

**ELVE
FLOW**  an **ELVESYS** brand

MUX DISTRIBUTION VALVE 12/1

13-ports/12-positions

DOCUMENT REF: DTSMD12 201120

DATASHEET



Introduction

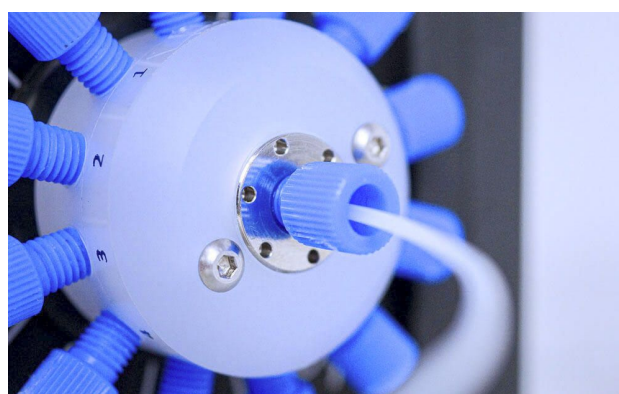
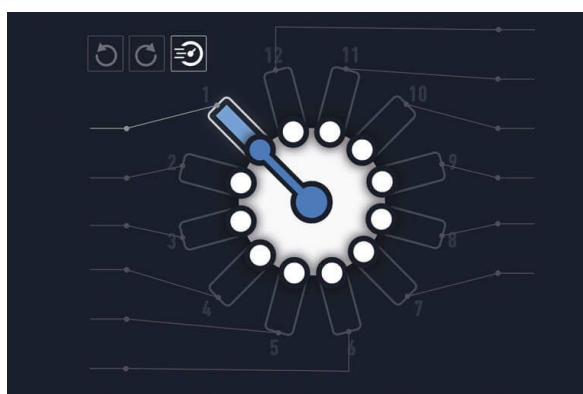
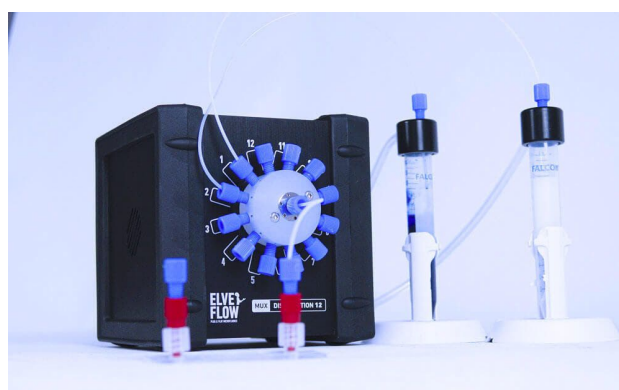
The MUX DISTRIBUTION valve is a bidirectional 12 position/13-port rotary valve which can be used to sequentially inject or select up to 12 different fluids:

- 1 liquid sample into 12 different microfluidic lines
- 12 liquid samples into 1 microfluidic line

Use this versatile valve in combination with the OB1 MKIII+ pressure controller to automate injection in microfluidic experiments, program perfusion experiments, sequentially supply different reagents and many more applications.

Main Features & Benefits

- Switch between 12 ports in less than 156ms, thanks to a fast & precise valve motor.
- Increase the possibilities with 2 extra ports available (compared to other MUX distribution versions).
- Work in total confidence thanks to the robust and biocompatible materials used (PTFE, PCTFE).
- Use less reagent or sample thanks to the low internal volume (down to 3.5 μ L).
- $\frac{1}{4}$ -28 connection enables for a leak-free operation and quick connection using standard fittings.



Product Specifications

Description

front and side view of the instrument

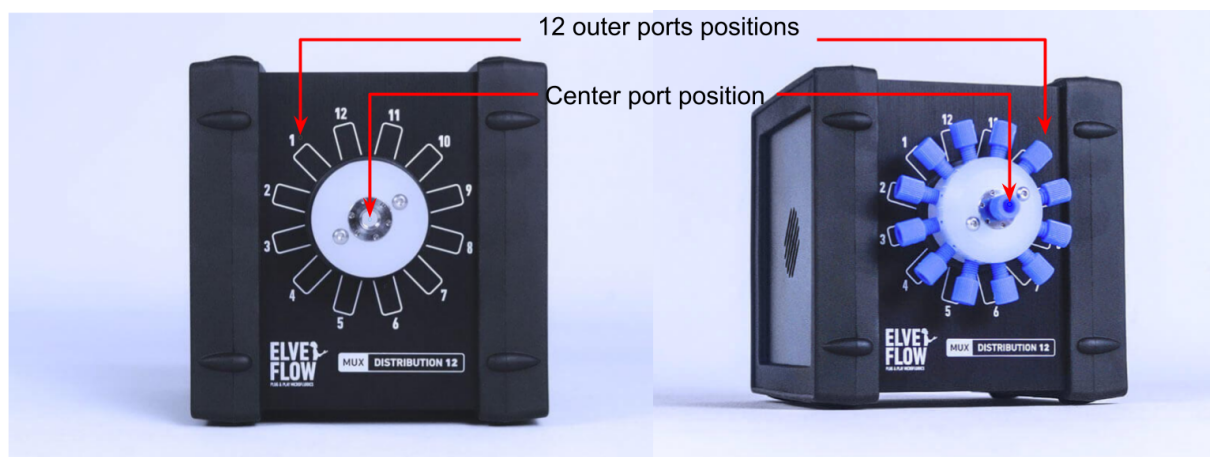


Figure 1. Front view of the MUX distribution 12. The manifold outer ports positions are marked from 1 to 12. This bidirectional 12 position/13-port valve can be used to sequentially inject or select up to 12 different fluids:

- 1 liquid sample into 12 different microfluidic lines.
- 12 liquid samples into 1 microfluidic line.

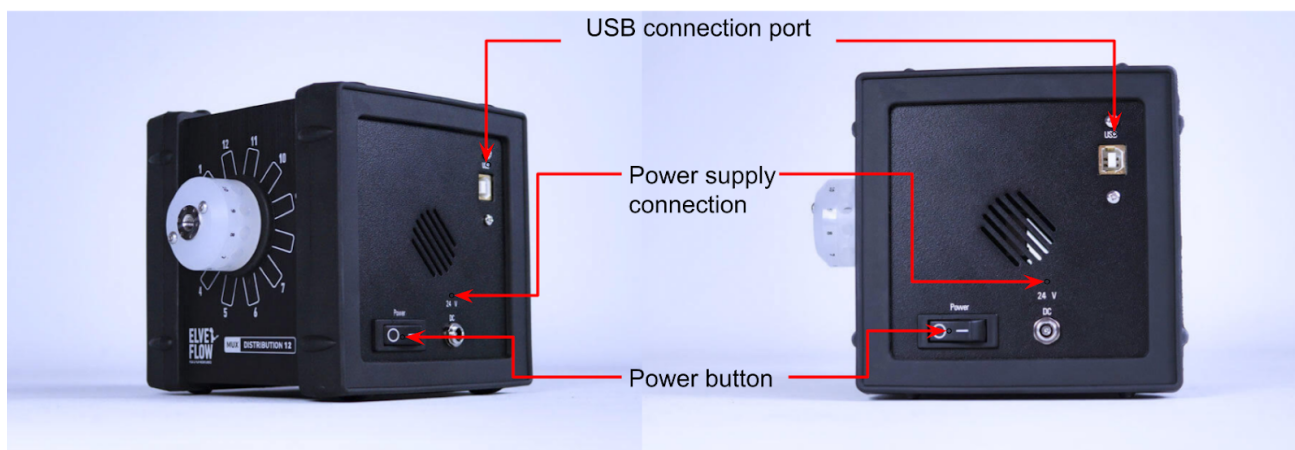


Figure 2. Side view of the MUX distribution 12. The USB and power supply connection ports can be found on the side of the device, along with the power button.

Technical Specifications

Performances	Port to port switching time (ms)	156 ms
	Max recommended pressure	7 bar
	Internal diameter	0.5 mm
	Internal volume ¹	3.5 µL
	Carryover volume ²	1.7 µL
	Dead volume ³	None
	Wetted materials	PCTFE, PTFE
	Number of ports	13
	Number of positions	12
Electrical	Input voltage range	100V to 240 V
	AC supply frequency	50 Hz to 60Hz
	Power supply voltage	18-24V DC
	Max current consumption	2A peak
	Power consumption (max)	36W
	Connection type	USB
Mechanical specifications	Fluidic connectors	Standard 1/4-28 UNF, flat-bottom
	Operating temperature	5-40°C
	Operating Humidity	20-70% non condensing
	Dimensions (without connectors)	133x156x133 mm
	Weight	1.15 kg
Software	Computer specifications	USB 2.0 port, Intel Pentium II 500 MHz, 1 Go Hard Disk space, 2 Go RAM Windows XP and newer, 32/64 bit. - LabVIEW® 2011 is required when using LabVIEW® libraries. - ESI installation is required to use SDK.
	Provided software	Elveflow Software Interface
	Software development kit	C++, Python, MATLAB® and LabVIEW® libraries

¹ Volume inside the system from entrance to exit

² Volume of liquid that will be mixed with the next liquid. It is not stuck, but will be swept next time a liquid passes.

³ Volume that is stuck in the system (dead end), which is not clearly swept and relies on diffusion to clear out

Product pack contents

Before setting up your MUX DISTRIBUTION valve , please check the package contents to verify that you have received the items below:

1. The instrument
2. a USB cable
3. a power supply unit

Note: The user documentation can be accessed anytime online through the Elveflow Support Portal (<https://support.elveflow.com/support/solutions>).

In addition to the above items, the user should have the necessary fluidic accessories, tubings and fittings to connect the inlets/outlets to the rest of the setup.

Application example

Inject Solutions at a controlled flow rate using a Mux Distributor 12

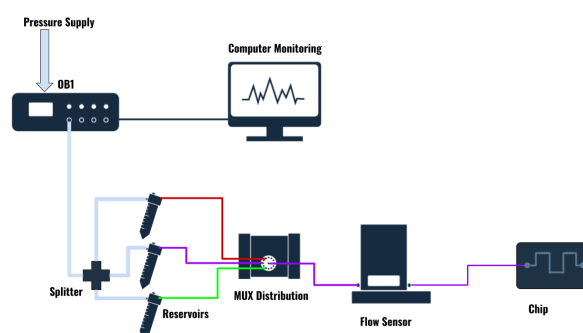
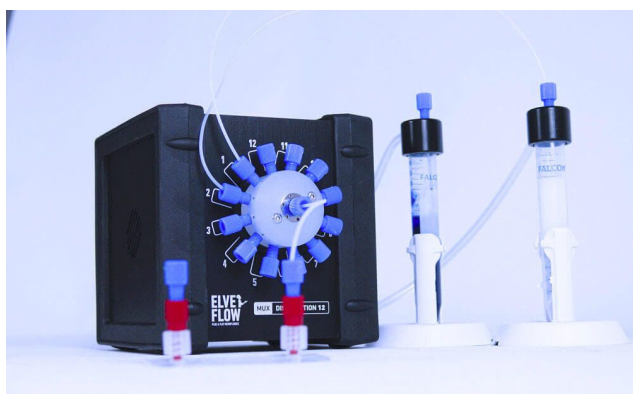


Illustration and setup principle to perform flow rate controlled sequential injection.

The detailed protocol for this application can be found in the Mux Distributor 12 user guide.

Other possible applications include (not limited to):

- Cell culture on chip
- Cell response to medium change
- Drug screening
- Toxicity tests
- Stem cells assays
- Reagent switch for flow chemistry
- SPR or TIR imaging coupled with microfluidics
- Any other medium switching experiment you can imagine !