



Flow



INNOVATIVE SENSOR TECHNOLOGY

Focus on flow sensors

Product Overview



FLOW

of a liquid, biofilm or bubbles as well as indicate liquid level. Development channels guarantee the best possible adaptation of our sensors, whether in terms of dynamic range, response time, directional detection or ambient conditions.

IST AG thin film mass flow sensors offer solutions for a wide variety of flow applications. The thin film and membrane technologies incorporate highly accurate temperature sensors and heaters as core elements of the sensors. IST AGs flow sensors are applicable in gas (liquids upon request), have an operating temperature range of $-30\text{ }^{\circ}\text{C}$ to $+450\text{ }^{\circ}\text{C}$, and can measure flow rate and direction from 0.0001 m/s (microflowSens) to 100 m/s (respectively from 1 mL/min to 10 L/min). In addition to measuring flow rates, our sensors can detect the presence

Measurement Principle

Thermal mass flow sensors utilize heat transfer principles to determine the flow velocity of a fluid. As fluid passes across the sensor, heat is carried from the sensor to the medium. This relationship is dependent upon the flow rate. As flow increases, so does the amount of heat that is transferred. By knowing the temperature of the medium, the flow rate can be determined from the amount of voltage compensation needed to maintain a constant temperature differential.

Out of Liquid

Thermal mass flow sensors and measuring systems are well-known devices that are offered in a wide range of products by a handful of suppliers in the marketplace. Most of the designs are compact, ready to use systems with an inlet and an outlet, and a channel including a passive or an active output. These systems are sufficient for many general purpose applications where component price and size are less significant, but they are not well-suited for price-sensitive and limited-space flow control solutions. In such cases, IST thermal mass flow sensor elements offer considerable solutions and the option to customize various parameters to meet your requirements at a beneficial pricing.

The new out of liquid element from IST AG provides you with the flexibility of easily adapting the element to your application and at a lower cost. Measuring flow directly in a liquid channel has proven a difficult task without dramatically shortening the lifetime and damaging the sensor especially because of debris and other contaminating elements in aggressive liquids.

Due to the external placement of the sensors, the out of liquid element from IST AG gives you the possibility to create a go/no go application or with double elements to measure the flow going through the channel. The principle used is IST AGs reliable and proven thermal mass flow measuring principle. A heater and a sensor chip, both with backside metalization, are soldered on the tube surface providing an excellent thermal contact with the liquid without being in direct contact with the liquid, meaning even aggressive liquids are suitable for this element.

Related data

[DFFS5](#)

[DFFS2](#)

[DFMFS02 + DFMFS02 on PCB](#)

[MFS02 EvaKit](#)

[AFMFS Amplifier Modul](#)

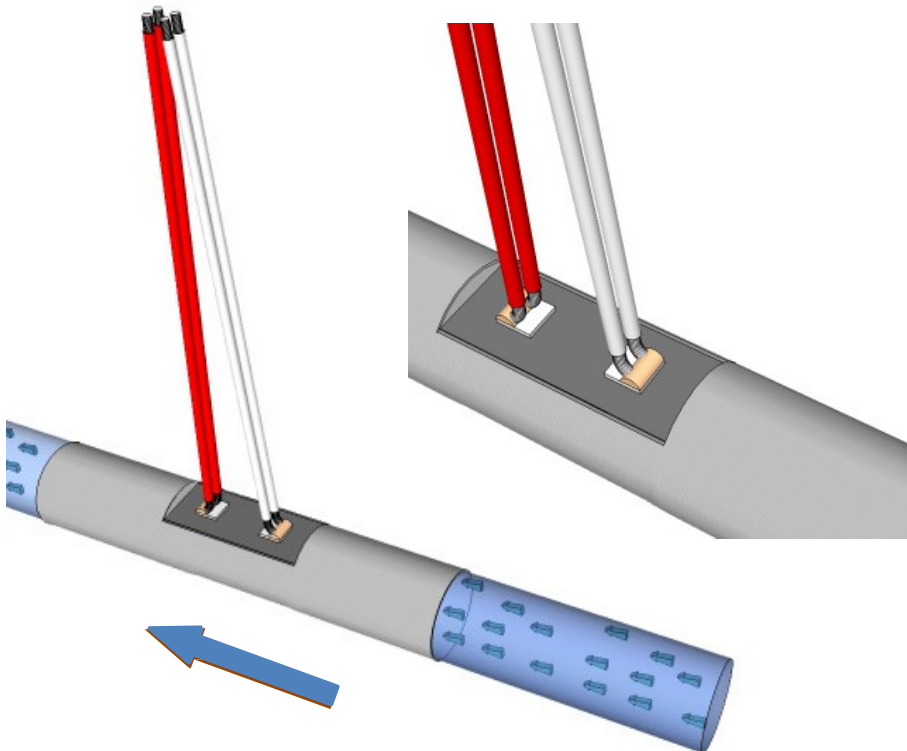
Focus on flow sensors

Technical Data: *

Measuring principle:	thermal
Measurement range:	0 ml/min to 3000 ml/min
Warm up time:*	< 30 s
Response time:*	< 100 ms (0 to 1000ml/min)
Temperature range (liquid):*	-50 °C to +120 °C
Electrical connection:	Cu/Ag wire, PTFE insulated AWG 30/19
Heater RH:	(0 °C) = 50 Ω +/- 1 %
Reference sensor RS:	(0 °C) = 1000 Ω +/- 1 %

*dependent on channel diameter, medium, used electronics etc.

Datasheet available upon request



INNOVATIVE SENSOR TECHNOLOGY