

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.

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)

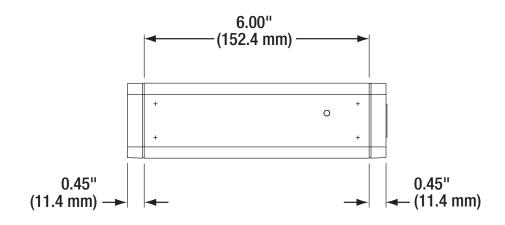
Environmental	
Operating Temperature	-40 to 60 °C
Non-Operating Temperature	-40 to 100 °C
Operating Altitude	0 to 10,000 ft
Non-Operating Altitude	0 to 70,000 ft
Relative Humidity (Non-condensing)	Non-Condensing
Shock	25 g for 11 ms
	100 g for 1 ms

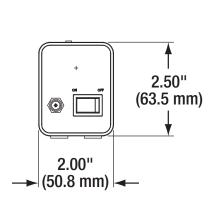
Safety	
CHRH/IEC 60825-1 Class	IIIa/3R

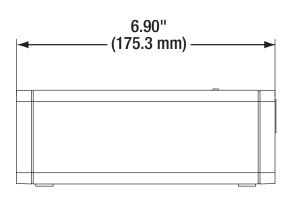




Drawings







US, Canada, & South America: +1-973-579-7227 | Europe: +49 (0) 8131-5956-0 | UK & Ireland: +86 (0)21-60561/

Ce: +33 (0) 970 444 844 | Scandinavia: +46-31-733-30-00 | Japan & Asia: +81-3-5979-8889 | China: Us, Canada, & South America: +1-973-579-7227 | Europe: +49 (0) 8131-5956-0 | UK & Ireland: +86 (0)21-6056112 |
S.com & Asia: +81-3-5979-8889 | China: +86 (0)21-6056112 August 15, 2015 22153-S01, Rev B www.thorlabs.com



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.

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)

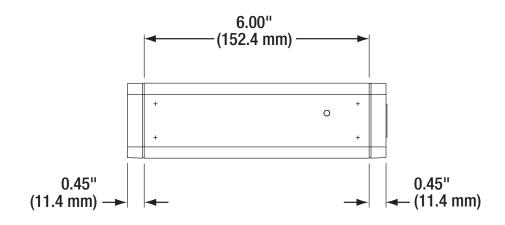
Environmental		
Operating Temperature	-40 to 60 °C	
Non-Operating Temperature	-40 to 100 °C	
Operating Altitude	0 to 10,000 ft	
Non-Operating Altitude	0 to 70,000 ft	
Relative Humidity (Non-condensing)	Non-Condensing	
Shock	25 g for 11 ms	
	100 g for 1 ms	

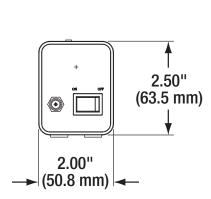
Safety	
CHRH/IEC 60825-1 Class	IIIa/3R

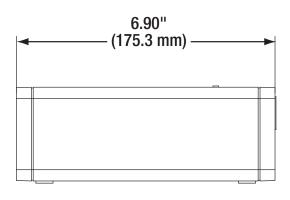




Drawings







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





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.

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 Dower over & hrs		



^{*}With respect to Mean Power over 8 hrs

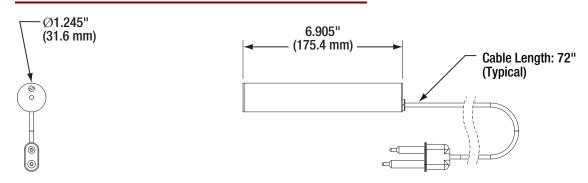
Physical/Mechanical Characteristics	
Maximum Warm-Up Time (95% Power)	10 minutes
Expected Operating Lifetime	>20,000 hrs
Storage Lifetime	Indefinite (Hard-Sealed)
Static Alignment	Center to Outer Cylinder within ±0.01"
	Parallel to Outer Cylinder within ±1 mR
Laser Head Weight	0.46 lbs (0.21 kg)

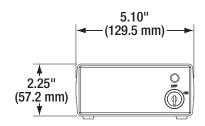
Specifications, cont.

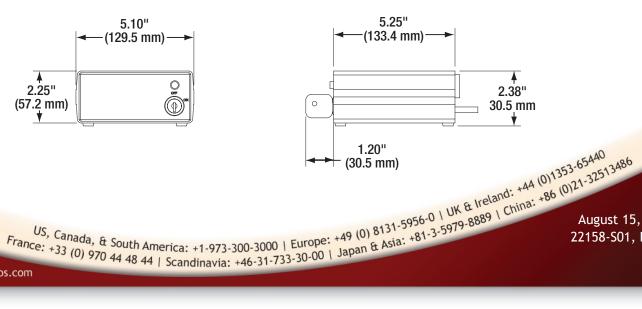
Environmental	
Operating Temperature	-40 to 70 °C
Non-Operating Temperature	-40 to 150 °C
Operating Altitude	0 to 10,000 feet
Non-Operating Altitude	0 to 70,000 feet
Relative Humidity (Non-Condensing)	0 to 100%
Shock	25 g for 11 ms; 100 g for 1 ms

Safe	ty
CHRH/IEC 60825-1 Class	IIIa/3R

Drawings







August 15, 2015 22158-S01, Rev B

www.thorlabs.com

THORLABS

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

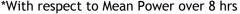
LASER RADIATION AVOID DIRECT EYE EXPOSURE CLASS 3R LASER PRODUCT 633 nm <5 mW IEC 60825-1 EDITION 1.2 2001-08



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.

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	
*\M/ith respect to Mean Dower over 9 hrs		



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



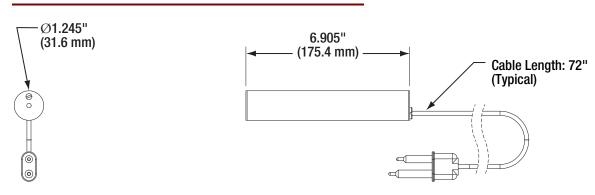
THORLABS

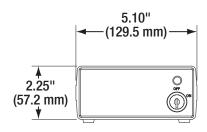
Specifications, cont.

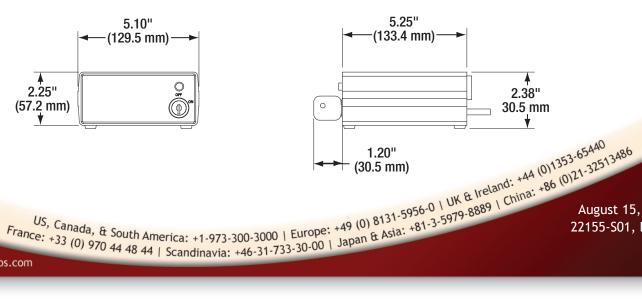
Environmental	
Operating Temperature	-40 to 70 °C
Non-Operating Temperature	-40 to 150 °C
Operating Altitude	0 to 10,000 feet
Non-Operating Altitude	0 to 70,000 feet
Relative Humidity (Non-Condensing)	0 to 100%
Shock	25 g for 11 ms; 100 g for 1 ms

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

Drawings







August 15, 2015 22155-S01, Rev B

www.thorlabs.com

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



LASER RADIATION

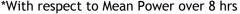
AVOID DIRECT EYE EXPOSURE
CLASS 3R LASER PRODUCT

633 nm <5 mW
IEC 60825-1 EDITION 1.2 2001-08

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.

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	
*\Mith respect to Mean Dower over 9 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)

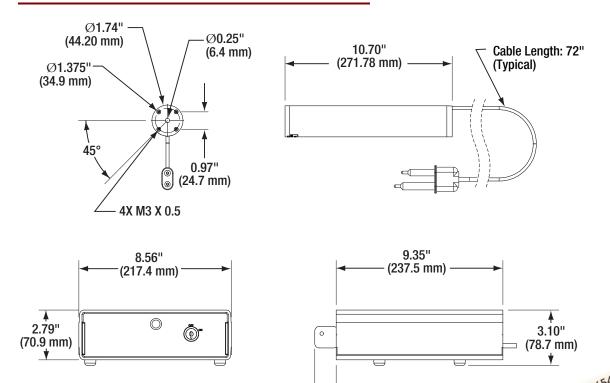


Specifications, cont.

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



US, Canada, & South America: +1-973-300-3000 | Europe: +49 (0) 8131-5956-0 | UK & Ireland: +86 (0)21-32513486

August 15, 2015

S.com

August 15, 2015

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



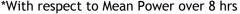
LASER RADIATION

AVOID DIRECT EYE EXPOSURE
CLASS 3R LASER PRODUCT
633 nm <5 mW
IEC 60825-1 EDITION 1.2 2001-08

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.

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 Dower 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)

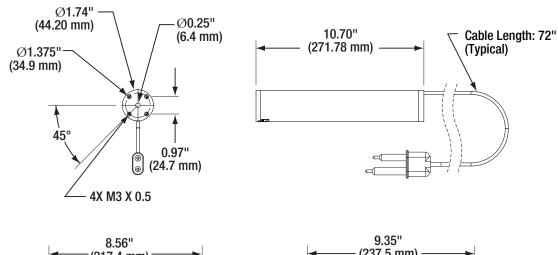


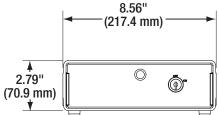
Specifications, cont.

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





(237.5 mm) 3.10" □ (78.7 mm) US, Canada, & South America: +1-973-300-3000 | Europe: +49 (0) 8131-5956-0 | UK & Ireland: +86 (0)21-3251 |

August Agent America: +1-973-300-3000 | Europe: +49 (0) 8131-5956-0 | UK & Ireland: +86 (0)21-3251 |

August Agent Agen

US, Canada, & South America: +1-973-300-3000 | Europe: +49 (0) 8131-5956-0 | UK & Ireland: +86 (0) 21-32513486 |

August 15, 273161-500 August 15, 2015 22161-S01, Rev B

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



LASER RADIATION AVOID EXPOSURE TO BEAM CLASS 3B LASER PRODUCT

633 nm <500 mW EC 60825-1 EDITION 1.2 2001-

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		

^{*}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)



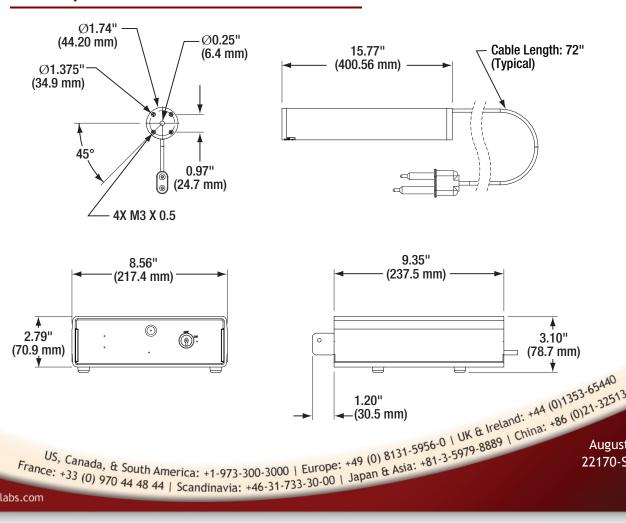
HNL050L-EC

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



US, Canada, & South America: +1-973-300-3000 | Europe: +49 (0) 8131-5956-0 | UK & Ireland: +86 (0) 21-32513486 |

August 15, 273170-500 August 15, 2015 22170-S01, Rev B

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



LASER RADIATION

AVOID EXPOSURE TO BEAM CLASS 3B LASER PRODUCT 633 nm <500 mW IEC 60825-1 EDITION 1.2 2001-08

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.

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 Dower over 8 hrs		

^{*}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)



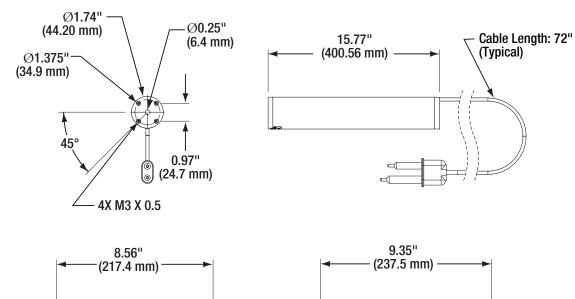
THORLABS

Specifications, cont.

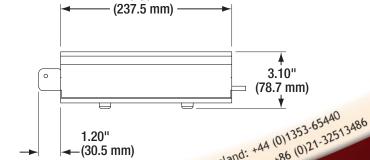
Environmental	
Operating Temperature	-40 to 70 °C
Non-Operating Temperature	-40 to 150 °C
Operating Altitude	0 to 10,000 feet
Non-Operating Altitude	0 to 70,000 feet
Relative Humidity (Non-Condensing)	0 to 100%
Shock	25 g for 11 ms; 100 g for 1 ms

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

Drawings



(4)



US, Canada, & South America: +1-973-300-3000 | Europe: +49 (0) 8131-5956-0 | UK & Ireland: +86 (0)21-32513486

August 15, 2015

S.com

August 15, 2015

2.79"

(70.9 mm) ▼

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



LASER RADIATION

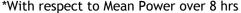
AVOID EXPOSURE TO BEAM CLASS 3B LASER PRODUCT

633 nm <500 mW IEC 60825-1 EDITION 1.2 2001-08

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.

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 Dower over & 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)

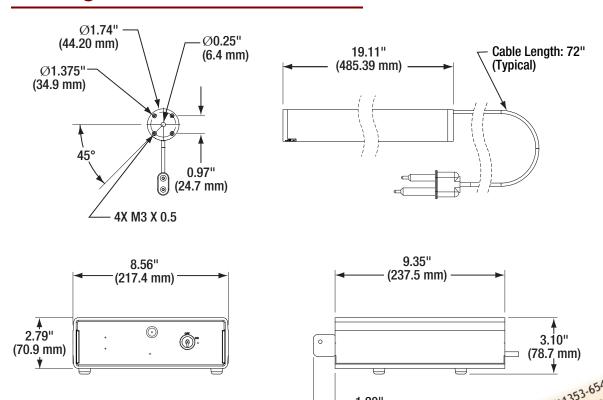


Specifications, cont.

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



US, Canada, & South America: +1-973-300-3000 | Europe: +49 (0) 8131-5956-0 | UK & Ireland: +86 (0)21-32513486 S.com

1.20"

(30.5 mm)

August 17, 2015

22176-S01, Rev B

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

LASER RADIATION AVOID EXPOSURE TO BEAM CLASS 3B LASER PRODUCT 633 nm <500 mW IEC 60825-1 EDITION 1.2 2001-08



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.

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	
*\M/ith respect to Mean Dower over 9 hrs		

^{*}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)

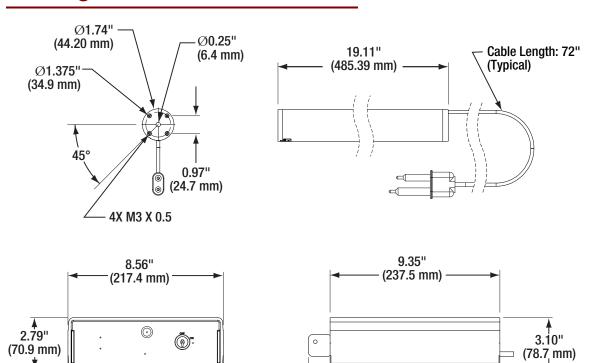


Specifications, cont.

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



US, Canada, & South America: +1-973-300-3000 | Europe: +49 (0) 8131-5956-0 | UK & Ireland: +86 (0)21-32513486 S.com

1.20"

(30.5 mm)

August 17, 2015

22173-S01, Rev B



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

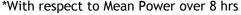




Description

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.

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 Dower over & 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)

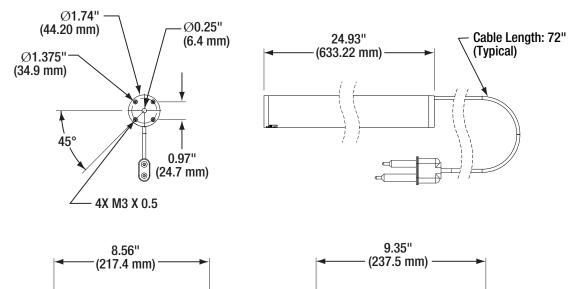


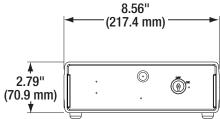
Specifications, cont.

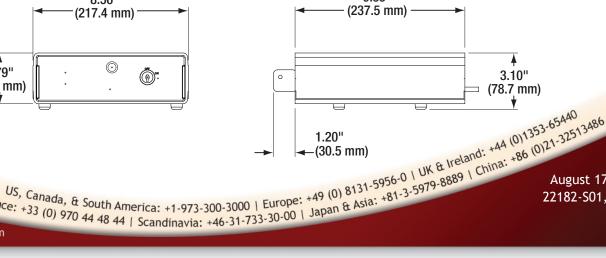
Environmental	
Operating Temperature	-40 to 70 °C
Non-Operating Temperature	-40 to 150 °C
Operating Altitude	0 to 10,000 feet
Non-Operating Altitude	0 to 70,000 feet
Relative Humidity (Non-Condensing)	0 to 100%
Shock	25 g for 11 ms; 100 g for 1 ms

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

Drawings







US, Canada, & South America: +1-973-300-3000 | Europe: +49 (0) 8131-5956-0 | UK & Ireland: +86 (0) 21-32513486 |

August 17, 27189-500 August 17, 2015

22182-S01, Rev B

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



633 nm <500 mW IEC 60825-1 EDITION 1.2 2001-08

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.

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	
*\M/ith respect to Mean Dower over 9 hrs		

^{*}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)

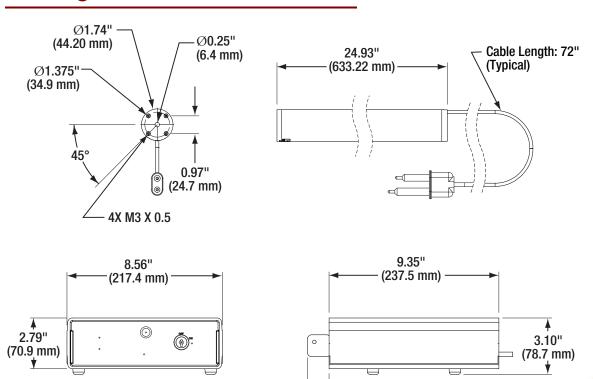


Specifications, cont.

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



US, Canada, & South America: +1-973-300-3000 | Europe: +49 (0) 8131-5956-0 | UK & Ireland: +86 (0)21-3251 |

August Asia: +81-3-5979-8889 | China: +86 (0)21-2251 |

August Asia: +81-3-5979-889 | China: +81-3-5979-889 | China: +81-3-5979 | Ch US, Canada, & South America: +1-973-300-3000 | Europe: +49 (0) 8131-5956-0 | UK & Ireland: +86 (0) 21-32513486 |

August 17, 27,170-500 August 17, 2015 22179-S01, Rev B

(70.9 mm) ▼

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

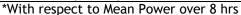




Description

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.

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 Dower 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)



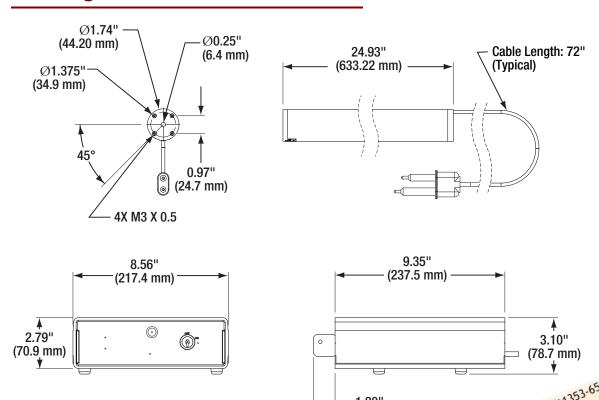
THORLABS

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



US, Canada, & South America: +1-973-300-3000 | Europe: +49 (0) 8131-5956-0 | UK & Ireland: +86 (0)21-32513486 S.com

1.20"

(30.5 mm)

August 17, 2015

22185-S01, Rev B

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



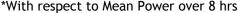
LASER RADIATION

AVOID EXPOSURE TO BEAM CLASS 3B LASER PRODUCT 633 nm <500 mW IEC 60825-1 EDITION 1.2 2001-08

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.

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 Dower over & 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)

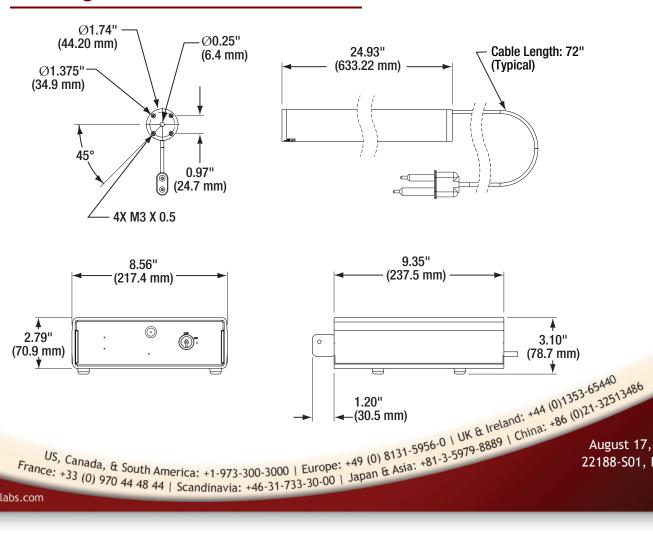


Specifications, cont.

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



August 17, 2015 22188-S01, Rev B