FLOW

TEMPERATURE

HUMIDITY

Flow Sens FS1
Thermal Mass Flow Sensor for all-purpose use in Gases

Product

The Flow sensor element consists of two temperature depending platinum-resistors, both deposited on one chip. The low-ohm resistor with a small area is used as a heater, whereas the other high-ohm resistor serves to measure the reference temperature. Using a bridge circuit, the differing resistance value of two elements leads to different (self) heating. The (self) heating is dependent upon the applied voltage, the mass flow, and the media in which the sensor is located. Higher voltage increases self heating, a higher flow rate increases cooling. If the self heating is kept constantly by a suitable controller, the voltage increases with higher flow rates and therefore becomes a measure for the mass flow. As a result of his little thermal mass, this sensor has fast heating and cooling response times. The measuring principle of the sensor can be used for large operation ranges, from 0…0.1m/s up to 100m/s. The Flow Sens is also available with a plastic housing of ∅ 6mm. This option provides the user with ideal opportunities to incorporate the element into custom-built applications or specific housings, e.g. into a T-piece.

Advantages

- Easy adaptable for different applications or into housings
- Simple signal processing and calibration
- No mechanical moved components
- Excellent reproducibility
- Excellent long-term stability
- Best price-performance ratio

Applications

- HVAC and building control solutions
- Automotive industry
- Medical devices
- Device monitoring
- Cooling devices
- Food industry

IST
INNOVATIVE SENSOR TECHNOLOGY

IST AG, Industriestrasse 2, CH-9630 Wattwil, Switzerland, Phone (+)41 71 987 73 73, Fax (+)41 71 987 73 77
e-mail info@ist-ag.com, www.ist-ag.com

FLOW

TEMPERATURE

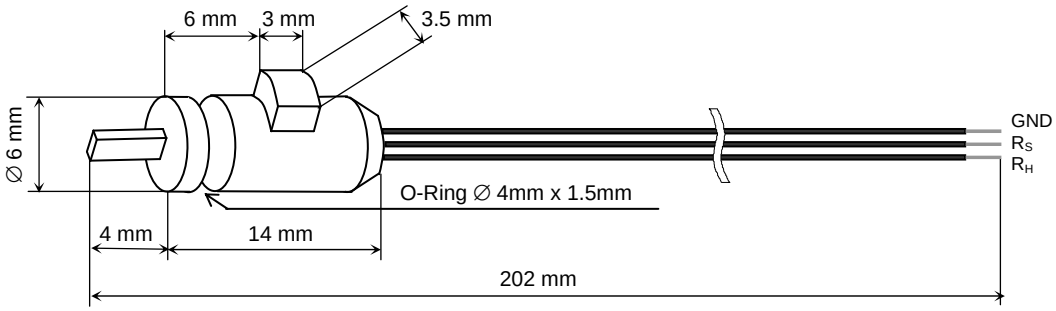
HUMIDITY

Flow Sens FS1
Thermal Mass Flow Sensor for all-purpose use in Gases

Technical Data

Measuring principle	thermal
Measuring range	0 ... 100 m/s
Response sensitivity	0.01 m/s
Accuracy	< 3% current measuring value (dependent on electronic and calibration)
Response time $t_{63\%}$	Ca. < 2 s
Temperature range	-20 ... + 150 ℃
Temperature sensitivity	< 0.1 %/K (dependent on electronic)
Electrical connection	3 pins, Leads AWG30, insulated with PTFE, or custom specific
Heater	R_H(0℃) = 45 Ω ±1%
Referenz element	R_S(0℃) = 1200 Ω ±1%
Required voltages	typical 2 - 5 V at Δ T = 30 K ($0 \leq V_{ström} \leq 100 m/s$)
Max. heater voltage@0 m/s	3V
Substrate material	ceramic
In general	All data are temporary and valid in air. Other media and higher requirements upon request. No responsibility accepted.

Construction sizes



INNOVATIVE SENSOR TECHNOLOGY

IST AG, Industriestrasse 2, CH-9630 Wattwil, Switzerland, Phone (+)41 71 987 73 73, Fax (+)41 71 987 73 77
e-mail info@ist-ag.com, www.ist-ag.com

FLOW

TEMPERATURE

HUMIDITY

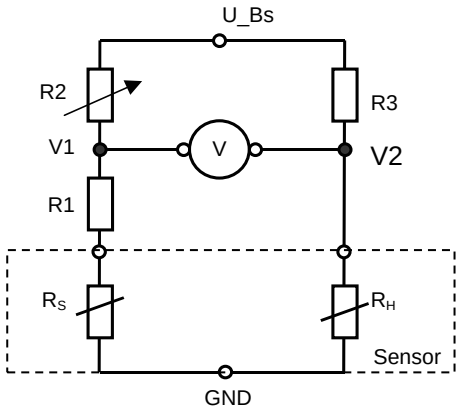
Flow Sens FS1
Thermal Mass Flow Sensor for all-purpose use in Gases

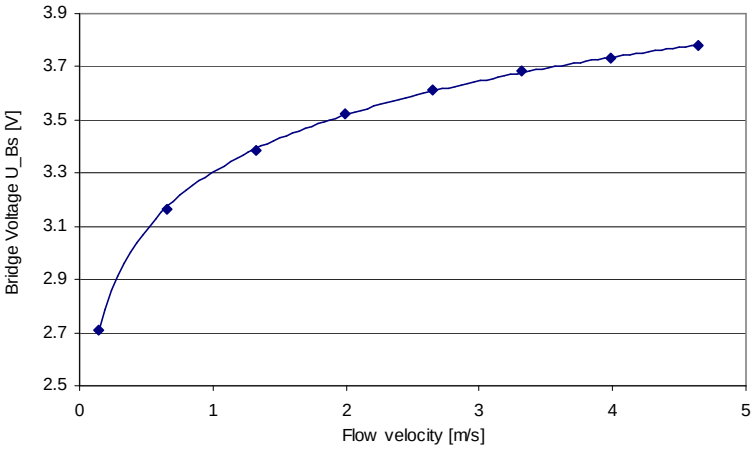
Electronic circuit recommendation

As shown on the scheme to the right, the heater R_H and sensor R_S need to be connected in a bridge circuit. It is essential to determine the correct values of the resistors R1, R2, and R3. The bridge is in balance as soon as the desired temperature difference between R_S and R_H has reached e.g. 30K. At a changing flow the bridge voltage U_Bs needs to be controlled in dependence of the bridge balance V1-V2. The values for R1…R3 are depending on the temperature difference ΔT and the medium which should be measured. We will provide you with the values of R1…R3 , depending on the application.

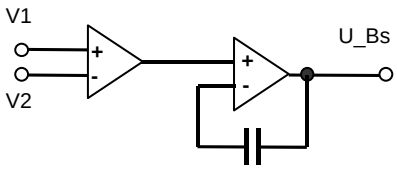
For calibration the R2 needs to be adjusted within a range of ±5%.

The method of adjustment relies on the application.





Typical signal – curve between 0 .... 5 m/s



Principle of the heating controller

Customer-specific preparation

The electrical connection and the sensorpackaging we are are able to develope and to produce customized.

INNOVATIVE SENSOR TECHNOLOGY

ISO 9001

IST AG, Industriestrasse 2, CH-9630 Wattwil, Switzerland, Phone (+)41 71 987 73 73, Fax (+)41 71 987 73 77
e-mail info@ist-ag.com, www.ist-ag.com

V2.0-04/2005

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for Ist Innovative Sensor ***manufacturer:***

Other Similar products are found below :

HYT 939 TSIC 301 TO92 TSIC 506F TO92 P0K1.161.1E.B.200 P0K1.520.6W.Y.010 P14 FEMTOCAP-G P0K1.520.6W.A.010 P0K1.281.6W.B.007 TSIC 306 SOP-8 P1K0.308.7W.B.007 P0K1.516.7W.B.010 P0K1.520.6W.B.010 TSIC 301 SOP-8 P1K0.520.6W.Y.010 HYT 271 ND1K0.520.2FW.B.007 P0K1.232.4W.K.010 P0K1.232.2I.B.050 P0K1.161.6W.B.010 P0K1.202.3K.A.010 P1K0.161.6W.A.010 P0K1.202.3FW.B.007 P1K0.1206.2P.A P0K1.1206.2P.A P10K.520.6W.B.010.D HYT 221 P0K1.1206.2P.B P0K1.232.6W.A.010 P1K0.1206.2P.B P1K0.232.6W.B.010 TSIC 306 TO92 P0K1.0805.2P.B P1K0.0805.2P.B