

56-CRN-Series



The new 56-CRN series diode laser systems from Melles Griot provide excellent beam performance and pointing stability from a compact self-contained package.

This industry standard 70 mm x 40 mm x 40 mm package is a must for your OEM application by incorporating analog and digital drive electronics to provide a smaller footprint at a reduced cost. Our unique design allows us to customize the laser beam parameters to simplify your optical system design requirements, giving you flexibility to focus on your core competencies. With standard wavelengths from 405 – 642 nm and output powers up to 200 mW (wavelength dependent), we have the right laser for your application. Controlling the laser has never been easier, now with a USB interface, full control of the CRN series laser is a simple connection away. For those applications that need an end user interface, an optional external controller box is available for CDRH compliance requirements.

Key Attributes

- > 200 mW at 405 nm
- > 80 mW at 445 nm
- > 150 mW at 488 nm
- > 60 mW at 515 nm
- > 100 mW at 642 nm
- Circular (> 95%) or elliptical beam shapes
- Power stability less than 1%
- Low optical noise (< 0.1% rms, < 0.5% peak-to-peak)
- External CDRH compliant controller (optional)
- Analog and digital modulation
- User friendly GUI which can control up to six lasers simultaneously
- USB control
- RS-485

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Specifications

Beam Characteristics:

Circularity: > 95%
M²: ≤ 1.5
Spatial Mode: TEM₀₀
Polarization: ≥ 100:1, Vertical ±2°
Bore Sight Error: ≤ 2 mrad
Beam Centration: ± 0.5 mm

Stability Characteristics:

Power Stability (8 hours, ±3°C): ± 1%
Pointing Stability: ≤ 5 μrad / °C
Amplitude Noise 20 Hz to 2 MHz:
≤ 0.1% rms
≤ 0.5% P-P

Operating Characteristics:

Warm-Up Time: < 5 minutes
Max Heat Dissipation, Laser:
During Warm-Up < 15 W
After Warm-Up < 8 W
Cooling:
TEC & Conductive Cooling (baseplate)

Modulation Characteristics:

Laser Drive Modes:
CW, High Speed Digital,
High Speed Analog, Mixed
Digital Modulation Voltage Range: LVDS

Environmental Requirements:

Operating Temperature: +10°C to +40°C
Non-Operating Temp: -20°C to +60°C
Operating Humidity: < 95%, noncondensing
Shock, Non-Operating: < 25 g, < 11 msec
Vibration, Non-Operating:
< 3.0 g, 5 to 500 Hz sinusoidal, 0.25 octave/min
Vibration, Operating:
< 3.0 g, 5 to 500 Hz sinusoidal, 0.25 octave/min

Electrical Requirements:

Input Voltage, Laser Head: 8.75 to 9.5 VDC
Operating Current: < 2A
Input Power: < 15W
Input Voltage, DC Power Supply: 100 to 240 VAC
Input Frequency, DC Power Supply: 50 to 60 Hz

Safety and Regulatory Compliance:

CDRH Classification: Class IIIb
IEC Class: 3B
CE: Compliant



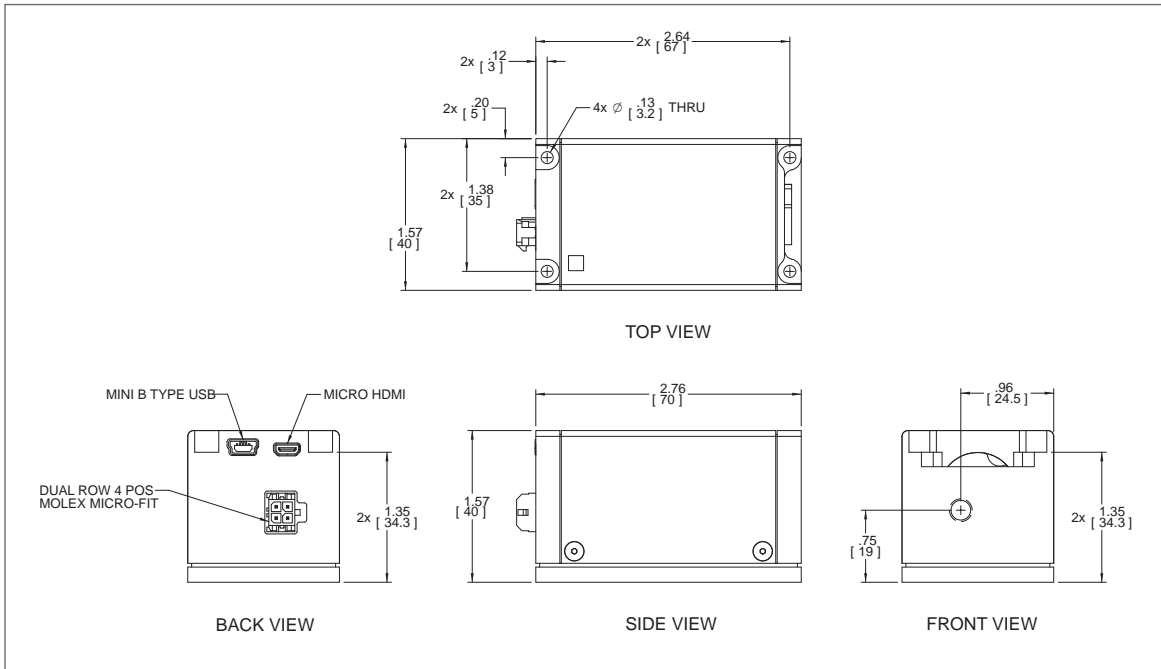
This Melles Griot laser meets the following standards:
IEC 60825-1:1997 (EU Laser Safety)
EN 61326:1997/A3:2003 Class A (EU Emissions and Immunity)
21 CFR 1040.10 (US Laser safety)
FCC Part 18 (US Emissions and Immunity)

Available Wavelengths & Output Powers

| Model Number | Typical Wavelength (nm) | Power (mW) | Beam Diameter Vertical (mm) | Beam Diameter Horizontal (mm) | Beam Divergence Vertical (mrad) | Beam Divergence Horizontal (mrad) |
|----------------|-------------------------|------------|-----------------------------|-------------------------------|---------------------------------|-----------------------------------|
| 56-CRN-405-100 | 405 | 100 | 0.55 – 1.05 | 0.55 - 1.05 | ≤ 1.2 | ≤ 1.3 |
| 56-CRN-405-200 | | 200 | 0.69 – 1.09 | 0.69 – 1.09 | ≤ 1.1 | ≤ 1.1 |
| 56-CRN-445-040 | 445 | 40 | 0.54 - 0.88 | 0.54 – 0.88 | ≤ 1.4 | ≤ 1.5 |
| 56-CRN-445-080 | | 80 | 0.58 – 1.08 | 0.58 – 1.08 | ≤ 1.4 | ≤ 1.5 |
| 56-CRN-488-050 | 488 | 50 | 0.52 – 1.00 | 0.52 – 1.00 | ≤ 1.5 | ≤ 1.8 |
| 56-CRN-488-150 | | 150 | 0.52 - 0.96 | 0.52 – 0.96 | ≤ 1.5 | ≤ 1.8 |
| 56-CRN-515-060 | 515 | 60 | 0.44 – 0.88 | 0.44 – 0.88 | ≤ 2.1 | ≤ 2.1 |
| 56-CRN-640-050 | 640 | 50 | 0.56 – 1.06 | 0.56 – 1.06 | ≤ 2.6 | ≤ 2.8 |
| 56-CRN-642-100 | 642 | 100 | 0.58 – 1.27 | 0.58 – 1.27 | ≤ 2.2 | ≤ 2.2 |

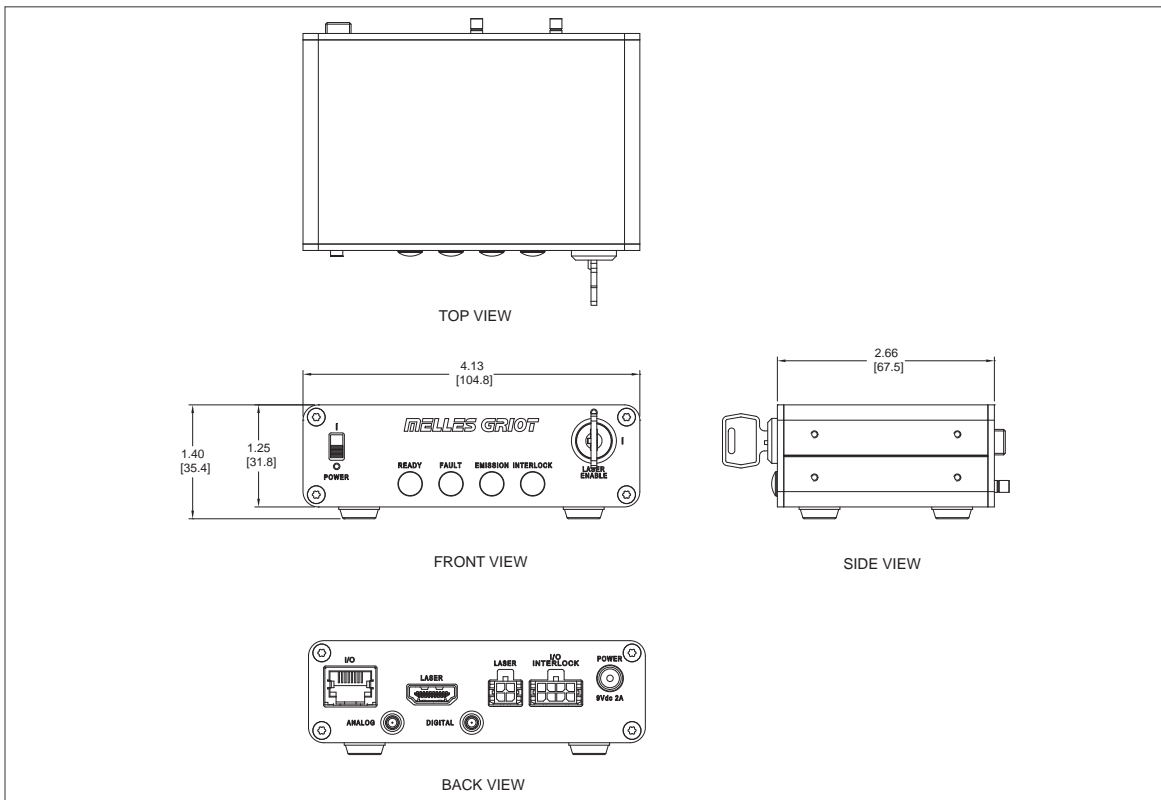
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Laser Dimensions



Dimensions in inches [mm]

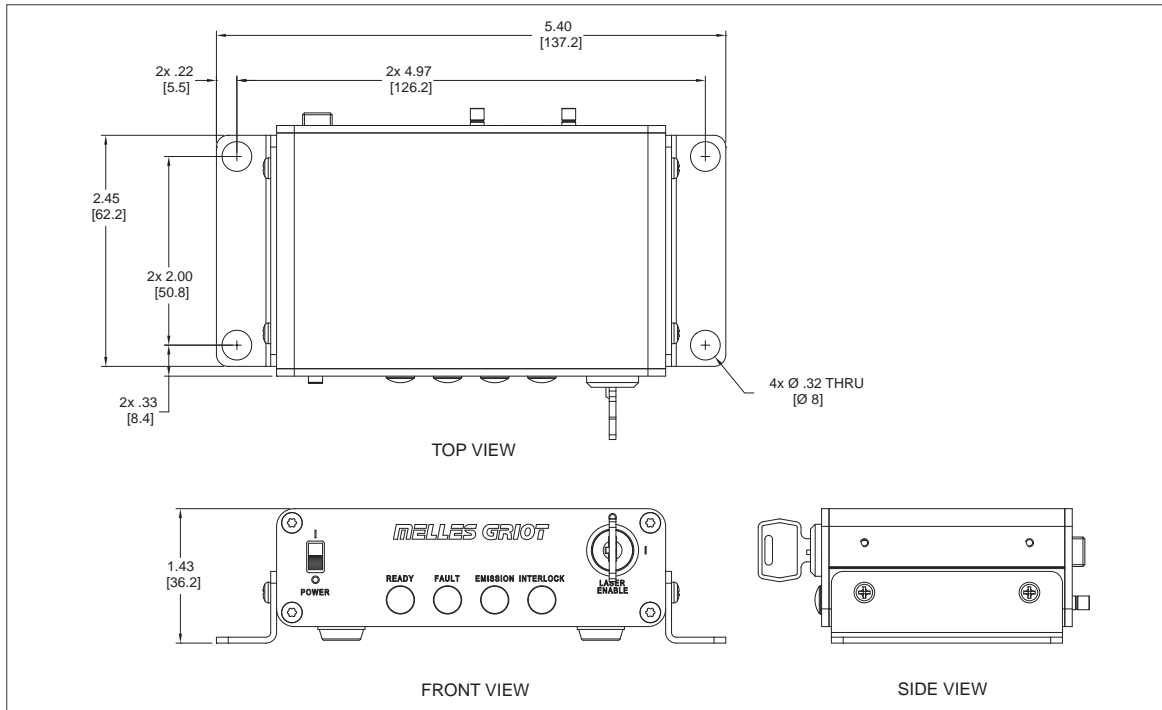
CDRH Controller Dimensions without Mounting Brackets



Dimensions in inches [mm]

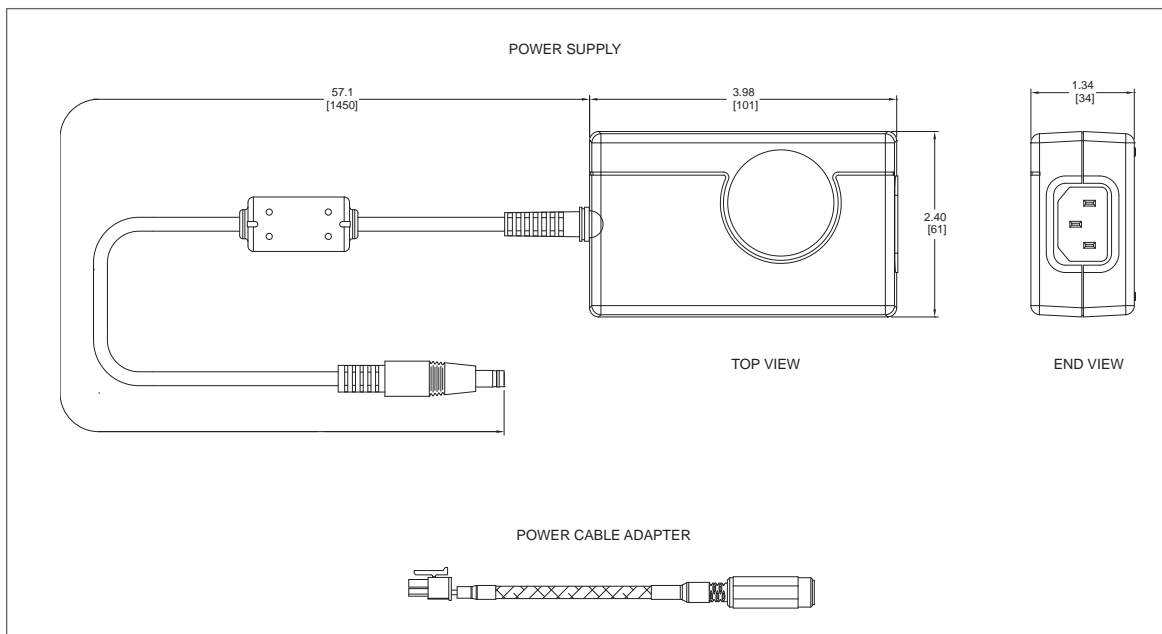
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CDRH Controller Dimensions with Mounting Brackets



Dimensions in inches [mm]

Power Supply Dimensions



Dimensions in inches [mm]

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