



Introducing high-power mid-IR performance that is truly continuous wave from an air-cooled, single-stage laser.

PERFORMANCE SPECIFICATION

Operation Mode	Pulsed or cw
Center Wavelengths	
Nominal Center Wavelength (μm)	Max Power¹ (W)
4.0	0.75
4.6	2.0
8.65	0.75
10.2	0.3
Spectral Content	<120 cm ⁻¹ (at 4.6 μm)
Divergence	< 10 mrad (horizontal) < 2 mrad (vertical)
Spot Size	3 x 2 mm at 25 cm from output (h x v)
Pointing Stability (1 hr)	50 μrad
Polarization	Vertical, 100:1, linear
Modulation Rate	DC-1 MHz
Modulation Depth	Contact factory

PULSED SPECS

Repetition Rate²	0.1-100 kHz
Pulsewidths²	40-500 ns (20 ns increments)
Max Duty Cycle²	5%
Pulse-to-pulse Stability	< 5%
Power Stability (1 hr)	< 2% rms, 4% p-p

CW SPECIFICATIONS

Power Stability (1 hr)	< 2% rms, 4% p-p
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OPERATIONAL SPECIFICATIONS

Cooling	Forced air
Head Dimensions	5.5 x 8.375 x 3.875 inches
Beam Height	1.5 inches
Controller Dimensions	10.5 x 8.5 x 4.0 inches
Operating Temperature	15-35 °C
Power Requirements	100-240 VAC, 50-60 Hz, single phase
Control Protocols	Front-panel, RS-232, GPIB, USB 2.0

All specifications subject to change without notice.

1. Average power, if cw; peak power if pulsed.
2. Contact factory for other ranges.

The Aries™ high-power fixed-wavelength laser is a radical departure from other high-power quantum cascade lasers on the market. It offers up to two full Watts of true continuous wave power in the mid-infrared for the laboratory with only air cooling. The Aries™ lasers will generate up to 2 W hour after hour without cool-down time-outs. Designed for high-power fiber testing, scene generation, and free-space communications applications, this robust system allows for both cw and pulsed operation in the same platform.

A dedicated 1002-FLC controller with improved HFQD electronics makes operation straight-forward. Simply select your operating mode and current. Control functionality is also available through all standard interface buses RS-232, GPIB, and USB 2.0 for integration of the Aries™ into automated stations. HFQD electronics provide for better formed pulses and improved modulation capability.

The AFL-046, provides up to 2 W at 4.6 μm (2,150 cm⁻¹) with broad bandwidth output (~120 cm⁻¹). High powers are also available at 4.0 and 8.65, and 10.2 μm. Please contact the factory for your high-power needs at other wavelengths.

Key to the design of high-power quantum cascade lasers is thermal management. Finite Element Analysis was used to model the heat dissipation. Innovative choice of materials and high-efficiency fins and fans were employed when delivering this compact, air-cooled 2 W device that operates in a true continuous wave mode. The Aries™ series has the ability to operate continuously in laboratory environments up to 35°C with only air-cooling. Dual high-volume, low-noise fans remove excess heat from the chassis.

Now you can move from worrying about your laser to focusing on your data. The engineering team from Daylight Solution has its roots in external cavity development and our expertise has only grown from scientific products, to commercial telecom grade devices, to the mid-infrared, to military hardened sub-systems, to you. The Aries™ high-powered fixed-wavelength lasers are ready for your demanding application.

Aries™

- Fixed-wavelength
- High-power
- Air-cooled
- cw or pulsed operation
- No "cool-down" times

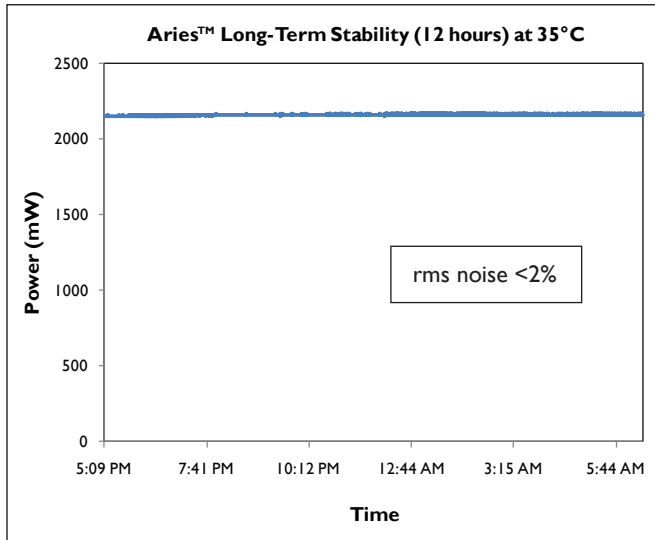
Daylight Solutions: The Source for all Applications in the Mid-IR

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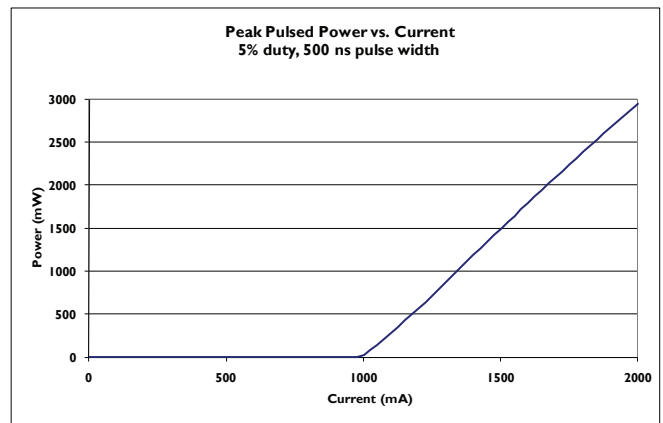
Reference Performance ARIES™ HIGH-POWER LASERS



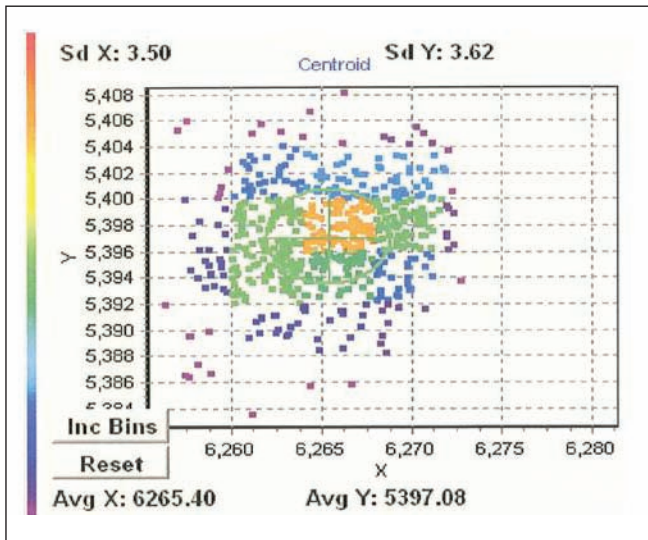
Long-term stability of the Aries™. Air-cooled for over 12 hours at 35 °C of true cw operation with no “cool-down” periods.



Aries™-100 Laser Heads



P-I curve for Aries™ laser.



Pointing stability of Aries™ laser. Maximum value is less than 25 μrad full-angle.



**DANGER: CLASS IV LASER.
AVOID EYE OR SKIN EXPOSURE
TO DIRECT OR SCATTERED RADIATION**

