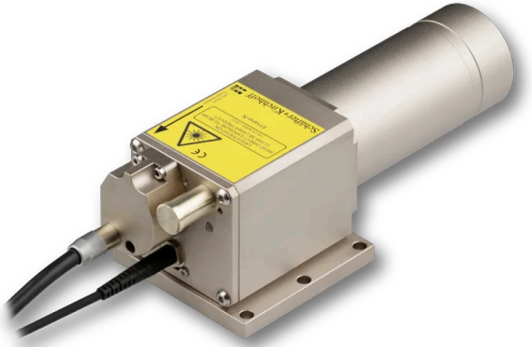


## 51nano-N-785-12-Q06-P-5-2-18-0-150

Fiber-coupled low coherence laser source with single-mode fiber cable (OEM version)



### FEATURES

The Laser Diode Beam Source of type 51nano-N-785-12-Q06-P-5-2-18-0-150 has a [reduced power noise](#), [a reduced coherence length](#) and [a low speckle contrast](#).

- Reduced power noise: typ.  $< 0.09\%$  of  $P_0$  (RMS, Bandwidth  $< 1$  MHz)
- Reduced coherence length: coherence length  $\approx 300\ \mu\text{m}$
- Reduced speckle contrast
- Wavelength: 785 nm
- Laser output power: 12 mW
- Single-mode 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-785-12-Q06-P-5-2-18-0-150 has a [reduced power noise](#) (typ.  $< 0.09\%$  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:**

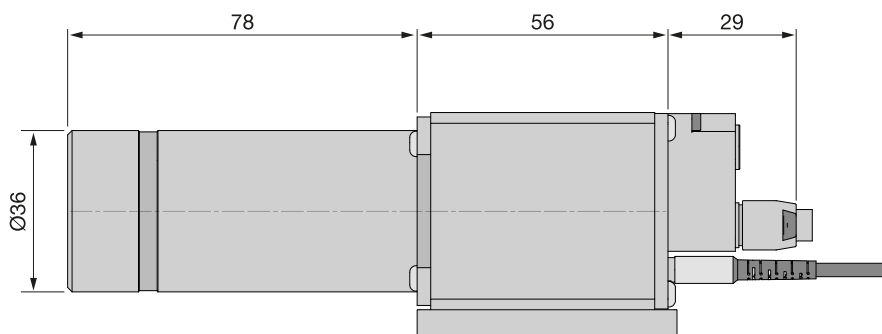
- Polarization-maintaining fiber
- Core-centered (single-mode only)
- Multiple fiber output cables (51nanoC, single-mode only)
- Other connector types including FC PC, DIN or AVIO, or E2000
- Other fiber cable lengths
- Incorporated vacuum feed-through

**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](#).

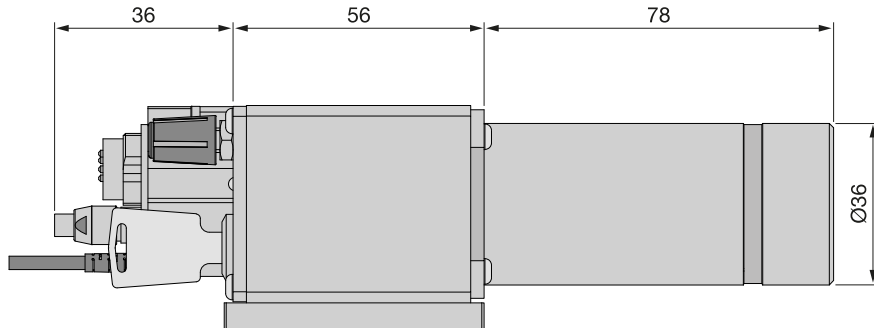
**TECHNICAL DATA**

51nano-N-785-12-Q06-P-5-2-18-0-150

|                          |  |
|--------------------------|--|
| <b>Order Code</b>        | 51nano-N-785-12-Q06-P-5-2-18-0-150     |
| <b>Will replace</b>      | 51nanoFCM-N785-12-Q06-P-5-2-18-0-150   |
| <b>Series</b>            | <a href="#">51nano-N (single-mode)</a> |
| <b>Laser class</b>       | 3B                                     |
| <b>Center wavelength</b> | 785 ± 10 nm                            |
| <b>Band width</b>        | 0.7 - 4 nm                             |
| <b>Output power</b>      | typ. 12 mW                             |
| <b>Power adjustment</b>  | < 1 - 100 %                            |

|  |  |                       |
|--|--|-----------------------|
| Power noise                              | typ. < 0.15 % of $P_0$ (RMS, BW < 1 MHz)             |                       |
| Coherence length                         | $\approx 300 \mu\text{m}$                            |                       |
| Fiber cable                              | single-mode  |                       |
| Fiber type                               | SMC-780  |                       |
| Nominal fiber NA                         | 0.12   |                       |
| Effective fiber $NA_e^2$                 | $0.091 \pm 10 \% (1/e^2)$                            |                       |
| Mode field diameter MFD                  | $5.5 \mu\text{m} \pm 10 \% (1/e^2)$                  |                       |
| 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                           | 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 $P_{\min} / P_0$             | 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



[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  
(POLARIZATION-  
MAINTAINING, OEM)**

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

**51NANO-S (SINGLE-  
MODE)**

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

**51NANOFI-N WITH  
FARADAY ISOLATOR  
(SM/OEM)**

Fiber-coupled low coherence laser source with  
single-mode fiber cable (OEM version)

This is a printout of the page <https://sukhamburg.com/products/details/51nano-N-785-12-Q06-P-5-2-18-0-150> from  
5/8/2024

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