

FluoTime 300

Fluorescence spectrometer for beginners and experts

- Fully automated system with modular and flexible design
- Time-resolved and steady-state operation
- Easy to use software with application wizards and scripting option
- Lifetimes from picoseconds to milliseconds
- Ultimate sensitivity with 29000:1 Water Raman SNR
- HPD-07 and -42 PMT's with spectral ranges between 220 and 870 nm, detection efficiency up to 25 %
- Single or double monochromator in excitation and emission

Applications

- Fluorescence Anisotropy (Polarization)
- Steady-State Fluorescence Spectroscopy
- Time-Resolved Photoluminescence (TRPL)
- Materials Science
- Photochemistry



The FluoTime 300 is a fully automated, high performance fluorescence spectrometer for steady-state, life time and phosphorescence measurements. The FluoTime 300 contains the complete optics and electronics for recording steady state spectra and fluorescence decays by means of Time-Correlated Single Photon Counting (TCSPC) or Multichannel Scaling (MCS) from few picoseconds to several seconds. The system is designed to be used with picosecond pulsed diode lasers, LEDs or Xenon lamps (CW and pulsed). Multiple detector options enable a large range of system configurations from the UV up to the IR range. The system features an ultimate sensitivity with 29000:1 Water Raman SNR. The FluoTime 300 can be used to study fluorescence and phosphorescence decays from few picoseconds to several seconds. With a large range of additional accessories the system is an excellent standard for research and analysis.

Specifications

Monochromators		
Type	single, Czerny-Turner design	single, Czerny-Turner design
Focal length	150 mm	300 mm
Aperture	F/4.6	F/4.1
Stray light rejection	10 ⁻⁵	10 ⁻⁵
Grating*	1200 g/mm blazed at 500 nm in emission	1200 g/mm, blazed at 300 nm in excitation 1200 g/mm, blazed at 500 nm in emission 600 g/mm, blazed at 1250 nm in emission
Resolution	0.3 nm	0.3 nm
Step size (min)	0.004 nm	0.004 nm
Slit width adjustable between	0 - 10 mm, (0-54 nm BP), (continuously adjustable, completely motorized)	0-10 mm, (0-27 nm BP) (continuously adjustable, completely motorized)
Wavelength accuracy	0.3 nm (1200 g/mm grating)	0.2 nm (1200 g/mm grating)
Wavelength repeatability	± 0.05 nm	± 0.05 nm
Dispersion	5.4 nm/mm	2.7 nm/mm
Type	double, Czerny-Turner design additive in excitation, additive and subtractive in emission	
Focal length	2 × 300 mm	
Aperture	F/4.1	
Stray light rejection	10 ⁻⁸	
Grating*	1200 g/mm, blazed at 300 nm in excitation 1200 g/mm, blazed at 500 nm in emission 600 g/mm, blazed at 1250 nm in emission	
Resolution	0.3 nm (subtractive), 0.15 nm (additive)	
Step size (min)	0.004 nm	
Slit width adjustable between	0-10 mm (0-27 nm BP subtractive, 0-13.5 nm BP additive) (continuously adjustable, completely motorized)	
Wavelength accuracy	0.2 nm (1200 g/mm grating)	
Wavelength repeatability	± 0.05 nm	
Dispersion	2.7 nm/mm (subtractive), 1.35 nm (additive)	

Excitation sources			
Light source	Laser Diode Heads (LDH Series)	Picosecond Laser Module (VisUV / VisIR)	
Wavelengths	266-1990 nm (single wave-lengths)	266, 280, 290, 355, 532, 560, 590, 765, 1064 and 1531 nm	
Pulse width	40-200 ps	ca. 70 ps	
Repetition rate	up to 80 MHz	up to 80 MHz	
Light source	pulsed LEDs (PLS Series)	pulsed Xenon lamp	CW Xenon lamp
Wavelengths	245-600 nm	200-900 nm	200-900 nm
Pulse width	400 ps - 1 ns	< 1 µs	–
Repetition rate	up to 40 MHz	0.1 to 300 Hz	–



Detectors							
Type*	PMT (PMA-C Series)			MCP-PMT			VIS/NIR-PMT
Spectral range (nm)	185-700	300-820	300-900	160-650	160-850	160-910	220-1010
Dark counts (cps, at 20 °C, typ. value)	–	< 200	< 3000	< 50	< 500	< 2000	< 200
Transit time spread (ps)	< 180	< 180	< 180	< 25**	< 25**	< 25**	< 450 ***
Type*	NIR-PMT		PMA Hybrid				
Spectral range (nm)	950-1400	950-1700	220-650	220-850	300-720	300-870	380-890
Dark counts (cps, at 20 °C, typ. value)	< 10000	< 200000**	< 100	< 200	< 700	< 500	< 1000
Transit time spread (ps)	< 300	< 300 **	< 50	< 50	< 120	< 130	< 160
Data acquisition							
Type	PicoHarp 300		TimeHarp 260 PICO			TimeHarp 260 NANO	
Number of time channels/ curve	up to 65536		up to 32768			up to 32768	
Count depth	16 bit		32 bit			32 bit	
Time resolution (bin width)	4 ps		25 ns, 2.5 ns (long range mode)			250 ps	
Dead time	< 95 ns		< 25 ns, 2.5 ns (long range mode)			< 1 ns	
Full scale time range	260 ns - 33 µs		819 ns - 1.71 s 81.92 µs - 171 s (long range mode)			260 ns - 33 µs 32.8 µs - 68.48 s	
Operating environment							
Computer system	Windows 10						
Power requirements	110 V to 230 V, 50/60 Hz						
Dimensions (base unit)							
Without steady-state option	900×550×400 mm (w×d×h)						
With steady-state option	900×1100×400 mm (w×d×h)						

* Other types are available upon request.

** Values provided by Hamamatsu.

*** IRF, measured at FT300 with LDH 405 laser diode



PicoQuant GmbH
Rudower Chaussee 29 (IGZ)
12489 Berlin
Germany

Phone +49-(0)30-1208820-0
Telefax +49-(0)30-1208820-90
Email info@picoquant.com
Web www.picoquant.com