Semi-telecentric Machine Vision Laser Line with Gaussian intensity distribution

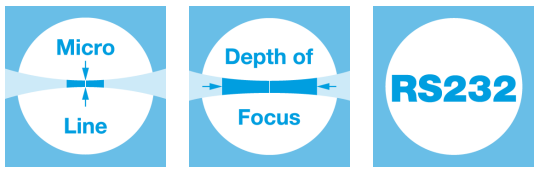
Series 5LT/5LTM with RS232 interface

FEATURES

Semi-telecentric machine vision laser line with Gaussian intensity distribution. This includes lasers of series 5LT/5LTM. Both series are available as Micro (smaller line widths) or Macro version (extended depth of focus).

- Semi-telecentric
- Gaussian intensity distribution
- RS232 interface
- Laser Line Generator series 5LT-1/5LTM-1
- Line length ca. 4.8 mm
- Laser Line Generator series 5LT-2/5LTM-2
- Line length ca. 2 mm

- Micro Line Generator for small laser line widths and high power density in the focal plane
- Macro Line Generator for extended depth of focus
- With RS232 interface



DESCRIPTION

The laser diode beam sources series 5LT-1/5LTM-1 and 5LT-2/5LTM-2 produce semi-telecentric laser lines with a Gaussian intensity distribution along the laser line. They differ in their line length and line width.

5LT-1 vs. 5LT-2
The laser diode beam sources series 5LT-1 produce a semi-telecentric laser line with a line length in the range of 4.8 mm. For most laser diodes the intensity profile is Gaussian in line direction clipped by an aperture at line length 4.8 mm with an edge intensity of typ. <40%. In some cases the line length is slightly smaller. In this case the line length is given on the 13.5%-level and the beam is Gaussian in line direction and truncated at 4.8 mm. The line width is constant along the laser line. Across the laser line the intensity distribution is Gaussian for series 5LT-1 and approx. Gaussian for series 5LTM-1.

Micro and Macro lasers
The lasers of series 5LT-1 and 5LT-2 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 5LTM-1 and 5LTM-2 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.

RS232 interface
The lasers are equipped with an RS232 interface for laser control and data read-out. It provides e.g. control of laser power or allows to switch the laser ON and OFF and it allows to read and store critical data, like the hours of operation or the laser current for maintenance planning purposes.

Adjusting the working distance
For lasers of series 5LT-1 and 5LT-2 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.

The laser diode beam sources series 5LT-2 produce a semi-telecentric laser line in the range of 2 mm line length. The line length is given on the 13.5%-level. The intensity profile is Gaussian in line direction. The line width is constant along the laser line. Across the laser line the intensity distribution is Gaussian for series 5LT-2 and approx. Gaussian for series 5LTM-2.

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
- 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 5LT-1
- Semi-telecentric Micro Line
- Gaussian intensity distribution
- Constant line length ca. **4.8 mm**

LASER MODULES SERIES 5LTM-1
- Semi-telecentric Macro Line
- Gaussian intensity distribution
- Constant line length ca. **4.8 mm**
- Extended depth of focus

LASER MODULES SERIES 5LT-2
- Semi-telecentric Micro Line
- Gaussian intensity distribution
- Constant line length ca. **2 mm**

LASER MODULES SERIES 5LTM-2
- Semi-telecentric Macro Line
- Gaussian intensity distribution
- Constant line length ca. **2 mm**
- Extended depth of focus

LASER MODULES SERIES 5LT-1+25CM
- **Compact** semi-telecentric Micro Line
- Gaussian intensity distribution
- Constant line length ca. **4.8 mm**

LASER MODULES SERIES 5LTM-1+25CM
- **Compact** semi-telecentric Macro Line
- Gaussian intensity distribution
- Constant line length ca. **4.8 mm**
- Extended depth of focus

LASER MODULES SERIES 5LT-2+25CM
- **Compact** semi-telecentric Micro Line
- Gaussian intensity distribution
- Constant line length ca. **2 mm**

LASER MODULES SERIES 5LTM-2+25CM	▪ **Compact** semi-telecentric Macro Line ▪ Gaussian intensity distribution ▪ Constant line length ca. **2 mm** ▪ Extended depth of focus
LASER MODULES SERIES LNC-5LT-1	▪ Semi-telecentric Micro Line ▪ Gaussian intensity distribution ▪ Constant line length ca. **4.8 mm** ▪ Low noise
LASER MODULES SERIES LNC-5LTM-1	▪ Semi-telecentric Macro Line ▪ Gaussian intensity distribution ▪ Constant line length ca. **4.8 mm** ▪ Extended depth of focus ▪ Low noise
LASER MODULES SERIES LNC-5LT-2	▪ Semi-telecentric Micro Line ▪ Gaussian intensity distribution ▪ Constant line length ca. **2 mm** ▪ Low noise
LASER MODULES SERIES LNC-5LTM-2	▪ Semi-telecentric Macro Line ▪ Gaussian intensity distribution ▪ Constant line length ca. **2 mm** ▪ Extended depth of focus ▪ Low noise

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