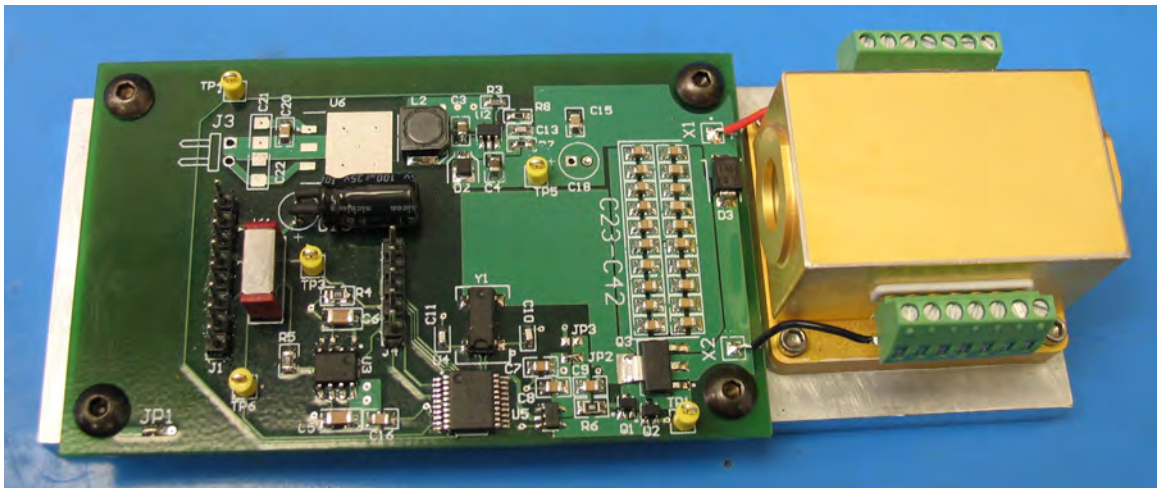
Pranalytica, Inc.
An ISO 9001 Certified Company

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.

Contact: Mr. Frank McGuire
(310) 458-4493 (fxmcguire@pranalytica.com)

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

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) • 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 • 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 • Accuracy: ±10 nm
Beam Divergence	3 mrad vertical (wavelength dependent) 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.

Contact: Mr. Frank McGuire
(310) 458-4493 (fxmcguire@pranalytica.com)