

LP980

Transient Absorption Spectrometer



The LP980 spectrometer sets the standard for technical performance required in a transient absorption research instrument, offering unsurpassed measurement capabilities across a broad range of applications.

A first of its kind in the market, the LP980 allows for the measurement of transient absorption and both laser-induced fluorescence and phosphorescence up to 2.55 μm , from nanoseconds to seconds. Spectral and kinetic acquisition are possible in the same instrument thanks to a dual monochromator/spectrograph.

Measurements:

- > Transient Absorption
- > Laser-Induced Fluorescence (LIF) and Phosphorescence
- > Time-Gated Spectra (ns, ms, μs time ranges)
- > Triplet-Triplet Annihilation
- > Reaction Rate Studies

Key Features



Dual sample chamber

Measurement of transient absorption and laser-induced fluorescence



Two detectors

Spectral (ICCD) and/or time-resolved (PMT) data



ns to seconds

Accurate kinetics over 9 orders of magnitude



High sensitivity

Detection limit of ΔOD 0.002 (kinetic) and ΔOD 0.0005 (spectral)



L900 software

One comprehensive package for control of all components and measurements



SPECIFICATIONS

LP980 - Base Configuration

The LP980 is a transient absorption spectrometer using the pump-probe technique for measuring transient kinetics (Kinetic Mode) and/or time-gated transient spectra (Spectral Mode), generated by laser excitation.

Transverse sample excitation geometry comes as standard. Thin-film, diffuse reflection, fluorescence and phosphorescence lifetime measurement, accessories are available as options.

| | | |
|-------------------------------------|-------------------|---|
| MONOCHROMATOR / SPECTROGRAPH | Type | Czerny-Turner with triple grating turret |
| | Focal length | 325 mm |
| | Mirror | Automatic, computer-controlled for detector selection |
| | Slits | 5 mm to 10 mm (continuously adjustable), motorised |
| LASER EXCITATION SOURCE* | Single wavelength | Flashlamp pumped Q-switched Nd:Yag laser operating at 1064 nm, 532 nm, 355 nm, or 266 nm* |
| | Tuneable | OPO, tuneable in range 410 nm – 710 nm (signal). Idler and UV doubler options possible |

* We can supply a fully integrated laser, please contact us for more information.

LP980-K (Kinetic Mode)

For lifetime transient decay measurements at a single wavelength.

| | |
|----------------------------|--|
| GRATING | Plane ruled grating 1800 grooves/mm, 500 nm blaze as standard |
| DISPERSION | 1.66 nm/mm |
| SPECTRAL RANGE | 200 nm – 870 nm |
| SPECTRAL RESOLUTION | 0.1 nm |
| SENSITIVITY | ΔOD 0.002 (single shot - fast detector option, PMT), ΔOD 0.0005 (single shot - slow detector option, ICCD) |
| DETECTOR TYPE | Photomultiplier with 5 stage dynode chain for high current linearity |
| DETECTOR IMPEDANCE | 50 Ω (amplified – fast detector, <3 ns rise time), 1 k Ω (slow detector, <100 μ s rise time) |

LP980-KS (Kinetic & Spectral Mode)

For lifetime transient decay measurements AND spectral measurements of the decay process.

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|--------------------------------|--|
| GRATING | Kinetic Mode grating plus an additional plane ruled grating: 150 grooves/mm, 500 nm blaze supplied |
| DISPERSION | 19.9 nm/mm |
| SPECTRAL COVERAGE | 520 nm (active horizontal ICCD dimension: 25 mm) |
| SPECTRAL RESOLUTION | 0.52 nm (spectral coverage / 960 pixels) |
| SENSITIVITY | ΔOD 0.0005 (single shot) |
| DETECTORS | Kinetic Mode PMT plus an additional image intensified CCD camera (ICCD) supplied |
| MIN. OPTICAL GATE WIDTH | 7 ns (FWHM) |
| ACTIVE PIXELS | 960 x 256 |
| ACTIVE AREA | 25 mm x 6.7 mm |
| COOLING | -20°C as standard (-30°C with additional water circulation) |

LP980 Upgrade Options

| | |
|------------------------------|--|
| GRATING OPTIONS | A variety of gratings are available with 150-2400 grooves/mm, optimised from UV through to NIR |
| SAMPLE HOLDER OPTIONS | Cross-beam geometry, diffuse reflectance, thin-film, LIF |
| DETECTOR OPTIONS | PMT-980 (200nm - 980 nm), InGaAs Detectors (900 nm – 2550 nm), NIR-PMT (up to 1650 nm) |

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