

NORDcanopy

EOZ – External Ozone Cleaning System
Installation Guide

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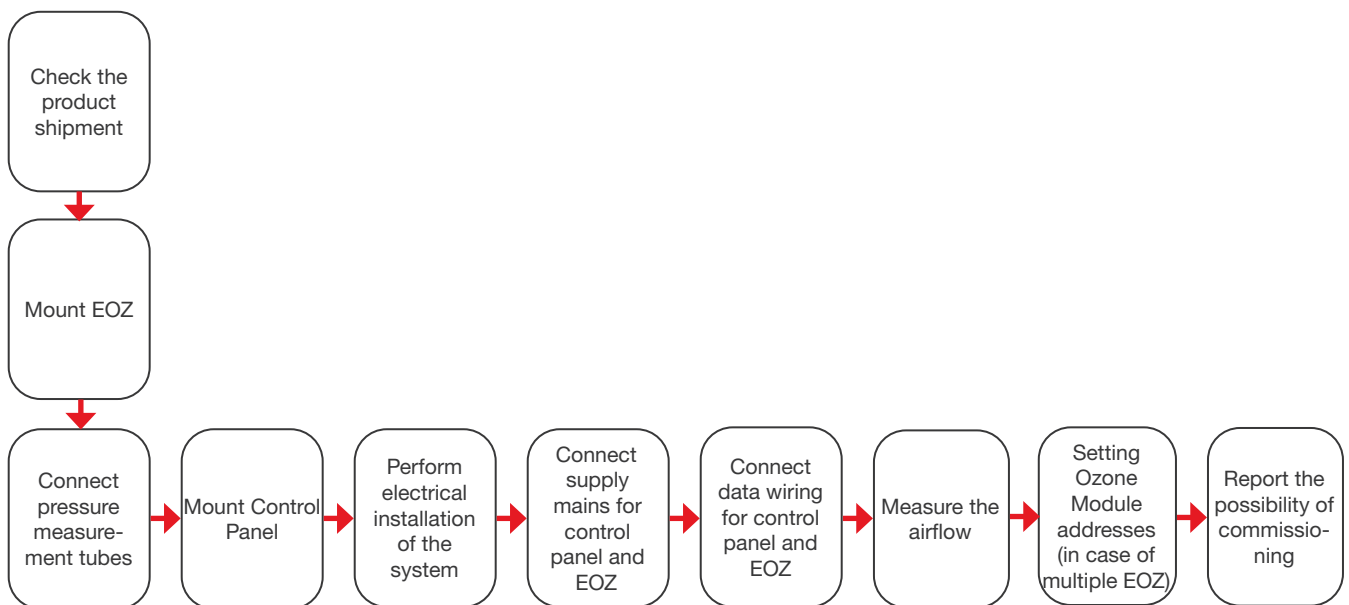
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Safety notes

This manual consists of important information on the instruction and safety of External Ozone Cleaning System. Read this manual carefully before installing, commissioning, or performing maintenance or repair work on the system.

- Always wear appropriate protective clothing when handling the equipment.
- External Ozone Cleaning System is intended only for the treatment of exhaust air as described in these instructions.
- External Ozone Cleaning System uses high voltage to create an electric charge that generates ozone (O₃). Ozone significantly reduces odor, grease, mold and bacteria. ETS NORD AS disclaims any liability in the case that the product is not used in accordance with the manufacturer's instructions contained in this manual.

Installation flowchart



For ease of installation and service, it is suggested the installing contractor have the following tools and components on hand:

- Narrow 2mm flat-head screwdriver
- #1 Phillips screwdriver
- T4 screwdriver
- Silicone gun
- Silicone
- Rivet gun
- Stainless steel rivets
- M8 threaded rod
- M8 nuts

1. Check the product shipment

Check that the parcel contains all components listed below and that there is no visible damage. Notify both the freight forwarder and supplier immediately of any damage or missing components.

Before installing the device read through the entire instruction material.

The EOZ External Ozone Cleaning System consists of two key components:

- EOZ with Ozone module(s)
- Control Panel

The EOZ package contains:

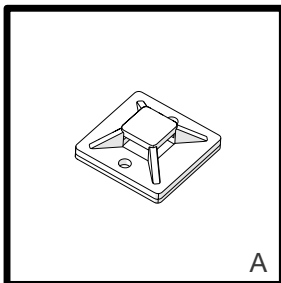
- One or more Ozone Modules (pre-installed)
- Power cable with IEC C13 plug (3m)
- Pressure measurement hose (5m)
- Adhesive cable tie mounts (10 pcs)
- Cable ties (10 pcs)

The Control Panel package contains:

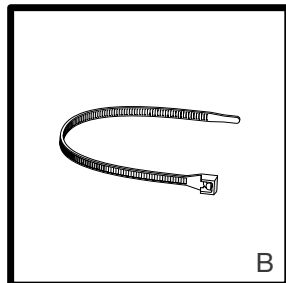
- Control Panel
- One sheet of Ozone Module device address identification labels*

* Only used if more than one EOZ unit is installed on the premises.

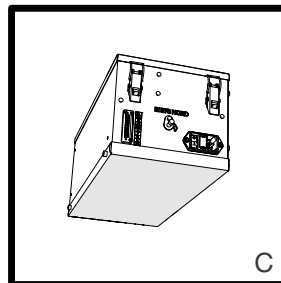
In the kit:



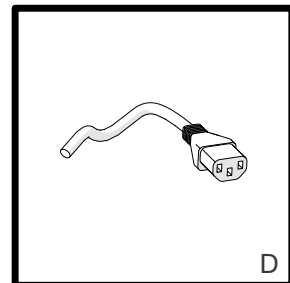
A



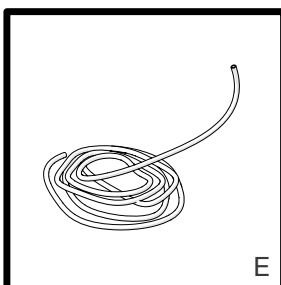
B



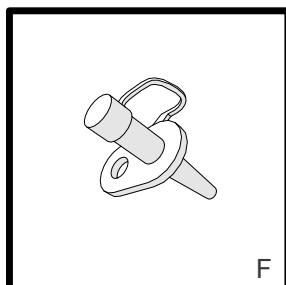
C



D



E



F

- A – Adhesive cable tie mount
- B – Cable tie
- C – Ozone module
- D – Power cable
- E – Pressure measurement hose
- F – Measurement nozzle

2. System overview

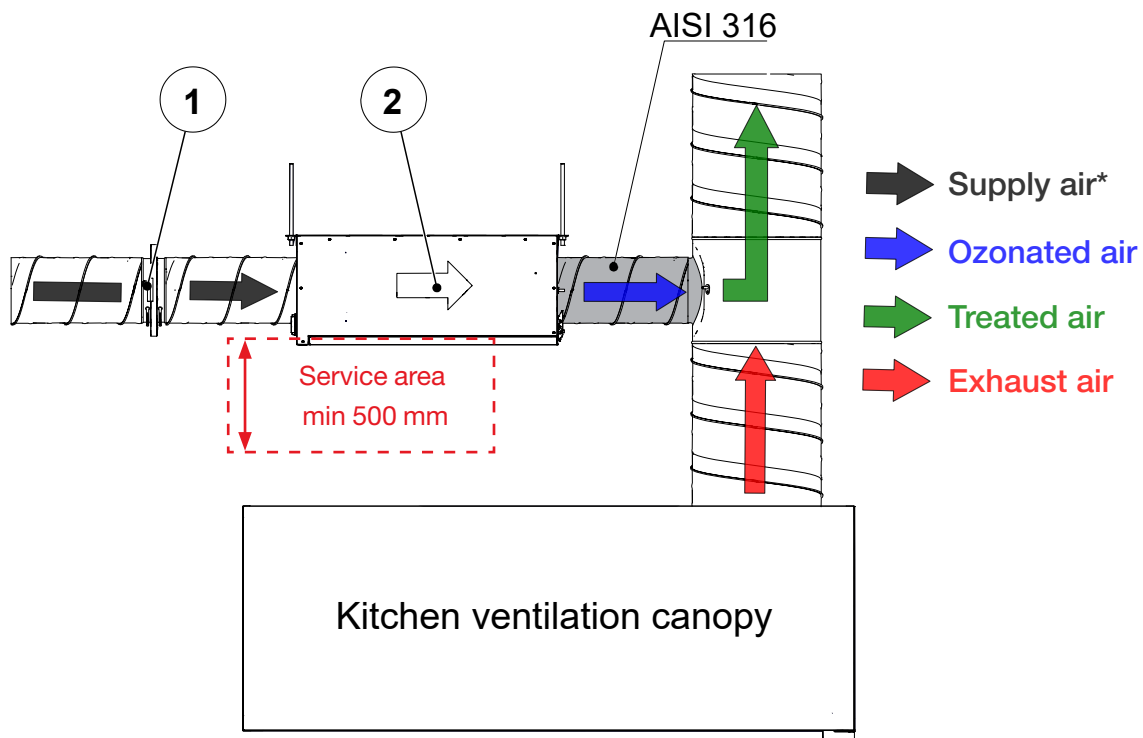
The Ozone Modules within the EOZ chassis produce ozone gas. Ozone (O_3) is a very effective oxidant, and when mixed into a kitchen exhaust airstream it breaks down grease and odor particles to water vapor, carbon dioxide and dry minerals, all natural products of oxidation which exit the exhaust system.

Note! For best results with odor reduction, the reaction time for ozone within a kitchen exhaust system should be at least two seconds. However, longer exposure can further improve results. This time should be taken into account during the design phase of the kitchen exhaust system

ATTENTION!

- During the installation, keep in mind to leave the service area free of obstructions for ease of future maintenance.
- EOZ chassis can be mounted in any position. It is very important to keep in mind that the direction of the airflow must correspond with the arrow on the EOZ chassis as shown below.
- All duct installation materials between the outlet of the EOZ unit and the main exhaust duct, including screws, rivets and the connecting flange, must be stainless steel (AISI 316).

Installation method

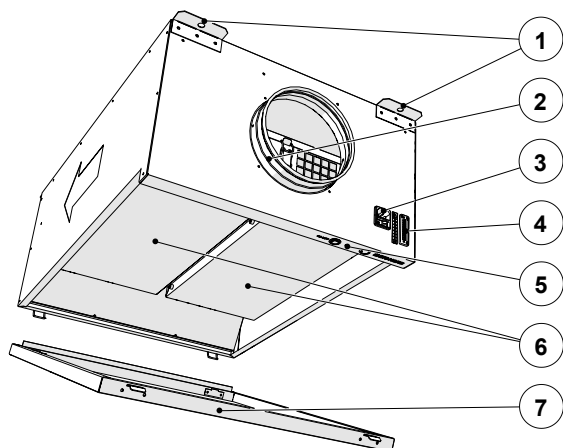


1 – KRI Regulating damper (for installation refer to the KRI manual)

2 – EOZ Ozonator

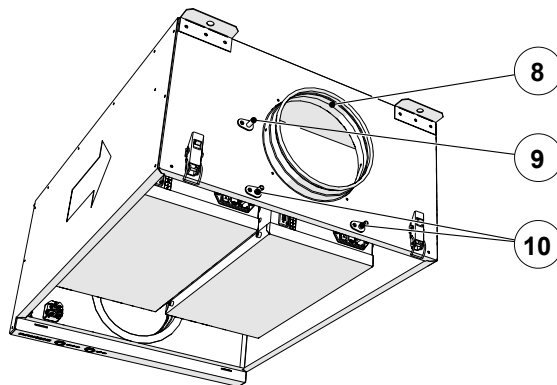
* Supply air from AHU

EOZ Supply air end



- 1 - Suspension brackets
- 2 - Supply air connection
- 3 - Power socket
- 4 - Data cable socket
- 5 - Status LED(s)

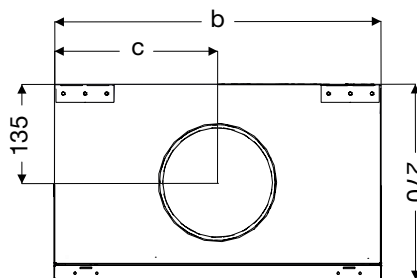
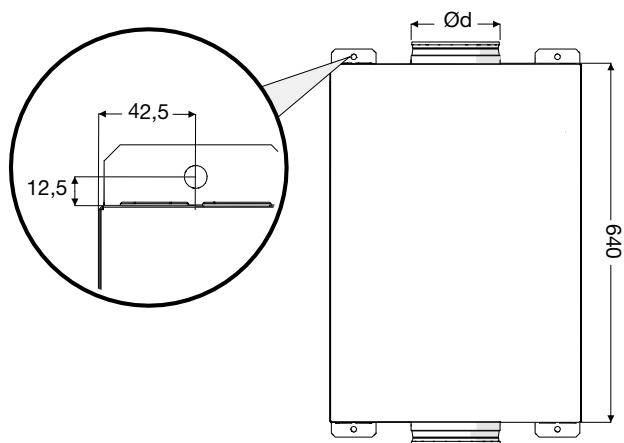
EOZ Exhaust air end



- 6 - Ozone Module(s)
- 7 - Service hatch
- 8 - Exhaust air connection
- 9 - Exhaust pressure nozzle
- 10 - Ambient pressure nozzle(s)

EOZ Dimensions and Technical Data

Model	Modules quantity	b (mm)	c (mm)	Ød (mm)	Weight (kg)	Voltage (V, Hz)	Max power (W)
EOZ-1	1	250	125	125	13	230/50	300
EOZ-2	2	450	225	160	20	230/50	600



NOTE! Installation may only be carried out by specialist and authorized persons in accordance with local , regional, national standards and regulations.

3. Mount the EOZ

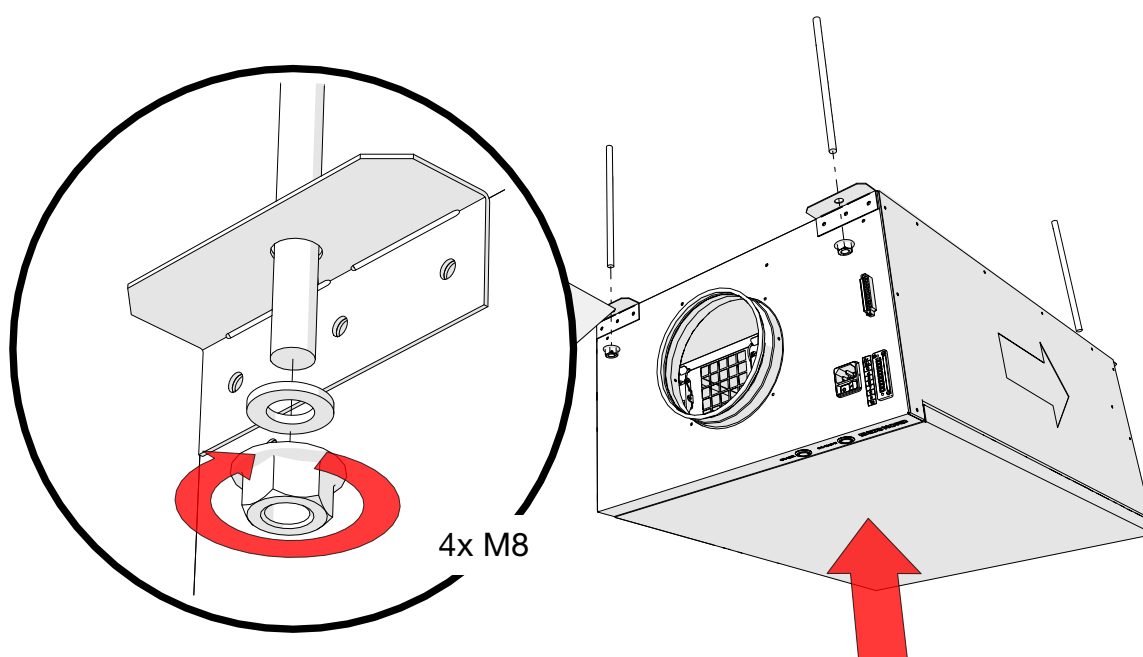
The EOZ unit may be installed in any convenient location in the kitchen space, ideally with easy access to supply air and within 3m of the canopy connection to the exhaust duct.

Keep in mind, however, that all duct installation materials between the outlet of the EOZ unit and the main exhaust duct, including screws, rivets and the connecting flange, must be stainless steel (AISI 316).

NOTE! Direction of the airflow must correspond with the arrow on the EOZ.

Hanging the EOZ chassis

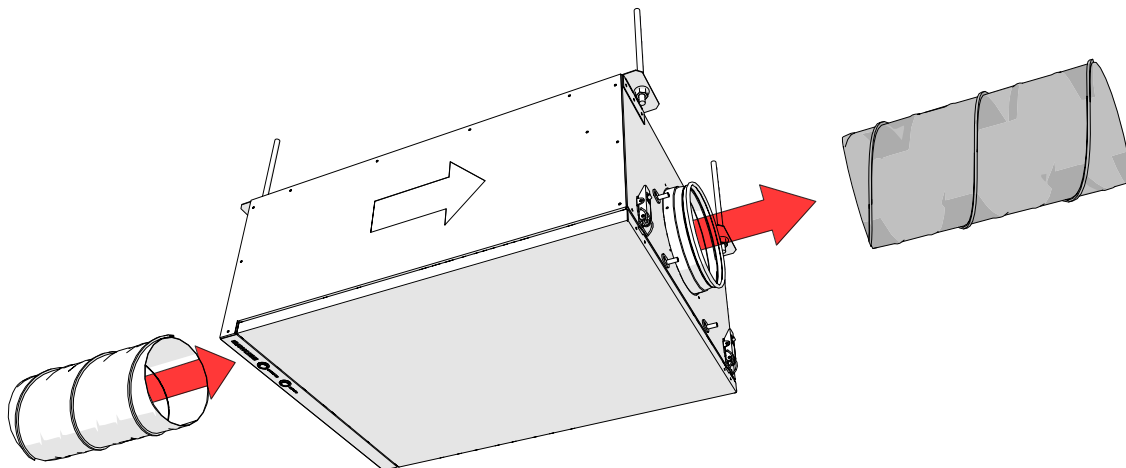
Begin by mounting four (4) M8 threaded rods to the ceiling. Suspend the EOZ unit from the rods with M8 nuts and washers as shown. Adjust height as needed.



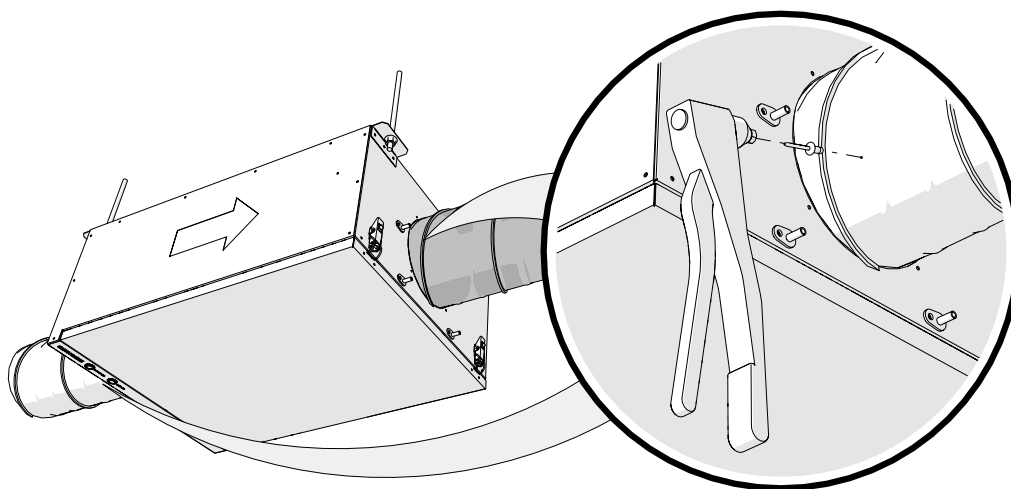
Connect to the ventilation ducts

After the EOZ unit has been securely attached to the ceiling, connect the supply air and exhaust air ducts.

Note: Materials for the supply air side may be chosen at the discretion of the installer. However, all materials used between the outlet of the EOZ unit and the main exhaust duct, including screws, rivets and the connecting flange, must be stainless steel (AISI 316).



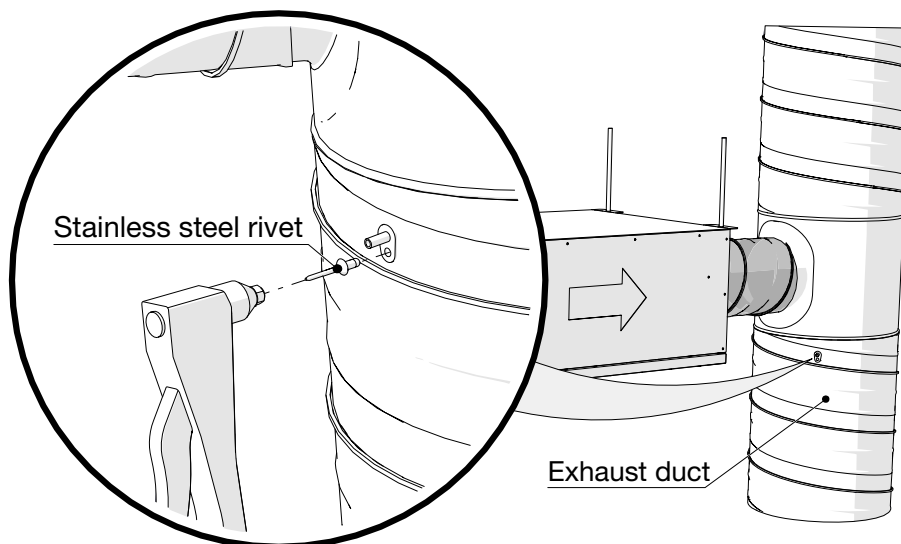
Secure the ducts with **stainless steel** rivets or sheet metal screws from both sides and ensure the connection is airtight.



Connect the pressure measurement hose to the exhaust duct

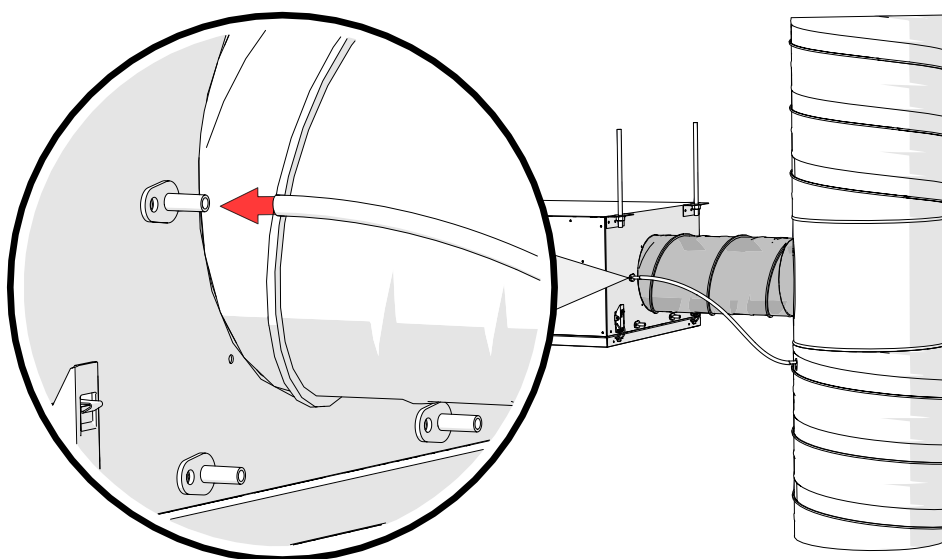
NOTE! This hose must be connected between the EOZ unit and main exhaust duct for proper operation.

Begin by installing the measurement nozzle onto the exhaust duct or canopy exhaust chamber with a **stainless steel** rivet or sheet metal screw. Mount the nozzle to the exhaust duct ahead of the EOZ connection pipe as shown below.



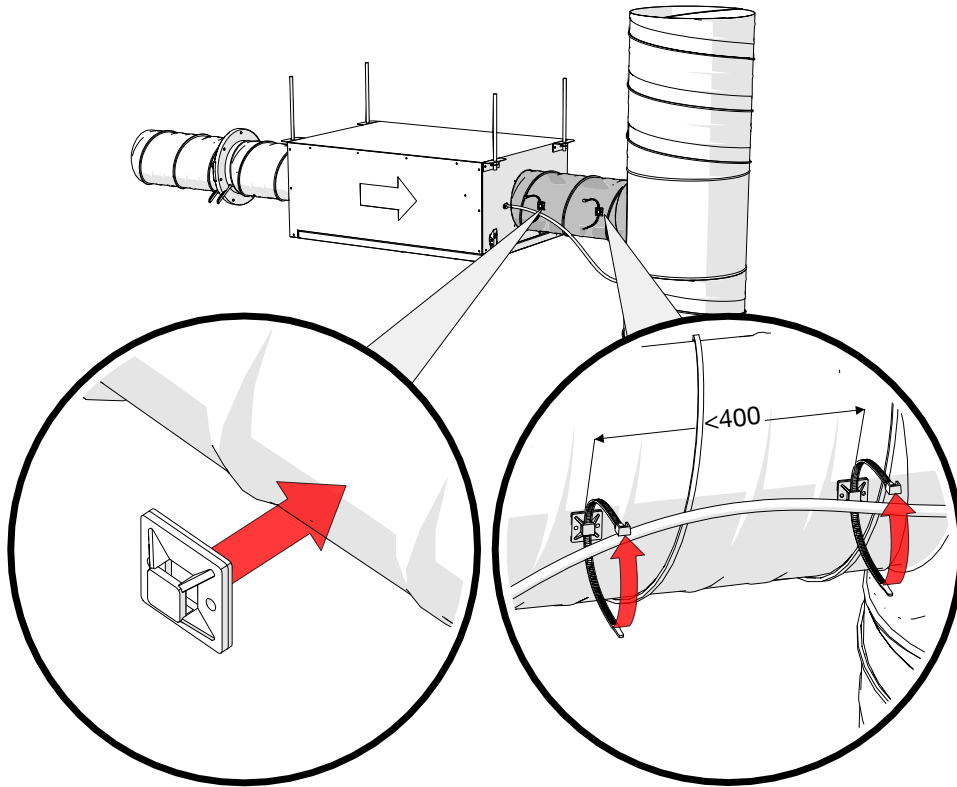
Next, fasten one end of the long measurement hose provided with the shipment to the newly installed measurement nozzle. Trim the hose to an appropriate length and run the free end of the hose to the right measurement nozzle on the EOZ unit as shown below.

NOTE! Be sure that the hose is connected to the proper nozzle on the EOZ and that the caps of the nozzles has been removed.



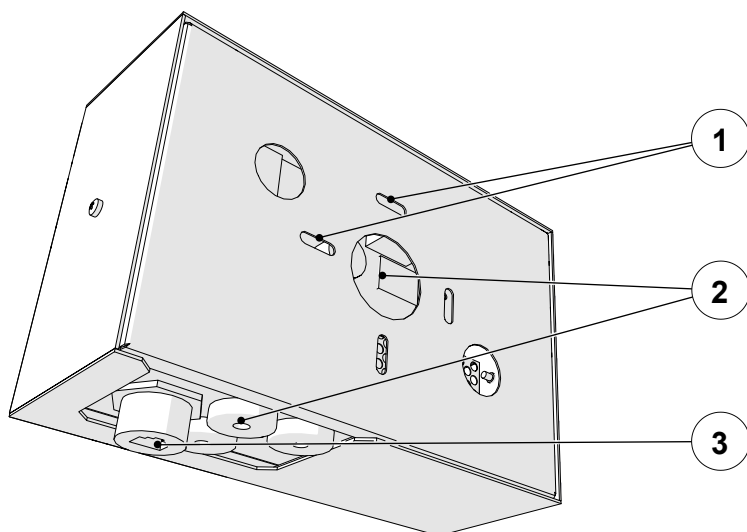
Finally, secure the hose to the duct using adhesive cable tie mounts and cable ties that can found in the EOZ packaging. .

NOTE! Be careful not to tighten the cable ties too strongly to ensure that the airflow through the hose is not blocked.

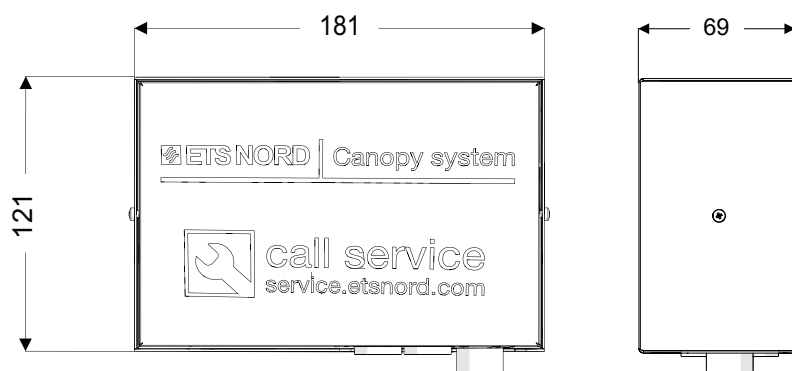


4. Install the Control Panel

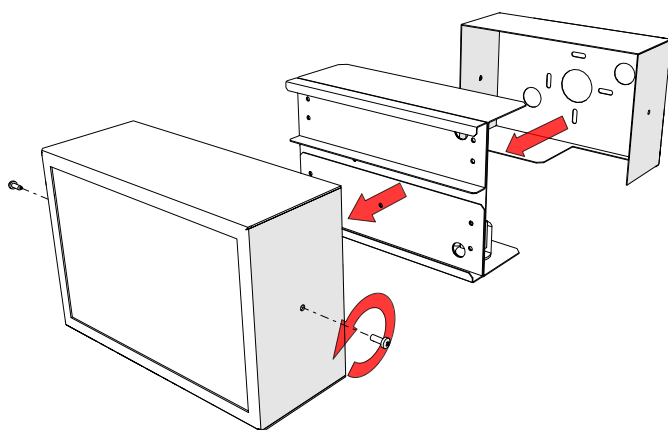
Control Panel overview



- 1 - Anchor points for wall mounts
- 2 - Data cable bushings
- 3 - RJ-45 connector



Disassembly the control panel

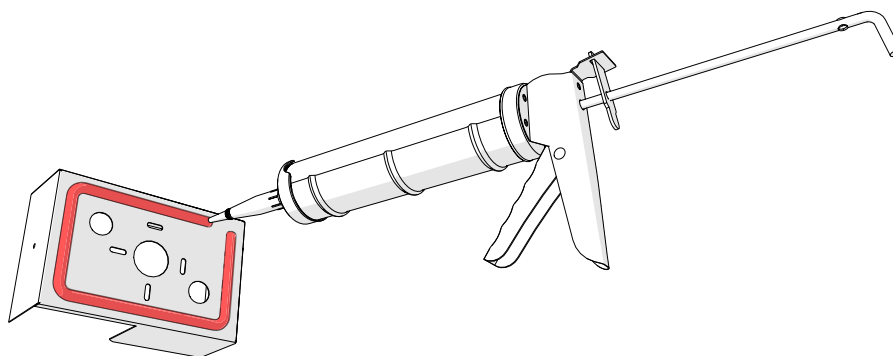


Choose a visible and easily accessible location in the kitchen suitable for mounting the Control Panel. Avoid positioning it near any sources of moisture or heat.

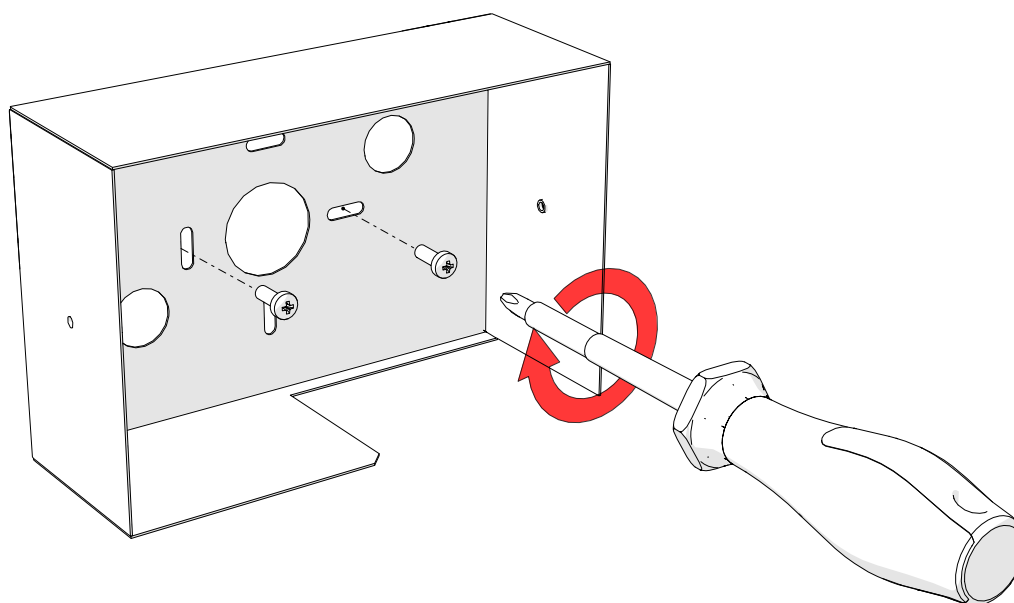
The housing must be disassembled into three parts. Remove the two fixing screws on the sides of the case.

Mounting the backplate

Before mounting the backplate apply an even strip of waterproof silicone along the rear of the backplate as pictured below.



Fasten the backplate to the wall with its cable cutout facing downward, preferably at eye level but not higher than 180 cm from the floor.

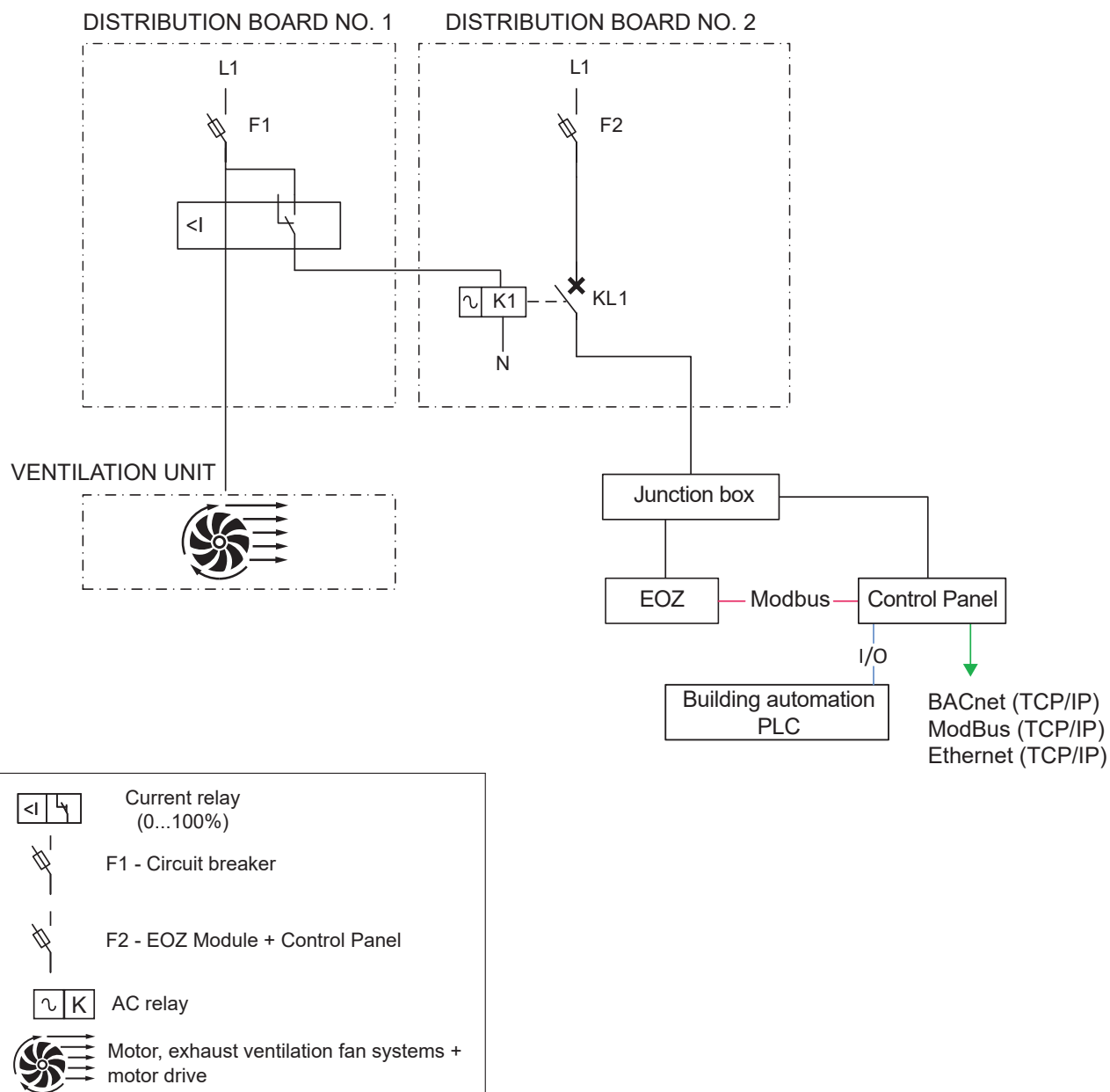


5. Electrical Installation

NOTE! Electrical installation must be performed by an authorized electrician and follow local, regional and national standards and regulations.

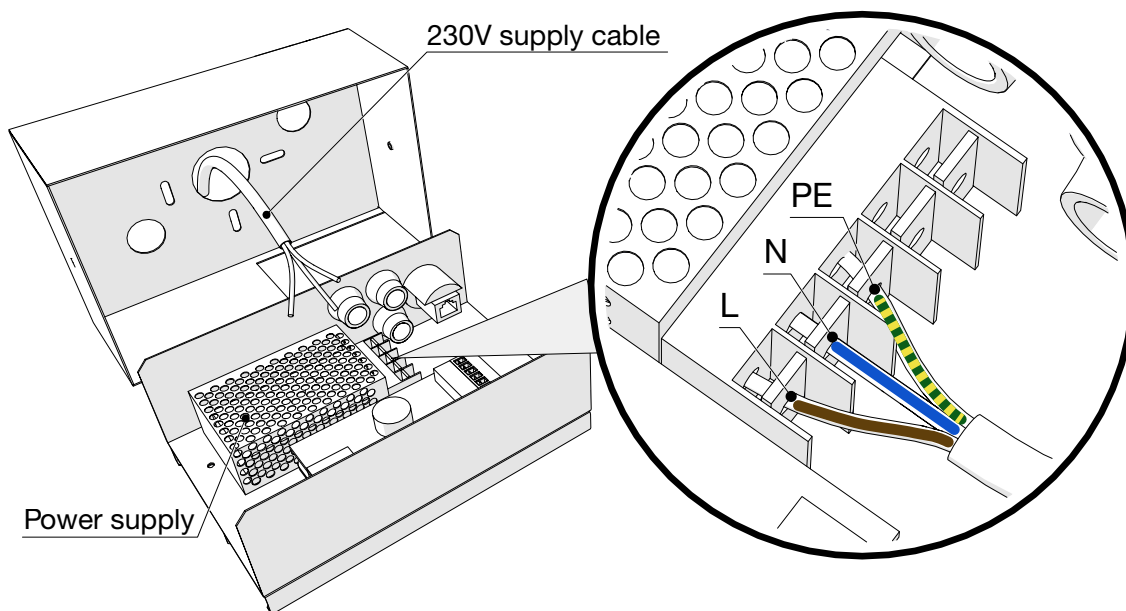
The EOZ 3.1 External Ozone Cleaning System must be interlocked with the exhaust system, so that when the exhaust ventilation is not running, no electrical power is supplied to the ozone system. See the sample diagram below as one possible option to accomplish this function.

A maximum of 4 Ozone Modules and one alarm panel may be connected a single 10A C-type (slow) circuit breaker. Remember to label the circuit breakers used in the distribution board.

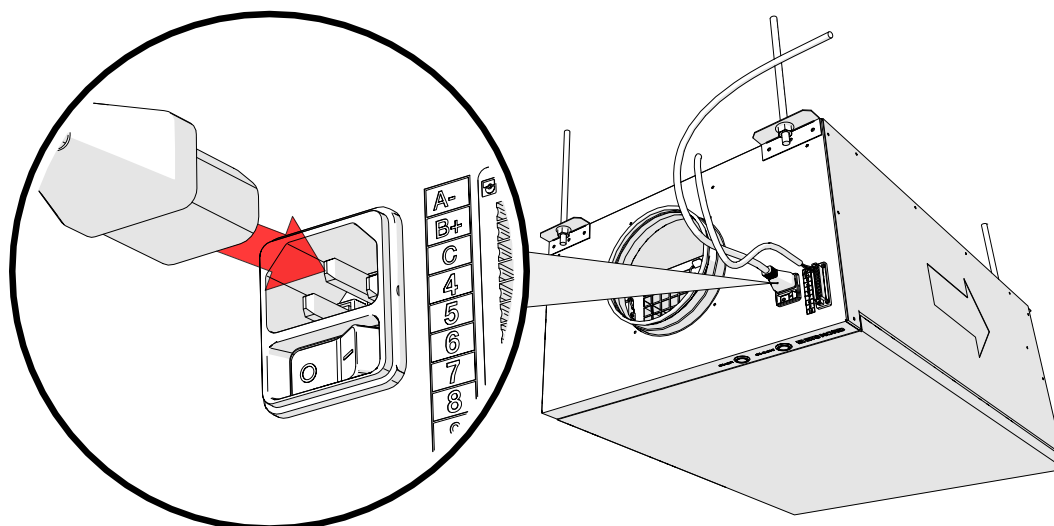


Connecting the main electrical supply

Control Panel power cables may be fed through rear wall. Connect the 230V supply cable to the power supply terminals L, N and PE, as shown in the diagram.



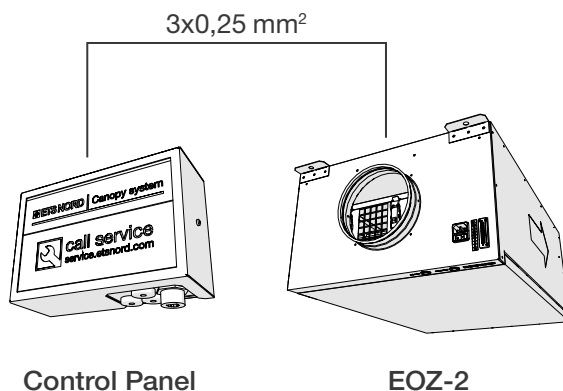
EOZ is supplied with a power cable that can be found inside the packaging. Connect it to the EOZ as shown below.



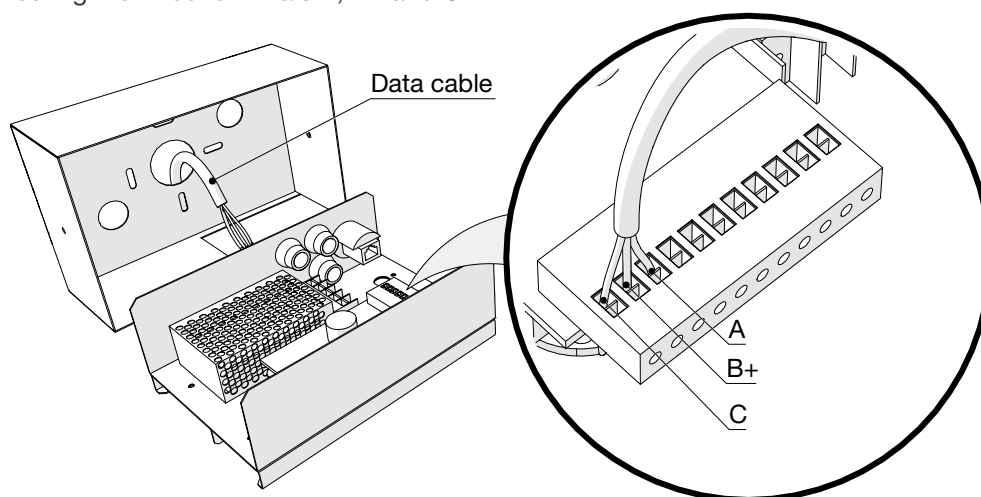
Control Panel and EOZ data wiring

There are three cables that must be connected to the Control Panel. Data cable (3x0,25mm²) for communication between Control Panel and EOZ unit, I/O cable (5x0,5mm²) for connecting to the building automation and LAN cable to access the Control Panel via internet.

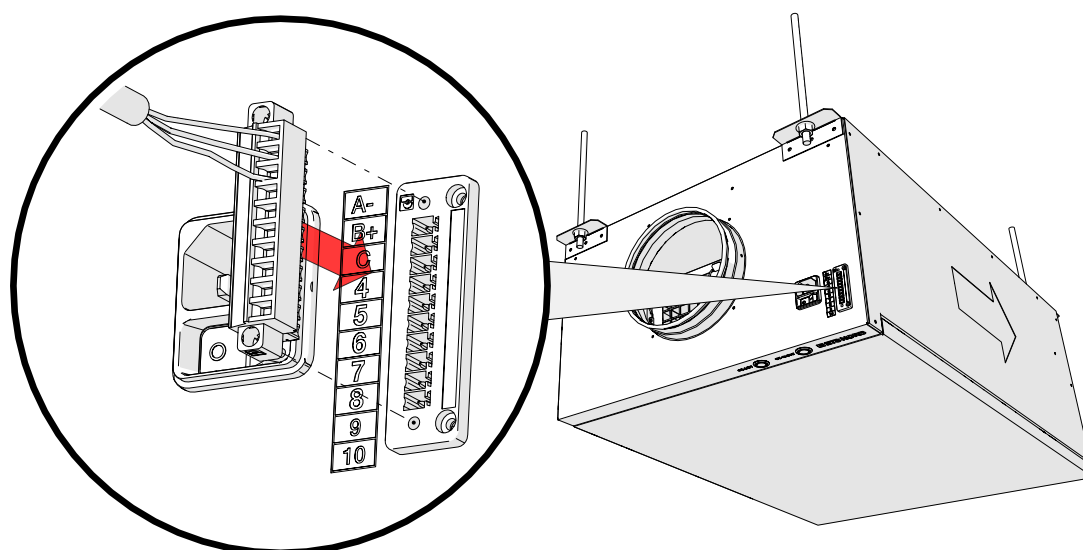
Wiring Control Panel to the EOZ unit is done with 3x0,25 mm² shielded data cable.



Begin by installing the EOZ data cable between the EOZ unit and the Control Panel. Note the colors of the wires used when connecting the three terminals A, B+ and C.



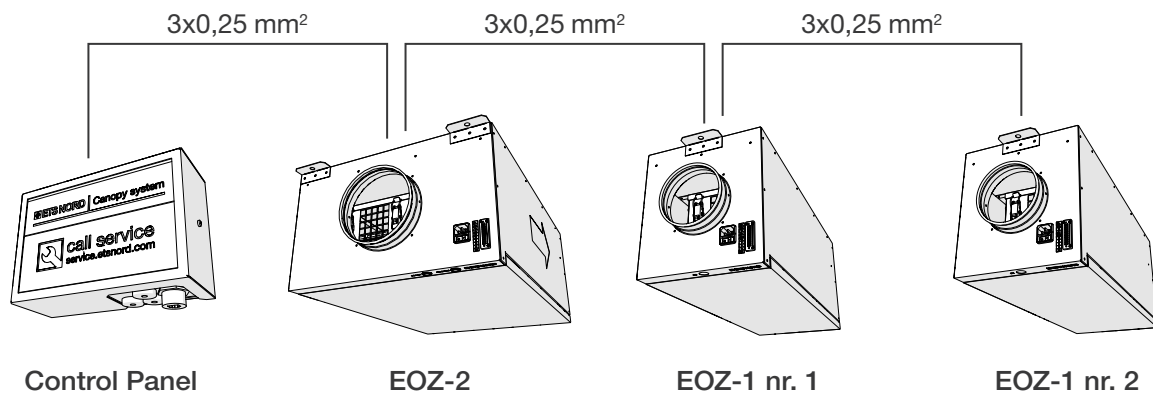
Next, connect the cable to the EOZ as shown below. Ensure that the cable color used for each terminal is the same on both devices.



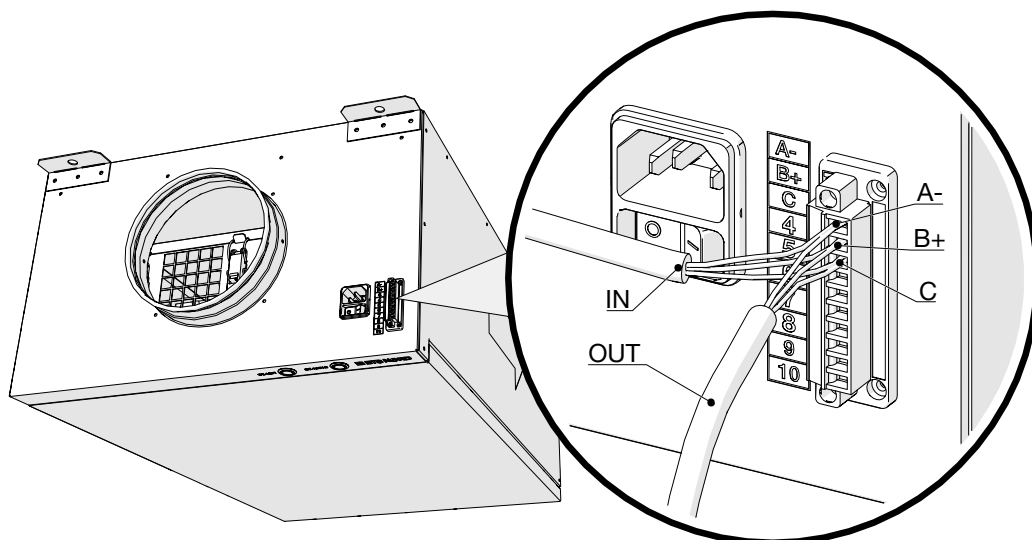
NOTE! The following section applies only when installing multiple EOZ or Ozone Modules. If installing only one unit, please skip to section “Control Panel and I/O wiring”.

The max number of Ozone Modules connected to a single Control Panel is 99, with a maximum length of 500m. However, it may be advantageous to have multiple Control Panels in larger facilities for local monitoring purposes.

To connect multiple EOZ and/or Ozone Modules together they must be connected sequentially (“daisy-chained”) from the Control Panel to the nearest device, then to next and so on. However, please note that although the physical cabling is “chained” from one device to the next, the data cables are connected in a parallel format. In this way data communications between devices will remain active even if one of them is powered off, malfunctioning, or unplugged and removed.

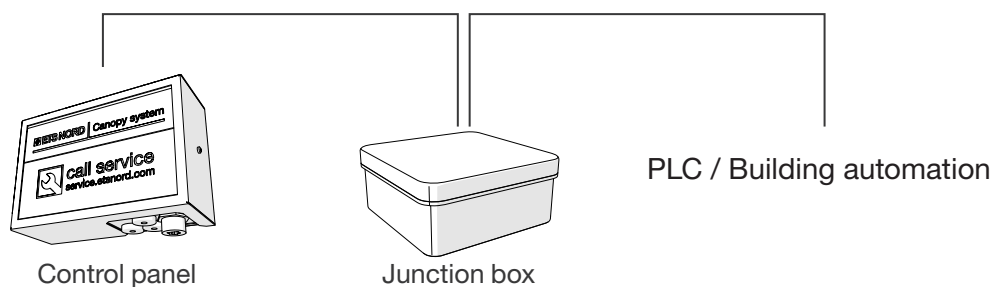


Thus, each A, B+ and C data wire leading in from devices of any EOZ in the chain should share the same terminal screw in its respective connector.

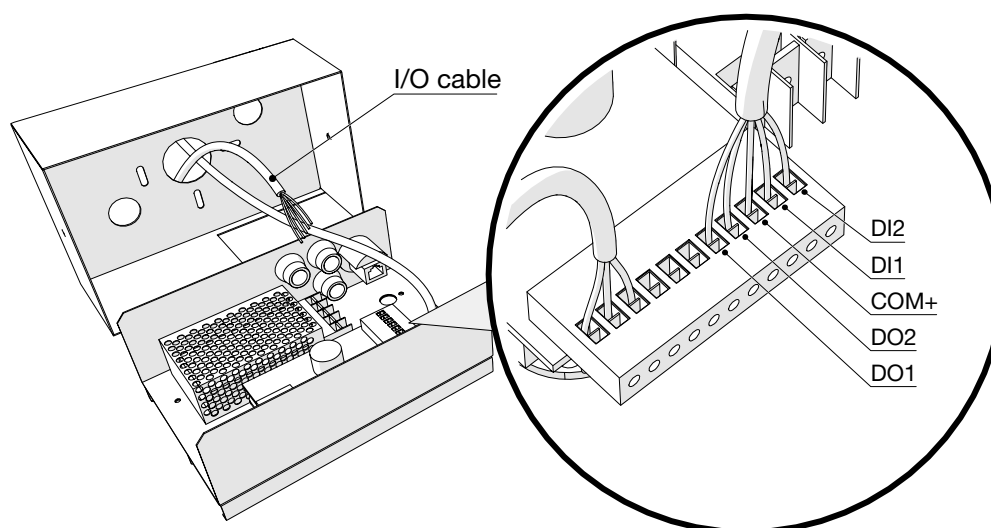


Control panel and I/O cable wiring

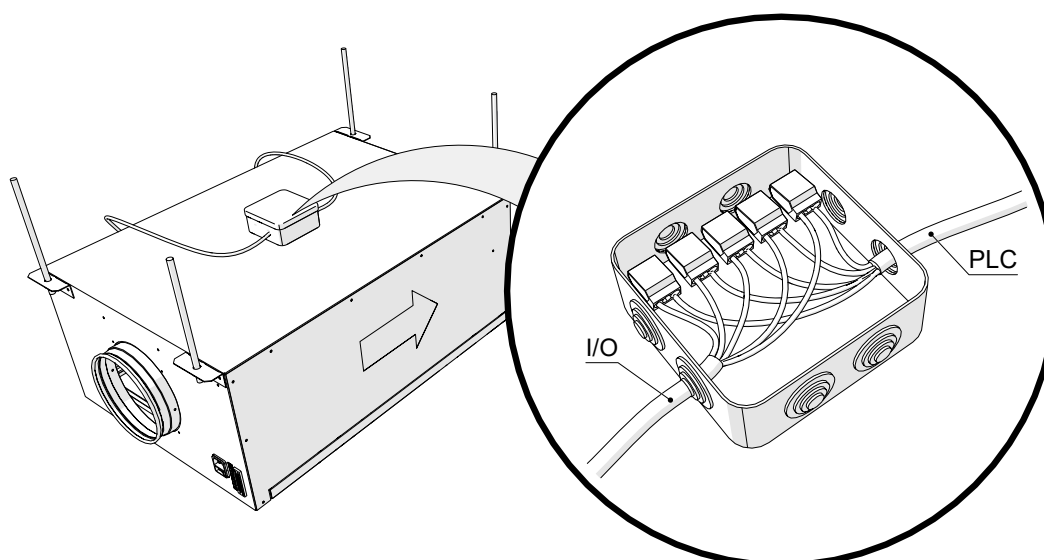
Next, install the I/O data cable for your building automation system or for future upgrades route the I/O cable to the junction box.



Connect the five (5) terminals DI1, DI2, DO1, DO2 and COM+ and mark the other ends of the wires within the junction box with their corresponding terminal assignments.



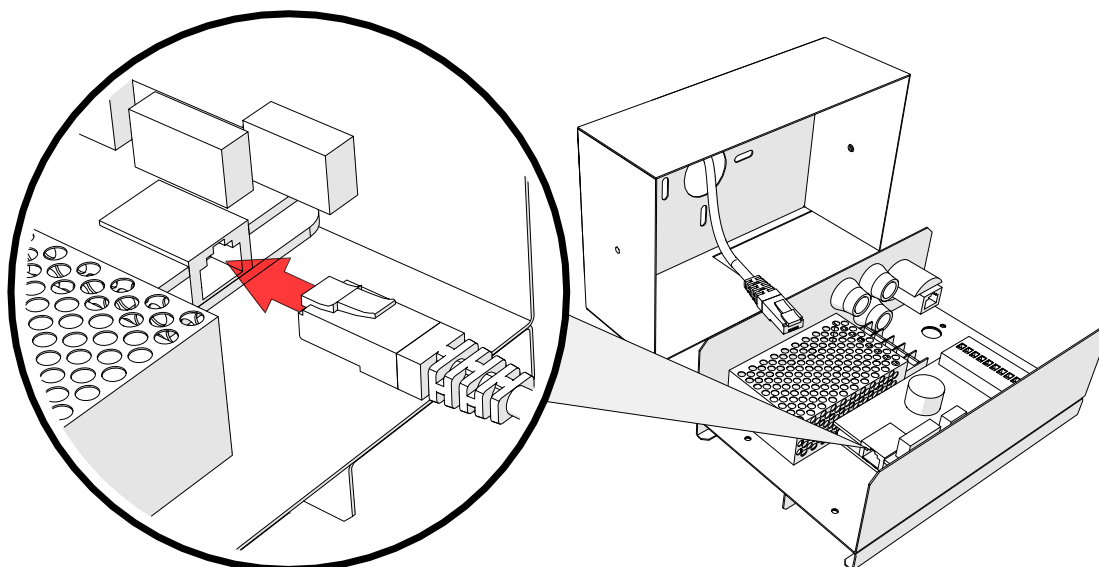
Route the other end to a junction box that is situated near or on top of the EOZ unit.



Never drill or screw into the EOZ chassis.

Control panel LAN cable wiring

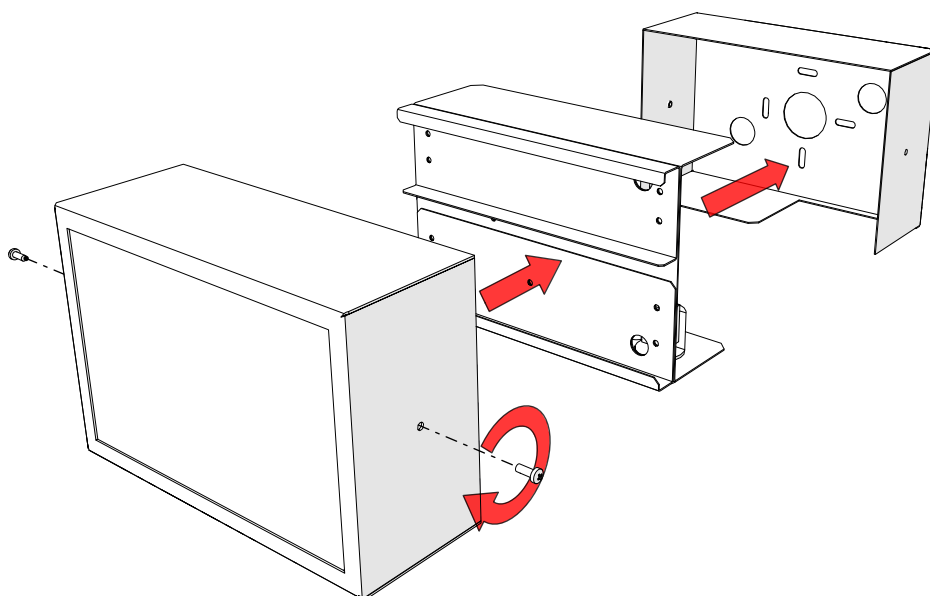
Finally, connect the EOZ system to the local area network, connect the LAN cable to the Control Panel by unplugging the existing short LAN jumper cable inside and connect your LAN cable straight to the port on the board as seen below.



LAN cable must be connected to a network switch or to the closest LAN socket.

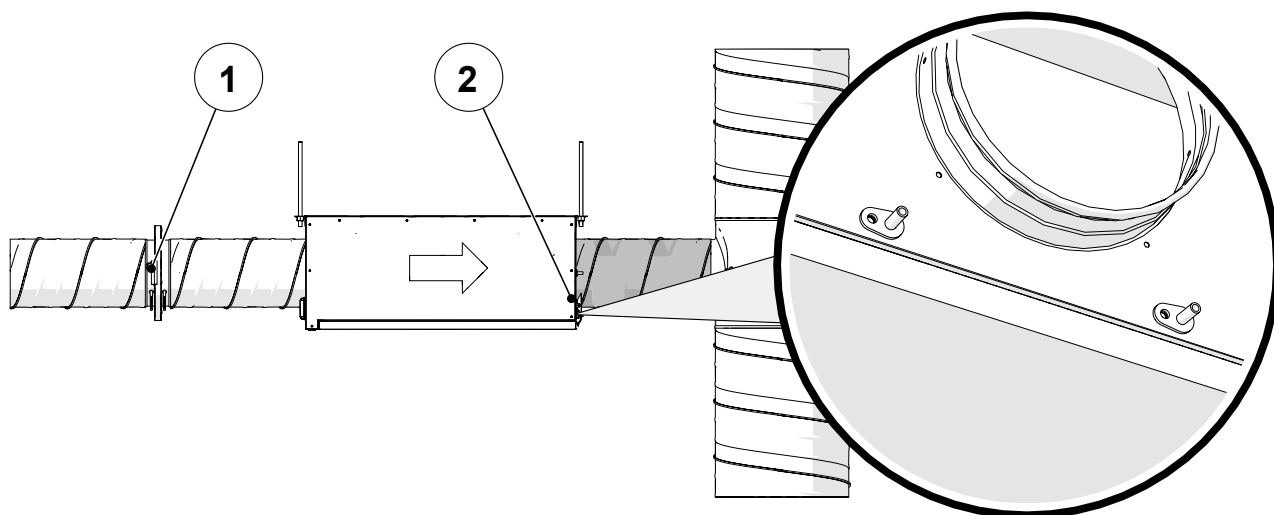
Control Panel assembly

Reassemble the housing in reverse order, with the smaller LED display above the larger one. Ensure the text on the plexiglass is oriented correctly and fasten the housing with the two fixing screws on the sides.



6. Measure and adjust airflow

1. Measure the airflow at the KRI damper installed before the EOZ to find operational airflow of the unit. For more information refer to *KRI regulating damper installation guide*.
2. Measure the air pressure difference of the EOZ unit from both nozzles as seen in the picture (both measurements need to be approximately the same).



Confirm that the system airflow and pressures fall within the following specifications:

Model	Operational airflow (l/s) 1	Pressure difference (Pa) 2	Pressure drop (Pa)
EOZ-1	30	-20	35
EOZ-2	50	-25	30

7. Setting Ozone Module addresses

NOTE! The following section applies only when installing multiple EOZ units. If installing only one unit, the Ozone Module addresses do not need to be changed and you may skip this section.

All Ozone Modules connected to the same Control Panel must be set to a unique device address. The Ozone Module(s) inside of an EOZ chassis have been set at the factory to the following specifications:

EOZ-1: Device address is “3”

EOZ-2: Device addresses are “1” and “2”

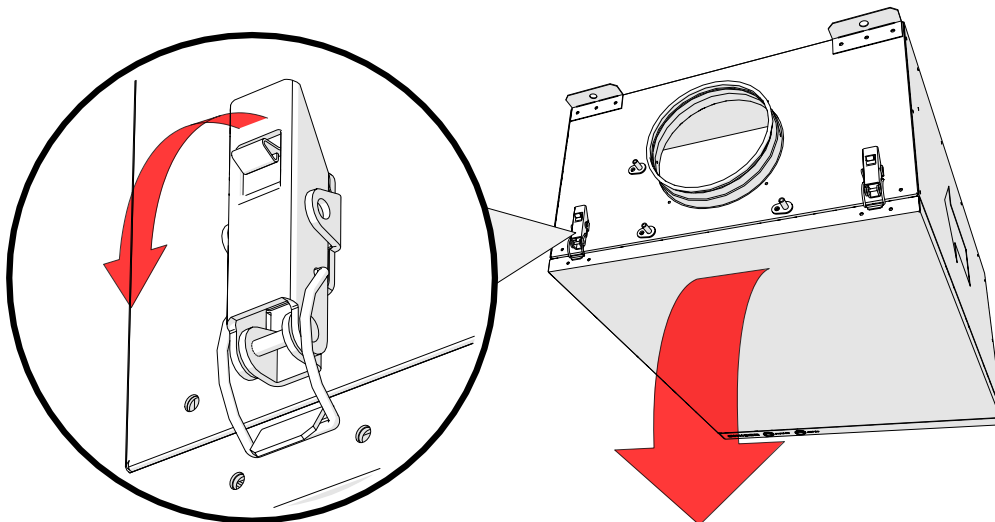
For installations with multiple EOZ units, it is important to ensure that there are no overlapping address conflicts:

- * All Ozone Modules in each EOZ chassis or canopy must have a unique device address.
- * Address identification labels must be added to the service hatch on EOZ units. In case of model EOZ-2, both address labels must be placed upon the unit.

Opening EOZ hatch

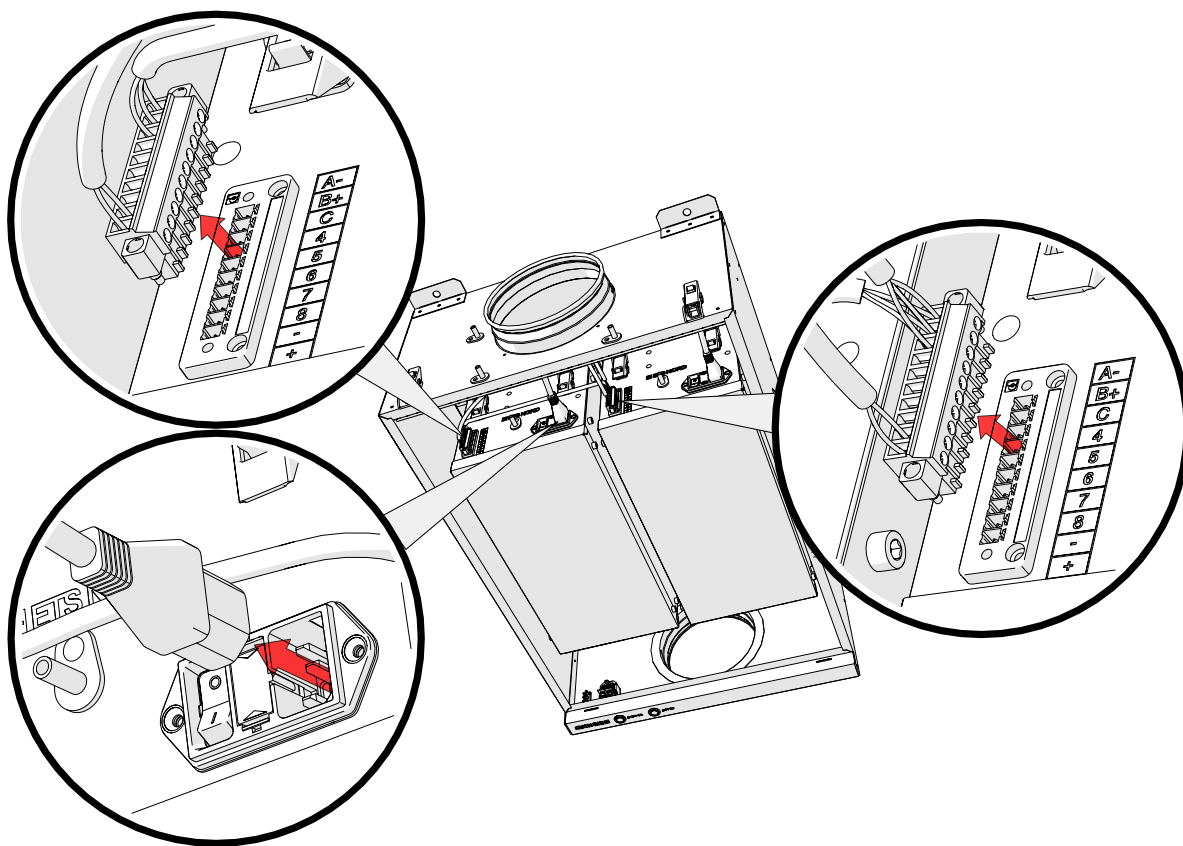
NOTE! Turn off and disconnect the electrical power cord from the EOZ chassis before proceeding.

Start by opening the front panel by opening two (2) clamps that are holding the panel.



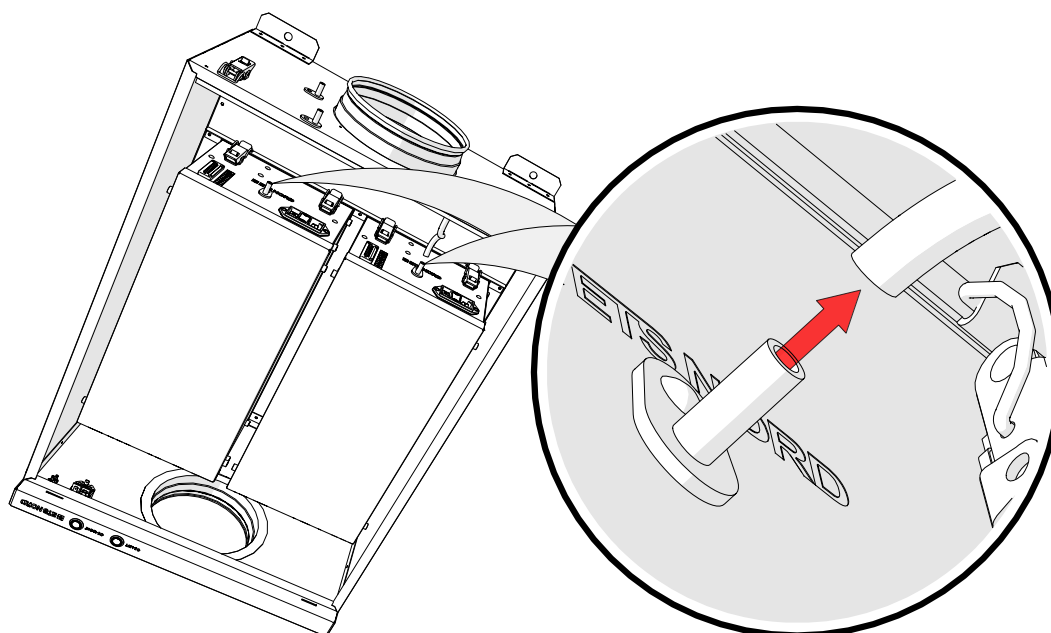
Disconnect cables inside the EOZ

Disconnect both the data and power cables from the Ozone Modules inside the EOZ chassis.

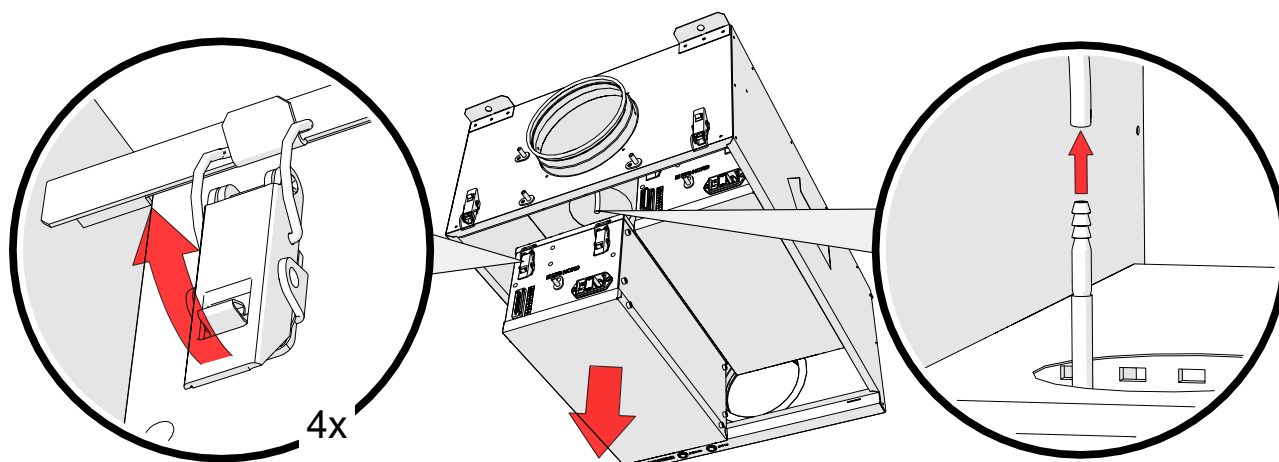


Remove the OZ module and disconnect the pressure measurement hose

Remove the pressure measurement hose from the data connection side.

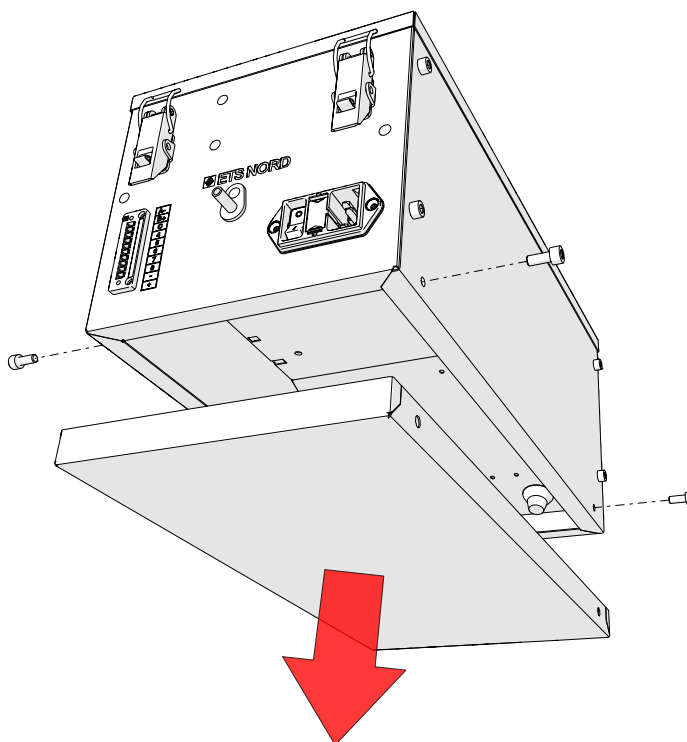


Next, while supporting each Ozone Module, release its four (4) clamps that fasten it in place. While carefully lowering the module, locate and disconnect the pressure measurement hose from the inside the 100mm exhaust hole.



Remove the OZ bottom cover

Remove the bottom cover by removing four (4) M5x12 bolts from the side panel and keep them in a secure place for later use.



Assign unique addresses to OZ modules

For this procedure a narrow 2mm flat-head screwdriver will be needed. All Ozone Modules connected to a single Control Panel must have a unique device address.

Example:

Ozone Module **one** (Address 1):

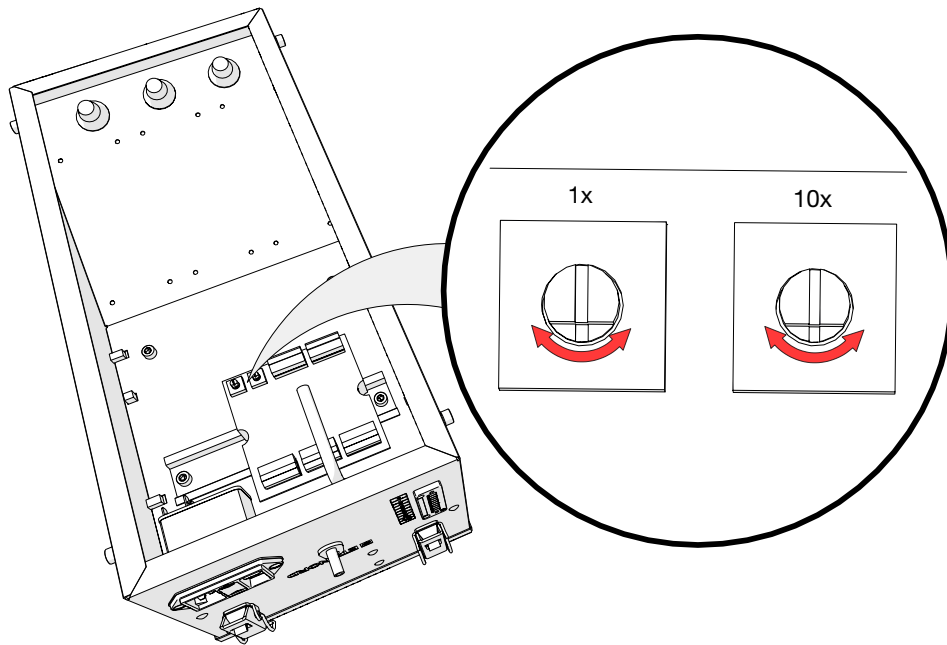
Switch 1x = 1

Switch 10x = 0

Ozone Module **thirteen** (Address 13):

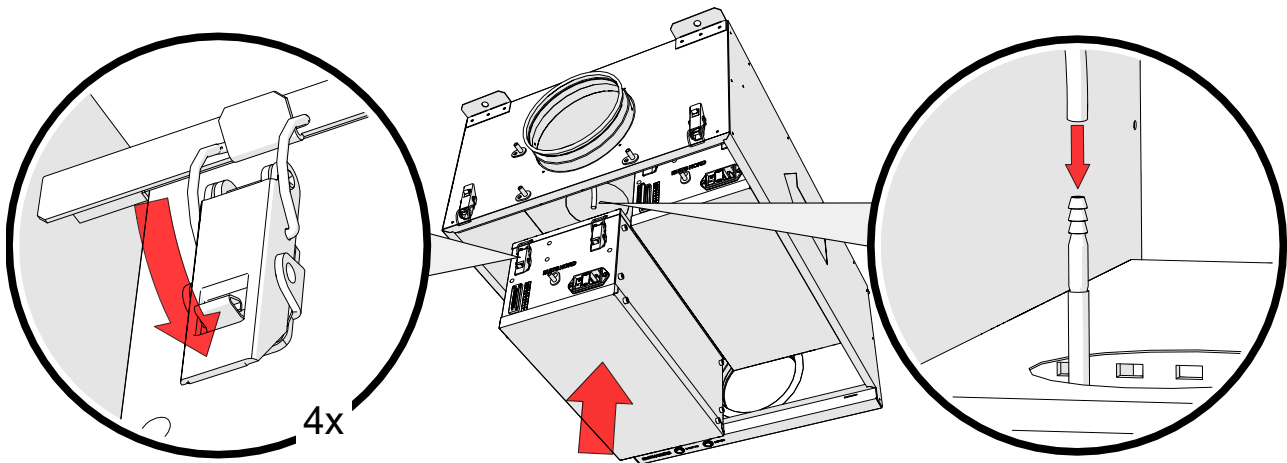
Switch 1x = 3

Switch 10x = 1

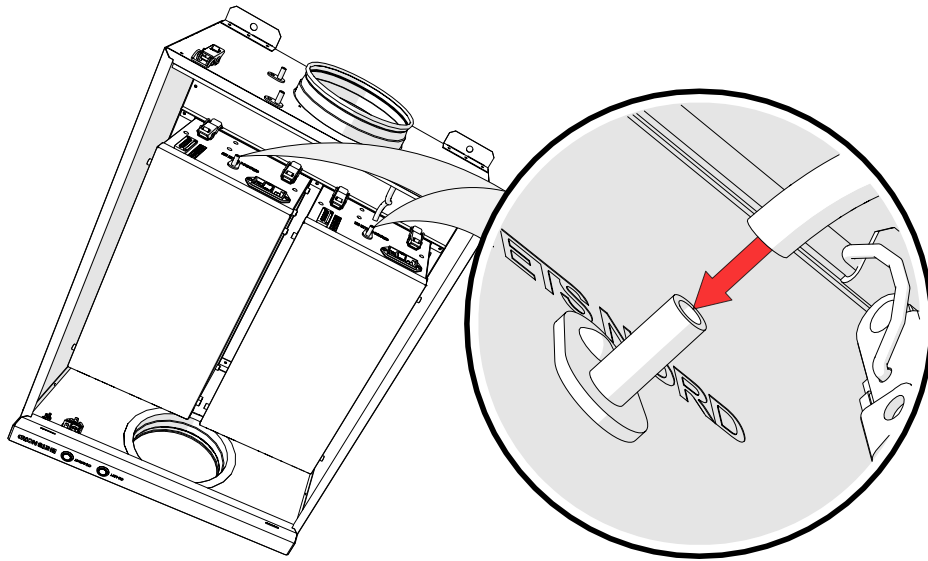


Mounting OZ modules back into the EOZ chassis

After all device addresses have been set to their unique values, proceed with reinstalling the Ozone Modules. Carefully lift each Ozone Module into place, securely attaching the loose end of the hanging pressure measurement hose back onto its nipple inside the EOZ 100mm exhaust hole. Raise the module into place and secure the four (4) fixing clamps to fasten the module inside the chassis, ensuring the hose does not become kinked in the process.



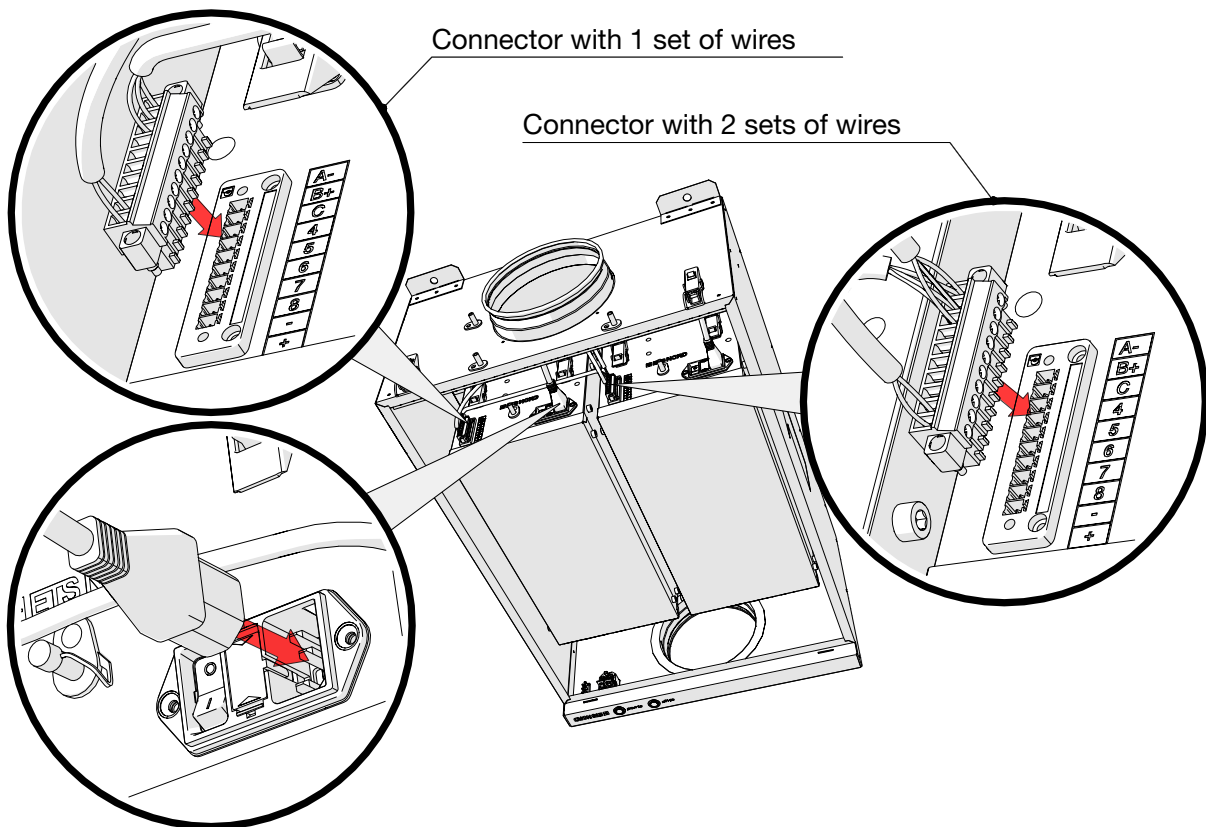
Next, note the location of each of the pressure nozzles inside the EOZ chassis, and connect the short hoses to their nearest ozone modules as shown below.



Cable connections

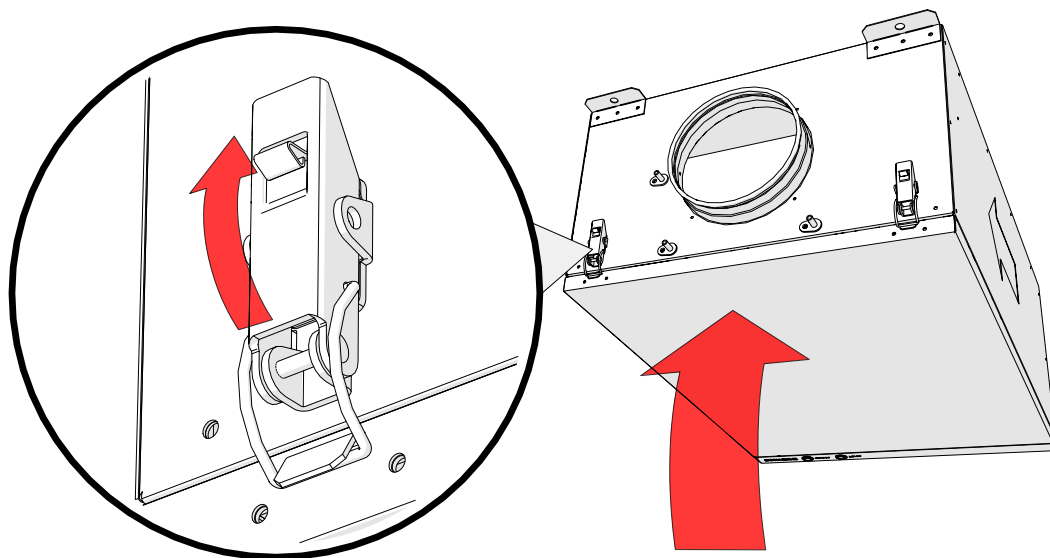
Carefully reinstall all data connectors inside the EOZ chassis to the Ozone Module data and power supply sockets.

Note: For model EOZ-2 the cables must be installed as shown in the diagram below.



Reinstall the bottom panel

Finally, reinstall the EOZ bottom panel and secure it with its two (2) clamps. Ensure the panel is sitting flush and is airtight.



Remember to reapply power to the unit for operation.

Control Panel display messages



When "ETS NORD Canopy system" is lit in white, the system is operating normally.



Call service is blinking:

This indicates that the system is operating normally, but it is time for its annual maintenance.

Call service is lit: pressure warning.

This indicates the system is not operating due to a pressure warning. Check that all grease filters are correctly installed in the extraction chamber of the canopy, and that the bottom edges of all filters do not have any gaps.



Call service is lit is red:

This indicates a technical fault has been detected in the system. Contact your ETS NORD representative or nearest authorized service company as soon as possible at:

www.etsnord.com/service

For further assistance, contact your ETS NORD representative or nearest authorized service company. Visit: www.etsnord.com/service

NOTE! Cooking in the kitchen may continue when Control Panel alarm is active as long as there is no sign of ozone. Still service is required and information must be provided to ETS NORD representative or nearest authorized service company

Facts about ozone

- Ozone is a colorless gas, the sharp smell of which can be detected by a person at a concentration of 0.02 ppm (0,4 mg/m³).
- The smell of ozone is similar to the smell of chlorine used in swimming pools.
- The use of ozone is subject to the applicable protection legislation. For example, in Sweden, the Swedish Work Environment Authority provides the following hygienic limits for ozone:
 - 0,05 ... 0,2 ppm (during working time, 8 hours)
 - (Directive 2000/39/EC) 0.3 ppm (15 minutes)
- Acute exposure to ozone may result in the following damage:
 - skin irritation and burning sensation
 - severe irritation and burns in eyes and vision loss
 - pulmonary irritation in the respiratory tract and respiratory problems
- If the presence of ozone is detected indoors, the Ozone Module must be switched off immediately and the area must be ventilated.

Limited warranty of device

Warranty conditions:

- General warranty conditions can be found on producers homepage
- The new device is covered by a 2-year warranty against defects and manufacturing defects, if:
 - the initial commissioning of the device has been performed by an authorized partner of ETS NORD AS
 - the equipment is serviced every 12 months after commissioning
 - specified components (eg ozone generating equipment) have been replaced as required
- The warranty for a new device covers the repair or replacement of a defective part
- The warranty for replacement parts for manufacturing defects is valid for ninety (90) days from the installation of the replacement part
- The warranty is valid from the date of commissioning and product registration

Service and maintenance

Maintenance and configuration of Ozone Modules may only be carried out by ETS NORD trained personnel or its authorized contractors. Technical assistance or annual maintenance can be requested from the website: www.etsnord.com/service.

- An Ozone Module generates ozone. If an Ozone Module is used by people who have not read these instructions, there is a risk of damage, such as lung irritation or electrical shock. Always follow the rules and recommendations for the particular work environment issued by national authorities.
- This manual describes how to install a typical Ozone Module. Installation may differ according to local regulations related to building materials, ventilation systems or building/room design. Always contact the manufacturer before installation if something seems unclear.



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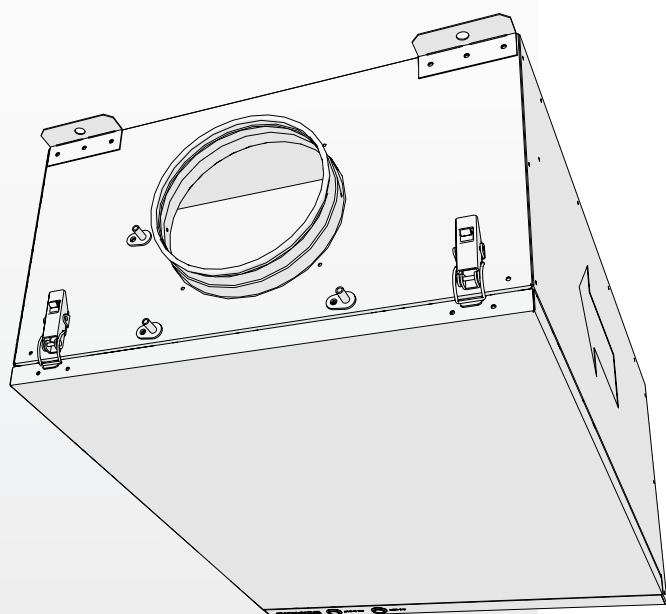
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*Let's move the air **together!***