

## Fiber-coupled Lasers series 51nanoFI-N with Faraday isolator (PM)

Low coherence laser source with polarization-maintaining fiber cable (OEM version)



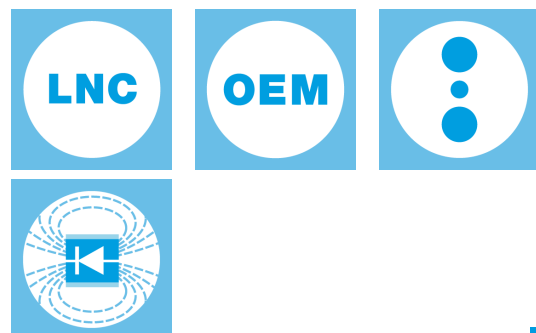
### FEATURES

Laser Diode Beam Sources of type 51nanoFI-N have reduced power noise, reduced coherence length and lowered speckle.

- OEM version without key switch nor interlock and not conforming to EN 60825-1
- Integrated Faraday isolator for feedback protection (>30 dB)
- Reduced power noise: typ. < 0.15 % of  $P_0$  (RMS, Bandwidth < 1 MHz)
- Reduced coherence length: Coherence length  $\approx$  300  $\mu$ m
- Reduced speckle contrast
- Various wavelengths from 405 nm to 1550 nm
- Laser output power up to 27 mW
- Polarization-maintaining fiber cable (Polarization Extinction Ratio PER  $\geq$  23 dB (for  $\lambda$  < 600 nm  $\geq$  21 dB))
- FC APC connector (8°-polish), optional DIN AVIO or E-2000, end caps for wavelengths < 635 nm
- Beam profile is rotationally symmetric with Gaussian intensity distribution

Alternative: Laser Diode Beam Source [51nanoFI-S](#) (with key switch and interlock)

- Low noise, low coherence laser module (typ. < 0.15 % of  $P_0$  (RMS, Bandwidth < 1 MHz))
- OEM Version
- With integrated Faraday isolator



## DESCRIPTION

The fiber-coupled Laser Diode Beam Sources of type 51nanoFI-N (OEM version) have reduced power noise (typ. < 0.15 % of  $P_o$  (RMS, Bandwidth < 1 MHz)), reduced coherence length ( $\approx 300 \mu\text{m}$ ) and a lowered speckle contrast. Additionally sources of type 51nanoFI have an integrated Faraday isolator to protect the laser source from back-reflection.

### Electrical features

The output power is adjustable using a potentiometer (with protective cap) or using the two modulation inputs for analog and TTL. The electrical cable is 1.5 m long. There are two possible supply voltages 5 V or 12 V. Other electrical cables and connectors on request.

More details on electronics type: [HP](#), [H](#).

### Fiber cable

The source is fiber-coupled to a polarization-maintaining fiber cable (standard, polarization extinction ratio > 23 dB). As a result the beam profile is rotationally symmetric with Gaussian intensity distribution and a linear state of polarization. The fiber cable is equipped with an FC APC connector (8°-polish). Fiber connectors with end caps are used for wavelengths < 635 nm. The fiber cables have strain-relief and protective sleeving ( $\varnothing 3 \text{ mm}$ ). Standard cable length is 150 cm.

Fiber Options:

- Other connector types including DIN, AVIO or E2000
- Other fiber lengths
- Incorporated vacuum feed-through

### Faraday isolator

Faraday isolators are used to protect the laser sources from back-reflection, which causes mode hopping, laser noise, frequency instability and a shorter laser lifetime. The Faraday isolator has a high isolation > 30 dB.

### Laser safety

This OEM version has no key switch or interlock and is not conform to EN 60825-1.

It can be operated conform to EN 60825-1 by means of a [switchbox](#).

As an alternative, a version with key switch and with interlock (conform to EN 60825-1) is available

as type [51nanoFI-S](#).

## TECHNICAL DATA

Fiber-coupled Lasers series 51nanoFI-N with Faraday isolator (PM)

Series	51nanoFI-N
Wavelength	405 nm - 1550 nm
Power noise	typ. < 0.15 % of $P_o$ (RMS, BW < 1 MHz)
Coherence length	$\approx 300 \mu\text{m}$

<b>Fiber cable</b>	polarization-maintaining
<b>Fiber cable length</b>	1.5 m (standard)
<b>Fiber connector type</b>	FC APC (standard)
<b>Supply voltage</b>	5 V or 12 V
<b>Electr. cable length</b>	1.5 m (standard)
<b>Connector type (5V)</b>	Lumberg SV30 IEC 61076-2-106
<b>Connector type (12V)</b>	Lumberg SV40 IEC 61076-2-106
<b>Cable type</b>	shielded 4 x 0.14 mm <sup>2</sup>
<b>Modulation</b>	analog and TTL
<b>Operating temperature</b>	15 - 35°C ± 0.5°C
<b>Dimensions</b>	
<b>Weight</b>	

## ORDER OPTIONS

Order Code	Wavelength	Typ. Output Power $P_o$	Supply Voltage	Fiber Type	Connector	End cap	Electronics Type	Laser Class	Casing Type
51nanoFI-N-405-1-Y07-P-12-4-28-0-150	405 nm	0.9 mW	12 V	Polarization-maintaining	FC APC	x	HP	2	N1
51nanoFI-N-405-13-M29-P-12-4-28-0-150	405 nm	13 mW	12 V	Polarization-maintaining	FC APC	x	HP	3B	N1
51nanoFI-N-445-15-G02-P-12-4-28-0-150	445 nm	15 mW	12 V	Polarization-maintaining	FC APC	x	HP	3B	N1
51nanoFI-N-520-6-O11-P-12-4-28-0-150	520 nm	6 mW	12 V	Polarization-maintaining	FC APC	x	HP	3B	N1
51nanoFI-N-635-1-H10-P-5-2-28-0-150	635 nm	0.9 mW	5 V	Polarization-maintaining	FC APC		H	2	N1
51nanoFI-N-640-15-H21-P-5-2-28-0-150	640 nm	15 mW	5 V	Polarization-maintaining	FC APC		H	3B	N1
51nanoFI-N-660-1-M01-P-5-2-28-0-150	660 nm	0.9 mW	5 V	Polarization-maintaining	FC APC		H	2	N1
51nanoFI-N-660-25-H26-P-5-2-28-0-150	660 nm	25 mW	5 V	Polarization-maintaining	FC APC		H	3B	N1
51nanoFI-N-785-10-Q06-P-5-2-28-0-150	785 nm	10 mW	5 V	Polarization-maintaining	FC APC		H	3B	N2
51nanoFI-N-808-16-G15-P-5-2-28-0-150	808 nm	16 mW	5 V	Polarization-maintaining	FC APC		H	3B	N1
51nanoFI-N-830-10-H19-P-5-2-28-0-150	830 nm	10 mW	5 V	Polarization-maintaining	FC APC		H	3B	N2
51nanoFI-N-850-15-G17-P-5-2-28-0-150	850 nm	15 mW	5 V	Polarization-maintaining	FC APC		H	3B	N1
51nanoFI-N-980-2-TH4-P-5-2-28-0-150	980 nm	2 mW	5 V	Polarization-maintaining	FC APC		H	3R	N2
51nanoFI-N-1064-8-Q05-P-5-2-28-0-150	1064 nm	8 mW	5 V	Polarization-maintaining	FC APC		H	3B	N2
51nanoFI-N-1310-2-M14-P-5-2-28-0-150	1310 nm	2 mW	5 V	Polarization-maintaining	FC APC		H	1	N1
51nanoFI-N-1550-4-Q04-P-5-2-28-0-150	1550 nm	4 mW	5 V	Polarization-maintaining	FC APC		H	1	N1

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Other types e.g. with single-mode fiber cable are available.

## TECHNOTES

- [Fiber-coupled low noise beam source](#)  
[Comparison of a low noise laser source to a conventional laser source](#)
- [51nano: Electronics Type HP](#)  
[Electronic features for electronics type HP](#)
- [51nano: Electronics Type H](#)  
[Electronic features for electronics type H](#)
- [Article - Fiber coupled low coherence laser sources](#)  
[Series 51nano](#)

## DOWNLOADS



[Article\\_51Nano.pdf \(Technote\)](#)

**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.

## ACCESSORIES

**PS120516E** Power Supply 12 V

**PS051003E** Power Supply 5 V

## RELATED PRODUCTS

**51NANOFI-S WITH FARADAY ISOLATOR (PM)** Fiber-coupled low coherence laser source with polarization-maintaining fiber cable

**51NANO-N (POLARIZATION-MAINTAINING, OEM)** Fiber-coupled low coherence laser source with polarization-maintaining fiber cable (OEM version)

**FIBER COLLIMATOR SERIES 60FC** for collimating radiation exiting an optical fiber or as an incoupler

**FIBER COLLIMATOR SERIES 60FC-T** for collimating large beam diameters and with additional TILT adjustment

This is a printout of the page <https://sukhamburg.com/products/fiberoptics/51nano/OEMFi/51nanofi/pm.html> from 5/6/2024

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