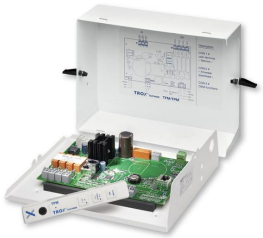

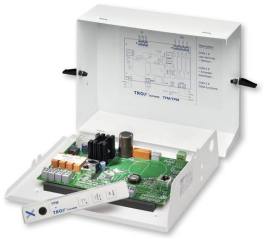

TFM-2-TPM

FOR THE MONITORING OF DIFFERENTIAL PRESSURE, VOLUME FLOW RATE OR FACE VELOCITY

Monitoring system for measuring variables from an external transducer

- Areas of application: Monitoring of differential pressure in rooms or ducting, of volume flow rates, and of the face velocity on fume cupboards
- Connection of voltage signals 0 – 10 V with characteristics that can be set individually
- Monitoring of two independent values; the corresponding types of alarm can be set
- Optical and acoustic alarms are emitted on the control panel
- Power failure is displayed on the control panel
- Monitoring parameters and additional functions can be adjusted using MConnect configuration software
- For new installations and for refurbishment

Recording of the measured value to be monitored

- Face velocity transducer VS-TRD
- Differential pressure transducer with voltage signal
- Volume flow rate transducer with voltage signal

Application

Application

- Monitoring devices Type TFM-2-TPM for volume flow rates, face velocity or room differential pressure with optical and acoustic alarms and alarm signalling to higher-level systems (central BMS)
- Selection of type of monitoring (volume flow rate, face velocity, differential pressure) with a single unit, configurable
- Measuring with transducers (to be provided by others) that transform the measured value into an electric signal
- For use in laboratories, clean rooms in the pharmaceutical and semiconductor industries, operation theatres, intensive care units
- For new installations, retrofit, and refurbishment projects

TFM-2

- Monitoring of the volume flow rate of fume cupboards, fume hoods, extraction arms to EN 1475; as an alternative, for the monitoring of volume flow rates in ducting
- Monitoring of the face velocity for fume cupboards, fume hoods
- Electric actual value signal, for example from a volume flow controller (to be provided by others) or face velocity transducer

TPM

- Monitoring of the differential pressure in rooms or ducting
- Electric actual value signal, for example from a room pressure transducer (to be provided by others) or balance ring manometers

Special characteristics

- Monitoring of volume flow rate, differential pressure or face velocity
- Measurement recording with transducer (to be provided by others) as 0 – 10 V signal
- Two values can be monitored, switching between the two is possible; alarms can be configured; monitoring can be switched off
- Optical and acoustic alarms are emitted on the control panel
- Signalling of normal operation, measured value higher or lower than setpoint, power failure
- Conventional alarm signalling (switch contact) to the central BMS
- On-site configuration with free-of-charge configuration software MConnect

Description

Parts and characteristics

- Microprocessor system with programme and system data stored in nonvolatile memory
- Double-stack terminal blocks for supply voltage connection
- 3 digital inputs with clamp terminals
- 4 digital outputs with clamp terminals
- 1 analog input with clamp terminals
- RJ socket for control panel
- Fuse
- Integral power failure recognition with maintenance-free Goldcap capacitor

Control panel

- Display: Volume flow rate or differential pressure alarm, red; power failure, flashing red
- Display: Normal operation, green
- Display: Volume flow rate exceeds setpoint or differential pressure deviates from setpoint, yellow
- Alarm acknowledgement
- Button to switch lighting on/off (only TFM-2)
- Alarm sounder
- Socket to connect a notebook for service and commissioning

Useful additions

- VS-TRD: Face velocity transducer for the LABCONTROL system
- EasyConnect: Configuration software for the commissioning and diagnosis of EASYLAB components
- Differential pressure transducers: Static differential pressure transducers for room pressure control or duct pressure control

Construction features

- Casing can be opened and closed without tools
- Control panel with plug-in connecting cable

Materials and surfaces

- Casing made of galvanised sheet steel, powder-coated, white
- Control panel made of plastic, light grey
- Control panel with front plastic (background HKS 91 30 %, buttons and text HKS 88 30 %)

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Functional description

The TFM-2/TPM monitoring device enables monitoring of the aerodynamic function of fume cupboards as well as monitoring spaces where the differential pressure is being controlled.

The measuring variable (volume flow rate, face velocity or pressure) is recorded by an external transducer (to be provided by others). The transducer provides a voltage signal that is proportional to the variable; the signal is then transmitted to the monitoring device and evaluated by the microprocessor system.

The characteristics for the transducer, the monitoring settings and any required special functions can be configured with the free-of-charge TROX MConnect software.

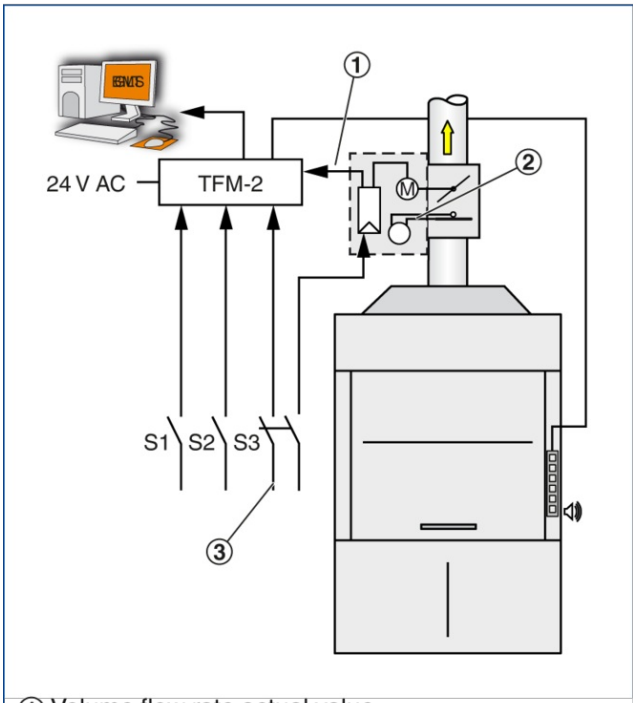
Optical and acoustic alarms are emitted on the supplied control panel. Alarm signalling to the central BMS can be achieved by wiring the alarm relay. Failure of the supply voltage is also signalled to the control panel.

The following parameters and functions can be set:

- Type of monitoring: Volume flow rate, face velocity or differential pressure
- Characteristic of the transducer
- Monitoring of 2 independent values, with individual types of alarms if the actual values deviate from the set limits
- Switching (switch contact) between the two values being monitored
- Monitoring can be switched off (switch contact), e.g. for night-time operation
- Control panel button to switch lighting on/off

Configuration settings are stored in EEPROM memory and are hence safe in case of a power failure.

Functional diagram



① Volume flow rate actual value
② Volume flow controller
③ Day/night switching

Supply voltage	24 V AC ± 15 %, 50/60 Hz
Power rating	3.5 VA
Operating temperature	10 – 40 °C
Analogue input for sensor	0 – 10 V DC, characteristic can be configured
Switch rating of relays	250 V AC, 5 A
IEC protection class	III (protective extra-low voltage)
Protection level	IP 20
EC conformity	EMC to 2004/108/EG, low voltage to 2006/95/EG
Dimensions (B × H × T)	Main unit: 261 × 210,5 × 84 mm, control panel: 150 × 23 × 10 mm
Weight	1.6 kg

Monitoring devices for the monitoring of volume flow rate, room pressure, or face velocity on a fume cupboard. The quantity being monitored is received as a 0 – 10 V DC voltage signal from external transducers, e.g. face velocity transducer or volume flow measuring unit.

The monitoring system includes a microprocessor in a casing, a control panel (also for display), a sticker to mark the control panel for either volume flow rate and face velocity monitoring or for room pressure monitoring.

Special characteristics

- Monitoring of volume flow rate, differential pressure or face velocity
- Measurement recording with transducer (to be provided by others) as 0 – 10 V signal
- Two values can be monitored, switching between the two is possible; alarms can be configured; monitoring can be switched off
- Optical and acoustic alarms are emitted on the control panel
- Signalling of normal operation, measured value higher or lower than setpoint, power failure
- Conventional alarm signalling (switch contact) to the central BMS
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- Casing made of galvanised sheet steel, powder-coated, white
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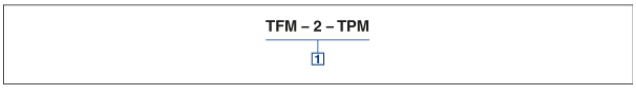
Technical data

- Supply voltage: 24 V AC ±15 %, 50/60 Hz
- Power rating: 3.5 VA
- Switch rating of relays: 250 V AC, 5 A

TFM-2-TPM



1 Type

TFM-2-TPM	Monitoring system