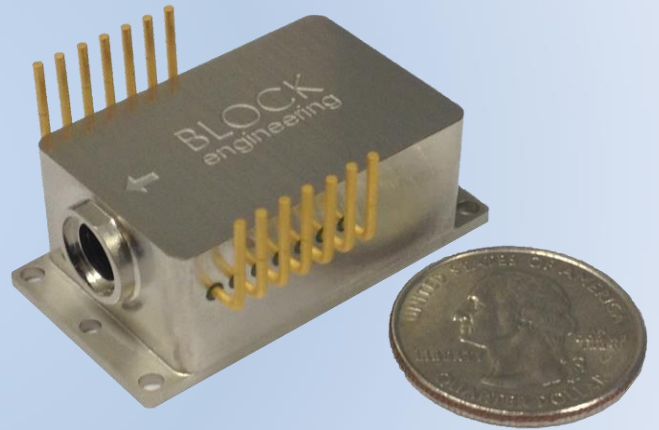


**WIDELY TUNABLE MID-IR OEM LASER MODULE**

**Key Features**

- ▣ Industry-leading widely tunable QCLs  
Selected > 250 cm<sup>-1</sup> ranges from 5.3 to 13 μm
- ▣ Laser control electronics capable of controlling up to 4 laser modules
- ▣ Fastest tuning (sweeps 25 cm<sup>-1</sup>/msec)
- ▣ Excellent beam pointing stability
- ▣ Ultra small and lightweight Laser module
- ▣ Compact and flexible control electronics
- ▣ Ideally suited for OEM & handheld applications

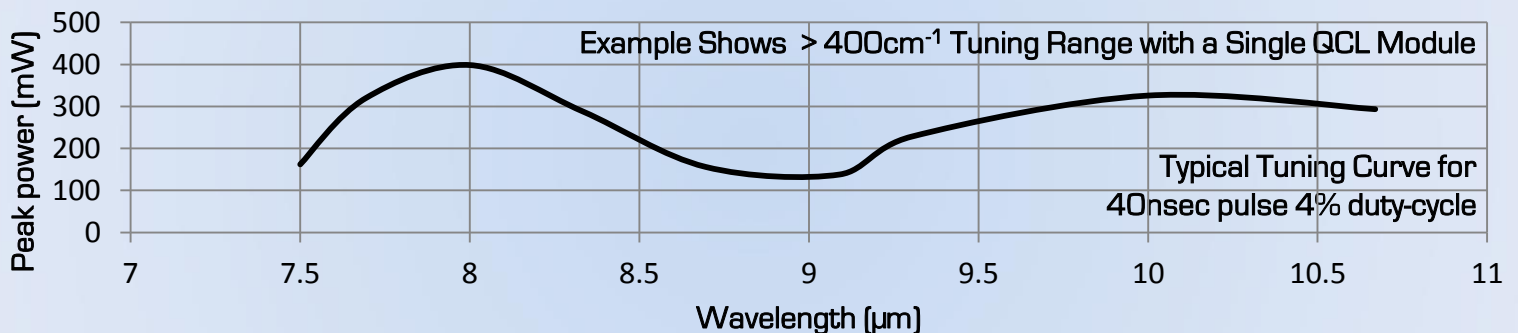
**Smallest Widely Tunable QCL Module**



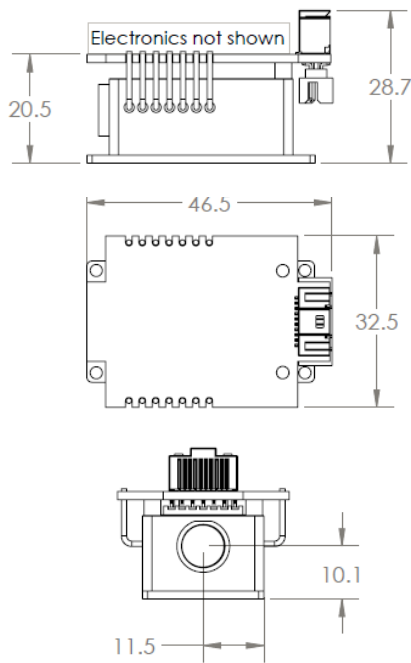
**Flexible OEM System Configurations**

Components/Features	mini-QCL™ 100	mini-QCL™ 200	mini-QCL™ 300
Tunable Laser Module	✓	✓	✓
Laser Module Electronics	✓	✓	✓
Laser Control Electronics	✓	✓	✓
System Control Electronics		✓	✓
Serial Communication (RS232/RS485)	✓		✓
Ethernet Communication (HTML/SOAP)		✓	✓
Detector Module Electronics			✓
Embedded Spectroscopy Functionality			✓

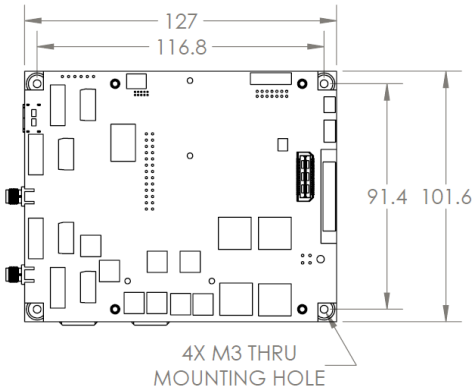
**Industry-Leading Tuning Range**



## Tunable Laser Module & Electronics



### Laser/System Control Electronics



### mini-QCL-100 Control Electronics



### mini-QCL-200/300 Control Electronics

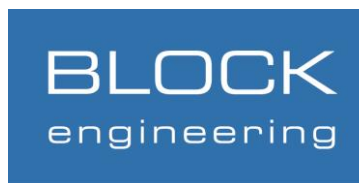


[All dimensions in mm]

Block Engineering  
377 Simarano Drive  
Marlborough, MA 01752

## MINI-QCL™ Tunable Mid-IR Laser OEM Module Specifications

<b>Module Tuning Range</b>	Selected >250 cm <sup>-1</sup> ranges over 5.4 -13 μm Electronics configurable up to 4 Laser Modules
<b>Spectral Linewidth</b>	< 2 cm <sup>-1</sup> (typical)
<b>Spectral Accuracy / Repeatability</b>	< 2 cm <sup>-1</sup> / < 0.5 cm <sup>-1</sup> (typical)
<b>Maximum Peak Power</b>	150 – 400 mW (typical, see tuning curve)
<b>Average Power</b>	Varies 2 – 20 mW across range [5% duty cycle] ▪ can be increased with additional cooling
<b>Power Stability</b>	< 5% pulse-to-pulse (typical) < 0.05% over 10 msec @ 1 MHz
<b>Pulse Width</b>	30 – 300 nsec ▪ continuously variable with External Pulse Control ▪ 10-ns-resolution with Triggering
<b>Pulse Repetition Frequency</b>	Up to 3 MHz
<b>Maximum Duty Cycle</b>	5 – 30% (depends on mounting & operating conditions)
<b>Beam Quality</b>	Single spatial mode
<b>Beam Diameter</b>	2 x 4 mm, collimated output
<b>Beam Divergence</b>	< 5 mrad
<b>Pointing Stability</b>	< 1 mrad
<b>Polarization</b>	Vertically polarized, 100:1 extinction
<b>Tuning Modes</b>	Move Tune – manual control Step Tune – programmable sequences Sweep Tune – programmable linear sweeps
<b>Step Tune Speed</b>	10 cm <sup>-1</sup> step in <1 msec (100 cm <sup>-1</sup> step in <2 msec) ▪ Example: Step across 1000cm <sup>-1</sup> in 1.1 seconds with 100 steps with 10 msec dwell per step
<b>Sweep Tune Speed</b>	Linear sweep > 25 cm <sup>-1</sup> /msec
<b>Computer Control</b>	mini-QCL-100: Serial/RS232/RS485 (register ICD) HDMI - Analog/digital wavelength control mini-QCL-200/300: Ethernet with HTML/SOAP
<b>Analog Control</b>	Internal Trigger – with adjustable Sync-Out External Trigger – controls rising edge of pulse Pulse Control – controls rising & falling edges
<b>Temperature, Operating / Storage</b>	10 to 30 °C / -10 to 70 °C
<b>Electrical Power</b>	12 – 24 Volts



[www.blockeng.com](http://www.blockeng.com)

Main: 508.251.3100  
Fax: 508.251.3171  
info@blockeng.com