TimeMaster™ - Fluorescence Lifetime Spectrometers

TM-11/2005
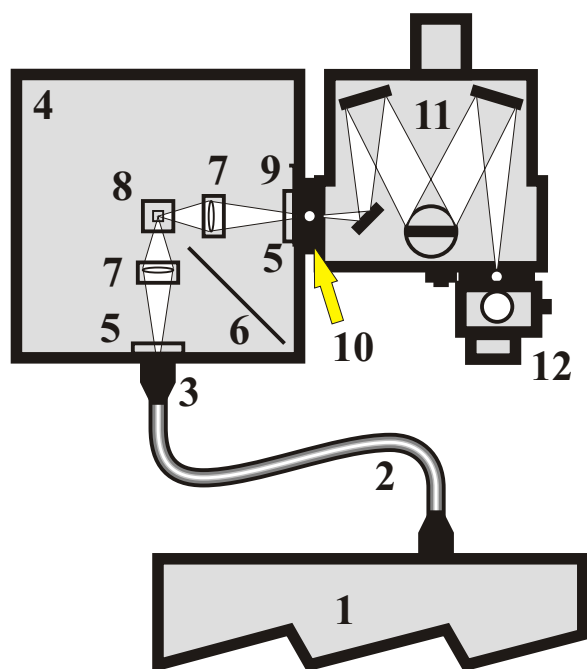
Key to figure:

1 Nitrogen laser & dye laser
2 Fiber optic bundle
3 Fiber optic adapter
4 Sample compartment
5 Filter holders
6 Baffle

7 Excitation/emission optics
8 Cuvette holder
9 Emission port shutter
10 Adjustable slits
11 Emission monochromator
12 Gated PMT detector

Dimensions:
(excluding computer and electronics)

Laser: 51 X 20 X 9 inches
Approximate weight: 125 lbs.
Sample/detection: 27 X 22 inches

Laser and sample/detection sections can be placed on two physically separate surfaces.

Fast - Easy to Use - Sensitive - Versatile

The TimeMaster™ TM-11/2005 is a unique phosphorescence lifetime spectrometer from Photon Technology. The TM-11/2005 combines the high performance and flexibility of PTI's modular "Open Architecture" design with excellent sensitivity and highest ease-of-use factors in the industry. Together with PTI's FeliX32™ software, that is powerful and also easy to use, they make the TM-11/2005 an instrument that will meet your highest demands and be welcomed in a multiple-user environment as well. So, whether you are just starting out, or an experienced spectroscopist, the TM-11/2005 is designed to meet all of your needs!

Outstanding Benefits…

★**Modular design for easy expansion of system capabilities**
★**High sensitivity (use less precious sample)**
★**Be productive quickly (PTI installs the TM-11/2005 for you)**
★**Full software control over gate position and width**
★**Steps as small as 20 ns**
★**Complete lifetime analysis software with 8 kinetic models and deconvolution**
★**Powerful (complete, comprehensive software and a variety of accessories for your most demanding measurements)**
★**Nonlinear timescale data acquisition protocols (extract vastly different decay times in one experiment)**

…In a Variety of Applications:

➤**Protein structure/function studies**
➤**Phosphorescence lifetimes**
➤**Phosphors and inorganic materials**
➤**Electroluminescent materials**
➤**Lifetime-Based Oxygen Sensing**
➤**Doped crystals**
➤**Triplet state exciplexes**
➤**Lanthanide luminescence**
➤**Metal-ligand complexes**
➤**Room-temperature phosphorescence**
➤**Slow rotational correlation times (optional polarizers required)**

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Standard Features(installation included):

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Illuminator:
Model GL-3300 nitrogen laser, with Model GL-302 high-resolution dye laser , 0.5 m quartz fiber optic bundle.
All-metal enclosure for RF suppression

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Gated Detector:
Gated VCI analog photomultiplier housing
Built-in integrator and high-voltage power supply under software control (1527 photomultiplier tube)

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Sample Compartment:
Model MP-1 QuadraCentric (L-format, dual-L-format or T-format)
Excitation and emission filter holders (filters not included)
Quartz excitation/emission lenses (f/1.3)
Lid-activated emission port shutter
Thermostatable 10 x 10 mm cuvette holder (external bath not included)
Motorized sample stirrer
Injection port
Gas purgeable

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Emission Monochromator:
Model 101M computer-controlled QuadraScopic monochromator
Czerny-Turner optical configuration
200 mm focal length, f/4 aperture ratio
Continuously adjustable bi-lateral slits
1200 l/mm grating 400 nm blaze
Gas purgeable

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Computer, Software and Electronics:
Pentium-based computer workstation with monitor, mouse and Windows 2000
FeliX32™ Advanced Fluorescence Analysis Software
Hardware/software reference manual
BryteBox™ computer interface

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Basic Specifications:

Data Acquisition Characteristics
Measurable lifetime range: 600 ns - seconds

Laser Illuminator
Wavelength range: 360 to 990 nm (depending on dye used)
(235 to 345 nm with optional frequency doubler)
Bandwidth: 0.04 nm
Pulse width: 800 picoseconds
Peak power: 275 KW at 5 Hz
Pulse energy: 220 microjoules per pulse at 500 nm, 5 Hz
Repetition rate: 1 to 20 Hz

Emission Monochromator
Wavelength range: 180 nm to 24 microns, continuously tunable
(useful detection wavelength range dependent on grating and photomultiplier tube)
Bandwidth: 0 to 25 nm, continuously variable
Resolution: 0.2 nm
Accuracy: +/-0.5 nm
Reciprocal linear dispersion: 4 nm/mm
Throughput: 60% at 400 nm
Stray light: <0.02% two bandwidths from 365 nm Hg line

Optional Accessories:

Peltier Sample Heater/Cooler - with Rapid Temperature Control	Liquid Nitrogen Dewar	Fiber Optic Couplings
4 Position Turret	Coverslip Holder	Spectrofluorometry Upgrade
Near IR Detection	Stopped Flow Accessory	Phosphorescence Upgrade
Cooled PMT Housing	Microcuvette	Fluorescence Microscopy Upgrade
Solid Sample Holder	Glan Thompson or Sheet Polarizers	Fluorescence Imaging Upgrade
Powder Sample Holder	Dual Emission (T-format)	
	Double Pass Monochromators	

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