

# SLG Liquid Flow Meter Series

## Ultra-High Pressure Flow Meter for LC Applications

- Ultra-low Flow Sensing in the nl/min Range
- Operating Pressure up to 1200 bar (17500 psi)
- 40 ms Response Time



### Product Summary

The SLG Liquid Flow Meter enables precise, bi-directional measurements of dynamic liquid flow rates in the nl/min to low  $\mu$ l/min range. This device has been designed for ultra-high pressure applications in Liquid Chromatography Systems (UHPLC). Excellent bio-compatibility and chemical resistance is ensured by the use of fused silica, stainless steel and PEEK for all wetted parts.

### Interface Options

#### Digital

- I<sup>2</sup>C-Bus
- RS485-Bus
- USB Cable

#### Analog

- Voltage Output (0-10 V)
- Additional operation modes

For more information on communication, please refer to page 2 of this document.

## 1 Sensing Performance

Table 1: Model specific performance of SLG (all data for medium H<sub>2</sub>O, 23°C)

Parameter	SLG-0025	SLG-0075		SLG-0150	Unit
		Precision	Extended		
H <sub>2</sub> O Full scale flow rate	1500	5000	20000	8000	nl/min
H <sub>2</sub> O Sensor output limit <sup>a</sup>	1700	5500	2000/22000 <sup>b</sup>	10500	nl/min
Accuracy below full scale (whichever error is larger)	10	10	20	5	% of m.v. <sup>c</sup>
	0.5	0.5	n/a	0.5	% of full scale
Repeatability below full scale (whichever error is larger)	0.6	0.6	1.2	0.5	% of m.v.
	0.06	0.03	n/a	0.05	% of full scale
Temperature coefficient (additional error / °C; whichever is larger)	0.3	0.3	0.3	0.15	% m.v. / °C
	0.03	0.03	n/a	0.015	% full scale / °C
Mounting orientation sensitivity <sup>d</sup>	-	-	-	<0.4	% of full scale
Flow detection response time $\tau_{63}$	40	40	120	40	ms
Response time on power-up	120				ms
Operating temperature	+10...+50				°C
Ambient storage temperature <sup>e</sup>	-10...+60				°C
Operating pressure	1200 (17500)			500 (7250)	Bar (psi)

<sup>a</sup>Flow rate at which the sensor output saturates. See Section 2 for performance between full scale and saturation point

<sup>b</sup>Lower/upper limit

<sup>c</sup>Measured value

<sup>d</sup>No dependence on the mounting orientation for SLG-0025 and SLG-0075. SLG-0150: maximum additional offset when mounted vertically.

<sup>e</sup>Non-condensing, flow path empty

## 1.1 Precision/Extended Mode with the SLG-0075

The SLG-0075 is offering two different flow sensing modes. The Precision Mode allows for precise flow sensing starting at zero flow while the Extended Mode is made for a rough estimation of the current mass flow in higher flow ranges. The Precision Mode is fully bi-directional with continuous output at and around zero. The Extended Mode is uni-directional (positive flow direction only), and sensor output is restricted to the flow range between 2000 nl/min to 22000 nl/min. The calibration for each mode is stored on a separate calibration field (CF):

- Calibration field 0: Precision Mode (default)
- Calibration field 1: Extended Mode

For switching between the two modes of operation the internal calibration field has to be selected accordingly. This can be done either by using the Sensirion USB/RS485 Viewer Software or by specific digital commands (see additional documentation, available on request for either I<sup>2</sup>C or RS485 communication).