

TLR Series

Thulium CW Fiber Lasers

Standard Wavelengths
1730 and 1940 nm
Single-mode options up
to 200 W



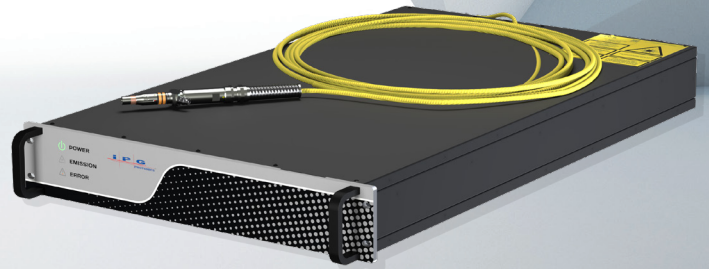
FEATURES

- ▶ Single-mode up to 200 W
- ▶ Wide Selection of Wavelengths
- ▶ Zero Maintenance
- ▶ Compact, Reliable and Efficient
- ▶ Cost-effective over CO₂



APPLICATIONS

- ▶ Polymer Cutting, Welding and Drilling
- ▶ Processing Transparent Materials
- ▶ Polymer 3D Printing
- ▶ Medical Treatment and Surgery
- ▶ Solid-state Laser Pumping
- ▶ Air Pollution Monitoring
- ▶ Imaging and Sensing
- ▶ Spectroscopy
- ▶ Non-linear Conversion



IPG Thulium Fiber Lasers meet the growing demands of the materials processing, medical, defense and scientific markets for high power continuous wave sources in the spectral range of 1730 to 2050 nm.

Standard center wavelengths are 1730 and 1940 nm, with custom wavelength options in 1880-2050 nm range. The 1730 nm wavelength is suitable for absorption of most polymers outside water vapor absorption window. The 1730 nm wavelength is also advantageous for certain imaging and sensing applications. The 1940 nm wavelength falls in the region of strong water absorption, useful for many medical applications for precise, shallow tissue penetration, efficient cutting and coagulation with minimal collateral thermal damage. Single-mode outputs up to 200 W are available from 20 microns core fibers, with multi-mode up to 500 W from larger fiber cores.

First manufactured in 1999, these compact, reliable and efficient laser systems have been deployed in a variety of commercial applications.

TLR Series

Thulium CW Fiber Lasers

Optical Characteristics

| | |
|--------------------------------|---|
| Central Wavelength Range*, nm | 1730, 1940 or custom in 1880-2050 range |
| Linewidth FWHM, nm | <2 |
| Mode of Operation | CW/Modulated |
| Modulation Frequency, kHz | up to 1 |
| Average Power, W | up to 200 single-mode, 500 W multi-mode |
| Power Tunability, % | 10 -100 |
| Power Stability**, % | ±1 |
| Output Fiber Core Diameter, µm | 20, 30, 50,100, 200 |
| Optical Noise***, % RMS | 1 |
| Beam Quality, M ² | <1.3 from 20 µm fiber core @100 W |

* Custom central wavelengths are available upon request

** Over 4 hours, T=const

*** 10 kHz - 20 MHz

General Characteristics

| | |
|----------------------------|------------------------------------|
| Dimensions (W × D × H), mm | 448 × 760 × 88 |
| Cooling | Water-cooled |
| Supply Voltage, VAC | 200-240, 50-60 Hz |
| Power Consumption, W | Typ. <900 at 100 W, <1800 at 200 W |



www.ipgphotonics.com

MAX. AVERAGE OUTPUT POWER: 1 kW
WAVELENGTH RANGE: 1,800-2,200 nm

DANGER - INVISIBLE LASER
RADIATION AVOID EYE OR SKIN
EXPOSURE TO DIRECT OR
SCATTERED RADIATION
CLASS 4 LASER PRODUCT

IEC 60825-1:2014