• The ShaH-04130 - industrial Shack-Hartman wavefront sensor is intended for a wide range of applications including fast and precise quality control of optical elements, airflow analysis, measurement of laser beam parameters, etc.

• A special high-precision algorithm for locating hartmann image spots centers provides very accurate measurements even in difficult viewing conditions.

• The SDK (C++) allows to operate all functions of the sensor and to achieve easy integration with user software.
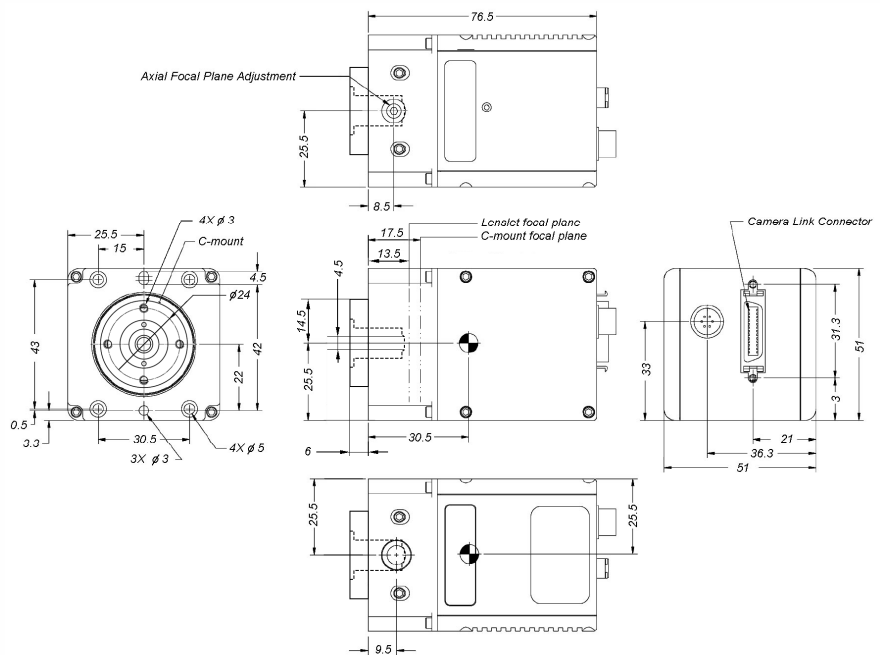
**VISIONICA**

**WaveFront Sensor ShaH-04130**

## TECHNICAL SPECIFICATIONS

| | |
|---|---|
| Aperture diameter | 4.5 mm |
| Spatial resolution | 300 µm |
| Number of points for analysis | 200 |
| Maximum tilt normal/extended mode | ±35/100 mrad |
| Minimum curvature | ±60 mm |
| Repeatability RMS | 1 nm |
| Absolute accuracy RMS | λ/100 * |
| Relative accuracy RMS (at maximum angular source size <5 mrad) | λ/6500 |
| Relative measurement accuracy P-V (within 90% of input aperture) | λ/160 |
| Tilt measurement sensitivity | 0.9 µrad |
| Curvature measurement sensitivity | 1.2 km |
| Acquisition frequency | 130 Hz |
| Processing time per frame | 1 µs |
| Hartmann image acquisition | 10 bit |
| Working wavelength | 300 (170 **)-1000 nm |
| Calibrated waveband | 200 nm |
| Maximal exposure (at wavelength 650 nm) | 0.03 nJ/cm$^2$ |
| Working temperature | from 0 to +50 ˚C |
| Weight | 250 g |
| Dimensions | 50x50x80 mm |

*\* Better accuracy available upon request*
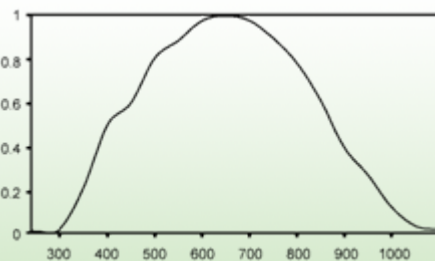
**VISIONICA**

| CameraLink Cable | MDR Male-to-Male |
|---|---|
| Operating system | Windows 2000/XP/Vista/7/8 (32/64-bit) |
| Output data | • Sequence of raw hartmann images<br>• Spot shift map<br>• Wavefront aberration map (3D plot, 2D projection, synthesized interferogram, up to 55 Zernike polynomials)<br>• Defocus/Curvature/Astigmatism<br>• PSF (point spread function)<br>• MTF (modulation transfer function)<br>• Strehl ratio<br>• M2 factor<br>• Gauss-Hermite modes<br>• Turbulence parameters $C_n^2$, $R_0$ *and other* |

## DIMENSIONS



Axial Focal Plane Adjustment

76.5 — 25.5 — 8.5

25.5 — 15 — 4X ⌀3 — C-mount — 4.5 — ⌀24 — 43 — 42 — 22 — 0.5 — 3.3 — 30.5 — 3X ⌀3 — 4X ⌀5

Lenslet focal plane — C-mount focal plane — 17.5 — 13.5 — 4.5 — 14.5 — 25.5 — 6 — 30.5

Camera Link Connector — 31.3 — 51 — 33 — 3 — 21 — 36.3 — 51

25.5 — 25.5 — 9.5

## SPECTRAL RESPONSIVITY



*Wavelength, nm*

Part Number:
VC.SHAH-4.5-0.3-4-130