

## 51nano-S-980-2.3-TH4-P-5-2-18-0-150

Fiber-coupled low coherence laser source with single-mode fiber cable



### FEATURES

The Laser Diode Beam Source of type 51nano-S-980-2.3-TH4-P-5-2-18-0-150 has a [reduced power noise](#), [a reduced coherence length](#) and a [low speckle contrast](#).

- Reduced power noise: typ.  $< 0.25\%$  of  $P_0$  (RMS, Bandwidth  $< 1$  MHz)
- Reduced coherence length: coherence length  $\approx 300\ \mu\text{m}$
- Reduced speckle contrast
- Wavelength: 980 nm
- Laser output power: 2.3 mW
- 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 [51nano-N](#) (OEM version w/o key switch and w/o interlock) or with [polarization-maintaining](#) fiber cable

## DESCRIPTION

The fiber-coupled Laser Diode Beam Source of type 51nano-S-980-2.3-TH4-P-5-2-18-0-150 has a [reduced power noise](#) (typ.  $< 0.25\%$  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 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 (Ø 3 mm). Standard cable length is 150 cm.

Options:

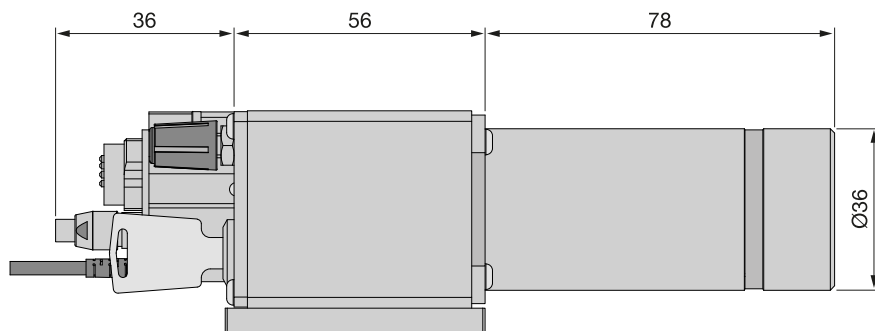
- Polarization-maintaining fiber cable
- Core-centered single-mode fiber cable
- Multiple fiber output cables (51nanoC, single-mode only)
- Other connector types including FC PC, DIN or AVIO, or E2000
- Other fiber cable lengths
- Incorporated vacuum feed-through

**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.

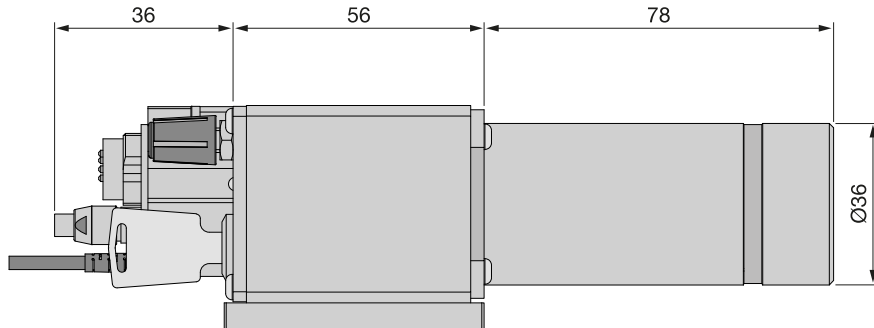
**TECHNICAL DATA**

51nano-S-980-2.3-TH4-P-5-2-18-0-150

<b>Order Code</b>	51nano-S-980-2.3-TH4-P-5-2-18-0-150
<b>Will replace</b>	51nanoFCM-S-980-2.3-TH4-P-5-2-18-0-150
<b>Series</b>	51nano-S (single-mode)
<b>Laser class</b>	3R
<b>Center wavelength</b>	980 ± 10 nm
<b>Bandwidth</b>	0.7 - 4 nm

Output power	typ. 2.3 mW	
Power adjustment	< 1 - 100 %	
Power noise	typ. < 0.25 % of $P_O$ (RMS, BW < 1 MHz)	
Coherence length	$\approx 300 \mu\text{m}$	
Fiber cable	single-mode	
Fiber type	SMC-980	
Nominal fiber NA	0.12	
Effective fiber $NA_e^2$	$0.093 \pm 10 \% (1/e^2)$	
Mode field diameter MFD	$6.7 \mu\text{m} \pm 10 \% (1/e^2)$	
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	Connector, 3-pol. (male, Lumberg SV30)	
Supply voltage	$5.0 \pm 0.2 \text{ V}$	
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 $\mu\text{s}$	1.5/0.1 $\mu\text{s}$
Rise / fall time*	1.0/1.0 $\mu\text{s}$	1.0/1.0 $\mu\text{s}$
* 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



[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

<b>51NANO-S (POLARIZATION- MAINTAINING)</b>	Fiber-coupled low coherence laser source with polarization-maintaining fiber cable
<b>51NANO-N (SINGLE- MODE, OEM)</b>	Fiber-coupled low coherence laser source with single-mode fiber cable (OEM version)
<b>51NANOFI-S WITH FARADAY ISOLATOR (PM)</b>	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-980-2\\_3-TH4-P-5-2-18-0-150](https://sukhamburg.com/products/details/51nano-S-980-2_3-TH4-P-5-2-18-0-150) from 5/3/2024

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