

- intelligent bioprocessing system
- dispensing system

The SciLog® LabTec™ is an automated laboratory scale dispensing system by volume, weight or weight ratio.

The LabTec™ automates, optimizes and documents repetitive liquid dispensing with or without in-line filter sterilization. The LabTec™ models are ideally suited for dispensing sterile solutions in media kitchens and microbiology laboratories. Also widely used in small production runs to fill your final product into vials, bottles, bags, and containers.

The automatic documentation and alarm / pump stop settings allow the user to focus on other tasks while the system is running. Remote control and programmable end points ensure the system starts and stops operating when a given dispense is complete or an interlock condition occurs. When sold with SciDoc software or a printer, documentation capabilities include 7 real-time parameters.

Features and Benefits

- Rapid, high precision dispensing by volume, weight or weight ratio
- Self priming
- Reversible flow
- Remote activation
- Accuracy +/- 0.5% by volume
- Accuracy +/- 0.3% by weight
- Pressure alarm alerts when in-line filter needs to be replaced
- PC or printer documentation of dispensing



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

Performance Characteristics

Table 1 - Automated Weighing and Dilution of Food Samples

Trial	Sample Weight (g)	Theoretical Diluent Weight (g)	Actual Diluent Weight (g)	Errors (g)
1	10.0	90.0	90.0	0.0
2	10.0	90.0	89.9	-0.1
3	10.0	90.0	90.1	+0.1
4	10.0	90.0	89.8	-0.2
5	10.0	90.0	90.1	+0.1
6	10.0	90.0	90.0	+0.1
7	10.0	90.0	89.9	-0.1
8	10.0	90.0	90.2	+0.2
9	10.0	90.0	90.1	+0.1
10	10.0	90.0	89.8	-0.2

Table 2 - High Speed Volumetric Dispensing

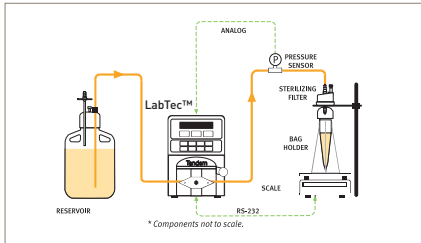
Dispensed Volume (ml)	Tubing Size	Pump Speed (%)	Slow Factor (ml)	Typical Precision (%)	Dispensing Time / Aliquot (sec)
5.0	#15	100%	2.50	1.7%	2.1
10.0	#15	100%	2.50	0.5%	2.0
25.0	#15	100%	2.50	0.20%	2.7
25.0	#24	100%	4.75	0.15%	2.9
50.0	#24	100%	4.75	0.50%	3.9
100.0	#24	100%	4.75	0.35%	6.3
100.0	#35	100%	5.00	<0.5%	4.5
200.0	#35	100%	5.00	<0.5%	6.0
300.0	#35	100%	5.00	<0.5%	12.0

Table 3 - Gravimetric Solution Dispensing

Weight Entered (g)	Average Dispensed Weight (g)	RSD (%)	Dispensing Time per Aliquot (sec)
200.00	199.95	0.03%	16
150.00	150.01	0.11%	14
100.00	100.01	0.11%	13
50.00	49.96	0.18%	12
25.00	25.05	0.25%	10

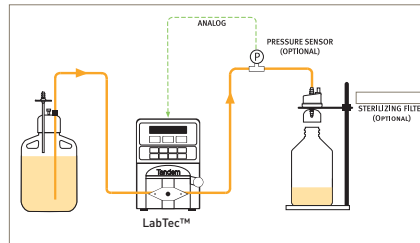
Applications

Weighing, Dilution and Sterilization



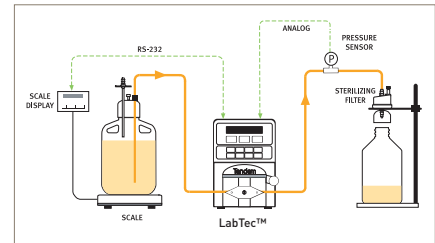
The LabTec™ significantly increases the productivity of any microbiology laboratory. The dispensing system automates weighing and diluting of food samples, in preparation for bacteriological analysis. Only an approximate sample size is needed. The LabTec™ dispenser calculates and rapidly dispenses the media required to achieve a user-selected diluent factor. See Table 1. Costly and time-consuming autoclaving of media is avoided with in-line filter sterilization of diluents using a filter capsule. A disposable pressure sensor monitors filter backpressure and provides an alarm signal when a failing sterilizing filter (high backpressure) needs to be replaced. An optional printer or PC hook-up automatically documents all sample and diluent weights. The LabTec™ dispenser improves the speed, precision and accuracy of the entire sample preparation process by automating the weighing, dilution and documentation process.

Precision Batch Dispensing



The LabTec™ Smart Dispensing System is capable of high speed, high precision batch dispensing. The LabTec™ comes with a 1082 Tandem peristaltic pump head. Up to 10 different dispensing volumes can be stored and easily retrieved for quick batch volume dispensing. An optional sterilizing filter and disposable pressure sensor provide for in-line buffer sterilization and reliable detection of filter plug-up conditions. Typical performance results including dispensing times are summarized in Table 2. The LabTec™ is easy to calibrate. A stored calibration curve is provided for each pump head/pump tubing combination. From a stored menu, you select the pump tubing you have installed in the LabTec™. For high accuracy dispensing applications, you may want to use the LabTec™'s single-point re-cal feature.

Fast, Accurate Dispensing and Sterilization



In this configuration, the LabTec™ is connected to an electronic scale for high accuracy filling applications. A sterilizing filter and a disposable pressure transducer provide a safe and effective in-line filter sterilization capability. The LabTec™ continuously monitors the filter backpressure and alarms when a user-defined pressure level has been exceeded, which indicates a filter plug-up condition. See Table 3. The high dispensing accuracy is achieved by reducing the pump rate as final target weight is being approached. The slow-down avoids overshooting the target weight. After slow-down, the LabTec™ pump stops briefly when 99% of the final target weight has been dispensed. The electronic scale is allowed to come to a steady-state readout and the LabTec™ slowly starts up again to dispense the remaining solution.

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 one disposable pressure sensor. 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, 100 ppr
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	Dispense by volume, weight or weight ratio. Store up to 10 programs per mode. Pump re-calibration.

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: 0.002-320 (600, 3400 RPM)
(Pressure: 100 psi max)
- Micropump MAG: 0.54-3488 (3400 RPM)
(Pressure: 40 - 70 psi max[model dependant])

- Masterflex peristaltic:
0.03- 2900 (8, 160, 600 RPM)
(Pressure: 25 psi continuous - 45 psi max)

Ordering Information

200 - LABT-1

Code Motor		Pump Head			
Code	Motor	Code SciLog	Code Masterflex	Code Micro Pump	Code FMI RH
0	8 RPM	81	21	31	41
1	160 RPM	1081 Pump	Thin Wall	MAG 120	OCKC
3	3400 RPM	82	22	32	1CKC
6	600 RPM	1082 Pump	Thick Wall	33	
			62	34	
				35	
				36	
				37	
				38	
				39	
				40	
				41	
				42	

Example: 200-LABT-1181 - SciLog® LabTec™ - 160 RPM motor and 1081 head