

INLINE REVERSIBLE FAN

Altero 150
Altero 150 T

EN **USER'S MANUAL**

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This user's manual is a main operating document intended for technical, maintenance, and operating staff.

The manual contains information about purpose, technical details, operating principle, design, and installation of the Altero 150 (T) unit and all its modifications.

Technical and maintenance staff must have theoretical and practical training in the field of ventilation systems and should be able to work in accordance with workplace safety rules as well as construction norms and standards applicable in the territory of the country.

SAFETY REQUIREMENTS

- Please read the user's manual carefully prior to installing and operating the unit.
- All user's manual requirements as well as the provisions of all the applicable local and national construction, electrical, and technical norms and standards must be observed when installing and operating the unit.
- The warnings contained in the user's manual must be considered most seriously since they contain vital personal safety information.
- Failure to follow the rules and safety precautions noted in this user's manual may result in an injury or unit damage.
- After a careful reading of the manual, keep it for the entire service life of the unit.
- While transferring the unit control, the user's manual must be turned over to the receiving operator.

UNIT INSTALLATION AND OPERATION SAFETY PRECAUTIONS

- Disconnect the unit from power mains prior to any installation operations.
- Unpack the unit with care.
- The unit must be grounded!
- While installing the unit, follow the safety regulations specific to the use of electric tools.
- Do not change the power cable length at your own discretion.
- Do not bend the power cable.
- Avoid damaging the power cable.
- Do not put any foreign objects on the power cable.
- Do not lay the power cable of the unit in close proximity to heating equipment.
- Do not use damaged equipment or cables when connecting the unit to power mains.
- Do not operate the unit outside the temperature range stated in the user's manual.
- Do not operate the unit in aggressive or explosive environments.
- Do not touch the unit controls with wet hands.
- Do not carry out the installation and maintenance operations with wet hands.
- Do not wash the unit with water.
- Protect the electric parts of the unit against ingress of water.
- Do not allow children to operate the unit.
- The unit is allowed to be used by children aged from 8 years old and above and persons with reduced physical, sensory, or mental capabilities or no experience and knowledge provided that they have been given supervision or instruction regarding safe use of the unit and understand the risks involved.
- Disconnect the unit from power mains prior to any technical maintenance.
- Do not store any explosive or highly flammable substances in close proximity to the unit.
- When the unit generates unusual sounds, odour, or emits smoke, disconnect it from power supply and contact the Seller.
- Do not open the unit during operation.
- Do not direct the air flow produced by the unit towards open flame or ignition sources.
- Do not block the air duct when the unit is switched on.
- In case of continuous operation of the unit, periodically check the security of mounting.
- Do not sit on the unit and avoid placing foreign objects on it.
- Use the unit only for its intended purpose.



THE PRODUCT MUST BE DISPOSED SEPARATELY AT THE END OF ITS SERVICE LIFE.

DO NOT DISPOSE THE UNIT AS UNSORTED DOMESTIC WASTE.

PURPOSE



THE UNIT SHOULD NOT BE OPERATED BY CHILDREN OR PERSONS WITH REDUCED PHYSICAL, MENTAL, OR SENSORY CAPACITIES, OR THOSE WITHOUT THE APPROPRIATE TRAINING.

THE UNIT MUST BE INSTALLED AND CONNECTED ONLY BY PROPERLY QUALIFIED PERSONNEL AFTER THE APPROPRIATE BRIEFING.

THE CHOICE OF UNIT INSTALLATION LOCATION MUST PREVENT UNAUTHORISED ACCESS BY UNATTENDED CHILDREN.

The inline mixed flow reversible fan is designed for supply and exhaust ventilation of small rooms with limited installation space. The air is primarily extracted from the bathroom, and fresh air is supplied to the room fan coil.

The unit is rated for continuous operation.

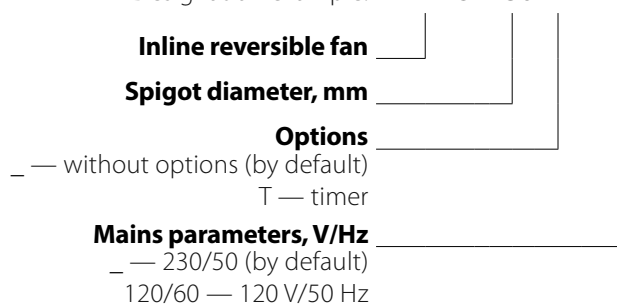
Transported air must not contain any flammable or explosive mixtures, evaporation of chemicals, sticky substances, fibrous materials, coarse dust, soot and oil particles or environments favourable for the formation of hazardous substances (toxic substances, dust, pathogenic germs).

DELIVERY SET

| NAME | NUMBER |
|---------------|--------|
| Fan | 1 pc. |
| User's manual | 1 pc. |
| Packing box | 1 pc. |

DESIGNATION KEY

Designation example: **ALTERO 150 T 120/60**

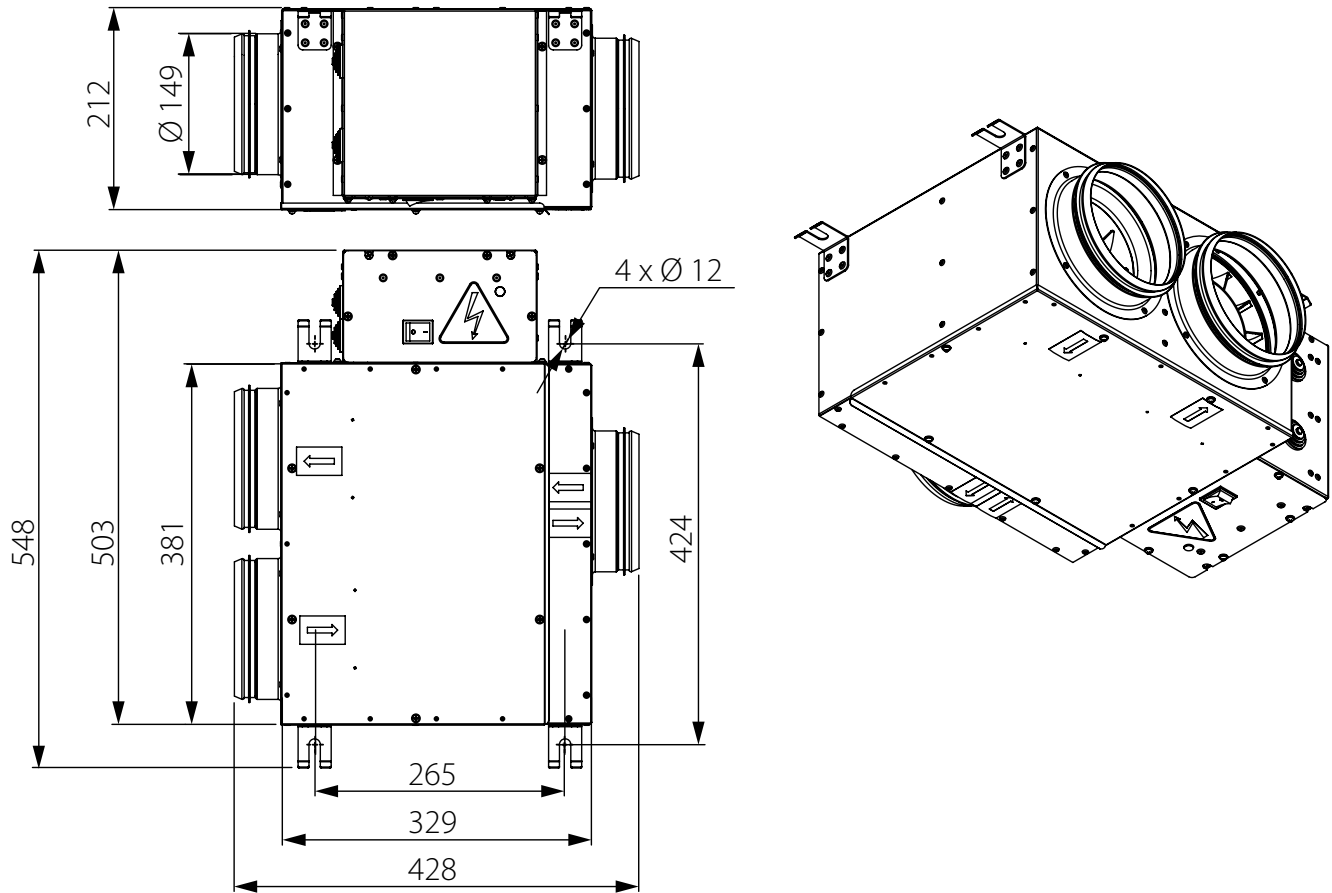


TECHNICAL DATA

The unit is rated as a class II electric appliance.

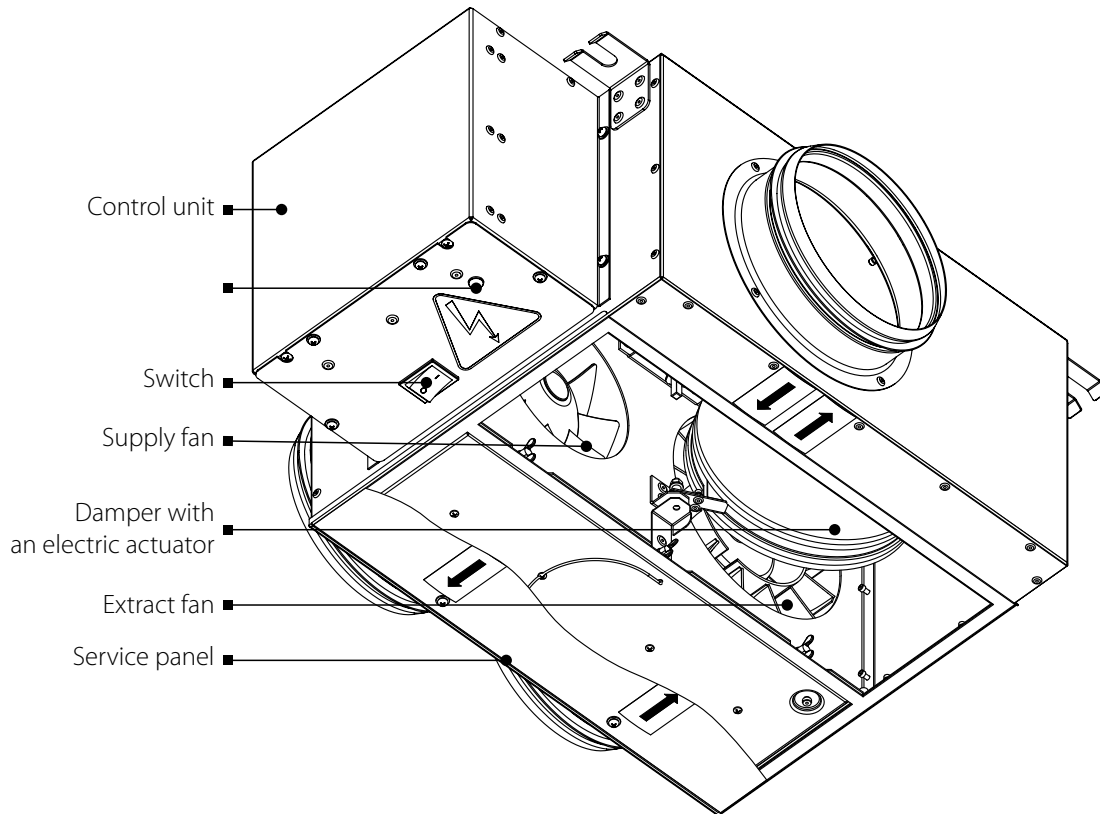
| Options | Altero 150 (T) | Altero 150 (T) 120/60 |
|--|----------------|-----------------------|
| Supply voltage [V/Hz] | 1~ 230/50 | 1~ 120/60 |
| Power [W] | 34 | 36.7 |
| Current [A] | 0.15 | 0.31 |
| Maximum air flow [m ³ /h] | 320 | 340 |
| Max. transported air temperature [°C (°F)] | 60 (140) | 60 (140) |
| Sound pressure level at 1 m distance [dBA] | 44 | 44 |
| Sound pressure level at 3 m distance [dBA] | 34 | 34 |
| Ingress protection rating | IPX4 | IPX4 |

Dimensions [mm]

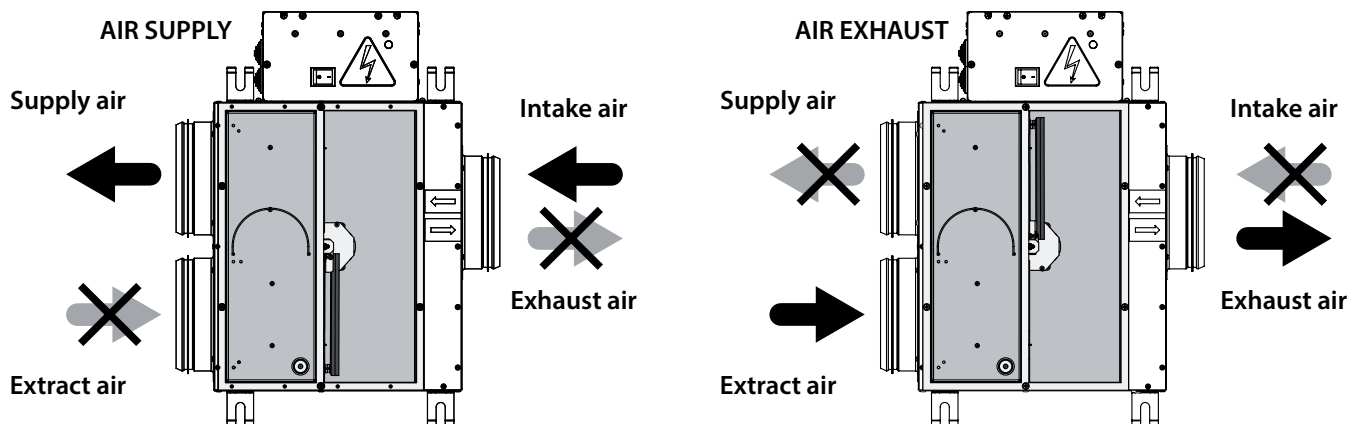


UNIT DESIGN AND OPERATING PRINCIPLE


The metal casing of the Altero 150 (T) unit is equipped with two fans and a damper with an electric actuator. The damper closes the supply or exhaust ducts, depending on the fan operation mode — “supply” or “exhaust”. The damper and fans are controlled by the controller. A control unit box is installed on the side panel of the casing for connecting the power supply and external devices. The Altero 150T unit incorporates LED indication (optional). Green light — operation indication, red light — alarm indication. The LED is located on the control unit. Alarms are accompanied by an audio signal (optional). There is a maintenance cover on the bottom of the casing for unit maintenance. There are four mounting brackets installed on the casing.




The reversible fan supplies fresh air to the room and extracts humid air from the room. Fresh air is delivered to the room with the supply fan in the Supply mode: the extract fan is turned off, the exhaust air duct is blocked by a damper.

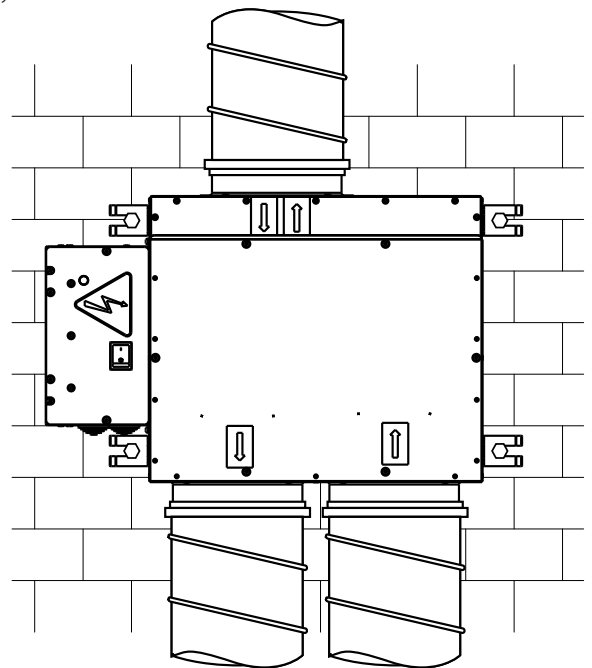
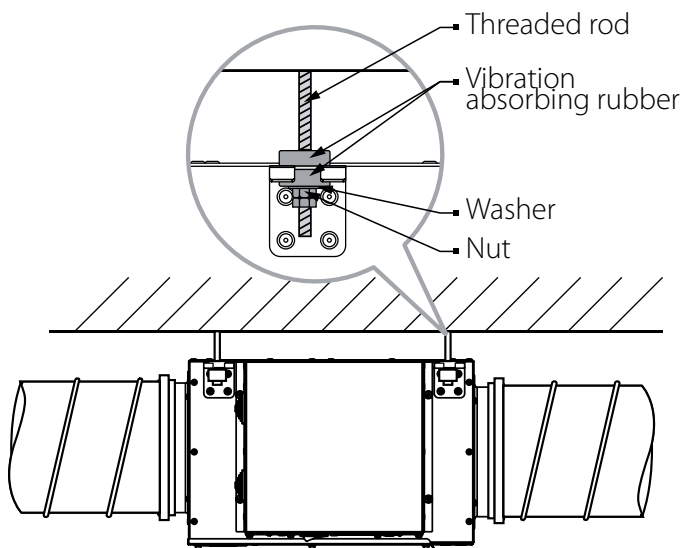


INSTALLATION AND SET-UP

 **BEFORE MOUNTING MAKE SURE THE CASING DOES NOT CONTAIN ANY FOREIGN OBJECTS (E.G. FOIL, PAPER).**

 **WHILE INSTALLING THE UNIT ENSURE CONVENIENT ACCESS FOR SUBSEQUENT MAINTENANCE AND REPAIR.**

The fan is designed for suspended ceiling mounting, wall mounting is also allowed at any angle relative to the fan axis. The fan mounting is carried out at 4 points with mounting brackets. It is recommended to use anchor threaded rods with nuts and anti-vibration rubber for fastening the fan to the ceiling. Fasteners for fan mounting are not included in the delivery set and should be ordered separately. While choosing fasteners consider the material of the mounting surface as well as the weigh of the fan, refer to the Technical Data section. Fasteners for unit mounting should be selected by the service technician.



WARNING!

To get the best performance of the unit and to minimize turbulence-induced air pressure losses, connect the straight air duct section to the spigots on both sides of the unit while installing. Minimum straight air duct length: equal to 1 air duct diameter on intake side equal to 3 air duct diameters on outlet side

If the air ducts are too short or not connected, protect the unit parts from ingress of foreign objects. To prevent uncontrollable access to the fan the spigots may be covered with a protecting grille or other protecting device with mesh width not more than 12.5 mm.

CONNECTION TO POWER MAINS

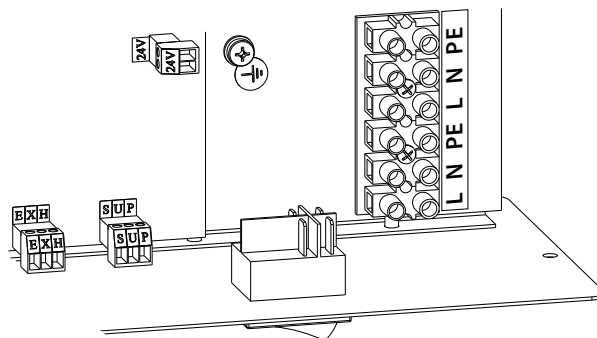
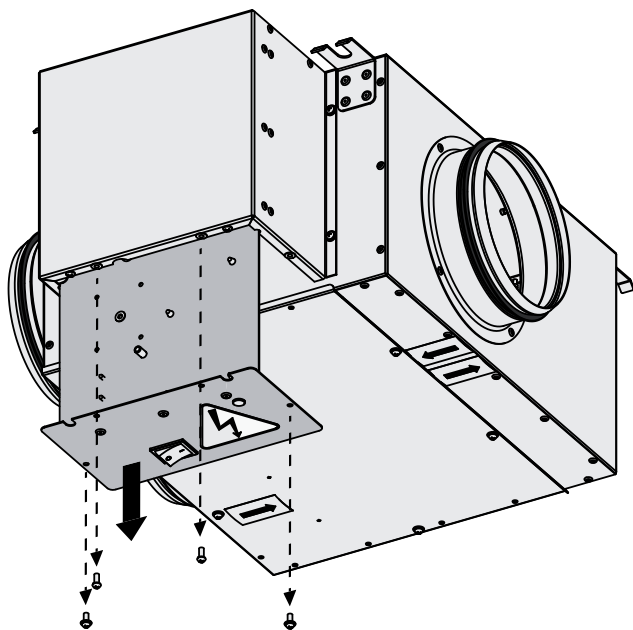


**POWER OFF THE POWER SUPPLY PRIOR TO ANY OPERATIONS WITH THE UNIT.
THE UNIT MUST BE CONNECTED TO POWER SUPPLY BY A QUALIFIED ELECTRICIAN.
THE RATED ELECTRICAL PARAMETERS OF THE UNIT ARE GIVEN ON THE
MANUFACTURER'S LABEL.**

- The unit is rated for connection to 1~230 V/50 Hz oder 1~120 V/60 Hz power mains, depending on the model, according to the wiring diagram.
- The unit must be connected to power mains using insulated electric conductors (cables, wires). The actual wire cross section selection must be based on the maximum load current, maximum conductor temperature depending on the wire type, insulation, length and installation method.
- The external power input must be equipped with an automatic circuit breaker built into the stationary wiring to open the electric circuit in case of overload or short-circuit. The circuit breaker installation place must provide quick access for emergency shutdown of the unit. The trip current of the automatic circuit breaker must exceed the maximum current consumption of the unit (refer to the technical data table). The recommended trip current of the circuit breaker is the next current in the standard trip current row following the maximum current of the connected unit. The automatic circuit breaker is not included in the delivery set.

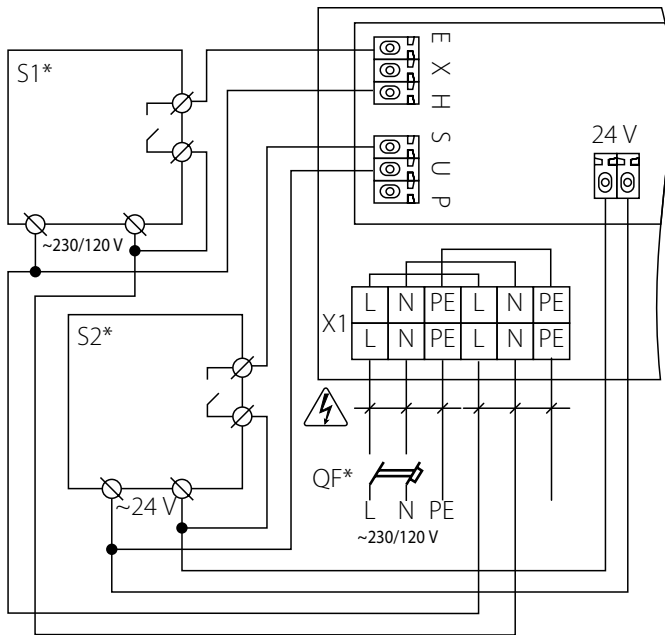
Access to the control unit

To access the control unit, undo the screws securing the removable electric mounting plate and pull it towards you until it stops. Pull the power cable through the glands on the side of the control unit and make the electrical connections as shown in the wiring diagram.



Altero 150 T

Wiring diagram example



| | |
|----------------------|---|
| EXH, SUP, 24V | Connectors on the board in the control unit |
| X1 | Terminal block in the control unit |
| S1*, S2* | External sensors |
| QF* | Circuit breaker |

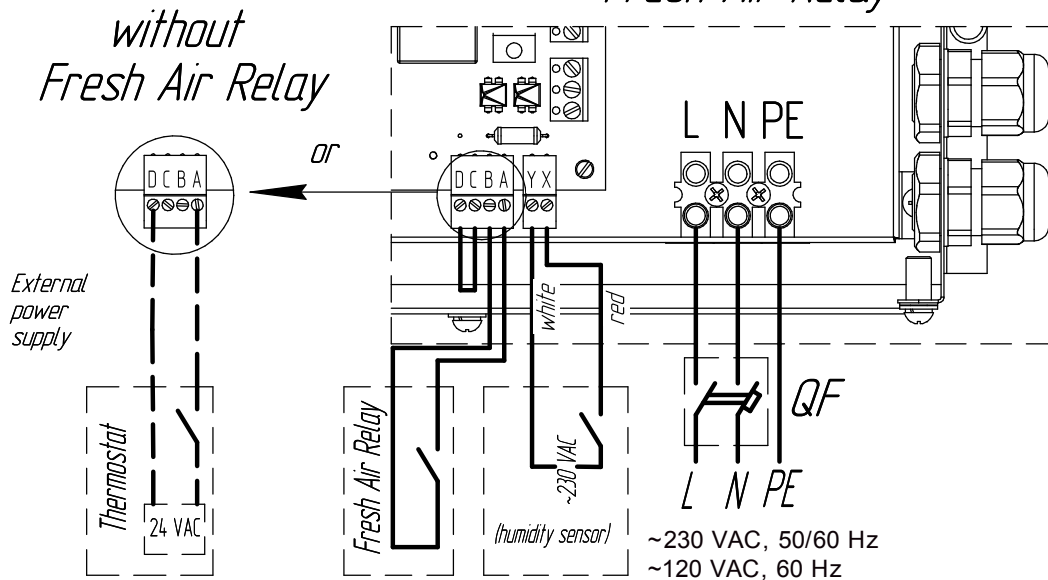
*Additionally connected devices are purchased separately.

The air supply mode is activated by supplying 230 V/120 V to the **S, P** terminals or 24 V to the **S, U** terminals (see the example of the wiring diagram).

Extract air is removed by the extract fan in the air extraction mode: the supply fan is off, the supply duct is blocked by a damper. The air extraction mode is activated by supplying 230 V/120 V to the **E, H** terminals or 24 V to the **E, X** terminals (see the example of the wiring diagram).

Altero 150

with Fresh Air Relay



Activation of the supply mode without relay is enabled by closing the thermostat contact U and 24 V voltage supply to A and D terminals. Activation of the supply mode with relay is enabled by closing the relay contact K and voltage supply to A and B terminals. The terminals C and D are jumped in this case.

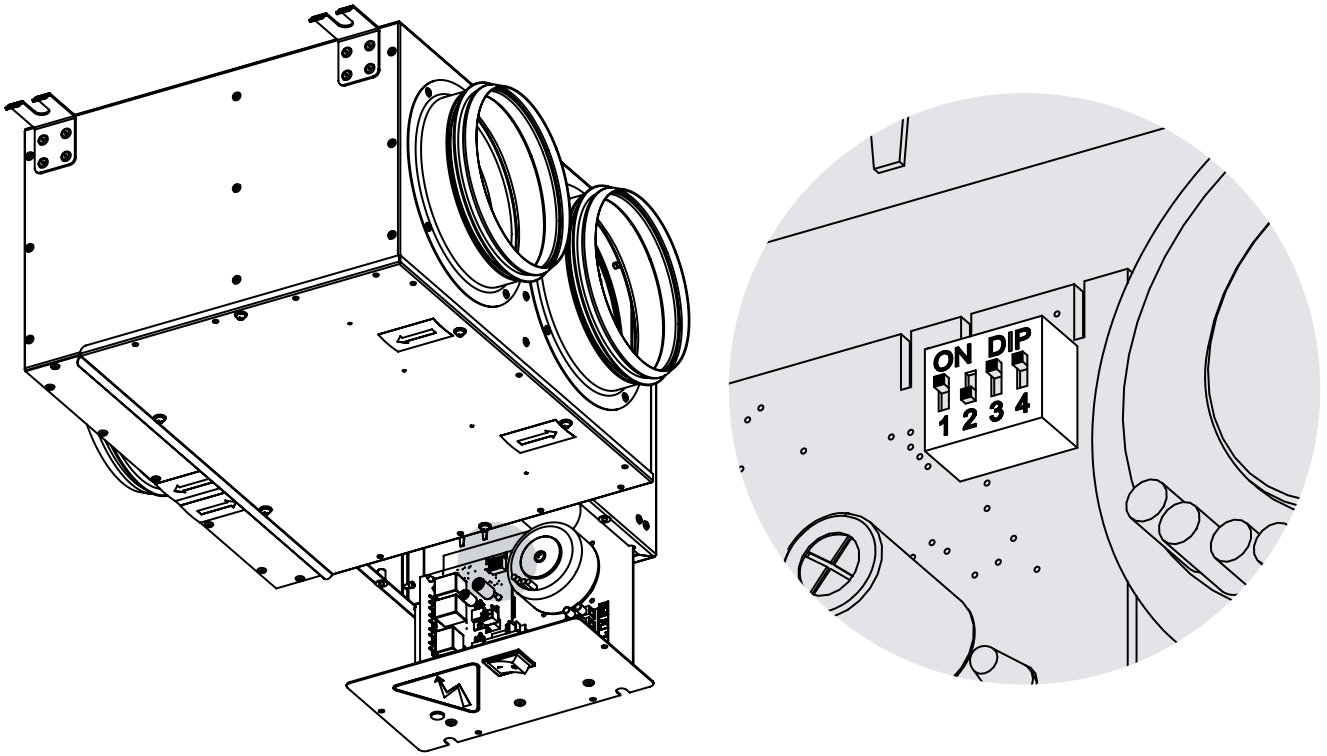
Activation of the exhaust mode is enabled by closing the humidity sensor contact and 120 V voltage supply to the terminals X and Y.

The air extraction mode has priority over the air supply mode.

UNIT CONTROL

Altero 150 T

The fan air flow in the Supply mode is controlled by means of a DIP switch with an integrated cyclic timer, alternating operation and downtime of the fan every 60 minutes. The DIP switch is located on the control board.



Using the table, select the period with the desired operation and downtime of the fan for the period of 60 minutes and set the DIP switch levers to the appropriate position.

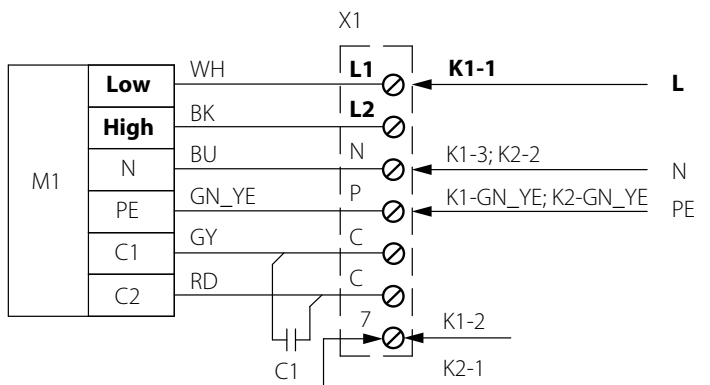
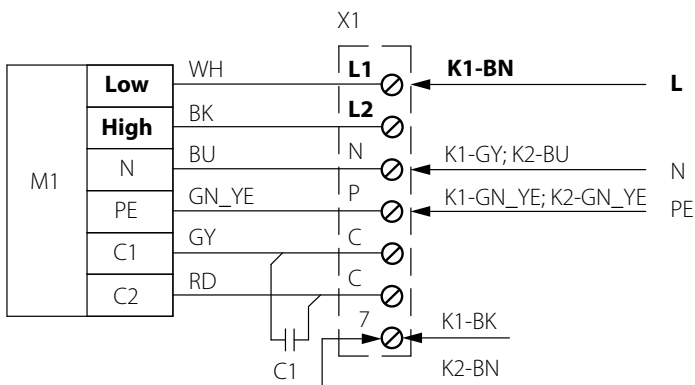
| Period, 60 minutes | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|----------------------|----|----|----|----|----|----|----|----|----|----|----|----|
| Operating time [min] | 5 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 |
| Downtime [min] | 55 | 50 | 45 | 40 | 35 | 30 | 25 | 20 | 15 | 10 | 5 | 0 |
| DIP switch | | | | | | | | | | | | |

Switching the speed of the supply fan

The exhaust fan motor is set to high speed; the supply fan motor is set to low speed.

Anschlussschema des Zuluftventilatormotors (~230 V)

Anschlussschema des Zuluftventilatormotors (~120 V)



The supply fan can be turned on at high speed by reconnecting the fan motor. To switch to **High** speed, disconnect the **K1-1/K1-BN** wire from the **L1** terminal and connect it to the **L2** terminal. Wiring diagram

TECHNICAL MAINTENANCE



DISCONNECT THE UNIT FROM POWER SUPPLY BEFORE ANY MAINTENANCE OPERATIONS!
MAKE SURE THE UNIT IS DISCONNECTED FROM POWER MAINS BEFORE REMOVING THE PROTECTION.

The unit must undergo technical maintenance 3 to 4 times a year. They include general cleaning of the unit and the following operations:

1. Fan maintenance (once a year).

Some dust may accumulate inside the fans and reduce the fan performance and supply air flow.

Access to the fan unit

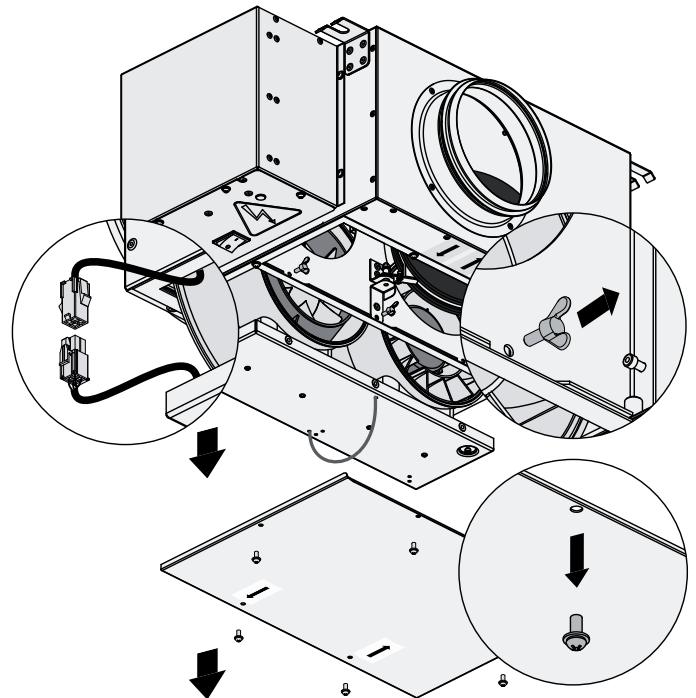
Remove the screws on the door and remove the door. Remove the three butterfly bolts on the inner side wall, pull the cord to move the fans and disconnect the connector from the control unit. Disconnect the fan completely.

Clean the fans with a cloth or a soft brush. Do not use water, aggressive solvents, or sharp objects as they may damage the impeller.

2. Technical maintenance of air duct system (every 5 years).

Even regular fulfilling of all the prescribed above maintenance operations may not completely prevent dirt accumulation in the air ducts which reduces the unit capacity. Duct maintenance means regular cleaning or replacement.

3. Control unit maintenance (if necessary).



TROUBLESHOOTING

| PROBLEM | POSSIBLE REASONS | TROUBLESHOOTING |
|--|--|--|
| When switching on the unit the fan does not start. | No power supply. | Make sure the power supply line is connected correctly, otherwise troubleshoot the connection error. |
| The alarm indicator is on. | Broken damper, controller, motor. | Turn off the fan. Contact the Seller for further information. |
| Automatic circuit breaker tripping following the fan turning on. | Over-current as a result of short circuit in the electric circuit. | |
| Noise, vibration. | The impeller is clogged. | Clean the impeller. |

STORAGE AND TRANSPORTATION REGULATIONS

- Store the unit in the manufacturer's original packaging box in a dry closed ventilated premise with temperature range from +5 °C to +40 °C and relative humidity up to 70 %.
- Storage environment must not contain aggressive vapors and chemical mixtures provoking corrosion, insulation, and sealing deformation.
- Use suitable hoist machinery for handling and storage operations to prevent possible damage to the unit.
- Follow the handling requirements applicable for the particular type of cargo.
- The unit can be carried in the original packaging by any mode of transport provided proper protection against precipitation and mechanical damage. The unit must be transported only in the working position.
- Avoid sharp blows, scratches, or rough handling during loading and unloading.
- Prior to the initial power-up after transportation at low temperatures, allow the unit to warm up at operating temperature for at least 3-4 hours.

MANUFACTURER'S WARRANTY

The product is in compliance with EU norms and standards on low voltage guidelines and electromagnetic compatibility. We hereby declare that the product complies with the provisions of Electromagnetic Compatibility (EMC) Directive 2014/30/EU of the European Parliament and of the Council, Low Voltage Directive (LVD) 2014/35/EU of the European Parliament and of the Council and CE-marking Council Directive 93/68/EEC. This certificate is issued following test carried out on samples of the product referred to above.

The manufacturer hereby warrants normal operation of the unit for 24 months after the retail sale date provided the user's observance of the transportation, storage, installation, and operation regulations. Should any malfunctions occur in the course of the unit operation through the Manufacturer's fault during the guaranteed period of operation, the user is entitled to get all the faults eliminated by the manufacturer by means of warranty repair at the factory free of charge. The warranty repair includes work specific to elimination of faults in the unit operation to ensure its intended use by the user within the guaranteed period of operation. The faults are eliminated by means of replacement or repair of the unit components or a specific part of such unit component.

The warranty repair does not include:

- routine technical maintenance
- unit installation/dismantling
- unit setup

To benefit from warranty repair, the user must provide the unit, the user's manual with the purchase date stamp, and the payment paperwork certifying the purchase. The unit model must comply with the one stated in the user's manual. Contact the Seller for warranty service.

The manufacturer's warranty does not apply to the following cases:

- User's failure to submit the unit with the entire delivery package as stated in the user's manual including submission with missing component parts previously dismantled by the user.
- Mismatch of the unit model and the brand name with the information stated on the unit packaging and in the user's manual.
- User's failure to ensure timely technical maintenance of the unit.
- External damage to the unit casing (excluding external modifications as required for installation) and internal components caused by the user.
- Redesign or engineering changes to the unit.
- Replacement and use of any assemblies, parts and components not approved by the manufacturer.
- Unit misuse.
- Violation of the unit installation regulations by the user.
- Violation of the unit control regulations by the user.
- Unit connection to power mains with a voltage different from the one stated in the user's manual.
- Unit breakdown due to voltage surges in power mains.
- Discretionary repair of the unit by the user.
- Unit repair by any persons without the manufacturer's authorization.
- Expiration of the unit warranty period.
- Violation of the unit transportation regulations by the user.
- Violation of the unit storage regulations by the user.
- Wrongful actions against the unit committed by third parties.
- Unit breakdown due to circumstances of insuperable force (fire, flood, earthquake, war, hostilities of any kind, blockades).
- Missing seals if provided by the user's manual.
- Failure to submit the user's manual with the unit purchase date stamp.
- Missing payment paperwork certifying the unit purchase.



FOLLOWING THE REGULATIONS STIPULATED HEREIN WILL ENSURE A LONG AND TROUBLE-FREE OPERATION OF THE UNIT



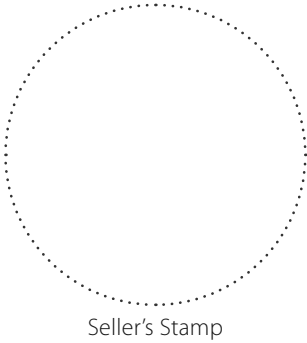
USER'S WARRANTY CLAIMS SHALL BE SUBJECT TO REVIEW ONLY UPON PRESENTATION OF THE UNIT, THE PAYMENT DOCUMENT AND THE USER'S MANUAL WITH THE PURCHASE DATE STAMP

CERTIFICATE OF ACCEPTANCE

| | |
|----------------------------------|-----------------------|
| Unit Type | Inline reversible fan |
| Model | |
| Serial Number | |
| Manufacture Date | |
| Quality Inspector's Stamp | |

SELLER INFORMATION

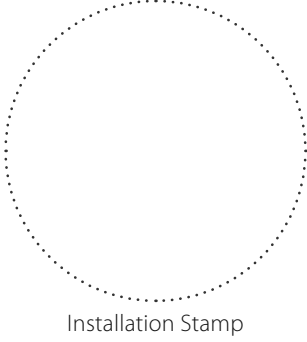
| | |
|---|--|
| Seller | |
| Address | |
| Phone Number | |
| E-mail | |
| Purchase Date | |
| This is to certify acceptance of the complete unit delivery with the user's manual. The warranty terms are acknowledged and accepted. | |
| Customer's Signature | |



INSTALLATION CERTIFICATE

The _____ unit is installed pursuant to the requirements stated in the present user's manual.

| | |
|--|-------------------|
| Company name | |
| Address | |
| Phone Number | |
| Installation Technician's Full Name | |
| Installation Date: | Signature: |
| The unit has been installed in accordance with the provisions of all the applicable local and national construction, electrical and technical codes and standards. The unit operates normally as intended by the manufacturer. | |
| Signature: | |



WARRANTY CARD

| | |
|-------------------------|-----------------------|
| Unit Type | Inline reversible fan |
| Model | |
| Serial Number | |
| Manufacture Date | |
| Purchase Date | |
| Warranty Period | |
| Seller | |

