

RLR Series

Raman Fiber Lasers Rack Mount Chassis Unit



Applications

- ▶ Remote Fiber Amplifier Pumping
- ▶ Distributed Raman Amplification
- ▶ Repeaterless Submarine/ Long Span Systems
- ▶ Ultra-broadband Amplifiers



Features

- ▶ 1100-1700 nm Wavelength Choices
- ▶ 1,000,000 hours MTTF
- ▶ Up to 10 W Output Optical Power
- ▶ Highest Electrical to Output Efficiency
- ▶ Wide Operating Temperature Range
- ▶ Rugged Compact Module Packaging
- ▶ Single or Dual Wavelength Option

IPG's RLR Series Raman Fiber Lasers are manufactured using IPG's high power pump diode lasers, which operate over a wide temperature range without requiring thermoelectric coolers (TEC). RLR Series lasers are being deployed in demanding ultra-long-haul DWDM transmission systems to provide distributed Raman amplification and remote pumping of Erbium-doped Fiber Amplifiers (EDFAs). Raman Fiber Lasers offer a superior pump source over other techniques such as frequency multiplexed single-mode laser diode combiners by virtue of proven high reliability, cost, efficiency and watt class powers. Linear polarization and output powers up to 50 watts are available on request. A dual wavelength output option is available to allow for gain flatness adjustment. The RLR provides a fully configured subsystem, including a high power WDM to allow connection to the transmission fiber and to the transmit or receive equipment. It provides a network ready element which is managed via the RS232 serial interface or SNMP based network management.



RLR Series

Raman Fiber Lasers Rack Mount Chassis Unit

Optical Characteristics

| | RLR-1-XXXX* | RLR-1-XXXX-1-XXXX** | RLR-5-XXXX* |
|---|------------------------------|---------------------|-------------|
| Mode of Operation | CW | | |
| Polarization | Random | | |
| Nominal Output Power, W | 1 | 1+1 | 5 |
| Output Power Tunability, % | 10-100 | | |
| Output Power Instability: Long Term (over 8 hrs), % | 1 | | |
| Emission Bandwidth, nm 3 dB (FWHM) | <1 | <1 | <2 |
| 10 dB | <1.5 | <1.5 | <2.5 |
| Central Emission Wavelength, nm | 1420, 1425, 1440, 1455, 1480 | | |
| Suppression Ratio, dB 1050-1440 | 20 | | |
| 1500-1700 | >50 | | |
| In Band Power, % | 97 | 97 | 95 |
| Operating Voltage (DC) | -48 | | |
| Max. Power Consumption (at 20°C), W | <40 | <70 | <80 |

*Desired wavelength to be specified in place of XXXX from the range 1100-1700 nm. Other power levels can be specified.

**Choose 2 wavelengths

General Characteristics

| | |
|---|--|
| Chassis Dimensions, mm | 1RU: 483 x 311 x 44; 2RU: 483 x 311 x 88 |
| Ambient Operational Temperature Range, °C | Standard: 0 to +55; Extended: -20 to +65 |

IPG Photonics' RLR Series Raman Fiber Lasers consist of two components- a Ytterbium Fiber Laser and a Raman wavelength shifter. The Ytterbium Laser is a telecom-grade version of IPG's YLP Series Single-mode Fiber Laser operating at wavelengths between 1050-1120 nm. The Raman shifter employs the advanced technology of a cascaded Raman resonator utilizing Bragg fiber gratings. The resonator efficiently converts the input pump laser wavelength to the chosen output wavelength; for example, 1064 nm converts to 1480 nm. The output is single-mode and randomly polarized. High power rated WDM couplers are configured to allow multiplexing of output wavelengths and any additional laser and signal wavelengths of the system. All RLT Series Raman Lasers incorporate IPG's advanced high power MBE laser pump diodes, operating at a 965 nm nominal wavelength to pump the Ytterbium Laser Pump. The pump diodes have >1,000,000 hours MTTF at 25°C. All pump diodes are subjected to intensive stress testing prior to installation.

+1 (508) 373-1100
 telecom.us@ipgphotonics.com

www.ipgphotonics.com/telecom

Legal notices: All product information is believed to be accurate and is subject to change without notice. Information contained herein shall legally bind IPG only if it is specifically incorporated into the terms and conditions of a sales agreement. Some specific combinations of options may not be available. The user assumes all risks and liability whatsoever in connection with use of a product or its application. IPG, IPG Photonics, The Power to Transform and IPG Photonics' logo are trademarks of IPG Photonics Corporation. © 2009-14 IPG Photonics Corporation. All rights reserved.

The Power to Transform®