

LASERTUNE™

WIDELY TUNABLE MID-IR LASER SOURCE

Key Features

- ▣ Industry-leading gap-free tuning range
 $\lambda \approx 5.3 - 12.8 \mu\text{m}$ ($\Delta\nu > 1000 \text{ cm}^{-1}$)
Configurable with up to 4 internal laser modules
- ▣ Fastest tuning (sweeps $25 \text{ cm}^{-1}/\text{msec}$)
- ▣ Excellent beam pointing stability
- ▣ Single-box fully-integrated solution
- ▣ Flexible user-friendly interface (wireless option)
- ▣ Ideally suited for OEM & handheld applications

Smallest Widely Tunable QCL System



Flexible and User-Friendly Interface

Internal Modes

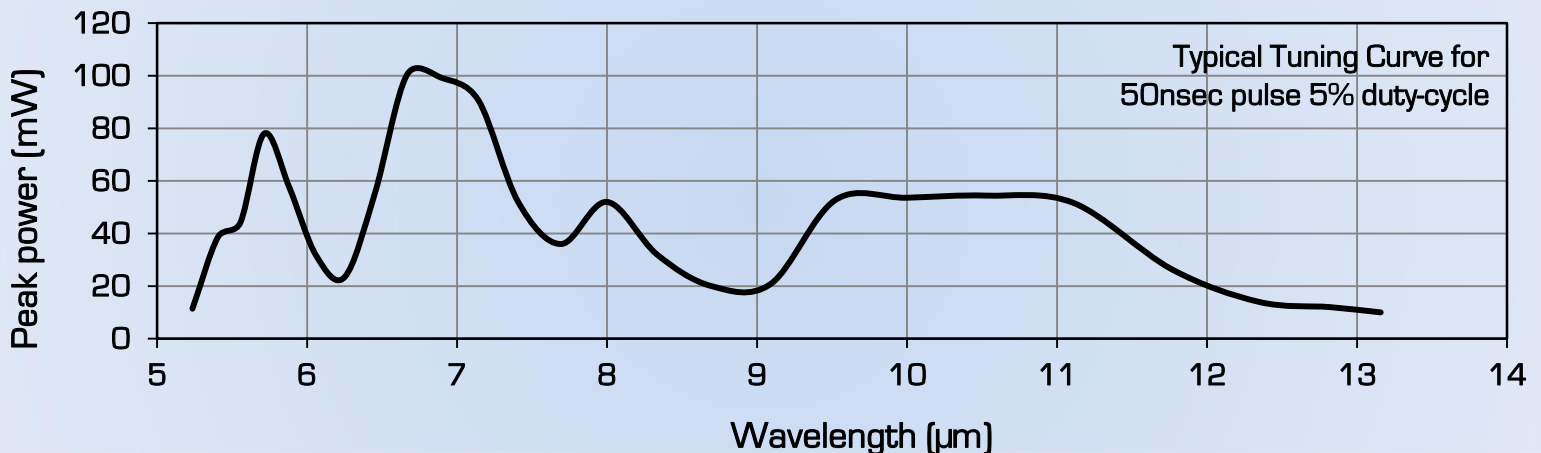
- ▣ Manual Control
- ▣ Programmable Step Tune
- ▣ Programmable Sweep Tune
- ▣ Arbitrary Step Tune



Settings

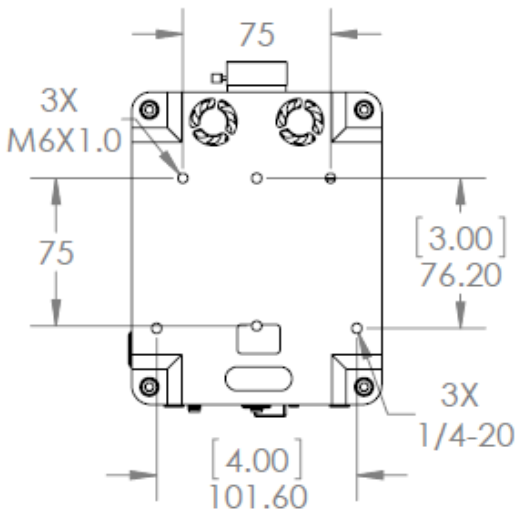
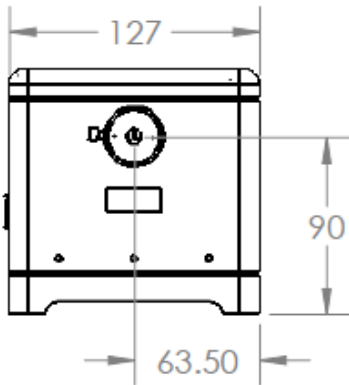
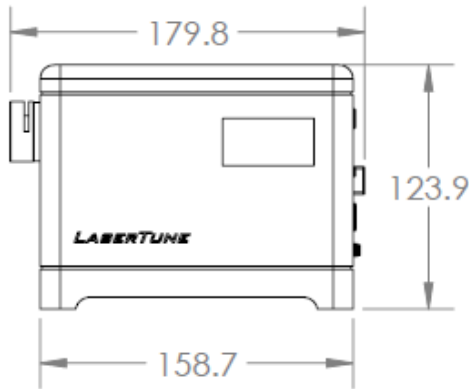
- ▣ Pulse Parameters
 - ▶ Width, rep-rate, current
- ▣ Thermal Control
- ▣ Triggering Selection
 - ▶ Internal and external trigger
 - ▶ External pulse

Industry-Leading Gap-Free Tuning Range



Mechanical Interface & Dimensions

Tunable Mid-IR Laser Source Specifications



All dimensions in mm [inches]

| | |
|--|---|
| Gap-Free Tuning Range | $\lambda \approx 5.3 - 12.8 \mu\text{m}$ ($\Delta\nu > 1000 \text{ cm}^{-1}$) (typical) [system can be configured with up to 4 tuners] |
| Spectral Linewidth | $< 2 \text{ cm}^{-1}$ (typical) |
| Spectral Accuracy / Repeatability | $< 2 \text{ cm}^{-1} / < 0.5 \text{ cm}^{-1}$ (typical) |
| Maximum Peak Power | 150 mW (typical for 4 tuners, see tuning curve) |
| Average Power | 0.5 - 15 mW over 95% of 1000 cm^{-1} typical at 5% duty-cycle for 4 tuners |
| Power Stability | $< 5\%$ pulse-to-pulse (typical) $< 0.05\%$ over 10 msec @ 1 MHz (typical) |
| Pulse Width | 30 - 300 nsec ▫ 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 parameters) |
| Beam Quality | Single spatial mode |
| Beam Diameter | 2 x 4 mm, collimated output |
| Beam Divergence | $< 5 \text{ mrad}$ |
| Pointing Stability | $< 1 \text{ mrad}$ 99% of 1000 cm^{-1} |
| Polarization | Vertically polarized, 100:1 extinction |
| Tuning Modes | Move Tune - manual control Step Tune - programmable sequences Sweep Tune - programmable linear sweeps |
| Step Tune Speed | 10 cm^{-1} step in $< 1 \text{ msec}$ (100 cm^{-1} step in $< 2 \text{ msec}$) ▫ Example: Step across 1000 cm^{-1} in 1.1 seconds with 100 steps with 10 msec dwell per step |
| Sweep Tune Speed | Linear sweep $> 25 \text{ cm}^{-1}/\text{msec}$ |
| Computer Control | Wireless; Ethernet; HTML/SOAP interface Digital monitoring of wavelength |
| Analog Pulse Control | Internal Trigger - with Sync-Out and adjustable offset External Trigger - for laser pulse & wavelength tune Pulse Control - directly controls rising & falling edges |
| Dimensions | Approx. $6.25 \times 5 \times 4.9$ 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 Amp |