

Product Bulletin



When first introduced JDS Uniphase helium-neon lasers were a major breakthrough in laser technology. They produced more output power in smaller packages, had dramatically improved beam pointing and amplitude stability, and started instantaneously. These features made many new applications, such as hand held bar-code scanning, practical. Today, with more than 1.3 million sold, these lasers have become the industry standard for many applications.

JDS Uniphase delivers helium-neon lasers in the red, green, yellow, and orange wavelengths. All feature our patented close-cathode design, which a rapidly and uniformly distributes heat from the discharge 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, unlike some other designs. The hard-sealed internal mirrors, small physical size, and low noise of our lasers result in greater reliability, longer life, and enhanced performance.

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

Helium-Neon Lasers Series 1100

The 1100 Series helium-neon laser heads feature the JDS Uniphase 1000 Series tubes, which combine small physical size with superior beam pointing stability. The precisely aligned cylindrical housing, and the electrical interconnect system simplify the tasks of mounting and applying power to the laser in a system. The units are rugged enough for the most demanding applications.

Key features

- Long operating life
- 3 and 5 year warranties available
- Low noise
- Excellent beam-pointing stability
- Long-term amplitude stability
- Over 1.3 million sold

Applications

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

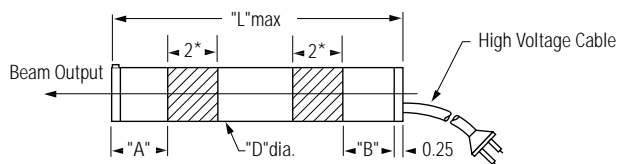
Compliance

- CDRH 1040.10
- CE

Optical Specifications

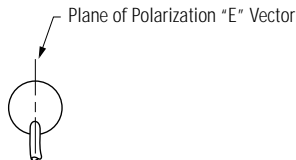
	1108	1108P	1107	1107P	1101	1101P	1103	1103P	1122	1122P	1125	1125P	1137	1137P	1135	1135P	1144	1144P	1145	1145P	1145A	1145AP
Min. Output Power (TEM ₀₀ , 633 nm, mW)	0.5	0.5	0.8	0.8	1.5	1.5	2.0	2.0	2.0	2.0	5.0	5.0	7.0	7.0	10.0	10.0	17.0	17.0	25.0	23.0	22.0	20.0
Beam Diameter (l/e 2 points, +3%, TEM ₀₀ , mm)	0.48	0.48	0.48	0.48	0.63	0.63	0.63	0.63	0.63	0.63	0.81	0.81	0.81	0.81	0.68	0.68	0.70	0.70	0.70	0.70	0.96	0.96
Beam Divergence (TEM ₀₀ , +3%, mrad)	1.7	1.7	1.7	1.7	1.3	1.3	1.3	1.3	1.3	1.3	1.0	1.0	1.0	1.0	1.2	1.2	1.16	1.16	1.16	1.16	0.83	0.83
Polarization Ratio (Min., P versions)	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	N/A	500:1	N/A	500:1	N/A	500:1
Longitudinal Mode Spacing (nominal, MHz)	1090	1090	1090	1090	730	730	730	730	730	730	435	435	435	435	320	320	257	257	257	257	257	257
Max. Noise (rms, 30 Hz - 10 MHz, %)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	1.0	1.0	0.5	0.5	0.5	0.5	0.5	0.5
Max. Drift (mean power measured over 8 hrs, %)	±2.5	±2.5	±2.5	±2.5	±2.5	±2.5	±2.5	±2.5	±2.5	±2.5	±2.5	±2.5	±2.5	±2.5	±2.5	±3.0	±3.0	±2.0	±2.0	±2.0	±2.0	±2.0
Max. Mode Sweeping Contribution (%)	20	20	10	10	3	3	3	3	3	3	2	2	2	2	2	2	1	1	1	1	1	1
Max. Warm-up Time (minutes to 95% power)	10	10	10	10	10	10	10	10	10	10	10	10	10	10	15	15	20	20	20	20	20	20
Beam Pointing Stability (from cold start, 25 °C, mrad)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Beam Pointing Stability (after 15 min. warm-up, mrad)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Operating Voltage (VDC +100)	1250	1250	1250	1250	1700	1700	1700	1700	1800	1800	2300	2300	2300	2300	3100	3100	3800	3800	3800	3800	3800	3800
Operating Current (+0.1 mA, mA)	4.0	4.0	4.0	4.0	4.9	4.9	4.9	4.9	6.5	6.5	6.0	-6.5	6.0	-6.5	6.0	-6.5	6.0	-6.5	6.5	6.5	6.5	6.5
Max. Starting Voltage (kV DC)	7	7	7	7	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Expected Operating Lifetime (hours)	>20K	>20K	>20K	>20K	>15K	>15K	>15K	>15K	>30K	>30K	>40K	>40K	>40K	>40K	>40K	>40K	>40K	>40K	>40K	>40K	>40K	>40K

1100 Series Helium-Neon Laser Heads



* except models 1107 and 1108 = 1"

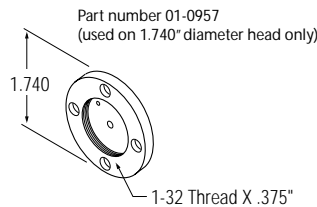
Accessory Housing Holes:
M-3 on 1.38" (34.9mm) bolt circle.
(1.740" diameter head only)



1100 Series Accessory Bezels



Part number 01-0196-2
(used on 1.245" diameter head only)

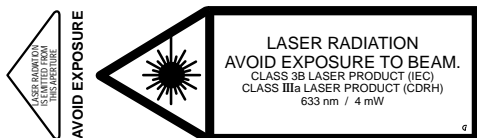
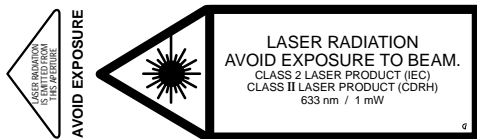


Part number 01-0957
(used on 1.740" diameter head only)

Note: Standard cable length is 72 inches. Other lengths are available.

Mechanical Dimensions

Model	Number L-Overall Length (inches)	D-Mounting Diameter (+0.005 inches)	B-Distance: Cable End to Mounting Surface (inches)	A-Distance: Output End to Mounting Surface (inches)	CDRH Class (head & 1200 Series power supply)
Red Laser Heads (632.8 nm)					
1108	7	1.245	0.75	0.50	II
1108P	7	1.245	0.75	0.50	II
1107	7	1.245	0.75	0.50	IIIa
1107P	7	1.245	0.75	0.50	IIIa
1101	9.50	1.245	1.00	0.75	IIIa
1101P	9.50	1.245	1.00	0.75	IIIa
1103	9.50	1.245	1.00	0.75	IIIa
1103P	9.50	1.245	1.00	0.75	IIIa
1122	10.71	1.740	1.50	1.50	IIIa
1122P	10.71	1.740	1.50	1.50	IIIa
1125	15.79	1.740	3.00	3.00	IIIb
1125P	15.79	1.740	3.00	3.00	IIIb
1137	15.79	1.740	3.00	3.00	IIIb
1137P	15.79	1.740	3.00	3.00	IIIb
1135	19.13	1.740	4.00	4.00	IIIb
1135P	19.13	1.740	4.00	4.00	IIIb
1144	25.00	1.740	5.00	5.00	IIIb
1144P	25.00	1.740	5.00	5.00	IIIb
1145	25.00	1.740	5.00	5.00	IIIb
1145P	25.00	1.740	5.00	5.00	IIIb
1145A	25.00	1.740	5.00	5.00	IIIc
1145AP	25.00	1.740	5.00	5.00	IIIc



Compliance to Regulatory Agencies

The 1100 Series laser heads with the appropriate 1200 Series power supply meet CDRH requirements and have logotypes similar to those shown in this data sheet to describe the CDRH classification and define operating limits.

Warranty

JDS Uniphase helium-neon laser systems are warranted to be free of defects in workmanship and materials for twelve months from the date of shipment. The JDS Uniphase THREE LIGHT-YEAR™ and FIVE LIGHT-YEAR™ warranties are available on selected models. These options extend the standard twelve-month warranty for an additional two and four years respectively.

THREE LIGHT-YEAR warranty available for 1107/1107P, 1108/1108P, 1122/1122P

FIVE LIGHT-YEAR warranty available for 1125/1125P, 1135/1135P, 1137/1137P, 1144/1144P, 1145/1145P

Specifications Common to All Models		
Mode purity	> 95%	
Storage	lifetime Indefinite (hard-sealed)	
Static alignment*	Centered to outer cylinder within 0.01 in. Parallel to outer cylinder within 1 μ rad • excluding 1101, 1103, 1107 and 1108	
Environmental Specifications		
	Operating	Non-Operating
Temperature	-40°C to 70°C	-40°C to 150°C
Altitude	0 to 10,000 feet	0 to 70,000 feet
Relative humidity (no condensation)	0 to 100%	0 to 100%
Shock	25 g for 11 msec	25 g for 11 msec
	100 g for 1 msec	100 g for 1 msec
Weight		
1100 Series laser head:		
1101/1101P, 1103/1103P, 1107/1107P, 1108/1108P, 1122/1122P, 1135/1135P, 1137, 1137P, 1144/1144P	2 lb.	
1125/1125P, 1145/1145P	3 lb.	
1100 Series head and 1200 Series power supply:		
1101/1101P, 1103/1103P, 1107/1107P, 1108/1108P, 1122/1122P	7 lb.	
1125/1125P, 1137, 1137P	8 lb.	
1135/1135P	9 lb.	
1144/1144P, 1145/1145P	10 lb.	

Ordering information

For more information on this or other products and their availability, please contact your local JDS Uniphase sales representative or JDS Uniphase directly at 408 434-1800, or by fax 408 954-1177, or via email at sales.ca@us.jdsuniphase.com. Visit our Web site at www.jdsuniphase.com.



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