



Gocator Firmware 4.1 Release Notes

Version 4.1.4.4

Revision A

New Features:

<i>Rich Filtering</i>	Built-in rich filtering allows users to remove noise and outliers from the data the sensor produces, without the need to develop expensive software. Gap filling, median, smoothing, and decimation—along both the X and Y axes—can be combined flexibly to achieve repeatable and stable measurements under difficult conditions.
<i>Material Selection</i>	Material selection allows users to tune advanced camera settings, achieving the best possible data on targets with challenging material surfaces. Low-level processing results can be viewed as overlays on the camera video feed, to better understand how different settings can affect measurement results.
<i>Countersunk Hole Measurement Tool</i>	A new Countersunk Hole tool allows users to measure the characteristics of countersunk holes, including the position of the center of the hole, the outside diameter of the hole, hole bevel angle, the depth of the hole, and more.
<i>Improved Visualization for Gocator Displacement Sensors</i>	The web interface for Gocator 1300 series sensors now displays range and intensity data using large, easy-to-read numbers, where the color indicates pass/fail decisions.

Compatibility:

Gocator 4.x firmware is NOT compatible with Gocator 3.x firmware. Users need to setup their configurations using the Gocator 4.x firmware. SDK users need to update their software to work with the Gocator 4.x SDK.

The Gocator 4.x Setup and SDK migration guides explain how to migrate from Gocator 3.x firmware to Gocator 4.x firmware. The migration guides can be downloaded from <http://www.lmi3d.com/resources/gocator/#how-to-guides>

Sensors upgraded to the Gocator 4.x firmware can downgrade back to Gocator 3.x firmware.

Users should back up their sensors before upgrading from Gocator 3.x firmware to Gocator 4.x firmware.

Gocator 4.x interface requires IE 9, Firefox or Chrome. Adobe Flash version 11 or above is also required.

Improvements:

<i>Gap Filling support for Gocator Snapshot sensors</i>	Gap Filling is now supported on Gocator Snapshot sensors.
<i>Surface Position Z measurement support for Average and Median</i>	The Surface Position Z measurement now supports options for Average and Median.



<i>Rotational Surface Generation</i>	User no longer needs to enter circumference to generate a rotational scan.
<i>Median Profile Position Z measurement</i>	Users can now calculate the median Position Z of a profile.
<i>Measurement simulation is supported while the sensor is running</i>	The user can now change measurement settings while the sensor is running, which improves the workflow for part scanning in particular. The user scans the part once, experiments with measurement tool settings and will immediately see the results without scanning the part again.
<i>SDK – Sensor level callback added</i>	Automatic multi-thread support with the ability to set a callback on the sensor level.
<i>SDK – Scheduled Start added</i>	Ability to synchronously start all sensors on the network.
<i>SDK – Sensor Flush added</i>	Ability for user to directly control when sensor settings are committed to the sensor from the SDK.
<i>Profile Mode intensity data in CSV export</i>	Profile Mode intensity data is now included in CSV export.
<i>Ability to flip data in X for Gocator 2300 is missing</i>	Users can now flip the data in the x-axis in the layout panel.

Fixes:

<i>Gap Filling did not work correctly with Multiple Exposures</i>	Gap filling did not work correctly with Multiple Exposures which for example could cause data loss at sharp edges. This is now corrected.
<i>Modbus buffering did not work correctly</i>	Modbus with buffering enabled incorrectly updated measurements always, when they should only be updated when the user reads the Buffer Advance register. This is now corrected.
<i>Modbus and EtherNet/IP enable settings not saved in job</i>	The enable settings for Modbus and EtherNet/IP were not saved in job file correctly. This is now corrected.
<i>Groove Tool – Open Shape type missing</i>	The Open Shape type was missing in the Groove Tool. This is now corrected.
<i>Surface Position Z not working correctly with Active Area in the near field</i>	The Surface Position Z tool did not work correctly under certain circumstances with the Active Area in the near field. This is now corrected.
<i>Active Area not working for Bottom sensor with Opposite Buddy</i>	Active Area configuration was not working for the bottom sensor with Opposite Buddy orientation. This is now corrected.
<i>SDK – command to clear Alignment missing</i>	The command to clear Alignment was missing. This is now corrected with <code>GoControl_ClearAlignment()</code> .
<i>SDK – GoSystem object did not support Buddy sensor</i>	GoSystem functions returned errors with a Buddy connected. This is now corrected and sample code added to <code>GoSdkSamples</code> .



Known Issues:

<i>SDK documentations search function</i>	SDK documentation search function may not work on some Chrome installation due to privacy settings.
<i>Incomplete language translations</i>	The web interface is not translated in some previously supported languages (i.e. Japanese and Korean).
<i>CsvConverter tool does not support Profile Mode intensity</i>	CsvConverter tool does not support Profile Mode with Intensity data.
<i>Gocator 2880 only supports 1 scheduled digital output</i>	Gocator 2880 supports both the 2 digital outputs but only 1 can be scheduled.
<i>Gocator 2880 does not support Dynamic Exposure</i>	Gocator 2880 does not support Dynamic Exposure.

Protocol Changes:

Protocol Version 101.2

Protocol version is specified as [Major].[Minor]. Firmware releases with the same Protocol Major version are backward compatible and users do NOT need to recompile their applications unless features in the newer version are used.

Note that these are protocol and SDK changes between *4.0 Service Release 1* and *Release 4.1*. Refer to the Gocator 4.x SDK migration guide for details on how to port your 3.x application to Gocator 4.x firmware.

Action	Type	Name	Description of change
Add	Protocol	Scheduled Start Command	Command to synchronously start multiple sensors
Add	Config	Setup/ScanMode	The default scan mode
Add	Config	Setup/ScanMode options	List of available scan modes
Add	Config	Setup/UniformSpecingEnabled.value	Actual value used if not configurable
Add	Config	Setup/IntensityEnabled.used	Whether or not property is used
Add	Config	Setup/IntensityEnabled.value	Actual value used if not configurable
Add	Config	Setup/ExternalInputZPulseEnabled	Enables the External Input based encoder Z Pulse feature
Add	Config	Setup/Filters/XMedian/Enabled Setup/Filters/XMedian/Window Setup/Filters/XMedian/Window.min Setup/Filters/XMedian/Window.max	Enables filtering. Window size (mm) Minimum window size (mm) Maximum window size (mm)
Add	Config	Setup/Filters/YMedian/Enabled Setup/Filters/YMedian/Window Setup/Filters/YMedian/Window.min Setup/Filters/YMedian/Window.max	Enables filtering. Window size (mm) Minimum window size (mm) Maximum window size (mm)
Add	Config	Setup/Filters/XDecimation/Enabled Setup/Filters/XDecimation/Window Setup/Filters/XDecimation/Window.min Setup/Filters/XDecimation/Window.max	Enables filtering. Window size (mm) Minimum window size (mm) Maximum window size (mm)
Add	Config	Setup/Filters/YDecimation/Enabled Setup/Filters/YDecimation/Window Setup/Filters/YDecimation/Window.min Setup/Filters/YDecimation/Window.max	Enables filtering. Window size (mm) Minimum window size (mm) Maximum window size (mm)



Add	Config	Setup/Layout/Orientation options	List of available orientation options
Add	Config	Setup/Layout/Orientation value	Actual value used if not configurable
Add	Config	Setup/Layout/MultiplexSingleExposureDuration	Exposure duration in μ s (currently rounded to integer when read by the sensor)
Add	Config	Setup/Layout/MultiplexSinglePeriod.min	Minimum period in μ s
Add	Config	Setup/Devices/Device/SpacingInterval.value	Actual value used if not configurable
Add	Config	Setup/Devices/Device/Material Type Type.used Type.value SpotThreshold SpotThreshold.used SpotThreshold.value SpotWidthMax SpotWidthMax.used SpotWidthMax.value SpotWidthMax min SpotWidthMax max SpotSelectionType SpotSelectionType.used SpotSelectionType.value CameraGainAnalog CameraGainAnalog.used CameraGainAnalog.value CameraGainAnalog.min CameraGainAnalog.max CameraGainDigital CameraGainDigital.used CameraGainDigital.value CameraGainDigital.min CameraGainDigital.max DynamicSensitivity DynamicSensitivity.used DynamicSensitivity.value DynamicSensitivity.min DynamicSensitivity.max DynamicThreshold DynamicThreshold.used DynamicThreshold.value DynamicThreshold.min DynamicThreshold.max GammaType GammaType used GammaType value	New section for Material Settings. See User's Manual for detailed description of each setting.
Add	Config	Setup/PartDetection/Enabled.value	Actual value used if not configurable
Add	Config	Output/Ethernet/EIP/EndianOutputType	Endian Output Type 0 – Big endian 1 – Little endian
Add	Config	Output/Ethernet/EIP/ImplicitOutputEnabled	Enables Implicit Messaging
Change	Config	Tools/SurfaceFeature/Type	Type 0 is now Average (old Centroid2D) Type 1 is now Centroid (old Centroid 3D) Type 8 is a new type for Median
Remove	Config	Tools/PanelMeasurement	Split into GapMeasurement and FlushMeasurement



Add	Config	Tools/SurfaceCsHole NominalBevelAngle BevelAngleTolerance NominalOuterRadius OuterRadiusTolerance NominalInnerRadius InnerRadiusTolerance BevelRadiusOffset PartialDetectionEnabled RegionEnabled Region RefRegionsEnabled RefRegionCount RefRegions AutoTiltEnabled TiltXAngle TiltYAngle CurveFitEnabled CurveOrientation Measurements\X Measurements\Y Measurements\Z Measurements\OuterRadius Measurements\Depth Measurements\BevelRadius Measurements\BevelAngle Measurements\XAngle Measurements\YAngle Measurements\Radius	New tool for Countersunk Holes. See User's Manual for detailed description of each settings.
Change	SDK	GoVideoMsg_PixelType	GoVideoMsg_PixelType now returns a GoPixelType enum value instead of a kType
Change	SDK	GoSerial_SetSelcomRate	GoSerial_SetSelcomRate was changed to take in a rate value instead of an option list index
Change	SDK	GoAnalog_OptionAt	GoAnalog_OptionAt was updated to remove an unnecessary output source argument.
Remove	SDK	GoSetup_ExposureDelay GoSetup_SetExposureDelay	Removed GoSetup_ExposureDelay and GoSetup_SetExposureDelay
Remove	SDK	GoDigital_OptionList, GoAnalog_OptionList, GoSerial_OptionList	Removed GoDigital_OptionList, GoAnalog_OptionList, and GoSerial_OptionList (there were already OptionCount and OptionAt functions)