

WIDELY TUNABLE MID-IR LASER SOURCE

Key Features

- ▣ Industry-leading gap-free tuning range
 - $\lambda \approx 5.4 - 12.8 \mu\text{m}$ ($\Delta\nu > 1050 \text{ cm}^{-1}$)
 - Configurable with up to 4 internal laser modules
- ▣ Fastest tuning (settling time <15 msec)
- ▣ Excellent beam pointing stability
- ▣ Single-box fully-integrated solution
- ▣ Flexible user-friendly interface

Smallest Widely Tunable QCL System



Flexible and User-Friendly Interface

Internal Modes

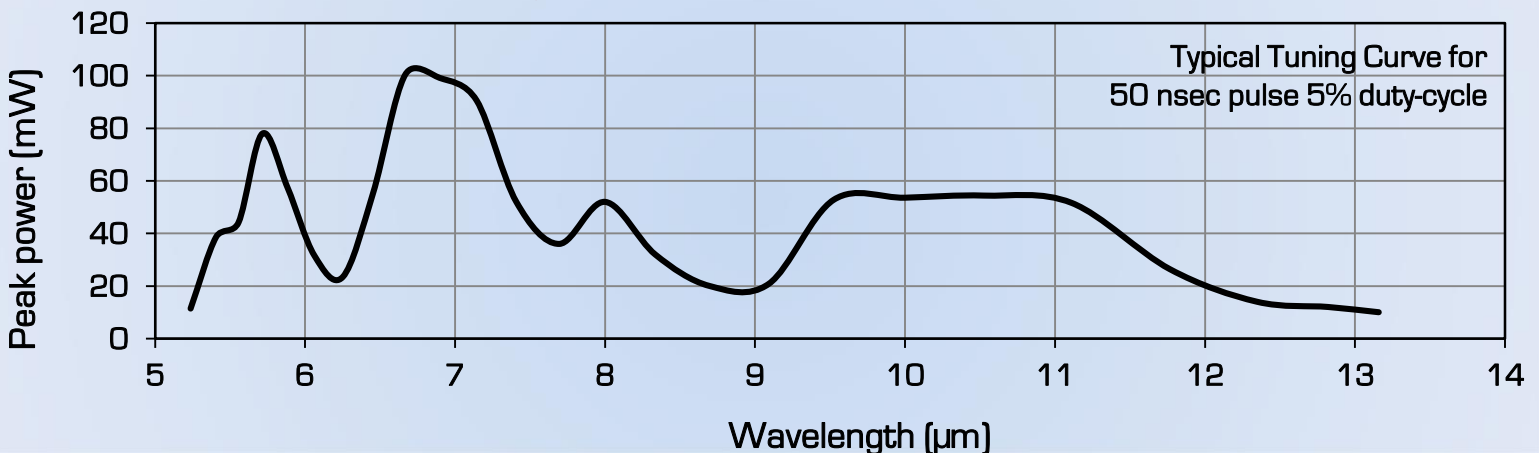
- ▣ Manual Control
- ▣ Programmable Step Tune
- ▣ Programmable Sweep Tune
- ▣ Arbitrary Step Tune



Settings

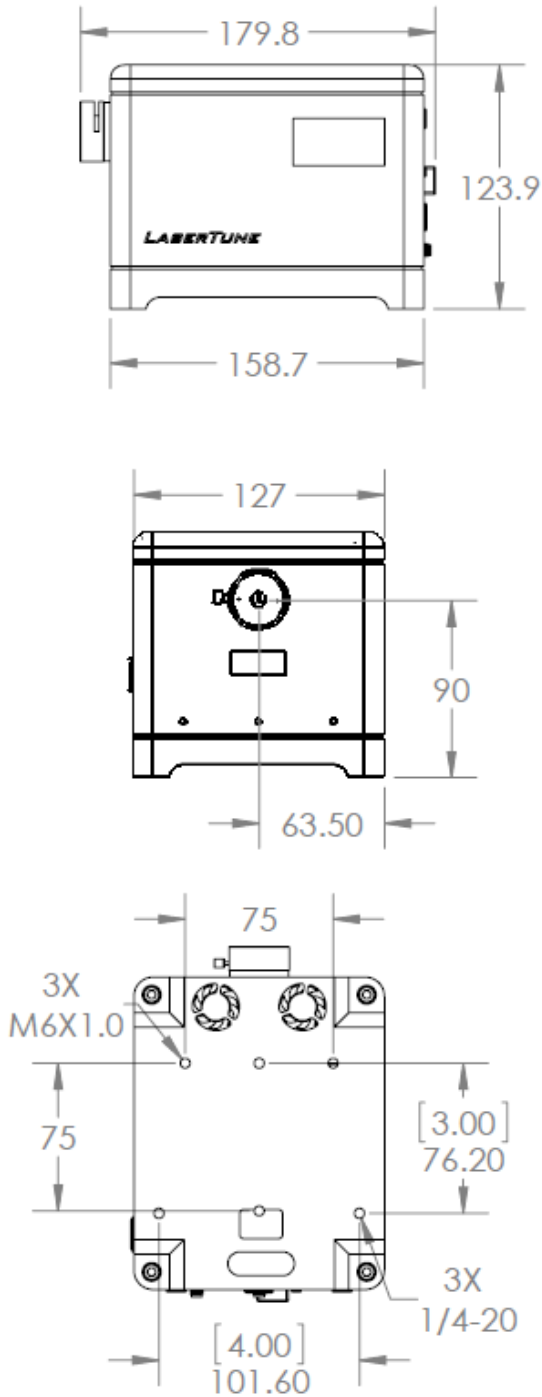
- ▣ Pulse Parameters
 - ▶ Width and period
- ▣ Triggering Selection
 - ▶ Internal and external trigger
 - ▶ External pulse control

Industry-Leading Gap-Free Tuning Range



Tunable Mid-IR Laser Source Specifications

Mechanical Interface & Dimensions



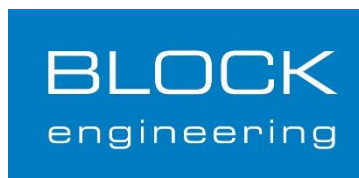
All dimensions in mm [inches]

| | |
|--|---|
| Gap-Free Tuning Range | $\lambda \approx 5.4 - 12.8 \mu\text{m}$ ($\Delta\nu > 1050 \text{ cm}^{-1}$) [typical] [system can be configured with up to 4 tuners] |
| Spectral Linewidth | 2 cm^{-1} [typical] |
| Spectral Accuracy / Repeatability | $< 2 \text{ cm}^{-1}$ / $< 0.5 \text{ cm}^{-1}$ [typical]* |
| Maximum Peak Power | Up to 150 mW depending on selected wavelength range ** |
| Average Power | 0.5 - 10 mW typical at 5% duty-cycle |
| Power Stability | $< 10\%$ pulse-to-pulse [typical] |
| Pulse Width | 30 - 300 nsec <ul style="list-style-type: none"> ▫ continuously variable with External Pulse Control ▫ 10-ns-resolution with Int. & Ext. Triggering |
| Pulse Repetition Frequency | Up to 3 MHz |
| Maximum Duty Cycle (DC) | 2.5 - 15% (depending on pulse width, period, & tuner) |
| Beam Quality | Single spatial mode |
| Beam Diameter | 2 x 4 mm, collimated output |
| Beam Divergence | $< 5 \text{ mrad}$ |
| Pointing Stability | $< 1 \text{ mrad}$ over 99% of tuning range |
| 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 | 100 cm^{-1} step in $< 15 \text{ msec}$ |
| Sweep Tune Speed | Linear sweep up to 15 $\text{cm}^{-1}/\text{msec}$ |
| Computer Control | Ethernet; HTML/SOAP interface |
| 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 |
| Dimensions | Approx. 6.25 x 5 x 4.9 inches → Volume = 2.6 liters |
| Weight | 2 kg (4.5 lbs) |
| Cooling | Active cooling via fans |
| Temperature Range (Operating / Storage) | 10 to 30 °C / -10 to 70 °C |
| Electrical Power | 100 - 240 Volts (50/60 Hz) 2.5 Amp |

* At 25°C with temperature stabilization

** Contact a sales representative to discuss power specifications in more detail.

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