

Machine Vision Laser Line with a fan angle and Gaussian intensity distribution

Series 5LM/5LMM and 5LP/5LPM

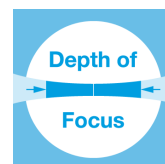
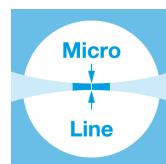


FEATURES

Machine vision laser line with a fan angle and Gaussian intensity distribution. This includes lasers of series 5LM/5LMM and 5LP/5LPM. Both series are available as Micro (smaller line widths) or Macro version (extended depth of focus).

- Fan angle
- Gaussian intensity distribution
- Laser Line Generator series [5LM/5LMM](#)
- Small fan angle
- Laser Line Generator series [5LP/5LPM](#)
- Larger fan angle for longer laser lines
- Optional Low Noise Version:
 - Series [LNC-5LM](#) (Micro) and series [LNC-5LMM](#) (Macro)
 - Series [LNC-5LP](#) (Micro) and series [LNC-5LPM](#) (Macro)
- Available in a compact version
- [5LM+25CM](#) (Micro), [5LMM+25CM](#) (Macro)
- [5LP+25CM](#) (Micro) and [5LPM+25CM](#) (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 5LM/5LMM and 5LP/5LPM produce laser lines with a fan angle and Gaussian intensity distribution along the laser line.

5LM vs. 5LP

The laser diode beam source series 5LM produces laser lines with a smaller fan angle of 8° or 15°. The intensity profile is Gaussian in line direction clipped by an aperture with an edge intensity of typ. 30%. The line width is constant along the laser line. Across the laser line the intensity distribution is Gaussian for the Series 5LM and [approx. Gaussian](#) for the series 5LMM.

The laser diode beam source series 5LP produces laser lines with a large fan angle of about 40°, 62°, or 84°. The intensity profile is Gaussian in line direction clipped by an aperture with an edge intensity of typ. 30%. The line width is constant along the laser line. Across the laser line the intensity distribution is Gaussian for the series 5LP and [approx. Gaussian](#) for the series 5LPM.

Micro and Macro lasers

The lasers of series [5LM](#) and [5LP](#) are [Laser Micro Line Generators](#) designed to produce lines with small line width. They have a small depth of focus (in this case the depth of focus is the Rayleigh range). [Laser Macro Line Generators](#) like the corresponding lasers of series [5LMM](#) and [5LPM](#) have common basic optical features but are designed to generate laser lines 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 (more details below) has different electronic features.

Adjusting the working distance

For lasers of series 5LM and 5LP the working distance is fixed. A fine-adjustment of the distance between laser and target is recommended for fine-focusing in order to achieve minimal line width.

Optional: Low Noise Version

The laser series 5LM/5LMM as well as 5LP/5LPM are also available as a Low Noise versions [LNC-5LM](#) (Micro), [LNC-5LMM](#) (Macro), [LNC-5LP](#) (Micro) and [LNC-5LPM](#) (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. (P_0 is the maximum specified output power.)

Compact Version

The laser series 5LM/5LMM as well as 5LP/5LPM are also available as a compact version [5LM+25CM](#) (Micro), [5LMM+25CM](#) (Macro), [5LP+25CM](#) (Micro) and [5LPM+25CM](#) (Macro). Please note that these differ in electronics type and are not available with RS232 interface or as a Low Noise LNC version.

These high quality lasers can e.g. be used for machine vision applications, laser triangulation or laser light sectioning.

TECHNOTES

- [Micro vs. Macro](#)
[What does Micro or Macro Laser mean?](#)
- [Laser Modules with RS232 interface](#)
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- [Laser Line Basics \(7\)](#)
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[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?](#)

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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](#)

DOWNLOADS

[Article_LaserLines.pdf](#)

This downloads section only includes general downloads for the complete series.

Please access the individual product pages (using the product configurator, the product list, order options or the search button if you have a complete order code). Here you will find specific downloads including technical drawings or stepfiles.

RELATED PRODUCTS

**LASER MODULES
SERIES 5LM**

- Micro Line, **small** fan angle
- Gaussian intensity distribution

**LASER MODULES
SERIES 5LMM**

- Macro Line, **small** fan angle
- Gaussian intensity distribution
- Extended depth of focus

**LASER MODULES
SERIES 5LP**

- Micro Line, **large** fan angle
- Gaussian intensity distribution

**LASER MODULES
SERIES 5LPM**

- Macro Line, **large** fan angle
- Gaussian intensity distribution
- Extended depth of focus

**LASER MODULES
SERIES 5LM+25CM**

- **Compact** Micro Line, **small** fan angle
- Gaussian intensity distribution

**LASER MODULES
SERIES 5LMM+25CM**

- **Compact** Micro Line, **small** fan angle
- Gaussian intensity distribution
- Extended depth of focus

**LASER MODULES
SERIES 5LP+25CM**

- **Compact** Micro Line, **large** fan angle
- Gaussian intensity distribution

**LASER MODULES
SERIES 5LPM+25CM**

- **Compact** Macro Line, **large** fan angle
- Gaussian intensity distribution
- Extended depth of focus

**LASER MODULES
SERIES LNC-5LM**

- Micro Line, **small** fan angle
- Gaussian intensity distribution
- Low noise

**LASER MODULES
SERIES LNC-5LMM**

- Macro Line, **small** fan angle
- Gaussian intensity distribution
- Extended depth of focus
- Low Noise

**LASER MODULES
SERIES LNC-5LP**

- Micro Line, **large** fan angle
- Gaussian intensity distribution
- Low noise

**LASER MODULES
SERIES LNC-5LPM**

- Macro Line, **large** fan angle
- Gaussian intensity distribution
- Extended depth of focus
- Low noise

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https://sukhamburg.com/products/laserm_modules/geometry/laserline/fanangle_gaussian.html from 4/25/2024

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