TROX® TECHNIK
The art of handling air

ROTARY HEAT RECOVERY UNIT

Rotary heat exchanger for heat recovery

ELECTRIC AIR HEATER

Electric air heater

TESTED TO VDI 6022

Conforms to VDI 6022

FILTER CHANGE

Filter change

LEVELLING FOOT

Levelling foot

X-CUBE SCHOOLAIR-V-HV-EH

SUPPLY AND EXTRACT AIR UNIT WITH THE OPTION OF SWITCHING TO SECONDARY AIR OPERATION, INCLUDING ROTARY HEAT RECOVERY UNIT AND ELECTRIC AIR HEATER FOR VERTICAL INSTALLATION ON THE FACADE

Ready-to-operate decentralised ventilation unit that provides good comfort levels; used for the ventilation of internal spaces such as classrooms or conference rooms and day nurseries

- Acoustically optimised EC fans with low specific fan power, SFP = 0 to EN 16798-3
- Rotary heat recovery unit (heat recovery efficiency 75 %) with moisture recovery in winter
- Electric air heater with maximum heating capacity of 1500 W
- Condensate drip tray without condensate drain
- Year-round use of heat recovery
- Reduction of fine dust and pollen contamination due to integral filters that conform to VDI 6022 – filter class ISO ePM1 65 % and extract air ISO coarse 50 %
- Easy filter change, no tools required
- Motorised shut-off dampers, normally closed (NC)
- Installation without interruption to the operations of the respective school

Optional equipment and accessories

- Modular control system FSL-CONTROL III, specially for decentralised ventilation units
- Wood panelling as outer casing in various colours including TROX grilles for supply air and extract air (self-assembly kit)

General information

SCHOOLAIR-V-HV-EH/KO/605x2200x413/C3

Under sill units for vertical assembly on the façade

Please note:

The described under sill ventilation unit variant is equipped with a single room control system arranged in the unit for autonomous classroom operation.
The supplied controllers contain the standard control parameters for operation according to our control system description.

School ventilation unit – vertical installation - master unit

Under sill ventilation unit TROX SCHOOLAIR-V-HV with supply and extract air function, rotary heat recovery unit and switchover option to secondary air operation (air quality dependent), as well as electrical reheating function for vertical installation on the façade:

- Device casing made of galvanised sheet steel, cover and sheet metal connections via deep-drawn threads and stainless steel cross-head screws, all necessary internal air ducts sealed and lined, internal electrical cable penetrations sealed, exposed surfaces powder-coated (RAL 9005, jet black)
- Sound- and heat-insulating lining on intake and discharge side made of mineral wool faced with glass fibre scrim (material classification A, non combustible according to DIN 4102, T1), erosion resistant up to air velocities of 20 m/s, or closed cell insulation material
- The device meets the hygiene requirements of VDI 6022
- Levelling feet, +40 mm
- Slotted bracket on the side for fastening to the wall
- Connection to the outdoor air and exhaust air openings (provided by others) of the façade by means of perimeter closed cell sealing tape on the rear side of the unit, d = 10 mm, the intake and discharge resistance of the construction provided by others should not exceed 20 Pa at a nominal volume flow rate
- Extract air removal on the room side in the upper area of the front of the unit
- Use of 2 plug fans with backward-curved blades, energy-saving EC technology, supply air and extract air fans classified in category SFP 1 (< 500 W/(m³/s)) according to EN 16798-3:2017-11, electrical power consumption of the entire unit at nominal volume flow rate 400 m³/h < 76 W, a power rating of 2247 VA must be taken into account for the connecting cable
- Suitable for 3 speed levels (200, 300 and 400 m³/h as well as boost level with 500 m³/h), signalling via device-internal single room control system, volume flow rate level correction by adjusting the control voltage subsequently possible
- The technical requirements of EU directive 1253/2014 for non-residential ventilation systems are fulfilled and documented in accordance with the directive
- Integral condensation rotary heat exchanger for heat recovery with high efficiency (heat recovery efficiency > 75%), modulating control by device-internal single room control system and moisture recovery in winter (up to 50%)
- Motorised shut-off dampers in the outdoor/exhaust air area, normally closed when there is no power by means of energy storage, actuator 230 V, open/close, signalling via device-internal single room control system
- Automatic switching to secondary air mode (only with an air quality sensor) if the indoor air quality (measured, for example, at the integral CO_2 sensor) lies within the limits defined beforehand. The fresh air damper closes, the self-powered secondary air damper opens and the extract air fan is switched off.
- Electrical components contained in the unit are completely wired with FSL-CONTROL III, control components are integrated in the unit. Cable for connection (connection not supplied by TROX) of the power supply (L, N, PE) with wire end ferrules led approx. 1 m out of the unit: As a transfer point to the electrical installation provided by others:
  - Supply voltage (230 V): 3 wires, 3 × 1.5 mm² (L, N, PE)
- Connection possibility for bus communication (optional), connection of control panel, etc. after opening the customer area of the controls. As a transfer point to the controls provided by others:
  - Rail mount terminals type Wago 260 for the connection (provided by others) of
    - Digital inputs DI
    - Digital outputs DO
    - Master-slave connection RS485
    - BMS connection (optional) RS485
    - Control panel

    - RJ45 socket as service access to the user interface

- The following sensors are arranged in the unit to control the single room control system (the actual room temperature is recorded at the control panel):
  - Indoor air quality sensor CO_2
  - Supply air temperature measurement downstream of the heat exchanger
  - Outdoor air temperature measurement in the outdoor air intake

- Outdoor air filter as Mini Pleat filter ePM1 (fine dust filter):
  - Filter class to ISO16890: ISO ePM1 65 %
  - Eurovent-certified
  - ePM1 filter media made from high-quality, wet-strengthened glass fibre paper are pleated, the spacers are made from thermoplastic hot-melt adhesive and ensure uniform spacing (4 mm) between the pleats
  - The frame is made of moisture-resistant non-woven fibre, with lugs (for pulling it out) and must not reduce the flow cross section (filter size = flow cross section).
  - Filter area >= 3.5 m²

- Extract air filter class G3 (coarse dust filter) as flat filter medium, filter class according to ISO16890: ISO coarse 50%

- Quick change of the filters is possible, since the filter insert can be opened without tools after opening the casing that is provided by others via user-friendly quarter-turn fasteners (accessibility must not be restricted by the under sill trim that is provided by others)

- Monitoring of the filter life by integrated differential pressure monitoring

- Closed cell sealing tapes for sealing and adaptation to the outer casing (by others) are not included in the TROX supply package

- The under sill trim provided by the customer is perforated in areas to be specified for the introduction of supply air, for extract air and secondary air intake, and must not restrict maintenance work and unit installation and removal on the front of the unit

- Clear distance between the front edge of the unit and the inner edge of the under sill trim approx. 30 mm

- The front of the device must be completely accessible after disassembly of the outer casing

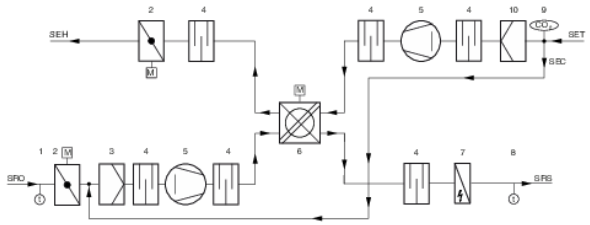
Units – dimensions and weight:
Width: approx. 605 mm (without fixing brackets)
Height: approx. 2200 mm (without levelling feet, without fixing brackets)
Depth: approx. 413 mm (incl. façade sealing)
Weight: approx. 145 kg

- Heat exchanger designed as electric air heater
  - Maximum performance: 1500 W
  - Max. surface temperature restricted to 60°C, thus preventing dust smouldering
  - Incl. closed circuit, consisting of temperature sensor, NTC 10 kOhm and power controller
  - Max. supply air temperature 25 °C
  - Incl. safeguards:
  - Safety temperature monitor, mechanical, automatic reset
  - Safety temperature monitor, mechanical, no automatic reset

INFORMACIÓN TÉCNICA

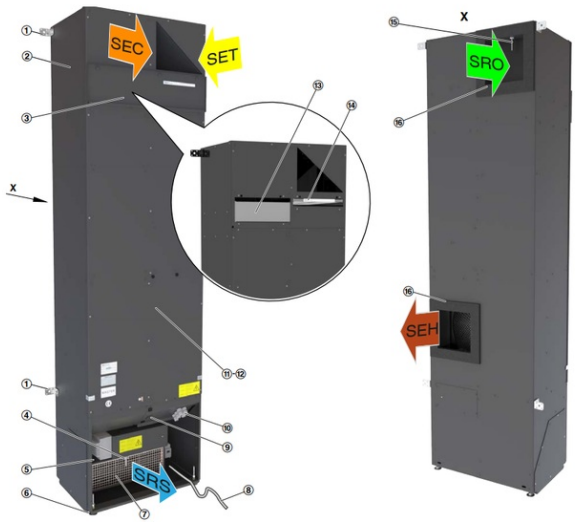
Function, Technical data, Specification text, Order code

Dezentrale Zu- und Abluftgeräte be- und entlüften den Raum und decken die Heizlast gemäß den technischen Daten ab. Die Außenluft wird von einem EC-Radialventilator angesaugt und strömt durch die motorisierte Absperrklappe sowie durch den Außenluftfilter. Danach strömt die Außenluft durch den Rotationswärmerückgewinner, der in energetisch sinnvollen Betriebssituationen abgeschaltet werden kann. Bevor die Zuluft quellluftartig in den Raum strömt, wird sie bei Bedarf durch das Elektroheizregister noch geheizt. Die Abluft strömt durch den Abluftfilter, bevor sie durch den Wärmerückgewinner, den Abluftventilator und die motorisierte Absperrklappe als Fortluft ins Freie gefördert wird. Bei ausreichend guter Raumluftqualität schaltet die FSL-CONTROL III Regelung durch Schließen der Außenluftklappen in den energetisch sinnvollen Sekundärluftbetrieb. Die Regelung vergleicht dabei die Sollwerte der Raumluftqualität mit den am CO2-Sensor gemessenen Istwerten und schaltet automatisch zwischen Außenluft- und Sekundärluftbetrieb um. Zum Brandschutz Frostschutz und zur Vermeidung von Zugluft werden bei Stromausfall die Außenluft- und Fortluftklappe zugefahren. Hierzu besitzen die Stellantriebe einen Energiespeicher. Die Zuluft strömt mit mittlerer Geschwindigkeit von 1,0 – 1,5 m/s fassadennah in den Raum. Durch die Induktionswirkung werden die Geschwindigkeiten bereits kurz nach dem Lufteintritt in den Raum abgebaut. Dadurch breitet sich die Zuluft im Kühlfall über die gesamte Bodenfläche quellluftartig aus. An Wärmequellen wie Menschen und Geräten bildet sich durch natürliche Konvektion eine Auftriebsströmung, so dass primär in diesen Bereichen die Luft ausgetauscht wird.



SEH Single room exhaust air
SET Single room extract air
SRO Single room fresh air
SRS Single room supply air
SEC Secondary air (optional)

1 Fresh air temperature sensor (optional)
2 Shut-off damper with actuator (exhaust air and fresh air)
3 Fresh air filter ISO ePM1 65 %
4 Sound attenuator
5 Fan (supply air and extract air)
6 Rotary heat exchanger for heat recovery
7 Electric air heater
8 Supply air temperature sensor
9 CO_2 sensor (optional)
10 Extract air filter ISO coarse 50 %



SEH Single room exhaust air
SET Single room extract air
SRO Single room fresh air
SRS Single room supply air
SEC Secondary air (optional)

1 Fixing bracket (supplied separately)
2 Casing
3 Inspection access panel
4 Supply air temperature sensor (optional)
5 Control unit for electric air heater
6 Levelling feet
7 Electric air heater
8 Power cable
9 Controls inspection access panel
10 Cable entry for on-site connection
11 Cover plate
12 Rotary heat exchanger (inside)
13 Fresh air filter ISO ePM1 65 %

14 Extract air filter ISO coarse 50 %
15 Fresh air temperature sensor (optional)
16 Seal on the wall side

Width	605 mm
Height	2200 mm
Depth	413 mm
Volume flow rate	200, 300, 400 m³/h (Boost 600 m³/h)
Nominal volume flow rate	400 m³/h
Sound power level	31 – 49 dB(A)
Heat recovery efficiency	75 %
Maximum heating capacity (electrical)	1500 W
Supply voltage	230 V AC ±10 %, 50/60 Hz
Power rating	2247 VA
Weight	145 kg

Zuluftvolumenstrom	m³/h	300	500	800	1100
Schallleistungspegel L_{WA}	dB(A)	22	34	43	53
Schalldruckpegel inkl. 8 dB Systemdämpfung	dB(A)	14	26	35	45
Wirkleistung P_{el}	W	30	65	150	315

SCHOOLAIR-V-HV-EH/KO/605x2200x413/C3

Under sill units for vertical installation on the façade

Please note:
The under sill ventilation unit variant described has an integrated single room control system for autonomous classroom operation.
The supplied controllers contain the parameters for standard operation according to our control description.

Ventilation unit for schools – vertical installation - master unit
TROX X-CUBE/SCHOOLAIR-V-HV under sill ventilation unit with supply and extract air function, rotary heat recovery unit and switchover option to secondary air mode (depending on air quality) as well as electrical reheating function, for vertical installation on the façade:

- Unit casing made of galvanised sheet steel, cover and sheet metal connections with deep-drawn threads and stainless steel cross-head

screws, all internal air ducts sealed and lined as required, internal cable penetrations sealed, exposed surface powder-coated (RAL 9005, jet black)
- Sound and heat-insulating lining on suction and discharge side made of mineral wool faced with glass fibre scrim (material classification A, non-combustible according to DIN 4102, T1), erosion resistant up to air velocities of 20 m/s, or closed cell insulation material
- The unit meets the hygiene requirements of VDI 6022
- Height-adjustable levelling feet (+40 mm) to compensate for structural tolerances
- Slotted bracket on the side for fastening to the wall
- Connection to the on-site outdoor air and exhaust air openings of the façade by means of circumferential closed-pore sealing tape on the rear of the unit, d = 10 mm. The suction and discharge resistance of the on-site construction should not exceed 20 Pa at nominal volume flow rate
- Extract air removal at the top front of the unit
- Use of 2 free-running wheels with backward curved blades, energy-saving EC technology, supply and extract air fan classified in category SFP 0 (< 300 W/(m³/s)) according to DIN EN 16798-3:2017-11, electrical power consumption of the entire unit at nominal volume flow 400 m³/h <76 W, a connected load of 2247 VA must be taken into account when dimensioning the connection cable
- Suitable for 3 speed levels (200, 300 and 400 m³/h as well as boost level of 500 m³/h), signalling by means of integrated single room control system. The volume flow rate can be corrected at a later stage by adjusting the control voltage
- The technical requirements of EU directive 1253/2014 for non-residential ventilation systems are fulfilled and documented in accordance with the directive
- Integrated condensation rotary heat exchanger for heat recovery with high efficiency (heat recovery efficiency > 75%), continuously controlled by integrated single room control system and humidity recovery in winter (up to 50%)
- Motorised shut-off dampers in the outdoor air and exhaust air area, normally closed in inactive state via energy storage, actuator 230 V, open/closed, signalling via integrated single room control system
- Automatic switching to secondary air mode (only with an air quality sensor) if the room air quality (measured with the integrated CO_2 sensor) is within the defined limits. For this purpose, the shut-off dampers are closed, the self-powered secondary air damper opens and the extract air fan is switched off
- Integral electrical components are completely wired with FSL-CONTROL III, control components are integrated in the unit. Cable for connection (connection not in the TROX supply package) of the power supply (L, N, PE) with wire end ferrules led approx. 1 m out of the unit: As a transfer point to the on-site electrical installation:
  - Supply voltage (230 V): 3 wires, 3 × 1.5 mm² (L, N, PE)
- Connection option for bus communication (optional), connection of room control panel etc. after opening the customer area of the control unit. As a transfer point to the on-site measurement/control/regulation system:
  - Rail mount terminals type Wago 260 for the on-site connection of
    - Digital inputs DI
    - Digital outputs DO
    - Master-slave connection RS485
    - Optional integration in MCE/BACS via RS485 (Modbus/BACnet)
    - Room control panel
    - RJ45 socket as service access to the user interface
    - Optional integration into an on-site MCE/BACS via Ethernet (Modbus/BACnet)
- The following sensors are included in the unit as part of the single room control system (the actual room temperature is captured at the room control panel):
  - Room air quality sensor CO_2
  - Supply air temperature measurement downstream of the heat exchanger
  - Outdoor air temperature measurement in the outdoor air intake
- Outdoor air filter as Mini Pleat filter, class ePM1 (fine dust filter):
  - Filter class according to ISO 16890: ISO ePM1 65%
  - Eurovent-certified
  - ePM1 filter media are made of high-quality, wet-strength glass fibre paper and laid in tight pleats. The spacers are made of thermoplastic hot melt adhesive to ensure uniform spacing (4mm) between the pleats.
  - The frame is made of moisture-resistant non-woven fibre with pull-out brackets and must not reduce the flow cross-section (filter size = flow cross-section)
  - Filter area >= 3.5 m²
- Extract air filter class G3 (coarse dust filter) as flat filter medium, filter class according to ISO 16890: ISO coarse 50%
- Filters can be changed quickly, as the filter insert can be opened without tools after opening the on-site casing using user-friendly quarter-turn fasteners (accessibility must not be restricted by the on-site under sill trim)
- Monitoring of the filter life by integrated differential pressure monitoring
- Closed cell sealing tapes for sealing and adaptation to the outer casing are not included in the TROX supply package
- The on-site under sill trim has perforations in areas to be specified for the supply air entry, for extract air intake and secondary air intake and must not restrict installation, removal, or maintenance work on the front of the unit
- Clear distance of approx. 30 mm between the front edge of the unit and the inner edge of the under sill trim
- The front of the unit must be completely accessible after removal of the outer casing

Units - dimensions and weight:
Width: approx. 605 mm (without fixing brackets)
Height: approx. 2200 mm (without levelling feet, without fixing brackets)
Depth: approx. 413 mm (incl. façade sealing)
Weight: approx. 145 kg

- The heat exchanger is an electric air heater
  - Maximum output: 1500 W
  - Maximum surface temperature restricted to 60°C, thus preventing dust smouldering
  - Including control circuit, consisting of temperature sensor, NTC 10 kOhm and power controller
  - Supply air temperature: 25 °C max.
  - Including safeguards:
  - Safety temperature limiter, mechanical, automatically resetting

- Safety temperature monitor, mechanical, no auto reset

FSL-CONTROL III controller

Including control system FSL-CONTROL III, as described below:

FSL-CONTROL III is described as a stand-alone single room control system with a simple timer. Optional expansions, such as integration into an on-site MCE/BACS via Modbus TCP, Modbus RTU, BACnet MS/TP or BACnet IP, humidity sensors, return temperature sensors, electromotive valve actuators or pressure-independent control valves, are included in the delivery programme, but must be exchanged for the standard components in the following description. A room temperature signal is also required. Various room control panels and sensors are available to provide this signal. Suitable optional equipment can be found after the following standard equipment for stand-alone operation. - please refer to: Optional control accessories. We recommend commissioning by TROX. You will find related text modules below.

TROX control module FSL-CONTROL III (order code ...-C3-MA ...):

- Single room controller to be mounted on a DIN mounting rail in the unit or in a separate control equipment box
- 42 digital or analogue inputs and outputs
- A MicroSD card (at least 2 GB storage space) is integrated as a flash memory medium. The trend data are stored there and can be retrieved via the RJ45 socket
- Factory-equipped with a software package for master units specially developed for decentralised ventilation units. The software enables simple master-slave communication via Modbus RTU
- Up to 10 slave devices can be connected to one master device
- The software provides 3 types of operation (Off, Automatic and Manual), 3 operating modes (Occupied, Unoccupied and Standby) and 4 operating mode overrides (Boost, Class, Night Ventilation and Fan Forced Circuit)
- Basic distinction between room temperature control by controlling heating and cooling valves or continuous bypass damper or supply air temperature control for isothermal ventilation operation
- CO_2-guided air quality control
- Heat recovery all year round
- Filter monitoring
- Configurable DI for on-site connection of presence detectors, window contacts, holiday switching, etc.
- Alarm messages: Type A (shutdowns) and Type B (notifications)

Real time clock (RTC)

Real Time Clock (RTC/real time clock) (order code ...-T/...):

- Component of the Master Software Package
- Enables a simple timer
  - 7 days with 10 switching points each
  - Automatic summer / winter time changeover
  - Temporal activation of night purge

CO2 sensor

CO_2 sensor (order code.../C/...):

- Sensor arranged in the extract air intake of the master unit for recording the indoor air quality and corresponding control of the outdoor air flow rate
- Measurement via an NDIR sensor, which works on an infrared basis and compensates for any contamination by its 2-beam measurement principle
- Measuring range 0 – 2000 ppm

Supply air temperature sensor

Supply air temperature sensor (order code .../Z/...):

- Supply air temperature sensor with NTC thermistor, 10 kΩ at 25 °C, measuring range -35 to 105 °C
- Very short response time due to perforated measuring tip

Fresh air temperature sensor

Outdoor air temperature sensor (order code .../A/...):

- Outdoor air temperature sensor with NTC thermistor, 10 kΩ at 25 °C, measuring range -35 to 105 °C

Optional control accessories

Optional equipment to increase the comfort of the FSL-CONTROL III:

TROX room control panels for FSL-CONTROL III

At least one room temperature signal is required per room. There are several variants of TROX room control panels available, optionally with or without selector switch. Additionally, we offer a room temperature sensor RTF without control elements. Alternative on-site room control panels must be connected via bus communication.

Digital room control panels for surface mounting:

For operation and adjustment of the ventilation units.

- Supplied loose as an accessory. Connection to the master unit via Modbus serial line. Project-specific software including setpoint value adjuster, various status displays, selector switch, CO_2 indicator. Touch-sensitive colour display 3.5" 320 × 240 pixels. Sensor: NTC 10 kΩ. Degree of protection: IP 20. Type: Schneider TM172DCLWT. Dimensions (H × B × T): 120 × 86 × 25 mm. Weight: 340 g, colour: white. Installation: Surface mounting or on a standard flush-mounted box. Power supply: 24 V DC (including suitable switching power supply unit for flush-mounted installation). Power consumption: 3.2 VA/1.3 W. Other design frames are available upon request and for a surcharge.

Control panels with selector switch for surface mounting:

Control panel with selector switch, for surface mounting, type Thermokon

- Supplied loose as an accessory, with room temperature sensor, setpoint adjuster, override button, LED and 3-step switch as well as Off and Automatic, casing made of PVC0, pure white (RAL 9010), for mounting on a 60 mm flush box or for surface mounting, NTC thermistor as sensor, resistance 20 kΩ at 25 °C, dimensions (B × H × T): 84.5 x 84.5 x 25 mm, operating temperature: -35 to 70 °C

Control panels without selector switch for surface mounting:

Control panel without selector switch, type Thermokon, for surface mounting:

- Supplied loose as an accessory, with mode display, push button and setpoint adjuster, NTC thermistor as sensor, 20 kΩ, protection level IP 20, dimensions (B × H × T): 84.5 x 84.5 x 25 mm

Room temperature sensor for surface mounting:

Room temperature sensor TROX RTF, surface mounting

- Supplied loose as an accessory, room temperature sensor without any control elements, measuring range -35 to 70 °C, sensor NTC 10 kΩ, connection terminal screw terminal, d = 1.5 mm, protection level IP 20, surface mounting or on a 70 mm flush-mounted box, dimensions (B × H × T): 85 x 85 x 30 mm, casing ABS, in RAL 9010

Control panels without selector switch for flush mounting:

For manual operation of the ventilation units with a high-quality look and the matching design from a wide range of switch programmes, the unit is suitable for particularly design-oriented facilities.

Control panel without selector switch, type Thermokon, for flush mounting, switch from Berker S.1 range, polar white

- Supplied loose as an accessory, with mode display, push button and setpoint adjuster, NTC sensor 20 kΩ, protection level: IP 20

Control panel without selector switch, type Thermokon, for flush mounting, switch programme Berker Q.3, white

- Supplied loose as an accessory, with mode display, push button and setpoint adjuster, NTC sensor 20 kΩ, protection level: IP 20

Control panel without selector switch, type Thermokon, for flush mounting, switch programme Busch-Jäger future® linear, white

- Supplied loose as an accessory, with mode display, push button and setpoint adjuster, NTC sensor 20 kΩ, protection level: IP 20
- Other switch programmes on request

Control panels without selector switch and without setpoint value adjuster, for flush mounting:

Control panel without selector switch and without setpoint value adjuster, type Thermokon, for flush mounting, switch from Gira E2 range

- Supplied loose as an accessory, with mode display and push button, NTC sensor 20 kΩ, protection level: IP 20
- Other switch programmes on request

Interface for integration into an on-site MCE/BACS:

Modbus TCP interface including web server (order code .../MT/...)

To increase convenience, we recommend integration into an on-site MCE/BACS or visualisation with X-TAIRMINAL. FSL-CONTROL III can be

integrated into an on-site MCE/BACS via the Modbus TCP protocol. Additionally including web server for simplified configuration, commissioning and remote monitoring of the unit. The MCE/BACS is not included in the supply package from TROX GmbH, only the interfaces listed above are available here.

- Modbus TCP interface (Ethernet)

BACnet IP interface including web server (order code .../BI/...)

To increase convenience, we recommend integration into an on-site MCE/BACS. FSL-CONTROL III offers the option of being integrated into an on-site MCE/BACS via the BACnet IP protocol. Additionally including web server for simplified configuration, commissioning and remote monitoring of the unit. The MCE/BACS is not included in the supply package from TROX GmbH, only the interfaces listed above are available here.

- BACnet IP interface (Ethernet)

Modbus RTU (order code .../MR/...)

To increase convenience, we recommend integration into an on-site MCE/BACS. FSL-CONTROL III offers the option of being integrated into an on-site MCE/BACS via Modbus RTU. The MCE/BACS is not included in the supply package from TROX GmbH, only the interfaces listed above are available here.

- Modbus RTU interface (RS485)

BACnet MS/TP (order code .../BM/...)

To increase convenience, we recommend integration into an on-site MCE/BACS. FSL-CONTROL III offers the option of being integrated into an on-site MCE/BACS via BACnet MS/TP. The MCE/BACS is not included in the supply package from TROX GmbH, only the interfaces listed above are available here.

- BACnet MS/TP interface (RS485)

Version as SLAVE DEVICE

Identical to the MASTER DEVICE, as described above, but with the following deviations:

- No room air quality measurement in the unit
- No connection option for room control panels
- No outdoor temperature detection in the outdoor air
- No connection to on-site bus communication possible
- Pre-assembled self-sufficient control system for decentralised façade ventilation units in SLAVE construction

Commissioning of the decentralised ventilation units

Commissioning/parameterisation of the decentralised ventilation units without integration into an on-site MCE/BACS

- Visual inspection of the device connections on site for compliance with the respective installation specifications from the installation and configuration instructions: air connections, heating/cooling connection, electrical connections, integration into the installed outer casing, connections of external components
- Checking and, if necessary, adapting the project parameters pre-set in the factory with regard to customer-specific adaptations
- Functional test of the individual components (control elements, fans, valves, dampers, sensors)
- Checking the project-specific control functions including any special functions such as volt-free switch contacts
- Documentation of the device settings and service work in a service report. The service report must be signed by your company or representative as the client.
- Invoicing is done as a flat rate, derived from the number of units and distance.

Commissioning/parameterisation of the decentralised ventilation units with integration into an on-site MCE/BACS

- Visual inspection of the device connections on site for compliance with the respective installation specifications from the installation and configuration instructions: air connections, heating/cooling connection, electrical connections, integration into the installed outer casing, connections of external components, connections of MCE/BACS
- Checking and, if necessary, adapting the project parameters pre-set in the factory with regard to customer-specific adaptations
- Functional test of the individual components (control elements, fans, valves, dampers, sensors)
- Checking the project-specific control functions including any special functions such as volt-free switch contacts
- Function test of the communication to the MCE/BACS in cooperation with the controls provider:
  - Checking that the on-site settings comply with the specifications in the installation and configuration instructions
  - Input test of the data points sent on site

- Output test of the output data points
- Trial operation of the operating states that can be switched by the MCE/BACS

- Documentation of the device settings and service work in a service report. The service report must be signed by your company or representative as the client.
- Invoicing is done as a flat rate, derived from the number of units and distance.

Instruction in operation and maintenance

- One-time instruction for the operation of the decentralised ventilation units consisting of:
  - Description of the equipment functions on the unit that has already been put into operation
  - Description of the room control panel and the room conditions that can be influenced by it
  - Description of the maintenance work
- Invoicing is done on a flat-rate basis. The instruction is carried out by the responsible sales representative

SA-V – 0 – 4 / KM / 397 × 2350 × 359 / C3 / MA – T / MR / C / Z / A / HV – R – 0.4 / KV – R – 0.4

1		2	3	4	5		6	7		8	9	10	11	12	13	14	15	16	17	18

<ParaStyle:2:ExcelTable:1spaltig:TableCaption>

1 TypeSA-V vertical decentralised ventilation unit X-CUBE/SCHOOLAIR-V 2 VariantNo entry: StandardHE high degree of heat recoveryHV high volume flow rate and rotary heat recovery unit3 Heat exchanger2 2-pipe4 4-pipeEH Electric heating coil (SCHOOLAIR-V-HV) 4 ConstructionKO without condensate drainKM with condensate drain (SCHOOLAIR-V, SCHOOLAIR-V-1800, SCHOOLAIR-V-HV)KR with condensate drain, extract air opening on the right when seen from the room (SCHOOLAIR-V-HE)KL with condensate drain, extract air opening on the left when seen from the room (SCHOOLAIR-V-HE) 5 Dimensions [mm] B × H × T397 × 2160 × 359 (2-pipe)397 × 2350 × 359 (4-pipe)604 × 1800 × 370 (2-pipe or 4-pipe, version 1800)600 × 2000 × 408 (2-, 4-pipe, HE version)605 × 2200 × 413 (2-, or 4-pipe, HV version) 6 Control systemOR without control systemC3 with FSL-CONTROL III 7 Control functionMA MasterSL Slave 8 Real time clock, master onlyNo entry: noneT with 9 InterfaceNo entry: noneMT with Modbus TCPMR with Modbus RTU (only with control function MA)BI with BACnet IPBM with BACnet MS/TP (only with control function MA) 10 Air quality sensor, master onlyNo entry: noneC with CO_2 sensorV with VOC sensor 11 Supply air temperature sensorZ with 12 Outdoor air temperature sensor, master onlyNo entry: noneA with 13 Heating valve Only 2-pipe systems HV with 14 Lockshield – heating circuitR with 15 kVS value – heating valve 0.25 Straight-way valve0.40 Straight-way valve0.63 Straight-way valve1.00 Straight-way valveF0.50 pressure-independent control valve 16 Cooling valveOnly 4-pipe systemsKV with 17 Lockshield – cooling circuitR with 18 kVS value – cooling valve 0.25 Straight-way valve0.40 Straight-way valve0.63 Straight-way valve1.00 Straight-way valveF0.50 pressure-independent control valve Order example: SA-V-HV-EH/KO/605x2200x413/C3-MA-T/C/Z/A

SA-V	vertical decentralised ventilation unit X-CUBE/SCHOOLAIR-V
HV	high volume flow rate and rotary heat recovery unit
EH	with electric air heater
KO	without condensate drain
C3	with FSL-CONTROL III
MA	in Master construction
T	with real time clock
C	with CO_2 sensor
Z	with supply air temperature sensor
A	with outdoor air temperature sensor

Dimensions, Product details

Installation and commissioning

- Installation on the floor in front of the outside wall
- Level adjustment using the 4 levelling feet (+40 mm)
- 4 side fixing brackets (supplied loose) for screwing to the building structure, alternatively 2 fixing points below the heat exchanger can be used
- The outdoor air intake or exhaust air discharge takes place via 2 façade openings. The façade openings must be provided professionally by the customer and ideally have a slope to the outside
- Free area of ventilation openings: 0.05 m² for each outside air opening and exhaust air opening, and 0.16 m² for each supply air opening and extract air opening

- Weather protection for the outdoor air and exhaust air openings to be provided by others

- Installation and connections to be performed by others. Fixing, connecting and sealing material not included
- The electrical connection is on the right-hand side of the unit when seen from the room
- The under sill trim provided by others must not obstruct maintenance access at the front of the unit or installation and removal of the

unit.

Installation example

Installation example

Installation example