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TECHNOLOGY GROUP

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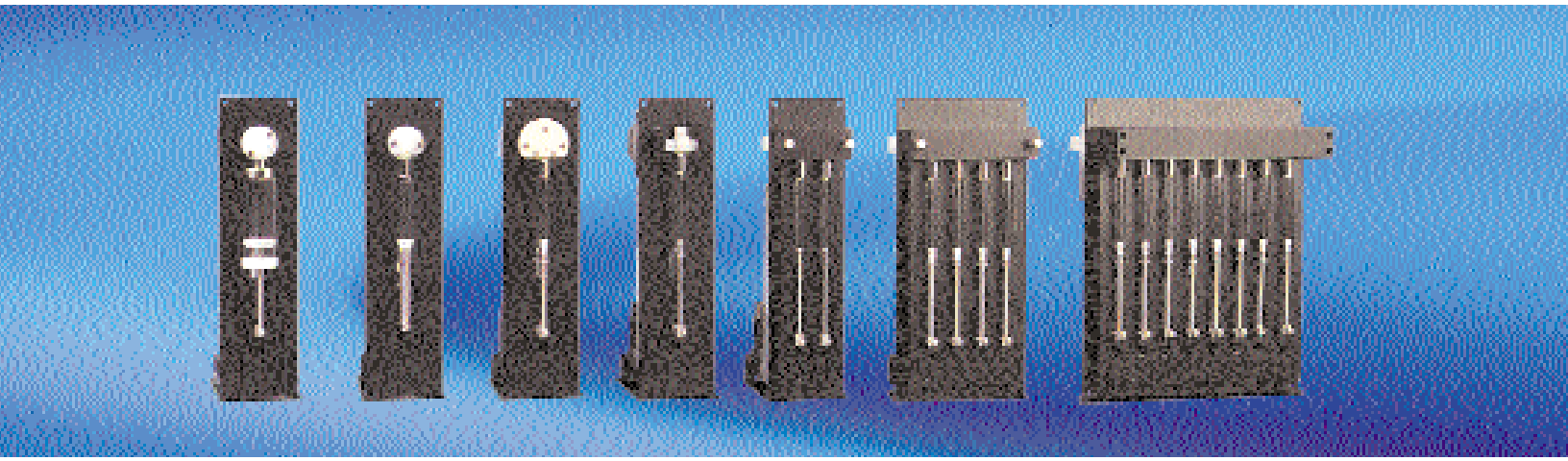
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Find the *Tecan / Cavro Scientific Instruments XL-3000* at our website: *Click HERE*

Cavro™ XL 3000

"The Most Flexible"

Tecan Systems Series Syringe Pumps



Space saving design
Superior precision and accuracy

The Cavro XL 3000 Syringe Pump Series is Tecan Systems' most versatile platform. These fully programmable, precision liquid handling instruments are available in single and multi-channel configurations. They are designed to automate pipetting, diluting, and dispensing operations in the 5µL to 50 mL range with excellent precision and accuracy.

Resolution. Cavro XL 3000 Series Pumps are available in standard and high-resolution configurations. Standard resolution modules use a default of 3,000 half steps per full stroke and through a firmware command can provide up to 12,000 microsteps per full stroke. High-resolution models provide 3,000 full steps per stroke and 24,000 microsteps per stroke.

Multi-channel modules are based on the high resolution XL and incorporate a common syringe drive with independent valve control.

Versatility. Designed for maximum versatility, the Cavro XL 3000 Series offers a full compliment of valve and syringe options. You can choose from over sixteen standard syringes with different volumes or seal materials and four different valve options, including models without valves.

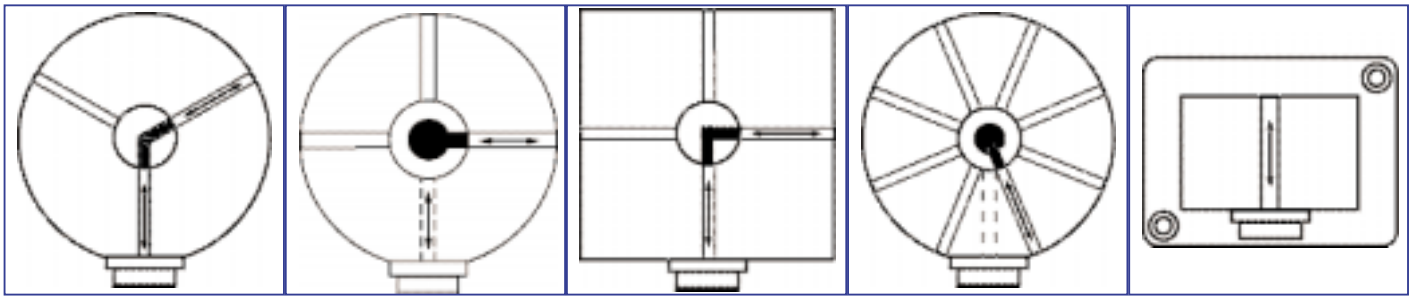
Multi-channel pumps are available in 2, 4, and 8 channel configurations and are fitted with independently controlled solenoid valves. A bypass solenoid valve is also available for quick flushing of system fluid lines.

Communications. The Cavro XL 3000 Series Pumps are intelligent devices, programmable through an RS-232 or RS-485 interface. Either a 9,600 or 38,400 baud rate can be selected. Pumps communicate through either an OEM or Data Terminal protocol. Up to 15 pumps can be addressed separately from the same source.

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Speed Selection. The Cavro XL 3000 Series provides the user with a wide range of plunger speeds, from 0.8 seconds to 20 minutes per stroke. Ramp-up and ramp-down rates are programmable. The firmware allows the user to enhance fluid break-off by changing the start velocity, top speed, slope and cutoff speeds.

Maintenance Made Easy. The valves are easy to install and use locating pins to ensure valve alignment. Parts requiring maintenance are easy to access and pump diagnostics are contained in the firmware enhancing the serviceability of the pump.



3-Port Valve

3-Port Distribution Valve

4-Port Valve

8-Port Distribution Valve

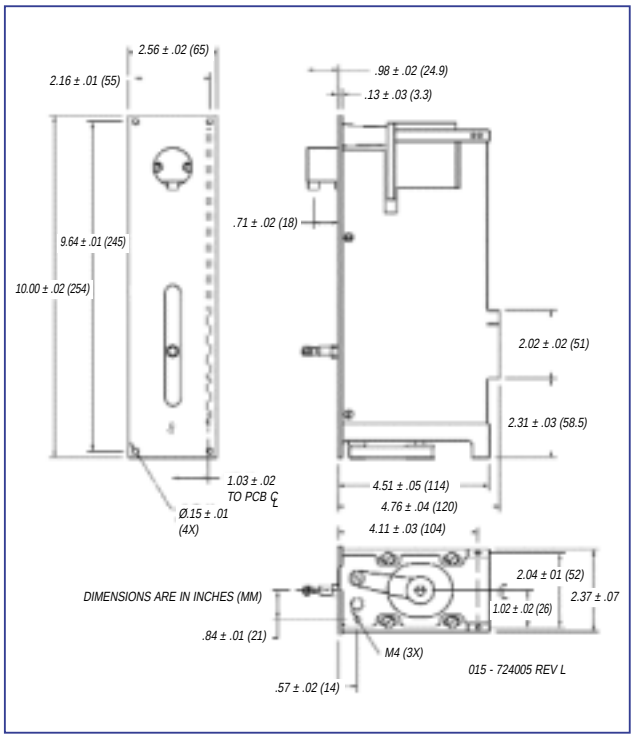
Kel-F Block

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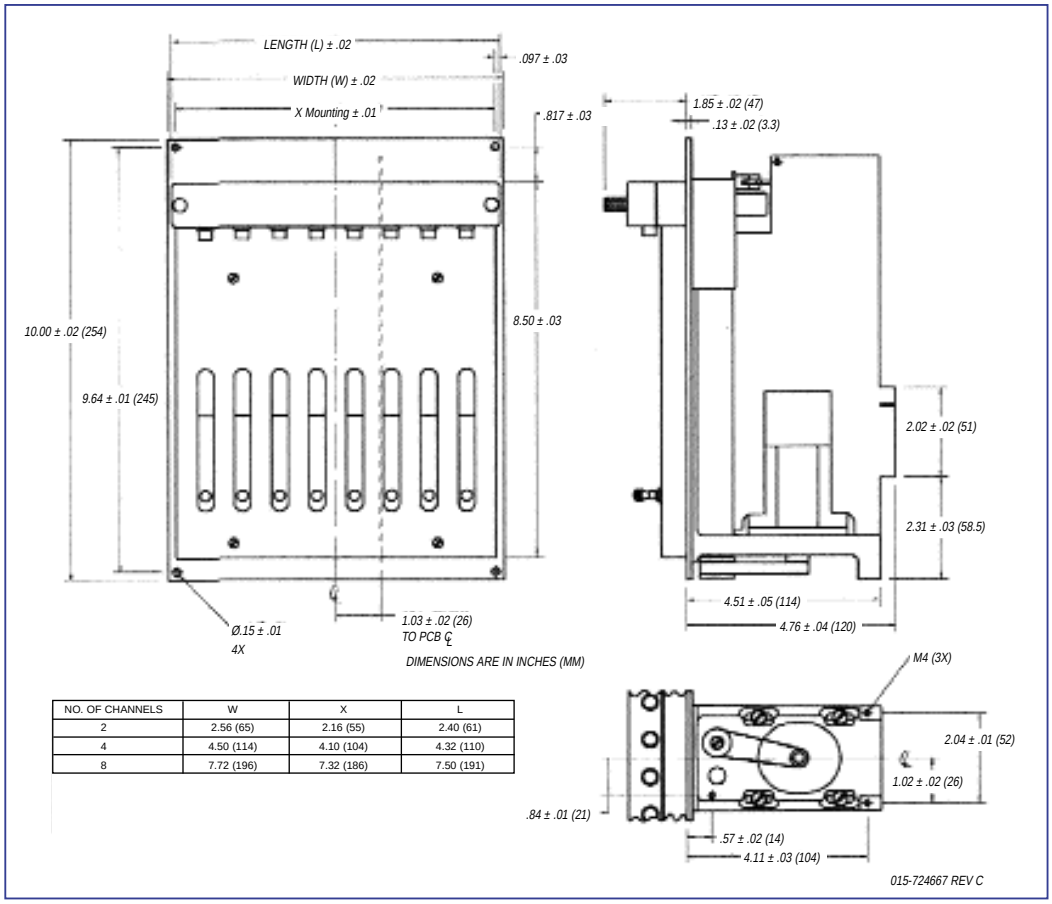
Cavro XL 3000 Modular Digital Pump Specifications

Plunger Drive				
Principle	Stepper motor driven lead screw with optical encoder for step loss detection			
Travel	60 mm			
Syringes				
	Single Channel		**Multi-channel**	
	50 µL, 100 µL, 250 µL, 500 µL, 1.0 mL, 2.5 mL, 5.0 mL, 10 mL, 25 mL and 50 mL (note: 25 and 50 mL for High Resolution XL only)		500 µL, 1.0 mL, 2.5 mL	
Valve/Valve Drive				
	Single Channel		**Multi-channel**	
	120 3-port, 120 3-port ceramic, 90 4-port, 90 3-port distribution and 8-port distribution			
Materials	Kel-F, Teflon			
Options	≤250 ms between adjacent ports			
Turn time	Stepper motor with optical encoder for positioning feedback		Common stepper motor driven syringe drive with optical encoder for positioning feedback	
Standard Fittings	1/4-28 or M6 tubing fitting, luer fitting for syringe		1/4-28 or M6 tubing fitting, luer fitting for syringe	
Firmware	Programmable Ramps, Cutoff Velocity, Backlash Compensation, Plunger Speeds, Delays and Loops, Change Speeds on the Fly, Terminate Moves, Delays, Diagnostics, Absolute or Relative Positions			
Dimensions				
	#Channels	**Height**	**Width**	**Depth**
Single channel		254 mm (10.00 in.)	65 mm (2.56 in.)	121 mm (4.76 in.)
Multi-channel	2	254 mm (10.00 in.)	66 mm (2.60 in.)	160 mm (6.30 in.)
	4	254 mm (10.00 in.)	114.3 mm (4.50 in.)	160 mm (6.30 in.)
	8	254 mm (10.00 in.)	195.58 mm (7.70 in.)	160 mm (6.30 in.)
Power Requirement	Supply Voltage: 24 VDC ± 10% Peak Current 850 mA (Single channel), 2 A (multichannel)			
Resolution	Standard: 3,000/12,000 increments			
	High: 3,000/24,000 increments			
Speed	0.8 seconds - 10 minutes/stroke for standard resolution pump depending on the syringe size and tubing			
	1.2 seconds - 20 minutes/stroke for high resolution pump depending on the syringe size and tubing			
Precision	<0.05% CV within run at full stroke			
Accuracy	<1.0% deviation from expected at full stroke			
Interface				
Type	RS-232 or RS-485			
Baud rate	9,600 or 38,400			
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 (with error recognition)			
Environmental				
Operating Temperature	15° - 40°C (59° - 104°F)			
Humidity (Non-Condensing)	20-95% RH at 40°C (104°F)			
Safety and Regulatory Compliance	Tecan Systems operates a manufacturing facility with an ISO 9001 and QSR compliant quality system certified by Underwriter's Laboratories, Inc.			

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Outline Drawing of the
Cavro XL 3000 Pump



NO. OF CHANNELS	W	X	L
2	2.56 (65)	2.16 (55)	2.40 (61)
4	4.50 (114)	4.10 (104)	4.32 (110)
8	7.72 (196)	7.32 (186)	7.50 (191)

Outline Drawing of the
8-Channel Pump

Ordering Information

Cavro XL 3000	Standard Resolution		High Resolution	
	RS-232	RS-485	RS-232	RS-485
3-Port (120), 1/4-28	726738	726740	726794	726796
3-Port (120), M6	726742	726744	726798	726800
3-Port (120), 1/4-28 Ceramic	730085	730087	730083	730079
3-Port Distribution, 1/4-28	726217	725754	727236	727238
4-Port Distribution, 1/4-28	726786	726788	726802	726804
4-Port Distribution, M6	726790	726792	726806	726808
8-Port Distribution, 1/4-28	N.A.	N.A.	728329	728440
Kel-F Blocks	726750	726752	726814	726816
Valveless	726746	726748	726810	726812

Cavro Multichannel Pumps	High Resolution	
	RS-232	RS-485
Cavro XL 3002		
1/4-28 Valve Fitting	724506	724508
M6 Valve Fitting	*	727997
Cavro XL 3004		
1/4-28 Valve Fitting	724510	724512
M6 Valve Fitting	*	728001
Cavro XL 3008		
1/4-28 Valve Fitting	724522	724522
M6 Valve Fitting	*	727515
1/4-28 Valve Fitting, Bypass	731385	

**Available on request.*

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Tecan Systems 2450 Zanker Road, San Jose, California 95131, T: (408) 953 3100, Toll Free: (800) 231 0711, F: (408) 953 3107
Email: tecansystemsinfo@tecan.com Web Site: www.tecansystems.com
Central United States, Bruce Steffer, Email: bruce.steffer@tecan.com, T: (810) 229 2585, F: (810) 229 9609
Eastern United States, Jerry Maurice, Email: jerry.maurice@tecan.com, T: (603) 432 2176, F: (603) 432 4825
Northwestern United States, Chuck Fontana, Email: chuck.fontana@tecan.com, T: (650) 726 1654, F: (650) 726 1654
Southwestern United States, Giovanni Prestigiacomo, Email: giovanni.prestigiacomo@tecan.com, T: (714) 665 0971, F: (714) 665 0971
United Kingdom, Andrew Engel, Email: andrew.engel@tecan.com, T: 44 11 89300300, F: 44 11 89305671
Northern Europe, Dik Hogeweide, Email:dik.hogeweide@tecan.com, T: 49 (0) 7951916117, F: 49 (0) 7951916119,
Southern Europe, Laurent Faure-Brac, Email: laurent.faurebrac@tecan.com, T: 33 (0)1 30688150, F: 33 (0)1 30689813
Asia/Japan, Yoshiyuki Kigure, Email: yoshiyuki.kigure@tecan.com, T: 81 (0)4 23348855, F: 81 (0)4 23340401

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