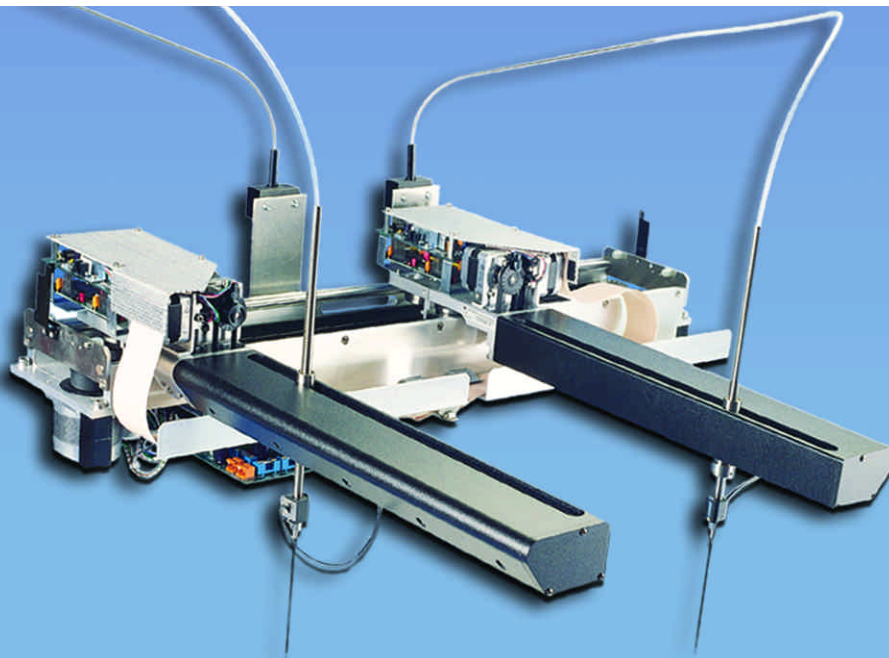

Cavro® RSP 9000 II

A Flexible OEM XYZ Component



Robotic XYZ Component for OEM Applications

The Cavro RSP 9000II is the perfect base unit to automate OEM liquid handling applications. The module is available with one or two arms, liquid level sensing, and step loss detectors on all axes. A variety of fixed and disposable probes, including an 8 channel probe head are available in support of virtually any application. The Central Control Unit (CCU) provides on-board handling of items like rack and tube positions, single point worktable calibration and arm collision avoidance.

- Flexible in size and configuration.
- Easy integration - compatible with a wide variety of other Cavro components
- Wider range of liquid handling options and end-effectors

Interfaces. The CCU provides an RS-485 communication interface to control a variety of auxiliary devices including diluters, valves, and peristaltic pumps. Tecan CAN bus components can also be controlled using an RS-485 / CAN conversion board. TTL level I/O ports are available for use, as well as one 24V 1A power output.

Control. The Cavro RSP 9000II is controlled through an RS-232 communication port using low-level ASCII commands. A corresponding software package providing higher level control functionality is also available.

Integration. This self-contained component can be easily integrated into any system using a mounting flange on each side. A standard set of stands is available that can be used with any available instrument size.

Regulatory. Cavro components are designed and manufactured to the highest standards. Tecan's quality system is ISO 13485 certified providing customers the highest confidence in the quality of Tecan components.

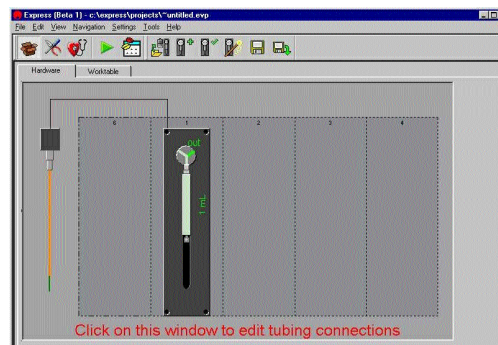
Software Development Tool. The EXPRESS™ software is a comprehensive package of software components specifically designed to make it easy for users to control the RSP 9000II instrument. Many years of Tecan liquid handling experience have been designed into these components to provide reliable pipetting performance. The modular design structure provides flexibility in designing an application.

Highlights.

RSP Comm Server: A comprehensive RS-232 communication interface driver. It can be used alone or as part of the complete EXPRESS package.

Hardware capturing: A convenient hardware definition tool to configure the instrument with additional available hardware components.

Worktable editor: A tool to design a static worktable or to provide flexibility to an end user. It comes with a variety of predefined racks and is capable of capturing virtually any custom rack.



Liquid class editor: Defines or edits liquid parameters to achieve repeatable reliable pipetting for a variety of different liquid types. Liquid classes also make it easy to use different liquid types interchangeably.

Pipetting methods: An easy way to create pipetting routines. This module makes use of the provided data from the other software components to minimize software design time.

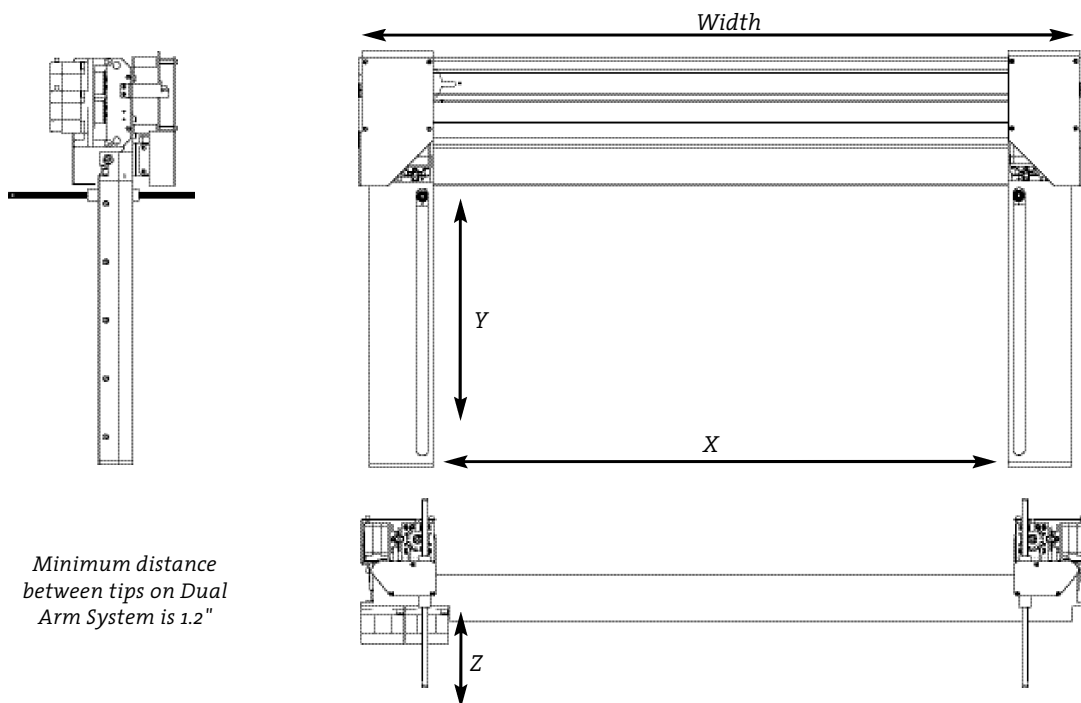
VBA: These components can be used with any COM compatible development environment, or with the built-in Visual Basic for Applications for writing programs.

Cavro RSP 9000II Specifications

Mechanical	X-Axis	Y-Axis	Z-Axis
Travel Length	15.1 - 47" (383 - 1194 mm)	5.9 or 11.8" (150 or 300 mm)	0 - 6.5" (0 - 165.1 mm)
Resolution:	0.009" (0.23 mm)	0.005" (0.13 mm)	0.004" (0.10 mm)
Repeatability:	± 0.004" (0.10 mm)	± 0.004" (0.10 mm)	± 0.004" (0.10 mm)
Maximum Speed:	35.2"/sec (894 mm/sec)	22.4"/sec (569 mm/sec)	15.5"/sec (394 mm/sec)
Electronics			
Central Control Unit:	Controls 1 or 2 Arms RS-485 Option Bus controls up to 8 devices 24V 1A power output		
Arm Board:	Variable sensitivity liquid level sensors for disposable tips Step loss detection on all axes 3 I/O auxiliary ports		
Power Requirements			
Current	24 VDC ± 10% Supply Voltage		
	2.5 Amps / 1 Arm	4 Amps / 2 Arms	
Communications			
Baud Rate	RS-232 Serial		
Protocol	9,600		
	Tecan Protocol and low-level Command Set		
Environmental			
Operating Temperature:	15° - 40°C (59° - 104°F)		
Humidity:	30-80% RH at 40°C (104°F) non-condensing		
Safety & Regulatory Compliance			
	The RSP 9000II is a UL recognized component. Tecan Systems UL customer file is E164638. Tecan's quality system is ISO13485 certified. The RSP 9000II meets the requirements set by European Union's Directive 2002/95/EC on the Restriction of Hazardous Substances.		



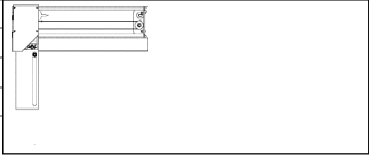
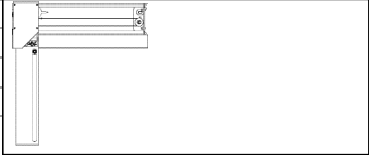
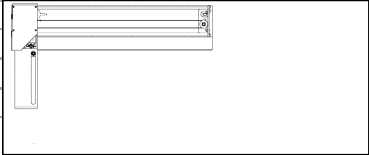
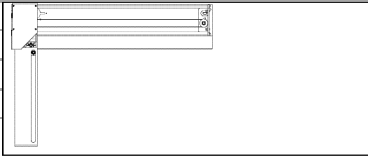
Specifications are subject to change without notice.



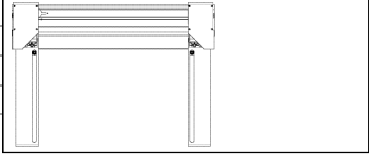
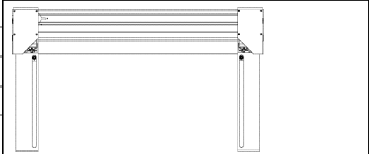

Minimum distance between tips on Dual Arm System is 1.2"

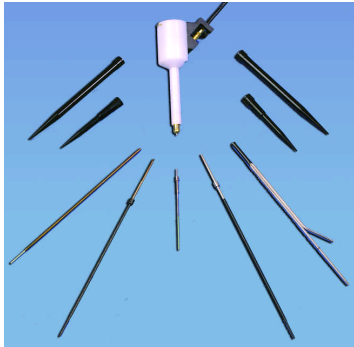
Ordering Information

Single Arm Instruments:

Part Number	Model	Dimensions	Size Comparison (Top View)
20738333	RSP-9321	Width: 20.5" (520mm) X: 15.1" (383.5mm) Y: 5.9" (149.8mm) Z: 6.5" (165.1mm)	
20738337	RSP-9621	Width: 20.5" (520mm) X: 15.1" (383.5mm) Y: 11.8" (299.7mm) Z: 6.5" (165.1mm)	
20738339	RSP-9351	Width: 30.7" (780mm) X: 25.3" (642.6mm) Y: 5.9" (149.8mm) Z: 6.5" (165.1mm)	
20738188	RSP-9651	Width: 30.7" (780mm) X: 25.3" (642.6mm) Y: 11.8" (299.7mm) Z: 6.5" (165.1mm)	

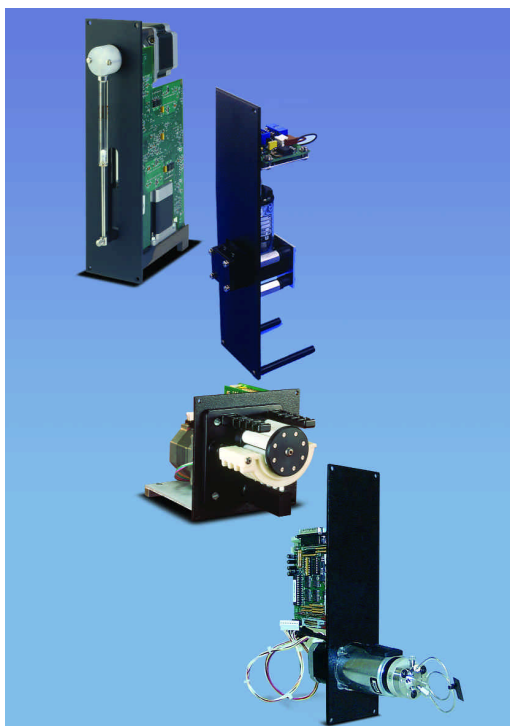
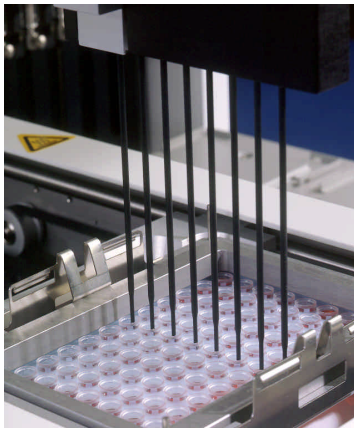
Dual Arm Instruments:

Part Number	Model	Dimensions	Size Comparison (Top View)
20738184	RSP-9652	Width: 30.7" (780mm) X: 22.3" (566.4mm) Y: 11.8" (299.7mm) Z: 6.5" (165.1mm)	
20738341	RSP-9682	Width: 38.4" (976mm) X: 30.0" (762mm) Y: 11.8" (299.7mm) Z: 6.5" (165.1mm)	
20738190	RSP-9692	Width: 52.4" (1332mm) X: 44.0" (1117.6mm) Y: 11.8" (299.7mm) Z: 6.5" (165.1mm)	



The Cavro RSP 9000II can be ordered with a wide variety of tip options.

Standard probe	For common open container pipetting.
Cap piercing probe	For applications that require septum piercing or injections.
Dual lumen probe	For dispensing two different solutions or plate washing.
Disposable tip	For applications that require low or no carry over.
8 Channel probe	For fast reagent dispensing.
Wide bore tips	For magnetic bead applications.



Compatible Components. The RSP 9000 is compatible with a variety of additional components. Eight of them, in any combination, can be attached to the RSP and controlled through the same serial port.

XLP 6000: This syringe pump comes with a wide variety of syringes and valves, to meet a broad range of requirements.

Universal Miniwash: This pump has many uses, from speeding up the priming of the tubing, to aspirating fluid from the tip for plate washing.

Smart Peri Pump: This pump is available with 1 or 4 channels. Its stepper motor is programmable to provide highly reproducible flow rates.

Injection Valve: The LC injection valve module allows robotic systems to serve as front-end sample preparation devices for HPLC or LC/MS systems.

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