

# Model 5961-003 Time Domain Analyzer

Version 1.0

## Features

Performs Filtering, Integration and Differentiation of data

Performs Single or Double integration

Multiple filtering options

User-configurable analysis duration

Re-scalable plots

User-configurable analysis parameters

Processing and times

Scale Multiplier

High- and Low-pass filter

Filter frequencies and poles

Overlap

Number of ensembles

Magnitude Detection Strategy—Average or Extrema

Analysis period start time and duration

Plot Formatting Options—Fixed or Autoscale; Linear or Logarithmic

Channel-selection Strategy—Manual, Command/List file, or Contiguous Set

## Output File Types

SDRC "Universal" ASCII (Type 58)

Excel-compatible, "comma-separated-value" (.CSV)

Statistics

Histogram CSV

Graph JPEG

DATX/CATS

## Ordering Information

Model 5961-003

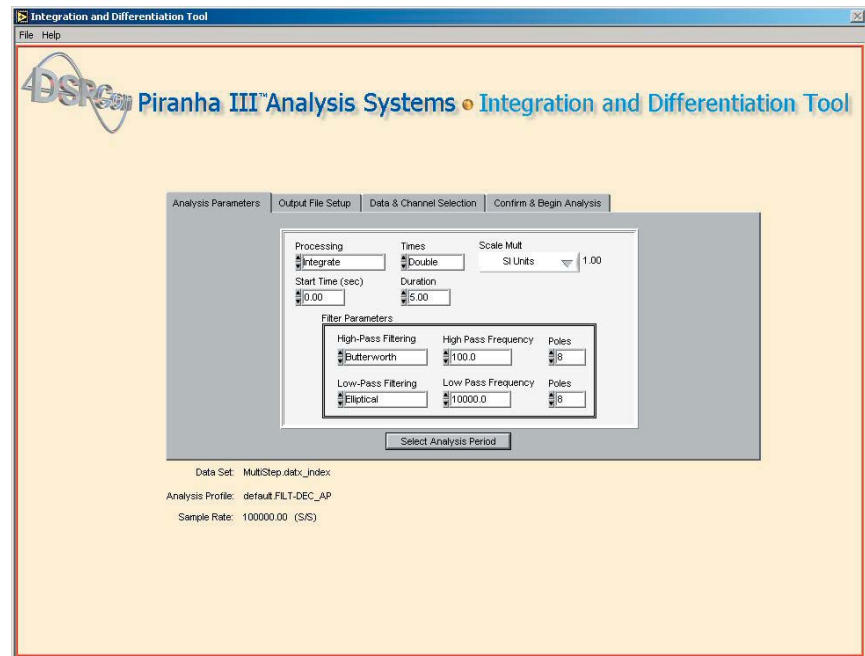


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## Time History Analysis

The Time Domain Analyzer (aka, "Filter-Integrate-Differentiate") performs digitally-synthesized filtering on one or more time history files, then processes and displays the data in the time domain. The application performs Time Series, Integrated or Differentiated processing, and its advanced processing features can be used to perform single or double integration and differentiation.



## Analysis Parameters

The Time Domain Analyzer has many user-configurable features, including:

- Filtering options for low-pass & high-pass filtering
- Elliptical filtering
- Butterworth filtering with variable band-pass
- Fixed or variable duration analyses settings
- Fine or coarse envelope resolution settings
- Start time, end time, & duration in seconds
- Synthesized AC/DC coupling
- Cursor zoom and time rescale controls
- Scale multiplier settings

## Output Files

Several types of output files are available: *SDRC Universal* are (Type 58) ASCII files; *Comma-Separated-Value* (.CSV) files produce Excel-compatible spreadsheets; *Statistics* files list critical parameters in the data set; *Graph JPEG* files provide a graphical snapshot of the plot of choice, *DATX/CATS* time history files, and Excel-compatible *Histogram* files.

## Data and Channel Selection

The Time Domain Analyzer offers a variety of time history channel selection strategies:

- *Random/Manual* – used to choose individual channels for interactive analysis
- *Contiguous Set* – used to enter a range of channels for analysis
- *List File* – used to control the channel-set to be analyzed with a command file

## Plotting

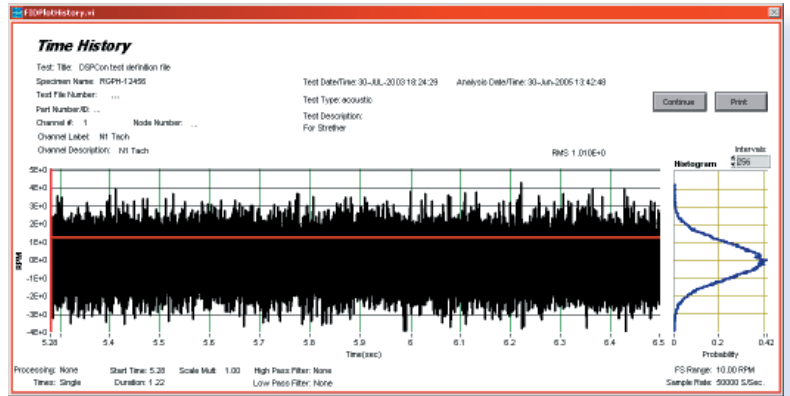
The Analyzer plots full color analysis for a single channel or for complete channel sets, and generates an optional, user-designated hard copy of the plot.

# Versatile, Configurable Time History Analysis

## Plot Types

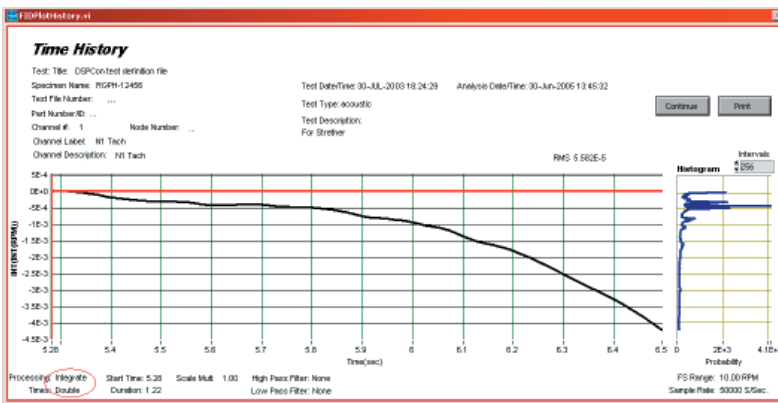
The Time Domain Analyzer can display basic time history data in a statistical histogram.

*Basic Time History data analysis results.*



Because data acquisition equipment typically employs accelerometers, processing (integration) of the data is required in order to visualize and measure velocity and displacement. Conversely, given a measurement of a Velocity or a Displacement, it is possible to perform a single or a double differentiation on such data to derive velocity or acceleration.

*Sample Time History plot with Double Integration analysis applied.*



The illustration below provides a road map to a typical Time History plot. Note that a Histogrammic plot is included to the right of the display in every Time Domain Analyzer plot.

