

DIAMOND GEM-100A (10.6 μm)

Air-Cooled RF-Excited OEM Industrial CO₂ Laser

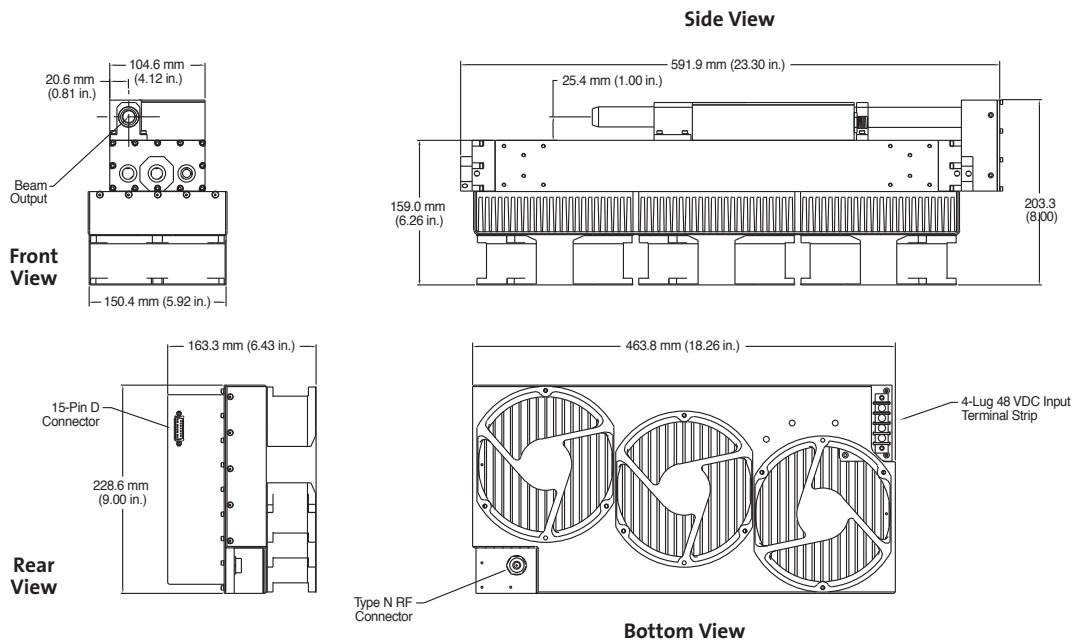
Features

- Outstanding beam quality and stability
- Direct air-cooling
- Linear polarization
- Highly compact
- Low-cost OEM configuration
- Fast rise/fall time
- Up to 100% duty cycle operation
- All-metal seals for long life
- Interchangeable laser heads and RF power supplies
- Wide operating power range



Mechanical Specifications

Laser Head



Superior Reliability & Performance

DIAMOND™ GEM™-100A (10.6 μm)

Air-Cooled RF-Excited OEM Industrial CO₂ Laser

System Specifications

Wavelength (μm)(fixed)	10.55 to 10.63
Output Power ¹ (W)	100
Power Stability ² (%)	±5
Mode Quality	>95% TEM ₀₀ , M ² <1.3
Beam Size (mm)	3.8 ±0.4 mm
Beam Divergence (mrad, full angle)	<5.0
Polarization (fixed linear)	>100 to 1
Pulse Frequency (kHz)	Up to 25
Weight of Head	11.8 kg (26 lbs.)
Weight of Power Supply	8.2 kg (18 lbs.)
Dimensions	Shown above

Facilities Requirements

Input Power	48 VDC 50A (65A peak for a minimum of 1 msec) ±2% regulation with remote sense	
Surface Cooling Requirements ³	Heat Dissipation	Maximum Case Temperature
Laser Head	1200W	55°C
RF Power Supply	800W	55°C
Environmental		
Temperature	5 to 40°C (41 to 104°F)	
Altitude	2000 m (<6500 ft.)	
Humidity	Non-condensing	

¹ Derate power by 1% / °C for laser head temperatures above 25°C.

² Power stability measured at constant duty cycle (15% to 100%) after 10-minute warm-up.

³ Adverse environmental conditions (high ambient temperatures, humidity or altitude) will limit the maximum allowable duty cycle. Systems designers must limit the duty cycle so that hardware surface temperature limits are not exceeded. Power supplies incorporate over-temperature protection.

Specifications are subject to change without notice.

Coherent, Inc. guarantees that the output power of the GEM-100A (10.6 μm) will exceed the rated power for a period of one year, independent of the actual operating time. Coherent, Inc. also warrants to the original purchaser for a period of one year from the date of delivery that the GEM-100A (10.6 μm) is free from defects in material and workmanship. The warranty does not apply to any unit damaged by accident, abuse or operation in a manner inconsistent with the procedures and specifications outlined in the manual supplied with the laser.

The GEM-100A (10.6 μm) is a laser component that does not include all safety features as required by the FDA and the Center for Devices and Radiological Health (CDRH). It is sold solely to qualified manufacturers who in their end product will supply all interlocks and indicators, and will comply fully with CDRH regulations and/or local regulatory agencies.



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