

## Air-Cooled, Direct-Diode Laser System

### IDL Series



#### Key Features

- High-reliability, individual-emitter architecture
- Multipoint health monitoring
- Best-in-class top-hat beam profile
- 400  $\mu\text{m}$  or 600  $\mu\text{m}$ , 0.22 NA output options available
- Armored fiber delivery

#### Applications

- Plastic welding
- Selective soldering
- Heat treatment

IDL Series air-cooled, direct-diode laser systems combine our high-reliability L4 diode lasers with a unique fused-fiber individual-emitter architecture and novel health-monitoring system to yield an extremely reliable and scalable product that performs in the most demanding industrial manufacturing environments. Providing up to 200 watts of multimode laser output, these products are ideally suited for plastics welding, selective soldering, and heat treating, handling a greater diversity of materials and reducing costs while increasing throughput in existing operations.

Unlike bar-based diode-laser products, IDL Series fused-fiber, individual-emitter architecture offers exceptional thermal isolation between emitters, eliminating severe thermal reliability issues. Modulated operation does not shorten product lifetime. The fused-fiber construction further eliminates sources of contamination, ensuring uninterrupted, reliable performance for the lifetime of the laser. Additionally, the individual-emitter construction enables individual device monitoring, control, and simple, low-cost serviceability.

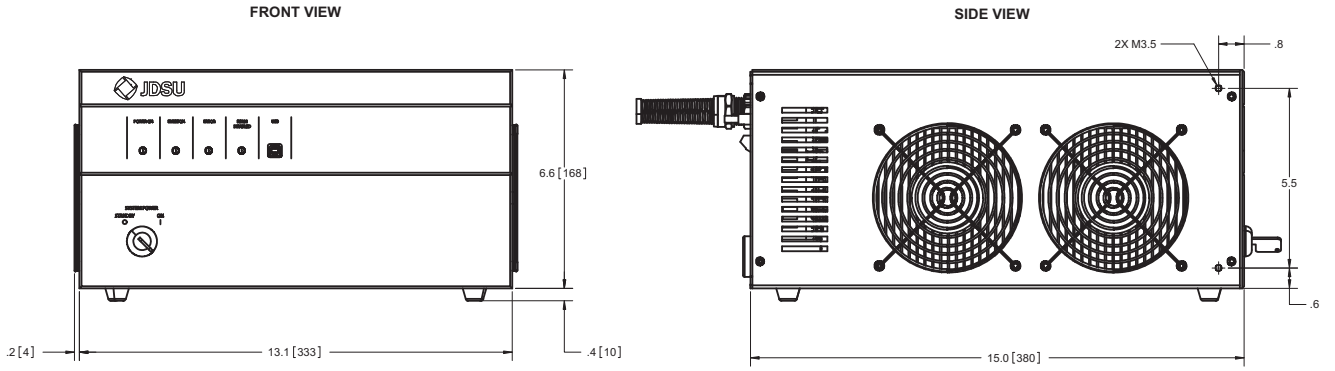
A multipoint health-monitoring system incorporates a product-wide approach to operational assurance. A routinely updated system health log file is available through the front-panel-mounted USB port for easy retrieval and review. The log includes individual diode output status and critically important electrical and environmental parameter monitoring information. The RS-232 interface and front-panel-mounted visual indicators provide active health monitoring. Careful management of any soft system errors affords operators the time to correct electrical or environmental issues while the device remains online and operational.

Designed for ease of integration and operation, these air-cooled systems require only standard wall-plug power. Both analog and RS232 ports offer system control. An armored fiber pigtail with an industry-standard SMA905 optical connector allows quick connection with commercially available beam-delivery optical packages. Optionally, a focusing termination module, available through JDSU, provides a round, top-hat beam profile with unprecedented uniformity at a working distance of 85 mm.

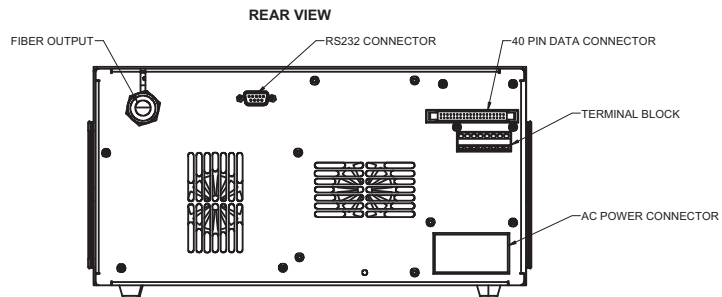
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**Dimensions Diagram**

(Specifications in inches [mm] unless otherwise noted.)



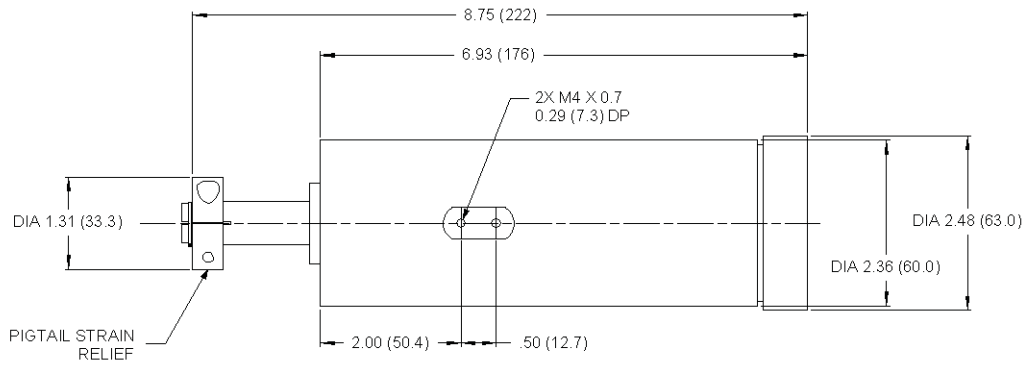
**Connector Locations**



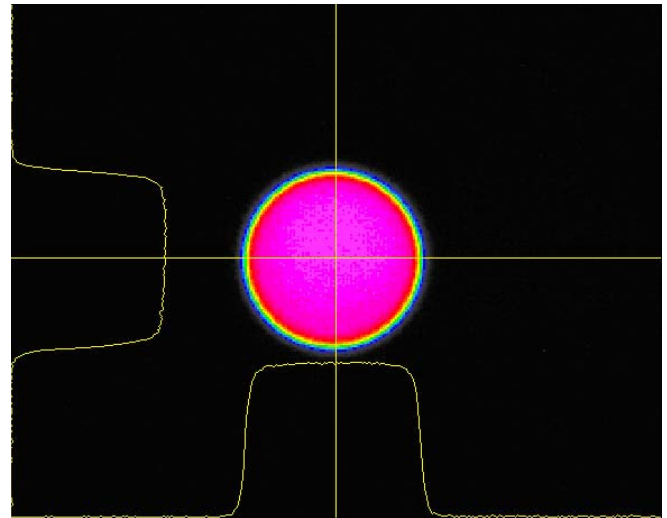
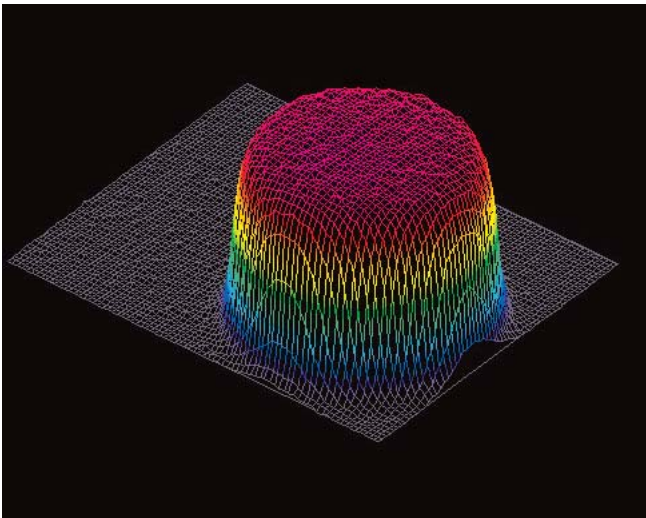
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**Termination C (Optional) Dimensions Diagram**

(Specifications in inches [mm] unless otherwise noted.)



**Typical Beam Profile**



## 4

**Specifications**

Parameter	IDL100S	IDL180S	IDL200S
<b>Optical</b>			
Output power, CW	100 W	180 W	200 W
Wavelength <sup>1</sup>	940±10 nm	940±10 nm	940±10 nm
Spectral width, FWHM at full power	<6 nm	<6 nm	<6 nm
Optical noise <sup>2</sup>	<1% rms	<1% rms	<1% rms
Rise time/fall time (10% – 90%)	<250 µs	<250 µs	<250 µs
Output ellipticity	<1.1:1	<1.1:1	<1.1:1
Beam quality	60 mm-mrad nominal	60 mm-mrad nominal	60 mm-mrad nominal
With SMA 905 connector			
Fiber core diameter	400 µm, 600 µm	400 µm	600 µm
Fiber NA	<0.22	<0.22	<0.22
Aiming beam			
Wavelength	635±10 nm	635±10 nm	635±10 nm
Output power	0.8 mW nominal	0.8 mW nominal	0.8 mW nominal
<b>Electrical</b>			
Input power	100 to 240 VAC, 1 kW (Max.) 50 to 60 Hz		
<b>Mechanical</b>			
Weight	25 kg (55 lbs) typical		
Dimensions (W x H x D)	333 x 168 x 380 mm (13.1 x 6.6 x 15.0 inches)		
Air-flow	Internal fan. At least 80 mm (3") clearance both sides		
Fiber pigtail length	6.7 m (22') typical		
<b>Environmental</b>			
Operating temperature range	5 to 35°C		
Operating humidity (noncondensing)	5 to 85%		
Storage temperature range	-20 to 55°C		
Storage humidity (noncondensing)	5 to 95%		

1. 915 nm, 975 nm, or “mixed” output options available. Contact your JDSU account manager for details.

2. 0.1 – 10 MHz at >10 W output power

**Termination Module C Specifications**

Parameter	IDL-TERMC
<b>Optical</b>	
Working distance	85 mm nominal
Focused beam diameter	0.6 mm nominal
<b>Mechanical</b>	
Weight	1 kg (2.2 lbs) typical
Dimensions	See Mechanical Dimensions on page 3

**Ordering Information**

For more information on this or other products and their availability, contact your local JDSU account manager or JDSU directly at 1-800-498-JDSU (5378) in North America and +800-5378-JDSU worldwide, or via e-mail at [customer.service@jdsu.com](mailto:customer.service@jdsu.com).

**Sample: IDL200S-940-600 (200 W rated output power, 940 nm wavelength, 600 μm fiber core diameter)**

**Associated Part: IDL-TERMC (optional focusing termination)**

**User Safety**
**Safety and Operating Considerations**

The IDL Series products emit Class IV radiation, which is invisible, and Class II radiation that is visible. Direct or scattered radiation can be harmful to the human eye. Proper laser safety eyewear must be worn during operation.

