

# optiquiver

PRECISION OPTICAL INSTRUMENTATION

## CAPABILITIES

- Intuitive and customizable UI software (Windows and MacOS compatible)
- Inspect reflective surfaces with integrated light source or inspect external beams (both coherent lasers or broad spectral sources)
- 2D & 3D wavefront maps, Zernike decomposition, residual error, angular tilt, and beam profile
- Integrated reference mirror into kinematic lens cap with self-testing Audit mode for periodic health monitoring
- Large clear aperture can measure beams and reflective surfaces without additional condensing optics
- Interactive plotting tools with live point tracking and user selectable color scales
- User control of internal light source state, instrument exposure, gain, region of interest, input wavelength
- Logging feature for inspections over extended time domains and offline playback mode of recorded data
- Ambient temperature compensation
- Compact size and provided carry-on-compliant travel case allow for remote inspections and easy transportation
- APIs for OEM integration (gRPC via Python, C++, Matlab)

Quartus' OptiQuiver instrument\* combines high dynamic range wavefront sensing with the precision angular measurement and internal reference source of an electronic autocollimator.



\*PATENT PENDING

## APPLICATIONS

- Adaptive Optics (Wavefront + Steering)
- Mirror Figure / Flatness Measurement
- Bearing Runout / Wobble Measurement
- Automated Optical Alignment
- Optical Wavefront Measurement
- Intensity Uniformity Measurement
- Semiconductor Wafer Warpage Measurement
- Semiconductor Chuck Flatness / Level
- Beam Quality Measurement
- Lens Quality Measurement
- Transient Optical Measurement
- Prescription Corrective Lens Testing

## UNMATCHED VERSATILITY PROVIDES AN ALL-IN-ONE SOLUTION

	OptiQuiver	Phase Shifting Interferometer	Shack-Hartmann Sensor	Diffraction Grating Sensor	Electronic Autocollimator
Wavefront Accuracy	High	Very high	High	Very high	NA
Wavefront Dynamic Range	Very High	Low	Medium	Medium	NA
Tilt Accuracy	Very High	Very High	Very High	Very High	Very High
Tilt Dynamic Range	Very High	Low	Low	Low	Low
Reference Beam Internal	Yes	Yes	No	No	Yes
Aperture Size	Large	Large	Small	Small	Medium
Wavelengths	Camera sensitivity	633nm only	Camera sensitivity	Any, Coherent	Camera sensitivity
Size	Medium	Large	Small	Small-Medium	Medium
Cost	\$\$	\$\$\$	\$\$	\$\$\$	\$\$
Measurement Frequency	2-10 Hz	Slow	10-20 Hz	60 Hz	4-100 Hz
Simultaneous Measurements	Yes	No	No	No	No

### STANDARD SPECIFICATIONS & CONFIGURATIONS \*

	OptiQuiver Model #			Units
	QQQ-025-0550-075	QQQ-048-0550-075	QQQ-100-0550-075	
<b>Optical Specs</b>				
Aperture Diameter	25	48	100	mm
Integrated Light Source	LED, RG1 (Low Risk Group) per IEC-62471:2006			
Internal Beam Wavelength	550			nm
Mask Pitch	350	500	500	µm
Mask Aperture Diameter	200	250	250	µm
Mask EFL	75	75	75	mm
Active Mask Apertures	6568	7668	7668	
Minimum Beam Diameter	3	3	5	mm
<b>Sensor Specs</b>				
Detector Range	400-750	400-750	400-750	nm
Resolution	4024 x 3036	5472 x 3648	5472 x 3648	pix
Pixel Pitch	1.85	2.4	2.4	µm
Bit Depth	8 Bit	8 Bit	8 Bit	
<b>Measurement Specs</b>				
Max Tilt	> 4	> 6	> 8	deg
Tilt Accuracy	< 0.5	< 1	< 1	arcsec
Tilt Resolution	< 0.25	< 0.5	< 0.5	arcsec
Wavefront Accuracy (RMS)	25	30	50	nm
Wavefront Sensitivity (RMS)	10	15	25	nm
Wavefront Dynamic Range	> 1	> 1.5	> 2	mm
<b>General Specs</b>				
USB Interface	USB 3.0 Type A			
Frame Rate	4 - 20	2 - 10	2 - 10	Hz
Power Supply	24 V, 1.5 A max			
Overvoltage Category	OVII			
Pollution Degree	PD1			
Operating Temperature	10 to 30°			C
Operating Humidity	10 to 85 %, None Condensing			RH
Storage Temperature	-10 to 50°			C



\*Custom configurations and multi-channel integrated systems are available. Inquire for additional details