

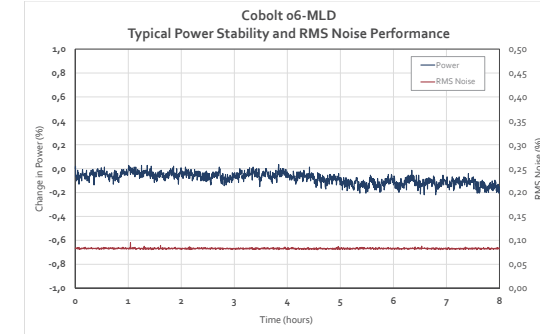
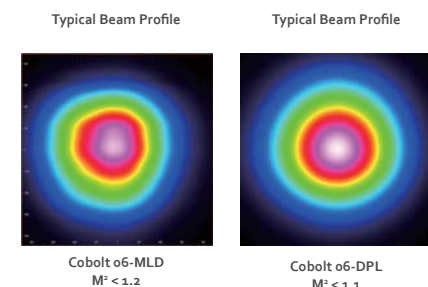
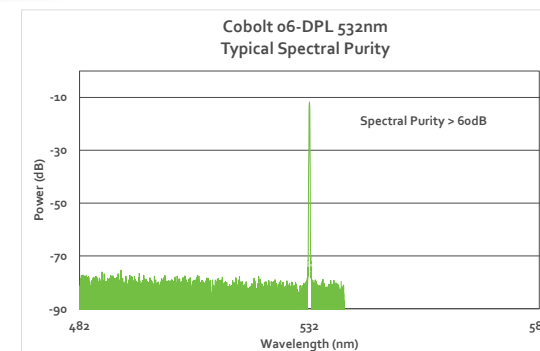
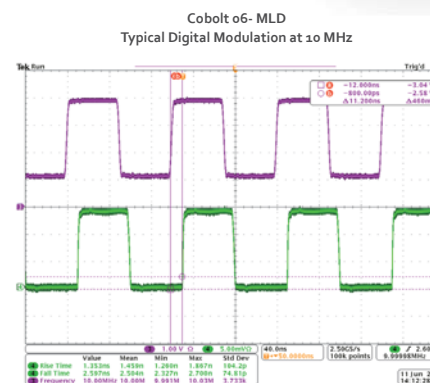
# Cobolt o6-01 Series

## Plug & play modulatable CW lasers

- Easy-to-integrate compact and powerful laser modules
- Power up to 250 mW in a perfect beam
- Direct intensity modulation capability: fast and deep modulation from versatile input signals
- All control electronics fully integrated into laser head
- Ultra-robust design
- 405 nm, 445 nm, 473 nm, 488 nm, 515 nm, 532 nm, 553 nm, 561 nm, 633 nm, 638 nm, 647 nm and 660 nm

The Cobolt o6-01 Series lasers offer a compact form factor and a wide wavelength span in an industry standard plug and play format, utilizing the most ideal laser technology to achieve each wavelength while maintaining the same footprint. The Cobolt o6-01 Series consists of high performance fixed wavelength diode laser modules (MLD) and diode-pumped solid-state lasers (DPL) and offer direct intensity modulation capability, allowing fast and deep modulation from versatile input signals between 405nm and 660nm.

The lasers are manufactured using Cobolt's unique HTCure™ Technology to ensure world-class quality and reliability, as well as unmatched robustness. The Cobolt o6-01 Series lasers are intended for stand-alone use in laboratory environment, or for integration in analytical or metrology instrumentation equipment and are ideally suited for demanding fluorescence analysis applications such as confocal microscopy and flow cytometry.



# Cobolt o6-01 Series

	405 nm	445 nm	473 nm	488 nm	515 nm	532 nm	553 nm	561 nm	633 nm	638 nm	647 nm	660 nm
	o6-MLD			o6-DPL			o6-MLD					
Center Wavelength (nm)	405 ± 5	445 ± 5	473 ± 5	488 ± 5	515 ± 5	532.1 ± 0.3	552.8 ± 0.3	561.2 ± 0.3	633 ± 5	638 ± 5	647 ± 5	660 ± 5
Power (mW)	100 250	80	100	60 200	60	100 200	50	50 100	80	140	120	100
Beam divergence (full angle, mrad)	< 1.1	< 1.2		< 1.3			< 1.2			< 1.7		
Spectral bandwidth (FWHM)	< 1.2 nm			< 1.5 nm			< 1 MHz			< 1.2 nm		
Spatial mode (TEM <sub>00</sub> )	M <sup>2</sup> < 1.2			M <sup>2</sup> < 1.1			M <sup>2</sup> < 1.2					
Beam symmetry	> 0.90:1			> 0.95:1			> 0.90:1					
Beam diameter at aperture (µm)	700 ± 100			700 ± 70			700 ± 100					
Noise, 250 Hz - 2 MHz (rms)	< 0.2%			< 0.3 %			< 0.25 %			< 0.2%		
Power stability over 8 hrs	< 1%			< 2%			< 1%					
Digital modulation												
Bandwidth	DC - 150 MHz			DC-50 kHz			DC-5 kHz			DC - 150 MHz		
Extinction ratio @10 MHz	>10 000 000 : 1 (>70dB)			--			--			>10 000 000 : 1 (>70dB)		
Rise/fall time	< 2.5 ns			< 6 µs			< 60 µs			< 2.5 ns		
Analog modulation												
Bandwidth	DC - 2 MHz			DC-50 kHz			DC-5 kHz			DC - 2 MHz		
Extinction ratio @ 250 kHz	>10 000 000 : 1 (>70dB)			--			--			>10 000 000 : 1 (>70dB)		
Rise/fall time	< 300 ns			< 6 µs			< 60 µs			< 300 ns		
ON-OFF modulation												
Frequency	DC - 500 kHz			n/a			n/a			DC - 500 kHz		
Extinction ratio	inf : 1			n/a			n/a			inf : 1		
Rise/fall time	< 300 ns			n/a			n/a			< 300 ns		
Polarization ratio (vertical)				> 100:1			> 100:1					
Ambient temperature & pointing				< 5 µrad / °C, between 20-50°			< 5 µrad / °C, between 20-50°					
Maximum base plate temperature				50°C			50°C					
Total system power consumption	< 12W			< 20 W			< 12W					
Laser Head heat sink thermal impedance @ 40 °C ambient	< 0.8 K/W			< 0.5 K/W			< 0.8 K/W					
Laser head dimensions				100 x 40 x 40 mm			100 x 40 x 40 mm					
Key box dimensions				82 x 56.6 x 32 mm			82 x 56.6 x 32 mm					
Communication	USB or RS-232 (CDRH /CE Only)			USB			USB			USB or RS-232 (CDRH /CE Only)		
Power Supply	5V, 3A			5V, 5A			5V, 5A			5V, 3A		
Model number structure												
CDRH / CE (Key box included)	wavel-06-01-pwr-100			wavel-06-91-pwr-100			wavel-06-91-pwr-200			wavel-06-01-pwr-100		
OEM (Autostart mode)	wavel-06-01-pwr-200			wavel-06-91-pwr-200			wavel-06-91-pwr-200			wavel-06-01-pwr-200		
Warranty				12 months, unlimited hours			12 months, unlimited hours					

## Options & Accessories

- Mount for external fiber coupling
- Permanent SM/PM fiber pigtailing\*
- Spectral clean up filter
- Laser head heat sink
- Control box with key-switch (CDRH)

\* Not available for all wavelength and power combinations, see [www.cobolt.se](http://www.cobolt.se) for more information



Fiber Pigtailed Option



2-to-1 Laser Combiner for Optogenetics



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 LASER RADIATION**  
Avoid Exposure to beam  
Class 3B Laser Product  
Classified per IEC 60825-1:2014



Wvl (nm)	Max.Pwr (mW)
405	360
445	120
473	120
488	240
515	100
532	300
561	300
553	300
633	120
638	170
647	200
660	170



## PNEUM Co., Ltd.

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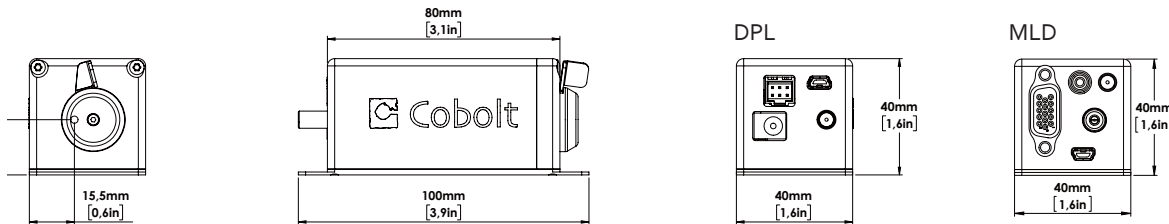
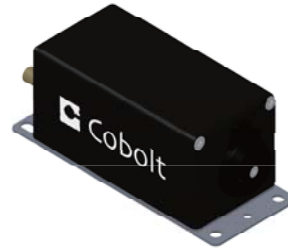
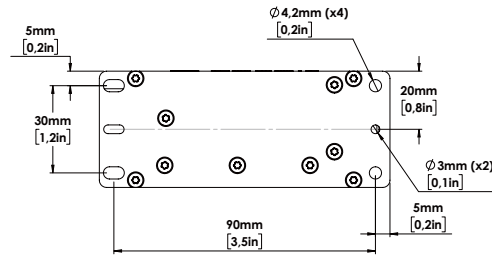
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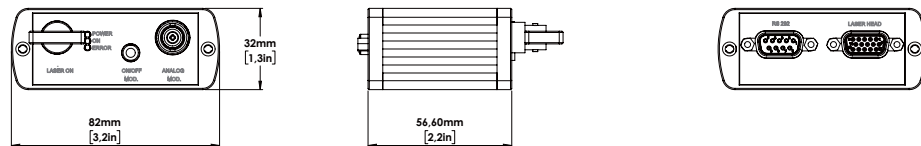
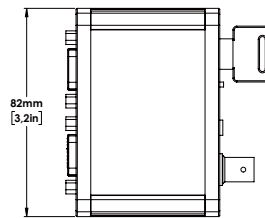
## Cobolt o6-01 Series

### Mechanical Specifications

Cobolt o6-01 Laser head dimensions



MLD Key control box dimensions



### Electrical Interface

Interface	Location	MLD	DPL
Input power	Laser Head	DC plug 2.5 mm / 5.5 mm female	
Remote interlock connector	Laser Head	2.5 mm audio female	OEM : Molex pin 1 & 2
Data port	Laser Head	USB-type mini B	
Key control Box connector	Laser Head	VGA D-SUB 15-pin male	Molex 6-pin male
Digital modulation	Laser Head	SMA female	
Analog modulation	Laser Head	OEM : D-SUB 15 pin 7 & 8	OEM : Molex pin 2 & 3
Laser Head connector	Key box	VGA D-SUB 15-pin male	
Remote Interlock connector	Key box	---	CDRH : 3.5 mm audio female
RS-232	Key box	D-SUB 9-pin male	---
On/off modulation	Key box	3.5 mm audio female	---
Analog modulation	Key box	BNC female	

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