목록

Technical data sheet

Differential Interferometer SP 5000 DI Series

SIOS Meßtechnik GmbH

System parameter	SP 5000 DI	SP 5000 DI/F
Measurement range	0 m to ≥ 5 m	
Resolution	5 pm*	
Angular measurement range with reflector with plane mirror (recommended distance ≤2 m)	 ±12.5° ** ±1.5 arcmin	 ±15° ** ±1.5 arcmin
Angular resolution	0.001 arcsec***	0.0015 arcsec***
Beam distance (standard)	21 mm	14 mm
Temperature sensitivity	<20 nm/K	<10 nm/K
Wavelength	632.8 nm	
Frequency stability of the HeNe laser (after warm-up time)	$2 \cdot 10^{-8}$	
Warm-up time of the HeNe laser	10...20 min	
Operating temperature range	15...30°C	
Maximum displacement speed of measuring reflector	3 m/s	
Geometric Data		
Dimensions (L x W x H): Sensor head (with base plate) Electronic evaluation and supply unit EU (standard)	 [150 x 140 x 43] mm [450 x 400 x 150] mm	 [110 x 65 x 33] mm
Mass: Sensor head Base plate Electronic evaluation and supply unit EU (standard)	 2.0 kg 1.5 kg ca. 8 kg	 1.1 kg -
Electrical Data		
Interfaces standard other interfaces on request (/R)	RS232C, USB	
Cable length between sensor head and electronics unit	3 m, optionally up to 10 m	
Power supply	100...240 VAC / 47...63 Hz	
Laser safety class according to EN 60825-1:2014 and ANSI Z136.1 (CDRH)	2M II	

*in frequency domain ** rotary point dependent ***least significant bit (LBS) 09/2019 · Subject to change.

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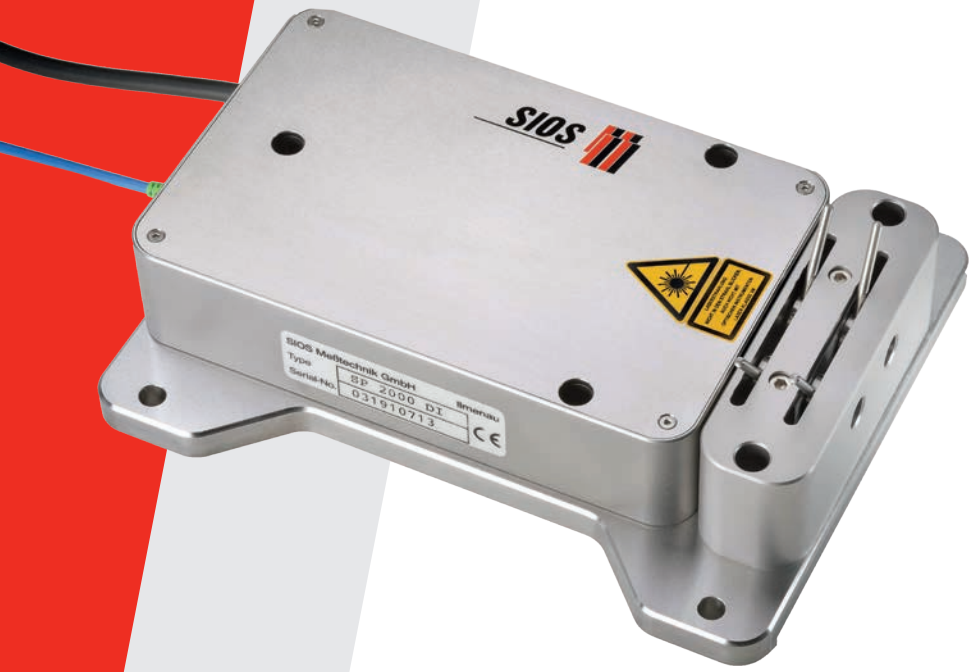


SP 5000 DI

Product information

Extremely stable laser interferometer for high-precision length or angle measurements

Laser interferometer measurement system

SP 5000 DI

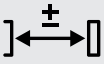
Our ultra-stable differential laser interferometer SP 5000 DI is characterised by its unique thermal stability and can be used for long-term measurements in research and development, such as for material testing.

Thanks to its design, with an external reference beam, the measurement system can be placed at a longer distance from the measurement location without significantly affecting the resolution or stability of the measurement. The length resolution of the interferometer is 5 pm and this can be achieved even under normal laboratory conditions thanks to the differential principle of the measurement system.

The measurement range for length measurement is several meters if tilt-invariant reflectors are used for the measurements. The system has a modular design and can therefore be adapted to specific measurement tasks.

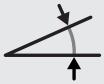
Adjustments can be made simply and with long-term stability. The construction of multi-axis systems on the basis of the SP 5000 DI interferometer also allows multi-coordinate measurements.

2 m
with plane-mirror
5 m
with reflector

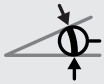


0.1 µm/m

5 pm

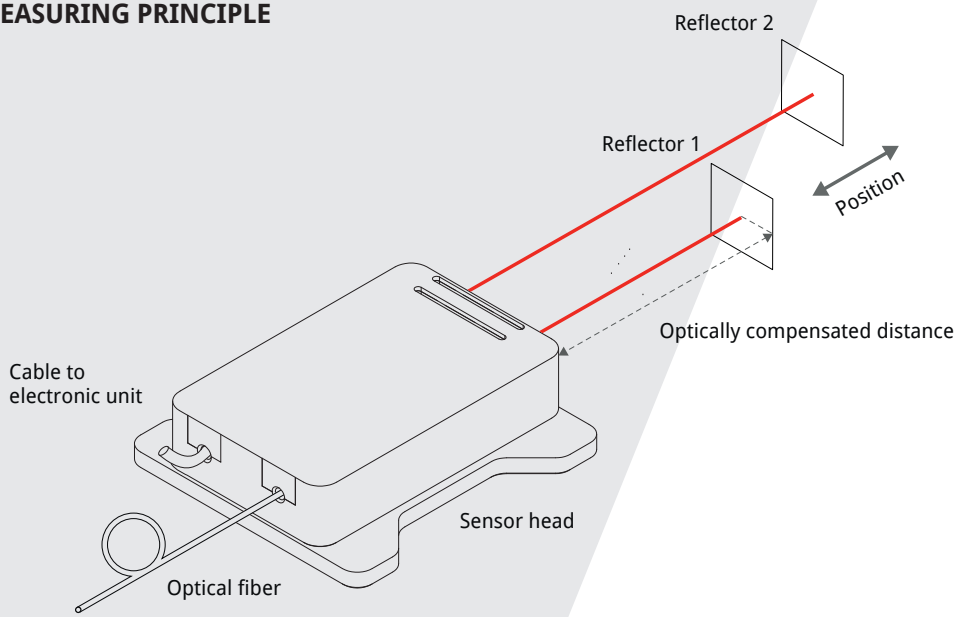


± 1.5 arcmin
with plane-mirror
± 15 °
with reflector



0.001 arcsec

MEASURING PRINCIPLE



For customer-specific versions orintegration in special measurement equipment, please contact us.

Further possible applications:

- The differential laser interferometer is available as an OEM version for installation as an encoder in machine axes. The SP 5000 DI is also available as a vacuum-optimised version for taking measurements in a vacuum.
- The standard beam distance is 21 mm. We can provide other beam distances on enquiry.

Ideal for

- Long-term measurements
- Development
- Science/research
- OEM applications
- Exacting stability requirements

PRECISION & QUALITY
MADE IN GERMANY

For customer-specific versions, OEM applications or integration in special measurement stations, please contact us.

We will be happy to personally assist you in finding solutions for your measuring tasks.

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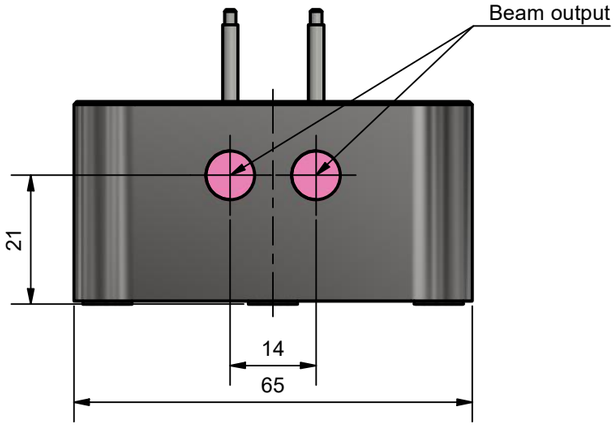
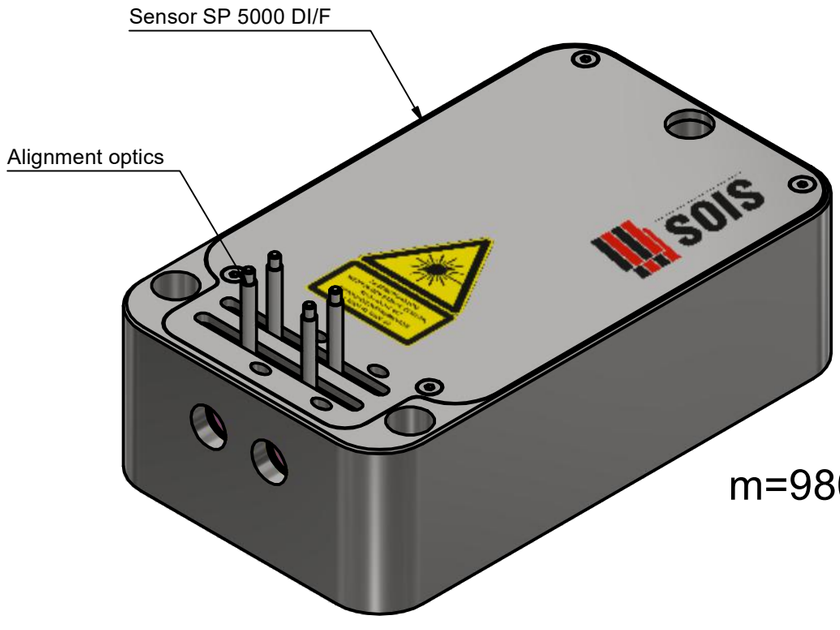
April 2019

SP 5000 DI/F (A035977)

Beam spacing 14mm





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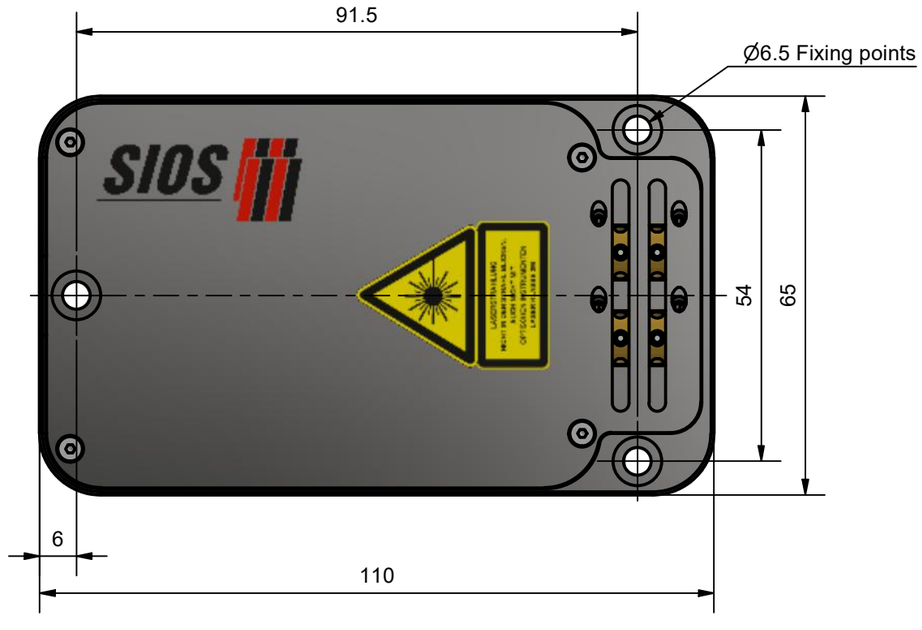

all dimensions in mm

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