

Shack-Hartmann Wavefront Sensor

The WFS150 series of Shack-Hartmann wavefront sensors provide accurate, high-speed measurements of the wavefront shape and intensity distribution of beams. This is done by analyzing the location and intensity of spots (spotfield) formed by imaging a beam of light onto a CCD array with a microlens array as shown in the figure below. With Thorlabs' Shack-Hartmann wavefront sensor it is possible to optimize dynamically the wavefronts of laser sources, characterize the wavefront distortion caused by optical components, and provide real-time feedback for the control of adaptive optics.

The Shack-Hartmann Wavefront Sensor consists of a high resolution (1.3 Megapixels) USB 2.0 CCD camera with a microlens array mounted in front of it and a software package for evaluation of the generated spot field. The full featured control and analysis software has a user friendly graphical interface with menu driven tools for camera settings, calibration, analysis, and display options. The SM1 threading on the face of the CCD camera allows for the convenient mounting of ND filters to help prevent the saturation of CCD pixel and lens tubes to reduce scattered light and to allow for the mounting of additional optical components.

WFS150 Series Features

- Real-Time Irradiance and Phase Measurements
- CW or Pulsed Light Sources

CCD Camera Specifications

- Model:** DCU224M (See Page 655)
- Resolution:** 1280x1024
- Shutter Speed:** 83-1460ms
- Max Frames per Second:** 15
- Dimensions:** 34x32x48.3mm
- Interface:** USB 2.0

Software Features

Calculated Parameters

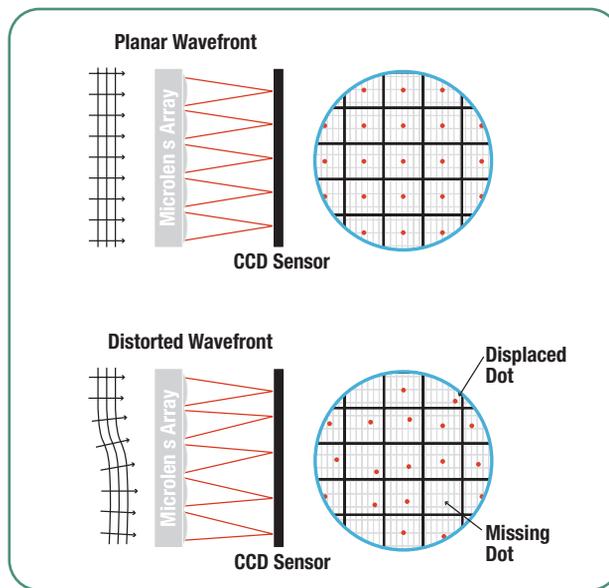
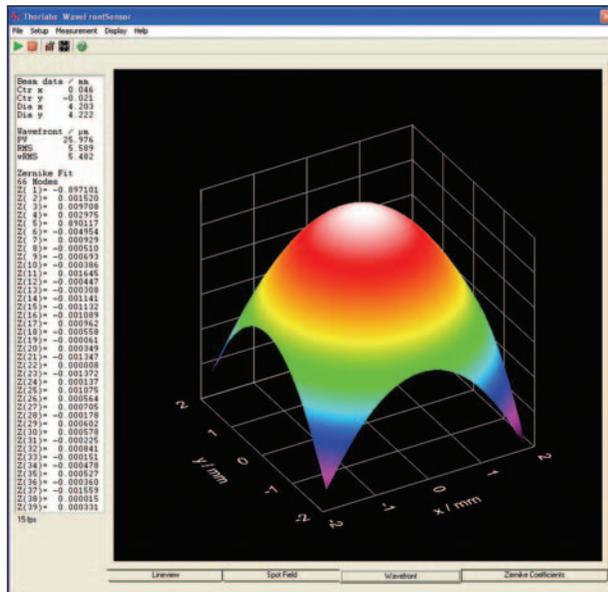
- Irradiance and Phase Distribution
- Modal and/or Zonal Reconstructed Wavefront
- RMS of Reconstructed Wavefront
- Zernike and Fourier Representations of Tilt, Focus, Astigmatism, Coma, Spherical, and Higher Order Aberrations

Display/Output Options

- Raw Spotfield Image
- Irradiance Distribution
- Reconstructed 3D Wavefront
- Tabulated Output



Available in Autumn of 2007



Microlens Array Features (See Page 786 for More Information)

ITEM#	Microlens Array	EFL	Feature
WPS150	MLA150-7AR	6.7mm	AR Coated (400-900nm)
WPS150C	MLA150-5C	5.2mm	Chrome Mask

The Shack-Hartmann wavefront sensor with the chrome masked microlens array offers the best performance because it limits the transmission of light that does not pass through a microlens. This leads to the sharpest spotfield pattern. However, a Shack-Hartmann wavefront sensor is offered with an AR coated microlens array for applications that are sensitive to back reflections.

ITEM #	\$	£	€	RMB	DESCRIPTION
WFS150	\$3,600.00	£2,268.00	€ 3,348.00	¥ 34,380.00	Shack-Hartmann Wavefront Sensor With AR Coated (400-900nm) Microlens Array
WFS150C	\$3,600.00	£2,268.00	€ 3,348.00	¥ 34,380.00	Shack-Hartmann Wavefront Sensor With a Chrome Mask Microlens Array

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