

Cobolt o8-01 Series

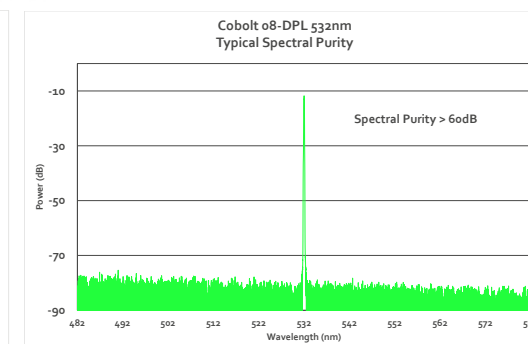
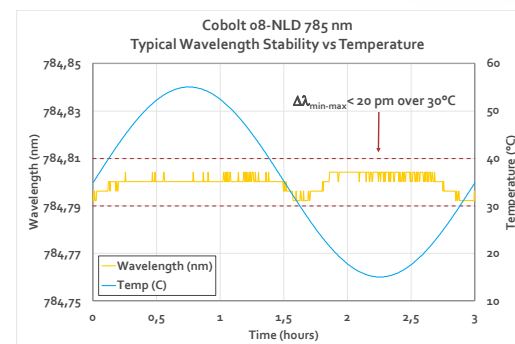
Compact narrow linewidth lasers

- Single frequency diode pumped lasers (DPLs) 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 hermetically sealed package and proven field reliability
- 405 nm, 457 nm, 473 nm, 515 nm, 532 nm, 561 nm, 660 nm, 785 nm, 1064 nm

The Cobolt o8-01 Series is a family of narrow linewidth continuous-wave lasers, including diode pumped lasers as well as frequency stabilized diode lasers 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.

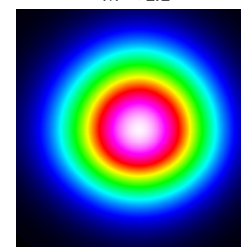
Cobolt lasers are built using proprietary HTCure™ manufacturing technology for ultra-robustness into a compact hermetically sealed package. The lasers emit a high quality laser beam with very stable characteristics and reliable spectral performance, making them ideal for advanced analytical applications 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.

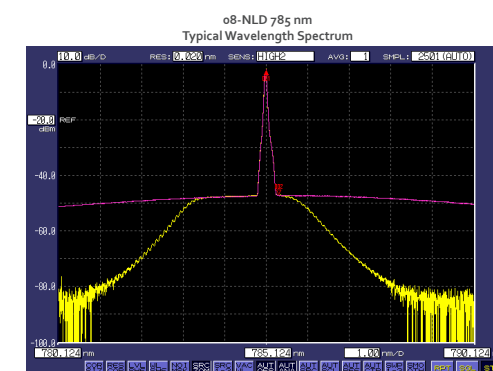


Typical Beam Profile

Cobolt o8-DPL
 $M^2 < 1.1$



This does not represent the beam profile for o8-NLD (405 nm & 785 nm).



Cobolt o8-01 Series

	405 nm	457 nm	473 nm	515 nm	532 nm	561 nm	660 nm	785 nm	1064 nm
Center Wavelength (nm)	o8-NLD 405.0 ± 0.5	o8-DPL 457.0 ± 0.3	o8-DPL 473.0 ± 0.3	o8-DPL 514.4 ± 0.3	o8-DPL 532.1 ± 0.3	o8-DPL 561.2 ± 0.3	o8-DPL 659.6 ± 0.3	o8-NLD 784.8 ± 0.5	o8-DPL 1064.2 ± 0.6
Power (mW) [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]	50 [50]	n/a [500]	400 [n/a]
Optional integrated optical Isolator	Yes					No		Yes	
Maximum optical feedback	n/a [100 %]	1 % [100 %]		10 % [100%]		1 % [n/a]	1 % [100 %]	n/a [100 %]	10 % [n/a]
Spectral bandwidth (FWHM)	< 20 pm		< 1 MHz		< 1 MHz		40 pm*		< 1 MHz
Spectral Purity @ < ± 0.5 nm	> 40 dB		> 60 dB		> 60 dB		> 40 dB		> 60 dB
@ < ± 3 nm	> 60 dB		> 60 dB		> 60 dB		> 60 dB		> 60 dB
Wavelength Stability (8hrs, ± 3°C)	± 2 pm		± 2 pm		± 2 pm		± 2 pm		± 2 pm
Beam divergence (full angle, mrad)	< 1.2		< 1.2		< 1.5		horizontal: < 20 vertical: < 2.5		< 1.8
Spatial mode	M ² < 1.3		M ² < 1.1 (TEM ₀₀)		Multimode		M ² < 1.3		
Beam symmetry	> 0.90:1		> 0.95:1		n/a		> 0.95:1		
Beam diameter at aperture	700 ± 100 μm		700 ± 70 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 %, (typical < 0.15 %)		< 0.5 %		< 0.25 %		
Power stability over 8 hrs (± 3°C)	< 2 %		< 2 %		< 1 %		< 2 %		
Polarization Extinction Ratio (PER)	> 100:1, Vertical		> 100:1, Vertical		> 100:1, Vertical		> 100:1, Vertical		
Maximum base plate temperature	50 °C		50 °C		55 °C		50 °C		
Total system power consumption	< 12 W		< 20 W		< 15 W		< 20 W		
Communication	USB / RS-232		USB / RS-232		USB / RS-232		USB / RS-232		
Power Supply Requirements	5V, 3A		5V, 5A		5V, 3A		5V, 5A		

*Typical Value

Model Numbers with 'wavl-o8-01' and 'wavl-o8-51' are delivered without optical isolator, model numbers 'wavl-o8-11' are delivered with integrated optical isolator

Model number structure	CDRH / CE (key switch for ON/OFF)	OEM (Autostart mode)
USB	wavl-o8-X1-pwr-100	wavl-o8-X1-pwr-200
RS-232	wavl-o8-X1-pwr-300	wavl-o8-X1-pwr-400
Warranty	24 months, unlimited hours	

Mechanical Dimensions (mm)	
Laser head o8-01	100 x 40 x 40
Laser head o8-51	100 x 40 x 40
Laser head o8-11	128 x 40 x 40
Key box	82 x 56.6 x 32

Options & Accessories

- Integrated fiber coupling
- Laser head heatsink
- Keybox for CDRH operation



Integrated fiber coupling option



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
660	300
1064	300



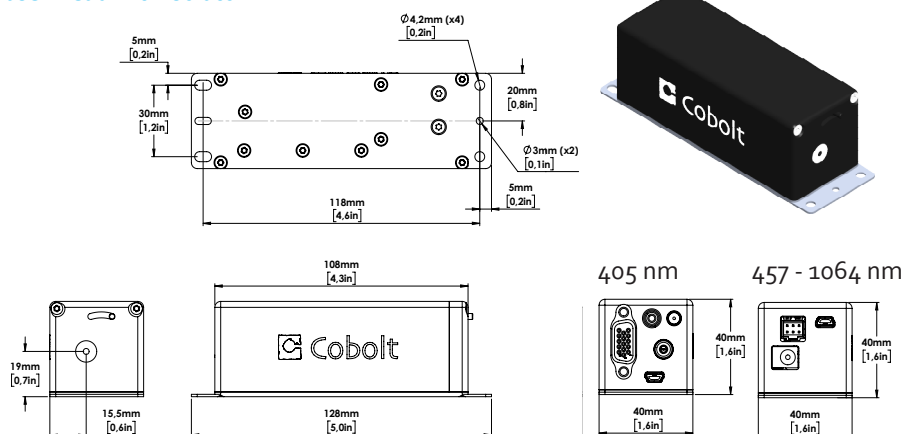
WARNING INVISIBLE LASER RADIATION
Avoid eye or skin exposure to direct or scattered radiation
Class 4 Laser Product
Classified per IEC 60825-1:2014

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

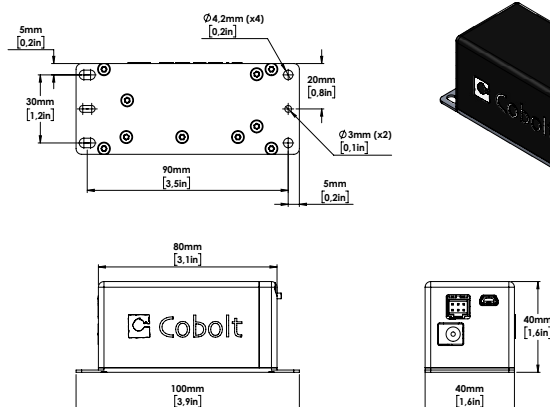
Cobolt o8-01 Series

Mechanical Specifications

Laser Head with Isolator

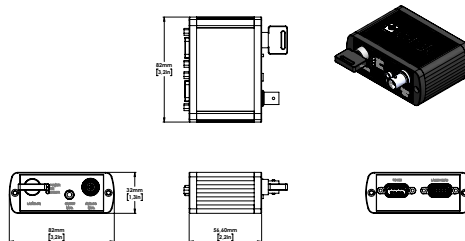


Laser Head without Isolator



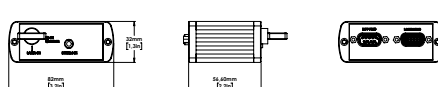
o8-NLD 405 nm Key Box

Art. Nr. 11086



457 - 1064 nm Key Box

Art. Nr. 12482



Electrical Interface

405 nm

Interface	Location	Connector
Input power	Laser Head	DC plug 2.5 mm / 5.5 mm
Remote interlock	Laser Head	2.5 mm audio
Data port	Laser Head	USB-type mini B
Key control Box	Laser Head	VGA D-SUB 15-pin
<i>Not Used</i>	Laser Head	SMA
Laser Head	Key box	VGA D-SUB 15-pin
Direct ON / OFF	Keybox	3.5 mm audio
RS-232 Connection	Keybox	D-SUB 9-pin
<i>Not Used</i>	Keybox	BNC

Cable Art. Nr. 11249 VGA - VGA SubD 15 pin cable

457 - 1064 nm

Interface	Location	Connector
Input power	Laser Head	DC plug 2.5 mm / 5.5 mm
Remote interlock	Laser Head	OEM : Molex pin 1 & 2
Data port	Laser Head	USB-type mini B
Key control Box	Laser Head	Molex 6-pin male
Laser Head	Key box	VGA D-SUB 15-pin
Remote Interlock	Keybox	3.5 mm audio
<i>Not Used</i>	Keybox	D-SUB 9-pin

Cable Art. Nr. 12295 Molex 6 pin - VGA SubD 15 pin cable

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