

Machine Vision Laser Focus with an elliptical beam profile

Series 13M/13MM, 5M

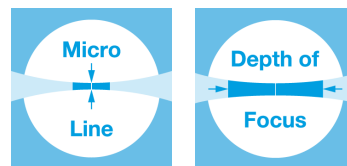


FEATURES

Machine vision laser focus with elliptical Gaussian beam profile. This includes lasers of series 13M/13MM and 5M. 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 [13M/13MM](#)
- Also available in blue or green
- Laser Focus Generator series [5M](#)
- Compact
- Optional Low Noise Version:
- Series [LNC-13M](#) (Micro) and series [LNC-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 13M/13MM and 5M produce an elliptical laser spot.

13M/13MM vs. 5M

The laser diode beam source series 13M produces an elliptical laser spot with elliptical Gaussian intensity distribution. The laser diode beam source series 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.

The compact Laser Focus Generator series 5M produces an elliptical laser spot with elliptical Gaussian intensity distribution.

Micro and Macro lasers

The lasers of series 13M and 5M 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 13MM have common basic optical features but are designed to generate laser spots with an extended depth of focus.

Electronics

The lasers have 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. Optionally the lasers can be equipped with [RS232 serial interface](#) for laser control and data read-out. Please note that the compact version 5M has different electronic features and is not available with RS232 interface.

Adjusting the working distance

For lasers of series 13M/13MM, and 5M 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.

Optional: Low Noise Version

The laser series 13M/13MM is also available as a Low Noise version [LNC-13M](#) (Micro), [LNC-13MM](#) (Macro). These 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 lines and spots. (P_0 is the maximum specified output power.)

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

TECHNOTES

- [Micro vs. Macro](#)
[What does Micro or Macro Laser mean?](#)
- [Laser Modules with RS232 interface](#)
[Features of Laser Modules with RS232 interface](#)
- [LNC Laser Modules](#)
[Low noise Laser Modules vs. regular Laser Modules](#)
- [Electronic features \(9\)](#)
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- [Overview Electronics Types](#)
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- [Electronics Type C](#)
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[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](#)
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 - [Laser Line Width and Depth of Focus / Rayleigh Range](#)
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- [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 13M

- Micro Focus Generator
- Elliptical Gaussian beam profile

LASER MODULES SERIES 13MM

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

LASER MODULES SERIES 5M

- **Compact** Laser Micro Focus Generator
- Elliptical Gaussian beam profile

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/lasermodules/geometry/laserfocus/elliptical.html> from 12/4/2023

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