



7.16um low power benchtop DFB-QCL mid-infrared quantum cascade laser 10mW (TDLAS integrated control module)



● Product Description

7.16um low-power benchtop DFB-QCL mid-infrared quantum cascade laser is a domestically leading 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 10mw, meeting the industrial needs of customers testing CF4 gas sensing. 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 line width、 Compact structure、 Software intelligent control、 Built-in FPGA

● Part Number

MP-QCL-7160-DFB-40-T

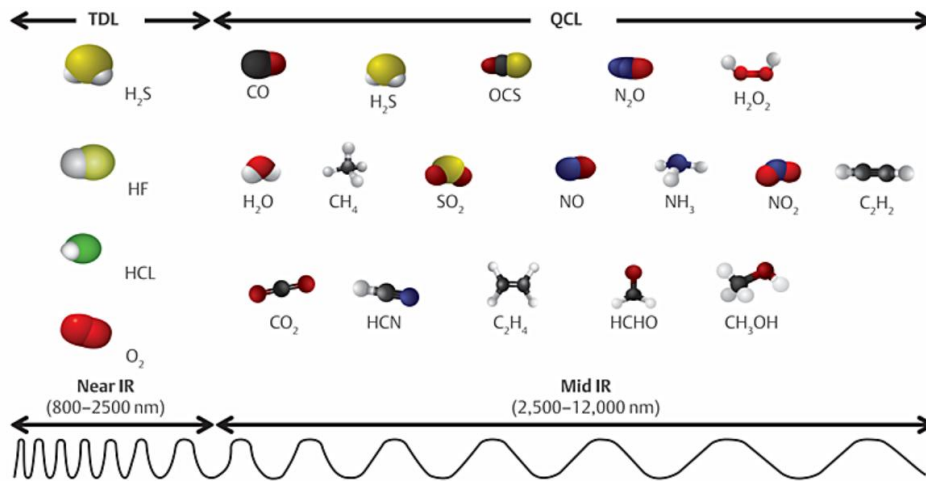
● Application area

TDLAS CF4 high-precision trace analysis、 Mid-infrared test light source、 Mid-infrared device analysis

● Core parameters

Center Wavelength	Spectral Width	Output Power
7.16um	3MHz	10mW

● General Parameters



Parameter

Parameter	Unit	Indicator		
		Min.	Typical	Max.
Output power 1	mW	10	-	30
Peak operating wavelength 2	um	7.06	7.16	7.26
Spectral width (FWHM)	MHZ	-	3	-
Output side mode suppression ratio (SMSR)	dB	20	-	-
Output isolation 3	dB	-	30	-
Wavelength temperature coefficient	nm/°C		0.6	
Wavelength current coefficient	nm/mA		0.2	

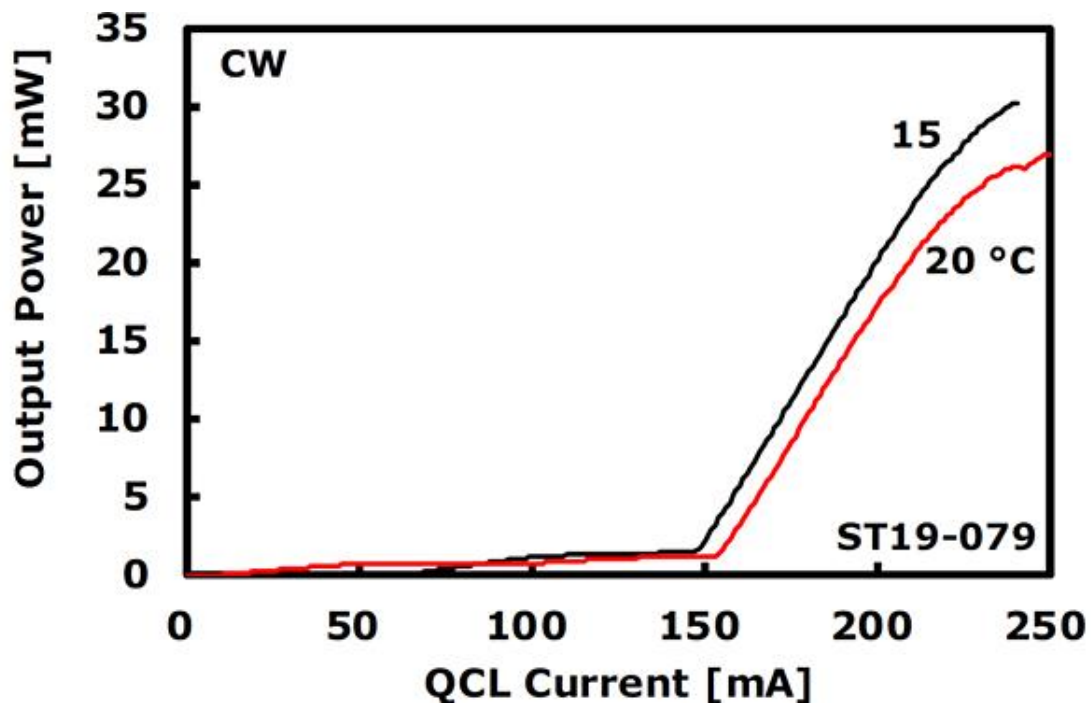
Output power stability (15 minutes) 4	%	-	± 0.5	± 1.0
Output power stability (8 hours) 4	%	-	± 1.0	± 2.0
Output power adjustable range	%	0	-	100
Output power adjustment mode		Software control		
TEC stability	°C	-	± 0.1	± 0.2
TEC operating range	°C	0	30	50
Operating voltage	VAC	100	220	240
Electrical power consumption 5	W	-	-	2
Operating temperature	°C	0	-	55
Storage temperature	°C	-20	-	65
Dimension	mm	340(L) × 240(W) × 100(H)mm		

Technical indicators:

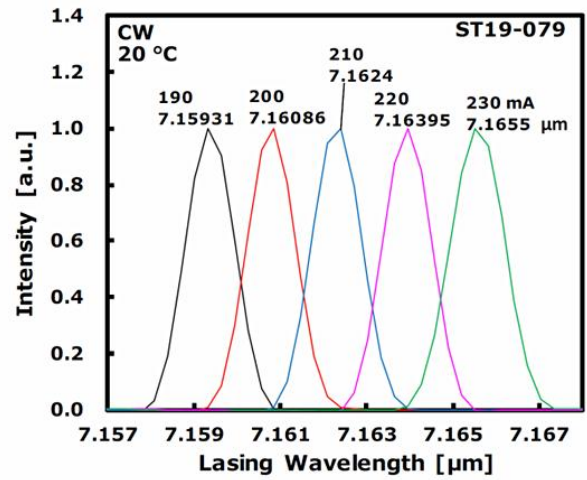
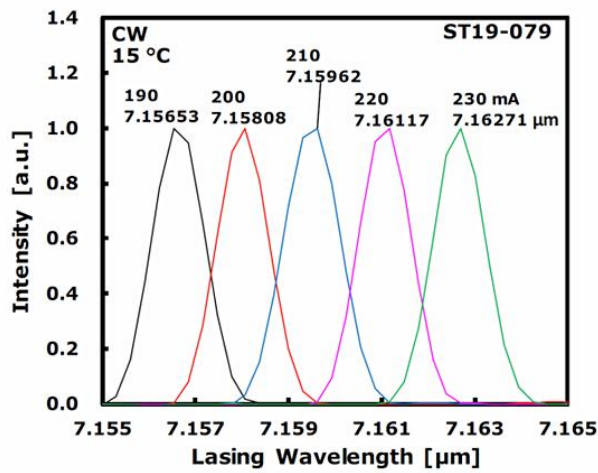
- 1. Output power is optional;**
- 2. Peak operating wavelength can be specified;**
- 3. Output power stability test condition is 25 degrees, after 30 minutes of preheating;**
- 4. Maximum power consumption refers to the overall power consumption under extreme working conditions.**



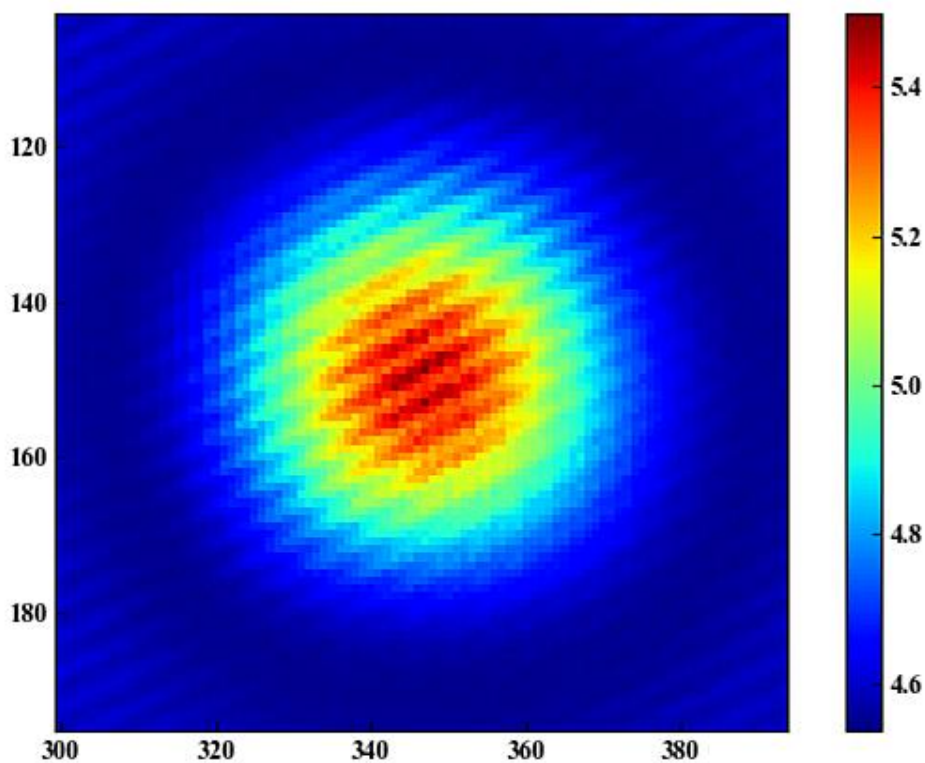
QCL laser characteristic curve (taking 7.16μm typical wavelength as an example) Output power characteristic curve

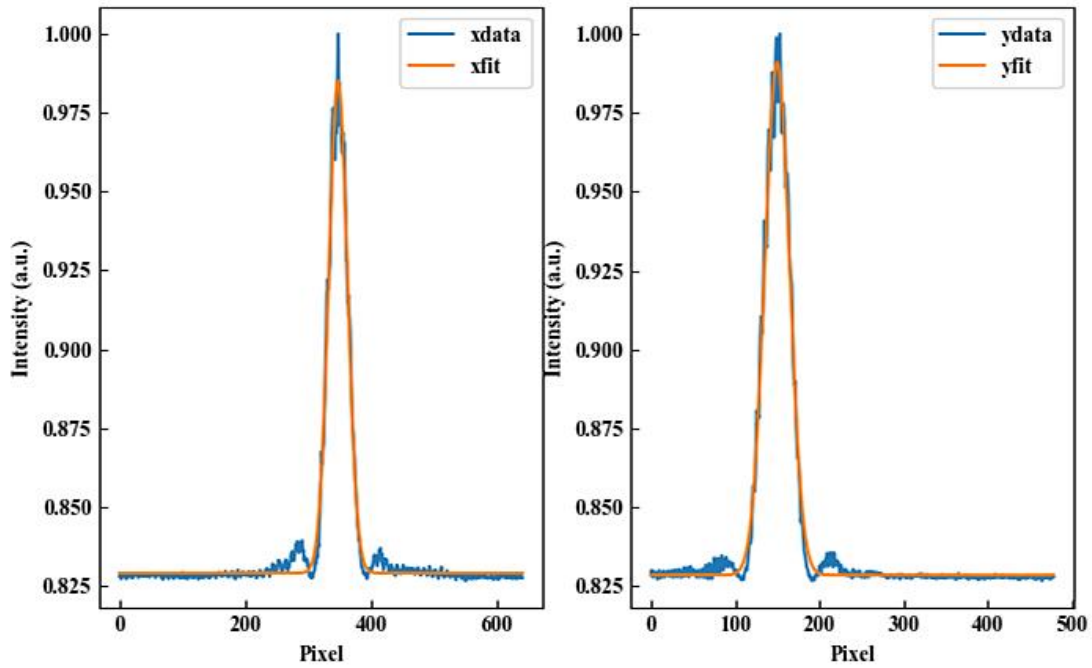


Laser spectrum (continuous) laser working at 10°C



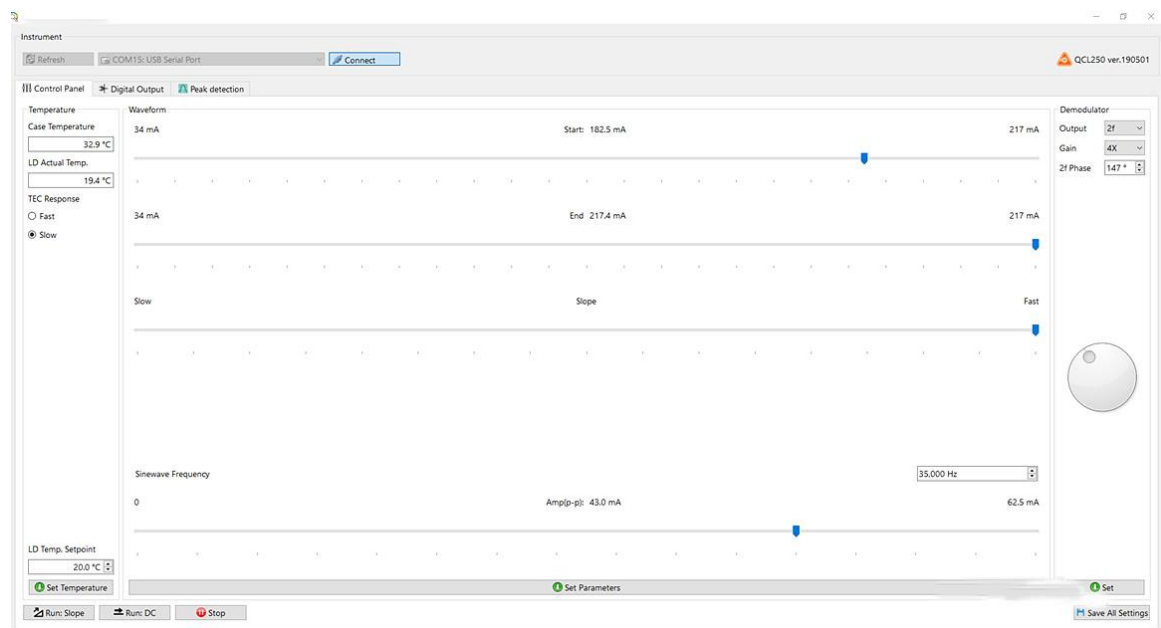
Quantum cascade laser output spot:



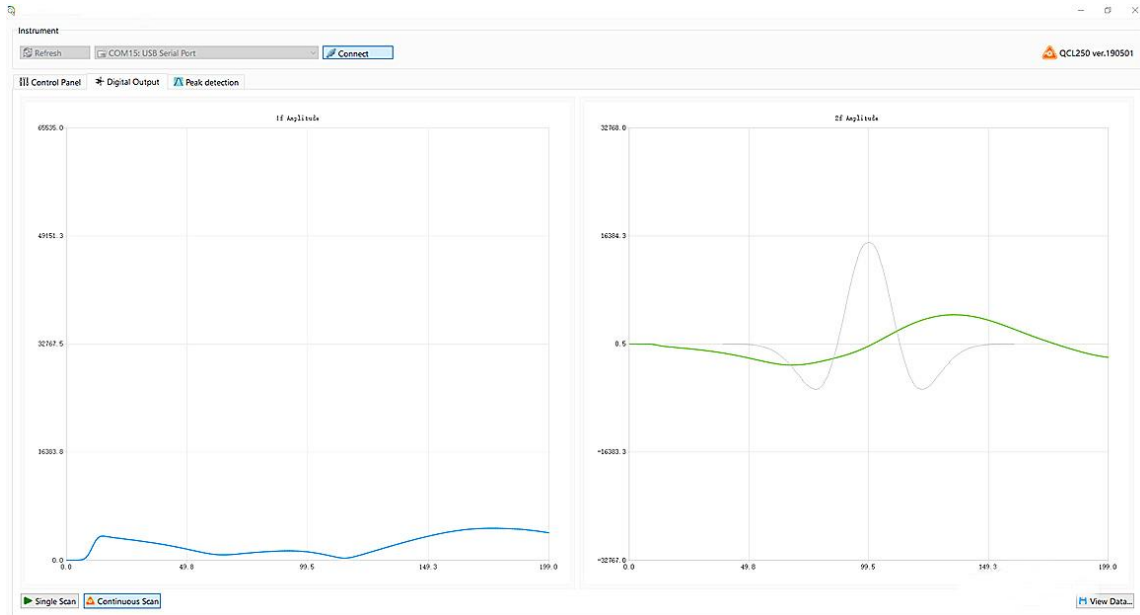


The pixel size of the test camera is 5 μm , and the Gaussian fitting spot diameter is 320 μm .

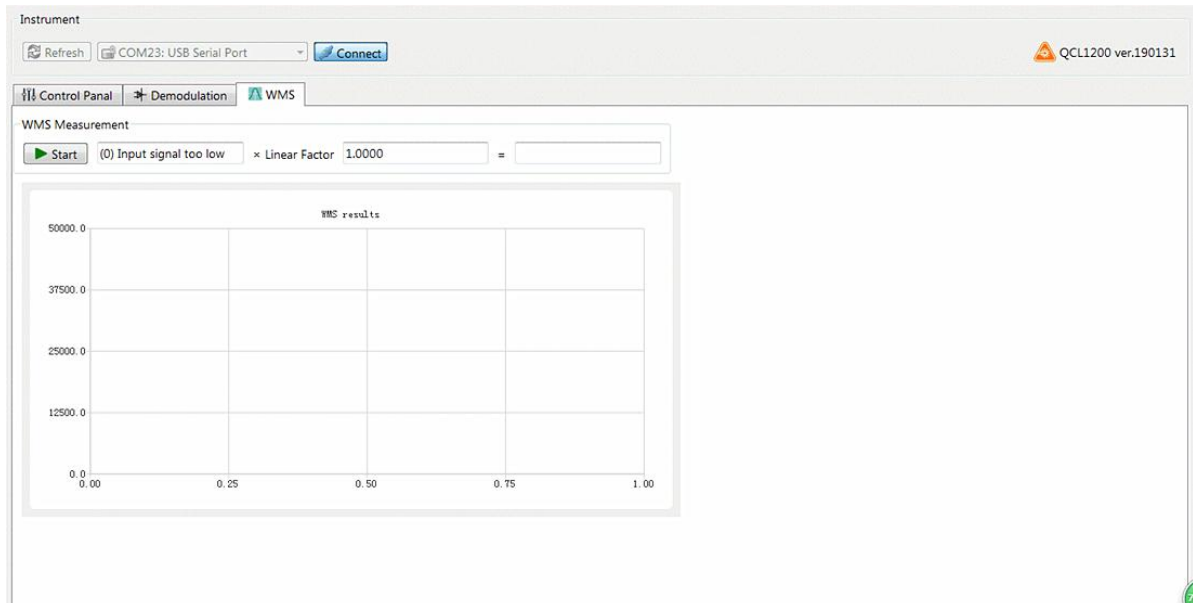
Control software



2F signal acquisition interface

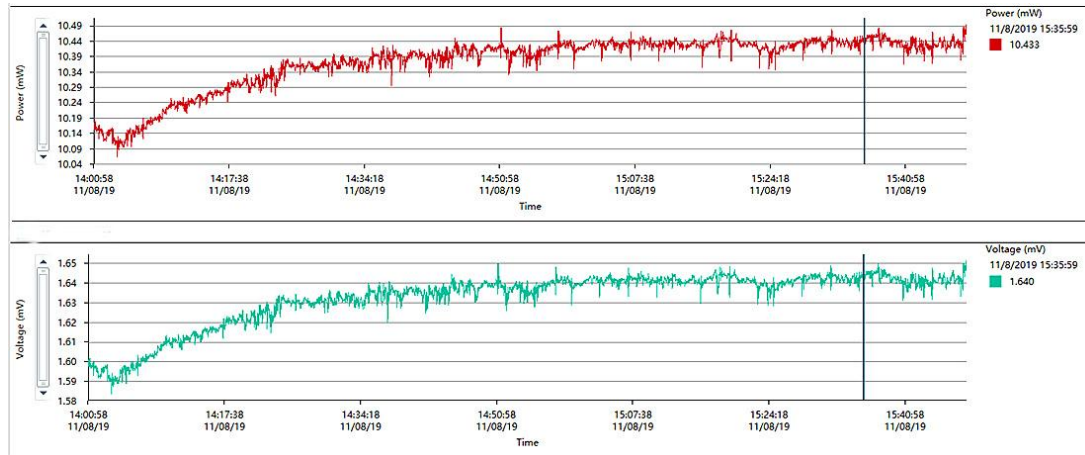


Algorithm calibration interface

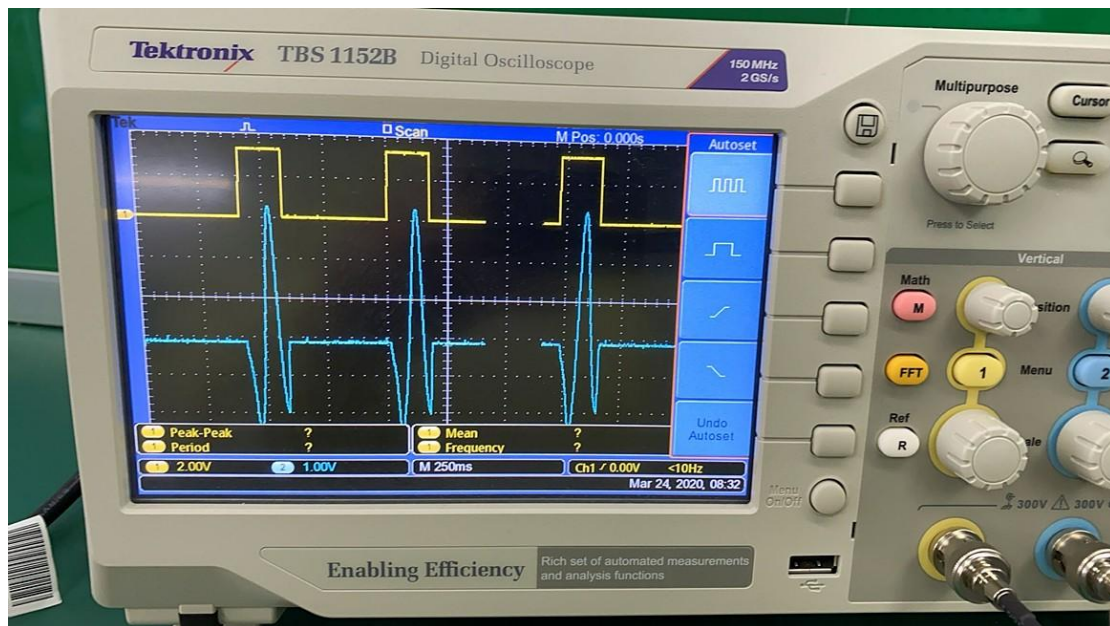




QCL laser power stability test curve



Modulation signal linearity test (oscilloscope voltage signal effect diagram)





Ordering Information

MP-QCL- W□□□□ -☆-△-XX

W□□□□: Wavelength

5260: 5260nm

5184: 5184nm

7160: 7160nm

7400: 7400nm

10530: 10530nm

☆: collimated output

1: with

0: without

△: laser type

FP: QCL-FP

DFB: QCL-DFB

XX: output power

001=1mw

010=10mw

400=400mw

1000=1000mw