

SPECTRALLY CONTROLLED INTERFEROMETRY

The SCI source can be added to any Fizeau interferometer.
This specification sheet outlines the host interferometer enhanced performance with the addition of SCI.

System Overview

Description	Standard Fizeau Interferometer with external SCI source Measures surface form, angles and transmitted wavefront
Data Acquisition	Electronic Vibration Tolerant Phase Shifting, down to 50 μm OPL
Polarization of Interferometer	Typically circular

Source Overview

Description	Proprietary, coherence controlled illumination, external to interferometer
Wavelengths available	652 nm and 633 nm (other wavelength possible)
SCI source feed	Fiber Optic 3 meters nominal
Weight	7 kg (15.4 lbs)
L X W X H mm (inch)	275 X 250 X 160 (11 X 10 X 6.3)

Typical Applications of a Laser Fizeau Interferometer with SCI Source

Plates/Windows/ Waveplates

- ▶ Front and back surface form and midspatial frequencies
- ▶ Total Thickness Variation (down to 75 μm OPL)
- ▶ Thickness
- ▶ Wedge
- ▶ Transmitted Wavefront
- ▶ Homogeneity

Prisms, Any size >75 μm OPL per side

- ▶ Face flatness (in some cases multiple faces in one setup)
- ▶ Transmitted wavefront
- ▶ Hypotenuse flatness
- ▶ Face parallelism
- ▶ Homogeneity

Performance: SCI Interferometer

Imaging Specifications (Resolution, Distortion, Field Flatness)	Host interferometer system dependent ¹
Slope Acceptance/Accuracy (Fringe Resolution & Retrace Error)	Host interferometer system dependent ¹
Repeatability/Accuracy	Host interferometer system dependent ¹
Coherence align mode	>5 meters
Surface Isolation (Variable)	250 mm to 50 μm
Working range in front of transmission flat	Up to 250 mm
Minimum Phase Shift Cavity²	150 μm Optical Path Length

Environment

Temperature	15°C to 30°C (59°F to 86°F)
$\Delta T/\Delta t$	<1.0°C/15 minutes
Humidity	5 to 95% relative, noncondensing

Specifications subject to change without notice.

¹ The performance of these interferometer specifications depends on the optical design of any specific system. Please refer to the host interferometers specification sheet, no degradation will occur due to the addition of the SCI source.

² SCI can acquire phase shifted data in a fixed etalon (plane parallel plate) down to 150 μm thin. Wavelength shifted 633 nm lasers are limited to ~9 mm cavities. This is useful for waveplate and thin window and prism metrology.