Studio Software Update 10.2.5 – Release Notes

Previous Studio Release: 10.1.5
Supported Equipment PC: Q470, W680, W880
Recommended PLC Versions (hardware dependent): See details in PLC/HMI Update
Offline Studio Operating System: Extensive testing specifically performed on Win 10 and Win 11 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 or Batch Interface Analysis 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. Studio 10 is built referencing updated external software components, requiring all update procedure steps to be run in order to function correctly.

Update Procedure:

Install Studio 10.2.5 from downloads section of Akrometrix website. If updating from a system that has not already been updated to Studio 10, follow instructions in Studio 10 release notes to install and configure pre-requisite software packages.

PLC/HMI Update

Studio 10.2.5 requires an update to the PLC for the AXP 2.0, AXP3, PS600T, PS600RT, and PS600S systems including a PLC (PS600S system including an HMI screen seen on the front of the electrical cabinet instead of a Watlow CSL208 temperature controller). Owners of any other Akrometrix models may skip this step. Download and use PLC and HMI versions per the table below.

Instructions for applying PLC/HMI code are available in a separate document.

Model	Equipment Serial Number	PLC Version	HMI Version
AXP 2.0	<0413	1097-20260209	0084
	0413-0440 (except 0433 and 0437)	2097-20260209	
	0433, 0437 and >0440	2509-20260206	
AXP3	Any	300E-20260916	300B
PS600S	<0432	1017-20260205	0084
	>0438	2017-20260205	
PS600T	Any	4004-20260630	300B
PS600RT	Any	4103-20260721	300B

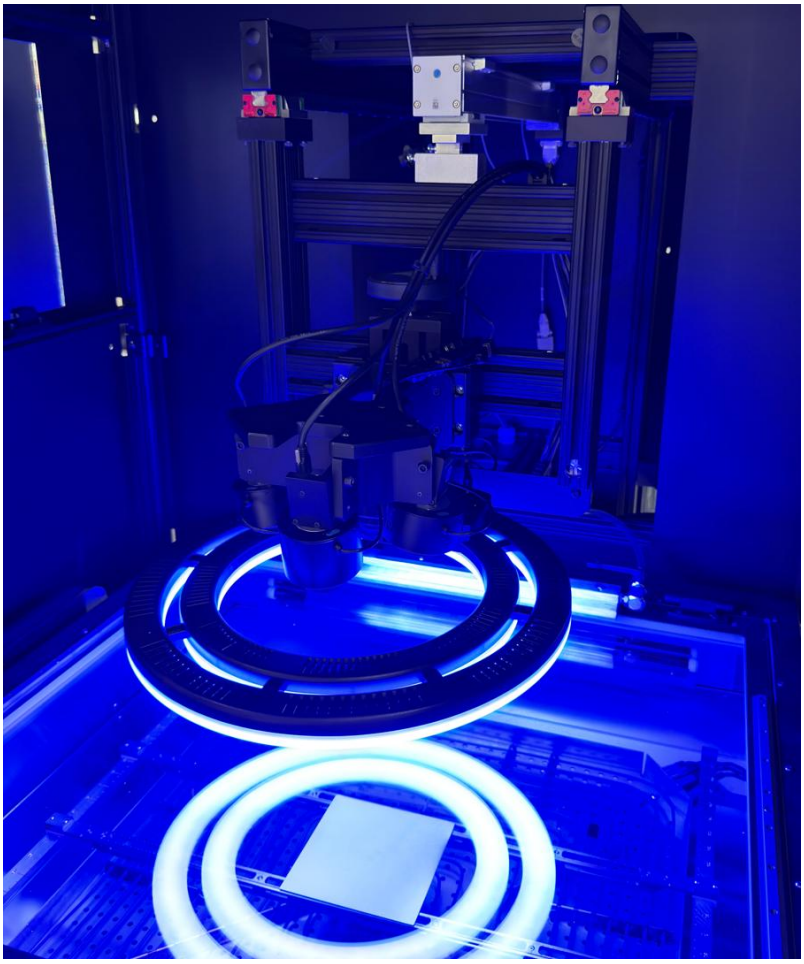
Key Feature Changes or Additions:

Studio 10.2.5 is releasing without fully updated User Manuals for this version, to be provided at a later date.

PS600RT

The PS600RT is a room temperature version of the PS600T with no heating elements installed. This system is upgrade-ready for a field-installed oven, allowing it to be converted to a PS600T.

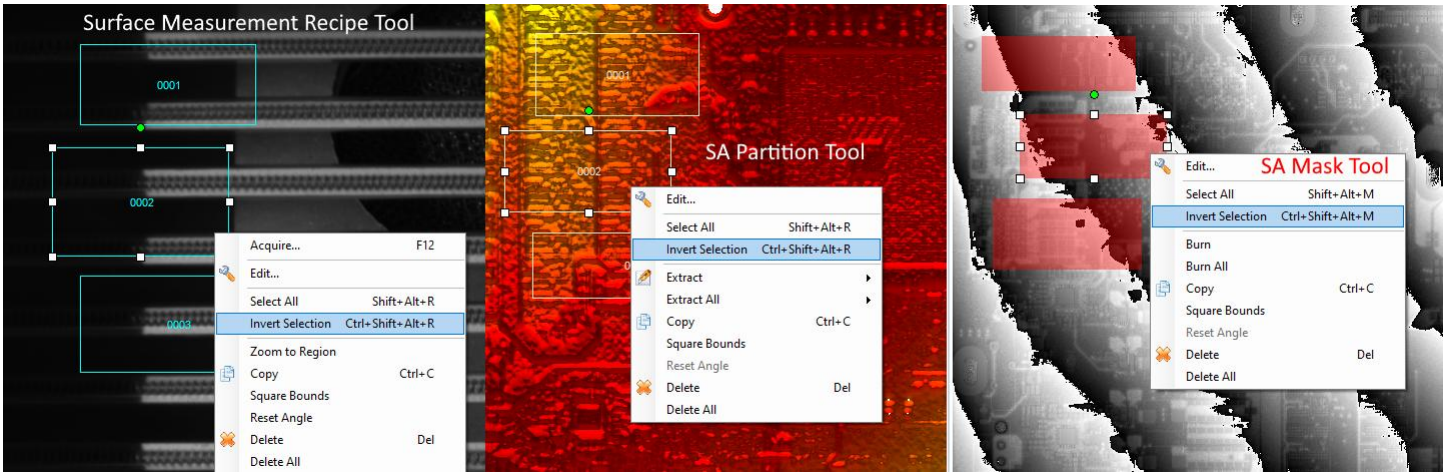
DIC3 Module



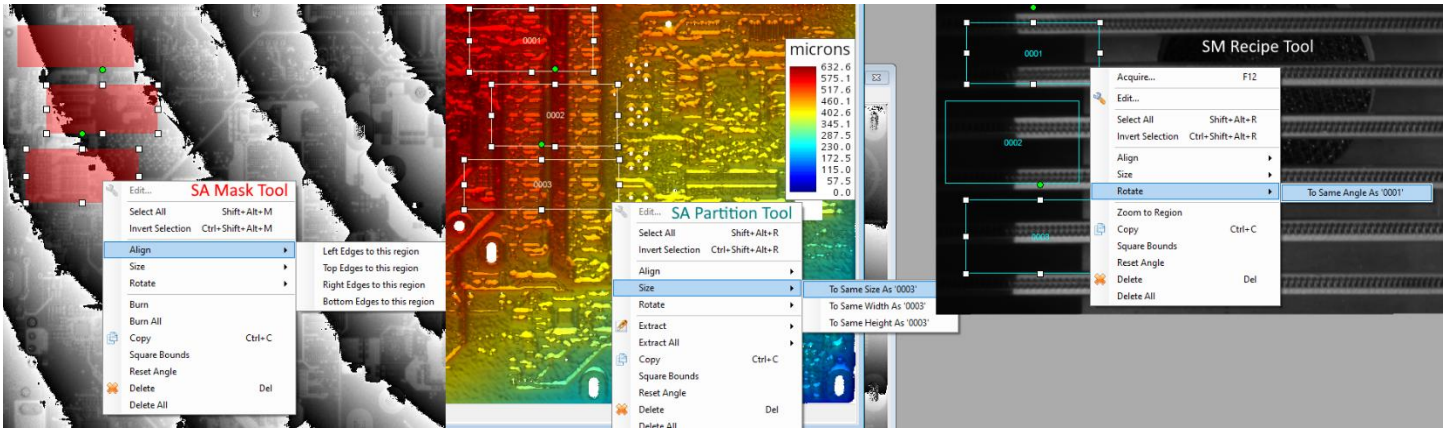
Automation of the DIC (Digital Image Correlation) 3 module is now available with a loader for switching between Shadow Moiré and DIC measurements by using the **NAVIGATE TO LOAD OPTION**.

Region Management Tools for Recipe, Partition, and Mask

Multiple regions can be selected by holding the CTRL key and selecting individual regions, or by using the Selection Marquee to click and drag a box that selects all regions within it. Selection can also be managed via the context menu, which includes ***Select All*** and **Invert Selection** options. **Select All** selects all partition or mask regions, while **Invert Selection** reverses the current selection by selecting all unselected regions.



When two or more regions are selected, **Align**, **Size**, and **Rotate** options become available in the region context menu, each with their own sub-menus. Selected regions can be aligned by their edges, resized, or rotated to match the angle of a selected region.

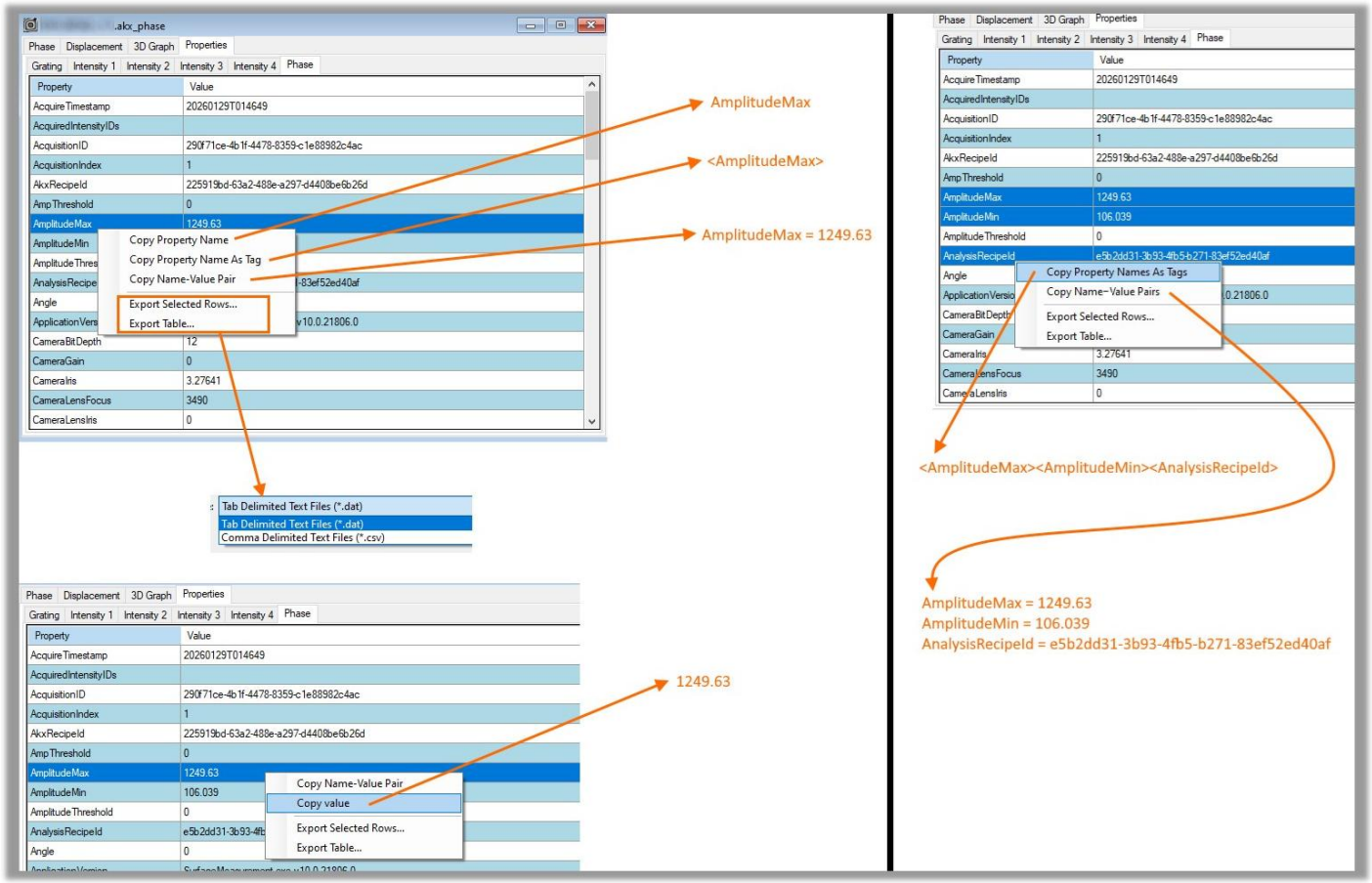


These new options are available in Surface Analysis and Surface Measurement.

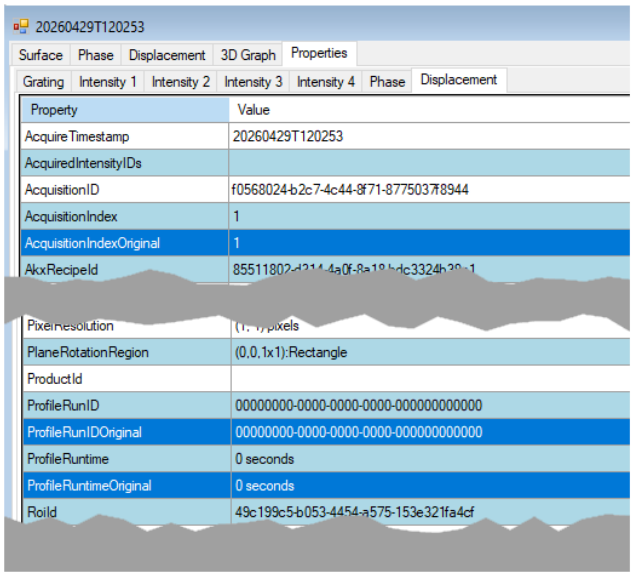
Properties Tab

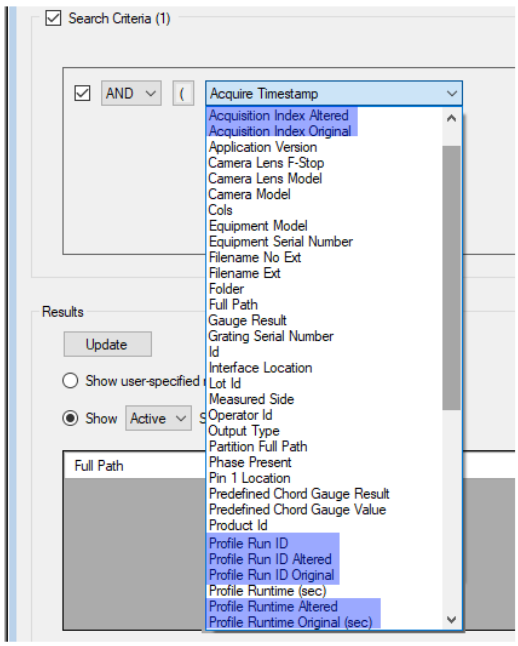
The Properties information is now available in a dedicated tab for both phase and displacement files. Previously accessed through the Info context menu, this information has been moved for easier access and visibility. The tab displays a two-column table that supports multi-select and includes a context menu with the following options:

- **Property column**
  - Copy Property Name
  - Copy Property Name As Tag
  - Copy Name-Value Pair
  - Export Selected Rows
  - Export Table
- **Value column**
  - Copy Name-Value Pair
  - Copy Value
  - Export Selected Rows
  - Export Table



Three additional fields for Acquisition Index, Profile Run ID, and Profile Runtime have been added. The original values are preserved and retained separately as Acquisition Index Original, Profile Run ID Original, and Profile Runtime Original. These values are embedded within the individual files and can be easily located using SA File Finder. Acquisition Index Altered, Profile Run ID Altered, and Profile Runtime Altered within SA File Finder will return True if the current values equal the original values, and False if the current values have been modified from the original values.





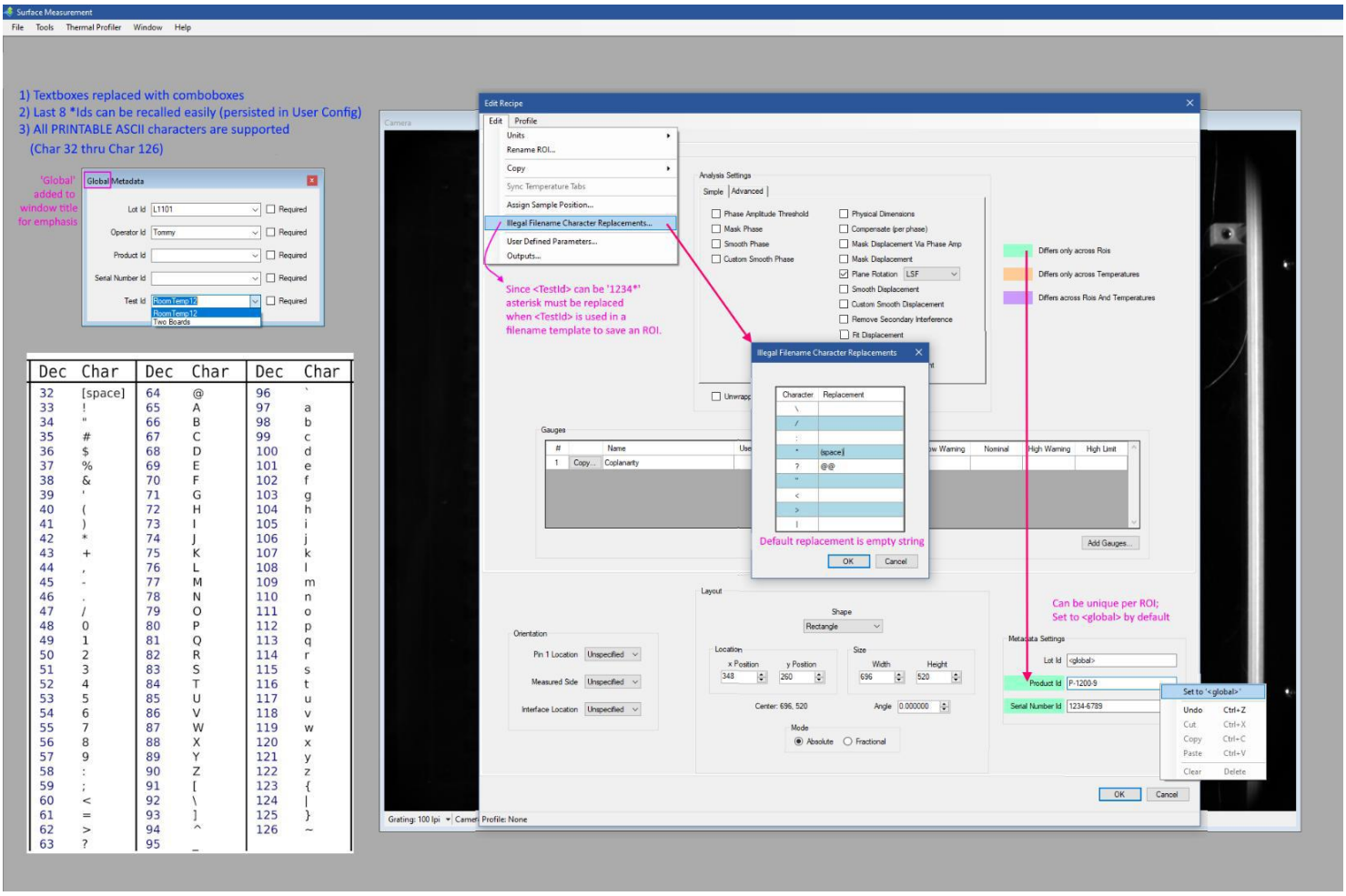
Metadata Support

The Global Metadata in the Windows menu has been updated to replace text boxes with combo boxes. Each combo box stores the last eight IDs, which are saved in the user configuration file. Values entered here can be applied by setting applicable fields to use the <global> tag. When a combo box ID control loses focus, all non-printable ASCII characters are removed. Only printable ASCII characters (Char 32 through Char 126) are supported.

The Metadata Settings in the Edit Recipe window within Surface Measurement are set to use the <global> tag by default. Values can be added which are unique to the selected ROI.

While printable ASCII characters are supported in descriptor fields within the software, Windows does not allow some of these characters to be used in file names. If an internal tag, such as <Product Id>, is used in file naming and contains an illegal character, Windows will prevent the file from being saved. These characters must therefore be replaced.

The **Illegal Filename Character Replacement** window can be found in the **Edit** menu of the **Edit Recipe** window. By default, illegal characters are replaced with an empty string, but custom replacements can be defined.



Dec	Char	Dec	Char	Dec	Char
32	[space]	64	@	96	`
33	!	65	A	97	a
34	"	66	B	98	b
35	#	67	C	99	c
36	$	68	D	100	d
37	%	69	E	101	e
38	&	70	F	102	f
39	'	71	G	103	g
40	(	72	H	104	h
41	)	73	I	105	i
42	*	74	J	106	j
43	+	75	K	107	k
44	,	76	L	108	l
45	-	77	M	109	m
46	.	78	N	110	n
47	/	79	O	111	o
48	0	80	P	112	p
49	1	81	Q	113	q
50	2	82	R	114	r
51	3	83	S	115	s
52	4	84	T	116	t
53	5	85	U	117	u
54	6	86	V	118	v
55	7	87	W	119	w
56	8	88	X	120	x
57	9	89	Y	121	y
58	:	90	Z	122	z
59	;	91	[	123	{
60	<	92	\	124	|
61	=	93	]	125	}
62	>	94	^	126	~
63	?	95	_		

Regex support has been added for trimming and character extraction within metadata tags (e.g. extracting substrings from **SerialNumberID = ABCDEFGHIJKLMNOPQRSTUVWXYZ** – where SerialNumberID has a length of 26 characters).

1. Extract first 4 characters:

   <SerialNumberID:RX=^.{0}(.{4})>

   Result: ABCD

2. Extract last 3 characters:

   <SerialNumberID:RX=^.{23}(.{3})>

   Result: XYZ

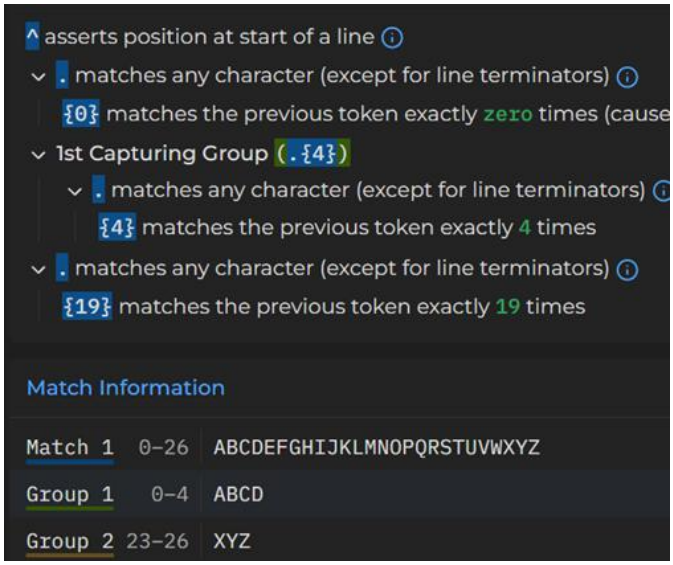
3. Combine expressions:

   <SerialNumberID:RX=^.{0}(.{4})><SerialNumberID:RX=^.{23}(.{3})>

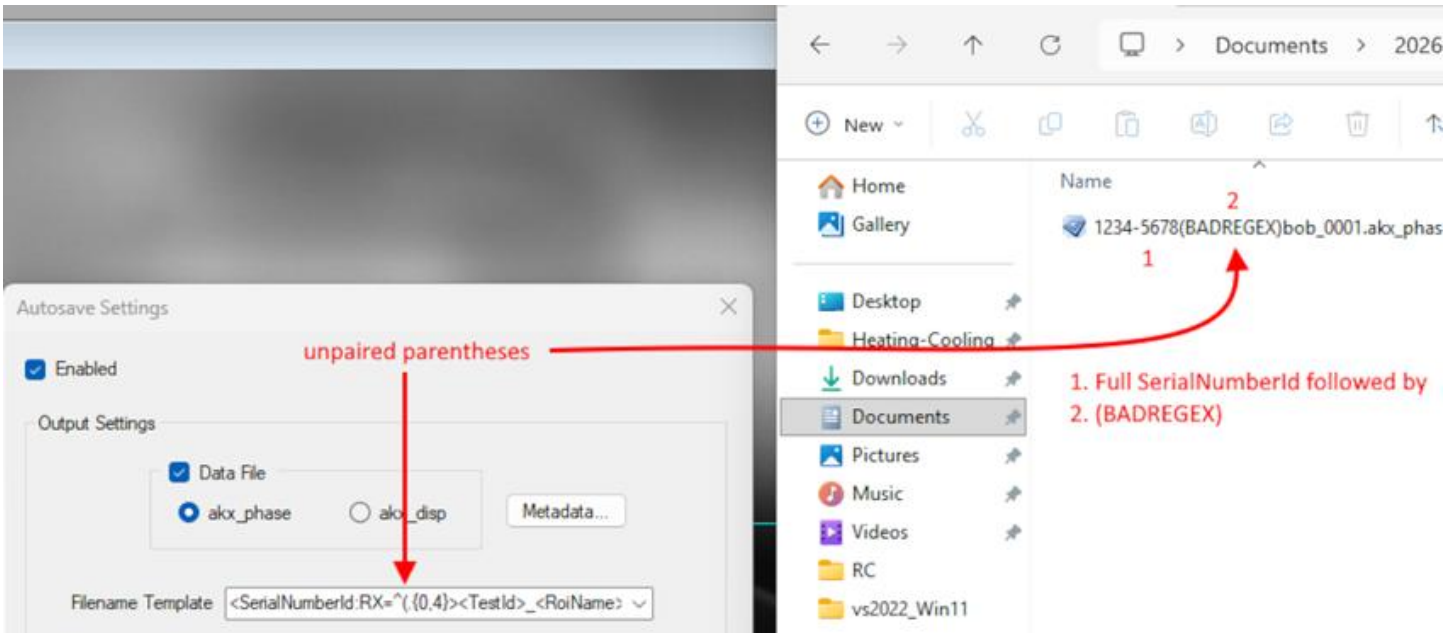
   Or concatenate two groups together

   <SerialNumberID:RX=^.{0}(.{4}).{19}(.{3})>

   Result: ABCDXYZ



If the expression cannot be interpreted, the resultant string will include “BADREGEX”.

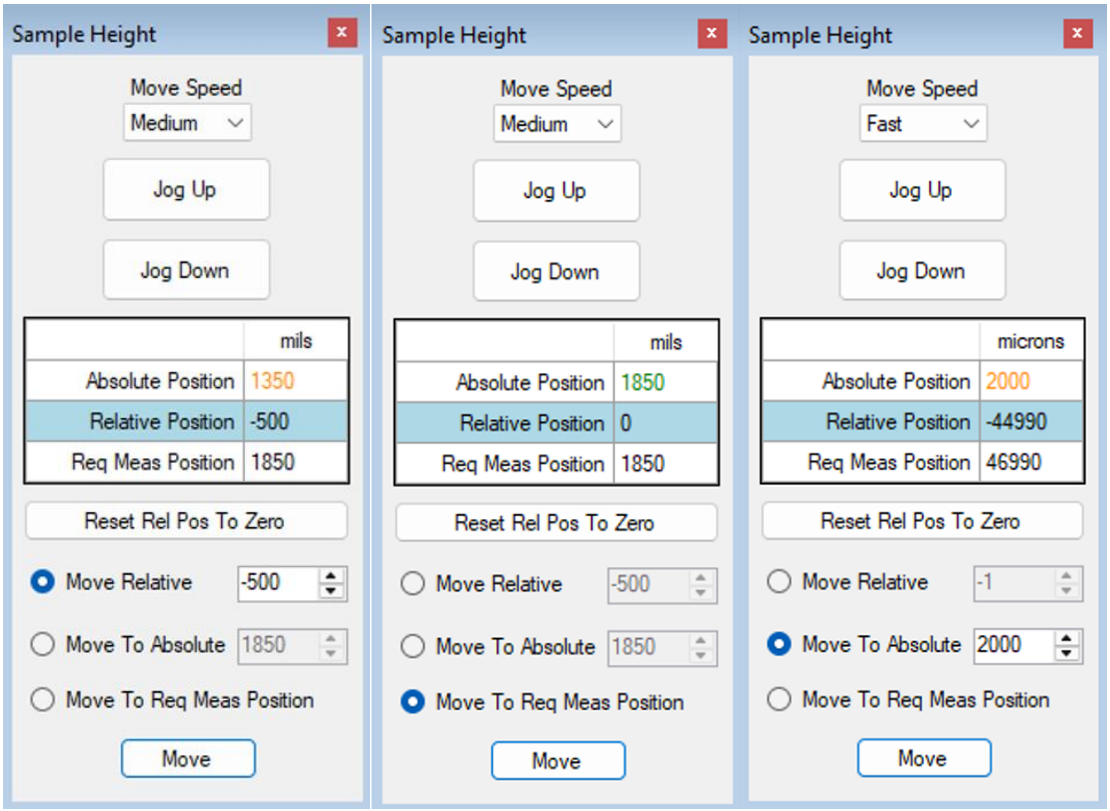


Sample Height Adjustment Window

The Sample Height Adjustment window now includes several new features beyond moving the sample height up and down. The window displays the absolute position, relative position, and required measurement position in a table, along with their current values. The system must be homed to display the absolute position and to use the ***Move to Absolute*** option. Selecting ***Reset Rel Pos To Zero*** sets the current position shown in the table as the new zero point for the relative position. Position values can be displayed in either mils or microns.

Users can define a specific sample height as the required measurement position by selecting ***Assign Sample Position*** from the Edit menu while editing a recipe. Once assigned, the ***Move to Req Meas Position*** option becomes available. The absolute position is displayed in green when the current sample height matches the required measurement position,

indicating that acquisitions can be taken. If the current position does not match the required measurement position, the absolute position is displayed in orange. Users will not be able to take acquisitions until the sample height is adjusted to the required measurement position.



New Shortcuts

- Select all partition regions by using Shift+Alt+R keys
- Invert selection of selected partition regions by using Ctrl+Shift+Alt+R keys
- Selection Marquee for partition regions by using Alt+R keys
- Select all mask regions by using Shift+Alt+M keys
- Invert selection of selected mask regions by using Ctrl+Shift+Alt+M keys
- Selection Marquee for mask regions by using Alt+M keys
- PgUp and PgDn cycle through the surface and intensity images

Studio 10.2.5 Features:

- Brightness Standard Deviation gauge has been added
- ***Surface Measurement***
    - Significant performance improvements, including GPU acceleration for Gray code calculations, optimized phase amplitude calculations, improved file compression, and the ability to adjust DFP intensity image quality
    - Region information (size, name, and location) can be generated from phase or displacement file metadata, and imported/exported
    - Lens Controller settings have been moved from the user configuration file to an akxLensConfiguration file, which is now referenced by the user configuration file
    - Tab character support has been added to the Plain Text Output Configuration context text box in the Options of the Recipe
    - The <SerialNumberId> tag has been added to the Filename Template in the Autosave Settings

- Log Part Tracking availability and disable Part Tracking on startup when incompatible MIL library is installed
- ROIs can be renamed through the camera context menu
- Added support for automatically loading a configurable default recipe file
- Improved partition import and export handling
- **DFP**
  - Shadow Moiré start time improved when DFP3 module is installed
  - Reduced displacement file size
  - Stores/recalls last high bit depth camera setting, projector frame rate, and absolute angle of the projectors position
  - Projection framerate set to 10 fps by default
  - Bit depth and installed lens controllers are selectable through configuration dialog on startup
  - The <DfpProjectorPositionAbsoluteAngle> tag is now created for the DFP3 projector position

- ***Surface Analysis***
  - Added custom phase smooth with configurable kernel size, kernel weight, and iteration count
  - Second Difference Quality Mapping Threshold default value changed to 700
  - Log Part Tracking availability and include reason if unavailable
  - ROIs can be renamed through the context menu
  - **Batch Processing**
    - Output performance can be set to sequential (single core) or parallel (using either half or all available cores)
    - Offset is available as a metadata column
    - Expand Existing Mask and Mask Data Islands added to Phase Advanced Analysis Settings
    - Improved filter configuration in the Advanced tab by automatically opening configuration window when adding a filter, allowing double-click access to filter settings, supporting removal of multiple filters at once, and displaying parameter tooltips when hovering over a filter
    - Centerlines, LeftRightEdges, AllEdges, AllEdgesCentersDiags, FiveVertical, and FiveHorizontal have been added to predefined Chord sets
  - **Automated Report Generator**
    - Identify bad file paths and give user option to update the corrupted path
    - Predefined Converters have been added to Roi Name Converter
    - Add support for Serial Number Id column
    - Acquisition Index, Profile Runtime, and Profile Run Id can be updated
- Legacy Units:
  - Shadow Moiré Lens Controller support for AXP and PS600_50TPI

Key Bug Fixes:

- ***Surface Measurement***
  - Camera exposure and exposure time present in the camera window status bar
  - Hardware Configuration Error no longer appears when switching to sub room mode on non-PLC based systems that do not have an Aux door
  - Measurements of ROIs set to 45 degrees within the DFP Surface Measurement no longer cause a crash
  - Import Partition correctly applies scaling options

- ***Thermal Profiler***
    - Tag remains in output path when selecting new path
- ***Profile Generator***
    - Can no longer create more than one point within a second
- ***Surface Analysis***
    - Editing an ROI preserves its current shape instead of defaulting to rectangle
    - Colors mapping follow Z legend when user-defined Z Axis Scale values are applied
    - PAT values originally masked in Surface Measurement can be unmasked reducing the PAT value
    - When selecting multiple partition or mask regions, intersecting regions remain selected when moved
    - Update the way the Offset metadata is being extracted for regions
    - The unwrapping start point is hidden when switching the unwrapping parameter to Second Differences mode
    - Users are notified when loading Chordset containing chord layouts outside the dimensions of the selected file
    - When updating metadata, pasted content is applied to the cell immediately
    - **Batch Processing**
        - Second Difference Quality Mapping Threshold values are saved with recipes
        - Unwrapping parameters can be set through file
        - Recipes with custom smooth and regions can be loaded
        - User-Defined Region can now be selected in LSF Plane Rotation for Displacement files in Advanced Analysis Settings
        - Clicking Output Options label no longer selects/deselects
        - Scroll bar present when using custom chords in Gauges section
        - When loading custom chords, the scrollbar is now available within the Gauges section, and the correct name is displayed in the Output Options section
        - Generating output for multiple Chordsets now creates unique files for each
        - CSV files added to drop-down list for Data Files in Output Options
        - Batch Results.txt lists filename extensions
        - Add Specific Folder allows selection of directories with a period in pathway
    - **Automated Report Generator**
        - Legend present with each individual 3D graph when selected in the Output Options
        - Time-Based Acquisition Matching stays selected when building database
        - Missing source folders can now be removed directly
        - Metadata checks for invalid ROI names are ignored for unmodified rows

Known Issues

- No further known issues are reported at this time.

Versions (listed for reference):

Studio Manager	10.0.23027
SurfaceMeasurement	10.0.23027
SurfaceAnalysis	10.1.23027
ProfileGenerator	10.0.23027

LicenseUtility	10.0.23027
User Manuals Studio	Studio 9.1