

## 51nanoFI-S-1064-8-Q05-P-5-2-18-0-150

Fiber-coupled low coherence laser source with integrated Faraday isolator and single-mode fiber cable



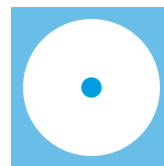
### FEATURES

The Laser Diode Beam Source of type 51nanoFI-S-1064-8-Q05-P-5-2-18-0-150 has a reduced power noise, a reduced coherence length and a low speckle contrast.

- Reduced power noise: typ.  $< 0.06\%$  of  $P_0$  (RMS, Bandwidth  $< 1$  MHz)
- Reduced coherence length: coherence length  $\approx 300\ \mu\text{m}$
- Reduced speckle contrast
- Wavelength: 1064 nm
- Laser output power: 8 mW
- Integrated Faraday isolator  $> 30$  dB
- Single-mode fiber cable
- FC APC connector (8°-polish)
- Modulation analog and TTL
- With interlock and key switch (conform to EN 60825-1)

Alternative: Laser Diode Beam Source [51nanoFi-N](#) (OEM version w/o key switch and w/o interlock)

- With integrated Faraday isolator



## DESCRIPTION

The fiber-coupled Laser Diode Beam Source of type 51nanoFI-S-1064-8-Q05-P-5-2-18-0-150 has a reduced power noise (typ. < 0.06 % of  $P_o$  (RMS, Bandwidth < 1 MHz)), reduced coherence length ( $\approx 300 \mu\text{m}$ ) and a lowered speckle contrast.

#### Electrical features

The output power is adjustable using a potentiometer or using the two modulation inputs for analog and TTL.

#### Faraday isolator

The source has an integrated Faraday isolator in order to protect the laser from back reflections.

#### Fiber cable

The source is fiber-coupled to a single-mode fiber cable. As a result the beam profile is rotationally symmetric with Gaussian intensity distribution. The fiber cable is equipped with an FC APC type connector (8°-polish). The fiber cable has a strain-relief and a protective sleeving ( $\varnothing 3 \text{ mm}$ ). Standard cable length is 150 cm.

Options:

- Polarization-maintaining fiber
- Core-centered (single-mode only)
- Other connector types including FC PC, DIN or AVIO, or E2000
- Other fiber cable lengths
- Incorporated vacuum feed-through

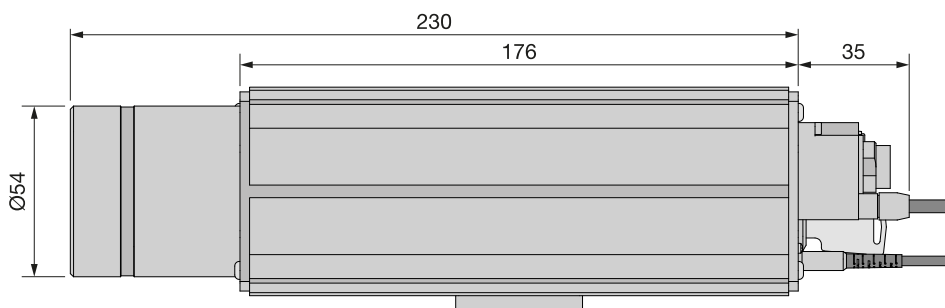
#### Laser safety

The laser safety is conform to IEC 825 / EN 60825-1.

- Interlock chain for the remote deactivation of the laser
- Laser power-up is only possible using the key switch
- LED status indicator for "Laser ON"
- For a quick start the laser is shipped with a interlock connector type [BC0106F-ILCK](#)

An OEM version is available as type [51nanoFi-N](#) without key switch or interlock which is not conform to EN 60825-1.

A version without Faraday isolator is available [here](#).



## TECHNICAL DATA

51nanoFI-S-1064-8-Q05-P-5-2-18-0-150

Order Code	51nanoFI-S-1064-8-Q05-P-5-2-18-0-150	
Series	51nanoFI-S (single-mode)	
Laser class	3R	
Center Wavelength	1064 ± 10 nm	
Bandwidth	0.7 - 4 nm	
Output power	typ. 8 mW	
Power adjustment	< 1 - 100 %	
Power noise	typ. < 0.06 % of P <sub>0</sub> (RMS, BW < 1 MHz)	
Coherence length	≈ 300 μm	
Isolation	> 30 dB	
Fiber cable	single-mode	
Fiber type	SMC-980	
Nominal fiber NA	0.12	
Effective fiber NA <sub>e</sub> <sup>2</sup>	0.09 ± 10 % (1/e <sup>2</sup> )	
Mode field diameter MFD	7.5 μm ± 10 % (1/e <sup>2</sup> )	
Fiber cable length	1.5 ± 0.05 m (standard)	
Fiber cable type	Ø 3 mm with Kevlar strain-relief	
Fiber connector type	FC APC (standard)	
Power stability	max. 12 % power variation between 15°C and 35°C	
Electronics type	H	
Electr. cable length	1.5 ± 0.1 m (standard)	
Connector type	3 pin (male, Lumberg SV30)	
Supply voltage	5.0 ± 0.2 V	
Max. current consumption*	260 mA	
Modulation input connector	6 pin (male, Lumberg SV60)	
Modulation inputs	Analog	TTL
Max. input voltage	5 V	5 V
Voltage for P <sub>min</sub> / P <sub>0</sub>	0 V / 2.5 V	< 0.8 V / > 2.4 V
Input impedance	22 kOhm	22 kOhm
Max. modulation frequency	100 kHz	100 kHz
Time delay ON/OFF*	2/0.3 μs	1.5/0.1 μs

Rise / fall time*	1.0/1.0 μs	1.0/1.0 μs
* Typical value. Depends on laser diode.		
Operating temperature	15 - 35°C ± 0.5°C	
Warm-up time	approx. 10 min	
Air humidity	max. 90 % non-condensing	
Casing Type	S2	
Weight	g	
Dimensions (w/o base)	66 x 66 x 265 mm	
Protection Class	IP30	
Dimensions (for a complete dimensional drawing please refer to the downloads section)		



## TECHNOTES

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

## DOWNLOADS



[090410090200.pdf \(Dimensional drawing\).](#)



[Conformity\\_51nano\\_2023\\_E\\_web.PDF \(CE certificate\).](#)

## ACCESSORIES

<b>PS051003E</b>	Power Supply 5 V
<b>BC0106F-ILCK</b>	Interlock connector
<b>FIBER COLLIMATORS SINGLE-MODE/PM</b>	Fiber Collimators for collimating light exiting a single-mode or polarization-maintaining fiber cable

## RELATED PRODUCTS

<b>51NANO-S (SINGLE-MODE)</b>	Fiber-coupled low coherence laser source with single-mode fiber cable
<b>51NANOFI-N WITH FARADAY ISOLATOR (SM/OEM)</b>	Fiber-coupled low coherence laser source with single-mode fiber cable (OEM version)
<b>51NANOFI-S WITH FARADAY ISOLATOR (PM)</b>	Fiber-coupled low coherence laser source with polarization-maintaining fiber cable

This is a printout of the page <https://sukhamburg.com/products/details/51nanoFI-S-1064-8-Q05-P-5-2-18-0-150> from 5/4/2024

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