SCHMIDT[®] Flow Sensor SS 20.015 SS 20.016



Applications

- Air conditioning
- Climate control
- Bio systems
- Process control
- Clean-room technology
- Pollution measurements

Product description

Very compact sensor with integrated electronics for measuring the flow velocity of air and gases and for measuring the temperature of the medium simultaneously. Pressure and temperature independent measurement of the normal flow velocity. No moving parts. Aerodynamic dumb-bell head with optimum flow characteristics. Extensively independent of direction and insensitive to contamination.

Measuring method

- Volume flow control
- Ventilator controlOffice air circulation

Examples

- Air inlet and exhaustcontrol
- Filter monitoring
- Laminar flow control
- Airspeed measurement in wind tunnels
- Pneumatic conveyors
- Air volume measurement in burners and combustion engines

The flow measurement is based on the heat-transfer calorimetric method. A heated thermistor is kept at a constant temperature above the medium level (CTD mode). The heat dissipation into the medium increases with increasing flow. The heating voltage is a direct measure of the flow velocity.







SS 20.015

Standard version available in different tube lengths (L). Together with the mounting flange (suitable for L = 160 mm or longer) a simple mounting and precise sensor tip positioning is possible.

SS 20.016

Pressure-proof version up to 10 bar with protective coating for application in air with aggressive components. The protective coating consists of a twocomponent polyurethane resin on a polyacrylate/polyurethane base. This synthetic coating is generally resistant against organic solvents, acids and caustic solvents as well as their vapours. The flow sensor SS 20.016 is corrosion-proof against the following vapours in air: hydrochloric acid, sodium hydroxide, perchloroethylene, acetone, ethyl acetate, ethyl alcohol, xylene, gasoline, motor oil (50 °C), cutting oil (50 °C), cleansing oil, ammonia, acetic acid, sulphuric acid. The suitability must be checked in individual cases.

Calibration certificate

For enhanced measurement accuracy, each sensor type can be supplied with an individual measurement report for the flow velocity output signal according to DIN EN ISO 9001.

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Technical data		
Measuring range	flow (w _ℕ) temperature	0 20 m/s -40 +85 ℃
Operating temperature	electronics sensor tip	-20 +50 °C -40 +85 °C
Humidity range		0 95 % RH
Operating pressure	atmospheric overpressure	700 1300 hPa (SS 20.015) 0 10 bar (SS 20.016)
Measuring sensitivity	flow temperature	non linear 60 mV/K related to 4 V at 0 °C
Lower detection limit		0.06 m/s
Reproducibility	flow temperature	±2% ±0.5 K under flow conditions
Relative measurement tolerance		±(0.12 m/s + 4.5 %) of measurement value
Response time (t ₉₀)	flow	1 s (step from 0 to 5 m/s)
Temperature- dependence (flow)	sensor tip electronics	typ 0.005 %/°C of measured voltage level referred to a nominal temperature of 20 °C 0 % at a nominal temperature of 20 °C, max ± 5 % of measured voltage level at 20 °C in the temper ature measuring range
Humidity dependence		not measurable up to approx. 30 °C max. ±5 % of measurement value within humidity range referred to 55 % RH at 80 °C
Flow-angle characteristics		independent of orientation in the longitudinal axis, compensated within a flow-angle range from -45 ° to +45 °
Output voltage	flow temperature	010 V 010 V, 4 V at 0 °C
Load resistance (permissible)		≥ 10 kΩ
Supply voltage		24 V DC ± 20 %
Current consumption		100 mA max.
Mounting		hexagonal lock nut on M18 external thread, length 20 mm
Electrical connection		cable 4 x 0.14 mm ² pigtail with core end sleeves
Cable length		5 m
Cable length (permissible)		15 m
Housing		glass fibre reinforced PBT
Dimensions	housing sensor tip sensor tube	Ø 32 x 66 (mm) Ø 9 x 41 (mm) Ø 9 mm
Mounting length	L	90 / 160 / 360 / 500 mm
Weight by mass		ca. 100 g (L = 160 mm)
Protection type		IP 65 (housing) IP 67 (sensor head + tube)

Flow characteristics



Temperature characteristics



Mounting instructions

