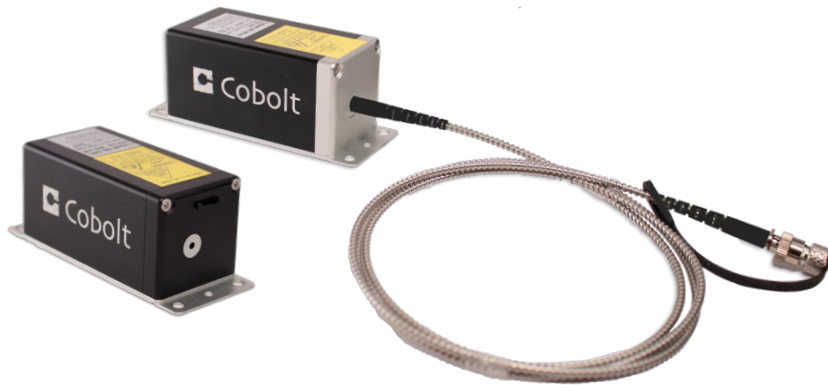


# Cobolt o6-01 Series - High Power

High Power Multimode Diode Lasers | Modulatable | Plug & Play



## Applications

Fluorescence microscopy  
Biomedical Imaging  
Super resolution microscopy  
Quantum research  
Laser pumps  
Lithography

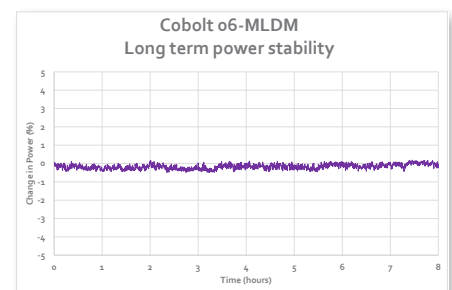
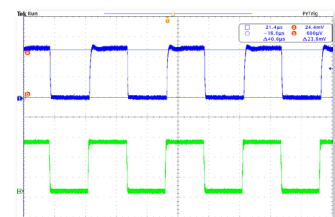
- Easy-to-integrate compact and powerful laser modules
- Output power up to 1.2 W
- Wavelengths from 405 nm to 975 nm
- Free space and fiber pigtailed beam delivery
- Ultra-robust design
- Fast and deep intensity modulation to a complete dark state
- Versatile modulation controls with linear response to analog power control signals

The Cobolt o6-01 Series multimode diode laser modules (o6-MLDM) are high power, high performance lasers operating at a fixed wavelengths, between 405 nm and 975 nm. All included in a compact form factor and an industry standard plug and play format.

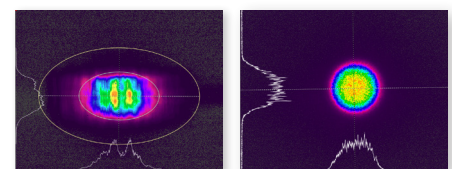
The lasers are manufactured using Cobolt's unique HTCure™ Technology to ensure world-class quality and reliability, as well as unmatched robustness.

The Cobolt o6-MLDM lasers offers direct intensity modulation capabilities, allowing fast and deep modulation from versatile input signals. The permanently aligned fiber pigtailed beam deliver option ensure a homogenous intensity distribution, ideal for various fluorescence microscopy and bioimaging applications.

Typical Analog Modulation at 100 kHz  
Laser signal in blue, input signal in green.



Typical Beam Profile



Free beam

Fiber Pigtailed

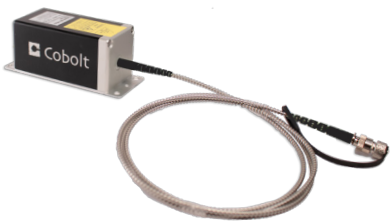
HÜBNER Photonics



# Cobolt o6-o1 Series - High Power Multimode Diodes

## High power multimode diode lasers

The fiber pigtailed option for the Cobolt o6-o1 Series lasers are delivered as free beam laser or with the fiber permanently aligned and fixed inside the sealed package using Cobolt's proprietary HTCure™ Technology, providing stable output over a large temperature range and insensitive to transport conditions.



### High power multimode laser specifications

	405	425	450	488	520	638	750	830	975
Platform	o6-MLDM								
Center Wavelength (nm)	405 ± 5	425 ± 5	450 ± 10	488 ± 5	520 ± 10	638 ± 6	750 ± 5	830 ± 10	975 -10/+5
Power stability over 8 hrs (%)	< 1.0								
Noise, 20 Hz – 2 MHz (RMS, %)	< 0.2								
Free beam power (mW)	900	1200	1200	1200	800	1200	1200	900	900
Beam dimensions (mm, typ.)	X : 2 ± 1 Y : 2 ± 1								
Fiber pigtailed power (mW)	750	1000	1000	1000	650	1000	1000	750	750
Fiber Output	FC/PC, Narrow key								
Fiber Type	Multimode								
Fiber core diameter	50 μm, 105 μm, 200 μm or 400 m					105 μm, 200 μm or 400 m			
Standard Fiber Length (m)	1.0								
Jacketing	Stainless steel								
Warranty	12 months, 5000 hrs								

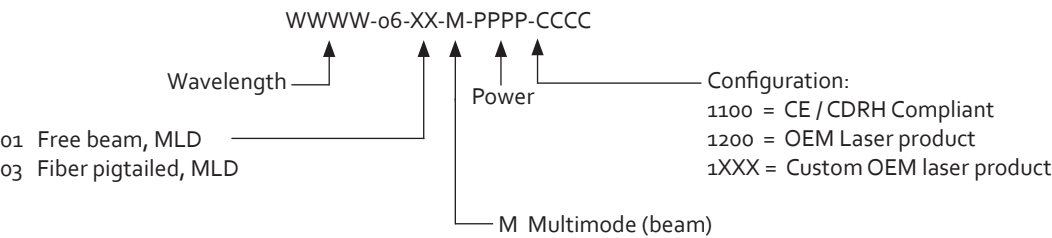
### Operational Environment

Power supply requirements	12 VDC, 3 A
Intended use environment	Laboratory (indoor)
Maximum baseplate temperature	50 °C
Ambient temperature, operation	10 to 40°C
Ambient temperature, storage	-10 to +60°C
Humidity	0-90% RH non-condensing
Ambient Air pressure	800 - 1050 mbar
Laser Head heat sink thermal impedance (at 40°C ambient)	< 0.4 K/W
Maximum heat dissipation of Laser Head	< 25 W



Heatsink HS-07

### Model Number



This device is sensitive to Electrostatic Discharge (ESD).



WARNING VISIBLE AND 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 (W)
405	2.0
425	2.0
450	2.0
488	2.0
520	2.0
638	2.0
750	2.0
830	2.0
975	2.0

# Cobolt o6-o1 Series - High Power Multimode Diodes

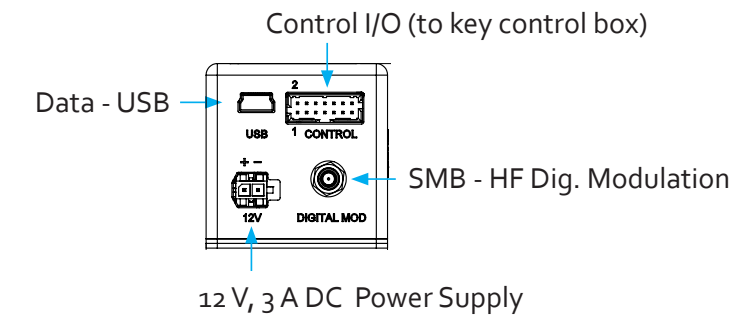
## Modulation Specificaltons

Digital power modulation	
Modulation frequency	> 2 MHz
Rise/fall time	< 50 ns*
Extinction ratio	> 10 000 000 : 1 (> 70dB)
Input signal - Low	0 - 0.8 V
Input signal - High	2 - 5 V
Input signal - Impedance	2 kΩ
Analog power modulation	
Modulation frequency	DC - 100 Hz
Rise/fall time	< 2 ms
Extinction ratio	> 10 000 000 : 1 (> 70dB)
Input signal	0 - 1 V -or- 0 - 5 V
Threshold voltage	37 ± 5 mV (0 - 1 V) 68 ± 5 mV (0 - 5 V)
Input signal - Impedance	2 kΩ -or- 50 Ω
Digital current modulation	
Max. modulation frequency	> 2 MHz
3 dB Bandwidth	> 2 MHz
Rise/fall time	< 50 ns*
Input signal - Low	0 - 0.8 V
Input signal - High	2 - 5 V
Input signal - Impedance	2 kΩ
Analog current modulation	
Max. modulation frequency	> 2 MHz
Rise/fall time	< 250 ns
Input signal	0 - 1 V -or- 0 - 5 V
Threshold voltage	37 ± 5 mV (0 - 1 V) 68 ± 5 mV (0 - 5 V)
Input signal - Impedance	2 kΩ -or- 50 Ω

\* Fall time increased to up to 250 ns for IR wavelengths

## Electrical Interfaces

### Laser Head



## Communication Interface

Communication	USB and RS-232
Standard Baudrate	115200

### Molex 14 pin - Control I/O (to key control box)

Pin	Function
1	Remote Interlock
2	GND
3	GND
4	RS-232 TX
5	RS-232 RX
6	LED 1B (Laser ON)
7	LED 1A (Laser ON)
8	LED 2 (Error)
9	Digital modulation input (limited to 500 kHz)
10	GND
11	Key switch
12	Remote ON/OFF
13	GND
14	Analog modulation input

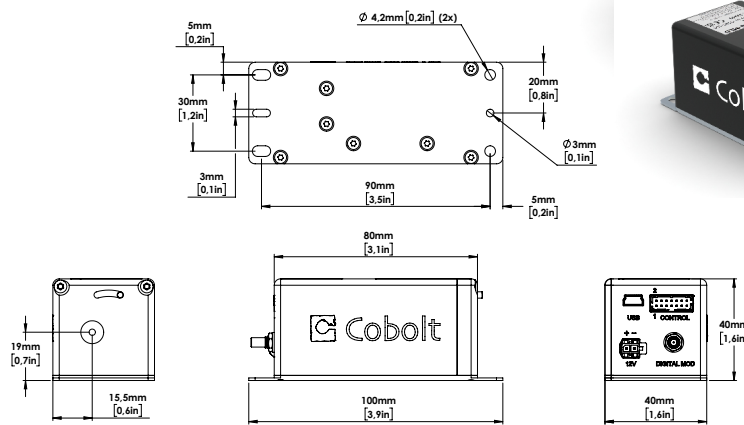
### Molex 2 pin - to power supply

Pin	Function
1	+ 12 V DC, max 3 A
2	GND

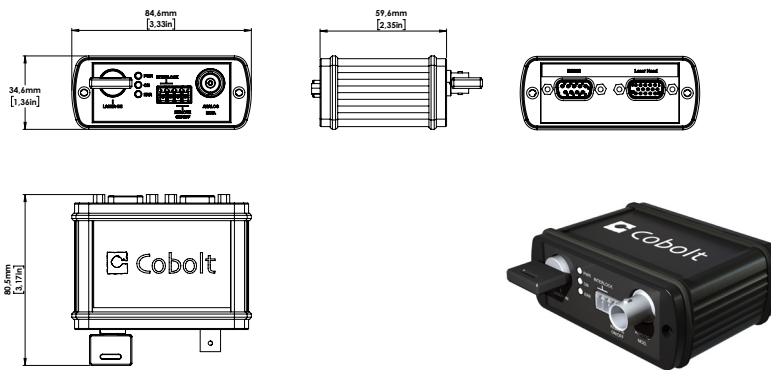
# Cobolt o6-o1 Series - High Power Multimode Diodes

## Mechanical Specifications

### Laser head dimensions



### Key control box dimensions



## Our Locations

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