

10.26um DFB Quantum cascade lasers (QCLs) TDLAS Analyse Systems



Description

10.26um High power DFB Quantum cascade lasers (QCLs) is developed by LD-PD INC in 2019. Our Quantum cascade lasers (QCLs) are intersubband semiconductor lasers emitting around a center wavelength ranging from the mid-infrared (4 – 12 μm) up to the terahertz domain. The QCLs proposed by LD-PD Inc are mid-infrared devices operating in pulsed or continuous-wave regime at room temperature. They can be either High power multimode (Fabry-Perot) or Narrow linewidth single-mode (Distributed FeedBack, or DFB) laser sources. We build ZnSe lens into the system to collimate the Laser beam.

High performance QCLs

LD-PD Inc product line offers single mode Quantum Cascade Lasers (single mode DFB QCL) or broadband lasers (Fabry Perrot) between 4 μm – 12 μm (2500 cm^{-1} – 900 cm^{-1}). Our lasers operate at room temperature, without a cryogenic system, in pulsed or continuous wave emission. And our DFB-QCL have two types for customer's Choice: Low power Consumption and high power Consumption.

Features

- Different Central wavelength for choice
- High power and good wavelength stability
- Good beam quality
- With ZnSe lens Collimator

Application

- MIR Testing Light source
- Space Communication
- MIR TDLAS Systems

Specifications

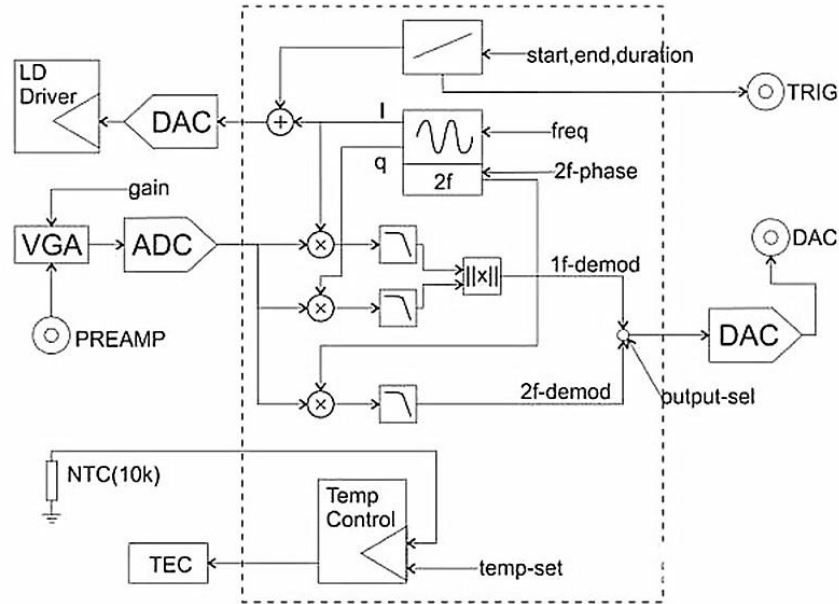
Parameters	unit	Specs		
		Min	Type	Max
Part Number		QCL102600DFB		
Output Power ¹	mW	100	-	500
Peak wavelength ²	um	10.2	10.26	10.27
Spectrum width (FWHM)	MHZ	-	3	-
SMSR	dB	30	-	-
Sine Wave Frequency	KHZ	20	30	50
Analog Signal Output	V	0	-	2.5
Analog Signal Input (Peak-Peak)	V	0	-	5 (AC Coupling)
M2 Factor			<1.2	
Divergence Angle	Mrad		<2	
Full beam waist diameter ⁵	mm		<4	±0.1
Output Isolation ³	dB	-	30	30
Wavelength Tuning Over Temp	nm/K		1.00	220
Wavelength Tuning Over Current	nm/A		57.1	-
Output Power stability (15min) ⁴	%	-	±0.5	±1.0
Output Power stability (8hours) ⁴	%	-	±1.0	±2.0
Output Power Tuning Range	%	0	-	100
Output power Tuning Mode	GUI Control			
TEC stability	°C	-	±0.1	±0.2
TEC Operation Temp range	°C	0	30	50
Power Supply	VAC	100	220	240
Power Consumption ⁵	W	-	-	5
Operation Temperature	°C	0	-	90
Store Temperature	°C	-40	-	85
Dimension	mm	340(L)×240(W)×100(H)		

Note:

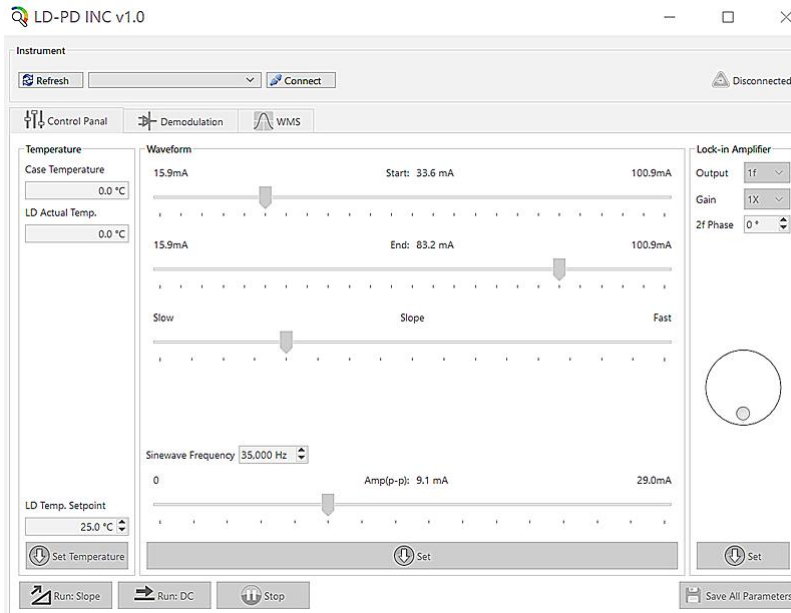
1. Output power Optional;
2. Central wavelength Optional;
3. Output power stability at 25deg, 30 min warming up;
4. Max Power consumption tested at the extreme working Condition
5. I = 0.80 A, V = 8.7 V, T = 15 °C, Measured at 1/E



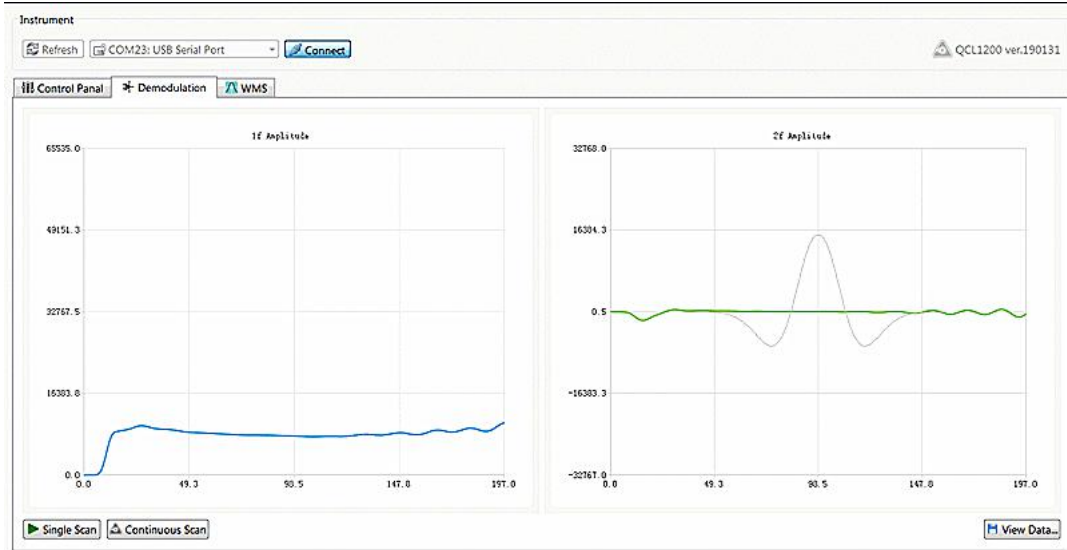
Working Theory



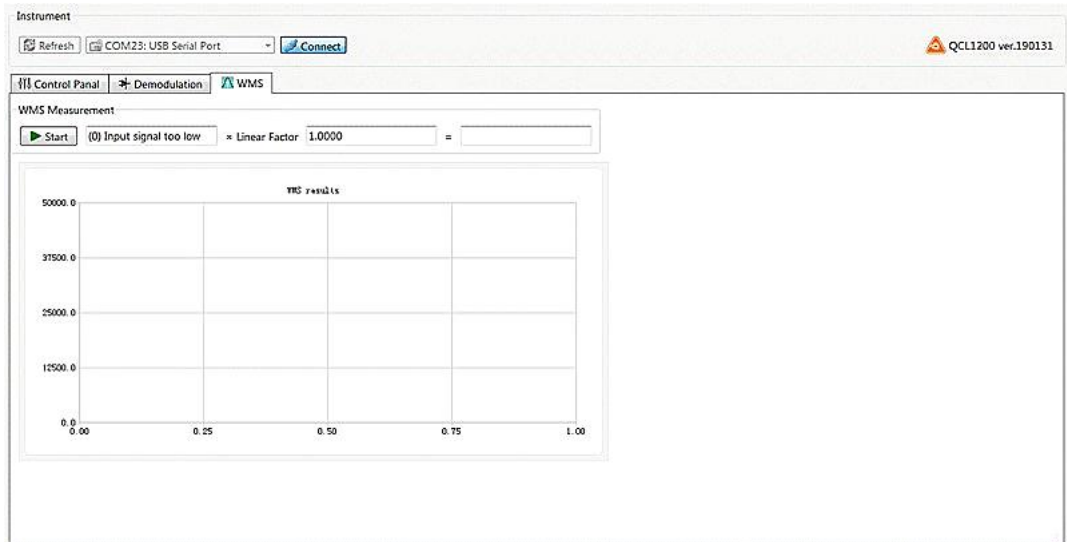
Control Software GUI



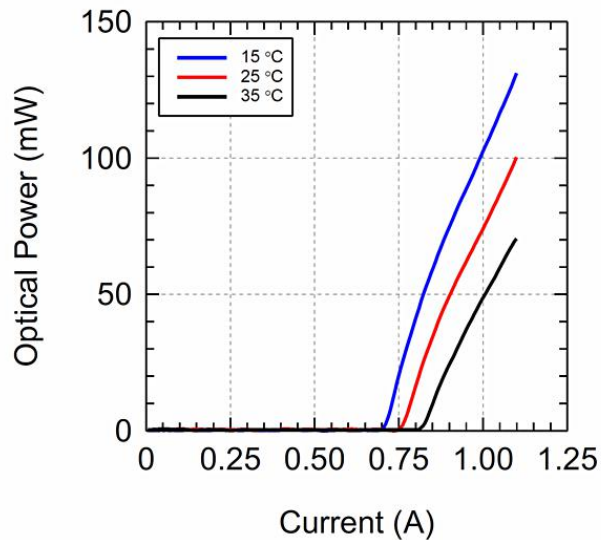
2F Signal Acquisition GUI



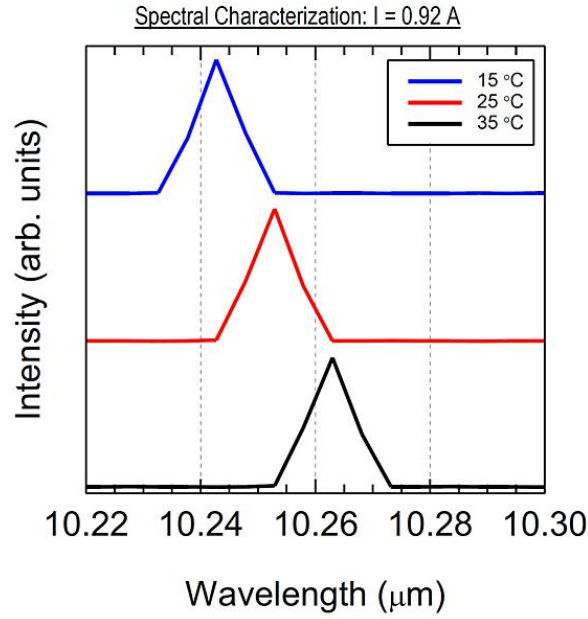
Algorithmic Calibration GUI



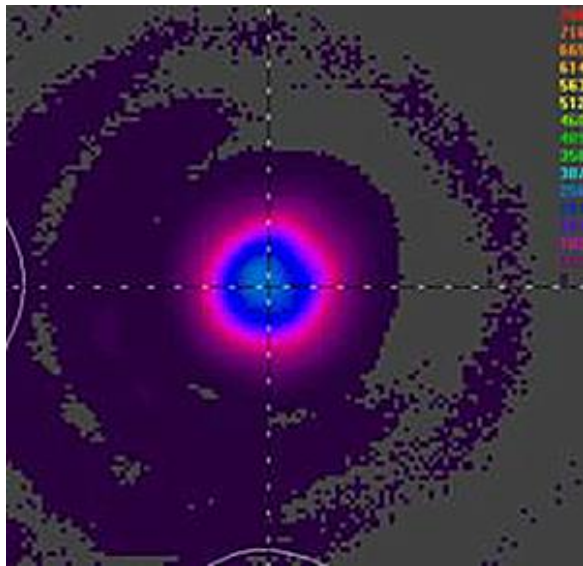
QCL L-I-V (10.26um Typ wavelength)



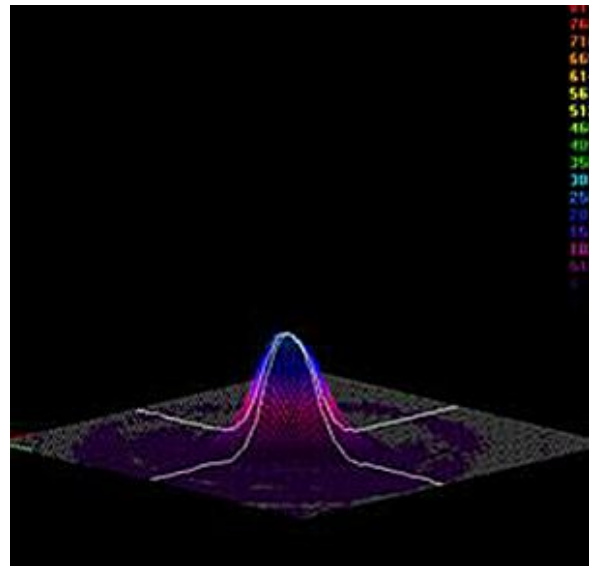
Lasing Spectrum (CW)



Beam Analyse



2-D Beam Profile at 762.0 mm (30.0 in)



3-D Beam Profile at 760.2 mm (30.0 in)

Ordering Info

MIR-QCL-W□□□□ -☆-△-XX

W□□□□: Wavelength

4000: 4000nm

4600: 4600nm

9000: 9000nm

☆: Output With Collimation

1: with

0: without

△: QCL Laser Type

FP: QCL-FP

DFB: QCL-DFB

XX: Output Power

001=1mw

010=10mw

400=400mw

1000=10000mw