FLUIGENT
SMART MICROFLUIDICS™

M-SWITCH™

11-Port/10-Position Bidirectional Valve

P/N ESSMSW003

The **M-SWITCH™** is a **rotary valve** with **11 ports**. One may select one of **up to 10 solution**s to be delivered to a microfluidic device, or input one fluid and direct it to **up to 10 different locations**. When used with the **Fluigent OxyGEN software**, the switch position and timing may be **programmed and automated** as well as other flow parameters. The M-SWITCH™ has a **very low dead volume** and has a **rapid switch time** of a few milliseconds.

BENEFITS

Low internal volume
Gain accuracy in the results
Reduce contamination risks
Prevent precious reagent loss

Automation capabilities
Write automated protocols
Long time duration experiments

Compact
Minimize benchtop space use
Avoid clutter

Standard connections
Plug & Play device

FEATURES

- Internal volume : 3.5 µL
- Up to 7 bar (102 psi)
- Wetted material: PCTFE, UHMW-PE
- Common 1/4-28 flangeless fittings
- Channel diameter : 0.5 mm
- Automation and Live control

afaq
ISO 9001
Qualité
AFNOR CERTIFICATION

Specifications

| Performance	
Switching time	400 ms
Maximum Pressure	7 bar (102 psi)
Hardware specifications	
Internal diameter	0.5 mm
Internal volume	3.5 µL
Dead volume	None
Carryover volume	1.7 µL
Fittings	1/4-28 (1/16'' OD) flangeless with flat ferrule
Wetted materials	PCTFE, UHMW-PE
Operating conditions	
Operating temperature	15-40°C (59-104°F)
Operating humidity	20-80%, non condensing
Electrical specifications	
Power consumption	2A (peak)
Port communication	RJ45 (to the SWITCH EZ)
Weight and Dimensions	
Dimensions	60*110*110 mm (2.36 x 4.33 x 4.33 in)
Weight	746 g (1.64 lbs)
Chemical compatibility	
Gas compatibility	Dry, oil-free gas, air, any non corrosive or non explosive gas
Liquid compatibility	Aqueous solvent, oil, organic solent, biological sample
Fluigent software compatibility	OxyGEN

Technology

The M-SWITCH™ is an **11-port / 10-position** rotary valve. Any of the peripheral ports (numbered from 1 to 10) can be connected to the central channel, and the fluidic path created is **bidirectional**.

The M-SWITCH™ is actuated by a motor that drives a rotor. It can also be used with a manifold to use a single pressure pump to deliver multiple liquids and simplify set-ups.
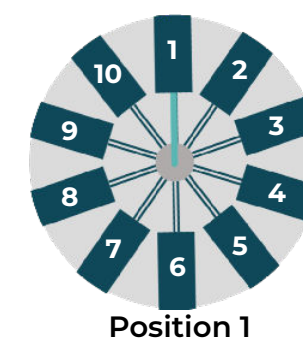

Position 1
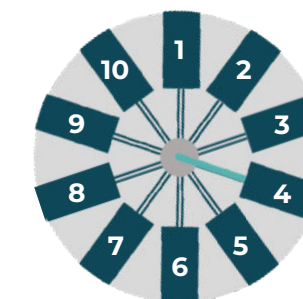
Position 4

Applications

Sample generation and collection

In this application example, **different concentrations** of the molecule of interest are injected into the chip **generating water in oil droplets** containing various concentrations. The droplets are then **sorted** at the outlet of the chip using the M-SWITCH™ regarding their concentrations. Each step can be **automated** or **live controlled and monitored** using OxyGEN software.
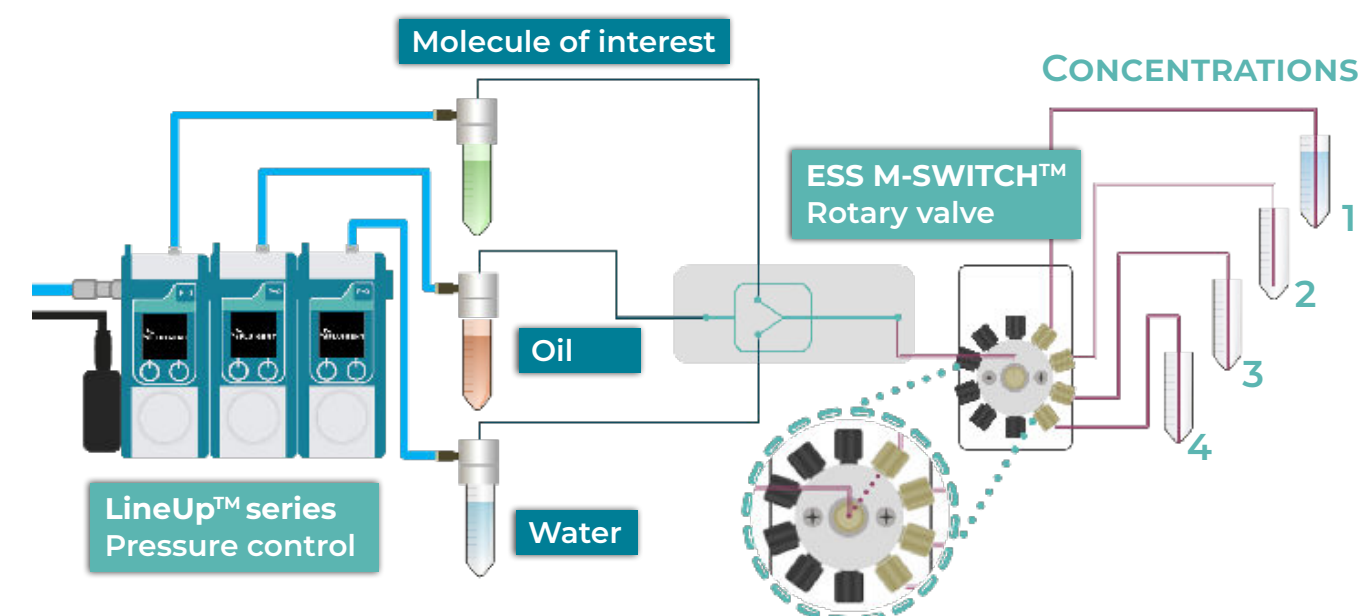
Sequential injections

In this application example, **up to 10 liquids** (4 on the schematic) are **selected sequentially** to be delivered to the chip by the **M-SWITCH™**. The samples at the outlet of the chip may also be **sorted** by using a **2-SWITCH™** either into a collection tube or to waste. Each step can be **automated** or **live controlled and monitored** using **OxyGEN** software.

This type of set-up suits for applications such as:
- Cell analysis
- Cell lysis
- Drug testing
- Calibration curve

ESS M-SWITCH™
Rotary valve

Chip

ESS 2-SWITCH™
Sorting valve

Reagents

Manifold

FLOW UNIT
Flow rate regulation

Recover   **Waste**

LineUp™ Flow EZ
Pressure control