SMARTLINC MULTI-STRAND QUICK START GUIDE

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Description:

This guide requires the user to have created a program with at least one scanner, a calibration and an averaging method. Further, the calibration and averaging method must be assigned to the calibration and averaging method properties of the scanner. For instructions on creating and configuring a SmartLinc program, see the SmartLinc Quick Start Guide.

The multi-strand configuration interface of SmartLinc Exec enables the SmartLinc device to detect and measure multiple parts in the scanner window. Measurement of transparent parts is also supported.

To enable the SmartLinc device to properly identify multiple strands in the scanner window a multistrand profile is implemented which identifies the boundaries of the parts and resulting zones, where each strand is expected. An interactive utility is provided which captures the profile and allows the user to adjust the zone boundaries. The ability to modify the zones is required for establishing the profile of transparent parts.

Initial Configuration:

As previously stated, the program example below has a single 2-axis scanner with a calibration and averaging method assigned to the scanner's respective calibration and averaging method properties. Measurements have not been created for the scanner. See below....

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File About		13		
Programming Devices				
SmartLinc Programs	Hot Side			Show Help
⊿ 🐌 Scanners	CATEGORY	NAME	VALUE	A
 Hot Side (ch:1) 	GENERAL:			
Measurements		Name	Hot Side	
Flaw Detection Schemes		Id	70000	
Specifications		Serial Number	040024	
In Factory Cal Kit 0.5-0.75		Channel Number	1	
Encoders		Model	230	
Averaging Methods		Optics	Mirror	
⇒ SingleRevAveraging		Facet Count	12	
		Axis Count	2	
Fixed Column Export Templates		Enabled	Yes	
All Measurements	CALIBRATION:			
IDB Data logs		Default Calibration	Factory Cal Kit 0.5-0.75	
		Motor Revolution Count	1000 (12000 Scans)	
		TimeOut Seconds	10	
	EDGE CORRECTION:			
		Edge Correction	PERT	
	AVERAGING:			
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Enabling the Scanner for Multi-Strand Measurements:

To enable a scanner for multi-strand measurements, scroll down the property list of the scanner and enable the MultiStrand property.



Upon enabling the MultiStrand property, the file category "MultiStrand Schemes" appears in the left hand explorer pane under the Hot Side scanner and additional multi-strand properties appear in the right hand detail pane.

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Programming Devices			
SmartLinc Programs	Hot Side		
Scanners	CATEGORY	NAME	VALUE
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All Measurements	GLASS LOGIC: MULTI STRAND:	Glass Logic Enabled	No
IIIIII UDP DataLogs		Enabled	True
	TOO MANY ERROR:	Strand Count Reverse Axis B Enabled	No R
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o Edit: <doubleclick>, <rightclick> or use "+" or "-" key t</rightclick></doubleclick>	o sequence choices		

Configure the Number of Strands:

Set the "Strand Count" property to the number of stands to be measured.



Configuring the Reversed Axes Property:

When using a scanner with two or more axes, the strands must be positioned diagonally to each axes in order to be detected by all axes. Reversing axes is required since the beam for Axis 2 and/or Axis 3 may strike the last strand of the Axis 1 first, depending on the implemented diagonal orientation of the strand row. If this is the case, Axis 2 and/or Axis 3 must be reversed for multi-axis measurements such as AverageXY or AverageABC to report the correct value. Therefore a 2-axis scanner can have Axis 2 reversed and a 3-axis scanner can have the Axis 2, Axis 3, or both reversed. Make careful note of the orientation of the strand row within the scanner field and set this property appropriately. This property does not appear for a single axis scanner.

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Measurements		Default Calibration	Factory Cal Kit 0.5-0.75	
Flaw Detection Schemes		Motor Revolution Count	1000 (12000 Scans)	
Specifications		TimeOut Seconds	10	
A	EDGE CORRECTION:			
In Factory Cal Kit 0.5-0.75		Edge Correction	PERT	_
Encoders	AVERAGING:			
🖌 📲 Averaging Methods		Default Averaging	SingleRevAveraging	
⇒ SingleRevAveraging	DEFAULT ENCODER:			
Character Delimited Export Templates		Encoder	<unassigned></unassigned>	
Fixed Column Export Templates	GLASS LOGIC:			
All Measurements		Glass Logic Enabled	No	
IDP Data logs	MULTI STRAND:			
unit of balacogs		Enabled	True	
		Strand Count	4	
		Reverse Axis B Enabled	No	
	TOO MANY ERROR:		13	
		Trigger Status Method	By Scans	
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		Class Count	100	Ψ.
To Edit: <doubleclick>, <rightclick> or use "+" or "-" key to</rightclick></doubleclick>	to sequence choices			
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Creating A Multi-Strand Scheme:

In the left explorer pane, right click the "MultiStrand Scheme" folder icon and select "New MultiStrand Scheme" from the menu. Rename the scheme if desired.



Configuring the Multi-Strand Scheme:

In the left hand explorer pane, expand and select the multi-strand scheme just created. The scheme properties, visible in the right hand detail pane, establish the common properties of its strands.

In the right hand detail pane, select the "Measurement Type" which is applied to all strands. "Measurement Type" entries are limited by the number of axes of the scanner. For this demonstration, it is not necessary to modify the remaining properties of the scheme.



Configuring Strand Properties:

Each strand can have its own calibration and averaging method which override the default calibration and averaging method of the parent scanner. For this demonstration, both the calibration and averaging method will be inherited from the scanner and no further property changes will be required for each strand.



Performing a Multi-Strand Profile:

Performing a multi-strand profile requires the device be connected and communicating with SmartLinc Exec. Please follow the procedure in the SmartLinc Quick Start Guide to connect to the SmartLinc device if necessary.

Before performing the profile procedure, upload the MultiStrand program just created to the device by selecting the "Devices" tab in the left hand explorer pane and the "System Properties" tab in right hand pane. Click the "To SmartLinc" button and follow the prompts to upload the program to the SmartLinc device. As previously stated, the scanner must be calibrated using SmartLinc Exec before profiling can be performed. Follow the calibration procedure in the SmartLinc Quick Start Guide if necessary.



Position the product strands within the scanner detection area such that each strand is individually visible to the beam of each axes.

Click the "Scanners" tab sheet, then click the highlighted "MultiStrand Profile".

SmartLincPro (1.14.3.4)	
File About	
Programming Devices	
IPs on This Computer	192.168.1.50 (MultiStrand-1)
Select IP: 192.168.1.49 💌	System Properties Scanners
Refresh	Scanners
Show Devices	00 Calibrate MultiStrand Profile
SmartLinc SYSTEMS	Channel Name Serial Number Model Optics Axis Cnt GlassLogicEnabled Inde
	1 Hot Side 040024 230 Mirror 2 -
	Hot Side Measurements
	Decimals: 4
	Name Type GlassLogicDisabled Value OutOfSpec MsrmtStatus
C:\Projects\Workspace - Lazarus\SvnImage\App	lications\SmartLinc1.0\TestFolder

Select the scanner in the grid (there is only one in this example) and click the "Select" button to display the multi-strand profile dialog.

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Initiate MultiStrand Pro	ofiling			
		X +	Y +	
Scanner Name:	Hot Side			
Serial Number:	040024			
Strand Count:	4			
	Start X Cancel	Select	Boundar	ry:
Click "Start" to begin profili	ng"Cancel" to quit			

Click the "Start" button to initiate the detection of the strands. The strands will appear in the axes columns and the "Start" button will switch to an "Accept" button.

MultiStrand Profiler				
Profiling In Progress				
		X+ Y	(+	
Scanner Name:Hot SideSerial Number:040024Strand Count:4	₹3			
(Click Column to Enable/Dis Accept X Cancel	able Boundary Controls)	Select Bot	undary Move	
Click "Accept" to save profile				

By default, the dialog will place the dotted boundary line(s) halfway between each strand. For closely placed strands, vertically expand the window which will allow improved differentiation of the strands and zone boundary lines. Strands are indicated by the green bars and zone boundaries by yellow dotted lines.

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Hot Side				
040024				
4				
	(Click Column to Enable/Dis	able Boundary Controls)	100000 20	
	Hot Side 040024 4	. Hot Side 040024 4	 	

To move a boundary line, click the desired axis column to select it for modification...

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Profiling In Progress		
		X+ Y+
Scanner Name:	Hot Side	
Serial Number:	040024	
Strand Count:	4	
Strand Count.		
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	(Click Column to Enable/Disable Boundary Cont	rols)
		Select Boundary:
	Accept X Cancel	Move:
k "Accept" to save prof	le	

Enabling an axis column causes the other columns to be grayed, the boundary manipulation buttons to be enabled, and the currently selected boundary line to be emphasized.

MultiStrand Profiler		
Profiling In Progress		
		X+ Y+
Scanner Name	Hot Side	
Serial Number:	040024	
Strand Count:	4	
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	(Click Column to Enable/Disable Boundary Controls)	
	(Right Click Column for Options)	Select Boundary:
	Accept X Cancel	Move:
Click "Accept" to save profi	ile	

Select the desired boundary line by using the "Select Boundary" up/down buttons.

Move the selected boundary by using the "Move" up/down button or the up/down arrow keys or the PageUp/PageDn key. The Page(Up/Dn) keys move the boundary in larger increments than the up/down buttons or arrow keys.

Two actions are available from a drop down menu by right clicking on the active axis column.

- 1. To reset the boundaries to their default midpoint positions, click "Reset All Boundaries".
- 2. If, by design, the strands are positioned identically in all axes, the boundary locations can be copied from another axis by clicking "Copy Boundaries From" -> <source axis>

MultiStrand Profiler				
Profiling In Progress				
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Serial Number:	040024	Axis X	Reset All Boundaries Copy Boundaries From	n ▶
	-	Axis Y	6	
Strand Count:	4	Axis C	_	
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	Accept	Cancel	Select Bound	lary: 💽
Click "Accent" to cave arefi			M	ove: 💽

Adjust other axis boundary positions by first clicking on the appropriate column and following the same procedure.

To save the current boundary positions to the SmartLinc device, click the "Accept" button...

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Profiling In Progress			
		X +	γ +
Scanner Name:	Hot Side		
Serial Number:	040024		
Strand Count:	4		
Strand Count.	7		
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ATTENTION			
A Successfully	v saved MultiStrand Profile		
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	OK		
	(Click Column to Enable/Disable Boundary Controls) (Right Click Column for Options)	Colort	Reundaruu (
	Accept X Cancel	Select	Move:

The SmartLinc device is now fully configured to measure multi-strand product.

To view strand measurements, click the "System Properties" tab, the "Device Control" button and select "Start Processing" from the drop down menu. Confirm the start processing action with the dialog box that follows the menu selection below...

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File About											
Programming Devices											
IPs on This Computer	192.168.1.50 (MultiStran	d-1)								
Select IP: 192.168.1.49 🔻	System Properties Scanners										
Refresh	To SmartLine	c 😽 Fron	n SmartLinc		View	Devio	Control				
Show Devices							Stop	Processing			
Smartl inc SYSTEMS	General Properties:							Processing			
92.168.1.50 (MultiStrand-1)	Device Name	IP Address	Subnet	Mask I	Default Gate	eway Hdwr SN	Resta	rt Device (reboot)			
	MultiStrand-1 192.168.1.50 255.255.255.0 192.168.1.1 g00050						Chan	Change IP Address (requires reboot)			
	Program Pro	operties:		Resta	Restart Device (soft, from fault)						
	1	Name	M	ode V	/ersion l	Upload DateTim	e Deles	Device Control			
	MultiStrand Prog	gram Demonst	ration Sto	pped	2:						
	System Status:										
	TTL Data Rate	Edge Rate	Reference	Rate In	ndex Rate	Encoder Rate	Log Msg Cnt				
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	Error Reports:										
	Hardware Err C	nt Buffer Ov	errun Cnt								
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Next, click the "Scanners" tab and view the strand measurements in the lower grid...

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File About												
Programming Devices												
IPs on This Computer	192.168.1.50 (Multi Strand-1)											
Select IP: 192.168.1.49	System Properties Scanners											
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Show Devices	00 Calibrate MultiStrand Profile											
SmartLinc SYSTEMS	Channel	Name	Serial Number	Model	Optics	Axis Cnt	GlassLogicEn	abled	Index Err	NoScans Err	Scan Rate	Edge
192.100.1.50 (MultiStrand 1)	1	Hot Side	040024	230	Mirror	2	-		-	-	4004	80
	Hot Side Measurements											
	Name			Туре	GlassL	GlassLogicDisabled		Value	OutOfSpec MsrmtStatus		5	
	HotSide Strand Setup.MultiStrandMsrmt_1			Diameter	X	-		.0458	-	-		
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