

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

2211/14 Series

**D-A-CH**

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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

#### **Compliance**

- CE per specification EN55011 and EN50082-2
- UL 1950 and 1262
- CDRH 21 CFR 1040.10
- EN60825-2
- EN60950, IEC 950, and EN61010

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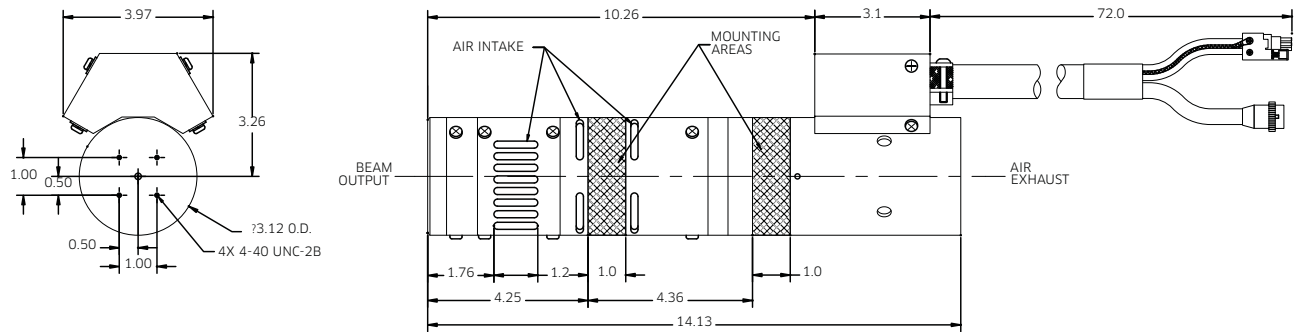
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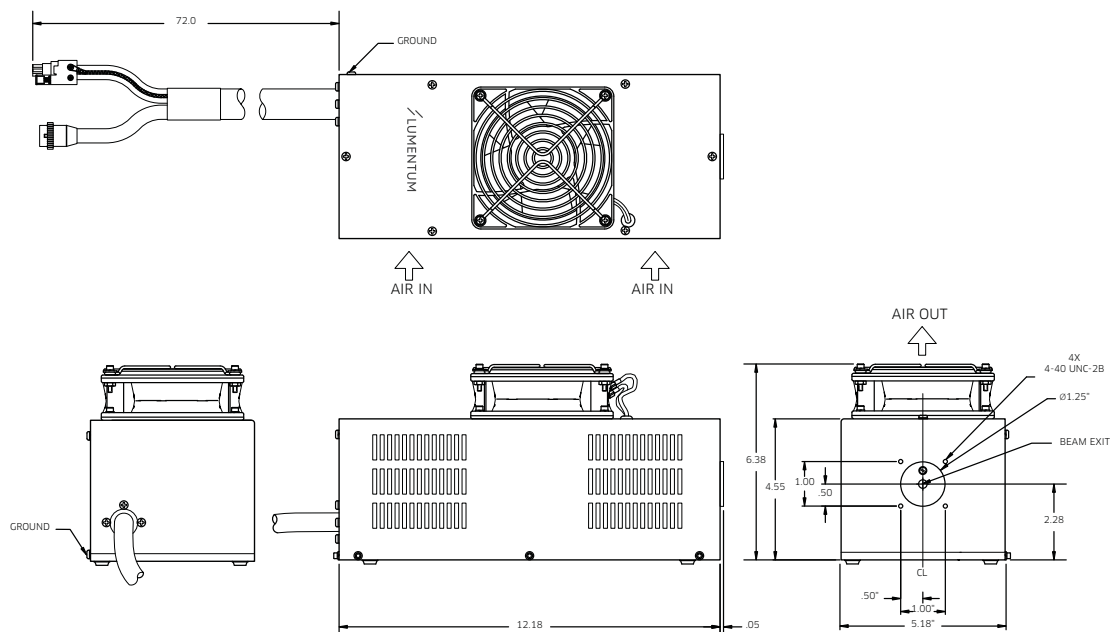
### 2214 Series Cylindrical Head

(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

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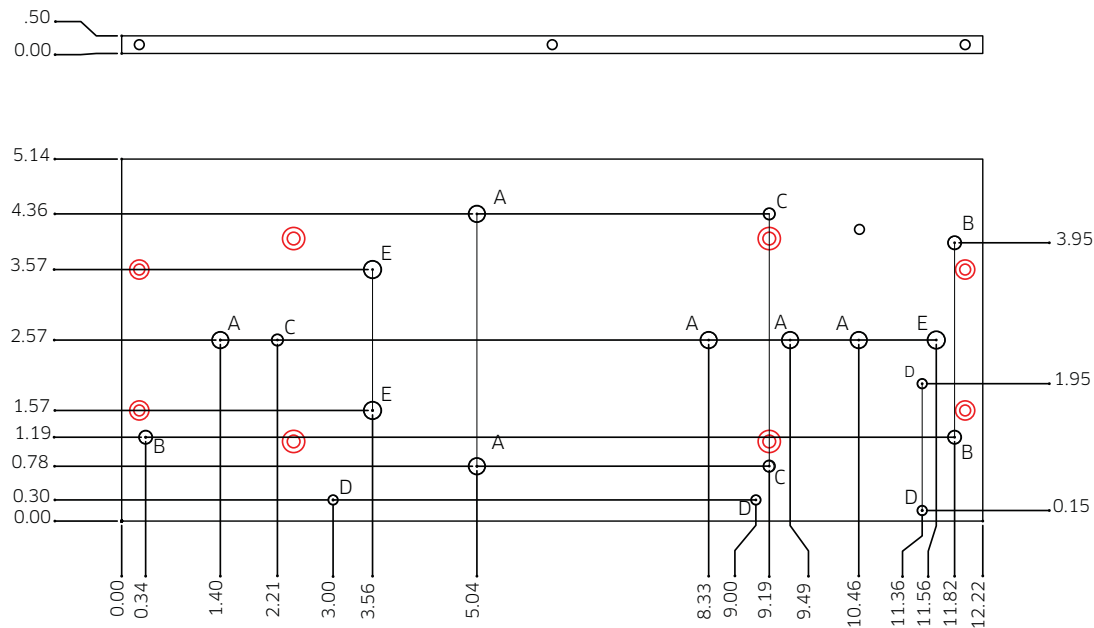
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2211 Series Base Plate  
(Specifications in inches unless otherwise noted.)



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 <sup>1,2</sup>	2211 -xxSL	2211 -xVL						
<b>Optical</b>												
Output power (TEM <sub>00</sub> , 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 <sub>00</sub> )	>95%											
Beam diameter (1/e <sup>2</sup> ±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					
<b>Environmental</b>												
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											
<b>Physical</b>												
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 (multiline) 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.

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### 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](mailto: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.

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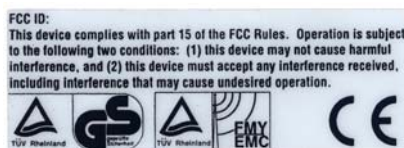
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## Regulatory Compliance

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



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