

- 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.

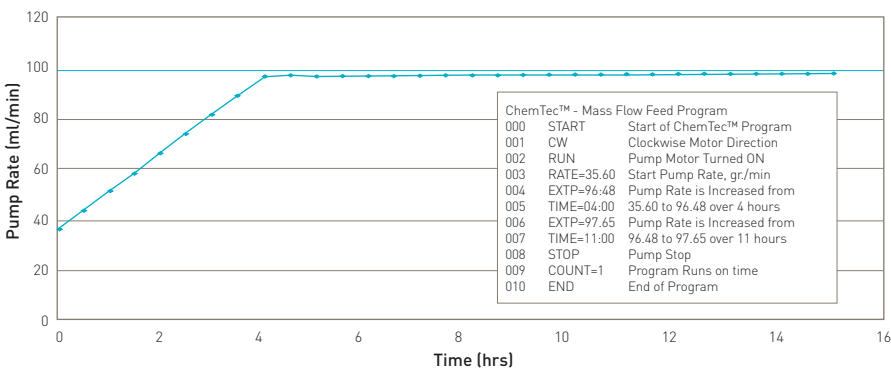
## Features and Benefits

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



Note: SciLog® & ChemTec™ are trademarks of Parker Hannifin Corporation.

## Applications

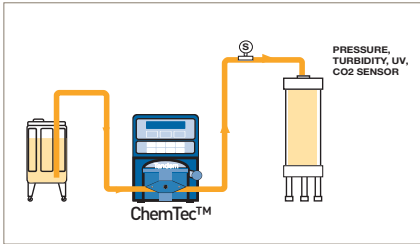


Pump Rate (ml/min) vs. Time (hours)

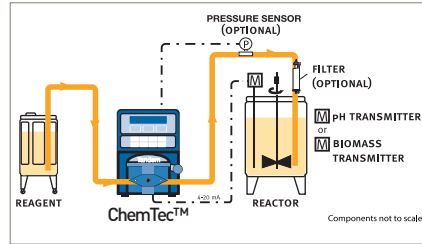
## Metering

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.

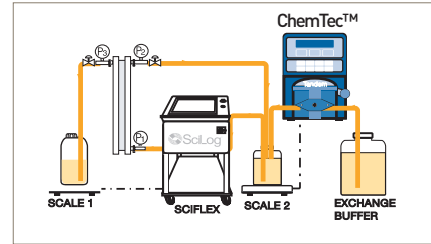
Linear and exponential feed gradients are readily implemented from the ChemTec™ front panel or programs can be prepared, stored and transferred from a PC.



**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
<b>Dimension / Weight</b>	Width: 5.75" [146 mm] x height: 8.5" [2126 mm] x depth: 11" [279 mm]: 14 lbs [6.4 Kg]
<b>Enclosure &amp; Rating</b>	16 Ga, aluminium baked epoxy blue 4-40dC, 0-100% humidity, IP20
<b>Pressure Sensors</b>	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.
<b>Power</b>	115 / 220-240 VAC, 60 / 50 Hz, 75 Watts, double fused: T1AL 250V (CE: IR35A 250VAC)
<b>Motor / Encoder</b>	8, 160, 600, 3400 RPM, 30 VDC, 3.8A, 120 ppr 8 and 160 RPM, 100 ppr 600, 3400 RPM
<b>I/O Ports</b>	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
<b>Operational Mode</b>	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)
- Micropump MAG - Flow Rate (ml/min): 0.54-3488 (3400 RPM)  
(Pressure: 40 - 70 psi max model dependant)

- 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	Code   Masterflex	Code   Micro Pump	Code   FMI RH	Code   FMI RH	Code   FMI RH	Code   FMI RH	Code   FMI RH
1	160 RPM	81	21 Thin Wall - Variable Occlusion	31	41	46T	46T	46T	46T
3	3400 RPM	82	22 Thick Wall - Variable Occlusion	32	41T	46T	46T	46T	46T
6	600 RPM		23 Thin Wall - Fixed Occlusion	33	42	46T	46T	46T	46T
			24 Thick Wall - Fixed Occlusion	34	42T	46T	46T	46T	46T
			25 High Performance	35	43	46T	46T	46T	46T
				36	43T	46T	46T	46T	46T
				37	46T	46T	46T	46T	46T
					46T	46T	46T	46T	46T

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

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