

Low Noise Laser Focus with an elliptical beam profile

Machine Vision Laser Focus Series LNC-13M/LNC-13MM

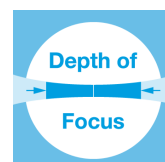
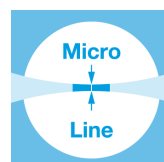


FEATURES

Low noise machine vision laser focus with elliptical Gaussian beam profile. This includes lasers of series LNC-13M/LNC-13MM. All series are available as Micro (smaller line widths) or Macro version (extended depth of focus).

- Spot with elliptical beam profile
- Laser Focus Generator series [LNC-13M](#)
 - Spot diameter starting at $9 \times 21 \mu\text{m}$
 - Wavelengths 405 - 940 nm
 - Laser powers up to 42 mW
 - Low noise Laser Module (typ. $< 0.15 \%$ of P_0 (RMS, Bandwidth $< 1 \text{ MHz}$))
- Laser Focus Generator series [LNC-13MM](#)
 - Spot diameter starting at $20 \mu\text{m}$
 - Wavelengths 405 - 940 nm
 - Laser powers up to 33 mW
 - Low noise Laser Module (typ. $< 0.15 \%$ of P_0 (RMS, Bandwidth $< 1 \text{ MHz}$))
- Optional Low Noise Version:
- Series [13M](#) (Micro) and series [13MM](#) (Macro)

- Micro Line Generator for small laser line widths and high power density in the focal plane
- Macro Line Generator for extended depth of focus
- Low noise, low coherence laser module (typ. $< 0.15 \%$ of P_0 (RMS, Bandwidth $< 1 \text{ MHz}$))



DESCRIPTION

The laser diode beam sources series LNC-13M/LNC-13MM produce an elliptical laser spot.

LNC-13M/LNC-13MM

The laser diode beam source series LNC-13M produces an elliptical laser spot with elliptical Gaussian intensity distribution. The laser diode beam source series LNC-13MM produces an often circular (sometimes slightly elliptical) laser spot with extended depth of focus. The beam profile is [approx. Gaussian](#). More precisely it has an elliptical intensity distribution clipped by a circular aperture.

Micro and Macro lasers

The lasers of series LNC-13M are [Laser Micro Focus Generators](#) designed to produce spots with small spot size. They have a small depth of focus (in this case the depth of focus is the Rayleigh range). [Laser Macro Focus Generators](#) like the corresponding lasers of series LNC-13MM have common basic optical features but are designed to generate laser spots with an extended depth of focus.

Low noise

The lasers are [low noise](#) (typ. < 0.15 % of P_0 * (RMS, Bandwidth < 1 MHz)) and operate mode-hopping free. Due to the reduced coherence length the speckle contrast is lowered. However this effect is smaller for smaller spots. (* P_0 is the maximum specified output power.)

Electronics

The laser has integrated electronics for control of the laser output power. The output power can be controlled using the modulation input ports (TTL and analog) or manually using the potentiometer.

Adjusting the working distance

For lasers of series LNC-13M/LNC-13MM the working distance can be adjusted by adjusting the focus setting. Please note that the spot diameter increases proportionally to the working distance. A fine-adjustment of the distance between laser and target is recommended for fine-focusing in order to achieve minimal spot size.

Standard Version

The laser series LNC-13M/LNC-13MM is also available as a standard version [13M](#) (Micro), [13MM](#) (Macro). Please note that these differ in electronics type, but are also available with [RS232 interface](#).

These high quality lasers can e.g. be used for machine vision applications.

TECHNOTES

- [Micro vs. Macro](#)
[What does Micro or Macro Laser mean?](#)
- [LNC Laser Modules](#)
[Low noise Laser Modules vs. regular Laser Modules](#)
- [Electronic features \(9\)](#)
[Detailed electronic features for all electronics types](#)

[Overview Electronics Types](#)
[Overview over all Electronics Types](#)

- [Electronics Type C](#)
[Electronic features for electronics type C](#)
- [Electronics Type P](#)
[Electronic features for electronics type P](#)
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- [Electronics Type CS with RS232 interface](#)
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[Electronic features for electronics type PS](#)
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[Electronic features for electronics type S](#)
- [Electronics Type B](#)
[Electronic features for electronics type B](#)
- [Laser Line Basics \(7\)](#)
[Line geometry, intensity distribution, definition of line length and working distance, definition of line width and machine vision applications.](#)
- [Laser Line geometries](#)
[Fan angle vs. semi-telecentric.](#)
- [Intensity distribution](#)
[Gaussian intensity distribution and uniform intensity distribution along the laser line](#)
- [Laser Line length and working distance](#)
[Line length and working distance definition](#)
- [Laser Line Width and Depth of Focus / Rayleigh Range](#)
[Line width definition](#)
- [Laser Speckle](#)
[When do they appear and how to prevent them](#)
- [Wavelengths of diode based lasers](#)
[What wavelengths are available for diode based laser modules?](#)
- [Cable orientation](#)
[Straight and angled cable exit](#)
- [Machine vision applications of Laser Lines \(1\)](#)
[Laser triangulation, laser light sectioning, particle measurement etc.](#)
- [Laser Diffraction Measurements](#)

[Article - Laser Sources for Metrology and Machine Vision](#)
[Laser diode based laser sources for high precision measurement and inspection systems](#)

RELATED PRODUCTS

LASER MODULES SERIES LNC-13M

- Micro Focus Generator
- Elliptical Gaussian beam profile
- Low noise

LASER MODULES SERIES LNC-13MM

- Macro Focus Generator
- **Circular** beam profile
- Extended depth of focus
- Low noise

This is a printout of the page https://sukhamburg.com/products/laserm_modules/lnc/laserfocus/elliptical.html from 5/3/2024

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