



Instruction Manual

DTL06

Calorimetric flow sensor for air

-analogue output-



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Safety Information

General Instructions

To ensure safe operation, the device should only be operated according to the specifications in the instruction manual. The requisite Health & Safety regulations for a given application must also be observed. This statement also applies to the use of accessories.

Every person who is commissioned with the initiation or operation of this device must have read and understood the operating instructions and in particular the safety instructions!

The liability of the manufacturer expires in the event of damage due to improper use, non-observance of this operating manual, use of insufficiently qualified personnel and unauthorized modification of the device.

Proper Usage

The calorimetric compact flowmeters type DTL06 are used for measuring air flows. Any other use of the device is prohibited and outside the scope of application.

In particular, applications in which shock loads occur (for example, pulsed operation) should be discussed and checked in advance with our technical staff.

The series DTL06 flow meter devices should not be deployed as the sole agents to prevent dangerous conditions occurring in plant or machinery. Machinery and plant need to be designed in such a manner that faulty conditions and malfunctions do not arise that could pose a safety risk for operators.

Dangerous substances

For dangerous media such as e.g. Oxygen, Acetylene, flammable or toxic substances as well as refrigeration systems, compressors, etc. must comply with the relevant regulations beyond the general rules.

Qualified Personnel

The DTL06 devices may only be installed by trained, qualified personnel who are able to mount the devices correctly. Qualified personnel are persons, who are familiar with assembling, installation, placing in service and operating these devices and who are suitably trained and qualified.

Inward Monitoring

Please check directly after delivery the device for any transport damages and deficiencies. Additional with reference to the accompanying delivery note the number of parts must be checked.

Claims for replacement or goods which relate to transport damage can only be considered valid if the delivery company is notified without delay.

Functional Description

A temperature-sensitive resistor is heated according to the calorimetric measuring principle. The temperature-sensitive resistor is heated by a second resistor. A flow in the medium dissipates heat from the measuring resistor, causing the resistor temperature and impedance to change. This temperature change is evaluated. Since both the velocity and the temperature of the flowing medium affect the dissipated heat, a relationship must be created between flow and temperature. For this purpose, a second temperature-dependent measuring resistor is located next to the first one. The second measuring resistor (temperature compensation) is not heated and is only used for the temperature measurement.

Installation instruction

In order to avoid malfunctions, the following points must be observed:

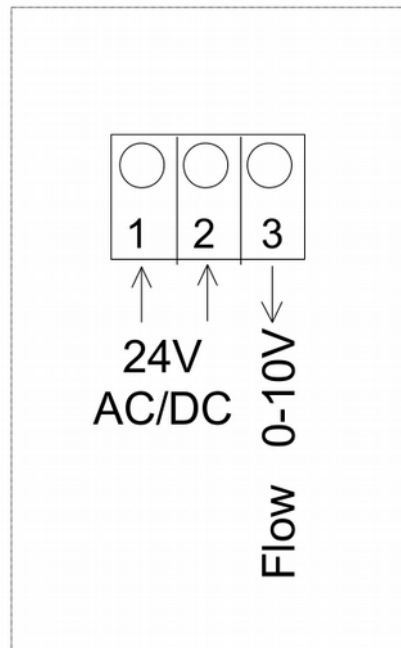
- The sensor should be mounted in such a way that the air flow passes through the lateral opening. The marking is intended as an assembly aid.
- Installation where there is low turbulence, if possible.
- Do not install directly behind bends (distance approx 10x bend radius).
- Install the probe in the middle of the duct where possible (distance at least 1/3 of the duct diameter from the wall).
- Do not install directly behind the heating register (rapid changes in temperature may lead to the measured values being falsified).

Electrical Connection

Attention: Before the electrical connection of the device, it must be ensured that the supply voltage corresponds to the required one and that the supply voltage is switched off.

Connection to mains supply (L, N) must be made by means of a protected isolating switch with the usual fuses. As a matter of principle, the General VDE Regulations must be complied with (VDE 0100, VDE 0113, VDE 0160).

Wiring diagram:



Commissioning

Commissioning the DTL06 you need to follow these points:

1. install the device (see also: "Installation instruction"!)
2. connect the device regarding to the manual
3. set potentiometer "sensitivity" to minimum sensitivity
4. switch on supply voltage; The device is instantly operational.
5. switch on the working flow
6. turn potentiometer "sensitivity" to the needed output voltage (e.g. flow=5 m/s -> U=5 V)
7. to check for proper operation, please lower or switch off the flow. The yellow LED should darken and the transistor output disconnects.

Maintenance and Cleaning

The calorimetric flow monitors described here are basically maintenance-free. They do not contain any components that have to be repaired or replaced on site. Repairs are only carried out at the manufacturer's works.

The airflow sensor contains a sensor element which is sensitivity to mechanical loading and which must not be touched with hard and pointed objects. Any cleaning that may be necessary is possible in water (also with addition of detergents). Let the unit drip off and dry renewed start-up.

Troubleshooting

Problem	Cause	Solution
Device does not work at all	No or wrong mains voltage connected	Check mains voltage and connection
Device does not detect flow	Sensor is not installed correctly Sensor is highly polluted	Check installation conditions Clean the sensor
Device shows unusual response	Sensor is heavily contaminated by the medium	Clean the sensor

Mistakes and misprints are not to be excluded. All information „without guarantee“.

DTL06

Calorimetric Flow Sensor for Air -Analogue Output-

- analogue output 0...10 V
- measuring range: 0,1...30 m/s
- max. pressure: 10 bar
- max. temperature: 70 °C
- negligible pressure loss
- no moving parts
- independent of nominal diameter, pressure and temperature



Description:

The air flow meters work according to the proven calorimetric principle. A temperature-independent resistance at the sensor tip is electronically heated. The flowing air withdraws heat from it, which changes the resistance value. A second unheated resistor is used to measure the medium temperature.

The temperature difference between the two resistances is proportional to the flow velocity and thus to the volume flow. The measured values of the DTL06 can be read off analogously by a voltage signal, which is simply set on site via a built-in potentiometer.

Typical applications:

The DTL06 calorimetric flowmeters are characterized by their particularly good price-performance ratio. The devices are used wherever laminar air flows have to be measured or monitored: For example in building services engineering, air supply, compressor monitoring, consumption measurement, leakage monitoring, cooling circuits, etc.

