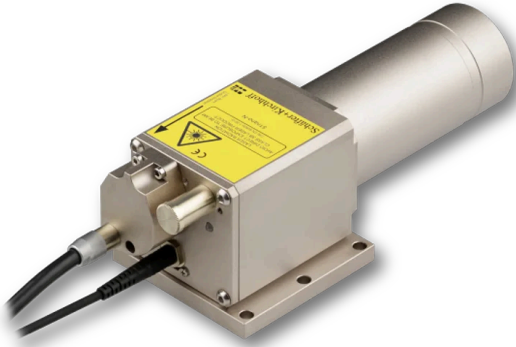


51nano-N-1550-4.5-Q04-P-5-2-28-0-150

Fiber-coupled low coherence laser source with polarization-maintaining fiber cable (OEM version)



FEATURES

The Laser Diode Beam Source of type 51nano-N-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
- OEM version w/o interlock and w/o key switch

Alternative: Laser Diode Beam Source [51nano-S](#) (with key switch and interlock) or with [single-mode](#) fiber cable

DESCRIPTION

The fiber-coupled Laser Diode Beam Source of type 51nano-N-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 (Ø 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

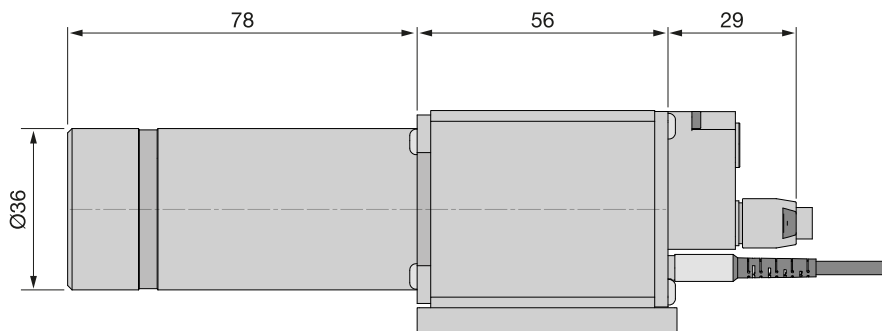
Laser safety

This OEM version has no key switch or interlock and is not conform to EN 60825-1.

It can be operated conform to EN 60825-1 by using a [switchbox](#).

As an alternative, a version with key switch and with interlock (conform to EN 60825-1) is available

as type [51nano-S](#).

**TECHNICAL DATA**

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

Order Code	51nano-N-1550-4.5-Q04-P-5-2-28-0-150
Will replace	51nanoFCM-N-1550-4.5-Q04-P-5-2-28-0-150
Series	51nano-N (PM)
Laser class	1
Center wavelength	1550 ± 10 nm
Band width	0.7 - 4 nm
Output power	typ. 4.5 mW

Power adjustment	< 1 - 100 %	
Power noise	typ. < 0.05 % of P_O (RMS, BW < 1 MHz)	
Coherence length	$\approx 300 \mu\text{m}$	
Fiber cable	polarization-maintaining	
Fiber type	PMC-1300	
Nominal fiber NA	0.12	
Effective fiber NA_e^2	$0.077 \pm 10 \%$ ($1/e^2$)	
Mode field diameter MFD	$12.8 \mu\text{m} \pm 10 \%$ ($1/e^2$)	
PER	$\geq 23 \text{ dB}$	
Fiber cable length	$1.5 \pm 0.05 \text{ m}$ (standard)	
Fiber cable type	$\varnothing 3 \text{ mm}$ 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	$1.5 \pm 0.1 \text{ m}$ (standard)	
Connector type	5 pin (male, Lumberg SV50)	
Supply voltage	$5.0 \pm 0.2 \text{ V}$	
Max. current consumption*	260 mA	
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	$15 - 35^\circ\text{C} \pm 0.5^\circ\text{C}$	
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



[000824000400.pdf \(Dimensional drawing\).](#)



[Conformity_51nano_2023_E_web.PDF \(CE certificate\).](#)

ACCESSORIES

PS051003E

Power Supply 5 V

SBN050501

For laser diode beam sources of electronics type S/C/P/H and 5 V power supply

**FIBER COLLIMATORS
SINGLE-MODE/PM**

Fiber Collimators for collimating light exiting a single-mode or polarization-maintaining fiber cable

RELATED PRODUCTS

51NANO-N (SINGLE-MODE, OEM)	Fiber-coupled low coherence laser source with single-mode fiber cable (OEM version)
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)

This is a printout of the page https://sukhamburg.com/products/details/51nano-N-1550-4_5-Q04-P-5-2-28-0-150 from 5/8/2024

CONTACT

For more information please contact:

Schäfter + Kirchhoff GmbH

Kieler Str. 212

22525 Hamburg

Germany

Tel: +49 40 85 39 97-0

Fax: +49 40 85 39 97-79

info@sukhamburg.de

www.sukhamburg.com

LEGAL NOTICE

Copyright 2020 Schäfter+Kirchhoff GmbH. All rights reserved.

Text, image, graphic, sound, video and animation files and their arrangement on Schäfter+Kirchhoff GmbH webpages are protected by copyright and other protective laws. The content may not be copied for commercial use or reproduced, modified or used on other websites. [\[more\]](#)