

Yellow Solid-State Laser System with Fiber Delivery

561 nm, 5 to 35 mW



85 YCF Series

The 85 YCF-series fiber-coupled, diode-pumped, solid-state yellow lasers provide up to 35 mW of output at 561 nm, with rock-solid stability over a wide operating temperature range. Their wavelength makes them ideally suited for Rhodamine, ROX, and Alexa Fluor dyes and as a highly reliable drop-in replacement for krypton-argon and many green lasers. The excellent beam quality, narrow line width, and low optical noise of 85 YCF-series lasers are ideal for flow cytometry, scanning, microscopy, metrology, spectroscopy, medical diagnostics, fluorescence, and interferometry applications. The small size, low power consumption, minimal heat-sinking requirements, and RS-232 control and monitoring interface are particularly suitable for compact, self-contained systems and OEM applications.

- ▶ Up to 35 mW at 561 nm
- ▶ Single-mode fiber options
- ▶ FC/APC, FC/PC or collimated output
- ▶ Excellent beam quality, $M^2 < 1.2$
- ▶ Stable output from 15°C to 35°C
- ▶ Low-noise output:
rms: <0.5% typical (20 Hz to 2 MHz)
peak-to-peak: <3.0% (20 Hz to 2 MHz)
- ▶ RS-232 interface
- ▶ Power consumption <30 W

System Specifications

Beam Characteristics

Output Wavelength: 561.0 ± 0.5 nm
 Wavelength Stability: <0.2 nm
 Output Power¹: 5 to 35 mW (see table)
 Transverse Mode: TEM₀₀
 Polarization:
 Linear (vertical $\pm 5^\circ$) $> 100:1$
 (polarization-maintaining fiber only).

Fiber Characteristics

Type:
 Single-mode or single-mode
 polarization-maintaining fiber
 Length: 1 m
 Termination: FC/APC, FC/PC or collimating optics
 Output Characteristics:
 M^2 : <1.2 (collimated output only)
 Mode-Field Diameter:
 $4.0 \pm 0.7 \mu\text{m}$ (FC/APC and FC/PC only)
 Beam Diameter ($1/e^2$):
 0.6 ± 0.1 mm (collimated output only)
 Numerical Aperture:
 <0.12 (FC/APC and FC/PC only)
 Far-Field Divergence ($1/e^2$):
 <1.2 mrad (collimated output only)
 Mechanical Characteristics:
 Jacket: 3-mm diameter PVC
 Bend Radius: >25 mm

Stability Characteristics

Pointing Stability:
 $<40 \mu\text{rad}$ over 2 hours (ambient $\pm 2^\circ\text{C}$,
 collimated output only)
 Power Stability:
 $<\pm 2.5\%$ over 24 hours (ambient $\pm 2^\circ\text{C}$)
 Amplitude Noise:
 Peak-to-Peak: $<3\%$ (20 Hz to 2 MHz)
 rms: $<0.5\%$ (20 Hz to 2 MHz)

Operating Characteristics

Operating Mode:
 Automatic Power Control (APC) or
 Automatic Current Control (ACC)
 Warm-up Time: <3 minutes
 Maximum Heat Dissipation (system):
 <30 W (25 W typical)

Environmental Characteristics

Temperature (ambient):
 Operating: 15°C to 35°C
 Nonoperating: -10°C to $+60^\circ\text{C}$
 Humidity:
 Operating: 0 to 95%, noncondensing
 Nonoperating: 0 to 95%, noncondensing
 Baseplate Temperature: 15°C to 35°C
 Shock: <25 g, <11 msec (nonoperating)
 Vibration:
 Operating:
 <0.3 g (sinusoidal) 5 Hz to 500 Hz
 Nonoperating:
 <3.0 g (sinusoidal) 5 Hz to 500 Hz

Mounting Surface Requirements

Surface Flatness: <0.003 in./in.
 Surface Roughness: $<63 \mu\text{in. rms}$

Electrical Characteristics

Input Voltage²:
 100 to $240 \pm 10\%$ vac
 (5 ± 0.25 vdc for OEM version)
 Input Frequency: 50 to 60 Hz, single phase
 Input Power: 30 W (max)

Weight

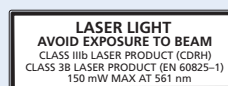
Laser Head: 0.5 kg (1.2 lb)
 Laser Controller (with cables): 0.9 kg (1.9 lb)
 Power Supply: 0.5 kg (1.2 lb)

Safety and Regulatory Compliance

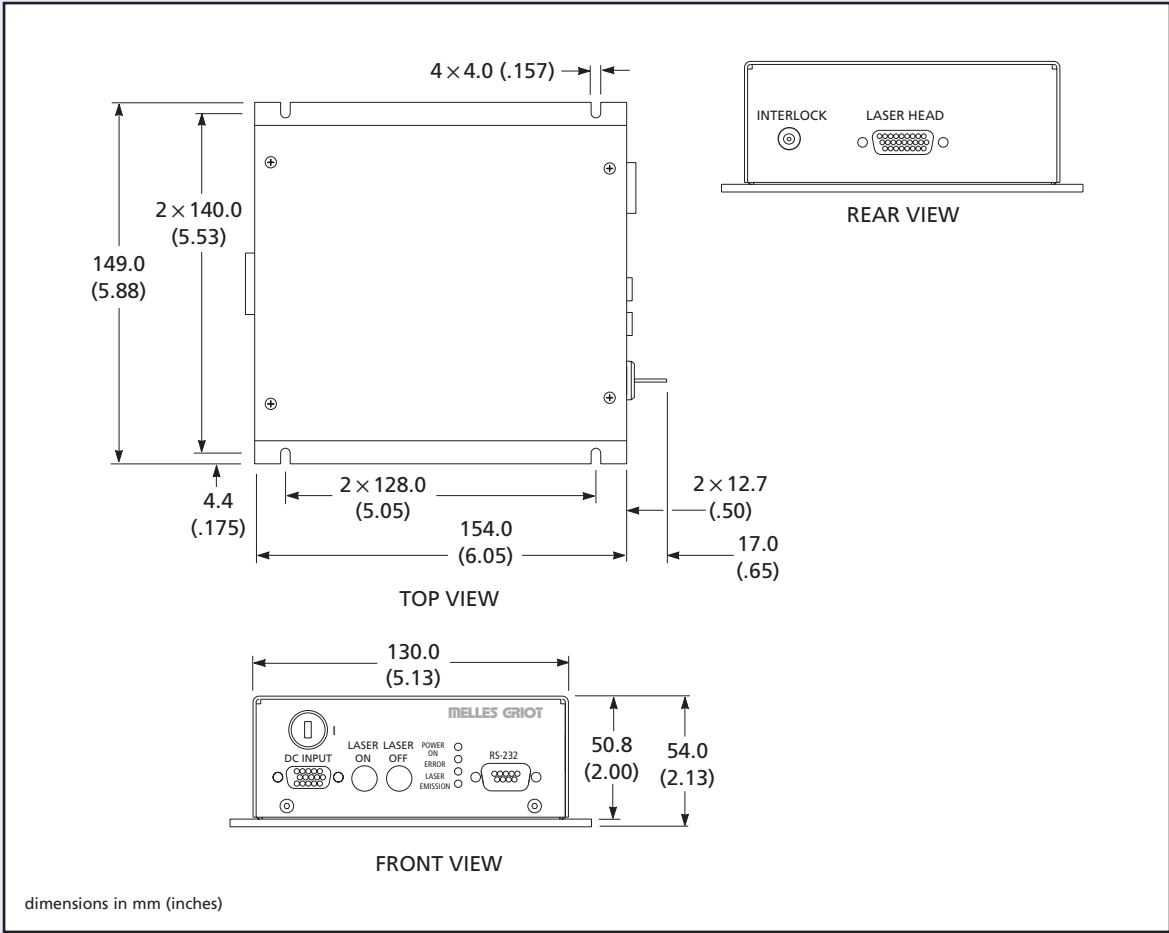
CDRH Class: IIIb
 IEC Class: 3B
 CE: Compliant

¹ Output power is adjustable via RS-232 or external interface from 10% to 110%. Specifications are valid only at 100% of specified power. Recommended power range is 70 to 110% power.

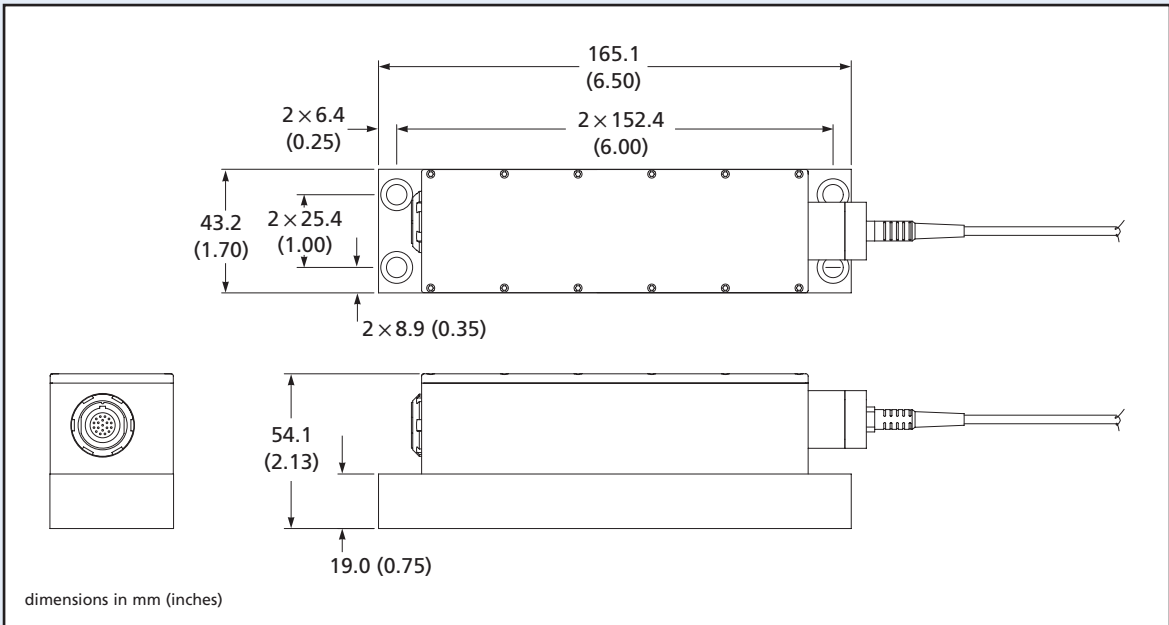
² If user-supplied, the 5-Vdc power supply must meet the following requirements: power > 20 W; ripple $< 5\%$ peak-to-peak; line regulation $< 0.5\%$.



This CVI 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 Emission and Immunity)



85 YCF-series laser controller



85 YCF-series laser head

How to Order

Output Power (mW)	Product Number
5	85 YCF 005-ABC
10	85 YCF 010-ABC
15	85 YCF 015-ABC
35	85 YCF 035-ABC

To completely specify the laser, the primary product number (e.g., 85 YCF 010) must be terminated by a three-digit code (ABC), described below, which specifies the fiber type (A), the termination (B), and the regional line cord (C).

Fiber type (A): 1 = single-mode polarization-maintaining fiber; 2 = single-mode fiber (does not maintain polarization).

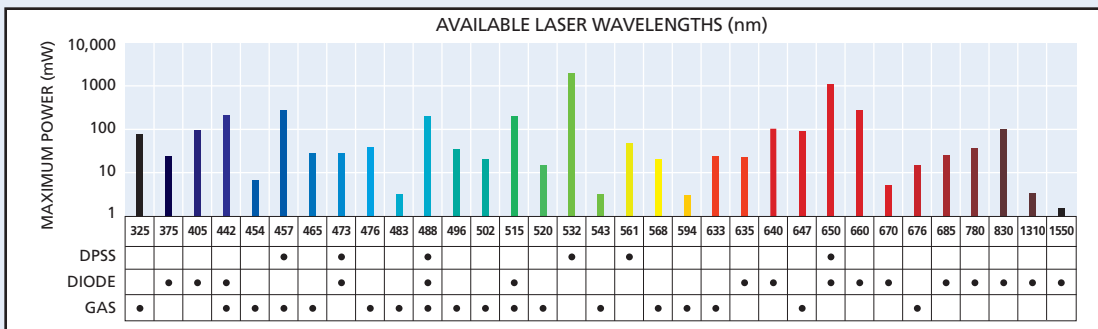
Termination (B): 1 = FC/APC; 2 = FC/PC; 5 = collimated flange.

Regional line cord (C): 0 = OEM (does not include manual, line cord, or dc power supply); 1 = Japan (JIS 8303); 2 = North America (Nema 5-15P); 3 = European Union (CEE (7) VII "Schuko"), 4 = United Kingdom (BS1363/A).

For example, 85 YCF 005-212 indicates the 5-mW laser with a single-mode fiber terminated by an FC/APC connector and shipped with a standard line cord for North America.

Select from more than 33 wavelengths

CVI Melles Griot manufactures a comprehensive line of lasers and laser systems for laboratory and OEM applications. Standard products include helium neon and helium cadmium lasers, diode-pumped solid-state lasers, argon, krypton, and mixed gas ion lasers, and semiconductor laser assemblies. Available wavelengths range from 325 nm in the ultraviolet to 1.55 μm in the near infrared, with powers ranging from a few milliwatts to several watts, as shown in the chart below.



Spectral output available from CVI Melles Griot lasers

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