



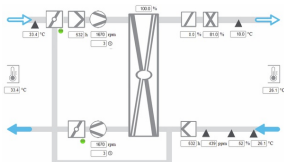
100% outdoor air can be set using control panel, X-TAIRMINAL or BACS



Digital control panel including temperature sensor and CO₂ traffic light



Control panel for flush mounting, switches from the Busch Jäger Future linear range, for example



Operation and parameter setting by means of integral web server

- 1 Outdoor air temperature
- 2 Shut-off damper outside air
- 3 Operating hours filter outside air
- 4 Speed/step fan supply air
- 5 Control signal bypass damper/circulating heat recoverer
- 6 Control signal heating valve
- 7 Control signal cooling valve
- 8 Supply air temperature
- 9 Room temperature
- 10 Extract air temperature
- 11 Extract air humidity (optional)
- 12 Air quality
- 13 Operating hours filter extract air
- 14 Fan speed/step extract air



Pressure-independent control valve

15 Shut-off damper outside air

FSL-CONTROL III

STAND-ALONE SINGLE ROOM CONTROL SYSTEM, OPTIONAL COMMUNICATION TO A BUILDING AUTOMATION AND CONTROL SYSTEM

Easy-to-operate single room control system as a plug and play solution for decentralised ventilation units: can be combined with façade ventilation units to provide demand-based ventilation and enable the control of the water-side components of the heating and cooling circuits or of an electric air heater

- Variable heat recovery all year round – for maximum fresh air volume, even in winter
- Demand-based CO₂ or VOC led outdoor air supply and temperature control for each room
- 100% fresh air at the touch of a button
- Low-noise operation at the touch of a button
- Purge at the push of a button (boost)
- Individual indoor air quality adjustment
- Integration of secondary systems, e.g. heated or chilled ceilings
- Room temperature control or isothermal fresh air supply
- Electric reheating for selected variants
- Comfortable configuration of devices via the web server – no operating software required
- Parallel operation with fume cupboards
- Optional connection to BACS or X-TAIRMINAL

General information



Application

- Single room control system for decentralised TROX ventilation units
- Ready to operate, factory wired single room control system, either built into the unit or in a separate control equipment box
- Factory wired and tested before shipping
- Controls all functions of a decentralised ventilation unit
- Choice of control strategies
- Setup – connect – fresh air: no external peripheral systems required
- Either with 100% fresh air or with energy-efficient secondary air operation based on air quality
- Economical integration with the central BMS
- Factory configured web server provides additional information and allows for adjustments
- Use many different decentralised units with the same controller and the same data points

Special features

- Simple integration with the central BMS by means of RS485 or Ethernet interface
- Comfortable device configuration with the web server – no operating software required
- Master-slave combinations are available (up to 10 slaves per master)
- Automatic, energy-efficient switching between fresh air mode and secondary air mode (based on air quality, depending on unit)
- Permanent fresh air operation can be activated with a control panel, X-TAIRMINAL or BACS
- Variable bypass damper for heat recovery control
- Heat recovery all year round

- Economical integration with the central BMS – excellent overview and usability thanks to reduced number of data points
- Read out slave data using the master's BACS interface – significantly reduced number of bus devices
- One system for all devices in a room: all devices work in the same way with only one connection point to the central BMS
- 13 digital switch contacts for the connection of peripheral systems (by others), for simple higher-level control functions and for monitoring
- Continuous internal data logging – retrospective monitoring, error analysis and operational optimisation
- Software update and parameter setting or adjustment for all devices from a central point by means of an IP connection
- Remote diagnosis by means of IP connection

Variants

Optional equipment and accessories

- Various sensors, e.g. for temperature, humidity or indoor air quality
- Real Time Clock (RTC) allows for operating modes based on time (7 different profiles, 10 switching points per profile)
- Bus communication by means of
 - Modbus RTU
 - Modbus TCP
 - BACnet MS/TP
 - BACnet/IP
- Digital control panel with project-specific software
- Analogue control panels (can be integrated with various switch frames)
- Electric valve actuators
- Balancing and control valves (independent of pressure)
- Electric reheater (only with SCHOOLAIR-V-HV-EH, SCHOOLAIR-D-HV-EH, SCHOOLAIR-S-HV-EH)
- Display with TROX X-TAIRMINAL

Standards and guidelines

- EN 547-2:1996+A1
- EN 547-3:1996+A1
- EN 1005-3:2002+A1
- EN 1005-2:2003+A1
- EN 1005-1:2001+A1
- EN ISO 13732-1:2008
- EN ISO 12100:2010-11
- EN ISO 14118:2018
- EN ISO 13854:2019
- EN ISO 13857:2019
- EN 60204-1:2018

Construction

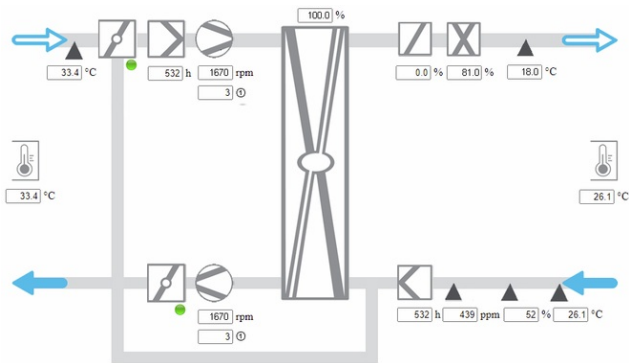
- Depending on the unit variant, the control components are either fitted inside the unit or in a separate box

Materials and surfaces

- Casing made of sheet steel, powder-coated RAL 9005 (unless already integrated into the decentralised ventilation unit)

TECHNISCHE INFORMATIE

Each decentralised ventilation unit has its own controller. The controller controls all functions that are necessary for operation, e.g. providing the control signal for fans and actuators. With dedicated software and hardware the controller can be configured as a master controller; one master controller is required for each room. Additional inputs and interfaces allow for the connection of components that are required for room control. The RTC interface on the master PCB allows for adding a timer; the Modbus-RTU, Modbus/TCP, BACnet/MS/TP or BACnet/IP interface allows for establishing a connection to BACS (by others). Also, TROX X-TAIRMINAL is a powerful visualisation tool.



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- 15 Shut-off damper outside air

Operating temperature	-20 - 60 °C
Relative humidity	5 - 95%, no condensation
Air pressure	> 700 hPa
Storage temperature	-30 to 70 °C
Power consumption (depending on equipment)	14 W max.

Specification text

FSL-CONTROL III is a stand-alone single room control system with a simple timer. Optional expansions, e.g. connection to the BACS with Modbus TCP/RTU, humidity sensors, return temperature sensors, electric valve actuators or pressure-independent control valves, are part of the supply package, but will have to replace 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 is described in the appendix to the following standard equipment for stand-alone 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 that can be mounted on a DIN mounting rail in the ventilation unit or in a separate control equipment box

- 42 digital or analogue inputs and outputs
- Integral MicroSD card with up to 2 GB storage space (flash storage medium). Trend data is stored on the SD card and can be accessed via the RJ45 service socket or optionally with Modbus TCP
- Factory installed software package for master units, specially developed for decentralised ventilation units. The software allows for simple master-slave communication with Modbus RTU
- Up to 10 slave devices can be connected to one master device
- 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)
- Two strategies, either 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
- Heat recovery all year round
- Filter monitoring
- Configurable digital inputs, e.g. for the connection (by others) of PIR sensors, window contacts or holiday mode
- Two types of alarms, A (=switch-off) and B (=warning)

Real Time Clock (RTC), order code ...-T/...

- Part of the master software package
- Includes a simple timer
 - 7 days with 10 switching points each
 - Automatic switching between summer and winter time
 - Night purge schedules

CO₂ sensor (order code.../C/...):

- Sensor in the extract air intake of the master unit, for recording the indoor air quality and for controlling the outdoor air flow rate accordingly
- NDIR sensor that compensates for contamination thanks to two infrared beams
- Measuring range 0 - 2000 ppm

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

- Supply air temperature sensor with NTC thermistor, 10 kΩ at 25 °C, measuring range 0 - 50 °C
- Very short response time due to perforated measuring tip

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

- Outdoor air temperature sensor with NTC thermistor, 10 kΩ at 25 °C, measuring range -30 - 50 °C

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

Valve actuators:

- 1 ×/2 × 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 valves:

- 1 × 2 × straight-way valve, 1/2" as standard, 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

Lockshields:

- 1 × 2 × lockshield on both sides, 1/2", mounted (finger-tight), nominal width DN 15; 1/2", straight through valve with male thread on both sides, flat sealing, for control and shut-off, operating temperature 120 °C max.

TROX control panels for FSL-CONTROL III

- At least one room temperature signal is required per room. There are a number of variants of TROX 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 units provided must be connected via bus communication.

Digital control panel for surface mounting

- For operation and adjustment of the ventilation units. Supplied loose as an accessory. 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; IP protection: IP 20; installation: surface mounting or with a standard junction box
- Type Schneider TM172DCLWT: dimensions (H × B × T): 120 × 86 × 25 mm, weight: 340 g, colour: white. Other design frames optionally available. Power supply: 24 V DC; power consumption: 3.2 VA/1.3 W; connection to master devices by means of a Modbus serial connection

Control panel with selector switch for surface mounting

- For the manual control of ventilation units
- Supplied loosely as an accessory, push button and setpoint adjuster, status LED, 5-step switch (off, 1, 2, 3, automatic); NTC thermistor as sensor, 20 kΩ, protection level IP 20; for surface mounting or flush mounting with a standard junction box
- Type Thermokon: dimensions (H × W × D): 84.5 × 84.5 × 25 mm, colour: pure white

Control panel without selector switch for surface mounting

- For the manual control of ventilation units
- Supplied loose as an accessory, push button, setpoint adjuster, status LED, IP 20 protection
- Thermokon: Sensor: NTC 20 kΩ, 84.5 × 84.5 × 25 mm (B × w × D)

Room temperature sensor TROX RTF3 for surface mounting

- Supplied loose as an accessory
- Room sensor without control elements
- Sensor: NTC 10 kΩ
- Protection level: IP 20
- Installation: Surface mounting or on a 70 mm flush box.
- Dimensions (B × W × D): 85 × 85 × 30 mm
- Colour: RAL 9010

Control panel without fan stage selector for flush mounting

- For manual operation High-quality look and matching design frame from a wide range, ideal for design interiors
- Supplied loosely as an accessory
- Mode display with LED, push button, setpoint adjuster; sensor: NTC 20 k Ω
- Protection level: IP 20
- Flush Installation with standard junction box
- Available ranges of switches: Berker S.1, Berker Q.3, Busch Jäger Future linear (other switches upon request)

Control panel without fan stage selector and without setpoint value adjuster for flush mounting

- For manual operation High-quality look and matching design frame from a wide range, ideal for design interiors
- Supplied loosely as an accessory
- Mode display with LED, push button, setpoint adjuster; sensor: NTC 20 k Ω , IP 20 protection
- Flush Installation with standard junction box
- Available ranges of switches: Gira E2 (other switches upon request)

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

Electromotive valve actuator

- As an alternative to the standard thermoelectric actuator
- 1 x/2 x electromotive actuator for valve opening and closure
- Supply voltage 24 V AC/DC
- Power consumption 2.5 VA max.
- Control signal 0 - 10 V DC
- Fluid temperature 1 - 110 °C

Pressure-independent control valve

- As an alternative to the standard small straight-way valve
- 1 x/2 x pressure-independent control valve
- Mounted (finger-tight)
- Modulating open/close control combined with an externally adjustable dynamic volume flow controller, with full valve authority
- Nominal width DN 10, 1/2"
- Straight through valve casing with male thread on both ends, flat seal
- Fluid temperature 0 - 120 °C

Interface for connection to BACS

To increase comfort, we recommend integration with a BACS (by others). Available interfaces:

- Modbus TCP (Ethernet) including web server (order code .../MT/...)
- Modbus RTU (RS 485) including web server (order code .../MR/...)
- BACnet IP (Ethernet) including web server (order code .../BI/...)
- BACnet MS/TP (RS 485) including web server (order code .../BM/...)

Commissioning

- We recommend commissioning by our technical service.

This product can only be ordered together with a ventilation unit.

C3	/	MA	-	T	/	MT	/	C	/	Z	/	A	/	HV	-	R	-	0,25	/	KV	-	R	-	0,4
1		2		3		4		5		6		7		8		9		10		11		12		13

1 Product
C3 with FSL-CONTROL III

2 Variant
MA Master
SL Slave

3 Real time clock
Only with variant MA
No entry: Without real time clock
T with real time clock

4 Interface
No entry: without interface
MR with Modbus RTU
MT with Modbus TCP
BI with BACnet IP
BM with BACnet MS/TP

5 Air quality sensor
Only with variant MA
No entry: without air quality sensor
C with CO₂sensor
V with VOC sensor

6 Supply air temperature sensor
No entry: without supply air temperature sensor
Z with supply air temperature sensor

7 Outdoor air temperature sensor
Only with variant MA
No entry: without outdoor air temperature sensor
A with outdoor air temperature sensor

8 Valve – heating circuit
No entry: without heating valve
HV with heating valve

9 Lockshield – heating circuit
No entry: without lockshield
R with lockshield

10 kVS 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

11 Cooling valve
KV with cooling valve

12 Lockshield – cooling circuit
R with lockshield

13 kVS 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: C3/MA-T/MT/C/Z/A/HZ-R-0.25/KV-R-0.40

Control	With FSL-CONTROL III
Control function	Master
Real time clock	With real time clock
Interface	With Modbus TCP
Air quality sensor	With CO ₂ sensor
Supply air temperature sensor	With supply air temperature sensor
Outdoor air temperature sensor	With outdoor air temperature sensor
Heating valve	With heating valve
Lockshield - heating circuit	With lockshield
kvsvalue - heating valve	0.25 Straight-way valve
Cooling valve	With cooling valve
Lockshield - cooling circuit	With lockshield
kvsvalue - cooling valve	0.40 Straight-way valve