The Mini-tau is an ultra-compact, low cost, filter-based dedicated fluorescence lifetime spectrometer. Using the Time-Correlated Single Photon Counting (TCSPC) technique, the Mini-tau can measure fluorescence lifetimes ranging from 25 ps to 10 μs.

It can also be equipped with Multi-Channel Scaling (MCS) electronics for long-range photoluminescence from 10 ns to 10 s.

Whether you need to measure fluorescence lifetimes or time-resolved fluorescence anisotropy for research, quality assurance or teaching applications, the Mini-tau is the ideal all-inclusive, fully-integrated solution. The Mini-tau measures fluorescence lifetimes after numerical reconvolution based on the established Marquardt-Levenberg algorithm.

The Fluoracle Software supplied with the Mini-tau has an easy-to-use interface and allows users to comprehensively record data and accurately analyse complex decay kinetics of up to 4 lifetimes.

Key Features

- **Turnkey instrument**: Sample chamber, source, detector, and electronics in one compact package
- **Plug-and-play sources**: Pulsed LED or picosecond diode laser (with choice of wavelength)
- **High performance TCSPC**: Electronics with 20 MHz repetition rate and <1 ps/channel resolution
- **Choice of detector**: Ultra-fast, blue or red sensitive single photon counting PMT
- **Fluoracle® software**: Fluoracle Windows application software for comprehensive data acquisition and analysis
**Mini-tau Options**

**MINITAU-TCSPC**
Time-Correlated Single Photon Counting for fluorescence lifetimes of ~25 ps - 10 µs

**MINITAU-MCS**
Multi-Channel Scaling for phosphorescence lifetimes of 10 ns - 10 s

**MINITAU-DUAL**
Combines TCSPC and MCS to cover the full range of ~25 ps – 10 s

**Specifications**

**MODE OF OPERATION**
- Time Correlated Single Photon Counting
- Multi Channel Scaling (MCS)

**LIFETIME RANGE**
- approx. 25 ps – 10 µs
- 10 ns – 10 s (MCS)

**INSTRUMENTAL PULSE WIDTH**
- 250 ps (in standard configuration with diode laser excitation)

**EXCITATION WAVELENGTHS**
- 375, 405, 445, 450, 475, 485, 510, 635, 640, 655, 785, 800 or 980 nm picosecond laser diode
- 250, 255, 260, 265, 270, 280, 290, 295, 300, 310, 320, 330, 340, 365, 380, 560, 570, 590 or 610 nm pulsed LEDs
- (other wavelengths or Ti: Sapphire lasers are available)

**ATTENUATION**
- 4 orders of magnitude, linear

**EMISSION WAVELENGTH**
- band pass filters (45 nm wide), centered at coverage: 450, 500, 550, 600 and 650 nm
- (other filter combinations available for detectors with broader coverage)

**ADDITIONAL FILTER**
- Holders standard in excitation and emission accept 50 x 50 mm filters

**DETECTION**
- Single photon counting PMT – sensitive to 850 nm, typical dark count rate 150 cps, typical response 180 ps
- (detectors with coverage up to 920 nm available, cooled or uncooled)

**DATA ACQUISITION**
- TCC2 electronics module - up to 8192 channels per curve – forward or reverse mode
- – minimum channel resolution 305 fs. TAC ranges from 2.3 ns to 50 µs in TCSPC mode.
- Up to 8000 channels per curve, 10 ns resolution and up to 10 MHz repetition rate in MCS mode.

**DATA ANALYSIS**
- Marquardt-Levenberg Algorithm – up to 4 lifetimes – Anisotropy Calculation

**DIMENSIONS**
- 265 mm (w) x 195 mm (d) x 125 mm (h) (excluding laser, detector, lid)

**WEIGHT**
- 5 kg (excluding laser, detector)