LMI TECHNOLOGIES
3D MEASUREMENT AND CONTROL, MADE EASY™

Revision: A

Gocator 20XX Release Notes
Version 3.0.3.1

New Features:

Whole Part	Whole part is a new operational mode that automatically detects and builds a 3D scan of discrete parts for volumetric-type measurements. New volumetric tools include support to calculate part centroid location, orientation and other part properties. The sensor can self-detect the boundary of each part and track multiple parts simultaneously determined by settings in a new Detection panel.
Multi-language Support	The Gocator user interface now supports multiple languages making it friendlier for non-English speakers to setup and use Gocator sensors. Currently supported are English, Traditional or Simplified Chinese. Upcoming releases will support French, German, Spanish, Portuguese, Japanese, and Korean.
Modbus TCP Support	A PLC can now communicate with the Gocator over Ethernet using Modbus TCP protocol to control sensors and obtain measurement results.
Profile Intensity Output	The Gocator can now produce grayscale images of a profile or part. The data can be used to identify patterns and defects on the part surface using 2D image processing libraries. Support for display and export are included. SDK users can access the raw data.
Bi-Directional Encoder Triggering	New encoder triggering options support scanning an object while the object is moving backward and/or forward. This reduces production time when an object needs to be scanned multiple times or in different directions.
Gated Triggering	A new triggering option uses the state of the external input to enable or disable scanning. This method is useful for controlling acquisition using an external device like a photocell or robot which is moving the sensor and wishes to start/stop scanning through a particular motion path.
Median Feature Point	Median is added to the profile measurement feature detection algorithms. This added feature is useful to prevent outliers from affecting measurement accuracy.
Notification System	The Gocator user interface will notify the user immediately when a condition is detected that leads to loss of data either by over triggering, over loading the CPU, over scheduling output events, or over running Ethernet transmission rates.

Improvements:

Encoder Value Reset	Encoder values are no longer reset when the system starts and stops. This allows the user to determine the absolute displacement of the transport system at any time.
Improved CSV Format	Exported CSV data now contains information about the system configuration and is easier to parse when using an external script / program.
Calibration Error Messages	When calibration fails, the Gocator user interface will now report the calibration failure reason. Users can follow the notification messages to correct the problem.
Configurable X Resampling Interval	A new X resampling interval setting is now available to adjust the balance between X resolution and speed.
Gap Filling	A new post-processing step was added that fills in missing ranges from the nearest neighbours. This is used when profile data is missing because of occlusions.
X and Y Smoothing	X and Y smoothing are now controlled under the Filters panel. The window values are specified in mm. Y smoothing support in Profile Mode is moved to Part Mode (for Whole Part).
Staggered Mode	Staggered mode in the user interface is removed. Users can use the SDK's Scheduled Start command to start a system with sensors mounted at different Y position.
Improved Exposure Training Algorithm	The exposure training algorithm has been improved to work for a wide range of targets.

Fixes:

Exposure Training fails with some targets on Gocator 2020	The exposure training algorithm has been improved to work for a wide range of targets which fixes an issue with some targets on Gocator 2020 models.

Known Issues:

Composite Exposure handling in the SDK in dual-sensor setup	The SDK does not ensure that the exposure steps that are set for composite exposure are the same between the Main and Buddy sensors in Dual Sensor Mode. Users must ensure that they are the same.
Exposure mode must be the same on both sensors in dual-sensor setup	The exposure modes (Single, Multiple, Dynamic) must be the same for both the Main and the Buddy sensor or the system will fail to start. Users must ensure that identical settings are used.
Trigger Delay only works with single exposure mode	The trigger delay is not supported when multiple or dynamic exposure mode is used. Users should only use single exposure mode when trigger delay is enabled.

Protocol Changes:

The following applies to the SDK and require updates to SDK-based software to function correctly on 3.0 or higher

Firmware version 3.0.1 can read configurations and templates saved with firmware version 2.2.1 or later.

Action	Type	Name	Id	Description of change
Change	Config option	Configuration/Profile		Renamed from Configuration/ProfileMeasurements
Add	Config option	Profile/Measurements/AngleX		Added AbsoluteResult field
Add	Config option	Profile/Measurements/IntersectAngle		Added AbsoluteResult field.
Add	Config option	Configuration/Part		Holds configuration related to Whole Part Mode
Add	Config option	Trigger/EncoderTriggerMode		Specifies the encoder triggering mode (Ignore reverse, track reverse and bi-directional)
Add	Config option	Trigger/GateEnable		Enables and disables gated triggering 0 – Disable 1 – Enable
Add	Config option	Feature/Type	13	New feature detection type for median feature
Add	Config option	Ethernet/ProfileIntensity		Enables profile intensity output in Profile Mode for the selected profile sources
Add	Config option	Ethernet/RawProfileIntensity		Enables profile intensity output in Raw Mode for the selected profile sources
Add	Config option	Outputs/Ethernet/Protocol		Specifies the protocol that runs on the Ethernet channel 0 – Gocator 1 – Modbus
Add	Config option	Outputs/Ethernet/PartIntensitySources		Lists the intensity sources that are available
Add	Config option	Outputs/Etherent/PartIntensity		Selects the intensity source to output
Add	Config option	Setup/IntensityEnabled		Enables acquisitions of the intensities
Remove	Config option	Setup/Profiling/Filters/XSmoothing		Removed sensor-level X smoothing parameters
Remove	Config option	Setup/Profiling/Filters/YSmoothing		Removed sensor-level Y smoothing parameters
Add	Config option	Setup/Filters/XSmoothing		XSmoothing is changed from a sensor-level setting to a system level setting. Child elements are the same as before.
Add	Config option	Setup/Filters/YSmoothing		YSmoothing is changed from a sensor-level setting to a system level setting. Child elements are the same as before.
Add	Config option	Setup/Filters/XGapFilling		Added XGapFilling configuration. Child elements are the same as the XSmoothing.
Add	Config option	Setup/Filters/YGapFilling		Added YGapFilling configuration. Child elements are the same as the YSmoothing.
Add	Config option	Setup/XResamplingType		Selects the x-resampling interval. 0 – Maximum resolution 1 – Maximum speed 2 – Balanced.
Add	Config option	Setup/XResamplingInterval		Returns current x-resampling interval in mm
Remove	Transform XML	Y		Removed Y-offset parameter.
Change	Config option	Version	5	Updated config schema version to 5
Change	Protocol	Version	5.0	Updated protocol version to 5.0
Change	Transform XML	Version	2	Updated transform schema version to 2

Table 1: SDK Protocol Changes.