



Process sensors

New high performance magmeters are more compact and accurate for more applications!



Flow sensors / flow meters



High accuracy for constant process reliability

New measuring pipe design reduces pressure losses

Optimized design allows for compact manifold installations with no inlet or outlet piping requirements

Ideal for high process temperatures of up to 90°C (194°F)

Reduction of set-up and hardware costs thanks to IO-Link

Precise monitoring of processes

The new SM family of magmeters has been designed to be more compact, more accurate, and cover more applications due to an expanded flow and temperature range. The sensors now incorporate a multi-color TFT display that can indicate flow rate, flow volume and media temperature simultaneously, at a glance, and simplifies setup. All process values are readily available via IO-Link.

As with other ifm's magmeter models, the magnetic inductive flow technology provides high-precision measurement of conductive media up to 39.6 gpm (150 l/min).

The high temperature resistance of up to 90°C (194°F) allows reliable operation in difficult applications such as furnaces where the cooling water reaches very high temperatures.

Quick set-up and easy handling

Setpoints are established through a simple pushbutton menu in English or Metric values. The compact housing design allows multiple SM models to be positioned closer together. The meter's NPT process connection is easy to mount in-line and fits either 1/2, 3/4 or 1-inch piping. With features that ensure reliability and convenience, ifm's compact SM Series Magmeters offer an excellent price to performance value.





Advantages and customer benefits

Process reliability and energy monitoring

The overheating of tools, welding guns or furnaces leads to increased wear and eventually to production downtime. Continuous monitoring of cooling water ensures the process reliability of applications requiring intensive cooling. The SM type flow meter features high accuracy and integrated temperature measurement. In combination with the total quantity meter (totalizer function), it is also possible to implement reliable energy monitoring.

Pump output can be reduced thanks to the minimization of pressure loss

The optimized design of the measuring pipe with an increased internal diameter reduces pressure drops. Therefore, pump output and energy costs are reduced.

Reduction of set-up and hardware costs thanks to IO-Link

Several measuring parameters (flow, temperature, total quantity) can be evaluated in the controller via only one input. Measuring points, wiring and PLC input cards are reduced, which saves costs. The integrated simulation function simplifies the set-up. The sensors can be integrated into the PLC and checked without the machine operating.

Slim design optimized for manifold mounting



To separately monitor individual cooling lines, several flow meters are used simultaneously. Their slim design featuring an ideal installation position and a connector position optimized for practical use eliminates complex piping and the need to stagger sensor mounting. This allows use in standard water manifolds with an internal diameter of 2" (50mm).

No inlet and outlet pipe lengths upstream and downstream of the sensor are required. This enables maximum flexibility for the layout and installation of the sensor on the machine.

Measuring range	Sealing material	Process connection	Order no.
0.01...9.25 [gpm]	FKM	1/2" NPT	SM6621
0.02...19.82 [gpm]	FKM	3/4" NPT	SM7621
0.06...39.60 [gpm]	FKM	1" NPT	SM8621
0.05...35 [l/min]	FKM	G 1/2	SM6020
0.05...35 [l/min]	EPDM	G 1/2	SM6120
0.1...75 [l/min]	FKM	G 3/4	SM7020
0.1...75 [l/min]	EPDM	G 3/4	SM7120
0.2...150 [l/min]	FKM	G 1	SM8020
0.2...150 [l/min]	EPDM	G 1	SM8120

Common technical data Type SM		
Flow		
Accuracy	[%]	± (0.8 measured value + 0.2 full range)
Repeatability	[%]	± 0.2
Medium temperature	[°C]	-20...90
Minimum conductivity	[µS/cm]	≥ 20
Temperature		
Measuring range	[°C]	-20...90
Response time	[s]	± 0.5
Pressure resistance	[bar]	16
Output function	OUT1	frequency output (V/T), switching output (V/T), pulse output (V), IO-Link
	OUT2	switching output (V/T), analogue output 4...20 mA (V/T/p)

Application examples

Injection molding machine

The cooling water quantity and the temperature are key factors when it comes to the quality of the final product. Reduction in cooling must be detected without delay. This is ensured by the SM flow sensor.

Hardening system

The cooling curves of workpieces must be adhered to during hardening processes. This is done by applying a defined quantity of cooling water to the heated workpiece. The SM detects potential flow reduction, ensuring high product quality.

Machine tools

Permanent cooling water supply ensures consistent quality and extends the lifetime of the tool. Swarf can clog cooling water pipes. The SM detects this in time and prevents overheating of the tools.

Furnace construction

Lack of cooling water can lead to dangerous excessive temperatures in the furnace. The SM monitors the cooling water quantity and temperature up to 90°C (194°F). Expensive downtime due to excess temperature is a thing of the past.