#### 51nano-N-405-1-Y07-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-405-1-Y07-P-12-4-28-0-150 has a <u>reduced power</u> <u>noise, a reduced coherence length and a low</u> <u>speckle contrast</u>.

- Reduced power noise: typ. < 0.1 % of P<sub>0</sub> (RMS, Bandwidth < 1 MHz)</li>
- Reduced coherence length: coherence length ≈ 300 µm
- Reduced speckle contrast
- Wavelength: 405 nm
- Laser output power: 0.9 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-405-1-Y07-P-12-4-18-0-150 has a reduced power noise (typ. < 0.1 % of P<sub>o</sub> (RMS, Bandwidth < 1 MHz)), 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 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 <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

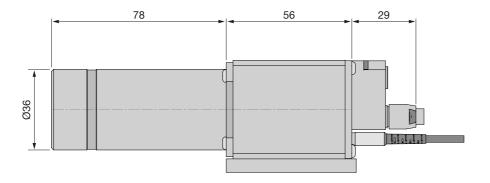
#### Laser safety

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

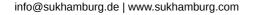
as type <u>51nano-S</u>.



#### **TECHNICAL DATA**

51nano-N-405-1-Y07-P-12-4-18-0-150

Order Code	51nano-N-405-1-Y07-P-12-4-18-0-150
Will replace	51nanoFCM-N-405-1-Y07-P-12-4-18-0-150
Series	51nano-N (single-mode)
Laser class	2
Wavelength	405 ± 5 nm





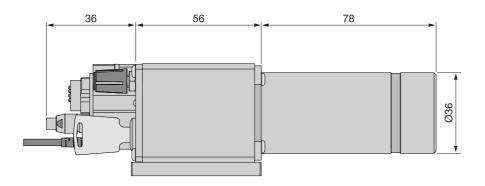
### **DATA SHEET**

Output power      typ. 0.9 mW        Power adjustment      < 1 - 100 %        Power noise      typ. < 0.1 % of P <sub>o</sub> (RMS, BW < 1 MHz)        Coherence length      = 300 µm        Fiber cable      single-mode        Fiber cable      single-mode        Fiber table      SMC-E-400Si        Nominal fiber NA      0.11        Effective fiber NAe <sup>2</sup> 0.072 ± 10 % (1/e <sup>2</sup> )        Mode field diameter MFD      3.5 µm ± 10 % (1/e <sup>2</sup> )        Mode field diameter MFD      3.5 µm ± 10 % (1/e <sup>2</sup> )        Fiber cable length      1.5 ± 0.05 m (standard)        Fiber cable type      Ø 3 mm with Kevlar strain-relief        Power stability      max. 12 % power variation between 15°C and 35°C        Electronics type      HP        Electronics type      10 m (standard)        Connector type      4 pin (male, Lumberg SV40)        Supply voltage      12.0 ± 0.5 V        Modulation inputs      Analog        Modulation inputs      Analog        Max. current consumption*      260 mA        Modulation frequency      1 Hz        3.0 V      3.0 V        Input impedance      9 kOhm	Band width		0.7 - 4 nm	
Power noise      typ. < 0.1 % of P <sub>0</sub> (RMS, BW < 1 MHz)	Output power		typ. 0.9 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 ± 0.01 m (standard)      Fiber cable type    Ø 3 mm with Kevlar strain-relief      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    TTL      Max. input voltage    6.5 V    6.5 V      Voltage for P <sub>min</sub> / P <sub>O</sub> 0 V / 2.5 V    < 0.8 V />      Number of perfect and ser diode.    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	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      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 <sub>min</sub> / P <sub>O</sub> 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 <t< th=""><th>Power noise</th><th>typ. &lt; 0.1 % of P<sub>0</sub> (RM</th><th>S, BW &lt; 1 MHz)</th></t<>	Power noise	typ. < 0.1 % of P <sub>0</sub> (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 length    1.5 ± 0.05 m (standard)      Fiber cable type    Ø 3 mm with Kevlar strain-relief      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 <sub>min</sub> / P <sub>O</sub> 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 </th <th>Coherence length</th> <th></th> <th>≈ 300 µm</th>	Coherence length		≈ 300 µm	
Nomial fiber NA    0.11      Effective fiber NA <sub>e</sub> <sup>2</sup> 0.072 ± 10 % (1/e <sup>2</sup> )      Mode field diameter MFD    3.5 µm ± 10 % (1/e <sup>2</sup> )      Fiber cable length    1.5 ± 0.05 m (standard)      Fiber connector type    FC APC (standard)      Fiber cable type    Ø 3 mm with Kevlar strain-relief      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    TTL      Max. current consumption*    260 mA      Modulation inputs    Analog    TTL      Max. input voltage    6.5 V    6.5 V      Voltage for P <sub>min</sub> / P <sub>O</sub> 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 % no	Fiber cable		single-mode	
Effective fiber $NA_e^2$ 0.072 ± 10 % (1/e <sup>2</sup> )Mode field diameter MFD3.5 µm ± 10 % (1/e <sup>2</sup> )Fiber cable length1.5 ± 0.05 m (standard)Fiber cable length1.5 ± 0.05 m (standard)Fiber cable typeØ 3 mm with Kevlar strain-reliefPower stabilitymax. 12 % power variation between 15°C and 35°CElectronics typeHPElectr. cable length1.5 ± 0.1 m (standard)Connector type4 pin (male, Lumberg SV40)Supply voltage12.0 ± 0.5 VMax. current consumption*260 mAModulation inputsAnalogTTLMax. input voltage6.5 V6.5 VVoltage for $P_{min} / P_0$ 0 V / 2.5 V< 0.8 V / > 3.0 VInput impedance9 kOhm9 kOhmMax. modulation frequency1 Hz300 kHzTime delay ON/OFF*< 2.0/0.5 ms	Fiber type		SMC-E-400Si	
Mode field diameter MFD $3.5 \ \mu m \pm 10 \ \% (1/e^2)$ Fiber cable length $1.5 \pm 0.05 \ m$ (standard)Fiber cable length $1.5 \pm 0.05 \ m$ (standard)Fiber cable typeØ 3 mm with Kevlar strain-reliefPower stabilitymax. 12 % power variation between 15°C and 35°CElectronics typeHPElectr. cable length $1.5 \pm 0.1 \ m$ (standard)Connector type4 pin (male, Lumberg SV40)Supply voltage $12.0 \pm 0.5 \ V$ Max. current consumption*260 mAModulation inputsAnalogMax. input voltage $6.5 \ V$ $0 \ V / 2.5 \ V$ $3.0 \ V$ No tage for $P_{min} / P_O$ $0 \ V / 2.5 \ V$ Nax. modulation frequency $1 \ Hz$ $300 \ KHz$ Time delay ON/OFF* $< 2.0/0.5 \ ms$ $< 0.5/0.5 \ S$ $0.8/0.3 \ \mus$ * Typical value. Depends on laser diode. $0 \ Son S \$	Nominal fiber NA		0.11	
Fiber cable length    1.5 ± 0.05 m (standard)      Fiber cable type    FC APC (standard)      Fiber cable type    Ø 3 mm with Kevlar strain-relief      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 <sub>min</sub> / P <sub>O</sub> 0 V / 2.5 V    < 0.8 V / >      Naw. 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    0 % non-condensing      Weight    530 g    50 x 58 x 166 mn	Effective fiber NA <sub>e<sup>2</sup></sub>	0.07	0.072 ± 10 % (1/e <sup>2</sup> )	
Fiber connector type    FC APC (standard)      Fiber cable type    Ø 3 mm with Kevlar strain-relief      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 <sub>min</sub> / Po    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	Mode field diameter MFD	3.5 μ	m ± 10 % (1/e <sup>2</sup> )	
Fiber cable typeØ 3 mm with Kevlar strain-reliefPower stabilitymax. 12 % power variation between $15^{\circ}C$ and $35^{\circ}C$ 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 $6.5 \text{ V}$ $6.5 \text{ V}$ $6.5 \text{ V}$ Voltage for $P_{min}$ / $P_0$ $0 \text{ V} / 2.5 \text{ V}$ $8x.$ modulation frequency $1 \text{ Hz}$ $3.0 \text{ V}$ Input impedance $9 \text{ kOhm}$ $9 \text{ kOhm}$ $9 \text{ kOhm}$ Max. modulation frequency $1 \text{ Hz}$ $300 \text{ kHz}$ Time delay ON/OFF* $< 2.0/0.5 \text{ ms}$ $< 0.5/0.2 \text{ µs}$ * Typical value. Depends on laser diode.Operating temperature $15 - 35^{\circ}C \pm 0.5^{\circ}C$ Warm-up timeapprox. 10 minAir humiditymax. 90 % non-condensingWeight $530 \text{ g}$ Dimensions $50 \times 58 \times 166 \text{ mm}$	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 $6.5 \text{ V}$ $6.5 \text{ V}$ $6.5 \text{ V}$ Voltage for $P_{min} / P_0$ $0 \text{ V} / 2.5 \text{ V}$ $< 0.8 \text{ V} / 3.0 \text{ V}$ Input impedance $9 \text{ kOhm}$ Max. modulation frequency $1 \text{ Hz}$ $3.0 \text{ V}$ Rise / fall time* $0.5/0.5 \text{ s}$ $< 2.0/0.5 \text{ ms}$ $< 0.5/0.2 \text{ µs}$ * 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 $530 \text{ g}$ Dimensions $50 \times 58 \times 166 \text{ mm}$	Fiber connector type	FC	APC (standard)	
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* $260 \text{ mA}$ Modulation inputsAnalogMax. input voltage $6.5 \text{ V}$ $6.5 \text{ V}$ $6.5 \text{ V}$ Voltage for $P_{min} / P_O$ $0 \text{ V} / 2.5 \text{ V}$ $< 0.8 \text{ V} / 3.0 \text{ V}$ Input impedance $9 \text{ kOhm}$ $9 \text{ kOhm}$ $9 \text{ kOhm}$ Max. modulation frequency $1 \text{ Hz}$ $300 \text{ kHz}$ Time delay ON/OFF* $< 2.0/0.5 \text{ ms}$ $< 0.5/0.5 \text{ s}$ $0.8/0.3 \text{ µs}$ * Typical value. Depends on laser diode. $0 \text{ Synon.condensing}$ Warm-up timeapprox. 10 minAir humiditymax. 90 % non-condensingWeight $530 \text{ g}$ Dimensions $50 \times 58 \times 166 \text{ mm}$	Fiber cable type	Ø 3 mm with Ke	evlar strain-relief	
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 $6.5 \text{ V}$ $6.5 \text{ V}$ Voltage for Pmin / Po $0 \text{ V / } 2.5 \text{ V}$ $< 0.8 \text{ V / } 3.0 \text{ V}$ Input impedance $9 \text{ kOhm}$ $9 \text{ kOhm}$ Max. modulation frequency $1 \text{ Hz}$ $300 \text{ kHz}$ 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. $U \text{ Strongendentiation}$ Operating temperature $15 - 35^{\circ}\text{C} \pm 0.5^{\circ}\text{C}$ Warm-up timeapprox.10 minAir humiditymax. 90 % non-condensingWeight $530 \text{ g}$ Dimensions $50 \times 58 \times 166 \text{ mm}$	Power stability	max. 12 % power variation between	15°C and 35°C	
Connector type4 pin (male, Lumberg SV40)Supply voltage $12.0 \pm 0.5 \vee$ Max. current consumption* $260 \text{ mA}$ Modulation inputsAnalogTTLMax. input voltage $6.5 \vee$ $6.5 \vee$ Voltage for P <sub>min</sub> / P <sub>O</sub> $0 \vee / 2.5 \vee$ $< 0.8 \vee / >$ $3.0 \vee$ Input impedance $9 \text{ kOhm}$ $9 \text{ kOhm}$ Max. modulation frequency $1 \text{ Hz}$ $300 \text{ kHz}$ 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. $0 \text{ perating temperature}$ $15 - 35^{\circ}\text{C} \pm 0.5^{\circ}\text{C}$ Warm-up timeapprox. 10 min $approx. 10 min$ Air humidity $max. 90 \%$ non-condensingWeight $530 \text{ g}$ Dimensions $50 \times 58 \times 166 \text{ mm}$	Electronics type		HP	
Supply voltage $12.0 \pm 0.5 \vee$ Max. current consumption* $260 \text{ mA}$ Modulation inputsAnalogTTLMax. input voltage $6.5 \vee$ $6.5 \vee$ $6.5 \vee$ $6.5 \vee$ $6.5 \vee$ Voltage for $P_{min} / P_0$ $0 \vee / 2.5 \vee$ $< 0.8 \vee / >$ $3.0 \vee$ Input impedance $9 \text{ kOhm}$ $9 \text{ kOhm}$ Max. modulation frequency $1 \text{ Hz}$ $300 \text{ kHz}$ 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. $0 \text{ perating temperature}$ $15 - 35^{\circ}\text{C} \pm 0.5^{\circ}\text{C}$ Warm-up timeapprox. 10 minAir humiditymax. 90 % non-condensingWeight $530 \text{ g}$ 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 $300 \text{ kHz}$ 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. $20\% \text{ non-condensing}$ Warm-up timeapprox. 10 minAir humiditymax. 90 % non-condensingWeight $530 \text{ g}$ 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 $P_{min} / P_O$ $0 \vee / 2.5 \vee$ $< 0.8 \vee / > 3.0 \vee$ Input impedance9 kOhm9 kOhmMax. modulation frequency1 Hz $300 \text{ kHz}$ 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 $530 \text{ g}$ 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 $9 \text{ kOhm}$ $9 \text{ kOhm}$ Max. modulation frequency $1 \text{ Hz}$ $300 \text{ kHz}$ 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 $approx. 10 \min$ Air humidity $max. 90 \%$ non-condensingWeight $530 \text{ g}$ 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 VInput impedance9 kOhmMax. modulation frequency1 Hz300 kHzTime delay ON/OFF*< 2.0/0.5 ms< 2.0/0.5 ms< 0.5/0.2 μsRise / 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. input voltage	6.5 V	6.5 V	
Max. modulation frequency1 Hz $300 \text{ kHz}$ 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 $530 \text{ g}$ Dimensions $50 \times 58 \times 166 \text{ mm}$	Voltage for P <sub>min</sub> / P <sub>O</sub>	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 $530 \text{g}$ 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.0Operating 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 temperature15 - 35°C ± 0.5°CWarm-up timeapprox. 10 minAir humiditymax. 90 % non-condensingWeight530 gDimensions50 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 las	ser 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 % i	max. 90 % non-condensing	
	Weight		530 g	
Protection Class IP30	Dimensions	50	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 (SINGLE- MODE, OEM)	Fiber-coupled low coherence laser source with single-mode fiber cable (OEM version)
51NANO-S (POLARIZATION- MAINTAINING)	Fiber-coupled low coherence laser source with polarization-maintaining 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-405-1-Y07-P-12-4-18-0-150</u> from 5/4/2024

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