HASO LIFT 680

HIGH RESOLUTION
342 720 PHASE POINTS

HIGH ACCURACY
WAVEFRONT SENSOR

COMPACT
ROBUST AND VERSATILE

EASY TO USE
AND INTEGRATE

WELCOME TO LIFT ERA
All the advantages of Shack Hartmann technology combined with the power of phase retrieval

A UNIQUE SET OF ADVANTAGES

- Ultra high spatial resolution
- Wavefront sensor on the latest CMOS camera for the 400 - 800 nm range
- 680 x 504 sampling points over a 13.77 mm x 10.22 mm sensing area
- $\lambda/100$ rms absolute accuracy or ≥ 6 nm RMS [1]
- 30 Hz acquisition frequency*
- External trigger capability

- SpotTracker eliminates alignment requirements.
- Patented technology for simultaneous and independent measurements of phase and intensity
- USB 3.0 connectivity
- WaveKit (SDK) available in C/C++, LabVIEW and Python
- Compatible with R-Flex2 and R-Flex LA for optics alignment and characterization

* 30Hz in sequence mode, 10Hz for wavefront display

Providing outstanding performance, the HASO wavefront sensor family is used worldwide in the most demanding applications in optical metrology, industrial control, microscopy and laser diagnostics. Developed from the design of HASO4 126 VIS, the HASO LIFT 680 is as powerful as its counterpart in terms of accuracy and dynamic range, while offering an unequaled resolution of 680 x 504 phase points. This allows the HASO LIFT 680 to provide high-level of performance for applications requiring high accuracy, high dynamic range and high spatial resolution.

- λ/100 rms absolute accuracy on a huge dynamic range (see the graph below)

- 342 720 phase point resolution on 13.77 x 10.22 mm^2

- Measurement up to 64 Zernike polynomials with individual accuracy better than 1 nm RMS

- Spot Tracker provides easy HASO alignment and the capability to precisely follow absolute tilt/wavefront evolution over time

HASO4 LIFT 680 typical dynamic range at 600 nm
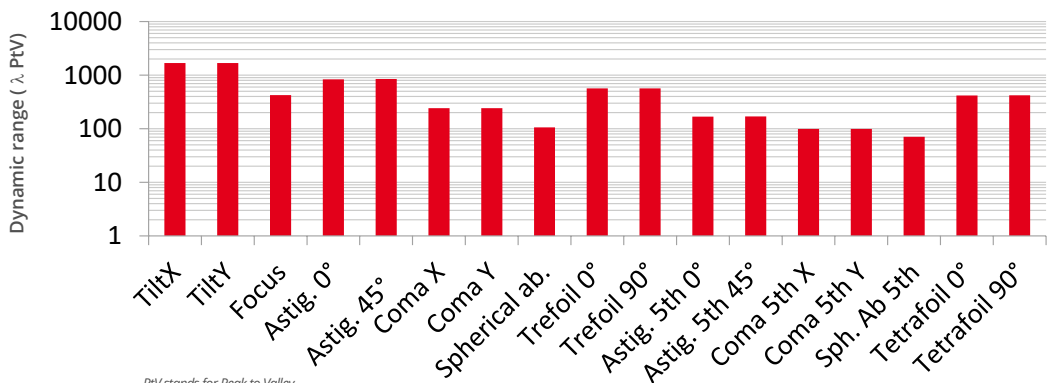
PtV stands for Peak to Valley.

EXAMPLES OF APPLICATIONS

- Perfect for freeform optics, aspheric mirrors and meta-optics

- High and middle frequencies mirror surface characterization

- Optical manufacturing metrology

SOFTWARE

- **WaveView4** is the most advanced wavefront measurement and analysis software. It offers more than 150 features and tools optimized for a wide range of highly demanding applications. WaveView4 development philosophy is based on tens of years of customer feedback, improving the user experience with each version. WaveView4 provides a function to analyze segmented wavefronts and allows autosave for sequence measurements. Modules dedicated to PSF and MTF and M^2 are available.

- **WaveKit** is the SDK in C/C++, LabVIEW and Python, providing the basic blocks on which one can build a fully customized software for specific HASO-based applications or WaveView4 data processing routines. WaveKit is available on request.

SPECIFICATIONS

Aperture dimension	13.77 x 10.22 mm^2
Phase sampling	680 x 504
Tilt dynamic range	± 3 °
Focus dynamic range	± 0.010 m to ± ∞
Absolute accuracy	λ/100 or 6 nm rms
Sensitivity	<λ/200 rms
Spatial resolution	~ 20 µm
Maximum acquisition frequency	30 Hz
External trigger	TTL signal
Working wavelength range	400 - 800 nm
Dimensions / weight	47 x 60 x 62 mm^3 / 200g
Working temperature	15 - 30 ℃
Interface / Power consumption	USB 3.0 / 3.6W
Operating system	Windows 10
Minimum power	0.7 nW*

* At 30 Hz, the maximum exposure duration is 33ms.