

# 3D LINE CONFOCAL SENSORS

for Advanced 3D Scanning and Inspection of Transparent and Shiny Materials



**Designed for Demanding Mass Production Applications**

**Built On Patented Off-Axis Line Confocal Imaging Technology**

**Provides simultaneous 3D, 2D and Tomographic Imaging**

**Achieves Sub-Micron Resolution**

**Easily Integrates into Custom Inspection Systems**

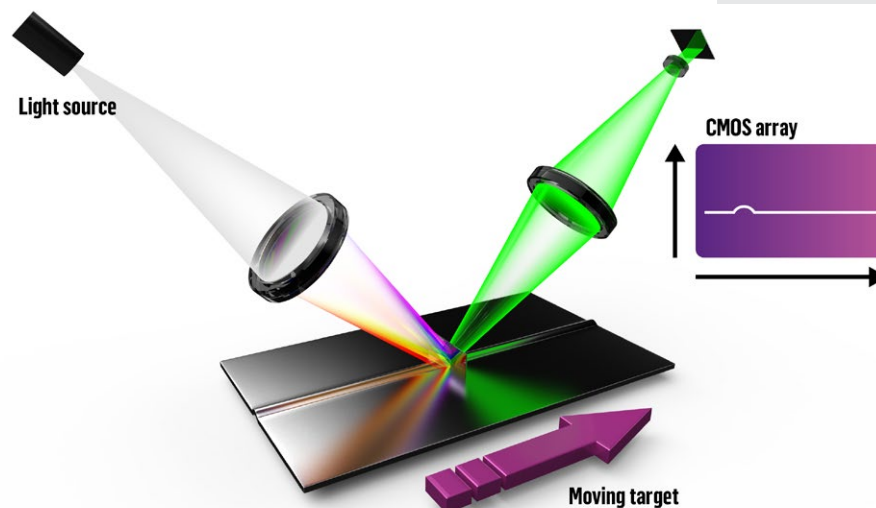
FocalSpec Line Confocal Sensors leverage a patented off-axis line confocal optical design to ensure continuous, non-contact measurement of the most challenging materials and shapes, including curved display glass, multi-layered transparent materials (e.g., glass, medical plastics), and a wide variety of highly reflective electronic parts (e.g., polished metals).

## LINE CONFOCAL IMAGING PRINCIPLE

LCI technology is based on an optical method called lateral chromatic aberration where white light emitting from a sensor's transmitter is split into a continuous spectrum of wavelengths. Each wavelength is focused on the measured surface at a certain distance from the sensor to form a perpendicular focal plane. This technology is available in co-axial design for single and multi-point geometries, and off-axis design for line geometry.

### WORKS WELL ON:

- Glass
- Polymers/Plastics
- Metals
- Composites
- Ceramics
- Biomaterials

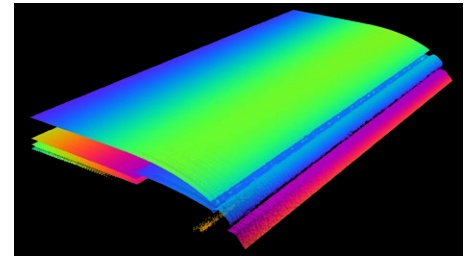


## ADVANTAGES OF LINE CONFOCAL SENSORS

Line confocal sensors generate simultaneous 3D, 2D and tomographic imaging with large focal depth. These sensors excel in the measurement of highly reflective, mirror-like, transparent, curved, sloping, high-contrast, soft, fragile, and porous materials. The sensors can even be used to measure the thickness of transparent layers and air gaps.

- Available in high-speed and standard models
- High tolerance for vibration
- Generates high-quality raw image (does not need additional filtering or manipulation)
- Visible wavelengths are safe to the operator and environment
- Easy communication with PC using standard Ethernet port (no additional interfaces required)

- Dimensions
- Topography
- Surface Roughness
- Flatness
- Thickness
- Step Height
- Gap and Offset
- Burr and Flash
- Volume
- Area
- Tomography
- Defects



SENSOR MODEL	LCI401	LCI1201	LCI1600	LCI1220	LCI1620
Measurement points per profile	2048	2048	2048	1728	1728
Field of view (mm)	4.0	11.5	16.6	11.6	17.0
Measurement range (mm)	1.1	3.0	5.5	3.0	5.5
Resolution X (µm)	2.1	5.6	8.1	6.7	9.9
Z-repeatability (µm)	0.05	0.13	0.24	0.19	0.25
Max surface slope on mirror (deg)	± 15.0	± 20.0	± 13.5	± 20.0	± 13.5
Stand-off distance (mm)	8.0	20.6	64.0	20.6	64.0
Scan rate at full measurement range (Hz)	300	500	500	3000	3000
Max. scan rate (Hz)	800	4000	3000	16000	11000
IP classification	IP55	IP55	IP30	IP55	IP30
Dimensions (H x W x D) (mm)	300 x 202 x 62	419 x 354 x 91	432 x 358 x 113	419 x 354 x 91	432 x 358 x 113
Weight (kg)	4.0	14.0	20.0	19.0	21.0

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