

# Cobolt Optogenetics Solutions

Optimized for precise neural activation and inhibition



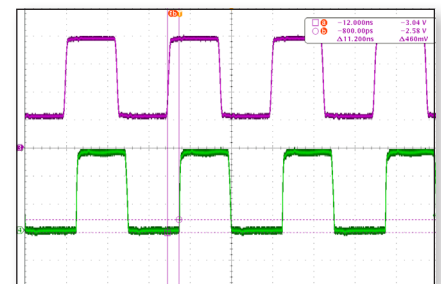
- Wavelengths from the Cobolt o6-01 Series and Cobolt o4-05 Series, such as 473 nm, 532 nm, 561 nm, 594 nm, 638 nm, 660 nm
- >100 mW output power
- Fast and high aspect ratio modulation up to 3 MHz (direct current modulation or integrated AOM)
- Stable and efficient coupling into optical fibers
- 2-line combiners

The Cobolt's Optogenetics solutions include up to two lasers on one platform launched into one common fiber coupler, suitable for 2-into-1 coupling using e.g., fused silica fibers. The lasers are available at various wavelengths matching the sensitivity peaks of the commonly used rhodopsins, with adjustable optical output power up to over 100 mW and fast high aspect ratio modulation with perfect pulse control.

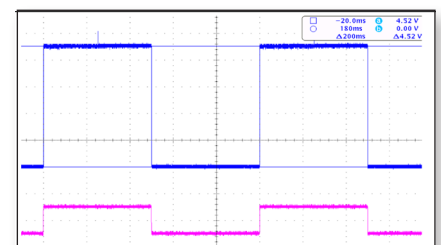
Each configuration is built around highly reliable and very stable Cobolt lasers. The Cobolt o6-01 Series lasers are ultra-compact plug & play modulatable lasers that can be directly modulated and feature precision electronics. The Cobolt o6-MLD 473 nm and the o6-DPL 594nm are the preferred lasers for optogenetics. The Cobolt o4-05 Series of diode-pumped solid-state (DPSS) lasers enables laser excitation at faster modulation speeds.

Configurations described in this document include two lasers combined into a single multi-mode fiber (MM), with or without intensity modulation capability. To each fiber-coupled system, a MM fiber (with 50-200µm core diameter) of your choice can be easily attached. For solutions with single lasers, refer to the [Cobolt o6-01 Series](#). For more advanced solutions, refer to our [C-FLEX laser combiner](#).

All solutions offer full control over the pulse generation, perfect pulse-to-pulse stability, high extinction ratio, and fiber coupling efficiencies of > 80%.

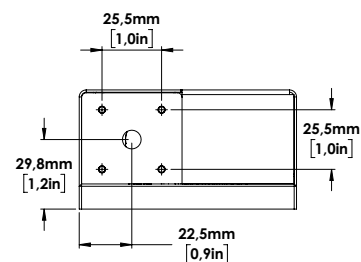
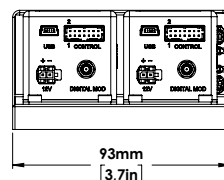
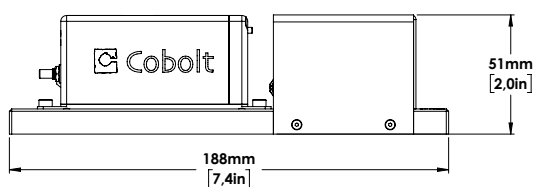
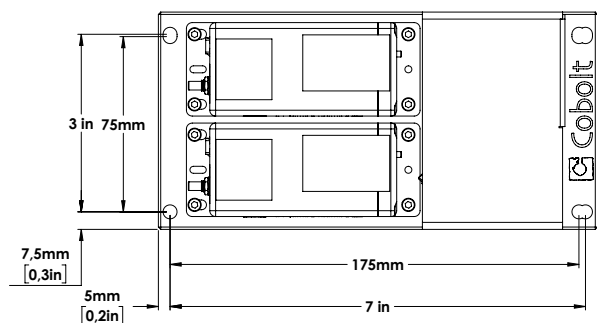


Laser output traces of a Cobolt o6-MLD 488 nm laser at 10 MHz



Laser output traces of a Cobolt o6-DPL 594 nm laser with direct modulation at 100 Hz

## 2-in-1 Laser and Fiber combiner (2x o6-01)



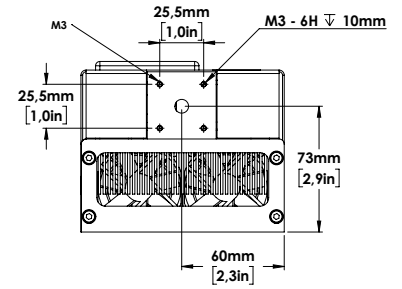
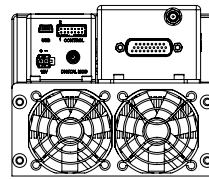
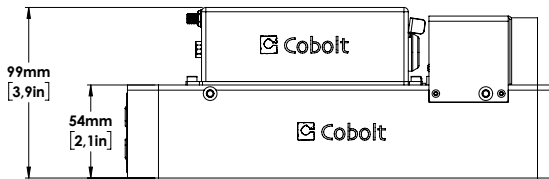
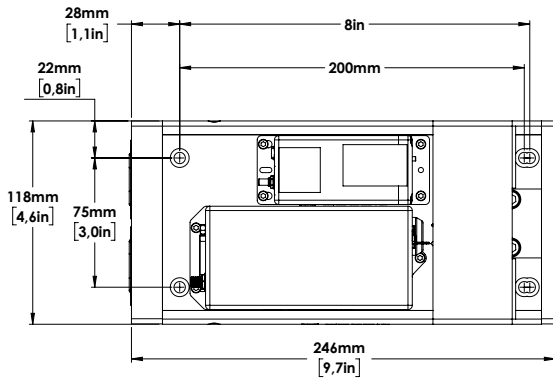
### System Description

Part	Description
o6-01 Laser	Cobolt o6-MLD*, up to 150 MHz modulation
o6-01 Laser	Cobolt o6-DPL*, up to 10 kHz modulation
Optogenetics platform	Heatsink & Mounting mechanics for fiber coupler
Fiber collimator & connector	Schäfter + Kirchhoff mounting adapter, collimator and SMA connector** for coupling into multi-mode fibers 50/100/200 µm. Coupling efficiency >80%. Note: fiber not included

\* For wavelengths available, [see Cobolt o6-01 Series on website](#).

\*\* FC/PC connector available upon request

# 2-in-1 Laser and Fiber combiner (o6-01 | o4-05)



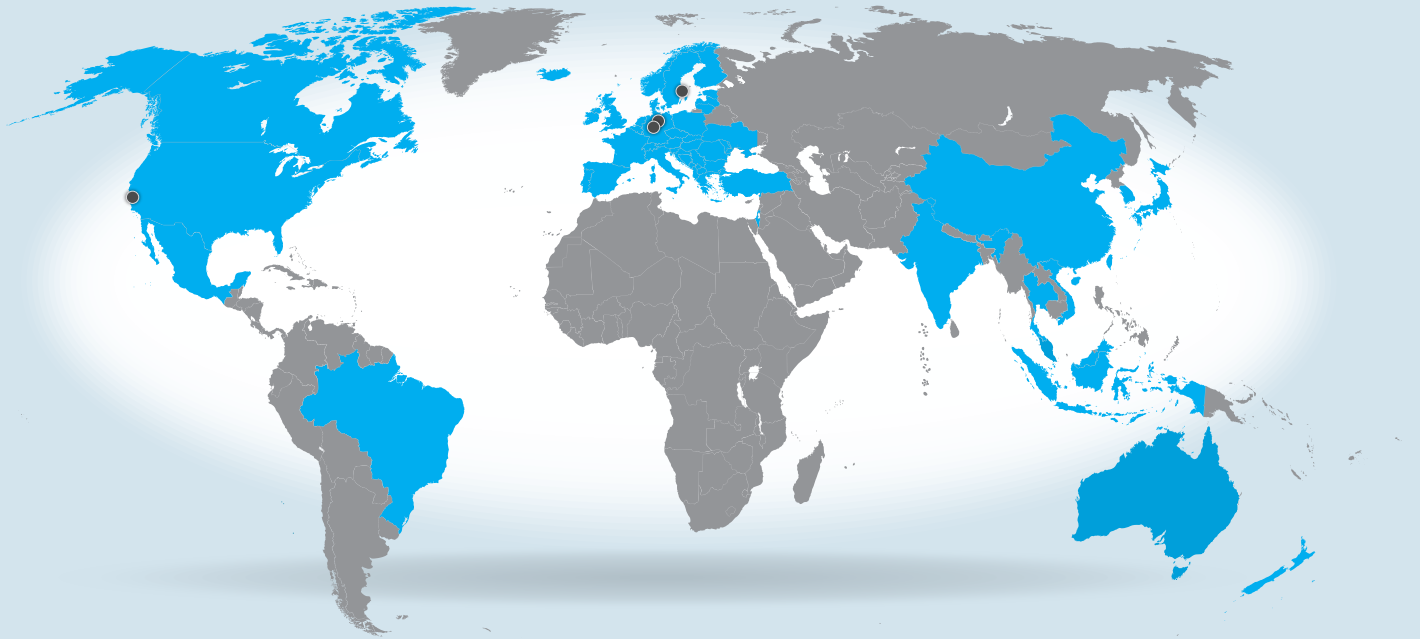
## System Description

Part Name	Description
o4-05 Laser	Cobolt Modulated DPSS laser with integrated AOM **, up to 3 MHz modulation
o6-01 Laser	Cobolt o6-MLD laser*, up to 150 MHz modulation
Optogenetics platform	Heatsink & Mounting mechanics for fiber coupler
Fiber manipulator collimator & connector	Schäfter + Kirchhoff mounting adapter, collimator and connector (FC/PC or SMA) for coupling into multi-mode fibers 50/100/200 μm. Coupling efficiency >80%. Note: fiber not included.

\* For wavelengths available, [see Cobolt o6-01 Series on website.](#)

\*\* For wavelengths available, [see Cobolt o4-01 Series on website.](#)





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