PowerMir turnkey solution

High Power Pulsed QCL 4,8 microns HHL with its driver for development purpose

PowerMir turnkey solution is high power pulsed Quantum Cascade Laser based on proprietary technology, emitting in Mid-Infra-Red with its electronic driver. The system (spec code: PW4801500HTK1W) provides maximum average power of minimum 1.5 Watt at 4,8 microns. It offers plug and play solution in PC for quick and easy development in lab. ITAR free MirSense technology exhibits outstanding performances in term of power and wall plug efficiency. This high-performance QCL assembly takes full advantage of MirSense's state of the art technologies.

Optical features

Maximum Average Optical Power	Minimum of 1.5 W at +20°C of base plate temperature
Mode of operation	Quasi-CW, high duty cycled pulsed
Central wavelength	4,8 µm +/- 0.1 µm
Pulse frequency	> 500 kHz
Divergence	Horizontal < 8 mrad (typically 6mrad) Vertical < 6 mrad (typically 4mrad)
Beam quality	TM00 Gaussian beam, $M^2 < 1.5$
Output beam dimension (window output)	2 mm x 3 mm
Polarization	Linear vertically polarized

## Turnkey system features

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Functionalities	Laser safety, Laser driver (ON/OFF), Laser temperature and TEC control, frequency modulation, duty cycle, external TTL
Physical interface	USB interface for PC connexion (USB cable supplied) TTL trig IN connector for TTL external signal
Software	Windows PC
Input power	24V DC
Dimension	laser head: 20cm x 15cm x 6cm / driver: 25cm*15cm*6cm
Weight	925 g
Operational temperature	-30 °C to +40°C (this working environmental temperature must in any case be above dew point to avoid water condensation)
Laser head cooling	Water (chiller not included)

Drawings

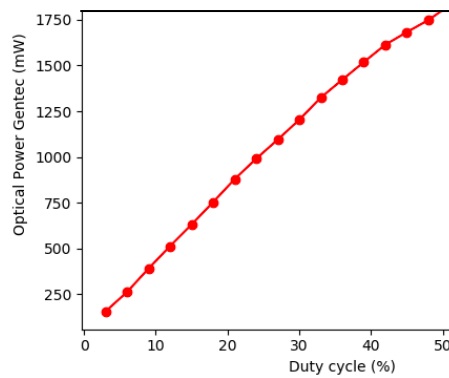*All dimensions are in mm*
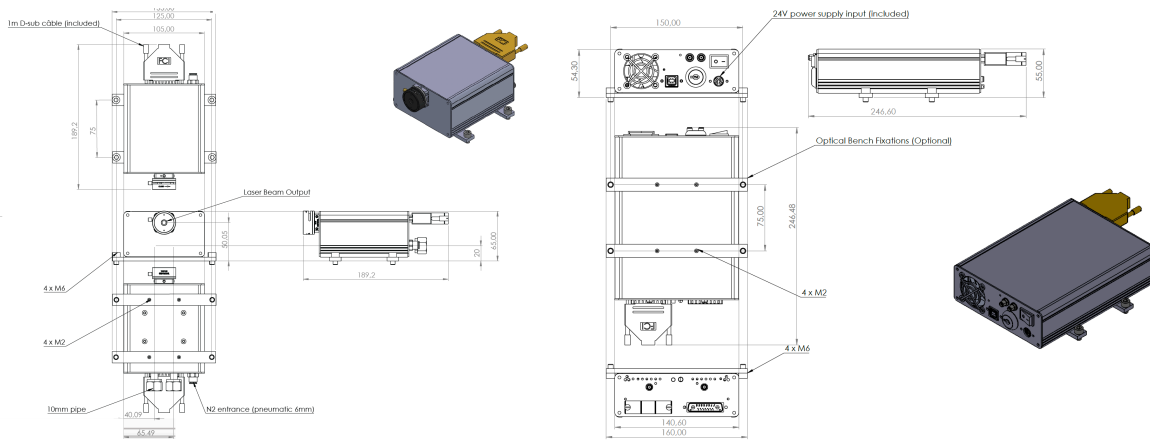
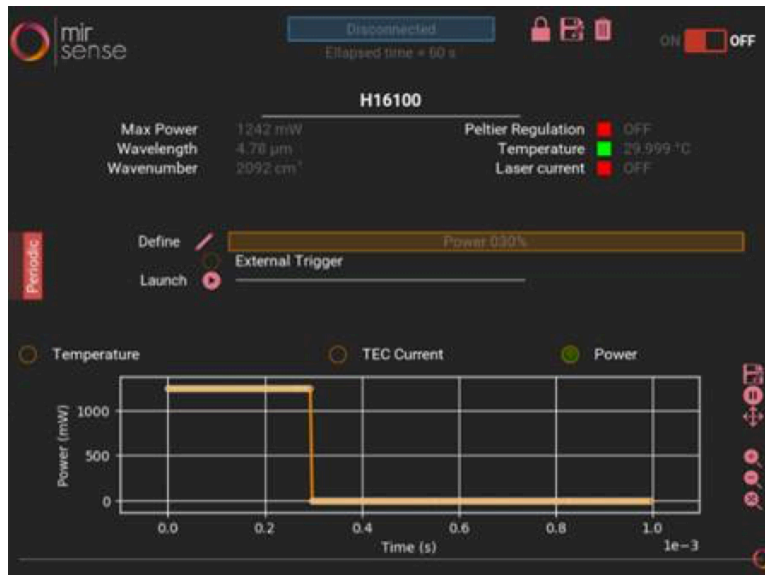## Typical Laser Characteristics
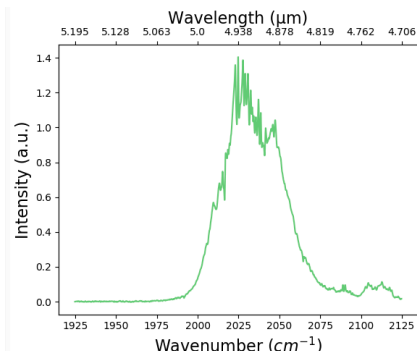
Typical spectrum
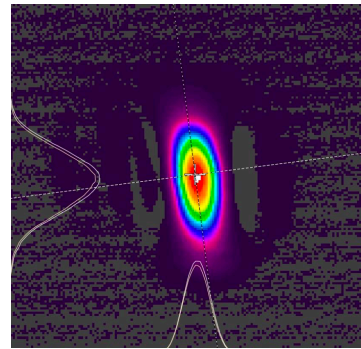
Typical beam quality

*Typical average optical power of the laser as a function of the laser duty cycle
with a pulsewidth of 900ns and a base plate temperature of +20˚C*

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Software interface

Software screenshot example

The PC software allows the user to select some modes with 3 pre-defines pulsewidth and maximum duty cycle over which the user can modulate with an internal or external TTL signal. The software has built-in safety features that safeguard the laser (for example, temperature management)