

Cobolt o8-01 Series

Compact | Narrow linewidth lasers



- Single frequency diode pumped lasers (DPL) and narrow linewidth diode (NLD) lasers
- Up to 500 mW continuous-wave output power
- Integrated spectral filter for ensured side mode suppression ratio (SMSR)
- Integrated isolator, immune to optical feedback
- Ultra-robust package and proven field reliability
- 405 nm, 457 nm, 473 nm, 515 nm, 532 nm, 561 nm, 633 nm, 660 nm, 785 nm, 1064 nm

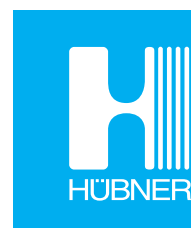
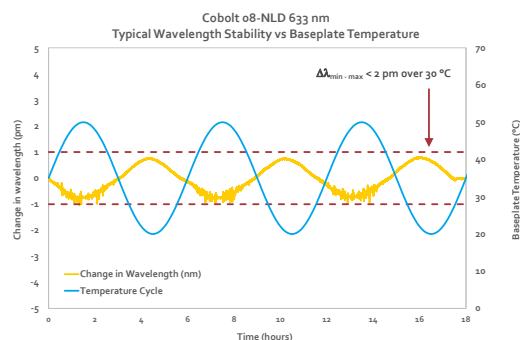
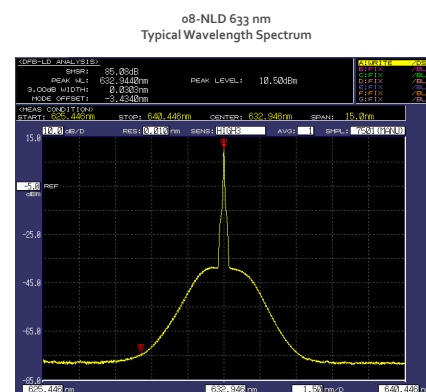
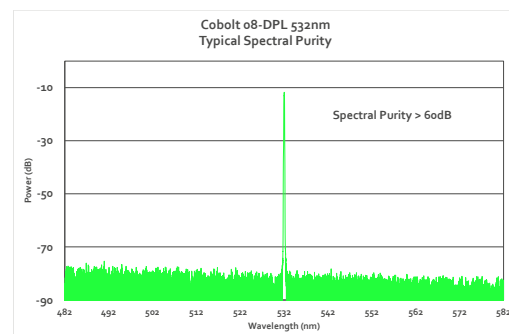
The Cobolt o8-01 Series is a family of narrow linewidth continuous-wave lasers, including diode pumped (DPL) lasers as well as frequency stabilized diode lasers (NLD) operating at fixed wavelengths between 405 nm and 1064 nm with output power up to 500 mW. The lasers are designed and manufactured to ensure the highest level of reliability.

Cobolt lasers are built using proprietary HTCure™ manufacturing technology for ultra-robustness into a compact package. The lasers emit a high quality laser beam with very stable characteristics and reliable spectral performance, making them ideal for advanced analytical applications where stable and narrow spectral linewidth is crucial, such as Raman Spectroscopy and Interferometry.

The Cobolt o8-01 Series are certified for use as stand-alone laboratory devices, but with a compact design and fully integrated drive and control electronics they are also very well suited for integration as OEM components in analytical instrumentation.

Applications

Raman Spectroscopy
Interferometry



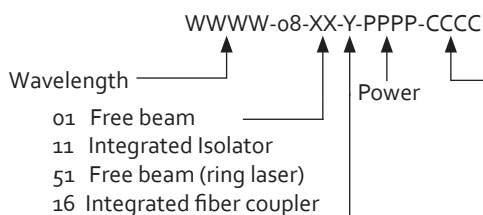
Cobolt o8-o1 Series

Performance Specifications

	405 nm	457 nm	473 nm	515 nm	532 nm	561 nm
	o8-NLD		o8-DPL			
Center Wavelength (nm)	405.0 ± 0.5	457.0 ± 0.3	473.0 ± 0.3	514.4 ± 0.3	532.1 ± 0.3	561.2 ± 0.3
Power (mW) Without isolator [with isolator]	n/a [30]	30 [25]	50 [40]	50 [50]	25 [25] 50 [50] 100 [100] 200 [160]	25 [n/a] 50 [n/a] 100 [n/a]
Integrated optical Isolator available	Yes					No
Maximum optical feedback	n/a [100 %]	1 % [100 %]	10 % [100%]			1 % [n/a]
Spectral bandwidth (FWHM)	< 1 pm		< 1 MHz			
Spectral Purity (SMSR) @ ± > 0.5 nm from the main peak	> 40 dB		> 60 dB			
@ ± > 5 nm from the main peak			> 60 dB			
Wavelength Stability (8hrs, ± 3°C)			± 2 pm			
Beam divergence (full angle, mrad)			< 1.2			
Spatial mode	M ² < 1.3		M ² < 1.1 (TEM ₀₀)			
Beam symmetry	> 0.90:1		> 0.95:1			
Beam diameter at aperture	700 ± 100 μm		700 ± 70 μm			
Noise, 250 Hz - 2 MHz (rms)	< 0.2 %		< 0.25 %, (typical < 0.15 %)			
Power stability over 8 hrs (± 3°C)			< 2 %			
Polarization Extinction Ratio (PER)			> 100:1, Vertical			
Total system power consumption	< 12 W		< 20 W			
Power Supply Requirements	5 V / 3 A		5 V / 5 A			
Warranty	24 months					

	633 nm	660 nm	785 nm	785 nm	1064 nm
	o8-NLD	o8-DPL	o8-NLD	o8-NLDM	o8-DPL
Center Wavelength (nm)	632.8 ± 0.5	659.6 ± 0.3	784.8 ± 0.5	784.8 ± 0.5	1064.2 ± 0.6
Power (mW) [with isolator]	n/a [30]	50 [50]	n/a [120]	n/a [500]	400 [n/a]
Integrated optical Isolator available	Yes				No
Maximum optical feedback	n/a [100 %]	1 % [100 %]	n/a [100 %]		10 % [n/a]
Spectral bandwidth (FWHM)	< 1 pm	< 1 MHz	< 1 pm	< 70 pm	< 1 MHz
Spectral Purity (SMSR) @ ± > 0.5 nm from the main peak	> 40 dB	> 60 dB	> 40 dB	> 40 dB	> 60 dB
@ ± > 5 nm from the main peak			> 60 dB		
Wavelength Stability (8hrs, ± 3°C)			± 2 pm		
Beam divergence (full angle, mrad)	< 1.3	< 1.5	< 1.6	horizontal: < 20 vertical: < 2.5	< 1.8
Spatial mode	M ² < 1.3	M ² < 1.1 (TEM ₀₀)	M ² < 1.3	Multimode	M ² < 1.3
Beam symmetry	> 0.90:1	> 0.95:1	> 0.90:1	n/a	> 0.95:1
Beam diameter at aperture	700 ± 100 μm	700 ± 70 μm	700 ± 100 μm	horizontal: 1.4 ± 0.2 mm vertical: 1.7 ± 0.2 mm	1000 ± 100 μm
Noise, 250 Hz - 2 MHz (rms)	< 0.2 %	< 0.25 %	< 0.2 %	< 0.25 %	< 0.25 %
Power stability over 8 hrs (± 3°C)	< 2 %		< 1 %		< 2 %
Polarization Extinction Ratio (PER)			> 100:1, Vertical		
Total system power consumption	< 12 W	< 20 W	< 12 W	< 15 W	< 20 W
Power Supply Requirements	5V / 3A	5V / 5A	5V / 3A	5V / 3A	5V / 5A
Warranty	12 mo.	24 mo.	12 mo.	24 mo.	24 mo.

Model Number



Configuration:

- 100 = USB, CE / CDRH Compliant
- 200 = USB, OEM
- 300 = RS-232, CE / CDRH Compliant
- 400 = RS-232, OEM
- xxx = OEM customization



Cobolt o8-o1 Series

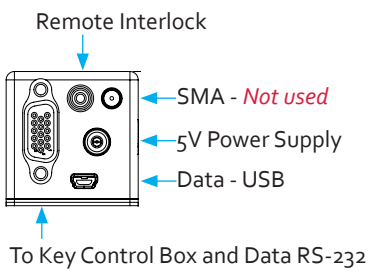
Fiber coupled option - Specifications

	532	785
	o8-DPL	o8-NLD/M
Center Wavelength (nm)	532.1 ± 0.3	784.8 ± 0.5
Power (mW) (with isolator, before fiber coupler)	160	500
Coupling Efficiency (measured with recommended fiber)	> 60 %	> 70 %
Optical Isolation	> 20 dB @ 25°	
Fiber Connector type	FC / PC	
Fiber Numerical Aperture (NA)	0.22	
Fiber type	Multimode	
Fiber length	1 m	
Spectral bandwidth (FWHM)	< 1 MHz	< 70 pm
Noise, 250 Hz - 2 MHz (rms)	< 0.25%, (typical < 0.15%)	< 0.5%
Power stability over 8 hrs	< 2%	< 1%
Maximum base plate temperature	50 °C	55 °C
Total system power consumption	< 20 W	< 15 W
Power Supply Requirements	5V, 5A	5V, 3A



Electrical Interface

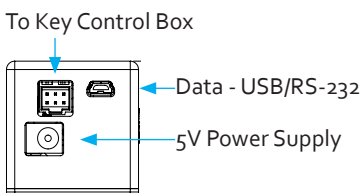
o8-NLD Laser head



VGA 15 pin - To Key control box

Pin	Function
1	LED1 (Laser on)
2	LED2 (Error)
3	Not used
4	0V (ref)
5	Key Switch
6	Remote interlock
7	RS-232 TX
8	RS-232 RX
9	Spare
10	0V GND (ref pin 15)
11	Direct On/off
12	Not used
13	Not used
14	Not used
15	+5V to keybox

o8-DPL + o8-NLDM Laser Head



Molex 6 pin - To Key control box

Pin	Function
1	Remote interlock
2	0V - Ground
3	Direct On/Off (+5V Input)
4	Key Switch
5	LED 1 (Laser On)
6	LED 2 (Error)

Communication Interface

Communication	USB or RS-232
Standard Baudrate	19200

Options and Accessories

- Laser head heatsink
- Keybox for CDRH operation
- Laser combiner
- Fiber coupled heat sink (FIC-o6)



This device is sensitive to Electrostatic Discharge (ESD). Always handle diode lasers with extreme care to prevent electrostatic discharge, the primary cause of unexpected diode failure.



WARNING VISIBLE and INVISIBLE LASER RADIATION
Avoid Exposure to beam
Class 3B Laser Product
Classified per IEC 60825-1:2014



Wvl (nm)	Max.Pwr (mW)
405	300
457	300
473	300
515	300
532	300
561	300
633	300
660	300
785	300
1064	300



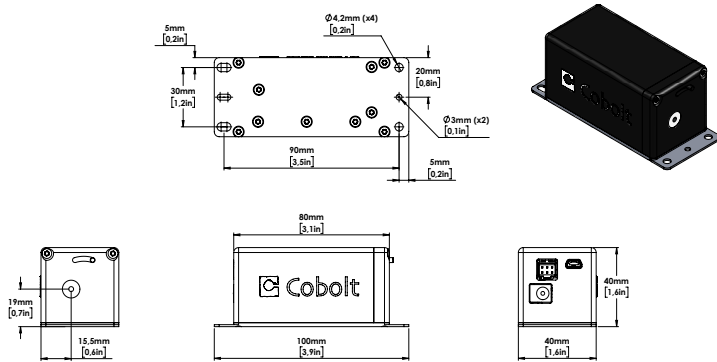
WARNING INVISIBLE LASER RADIATION
Avoid eye or skin exposure to direct or scattered radiation
Class 4 Laser Product
Classified per IEC 60825-1:2014

Wvl (nm)	Max.Pwr (mW)
785	2000

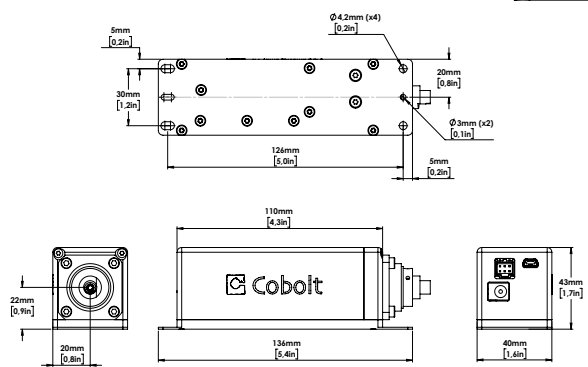
Cobolt o8-o1 Series

Mechanical Specifications

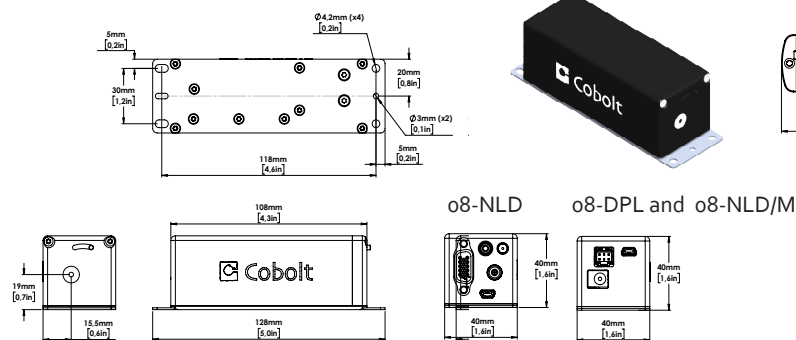
Laser Head without Isolator



Laser Head with integrated fiber coupler

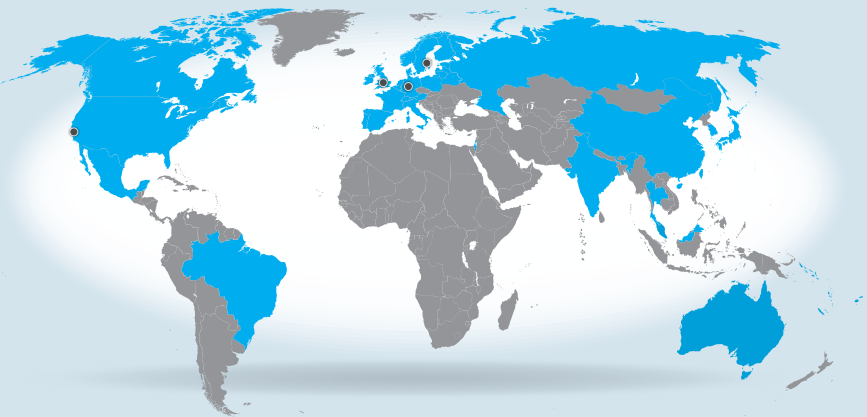
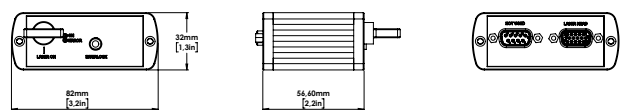


Laser Head with Isolator



Key box

Art. Nr. 12482



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