

# HASO<sup>3</sup>™

Fast



Imagine Optic™

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Our HASO3 Fast Shack-Hartmann wavefront sensors provide fast accurate and reliable measurements by uniting the standard HASO family's standard functionalities that customers have come to rely on, including absolute measurement, unequalled accuracy and insensitivity to vibration, with an acquisition speed of 905 Hz and a spatial resolution of 14 x 14 microlenses.



When coupled with our HASOv3 software package, you can perform both zonal and modal wavefront reconstruction; calculate the PSF\*, MTF\* and Strehl ratio\*; visualize the spot diagram; and obtain the M<sup>2</sup>\* parameter. Adaptive optics users can take advantage of our CASAO™ software package to control adaptive optics loops to compensate for atmospheric turbulence, optimize the focal spots of laser beams and Freespace communications.

Aperture dimension	1.7 x 1.7 mm <sup>2</sup>
Number of microlenses	14 x 14
Refractive microlens technology	standard square
Tilt dynamic range	> ± 3 °
Focus dynamic range - minimum local radius of curvature	± 0.025 m
Focus dynamic range - maximum NA	0.1
Repeatability (rms)	< λ/200
Wavefront measurement accuracy in absolute mode rms <sup>1</sup>	~ λ/100
Wavefront measurement accuracy in relative mode rms <sup>2</sup>	~ λ/150
Tilt measurement sensitivity (rms)	6 μrad
Focus measurement sensitivity (rms)	5x10 <sup>-3</sup> m <sup>-1</sup>
Spatial resolution	~ 110 μm
Maximum acquisition frequency	905 Hz
Processing frequency	800 Hz
Working wavelength	350-1100 nm
Calibrated wavelength band	On request
Extended calibrated wavelength band	On request
Dimensions / weight	115 x 51 x 60 mm / 400 g
Working temperature	15 – 30°
Power supply	12 V / 6 W
Interface	CamLink

1) Difference between the real wavefront and a reference wavefront obtained in similar conditions (10 λ of shift maximum). 2) Wavefront as seen by the wavefront sensor. Performance kept on the whole spectral range.

For more information, and to find the Imagine Optic office or distributor nearest you, visit [imagine-optic.com/find](http://imagine-optic.com/find).



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