51nano-N-405-14-M29-P-12-4-18-0-150

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



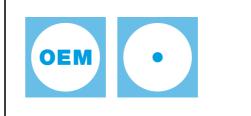
FEATURES

The Laser Diode Beam Source of type 51nano-N-405-14-M29-P-12-4-18-0-150 has a <u>reduced</u> <u>power noise, a reduced coherence length and a</u> <u>low speckle contrast</u>.

- Reduced power noise: typ. < 0.06 % of P₀ (RMS, Bandwidth < 1 MHz)
- Reduced coherence length: coherence length ≈ 300 µm
- Reduced speckle contrast
- Wavelength: 405 nm
- Laser output power: 14 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 <u>51nano-S</u> (with key switch and interlock) or with <u>single-mode</u> fiber cable

OEM Version



DESCRIPTION

The fiber-coupled Laser Diode Beam Source of type 51nano-N-405-14-M29-P-12-4-18-0-150 has a <u>reduced power noise (typ. < 0.06 % of P₀ (RMS, Bandwidth < 1 MHz)),</u> reduced coherence length (\approx 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 asingle-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 <u>end cap</u> to prevent fiber damage. The fiber cable has a strain-relief and a protective sleeving (\emptyset 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

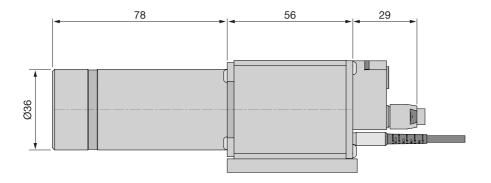
Laser safety

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 <u>51nano-S</u>.



TECHNICAL DATA

51nano-N-405-14-M29-P-12-4-18-0-150

Order Code	51nano-N-405-14-M29-P-12-4-18-0-150
Will replace	51nanoFCM-N-405-14-M29-P-12-4-18-0-150
Series	51nano-N (single-mode)
Laser class	3В
Wavelength	405 ± 10 nm



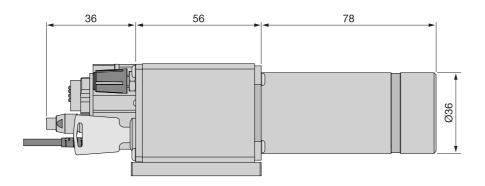
DATA SHEET

Output power typ. 14 mW Power adjustment < 1 - 100 % Power noise typ. < 0.06 % of P _o (RMS, BW < 1 MHz) Coherence length ≈ 300 µm Fiber cable single-mode Fiber cable Single-mode Fiber type SMC-E-400Si Nomial fiber NA 0.11 Effective fiber NAe ² 0.072 ± 10 % (1/e ²) Mode field diameter MFD 3.5 µm ± 10 % (1/e ²) Mode field diameter MFD 3.5 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 (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 inputs Analog Max. input voltage 6.5 V Voltage for P _{min} / P _O 0 V / 2.5 V	Band width		0.7 - 4 nm	
Power noisetyp. < 0.06 % of P_0 (RMS, BW < 1 MHz)	Output power		typ. 14 mW	
Coherence length = 300 µm Fiber cable single-mode Fiber type SMC-E-400Si Nominal fiber NA 0.11 Effective fiber NAe² 0.072 ± 10 % (1/e²) Mode field diameter MFD 3.5 µm ± 10 % (1/e²) Fiber cable length 1.5 ± 0.05 m (standard) Fiber cable length 1.5 ± 0.05 m (standard) Fiber cable length 1.5 ± 0.11 m (standard) Fiber cable length 1.5 ± 0.11 m (standard) Power stability max. 12 % power variation between 15°C and 35°C Electronics type HP Electr. cable length 1.5 ± 0.11 m (standard) Connector type 4 pin (male, Lumberg SV40) Supply voltage 12.0 ± 0.5 V Max. current consumption* 260 mA 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 /> Not 1.12 300 kHz Time 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. <td< th=""><th>Power adjustment</th><th></th><th>< 1 - 100 %</th></td<>	Power adjustment		< 1 - 100 %	
Fiber cable single-mode Fiber type SMC-E-400Si Nominal fiber NA 0.11 Effective fiber NAe² 0.072 ± 10 % (1/e²) Mode field diameter MFD 3.5 µm ± 10 % (1/e²) Fiber cable length 1.5 ± 0.05 m (standard) 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 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 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 Time delay ON/OFF* < 2.0/0.5 ms < 0.5/0.2 µs * Typical value. Depends on laser diode. Operating temperature 15 - 35°C ± 0	Power noise	typ. <0.06 % of P ₀ (RM	S, BW < 1 MHz)	
Fiber type SMC-E-400Si Nominal fiber NA 0.11 Effective fiber NAe² 0.072 ± 10 % (1/e²) Mode field diameter MFD 3.5 µm ± 10 % (1/e²) Fiber cable length 1.5 ± 0.05 m (standard) Fiber cable type Ø 3 mm with Kevlar strain-relief Fiber cable type FC APC (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 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 /> No 3.0 V 3.0 V Input impedance 9 kOhm 9 kOhm Max. modulation frequency 1 Hz 300 kHz Time delay ON/OFF* < 2.0/0.5 m < 0.5/0.2 µs * Typical value. Depends on laser diode. Operating temperature 15 - 35°C ± 0.5°C Warm-up time approx. 10 min	Coherence length		≈ 300 µm	
Nominal fiber NA 0.11 Effective fiber NAe² 0.072 ± 10 % (1/e²) Mode field diameter MFD 3.5 µm ± 10 % (1/e²) Fiber cable length 1.5 ± 0.05 m (standard) Fiber cable type Ø 3 mm with Kevlar strain-relief Fiber cable type PC APC (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 Modulation inputs Analog Modulation inputs Analog Max. niput voltage 6.5 V 6.5 V Voltage for P _{min} / P ₀ 0 V / 2.5 V < 0.8 V /> 3.0 V Input impedance 9 kOhm 9 kOhm Max. modulation frequency 1 Hz 300 kHz Time delay ON/OFF* < 2.0/0.5 ms < 0.5/0.2 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	Fiber cable		single-mode	
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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 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 inputs Analog 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 Time 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. 0 Operating temperature Operating temperature 15 - 35°C ± 0.5°C Warm-up time Air humidity max. 90 % non-condensing Weight 530 g Dimensions 50 x 58 x 166 mm 50 x 58 x 166 mm	Effective fiber NA _{e²}	0.07	′2 ± 10 % (1/e ²)	
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 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 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 Time 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 50 × 58 × 166 mm 50 × 58 × 166 mm	Mode field diameter MFD	3.5 μ	m ± 10 % (1/e ²)	
Fiber connector type FC APC (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 inputs Analog Modulation inputs Analog Max. input voltage 6.5 V Voltage for P _{min} / P _O 0 V / 2.5 V Voltage for P _{min} / P _O 0 V / 2.5 V Nodulation frequency 1 Hz 3.0 V 3.0 V Input impedance 9 kOhm 9 kOhm 9 kOhm Max. modulation frequency 1 Hz 300 kHz 3.0 V Time 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. V Operating temperature 0perating temperature 15 - 35°C ± 0.5°C Warm-up time Air humidity max. 90 % non-condensing Weight 530 g 50 x	Fiber cable length	1.5 ± 0.	05 m (standard)	
Power stabilitymax. 12 % power variation between 15°C and 35°CElectronics typeHPElectr. cable length $1.5 \pm 0.1 \text{ m}$ (standard)Connector type4 pin (male, Lumberg SV40)Supply voltage $12.0 \pm 0.5 \text{ V}$ Max. current consumption*260 mAModulation inputsAnalogModulation inputsAnalogMax. input voltage 6.5 V 6.5 V 6.5 V Voltage for P_{min} / P_0 $0 \text{ V} / 2.5 \text{ V}$ $< 0.8 \text{ V} / 3.0 \text{ V}$ Input impedance 9 kOhm Max. modulation frequency 1 Hz 3.0 V Input impedance 9 kOhm 9 kOhm 9 kOhm Max. modulation frequency 1 Hz 3.0 V Input impedance 9 kOhm 9 kOhm 9 kOhm Max. modulation frequency 1 Hz 3.0 V Imput impedance 9 kOhm 9 kOhm 9 kOhm Max. modulation frequency 1 Hz 3.0 V Imput impedance 9 kOhm 9 kOhm 9 kOhm Max. modulation frequency 1 Hz 3.0 V $5.5 \text{ S}^{\circ} \text{ C} \pm 0.5^{\circ} \text{ C}$ Warm-up timeapprox. 10 minAir humiditymax. 90 % non-condensingWeight 530 g Dimensions $50 \times 58 \times 166 \text{ mm}$	Fiber cable type	Ø 3 mm with Ke	vlar strain-relief	
Electronics typeHPElectr. cable length $1.5 \pm 0.1 \text{ m}$ (standard)Connector type4 pin (male, Lumberg SV40)Supply voltage $12.0 \pm 0.5 \text{ V}$ Max. current consumption*260 mAModulation inputsAnalogMax. input voltage 6.5 V 6.5 V 6.5 V Voltage for P_{min} / P_O $0 \text{ V} / 2.5 \text{ V}$ $< 0.8 \text{ V} / 2.5 \text{ V}$ $< 0.8 \text{ V} / 2.5 \text{ V}$ Input impedance 9 kOhm 9 kOhm Max. modulation frequency 1 Hz 300 kHz Time delay ON/OFF* $< 2.0/0.5 \text{ ms}$ $< 0.5/0.2 \text{ µs}$ Rise / fall time* $0.5/0.5 \text{ s}$ $0.8/0.3 \text{ µs}$ * Typical value. Depends on laser diode. $0 \text{ perating temperature}$ $15 - 35^{\circ}\text{C} \pm 0.5^{\circ}\text{C}$ Warm-up timeapprox. 10 minAir humiditymax. 90 % non-condensingWeight 530 g $50 \times 58 \times 166 \text{ mm}$	Fiber connector type	FC	APC (standard)	
Electr. cable length $1.5 \pm 0.1 \text{ m} \text{ (standard)}$ Connector type4 pin (male, Lumberg SV40)Supply voltage $12.0 \pm 0.5 \text{ V}$ Max. current consumption*260 mAModulation inputsAnalogTTLMax. input voltage 6.5 V 6.5 V Voltage for Pmin / PO $0 \text{ V / } 2.5 \text{ V}$ $< 0.8 \text{ V / } 3.0 \text{ V}$ Input impedance 9 kOhm 9 kOhm Max. modulation frequency 1 Hz 300 kHz Time delay ON/OFF* $< 2.0/0.5 \text{ ms}$ $< 0.5/0.2 \text{ µs}$ Rise / fall time* $0.5/0.5 \text{ s}$ $0.8/0.3 \text{ µs}$ * Typical value. Depends on laser diode. $15 - 35^{\circ}\text{C} \pm 0.5^{\circ}\text{C}$ Warm-up timeapprox.10 minAir humiditymax. 90 % non-condensingWeight 530 g Dimensions $50 \times 58 \times 166 \text{ mm}$	Power stability	max. 12 % power variation between	15°C and 35°C	
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Supply voltage $12.0 \pm 0.5 \vee$ Max. current consumption* 260 mA Modulation inputsAnalogTTLMax. input voltage $6.5 \vee$ $6.5 \vee$ Voltage for P_{min} / P_0 $0 \vee / 2.5 \vee$ $< 0.8 \vee / >$ $3.0 \vee$ Input impedance9 kOhm9 kOhmMax. modulation frequency1 Hz 300 kHz Time delay ON/OFF* $< 2.0/0.5 \text{ ms}$ $< 0.5/0.2 \mu\text{s}$ Rise / fall time* $0.5/0.5 \text{s}$ $0.8/0.3 \mu\text{s}$ * Typical value. Depends on laser diode. $15 - 35^{\circ}\text{C} \pm 0.5^{\circ}\text{C}$ Warm-up timeapprox. 10 minAir humiditymax. 90 % non-condensingWeight 530 g Dimensions $50 \times 58 \times 166 \text{ mm}$	Electr. cable length	1.5 ± 0).1 m (standard)	
Max. current consumption*260 mAModulation inputsAnalogTTLMax. input voltage $6.5 \vee$ $6.5 \vee$ Voltage for P_{min} / P_0 $0 \vee / 2.5 \vee$ $< 0.8 \vee / >$ $3.0 \vee$ Input impedance9 kOhm9 kOhmMax. modulation frequency1 Hz 300 kHz Time delay ON/OFF* $< 2.0/0.5 \text{ ms}$ $< 0.5/0.2 \mu \text{s}$ Rise / fall time* $0.5/0.5 \text{ s}$ $0.8/0.3 \mu \text{s}$ * Typical value. Depends on laser diode. $15 - 35^{\circ}\text{C} \pm 0.5^{\circ}\text{C}$ Warm-up time $15 - 35^{\circ}\text{C} \pm 0.5^{\circ}\text{C}$ Air humiditymax. 90 % non-condensingWeight 530 g Dimensions $50 \times 58 \times 166 \text{ mm}$	Connector type	4 pin (male,	Lumberg SV40)	
Modulation inputsAnalogTTLMax. input voltage $6.5 \vee$ $6.5 \vee$ Voltage for P_{min} / P_0 $0 \vee / 2.5 \vee$ $< 0.8 \vee / > 3.0 \vee$ Input impedance9 kOhm9 kOhmMax. modulation frequency1 Hz 300 kHz Time delay ON/OFF* $< 2.0/0.5 \text{ ms}$ $< 0.5/0.2 \mu \text{s}$ Rise / fall time* $0.5/0.5 \text{s}$ $0.8/0.3 \mu \text{s}$ * Typical value. Depends on laser diode.Operating temperature $15 - 35^{\circ}\text{C} \pm 0.5^{\circ}\text{C}$ Warm-up timeapprox. 10 minAir humiditymax. 90 % non-condensingWeight 530g Dimensions $50 \times 58 \times 166 \text{mm}$	Supply voltage		12.0 ± 0.5 V	
Max. input voltage $6.5 \vee$ $6.5 \vee$ Voltage for P_{min} / P_0 $0 \vee / 2.5 \vee$ $< 0.8 \vee / >$ $3.0 \vee$ Input impedance 9 kOhm 9 kOhm Max. modulation frequency 1 Hz 300 kHz Time delay ON/OFF* $< 2.0/0.5 \text{ ms}$ $< 0.5/0.2 \mu \text{s}$ Rise / fall time* $0.5/0.5 \text{s}$ $0.8/0.3 \mu \text{s}$ * Typical value. Depends on laser diode. $15 - 35^{\circ}\text{C} \pm 0.5^{\circ}\text{C}$ Warm-up time $15 - 35^{\circ}\text{C} \pm 0.5^{\circ}\text{C}$ Warm-up time 300% non-condensingWeight 530g Dimensions $50 \times 58 \times 166 \text{mm}$	Max. current consumption*		260 mA	
Voltage for P_{min} / P_0 $0 \lor / 2.5 \lor$ $< 0.8 \lor / > 3.0 \lor$ Input impedance9 kOhm9 kOhmMax. modulation frequency1 Hz300 kHzTime delay ON/OFF* $< 2.0/0.5 ms$ $< 0.5/0.2 \ \mu s$ Rise / fall time* $0.5/0.5 s$ $0.8/0.3 \ \mu s$ * Typical value. Depends on laser diode. $15 - 35^{\circ}C \pm 0.5^{\circ}C$ Warm-up timeapprox. 10 minAir humiditymax. 90 % non-condensingWeight $530 \ g$ Dimensions $50 \times 58 \times 166 \ mm$	Modulation inputs	Analog	TTL	
$3.0 \vee$ Input impedance 9 kOhm 9 kOhm Max. modulation frequency 1 Hz 300 kHz Time 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 \pm 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	Max. input voltage	6.5 V	6.5 V	
Max. modulation frequency1 Hz 300 kHz Time delay ON/OFF*< 2.0/0.5 ms< 0.5/0.2 μ sRise / fall time*0.5/0.5 s0.8/0.3 μ s* Typical value. Depends on laser diode.Operating temperature15 - 35°C ± 0.5°CWarm-up timeapprox. 10 minAir humiditymax. 90 % non-condensingWeight530 gDimensions $50 \times 58 \times 166 \text{ mm}$	Voltage for P _{min} / P _O	0 V / 2.5 V		
Time delay ON/OFF*< $2.0/0.5 \text{ ms}$ < $0.5/0.2 \mu\text{s}$ Rise / fall time* $0.5/0.5 \text{s}$ $0.8/0.3 \mu\text{s}$ * Typical value. Depends on laser diode.Operating temperature $15 - 35^{\circ}\text{C} \pm 0.5^{\circ}\text{C}$ Warm-up timeapprox. 10 minAir humiditymax. 90 % non-condensingWeight 530g Dimensions $50 \times 58 \times 166 \text{mm}$	Input impedance	9 kOhm	9 kOhm	
Rise / fall time*0.5/0.5 s0.8/0.3 μs* Typical value. Depends on laser diode.Operating temperature15 - 35°C ± 0.5°CWarm-up timeapprox. 10 minAir humiditymax. 90 % non-condensingWeight530 gDimensions50 x 58 x 166 mm	Max. modulation frequency	1 Hz	300 kHz	
* 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	Time delay ON/OFF*	< 2.0/0.5 ms	< 0.5/0.2 μs	
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	Rise / fall time*	0.5/0.5 s	0.8/0.3 μs	
Warm-up timeapprox. 10 minAir humiditymax. 90 % non-condensingWeight530 gDimensions50 x 58 x 166 mm	* Typical value. Depends on lase	er diode.		
Air humiditymax. 90 % non-condensingWeight530 gDimensions50 x 58 x 166 mm	Operating temperature	15	15 - 35°C ± 0.5°C	
Weight 530 g Dimensions 50 x 58 x 166 mm	Warm-up time	approx. 10 min		
Dimensions 50 x 58 x 166 mm	Air humidity	max. 90 % non-condensing		
	Weight		530 g	
Protection Class IP30	Dimensions	50 x 58 x 166 mm		
	Protection Class		IP30	



DATA SHEET

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
- <u>51nano: Electronics Type HP</u>
 <u>Electronic features for electronics type HP</u>

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

DATA SHEET

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 <u>https://sukhamburg.com/products/details/51nano-N-405-14-M29-P-12-4-18-0-150</u> from 5/5/2024

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

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