pressure induced by the action of the dual flow ventilation unit from counteracting the natural draught of the fireplace and releasing smoke into the room.

• BOILER FUNCTION

If the unit is interfaced with a remote switch and works in the specific configuration recommended in presence of an atmospheric boiler, the unit is forced into a strong imbalance supply mode in order to facilitate ignition of the boiler.

The mode remains active as long as the switch stays in the activation position.

• ANTIFREEZE FUNCTION

• With Electric Resistance

In the event that the unit is installed in a cold climate, we recommend the use of versions with an electric antifreeze resistance on the fresh air intake circuit (***ENY-SHPEL 170/ ENY-SHPER 170*** models).

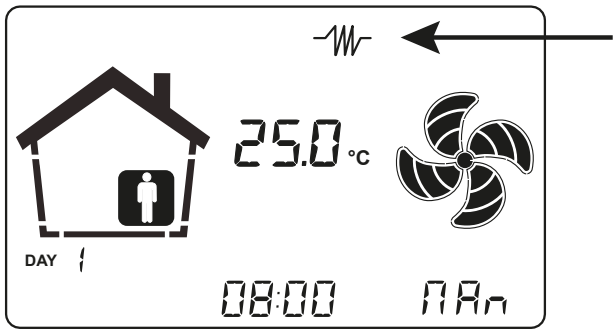
The electric resistances available for units preheat the supply air entering the heat exchanger in order to avoid freezing of the humid air extracted and discharged by the heat exchanger in the opposite circuit.

In fact, when the fresh air drops below the critical temperature, posing the risk of freezing of the discharged air, the resistance is activated and modulates the heat output to keep the temperature of the discharged air within the desired fluctuation range.

The electric resistances should be selected in order to maintain the minimum conditions of indoor comfort at outdoor temperatures down to -10°C, and in order to avoid the degenerative formation of ice at discharge down to -15°C outside.

The electric resistance is fitted with a safety thermostat that turns off the unit in case of uncontrolled heating. In case the resistance does not start up, instead, the unit will turn off if the supply air temperature falls below 5°C.

Activation of the resistance as a result of the antifreeze function is represented by the icon  .



Two types of modulating electric resistances are available as accessories:

- internal electric resistance, for compact applications (setpoint t4 = 6°C)

- casing external electric resistance (setpoint t4 = 4°C)

• ***Without Electric Resistance***

In case the unit is without an electric antifreeze resistance, the unit has preventive operation logic which, below -5°C, automatically sets running of the intake fan at minimum for 10 minutes every hour.
Also, in case the temperature falls below -10° C, the unit stops automatically and an alert appears on the display of the controller: " **FROST** ".

When the Frost alarm is triggered, the unit switches OFF and restarts automatically when the critical climatic condition disappears. The Frost alert remains until the next time the unit is switched off and back on.

• ***With Preheating Hydronic Coil***

As an alternative to the use of versions with the electric preheating resistance, a hot air pre-treatment coil can be used to perform the antifreeze function, mounted on the fresh air inlet duct.

The hydronic coil is not available as an accessory. However if the configuration DIP SWITCHES 2 and 3 are activated, the power board is capable of managing the opening of an on/off valve for the preheating function.

The following is the opening and closing logic of the valve.

Opening of the water supply valve of the coil is represented on the display the icon 

Antifreeze protective circuit chart

		External air t_1	***Supply air t_2***	***Exhaust air t_4***
UNITS FITTED WITH ANTIFREEZE SYSTEM	**Antifreeze electric resistance switch on Setpoint: - with internal resistance t_4= 6°C - with external resistance t_4= 4°C**	<-3°C	–	<4°C
		–	–	<1°C
	Electric resistance shutdown	>0°C	–	–
	Activation of preheating water coil valve or ON/OFF resistance	<-3°C	–	<3°C
		–	–	<1°C
	Valve closure or ON/OFF resistance shutdown	–	–	>6°C
	Speed reduction of both fans with proportional law with decreasing t_4. Electric resistance malfunctioning alarm	<-3°C	–	<3.5°C
	Unit switch off with "Frost" alarm	<-3°C	–	<1°C
		<-20°C	–	–
UNITS WITHOUT ANTIFREEZE SYSTEM	**Defrost cycles: the input fan is brought to minimum speed for 10min an hour**	<-5°C	–	–
	ANTIFREEZE	<-10°C	–	–
ALL UNITS	**Input air low temperature alarm**	–	<10°C	–
	Unit switch off with "Frost" alarm	–	<5°C	–
When the Frost alarm is triggered, the unit switches OFF and restarts automatically when the critical climatic condition disappears. The Frost alert remains until the next time the unit is switched off and back on.				

• *FREE COOLING FUNCTION*

There can be climatic conditions during the year that make it impractical to recover heat from extracted air for treating fresh air from outside.

For example, in mid-season, the fresh air temperature can be lower than the indoor air temperature due to solar and internal factors, and this tends to occur when the indoor temperature is between 22 and 26°C so there is more of a need for cooling than for heating. In this case it is advisable to use free-cooling, i.e. fresh air from outdoors to cool for free, bypassing the heat recovery unit. Conversely, it is possible to use fresh air for heating during a change in season, in which case the process is known as free-heating.

The units are equipped with a bypass damper system that totally disables use of the heat recovery unit to permit free-cooling (or free-heating).

The system is controlled on the basis of a logic subject to the feedback of the integrated temperature probes.
The logic is as follows:

The indoor air temperature setpoints of the air conditioning system in winter and summer are defined in order to maintain conditions of comfort:

$t_{heating} \longmapsto$ normally $t_{heating} = 20°C$

$t_{cooling} \longmapsto$ normally $t_{cooling} = 26°C$

(temperatures can be modified by the installer according to the actual settings of the plant)

The following are also defined:

t_i = indoor air temperature (return air)

EAT = External air temperature

FREE-COOLING CONDITION

EAT > $t_{heating}$ and simultaneously t_i>EAT

FREE-HEATING CONDITION

EAT < $t_{cooling}$ and simultaneously t_i<EAT

• *Pre-Treatment Function with Geothermal Coil*

If a hydronic circuit with geothermal or ground water probes is available, it is possible to feed a hydronic pre-treatment coil, which can be used in both seasons.

A dedicated function for using the geothermal source is available.

In winter, the coil valve is controlled to carry out the antifreeze function. It opens if the exhaust temperature falls below 3°C and closes above 6°C. Depending on the available water temperatures, the coil must be sized to ensure the antifreeze function.

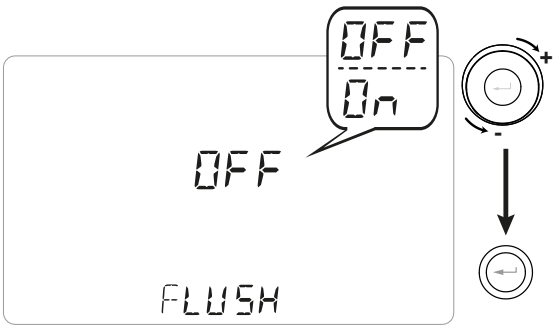
In summer, the coil valve is controlled to carry out the pre-cooling function.
It opens when the outside temperature rises above 24°C.
There is a provisional closure mode if the intake temperature is too cold, to ensure the ambient comfort conditions and a permanent closure when the outside climate starts returning to winter conditions.

Pre-cooling, or geothermal water free-cooling, is compatible with ventilation free-cooling and extends the periods of use.

• *SUMMER MODE*

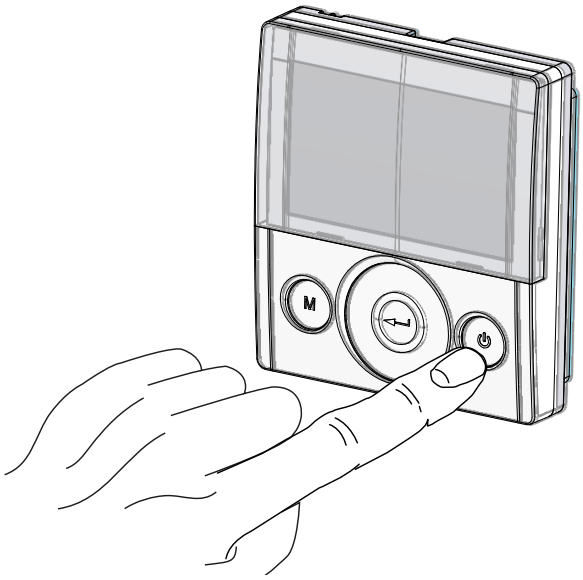
Summer mode is a strong air change cycle, which is enabled when "Flush" parameter is switched on into "Par Menu".

NOTE: Summer mode is performed 4 times a day, except when it would imply high ventilation heat loss..

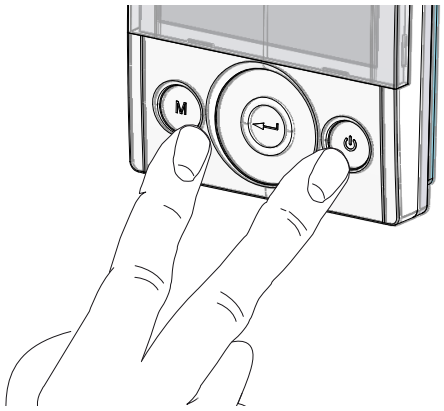


TECHNICAL MENU

1. Turn on the unit at the ON/OFF key.



2. Press the ON/OFF and "M" Menu keys at the same time.



3. The symbol flashes on the display;

Use the ***TOUCH PAD*** to choose the desired function between:

- installer menu (initial setting menu);
- "PAr" parameters;
- rEAd menu;

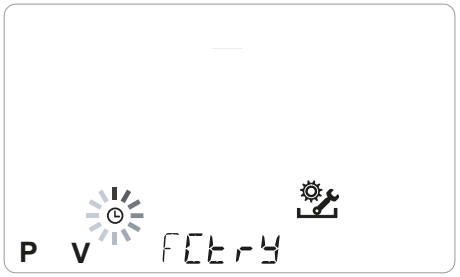
Press the Enter key to confirm.

• Installer Menu

The symbol flashes on the display when the installer menu is opened. Use the ***TOUCH PAD*** to choose the desired function between:

- day and time setting;
- initial setting/configuration of fans "**V**"(see section "COMMISSIONING");
- Selection/Setting of the chosen weekly program "**P**"(see section "COMMISSIONING");
- FCtry (FACTORY) menu;

Press the enter key to confirm.

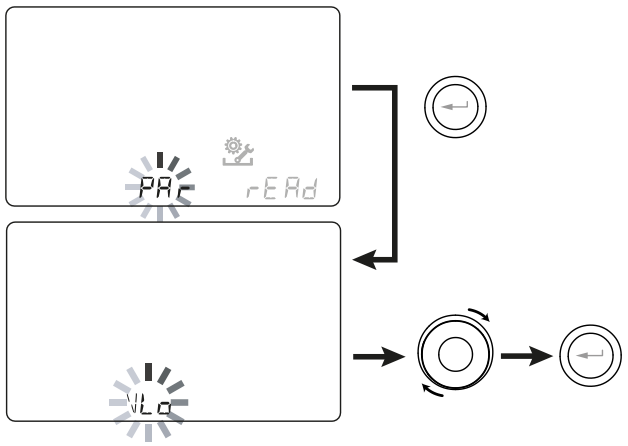


NOTE: the FACTORY ("FCtry") menu is for the exclusive use of the manufacturer.

Password-protected menu

Press the"**M**" button once to return to parameter selection; to exit the menu, press the "**M**" button 3 times.

• *"PAr" Parameters Menu*



This menu allows you to modify the operating parameters of the unit.

With the controller "**ON**", press "**M**" and On/Off simultaneously for 3 seconds.

Select the "**PAr**"menu using the TOUCH PAD and confirm by pressing "**Enter**".

Select the parameter to be changed using the TOUCH PAD and confirm by pressing "**Enter**". Once you have selected the parameter, the value will appear on the display.
The value can be modified using the TOUCH PAD.

Press the"**M**" button once to return to parameter selection; to exit the menu, press the "**M**" button 3 times.

Table 1

"PAr"	*DESCRIPTION*	*RANGE*	*DEFAULT*
CO2hi	Maximum CO2 level	1500 ÷ 2000 ppm	1500
CO2lo	Minimum CO2 level	400 ÷ 600 ppm	500
CO2st	Nominal CO2 level	900 ÷1100 ppm	1000
CO2Sr	Full-scale CO2	2000 ÷ 30000 ppm	2000
VLO	Minimum control voltage in calibration	-10% ÷ +10%	3.0
VHI	Maximum control voltage	-10% ÷ +10%	8.9
nLO	Minimum speed in operation	-10% ÷ +10%	588
nHI	Maximum speed	-10% ÷ +10%	3450
Pstd	Percentage of standard modulation of nominal speed	100% ÷ 110%	100%
Pbst	Percentage of boost/party modulation	110% ÷ 130%	130%
PnGt	Percentage of night modulation	45% ÷ 100%	70%
Pmed	Percentage of intermediate modulation	35% ÷ 70%	45%
Phol	Percentage of minimum - holiday modulation	0 ÷ 35%	25%
Tbst	Boost/Party Time	60 ÷ 240 min	180
TCOOL	Heating setpoint temperature for freecooling management	10 ÷ 30°C	26
THEAT	Cooling setpoint temperature for freecooling management	10 ÷ 30°C	20
Test	Summer season transition temperature for pre-cooling management geothermal coil	10 ÷ 30°C	18
Tinv	Winter season transition temperature for antifreeze management geothermal coil	10 ÷ 30°C	24
RHnSP	Number of samples to calculate dynamic humidity setpoint	1 ÷ 96	96 (15 min)
Flife	Filter service life	30 ÷ 400 days	180 days
HrLO	Relative humidity for Minimum Humidity mode activation Relative humidity lower limit in the comfort range	20 ÷ 30	25
Hrst	Relative humidity upper limit in the comfort range	40 ÷ 50	45
HrHiF	Shows the HrHi parameter	On ÷ Off	Off
HrHi	Relative humidity for Maximum Humidity mode activation	60 ÷ 80	65
FLUSH	Summer Mode activation	On ÷ Off	OFF
ErHs	Speed of Low humidity	1 ÷ 4 speeds	2 speed
Func	FUNCTIONS blocking operation (see dedicated paragraph)	-	-

• FUNCTIONS BLOCK SCREEN ("Func")

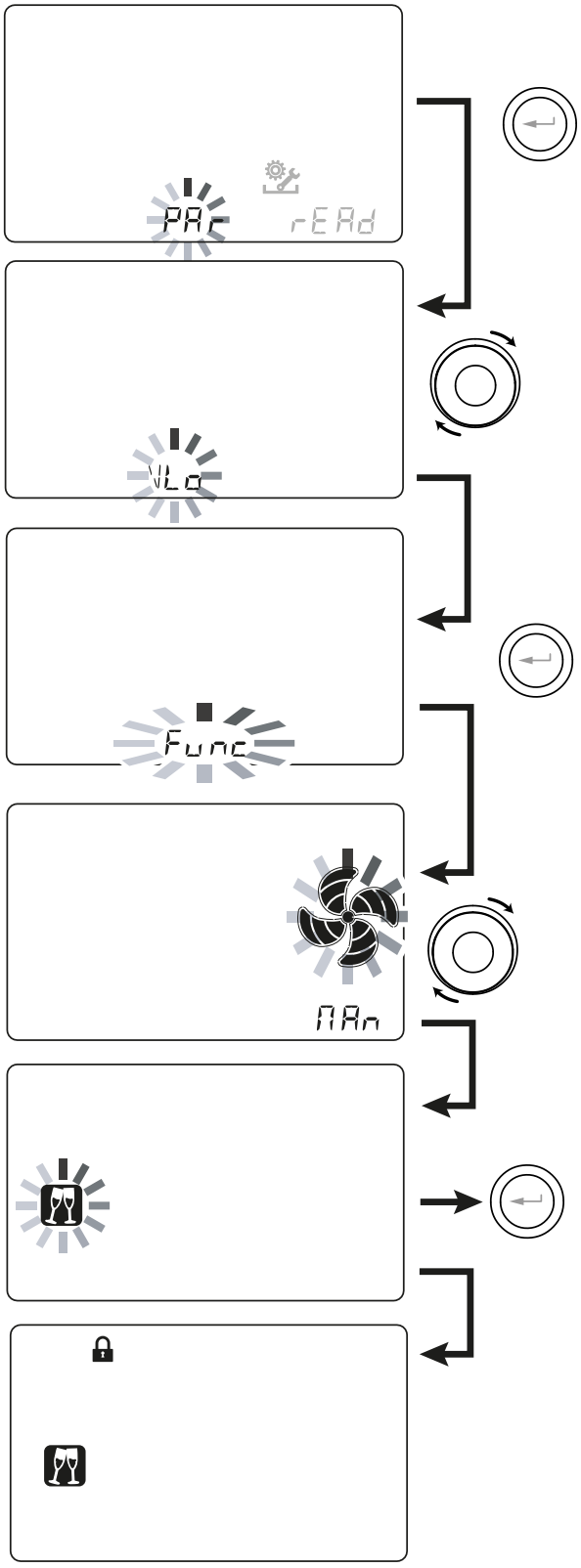
From the PAr Menu you can access the "***Func***" screen.

Using the TOUCH PAD you can select the function to be inhibited from being used by the USER.

The functions that can be inhibited are:

- Manual
- Party
- Holiday
- AUTO
- Machine Shutdown ("OFF")
- Clock
- Weekly Programs

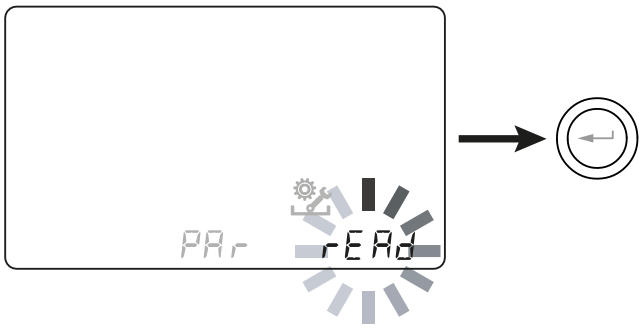
Press "***Enter***" to enable the inhibition of a specific function, which is confirmed by the activation of the padlock icon.



Press "M" 3 times to go back to the Main Screen.

In the User Menu, the functions inhibited by the screen "***Func***" can no longer be selected.

• *"Read" Menu*



This menu allows you to read some operating parameters of the unit.

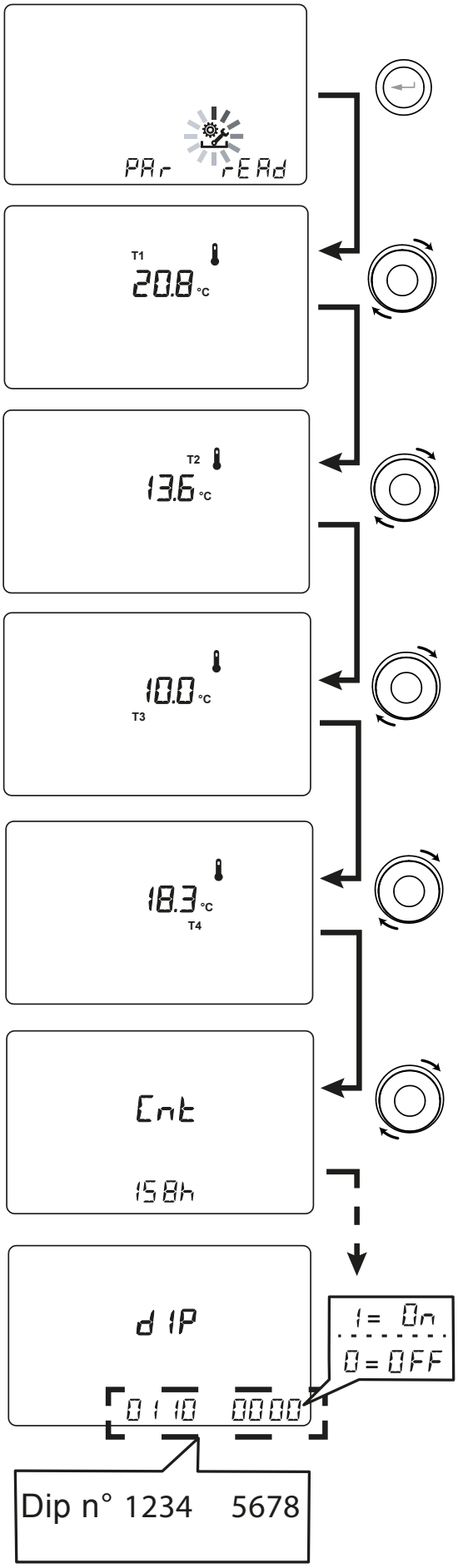
With the controller "**ON**", press "**M**" and On/Off simultaneously for 3 seconds.

Select the "**rEAd**" menu using the TOUCH PAD and confirm by pressing "**Enter**".

Select the parameter to be read using the TOUCH PAD. Once you have selected the parameter, the value will appear on the display.

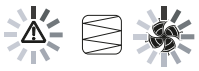
Press the "**M**" button once to return to parameter selection; to exit the menu, press the "**M**" button 3 times.

	DESCRIPTION
T1	value of external air temperature probe
T2	value of intake air temperature probe
T3	value of stale extracted air temperature probe
T4	value of exhaust air temperature probe
RD1	Fan voltage
RD2	Fan rpm
RD4	Temperature report
RH	detected humidity value
RHs	detected dynamic humidity set point value
CO2	value of CO_2 detected
	Preheating resistance power output
Cnt	Number of operating hours of the appliance (fan hours rpm > 0)
DIP	Configuration dip switch power board
	Time remaining until filter replacement (in days)



ALARMS

Below is a table for troubleshooting the faults that may occur during operation of the machine.

Type of Signal	***Description of Fault***	***Notes/Solution***	***no. of flashes LED DL3***
	General Alarm.	Present in case of any fault	/
	FAN voltage/speed limits exceeded.	It is recommended to enter the ***Read*** Menu to check the FAN operating parameters and identify which FAN is not working	4
	Faulty temperature probe	The faulty probe code appears next to the "thermometer" icon. In the ***Read*** Menu the faulty sensor no longer provides any reading.	2
	Faulty humidity/CO2 probe	It is recommended to enter the ***Read***Menu to check the probe data and identify which probe is faulty.	6
	Filter replacement.	Replace the filters of the unit.	1
	Electric defrost resistance fault	Check the resistance reset thermostat; Check the electrical connections; It is recommended to enter the ***Read*** Menu to check the probe data and identify which probe is faulty	3
FROST	Antifreeze Alarm	SEE ANTIFREEZE PROTECTIVE CIRCUIT CHART The FROST alarm is reset automatically. In order to report the failure, the FROST string continues to flash in the hours field until technical support is provided.	/
	T-EP Controller Error	Check the electrical connections between the controller and the power board of the machine.	7
	Max. FAN Rpm overcoming	It is recommended to enter the ***Read*** Menu to check the FAN operating parameters and identify which FAN is not working To check the unit filters.	4
	Problem with the differential pressure transmitter module	/	5
	Timekeeper Alarm	/	/

USER MAINTENANCE

Servicing involving the user is limited to periodically replacing the filters. The filters must only be replaced when indicated on the controller display (icon).

The unit cannot be used without filters.

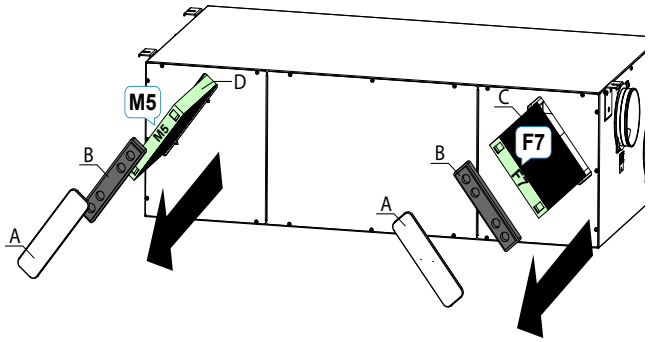
Always disconnect power before accessing the unit.

• Remove the cover (A);

• Remove the caps (B);

• Extract the filters and replace them (C).

• Put all the components back in the opposite order and reconnect power.



IMPORTANT!: comply with the codes on the filters and the type of unit connection used (STANDARD or INVERSE).

Install the filters so that the arrow on the front of the filter is aligned with the arrow engraved on the machine along the filter insertion hole.

• Now it is possible to switch off the icon of the display.

• Go to the User Setting menu, press the "M"button.

• Use the ***TOUCH PAD*** to select the icon of filter activation .

• Press the confirm button .

• The timer to change the filters has been reset .

In case the filters need to be changed before the timer deadline, it is in any case possible to reset the countdown " " at any moments by following the just described procedure.

INSTALLER MAINTENANCE

The following maintenance interventions must only be carried out by the installer or by qualified personnel:

- Inspect the filters and clean them if necessary;
- Inspect the heat exchanger and clean it if necessary;
- Inspect the fans and clean them if necessary;
- Check the condensate drain once every two years.

The following paragraph have a short description of the maintenance interventions.

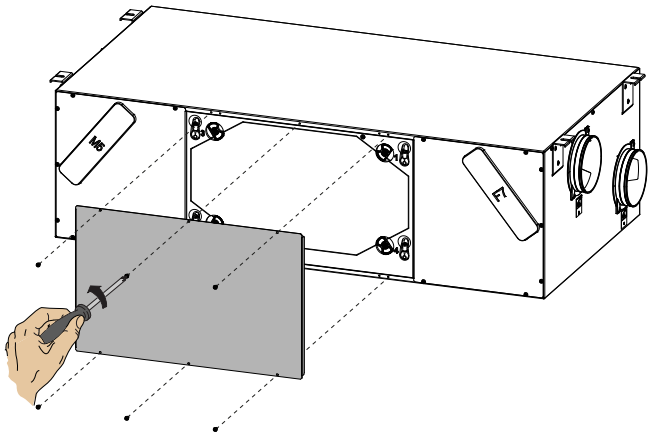
PLEASE NOTE: If maintenance is not carried out regularly, the ventilation system might not work properly.

• Check the heat exchanger

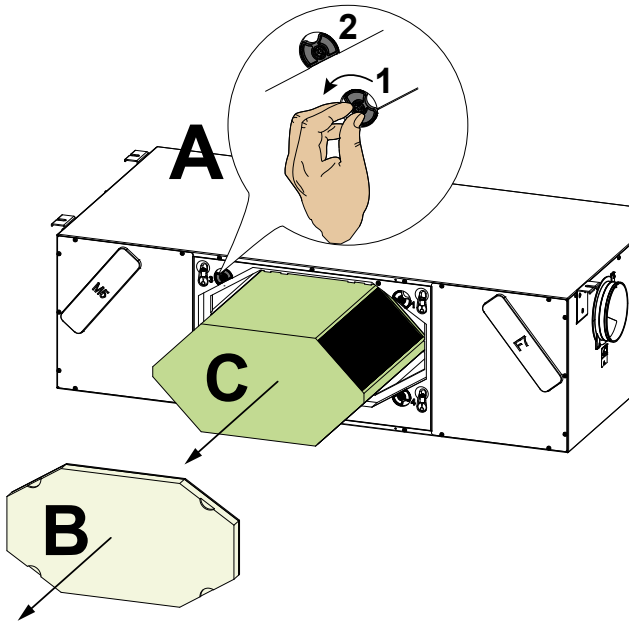
Check the heat exchanger once every two years.

Always disconnect power before accessing the unit.

- Use a screwdriver to remove the heat exchanger panel cover.



- Turn from "**1**" to "**2**" the heat exchanger block cam (**A**).
- Remove the cover (**B**)
- Extract the heat exchanger (**C**)



ATTENTION!: The heat exchanger may contain residual water.

- Inspect the condition of the heat exchanger and clean it if necessary:

- Use a soft brush to clean the fins.

- Use a vacuum cleaner or compressor (not high pressure) to remove filth and dust.

IMPORTANT!: Always clean in the opposite direction of the air flow.

- If no more operation is necessary, refit all the components in the opposite order and reconnect power.

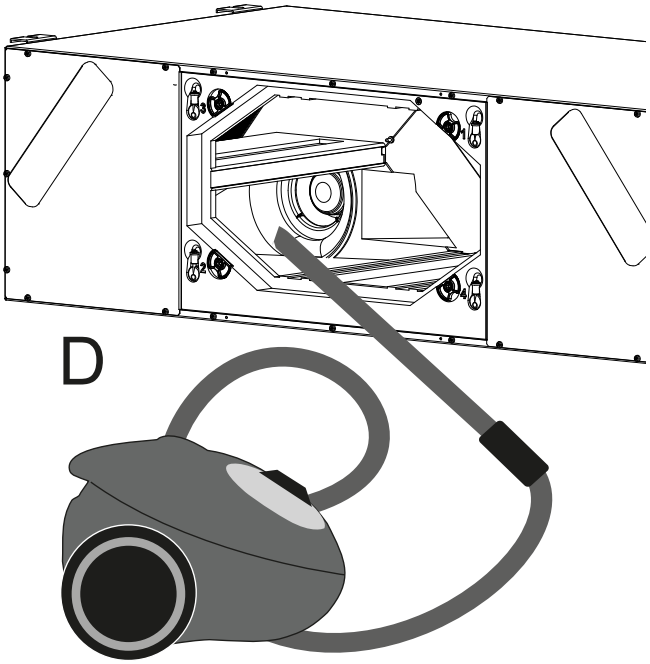
• Checking the fans

Check the fans once every two years.

Always disconnect power before accessing the unit.

• Remove the heat exchanger and the filters, as described in the previous chapters.

• Clean the fans with a soft brush for the fan blades and use a vacuum cleaner (D) to remove dust.



ATTENTION!: DO NOT DAMAGE THE FAN BLADES.

- If no more operation is necessary, refit all the components in the opposite order and reconnect power.

WIRING DIAGRAMS

(STANDARD configuration)

LEGEND

M1-M2 = EC motor

M3 = Primary damper motor

M4 = Secondary damper motor

B1 = Outdoor air temperature probe

B2 = Supply air temperature probe

B3 = Extracted stale air temperature probe

B4 = Exhaust air temperature probe

B5-B6 = Electric resistance safety thermostats

B7 = Humidity sensor

B8 = Pressure transducer

F4 = Electric resistance safety fuse

R1 = Electric Resistance

Q1 = Relay

BK = Black

BN = Brown

BL = Blue

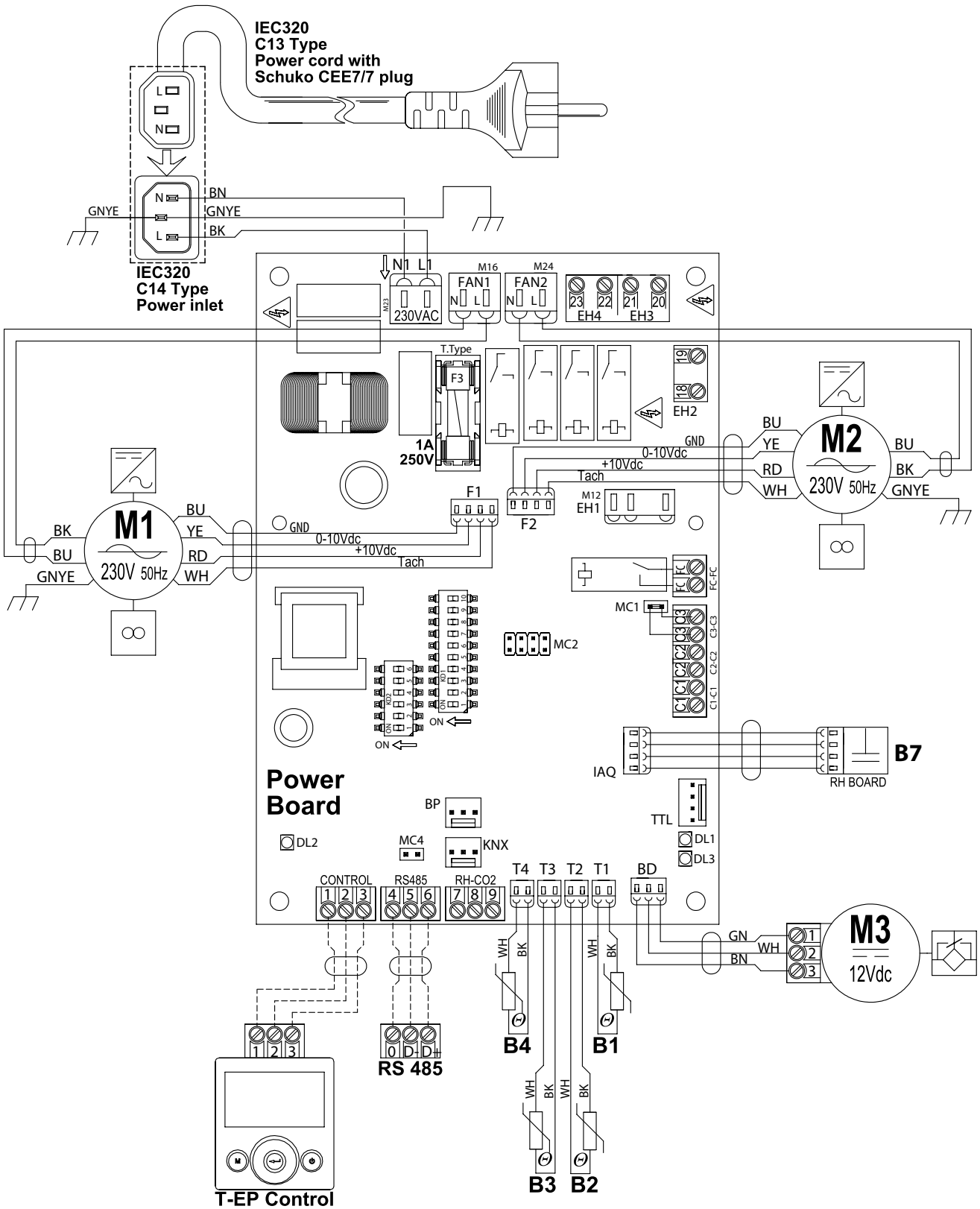
OG = Orange

RD = Red

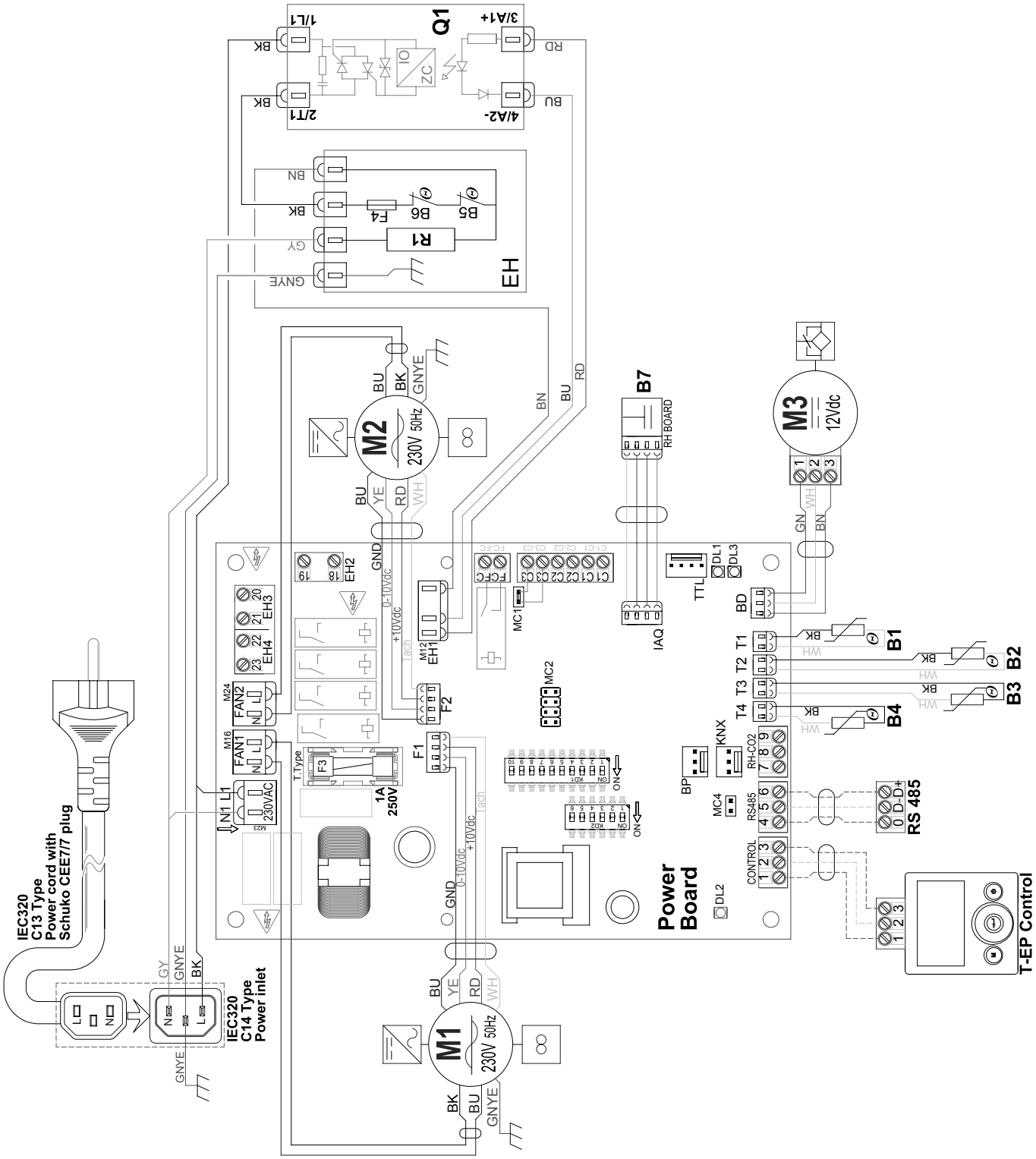
WH = White

GNYE = Green/Yellow

SE-0573-01 - ENY - SHP 170 wiring diagram

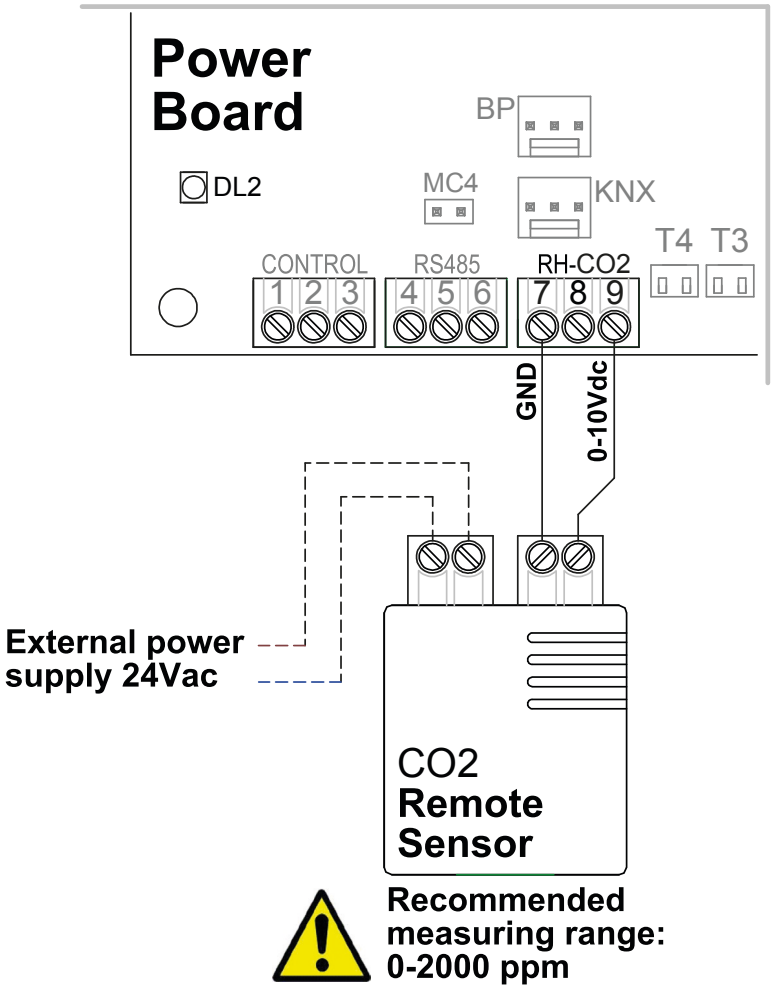


SE-0573-02 ENY-SP wiring diagram with pre-heating coil
ENY - SHPER 170 / ENY - SHPEL 170



Additional wiring diagrams

CARBON DIOXIDE (CO2) REMOTE SENSOR Interface diagram



Oggetto: **Dichiarazione di conformità UE**
Object: ***EU Declaration of conformity***

La presente dichiarazione di conformità è rilasciata sotto la responsabilità esclusiva del fabbricante.
This declaration of conformity is issued under the exclusive responsibility of the manufacturer.

Prodotto:	Energy Smart - Recuperatori Versione Orizzontale e Verticale
Product:	Energy Smart - Horizontal and Vertical Recovery Units
Modello / *Pattern:*	ENY-SHP-170, ENY-SHPEL-170, ENY-SHPER-170, ENY-SHPM-170, ENY-SHPMEL-170, ENY-SHPMER-170

al quale questa dichiarazione si riferisce, è conforme alle seguenti norme:
to which this declaration relates is in conformity with the following standards or other normative document(s):

EN 60335-1 (2012) + A11 (2014)

EN 60335-2-80 (2003) + A1 (2004) + A2 (2009)

EN 62233 (2008)

EN 55014-1 (2006) +A1 (2009) + A2 (2011)

EN 55014-2 (2015)

EN 61000-3-2 (2014)

EN 61000-3-3 (2013)

EN 50581 (2012)

Regulation (UE) 1253/14

Regulation (UE) 1254/14

Regulation (EC) 1907/2006

L'oggetto della dichiarazione di cui sopra è conforme alla pertinente normativa di armonizzazione dell'Unione.
The object of the declaration described above is in conformity with the relevant Union harmonization legislation.

2014/35/UE 2014/30/UE 2006/42/EC 2011/65/EC

Il fascicolo tecnico è costituito presso: Sabiana S.p.A. Via Piave 53, 20011 Corbetta (MILANO-ITALY)
The technical file is made at: Sabiana S.p.A. Via Piave 53, 20011 Corbetta (MILANO-ITALY)

Corbetta, 25/10/2018

Nicola Binaghi
Presidente