ELVE FLOW
PLUG & PLAY MICROFLUIDICS

PRODUCT
CATALOG
2021

MICROFLUIDIC POETRY JULIEN RODDUARD

STATE OF THE ART
microfluidic instrumentation for all

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Elveflow is an Elvesys brand. We build premium flow handling instruments since 2012. We are proud to have provided **more than 2,000 systems** so far to both academics and industrial users.

Our product line is built around **the best seller OB1 flow controller** and includes everything for accurate liquid handling. All our instruments can be controlled simultaneously using our **software** and **Software Development Kits** allowing for a full automation of your system.
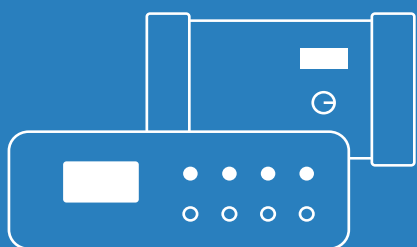
Our instruments are **modular**, **upgradable** and come in a **standard** or **OEM** version.

ELVE
FLOW
PLUG & PLAY MICROFLUIDICS

PRODUCTS
FLOW CONTROL SYSTEMS

OB1 MK3+
MULTI CHANNEL PRESSURE & VACUUM CONTROLLER
ELVEFLOW.COM/MICROFLUIDIC-FLOW-CONTROL-PRODUCTS/FLOW-CONTROL-SYSTEM/PRESSURE-CONTROLLER/

★ BEST SELLER

DON'T LET YOUR PUMP LIMIT YOUR RESEARCH
BEST RESPONSIVENESS AND ACCURACY ON THE MARKET
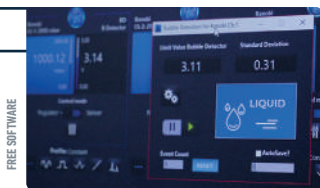

2 YEARS WARRANTY

The OB1 MK3+ is a **high performance** microfluidic pressure and flow controller. Customize your unit: pick the number of channels you like and **choose for each of them the pressure and vacuum ranges** among the 5 options available.

✔ **MODULAR**

✔ **UPGRADABLE**

✔ **SOFTWARE INCLUDED**

FREE SOFTWARE

APPLICATIONS

> Digital microfluidics

> Flow chemistry & polymer synthesis

> Cell culture: cell perfusion, sequential injection

> Droplet-sequencing: RNA sequencing

> Organ on chip

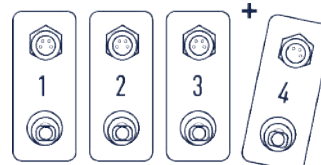> Enhanced oil recovery

> Lab on a chip

UNIQUE PERFORMANCES

> Pressure stability **0.005 % FS**

> Response time **9 ms**

> Pressure resolution **0.003 % FS**

> Settling time **down to 35 ms**

PIEZOELECTRIC TECHNOLOGY
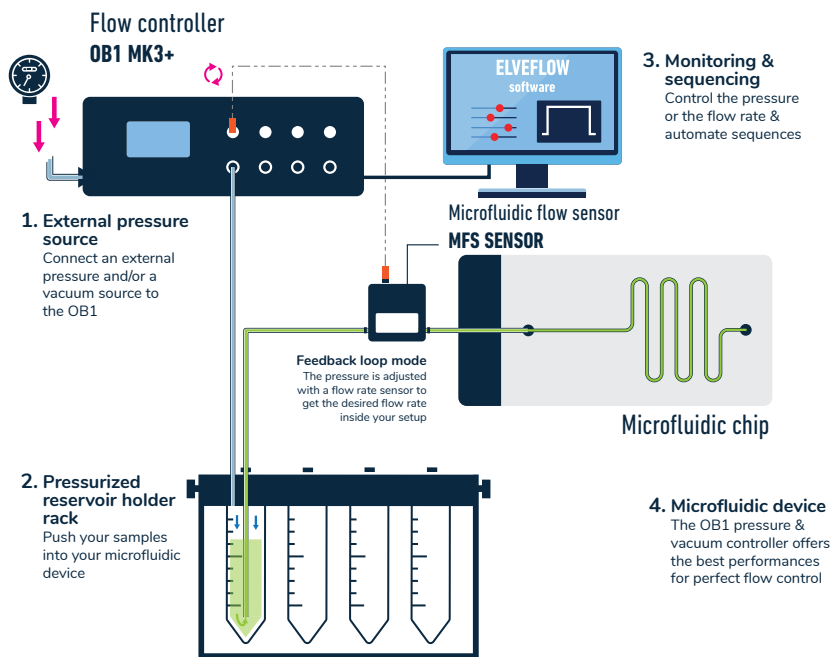
CUTTING EDGE PIEZO CONTROL
FOR MICROFLUIDICS

CHOOSE FROM 1 TO 4 CHANNELS, AND MORE...

Get a one-channel today and add more channels later

Flow controller OB1 MK3+

ELVEFLOW software

3. Monitoring & sequencing
Control the pressure or the flow rate & automate sequences

1. External pressure source
Connect an external pressure and/or a vacuum source to the OB1

Microfluidic flow sensor
MFS SENSOR

Feedback loop mode
The pressure is adjusted with a flow rate sensor to get the desired flow rate inside your setup

Microfluidic chip

2. Pressurized reservoir holder rack
Push your samples into your microfluidic device

4. Microfluidic device
The OB1 pressure & vacuum controller offers the best performances for perfect flow control

1 External pressure source
Connect a pressure and/or a vacuum source to your OB1 (required).
Example: Gas cylinder, lab pressure line, compressor (see more p.40)

2 Sample
Depending on your choice, the liquids can be pulled into the reservoir or be pushed from there since the OB1 can use pressure or vacuum within the same channel.

3 Monitoring & sequencing
Automate pressure and flow control using the Elveflow software on your computer.

4 Microfluidic devic
The OB1's pressure & vacuum features offer precise sample handling, and provide full control over the injection.

> To **control flow rate or pressure** at any given point of your circuit, you can perform a **feedback loop** with the flow rate. The same can be done with pressure using a pressure sensor.

FEATURES & BENEFITS

Short settling time
Operate blazing fast changes in any microdevice with our Piezo technology

Highest flow stability
Ensure superior flow performance over a large flow range, with pressure stability down to 10 µbar

Accurate flow control
Input a flow value into the software. Flow regulation down to 7.5 nL/min

Software automation
Control all instruments through a single dashboard. Powerful script module to automate control and injection over days

Create your own program
Software Development Kits (C++, Python, MATLAB® and LabVIEW® libraries)

Enhanced data saving
Up to 10 ms sampling rate to take out the best of your results

Easy to install and use
Start out of the box and set everything up within minutes

Customizable
Choose from any number of channels among the five pressure ranges available

Upgradable
Get a one-channel today and add more channels later

PRESSURE RANGES

FOR EACH CHANNEL:
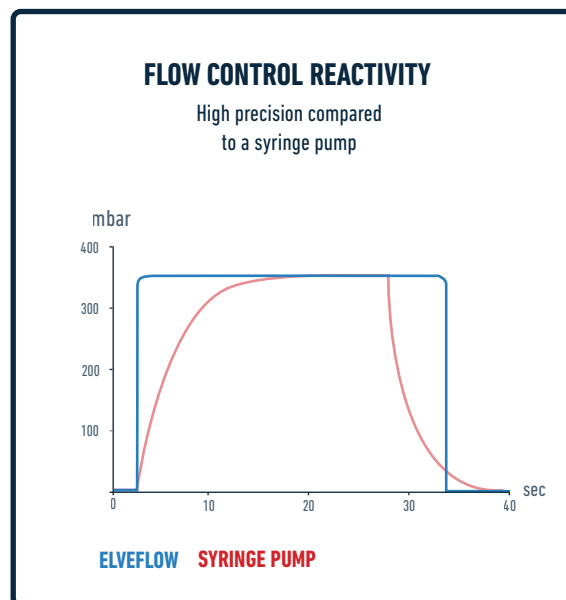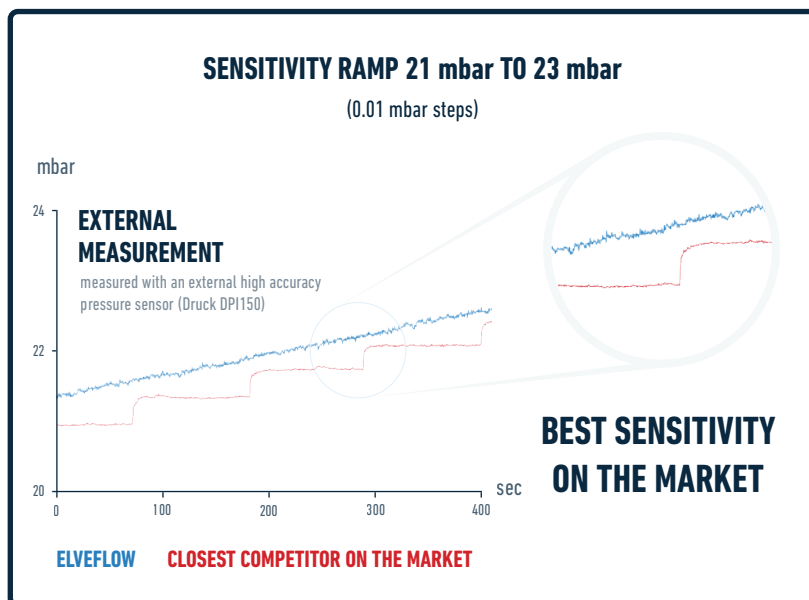**5 PRESSURE RANGES AVAILABLE**

0 to 200 mbar
0 to 2,000 mbar
0 to 8,000 mbar
-900 to 1,000 mbar
-900 to 6,000 mbar
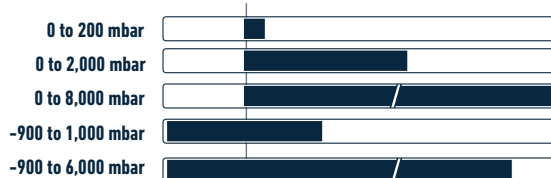
OB1 MK3+ CHANNEL PRESSURE RANGE	0 to 200 mbar[1] (0 to 2.9 psi)	0 to 2,000 mbar[1] (0 to 29 psi)	0 to 8,000 mbar[1] (0 to 116 psi)	-900 to 1,000 mbar[1] (-13 to 14.5 psi)	-900 to 6,000 mbar[1] (-13 to 87 psi)
Pressure stability [2]	0.005 % FS 10 µbar (0.00014 psi)	0.005 % FS 100 µbar (0.0014 psi)	0.006% FS 500 µbar (0.007 psi)	-900 to 500 mbar: **0.005 % FS** 100 µbar (0.0014 psi) / 500 to 1,000 mbar: **0.007 % FS** 150 µbar (0.0021 psi)	-900 to 2,000 mbar: **0.005 % FS** 350 µbar (0.05 psi) / 2,000 to 6,000 mbar: **0.007 % FS** 525 µbar (0.076 psi)
Response time [3]	down to 9 ms				
Settling time [4]	down to 35 ms				
Minimum pressure increment	0.003 % FS 6.1 µbar - 0,000085 ps	0.003 % FS 56 µbar - 0,00085 psi	0.003 % FS 240 µbar - 0,0035 psi	0.0032 % FS 61 µbar - 0,00085 psi	0.003 % FS 210 µbar - 0.003 psi
Input pressure	**1.5 bar - 10 bar** non corrosive, non explosive, dry and oil-free gases, e.g. air, argon, N2, CO2, ...				
Input vacuum [5]	/			any value from 0 to -1 bar	
Liquid compatibility	no liquid should enter the OB1 any aqueous or organic solvent, oil or biological sample solution can be propelled				

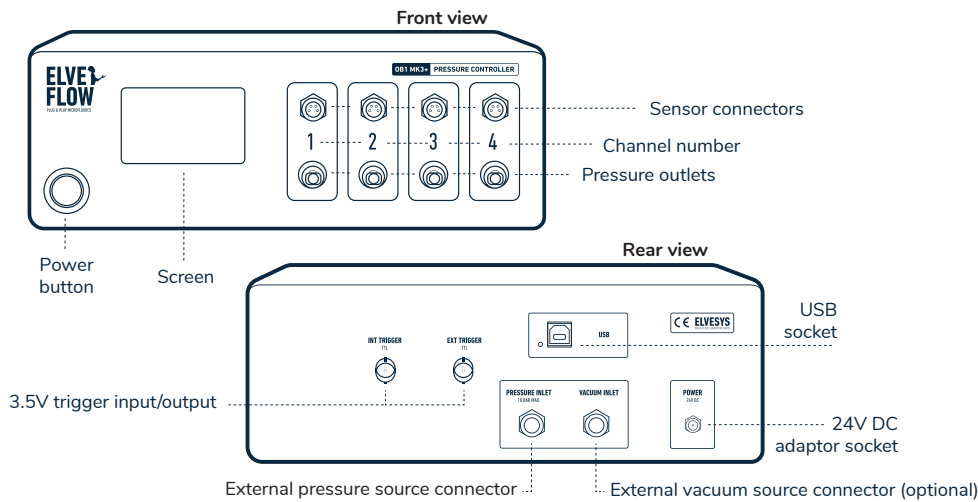Non-contractual information, may be changed without notice.

POWER CONSUMPTION (maximum): 12 W   **CASE DIMENSIONS** (length x width x height): 240 x 223 x 80 mm   **WEIGHT:** 1.7 kg to 3.04 kg (3.1 Kg)   **TTL TRIGGER:** input 5V / output 3,3V

(1) Max pressure value might vary by +/- 2.5% (2) Pressure stability (standard deviation) measured over the full pressure range with an external high accuracy pressure sensor (Paroscientific MODEL 745) (3) Depending on your computer's operating system (4) Volume dependent – Measurement done on 12 mL reservoir for a set point from 100 to 200 mbar (5) The vaccum channels can be used without vacuum source if only positive pressures are desired.

SENSITIVITY RAMP 21 mbar TO 23 mbar
(0.01 mbar steps)

EXTERNAL MEASUREMENT

measured with an external high accuracy pressure sensor (Druck DPI150)

BEST SENSITIVITY ON THE MARKET

ELVEFLOW   **CLOSEST COMPETITOR ON THE MARKET**

FLOW CONTROL REACTIVITY
High precision compared to a syringe pump

ELVEFLOW   **SYRINGE PUMP**

They trust Elveflow's **performances** and **quality**:

INSTRUMENT DESCRIPTION

Front view

ELVE FLOW PLUG & PLAY MICROFLUIDICS

OB1 MK3+ PRESSURE CONTROLLER

1   2   3   4

- Sensor connectors
- Channel number
- Pressure outlets

Power button

Screen

Rear view

INT TRIGGER TTL   EXT TRIGGER TTL

USB

CE ELVESYS

PRESSURE INLET 10 BAR MAX.   VACUUM INLET   POWER 24V DC

- USB socket
- 24V DC adaptor socket

3.5V trigger input/output

External pressure source connector

External vacuum source connector (optional)

PRESSURE RANGE COLOR CODE

YELLOW
0 to 200 mbar

BLUE
0 to 2,000 mbar

PURPLE
-900 to 1,000 mbar

ORANGE
-900 to 6,000 mbar

GREY
0 to 8,000 mbar

PRODUCTS & SERVICES

ELEMENTS PROVIDED BY ELVEFLOW	INCLUDED	OPTIONAL
Software & libraries Control all Elveflow instruments with the same smart interface	●	
OB1 connection kit A complete set of accessories fitted for the OB1 flow generator		●
Reservoirs Gas tight reservoirs with ergonomic fluidic connection		●
Flow sensors A line of sensors to monitor very low liquid flow rates		●
Compressor A safe & secure pressure source for the OB1 pressure controller		●
Service The Elveflow expertise & support to offer you individually tailored solutions	●	

SOFTWARE FEATURES

ELVEFLOW.COM/MICROFLUIDIC-FLOW-CONTROL-PRODUCTS/FLOW-CONTROL-SYSTEM/ELVEFLOW-SOFTWARE/

> Pressure & flow rate **visualization** and **recording**

> **Programming** & **automation** of complex sequences

> Easy alternative instrument control through the provided **C++, Python, MATLAB®** and **LabVIEW®** libraries

NATIONAL INSTRUMENT

National Instrument is our technological partner for embedded electronics
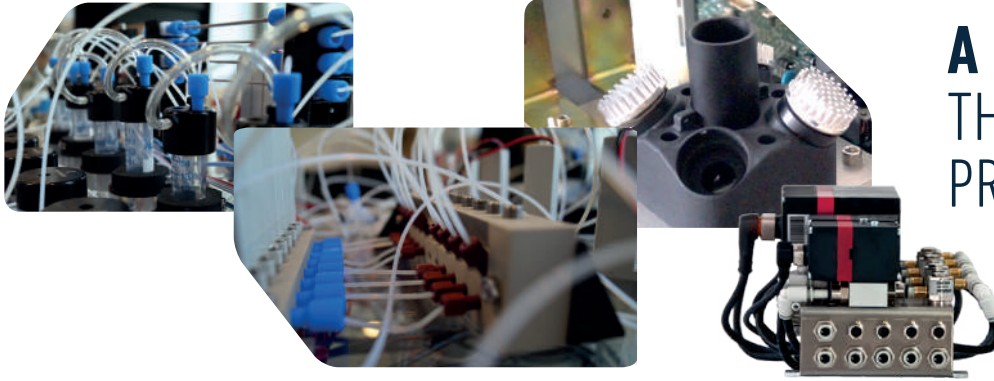
More information:

ESI - FREE SOFTWARE
ELVEFLOW SMART INTERFACE - ALL INSTRUMENTS _____ P.37

OEM – ORIGINAL EQUIPMENT MANUFACTURER
CUSTOM FLUIDIC SYSTEMS

ELVEFLOW.COM/MICROFLUIDIC-FLOW-CONTROL-PRODUCTS/OEM-CUSTOM-FLUIDIC-SYSTEMS/

A CUSTOM SOLUTION
THAT FITS YOUR PROJECT PERFECTLY

Elveflow provides a **comprehensive line of OEM fluidic components** that can be integrated into your products. Our OEM components allow a seamless integration thanks to their **small footprint** and **easy interfacing**. A **simple serial USB connection** allows interfacing through our API, the native in/out triggers provide optimum interactions and we use standard fittings for pneumatic and fluidic connections.

We provide a dedicated software with all fluidic OEM products, as well as libraries for a **customized software development** (C++, Python, MATLAB® and LabVIEW® libraries).

SERVICES

> Personalized expert advice for our clients and partners

> Creation of technical specifications

> Risk management and analysis

> Development and production of mechanics, electronics and software

> Prototyping

> Beta testing, troubleshooting and continuous improvement

> Production, from limited series to large scale

> Maintenance, support and training

> Upgrades of your systems

WHY CHOOSE US AS YOUR OEM PARTNER?

> **A receptive and efficient partner** – We are well aware of the importance of keeping up with your fast-changing market.

> **A soft intellectual property policy** – We believe that intellectual property should never be an obstacle to innovation.

> **A trusted manufacturer** – High profile companies already trust us for their scientific instruments. Why not you?

> **A proven track record** – Our team carried out successfully several projects taking into account challenging constraints to end up with the best solutions for our partners.