LMI TECHNOLOGIES

Gocator Firmware 6.3 – Release Notes

Firmware Version 6.3.3.1
Document Revision A

Compatibility

- Web Interface
  - The web interface requires Chrome, Firefox or Microsoft Edge version 79 or later.
  - IE 11 and old Edge versions are only supported in a limited fashion (see known issues for details).
- Hardware
  - Supported models
    - Gocator 2100C/D, 2300C/D, 2400, 2500, 2600 and 2800C series line profilers
    - Gocator 3200 and 3500 series snapshot sensors
  - Older Gocator 1300, 2100A, 2300A/B, 2880A, 3100 series sensors are *not* supported.
- SDK
  - The 6.x releases are compatible with 4.x and 5.x SDK.
- Windows 32-bit support removed
  - Only the 64-bit version of Gocator Emulator, Accelerator and SDK binaries are available

Improvements

New model support	Compared to the 6.2 firmware which was released for G2600 series only, this firmware release now supports all recent G2 and G3 family sensors. See details above. This release also adds support for: ● G2629 as a new model, ● G2610 3R/3B and 2618 3R laser classes, and ● G3210B and G3506B hardware revisions
G2600 Faster Default Scan Speed	Starting with the 6.3 release the configuration of the G2600 series has been optimized to provide higher default scan speeds. Existing job files will retain their existing configuration and scan speeds.
G2600/2500 Enhanced Surface Flatness	A new pre-processing pipeline to reduce spatial noise is available and enabled by default on the G2600. This option can be enabled in the Advanced tab of the sensor settings on the G2500.
G2600 HDR Support	The new High Dynamic Range (HDR) mode improves scan quality on challenging targets that previously were susceptible to over or under exposed features (e.g. highly reflective metallic surfaces and objects with a variety of materials and finishes). Targets that previously required multiple

	exposures to scan challenging features may now be captured with a single exposure and faster cycle time. This feature can be configured in the Advanced tab of the sensor settings.
G3506B and G3210B revision A compatibility	A new “A Revision Compatibility” switch on G3 B revision sensors now lets users toggle between B revision's full projector intensity and A revision compatibility.
G2 Intensity with Z Subsampling	The intensity values produced with Z Subsampling enabled are now brighter such that intensity is roughly constant with increasing subsampling. Previously, Z Subsampling reduced the intensity values.
Part Detection Trigger Event for Digital Output	A new digital output mode has been added to allow triggering external devices when a part is detected by a Gocator sensor (matching 6.1 SR3).
System State Mode for Digital Output	Introduced System State mode in digital output, ensuring reliable external triggering by supporting system status (running or not).
Integration with Cognex VisionPro	Integrated Gocator sensors with Cognex VisionPro through the new GoAIK driver provided in the Utilities package (matching 6.1 SR3). This release also adds the ability to use software triggering.
GenTL Driver Improvements	Several improvements were made to the GenTL driver including added commands for setting transformation parameters, get/set encoder resolution, executing alignment, and getting buddy information (matching 6.1 SR3).
Temperature Monitoring over Modbus	Enabled monitoring of Gocator temperature over Modbus even when the sensor is stopped and no frames are being produced.

Tool Enhancements

Surface Plane Advanced	With the original Surface Plane tool, noise or undesired surfaces within the region can affect the plane-fit. The new Surface Plane Advanced tool can exclude these outliers, resulting in a more accurate plane-fit.
Surface Feature Mask	Surface Feature Mask lets you dynamically mask regions based on feature point inputs from other tools (matching 6.1 SR3).
Enhanced Blob Contour Visualization	Enhanced blob contour visualization in Surface Blob Tool. Whereas, previously, the contours were displayed at z=0 height, now, they accurately align with the correct height, improving the usability of the tool.
Surface Align Wide	Added alignment mode options and origin offset mode for increased alignment flexibility.
Surface Mesh and Align Ring Support	Added Gocator G2540 and G2550 to the list of sensor models for Surface Mesh and Surface Align Ring.
Surface Mesh	Added Resolution Reduction parameter
Surface Merge Wide	Added Pose parameters for diagnostics
Profile Output Renaming for Surface Section	Renamed the profile output of Surface Section to “Uniform Profile”.

Bug Fixes

Top Bottom tool source	Fixed an issue where a tool source could revert to the default setting after setting up a dual sensor Top and Bottom layout.
Emulator max frame rate	Emulator Frame Rate Display: The trigger panel could display a significantly lower maximum frame rate compared to the actual sensor.
External Input trigger	Fixed an issue where using the "External Input" trigger with "mm (Encoder)" unit could result in profiles not being generated.
Acceleration with active EIP connection	For an accelerated sensor with an EtherNet/IP connection, after the network connection is lost, the sensor is not automatically re-accelerated.
G2490	On Gocator 2490 sensors, transformed profile data could be shown in the Active Area configuration
Visualizer	Fixed an issue where automatic visualizer decimation could fail on raw surface data in a buddied system.
Visualizer	Fixed an issue where Visualizer could fail to display boundary data points on raw or uniform surfaces, specifically those in the last row and column.
GoAccelerator startup	Accelerating multiple sensors with GoAccelerator automatically on Windows startup could take a long time to start acceleration.
G2600 Video mode processing error	Fixed an issue in G2600 video scan mode where switching to Profile mode with 'None' Spot Detection could cause a processing error.
G2610 Intensity	Fixed an image intensity issue in G2610 where some areas might display unexpected intensity values.
G2600 intensity on first frames	Addressed Gocator 2600 intensity inconsistency where varying intensity could generate across initial frames.
G2600 Translucent	Fixed an issue with 26xx sensors where setting Material to Custom and Spot Selection to Translucent or Continuity while accelerated could prevent the sensor from starting.
Accelerator crash handling	Accelerator: Fixed a bug where a sensor crash necessitated manual accelerator start, rather than automatic re-acceleration.
CSV export of Surface Stitch	CSV output from the Stitch tool's Captured measurement was incorrect
GoMax NX Ethernet ports	On some GoMax NX devices, the ETH2 and ETH3 ports were swapped causing the ETH2 port not to be configurable.
Incorrect data after power cycle	Under some conditions the profile data from a multi-sensor G2 system could be stretched after a power cycle.
EtherNet/IP with multiple accelerated sensors	The EtherNet/IP connection to multiple PC accelerated sensors on separate subnets was not stable.

G3 intensity values	For Gocator 3000 sensors with a reduced active area, the intensity values could be incorrect near the edge of the field of view.
G3500 default exposure	Adjusted default exposure for G3500 sensors to ensure proper data generation with default settings
Sophos security software	Addressed GUI blockage caused by Sophos security system.
Laser safety	Fixed an issue where repeated laser safety toggling could cause the sensor to enter a high exposure state.
Translucent spot selection	Fixed an issue with 26xx sensors where the Translucent Spot Selection model could cause unexpected brightness on intensity images.
Digital output continuous signal	Digital Output: Fixed an issue where Pulse Width configuration could remain accessible in GUI for Continuous Signal.
Popout visualizer	Fixed an issue with the popout Visualizer window where surface data could remain stalled after maximizing the window.
Popout visualizer	Fixed an issue where closing a Popout Visualizer caused a 'Sync failed' error when attempting to change configuration.
SDK	SDK GoSensor_BuddiesAt() did not return the connected buddy if a previous one was disconnected
SDK	SDK GoSensorInfo_BuddyableStatus() could return Connectable instead of Connected
SDK	GoSdkNet: Fixed an issue where GoSystem.SetHealthHandler() method was not functioning as intended.
SDK	SDK Added example code for how to specify an IP address from an accelerating SDK application.
GDK samples	The GDK sample Test Generic Input failed to correctly place the center points of blobs.

Tool Bug Fixes

Surface Countersunk Hole	For the Surface Countersunk Hole tool, the Curve Orientation parameter was not shown after enabling Curved Surface
Surface Filter	A crash could occur when using the Surface Filter tool with Intensity and Fill Gap or Decimation filter types.
Surface Mask	Fixed an issue with the Surface Mask tool where the extracted region would sometimes reposition to 0,0 coordinates instead of maintaining its original position.
Surface Feature Mask	Surface Feature Mask could produce artifacts when using polygon mode.
Surface Feature Mask	For the Surface Feature Mask, using the Circle type, and using two points

	with different Z coordinates, the radius of the resulting circle region was wrong.
Surface Bounding Box Advanced	Surface Bounding Box Advanced did not consistently order the corner point outputs. Now, Corner 1 is always top left.
Surface Pattern Matching	The Surface Pattern Matching tool failed to match patterns in output from Surface Filter with Binarize filter and Surface Arithmetic.
Surface Pattern Matching	When using Surface Pattern Matching, a crash could occur while running under very specific data conditions.
Surface Opening	For some specific scan data, the Surface Opening tool failed to detect the opening.
Surface Hole	Surface Hole reported a wrong Y position for surfaces with a very large Y dimension.
Surface Transform	Fixed an issue with the Surface Transform tool where moving the Region of Interest (ROI) outside of the grid might not properly clear the data, resulting in incorrect output surface.
Surface Transform	Fixed an issue where the Surface Transform tool might occasionally fail to generate a transformed surface when using the default Resolution Mode setting.
Surface Segmentation	When using Surface Segmentation with a region, the output surface data could be shifted in the X direction.
Surface Feature Mask	Fixed an issue with the Surface Feature Mask tool where the circular shape did not properly mask the surface.
Surface Blob	Fixed an issue with the Surface Blob tool where using Region could cause incorrect counts or missing graphics.
Profile Transform	Profile Transform tool: Fixed an issue where the lowest point in profile might be missing from the transformed profile output.
Profile Line Advanced	Profile Line Advanced: Fixed an issue where in "run" mode and on insufficient data, Angle measurement might incorrectly display as "0" rather than "invalid".
Feature Intersect	A plane feature was not always available for selection in the Feature Intersect tool.

Known Issues

HDR Mode in Support File	HDR Mode configurations are not displayed in the UI when a support file is loaded into the Emulator. While the HDR functionality is fully functional, its absence in the UI may affect user visibility when working on a 2600 Emulator scenario.
Factory Restore does not delete tool-created files	Factory Restore does not delete files created by tools. This includes Surface Pattern Matching and Surface Track. To ensure tool files are removed from a sensor, add the appropriate tool and perform a “Delete” operation on any files.
Surface Track	The Surface Track tool is not supported on the GoMax device.
Surface Section	With a profile from the Surface Section tool, it is not possible to obtain Global X & Y measurements from the Profile Bounding Box tool.
Surface Blob	Renaming some of the measurement outputs from Surface Blob is not supported. Though the change may appear to be made, it is not persisted when saving a job file.
Script Tool	Memory leaks can occur when using *arrays* and *structs* within a script. Workaround: Avoid using arrays and structs or test thoroughly to ensure stability.
Zoom to rectangle	In profile mode, when disabling 1:1 mode, zoom to rectangle does not fully zoom
Translations incomplete	Not all English text is translated in every language.
Internet Explorer 11	Several issues exist with Internet Explorer 11: ● Launching and using additional data viewers is very slow. ● When using large data may not be possible due to browser memory limitations. Workaround: Refer to the Gocator user manual for IE 11 specific instructions to work around some of the issues.

SDK and Protocol changes — Protocol version 101.21

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.

The 6.x SDK will not discover any sensors with firmware 4.2 or earlier by default. Use `GoSystem_EnableDiscoveryCompatibility()` to enable discovery of sensors with older firmware.

The search feature in the HTML SDK documentation included in the SDK package has been improved. You can now expect more accurate results as the search can return strings beyond just class names.

SDK

Action	Name	Description of change
Modified	`GoAlignMsg_Status`	Now returns GoAlignmentStatus as an extension from kStatus to include all operation statuses of an alignment.

Added	`GoAdvanced_HdrMode`
	`GoAdvanced_SetHdrMode`
	`GoAdvanced_IsHdrModeUsed`
	`GoAdvanced_HdrModeOptionCount`
	`GoAdvanced_HdrModeOptionCount`
	`GoAdvanced_SetHdrParameters`
	`GoAdvanced_IsHdrParametersUsed`
	`GoAdvanced_HdrParameters*`
		HDR mode configurations

Added	`GoAdvanced_IntensityCompatibilityModeEnabled`
	`GoAdvanced_IntensityCompatibilityMode`
	`GoAdvanced_SetIntensityCompatibilityMode`
		Intensity compatibility for G3 revisions

Added	`GO_ALIGNMENT_STATUS_TOO_FEW_PROFILES`	Added an alignment status indicating if the number of profiles are lower than the minimal number of required profiles.

Added	`GoSetup_IsEnhancedSurfaceFlatnessFilterSupported`
	`GoSetup_DisableEnhancedSurfaceFlatnessFilter`
	`GoSetup_SelectBuiltInEnhancedSurfaceFlatnessFilter`
	`GoSetup_SelectCustomEnhancedSurfaceFlatnessFilter`
	`GoSetup_EnhancedSurfaceFlatness*`
		Enhanced Surface Flatness configurations

	`GoSetup_SetXSubsamplingDefaultEnabled`
	`GoSetup_XSubsamplingUsed`
	`GoSetup_XSubsampling*`
		Enhanced X Sub-Sampling options

	`GoSetup_SetZSubsamplingDefaultEnabled`
	`GoSetup_ZSubsamplingDefaultEnabled`
	`GoSetup_ZSubsamplingUsed`
	`GoSetup_ZSubsampling*`
		Enhanced Z Sub-Sampling options

Configuration and Protocol changes

NOTE: Exposure and timestamp descriptions have been corrected to say they represent internal units approximating nanoseconds (where the actual time in nanoseconds is value / 1024) or approximating microseconds (where the actual time in microseconds is value / 1.024). No changes have been made to how these values are calculated in the firmware.

Action	Name	Description of change	
Added	`Configuration`	Setup/Devices/Device/	Added X and Z sub-sampling options.
Added	`Configuration`	Setup/Devices/Device/	Added elements related to Enhanced Surface Flatness parameter (PreFilterMode).
Added	`Configuration`	Setup/Devices/Device/	Added elements related to G3 intensity compatibility mode.
Added	`Configuration`	Setup/Devices/Device/	Added elements related to HDR mode.
Added	`Configuration`	Output/Digital0/Event Output/Digital1/Event	Added the following triggering event options: 6 – Part Detection 7 – System State

GDK

No significant changes were made to the GDK API compared to the 6.2 release.

The GdkAppSample was updated to fix a bug.