

BLOCK

LaserTune-M™

Multiple Module EC-Quantum Cascade Laser



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Block Engineering's LaserTune-M is a broadly tunable external cavity quantum cascade laser (EC-QCL) for benchtop research. Configurable with up to four laser modules in a single package, the LaserTune-M covers ranges in the mid-infrared region between $800\text{--}1800\text{ cm}^{-1}$ ($5.5\text{--}12.5\text{ }\mu\text{m}$).

Block's second generation of quantum cascade lasers offer higher resolution measurements, greater signal-to-noise ratios, and greater reliability in the smallest multi-laser external cavity QCL form factor on the market.

The compact laser preserves valuable benchtop space for your research, and requires no additional bulky cooling equipment.

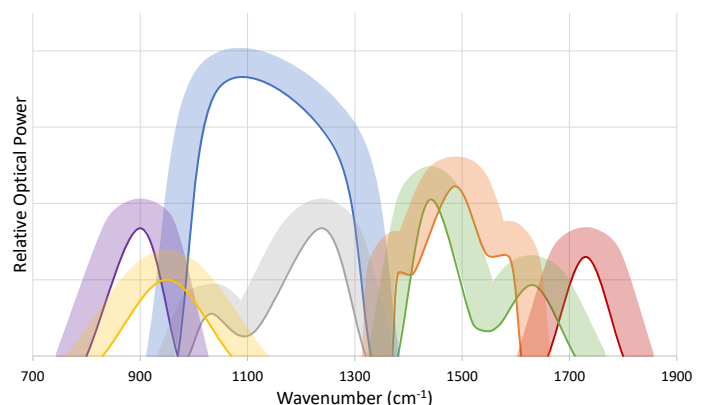
LASERTUNE-M HIGHLIGHTS

- Combine up to four unique tuning ranges in a single, compact instrument.
- Fast scanning speeds: up to $25,000\text{ cm}^{-1}$ per second.
- New firing modes offer unique capabilities for time sensitive applications.
- New technology offers 100x greater thermal stability, allowing for higher duty cycles, and greater output power compared with previous generation QCLs.
- Passive cooling introduces no vibration to your table, and saves space compared with actively cooled systems.

Configurable with 1-4 tunable laser ranges, the LaserTune-M provides a unique selection of flexible programming options with traditional ramp, step, and static firing modes, as well as new non-traditional firing modes.

The LaserTune-M is completely turnkey and will be set up within minutes of unboxing.

To the right are relative power profiles for available tuning ranges. Combine up to 4 of these ranges in a single instrument.





Current Specifications

Laser Rating (IEC 60825)	Class 3B (at QCL aperture) Vis. Pointing: Class II
Spectral Linewidth	$<2\text{ cm}^{-1}$ (typ.)
Spectral Accuracy / Repeatability	$<2\text{ cm}^{-1} / <\pm 0.2\text{ cm}^{-1}$ (typ.)
Pulse Power	$< 500\text{ mW}$, 30-500 ns pulse widths
Average Power (wavenumber dependent)	Up to 75 mW at 15% duty cycle
Pulse to Pulse Stability	Stdev $< 1.5\%$ pulse-to-pulse
Average Power Stability	$< \pm 0.1\%$ average over 1 hour (at 25C)
Beam Quality	TEM00 (nominal)
Beam Diameter	2 x 4 mm, collimated output
Beam Divergence	$< 5\text{ mrad}$
Pointing Stability	$< \pm 1\text{ mrad}$ standard
Time to Reach Peak Power	Typical rise times are 4 ns
Temperature Stability	Power vs Temperature Stability $< \pm 0.01\%$ per $^{\circ}\text{C}$ (typ. 10-65 C) WN vs Temperature Stability $< 0.01\text{ WN}$ per $^{\circ}\text{C}$ (10-65 C)
Thermal Load	4.8 W of heat produced at laser head
Laser Operating Modes	Sweep, Step, Static, Interleaved™, Grid™
Dimensions	233 x 261 x 217 mm
Weight	$\leq 7.3\text{ kg}$

Available Tuning Ranges (Combine Up to 4)

Specified Tuning Range (cm^{-1})	Maximum Duty Cycle	Tuning Range (μm) (typ.)
800-970	8%	10.3-12.5
830-1070	15%	9.4-12
970-1330	15%	7.5-10.3
990-1320	15%	7.5-10.1
1370-1610	8%	6.2-7.3
1380-1710	15%	5.8-7.2
1660-1800	8%	5.5-6
Gap-free multi-laser systems are available upon request.		