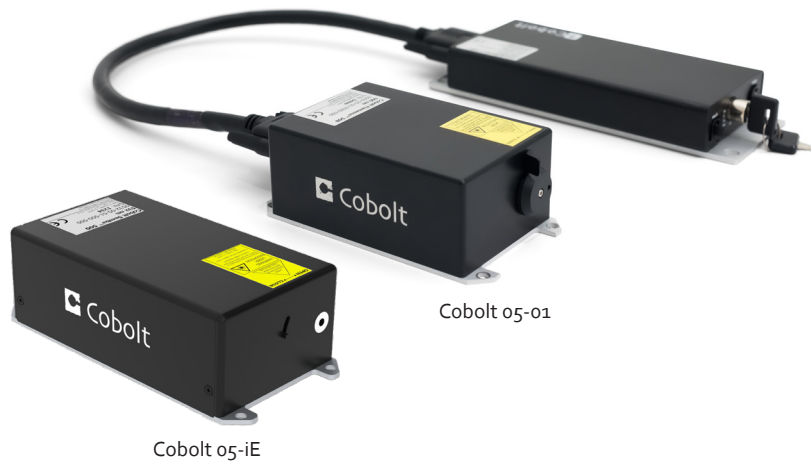


Cobolt 05-01 Series

High Power | Single Frequency | CW Diode pumped lasers



Applications

Raman Spectroscopy
Interferometry
Holography
Optical Tweezers
Super-resolution Microscopy

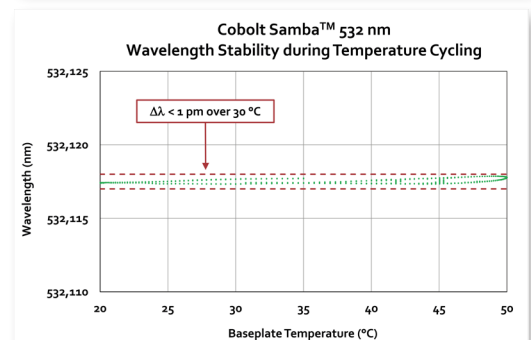
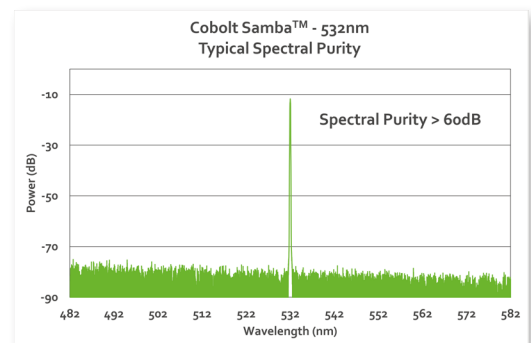
- CW output power up to 3 W in a perfect beam
- Extreme spectral stability
- Ultra-robust, hermetically sealed packages
- Ultra-low noise
- 355 nm, 457 nm, 491 nm, 515 nm, 532 nm, 561 nm, 640 nm, 660 nm and 1064 nm
- Fully Integrated electronics option available
- Up to 24 months warranty, unlimited hours

The Cobolt 05-01 Series lasers are continuous-wave diode pumped laser (DPL) devices operating at a fixed wavelength between 355 nm and 1064 nm. The lasers are built using proprietary HTCure™ manufacturing technology for ultra-robustness in a compact hermetically sealed package.

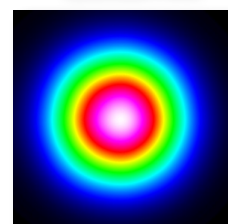
The Cobolt 05-iE is a fully integrated laser device, including all control electronics. The Cobolt 05-iE eliminates the need for an external controller, bringing the trusted laser performance of Cobolt 05-01 Series into a compact, self-contained device.

The lasers emit a very high-quality laser beam with stable characteristics over a wide range of operating conditions. Single frequency operation provides a narrow spectral bandwidth and long coherence length. The lasers are designed and manufactured to ensure a high level of reliability.

The Cobolt 05-01 Series lasers are intended for stand-alone use in laboratory environments or for integration as OEM components in instruments for applications including fluorescence microscopy, flow cytometry, DNA sequencing, HCA, Raman spectroscopy, interferometry, holography and particle analysis.



Typical Beam Profile



Cobolt 05-01 Zouk™
M² < 1.1

HÜBNER Photonics



Cobolt 05-01 Series

Performance Specifications

	Zouk™	Twist™	Calypso™*	Fandango™	Samba™	Jive™	Bolero™	Flamenco™	Rumba™
Center wavelength (nm)	354.8 ± 0.3	457.0 ± 0.3	491.5 ± 0.3	514.8 ± 0.3	532.1 ± 0.3	561.2 ± 0.3	639.6 ± 0.3	659.6 ± 0.3	1064.2 ± 0.6
Available Power Levels (mW)	10 20	100 200	200	300	500 1000 1500	200 300 500	500	100 300 500	500 1000 2000 3000
Noise, 20 Hz - 20 MHz (pk-pk)	< 2%		< 5%	< 2%	< 1%		< 7 %	< 1%	
Noise, 20 Hz - 20 MHz (rms)	< 0.2%		< 0.5%	< 0.2%	< 0.1%		< 1 %	< 0.1%	
Power stability (8 hrs ± 3°C)	< 2%								
Beam divergence (full angle, mrad)	< 0.8	< 1.2					< 1.4	< 1.5	< 1.6
Spatial mode (TEM ₀₀)	M ² < 1.1								
Beam diameter at aperture (µm)	700 ± 50								1000 ± 50
Spectral linewidth (FWHM)	< 1 MHz								
Wavelength stability (steady state)	< 1 pm over ±2°C and 8hrs								
Beam symmetry at aperture	> 0.90:1				> 0.95:1				
Beam pointing stability	< 10 µrad/°C, typical 5 µrad/°C (over 10-40°C)								
Polarization ratio (linear, vertical)	> 100:1								
Warranty (unlimited hours)	12 months		24 months	12 months	24 months		12 months	24 months	

* Cobolt Zouk™ 355 nm and Calypso™ 491 nm laser is not yet available in the 05-iE package.

Operational Environment

The optical performance specifications are not effected by the choice of electronics configuration. However when choosing between the Cobolt 05-01 and 05-iE the operation environment, power supply requirements and thermal management must be considered.

	05-01	Bolero 05-01	05-iE
Power supply requirements	15VDC, 6 A		12 VDC, 6.7 A
System power consumption	< 65 W, typical 30W		
Maximum laser head baseplate temperature	50 °C	45 °C	45 °C
Ambient temperature, operation	10 - 40 °C	10 - 35 °C	10 - 35 °C
Laser head heat sink thermal impedance (at max ambient temperature)	< 0.2 K/W	< 0.18 K/W	< 0.15 K/W
Ambient temperature, storage	-10 -> +60 °C		
Humidity	0- 60 % RH non-condensing		
Ambient air pressure	950 - 1050 mbar		

Model Number

WWW-05-01-PPPP-CCCC

Wavelength ↑ Power ↑ Configuration:

500 = Gen 5b Controller, RS-232, CE / CDRH
 600 = Gen 5b Controller, RS-232, OEM
 700 = Gen 5b Controller, USB, CE / CDRH
 800 = Gen 5b Controller, USB, OEM
 1100 = Integrated electronics, CE / CDRH
 1200 = Integrated electronics, OEM
 XXXX = OEM customization

Communication Interface

Communication	USB or RS-232
Standard Baudrate	115200



This device contains components that may be sensitive to Electrostatic Discharge (ESD). ESD protection can be achieved with proper electrical grounding.



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)
355	50
457	499
491	499
515	499
561	499
660	499



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

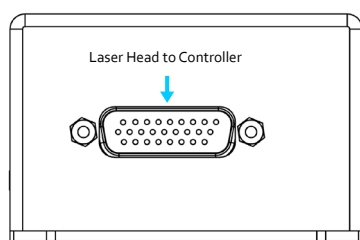


Wvl (nm)	Max.Pwr (mW)
532	3000
561	1000
640	1500
660	1000
1064	4000

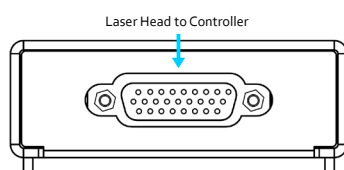
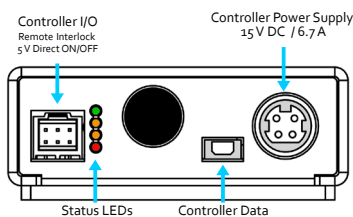
Cobolt 05-01 Series

Electrical Interfaces

Cobolt 05-01 - Laser head



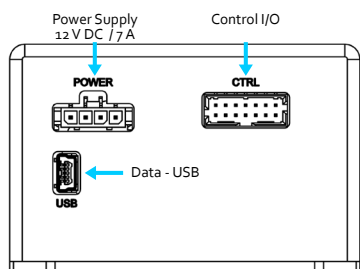
Cobolt 05-01 - Controller



Molex 6 pin - Controller I/O

Pin	Function
1	Remote interlock
2	0 V – Ground
3	Direct Input
4	--
5	LED 1 (LASER ON)
6	LED 2 (ERROR)

Cobolt 05-iE - Laser head



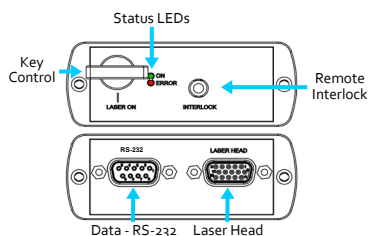
Molex 14 pin- Control I/O

Pin	Function
1	Remote interlock
2	0 V – Ground
3	0 V – Ground
4	RS-232 TX
5	RS-232 RX
6	LED 1A (LASER ON)
7	LED 1B (LASER ON)
8	LED 2 (ERROR)
9	--
10	--
11	Key Switch
12	Direct Input
13	0 V – Ground
14	--

Molex 4 pin - Power Supply

Pin	Function
1	0 V – Ground
2	0 V – Ground
3	+ 12 V - DC
4	+ 12 V - DC

Cobolt 05-iE - Key control box



Sub-D 15 pin- Control I/O

Pin	Function
1	LED 1A (LASER ON)
2	LED 2 (ERROR)
3	--
4	0 V – Ground
5	Key Switch
6	--
7	RS-232 TX
8	RS-232 RX
9	--
10	0 V – Ground
11	Remote interlock
12	--
13	--
14	--
15	0 V – Ground

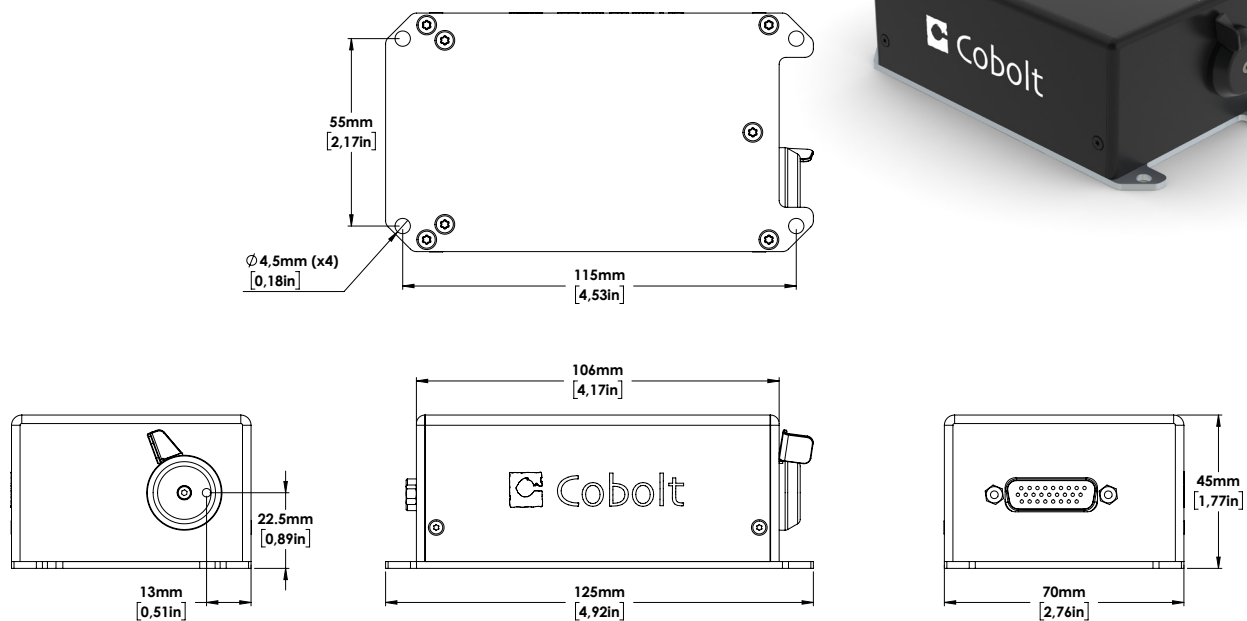
Sub-D pin- RS-232

Pin	Function
1	--
2	RS-232 TX
3	RS-232 RX
4	--
5	0 V – Ground
6	--
7	--
8	--
9	--

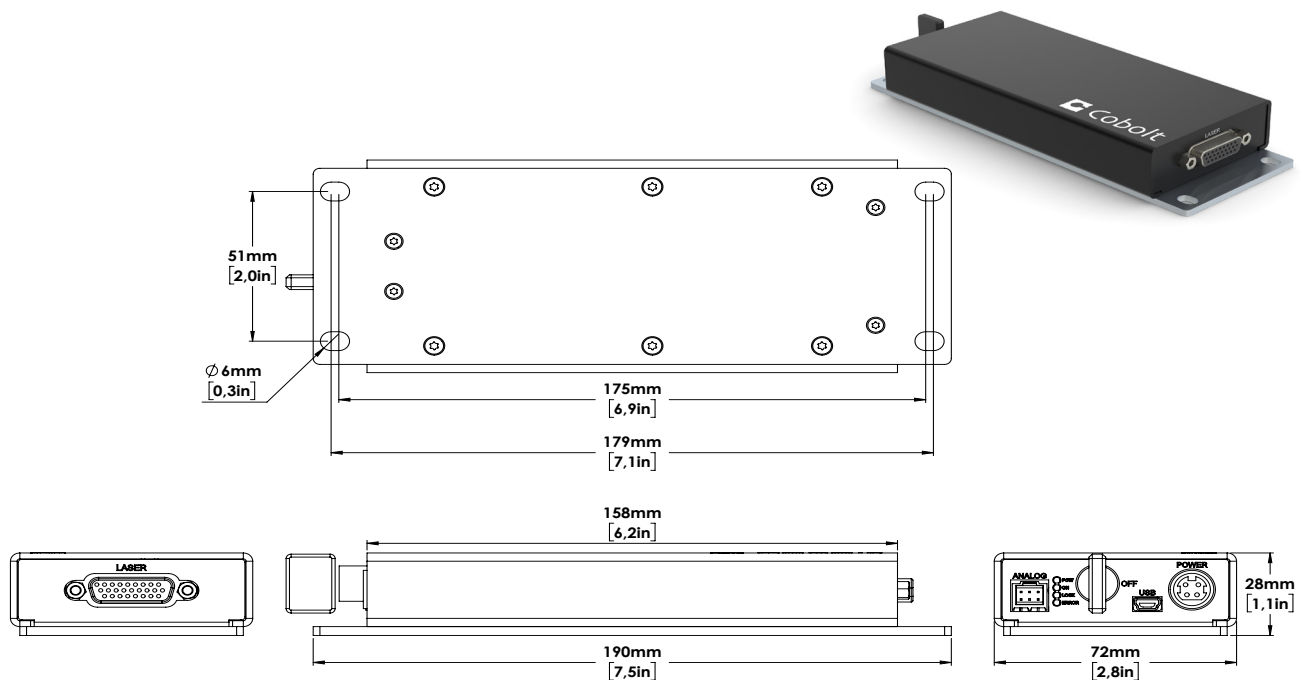
Cobolt 05-01 Series

Mechanical Specifications

Cobolt 05-01 Laser head



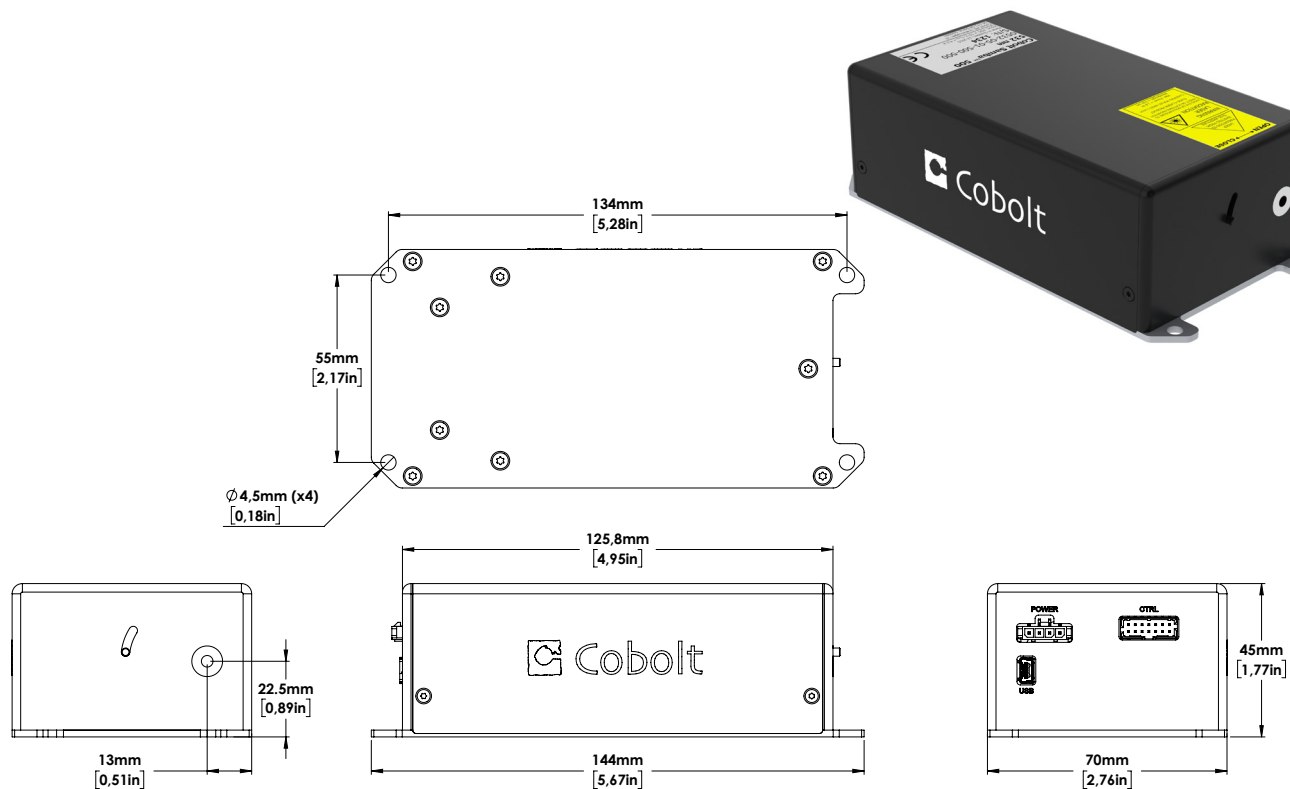
Cobolt 05-01 - Controller



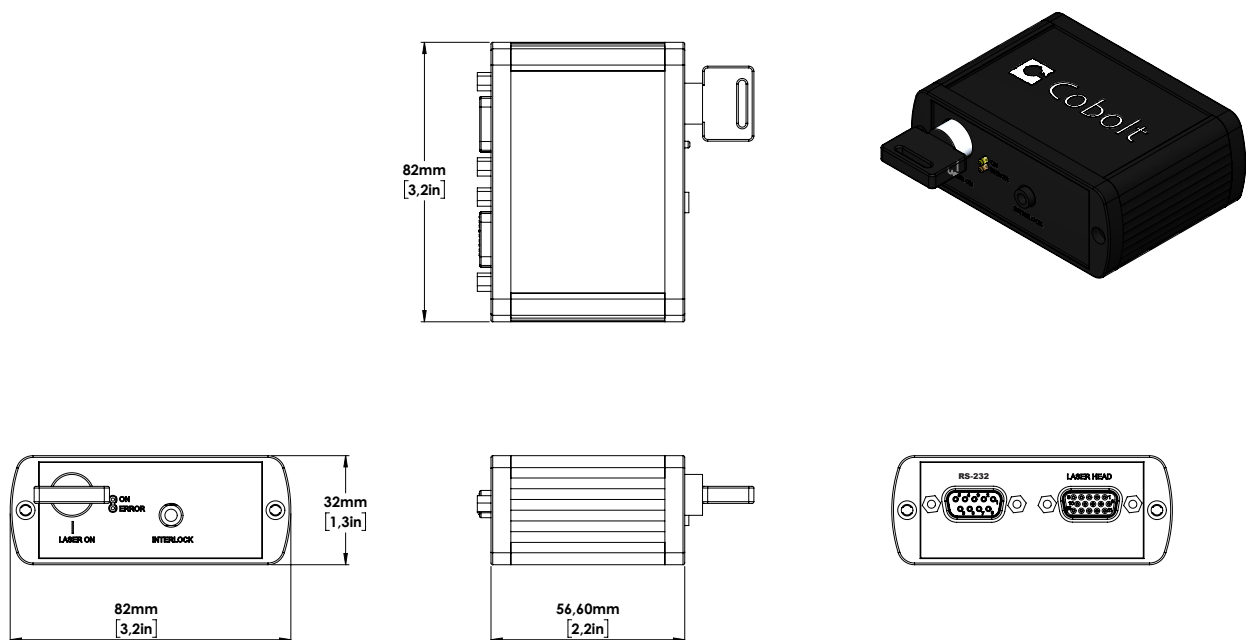
Cobolt 05-01 Series

Mechanical Specifications

Cobolt 05-iE Laser head



Cobolt 05-iE - Key control box



Cobolt 05-01 Series

Options and Accessories

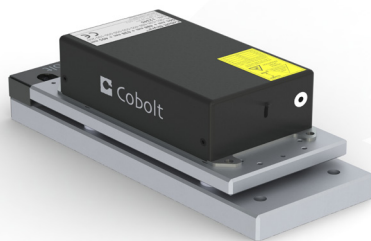
- C-FLEX Laser combiner
- Laser head heatsink with fans for 05-01 lasers : HS-04
- Laser head heatsink with fans for 05-iE lasers : HS-05
- TEC Plate for active baseplate temperature control
- Heatsink with fiber coupling for 05-01 lasers : FIC-04



C-FLEX Laser combiner



Heatsink with fans



TEC-Plate for active baseplate temperature control



Heat sink with fans for fiber coupling FIC-04

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