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Helium-Neon Laser Heads

1100 Series



Key Features

- **Long operating life**
- **Low noise**
- **Exceptional beam-pointing stability**
- **Long-term amplitude stability**

Applications

- Flow cytometry
- Metrology
- Semiconductor inspection
- Alignment
- Laser-induced fluorescence
- Hematology
- High-speed printing

Compliance

- CDRH 1040.10
- CE

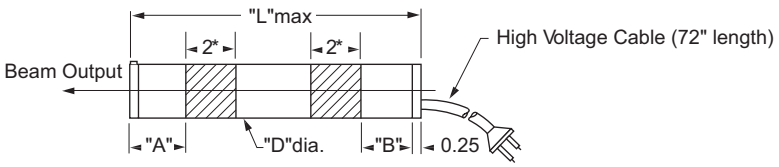
The JDSU 1100 Series red helium-neon laser products offer low noise, high power stability, and long life for the most demanding applications. With more than 1.5 million units sold, JDSU lasers are the industry standard for many advanced system designs.

JDSU manufactures helium-neon lasers in the red, green, yellow, and orange wavelengths. All features our patented close-cathode design that rapidly and uniformly distributes discharge heat throughout the laser, resulting in excellent thermal, beam-pointing, and power stability. Our patented field concentrator design ignites the discharge within milliseconds of applying the start voltage. Hard-sealed internal mirrors, small physical size, and low noise result in greater reliability, longer life, and enhanced performance.

All JDSU helium-neon lasers are manufactured in a dedicated facility using state-of-the-art process control technology. This enables us to achieve higher process yields, and results in dependable lead times and excellent on-time delivery performance.

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1100 Series Laser Heads | (Specifications in inches unless otherwise noted.)

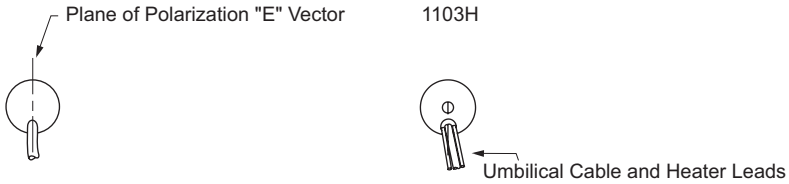


Side

Accessory Housing Holes:
M-3 on 1.38" (34.9 mm) bolt circle.
(1.740" diameter head only)



Front



Back

3

Specifications

Parameter	1101/P	1103/P/H	1107/P	1108/P	1122/P	1125/P	1135/P	1137/P	1144/P	1145/P	Unit
Optical											
Min. output power (TEM_{00})	1.5	2.0	0.8	0.5	2.0	5.0	10.0	7.0	15.0	22.5/21.0	mW
Wavelength	632.8	632.8	632.8	632.8	632.8	632.8	632.8	632.8	632.8	632.8	nm
Mode purity (TEM_{00})	>95	>95	>95	>95	>95	>95	>95	>95	>95	>95	%
Beam diameter ($1/e^2$ points, ±3%, TEM_{00})	0.63	0.63	0.48	0.48	0.63	0.81	0.68	0.81	0.70	0.70	mm
Beam divergence (TEM_{00}, ±3%, mrad- full angle)	1.3	1.3	1.7	1.8	1.3	1.0	1.2	1.0	1.15	1.15	mrad
Polarization ratio (minimum, P versions)	N/A /500:1	N/A/500:1 /N/A	N/A /500:1	N/A /500:1	N/A /500:1	N/A /500:1	N/A /500:1	N/A /500:1	N/A /500:1	N/A /500:1	-
Longitudinal mode spacing (nominal)	730	730	1090	1090	730	435	320	435	257	257	MHz
Maximum noise (rms, 30 Hz to 10 MHz)	0.1	0.1	0.1	0.1	0.1	0.2	1.0	0.2	0.5	0.5	%
Max. drift (mean power measured over 8 hours)	±2.5	±2.5	±2.5	±2.5	±2.5	±2.5	±3.0	±2.5	±2.0	±2.0	%
Max. mode sweeping contribution	3	3	10	20	3	2	2	2	1	1	%
Max. warm-up time (minutes to 95% power)	10	10	10	10	10	10	15	10	20	20	min.
Beam pointing stability (from cold start, 25 °C)	N/A	N/A	N/A	N/A	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20	mrad
Beam pointing stability (after 15 minutes warm-up)	N/A	N/A	N/A	N/A	<0.02	<0.02	<0.02	<0.02	<0.03	<0.03	mrad
Operating voltage (V DC ±100)	1700	1700	1250	1250	1800	2300	3100	2300	3800	3800	V DC
Operating current (±0.1 mA)	4.9	4.9	4.0	4.0	6.5	6.0	6.5	6.0	6.5	6.5	mA
Dimensions											
L-overall length	9.50	9.50	7.00	7.00	10.71	15.79	19.13	15.79	25.00	25.00	inches
D-mounting diameter (±0.005 inches)	1.245	1.245	1.245	1.245	1.740	1.740	1.740	1.740	1.740	1.740	inches
B-distance: cable end to mounting surface	1.00	1.00	0.75	0.75	1.50	3.00	4.00	3.00	5.00	5.00	inches
A-distance: output end to mounting surface	0.75	0.75	0.50	0.50	1.50	3.00	4.00	3.00	5.00	5.00	inches
CDRH class (head & 1200 Series power supply)	IIIa	IIIa	IIIa	II	IIIa	IIIb	IIIb	IIIb	IIIb	IIIb	-
General											
Maximum starting voltage	10 kV DC										
Mode purity	>95%										
Storage lifetime	Indefinite (hard-sealed)										
Static alignment	Center to outer cylinder within ±0.01 inch. Parallel to outer cylinder within ±1 mR.										
Environmental											
Temperature	-40 to 70 °C (operating), -40 to 150 °C (non-operating)										
Atitude	0 to 10,000 feet (operating), 0 to 70,000 feet (non-operating)										
Relative humidity (no condensation)	0 to 100%										
Shock	25 g for 11 ms, 100 g for 1 ms										
Physical											
Laser Head weight	0.54	0.54	0.46	0.46	0.92	1.3	1.5	1.3	2.6	2.6	lbs.
Shipping weight	5 lb. (1100 Series heads); 10 lb. (1100 Series head and 1200 Series power supply)										

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100 and 300 Series Power Supply Modules for Red HeNe Lasers

Model #	Input	For Operation of Laser Heads									
		1101/P	1103/P/H	1107/P	1108/P	1122/P	1125/P	1135/P	1137/P	1144/P	1145/P
101T-1250	DC			x	x						
101T-1700	DC	x	x								
101T-1800	DC					x					
101T-2300	DC						x		x		
314T-1250	AC			x	x						
314T-1700	AC	x	x								
314T-1800	AC					x					
314T-2300	AC						x		x		
380T-3100	AC							x			
380T-3800	AC									x	x

1200 Series CDRH Laboratory Power Supplies for Red HeNe Lasers

Model #	Input	For Operation of Laser Heads									
		1101/P	1103/P/H	1107/P	1108/P	1122/P	1125/P	1135/P	1137/P	1144/P	1145/P
1201-(1,2,3)	AC	x	x								
1202-(1,2,3)	AC						x		x		
1205-(1,2,3)	AC			x	x						
1206-(1,2,3)	AC					x					
1216-(1,2,3)	AC							x			
1218-(1,2,3)	AC									x	x

1103H Heating Element Input

Parameter	Standard	Maximum
Voltage	15.0 VDC	47.0 VDC
Current	3.5 A	7.5 A
Heater lead length	>5 inches	-

Note: JDSU model 1103H laser heads are recommended for applications that require a frequency-stabilized HeNe laser source. The 1103H is filled with single-isotope Neon and equipped with a heating element which allows the user to control the length of the laser cavity.

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Ordering Information

For more information on this or other products and their availability, please contact your local JDSU account manager or JDSU directly at 1-800-498-JDSU (5378) in North America and +800-5378-JDSU worldwide or via e-mail at customer.service@jdsu.com.

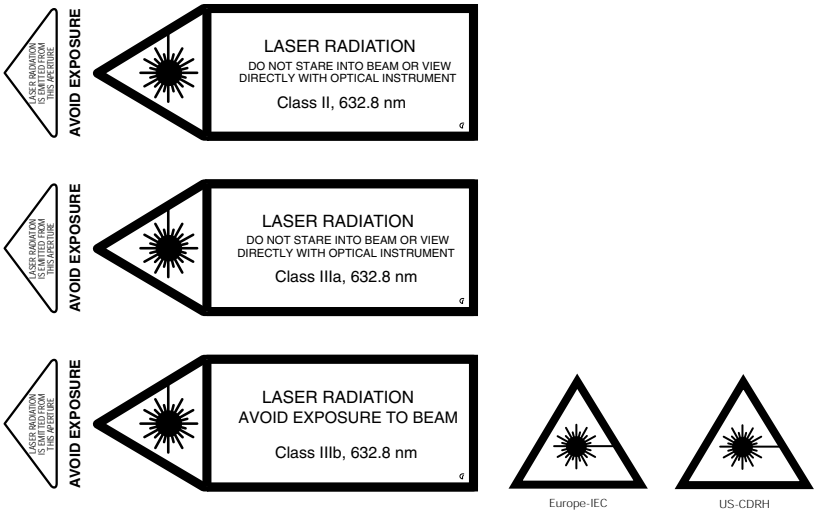
Sample: 1122P

Helium-Neon laser heads require a matched power supply for normal operation. When ordering, please select an appropriate power supply from the tables above.

For additional HeNe power supply information, please refer to the HeNe power supply data sheet.

Warranty

JDSU helium-neon laser heads are warranted to be free of defects in workmanship and materials for twelve months from the date of shipment.



Regulatory Compliance

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

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