

PVM Pump & Valve Module

The Sapphire compact digital PVM is a self-contained, stepper-motor driven pump and valve module with a printed circuit board for logic and driver components. This product works in various liquid handling applications such as automated pipetting, processing and dispensing.

The PVM can be used with either our IPV or with a standard 30mm syringe and ceramic 3-way valve. M3 screws allow easy integration into various systems, and the module includes sensors for step and position monitoring along with an A/D converter to support clot detection.

The PVM can be operated as a stand-alone module or in automated instruments controlled by an external computer or microprocessor.

Each pump has an RS-232, RS-485 and CANBUS connection for communication with a controlling device using data terminal and OEM protocols. (RS-232 and RS-485 are Cavro™ compatible.)

Protocol Features:

- ▶ Programmable ramps, cut-offs, backlash compensation, plunger speeds, delays and loops
- ▶ Select piston / syringe speed
- ▶ Absolute and relative positioning of pistons / syringes
- ▶ Start and terminate piston / syringe movement
- ▶ Check pump with self-test
- ▶ Selectively work with up to 15 PVM's

Other devices can be started and stopped with two integral TTL inputs while three TTL outputs enable you to control external devices.

We test and document each pump's performance before shipment. The PVM meets the CE EMC Class B Specifications.

PVM SPECIFICATIONS



Available IPV/Syringe Sizes	50µL, 100µL, 250µL, 500µL, 1.0mL, 2.5mL, 5.0mL
Available Valves	3-way "Y" valve (Ceramic Shear Valve)
Piston/Syringe Drive Specifications	DC stepper motor with and step control sensor, self lubricating, 30mm stroke length
Motor Resolution	3,000 steps, standard resolution
Dispense Speed (full stroke)	Full stroke dispense in 1.1 sec - 600 sec
Valve Drive	DC stepper motor with optical encoder
Valve Drive Speed	250ms between adjacent ports
Valve Options	1/4-28 thread for syringes 1/4-28 or M6 connection for tube fittings
Power Requirements	24 VDC +/- 5% 1.2 A
Dimensions	Height: 5.00" (127mm) Width: 1.80" (45mm) Depth: 4.50" (114mm) (front plate to connector) Weight: 2.5 lbs. (1.1kg)
Operating Range	Temperature: 17° to 37°C Humidity: 10 - 85% R.H. noncondensing
Storage Range	Temperature: 5° to 45°C Humidity: 10 - 95% R.H. noncondensing
Baud Rate	9,600 or 38,400 (RS232, RS485)
In/Output	3 output TTL 2 input TTL

Cavro™ is a Trademark of Tecan Systems
 IDEX® is a Registered Trademark of IDEX Corporation
 Sapphire Engineering™ is a Trademark of Sapphire Engineering

Subject to change without notification.

Revised 6/06