



Green, Yellow, Orange, and Red Cylindrical Helium Neon Lasers

Red (632.8 nm) Output

Melles Griot offers a selection of red 632.8 nm helium neon cylindrical lasers with long lifetimes, excellent stability, and the field proven performance that made Melles Griot the worldwide laser leader. Our product line ranges from low cost, compact lasers for simple pointing and alignment to high power, ultra-low noise lasers for the most demanding metrological applications.

- High power laser heads up to 35 mW, ideal for Raman spectroscopy, holography, fast scanning, test and measurement applications that benefit from increased signal to noise ratio.
- Class II <0.95 mW lasers for pointing, alignment, or teaching applications requiring additional eye safety precaution.
- Tight output beam characteristics to help achieve optimum resolution and repeatable, reliable performance.
- Multimode (MM) lasers up to 30 mW with high order mode content for more uniform beam profiles and efficient power output.
- Rugged designs and packaging allows mounting in a variety of orientations without sacrifice to power or performance.

Green (543.5 nm) Output

Green lasers have up to 5 times more visibility than red lasers with the same output power, and are ideal for aiming and pointing when enhanced contrast is desired.

- The 543.5 nm output is an excellent choice for many biotech, flow cytometry, analytical, microscopy, and graphics applications since the green laser peaks at the excitation wavelengths of fluorescent dyes, reagents, films and other media to improve speed or resolution.
- Melles Griot GreNe™ lasers also feature low noise with consistent diffraction limited beam characteristics and longer reliable performance.

Helium Neon Laser Availability Guide

	Green (543.5 nm)			Yellow (594.1 nm)			Orange (611.9 nm)			Red (632.8 nm)			NIR (1.523 micron)		
	Polarized		Random	Polarized		Random	Polarized		Random	Polarized		Random	Polarized		Random
	TEM ₀₀	TEM ₀₀	MM	TEM ₀₀	TEM ₀₀	MM	TEM ₀₀	TEM ₀₀	MM	TEM ₀₀	TEM ₀₀	MM	TEM ₀₀	TEM ₀₀	MM
Cylindrical Head (pages 515–517)															
Class II <0.95 mW			●			●			●						
Class IIIa 0.3 mW–3.0 mW min.	●	●		●	●				●	●			●	●	
Class IIIb 4.0 mW–35 mW min									●	●	●				
Mounts (pages 534–536)	●	●		●	●				●	●	●		●	●	●
Accessory Adaptor (pages 533)	●	●		●	●				●	●	●		●	●	●
Power Supplies (pages 519)	●	●		●	●				●	●	●		●	●	●
Fiber Delivery (pages 548)	●	●		●	●				●	●	●		●	●	●
Self Contained Lasers (pages 520–522)															
Class II <0.95 mW			●							●	●				
Class IIIa 0.3 mW–3.0 mW min.	●	●			●	●			●	●					
Class IIIb 4.0 mW–35 mW min										●	●				
Accessory Adaptor Included	●	●	●		●	●			●	●					
230 VAC option	●	●	●		●	●			●	●					
CE mark	●	●	●		●	●			●	●					

Yellow (594.1 nm) Output

Yellow output at 594.1 nm is a practical alternative for sodium arc lamps since the wavelength is very near the sodium industry spectral reference d and D lines, and offers a known and predictable energy profile. Yellow HeNe lasers offer a single output wavelength that does not require additional gratings to isolate a well collimated beam, making it easy to deliver and launch into apertures. Optional linear polarization optimizes efficiency and signal differentiation for many applications.

- A good choice for use in monochrometers, refractometers, and other instruments where an efficient, reliable, and economical source is desired.
- The yellow output is near the peak absorption wavelength for several reagent fluorescent dyes, such as Texas Red, commonly found in biotech and genetic research applications.
- Yellow HeNe lasers are a popular choice for alignment due to their contrast against dark media such as blood in CO₂ laser surgery.
- HeNe lasers are significantly smaller and more economical than alternative sources such as tunable dye lasers, and are easier to integrate, operate, and maintain in final design products.

Orange (611.9 nm) Output

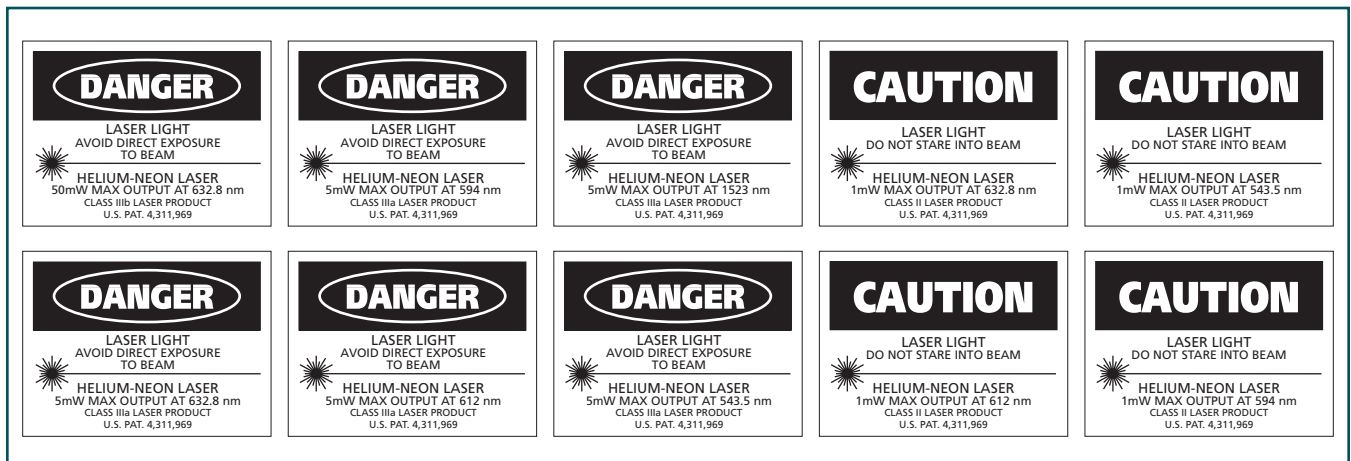
Orange, 611.9 nm, offers approximately 35% more brightness over red at the same power levels. This helps avoid moving up to higher powers that may require additional regulatory and safety measures.

- Orange is particularly useful in industrial and manufacturing environments that use lasers as visual alignment tools.
- The orange wavelength can be used as a reference with increased separation between longer wavelength emissions without sacrificing detector responsivity.

Infrared (1.523 μm) Output

The well collimated beam and linear polarization option makes this laser ideal for fiber optic testing. The wavelength closely matches those used in the communications industry, and is a stable reference with narrow bandwidth, making it an ideal calibration source.

- The IR wavelength is also suitable for material testing and defect detection when visible sources are not practical due to high absorption or excessive interference from ambient light.



Red (632.8 nm) Cylindrical HeNe Laser Heads

Min. CW Power Output (mW)	Laser Head Length, Diameter (mm)	Beam Dia. 1/e2 (mm)	Beam Divergence (mrad)	Max. Mode Sweep (%)	Polarization Ratio	Longitudinal Mode Spacing (MHz)	Operating Current Nominal (mA)	Operating Voltage	CDRH	Recommended Power Supply	PRODUCT NUMBER	PRICE US \$
0.8	177.8 × 31.8	0.46	1.77	10	Random	1063	4.0	1320	IIIa	05 LPL 900-040	05 LHR 211	325
0.8	177.8 × 31.8	0.46	1.77	10	>500:1	1063	4.0	1320	IIIa	05 LPL 900-040	05 LHP 211	358
1.0	271.8 × 44.5	0.59	1.35	5	Random	687	6.5	1790	IIIa	05 LPL 911-065	05 LHR 111	329
1.0	271.8 × 44.5	0.59	1.35	5	>500:1	687	6.5	1790	IIIa	05 LPL 911-065	05 LHP 111	358
2.0	279.9 × 35.1	0.76	1.06	5	Random	636	5.0	1710	IIIa	05 LPL 911-050	05 LHR 073	392
2.0	279.9 × 35.1	0.76	1.06	5	>500:1	636	5.0	1710	IIIa	05 LPL 911-050	05 LHP 073	455
2.0	271.8 × 44.5	0.59	1.35	5	Random	687	6.5	1790	IIIa	05 LPL 911-065	05 LHR 121	392
2.0	271.8 × 44.5	0.59	1.35	5	>500:1	687	6.5	1790	IIIa	05 LPL 911-065	05 LHP 121	455
2.5	224.8 × 31.8	0.52	1.53	10	Random	822	4.5	1770	IIIa	05 LPL 901-045	05 LHR 691	419
2.5	224.8 × 31.8	0.52	1.53	10	>500:1	822	4.5	1770	IIIa	05 LPL 901-045	05 LHP 691	463
5.0	396.2 × 44.5	0.80	1.00	2	Random	438	6.5	2290	IIIb	05 LPL 902-065	05 LHR 151	476
5.0	396.2 × 44.5	0.80	1.00	2	>500:1	438	6.5	2290	IIIb	05 LPL 902-065	05 LHP 151	581
7.0	455.9 × 44.5	1.02	0.79	2	Random	373	7.0	2650	IIIb	05 LPL 915-070	05 LHR 171	765
7.0	455.9 × 44.5	1.02	0.79	2	>500:1	373	7.0	2650	IIIb	05 LPL 915-070	05 LHP 171	842
High Power Red (632.8 nm) Cylindrical HeNe Heads												
10.0	483.9 × 44.5	0.65	1.24	2	Random	341	6.5	2640	IIIb	05 LPL 915-065	05 LHR 991	835
10.0	483.9 × 44.5	0.65	1.24	2	>500:1	341	6.5	2640	IIIb	05 LPL 915-065	05 LHP 991	925
12.0	396.2 × 44.5	(1.20)	(3.40)	2	Random	N/A	6.5	2090	IIIb	05 LPL 902-065	05 LHR 185*	795
16.0	510.3 × 44.5	(1.47)	(1.40)	2	Random	N/A	7.0	2480	IIIb	05 LPL 903-070	05 LHR 981*	855
17.0	637.3 × 44.5	0.96	0.83	5	Random	257	7.0	3700	IIIb	05 LPL 915-070	05 LHR 925	1,695
17.0	637.3 × 44.5	0.96	0.83	5	>500:1	257	7.0	3700	IIIb	05 LPL 915-070	05 LHP 925	1,785
25.0	984.3 × 50.8	1.23	0.66	5	Random	165	8.0	5100	IIIb	05 LPL 944-080	05 LHR 827	3,120
25.0	984.3 × 50.8	1.23	0.66	5	>500:1	165	8.0	5100	IIIb	05 LPL 944-080	05 LHP 827	3,280
35.0	984.3 × 50.8	1.23	0.66	5	Random	165	8.0	5100	IIIb	05 LPL 944-080	05 LHR 927	3,900
35.0	984.3 × 50.8	1.23	0.66	5	>500:1	165	8.0	5100	IIIb	05 LPL 944-080	05 LHP 927	4,100

*Multimode. Note: These cylindrical lasers require a separate power supply as recommended above. Full details of the power supplies can be found on page 519. () are for reference only.

Specifications Common to All Product Numbers

Static Alignment:	Centered to outer cylinder to within 0.25 mm and <1.0 mrad.
Angular Drift:	<0.03 mrad after 15 minutes
Noise Amplitude*:	≤0.5% (30 Hz – 10 MHz rms) typical ≤0.1% (30 Hz – 10 MHz rms) typical for ≤2 mW
Dimensions:	±0.5 mm
Long Term Drift**:	±2%
Starting Voltage:	~10 kV (dc)

*Except 05 LHR 185, 05 LHRIP 827, 05 LHRIP 925, 05 LHRIP 927, and 05 LHR 981

** Except 05 LGR 025, 05 LOR 025, 05 LYR 025

Long Term Drift: ±10% (8 hrs)

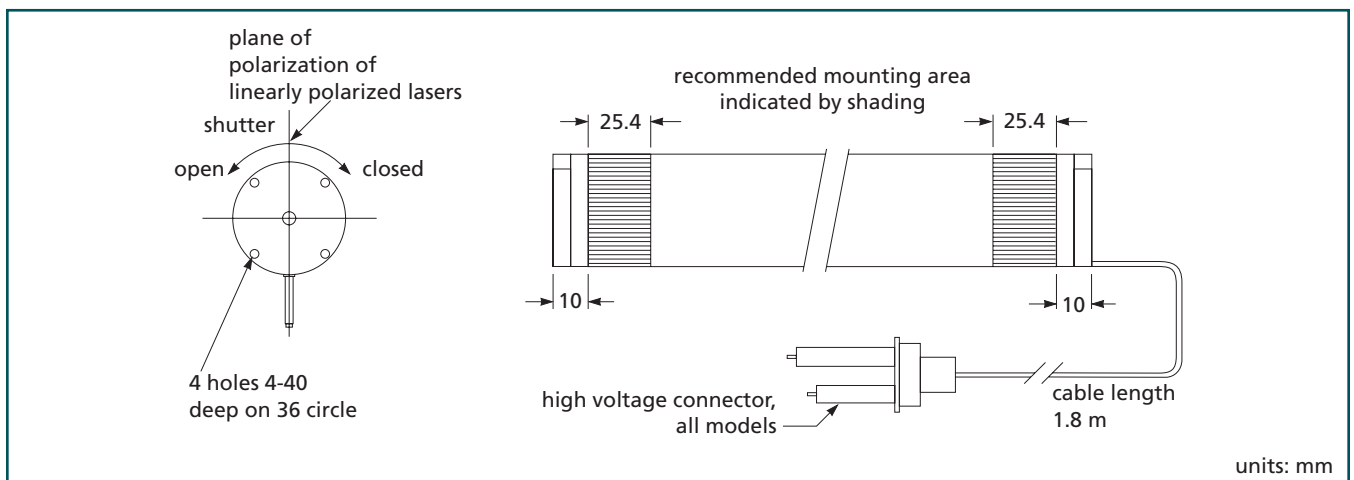
Environmental Specifications

	Operating	Non-Operating
Temperature:	– 20 to +40°C	– 40 to +80°C
Altitude:	0–3000 meters	0–5800 meters
Relative Humidity:	0–90%	0–100%
Shock:	25 g for 11 msec	25 g for 11 msec

Green, Yellow, and Orange Cylindrical HeNe Laser Heads

Min. CW Power Output (mW)	Laser Head Length, Diameter (mm)	Beam Dia. 1/e ² (mm)	Beam Divergence (mrad)	Max. Mode Sweep (%)	Polarization Ratio	Longitudinal Mode Spacing (MHz)	Operating Current Nominal (mA)	Operating Voltage	CDRH	Recommended Power Supply	PRODUCT NUMBER	PRICE US \$
Wavelength: 543.5 nm (Green)												
0.20	240.0 × 35.1	0.63	1.26	14	Random	732	4.5	1560	II	05 LPL 901-045	05 LGR 025	575
0.50	396.2 × 44.5	0.80	1.01	10	Random	438	6.5	2390	IIIa	05 LPL 902-065	05 LGR 151	795
0.30	396.2 × 44.5	0.77	0.90	10	>500:1	438	6.5	2390	IIIa	05 LPL 902-065	05 LGP 151	885
0.80	455.9 × 44.5	0.89	0.92	10	Random	373	6.5	2620	IIIa	05 LPL 903-065	05 LGR 173	815
0.30	455.9 × 44.5	0.86	0.89	10	>500:1	373	6.5	2620	IIIa	05 LPL 903-065	05 LGP 173	875
1.50	510.3 × 44.5	0.86	0.81	10	Random	328	6.5	2750	IIIa	05 LPL 915-065	05 LGR 193	1,225
1.00	510.3 × 44.5	0.88	0.81	10	>500:1	328	6.5	2750	IIIa	05 LPL 915-065	05 LGP 193	1,295
Wavelength: 594.1 nm (Yellow)												
0.35	240.0 × 35.1	0.63	1.26	10	Random	732	4.5	1620	II	05 LPL 901-045	05 LYR 025	575
0.75	396.2 × 44.5	0.80	1.01	10	Random	438	6.5	2430	IIIa	05 LPL 902-065	05 LYR 151	795
2.00	455.9 × 44.5	0.75	0.92	10	Random	373	6.5	2590	IIIa	05 LPL 903-065	05 LYR 173	815
1.00	455.9 × 44.5	0.75	0.92	10	>500:1	373	6.5	2590	IIIa	05 LPL 903-065	05 LYP 173	875
Wavelength: 611.9 nm (Orange)												
0.50	240.0 × 35.1	0.63	1.26	10	Random	732	4.5	1660	II	05 LPL 901-045	05 LOR 025	575
2.00	396.2 × 44.5	0.80	1.01	5	Random	438	6.5	2490	IIIb	05 LPL 902-065	05 LOR 151	795
Wavelength: 1523 nm (Infrared)												
1.00	455.9 × 44.5	0.88	2.2	10	Random	373	6.0	2970	IIIb	05 LPL 915-060	05 LIR 171	1,795
0.80	455.9 × 44.5	0.88	2.2	10	>500:1	373	6.0	2970	IIIb	05 LPL 915-060	05 LIP 171	1,995

Note: These cylindrical lasers require a separate power supply as recommended above. Full details of the power supplies can be found on page 519.



Cylindrical HeNe Laser Head