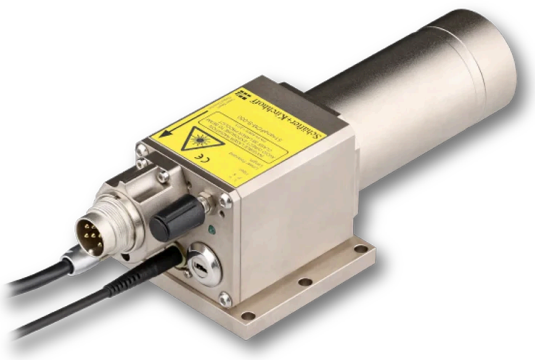
51nano-S-520-7-O11-P-12-4-18-0-150

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



FEATURES

The Laser Diode Beam Source of type 51nano-S-520-7-O11-P-12-4-18-0-150 has a reduced power noise, a reduced coherence length and a low speckle contrast.

- Reduced power noise: typ. < 0.3 % of P_0 (RMS, Bandwidth < 1 MHz)
- Reduced coherence length: coherence length ≈ 300 µm
- Reduced speckle contrast
- Wavelength: 520 nm
- Laser output power: 7 mW
- Single-mode fiber cable
- FC APC connector (8°-polish) with end cap
- 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-520-7-O11-P-12-4-18-0-150 has a reduced power noise (typ. < 0.3 % 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 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) and an end cap to prevent fiber damage. The fiber cable has a strain-relief and a protective sleeving (Ø 3 mm). Standard cable length is 150 cm.

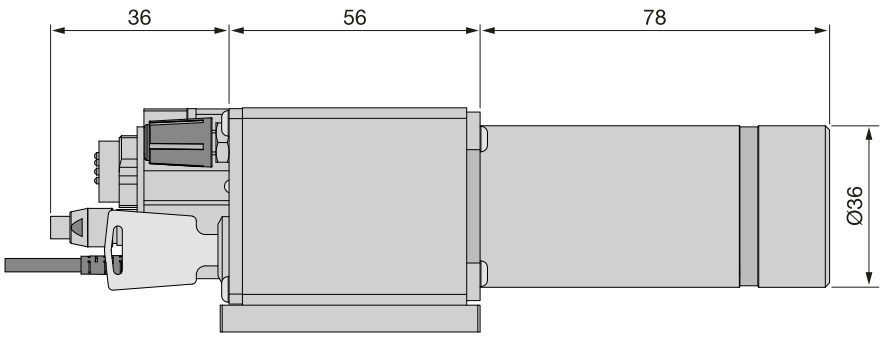
Options:

- Polarization-maintaining fiber cable
- 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.



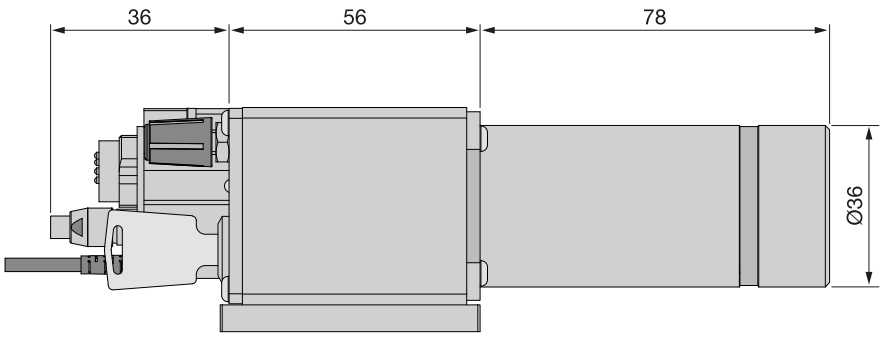
TECHNICAL DATA

51nano-S-520-7-O11-P-12-4-18-0-150

Order Code	51nano-S-520-7-O11-P-12-4-18-0-150
Series	51nano-S (single-mode)
Laser class	3B
Center wavelength	520 ± 10 nm
Bandwidth	0.7 - 4 nm
Output power	typ. 7 mW

Power adjustment	< 1 - 100 %	
Power noise	typ. < 0.3 % of P_0 (RMS, BW < 1 MHz)	
Coherence length	≈ 300 µm	
Fiber cable	single-mode	
Fiber type	SMC-E-460Si	
Nominal fiber NA	0.12	
Effective fiber NA_{e^2}	0.076 ± 10 % ($1/e^2$)	
Mode field diameter MFD	4.3 µm ± 10 % ($1/e^2$)	
Fiber cable length	1.5 ± 0.05 m (standard)	
Fiber cable type	Ø 3 mm with Kevlar strain-relief	
Fiber connector type	FC APC with end cap (standard)	
Power stability	max. 12 % power variation between 15°C and 35°C	
Electronics type	HP	
Electr. cable length	1.5 ± 0.1 m (standard)	
Connector type	4 pin (male, Lumberg SV40)	
Supply voltage	12.0 ± 0.5 V	
Max. current consumption*	260 mA	
Modulation input connector	6 pin (male, Lumberg SV60)	
Modulation inputs	Analog	TTL
Max. input voltage	6.5 V	6.5 V
Voltage for P_{min} / P_O	0 V / 2.5 V	< 0.8 V / > 3.0 V
Input impedance	9 kOhm	9 kOhm
Max. modulation frequency	1 Hz	300 kHz
Modulation delay ON/OFF*	< 2.0/0.5 ms	< 0.5/0.2 µs
Rise / fall time*	0.5/0.5 s	0.8/0.3 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 HP
  Electronic features for electronics type HP

DOWNLOADS

000829001100.pdf (Dimensional drawing)

Conformity_51nano_2023_E_web.PDF (CE certificate)

ACCESSORIES

PS120516E	Power Supply 12 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 (POLARIZATION-MAINTAINING)	Fiber-coupled low coherence laser source with polarization-maintaining fiber cable
51NANO-N (SINGLE-MODE, OEM)	Fiber-coupled low coherence laser source with single-mode 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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