

## Low Noise Laser Line with a fan angle and uniform intensity distribution

Machine Vision Laser Series LNC-13LN/LNC-13LNM

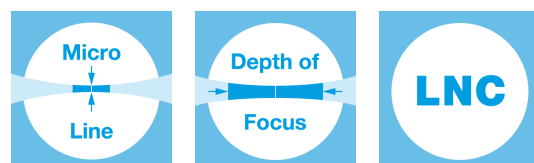


### FEATURES

Low noise machine vision laser line with a small fan angle and approx. uniform intensity distribution. Available as Micro (smaller line widths) or Macro version (extended depth of focus).

- Laser Line Generator series [LNC-13LN](#)
  - Line widths starting at 8  $\mu\text{m}$
  - Wavelengths 635 - 940 nm
  - Laser powers up to 26 mW
  - Low noise Laser Module (typ. < 0.15 % of  $P_0$  (RMS, Bandwidth < 1 MHz))
- Laser Line Generator series [LNC-13LNM](#)
  - Depth of focus 7 to 35 times larger than for corresponding Micro Line Generator
  - Line widths starting at 14  $\mu\text{m}$
  - Wavelengths 635 - 940 nm
  - Laser powers up to 18 mW
  - Low noise Laser Module (typ. < 0.15 % of  $P_0$  (RMS, Bandwidth < 1 MHz))
- Standard Version:
- Series [13LN](#) (Micro) and series [13LNM](#) (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 MHz))



## DESCRIPTION

The low noise laser diode beam sources series LNC-13LN/LNC-13LNM produces laser lines with a small fan angle between 0° and 16.8° and approx. uniform intensity distribution along the laser line. More precisely, it is Gaussian clipped by an aperture with an edge intensity of typ. 80%. Across the laser line the intensity distribution is Gaussian for the series LNC-13LN and [approx. Gaussian](#) for the series LNC-13LNM. For series LNC-13LN the line width is constant along 60% of the central area, outside this area the line width differs up to 30%.

### Micro and Macro lasers

The lasers of series [LNC-13LN](#) 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 [LNC-13LNM](#) have common basic optical features but are designed to generate laser lines 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 lines. (\*  $P_0$  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-13LN/LNC-13LNM 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.

### Standard version

The laser series LNC-13LN/LNC-13LNM is also available as a standard version [13LN](#) (Micro) and [13LNM](#) (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, laser triangulation or laser light sectioning.

## 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](#)

## 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 LNC-13LN

- Micro Line, **small** fan angle
- Uniform intensity distribution
- Thin lines
- Low noise

### LASER MODULES SERIES LNC-13LNM

- Macro Line Generator, **small** fan angle
- Uniform intensity distribution
- Extended depth of focus
- Low noise

This is a printout of the page [https://sukhamburg.com/products/laserm\\_modules/lnc/laserline/fanangle\\_constant.html](https://sukhamburg.com/products/laserm_modules/lnc/laserline/fanangle_constant.html) from 4/30/2024

## CONTACT

**For more information please contact:**

**Schäfter + Kirchhoff GmbH**

**Kieler Str. 212**

**22525 Hamburg**

**Germany**

**Tel: +49 40 85 39 97-0**

**Fax: +49 40 85 39 97-79**

**info@sukhamburg.de**  
**www.sukhamburg.com**

## LEGAL NOTICE

**Copyright 2020 Schäfter+Kirchhoff GmbH. All rights reserved.**

Text, image, graphic, sound, video and animation files and their arrangement on Schäfter+Kirchhoff GmbH webpages are protected by copyright and other protective laws. The content may not be copied for commercial use or reproduced, modified or used on other websites. [\[more\]](#)

