



Studio Software Update 8.5.1 – Release Notes

Previous Studio Release: 8.3.1 (SM 8.4)

Supported Equipment PC: Z170, Z370

Offline Studio Operating System: Windows 7; extensive testing specifically performed on Win 10 64 bit

Summary:

All included Studio applications have been validated for compatibility with previously created Akrometrix Studio file formats. Files created prior to Studio 8.0 will not be readily usable with the Automated Report Generator feature. Important bug fixes and added features are listed below. This list does not include all resolved bugs and added features. Known issues are presented with workarounds where applicable.

Update Procedure:

PLC Update

Studio 8.5 requires an update to the PLC on any AXP 2.0 systems. Owners of any other Akrometrix models may skip this step. The PLC update includes more detailed handling of warning status between PLC and software, along with new features to override unresponsive thermocouple behavior. Additionally, Thermocouple 9 attached near the top heater has an increased upper limit in shutting off top heater power changed from 350°C to 375°C, allowing for further improvements to top-bottom uniformity on longer profiles. Further instructions for downloading PLC code and updating AXP 2.0 systems will be provided separately.

Install Studio 8.5

Download and Unzip the Studio Installer zip file. Install all applications for Studio 8.5 by launching the provided file "Akrometrix Studio 8.5 Installer x86[or x64].exe". Uninstalling older Studio applications is not required prior to launching this file, as this will be done automatically. Take note to only install the x86 version for 32-bit systems and x64 for 64 bit systems.

Key Feature Changes or Additions:

Studio 8.5 is releasing without fully updated User Manuals for this version, to be provided at a later date.

Unlike some previous releases, Studio 8.5 is less focused to a few larger feature changes, and instead includes a large variety of feature additions across multiple functionalities. This includes highly useful changes related to data processing around masking and partitioning data.

RTA (Real Time Analysis)

RTA is no longer an add-on for purchase but is now included standard with Studio 8.5.

DFP2 and TTSM-J Product Lines

Multiple changes and support features have been added for upcoming DFP2 and TTSM-J product lines. More details on upcoming product lines from Akrometrix will be released separately at a later date.

Studio 8.5 Features:

- Displacement data now can be masked based on phase amplitude
- Minor changes made to LSF rotation to better handle rounding error when data is extremely far from the "0" reference plane, in support of DFP data.
- New gauges:
 - o **Max Warpage Gradient (MWG):** Quantifies the highest slope area of the data set by looking at height change in a small area around each data point. Primarily useful for comparison of data sets. Only a single highest value is reported.
 - o **Average Phase Amplitude (APA):** Measurement quality metric showing the average amplitude of the phase curve calculated for each point in the data set. Higher values indicate better overall measurement resolution. This same math is used in phase amplitude thresholding where lower values are masked from the data set.

- *Average Phase Modulation (APM)*: Similar measurement quality metric as APA normalized across the dynamic light range of the image. Higher is still better, with values approach 1 in best case.
- Added *R_Squared* statistical value to SOFC (Second Order Fit Coefficient) gauge results
- **Surface Measurement:**
 - Exposure Time (in milliseconds) and Frame Rate are now shown when adjusting Exposure(%) under Camera Control Window
 - Acquisition now occurs with F12 shortcut regardless of current focus window
 - Dual Exposure feature is now compatible with DFP products
 - Further details saved in akx_recipe file including Metadata, Autosave Settings, and Part Tracking settings
 - Added an option under Tools->Options where “Show 3D Graph” can be set to True/False. Previous default would have been true. Setting to False will reduce time between acquisition and result output.
 - Gauge Result Summary window in RTA now shows Gauge values instead of P/W/F (Pass/Warning/Fail)
 - DFP Surface Measurement Calibration has been retooled for better interaction with Lateral Resolution and usability
 - Part Track regions now up to 4096x4096 in size. (limited by camera resolution)
- **Thermal Profiler:**
 - Opening the oven lid now ends a running profile instead of only disabling heaters. Additionally, a profile cannot be started with oven unlatched. (AXP 2.0 only)
 - Added switch to Thermal Profiler Start window “Unresponsive Thermocouple End Profile”. This is checked by default, which matches previous behavior. If unchecked the system will prompt the user during a profile to Continue despite logic indicating improper setup due to slow thermocouple response. This acts as a “dead-man” switch in that the user would have to hit Continue when prompted to keep the profile running. This should only be used by advanced users trying to heat non-typical objects. (AXP 2.0 only)
 - Bottom right window now shows as Live and Historical. Users cannot interact with ROIs in the Live tab, only historical. Also focus is no longer automatically changed to Historical after each acquisition.
 - Disabled thermocouples are now hidden in table
- **Surface Analysis**
 - Mask and Partition Changes:
 - Context menus for Mask and Partitions have been rearranged for easier use
 - “SquareBounds”, “Burn”, and “Extract Region” functions in context menu apply to all selected regions
 - Keyboard Shortcuts now apply to all selected Mask or Partition regions
 - Selecting multiple Mask or Partition regions will add “Delete Regions” and “Delete All” options to context menu
 - A “Pin1” indicator can now be visualized by a pink sphere, matching “Pin 1 Location” metadata in 1-off and batch surface data
 - New Mask Function: “Mask Data Islands” - Mask data based on an absence of surrounding data. Allows the user to remove “islands” of data based on a user chosen quantity of pixels. Useful for removing noise from complex data sets.
 - New Mask Function: “Expand Mask” – Extends out from all mask data a user chosen number of pixels. Useful for removing noisy edge data after removing features via Z-range mask or phase amplitude thresholding
 - All existing masked data on a phase or displacement image can now be saved as a mask map, regardless of steps to get to said mask
 - “Second Differences” phase unwrapping is now an “Unwrapping Parameter”
 - Turning on “Second Differences Quality Mapping” will allow phase data to unwrap based on smallest changes between points instead of moving out from a center point in concentric circles

- Second Differences also includes a filter setting, ranging from 0-1000. Values closer to 1000 will exclude data points from the unwrapping process that are unlike their surrounding pixels in Z height.
- “Crop to Extents” function added to Batch Crop. Allows the user to crop the surface data down to only areas of unmasked data.
- Added more custom naming options for regions in batch cropping
- Batch Results text/xml file can now be saved with a custom name under the Edit menu in Batch Processing
- Added feature to “Batch Edit akx_phase Metadata” under Tools menu, with this new feature “Edit XY Orientation” tab was removed from batch processing as it would be redundant
- Automated Report Generator (ARG)
 - Added the ability to assign a default Report Settings file
 - Added further detail and clarification to Grouping Parameter settings
 - “Page Formatting” settings can now be fully driven by template or mdddl files
 - Table titles and text are now saved in Layout Settings tab
 - Added more clarity to naming of grouping options

Key Bug Fixes:

- Offset property in Metadata now correctly displays location of ROI top-left corner, instead of always reporting (0,0)
- A kernel size of “1” in custom smoothing no longer causes an unhandled exception
- **Surface Measurement:**
 - Save All feature now works when called multiple times on open results window and will correctly save gauge values per file
 - AXP2.0 oven parameters are correctly shown when running DFP Surface Measurement or DIC Surface Measurement
 - Part Tracking with DFP no longer causes errors with rotated samples
- **Thermal Profiler:**
 - Output Path Template now correctly updates after browsing to a folder
 - AXP2.0 oven related columns are correctly shown when running DFP Surface Measurement or DIC Surface Measurement
- **Surface Analysis:**
 - Minor stability improvements in making changes in ARG Layout Settings tab
 - Stability improvements to Active Metadata File Filter in Batch Analysis

Known Issues

- Legacy DFP data (prior to DFP-M) cannot be opened in Surface Analysis. The legacy DFP system is not supported in Studio 8.5.



Versions (listed for reference):

Studio Manager	8.4.14578
SurfaceMeasurement	8.5.14578
SurfaceAnalysis	8.5.14578
ProfileGenerator	7.8.14578
Report Generator	7.4.8202
FileConverter	7.5.14578
LicenseUtility	7.5.14578
User Manuals Studio	Studio 8.3