# 51nanoFI-S-808-16-G15-P-5-2-28-0-150

Fiber-coupled low coherence laser source with integrated Faraday isolator and polarization-maintaining fiber cable

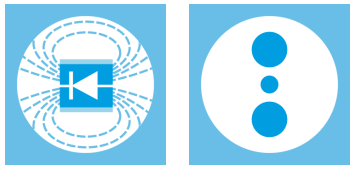
## FEATURES

The Laser Diode Beam Source of type 51nanoFI-S-808-16-G15-P-5-2-28-0-150 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 ≈ 300 µm
- Reduced speckle contrast
- Wavelength: 808 nm
- Laser output power: 16 mW
- Integrated Faraday isolator > 30 dB
- Polarization-maintaining 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-808-16-G15-P-5-2-28-0-150 has a reduced power noise (typ. < 0.1 % of $P_0$ (RMS, Bandwidth < 1 MHz)), reduced coherence length (≈ 300 µm) 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 polarization-maintaining fiber cable (standard, polarization extinction ratio ≥ 23 dB). 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 (Ø 3 mm). Standard cable length is 150 cm.

Options:

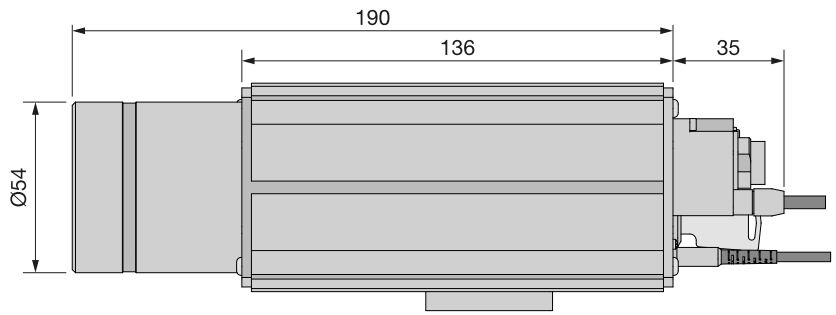
- Single-mode fiber
- Core-centered (single-mode only)
- Other connector types including FC PC, DIN or AVIO, or E2000
- Other fiber cable lengths
- Incorporated vacuum feed-through

**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.

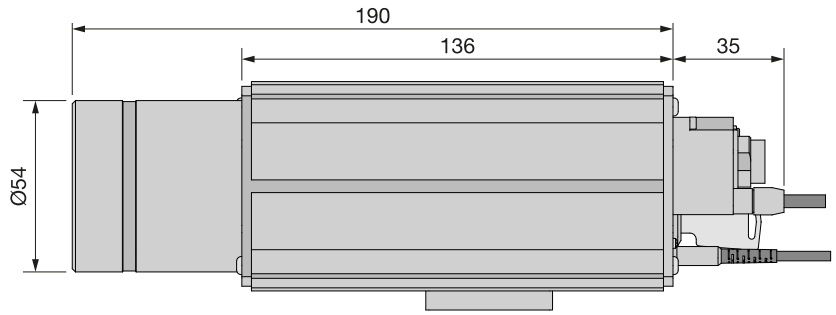


# TECHNICAL DATA

51nanoFI-S-808-16-G15-P-5-2-28-0-150

| | | |
|---|---|---|
| **Order Code** | 51nanoFI-S-808-16-G15-P-5-2-28-0-150 | |
| **Series** | 51nanoFI-S (PM) | |
| **Laser class** | 3B | |
| **Center Wavelength** | 808 ± 10 nm | |
| **Bandwidth** | 0.7 - 4 nm | |
| **Output power** | typ. 16 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** | polarization-maintaining | |
| **Fiber type** | PMC-780 | |
| **Nominal fiber NA** | 0.12 | |
| **Effective fiber $NA_{e^2}$** | 0.077 ± 10 % ($1/e^2$) | |
| **Mode field diameter MFD** | 6.7 µm ± 10 % ($1/e^2$) | |
| **PER** | ≥ 23 dB | |
| **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 $P_{min}$ / $P_O$** | 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 (POLARIZATION-MAINTAINING)** | Fiber-coupled low coherence laser source with polarization-maintaining fiber cable |
| **51NANOFI-N WITH FARADAY ISOLATOR (PM/OEM)** | Fiber-coupled low coherence laser source with polarization-maintaining fiber cable (OEM version) |
| **51NANOFI-S WITH FARADAY ISOLATOR (SM)** | Fiber-coupled low coherence laser source with single-mode fiber cable |

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