

# MFS THERMAL BASED FLOW SENSOR

ELVEFLOW.COM/MICROFLUIDIC-FLOW-CONTROL-PRODUCTS/MICROFLUIDIC-FLOW-CONTROL-MODULE/MICROFLUIDIC-LIQUID-MASS-FLOW-SENSORS/



## HIGH-ACCURACY FLOW MONITORING AND CONTROL



High-accuracy volumetric flow sensors for **ultra-low flow rate monitoring** of liquids. The thermal-based flow sensor comes with an M8 4-pin electrical connection and can be directly controlled through the Elveflow software.

- ✓ 5 FLOW RATE RANGES
- ✓ HIGH CHEMICAL COMPATIBILITY

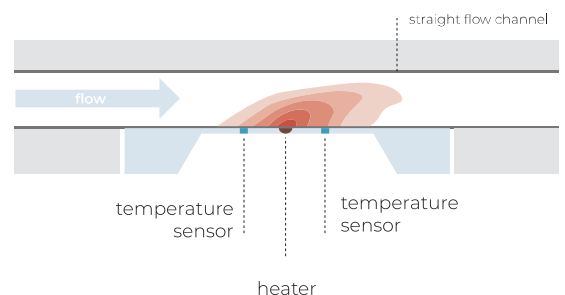
### UNIQUE PERFORMANCES

- > Calibrated flows from **0.07  $\mu\text{L}/\text{min}$  to 5,000  $\mu\text{L}/\text{min}$**
- > Sensor response time: **from 2 to 70 ms**
- > Resolution **down to 1.5 pL/s**
- > Wetted materials: **glass or quartz**

### APPLICATIONS

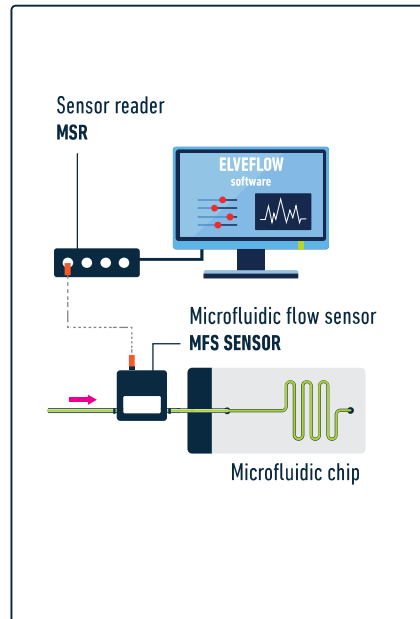
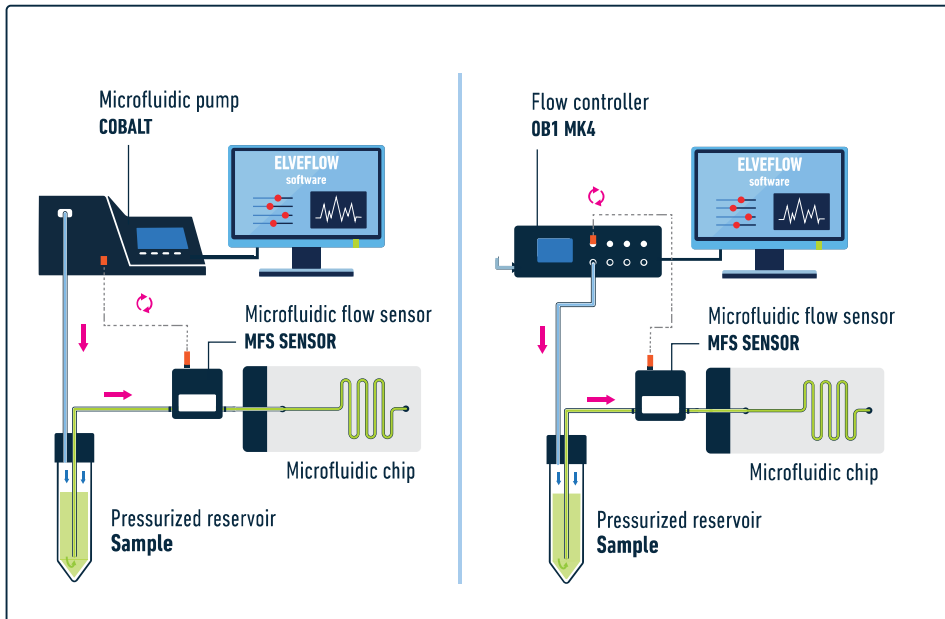
- > Couple with an OB1 flow controller or a Cobalt for direct flow rate control
- > Bi-directional flow rate measurement (positive & negative)

### PRINCIPLE



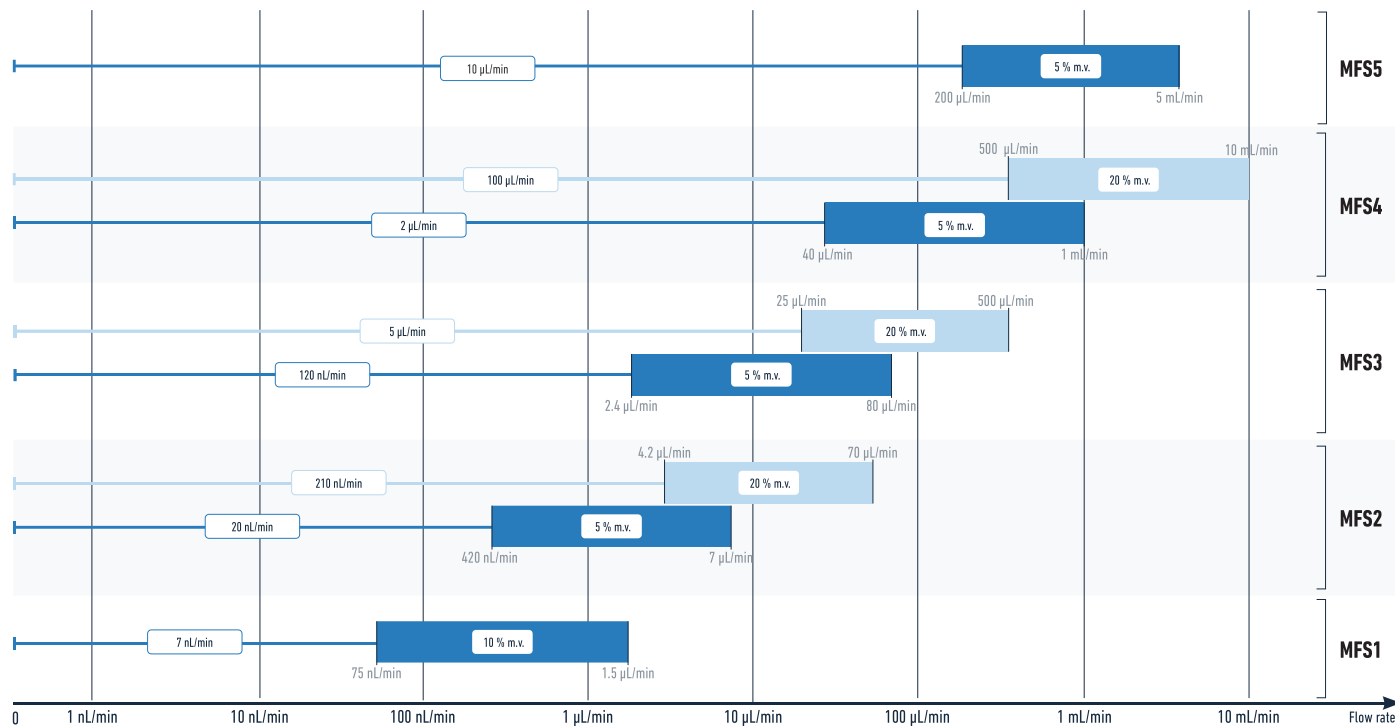
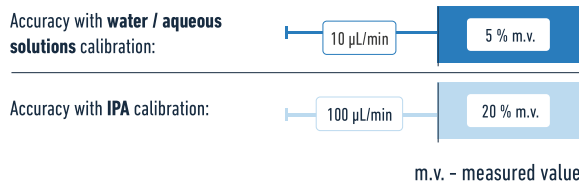
WITH ELVEFLOW FLOW CONTROLLERS: MONITORING + CONTROL

WITH SENSOR READER: MONITORING



TECHNICAL SPECIFICATIONS

MFS FLOW RATE RANGES AND ACCURACY



# FLOW SENSORS COMPARISON MFS VS BFS

FLOW SENSORS COMPARISON	 BFS (1 & 1+)	 MFS
Accuracy	0.2 % of measured value <sup>(1)</sup>	5 % of measured value
Range	One sensor for 1.6 µL/min to 3 mL/min	Five sensors from 10 nL/min to 5 mL/min
Negative flow measurement	Yes	Yes
Supported fluid types	All without calibration	All with calibration
Response time	35 ms <sup>(2)</sup>	From 1 to 70 ms <sup>(3)</sup>
Flow sensor size	65 x 32 x 144 mm	58 x 53 x 23 mm
Internal diameter	250 µm	From 25 µm to 1.8 mm <sup>(4)</sup>
Weight	3 kg	100 g
Connectors	1/16" OD tubing	1/16" OD tubing
Internal volume	13 µL	From 1 µL to 80 µL <sup>(4)</sup>
Wetted material	Stainless steel 316L or comparable	Glass or Quartz
Principle	Coriolis	Thermal
Computer connection	Directly via USB to the computer	Directly on the OB1 and the AF1 or with the Sensor reader MSR
Additional features	Temperature and density measurement	

Non-contractual information, may be changed without notice.

- (1) Available upon request. 2 % accuracy for the regular model
- (2) 0.2 s at 98 % (spec) to fill the tubing then 35 ms with temperature measurement
- (3) Depending on chosen digital resolution
- (4) Depending of the sensor range