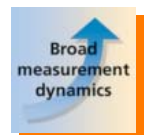


# A quantum leap in flow rate measurement technology



**Inline flow sensor for precise measurement of liquids up to 600 l/min**

- Suited for liquids with a conductivity from 20  $\mu\text{S}/\text{cm}$
- Variable use for different flow directions
- With integrated empty pipe detection and simulation mode
- Also available with EPDM seal for drinking water applications
- With indication of volumetric flow quantity, total quantity and temperature



## Compact and low cost

ifm makes it possible: efector mid – a volumetric flow sensor up to 600 l/min, with electronics and evaluation unit in one of the most compact housings. It is not only more compact but also less expensive than comparable sensors.

## Three functions

The user monitors the volumetric flow quantity, the total quantity as well as the temperature with only one unit.

## Easy handling

During set-up, the efector mid scores with easy, intuitive handling via three buttons directly on the unit or via the IO-Link interface. This allows direct use of the sensor in the field.

## Data processing

Analogue, binary and pulse and frequency outputs offer various options to process the measured data.



Magnetic-inductive volumetric flow sensor for measuring the water quantity in a filtration system.



**Application: Machine tools, solar and water industries.**  
For conductive liquids (conductivity:  $\geq 20 \mu\text{S/cm}$  / viscosity:  $< 70 \text{ mm}^2/\text{s}$  at  $40 \text{ }^\circ\text{C}$ )

Measuring range Flow [l/min / gpm]	Pulse value [l...m <sup>3</sup> ]	Response time Flow [s]	Accuracy Flow	Process connection	Order no.
<b>M12 connector · electrical design DC PNP/NPN · FKM seal</b>					
5...300	0.1...300,000	< 0.3 (dap = 0)	$\pm (0.8 \% \text{ MV} + 0.5 \% \text{ VMR})$	G 2	<b>SM9000</b>
5...600	0.1...600,000	< 0.3 (dap = 0)	$\pm (0.8 \% \text{ MV} + 0.5 \% \text{ VMR})$	G 2	<b>SM2000</b>
<b>M12 connector · electrical design DC · output function 2 x analogue (4...20 mA) · FKM seal</b>					
5...300 / 1.3...79.3	–	< 0.3 (dap = 0)	$\pm (0.8 \% \text{ MW} + 0.5 \% \text{ MEW})$	G 2	<b>SM9004</b>
5...600 / 1.3...158.5	–	< 0.3 (dap = 0)	$\pm (0.8 \% \text{ MW} + 0.5 \% \text{ MEW})$	G 2	<b>SM2004</b>
<b>M12 connector · electrical design DC PNP/NPN · EPDM seals</b>					
5...300	0.1...300,000	< 0.3 (dap = 0)	$\pm (0.8 \% \text{ MV} + 0.5 \% \text{ VMR})$	G 2	<b>SM9100</b>
5...600	0.1...600,000	< 0.3 (dap = 0)	$\pm (0.8 \% \text{ MV} + 0.5 \% \text{ VMR})$	G 2	<b>SM2100</b>

**Accessories**

Type	Description	Order no.
	Memory plug, parameter memory for IO-Link sensors	<b>E30398</b>
	Adapter, G 2 – Victaulic 1,5", stainless steel (316Ti/1.4571)	<b>E40227</b>
	Adapter, G 2 – 1½" NPT, stainless steel (316Ti/1.4571)	<b>E40229</b>
	Adapter, G 2 – G 1½, stainless steel (316Ti/1.4571)	<b>E40230</b>
	Adapter, G 2 – 2" NPT, stainless steel (316Ti/1.4571)	<b>E40228</b>
	Adapter, G 2 – R 2" male, stainless steel (316Ti/1.4571)	<b>E40231</b>
	Flange adapter, G 2, stainless steel (304/1.4301) / (316Ti/1.4571)	<b>E40240</b>
	Grounding clamp, stainless steel (316L/1.4404)	<b>E40234</b>

**Connection technology**

Type	Description	Order no.
	M12 socket, 2 m black, PUR cable	<b>EVC001</b>
	M12 socket, 5 m black, PUR cable	<b>EVC002</b>
	M12 socket, 2 m black, PUR cable	<b>EVC004</b>
	M12 socket, 5 m black, PUR cable	<b>EVC005</b>

**Further technical data**

	Type SM	
Operating voltage	[V]	18...32 DC
Current consumption	[mA]	< 150
Measuring range temperature	[°C]	-20...80
Short-circuit protection, pulsed		•
Reverse polarity / overload protection		• / •
Current rating SM9000, SM2000 SM9100, SM2100	[mA]	2 x 250
Output function SM9000, SM2000 SM9100, SM2100	OUT1	normally open / normally closed programmable or pulse or frequency or empty pipe monitoring or IO-Link
	OUT2	normally open / normally closed programmable or analogue (4...20 mA / 0...10 V, scalable) or empty pipe monitoring
Protection		IP 65, IP 67
Ambient temperature	[°C]	-10...60
Medium temperature	[°C]	-10...70
Pressure resistance	[bar]	16
Housing materials		high-grade stainless steel (316L/1.4404); PC (polycarbonate); FKM; PBT-GF20
Materials (wetted parts)		PEEK Victrex 150 GL30, stainless steel (316Ti/1.4571), Hastelloy (2.4610), FKM, Centellen
Dimensions (H x W x D)	[mm]	116,8 x 200 x 102,8

ifm article no. 78000591 · We reserve the right to make technical alterations without prior notice. · 11.2013