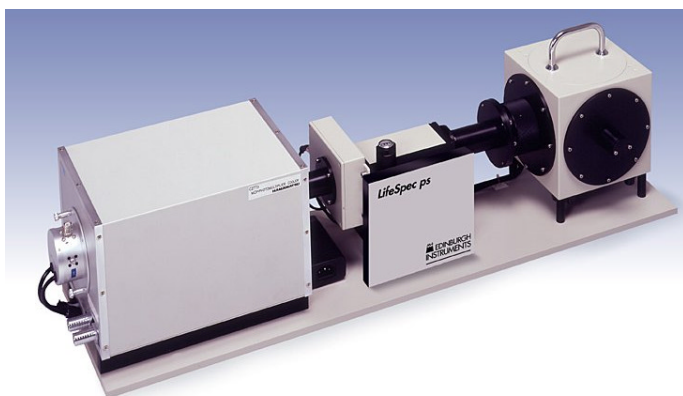


LifeSpec-ps

Picosecond Fluorescence Lifetime Spectrometer

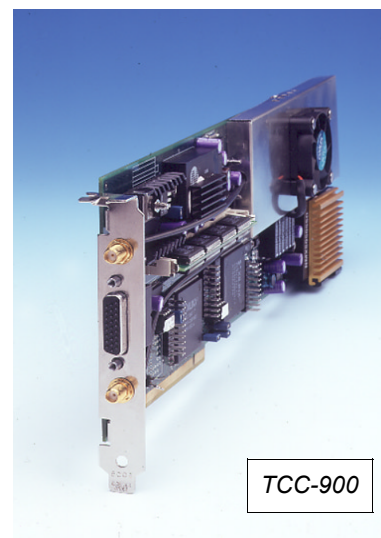


- Picosecond lifetime performance using TCSPC
- Laser coupling optics and synchronisation detector
- Low temporal dispersion monochromator
- Fast response MCP-PMT
- Ultra-fast data acquisition rate
- TCSPC plug-in module

The LifeSpec-ps is a compact, high performance, computer controlled spectrometer based on the technique of Time Correlated Single Photon Counting. The LifeSpec-ps is specifically designed to be used with femtosecond or picosecond mode locked laser sources for the rapid measurement of fluorescence lifetimes down to picoseconds.

Spectrometer Hardware

- Laser coupling optics and synchronisation detector
- Sample chamber with liquid cooled cuvette holder and temperature monitor
- Low temporal dispersion, low stray light monochromator
- MCP-PMT detection with < 50 ps instrument response function
- Computer controlled operation, TRES measurements
- Options include Peltier cooled detector housing, automated Glan Thomson polariser, liquid N₂ or He cryostat



Data Acquisition and Analysis

The LifeSpec-ps includes the TCC900, a new plug-in PC card incorporating all of the timing electronics for TCSPC measurements, and the latest F900 Windows® application software for comprehensive spectrometer control, performance monitoring, fluorescence lifetime data acquisition and analysis library. Data collection rates of more than 3 MHz are possible with the TCC900, allowing full decay profiles to be accumulated in less than 1 second.

LifeSpec-ps Technical Specification

LifeSpec-ps

Optical Configuration	L - Geometry
Mode of Operation	Time Correlated Single Photon Counting
Lifetime Range	10 ps - 50 μ s (depending on laser repetition rate)

Monochromator - Computer Controlled

Type / Focal Length	Seya - Namioka / 100 mm
Aperture	F / 3.5
Grating	450 nm blaze, 1200 grooves / mm
Spectral Dispersion	8 nm / mm
Resolution	4 nm, 8 nm, 16 nm (exchangeable slits)
Temporal Dispersion	2 ps / 100 nm
Stray Light Rejection	1 : 10 ⁵
Wavelength Accuracy	+/- 1 nm
Wavelength Repeatability	+/- 0.5 nm

Detector

MCP-PMT	Hamamatsu Photonics R3809U - 50
Spectral Range	200 - 850 nm
Instrument Response Function	< 50 ps

Data Acquisition TCC900 TCSPC card

Max Count Rate	9 MHz (periodic), 3 MHz (random)
Time Channels per Curve	Up to 4096 channels
Minimum Time per Channel	610 fs
Timing Jitter	25 ps
Computer Interface	PCI, 32 Bit, 33 MHz

Control and Analysis F900 Software

Operating System	Windows®
Data Reconvolution	Marquardt Levenberg algorithm, up to four exponentials, time resolved spectra, anisotropy (distribution, globals, quenching models option)

Requirements

Excitation Source	High repetition rate laser e.g. mode locked Ti : Sapphire
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Edinburgh Instruments has a policy of continuous product development and reserve the right to amend specifications without prior notice. (Sep 2000)



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