

# HASO

## MULTISPECTRAL

Wavefront sensor  
**The Polychromatic**

Spatio-temporal characterization  
Easy & fast to use  
Broad spectral range



# HASO MULTISPECTRAL +

**The HASO MULTISPECTRAL is an excellent choice for most laboratories and large installations. It is Imagine Optic's proposal for direct spectrally-resolved wavefront measurement, ideal for compressor alignment.**

This innovation is based on the proven Shack-Hartmann wavefront sensing technology.

## APPLICATIONS

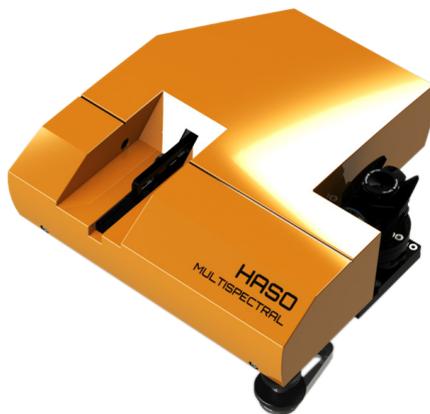
HASO MULTISPECTRAL is the first-ever wavefront sensor on the market capable of resolving frequency on a broad spectral range from 550 - 1000 nm. Coupled with our standard HASO4 BROADBAND, it allows a complete characterization of TW and PW class lasers in order to optimize the peak intensity on the target.

This new device is perfectly suited for:

- + Compressor alignment
- + Characterization of compressed or stretched beams
- + Alignment of complex broadband systems
- + Understanding spatio-temporal coupling
- + Precise measurement of spatial chirp, chromatic curvature

## FEATURES

- + Fast measurement and direct post-processing
- + Compatible with compressed or stretched pulses
- + Nanometric spectral resolution
- + Handles very short laser pulses down to ~ 5 fs
- + Compatible with lowest repetition rates, ex. 0.1 Hz
- + Removable HASO4 BROADBAND for standalone use
- + Optional exchangeable collimating optics (contact us for available N.A. adapted to your laser beam)



# SPECIFICATIONS\*

## HASO MULTISPECTRAL OPERATING SPECS

Input beam	collimated (default) or any F/# (option)
Aperture dimension	5.0 x 5.0 mm <sup>2</sup>
Calibrated wavelength range	550 - 1000 nm
Spectral resolution	1 nm

## MISC

Dimensions (Height x Width x Length)	80 x 262 x 280 x mm <sup>3</sup>
Weight for USB version	4 kg
Working temperature	15 - 30 °C
Interface	Ethernet or USB 3.0

## EMBEDDED HASO4 BROADBAND OPERATING SPECS

Aperture dimension	6.9 x 5.1 mm <sup>2</sup>
Number of microlenses	68 x 50
Maximum acquisition frequency	125 Hz
Calibrated wavelength range	350 - 1100 nm
Minimum power	0.15 nW
External trigger	TTL signal
Operating system	Windows 10

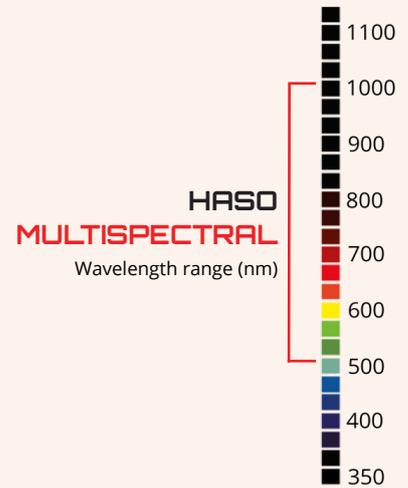
## OPTICAL SPECS

Repeatability	< $\lambda/200$ RMS
Absolute wavefront measurement accuracy	
• $\lambda$ between 350-600 nm	$\leq 6$ nm RMS
• $\lambda$ between 600-1100 nm	$\sim \lambda/100$ RMS
Spatial sampling	$\sim 105 \mu\text{m}$
Tilt dynamic range	$> \pm 3^\circ$
Focus dynamics range	$\pm 0.010$ m to $\pm \infty$

## MISC

Dimensions (Height x Width x Length)	42 x 47 x 60 mm <sup>3</sup>
Weight	200 g
Working temperature	15 - 30 °C
Interface	USB 3.0
Power consumption	3.1 W

\*Subject to changes without further notice



# MODULARITY

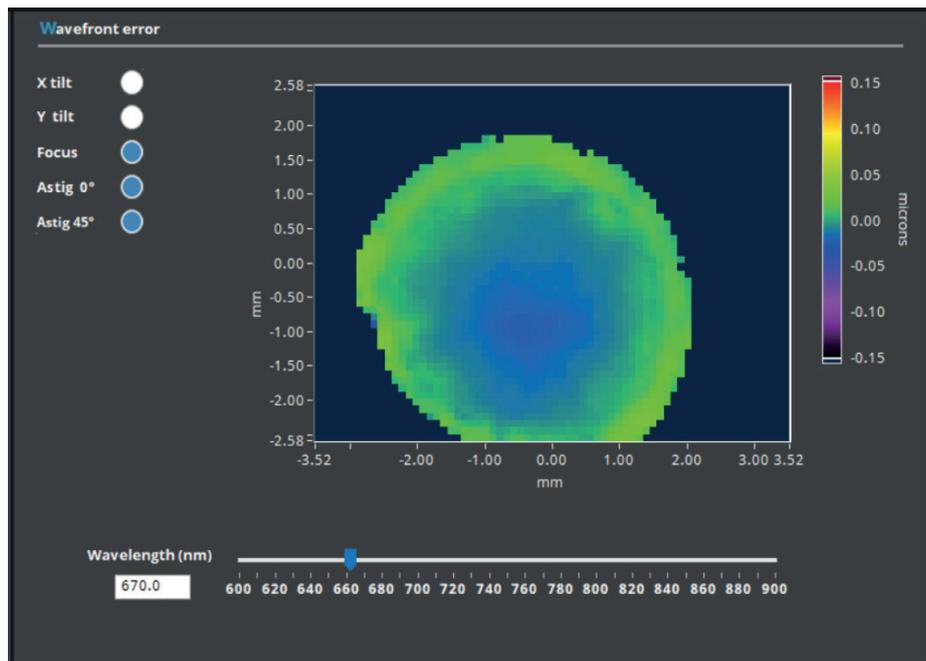
- + HASO MULTISPECTRAL is designed to be easy to set up and align. Only an attenuated 5 mm collimated beam is required as input. Any NA can be handled by adding an optional module
- + With its self-aligning magnetic mount, HASO4 WFS can be easily used as a stand-alone sensor for diagnostic purposes, or to monitor an adaptive optic loop. Once repositioned on the MULTISPECTRAL platform, it is instantly realigned with SpotTracker™



# SOFTWARE

## MULTISPECTRALVIEW™ Metrology Software

- + MULTISPECTRALVIEW™ is our dedicated software for spatio-temporal coupling analysis
- + It enables the alignment of the device and a complete and direct characterization of the beam



## CONTACT US

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