

ILLUMINATION

# Lasiris™ HPTL Laser

## FEATURES

- Up to 2.6 W dot or line
- Very high visibility
- Focusable
- CW and Pulsing capability
- ESD, over-temperature, over-voltage, and reverse-polarity protection
- Rugged industrial-grade design



## HIGH POWER PIGTAIL DIODE LASER PROJECTOR

StockerYale's Lasiris™ HPTL laser is a high-power fiber-coupled diode laser capable of projecting a dot or a line. Developed for the most demanding industrial applications, the HPTL laser features fully protected diode electronics and an active air-cooling system with bipolar thermoelectric cooler – all in a compact, rugged housing. A length of optical fiber distances the diode laser from the focusing and beam shaping optics to isolate and protect the diode from harmful industrial environments.

All models can be operated as CW units or in pulsing mode by supplying an analog or TTL signal to the connector on the laser. A fine-focusing optics module is available upon request.

## APPLICATIONS

The HPTL laser was designed for applications requiring high power laser output or for industrial environments with imperfect viewing conditions. It is adapted for machine vision in full sunlight. The length of optical fiber adds to the HPTL's versatility.

Specific applications include:

- Medical therapeutics
- Thermal printing
- Laser pumping
- Machine vision
- Process control

## BEAM COLLIMATORS

The Lasiris™ HPTL laser can come with a collimated beam. There are presently three types of collimators available for the HPTL. Below is a table depicting the divergence of the beam in terms of the diode and in terms of two of our standard collimators. Contact our application engineers for more information.

Collimator	Beam width (mm)	DIVERGENCE (MRAD)			
		670-280	670-350	810-1600	810-2600
101D	1.98	11	22	33	44
201D	3.52	6	13	19	25

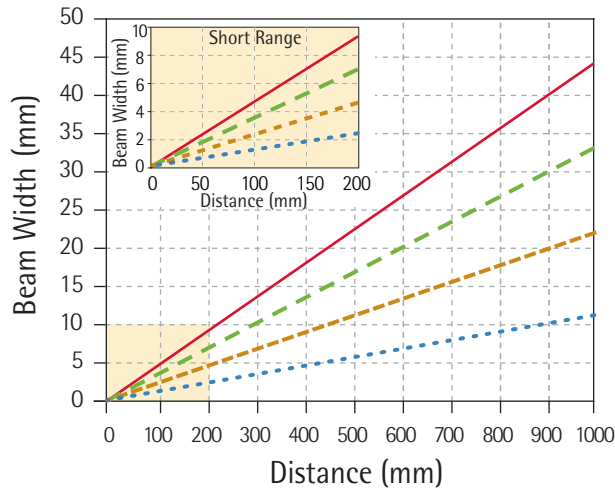
## FOCUSING PERFORMANCE

The following figures show the typical focusing performance of four models of the HPTL laser using two different collimators (the 101D and the 201D collimators). HPTL lasers have an optional optical head that lets the user adjust the focus and produce a focused line at any projection distance. The focus is easily changed with a focusing knob and is secured with a locking mechanism. For more details, please contact our application engineers.

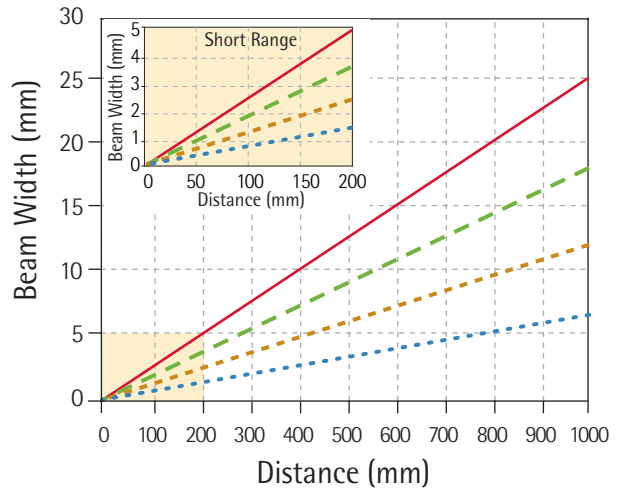
### FOCUSING PERFORMANCE

- 810 nm-2600 mW
- 810 nm-1600 mW
- 670 nm-350 mW
- 670 nm-280 mW

Collimator 101D



Collimator 201D



## LASERS AND EYE SAFETY

Since all Lasiris™ HPTL lasers fall under the CDRH Class IIIb or Class IV safety rating (non-certified), they are equipped with a switch key and remote interlock for your protection. It is extremely important to follow laser safety rules and to wear appropriate protective eyewear when working around these lasers. As a general rule, avoid eye or skin exposure to direct or scattered radiation from these lasers. For more information, please ask for our Laser Safety Booklet.

**CLASS IIIb:** "Danger" Infrared (IR) and high power visible lasers considered dangerous to your retina if exposed.

**CLASS IV:** "Danger" Invisible laser radiation - avoid eye or skin exposure to direct or scattered radiation.

**CAUTION:** Use of controls, or adjustments or performance of procedures other than those specified, may result in hazardous radiation exposure. All laser safety warning labels are provided on the unit and comply with 21 CFR 1040.10 pursuant to the radiation control for the health and safety act of 1968.

### CLASS IIIb



### CLASS IV



## SPECIFICATIONS

### MECHANICAL SPECIFICATIONS

Weight	Approximately 5.6 lbs (2.6 kg)
Dimensions	See dimensional diagrams
Housing material	Black anodized aluminum
Temperature regulation	Built-in bipolar thermoelectric cooling

### OPTICAL SPECIFICATIONS

Power	280 mW to 2.6 W, CW / pulsed
Wavelength	670 nm, 810 nm, 980 nm, custom
Fiber type	Multi-mode
Fiber length	1 m standard, or custom
Fiber end	SMA connector or optical head
Optical head	Fixed or adjustable focus
Output beam	Diverging or collimated. Available diameters: 4.5 mm, 11 mm
Numerical Aperture	0.22, or custom
Bending radius	50 mm
Protective tubing	Reinforced furcation or metallic

## ENVIRONMENTAL SPECIFICATIONS

Operating temperature	
optical head:	-10°C to +45°C
driver:	-35°C to +40°C
Wavelength drift	Maximum ±1 nm over entire operating temperature range
Over Et under temperature protection	

## OTHER SPECIFICATIONS

Warranty	Six months on laser diode 1 year parts Et labor
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## ELECTRICAL SPECIFICATIONS

### POWER SUPPLY

Voltage	12 Vdc ± 1 Vdc Optional 110/240 Vac
Current	Min. 2.5 A to 6 A, depending on model and operating temperature (see available models)
Diode current monitoring	On request
Reverse-polarity protection	
Over-voltage protection	

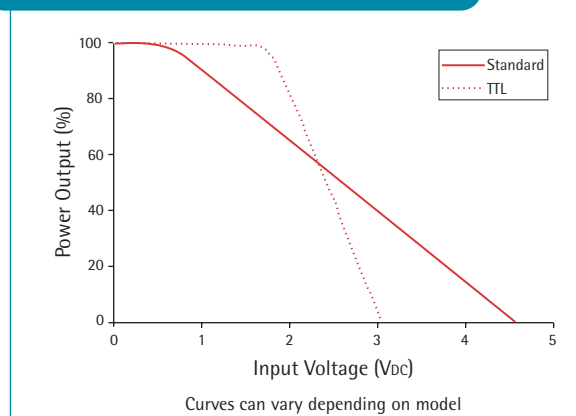
### PULSING AND POWER ADJUSTMENT

The laser power amplitude can be easily changed by adjusting the built-in potentiometer with a small screwdriver. The power can also be modulated or pulsed using an external signal (Input voltage of 0 Vdc "on", 5 Vdc "off").

Options:

- Standard: DC to 10 kHz, variable amplitude, adjustable slope on modulation curve  
Rise / Fall time < 10 µs
- TTL: "option T": up to 10 kHz  
Rise / Fall time < 10 µs
- Frequency of 100 kHz on request.

## POWER ADJUSTMENT CURVES



## ORDERING INFORMATION

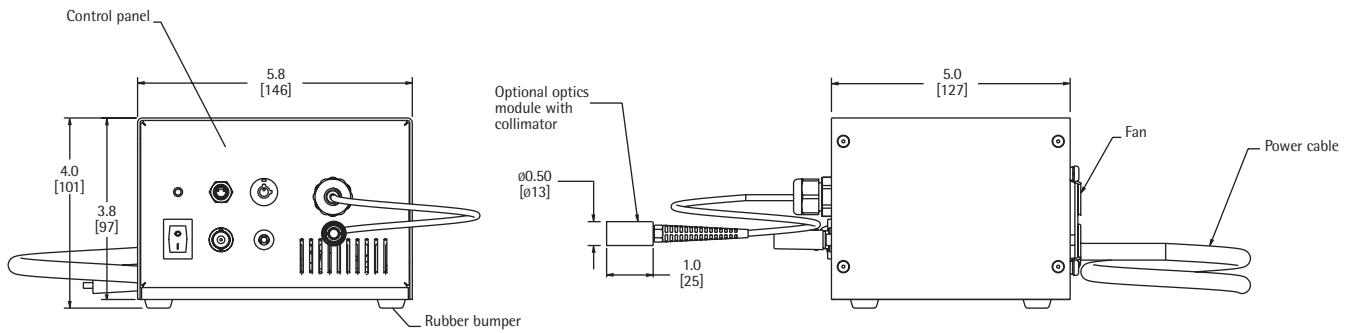
To order an HPTL laser, select from the specifications. Add *-T* to the product code for the TTL power adjustment option; add *-SD* for the separate driver option. (e.g., HPTL - 690T - 400 - SD) Note that the fiber numerical aperture is 0.22 for all cases, but it can be customized to your specifications.

STANDARD WAVELENGTHS	DIODE POWERS
690 nm	400 mW
810 nm	1 W 2.4 W
980 nm	800 mW; 1.8 W
Custom	

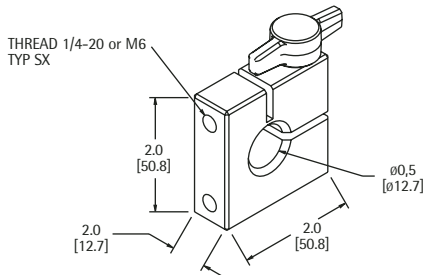
Other wavelengths and diode powers are available. Please call us for more details.

## DIMENSIONAL DIAGRAMS

### HPTL LASER



### M-50 MOUNTING BRACKET



in. [mm]

Information and specifications contained herein are deemed to be reliable and accurate. StockerYale reserves the right to change these specifications at any time without notice.

