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## Firmware Release Notes, Gocator Displacement & Profile Sensors Version 3.5.2.131

### New Features:

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#### *Strip Measurement Tool*

Measures the geometry of raised strips on a flat surface. The tool can compensate for tilt and noise on the surface. This is well suited for inspecting small scale edge features on surfaces such as rubber or metal sheets. Limits can be set to establish pass and fail conditions for inspection decisions.

*This feature is available on the Gocator Profile sensors (Gocator 2000 and 2300 series)*

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#### *Temperature Overheat Protection*

Protect the life time of the sensor's laser in harsh environments by automatically turning off the laser when the temperature exceeds the safe operating range. Reduces system maintenance cost by preventing premature failure of the sensor laser.

*This feature is only available on the Gocator model with 3B-N laser power.*

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#### *ASCII Protocol*

Gocator now supports a flexible ASCII protocol on both Ethernet and Serial outputs. Without any programming effort, users can control the sensor and evaluate measurement results using terminal applications (e.g. telnet). The format of the ASCII protocol is customizable and can be configured to talk directly to a wide variety of PLCs, robot controllers and scripting programs.

*This protocol replaces the Gocator Serial Protocol on the serial channel. Refer to the Serial Protocol Change section for more details on backward compatibility.*

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#### *3D Mesh Visualization*

Gocator's web interface now supports visualizing Whole Part data in 3D. Users can now inspect Whole Part data from any camera position and angle using pan, zoom and orbit controls.

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**Important: This version requires flash version 11.3 or later.**





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## Improvements:

*Occlusion Prevention in direction of travel*

Gocator alignment and travel calibration can now support reversing the buddy sensor in a dual-sensor setup to prevent occlusion in the direction of travel. Regions shadowed by step changes in both X and Y direction can now be seen, greatly enhancing the accuracy of 3D measurements.

*Increased maximum frame rate when triggering using encoder or digital input on the Gocator 1 series*

The maximum frame rate is increased when using encoder or digital input triggering. Users can increase production speed by running the part faster or increase measurement accuracy by increasing the Y resolution.

*Sub-microsecond exposure control*

Exposure time can now be specified with sub-microsecond precision. Users can fine tune the exposure control for smaller Gocator models to reduce data drop-out and improve the accuracy of 3D measurements.

*Trigonometric, square root and exponential functions supported in Script measurement tools*

Trigonometric (sin, cos, tan, asin, acos, atan), square root and exponential functions were added to the script measurement tool. They can be used to scale results based on mounting angles and calculate statistics such as variance and standard deviation.

*Use single exposure mode value for alignment and travel calibration*

Previously the exposure of the first exposure step (in multiple-exposure mode) or the maximum exposure (in dynamic exposure mode) was used for alignment and travel calibration. Now the fixed value in single exposure mode is used for calibration.

*Default Resampling Interval is set to Max Resolution*

The default setting for the resampling interval is now set to "Maximum Resolution". Previously the default was "Balanced".





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## Fixes:

*Line percentile tool settings are not committed when configured using SDK*

The SDK functions related to setting parameters of the profile line percentile tools now commit the settings properly.

*Incorrect exposure training (auto-set exposure) results reported in the SDK*

Previously the SDK would report exposure training results in nanoseconds instead of microseconds.

*Script tool cannot parse the minimum 64-bit number*

The script tool can now parse the minimum value of a 64-bit number properly.

*Profile smoothing filter does not function if X gap filling is enabled in wide layout.*

The profile smoothing filter is now applied correctly when X gap filling is enabled with a dual-sensor system in wide layout.

*CSV does not contain data for every x position if all the x positions are negative.*

The exported CSV now contains the data for all x positions when all the x positions are negative.

*Smoothing and gap filling settings were not saved when using the SDK*

The smoothing and gap filling parameters are now saved correctly when they are set using the SDK

*Incorrect list of available measurement tools in Whole Part mode*

The list of available Whole Part measurement tools was incorrect. Some of the measurements in the list were not supported. They have now been removed.

## Known Issues:

*Incomplete language translations*

The web interface is not fully translated in some supported languages (i.e. Japanese and Korean).

*3D mesh does not function in Chrome web browser on some systems*

On some systems, Chrome web browser may incorrectly access the GPU capabilities of the system, affecting the function of the 3D mesh viewer. This is most common on Mac systems. Users can work around this by enabling the "Override software rendering list" flag in the chrome://flags page of the browser.

*Data loss when using Selcom Serial with frame rate lower than 3kHz*

A frame rate lower than 3kHz may cause data loss when outputting on Selcom serial.

*The frame rate achievable with encoder or external input trigger with*

The frame rate achievable with encoder or external input trigger on the Gocator





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*dynamic exposure mode on the Gocator 1 series is slightly below the maximum frame rate*

1 series is approximately 8% lower than the maximum possible rate.

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*Multiple dual-sensor systems on the same Ethernet network may disrupt operation*

If two dual-sensor systems are on the same Ethernet network and one of them resets while the other system is running, the system that is running may stop operation. Users can work around this problem by separating the systems into two Ethernet networks.

*Note: This issue does not affect the ability of using one Master 400/800/1200/2400 to power up multiple dual-sensor systems.*

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*Trigger drop values displayed in dashboard reset after reaching 65535*

The trigger drop values displayed in the dashboard will reset to 0 when the value reaches 65535.

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## Gocator Protocol and SDK Changes:

This firmware version can read configuration and template files saved with firmware version 2.2.1 or later. User applications must be built against the SDK library included with this firmware release.

Action	Type	Name	Description of change
Add	Config	Setup/Layout/Buddy/Reversed	Reverse buddy support
Change	Config	Profile/StripWidth Profile/StripHeight Profile/StripX Profile/XtripZ	Strip measurement tools
Change	Config	Sensor/Profiling/ExposureMin Sensor/Profile/ExposureMax Sensor/Profile/Exposure Sensor/Profile/DynamicExposureMin Sensor/Profile/DynamicExposureMax Sensor/Profile/Dynamic/ExposureStep/Step	These are changed from integer to floating point numbers
Change	Config	Profiling/Camera (X/Y/Width/Height) to Profiling/FrontCamera (X/Y/Width/Height)	Changes name from Camera to FrontCamera.
Change	Data	Range exposure Profile exposure Raw profile exposure Exposure training result	Values are now in nanoseconds
Add	Modbus	Stamp exposure	Value is now in nanoseconds
Add	EtherNet/IP	Sample State/Exposure	Value is now in nanoseconds
Add	Data	Range Result	New data types for ranges, range intensity and range measurements (for G1 series)
Add	Config	*/Measurements /<MeasurementType> /HoldEnabled */Measurements /<MeasurementType> /SmoothingEnabled */Measurements /<MeasurementType> /SmoothingWindow */Measurements /<MeasurementType> /SmoothingWindowMin */Measurements /<MeasurementType> /SmoothingWindowMax	New elements for measurement output filtering (hold and smoothing)
Add	Config	/Setup /BatchCount /Setup /BatchCountMin /Setup /BatchCountMax	New elements for specifying the number of frames batched together.
Add	Config	/Sensor /Profiling /IntensityStepIndex	Define the exposure step to use for acquiring intensity in multiple exposure mode.





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Change	Config	Transformations/Angles to Transformatiois/RollAngle	Name change. The element Angle is deprecated.
Add	Config	Transformations/YawAngle Transformations/PitchAngle	New elements. Reserved for future use
Change	Config	Profiling/XResolution to Profiling/XSubsampling Profiling/ZResolution to Profiling/ZSubsampling	Name change. The corresponding functions Go2Sensor_XResolution and Go2Sensor_ZResolution are changed to Go2Sensor_XResolutionDivider and Go2Sensor_ZResolutionDivider
Change	Config	Analog/CurrentMin Analog/CurrentMax Analog/CurrentInvalid	These are changed from integer to floating point numbers





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## Serial Protocol Changes:

The Gocator Serial protocol is replaced by the ASCII protocol. When using the standard data string format, the result output of the ASCII protocol is the same as the Gocator Serial protocol, except that the measurement values are output in decimal, not hexadecimal.

## CSV Format Changes:

Additional transformation parameters are added to the DeviceInfo section. The original “Transformation Angle” field is now called “Transformation Roll”. “Transformation Pitch” and “Transformation Yaw” are added.

