Cobolt Rogue™ Series

High Power | CW Diode pumped lasers

Cobolt Rogue™

Cobolt Rogue™ iE

Applications

Widefield fluorescence microscopy

Flow cytometery

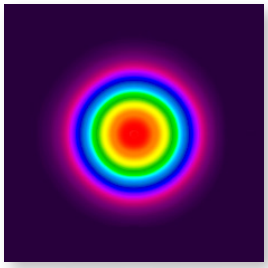
Super-resolution microscopy

DNA sequencing

High content analysis

- 640 nm
- CW output power up to 1 W
- Spectral bandwidth < 150 GHz (200 pm)
- Perfect TEM_{00} beam
- Stable output power < 2 % peak-to-peak over 8 hours
- Ultra-robust, hermetically sealed packages

Typical Beam Profile



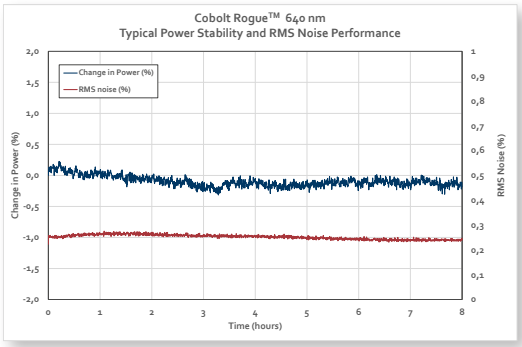
Cobolt Rogue™ 640 nm
M^2 < 1.1

Cobolt Rogue™ Series lasers are continuous-wave diode pumped lasers (DPL) operating at a fixed wavelength. The lasers are built using proprietary HTCure™ manufacturing technology for ultra-robustness in a compact hermetically sealed package.

As a complement to our Cobolt 05-01 Series of single frequency lasers, the Cobolt Rogue™ Series lasers have higher optical power and a spectral bandwidth of < 150 GHz. The lasers emit a very high quality laser beam with stable characteristics over a wide range of operating conditions, they are designed and manufactured to ensure a high level of reliability.

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

Cobolt Rogue™ 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 and High content analysis.



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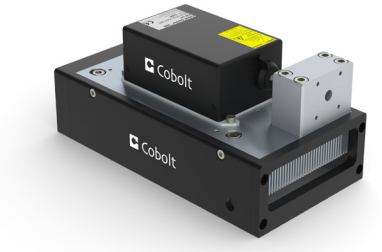
Cobolt Rogue™ Series

Performance Specifications

Center wavelength	639.6 ± 0.3 nm
Available Power Levels	1.0 W
Noise, 20 Hz - 20 MHz (rms)	< 0.5 %
Power stability (8 hrs ± 3°C)	< 2%
Beam divergence (full angle)	< 1.4 mrad
Spatial mode (TEM_{00})	M^2 < 1.1
Beam diameter at aperture	700 ± 50 µm
Spectral bandwidth (FWHM)	< 150 GHz (200 pm)
Beam symmetry at aperture	> 0.90:1
Beam pointing stability (over 10-40°C)	< 10 µrad/°C
Polarization ratio (linear, vertical)	> 100:1
Warranty	24 months, unlimited hours



Cobolt Rogue™ Series laser on a heat sink for fiber coupling (FIC-04)

Operational Environment

	Rogue™	Rogue™ iE
Power supply requirements	15 VDC, 6 A	12 VDC, 6.7 A
System power consumption	< 65 W, typical 30W	
Maximum laser head baseplate temperature	45 °C	45 °C
Ambient temperature, operation	10 - 35 °C	10 - 35 °C
Laser head heat sink thermal impedance (at max ambient temperature)	< 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

WWWW-05-41-PPPP-CCC

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 Elecrostatic Discharge (ESD). ESD protection can be achieved with proper electrical grounding.

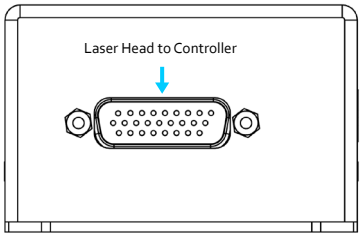
Avoid eye or skin exposure to direct or scattered radiation.
Class 4 Laser Product
Classified per IEC 60825-1:2014

Wvl (nm)	Max.Pwr (mW)
640	2000

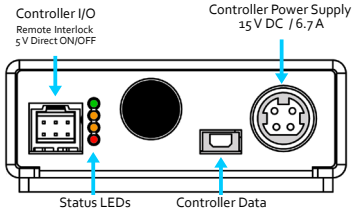
Cobolt Rogue™ Series

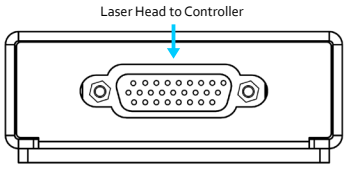
Electrical Interfaces

Cobolt Rogue™ - Laser head



Cobolt Rogue™ - Controller

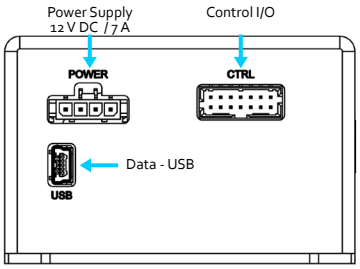




Molex 6 pin - Controller I/O

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

Cobolt Rogue™ iE - Laser head



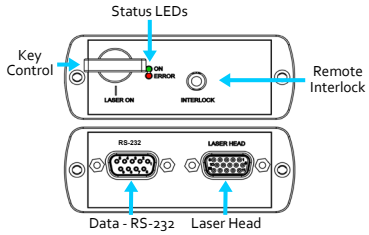
Molex 14 pin- Control I/O

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 Rogue™ 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

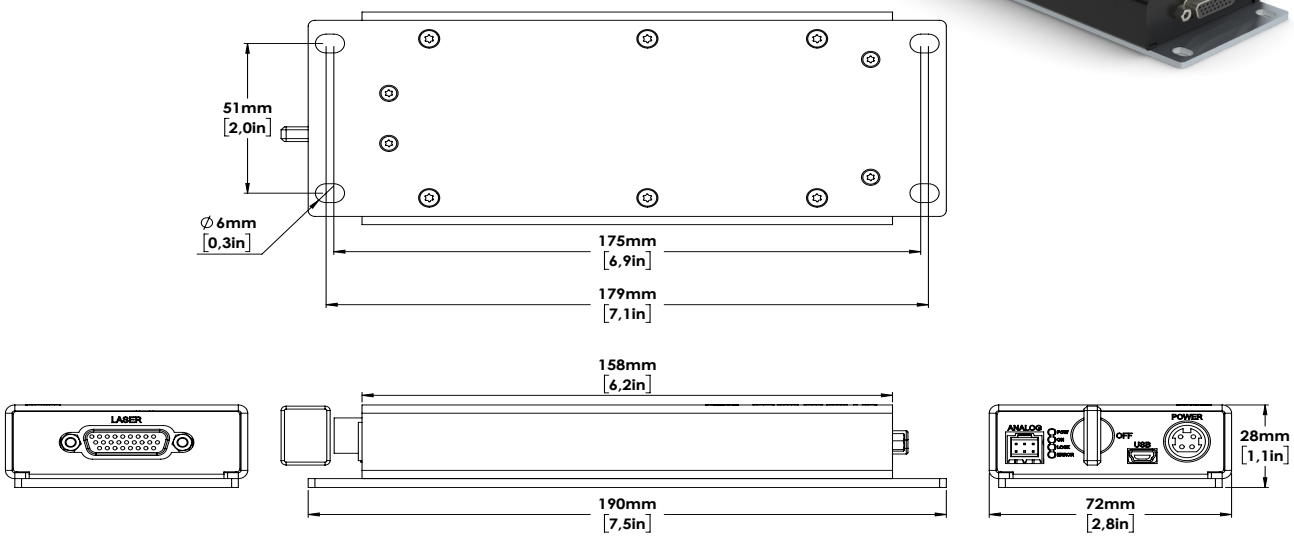
Pin	Function
1	--
2	RS-232 TX
3	RS-232 RX
4	--
5	0 V – Ground
6	--
7	--
8	--
9	--

Cobolt Rogue™ Series

Mechanical Specifications

Cobolt Rogue™ - Laser head

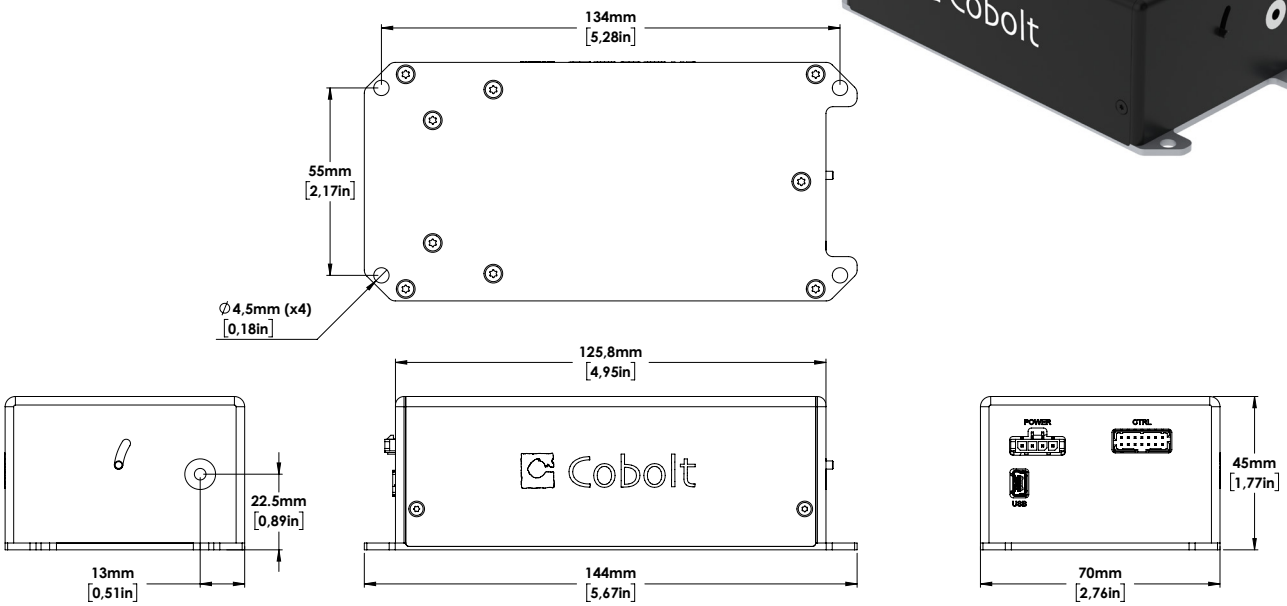
Cobolt Rogue™ - Controller



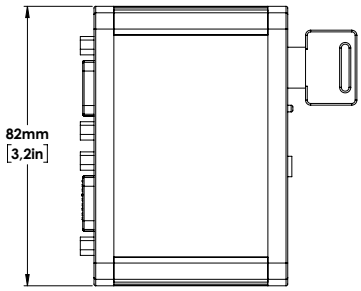
Cobolt Rogue™ Series

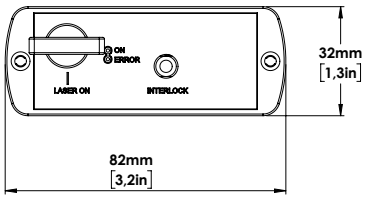
Mechanical Specifications

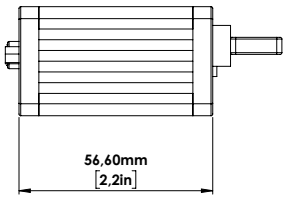
Cobolt Rogue™ iE Laser head

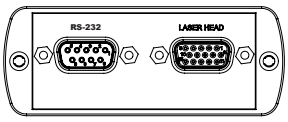


Cobolt Rogue™ iE - Key control box









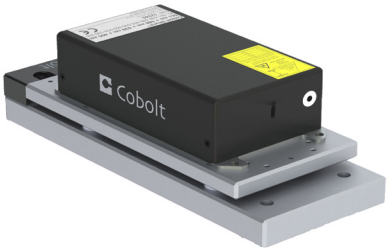
Cobolt Rogue™ Series

Options and Accessories

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

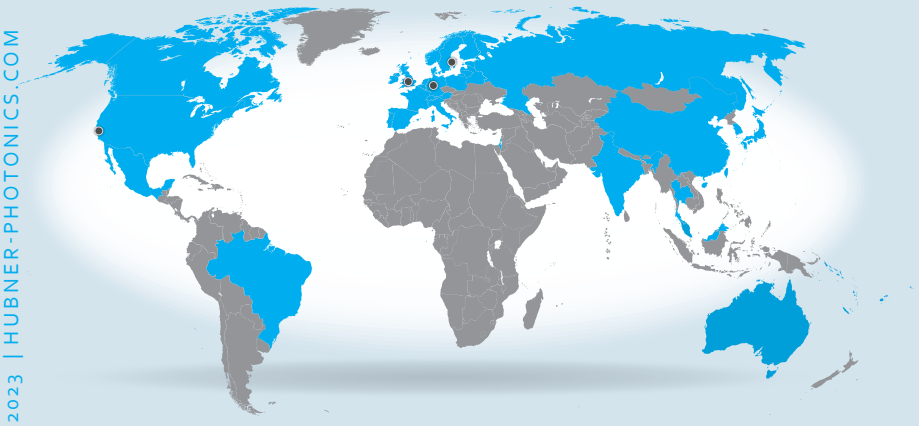
C-FLEX Laser combiner

Heatsink with fans HS-04



TEC-Plate for active baseplate temperature control

Heat sink with fans for fiber coupling FIC-04



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