

# 51nanoFI-S-1064-8-Q05-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 51nanoFl-S-1064-8-Q05-P-5-2-28-0-150 has a <u>reduced</u> <u>power noise</u>, <u>a reduced coherence length and a low speckle contrast</u>.

- Reduced power noise: typ. < 0.06 % of P<sub>0</sub> (RMS, Bandwidth < 1 MHz)</li>
- Reduced coherence length: coherence length ≈ 300 µm
- Reduced speckle contrast
- Wavelength: 1064 nm
- Laser output power: 8 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 <u>51nanoFi-N</u> (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-5-2-28-0-150 has a reduced power noise (typ. < 0.06 % of P<sub>0</sub> (RMS, Bandwidth < 1 MHz)), reduced coherence length ( $\approx$  300  $\mu$ 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 polarization-maintaining fiber cable (standard, polarization extinction ratio  $\geq 23$  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

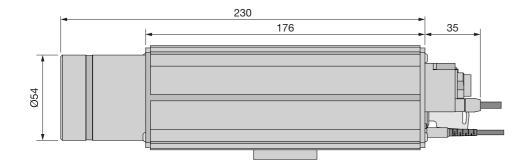
### Laser safety

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 <u>BC0106F-iLCK</u>

An OEM version is available as type <u>51nanoFi-N</u> without key switch or interlock which is not conform to EN 60825-1.

A version without Faraday isolator is available <u>here</u>.





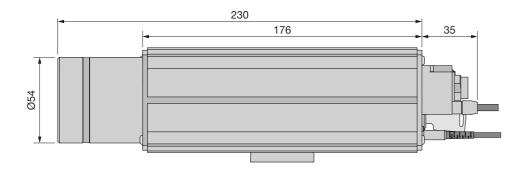
# **TECHNICAL DATA**

51nanoFI-S-1064-8-Q05-P-5-2-28-0-150

Order Code	51nanoFI-S-1064-8-Q05-P-5-2-28-0-150	
Series	51nanoFI-S (PM)	
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 $< 1 \text{ MHz}$ )	
Coherence length	≈ 300 µm	
Isolation		> 30 dB
Fiber cable	polarization-maintaining	
Fiber type		PMC-980
Nominal fiber NA	0.12	
Effective fiber NA <sub>e</sub> <sup>2</sup>	$0.079 \pm 10 \% (1/e^2)$	
Mode field diameter MFD	8.6 $\mu$ m ± 10 % (1/e <sup>2</sup> )	
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		Н
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	1	15 - 35°C ± 0.5°C	
Warm-up time		approx. 10 min	
Air humidity	max. 90 %	max. 90 % non-condensing	
Casing Type		S2	
Weight		g	
Dimensions (w/o base)	6	6 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**

**PS051003E** Power Supply 5 V

BC0106F-ILCK Interlock connector

FIBER COLLIMATORS Fiber Collimators for collimating light exiting a single-

SINGLE-MODE/PM mode or polarization-maintaining fiber cable

## RELATED PRODUCTS

**51NANO-S** Fiber-coupled low coherence laser source with

**(POLARIZATION-** polarization-maintaining fiber cable **MAINTAINING)** 

**51NANOFI-N WITH** Fiber-coupled low coherence laser source with **FARADAY ISOLATOR** polarization-maintaining fiber cable (OEM version)

(PM/OEM)

**51NANOFI-S WITH** Fiber-coupled low coherence laser source with

FARADAY ISOLATOR single-mode fiber cable

(SM)



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