HPLC Detectors

UV/Vis Detector

Product Information

A flexible, high-performance 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 standard is a 6mm, 9µl, Type 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 (0-3mm) 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.

A variety of flow cells and other detector accessories are available for the Model 500. Please contact us for more information.

Maximize sensitivity through continuously variable wavelength optimization

A standard deuterium lamp and optional tungsten lamp cover the entire UV/Vis spectrum, giving you the ability to work at lmax. Both lamps are prealigned.

Convenient front panel controls

A front panel mechanical drive lets you quickly and accurately select and display on the readout any wavelength in the lamp's range. Push-button diagnostics add to the user-friendliness of this detector.

Manual or remote autozero

Rezeroing the baseline is done at the push of a button or through a remote-controlled event for automated systems.

High sensitivity for your most demanding applications

A 12-position front panel switch allows range settings from 0.0005 to 2.0 AUFS. The second-order Bessel filter, fibre optics, and proprietary circuitry make this the most sensitive detector available.

Flow cells for every application

Flow cells are available in Type 316 stainless steel or chemically inert, biocompatible Kel-F®, for applications from microbore to preparative scales. Superior design gives unmatched versatility and performance.

Easy access and maintenance

Easy access to the flow cell and lamp ensure quick maintenance and minimum down-time.

Specifications	
Range:	UV, 190-360nm (deuterium lamp) Visible, 360-800nm (optional tungsten lamp)
Monochromator:	Holographic grating
Bandwidth:	6nm
Wavelength Accuracy: (Mechanical Drive)	±1nm
Wavelength Reproducibility:	±0.1nm
Noise:	$\pm 1 \times 10^{-5}$ AU, typical
Drift:	2×10^{-4} AU/hr
Absorbance Range:	0.0005 - 2.0 AUFS (12 range settings)
Integrator Outputs:	1 V/AU
Recorder Outputs: (Full Scale)	10mv, 100mv, 1V
Rise Times:	0.025, 0.1, 0.3, 1.0 or 3.0 secs
Physical Characteristics	
Dimensions (W x H x D):	248 x 166 x 337mm
Mass:	9.1kg
Power:	110/220V AC, 50/60Hz. 125W

Description	Part No	Qty	Price
Model 500 Variable Wavelength UV/Vis Detector, Stainless steel 6mm 9µl flow cell	200344	Each	
Model 500 Variable Wavelength UV/Vis Detector, Bioclean, 6mm 9µL	200346	Each	

flow cell		
Deuterium Lamp (UV)	201305	Each
Tungsten Lamp (Vis)	201306	Each
Flow Cell, Analytical HPLC, 6mm, 9µl, Stainless Steel	201313	Each
Flow Cell, Biocompatible HPLC, 6mm, 9ul, Kel-F	201307	Each
Flow cell, microbore, for packed capillary SFC and LC-UV-MS, 2mm, 250nl, 7000psi, Stainless steel	201341	Each
Flow Cell, On-column for capillary electrophoresis (capillary dependent)	201308	Each

Programmable Detectors

Product Information

Ideal for applications from trace analysis to preparatory LC

Product Features:

- Optimized motor control algorithm
- High-speed motor drive
- Real-time spectra
- Display λMAX
- DevelopFile™
- Six method files
- Automatic lamp startup/shutdown
- Programmable autozero
- Autoscan

Enhanced detectability

By simultaneously monitoring two wavelengths (Model 525), you get maximum detectability of different compound types. You can also simultaneously ratio the wavelengths to check purity.

Reduce setup time

Easy to program and operate, the front-panel display guides you through the setup of even the most complex time-based program.

High sensitivity for demanding applications

Dual wavelength operation (Model 525) with programmable sensitivity from 0.0005 to 7.9995 AUFS gives you optimal detection capability.

Programmable peak detection and baseline correction

Lets you get the data you require. Enhance the accuracy of your detection results by matching the wavelength to the compound and sensitivity to the concentration range.

More than just a detector — it's also a spectrophotometer

When separating unknown compounds, program to monitor a wavelength range to identify and zero in on important peaks and scan the compound for its spectral characteristics.

Easy access and maintenance

Separate lamp and flow cell housings assure quick maintenance and changing of parts.

Complete line of flow cells

Standard Type 316 stainless steel; optional chemically inert, metal-free Kel-F®; and optional micro flow cells are available for optimal detection. Cells are also available for CZE and high-pressure applications.

Model 525 Dual-wavelength UV/Vis Detector

The Model 525 provides all the performance and features needed for either method development or routine analysis. Programmable, single- and dual-wavelength capabilities are standard. Six user files, a queue for file linking, and automatic lamp startup and shutdown enhance operation. Spectra can be collected "on the fly" without stopping the flow. The λMax, λMax AU, and λMin are displayed automatically in real time. You can replay any spectra or display the complete spectral data on the LCD. Ratio output is available for peak purity. The "Develop File" automatically analyzes your separation at many wavelengths. Finding the best wavelength for sensitivity, selectivity, and quantization is quick and easy.

Model 201 Programmable UV/Vis Detector

The Model 201 is an easy-to-use, programmable wavelength detector designed for routine applications. Wavelength programming enhances the sensitivity or selectivity for different compounds in a separation The automatic lamp startup and shutdown feature prolongs lamp life and reduces warmup time. Programming is accomplished using a simple keypad and display. The "Status Lock" feature prevents accidental changes in parameters while the detector is running.

Wide variety of flow cell options

A wide variety of cell options is available for all applications. Analytical, micro, semi-prep, prep, and inert/bio flow cells are offered for LC. The high pressure (7000 psi) flow cell is ideal for SFC and LC-MS. An on-column cell for CE and SFC uses a ball lens to focus the light beam for increased sensitivity. A cuvette holder converts the detector into a spectrophotometer and makes fixed wavelength and scanning absorbance measurements accurate and reliable. All flow cells are pre-aligned for fast, simple installation and exchange.

Specifications	
Optical Design:	Concave holographic grating monochromator, with dual beam optics; pre-aligned, front-mounted lamps and flow cell
Noise:	$<\pm 1.0 \times 10^{-5}$ AU at 254nm, 1.0sec rise time $<\pm 2.5 \times 10^{-5}$ AU at 254 and 280nm, 1.0sec rise time, dual wavelength mode (525 only)
Drift:	$<2 \times 10^{-4}$ AU/hr after warm-up at 254nm
Wavelength Accuracy: (Mechanical Drive)	±1nm
Wavelength Precision:	±1nm
Spectral	6nm

Bandwidth:	
Absorbance Range:	0.0005 - 3.0 AUFS
Absorbance Linearity:	>1% - 2.0 AU at 254nm

Wavelength Range

Deuterium Lamp:	190 - 365nm (Model 525) 190 - 380nm (Model 210)
Tungsten Lamp:	366 - 800nm
Dual Wavelength:	190 - 450nm* or 360-800nm (525) * Second order effects may be observed above 360nm

Communications

Remote Inputs:	Run, Stop, Zero
Outputs:	Ready, Accessory relay
Analogue Outputs:	2 outputs, range-selectable over entire absorbance range

Physical Characteristics

Dimensions (W x H x D):	248 x 166 x 337mm
Mass:	9.1kg
Power:	110/220V AC, 50/60Hz. 125W
Ambient Environment:	10 - 40°C, 5 - 95% relative humidity non-condensing

Description	Part No	Qty	Price
Model 525 Detector 110V	200575	Each	
Model 525 Detector 220V	200275-230V	Each	
Model 201 Detector 110V	TS-0201	Each	
Model 201 Detector 220V	TS-0201-230V	Each	
Deuterium Lamp (UV)	201305	Each	
Tungsten Lamp (Vis)	201306	Each	
Flow Cell, Analytical HPLC, 6mm, 9µl, Stainless Steel	201313	Each	

Flow Cell, Biocompatible HPLC, 6mm, 9ul, Kel-F	201307	Each
Flow Cell, On-column for capillary electrophoresis (capillary dependent)	201308	Each

Fixed Wavelength Detector

Product Information

A Flexible, High-Performance UV/Vis Detector

This instrument is a fixed wavelength spectrophotometer that uses a flow-through cell to measure solute concentration in liquid streams. A special signal processing system converts the signal from a photodetector to a voltage directly proportional to concentration (absorbance). An autozero system provides push-button nulling of the output voltage level. There are output connections for a computing integrator at a fixed level of 1 volt per absorbance unit. In addition, there is an output with eight levels of sensitivity provided for a 10 millivolt strip chart recorder.

Operating Principles:

Photon energy supplied by a low pressure mercury source lamp (253.7nm line) is passed through a flowcell to a photodetector. Electronic circuitry comprised of a differential logarithmic amplifier and signal conditioning system processes the photometric signal to provide an output voltage proportional to absorbance of the solution in the flowcell. Output sensitivity is a function of flowcell pathlength, concentration, and molecular extinction coefficient of the substance in solution (Beer's law). For measurements at other wavelengths, optional photodetectors, special wavelength conversion phosphors and optical filters are required. The lamp is powered by a special high frequency ballast for stability and low noise.

Specifications	
Wavelength:	254nm (standard) 280, 365, 420 and 550nm (optional)
Energy Source:	6" low-pressure mercury (G4T5) lamp, HF ballast
Analytical Flow Cell:	7mm path, 13µl Rated Pressure: 50psi Wetted Materials: PEEK body, quartz windows, Tefzel ferrules, PEEK or TFE tubing (specify)
Prep Flow Cell:	2.5mm path, 45µl Wetted Materials: quartz cell, Tefzel ferrules, PEEK or TFE tubing (specify)
Absorbance Linearity:	>2%
Stability (Drift):	$\pm 5 \times 10^{-5}$ AU/hr
Noise:	1×10^{-4} AU noise peak-to-peak (equivalent to $\pm 5 \times 10^{-5}$ AU)

Recorder Output Absorbance Range:	0.005, 0.01, 0.02, 0.05, 0.1, 0.2, 0.5 and 1.0 AUFS for 10mV recorder (includes a recorder zero check position)
Integrator Output:	1.0 V/AU (fixed range)

Controls

Range Selection:	Push Buttons (up/down)
Auto-zero:	Push Button (A/Z)
Power:	On/off switch

Description	Part No	Qty	Price
Fixed Wavelength Detector, 254nm, 115V	DS-014-0001	Each	
Fixed Wavelength Detector, 254nm, 230V	DS-014-0002	Each	
Fixed Wavelength Detector, 280nm, 115V	DS-014-0003	Each	
Fixed Wavelength Detector, 280nm, 230V	DS-014-0004	Each	
Filter Conversion Kit, 280nm	DS-025-0016	Each	
Filter Conversion Kit, 365nm	DS-025-0017	Each	
Filter Conversion Kit, 420nm	DS-025-0018	Each	
Filter Conversion Kit, 505nm	DS-025-0019	Each	
Photocell, UV/Vis dual silicone diode	DS-025-0020	Each	
Flow Cell, prep, 2.5mm ID, 44µl with 1/8" TFE tubing	DS-025-0021	Each	
Flow Cell, 7mm path, 13µl volume	DS-025-0022	Each	
Flow Cell, dual silicon diode photocell with 1/8" TFE tubing	DS-025-0023	Each	
Lamp, 254nm with UV blocking tape	DS-025-0024	Each	
Lamp, 280nm phosphor with UV blocking tape	DS-025-0025	Each	

Ultrafluor Scanning Fluorescence Detector

Product Information

An Advanced Technology Luminescence UV/Vis Detector

The Ultrafluor Fluorescence Detector is a highly sensitive, scanning

fluorescence detector for liquid chromatography. Its dual monochromator design provides exceptional optical performance and operational flexibility for routine and trace analyses.

High Performance

An improved optical design provides exceptional performance. High-efficiency holographic diffraction gratings are optimized for high sensitivity at both lower and higher excitation wavelengths.

Customize your selectivity by choosing either of three spectral bandwidths. The pulsed xenon lamp provides a high energy level across the entire UV/Vis spectrum and produces no harmful ozone. Fluctuations in lamp intensity are automatically maintained and corrected to reduce noise and drift.

Quantitative accuracy and precision are greatly enhanced by the use of 20-bit digital electronics, producing a wider dynamic range. The electronics design allows emission monitoring of fluorescence, phosphorescence, and chemiluminescence.

Improved Laboratory Productivity

The Ultrafluor makes your job easier. Time programming of the Ex and Em wavelengths lets you optimize sensitivity and selectivity. Automatic, real-time scanning of eluting peaks helps you identify optimum wavelengths. No more time-consuming manual stop-flow techniques.

Saves Setup Time

Create up to four user files with ten timelines each for fast, easy wavelength changes. All files can be linked with the built-in queue.

A unique feature allows the emission data of any one of up to sixty stored spectra to be displayed on the LCD or played back to an external data collection device.

The signal response can be normalized to any compound of interest, or a preset factory response factor can be used. This provides consistent unit-to-unit response.

Easy Access and Maintenance

The lamp and flow cell are pre-aligned and easily accessible from the front of the instrument. Exchange or service is quick and easy. A separate lamp and flow cell housing assure quick maintenance.

Flow Cell

The Ultrafluor includes a biocompatible flow cell with 8µl illuminated volume.

Specifications

Optical Design:	Dual monochromators using concave holographic diffraction gratings; stepper-motor driven
Sensitivity:	S/N >1500 for 2µg/l anthracene in MeOH; 248nm Ex/398nm Em
Wavelength Range:	200 - 650nm excitation and emission 200 - 800nm emission with optional extended-range (red-sensitive) PMT
Wavelength	±2nm at 248nm Ex/398nm Em

Accuracy:	
Wavelength Precision:	<0.5nm
Spectral Bandwidth:	8, 20 or 30nm, selectable
Lamp:	Pulsed xenon, selectable 20 or 100Hz
Flow Cell:	High-purity quartz, Teflon®, Kalrez® and PEEK; 8µl illuminated volume; max pressure: 200psi (4 bar)
Spectral Scanning:	Automatic or manual; 100 steps per second; step size selectable; 2, 4, 8, 16, or 32nm; up to 60 spectra stored in memory* *For scans of 100nm with a 2nm interval (50 discrete data points)
Range Selections:	500, 200, 100, 50, 20, 10, 5, 2, 1, 0.5, 0.2, 0.1, 0.05, 0.02, 0.01 FUFS
Operating Modes:	Fluorescence; phosphorescence; chemiluminescence
Fluorescence Range:	0.01 - 500 fluorescence units full scale
Method Files:	4 user files protected in non-volatile memory; files can be linked via queue; 10 time lines per file for wavelength changes; automatic zero
Display:	2 lines x 24 characters, high-contrast LCD

Communications

Remote Inputs:	Run, Stop, Zero
Outputs:	Ready
Analogue Outputs:	2 outputs, range-selectable over entire fluorescence range using 20-bit D/A

Physical Characteristics

Dimensions (W x H x D):	200 x 170 x 400mm
Mass:	11kg
Power:	110/220V AC, 50/60Hz. 2 Amps max
Ambient Environment:	10 - 40°C, 5 - 95% relative humidity non-condensing

Description	Part No	Qty	Price
Ultrafluor Fluorescence Detector. Includes pulsed Xenon lamp and 8µL illuminated volume flow cell	TS-0305	Each	
Flow cell for Ultrafluor Fluorescence Detector, 8µL illuminated volume	TS-A5256-010S	Each	
Lamp assembly, Xenon, for Ultrafluor Fluorescence Detectors	201356	Each	

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