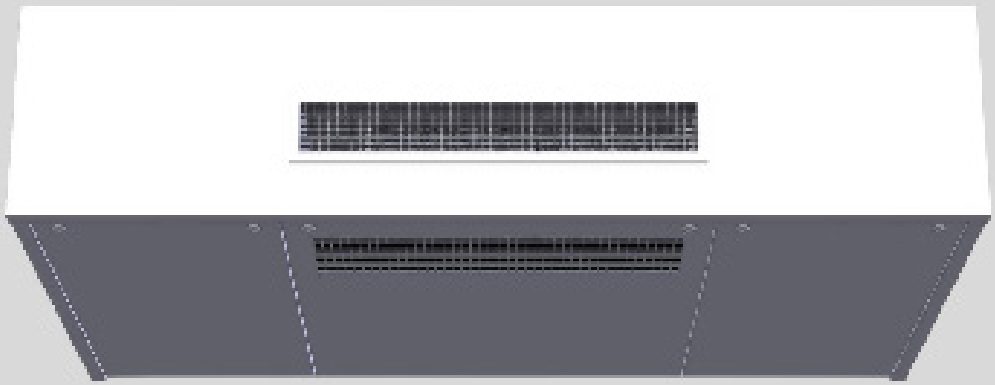
CALADAIR

INSTRUCTIONS MANUAL

EVERSKY™ Q



Contents

Preface

IMPORTANT!
Carefully read this manual before use.

Legal regulations

IMPORTANT!
This manual has been compiled with the utmost care. Nevertheless, the publisher accepts no liability for damage caused by missing or incorrect details in this operating manual. We reserve the right at any time and without prior notification to change the content of these instructions in part or as a whole.

The manual is provided in digital format.
All additional documentation (drawings, diagrams, etc...) are provided as an attachment to this manual.
Keep this manual supplied with the device, so that it can be easily consulted by the user.

The manual is an integral part for safety purposes, therefore:
- Must be kept intact (in all its parts). If it is lost or damaged, a copy must be requested immediately;
- Must follow the device until it is demolished (even in the case of moving, selling, renting, etc...);
- The attached manuals are a constitutive part of this documentation and the same recommendations / prescriptions of this manual apply to them.

The following pictograms are used in this document:

Symbol	Meaning
	Consult the manual before using/operate the equipment.
	Point of attention/important informations.
	Disconnect the power supply before starting work or repairs.
	Risk of compromised performance or damage to the ventilation system/risk of personal injury.
	Caution electrical hazard!

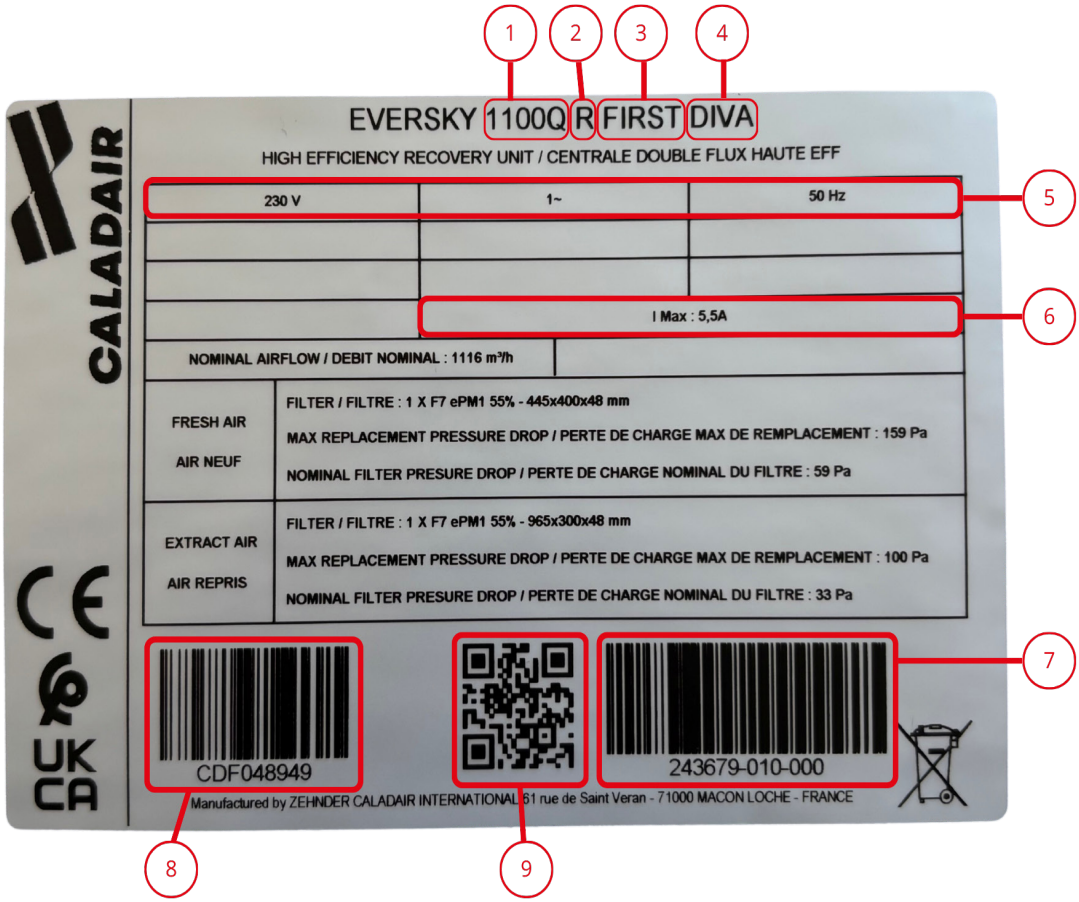
1. Introduction

Eversky™ Q is a range of high efficiency and low noise emissions decentralised ERU (Energy Recovery Unit). It features as standard an air CO2 control (DCV).
Installed directly into the room or space to be treated, it avoids the need for a complex and expensive air distribution network.
Featuring a high efficiency static heat exchanger, fresh air F7 filtration range and reinforced sound insulation, Eversky™ Q guarantees expected hygiene and comfort in the case of demanding rooms while limiting energy consumption.
Eversky™ Q unit features as standard the EASY 5.0 control system with MODBUS RTU/TCP and BACNET MSTP/IP communication protocols (protocol choice enable on field) and a HTML5 compliant WEBSERVER. It features a mobile touch screen for easy commissioning and maintenance. The EASY 5.0 control system is described in a separate manual.
Eversky™ Q is delivered as PLUG&PLAY - SET&FORGET: the controller is pre-set and set up with options ordered as standard to facilitate and minimise commissioning time.

1.1 Conformity declarations and warranty

1.1.1 Identification plate

The Eversky™ Q is identified by a label on the electrical cabinet door (exhaust air):



Pos.	Description	
1	UNIT SIZE	1100Q
2	CONFIGURATION	R (Right) L (Left)
3	THERMAL EQUIPMENT	FIRST Unit without coil
4	TYPE OF FAN CONTROL	DIVA CO2 dependent variable speed fans (DCV)
5	Power supply	
6	Maximal current input	
7	Manufacturing number (to be mentioned during any contact with the supplier)	
8	Reference code of the unit	
9	QR code leading to the instructions manual	

CAUTION!
It is strictly prohibited to remove the identification plate and/or replace it with other plates. Should the plate be damaged, detached or removed for accidental reasons, the customer must inform the supplier.

1.1.2 Warranty

The current sales terms and conditions are available on www.caladair.com through customer account and can be obtained via our established sales channels.
The warranty becomes invalid if:
the warranty period has expired;
installation of the device was not carried out in accordance with the proper instructions;
defects have occurred due to incorrect connection, incompetent use;
spare parts used that were not originally supplied by the manufacturer, or repairs done by unauthorised persons.

CAUTION!
The supplier shall not be held liable for any damage, to things or people, caused by accidents due to a failure to comply with the instructions provided in this manual and in the following chapters.

The manufacturer retains the right to change and/or reconfigure its products at any time without any obligation to alter previously delivered products.

1.1.3 Trademarks

All trademarks are recognised, even if they are not separately labelled. A missing label does not mean that an article or sign is free of trademark rights.

1.2 Safety

Always comply with the safety regulations, warnings, comments and instructions given in this document. Failure to comply with the safety regulations, instructions, warnings and comments may lead to personal injury or damage to the equipment.

1.2.1 Safety measures

In accordance with the regulations in force, the installation and maintenance of the equipment must only be carried out by technically qualified personnel authorised for this type of equipment and work.

It is strictly prohibited to remove/short-circuited the safety systems components. Should the safety systems components be damaged, detached or removed for accidental reasons, the customer must inform the Manufacturer.

It is not permitted to modify the equipment or any of the specifications contained in this document. This may result in personal injury or reduced ventilation system performance.

Always disconnect the power supply of the equipment and wait the complete stop of the components before start working on it. The equipment can cause personal injury when it is opened during operation. Make sure the equipment cannot be switched back on by accident.

During operations near the equipment, observe the general accident prevention regulations.
Use the personal protective equipment required in each procedure.
The clothing of those who work or carry out maintenance must comply with:
The essential safety requirements defined as per EU Reg. 2016/425
The laws in force in the country where the equipment is installed.

The installation must comply with fire safety regulations.

The appliance can only be switched on and off via the proximity switch.

During equipment operation ensure and verify that all doors and panels must be fitted and closed correctly.

The Personal Protective Equipment must be used in order to avoid injury from electrical, mechanical (injuries from contact with metal sheets, sharp edges, etc...) and acoustic hazards.

The device must be moved only as described in handling paragraph.

Grounding must be done in accordance with the applicable standards.
Never switch on an ungrounded appliance.

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

All waste produced must be handled in accordance with the regulations in force.

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

We accept no liability for damage resulting from misuse of the equipment, unauthorized repair or modification or failure to observe these instructions.

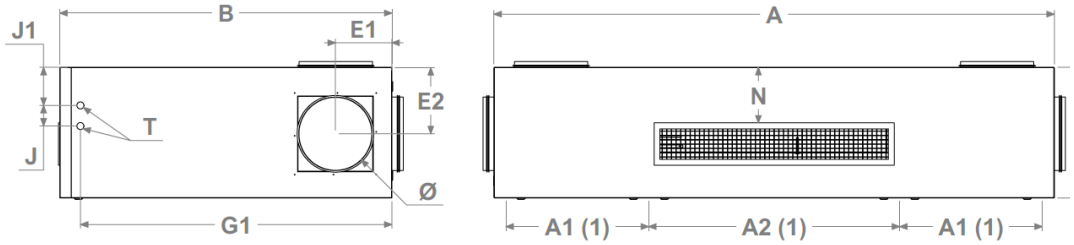
2. For the Installer

2.1 Eversky™ Q configuration and dimensions

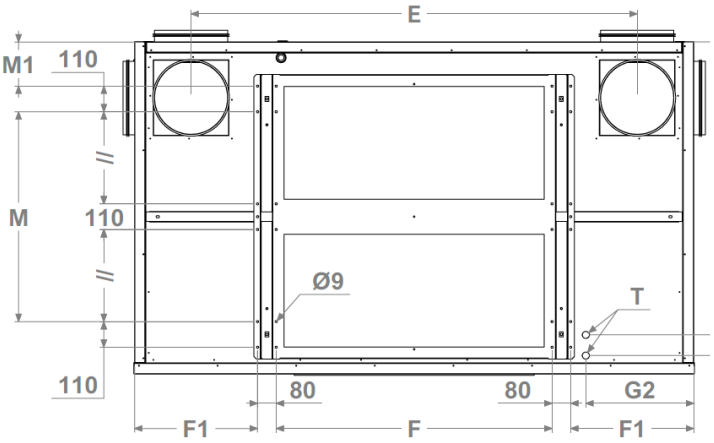
The Eversky™ dimensions and weight (depending to the model) are listed in the following tables:

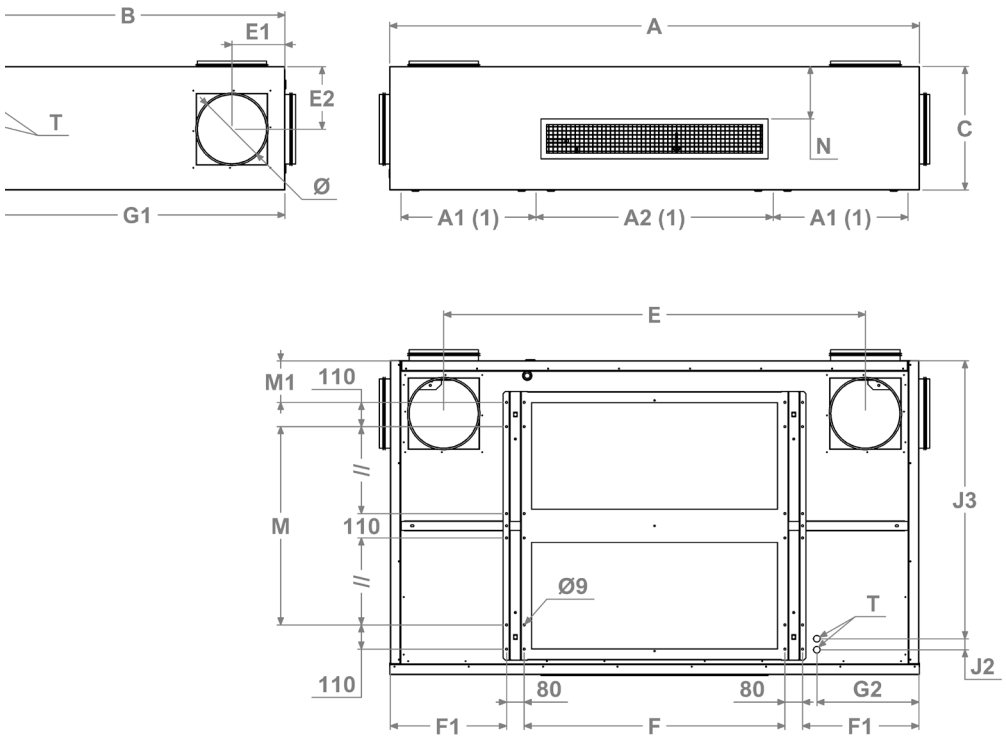
Eversky™ Q Model	Ø	A	A1	A2	B	C	E	E1	E2	F	F1	M	M1	N	Weight
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg
1100M	315	2405	615	1075	1425	560	1915	240	285	1185	530	900	190	235	240

(1) Dimension of the opening panels. Location of suction and discharge outlets according to the chosen configuration.



R configuration (right)





L configuration (left)

(1) Dimension of the opening panels.
Location of suction and discharge outlets according to the chosen configuration.

2.2 Technical specifications

Electrical Performance Data				
Eversky™ Q Model	Motor power input	Temp. Use	Motor Protection class	Thermal protection*
	(W)	(°C / °C)		
1100Q	4x170W	-25/60	IP 54/B	ITP
Eversky™ Q Model	Power supply voltage		Current protection	
	(V / Ph / Hz)		(A)	
1100Q	230/1/50		5,5	

*ITP: Integrated Thermal Protection

All additional documentation (drawings, diagrams, etc...) are provided as an attachment to this manual.

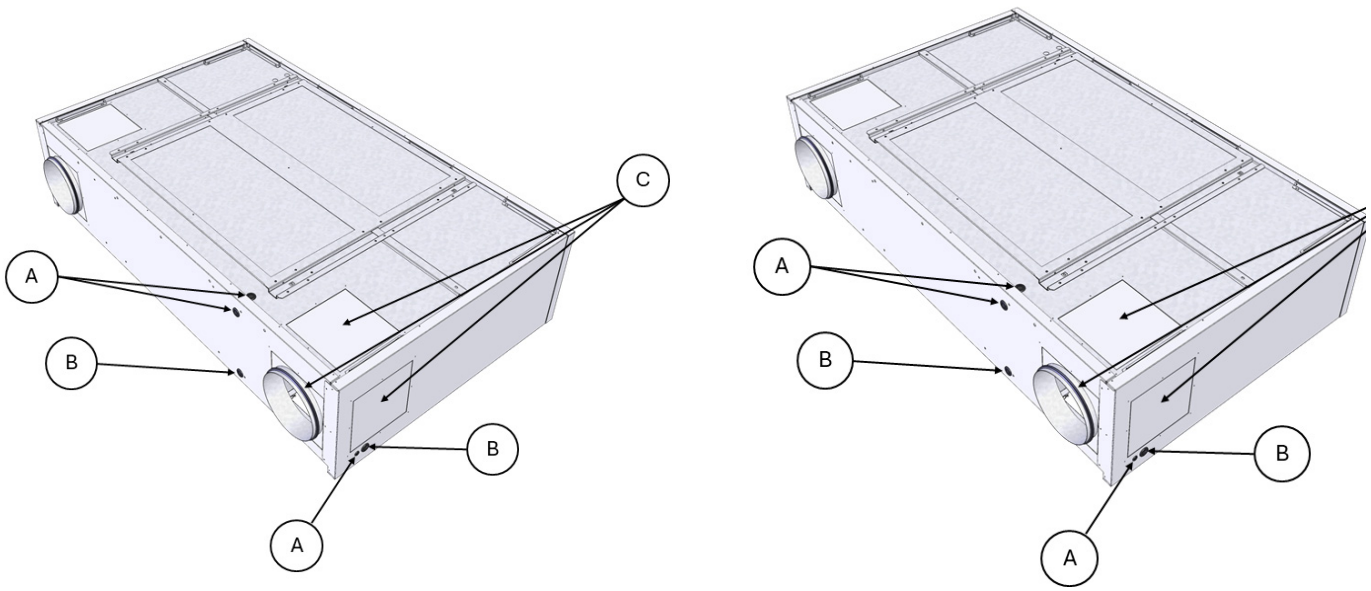
2.2.1 External connections

(A) or (B):
- Power supply
- Drainage with condensate lift pump (hose ø6x9)

(B) Gravity evacuation of condensate (hose ø10x16)
(C) Duct panel/square panels

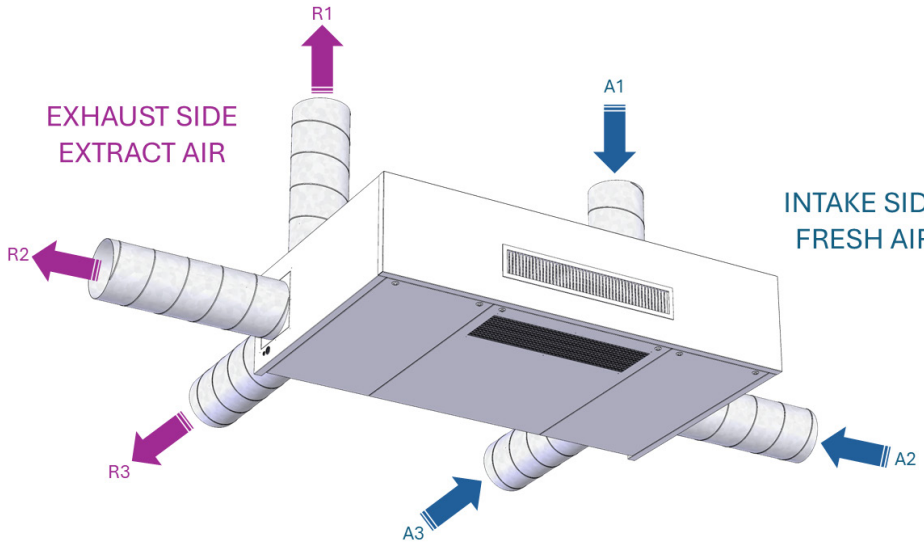
R configuration L

(right) **(left)**

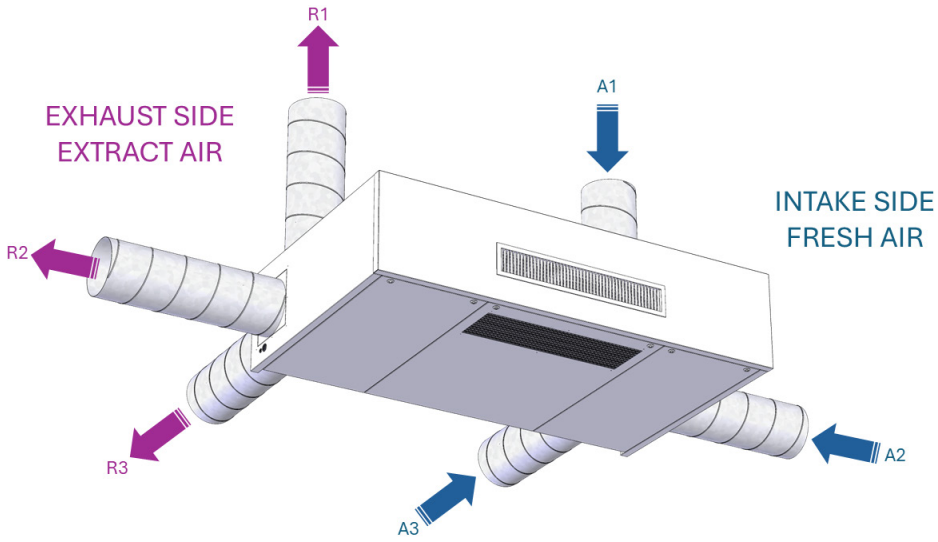


2.2.2 Airflow connections

The Eversky™ Q unit has modular connection ports on the fresh air intake and the exhaust extracted air allowing 9 configurations of aeraulic connection to adapt to each installation specificity.
This removable duct panels feature is patented and these pannels are fitted with circular lip seal in order to ensure the sealing of the aeraulic networks (ATEC CSTB n° 13-224-12).
The modification of duct panels positions may be performed from inside the unit at the end of the installation. Positions of intake fresh air and exhaust extract air connections in rear, top or lateral configurations (see folowing image):



R configuration (right)



L configuration (left)

2.3 Installation conditions

The Eversky™ Q may only be transported on its feet in the same position as delivered or in its installation position.

Lifting and handling operations must only be done by specialised and trained personnel, who are qualified to perform these activities.

Adapt the choice of handling equipment to the weight of the equipment received (refer to the weight given at the beginning of the document weights and dimensional table).

The Eversky™ Q has no covering and must be installed suspended indoors only.

The unit must be installed in such a way that the ambient temperature cannot damage the internal components of the unit during set-up and operation.

In the case of a false ceiling, it must be able to allow doors to be opened to access inside the unit.

Afterwards, most of the visuals will only represent the D configuration (right).

Observe the permissible loads for the support (ceiling, slab, threaded rods, etc...). The weights of each model are given in the technical specifications, see “2.1 Eversky™ Q configuration and dimensions” weights and dimensional data in table. Take into account the weight of optional accessories.

The Eversky™ Q is designed for suspended mounting using the mandatory fixing frame delivered with the unit.

2.4 Eversky™ Q Installation

2.4.1 Transport and unpacking

Contact your supplier immediately in case of damage or incomplete delivery and do not proceed with the installation.

- On receipt of the material, check the condition of the packaging and the material, as well as the number of packages.
- Take the necessary precautions when transporting and unpacking the Eversky™ Q unit.
- When unpacking the equipment, check the following points:
    - Presence of total number of packages;
    - Presence of the expected accessories (electrical equipment, sleeves, (external) controls, etc...).
- Remove the protective film from the sheets.
- After unpacking the material, the waste must be disposed of according to local regulations and standards.
- Make sure the packing material is disposed of in an environmentally friendly manner.

2.4.2 Checking the delivery

Check the identification plate to ensure that you have received the correct unit type.

Contact your supplier immediately in case of damage or incomplete delivery and do not proceed with the installation.

The Eversky™ Q units are delivered fixed on transport supports and wrapped in a protective film. Sensitive parts are protected by cardboard or bubble film.

2.4.3 Handling and horizontal lifting

Eversky™ Q HANDLING with lifting crane	
Operator qualification	Lifting equipment operator
PPE required	
Lifting equipment	Crane and ropes suitable for lifting weights indicated in the documentation
Required tools	Specific tools for lifting operations

Pay particular attention to the phase when you lift the product off the ceilling and place it on the ceilling, to avoid shocks that could damage the structure and integrity of the product.

If the unit is transported by crane, use a lifting beam and strap the product to keep it in the transport position (vertical position).

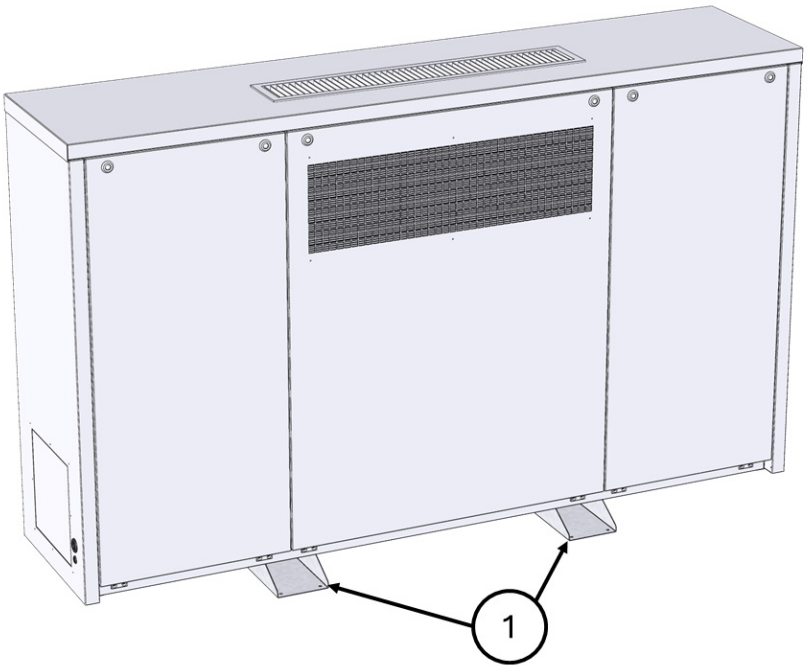
When turning the unit over from its delivery position, tilt the unit so as not to damage the components on the sides (hinges, pressure taps, condensate tray tapping), using protective covers or, for example, rafters laid on the ground transversely to the unit.

Use support areas set back from the locks and hinges (red areas).

If the product is handled using a forklift, take care that it supports the load-bearing structure.

It is recommended to handle the unit on its transport medias (1) and to remove them at the last moment as close as possible of the installation place.

It is recommended to handle the unit on its transport medias (1) and to remove them at the last moment as close as possible de the place of location.

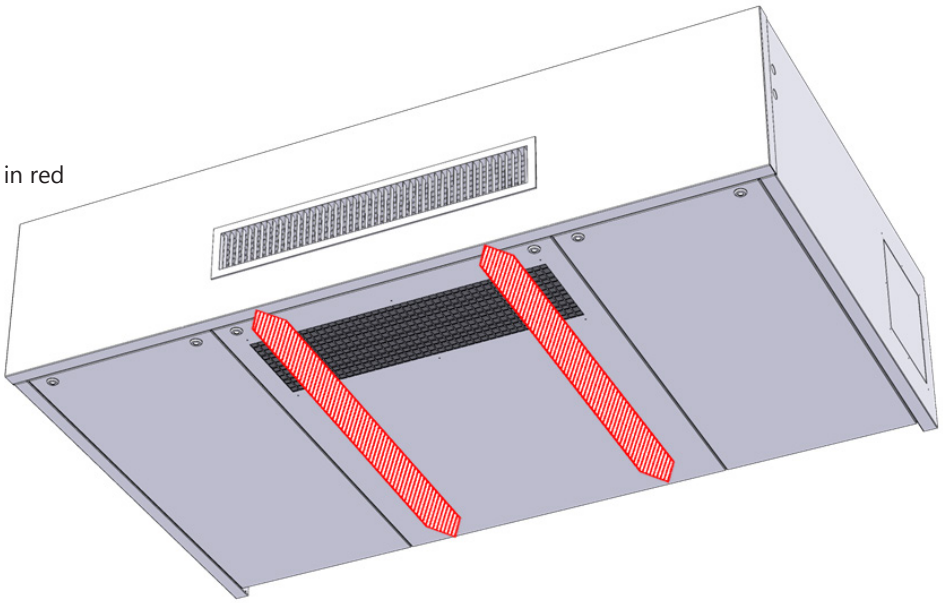


Supporting feet to hold the unit in vertical position during transport

Transport medias must be removed during installation.

Before any operation, check that the installation supports are able to support the weight of the ventilation unit with all its accessories and options

Support points for forklift forks marked in red



<u>Support areas under the central part:</u>
Recessed from doors seals and latches
From the lower edge of the front panel to the lower edge of the rear panel.

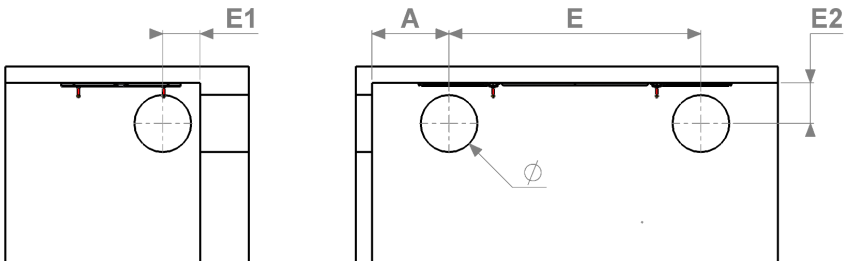
Make sure that there is no obstacle in front of the air stream:
- **If the ceiling is a slope, it is recommended to install the unit on the upper part of the slope**
- **There should be no beams perpendicular to the air stream**
- **If there are light fitting protruding from the ceiling, the air stream must be able to pass over the light fittings so that it is not blocked.**

2.4.4 Coring of the wall or the ceiling

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

Eversky™ Q Model	A mini (mm)	E (mm)	E1 mini (mm)	E2 mini (mm)	Ø mini (mm)
1100Q	245	1915	240	285	350

Positions of fresh air inlet and the exhaust air outlet in frontal or lateral configurations (see following image):



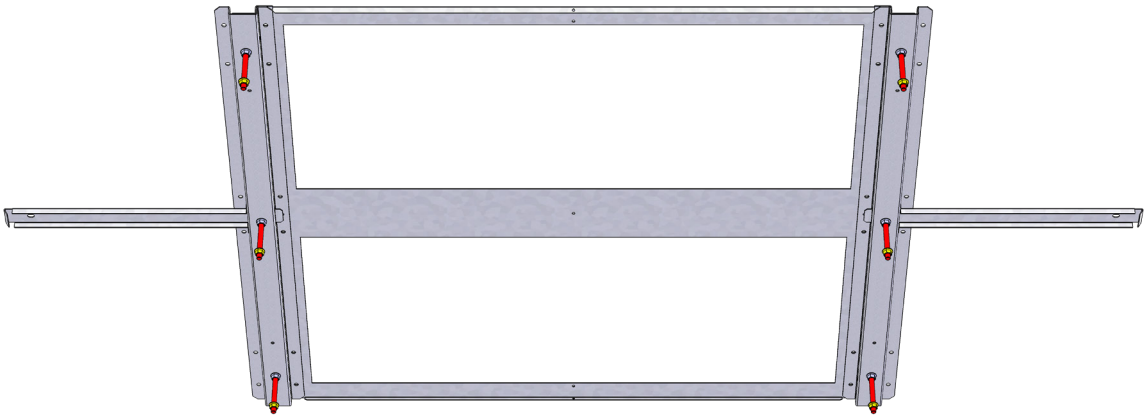
Eversky™ Q unit must be installed exclusively indoor, on the ceiling (with or without false celling).

Install the unit in such a way that bad weather or ambient temperature cannot damage the internal elements.
No water inlet from outside must be made possible: make sure to install awnings or rain grilles at the fresh air inlet or at the extract air exhaust. Leave a slight slop from the inside to the outside on the ducts of fresh air supply and extract air discharge.

Make sure to keep the airtight of the building at the core holes between the wall and ducts:
- On the outside : fill the gap between the duct and the core
- On the inside : fill the gap between the duct and the core or place a seal between the wall and the face concerned of the unit.

The fixing frame must always be attached to the top panel of the unit in order to ensure the sealing around the mounting screws.

The fixing frame supplied with the unit must also serves as an assembly plate.



CAUTION!
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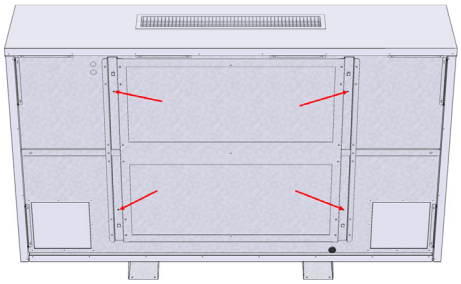
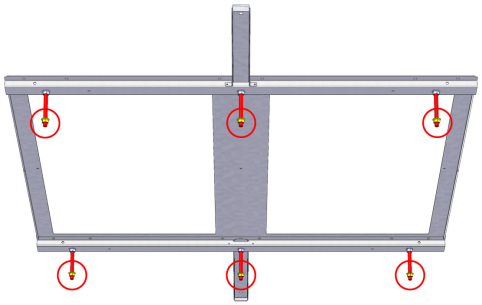
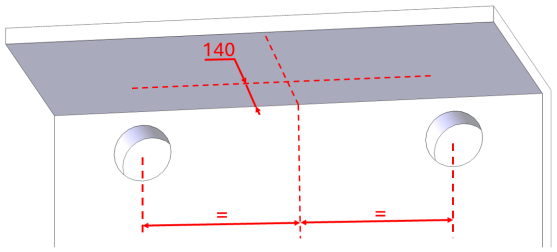
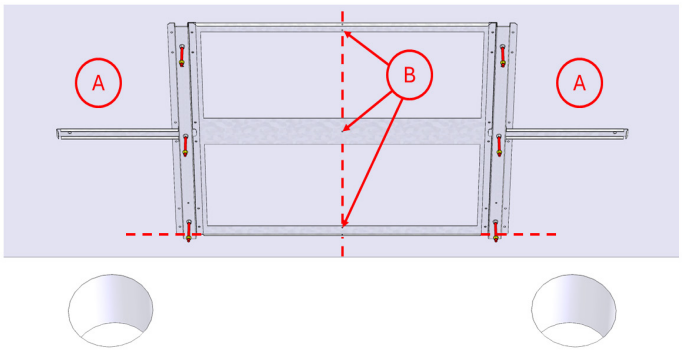
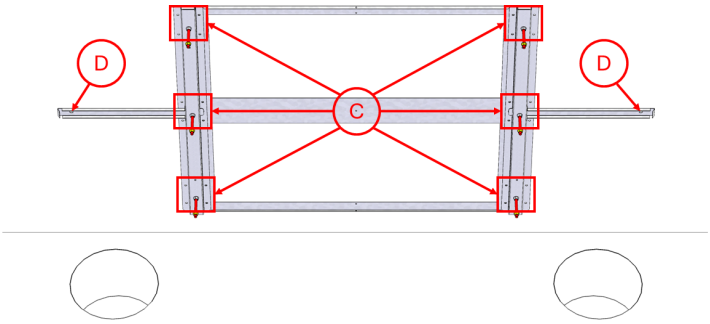
2.5 Installation procedure

Eversky™ Q Installation	
Operator qualification	Installer
PPE required	
Required tools	Standard tools - Drill

2.5.1 Fixing the frame to the ceiling

To correctly perform frame installation to the ceiling, follow the procedure below:

Step	Action	Picture
1	Remove the fixing frame from the top panel of the unit by unscrewing the 4 fixing screws. Note: the position of the fixing frame thus fitted at the factory corresponds to the clamping position once the unit is leaning against the wall. This position may refer to the prior dimensions taking depending on the installation configuration chosen.	
2	Check the presence of clamping nuts on the threaded rods of the fixing support (nuts to be engaged approximately 10mm after the end of the threaded rods).	

Step	Action	Picture
3	Draw 2 markers on the ceiling: • 1 line at 140mm from the wall on which the unit is leaning • 1 line perpendicular to the first above and centered in relation to the 2 cores made in the wall.	
4	Align the edge of the support on the first line and center the frame on the second line with the help of the holes (B) acting as markers (guiding plates (A) can optionally be removed beforehand to facilitate the installation of the frame and rewound afterwards).	
5	Attach the frame with the fixing holes (C) (6x4).	
6	Attach the 2 guiding plates on their ends with the fixing holes (D).	

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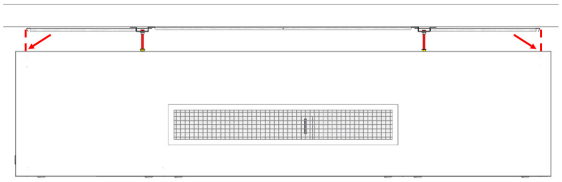
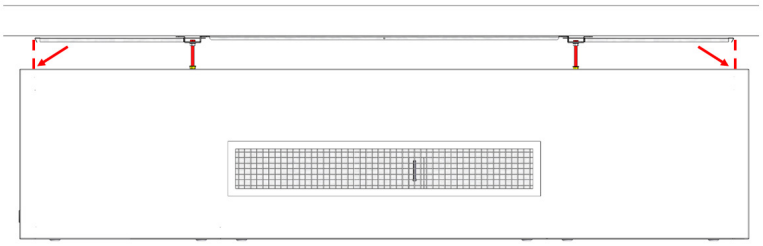
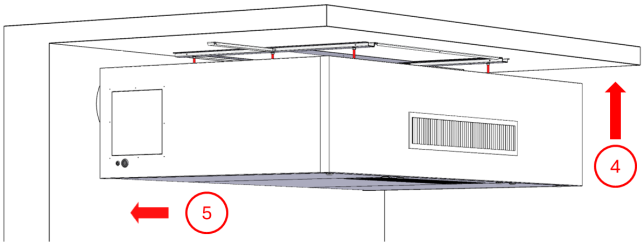
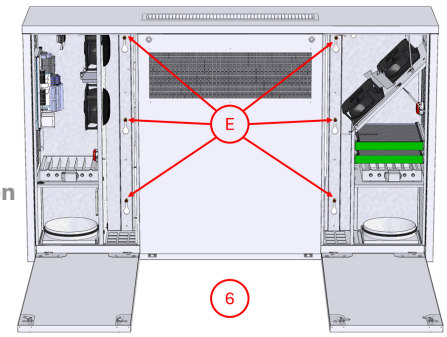
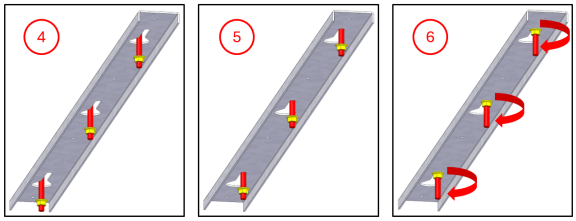
2.5.2 Positioning the unit on the fixing frame

To correctly perform the unit positioning on the fixing frame, follow the procedure below:

Step	Action	Picture
1	Place the unit in horizontal position (doors below and blowing grid at the front) and remove the transport supports.	-
2	Lift the unit and bring it close to its final position about 80mm from the wall and 110mm from the ceiling. (In this step, the screws (E) are still set back from above the unit)	
3	Adjust the position of the unit laterally using the 2 guiding plates acting as visual guide/ marker.	
4	Raise the unit until it is flush with the ceiling.	
5	Move the unit backwards until it is leaning against the wall.	D configuration (right) 
6	Open the side doors to tighten the nuts inside the unit so that the unit can be placed correctly against the ceiling and its trim adjusted.	 Engagement of threaded rods inside the unit.
7	Arrange the removable port / blind panels from inside according to the configuration of the installation (see „2.2.2 Airflow connections“).	-

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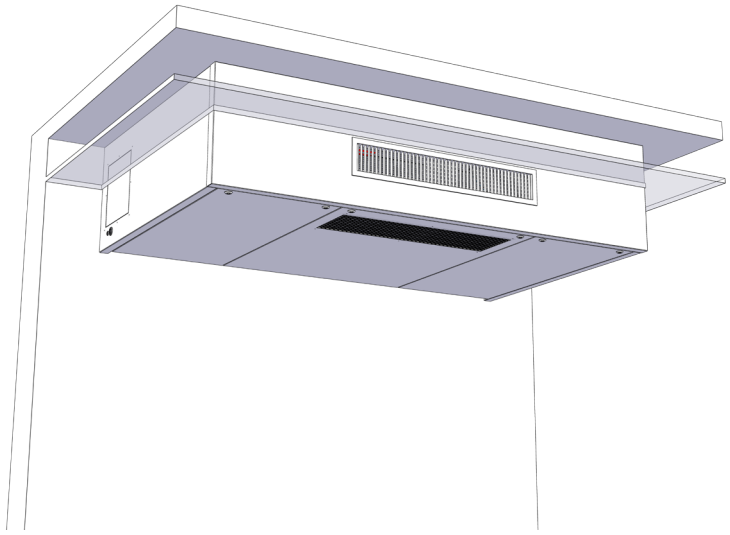
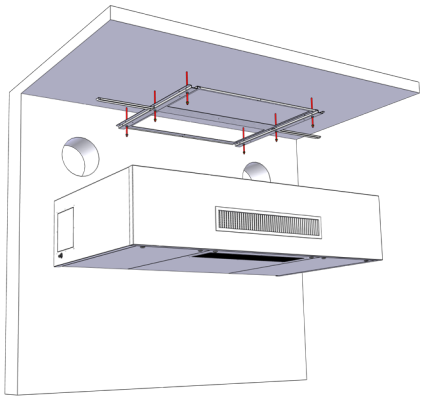
2.5.3 Installation of the unit in a false ceiling

The unit can be semi-recessed in a false ceiling up to 10mm above the blowing grid frame.



Ensure that the attachment of threaded rod in the ceiling is strong enough to be able to withstand:
- Unit weight itself and any options mounted on it
- Installation loads
- Maintenance/operation loads.

The unit can also be offset from the ceiling.
To correctly perform unit installation offset from the ceiling, follow the procedure below:

Step	Action	Picture
1	Remove the 6 screws (E) M10x100 and replace them by threaded rod M10.	
2	Allow the threaded rod to protrude 100mm below the support.	

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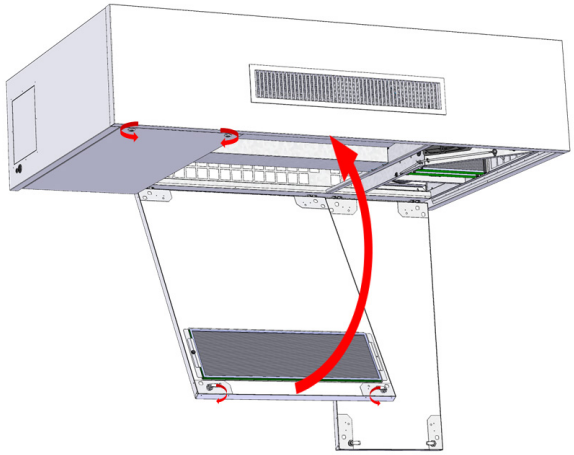
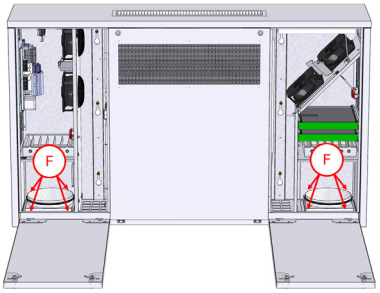
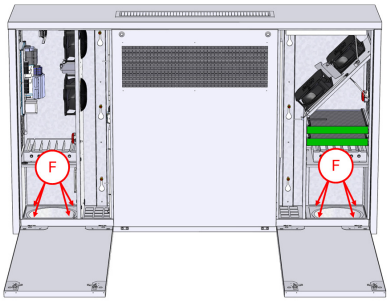
2.5.4 Access inside the unit

The Eversky™ Q unit has 3 independent, recessed and hinged doors for access to the interior.

Step	Action	Picture
1	Raise the door upwards.	
2	Turn the locks in the direction of the arrows.	

2.5.5 Aeraulic connection

To correctly perform aeraulic connection, follow the procedure below:

Step	Action	Picture
1	Remove the screws (F) and remove the port panels.	**D configuration (right)** 
2	Flip the port panels and connect them to the ducts.	**D configuration (right)** 
3	Tighten the screws (F). The modularity of the port panels makes it pos- sible to position them on any side ac- cording to the diagram showed (see “2.2.2 Airflow connections“).	

CAUTION!
The supplier shall not be held liable for any damage, to things or people, caused by accidents due to a failure to comply with the instructions provided in this manual and in the following chapters.

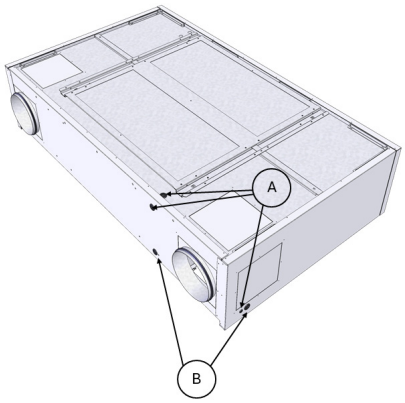
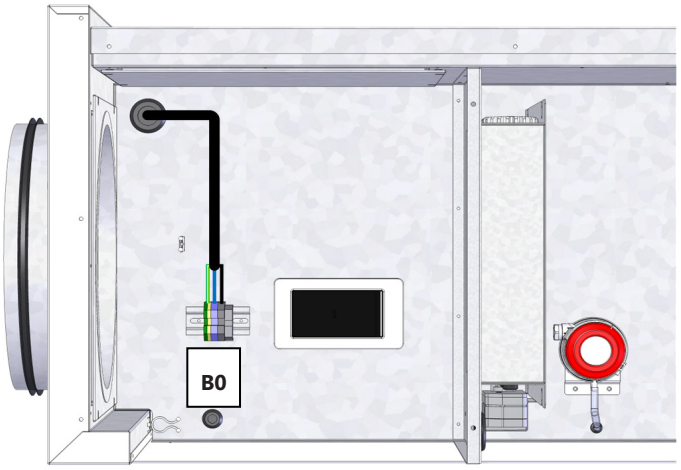
2.5.6 Power supply connection

It is mandatory to provide protection devices (circuit breaker, differential) upstream of the ventilation unit's power supply cable.

CAUTION!
The supplier shall not be held liable for any damage, to things or people, caused by accidents due to a failure to comply with the instructions provided in this manual and in the following chapters.

Power Supply Connection	
Operator qualification	Installer
PPE required	
Required tools	Standard tools - Drill

Proceed with the power supply connection according to the following steps:

Step	Action	Picture
1	Drill the rubber wire pass (A) or (B) positioned on one of the faces and run the power cable through it.	
2	One of the wire passes (B) is reserved for the draining of condensate by gravity.	
3	Connect power supply wires directly on the terminals (**B0**).	**R configuration (right)** 
4	The protective earth wire must be slightly longer than the line and neutral wires.	
5	Attach and clamp strongly the power supply cable to a fixed part (frame, cable tray...).	
6	Connect the main power supply to a lockable proximity switch (provided as an option) outside the unit.	

CAUTION!
The supplier shall not be held liable for any damage, to things or people, caused by accidents due to a failure to comply with the instructions provided in this manual and in the following chapters.

2.6 Condensate evacuation

2.6.1 Evacuation by gravity - general

As standard, the unit is designed for a gravity drain of condensate (without high points). The installation of a siphon is to be expected at the time of installation of the unit.

Non-compliance with the installation rules for condensate siphons can lead to the condensate tray overflowing and to internal flooding of the ventilation unit, which can result in damage to the equipment, malfunctions and danger to personnel.

The position of the condensate evacuation and the kind of connection interface are presented in chapter "External connections".

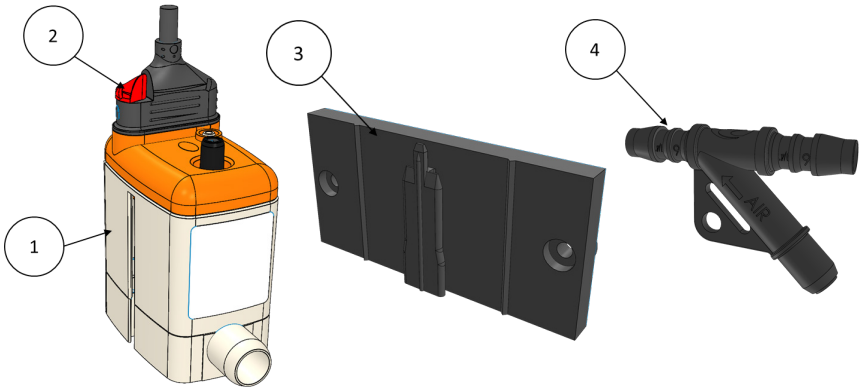
Provide a slope of 2 to 3 % in direction of condensate evacuation and ensure that the collector is neither under nor overpressured.

2.6.2 Condensate evacuation with condensate lift pump (optional)

Non-compliance with the installation rules for condensate Siphons can lead to the condensate tray overflowing and to internal flooding of the ventilation unit, which can result in damage to the equipment, malfunctions and danger to personnel.

If condensate drainage by gravity is not possible, a condensate lift pump with mounting accessories is available as an optional kit. The condensate lift pump makes it possible to evacuate the condensate at a higher level from the unit (for example on the roof, in another room...) or in case of high point on the evacuation line.

The operation of the pump does not affect acoustic qualities of the unit.

Step	Description	Picture
1	Pump	
2	Electrical cable with lockable connector	
3	Mounting bracket	
4	Anti-siphoning device	
-	Fixing screws (x2)	
-	Transparent PVC tube (length 5m to cut)	
-	Clamp	

The pump operates autonomously as soon as the 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 condensate tray.

As standard, the pump incorporates a NC (Normally Closed) dry contact level switch (LS1 / LS2) that opens when the condensate level contained in the condensate tray reaches a critical level, see "4 Wiring Diagrams".

This contact is used in order to control the operation of the ventilation unit in the event of abnormally high condensate level and thus protects the equipment, as well as the occupants and the staff.

Maintenance

The condensate lift pump requires regular cleaning with bleach in order to maintain the correct operation of the internal valves and the level detection device.
The frequency of cleaning should be adapted regarding the environment in which the unit operates.

Check the correct operating of the pump every maintenance operation.
Check absence of suspicious noise on the pump by forcing its operation in filling condensate pan with clean water.
Check the condition of the suction and discharge tubes and their connections.

Performances and operating limits

Description	Value
Maximal length	10m
Maximum elevation	5m
Condensate maximum temperature	+35°C
Overheating thermal protection (automatic reset)	+115°C
Overflow dry contact (LS1 / LS2) protection	NC (Normally closed) 8A resistive – 250Vac
Power input	14W

2.6.3 Installation of condensate lift pump

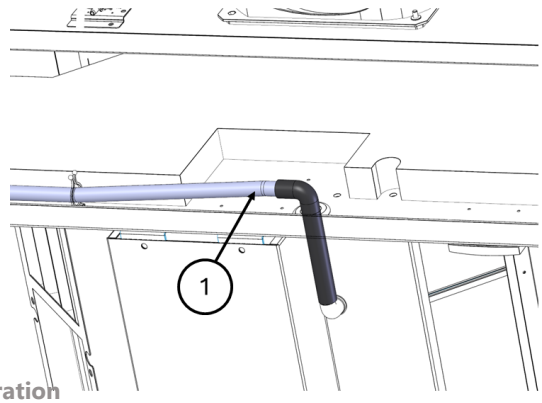
Preliminary checks

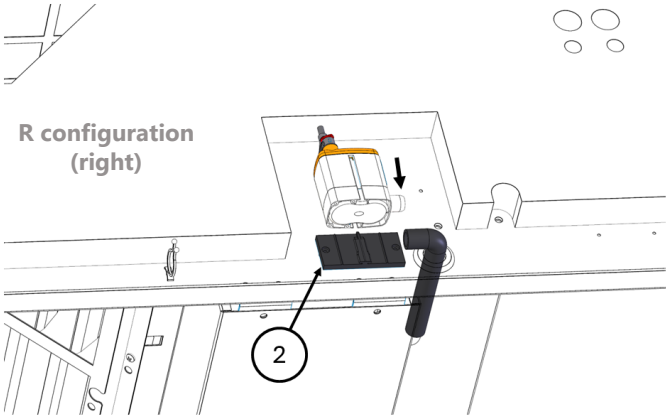
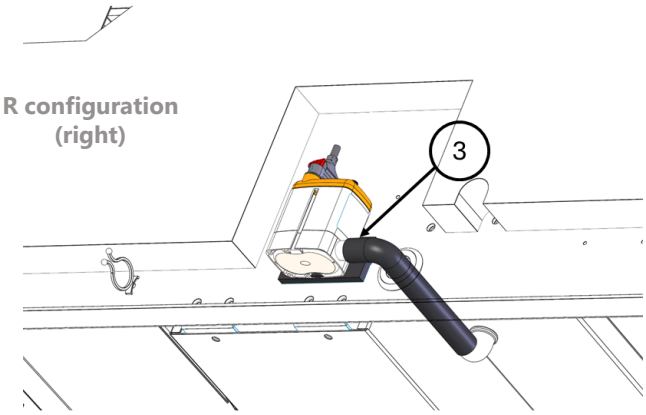
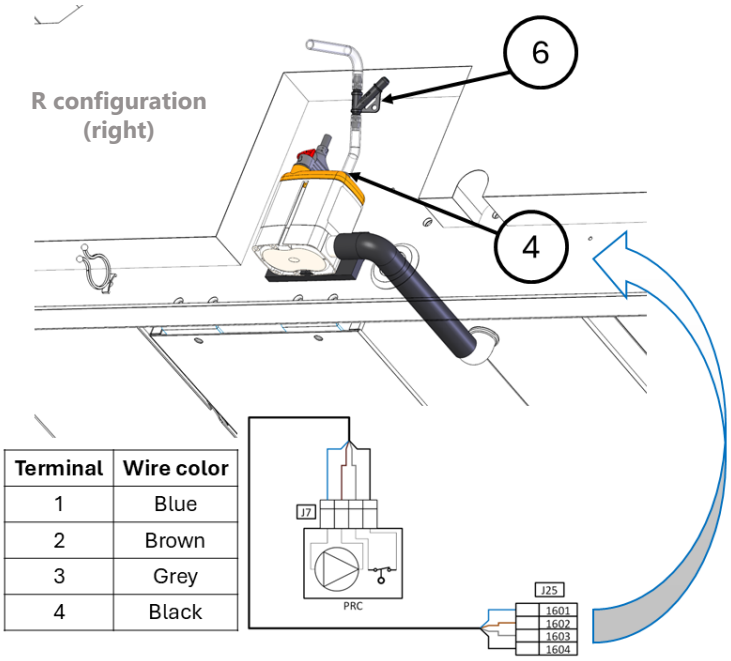
Beforehand, check the condensate pan and pipes for particles (metal chips, plaster/concrete debris...) that may have resulted from the installation and transport operation and remove them to avoid pump failure.

Installation

The transparent PVC tube must not pass through any area that may cause condensate to freeze. The condensate exhaust pipe must never pass through a section that could cause the discharged condensate to freeze.

Proceed with the condensate lift pump installation according to the following steps:

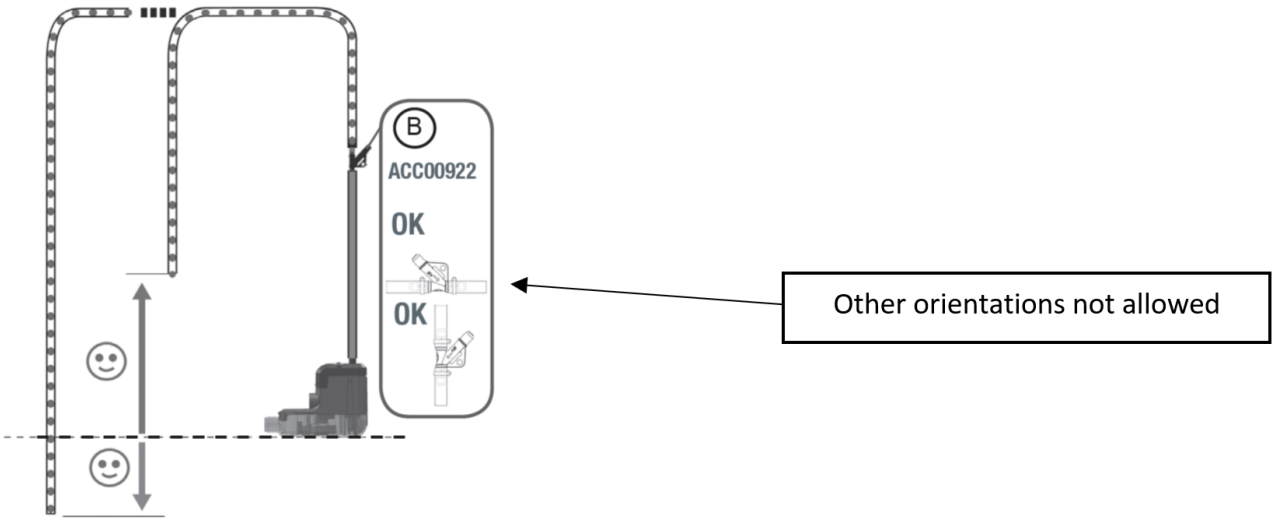
Step	Action	Picture
1	Remove the part of the tube that is equiped in standard in the unit and acts for drainage by gravity. Remove the cable tie and seal the hole.	 R configuration (right)

Step	Action	Picture
2	Fix the pump mounting bracket to the pre-drilled wall by means of the 2 metal sheet screws.	
3	Install the pump on the mounting bracket and insert the elbow sleeve into the suction connec- tion.	
4	Install the transparent PVC hose to the pump discharge connection.	
5	Pull the the transparent PVC tube to the de-sired discharge place taking care not to bend or pinch it. Secure it with Rilsan clamps to prevent the weight of water from distorting it.	
6	Install the anti-siphoning device to the rising part of the discharge tube after cutting it and respecting the mounting rules (see „Installa-tion of the anti-siphoning device“ here after).	
7	Connect the electrical cable to the terminals of the J7 connector (available near the pump) in accordance with the wiring diagram (see GENERAL WIRING DIAGRAM) and by remo-ving the shunt connected between terminals (3) and (4) beforehand.	
8	Plug the connector to the pump and lock it. Attach the electrical wires with the hose.	

Terminal	Wire color
1	Blue
2	Brown
3	Grey
4	Black

2.6.4 Installation of the anti-siphoning device

If the end of the discharge tube is below the condensate lift pump level, there is a risk of siphoning the pump which can lead to its failure by repeated dry running. To avoid this, it is therefore necessary to install the anti-siphoning device supplied in the condensate lift pump kit.
The anti-siphoning device keeps a sufficient column of water in the pump discharge tube when it stops. It must be installed at a higher level than the pump, vertically or horizontally, taking care to be oriented to the following recommendations:



2.6.5 Running test

Following the installation of the pump and its accessories, a test procedure is mandatory to verify the proper operation of the pump and avoid any inconvenience that could result.

Step	Description
1	Clean the condensate pan of any debris (assembly residues, manufacturing residues, packaging residues...) to avoid premature wear of the pumping system, clogging of the level detection chamber, and a clogging of the pump.
2	Gently pour water into the condensate pan using a bottle.
3	Check that the pump starts and stops properly to evacuate the spilled water. In the event of too large spill, the overflow safety can be triggered and cut off the electrical supply of the controller. Wait for the level to drop before allowing the controller to be power again.

2.6.6 Diagnosis

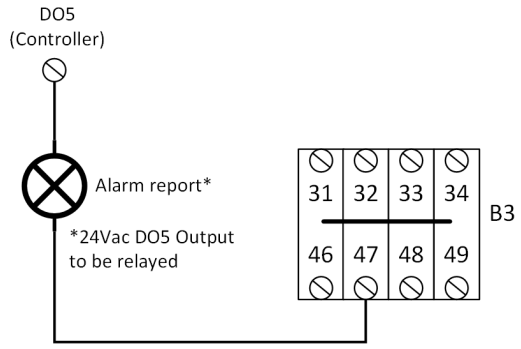
For any problem, check beforehand:
- Suction and discharge tubes are not pinched or obstructed
- The float inside the pump is not blocked
- The suction and discharge ports of the pump are not obstructed.

Symptoms	Causes and remedies
The pump does not work regardless of the water level in the tank.	Check the power supply of the pump and wiring.
The pump operates continuously without shutdown phase and sucks in no/little condensate level.	Check that the height of discharge does not exceed the maximum allowed height. Check the tightness of the suction tube and absence of air intakes. Replace the pump if necessary.
The pump continuously chains the on/off cycles.	Stop the pump and check the water column in the discharge tube does not go down. If so, replace the pump.

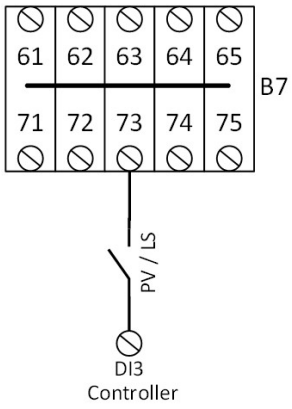
2.7 Electrical connection of external devices

The Eversky™ Q smart and built-in EASY 5.0 control provides specific inputs and outputs to the user knowing device status or forcing its operation, or possibly controlling remote devices

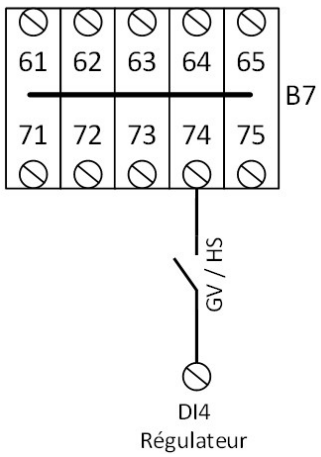
2.7.1 Alarm report output (DO5) - 24Vac to be relayed

Description	Picture
Factory setting = NO (Normally Open) output Output in idle state (open) = no active alarm or presence of Class C alarm (warning). Active output (closed) = Class A or B alarm is active. 24Vac output to be relayed.	

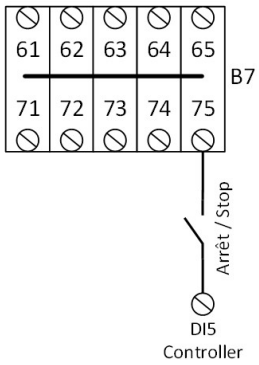
2.7.2 Forced reduced speed digital input (RS=Reduced Speed) (DI3)

Description	Picture
The forced reduced speed external control is used to force the unit to operate in reduced speed. This function is active when the contact is closed. The function has priority if the unit is: - In normal speed by the timer - Stopped by the timer.	

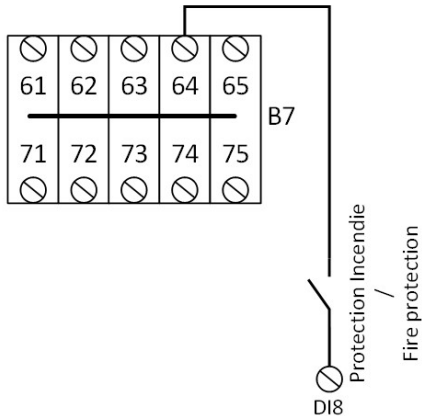
2.7.3 Forced normal speed digital input (NS=Normal Speed) (DI4)

Description	Picture
The forced normal speed external control is used to force the unit to operate in normal speed. It is active when the contact is closed. The function has priority if the unit is: - In reduced speed by the timer - In reduced speed by the forced reduced speed external control - Stopped by the timer.	

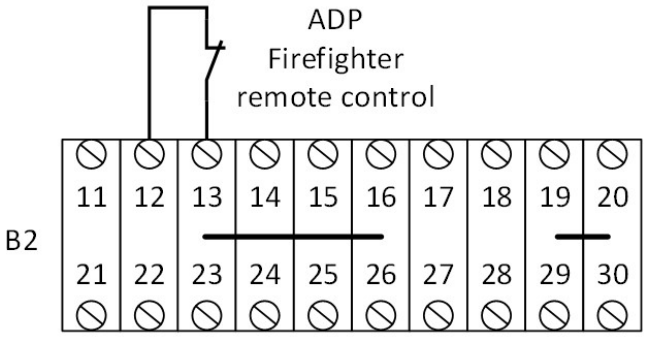
2.7.4 External stop digital input (DI5)

Description	Picture
The external stop control is used to force the unit to shut down. It is active when the contact is closed. The function has priority if the unit is: - In reduced or normal speed operation by the timer - In forced reduced speed or forced normal speed by external control	

2.7.5 Fire protection digital input (DI8)

Description	Picture
Fire protection digital input makes it possible to force the operation of the unit regardless the actual setpoint required by the control in a flexible way according to several options available in the controller. This function is not actived as standard, it must be configured. The input can be configured as NC (normaly closed) or as NO (normally open) as needed.	

2.7.6 Firefighter remote control (ADP)

Description	Picture
Replace the factory shunt between terminals (12) and (13) by a NC (Normally Closed) dry contact acting as firefighter remote control. When the contact opens, the 24Vac supply is cut off depriving the controller of any function (no more display available). The shut-off dampers on fresh air and exhaust air close themself by means of their automatic return spring. All the actuators return to their resting position.	

2.8 General Operation

The Eversky™ Q unit features the following functions as standard:

Ambient air CO2 management
The smart built-in control EASY 5.0 continously acts on the speed of the supply and extract air fans in order to maintain the CO2 level of the room at a level compatible with the requirements of comfort and hygiene. The measured CO2 rate being the image of the occupancy rate of the room, when the CO2 rate increases, the speed of the fans increases to increase the air renewal, and vice versa. The energy consumed by the fans and the noise level of the unit are thus continuously optimized.

Thermal energy recovery management
Depending on the (adjustable) temperature setpoint, the control continuously adapts the thermal energy recovery rate of the recuperator in order to maintain the heat in the room in cold periods, or the coolness in hot periods. When the conditions are right, the plant can deactivate the heat recovery and switch to free cooling or free heating mode. The fully configurable night cooling function makes it possible to force the air flow at night to lower the temperature of the room at the beginning of the day , thus improving thermal comfort and limiting energy consumption related to the use of any auxiliary devices (air conditioning, reversible heat pump, etc.).

Plate heat exchanger frost protection through bypass smart control
At low outside air temperature, the fresh air flow through the plate heat exchanger is continuously optimized to prevent frost in the heat exchanger and maximize energy performance.

Shut-off function (insulation)
The Eversky™ Q unit is equipped as standard with shut-off dampers that close themself when the unit is stopped or in the event of a power cut in order to avoid any parasitic air circulation between the room and the outside.

2.8.1 Start up sequence

The start up sequence is enabled when the following conditions are met:

- The unit is ON,
- And there is no active Class A alarm (alarms that stop the unit), or the external stop control is not active,
- And at least one hourly program (reduced speed or normal speed) is active, or a forced run (normal or reduced speed) is active, or the fire function, set to start the unit, is active, or there is a request for running from BMS.

The start up sequence spans a total time of 120s. Throughout this time, the alarms are inhibited and the unit starts on the operating point defined at the initialization of the thermal sequences at startup. The minimum fan control signal does not apply.

The openings of the fresh air and exhaust air dampers open as soon as the start sequence is activated. The extract fan control signal is released 15s after the start up sequence is activated. 15s later, the supply fan control signal is released and the supply fan starts.

Once the 120s have elapsed, the ventilation unit switches to normal mode at the end of the start-up sequence. The minimum and maximum control signal of the fans is then taken into account, and alarm monitoring is activated.

In the event of a power failure, the unit will automatically restart as soon as the power supply is restored.

2.8.2 Shutdown sequence (post-ventilation)

The shutdown sequence occurs when at least one of the following conditions is present:
- Appearance of an alarm whose action requires the normal shutdown of the unit (be careful, some alarms are programmed to fast shutdown, in this case the normal shutdown sequence is ignored and the unit stops immediately),
- Switching to OFF the unit,
- No active time slot,
- The fire function is set to stop the unit,
- Stop request coming from BMS.

The shutdown sequence extends over a time related to the setting of fan shutdown times (post-ventilation) and closing times of fresh air and exhaust air dampers. When the shutdown sequence is activated, the alarm management function and the electric coil output are immediately deactivated (the hot/cold water coil and recuperator outputs remain active). The blowing fan is stopped after 180s. The return fan shuts down 30s later. The fresh air and return air dampers are closed 5s after the return fan is stopped and all actuator control signals are disabled.

CAUTION!
The supplier shall not be held liable for any damage, to things or people, caused by accidents due to a failure to comply with the instructions provided in this manual and in the following chapters.

2.9 Starting Up

The clamps that hold the PG 5.0 mobile wired remote touch screen and the controld board during the transport phase can be removed permanently. The Eversky™ Q ventilation unit is delivered preset and ready for operation.
The commissioning procedure can follow the following sequence of steps:

Step	Icon PG 5.0	Action	Additional Information
1		Installation and electric wiring of options (if present)	
1.4		External controls (ADP, DAD, low speed remote order, high speed remote order, stop remote order, fire protection) wiring	See “2.7 Electrical connection of external devices“
1.5		Signal outputs (alarm indicator) wiring	See “2.7 Electrical connection of external devices“
1.6		EDT2 remote room touch control wiring	See EDT2 manual See ZEH-CSY-INM-EDT2-en manual
2		Controller date and time setting	See C-V0125-CSY-INM-CALADAIR-EASY5.0-en
3		Automatic/manual daylight-saving setting	See C-V0125-CSY-INM-CALADAIR-EASY5.0-en
4		Time schedules setting	See C-V0125-CSY-INM-CALADAIR-EASY5.0-en

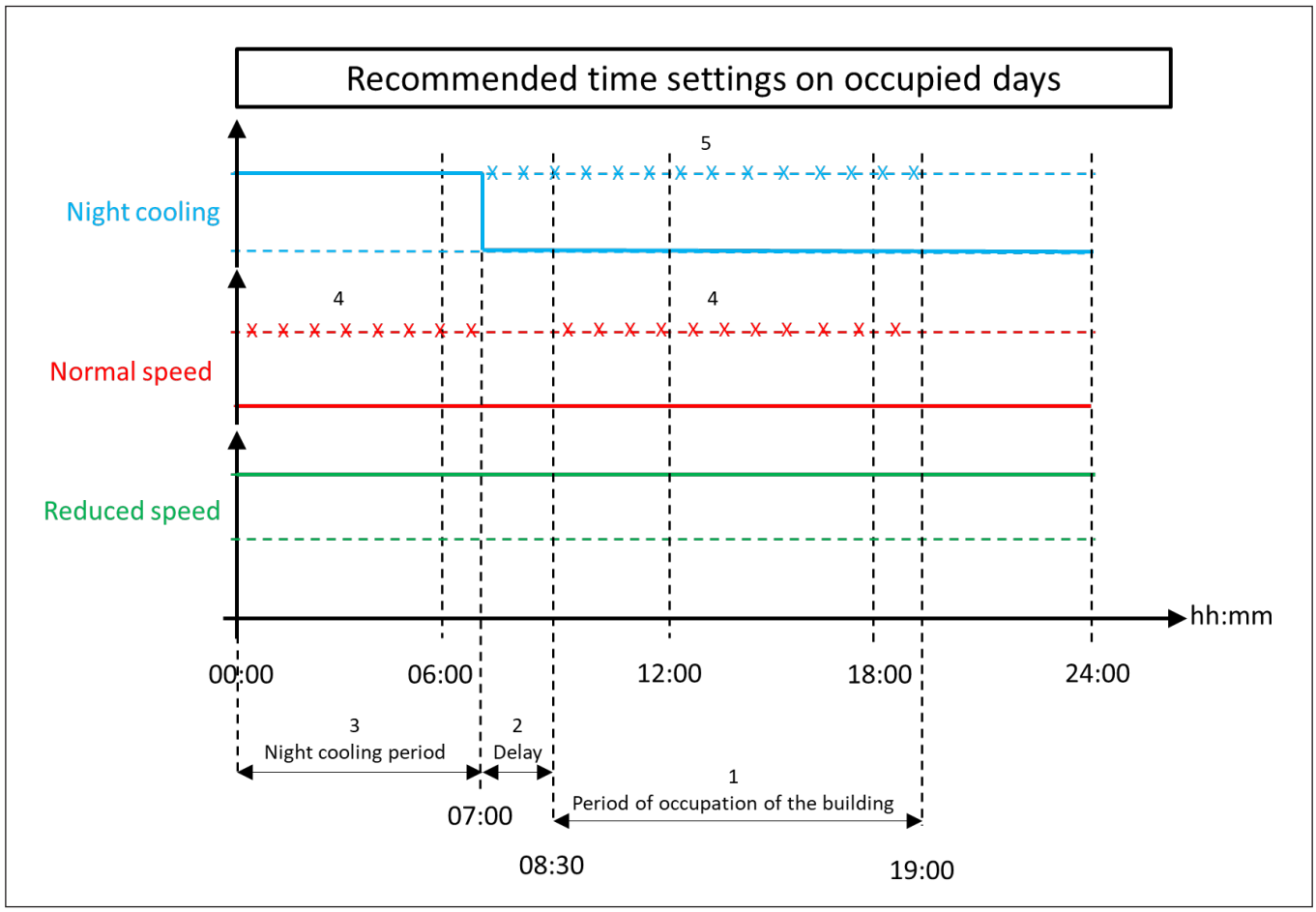
Step	Icon PG 5.0	Action	Additional Information
5		Fans setpoints setting	See C-V0125-CSY-INM-CALADAIR-EASY5.0-en
6		Temperature setpoints setting	See C-V0125-CSY-INM-CALADAIR-EASY5.0-en
7		Communication ports wiring and setting	See C-V0125-CSY-INM-CALADAIR-EASY5.0-en
8		Specific functions setting	See C-V0125-CSY-INM-CALADAIR-EASY5.0-en
8.1		Night cooling function	See C-V0125-CSY-INM-CALADAIR-EASY5.0-en
8.2		Fire protection	See C-V0125-CSY-INM-CALADAIR-EASY5.0-en
8.3		Frost prevention function by reducing supply airflow rate	See C-V0125-CSY-INM-CALADAIR-EASY5.0-en
9		Checking the correct operation and PIDs ad- just- ment	See C-V0125-CSY-INM-CALADAIR-EASY5.0-en
10		Backup of user settings*	See C-V0125-CSY-INM-CALADAIR-EASY5.0-en

*Using the backup function at the end of the commissioning will save all the adjusted parameters and will allow to restore a useful setup in any time.

2.9.1 Setting up the time schedules

The operating principle of the Eversky™ Q unit is to continuously adjust the air flow according to the CO2 level measured in the room by acting on the fan speed in order to always optimize comfort and energy consumption.
The time schedule is to be adapted according to the type of room occupancy if thermal comfort is provided by an already existing heating/cooling device and there is no night occupation, the shutdown of the machine can be considered on this time slot if there is no minimum ventilation requirement (evacuation of residual moisture, VOC...).

Recommended settings for the occupation day of the room ventiled by Eversky™ Q:



In the diagram above, the crosses (x) indicate the time slot 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) (days of occupancy):

1. Identify the occupancy slot of the room (for example 8:30 ... 19:00).

2. Respect a delay of at least 1h00-1h30 between the end of the night cooling and the beginning of the period of occupation of the room (end of night cooling = 7h00).

3. Start the beginning of night cooling around midnight. Too early = risk of getting a building too cool in the morning (with a start of the function while the outside temperature is still too hot = poor performance of night cooling), too late = risk of limited effectiveness of night cooling.

4. The normal speed must not be programmed during periods of night cooling or occupancy of the building so that the night cooling function can be activated, and the CO2 control remains functional. It can possibly be the rest of the time.

5. The night cooling period should not be activated during the day or during the occupancy period.

2.9.2 Adjustment of ventilation setpoints and CO2 management

The principle of CO2 control is to manage the speed of the fans (and therefore the airflow rate) according to the level of CO2 in the room. The higher the CO2 level, and therefore the higher the occupancy rate, the faster the fans turn, and therefore the higher the airflow (air renewal). Comfort and air quality are maintained at all times.

Recommendation to adjust the low CO2 threshold:
Ambient air contains a variable share of CO2 depending on where you are located. This concentration is usually always above 300ppm for an extra-urban location and can exceed 700ppm for a very dense urban location. An increase in the speed of the fans and therefore in the air flow will in no way lower the concentration of CO2 in the room below this "base" value.

It is therefore advisable not to set the CO2 threshold for the reduced speed too far below the basic CO2 concentration of the outside air, in order not to generate unnecessary air exchange, which leads to energy consumption and noise pollution.

Recommendation to adjust the high CO2 threshold:
The level of CO2 in the supply air has a direct impact on the comfort and well-being of the occupants. Repeated and prolonged exposure to CO2 concentration values above 1000ppm can have adverse effects on the human body. This value of 1000ppm will therefore be kept as a reference for the CO2 threshold setting for normal speed.

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

When the high threshold of CO2 (1000ppm) cannot be maintained, especially in case of high occupancy of the room, it may be necessary to increase the normal speed setpoint.

In the event that the unit is not equipped with a heating coil, the reduced speed setpoint may be reduced without being less than 30% in order to ensure:
Evacuation of residual moisture from the room
Proper operation of the supply and extract air fans as well as their operating control device (DEP S and DEP R).

CAUTION!
The supplier shall not be held liable for any damage, to things or people, caused by accidents due to a failure to comply with the instructions provided in this manual and in the following chapters.

3. Troubleshooting - Maintenance

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 that the screw connectors are tight.

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

3.1 Periodic Maintenance

CAUTION!
Maintenance and decommissioning of the installations must be carried out under conditions that ensure compliance with the applicable environmental regulatory 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.

CAUTION!
The warranty will be void if the maintenance instructions are not followed.

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

CAUTION!
Service and maintenance work must be carried out by qualified personnel equipped with the appropriate tools and equipment (Personal Protective Equipment, multimeter, etc...).

3.1.1 Annual general checking

Check the ducts, flexible sleeves and anti-vibration pads and replace them if necessary.
Check that all the components connected to the control unit are in place so that no vibrations can be transferred to external items.
Check the electrical connections and the tightness of the terminals.

3.1.2 Checking filters

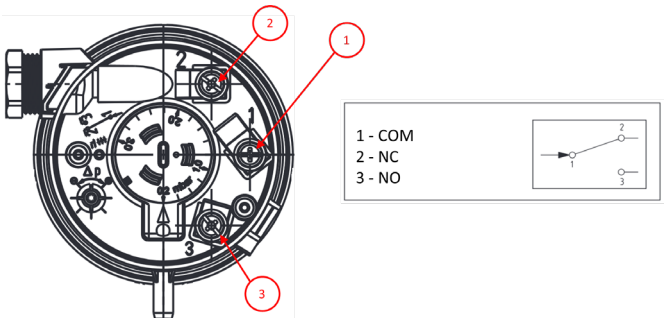
Classification		Cleaning (water + gentle detergent)	Blowing or vacuum cleaning
Filtration efficiency ISO 16890	Reference		
ePM1 - 55%	F7	NO	

3.2 Fresh air filter pressure switch DEP FS

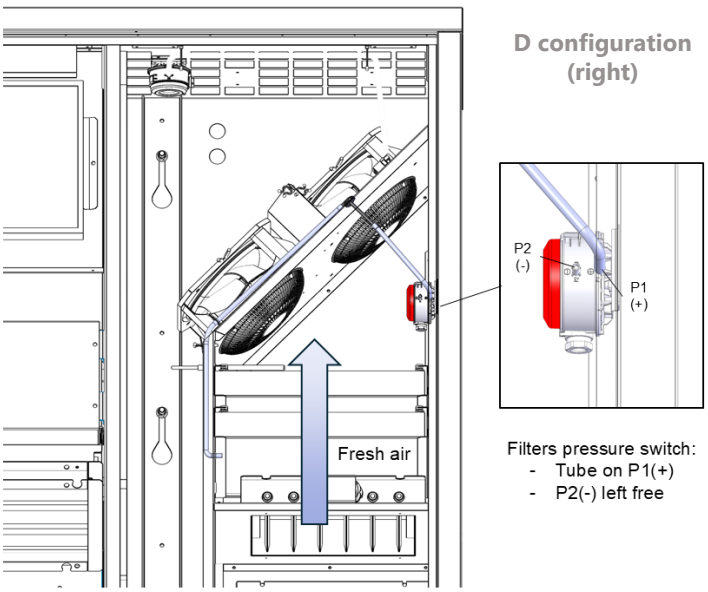
3.2.1 Setting the tare

Description	Picture
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. If the pressure drop of the filters exceeds the pressure switch setting, the controller informs the user by means of a warning.	

3.2.2 Electrical connection

Description	Picture
The filter pressure switch is of the NO type (normally open). The contact is open at rest and closes when the filter pressure drop (differential pressure) is higher than the setting (200 Pa at the factory). The pressure switch must be connected between terminals (1) and (3) according to the electrical wiring diagram.	

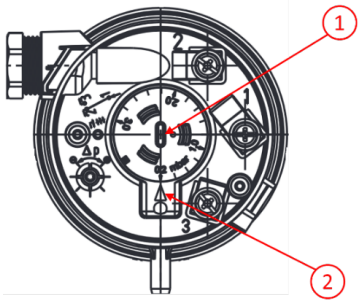
3.2.3 Pneumatic connection

Description	Picture
In case of replacement or removal of the compo- nent, the pneumatic connection must be respected during re-installation as described in the picture.	

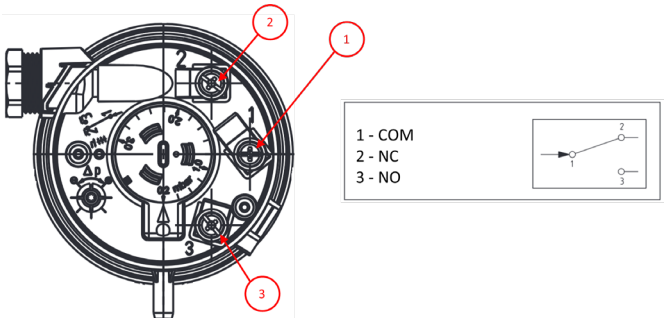
3.3 Fans pressure switches DEP S and DEP R

The operation of the supply and exhaust fans is continuously monitored by two air pressure switches which inform the controller whether or not there is sufficient air pressure. The location of each pressure switch is shown in chapter "8.1 General overview of the unit".

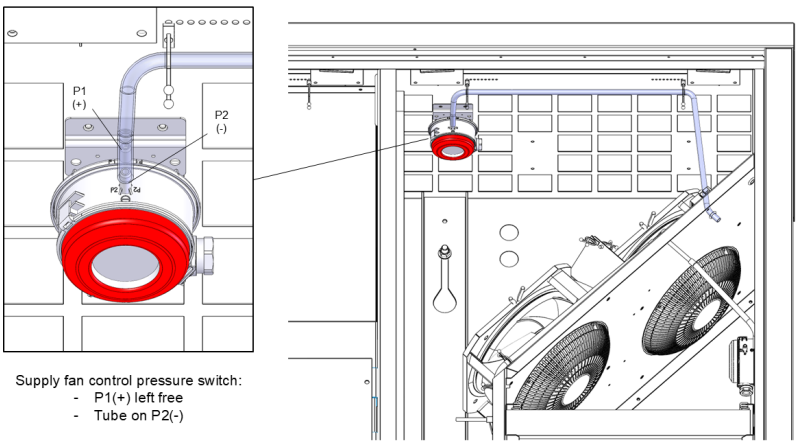
3.3.1 Setting the tare

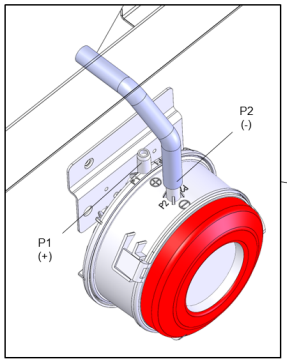
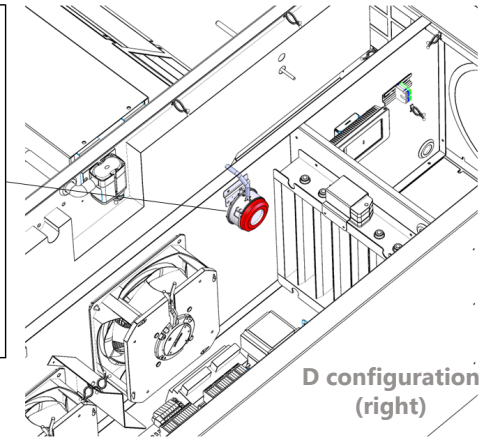
Description	Picture
The nominal setting of fan pressure switches is 25Pa. There is no need to change the factory setting. This setting must be respected when the component can be replaced if necessary, which can be delivered on another setting value. The adjustment is simply done using a flat foot-print screwdriver by turning the central element (1) so that the arrow (2) coincides with the set value.	

3.3.2 Electrical connection

Description	Picture
Pressure switches are of type NO (Normally Open). The contact closes when the differential pressure generated by the air flow exceeds the adjustment value of the pressure switch (25 Pa at the factory outlet). Pressure switches shall be connected between ter- minals (1) and (3) in accordance with the electrical wiring diagram.	

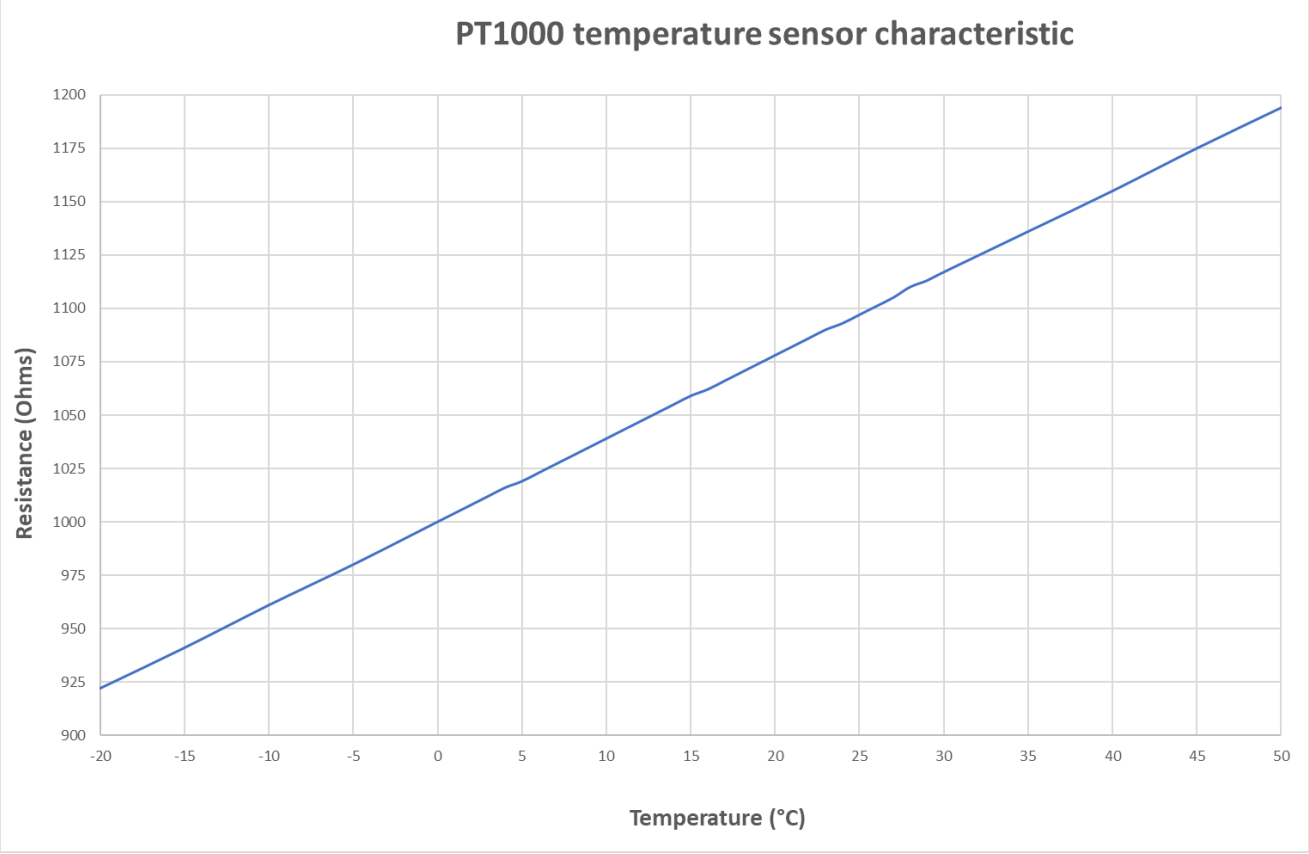
3.3.3 Pneumatic connection

Description	Picture
If the component is replaced or removed, the pneumatic connection must be respected during re- installation as described in the table below. The operation of the supply air and extract air fans are controlled by air pressure switches that inform the controller of the unit of the proper functioning of the fans.	 Supply fan control pressure switch: - P1(+) left free - Tube on P2(-) **D configuration (right)**

Description	Picture
These pressure switches are of type NO (normally open). At rest, contact is open. It closes when the differential pressure exceeds the setting value (25 Pa out of the factory). In case of replacement, respect the setting, the position of the electrical connections and the transparent pressure taking tubes.	 Extract fan control pressure switch: - P1(+) left free - Tube on P2(-) 

3.4 Temperature sensor

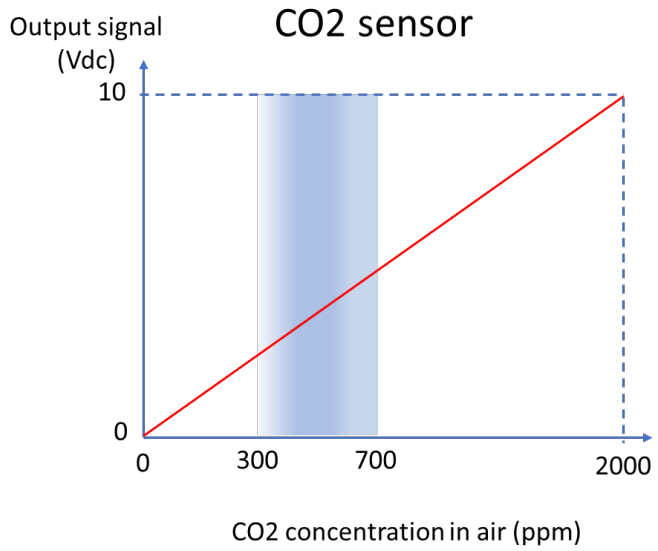
The temperature sensors are PT1000 type. The location of each temperature sensor is shown in chapter "8.1 General overview of the unit".
The curve below shows the resistance characteristic of the sensitive element as a function of its temperature.



The sensor is simply checked using an ohmmeter and a reference thermometer. The resistance measured at the terminals of the (disconnected) sensor wire must correspond to +/- 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 check is good, but the control displays an incorrect value, the problem may be due to faulty connectors/wires or an incorrect offset that has been set.

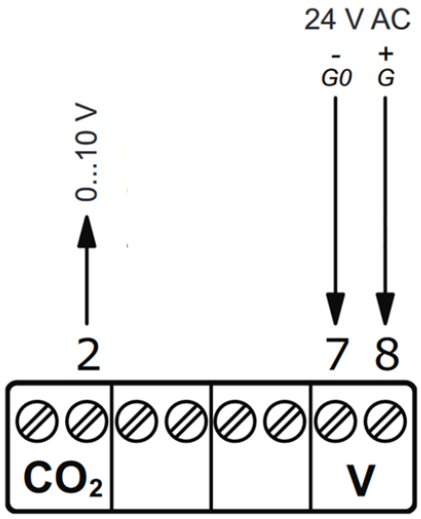
3.5 CO2 sensor

The CO2 sensor is placed in the extract air circuit (see chapter “8.1 General overview of the unit”) and must not be moved.
The CO2 sensor transmits the image of the CO2 concentration (ppm) in the extracted air as a 0-10V analogue signal that can be interpreted by the controller:



Ambient air naturally contains a variable share of CO2 depending on where you are located. This concentration is usually always above 300ppm for an extra-urban location and can exceed 700ppm for a very dense urban location.

The output signal of the CO2 sensor is therefore never zero and should normally always be greater than 3V. In the case, conversely, it is possible that the probe or connectors have a problem.



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

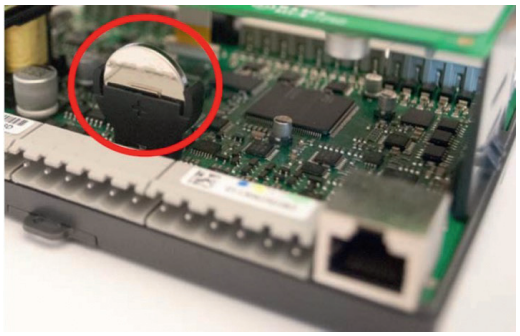
CAUTION!
The supplier shall not be held liable for any damage, to things or people, caused by accidents due to a failure to comply with the instructions provided in this manual and in the following chapters.

3.5 Replacing the internal memory battery

CAUTION!
This procedure requires knowledge of proper ESD protection, i.e. an earthed wristband must be used!

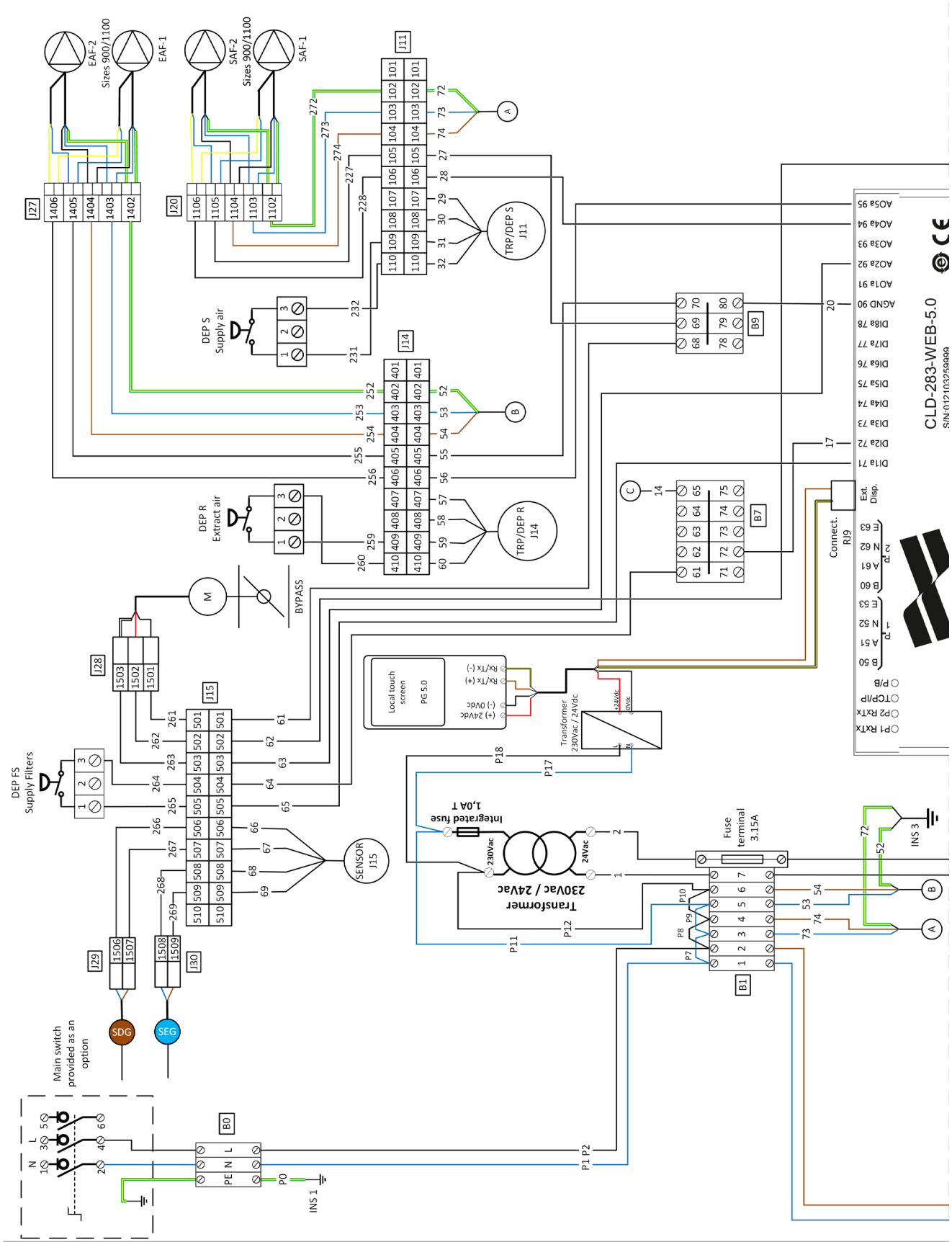
When the alarm (48) "Internal Battery Error" is activated and the battery LED (P/B) lights up red, the battery for backup of program memory and real-time clock has become too weak. A backup capacitor saves the memory and keeps the clock running for at least 10 minutes after the power supply is removed.

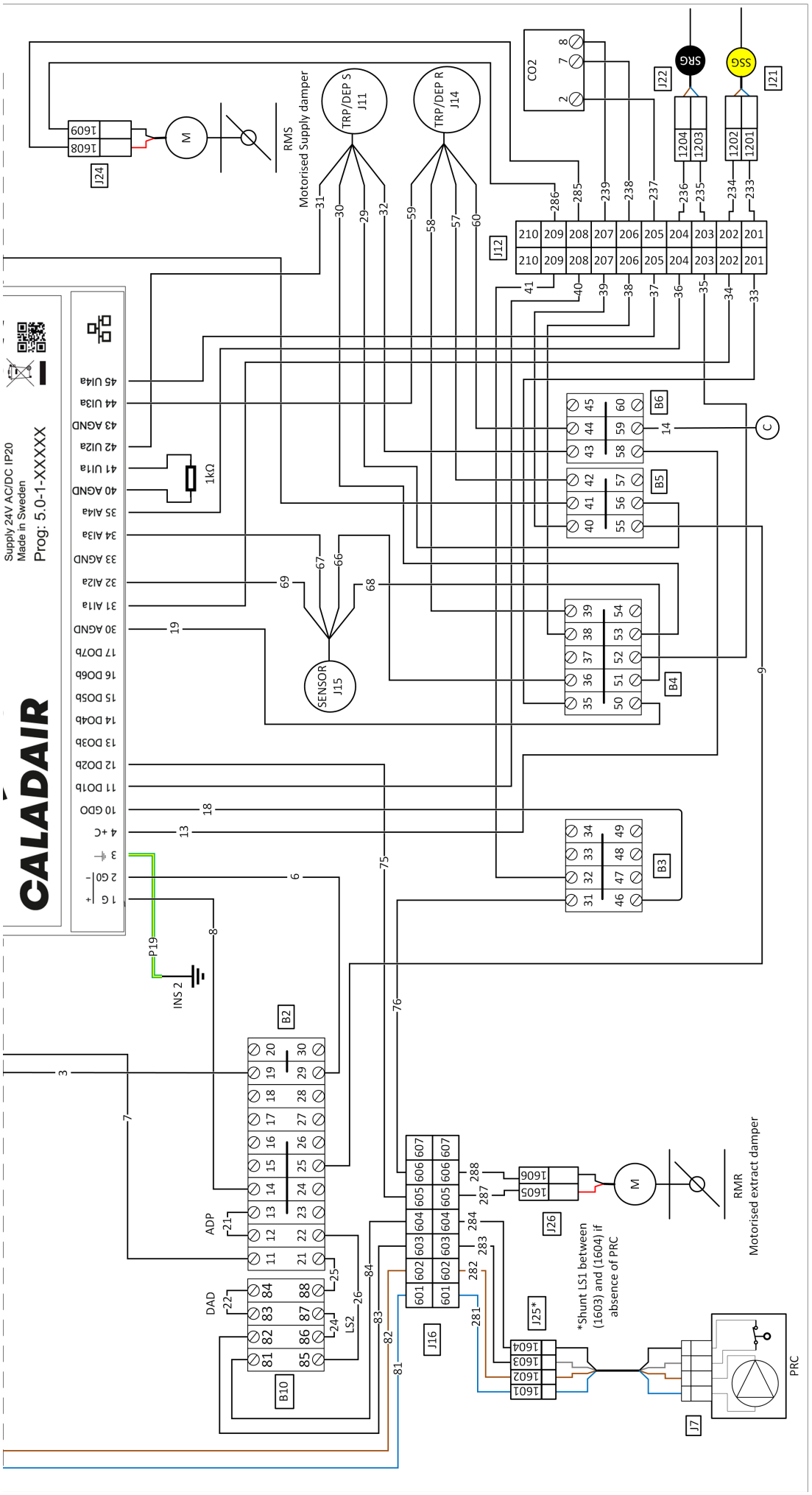
The procedure for replacing the battery is described below:

Step	Action	Picture
1	A condenser takes over when the battery is removed.	
2	The battery should be replaced within approximately 10 minutes after the power supply is cut off. **If the battery replacement takes less than 10 minutes, it will not be necessary to reload the programme and the clock will continue to operate normally. If necessary, the controller must be reprogrammed.** **It is a CR2032 battery.**	
3	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. Hold the battery and gently pull it upwards until it comes out of the battery holder.	
4	Replace the new battery by pressing firmly on it to slide it into its holder. Note: Pay attention to the direction of the battery to ensure correct polarity.	

CAUTION!
The supplier shall not be held liable for any damage, to things or people, caused by accidents due to a failure to comply with the instructions provided in this manual and in the following chapters.

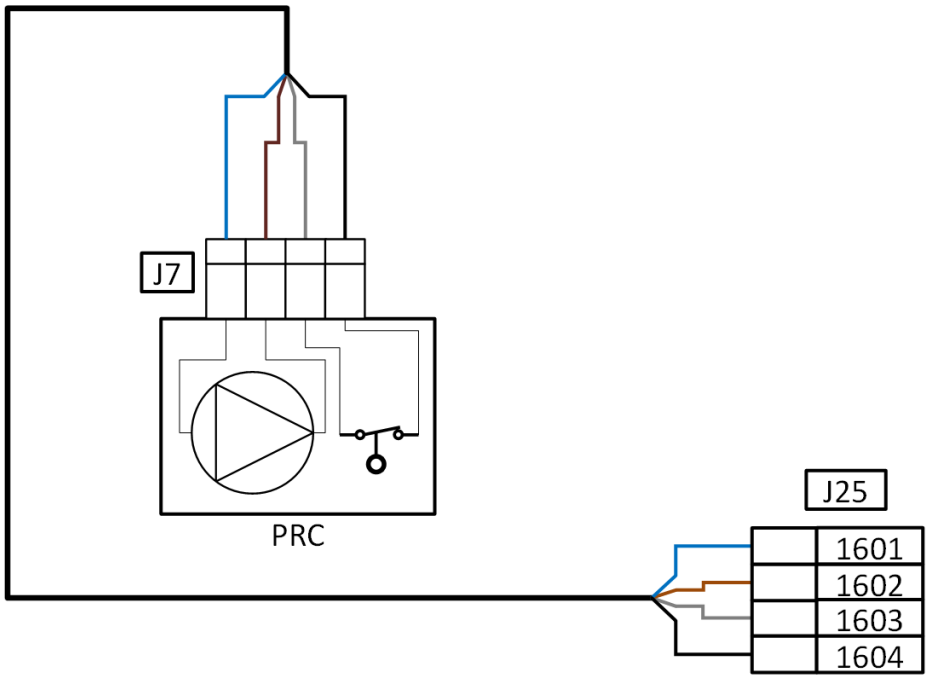
4. Wiring Diagram




CALADAIR
Supply 24V AC/DC IP20
Made in Sweden
Prog: 5.0-1-XXXXX
45 UI4a
44 UI3a
43 AGND
42 UI2a
41 UI1a
40 AGND
35 AI4a
34 AI3a
33 AGND
32 AI2a
31 AI1a
30 AGND
17 DO7b
16 DO6b
15 DO5b
14 DO4b
13 DO3b
12 DO2b
11 DO1b
10 GDO
4 +C
3
2 G0 -
1 G +
1kΩ
INS 2
P19
RMS
Motorised Supply damper
TRP/DEP S
J11
TRP/DEP R
J14
SENSOR
J15
CO2
SRG
SSG
J21
J22
J24
J12
B2
B3
B4
B5
B6
B10
ADP
DAD
LS2
J16
J25*
J26
J7
C
RMR
Motorised extract damper
PRC
*Shunt LS1 between
(1603) and (1604) if
absence of PRC

5. Wiring diagram of customer connections

Condensate lift pump:

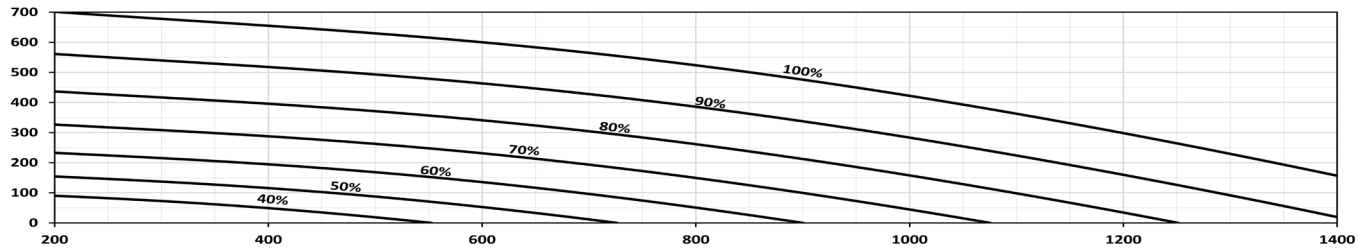


6. Easy 5.0 control

Refer to specific manual C-V0125-CSY-INM-CALADAIR-EASY5.0-en.

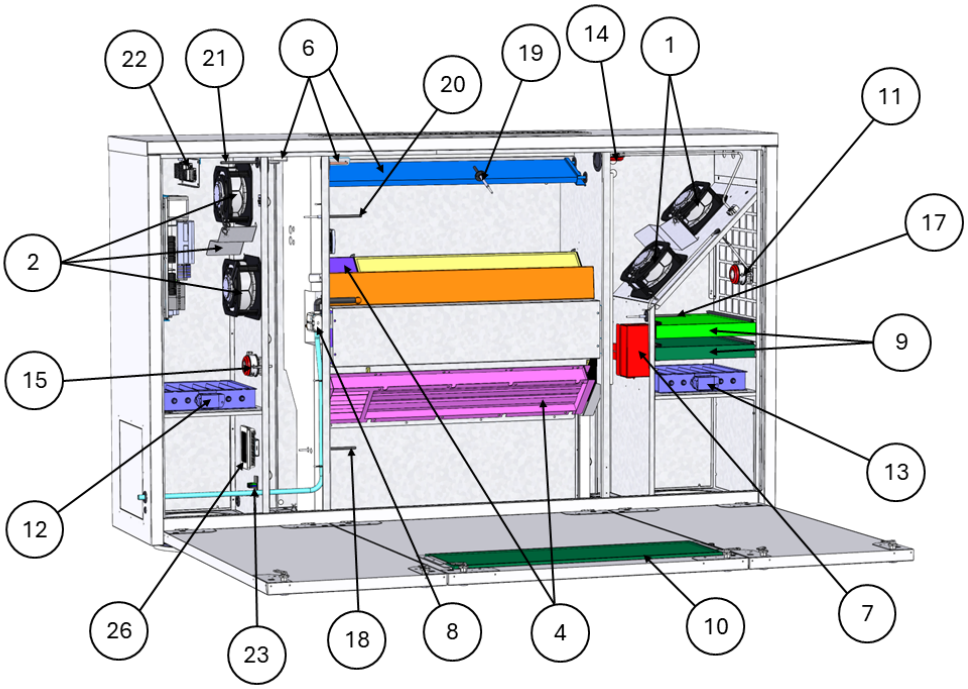
7. Aeraulic performance curves

Eversky™ Q 1100

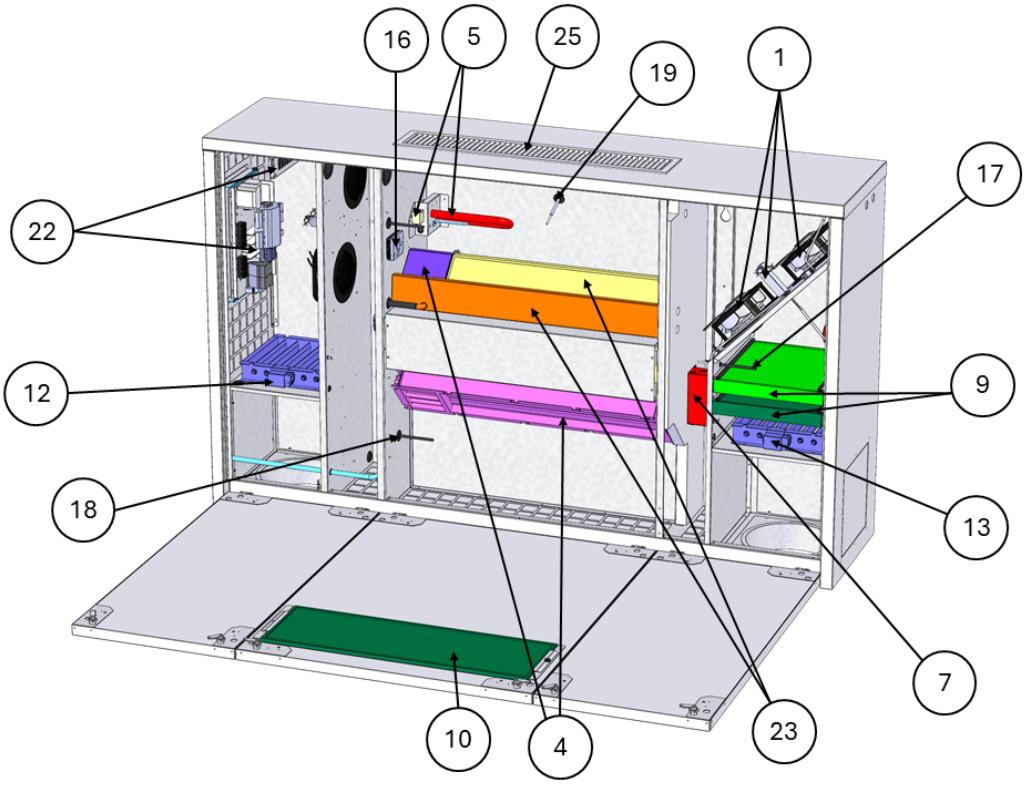


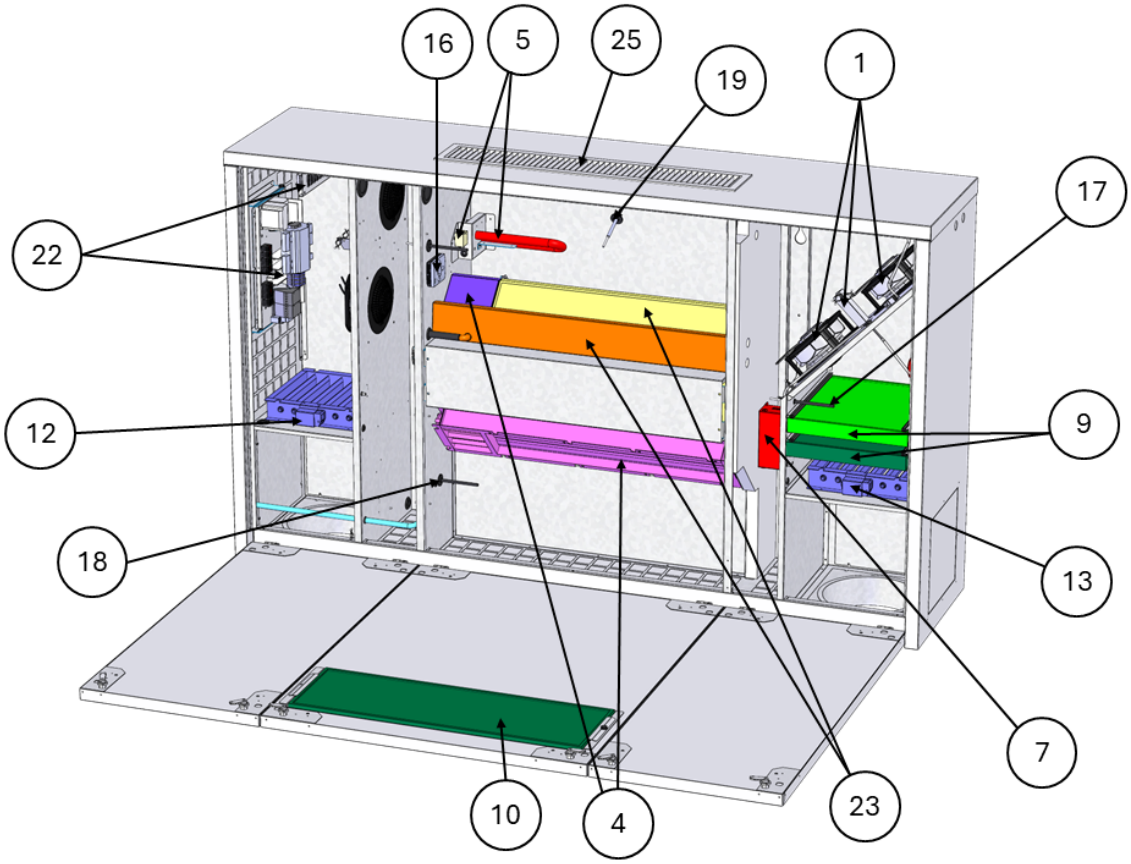
8. Overview and construction

8.1 General overview of the unit

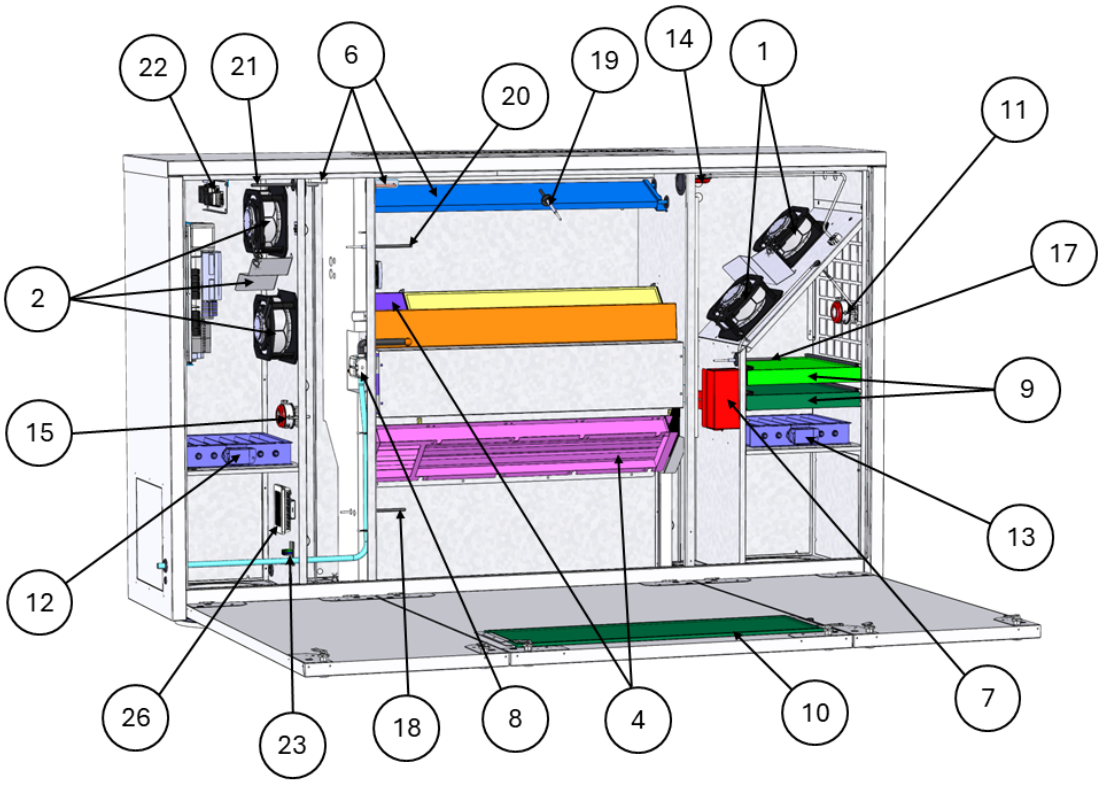


R configuration (right)



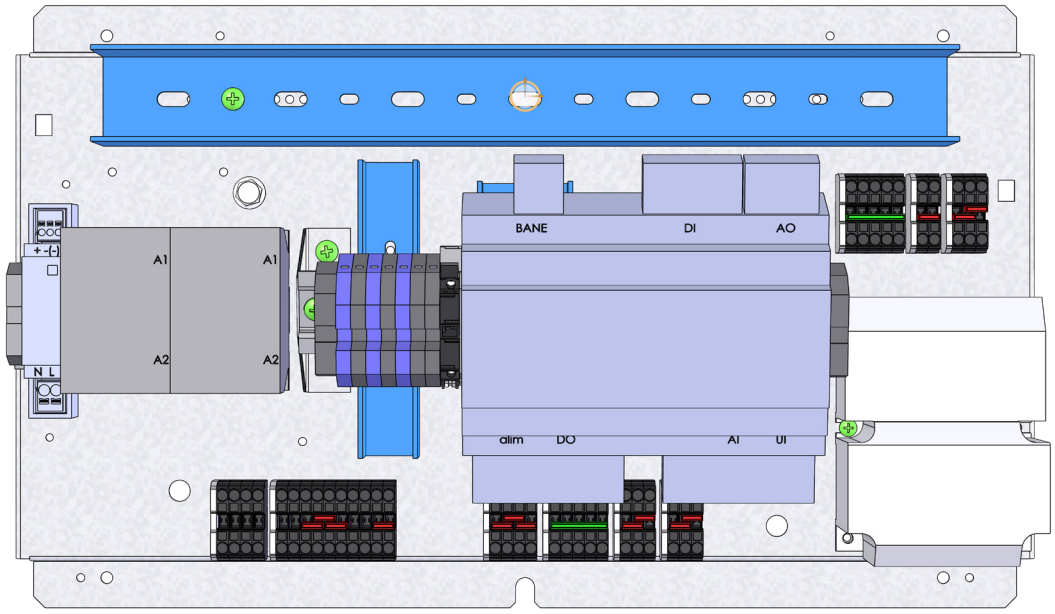


L configuration (left)



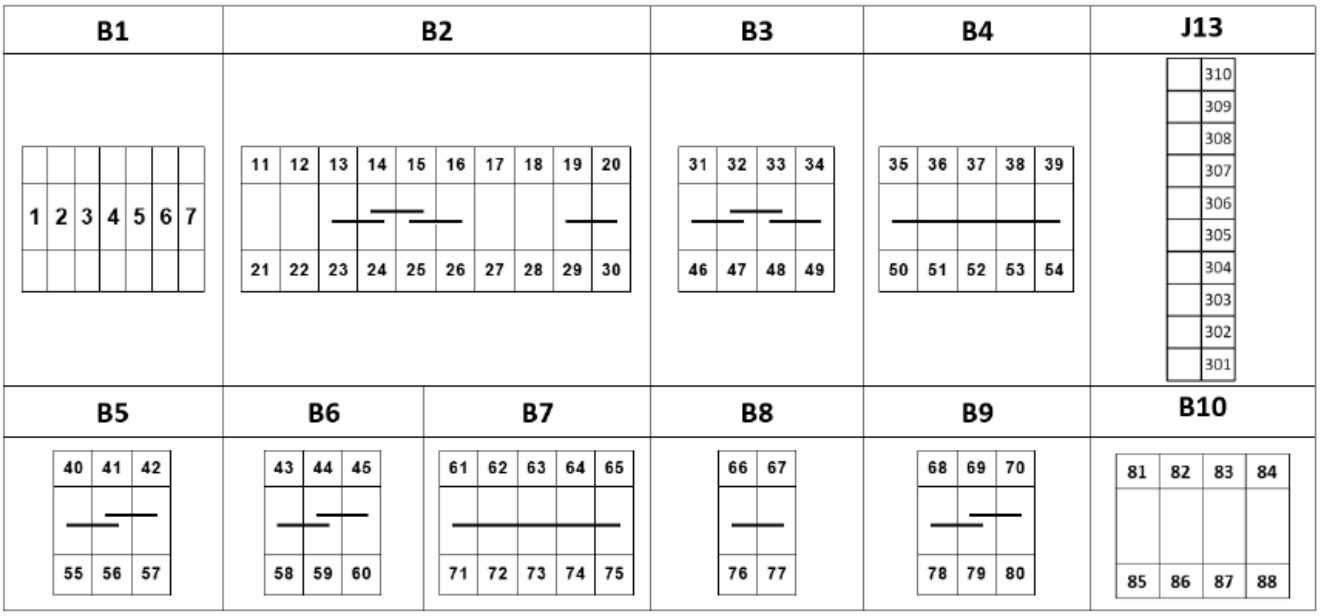
Pos.	Name	Component
1	SAF	Variable speed supply air fan (EC motor) + deflector
2	EAF	Variable speed extract air fan (EC motor) + deflector
3	REC	Removable plate heat exchanger with condensate pan
4	BYM	Bypass with modulating motorized damper
5	PRC	Condensate lift pump with draining hose (option)
6	FS	Supply air filter (F7) (F9 additional filter in option)
7	FR	Extract air filter (F7)
8	DEP FS	Supply air filter guard (pressure switch)
9	RMR	Extract air shut-off dampers
10	RMS	Supply air shut-off dampers
11	DEP S	Supply air fan guard (pressure switch)
12	DEP R	Extract air fan guard (pressure switch)
13	CO2	CO2 sensor
14	SEG	Outdoor air temperature sensor
15	SSG	Supply air temperature sensor
16	SRG	Extract air temperature sensor
17	SDG	Defrost temperature sensor (control of the bypass)
18		Sliding Control board + plug-in connectors
19	B0	Main power terminal block
20		Extraction grid
21		Supply grid
22	PG 5.0	Mobile wired remote touch screen

8.2 Sliding electric board



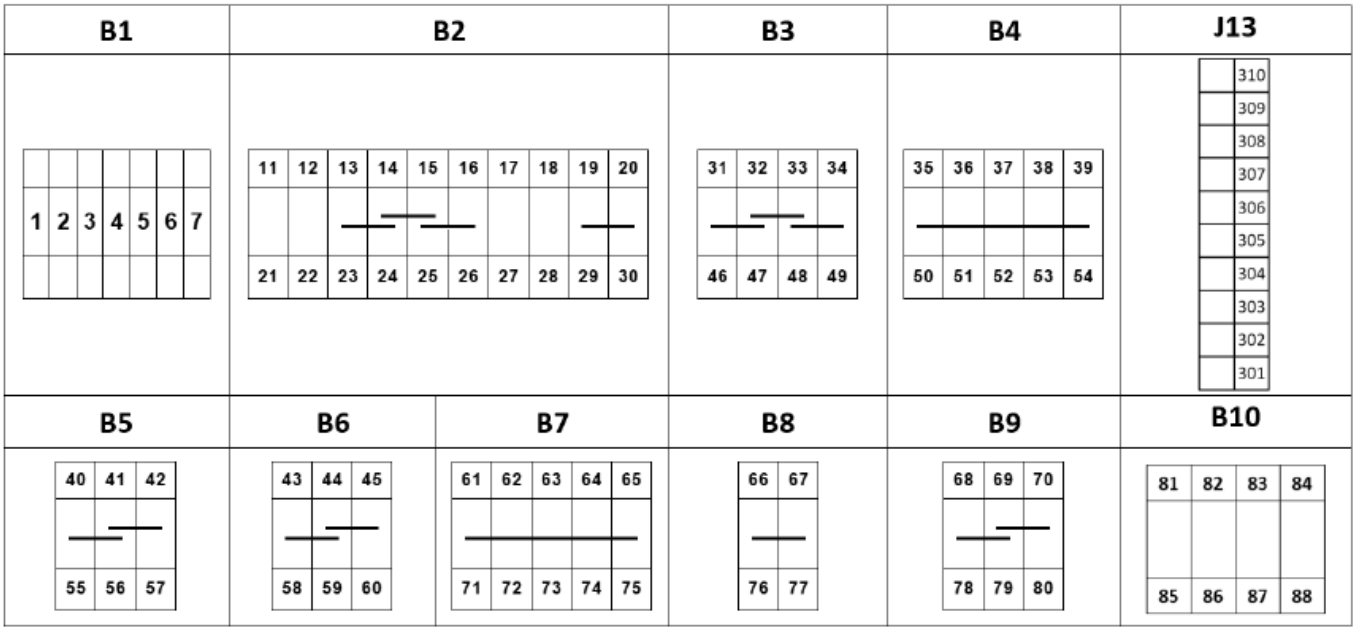
Name	Component
B1	Terminal block for fans supply + condensate lift pump
B2	Terminal block for safeties
B3	Terminal block for commons GDO
B4	Terminal block for commons AGND (30)
B5	Terminal block for commons G (1) --> +24V
B6	Terminal block for commons +C (4)
B7	Terminal block for commons +C (4)
B9	Terminal block for commons AGND (90)
B10	Terminal block for safeties
INS1...3	Crimped nuts for protective earth (PE) connection
REG	Controller
TRAFO	Control transformer
TRAFO24Vdc	24Vdc supply transformer of PG 5.0
J11...J17	Plug-in connectors

8.3 Control terminals and user connections



Designation	Definition	Terminals	Connection
ADP	Firefighter remote stop	12-13	To be connected to the terminals of a NC dry contact of the fire- fighter remote stop.
LS	Forced Low Speed	DI3 Controller + 73	To be connected to a NO external dry contact.
HS	Forced High Speed	DI4 Controller + 74	To be connected to a NO external dry contact.
STOP	External stop	DI5 Controller + 75	To be connected to a NO external dry contact.
FIRE	Fire protection	DI8 Controller + 64	To be connected to a NO external dry contact. Can be configured as NC if needed.
ALARM	Alarm report	DO5 Controller + 47	24Vac output available when operating fault (Caution 24Vac output to be relayed)
PRC	Condensate lift pump	1601-1602	Pump electrical wiring to be connected on the terminal block: - Blue wire (neutral) on terminal (1601) - brown wire (live) on terminal (1602)
LS1	Condensate level switch associated to the PRC	1603-1604	Pump switch wiring to be connected on the terminal block: - Grey wire on terminal (1603) - Black wire on terminal (1604)

9. Commissioning report



Date	Stakeholder	Observations

CALADAIR

C-V1225-CSY-INM-CALADAIR-EVERSKY™Q-en

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