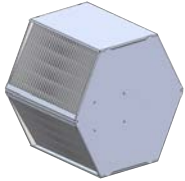




Tested to VDI 6022

Decentralised ventilation

SCHOOLAIR-V-HE



Cross counter flow heat recovery unit



Inspection access to filter and heat recovery unit



Water connections and control system connections



Levelling foot



Supply and extract air unit with switchover option to secondary air operation, including cross counter flow heat recovery unit and heat exchanger for vertical installation on the facade

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

- Acoustically optimised EC fans with low specific fan power, SFP = 0 to EN 16798-3
 - Cross counter flow heat recovery unit (84% heat recovery efficiency)
 - Highly efficient heat exchanger for heating and cooling as 2-pipe or 4-pipe system
 - Heat exchanger connection is on the right when seen from the room
 - Condensate drip tray with drain (drainage by others)
 - Heat recovery all year round
 - Reduced fine dust and pollen contamination due to integral filters that conform to VDI 6022 – filter class ISO ePM1 65% and extract air ISO coarse 55%
 - Easy filter change, no tools required
 - Motorised shut-off dampers, normally closed (NC)
 - Installation without interruption of school operations
- Optional equipment and accessories
- Modular control system FSL-CONTROL III, specially for decentralised ventilation systems
 - Wood panelling as outer casing in various colours, with TROX ventilation grilles for supply air and extract air (assembly kit)

Function	2	Order code	12
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Function

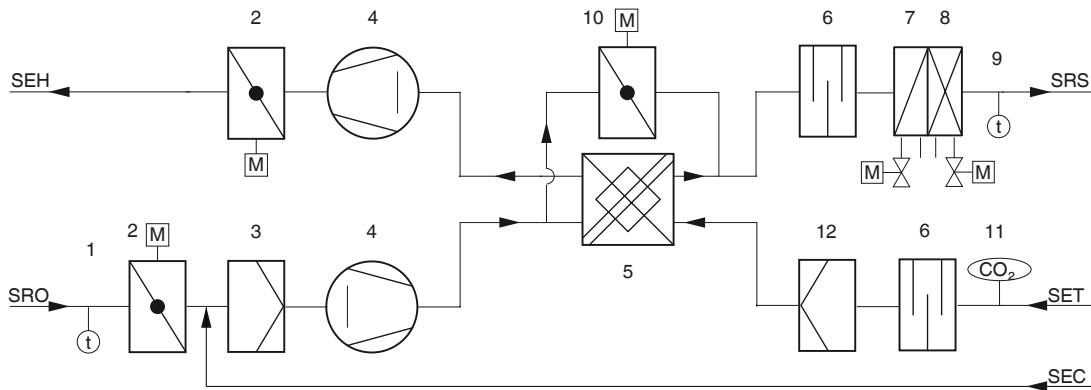
Functional description

Decentralised supply and extract air units for room ventilation and for dissipating cooling loads and heat loads. An EC centrifugal fan takes in the fresh air which then flows through the motorised shut-off damper and the fresh air filter. The fresh air then flows through the cross-counterflow heat recovery unit and it can be switched off when it is sensible with regard to energy efficiency for operating situations and device protection. If necessary, the air is heated or cooled by the heat exchanger before it is discharged to the room as a displacement flow (optional in the case of 4-pipe systems). The extract air first passes through the outdoor 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.

If the room air quality is sufficient, FSL-CONTROL III closes the outdoor air dampers and changes to secondary air operation, which is more energy efficient in any case. Here, the control unit compares the target values of the indoor air quality with the actual values measured at the CO₂-sensor and switches automatically between fresh air and secondary air operation. 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.

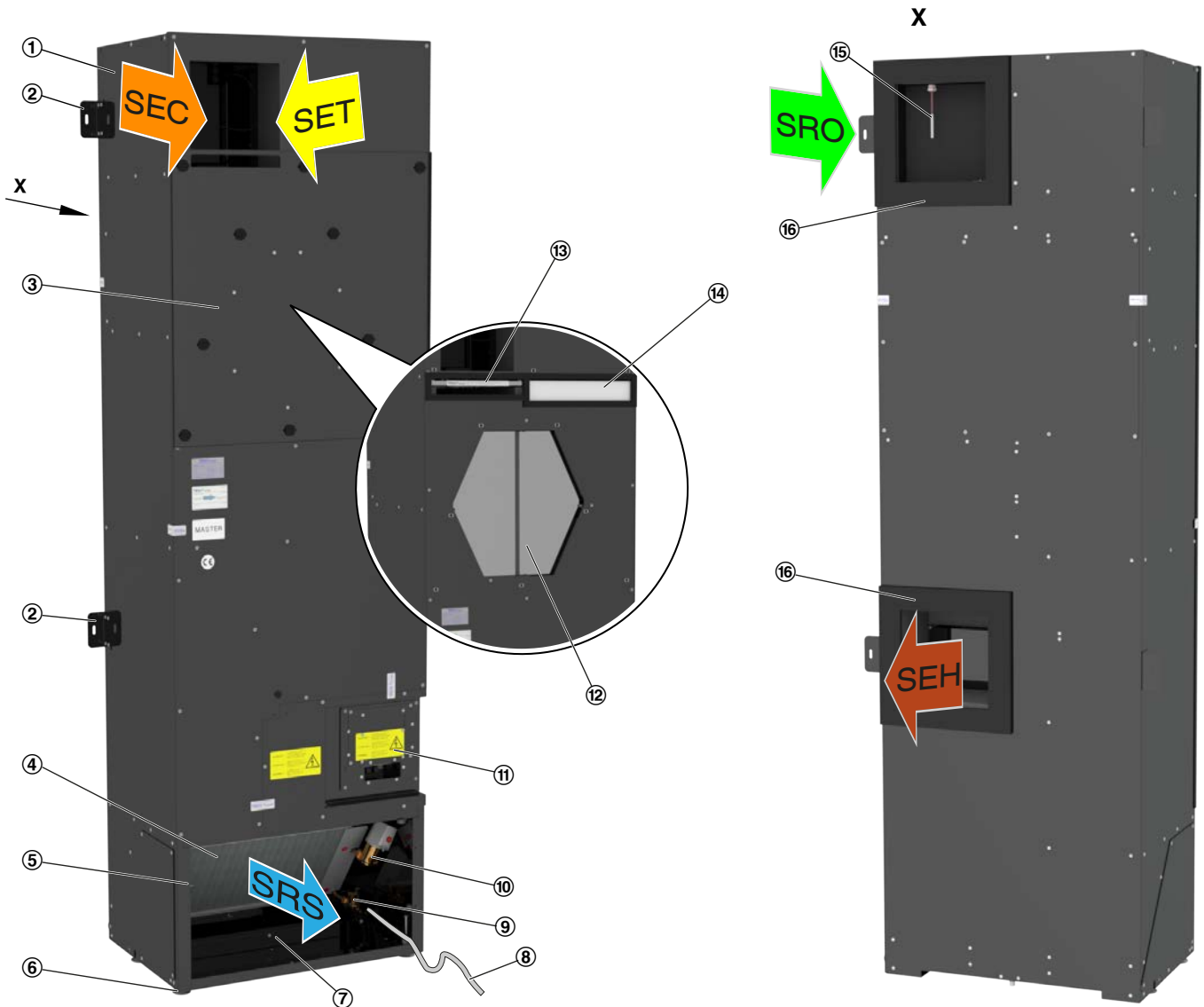
The supply air is discharged near the external wall and with a medium velocity between 1.0 and 1.5 m/s. Due to the induction effect, the supply air velocity is rapidly reduced so that, in cooling mode, the supply air displaces the room air over the entire floor area. The convection from people and other heat sources causes the outdoor air to rise and create comfortable conditions in the occupied zone.

Function



SEH Single room exhaust air
 SRO Single room outdoor air
 SRS Single room supply air
 SET Single room extract air
 SEC Single room secondary air

- 1 Outdoor air temperature sensor (optional)
- 2 Shut-off damper with actuator (outdoor air and exhaust air)
- 3 Fine dust filter ePM1 65 %
- 4 EC fans (supply air and extract air)
- 5 Recuperative heat exchanger
- 6 Sound attenuator
- 7 Heating coil
- 8 Cooling coil (optional)
- 9 Supply air temperature sensor (optional)
- 10 Bypass damper with actuator (modulating)
- 11 CO₂sensor (optional)
- 12 Extract air filter ISO coarse 55%



SEH Single room exhaust air
 SET Single room extract air
 SRO Single room outdoor air
 SRS Single room supply air
 SEC secondary air (optional)

- 1 Casing
- 2 Fixing brackets (riveted)
- 3 Inspection access panel
- 4 Heat exchanger
- 5 Supply air temperature sensor (optional)
- 6 Levelling feet
- 7 Condensate drip tray with drain
- 8 Supply voltage connecting cable
- 9 Lockshield
- 10 Control valve
- 11 Controls, inspection access panel
- 12 Cross counter flow heat recovery unit (inside)
- 13 Extract air filter ISO coarse 50%
- 14 Outdoor air filter ISO ePM1 65%
- 15 Outdoor air temperature sensor (optional)
- 16 Seal on the wall side

Technical data

Width	600 mm
Height	2000 mm
Depth	408 mm
Volume flow rate	150, 200, 240 m ³ /h (boost 360 m ³ /h)
Nominal volume flow rate	240 m ³ /h
Sound power level	36 – 50 dB(A)
Heat recovery efficiency	84 %
Maximum operating pressure, water side	6 bar
Maximum operating temperature	75 °C
Supply voltage	230 V AC ±10 %, 50/60 Hz
Power rating	592 VA
Weight	90 kg

Quick sizing

SCHOOLAIR-V-HE (2-pipe construction – heating, example)

		150	200	240	360
Supply air flow rate	m ³ /h	150	200	240	360
Total heating capacity	W	1110	1460	1760	2590
Room heating capacity	W	942	1202	1411	1972
Air temperature inside the unit	°C	17.0	16.5	16.1	15.3
Supply air temperature	°C	38.8	38.0	37.6	36.4
Condensate	g/h	400	500	600	900
Hot water flow rate	l/h	40	55	70	120
Water temperature, inlet	°C	60	60	60	60
Water temperature, outlet	°C	35.8	36.9	38.2	41.2
Water side pressure drop	kPa	1.0	2.0	3.0	5.0
Sound power level L _{WA}	dB(A)	36	40	43	50
Sound pressure level with 8 dB system attenuation	dB(A)	28	32	35	42
Active power P _{el}	W	22	32	40	90

SCHOOLAIR-V-HE (2-pipe system – isothermal air discharge, example)

		150	200	240	360
Supply air flow rate	m ³ /h	150	200	240	360
Total heating capacity	W	580	640	780	1200
Air temperature inside the unit	°C	16.7	15.9	15.4	14.3
Room heating capacity	W	351	287	313	361
Supply air temperature	°C	28.0	25.3	24.9	24.0
Condensate	g/h	500	700	800	1100
Hot water flow rate	l/h	20	20	25	40
Water temperature, inlet	°C	60	60	60	60
Water temperature, outlet	°C	34.7	32.0	32.9	33.9
Water side pressure drop	kPa	0.8	0.8	1.0	2.5
Sound power level L _{WA}	dB(A)	36	40	43	50
Sound pressure level with 8 dB system attenuation	dB(A)	28	32	35	42
Active power P _{el}	W	22	32	40	90

**SCHOOLAIR-V-HE (4-pipe construction, example)**

Supply air flow rate	m ³ /h	150	200	240	360
Total cooling capacity	W	660	870	1040	1570
Room cooling capacity	W	401	534	641	962
Air temperature inside the unit	°C	26.8	27.0	27.0	27.2
Relative humidity	%	54	53.5	53.0	52.6
Water content of the dry air	kg	11.9	11.9	11.9	11.9
Supply air temperature	°C	18	18	18	18
Condensate	g/h	309	398	471	707
Chilled water flow rate	l/h	55	80	95	140
Water temperature, inlet	°C	7	7	7	7
Water temperature, outlet	°C	17.3	16.4	16.4	16.6
Water side pressure drop	kPa	2.5	5.0	6.5	12.5
Total heating capacity	W	870	1230	1490	2030
Room heating capacity	W	651	935	1114	1395
Air temperature inside the unit	°C	17.4	17.0	16.7	16.1
Supply air temperature	°C	34.0	35.0	34.9	32.6
Condensate	g/h	800	1000	1200	1800
Hot water flow rate	l/h	50	90	130	170
Water temperature, inlet	°C	50	50	50	50
Water temperature, outlet	°C	34.9	38.2	40.1	39.6
Water side pressure drop	kPa	2	5	9.5	15
Sound power level L_{WA}	dB(A)	36	40	43	50
Sound pressure level with 8 dB system attenuation	dB(A)	28	32	35	42
Active power P_{el}	W	22	32	40	90

Specification text

Supply and extract air unit with heat exchanger and heat recovery unit, secondary air option (based on air quality), for vertical installation on an external wall, e.g. adjacent to a window.

SCHOOLAIR-V-HE-2/KR/600×2000×408/C3

Under sill units for vertical installation on an external wall

Please note:

The under sill ventilation unit variant described here is fitted with an integral single room control system that allows for independent operation in a classroom. The parameters for standard control of a classroom according to our control system description are stored in the controller.

Ventilation unit for schools – vertical installation - master unit TROX SCHOOLAIR-V-HE ventilation unit for vertical installation on an external wall, for supply and extract air, also for secondary air operation (depending on room air quality), high level of heat recovery efficiency and heating function:

- Casing made of galvanised sheet steel, cover and sheet metal connections with deep-drawn threads and stainless steel cross-head screws, internal 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 device meets the hygiene requirements of VDI 6022
- Levelling feet, + +40 mm
- Brackets with slotted holes (6.5 × 13.5 mm) on both sides for fixing the unit to the wall
- Connection to the outdoor air and exhaust air openings (by others) in the wall at the back of the unit, with perimeter closed cell sealing tape, d=10 mm; the intake and outlet resistance of the construction provided by others should not exceed 20 Pa at the nominal volume flow rate
- Extract air removal at the top front of the unit (construction KR: extract opening on the right when seen from the room / construction KL: extract opening on the left)
- 2 energy-saving EC centrifugal fans, supply and extract air fans classified as SFP 1 (< 500 W/(m³/s)) according to EN 16798-3:2017-11, electrical power consumption of the entire unit 240 m³/h <40 W at the nominal volume flow rate; the connecting cable has to be suitable for a power rating of 592 VA
- Suitable for 3 speed levels (150, 200 and 240 m³/h as well as boost level of 360 m³/h), signalling by means of integral 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
- Integral cross counter flow heat exchanger for heat recovery, highly efficient (heat recovery efficiency > 84%), condensate drip tray with drain. Heat recovery all year round, even at very low temperatures. This helps to reduce the water heating energy required. A condensate drain is required when you use this function. Accessibility for maintenance purposes via separate service cover without removing the unit cover
- With electromotive bypass that allows a partial airflow to bypass the heat recovery, 24 V actuator (modulating), signalling by means of integral single room control system
- Motorised shut-off dampers in the outdoor air and exhaust air ducts, normally closed when there is no power (energy storage), 230 V open/close actuator, signalling with integral single room control system
- Automatic switching to secondary air mode (only with an air quality sensor) if the room air quality (measured with the integral CO₂ sensor, for example) is within the defined limits. The outdoor air damper closes, the self-powered secondary air damper opens and the extract air fan is switched off.
- Electrical components contained in the unit 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 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
 - Central 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 CO₂
 - Supply air temperature measurement after the heat exchanger
 - Outdoor air temperature measurement in the outdoor air intake
- 2-pipe aluminium copper tube heat exchanger for air heating or air cooling, matched to project-specific data, easily removable for cleaning (depends on the connection to the main pipe - by others, not included in the TROX supply package), drainage and venting option per heating/cooling circuit, arrangement on the room side on the right. We recommend flexible hoses (not part of the supply package) to connect the unit to the existing pipe network (by others) as they simplify removal of the heat exchanger for cleaning
- Transfer points are the connections on the heat exchanger, ½" union nuts, flat seal

- Easy-to-clean condensate drip tray with condensate drain Ø 12 × 1 mm, made of galvanised sheet steel (powder-coated RAL 9005)
- Outdoor air filter as Mini Pleat filter, class ePM1 (fine dust filter):
 - Filter class to ISO 16890: ISO ePM1 65%
 - Eurovent-certified
 - ePM1 filter media made from high-quality, wet-strengthened glass fibre paper are pleated, the spacers are made of thermoplastic hot-melt adhesive and ensure uniform spacing (4 mm) between the pleats
 - The frame is made from moisture-resistant non-woven fibre with brackets (for pulling it out) and must not reduce the flow cross-section (filter size = flow cross-section)
 - Filter area ≥ 2.65 m²
- Extract air filter, class G3 (coarse dust filter), flat filter medium, filter class according to ISO 16890: 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)
- Closed cell sealing tapes for sealing and adaptation to the outer casing not included in the TROX supply package
- The under sill trim (by others) needs to be perforated in areas to be specified for the supply air, and for extract air and secondary air intake, and must not restrict installation, deinstallation or maintenance
- 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

Unit dimensions and weight:

- Width: approx. 600 mm
- Height: approx. 2000 mm (without levelling feet, without fixing brackets)
- Depth: approx. 408 mm (without seals, without screw connections)
- Weight: approx. 90 kg

FSL-CONTROL III controller

Including control system FSL-CONTROL III, as described below: FSL-CONTROL III is described as stand-alone single room control equipment with a simple timer. Optional expansions, such as connection to the central BMS provided by others via Modbus TCP / Modbus RTU, BACnet MS/TP or BACnet IP, humidity sensors, return flow temperature sensors, electromotive valve actuators or pressure-independent control valves are included in the product range, but must be replaced with the standard components in the following description. A room temperature signal is also required. Various room control panels and sensors are available for this purpose. The corresponding optional equipment text modules can be found in the appendix of the following standard equipment for room-autonomous operation. We recommend commissioning by our technical service. You will find related text modules below.

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

- Single room controller for mounting on DIN mounting rail in the unit or in a separate control casing
- 42 digital or analogue inputs and outputs
- MicroSD card (at least 2 GB) as integral flash memory. The trend data is stored here and can be accessed via the RJ45 service socket.
- Equipped at the factory 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 modulating bypass damper or supply air temperature control for isothermal ventilation
- CO₂-guided air quality control
- Year-round heat recovery use
- Filter monitoring
- Configurable DI, e.g. for connection (by others) of PIR sensors, window contacts, holiday switching, etc.
- Alarm signals type A (= switch-offs) 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

CO₂ 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 as sensing element, resistance 10 kΩ at 25 °C, measuring range 0 – 50 °C
- Especially fast 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 as sensing element, resistance 10 kΩ at 25 °C, measuring range -30 – 50 °C

Water side components

Water-side components (order code .../HV-R-.../KV-R-...):

- Valve actuator: 1 × thermoelectric actuator for opening and closing valves, with position indicator, including pluggable connecting cable, supply voltage 24 V DC, control voltage 0 – 10 V DC, power consumption 1 W, degree of protection: IP 54
- Straight-way valve: 1 × straight-way valve ½", mounted (finger-tight), PN 16, DN10, K_{vs} 0.4 (alternatively: 0.25, 0.63 or 1.0 m³/h – please specify the required K_{vs} value), threaded connection G 1/2B, fluid temperature 1 to 110 °C
- Lockshield: 1x lockshield on both sides ½", mounted (finger-tight), nominal width DN 15; ½", straight through valve with male thread on both sides, flat sealing, for control and shut-off, operating temperature 120 °C max.

Optional control accessories

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

TROX control panels for FSL-CONTROL III

At least one room temperature signal is required per room.

There are several variants of TROX control panels available, optionally with or without step switching. Additionally we offer a room temperature sensor RTF without control elements.

Alternative control panels provided by the customer must be connected via bus communication:

Digital control panels for surface mounting

For the operation and adjustment of the ventilation units.

- Supplied loose as an accessory. Connection to master unit via Modbus serial line. Project-specific software including setpoint value adjuster, various status displays, selector switch, CO₂ traffic light. 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: wall mounting or on standard flush box. Supply: 24 V DC. Power consumption: 3.2 VA/1.3 W. Optional further design frames available for a surcharge on request.

Control panels with selector switch for surface mounting:

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

- Supplied loose as accessory, with room temperature sensor, setpoint adjuster (blue or white), override button, LED and 3-step switch as well as off and automatic, assembly on 60 mm flush box or directly on the wall, NTC thermistor as sensor element, resistance 20 kΩ at 25 °C, dimensions (B × H × T): 99 × 104 × 30 mm, operating temperature: 6 - 40 °C

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

- Supplied loose as an accessory, with room temperature sensor, setpoint adjuster (blue or white), override button, LED and 3-step switch as well as off and automatic, casing made from pure white PVC0 (RAL 9010) assembly on 60 mm flush box or directly on the wall, NTC thermistor as sensor element, resistance 20 kΩ at 25 °C, dimensions (B × H × T): 84.5 × 84.5 × 25 mm, operating temperature: -35 – 70 °C

Control panels without selector switch for surface mounting:

Control panel without selector switch, for surface mounting, type Schneider

- Supplied loose as additional part, with mode display, push button and setpoint adjustment, sensor NTC 10 kΩ, protection level: IP 20, wall mounting or on 70 mm flush-mounted box, dimensions (B × H × T) 84 × 116 × 24 mm, colour light grey/white

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

- Supplied loose as additional part, with mode display, push button and setpoint adjustment, sensor NTC 20 kΩ, protection level: IP 20, dimensions (B × H × T) 84.5 × 84.5 × 25 mm

Room temperature sensor for surface mounting:

Room temperature sensor TROX RTF, surface mounting

- Supplied loose as additional part, room sensor without control elements, measuring range: -35...70°C, sensor NTC 10 kΩ, screw terminal, d=1.5 mm, protection level IP 20, assembly wall mounted or on 70 mm flush-mounted box, dimensions (B × H × T) 85 × 85 × 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 frame from a wide range of switch programmes, the unit is suitable for particularly design-oriented facilities.

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

- Supplied loose as additional part, with mode display, push button and setpoint adjustment, sensor NTC 20 kΩ, protection level: IP 20

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

- Supplied loose as additional part, with mode display, push button and setpoint adjustment, sensor NTC 20 kΩ, protection level: IP 20

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

- Supplied loose as additional part, with mode display, push button and setpoint adjustment, sensor NTC 20 kΩ, protection level: IP 20

Further 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, for flush mounting, type Thermokon, switch from Gira E2 range

- Supplied loose as additional part, with mode display and button, sensor NTC 20 kΩ, protection level: IP 20

Further switch programmes on request

Electromotive valve actuator:

As an alternative to the standard installed thermoelectric actuator

- 1 x electromotive actuator for opening and closing valves, supply voltage AC/DC 24 V, maximum power consumption 2.5 VA, signalling of control signal 3-point DC 0...10 V, permissible operating fluid temperature 1...110 °C

Pressure-independent control valve:

As an alternative to the standard installed straight-way small valve

- 1 × pressure-independent control valve, manually pre-assembled with modulating open and close control in combination with an externally adjustable dynamic volume flow controller, with full valve authority, nominal width DN 10, ½", valve casing straight through with male thread on both ends, flat seal, fluid temperature 0 – 120 °C

Interface for connection to central building management system (BMS) provided by others: Modbus TCP interface including web server (order code .../MT/...)

To increase comfort, we recommend integration into a central building management system provided by others. FSL-CONTROL III offers the possibility to be connected to a central BMS provided by others using Modbus TCP protocol. Additionally incl. web server for simplified configuration, commissioning and remote monitoring of the device. The central BMS is not included in the supply package from TROX, only the interfaces listed above are available here.

- Modbus TCP interface (Ethernet)

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

To increase comfort, we recommend integration into a central building management system provided by others. FSL-CONTROL III offers the possibility to be connected to a central BMS provided by others using BACnet IP protocol. Additionally incl. web server for simplified configuration, commissioning and remote monitoring of the device. The central BMS is not included in the supply package from TROX, only the interfaces listed above are available here.

- BACnet IP interface (Ethernet)

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

To increase comfort, we recommend integration into a central building management system provided by others. FSL-CONTROL III offers the possibility to be connected to a central BMS provided by others using Modbus RTU protocol. The central BMS is not included in the supply package from TROX, only the interfaces listed above are available here.

- Modbus RTU interface (RS485)

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

To increase comfort, we recommend integration into a central building management system provided by others. FSL-CONTROL III offers the possibility to be connected to a central BMS provided by others using BACnet MS/TP. The central BMS is not included in the supply package from TROX, only the interfaces listed above are available here.

- BACnet MS/TP interface (RS485)

Commissioning of the decentralised ventilation units

Commissioning / parameter setting of decentralised ventilation units without connection to the central building management system

- Visual inspection of the unit connections carried out by others 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 as well as their use in a service report. The service report must be signed by your company as the customer or your representative
- The invoice is made as a flat rate, derived from the number of devices and distance

Commissioning / parameter setting of decentralised ventilation units with connection to the central building management system

- Visual inspection of the unit connections carried out by others 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, central building management system connections
- 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 central BMS in cooperation with the ordered controls company:
 - Checking that the settings that are provided by others comply with the specifications in the installation and configuration instructions
 - Input test of the data points sent by the customer
 - Output test of the output data points
 - Trial operation of the operating conditions switchable by the central BMS
- Documentation of the device settings as well as their use in a service report. The service report must be signed by your company as the customer or your representative
- The invoice is made as a flat rate, derived from the number of devices and distance

Instruction in operation and maintenance

- One-off 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 maintenance work



- The invoice is a flat rate and is carried out by the responsible sales representative

Order code

SCHOOLAIR-
V - 0 - 4 / KM / $\begin{matrix} 397 \times \\ 2350 \times \\ 359 \end{matrix}$ / 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

1 Type

SCHOOLAIR-V Under sill ventilation unit for vertical installation

2 Variant

No entry required: standard

HE High heat recovery efficiency

HV High volume flow rate and rotary heat recovery unit

3 Heat exchanger

2 2-pipe

4 4-pipe

EH Electric air heater (SCHOOLAIR-V-HV)

4 Construction

KO Without condensate drain

KM With condensate drain (SCHOOLAIR-V, SCHOOLAIR-V-1800, SCHOOLAIR-V-HV)

KR With condensate drain, extract opening on the right when seen from the room (SCHOOLAIR-V-HE)

KL With condensate drain, extract opening on the left when seen from the room (SCHOOLAIR-V-HE)

5 Dimensions [mm]

B × H × T

397 × 2160 × 359 (2-pipe)

397 × 2350 × 359 (4-pipe)

600 × 1800 × 359 (2-pipe or 4-pipe, construction 1800)

600 × 2000 × 408 (2- or 4-pipe, construction HE)

605 × 2200 × 413 (2- or 4-pipe, construction HV)

6 Control system

OR Without control

C3 With FSL-CONTROL III

7 Control function

MA Master

SL Slave

8 Real time clock, only master

No entry required: None

T With

9 Interface

No entry required: None

MT With Modbus TCP

MR With Modbus RTU

BI With BACnet IP

BM With BACnet MS/TP

10 Air quality sensor, only master

No entry required: None

C With CO₂ sensor

V With VOC sensor

11 Supply air temperature sensor

Z With

12 outdoor air temperature sensor, only master

No entry required: None

A With

13 Heating valve

Only 2-pipe systems

HV With

14 Lockshield – heating circuit

R With

15 K_{vs} value – heating valve

0.25 Straight-way valve

0.40 Straight-way valve

0.63 Straight-way valve

1.00 Straight-way valve

F0.50 Pressure-independent control valve

16 Cooling valve

Only 4-pipe systems

KV With

17 Lockshield – cooling circuit

R With

18 K_{vs} value – cooling valve

0.25 Straight-way valve

0.40 Straight-way valve

0.63 Straight-way valve

1.00 Straight-way valve

F0.50 Pressure-independent control valve

Order example: SCHOOLAIR-V-HE-2/KR/600×2000×408/C3-MA-T/C/Z/A/HV-R-0.40

SCHOOLAIR-V	Under sill ventilation unit for vertical installation
HE	High heat recovery efficiency
2	With 2-pipe heat exchanger
KR	With condensate drain, extract opening on the right when seen from the room
C3	With FSL-CONTROL III
MA	Master construction
T	With real time clock
C	With CO ₂ sensor
Z	With supply air temperature sensor
A	With outdoor air temperature sensor
HV-R-0.40	With straight-way valve (heating circuit) K _{vs} 0.40 and lockshield

Order example: SCHOOLAIR-V-HE-2/KL/600×2000×408/C3-SL-Z/HV-R-0.40

SCHOOLAIR-V	Under sill ventilation unit for vertical installation
HE	High heat recovery efficiency
2	With 2-pipe heat exchanger
KL	With condensate drain, extract opening on the left when seen from the room
C3	With FSL-CONTROL III
SL	Slave construction
Z	With supply air temperature sensor
HV-R-0.40	With straight-way valve (heating circuit) K _{vs} 0.40 and lockshield

Order example: SCHOOLAIR-V-HE-4/KR/600×2000×408/C3-MA-BI/C/Z/HV-R-F0.50/KV-R-F0.50

SCHOOLAIR-V	Under sill ventilation unit for vertical installation
HE	High heat recovery efficiency
4	With 4-pipe heat exchanger
KR	With condensate drain, extract opening on the right when seen from the room
C3	With FSL-CONTROL III
MA	Master construction
BI	With BACnet IP interface
C	With CO ₂ sensor
Z	With supply air temperature sensor
HV-R-F0.50	With pressure-independent control valve (heating circuit) and lockshield
KV-R-F0.50	With pressure-independent control valve (cooling circuit) and lockshield

Variants

Construction KR (room view)



Construction KR (wall view)



Special features

- Extract opening on the right when seen from the room
- Access to the integral single room control system on the left when seen from the room
- Heat exchanger water connection on the right when seen from the room
- Outdoor air and exhaust air openings on the right when seen from the wall

Construction KL (room view)



Construction KL (wall view)

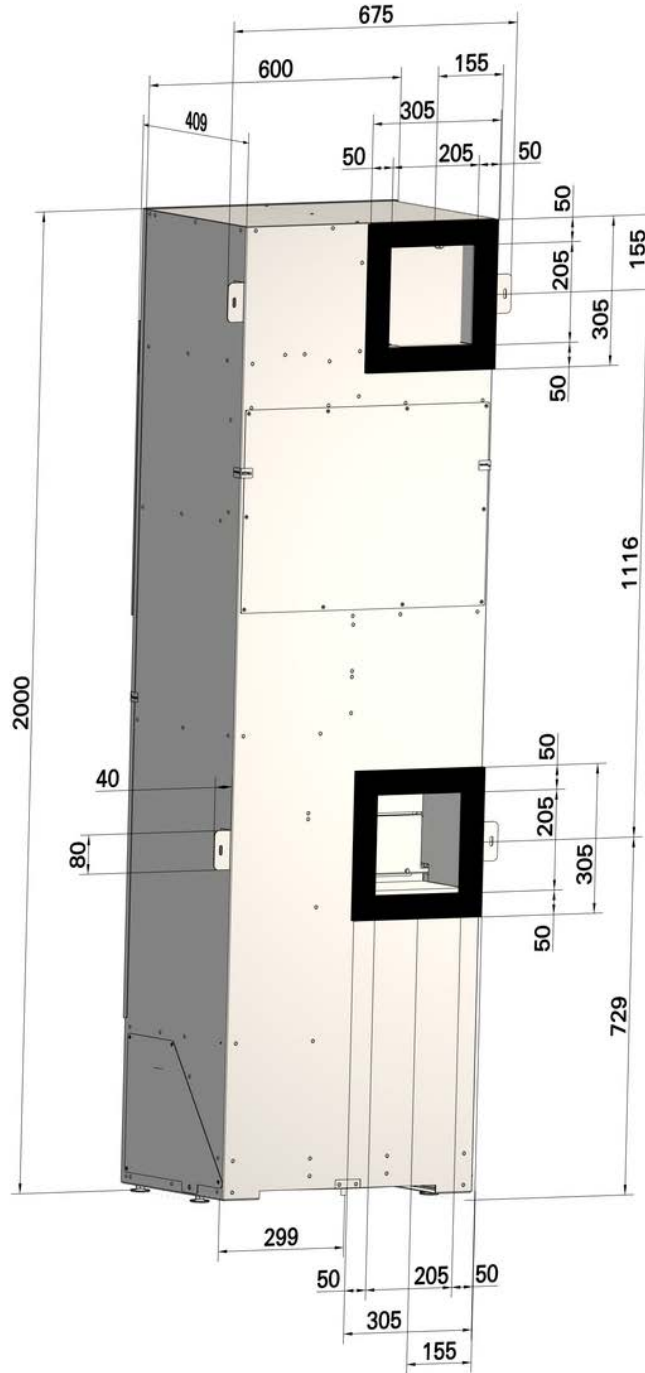


Special features

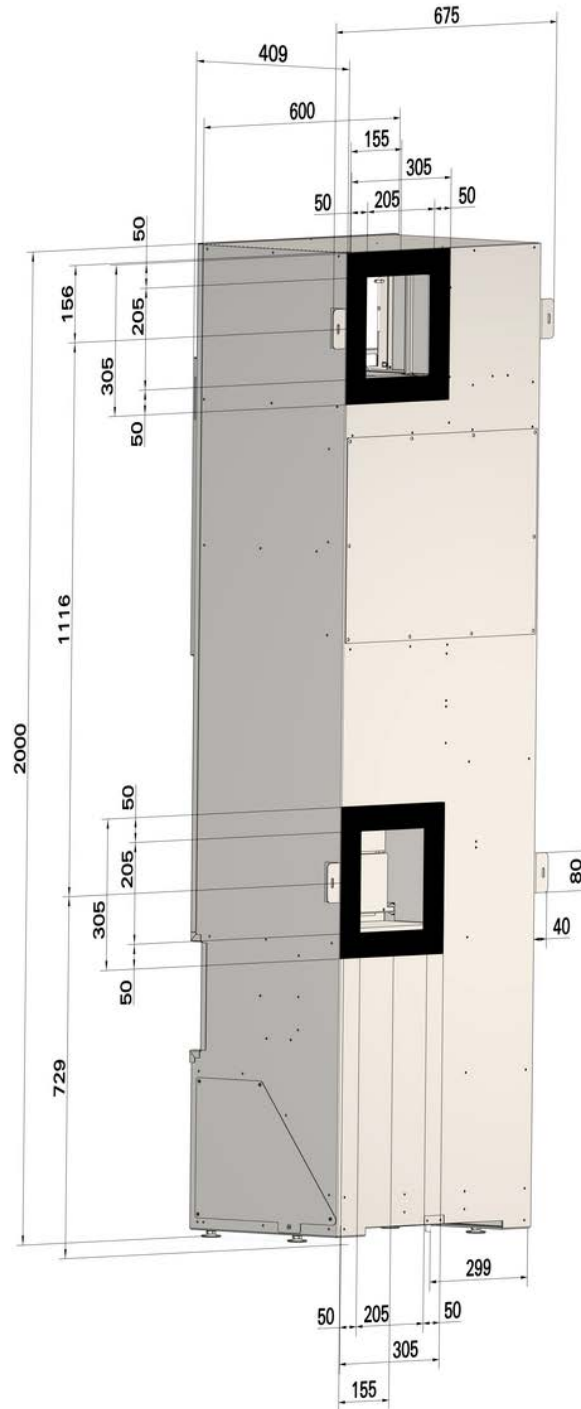
- Extract opening on the left when seen from the room
- Access to the integral single room control system on the right when seen from the room
- Heat exchanger water connection on the right when seen from the room
- Outdoor air and exhaust air openings on the left when seen from the wall

Dimensions

Construction KR



Construction KL



Product details

Installation example



Installation example



Installation example



- Installation and commissioning
- Under sill installation, floor-standing
- Level adjustment using the 4 levelling feet (+40 mm)
- 4 mounting brackets at the side to screw-fix the unit to the wall
- Fresh air and exhaust air connections are provided by two ventilation openings in the façade system or external wall (to be provided by others), the openings should preferably be sloping towards the outside
- Free area of ventilation openings: 0.03 m² for each outside air opening and exhaust air opening, and 0.1 m² for each supply air opening and extract air opening
- Weather protection for the fresh air and exhaust air openings to be provided by others
- Installation and connections to be performed by others; fixing, connection and sealing material to be provided by others
- The water flow and return connections are on the right-hand side of the unit when seen from the room
- Vents and drainage by others
- The electrical connection is on the left-hand side (construction ../KR/..) or on the right-hand side (construction ../KL/..) of the unit when seen from the room
- We recommend using flexible hoses to connect the unit to the pipework as they facilitate removing the heat exchanger for cleaning
- The under sill trim provided by others must not obstruct installation or deinstallation of the unit or maintenance access on the front of the unit