



MATRIX 1064 and 532

Solid-State, Q-Switched Laser

MATRIX IR and green pulsed DPSS laser are designed for OEM integration at low cost. Manufactured with PermAlign™ Technology, all optical elements in MATRIX are permanently soldered and fixed onto a ceramic plate in a semi-robotic clean-room process, making them extremely rugged and environmentally stable, enabling gantry robust operation.

MATRIX combines outstanding low noise and high beam-quality with a small footprint. The air-cooled MATRIX system comes with a field proven, Coherent manufactured, AAA™ (Aluminum-free Active Area) material diode enabling years of maintenance-free 24/7 operation. MATRIX is therefore ideally suited for cost-sensitive high-volume applications, where long lifetime and consistent performance matters.

The MATRIX system consists of laser-head and controller/power supply. The controller provides sophisticated pulse controls for even the most demanding application, allowing complete control over pulse energy and timing.



FEATURES

- Superior optical performance
- PermAlign solder-bonded optics technology for permanent optimal alignment and ultra-robustness
- AAA pump diodes for unmatched lifetime
- Robot-assisted, cleanroom-built and hermetically sealed
- Compact, air-cooled design for easy OEM integration (water-cooling optional)
- Best reliability, lifetime and unit-to-unit consistency

APPLICATIONS

- ID Card Marking
- Diamond Processing
- PCB No Good Marking
- SIP Processing
- Wafer Marking
- LGP Mask Drilling

SPECIFICATIONS	MATRIX 1064-1-LP	MATRIX 1064-7-10 ¹	MATRIX 1064-10-30 ²
Average Power (W)	1 at 1.4 kHz	7 at 10 kHz	10 at 30 kHz
Recommended Power Range (%)	80 to 100	20 to 100	20 to 100
Pulse Repetition Rate (kHz)	up to 10	up to 30	up to 100
Pulse Duration (ns)	>40	<60	<40
Pulse Energy Stability (%) (rms)	<2	<1.5 at 5 kHz	<1.5
Beam Parameters (nominal)	0.55 mm and <3 mrad		
Circularity ³ (%)	>90		
Spatial Mode	TEM ₀₀		
Output Power Stability (%) (8h/±3°)	±2		
Temperature Range (baseplate)	15°C to 50°C (59°F to 122°F)		
Maximum Heat Load (W)	<300		
Static Alignment	±0.2 mm, ±2 mrad		
Maximum Warm-up Times from Cold Start from Warm Start	<20 minutes <5 minutes		
ENVIRONMENTAL SPECIFICATIONS			
Temperature Operating Non-operating	15°C to 40°C -20°C to 50°C		
Altitude Operating Non-operating	0 to 10,000 ft. 0 to 45,000 ft.		
Relative Humidity (%) (non-condensing) Operating Non-operating	0 to 90 0 to 95		
Shock Operating Non-operating	1g/6 ms EN 60068-2-6 25g/6 ms EN 60068-2-6		
POWER SUPPLY SPECIFICATIONS			
Power Supply Dimensions (H x W x D) 532-14-40 All other models	open-frame PCB; can be mounted in 3HE 19 in. rack mount 100 x 210 x 325 mm (3.9 x 8.3 x 12.8 in.) 100 x 131 x 335 mm (3.9 x 5.2 x 13.2 in.)		
External Control	RS-232 interface, TTL QS control		
Input Power Requirements Input Voltage (VAC) Input Power 532-14-40 All other models	90 to 240, 50 to 60 Hz 1200 VA (max.)/≤500 VA (typ.) 750 VA (max.)/≤350 VA (typ.)		

¹ 1064 -Wavelength (nm); 7 - Specified Power (W); 10 - Specified Pulse Repetition Rate (kHz).

² 1064 -Wavelength (nm); 10 - Specified Power (W); 30 - Specified Pulse Repetition Rate (kHz).

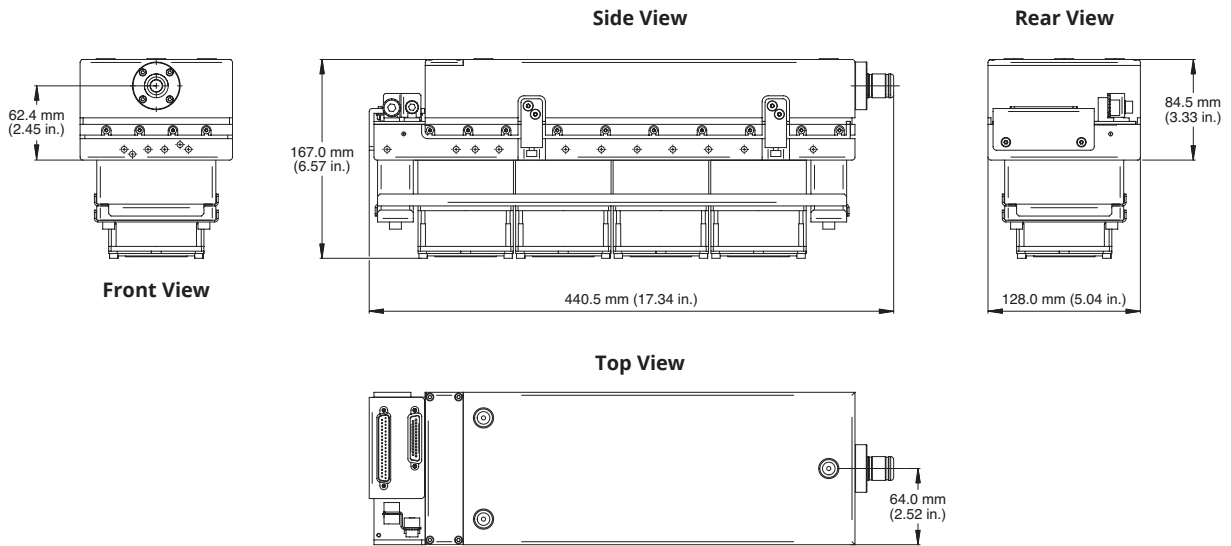
³ At waist.

SPECIFICATIONS		MATRIX 532-7-30
Average Power (W)		7 at 30 kHz
Recommended Power Range (%)		80 to 100
Pulse Repetition Rate (kHz)		up to 100
Pulse Duration (ns)		<20
Pulse Energy Stability (%) (rms)		<2
Beam Parameters (nominal)		0.23 mm and <4.2 mrad
Circularity ¹ (%)		>90
Spatial Mode		TEM ₀₀
Output Power Stability (%) (8h/±3°)		±2
Temperature Range (baseplate)		15°C to 50°C (59°F to 122°F)
Maximum Heat Load (W)		<300
Static Alignment		±0.2 mm, ±2 mrad
Maximum Warm-up Times		
from Cold Start		<20 minutes
from Warm Start		<5 minutes
ENVIRONMENTAL SPECIFICATIONS		
Temperature		
Operating		15°C to 40°C
Non-operating		-20°C to 50°C
Altitude		
Operating		0 to 10,000 ft.
Non-operating		0 to 45,000 ft.
Relative Humidity (%) (non-condensing)		
Operating		0 to 90
Non-operating		0 to 95
Shock		
Operating		1g/6 ms EN 60068-2-6
Non-operating		25g/6 ms EN 60068-2-6
POWER SUPPLY SPECIFICATIONS		
Power Supply Dimensions (H x W x D)		open-frame PCB; can be mounted in 3HE 19 in. rack mount
532-14-40		100 x 210 x 325 mm (3.9 x 8.3 x 12.8 in.)
All other models		100 x 131 x 335 mm (3.9 x 5.2 x 13.2 in.)
External Control		RS-232 interface, TTL QS control
Input Power Requirements		
Input Voltage (VAC)		90 to 240, 50 to 60 Hz
Input Power		
532-14-40		1200 VA (max.)/≤500 VA (typ.)
All other models		750 VA (max.)/≤350 VA (typ.)

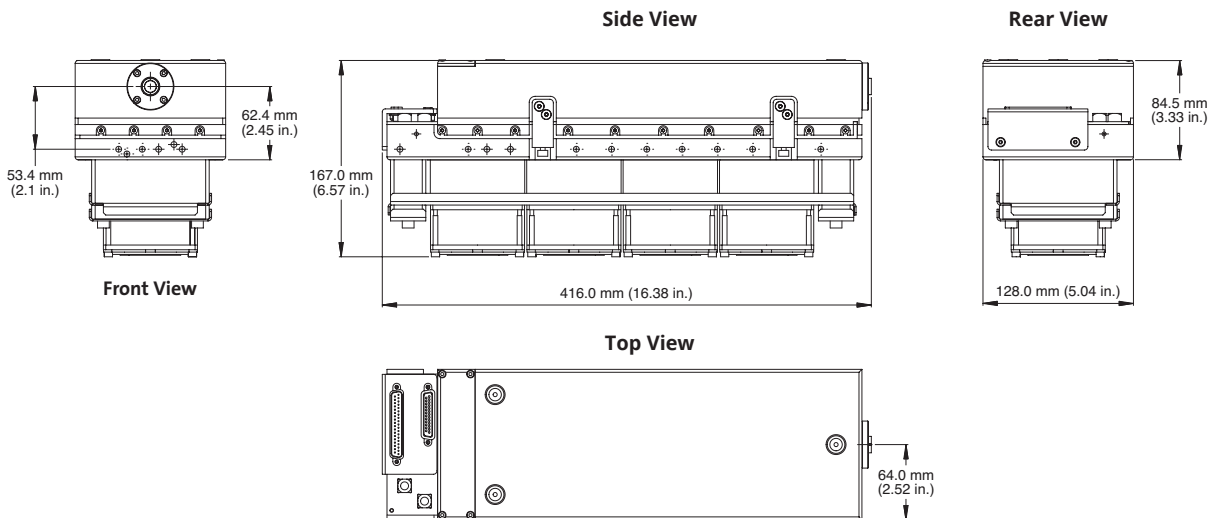
¹ At waist.

MECHANICAL SPECIFICATIONS

MATRIX 532-7-30



MATRIX 1064 all models



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Coherent follows a policy of continuous product improvement. Specifications are subject to change without notice. Coherent's scientific and industrial lasers are certified to comply with the Federal Regulations (21 CFR Subchapter J) as administered by the Center for Devices and Radiological Health on all systems ordered for shipment after August 2, 1976.

Coherent offers a limited warranty for all MATRIX 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.
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