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PerkinElmer instruments

Products

Fluorescence

LS-50B Luminescence Spectrophotometer

Specifications
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Affordable Flexibility

The PerkinElmer LS-50B Luminescence Spectrophotometer offers versatility, reliability, and ease-of-use in a single instrument developed to address a wide variety of bioanalytical research applications. Based on decades of experience in luminescence spectroscopy, as well as a respected reputation for quality manufacturing, you can be assured that the LS-50B is a reliable instrument which will help you advance your research in whatever direction it may lead you. The LS-50B offers the type of innovative features you'd expect from the company that brought you PCR, automated DNA sequencing, automated DNA synthesis, and automated protein analysis.

The LS-50B luminescence spectrophotometer provides flexibility and affordability in a single integrated workstation for fluorescence, phosphorescence, and chemiluminescence assays. Used in a wide variety of applications from routine sample analysis in a microplate to new assay development, the LS-50B has earned the reputation as the most versatile instrument used to solve many of today's challenges in the bioresearch laboratory. Offering a variety of sample formats, intuitive software and a host of computer controlled accessories, bioresearchers can enjoy the unique combination of sensitivity, selectivity, and versatility which are essential for successful results in the life sciences.

The ability to rapidly and easily perform a wide variety of experiments on a single instrument platform has never been more important in the research laboratory. By simply using the interchangeable sample accessories for single cell, multi-cell, or 96-well microplates, the user can easily move from development to routine assay performance, collecting the necessary data and analyzing the results with confidence. Depending on the nature of your results, the LS-50B can be used in many modes of operation, allowing you to proceed in obtaining the results you need to advance your research. Combining the instrument's basic proven performance with these accessories and FL WinLab™ software, makes this an ideal tool for applications in areas such as Molecular Biology, Cell Biology, Biochemical and Pharmaceutical Research, Food and Agriculture, Environmental Studies and Analytical Chemistry.

Easy to Use Software Providing Unlimited Selectivity

Fluorescence
What's New in Fluorescence Spectroscopy?

Instruments & Software

Technical Abstracts/Newsletters

FLR Year 2000 Compliance Status Report

Consumables & Accessories Catalog

FL WinLab software has been developed with today's Windows based technology to speed applications development and take your research to the next level with the same performance and reliability you have come to expect from PerkinElmer. Specific modes of instrument operation such as Scan, Time Drive, Ratio Data Collection, and Well Plate Reader can be accessed easily in the "Application Menu" for use with informative fluorescence dyes absorbing and emitting at a variety of wavelength.

User Enhancing Operating Flexibility

- Scan: Scanning the excitation and emission monochomators independently or synchronously or in PRESCAN mode for automatic location of peak excitation and emission wavelength maxima between user defined limits.
- Time Drive: Provides data collection of luminescence intensity as a function of time for kinetics experiments.
- Ratio Data Collection: Flexible fast ratio data collection of pairs of excitation and emission wavelengths simultaneously with real time graphics.
- Well Plate Reader: Data collection in 6 to 96 well microplate formats featuring auto pattern repeat for multiple readings in large wells and ability to quickly define exactly where to read from in each well.

Applications Versatility

Along with this versatility, the LS-50B can perform the following applications currently needed by today's bio scientist.

- DNA Quantitation: Detection and quantitation of DNA (Molecular Probes PicoGreen® for dsDNA and OliGreen™ for ssDNA) in cuvettes or 96 well microplates; studies using [F] dNTP's or fluorescently labeled oligonucleotides in solution
- Native Protein Fluorescence Studies and Protein Quantitation: Research investigation of native protein fluorescence polarization in cuvettes and high throughput screening of protein samples in 96 well microplates (Molecular Probes Nano Orange™, CBQCA)
- Dynamic Intracellular Ion Concentration Analysis: Employing the fast filter accessory single or ratiometric measurements of Ca++ and Mg++, and pH measurements, (Fura-2, Oregon Green™, 488 Bapta, and BCEF)
- Enzyme Kinetics: GUS assays using 4-methyl umbelliferyl phosphate and DNase, and Protease assays (using Molecular Probes EnzChek™ kits)
- Cell Permiability/Adhesion, Cell Toxicity/Viability/Apoptosis, and Cell Chemotaxis: Molecular Probes Live/Dead Kits, Calcein AM, SYTO® dyes, and CyQUANT kits can be used to perform a host of cell assays.
- Reporter Gene Assays: Using Green Fluorescent Protein and 4-MUG
- Fluorescence Polarization: Measurements using one of two available methods; the standard accessory for static measurements, and the fast filter accessory for dynamic

measurements. Each measurement is preceded by the G-factor measurement to correct for instrumental bias.

- Intracellular Ion Analysis: Intracellular ion analysis with a flexible calibration routine allowing experimental data along with calibration data collection in a single run or in separate runs can be performed.

Designed for the demanding needs of today's lab

The combination of scanning excitation and emission monochromators, pulsed Xenon lamp (for reduced photobleaching), and novel FL WinLab software for instrument control and data analysis, makes the LS-50B one of the most technically proven yet easy to use luminescence spectrophotometers available. FL WinLab software was designed for the demanding needs of today's modern research laboratory. This software has combined the user friendly appeal of a Windows™ based software package with applications specific information PerkinElmer has developed through decades of experience in luminescence spectroscopy. The result is a powerful system designed specifically to facilitate a wide variety of your research applications.

Expert Installation and Service

PerkinElmer has been recognized worldwide as industry leaders in service and support. Our sales representatives, applications specialists, customer service representatives, and experienced customer support engineers are all critical components of the total system you get with your LS-50B. At PerkinElmer, we take great pride in our reputation for providing maximum value and reliability for all of our products.

Specifications

Principle	Computer controlled ratioing luminescence spectrophotometer with the capability of measuring fluorescence, phosphorescence or chemiluminescence and bioluminescence. Pulse rate, delay and gate times can be varied.
Source	Xenon flash lamp, pulsed at line frequency (50 or 60 Hz). Pulse width at half peak height < 10 µs, power equivalent to 20 kW for 8 µs duration. Delay (td) and gate time (tg) can be varied to measure phosphorescence. Source can be turned off for measuring chemiluminescence and bioluminescence.
Monochromators	Monk-Gillieson type monochromators cover the following ranges: Excitation 200-

	800 nm zero order selectable. Emission 200-900 nm with zero order selectable. Standard emission range 200-650 nm, 200-900 nm with optional R928 photomultiplier. Synchronous scanning is available with constant wavelength or constant frequency difference. Excitation spectra are automatically corrected. An excitation filter wheel is incorporated into the optical unit and inserts a 390 nm cut-off filter as an excitation spectrum is scanned through 410 nm.
Wavelength accuracy	± 1.0 nm
Wavelength reproducibility	± 0.5 nm
Spectral bandpass	The excitation slits 2.5-15 nm and the emission slits 2.5-20 nm can be varied and selected in 0.1 nm increments.
Scanning speed	The scanning speed can be selected in increments of 1 nm from 10-1500 nm/min. Data can also be collected with respect to time.
Emission filters	Computer selectable cut-off filters, 290, 350, 430 and 530 nm, a blank (to act as a shutter), a 1% attenuator and a clear beam position.
Sensitivity	Minimum signal-to-noise level using the Raman band of water, excitation 350 nm, excitation and emission bandpass 10 nm, is 500:1 RMS.
Standard sample holder	A single position water thermostatted holder for 10 mm cuvettes.
Software Data acquisition and analysis	Instrument parameters are controlled by the FL WinLab software. The luminescence intensity and the excitation and emission wavelength can be displayed in real-time. Spectral and time drive data are displayed

	in real-time and can be stored to disk. Routines are available for performing mathematical calculations on stored data. These include arithmetic functions, smoothing, 1-4th order derivatives, area, peak, and normalization. A wavelength program is used for storing up to 8 pairs of excitation and emission wavelengths with variable integration and cycle times.

Applications include:	
Scan	TimeDrive
Plate Reader	Fast Filter Data Collection
Ratio Data Collection	TLC Scan
ICBC Calibration	Wavelength Program
3D Viewer	Concentration
Validation	Report Builder

Accessory support	**The FL Winlab 2.0 provides support for:** Plate Reader/Gel Scanner Single cell holder with stirrer Four cell changer with stirrer BioKinetics Accessory Sipper Accessory Fast Filter Accessory: Excitation and/or Emission Excitation Filter Wheel Polarizer Wheels: Excitation and/or Emission
Computer system requirements	Hard Disk space of at least 500 MB Expanded RAM memory of at least 16 MB SVGA graphics card **Windows Versions Supported:** Windows 3.11 Windows 95 Windows NT 3.51 Windows NT 4.0
VDU	Color monitor.
Printer/plotter	Windows™ 3.11/95/NT 3.51/NT 4.0 compatible.
Power	90-132 VAC, 50/60 Hz, 2 A. 200-264

requirements	VAC, 50/60 Hz, 1 A.
Overall dimensions	265 mm high, 790 mm wide, 680 mm deep (including sample compartment). Weight 49.5 kg.

Worldwide Technical Support Network

When you purchase one of our products, you gain access to our experienced staff of applications, hardware and software specialists through our worldwide technical support network. You will receive technical assistance with all levels of questions relating to PerkinElmer luminescence instrumentation and applications. These specialists provide the support services for instrument operation, assay optimization, protocol information, plus information on the latest bio-analytical applications. To contact one of our in-house support specialists, call:

United States
Phone: 800 762-4000
Fax: 203 762-4222

Canada
Phone: 800-561-4646
Fax: 416-674-9520

East Asia - Singapore
Phone: 65-336-0750
Fax: 65-338-3991

Europe
Phone: 49-7551-81-3521
Fax: 49-7551-1612

Latin America
Phone: 5511- 578-9600
Fax: 5511- 276-1864

Japan
Phone: 81-45-314-8381
Fax: 81-45-314-5142

Oceania - Melbourne
Phone: 61-3-9212-8500
Fax: 61-3-9212-8501

Ordering Information

LS-50B Instrument 240v, 50Hz (L225-0105)
LS-50B Instrument 100/120v, 60Hz (L225-0115)
LS-50B Instrument 120v, 60Hz , Dell 166MHz computer (US Only) (N187-0010)

Accessories and Consumables:

Plate Reader Accessory: for 6 to 96 well microplates
Cuvette Holder, Single Position, thermostatted
Cuvette Holder, Single Position, thermostatted, magnetically stirred
Cell Holder (4) position, thermostatted, magnetically stirred
Polarization Accessory
Fast Filter Accessory

Remote Sampling Fiber Optic Probe Accessory
Bio-Luminescence Accessory
Total Emission Accessory
Front Surface Accessory
BioKinetics Accessory

Consumables:

96 well microplates (PE white)
Xenon lamp source
Photomulitplier (200-650nm)
Red Sensitive Photomulitplier (200 - 900nm)
Cuvettes (set of 2 per order)
Rectangular Cell, QS 10x10mm, PTFE Lid (quartz SUPRASIL)
Rectangular Cell, QS 10x10mm, PTFE Stopper, (quartz SUPRASIL)
Micro Cell, QS, 5x5mm, PTFE Stopper, (quartz SUPRASIL)
Semi-Micro Cuvette, magnetically stirred QS, 4x4mm, (quartz SUPRASIL)

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