Äpre Instruments™

The S9|SR LUPI

Easy system wavefront measurement

apre-inst.com

Twyman-Green LUPI Interferometer for System Wavefront Testing

Available with Temporal Phase Shifting Acquisition or
Vibration Insensitive Phase Measurement for Harsh Environments

System Overview

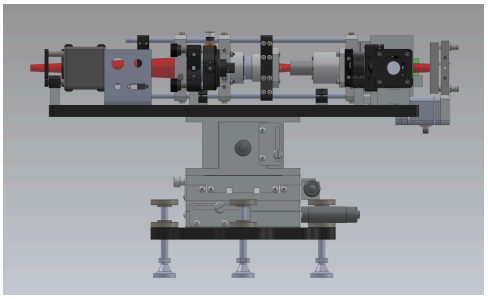
Output Beam Diameter	9 mm available
Optical Centerline	108 mm
Focus Range	Fixed
Interferometer Size (L x W x H)	41.5 x 54.5 x 10.0 cm
Weight	5.7 kg
Measurement Techniques	Mechanical Phase Shifting or Vibration Insensitive Carrier Fringe
Alignment System	Threaded, external on-axis visible laser
Light Source	633 & 1550 nm external to interferometer
Coherence Length	20 meter
Output Polarization	Linear or Circular
Camera Resolution	1022 x 1022
Shutter Speed (shortest)	9 μs
Digitization	8 bit
Computer & Software	High-Performance PC, Windows 10 64-bit OS & REVEAL Software
Mounting Configurations	Horizontal or Vertical or Adjustable
Accessories	5-Axis mount & Diverger Lenses

Performance

Image Resolution	25 μm
Image Distortion	<1%, 0.5% typical
Fringe Resolution	~200 fr/aperture
Retrace Error[3] @ 200 fringes	< λ/10
RMS Simple Repeatability[1]	<0.6 nm RMS 1σ – with NO averaging
RMS Wavefront Repeatability[2]	<0.6 nm RMS 1σ – with NO averaging
Measurable Part Reflectivity	0.5% to 100% Specify

Environment

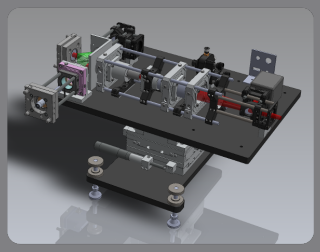
Temperature	15°C to 30C
$\Delta T/\Delta t$	<1.0°C/15 min
Humidity	5 to 95% relative, non-condensing
Vibration Isolation	Isolation System recommended for PSI



Multiple Configurations

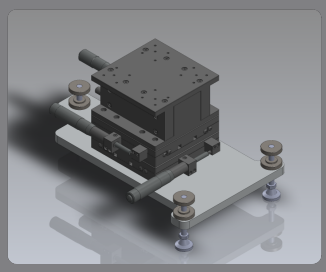
Open Frame

Sometimes you just want every knob to turn. The open frame configuration lets you do just that. Move the camera, adjust the source, change the reference arm... its up to you.



Adjustable 5-Axis Mount:

ÄPRE's fully adjustable 5-Axis mount to make aligning your optics easy



[1] RMS Simple Repeatability is defined as 2X the s tandard deviation of the RMS for 36 sequential measurements (0 averages) of a short plano cavity
[2] RMS Wavefront Repeatability is defined as the mean RMS difference between a synthetic reference (defined as the a verage of a ll 36 sequential measurements) and each measurement plus 2X the standard deviation
[3] Retrace Error is defined as the PV residual error between a nulled measurement (the reference), subtracted from a measurement with 500 fringes of tilt, and expres sed by the first 36 Zernike polynomials

Specifications subject to change without notice

REVEAL™

Data Acqusition & Analysis Software

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Traceable Measurement to Report <5 seconds

Traceable Metrology

Saved profiles/process trees and report library assure analysis stability user to user, day to day. Data saved with all raw data, masks and filters...you know today and tomorrow how you got your results.

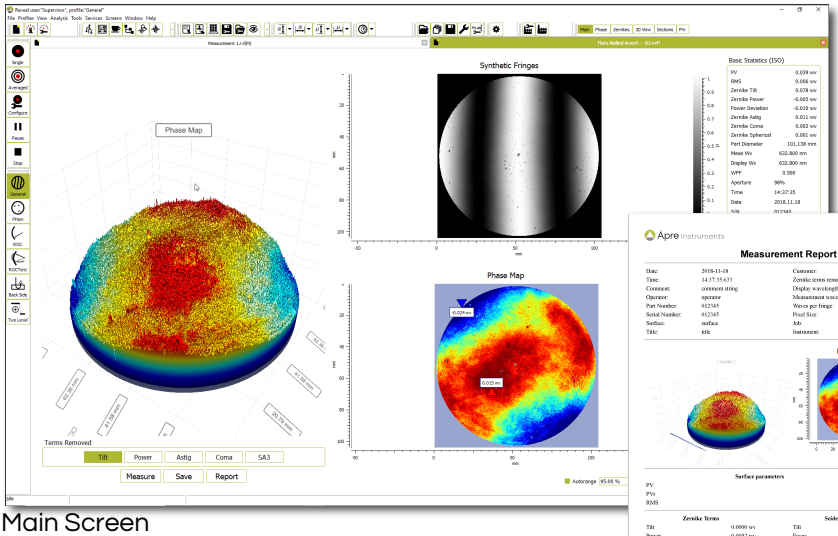
Easy to Learn, Backward Compatible & 64 bit Stable

Internet browser like design is familiar and uncluttered and easy to learn and with .dat file formats you can save new data compatible with you database or analyze old data on REVEAL. With 64 bit Windows 10 operation large data sets are easily handled and your IT department will appreciate the W10 security.

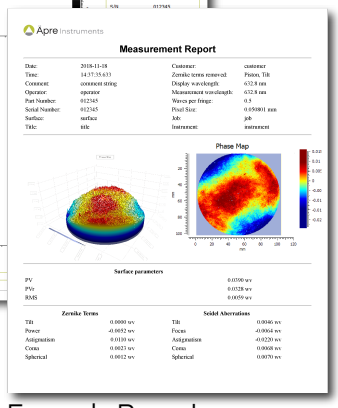
A Complete Metrology Package - selected parameters

APPLICATIONS	FILTERS	ANALYSIS	RESULTS
√ BASIC • Form • Radius of Curvature	√ Masking	√ Acquisition Modes • Vibration Tolerant PSI • Wavelength Shifting • Vibration Insensitive	√ ISO & Seidel
√ Fourier[1] • MTF • PSF • PSD	√ Auto Aperture	√ Zernike	√ PV, RMS
√ Optical Shop Testing[1] • Wedge • Polished Homogeneity • Corner Cube	√ Reference Subtract	√ 3D View	√ PVr
	√ Box	√ PVr	√ Tilt
	√ Erosion (inside/out)	√ Islands	√ Power (Zernike)
	√ Median	√ ISO10110-14	√ Power (Deviation)
	√ Individual Zernike	√ Ogive	√ Astigmatism
	√ Spike		√ Coma
	√ Affine Transforms		√ SA3
			√ 1D Profiles
			√ Lengths

[1]Optional Analysis Package



Main Screen



Example Report

What Users are Saying

"I found the analysis tree to be the most valuable feature of the REVEAL software. It gives the user visibility into the many layers of data processing that occur when making a measurement."

H. Balonek, Optikos

"REVEAL software is intuitive, easy to navigate and very capable in a myriad of applications, but the thing I appreciate most about it is the extensive, exceptionally organized, visually pleasing and effortlessly generated reports."

S. Iles, Edmund Optics

"[REVEAL] has a very user friendly interface and offers multiple ways to view the data. This makes analysis and qualification quick and easy.

A. Godina, Supply Chain Optics"

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