

Cobolt o8-o1 Series

Compact | Narrow linewidth lasers



- Single frequency diode pumped lasers (DPL) and narrow linewidth diode (NLD) lasers with up to 400 mW continuous-wave output power
- Engineered for stable spectral performance and low wavelength drift
- 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

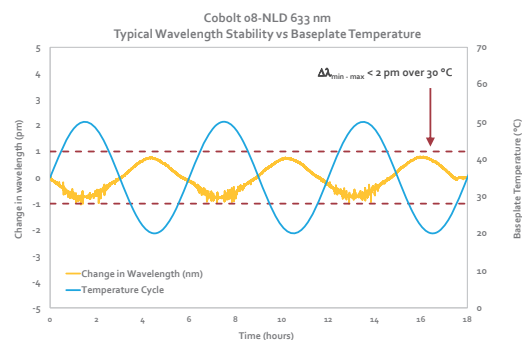
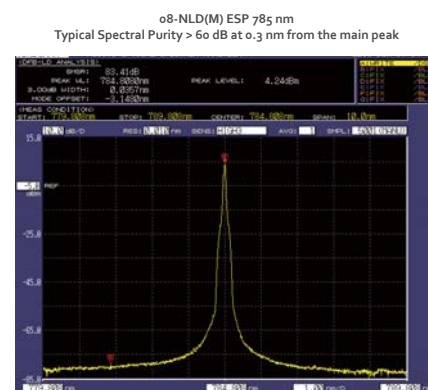
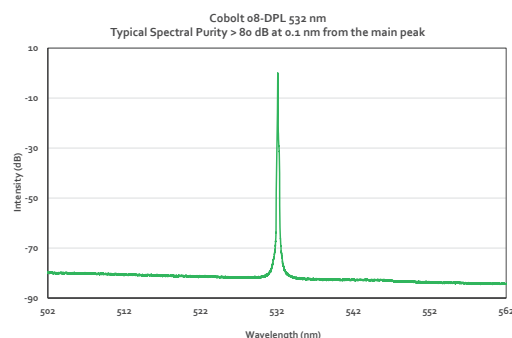
The Cobolt o8-o1 Series is a family of narrow linewidth continuous-wave lasers, including diode pumped lasers (DPL) as well as frequency stabilized diode lasers (NLD) operating at fixed wavelengths between 405 nm and 1064 nm with output power up to 500 mW. The lasers are designed and manufactured to 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-o1 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
Quantum Research



HÜBNER Photonics | Coherence Matters.



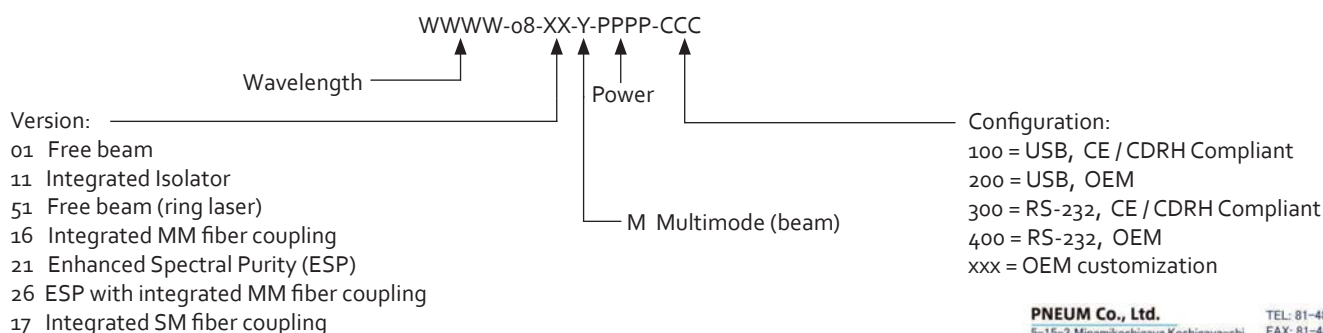
Cobolt o8-o1 Series

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	> 80 dB					
Wavelength Stability (8hrs, ± 3 °C)	< 1 pm					
Beam divergence (full angle, mrad)	< 1.2					
Spatial mode	M² < 1.3	M² < 1.1				
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	5V / 3 A	5V / 5A				
Warranty	24 months					

	633 nm	660 nm	785 nm		1064 nm	
	o8-NLD	o8-DPL	o8-NLD	o8-NLD(M)	o8-NLD(M) ESP	o8-DPL
Center Wavelength (nm)	632.8 ± 0.5	659.6 ± 0.3	784.8 ± 0.5			1064.2 ± 0.6
Power (mW) without isolator [with isolator]	n/a [30]	50 [50]	n/a [120]	n/a [500]	n/a [400]	400 [n/a]
Integrated optical Isolator available	Yes	Yes	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		> 60 dB	> 60 dB
@ ± > 5 nm from the main peak	> 80 dB					
Wavelength stability (8hrs, ± 3°C)	< 1 pm		n/a			< 1 pm
Beam divergence (full angle, mrad)	< 1.6	< 1.5	< 2.0	Horizontal : < 15 Vertical : < 3		< 1.8
Spatial mode	M ² < 1.3	M ² < 1.1	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	H: 1.4 ± 0.2 mm V: 1.7 ± 0.2 mm	H: 1.6 ± 0.3 mm V: 1.2 ± 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.	12 mo.		24 mo.

Model Number



Cobolt o8-o1 Series

Fiber coupled option - Specifications - Multimode fiber

	532	785
Coupling Efficiency (measured with recommended fiber)	> 60 %	> 70 %
Fiber Connector type	FC / PC, Narrow key	
Nominal Numerical Aperture (NA)	0.22	
Fiber type	Multimode	
Fiber length	2 m	
Warranty	Laser warranty and 12 months on workmanship	



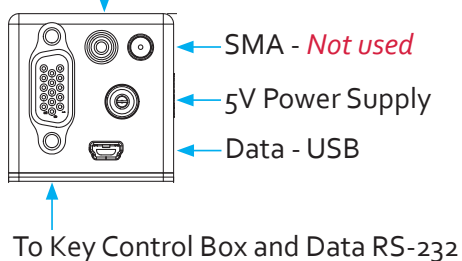
Fiber coupled option - Specifications - Single mode fiber

	 405 - 660 nm785 nm1064 nm	
Coupling Efficiency (measured with recommended fiber)	> 50 %	
Fiber Connector type	FC / APC , Narrow key	
Nominal Numerical Aperture (NA)	0.11	0.12
Fiber type	SM / PM	
Fiber length	2 m	
Warranty	Laser warranty and 12 months on workmanship	

Electrical Interface

o8-NLD Laser head

Remote Interlock



VGA 15 pin - To Key control box

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



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.



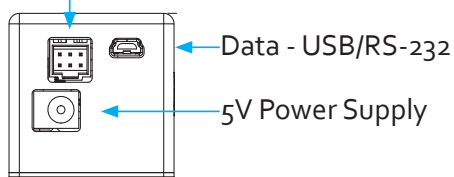
WARNING VISIBLE and INVISIBLE LASER RADIATION
Avoid Exposure to beam
Class 3B Laser Product
Classified per IEC 60825-1:2014



Wvl (nm)	Max.Pwr (mW)
405	360
457	400
473	400
515	400
532	400
561	400
633	200
660	400
785 STM	300
785 ESP	499
1064	499

o8-DPL and o8-NLD(M) Laser head

To Key Control Box



Molex 6 pin - To Key control box

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

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

Communication Interface

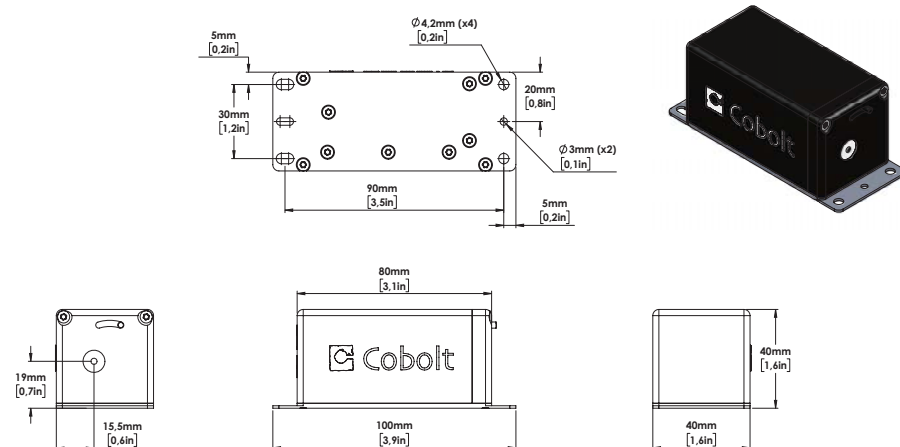
Communication	USB or RS-232
Standard Baudrate	115200



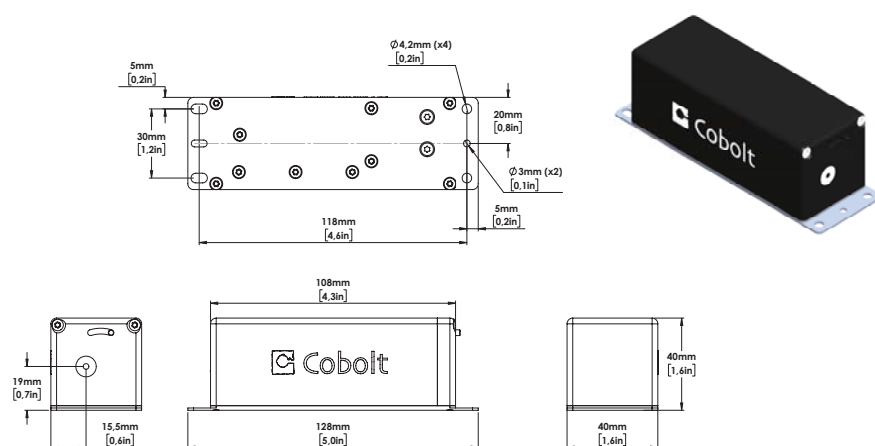
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Mechanical Specifications

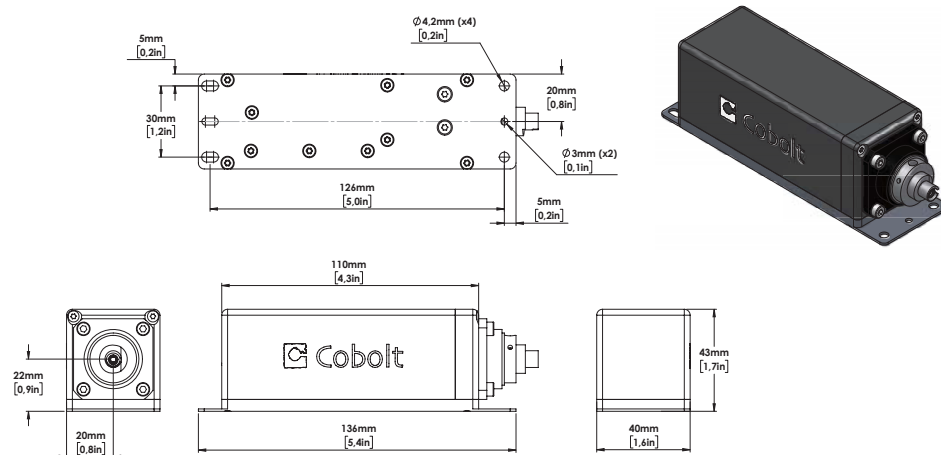
Laser Head without Isolator



Laser Head with Isolator

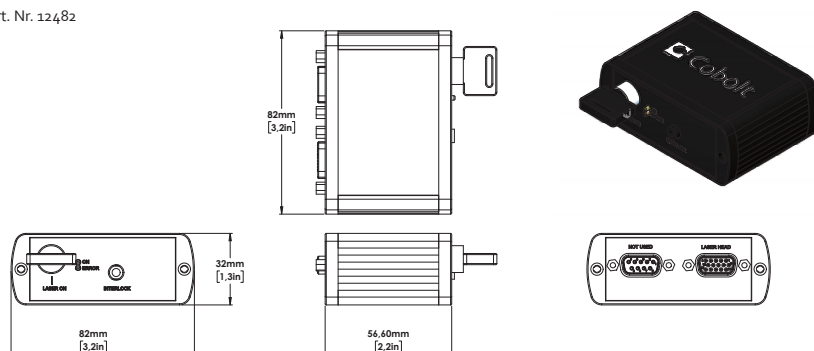


Laser Head with integrated fiber coupler



Key box

Art. Nr. 12482



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Cobolt o8-o1 Series

Options and Accessories

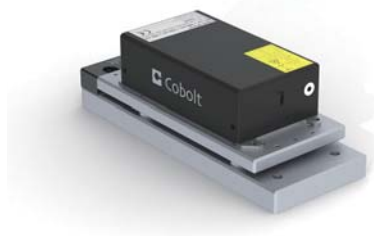
- C-FLEX Laser combiner
- Laser head heatsink HS-o3
- TEC Plate for active temperature control
- Mounting plate for fiber coupling (FIC-o6)



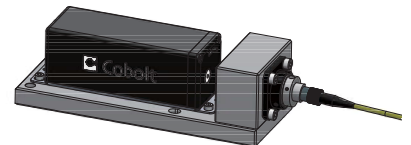
C-FLEX Laser combiner



Heatsink HS-o3



TEC-Plate for active temperature control



Mounting plate for fiber coupling FIC-o6

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