

1550 nm, 3 μ J, Femtosecond Fiber Laser



Applications

- Multiphoton imaging
- Nanoscience
- Biomedical instrumentation
- Terahertz radiation
- Nonlinear optical studies

Features

- Up to 3 μ J pulse energy
- Wavelength available at 1550 nm
- Linearly polarized output
- Maintenance free
- Lightweight and compact
- Cost effective
- Fiber-based architecture
- Single mode output, $M^2 < 1.2$
- Variable repetition rates down to single pulse
- Switchable repetition rates and pulse energy levels
- Optional pulse compression to < 100 fs

The fiber laser based chirped pulse amplification system (FLCPA) starts with a passively mode-locked seed fiber laser. The short pulse is time stretched by frequency (chirped) for lower intensity amplification through a high power fiber amplifier stage. Up to 3 μ J at 1550 nm of short pulse energy is delivered into free space. The typical pulse width is less than 500 fs. The repetition rate can be adjusted up to 10 MHz, depending on pulse energy. An RF synchronization output is provided as a trigger signal. This fiber laser based FLCPA is lightweight, compact, and maintenance free, offering a reliable cost-effective alternative to solid state laser amplifiers. The Cazadero FLCPA is especially well suited for industrial and medical applications where cost of ownership over the life time of the laser is important.

Technical Specifications

Model Number	FLCPA-01C
OPTICAL	
Pulse Width (ps)*	<0.5
Center Wavelength (nm)	1550 (typical)
Average Power (W)	2
Repetition Rate (MHz)	Switchable between 0.67, 1, 2, 5, and 10
Maximum Pulse Energy (μJ)	3 @ 0.67 MHz
Polarization Extinction Ratio (dB)	>20 (typical)
Spectrum Width (nm)	10 (typical)
Termination	Collimated beam in free space
Beam Quality	$M^2 < 1.2$
Beam Diameter at Waist (mm)	$3.0 \pm 10\%$
ELECTRICAL	
Electrical Synchronization Output (V)	LVCMOS format
Supply Voltage (VAC)	85 - 264 autoranging
Supply Frequency (Hz)	47 ~ 63 autoranging
Power Consumption (VA)	< 300 (150 typical)
MECHANICAL	
Operating Temperature (°C)	17 - 32
Storage Temperature (°C)	0 - 50
Cooling	Air cooled, low noise fan
Dimensions (cm): Laser Head	48 (W) x 76 (D) x 14 (H)
Dimensions (cm): Laser Controller	48 (W) x 50 (D) x 18 (H)

* A *sech*² pulse shape (convolution factor of 0.65) is used to determine the pulse width for the second harmonic autocorrelation trace. Due to our continuous improvement program, specifications are subject to change without notice

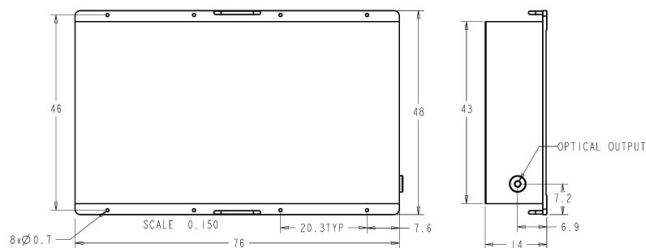


Figure 1 – Dimensions of Cazadero FLCPA-01C head

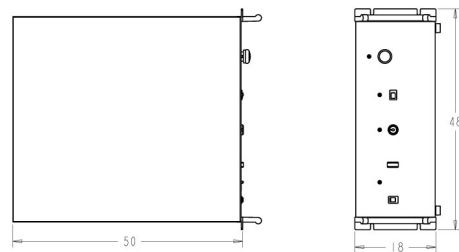


Figure 2 – Dimensions of Cazadero FLCPA-01C controller

