ELVE FLOW an ELVESYS brand

MUX RECIRCULATION VALVE 6/2

6-ports/2-positions

DOCUMENT REF: DTSMR6 201120

DATASHEET

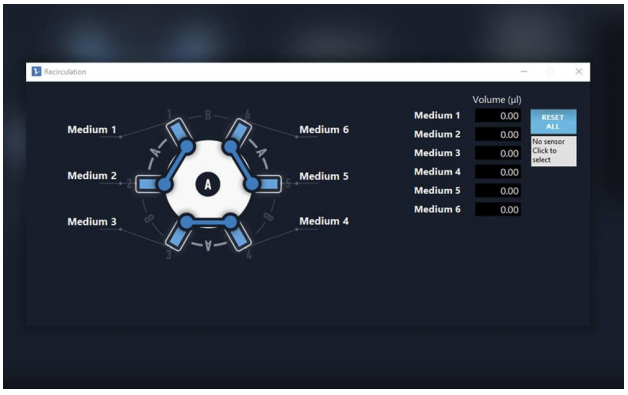
Introduction

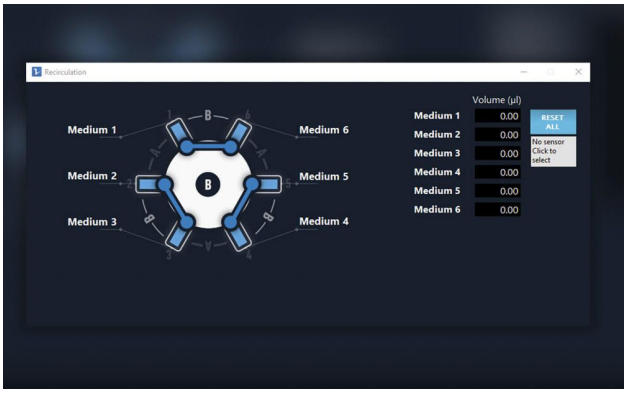
The MUX Recirculation valve is a 6-ports / 2-positions microfluidic valve that is ideal for precise sample injection and fluid recirculation. When paired with the OB1 MKIII+, it can perform stable and unidirectional fluid recirculation or precise injection of a controlled volume of sample.

This versatile valve makes long-term experiments easier to automate and run.

Main Features & Benefits

- Switch between 2 flow configurations in less than 180ms, thanks to the use of a fast & precise valve motor
- Work in total confidence thanks to the robust and biocompatible materials used (PTFE, PCTFE)
- No dead volume[1] and low carryover volume[2] (0.5µL), for the best solution usage efficiency.
- Easy ¼-28 connection enables for a leak-free operation and quick connection using standard fittings.





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

[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.

Product Specifications

Description

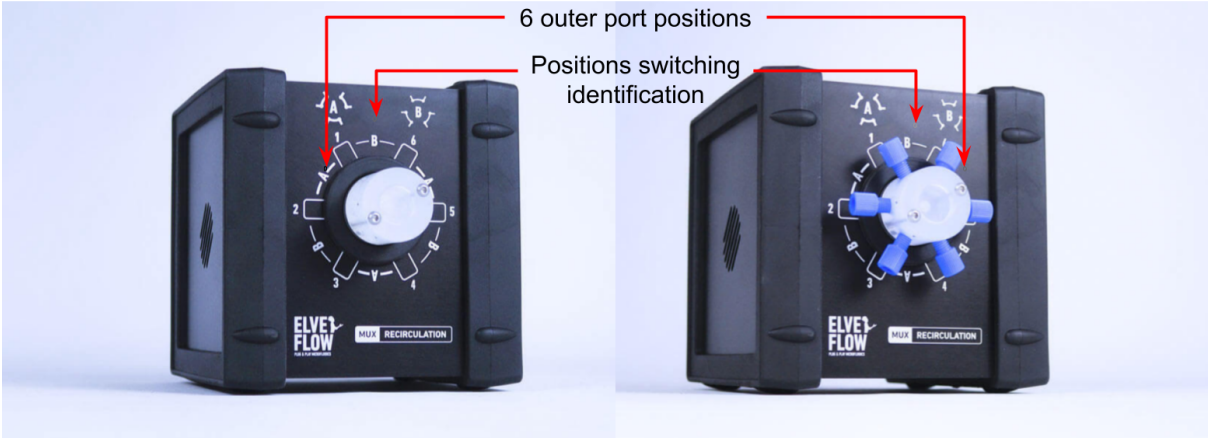


Figure 1 Front view of the MUX Recirculation: The outer ports positions are marked from 1 to 6. Additional marking allows for the quick and easy identification of the 2 switching positions (A and B).

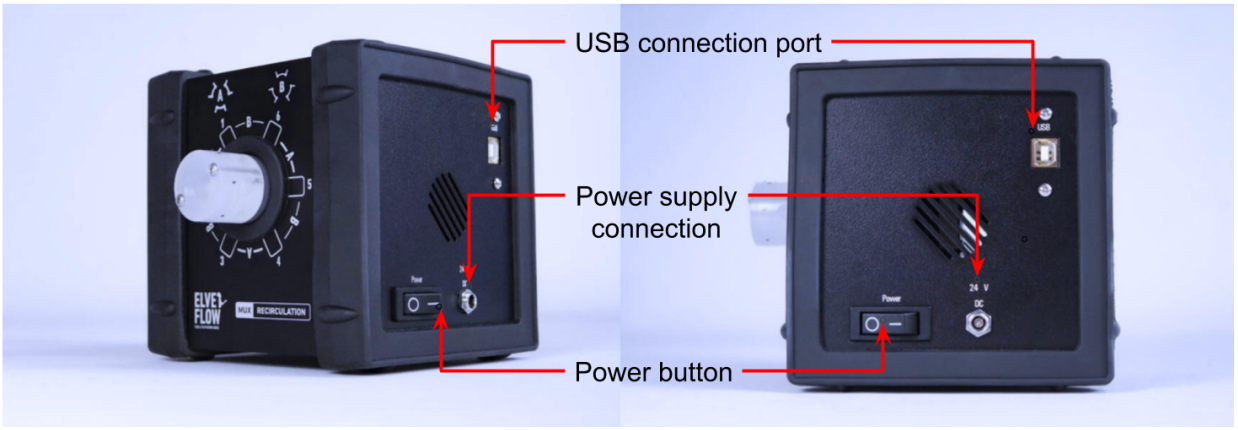


Figure 2. Side view of the MUX Recirculation. The USB and power supply connection ports can be found on the side of the device, along with the power button.

Technical Specifications

Performances	**Port to port switching time (ms)**	180 ms
	Max recommended pressure	7 bar
	Internal diameter	0.5 mm
	Internal volume [3]	2.5µL
	Carryover volume [4]	0.5 µL
	Dead volume [5]	None
	Wetted materials	PCTFE, PTFE
	Number of ports	6
	Number of positions	2
Electrical	**Input voltage range**	100V to 240V
	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	1.12 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, 2/64 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

[3] Volume inside the system from entrance to exit.
[4] Volume of liquid that will be mixed with the next liquid. It is not stuck, but will be swept next time a liquid passes.
[5] 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 Recirculation valve, please check the package contents to verify that you have received the items below:

- the instrument
- a USB cable
- 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.

Applications example

Fluid recirculation with an Elveflow MUX Recirculation valve

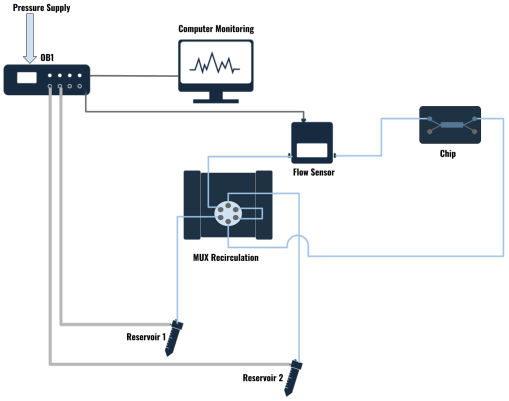


Illustration and setup principle to perform fluid recirculation with an Elveflow MUX Recirculation valve. The detailed protocol for this application can be found in the MUX Recirculation valveuser guide.

Other possible applications include (not limited to):

- Controlled microfluidic sample injection
- Fluid recirculation
- Cell culture on chip
- Drug screening
- Sample injection
- Stem cells assays
- Organ on chip
- microfluidics SPR/TIR imaging
- Toxicity tests