

ILLUMINATION

Lasiris™ SNF Laser

FEATURES

- Two year warranty
- Uniform intensity distribution with line generators
- Wide range of wavelengths, fan angles and patterns
- Power up to 150 mW
- ESD, over-temperature, over-voltage, and reverse-polarity protection
- Rugged, shock and vibration resistant design



STRUCTURED LIGHT PROJECTOR

- NEW!** - Interbeam angle doubler -- structured light pattern expander
- Improve line uniformity to ± 25 , 20 or 15%, depending on your laser model
 - 660 nm, 100 mW option now available

StockerYale's complete line of Lasiris™ SNF beam shaping optics transforms the familiar laser dot into different shapes and sizes. For example, a straight line can be projected by allowing one dimension of light to fan out while maintaining tight control over the other, resulting in a sheet-of-light.

What distinguishes the SNF series lasers from conventional cylindrical optics is the evenness of the illumination pattern. While many lasers use a glass rod to spread a laser dot into a Gaussian line, our laser system incorporates a patented optical line generator that eliminates Gaussian distribution of the light. The design thus provides superior quality light patterns while avoiding the intricacies of installation alignment and detector calibration.

APPLICATIONS

- Machine vision
- 3D contour mapping
- Alignment
- Positioning
- Industrial inspection
- Patient positioning

OPTIONS AND CUSTOM UNITS

The laser is available with options allowing you to strobe or control its output electronically and with a wide selection of accessories. Visit us online or contact our application engineers for further details concerning specific requests, since custom units can be built for specialized applications.

SOME AVAILABLE PATTERNS

Single Line



Crosshair*



Parallel Lines



Single Square



Dot Line



7x7 Dot Matrix



Single Circle



7 Concentric Circles



Single Dot



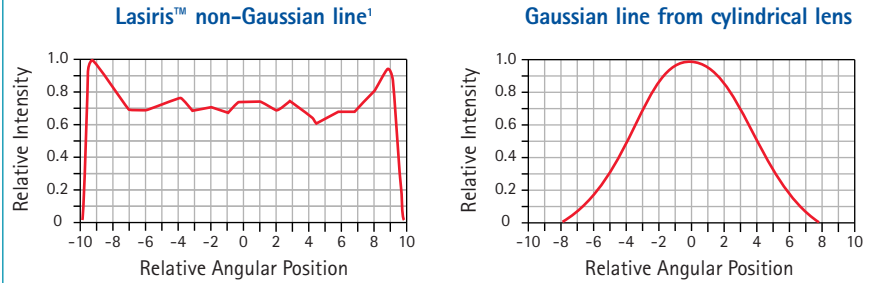
See ordering information section for more patterns or call us.

* 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



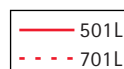
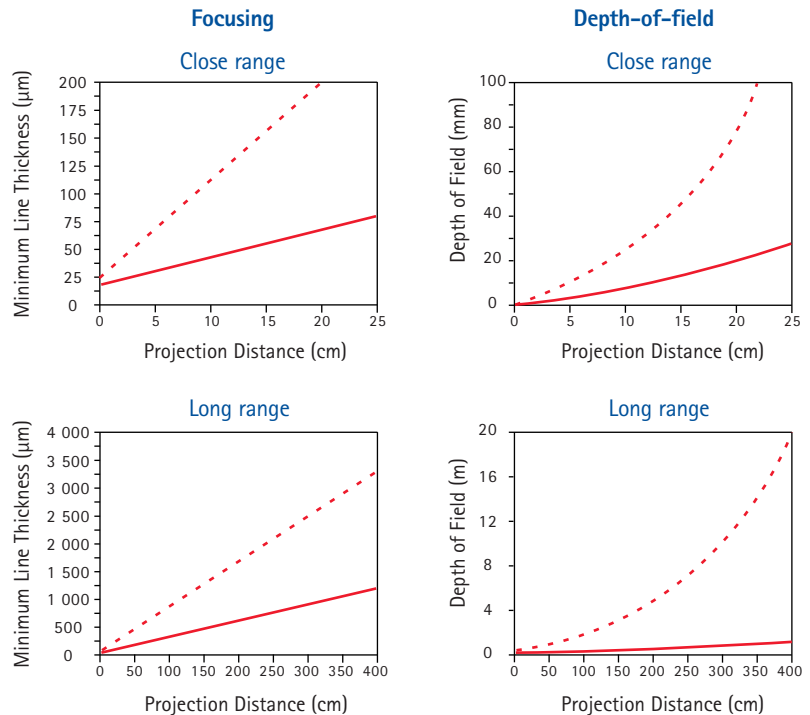
Relative intensity vs. angular position along line length

1) Typical profile. **NEW!** Improve line uniformity to ± 25 , 20 or 15%. Request this option at the time of order.

FOCUSING PERFORMANCE

The following figures show the typical focusing and depth-of-field performance of the SNF laser projector. 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



Other lenses are available with different focusing performance curves. Call for details.

These focus charts are useful for establishing the smallest achievable line thickness for your application. The 501L will produce the smallest line thickness. The 701L produces a thicker line but maintains the line thickness over a longer distance.

The laser can be collimated for minimum divergence. Also, by specifying a 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. Lasers 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, IIIa, or 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.

CAUTION: It is important to follow laser safety rules and wear appropriate protective eye-wear 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	65 g (with separate electronics: 70 g)
Dimensions	See dimensional diagrams on page 4
Housing material	Black anodized aluminum

OPTICAL SPECIFICATIONS

Diode power	1 to 150 mW, varies with model
Wavelength	635 to 1550 nm, varies with model
Intensity distribution	Uniform (non-Gaussian) lengthwise, Gaussian widthwise
Fan angles	1 to 120°, varies with model
Line uniformity	Improve line uniformity to ± 25, 20 or 15%, depending on model
Bore sighting	<3 mrad

ENVIRONMENTAL SPECIFICATIONS

Operating temperature	-10°C to +48°C with bracket
Wavelength drift	0.25 nm/°C typical

Over-temperature protection, ESD protection

ELECTRICAL SPECIFICATIONS: POWER SUPPLY

Input voltage	5 - 6 Vdc Optional 9,12,24 Vdc, 115/220 Vac
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Connector type Male phono-jack 3.5 mm ø, or custom

Slow start time delay 10 µsec

Reverse-polarity protection, Over-voltage protection

STANDARD OPTIONS

POWER OPTIONS

Power Adjustment Potentiometer

The laser power can be easily changed by adjusting an optional built-in potentiometer with a small screwdriver. Code "P".

Pulsing & Power Adjustment

The power can be modulated or pulsed using an external signal. Input voltage of 0 Vdc: "on", 5 Vdc: "off" (or can be reversed). See figure below.

Coding:

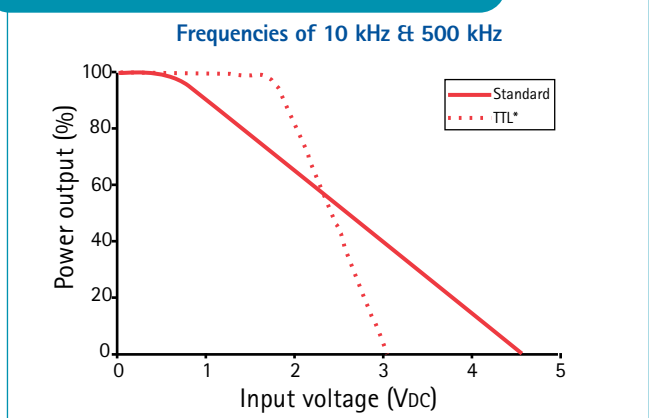
- Standard S: 10 kHz FS*: 500 kHz
- TTL T*: 10 kHz FT*: 500 kHz

2 MHz available.

Impedance >1 kΩ

Rise/Fall time 10 µsec for 10 kHz, 0.3 µsec for 500 kHz

POWER ADJUSTMENT CURVES



*Not available on all models.

The standard slope can be modified.

SEPARATE ELECTRONICS OPTION

The electronics of the laser can be separated from the main unit. See diagram 'SNF laser with separate electronics option' on the next page for details. Use code "SD".

ORDERING INFORMATION

SNF lasers are covered under a 2-year warranty (parts & labor). To order, use the following code: SNF - Pattern ("L" for Line, "D" for Dot, etc.) (Interbeam Angle) - Wavelength & Power Option (if applicable) - Diode Power - Fan Angle (for lines) - "SD" for Separate Driver Electronics option (if applicable). E.g., **SNF-503L(1.5°)-635T-1-20-SD**. Call us or visit our website for updates and other specifications. **NEW!** Improve line uniformity to $\pm 25, 20$ or 15% , depending on your laser model. Call us for more details.

PATTERN ^(A)		INTERBEAM ANGLE ^(B)
501L or 701L	1 line	-
503L or 703L	3 lines	1.5°, 5.0°, 11.7°
505L or 705L	5 lines	0.23°, 1.55°
509L or 709L	9 lines	0.11°, 0.07°
511L or 711L	11 lines	1.5°
515L or 715L	15 lines	2.3°
519L or 719L	19 lines	0.77°
533L or 733L	33 lines	0.09°, 0.38°
599L or 799L	99 lines	0.149°
501S	1 square	2.9°
504G	4x4 grid	2.44°
501H	crosshair	-
501C	1 circle	0.77°, 11.4°
507C	7 concentric circles	0.77°
507X	7x7 dot matrix	1.9°
519X	19x19 dot matrix	0.77°
Custom		

STANDARD WAVELENGTHS^(C) & DIODE POWERS

635 nm	1, 5, 10, 15, 35 mW
660 nm	1, 5, 10, 20, 35, 50, 100 ^(d) mW
690 nm	20, 35 mW
785 nm	20, 35, 75 mW
830 nm	30, 100, 150 mW
Custom	

Please visit our website or call us for an updated list.

- (a) Line patterns are also available as dots -- add "D" instead of "L" in the order code
- (b) At 670 nm
- (c) Enquire about our green and blue lasers
- (d) Not standard for crosshair projector
- (e) Only available with the 701L lens

FAN ANGLE

1°^(d)

5°

10°

15°

20°

30°

45°

60°

75°

90°^(d)

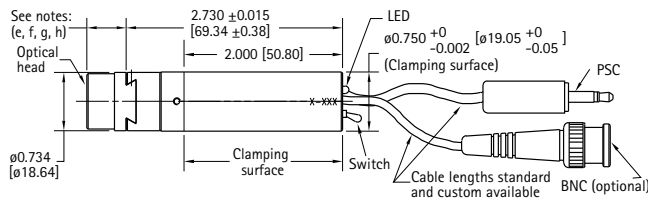
Custom

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

Ask us about the new **Interbeam Angle Doubler**, a structured light pattern expander with a high beam-to-beam uniformity.

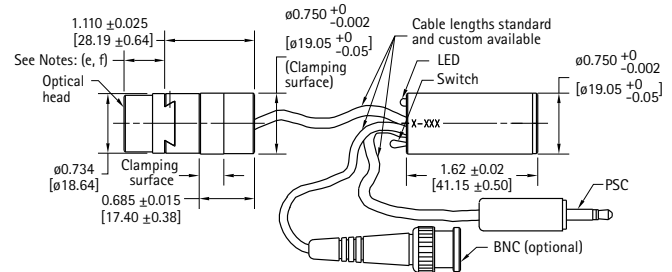
DIMENSIONAL DIAGRAMS

STANDARD SNF LASER



- Notes: (e) Add 0.500 [12.7] for single line generator
 (f) Add 0.900 [22.86] for other patterns
 (g) Add 0.805 [20.45] for 670-100 (with separate electronics) with single line generator
 (h) Add 1.031 [26.19] for 670-100 (with separate electronics) with other patterns

SNF LASER WITH SEPARATE ELECTRONICS OPTION



in. [mm]

Some combinations of specifications may result in different dimensions. Patents: US #4,826,299 / CAN #1,276,827 / US #5,523,889 / Other patents pending

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.

