



4.6um low power benchtop DFB-QCL mid-infrared quantum cascade laser 20mW (TDLAS integrated control module)



● Product Description

MP-TDLAS-MIR-QCL-W4600-1-DFB-020 low-power benchtop DFB-QCL mid-infrared quantum cascade laser is a domestically advanced ultra-low-power QCL DFB laser developed by Idealphotonics in the first half of 2018. The tunable range exceeds 100nm, and the output power is greater than 20mw to meet the industrial needs of customers testing gas sensors.

Our laser collimated output has stable output power and high temperature and wavelength stability, which is several orders of magnitude higher than the stability of traditional high-power quantum cascade lasers. It provides an excellent test light source for our mid-infrared test customers.

● Product features

Low power consumption, high power 、 Narrow linewidth 、 Compact structure、 Software intelligent control、 Built-in FPGA

● Part Number

MP-TDLAS-MIR-QCL-W4600-1-DFB-020

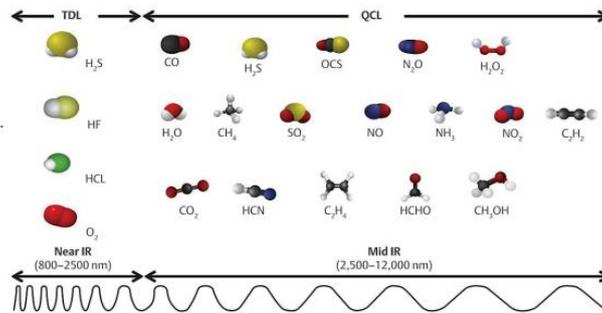
● Application area

TDLAS CO high-precision trace analysis、 Mid-infrared test light source、 Mid-infrared device analysis

● Core parameters

Wavelength	Output Power	Spectral Width
4.6um	20mW	3MHz

● General Parameters



Parameter

Parameter	Unit	Indicators		
		Min.	Typical value	Max.
Output power 1	mW	20	-	40
Peak operating wavelength 2	um	4.5	4.6	4.7
Spectral width (FWHM)	MHZ	-	3	-
Output side mode suppression ratio (SMSR)	dB	20	-	-
Output isolation 3		-	30	-
Wavelength temperature coefficient	Mrad		0.6	
Wavelength current coefficient	mm		0.2	
Output power stability (15 minutes) 4	nm/K		±0.5	±1.0
Output power stability (8 hours) 4	nm/A		±1.0	±2.0
Output power adjustable range	%	0	-	100
Output power adjustment mode		Soft control		
TEC stability	°C	-	±0.1	±0.2
TEC operating range	°C	0	30	50
Operating voltage	VAC	100	220	240
Electrical power consumption 5	W	-	-	2
Operating temperature	°C	0	-	55



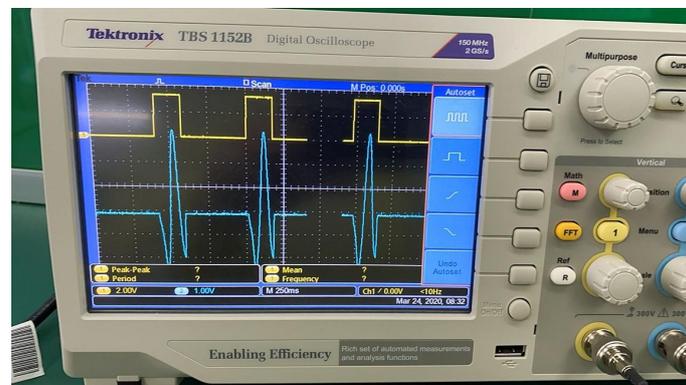
Parameter	Unit	Indicators		
		Min.	Typical value	Max.
Storage temperature	°C	-20	-	65
Specifications and dimensions	mm	290(L)×108(W)×168(H) mm		

Technical Specifications

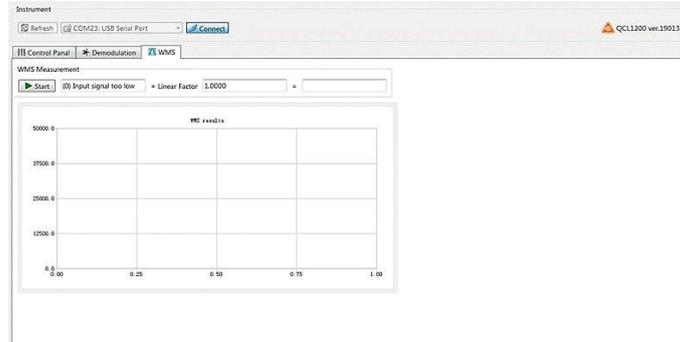
1. Output power is optional;
2. Peak operating wavelength can be specified;
3. Output power stability test condition is 25 degrees, after 30 minutes of preheating;
4. Maximum power consumption refers to the overall power consumption under extreme working conditions;



Modulation signal linearity test (oscilloscope voltage signal effect diagram)

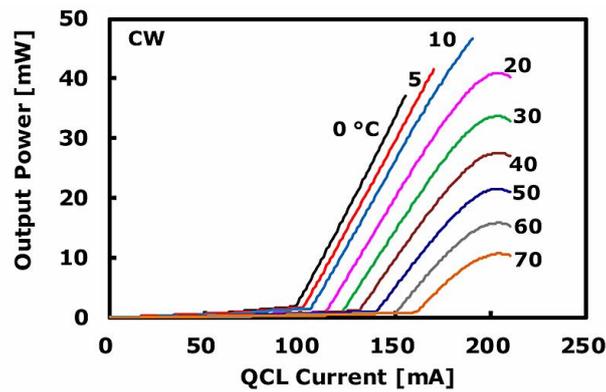


Algorithm calibration interface

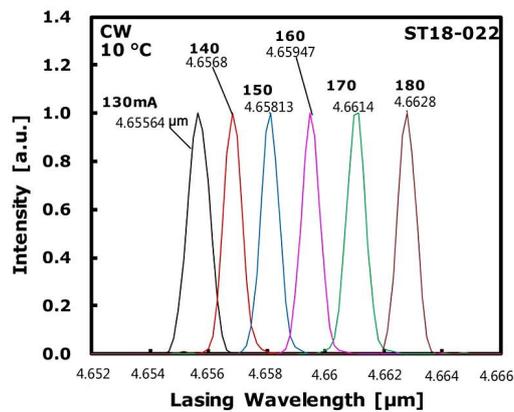


QCL laser characteristic curve (taking 4.6um typical wavelength as an example)

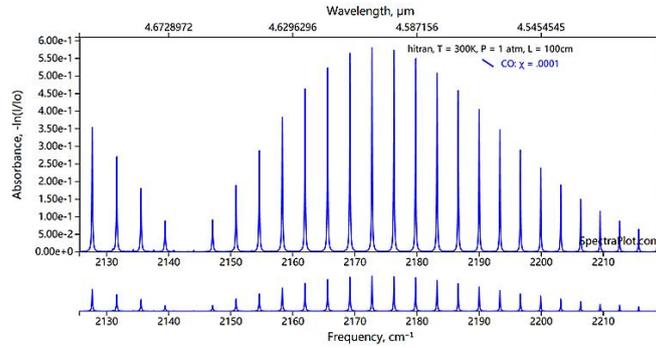
Output power characteristic curve



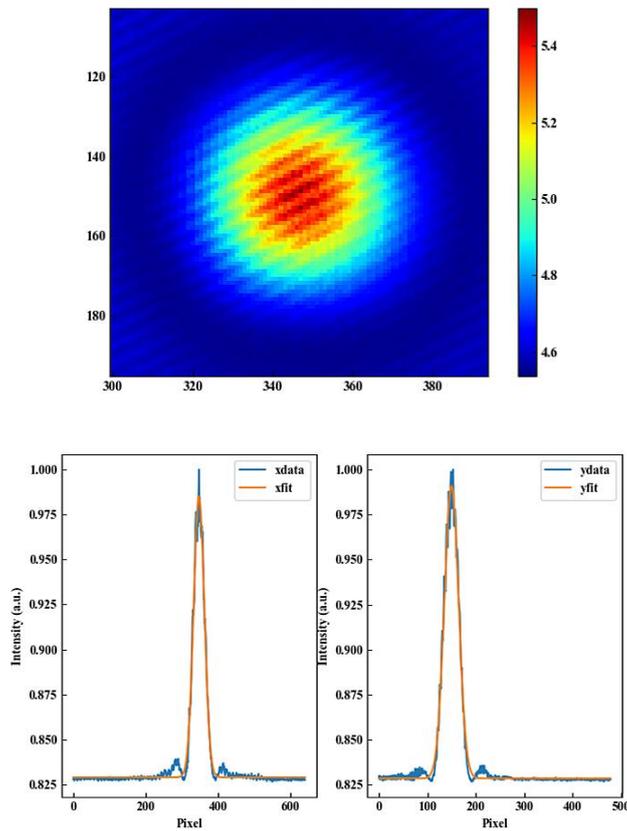
Laser spectrum (CW) laser working at 10°C



Absorption spectrum simulation curve



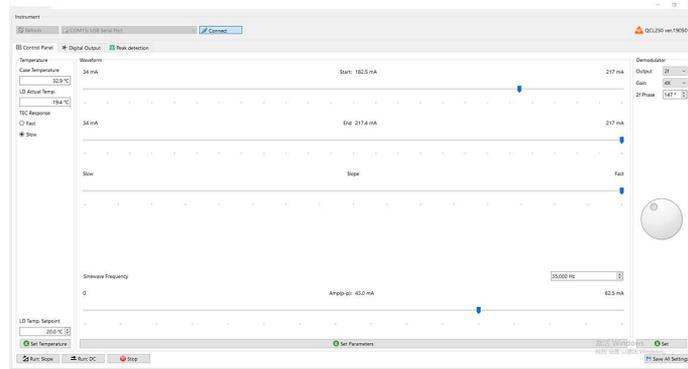
Quantum cascade laser output spot



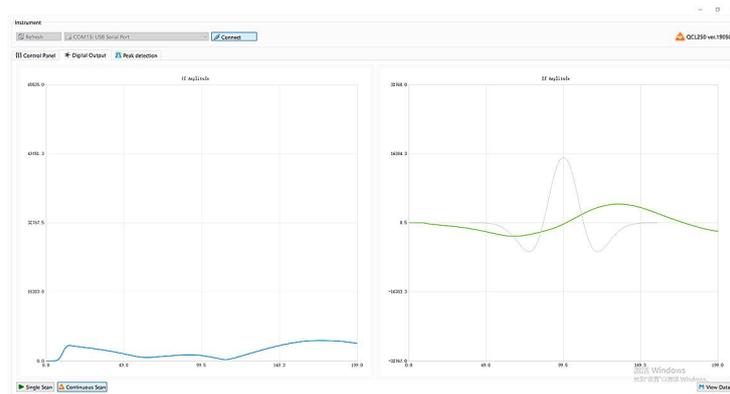
The pixel size of the test camera is $5 \mu\text{m}$, and the Gaussian fitting spot diameter is $320 \mu\text{m}$.



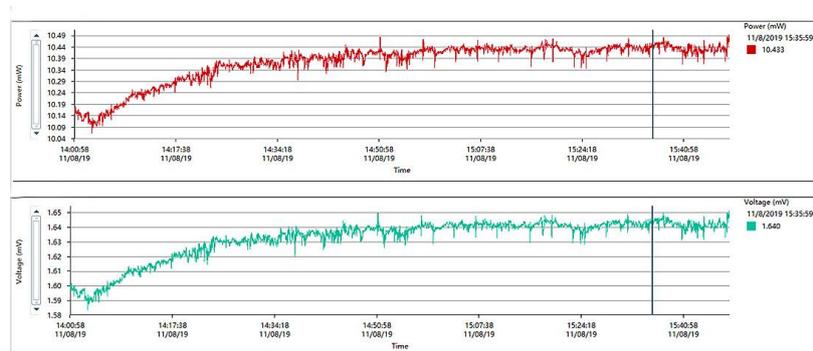
Control software



2F signal acquisition interface:



QCL laser power stability test curve





Ordering Information

MP-QCL-- W □-☆-△-XX

W□□□□: Wavelength

4600: 4600nm

5260: 5260nm

7400: 7400nm

10530: 10530nm

☆: collimator

1: with

0: without

△: laser type

FP: QCL-FP

DFB: QCL-DFB

XX: output power

001=1mw

010=10mw

020=20mw



100=100mw

1000=1000mw