



Operating instructions **DTM04 / DTM05**

24 V AC/DC



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1. SAFETY INSTRUCTIONS



Read the product description before using the device. Make sure that the product is fully suitable for your application.

Incorrect or improper use can lead to malfunctions of the device or to undesirable effects on your application.

For this reason, installation, electrical connection, commissioning, operation and maintenance of the appliance may only be carried out by trained personnel.

2. GENERAL INFORMATION

DTM is an electronic pressure transducer that is mainly used to measure the total and differential air pressure in ventilation systems and is used in conjunction with monitoring, control and regulation by means of a controller, PLC or monitoring system.

2.1 Areas of application:

- Maintenance/control for constant pressure in duct systems
- Maintaining/controlling a specified negative pressure in duct systems
- Differential pressure measurement via filter for optimum filter replacement
- Volume measurement using differential pressure measurement via standard orifice plate

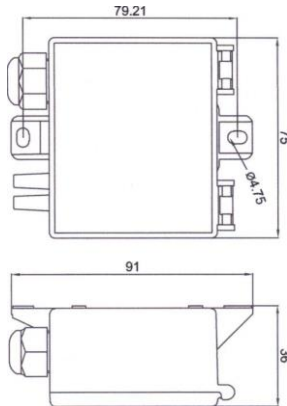
2.2 Functional principle

DTM is a pressure transducer for ventilation systems that provides an active current (4 ... 20 mA) or voltage signal (0 ... 10 V) proportional to the measured air pressure. DTM consists of semiconductor elements without air throughput, which protects it against dust from the ventilation system. The pressure element is temperature compensated so that optimum pressure measurement is achieved over the entire specific temperature range. The DTM can be set to the desired measuring range using DIP switches. The output signal can be switched from voltage (V) to current (mA) using a DIP switch. Two different attenuations can be preselected using DIP switches in order to suppress any pressure oscillations in the ventilation system in the output signal of the DTM. Correct connection of the power supply is indicated by a green LED. If the current pressure is outside the selected measuring range, the green LED flashes.

3. TECHNICAL DATA

| Type | DTM04 | DTM05 |
|-------------------------------|---|---------------|
| Article no. | 83004 | 83005 |
| Pressure measurement range | 0 ... 5000 Pa | 0 ... 2500 Pa |
| Medium | Air and non-aggressive gases | |
| Operating voltage | 16 ... 28 V DC, 24 V AC \pm 15 % | |
| Signal display, voltage | Green LED | |
| Power consumption max. | 1VA | |
| Ambient temperature device | -20 ... 40°C | |
| Signal output flow | 1 channel | |
| Signal output in V | 0 ... 10 V DC, 2 ... 10 V DC | |
| Signal output in mA | 0 ... 20 mA, 4 ... 20 mA | |
| Accuracy of the output signal | 1.5% x measured value + 0.3% x set measuring ranges +2.5 Pa | |
| Optional damping | 0.4s or 10s | |
| Pressure range selection | Adjustable via DIP switch | |
| Pressure ranges | 0 ... 5000 Pa | 0 ... 2500 Pa |
| Max. Pressure | 20k Pa | |
| Enclosure protection class | IP54 | |
| Connection | 4 terminals, 1.5mm ² | |
| Enclosure dimensions | L=75mm, W=36mm, H=91mm | |
| Cable dimension | 4 x max. 1.5mm ² | |
| Pressure port | 2 x 6.2 mm diameter | |

3.1 Dimensions DTM04/05



4. INSTALLATION AND COMMISSIONING



Installation and commissioning must be carried out by authorized and qualified personnel.

The connection to the main supply (L, N) must be made via a protected circuit breaker with standard fuses. The general VDE regulations must always be observed (VDE 0100, VDE 0113, VDE 0160). If the potential-free contact is connected to a safety extra-low voltage, the connecting cables must be sufficiently insulated up to the terminal, as otherwise the double insulation to the mains voltage side may be impaired. The current carrying capacity of the potential-free contact is limited to 6 A. Therefore, the circuit of the potential-free contact must be protected with a 6.3 A fuse.

4.1 Assembly

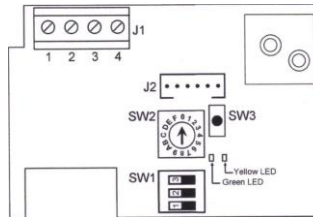
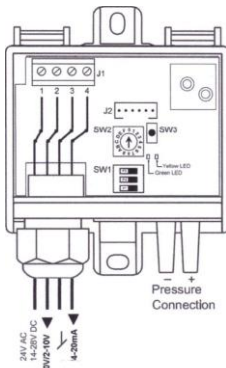
The DTM must be mounted on a flat surface. It works regardless of the mounting position, but to maintain the degree of protection, both connectors should be fitted with hoses if they are pointing upwards.

The pressure connection is made using hoses, with the highest pressure being connected to the + connection and the lowest pressure to the - connection. If the hoses are reversed and the pressure is outside the measuring range, the green LED flashes. Pressure hoses should be kept as short as possible and fastened to avoid vibrations. Optimum pressure measurement is achieved at points with the lowest risk of turbulent flow, i.e. in the middle of ventilation ducts and at a sufficient distance from bends and branches.

Please observe the inlet distance of at least 6 x pipe inner diameter and the outlet distance of at least 2 x pipe inner diameter for optimum measurement results.

The housing can be opened without tools by pressing the snap lock on the side of the connection piece. The transmitter cable can be up to 50 m long. To avoid malfunctions due to interference, the transmitter cable must not be laid parallel to power cables. We recommend a shielded cable with a cross-section of at least 0.5 mm^2 per conductor. Connect the shield on one side.

4.2 Electrical connections



4.3 Settings

The pressure range is set on the rotary switch, SW2, and can be set in pressure ranges from -50/+50 Pa to 0-5000 Pa (DTM04) or 0-2500 Pa (DTM05).

If the rotary switch is set to values other than the specified positions 0-7, the pressure transmitter records the setting as position 7, corresponding to the highest pressure range. If the transmitter is inadvertently set to a lower pressure range than the pressure applied to the connection lines, the green LED lights up continuously.

A 0/2 ... 10 V output signal and/or a 0/4-20mA output signal can be tapped at the screw terminals of the pressure transmitter.

A 0 ... 10 V output signal is tapped on terminal 2 and with DIP1 on SW1 in the "Off" position.

A 2 ... 10 V output signal is tapped on terminal 2 and with KIP1 on SW1 in the "On" position.

A 0 ... 20 mA output signal is tapped on terminal 4 and with DIP1 on SW1 in the "Off" position.

A 4 ... 20 mA output signal is tapped on terminal 4 and with DIP1 on SW1 in the "On" position.

The damping of the output signal can be set to SW1, DIP2 to 0.4s or 10s. The transducer measures the pressure several times and the output signal of the transducer corresponds to the average value for the selected time period. This dampens any pressure oscillations in the ventilation system.

4.4 Zero position

After installing the transmitter and connecting it to the power supply, the transmitter may need to be zeroed. Before zeroing, ensure that the same pressure is applied to the + and - nozzle, e.g. by stopping the ventilation system. If the yellow LED lights up constantly, a differential pressure greater than 50 Pa is being measured, which may be due to unintentional pressure in the system (draught or jammed hoses). It is recommended to remove the pressure hose(s) from the + and - connections during zeroing. At the start of zeroing, activate the built-in zero-set switch (zero-set switch SW3), after which the yellow LED flashes until zeroing is complete.

4.5 LED display

The green LED lights up when the power supply is connected correctly and flashes when the current pressure is above/below the selected measuring range. The yellow LED lights up when the pressure is above 50 Pa and flashes for approx. 3 seconds while zeroing is being carried out.

| LED | On | Single flash | Off |
|--------|-------|--------------------------------|-----------------|
| Green | Okay | Pressure outside the set range | No power supply |
| Yellow | >50Pa | Zero setting is executed | <50Pa |

5. SELECTION OF THE MEASURING RANGE

5.1 Selection of the measuring range

| DTM04 | | DTM05 | |
|----------------|------|----------------|------|
| Pressure range | -SW2 | Pressure range | -SW2 |
| -50 ... 500 Pa | 0=On | -50 ... 50 Pa | 0=On |
| 0 ... 1000 Pa | 1=On | 0 ... 100 Pa | 1=On |
| 0 ... 1600 Pa | 2=On | 0 ... 150 Pa | 2=On |
| 0 ... 2000 Pa | 3=On | 0 ... 300 Pa | 3=On |
| 0 ... 2500 Pa | 4=On | 0 ... 500 Pa | 4=On |
| 0 ... 3000 Pa | 5=On | 0 ... 1000 Pa | 5=On |
| 0 ... 4000 Pa | 6=On | 0 ... 1600 Pa | 6=On |
| 0 ... 5000 Pa | 7=On | 0 ... 2500 Pa | 7=On |

5.2 Selection of output voltage/current

| Output | DIP1 | Terminal |
|-------------|------|------------|
| 0 ... 10 V | Off | Terminal 2 |
| 2 ... 10 V | On | |
| 0 ... 20 mA | Off | Terminal 4 |
| 4 ... 20 mA | On | |

5.3 Choice of damping

| Damping | DIP2 |
|---------|------|
| 0.4 sec | Off |
| 10 sec | On |







5.4 DIP switch not used

| Not used | DIP2 |
|----------|------|
| Not used | Off |
| Not used | On |

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