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## Cavro® XLP 6000

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### 60mm Stroke OEM Syringe Pump

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- 6,000/48,000 increment resolution per stroke
- RS-232, RS-485 and CAN Communication Interfaces
- RoHS compliant
- UL recognized component

The Cavro® XLP 6000 is Tecan Systems' next generation 60mm stroke OEM syringe pump. The modules' hardware and firmware are designed for ease of integration and flexibility and allow the user to configure the pump for different valve types, communicate at different baud rates and operate computer-free.

**Resolution.** The XLP 6000 automates pipetting, diluting, and dispensing with excellent accuracy and precision over a wide range of speeds using a variety of syringes. Pump resolution is 6,000

increments per stroke in standard mode and 48,000 increments per stroke in microstepping and fine positioning modes.

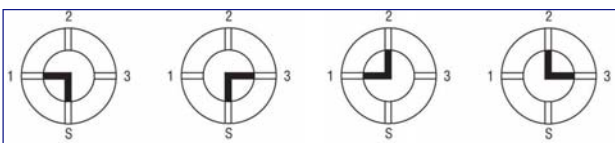
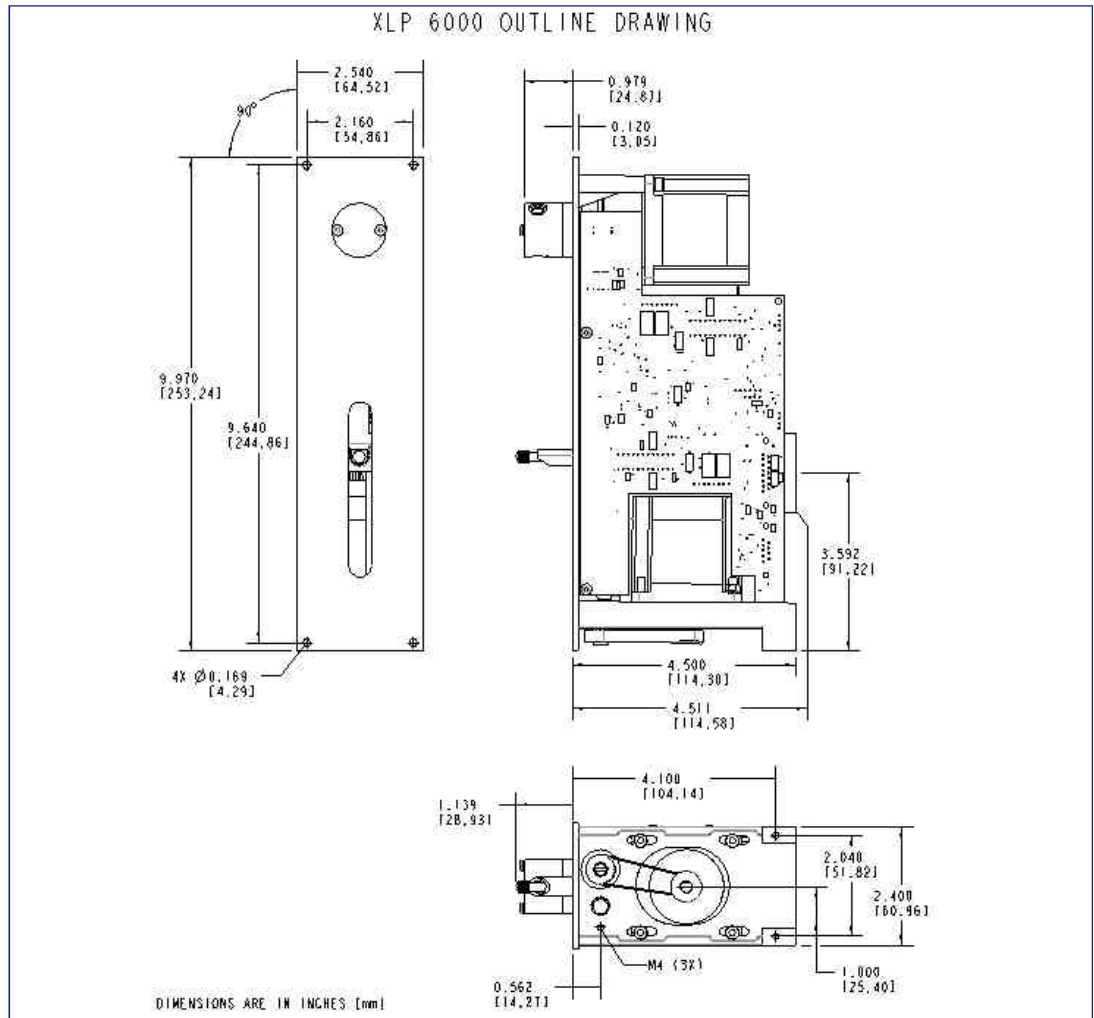
**Communication.** The XLP 6000 communicates through RS-232, RS-485 or Controller Area Network (CAN). Pumps are controlled via OEM or Data Terminal protocol at a rate of 9,600 or 38,400 baud, or in the case of CAN up to 1Mbyte.

Multi-pump communication is possible through RS-485 or CAN interface. When operating in a multi-pump arrangement, up to 15 Cavro modules can be addressed through a single communication bus. The XLP 6000 also provides two digital inputs and three outputs for TTL level signals that can be used for synchronization with external devices.

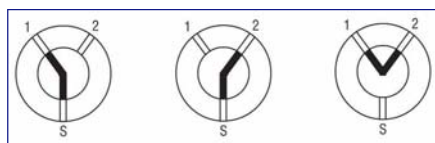
**Syringe Drive.** The XLP 6000 uses a Teflon® coated leadscrew with backlash compensation nut that is driven by a stepper motor. The travel length of the plunger is 60 mm and the drive incorporates a quadrature encoder for step loss detection.

**Speed Selection.** Pump speed ranges from 1.2 seconds to 160 minutes per stroke. The firmware allows the user to enhance liquid handling performance by changing the start speed, top speed, and cutoff speeds. Ramp-up and ramp-down rates are also programmable.

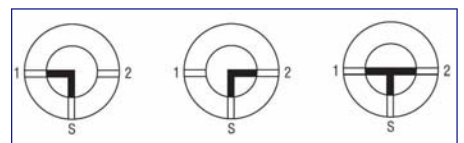
**Design and Maintenance.** The XLP 6000 lead-screw does not require lubrication. Valves are easy to install and an innovative carriage design ensures proper valve and syringe alignment. Valve and plunger move counters have been added to the firmware to help plan preventive maintenance replacement of valves and syringes.



4-Port Valve



3-Port Valve



T-Valve

# Cavro XLP 6000 OEM Syringe Pump Specifications

## Plunger Drive

**Principle** Stepper motor driven lead screw with optical encoder for step loss detection

**Travel** 60 mm

**Syringes** 50 µL, 100 µL, 250 µL, 500 µL, 1.0 mL, 2.5 mL, 5.0 mL, 10 mL, and 25 mL

## Valve/Valve Drive

**Wetted Materials** Plastic - Plug: Teflon®  
Body: PCTFE

**Options** 120° 3-port, 90° 4-port, T-valve, Y block  
90° 3-port distribution, 6-port distribution, 9-port distribution

**Turn time** ≤ 250 ms between adjacent ports

**Fittings** 1/4-28 or M6 tubing fitting, 1/4-28 syringe fitting

**Firmware** Programmable ramps, cutoff speed, backlash compensation, plunger speeds, delays and loops, change speed on the fly, terminate moves, delays, diagnostics, absolute and relative positions

**Dimensions**

Height	Width	Depth
254 mm (10.00")	65 mm (2.56")	114 mm (4.50")

**Power Requirements** Supply voltage: 24 VDC ± 2% Peak Current: 2 Amp

**Resolution** Standard: 6,000 (standard) / 48,000 (microstepping) increments

**Speed** 1.2 seconds - 160 minutes per stroke

**Precision** < 0.05% C.V. within run at full stroke (at 25°C, with 500 µL syringe and above using deionized water)

**Accuracy** ≤ 0.5% deviation from theoretical result at full stroke (at 25°C, with 500 µL syringe and above using deionized water)

## Interface

**Type** RS-232, RS-485, or CAN

**Baud rate** RS-232/485: 9,600 or 38,400 CAN: 100Kb, 125Kb, 250Kb, 500Kb, and 1Mb

**Format** Data Bits: 8 Parity: None Stop Bit: 1 Half Duplex

**Addressing** Maximum of 15 pumps can be addressed individually

**Communications** Data Terminal and OEM protocol (Serial); "Cavro CAN" (CAN)

## Environmental (Operating Mechanism)

**Operating Temperature** 15° - 40°C (59° - 104°F)

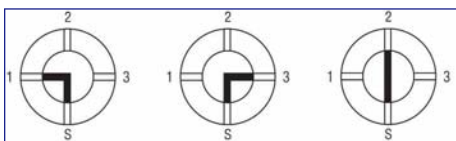
**Humidity (Non-Condensing)** 20-80% RH at 40°C (104°F)

## Safety and Regulatory Compliance

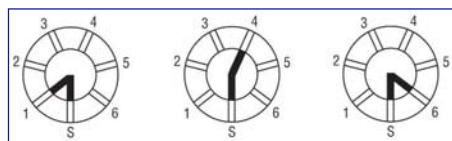
The XLP 6000 is a UL recognized component. Tecan Systems UL customer file is E164638. Tecan Systems' Quality System is ISO 13485 Certified. The XLP 6000 meets the requirements set by European Union's Directive 2002/95/EC on the Restriction of Hazardous Substances.



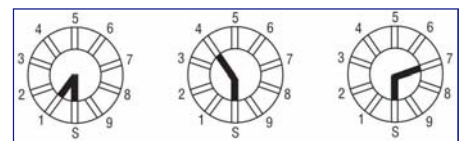
*Specifications are subject to change without notice.*



3-Port Distribution Valve



6-Port Distribution Valve



9-Port Distribution Valve

# Ordering Information

RS-232/RS-485/CAN	
Plastic Valves	XLP 6000
120° 3-Port, 1/4-28	20738421
120° 3-Port, M6	20738423
90° 4-Port, 1/4-28	20738425
90° 4-Port, M6	20738427
T Valve, 1/4-28	20739285*
T Valve, M6	20739287*
Y Block, 1/4-28	20738429
Y Block, M6	20738431
90° 3-Port Distribution, 1/4-28	20738449
90° 3-Port Distribution, M6	20739293*
6-Port Distribution, 1/4-28	20739263*
6-Port Distribution, M6	20739289*
9-Port Distribution, 1/4-28	20738707
9-Port Distribution, M6	20739291*

\* Part numbers followed by an asterisk have been reserved pending release.  
Please check with your local Tecan Systems representative for availability.

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