

Air-Cooled Argon-Ion Laser Heads in Cylindrical and Rectangular Packages

2211/14 Series



Lumentum's air-cooled argon lasers are designed for complex, high-resolution OEM applications such as flow cytometry, DNA sequencing, graphic arts, and semiconductor inspection. They are available in two packages:

Cylindrical Package

Symmetric design and axial airflow in the cylindrical argon ion laser heads provide the best mechanical package to ensure optimum beam-pointing stability and fast warm-up. Both initial installation and routine maintenance are straightforward due to tight production control of optical and mechanical tolerances. Blower-induced mechanical vibration is virtually eliminated through the use of flexible ducting between the laser head and blower assembly.

Rectangular Package

Industry-standard rectangular packaging and a variety of wavelength options ensure easy initial installation and field replacement for most applications. As with Lumentum cylindrical laser heads, rectangular models incorporate axial airflow for exceptional beam pointing stability and fast warm-up. A top-mounted fan assembly simplifies installation.

Key Features

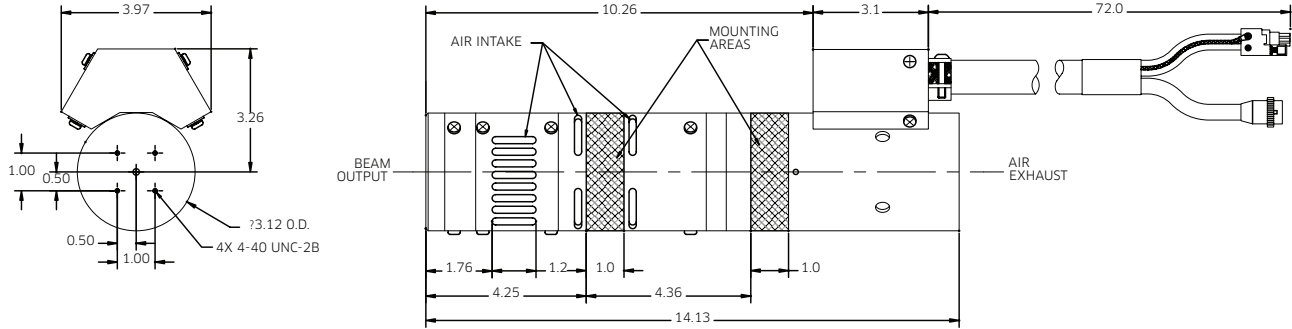
- Integral-mirror, metal-ceramic construction
- Hands-off operation
- Ultralow noise
- Fast warm-up
- Rugged construction
- Vibration isolation
- Ultrastable resonator and beam pointing

Applications

- DNA sequencing
- Flow cytometry
- Confocal microscopy
- Semiconductor inspection
- Hematology
- High speed printing
- Photo processing

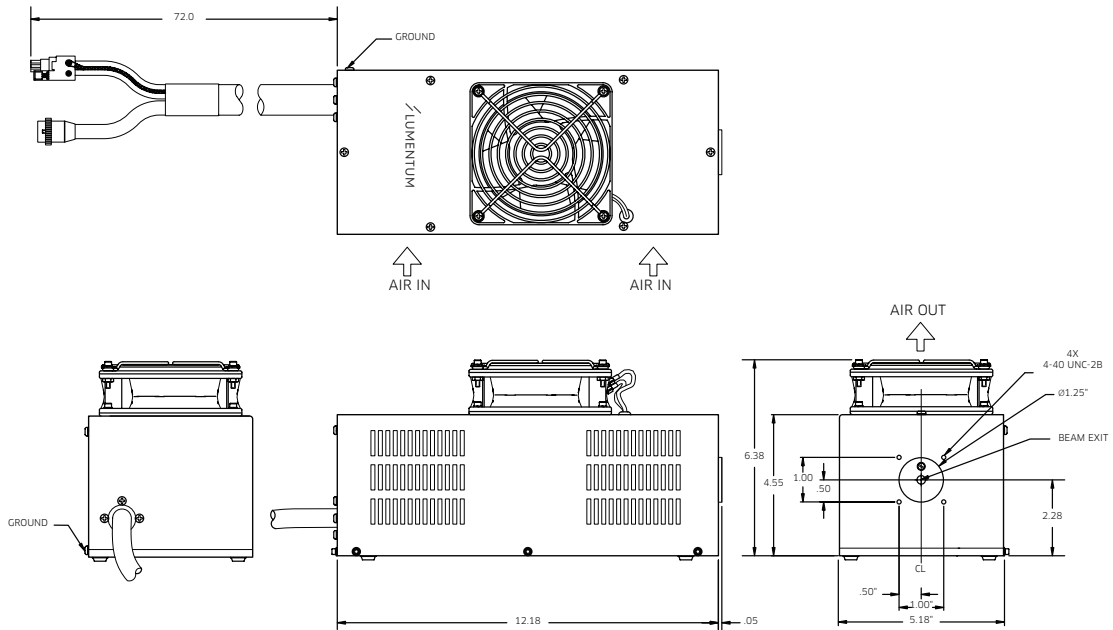
2214 Series Cylindrical Head

(Specifications in inches unless otherwise noted. E-vector is vertical with respect to laser housing. Refer to mechanical drawing for details.)



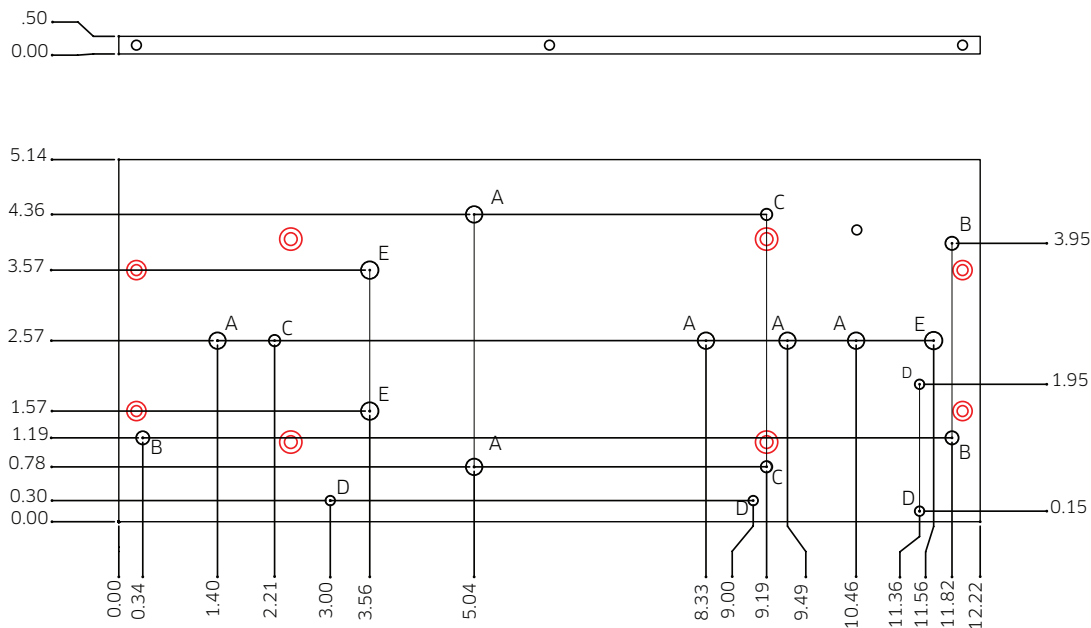
2211 Series Rectangular Head

(Specifications in inches unless otherwise noted. E-vector is vertical with respect to laser housing. Refer to mechanical drawing for details.)



2211 Series Base Plate

(Specifications in inches unless otherwise noted.)



Hole	Description
A	M6
B	10-32 UNC-2B
C	8-32 UNC-2B
D	6-32 UNC-2B
E	1/4-20 UNC-2B

Specifications

Parameter	2214 -xxSL	2214 -xVL	2214 -xxGL	2214 -xxML ^{1,2}	2211 -xxSL	2211 -xVL
Optical						
Output power (TEM ₀₀ , mW)	10/20/30	4	15/20	25/40	20/30	4
Wavelength (nm)	488	458	515	458 to 515	488	458
Mode purity (TEM ₀₀)	>95%					
Beam diameter (1/e ² ±5%, mm)	0.70	0.69	0.69	0.71	0.70	0.67
Beam divergence (mrad ±5%)	0.90	0.90	0.90	0.90	0.90	0.90
Minimum polarization ratio	250:1					
Longitudinal mode spacing (MHz)	566					
Noise						
p-p, 20 Hz to 2 kHz	≤0.1%					
p-p, 20 Hz to 20 kHz	≤0.1%					
rms, 20 Hz 2 MHz	≤1.0%					
Maximum drift (light control mode over 2 hours)	≤1.0%					
Maximum warm-up timer (to 95% power, minimum)	5 minutes					
Beam pointing stability After warm-up (2 hours, 25±3°C)	<30 μRad					
CDRH class	IIIb					
Static alignment						
Beam position	±0.25 mm					
Beam angle	±2.5 mrad					
Environmental						
Temperature						
Operating	4 to 40°C					
Non-operating	-30 to 60°C					
Altitude						
Operating	0 to 10,000 feet					
Non-operating	0 to 70,000 feet					
Relative humidity (non-condensing)						
Operating	0 to 90%					
Non-operating	0 to 100%					
Shock						
Operating	25 g for 11 ms					
Non-operating	25 g for 11 ms					
Physical						
Weight	8.5 lbs.	8.5 lbs.	8.5 lbs.	8.5 lbs.	14 lbs	14 lbs
Umbilical length	72±2 inches					

1. For ML (multi-line) models, 458, 476, 488, 497, 502 and 515 nm wavelengths are present.

2. For 2214 models, nominal airflow is 52 CFM. Use Lumentum model 2402 or equivalent fan rated for 140 CFM free air and typical pressure head of 0.95 inches of water.

Ordering Information

For more information on this or other products and their availability, please contact your local Lumentum account manager or Lumentum directly at customer.service@lumentum.com.

Sample: 2214-10SL

Product Code	Description
2214-10SL	Argon laser head medium power, cylindrical package, 10 mW output power, single line operation at 488 nm
2214-20SL	Argon laser head medium power, cylindrical package, 20 mW output power, single line operation at 488 nm
2214-30SL	Argon laser head medium power, cylindrical package, 30 mW output power, single line operation at 488 nm
2214-4VL	Argon laser head medium power, cylindrical package, 4 mW output power, violet line operation at 458 nm
2214-15GL	Argon laser head medium power, cylindrical package, 15 mW output power, green line operation at 515 nm
2214-20GL	Argon laser head medium power, cylindrical package, 20 mW output power, green line operation at 515 nm
2214-25ML	Argon laser head medium power, cylindrical package, 25 mW output power, multiline operation at 458 to 515 nm
2214-40ML	Argon laser head medium power, cylindrical package, 40 mW output power, multiline operation at 458 to 515 nm
2211-20SL	Argon laser head medium power, rectangular package, 20 mW output power, single line operation at 488 nm
2211-30SL	Argon laser head medium power, rectangular package, 30 mW output power, single line operation at 488 nm
2211-4VL	Argon laser head medium power, rectangular package, 4 mW output power, violet line operation at 458 nm

Warranty

The 2211/14 laser heads are warranted to be free from defects in materials and workmanship for 5,000 hours of operation at or below specified power or for 12 months from the date of shipment, whichever occurs first. All other components of the laser and power supply are warranted to be free from defects and workmanship for 12 months from the date of ship.

Regulatory Compliance

The products listed in this datasheet comply with the following regulatory standards, and display the certification and laser safety markings shown below. Contact your local Lumentum sales representative for additional information on specific products or configurations.

Regulatory Standards

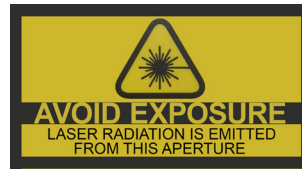
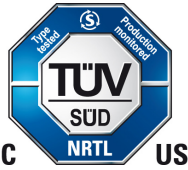
UL 61010-1

CAN/CSA C22.2 No. 61010-1

IEC/EN 61010-1

IEC/EN 60825-1

CDRH 21 CFR 1040.10



Safety certification markings

Laser safety warning labels



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