

808 nm 500 W Pulsed Laser

500 W peak illumination for high-speed imaging

The 808 nm 500 W Pulsed Laser delivers 500 W peak illumination for high-speed imaging. Its integrated optical system, pulse driver and temperature control synchronize short light pulses with a camera through a 5 V TTL trigger. Select pulse width and repetition rate together within the recommended 2% duty cycle.



Technical specifications

Parameter	Listed specification
Wavelength	808 $\pm$ 5 nm
Peak output power	500 W peak; depends on pulse width and repetition rate
Operating mode	Pulsed; external trigger required; CW operation is not supported
Pulse width	50 ns-1 μ s; recommended 100-500 ns
Repetition rate	Up to 1 MHz; recommended $\leq$ 500 kHz, subject to the duty-cycle limit
Recommended duty cycle	$\leq$ 2% for prolonged operation
Trigger signal	External 5 V TTL, rising edge
Trigger input	Front-panel BNC; selectable 50 Ω or 1 M Ω input impedance
Trigger-to-light delay	70 $\pm$ 10 ns
Standard beam delivery	Liquid-core fiber; 5 mm core diameter
Power supply	15 V DC; 15-24 V customization available; confirm the supplied unit rating
Temperature control	Integrated cooling and overtemperature protection
System controls	Key standby enable, emergency stop, interlocks and status indicators

Pulse timing and integration

Choose the operating point as a complete configuration

Duty cycle = pulse width (seconds) × repetition rate (hertz). A 200 ns pulse at 100 kHz gives a 2% duty cycle.

Calculated timing examples at 2% duty cycle

Pulse width	Repetition rate at 2%
100 ns	200 kHz
200 ns	100 kHz
500 ns	40 kHz
1000 ns	20 kHz

Calculated timing examples; optical peak power and pulse shape must be confirmed at the selected operating point.

Operating limits and synchronization

- Choose pulse width and repetition rate together. The 1 MHz maximum and 50 ns minimum imply a 5% duty cycle, which exceeds the recommended 2% for prolonged operation. Maximum frequency, pulse width and peak power are not simultaneous operating guarantees.
- Keep trigger pulses within 50 ns-1 μ s. Pulses longer than 1 μ s can permanently damage the driver, even as a single event; pulses below 50 ns can distort the optical pulse and reduce power.
- Allow for the 70 $\pm$ 10 ns trigger-to-light delay and place the complete optical pulse inside the camera exposure window. Match the camera sync output to the 5 V TTL input and selected termination.
- Confirm power supply voltage, connector pinout, fiber delivery and mounting for the supplied configuration before integration. The key enables standby; light emission is controlled by the external trigger.

Applications

- High-speed imaging
- Particle measurement
- Spray diagnosis

Request a configuration

Specify peak illumination power, pulse width, repetition rate, duty cycle, camera sync signal, delivery optics and supply voltage.

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