

■ Decorative radiators ■ Comfortable indoor ventilation ■ Heating and cooling ceiling ■ Clean air solutions

zehnder

# Zehnder Eversky

  
CALADAIR

Installation, Service and User Manual

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## **Legal regulations**

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## **Zehnder manufacturer's warranty**

The current warranty terms can be obtained in paper form using the normal distribution channels.

## **Trademarks**

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## Safety and environmental instructions

In accordance with current regulations, the appliance must be installed and maintained exclusively by qualified technical personnel authorised for this type of appliance and work.

Use the necessary Personal Protective Equipment to avoid damage related to electrical, mechanical (injuries from contact with metal sheets, sharp edges, etc.), acoustic risks, etc.

Do not use the appliance for any purpose other than that for which it is designed. This device may only be used to convey air free of hazardous compounds, construction dust, etc.

Move the appliance as described in the handling section.

Connect to earth in accordance with the applicable standards. Never switch on an unearthed appliance.

Before working on the unit, shut off the power and wait for the moving parts of the ventilation unit to come to a complete stop before opening the doors.

During operation, inspection panels, doors and hatches must always be fitted and closed.

The unit must only be switched on and off via the proximity switch.

Safety and control equipment must not be removed, short-circuited or disabled

When working on the unit, be aware of the temperature that some components can reach (water coil or electrical resistors).

The installation must comply with the fire safety regulations.

All waste production must be treated in accordance with the regulations in force.

It is the responsibility of the installer of the equipment to ensure compliance with the regulations on noise emissions inside the building and to adapt the installation and placement conditions if necessary.

We decline all liability for damage resulting from misuse of the equipment, unauthorised repair or modification or failure to observe these instructions.

## Safety and environmental instructions



Danger and warning:

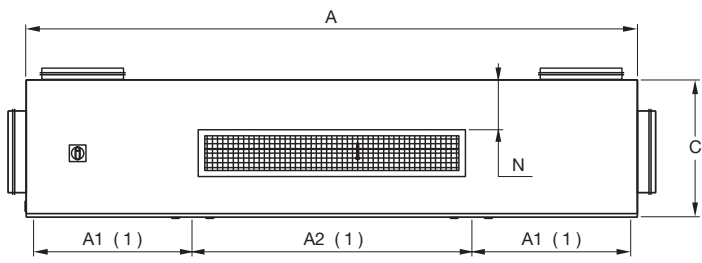
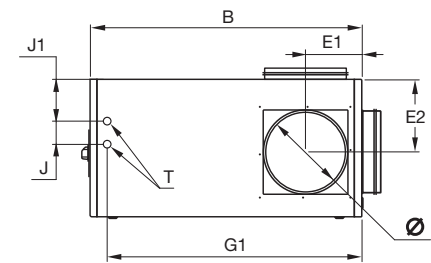
- Operation or situation that may present a danger
- Warning about the instructions to be followed



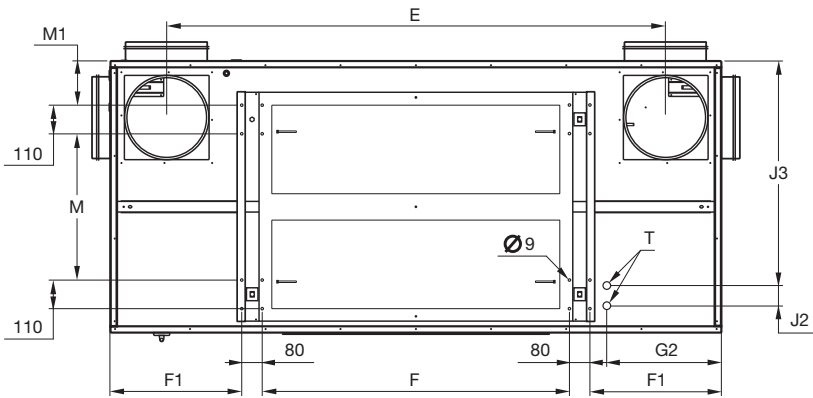
Reading the documentation that accompanies the product is mandatory.

1. Technical specifications

1.1. General dimensions

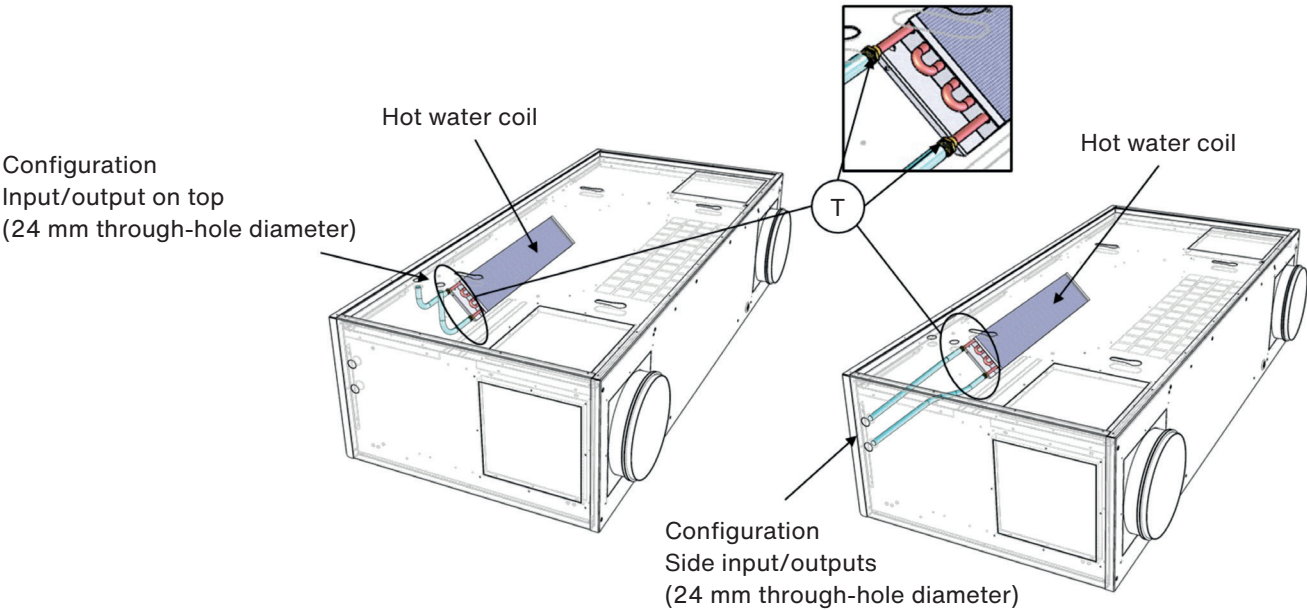


(1) Size of opening panels  
Location of inlet and outlet connections according to the chosen configuration



Ø	A	A1	A2	B	C	E	E1	E2	F	F1	M	M1	N	Weight
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg
250	1670	490	645	815	445	1297	185	230	742	384	332	170	130	132
315	1985	555	830	900	510	1547	220	260	927	449	415	170	170	170
315	1985	555	830	900	510	1547	220	260	927	449	415	170	170	180
315	2365	615	1085	1050	530	1924	220	280	1185	510	565	170	190	220

1.2. Specific dimensions of the hot water coil



**T** Hydraulic connections G 3/8" Male with flat seal surface.  
Internal piping and seals not provided.  
Provide sufficient clearance for the 3-way valve.  
The hot water inlet is at the bottom, the outlet at the top.

Hot water coil connections						
Ø	Side			Top		
T Male	J mm	J1 mm	G1 mm	J2 mm	J3 mm	G2 mm
3/8	55	135	725	55	675	320
3/8	90	140	835	90	750	385
3/8	90	140	835	90	750	385
3/8	90	160	985	80	865	445

### 1.3. Electrical performance data

Model	Fan power (W)	Use temp. (°C / °C)	Protection index / class	Thermal pro- tection *	Power (W)	Premium BE Infinite BC		Premium BC		Infinite BE	
						Supply voltage (V/Ph/Hz)	Protection current (A)	Supply voltage (V/Ph/Hz)	Protection current (A)	Supply voltage (V/Ph/Hz)	Protection current (A)
500	2 x 169	-25 / 60	IP54/B	PTI	1000	230/1/50	7.0	230/1/50	2.7	230/1/50	11.4
750	2 x 170	-25 / 60	IP54/B	PTI	1250	230/1/50	8.2	230/1/50	2.8	230/1/50	13.7
900	4 x 169	-25 / 60	IP54/B	PTI	1250	230/1/50	10.8	230/1/50	5.3	230/1/50	16.3
1100	4 x 170	-25 / 60	IP54/B	PTI	1250	230/1/50	11.0	230/1/50	5.5	230/1/50	16.5

\* PTI: Integrated thermal protection

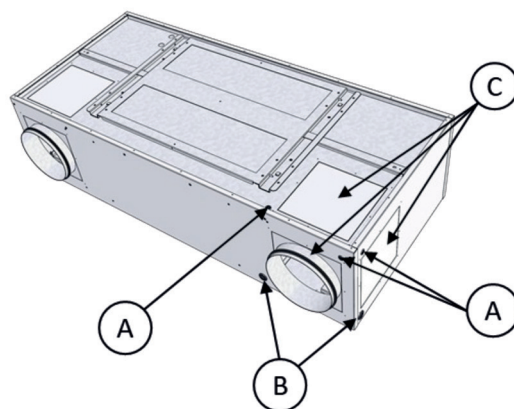
### 1.4. External connections

(A) or (B): Power supply

Condensate drainage with lifting pump (hose ø6x9)

(B) Condensate drainage by gravity (ø10x16 pipe)

(C) Removable connection/full panels

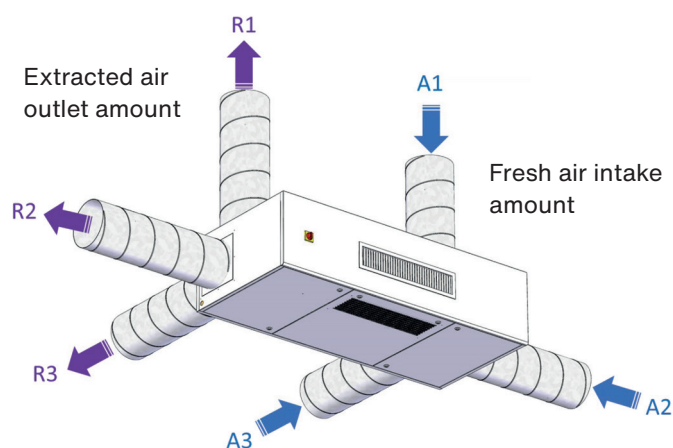


### 1.5. Air duct connections

The Zehnder Eversky ventilation unit has modular connections on the fresh air inlet and return air outlet allowing 9 configurations of air duct connections to adapt to each specific installation.

This removable connection panel system is patented. Round unit connectors with lip seals to ensure the air tightness of the networks (ATEC CSTB no. 13-224-12).

The position of the panels can be changed at the end of the installation of the unit, from the inside of the unit.



Possible combinations of fresh air intake and extracted air outlet connections.

## 2. General information

Zehnder Eversky is a range of decentralised dual-flow ventilation units offering very high energy and acoustic performance, including CO<sub>2</sub> regulation as standard.

Installed directly in the room or space to be treated, it eliminates the need for a complex and costly air distribution network.

Fitted with a high-efficiency static heat recovery unit, electric or water heating coils, F7 supply air filtration and reinforced acoustic insulation, Zehnder Eversky ensures the hygiene and comfort expected in demanding rooms while limiting energy consumption.

The Zehnder Eversky unit is equipped as standard with an EASY control system, communicating in MODBUS or BACnet (choice of language can be activated locally). It has an LCD display for easy commissioning and maintenance.

Zehnder Eversky is delivered ready to use → PLUG&PLAY - SET&FORGET system. The controller's settings incorporate the various options ordered as standard to facilitate and minimise commissioning time.

## 3. On receipt of the equipment

### 3.1. Controls

On receipt of the equipment, check the condition of the packaging and the equipment, as well as the number of packages. In the event of damage, enter precise reservations on the carrier's delivery note and notify your distributor immediately.

### 3.2. Unpacking

When unpacking the equipment, check the following points:

- Presence of the total number of parcels
- Presence of the accessories (electrical equipment, sleeves, studs, etc.)

Remove the protective film from the outer envelope

After unpacking the equipment, the waste must be disposed of in accordance with the standards in force and waste sorting rules must be respected.

No packaging should be released into the environment.

### 3.3. Storage

While the appliance is not installed, it must be stored in a dry place, as the packaging cannot be considered weather resistant.

## 4. Disposal

Disposal of the unit must be carried out in an environmentally sound manner. Do not dispose of the unit with your household waste.

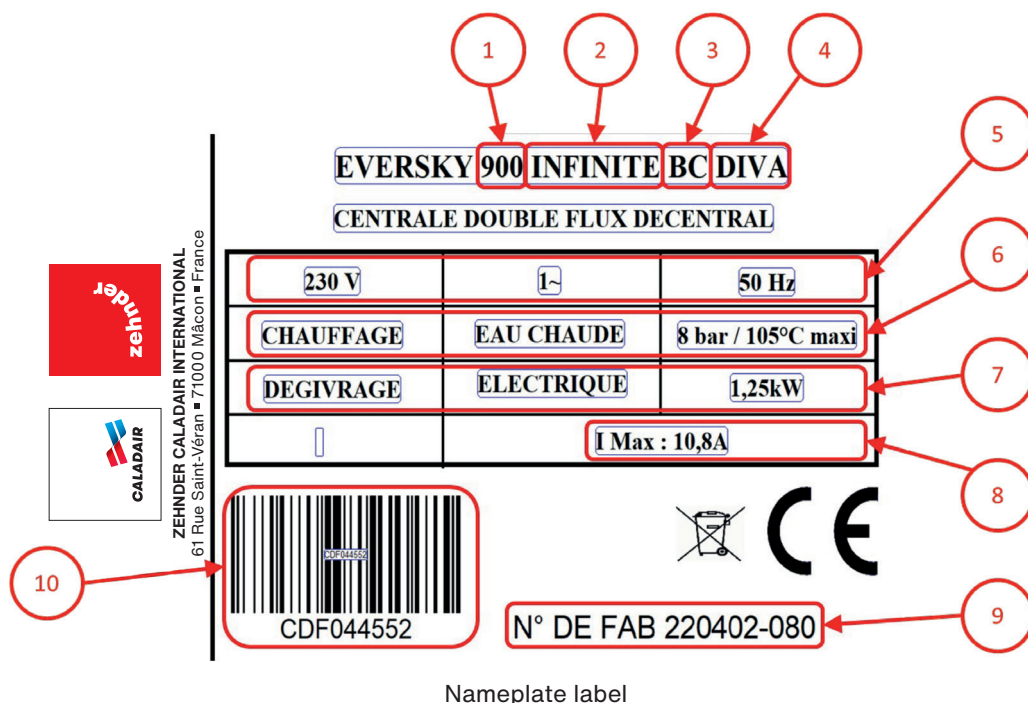
1. Check with the supplier for options to return the unit.
2. If the unit cannot be returned, check local regulations for options for recycling the components.
3. Do not dispose of the batteries of the wireless controls with normal household waste. These must be disposed of at specially designated disposal points.

## 5. Packaging and packing

The Zehnder Eversky ventilation units are delivered on transport racks and wrapped in a protective plastic film. Sensitive parts are protected by cardboard or bubble wrap.

## 6. Identification and labelling

Zehnder Eversky ventilation units are identified by a label affixed directly to a side panel.



Nameplate label

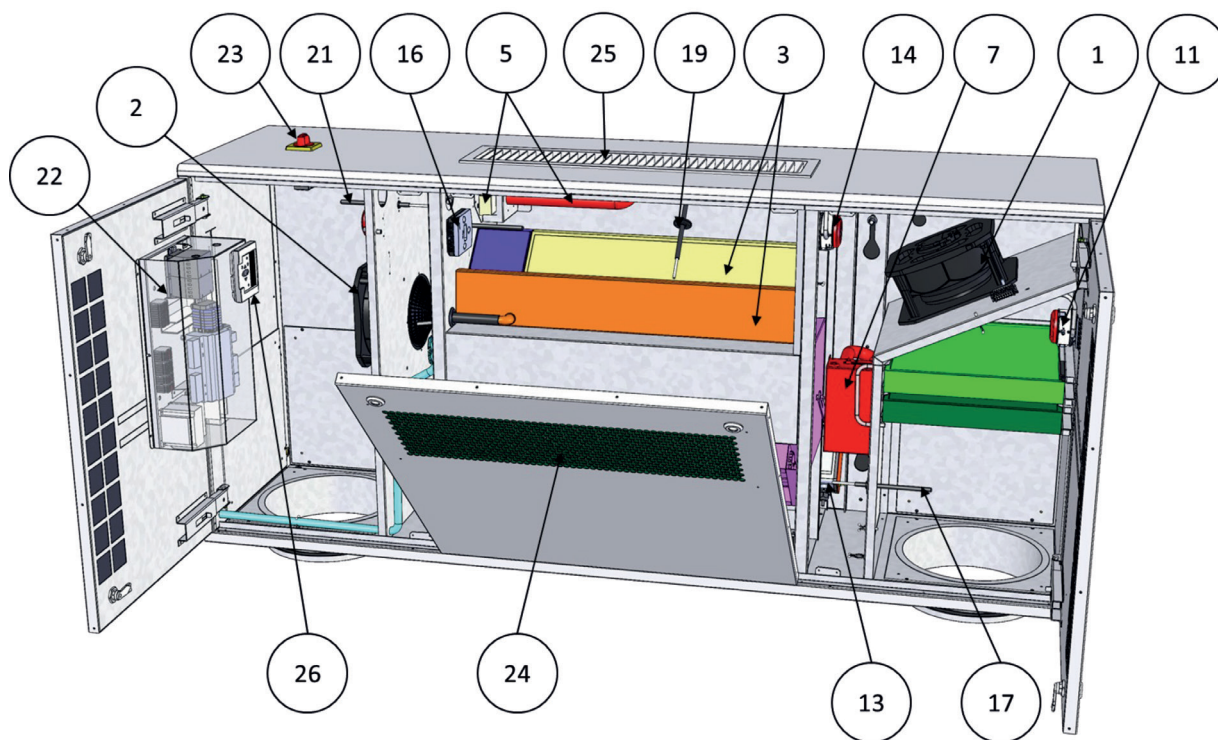
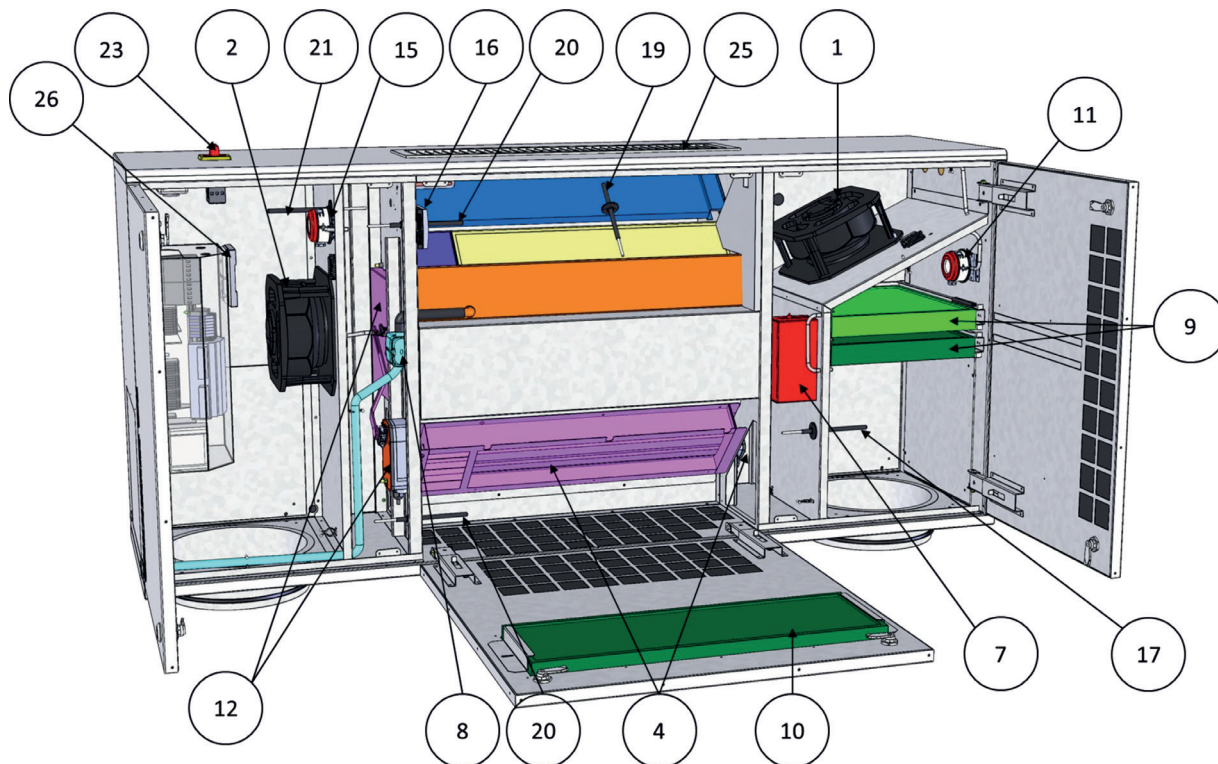
Number	Description	
1	Unit size	500/700/900/1100
2	Type of control and thermal equipment	PREMIUM: Unit fitted with heating coil INFINITE: Unit equipped with electric preheating coil (de-icing) + heating coil
3	Type of heating coil	BE: Electric heating coil BC: Water heating coil
4	Type of fan control	DIVA: Variable speed fans according to CO <sub>2</sub>
5	Power supply to the unit	
6	Characteristics of the heating coil	
7	Characteristics of the de-icing coil	
8	Maximum absorbed current of the unit	
9	Unit reference code	
10	Manufacturing number to be quoted in all contacts with the distributor	



## 7. Composition

### 7.1. General composition

The Zehnder Eversky ventilation unit consists of the following main components:

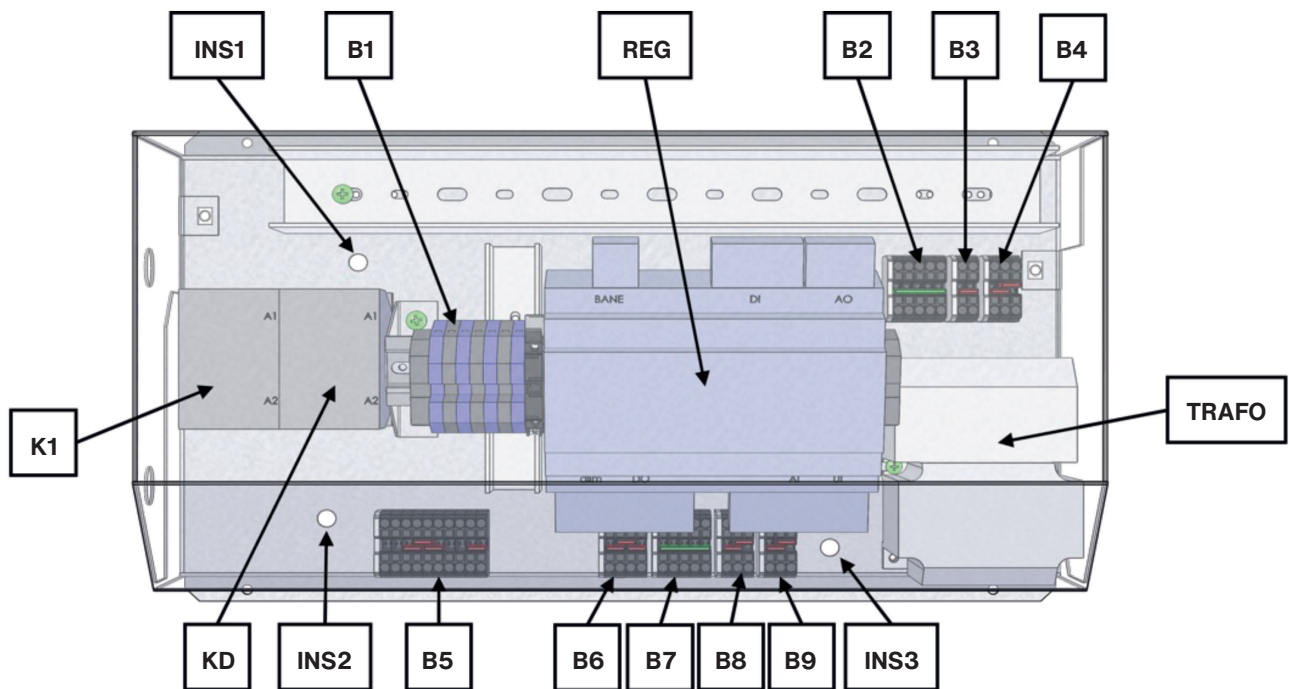


Detail of the composition of the ventilation unit seen from below

Number	Abbreviation	Components
1	VAS	Variable speed fan motor and EC motor: Fresh air supply fan
2	VAR	Variable speed fan motor and EC motor: Return air fan
3	REC	Static plate heat recovery unit with extractable condensate tray
4	BIM	Modulating bypass with motorised damper
5	BE+THS	Electric supply air heating coil + safety thermostat (PREMIUM BE - INFINITE BE)
6	BC + THA	Supply air water heating coil + anti-freeze thermostat (PREMIUM BC - INFINITE BC)
7	DBE + THSD	Fresh air preheating/de-icing coil + safety thermostat (INFINITE)
8	PRC	Condensate pump with drainage hose (optional)
9	FS	Double supply air filter F7 (additional filter option F9)
10	FR	Return air filter F7
11	DEPFS	Pressure switch to control the fouling of the supply filter
12	RMR	Motorised isolation damper + return air servo-motor
13	RMS	Motorised damper + supply air servo motor
14	DEPS	Supply fan control pressure switch
15	DEPR	Return fan control pressure switch
16	CO2	CO <sub>2</sub> sensor
17	SEG	Outdoor air temperature sensor
18	SBD	De-icing coil sensor (manages the preheating coil output temperature)
19	SSG	Supply air temperature sensor
20	SRG	Return air temperature sensor
21	SDG	De-icing temperature sensor (manages the de-icing of the plate recovery unit by acting on the bypass)
22		Control board
23	IG	Proximity switch
24		Extraction grille
25		Supply air grille
26	HMI	Mobile wired LCD HMI controller (E3-DSP-CLD)



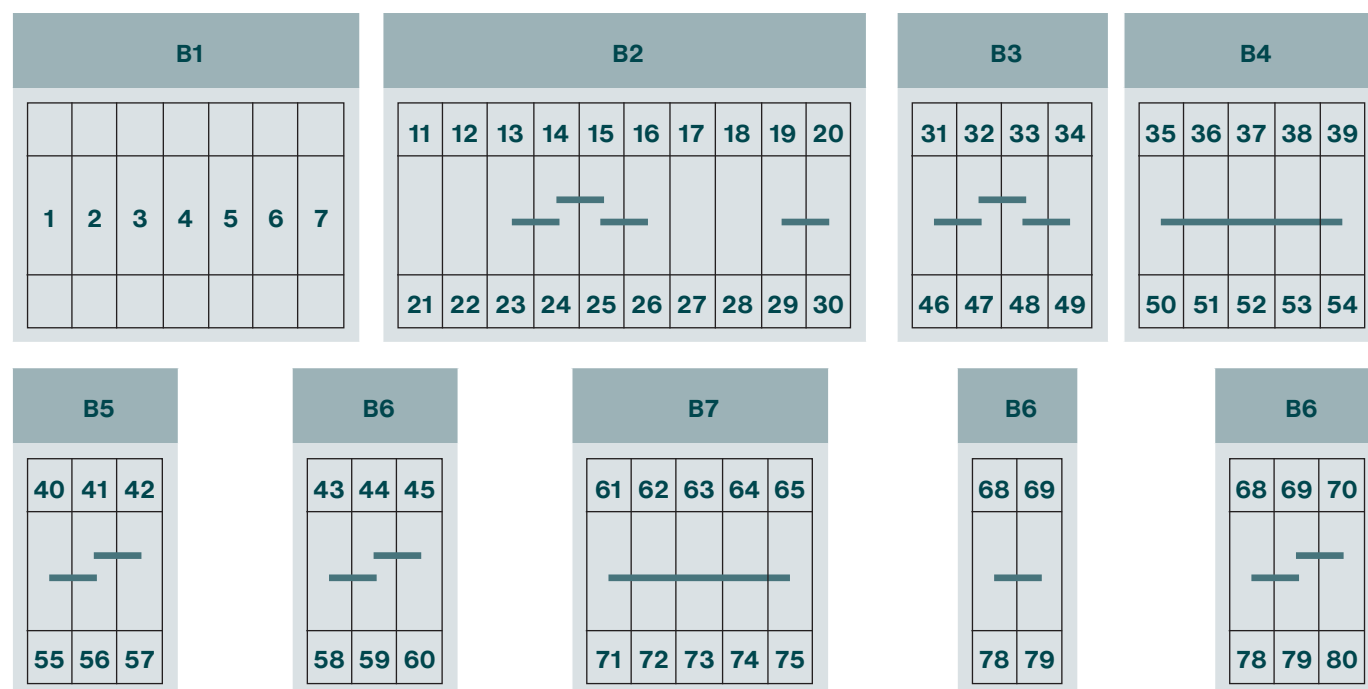
## 7.2. Electrical board



Front view of the electrical board with the electronic controller

Number	Components
<b>B1</b>	Fan supply terminal block + condensate pump
<b>B2</b>	Safety connection terminal block
<b>B3</b>	Common terminal block GDO
<b>B4</b>	Common terminal block AGND (30)
<b>B5</b>	Common terminal block G (1) → +24 V
<b>B6</b>	Common terminal block +C (4)
<b>B7</b>	Common terminal block +C (4)
<b>B8</b>	Common terminal block G (1) → +24 V
<b>B9</b>	Common terminal block AGND (90)
<b>INS1...3</b>	Inserts for earth connection
<b>K1</b>	Electric coil heating contactor (BE)
<b>KD</b>	Preheating/de-icing electric coil contactor (DBE)
<b>REG</b>	Electronic controller
<b>TRAFO</b>	Control transformer

### 7.3. Control terminals and user connections



Control board terminal blocks

Abbreviation	Definition	Terminals	Connection
ADP	Fire service remote stop	21-22	To be connected to the terminals of an NC contact of the fire service remote stop. (Shunt between terminals 21 -22 on release from factory)
THA	Anti-freeze thermostat	24-28	To be connected to the NC contact of the anti-freeze protection thermostat THA (PREMIUM BC and INFINITE BC versions of units equipped with a hot coil)
HRT	Safety thermostat	24-28	To be connected to the NC contact of the safety thermostat THS (PREMIUM BE and INFINITE BE versions units equipped with an electric heating coil)
MF PV	Low-speed forced operation	DI3 controller + 73	To be connected to an external NO dry contact (normally open)
MF GV	Low-speed forced operation	DI4 controller + 74	To be connected to an external NO dry contact (normally open)
ARR EXT	External stop	DI5 controller + 75	To be connected to an external NO dry contact (normally open)
V3V BC	3-way valve Hot water heating coil	AO1 controller + 76 + 78	To be connected to the modulating 3-way valve of the hot water coil (see XIX CUSTOMER CONNECTIONS WIRING DIAGRAM)
AL	Alarm reporting	DO5 controller + 47	24 V output available if the unit is faulty (Note 24 Vac output to be relayed)

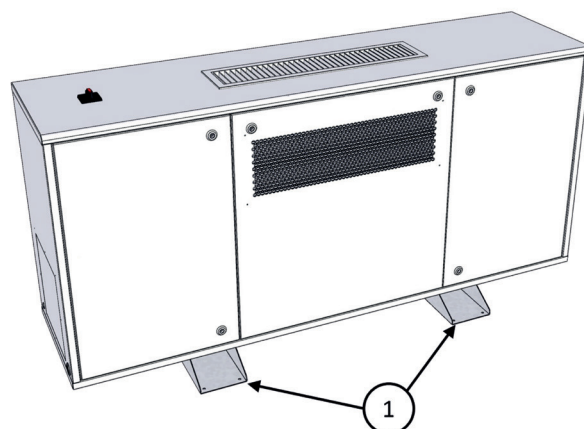
## 8. Installation

### 8.1. Handling in an upright position

It is recommended that the units be handled on their transport brackets (1) and removed at the last moment, as close as possible to the installation site.

If the equipment is handled by a forklift truck, care should be taken to ensure that it supports the supporting structure. Adapt the choice of handling equipment to the weight of the equipment received (refer to the weight given at the beginning of the document).

During transportation, the connections are fastened to the inside of the unit to facilitate handling and prevent damage to the connections.



Control board terminal blocks

### 8.2. Lifting in horizontal position



**Under no circumstances should the unit be lifted using the mounting bracket as fitted in the factory.**



**Particular attention should be paid when lifting it off the floor and placing it on the floor to avoid shocks that could damage the structure and integrity of the product.**

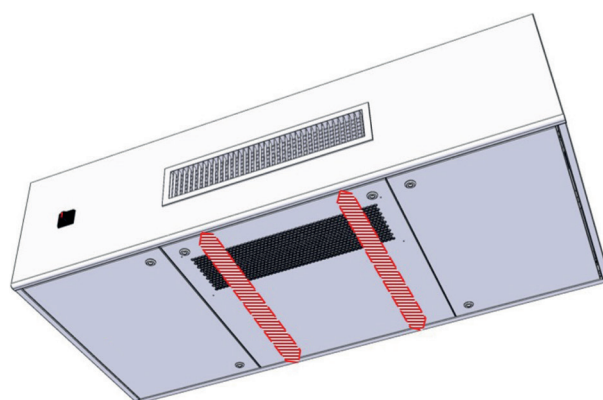


**If the unit is transported by crane, use a cross-bar and belt it to keep it in horizontal position (air flow).**

Do not obstruct the opening of the side doors to attach the unit to the ceiling.

Support areas under the central part:

- Recessed from door joints and locks
- From the bottom edge of the front panel to the bottom edge of the back panel.



### 8.3. Installation precautions

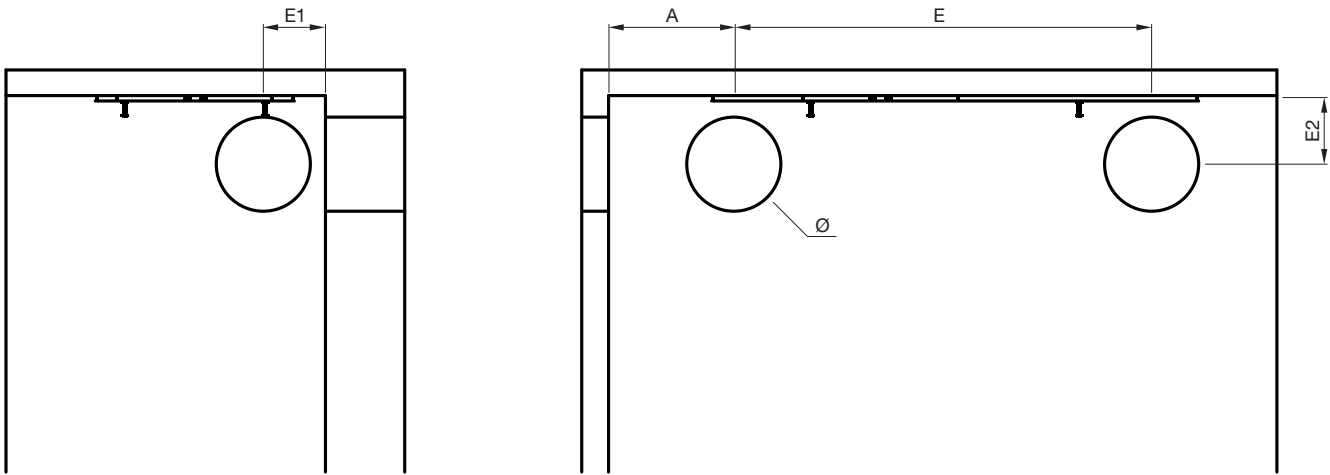
Make sure that there are no obstacles in front of the unit's supply jet.

- If the ceiling slopes, it is recommended to install the unit on the upper part of the slope.
- There must be no beams perpendicular to the unit's supply jet.
- If there are light fixtures protruding from the ceiling, the air stream must be able to pass over the light fixtures so that it is not blocked by them.

8.4. Core drilling of the wall or ceiling

If the fresh air inlet and/or exhaust air outlet has to pass through a wall, a sufficiently large opening must be provided according to the recommendations in the following table:

EVERSKY	A min. (mm)	E (mm)	E1 min. (mm)	E2 min. (mm)	Min. Ø (mm)
500	190	1300	190	230	300
750	225	1550	225	260	350
900	225	1550	225	260	350
1100	225	1927	225	280	350



Position of the inlet and outlet connections in front or side configurations

### 8.5. Installation and fixing on the ceiling

The Zehnder Eversky ventilation unit is designed to be installed exclusively indoors, on the ceiling (with or without a false ceiling).

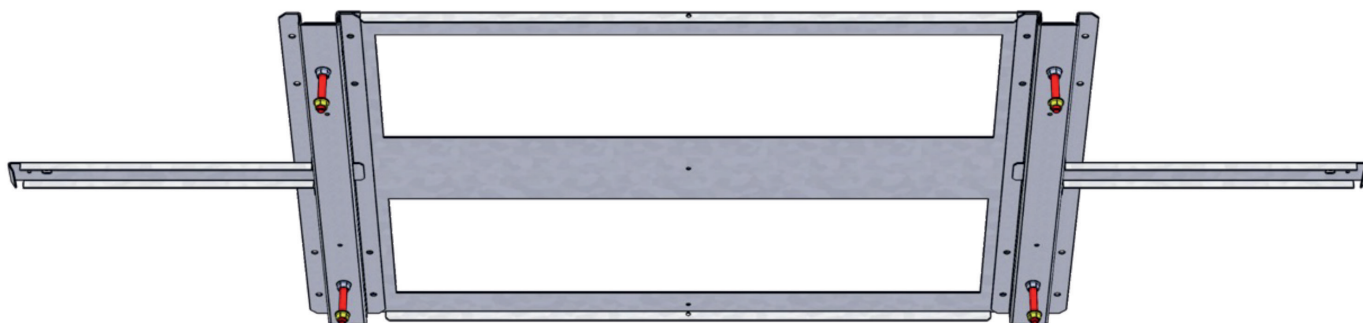
Install the fan unit in such a way that weather or ambient temperature cannot damage the internal parts of the equipment during installation and future use. No water should be able to enter from the outside: make sure to install awnings or rain screens at the fresh air inlet and exhaust air outlet and to leave a slight slope towards the outside at the fresh air supply and exhaust air outlet ducts.

Also ensure that the building is kept watertight at the core holes between the wall and the ducts:

- On the outside: fill the gap between duct and drill hole
- On the inside: fill the gap between the duct and the drill-hole, or place a seal between the wall and the face of the unit concerned.

Before any operation, check that the installation supports are suitable for supporting the weight of the ventilation unit with all its accessories and options.

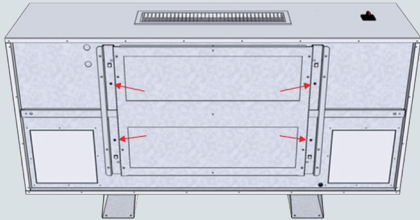
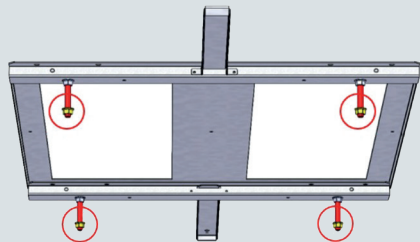
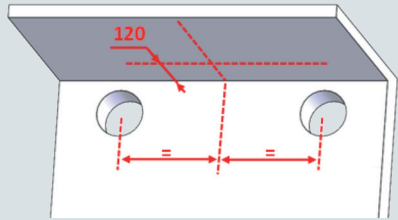
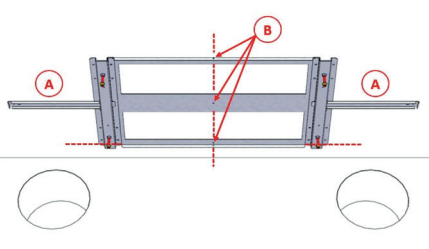
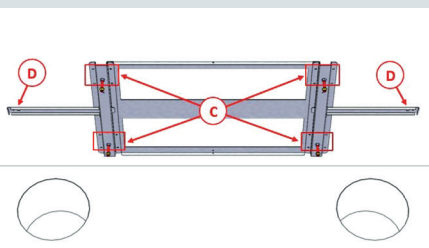
The mounting bracket must always be attached to the top panel to ensure that the unit is watertight.



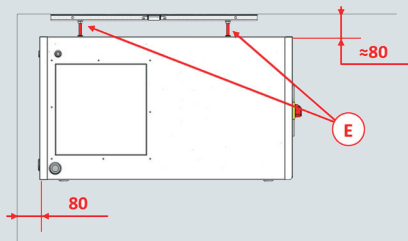

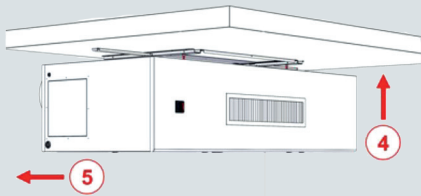
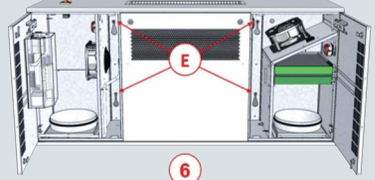
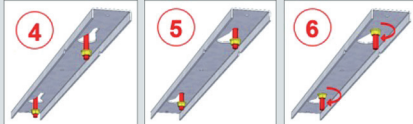
Position of the inlet and outlet connections in front or side configurations

### 8.5.1. Fixing the bracket to the ceiling

Example of a Zehnder Eversky unit with duct connection on the rear side and leaning against the wall.

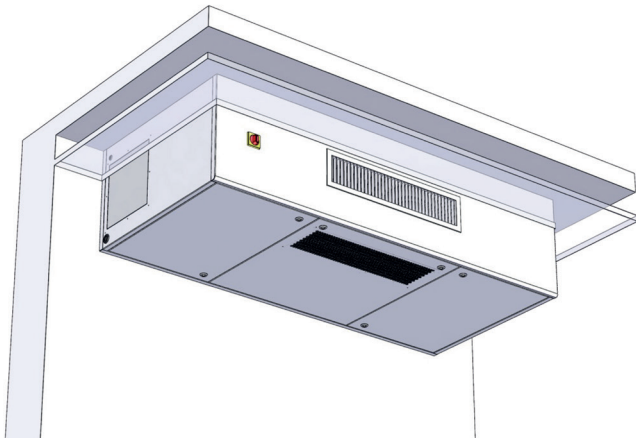
Stage	Description	
1	<p>Remove the top panel support from the unit by unscrewing the 4 fixing screws.</p> <p>Note: The position of the factory-fitted bracket corresponds to the clamping position when the unit is mounted on the wall. This position may refer to the prior dimensioning of the chosen installation configuration.</p>	
2	<p>Check the presence of the tightening nuts on the screws/threaded rods of the mounting bracket. (the nuts should be engaged about 10 mm after the end of the screws/threaded rods)</p>	
3	<p>Draw 2 marks on the ceiling:</p> <ul style="list-style-type: none"> <li>▪ 1 line 120 mm from the wall to which the unit is attached</li> <li>▪ 1 line perpendicular to the first and centred in relation to the two drill holes in the wall.</li> </ul>	
4	<p>Align the edge of the frame with the first line at 120 mm and centre the frame on the second line using the marker holes (B) (the template plates (A) can be removed beforehand to facilitate the installation of the frame and then reattached).</p>	
5	<p>Fix the frame using the 4x4 fixing holes (C).</p>	
6	<p>Fix the two template plates at their ends using the fixing hole (D).</p>	

### 8.5.2. Fitting the unit to the bracket

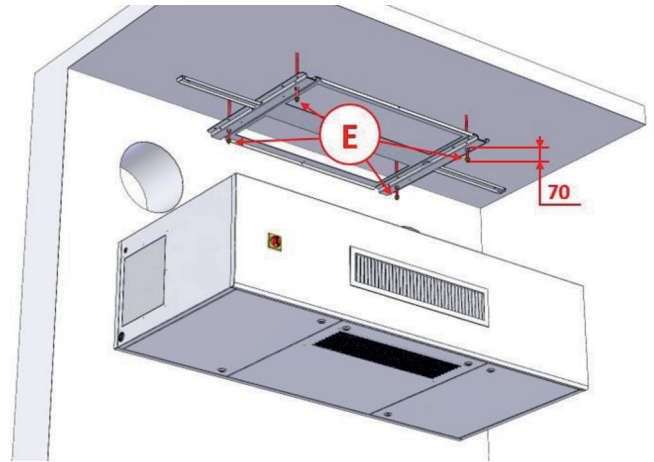
Stage	Description	
1	Place the unit in horizontal position (doors underneath and supply air grille in front) and remove its transport brackets.	
2	Raise the control unit and bring it to its final position approximately 80 mm from the ceiling and 80 mm from the wall. (At this stage, the screws (E) are still recessed from above the unit)	
3	Adjust the position of the unit laterally using the two template plates as a guide/visual marker.	
4	Raise the unit until it is flush with the ceiling.	
5	Move the unit backwards until it is resting against the wall.	
6	Open the side doors to tighten the nuts on the screws/ threaded rods inside the unit so that it is properly seated on the ceiling and its balance is adjusted.	 <p>Engaging the screws/threaded rods inside the control unit</p>
7	Place the removable connection / solid panels from inside the unit according to the installation configuration (see I.5 Air duct connection).	

### 8.5.3. Installation of the unit on a false ceiling

The unit can be semi-recessed in a false ceiling (installation (A)) up to 10 mm above the supply grille frame.



(A) Mounting in contact with the ceiling



(B) Offset ceiling mounting

The unit can also be offset from the ceiling (installation (B)).

In this case, remove the 4 screws (E) M10x70 and replace them with an M10 threaded rod. Allow the threaded rod to protrude 70 mm below the bracket.

Ensure that the fixing of the threaded rods in the ceiling is strong enough to support :

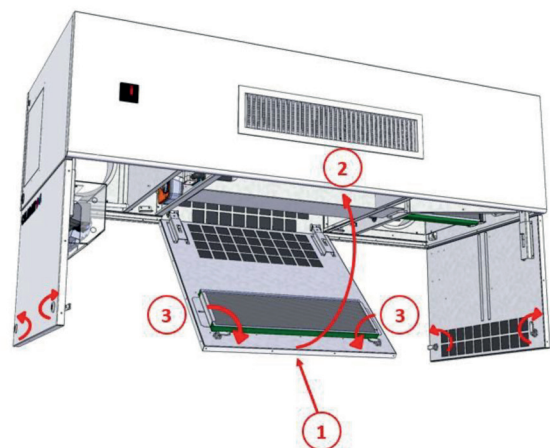
- The weight of the unit itself and any options fitted to it
- The installation loads
- The operating/maintenance loads

### 8.6. Access to the inside of the unit

The Zehnder Eversky ventilation unit has 3 independent, recessed, hinged doors for access to the interior.

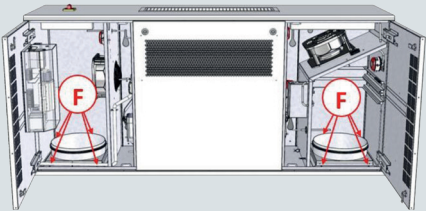
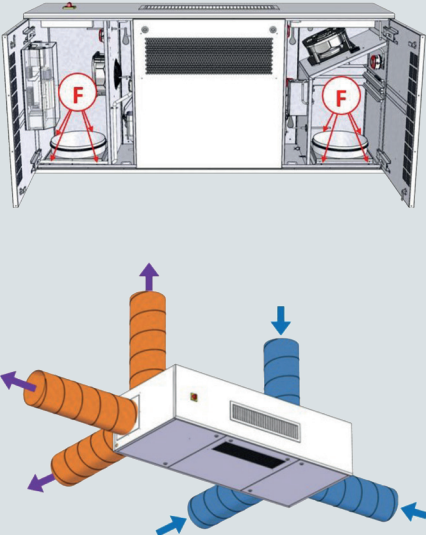
To close a door:

- 1 Push the door until it presses against the seal towards the hinges
- 2 Raise the door upwards
- 3 Turn the bolts in the direction of the arrows





## 8.7. Air duct connections

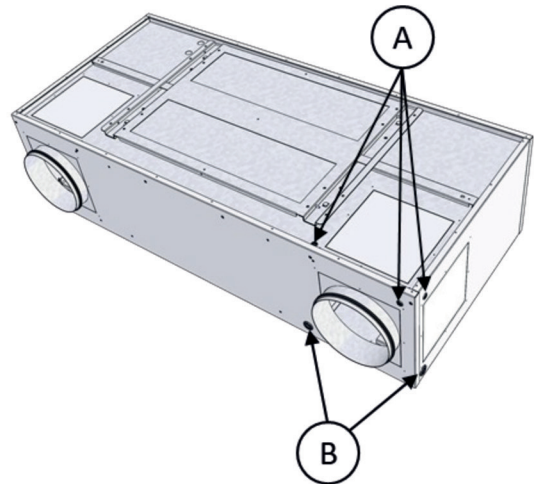
Stage	Description	
1	Loosen the "F" screws and remove the connections	
2	Turn over the connections Insert the connections into the ducts Tighten the "F" screws The modularity of the connections allows them to be positioned on any side (see diagram below)	

### 8.8. Connecting the power supply

Provide electrical protection devices (circuit breaker, differential) upstream of the power supply cable to the ventilation unit. The characteristics necessary for the dimensioning of the power supply (cable cross-section, protections, etc.) are listed in chapter I.3 Electrical characteristics).

Drill through the rubber grommet (A) or (B) positioned on one side and feed the power cable through it.

One of the grommets (B) is reserved for the drainage of condensate by gravity system.

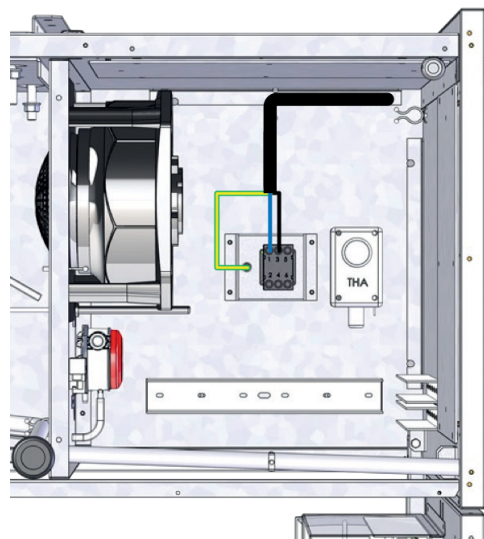


Connect the power wires directly to the terminal block of the isolating switch (marks 1 and 3).

Connect the earth wire (PE) to the crimped nut terminal near the switch (use an M6 eyebolt).

The protective earth (PE) conductor should be slightly longer than the phase and neutral wires.

Securely attach and clamp the power cable to an external fixed part (frame, cable tray, etc.).



Connecting the power supply to the isolating switch

## 9. Electrical connection of external devices

The EASY control embedded in the Zehnder Eversky provides the user with specific inputs and outputs to detect or force the operation of the unit, or to control remote devices.

### 9.1. Alarm output (DO5) - 24 Vac to be relayed

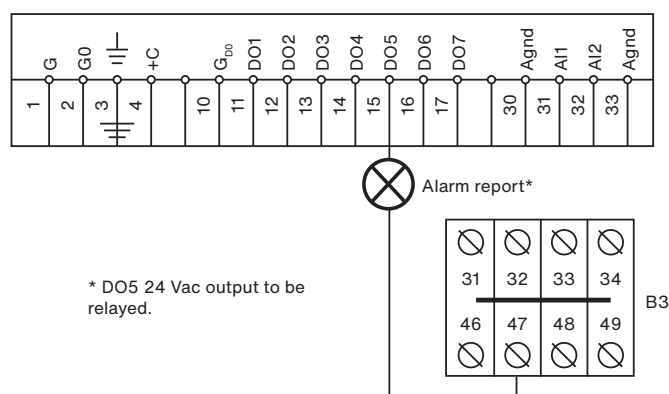
Factory setting = NO output

Output at rest (Open): no active alarm or presence of class C alarm (warning).

Output active (Closed): class A or B alarm is active.

See the list of alarms.

24 Vac output to be relayed.



### 9.2. Heat demand output (DO3) - 24 Vac to be relayed

Only for Zehnder Eversky PREMIUM BC or INFINITE BC

Factory setting = NO output

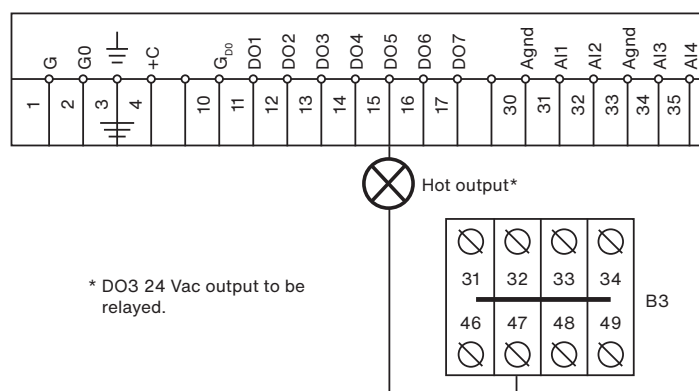
24 Vac output to be relayed.

The digital output DO3 is activated when the controller's temperature control loop identifies a need for heat to meet the programmed temperature setpoint.

This digital signal can be used, for example, to control the start of a pump (hot water) or a heating generator.

Output DO3 delivers a voltage of 0 Vac when inactive, 24 Vac when activated.

The maximum current is limited to 100 mA and must be relayed to supply a component whose consumption exceeds the maximum current.



The status of the digital output DO3 is associated with the status of the analogue output AO1 (control of the 3-way valve of the hot water heating coil).

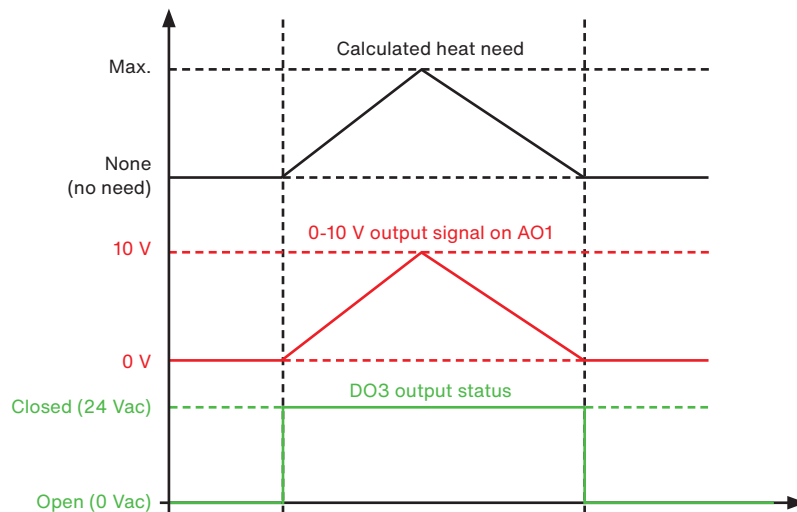
### 9.3. V3V hot output (AO1 - 0-10V)

Only for Zehnder Eversky PREMIUM BC or INFINITE BC.

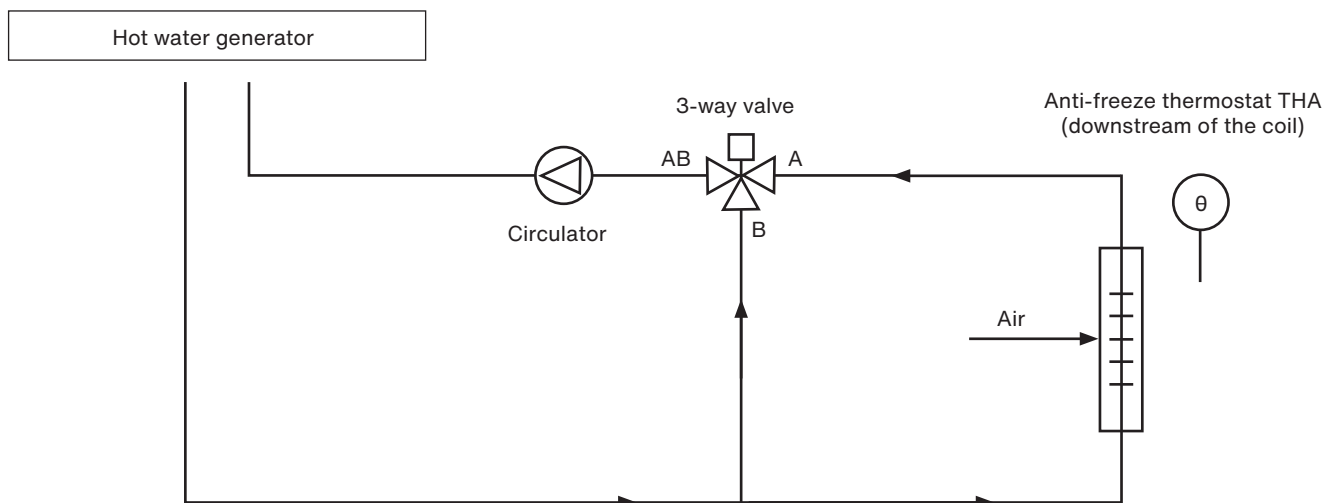
The operation of analogue output AO1 is associated with the operation of the digital output DO3.

The signal of the analogue output AO1 is 0-10V. It reflects the heating requirement calculated by the controller of the unit according to the programmed temperature setpoint and the actual temperature measurement via a PI (proportional/ integral) control loop:

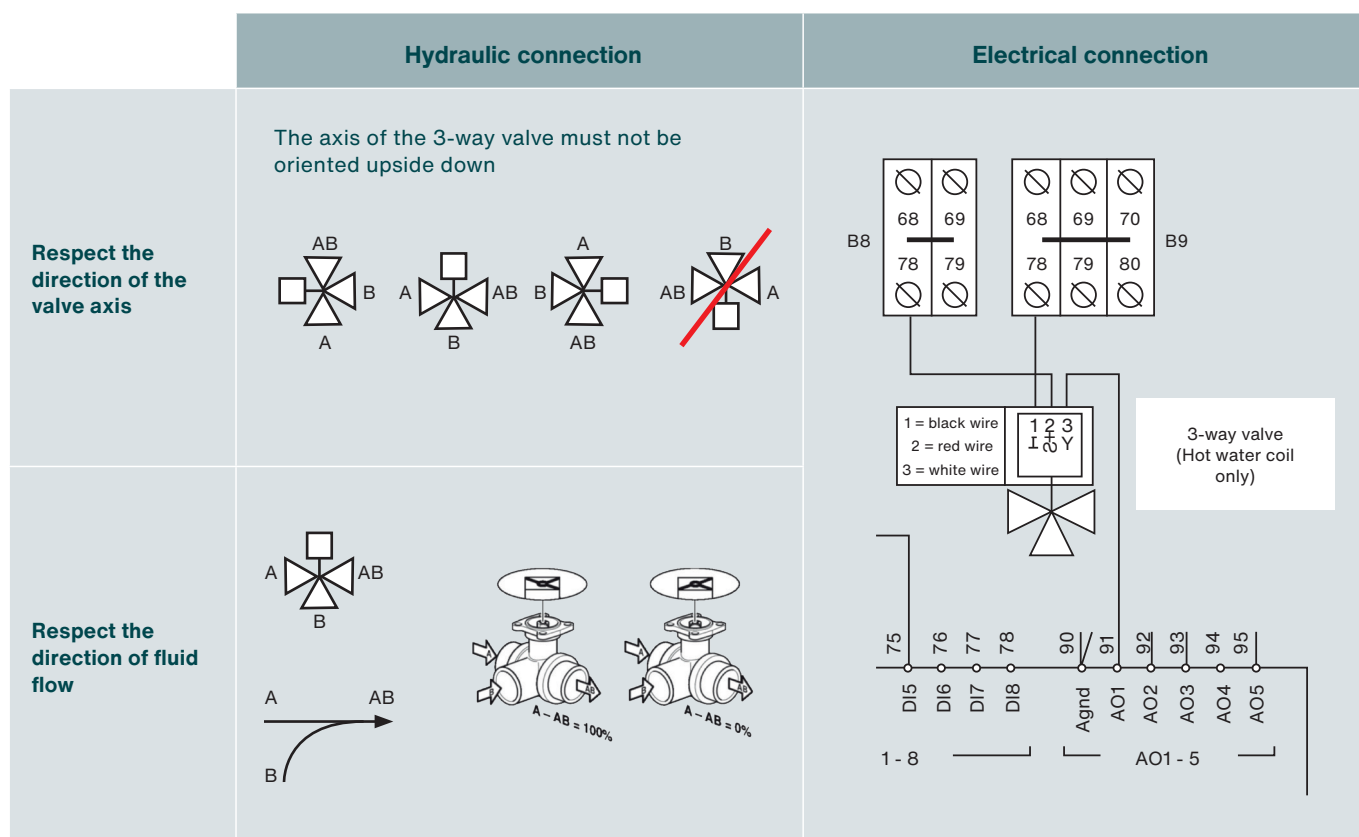
Status of the DO3 and AO1 outputs based on the calculated heating requirement



This signal can be used, for example, to control an external device (modulating 3-way valve, heating system, etc.) that provides heating for the room, with the central ventilation unit acting as a room thermostat.



Connection principle of the integrated hot water coil

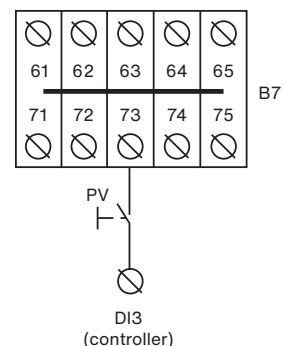


#### 9.4. Reduced speed forced operation input (or PV=low speed) (DI3)

The external forced low speed control (low speed 1/ 2) allows the unit to be forced to operate at low speed.

It has priority if the Zehnder Eversky unit is switched off by the time programming. It does not have priority if the Zehnder Eversky central unit is already in high speed (1/1) via time programming.

The function is active when the contact is closed.



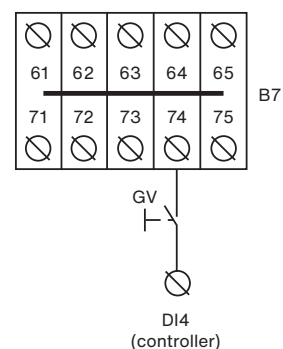
#### 9.5. Normal speed forced operation input (or HS=high speed) (DI4)

The external high-speed forced operation command (normal speed 1/1) is used to force the unit to operate at high speed.

It has priority if the Zehnder Eversky unit is:

- at low speed (1/2) by time programming
- at low speed (1/2) by forced low speed operation
- switched off by time programming.

The function is active when the contact is closed.



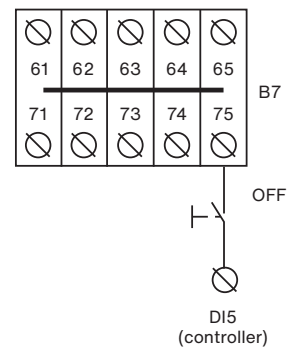
### 9.6. External shut-down input (DI5)

The external forced shut-down command is used to force the unit to shut down.

It has priority if the Zehnder Eversky unit is:

- at low speed (1/2) by time programming
- At high speed (1/1) by time programming
- at low speed (1/2) by forced low speed operation
- At high speed (1/1) by forced high speed operation

The function is active when the contact is closed.



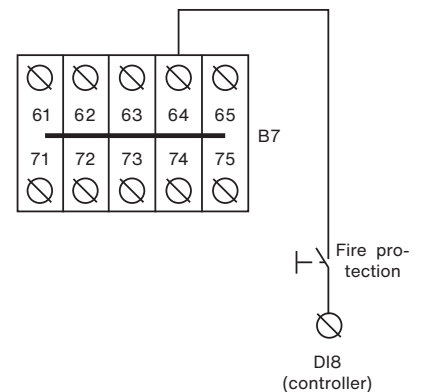
### 9.7. Fire protection input (DI8)

The fire protection input allows the control unit to be forced to operate regardless of the ventilation setpoint currently requested by the time programme and flexibly according to several options available in the controller.

This function is not activated as standard, it must be programmed.

This function requires the use of an external NO contact (input configurable as NC if required).

When the input is configured as NO, the function is inactive when the contact is open and activated when it is closed. And vice versa when it is configured as NC.

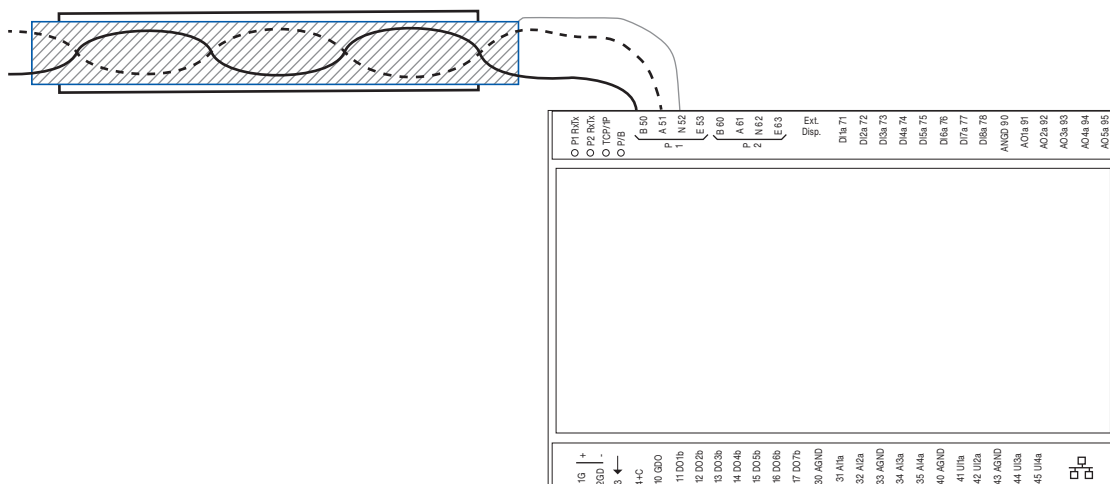


### 9.8. RS485 communication (MODBUS RTU or BACnet MS/TP) (port P1)

Port P1 on the controller is available for RS485 communication for MODBUS RTU or BACnet MS/TP protocols. It is equipped with a 4 terminal screw connector.

Use shielded 2-pair crossed twisted cable such as BELDEN 3106A or BELDEN 3107A, or equivalent to ensure efficient data transmission. It is important to select a cable with a nominal impedance close to 120 Ohms and low capacitance. The speed of data transmission will depend on the length of the cables. It is important to keep the data cable away from power cables and sources that produce regular power interruptions (contactors, relays, frequency inverters, etc.) to avoid interference that could affect the quality of data transmission.

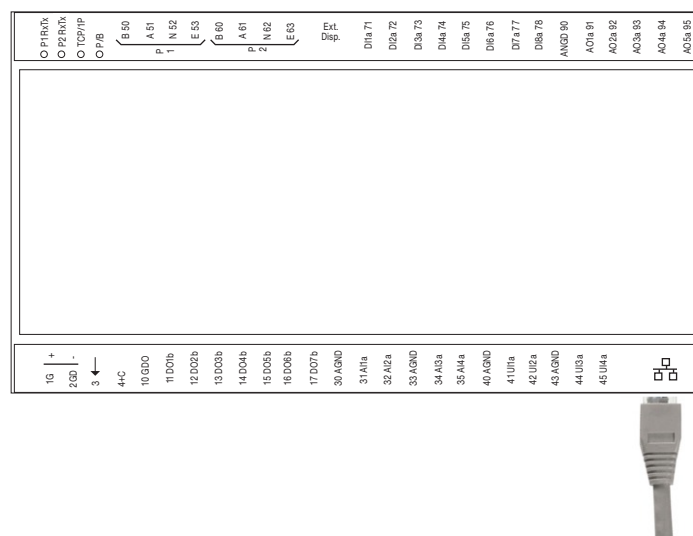
Connect the data wires (twisted pair) to terminals (B) and (A), and the shielding braid to (N). Terminal (E) must remain free.



Connecting the BELDEN 3106A cable to port P1 (RS485)

### 9.9. TCP-IP communication (MODBUS TCP / BACnet IP / Webserver) (TCP/IP port)

Use of MODBUS TCP or BACnet IP protocols requires the use of an Ethernet cable with an RJ45 type connector. The connector plugs directly into the TCP-IP port at the bottom right of the controller.

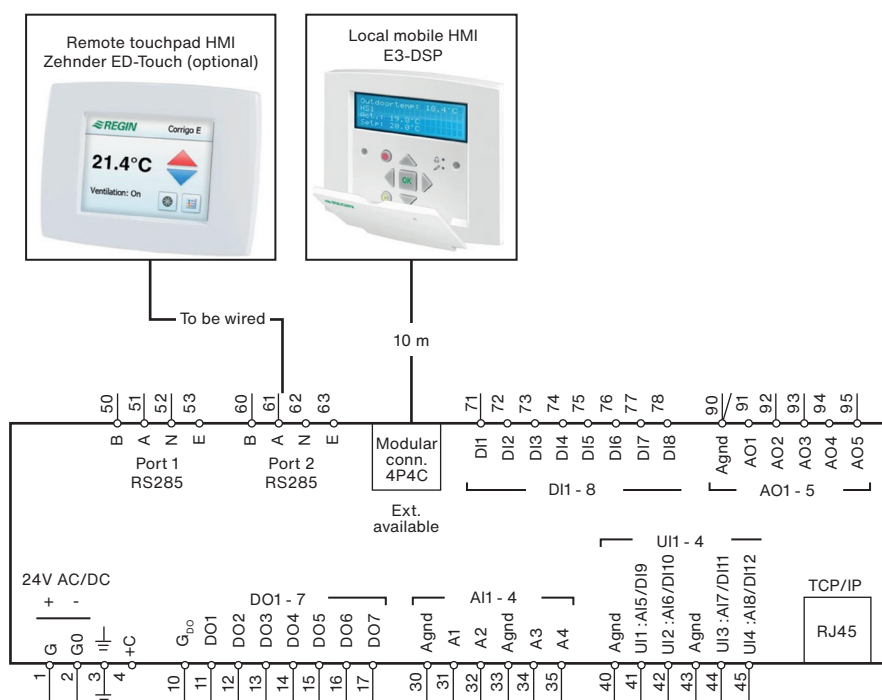


### Connecting the RJ45 Ethernet cable to the controller's IP port

### 9.10. HMI - human/machine interfaces

### 9.10.1. General information

The Zehnder Eversky control unit is equipped as standard with a mobile wired LCD HMI (E3-DSP-CLD) and can be fitted with an optional wired touchpad HMI (Zehnder ED-Touch) that can be remotely located up to 100 m away. The connector plugs directly into the TCP-IP port at the bottom right of the controller.



### Electrical connection of standard (E3-DSP-CLD) and optional (Zehnder ED-Touch) HMLs

### 9.10.2. E3-DSP-CLD

As standard, the Zehnder Eversky control unit is delivered with a mobile wired local HMI housed inside the control compartment with a 10 m cable. This HMI is directly connected to the electronic controller at the "Ext. Disp." port. This cable can be extended to a maximum of 100 m.

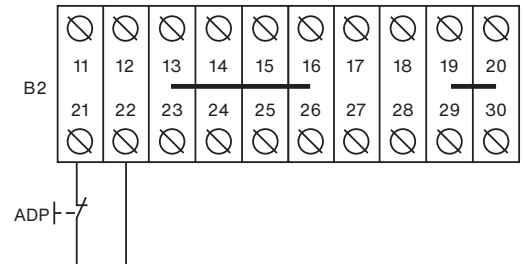
### 9.10.3. Zehnder ED-Touch

Refer to the specific Zehnder ED-Touch manual for operation and connection to the electronic controller.

### 9.11. Firefighter remote stop (FRS)

To be wired between terminals 21 and 22 (NC dry contact) to replace the shunt installed in the factory.

When the contact is opened, the 24 Vac power supply is cut off, which has the effect of preventing the unit from operating (no display available). The motorised fresh air and exhaust air isolation dampers close by means of their automatic return spring. All actuators return to their rest position.



## 10. Condensate drainage

### 10.1. Drainage by gravity

As standard, the Zehnder Eversky ventilation unit is designed for gravity drainage of condensates (no high point). A siphon should be installed when the ventilation unit is installed.



**Failure to observe the installation rules for the condensate siphon can lead to an overflow of the condensate tray and internal flooding of the ventilation unit, which can cause damage to the equipment, malfunctions and may endanger occupants and staff.**

The position of the condensate drain and the type of connection interface are presented in chapter I.4 External connections.

Provide a slope of 2 to 3% towards the condensate drain to evacuate the condensate and ensure that the drain is neither under nor over pressurised.

### 10.2. Drainage by condensate pump (optional)

#### 10.2.1. General information

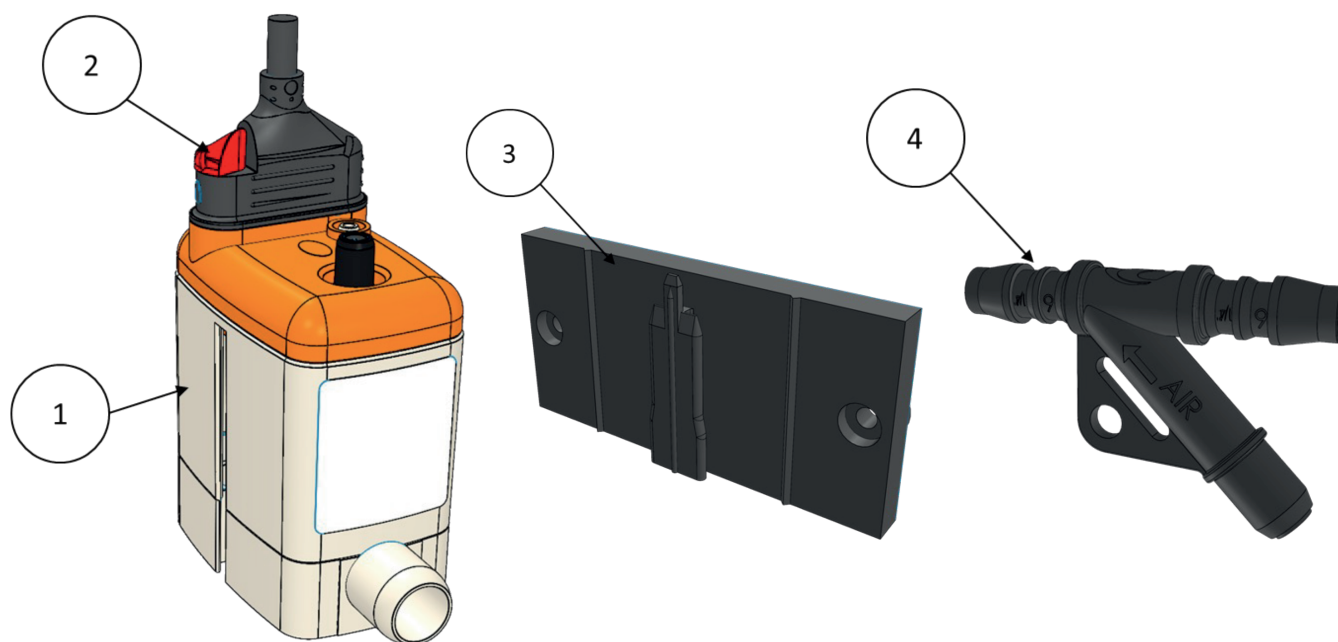
A lifting pump with installation accessories is available as an optional kit if gravity drainage of the condensate is not possible. The lifting pump enables the condensate to be drained at a higher level than the ventilation unit (e.g. on the roof, in a side room, etc.) or if there is a high point in the drainage line. The operation of the pump does not affect the acoustic qualities of the ventilation unit.



**Failure to observe the installation rules for the condensate pump kit can lead to an overflow of the condensate tray and internal flooding of the ventilation unit, which can cause damage to the equipment, malfunctions and may endanger occupants and staff.**



### 10.2.2. Composition of the condensate pump kit



Number	Description
1	Pump
2	Electrical cable with lockable connector
3	Mounting bracket
4	Anti-siphoning device
–	Fixing screws (x2)
–	Transparent PVC pipe (5 m in length, to be cut)
–	Clamp

### 10.2.3. Operating principle

The pump operates independently as soon as the central ventilation unit is switched on. It is equipped with a level controller that automatically switches the pump on and off depending on the level of condensate in the tank.

As standard, the pump incorporates a dry NC contact (normally closed) which opens when the water level in the condensate tray reaches a critical level, see XVIII GENERAL WIRING DIAGRAM. This contact is used to control the operation of the ventilation unit in case of abnormally high condensate levels and thus protect the equipment as well as occupants and staff.

#### 10.2.4. Maintenance

The condensate pump needs to be cleaned regularly with bleach to maintain the correct operation of the internal valves and the level detection device. The maintenance frequency should be adapted to the environment in which the ventilation unit operates.

At each maintenance operation (preventive and curative), check that the pump is working correctly and does not make any suspicious noises by forcing it to start up by pouring water into the condensate tray. The condition of the suction and discharge pipes and their connections should be checked.

#### 10.2.5. Performance and operating limits

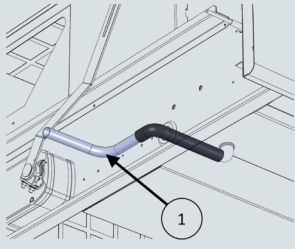
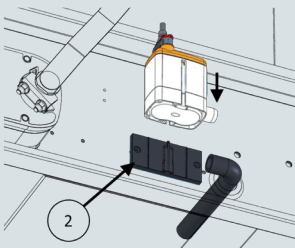
Maximum length	10 m
Maximum height difference	5 m
Maximum condensate temperature	+35 °C
Thermal overheating protection (automatic restart)	+115 °C
Overflow contact	NC (normally closed) 8 A resistive - 250 Vac
Power	14 W

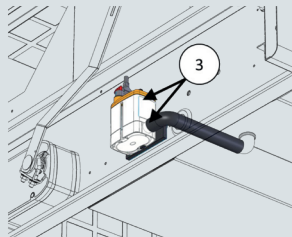
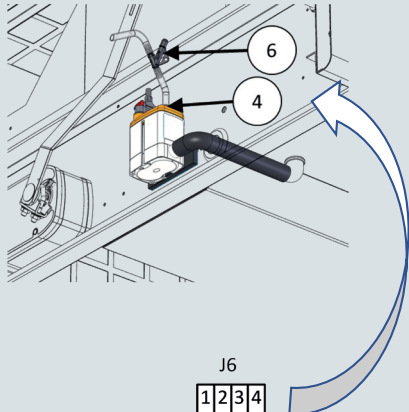
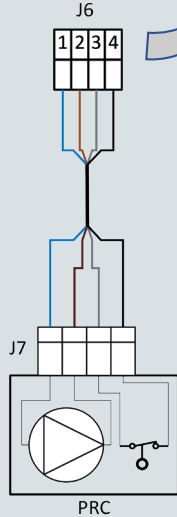
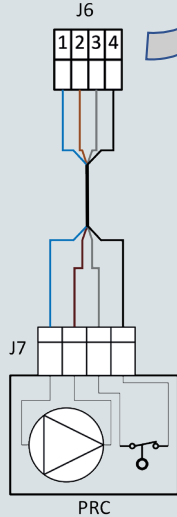
#### 10.2.6. Installation of the lifting pump

##### 10.2.6.1. Preliminary checks

First check the condensate tray and pipes for particles (metal chips, plaster/concrete debris) that may have been produced by the installation and transportation operation and remove them if necessary to avoid pump failure.

##### 10.2.6.2. Installation

Stage	Description	
1	Remove the section of pipe that comes as standard with the central ventilation unit for gravity flow without a high point.	
2	Fix the pump support to the pre-drilled wall (sheet metal screws x2).	

Stage	Description											
3	Position the pump on the bracket and insert the pump suction connection into the elbow sleeve.											
4	Install the clear PVC tube supplied in the kit on the pump's discharge connection.	 										
5	Pull the clear PVC pipe to the desired discharge point, taking care not to bend or pinch it. Fix it with Rilsan clips to prevent the weight of water from deforming it.											
6	Install the anti-siphoning device on the rising part of the discharge pipe after cutting it off and observing the installation rules (see chapter on Installation of the anti-siphoning device below).											
7	Connect the electric cable to the terminals of the J6 connector (available near the pump) according to the wiring diagram (see 18 GENERAL WIRING DIAGRAM) and removing the shunt connected between terminals (3) and (4) beforehand.											
8	Connect the connector to the pump and lock it.	 <table><tr><th>Terminal</th><th>Wire colour</th></tr><tr><td>1</td><td>Blue</td></tr><tr><td>2</td><td>Brown</td></tr><tr><td>3</td><td>Grey</td></tr><tr><td>4</td><td>Black</td></tr></table>	Terminal	Wire colour	1	Blue	2	Brown	3	Grey	4	Black
Terminal	Wire colour											
1	Blue											
2	Brown											
3	Grey											
4	Black											

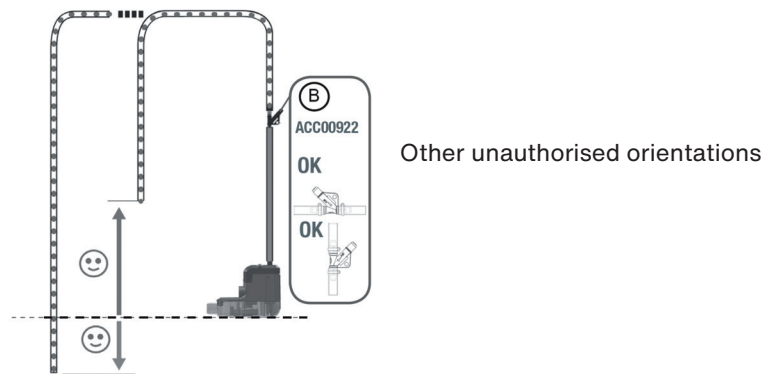


The condensate discharge pipe must never pass through a section that could cause the drained condensate to freeze.

### 10.2.7. Installation of the lifting pump

If the end of the discharge tube is below the level of the lifting pump, there is a risk of siphoning from the pump, which may lead to failure through repeated dry running. To avoid this, it is therefore necessary to install the anti-siphoning device supplied in the condensate pump kit.

The anti-siphoning device ensures that a sufficient water column is maintained in the pump's discharge tube when the pump stops. It should be installed higher than the pump, either vertically or horizontally, taking care to orientate it according to the following recommendations:



Recommendations for installing the anti-siphoning device

### 10.2.8. Operational test

Following the installation of the pump and its accessories, a test procedure is obligatory in order to check that the pump works properly and to avoid possible inconveniences.

Stage	Explanations
1	Clean the condensate tray of any debris (assembly residues, manufacturing residues, packaging residues, etc.) to prevent premature wear of the pumping system, clogging of the level detection chamber and clogging of the pump.
2	Gently pour water into the condensate tray using a bottle.
3	Check that the pump starts and stops properly to drain the spilled water. If too much is spilled, the overflow protection may be triggered and the regulator may be cut off. It will be necessary to wait for the level to drop before allowing the regulator to be powered again.

### 10.2.9. Diagnosis

If you have any problems, please check the following beforehand:

- The pump's suction and discharge tubes must not be pinched or obstructed
- The float inside the pump must not be blocked
- The pump's suction and discharge connections must not be blocked

Symptoms	Causes and remedies
The pump does not work, regardless of the water level in the tank	Check the pump's power supply and wiring
The pump runs continuously without a stop phase and sucks little or no condensate	Check that the discharge height does not exceed the maximum permitted height. Check that the suction tube is airtight and that no air is entering. Replace the pump if necessary.
The pump continuously cycles on and off	Stop the pump and check that the water column in the discharge tube does not fall. If it does fall, replace the pump.

## 11. GENERAL OPERATION

The Zehnder Eversky decentralised dual flow ventilation unit includes the following features as standard:

- **Management of the CO<sub>2</sub> content of the ambient air:**  
The control system continuously adjusts the speed of the supply and exhaust fans to maintain the CO<sub>2</sub> level in the room or space at a level compatible with comfort and hygiene requirements. As the measured CO<sub>2</sub> level is the image of the occupancy rate of the room, when the CO<sub>2</sub> level increases, the speed of the fans increases to increase the renewal, and vice versa. The energy consumed by the fans and the noise level of the unit are thus continuously optimised.
- **Management of thermal energy recovery:**  
Depending on the (adjustable) temperature setpoint, the control continuously adapts the heat recovery rate of the recovery unit in order to keep the room warm in cold periods, or cool in hot periods. When the conditions are met, the unit can deactivate heat recovery and switch to free cooling or free heating mode. The fully configurable night cooling function allows the air flow to be forced at night to lower the temperature of the room at the beginning of the day, thus improving thermal comfort and limiting energy consumption linked to the use of any additional devices (air conditioning, reversible heat pump, etc.).
- **Supply air heating management (if equipped with electric or hot water coil) PREMIUM or INFINITE versions):**  
Optionally, Zehnder Eversky can be fitted with a heating coil to maintain the thermal comfort of the room/place in which it is installed.
- **Protection against icing of the recovery unit by modulating bypass:**  
At low outside air temperatures, the flow rate of fresh air through the recovery unit is continuously optimised to avoid the recovery unit icing up and to maximise energy performance.
- **Fresh air preheating management (if equipped with a fresh air preheating coil) INFINITE version:**  
In order to maximise the operating range of energy recovery, especially in the cold season, Zehnder Eversky manages the preheating of the fresh air to avoid the recovery unit icing up.
- **Insulation:**  
The Zehnder Eversky ventilation unit is equipped as standard with motorised isolation dampers that close when the unit is switched off or in the event of a power failure to prevent any unwanted air flow between the room/place and the outside.

### 11.1. Start-up sequence of the unit

Start-up sequence:

- The return air fan or the VAR pressure control mode starts at the same time as the return air damper.
- The supply air fan or the VAS pressure control mode starts after a preset delay (20s) together with the fresh air damper.
- The temperature control starts according to the configured control mode. The electric heater (PREMIUM BE or INFINITE BE version), only starts if the fresh air flow control pressure switch (LIFO) allows it (VAS runback). Pumps that were not yet activated are switched on.
- After a preset time, the alarm management function is activated. The system is now in normal mode.

The system starts up when one of the following conditions is met:

- The time programme (clock) for normal or low speed is set to "On".
- The unit is started in manual mode from the controller.
- One of the digital inputs for forced operation is activated.

## 11.2. Stop sequence

The control unit shuts down according to the following procedure:

- Deactivation of the alarm management function
- Shut-down of the electric heater (PREMIUM BE or INFINITE BE versions).
- Shut-down of the fans after a certain period, which is individually defined for each fan:
  - VAS delay: 180s
  - VAR delay: 300s
- Closure of the fresh air and extracted air dampers.
- The signals to the actuators are set to zero.

The installation stops when one of the following conditions is met:

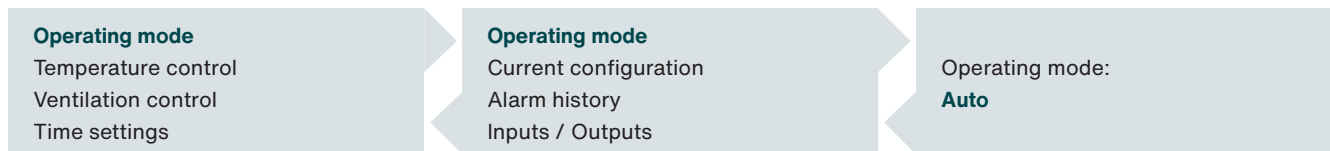
- No active time programme and no external forced operation (DI or BMS)
- Activation of the external stop command (DI)
- The system is shut down manually via the controller (manual shut-down)
- Appearance of an alarm configured to stop the control panel.

## 12. Start / Stop of the unit

The Zehnder Eversky is delivered as standard in Auto mode, i.e. the ventilation is controlled by the time programme or, if necessary, by an external forced operation. As soon as the unit is powered up, the switch on the front panel is in the ON position, and the starting conditions are met, the machine starts automatically. If you want to stop the fan unit, the Operating mode parameter must be changed from Auto to Manual stop.

Minimum access level: **User**

Access path:



For any maintenance operation or when you wish to work inside the unit, it is advisable to cut off the power supply by means of the isolating switch on the front panel after having switched the unit to manual stop mode and after having waited until the fans come to a complete stop (post-ventilation sequence). The main page of the HMI command shows "Ventilation stop" then "Stop", meaning total stop.

## 13. Starting up the unit

When starting up, the particular actions to be carried out are:

- Check the date and time setting of the controller and adjust if necessary
- Set the time programme
- Set the ventilation setpoints
- Set the temperature setpoints
- Set the communication protocol (if communication is used)
- Set specific functions (fire protection) if used

## 14. Setting the parameters of the controller and functions

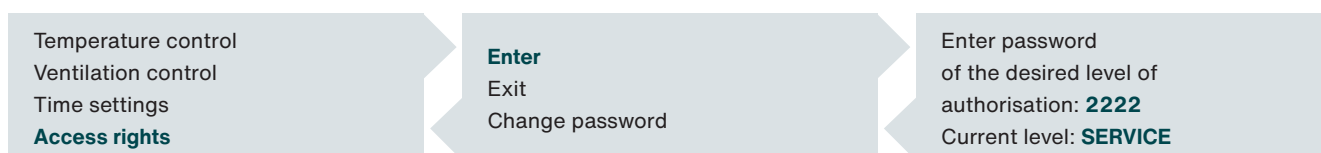
### 14.1. Access level selection

In order to avoid any accidental handling that could lead to a breakdown or poorly controlled operation of the central ventilation unit, access to the different functions and control features is managed by access levels.

Level	Code
User	None
Operator	3333
Service	2222
Expert/Admin	1111

Minimum access level: **User**

Access path:

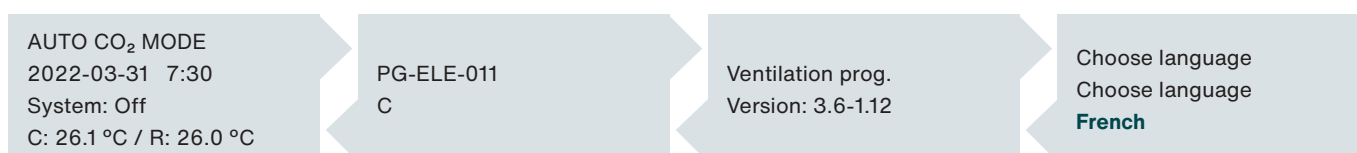


### 14.2. Selecting the display language

It is possible to change the written language of the user interface screen:

Minimum access level: **User**

Access path:



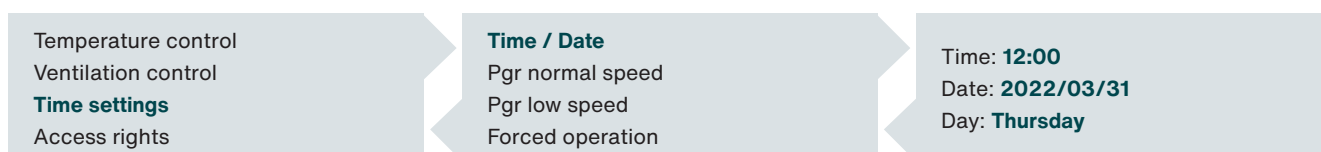
### 14.3. Setting the clock (RTC)

The controller includes an adjustable Real Time Clock powered by a small battery with an automatic summer/winter time change function (enabled by default). The setting is retained when the unit is not supplied with power, i.e. during storage, transport, and installation or in the event of a power failure.

The correct setting of the clock is a prerequisite for the correct operation of the Zehnder Eversky unit.

Minimum access level: **Operator**

Access path:



#### 14.4. Setting the time programmes

The operating principle of the Zehnder Eversky unit is to continuously adjust the airflow rate according to the CO<sub>2</sub> level measured in the room to be ventilated by acting on the speed of the fans in order to always optimise comfort and energy consumption.

The time programming is adapted to the type of occupancy of the room, and whether or not the Zehnder Eversky central unit needs to maintain thermal comfort in that room.

If thermal comfort is to be maintained because there is no room heating/cooling and the Zehnder Eversky unit is equipped with a heating coil, permanent ventilation with no shut-off times is preferred.

Conversely, if thermal comfort is provided by an existing heating/cooling system and there is no night-time occupancy, the machine can be switched off during this time if there is no minimum ventilation requirement (e.g. residual moisture removal, VOCs, etc.). It goes without saying that the absence of ventilation means that the room cannot be heated or cooled.

The time programming involves associating 2 adjustable ventilation levels (low speed\* / normal speed\*) with 2 adjustable time slots (period 1 / period 2), for all days of the week, and for the days included in the holiday period. The holiday period is defined by a start day/month and an end day/month. Up to 24 different periods can be set. By default, the 1st day of the year is a day that is part of the holiday period.

The time period associated with normal speed does not allow the airflow to be regulated according to the CO<sub>2</sub> level. In order for the CO<sub>2</sub> regulation to be active, the desired time period must be associated with "low speed". The low speed should therefore always be programmed at least during the day when the room is occupied, and the rest of the time if a minimum air exchange is required.

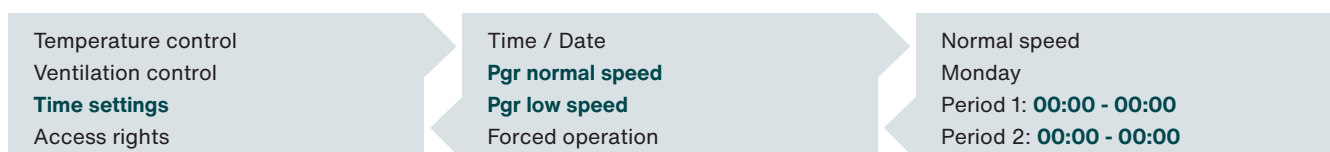
The night cooling function, set as standard to operate between 00:00 and 6:00 (if the activation conditions are met), is not activated if the unit operates at normal speed during this time slot.

When a low speed time slot and a normal speed time slot overlap, the normal speed time slot has priority over the low speed time slot.

When the Zehnder Eversky is in normal speed, the fans will run at the speed set in the "Fan control / output 1/1" setting.

Minimum access level: **Operator**

Access path:



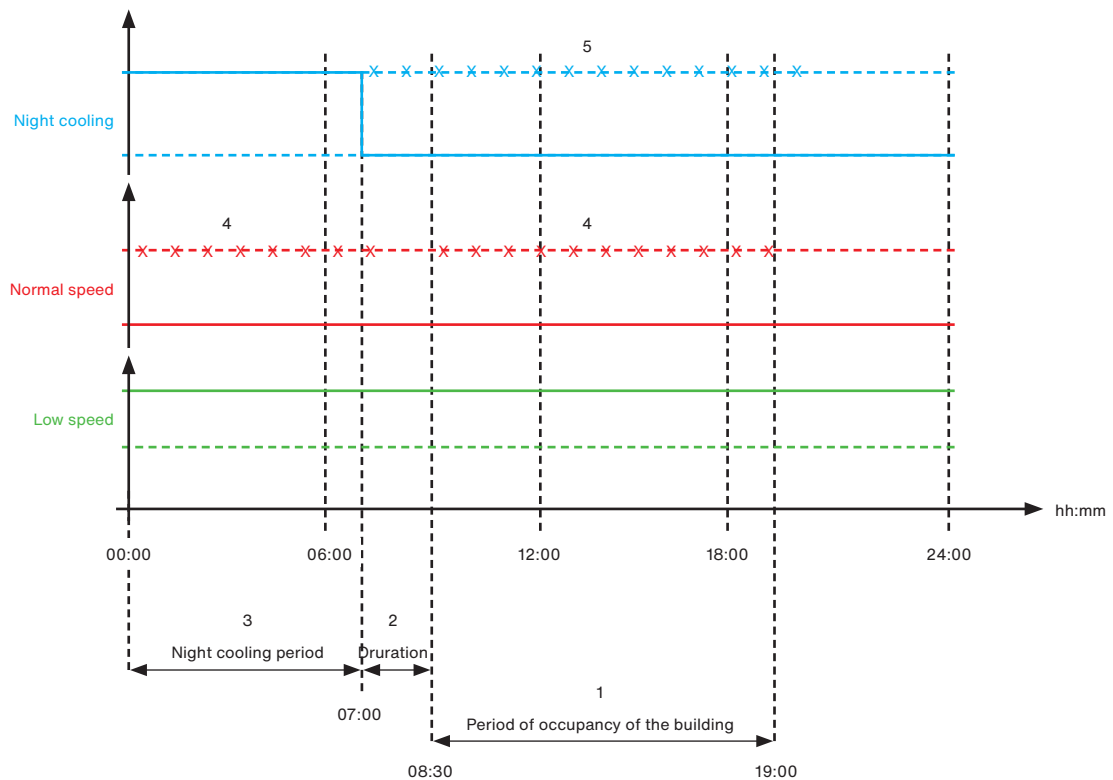
Precautions regarding the setting of time periods:

00:00 ... 00:00 means that the time period is not set

00:00 ... 24:00 means that the time period extends over the whole day, continuously.



Recommended settings:



In the diagram above, the crosses (x) indicate the time range during which the function should not be active. The night cooling time slot must start after 00:00 and end before 12:00.

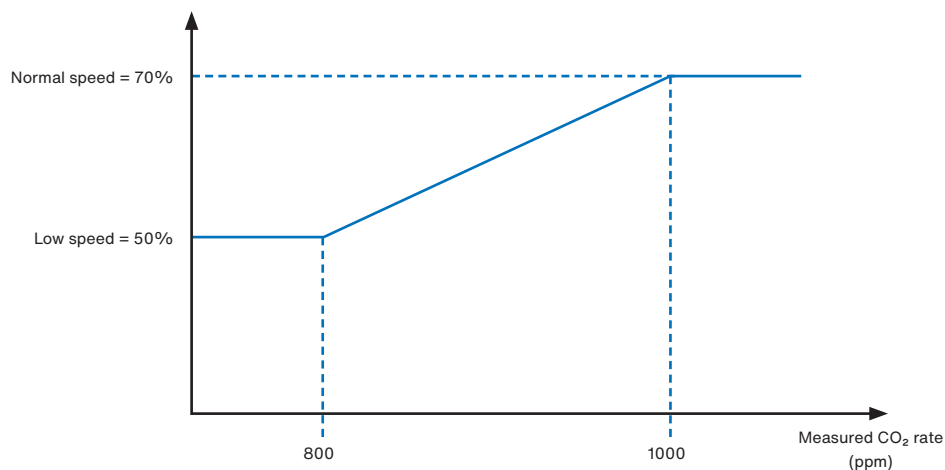
Week (Monday...Friday) (occupancy days):

1. Identify the period of occupancy of the room (e.g. 8.30...19.00)
2. There should be a delay of at least 1-1.5 hours between the end of night cooling and the beginning of the room's occupancy period (end of night cooling = 7.00 am).
3. Start the night cooling at around midnight. Too early = risk of having a building that is too cool in the morning (starting the function when the outside temperature is still too warm = poor ventilation efficiency), too late = risk of limited ventilation efficiency.
4. Normal speed must not be programmed during night cooling or building occupancy periods for the night cooling function to be activated and the CO<sub>2</sub> control function to work. It can be programmed for the rest of the time
5. The night cooling period should not be activated during the daytime or during the occupancy period.

#### 14.5. Ventilation setpoint adjustment and CO<sub>2</sub> management

The principle of CO<sub>2</sub> regulation is to control the speed of the fans (and therefore the airflow) according to the level of CO<sub>2</sub> in the air in the room. The higher the CO<sub>2</sub> level, and therefore the higher the occupancy rate, the faster the fans turn, and therefore the higher the airflow (air change). Comfort and air quality are maintained at all times.

The adjustment of the ventilation setpoints involves associating a minimum speed setpoint ("low speed" setpoint parameter) with a minimum (measured) CO<sub>2</sub> level, and a maximum speed setpoint ("normal speed" setpoint parameter) with a maximum (measured) CO<sub>2</sub> level. These two pairs allow us to construct the following regulation law:



When the measured CO<sub>2</sub> level is:

- Below 800 ppm (adjustable) the fan speed setpoint is equal to the minimum setpoint (=low speed)
- Above 1000 ppm (adjustable) the fan speed setpoint is equal to the maximum setpoint (=normal speed)
- Between 800 and 1000 ppm, the fan speed setpoint is calculated in relation to the straight line that passes through the 2 points.

Recommendation for setting the lower CO<sub>2</sub> threshold:

Ambient air contains a variable amount of CO<sub>2</sub> depending on the location. This concentration is generally above 300 ppm for a non-urban location and can exceed 700 ppm for a very dense urban location. Increasing the fan speed and thus the airflow rate will not lower the CO<sub>2</sub> concentration in the room below this "base" value.

It is therefore advisable not to set the CO<sub>2</sub> threshold for the low speed too far below the basic CO<sub>2</sub> concentration of the outside air in order not to generate unnecessary air exchange, which leads to energy consumption and noise pollution.

Recommendation for setting the upper CO<sub>2</sub> threshold:

The level of CO<sub>2</sub> in the air we breathe has a direct impact on the comfort and well-being of the occupants. Repeated and prolonged exposure to CO<sub>2</sub> concentration values above 1000 ppm can have adverse effects on the human body. This value of 1000 ppm will therefore be kept as a reference for the CO<sub>2</sub> threshold setting for normal speed.

If the ventilation unit is equipped with a heating coil to meet total heating needs, it may be recommended to increase the ventilation setpoints of low speed (in particular) and normal speed to maintain the room temperature if the heat losses of the room require it.

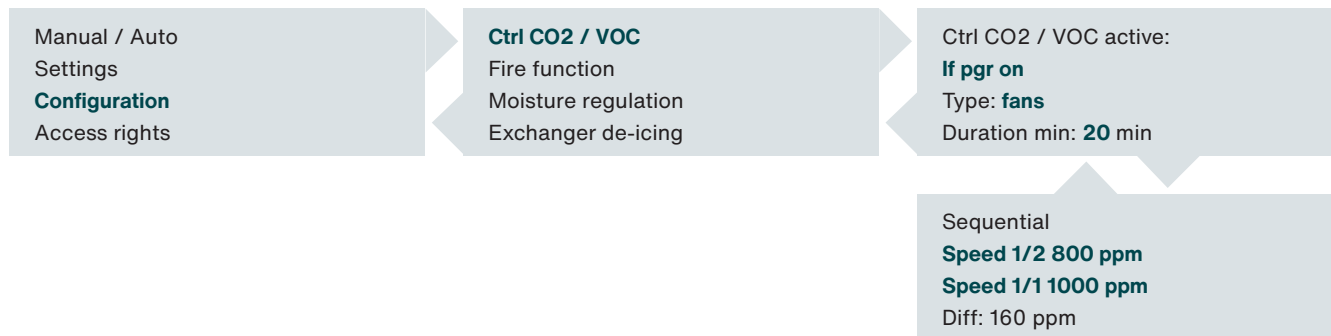
When the high CO<sub>2</sub> threshold (1000 ppm) cannot be maintained, especially when the room occupancy is high, it may be necessary to increase the normal speed setpoint.

If the unit is not equipped with a heating coil, the low speed setpoint can be reduced, but not below 30 %, to ensure:

- Removal of residual moisture from the room
- Correct operation of supply and extract air fans control of their operation.

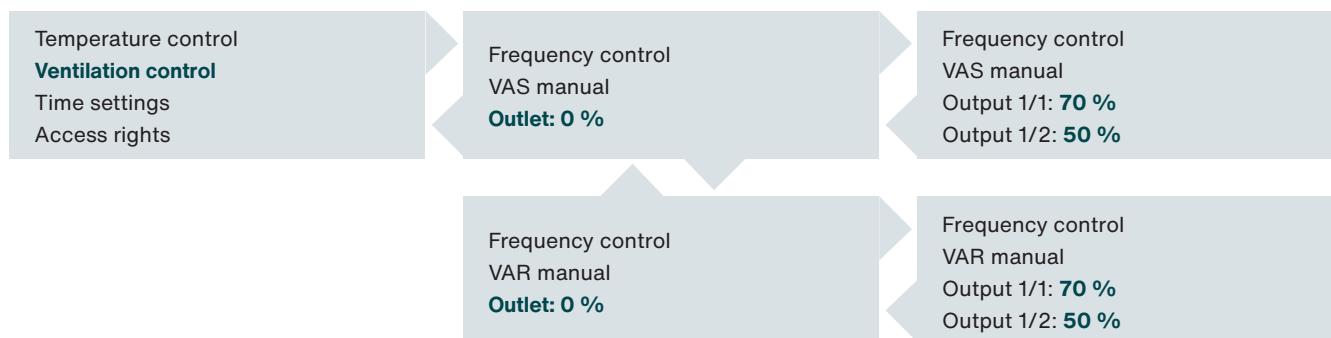
Minimum access level: **Service**

Access path to the CO<sub>2</sub> threshold settings:



Minimum access level: **Operator**

Access path to the fan speed parameters:



#### 14.6. Setting the temperature setpoints

The Zehnder Eversky unit offers 4 temperature management modes as standard:

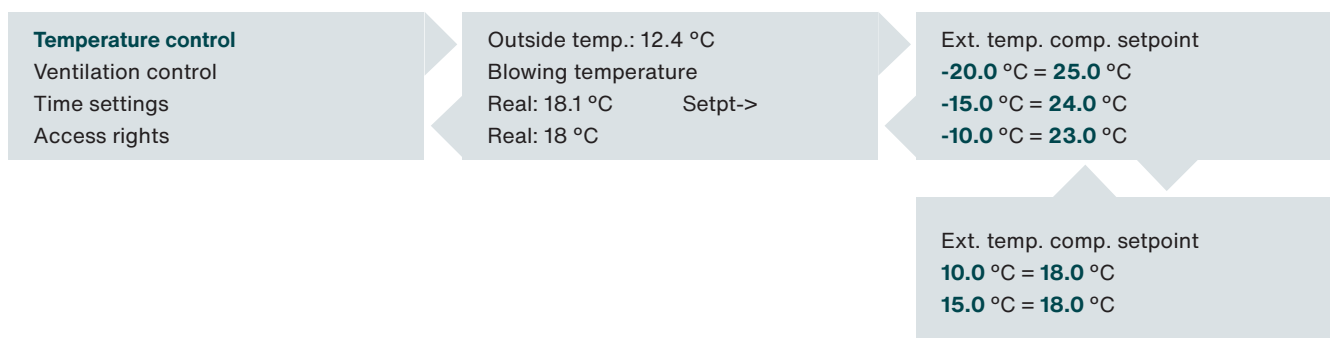
- Constant supply air temperature
- Variable supply air temperature (supply air law depending on outdoor temperature)
- Constant return air temperature
- Variable return air temperature (return air law depending on the outdoor temperature)

The choice of either temperature management mode depends on whether or not the room has a heating/cooling system and on the equipment (electric or water heating coil) in the Zehnder Eversky ventilation unit.

The Zehnder Eversky unit is factory-set to variable supply air temperature.

Minimum access level: **Operator**

Access path to the parameters :



#### 14.7. Setting the night cooling function

This function allows the room to be cooled at night using fresh outside air. This reduces the risk of temperature peaks during the day and the cooling power to be delivered during the day if a room cooling system is present.

The night cooling function is set as standard to operate from 00:00 to 07:00 (adjustable). When the Night Cooling function is active, the hot and cold outputs are deactivated, the exchanger switches to fresh air. An adjustable fan speed offset can be added to increase the flow rate and cooling efficiency of the room. When the Night Cooling function is switched off, the heating is deactivated for 60 minutes (adjustable).

Operating conditions:

- A period of less than 4 days has elapsed since the system was last switched on
- The outside temperature was above 22 °C during the day
- The clocks are set either to low speed or to off between 00:00 and 07:00 (the time programmes for normal speed, or forced normal speed or external control are off)
- It is between 00:00 and 07:00 (or set times)
- There is an active schedule for the next 24 hours

After 3 minutes' activation, the controller will check the shut-down conditions:

- The outdoor temperature is above 18 °C during the night cooling period
- The outdoor temperature is below 10 °C during the night cooling period to avoid condensation
- The room temperature is below 18 °C
- The time programmes for normal speed or forced speed or external control are on

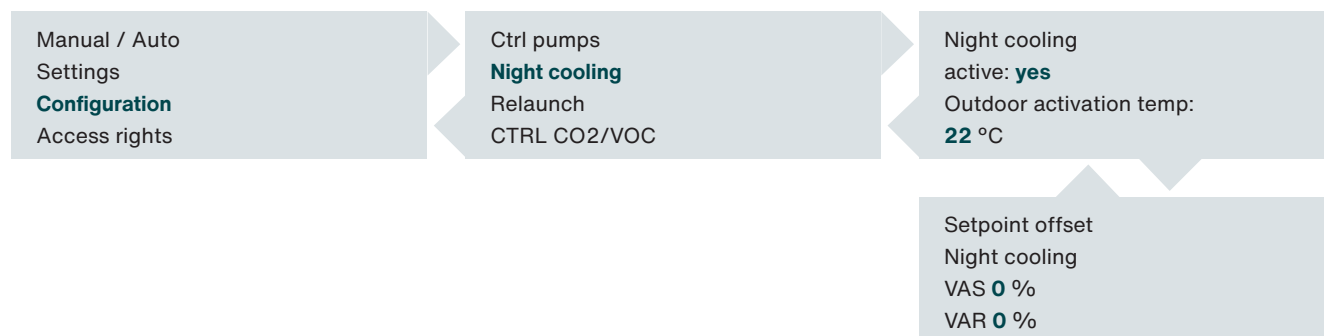
The unit goes through a shut-down phase each time it enters / exits the night cooling phase.

During the night cooling period, the fans operate at normal speed for a period that can be set.

CO<sub>2</sub> management is deactivated during the entire night cooling period.

Minimum access level°: **Service**

Access path to the parameters :



#### 14.8. Setting the fire function



**This function is not set up for the French market and its implementation must be validated by a supervisory office.**

This function manages the operation of the supply and return fans based on 5 modes available in the control unit settings (function can be activated locally).

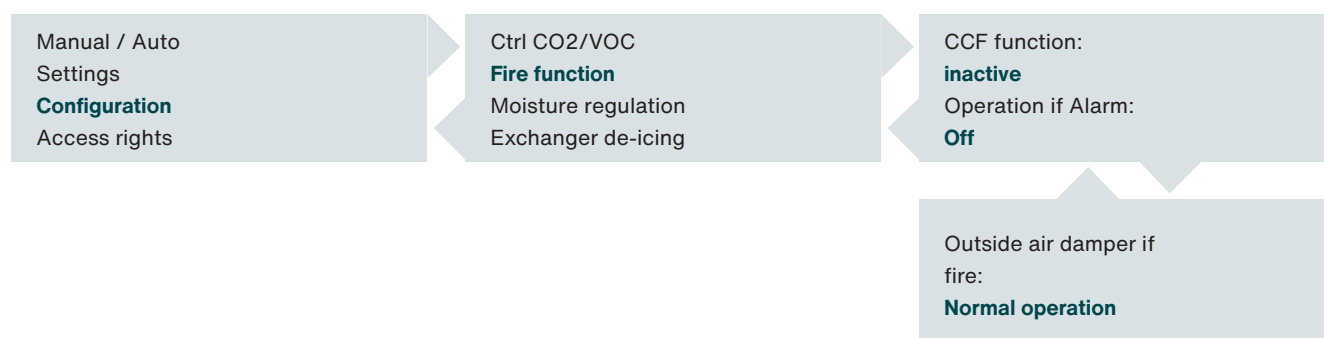
1. "Stop": Complete stop of the unit.
2. "Continuous operation": Start or maintain the control panel in high speed, The fire function will take priority over any other alarm
3. "Normal operation": Keeps the unit running according to the settings entered locally (Off/Low Speed/High Speed).
4. "Supply fan only": Starts or keeps the supply fan at high speed (air extraction off).
5. "Return fan only": Starts or keeps the return fan at high speed (air supply off).

When the fire protection function is activated, an alarm is registered and the text "Fire alarm" will be shown on the display.

The digital "external stop" input has priority over the fire function.

Minimum access level: **Expert/Admin**

Access path to the fire function settings:



#### 14.9. MODBUS RTU communication (RS485)

Communication via MODBUS RTU protocol is available as standard.

Its implementation must meet the following requirements:

- A maximum of 47 dampers can be read in a single message
- The master controller must wait a minimum of 3.5 characters (4 ms at 9600 baud) between two messages
- If there are several slave controllers on the same communication line, the master controller must wait a minimum of 14 characters (16 ms at 9600 baud) between the last controller response and the first question from the next controller
- Limit of 10 fast calls every 30 seconds
- Other communications have a response time of about 1s

Parameter	Factory setting	Possible values
Slave address	1	1...254
Length	8	8 only
Speed	9600 baud	150/300/600/1200/2400/4800/9600/19200
2 stop bits	YES	YES (2 bits) / NO (1 bit)
Parity	None	None / even / odd

The maximum communication speed depends on the length and quality of the communication cable.

The list of read/write variables is provided in Chapter XXV VARIABLE EXCHANGE TABLES.

#### 14.10. BACnet MS-TP communication (RS485)

Communication via Bacnet MS-TP protocol is available as standard.

MS-TP BACnet cannot be operational if IP BACnet is enabled. If IP Bacnet and MS-TP BACnet are enabled, MS-TP BACnet will be automatically disabled - IP BACnet is prioritised.

Parameter	Factory setting	Possible values
Device name	CorrigoVentilation	
MAC	0	
Lower appliance ID	2640	
Upper appliance ID (x 10000)	0	
Speed	9600 baud	9600/19200/38400/76800/115200
Max. master address	127	

The maximum communication speed depends on the length and quality of the communication cable.

The list of read/write variables is provided in Chapter XXV VARIABLE EXCHANGE TABLES.

#### 14.11. MODBUS TCP communication

The MODBUS TCP protocol is enabled by default. It is automatically disabled when IP BACnet is enabled, and vice versa. At least one of these two protocols is therefore always active.

In MODBUS TCP, the port number is always 502 (not adjustable) and the device ID is 1 by default.

DHCP is enabled by default.

The MODBUS TCP protocol requires the following parameters to be set:

IP settings		
<b>DHCP</b> (Dynamic Host Configuration Protocol)	YES/NO	When DHCP is enabled, the IP settings are assigned automatically when the device starts up via the DHCP server on the subnet. A dynamic IP address will then be assigned to the device. If DHCP is not activated, the IP settings (IP address/network mask/gateway/DNS) must be assigned manually.
<b>IP</b>	Example: 192.33.50.120	
<b>Subnet mask</b>	Example: 255.255.255.0	
<b>Gateway</b>	Example: 192.33.50.40	
<b>DNS</b>	Example: 192.33.50.5	
Modbus TCP protocol settings		
<b>Device ID</b>	CorrigoVentilation	Name of the device on the Bacnet IP network

\*The device ID is to be set according to the BMS requirements (recommended setting between 1 and 247) from the Communication/Port 1 Function/Modbus Communication menu (the device ID is shared between the RS485 port and the TCP-IP port).

#### 14.12. Bacnet IP communication

If IP Bacnet and MS-TP Bacnet are enabled, MS-TP Bacnet will be automatically disabled - IP Bacnet is prioritised.

When IP Bacnet is enabled, Modbus TCP is automatically disabled, as both protocols share the same port.

The Bacnet IP protocol requires the following settings:

IP settings		
<b>DHCP</b> (Dynamic Host Configuration Protocol)	YES/NO	When DHCP is enabled, the IP settings are assigned automatically when the device starts up via the DHCP server on the subnet. A dynamic IP address will then be assigned to the device. If DHCP is not activated, the IP settings (IP address/network mask/gateway/DNS) must be assigned manually.
<b>IP</b>	Example: 192.33.50.120	
<b>Subnet mask</b>	Example: 255.255.255.0	
<b>Gateway</b>	Example: 192.33.50.40	
<b>DNS</b>	Example: 192.33.50.5	
IP Bacnet protocol settings		
<b>Device name</b>	CorrigoVentilation	Name of the device on the Bacnet IP network
<b>BBMD address</b>		
<b>Lower appliance ID</b>	2640	The concatenation of the lower ID and upper ID gives the controller ID (000002640 or 2640)
<b>Upper appliance ID (x 10000)</b>	0	
<b>Upper UDP port number</b>	7808	Concatenating the lower and upper UDP port number gives the UDP port number (47808)
<b>Upper UDP port number (x 10000)</b>	4	

The list of variables that can be read/write is available in Chapter 25 Exchange Tables of Variables.

## 15. Backup / Restore Settings

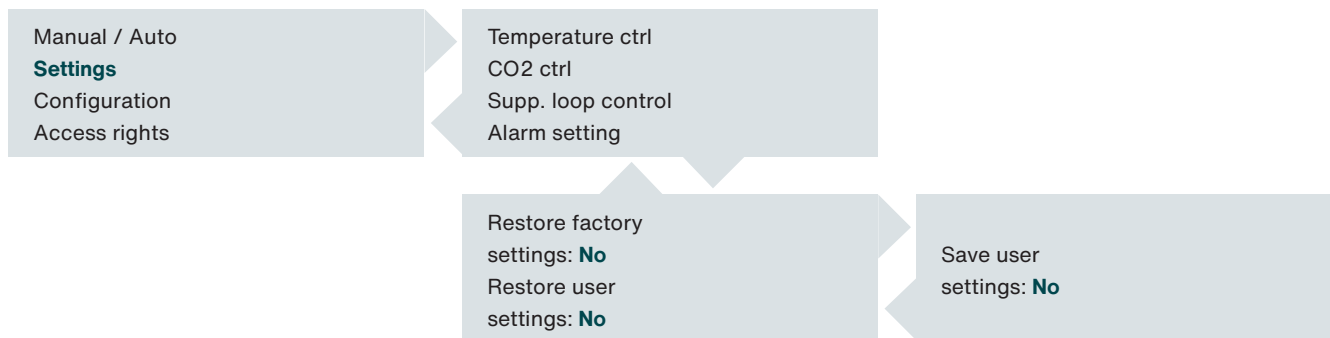
### 15.1. User settings

This function is particularly useful when the commissioning and adjustment of the machine is completed and it is desired to save all the user parameters so that they can be recalled at a later date, for example in the event of an accidental change in the parameters that causes a malfunction of the unit.

The user settings ex-works are identical to the factory settings. If the restoration of user settings is called and no prior backup has been made, the restored settings will be the factory settings.

Minimum access level: **Service**

Access path:



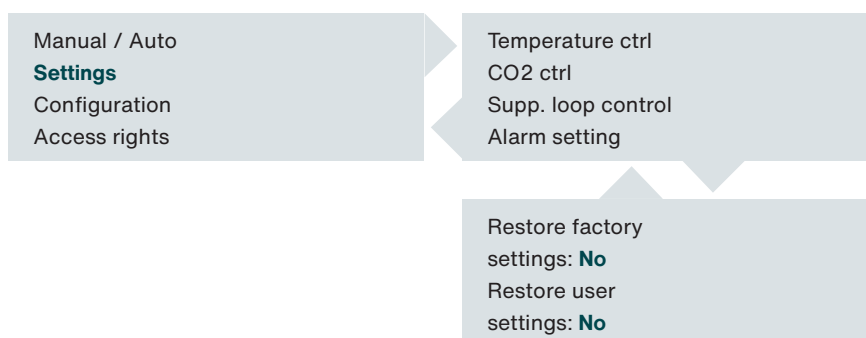
### 15.2. Factory settings

Unlike the user settings, it is not possible to save the factory settings and only the restore function is possible.

When the restoration is called, all settings changed by the user on site are lost and the controller restarts with the factory default values. This is particularly useful in cases where unidentifiable user settings have been changed and saved with inappropriate values, making the machine unusable.

Minimum access level: **Service**

Access path:





## 16. Troubleshooting - Maintenance

### 16.1. Supply air filter pressure switch (fresh air) DEPFS

#### 16.1.1. Setting the tare

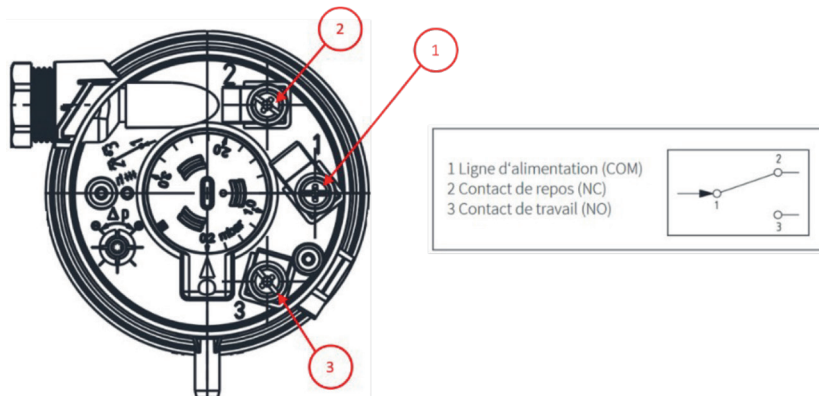
The condition of the supply air filters (fresh air) is continuously monitored by an air pressure switch which informs the controller of the pressure drop. When the filter pressure drop exceeds the pressure switch setting, the controller informs the user by means of a warning.

The user settings ex-works are identical to the factory settings. If the restoration of user settings is called and no prior backup has been made, the restored settings will be the factory settings.



#### 16.1.2. Electrical connections

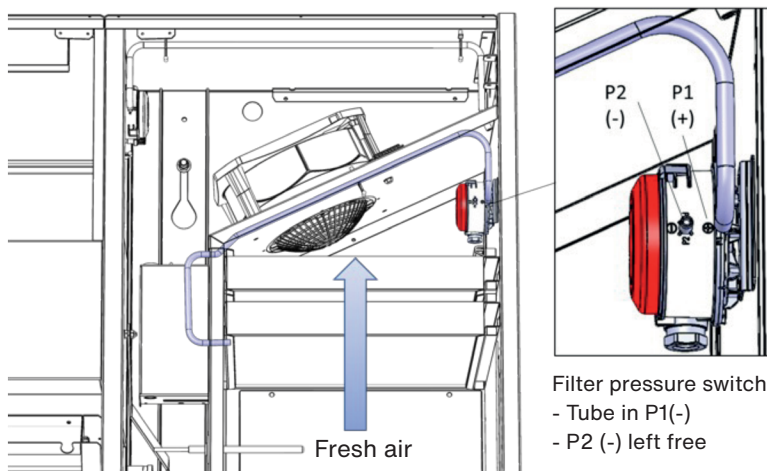
The pressure filters are of type NO (normally open). The contact is open at rest and closes when the pressure drop of the filters (differential pressure) is higher than the setting (200 Pa ex works).



The pressure switch must be connected between terminals (1) and (3) according to the electrical wiring diagram.

#### 16.1.3. Air connections

In the event of replacement or removal of the component, the air connection must be respected during re-installation as described in the table below:



Filter pressure switch:  
 - Tube in P1(-)  
 - P2 (-) left free

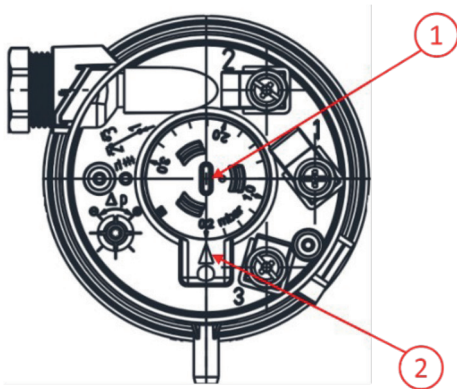
## 16.2. DEPS and DEPR fan runback pressure switches

The operation of the supply and extractor fans is continuously monitored by two air pressure switches which inform the controller whether or not there is sufficient air pressure.

### 16.2.1. Setting the tare

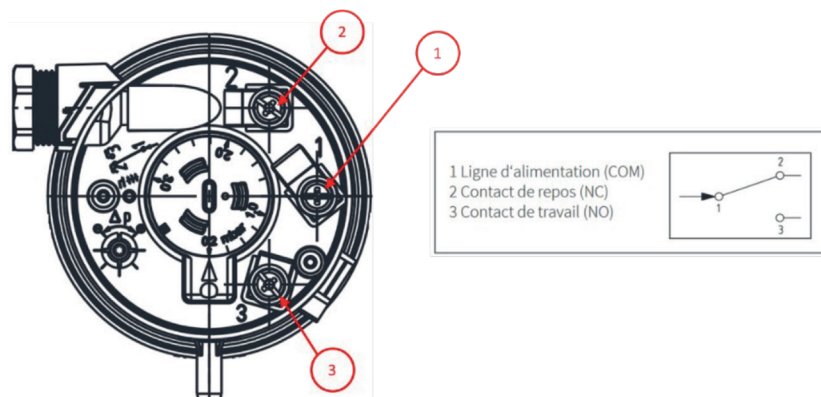
The nominal setting of the fan runback pressure switches is 25 Pa. There is no need to change the factory setting. This setting must be respected when replacing a component that can be delivered with a different setting.

The adjustment is made simply with a flat-head screwdriver by turning the central element (1) so that the arrow (2) is aligned with the setpoint value.



### 16.2.2. Electrical connections

The pressure switches are of type NO (Normally Open). The contact closes when the differential pressure generated by the air flow exceeds the pressure switch setting (25 Pa ex works).



The pressure switches must be connected between terminals (1) and (3) according to the electrical wiring diagram.

### 16.2.3. Pressure switch

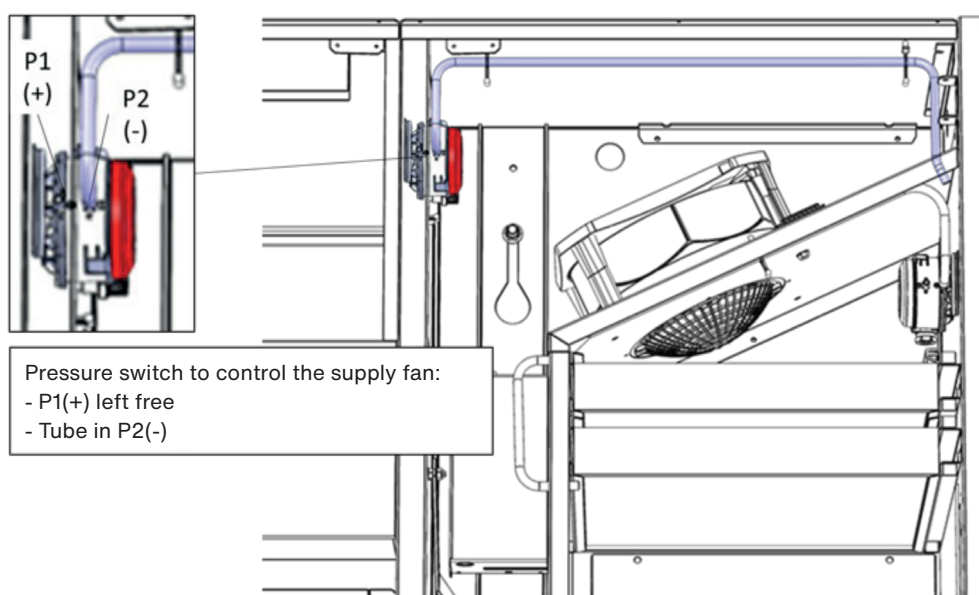
In the event of replacement or removal of the component, the air connection must be respected during re-installation as described in the table below:

The operation of the fresh air and return air fans is controlled by air pressure switches that inform the control unit of the correct operation of the fans.

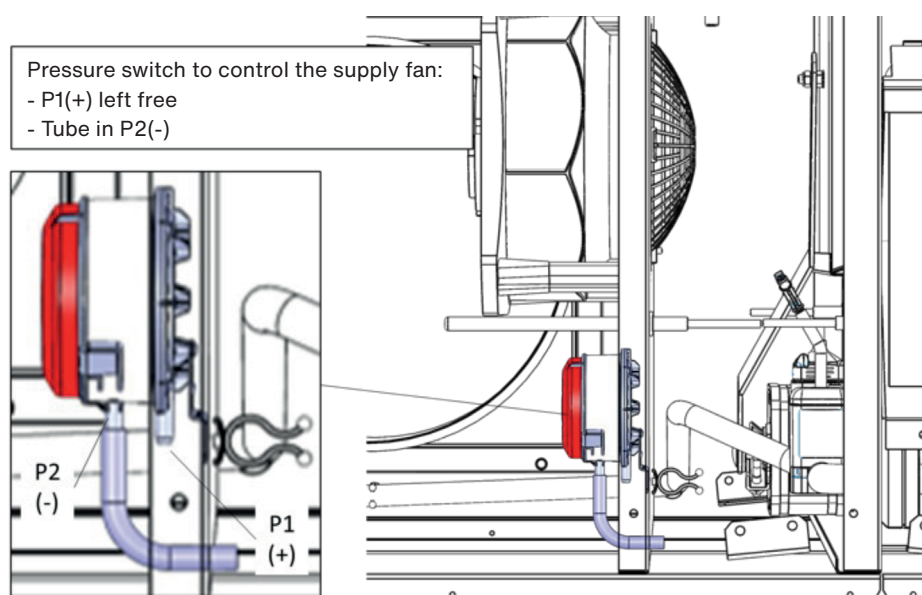
These pressure switches are of type NO (Normally Open). At rest, the contact is open. It closes when the differential pressure exceeds the set value (25 Pa ex works).

In the event of replacement, the setting, the position of the electrical connections and the transparent pressure test tubes must be observed.

#### Supply fan

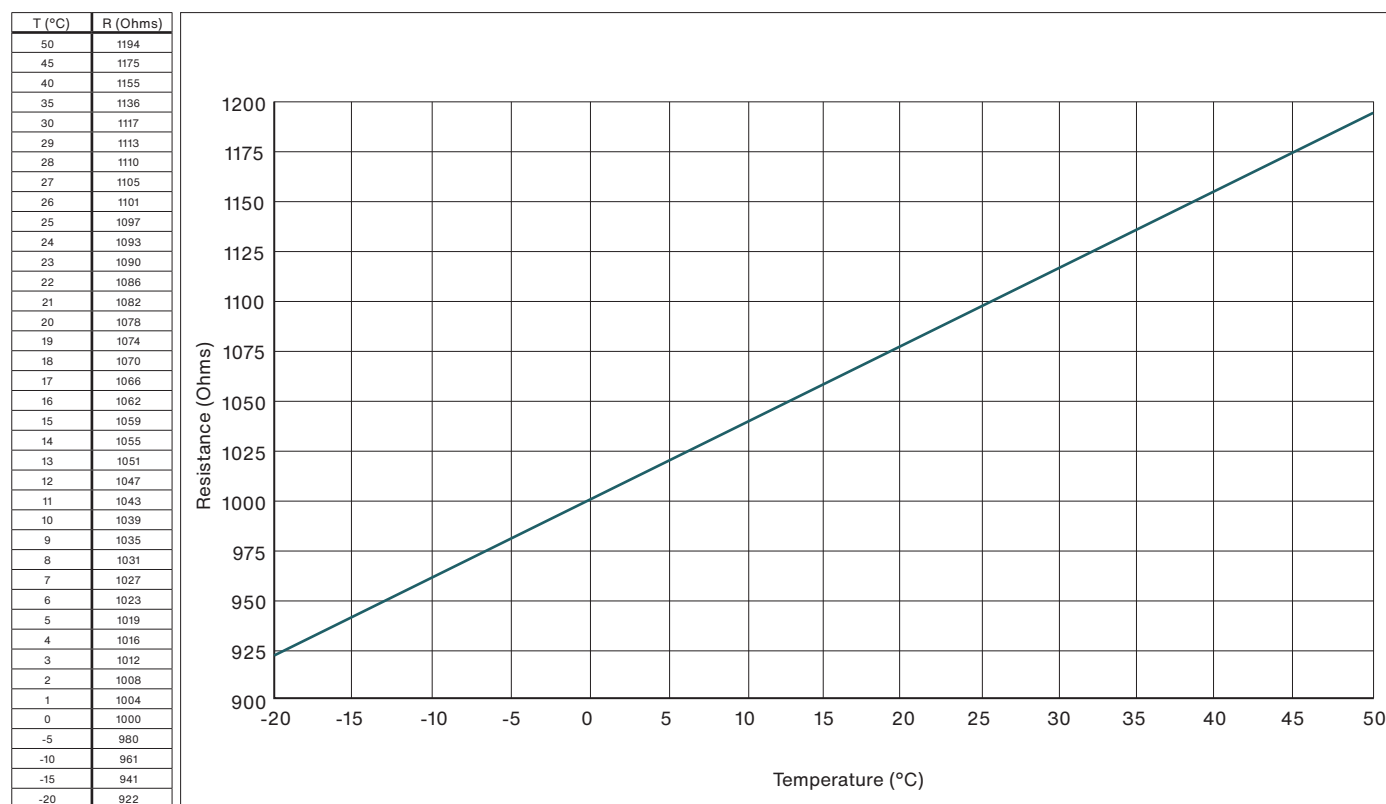


#### Extraction fan



### 16.3. PT1000 temperature sensors

The temperature sensors are of type PT1000. The location of each temperature sensor is shown in Chapter VII.1 General composition. The curve below shows the typical resistance of the sensing element as a function of its temperature.

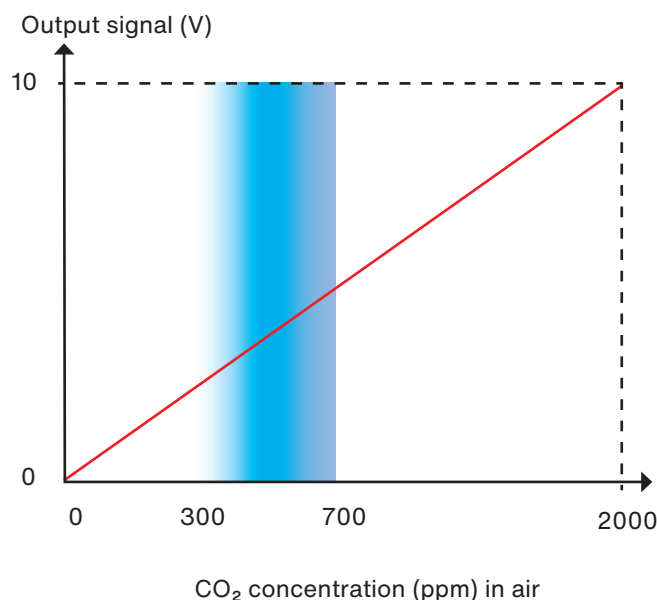


The sensor can be checked simply with an ohm meter and a reference thermometer. The resistance measured across the (disconnected) sensor lead must be within  $\pm 3\%$  of the resistance value tabulated above for the equivalent temperature measured by the reference sensor. If necessary, the sensor must be replaced. If the sensor control is good, but the control displays an incorrect value, the problem may be a faulty connector or an incorrect offset that has been configured.

## 17. CO<sub>2</sub> concentration sensor

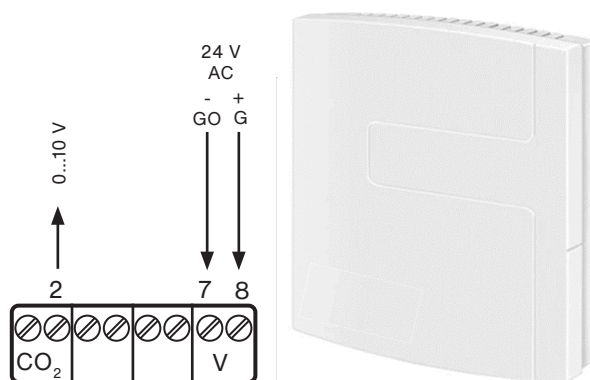
The CO<sub>2</sub> sensor is sited in the air extraction circuit (see chapter VII.1 General composition) and must not be moved. It informs the controller of the CO<sub>2</sub> concentration in the room, which then adjusts the fan speed accordingly.

The CO<sub>2</sub> sensor transmits the image of the CO<sub>2</sub> concentration (ppm) contained in the extracted air in the form of an analogue 0-10 V signal that can be interpreted by the controller:



Ambient air naturally contains a variable amount of CO<sub>2</sub> depending on the location. This concentration is generally above 300 ppm for a non-urban location and can exceed 700 ppm for a very dense urban location.

The output signal of the CO<sub>2</sub> sensor is therefore never zero and should normally always be greater than 3 V. If this is not the case, there may be a problem with the sensor or the connection.

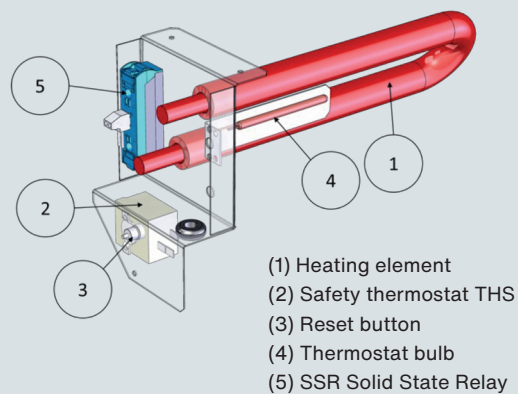


Visual representation of the CO<sub>2</sub> sensor and the electrical connection terminals

The 24 Vac supply is between terminals (7) and (8) and the 0-10 V analogue output signal is on terminal (2).

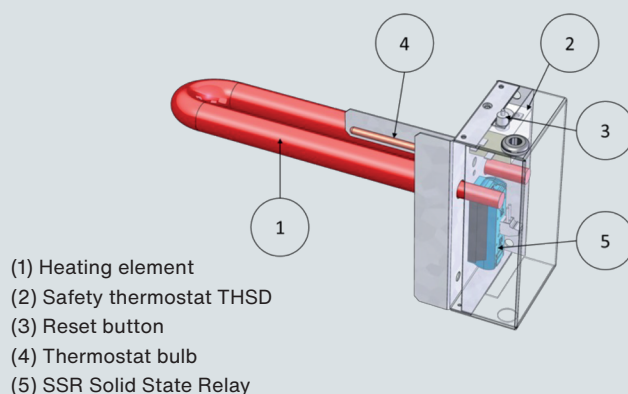
### 17.1. Electric heating coil (BE)

	500	750	900	1100
<b>Rated voltage</b>	~1 - 230 Vac – 50 Hz			
<b>Rated current</b>	4,3 A	5,4 A		
<b>Rated power</b>	1000 W	1250 W		



### 17.2. Defrost coil (DBE)

	500	750	900	1100
<b>Rated voltage</b>	~1 - 230 Vac – 50 Hz			
<b>Rated current</b>	4,3 A	5,4 A		
<b>Rated power</b>	1000 W	1250 W		



### 17.3. Safety thermostats THS and THSD

The safety thermostats THS and THSD protect the electric heating and preheating coil (if fitted) and their immediate surroundings from excessive overheating, e.g. in the event of a failure of a control element (contactor, solid-state relay, controller, etc.) or of the supply fan.

#### 17.3.1. Location

The safety thermostat THS is located on the heater support plate, see XVII.1 Electric heating coil (BE).  
The THSD safety thermostat is located on the heater support plate see XVII.2 De-icing coil (DBE).

#### 17.3.2. Electrical connections

The safety thermostats THS and THSD are of type NC (Normally Closed). The contact opens when the bulb temperature exceeds 90 °C (not adjustable). The electrical connection is made between terminals (C) and (2) according to the wiring diagram, see XVIII GENERAL WIRING DIAGRAM.



### 17.3.3. Manual reset

When the thermostat has tripped due to overheating detection, it must be manually reset it by pressing the white button after removing the protective cap. Until the reset has been performed, the fan unit will not be able to restart and the alarm (23) "electric battery overheating" will always be present.

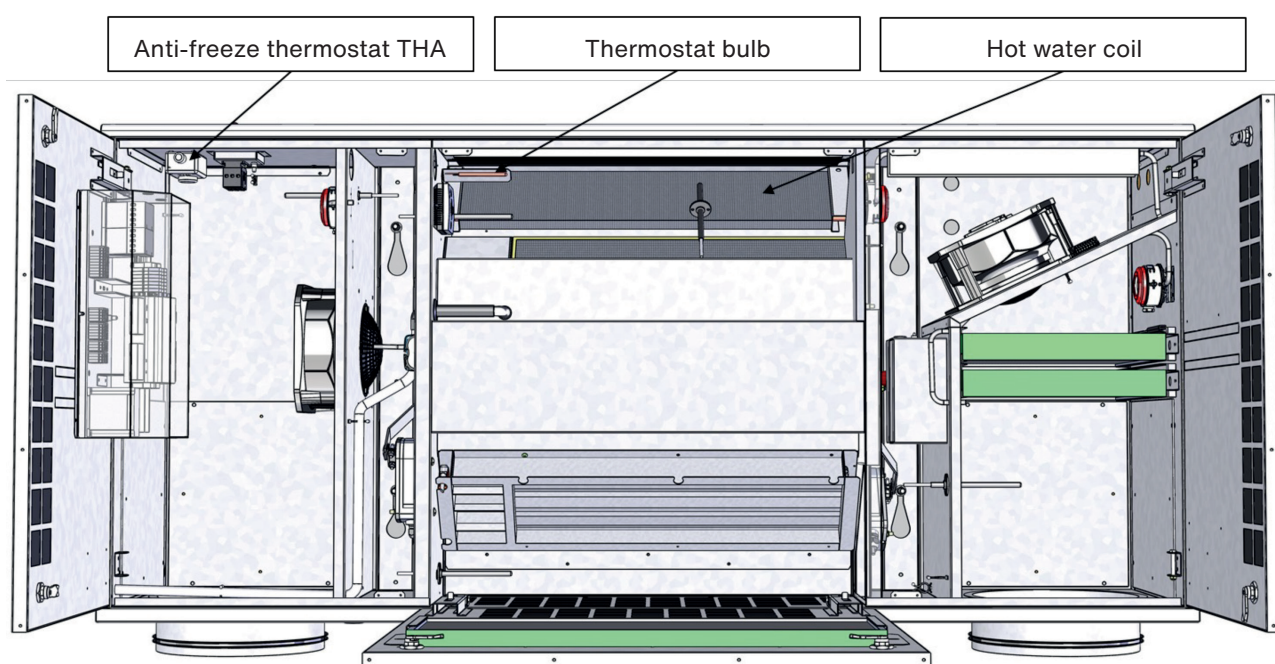
Before manually resetting the thermostat THS, the cause of the malfunction must be understood and remedied.

### 17.4. Anti-freeze protection thermostat THA (hot water coil)

The anti-freeze protection thermostat THA protects the hot water coil from freezing in the event that the hot water production system (device external to the ventilation unit) is not operating and the ventilation unit is operating in full fresh air mode during periods of low outside temperature (below +5 °C).

When the thermostat THA triggers (the contact opens), the fan unit stops and the DO3 hot water pump output is activated to force the heating coil to heat up. When the bulb temperature rises above +5 °C, the contact closes and the fan unit restarts normally.

#### 17.4.1. Location



Location of the anti-freeze thermostat THA and its bulb (central view from below)

The anti-freeze thermostat THA is located in the control compartment near the main switch. Its bulb is positioned on the hot water coil.

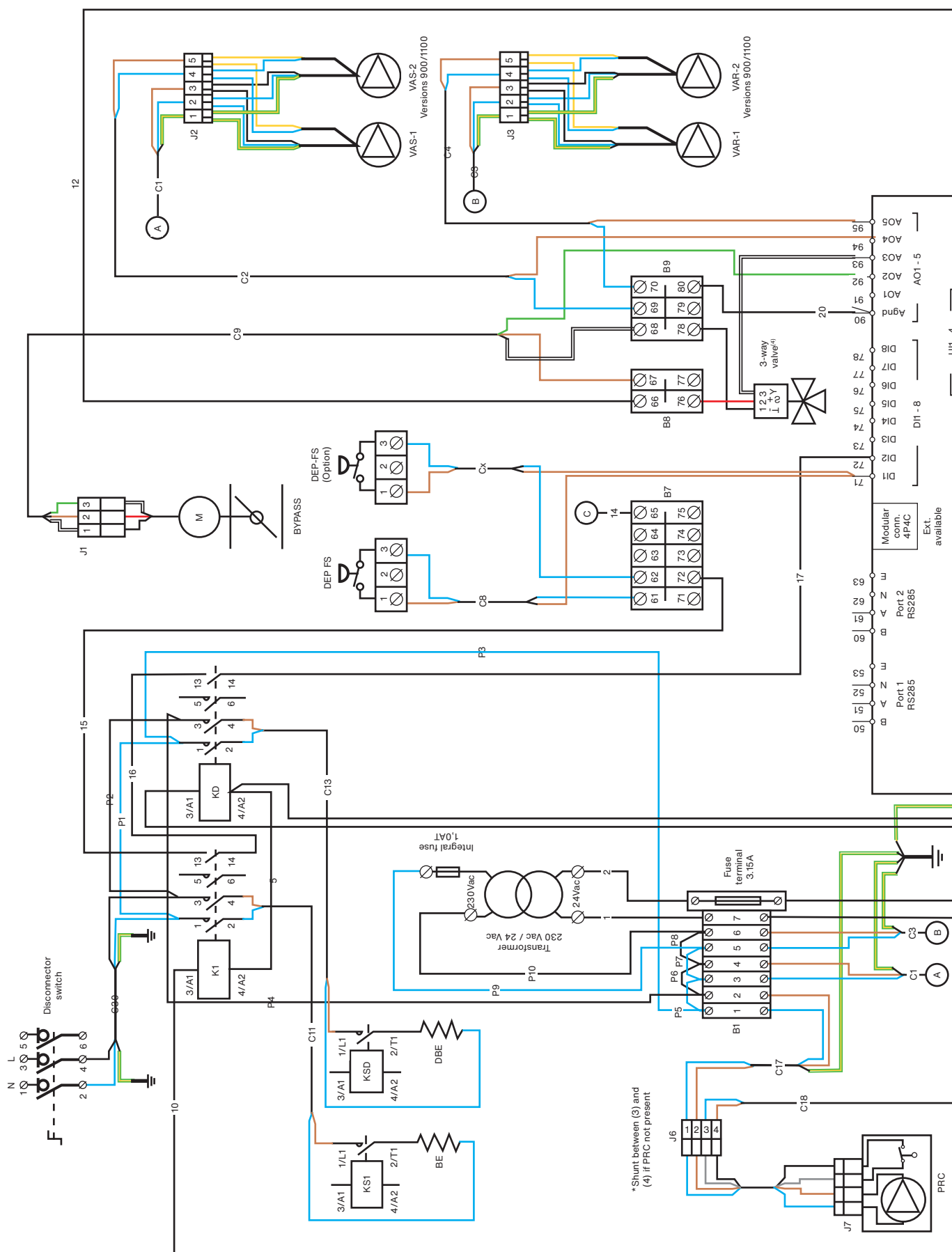
#### 17.4.2. Nominal setting of the trip point

The thermostat THA is set to +5 °C at the factory.

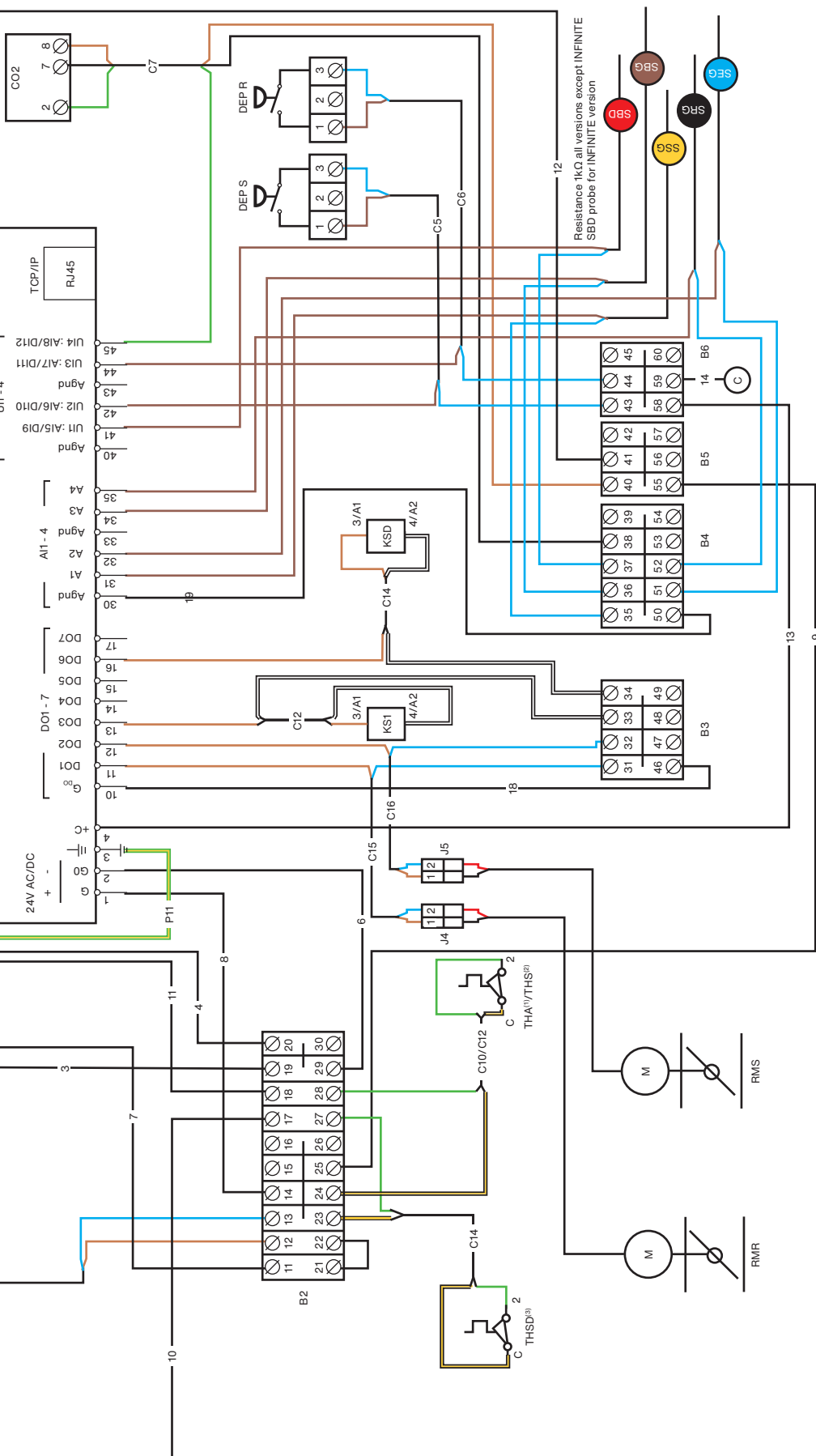
#### 17.4.3. Electrical connections

The anti-freeze protection thermostat THA is of type NC (Normally Closed). The contact opens when the bulb temperature falls below 5 °C. The electrical connection is made between terminals (C) and (2) according to the wiring diagram in chapter XVIII GENERAL WIRING DIAGRAM.

## 18. General wiring diagram

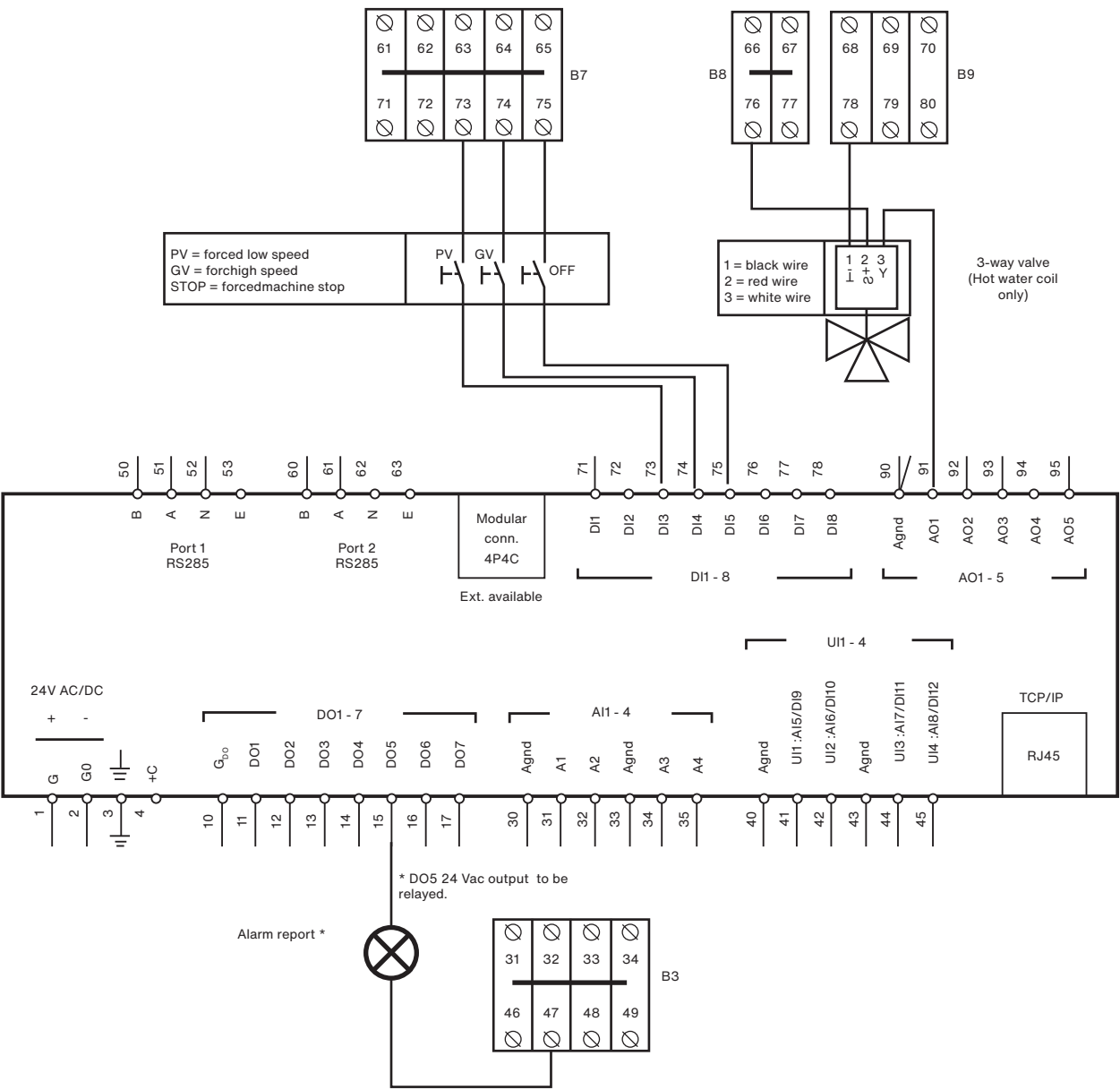






- (1) THA: Hot water coil anti-freeze thermostat (Premium BC version)
- (2) THS: Electric heating coil safety thermostat (Premium BE and Infinite BE versions)
- (3) THSD: Electric coil safety thermostat for fresh air preheating (Infinite BE and Infinite BC versions)
- (4) 3-way valve: to be connected by the installer (Premium BC version)

19. Customer connections wiring diagram



## 20. Periodic maintenance

### 20.1. General information

The maintenance and decommissioning of the installations must be carried out under conditions that ensure compliance with the applicable regulatory environmental requirements. Maintenance must be carried out at least once a year or as required by applicable regulations (fire safety, etc.). Depending on the installation and operating conditions, the inspection interval may be reduced. The warranty will be void if the maintenance instructions are not followed.

Before commencing any maintenance or repair work, it is imperative that the power supply is switched off and that it cannot be inadvertently switched on again (lock the proximity switch in the off position for this purpose).

Servicing and maintenance work must be carried out by qualified personnel equipped with the appropriate tools and equipment (personal protective equipment, multimeter, etc.).

Component	Interval	Action

## 21. Troubleshooting

First of all, check that the electrical connectors and terminal blocks are correctly connected and tightened and that this operation has not been omitted during the start-up phase of the equipment. Also check the tightness of the screw connectors.

Defective parts must be replaced exclusively with original components in order to comply with the regulations applicable to the product. The replacement of defective parts with non-original parts will result in the loss of the manufacturer's warranty for the entire equipment.

### 21.1. Simplified diagnostic method

The table below provides a simple diagnostic method that can be used to address a malfunction of the ventilation unit:

Symptoms	Possible causes
<p><b>The fans do not work and the green P/B LED on the controller is off (as well as the HMI)</b></p> <p><b>Check that there is 24 V AC voltage between terminals "G" and "G0" of the controller.</b></p>	<ol style="list-style-type: none"> <li>The 3.15 A T fuse on the fuse holder terminal is defective:               <ol style="list-style-type: none"> <li>Check that the customer digital outputs (DO5/DO7 of the controller) are relayed and do not supply any consumer component directly. The current is limited to 100 mA on each DO output.</li> <li>Check that there are no short circuits on the AO1... AO5 outputs of the electronic controller.</li> </ol> </li> <li>The fuse in the 230 Vac/24 Vac control transformer is defective:               <ol style="list-style-type: none"> <li>Check that there is no short circuit in the 24 Vac control section.</li> </ol> </li> <li>The water level in the condensate tray is too high and the overflow sensor has been tripped:               <ol style="list-style-type: none"> <li>Check that the lifting pump is working properly</li> <li>Check that there is no obstruction in the condensate drain line</li> <li>Check that there is a shunt between terminals (3) and (4) of connector J6.</li> </ol> </li> <li>An external device (e.g. remote fire stop or equivalent) is wired between terminals (21) and (22) of terminal block (B2) and removes power from the controller. This device must be reset after taking the necessary safety precautions.</li> </ol>
<p><b>The fans are not working and the green P/B LED on the controller is lit (as well as the HMI)</b></p>	<ol style="list-style-type: none"> <li>Check for active alarms (see XXI.10 Presence of active alarms)</li> <li>Check the time programme</li> <li>Check that there is no external stop request (open circuit between terminal (75) of terminal block (B7) and DI5)</li> <li>Check that the low speed and normal speed set points are greater than 30%.</li> </ol>

\*The ventilation unit is correctly powered and the isolating switch on the front panel is in the ON position.

### 21.2. Classification of alarms

Each alarm is defined by a class (A, B, or C).

The alarm class defines how the alarm (or fault) is acknowledged.

Alarm class	Description
<b>A</b>	The cause has disappeared and the alarm must be manually acknowledged.
<b>B</b>	<p>In the controller, if the alarm is manually acknowledged before the cause has disappeared, this manual acknowledgement request is recorded, and the machine will automatically restart when the cause has disappeared.</p> <p>Class A and B are identical. What is needed is to be able to make a distinction between actions for the same type of reset.</p>
<b>C</b>	The alarm is automatically acknowledged when the cause disappears. It is mainly used as a warning, although depending on the action set, it is possible to stop the machine.

### 21.3. Alarm actions

In addition to its class, each alarm is defined by an action.

The action of an alarm defines the behaviour of the machine when the corresponding alarm occurs. There are several actions:

Action	Description
Deactivated	Used as a warning. When the alarm appears, the machine continues to operate as if nothing has happened. This action is used for malfunctions that are not important for the safety or integrity of the machine (e.g. pressure deviation).
Quick stop	The post-ventilation sequence is not considered, all outputs are deactivated instantly when the alarm occurs. The machine stops instantly.
Normal stop	The post-ventilation sequence is taken into account. This sequence is defined by the shut-down times of the fans and the fresh air and exhaust air dampers, which determine the effective shut-down time of the machine.
Low speed	The alarm forces the configured speed regime.
Normal speed	

### 21.4. Alarm delay

The delay specifies the length of time the cause must be present to activate the alarm. It is a delay before the alarm is triggered.

This is a condition available for all alarms.

/!\ When the delay is set to 0, the alarm is not active.

There is no time limit to the disappearance of the cause. When the cause disappears, the alarm is instantly cancelled.

### 21.5. The alarm threshold

For some alarms, in addition to the delay condition, a second threshold condition must be set.

When the criterion has exceeded the threshold during the defined time, the alarm is activated.

The alarm threshold is available for alarms whose cause depends on an analogue value, e.g. temperature too high, pressure or flow too low, etc.

Hysteresis is zero and not configurable.

### 21.6. Alarm state (or status)

When an alarm is present, it can take on several states depending on the state of the cause:

Alarm status	Description
Active	The cause is currently present.
Cancelled	The cause has disappeared. This is the case, for example, of a fan runback air pressure switch that remains open.
Acknowledged	The alarm has been manually acknowledged (but the cause is still present).
Blocked/Unblocked	When the alarm is blocked, the action is inhibited. This is particularly useful during a set-up or adjustment phase when some sensors have not been connected or are missing.

## 21.7. List and meaning of alarms

No.	Display	Class	Time	Threshold	Action	Conditions	Causes (There may be several causes)
1	VAS fault	A	30s	Set value for LIFO pressure switch	Unit stopped	<p>The contact of the runback pressure switch of the supply fan has remained open for more than 30s during normal operation of the fan unit.</p> <p>The UDI2 input must be in closed state "Fer" when the ventilation unit is in operation, in the open state "Ouv" when the unit is off.</p> <p>The pressure switch is of type NO (normally open).</p>	<p>Fan motor for supply (blowing)°:</p> <ul style="list-style-type: none"> <li>- Faulty</li> <li>- Control signal 0-10 V inverted</li> <li>- Faulty electrical wiring/connection</li> </ul> <p>Fan control pressure switch:</p> <ul style="list-style-type: none"> <li>- Faulty</li> <li>- Poor electrical connection</li> <li>- Poor air connection</li> <li>- Incorrect setting (nominal factory setting = 25 Pa)</li> <li>- Faulty electrical wiring/connection</li> </ul> <p>Transparent tubes for the fan control pressure switch:</p> <ul style="list-style-type: none"> <li>- Poor connection</li> <li>- Presence of internal condensation water. This may be due to a prolonged shut-down of the unit, or repeated/too many Start/Stop cycles. Set the machine for continuous operation.</li> <li>- Foreign matter or dust in the tube or pressure tap.</li> </ul> <p>The low speed and/or normal speed setpoint is too low, and the fan speed signal does not reach sufficient pressure to switch on the fan control pressure switch.</p> <p>Motorised supply air damper RMS remains in closed position. Clogged ductwork.</p>

No.	Display	Class	Time	Threshold	Action	Conditions	Causes (There may be several causes)
2	VAR fault	A	30s	Set value for LIFO pressure switch	Unit stopped	<p>The contact of the runback pressure switch of the return fan has remained open for more than 30s during normal operation of the fan unit.</p> <p>The UDI3 input must be in closed state "Fer" when the ventilation unit is in operation, in the open state "Ouv" when the unit is off.</p> <p>The pressure switch is of type NO (normally open).</p>	<p>Return fan motoretractor hood (extraction)<sup>o</sup>:</p> <ul style="list-style-type: none"> <li>- Faulty</li> <li>- Control signal 0-10 V inverted</li> <li>- Faulty electrical wiring/connection</li> </ul> <p>Fan control pressure switch:</p> <ul style="list-style-type: none"> <li>- Faulty</li> <li>- Poor electrical connection</li> <li>- Poor air connection</li> <li>- Incorrect setting (nominal factory setting = 25 Pa)</li> <li>- Faulty electrical wiring/connection</li> </ul> <p>Transparent tubes for the fan control pressure switch:</p> <ul style="list-style-type: none"> <li>- Poor connection</li> <li>- Presence of internal condensation water. This may be due to a prolonged shut-down of the unit, or repeated/too many Start/Stop cycles. Set the machine for continuous operation.</li> <li>- Foreign matter or dust in the tube or pressure tap.</li> </ul> <p>The low speed and/or normal speed setpoint is too low, and the fan speed signal does not reach sufficient pressure to switch on the fan control pressure switch.</p> <p>Motorised return air damper RRS remains in closed position. Clogged ductwork.</p>
6	Filter 1 alarm	C	5s	Set value for DEPFS filter pressure switch		<p>When the machine is running, the DI1 input must be in the open state "Ouv" when the state of the filters is suitable, in the closed state "Fer" when the filters are dirty (high filter pressure drop).</p> <p>The contact of the filter pressure switch closed for more than 5s during operation.</p>	<p>The filter(s) are dirty and need to be replaced.</p> <p>The filter(s) is/are supplied by a third party with pressure drop characteristics not compatible with the machine.</p> <p>The filter pressure switch(es) are incorrectly connected.</p> <p>Pressure switches are incorrectly set (300 Pa setting for M5+M7 as standard)</p> <p>The connection of the transparent tubes to the filter pressure switch is not correct or there is water condensation in the tubes.</p>

## 21.7. List and meaning of alarms

No.	Display	Class	Time	Threshold	Action	Conditions	Causes (There may be several causes)
8	Anti-freeze protection (if hot water heating coil option)	C	120s			<p>The DI2 input must be in the closed state "Fer" if there is no fault, in the open state "Ouv" if there is a fault.</p> <p>The contact of the anti-freeze thermostat connected to the DI2 input of the hot water coil has detected a temperature below +5°C for more than 120s, the unit is stopped and restarts automatically when the thermostat goes back above +5°C.</p> <p>The thermostat is of type NC (Normally Closed). The contact is closed when the bulb temperature is above +5 °C and open when the temperature is below +5°C.</p>	<p>Thermostat THA:</p> <ul style="list-style-type: none"> <li>- Incorrect setting (factory setting = +5°C)</li> <li>- Faulty</li> </ul> <p>The water circulation pump does not work.</p> <p>3-way valve:</p> <ul style="list-style-type: none"> <li>- Defective</li> <li>- Poor electrical connection</li> <li>- Poor airflow connection</li> </ul> <p>The hot water generator does not work.</p> <p>The wiring or connections are faulty.</p>
15	Supply air temperature	A	30s	50 °C		<p>The supply air temperature measured at input AI1 has exceeded the 50 °C threshold for more than 30s. The machine is stopped, the alarm must be manually acknowledged and the temperature lowered in order to restart the machine.</p>	<p>The supply air temperature setting is too high.</p> <p>The supply air fan has stopped (VAS fault) while the heating coil was running at full capacity.</p> <p>The PT1000 temperature sensor and/or its cable are defective</p> <p>The power solid state relay that supplies the electric battery is faulty (passing), and permanently supplies the electric battery as soon as the fan unit is powered up (fault presence (23)).</p>



No.	Display	Class	Time	Threshold	Action	Conditions	Causes (There may be several causes)
23	Overheating of heating or de-icing coil (if electric heating and/or de-icing coil option)	A	5s		Off	<p>The THS / THSD overheating safety thermostat of the heating and/or de-icing electric coil (type NC normally closed) has been tripped by going to the open state for more than 5s, meaning that the temperature of the coil has exceeded 90°C (thermostat setting).</p> <p>The DI2 input must be in the closed state "Fer" if there is no fault and in the open state "Ouv" in the event of an overheating fault.</p> <p>The THS / THSD thermostat must be manually reset by pressing the reset button on the thermostat body directly.</p>	<p>Power failure while the electric battery was active.</p> <p>Low speed or normal speed setpoints too low (30% minimum).</p> <p>The supply air fan stopped spontaneously (see "VAS fault") while the electric coil was running at full power at low flow rate.</p> <p>Power solid state relay that supplies the electric battery is faulty (on), and continuously supplies the electric battery whenever the fan unit is powered.</p> <p>Auxiliary contact of K1 blocked in open state. Auxiliary contact of KD blocked in open state.</p> <p>Faulty wiring/connection on the auxiliary contact circuit of K1. Faulty wiring/connection on the KD auxiliary contact circuit.</p> <p>Safety thermostats THS and THSD - Faulty - Poor electrical connection</p>
27	Outside temp. sensor error	A	5s		Off	<p>The analogue input AI2 has detected an implausible signal (open circuit or short circuit) for more than 5s.</p> <p>The machine is stopped. To restart, the signal at analogue input AI2 must return to a normal range and the alarm must be acknowledged.</p>	<p>The SEG outside temperature sensor at the outside air intake and/or its cable and/or its connection to the controller are defective (open circuit or short circuit)</p> <p>The SEG outside air temperature sensor is incorrectly wired (see XVIII GENERAL WIRING DIAGRAM).</p>
35	Manual mode	C	5s		Operation according to the selected manual mode.	<p>The operating mode of the machine is no longer automatic and is currently either in:</p> <ul style="list-style-type: none"> <li>- Manual stop</li> <li>- Or 1/2 manual speed (=low speed)</li> <li>- Or 1/1 manual speed (normal speed)</li> </ul> <p>The machine follows the setpoint of the selected manual operating mode. The alarm is automatically retired when the manual operating mode is changed back to "auto".</p>	

## 21.7. List and meaning of alarms

No.	Display	Class	Time	Threshold	Action	Conditions	Causes (There may be several causes)
<b>36 to 46</b>	... in Manual mode	C	5s		Doesn't stop	Some functions have been switched to manual mode, see details below.	In the Manual/Auto menu, everything must be in Auto.
<b>36</b>	Manual blowing ctrl	C	5s		Doesn't stop	The supply air temperature control is in manual mode.	In the Manual/Auto menu, supply temp ctrl must be set to Auto.
<b>38</b>	VAS at var. freq. in manual mode	C	5s		Doesn't stop	The AO4 output for the control of the VAS supply air fan is in manual mode.  The alarm is self-acknowledged when the output returns to automatic mode.	In the Manual/Auto menu, VAS must be set to Auto.
<b>40</b>	VAR at var. freq. in manual mode	C	5s		Doesn't stop	The AO5 output for the control of the VAR return fan is in manual mode.  The alarm is self-acknowledged when the output returns to automatic mode.	In the Manual/Auto menu, VAR must be set to Auto.
<b>41</b>	Heating in manual mode	C	5s		Doesn't stop	The AO1 output for controlling the 3-way valve of the hot water heating coil is in manual mode.  The alarm is self-acknowledged when the output returns to automatic mode.	In the Manual/Auto menu, Heating must be set to Auto.
<b>42</b>	Heat exchanger in manual mode	C	5s		Doesn't stop	The AO2 output for the control of the recovery unit bypass actuator is in manual mode.  The alarm is self-acknowledged when the output returns to automatic mode.	In the Manual/Auto menu, Exchanger must be set to Auto.
<b>43</b>	Cooling in manual mode	C	5s		Doesn't stop	The AO3 output for controlling the 3-way valve of the cooling coil is in manual mode.  The alarm is self-acknowledged when the output returns to automatic mode.	In the Manual/Auto menu, Cooling must be set to Auto.
<b>44</b>	P1-hot in manual mode	C	5s		Doesn't stop	The DO3 output for controlling the pump of the hot water heating coil is in manual mode.  The alarm is self-acknowledged when the output returns to automatic mode.	In the Manual/Auto menu, P1-Hot must be set to Auto.

No.	Display	Class	Time	Threshold	Action	Conditions	Causes (There may be several causes)
46	P1-cold in manual mode	C	5s		Doesn't stop	<p>The DO4 output for controlling the cooling coil pump is in manual mode.</p> <p>The alarm is self-acknowledged when the output returns to automatic mode.</p>	In the Manual/Auto menu, P1-Cold must be in Auto.
48	Internal battery error	A	5s		Doesn't stop	<p>The charge status of the controller's internal battery has reached the minimum threshold to ensure that the internal memory (settings) and the clock setting can be maintained in the event of a power failure.</p> <p>If the battery is not replaced, the user settings and clock may be lost in the event of a brief power failure.</p> <p>The occurrence of the alarm does not stop the machine, but the alarm must be manually acknowledged to disappear.</p>	<p>The controller's internal battery is too old or defective.</p> <p>Change the battery as soon as possible to avoid losing the programme by following the procedure (see XXIII REPLACING THE INTERNAL MEMORY BATTERY).</p>
49	AS temp. sensor error	A	5s		Off	<p>The analogue input AI1 has detected an implausible signal (open circuit or short circuit) for more than 5s.</p> <p>The machine is stopped. To restart, the signal at the analogue input AI1 must return to a normal range and the alarm must be acknowledged.</p>	<p>The SSG temperature sensor at the air supply outlet (blowing) and/or its cable and/or its connection to the controller are defective (open circuit or short circuit)</p> <p>The SSG supply air temperature sensor is incorrectly wired (see XVIII GENERAL WIRING DIAGRAM).</p>
50	AR Tmp. sensor error	A	5s		Off	<p>The analogue input AI4 has detected an implausible signal (open circuit or short circuit) for more than 5s.</p> <p>The machine is stopped. To restart, the signal at the analogue input AI4 must return to a normal range and the alarm must be acknowledged.</p>	<p>The SRG temperature sensor at the air intake and/or its cable and/or its connection to the controller are defective (open circuit or short circuit)</p> <p>The SRG supply air temperature sensor is incorrectly wired (see XVIII GENERAL WIRING DIAGRAM).</p>

## 21.7. List and meaning of alarms

No.	Display	Class	Time	Threshold	Action	Conditions	Causes (There may be several causes)
59	CO <sub>2</sub> sensor error	A	5s		Doesn't stop	Analogue input UAI4 has detected an implausible signal (open circuit or short circuit) for more than 5s.	The CO <sub>2</sub> sensor is defective (short-circuited or open circuit). The CO <sub>2</sub> sensor is incorrectly wired (see XVIII GENERAL WIRING DIAGRAM).
85	Output in Manual mode	A	5s		Off	At least one DO output has been switched to manual mode for more than 5s.  The machine is stopped when the alarm is present. Outputs that have been switched to manual mode must be switched back to automatic mode and the alarm manually acknowledged before the machine can be restarted.	In the Manual/Auto menu, all functions must be in "Auto" mode.
86	Conducting the maintenance visit	C	5s		Doesn't stop	The maintenance visit alarm counter has exceeded the programmed time (12 months).	See chapter Fehler!
87	Additional output Y4	C	5s		Doesn't stop	Output DO6, which controls the fresh air preheating coil, was switched to manual mode for more than 5s.  The machine is not stopped when the alarm is present, the alarm disappears automatically when the output is switched back to automatic mode.	In the Manual/Auto menu, all functions must be in "Auto" mode.

### 21.8. Acknowledgement procedure for a class A or B alarm

Class A or B alarms need to be manually acknowledged via the HMI to return the fan unit to normal operation.

The procedure for manually acknowledging an alarm (Class A or B) is to register the alarm via the Active Alarms menu by selecting the "log" option for the alarm in question. This alarm can be in the following states:

- **Active:** the fault is currently present, manual acknowledged (logging) will not restart the machine until the fault is corrected. This is particularly the case for the triggering of the overheating safety thermostat of the electric heating coil (EB).
- **Cancelled:** the fault has disappeared (or been resolved) and has therefore been cancelled (is no longer present). Logging this will allow the machine to be restarted. It will reappear if the problem persists.

When an active alarm is cancelled, blocked, or logged (=manually acknowledged), this change of status is recorded in the fault history, which makes it possible to know exactly when faults appear/disappear, thus facilitating the diagnostic procedure.

### 21.9. Acknowledging the filter counter alarm ("maintenance inspection needed")

Minimum access level: **Service**



An alarm appears every 12 months (not configurable) to indicate the need for a maintenance visit. Enter YES to reset the counter and acknowledge the alarm.

Counting is only performed when the power is on, even if the fans are off. Counting is not operational when the unit is off, 6 months = 6 x 30 days = 180 days.

This alarm can be deactivated via the Alarm configuration/alarm 86 menu and set to "inactive" priority instead of "Alarm-C".

### 21.10. Presence of active alarms

The presence of active alarms is indicated by the flashing of the red LED on the HMI of the ventilation unit.

Pressing the red button on the HMI gives direct access to the active alarms menu if at least one active alarm is currently present. If there are several alarms present at the same time, the last one is displayed by default, and it is possible to display them one after the other by successively pressing the up or down arrow.

Access to the active alarms menu does not require an access level.

## 21.11. Alarm history

The alarm history is a menu that provides access to all of the last 48 recorded alarms.

Minimum access level: **User**



Includes :

- Date and time of onset or change of status
- Alarm ID (unique ID for each alarm)
- The name of the alarm
- The current state

The history can therefore be used to see the evolution of the status of each alarm from the moment it appeared until it disappeared.

For example, it is possible to find out when the fan fault alarm appeared (On), when it was manually acknowledged by the technician (acknowledged), when the fault actually disappeared (Off).

The management of alarms in the buffer is of type FIFO when the buffer is full in order to be able to accept new alarms. It is not possible to reset the buffer.

## 22. Replacing filters

Following the replacement of the air filters, it is possible to reset the filter counter (see XXI.9 Acknowledging the filter counter alarm ("maintenance inspection needed")).

## 23. Replacing the internal memory battery

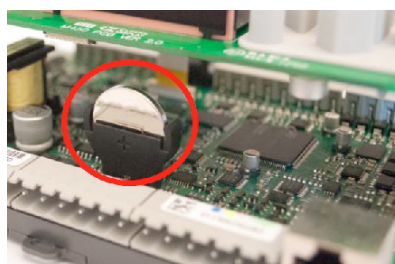
When the low battery alarm appears and the red P/B LED lights up, this indicates that the battery powering the internal memory and real-time clock (RTC) is too low and may not work in the event of a power failure.

The procedure for replacing the battery is set out below. A capacitor takes over when the battery is removed. The battery should be replaced within about 10 minutes of the power being switched off.

If it takes less than 10 minutes to replace the battery, it will not be necessary to reload the programme and the clock will continue to operate normally.

The battery is of type CR2032.

Press the clips on either side of the housing with a small screwdriver to release the cover from the base. Hold the base and remove the cover.



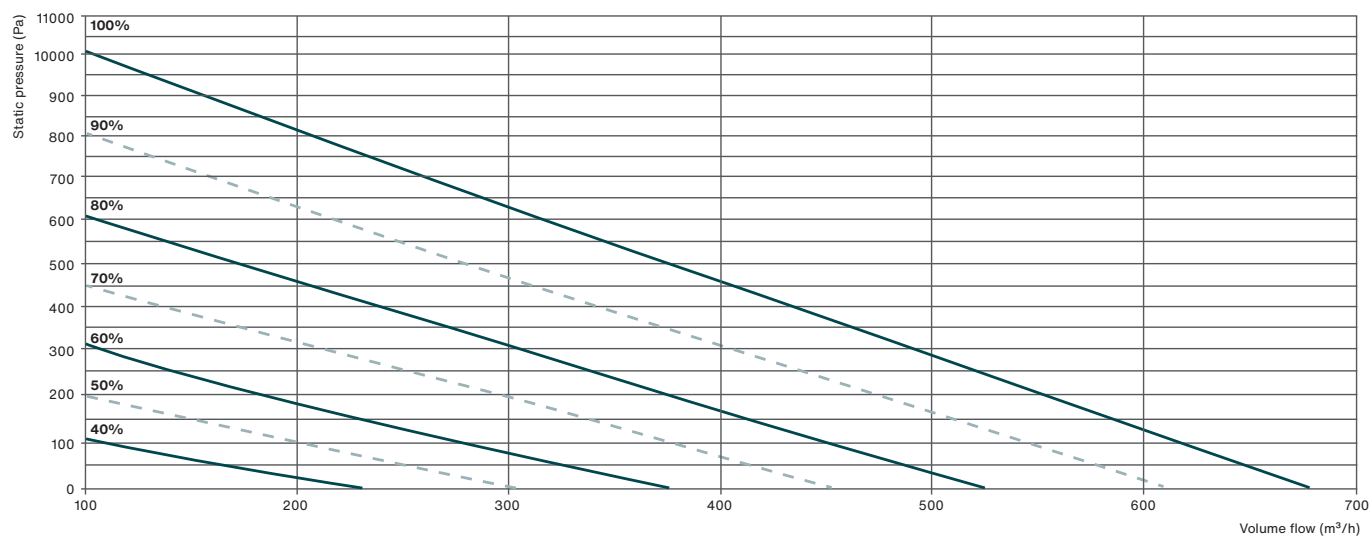
Grip the battery and gently pull it upwards until it leaves the battery compartment.

Put the new battery in place by pressing firmly on it to slide it into its holder.

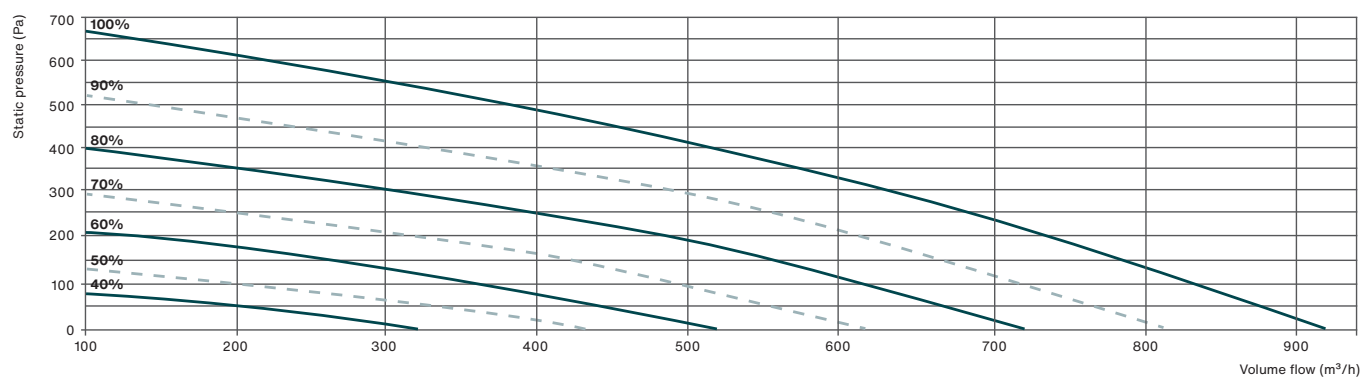
Note: Pay attention to the direction of the battery to ensure correct polarity.

## 24. Air performance

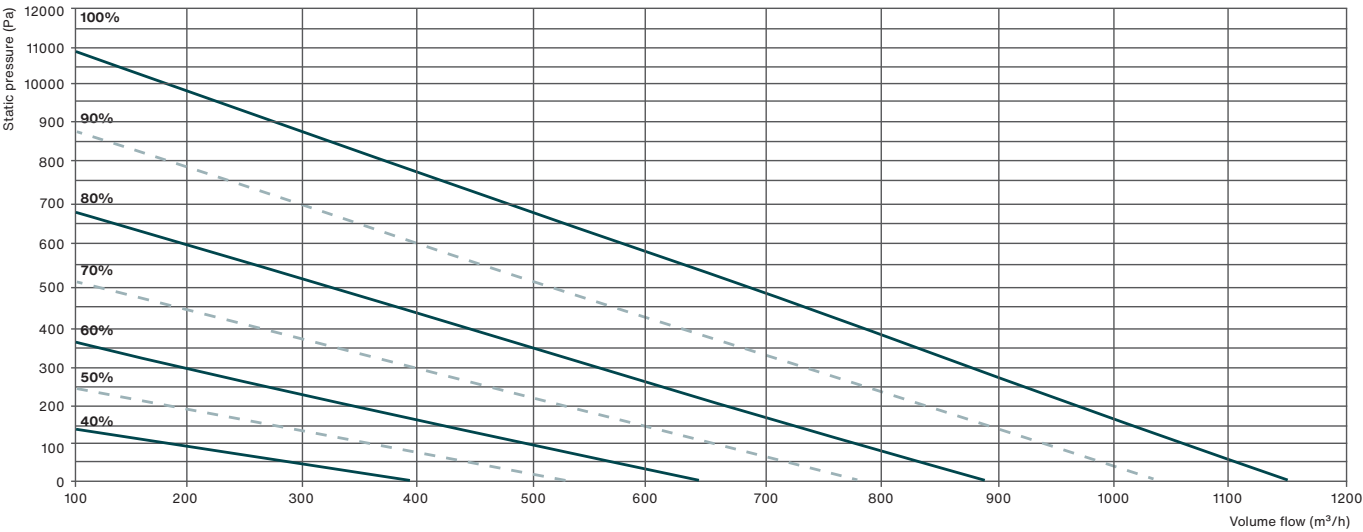
### 24.1. Zehnder Eversky 500



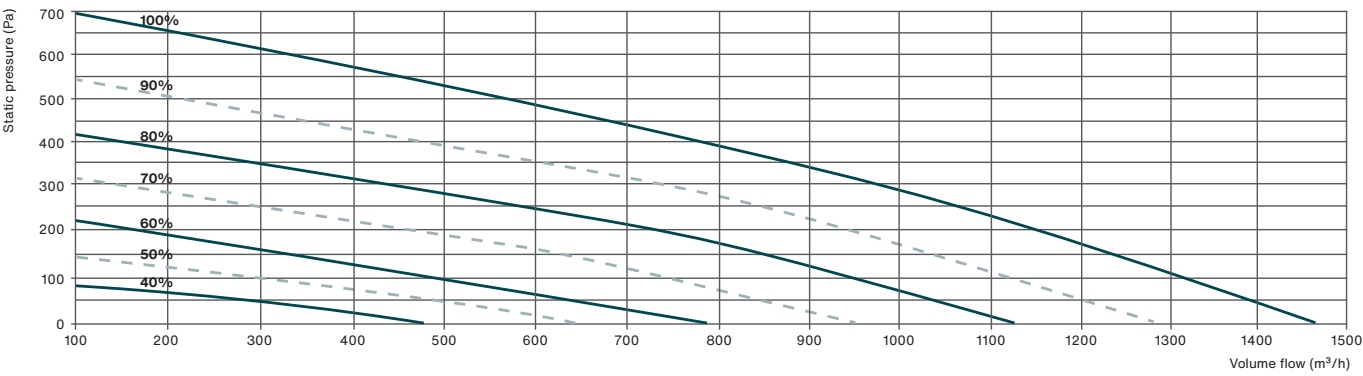
### 24.2. Zehnder Eversky 750



24.3. Zehnder Eversky 900



24.4. Zehnder Eversky 1100





## 25. Variable exchange tables

The Modbus addresses shown in the tables use the generic Modbus standard. There is no address offset to be expected, the 1st existing variable is addressed at value 0 (not 1).

Scaling factor = 10 means that the value read must be divided by 10 to be converted into a real value. Example: if the value read in the variable supply temperature is 230, this means that the temperature value is  $230 / 10 = 23.0^{\circ}\text{C}$ .

It is not possible to acknowledge alarms via communication. Acknowledgement must be performed manually in the presence of a natural person directly on the machine's HMI after having identified and resolved the cause of the problem.

The instructions sent by the communication have priority over all the other instructions (external and internal) except for the on/off command of the screen which has absolute priority: if the local command is off, the unit cannot start even if the BMS requests it. Therefore, in order for the BMS to work, the control must be on.

Specificity of Bacnet: the list of variables is linked to the configuration of the unit. For example, if the temperature control is in constant supply, the air law variables are not accessible. If the unit is in pressure regulation (LOBBY), the flow variables (MAC2) are not accessible.

## 25.1. Machine status (read only)

	Unit	Reading	Writing	Modbus scale factor	Modbus function	Modbus address	Modbus variable type	BACnet address	Details
Current state of the unit		X		1	Input Register	3	short	MSV, 40003	<b>Modbus:</b> 0=Off/1=start/2=low speed start/4=normal speed start/6=normal operation/8=CO2 management/9=Night cooling/11=in stop phase <b>BACnet:</b> 1=Stop/2=start/2=low-speed start/5=normal speed start/6=normal operation/9=CO2 management/10=Night cooling/12=in shut-down phase
Temperature of fresh air	°C	X		10	Input Register	1	short	AV, 40001	
Supply air temperature	°C	X		10	Input Register	7	short	AV, 40007	
Extraction temperature	°C	X		10	Input Register	9	short	AV, 40009	
Temperature of exhaust (bypass management)	°C	X		10	Input Register	21	short	AV, 40021	
Temperature of preheated air (fresh air preheating coil management)	°C	X		10	Input Register	30	short	AV, 40030	
CO2 rate	ppm	X		10	Input Register	17	short	AV, 40017	
Analogue heating output	V	X		10	Input Register	54	short	AV, 40119	If hot water coil: 0 V (no heat demand);10 V (maximum heat demand)
Analogue output in bypass position	V	X		10	Input Register	55	short	AV, 40120	0 V (no energy recovery) energy recovery);10 V (maximummaximum energy recovery)
Analogue cooling output	V	X		10	Input Register	56	short	AV, 40121	0 V (no cold demand);10 V (maximum cold demand)
Analogue output of the supply fan	V	X		10	Input Register	57	short	AV, 40122	0 V (fan off);10 V (fan at maximum speed)
Analogue output for the exhaust fan	V	X		10	Input Register	58	short	AV, 40123	0 V (fan off);10 V (fan at maximum speed)

## 25.2. Setting setpoints (reading/writing)

	Unit	Reading	Writing	Modbus scale factor	Modbus factory value	Modbus register type	Modbus address	Modbus variable	BACnet address	Details
Operating mode setpoint	-	X	X	10	Modbus: 3 BACnet: 4	Holding Register	368	short	MSV, 30368	Modbus: 0=manual stop/1=manual low fan speed/2=manual normal fan speed/3=auto BACnet: 1=manual stop/2=manual low fan speed/3=manual normal fan speed/4=auto
Constant supply temperature setpoint	°C	X	X	10	180	Holding Register	1	short	AV,30001	Used only if constant supply air temperature control is used
Constant return temperature setpoint	°C	X	X	10	210	Holding Register	18	short	AV,30018	Used only if constant return air temperature control is used
Setpoint of air law temperature at ext. temp=-20°C	°C	X	X	10	250	Holding Register	10	short	AV,30010	Used only if temperature (supply or return) is regulated by air law
Setpoint of air law temperature at ext. temp=-15°C	°C	X	X	10	240	Holding Register	11	short	AV,30011	Used only if temperature (supply or return) is regulated by air law
Setpoint of air law temperature at ext. temp=-10°C	°C	X	X	10	230	Holding Register	12	short	AV,30012	Used only if temperature (supply or return) is regulated by air law
Setpoint of air law temperature at ext. temp=-5°C	°C	X	X	10	230	Holding Register	13	short	AV,30013	Used only if temperature (supply or return) is regulated by air law
Setpoint of air law temperature at ext. temp=0°C	°C	X	X	10	220	Holding Register	14	short	AV,30014	Used only if temperature (supply or return) is regulated by air law
Setpoint of air law temperature at ext. temp=+5°C	°C	X	X	10	200	Holding Register	16	short	AV,30016	Used only if temperature (supply or return) is regulated by air law
Setpoint of air law temperature at ext. temp=+10°C	°C	X	X	10	180	Holding Register	16	short	AV,30016	Used only if temperature (supply or return) is regulated by air law
Setpoint of air law temperature at ext. temp=+15°C	°C	X	X	10	180	Holding Register	17	short	AV,30017	Used only if temperature (supply or return) is regulated by air law
Normal speed setpoint of supply fan	%	X	X	10	700	Holding Register	424	short	AV,30424	
Low speed setpoint of supply fan	%	X	X	10	500	Holding Register	425	short	AV,30425	
Normal speed setpoint of exhaust fan	%	X	X	10	700	Holding Register	426	short	AV,30426	
Low speed setpoint of exhaust fan	%	X	X	10	500	Holding Register	427	short	AV,30427	
Setpoint 1 CO <sub>2</sub>	ppm	X	X	10	800	Holding Register	465	short	AV,30465	
Setpoint 2 CO <sub>2</sub>	ppm	X	X	10	1000	Holding Register	466	short	AV,30466	

### 25.3. Alarm status (read only)

	Reading	Writing	Modbus reg. type	Modbus address	Modbus variable	BACnet address	Dtails
Alarms summary	X		Input Status	30	bool	BV,20030	0=no alarm / 1=at least one alarm present
Supply air fan fault	X		Input Status	33	bool	BV,20033	0=no alarm / 1=alarm presents present
Extracted air fan fault	X		Input Status	34	bool	BV,20034	0=no alarm / 1=alarm presents present
Supply/return filters fault	X		Input Status	38	bool	BV,20038	0=no alarm / 1=alarm presents present
Internal battery fault	X		Input Status	80	bool	BV,20080	0=no alarm / 1=alarm presents present
Overheating fault in the electric battery	X		Input Status	55	bool	BV,20055	0=no alarm / 1=alarm presents present Only for machines equipped with an electric heating coil
Antif-reeze fault in hot water coil	X		Input Status	40	bool	BV,20040	0=no alarm / 1=alarm presents present Only for machines equipped with a hot water heating coil
Fire fault	X		Input Status	42	bool	BV,20042	0=no alarm / 1=alarm presents present

It is not possible to acknowledge alarms (class A and B) via communication.

## 26. Commissioning report

<b>Site</b>										
<b>Address</b>										
<b>Date</b>	..... / ..... / .....			Technician / Company						
<b>Reference of the equipment</b>										
<b>Manufacturing number</b>										
<b>Ventilation setting</b>	Setpoint Normal speed		Setpoint Low speed		Setpoint High CO <sub>2</sub>		Setpoint Low CO <sub>2</sub>			
	..... %		..... %		..... ppm		..... ppm			
<b>Temperature setting</b>	Constant supply air temperature		Air law at supply		Constant return temperature		Air law at return			
<b>Setpoint</b>	..... °C		Ext. temp. -20.0°C -15.0°C -10.0°C -5.0°C 0.0°C 5.0°C 10.0°C 15.0°C	<u>Setpoint</u>	..... °C		Ext. temp. -20.0°C -15.0°C -10.0°C -5.0°C 0.0°C 5.0°C 10.0°C 15.0°C	<u>Setpoint</u>		
<b>Time settings</b>	Speed Setting	Mon	Tues.	Weds.	Thur.	Fri.	Sat.	Sun.	Vac	
	Period 1	:	:	:	:	:	:	:	:	
	Period 2	:	:	:	:	:	:	:	:	
	Speed Normal	Mon	Tues.	Weds.	Thur.	Fri.	Sat.	Sun.	Vac	
	Period 1	:	:	:	:	:	:	:	:	
	Period 2	:	:	:	:	:	:	:	:	
<b>Presence of BMS / CTM</b>	YES	NO	Saving user settings					YES	NO	

Mâcon Loché, on 29 August 2022  
Ref: EU

## EU-Declaration of conformity

**We declare under our sole responsibility that the products**

- ECOVOR™ - ECOBLUE™ - ECONIZER™- NOE™ - NOE LOBBY™
- MINIMAX™ - MINIBLUE™ - MINIBLUE LOBBY™ - MAXIPLUS™ - CITYCOOL™
- COMBIBOX CONCEPT™ - CMH - EVENTYS™
- CARMA™ - NEOTIME™ - FREETIME™ - EXAECO™- HEXAMOTION™- SILVERTOP™ - EVERSKEY™
- ELECTROPACK™ - AQUAPACK™ - LOBBY™ - SYSTEM TOP™ - SYSTEM DIV™ - WONDEROOM™
- CVFMI - CVFTI - CVFM - CVFT
- REFLEX™ - DIABLO™ - PYROSTAR™ - CDF
- EVERKIT™
- THERMOVER™

**satisfy the provisions of the following applicable Directives and harmonised standards:**

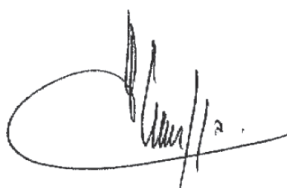
- Machinery Directive 2006/42/EC
- Low Voltage Directive 2014/35/EU
- EMC Directive - Electromagnetic Compatibility Directive 2014/30/EU
- RoHS II Directive - Directives on the restriction of the use of certain hazardous substances in electrical and electronic equipment 2011/65/EU and 2015/863/EU
- ErP Directive 2009/125/EC

**Furthermore, for the products**

COMBIBOX CONCEPT™ - CMH - CARMA™ - EXAECO™ - EVENTYS™ - FREETIME™ - NEOTIME™ -  
HEXAMOTION™ - SILVERTOP™ - THERMOVER™ - EVERKIT™ (Dual flow unit section)

**the following standards and specifications were applied:**

- EN 1886: 2008 - Ventilation for buildings. Air handling units.  
Mechanical performance
- EN 13053+A1: 2011 - Ventilation for buildings. Air handling units.  
Rating and performance for units, components and sections.  
This declaration is valid only for products installed according to the supplied instructions and  
having undergone no modification.

A handwritten signature in black ink, appearing to read "Hervé Nuzzo".

Hervé Nuzzo,  
President

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