

DIAMOND FLQ-Series

Q-Switched Fiber Lasers

The Coherent DIAMOND FLQ-Series is a 1 μm pulsed laser delivering 1 mJ pulse energy with a fast turn-on time and high peak power (up to 10 kW) over a wide range of repetition rates to maximize production throughput and marking capability. With their single-mode beam quality, the FLQ lasers can produce ultra-fine, crisp marks every time. The FLQ ensures no bleed-through power between pulses when the gate signal is off to prevent the appearance of ghost lines between marks, even on very sensitive materials. The FLQ is pumped by single-emitter diode lasers, which offer long lifetime and maintenance free operation. The laser is compatible with industry-standard interfaces.

FEATURES & BENEFITS

- Fast turn-on time: yields highest production throughput
- Single-mode beam quality: ultra-fine, crisp marks
- Single emitter pump diodes: long lifetime and maintenance-free operation
- Gaussian pulse shape produces higher peak power: more marking per output Watt

APPLICATIONS

- Marking
- Engraving
- Micromachining
- Etching
- Cleaning
- Trimming



OPTICAL SPECIFICATIONS	DIAMOND FLQ-1064-0010-YZ	DIAMOND FLQ-1064-0020-YZ	DIAMOND FLQ-1064-0030-YZ	DIAMOND FLQ-1064-0050-YZ	DIAMOND FLQ-1064-0100-YZ
Output Power (W)	10	20	30	50	100
Output Power Adjustment (%)	10 to 100				
Power Stability ¹ (%)	±2.5	±2.5	±2.5	±2.5	±2.5
Beam Quality (nominal)	M ² <1.5				
Beam Divergence (mrad) without Beam Expander	<4.0	<4.0	<4.0	NA	NA
with Beam Expander	<0.5	<0.5	<0.5	<0.5	<0.5
Output Beam Diameter (mm) without Beam Expander ²	1.0 ±0.1	1.0 ±0.1	1.0 ±0.1	NA	NA
with Beam Expander ³	7.5 ±1.0	7.5 ±1.0	7.5 ±1.0	7.5 ±1.0	7.5 ±1.0
Visible Pointer (Standard)	Yes	Yes	Yes	Yes	Yes
Output Type	Fiber to Free-Space Isolator				
Mode of Operation	Pulsed	Pulsed	Pulsed	Pulsed	Pulsed
Polarization	Random	Random	Random	Random	Random
Peak Power ⁴ (kW)	5.0	10.0	10.0	8.5	8.5
Pulse Energy ⁴ (mJ)	0.5	1.0	1.0	1.0	1.0
Pulse Width ⁵ (ns)	100 ±20	100 ±20	100 ±20	120 ±20	120 ±20
Pulse Repetition Rate (kHz)	20 to 100	20 to 100	30 to 100	50 to 200	100 to 200
Central Wavelength (nm)	1064 ±2	1064 ±2	1064 ±2	1064 ±2	1064 ±2
Emission Linewidth ⁵ (nm)	<5	<5	<5	<5	<5
MECHANICAL SPECIFICATIONS					
Delivery Fiber Length (m)	3.0 ±0.2	3.0 ±0.2	3.0 ±0.2	3.0 ±0.2	3.0 ±0.2
Minimum Bend Radius (mm)	100	100	100	100	100
Dimensions (mm)	215 x 95 x 284	215 x 136 x 284			
Weight (kg)	5.7	5.7	5.7	10.0	12.0
DC Supply Voltage (VDC)	23 to 25				
Current Consumption (A)	≤6	≤8	≤10	≤15	≤20
Digital Interfaces ⁸	RS-232 & DB25				
Maximum Off Voltage ⁹ (VDC)	1.5	1.5	1.5	1.5	1.5

¹ Power fluctuation at full rated power for 5 hours.

² Beam diameter (1/e²), for options with no beam expander, beam diameter is measured at a distance of 20 mm from output aperture.

³ Other beam diameters are available on request.

⁴ At the lowest PRR and full rated power.

⁵ FWHM at lowest PRR and full rated power.

⁶ Typical rise time from 0% to 90% of max. power.

⁷ Typical fall time from 100% to 10% of max. power.

⁸ DB25 connector uses industry standard pin assignments.

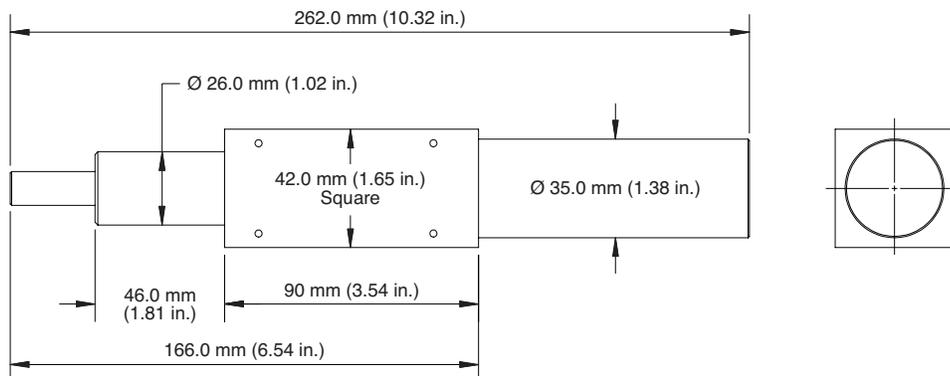
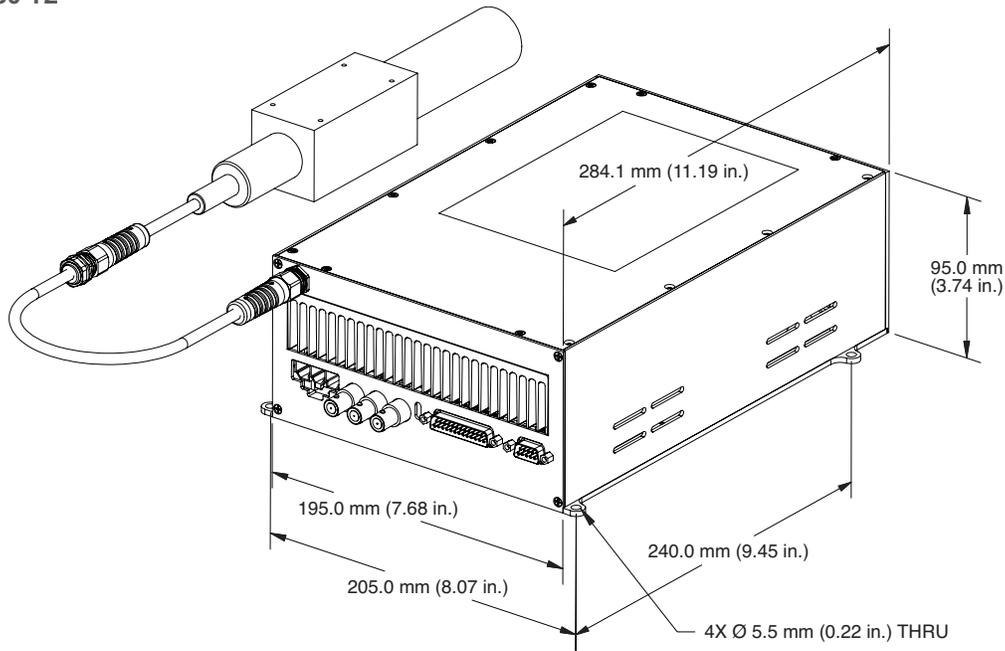
⁹ Highest voltage allowable on the +24VDC input when the power supply is intended to be off.

ENVIRONMENTAL SPECIFICATIONS	DIAMOND FLQ-1064-0010-YZ	DIAMOND FLQ-1064-0020-YZ	DIAMOND FLQ-1064-0030-YZ	DIAMOND FLQ-1064-0050-YZ	DIAMOND FLQ-1064-0100-YZ
Operating Ambient Temperature ⁹ (°C)	0 to 42				
Storage Temperature (°C)	-10 to 60				
Operating Humidity (%) (RH non-condensing)	0 to 85				
Warm-up Time (s)	60	60	60	60	60
Cooling ¹⁰	Air-cooled	Air-cooled	Air-cooled	Air-cooled	Air-cooled

⁹ 36 to 42°C with less than 50% duty cycle.
¹⁰ Ensure 100 cfm (0.047m³/s) of air flow provided for all units.

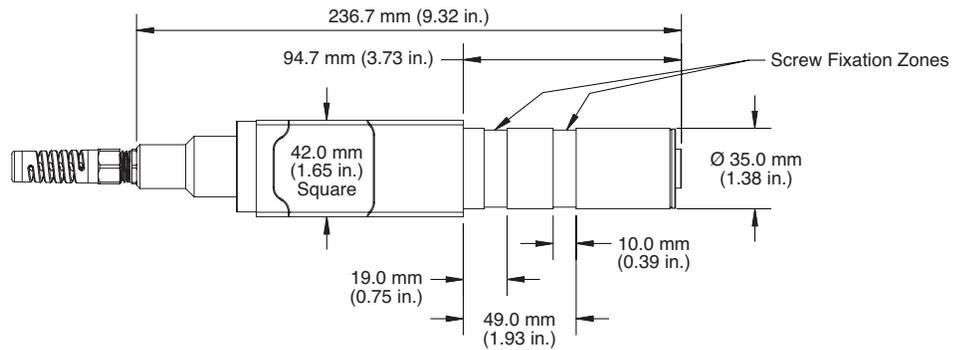
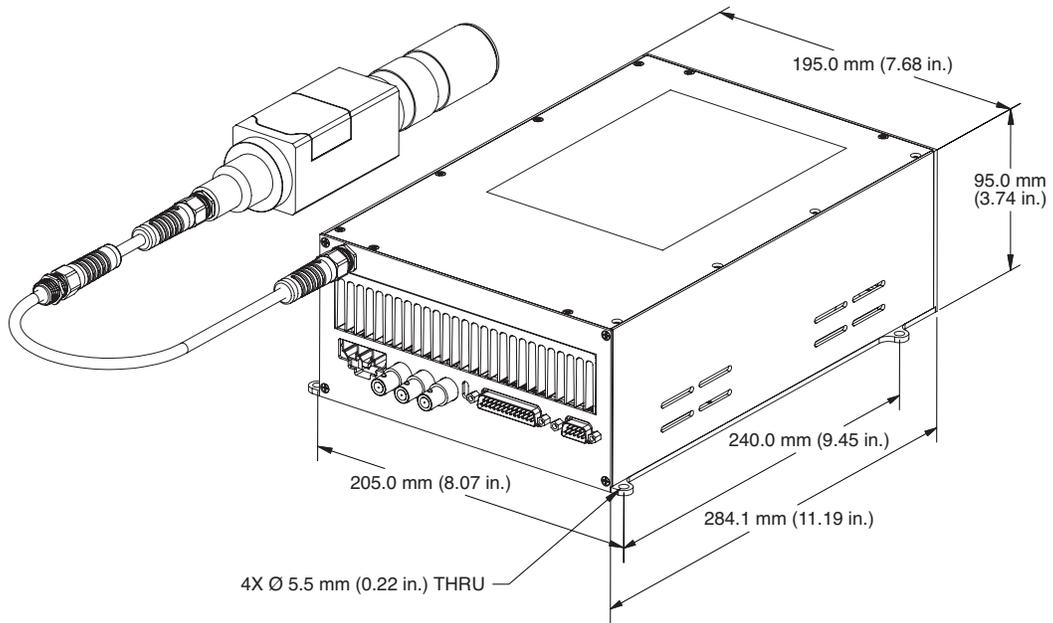
MECHANICAL SPECIFICATIONS

DIAMOND FLQ-1064-0010-YZ, FLQ-1064-0020-YZ, and FLQ-1064-0030-YZ



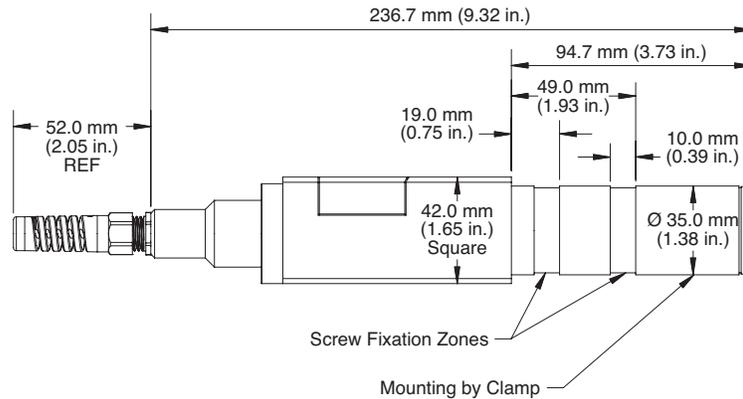
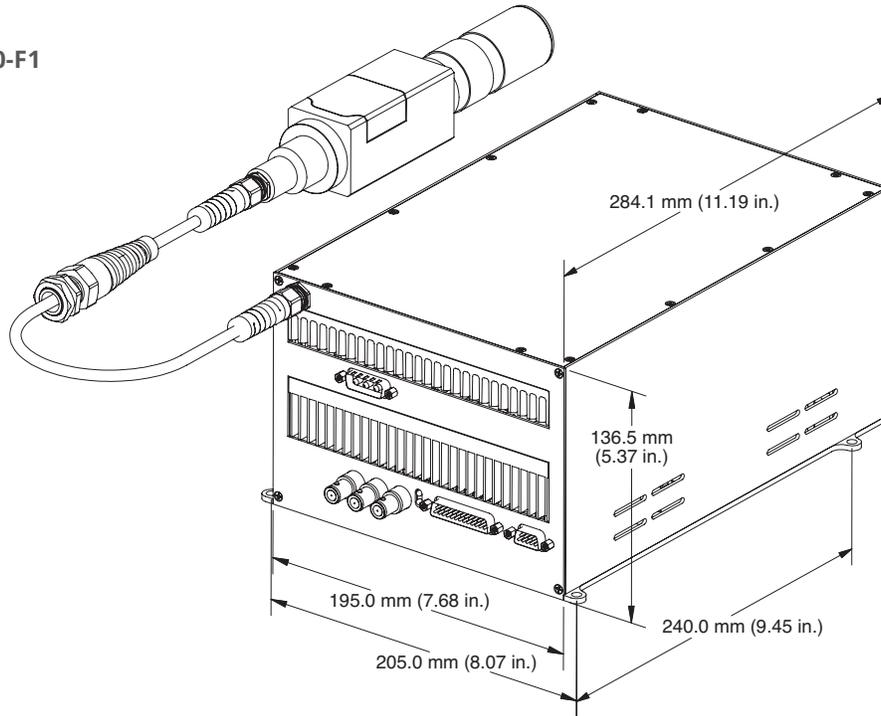
MECHANICAL SPECIFICATIONS

DIAMOND FLQ-1064-0050-YZ



MECHANICAL SPECIFICATIONS

DIAMOND FLQ-1064-0100-F1



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Coherent follows a policy of continuous product improvement. Specifications are subject to change without notice.

Coherent offers a limited warranty for all DIAMOND FLQ-Series Lasers. For full details of this warranty coverage, please refer to the Service section at www.Coherent.com or contact your local Sales or Service Representative. Printed in the U.S.A. MC-XX-18-0M0118 Copyright ©2018 Coherent, Inc.