

## Red Semi-telecentric Machine Vision Laser Line with uniform intensity distribution

Series 13LT/13LTM

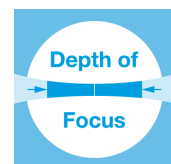
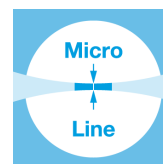
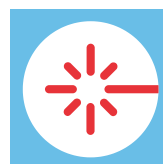


### FEATURES

Red semi-telecentric machine vision laser line with uniform intensity distribution. This includes lasers of series 13LT/13LTM. Both series are available as Micro (smaller line widths) or Macro version (extended depth of focus).

- Semi-telecentric
- Uniform intensity distribution
- Laser Line Generator series [13LT](#)
  - Line length 15 mm
  - Line widths starting at 12  $\mu\text{m}$
  - Wavelengths 405 - 940 nm
  - Laser powers up to 67 mW
- Laser Line Generator series [13LTM](#)
  - Depth of focus 7 to 35 times larger than for corresponding Micro Laser Line Generator
  - Line length 15 mm
  - Line widths starting at 39  $\mu\text{m}$
  - Wavelengths 405 - 940 nm
  - Laser powers up to 30 mW
- Optional Low Noise Version:
- Series [LNC-13LT](#) (Micro) and series [LNC-13LTM](#) (Macro)

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- Red Machine Vision Laser
  - 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 13LT/13LTM produce semi-telecentric laser lines with a uniform intensity distribution along the laser line.

### 13LT/13LTM

The laser diode beam sources series 13LT/13LTM produce a semi-telecentric laser line with 15 mm line length. The intensity profile is approx. uniform in line direction. More precisely, it is Gaussian clipped by an aperture with an edge intensity of typ. 80%. The line width is constant along the laser line. Across the laser line the intensity distribution is Gaussian for lasers of series 13LT and [approx. Gaussian](#) for lasers of series 13LTM.

### Micro and Macro lasers

The lasers of series [13LT](#) 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 [13LTM](#) 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.

### Adjusting the working distance

For lasers of series 13LT/13LTM 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 13LT/13LTM is also available as a Low Noise version [LNC-13LT](#) (Micro) and [LNC-13LTM](#) (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, laser triangulation or laser light sectioning.

## 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](#)

[Overview over all Electronics Types](#)

- [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](#)  
[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](#)  
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- [Cable orientation](#)  
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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 13LT

- Semi-telecentric Micro Line
- Uniform intensity distribution
- Constant line length **15 mm**

### LASER MODULES SERIES 13LTM

- Semi-telecentric Macro Line
- Uniform intensity distribution
- Constant line length **15 mm**
- Extended depth of focus

### LASER MODULES SERIES LNC-13LT

- Semi-telecentric Micro Line
- Uniform intensity distribution
- Constant line length **15 mm**
- Low noise

### LASER MODULES SERIES LNC-13LTM

- Semi-telecentric Macro Line
- Uniform intensity distribution
- Constant line length **15 mm**
- Extended depth of focus
- Low noise

This is a printout of the page [https://sukhamburg.com/products/laserm\\_modules/wavelength/red/laserline/semi-telecentric.html](https://sukhamburg.com/products/laserm_modules/wavelength/red/laserline/semi-telecentric.html) from 5/2/2024

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