



ELVEFLOW

PLUG & PLAY MICROFLUIDICS

MUX

Flow Switches



4 unique microfluidic flow switch matrices

Skilful instruments...

- › Fast flow switch: 25 ms
- › 2-way or 3-way valves
- › Clean fluids injection: no backflow
- › Complete flow stop
- › No residual flow
- › Low volume injection

...with extended capabilities

- › Fast medium switching - Drug Testing
- › On-chip peristaltic pumping
- › Sequential sample injection
- › Cell/particle sample screening
- › Medium perfusion switch for cell biology
- › Diffusion studies

4 unique microfluidic flow switch matrices

ROCKER valve technology ➤➤ No waves created when opening & closing valves (flow displacement < 10nL).

MUX Cross Chip The Zero Flow Virtuoso

A flow switch matrix designed to stop the flow in microfluidic devices in 100 ms



Applications : Instantaneous Flow Stop, Small Sample Injection & Sample Premixing

- › Rocker Peek Valves
- › Plug & Play Programmable Flow Stop
- › Complete Equilibrium & Stop Flow In 100 ms
- › Ultra Low Volume Injection
- › Internal/External Trigger

MUX Flow switch Matrix The Medium Switch Specialist

A flow switch matrix designed for fast drug switch into microdevices in less than 300ms



Applications : Drug, Reagent & Cell Medium Switch For Cell Biology and Flow Chemistry

- › Rocker Peek Valves & PEEK Manifold
- › Plug & Play Usb Software
- › No Samples Cross-Contamination & No Backflow
- › Flexible : From 4 To 256 Valves
- › Internal/External Trigger

MUX Quake Valve The PDMS Valves Expert

A flow switch matrix designed to open & close bilayer PDMS valves in less than 50ms



Applications : PDMS Microvalves & Micropumps and Cell Confinement Device Control

- › Plug & Play Programmable Valve Sequence
- › Fast Valve Switch
- › Fine Valve Position Tuning
- › Flexible : From 16 To 256 Peek Valves
- › Internal/External Trigger

MUX Distributor The Sample Injection Artist

A rotative valve designed to easily execute fast medium switches in less than 1s.



Applications : Drug, Reagent & Cell Medium Switch For Cell Biology

- › Fast medium switch in less than 1s
- › Inject up to 6 different solutions into the same inlet
- › Clean sample injection - No back flow
- › Automate your experiment and increase reproducibility
- › Automate your sample collection

MUX FEATURES & BENEFITS



› Short Flow Switch Time Lightning-fast.

The technology used in the Elveflow® MUX makes it possible to achieve a 25 ms flow switch into your microfluidic system. This level of performance pushes the conventional experimental limits and offers you new possibilities.

› Zero Flow Absolute Flow Control

The MUX Flow Switch is the first system which enables to completely stop the flow in a microfluidic system in 100 ms, with zero displaced volume (flow displacement < 10 nL), thanks to the ROCKER® valve technology.



› Plug and Play Flow Control Let it Flow.

ESI - Elveflow Smart Interface - enables you to control simultaneously up to 16 Elveflow® instruments involved in your microfluidic experiment, while being very simple to operate.

› Complex Flow Patterns Loop it. Mix it. Send it.

Our profile editor will allow you to easily program subtle valves patterns and repeat a set of steps in a loop 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.

› Setup Synchronization Perfect Timing.

The MUX offers a TTL triggers set for easily synchronizing your instrument with any Elveflow® device, microscopes or mechanical shutter. That way you can have a full control of all the devices involved in your microfluidic experiment.

› Compactness Small, yet Mighty.

Choose the number of valves you need from 4 to 16 (up to 256 on special request) and the type of valves, unidirectional valves (2/2) for fast sample injection or bi-directional valves (3/2) for quake valves control.

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

MUX TECHNICAL SPECIFICATIONS



MUX Elveflow® flow switches		Cross Chip	Flow Switch Matrix	Quake valve	Distributor
Power Supply	Input voltage range, AC	100 V to 240 V			
	AC supply frequency	50 Hz to 60 Hz			
	Input current, AC	1 A			
	Power consumption	35 W			
	Safety	IEC/EN 61010-1: 2001			
	Shutting down power supply	button switch or disconnect the AC/DC adapter			disconnect AC/DC adapter
Performances	Valves response time	20 ms		300 ms	
	Max. supported pressure	2 bar (29 PSI)		9 bar (125 PSI)	
Mechanical Specifications	Valve type	2/2-way Solenoid Valve	3/2-way Solenoid Valve		6 positions/7 ports or 10 positions/11 ports rotative valve
	Input/Output connectors	10-32 UNF (PEEK tube to port fittings adapters provided)			1/16 or 1/8 fitting-less tubing connection system
	Dimensions L x l x h (mm)	220 x 130 x 130			160 x 76 x 117
	Operating temperature	10°C to 40°C			
	Operating humidity	20 to 80%			
Software	Computer specifications	USB2.0 port, Intel Pentium III 500MHz, 1 Go Hard Disk space, 2 Go RAM Windows XP/Vista/7/8, 32/64 bit. Labview® 2011 is required when using Labview® libraries.			
	Connection type	USB			
	Provided elements	Labview® library, Matlab® library, C DLLs			





Microfluidic Valves Controller

Plug your valves anywhere in you microfluidic setup



PLUG FROM 1 TO 16 VALVES

Control 1 to 16 valves independently



MIX ALL KIND OF VALVES

Use our microfluidic valves (3:2, 2:2, ...) or plug your own valves



SOFTWARE & SDK

A simple USB connection and easily control your valves with your computer

* Limited only to media compatible with polyetherimide, silicon, and fluorosilicone seals

Plug your valves **wherever** you want in your **microfluidic** setup

Our selection of valves : Choose the one for you

- ▶ Low internal volume: 20 μL
- ▶ Compatible with gas or liquid
- ▶ Low power consumption: 1.5 W
- ▶ Convenient $\frac{1}{4}$ -28UNF connection
- ▶ ROCKER® valve technology (flow displacement < 10nL)
- ▶ Afford a wide range of pressure: -0.75 bar to 2.5 bar (-11 psi to 37 psi)



Mux Wire



Valve

3.2

OR

Valve

2.2



Specifications

Properties	SPECIFICATION
General	
Number of controled valves	16
Bus interface	USB 2.0
Power supply	24 VDC, 1.5 A
Max valve power	10 W
Max total power (sum of the power of all connected valves)	35 w
Physical characteristics	
Valve connectors	WR-MPC 3 2.2
Dimmensions	128x81.5x31 mm
Weight	251 g

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...



›Chip Holder

A device specifically designed for sample screening, small sample injection, and Zero Flow applications



›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

