

SLI Liquid Flow Meter Series

Media Isolated Microfluidic Flow Meter

- Liquid flow rates up to 10 ml/min
- Non-invasive measurement
- Different interface options
- 40 ms flow detection response time



Product Summary

The SLI Liquid Flow Meter enables fast, non-invasive measurements of very low liquid flow in the $\mu\text{l}/\text{min}$ - to ml/min -range. Excellent chemical resistance is ensured: The flow path of the SLI Liquid Flow Meter is formed by a simple, straight glass capillary. The fourth generation MEMS sensors combine a thermal high precision sensor element with amplification circuits and digital intelligence for linearization and temperature compensation on one single microchip – the product's core element.

Interface Options

Digital

- I²C-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 SLI (all data for medium H₂O, 23°C)

Parameter	SLI-0430	SLI-1000	SLI-2000	Unit
H ₂ O Full scale flow rate	80	1000	5000	$\mu\text{l}/\text{min}$
H ₂ O Sensor output limit ^a	120	1100	5500 ^b	$\mu\text{l}/\text{min}$
Accuracy below full scale (whichever error is larger)	5.0	5.0	5.0	% of m.v. ^c
	0.15	0.2	0.2	% of full scale
Repeatability below full scale (whichever error is larger)	0.5	0.5	0.5	% of m.v.
	0.01	0.02	0.02	% of full scale
Temperature coefficient (additional error / °C; whichever is larger)	0.13	0.1	0.1	% m.v. / °C
	0.003	0.004	0.004	% full scale / °C
Mounting orientation sensitivity ^d	<0.4	1.0	1.5	% of full scale
Flow detection response time τ_{63}	40			ms
Response time on power-up	120			ms
Operating temperature	+10...+50			°C
Ambient storage temperature ^e	-10...+60			°C
Maximum recommended operating pressure	50	15	15	bar
Burst pressure	150	30	30	bar

^a Flow rate at which the sensor output saturates. See section 2 for performance between full scale and saturation point

^b Extended range up to 10500 $\mu\text{l}/\text{min}$, see section 2 for performance specifications

^c Measured value

^d Maximum additional offset when mounted vertically

^e Non-condensing, flow path empty

Table 2: Model specific performance of SLI (all data for medium IPA, 23°C)

Parameter	SLI-0430	SLI-1000	SLI-2000	Unit
IPA full scale flow rate	500	10'000		µl/min
			80	ml/min
Sensor output limit ^a	600	11'000		µl/min
			90	ml/min
Accuracy below full scale (whichever error is larger)	20	20	10	% of m.v. ^b
	1	1	0.5	% of full scale
Repeatability below full scale (whichever error is larger)	1	1	1.5	% of m.v.
	0.05	0.05	0.03	% of full scale
Temperature coefficient (additional error / °C; whichever is larger)	0.5	0.4	0.35	% m.v. / °C
	0.025	0.02	0.02	% full scale / °C

^aFlow rate at which the sensor output saturates

^bMeasured value

1.1 Calibration Field Information

The SLI Liquid Flow Meters hold calibrations for two liquids, one for water (H₂O) and one for isopropyl alcohol (IPA).

Each calibration is stored on a separate calibration field (CF):

- Calibration field 0: H₂O (factory default)
- Calibration field 1: IPA
- Calibration field 2 (SLI-2000 only, starting from SN 1627-00000): H₂O extended range

The default calibration field (i.e. the active calibration field at power up) can be permanently changed via I²C or RS485 commands. Alternatively, the default calibration field can be changed using the USB-RS485 Sensor Viewer which is part of the Liquid Flow Meter Kit and also available in the download center on the Sensirion liquid flow webpage. www.sensirion.com/liquidflow-download