



Decentralised ventilation units

SCHOOLAIR-S-HV

Freestanding supply and extract air unit
with control FSL-CONTROL III (optional)



TROX[®] TECHNİK
The art of handling air

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1 General

1.1 About this manual

This manual enables operating or service personnel to correctly install the ventilation unit and to use it safely and efficiently.

This manual is intended for use by fitting and installation companies, in-house technicians, technical staff, instructed persons, and qualified electricians or air conditioning technicians.

It is essential that these individuals read and fully understand this manual before starting any work. The basic prerequisite for safe working is to comply with the safety notes and all instructions in this manual.

The local regulations for health and safety at work and the general safety regulations for the area of application of the ventilation unit also apply.

This manual must be given to the system owner when handing over the system. The system owner must include the manual with the system documentation. The manual must be kept in a place that is accessible at all times.

Illustrations in this manual are mainly for information and may differ from the actual design.

Other applicable documentation

- Installation and configuration manual FSL-CONTROL III (for units with FSL-CONTROL III control system)
- Project-specific documents (if any)

1.2 Explanation

Safety notes

Symbols are used in this manual to alert readers to areas of potential hazard. Signal words express the degree of the hazard.

Comply with all safety instructions and proceed carefully to avoid accidents, injuries and damage to property.

DANGER!

Imminently hazardous situation which, if not avoided, will result in death or serious injury.

WARNING!

Potentially hazardous situation which, if not avoided, may result in death or serious injury.

CAUTION!

Potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

NOTICE!

Potentially hazardous situation which, if not avoided, may result in property damage.

ENVIRONMENT!

Environmental pollution hazard.

Tips and recommendations



Useful tips and recommendations as well as information for efficient and fault-free operation.

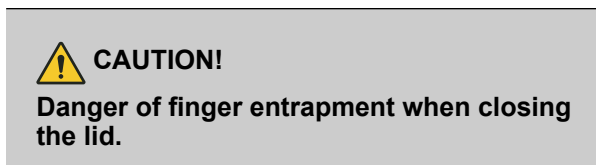
Safety notes as part of instructions

Safety notes may refer to individual instructions. In this case, safety notes will be included in the instructions and hence facilitate following the instructions. The above listed signal words will be used.

Example:

1. ▶ Loosen the screw.

2. ▶



Be careful when closing the lid.

3. ▶ Tighten the screw.

Additional markers

In order to highlight instructions, results, lists, references and other elements, the following markers are used in this manual:

Marker	Explanation
→ 1., 2., 3. ...	Step-by-step instructions
⇒	Results of actions
↪	References to sections in this manual and to other applicable documents
■	Lists without a defined sequence
[Switch]	Operating elements (e.g. push buttons, switches), display elements (e.g. LEDs)
'Display'	Screen elements (e.g. buttons or menus)

1.3 TROX Technical Service

To ensure that your request is processed as quickly as possible, please keep the following information ready:

- Product name
- TROX order number
- Delivery date
- Brief description of the fault

Online	www.troxtechnik.com
Phone	+49 2845 202-400

1.4 Warranty claims

Warranty claims

The general delivery terms apply to warranty claims. For purchase orders placed with TROX GmbH, see Section VI, Warranty Claims, of the Delivery Terms of TROX GmbH, www.trox.de/en/.

1.5 Copyright

This document, including all illustrations, is protected by copyright and pertains only to the corresponding product.

Any use without our consent may be an infringement of copyright, and the violator will be held liable for any damage.

This applies in particular to:

- Publishing content
- Copying content
- Translating content
- Saving content to electronic systems and editing it

2 Safety

2.1 Correct use

Decentralised ventilation units are used to create a comfortable room temperature and to ventilate rooms such as offices, meeting rooms, or classrooms in schools.

Functions of the ventilation unit

- Ventilation
- Outdoor air filtering
- Heating of supply air

The ventilation unit is designed for frost-proof installation in inside rooms.

Correct use also involves complying with all the information provided in this manual.

Any use that goes beyond the correct use or any different use of the unit is regarded as incorrect use.

Incorrect use

WARNING!

Danger due to incorrect use!

Incorrect use of the unit can lead to dangerous situations.

Incorrect use includes:

- Any use that is not described in this operating manual
- Operation that does not comply with the technical data
- Modifying of the unit by others, tampering with the unit
- Use, installation, operation, maintenance or repair other than described in this manual
- Having work carried out by unqualified individuals
- Use of non-genuine replacement parts or accessories, whose quality and function are not equivalent to those of the original parts
- Operation in rooms with explosive gases or gas mixtures
- Operation in rooms where the supply or extract air contains particles that are conductive, aggressive, corrosive, combustible or hazardous to health
- Operation in rooms where the humidity is permanently high (> 90 %)
- Operation outdoors
- Use for enforced ventilation
- Operation without air filters

2.2 Safety signs

The following symbols and signs are found on the unit. They apply to the very location where they are found.

Electrical voltage



Hazardous electrical voltage that is present in the ventilation unit. Only skilled qualified electricians are allowed to work on parts of the ventilation unit marked with this symbol. Such work must be carried out only by skilled qualified electricians or the technical service.

Controls access panel



Only skilled qualified electricians are allowed to open the controls access panel. Ensure that no voltage is present on any mains circuit before you open the cover to access the terminal connections.

2.3 Electric shock hazard

Electric current

DANGER!

Danger of death due to electric current!

Danger of electric shock! Do not touch any live components! Damaged insulation or damaged parts are a life threatening hazard.

- Only a skilled qualified electrician must work on the electrical systems.
- If the insulation is damaged, disconnect the power supply immediately and have the insulation repaired.
- Switch off the power supply before you carry out maintenance or cleaning.
- Ensure that live parts do not come into contact with moisture. Moisture can cause a short circuit.

2.4 Risks from rotating parts

Rotating parts

WARNING!

Risk of injury from rotating parts!

Rotating parts in the fan can cause severe injuries.

- Switch off the power supply before you carry out maintenance or cleaning.
- The fan does not stop immediately! Check that no parts are moving once you have opened the ventilation unit.
- Do not reach into the moving fan.
- Do not open the ventilation unit while the fan is in operation.

2.5 Health risk due to hygiene issues

Hygiene issues

CAUTION!

Health risk due to hygiene issues!

If you do not stick to the maintenance schedule or if the unit is not used for several weeks, bacteria and germs may start growing in the air filter and in the heat recovery unit.

- Change filters and clean the heat recovery unit in the recommended intervals.
- Change the air filters and clean the heat recovery unit after lengthy idle periods.

2.6 Risks caused by an unsuitable installation location

Unsuitable installation location

WARNING!

Risks caused by an unsuitable installation location!

Installing the unit in an unsuitable location can lead to dangerous situations.

- The installation site must have sufficient load-bearing capacity.
- The device must be secured to the wall to prevent it from tipping over.
- The ventilation unit should preferably be installed in a thermally insulated, low-leakage building.
- Frost free and dry installation location.
- The unit must remain accessible for maintenance and cleaning.

2.7 Qualified staff

Qualification

The work described in this manual has to be carried out by individuals with the qualification, training, knowledge and experience described below:

Facility manager

Facility managers have been instructed so that they are able to avoid any potential hazards related to the work under consideration. Facility managers must not carry out any jobs beyond regular operation unless explicitly stated in this manual and unless the system owner has specifically agreed to them. Instruction is provided by the HVAC contractor when the system is handed over.

Facility managers are responsible for cleaning the unit, for carrying out functional tests and regular checks, for maintenance and for smaller adjustments.

HVAC technician

HVAC technicians are individuals who have sufficient professional or technical training in the field they are working in to enable them to carry out their assigned duties at the level of responsibility allocated to them and in compliance with the relevant guidelines, safety regulations and instructions. HVAC technicians are individuals who have in-depth knowledge and skills related to HVAC systems; they are also responsible for the professional completion of the work under consideration.

HVAC technicians are individuals who have sufficient professional or technical training, knowledge and actual experience to enable them to work on HVAC systems, understand any potential hazards related to the work under consideration, and recognise and avoid any risks involved.

Skilled qualified electrician

Skilled qualified electricians are individuals who have sufficient professional or technical training, knowledge and actual experience to enable them to work on electrical systems, understand any potential hazards related to the work under consideration, and recognise and avoid any risks involved.

Any work has to be carried out by individuals who can be expected to carry out their assigned duties reliably. Individuals whose reaction time is delayed due to alcohol, drugs or other medication must not carry out any work.

2.7.1 Personal protective equipment

Personal protective equipment is equipment that protects the user against health or safety risks at work.

Personal protective equipment must be worn for various types of work; the protective equipment required is listed in this manual together with the description of each type of work.

Qualified staff > Personal protective equipment

Description of personal protective equipment

Safety shoes



Safety shoes protect the feet against crushing, falling parts, and from slipping on slippery ground.

3 Technical data

3.1 Technical data



Technical data sheets

An illustration and the technical data have already been provided for information and acceptance by the customer. We recommend that you keep those documents with this manual.

SCHOOLAIR-S-HV

Supply voltage	230 V AC \pm 10%
Supply voltage, frequency	50/60 Hz
Rating	3640 VA
Power consumption (nominal volume flow rate)	160 W
Protection level	IP 21
Width	1200 mm
Height	2300 mm
Depth	600 mm
Volume flow rate	300, 500, 800 m ³ /h (boost 1050 m ³ /h)
Nominal volume flow rate	800 m ³ /h
Sound pressure level at nominal flow rate and 8 dB room attenuation	35 dB(A)
Sound power level	24 – 53 dB(A)
Heating capacity per room	Isothermal
Heat recovery efficiency	80 %
Weight	360 kg

Rating plate

3.2 Rating plate

The device has two rating plates:

- Inside - Behind the upper inspection access door in the electrical connection area
- Outside - On top of the device at the cable penetration for the supply voltage



Fig. 1: Rating plate (example)

- ① Device type
- ② Year of manufacture
- ③ Commission no.
- ④ Serial number
- ⑤ Supply voltage
- ⑥ Max. power consumption
- ⑦ Protection level
- ⑧ Max. water temperature
- ⑨ Max. operating pressure
- ⑩ Supply air filter class
- ⑪ Extract air filter class

4 Parts and function

4.1 Ventilation unit overview



Fig. 2: SCHOOLAIR-S-HV ventilation unit

- | | | | |
|---|---------------------------------------|------------------|-----------------------------------|
| 1 | Casing (top) | 10 | Extract air filter ISO coarse 90% |
| 2 | Matching rear frame (top) | 11 | Rotary heat exchanger (inside) |
| 3 | Outdoor air spigot | 12 | Matching rear frame (bottom) |
| 4 | Air terminal device (supply air) | 13 | Feet |
| 5 | Exhaust air spigot | 14 | Casing (mounting base) |
| 6 | Fixing bracket (2 pieces, adjustable) | 15 | Supply air fan |
| 7 | Extract air fan | 16 | Door lock |
| 8 | Inspection access door (top) | 17 ¹⁾ | Outdoor air filter ISO ePM1 60% |
| 9 | Inspection access door (bottom) | 18 | Electric air heater |

1) A differential pressure sensor is used to monitor the condition of the outdoor air filter.

4.1.1 Schematic illustration of the airflows

SCHOOLAIR-S-HV

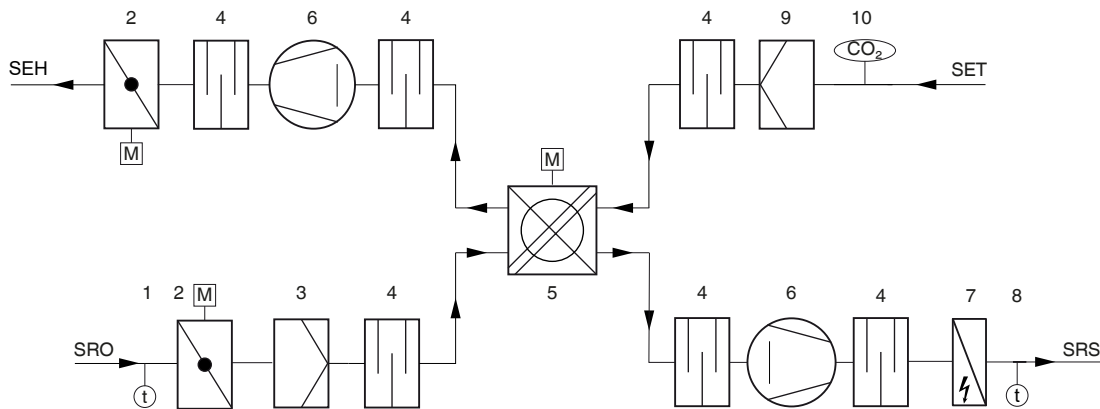


Fig. 3: SCHOOLAIR-S-HV ventilation diagram

- | | | | |
|---|---|-----|-----------------------------------|
| 1 | Outdoor air temperature sensor (optional) | 8 | Supply air temperature sensor |
| 2 | Shut-off damper with actuator (exhaust air and outdoor air) | 9 | Extract air filter ISO coarse 90% |
| 3 | Outdoor air filter ISO ePM1 60% | 10 | CO ₂ sensor (optional) |
| 4 | Sound attenuator | SEH | Single room exhaust air |
| 5 | Rotary heat exchanger for heat recovery | SET | Single room extract air |
| 6 | Fan (supply air and extract air) | SRO | Single room outdoor air |
| 7 | Electric air heater | SRS | Single room supply air |



Fig. 4: Air types

- | | | | |
|-----|-------------------------|-----|-------------------------|
| SET | Single room extract air | SRS | Single room supply air |
| SRO | Single room outdoor air | SEH | Single room exhaust air |

Functional description

Decentralised supply and extract air units for room ventilation, isothermal units that compensate for the heat loss due to ventilation according to the technical data.

An EC centrifugal fan takes in the outdoor air which then flows through the motorised shut-off damper and the outdoor air filter. The outdoor air then flows through the rotary heat recovery unit, which can be switched off if it is more energy efficient. If necessary, the air is heated by the heat exchanger before it is discharged towards the ceiling with a high propulsive force.

The extract air first passes the extract air filter, then flows through the heat recovery unit, the extract air fan and the motorised shut-off damper before it is discharged to the outside as exhaust air.

The supply air is discharged near the ceiling with a medium velocity. The selected air outlet ensures good overall room ventilation. Once the air reaches the opposite wall, it moves downwards and eventually through the entire space. By the time the airflow reaches the occupied zone it has a very low velocity.

If the power fails, the outdoor air and exhaust air dampers are closed to ensure fire protection and frost protection and to avoid draughts. This is ensured by a capacitor in each actuator.

5 Transport, packaging and storage

5.1 Safety notes

Suspended loads



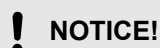
Danger of death due to suspended loads!

Falling loads may cause serious injury or death.

Therefore:

- Never walk under suspended loads.
- Only move loads under supervision.
- Observe the specifications for the intended lashing points.
- Ensure that the lifting gear is secure.
- Only use approved hoisting devices and lifting gear with sufficient load-bearing capacity.
- Do not use any frayed or worn ropes and belts.
- Do not place ropes or belts near sharp edges or corners; do not knot or twist.
- Place the load on the ground before leaving the workplace.

Damage to goods being moved



Risk of damage to property due to the incorrect handling or lifting of units!

If you handle or move packages incorrectly, they may topple or fall. This can cause considerable damage to property.

- Be careful when unloading the packages upon delivery and during internal transport, and pay attention to the symbols and information on the packaging.
- Do not put down packages hard and do not knock against them with force. In the process, watch out for protruding parts of the packages.
- The forks of forklift trucks must drive completely under packages.
- Do not remove the packaging until immediately before assembly.

5.2 Factory condition

The device is delivered packed on two pallets. The lower and upper parts of the device must be joined together at the installation site, ↪ 6 'Installation' on page 16. In the process, the serial number of the devices must be observed, ↪ Chapter 3.2 'Rating plate' on page 10. Only join components with the same serial number.

Accessories are packed and enclosed separately if necessary.

The packaging is suitable for transport to the intended destination.

Fixing and installation material

Fixing and installation material is not part of the supply package (unless stated otherwise), but has to be provided by others; it has to be suitable for the installation situation.

5.3 Checking delivered goods

Check delivered items immediately after arrival for transport damage and completeness.

If there is any visible damage, proceed as follows:

- Either do not accept the delivered items, or accept them with reservations.
- Note down the damage on the shipping documents or on the shipping company's delivery note.
- Immediately file a complaint with the shipping company and vendor.

Complaint of defects

Complain about any defect as soon as it is discovered. Claims for compensation can be filed only within the complaint period.

5.4 Transport to the installation location

Protective equipment:

- Safety shoes
- If possible, do not remove the unit from the pallet until you reach the installation site.
- Use a pry bar and pincers to unpack the unit from the pallet.
- If the unit is transported without a pallet, the foil packaging must remain on the unit until it is installed on site to protect against damage to the paintwork.

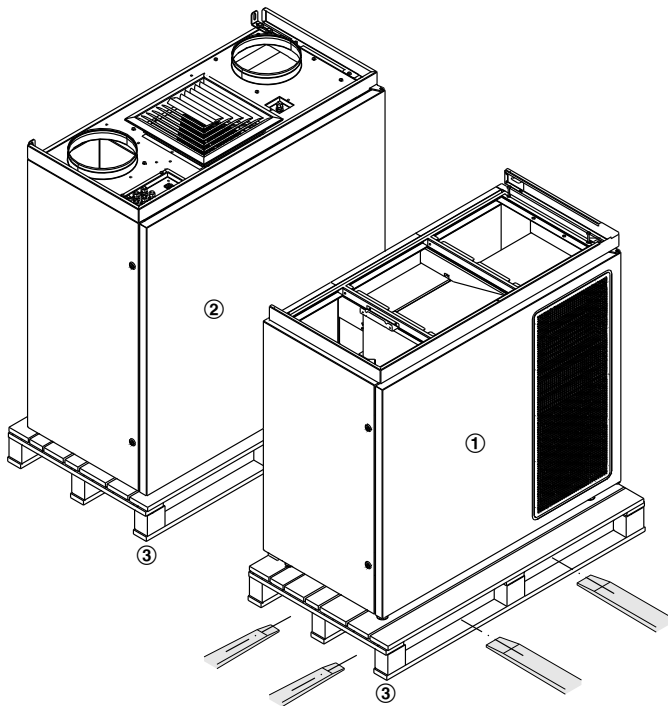


Fig. 5: Transport with pallet truck or forklift

- 1 Mounting base, approx. 150 kg
- 2 Top, approx. 200 kg
- 3 Each pallet, approx. 12 kg

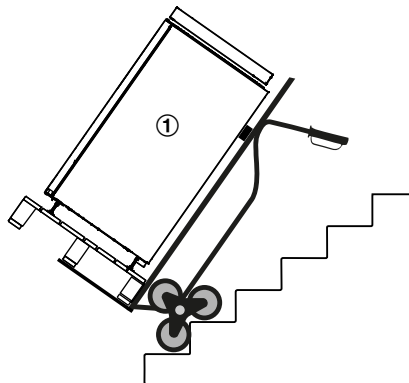
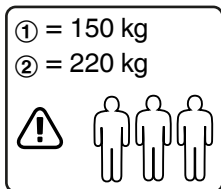


Fig. 6: Transport with stair climber

5.5 Storage

For temporary storage please note:

- Do not expose the unit to the effects of weather (not even in its packaging).
- Store the product in a dry place and away from direct sunlight.
- Remove any plastic wrapping in order to avoid condensation water.
- Protect the product from dust and contamination.
- Do not store the product below -25 °C or above 55 °C.

5.6 Handling packaging materials

Properly dispose of packaging material.

ENVIRONMENT!

Environmental damage due to improper disposal!

Packaging materials are valuable raw materials and can, in many cases, be reused or properly reconditioned and recycled.

Therefore:

- Dispose of packaging materials in an environmentally sound manner.
- Observe the applicable local disposal regulations. If necessary, employ a specialist disposal company to dispose of the packaging.

6 Installation

6.1 General installation information

Before installation

Before you install the unit, take suitable precautions to protect air distribution components from contamination during installation ⇒ VDI 6022.

If this is not possible, at least cover the unit or take other precautions to protect it from contamination. In this case you have to ensure that the unit cannot be started.

Ensure that all components are clean before you install them. If necessary, clean them thoroughly. If you have to interrupt the installation procedure, protect all openings from the ingress of dust or moisture.

Installation information

- Install the ventilation unit preferably in a thermally insulated, low-leakage building.
- Frost free and dry installation location.
- Installation and connections to be performed by others; fixing, connection and sealing material to be provided by others
- Install the unit only on structural elements that can carry the load of the unit.
- Use only certified fixing systems.
- The room facing side of the unit must remain completely accessible for maintenance and cleaning.

6.2 Installation

Personnel:

- HVAC technician

Tool:

- Stair climber
- Pallet truck
- 2 vacuum lifters (≥100 kg each vertical lifting force)
- Drill
- TROX special key

Important: Only join components with the same serial number, ↪ Chapter 3.2 'Rating plate' on page 10 .

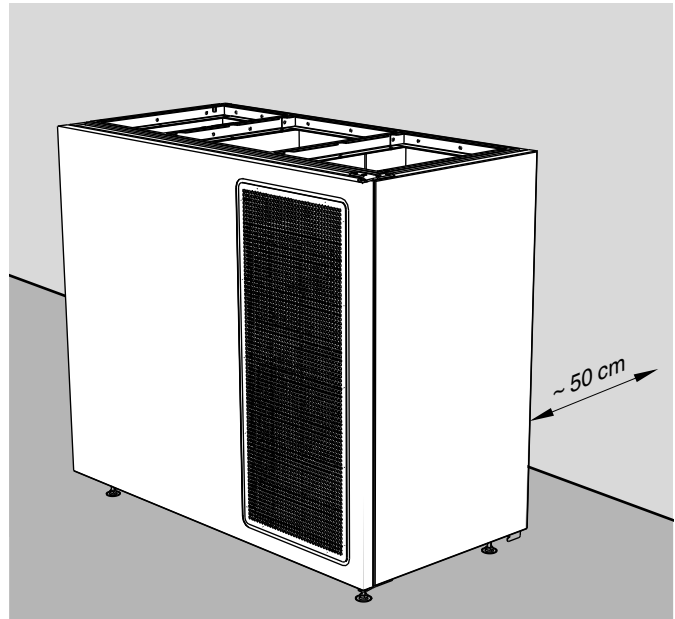


Fig. 7: Setting up the mounting base

1. ▶ Position the mounting base of the device approx. 50 cm in front of the wall at the installation site (space required for installation).

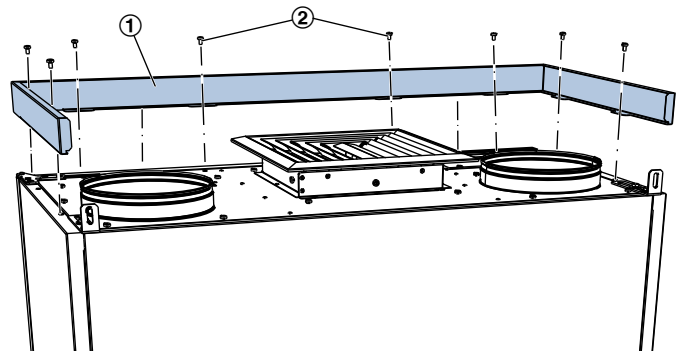


Fig. 8: Disassembling the matching rear frame

2. ▶ Loosen the screws (Fig. 8 /2) on the top of the device from the matching rear frame. Remove the frame (Fig. 8 /1) and store for later assembly.

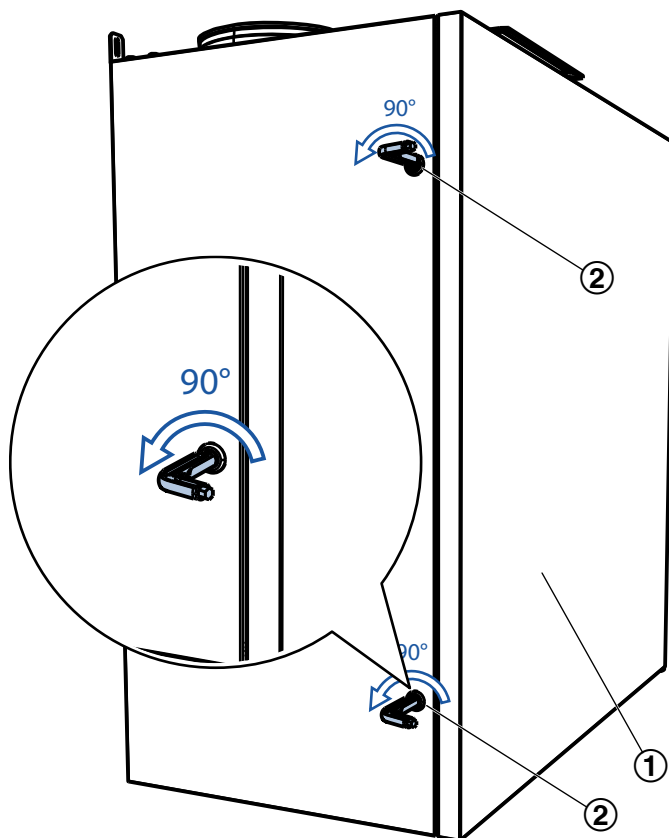


Fig. 9: Opening the fastener

3. ▶ Open the locks of the inspection access door (Fig. 9 /1) on the top part of the device (Fig. 9 /2).

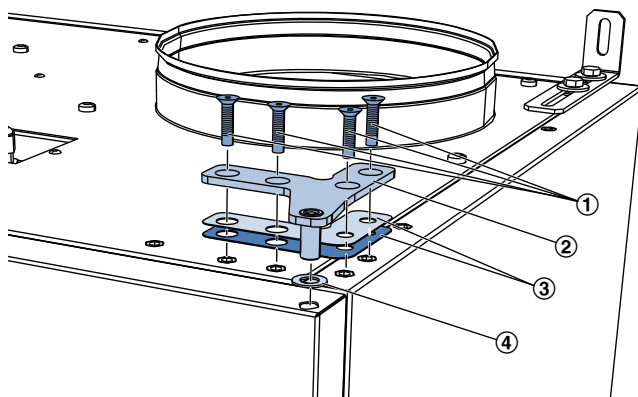


Fig. 10: Dismantle the inspection access door on the top.

4. ▶ Dismantle the hinge (Fig. 8 /1) by loosening the screws (Fig. 8 /2). Remove the inspection access door (Fig. 9 /1) and store it for later assembly, keep the spacer plates (Fig. 8 /3) and the slide disc (Fig. 8 /4).

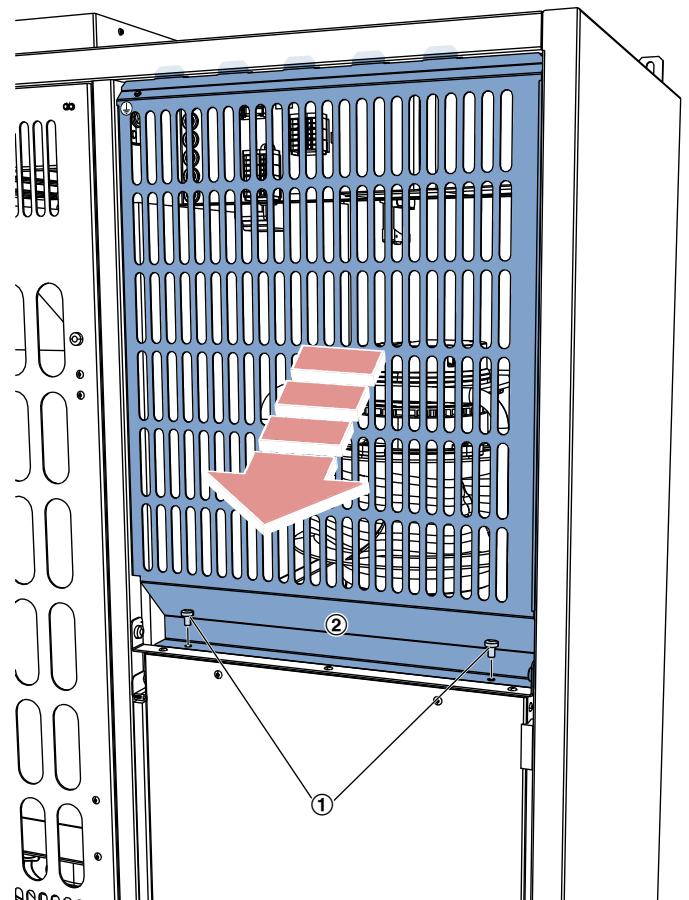


Fig. 11: Dismantling the cover grille

5. ▶ Loosen the screws (Fig. 11 /1) and carefully pull the grille (Fig. 11 /2) out forwards and downwards. Disconnect the earthing plug on the grille

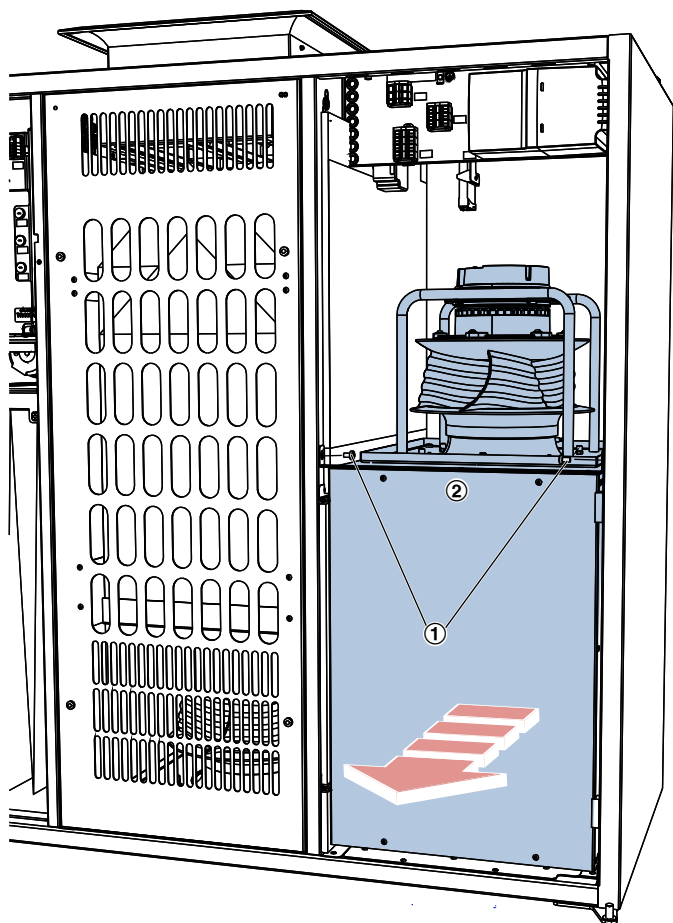


Fig. 12: Removing the extract air fan and sound attenuator

6. ▶ Disconnect the connecting cable from the extract air fan at the plug. Loosen the screws (Fig. 12 /1) and pull out fan with sound attenuator (Fig. 12 /2) to the front.

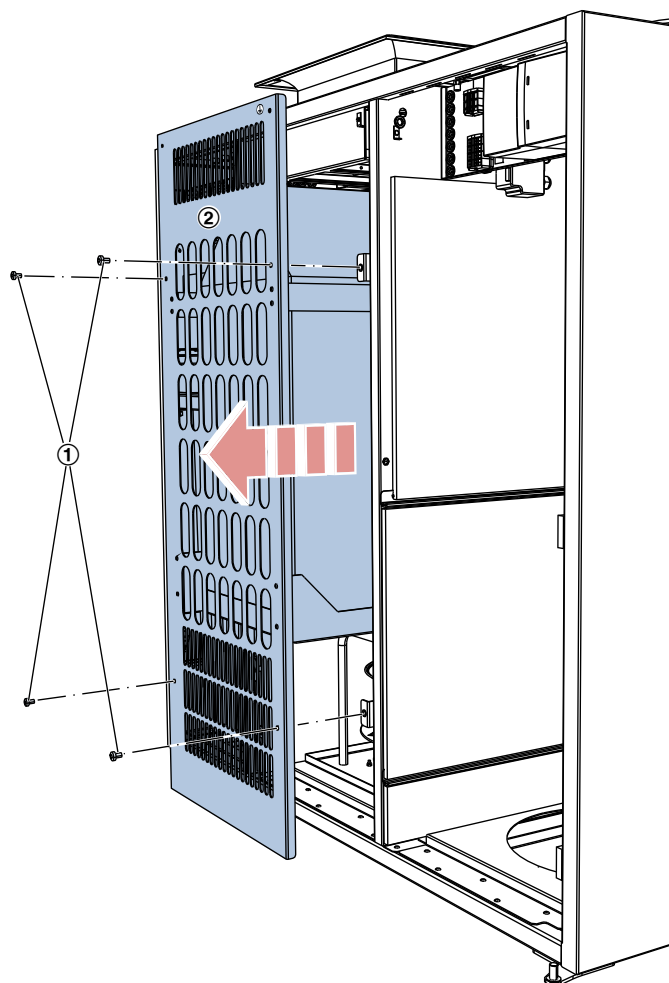


Fig. 13: Cover grille with sound attenuator on the supply air fan

7. ▶ Loosen the four screws (Fig. 13 /1) on the cover grille and pull out the grille with the sound attenuator (Fig. 13 /2) towards the front. Disconnect the earthing plug from the grille ⚡



Steps 8 and 9 are not required for assembly, which can reduce the weight of the top of the device by approx. 25 kg.

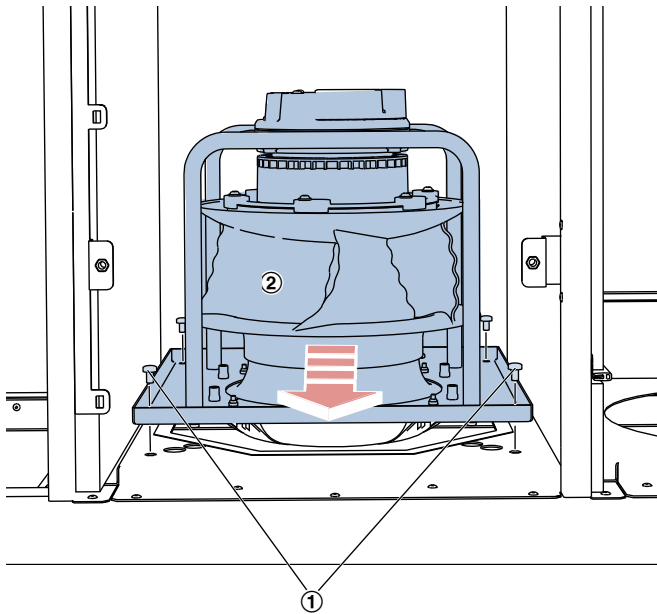


Fig. 14: Supply air fan

8. ▶ Disconnect the connecting cable from the supply air fan at the plug. Loosen the four screws (Fig. 14 /1) and remove the fan (Fig. 14 /2).

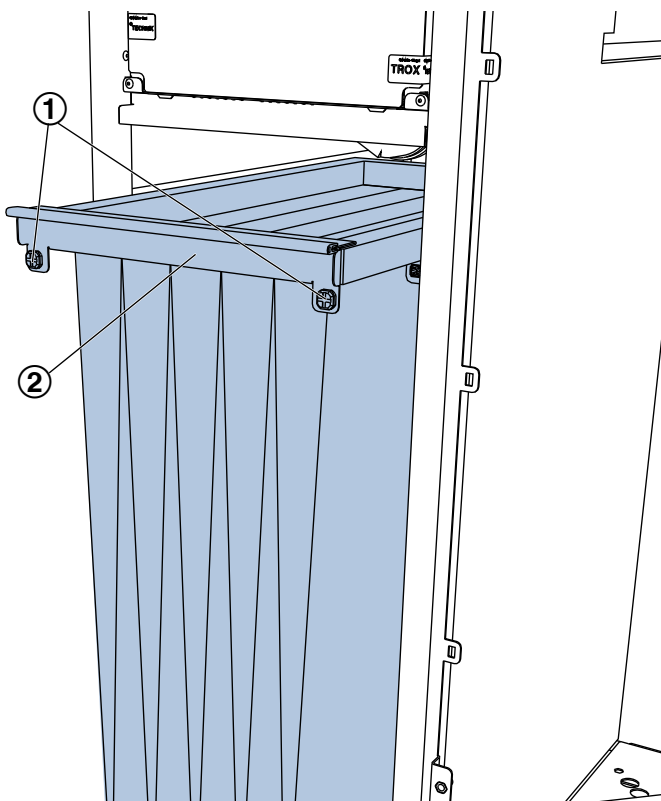


Fig. 15: Outdoor air filter

9. ▶ Open the quick release fasteners (Fig. 15 /1) and pull the filter (Fig. 15 /2) out of the device by the frame.

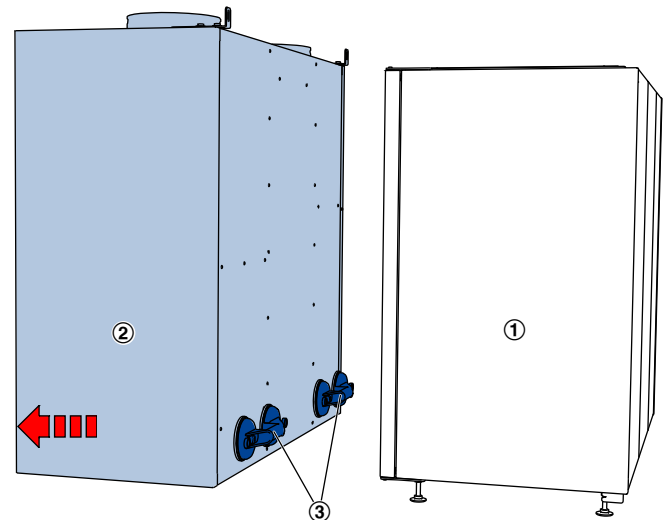


Fig. 16: Top and mounting base of device

10. ▶ Attach two vacuum lifters to the top of the device on the back or on the side parts (observe the lifting force). Then lift the top part onto the mounting base with at least 2 people. While doing this, one hand on each side of the vacuum cups and one hand in the front of the top (arrow).

A third person can grip the top in the middle and support the lifting process, as well as stabilise the component.

⚠ CAUTION!

Crushing hazard.

Do not touch the lower edge of the device as there is a risk of crushing when it is placed on the mounting base.

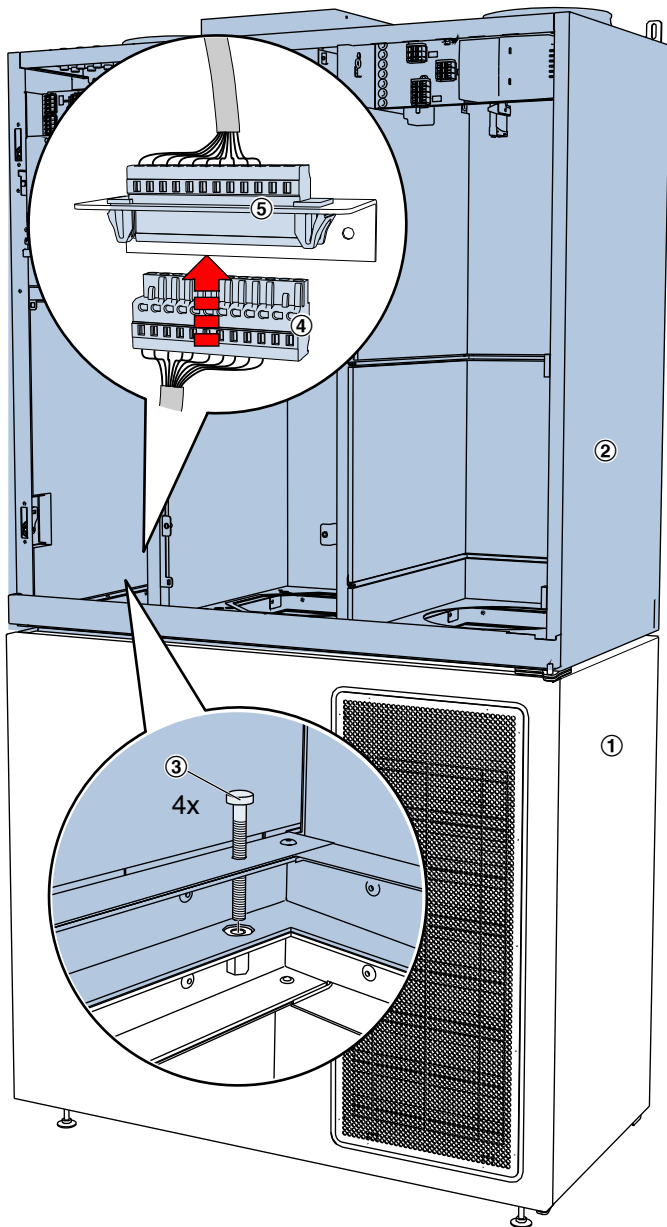


Fig. 17: Fixing of the top of the device

11. ▶ Align the top of the device with the mounting base on the side and back. When the correct position is reached, the top locks onto the mounting base. Then screw in the four connecting screws (Fig. 17 /3) at each corner.

Insert the plug (Fig. 17 /4) into the socket (Fig. 17 /5).

Connect the earthing plug of the mounting base of the casing and the top of the device.

12. ▶ Reassemble the dismantled components on the top of the device by carrying out steps 3 to 10 in reverse order. Do not refit the matching rear frame to the top of the device (step 2).

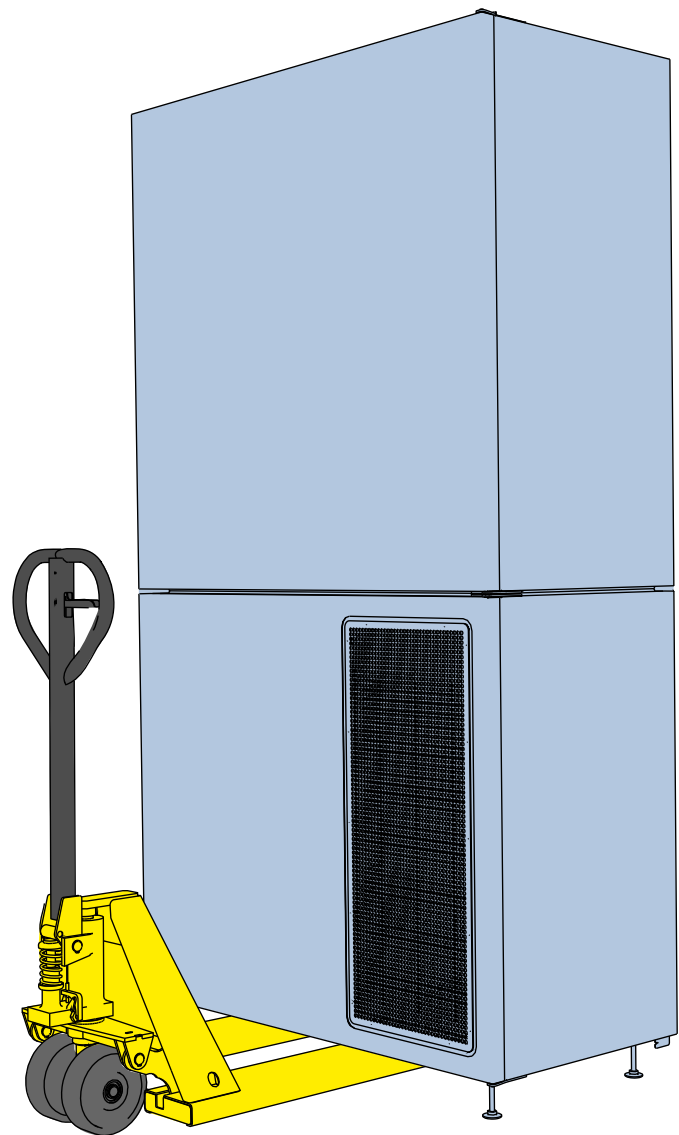


Fig. 18: Positioning the device

13. ▶

! NOTICE!

Do not push the device over the levelling feet!

Lift the device slightly with the lift truck so that the levelling feet are free. Move the device to its final position, being careful not to tip it over. Lower the device with care.

14. ▶ Align the device vertically using the levelling feet.

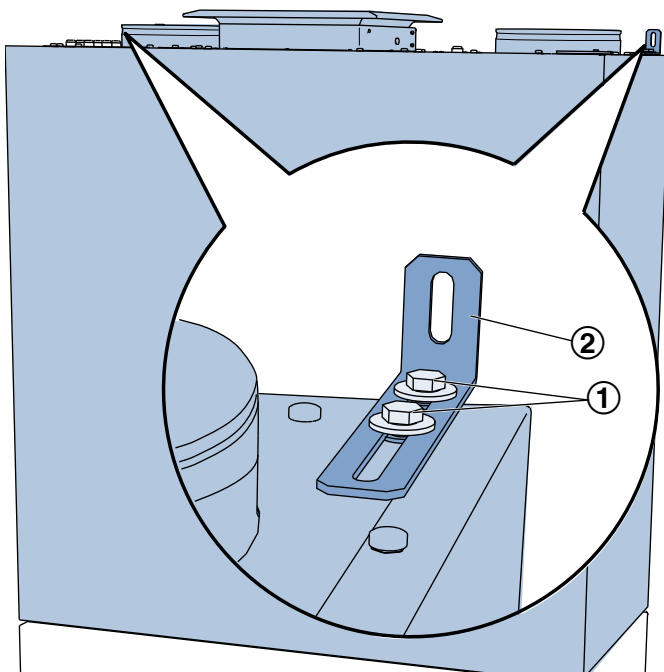


Fig. 19: Fixing bracket (shown with a 50 cm wall distance)

15.▶

! DANGER!

Risk of injury from missing or inadequate fixing!

If the device tips over, there is a considerable risk of injury or even death.

The ventilation unit must not be installed without wall mounting!

Properly fix the device to the wall!

Fix the device to the wall using the two brackets (Fig. 19 /2). Adjust the wall distance by loosening the two screws (Fig. 19 /1). Fix the two brackets to the wall with suitable 8 mm fixing material. Tighten the screws (Fig. 19 /1) after fixing

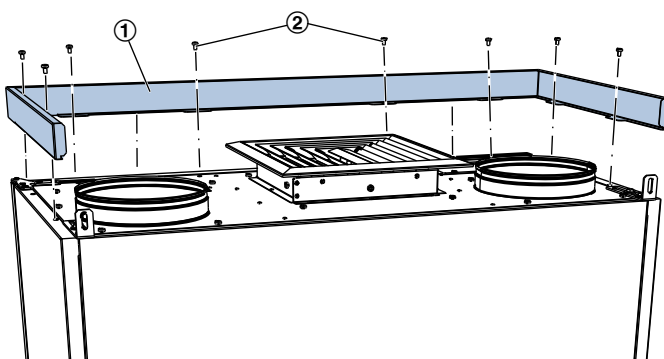


Fig. 20: Mount the matching rear frame at the top

16.▶ Place the cover frame (Fig. 8 /1) on the top part of the device and fix it with screws (Fig. 8 /2).

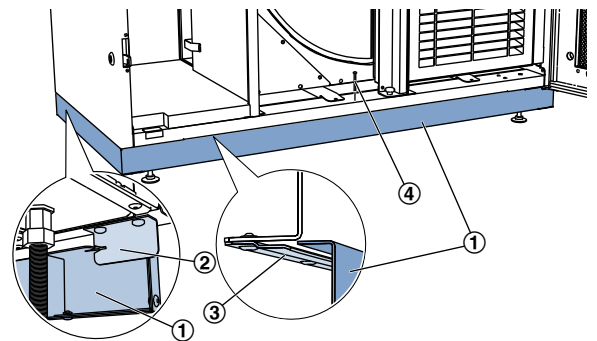


Fig. 21: Matching rear frame (bottom)

17.▶ Open the lower inspection access door to mount the lower matching rear frame (Fig. 21 /1). From the front side, place the matching rear frame on the suspension points, clamping rails (Fig. 21 /3) and plates (Fig. 21 /2). Then fix the matching rear frame in the middle with the screw (Fig. 21 /4).

6.3 Connecting the ductwork

The connection for outdoor air and exhaust air is made via two spigots (Ø250 mm), see Chapter 4.1 'Ventilation unit overview' on page 11. The connection spigots have lip seals for easy connection of the duct.

Consider the following points when connecting.

- Fix the duct to the spigot (rivets or drilling screws, by others)
- The ducts to the ventilation openings provided in the façade must be insulated.
- The outdoor air and exhaust air openings have to be protected against the effects of weather (by others).

6.4 Making electrical connections

! DANGER!

Electric shock hazard! Electrical equipment carries a dangerous electrical voltage!

- Only skilled qualified electricians are allowed to work on the electrical system and to connect the unit to the mains.
- Disconnect the cable from the mains (all phases) and secure the unit against being switched on accidentally.
- Ensure that no voltage is present.
- Carry out assembly or connection jobs only as long as no voltage is present.

Notes on the electrical installation

Use only cables that are designed for the supply voltage for which they will be used. The length and cross section as well as any contact resistance may increase voltage losses. The power rating of each unit must also be considered. A skilled qualified electrician has to select the correct cable types and sizes. This job must only be carried out by specialist electrical companies.

- For the electrical connection comply with any applicable regulations and follow the code of good practice. Be sure to comply with the applicable guidelines for working on electrical and electronic equipment as well as with any applicable local regulations.
- The connection data can be found on the rating plate or in the wiring diagrams.
- Protect any connections from physical damage.
- Feed cables through the cable glands on the ventilation unit.
- Ensure that the unit can be de-energised (all phases) for maintenance such that no voltage is present. This requires separators (e.g. fuses or RCBOs); the distance between contacts should be at least 3 mm.
- For units without integral controls from TROX follow the instructions of the controls provider.

Personnel:

- Skilled qualified electrician

DANGER!

Danger of electric shock! Do not touch any live components! Electrical equipment carries a dangerous electrical voltage.

- Only skilled qualified electricians are allowed to work on the electrical system.
- Switch off the power supply before working on any electrical equipment.

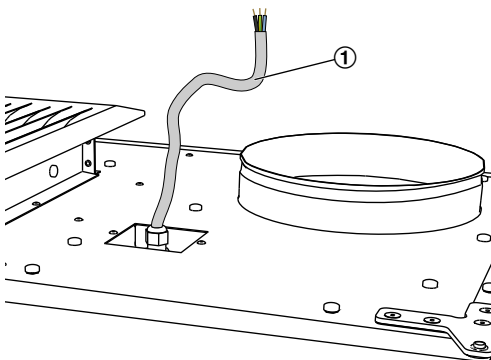


Fig. 22: Mains cable

1. ▶ Connect the supply voltage of the device to the connecting cable (Fig. 22 /1).

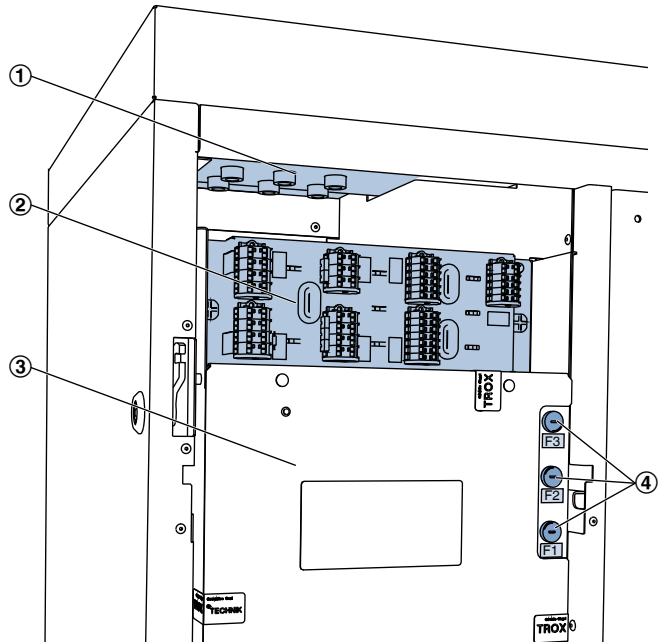


Fig. 23: Electrical connection area for wiring by others

- 1 Cable glands
- 2 Terminal area for connections by others
- 3 230 V connection area
- 4 Device fuses F1, F2, F3 (fuses according to labelling)

2. ▶

DANGER!

Risk to life from electrical voltage!

The 230 V connection area (Fig. 23 /3) may not be opened, it is used for the internal electrical wiring and may only be opened by TROX Service personnel.

Connect the supply voltage to the connecting cable leading out of the device.

Insert the on-site installation into the device via the cable penetrations (Fig. 23 /1) and connect to the corresponding terminals Fig. 23 /2); see the following information.

Note: Provide sufficient cable reserve for connection (loop approx. 35 cm (between Fig. 23 /1) and Fig. 23 /2)

6.4.1 Connecting the supply voltage

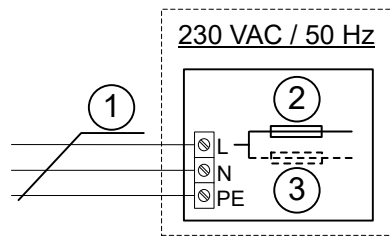


Fig. 24: Connecting the supply voltage

- 1 Ölflex classic 100 3G 1.5 mm², length of at least 1 m (TROX supply package); only SCHOOLAIR-S-HV-EH: Ölflex classic 3G 2.5 mm², length of at least 1 m (TROX supply package)
- 2 3.15 A fuse F3
- 3 SCHOOLAIR-S -HV-EH only: 13.0 A fuse

6.4.2 Connection of the control panel

Notes on control panels

Select an installation location where the control panel is not affected by disturbances. Avoid solar gain and draughts.

Seal the end of the conduit in the junction box as otherwise a draught could occur in the conduit and affect the measurement results.

Schneider, digital

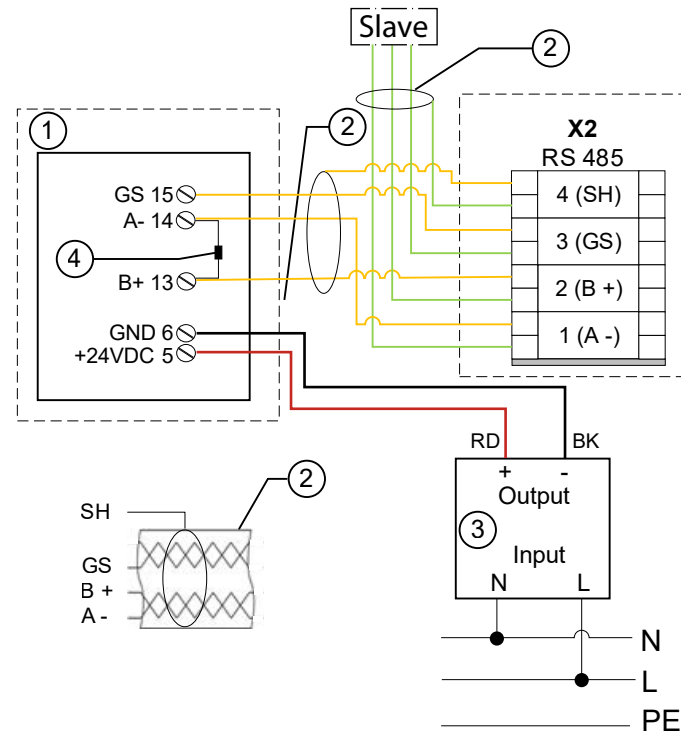


Fig. 25: Wiring of a digital control panel, type Schneider, to terminal X2

- 1 Control panel, surface mounted, type: TM172DCLWT, TROX order no. A00000086157
- 2 E.g., Unitronic BUS LD 2 × 2 × 0.22 (by others) (or equivalent, also by others)
- 3 Power supply unit, Traco Power, type TIW24-124, TROX Order no. : A00000033832
- 4 120 ohm resistor, set at the first and last bus node

All network connections via shielded cables.

Attention: For A- and B+, always use a twisted pair

Honeywell, 5-stage (0, 1, 2, 3, AUTO)

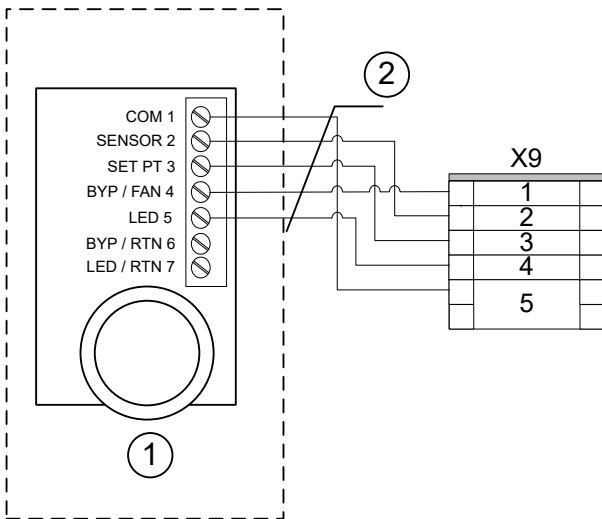


Fig. 26: Wiring of Honeywell control panel, 5-stage to terminal X9

- 1 Control panel with selector switch, for surface mounting, type: T7460F1000, TROX order no. M546FB8
- 2 LiYCY 5 x 0.5 mm² shielded (by others)

Thermokon, with selector switch, 5-stage

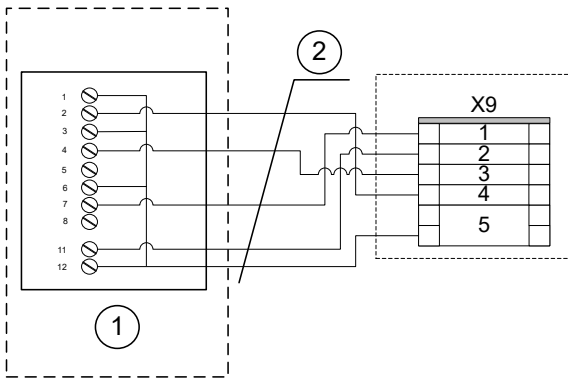


Fig. 27: Wiring of Thermokon control panel (5-stage) to terminal X9

- 1 Control panel with selector switch, for surface mounting, type WRF04 PSTD NTC20k 5k FS5 gn 5V SA, TROX order no. A00000082515
- 2 LiYCY 5 x 0.5 mm² shielded (by others)

Schneider, without selector switch

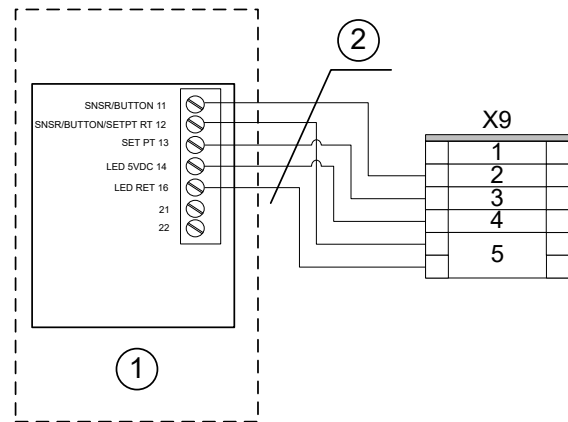


Fig. 28: Wiring of control panel STR 504 to terminal X9

- 1 Control panel without selector switch, for surface mounting, type: STR 504 TROX order no. M536BA4
- 2 LiYCY 5 x 0.5 mm² shielded (by others)

Thermokon, without selector switch

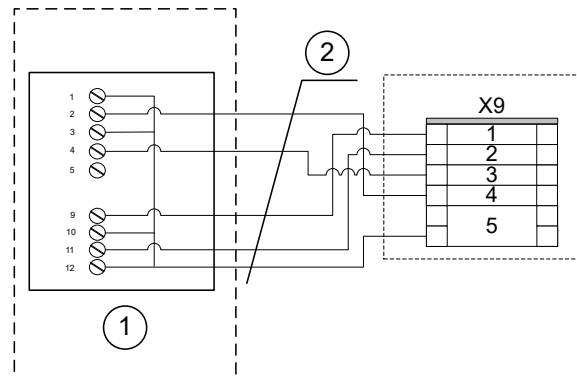


Fig. 29: Wiring of Thermokon control panel to terminal X9

- 1 Control panel without selector switch for surface mounting, type WRF04 PTD NTC 20k 5k gn, TROX order no. A00000079777
- 2 LiYCY 5 x 0.5 mm² shielded (by others)

Thermokon, without selector switch, Berker S.1/Q.3, Busch Jäger Futura

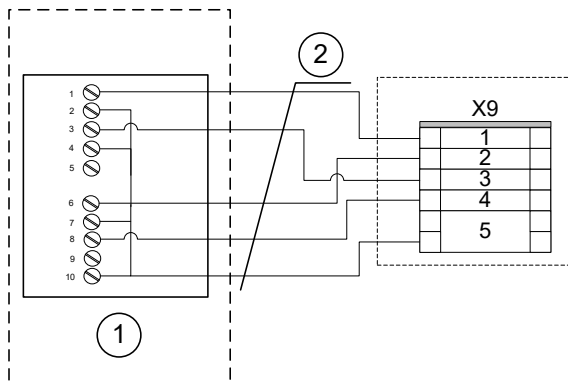


Fig. 30: Wiring of Thermokon control panel to terminal X9

- 1 Control panel without selector switch, for flush mounting, suitable for switches from the following ranges:
Berker S.1:
 Type WRF07 PTD NTC 20k BType6 5k gn,
 TROX order no. A00000079778
Busch Jäger Futura:
 Type WRF07 PTD NTC 20k BType6 5k gn,
 TROX order no. A00000079779
Berker Q.3:
 Type WRF07 PTD NTC 20k BType6 5k gn,
 TROX order no. A00000081579
- 2 LiYCY 5 x 0.5 mm² shielded (by others)

6.4.3 Connection of room temperature sensor

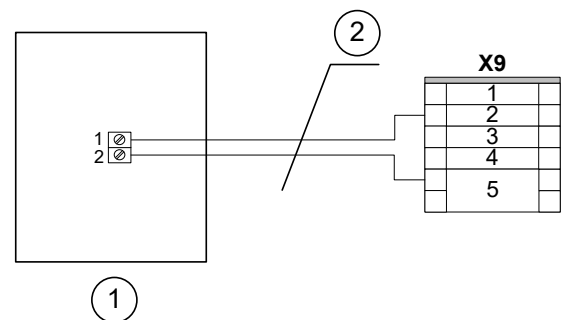


Fig. 32: Connection of room temperature sensor

- 1 Room temperature sensor, type RTF3-NTC10k, TROX order no. A00000059069
- 2 LiYCY 2 x 0.5 mm² shielded (by others)

Thermokon, without selector switch, without setpoint value adjuster, Gira E2

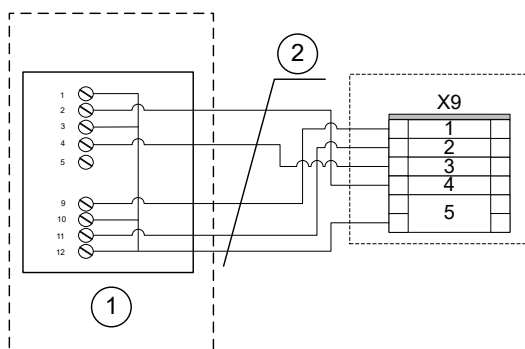


Fig. 31: Wiring of Thermokon control panel to terminal X9

- 1 Control panel without selector switch and without setpoint value adjuster, for flush mounting, suitable for Gira E2 switch range, type WRF06 TD NTC 20k, TROX order no. A00000081503
- 2 LiYCY 5 x 0.5 mm² shielded (by others)

6.4.4 Connection of external inputs and outputs

External switch inputs

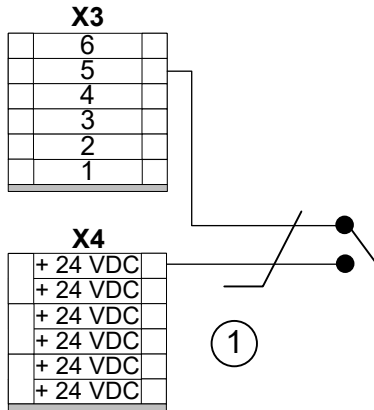


Fig. 33: Wiring example of window contact

1 Connecting cable LiYCY 2 x 0.5 mm² (by others)

Terminal connections X3

No.	Function	Switch	
		Open	Closed
1	Fume cupboard switch	Inactive	Active
2	Changeover ¹	Heating	Cooling
3	Operating enable	Off	Automatic
4	Fire emergency stop ¹	Off	Automatic
5	Window contact ¹	Off	Automatic
6	PIR sensor	Valid operating mode	Occupied

¹ cable break safety device

External switch outputs

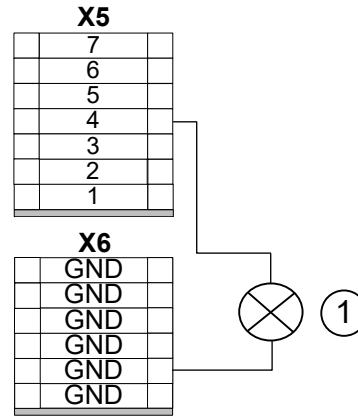


Fig. 34: Wiring example B alarm

1 Connecting cable LiYCY 2 x 0.5 mm² (by others)

Terminal connections X5

No.	Connection	Voltage / Current consumption
1	Requirements of coolant ¹	24 VDC, max. 250 mA
2	Requirements of heat transfer fluid ¹	
3	Operational readiness	
4	B alarm	
5	A alarm	
6	Enable heating ceiling	
7	Enable chilled ceiling	

¹ changeover mode only

6.4.5 Communication FSL-CONTROL III

6.4.5.1 Several controllers in a control zone

Up to 11 FSL CONTROL III devices can be connected in one control zone (1 master device and up to 10 slave devices).

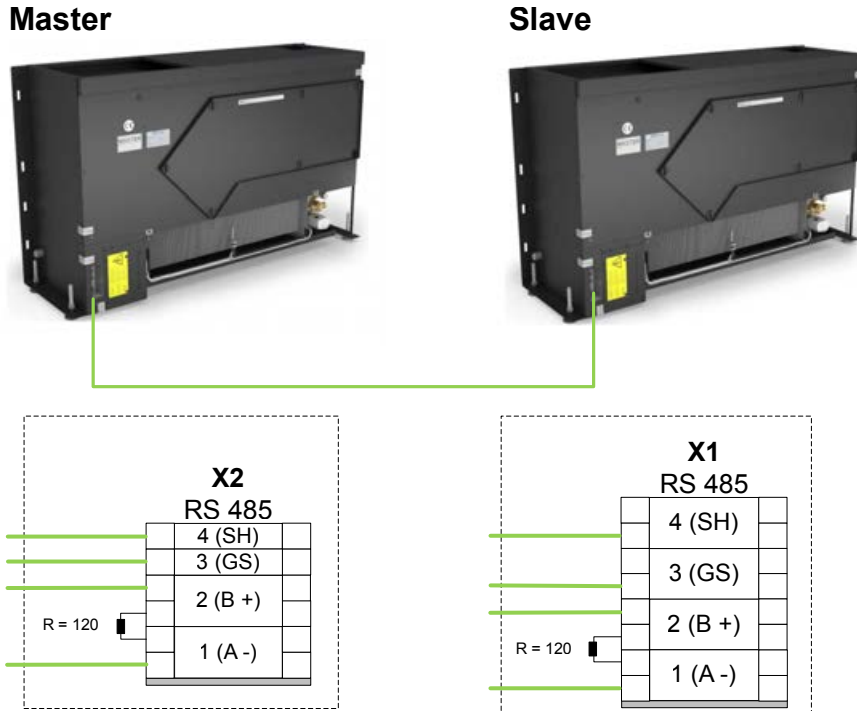


Fig. 35: FSL CONTROL III Communication with 2 devices

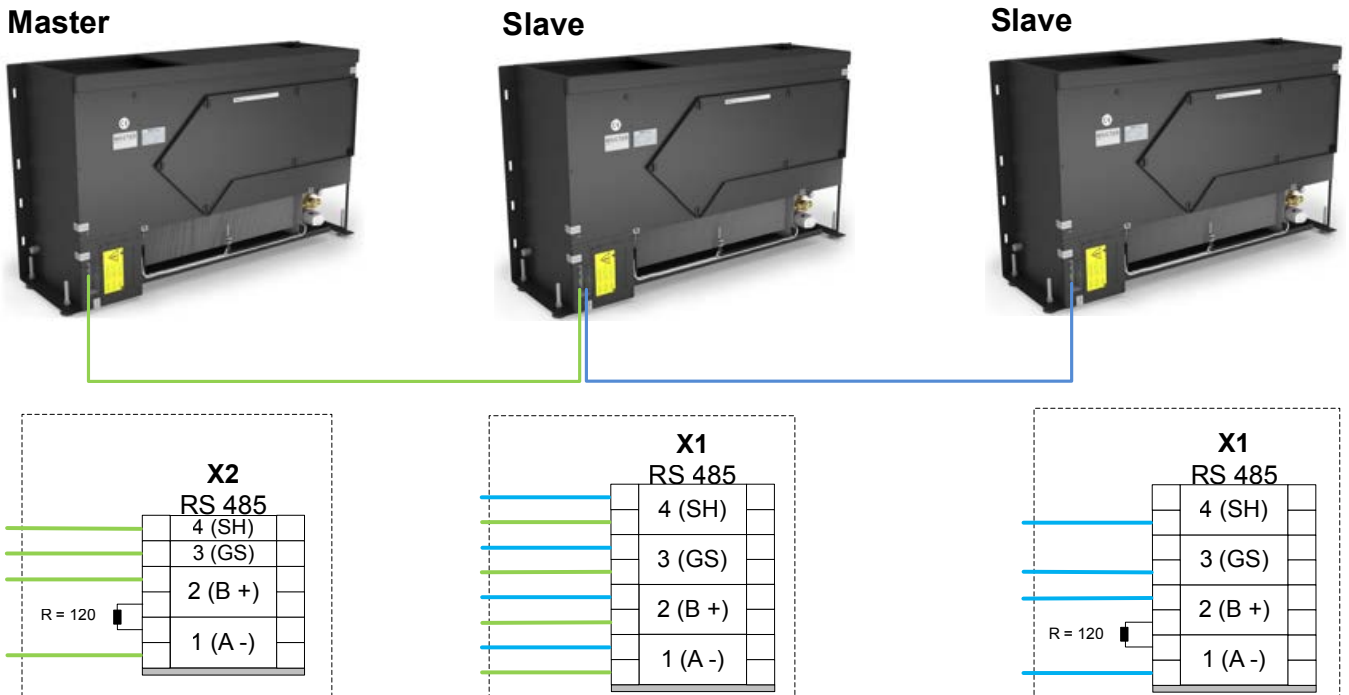


Fig. 36: FSL CONTROL III Communication with 3 devices

The master device must be installed on one of the two ends of the network (as the first or last device).

Terminal resistor

For smooth data exchange between the controllers, a resistance of 120 ohm must be set on the first and last subscriber, remove the resistors in the other devices (if available).

Installation location of terminal resistor Fig. 35 , Fig. 36

Master devices - Terminal block X2, terminals 1 and 2

Slave devices - Terminal block X1, terminals 1 and 2

Details on network connection

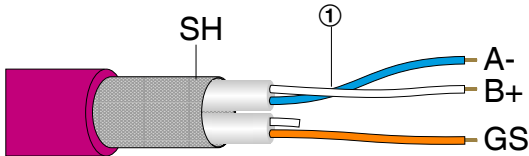


Fig. 37: Wiring

All network connections via shielded cables.

Attention: For A- and B+, use a twisted pair ①!

Recommended network cable (by others): e.g., Uni-tronic BUS LD 2 x 2 x 0.22 mm² or equivalent

6.4.5.2 Connection to building automation/machine control device (BAS/MCD)

FSL-CONTROL III control supports the following communication protocols:

- Modbus RTU
- Modbus TCP
- BACnet MS/TP
- BACnet/IP



We recommend the connection of all master devices to the building automation/machine control device (BAS/MCD). Slave devices can also be connected to the building automation/machine control device if the wiring is structured, i.e., Modbus TCP or BACnet IP.

BAS/MCD to master device with Modbus TCP/ BACnet IP

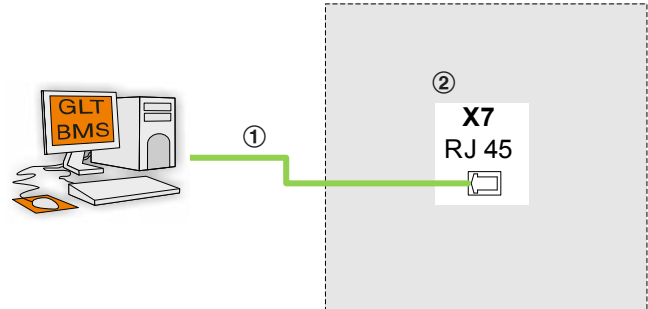


Fig. 38: Connection of BAS/MCD to master device with Modbus TCP/BACnet IP

- 1 Network cable at least Cat. 5e with connector RJ45 (by others)
- 2 Interface X7 in terminal box

BAS/MCD to master device with Modbus RTU/ BACnet MS/TP

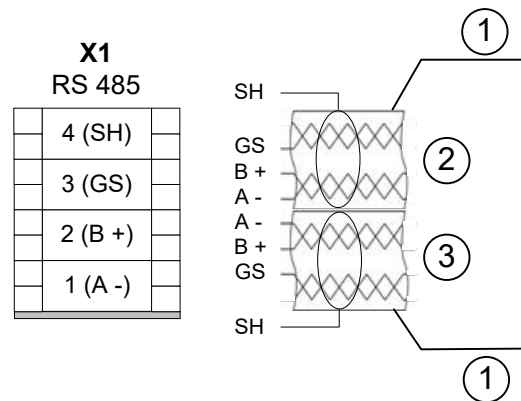


Fig. 39: Connection of BAS/MCD to master device with Modbus RTU

- 1 Network cable Unitronic BUS LD 2 x 2 x 0.22 (or equivalent, by others)
- 2 (Incoming) from building automation/machine control device
- 3 (Outgoing) to next bus node of building automation/machine control device (BAS/MCD)
Count up the terminal position from the grey end plate (direction of the arrow)

Recommended network cable (by others): e.g., Uni-tronic BUS LD 2 x 2 x 0.22 mm² or equivalent,

Note: for A- und B+ always use a twisted pair

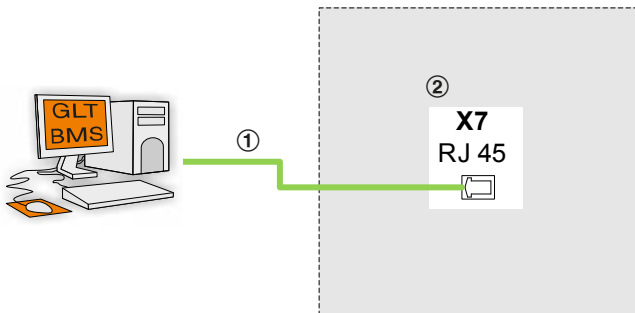
BAS/MCD to slave device with Modbus RTU/BACnet IP

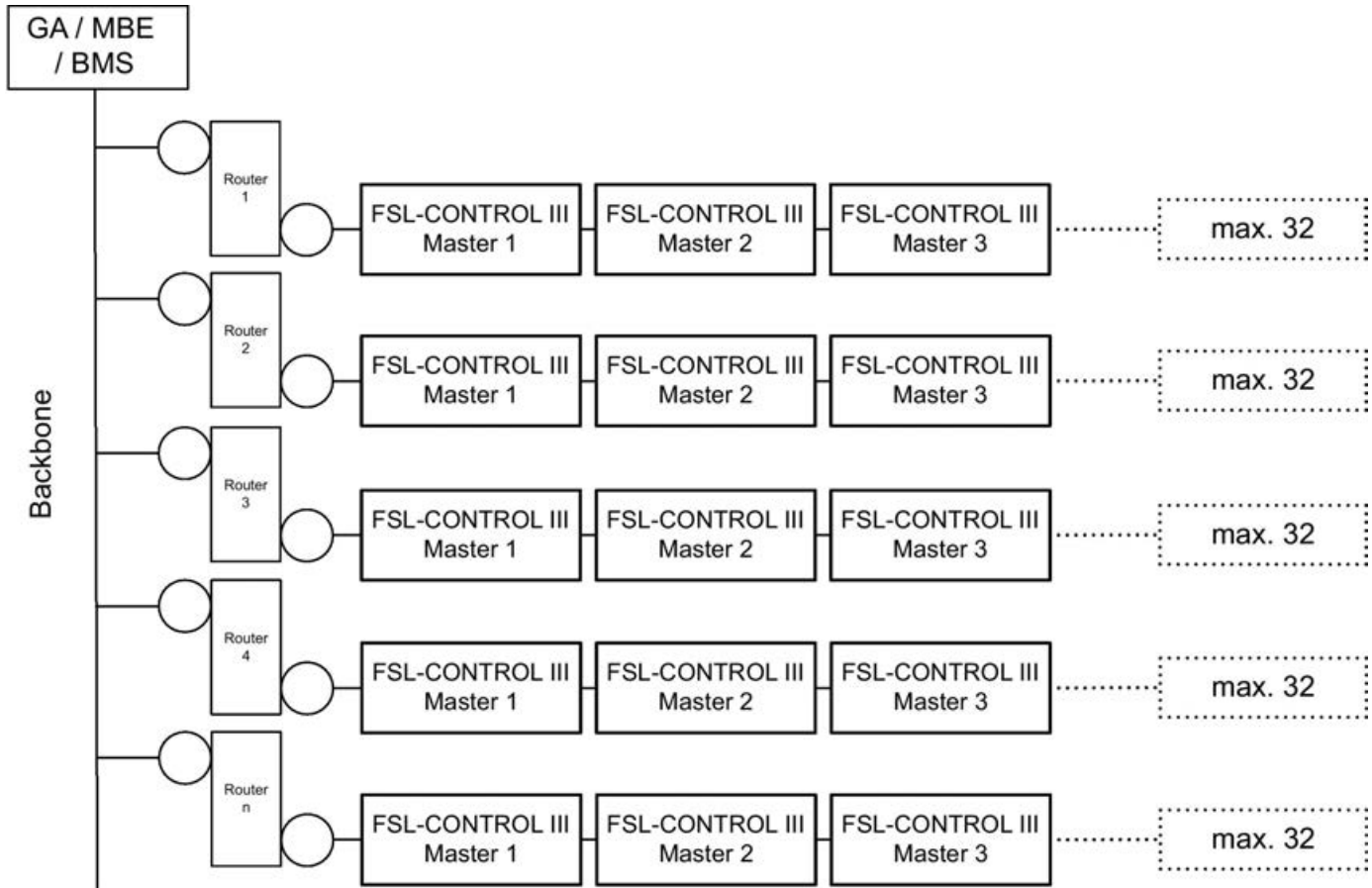
Fig. 40: Connection of BAS/MCD to slave device with Modbus TCP

- 1 Network cable at least Cat. 5e with connector RJ45 (by others)
- 2 Interface X7 in terminal box

6.4.5.3 Network with several control zones

Building a network

Control zones can be networked using one of four existing network protocols (Modbus RTU, Modbus TCP, BACnet MS/TP or BACnet IP). This requires a bus interface card to be connected to the FSL CONTROL III master controller in the factory.



Modbus RTU //
BACnet MS/TP

Fig. 41: FSL CONTROL III network configuration, example Modbus RTU; BACnet MS/TP



If the master controller is integrated with a BAS/MCD (by others), it acts as a slave within the bus network, but also as a master within the FSL CONTROL III network!

Fig. 42: FSL CONTROL III network configuration, Modbus TCP; BACnet IP

7 Commissioning

7.1 Initial commissioning

Personnel:

- Skilled qualified electrician

Before initial commissioning:

- Remove protective film, if any.
- Ensure that the unit is clean. If necessary, clean the casing and the inlet and outlet openings from dust.
- Professional electrical connections:
 - Check and ensure that the actual supply voltage is the same as the one given on the rating plate.
 - Ensure that the ventilation unit has been correctly earthed.

Ensure that all heat exchangers are clean and free from residues and foreign matter.

- Check filters for correct fit and contamination
 ↪ 9.2.1 'Checking and replacing the filters' on page 41. Should the filters have been contaminated even before installation, replace them.

For commissioning see also VDI 6022, part 1 – 'Hygiene requirements for ventilation and air-conditioning systems and units'.

1. ▶ Switch on the power supply.
 - ⇒ The ventilation unit is on.
2. ▶ Configure the control of the ventilation unit, if necessary.

7.2 Control of the ventilation unit

Control of ventilation units

For units with TROX FSL-CONTROL III control system
 ↪ Installation and configuration manual, FSL-CONTROL III single room control system.

For units without integral controls from TROX follow the instructions of the controls provider.

7.3 X-TAIRMINAL

TROX X-TAIRMINAL is a project-specific software for visualisation, operation and monitoring of ventilation systems on a panel PC. The presentation is done on several levels that contain different information. The different menu levels are selected by pressing the respective objects displayed.

Overview

The 'Overview' page represents the overall ventilation system, which can consist of various sub-ventilation systems. For example, classrooms can be ventilated with decentralised SCHOOLAIR ventilation units, whereas the cafeteria or sports hall are ventilated with central X-CUBE ventilation units.

On the 'Overview' page, the operating mode and pending alarm messages for each system can be recorded at a glance.

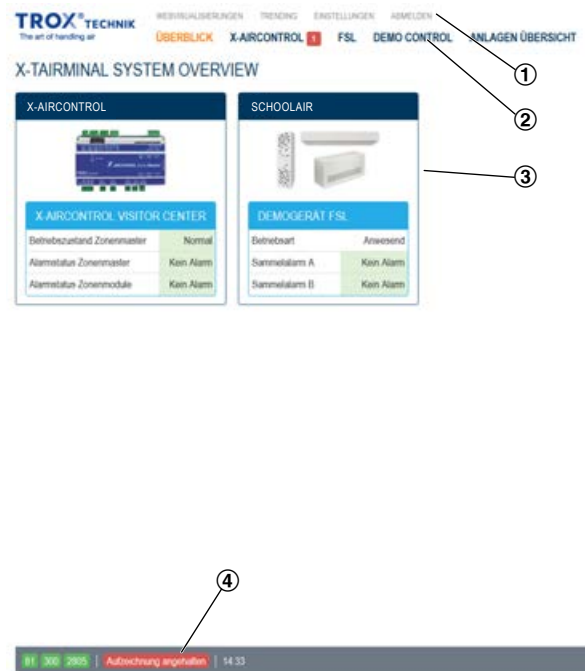


Fig. 43: System overview

- ① Menu
- ② Navigation bar
- ③ Spatial representation
- ④ Status line

SCHOOLAIR

In the 'SCHOOLAIR' room overview, the overview of the decentrally ventilated rooms is displayed. The operating mode can be set here or the remaining filter time can be reset after a filter change.

In addition, the following information is shown for the individual rooms:

- Operating mode
- Operating mode
- Source of the operating mode
- Consolidated alarm, Category A
- Consolidated alarm, Category B

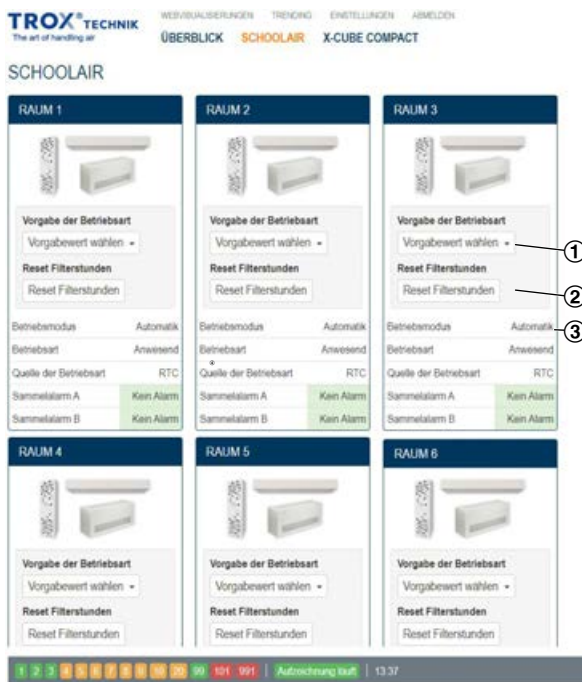


Fig. 44: SCHOOLAIR room overview

- ① Presetting the operating mode (Occupied, Unoccupied, Standby)
- ② Resetting the filter change alert
- ③ Display of operating mode, operating mode source, alarm messages

Room view

The 'room view' shows the master and slave devices of the selected room.

If the slave device is connected to the network via Modbus TCP (Modbus TCP interface required on the slave device), the same information is displayed on the master device and the slave device. If the slave device is connected to the master, the supply air temperature and the valve positions are displayed.

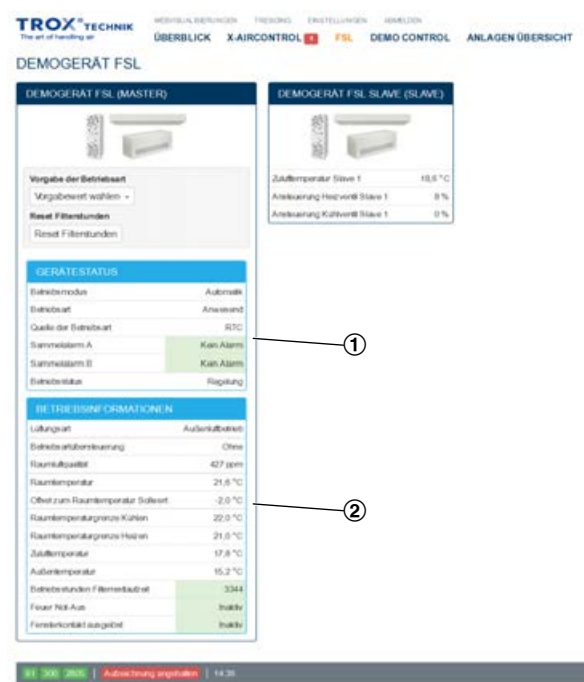


Fig. 45: Overview of the unit

- ① Display of device status
- ② Display of operating information

Device view

The 'device view' shows the operating status and detailed information about the alarm messages.



Fig. 46: Room1

- ① Display of operating status
- ② Display of Category A alarms
- ③ Display of Category B alarms

Trending

The 'Trending' page can be accessed via the main menu. Various data points can be displayed here. To display the data, first set the time frame and select the respective data point. The display takes place as a diagram or as a *.csv file export.



Fig. 47: Trending

- ① Definition of the time period
- ② Selection of the data points
- ③ Configuration of the query interval
- ④ Data export as *.csv file
- ⑤ Display in diagram

8 Operation

8.1 Control panel

8.1.1 Overview of control panels



Fig. 48: Digital control panel, including CO2 traffic light, for surface mounting, type Schneider TM172DCLWT, part number: A000086157

- ① Menu
- ② Setpoint value adjuster
- ③ Fan stage selector
- ④ Occupancy push button

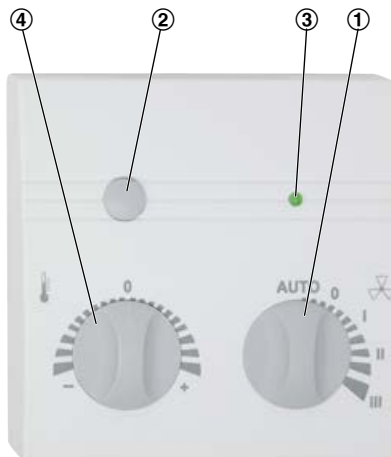


Fig. 49: Control panel with selector switch, for surface mounting, type: WRF04 PSTD NTC20k 5k FS5 gn 5V SA, part number: A00000082515

- ① Fan stage selector
- ② Push button
- ③ LED
- ④ Setpoint value adjuster



Fig. 50: Control panel without selector switch, for surface mounting, type: Schneider STR 504, part number: M536BA4

- ② Push button
- ③ LED
- ④ Setpoint value adjuster

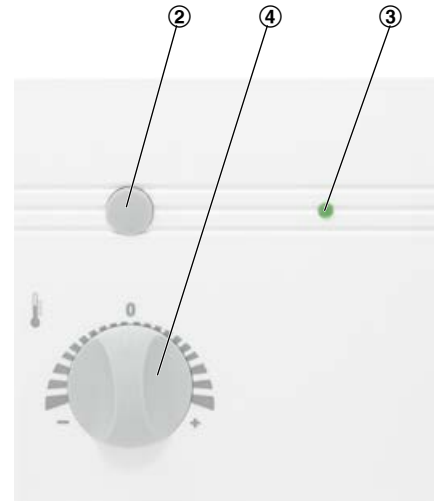


Fig. 51: Control panel without selector switch, for surface mounting, type: WRF04 PTD NTC 20k 5k gn, part number: A00000079777

- ② Push button
- ③ LED
- ④ Setpoint value adjuster

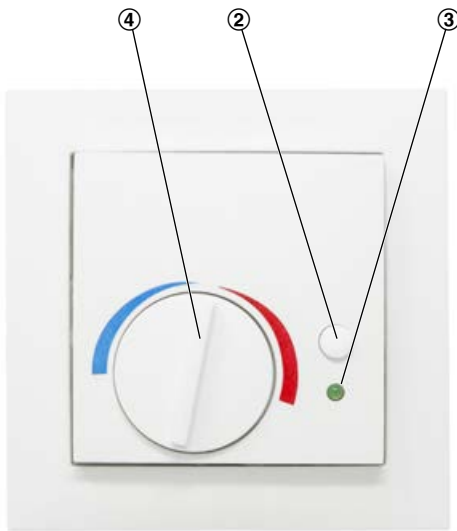


Fig. 52: Control panel without selector switch, for flush mounting, suitable for Berker S.1 switch range, type WRF07 PTD NTC20k BType6 5k gn SA, part no. A00000079778

- ② Push button
- ③ LED
- ④ Setpoint value adjuster

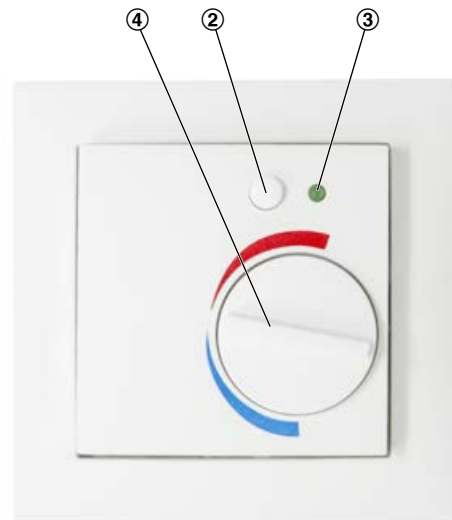


Fig. 54: Control panel without selector switch, for flush mounting, suitable for Berker Q.3 switch range, type: WRF07 PTD NTC20k BType6 5k gn, part number: A00000081579

- ② Push button
- ③ LED
- ④ Setpoint value adjuster

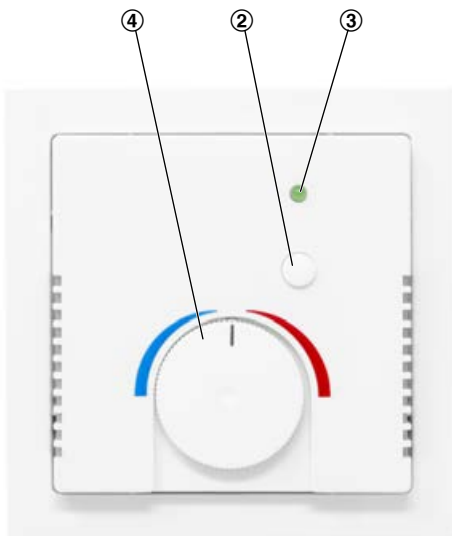


Fig. 53: "Fig. 34: Control panel without selector switch, for flush mounting, suitable for Busch Jäger Future linear switch range, type: WRF07 PTD NTC20k BType6 5k gn, part number: A00000079779"

- ② Push button
- ③ LED
- ④ Setpoint value adjuster

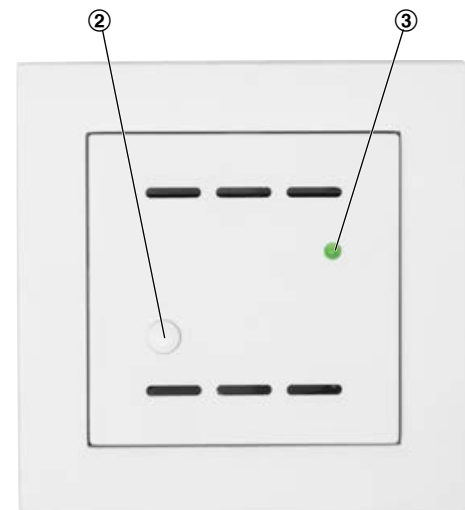


Fig. 55: Control panel without selector switch and without setpoint value adjuster, for flush mounting, suitable for Gira E2 switches, type WRF06-TD-NTC20k SA, part no. A00000081503

- ② Push button
- ③ LED

8.1.2 Digital control panel

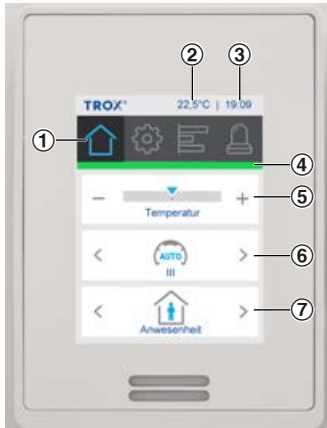











Fig. 56: Digital control panel

① Menu		
	Starting screen	Display of all essential values and settings.
	Settings	Display of device name (configurable via settings) and current software version. Password-protected area for resetting the filter change display and activating the holiday circuit (operating mode = Off).
	Actual values	Display of the entire unit status, various settings and numerous measured values.
	Messages	Display of the alarm messages.
② Room temperature		
		Displays the actual room temperature.
③ Time		
	Displays the current time.	The display can be configured via the settings.
④ Air quality		
	Display of the indoor air quality in various gradations (CO ₂ - traffic light).	The display can be configured via the settings.

⑤ Temperature		
	<p>You can change the setpoint temperature in increments of 1 K. You can change the default setpoint temperature from -3 K ... +3 K.</p> <p>Example:</p> <ul style="list-style-type: none"> ■ Default setpoint temperature: 21 °C ■ Minimum temperature you can set: 18 °C ■ Maximum temperature you can set: 24 °C 	<p>+ Increase of the setpoint temperature. (Room / extract air or supply air temperature, depending on the control strategy)</p> <p>– Reduction of the setpoint temperature. (Room / extract air or supply air temperature, depending on the control strategy)</p> <p>The control strategy can be configured via the settings.</p>

⑥ Ventilation		
	Automatic ventilation; the fan speed depends on the controller.	Press < or > briefly to switch between the fan stages.
	Manual ventilation at the lowest speed (fan stage).	
	Manual ventilation control at a medium level.	
	Manual ventilation at the highest speed (fan stage).	
	Retreat - Operation with lowered airflow for quiet working.	
	Boost - Operation with maximum airflow for quick room flushing with fresh air.	
	Standby operation The ventilation units are switched off. No temperature maintenance.	
	<p>Display of the activated fume cupboard switching (fan force)</p> <p>The stage corresponds to the fan stage of the supply air (configurable).</p> <p>Activation takes place via fume cupboard switching or via the BAS/MCD. When the fume cupboard switching is active, operation via the control panel is not possible.</p>	

⑦ Operating mode

	<p>Occupied The <i>'Occupied'</i> mode is used for occupied rooms.</p>	<p>Pressing < or > briefly switches between the operating modes <i>'Occupied'</i> <i>'Unoccupied'</i> and <i>'Occupied + V'</i> (optional).</p>
	<p>Unoccupied The <i>'Unoccupied'</i> mode is used for unoccupied rooms.</p>	<p>In case of <i>'Occupied'</i>, the device usually always ventilate at stage 1 at minimum. If the air quality is good, measured by means of an optional CO2 sensor, the device can run in the energy efficient secondary air mode. If the fresh air function (<i>'Occupied + V'</i>) is activated, the unit ventilates exclusively with outside air (fresh air).</p>
	<p>Fresh air <i>'Occupied + V'</i> (fresh air) is selected if the room is occupied and the fresh air function is active at the same time.</p>	
	<p>Standby <i>'Standby'</i> is selected if the room is not occupied and the ventilation units are not used to maintain the temperature, e.g. at night.</p>	<p><i>'Standby'</i> will only be displayed here. Activation is by means of Real Time Clock or by step switch (step 0).</p>

8.1.3 Analogue control panel settings

Function	Description	LED
Ventilation stages ¹	<p>With the aid of the stage selector, the ventilation stage can be freely selected. The following functions are available:</p> <ul style="list-style-type: none"> ■ Automatic (recommended), Fan stages are automatically selected from the temperature control and air quality control (optional) - ■ 0: The device switches to Standby mode ■ 1: Fan stage 1 is selected ■ 2: Fan stage 2 is selected ■ 3: Fan stage 3 is selected <p>Note: After activation of Standby mode and subsequent switch to a fan stage or Automatic, the ventilation unit must also be switched to Occupied (using the Occupancy push button or BAS/MCD).</p>	
Occupied/ Unoccupied ²	<p>If you want to change the operating mode from 'Occupied' to 'Unoccupied' or vice versa, press the Occupancy push button briefly (1 second).</p> <p>This allows you, for example, to manually switch to 'Unoccupied' mode when the room is not occupied.</p> <p>Start-up delay: 1 to 2 minutes in summer, 6 to 7 minutes in winter.</p>	<p>Unoccupied: LED off</p> <p>Occupied: LED on</p>
Overtime ²	<p>If you want to manually switch on the Overtime function while the system is in 'Unoccupied' mode, press the Occupancy push button briefly.</p> <p>This allows you to set the ventilation unit to 'Occupied' mode for a previously set period of time if, e. g., overtime is required after regular office hours (LED off).</p> <p>The overtime period can be configured. After the set period the unit resumes the previous operating mode (RTC/BAS/MCD)</p>	<p>Unoccupied: LED off</p> <p>Overtime: LED on</p>
Boost	<p>Manual function for the quick ventilation of the room:</p> <p>Switch on: Press the Occupancy button (2 - 5 seconds) Switch off: Press the Occupancy button again (1 second)</p>	LED flashes once per second
Exercise	<p>For quiet work, the silence in the room is estimated.</p> <p>Switch on: Press the Occupancy button (7 - 10 seconds) Switch off: Press the Occupancy button again (1 second)</p>	LED in alternation 1 second ON, 1 second OFF.
Changing the filter	<p>Double blinking of the LED indicates that a filter change is required (the number of operating hours can be configured; factory setting: after 2500 h).</p> <p>Units with differential pressure sensor: Activated if the preset maximum differential pressure or the preset number of operating hours is reached.</p> <p>To reset the number of operating hours, either keep the Occupancy push button pressed (17 – 20 seconds) or use the web server</p>	LED in alternation 1 second of double flashing, 1 second OFF.
Alarm	Frost alarm and hardware alarm.	LED flashes twice per second

1) The stage selector is only available for the following control panels:

- Type T760F1000, part number: M546FB8

- Type WRF04 PSTD NTC20k 5k FS5 gn 5V SA, part number: A00000082515

2) The push button on the control panel can either be used to switch between Occupied and Unoccupied or activate the overtime function or Occupied/Unoccupied/Occupied + L. The configuration is carried out using the web browser and can be performed by personnel from TROX GmbH or TROX HGI

9 Maintenance

9.1 Maintenance and cleaning

DANGER!

Danger of electric shock! Do not touch any live components! Electrical equipment carries a dangerous electrical voltage.

Switch off the supply voltage and secure it against being inadvertently switched on again before working on the unit.

WARNING!

Risk of burning or scalding! The heat exchanger is hot! Before you work on a heat exchanger, switch it off and leave it to cool.


Maintenance

The level of contamination of a ventilation unit depends to a large part on the location of the building and on the length of daily use of the unit.

The system owner should therefore set maintenance intervals based on the hygiene requirements. The legal hygiene requirements have to be met.

An increased dust exposure due to construction work is to be expected during the first three months after initial commissioning; this is why filters should be replaced after three months, and the unit should be cleaned.

We also recommend you to randomly check the contamination level of filters every three months during the first year and use the result as a basis for setting further maintenance intervals.

Operational reliability requires that the necessary maintenance measures are taken in the suggested maintenance intervals,  *'Maintenance measures'* on page 49

Hygiene inspection

A hygiene inspection to VDI 6022 is due every three years. Hygiene inspections have to be carried out by sufficiently qualified individuals and on a random selection of typical ventilation units. If any hygiene issues are detected, all decentralised ventilation units have to be cleaned.

Cleaning

- Cleaning intervals to VDI 6022.
- Clean all surfaces with a damp (not wet) cloth.

- Use only common household cleaners, do not use any caustic, scouring or otherwise aggressive cleaning agents.
- Carefully clean the rotary heat exchanger with an industrial vacuum cleaner. Be careful to not damage the fins. We recommend using a soft brush with the suction inlet.

9.2 Maintenance

9.2.1 Checking and replacing the filters

Personnel:

- Facility manager

Tool:

- Commercially available vacuum cleaner



CAUTION!

Risk of allergic reaction to filter dust!

- Wear a dust mask when you change a filter.

As standard, filters have to be changed every 12 months; they have to be changed earlier in the following cases:

- The maximum differential pressure has been reached (only for units with differential pressure sensor).
- The filters have a technical defect or don't meet the required hygiene standard.

Use only original filters. Replacement filters can be ordered from the manufacturer; state the filter material number in your order (see page 2). The material number is given on the filter and in the replacement parts list,  11 *'Lists of replacement parts'* on page 45  Chapter 11.1 *'Replacement parts list'* on page 45.

1. ▶

DANGER!

Danger of electric shock! Do not touch any live components! Electrical equipment carries a dangerous electrical voltage.

- Switch off the power supply before you carry out maintenance or cleaning.
- Only skilled qualified electricians are allowed to work on the electrical system.

Switch off the supply voltage and secure it against being switched on accidentally before cleaning the unit.

- #### 2. ▶
- Open both inspection access doors on the ventilation unit.

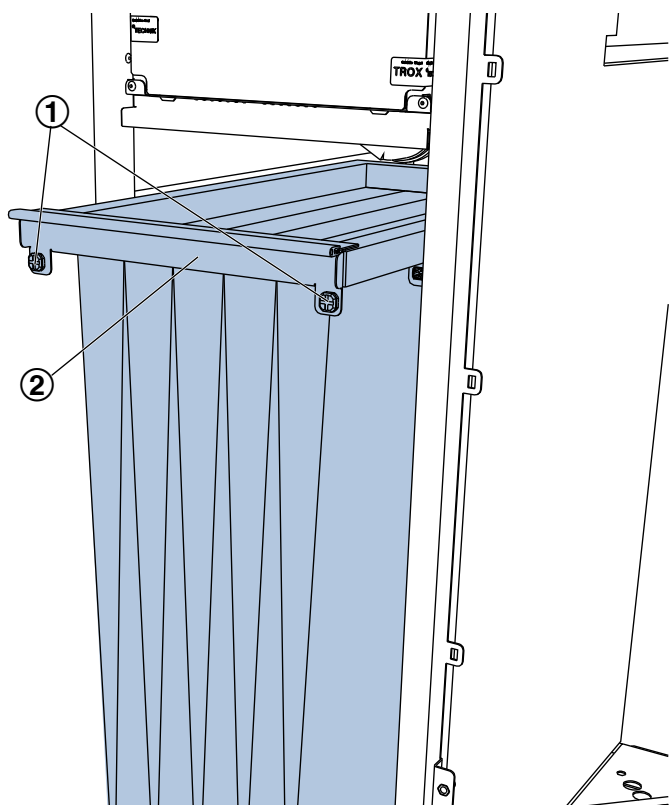


Fig. 57: Outdoor air filter

3. ▶ Open the quick release fasteners (Fig. 57 /1) and pull the outdoor air filter (Fig. 57 /2) out of the filter chamber by the frame.

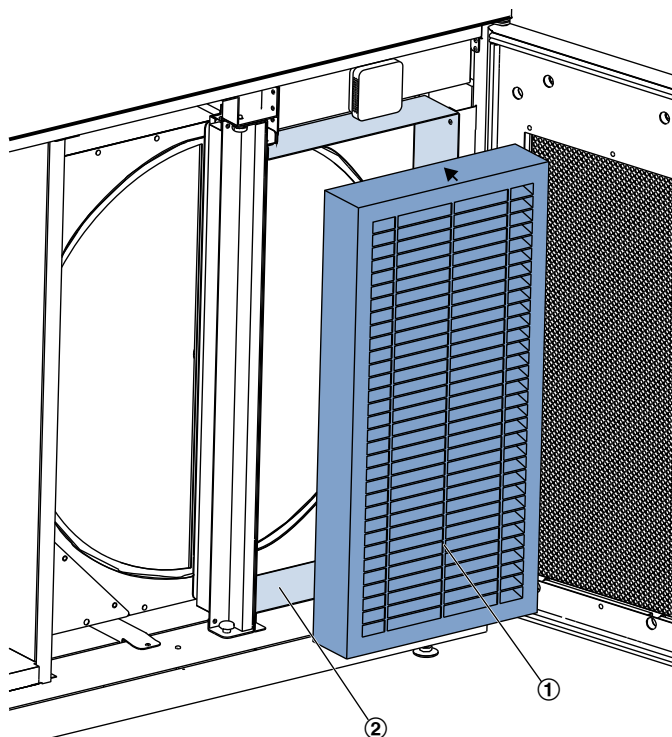


Fig. 58: Extract air filter

4. ▶ Pull the extract air filter (Fig. 58 /1) out of the filter chamber (Fig. 58 /2).

5. ▶ Check both filters for damage, contamination and deposits.
6. ▶ Remove contamination in the ventilation unit with a commercially available vacuum cleaner.
7. ▶ If a filter is intact, free of contamination and deposits, and if it has been used for less than 1 year, put it back into the filter chamber.

If a filter has already been used for a year or if it does no longer meet the technical or hygiene requirements, replace it.



When you insert a new filter, make sure that the labelling at the front of the filter remains visible.

Observe the direction of the arrow for the extract air filter.

Once installed, each filter must be flush with the surface as otherwise air will bypass the filter.

8. ▶ Close and lock the inspection access doors.
 9. ▶ Switch on the power supply.
 10. ▶ If the filter operating hours counter in FSL-CONTROL III has been used, reset it after a filter change ↩ Installation and configuration manual FSL-CONTROL III.
- ⇒ Filter checking or filter change is complete.



Dispose of used filters with residual waste.

9.2.2 Rotary heat exchanger, cleaning

Personnel:

- Skilled qualified electrician

Tool:

- Commercially available vacuum cleaner
- Compressor with blow-out gun

1. ▶



DANGER!

Danger of electric shock! Do not touch any live components! Electrical equipment carries a dangerous electrical voltage.

- Switch off the power supply before you carry out maintenance or cleaning.
- Only skilled qualified electricians are allowed to work on the electrical system.

Switch off the supply voltage and secure it against being switched on accidentally before working on the unit.

The counter flow function is usually sufficient to keep the heat recovery unit clean. Should this self cleaning not suffice, you may clean the heat recovery unit with compressed air; intervals depend on the degree of contamination. In the event of heavy contamination or a defect, the rotary heat recovery unit can also be dismantled.

2. ▶ Open the lower inspection access door.

3. ▶ Remove the extract air filter, ↶ on page 41 .

4. ▶ Vacuum the fins of the rotary heat exchanger with a vacuum cleaner (with a soft brush attachment).

5. ▶ Blow out the fins with a blow-out gun.

6. ▶ Remove contamination in the ventilation unit with a commercially available vacuum cleaner. Also vacuum out the area behind the heat exchanger.

7. ▶ Reinsert the extract air filter.

8. ▶ Close the lower inspection access door.

9. ▶ Switch on the power supply.

⇒ The rotary heat exchanger is cleaned.

10 Decommissioning

10.1 Decommissioning

If the unit is no longer used, it has to be removed and disposed of in an environmentally friendly manner.

10.1.1 Safety

Personnel

- Disassembly must only be carried out by specially trained personnel.
- Only skilled qualified electricians must work on the electrical system.

Electrical system

 **DANGER!****Danger of death due to electric current!**

Danger of electric shock! Do not touch any live components! Live electrical components may execute uncontrolled movements and cause serious injury.

Therefore:

- Before starting disassembly work, switch off the power supply and disconnect it permanently.

 **WARNING!****Risk of injury due to incorrect disassembly**

Stored residual energy, pointed parts and parts with sharp edges or corners on the unit or on tools can cause injuries. Therefore:

Therefore:

- Before you start, make sure that there is sufficient clearance for the work you have to complete.
- Be careful when you touch parts that have sharp edges or corners.
- Disassemble components professionally. Be aware that some components are very heavy. Use lifting gear if necessary.
- Secure components to prevent them from falling or toppling.
- When in doubt, contact the manufacturer.

10.1.2 Disassembly

Before you start disassembly:

- Switch off the unit and secure it against being switched on accidentally.
- Physically disconnect the unit from the power supply and discharge any residual energy.
- Remove and dispose of any operating fluids, auxiliary materials and leftover processing materials in an environmentally sound manner.

Then professionally clean subassemblies and components and disassemble them in compliance with local occupational safety and environmental protection regulations.

10.1.3 Disposal

If no take back (disposal) agreement is in place, the various parts should be recycled:

- Scrap the metals.
- Take plastic parts to be recycled.
- Dispose of other components in a suitable manner, i.e. depending on their material properties.

 **ENVIRONMENT!****Risk of harm to the environment due to improper disposal**

Electronic waste, electronic components, lubricating and other auxiliary materials are hazardous waste and must be disposed of by a specialist company.

If you are not sure how to dispose of anything in an environmentally friendly manner, contact your local authorities or a specialist disposal company.

11 Lists of replacement parts

11.1 Replacement parts list

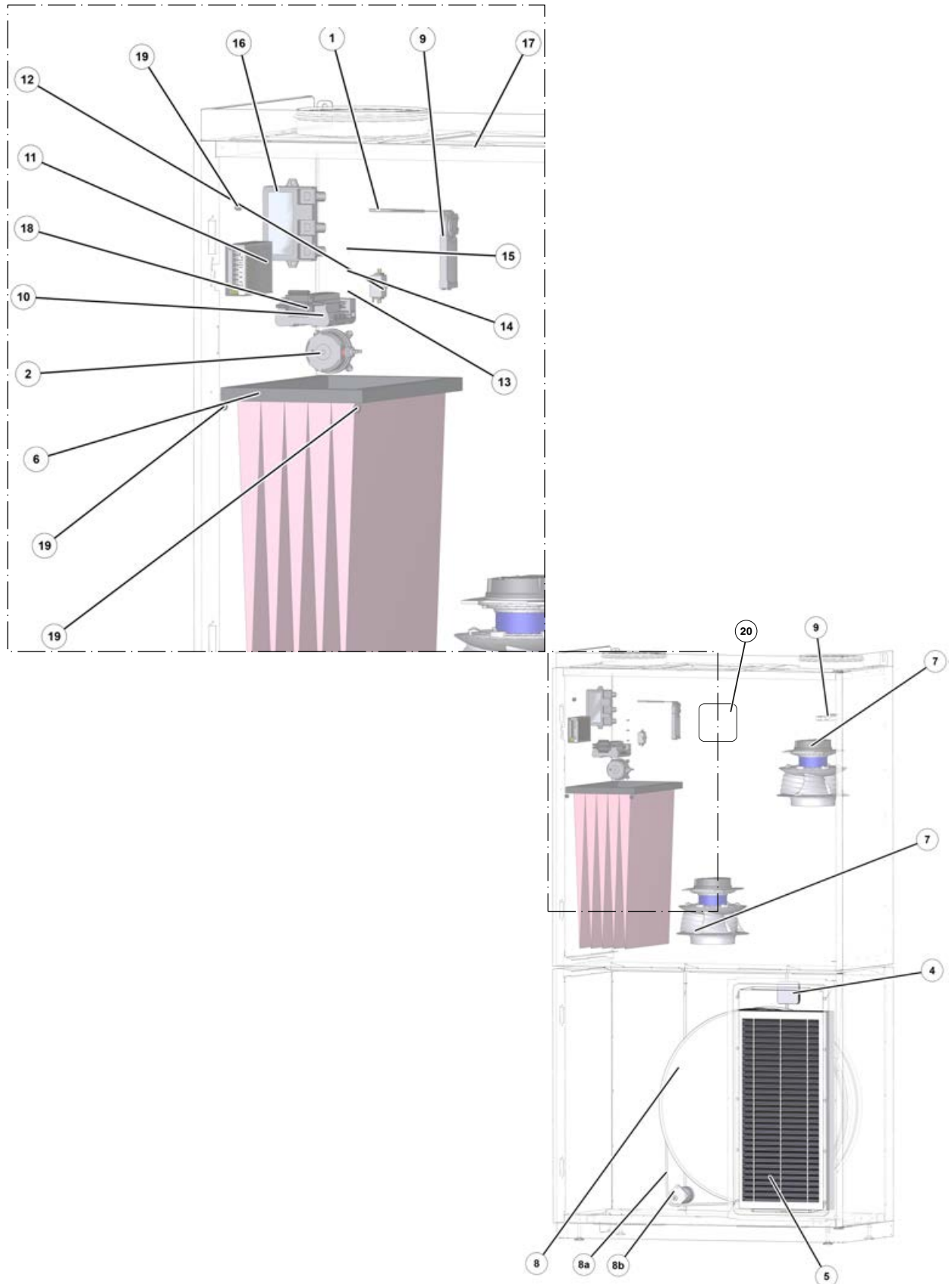


Fig. 59: SA-S-HV replacement parts

 **Ordering replacement parts**

You can identify order-specific components of the ventilation unit either by a code on the component itself or by the commission number on the rating plate ↗ 10 . TROX Service: ↗ Chapter 1.3 'TROX Technical Service' on page 5

No.	Name	Replacement part no.
1	Outdoor air temperature sensor	M546EI4
2	Outdoor air filter differential pressure monitoring	A00000064140
3	Actuator for outdoor air damper	M466EQ6
4	CO2 sensor	A00000075813
5	Extract air ISO coarse 90%	ZL-Coarse-90%-NWO/780x380x92
6	Outdoor air filter ISO ePM1 60%	PFG-ePM1-60%- PLA-25/287x540x635x5
7	Centrifugal fan (supply air/extract air)	See the rating plate on the fan
8	Rotating mass, including belt	A00000093203
8a	Drive belt of rotor	A00000094965
8b	Actuator with drive wheel	A00000081838
9	Actuator for exhaust air damper	M466EQ6
10	Controller FSL-CONTROL III	A00000075513
11	Power supply unit FSL-CONTROL III	A00000062678
12	Power supply filter FSL-CONTROL III	A00000075465
13	F1 micro fuse 5 x 20, 2 A up to 250 V T slow blow	A00000075499
14	F2 micro fuse 5 x 20, 4 A up to 250 V T slow blow	A00000075500
15	F3 micro fuse 5 x 20, 3.15 A up to 250 V T slow blow	A00000075494
16	SKM module for controlling the outdoor air dampers	M536ED0
17	Supply air temperature sensor	A00000054037
18	Speed controller 24 V (rotor)	A00000062863
19	Replacement part bag of quick release fasteners (10x)	A00000072484
20	F4 fine-wire fuse set (10 pieces) 13 A up to 250 V F flink	A00000091670

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Appendix

A Commissioning report/Maintenance report

Building:	Floor:	Unit:
Commissioning: <input type="checkbox"/>	Maintenance: <input type="checkbox"/>	Date: __ . __ . 20__

Maintenance measures

Item to be checked	Measures	Interval [months]			Done	
		6	12	24	Yes	No
Cleaning the ventilation unit	Remove dust and contamination from the casing and from the air passages inside the unit.		X		<input type="checkbox"/>	<input type="checkbox"/>
Checking air terminal units in the external wall for damage and corrosion (random check)	Clean; if necessary, repair.		X		<input type="checkbox"/>	<input type="checkbox"/>
Check electric air heater for function and contamination	Cleaning, replacing		X		<input type="checkbox"/>	<input type="checkbox"/>
Checking outdoor air and exhaust air openings for leakages (random check)	In case of visible leakages: adjust the damper opening angle, replace the actuator, clean		X		<input type="checkbox"/>	<input type="checkbox"/>
	Check if the damper blade closes in case of a power failure			X	<input type="checkbox"/>	<input type="checkbox"/>
Checking filters after any pressure drop, based on hygiene conditions, based on operating time (random checks)	Replace the filter medium, clean the filter chamber, check seals	X ¹	X		<input type="checkbox"/>	<input type="checkbox"/>
Checking the heat recovery unit (random check)	Check seals; clean the heat recovery unit; check and clean water drain (if present)	X ¹	X		<input type="checkbox"/>	<input type="checkbox"/>
Checking fan functions (random check)	Different fan stages			X	<input type="checkbox"/>	<input type="checkbox"/>
Checking activation of the frost protection function for heat exchangers	Let the supply air temperature sensor cool down to a value below the release temperature and see if the ventilation unit is switched off as a consequence		X		<input type="checkbox"/>	<input type="checkbox"/>
Checking the control panel (random check)	Check switching function, setpoint shift			X	<input type="checkbox"/>	<input type="checkbox"/>
Checking control units (random check)	Check circuits, control signals; adjust them if necessary			X	<input type="checkbox"/>	<input type="checkbox"/>

Comment:	

Next maintenance scheduled for:	
Signature: (Technician)	
Company: (Stamp)	

B EU declaration of conformity

EC declaration of conformity

according to the EU Machinery Directive 2006/42/EC, Annex II 1. A

TROX® TECHNIK
The art of handling air

Manufacturer

TROX GmbH

Heinrich-Trox-Platz

D - 47504 Neukirchen-Vluyn

Person established in the Community authorised to compile the technical file

Jan Heymann, TROX GmbH

Description and identification of the machinery

Product / Article Type	decentralised ventilation unit Schoolair-S-HV
-------------------------------	--

It is expressly declared that the machinery fulfils all relevant provisions of the following EU Directives or Regulations:

2006/42/EC	Directive 2006/42/EC of the European Parliament and of the Council of 17 May 2006 on machinery, and amending Directive 95/16/EC (recast) (1)
2014/30/EU	Directive 2014/30/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to electromagnetic compatibility (recast)
2014/35/EU	Directive 2014/35/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits

Reference to the harmonised standards used, as referred to in Article 7 (2):

EN 547-2:1996+A1:2008	Safety of machinery - Human body measurements - Part 2: Principles for determining the dimensions required for access openings
EN 547-3:1996+A1:2008	Safety of machinery - Human body measurements - Part 3: Anthropometric data
EN 1005-3:2002+A1:2008	Safety of machinery - Human physical performance - Part 3: Recommended force limits for machinery operation
EN 1005-2:2003+A1:2008	Safety of machinery - Human physical performance - Part 2: Manual handling of machinery and component parts of machinery
EN 1005-1:2001+A1:2008	Safety of machinery - Human physical performance - Part 1: Terms and definitions
EN ISO 13732-1:2008	Ergonomics of the thermal environment - Methods for the assessment of human responses to contact with surfaces - Part 1: Hot surfaces (ISO 13732-1:2006)
EN ISO 12100:2010-11	Safety of machinery - General principles for design - Risk assessment and risk reduction (ISO 12100:2010)
EN ISO 14118:2018	Safety of machinery — Prevention of unexpected start-up (ISO 14118:2017)
EN ISO 13854:2019	Safety of machinery - Minimum gaps to avoid crushing of parts of the human body (ISO 13854:2017)
EN ISO 13857:2019	Safety of machinery — Safety distances to prevent hazard zones being reached by upper and lower limbs (ISO 13857:2019)
EN 60204-1:2018	Safety of machinery - Electrical equipment of machines - Part 1: General requirements (IEC 60204-1:2016, modified)

Neukirchen-Vluyn, 15.09.2022



Jan Heymann
Authorised Representative, CE-marked
products

Page 1/1

C Product information according to ErP directive

C.1 Product information SCHOOLAIR-S-HV

D Declaration of hygiene conformity

Hygiene-Konformitätserklärung Zertifikat



Serie	SCHOOLAIR-S
Produkt	Dezentrale Lüftungsgeräte – freistehende Geräte
Hersteller	TROX GmbH Heinrich-Trox-Platz • 47504 Neukirchen-Vluyn • Germany Telefon +49(0)2845 2020 • Telefax +49(0)2845 202265 E-Mail trox-de@troxgroup.com • Internet www.trox.de
Europäische Normen	EN 16798-3:2017-11
Deutsche Normen	VDI 3803 Blatt 2:2019-06 VDI 6022 Blatt 1:2018-01
Österreichische Normen	ÖNORM H 6021:2016 08
Schweizer Richtlinien	SWKI VA104-01
Prüfungsort (Werk)	TROX GmbH Heinrich-Trox-Platz, 47504 Neukirchen-Vluyn, Germany

Zusammenfassung des Prüfergebnisses

Zur Erstellung der vorliegenden Konformitätserklärung wurde jeweils ein Muster der oben genannten Serie im Werk geprüft, sowie die verschiedenen Datenblätter, technische Dokumentationen und Prüfberichte ausgewertet.

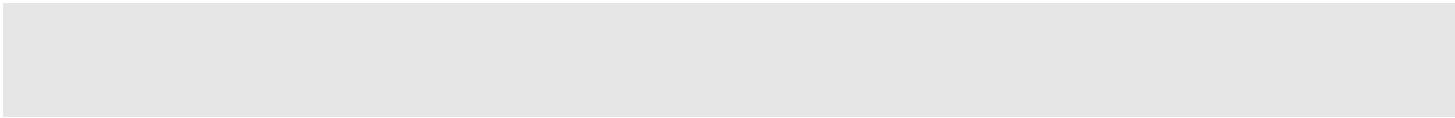
Die Prüfung der oben genannten Muster sowie die Sichtung der vorhandenen Unterlagen ergaben, dass die Hygieneanforderungen der genannten Regelwerke von der geprüften Serie eingehalten werden. Die Übereinstimmung mit den Hygieneanforderungen der genannten Regelwerke wird daher bestätigt.

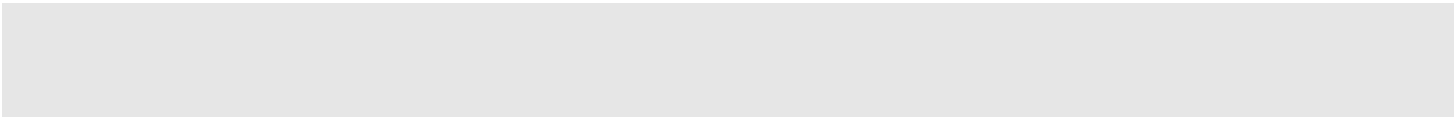


Neukirchen-Vluyn, den 04.04.2022

Dipl.-Ing. Dirk Scherder
VDI-geprüfter Fachingenieur RLQ

Dipl.-Ing. Jan Heymann
Leiter Qualitätsmanagement





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