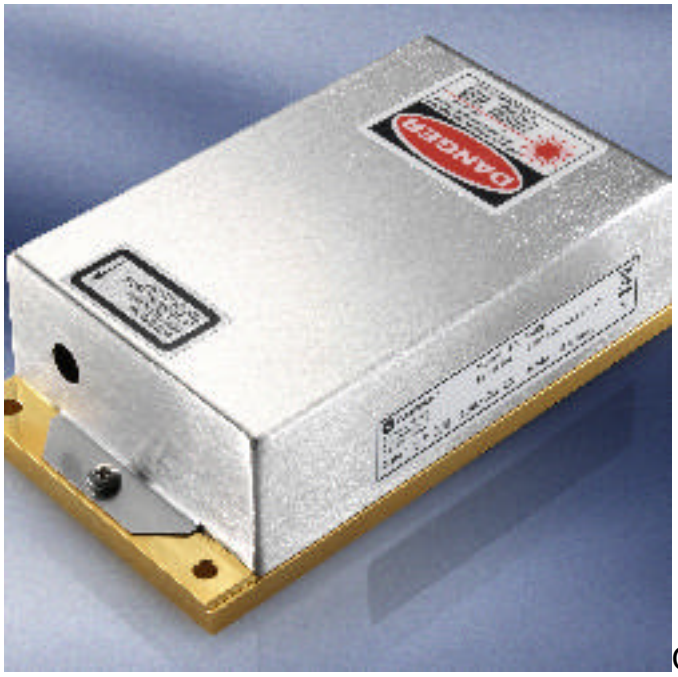
Optically Pumped Semiconductor Laser With Output at 552 nm



Coherent Inc. has introduced the world's first commercial, all solid-state optically pumped semiconductor laser (OPSL) with output at 552 nm. These new Sapphire 552 LP lasers offer continuous wave (CW) output of 50 mW, 75 mW, 100 mW, 150 mW, and 200 mW which makes them particularly useful for applications in life sciences. They also provide a high quality, diffraction-limited beam (TEM00, $M^2<1.1$) with excellent pointing stability (< 5 µrad/°C), high power stability (< 2%) and low noise (< 0.25% rms from 20 Hz to 2 MHz). Sapphire 552 LP lasers come with a compact laser head, measuring just 125 mm x 70 mm x 34 mm; this is identical to all other Sapphire LP lasers, independent of wavelength and power class, simplifying integration including wavelength addition and substitution for OEMs and end users alike. As with other Sapphire LP lasers, the new 552 nm models are equipped with USB, RS-232 and analog interface ports for ease of installation and operation.
Sapphire lasers are based on Coherent's unique optically pumped semiconductor laser (OPSL) technology. This is a well-proven technology with over 25,000 units currently in the field. One of the main benefits of OPSLs is wavelength scaling: the possibility to build OPSLs at nearly any visible wavelength. This has created a paradigm shift in visible laser applications where laser output is matched to key applications instead of vice versa. And, unlike most other solid-state lasers, OPSLs do not suffer from thermal lensing, so the output power of any Sapphire LP can be smoothly adjusted from 10% to 110% of nominal power with no effect on beam quality.

Sapphire 552 LP lasers are intended for life sciences applications including flow cytometry, confocal microscopy, and drug discovery. Because this wavelength is well-separated from established, popular laser wavelengths (e.g. 532 nm and 568

nm), it is ideal for instrument builders and end users looking to increase the number of fluorophores they can simultaneously detect without crosstalk.

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