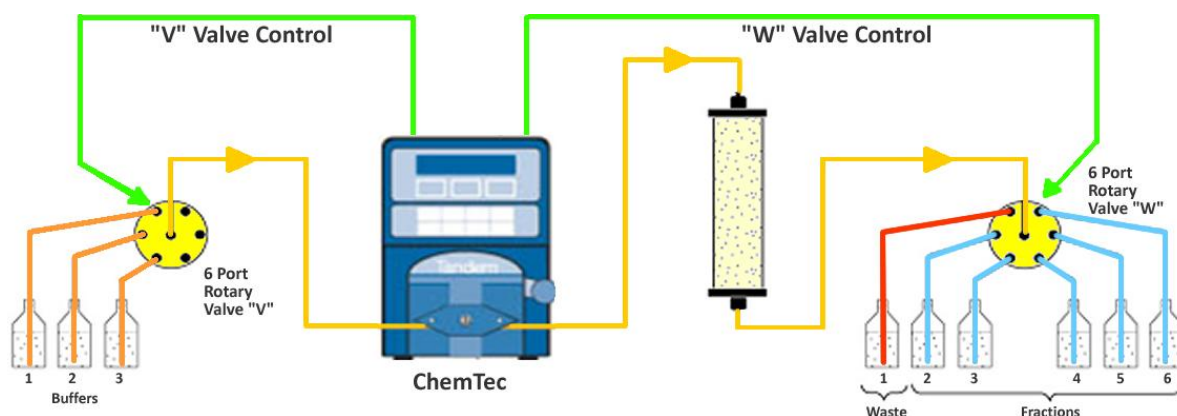


Easy-to-Use Preparative Chromatography Automation

SUMMARY:

The ChemTec™ Smart Pump simultaneously controls two 6-position, rotary valves. Both pump and valve actions are user programmable from the ChemTec front panel. The pump rates, as well as, the port position of the two rotary valves are controlled on a user-definable time schedule. Rotary valve "V" provides access to up to six buffers, while the "W" valve diverts the eluent from Waste to Collect. Chromatography liquid handling programs can be entered from the ChemTec front panel or via PC hook-up. Stored liquid handling programs can be uploaded or downloaded using the PC Hyperterminal. No additional software required. The Pump –Valve system allows pump rate of up to 400ml/min. Peristaltic and inert piston pump head options available.



ADVANTAGES:

- Easy scheduling of pump / valve operations.
- No external computer hook-up required.
- Access to six different buffers while collecting up to six fractions.
- Control of electronic balance and valve.
- User-programmable alarms.
- Documentation of your process via printout or archive to PC with SciDoc Documentation package.

ADDITIONAL FEATURES:

The easy-to-use ChemTec allows pump and valve actions to be scheduled for unattended operations during weekends and off-hours. In bioreactor feed applications, the ChemTec Smart Pump provides high precision metering, including exponential feed rates, either by volume or by weight. For mass-flow metering, no pump calibration is required. ChemTec interfaces directly with an electronic scale to provide precise, automated control of media additions to bioreactors.

In perfusion applications, i.e. the continuous harvesting of proteins from mammalian cell cultures, the ChemTec automatically meters fresh media into the bioreactor in response to the continuous removal of cell-free permeate. In this application, the bioreactor is placed on the scale. The ChemTec maintains the initial bioreactor weight set-point. In addition, the ChemTec Smart Pump provides user-definable alarms to monitor mass or volume flow rates, cumulative reactant weights or volumes, as well as end of program status. During an alarm, the ChemTec stops the pump action and/or provides an auditory alarm.

OVER

APPLICATION SUMMARY:

Below is a typical program example for automating a preparative chromatography application, including initial column cleaning (Steps 000 to 006), loading of column (Steps 007 to 010), column washing (011 to 013) and elution (014 to 023). The V-valve is programmed to access the different buffer solutions while the W-valve is used to direct eluent to Waste (W1) or Collection (W2 W6). After elution is completed (Step 023) the column is cleaned again (Steps 024 to 029) in preparation for the next chromatography cycle:

Line:	Statement:	Comment:	Line Statement:	Comment:	
000	START	Start of Program	015	TIME: 00:05	Collection Time 5 Min.
001	V1	V1, "Wash" Buffer	016	W3	Fraction 2 Collected
002	W1	W1 "Waste" Position	017	TIME: 00:10	Collection Time 10 Min.
003	CW	Clockwise Pump Dir.	018	W4	Fraction 3 Collected
004	RUN	Pump Motor "ON"	019	TIME: 00:10	Collection Time 10 Min
005	RATE:100ml/m	Pump Rate 100ml/min	020	W5	Fraction 4 Collected
006	TIME: 00:15	Column Cleaned 15Min.	021	TIME: 00:10	Collection Time 10 Min.
007	V2	V2 "Process" Loading	022	W6	Fraction 5 Collected
008	W1	W1 "Waste"	023	TIME: 00:05	Collection Time 5 Min.
009	RATE 50 ml/m	Pump Rate 50 ml/m	024	V1	V1, Wash Buffer
010	TIME: 00:10	Process Sol. Loaded,	025	W1	W1, Waste
011	V3	V3, Elution Buffer	026	RATE:100ml/m	Pump Rate 100ml/m
012	W1	W1, Waste	027	Time: 00:15	Column Cleaned, 15Min.
013	TIME: 00:02	Elution buffer to "Waste"	028	STOP	Pump Stopped
014	W2	Fraction 1 Collected	029	END	End of program

ORDERING INFORMATION: SciLog Customer Service: 1-800-955-1993

Catalog #	Description
100-138MASS	ChemTec CP120 with Tandem 1081 Peristaltic Pump Head , 160RPM Pump Motor, 30psi maximum, Pump Rate: 0.5 to 550 ml/min, depending on selected pump tubing and selected pump motor speed.
100-532MASS	ChemTec FM 520 with inert Piston Pump Head (Ceramic piston, Kynar valve body), Model RH1, maximum. 3400 RPM Pump Motor Speed, 100psi max. Pump Rate: 2.8 to 250ml/min, depending on selected pump speed and selected piston stroke volume.
100-332MASS	ChemTec with Magnetic Gear Pump Head (wetted surface SS and Teflon), Model: 184, Pump Motor: max. 3400 RPM, 30 psi max, Pump Rate: 13 to 130 ml/min. Pulse-free delivery of solution, however, check valve is required to prevent back-siphoning of solution Note: Additional SciLog models available for different flow rate and compatibilities
080-510	6-Port Rotary Selector Valve (wetted surface, Teflon), includes actuator, power supply and connecting cables. Local and Remote control capabilities. Fluid Connection: Uses 1/8" OD and 1/16" ID Teflon tubing as well as ¼ - 28 ferrules, nuts and unions.
080-095A	Thermal Printer , includes power supply and paper. Interfaces with ChemTec for process documentation.
080-099CHEM	SciDoc for ChemTec , Documentation Software for ChemTec with Custom Excel Spreadsheet.