

DUAL-PURPOSE FIZEAU INTERFEROMETERS: 2-IN-1

LONG [LASER] & SHORT [SCI] COHERENCE

Measure surface form, mid-spatial frequencies and transmitted wavefront

System Overview

	S50 HR [SR]	S100 HR [SR]	S150 HR [SR]	S300 HR
Output Diameter	51 mm (2 inch)	102 mm (4 inch)	153 mm (6 inch)	306 mm (12 inch)
Optical Centerline from table	108 mm (4.25 inch)	108 mm (4.25 inch)	133 mm (5.24 mm)	TBD
Focus Range	±2 meters	±2 meters	±4.5 meters	± 2 meters
Size (L x W x H)	63 x 29 x 18 cm (24.8 x 11.4 x 7 inch)	70 x 32 x 25 cm (27.6 x 12.6 x 9.8 inch)	90.2 x 40.8 x 23.9 cm (35.5 x 16.1 x 9.4 inch)	76 X 40 X 50 cm (30 X 16 X 20 in)
Weight	25 kg (55 lbs)	33 kg (73 lbs)	50 kg (110 lbs)	TBD
Measurement Techniques	Traditional Phase-shifting, Vibration Tolerant Phase-shifting AND Vibration Insensitive Carrier Fringe (Wavelength Shifting option available) – SCI Ready			
Alignment System	2-spot with reticle with 2° capture range			
Laser Source	Frequency Stabilized, SLM 633 nm HeNe (multiple λ , wavelength shifting and SCI options available)			
Laser Frequency Stability	<0.0001 nm			
Coherence Length	>100 m			
Output Polarization	Circular			
Camera Resolution	2044 X 2044 pixels [1024 X 1024 pixels]			
Shutter Speed – shortest	9 μ s			
Digitization	12 bits			
Computer & Software	High-Performance PC, running any Windows® 64-bit OS, and REVEAL software			
Mounting Configurations	Horizontal or Vertical			
Accessories	Industry standard bayonet			

Performance

Image Resolution (Detector Limited)	50 μ m [100 μ m]	100 μ m [200 μ m]	150 μ m [300 μ m]	300 μ m
Image Distortion	<0.1% over entire focusing range			
Image Field Flatness	<30 μ m (worst case) @ 2 meters part distance			
Fringe Resolution	Carrier Fringe: 500 [250] fringes/aperture PSI & VTPSI : 650 [325] fringes/aperture			
Retrace Error @ 500 [250] Fringes¹	< $\lambda/20$			
RMS Simple Repeatability²	<0.5 nm RMS 2 σ – with NO averaging			
RMS Wavefront Repeatability³	<0.5 nm RMS 2 σ – with NO averaging			
Measurable Part Reflectivity	0.5% to 40% (direct) and 41% to 100% (with attenuation filter or coatings)			

Environment

Temperature	15 °C to 30 °C (59 °F to 86 °F)
$\Delta T/\Delta t$	<1.0 °C/15 min
Humidity	5 to 95% relative, non-condensing
Vibration Isolation	Isolation System recommended for PSI & VTPSI

¹ Retrace Error is defined as the residual error between a no tilt fringe (null) measurement (the reference), subtracted from a measurement with maximum fringes of tilt, with only the first 36 Zernike polynomials reported

² RMS Simple Repeatability is defined as 2X the standard deviation of the RMS for 36 sequential measurements (0 averages) of a short plano cavity

³ RMS Wavefront Repeatability is defined as the mean RMS difference between a synthetic reference (defined as the average of all 36 sequential measurements) and each measurement plus 2X the standard deviation