

# Gocator®

## 3D SMART SNAPSHOT SENSORS



- 2 or 5-megapixel stereo camera design
- Fast scan rates (up to 6 Hz with PC or GoMax® acceleration)
- Pre-calibrated, up to 6.7 micron XY resolution 3D data in a single snapshot
- Up to 282 x 175 mm field of view (FOV)
- Accurate 3D measurement with blue LED structured light projection
- Industrial design for long life

Gocator 3D snapshot sensors combine blue-LED structured light with built-in 3D measurement tools for high-precision area scanning and inspection. As opposed to lasers that are used to scan moving objects, snapshot sensors use a single snapshot scan to inspect stationary objects or objects with start/stop motion.

### EASY ROBOT INTEGRATION

Ideal for inline applications where objects are momentarily stationary such as flexible robotic inspection and pick-and-place, snapshot sensors minimize the cost of expensive motion system components and errors due to vibration.

### STEREO CAMERA DESIGN

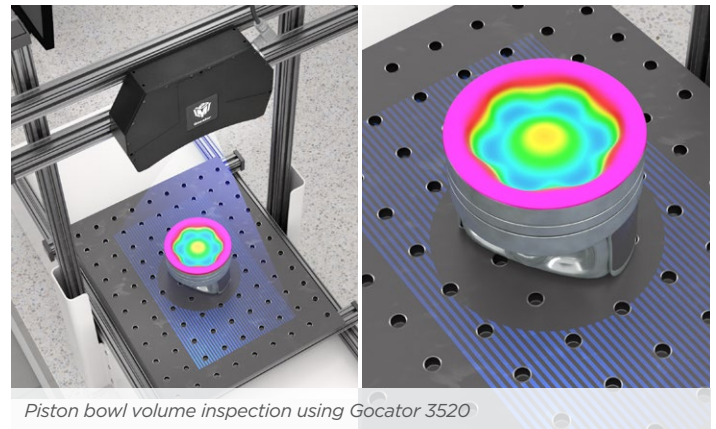
Stereo cameras capture more data and therefore produce less occlusions. With a single camera, any occlusion caused by surface geometry that blocks projected light or the camera's view will result in no data. Stereo cameras, on the other hand, effectively use three views of the part to capture more data.

### BUILT-IN HARDWARE ACCELERATION

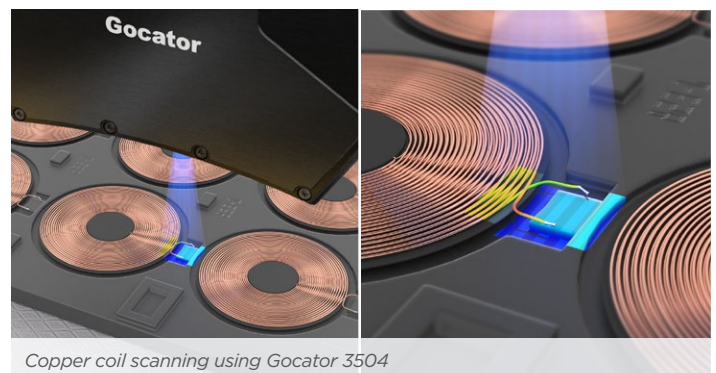
In addition to their powerful scanning engines, every Gocator structured light 3D snapshot sensor comes with next-generation dual-core controllers, which significantly increase onboard processing speed to match inline production speed.

### RUGGED INDUSTRIAL DESIGN

Rugged housing, small form factor, and light weight make these sensors ideal for fitting into small spaces and mounting on robots. Gocator snapshot sensors feature an IP67-rated design with an industrial projector offering lifetimes up to 10 years of continuous operation.



*Piston bowl volume inspection using Gocator 3520*



*Copper coil scanning using Gocator 3504*

| GOCATOR SNAPSHOT SENSORS         | 3210                                                                                  | 3504                                                          | 3506                                      | 3520                                        |
|----------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------|-------------------------------------------|---------------------------------------------|
| Scan Rate (Hz)                   | 4                                                                                     | 6                                                             | 3                                         | 3                                           |
| Imager Resolution (Megapixels)   | 2                                                                                     | 5                                                             | 5                                         | 5                                           |
| Clearance Distance (CD) (mm)     | 165                                                                                   | 52.5                                                          | 87                                        | 203                                         |
| Measurement Range (MR) (mm)      | 110                                                                                   | 7                                                             | 25                                        | 150                                         |
| Field of View (FOV) (mm)         | 71 x 98 - 100 x 154                                                                   | 12.1 x 13.2 (near)<br>12.7 x 16.4 (maxY)<br>13.0 x 15.0 (far) | 27 x 45 - 30 x 45                         | 179 x 115 - 282 x 175                       |
| Z repeatability (µm)             | 4.7                                                                                   | 0.2                                                           | 2.0                                       | 4.6                                         |
| Resolution XY (µm)               | 60 - 90                                                                               | 6.7 - 7.1                                                     | 20 - 25                                   | 74 - 121                                    |
| VDE Accuracy (mm)                | 0.035                                                                                 | N/A                                                           | 0.012 <sup>(1)</sup>                      | 0.090 <sup>(2)</sup> - 0.200 <sup>(3)</sup> |
| Accuracy XYZ (µm) <sup>(4)</sup> | N/A                                                                                   | 6                                                             | N/A                                       | N/A                                         |
| Dimensions (mm)                  | 49 x 146 x 190                                                                        | 49x152x177.5                                                  | 49 x 136 x 170                            | 55 x 167 x 260                              |
| Weight (kg)                      | 1.7                                                                                   | 1.77                                                          | 1.52                                      | 2.6                                         |
| Input Voltage                    | +24 to +48 VDC (50 Watts); Ripple +/- 10%                                             | +24 to +48 VDC (25 Watts); Ripple +/- 10%                     | +24 to +48 VDC (25 Watts); Ripple +/- 10% | 48 VDC (50 Watts); Ripple +/- 10%           |
| Operating temperature            | 0 to 45 °C                                                                            | 0 to 50 °C                                                    | 0 to 50 °C                                | 0 to 40 °C                                  |
| Storage Temperature              | -30 to 70 °C                                                                          |                                                               |                                           |                                             |
| Light Source                     | Blue LED (465 nm)                                                                     |                                                               |                                           |                                             |
| Interface                        | Gigabit Ethernet                                                                      |                                                               |                                           |                                             |
| Inputs                           | Differential Encoder, Trigger                                                         |                                                               |                                           |                                             |
| Outputs                          | 2x Digital Output, RS485 Serial (115 kbaud), 1x Analog Output (4 - 20 mA)             |                                                               |                                           |                                             |
| Housing                          | Gasketed Aluminium Enclosure, IP67                                                    |                                                               |                                           |                                             |
| Vibration Resistance             | 10 to 55 Hz, 1.5 mm double amplitude in X, Y, and Z directions, 2 hours per direction |                                                               |                                           |                                             |
| Shock Resistance                 | 15 g, half sine wave, 11 ms, positive and negative for X, Y, and Z directions         |                                                               |                                           |                                             |

#### SOFTWARE AND BUILT-IN 3D MEASUREMENT TOOLS

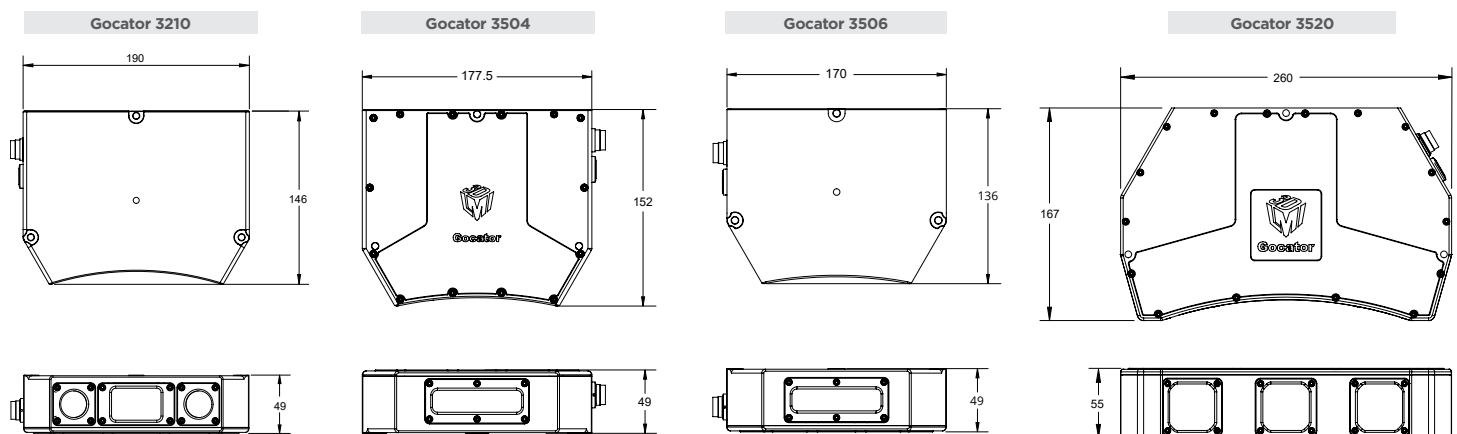
|                     |                                                                                                                                                                                                                                                |
|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3D Feature Tools    | Openings (holes, slots), Cylinders, Studs (threaded and non-threaded), Plane                                                                                                                                                                   |
| 3D Volumetric Tools | Volumes, Areas, Bounding boxes, Positions (min, max, centroid), Ellipses, Orientations                                                                                                                                                         |
| Scanning Software   | Browser-based GUI and open source SDK for configuration and real-time 3D visualization. Open source SDK, native drivers, and industrial protocols for integration with user applications, third-party image processing applications, and PLCs. |

<sup>(1)</sup> Based on 2634, Part 2

<sup>(2)</sup> VDE within central 100 mm measurement range

<sup>(3)</sup> VDE within full 150 mm measurement range

<sup>(4)</sup> Based on sphere-fitting at various positions in the scan volume.



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