

YLP Series

High Energy, Pulsed Ytterbium Fiber Lasers

Industrial Module Units

The **YLP Series** is maintenance-free MOPFA and Q-switched pulsed Ytterbium fiber lasers designed for OEM applications. These lasers deliver a high power 1.07 μ m laser beam directly to the work site via a flexible metal-sheathed single mode fiber cable. Collimated, and then typically focused to a spot size of a few microns or less, the near diffraction-limited beam can mark, drill or machine a variety of materials. **YLP Series** provides a wide choice of pulse durations, repetition rates and peak powers. The fiber based design and rugged metal case allow these compact laser modules to operate under industrial shock, vibration, dust and humidity in the temperature range from 0^o to 50^oC.

Factory sealed YLP lasers can be built directly into micro-machining, material processing and production marking systems with no need for after-installation service. These lasers require no water-cooling or replacement parts. They can be powered directly from a 24V supply or via an optional laser driver complete with power supply, front panel and RS-232 interface.

Main Features:

- ✓ **Up to 2mJ energy per pulse**
- ✓ **Up to 200W average output power**
- ✓ **80 to 500ns pulse duration**
- ✓ **20 to 200kHz tunable rep.rate**
- ✓ **Over 10% wall-plug efficiency**
- ✓ **Fiber delivery**
- ✓ **Maintenance free operation**
- ✓ **Compact rugged air-cooled package**
- ✓ **Collimated output beam**

Applications:

- ✓ **Marking**
- ✓ **Trimming**
- ✓ **Micromachining**
- ✓ **Precision Drilling**
- ✓ **Welding**
- ✓ **Cutting**



Common Parameters

Standard YLP Series Ytterbium laser modules provide a pulsed output beam with average output power from 5 to 100 Watts and pulse width from 80 to 500ns. Laser output is provided by a 1 to 8 meter (depends on energy per pulse) metal-sheathed optical fiber cable terminated by beam collimator providing a near diffraction limited ($M^2 < 2$) beam with diameter from 2 to 15mm. Center emission wavelength is in the range of 1060 to 1070nm.

The YLP Series modules provide analogue outputs for laser power, pump diode current and temperature.

All YLP Series lasers utilize broad stripe 1x100µm pump diodes operating around 970nm nominal wavelength. Minimum pump diode reliability is >100,000hrs MTBF at 20°C. All pump diodes are subjected to intensive stress testing at IPG's facility prior to installation.

Typical Specifications

Parameters	Unit	YLP-0.5/80/20	YLP-1/100/20	YLP-2/500/50
Mode of operation		pulsed	pulsed	pulsed
Energy per pulse (PRR = 20kHz)	mJ	0.5	1	2
Polarization		random	random	random
Central emission wavelength	nm	1060-1070	1060-1070	1060-1070
Emission bandwidth (FWHM)	nm	<3	<3	<5
Pulse width, (FWHM)	ns	80	100	500
Pulse Repetition Rate*	kHz	20-100	20-50	20-50
Nominal average output power	W	10	20	100
Output power tunability	%	10-100	10-100	10-100
Long term power stability	%	<5	<5	<5
Typical beam quality, M^2		1.6	1.6	<5
Output fiber delivery length	m	3-8	1-3	1-3
Operating voltage	V AC	110/220	110/220	110/220
Max. power consumption	W	160	220	1000
Dimensions	mm	215x285x95	215x285x95	6U 19" rack
Weight	kg	7	8	25

* - lower rep rates are available at lower output powers

Options:

- ✓ Variety of output collimators and focusing optics
- ✓ Red guide coaxial beam
- ✓ Output optical isolator
- ✓ Customer control interface
- ✓ Delivery fiber cable lengths
- ✓ Extended warranty

General Inviromental Parameters

Parameter	Unit	Min.	Max.
Operating temperature	°C	0	+50
Storage temperature	°C	-40	+70
Humidity	%	0	95
Warm up time	min		1
Cooling		forced air/heatsink	

Control Outputs

Parameter	
Output power	digital
Diode current	digital
Diode temperature	digital
PC interface	RS232

Compliance with Regulatory Requirements: This industrial fiber laser is an OEM version of an IPG diode-pumped solid-state laser. As such, it is intended only for integration into other equipment. This laser does not comply with CDRH requirements. The customer is responsible for CDRH certification of the system that incorporates this industrial laser.

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