

Series 1500

Isocratic HPLC System



Series 1500 Isocratic System

Integrated Design Saves Bench Space

The Series 1500 isocratic System, built around the Model 1500 microstepping low-volume digital pump, gives you the freedom to perform difficult applications. Pump performance is optimized with a high resolution stepping motor with 0.001 $\mu\text{L}/\text{min}$. flow accuracy. The addition of a second Series 1500 and Model 460 controller enables high-precision binary gradients if the need arises in the future.

The Model 500 uv/viz detector gives you the sensitivity and flexibility today's separations require. The system is available with Stainless steel or PEEK fluid paths.

Flexibility in Control

The Series 1500 Isocratic System can be operated in stand-alone mode or through optional PC software. The Series 1500 pump allows easy control of flow and setting of upper and lower pressure limits through its easy to use keypad. The 1500 can be interfaced to autosamplers and data systems for system automation.

This system can also be controlled by LabAlliance's **EzStart™** LC control & data acquisition software. Operation flexibility makes the system a good fit for a wide variety of applications. And its modular design allows for easy upgrades.



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800-441-4752; 814-234-7311 Fax: 814-238-4752

Isocratic Pump

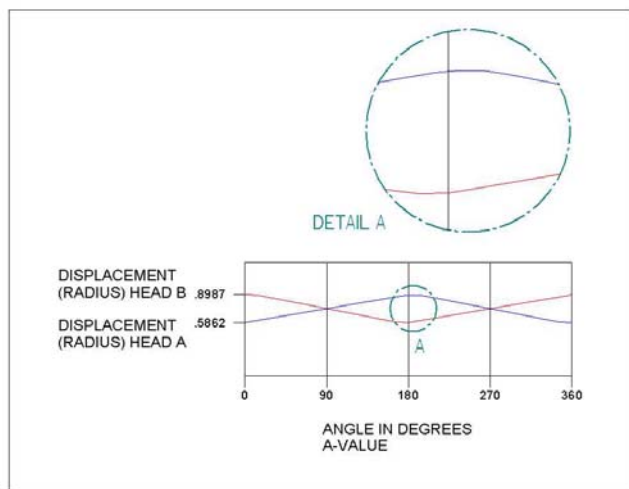


The Series 1500 is compact and fully integrated. Modern stepper motor technology combined with years of industry experience provides a high performance system at an exceptional value.

The Series 1500 pump uses overlapped linear cams and a high precision stepping motor to give virtually pulse-free flow at all pressures. The pump's 1 μL resolution allows microbore use with columns as small as 1 mm. The addition of a second pump and SCU-460 Keypad Controller enables binary gradient mixing at flows as low as 50 $\mu\text{L}/\text{min}$.

Simple keypad control and the inclusion of the self flush feature insures simple operation and allows interfacing to autosamplers and data systems for true multi-method automation.

In addition, the Series 1500 can be operated through a PC with the included software. The PC allows storage of multiple gradient methods.



The linear profile and 5 degree overlap of the cams for recompression of solvent virtually eliminates pulsation. The minipulse damper is off-line to further remove pulsation and minimize dead volume. For critical applications such as LC/MS and electrochemistry, there is no better pump.

UV/Vis Detector



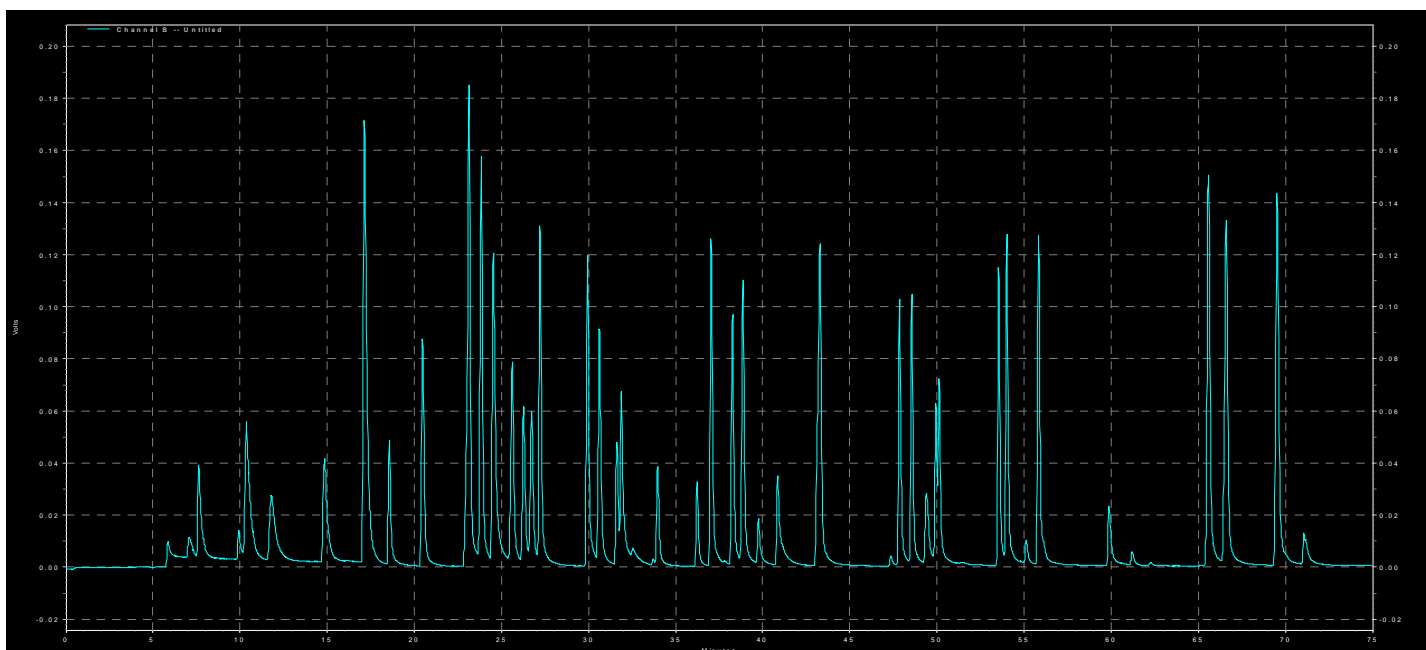
Variable wavelength, high sensitivity, and a selection of flow cells make the Model 500 Detector ideal for liquid chromatography applications from microbore to preparative scales.

A direct mechanical drive on the unit's front panel sets the desired wavelength. The standard deuterium lamp covers UV wavelengths; an optional tungsten lamp is available for visible wavelengths. The lamps are prealigned, readily accessible, and can be easily changed.

The Model 500 features 12 switch-selectable absorbance ranges. Low-noise electronics, high-noise rejection filtering, and low-loss optics preserve the detector's high sensitivity and ensure low-noise, low-drift performance.

Flow cells are available to support a full range of applications, from microbore to prep. These cells eliminate dead volume and minimize refractive index contributions. The standards are 6 mm, 9 μ L, or 10 mm, 15 μ L, 316 stainless steel cell for analytical HPLC applications. Kel-F® flow cells are available for biocompatible applications; flow cells for microbore and capillary electrophoresis applications are also available. A variable path length (0-3 mm) prep cell can be used to adapt the Model 500 to preparative or large-scale separations. The flow cell compartment is located outside the main instrument housing for easy access.

The Model 500 also features autozero and event marking using front and rear panel controls. The unit can be zeroed manually from the front panel or automatically using an event switch connected to the rear panel.



Detector Options

A variety of detector options is available for different applications.

Visit www.laballiance.com

for details and specifications.



ELSD



Ultrafluor Fluorescence;



Conductivity



Diode Array



Programmable
UV/Vis Detectors
single or dual channel



Refractive Index



FC Jr. holds microcentrifuge tubes to 250 mL Erlenmeyers, and easily stretches to hold tubes up to 150 mm tall. FC Jr. gives you great capacity in minimal space. FC racks are available for almost any tube or vial, and even 96-well microplates. The most commonly used test tube sizes are 13 x 100 (8 mL), and 18 x 150 (24 mL). FC Jr. holds 144 and 7. When you need increased amounts of purified product, FC Jr. lets you collect unlimited volumes in off-deck containers with a funnel rack.

Standard Features

- Collect peaks of interest separately using any combination of slope, level, and time windows. FC Jr. reliably separates peaks by monitoring detector output, so you don't have to expend glassware on no-interest effluent.
- Easy interfacing with event-triggered program restart.
- Collect uniform fractions by time, drop count, or pumped volume.
- Built-in fault prevention.
- Easy-to-read display and intuitive programming make setup quick and error-free.
- Stores up to 9 collection programs in battery backed memory.
- Choice of available racks (specify when ordering).
- Optional accessories include valve controllers, diverter valves, slope/level sensing cable.

Autosampler Option



Variable-volume Autosampler

The variable-volume autosampler provides outstanding performance and maximum flexibility in a variable-volume, LC sample processing system. The standard unit provides 120-vial capacity, multiple injection modes, random vial access, reuse of calibration standards, and nonvolatile storage of 4 complete methods.

Fixed-loop Autosampler

The fixed-loop autosampler is designed especially for laboratories that process large numbers of samples on a routine basis. Injection volume can be varied simply by changing the sample loop. The standard unit allows 120 vials, multiple methods, and reuse of calibration standards.

Inert Autosampler

The inert autosampler provides all the features of the variable-volume autosampler, but in a metal-free, inert version. This autosampler is ideally suited for biological applications requiring metal-free operation or applications that use corrosive solvents or buffers.





Model 1500 With EZ Start and Binary Configuration

EZ Start is an HPLC system control and data acquisition package with digital control for SSI LabAlliance pumps, Model 201/525/305 detector, and LabAlliance autosampler.

The **EZ Start** 420 X module can alternatively be used to acquire data from 4 analog detector inputs.

Unity features a simple user interface to provide full control of the individual system components.

With its combination of capability, performance, and simplicity, **EZ Start** unifies the HPLC system.

Key Features of **EZ Start**:

- ◆ Control for any SSI/LabAlliance pumps, for high pressure gradients, UV/Vis or fluorescence detector, and a LabAlliance autosampler.
- ◆ Instrument control fits seamlessly with the system to provide a consistent user interface regardless of the hardware controlled.
- ◆ Simple user interface features guide users through setup and operations. No confusing icons or multiple program windows are needed.
- ◆ Easy to connect interface box hooks up to most standard Pentium PCs running Windows XP.
- ◆ Built-in timing mechanism to work with Windows applications without data loss.
- ◆ Real-time display of data.

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Specifications

Isocratic Pump:

Flow Rate	0.01 - 12.00 mL/min
Pressure	Stainless Steel: 0 – 6,000 psi; PEEK: 0 – 5,000 psi
Pulsation	± 0.5% @ 1mL/min and 1,000 psi
Pressure Accuracy	± 1% of full scale pressure
Flow Accuracy	± 2%
Flow Precision	0.2% RSD
Dimensions	6" high x 11" wide x 18" deep (19 x 26 x 45 cm)
Weight	30 lbs. (14 kg)

Standard Controls:

- RS-232 Serial Com Port for Complete Control & Status Monitoring
- Run/stop Inputs (5 volt TTL type)
- Remote 0 - 10 volt & remote 0 – 10 kHz Flow Rate Control Input
- Pressure monitoring (via transducer) with user selected upper/lower pressure limits

Standard Pump Features:

- Self Flushing Pump Head and Prime Purge Valve
- Stainless Steel or PEEK Fluid Path
- Autoprime™ one button toggles flow rate to maximum for rapid solvent change
- Electronic pressure transducer (isolated through pulse damper)
- Dual ball and seat Check Valves for Consistent Flow Performance
- Pulse Damper for Reduced Pulsation
- 3-year warranty

Detector:

Range	UV, 190-380 nm (deuterium lamp) Visible, 366-800 nm (optional tungsten lamp)
Optical Design	Concave holographic grating monochromator with dual-beam optics
Bandwidth	nm
Wavelength Accuracy	±1 nm
Wavelength Precision	0.1 nm
Drift	2 x 10 ⁻⁴ AU/hr. after warm-up
Absorbance range	0.0005 to 2.0 AUFS (12 settings)
Rise times	0.1, 0.3, 1.0, or 3.0 seconds
Data system outputs	1 V/AU
Recorder outputs	10 mV, 100 mV, 1V
Noise	± < 1 x 10 ⁻⁵ AU @254 nm, 1-s rise time (D2 lamp); < ± 1 x 10 ⁻⁵ AU @546 nm, 1-s rise time (w lamp)
Dimensions	25 cm x 17 cm x 34 cm (9.8" x 6.7" x 14.2") (W x H x L)
Weight	20 lbs. (9.1 kg)
Power	100, 110, 220/240 Vac; 50/60 Hz; 125 W

SCU-460 – Standard Features of Microstepping Keypad:

Pump control:	For Q-Grad and 4 Model 1500 pumps*
Event:	External input for remote start from injector or autosampler
Flow rate setting:	.001 mL units
Pressure setting:	6000 psi max; shuts down pump if limits are exceeded
Storage capacity:	10 gradient methods; can be linked
Display:	2 line LED
Status displays:	current system pressure, current composition, stage of the gradient run – idle mode, initial conditions, waiting for injection, run, delay
Dimensions:	8" x 4" x 1.8" (20 cm x 10 cm x 4.5 cm) L x W x D
Power:	9 Vdc Universal Power Supply

* Use SCU-470 for control of all SSI/LabAlliance pumps without microstepping gradient control.

Injector (Stainless steel version):

Maximum operating pressure:	35 MPa
Capillary connection:	1/16" OD UNF 10 standard thread
Reproducibility:	±1 %
Control:	Manual
Injection loop:	Exchangeable, 20 µL included
Volume of injection loop:	Min. 3 µl
Materials in contact with mobile phase:	Stainless steel, Vespel

Injector (PEEK version):

Maximum operating pressure:	34 MPa
Control:	Manual
Reproducibility:	±1 %
Injection loop:	Exchangeable, 20 µL included
Partial filling volume:	1 µl –5.0 mL
Materials in contact with mobile phase:	PEEK, Tefzel, Vespel

Ordering Information

SD-1500-S	Series 1500 Isocratic System, SS
SD-1500-P	Series 1500 Isocratic System, PEEK
	Both systems include 1500 pump, Model 500 detector, manual injector, system accessories kit
180160	Variable volume autosampler
180161	Fixed volume autosampler
180162	Inert Variable volume autosampler
IS683870001	Fraction Collector Jr.; includes one rack for 144 13 mm tubes
IS-681010-119	Interface cable for external control of FC Jr. by contact closure of TTL I/O
SSW0102	EZ Start Analog Data Acquisition and control