

Low Noise Laser Focus with a circular beam profile

Machine Vision Laser Focus Series LNC-13MC/LNC-13MMC and LNC-13MM

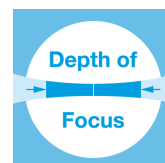
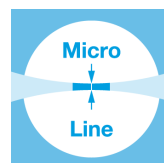


FEATURES

Low noise machine vision laser focus with approx. circular Gaussian beam profile. This includes lasers of series LNC-13MC/LNC-13MMC and LNC-13MM. The series are available as Micro (smaller line widths) or Macro version (extended depth of focus).

- Spot with circular beam profile
- Low noise Laser Module (typ. $< 0.15\%$ of P_0 (RMS, Bandwidth < 1 MHz))
- Laser Focus Generator series [LNC-13MC/LNC-13MMC](#)
- Rotationally symmetric, Gaussian beam profile
- Laser Focus Generator series [LNC-13MM](#)
- Circular beam profile
- Extended depth of focus
- Standard Version:
 - Series [13MC](#) (Micro) and series [13MMC](#) (Macro)
 - 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



DESCRIPTION

The laser diode beam sources series LNC-13MC/LNC-13MMC, and LNC-13MM produce a circular laser spot. They have different intensity distributions/beam profiles.

LNC-13MC vs. LNC-13MM

The laser diode beam source series LNC-13MC produces a rotationally symmetric, circular laser spot with Gaussian intensity distribution. The corresponding series LNC-13MMC produces a rotationally symmetric laser spot with extended depth of focus. The beam profile is rotationally symmetric and [approx. Gaussian](#).

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

Micro and Macro lasers

The lasers of series LNC-13MC 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-13MMC have common basic optical features but are designed to generate laser spots with an extended depth of focus. The lasers of series LNC-13MM are also Macro Focus Generators with 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-13MC/LNC-13MMC, and 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-13MC/LNC-13MMC and LNC-13MM is also available as a standard version [13MC](#) (Micro), [13MMC](#) (Macro) and [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
- Electronics Type H
Electronic features for electronics type H
- Electronics Type HP
Electronic features for electronics type HP
- Electronics Type CS with RS232 interface
Electronic features for electronics type CS
- Electronics Type PS with RS232 interface
Electronic features for electronics type PS
- Electronics Type S
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-13MC

- Micro Focus Generator
- **Rotationally symmetric**, Gaussian beam profile
- Low noise

LASER MODULES SERIES LNC-13MMC

- Laser Macro Focus Generator
- **Rotationally symmetric** beam profile
- Extended depth of focus
- 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/circular.html from 5/3/2024

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