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#MAKEITBLUE

3D scanning for shiny metal and black materials

LMI Technologies introduces MEPCA to its high-speed 3D blue laser profile sensor for scanning and inspection in battery, consumer electronics, and rubber and tire applications

The Gocator 2530 is the latest 3D smart sensor from scanning and inspection specialist LMI Technologies. The 2530 offers quality control and factory automation engineers a high-speed 3D blue laser profiling solution with built-in scan, measurement, and inspection at 10kHz and a wide field of view up to 100mm.

The sensor's custom 2MP high-speed imager, advanced optical design, and blue laser light allow the 2530 to generate high-quality 3D data with highly repeatable results on shiny metal and black materials common in battery, consumer electronics, rubber & tire, and general factory automation applications.

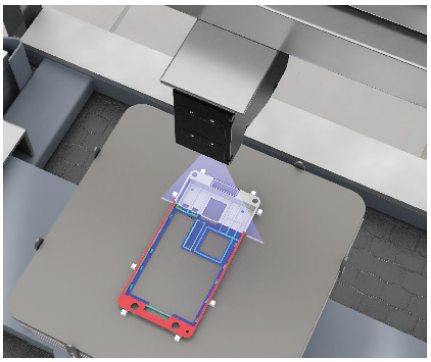
The Gocator 2530 delivers excellent results in surface inspection of battery electrodes, cells, and packs, dimensional gauging of battery cells, cell phone midplate inspection, tire sidewall and inner wall inspection, tire uniformity inspection and tire layer control inspection.

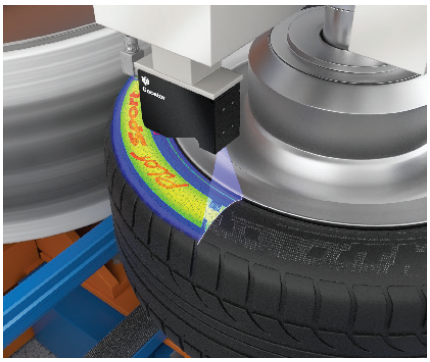
High-speed 3D scanning and inspection

With the Gocator 2530, users can take advantage of higher speeds by enabling multiple exposures to measure shiny and low contrast surfaces simultaneously (e.g. metal battery cells, cell phone midplates, rubber).

The sensor's fast scan rate is also a key advantage in achieving high Y resolution (spacing in the direction of travel). Submillimeter X and Z resolutions deliver detailed inspection of small assembly features such as edges or gaps, and accurate 3D height measurement of surface geometry and defects on the target surface (such as scratches and pits).

The Gocator 2530 can scan, measure, and control at up to 10kHz, has a 28 µm X resolution with 0.5 microns Z repeatability,





has a measurement range of 80mm and a wide field of view (48-100mm) for maximum scan coverage with fewer sensors.

The 2530's wider field of view allows engineers to scan complete targets with a single sensor (e.g. cell phone midplate). A wide field of view and a wide measurement range allows the sensor to handle a greater variety of scan targets, and to scan more of the target with fewer sensors – resulting in a more cost-efficient inspection system.

The Gocator 2530 also has one of the smallest footprints in the industry while maintaining an IP67 rating. This allows the sensor to be mounted in virtually any machine environment.

The blue laser advantage

The blue laser light of the Gocator 2530 is preferable to red laser for measuring highly reflective surfaces such as shiny metals typically used in battery and consumer electronics applications.

Red lasers typically operate at 660nm. The longer wavelength of light can penetrate further into the surface of objects blurring the laser line and reducing the accuracy of the measurement. When interacting with the small surface features found on highly machined and reflective metal parts, the longer wavelength causes more speckle (noise) in the data.

In comparison, blue lasers operate at 405-450nm of the visible light spectrum. Shorter wavelengths allow for a thinner, more focused laser line for precision measurements, create less speckle, and produce greater scattering. When scanning smaller surface features on highly polished and machined surfaces, the shorter wavelength and narrow laser line produce images with less noise, resulting in cleaner data.

Optimised sensor design

The Gocator 2530 features a number of custom components and optimised design elements that deliver enhanced speed, performance, and results.

These include:

- A custom high-speed imager for micron-level resolution at production speed
- A high-performance custom lens for high-sensitivity scanning of dark and shiny parts, with no data loss
- A custom embedded controller for high-speed, low latency onboard data processing
- A small industrial package for fast, easy system integration and long sensor lifetime
- A class 2 blue laser for the cleanest, highest-quality scan data possible
- A wide field of view for capturing more of the scan target with fewer sensors

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