

51nano-S-1550-4.5-Q04-P-5-2-28-0-150

Fiber-coupled low coherence laser source with polarization-maintaining fiber cable



FEATURES

The Laser Diode Beam Source of type 51nano-S-1550-4.5-Q04-P-5-2-28-0-150 has a [reduced power noise](#), [a reduced coherence length](#) and a [low speckle contrast](#).

- Reduced power noise: typ. $< 0.05\%$ of P_0 (RMS, Bandwidth < 1 MHz)
- Reduced coherence length: coherence length $\approx 300\ \mu\text{m}$
- Reduced speckle contrast
- Wavelength: 1550 nm
- Laser output power: 4.5 mW
- 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 [51nano-N](#) (OEM version w/o key switch and w/o interlock)

DESCRIPTION

The fiber-coupled Laser Diode Beam Source of type 51nano-S-1550-4.5-Q04-P-5-2-28-0-150 has a [reduced power noise \(typ. \$< 0.05\%\$ 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

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 ($\varnothing 3$ mm). Standard cable length is 150 cm.

Options:

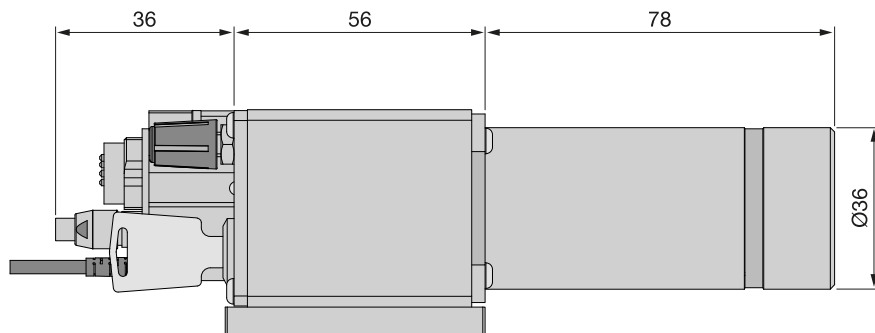
- Single-mode fiber
- Core-centered (single-mode only)
- Multiple fiber output cables (51nanoC, single-mode only)
- Other connector types including FC PC, DIN or AVIO, or E2000
- Other fiber cable lengths
- Incorporated vacuum feed-through

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 [51nano-N](#) without key switch or interlock which is not conform to EN 60825-1.

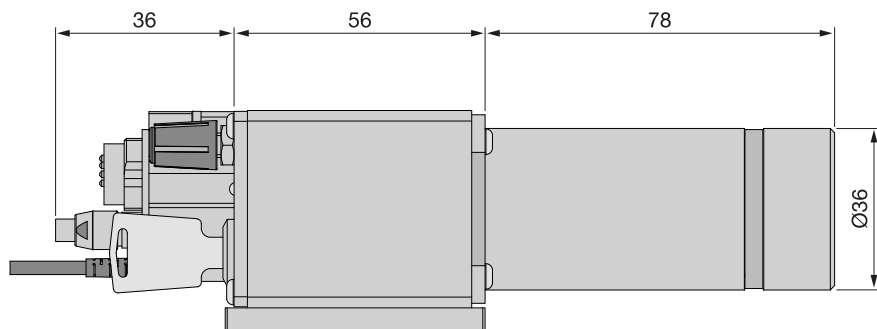
**TECHNICAL DATA**

51nano-S-1550-4.5-Q04-P-5-2-28-0-150

Order Code	51nano-S-1550-4.5-Q04-P-5-2-28-0-150
Will replace	51nanoFCM-S-1550-4.5-Q04-P-5-2-28-0-150
Series	51nano-S (PM)
Laser class	1
Center wavelength	1550 ± 20 nm
Bandwidth	0.7 - 4 nm
Output power	typ. 4.5 mW
Power adjustment	< 1 - 100 %
Power noise	typ. < 0.05 % of P ₀ (RMS, BW < 1 MHz)

Coherence length	≈ 300 μm	
Fiber cable	polarization-maintaining	
Fiber type	PMC-1300	
Nominal fiber NA	0.12	
Effective fiber NA _e ²	0.077 ± 10 % (1/e ²)	
Mode field diameter MFD	12.8 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	
Weight	530 g	
Dimensions	50 x 58 x 166 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



[000829001100.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

**51NANO-N
(POLARIZATION-
MAINTAINING, OEM)**

Fiber-coupled low coherence laser source with
polarization-maintaining 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/51nano-S-1550-4_5-Q04-P-5-2-28-0-150 from 5/4/2024

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