

Accurately measure thin multiple surface¹ cavities

Confident accuracy with unique live fringes isolated at the measured cavity
and fast electronic fringe positioning via ÄPRE patented SCI Technology

System Overview

Description	Patented, Spectrally Controlled Source
Interferometer Compatibility	ANY Fizeau or Twyman Green interferometer
Data Acquisition	Spectral Synchronous Phase Measurement ² and Vibration Tolerant Phase Shifting
Camera Frame Rate	90 Hz maximum ³
Alignment Mode	>2 m Coherence Length, "HeNe Mode"
Measurement Mode	Selectable Temporal Coherence Lengths
Operating Cavity Ranges	See Page 2
Polarization	Linear
Diode Wavelength	633 nm ± 2 nm
Output Power	1.0 mW Minimum
Output Power Stability	±10%, over three hours
SCI Source Feed	Fiber Optic, 2 or 5 meter options
Weight	18.3 kg (40 lbs)
L X W X H mm (inch)	550 X 310 X 160 (21.7 X 12.2 X 6.3)

Environment

Temperature	15°C to 30° C (59°F to 86°F)
$\Delta T/\Delta t$	<1.0°C/15 minutes
Humidity	5% to 80% non-condensing humidity
Vibration Isolation	Best performance when placed on a vibration isolation table

Typical Applications

Substrates/Windows/Waveplates

- Front/back surface form
- Front/back surface mid-spatial frequencies
- Total Thickness Variation (TTV)
- Thickness
- Wedge
- Transmitted Wavefront
- Homogeneity

Prisms, any size ≥100 µm per side

- Face Flatness
- Transmitted Wavefront
- Hypotenuse Flatness
- Face Parallelism
- Homogeneity

Spheres

- Form (no vertex bullseye)
- Mid-Spatial Frequencies
- Radius, 30 PPM without precision rails

¹ Stacks of glass up to 39 layers and everything in between demonstrated

² Frame-rate data averaging yielding low noise results even with low fringe contrast

³ Frame-rate varies with cavity options



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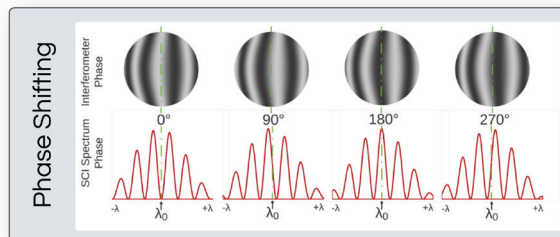
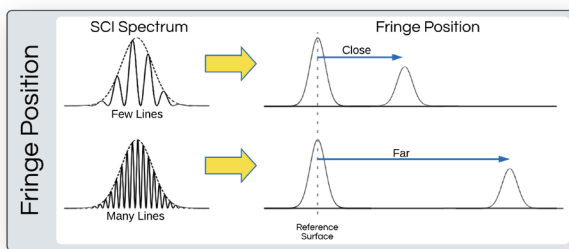
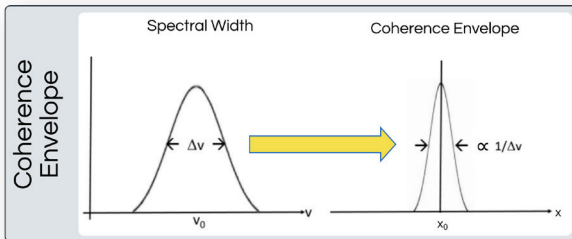
SpectrÄ 2.0

Standard Cavity Ranges¹ of SpectrÄ 2.0

SpectrÄ 2.0 controls the entire interferometer measurement. Coherence envelope, fringe position and phase shifting are all set electronically; optimizing accuracy, decreasing measurement time.

Option	Frame Rate	Coherence Envelope	Min. Cavity OPL	Max. Cavity OPL
A	90 Hz	1000 μm	1000 μm	500 mm
B	40 Hz	300 μm	300 μm	500 mm
C	40 Hz	150 μm	150 μm	500 mm
Align	90 Hz	>2 meters		

SpectrÄ 2.0 controls the spectrum²... so you can optimize your measurements



Application Oriented

SpectrÄ 2.0 optional operating ranges enable specific applications.

- General interferometric measurements with decreased temporal coherence noise, select option "A"
- General interferometric measurements at times require tighter coherence widths, select option "B"
- Thin substrates operating point "C" is required
- Long coherence "Align" option for easy setup
- Non-Standard cavity options are available upon request

These choices enable you to optimize your metrology performance and ease of use, while saving time



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¹ Non-standard cavity lengths < 150 μm or up to 2,000 mm available upon request

² C. Salsbury, A. Olszak, "Spectrally controlled interferometry", Vol. 56, No. 28, October 1, 2017/Applied Optics, 7781-7788