



# CTI USES GOCATOR 3D SMART SENSORS TO OPTIMIZE TIRE INSPECTION

CTI is a pioneer in the tire inspection industry. The company was one of the first ever to develop software for processing 3D laser sensor data related to the inspection of tire geometry and uniformity. Today CTI continues a tradition of innovation by offering tire inspection solutions that feature LMI's latest Gocator 3D Smart Sensors.

## ABOUT THE CLIENT

CTI provides innovative tire factory software and electrical engineering services worldwide. Founded in 1978, CTI has grown to 30+ engineers within the Poling Group *(a total enterprise with more than 100 dedicated associates).*

## The Challenge

To measure tire run-out and sidewall geometry, early tire inspection systems used capacitive sensors as reasonably effective non-contacting scanning solutions. However, capacitive sensors pose specific problems due to their placement in close proximity to the tire surface to take measurements:

- Repeated collisions with the tire surface ultimately decreased capacitive sensor longevity and lead to degradation of measurement accuracy over time.
- The inherent sensitivity of capacitive sensors to humidity and high silica content causes erroneous readings.

For CTI, moving to non-contact laser-based sensors became a necessity because these devices overcome the shortcomings of capacitive sensing technology.



Gocator 2330 3D smart sensor integrated into CTI's Tire Sidewall Inspection System

## The Solution

When CTI looked to LMI for a sensor solution, LMI responded with Gocator – a unique, all-in-one 3D scanning and inspection device with functionality designed to minimize component and system complexity, improve reliability, and maximize robustness and repeatability. Gocator design improvements made CTI's system integration faster, easier, and more cost-effective than any other scanning solution they had used in the past.

### GOCATOR'S KEY PERFORMANCE AND COST-RELATED ADVANTAGES:

- 1.** Gocator provides scan, measurement and control functionality all within a single device, which lowers operational cost and minimizes system complexity.
- 2.** Gocator's ability to provide data in full profile, rather than only at single points, makes it an indispensable tool for detecting difficult-to-find imperfections on a tire's surface while satisfying end user needs for higher density data.
- 3.** Gocator delivers a higher volume of data in a shorter period of time. The Gocator's double-buffered, real-time processing engine scans at a constant scan speed (2 kHz) with minimal latency.
- 4.** Gocator offers both built-in measurement tools designed for specific applications, as well as a powerful open software development kit (SDK). CTI builds its tire uniformity inspection solution based on the raw data from Gocator using the SDK.
- 5.** Gocator's IP67-rated housing and rugged industrial construction offer a robust, highly durable solution. To date CTI has not had to return a single Gocator 2330A or 2030 sensor, which means Gocator has successfully delivered minimal to zero downtime for the manufacturer.
- 6.** Gocator provides CTI and its customers with regular performance upgrades and real product value over time.

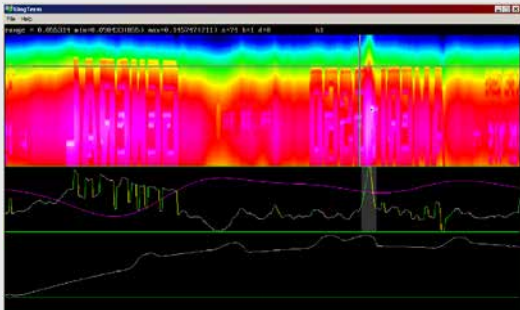
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*Gocator satisfies our end users' desire for the higher speed, higher data density data required to locate even the smallest defects on a tire's surface. It has the added bonus of lower cost of ownership, because as a system integrator we're able to use the same Gocator model for all 3 sensors required in an inspection system.*

*And, its open SDK, unique web browser experience, and compact, single-device setup make it ideal for the demanding factory environment. With Gocator our customers are getting a high performance 3D sensor that significantly improves system performance, productivity and reliability.*

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**TROY ANENSON, Sr. VP Engineering, CTI**



*A diagnostic screen taken from a standalone version of the MPI TSIS with the line laser measurement option. Plots are fully interactive, and you can view any path or profile (each of the 256 paths has 1024 points).*

## The Results

For initial implementation CTI used the Gocator within a limited window to mirror previous EyeCon solutions. This allowed CTI to avoid the cost and labor required to modify existing analysis software.

CTI has also replaced traditional displacement sensors with Gocator in systems designed for inspecting Radial Run-out (RRO). Replacement of the old capacitive RRO sensors helps CTI's customers avoid previous problems related to scanning high-silica tires, as well as avoid unwanted outcomes such as static electricity and poor measurement accuracy.

To date, CTI has supplied Tire Geometry Testing systems with Gocator to a variety of customers, about 50% of which were retrofits to existing systems. The high percentage of successful retrofits is strong evidence for how well Gocator lends itself to seamless system integration.

## The Response

Since CTI introduced Gocator into their Tire Geometry Testing systems, end users have expressed a high degree of satisfaction with overall performance and quality of results.

Simplicity of implementation and high-performance output have consistently met the needs of System Integrators and end users alike, delivering levels of reliability and dependability that have exceeded their original expectations.

## Next Steps

CTI is currently completing a new analysis software package with a range of added features that will take full advantage of the larger range, higher density data available from Gocator.

CTI will continue to offer Gocator upgrades for existing systems.

To learn more about Gocator All-In-One 3D Smart Sensors,  
please email [contact@lmi3d.com](mailto:contact@lmi3d.com)

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