Machine Vision Laser Focus with a circular beam profile

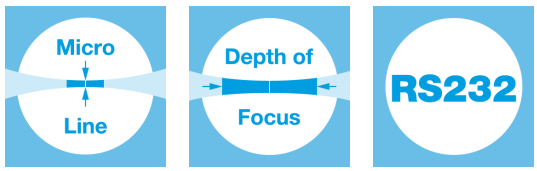
Series 13MC/13MMC, and 13MM and RS232 interface

FEATURES

Machine vision laser focus with approx. circular Gaussian beam profile. This includes lasers of series 13MC/13MMC, and 13MM. The series are available as Micro (smaller line widths) or Macro version (extended depth of focus).

- Spot with circular beam profile
- RS232 interface
- Laser Focus Generator series 13MC/13MMC
- Rotationally symmetric, Gaussian beam profile
- Laser Focus Generator series 13MM
- Circular beam profile
- Extended depth of focus

- 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 13MC/13MMC, 13MM and 5MC produce a circular laser spot. They have different intensity distributions/beam profiles.

13MC vs. 13MM
The laser diode beam source series 13MC produces a rotationally symmetric, circular laser spot with Gaussian intensity distribution. The corresponding series 13MMC produces a rotationally symmetric laser spot with extended depth of focus. The beam profile is rotationally symmetric and approx. Gaussian.

The laser diode beam source series 13MM produce a circular laser spot with extended depth of focus. More precisely it has an elliptical intensity distribution clipped by a circular aperture.The beam profile is approx. Gaussian.

Micro and Macro lasers
The lasers of series 13MC and 5MC 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 13MMC have common basic optical features but are designed to generate laser spots with an extended depth of focus.The lasers of series 13MM and 5MM are also Macro Focus Generators with 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 13MC/13MMC, and 13MM 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.

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
- 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

RELATED PRODUCTS

LASER MODULES SERIES 13MC	▪ Micro Focus Generator ▪ **Rotationally symmetric**, Gaussian beam profile
LASER MODULES SERIES 13MMC	▪ Laser Macro Focus Generator ▪ **Rotationally symmetric** beam profile ▪ Extended depth of focus
LASER MODULES SERIES 13MM	▪ Macro Focus Generator ▪ **Circular** beam profile ▪ Extended depth of focus
LASER MODULES SERIES 5MC	▪ **Compact** Laser Micro Focus Generator ▪ **Rotationally symmetric**, Gaussian beam profile

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