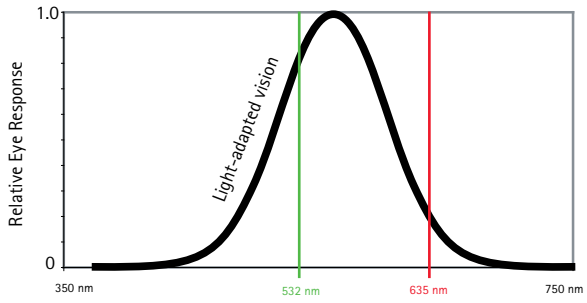
Lasiris™ Green TEC Laser

Features

- High visibility, high contrast laser
- Excellent wavelength, power, and pointing stabilities
- NEW! External focusing
- Uniform, non-Gaussian intensity distribution along the line
- ESD, over-temperature, and reverse-polarity protection

Thermoelectrically cooled green lasers

StockerYale's Lasiris™ Green TEC structured light laser offers a thermoelectric system and fan that maintains a constant laser diode temperature, resulting in excellent wavelength, power, and pointing stabilities. The new, improved design makes focusing even easier with the focus adjusting screw located directly on the body of the laser. In addition, the Green TEC boasts one of the longest green laser lifetimes, and is offered with a 1-year warranty.



High visibility, high contrast green beam

A green beam can provide better contrast on red hot metal or wood. Another advantage is that a green beam is more visible to the human eye than red, thereby making the relative eye response to the green much higher. A 1 mW green beam (532 nm) will be better perceived by the human eye than a 1 mW red beam (635 nm).

StockerYale

Applications

The Green TEC Laser is designed for applications requiring stable laser output. Adapted for harsh industrial environments, this laser produces a stable wavelength over an extended temperature range. Typical applications include:

- High-end alignment and targeting
- Fluorescence microscopy
- Machine vision
- Positioning
- Industrial inspection
- R&D

Some available patterns

Standard

Single Line

Crosshair*

Single Dot

Upon Request

Parallel Lines

Single Square

Dot Line

7x7 Dot Matrix

Single Circle

7 Concentric Circles

See ordering information section for more patterns or call us.

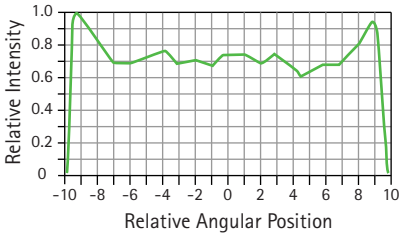
* Lasiris™ crosshair projectors have a single optical component, unlike conventional crosshairs that are formed either by using two lasers or by splitting and recombining one beam to form a cross.

Uniform intensity

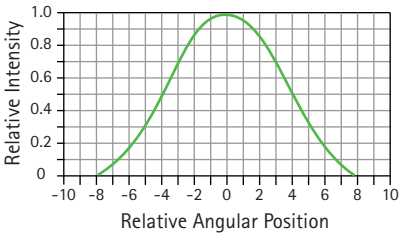
Laser line patterns are often generated by cylindrical optics that produce a Gaussian line profile with a bright center and fading ends. Lasiris™ patented optics spread the light into an evenly illuminated line. The result is a crisp, uniform line with sharp ends.

Line intensity profile along line length

Lasiris™ non-Gaussian line[1]



Gaussian line from cylindrical lens



Relative intensity vs. angular position along line length

1) Typical profile

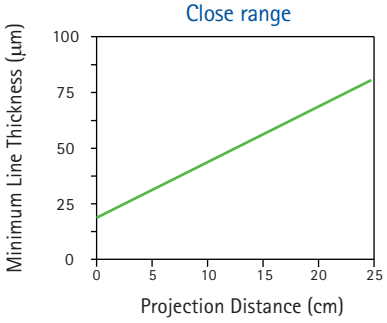
Focusing performance

The following figures show the typical focusing and depth-of-field performance of the Green TEC Laser. The focus charts indicate the minimum line thickness (at $1/e^2$) achievable for a specific projection distance. The depth-of-field is defined as twice the distance over which the thickness of the line has increased by a factor of $\sqrt{2}$.

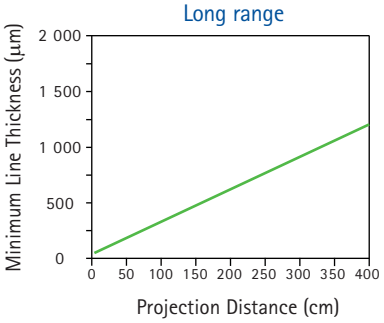
Focusing and depth-of-field performance

Focusing

Close range

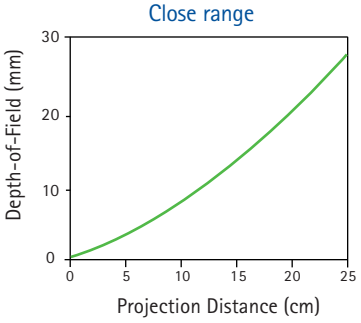


Long range

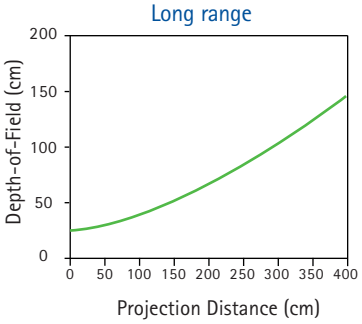


Depth-of-field

Close range



Long range



These focus charts are useful for establishing the smallest achievable line thickness for your application.

The laser can also be adjusted to project a thicker line at a given projection distance, or collimated for minimum divergence. By specifying the desired line thickness and working distance, the laser can be preset to your precise requirements.

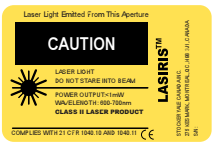
Lasers and eye safety

Our lasers can comply with CDRH and IEC certification and fall in different safety classes depending on output power, wavelength and fan angle. According to CDRH 21CFR1040.10 regulations, they can be classified Class II, Class IIIa, or Class IIIb.

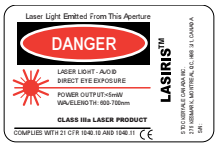
According to IEC 60825-1 regulations, they can be classified Class 1, 1M, 2, 2M, 3R, or 3B. For Class 1M and 2M lasers, viewing the laser output with certain optical instruments (magnifiers, binoculars, etc.) may pose an eye hazard.

Call us or visit our website for further details.

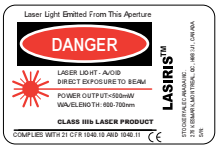
Class II



Class IIIa



Class IIIb



CAUTION: It is important to follow laser safety rules and wear appropriate protective eyewear when working around lasers. Use of controls, adjustments or performance of procedures other than those specified in the instruction manual may result in hazardous radiation exposure.

Specifications

Mechanical specifications

Weight	365 g
Dimensions	See dimensional diagrams on page 4
Housing material	Black anodized aluminum

Optical specifications

Diode power	1, 5, 10, 20 mW
Wavelength	532 nm
Intensity distribution	Uniform (non-Gaussian) lengthwise, Gaussian widthwise for line patterns
Fan angles	1 to 90°
Line thickness	See focus charts on page 2
Bore sighting	<3 mrad
M^2	1.2

Environmental specifications

Operating temperature	-20°C to +45°C
Storage temperature	-20°C to +65°C
Diode temperature drift	0.2°C over entire operating temperature range
Over-temperature protection	
ESD protection	

Electrical specifications: Power supply

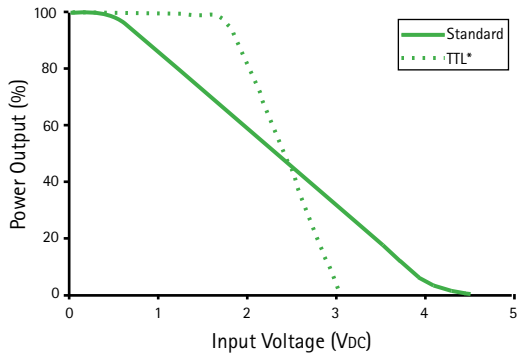
Voltage	5 VDC ± 0.5 VDC
Current	2.5 A at start, 800 mA at ambient temperature
Internal power control	APC: constant power or ACC: constant current
Connector type	3-wire miniature connector, or custom
Reverse-polarity protection	

Electrical specifications: Pulsing and power adjustment

The laser power 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 ")

Coding:	• Standard: code "S": DC to 1 kHz maximum, variable amplitude, adjustable slope on modulation curve • TTL: code "T": 1 kHz maximum
Impedance	>1 kΩ
Rise / Fall time	>100 µsec

Power adjustment curves



*Not available on all models.

The standard slope can be modified.

Ordering information

Green TEC Lasers are covered under a one-year warranty (parts and labor). To order a Green TEC Laser, use the following code: GTEC - Pattern (Interbeam Angle) - Wavelength - Power - Fan Angle. E.g., **GTEC- 503L(1.2°) - 532 - 1 - 5°**. Contact us for more details.

	Pattern		Interbeam angle[(a)]
Standard	501L or 501D	1 line or 1 dot	–
Standard	501H	crosshair	–
	503L or 503D	3 lines or 3 dots	1.2°, 3.95°, 9.23°
	505L or 505D	5 lines or 5 dots	0.18°, 1.23°
	509L or 509D	9 lines or 9 dots	0.09°, 0.06°
	511L or 511D	11 lines or 11 dots	1.2°
	515L or 515D	15 lines or 15 dots	1.8°
	519L or 519D	19 lines or 19 dots	0.61°
	533L or 533D	33 lines or 33 dots	0.07°, 0.30°
	599L or 599D	99 lines or 99 dots	0.118°
	501S	1 square	Custom
	504G	4x4 grid	1.93°
	501C	1 circle	0.61°, 9.0°
	507C	7 concentric circles	0.61°
	507X	7x7 dot matrix	1.5°
	519X	19x19 dot matrix	0.61°
	Custom (please call us)		

Wavelength

532 nm

Diode power

1, 5, 10, 20 mW

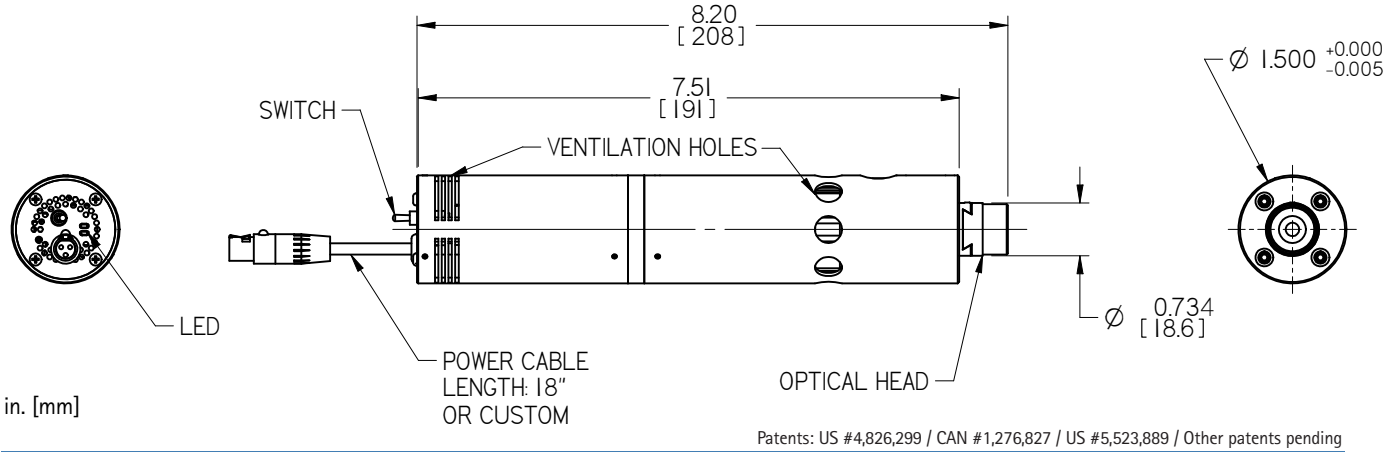
(a) At 532 nm
(b) Not standard for crosshair projectors

Fan angle

1°[(b)]
5°
10°
15°
20°
30°
45°
60°
75°
90°[(b)]
Custom

Ask us about our UV, violet, blue, red, and IR Lasiris™ TEC Lasers

Dimensional diagrams



in. [mm]

Patents: US #4,826,299 / CAN #1,276,827 / US #5,523,889 / Other patents pending

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