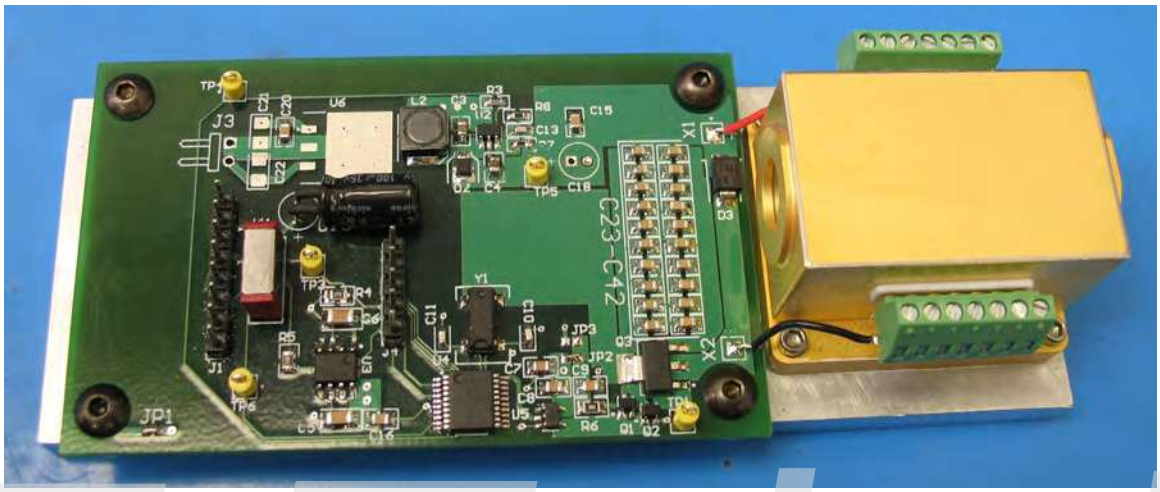
*Pranalytica, Inc.*
*An ISO 9001 Certified Company*

**Model 1101-XX-QCW-YYYY-EGC-UC-PF**

**High Average Power Quasi-CW Wavelength Stabilized Quantum Cascade Laser Platform for OEM Applications**




Model 1101-XX-QCW-YYYY-EGC-UC-PF quantum cascade laser (QCL) system is a high average power, wavelength stabilized pulsed QCL platform of infrared radiation for OEM applications. Wavelength stabilization is achieved by incorporating a wavelength dispersive element inside the QCL butterfly package, which is hermetically sealed for reliable operation in adverse environments. At a wavelength of 4.6 μm, the system produces in excess of 1.5 W of average power and at a wavelength of 4.0 μm, the system produces in excess of 1 W of average power. Other wavelengths between 3.8 μm and 12 μm are available. The passively cooled system is designed for OEM applications for incorporation into customers' platforms, and is virtually vibration-free. The system is self-contained and requires only an external DC power to operate. Pulse shaping and power conditioning electronics are on the PCB, with the hermetically sealed butterfly package that includes the QCL and related optics for wavelength stabilization and for collimating the output laser beam. The system requires no adjustments in the field and is designed to be stable over long periods of time when operating in a stable temperature environment.

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| Parameter | Specifications[1] |
|---|---|
| Average optical power (YYYY) | Up to >1.5 W at 4.6 μm and up to >1.0 W at 4.0 μm |
| Mode of operation | Quasi-CW, high duty cycle pulsed (factory-set) |
| Output | • Standard: ~ 200 ns – 500 ns pulses with ~ 500 kHz - 2.0 MHz repetition rate (~ 50% duty cycle)<br>• Optional (at extra cost): Variable pulse width from 20 ns to 200 ns; variable pulse repetition rate from 50 kHz to 2.5 MHz, variable duty cycle from 0.05 % to 50 %; variable pulse amplitude |
| Wavelength (XX) | • ~4.0 μm, ~4.6 μm, ~8.5 μm and ~9.5 μm<br>• Other wavelengths between 3.8 μm and 12 μm may be custom ordered |
| Output Wavelength | • Linewidth: ~10 nm around the preset wavelength determined by the dispersive element within the optical cavity<br>• Accuracy: ±10 nm |
| Beam Divergence | 3 mrad vertical (wavelength dependent)<br>3 mrad horizontal (wavelength dependent) |
| Beam quality | Excellent (contact factory for details) |
| Output beam | Nearly collimated with a lens internal to the QCL package |
| QCL package | Hermetically sealed for high reliability in all environments |
| Platform size | 12.5 cm (L) x 5 cm (W) x 3 cm (H) |
| Laser platform weight (including integrated electronics board) | 250 g |
| Electrical requirements | 24 V DC @ 1 A |

[1] All specifications are for room temperature ambient operation.

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