

51nanoFI-S-520-6-O08-P-12-4-18-0-150

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-520-6-O08-P-12-4-18-0-150 has a reduced power noise, a reduced coherence length and a low speckle contrast.

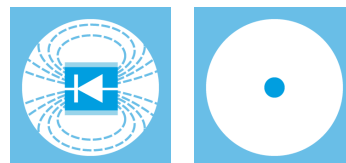
- Reduced power noise: typ. $< 0.1\%$ of P_0 (RMS, Bandwidth < 1 MHz)
- Reduced coherence length: coherence length $\approx 300\ \mu\text{m}$
- Reduced speckle contrast
- Wavelength: 520 nm
- Laser output power: 6 mW
- Integrated Faraday isolator > 30 dB
- Single-mode fiber cable
- FC APC connector (8°-polish) with end cap
- 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-520-6-O11-P-12-4-18-0-150](#)

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-520-6-O11-P-12-4-18-0-150](#)

DESCRIPTION

The fiber-coupled Laser Diode Beam Source of type 51nanoFI-S-520-6-O08-P-12-4-18-0-150 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) and an [end cap](#) to prevent fiber damage. 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 cable
- 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-520-6-O08-P-12-4-18-0-150

Order Code	51nanoFi-S-520-6-O08-P-12-4-18-0-150
Series	51nanoFi-S (PM)
Laser class	3B
Center Wavelength	520 ± 10 nm
Bandwidth	0.7 - 4 nm
Output power	typ. 6 mW
Power adjustment	< 1 - 100 %
Power noise	typ. < 0.1 % of P ₀ (RMS, BW < 1 MHz)
Coherence length	≈ 300 µm
Isolation	> 30 dB
Fiber cable	single-mode
Fiber type	SMC-E-460Si
Nominal fiber NA	0.12
Effective fiber NA _e ²	0.076 ± 10 % (1/e ²)
Mode field diameter MFD	4.3 µm ± 10 % (1/e ²)

Fiber cable length	1.5 ± 0.05 m (standard)	
Fiber cable type	Ø 3 mm with Kevlar strain-relief	
Fiber connector type	FC APC with end cap (standard)	
Power stability	max. 12 % power variation between 15°C and 35°C	
Electronics type	HP	
Electr. cable length	1.5 ± 0.1 m (standard)	
Connector type	4 pin (male, Lumberg SV40)	
Supply voltage	12.0 ± 0.5 V	
Max. current consumption*	260 mA	
Modulation input connector	6 pin (male, Lumberg SV60)	
Modulation inputs	Analog	TTL
Max. input voltage	6.5 V	6.5 V
Voltage for P _{min} / P _O	0 V / 2.5 V	< 0.8 V / > 2.4 V
Input impedance	9 kOhm	9 kOhm
Max. modulation frequency	1 Hz	300 kHz
Time delay ON/OFF*	< 2.0/0.5 ms	< 0.5/0.2 µs
Rise / fall time*	0.5/0.5 s	0.8/0.3 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 HP](#)
[Electronic features for electronics type HP](#)

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
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**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-520-6-O08-P-12-4-18-0-150> from 5/3/2024

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