

EasyQCL-200 :

Terahertz Quantum Cascade Laser System

LONGWAVE

PHOTONICS

The **EasyQCL-200** system is a ultra-low vibration cryogen-free platform configurable for use with a variety of Terahertz Quantum Cascade Lasers. The system uses passive and active vibration damping to achieve vibration levels of <100 nm (rms). A range of user interchangeable QCLs are available: electronically controlled tunable QCLs (single devices spanning 1.5 to 4.5 THz), multimode Fabry-Perot QCLs, and single frequency DFB QCLs.

- ❑ The **EasyQCL-200** System Includes:
 - QCL laser diode module, upgradeable to a DFB or Electronically controlled tunable QCL
 - Active/Vibration compensated Stirling Cycle Cooler
 - QCL drive electronics capable of pulsed or continuous wave operation (<0.4 μ s up to DC)
 - Optionally configurable:
 - 40 pin/dual SMA electrical feedthroughs
 - 3 or 5 optical windows

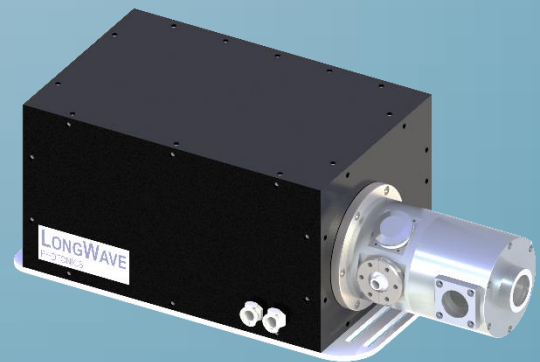
- ❑ A variety of user interchangeable **QCL modules** are available:
 - Electronically controlled Tunable QCLs spanning 1.5 to 4.5 THz
 - Fabry-Perot devices with milliwatt average power levels
 - Single mode DFB devices available at 2/3/3.8/4.7 THz.

- ❑ The **EasyQCL-200** system is designed for ease of use:
 - Cryogen free– laser diode cooling is by closed cycle refrigeration
 - No optical alignment
 - Maintenance free
 - Laser bias is controlled by front panel or computer (USB and Windows 7/10 compatible)
 - Complete package is tabletop compact, portable and operates on 120/240 V (5A)

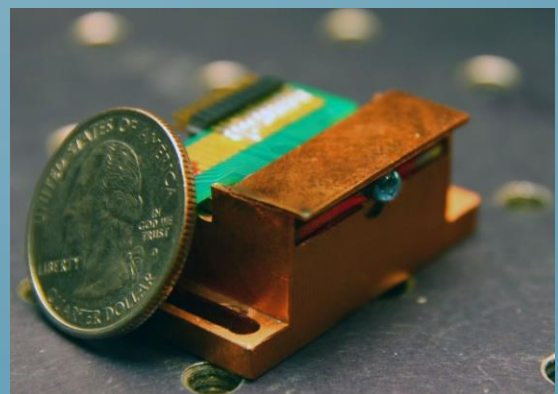
- ❑ The **EasyQCL-200** has **double** the cooling power of the EasyQCL-100 allowing the use

of larger QCL devices: this effectively doubles the available output power.

- ❑ Applications:
 - Illumination source for focal plane arrays
 - Gas spectroscopy of MHz wide absorption features
 - Noise and responsivity Characterization of detectors
 - Optical Coherence Tomography



EasyQCL-200 System (3 window configuration)



THz QCL Module

EasyQCL-200 Technical Data

Included Components:

- QCL device(s) characterized for wavelength, output power, beam divergence and current versus voltage
- Vacuum chamber with options for electrical feedthroughs, vacuum gauge
- Liquid /Air cooled, low-vibration Stirling cycle cryocooler
- LWP-PS3 laser driver
- Compact rotary vane vacuum pump
- Laptop PC with software for control of the driver and cryocooler

QCL Characteristics:

- Multimode and single mode laser diodes available.
- Beam divergence from 5 to 35 degrees FWHM
- Select devices operable in continuous wave

LWP-PS3 Laser Driver Specifications:

QCL Driver Electronics (FPO typical values):

Current:	Up to 2 A
Voltage:	Up to 100 V
Pulsed width:	250 ns to DC
Frequency:	100 Hz to 200 KHz
Triggering:	TTL Internal/External Gate BNC connector
Interface:	USB
Compatibility:	Windows 7/10
Software Options:	Laser bias current/voltage, pulse width, duty cycle and trigger source (internal external)
AC voltage range:	100 - 125 / 200 - 240 V
Rated frequency:	50 - 60 Hz
Rated Current:	120 V/5 A – 240 V/ 2.5 A
Interface/Control:	USB

Stirling Cycle Cryocooler Specifications:

- Vibration <100 nm (rms@60 Hz) at full power
- Room Temperature, no cryogenics.
- Cooldown time < 60 min to ~-50 K
- Maintenance: Cold head requires periodic vacuum purge to ~10⁻² mbar with provided compact vacuum pump (e.g. Edwards E2M0.7 or similar). No turbo pumping required.

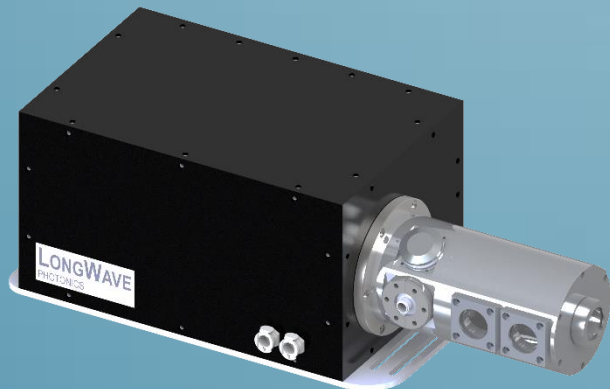
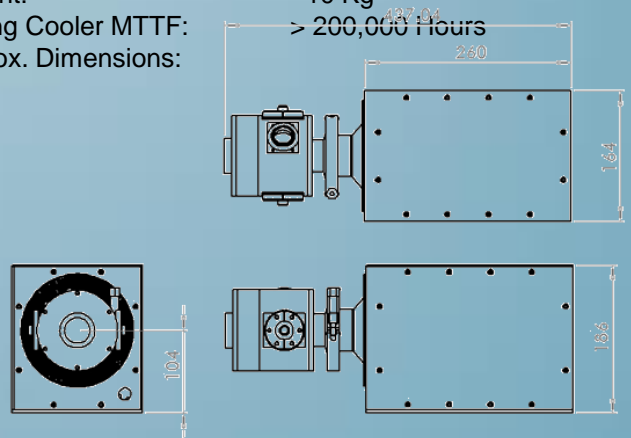
AC voltage range:	100 - 125 / 200 - 240 V
Rated frequency:	50 - 60 Hz
Rated Current:	120 V/5 A – 240 V/ 2.5 A
Interface/Control:	USB
Operating modes:	Closed/open loop temperature control

Warranty

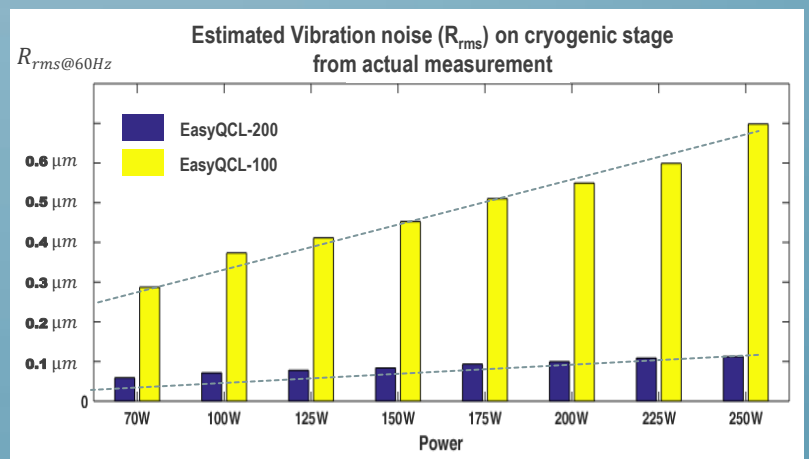
- One year parts and labor

Temperature / dimensions / weight:

Weight:	~10 Kg
Stirling Cooler MTTF:	> 200,000 Hours
Approx. Dimensions:	



EasyQCL-200 System (5 window configuration)



EasyQCL-200 Vibration Noise