



## Cavro<sup>®</sup> XLP Pump

The most versatile 60 mm stroke OEM syringe pump

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**The Cavro® XLP Pump has been developed to offer exceptional flexibility for a wide range of precision liquid handling applications. The robust design of this OEM syringe pump ensures a long life and low maintenance requirements, helping to provide reliable liquid handling performance and, ultimately, leading to greater customer satisfaction.**

### **Unmatched application flexibility**

The Cavro XLP Pump is a fully programmable OEM syringe pump, and can operate as a standalone module or be controlled by an external computer or microprocessor to automate pipetting, diluting and dispensing operations from <math>5 \mu\text{l}</math> to 50 ml.

It is available with a range of syringe sizes and valve configurations to match specific application requirements, and a choice of valve materials helps to ensure longer life and broad chemical compatibility. With more than twenty configurations available, please contact your local Tecan representative to determine the match for your needs.

### **Robust performance**

This versatile 60 mm stroke OEM syringe pump offers reliable operation and pump speeds ranging from 1.2 seconds to 160 minutes per stroke. Market-leading communication protocols allow the user to optimize liquid handling performance, offering full control of start speed, top speed and cut-off speeds – as well as programmable ramp-up and ramp-down rates – and the pump incorporates an optical encoder for step loss detection, for improved process security. The pump's firmware also includes valve and plunger move counters to help plan preventive maintenance replacement of valves and syringes.

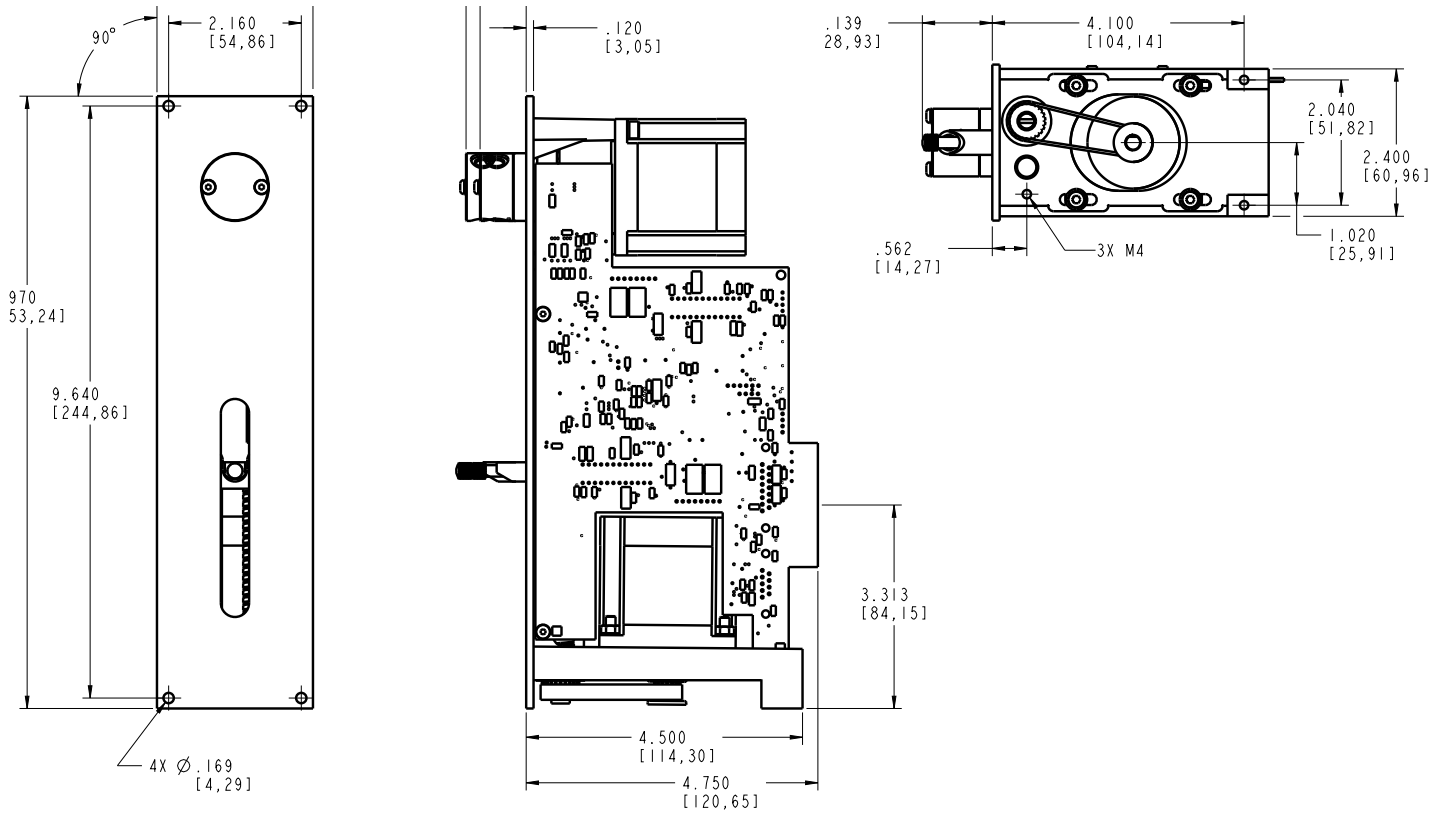
### **Straightforward integration**

The Cavro XLP Pump communicates through RS-232, RS-485 or CAN interfaces, with multi-pump arrangements of up to 15 modules using a single serial or CAN communication bus. Pumps are controlled via OEM or data terminal protocols at a rate of 9,600 or 38,400 baud for RS-232/485 or up to 1 MB for CAN. The pump also provides two digital inputs and three outputs for TTL level signals that can be used for synchronization with external devices, further increasing integration flexibility.

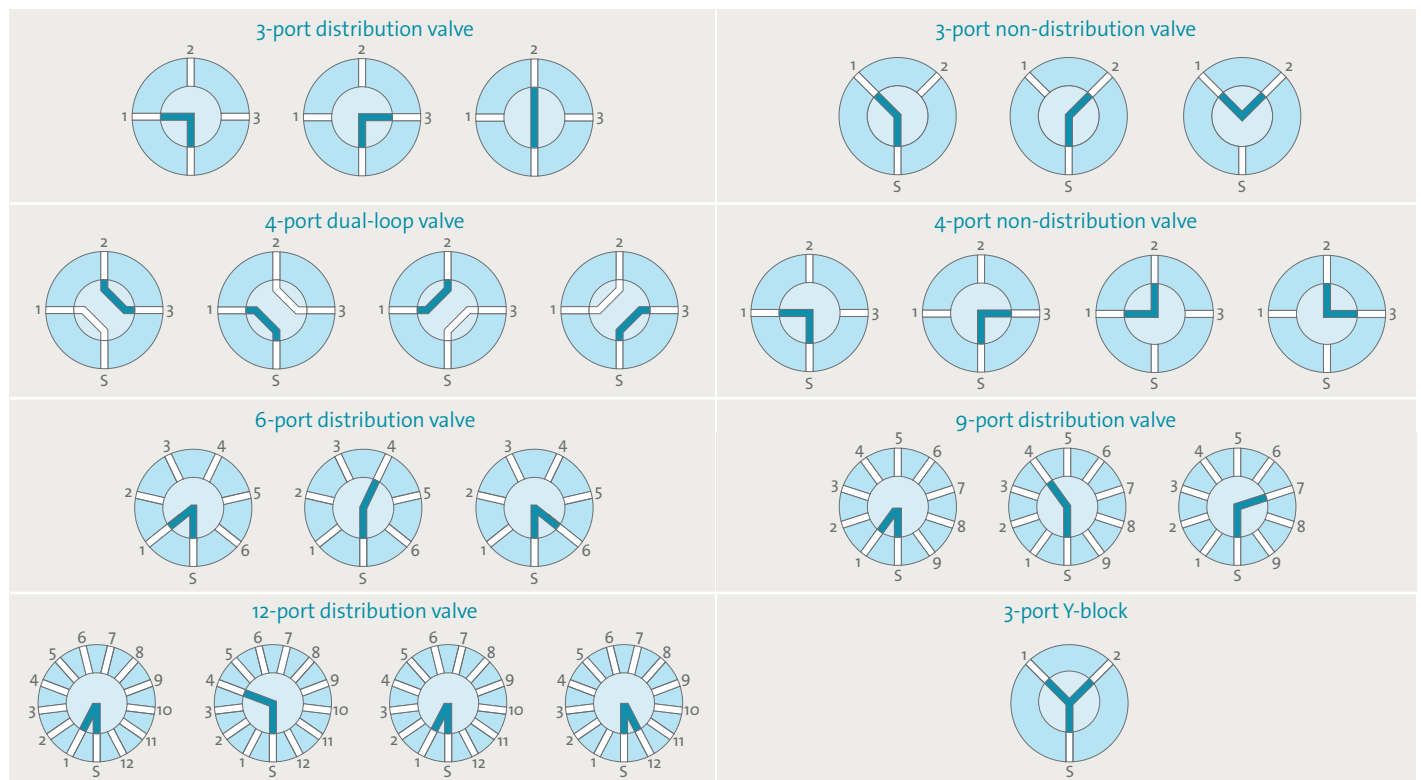
### **Faster product development**

In today's fast-paced environment, time-to-market is a major consideration for any instrument designer. Selecting proven off-the-shelf components is a sure way to accelerate your instrument development. You can also speed up and simplify validation of your instruments by choosing OEM components that have already been extensively tested and approved. The Cavro XLP Pump is constructed to meet ISO 13485 and ISO 9001 requirements, and to comply with national and regional standards, including Europe's 2006 RoHS Directive and the US FDA's QS regulations. It is UL recognized (standard UL 61010A-1) and bears the UL designation label, streamlining instrument validation and approval for a shorter time to market.





## Valve options



## XLP Pump specification

<b>Plunger drive</b>	Principle	Stepper motor driven lead screw with optical encoder for step loss detection and home flag
	Travel	60 mm
	Plunger speed	5-6000 pulses per second (1.2 seconds-160 minutes per stroke)
<b>Resolution</b>	6,000 steps in standard mode and 48,000 steps in fine-positioning and microstep modes	
<b>Syringes</b>	Sizes	50 µl, 100 µl, 250 µl, 500 µl, 1.0 ml, 2.5 ml, 5.0 ml, 10 ml, 25 ml and 50 ml (50ml syringe requires a special frame)
	Barrel material	Borosilicate glass
	Plunger rod material	Stainless steel
	Plunger seal material	PTFE or UHMWPE (most sizes)
	Precision	≤ 0.05 % CV at full stroke (500 µl syringe and above), (DI water at room temperature)
	Accuracy	≤ 0.5 % at full stroke (DI water at room temperature)
<b>Valve drive</b>	Switch time	≤ 250 ms between adjacent ports
<b>Valves</b>	Ceramic valve options	Non-distribution: 3-port, 4-port, 4-port dual loop Distribution: 3-port, 6-port, 6-port chamfer, 9-port, 12-port
	Plastic valve options	Non-distribution: 3-port, 4-port, 4-port dual loop, 3-port Y-block Distribution: 3-port, 6-port, 9-port
	Fittings	¼ - 28" or M6 tubing fittings, ¼ - 28" syringe fitting
<b>Power requirements</b>	Voltage	24 VDC ± 10 %
	Current	2.0 A (peak)
<b>Interface</b>	Type	RS-232, RS-485 or CAN
	Baud rate	9600 or 38400 (RS-232 and RS-485) 100Kb, 125Kb, 250Kb, 500Kb and 1Mb (CAN)
	Format	Data bits: 8 Parity: No Stop bit: 1 Half duplex
<b>Communications</b>	Addressing	Up to 15 individual addresses available
	Communications	Data terminal and OEM protocol (serial); Cavro CAN (CAN)
<b>Firmware</b>	Programmable ramps	Terminate moves
	Programmable cut-off speed	Diagnostics
	Programmable plunger speeds	Absolute or relative positions
	Programmable backlash compensation	Programmable non-volatile memory
	Change speed on the fly	Programmable delays and loops
<b>Inputs</b>	Two inputs with 4.7k pull-ups, 5V HCMOS	
<b>Outputs</b>	Three outputs, 5V HCMOS	
<b>Environmental</b>	Operating temperature (mechanism)	59°F (15 °C) to 104 °F (40 °C)
	Operating humidity (mechanism)	20-80 % RH at 104 °F (40 °C)
	Storage temperature	-4 °F (-20 °C) to 149 °F (65 °C)

### Tecan – Who we are

Tecan ([www.tecan.com](http://www.tecan.com)) is a leading global provider of laboratory instruments and solutions in biopharmaceuticals, forensics and clinical diagnostics. The company specializes in the development, production and distribution of automated workflow solutions for laboratories in the life sciences sector. Its clients include pharmaceutical and biotechnology companies, university research departments, forensic and diagnostic laboratories. As an original equipment manufacturer (OEM), Tecan is also a leader in developing and manufacturing OEM instruments and components that are then distributed by partner companies. Founded in Switzerland in 1980, the company has manufacturing, research and development sites in both Europe and North America and maintains a sales and service network in 52 countries.

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### Safety and regulatory compliance

Tecan Cavro OEM components are designed and manufactured to the highest quality, meeting EU RoHS directives. Many Tecan Cavro components are UL-recognized components. Tecan Systems' Quality Management System (QMS) is compliant with ISO 9001, ISO 13485, and the Quality System Regulations (QSR).

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