

TRANSPARENT MATERIAL INSPECTION

with FocalSpec® sensors

TOMOGRAPHIC IMAGING

FocalSpec 3D Line Confocal Sensors contain embedded fast signal processing units, which detect all the surface layer 3D profiles in the tomographic images. The height information of each measured data point can then be processed in calibrated micrometers. Finally, the intensity of every detected surface point is calculated with high resolution (>12 bits).

DEFECT DETECTION

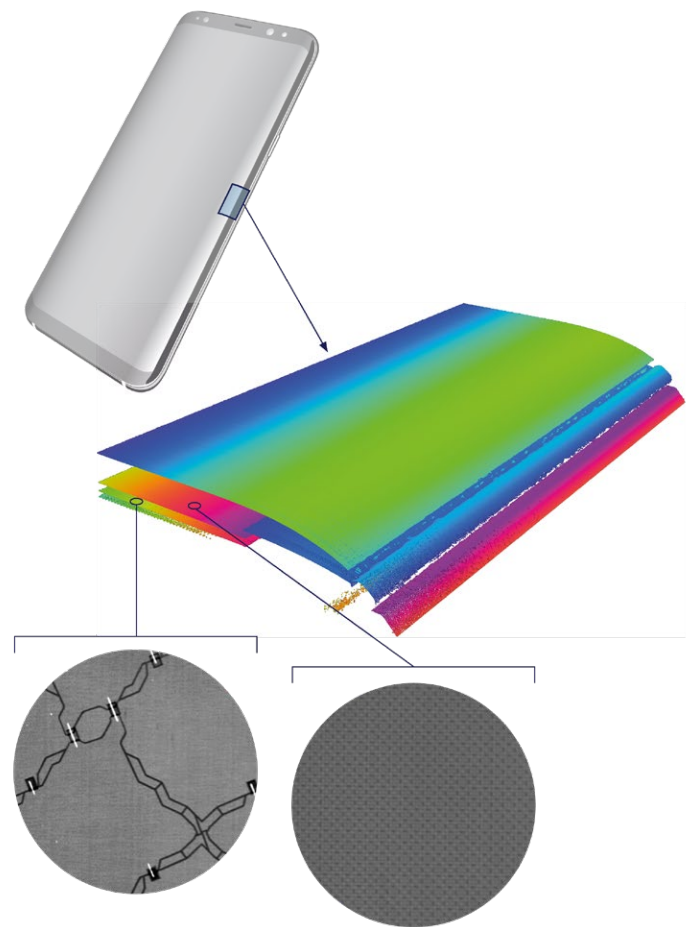
FocalSpec sensors can be used for quality control of hybrid electronics and coated, transparent substrates to detect defects such as:

- delaminations
- scratches
- impurities
- air gaps
- bubbles



Smartphone camera structure visualized by using FocalSpec Line Confocal Sensor LCI1201. In addition to dimensional measurements, particles and delaminated camera optics can be identified.

Line Confocal Sensors are ideal for transparent material inspection and quality control. One of the key applications is capturing surfaces of mobile device displays and detecting layers inside and under the screen glass.



Smartphone display layers illustrated as a 3D point cloud and 2D grayscale intensity images. Separate display layers can be clearly visualized due to the sensor's large depth of field.

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MEASURING PRINTED, FLEXIBLE, AND HYBRID ELECTRONICS

FocalSpec Line Confocal Imaging (LCI) technology is optimal for measuring printed electronics, because it combines 3D topography, tomography, and 2D intensity imaging in one sensor.

PROCESS OPTIMIZATION

FocalSpec 3D Line Confocal sensors provide feedback on the printed electronics manufacturing process significantly faster and more accurately than conventional methods. The imaging speed and accuracy vary depending on the sensor best suited to the specific application.

FocalSpec sensors can be used for quality control and in roll-to-roll manufacturing of printed electronics.

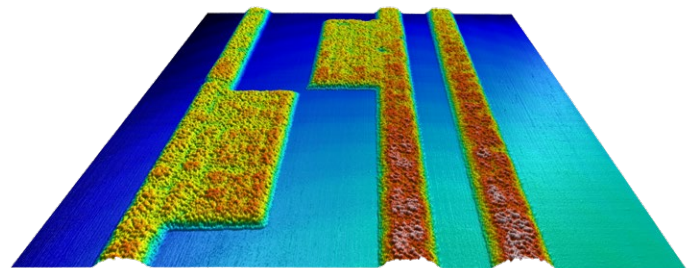
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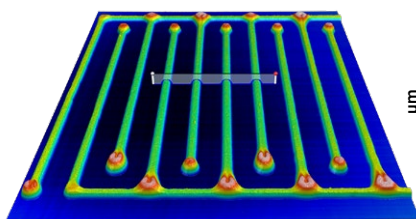
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SUBSTRATE INSPECTION

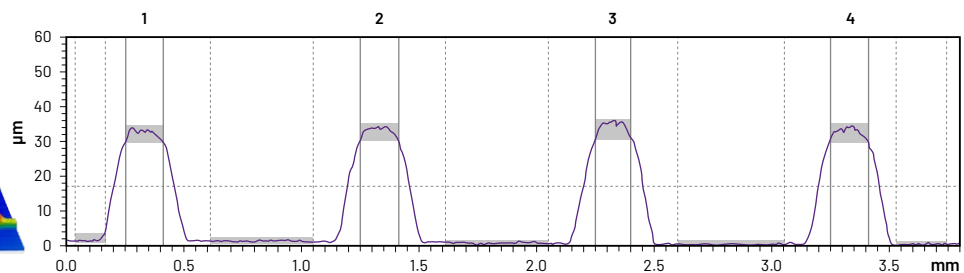
FocalSpec sensors can be used in various stages of printed electronics manufacturing, starting from the substrate material development. In this process, the surface roughness measurement plays a key role. FocalSpec sensors detect all substrate materials whether shiny, glossy, or transparent (such as glass or PET foil).



3D image of printed patterns on transparent PET illustrated with LCI1600



3D image of a dispensed moisture sensor measured with LCI1200 sensor



Parameters	Step 1	Step 2	Step 3	Step 4	Unit
Maximum height	33.4	33.8	35.2	33.7	μm
Minimum height	31.6	32.4	33.7	32	μm