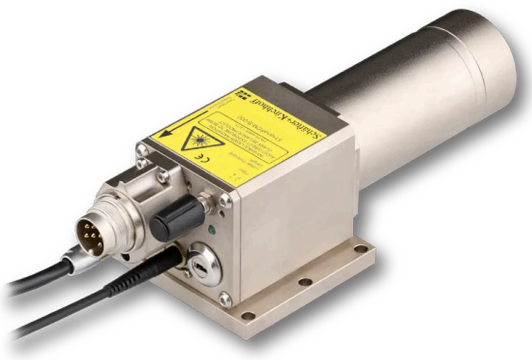
51nano-S-850-18-G17-P-5-2-28-0-150

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



FEATURES

The Laser Diode Beam Source of type 51nano-S-850-18-G17-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: 850 nm
- Laser output power: 18 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-850-18-G17-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.

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.

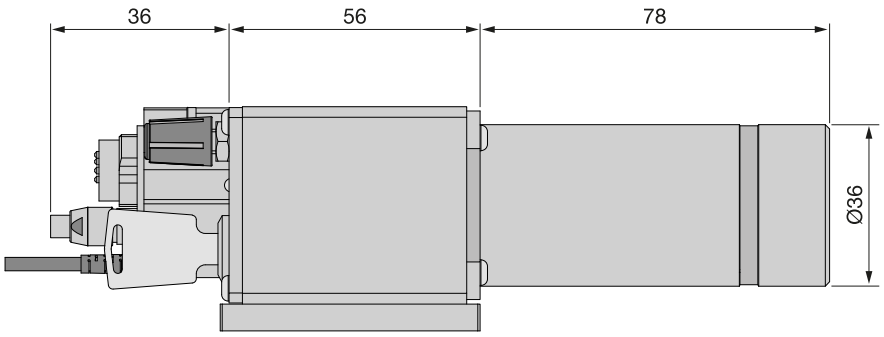
Options:

- 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
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.



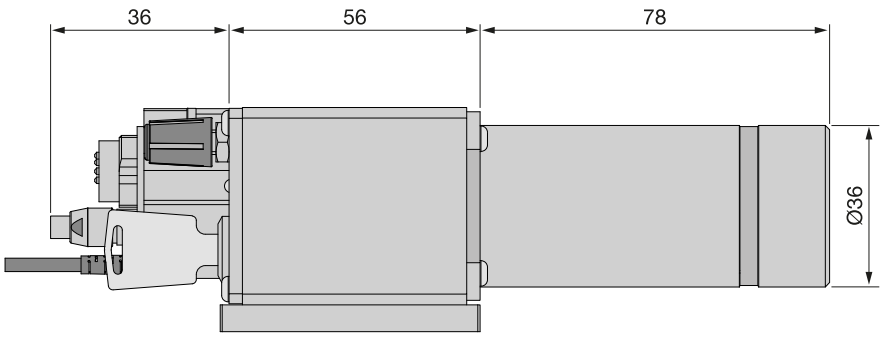
TECHNICAL DATA

51nano-S-850-18-G17-P-5-2-28-0-150

Order Code	51nano-S-850-18-G17-P-5-2-28-0-150
Series	51nano-S (PM)
Laser class	3B
Center wavelength	850 ± 10 nm
Bandwidth	0.7 - 4 nm
Output power	typ. 18 mW
Power adjustment	< 1 - 100 %
Power noise	typ. < 0.1 % of P_0 (RMS, BW < 1 MHz)
Coherence length	≈ 300 µm

Fiber cable	polarization-maintaining	
Fiber type	PMC-780	
Nominal fiber NA	0.12	
Effective fiber NA_{e^2}	0.076 ± 10 % ($1/e^2$)	
Mode field diameter MFD	7.1 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

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