

# Cobolt Skyra™

Compact | Plug and play | Multi-line Laser



- Combine up to 4 laser lines, permanently aligned in a single device
- 405 nm, 445 nm, 457 nm, 473 nm, 488 nm, 515 nm, 532 nm, 553 nm, 561 nm, 594 nm, 633 nm, 638 nm, 647 nm, 730 nm and 785 nm
- Direct intensity modulation of each line individually, fast and deep modulation from versatile input signals with complete dark state capability
- Up to 100 mW of optical power per laser line
- Compact, robust package with integrated electronics
- Intergrated fiber coupled option with full spectral coverage 405 - 785 nm
- User friendly graphical software interface

Cobolt Skyra™ is an extremely compact, permanently aligned, plug & play, multi-line laser with up to 4 laser lines and control electronics integrated into one single, temperature-controlled package, small enough to fit in the palm of your hand!

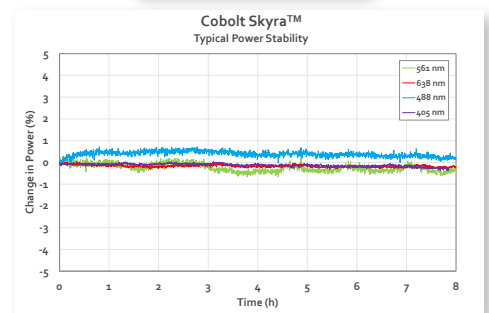
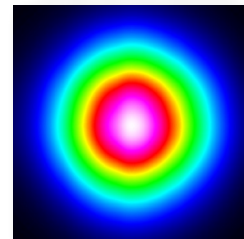
The laser is built using Cobolt's proprietary HTCure™ manufacturing technology for robustness in a compact, hermetically sealed package. HTCure™ results in an ultra-stable, permanent alignment of optical elements, with very precise and stable overlap of the combined output beams.

The Cobolt Skyra™ is available in a free beam or fiber coupled configuration. It is intended for stand-alone use in laboratory environments or for integration as OEM components in instruments for applications including biomedical research, fluorescence microscopy, flow cytometry, as an Argon ion replacement in microscopy instrumentation and optogenetics.

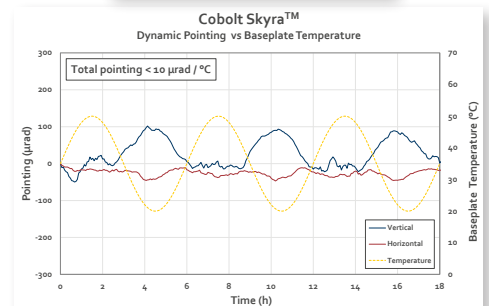
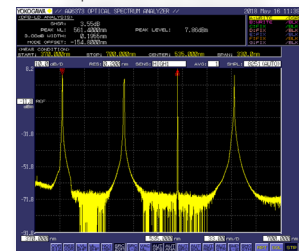
## Applications

- Fluorescence microscopy
- Optogenetics
- Flow Cytometry
- Biomedical research
- Ar<sup>+</sup> Ion Replacement

Cobolt Skyra™ - Combined Beam Profile  
All 4 laser lines in one measurement



Cobolt Skyra™ - Combined Spectral Performance  
All 4 laser lines in one measurement



	532	553	561	594	405	445	457	473	488	515	633	638	647	730	785
	Cobolt DPL				Cobolt MLD										
Center Wavelength (nm)**	532.1	552.8	561.2	593.6	405	445	457	473	488	515	633	638	647	730	785
Wavelength accuracy (nm)	± 0.3				± 5		+3/-7	± 5							
Power (mW)	50 100	50 100	50 100	50 100	50 100	50 100	50 100	50 100	50 100	50 100	50	50 100	50 100	30	100

\* One DPL laser line at 532nm, 553nm, 561nm or 594 nm can be combined with any 3 of the MLD wavelengths. The wavelength difference between each line must be at least 15 nm.

\*\* Standard wavelength options listed, additional wvlengths available on request.

### Optical Specifications

Beam diameter at aperture	700 ± 100 µm
Beam symmetry	> 0.85 : 1
Beam divergence, full angle	< 1.8 mrad
Spatial mode (TEM <sub>00</sub> )	M <sup>2</sup> < 1.25
Polarization extinction ratio	> 100:1, vertical
Noise 250 Hz - 2 MHz (rms) *	< 0.3 %*
Long-term stability (8 hrs ± 3°C)	< 3 %
Beam position accuracy	< 0.5 mm
Beam angle accuracy	< 5 mrad
Ambient temperature & pointing (20-50 °C)	< 10 µrad / °C
Beam position overlap at exit	< 50 µm
Beam-to-beam angle deviation	< 250 µrad

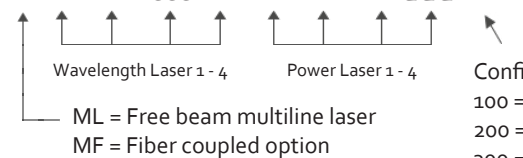
\* 532 - 594 nm lasers RMS noise < 0.5 %, noise typically increases after fiber coupling.

### Modulation Specifications

	MLD	DPL (532, 553, 561 and 594nm)
Digital modulation		
Bandwidth	DC - 5 MHz	DC-5 kHz
Extinction ratio	> 10 000 000 : 1 (> 70 dB)	> 50 dB
Rise/fall time	< 60 ns	< 60 µs
Analog modulation		
Bandwidth	DC - 500 kHz	DC-5 kHz
Extinction ratio	> 10 000 000 : 1 (> 70 dB)	> 50 dB
Rise/fall time	< 1 µs	< 100 µs
Internal modulation		
Bandwidth	500 Hz	500 Hz

### Model Number

ML-AAA-BBB-CCC-DDD-XXX-YYY-ZZZ-QQQ-WWW



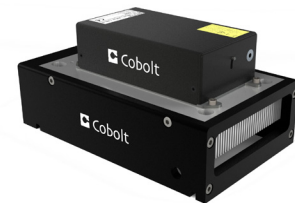
Configuration:  
 100 = USB, CE / CDRH Compliant  
 200 = USB, OEM  
 300 = RS-232, CE / CDRH Compliant  
 400 = RS-232, OEM  
 xxx = OEM customization

### Options and Accessories

- Control box with key-switch (CDRH)
- Laser head heat sink with fans - HS-05
- Integrated fiber coupling option



Key control box



Heat sink with fans



Fiber coupled option



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	120, 450
445	120, 499
457	150, 499
473	120, 350
488	80, 250
515	100, 200
532	200, 499
553	100, 499
561	150, 499
594	200, 499
633	120
638	200
647	200
730	100
785	499

# Cobolt Skyra™

## Integrated Fiber Coupled Option

Coupling Efficiency	> 50 % per laser line into one fiber
Long-term stability (8 hrs ± 3°C) - out of the fiber	< 3 %
Fiber Output	FC / APC, 8°, non-collimated
Fiber Type	SM / PM
Polarization	PER > 30:1, ± 3° with respect to the key
Standard Fiber Length	1 m
Jacketing	Ø 3mm, PVC



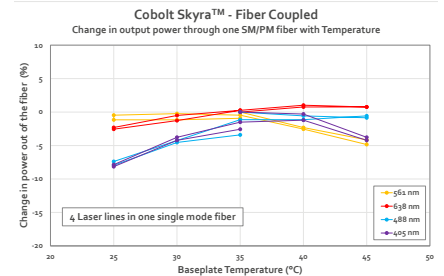
### Fiber options

Art. Nr. 80100	Fiber and coupler : 405 - 640 nm, SM/PM, FC/APC, end-cap, Wide Key
Art. Nr. 80110	Fiber and coupler : 405 - 640 nm, SM/PM, FC/APC, end-cap, Narrow Key
Art. Nr. 80223	Fiber and coupler : 405 - 785 nm, PCF, FC/APC, end-cap, Wide Key

## Operation Environment Specifications

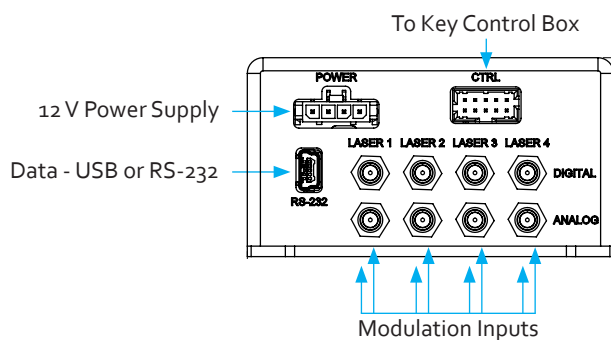
Power supply requirements	12 VDC, 6.67 A
Power consumption, total system	60 W
Maximum baseplate temperature	50 °C
Ambient temperature, operation	10 - 40 °C
Storage temperature	- 10 °C to +60 °C
Laser Head heat sink thermal impedance at 40 °C	< 0.17 K/W
Warm-up time from complete "off"	< 3 min
Communication protocol	USB or RS 232
Warranty**	12 months

\*\* Not including fiber or coupler



## Electrical Interface

### Skyra Laser Head



### Molex 10 pin - To Key control box

Pin	Function
1	Remote interlock
2	0 V – Ground
3	Direct On/Off (+5 V Input) – OEM Only
4	Key Switch
5	LED 1A (Laser On)
6	LED 2 (Error)
7	LED 1B (Laser On - Redundant)
8	Not used (test)
9	Not used (Ground)
10	Not used (Ground)

### Molex 4 pin - To Power Supply

Pin	Function
1	0 V
2	0 V (connected to pin 1)
3	+12 VDC (connected to pin 4)
4	+12 VDC

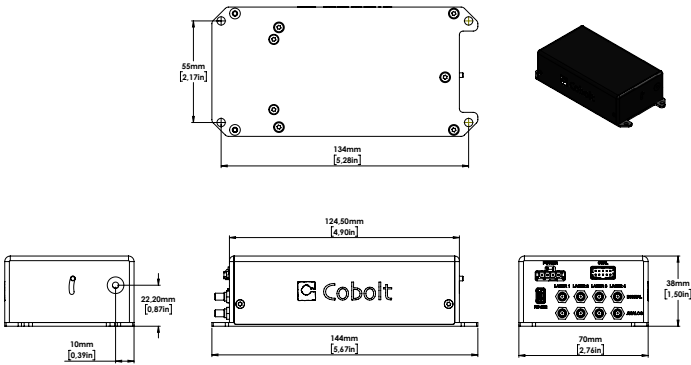
## Communication Interface

Communication	USB or RS-232
Standard Baudrate	115200

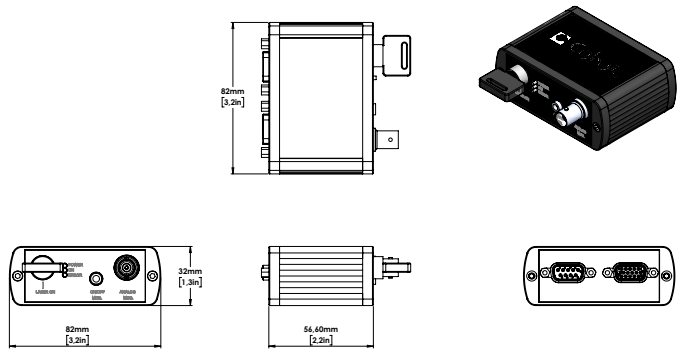
# Cobolt Skyra™

## Mechanical Specifications

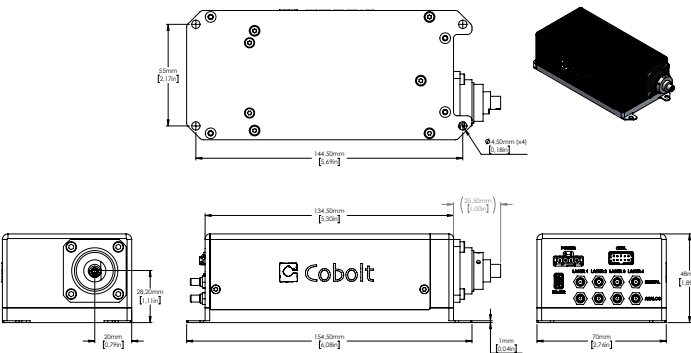
### Free beam laser head dimensions



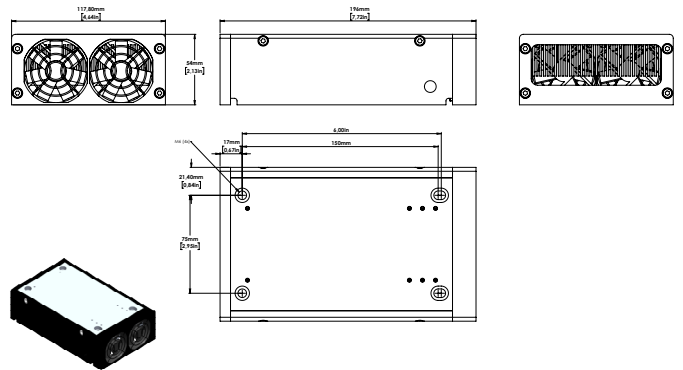
### Key control box dimensions



### Fiber coupled laser head dimensions



### HS-05 - Heat sink with fans



## Our Locations

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