

FLS1000

Photoluminescence spectrometer



A complete luminescence laboratory in one instrument. The FLS1000 sets the standard in both steady state and time-resolved photoluminescence spectroscopy for both fundamental research and routine laboratory applications.

The system is a modular photoluminescence spectrometer for measuring spectra from the ultraviolet to the mid-infrared spectral range, and lifetimes spanning from picoseconds to seconds through various upgrade routes. Whatever your field of study, the FLS1000 will enable you to reliably and accurately measure luminescence using state-of-the-art technology and a vast range of accessories.

The instrument's guaranteed sensitivity of $>35,000:1$ allows measuring of the most challenging samples. All accessories and modes of operation are controlled by one software package for acquisition and analysis, Fluoracle.

Key Features



Modular construction

Maximum flexibility and upgradeability



35,000:1

Water Raman SNR, industry leading sensitivity



Wide spectral coverage

From the deep UV up to 5,500 nm



325 mm monochromators

Long focal length for high spectral resolution and stray light rejection



All-in-one software

State-of-the art Fluoracle® package for acquisition, analysis and presentation



SPECIFICATIONS

		SPECTRAL	PHOSPHORESCENCE LIFETIME	FLUORESCENCE LIFETIME
SYSTEM	Mode of Operation	Single Photon Counting	Time-Resolved Single Photon Counting Multi-Channel Scaling - MCS)	Time-Correlated Single Photon Counting (TCSPC)
	Lifetime Range	Milliseconds to hours	10 ns – 50 s *	5 ps – 10 μs *
	Sensitivity (water Raman)	>35,000:1 **	n/a	n/a

* source and detector dependent
 ** standard water Raman measurement conditions: $\lambda_{ex} = 350$ nm, $\Delta\lambda_{ex} = \Delta\lambda_{em} = 5$ nm, step size = 1 nm, integration time = 1 s, $\lambda_{peak} = 397$ nm, noise measured at 450 nm and calculation based on the SQRT method

MONOCHROMATORS		
Type	Czerny-Turner with triple grating turret	
Focal Length	325 mm, double monochromators 2 x 325 mm (350 mm available upon request)	
Stray Light Rejection	1:10 ⁻⁵ (single), 1:10 ⁻¹⁰ (double)	
Gratings	Mounted to triple grating turret	
Accuracy	± 0.2 nm *	
Minimum Step Size	0.01 nm *	
Options	Spectrographs available for operation of CCDs and diode array detectors	

* grating dependent

		SPECTRAL	PHOSPHORESCENCE LIFETIME	FLUORESCENCE LIFETIME
EXCITATION SOURCES	Type	450 W Ozone-free Xenon Arc Lamp	Microsecond Flashlamp	Picosecond Pulsed Diode Lasers (EPLs) and Pulsed LEDs (EPLEDs)
	Spectral Range	230 nm – >1000 nm	200 nm – >1000 nm	Discrete wavelengths between 250 nm – 980 nm
	Pulse Width	n/a	1 μs – 2 μs	from 60 ps
	Options	Ozone generating lamp with range 200 nm - >1000 nm	Low to medium repetition rate pulsed lasers	Nanosecond Flashlamp AGILE Supercontinuum

DETECTORS		PMT-900	PMT-1010	PMT-1400 / -1700	HS-PMT	MCP-PMT
Photomultiplier						
Spectral Range		<200 nm – 870 nm	<200 nm – 1010 nm	<500 nm – 1700 nm	<230 nm – 850 nm	<200 nm – 850 nm
Dark Count Rate		<50 cps (-20°C)	<200 cps (-20°C)	<20 kcps / <200 kcps	<150 cps (0°C)	<10 cps (-20°C)
Response Width		600 ps	800 ps	400 ps or 800 ps	180 ps	<25 ps
Options		A wide variety of other photomultipliers and analogue detectors are available up to 5,500 nm				

FLUORACLE SOFTWARE		
Operating System	Windows™ platforms	
Data Manipulation	Mathematical smoothing, integration, differentiation, 2D and 3D graphics, batch mode, control of external accessories, contour plots, chromativity, quantum yields, multi-exponential reconvolution, lifetime analysis	
Options	FAST - Advanced Fluorescence Lifetime Software which includes: lifetime distributions, batch analysis, global analysis, advanced anisotropy analysis, FRET analysis, stretched exponential analysis, micellar quenching and Förster kinetics	