



TROX UNIVERSAL
controller with integrated
EM-V

Expansion modules

EM-V



Volume flow rate measurement for TROX UNIVERSAL pressure controller

Expansion module for parallel recording of volume flows in pressure control loops

- Enables the recording of the actual volume flow rate value of TROX UNIVERSAL duct pressure and room pressure controllers
- Automatic identification and use by the controller
- Expansion module is integrated into the casing of the TROX UNIVERSAL controller
- Module can be retrofitted to a limited extent

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General information

Application

- TROX expansion module for TROX UNIVERSAL pressure controller
- Flow rate measurement on control units for duct and room pressure control with TROX UNIVERSAL control component
- Measurement of supply air and clean, polluted or contaminated extract air
- Actual flow rate value available on TROX UNIVERSAL controller as analogue signal
- Optional when using expansion modules with digital bus interface:
 - Actual volume flow value also available as network data point
- Expansion module suitable for factory installation

Special features

- Pressure control and volume flow measurement in one electronic unit
- No additional electronic component required for volume flow detection

Parts and characteristics

- Effective pressure transducer with static pressure measurements
- Cable for connection to the TCU3 controller board
- Hose ends on the differential pressure transmitter
- T-pieces and hose sections for connecting the differential pressure transmitter to the differential pressure sensor on the control unit

Construction features

- Dimensions and fixing suitable for TROX UNIVERSAL controller casing
- Plastic holder for differential pressure transmitter can be installed in 2 positions
- The installation position of the differential pressure transmitter can thus be adjusted by 90° (in contrast to the installation position of the controller casing)
- Plug connector for electrical connection to the TROX UNIVERSAL controller

Commissioning

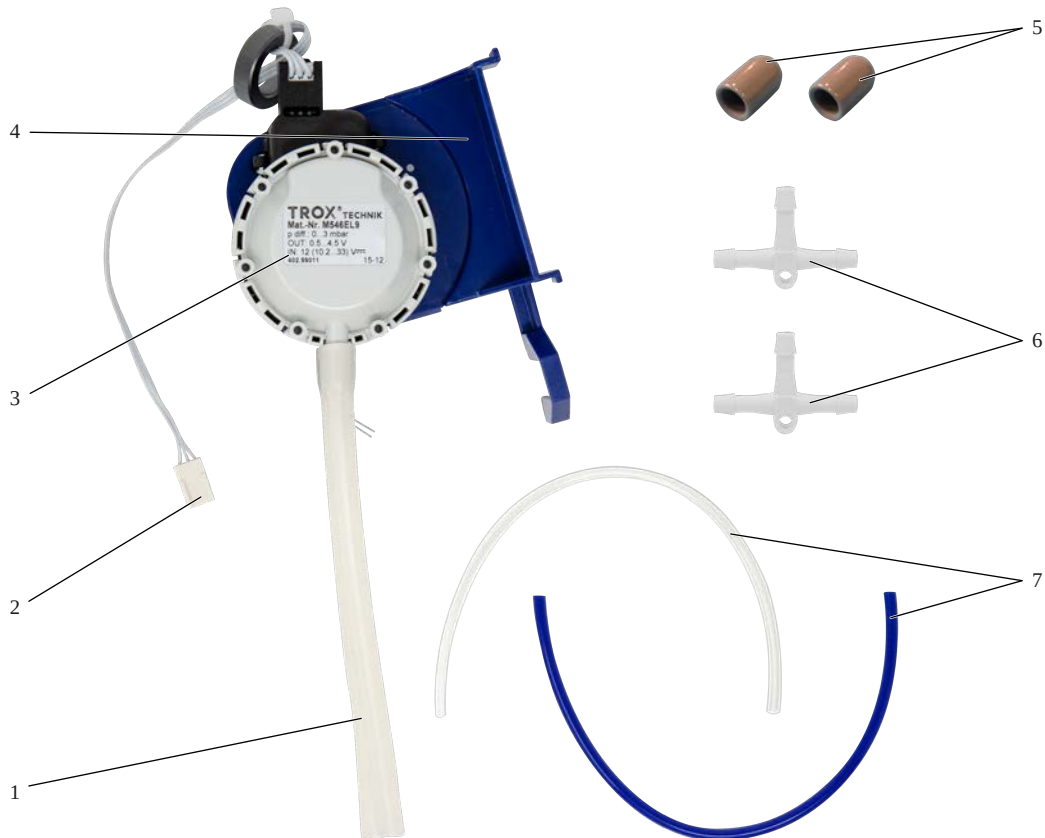
- If the control unit is equipped with EM-V at the factory:
 - Installed and configured
- For retrofitting:
 - Installation and tubing with differential pressure sensor required on the control unit
 - Activation of volume flow measurement with EasyConnect configuration software required

Useful additions

- EasyConnect configuration software
- EM-AUTOZERO expansion module for automatic zero point adjustment of the volume flow measuring point
- EM-BAC-MOD or EM-IP expansion module for transmitting the actual volume flow value at the pressure controller via a bus system

Function

The static differential pressure transducer of the EM-V expansion module is pneumatically connected via the tubing to the differential pressure sensor of the control unit and electrically connected to the TCU3 controller board of the TROX UNIVERSAL controller. With the unit-related constant (C-value) of the pressure regulator stored in the control component at the time of delivery, the associated actual volume flow value can be determined via the differential pressure, which is recorded at the differential pressure transducer. The actual volume flow rate value is provided as an analogue output signal or as a network data point (optional) on the TROX UNIVERSAL controller.



- 1: Differential pressure transducer connection hoses
- 2: Connector plug for controller board TCU3
- 3: Differential pressure transducer
- 4: Holder with 2 alternative positions for installation in controller casing (selectable installation orientation)
- 5: Cover flaps for open T-piece connections
- 6: T-pieces for connecting the differential pressure transducer connections (1) with the hose to the differential pressure sensor of the control unit (7)
- 7: Hoses for connection to the sensor unit inside control unit

Technical data

Type of measurement/installation orientation	static measuring principle/depending on position (adjustable by brackets)
Supply voltage	24 V DC from controller TCU3
Operating temperature	0 – 50 °C
Storage temperature	-10 °C - +70 °C, humidity max. 90 % (non-condensing)
IEC protection class	III (Protective extra-low voltage)
Protection level	IP 20
EC conformity	2014/30/EU with controller TCU3 RoHs according to 2011/65/EU
Weight	0.1 kg

Specification text

This specification text describes the general properties of the product. Texts for variants can be generated with our Easy Product Finder design programme.

Specification text

Extension module for parallel actual value recording of the volume flow rate with duct pressure or room pressure control function with TROX UNIVERSAL controller. The extension module contains a differential pressure transducer with connection and support by the TCU3 controller board, thus enabling the provision of an analogue signal for the actual volume flow currently recorded in the pressure controller at the differential pressure sensor.

Special features

- Pressure control and volume flow measurement in one electronic unit
- No additional electronic component required for volume flow detection

Technical data

- Effective pressure transducer with static pressure measurements
- Supply and signal voltage suitable for the TCU3 controller board of the TROX UNIVERSAL controller
- Actual flow rate value available on TROX UNIVERSAL controller as analogue signal
- Actual volume flow value also available as a network data point via additional expansion module

Order code

EM-V
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1

1 Product

EM-V Expansion module for flow rate measurement at the pressure controller (only for TROX UNIVERSAL controllers)

Note:

This is the order key for retrofitting the expansion module into a VAV control unit. Usually, the expansion module is ordered with the initial order for the VAV control unit via the order code of the basic unit under the section **Expansion modules** with the order code **V**.

Installation details

Commissioning with factory preparation

- When ordering the TROX UNIVERSAL pressure controller with EM-V expansion module, the module is factory-installed, hoses, electrically connected and ready for operation.
- Manual zero point adjustment must be scheduled as part of commissioning on site

Installation and commissioning for retrofitting

- Disconnect the TROX UNIVERSAL controller from power supply
- Install the EM-V expansion module and plug the connection cable into the TCU3 controller board. Observe the required installation position of the expansion module (pressure transducer)
- Connect the expansion module to the differential pressure sensor of the control unit using the hoses supplied
- Activate volume flow measurement function with EasyConnect configuration software
- Zero point correction of the differential pressure transducer with EasyConnect configuration software is required (only if no EM-AUTOZERO is used)
- Annual zero point correction is required, or use the EM-AUTOZERO extension module to reduce the maintenance effort