

Prima

3-color picosecond laser

- 3-color picosecond laser (450, 510, 635 nm)
- Compact, stand alone, affordable
- Pulsed and cw operation, fast cw switching
- Triggerable internally and externally, up to 200 MHz
- Fully computer controlled

Applications

- Material science & chemical research
- Lifescience
- Photoluminescence lifetime and quantum yield measurements
- Fluorescence lifetime measurements
- Time-resolved microscopy & single molecule detection (FLIM, FRET, PIE-FRET, FCS)



Prima is a compact, stand-alone and affordable laser module offering 3 individual emission wavelengths that can be operated in picosecond pulsed and continuous wave (cw) mode. The picosecond pulses can be triggered either by the module's internal clock or by an external oscillator at up to 200 MHz. The module is fully computer controlled, making its operation very easy: Connect Prima to a PC via an USB port and all changes in operation parameters can be done via a convenient software interface.

Specifications

Optical output			
Available wavelengths ¹	450 nm	510 nm	635 nm
Max. pulsed power ²	5 mW	5 mW	5 mW
Pulse duration	< 120 ps	< 170 ps	< 120 ps
Max cw power	50 mW	50 mW	50 mW
Beam dimension ³	0.55 mm	0.6 mm	0.8 mm
Beam circularity	> 0.5	> 0.6	> 0.7
Polarization	typ. linear		
Polarization Extinction Ratio (PER)	typ. > 1:10 (> 10 dB)		
Spectral width FWHM (pulsed)	4 nm	6 nm	2 nm
Spectral width FWHM (CW)	< 1 nm		

Repetition rates	
Internal	
Range	User selectable in >20000 steps: 100 Hz to 200 MHz
External	
Range	0 Hz to 200 MHz
Trigger level	-1V ... +5V into 50 Ohm
Jitter	< 20 ps
Connector	SMA
Synchronization output	
Amplitude	< -800 mV into 50 Ohm (NIM)
Connector	SMA
Gating	
Rise / Fall Time	< 3 ns
Impedance	10 kOhms with pull-up 50 Ohms with pull-down
Connector	SMA
Dimensions	
Size (h × w × l)	75 x 83 x 140 mm
Operation	
Temperature range	10 - 40 °C
Maximum power consumption	< 30 W
Interface	
PC interface	USB 2.0
Connector	USB-C
Operating system	Windows™ 10

¹ Typical value in pulsed mode. A slight shift to longer wavelengths in cw mode.

² This is the maximum average power at maximum intensity setting and max repetition rate. A pulse broadening up to 500 ps FWHM is possible at maximum intensity setting.

³ Measured at 1 m distance from laser aperture



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