목록

Technical data sheet

Calibration Interferometer SP 15000 C5 Series

SIOS Meßtechnik GmbH

System parameter	SP 15000 C5	SP 15000 C5 with compact straightness
Length measurement:		
Measuring range (on request up to 50 m)	15 m	
Resolution	<1 nm	
Angle measurement:		
Measuring ranges of pitch and yaw angles	±5°	
Resolution	0.004 µrad*	
Straightness measurement		
Measuring range, lateral	±4 mm	±2 mm
Resolution	10 nm	
Axial range	0.1...6.5 m	0.1...3 m
Roll angle measurement (optional with RAS 175 W):		
Measuring range	±1°	
Resolution	0.2 arcsec	
Measuring uncertainty under stable conditions:		
Length measurement	±0.1 ppm	
Angle measurement	±0.04 % ± 0.009 arcsec	
Straightness measurement	±0.1 % ± 0.1 · M^2 ± 0.1 µm	
Roll angle measurement	±0.5 arcsec ±0.5% (19°C – 21°C) ±0.5 arcsec ±1.5% (15°C – 25°C)	
Beam distance (horizontal and vertical)	50 mm	
Wavelength	632,8 nm	
Frequency stability of the HeNe laser	$2 \cdot 10^{-8}$	
Warm-up time of the HeNe laser	20 min	
Operating temperature range	15...30°C	
Max. displacement speed of measuring reflector	500 mm/s	
Geometric Data		
Dimensions (L x W x H):		
Sensor head with adjustable mount	[192 x 192 x 122] mm	
Reflector unit	[104 x 62 x 104] mm	[74 x 70 x 74] mm
Straightness mirror (standard)	[230 x 40 x 47] mm	[234 x 43 x 49] mm
Straightness mirror (up to 3.5 m axial range)	-	[110 x 33 x 30] mm
Electronic evaluation and supply unit EU	[450 x 450 x 150] mm	[450 x 450 x 150] mm
Roll angle sensor RAS 175 W (optional)	[74 x 54 x 77] mm	
Mass:		
Sensor head with adjustable mount	3.3 kg	
Reflector unit	850 g	570 g
Straightness mirror	1 kg	
Electronic evaluation and supply unit EU	11 kg	
Roll angle sensor RAS 175 W (optional)	425 g	
Electrical Data		
Interfaces Standard	USB	
other interfaces on request (/R)		
Cable length sensor head - electronics unit	6 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	

*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 15000 C5

with compact straightness measurement

Product information

Laser interferometer for high-precision simultaneous measurement and calibration of length, pitch angle, yaw angle and straightness on positioning axes

Laser interferometer measurement system

SP 15000 C5 WITH COMPACT STRAIGHTNESS MEASUREMENT

Taking high-precision, dynamic measurements of guide characteristics during the adjustment and alignment of machine axes, as well as the calibration of the axes in accordance with standards, is very time-consuming.

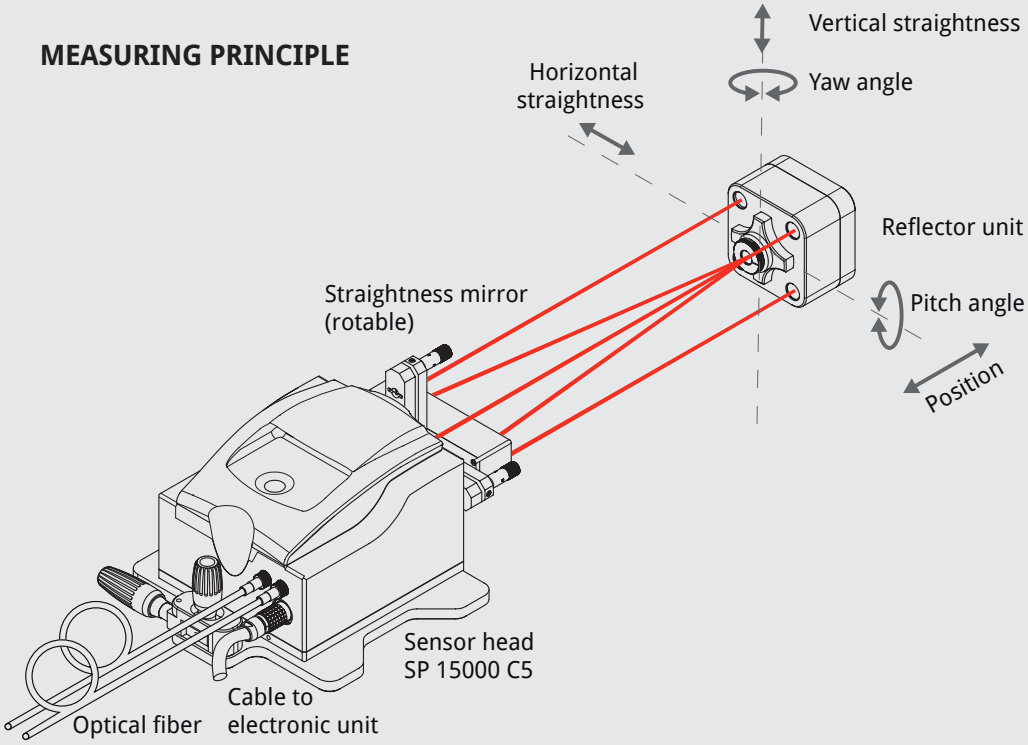
The SP 15000 C5 calibration laser interferometer was specially developed to meet the requirements of manufacturers of coordinate measuring machines and high-precision machine tools. It enables synchronous, continuous and, in conjunction with an optional roll angle sensor, 6-DOF measurements. All of the length, pitch angle, yaw angle and straightness variables are measured with high-precision laser interferometry, whereby the same highly stable laser frequency is used in all three length measurement channels.
With the compact straightness option, the straightness mirror is mounted directly on the sensor head. This means that there are only two components that need to be assembled and aligned with each other. The measurement system can now be installed quickly and reliably, especially in tooling machines, and even where space is restricted. The fibre optic coupling of the sensor head together with the integrated beam direction detection system ensures easy handling and adjustment.

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

Ideal for

- Calibration
- Quality assurance
- Volumetric compensation
- Developement

MEASURING PRINCIPLE



Useful accessories expand the range of possible applications

- Roll angle sensors optionally available
- Beam deflection with an optional adjustable deflection mirror
- Extensive accessories for fixing and adjustment
- InfasMTCAL calibration software for calibration, error analysis and error compensation
- Support for all commonly used CNC controls
- InfasAXIS calibration software for calibration in accordance with VDI/DGQ 3441, DIN ISO 230 or VDI 2617
- InfasALIGN calibration software for aligning and adjusting guides

bis zu 50 m	0.1 µm/m	±5°	0.0004 arcsec	±2 mm über 3 m	10 nm

PRECISION & QUALITY
MADE IN GERMANY

We develop and manufacture laser interferometric measurement technology and precision measuring instruments for calibration and nano metrology.

- Length Measurement Systems
- Length and Angle Measurement Systems
- Calibration Systems
- Vibration Measurement Systems
- Gauging Probe
- Nanopositioning
- Measurement and Calibration systems
- Stabilized HeNe Lasers
- Climate Measuring Station
- Measurement Software

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.

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

April 2023

Accessories

Pillar

Clamp cube

Reflector unit

Magnetic base

Sensorhead with adjustable mount

Straightness reflector with angle adjustment unit

Adjustment table

Roll angle sensor RAS 175 W

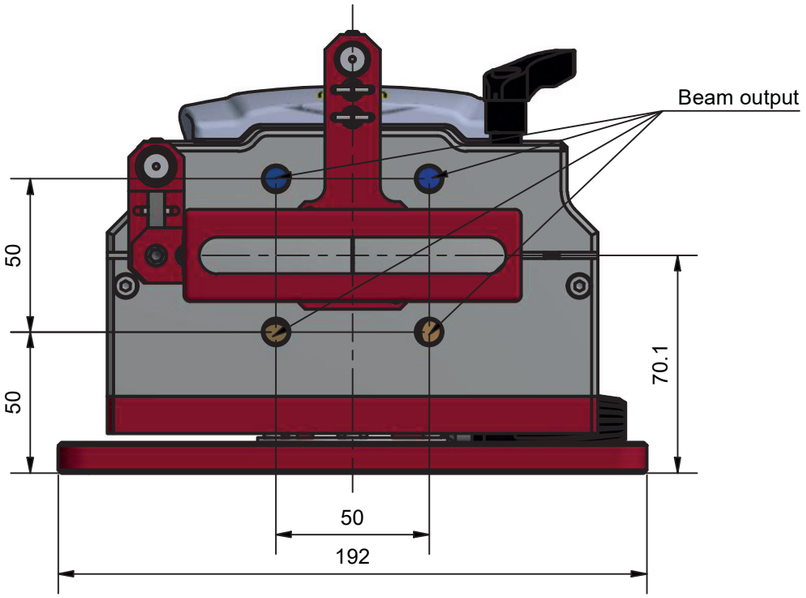
Deflection mirror

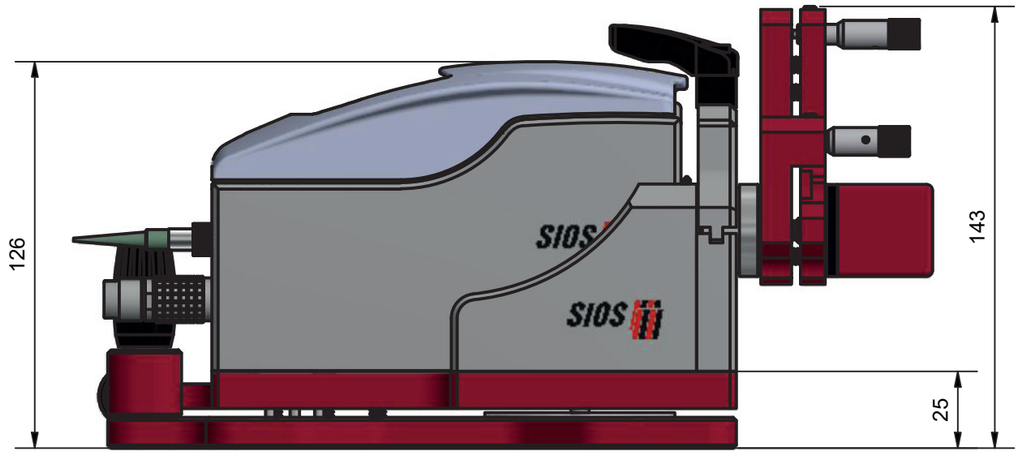
Compact measurement on a high-precision machine tool

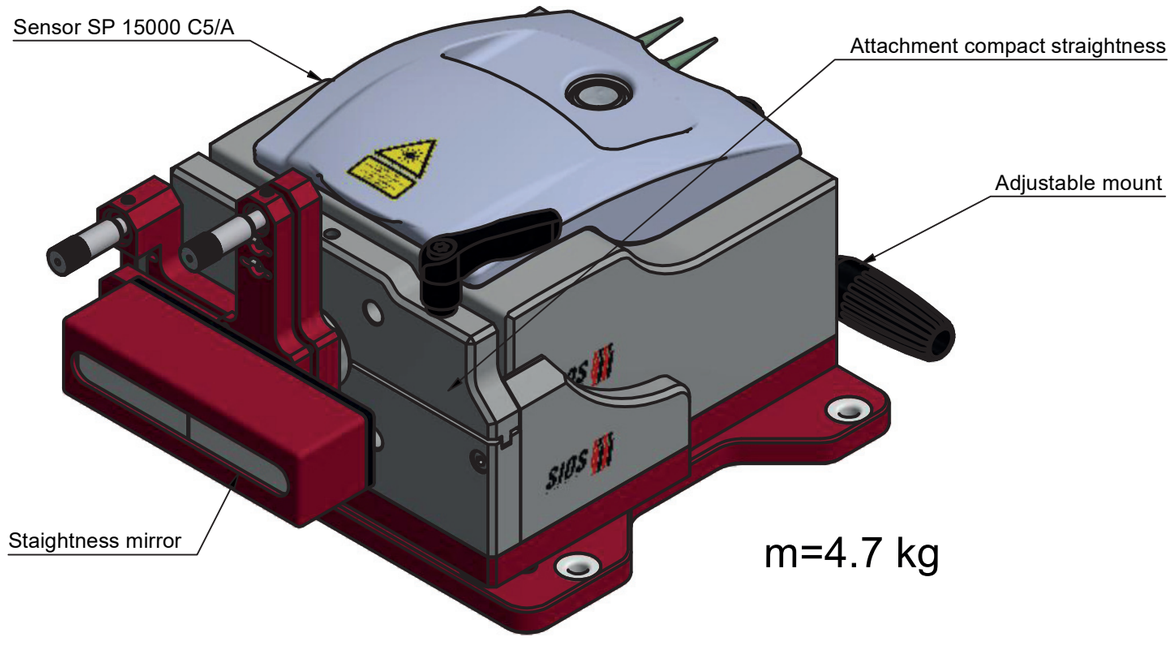
Measurement of the Z-axes

SP 15000 C5/A (A037040)

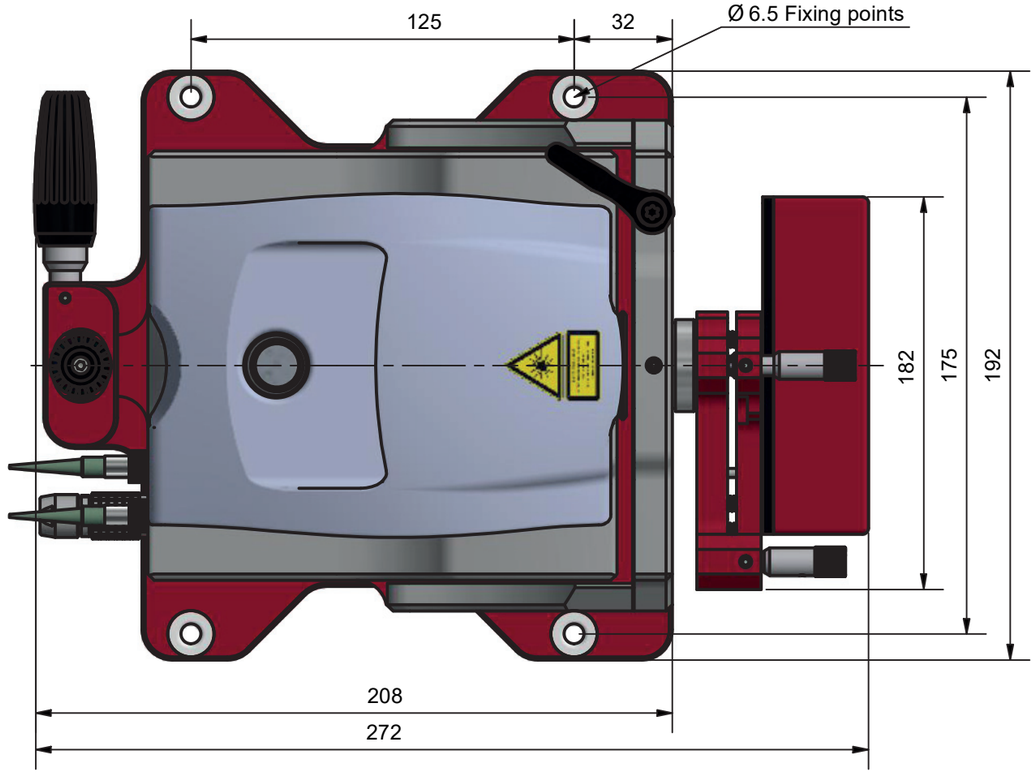
compact straightness measurements







m=4.7 kg



all dimensions in mm

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