



KERN
TECHNOLOGIES, LLC.

KT650

LightWAVE®

Industrial CO₂ Lasers



Laser

Characteristics

- Liquid Cooled
- RF Excited
- Wide Operating Power Range
- Exceptional Power Stability
- Fast Rise and Fall Time
- Pulsed up to Quasi-CW

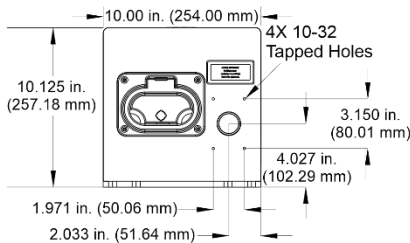
Standard Features

- Integrated Carry Handles
- Metal Sealed Laser Cavity
- Internally Collimated
- Integrated RF
- Common Footprint
- Overbuilt Electronics
- Three Point Mounting
- Manufactured in the USA

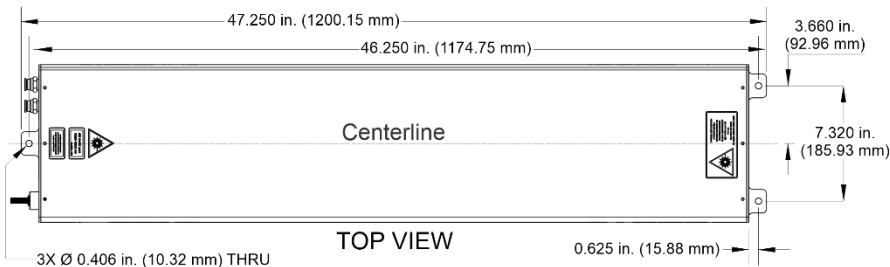
LASER PARAMETERS		KT650-10.6
WAVELENGTH (μm)		10.6
OUTPUT POWER ¹ (W)		≥ 650
POWER RANGE (W)		30-650
TYPICAL PEAK POWER ² (W)		≥ 1800
DUTY CYCLE RANGE (%)		≤ 75
POWER STABILITY ³ (%)		± 6
MAXIMUM PULSE ENERGY (mJ)		> 2400
PULSE LENGTH (mS)		≤ 3.75
PULSE RISE/FALL TIME (μs)		40/60
MODE QUALITY		$M^2 < 1.2$
BEAM ELLIPTICITY		< 1.2
BEAM DIAMETER AT LASER OUTPUT		0.35" \pm 0.04" (9.0 mm \pm 1.0 mm)
BEAM DIVERGENCE - FULL ANGLE (mrad)		< 2.5
POLARIZATION		Linear (parallel to baseplate)
MODULATION FREQUENCY (kHz)		0.2 to 200
PHYSICAL CHARACTERISTICS		
WEIGHT		130 lbs. [59 kg]
DIMENSIONS		47.25" x 10" x 10.1" [1200 x 254 x 257 mm]
ELECTRICAL REQUIREMENTS		
DC INPUT VOLTAGE (V)		48
DC PEAK CURRENT (A)		300
DC CONTINUOUS CURRENT (A)		< 220
COOLING REQUIREMENTS ⁴		
HEAT LOAD (kW)		< 11
FLOW RATE		≥ 6 GPM (≥ 22.7 L/min)
COOLANT MAXIMUM PRESSURE (PSI)		100
COOLANT		Distilled water with corrosion inhibitor
COOLANT SETPOINT TEMP. RANGE		68°F - 77°F (20°C - 25°C)
COOLANT TEMP. STABILITY (MAX)		$\pm 1^\circ\text{F}$ ($\pm 0.5^\circ\text{C}$)
ENVIRONMENTAL CONDITIONS		
AMBIENT TEMP. RANGE		50°F - 100°F [10°C - 38°C]
RELATIVE HUMIDITY ⁴		Non-Condensing
ALTITUDE		≤ 6500 ft. (2000 m)

MECHANICAL SPECIFICATIONS

FRONT VIEW



TOP VIEW



¹ Measured at maximum duty cycle and a 5 kHz pulse repetition frequency (PRF).
² Measured at 10% duty cycle at 1 kHz PRF.
³ Power stability may not be met at low duty cycle or acoustic PRF.
⁴ Refer to the manual for details.



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Disclaimer

The laser is a component of a laser system. It is the responsibility of the OEM to provide all required laser safety features. Check with CDRH for safety requirements. Do not operate laser without proper safety training. The laser parameters listed within this sheet are subject to change without notice.