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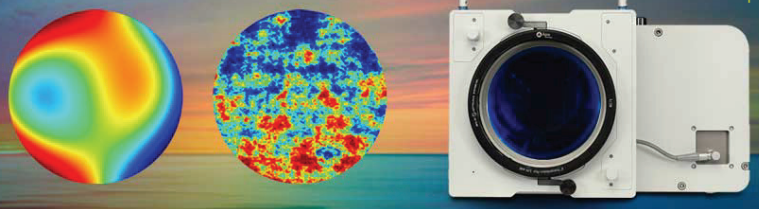
ADVANCED PERFORMANCE
LIGHT SOURCE, with
Temporal Coherence Control

SpectrÄ 2.0



Accurately measure thin multiple surface[1] 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	55 Hz maximum[3]
Alignment Mode	>2 m Coherence Length, "HeNe Mode"
Measurement Cavity Ranges	See Page 2
Polarization	Linear
Nominal Diode Wavelength	633 nm±2 nm
Output Power	0.8 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)

Operational Environment[5]

Temperature	15°C to 30° C (59°F to 86°F)
ΔT/Δt	<1°C per 15 min
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 frequences
- 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, high accuracy[4] without precision rails, up to 10X better than glass scale

[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, 90Hz available in some configurations
[4] Accuracy requires a metrology environment with ±0.1°C temperature control. This is typical for any precision measurement
[5] These parametes outline the conditions under which the system can operate; they do not represent the environmental stability required to meet specified performance. The evironmental stability primarily includes in air-turbulence (mixed), vibration (isolated) and temperature control (±1°C to ±0.1°C) depending on the accuracy required and are the responsibility of the user.

Äpre™

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Specifications subject to change without notice

August 2026

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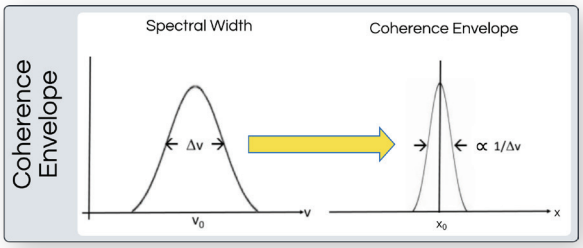
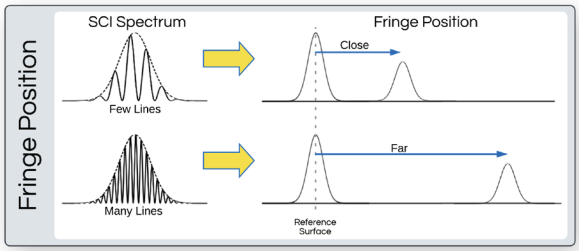
Standard Cavity Ranges[1] of SpectrÄ 2.0

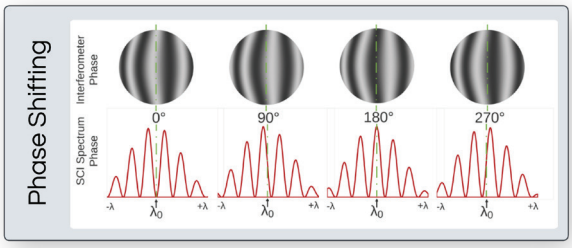
SpectrÄ 2.0 controls the entire interferometer measurement. Coherence envelope, fringe position and phase shifting are all set electronically; optimizing accuracy, decreasing measurement time.

Operating Point	Frame Rate	Coherence Envelope	Min. Cavity OPL	Max. Cavity OPL
A	50 Hz	1000 μm	1000 μm	2000 mm
B	50 Hz	500 μm	500 μm	2000 mm
C	35 Hz	150 μm	150 μm	500 mm
Align	NA	>2 meters		

SpectrÄ 2.0 controls the spectrum[2]... so you can optimize your measurements







Application Oriented

SpectrÄ 2.0 provides multiple operating ranges to optimize specific applications

- General interferometric measurements with decreased temporal coherence noise, select operating point "A"
- General interferometric measurements which require better surface isolation, select operating point "B"
- For thin substrates use operating point "C"
- 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 available upon request

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

October 2025