LASER COMPONENTS®

HASO FIRST

Wavefront sensor
The Chameleon

On demand wavelength
High accuracy
Best cost performance ratio

compatible

imagine optic

HASO FIRST DATASHEET 2411

/ United Kingdom LASER COMPONENTS (UK) Ltd. Tel +44 1245 491 499 info@lasercomponents.co.uk www.lasercomponents.co.uk

beyond borders

HASO FIRST +

The HASO Shack-Hartmann Wavefront Sensor optimized for one wavelength, the one you really need.

The HASO FIRST is now faster and has an improved spatial resolution while keeping the same accuracy and optimized price point.

Compatible with the Optical Engineer Companion modular system: easily combine the accessories you need.

APPLICATIONS

Successfully used in the most demanding applications in optical metrology, microscopy, and laser diagnostics, the HASO FIRST performs multiple functions :

+ Quantify the aberrations of an optical system
+ Align optical systems to ensure that it works optimally
+ Predict the performance of optical systems in terms of focusing capability or imaging quality
+ Quantify the effects of temperature and gravity on system performance
+ Verify that the optics comply with specifications
+ Drive a wavefront corrector to correct for system aberrations
+ Check whether the optical mount overly distorts the optics

FEATURES

+ Beam collimation with an accuracy better than 200 m radius of curvature
+ A 20 mm focal length measurement with a sensitivity of 1 µm RMS
+ Direct wavefront acquisition of converging and diverging F/5 beams with an accuracy of λ/100 RMS including astigmatism and high-order aberrations
+ Control and adjustment of axial laser beam deviation better than 5 µrad RMS
+ ± 50 nm calibration bandwidth or extended wavelength range optional: ± 150nm around the calibration wavelength

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SPECIFICATIONS*

OPERATING SPECS

Aperture dimension	4.5 x 3.7 mm²
Number of microlenses	44 x 36
Maximum acquisition frequency	125 Hz (USB 3.0) or 30 Hz (with GigE converter)
One wavelength ± 50 nm in the range	350 - 1100 nm
Minimum power	0.15 nW
External trigger TTL signal	TTL signal
Operating system	Windows 10 & 11

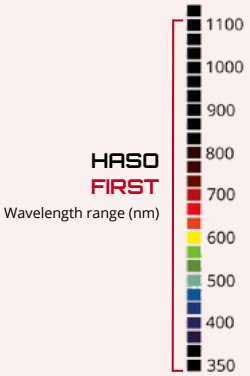
OPTICAL SPECS

Repeatability	< λ/200 RMS
Absolute wavefront measurement accuracy	~ λ/100 RMS
Spatial sampling	~ 100 µm
Local radius of curvature dynamic range	± 0.008 m to ± ∞

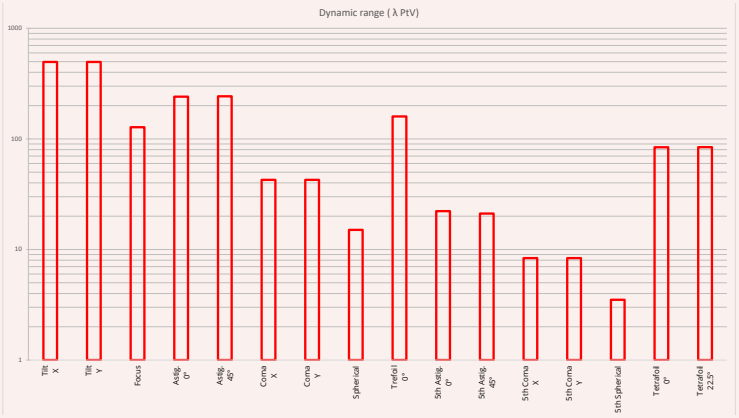
MISC

Dimensions (Height x Width x Length)	42 x 47 x 60 mm³ (USB 3.0)
Weight for USB version	200 g
Working temperature	15 - 30 °C
Interface	USB 3.0 or optional GigE converter
Power consumption	3.1 W

HASO FIRST
Wavelength range (nm)

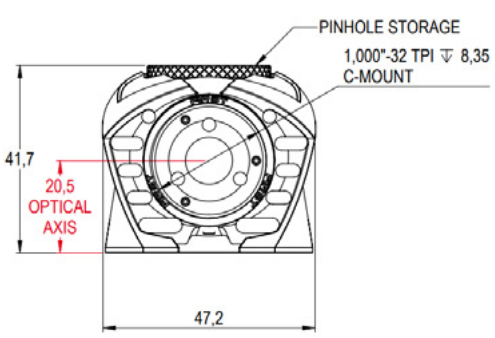


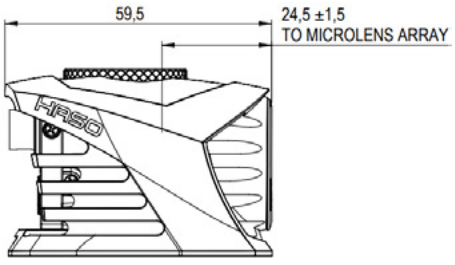
HASO FIRST
Dynamic range at λ = 635 nm



*Subject to changes without further notice

DIMENSIONS** (mm)





** USB 3.0 model

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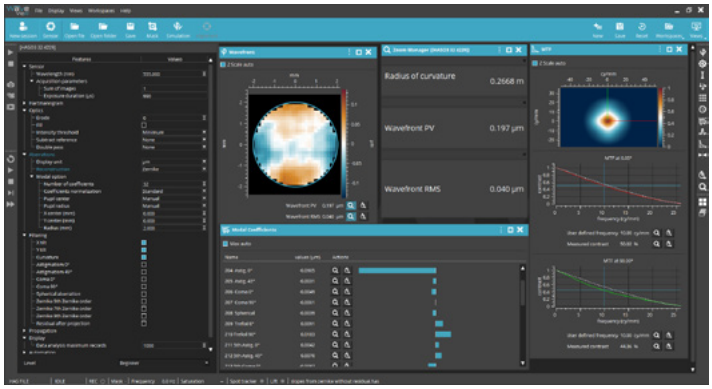
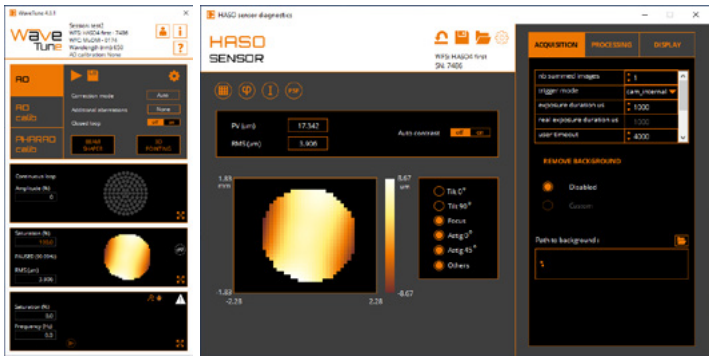
SOFTWARE

WAVEVIEW™
Metrology 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.
Options :
+ Extensions for PSF, MTF, M^2 and Strehl ratio
+ Optional SDK in C/C++, LabVIEW and Python



WAVETUNE™
Adaptive Optics Software
WAVETUNE™ is a unique software that seamlessly combines wavefront measurement and correction features with extensive instrument diagnostics.
It is perfectly adapted to our HASO wavefront sensors, ILAO STAR, MIRAO and mu-DM deformable mirrors, as well as to a wide range of active components.
Options :
+ Optional SDK in C/C++, LabVIEW and Python



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