

51nanoFI-S-830-10-H19-P-5-2-18-0-150

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



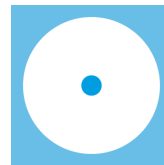
FEATURES

The Laser Diode Beam Source of type 51nanoFI-S-830-10-H19-P-5-2-18-0-150 has a reduced power noise, a reduced coherence length and a low speckle contrast.

- Reduced power noise: typ. $< 0.15\%$ of P_0 (RMS, Bandwidth < 1 MHz)
- Reduced coherence length: coherence length $\approx 300\ \mu\text{m}$
- Reduced speckle contrast
- Wavelength: 830nm
- Laser output power: 10 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-830-10-H19-P-5-2-18-0-150 has a [reduced power noise \(typ. < 0.15 % of \$P_0\$ \(RMS, Bandwidth < 1 MHz\)\)](#), [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](#).



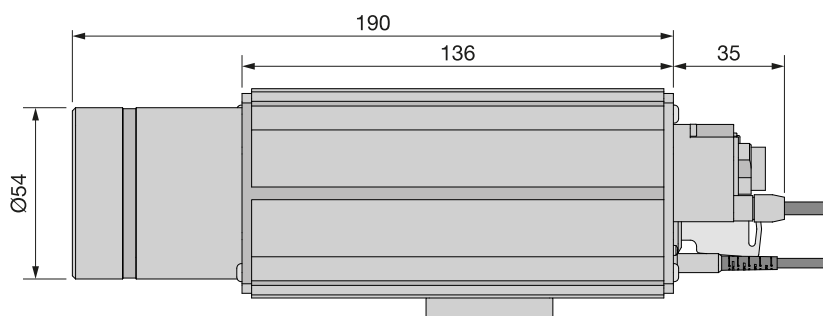
TECHNICAL DATA

51nanoFI-S-830-10-H19-P-5-2-18-0-150

| | | |
|---|---|-------------------|
| Order Code | 51nanoFI-S-830-10-H19-P-5-2-28-0-150 | |
| Series | 51nanoFI-S (Single-mode) | |
| Laser class | 3B | |
| Center Wavelength | 830 ± 10 nm | |
| Bandwidth | 0.7 - 4 nm | |
| Output power | typ. 10 mW | |
| Power adjustment | < 1 - 100 % | |
| Power noise | typ. < 0.15 % of P ₀ (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 _e ² | 0.088 ± 10 % (1/e ²) | |
| Mode field diameter MFD | 6.2 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 (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 _{min} / P ₀ | 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 μ s | 1.0/1.0 μ s |
| * Typical value. Depends on laser diode. | | |
| Operating temperature | 15 - 35°C \pm 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 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



[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-830-10-H19-P-5-2-18-0-150> from 5/2/2024

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