

## Pranalytica High Power Laser System Model 1101-46-CW-XXXX



The Model 1101-46-CW-XXXX laser is sold as a complete system consisting of the laser head and matched power supply, ready to be turned on at the customer's location. The thermoelectric cooler and collimating optics for the quantum cascade laser are located in a hermetically sealed package for trouble free operation in real environments.

The system is offered in four power output versions:

Model 1101-46-CW-750: Power output of > 0.75 W, continuous wave in an ambient environment with laser head at room temperature

Model 1101-46-CW-1000: Power output of > 1.0 W, continuous wave in an ambient environment with laser head at room temperature

Model 1101-46-CW-1500: Power output of > 1.5 W, continuous wave in an ambient environment with laser head at room temperature

Model 1101-46-CW-2000: Power output of > 2.0 W, continuous wave in an ambient environment with laser head at room temperature

### **Packaged quantum cascade laser (laser head)**

<b>Operation</b>	• CW operation with the laser head at room temperature
<b>Wavelength</b>	• 4.6 $\mu\text{m}$
<b>Output spectrum</b>	• Broadband power centered $\sim 4.6 \mu\text{m}$ ; spectral width $\sim 150 \text{ nm}$

- Power output**
  - $\geq 0.75$  W,  $\geq 1.0$  W, 1.5 W, or  $> 2.0$  W (model dependent)
- Output beam**
  - Nearly collimated
- Output beam quality**
  - Nearly diffraction limited (please call for details)
- CW operation**
  - Model 1101-46-CW may be operated in true CW mode by applying +5V DC to the modulation input connector (front panel)
- Modulated operation**
  - Model 1101-46-CW may be modulated from 1 kHz to 100 kHz by applying TTL modulation to the input connector (front panel)
- Reliability**
  - Measured lifetime data for  $> 3,000$  hours with no power degradation at full power and periodic thermal cycling from full power to off and vice versa
- Physical details**
  - Size: 13 cm (W), 17 cm (H), 15 cm (D)
  - Weight: 1.9 kg

## Power supply

- Laser**
  - Provides the necessary laser drive current for the quantum cascade laser (factory adjusted to deliver the specified laser output power)
- Thermoelectric coolers**
  - Provides the necessary drive current for the associated thermoelectric coolers (factory adjusted to provide the needed cooling at the optimum operating point)
- Modulation**
  - Front panel input connector for modulation of the laser output from 1 kHz to 100 kHz (3 dB bandwidth, TTL input), limited by the power supply. The quantum cascade laser can be modulated at rates up to 1 GHz with special power supply.
- Protection**
  - Laser power supply is equipped with multiple levels of protection for trouble free operation of the QCL
  - Power supply has a 5 second startup delay time
  - Laser is activated by a separate switch
- Physical details**
  - Size: 28 cm (W), 18 cm (H), 37 cm (D)
  - Weight: 10 kg
- Electrical details**
  - 110/220 V, 4 A (max)
  - Optional modification available for operation from a single 28V DC source with somewhat lower power consumption

