

# MFS

## Microfluidic Flow Sensor



☒ F1 & OB1 become the most performant syringe pumps ☒

### High-accuracy for very low flow rate monitoring

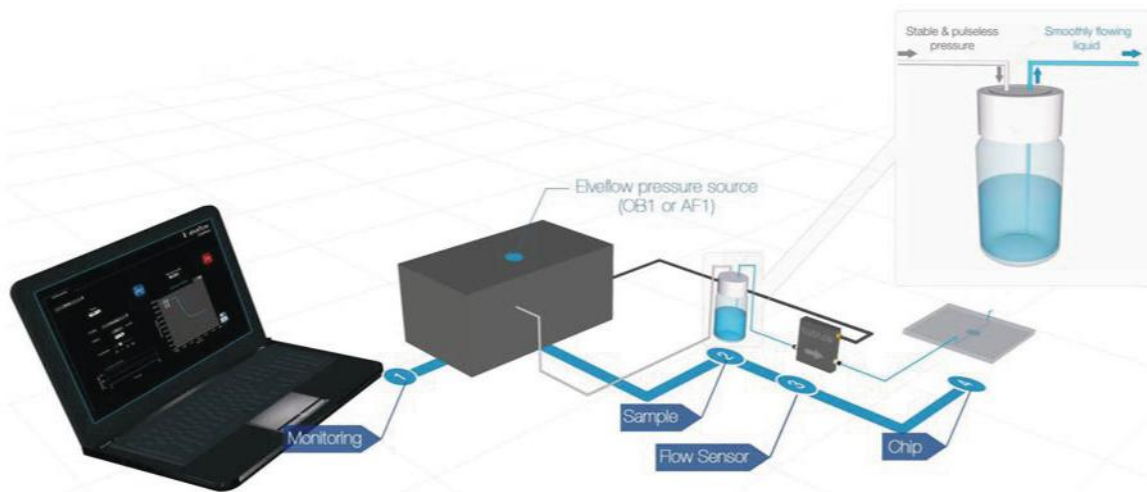
#### Exceptional performances

› Calibrated flows from 0.07  $\mu\text{L}/\text{min}$  to 5000  $\mu\text{L}/\text{min}$  › Sensor response time: 40 ms › Resolution down to 1,5  $\mu\text{L}/\text{s}$

#### Features that matter

- › Chemical and biological compatibility
- › Low internal volume (1  $\mu\text{L}$ )
- › Bi-directional flow rate measurement (positive & negative)

# MFS PRINCIPLE



## 1 Monitoring

Set a desired flow rate profile and control it using the Elveflow SmartInterface on your computer.

## 2 Sample

Pressurize the liquids samples into the reservoirs with your Elveflow instrument (OB1 or AF1).

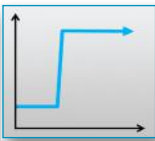
## 3 Flow Sensor

The sensor output signal is sent to the Elveflow Smart Interface that automatically adjusts the pressure to reach the set flow rate value in your channels.

## 4 Microfluidic Chip

The pressurized liquid is smoothly and precisely injected into the microfluidic chip at the desired flow rate.

# MFS FEATURES & BENEFITS



### › Short Flow Detection Response Time Get the Highest Responsiveness.

The exceptional qualities of these MFS flow sensors (40 ms response time, resolution down to 1,5 pL/s) enables you to conduct extremely subtle experiments requiring a very high level of technical expertise.

### › Highest Flow Stability Enjoy a Smooth & Pulseless Flow.

The combination of the MFS flow sensor's performances and the extreme pressure stability of Elveflow instruments ensures a superior flow control performance upon first time.



### › Plug and Play flow control Let it Flow.

«Plug & Play Microfluidics» is not just a motto to us. Users will benefit from a control algorithm that ensures an extremely sensitive and responsive flow rate regulation, while being very simple to operate.

### › Complex Flow Rate Pattern Control Make the Complex Simple.

Our profile editor will allow you to easily create and program sine, triangle, square, sawtooth and pulses flow rate profiles to automate the most sophisticated protocols.



### › Chemical & biological compatibility Complete Confidence.

Wetted materials include borosilicate glass, quartz glass, or inert PEEK plastic to ensure a full chemical and biological compatibility, so you can work in complete confidence.

### › Broad Line of Products A Sensor for Every Need.

Elveflow® provides a large line of flow sensors ranging from 70 nL/min to 5 mL/min, so there is always a device fitted to your experimental needs.


## The Elveflow® Smart Interface Makes Your Work Easier

Thanks to an ergonomic design of the fluidic functions & modules, your routine tasks and workflows will be more comfortable.

- ▶ Intuitive control interface
- ▶ Real time control using pressure or flow rate regulation
- ▶ Pressure & flow rate visualization and recording
- ▶ Programming & automation of complex sequences
- ▶ Alternative instrument control through the provided Labview® and Matlab® libraries, and DLLs



National instruments is our technological partner for embedded electronics

MICROFLUIDIC FLOW SENSOR	MFS 1	MFS 2	MFS 3	MFS 4	MFS 5
Flow Rate Range	0 to ±1.5 µL/min	0 to ±7 µL/min	0 to ±80 µL/min	0 to ±1 mL/min	0 to ±5mL/min
Accuracy (m.v. = measured value)	10% m.v. between [-1500to-70]&[70to1500]nL/min	5% m.v. between [-7 to 0.4] & [0.4 to 7] µL/min	5% m.v. between [-80to-2]&[2to80]µL/min	5% m.v. between [-1to-0.04]&[0.04to1]mL/min	5% m.v. between [-5to-0.2]&[0.2to5]mL/min
	7nL/min between [-70 to 70] nL/min	20 nL/min between [-0.4 to 0.4] µL/min	120 nL/min between [-2 to 2] µL/min	2 µL/min between [-40 to 40] µL/min	10 µL/min between [-200 to 200] µL/min
Sensor Inner Diameter	25 µm	150 µm	430 µm	1.0 mm	1.8 mm
Microfluidic Fitting Type	UNF 1/4-28				
Microfluidic Fitting Material	PEEK				
Internal Sensor Capillary Material	Quartz		Borosilicate Glass		
Electrical Input	8 V  100 mA				
Analog Output	0 - 5 V				
Flow Sensor Size (length x width x height)	58 x 52 x 23 mm				
Weight	102 g				

©2013 ELVEFLOW™ Microfluidic Innovation Center. All rights reserved. Information is subject to change without notice.

The recommended storage temperature ranges from -10 °C to +60 °C.

The operating temperature range is -20 C to +50 C.

Liquid Flow Sensor enables fast, and non invasive measurements of very low liquid flow rates below 5 mL/min.

Excellent chemical resistance and bio-compatibility are ensured.

The flow sensor shows bi-directional and linear transfer characteristics.

The product comes fully calibrated for water. For volume applications, flow calibration for methanol or other media is available on request (all data for medium H2O, 20°C, 1 bar unless otherwise noted).

Non-contractual information may be changed without notice.

## Related Products & Services



### ▶ Eppendorf® Microfluidic Tank

100% gas tight connection caps.  
1.5 - 2 mL Eppendorf® tubes  
15 mL BD Falcon® tubes  
100 mL - 2 L Upchurch® bottle caps.



### ▶ Grants & Partnerships

Elveflow invests in co-development and cooperative projects with academic, SME and industrial partners to take an active part in the development of microfluidics.



### ▶ Connection Kits

Bored of microplumbing issues? Our kits enable to easily connect your microfluidic device to any pressure or flow control equipment.



### ▶ Broad Product Line

Elveflow instruments are designed to work together on your microfluidic setup. Switch valve system, flow rate monitoring, temperature control...



### ▶ Flow Reader

A device specifically designed to be used with a flow sensor for flow rate measurements inside your microchannels



### ▶ Service

Benefit from our microfluidics PhD team's expertise. Take advantage of our support for specific developments on your setup.

It is no coincidence that the most prestigious names trust in us

