



OSCILLOSCOPE

Getting Started – VISI 6.0

Applications of Oscilloscope tool

- To display a waveform as voltage vs. time
- To display the frequency spectrum of a waveform as frequency vs. relative power using FFT

Introduction

The focus of this note is to familiarize the user with the basic oscilloscope tool allowing quick and easy measurements and interpretation of results. It is assumed that the user is able to open the oscilloscope tool either through the VISI Wizard or from the options screen. Refer to the Virtual Instruments help menu or User's Manuals for further information.

Theory of Operation

Using the Oscilloscope tool is similar to using any other scope. Having had said this, the user should understand that the DTS is designed to make very precise timing measurements employing a fundamentally different measurement technique; the Oscilloscope tool is the only tool which does not use this technique. It is not designed as a direct replacement for the oscilloscope and is simply provided as a convenience to the user. The tool enables the user to view their signal prior to performing jitter analysis. This eliminates the need for a separate instrument to observe the waveform under measurement to see jitter results that do not make sense.

The DTS uses a circuit separate from those used for all other jitter and timing measurements to perform oscilloscope functions. The oscilloscope tool combines the use of a Macro GPIB statement and a built-in strobing digital voltmeter (SDVM) to take voltage measurements at specified times. The measurements for all of the data points are then stored within the DTS memory. The voltage midpoint of all the data points is calculated, the MAX and MIN voltages are found and the root mean square, r.m.s., of the voltage points is calculated as well. The statistics are then passed to the VISI software along with each of the data points for display.

Oscilloscope panel

View Menu

Select between Voltage vs Time, FFT and Summary views.

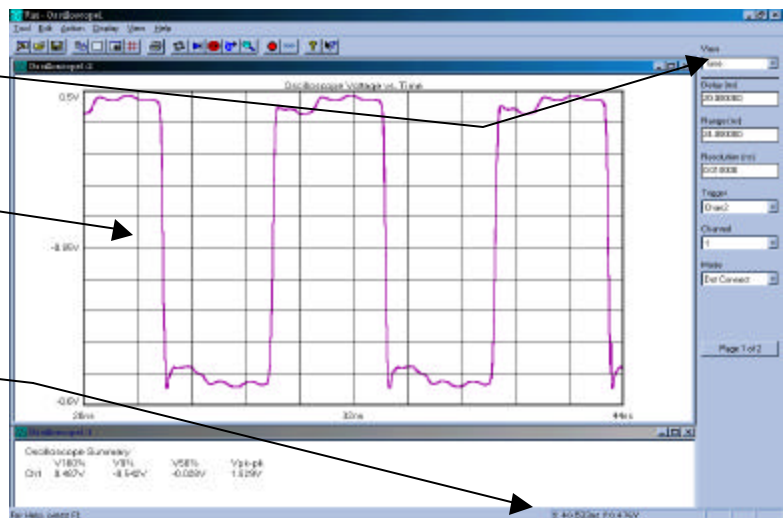
Plot Area

Zoom in—hold down left mouse button, expand zoom box over area of interest.

Zoom out—double click left mouse.

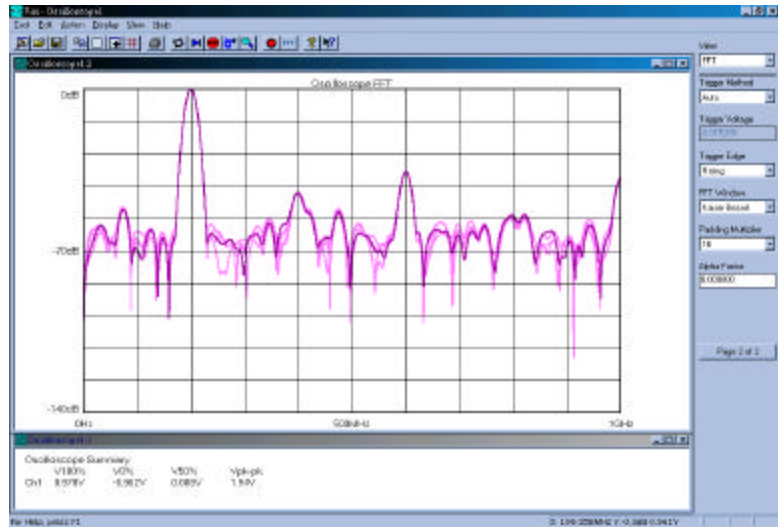
VISI Panel

Cursor coordinates - Displayed in the box at lower right portion of the VISI Panel. Units are same as those in plot.



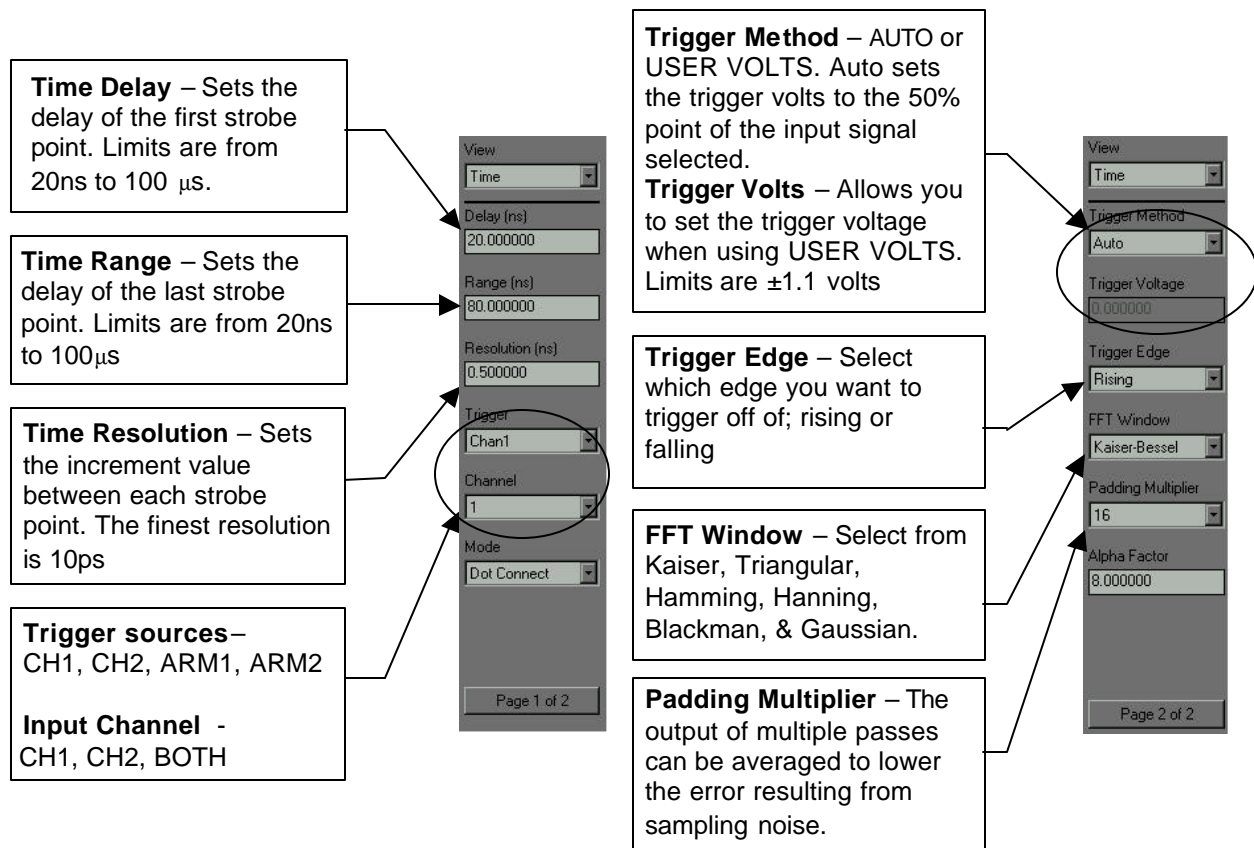
Oscilloscope FFT View

Oscilloscope data can be plotted using an FFT to provide frequency information. Note that harmonics of the clock will be displayed.







Oscilloscope Dialog Bar


The pull down menus along the right-hand side of the VSI window, allow the operator to configure the scope. There are two “pages” of menus in the Dialog Bar. Note that the units for all time parameters are displayed in Nanoseconds (ns).



Making a measurement


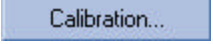

You can now make a basic measurement.

- On the tool bar at the top of the VISI panel, press the  PULSE FIND button. This action will bring up the PULSE FIND window, which will allow the user to view the voltage levels for the 50% point of the input and trigger channels that the user has selected. The PULSE FIND function may only be used when AUTO is the trigger method selected.
- Next, press the  SINGLE ACQUIRE/STOP RUN button to make one burst measurement or the  RUN/CYCLE button to take continuous measurements.
- If using the RUN/CYCLE method, press , to stop the measurement cycle after completing your observation.

In addition to manually configuring the menus described in the previous section, the  AUTO CONFIG feature located at the top of the VISI Panel automatically configures the scope menus and takes a measurement. This feature configures the menus with optimized default settings that will provide adequate viewing parameters for most signals. Note that the VISI software automatically scales the vertical voltage resolution to fit the pulse amplitude on the screen.

Possible Errors:

- Strobe fails?
Ensure that the selected trigger is hooked up.
- Plot has discontinuities.

Run Strobe calibration—see the “Calibration Getting Started”. Go to the tool bar along the top of the VISI window, press , choose , then  —follow the directions.

For more information contact:

Wavecrest Corporation
7626 Golden Triangle Dr.
Eden Prairie, MN 55344

www.wavecrest.com
1(952)-646-0111