

Compact Solid-State Green Laser

532 nm, 5 to 20 mW

58 GCA Series



The 58 GCA-series green diode-pumped solid-state lasers deliver diffraction-limited, TEM₀₀ output from a compact, self-contained package that includes drive electronics and thermoelectric cooling. Automatic power control (APC) provides excellent power stability over a broad operating temperature range, and the highly efficient electronics require less than 10 W at 5-Vdc input. These lasers are ideal for spectroscopy, laser-induced fluorescence, medical diagnostics, alignment, and a wide variety of testing applications. Systems are available in research and ultracompact OEM configurations with a variety of standard and custom beam delivery systems.

Features

- ▶ Up to 20 mW at 532 nm
- ▶ Automatic power control
- ▶ <3% peak-to-peak noise (20 Hz to 2 MHz)
<0.5% rms noise (20 Hz to 2 MHz)
- ▶ Stable output from 10°C to 40°C
- ▶ All solid-state for reliability
- ▶ Excellent beam quality ($M^2 < 1.2$)
- ▶ <10 W power input at 5 Vdc
- ▶ Interface for remote monitoring and operation
- ▶ Integrated laser controller
- ▶ OEM and “drop-in” formats

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Specifications

Output Power (cw):

- 58 GCA 005: >5 mW
- 58 GCA 010: >10 mW
- 58 GCA 015: >15 mW
- 58 GCA 020: >20 mW

Wavelength: 532 ± 1.0 nm

Wavelength Purity: >1000:1

Transverse Mode: TEM₀₀

Beam Quality: $M^2 < 1.2$

Polarization

- Orientation: Vertical $\pm 5^\circ$
- Extinction Ratio: >100:1

Warm-up Time:

- <5 minutes

Bore Sight (both planes wrt. base plate):

- <5 mrad

Beam Pointing Stability (constant temperature):

- <0.02 mrad

Power Stability (constant temperature $\pm 2^\circ\text{C}$ over 8 hours):

- $\pm 2\%$

Amplitude Noise (20 Hz to 2 MHz):

- <3% peak-to-peak
- <0.5% rms

Beam Diameter ($1/e^2$, at waist):

- 1.1 ± 0.2 mm

Beam Divergence (full angle, $1/e^2$): <1.25 mrad

Beam Ellipticity: <1.1:1

Centration (with respect to nominal): <1.0 mm

Electrical Specifications

Input Voltage: 5 ± 0.25 Vdc

Input Power (maximum): 10 W

Environmental Specifications

Operating Temperature (base plate temperature¹): $+10^\circ\text{C}$ to $+40^\circ\text{C}$

Storage Temperature: -10°C to $+50^\circ\text{C}$

Relative Humidity, Operating:

- 0 to 95% noncondensing

Laser Head Weight: 0.8 kg (2 lb)

Options

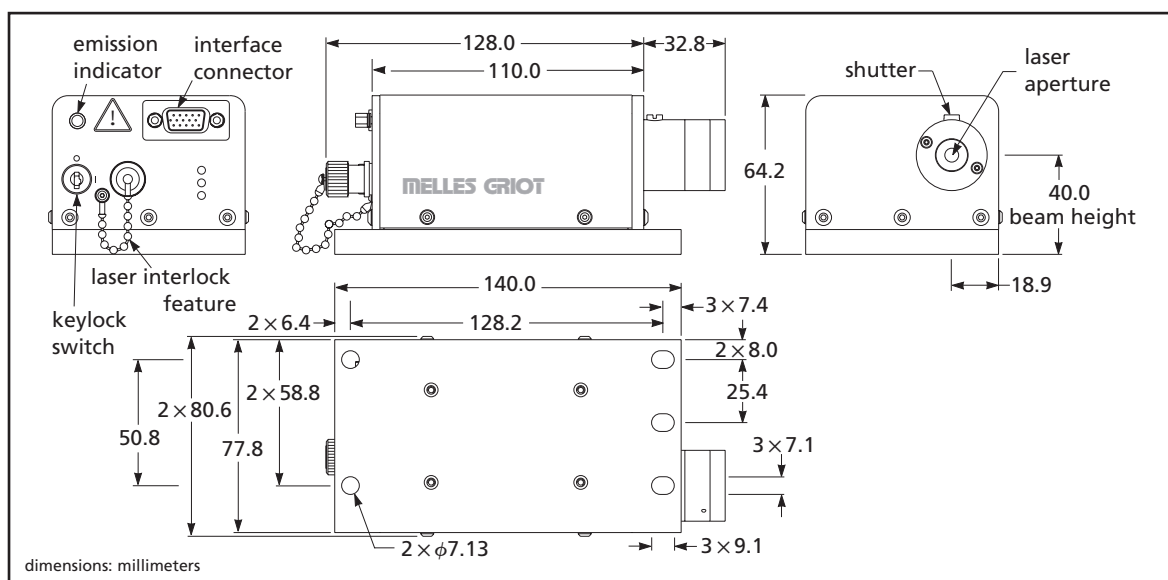
Universal ac-Input Power Supply: 56 IMA 015

Power Supply Weight: 0.4 kg (1 lb)

¹User must provide sufficient heatsink to ensure that base plate does not exceed 40°C .



This Melles Griot laser is designed, tested, and manufactured for compliance with applicable International electrical and laser safety standards.



58 GCA-series laser and supplied base plate

MELLES GRIOT

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