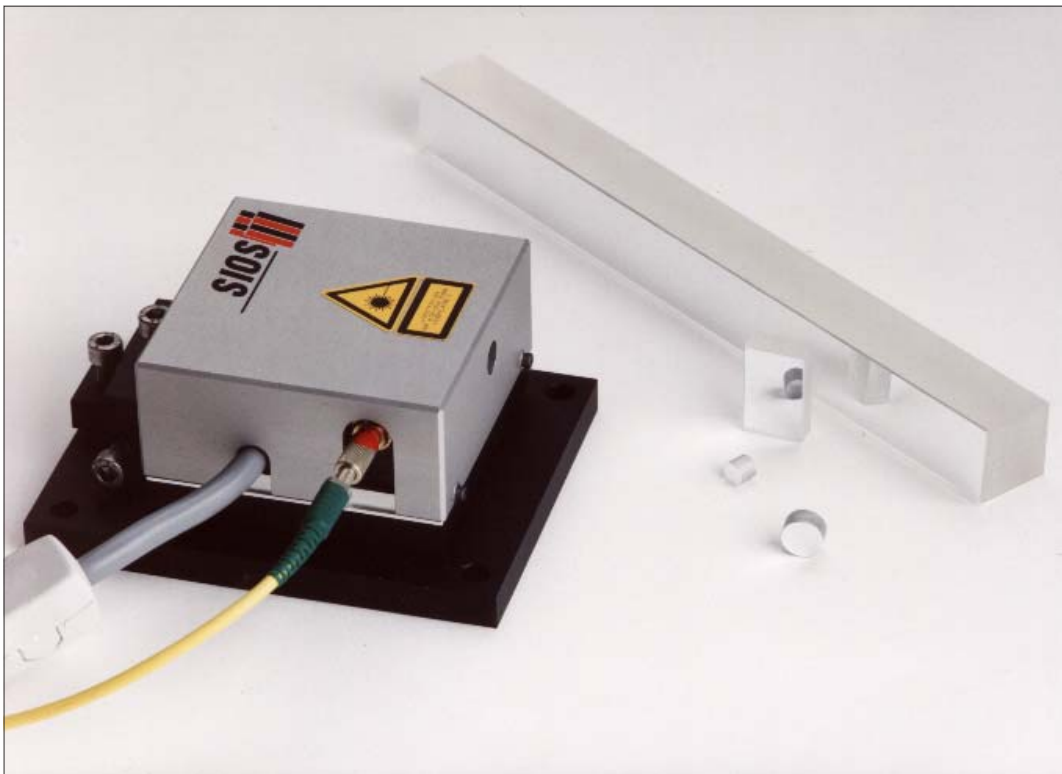


---

---

# Miniature Plane-Mirror Interferometer



**SP-Series**

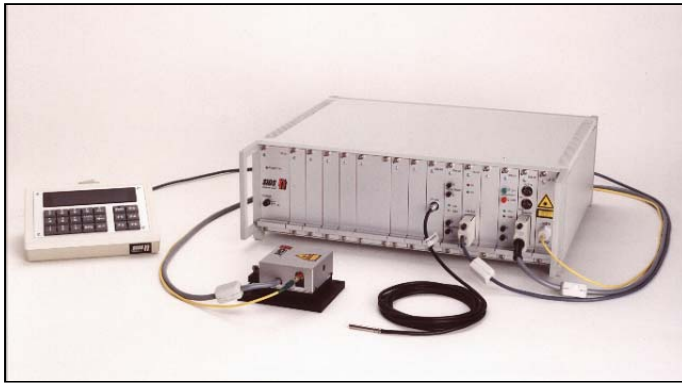
## Design and Operation

Our SP-Series miniature plane-mirror interferometers are precision length measurement instruments designed for incorporation into customer supplied systems, and are readily adapted to suit a wide variety of experimental setups and tasks. The miniaturized sensor head allows their employment as permanently installed metrological systems.

Planar mirrors or other optical-quality reflective surfaces may be employed as reflectors on their translating arms, and may be angularly misaligned by as much as several minutes of arc with respect to the laser beam without adversely affecting the operation of the interferometer. The beam from the laser light source is transmitted to the sensor head by a fiberoptic cable.

The miniature interferometer converts motions of the planar mirror along the beam axis into optical interference signals that are transmitted to an optoelectronic signal processing/power supply unit for processing and output as lengths.

Instrument operation and display of measurement results are controlled either through a separate keypad/display unit or a PC running an optional software package.



## Major Performance Features

- Ultraprecise length measurement instruments
- Single beam design minimizes Abbe aberrations when correctly aligned
- Versatile instruments for incorporation into customer supplied systems, readily adapted to suit a wide variety of tasks
- Fiberoptic coupled sensor head
- A planar mirror or other reflective surface may be employed as the moving reflector
- Objects being measured may wander off the beam axis if the mirror or other reflective surface employed is sufficiently large
- Low heat loss to the environment
- Employs frequency-stabilized HeNe lasers as light sources
- Corrects for variations in laser wavelength caused by ambient conditions

## Applications

- Precision laser interferometric length measurement systems for incorporation into, or calibrating, translation stages, microscope stages, positioning stages, metrological equipment, machine tools, or hardness testing and materials testing equipment
- Single/dual/multi-axis coordinate measurements
- Dual-coordinate measurements in a single plane on, e.g., plane tables
- Calibrating length measurement instrumentation
- Runout and eccentricity measurements
- Noncontact surface profiling

Technical Data		Model SP 120	Model SP 2000
Measurement range	mm	100	2,000
Metric resolution, standard	nm	1	1
optionally	nm	0.1	0.1
Nominal laser wavelength	nm	632.8	632.8
Laser frequency stability (after warm-up)		$3 \cdot 10^{-7}$	$2 \cdot 10^{-8}$
Laser warm-up period	min	1	10 - 20
Operating temperature range	°C	15 - 30	15 - 30
Maximum mirror translation rate	mm/s	600	600
Dimensions (H x W x D):			
Sensor head	mm	36 x 70 x 70	36 x 70 x 70
Optoelectronic signal-processing/power-supply unit	mm	150 x 450 x 400	150 x 450 x 400
Keypad/display unit	mm	48 x 190 x 138	48 x 190 x 138
Mass:			
Sensor head	g	200	200
Optoelectronic signal-processing/power-supply unit	g	9,500	9,500
Keypad/display unit	g	630	630
Interface: serial		RS 232 C	RS 232 C
optionally		USB	USB
Fiberoptic cable length	m	3, optionally up to 10	3, optionally up to 10
Supply-line voltage	VAC	100 - 240	100 - 240
Supply-line frequency	Hz	47 - 60	47 - 60

## SIOS Meßtechnik GmbH

Am Vogelherd 46

D-98693 Ilmenau

Tel: +49-(0)3677-64470

E-mail: [info@sios.de](mailto:info@sios.de)

Fax: +49-(0)3677-64478

URL: <http://www.sios.de>

Your contact for further information: