

## Integrated Productivity Tools

Test SLATE is easy to use and its interface will be familiar to users of Microsoft Windows-based applications. Sophisticated, almost intelligent, automated test sequences can be developed and executed easily. Data can be visually presented in the style and format you prefer with the display format and content being modifiable on-the-fly using simple drag-and-drop graphics. And, lastly, the modular and layered architecture allow us to efficiently modify and add new functionality to this base software package to keep it continually on the cutting edge of data acquisition and supervisory control capabilities.

Test SLATE's integrated productivity tools enable the user to quickly configure utilities and perform end-to-end calibrations for any I/O channel as well as easily store and share test data with their project team. A customizable workspace using dockable windows enables you to organize Test SLATE any way you like. It includes a tree-and-branches format for configuration of measurement and control tags, resembling the interface used by Microsoft for Windows Explorer and its folders and subfolders mode of navigation.

Across the top of the workspace is the Main Menu that provides access to commonly used functions such as opening files and accessing on-line help. The Main Menu is dynamic in that the options available will vary depending on what tasks are being performed. In addition to the Main Menu, an icon-based button toolbar is available for quick access to the most often used functions such as save, print, add, or delete.

## Test SLATE Tag Configuration

Tag Configuration utilities for each measurement or control device enable you to configure each tag name. The capability to add, delete, modify, copy, or print any I/O channel information allows complete test configuration control. Information associated with I/O channels includes channel name, units, sensor name, display precision, and more.

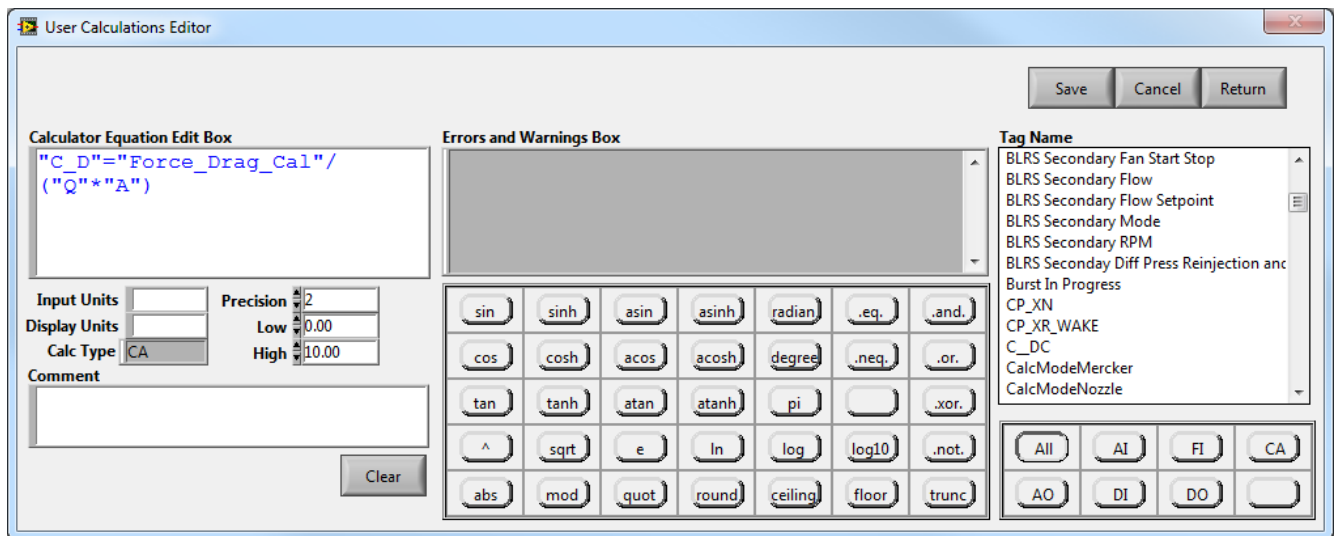
The screenshot shows the 'Tag Attributes' configuration window in Test SLATE. The window has a menu bar with options: AI, FI, DI, AO, DO, CH, Counters, Timers, User Calculations, Statistical Calculations, Custom Calculations, and Filters. Below the menu bar is a toolbar with icons for various actions. The main area contains a table with columns for 'Tag Attributes' and 'Data Storage Options [SR]'. The 'Tag Attributes' section includes columns for Name, Description, Channel, Sensor, Alarm, Reference Tag, Units, Calibrated, Display, Precision, Minimum Range, Maximum Range, Group 1, Group 2, Log, and Burst. The 'Data Storage Options [SR]' section includes columns for Group 1, Group 2, Log, and Burst. A context menu is open over the 'Copy' option in the 'Data Storage Options [SR]' section, showing options for Insert, Delete, Copy, and Paste. The table contains various tag configurations, such as 'Abs Press Nozzle Method', 'Air Temp HX Downstream Col 1 Bottom', and 'BLRS Primary Fan RPM'.

Tag Attributes		Units		Report and Display Settings		Data Storage Options [SR]								
Name	Description	Channel	Sensor	Alarm	Reference Tag	Calibrated	Display	Precision	Minimum Range	Maximum Range	Group 1	Group 2	Log	Burst
Abs Press Nozzle Method		PT_1000_EU	<Not Assigned>	Inactive	<Not Assigned>	pa	pa	1	0	14	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Abs Press Plenum Method		PT_1001_EU	<Not Assigned>	Inactive	<Not Assigned>	pa	pa	1	0	14	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Air Temp HX Downstream Col 1 Bottom		TE_1109_EU	<Not Assigned>	Inactive	<Not Assigned>	°C	°C	1	20	25	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Air Temp HX Downstream Col 2 Center		TE_1111_EU	<Not Assigned>	Inactive	<Not Assigned>	°C	°C	1	20	25	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Air Temp HX Downstream Col 3 Top		TE_1110_EU	<Not Assigned>	Inactive	<Not Assigned>	°C	°C	2	20	25	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Air Temp HX Upstream		TE_1112_EU	Thermocouple K	Active	Temperature	°C	°C	2	0	200	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Air Temp Stilling Chamber Bottom Left		TE_1105_EU	<Not Assigned>	Inactive	<Not Assigned>	°C	°C	2	20	25	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Air Temp Stilling Chamber Bottom Right		TE_1106_EU	<Not Assigned>	Inactive	<Not Assigned>	°C	°C	2	0	25	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Air Temp Stilling Chamber Top Right		TE_1108_EU	<Not Assigned>	Inactive	<Not Assigned>	°C	°C	2	0	25	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Air Temperature Stilling Chamber Top Left		TE_1107_EU	<Not Assigned>	Inactive	<Not Assigned>	°C	°F	2	0	25	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Avg Temp Stilling Chamber		TTMEAN	RTD_1234	Inactive	<Not Assigned>	°C	°F	2	0	25	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
BLRS Primary Diff Press Scoop and Plenum		PDT_2102_EU	<Not Assigned>	Inactive	<Not Assigned>	pa	pa	1	0		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
BLRS Primary Fan RPM		DAS_BLRPRPM	<Not Assigned>	Inactive	<Not Assigned>	RPM	RPM	0	0		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
BLRS Primary Flow		DAS_BLRFLOW	Anem1	Inactive	<Not Assigned>	m/s	m/s	1	0		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
BLRS Secondary Flow		DAS_BLRFLOW	<Not Assigned>	Inactive	<Not Assigned>	KPH	KPH	1	0		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
BLRS Secondary RPM		DAS_BLRSRPM	<Not Assigned>	Inactive	<Not Assigned>	RPM	RPM	1	0	100	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
BLRS Secondary Diff Press Rejection and Plenum		PDT_2121_EU	<Not Assigned>	Inactive	<Not Assigned>	pa	pa	1	0	100	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Date_OPC	IRIG Date Source: OPC	Date_OPC	<Not Assigned>	Inactive	<Not Assigned>	TSDate	TSDate	0	0		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Diff Press Heat Exchanger (Air Side)		PDT_1003_EU	<Not Assigned>	Inactive	<Not Assigned>	pa	pa	1	0	10	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Diff Press Honeycomb and Flow Screen		PDT_1014_EU	<Not Assigned>	Inactive	<Not Assigned>	pa	pa	1	0	1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Diff Press Main Fan		PDT_1004_EU	<Not Assigned>	Inactive	<Not Assigned>	pa	pa	1	0	10	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Diff Press Nozzle Method		PDT_1000_EU	<Not Assigned>	Inactive	<Not Assigned>	pa	pa	3	0	10	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Diff Press Plenum Method		PDT_1001_EU	<Not Assigned>	Inactive	<Not Assigned>	pa	pa	3	0	10	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Diff Press Plenum or Nozzle Method		PDT_1002_EU	<Not Assigned>	Inactive	<Not Assigned>	pa	pa	6	0	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
FAN_RPM_FB_EU		FAN_RPM_FB_EU	<Not Assigned>	Inactive	<Not Assigned>	RPM	RPM	1	0	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Tag editor allows copy-and-paste

## Test SLATE Calculated Tag Configuration

Test SLATE has several calculated tag configuration utilities. A flexible Calculated Tag Equation Builder is used to create custom formulas using any tag in the system in conjunction with standard mathematical operators, trigonometric functions, Boolean operators, and logarithmic functions with no programming required. Calculations are performed in real-time with the values available for display, storage, and additional calculations. A Statistics Builder is available to calculate the mean, standard deviation, minimum, maximum, and variance, etc. of any tag in the system. Timer and counter routines are also included.



Calculated tag equation builder

## User Coded Tags

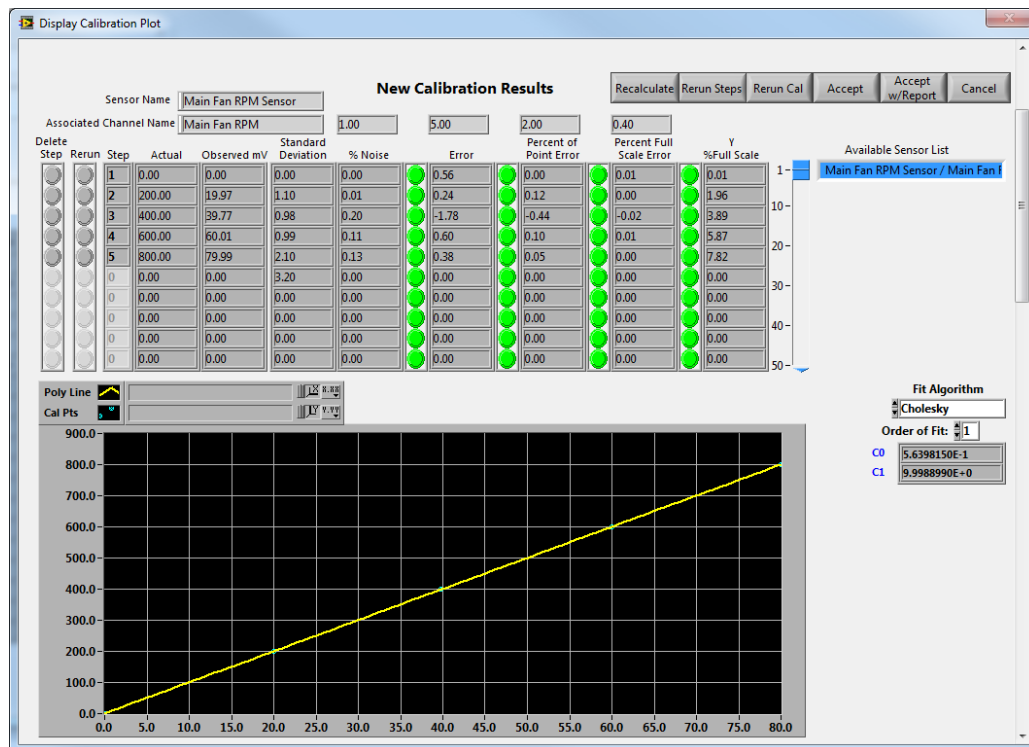
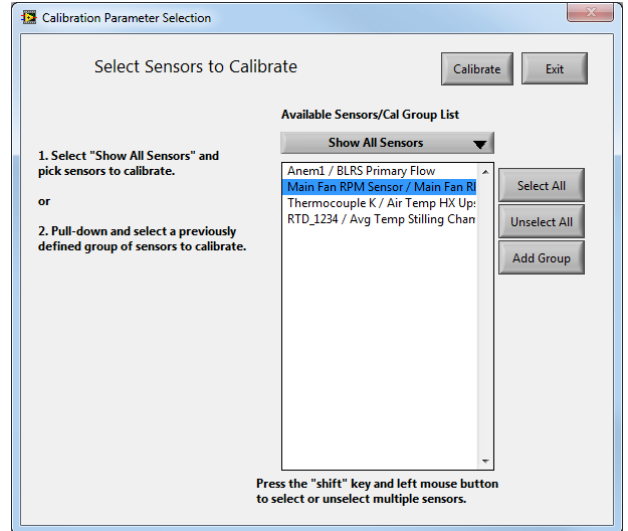
User-coded tags enable you to develop calculations or manipulate other tags in software code that you develop. This code, external to Test SLATE, can be called or linked into Test SLATE, providing additional real-time data manipulation power. The code can be developed in C/C++/C#, Visual Basic, LabVIEW, or other similar languages, as long as LabVIEW supports calling this language.

## Test SLATE Reports and Plots

Test SLATE supplies standard plots and reports that have been included for post-test analysis. These plots and reports may be printed any time after the test. In addition, automated reports or plots can be generated during test sequencing or at the end of test and exported as a spreadsheet. The data starting and ending times may be selected to provide you with further control over which data is reported and/or plotted to hard-copy output. Conversion of stored data to a spreadsheet readable file is also available.

## Test SLATE Calibrations

Calibration functions include the capability to perform end-to-end calibrations on any analog input or frequency input I/O channel. In-place sensor calibration with up to 50 stimulus points can be used to generate up to a 14th order polynomial curve fit for low-level to engineering unit data conversions. User definable groupings are allowed so like sensors can be calibrated simultaneously. As-found calibration polynomial evaluations are provided to determine if sensors are experiencing abnormal drift. Optional reports and plots can be generated with a newly accepted calibration, and the Sensor Database is automatically updated. Test SLATE's calibration also includes the ability to initiate I/O subsystem specific self-calibrations, if available. These may include millivolt insertion calibrations or system pressure calibrations.



End to end calibration results

## Test SLATE Security

Test SLATE has the capability to define unique user roles. Each role can contain any number of combinations of allowable functions, which enables the fine tuning of the user capabilities.

Each role is defined as having certain capabilities within the application; for example, Role1 might have privileges including running a test, while Role2 might have privileges to only view data. The security information is accessed and assigned through the Test SLATE application by anyone who is assigned an Administration Role.

Role Name	Role Description
Admin	Test SLATE Administrator
Operators	
Maintenance	
Axle Engr	
Aero Engr	

Security Options
Automation
Close Desktop
Data Analysis
Data Analysis Reformatting
Data Analysis Reporting
Data Analysis Reprocessing
Data File Tag Conversion Order
Display and Report Units
Edit Display
Edit Displays: Fixed Format
Edit Operator Inputs
Edit Operator Inputs: Message Log
Modify Desktop

Record 7 of 14

**Security roles**