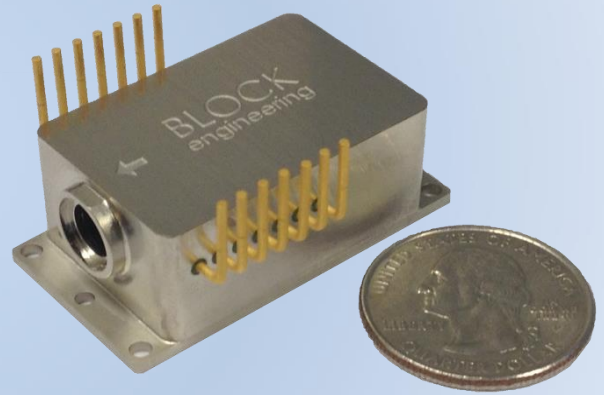


WIDELY TUNABLE MID-IR OEM LASER MODULE

Key Features

- ▣ Industry-leading widely tunable QCLs
Selected > 250 cm⁻¹ ranges from 5.4 to 12.8 μm
- ▣ Laser control electronics capable of controlling up to 4 laser modules
- ▣ Fastest tuning (settling < 15 msec)
- ▣ Excellent beam pointing stability
- ▣ Ultra small and lightweight Laser module
- ▣ Compact and flexible control electronics

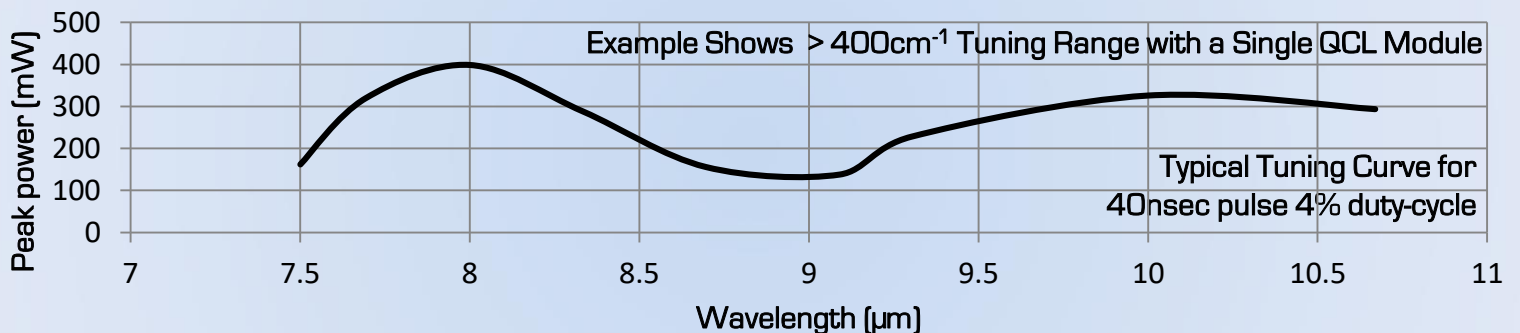
Smallest Widely Tunable QCL Module



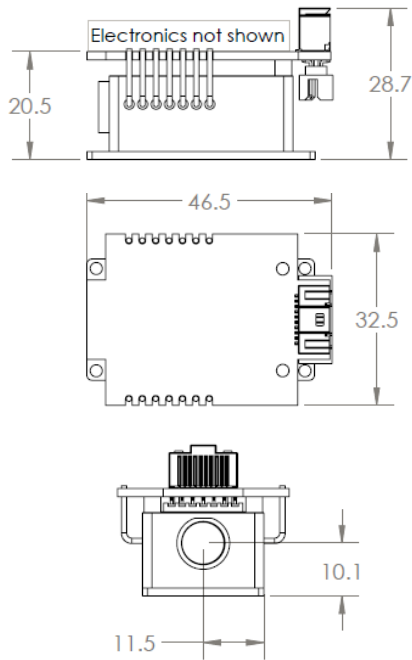
Flexible OEM System Configurations

Components/Features	mini-QCL™ 200
Tunable Laser Module	✓
Laser Module Electronics	✓
Laser Control Electronics	✓
System Control Electronics	✓
Ethernet Communication (HTML/SOAP)	✓

Industry-Leading Tuning Range



Tunable Laser Module & Electronics



Tunable Mid-IR Laser OEM Module Specifications

Module Tuning Range	Selected >250 cm ⁻¹ ranges over 5.4 -12.8 μm Electronics configurable up to 4 Laser Modules
Spectral Linewidth	2 cm ⁻¹ (typical)
Spectral Accuracy / Repeatability	< 2 cm ⁻¹ / < 0.5 cm ⁻¹ (typical)
Maximum Peak Power	150 - 400 mW (typical, see tuning curve)*
Average Power	Varies 2 - 20 mW across range (5% duty cycle)**
Power Stability	< 5% pulse-to-pulse (typical) < 0.05% over 10 msec @ 1 MHz
Pulse Width	30 - 300 nsec <ul style="list-style-type: none"> ▫ continuously variable with External Pulse Control ▫ 10-ns-resolution with Triggering
Pulse Repetition Frequency	Up to 3 MHz
Maximum Duty Cycle	2 - 20% (depending on operational conditions, mounting and tuner wavelength range)
Beam Quality	Single spatial mode
Beam Diameter	2 x 4 mm, collimated output
Beam Divergence	< 5 mrad
Pointing Stability	< 1 mrad
Polarization	Vertically polarized, 100:1 extinction
Tuning Modes	Move Tune - manual control at one wavelength Step Tune - programmable linear steps Sweep Tune - variable sweep speed
Step Tune Speed	10 cm ⁻¹ step in < 1 msec (100 cm ⁻¹ step in < 2 msec) Example: Step across 1000 cm ⁻¹ in 1.1 seconds with 100 steps with 10 msec dwell per step
Sweep Tune Speed	Linear sweep up to 15 cm ⁻¹ /msec
Computer Control	mini-QCL-200: Ethernet with HTML/SOAP
Synchronous Pulse Control	Trigger input - with Sync-Out and adjustable offset Trigger output - for laser pulse & wavelength tune Digital input for pulse control - directly controls rising & falling edges
Temperature, Operating / Storage	10 to 30 °C / -10 to 70 °C
Electrical Power	100 to 240 Volts

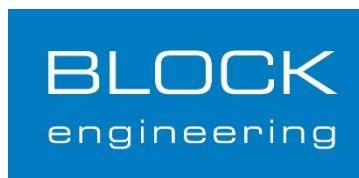
mini-QCL-200 Control Electronics



[All dimensions in mm]

* With temperature stabilization
** Cooling dependent

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