
Calibration Laser Interferometer

3-DOF / 5-DOF



SP 15000 C Series

Design and Operation

The measurement and calibration interferometers SP 15000 C with a measuring range of at least 15 m are designed for high-precision length, angle and straightness measurements on positioning axes. A synchronous, continuous 5 DOF-measurement is possible. The horizontal and vertical components of axis straightness are measured by a rotatable optics.

The measuring reflector is based on a combination of hollow reflectors and a rotatable Wollaston prism. Other accessories are the straightness mirror and a 90° beam deflection.

Calibration software according to the currently applicable standards is available. The measuring and calibration processes can be synchronized with a position controller. Different triggering possibilities for acquisition of the measured values are available. The measured values are transferred to a computer via a fast USB interface. Optional interfaces are available.



Major Performance Features

- Simultaneous, three-channel length, pitch and yaw angle measurement as well as straightness measurement with highest accuracy
- Beam deflection with an optionally available, adjustable deflection mirror
- Integrated beam direction detection allows easy handling and adjustment
- High precise angle measurements
- The same laser frequency is used in all three length measurement channels

Zubehör



Applications

- Calibration of high-precision axes in measuring and machine tools, as well as coordinate measuring instruments
- Laser-interferometric measurements on guides
- Ultraprecise simultaneous length and angle measurement
- Difference measurements

Technical Data		Model SP 15000 C3	Model SP 15000 C5	
Length measurement:	Measuring range	m	15	
	Resolution	nm	< 0.1	
Angle measurement:	Measuring ranges of pitch and yaw angles	grad	± 5	
	Resolution	arcsec	< 0.01	
Straightness measurement:	Measuring range	mm	± 4	
	Resolution	nm	10	
	Axial range (freely selectable)	m	-	6.5
Beam distances (horizontal and vertical)		mm	50	
Maximum displacement speed of the measuring reflector		mm/s	500	
Wavelength of the HeNe laser		nm	632.8	
Frequency stability of the HeNe laser (after warm-up time)			$2 \cdot 10^{-8}$	
HeNe laser warm-up time		min	< 20	
Operating temperature range		°C	15...30	
Dimensions (LxWxH)				
Sensor head with adjustable mount		mm	192x192x122	
Reflector unit / Straightness mirror		mm	104x56x104 / -	
Electronic supply and evaluation unit		mm	450x400x150	
Mass				
Sensor head with adjustable mount		kg	3.2	
Reflector unit / Straightness mirror		kg	0.8 / -	
Electronic supply and evaluation unit		kg	9.5	
Cable length between sensor head and electronic module (separable)		m	6, optionally up to 10	
Line voltage / frequency		VAC/Hz	100...240 / 47...60	
Laser safety class according to EN 60825-1/ANSI Z136.1 (CDRH)			2M / II	

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