

Self-Contained HeNe Laser: 0.8 mW, Polarized, 230 VAC

HNLS008L-EC



Description

Thorlabs' cylindrical, low-power, red (632.8 nm) Helium-Neon lasers are available with output powers from 0.8 to 2.0 mW. Thorlabs offers these 632.8 nm lasers with either linear (>500:1) or random polarization and beam divergences ranging from 1.3 to 1.7 mrad.

Specifications

General	
Wavelength	632.8 nm
Minimum Output Power (TEM ₀₀)	0.8 mW
Minimum Polarization Ratio	500:1
Beam Diameter (TEM ₀₀ , 1/e ² points + 3%)	0.48 mm
Beam Divergence (TEM ₀₀ , +3%)	1.7 mrad
Mode Purity (TEM ₀₀)	>95%
Longitudinal Mode Spacing	1090 MHz
Maximum Noise (RMS) (30 Hz to 10 MHz)	1.0%
Maximum Drift*	± 2.5%
Maximum Mode Sweeping Contribution	10%
Operating Voltage (± 100 V)	1250
Operating Current (± 0.1 mA)	4 mA
Maximum Starting Voltage	10 kV DC

*With respect to mean power over 8 hours.

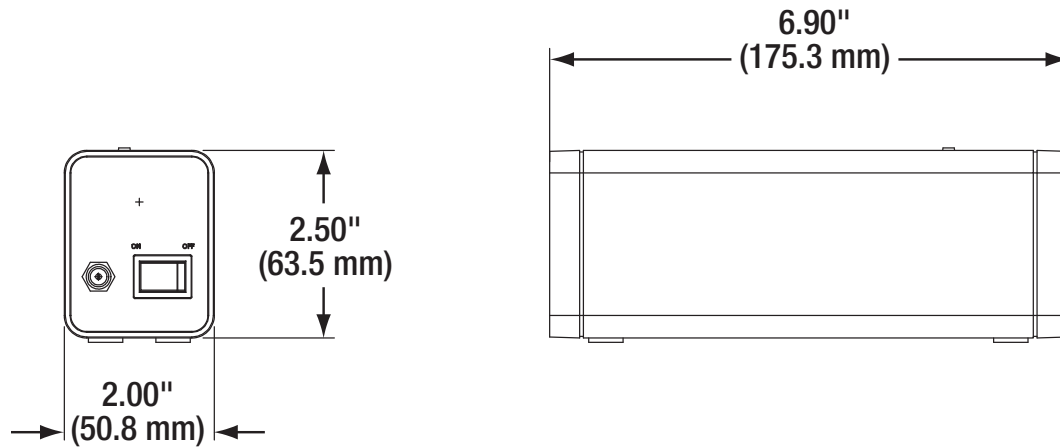
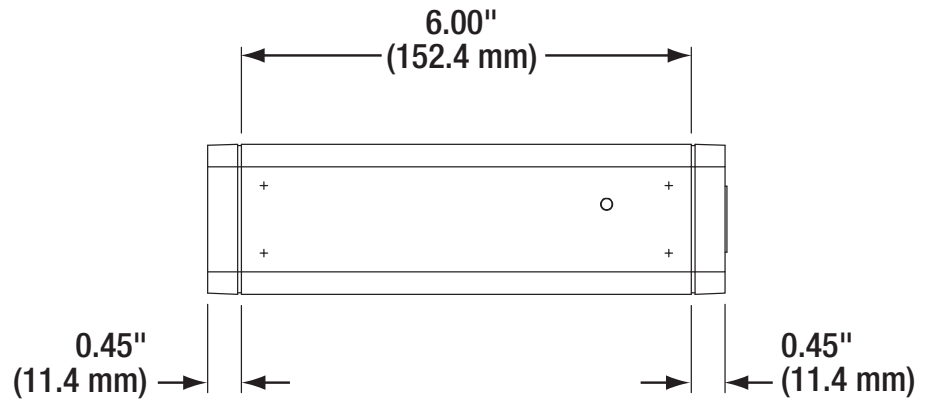
Physical / Mechanical	
Maximum Warm-Up Time (95% Power)	10 min
Storage Lifetime	Indefinite (Hard-Sealed)
Static Alignment	Approximately 1.75" from Base
Laser Weight	1.1 lbs (0.5 kg)

Environmental	
Operating Temperature	-40 to 60 °C
Non-Operating Temperature	-40 to 100 °C
Operating Altitude	0 to 10,000 ft
Non-Operating Altitude	0 to 70,000 ft
Relative Humidity (Non-condensing)	Non-Condensing
Shock	25 g for 11 ms
	100 g for 1 ms

Safety	
CHRH/IEC 60825-1 Class	IIIa/3R



Drawings



Self-Contained HeNe Laser: 0.8 mW, Random, 230 VAC

HNLS008R-EC



Description

Thorlabs' cylindrical, low-power, red (632.8 nm) Helium-Neon lasers are available with output powers from 0.8 to 2.0 mW. Thorlabs offers these 632.8 nm lasers with either linear (>500:1) or random polarization and beam divergences ranging from 1.3 to 1.7 mrad.

Specifications

General	
Wavelength	632.8 nm
Minimum Output Power (TEM ₀₀)	0.8 mW
Minimum Polarization Ratio	-
Beam Diameter (TEM ₀₀ , 1/e ² points + 3%)	0.48 mm
Beam Divergence (TEM ₀₀ , +3%)	1.7 mrad
Mode Purity (TEM ₀₀)	>95%
Longitudinal Mode Spacing	1090 MHz
Maximum Noise (RMS) (30 Hz to 10 MHz)	1.0%
Maximum Drift*	± 2.5%
Maximum Mode Sweeping Contribution	10%
Operating Voltage (± 100 V)	1250
Operating Current (± 0.1 mA)	4 mA
Maximum Starting Voltage	10 kV DC

*With respect to mean power over 8 hours.

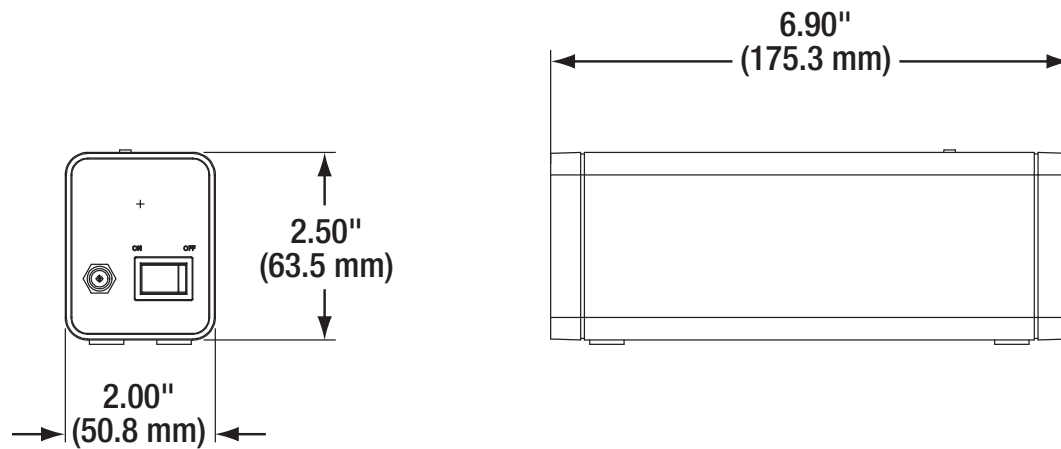
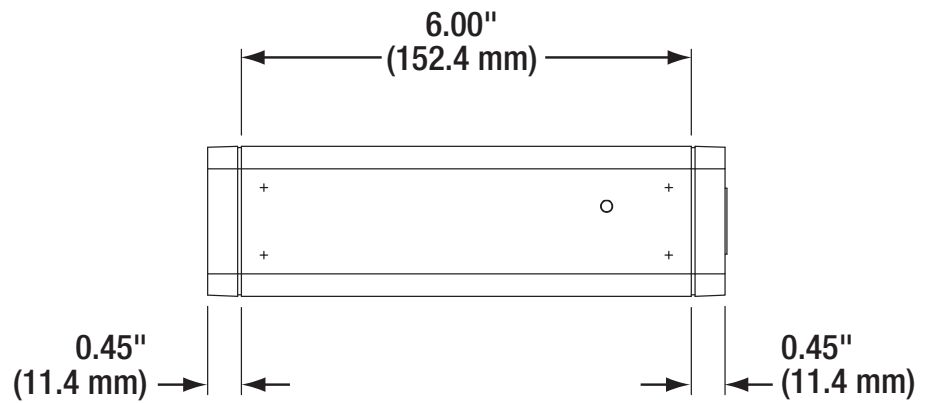
Physical / Mechanical	
Maximum Warm-Up Time (95% Power)	10 min
Storage Lifetime	Indefinite (Hard-Sealed)
Static Alignment	Approximately 1.75" from Base
Laser Weight	1.1 lbs (0.5 kg)

Environmental	
Operating Temperature	-40 to 60 °C
Non-Operating Temperature	-40 to 100 °C
Operating Altitude	0 to 10,000 ft
Non-Operating Altitude	0 to 70,000 ft
Relative Humidity (Non-condensing)	Non-Condensing
Shock	25 g for 11 ms
	100 g for 1 ms

Safety	
CHRH/IEC 60825-1 Class	IIIa/3R



Drawings





Description

Thorlabs' cylindrical, low-power, red (632.8 nm) Helium-Neon gas lasers are available with output powers from 0.8 to 2.0 mW. Thorlabs offers these 632.8 nm lasers with either linear (>500:1) or random polarization and beam divergences ranging from 1.3 to 1.7 mrad.

Specifications

General	
Wavelength	632.8 nm
Minimum Output Power (TEM ₀₀ , 633 nm)	0.8 mW
Minimum Polarization Ratio	500:1
Beam Diameter (TEM ₀₀ , 1/e ² points + 3%)	0.48 mm
Beam Divergence (TEM ₀₀ , +3%)	1.7 mrad
Mode Purity (TEM ₀₀)	>95%
Longitudinal Mode Spacing	1090 MHz
Maximum Noise (RMS) (30 Hz to 10 MHz)	0.1%
Maximum Drift*	±2.5%
Maximum Mode Sweeping Contribution	10%
Beam Pointing Stability (25 °C)	
-From Cold Start	-
-After 15 minute Warm-Up	-
Operating Voltage (±100 V)	1250 VDC
Operating Current (±0.1 mA)	4.0 mA
Max Starting Voltage	10 kVDC

*With respect to Mean Power over 8 hrs

Physical/Mechanical Characteristics	
Maximum Warm-Up Time (95% Power)	10 minutes
Expected Operating Lifetime	>20,000 hrs
Storage Lifetime	Indefinite (Hard-Sealed)
Static Alignment	Center to Outer Cylinder within ±0.01" Parallel to Outer Cylinder within ±1 mR
Laser Head Weight	0.46 lbs (0.21 kg)

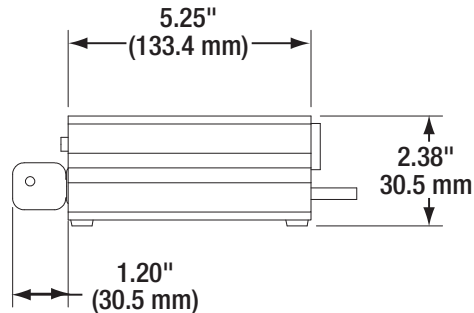
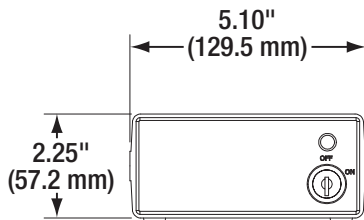
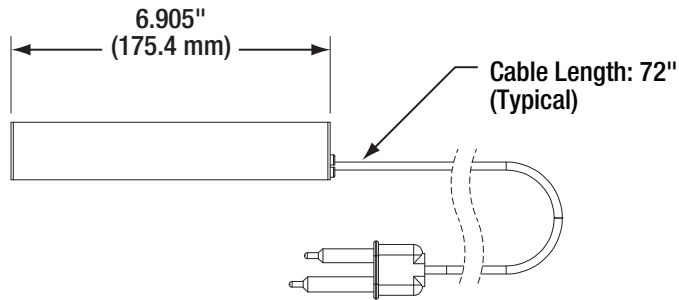
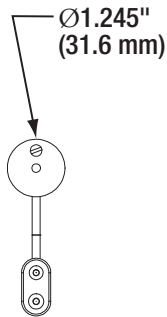


Specifications, cont.

Environmental	
Operating Temperature	-40 to 70 °C
Non-Operating Temperature	-40 to 150 °C
Operating Altitude	0 to 10,000 feet
Non-Operating Altitude	0 to 70,000 feet
Relative Humidity (Non-Condensing)	0 to 100%
Shock	25 g for 11 ms; 100 g for 1 ms

Safety	
CHRH/IEC 60825-1 Class	IIIa/3R

Drawings



Red HeNe Laser System: 0.8 mW, Random, 230 VAC



HNL008R-EC

Description

Thorlabs' cylindrical, low-power, red (632.8 nm) Helium-Neon gas lasers are available with output powers from 0.8 to 2.0 mW. Thorlabs offers these 632.8 nm lasers with either linear (>500:1) or random polarization and beam divergences ranging from 1.3 to 1.7 mrad.

Specifications

General	
Wavelength	632.8 nm
Minimum Output Power (TEM ₀₀ , 633 nm)	0.8 mW
Minimum Polarization Ratio	NA (Random Polarization)
Beam Diameter (TEM ₀₀ , 1/e ² points + 3%)	0.48 mm
Beam Divergence (TEM ₀₀ , +3%)	1.7 mrad
Mode Purity (TEM ₀₀)	>95%
Longitudinal Mode Spacing	1090 MHz
Maximum Noise (RMS) (30 Hz to 10 MHz)	0.1%
Maximum Drift*	±2.5%
Maximum Mode Sweeping Contribution	10%
Beam Pointing Stability (25 °C)	
-From Cold Start	-
-After 15 minute Warm-Up	-
Operating Voltage (±100 V)	1250 VDC
Operating Current (±0.1 mA)	4.0 mA
Max Starting Voltage	10 kVDC

*With respect to Mean Power over 8 hrs

Physical/Mechanical Characteristics	
Maximum Warm-Up Time (95% Power)	10 minutes
Expected Operating Lifetime	>20,000 hrs
Storage Lifetime	Indefinite (Hard-Sealed)
Static Alignment	Center to Outer Cylinder within ±0.01" Parallel to Outer Cylinder within ±1 mR
Laser Head Weight	0.46 lbs (0.21 kg)

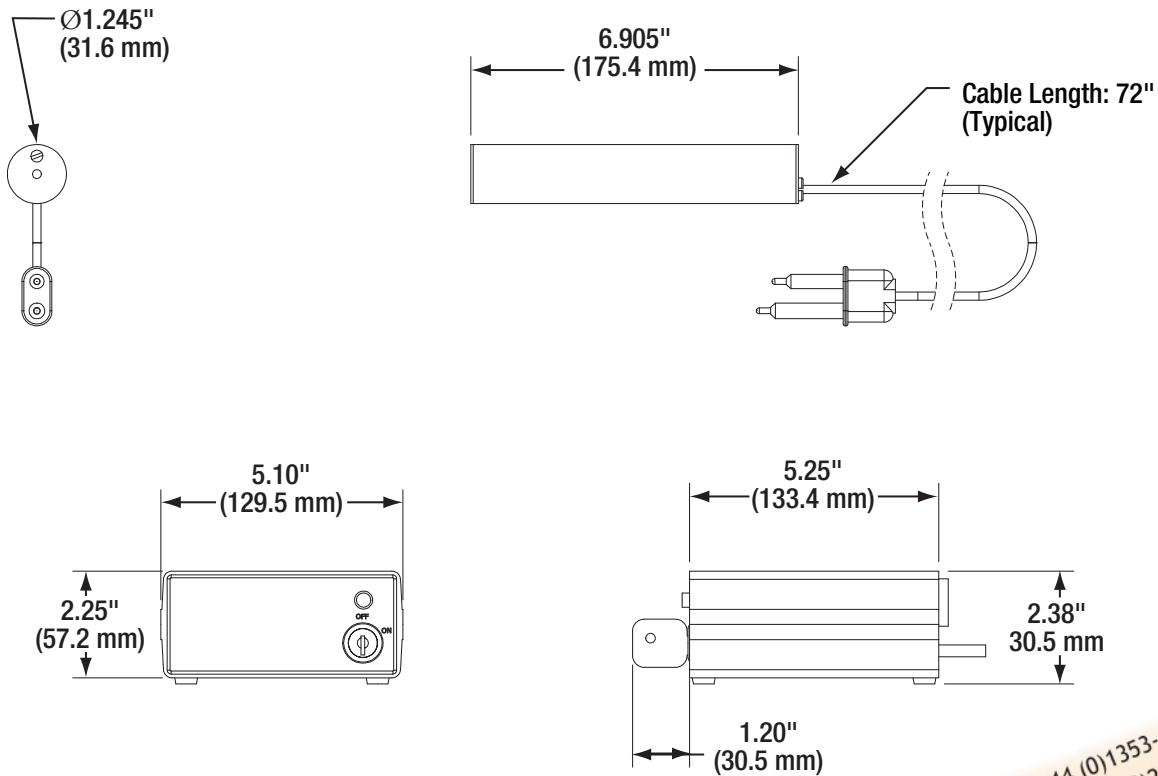


Specifications, cont.

Environmental	
Operating Temperature	-40 to 70 °C
Non-Operating Temperature	-40 to 150 °C
Operating Altitude	0 to 10,000 feet
Non-Operating Altitude	0 to 70,000 feet
Relative Humidity (Non-Condensing)	0 to 100%
Shock	25 g for 11 ms; 100 g for 1 ms

Safety	
CHRH/IEC 60825-1 Class	IIIa/3R

Drawings



Red HeNe Laser System: 2.0 mW, Linear, 230 VAC



HNLO20L-EC

Description

Thorlabs' cylindrical, low-power, red (632.8 nm) Helium-Neon gas lasers are available with output powers from 0.8 to 2.0 mW. Thorlabs offers these 632.8 nm lasers with either linear (>500:1) or random polarization and beam divergences ranging from 1.3 to 1.7 mrad.

Specifications

General	
Wavelength	632.8 nm
Minimum Output Power (TEM ₀₀ , 633 nm)	2.0 mW
Minimum Polarization Ratio	500:1
Beam Diameter (TEM ₀₀ , 1/e ² points + 3%)	0.63 mm
Beam Divergence (TEM ₀₀ , +3%)	1.3 mrad
Mode Purity (TEM ₀₀)	>95%
Longitudinal Mode Spacing	730 MHz
Maximum Noise (RMS) (30 Hz to 10 MHz)	0.1%
Maximum Drift*	±2.5%
Maximum Mode Sweeping Contribution	3%
Beam Pointing Stability (25 °C)	
-From Cold Start	<0.10 mrad
-After 15 minute Warm-Up	<0.02 mrad
Operating Voltage (±100 V)	1800 VDC
Operating Current (±0.1 mA)	6.5 mA
Max Starting Voltage	10 kVDC

*With respect to Mean Power over 8 hrs

Physical/Mechanical Characteristics	
Maximum Warm-Up Time (95% Power)	10 minutes
Expected Operating Lifetime	>30,000 hrs
Storage Lifetime	Indefinite (Hard-Sealed)
Static Alignment	Center to Outer Cylinder within ±0.01" Parallel to Outer Cylinder within ±1 mR
Laser Head Weight	0.92 lbs (0.42 kg)

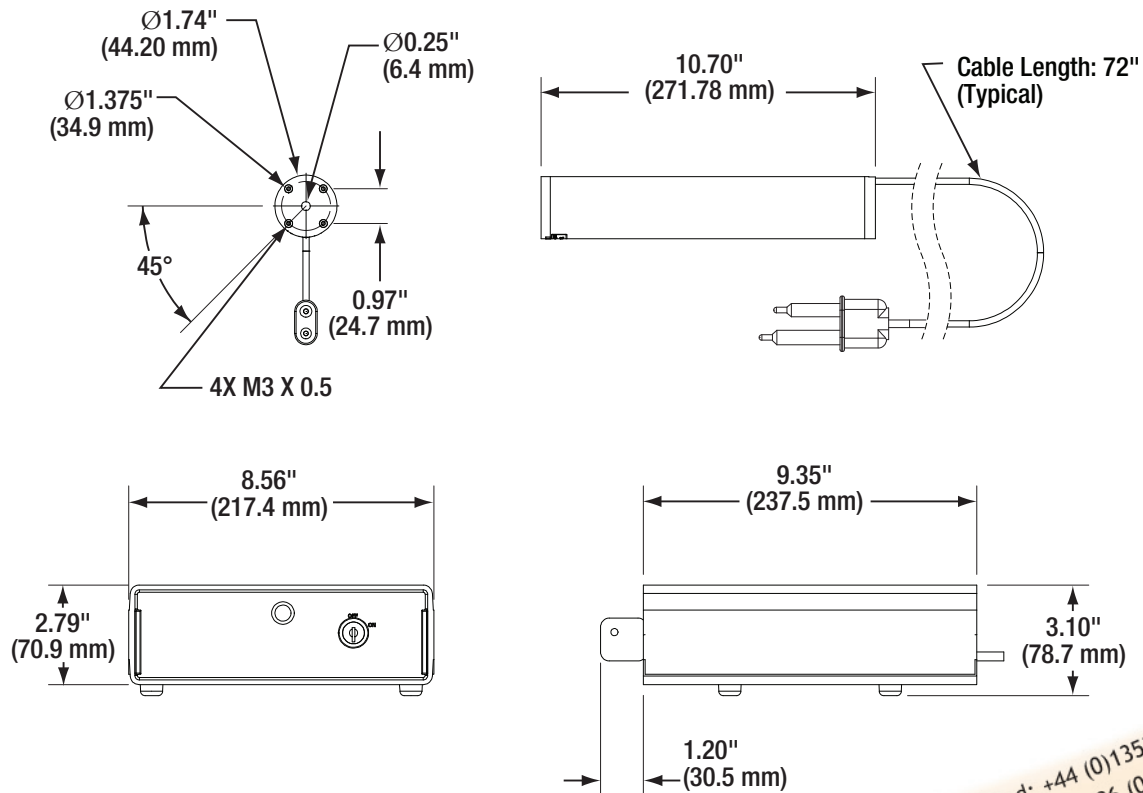


Specifications, cont.

Environmental	
Operating Temperature	-40 to 70 °C
Non-Operating Temperature	-40 to 150 °C
Operating Altitude	0 to 10,000 feet
Non-Operating Altitude	0 to 70,000 feet
Relative Humidity (Non-Condensing)	0 to 100%
Shock	25 g for 11 ms; 100 g for 1 ms

Safety	
CHRH/IEC 60825-1 Class	IIIa/3R

Drawings





HNL020R-EC

Description

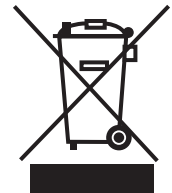
Thorlabs' cylindrical, low-power, red (632.8 nm) Helium-Neon gas lasers are available with output powers from 0.8 to 2.0 mW. Thorlabs offers these 632.8 nm lasers with either linear (>500:1) or random polarization and beam divergences ranging from 1.3 to 1.7 mrad.

Specifications

General	
Wavelength	632.8 nm
Minimum Output Power (TEM ₀₀ , 633 nm)	2.0 mW
Minimum Polarization Ratio	NA (Random Polarization)
Beam Diameter (TEM ₀₀ , 1/e ² points + 3%)	0.63 mm
Beam Divergence (TEM ₀₀ , +3%)	1.3 mrad
Mode Purity (TEM ₀₀)	>95%
Longitudinal Mode Spacing	730 MHz
Maximum Noise (RMS) (30 Hz to 10 MHz)	0.1%
Maximum Drift*	±2.5%
Maximum Mode Sweeping Contribution	3%
Beam Pointing Stability (25 °C)	
-From Cold Start	<0.10 mrad
-After 15 minute Warm-Up	<0.02 mrad
Operating Voltage (±100 V)	1800 VDC
Operating Current (±0.1 mA)	6.5 mA
Max Starting Voltage	10 kVDC

*With respect to Mean Power over 8 hrs

Physical/Mechanical Characteristics	
Maximum Warm-Up Time (95% Power)	10 minutes
Expected Operating Lifetime	>30,000 hrs
Storage Lifetime	Indefinite (Hard-Sealed)
Static Alignment	Center to Outer Cylinder within ±0.01" Parallel to Outer Cylinder within ±1 mR
Laser Head Weight	0.92 lbs (0.42 kg)

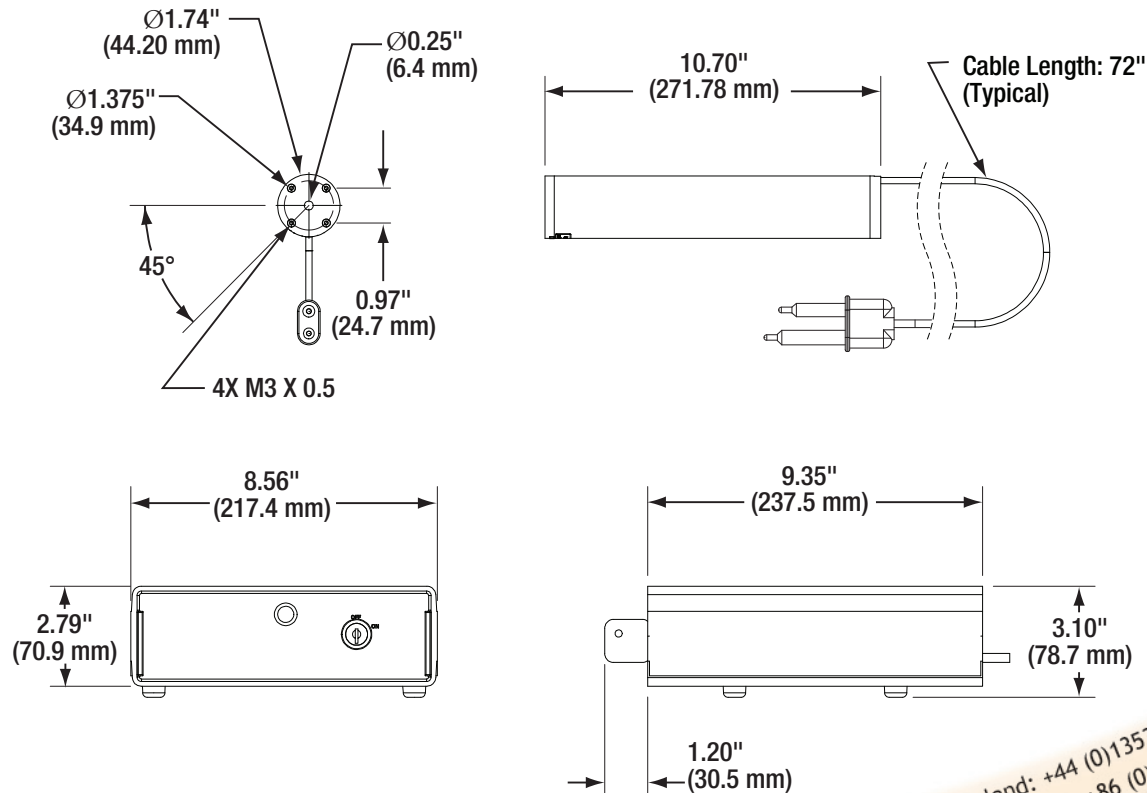


Specifications, cont.

Environmental	
Operating Temperature	-40 to 70 °C
Non-Operating Temperature	-40 to 150 °C
Operating Altitude	0 to 10,000 feet
Non-Operating Altitude	0 to 70,000 feet
Relative Humidity (Non-Condensing)	0 to 100%
Shock	25 g for 11 ms; 100 g for 1 ms

Safety	
CHRH/IEC 60825-1 Class	IIIa/3R

Drawings



Red HeNe Laser System: 5.0 mW, Linear, 230 VAC



HNL050L-EC

Description

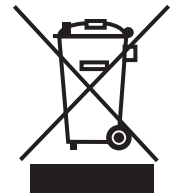
Thorlabs' cylindrical, high-power, red (632.8 nm) Helium-Neon gas lasers are available with output powers from 5.0 to 22.5 mW. Thorlabs offers these 632.8 nm lasers with either linear (>500:1) or random polarization and beam divergences ranging from 1.0 to 1.2 mrad.

Specifications

General	
Wavelength	632.8 nm
Minimum Output Power (TEM ₀₀ , 633 nm)	5.0 mW
Minimum Polarization Ratio	500:1
Beam Diameter (TEM ₀₀ , 1/e ² points + 3%)	0.81 mm
Beam Divergence (TEM ₀₀ , +3%)	1.0 mrad
Mode Purity (TEM ₀₀)	>95%
Longitudinal Mode Spacing	435 MHz
Maximum Noise (RMS) (30 Hz to 10 MHz)	0.2%
Maximum Drift*	±2.5%
Maximum Mode Sweeping Contribution	2%
Beam Pointing Stability (25 °C)	
-From Cold Start	<0.10 mrad
-After 15 minute Warm-Up	<0.02 mrad
Operating Voltage (±100 V)	2300 VDC
Operating Current (±0.1 mA)	6.0 mA
Max Starting Voltage	10 kVDC

*With respect to Mean Power over 8 hrs

Physical/Mechanical Characteristics	
Maximum Warm-Up Time (95% Power)	10 minutes
Expected Operating Lifetime	>40,000 hrs
Storage Lifetime	Indefinite (Hard-Sealed)
Static Alignment	Center to Outer Cylinder within ±0.01" Parallel to Outer Cylinder within ±1 mR
Laser Head Weight	1.3 lbs (0.59 kg)

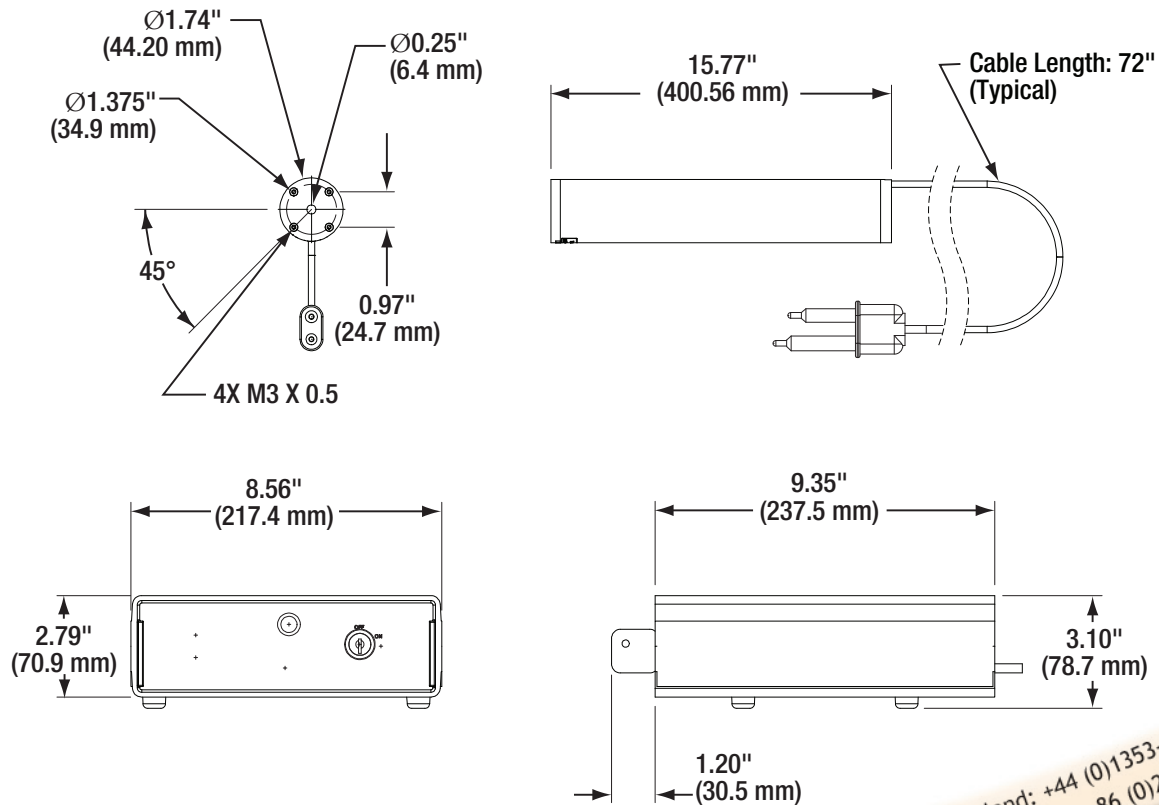


Specifications, cont.

Environmental	
Operating Temperature	-40 to 70 °C
Non-Operating Temperature	-40 to 150 °C
Operating Altitude	0 to 10,000 feet
Non-Operating Altitude	0 to 70,000 feet
Relative Humidity (Non-Condensing)	0 to 100%
Shock	25 g for 11 ms; 100 g for 1 ms

Safety	
CHRH/IEC 60825-1 Class	IIIb/3B

Description



Red HeNe Laser System: 5.0 mW, Random, 230 VAC



HNL050R-EC

Description

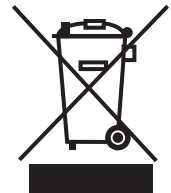
Thorlabs' cylindrical, high-power, red (632.8 nm) Helium-Neon gas lasers are available with output powers from 5.0 to 22.5 mW. Thorlabs offers these 632.8 nm lasers with either linear (>500:1) or random polarization and beam divergences ranging from 1.0 to 1.2 mrad.

Specifications

General	
Wavelength	632.8 nm
Minimum Output Power (TEM ₀₀ , 633 nm)	5.0 mW
Minimum Polarization Ratio	NA (Random Polarization)
Beam Diameter (TEM ₀₀ , 1/e ² points + 3%)	0.81 mm
Beam Divergence (TEM ₀₀ , +3%)	1.0 mrad
Mode Purity (TEM ₀₀)	>95%
Longitudinal Mode Spacing	435 MHz
Maximum Noise (RMS) (30 Hz to 10 MHz)	0.2%
Maximum Drift*	±2.5%
Maximum Mode Sweeping Contribution	2%
Beam Pointing Stability (25 °C)	
-From Cold Start	<0.10 mrad
-After 15 minute Warm-Up	<0.02 mrad
Operating Voltage (±100 V)	2300 VDC
Operating Current (±0.1 mA)	6.0 mA
Max Starting Voltage	10 kVDC

*With respect to Mean Power over 8 hrs

Physical/Mechanical Characteristics	
Maximum Warm-Up Time (95% Power)	10 minutes
Expected Operating Lifetime	>40,000 hrs
Storage Lifetime	Indefinite (Hard-Sealed)
Static Alignment	Center to Outer Cylinder within ±0.01" Parallel to Outer Cylinder within ±1 mR
Laser Head Weight	1.3 lbs (0.59 kg)

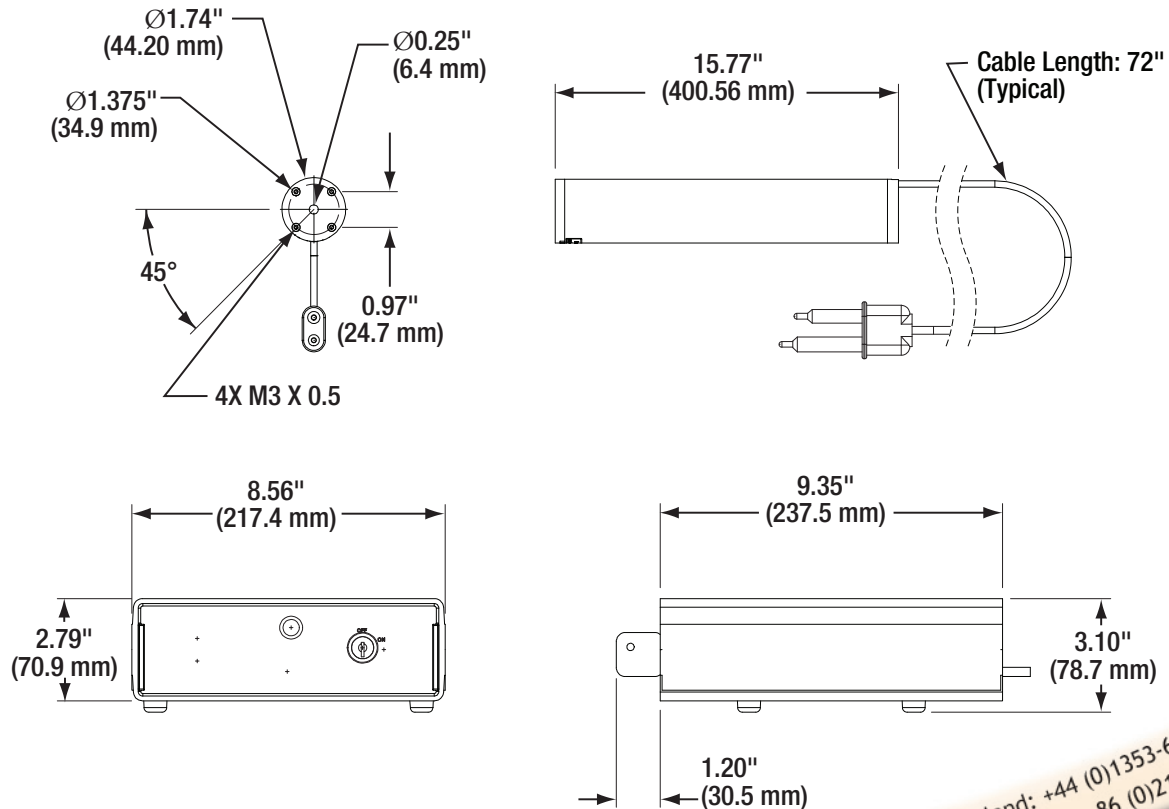


Specifications, cont.

Environmental	
Operating Temperature	-40 to 70 °C
Non-Operating Temperature	-40 to 150 °C
Operating Altitude	0 to 10,000 feet
Non-Operating Altitude	0 to 70,000 feet
Relative Humidity (Non-Condensing)	0 to 100%
Shock	25 g for 11 ms; 100 g for 1 ms

Safety	
CHRH/IEC 60825-1 Class	IIIb/3B

Drawings



Red HeNe Laser System: 10.0 mW, Linear, 230 VAC



HNL100L-EC

Description

Thorlabs' cylindrical, high-power, red (632.8 nm) Helium-Neon gas lasers are available with output powers from 5.0 to 22.5 mW. Thorlabs offers these 632.8 nm lasers with either linear (>500:1) or random polarization and beam divergences ranging from 1.0 to 1.2 mrad.

Specifications

General	
Wavelength	632.8 nm
Minimum Output Power (TEM ₀₀ , 633 nm)	10.0 mW
Minimum Polarization Ratio	500:1
Beam Diameter (TEM ₀₀ , 1/e ² points + 3%)	0.68 mm
Beam Divergence (TEM ₀₀ , +3%)	1.2 mrad
Mode Purity (TEM ₀₀)	>95%
Longitudinal Mode Spacing	320 MHz
Maximum Noise (RMS) (30 Hz to 10 MHz)	1.0%
Maximum Drift*	±3.0%
Maximum Mode Sweeping Contribution	2%
Beam Pointing Stability (25 °C)	
-From Cold Start	<0.10 mrad
-After 15 minute Warm-Up	<0.02 mrad
Operating Voltage (±100 V)	3100 VDC
Operating Current (±0.1 mA)	6.5 mA
Max Starting Voltage	10 kVDC

*With respect to Mean Power over 8 hrs

Physical/Mechanical Characteristics	
Maximum Warm-Up Time (95% Power)	15 minutes
Expected Operating Lifetime	>40,000 hrs
Storage Lifetime	Indefinite (Hard-Sealed)
Static Alignment	Center to Outer Cylinder within ±0.01" Parallel to Outer Cylinder within ±1 mR
Laser Head Weight	1.5 lbs (0.68 kg)

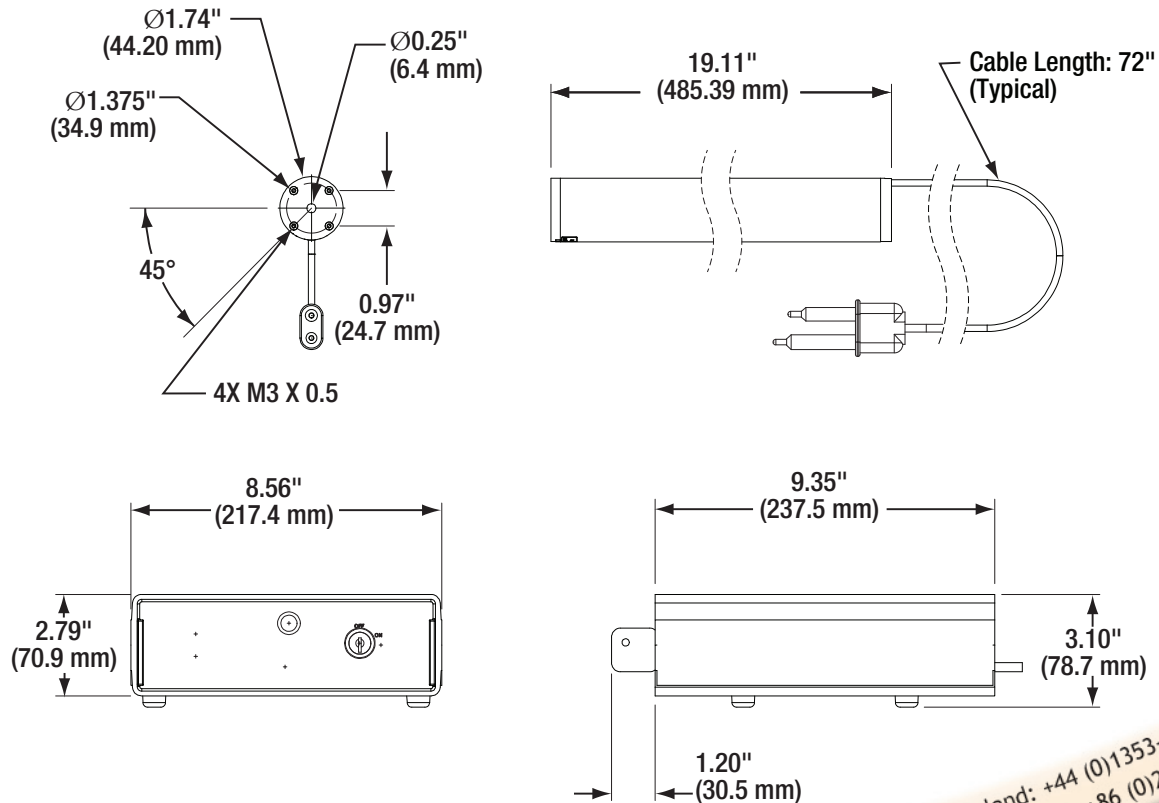


Specifications, cont.

Environmental	
Operating Temperature	-40 to 70 °C
Non-Operating Temperature	-40 to 150 °C
Operating Altitude	0 to 10,000 feet
Non-Operating Altitude	0 to 70,000 feet
Relative Humidity (Non-Condensing)	0 to 100%
Shock	25 g for 11 ms; 100 g for 1 ms

Safety	
CHRH/IEC 60825-1 Class	IIIb/3B

Drawings





HNL100R-EC

Description

Thorlabs' cylindrical, high-power, red (632.8 nm) Helium-Neon gas lasers are available with output powers from 5.0 to 22.5 mW. Thorlabs offers these 632.8 nm lasers with either linear (>500:1) or random polarization and beam divergences ranging from 1.0 to 1.2 mrad.

Specifications



General	
Wavelength	632.8 nm
Minimum Output Power (TEM ₀₀ , 633 nm)	10.0 mW
Minimum Polarization Ratio	NA (Random Polarization)
Beam Diameter (TEM ₀₀ , 1/e ² points + 3%)	0.68 mm
Beam Divergence (TEM ₀₀ , +3%)	1.2 mrad
Mode Purity (TEM ₀₀)	>95%
Longitudinal Mode Spacing	320 MHz
Maximum Noise (RMS) (30 Hz to 10 MHz)	1.0%
Maximum Drift*	±3.0%
Maximum Mode Sweeping Contribution	2%
Beam Pointing Stability (25 °C)	
-From Cold Start	<0.10 mrad
-After 15 minute Warm-Up	<0.02 mrad
Operating Voltage (±100 V)	3100 VDC
Operating Current (±0.1 mA)	6.5 mA
Max Starting Voltage	10 kVDC

*With respect to Mean Power over 8 hrs

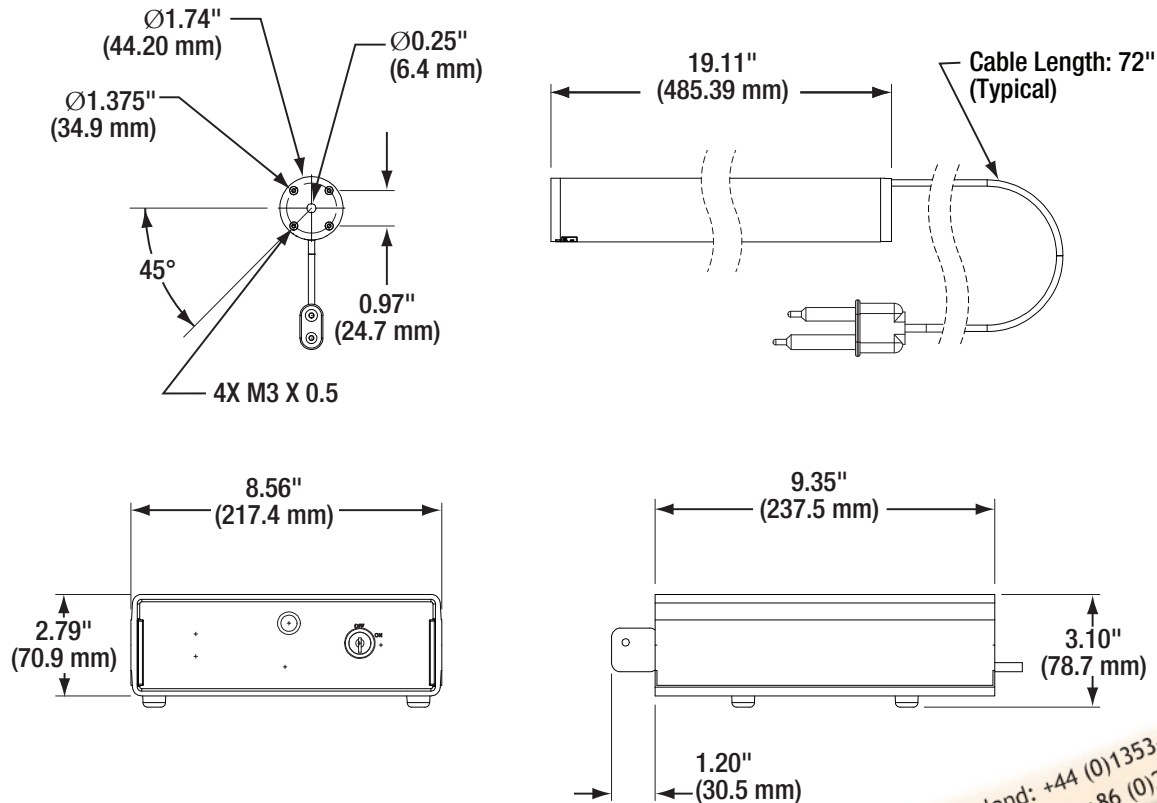
Physical/Mechanical Characteristics	
Maximum Warm-Up Time (95% Power)	15 minutes
Expected Operating Lifetime	>40,000 hrs
Storage Lifetime	Indefinite (Hard-Sealed)
Static Alignment	Center to Outer Cylinder within ±0.01" Parallel to Outer Cylinder within ±1 mR
Laser Head Weight	1.5 lbs (0.68 kg)

Specifications, cont.

Environmental	
Operating Temperature	-40 to 70 °C
Non-Operating Temperature	-40 to 150 °C
Operating Altitude	0 to 10,000 feet
Non-Operating Altitude	0 to 70,000 feet
Relative Humidity (Non-Condensing)	0 to 100%
Shock	25 g for 11 ms; 100 g for 1 ms

Safety	
CHRH/IEC 60825-1 Class	IIIb/3B

Drawings



Red HeNe Laser System: 15.0 mW, Linear, 230 VAC



HNL150L-EC

Description

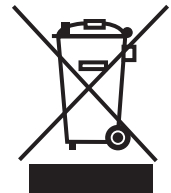
Thorlabs' cylindrical, high-power, red (632.8 nm) Helium-Neon gas lasers are available with output powers from 5.0 to 22.5 mW. Thorlabs offers these 632.8 nm lasers with either linear (>500:1) or random polarization and beam divergences ranging from 1.0 to 1.2 mrad.

Specifications

General	
Wavelength	632.8 nm
Minimum Output Power (TEM ₀₀ , 633 nm)	15.0 mW
Minimum Polarization Ratio	500:1
Beam Diameter (TEM ₀₀ , 1/e ² points + 3%)	0.70 mm
Beam Divergence (TEM ₀₀ , +3%)	1.15 mrad
Mode Purity (TEM ₀₀)	>95%
Longitudinal Mode Spacing	257 MHz
Maximum Noise (RMS) (30 Hz to 10 MHz)	0.5%
Maximum Drift*	±2.0%
Maximum Mode Sweeping Contribution	1%
Beam Pointing Stability (25 °C)	
-From Cold Start	<0.20 mrad
-After 15 minute Warm-Up	<0.03 mrad
Operating Voltage (±100 V)	3800 VDC
Operating Current (±0.1 mA)	6.5 mA
Max Starting Voltage	10 kVDC

*With respect to Mean Power over 8 hrs

Physical/Mechanical Characteristics	
Maximum Warm-Up Time (95% Power)	20 minutes
Expected Operating Lifetime	>40,000 hrs
Storage Lifetime	Indefinite (Hard-Sealed)
Static Alignment	Center to Outer Cylinder within ±0.01" Parallel to Outer Cylinder within ±1 mR
Laser Head Weight	2.6 lbs (1.2 kg)

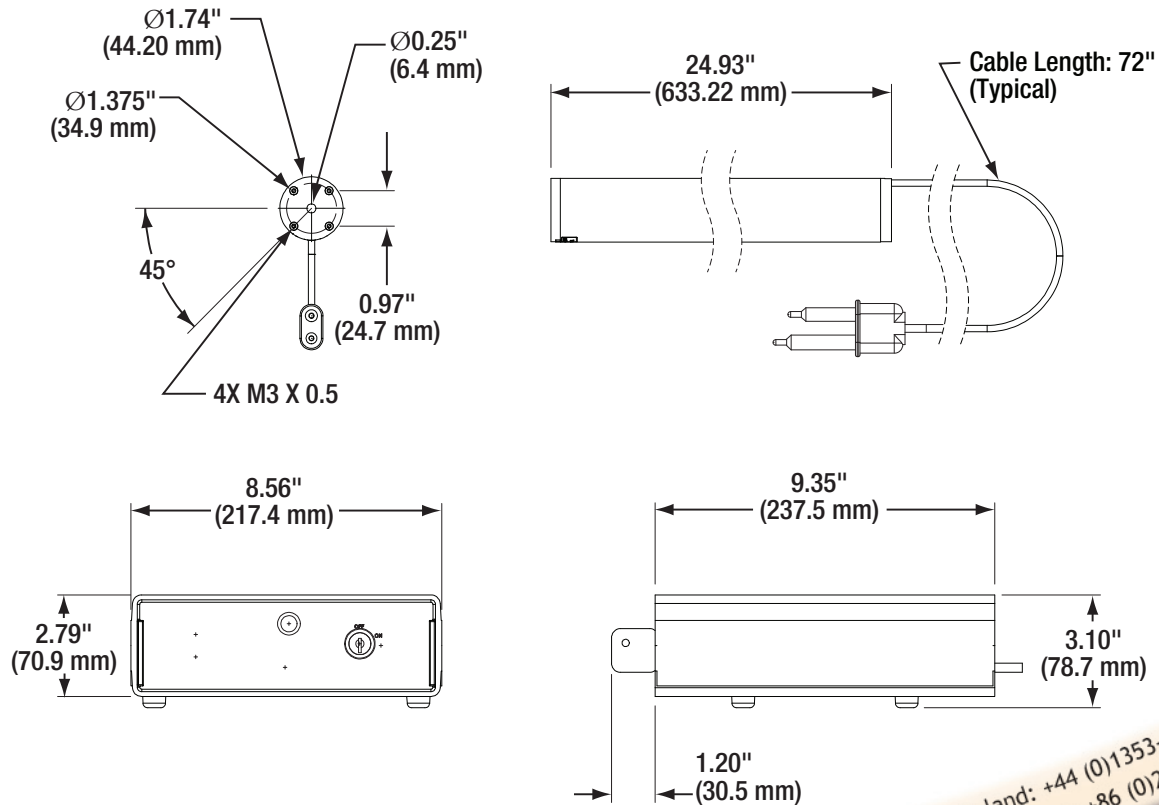


Specifications, cont.

Environmental	
Operating Temperature	-40 to 70 °C
Non-Operating Temperature	-40 to 150 °C
Operating Altitude	0 to 10,000 feet
Non-Operating Altitude	0 to 70,000 feet
Relative Humidity (Non-Condensing)	0 to 100%
Shock	25 g for 11 ms; 100 g for 1 ms

Safety	
CHRH/IEC 60825-1 Class	IIIb/3B

Drawings



Red HeNe Laser System: 15.0 mW, Random, 230 VAC



HNL150R-EC

Description

Thorlabs' cylindrical, high-power, red (632.8 nm) Helium-Neon gas lasers are available with output powers from 5.0 to 22.5 mW. Thorlabs offers these 632.8 nm lasers with either linear (>500:1) or random polarization and beam divergences ranging from 1.0 to 1.2 mrad.

Specifications

General	
Wavelength	632.8 nm
Minimum Output Power (TEM ₀₀ , 633 nm)	15.0 mW
Minimum Polarization Ratio	NA (Random Polarization)
Beam Diameter (TEM ₀₀ , 1/e ² points + 3%)	0.70 mm
Beam Divergence (TEM ₀₀ , +3%)	1.15 mrad
Mode Purity (TEM ₀₀)	>95%
Longitudinal Mode Spacing	257 MHz
Maximum Noise (RMS) (30 Hz to 10 MHz)	0.5%
Maximum Drift*	±2.0%
Maximum Mode Sweeping Contribution	1%
Beam Pointing Stability (25 °C)	
-From Cold Start	<0.20 mrad
-After 15 minute Warm-Up	<0.03 mrad
Operating Voltage (±100 V)	3800 VDC
Operating Current (±0.1 mA)	6.5 mA
Max Starting Voltage	10 kVDC

*With respect to Mean Power over 8 hrs

Physical/Mechanical Characteristics	
Maximum Warm-Up Time (95% Power)	20 minutes
Expected Operating Lifetime	>40,000 hrs
Storage Lifetime	Indefinite (Hard-Sealed)
Static Alignment	Center to Outer Cylinder within ±0.01" Parallel to Outer Cylinder within ±1 mR
Laser Head Weight	2.6 lbs (1.2 kg)

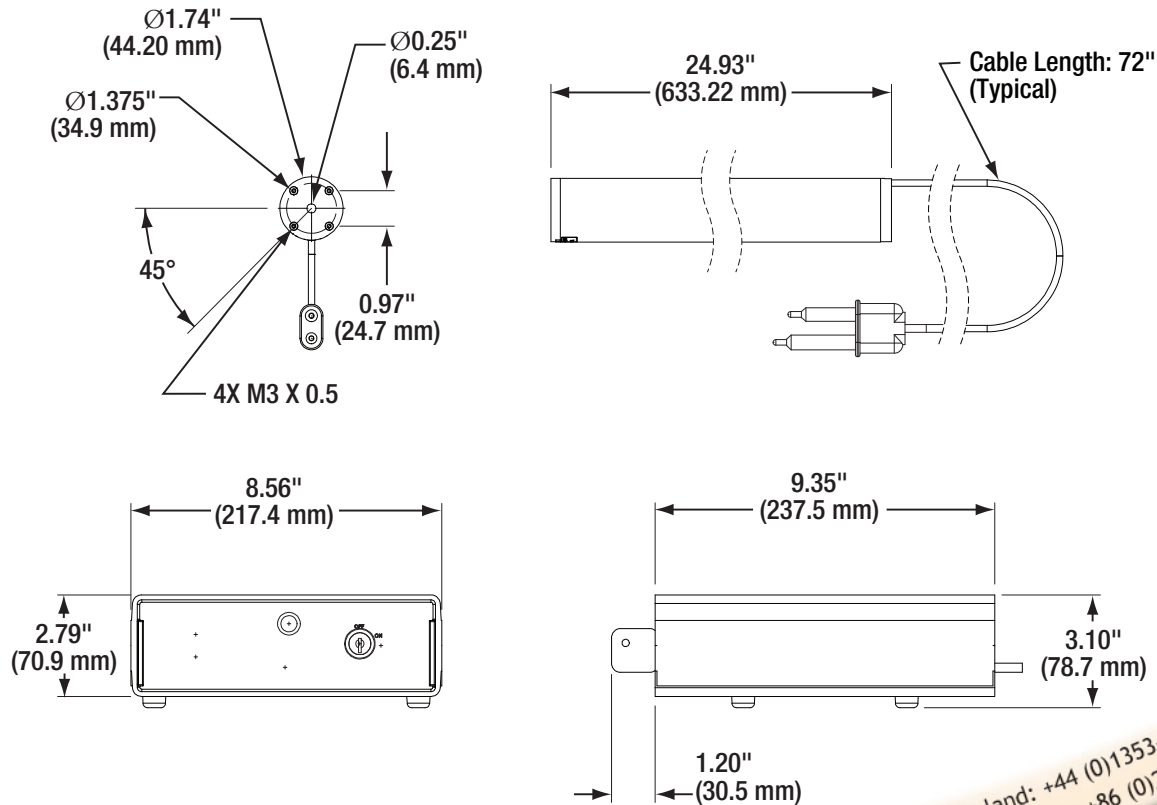


Specifications, cont.

Environmental	
Operating Temperature	-40 to 70 °C
Non-Operating Temperature	-40 to 150 °C
Operating Altitude	0 to 10,000 feet
Non-Operating Altitude	0 to 70,000 feet
Relative Humidity (Non-Condensing)	0 to 100%
Shock	25 g for 11 ms; 100 g for 1 ms

Safety	
CHRH/IEC 60825-1 Class	IIIb/3B

Drawings



Red HeNe Laser System: 21.0 mW, Linear, 230 VAC



HNL210L-EC

Description

Thorlabs' cylindrical, high-power, red (632.8 nm) Helium-Neon gas lasers are available with output powers from 5.0 to 22.5 mW. Thorlabs offers these 632.8 nm lasers with either linear (>500:1) or random polarization and beam divergences ranging from 1.0 to 1.2 mrad.

Specifications

General	
Wavelength	632.8 nm
Minimum Output Power (TEM ₀₀ , 633 nm)	21.0 mW
Minimum Polarization Ratio	500:1
Beam Diameter (TEM ₀₀ , 1/e ² points + 3%)	0.70 mm
Beam Divergence (TEM ₀₀ , +3%)	1.15 mrad
Mode Purity (TEM ₀₀)	>95%
Longitudinal Mode Spacing	257 MHz
Maximum Noise (RMS) (30 Hz to 10 MHz)	0.5%
Maximum Drift*	±2.0%
Maximum Mode Sweeping Contribution	1%
Beam Pointing Stability (25 °C)	
-From Cold Start	<0.20 mrad
-After 15 minute Warm-Up	<0.03 mrad
Operating Voltage (±100 V)	3800 VDC
Operating Current (±0.1 mA)	6.5 mA
Max Starting Voltage	10 kVDC

*With respect to Mean Power over 8 hrs

Physical/Mechanical Characteristics	
Maximum Warm-Up Time (95% Power)	20 minutes
Expected Operating Lifetime	>40,000 hrs
Storage Lifetime	Indefinite (Hard-Sealed)
Static Alignment	Center to Outer Cylinder within ±0.01" Parallel to Outer Cylinder within ±1 mR
Laser Head Weight	2.6 lbs (1.2 kg)

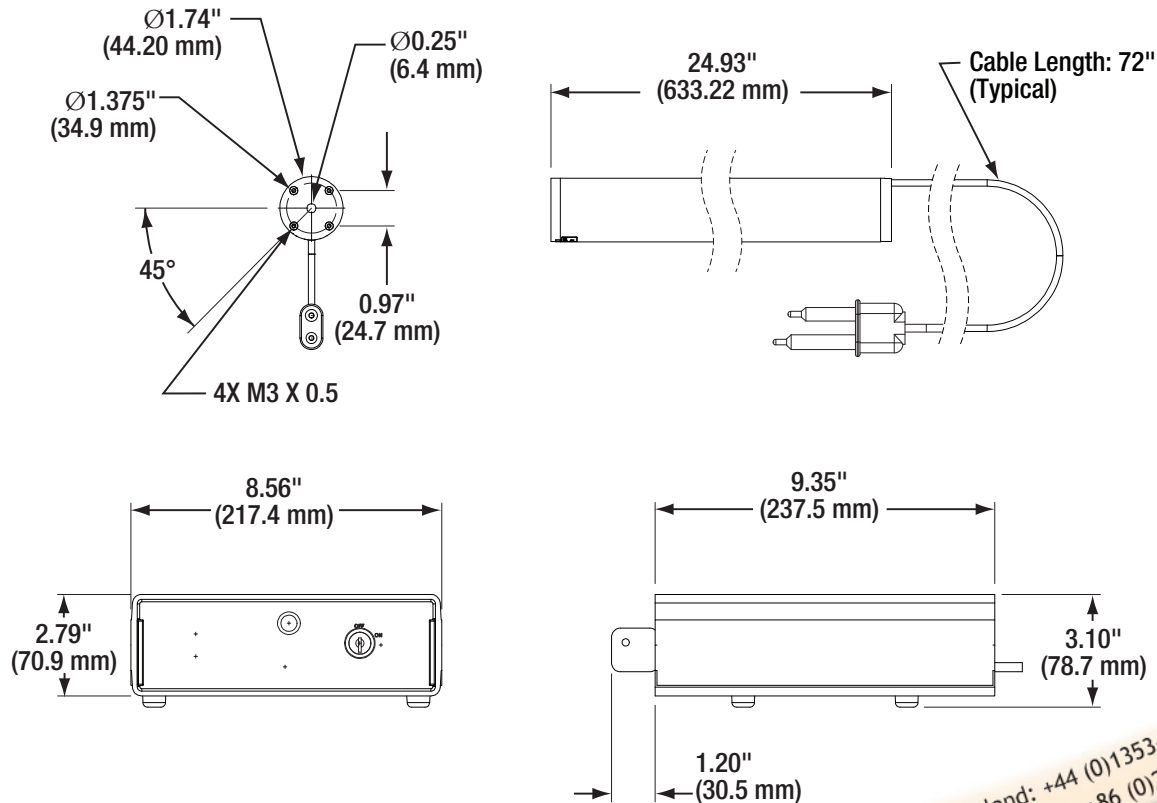


Specifications, cont.

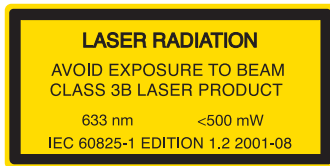
Environmental	
Operating Temperature	-40 to 70 °C
Non-Operating Temperature	-40 to 150 °C
Operating Altitude	0 to 10,000 feet
Non-Operating Altitude	0 to 70,000 feet
Relative Humidity (Non-Condensing)	0 to 100%
Shock	25 g for 11 ms; 100 g for 1 ms

Safety	
CHRH/IEC 60825-1 Class	IIIb/3B

Drawings



Red HeNe Laser System: 22.5 mW, Random, 230 VAC



HNL225R-EC

Description

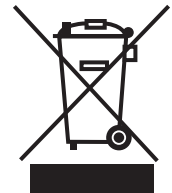
Thorlabs' cylindrical, high-power, red (632.8 nm) Helium-Neon gas lasers are available with output powers from 5.0 to 22.5 mW. Thorlabs offers these 632.8 nm lasers with either linear (>500:1) or random polarization and beam divergences ranging from 1.0 to 1.2 mrad.

Specifications

General	
Wavelength	632.8 nm
Minimum Output Power (TEM ₀₀ , 633 nm)	22.5 mW
Minimum Polarization Ratio	NA (Random Polarization)
Beam Diameter (TEM ₀₀ , 1/e ² points + 3%)	0.70 mm
Beam Divergence (TEM ₀₀ , +3%)	1.15 mrad
Mode Purity (TEM ₀₀)	>95%
Longitudinal Mode Spacing	257 MHz
Maximum Noise (RMS) (30 Hz to 10 MHz)	0.5%
Maximum Drift*	±2.0%
Maximum Mode Sweeping Contribution	1%
Beam Pointing Stability (25 °C)	
-From Cold Start	<0.20 mrad
-After 15 minute Warm-Up	<0.03 mrad
Operating Voltage (±100 V)	3800 VDC
Operating Current (±0.1 mA)	6.5 mA
Max Starting Voltage	10 kVDC

*With respect to Mean Power over 8 hrs

Physical/Mechanical Characteristics	
Maximum Warm-Up Time (95% Power)	20 minutes
Expected Operating Lifetime	>40,000 hrs
Storage Lifetime	Indefinite (Hard-Sealed)
Static Alignment	Center to Outer Cylinder within ±0.01" Parallel to Outer Cylinder within ±1 mR
Laser Head Weight	2.6 lbs (1.2 kg)



Specifications, cont.

Environmental	
Operating Temperature	-40 to 70 °C
Non-Operating Temperature	-40 to 150 °C
Operating Altitude	0 to 10,000 feet
Non-Operating Altitude	0 to 70,000 feet
Relative Humidity (Non-Condensing)	0 to 100%
Shock	25 g for 11 ms; 100 g for 1 ms

Safety	
CHRH/IEC 60825-1 Class	IIIb/3B

Drawings

