목록

Technical data sheet

Triple-Beam Interferometer SP 5000 TR

System parameter	SP 5000 TR
Measuring range	0 m to ≥ 5 m
Resolution	20 pm*
Angular measuring ranges with reflector with plane mirror (recommended distance ≤2 m)	 ±12.5° ** ±1.5 arcmin
Angular resolution	0.002 arcsec***
Roll angle measuring range (optional with RAS 175 W)	±1°
Roll angle resolution (optional with RAS 175 W)	0.2 arcsec
Beam distances (horizontal and vertical)	12 mm
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
Max. displacement speed of measuring reflector	3 m/s
Geometric Data	
Dimensions (L x W x H): Sensor head with adjustable mount Reflector Electronic evaluation and supply unit EU Roll angle sensor RAS 175 W (optional)	 [202 x 137 x 72] mm [45 x 45 x 20] mm [450 x 400 x 150] mm [74 x 54 x 77] mm
Mass: Sensor head with adjustable mount Reflector Electronic evaluation and supply unit EU Roll angle sensor RAS 175 W (optional)	 1.9 kg 80 g ca. 8 kg 425 g
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)

SIOS Meßtechnik GmbH
98693 Ilmenau/Germany · Am Vogelherd 46 · Tel.: +49 (0) 3677 64 47-0 · contact@sios.de · www.sios-precision.com

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SP 5000 TR

Product information

Triple-beam laser interferometer for simultaneous and precise length, pitch and yaw angle measurements

Laser interferometer measurement system

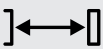
SP 5000 TR

Many applications in industry and research require high-precision simultaneous displacement and angle measurements. Fast set-up and uncomplicated adjustment are particularly important.

Triple-beam laser interferometers are precision length measuring devices that combine three interferometers in one device. The same highly stable laser frequency is used in all three measuring channels. Thus, three length values can be measured simultaneously with nanometer accuracy. The corresponding angle can be determined with high precision from the difference between two length values and the calibrated beam distance.
The system has a modular design and can therefore be adapted to a wide variety of measurement tasks.

The fiber optic coupling of the sensor head and the optionally integrated beam direction detection support easy handling and adjustment.
The design of the three-beam interferometer is compact and robust. This makes it ideal for high-precision measurements in industry and research and as an OEM instrument.

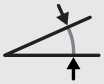
For large measuring ranges or calibration tasks, the use of wireless temperature sensors or the climate measuring station LCS is recommended.



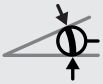
up to 5 m and more

20 pm

0.1 µm/m

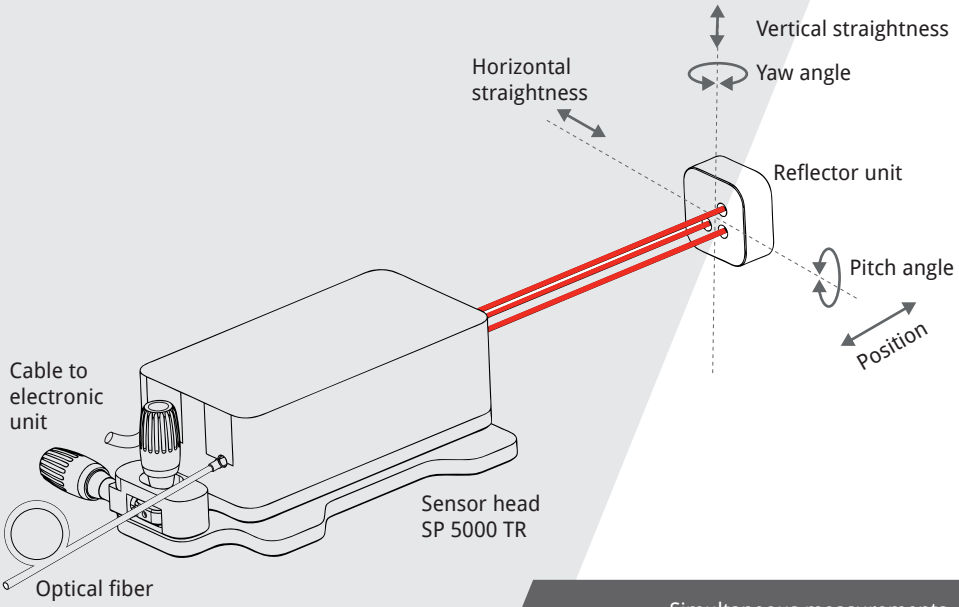


±12.5°
with reflector
±1.5 arcmin
with plane-mirror



0.002 arcsec

MEASURING PRINCIPLE



Simultaneous measurements of lengths and angles with highest accuracy

Further possible applications:

- High-precision pitch and yaw angle correction for two- and multi-coordinate measurements
- Differential measurements (dilatometry, material testing, etc.)
- Dynamic angle measurements, acquisition of angle vibrations
- OEM and vacuum versions of the device are possible

Ideal for

- Quality assurance
- Calibration
- Development
- Science and research
- OEM applications

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 to your measuring tasks.

SIOS Meßtechnik GmbH
Am Vogelherd 46
98693 Ilmenau / Germany

phone +49 (0) 3677 64 47-0
e-mail contact@sios.de

www.sios-precision.com

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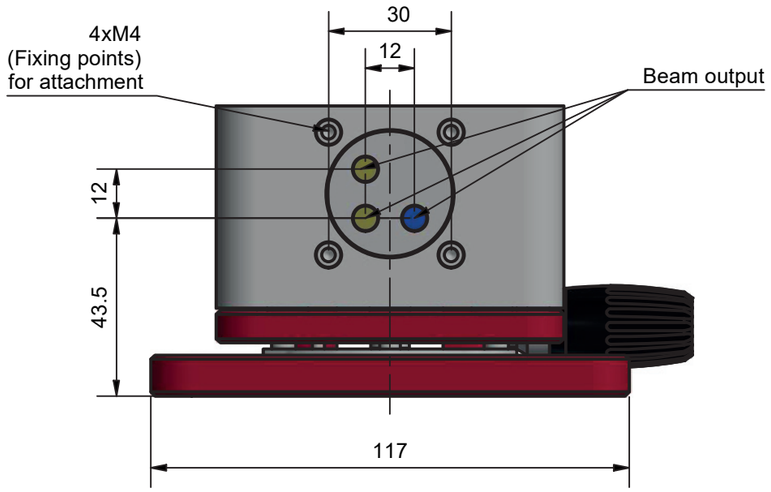
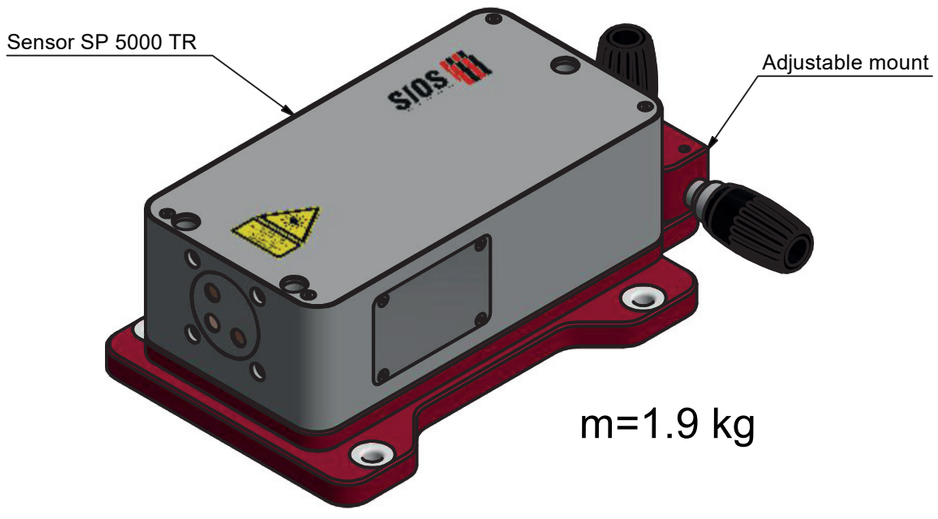
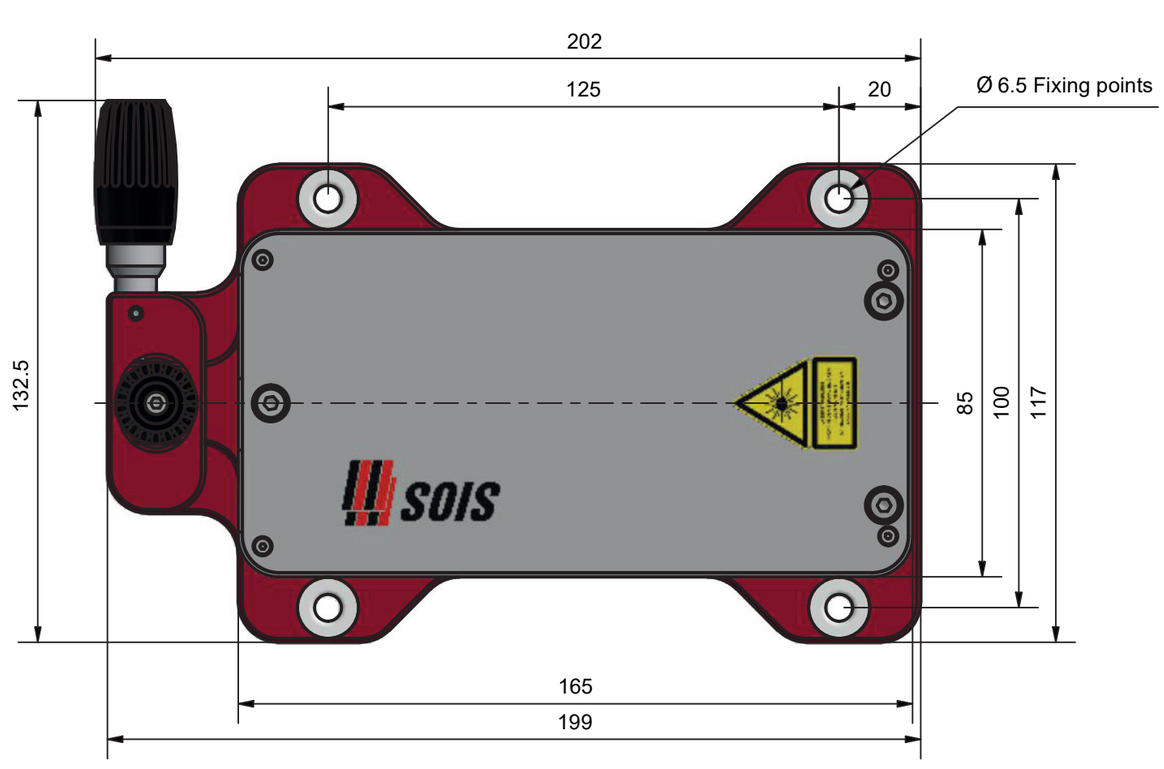
SP 5000 TR (A036506)

with adjustable mount





m=1.9 kg



all dimensions in mm

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