

# SPM+/P101-O Programmable Syringe Pump

## High Volume - DATASHEET



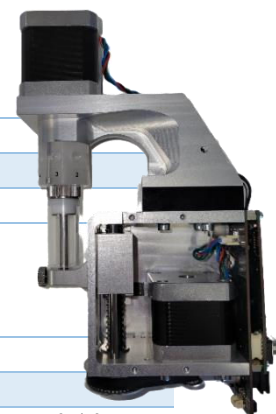
Advanced Microfluidics

### Environmental conditions

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

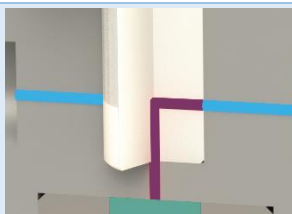
### Fluidic characteristics

Tube port fittings	¼-28 UNF, flat bottom
Wetted materials	PTFE, 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

#### COMPATIBLE VALVE MODELS

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)	10.8 – 25.7 µL
Carryover volume (with syringe)	9.8 – 18.6 µL

#### Glossary reminder

**Internal volume:** Volume inside the system, from entrance to exit (does not include the volume in the syringe)

**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 or sample. It is not stuck, but will be swept next time a liquid passes.

#### PLUNGER DETAILS

Travel length	30 mm with 96'000 micro-steps
Resolution	Selectable 3'000 steps or 24'000 steps
Drive	Screw drive with linear encoder for step loss detection
Plunger seal material	PTFE

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](mailto:info@amf.ch)  
Web: [www.amf.ch](http://www.amf.ch)

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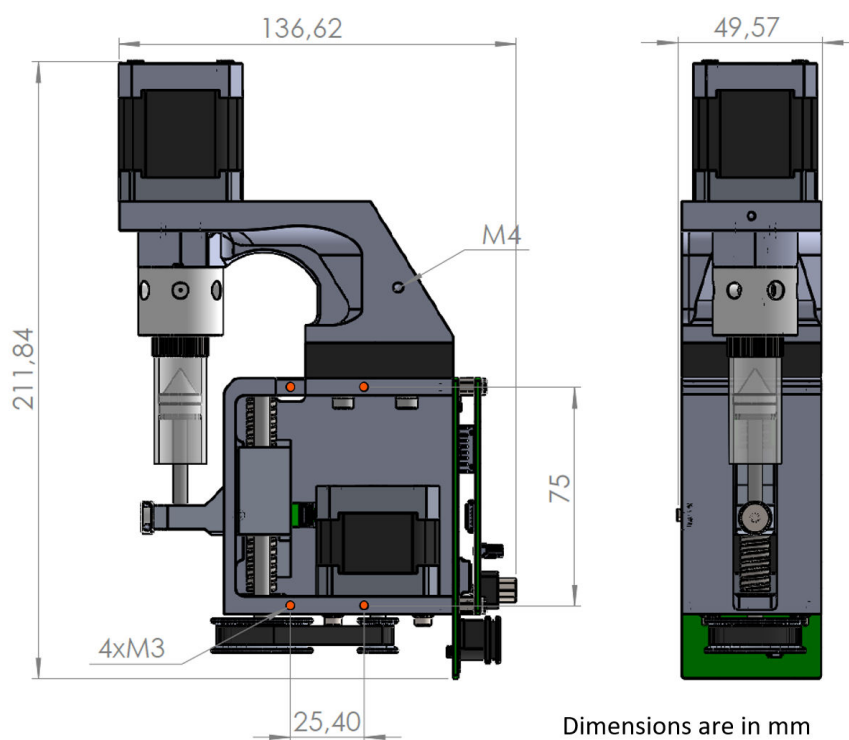
Accuracy	$\leq 1.0 \%$ at full stroke
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### COMPATIBLE SYRINGE MODELS

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 [ $\mu\text{L}$ ]
S-2500-P	PTFE	2.5	0.373	75'000	5
S-5000-P	PTFE	5	0.745	150'000	10

### COMPLETE MODULE (Ref. P101-O)

Dimensions	211.9 x 136.7 x 49.6 mm
Weight	1.6 Kg
Default configuration	5000- $\mu\text{L}$ syringe with PTFE plunger (S-5000-P) 6-position valve with low carryover volume (V-D-1-6-050)
External fixation system	4x M3 screws, position shown in orange



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## Electrical characteristics

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 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
01.04	RRY	15/05/2025	Correct volumes	CAL	RRY
01.05	RRY	19/05/2025	Title update	NFA	RRY
01.06	RRY	27/05/2025	Update volumes	MGE	RRY

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