BeamGage Professional Readme

Contents

Section 1 - Change log

- v6.23 1/24/2025
    - Added support for the SP402S Large Format camera.
    - Fixed an issue where the "Block Beam" dialog would show after being dismissed.
    - Removed support for cameras: SP503U, SP620U, GRAS20, Pyrocam III, ModeCheck systems (FireFly) , and OSI_182000 (Gevicam).
- v6.22 10/21/2024
    - Added camera temperature result for certain cameras that have an internal temperature sensor.
    - Added automation interface example and documentation for Python
    - Changed the previous enumeration AutomationSaveLoadStatus and renamed to ASaveLoadStatus in the Spiricon.Automation namespace. This change brings it in line with the naming convention for all other enumerations in the interface. Note: This is a breaking change and requires recompilation of automation clients.
    - Changed result statistics to clear on data source changes.
    - Changed the way the SP203P camera is identified so the SP203P and the SP932U will not interfere with each other.
    - Fixed an issue where AutoX could make larger adjustments than needed when using the SP402S camera.
    - Fixed an issue with the Pyrocam IIIHR and Pyrocam IV cameras which allowed UI gain control to display incorrectly after loading a setup.
    - Fixed an issue that caused the x/y offsets to sometimes display incorrectly when binning was applied.
    - Fixed rare crash which would occur when applying ROI changes while using an external trigger.

    - Fixed an issue with pixel scale that affected some cameras.
    - Fixed the export button so it remains enabled even when there is no data.
    - Fixed an issue with Positional Stability when loading a positional stability file saved in pixels.
    - Fixed the export to a csv file so that the pixel pitch is saved. This can be used to determine what optical scaling was used when the file was saved. On load, optical scaling and units now update in the UI to what they were when the file was saved. The Pixel Scale result in the Results window is now left unchanged when loading a file in case a data source is connected.

- v6.21 12/18/2023

    - Added support for the SP203P camera.
    - Fixed an issue where the Smear Correction panel was disabling after navigating away from the Capture ribbon.
    - Changed visibility on the Smear Correction panel so that it is hidden for cameras that can't use it.

- v6.19 11/1/2023

    - Added support for the SP204S camera.
    - Added detection if the data file or setup file was saved in a future version.
    - Added blooming correction to the Automation Interface for the SP932U camera.
    - Added a BeamPeek setup file to the pre-canned files.
    - Fixed an issue that prevented saving a multiple paged PDF report with both the 1D and 3D displays enabled.
    - Fixed an issue where the SP932U would wait for a final trigger after turning off trigger mode.
    - Fixed an issue where BeamGage would occasionally hang when attempting to Ultracal the SP932U while a trigger mode was enabled.
    - Fixed an issue that crashed BeamGage when changing trigger delay with the arrow controls on certain cameras.
    - Fixed an issue that prevented time charts from drawing when convolution was enabled.
    - Fixed an issue that was allowing message boxes to appear when using the Automation Interface.
    - Fixed an issue that crashed the app when clicking Positional Stability Pan buttons without a chart enabled.
    - Fixed an issue that was changing Positional Stability data if it was saved

with pixel units.
    - Fixed an issue where Ultracal background subtraction could be disabled when hardware triggering certain model cameras.

- v6.18 7/29/2022

    - Added SP504S 25MP large format camera support and Vimba v6.0 USB3 and GigE driver packages.
    - Fixed all known issues for BeamGage and camera drivers for Windows 11.
    - Fixed an issue where languages that require double-byte character localizations could not be used in the setup and data file names due to a restriction introduced by a third-party component.
    - Updated Matlab example code.
    - Removed outdated Matlab example documentation in favor of in-line documentation in the examples.

- v6.17.1 12/23/2021

    - Fixed an issue where color formatting was not applied to Result and Statistics items in the grid or in floating mode.
    - Fixed an issue where the Blooming Correction mode did not disable when switching to data sources that did not have the feature enabled or supported.
    - Fixed an issue that prevented saving Beam Positional Stability chart data in some cases.
    - Fixed an issue where the Enhanced Auto Aperture was not placed and sized accurately when in Off-Axis mode and the rotation angle changed.
        - This issue was isolated to v6.17.
    - Fixed an issue where the Threshold Power/Energy Density result would display the incorrect units in some cases.
    - Fixed an installation utility error when .NET 4.x was not already present on the system.
    - Improved the user experience when entering the Blooming Correction wavelength setting.

- v6.17 9/24/2021

    - Added SP932U camera with blooming correction capabilities.
    - Added compatibility for next-generation interfaces in the ResultsEngine. Most users will see no impact to this change.
        - Developers of existing custom calculations libraries will need to update and rebuild their projects with an additional DLL reference for

BeamStack.Interfaces.dll.
        - See the Custom Calculations HTML documentation for more information.
    - Changed the default exposure of the Lt665 and L11059 to the minimum available integration time.
    - Fixed error message displayed when failing to connect to a data source.

- v6.16.2 05/27/2021

    - Fixed an issue where the power meter scale factor did not restore from setup files.
    - Fixed an issue where the Juno and Pulsar meters would only produce zero values when used with pyroelectric sensors and then loaded from a setup file.
    - Fixed the connection capability of the Ophir Juno and Centauri power meters.
    - Fixed various connection stability issues with Ophir meters with displays and keypads.
        - Including the Nova II, Vega, StarLite, StarBright, and Centauri power meters.
    - Fixed an issue where closing Chart displays could cause a hang of the BeamGage GUI in very fast frame rates.
    - Fixed an issue where Floating Results did not correctly restore from setup files.
    - Disabled dynamic tap matching for the multi-tap mode of the LT665 camera and similar models.

- v6.16 3/16/2020

    - Added SP920s camera.
    - Added functionality to the automation interface for selection of data format (Standard or Compressed).
        - Default of Standard data format restored.
    - Removed the ability for the user to select zero frames when generating a report.
    - Fixed a calculation error with 1D Gaussian Centroid location inside an aperture.
    - Fixed a calculation error with 1D Gaussian Widths when off-axis.
    - Fixed error message displayed when failing to connect to a data source.
    - Fixed an issue where loading a setup file via the automation interface would cause the display to stop updating enabled results values.

- v6.15.3 10/25/2019
    - Added all user programmable beam width method settings available in the Beam Width expansion dialog to the automation interface.
        - This interface can be accessed via the existing ProgrammableSettings property.
        - e.g. _bga.ProgrammableSettings(AProgrammableSettingsNames.PercentPeakClip, 50.0);
    - Fixed an issue where BeamGage would reset volatile memory settings upon connection in the SP920G cameras.
        - This had been intended behavior which caused the camera to restart fresh for every connection, but for Flir GenICam devices also clears the persistent IP address properties.
    - Fixed an issue where launching a second instance of BeamGage which loads the same camera as the first instance, no longer changes the camera settings of the first instance upon connection.
        - The first instance is intended to maintain primary control of the camera.
- v6.15.1 2/15/2019
    - Added support for SP920 CCD camera.
    - Added camera image smear correction for all CCD cameras. LT665 and L11059 cameras can apply smear correction only when using a single tap mode.
    - Added Exposure, Gain, Black Level, and Tap Mode to the Frame Info results. These results will only be shown if the camera under use allows setting them.
    - Added Enhanced Auto Aperture feature. This significantly improves the ability of the software to optimize the auto aperture, particularly with small diameter beams and low signal to noise conditions. Refer to the User Guide for additional information.
    - Improved algorithm for faster camera enumeration.
    - The option to save 2D images as TIFF files, formerly "on" by default, is now "off" by default.
    - Fixed random application lockups when:
        - Starting the application.
        - Moving or resizing a manual aperture.
        - When the application is under heavy computational and/or presentation load.

        - When the tap mode is changed on LT665 cameras.
    - Fixed improper loading of Positional Stability files that showed the azimuth angle ellipse incorrectly and improper placement of pixels.

- v6.14 12/3/2018

    - Added support for SP1201 & SP1203 InGaAs cameras.
    - Added option to set single-tap or multi-tap mode on supported Lumenera cameras.
    - Added Automation methods to get and set positions for BeamDisplay Cursor and Crosshair.
    - Revised HDF5 items in data and setup files for human-readable inspection.
    - Added support for saving image data in TIFF Gray32bppFloat format. This option is selectable on the file save dialog.
    - In Automation, PointingStabilityResults property is deprecated. PositionalStabilityResult is preferred.
    - Statistical pass/fail settings saved in setup files are now restored when loading the file.
    - Trigger delay settings in a setup file are now restored when loading the file.
    - Corrected SocketException in Automation if GUI is not displayed.
    - Setup file now restores bit depth settings.
    - Fixed program lockup when aperture is moved or resized while a power meter is attached.

- v6.13.1 05/23/2018

    - Added SP920-G GigE camera.
    - Corrected inability to license PyroCam demo cameras.
    - Fixed incorrect fluence values displayed in 3D backplane and histogram.
    - Removed the 10ms lower exposure limit on SP300 and SP920 cameras.

- v6.13.0 04/23/2018

    - Upgraded FlyCap camera driver to 2.12.2.
    - Corrected an error in display of beam intensity color values in the Color Bar, 2D cursor tooltip and status bar when power calibrated.
    - LW230, SCOR20 and FX cameras are no longer supported. These cameras may continue to operate but will be explicitly disabled in a future version of BeamGage.
    - Improved performance of most results. Gaussian results remain slowest

because of heavy computation effort.

- v6.12.0 02/26/2018
    - Corrected an error in the calculation of Positional Stability.
    - Corrected a program lockup when using trigger mode with Gevicam cameras.
    - Corrected failure of AutoX and Auto Setup when using a Lumenera camera.
    - Corrected inaccuracies in LT-665 exposure and gain control.
- v6.11.0 9/13/2017
    - Upgraded Pleora drivers to 4.1.7.3988.
    - Upgraded PGR drivers to 2.11.164.
    - Added support to auto upgrade installed drivers during installation.
    - Improved reliability of the console service and data server interaction allowing connections to devices to be more stable.
    - Fixed a memory leak in the automation interface.
    - Fixed an issue where the application would not exit when running an automation client without the UI
- v6.9.1 - 3/9/2017
    - Due to limitations imposed by LabVIEW and the consumption of .NET dlls, an additional Spiricon.Automation.LabViewInjector object was created for LabView automation clients. Please refer to the LabView example for more details.
- v6.9 - 2/14/2017
    - Power Meter wavelength setting can now be set through BeamGage.
    - Power Meter range is set to automatic when connected through BeamGage.
    - Ophir Power Meter drivers are no longer installed automatically. They can be installed/uninstalled via the driver manager.
    - Power results, when measured through a power meter, now support statistics.
    - Enhancements to the automation now require an additional reference to Spiricon.automation.dll
    - Additional pre-configured setups are installed to support BeamCheck.
    - Fixed an issue where having an SP300, SP928, or SP907 and a custom ROI

configured, the ROI width and height would be cut in half after performing an Ultracal.
    - Fixed an issue where a custom ROI could not be restored from a saved setup for an SP300, SP928, or SP907.
    - More reliable communication with SP300, SP928, SP907, XC-130 cameras.
    - Other miscellaneous bug and instability fixes.

- v6.8 - 6/28/2016
    - Full Windows 10 compatibility.
    - Integrated with StarLab 3.2 software.
    - Enhanced application logging for diagnostics.
    - Improved text and images in Driver Manager for ease of camera identification.
    - Renamed application title to make it easier to identify in Task Manager.
    - Fixed a calculation error that returned an incorrect plateau uniformity result.
    - Fixed a presentation error that caused beam profiles on elliptical beams to display on the wrong axis.
    - Fixed installation incompatibility between BeamWatch and BeamGage where installing one product would render the other unusable.
    - Fixed a compatibility issue with Windows FIPS security settings that would render the product unusable.
    - Fixed a problem in setup files saved with the setting of 2D elements of the 3D display turned off. The application would start but not become visible.
    - Fixed a problem with the automation server that required recompilation of client code when the product was upgraded to a new revision.
    - Fixed the failure to connect to a camera of the same model (but different serial number) as the one saved in a setup file. Affects Pyrocam IIIHR, Pyrocam IV and Gevicam.

Section 2 - Errata and Workarounds

We work hard to find and correct any bugs in this software product. However, as of this release we still have a few tough bugs for which we have not found complete solutions. The following list details these bugs and offers recovery and work-around methods if available:

- After changing data sources the first control used on the Source ribbon may be slow to respond.

- If a Partition is active when a setup file that includes Partitions is loaded, then a false 'full frame' partition will be created. This can be avoided by selecting Full Frame prior to loading the setup file.
- Users with 1550nm phosphor-coated cameras should begin with one of the pre-canned 1550nm setups. All user-custom setups for these cameras should begin with the pre-canned versions.
- A 640x480 frame format at 14 bits per pixel on the GRAS20 camera will not run at 60 Hz. This option is available as a selection but will not work properly.
- The 8 bits per pixel option on the SP620U cannot be selected on Windows 10 or later due to limitations of the Microsoft DirectShow driver supplied with these operating systems.
- Under certain conditions Beam Stability files saved under earlier versions may not load properly in BeamGage.
- LabVIEW does not natively support the .NET CLR 4. LabVIEW users must take special action to continue using the BeamGage Automation Interface. Please refer to the LabVIEW specific pages of the Automation Interface Documentation for more details and a known workaround.
- Due to the amount of PC memory required to handle the large frame size of the LW11058/LW11059 cameras we recommend that Windows 10/11 64-bit with a minimum of 4GB of RAM. Using this camera in a 32-bit environment may produce adverse behavior.
- Users with Adobe Reader X may see inconsistent behavior when using the What's This? feature. This is due to limitations created by a security feature in Adobe Reader X. Users can restore previous functionality of What's This? by disabling "Protected Mode" in the Reader X Preferences menu. This is safe to do if careful security and anti-virus best practices are used with all PDF files.

Section 3 - BeamGage Notes

Supported Operating Systems

- Windows 11 (64 bit)
- Windows 10 (64 bit)

Extensive testing has not and will not be performed in operating systems earlier than Windows 10 or any 32-bit version; however, we have yet to encounter any major operational problems related to specific operating systems. Please review the Errata for any known issues.

Documentation

- A PDF version of the User's Guide is included with the installation. Adobe Acrobat Reader is recommended in order to view this file. Adobe Acrobat Reader installation can be obtained here https://get.adobe.com/reader/.

Installation

- Ophir products are only supported when fully updated to the latest Windows updates.
- You must have Administrative privileges in order to fully install BeamGage and the required camera driver packages.
- For maximum performance a dedicated video card is recommended over on-motherboard video outputs.

Troubleshooting and Reporting Bugs

If you suspect you have found a bug in our software please help us identify it by sending the following information to service.ophir.usa@mksinst.com.

1. A description of the actions that reproduce the problem.
2. The .bgSetup or .bgData file you were using at the time.
3. All files (if any) in the directory C:\ProgramData\Spiricon\BeamGage\Logs.
4. All files (if any) in the directory C:\ProgramData\Spiricon\DataServer\Logs.

The more information you can provide, the more likely we can reproduce it in our lab, and fix it.