Microfluidics Innovation Center

GALILEO project

Galileo Liquid Flow Meter

Specification sheet

- Galileo-1
- Galileo-2

Wide range and high-accuracy microfluidic flow sensor based on differential pressure measurement.

Unprecedented precision of the measurement over the full range, allowing you to monitor the tiniest variations of your flow

Integrated sensor blocking detection for an easier maintenance of your system and improved trust in the reading

Innovative base and cartridge assembly with live display of the measured flow rate

1. Technical specifications

Table 1: Technical performances of the flow sensors

Performances			
Range (1)	Galileo-1	0 – 30.0	µL/min
	Galileo-2	0 – 480.0	µL/min
Accuracy (2)		2	% m.v.(a)
Precision		<0.01	% f.s. (b)
Repeatability		<0.25	% m.v.
Response time τ_{95} (3)		<20	ms
Temperature correction factor (4)		<0.05	% m.v. / °C
Output data rate		200	Hz
Compatible fluids (5)		Water, isopropanol, cell culture media, mineral oil, glycerol, hexadecane, PBS*, ethanol	
Additional features		Sensor clogging alert On-screen live display	

* Phosphate-buffered saline

(a) m.v.: measured value
(b) f.s.: full scale

(1) Given for pure water at 25°C. The range for other liquids varies according to their viscosity.
(2) Measured on flow rates 0.5 µL/min – 30.0 µL/min for Galileo-1, and 8 µL/min – 480 µL/min for Galileo-2.
(3) Response time a 95% to a pressure step input.
(4) Corresponds to the correction in accuracy to correct for the difference in temperature with respect to the calibration temperature (25 °C).
(5) Additional fluids can be added upon request.

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2. Operating conditions

Table 2: Recommended operating conditions of the sensor

Operating conditions		
Operating temperature	10 – 40	°C
Operating absolute pressure	0 – 4	bar
Warm-up time	> 15 min for optimal performances	
CO_2 incubator compatibility	Yes	

3. Mechanical and electrical characteristics

Table 3: Mechanical and electrical properties of the sensor

Mechanical and electrical properties			
Wetted materials		PEEK, PFPE, ETFE, FSIL, stainless steel	
Internal volume	Galileo-1	11	µL
	Galileo-2	18	µL
Weight	Base	150	g
	Cartridge	40	g
Dimensions (L x W x H)	Base	70 x 65 x 35	mm
	Cartridge	60 x 49 x 17	mm
Fluidic connections		¼"-28 Female UNF	
Power supply		5V DC	
Electrical connection		USB-C	
Communication protocol		UART	

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