Schäfter+Kirchhoff

Low Noise Collimator with elliptical Gaussian beam profile

Machine Vision Collimator Series LNC-56CM/LNC-56CR, LNC-91CM/LNC-91CR and LNC-96CM/LNC-96CR

FEATURES

Laser Diode Collimators with elliptical Gaussian beam profile

- Low noise Laser Module (typ. < 0.1 % of Po (RMS, Bandwidth < 1 MHz))
- Laser Diode Collimator LNC-56CM/LNC-56CR
- Collimated beam diameters (truncated below the 13.5%-level) max. 13 mm
- Angled version: LNC-56CR
- Laser Diode Collimator LNC-91CM/LNC-96CM
- Large collimator
- Collimated beam diameters (truncated below the 13.5%-level) max. 17 mm
- Angled version: LNC-91CR/LNC-96CR
- Standard Version:
- Series 55CM/55CR
- Series 90CM/90CR
- Series 95CM/95CR

- Low noise, low coherence laser module (typ. < 0.15 % of P_0 (RMS, Bandwidth < 1 MHz))

LNC

DESCRIPTION

Laser Diode Collimators transform the divergent light of a laser diode into a collimated beam, while maintaining the Gaussian intensity distribution and the intensity profile of the laser diode.They differ in maximum diamter of the collimated beam.

55CM vs. 90CM and 95CM
The Laser Diode Collimators all have a Gaussian intensity profile. The LNC-56CM/LNC-56CR and LNC-91CM/LNC-91CR produce collimated beams with Gaussian beam profile while maintaning the intensity profile of the laser diode - in this case elliptical. The maximum beam diameter available is smaller for the series LNC-56CM/LNC-56CR and largest for series LNC-91CM/LNC-91CR.

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.

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 collimated beam diameters. (* P_0 is the maximum specified output power.)

Adjustment of collimation settings
The collimation can be adjusted by using a hex key for series LNC-56CM/LNC-56CR and an eccentric key for series LNC-91CM/LNC-91CR and LNC-96CM/LNC-96CR. Please note that this affects beam parameters like collimated beam diameter and beam divergence.

Standard Version
The laser series LNC-56CM/LNC-56CR, LNC-91CM/LNC-91CR as well as LNC-96CM/LNC-96CR are also available as a standard version 55CM/55CR, 90CM/90CR and 95CM/95CR. Please note that these have a different electronics type, but are also available with RS232 interface.

These high quality lasers can e.g. be used for machine vision applications.

TECHNOTES

- 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)
  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

ACCESSORIES

SWITCHBOXES FOR LASER MODULES

POWER SUPPLIES FOR LASER MODULES

ADJUSTMENT TOOLS LASER MODULES

RELATED PRODUCTS

LASER DIODE COLLIMATOR SERIES LNC-56CM/LNC-56CR	▪ Collimator ▪ Elliptical Gaussian beam profile ▪ Low noise
LASER DIODE COLLIMATOR SERIES LNC-91CM/LNC-91CR	▪ Collimator ▪ **Large elliptical** Gaussian beam profile ▪ Low noise
LASER DIODE COLLIMATOR SERIES LNC-96CM/LNC-96CR	▪ Collimator ▪ **Large circular** Gaussian beam profile ▪ Low noise

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