

520 nm Laser Modules for Medical Applications

Stability and Laser Class guaranteed

Laser modules with 520 nm laser diodes that emit directly are being used more and more in medical applications – quite often as a replacement for 532 nm solid-state lasers. Laser Components also offers 520 nm laser diodes in all of its FLEXPOINT® series laser modules on an optional basis.

To meet the demands placed on medical technology, the 520 nm FLEXPOINT® laser modules were additionally equipped with a photodiode. The integration of the photodiode offers many advantages:

Performance stability across a given temperature range:

At an operating temperature range between 0 °C and 50 °C, the output power is kept constant at $\pm 5\%$. In comparison, other modules available on the market that only have a current control may fluctuate more than $\pm 10\%$. Due to this increased level of stability, we can guarantee compliance with critical laser classes (1, 1M, 2, 2M).

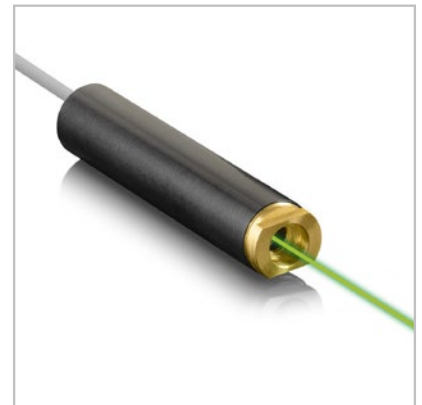
Single Fault Safety:

An additional monitoring circuit guarantees real single fault safety: this is an absolutely crucial characteristic in the medical field.

Power Adjustment and Modulation:

In the FLEXPOINT® laser modules, the output power can be adjusted analog using a control wire and a voltage signal (0 - 5 V). The integration of the additional photodiode significantly improves the linearity of the adjustment range. In addition, we offer the option of digital or analog modulation. Pulse width modulation is also available.

The 520 nm laser modules are available as dot, line, or cross-hair lasers. The output power ranges from < 1 mW to 25 mW. These lasers are used to position patients (for a CT scan or an MRT) and as a pilot beam for invisible high-power medical lasers. Laser Components develops and manufactures the appropriate laser module for your application.



Specifications

Basic Properties:

Spectral range	520 nm +/-10 nm
Output power	<1 - 25 mW
Operating voltage	10 - 30 VDC
Current consumption	<200 mA
Operating temperature	10 °C - 50 °C
Storage temperature	-20 °C - 60 °C
Lifetime	>5000 h
Modulation	analog (low active standard 10 kHz), digital (low active standard 10 kHz)
Power stability	+/-5% (Photodiode controlled)
Extra safety control loop	real 1-error protection
Analog modulation	improved linearity
Modulation characteristic	0 - 0.5 V Laser OFF, 0.5 - 4.5 V linear area, 4.5 - 5 V ON

Beam Properties:

Beam profile	Dot, Gaussian Line, Crosshair, Pattern Generators (DOE: multiline, dot matrix, dot line, circle, many more), homogeneous line (MV series)
Boresight deviation	<1°
Pointing stability	<10 µrad/°C

Mechanical Properties:

Housing size	70 mm x 11.5 mm (l x Ø)
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