**WINSPECT**

Systems made Simple

Non Destructive Inspection Software

# Reference Guide

Release 6.0

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# Contents

# Winspect Main Menus

# Winspect Main Menus



Winspect main menus and tool bars provide access to all components of the program.

## File Menu
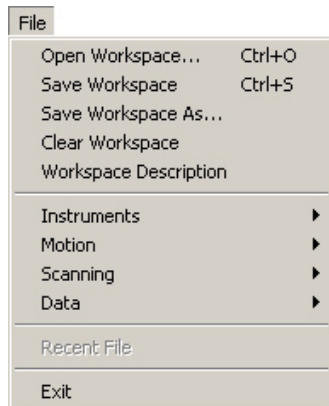


| | |
|---|---|
| **Open Workspace** | Opens a saved workspace. |
| **Save Workspace** | Saves the workspace under the current name. |
| **Save Workspace as . . .** | Saves the workspace under a newly selected name. |
| **Clear Workspace** | Closes all current workspace elements. |
| **Workspace Description** | Opens a viewer for workspace instructions, descriptions, or procedures that can be included in a workspace. |
| **Instruments** ▶ | Choose to Open, Save, or Save as, an Instrument Manager file (**.vid**) |
| **Motion** ▶ | Choose to Open, Save, or Save as, a Motion Control file (**.axd**) |
| **Scanning** ▶ | Choose to Open, Save, or Save as, a Scan Definition file (**.scn**) |
| **Data** ▶ | Choose to Open a Data file or Save Collected Data to a file (.**sdt**) |
| **Recent Workspaces** | A list of up to four of the most recently used workspaces. |
| **Exit** | Exits from Winspect. |

## Instruments Menu



| | |
|---|---|
| **Instrument Manager** ▶ | Displays or hides the **Instrument Manager.** |
| **Pulsers** ▶ | Opens a list from which you can select a pulser to access its computer controls and settings. |
| **Live Displays** ▶ | Opens a list from which you can select to show or hide live displays of inputs from A-scan Instruments, Eddy Current Instruments, and Point Data inputs. |

## Motion Control Menu
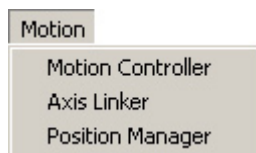


| | |
|---|---|
| **Motion Controller** | Displays or hides the **Motion Controller.** (*See Controls and Managers – Motion Control*) |
| **Axis Linker** | Displays or hides the **Axis Linker** controls. (*See Controls and Managers – Axis Linker*) |
| **Position Manager** | Displays or hides the **Position Manager**. (*See Controls and Managers – Position Manager*) |

## Scanning Menu
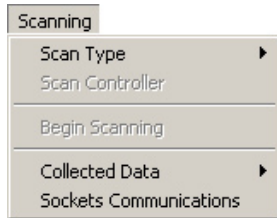
| | | |
|---|---|---|
| **Scan Type** | ▶ | Opens a list of scan types to choose from. |
| **Scan Controller** | | Displays or hides the currently selected **Scan Setup.** |
| **Begin Scanning** | | Starts the scanning process. Same function as the **Go** button. |
| **Collected Data** | ▶ | Choose to open the **User Defined Information** window, add a comment to the collected data or Save the data under a different name. |

## Display Menu
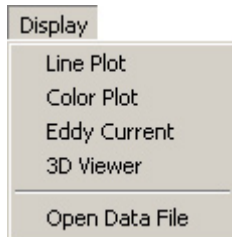
| | |
|---|---|
| **Line Plot** | Opens an empty **Line Plot** viewer window. (See *Viewer windows – Line Plot*) |
| **Color Plot** | Opens an empty **Color Plot** viewer window. (See *Viewer windows – Color Plot*) |
| **Eddy Current** | Opens an empty **Eddy Current** viewer window. (See *Viewer windows – Eddy Current*) |
| **3D Viewer \*** | Opens an empty **3D Data Display** viewer. (Only available in a Custom Installation.) |
| **Open Data File** | Opens a selected data file in an appropriate display window. |

## Options Menu
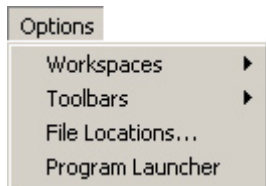
| | | |
|---|---|---|
| **Workspaces** | ▶ | Choose to toggle on or off the reloading of data files and the opening of the last workspace upon opening. |
| **Toolbars** | ▶ | Select to show or hide any of the five main toolbars: Data, Workspace, Instruments, Scan, and Inspection. |
| **File Locations . . .** | | Set the default file locations. (See *File Locations – Main Menus*) |
| **Program Launcher** | | Launches external programs or batch files from within Winspect. |

## Reporting Menu

This Menu is available only in a custom installation
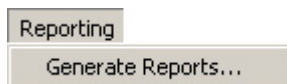
| | |
|---|---|
| **Generate Reports . . .** | Opens the Word Report Generator to select the template, file and save location of the report to be generated. |

## Processing Menu
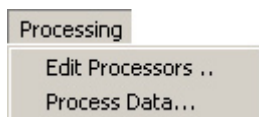
| | |
|---|---|
| **Edit Processors  . .** | |
| | Opens the **Processor Manager**  window to select, edit, or add processors. |
| **Process Data . . .** | Opens the **Process Data** window to select a file and processor to act upon it. |

## Help Menu
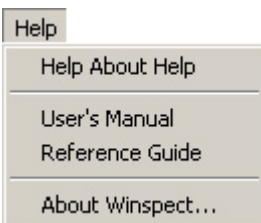
| | |
|---|---|
| **Help About Help** | Provides helpful hints on how to use the Help. |
| **User's Manual** | Opens the **User's Manual** Portion of the Help. |
| **Reference Guide** | Opens The **Reference Guide** Portion of the Help. |
| **About Winspect** | Provides the version, licensing and component details about this installation of Winspect. |

### *File Locations*
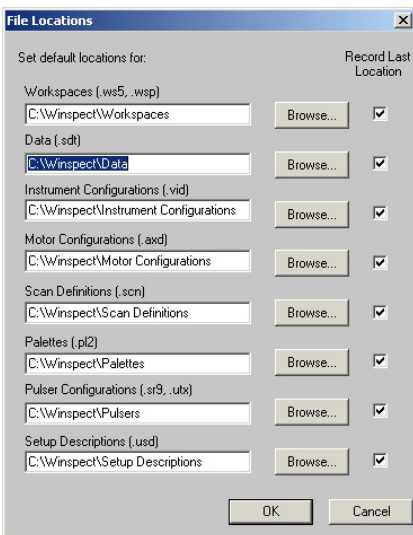
Choose the default file locations for all the important file type of Winspect. By checking the *Record Last Location* box after any location setting you can have Winspect use the last location that file type was saved into as the default location.

# Winspect Main Toolbars

# Main Window Toolbars
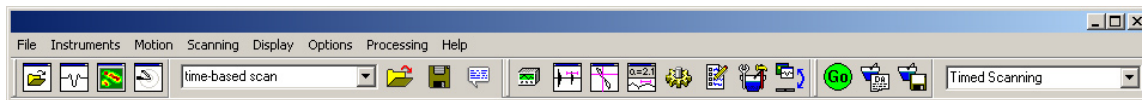


Winspect's main window contains the Standard toolbar, Workspace toolbar, Instrument toolbar, Scanning toolbar, and the Scan type selection box.  Each of these toolbars can be "undocked" and placed anywhere on the desktop.  These toolbars can also be hidden or shown by selecting them from the main *Options* menu.

## Data Viewer Toolbar
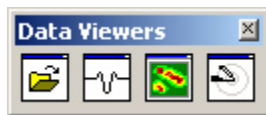


Open and view data files.

| | | |
|---|---|---|
|  | **Open Data File** | Opens a Selected data file. |
|  | **Open Line Plot Viewer Window** | Displays an empty **Line Plot window**.  (See *Data Viewers – Line Plot*) |
|  | **Open Color Plot Viewer Window** | Displays an empty **Color Plot window**.  (See *Data Viewers – Color Plot*) |
|  | **Open Eddy Current Viewer Window** | Displays an empty **Eddy Current Plot window**. (See *Data Viewers – Eddy Current*) |

## Workspace Toolbar
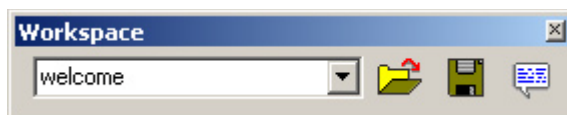


Manage workspaces.
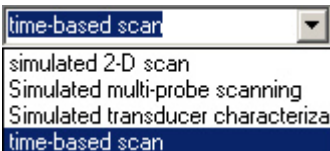
| | | |
|---|---|---|
|  | **Workspace selection box** | Provides a quick way to select a workspace from the list generated from your current workspace folder. |
|  | **Open File** | Opens a selected workspace. The directory of the file opened will generate the adjacent selection list. |
|  | **Save File** | Saves a workspace. |
|  | **Workspace Description** | Displays or hides the **Workspace Description** Window.  A description is used to provide information, instruction, or procedures for a workspace. A description can contain any web viewable content including sound, video, and images. |

# Components Toolbar
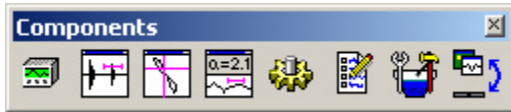
Hide or display component configuration windows.

| | | |
|---|---|---|
| | **Instrument List** | Displays or hides the **Instrument Manager**. (See *Controls and Managers – Instrument Manager*) |
| | **A-Scan Display** | Displays or hides the Live **A-Scan Instrument Display.** (See *Live Signal Viewers – A-scan Instrument Display*) |
| | **Point Data Display** | Displays or hides the Live **Point Data Display**. (See *Live Signal Viewers – Point Data Display*) |
| | **Eddy Current Display** | Displays or hides the Live **Eddy Current Instrument Display**. (See *Live Signal Viewers – Eddy Current Instrument Display*) |
| | **Motion Controller** | Displays or hides the **Motion Controller**. (See *Controls and Managers – Motion Controller*) |
| | **User-Defined Information** | Opens the **User-Defined Information** of the scan for editing and saving. |
| | **Scan Setup** | Opens a window with the selected **Scan Type's** options for editing. See *Scanning Types*. |
| | **Restore data displays** | Restores or minimizes data displays. |

# Scanning Toolbar

Initiate scanning, add data comments and save inspection data.

| | | |
|---|---|---|
| | **Start a Scan** | Initiates scan data collection. |
| | **Add a Data Comment** | Adds a user definable data comment to the scan. |
| | **Save Scan Data** | Saves scan data to file. |

## Scanning Type Selection
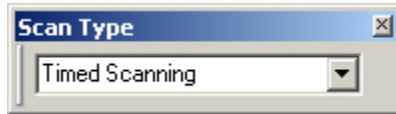
Choose an inspection type from the list.
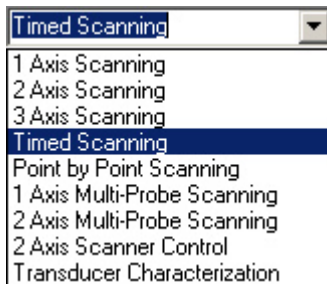
| | |
|---|---|
| **1-Axis Scanning** | Selects a 1 axis scan (x). |
| **2-Axis Scanning** | Selects a 2 axis scan (x,y). |
| **3-Axis Scanning** | Selects a 3 axis scan (x,y,z). |
| **Timed Scanning** | Selects a time based scan. |
| **Point by Point Scanning** | Selects an user controlled, point by point scan. |
| **1 Axis Multi-Probe Scanning** | Selects a 1 axis scan using multiple transducers. * |
| **2 Axis Multi-Probe Scanning** | Selects a 2 axis scan using multiple transducers. * |
| **2 Axis Scanner Control** | Selects a 2-axis automation controller. |
| **Transducer Characterization** | Selects the Transducer Characterization module. * |

\* Multi-Probe Scanning and Transducer Characterization are separately licensed components of Winspect. Please contact UTEX Scientific Instruments to find out how you can purchase these features.

# Live Signal Viewers

# A-Scan Instrument Display
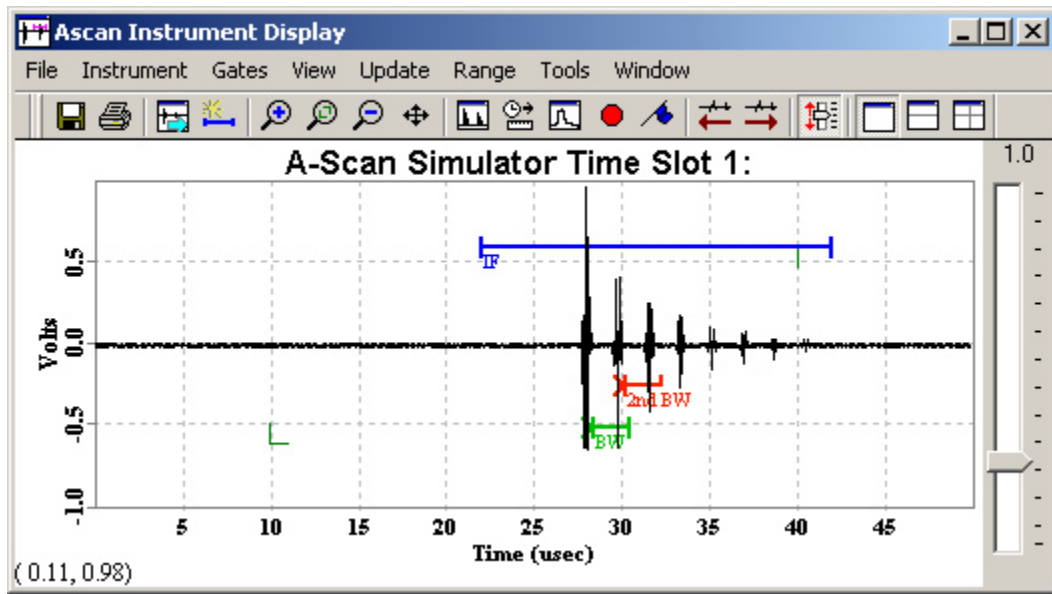
## File Menu
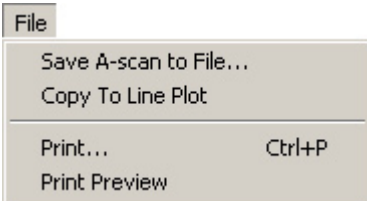
| | |
|---|---|
| **Save A-scan to File…** | Saves the waveform from the active display area to a line plot file (*.**sdt**). The waveform being saved can be a captured signal or a live signal. |
| **Copy to Line Plot** | Copies the current A-scan to a **Line Plot** window. |
| **Print…** | Prints the contents of the **A-scan Instrument Display**. |
| **Print Preview** | Provides a preview of the image to be printed. |
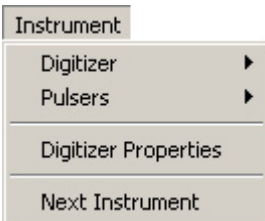
## Instrument Menu

| | | |
|---|---|---|
| **Digitizer** | ▸ | Select from the list of available digitizers to display in the active pane. |
| **Pulsers** | ▸ | Select from the list of available pulsers to display its gain control in the active pane. |
| **Digitizer Properties** | | Opens the **Instrument Manager** to edit the digitizer properties. |
| **Next Instrument** | | Displays the next available instrument in the active pane. |

## Gates Menu

| | | |
|---|---|---|
| **Add Gate** | | Adds a default gate to the active pane. |
| **Remove Gate** | ▶ | Selects a gate to remove from the active pane. |
| **Gate Properties** | ▶ | Selects a gate from the active pane to change its properties. *See A-scan - Gate Properties Window* |

## View Menu
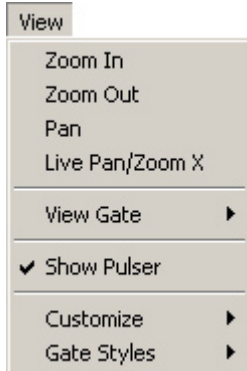
| | | |
|---|---|---|
| **Zoom In** | | Selects zoom area with dragged rectangle. |
| **Zoom Out** | | Zooms out to full length. |
| **Pan** | | Toggles on or off the click-and-drag panning function (X,Y). |
| **Live Pan/Zoom X** | | Toggles on or off the click-and-drag, pan and zoom and delay functions (X axis only). |
| **View Gate** | ▶ | Selects and displays a gate region as full pane. |
| **Show Pulser** | | Toggles on or off the pulser gain slider in the active pane. |
| **Customize** | ▶ | Select to show or hide the Toolbar. Also select to show or hide sliders in active panes. |
| **Gate Styles** | ▶ | **Style 1 -** Displays the Gate in a style that includes a box around the gated area with a line at the threshold level. |
| | | **Style 2-** Displays the Gate in a style that includes a line at the threshold level from the start to the end of the gate. |

## Update Menu
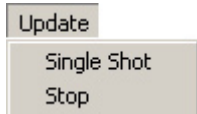
| | |
|---|---|
| **Single Shot** | Captures and displays a single waveform from the instrument. This is only effective when the waveform is frozen (**Stop**). |
| **Stop** | Freezes the waveform in the display window until the stop button is selected again. |

## Range Menu
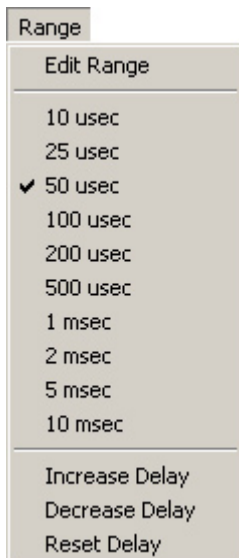
| | |
|---|---|
| **Edit Range** | Sets the source, delay and range for the time window. |
| **10 $\mu$sec to 10 msec** | Sets a range for the horizontal axis. |
| **Increase Delay** | Delays the start of the horizontal range by 5 μsec. |
| **Decrease Delay** | Starts the horizontal range 5 μsec earlier. |
| **Reset Delay** | Resets the start of the horizontal range to zero. |

# Tools Menu
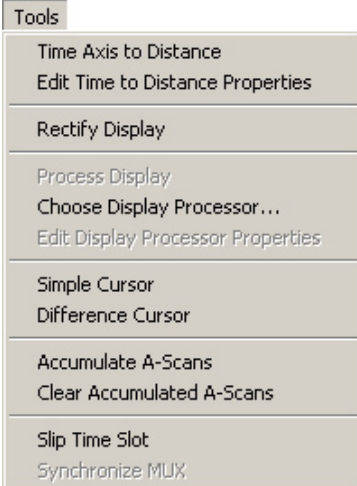
| | |
|---|---|
| **Time Axis to Distance** | Converts the time axis on the A-scan to distance. |
| **Edit Time to Distance Properties** | Opens the **Time to Distance Conversion window** (see *below*) for custom configuration of such properties as material velocity, offset, and sound path. Only active when the ***Time Axis to Distance*** is active. |
| **Rectify Display** | Toggles on or off rectification of the display in the active pane. |
| **Process Display** | Processes the displayed data using the chosen Display Processor. Display Processors work only on the display, not actual data. |
| **Choose Display Processor . . .** | Opens a list of processors to use in modifying the display of the online data. The processor is applied to the currently active pane. |
| **Edit Display Processor Properties** | Opens the properties of the currently selected Display Processor for editing. |
| **Simple Cursor** | Displays a cursor with one horizontal and one vertical component that can be positioned anywhere within the display window. The cursor can used to identify a single point or a horizontal or vertical threshold. |
| **Difference Cursor** | Displays a cursor with two horizontal and one vertical component. The cursor can be used to mark upper and lower thresholds or measure the total difference between them. |
| **Accumulate A-scans** | Toggles the accumulation of A-scan signals in the view on or off. |
| **Clear Accumulated A-scans** | Clears the accumulated signals in the A-scan viewer. |
| **Slip Time Slot** | Used to synchronize signals and channels on multiplexing systems with display channels. |
| **Synchronize MUX** | Only available for systems running specialized Galil motion control software and multiplex systems. |

# Window Menu
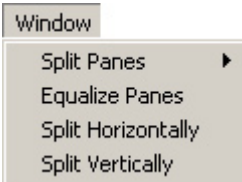
| | |
|---|---|
| **Split Panes** ▸ | Select a split pane style from the options provided. |
| **Equalize Panes** | Adjusts the size of all display panes to be the same. |
| **Split Horizontal** | Splits a selected display pane in two, one on top of the other. |
| **Split Vertical** | Splits a selected display pane in two displays panes, side by side. |

# A-Scan Instrument Display Toolbar
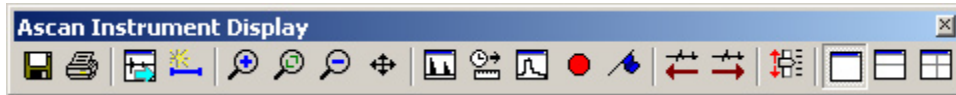


| | Save A-scan to File | Saves the A-scan to a file (**.sdt**) |
|---|---|---|
| | Print A-scan | Prints the current A-scan. |
| | Next Instrument | Switches the data source for the selected display pane to the next instrument. |
| | Add a Gate | Adds a gate with default settings to the active pane. Edit the gate by double-clicking on it. |
| | Zoom In | Allows a rectangular area within the display pane to be defined and enlarged. |
| | Zoom to bracketed region | Enlarges the view between the two adjustable brackets. To return to the original view select the icon again. |
| | Zoom Out | Returns the selected display pane to the original layout. |
| | Pan | Select to click and drag on the active pane, panning the view in X and Y if zoomed in. Panning in Y is the only option for a pane that is zoomed out. |
| | Rectify Display | Toggles the display of the active pane between rectified and full wave. |
| | Time to Distance | Toggles the X axis of the active pane between time and distance as established in the **Time to Distance Conversion** Window. |
| | FFT Display | Performs an FFT on the displayed signal in the active pane. |
| | Stop Update (Freeze) | Toggles the signal update on or off within the A-scan viewer (all panes). |
| | Single Shot | Captures one signal for display within the display window (all panes). Requires that the *Stop Update* be on. |
| | Decrease Delay | Increases the start time of the horizontal axis range by 5 μSec. |
| | Increase Delay | Decreases the start time of the horizontal axis range by 5 μSec. Negative time values are possible. |
| | Increase vertical scale | Increases the apparent gain for the A-scan signal by 3dB. This does not actually affect the signal gain. |
| | Single Pane Window | Displays the A-scan signal in a single pane window. |
| | Two Pane Window | Displays the A-scan signal in a two paned window. |
| | Four Pane Window | Displays the A-scan signal in a four paned window. |

## *Time to Distance Conversion Window – A-scan*

Material Velocity

| | |
|---|---|
| **User Defined** | Allows a user to define a sound velocity for the conversion. |
| **Longitudinal Wave** | Selects the longitudinal wave velocity from the selected material. |
| **Shear Wave** | Selects the shear wave velocity from the selected material. |
| **Material** | Opens a list of materials contained in Winspect. Velocities are set automatically for these materials. |

Sound Path

| | |
|---|---|
| **Direct** | Identifies the sound path as direct. |
| **Echo** | Identifies the sound path as an echo. |
| **Angle** | Identifies the angle in degrees that the sound path is taking in the material. |

Offset

| | |
|---|---|
| **( mm or in) at** | Provide the number of millimeters or inches of the water path or wedge delay. |
| **μsec** | Provide the μseconds at which the interface occurs. |

Units

| | |
|---|---|
| **Millimeters** | Displays the conversion units in millimeters. |
| **Inches** | Displays the conversion units in inches. |
| **Decimals:** | Sets the number of decimal places, from 0 to 3, to be displayed. |

| | |
|---|---|
| **<< Update Button** | Updates the range and time displays to the left. |

## *Gate Properties window – A-scan Instrument Display*
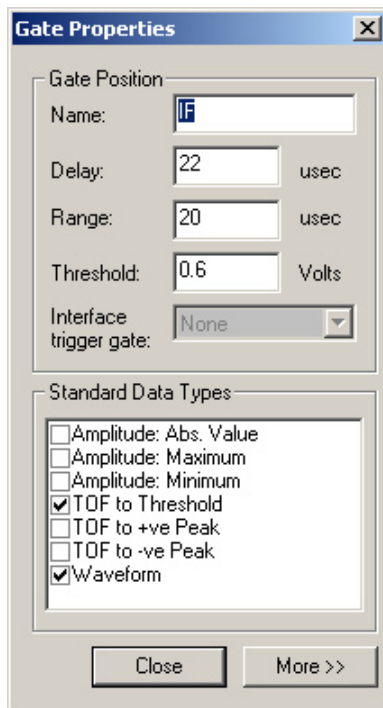
Gate Position

| | |
|---|---|
| **Name** | Shows the name of the gate you are editing. Type a custom name if you wish. |
| **Delay** | Returns the display to the default display range. |
| **Range** | Toggles the ability to zoom in or out and scroll left or right on the horizontal axis by dragging the cursor across the displayed signal. |
| **Threshold** | Select to view any gate of the active pane as full range. |
| **Interface trigger gate** | Choose the digitizer and time slot to have displayed in a selected pane of the A-scan. |

Standard Data Types

| | |
|---|---|
| **Amplitude: Abs. Value** | When checked, the gate collects the largest amplitude value, positive or negative. |
| **Amplitude: Maximum** | When checked, the gate collects the maximum positive amplitude. |
| **Amplitude: Minimum** | When checked, the gate collects the maximum negative amplitude. |
| **TOF to threshold** | When checked, the gate collects the time of flight to the threshold. |
| **TOF to + ve Peak** | When checked, the gate collects the time of flight to the largest positive peak. |
| **TOF to – ve Peak** | When checked, the gate collects the time of flight to the largest negative peak. |
| **Waveform** | When checked, the gate collects the waveform within the gate. |
| **More >> Button** | Expands the window to provide access to other definable data types for collection within the gate. |

## Right Click Menu - A-scan Instrument Display

| | | |
|---|---|---|
| **Zoom In** | | Allows a rectangular area within the display pane to be defined and enlarged. |
| **Zoom Out** | | Returns the display to the default display range. |
| **Live Pan/Zoom X** | | Toggles the ability to zoom in or out and scroll left or right on the horizontal axis by dragging the cursor across the displayed signal. |
| **View Gate** | ▸ | Select to view any gate of the active pane as full range. |
| **Digitizer** | ▸ | Choose the digitizer and time slot to have displayed in a selected pane of the A-scan. |
| **Pulser** | ▸ | Choose the pulser and time slot and have it's gain control displayed in a selected pane of the A-scan. |
| **Show Pulser** | | Shows or hides the gain control for the selected pulser. |
| **Add Gate** | | Adds a default gate to the selected pane of the A-scan. |
| **Remove Gate** | ▸ | Choose a gate to remove from a list of gates within the active pane. |
| **Gate Properties** | ▸ | Select a gate to modify in the selected pane. Opens the **Gate Properties window**. |
| **Digitizer Properties** | | Opens the **Instrument Manager window** (see *Controls and Managers – Instrument Manager*) to allow editing of the digitizer properties. |

## *Context Sensitive Double Clicking - A-scan Instrument Display*
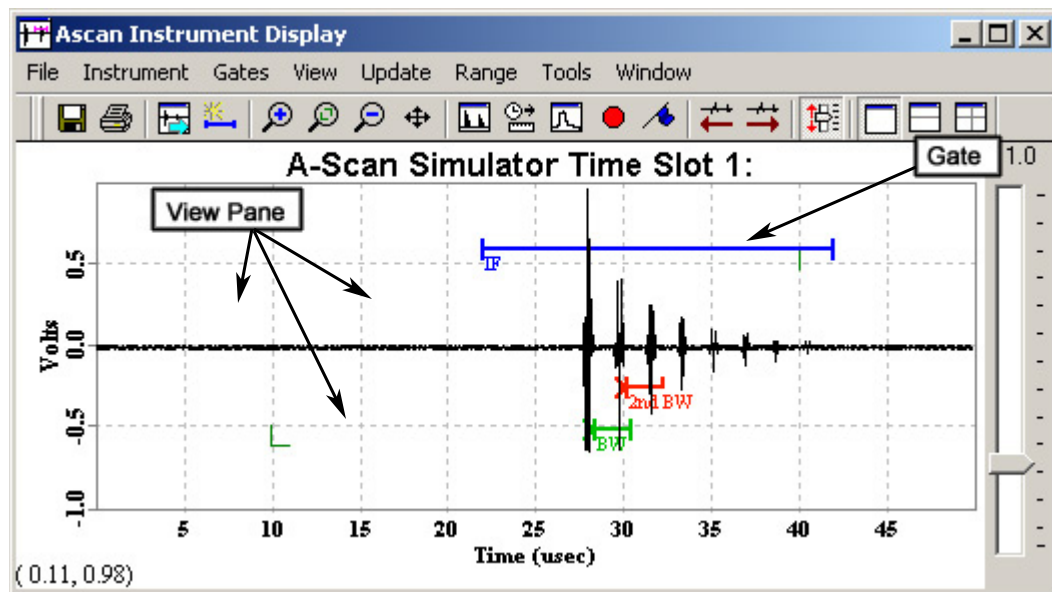


Double clicking on certain areas of the A-scan instrument display allows properties to be set or modified.

### Gate - A-scan Instrument Display

Double clicking on a gate opens the **Gate Properties window** (see *A-scan Instrument Display – Gate Properties Window*) for that gate.

### View Pane - A-scan Instrument Display

Double clicking on the view pane opens the **Instrument Manager** (See *Controls and Managers – Instrument Manager*) for that time slot.

# Eddy Current Instrument Display
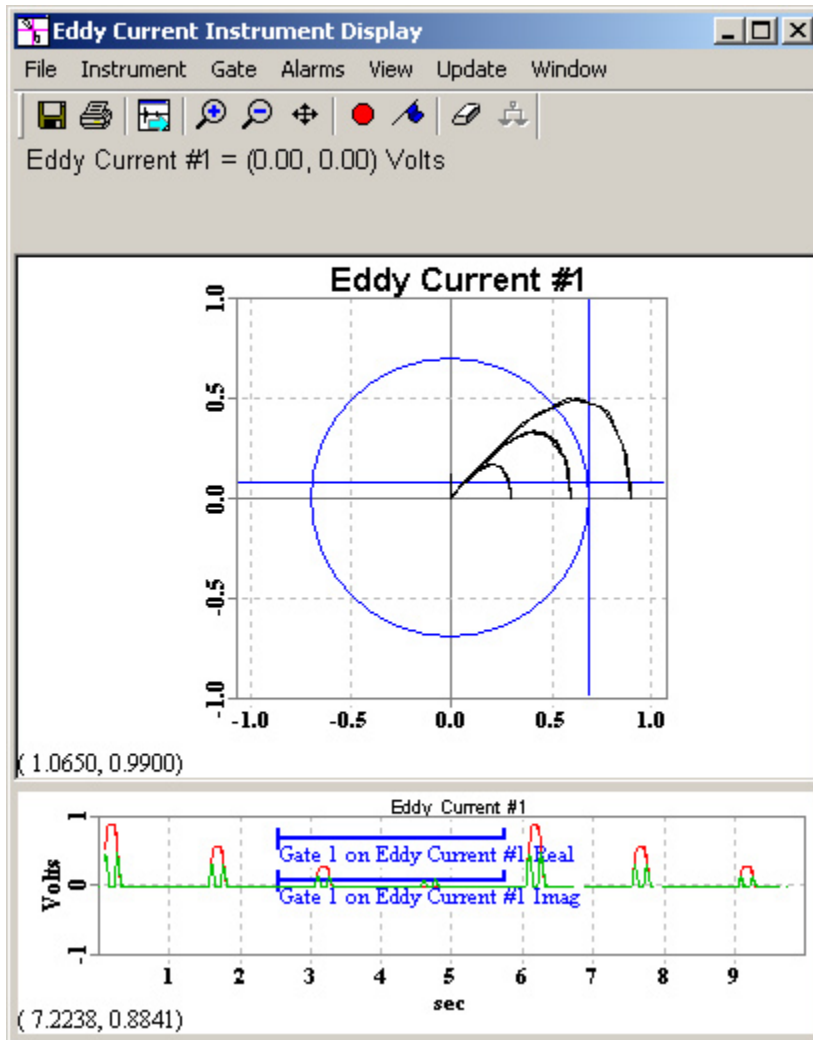
## File Menu
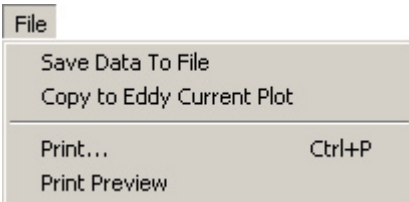
| | | |
|---|---|---|
| **Save Data to File…** | Saves the current eddy current data to file (**\*.sdt**). |
| **Copy to Eddy Current Plot** | Copies the current data to an **Eddy Current Plot** window. |
| **Print…** | Prints the contents of the **Eddy Current Instrument Display**. |
| **Print Preview** | Provides a preview of the image to be printed. |
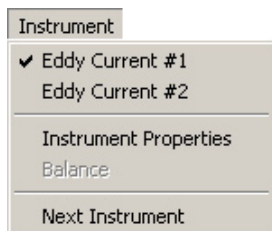
## Instrument Menu

| | | |
|---|---|---|
| **Available Sources** | A list of available sources that can be displayed in the Eddy Current Instrument Display. The source with a check mark is currently displayed. |
| **Instrument Properties** | Opens the **Instrument Manager**. (See *Controls and Managers – Instrument Manager*) |
| **Balance** | Only available when an eddy current instrument is present. Sets the real and imaginary voltage levels to zero. |
| **Next Instrument** | Switches the display to the next available eddy current instrument. Only available when more than one eddy current source is available. |

## Gate Menu
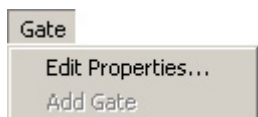
| | |
|---|---|
| **Edit Properties...** | Opens the **Gate Properties window** for the active instrument. (See *Eddy Current Instrument Display – Gate Properties Window*) |
| **Add Gate** | Unavailable in the Eddy Current Instrument Display. Only one gate is allowed in the Eddy Current Instrument Display, used for selecting data to be viewed. It is not related to data collection. |

## Alarms Menu
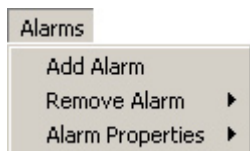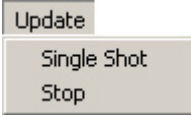
| | |
|---|---|
| **Add Alarm** | Adds an alarm to the Eddy Current Gates. Set the alarm conditions and the gate component on which to act. (See *Eddy Current Instrument Display – Alarm Properties Window*) |
| **Remove Alarm** ▸ | Select an alarm from the list to remove from the Eddy Current Gates. |
| **Alarm Properties** ▸ | Open the **Alarm Properties window** for a selected alarm. |

## View Menu

| | |
|---|---|
| **Zoom In** | Selects zoom area with dragged rectangle. |
| **Zoom Out** | Zooms out to full length. |
| **Live Pan/Zoom X** | Toggles on or off the click-and-drag, pan and zoom and delay functions (X axis only). Only available when the Strip Chart view is active. |
| **Show Scroll Bars** | Toggle on or off the Scroll bars for an active pane. Not available for the text pane. |
| **Customize** ▸ | Options include: Hide all scroll bars and Show or hide the Toolbar. |
| **Clear Data** | Clears the data currently being collected. Data will begin to be shown again immediately if the stop updates is not selected. |

## Update Menu

| | |
|---|---|
| **Single Shot** | Captures and displays a single update from the instrument. This is only effective when the data display is frozen (***Stop***). |
| **Stop** | Freezes the data in the display window until the stop button is selected again. |

## Window Menu

| | |
|---|---|
| **Layout Style 1** | A default layout style that includes 3 panes stacked one on top of another. A Text pane, a Lissajous pane, and a Strip Chart pane. |
| **Layout Style 2** | A default layout style that includes 4 panes . A Text pane, a Lissajous pane and a Strip Chart pane side by side, and a second Strip Chart pane on the bottom. |
| **Lissajous Pane Only** | A default layout style that only contains a Lissajous pane. |
| **Equalize Panes** | Adjusts the size of all display panes to be the same. |

## Eddy Current Instrument Display Toolbar

| | | |
|---|---|---|
| | **Save to File** | Saves the data to a file (**.sdt**) |
| | **Print** | Prints the current data. |
| | **Next Instrument** | Switches the data source to the next instrument. |
| | **Zoom In** | Allows a rectangular area within the display pane to be defined and enlarged. |
| | **Zoom Out** | Returns the selected display pane to the original layout. |
| | **Pan** | Select to click and drag on the active pane, panning the view in X and Y if the Lissajous pane is selected. When zoomed out on the Strip chart pane, only panning in Y is available. Panning in X and Y is available on the Strip chart pane when zoomed in. |
| | **Stop Update (Freeze)** | Toggles the signal update on or off within the Eddy Current instrument Display (all panes). |
| | **Single Shot** | Captures one signal for display within the display window (all panes). Requires that the ***Stop Update*** be on. |
| | **Clear Data** | Clears the data in the Eddy Current Instrument display. |
| | **Balance Instrument** | Sets the real and imaginary voltages to zero, balancing the Eddy Current Instrument. |

## Right Click Menu - Text Pane
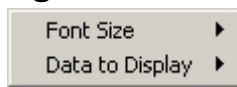
| Font Size | Select a point size for the text in the text pane. |
|---|---|
| Data to Display | Check or uncheck available data for display in the text pane. |

## Right Click Menu - Lissajous Pane
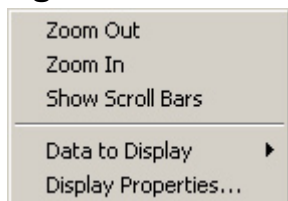
| Zoom Out | Zooms out to full length. |
|---|---|
| Zoom In | Selects zoom area with dragged rectangle. |
| Show Scroll Bars | Toggles on or off the Scroll bars for the active pane. |
| Data to Display | Select to view the current instrument's data or the gated data from that instrument. |
| Display Properties | Opens the **Data Collection Properties window** for the active instrument. (See *Eddy Current Instrument Display – Data Collection Properties Window*) |

## Right Click Menu - Strip chart pane
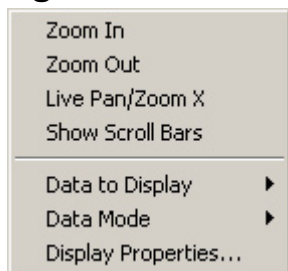
| Zoom In | Selects zoom area with dragged rectangle. |
|---|---|
| Zoom Out | Zooms out to full length. |
| Live Pan/Zoom X | Toggles on or off the click-and-drag, pan and zoom and delay functions (X axis only). Only available when the Strip Chart view is active. |
| Show Scroll Bars | Toggles on or off the Scroll bars for the active pane. |
| Data to Display | Select to view the current instrument's data or the gated data from that instrument. |
| Data Mode | Choose to display the Real & Imaginary, Magnitude or Phase data. |
| Display Properties | Opens the **Data Collection Properties window** for the active instrument. (See *Eddy Current Instrument Display – Data Collection Properties Window*) |

## *Context Sensitive Double Clicking - Eddy Current Instrument Display*
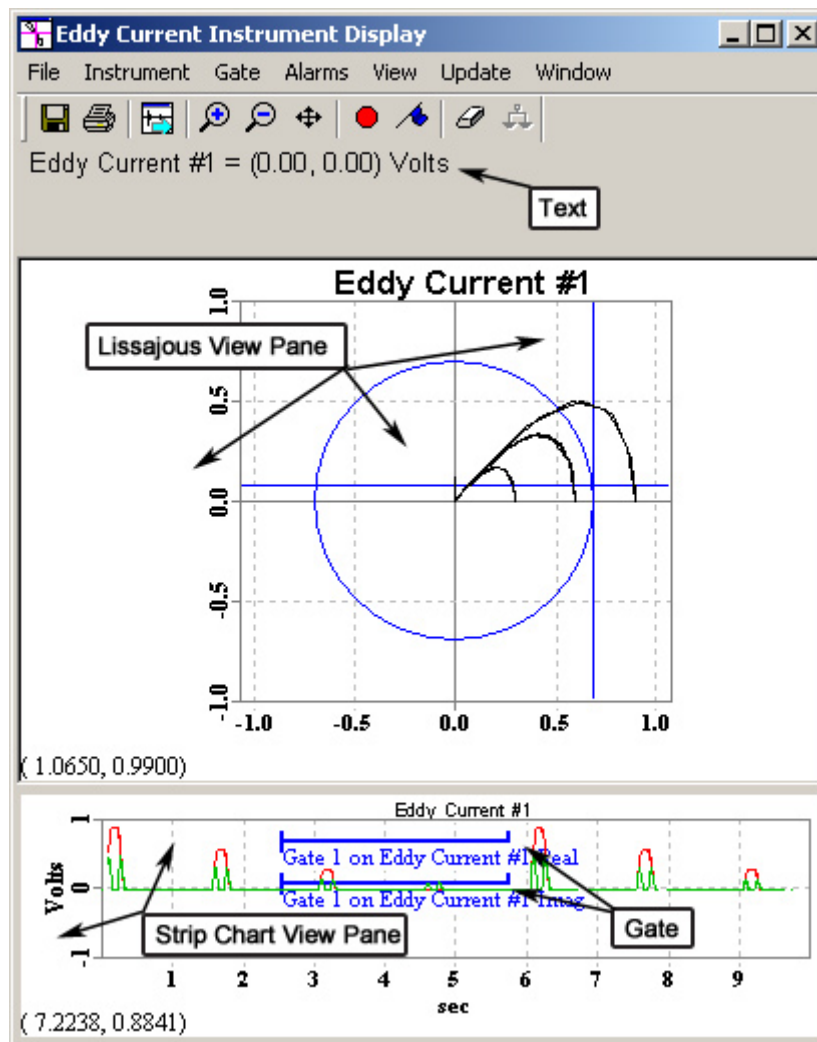
Double clicking on certain areas of the **Eddy Current Instrument display** allows properties to be set or modified.

### Text in the Text View Pane
Double clicking on text in the Text view pane opens either the **Data Collection Properties,** if the text clicked on is data related, or the **Alarm Properties Window** for the selected alarm.

### Lissajous View Pane
Double clicking on the Lissajous View Pane opens the **Instrument Manager** (See *Controls and Managers – Instrument Manager*) for that time slot.

### Strip Chart View Pane
Double clicking on the Strip Chart View Pane opens the **Instrument Manager** (See *Controls and Managers – Instrument Manager*) for that time slot.

### Gate - Strip chart pane
Double clicking on a Gate opens the **Gate Properties window** (See *Eddy Current Instrument Display – Gate Properties Window*) for that gate.

## *Gate Properties window – Eddy Current Instrument Display*

| Gate 1 on Eddy Current #1 | | |
|---|---|---|
| Apply | OK | Cancel |

| | |
|---|---|
| Name | Gate 1 on Eddy Current #1 |
| Source 1 | Eddy Current #1 |
| **▼ Gate Properties** | |
| Start | 2.91 |
| End | 4.167 |
| Color | |
| Magnitude | 0.634 |
| Show Magnitude | ⦿ True   ○ False |
| Real | 0.953 |
| Show Real | ⦿ True   ○ False |
| Imaginary | 0.701 |
| Show Imaginary | ⦿ True   ○ False |

**Name**

Shows the name of the gate you are editing. Type a custom name if you wish.

**Source**

The source is set by from the selected instrument's name. To change this, edit the Data Collection name in the **Instrument Manager.** (See *Controls and Managers – Instrument Manager*)

Gate Properties

**Start**

The starting time of the gate. You can set this to any value you wish.

**End**

The end time of the gate. You can set this to any value. If the value is less than the start time, the gate will not function properly.

**Color**

Select a color for the gate from the list, or pick a custom color.

**Magnitude**

The current value of the interface of the Magnitude gate. You can set this to any value.

**Show Magnitude**

Select whether or not to show the Magnitude portion of the gate.

**Real**

The current value of the interface of the Real gate. You can set this to any value.

**Show Real**

Select whether or not to show the Real portion of the gate.

**Imaginary**

The current value of the interface of the Imaginary gate. You can set this to any value.

**Show Imaginary**

Select whether or not to show the Imaginary portion of the gate.

## *Alarm Properties window – Eddy Current Instrument Display*
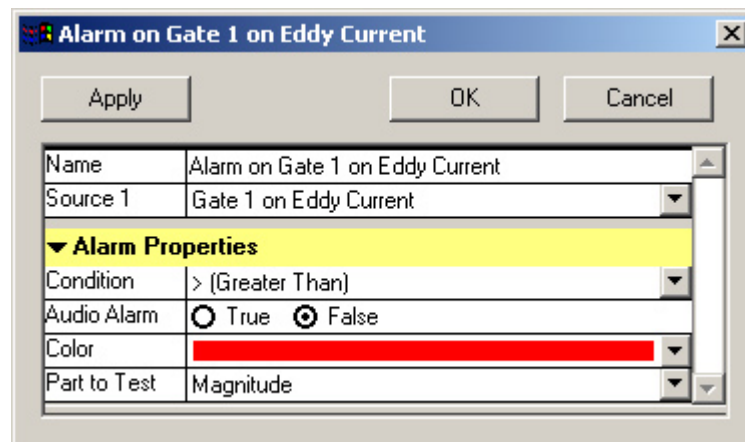


| | |
|---|---|
| **Name** | Shows the name of the alarm you are editing. Type a custom name if you wish. |
| **Source** | The source name is set using the selected instrument's name. To change this, edit the Data Collection name in the **Instrument Manager.** (See *Controls and Managers – Instrument Manager*) |

Alarm Properties

| | |
|---|---|
| **Condition** | Select the condition that will trigger the alarm. Conditions include; Greater than and Less than. |
| **Audio Alarm** | Select if you require an audible alarm. If selected, the computer speaker will beep when the alarm is active. |
| **Color** | Select a color for the gate from the list, or pick a custom color. |
| **Part to Test** | Select which portion of the gate to have the alarm act on: the Magnitude portion, the Real portion, the Imaginary portion, or both the Real and Imaginary portions. |

## *Data Collection Properties Window – Eddy Current Instrument Display*

This window is the same window used by all of the Live Displays. Other displays will reference this window.
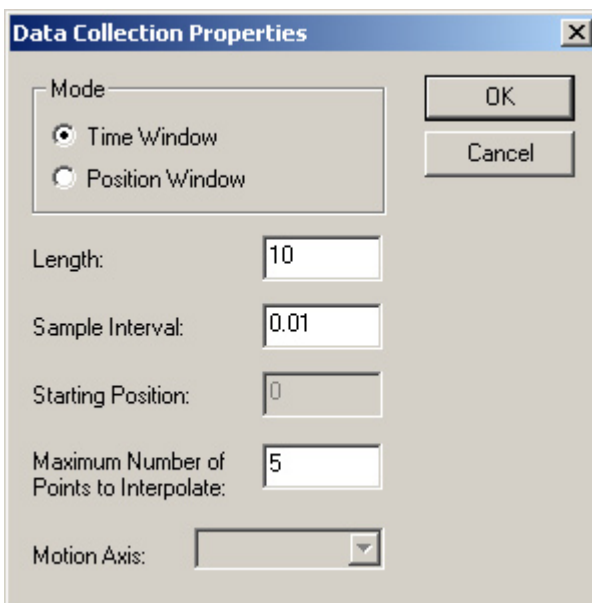


**Mode**

| | |
|---|---|
| **Time Window** | Select when the data is to be collected over a time interval. |
| **Position Window** | Select when the data is to be collected over a distance on a selected axis. |
| **Length:** | Set the length of time or distance the data collection should occur over. |
| **Sample Interval:** | Set the sample interval. |
| **Starting Position:** | For distance modes, set the starting position. |
| **Maximum Number of Points to Interpolate:** | Set the Maximum number of points to interpolate. |
| **Motion Axis:** | For distance modes, select the motion axis along which the data will be collected. |

# Point Data Display
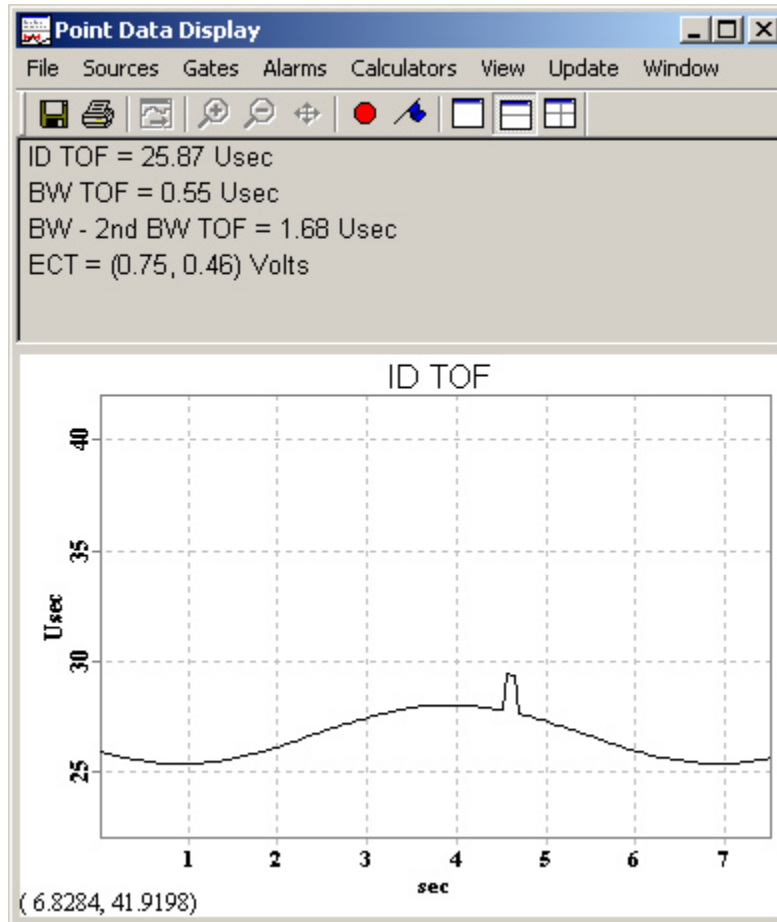
## File Menu
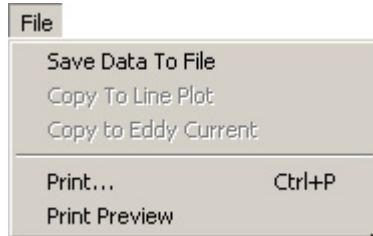
| | | |
|---|---|---|
| **Save Data to File…** | Saves the waveform from the active display area to a line plot file (*.**sdt**). The waveform being saved can be a captured signal or a live signal. |
| **Copy to Line Plot** | Copies the current data set to a **Line Plot window**. |
| **Copy to Eddy Current** | Copies the current complex data to an **Eddy Current window**. |
| **Print…** | Prints the contents of the active pane. |
| **Print Preview** | Provides a preview of the image to be printed. |

## Sources Menu

| | | |
|---|---|---|
| **Available Sources** | | A list of available sources to be displayed in the Point Data Display. Sources with check marks are displayed. |
| **Options** | ▶ | Choose the type of sources to make available in the Point Data Display. Choose any or all of: complex sources, real sources, include gated A-scans, and auto-select all sources. |
| **Next Source** | | Only available when a selected pane can display more than one source. |

## Gates Menu

| | | |
|---|---|---|
| **Add Gate** | | Adds a default gate to the active pane. Only active when the selected pane can have a gate added to it. |
| **Remove Gate** | ▶ | Selects a gate to remove from the active pane. |
| **Gate Properties** | ▶ | Selects a gate from the active pane to change its properties. (See *Point Data Display - Gate Properties Window*) |

## Alarms Menu
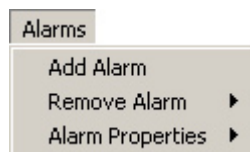
| | | |
|---|---|---|
| **Add Alarm** | | Attaches an alarm to an existing gate. Select a gate to attach to from the Alarm properties window. (See *Point Data Display - Alarm Properties Window*) A gate must be present on the selected pane to add an alarm. |
| **Remove Alarm** | ▶ | Select an alarm to remove from the list. |
| **Alarm Properties** | ▶ | Opens the **Alarm properties window**. (See *Point Data Display - Alarm Properties Window*) |

## Calculators Menu
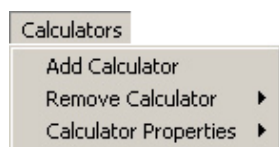
| | | |
|---|---|---|
| **Add Calculator** | | Adds a calculated source to the Text view of the Point Data Display. |
| **Remove Calculator** | ▶ | Select a calculated source from the list to remove from the Point Data Display. |
| **Calculator Properties** | ▶ | Select a calculated source from the list to edit its properties. |

## View Menu

| | | |
|---|---|---|
| **Zoom In** | | Selects zoom area with dragged rectangle. |
| **Zoom Out** | | Zooms out to full length. |
| **Pan** | | Select, then click-and-drag in the active pane to pan the view(X,Y). |
| **Live Pan/Zoom X** | | Toggles on or off the click-and-drag, pan and zoom and delay functions (X axis only). Only functions on Strip Chart views when the update is off. |
| **Customize** | ▶ | Select to show or hide the Toolbar, scroll bars in active panes, or to hide all scroll bars. |

## Update Menu

| | **Single Shot** | Captures and displays a single update from the instruments and collected data. This is only effective when the update is frozen (***Stop***). |
|---|---|---|
| | **Stop** | Freezes data in the display windows until the stop button is selected again. |

## Window Menu
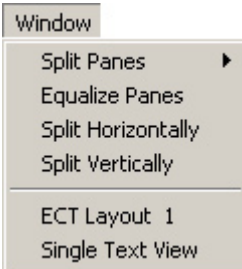
| | **Split Panes** | ▸ Select a split pane style for the display window from the options provided. |
|---|---|---|
| | **Equalize Panes** | Adjusts the size of all display panes to be the same. |
| | **Split Horizontal** | Splits a selected display pane in two, one on top of the other. |
| | **Split Vertical** | Splits a selected display pane in two displays panes, side by side. |
| | **ECT Layout 1** | Two default display layouts provided by Winspect. |
| | **Single Text View** | Restores the layout to a single Text pane and a Strip Chart Pane. |

## Point Data Display Toolbar
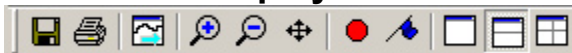
| | **Save to File** | Saves the data to a file (**.sdt**) |
|---|---|---|
| | **Print** | Prints the current data. |
| | **Next Instrument** | Switches the data source to the next instrument. |
| | **Zoom In** | Allows a rectangular area within the display pane to be defined and enlarged. |
| | **Zoom Out** | Returns the selected display pane to the original layout. |
| | **Pan** | Select to click and drag on the active pane, panning the view in X and Y if the Lissajous pane is selected. When zoomed out on the Strip chart pane, only panning in Y is available. Panning in X and Y is available on the Strip chart pane when zoomed in. |
| | **Stop Update (Freeze)** | Toggles the signal update on or off within the Point Data Display (all panes). |
| | **Single Shot** | Captures one signal for display within the display window (all panes). Requires that the ***Stop Update*** be on. |
| | **Single Pane Window** | Displays the point data in a single pane window. |
| | **Two Pane Window** | Displays the point data in a two paned window. |
| | **Four Pane Window** | Displays the point data in a four paned window. |

## Right Click Menu - Text Pane - Point Data Display

| View Type | ▶ | Select to view Text, Strip Chart or Lissajous data in this pane. |
|---|---|---|
| **View Type** | ▶ | Select to view Text, Strip Chart or Lissajous data in this pane. |
| **Font Size** | ▶ | Select a size for the Font of the Text Display. |
| **Data to Display** | ▶ | Splits a selected display pane in two, one on top of the other. |
| **Number of Columns** | ▶ | Splits a selected display pane in two displays panes, side by side. |

## Right Click Menu - Strip Chart Pane - Point Data Display

| **View Type** | ▶ | Select to view Text, Strip Chart or Lissajous data in this pane. |
|---|---|---|
| **Zoom In** | | Only functions when the data is not being updated (Stop Updates). Allows a user to click and drag and area to zoom in to. |
| **Zoom Out** | | Only functions when the data is not being updated (Stop Updates). Zooms the view back out to full screen. |
| **Live Pan/Zoom X** | | Only functions when the data is not being updated (Stop Updates). Allows a user to click and drag the scale of the X axis in and out. Click and Drag on the X-axis itself to pan the view. |
| **Add Gate** | | Adds a default gate to the pane. The new gate will not show unless updates are enabled. |
| **Remove Gate** | ▶ | Select a Gate to remove from the list. |
| **Gate Properties** | ▶ | Opens the **Gate Properties Window**. See *Gate Properties Window - Point Data Display*. |
| **Data to Display** | ▶ | Select the data to display in this pane from the list . |
| **Display Mode** | ▶ | Active only if the data being displayed is complex. Choose to display the real and imaginary, Magnitude or phase components of the data. |
| **Clear Data** | | Only functions when the data is being updated. Clears the current pane of scrolling data. Data will begin to accumulate again immediately. |
| **Source Properties...** | | See *Data Collection Properties Window - Eddy Current Instrument Display*. |

## Right Click Menu - Lissajous Pane - Point Data Display

| **View Type** | ▶ | Select to view Text, Strip Chart or Lissajous data in this pane. |
|---|---|---|
| **Zoom In** | | Only functions when the data is not being updated (Stop Updates). Allows a user to click and drag and area to zoom in on. |
| **Zoom Out** | | Only functions when the data is not being updated (Stop Updates). Zooms the view back out to full screen. |
| **Data to Display** | ▶ | Select the data to display in this pane from the list. |
| **Clear Data** | | Only functions when the data is being updated. Clears the current pane of scrolling data. Data will begin to accumulate again immediately. |
| **Source Properties...** | | See *Data Collection Properties Window - Eddy Current Instrument Display*. |

## *Context Sensitive Double Clicking - Point Data Display*
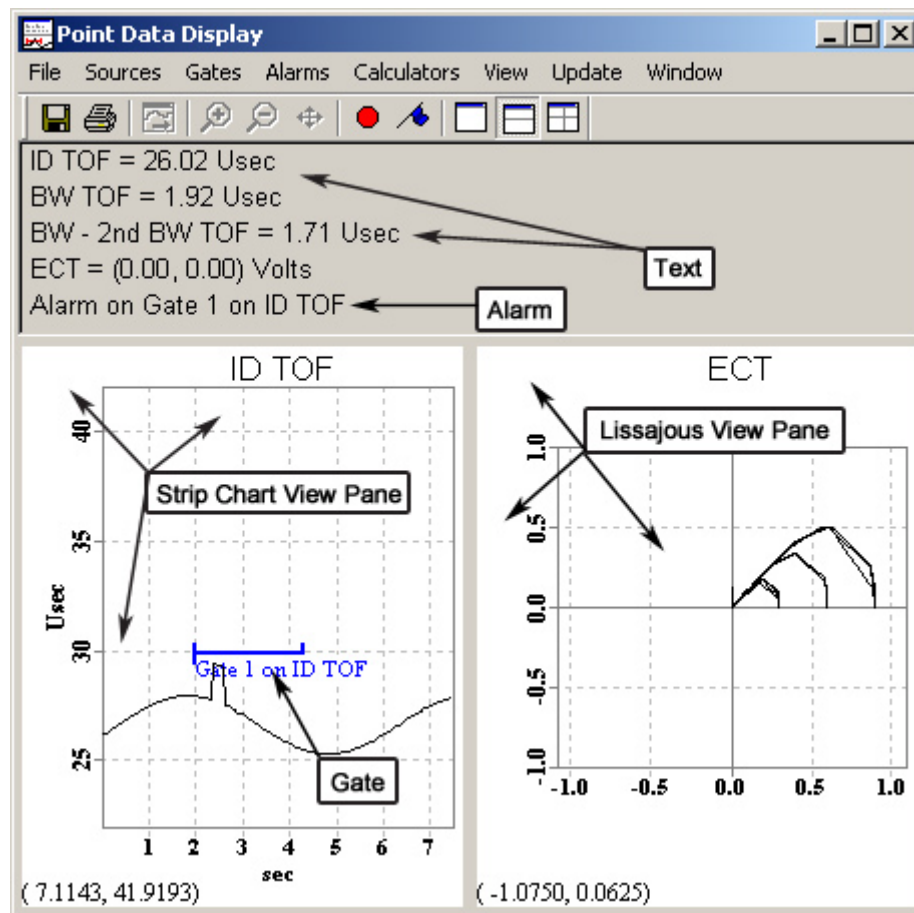


Double clicking on certain areas of the Point Data Display allows properties to be set or modified.

### Text in the Text View Pane

Double clicking on text in the Text view pane opens either the **Data Collection Properties** (see *Eddy Current Instrument Display – Data Collection Properties Window*), if the text clicked on is data related, or the **Alarm Properties window** (see *Point Data Display – Alarm Properties Window*) for the selected alarm.

### Lissajous View Pane

Double clicking on the Lissajous View Pane opens the **Instrument Manager** (See *Controls and Managers – Instrument Manager*) for that time slot.

### Strip Chart View Pane

Double clicking on the Strip Chart View Pane opens the **Instrument Manager** (See *Controls and Managers – Instrument Manager*) for that time slot.

### Gate - Strip Chart pane

Double clicking on a Gate opens the **Gate Properties window** (See *Point Data Display – Gate Properties Window*) for that gate.

## *Gate Properties window – Point Data Display*



| | |
|---|---|
| **Name** | Shows the name of the gate you are editing.  Type a custom name if you wish. |
| **Source** | The source is set by from the selected instrument's name.  To change this, edit the Data Collection name in the **Instrument Manager.** (See *Controls and Managers – Instrument Manager*) |

Gate Properties

| | |
|---|---|
| **Start** | The starting time of the gate.  You can set this to any value you wish. |
| **End** | The end time of the gate.  You can set this to any value.  If the value is less than the start time, the gate will not function properly. |
| **Color** | Select a color for the gate from the list, or pick a custom color. |
| **Level** | The current value of the interface of the gate. You can set this to any value. |
| **Show Level** | Select whether or not to show the interface level of gate.  Physically changes the gate between a box style and interface style gate. |

## *Alarm Properties window – Point Data Display*
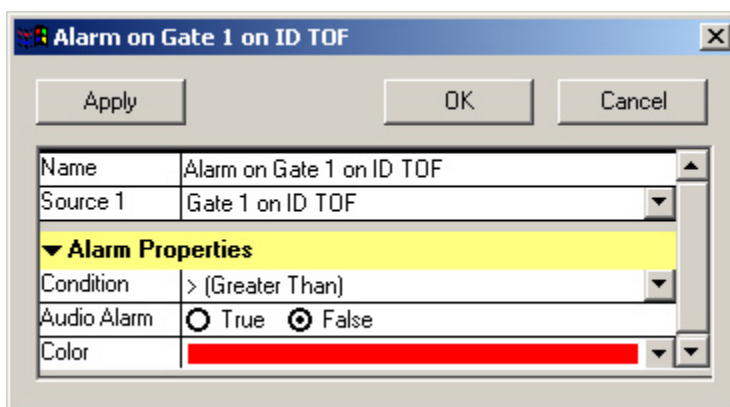


| | |
|---|---|
| **Name** | Shows the name of the alarm you are editing.  Type a custom name if you wish. |
| **Source** | The source name is set using the selected instrument's name.  To change this, edit the Data Collection name in the **Instrument Manager.** (See *Controls and Managers – Instrument Manager*) |

Alarm Properties

| | |
|---|---|
| **Condition** | Select the condition that will trigger the alarm.  Conditions include; Greater than and Less than. |
| **Audio Alarm** | Select if you require an audible alarm.  If selected, the computer speaker will beep when the alarm is active. |
| **Color** | Select a color for the gate from the list, or pick a custom color. |

# Data Viewers

# Color Plot Viewer Window
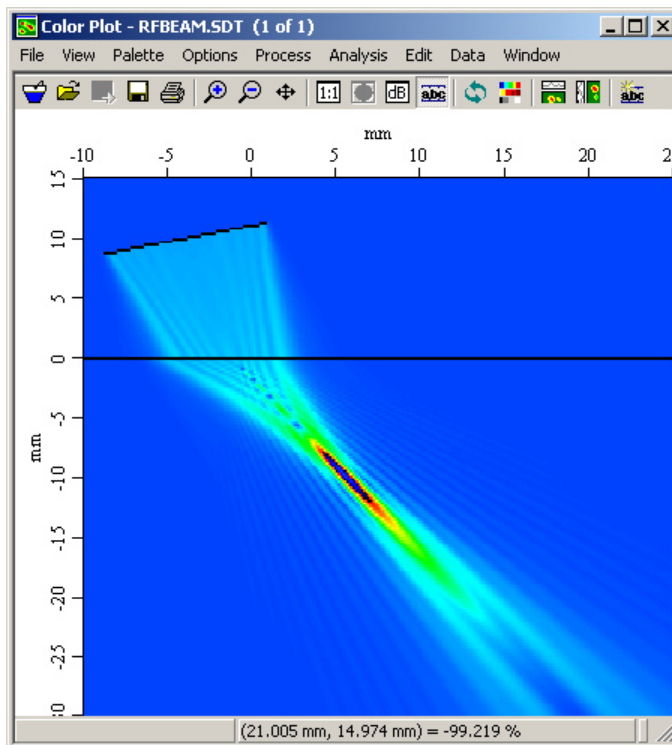
## File Menu
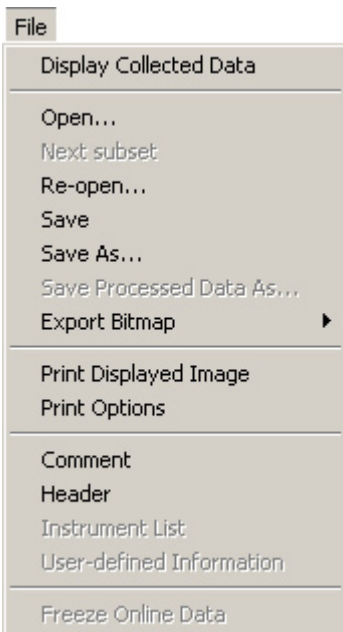


| | |
|---|---|
| **Display Collected Data** | Toggles the online data display on or off for the color plot viewer window. |
| **Open . . .** | Open a data file in the color plot viewer window. |
| **Next Subset** | Displays the next data subset (if any) in the color plot viewer window. Subsets can be cycled through using this command. |
| **Re-open** | Re-opens the current data file. Use to revert to the saved file. |
| **Save** | Saves the data to the current **.sdt** file. |
| **Save As . . .** | Saves the data to a new **.sdt** file with a newly selected name. |
| **Save Processed Data As . . .** | Saves the current processed data subset to an new file. Other data subsets are not saved with the new file. |
| **Export Bitmap** | Exports the current color plot viewer display to a file or the windows clipboard. |
| **Print Displayed Image** | Prints the current color plot viewer display to your default printer. |
| **Print Options** | Choose to display or hide the file header, axis summary information, scale, and the user-defined header. |
| **Comment** | Opens the data comment for editing |
| **Header** | Displays the information window associated with the open data file. |
| **Instrument List** | Displays a list of instruments used. |
| **User-Defined Header** | Opens the user definable setup description file. |
| **Freeze Online Data** | Freezes online data in the current window. Used for side-by-side comparison with other online data. |

## 3D Process Menu (only available when viewing 3D data)

| | | |
|---|---|---|
| | **Horiz. B-Scan At . . .** | Picks a location to take a horizontal B-scan for display. |
| | **Vert. B-Scan At . . .** | Picks a location to take a vertical B-scan for display. |
| | **Custom View At . . .** | Opens the **Process and Gate Control window**, displaying the A-scan from the selected point. |
| | **Custom View . . .** | Opens the **Process and Gate Control window**. |
| | **Previous View** | Returns the color plot to the previous view. |
| | **X-Section control** | Opens the **X-Section Control window**. (See *Color Plot-X-Section Control Window* ) |
| | **Forward 1 X-Section** | Steps the display forward one cross-section. |
| | **Forward 2 X-Sections** | Steps the display forward two cross-sections. |
| | **Back 1 X-Section** | Steps the display back one cross-section. |

## View Menu

| | | |
|---|---|---|
| | **Zoom In** | Enlarges a selected area. Click and drag (holding the mouse button down) a rectangle around a desired area, then releasing the mouse button. |
| | **Zoom Out** | Returns the display to the default display range. |
| | **Pan** | Allows movement of the image when zoomed in. Used to center an area of interest. |
| | **Undo** | Undoes the last command. |
| | **Save Layout** | Saves the size and position and zoom of the viewer window. Up to three layouts can be saved. The layout information becomes part of the data file. The file will then open to the first layout. |
| | **Recall Layout** | Recalls a saved layout. Useful for moving to specific areas of large images. |
| | **Ignore Saved Layouts** | Opens a data file with layout settings in default windows. |
| | **Clear All Layouts** | Removes layout settings from the currently open file. To ensure the file remains without layouts, save it again. |
| | **Set Aspect Ratio** | Configures the aspect ratio of the image. 1:1 by pixel assigns each sample to a pixel providing the best image quality. 1:1 by units does not stretch or distort the image. |
| | **Refresh** | Refreshes the color plot display. |
| | **Animate** | Allows horizontal or vertical "scrolling" animation of the image when zoomed in beyond 100%. Useful for viewing long data sets such as a row of fasteners. |

## Palette Menu
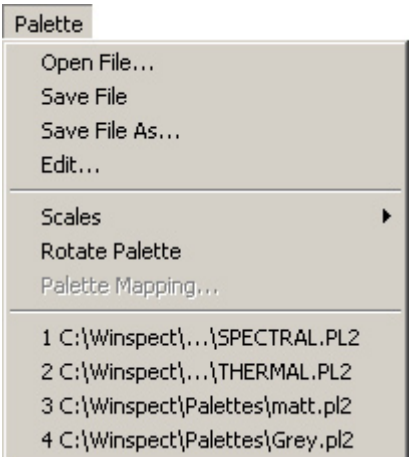
| | |
|---|---|
| **Open File . . .** | Opens a palette file (**.pl2**) or text file (**.txt**). |
| **Save File** | Saves the current palette. |
| **Save File As . . .** | Saves the current palette with a new name. |
| **Edit . . .** | Opens the color selection window to edit the palette and color plot image. |
| **Scales** ▶ | Sets a scale for the color range to cover. The values can be measured or interpreted. |
| **Rotate Palette** | Animates the rotation of the current palette on the color plot display through 360 degrees allowing you to see data at all levels. |
| **Recent Palettes** | A list of recently used or opened palettes |

## Options Menu
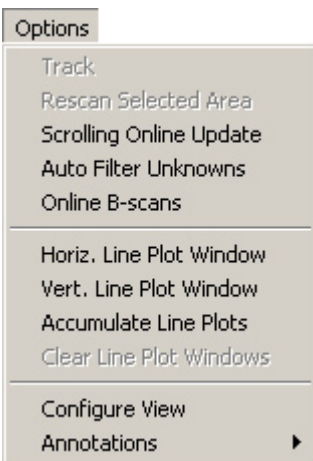
| | |
|---|---|
| **Track** | Provides a crosshair cursor to pick points on a C-scan. The scanner will drive to the picked locations so you can view the signals live. Use escape to exit this pick mode. |
| **Rescan Selected Area** | Only applies to complex contouring machines. |
| **Scrolling Online Update** | Selects to view a scan in a scrolling update fashion. Useful when making large scans and only want to see the most recent data. |
| **Auto Filter Unknowns** | Winspect will interpret and fill-in missed data after a scan. |
| **Online B-scans** | Enables line-by-line B-scan updates while collecting C-scans. |
| **Horiz. Line Plot Window** | Toggles on or off the Horizontal Line Plot in the display area. |
| **Vert. Line Plot Window** | Toggles on or off the Vertical Line Plot in the display area. |
| **Accumulate Line Plots** | Toggles the plotting of multiple waveforms on top of one another without refreshing the displays. |
| **Clear Line Plot Windows** | Clears the accumulated waveforms. The waveforms will continue to build up again until the *Accumulate Line Plots* function is toggled off. |
| **Configure View** | Opens the **Configure View window** (see *Viewer Windows – Color Plot –Configure View*). Also accessed by right clicking on the color plot display area. |
| **Annotations** ▶ | Toggles the display of annotations on or off. Also choose a type of annotation to add: Text, Point, Vector, Box, or Polygon. |

# Process Menu

| | Polar | Formats image in polar view. Useful to display data from a turntable scan. Only available if a rotary axis has been used. |
|---|---|---|
| **Process**<br>Polar<br>dB<br>Process Subset...<br>*Next Processed Image*<br>*Last Processed Image*<br><br>Custom...<br><br>Extract ▶<br>X-section Window ▶<br><br>Rotate Data<br>Crop Data ▶<br>Line Filter ▶<br>Matrix Filter ▶<br>Vert. Ref. Subtraction<br>Horiz. Ref. Subtraction<br><br>1 Polar<br>2 dB<br>3 1D Averaging Filter<br>4 Remove Centering Offset | **dB** | Displays image with data levels in dB. Where 0dB is 100% FSH. |
| | **Process Subset . . .** | Select a processor to act on this data subset. |
| | **Next Processed Image** | Displays the next image in the processed image chain. |
| | **Last Processed Image** | Displays the previous image in the processed image chain. |
| | **Custom . . .** | Opens the data post-processor window. |
| | **Extract** ▶ | Extracts a cross-section from B-Scan or C-scan data. The Cross-section is displayed as a graph in a new **Line Plot window**. |
| | **X-Section Window** ▶ | Opens a cross-section window to display Eddy Current data as Polar, Vertical Lissajous or Horizontal Lissajous. Available only for Eddy Current C-Scans. |
| | **Rotate Data** | Rotates data along the scan axis to reposition the image. |
| | **Crop Data** ▶ | Crops the displayed image. Operates on current data subset. |
| | **Line Filter** ▶ | Image processing filters to average or emphasis line by line. |
| | **Matrix Filter** ▶ | Image processing filters to average or emphasis the whole image at once. |
| | **Vert. Ref. Subtraction** | Subtracts a selected Vertical line of pixels from itself and all other vertical lines in the scan. |
| | **Horiz. Ref. Subtraction** | Subtracts a selected horizontal line of pixels from itself and all other horizontal lines in the scan. |
| | **Most recently used processors** | A list of the last 4 processors used. |

# Analysis Menu

| | **Area Statistics** | Calculates area, data mean for the region outlined by the user's cursor drag. |
|---|---|---|
| **Analysis**<br>Area Statistics<br>*Ovality Analysis*<br>Interpret Data Values<br>*Interpret TOF Data Values*<br><br>*Time Axis --> Distance*<br>*Edit Time to Distance Properties*<br><br>*Rotary Axis-> Circumference*<br>*Edit Rotary to Circumference Properties* | **Ovality Analysis** | Calculates ovality of scanned object where the scan axis is in degrees. |
| | **Interpret Data Values** | Opens the Custom Scale window. Use to assign engineering units or other scaled values to the data range. |
| | **Interpret TOF Data Values** | Converts μsec to depth in inches or millimeters on C-scans. |
| | **Time Axis → Distance** | Converts display of B-scan time axis to distance. |
| | **Edit Time to Distance Properties** | Opens the **Time to Distance Conversion window**. (See *Color Plot - Time to Distance Conversion Window*) |
| | **Rotary Axis → Circumference** | Converts degrees of rotation to linear circumference, based on input of radius measurement. |
| | **Edit Rotary to Circumference Properties** | Opens the **Rotary to Circumference Conversion window**. (See *Color Plot - Rotary to Circumference Window*) |

## Edit Menu
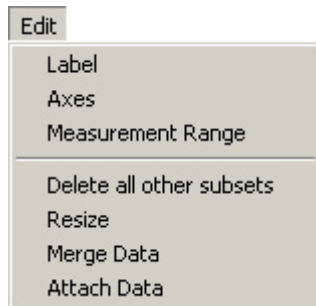
| | |
|---|---|
| **Label** | Type a label for this subset. This label appears after the file name on the top of the window. |
| **Axes** | Edit the scale, resolution, and labels of the X,Y and Z axis of the data file. |
| **Measurement Range** | Edit the measurement range for line plot data included in a subset of a data file. |
| **Delete all other subsets** | Removes all other subsets from the data file. |
| **Resize** | Use to crop a data set. Use the tips button for hints on how to use this feature. |
| **Merge Data** | Use to "stitch together" data collected separately from adjoining regions. Use on C-scans to join small areas into larger scans. |
| **Attach Data** | Use to attach saved data files as subsets to the current data file. |

## Data Menu

| | |
|---|---|
| **Real** | Displays Real (X) component of Eddy Current data. |
| **Imaginary** | Displays Imaginary (Y) component of Eddy Current data. |
| **Magnitude** | Displays Magnitude of Eddy Current data. |
| **Phase** | Displays Phase of Eddy Current data. |

## Window Menu

| | |
|---|---|
| **Spawn** | Opens a new viewer window of the same type. |
| **Replicate** | Opens a new viewer window and loads it with the same data (either on-line or file) as the current window. |
| **Use as Default for New Windows** | Sets the current window parameters as the default for new color plot windows. Winspect will create color plot windows identical to this one in size and location, until this default is cleared. |
| **Clear as New Window Default** | Resets the default color plot window to the standard Winspect color plot window. |

# Color Plot Toolbar

Depending on the type of color plot data being displayed, any or all of the following buttons may be available.

| | | |
|---|---|---|
| | **View last Collected Data** | Toggles the online data display on or off for the color plot window. |
| | **Open Data File** | Open a data file in the color plot viewer window. |
| | **View Next Subset** | Displays the next data subset (if any) in the color plot viewer window.  Subsets can be cycled through, by repeatedly pressing the button. |
| | **Save to File** | Saves the data to a new **.sdt** file with a newly selected name. |
| | **Print Display** | Prints the current color plot viewer display to your default printer. |
| | **Zoom In** | Allows a rectangular area within the display pane to be defined and enlarged. |
| | **Zoom Out** | Returns the selected display pane to the original layout. |
| | **Pan** | Moves an image when zoomed in.  Used to center an area of interest. |
| | **View as 1 to 1** | Set aspect ratio to 1:1 relative to scan axis units of measurement. |
| | **Polar view** | |
| | **dB view** | Display data values in a dB scale. |
| | **Show Annotations** | Toggles the file's annotations on or off. |
| | **Refresh Display** | Refreshes the color plot display. |
| | **Color Palette** | Opens the color palette for editing of the image in the color plot display. |
| | **Horizontal Line Plot** | Opens a horizontal line plot above the image in the display. |
| | **Vertical Line Plot** | Opens a vertical line plot to the left of the image in the display. |
| | **New Text Annotation** | Opens the window for defining and placing a new text annotation. |

## Buttons Available when 3D Data is loaded

| | | |
|---|---|---|
| | **3D Cross section Control** | Opens the **Cross-section Control Window**.  (See *Color Plot - X-section Control Window*) |
| | **Next X-section** | Advances the view one cross section. |
| | **Previous X-section** | Reverses the view one cross section. |

## Right Click Menu - Color Plot
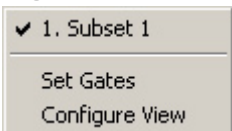
| | | |
|---|---|---|
| ✓ 1. Subset 1 | **List of available Subsets** | Select a subset from the list to view. |
| Set Gates | **Set Gates** (Only available with 3D Data) | Opens the **Process and Gate Control window** for editing of the gates. (See *Color Plot - Process and Gate Control Window*) |
| Configure View | **Configure View** | Opens the **Configure View window**. (See *Color Plot - Configure View Window*) |

## Context Sensitive Double Clicking - Color Plot

Double clicking on the **Color Plot** window opens the **Configure View window**. (See *Color Plot - Configure View Window*)

Double clicking on an Annotation in the **Color Plot** Window will open the **Annotations window**. (See *Color Plot - Annotations Window*)

## *Color Palette Editor – Color Plot*
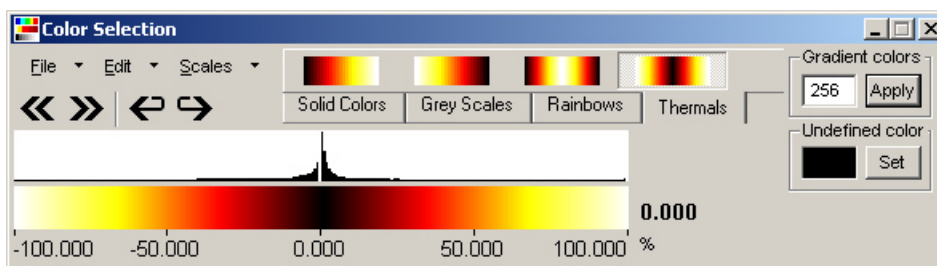


## File Menu - Color Palette Editor
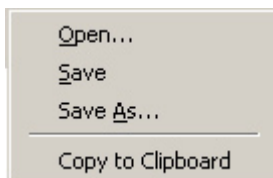
| | | |
|---|---|---|
| Open... | **Open...** | Opens a color palette file ( *\*.pl2* ) |
| Save | **Save** | Saves the current palette as a color palette file. |
| Save As... | **Save As...** | Saves the current palette under the newly selected name. |
| Copy to Clipboard | **Copy to Clipboard** | Copies the current palette to the clipboard. The image can be pasted into word documents, etc. |

## Edit Menu - Color Palette Editor
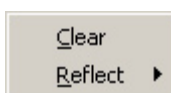
| | | |
|---|---|---|
| Clear | **Clear** | Clears the current palette. |
| Reflect ▶ | **Reflect** | Choose to reflect half of the palette either right onto left or left onto right. |

| | |
|---|---|
| ≪ ≫ | Shifts the palette in the color palette region, left or right. The space made by shifting the palette is filled with no color (black). |
| ↩ ↪ | Rotates the palette in the color palette region, left or right. The palette wraps around and repeats. |

| | |
|---|---|
| **Solid Colors** | Select from a palette of solid colors to "paint" onto the color palette region at locations of your choice. |
| **Grey Scales** | Select from a series of Grey Scale gradients to "paint" onto the color palette region. |
| **Rainbows** | Select from a series of Rainbow gradients to "paint" onto the color palette region. |
| **Thermals** | Select from a series of Thermal gradients to "paint" onto the color palette region. |
| **Gradient colors** | Assign the number of colors to use when "painting" a gradient (grey, rainbow, or thermal). |
| **Undefined color** | Select a color to represent undefined data. |
| **Histogram Region** | Aligned with the Color Palette region, this region shows the concentration of the signal in the color plot. |
| **Color Palette Region** | Aligned with the Histogram region, this is the area on which a palette can be painted. |

## *X-Section Control Window – Color Plot*
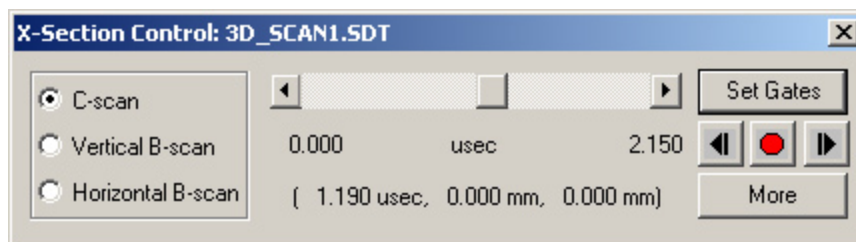


| | |
|---|---|
| **C-scan** | Selects the C-scan display of the data. |
| **Vertical B-scan** | Selects a vertical B-scan display of the data |
| **Horizontal B-scan** | Selects a horizontal B-scan display of the data. |
| **Slider** | Controls the view of the cross-sectional slices in time or distance. Watch the Color Plot for the results. |
| **Set Gates** | Opens the **Process and Gate Control window** for editing of the gates. (See *Color Plot - Process and Gate Control Window*) |
| **Animate** | Animates the travel through the cross-sectional slices in the display. Repeated presses of the forwards or backwards will accelerate or decelerate the animation. The stop button will stop the animation. |
| **More** | Open the **Animation Settings window**. (See *Color Plot - Animation Settings Window*) |

## *Animation Settings Window – Color Plot*
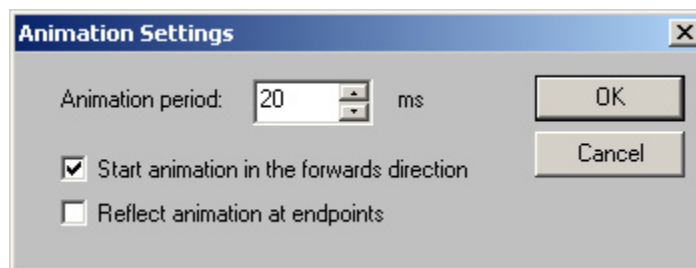


| | |
|---|---|
| **Animation period** | Assign the amount of time between animation frames in milliseconds. |
| **Start animation in the forwards direction** | When checked, the animation will first travel in a positive time direction. |
| **Reflect animation at endpoints** | When checked, the animation will reverse direction when the end has been reached. |

## *Process and Gate Control Window – 3D Color Plot*
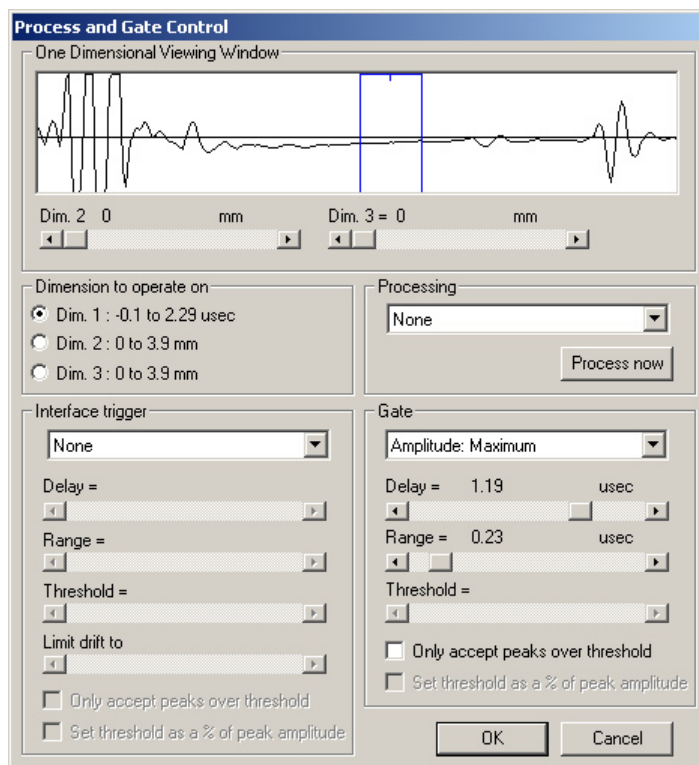
### One Dimensional Viewing Window

Displays the data in one dimension.  The sliders Dim.2 and Dim.3 affect the display of this view.

### Dim.2 and Dim.3 Slider

Controls the cross-sectional slice in the other two dimensions of the scan.

### Dimension to operate on

Selects the dimension to be viewed in the one dimensional viewing window.  The two associated sliders change dimensions accordingly.

### Processing

Opens a list of processors that can be applied to the data.

### Interface Trigger

Opens a list of possible interface triggers that can be applied to the data.  The delay, range, threshold, and drift limit of the interface trigger can be set using the sliders.

### Gate

Opens a list of possible gate types to choose from.  The delay, range, and threshold of the gate can also be set using the sliders.

## *Configure View Window – Color Plot*
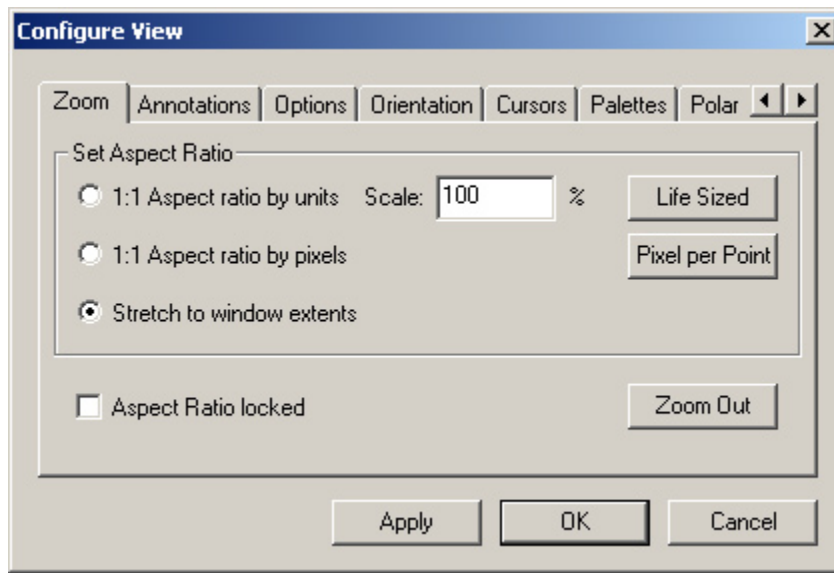


## *Zoom Tab - Configure View Window*

### Set Aspect Ratio

*1:1 Aspect Ratio by units:* Displays image in 1:1 aspect ratio defined by units of scan axes.  Compensates for any difference in sampling interval of scan and index axes.

*1:1 Aspect Ratio by pixels:* Displays image in 1:1 aspect ratio defined by data points.

*Stretch to window extents:* Displays the image stretched to fit the window.

### Scale

Select the image scale in percent of original size.

### Life Sized

Sets the aspect ratio as 1:1 by units (scanner axes) and scale image to 100%.  Displays screen image life size relative to scanned object.

### Pixel per Point

Sets the aspect ratio to 1:1 by pixels, and display one screen pixel per data point. Produces the image of sharpest resolution.

### Aspect Ratio Locked

Selecting this checkbox locks the image's aspect ratio so that it cannot be altered accidentally.

### Zoom out

Scale image up or down to fit entirely within the viewer window.

## *Annotations Tab - Configure View Window*
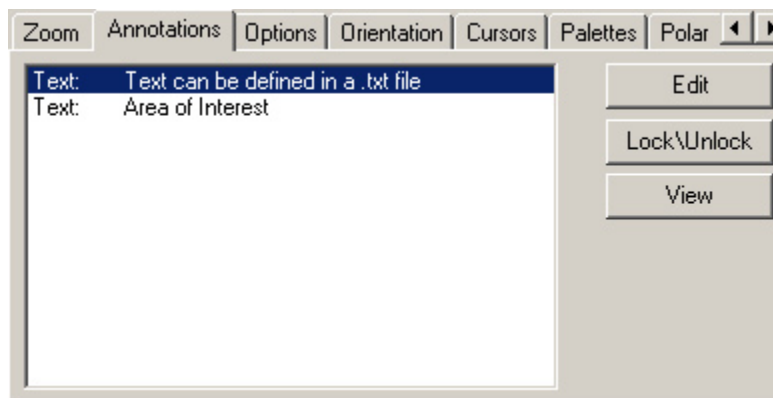


### Annotations List

Shows the list of annotations currently on the file. Note: the type of annotation precedes the annotation in the list.

### Edit

Opens a selected annotation from the list for editing. (See *Color Plot – Annotations Window*)

### Lock/Unlock

Lock or unlock selected annotations from the list.

### View

Toggles on or off the visibility of the annotations.

## *Options Tab - Configure View Window*
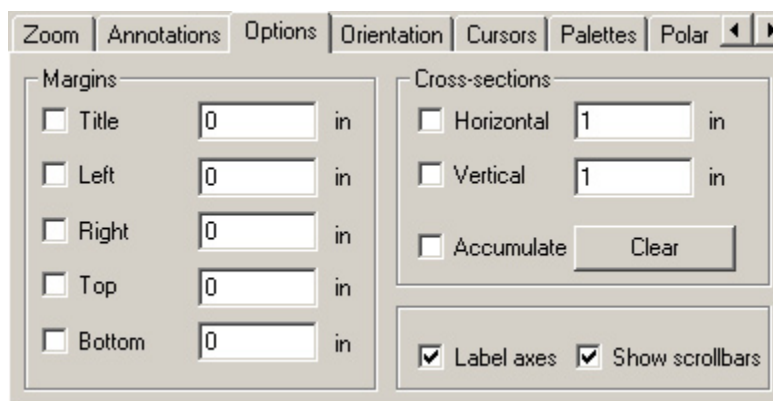


### Margins

Selects and set margins for the display area of the color plot viewer.

### Cross-sections

Sets the width and height of the cross-section portions of the color plot display.

### Accumulate

Allows the line plots to accumulate in the cross-section portions of the color plot display.

## Clear

Clears the accumulated line plots in the cross-section portions of the color plot display.

## Label axes and Show scrollbars

Shows or hides the axes labels and the scrollbars.

### *Orientation Tab - Configure View Window*
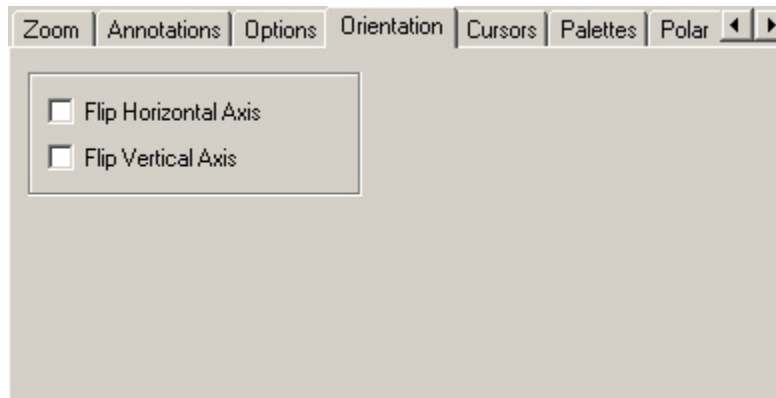


## Flip Horizontal Axis

Flips the image horizontally.

## Flip Vertical Axis

Flips the image vertically.

### *Cursors Tab - Configure View Window*
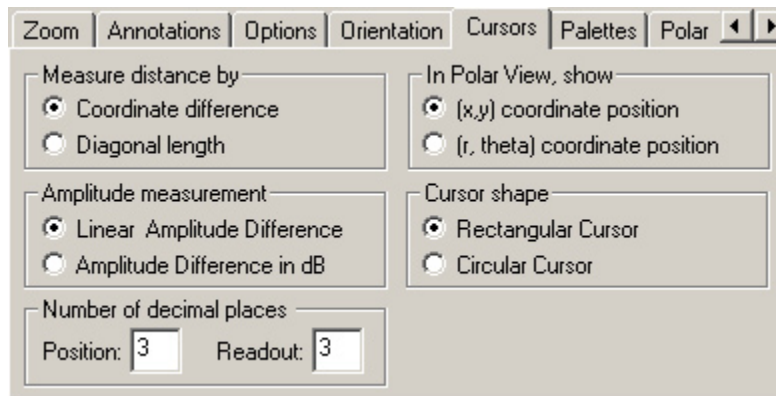


## Measure Distance by

Choose to have the cursor measure distance by calculating the coordinate difference or the measuring the diagonal length of the distance dragged.

## Amplitude measurement

Select whether dragging the cursor measures amplitude differences by amplitude differences in either linear or dB scales.

### In Polar View, show

Select how cursor position is displayed: as (X,Y) coordinates, or as radius and angle (r, theta).  Useful when using a circular cursor to measure round objects.

### Cursor shape

Choose between a rectangular cursor or a circular cursor.

### Number of decimal places

Choose the number of decimal places to be included in the readout.

## *Palettes Tab - Configure View Window*
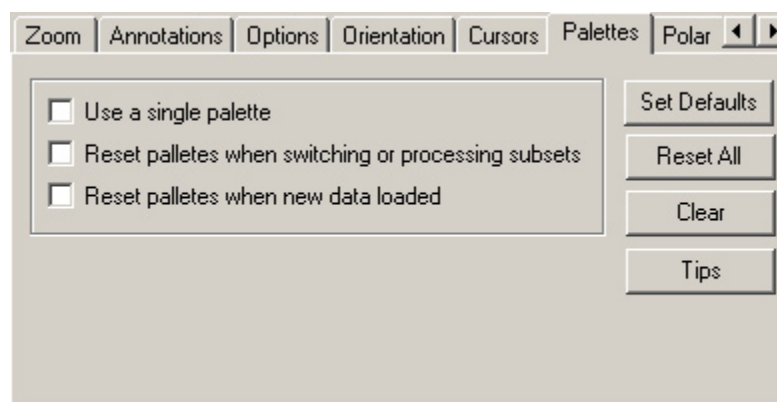


### Use a single palette

Select to use only a single palette for all data loaded into this color plot window.

### Reset palettes when switching or processing subsets

When selected, Winspect resets the current palettes to defaults when switching or processing a subset.

### Reset palettes when new data loaded

When selected, Winspect resets the current palettes to defaults when new data is loaded.

### Set Defaults

Opens a window into which defaults for certain subsets and view can be defined.

### Reset All

When clicked, Winspect resets the palettes to those stored in the current workspace (not in the data file).

### Clear

Clears the current palettes to the defaults.  If no default palette is selected, a greyscale is used.

### Tips

Click to learn tips on displaying palettes.

## *Polar Tab- Configure View Window*



### Choose type of polar display

Select how scan data will be decimated to display rectangular data array as polar:

**Plot Style:**              Choose from Left Justified, Right Justified, Center Justified, and XY.

**Combination Technique:**     Choose from Maximum, Minimum, Closest.

### Options

Choose to show or hide the polar display during collection.  Also choose to show all data as polar when possible.

### Select resolution

Select either an automatic resolution or define the resolution in millimeters.

### Rotate image by

Input the number of degrees to rotate (clockwise) the image.

### Polar View Button

Toggles the polar view on or off.  Use this to update the image between rotations.

## *dB View Tab - Configure View Window*
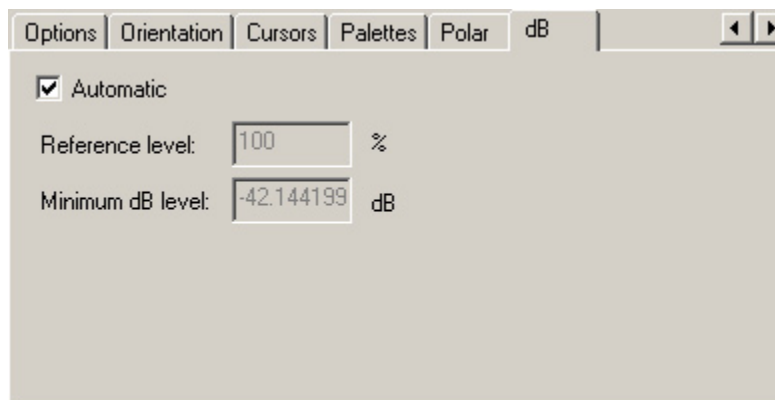


### Automatic
When checked, Winspect controls the dB levels of the color plot.

### Reference level
0dB will occur at the set % of relative screen height.

### Minimum dB level
Data below this dB setting will be ignored by Winspect.

## *Color Plot - Annotations Window*
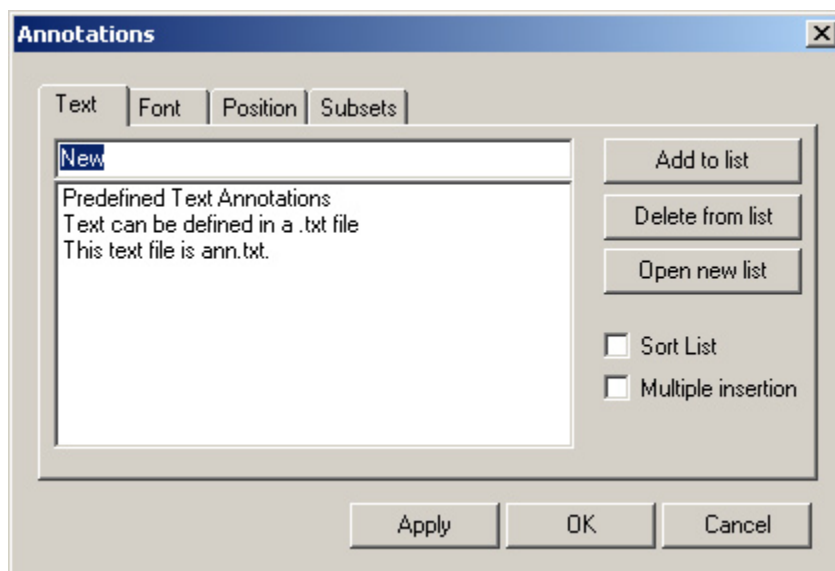


## *Text Tab (TEXT) - Annotations Window*

### Text Entry box
A place to type new text annotations.

## List of Annotations

A list of the annotations associated with this data file.

## Add to list

Adds the current annotation in the text entry box to the list of annotations.

## Delete from list

When an annotation is selected in the list and this is pressed, the annotation is deleted.

## Open new list

Opens a text file to use as an annotations list.

## Sort list

When checked, the list is sorted alphabetically.

## Multiple insertion

When checked, each click will insert the selected annotation on the image.  To stop insertions press **<ESC>**.

### *Font Tab (TEXT) - Annotations Window*
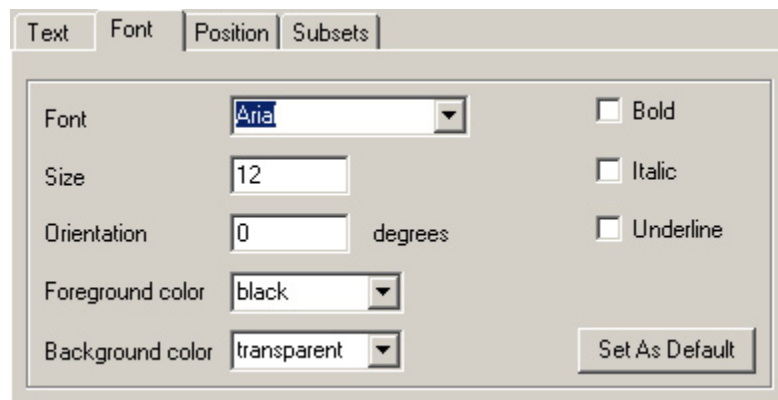


## Font

Select between Arial, Courier, and Times New Roman.

## Size

Enter the point size of the font.

## Orientation

Assign the orientation of the text (0 to 359 degrees)

## Foreground color

Select the color for the text letters.

### Background color

Select the color to be displayed immediately behind the text.

### Bold

Check this box to make the text bold.

### Italic

Check this box to make the text italics.

### Underline

Check this box to underline the text.

### Set as default

When pressed, the setup for the text is saved as the default for text annotations.

## *Position Tab (TEXT) - Annotations Window*
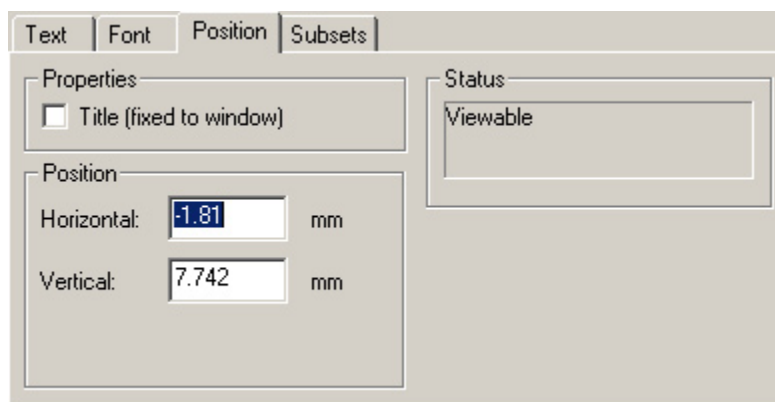


### Properties

When checked, the selected annotation becomes a title, and is fixed to the window it is applied to.

### Position

Select the horizontal and vertical position of the annotation.  0,0 is the top, right corner of the window.

### Status

The status window indicates whether or not the annotation is viewable.

## *Subsets Tab (ALL) - Annotations Window*
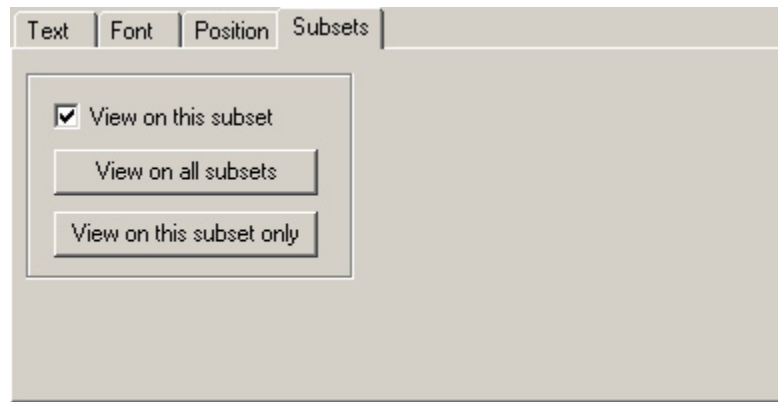


### View on this subset

Check this box to have an annotation viewable on the current subset.

### View on all subsets

Press to have the annotation viewable on all subsets of the data file.

### View on this subset only

Press to have the annotation viewable only on the current subset.

## *Measurements Tab (SHAPES) - Annotations Window*
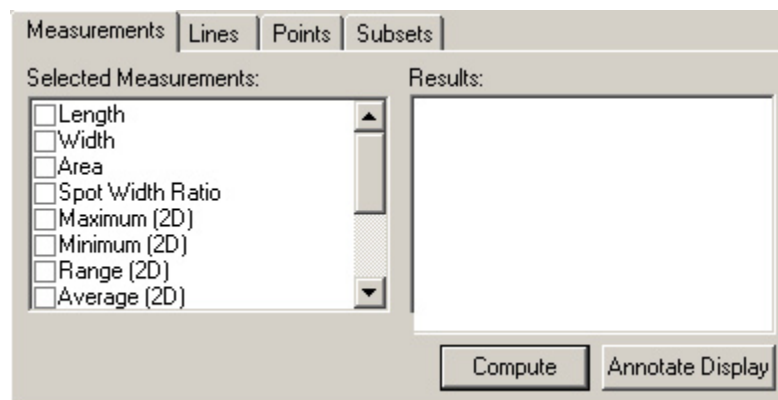


### Selected Measurements

A list of available measurements that can be calculated and appended to the annotation.

### Results

Displays the results of the measurement computation.

### Compute

Calculates the selected measurement, updating the Results box.

### Annotate Display

Applies the calculated annotation to the image subset.

## *Lines Tab (SHAPES) - Annotations Window*
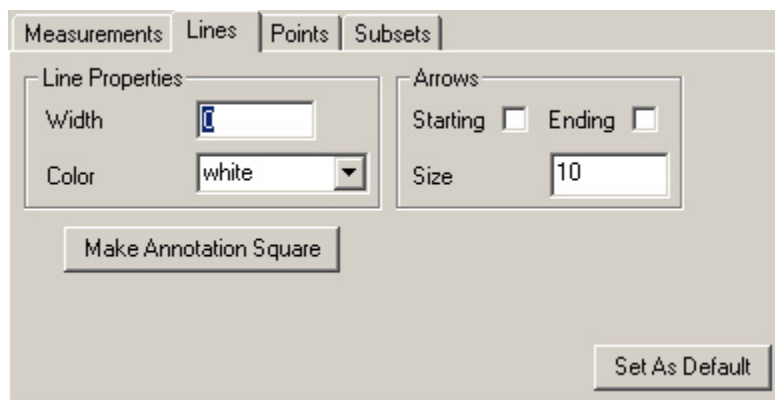


### Line Properties
Set the line width in points and select the line color.

### Arrows
Choose to have arrowheads at the start of the line, end of the line, or both. Also choose the size of the arrowhead.

### Make annotation square  (available when the annotation type is a rectangle),
Resizes a rectangular annotation so that it is a square.

### Make annotation circular  (available when the annotation type is an oval or circle),
Resizes an ovoid or circular annotation so that it is a circle.

## *Points Tab (SHAPES) - Annotations Window*
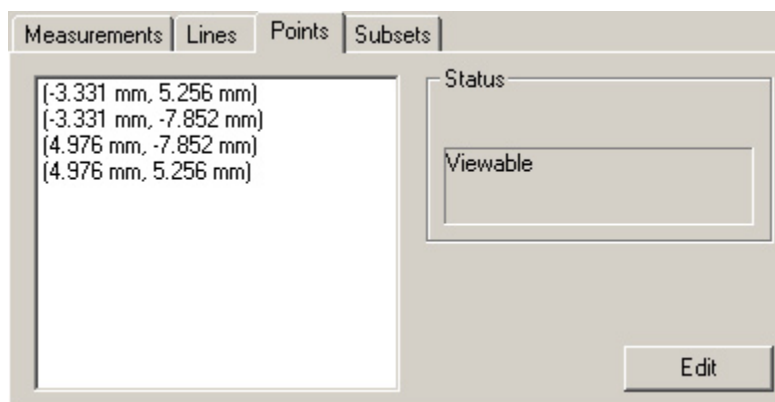


### Points list
A list of the points contained in the selected annotation.

### Status
States whether or not a point (and therefore the annotation) is viewable in a subset or not.

# Line Plot Viewer Window
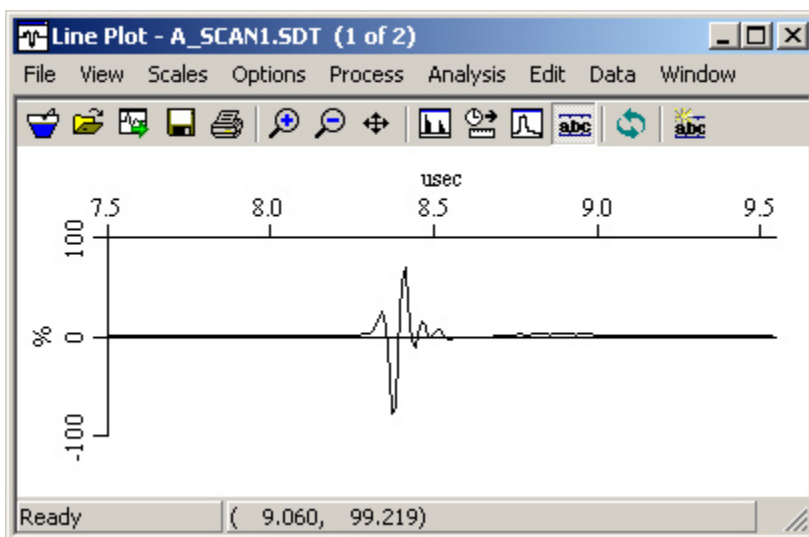
## File Menu
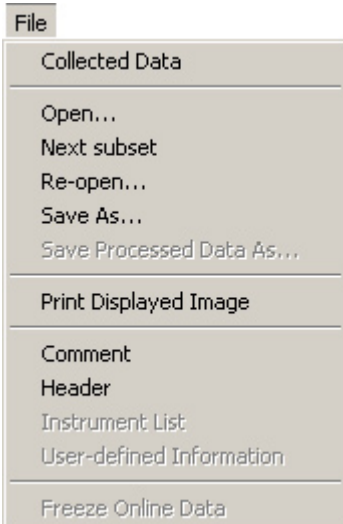
| | |
|---|---|
| **Collected Data** | Toggles the online data display on or off for the line plot viewer window. |
| **Open . . .** | Open a data file in the line plot viewer window. |
| **Next Subset** | Displays the next data subset (if any) in the color plot viewer window.  Subsets can be cycled through using this command. |
| **Re-open** | Re-opens the current data file.  Use to revert to the saved file. |
| **Save As . . .** | Saves the data to a new **.sdt** file with a newly selected name. |
| **Save Processed Data As . . .** | Saves the current processed data subset to an new file.  Other data subsets are not saved with the new file. |
| **Print Displayed Image** | Prints the current color plot viewer display to your default printer. |
| **Print Options** | Choose to display or hide the file header, axis summary information, scale, and the user-defined header. |
| **Comment** | Opens the data comment for editing. |
| **Header** | Displays the information window associated with the open data file. |
| **Instrument List** | Displays a list of instruments used. |
| **User-Defined Information** | Opens the user definable setup description file. |
| **Freeze Online Data** | Freezes online data in the current window.  Used for side-by-side comparison with other online data. |

## View Menu

| | **Zoom Out** | Returns the display to the default display range. |
|---|---|---|
| | **Zoom Rect** | Enlarges a selected area.  Click and drag (holding the mouse button down) a rectangle around a desired area, then releasing the mouse button. |
| | **Pan** | Allows movement of the image when zoomed in.  Used to center an area of interest. |
| | **Refresh** | Refreshes the line plot display. |

## Scales Menu
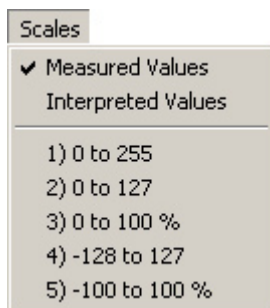
| | **Measured Values** | Provides the scale in Volts (usually the Engineering Units of the digitizer) |
|---|---|---|
| | **Interpreted Values** | Provides the scale in any converted units. |
| | **Range Types** | Ranges of scale for they axis. |

## Options Menu
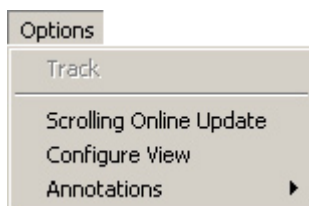
| | **Track** | Provides a crosshair cursor to pick points on an A-scan.  The scanner will drive to the picked locations so you can view the signals live.  Use escape to exit this pick mode. |
|---|---|---|
| | **Scrolling Online Update** | Selects to view in a scrolling update fashion.  Useful when making large scans and only want to see the most recent data. |
| | **Configure View** | Opens the **Configure View window** (see *Line Plot –Configure View*). |
| | **Annotations** ▸ | Add text annotations only.  Opens the **Text Annotations window**.  (See *Color Plot -Annotations Window*) |

## Process Menu

| | **Rectify** | Toggles the display between rectified and full wave. |
|---|---|---|
| | **FFT** | Toggles the display between FFT and full wave display. |
| | **Process Subset . . .** | Select a processor to act on this data subset. |
| | **Next Processed Image** | Displays the next image in the processed image chain. |
| | **Last Process Image** | Displays the previous image in the processed image chain. |
| | **Most Recently Used Processors** | A list of up to the last 4 processors used. |

# Analysis Menu
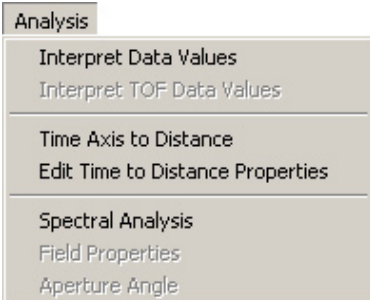
| | | |
|---|---|---|
| **Interpret Data Values** | Opens the **Interpret Data window**. Use to assign engineering units or other scaled values to the data range. |
| **Interpret TOF Data Values** | Converts μsec to depth in inches or millimeters on line plots. |
| **Time Axis to Distance** | Converts display of a line plot's time axis to distance. |
| **Edit Time to Distance Properties** | Opens the **Time to Distance Conversion window**. (See *Color Plot - Time to Distance Conversion Window*) |
| **Spectral Analysis** | Performs an FFT process and computes the spectral analysis of the probe. |
| **Field Properties** | Calculates the depth of field for a probe. |
| **Aperture Angle** | Calculates the probe aperture in degrees. Must be on a rotary axis. |

# Edit Menu
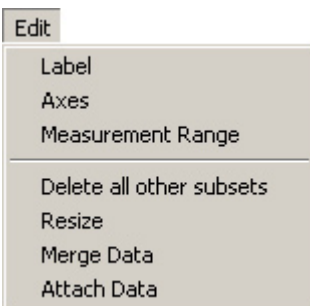
| | |
|---|---|
| **Label** | Type a label for this subset. This label appears after the file name on the top of the window. |
| **Axes** | Edit the scale, resolution, and labels of the X axis of the data file. |
| **Measurement Range** | Edit the measurement range Y axis of the line plot. |
| **Delete all other subsets** | Removes all other subsets from the data file. If the file is saved to the same name after this has been used, the removed subsets are permanently lost. |
| **Resize** | Used to rescale or crop the dataset. |
| **Merge Data** | Use to "stitch together" data collected separately from adjoining regions. |
| **Attach Data** | Use to attach saved data files as subsets to the current data file. |
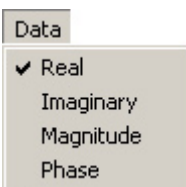
# Data Menu

| | |
|---|---|
| **Real** | Displays Real (X) component of Eddy Current data. |
| **Imaginary** | Displays Imaginary (Y) component of Eddy Current data. |
| **Magnitude** | Displays Magnitude of Eddy Current data. |
| **Phase** | Displays Phase of Eddy Current data. |

# Window Menu

| | | |
|---|---|---|
| | **Spawn** | Opens a new viewer window of the same type. |
| | **Replicate** | Opens a new viewer window and loads it with the same data (either on-line or file) as the current window. |
| | **Use as Default for New Windows** | Sets the current window parameters as the default for new plot windows. Winspect will create plot windows identical to this one in size and location, until this default is cleared. |
| | **Clear as New Window Default** | Allows the standard Winspect plot window to be created. |

# Line Plot Toolbar
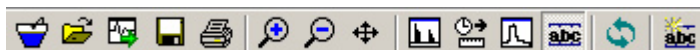
| | | |
|---|---|---|
| | **View last Collected Data** | Toggles the online data display on or off for the line plot window. |
| | **Open Data File** | Open a line plot data file in the line plot viewer window. |
| | **View Next Subset** | Displays the next data subset (if any) in the line plot viewer window. Subsets can be cycled through, by repeatedly pressing the button. |
| | **Save to File** | Saves the data to a new **.sdt** file with a newly selected name. |
| | **Print Display** | Prints the current line plot viewer display to your default printer. |
| | **Zoom In** | Allows a rectangular area within the display pane to be defined and enlarged. |
| | **Zoom Out** | Returns the selected display pane to the original layout. |
| | **Pan** | Moves an image when zoomed in. Used to center an area of interest. |
| | **Rectify Display** | Toggles the display of the active pane between rectified and full wave. |
| | **Time to Distance** | Toggles the X axis of the active pane between time and distance as established in the Time to Distance Conversion Window. |
| | **FFT Display** | Performs an FFT on the displayed signal in the active pane. |
| | **Show Annotations** | Toggles the file's annotations on or off. |
| | **Refresh Display** | Refreshes the line plot display. |
| | **New Text Annotation** | Opens the window for defining and placing a new text annotation. |

## Right Click Menu - Line Plot

| ✓ 1. Subset 1 |
| Set Gates |
| Configure View |
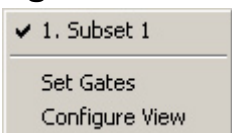
**List of available Subsets**   Select a subset from the list to view.

**Configure View**   Opens the **Configure View window**.  (See *Line Plot - Configure View Window*)

## Context Sensitive Double Clicking - Line Plot

Double clicking on an Annotation in the **Line Plot window** will open the **Annotations window**.  (See *Color Plot - Annotations Window*)

### *Configure View Window – Line Plot*
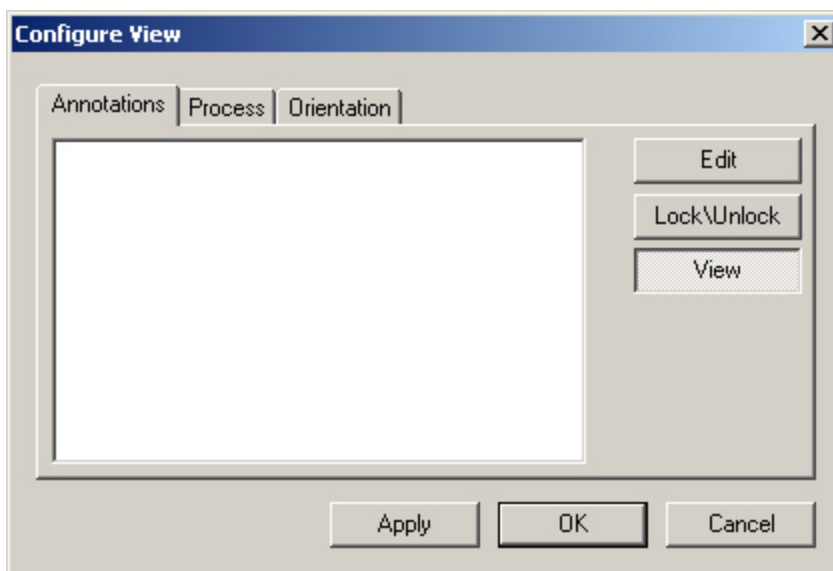


### Annotations List

Shows the list of annotations currently on the scan.

### Edit

Opens a selected annotation from the list for editing. (See *Color Plot – Annotations Window*)

### Lock/Unlock

Lock or unlock selected annotations from the list.

### View

Toggles on or off the visibility of the annotations.

## *Process Tab - Configure View Window - Line Plot*
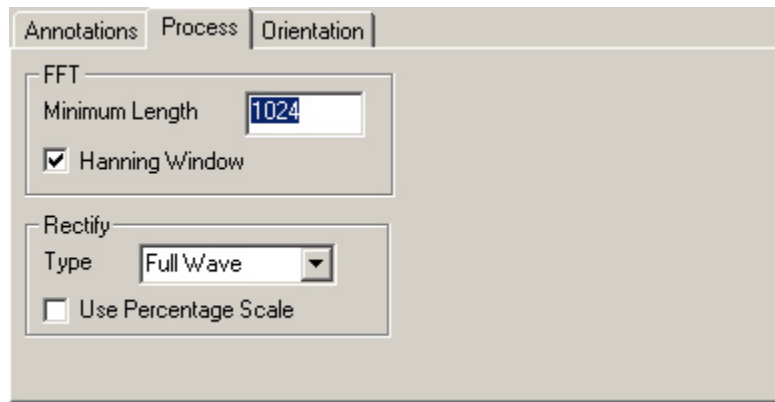


### FFT

Set the default values of Minimum Length and choose whether or not to view the FFT in a Hanning Window when the FFT button on the Line Plot Window is pressed.

### Rectify

Set the default Type and whether or not to use Percent Scale when the Rectify button on the Line Plot Window is pressed.

## *Orientation Tab - Configure View Window - Line Plot*
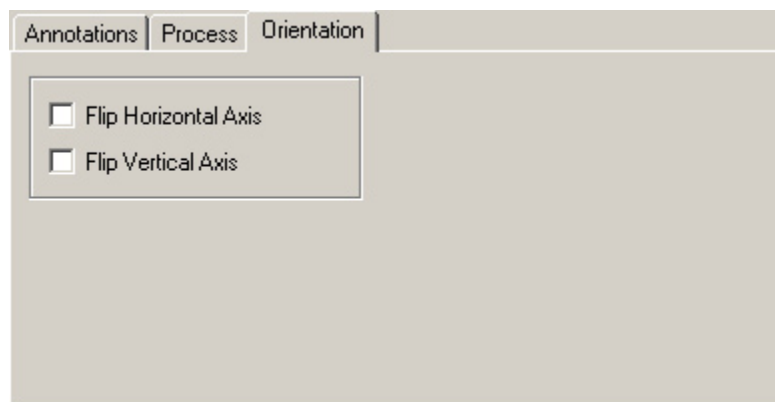


### Flip Horizontal Axis

When checked, Winspect flips the horizontal axis of the line plot.

### Flip Vertical Axis

When checked, Winspect flips the vertical axis of the line plot.

# Lissajous Plot Viewer Window
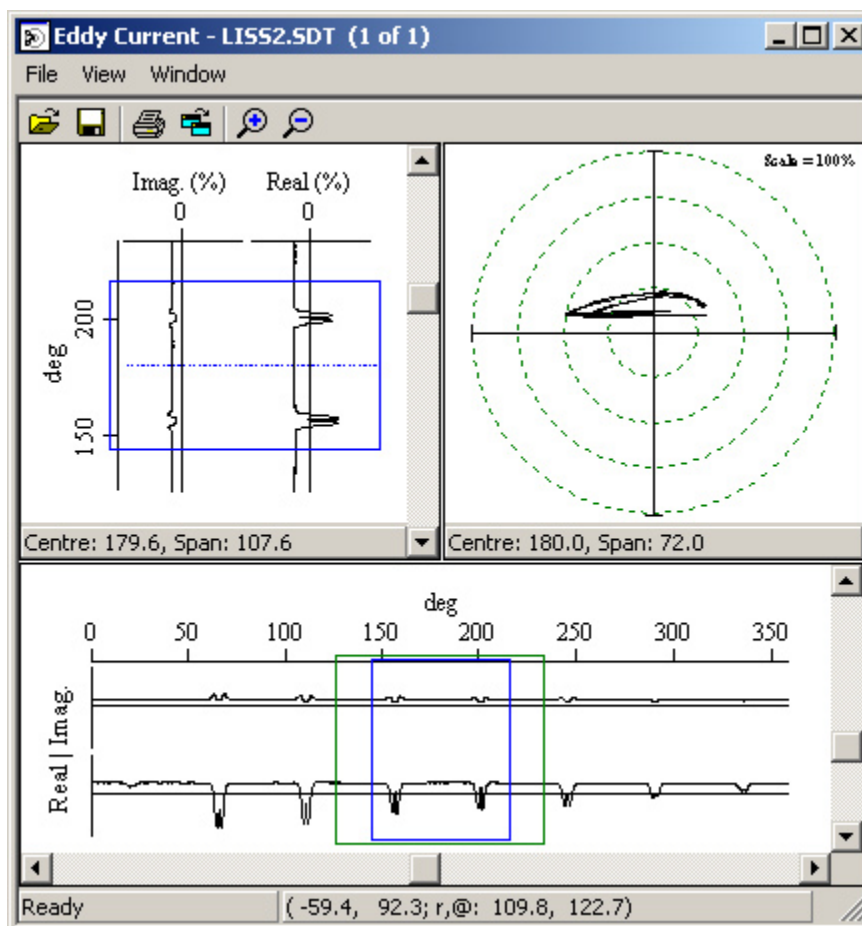
## File Menu
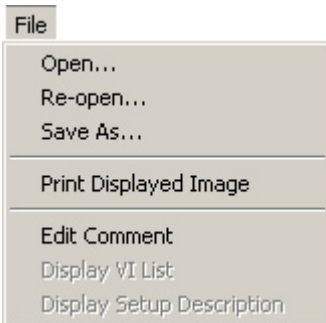
| | | |
|---|---|---|
| **Open . . .** | Open a data file in the color plot viewer window. |
| **Re-open** | Re-opens the current data file.  Use to revert to the saved file. |
| **Save As . . .** | Saves the data to a new **.sdt** file with a newly selected name. |
| **Print Displayed Image** | Prints the current color plot viewer display to your default printer. |
| **Edit Comment** | Opens the text comment attached to the data file for editing. |
| **Display VI List** | Displays a text list that includes the virtual instruments used in the collection of the data. |
| **Display Setup Description** | Opens the **User Defined Information** file attached to the data file.  Only available if the data file has associated User Defined Information attached. |

# View Menu
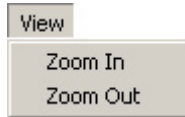
|  | **Zoom In** | Enlarges a selected area.  Click and drag (holding the mouse button down) a rectangle around a desired area, then releasing the mouse button. |
| --- | --- | --- |
|  | **Zoom Out** | Returns the display to the default display range. |

# Window Menu
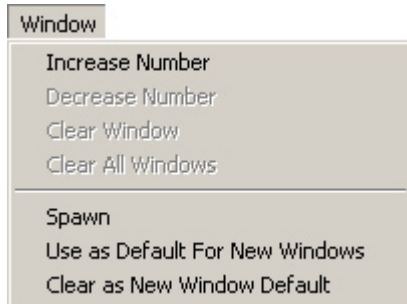
| | **Increase Number** | Adds a blank pane on top of the eddy current display each time it is used.  Polar plots can be dragged into these panes. |
| --- | --- | --- |
| | **Decrease Number** | Removes a pane from the top of the eddy current display each time it is selected.  Polar plots can be dragged into these panes. |
| | **Clear Window** | Allows you to clear an added pane.  Once selected, clear a top display pane by clicking on it. |
| | **Clear All Windows** | Clears all top display panes at once. |
| | **Spawn** | Opens a new eddy current window. |
| | **Use as Default for New Windows** | Sets the current window parameter as the default for new eddy current windows.  Winspect will create eddy current windows identical to this one until this default is cleared. |
| | **Clear as New Window Default** | Clears the window parameters so that the standard eddy current window will be created. |

# Lissajous Plot Toolbar

| | **Open Data File** | Open a lissajous plot data file in the **Lissajous Plot** viewer window. |
| --- | --- | --- |
| | **Save to File** | Saves the data to a new **.sdt** file with a newly selected name. |
| | **Print Display** | Prints the current lissajous plot viewer display to your default printer. |
| | **Spawn** | Opens a new **Lissajous Plot window**. |
| | **Zoom In** | Allows a rectangular area within the display pane to be defined and enlarged. |
| | **Zoom Out** | Returns the selected display pane to the original layout. |

# Data Processors

# Processors

**Currently Available in WInspect Release 6.0**

## Gate

Applies a gate to your A-scan or line data.

Information to supply:

|  |  |
|---|---|
| Gate Start: | Assign the starting position of the gate. |
| Gate Length: | Assign the length of the gate. |

## A-Scan Int Trig Gate

Applies an interfaced trigger gate to your A-scan or line data.

Information to supply includes:

| | |
|---|---|
| Int. Trig. Gate Type: | Choose either a gated region or the whole signal. |
| Int. Trig. Start: | Assign the start point for the interface trigger. |
| Int. Trig. Range: | Assign the range of the interface trigger. |
| Int. Trig. Level: | Assign the level of the interface trigger. |
| Int. Trig. Type: | Choose between Threshold, Slope +ve, Slope –ve, Peak +ve, Peak –ve. |
| Limit Drift: | Limit the drift of the interface trigger (True or False). |
| Max Drift: | Assign the maximum amount of drift allowed. |
| Gate Start: | Assign the starting position of the gate. |
| Gate Length: | Assign the length of the gate. |

## A-scan Amplitude

Finds the amplitude of an A-scan or line of data according to the selected method.

Information to supply includes:

| | |
|---|---|
| Amplitude Type: | Select from Maximum, Minimum, Absolute Value, or Peak to Peak. |
| Apply LP Filter: | Apply a low pass filter before finding the peak (True or False). |
| LP Cut Off: | Assign the cut off frequency of the low pass filter (if one is being used). |
| Apply HP Filter: | Apply a high pass filter before finding the peak (True or False). |
| HP Cut Off: | Assign the cut off frequency of the high pass filter (if one is being used). |
| Scale: | Filtered data will be multiplied by this number. |

## FW Rectify

Applies Full Wave rectification.

Information to supply includes:

| | |
|---|---|
| Type: | Select from Full Wave, Half Wave +, Half Wave -. |
| Display using percentage: | Display the results using percentage scale (True or False). |

## Envelope

Calculates the envelope of an A-scan using the magnitude of the analytic.

Information to supply includes:

| | |
|---|---|
| Display using percentage scale: | Display the results using percentage scale (True or False). |

### Butterworth Filter

Filters an A-scan or line of data.

Information to supply includes:

> Filter Type:  Select from High Pass or Low Pass.

> Cutoff Frequency: Assign the Cutoff Frequency.

### MatLab 1D Processor

Process an A-scan or line of data using a function call to MatLab.  This is usually using a customer-built MatLab processor.

### Time to Distance

Converts the axis of an A-scan from time to distance.

Information to supply includes:

| | |
|---|---|
| Velocity of Sound: | Assign the velocity of sound in the target material. |
| Velocity Units: | Select from mm/μsec or inches/μsec. |
| Distance is: | Assign a distance value to position time (use with At Time) |
| At Time: | Assign the time at which the distance value is correct. |
| Pulsing Mode: | Select between Pulse Echo and Pitch Catch |

### FFT

Calculates the Fourier Transform of an A-scan or line of data.

Information to supply includes:

> Minimum Result Length:

| | |
|---|---|
| Window: | Select between none, or Hanning. |
| Use Gate: | Gate the signal before doing the FFT. (True or False). |
| Gate Start: | Assign the starting position of the gate (if used). |
| Gate Length: | Assign the length of the gate (if used). |

### Peak Width

Finds the width of the peak of an A-scan or line of data at the assigned dB level.

Information to supply includes:

| | |
|---|---|
| Level in dB: | Assign the level in dB down from the peak, |
| | Where the measurement is taken. (Default is –6dB). |



### Peak Position

Finds the position of the peak of an A-scan or line of data.

### Single Point

Finds the value at a single point in an A-scan or line of data.

Information to supply includes:

> Position:  Assign the position (on the X axis) of the point in question.
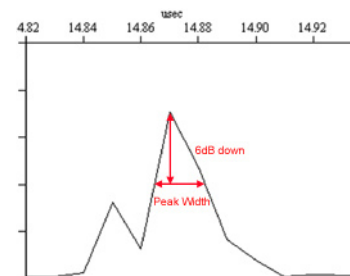
### Peak Center Position

Finds the position of the center of the peak of an A-scan or line of data at the assigned level.

Information to supply includes:

> dB Level:   Assign the level in dB, where the measurement is taken.
>
> > (Default is –6dB).
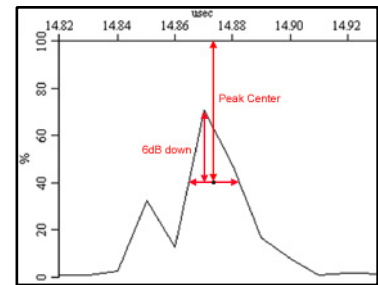
### Level Crossing Forward

Finds the point where the signal drops below a given level in front of the peak.

Information to supply includes:

> Level in dB:   Assign the level in dB. (Default is –6dB).

### Level Crossing Backward

Finds the point where the signal drops below a given level behind the peak.

Information to supply includes:

> Level in dB:   Assign the level in dB. (Default is –6dB).

### C-Scan cross-section @ peak

Takes the cross-section through the peak of a C or B-scan.

Information to supply includes:

> Axis of Cross-Section:   Select the axis along which the cross-section will be taken.

### Spot Width Ratio

Finds the cross-section at peak for both axes of a C-scan (see above), then calculates the peak width at the assigned dB level for both cross-sections and provides the ratio.

Information to supply includes:

> dB Level:   Assign the level in dB. (Default is –6dB).

### Percent Peak Width

Finds the percentage of the width of the peak compared to the peak position of an a-scan or line of data.

Information to supply includes:

> Level in dB:        Assign the level in dB. (Default is –6dB).
>
> Maximum %:      Assign the maximum percentage of peak width (Default is 200%).

### Rectangular crop

Crops a C or B-scan with a rectangle.

Information to supply includes:

> Axis 1 Start/End: Assign the Start and end values for Axis 1.
>
> Axis 2 Start/End: Assign the Start and end values for Axis 2.

### Elliptical crop

Crops a C or B-scan with an ellipse.

Information to supply includes:

> Axis 1 Start/End: Assign the Start and end values for Axis 1.
>
> Axis 2 Start/End: Assign the Start and end values for Axis 2.

### Polygon crop

Crops a C or B-scan with a polygon.

Information to supply includes:

| | |
|---|---|
| Number Of Points: | Assign the number of points in the polygon region. |
| Point (#), Axis 1: | Assign the location of Point (#) on Axis 1. |
| Point (#), Axis 2: | Assign the location of Point (#) on Axis 2. |

### C-Scan Polar Conversion

Converts a 2D C-scan from (r-theta) to (x-y) coordinates.

Information to supply includes:

| | |
|---|---|
| Automatic Resolution: | Have the resolution automatically generated by Winspect (True or False). |
| Resolution: | Assign a resolution for the resultant data set. |
| | (Default is 1. This is the resolution of the new data set). |
| Rotate Angle In Degrees: | Assign the rotational angle for the conversion (in Degrees). |
| Combination Technique: | Select from Maximum, Minimum, or Closest. |

### C-Scan Spherical Polar Conversion

Converts a C-scan for phi-theta to x-y coordinates.

Information to supply includes:

| | |
|---|---|
| Automatic Resolution: | Have the resolution automatically generated by Winspect (True or False). |
| Resolution: | Assign a resolution for the resultant data set. |
| | (Default is 1. This is the resolution of the new data set). |
| Rotate Angle In Degrees: | Assign the rotational angle for the conversion (in Degrees). |
| Combination Technique: | Select from Maximum, Minimum, or Closest. |
| Sphere Radius: | Assign the Sphere radius for the conversion. (Default is 1). |
| Sphere Radius Units: | Assign the Units of the Sphere. (Default is mm). |
| Hemisphere: | Select between Northern and Southern. |
| Projection Type: | Select from Equal area or Polar. |

### 3D Polar Conversion

Converts a 3D C-scan for phi-theta to x-y coordinates.

Information to supply includes:

| | |
|---|---|
| Automatic Resolution: | Have the resolution automatically generated by Winspect (True or False). |
| Resolution: | Assign a resolution for the resultant data set. |
| | (Default is 1. This is the resolution of the new data set). |

### 3D Spherical Polar Conversion

Converts a 3D C-scan for phi-theta to x-y coordinates.

Information to supply includes:

| | |
|---|---|
| Automatic Resolution: | Have the resolution automatically generated by Winspect (True or False). |
| Resolution: | Assign a resolution for the resultant data set |
| | (Default is 1. This is the resolution of the new data set). |
| Sphere Radius: | Assign the Sphere radius for the conversion. (Default is 1). |

Sphere Radius Units:　　　　Assign the Units of the Sphere. (Default is mm).

Hemisphere:　　　　　　　　Select between Northern and Southern.

Projection Type:　　　　　　Select from Equal area or Polar.

## dB Converter

Converts current values to dB.

Information to supply includes:

Reference Level Mode:  Select from Highest Value or User Defined.

User Defined Reference Level:  Assign a User Defined Reference Level. (Default is 1).

Min Level Mode:  Select from Automatic or User Defined.

Min dB Level:   Assign a User Defined Reference Level. (Default is -40).

## Remove Centering Offset

Removes the centering offset for a line of rotary data.

## Remove Undefined Points

Removes undefined data with linear interpolation.

Information to supply includes:

Maximum Interpolation Length:  Assign the maximum Interpolation Length (Default is 5).

Wrap:   Allow data to wrap (True or False).

## Linearize

Applies a polynomial linearization function of the form $Y=A0+A1x+A2x^2+A3X^3+A4x^4$ where A1 defaults to 1 and all other coefficients default to 0.

Information to supply includes:

A0:  The coefficient of the $x^0$ term of the polynomial function.

A1:  The coefficient of the $x^1$ term of the polynomial function.

A2:  The coefficient of the $x^2$ term of the polynomial function.

A3:  The coefficient of the $x^3$ term of the polynomial function.

A4:  The coefficient of the $x^4$ term of the polynomial function.

## Rescale

Rescale the data to cover a new range with new units.

Information to supply includes:

Maximum Value:  Assign the maximum value of the new scale (Default is 1).

Minimum Value:  Assign the minimum value of the new scale (Default is -1).

Units:  Assign the units for the new scale.

Output Data Type:  Choose from: Same as input, 1Byte signed, 1Byte unsigned, 2 Bytes signed.

## Rotate

Rotates the data by the given amount.

Information to supply includes:

Rotation Amount:  Assign a rotation amount in degrees.

Wrap:   Allow data to wrap (True or False).

### Backlash Removal

Rotates every second scan line to remove system backlash.

Information to supply includes:

> Rotation Amount:  Assign a rotation amount in degrees.

> Wrap:  Allow data to wrap (True or False).

### 1D Averaging Filter

Performs an averaging filter along a line of data.

Information to supply includes:

> Filter Length:  Assign a length for the Filter.

> Wrap:  Allow data to wrap (True or False).

### 2D Averaging Filter

Runs an averaging filter over the data.

Information to supply includes:

> Axis 1 Filter Length:  Assign a length for the Filter (Default is 3).

> Axis 2 Filter Length:  Assign a length for the Filter (Default is 3).

### Reference Subtraction

Subtracts a reference A-scan from the input A-scan.

Information to supply includes:

> Reference Source:　　　　Select from Record the next A-scan or From File.

> Source File:　　　　　　Choose a file to use for reference subtraction.

### TOFD

(Time of Flight Diffraction) Converts the time of flight axis to the depth into the target.

Information to supply includes:

> Sample Geometry: Choose either Flat or Convex.

> Sample Thickness: Assign the sample thickness.

> Sample Radius:  Assign the radius of a convex part.

> Probe Separation:  Assign the probe separation.

> Sound Velocity:  Assign the sound velocity in the target material.

> Time Delay in Probe:  Assign the time delay (in μsec) for the probe.

> Time of lateral wave:  Enter the time of the mode that travels between the probe along the top surface.

> Time of backwall echo: Enter the time of the mode that returns to the probe after bouncing off the backwall.

> Time measurement: Select either Absolute, or Relative to lateral wave.

> Probe Separation:  Select either Measured or Calculated from lateral wave.

> Thickness:  Select either Measured or Calculated from backwall echo.

> Update Calculated TOFD values:  Updates the processor with the current values.

### Average (1D)

Finds the average value of an a-scan or line of data.

## Crop Region

Sets the values for a region of the data to be cropped.

Information to supply includes:

Left:   Assign value for the left edge of the crop region.

Right:   Assign a value for the right edge of the crop region.

Bottom:   Assign a value for the bottom edge of the crop region.

Top:   Assign a value for the top edge of the crop region.

Crop Direction:  Select between Inside and Outside.

Crop Region:      Select between Rectangle and Ellipse.

## Magnitude

Takes the magnitude of complex value.

## Phase

Takes the phase of complex value.

## Real

Takes the real part of complex value.

## Imaginary

Takes the imaginary of complex value.

## FIR Upsampler

Upsamples your A-scan or line plot by a factor of 4.

## 1D Median Filter

Performs median filtering along a line of data.

Information to supply includes:

Filter Length:  Assign a length for the Filter.

Wrap:   Allow data to wrap (True or False).

## 2D Median Filter

Runs a 2D median filter over the data.

Information to supply includes:

Wrap Axis 1:      Allow data on this axis to wrap (True or False). Use when the data has 360 degrees on its axis.

Wrap Axis 2:      Allow data on this axis to wrap (True or False). Use when the data has 360 degrees on its axis.

Filter Length on Axis 1:    Assign the length of the filter in number of points.

Filter Length on Axis 2:    Assign the length of the filter in number of points.

### 1D FIR Filter

Runs a finite impulse response filter over the data.

Information to supply includes:

| | |
|---|---|
| Source File: | Choose a file to use for reference subtraction. An A-scan in an SDT file or coefficients or separate lines in a TXT file are valid. |
| Auto Scale: | Scale the results so that the biggest peak is full height (True or False). |
| Wrap: | Use this when the data has 360 degrees on its axis (True or False). |
| Scale Factor: | The final results will be multiplied by this value. |

### 2D FIR Filter

Runs a finite impulse response filter over the data.

Information to supply includes:

| | |
|---|---|
| Source File: | Choose a file to use for reference subtraction. |
| | An A-scan in an SDT file or coefficients or separate lines in a TXT file are valid |
| Auto Scale: | Scale the results so that the biggest peak is full height (True or False). |
| Wrap Axis 1: | Use this when the data has 360 degrees on its axis (True or False). |
| Wrap Axis 2: | Use this when the data has 360 degrees on its axis (True or False). |

### Chirp Filter

Runs a chirp as a filter over the data.

Information to supply includes:

Auto Scale:  Scale the results so that the biggest peak is full height (True or False).

Chirp Start Freq:  Assign a frequency for the start of the Chirp Filter.

Chirp End Freq:  Assign a frequency for the end of the Chirp Filter.

Chirp Length:  Assign a length for the filter.

Scale Factor:  The final results will be multiplied by this value.

### Wall Thickness

Finds the wall thickness.

Information to supply includes:

Velocity of Sound:  Assign the velocity of sound in the target material.

Mode:   Select from Pulse Echo or Through Transmission.

Length Units:  Assign the units (Dependant on the Velocity units).

Cross Correlate:  Use Cross Correlation to determine wall thickness (True or False).

### Attenuation

Finds the attenuation of the signal.

Information to supply includes:

| | |
|---|---|
| Type: | Select either Normal or In Material. Normal, selects calculation of attenuation in terms of amplitude. |
| | In Material returns the attenuation per unit distance as specified by the Velocity of Sound, Mode and Units properties. |
| Velocity of Sound: | The speed of sound in the target material to be used for In Material attenuation calculations. Has no effect if Normal Type option is selected. |

Mode:   Select between Pulse Echo and Through Transmission.  Has no effect if Normal Type option is selected.

Length Units:  Assign the units (Dependant on the Velocity units).  Has no effect if Normal Type option is selected.

### Clip Data

Set data inside/outside a set range to unknown or to a new data value.

Information to supply includes:

Clipping Type:    Select from Above upper threshold, Below lower threshold, Outside upper/lower thresholds, Between upper/lower thresholds.

Replacement Method:  Select from Set to undefined, set to threshold, Set to value.

Upper Threshold:  Assign the Upper threshold for clipping.

Lower Threshold:  Assign the lover threshold for clipping.

Replacement Value:  Assign the value for replacement method.  Only used if the Replacement method is set to "Set to value".

### Maximum (2D)

Calculates the maximum value in a region.

Information to supply includes:

Complex Part:  Select from Real, Imaginary, Magnitude, and Phase.

### Minimum (2D)

Calculates the minimum value in a region.

Information to supply includes:

Complex Part:  Select from Real, Imaginary, Magnitude, and Phase.

### Range (2D)

Calculates the range of values in a region.

Information to supply includes:

Complex Part:  Select from Real, Imaginary, Magnitude, and Phase.

### Average (2D)

Calculates the average value in a region.

Information to supply includes:

Complex Part:  Select from Real, Imaginary, Magnitude, and Phase.

### Median (2D)

Calculates the median value in a region.

Information to supply includes:

Complex Part:  Select from Real, Imaginary, Magnitude, and Phase.

### Standard Deviation (2D)

Calculates the standard deviation of a region of data.

Information to supply includes:

Complex Part:  Select from Real, Imaginary, Magnitude, and Phase.

### RMS (2D)

Calculates the RMS of a region of data.

Information to supply includes:

> Complex Part:  Select from Real, Imaginary, Magnitude, and Phase.

### Area (2D)

Calculates the area of defined data in a region.

Information to supply includes:

> Complex Part:  Select from Real, Imaginary, Magnitude, and Phase.

### Area above Threshold (2D)

Calculates the area of defined data above a threshold in a region.

Information to supply includes:

> Threshold:   Assign a value for the Threshold.

> Complex Part:  Select from Real, Imaginary, Magnitude, and Phase.

### Volume (2D)

Calculates the volume of a region.

Information to supply includes:

> Complex Part:  Select from Real, Imaginary, Magnitude, and Phase.

# Controls & Managers

# Motion Controller
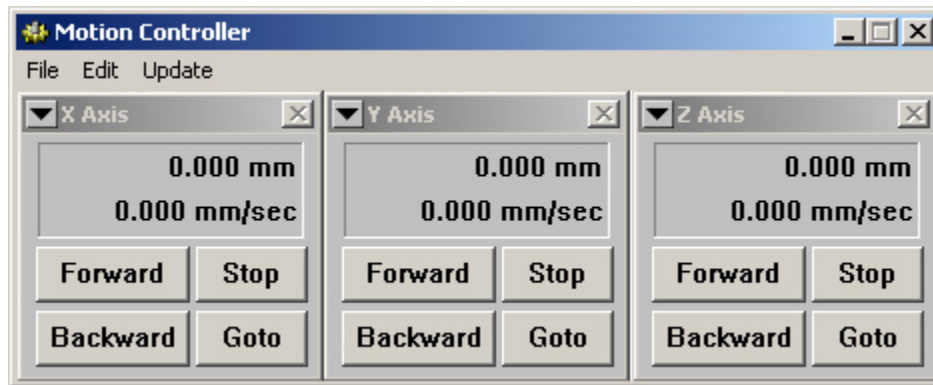


## File Menu
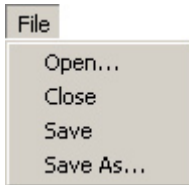


| | |
|---|---|
| **Open . . .** | Opens a motion control descriptor file (.**axd**) |
| **Close** | Closes the **Motion Controller window**. The last used descriptor file remains the default file when re-opening the Window. |
| **Save** | Saves an open motion control descriptor file. |
| **Save As . . .** | Saves the motion control descriptor file under a newly selected name. |

## Edit Menu
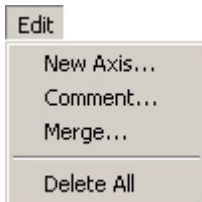


| | |
|---|---|
| **New Axis . . .** | Creates a new axis and opens the **Axis Configuration window** (see Below). |
| **Comment . . .** | Allows you to enter descriptive comment to the axis descriptor file. |
| **Merge . . .** | Merges axes from one descriptor file with another. You will be required to open a saved Axis Descriptor file to merge with the current axes. |
| **Delete All** | Removes all axes from the current **Motion Controller window**. |

## Update Menu
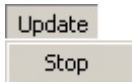


| | |
|---|---|
| **Stop** | Stops the position update in the **Motion Controller window**. Used to improve the refresh rates on computers that have slower video refresh rates.<br><br>***WARNING!*** This function <u>does not</u> stop the scanner motion if it is running. |

# Axis Tools Menu
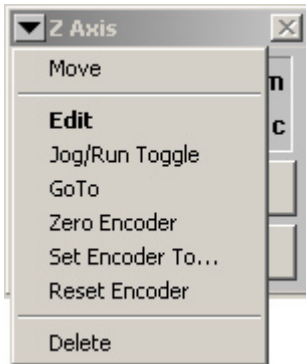
| | | |
|---|---|---|
| **Move** | Move an axis within the **Motion Controller window**. This can also be accomplished by clicking and dragging on the axis box title bar. |
| **Edit** | Opens the **Axis Configuration window** (See this section) to edit the axis. |
| **Jog/Run Toggle** | Toggles the axis controls between running and jogging. |
| **Goto** | Opens the **Single Axis Goto window** (See this section). |
| **Zero Encoder** | Zeros the encoder count. This can also be accomplished by double clicking on the encoder count number on the axis controller. |
| **Set Encoder To . . .** | Opens a window where the encoder value can be set, or zeroed. |
| **Reset Encoder** | Resets the internal value of the encoder to prevent overflow errors. |
| **Delete** | Removes the selected axis from the Motion Controller window. |

## Axis Configuration window – Motion Control
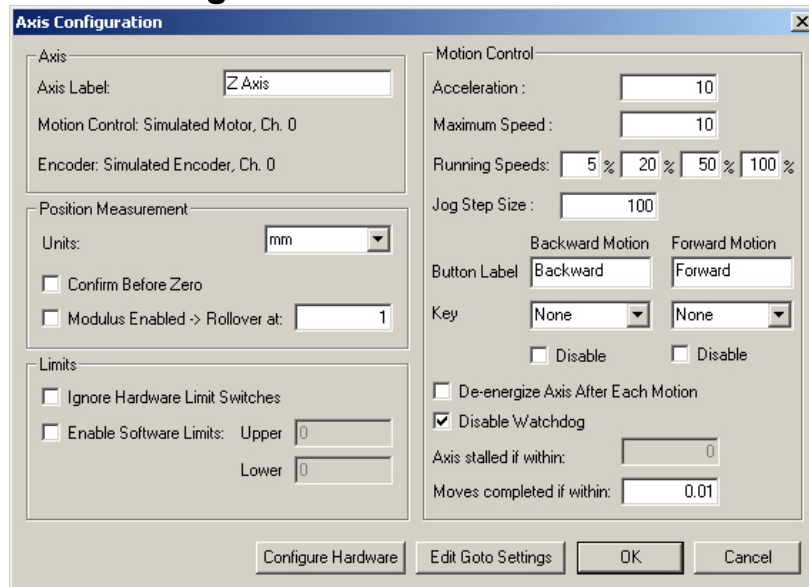
### Axis

| | |
|---|---|
| **Axis Label** | Shows the current label for this axis. Type over the name to change. |
| **Motion Control** | This value is set on the **Configure Hardware window.** |
| **Encoder** | This value is set on the **Configure Hardware window.** |

## Position Measurement

| | |
|---|---|
| **Units** | Displays the selected units of measurement. |
| **Confirm Before Zero** | Check this box to have Winspect confirm that you wish to zero this encoder. |
| **Modulus Enabled -> Rollover at:** | Check this box and assign a value if you wish the encoder to "wrap around" at a set value. |

## Limits

| | |
|---|---|
| **Ignore Hardware Limit Switches** | Check this box to have Winspect ignore the set hardware limits. |
| **Enable Software Limits** | Check this box and assign upper and lower limits to have Winspect follow. |

## Motion Control

| | |
|---|---|
| **Acceleration** | Assigns the acceleration for this axis in the measurement units per second. |
| **Maximum Velocity** | Assigns the maximum speed for this axis in the measurement units per second. |
| **Running Speeds** | Assigns the percentage of the maximum velocity per button click. The axis will reach maximum velocity in 4 clicks of the same direction. The axis will decelerate to zero in the same number of clicks of the opposite direction. |
| **Jog Step Size** | Assigns a number of measurement units for Winspect to "Jog" to at the maximum axis velocity. |
| **Up/Down Arrows** | Check this box to assign the Keyboard Up ↑ and Down ↓ arrows to the axis forward (Jog+) or Backward (Jog-) buttons. |
| **Left/Right Arrows** | Check this box to assign the Keyboard Left ← and Right → arrows to the axis forward (Jog+) or Backward (Jog-) buttons. |
| **Disable Forward Motion** | Stops the axis from being run forward. This is important when a motor may be damaged when run in the opposite direction. |
| **Disable Backward Motion** | Stops the axis from being run backward. This is important when a motor may be damaged when run in the opposite direction. |
| **De-Energize Axis after each Motion** | Removes power from the axis after each move. This allows for manual re-positioning of the axis without the motion control fighting the re-alignment. |
| **Disable Watchdog** | Turns off the automatic Axis monitoring of Winspect. Axis monitoring allows Winspect to detect stalled axes. |
| **Axis stalled if within:** | Assigns the minimum travel distance the Watchdog attempts to detect when determining if an axis is stalled. |
| **Moves Completed if within:** | Considers the move complete if Winspect comes within this distance of the move coordinates. |
| **Number of Attempts to move to position:** | Assigns the number of attempts that Winspect will make to reach a position. |

## Configure Hardware Button

Opens the **Hardware Configuration window** (see this section) where the motor controller and position encoder can be set and edited.

## Edit Goto Settings Button

Opens the **Edit Goto Settings window** (see this section) where the three main Pre-programmed **Goto** buttons can be set and edited.

# Hardware Configuration window – Motion Control
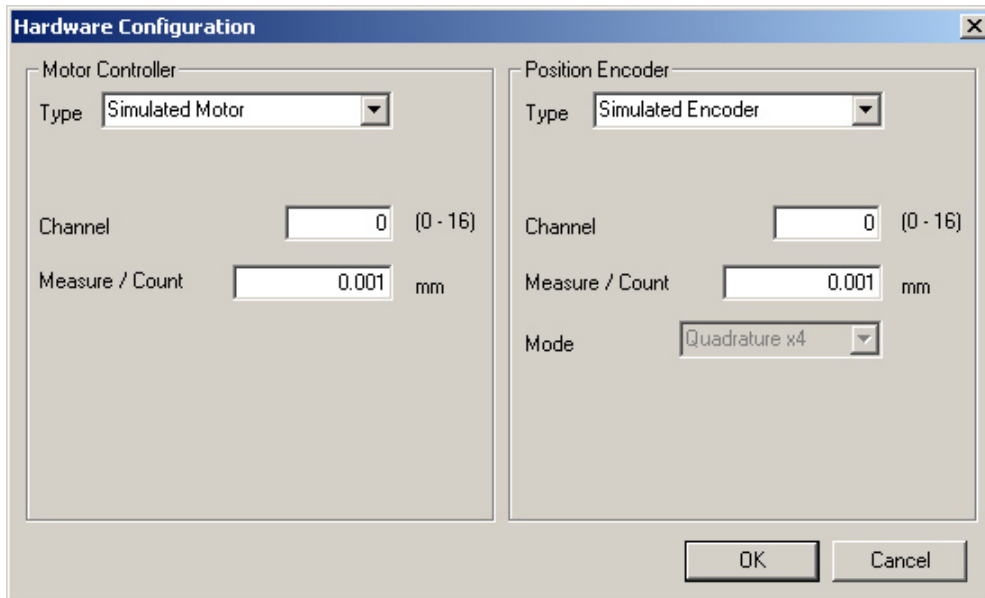


## Motor Controller

| | |
|---|---|
| **Type** | Displays the selected motor control from the list.  Depending on the type of motor controller selected the following items may be available: |
| **Channel** | Assigns a channel for this motor controller (0-7). |
| **Measure / Count** | Sets the number of units per count. |
| **Counts / Revolution** | Sets the number of degrees per count. |
| **Controller Initialization String** | Allows user input of a controller initialization string if required. |
| **I/O Port or Device Number** | Non plug and play cards require their I/O port to be specified. |

## Position Encoder

| | |
|---|---|
| **Type** | Displays the selected encoder type from the list. Depending on the type of encoder selected the following items may be available: |
| **I/O Port** | Assigns the encoder's Input/Output port. |
| **Channel** | Assigns the encoder's channel (0-16). |
| **Measure / Count** | Sets the number of units per count. |
| **Quadrature** | Count multiplier.  x4 uses every transition of the encoder as a count, whereas x1 uses every full cycle. |
| **Cascade with next encoder channel** | Allows a larger counter to be built by sacrificing the next encoder channel. |
| **First Source / Second Source Axis** | Used with mode to select R-theta and R-R scans. |
| **Edit Contour Following Axis** | Opens the Contour Following Axis window.  This is a custom component. |

# Edit Goto Settings window – Motion Control



On each axis you can set three pre-programmed positions.  See **Single Axis Goto window** in this section.

## Location 1, 2 and 3:

| | |
|---|---|
| **Value** | Set the position on the axis in the axis measurement values. |
| **Absolute Move** | Check this box to move an absolute distance.  Uncheck this box to have the move made relative to the current position. |
| **Approach from Offset** | Check this box to approach this setting from an offset position.  Uncheck this box to move directly. |
| **Button Text:** | Label this pre-programmed Goto button. |

## Offset Approach

To approach a location from offset requires going past the final destination and approaching from the other direction.  Assign a value to add to the final destinations to create the approach start from value.

# Single Axis Goto window – Motion Control
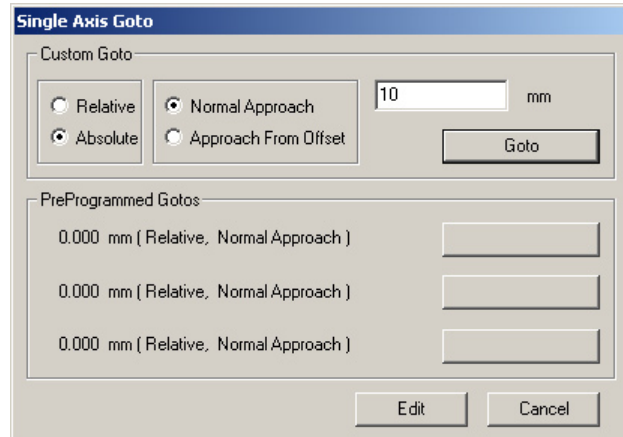


#### Custom Goto

Enter a number that can be: ***Relative*** to the current position on the axis, ***Absolute*** on the axis scale, Approached ***Normally***, or from an ***Offset Position***.  The number will be in the selected axis' measurement units.

#### Pre-Programmed Gotos

These three buttons are set and edited in the **Edit Goto Settings window** (see this section).  The details and button names can be edited there.

# Position Manager
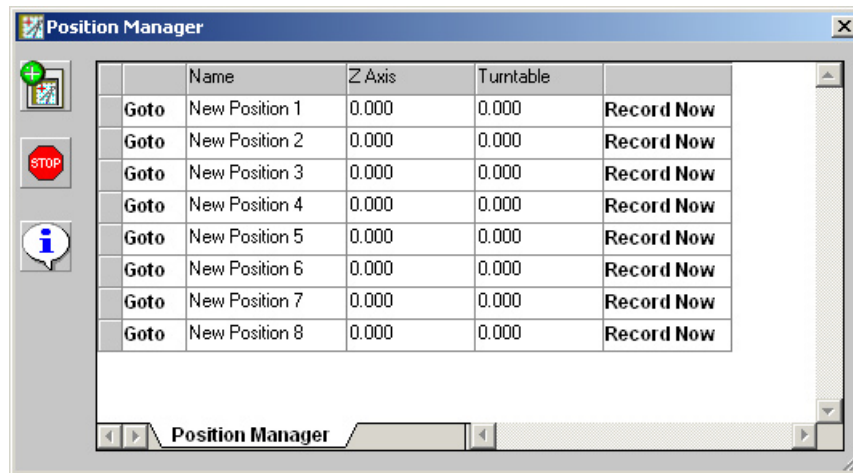


The **Position Manager** allows for multiple positions over a scan surface or line to be recorded and moved to easily. A user can specify the name of a new position by selecting the name field of that position and simply typing a new name. Positions can be collected from the motion controller, by driving the scanner to a location and selecting **Record Now** to record that position. The axis values will be recorded for that position. Alternately, a position can be manually entered. Positions can have any axis value set to have a priority of motion or even be locked from moving. An example of a priority move: You need have the turntable to rotate to a set location to allow the Z Axis (index) to move off the turntable region so the probe will not contact the part being scanned.

## Position Manager Controls

| | | |
|---|---|---|
|  | **Add a new Position** | Each click adds one new blank position to the **Position Manager**. |
|  | **Stop all Motion** | Stops all scanner motion. |
|  | **Information / Hints** | Provides information on priority moves and locked out axis. |

# Axis Linker
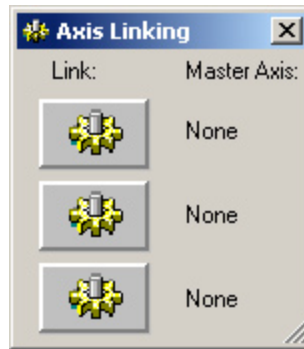


**Link Button Control**



Used to link or unlink a defined axis set.  To configure the axis link settings; Right click on the **Link Button** to open the **Axis link settings window**.

# Axis Link Settings Window



*Master*
Assign a master by selecting it from the drop list.  Once a master has been assigned, the remaining axes are available to be slaved to it.

*Slaves*
Simply check an axis(es) to slave it to the selected master.

*Options*
Check "Warn if not linked" to alert you if an axis is not linked.

Check "Lock Slaves" to not allow them to selected as slaves to other masters or as masters themselves on other link buttons.

# Instrument Manager



## File Menu
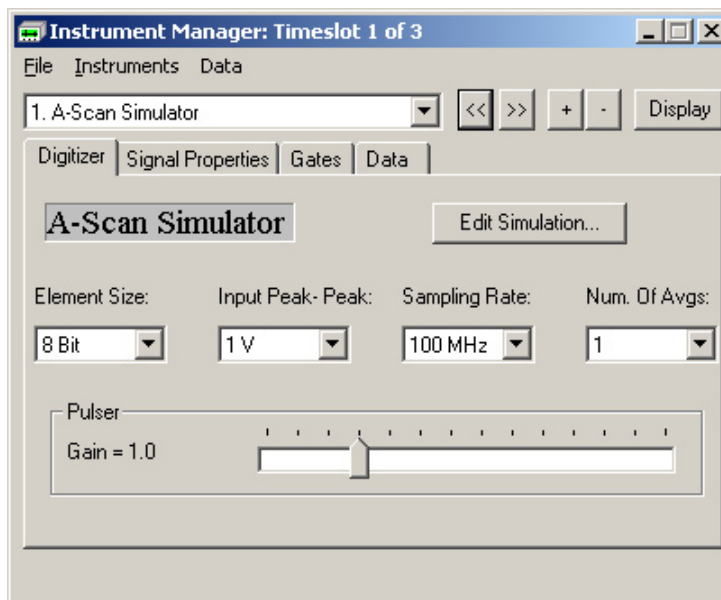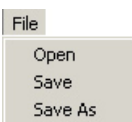
| | | |
|---|---|---|
| File<br>Open<br>Save<br>Save As | **Open** | Opens an Instrument Manager file (.**vid**) |
| | **Save** | Saves an open Instrument Manager file. |
| | **Save As** | Saves the Instrument Manager file under a newly selected name. |

## Instruments Menu
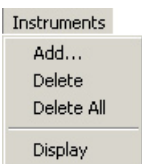
| | | |
|---|---|---|
| Instruments<br>Add...<br>Delete<br>Delete All<br>Display | **Add** | Opens an Instrument Manager file (.**vid**) |
| | **Delete** | Removes the currently selected instrument from the Instrument Manger. |
| | **Delete All** | Removes all Instruments from the Instrument Manager. |
| | **Display** | Displays the currently selected instrument in the appropriate display window. |

## Data Menu

| | | |
|---|---|---|
| Data<br>Data Summary | **Data Summary** | Displays the list of subsets that would be created with the current instrument manager settings, if a scan was to be run. |

## Controls

| | | |
|---|---|---|
| << >> | **Previous or Next Instrument** | Allows selection of an Instrument in the Instrument Manager for editing or display. |
| + - | **Add or remove an Instrument** | Add or remove instruments. The remove button affects the currently selected instrument. |

| Display | **Display selected Instrument** | Displays the currently selected instrument in the appropriate display window. |

## Information Tabs

Information tabs relate to the active instrument provide for the specific configuration of that instrument.

## Configure Axis Following Gate Window

Accessed from the Gates Tab - Instrument Manager

To assign an axis following gate:
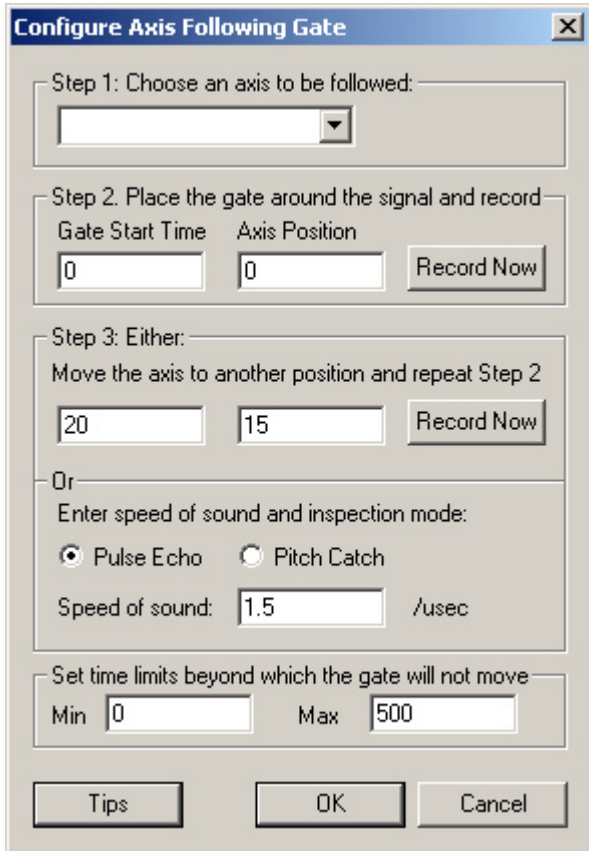


**STEP 1:** Select the physical axis of the scanner the gate.

Choose from the available axes. Select the axis that affects the signal in time when moved.

**STEP 2:** place a gate around the signal of interest.

Add a gate and move it over the signal of interest. Press **Record Now**.

**STEP 3:** Either move the axis and repeat step 2. or enter the speed of sound and inspection mode.

Move the axis and re-align the gate on the signal The press the **Record Now** on Step 3, or enter the speed of sound in the material and inspection mode.

**Set time limits:** Set the limits for the gate movement.

**Tips** Tips on how to use this tool.

# Scan Controller

Depending on the type of scan selected, Winspect's **Scan Controller** will display certain tabs containing  to specific configuration requirements of that scan type. The types of scans available are: 1 Axis, 2Axis, 3 Axis, Timed, Point by Point, 1 Axis and 2 Axis Multi-Probe (With the Multi-Probe add-on module), and Transducer Characterization (With the Transducer Characterization add-on module).

## 1 Axis Scanning
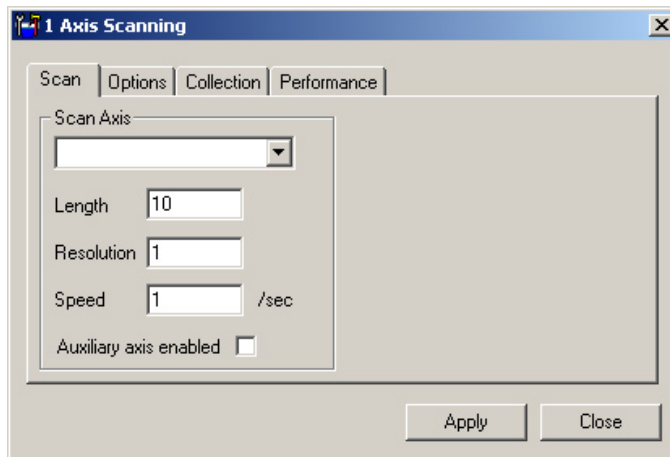


### Scan Tab

| | |
|---|---|
| **Scan Axis** | Select the axis along which the 1 axis scan will occur. |
| **Length** | Enter the length of the scan. |
| **Resolution** | Enter the frequency at which data should be taken (every .25 inch for example). |
| **Speed** | Enter the speed at which the scanner should run. |
| **Auxiliary axis enabled** | When checked, a second axis is enabled and can be configured to allow diagonal, single axis scans.  This requires a scanner with at least two axes. |

## Options Tab
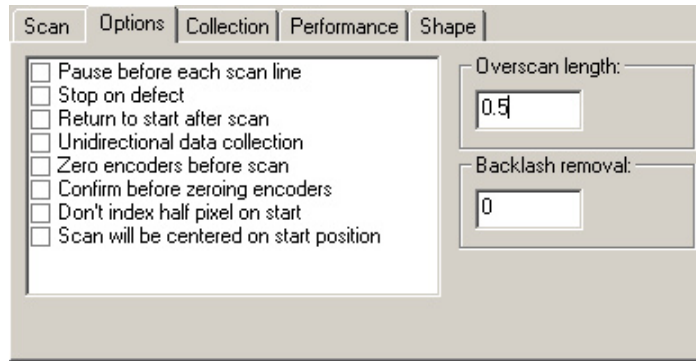


| **Return to start after scan** | When checked, the scanner will return to the origin of the scan when finished. |
|---|---|
| **Zero Encoders before scan** | When checked, the encoders will be zeroed at the scanners current position before the scan begins. |
| **Confirm before zeroing encoders** | When checked, Winspect will prompt the user to confirm that it is OK to zero the encoders before proceeding. |
| **Scan will be centered on start position** | When checked, the scanned area will be centered around the current scanner position. |
| **Overscan length:** | Select the amount of overscan to ensure no edge data is lost. |

## Collection Tab



| **Data displays updated during scanning** | When checked, the data displays are updated at the selected update interval. |
|---|---|
| **Beep when scan completed** | When checked, Winspect will beep to signal that the scan is complete. |
| **Save data prompt when scan completed** | When checked, Winspect will prompt the user to save the collected data before proceeding. |
| **Warn before overwriting data** | When checked, Winspect warns that the current data in memory has not been saved. |
| **Resave data on scan start** | When checked, Winspect will prompt the user to save the current data before starting the new scan. |
| **Append coordinates to comment** | Attaches the scan coordinates to the comment that is part of the File Header. |

| | |
|---|---|
| **Rescan using previously collected data** | Loads a data file and scans new data on top of it. The file loaded must be a compatible file with the same number and type of subsets. |
| **Low PRF mode (1 trigger per pixel)** | When selected, the digitizer is only triggered once per pixel. Use when you have a rep rate limitation with your hardware. |
| **Live displays during scanning** | When selected, A-scans and point data displays are updated during scanning. Turn this function of if you continually lose data during scanning. |
| **Use Auto-filenaming** | Select whether of not to use auto-filenaming. |
| **Display Update Interval** | Set how often the collection displays are updated. |
| **Ext. Control Options** | Opens the **Externally Controlled Scan Options window**. (See later in this section) |
| **Autofilenames** | Opens the dialog for setting the automatic naming of files. |

### Performance Tab



| | |
|---|---|
| **Selected Speed:** | Enter the speed at which you would like the scan to be performed. This number will be filled in automatically if **Use Maximum** is pressed. |
| **Resulting Data Rate:** | The data rate at which collection will occur using the selected speed. |
| **Time to Completion:** | The calculated time for the scan to complete. |
| **Scan Completed at:** | The physical time at which the scan will complete. |
| **Maximum Speed:** | The maximum speed at which the scanner can be run is displayed. (Only available after **Test Speed** has been pressed) |
| **Maximum Data Rate:** | The maximum rate at which data can be collected with the scanner. (Only available after **Test Speed** has been pressed) |
| **Test Speed** | When pressed, Winspect performs a speed test on the scanner to determine the maximum speed at which it can scan without losing data. |
| **Use Maximum** | When pressed, the Selected speed will become the maximum allowed by Winspect. |
| **Last Hit Count** | When pressed, Winspect displays the percentage of hits in the last completed scan. |
| **Detailed Test** | Opens a detailed test window where more advanced data collection values can be tested and displayed. |

## 2 Axis Scanning



### Scan Tab

| | |
|---|---|
| **Scan Axis / Index Axis** | Select the axes along which the scan and index will occur. |
| **Length** | Enter the total length of the scan and index components. |
| **Resolution** | Enter the frequency at which data should be taken (every .25 inch for example) on each axis. |
| **Speed** | Enter the speed at which the scanner should run on each axis. |
| **Continuous Rotation** | Available when the scan axis is rotary. When checked, the axis will continuously rotate at the assigned speed during the scan. |
| **Helical Indexing** | Available when the scan axis is rotary. When checked, continuous rotation will automatically be enabled. The index axis will move on every complete rotation of the scan axis, creating a spiral or helical scan. |

### Options Tab



| | |
|---|---|
| **Pause before each scan line** | When checked, Winspect pauses at the start of each scan line. (2 axis and 3 axis) |
| **Stop on defect** | Valid only with the AT6400 motion control. Will stop the scan if a trigger is set. |
| **Return to start after scan** | When checked, the scanner will return to the origin of the scan when finished. |
| **Unidirectional data collection** | When checked, Winspect will collect data in only the forward direction. Use to stop mechanical backlash from affecting collection results. |
| **Zero Encoders before scan** | When checked, the encoders will be zeroed at the scanners current position before the scan begins. |

| | |
|---|---|
| **Confirm before zeroing encoders** | When checked, Winspect will prompt the user to confirm that it is OK to zero the encoders before proceeding. |
| **Don't index half pixel on start** | When checked the scanner will not index 1/2 pixel to center the pixel on the collection point. |
| **Scan will be centered on start position** | When checked, the scanned area will be centered around the current scanner position. |
| **Overscan length:** | Select the amount of overscan to ensure no edge data is lost. |

## Collection Tab



| | |
|---|---|
| **Beep when scan completed** | When checked, Winspect will beep to signal that the scan is complete. |
| **Save data prompt when scan completed** | When checked, Winspect will prompt the user to save the collected data before proceeding. |
| **Write to file during scan** | Writes data to disk at the end of every scan line. |
| **Warn before overwriting data** | When checked, Winspect warns that the current data in memory has not been saved. |
| **Resave data on scan start** | When checked, Winspect will prompt the user to save the current data before starting the new scan. |
| **Append coordinates to comment** | Attaches the scan coordinates to the comment that is part of the File Header. |
| **Rescan using previously collected data** | Loads a data file and scans new data on top of it. The file loaded must be a compatible file with the same number and type of subsets. |
| **Low PRF mode (1 trigger per pixel)** | When selected, the digitizer is only triggered once per pixel. Use when you have a rep rate limitation with your hardware. |
| **Live displays during scanning** | When selected, A-scans and point data displays are updated during scanning. Turn this function of if you continually lose data during scanning. |
| **Use Auto-filenaming** | Select whether of not to use auto-filenaming. |
| **Ext. Control Options** | Opens the **Externally Controlled Scan Options window**. (See later in this section) |
| **Autofilenames** | Opens the dialog for setting the automatic naming of files. |

## Performance Tab



| | |
|---|---|
| **Selected Speed:** | Enter the speed at which you would like the scan to be performed. This number will be filled in automatically if **Use Maximum** is pressed. |
| **Resulting Data Rate:** | The data rate at which collection will occur using the selected speed. |
| **Time to Completion:** | The calculated time for the scan to complete. |
| **Scan Completed at:** | The physical time at which the scan will complete. |
| **Maximum Speed:** | The maximum speed at which the scanner can be run is displayed. (Only available after **Test Speed** has been pressed) |
| **Maximum Data Rate:** | The maximum rate at which data can be collected with the scanner. (Only available after **Test Speed** has been pressed) |
| **Test Speed** | When pressed, Winspect performs a speed test on the scanner to determine the maximum speed at which it can scan without losing data. |
| **Use Maximum** | When pressed, the Selected speed will become the maximum allowed by Winspect. |
| **Last Hit Count** | When pressed, Winspect displays the percentage of hits in the last completed scan. |
| **Detailed Test** | Opens a detailed test window where more advanced data collection values can be tested and displayed. |

### Shape Tab
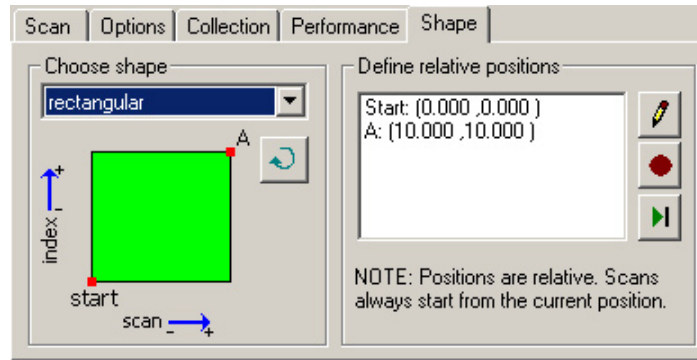


| | |
|---|---|
| **Choose Shape** | Select from: Rectangular, Trapeziodal-index, Trapezoidal-scan, Circular. |
| **Define relative positions** | A list of points assigned to the current shape. |

 Press to manually edit the currently selected point of the shape.
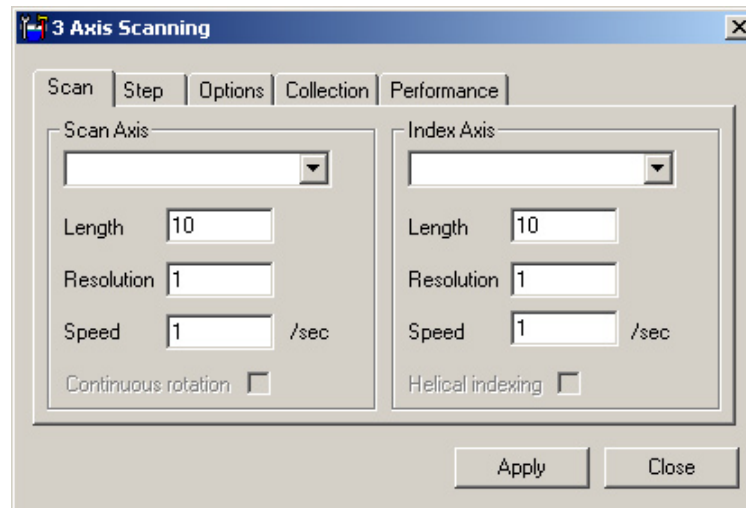
 Press to record the current scanner position as a point on the shape.

 Runs the scanner to the currently highlighted point in the position list.

# 3 Axis Scanning



### Scan Tab

| | |
|---|---|
| **Scan Axis / Index Axis** | Select the axes along which the scan and index will occur. |
| **Length** | Enter the total length of the scan and index components. |

| Resolution | Enter the frequency at which data should be taken (every .25 inch for example) on each axis. |
| Speed | Enter the speed at which the scanner should run on each axis. |
| Continuous Rotation | Available when the scan axis is rotary.  When checked, the axis will continuously rotate at the assigned speed during the scan. |
| Helical Indexing | Available when the scan axis is rotary.  When checked, continuous rotation will automatically be enabled.  The index axis will move on every complete rotation of the scan axis, creating a spiral or helical scan. |

## Step Tab

| Step Axis | Select the axis along which the step will occur. |
| Length | Enter the length of the step component. |
| Resolution | Enter the frequency at which step should occur. |
| Speed | Enter the speed at which the scanner should run on the step axis. |

## Options Tab

| Pause before each scan line | When checked, Winspect pauses at the start of each scan line. (2 axis and 3 axis) |
| Stop on defect | Valid only with the AT6400 motion control.  Will stop the scan if a trigger is set. |
| Unidirectional data collection | When checked, Winspect will collect data in only the forward direction. Use to stop mechanical backlash from affecting collection results. |
| Pause between scan planes | When checked, Winspect pauses at the beginning of a new scan plane. (3 axis) |
| Overscan length: | Select the amount of overscan to ensure no edge data is lost. |

## Collection Tab
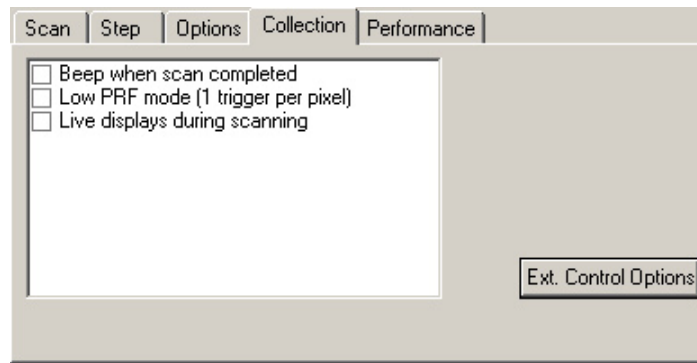


| | |
|---|---|
| **Beep when scan completed** | When checked, Winspect will beep to signal that the scan is complete. |
| **Low PRF mode (1 trigger per pixel)** | When selected, the digitizer is only triggered once per pixel. Use when you have a rep rate limitation with your hardware. |
| **Live displays during scanning** | When selected, A-scans and point data displays are updated during scanning. Turn this function of if you continually lose data during scanning. |
| **Ext. Control Options** | Opens the **Externally Controlled Scan Options window**. (See later in this section) |

## Performance Tab



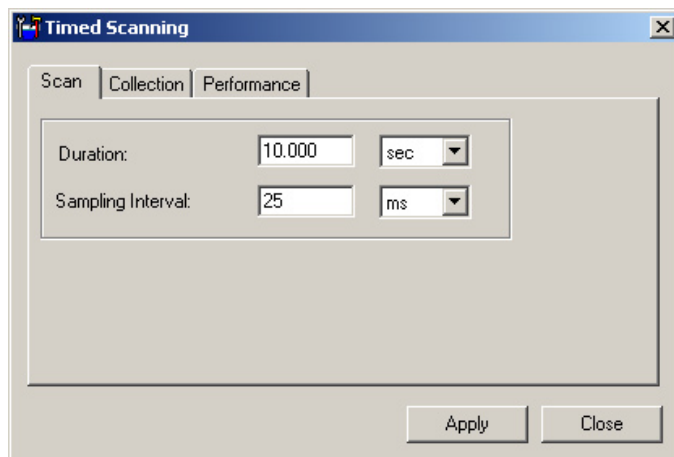| | |
|---|---|
| **Selected Speed:** | Enter the speed at which you would like the scan to be performed. This number will be filled in automatically if **Use Maximum** is pressed. |
| **Resulting Data Rate:** | The data rate at which collection will occur using the selected speed. |
| **Time to Completion:** | The calculated time for the scan to complete. |
| **Scan Completed at:** | The physical time at which the scan will complete. |
| **Maximum Speed:** | The maximum speed at which the scanner can be run is displayed. (Only available after **Test Speed** has been pressed) |
| **Maximum Data Rate:** | The maximum rate at which data can be collected with the scanner. (Only available after **Test Speed** has been pressed) |
| **Test Speed** | When pressed, Winspect performs a speed test on the scanner to determine the maximum speed at which it can scan without losing data. |
| **Use Maximum** | When pressed, the Selected speed will become the maximum allowed by Winspect. |
| **Last Hit Count** | When pressed, Winspect displays the percentage of hits in the last completed scan. |
| **Detailed Test** | Opens a detailed test window where more advanced data collection values can be tested and displayed. |

*Controls & Managers - Scan Controller 3 Axis Scanning*

# Timed Scanning



## Scan Tab

| | |
|---|---|
| **Duration** | Set the duration in units that the scan will last. |
| **Sampling Interval** | Set the interval at which the samples will occur. |

## Collection Tab



| | |
|---|---|
| **Data displays updated during scanning** | When checked, the data displays are updated at the selected update interval. |
| **Beep when scan completed** | When checked, Winspect will beep to signal that the scan is complete. |
| **Save data prompt when scan completed** | When checked, Winspect will prompt the user to save the collected data before proceeding. |
| **Warn before overwriting data** | When checked, Winspect warns that the current data in memory has not been saved. |
| **Resave data on scan start** | When checked, Winspect will prompt the user to save the current data before starting the new scan. |
| **Append coordinates to comment** | Attaches the scan coordinates to the comment that is part of the File Header. |
| **Rescan using previously collected data** | Loads a data file and scans new data on top of it. The file loaded must be a compatible file with the same number and type of subsets. |

| | |
|---|---|
| **Low PRF mode (1 trigger per pixel)** | When selected, the digitizer is only triggered once per pixel. Use when you have a rep rate limitation with your hardware. |
| **Live displays during scanning** | When selected, A-scans and point data displays are updated during scanning. Turn this function of if you continually lose data during scanning. |
| **Use Auto-filenaming** | Select whether of not to use auto-filenaming. |
| **Display Update Interval** | Set how often the collection displays are updated. |
| **Ext. Control Options** | Opens the **Externally Controlled Scan Options window**. (See later in this section) |
| **Autofilenames** | Opens the dialog for setting the automatic naming of files. |

## Performance Tab



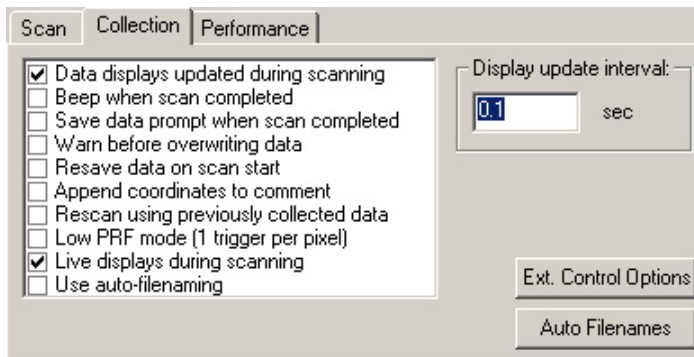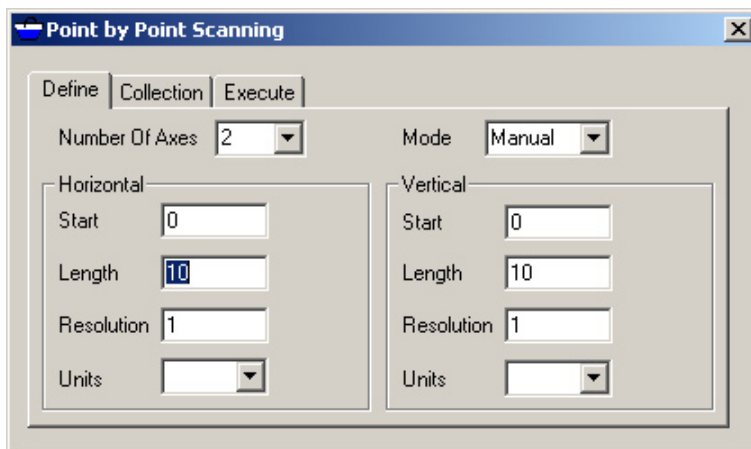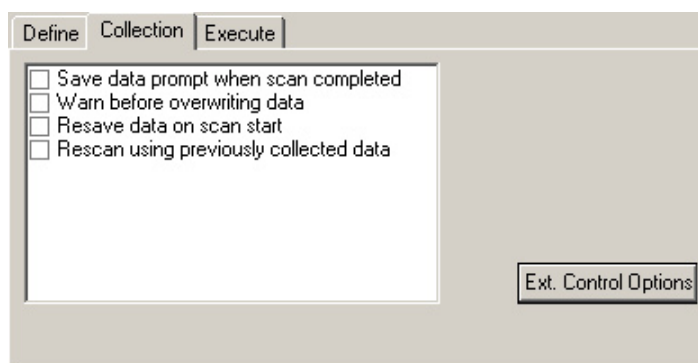| | |
|---|---|
| **Selected Interval:** | Enter the interval at which you would like the scan to be performed. This number will be filled in automatically from the interval set on the **Scan Tab** . |
| **Resulting Data Rate:** | The data rate at which collection will occur using the selected speed. |
| **Time to Completion:** | The calculated time for the scan to complete. |
| **Scan Completed at:** | The physical time at which the scan will complete. |
| **Minimum Interval:** | The minimum interval at which data can be collected is displayed. (Only available after **Test Speed** has been pressed) |
| **Maximum Data Rate:** | The maximum rate at which data can be collected. (Only available after **Test Speed** has been pressed) |
| **Test Speed** | When pressed, Winspect performs a speed test on the scanner to determine the maximum speed (or minimum interval) at which it can scan or collect without losing data. |
| **Use Maximum** | When pressed, the minimum interval allowed by Winspect will become the Selected Interval value. |
| **Last Hit Count** | When pressed, Winspect displays the percentage of hits in the last completed scan. |
| **Detailed Test** | Opens a detailed test window where more advanced data collection values can be tested and displayed. |

# Point by Point Scanning - Manual Mode



## Define Tab - Manual Mode

| | |
|---|---|
| **Number of Axes** | Set the number of axis to use (1 or 2). |
| **Mode** | Choose Manual or Motorized |
| **Horizontal and Vertical** | |
| **Start** | Set the start position for each axis. |
| **Length** | Set the length of the scan for each axis. |
| **Resolution** | Set the interval at which data will be taken along each scan axis. The respective length values divided by the axes resolution and added together equals the number of data points you will collect. |
| **Units** | Set the units of measure for the axes. |

## Collection Tab - Manual Mode



| | |
|---|---|
| **Save data prompt when scan completed** | When checked, Winspect will prompt the user to save the collected data before proceeding. |
| **Warn before overwriting data** | When checked, Winspect warns that the current data in memory has not been saved. |
| **Resave data on scan start** | When checked, Winspect will prompt the user to save the current data before starting the new scan. |
| **Rescan using previously collected data** | Loads a data file and scans new data on top of it. The file loaded must be a compatible file with the same number and type of subsets. |
| **Ext. Control Options** | Opens the **Externally Controlled Scan Options window**. (See later in this section) |

### Execute Tab - Manual Mode
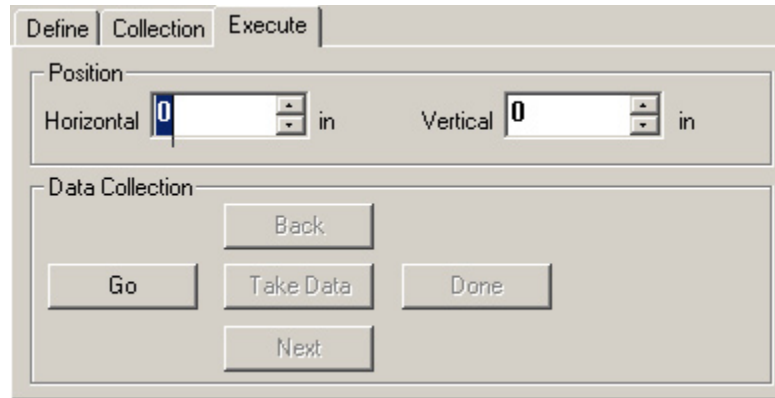


**Position**

**Horizontal and Vertical**　　Indicates the current horizontal and vertical grid position for taking data. You may enter a position to jump to that location to take or retake data.

**Data Collection**

| | |
|---|---|
| **Go** | Must be pressed to begin a Point by Point scan. |
| **Back** | Press to move backwards through the grid of points. 1 press per grid point. |
| **Take Data** | Press to take data at the indicated location (Position). |
| **Next** | Press to move to the next grid point in the scan. 1 press per grid point. |
| **Done** | Press to complete the data collection for a Point by Point scan. |

## Point by Point Scanning - Motorized Mode
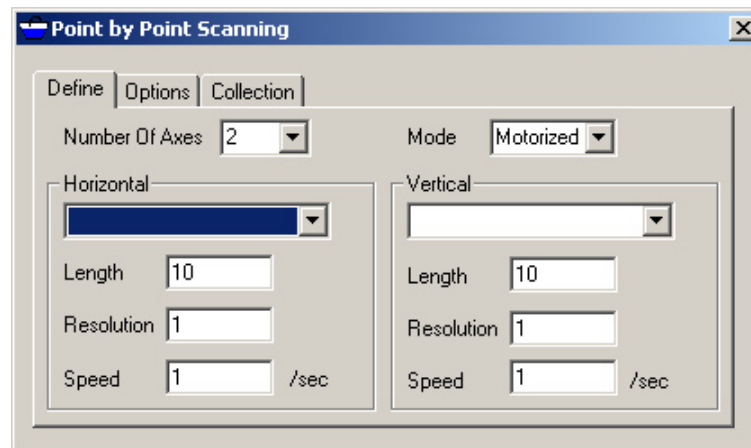


### Define Tab - Motorized Mode

| | |
|---|---|
| **Number of Axes** | Set the number of axis to use (1 or 2). |
| **Mode** | Choose Manual or Motorized. |

**Horizontal and Vertical**

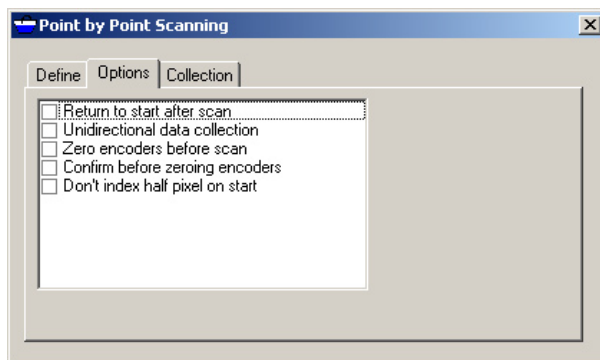| | |
|---|---|
| **Axis** | Assign an available axis to the horizontal and vertical. |
| **Length** | Set the length of the scan for each axis. |
| **Resolution** | Set the interval at which data will be taken along each scan axis. The respective length values divided by the axes resolution and added together equals the number of data points you will collect. |
| **Speed** | Set the speed in units per second for the axes. |

## Options Tab - Motorized Mode



| | |
|---|---|
| **Return to start after scan** | When checked, the scanner will return to the origin of the scan when finished. |
| **Unidirectional data collection** | When checked, Winspect will collect data in only the forward direction. Use to stop mechanical backlash from affecting collection results. |
| **Zero encoders before scan** | When checked, the encoders will be zeroed at the scanners current position before the scan begins. |
| **Confirm before zeroing encoders** | When checked, Winspect will prompt the user to confirm that it is OK to zero the encoders before proceeding. |
| **Don't index half pixel on start** | When checked the scanner will not index 1/2 pixel to center the pixel on the collection point. |

## Collection Tab - Motorized Mode



| | |
|---|---|
| **Beep when scan completed** | When checked, Winspect will beep to signal that the scan is complete. |
| **Save data prompt when scan completed** | When checked, Winspect will prompt the user to save the collected data before proceeding. |
| **Warn before overwriting data** | When checked, Winspect warns that the current data in memory has not been saved. |
| **Resave data on scan start** | When checked, Winspect will prompt the user to save the current data before starting the new scan. |
| **Append coordinates to comment** | Attaches the scan coordinates to the comment that is part of the File Header. |
| **Rescan using previously collected data** | Loads a data file and scans new data on top of it. The file loaded must be a compatible file with the same number and type of subsets. |
| **Ext. Control Options** | Opens the **Externally Controlled Scan Options Window**. (See later in this section) |

# 1 Axis and 2 Axis Multi-Probe Scanning *

Requires the **Multi-Probe Scanning Add-on Module** for Winspect.  Refer to the *Multi-Probe Scanning Appendix* for details on the **Scan Controller** for these scan types.

# 2 Axis Scanner Control
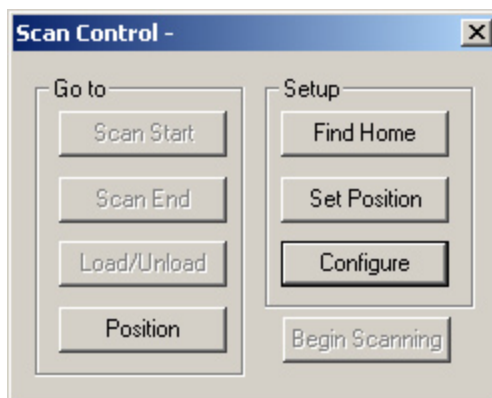


**Go to**

**Scan Start**  When pressed the scanner will move to the assigned scan start position.  This position must be set using the **Setup - Set Position Button**.

**Scan End**  When pressed the scanner will move to the assigned scan end position.  This position must be set using the **Setup - Set Position Button**.

**Load**/**Unload**  When pressed the scanner will move to the assigned Load/Unload Position.  This position must be set using the **Setup - Set Position Button**.

**Position**  Opens the **Preset Positions window** (See Below).

**Setup**

**Find Home**  When Pressed,  each scanner axis is run backwards until a stop is detected (manual or limit switched).  When each axis has reached a stop position the encoders are zeroed and the scanner is in a "Home" position.

**Set Position**  Press to activate the Go to positions for editing.  Select a position to edit.

**Configure**  Opens the **Automated Scanning Configuration window** (See this section).

**Begin Scanning**  Starts the scan configured in the **Automated Scanning Configuration window** (See this section).
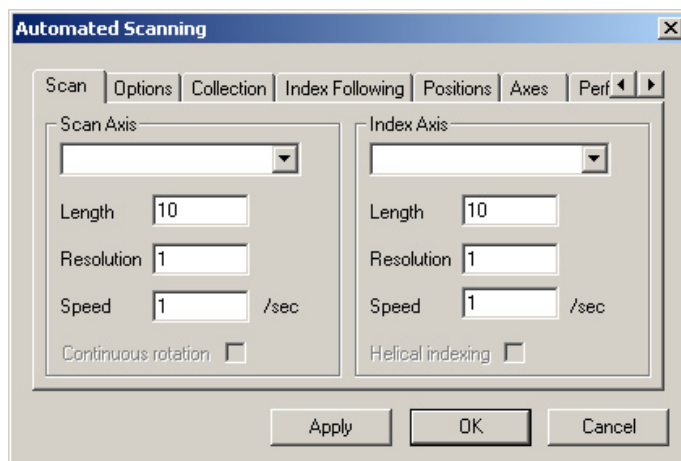
### Preset Positions Window

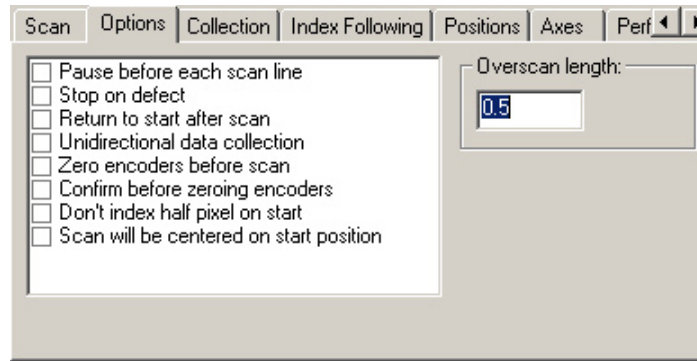| | | |
|---|---|---|
| | **Home** | Returns the scanner to the assigned Home position. |
| | **Preset 1** | Moves the scanner to the assigned 1st preset. This position can be renamed. |
| | **Preset 2** | Moves the scanner to the assigned 2nd preset. This position can be renamed. |
| | **Preset 3** | Moves the scanner to the assigned 3rd preset. This position can be renamed. |

NOTE: See **Positions Tab** - *Automated Scanning* for more information.

### Automated Scanning Configuration Window

### Scan Tab

| | |
|---|---|
| **Scan Axis / Index Axis** | Select the axes along which the scan and index will occur. |
| **Length** | Enter the total length of the scan and index components. |
| **Resolution** | Enter the frequency at which data should be taken (every .25 inch for example) on each axis. |
| **Speed** | Enter the speed at which the scanner should run on each axis. |
| **Continuous Rotation** | Available when the scan axis is rotary. When checked, the axis will continuously rotate at the assigned speed during the scan. |
| **Helical Indexing** | Available when the scan axis is rotary. When checked, continuous rotation will automatically be enabled. The index axis will move on every complete rotation of the scan axis, creating a spiral or helical scan. |

### Options Tab

| | |
|---|---|
| **Pause before each scan line** | When checked, Winspect pauses at the start of each scan line. (2 axis and 3 axis) |
| **Stop on defect** | Valid only with the AT6400 motion control. Will stop the scan if a trigger is set. |
| **Return to start after scan** | When checked, the scanner will return to the origin of the scan when finished. |
| **Unidirectional data collection** | When checked, Winspect will collect data in only the forward direction. Use to stop mechanical backlash from affecting collection results. |
| **Zero Encoders before scan** | When checked, the encoders will be zeroed at the scanners current position before the scan begins. |
| **Confirm before zeroing encoders** | When checked, Winspect will prompt the user to confirm that it is OK to zero the encoders before proceeding. |
| **Don't index half pixel on start** | When checked the scanner will not index 1/2 pixel to center the pixel on the collection point. |
| **Scan will be centered on start position** | When checked, the scanned area will be centered around the current scanner position. |
| **Overscan length:** | Select the amount of overscan to ensure no edge data is lost. |

## Collection Tab



| | |
|---|---|
| **Beep when scan completed** | When checked, Winspect will beep to signal that the scan is complete. |
| **Save data prompt when scan completed** | When checked, Winspect will prompt the user to save the collected data before proceeding. |
| **Write to file during scan** | Writes data to disk at the end of every scan line. |
| **Warn before overwriting data** | When checked, Winspect warns that the current data in memory has not been saved. |
| **Resave data on scan start** | When checked, Winspect will prompt the user to save the current data before starting the new scan. |
| **Append coordinates to comment** | Attaches the scan coordinates to the comment that is part of the File Header. |
| **Rescan using previously collected data** | Loads a data file and scans new data on top of it. The file loaded must be a compatible file with the same number and type of subsets. |
| **Low PRF mode (1 trigger per pixel)** | When selected, the digitizer is only triggered once per pixel. Use when you have a rep rate limitation with your hardware. |
| **Live displays during scanning** | When selected, A-scans and point data displays are updated during scanning. Turn this function of if you continually lose data during scanning. |
| **Use Auto-filenaming** | Select whether of not to use auto-filenaming. |
| **Ext. Control Options** | |
| **Autofilenames** | Opens the dialog for setting the automatic naming of files. |

## Index Following Tab

This function is for backwards compatibility. The functions described here have been replaced with the more advanced Contour Following add-in available for Winspect. Contact UTEX Scientific Instruments for more information.
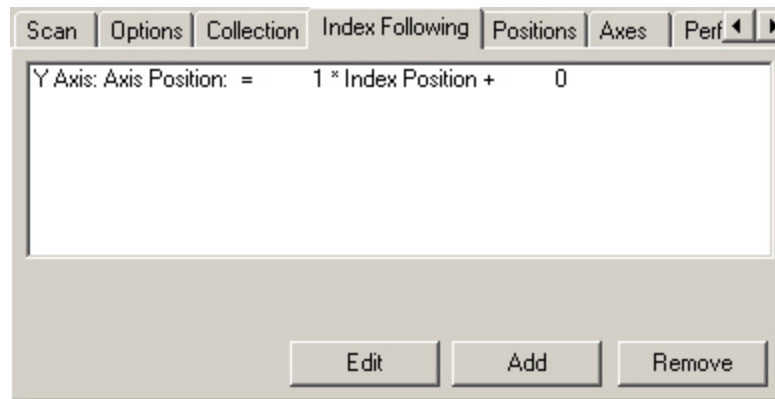


| | |
|---|---|
| **List** | The list of Axis Dependencies. Select one from the list to edit or remove. |
| **Edit** | Opens the **Axis Dependency window** for the highlighted dependency. |
| **Add** | Adds an Axis Dependency. Opens the **Axis Dependency window**. See Below. |
| **Remove** | Removes an Axis Dependency from the list. |

## Axis Dependency Window
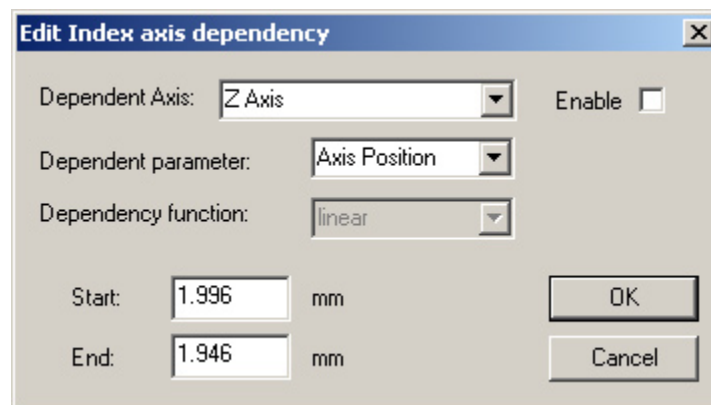


| | |
|---|---|
| **Dependent Axis** | Select an available axis from the drop down to assign a dependency. |
| **Enable** | Enables the dependency for the assigned axis. |
| **Dependent parameter** | Choose from Axis Position or Axis Speed. Axis Speed is commonly used for rotating discs to accelerate the scan speed as the scanner approaches the center of the disc. |
| **Dependency function** | The Dependency Function cannot be changed from Linear. |
| **Start** | Assign the axis start position or speed. |
| **End** | Assign the axis end position or speed. |

## Positions Tab
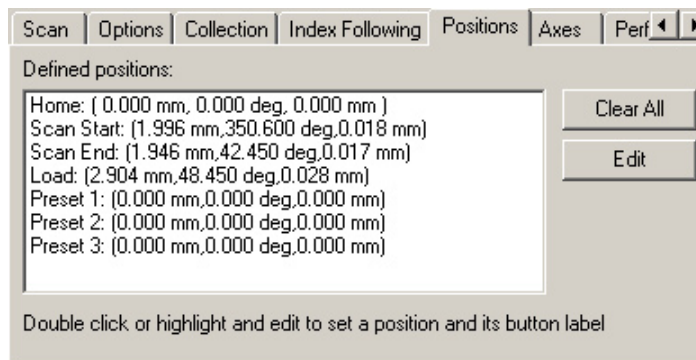


| | |
|---|---|
| **List** | A list of defined positions.  These positions show on the 2 Axis Scan Controller interface. |
| **Clear All** | Zeros all positions. |
| **Edit** | Highlight a list item and press edit to set a position. Presets 1 through 3 can also have their button labels changed.  You can also double click on a list item to edit it. |

## Axes Tab
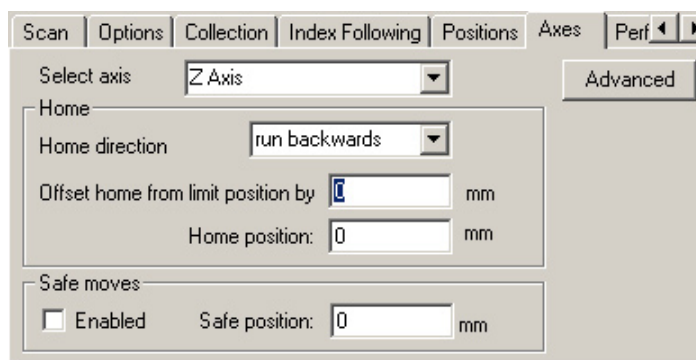


| | |
|---|---|
| **Select Axis:** | Select an axis. |
| **Home Direction** | choose in which direction to run to the home position. |
| **Offset home from limit position by** | Set the distance by which the home position will be offset from the axis limit. |
| **Home Position** | The actual location of the home position on the selected axis. |
| **Safe Moves** | When enabled, Winspect will consider an axis move safe if within the assigned distance. |
| **Advanced** | Opens an advanced axis configuration window where motion conditions can be set. |

### Performance Tab



| | |
|---|---|
| **Selected Speed:** | Enter the speed at which you would like the scan to be performed. This number will be filled in automatically if **Use Maximum** is pressed. |
| **Resulting Data Rate:** | The data rate at which collection will occur using the selected speed. |
| **Time to Completion:** | The calculated time for the scan to complete. |
| **Scan Completed at:** | The physical time at which the scan will complete. |
| **Maximum Speed:** | The maximum speed at which the scanner can be run is displayed. (Only available after **Test Speed** has been pressed) |
| **Maximum Data Rate:** | The maximum rate at which data can be collected with the scanner. (Only available after **Test Speed** has been pressed) |
| **Test Speed** | When pressed, Winspect performs a speed test on the scanner to determine the maximum speed at which it can scan without losing data. |
| **Use Maximum** | When pressed, the Selected speed will become the maximum allowed by Winspect. |
| **Last Hit Count** | When pressed, Winspect displays the percentage of hits in the last completed scan. |
| **Detailed Test** | Opens a detailed test window where more advanced data collection values can be tested and displayed. |

# Transducer Characterization *

Requires the **Transducer Characterization Add-on Module** for Winspect. Refer to the *Transducer Characterization Manual* for details on the **Scan Controller** for this scan type.

## Externally Controlled Scan Options Window
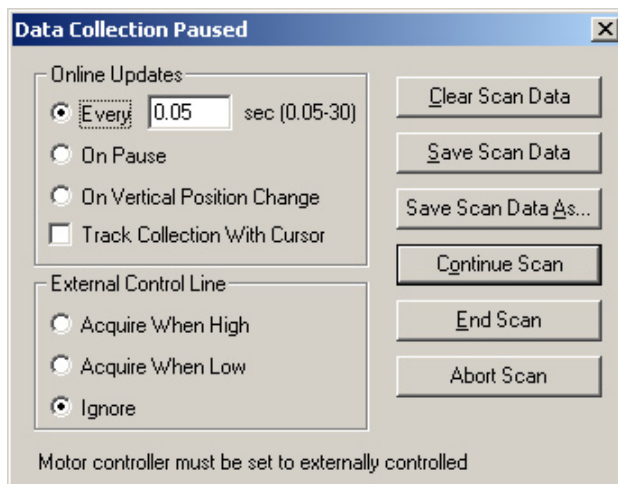


| | |
|---|---|
| **Online Updates** | Select When the online (screen) data will be updated. Select from a user defined value, on pause, on vertical position change, or track collection with cursor. |
| **External Control Line** | Select to use an external control line to trigger acquisition. Select from Acquire When High, Acquire When Low, or Ignore. |
| **Clear Scan Data** | Clears scan data from the display window. |
| **Save Scan Data** | Saves scan data to a file. |
| **Save Scan Data As...** | Saves scan data to a file with a new name. |
| **Continue Scan** | Continues scanning. |
| **End Scan** | Ends the current scan. If you have selected Auto-filenaming and saving the file will be saved and the Auto-filename will be incremented. |
| **Abort Scan** | Ends the current scan. Does not auto save or auto-filename. The collected data remains in the display buffer until it is overwritten. |

# Additional Components

# Additional Components
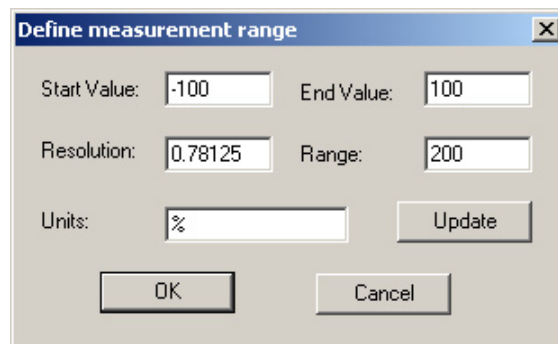
## File Header
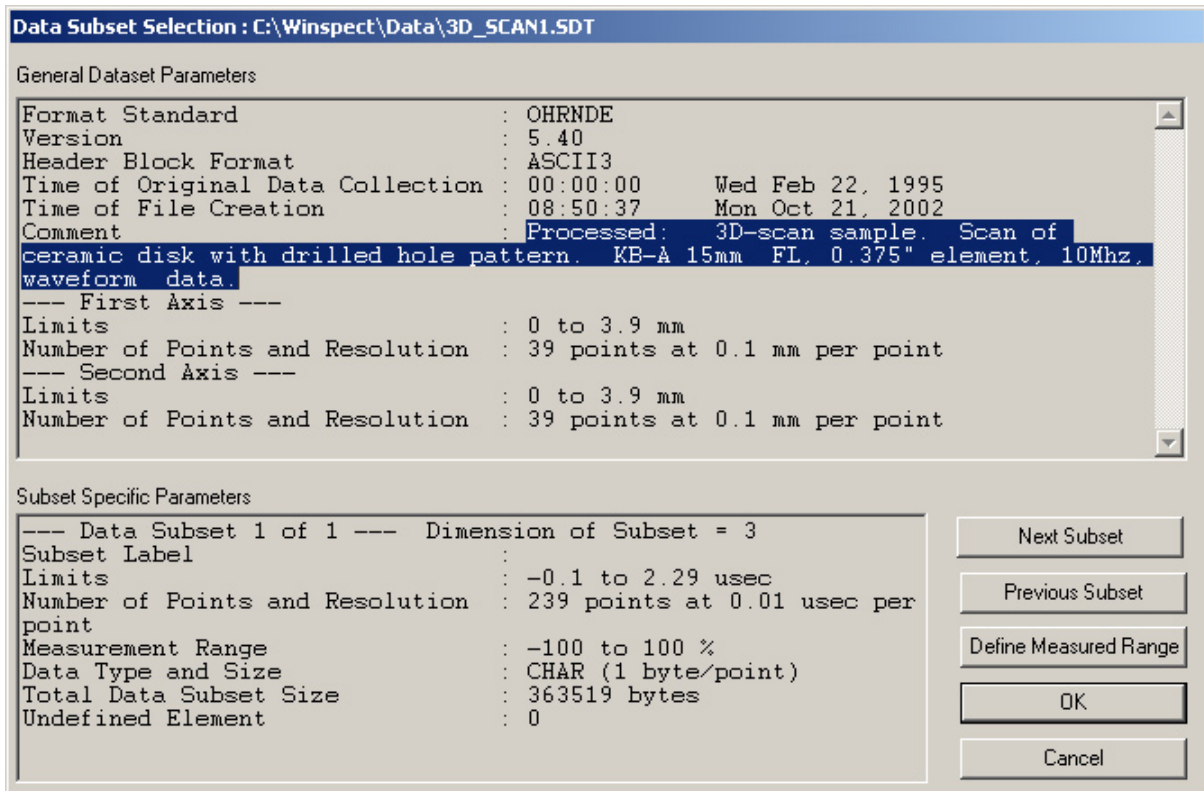


### General Dataset Parameters

Displays the overall parameters of the dataset. The highlighted comment section is the only part of this header that is user-definable. To edit this comment use the *Edit Comment* function found on any viewer's file menu, or *Collected Data > Comment . . .* on the main Winspect Scanning menu.

### Subset Specific Parameters

Displays the parameters that are specific to the selected data subset. To see a different subset, if there are any, press the **next subset** or **previous subset** buttons.

### Define Measured Range

Opens the **Define measurement range window**. See below.

## User Defined Information for Data Files



User Defined Information uses XML files as templates for users to define and include selected information about an inspection. There are a couple of sample XML templates included with Winspect, however most users write there own XML files to better tailor the information being collected and stored with their data files. The Launch Editor button provides access to an XML editor where sample XML templates or completely new templates can be built and edited.

To use User Defined Information with your data files, you should open a template and fill out the data fields BEFORE beginning an inspection. User Defined Information CANNOT be added to a previously saved file. You must at least, open and edit a template for an inspection before saving the collected data the first time.

Simply fill in any fields in your template (The entire template will be stored with the file) and perform your inspection normally, when you are finished, save the data file (but not the template, unless you want all the data you have entered to be stored in the template!) and the User Defined Information is appended to the data file, creating a detailed record of the inspection.

REMEMBER: Any data that is specific to an inspection should be filled out or changed before each new inspection is started. DO NOT use the Save As function on the User Defined Information Window uless you are creating partially filled templates.

HINT: Create a template with common items already filled in. You will then only have to enter the items than change from inspection to inspection before scanning.

## Workspace Descriptions

Workspace Descriptions can be attached to any workspace.  This type of file can use any multimedia content that you can view with your web browser.  Entire inspection procedures can be stored in these files providing an operator a step by step instruction book to performing the inspection.  These Workspace descriptions also show the ability to control Winspect from within the Workspace Description.  Buttons can links can be assigned to functions in Winspect, allowing an operator to use the Workspace description as a control panel.  The Workspace Descriptions that have been included with Winspect release 6.0 have been prepared using Macromedia Flash ™. These single files can have multiple pages of information, contain sound and video, and can be easily navigated. Workspace Descriptions can be written as standard web pages (with folders containing the page resources) or as PDF's with pictures and links.

**Here are just some of the file types that can be viewed in a Workspace Description:** (Web Browser Plug-in Dependant)

        Flash (*.swf)
        Acrobat (*.pdf)
        Standard Web Pages (*.htm or *.html)
        Complete Web Page Archives (*.mht)
        Video (*.mpg, *.mov, *.avi)
        Audio (*.mp3, *.wav)
        Pictures (*.jpg, *.png, *.gif)