



PENDAR
TECHNOLOGIES

Pendar Q100

A turn-key broadly tunable mid-infrared laser source



This system is based on Pendar's proprietary monolithic distributed feedback (DFB) quantum cascade laser (QCL) array.

The DFB QCL array source is a highly stable, rapidly and continuously wavelength tunable broadband infrared source that can be used for illumination for various spectroscopic applications. Each element of the array is individually addressable and emits at a different wavelength by design. The output is beam-combined using a compact optical design without moving parts. The system includes custom electronics and software allows for complete control and flexible operation of the laser source.

General Specifications	Value
Wavelength Ranges available (exact range may vary)	6.7 μm – 7.5 μm 7.5 μm – 8.4 μm 8.4 μm – 9.5 μm 9.5 μm – 10.7 μm
Number of DFB QCLs	32
Modes of Operation	Pulsed
Temperature Range ($^{\circ}\text{C}$)	15 to 30 $^{\circ}\text{C}$ (operating)
Spatial modes	TM00
Module dimensions	20 cm x 12 cm x 10 cm
Supply Power	12V, 3A; DC adapter provided
Interface connection	USB

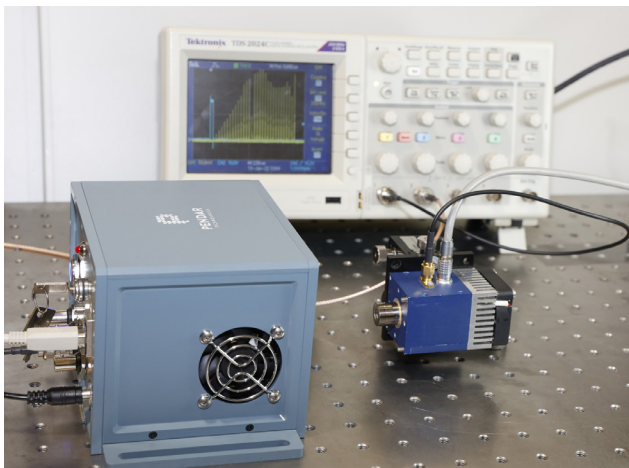
Characteristics	Min	Typ.	Max	Unit
Peak power	10	150	300	mW
Power stability (pulse-to-pulse)		<1%		-
Pulse width	20		1000	ns
Duty cycle		1%	3%	-
Pulse repetition frequency ^a			3	MHz
Spectral linewidth ^b		<0.1	0.5	cm^{-1}
Spectral resolution ^c		<0.1	1.2	cm^{-1}
Wavelength repeatability		<0.1		cm^{-1}

Beam quality ^d	Min	Typ.	Max	Unit
Diameter –x	2		3	mm
Diameter –y	1.6		1.9	mm
Divergence –x	3		9	mrاد
Divergence –y	5		7	mrاد
Beam pointing –x			1	mm
Beam pointing –y			0.1	mm

a. Limited by maximum duty cycle.
b. Applies only for single mode lasers.
c. Spacing between modes in case of dual-mode lasers.
d. Beam measurements performed 10 cm from the laser exit port.

Sensing application developments

- Long-distance remote hazardous gas sensing
- Open-path broadband sensor as UAV payload
- Mid-infrared photothermal microscopy
- Photoacoustic spectroscopy



Call, email, or visit our website for more information or to arrange a demonstration.

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