

## 51nanoFI-S-850-15-TH11-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-850-15-TH11-P-5-2-18-0-150 has a reduced power noise, a reduced coherence length and a low speckle contrast.

- Reduced power noise: typ.  $< 0.1\%$  of  $P_0$  (RMS, Bandwidth  $< 1$  MHz)
- Reduced coherence length: coherence length  $\approx 300\ \mu\text{m}$
- Reduced speckle contrast
- Wavelength: 850nm
- Laser output power: 15 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)

- Discontinued  
Has been discontinued. Similar product:  
[51nanoFI-S-850-15-G17-P-5-2-18-0-150](#)

COMPARE

- With integrated Faraday isolator



This product has been discontinued. Requests will be managed according to the residual stock. Contact us to discuss any specific need. Similar product: [51nanoFI-S-850-15-G17-P-5-2-18-0-150](#)

## DESCRIPTION

The fiber-coupled Laser Diode Beam Source of type 51nanoFI-S-850-15-TH11-P-5-2-18-0-150 has a reduced power noise (typ. < 0.1 % 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

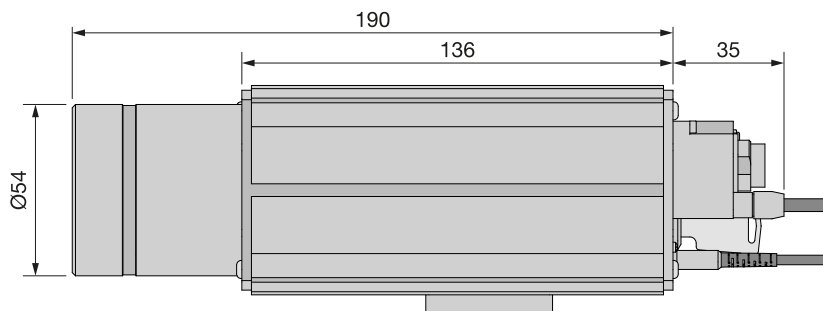
### Laser safety

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](#).



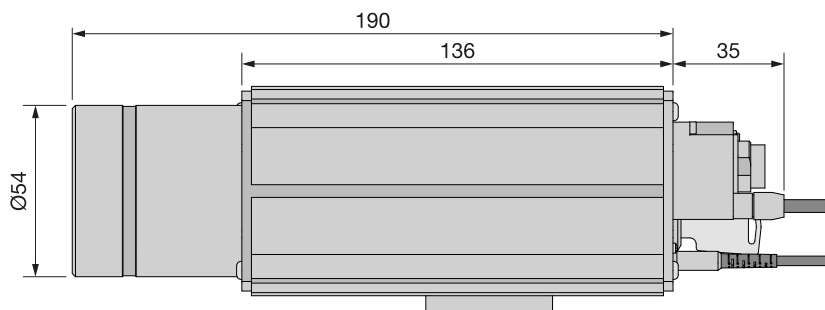
## TECHNICAL DATA

51nanoFI-S-850-15-TH11-P-5-2-18-0-150

Order Code	51nanoFI-S-850-15-TH11-P-5-2-28-0-150
Series	<a href="#">51nanoFI-S (Single-mode)</a>
Laser class	3B
Center Wavelength	850 ± 10 nm
Bandwidth	0.7 - 4 nm
Output power	typ. 15 mW
Power adjustment	< 1 - 100 %
Power noise	typ. < 0.1 % of P <sub>0</sub> (RMS, BW < 1 MHz)
Coherence length	≈ 300 µm
Isolation	> 30 dB
Fiber cable	single-mode
Fiber type	SMC-780
Nominal fiber NA	0.12
Effective fiber NA <sub>e</sub> <sup>2</sup>	0.088 ± 10 % (1/e <sup>2</sup> )
Mode field diameter MFD	6.2 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>O</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	S1	
Weight	g	
Dimensions (w/o base)	66 x 66 x 225 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



[090410090100.pdf \(Dimensional drawing\).](#)



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

## ACCESSORIES

**PS051003E**

Power Supply 5 V

**BC0106F-ILCK**

Interlock connector

**FIBER COLLIMATORS  
SINGLE-MODE/PM**

Fiber Collimators for collimating light exiting a single-mode or polarization-maintaining fiber cable

## RELATED PRODUCTS

**51NANO-S (SINGLE-MODE)**

Fiber-coupled low coherence laser source with single-mode fiber cable

**51NANOFI-N WITH  
FARADAY ISOLATOR  
(SM/OEM)**

Fiber-coupled low coherence laser source with  
single-mode fiber cable (OEM version)

**51NANOFI-S WITH  
FARADAY ISOLATOR  
(PM)**

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-850-15-TH11-P-5-2-18-0-150> from 5/7/2024

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