

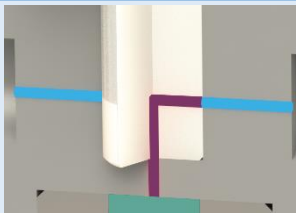
Environmental conditions

Operating temperature	15-45°C (59-113°F)
Humidity	20-80%, non-condensing
Max pressure	7 bars (102 psi)

Fluidic characteristics

Tube port fittings	¼-28 UNF, flat bottom
Wetted materials	PTFE or UHMW-PE, PCTFE and borosilicate glass
Channel diameter	0.5 mm (0.020 in) / 0.4-1 mm (0.015-0.039 in) available upon request

Mechanical characteristics

Series	LOW CARRYOVER VOLUME
Liquid path	
Number of channels inside rotary part	1
Number of ports	6 – 8 – 10 – 12
Channel diameter	0.5, 1 mm
Internal volume (with Syringe)	19.1 – 41.1 µL
Carryover volume (with Syringe)	18.1 – 34.0 µL

Glossary reminder

Internal volume: Volume inside the system, from entrance to exit.

Dead volume: Volume that is “stuck” in the system (dead end), which is not cleanly swept and relies on diffusion to clear out.

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

PLUNGER AND SYRINGE DETAILS

Travel length	30 mm with 96'000 micro-steps
Resolution	Selectable 3'000 steps or 24'000 steps

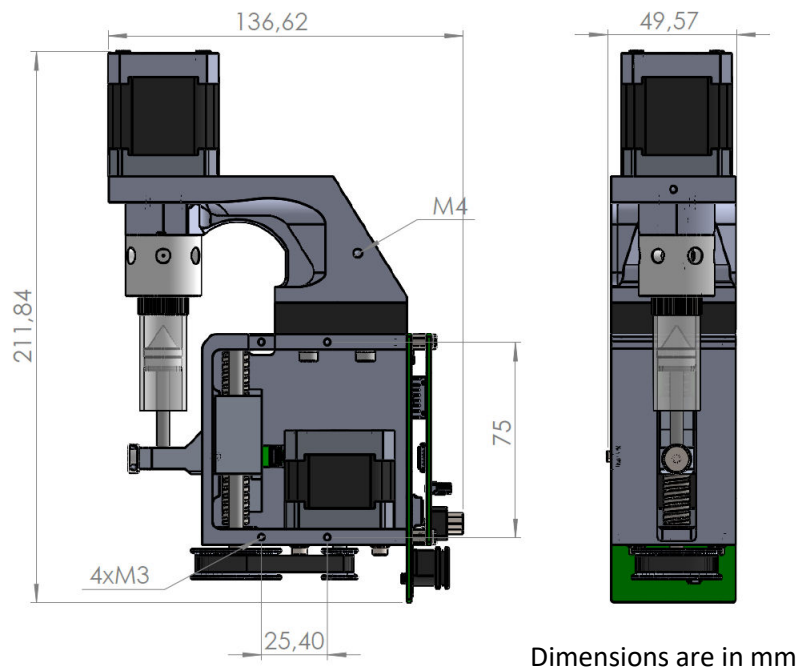
Volume	2.5 - 5 mL
Drive	Screw drive with linear encoder for step loss detection
Plunger material	PTFE (or UHMW-PE upon request)
Accuracy	≤ 1.0 % at full stroke

COMPATIBLE SYRINGE MODELS

Ref. #	Plunger material	Syringe volume [mL]	Min. flow rate [$\mu\text{L}/\text{min}$]	Max. flow rate [$\mu\text{L}/\text{min}$]	Min. dosing volume [μL]
S-2500-B-P-N	PTFE (or UHMW-PE)	2.5	25	75'000	5
S-5000-B-P-N	PTFE (or UHMW-PE)	5	50	150'000	10

COMPLETE MODULE (Ref. P101-O)

Dimensions	211.84 x 136.62 x 49.57 mm
Weight	1.6 Kg
Default configuration	5 mL syringe with PTFE plunger (S5000-B-P-N) 6-position valve with low carryover volume (VD1-6-050)
External fixation system	4x M3 screws



Electrical characteristics

Advanced Microfluidics SA
 Chemin de la Dent d'Oche 1a
 CH-1024 Ecublens, Switzerland
 Phone: +41 (0)21 552 14 30
 Email: info@amf.ch
 Web: www.amf.ch

Power	18-24 VDC, 2.2 A peak
Required cables for operation	USB mini to USB, Power cord (power jack 2mm)

Communication and Hardware interface

Electrical Interface	USB mini, 9-pin D-Sub (other upon request)
Interface	USB mini, RS-232 or RS-485
Communication type	Serial communication

The valve controller is seen as a virtual serial port. There is an on-board FTDI USB to serial chip, so the drivers are automatically installed on recent Windows 7 and above.

SERIAL COMMUNICATION PARAMETERS

Baud rate	9600
Data Bit	8
Parity	None
Stop Bit	1
Handshake	None
End line	<CR>

View the SPM operating manual for the extensive command set.

Revisions

Version	Author	Release Date	Modifications	Revised By	Approved By
01.01	PGI	03/11/2023	Initial release	RRY	RRY
01.02	RRY	16/01/2024	Minor corrections	NFA	RRY
01.03	RRY	16/01/2024	Minor corrections	NFA	RRY

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