



SciLog® ChemTec™

- intelligent bioprocessing system
- metering system

The SciLog® ChemTec™ is a high precision metering system that provides application specific automation for chemical and biological application.

The precision metering is achieved by using high resolution optical motor encoders for volumetric applications as well as connection to a balance for gravimetric applications. Applications range from programmable dispensing strategies, reactor biomass and pH maintenance, analog control, as well as solution weight maintenance or diafiltration control.

The automatic documentation and alarm / pump stop settings allow the user to focus on other tasks while the system is running. Programmable end points ensure the system ceases operation when run stops command or application target endpoints are reached. The ChemTec™ is available with peristaltic, piston and magnetic gear models. When sold with SciDoc software or a printer, documentation capabilities include 10 real-time filtration parameters.

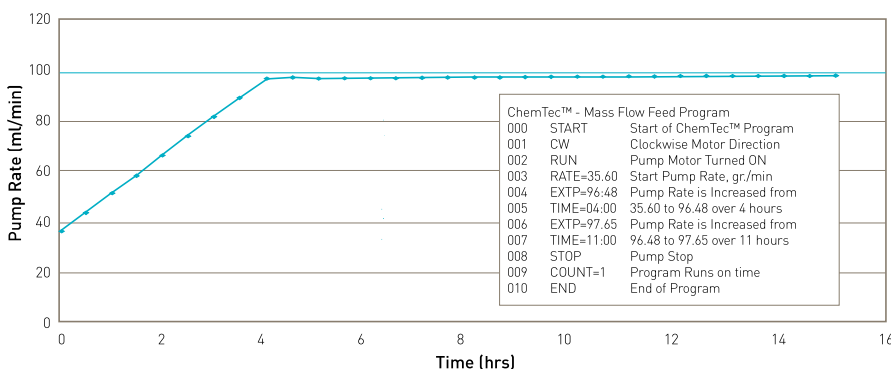
Features and Benefits

- Volumetric or gravimetric operation
- Dispense accuracy <0.5% error
- Compatible with most 3rd party balances
- Intuitive application interface
- Real-time data collection
- Safe, walk-away systems operation



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Applications

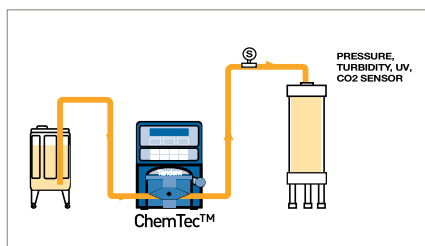


Pump Rate (ml/min) vs. Time (hours)

Metering

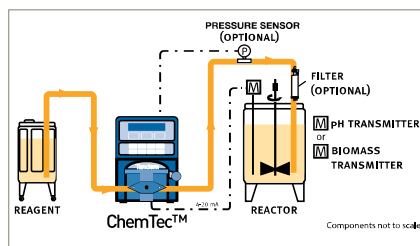
The ChemTec™ provides user-definable feed either by volume or by weight. Volumes are calculated by a high resolution optical encoder or if connected to an electronic scale, the ChemTec™ becomes a self-calibrating metering system. The feed rates are executed on a user-programmable time schedule.

Linear and exponential feed gradients are readily implemented from the ChemTec™ front panel or programs can be prepared, stored and transferred from a PC.



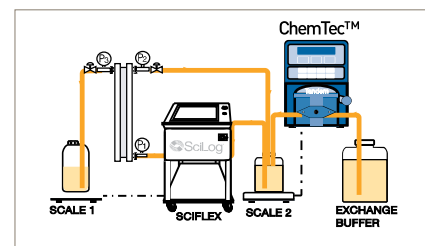
Analog Monitoring Mode

The ChemTec™ accepts signals from controllers or sensors such as turbidity or UV monitors. These transmitters provide a 4-20mA signal that is proportional to the parameters the sensor is monitoring. In the Analog mode, the ChemTec™ 0-100% pump output is directly proportional to the signal received from the 4-20mA device.



pH Control

The ChemTec™ automates pH control as well as titrations in larger-volume reactor applications. In the pH control mode, the ChemTec™ is connected to a pH transmitter with a 4-20mA output. The ChemTec™ provides user-definable pH set-point, which it will maintain by adding small increments of reagent. The pH set-point can be maintained indefinitely within 0.10 pH unit, i.e. the smallest selectable pH bandwidth. For titration applications, the user-definable pH set-point represents the titration endpoint, e.g. pH set-point = pH 7.00 for a simple acid / base neutralization reaction.



Diafiltration or Weight Maintenance

The ChemTec™ can monitor and maintain the weight of a solution stored on a balance. An example would be when performing a tangential flow filtration process, a common step involves diafiltration ("washing") of protein solutions. The ChemTec™ is programmed to maintain a constant weight by automatically adding buffer to the filtration reservoir to make up for the volume removed during filtration. The ChemTec™ adds exchange buffer until a user-defined volume limit has been attained. The ChemTec™ also allows stop/start control over the diafiltration system.

Specifications

	Description
Dimension / Weight	Width: 5.75" (146 mm) x height: 8.5" (2126 mm) x depth: 11" (279 mm): 14 lbs (6.4 Kg)
Enclosure & Rating	16 Ga, aluminium baked epoxy blue 4-40dC, 0-100% humidity, IP20
Pressure Sensors	Accommodates up to three (3) disposable pressure sensors. The calibrated pressure range is 0 - 60 psi. Any point within this range can be recalibrated using an external pressure reference source.
Power	115 / 220-240 VAC, 60 / 50 Hz, 75 Watts, double fused: T1AL 250V (CE: IR35A 250VAC)
Motor / Encoder	8, 160, 600, 3400 RPM, 30 VDC, 3.8A, 120 ppr 8 and 160 RPM, 100 ppr 600, 3400 RPM
I/O Ports	Male DB9 Scale Connections (RS-232), female DB9 printer or PC connection (RS-232), external IO DB37 connector, 1 TTL input, 4 TTL output, 3 4-20mA
Operational Mode	Mass flow, volume flow, diafiltration, pH and manual mode

Options and Accessories

Pump Heads:

Tandem Peristaltic

- 1081 Flow Rate (ml/min): 0.03 - 1515
- 1082 Flow Rate (ml/min): 0.5 - 2258
(Pressure: 25 psi continuous - 45 psi max)

- FMI RH Piston - Flow Rate (ml/min):
0.002-320 (600, 3400 RPM)
(Pressure: 100 psi max)
- Micro pump MAG - Flow Rate (ml/min):
0.54-3488 (3400 RPM)
(Pressure: 40 - 70 psi max model dependent)

- Masterflex Peristaltic - Flow Rate (ml/min):
0.03- 2900 (8, 160, 600 RPM)
(Pressure: 25 psi continuous - 45 psi max)

Ordering Information

200 - CHEM - 1

Code Motor		Pump Head											
0	8 RPM	Code SciLog 81 1081 Pump 82 1082 Pump		Code Masterflex 21 Thin Wall - Variable Occlusion 22 Thick Wall - Variable Occlusion 23 Thin Wall - Fixed Occlusion 24 Thick Wall - Fixed Occlusion 25 High Performance		Code Micro Pump				Code FMI RH			
1	160 RPM					31 MAG 120		35 MAG 200		41 OCKC		46 1CKC-LF	
3	3400 RPM					32 MAG 184		36 MAG 201		41T OCTC		46T 1CTC-LF	
6	600 RPM					33 MAG 1840		37 MAG 187		42 1CKC		47 OSKY-LF	
						34 MAG 040		42T 1CTC		47T OSTY-LF			
								43 OCKC-LF		472 OCKC-LF			
								43T OCTC-LF		46T 1CTC-LF			

Example: 200-CHEM-1182 - SciLog® ChemTec™ - with scale, 160 RPM motor and 1082 head

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