HASO4 BROADBAND

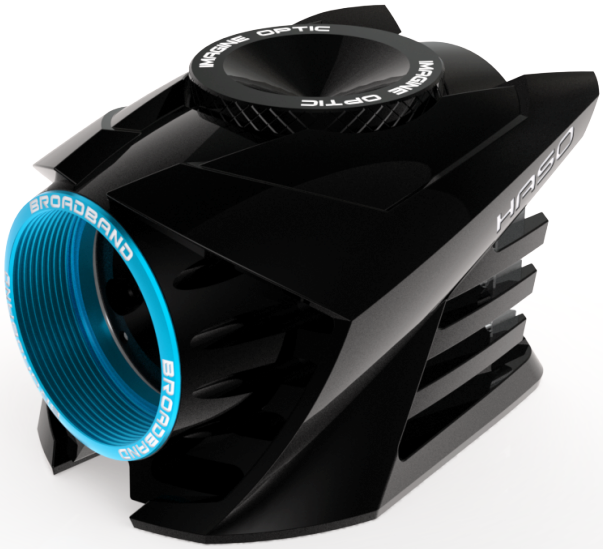
NEW DESIGN
More robust
Easy integration

HIGH ACCURACY
WAVEFRONT SENSOR

CALIBRATION
FOR λ = 350-1100 nm

COMPACT
ROBUST AND VERSATILE

EASY TO USE
AND INTEGRATE



Spot Tracker

Wavefront sensing has never been so easy, no alignment required

A UNIQUE SET OF ADVANTAGES

- Wavefront sensor in-house calibration for 350 -1100 nm
- λ/100 rms absolute accuracy over 800λ dynamic range
- Patented technology for simultaneous and independent measurements of phase and intensity
- 20 Hz acquisition frequency
- External trigger capability
- Optimized for polychromatic and monochromatic beams over the wide spectral range (350-1100 nm)
- C-mount compatible entrance aperture
- USB 3.0 and Ethernet connectivities available
- Bundled with WaveView, the industry's most advanced metrology software
- Compatible with WaveKit (SDK) in C/C++, LabVIEW and Python

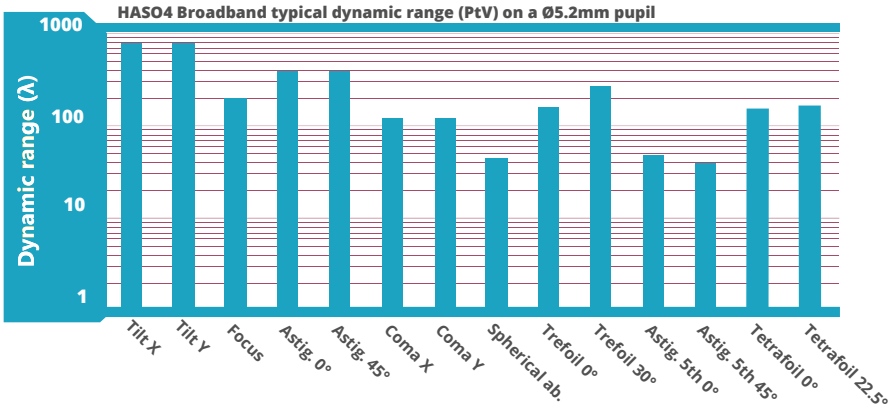
Contact us for more information: contact@imagine-optic.com or +33 1 64 86 15 60

imagine optic

HASO4 BROADBAND — THE ADVANCED METROLOGY WAVEFRONT SENSOR

Providing outstanding performance, the HASO Wavefront Sensor family is used in the most demanding applications in optical metrology, microscopy and laser diagnostics worldwide. We offer a unique combination of expertise in high quality microlens production, software development and accurate factory calibrations. This allows the HASO4 Broadband to provide a level of performance beyond comparison for application over the full spectral range of silicon (350-1100 nm).

- λ/100 rms absolute accuracy on a huge dynamic range (see the graph below)
- Patented wavefront correction algorithms for intensity beam variations (laser, Gaussian, hyper Gaussian, apodized beams...)
- Measurement up to 64 Zernike polynomials with individual accuracy better than 6nm rms
- SpotTracker provides easy HASO installation, and the capability to precisely follow absolute tilt/wavefront evolution over time.



OUTSTANDING PERFORMANCE EXAMPLES WITH HASO4 BROADBAND

- Beam collimation with an accuracy better than 300m radius of curvature
- A 20mm focal length measurement with a sensitivity of 1µm rms
- Direct wavefront acquisition of converging and diverging F/5 beams with an accuracy of about λ/100 rms including astigmatism and high order aberrations
- Control and adjustment of axial laser beam deviation better than 3µrad rms
- 3D localization of a focal spot up to 0.1 µm rms and 1µm rms for lateral and axial resolution respectively (0.1 NA beam)

Aperture dimension	7.0 x 5.2 mm²
Number of microlenses	68 x 50
Tilt dynamics range	> ± 3 °
Focus dynamics range	± 0.010 m to ± ∞
Repeatability	< λ/200 rms
Wavefront measurement accuracy in absolute mode λ between 350-600 nm λ between 600-1100 nm	≤ 6 nm rms ~ λ/100 rms *
Spatial sampling	~ 105 µm
Maximum acquisition frequency	20 Hz
External trigger	TTL signal
Calibrated wavelength range	350 - 1100 nm
Dimension/weight for USB version	42 x 47x 60 mm³ / 185g
Working temperature	15 - 30 °C
Interface / Power consumption	Ethernet / 2.9 W USB 3.0 / 2.9 W
Operating system	Windows 7 and 10
Minimum power	0.15 nW**

** The absolute accuracy may slightly decrease for the wavelengths longer than 800nm. Above 950nm, the accuracy is ensured for light sources with coherence length smaller than 3 mm.*

*** At 635nm and 20Hz acquisition frequency on the 5.2mm maximum pupil diameter*

SOFTWARE

- WaveView 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. WaveView development philosophy is based on tens of years of customer's feedback, improving the user experience at each version. Modules dedicated to PSF, MTF and Strehl ratio are available.
- WaveKit is a SDK in C/C++, LabVIEW and Python, providing the basis blocks on which one can build a fully customized software for specific HASO based applications or WaveView data processing routines. WaveKit is available on request.

www.imagine-optic.com