

MULTILUX™-20-40-46-CW-SYST
Turn-Key, Multiple Wavelength SWIR, MWIR and LWIR Laser System



Laser Head



Laser Controller

Model MULTILUX™-20-40-46-CW-SYST is a high power multiple wavelength laser system that provide multiwatt of continuous wave room temperature power output at one short wavelength infrared (SWIR) and two midwave infrared (MWIR) wavelengths. The three laser outputs are collinear and collimated and each has excellent beam quality needed for a variety of defense and homeland security applications.

The MULTILUX™-20-40-46-CW, can be configured to provide > 2 W of continuous wave, room temperature (CW/RT) power at ~4.6 μm , > 1.5 W of CW/RT power at ~4.0 μm and > 3 W of CW/RT power at ~2.1 μm . The collinearity between the combined laser outputs at the three wavelengths is better than 1 milliradian, which coupled with the excellent beam quality of all three lasers allows projection over long distances. Power output at each one of the laser wavelengths can be individually controlled and can be modulated with arbitrary pulse sequences. Other combinations of SWIR, MWIR and long wave infrared (LWIR) wavelengths are available.

System Description

Laser Head:

- **SWIR laser**
 - Fiber laser at 2.0 μm ; 0.1 μm
 - Power output: Up to 3 W
 - $M^2 < 1.5$
- **MWIR 1 laser**
 - Hermetically encapsulated package with a ~4.0 μm ; 0.15 μm QCL, its thermoelectric cooler and collimating lens
 - Power output: Up to 2 W
 - $M^2 < 1.5$
- **MWIR 2 laser**
 - Hermetically encapsulated package with a ~4.6 μm ; 0.15 μm QCL, its thermoelectric cooler and collimating lens
 - Power output: Up to 1.5 W
 - $M^2 < 1.5$
- Other combinations of wavelengths available
- Beam combining optics
 - Provides a single collimated beam containing all three wavelengths
 - Three beams nearly the same diameter ($\pm 10\%$)
 - Three beams aligned to be collinear to be withing the divergene of the beams
- Beam expanding optics available as an option
- Air cooling system

- Laser protection system
- Physical dimensions: 10" x 10" x 6.5" (approximate)
- Weight: 20 lbs (approximate)

Laser Head:

- Main system control board providing all the necessary system functionality and user communication via RS 422/485; RS232/485/422 is available
- QCL current drivers
- QCL temperature controllers
- Fiber laser power supply
- Complete control of the operating mode of the two lasers; Independently operating as true CW sources or with internally, externally or software programmed pulse sequences suitable for providing applications related waveform capability (maximum square wave pulse modulation frequency: MWIR lasers: 100 kHz, 3 dB rollover point; SWIR laser: 5 kHz, 3 dB rollover point)
- Rack-mount controller (other configurations available at additional cost)
- Front panel control or control via a computer interface
- Cables connecting the laser controller to the laser head with length up to 15 feet
- Electrical input 110/220 VAC 50/60Hz or 28 V DC (customer specified)
- Controller weight: 30 lbs

