Cobolt Rogue™ Series

High Power | CW Diode pumped lasers

Applications
Widefield fluorescence microscopy
Flow cytometry
Super-resolution microscopy
DNA sequencing
High content analysis

- 640 nm
- CW output power up to 1 W
- Spectral bandwidth < 150 GHz (200 pm)
- Perfect TEM₀₀ beam
- Stable output power < 2 % peak-to-peak over 8 hours
- Ultra-robust, hermetically sealed packages

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.
Cobolt Rogue™ Series

Performance Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Center wavelength</td>
<td>639.6 ± 0.3 nm</td>
</tr>
<tr>
<td>Available Power Levels</td>
<td>1.0 W</td>
</tr>
<tr>
<td>Noise, 20 Hz - 20 MHz (rms)</td>
<td>&lt; 0.5 %</td>
</tr>
<tr>
<td>Power stability (8 hrs ± 3°C)</td>
<td>&lt; 2%</td>
</tr>
<tr>
<td>Beam divergence (full angle)</td>
<td>&lt; 1.4 mrad</td>
</tr>
<tr>
<td>Spatial mode (TEM00)</td>
<td>M² &lt; 1.1</td>
</tr>
<tr>
<td>Beam diameter at aperture</td>
<td>700 ± 50 µm</td>
</tr>
<tr>
<td>Spectral bandwidth (FWHM)</td>
<td>&lt; 150 GHz (200 pm)</td>
</tr>
<tr>
<td>Beam symmetry at aperture</td>
<td>&gt; 0.9:1</td>
</tr>
<tr>
<td>Beam pointing stability</td>
<td>&lt; 10 µrad/ºC</td>
</tr>
<tr>
<td>Polarization ratio</td>
<td>&gt; 100:1</td>
</tr>
<tr>
<td>Warranty</td>
<td>12 months, unlimited hours</td>
</tr>
</tbody>
</table>

Operational Environment

<table>
<thead>
<tr>
<th></th>
<th>Rogue™</th>
<th>Rogue™iE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power supply requirements</td>
<td>15 VDC, 6 A</td>
<td>12 VDC, 6.7 A</td>
</tr>
<tr>
<td>System power consumption</td>
<td>&lt; 65 W, typical 30W</td>
<td></td>
</tr>
<tr>
<td>Maximum laser head baseplate temperature</td>
<td>45 ºC</td>
<td>45 ºC</td>
</tr>
<tr>
<td>Ambient temperature, operation</td>
<td>10 - 35 ºC</td>
<td>10 - 35 ºC</td>
</tr>
<tr>
<td>Laser head heat sink thermal impedance (at max ambient temperature)</td>
<td>&lt; 0.18 K/W</td>
<td>&lt; 0.15 K/W</td>
</tr>
<tr>
<td>Ambient temperature, storage</td>
<td>-10 -&gt; +60 ºC</td>
<td></td>
</tr>
<tr>
<td>Humidity</td>
<td>0- 60 % RH non-condensing</td>
<td></td>
</tr>
<tr>
<td>Ambient air pressure</td>
<td>950 - 1050 mbar</td>
<td></td>
</tr>
</tbody>
</table>

Model Number

Wavelength: WWWW-05-41-PPPP-CCC

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

<table>
<thead>
<tr>
<th>Communication</th>
<th>USB or RS-232</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Baudrate</td>
<td>115200</td>
</tr>
</tbody>
</table>

This device contains components that may be sensitive to Electrostatic 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 | --
Cobalt Rogue™ Series

Mechanical Specifications

Cobalt Rogue™ - Laser head

Cobalt Rogue™ - Controller
Cobolt Rogue™ Series

Mechanical Specifications

Cobolt Rogue™ IE Laser head

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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