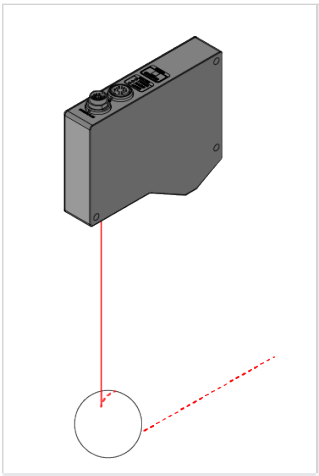
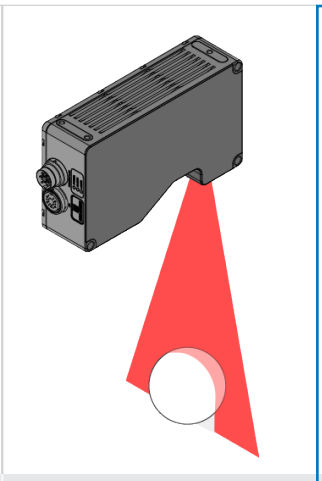
WHEN TO USE A SNAPSHOT SENSOR

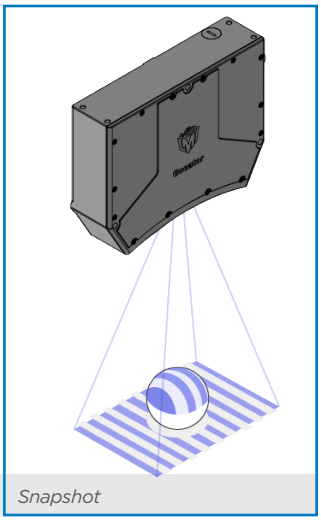
MOVING VS. STATIONARY INSPECTION



Laser point



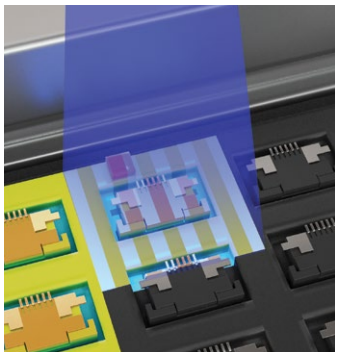
Laser line



Snapshot

When choosing what type of sensor to buy, you can follow this simple rule of thumb: **laser profile sensors** are used to **scan moving targets**, while **snapshot sensors** are used to scan targets that are **momentarily stationary**.

NEW Gocator® 3504. *Complete 3D Inspection. In a Single Snapshot.*



ADVANTAGES OF SNAPSHOT SENSORS

- Low cost, simple mounting for fixed or robotic use
- Stationary design with no errors due to vibration from motion
- Achieve large fields of view with high lateral XY resolution

DID YOU KNOW?

Gocator® snapshot sensors use **structured light** (SL) to take a sequence of images with varying fringe patterns projected onto the object surface in order to create a full 3D point cloud of the object's geometry.

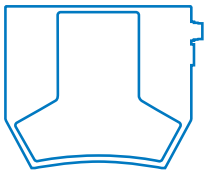
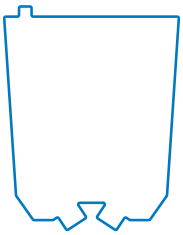
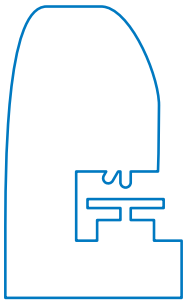
Other technologies used for stationary inspection include **confocal microscopy** (CM) and **white light interferometry** (WLI).

TECHNOLOGY COMPARISON

STRUCTURED LIGHT VS. CM AND WLI

The new **Gocator® 3504** structured light snapshot sensor achieves **6 µm XY lateral resolution** (i.e., high-density data) across a 12 x 14 mm field of view, down to **0.2 µm Z repeatability**. This makes for a highly effective stationary inspection solution that satisfies demanding GR&R measurement tolerances and can keep up with inline production speed at up to 10 Hz.

Confocal microscopy and white light interferometry each deliver impressive sub-micron Z resolution, but at **low XY data density**. If your inspection system needs to measure surface geometry at micron XY-spacing, CM and WLI are inferior to structured light methods.

	 **Structured Light Scanner**	 **White Light Interferometer**	 **Confocal Microscope**
Principle	Series of fringe patterns captured by mono or stereo camera. Height information is extracted through triangulation.	Uses interference pattern between known surface and target to extract height data. Requires internal stepping of optics.	Motion stage takes scan at different focal lengths. The scans are then merged into a 3D model.
Speed	**>>**	**>>**	**>**
XY resolution	**+ + +**	**- -**	**+ +**
Cost	**$ - $$**	**$$$**	**$$$**
Key Facts	• Easy mounting and setup, factory pre-calibrated • Angled camera design provides shape, height, gap, and roughness measurement—while minimizing occlusions • Handles ambient variation • Large measurement range and standoff • Can be delivered in a rugged, compact industrial package	• Vertical optical design (i.e., no angular characteristic) limited to height measurement • For curved surface scanning, requires tilt correction of the target • Limited to specific surface types (e.g., performs well on mirrored objects, but not spiky/bumpy or non-reflective surfaces) • Sensitive to ambient light variation • Small measurement range	• Often requires XY motion stage due to small FOV • Requires tilt correction—must sample perpendicular to surface • Handles ambient light variation • Small measurement range and standoff

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