



# MATR: X 355

## Solid-State, Q-Switched Laser

The MATR: X UV portfolio features power levels from 0.5 W to 5 W. The unique multi-pass harmonics enable lower power density inside the frequency conversion crystal, resulting in longer system life, outstanding pointing stability and the lowest pulse-to-pulse noise commercially available.

MATR: X lasers are optimized for cost-sensitive applications requiring high throughput without compromising process quality. The MATR: X portfolio is manufactured utilizing Coherent's PermAlign™ technology, a special process for optimal adjustment and fixation of optical components by a soldering process. This guarantees best optical alignment and stability over the whole lifetime of the product.



### FEATURES

- Superior optical performance
- Complete control over pulse energy and timing
- PermAlign solder-bonded optics technology
- Robot-assisted, cleanroom-built and hermetically sealed
- AAA pump diodes for unmatched lifetime
- Virtually no downtime, maintenance-free operation over thousands of hours

### APPLICATIONS

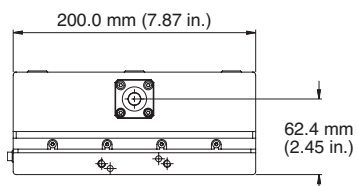
- Marking of Complex Plastic Structures
- Laser Trimming of Embedded Passives with Diode-Pumped Solid-State Lasers
- Inside Glass Marking
- Laser Direct Patterning
- LED Package Marking
- Solar P1 to P3
- Thin-film Scribing
- Rapid Prototyping

SPECIFICATIONS	MATRIX 355-M1	MATRIX 355-1-60	MATRIX 355-5-50
Average Power <sup>1</sup> (W)	0.5 at 60 kHz	1 at 60 kHz	5 at 50 kHz
Recommended Power Range (%)	70 to 100	50 to 100	50 to 100
Pulse Repetition Rate (kHz)	up to 100	up to 100	up to 150
Pulse Duration <sup>1</sup> (ns)	<30	<25	<30
Pulse-to-Pulse Stability <sup>1</sup> (%) (rms)	<5	<2	<2
Beam Parameters (nominal)	0.23 mm and <2.8 mrad	0.23 mm and <2.8 mrad	0.23 mm and <2.8 mrad
Circularity (%)	>90	>90	>85
Spatial Mode	TEM <sub>00</sub>		
M <sup>2</sup> (typical)	<1.1		
Output Power Stability (%) (8h/±3°)	<2		
Temperature Range (baseplate)	15°C to 50°C (59°F to 122°F)		
Maximum Heat Load (W)	<350	<350	<450
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	15°C to 40°C -20°C to 50°C	15°C to 35°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 dynamic EN 60068-2-6 ±10g EN 60068-2-26		
POWER SUPPLY SPECIFICATIONS			
Power Supply Dimensions (H x W x D)	100 x 131 x 335 mm (3.9 x 5.2 x 13.2 in.) open-frame PCB; can be mounted in 3HE 19-in. rack mount		
External Control	RS-232 interface, TTL QS control		
Input Power Requirements Input Voltage (VAC) Input Power Power Supply (VA)	90 to 240, 50 to 60 Hz maximum typical 750 ≤350		

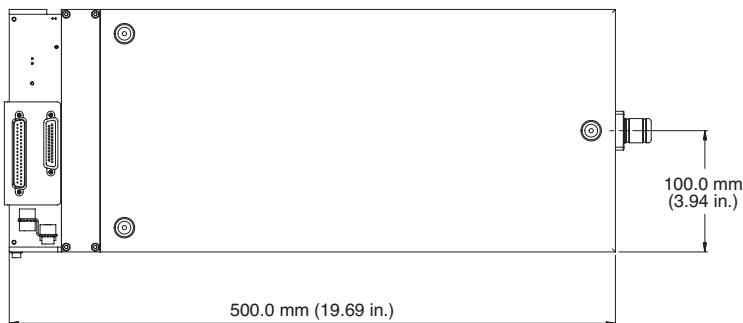
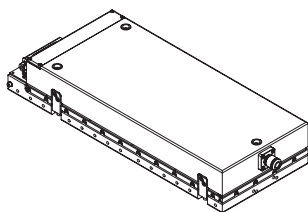
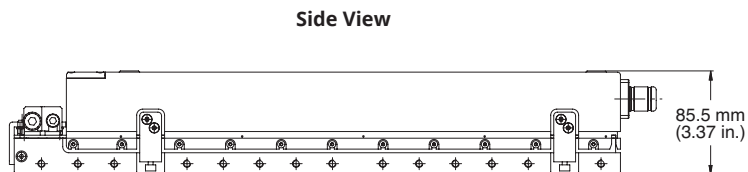
<sup>1</sup> At specified rep. rate.

### MECHANICAL SPECIFICATIONS

#### MATRIX 355-M1 Laser Head



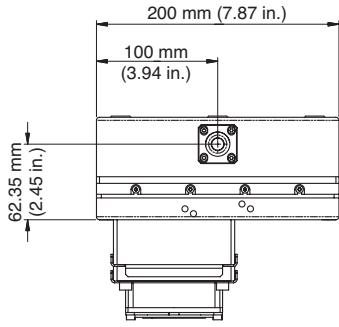
Front View



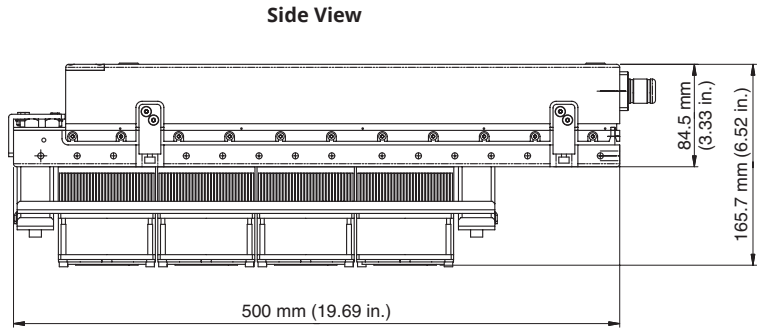
Top View

**MECHANICAL SPECIFICATIONS**

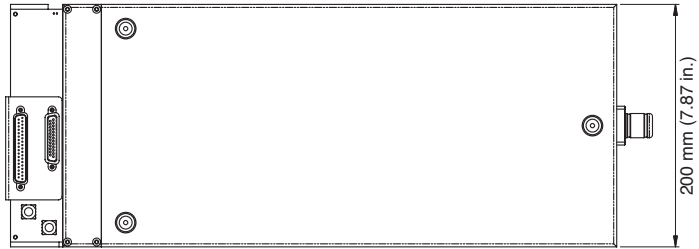
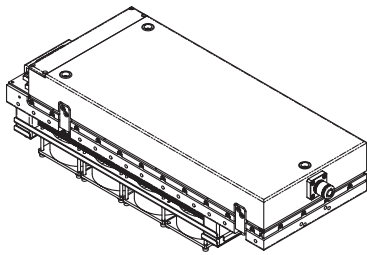
**MATRIX 355  
Laser Head**



**Front View**



**Side View**



**Top View**



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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](http://www.coherent.com) or contact your local Sales or Service Representative.  
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