



Model 1101-XX-QCW-YYYY-MicroTT-EXT

High Power Quasi-CW Micro Tabletop Quantum Cascade Laser System



Model 1101-XX-QCW-YYYY-MicroTT-EXT quantum cascade laser (QCL) system is a high average power, pulsed source of infrared radiation. At the wavelength of 4.6 μm , the system produces in excess of 2 W of average power. Other wavelengths between 3.8 and 12 μm are available. The passively cooled system is designed for bench top use, and is virtually vibration-free. The system is self-contained, and requires only external 20 VDC power to operate. Pulse shaping and power conditioning electronics are enclosed inside along with the hermetically sealed package that includes the QCL and related optics 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.

The system is available with the option of internal battery operation. With four CR123A internal batteries, the run time is more than 30 minutes for a 2 W QCL. The run time will be longer for lower power QCLs.

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



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| Parameter | Specifications¹ |
|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Average optical power (YYYY) | > 2.5 W at 4.6 μm , > 2.0 W at 4.0 μm , >1.5 W at 3.8 μm , > 1.2 W at 7.2 μm and > 1.5 W at 9.3 μm . |
| Mode of operation | Quasi-CW, high duty cycle pulsed (factory-set) |
| Output | <ul style="list-style-type: none">• Standard: ~ 200 ns – 500 ns pulses with ~ 500 kHz - 2.0 MHz repetition rate (~ 50% duty cycle)• Optional (at extra cost): Variable duty cycle from 0.05 % to 50 %; Variable pulse amplitude; Synchronization with external TTL pulse sequence |
| Wavelength (XX) | <ul style="list-style-type: none">• ~3.8 μm, ~4.0 μm, 4.6 μm, 7.1 μm, 8.5 μm and 9.3 μm• Other wavelengths between 3.8 μm and 12 μm may be custom ordered |
| Beam Divergence | <ul style="list-style-type: none">• 5 mrad vertical• 5 mrad horizontal |
| Beam quality | Excellent (contact factory for details) |
| Output beam | <ul style="list-style-type: none">• Nearly collimated with a lens internal to the hermetically sealed QCL package• Output beam spot size ~ 4 mm |
| QCL package | Hermetically sealed for high reliability in all environments |
| Laser head size | 5.5" (L) x 1.8" (W) x 1.8" (H) |
| Laser head weight | 11 Oz |
| Power supply | <ul style="list-style-type: none">• External: 20 V DC (included)• Internal (option): Internal battery operation (4 CR123A batteries included); Run time dependent on the QCL power selected. |

¹ All specifications are for room temperature ambient operation.

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