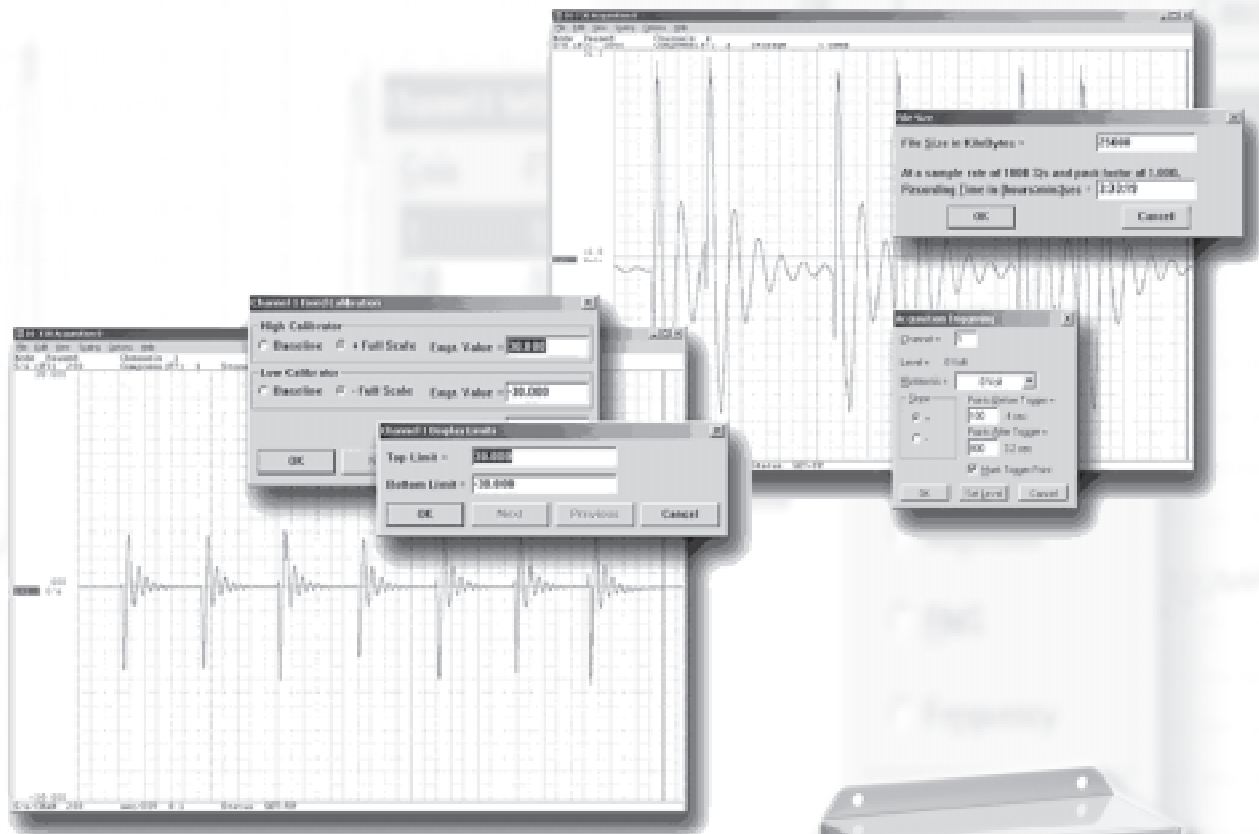
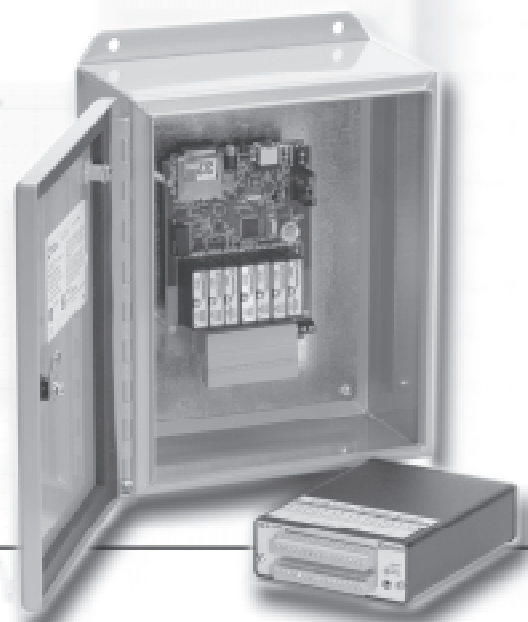


# WINDAQ<sup>®</sup> Software Overview

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- Disk Streaming and Real-Time Display
- True Multitasking Operation
- Up to 8-Channel Recording Ability
- Built-In Data File Translator



# WINDAQ Software

**Disk Streaming and Real-Time Display**  
**True Multitasking Operation**  
**Up to 8-Channel Recording Ability**  
**Built-In Data File Translator**

## **WINDAQ/Lite Acquisition Software and WINDAQ Waveform Browser Included**

The WINDAQ CD-ROM includes both WINDAQ/Lite Recording Software and the WINDAQ Waveform Browser. Both are free with purchase of any SLX178 system.

**WINDAQ Data Acquisition** software provides real-time display and disk streaming for Windows environments. The real-time display can operate in either a smooth scroll or triggered sweep mode, and data can be scaled into any unit of measure. Event markers with comments allow data acquisition sessions to be annotated with descriptive information while recording to disk.

WINDAQ's unique multitasking feature enables productivity to reach new heights. Record waveform data to disk in the background, while running any combination of programs in the foreground – including WINDAQ Waveform Browser playback software, which allows review and analysis of the waveform data as it's being stored.

**WINDAQ Waveform Browser** playback software offers an easy way to review and analyze waveforms acquired by WINDAQ Data Acquisition Software. The software's disk streaming design allows data files of any length to be graphically displayed rapidly, in normal or reverse time directions. Seven standard cursor-based measurements, along with frequency domain and statistical analysis functions, help simplify waveform analysis and interpretation. A data export feature allows any length of waveform data to be translated and reviewed by other applications, such as Excel.

## **Features**

### **Exclusive Heads-Up Display**

For 1 to 8 channels. Smooth scrolling or triggered sweep with level, slope, and source selections, as well as zero plot delay for true real-time performance. The display is active to over 14,000 samples per second during waveform recording to disk. Plot speed can be controlled independently of sample rate.

### **Multitasking Operation**

WINDAQ fully leverages Windows' (98, ME, NT, 2000, XP) multitasking capabilities to provide fully automatic foreground/background operation – even while recording data to disk.

### **Built-In Data File Translator**

Exports and imports data files in a variety of data acquisition, spreadsheet, and analysis software formats. Also translates files stored in a variety of foreign formats, including DADiSP and ASCII.

### **Frequency Analysis, Digital Filtering, X-Y Plotting, and Statistical Analysis**

Calculates up to an 8,191 point DFT or 16,384 point FFT with four pre-programmed windows and on-screen power spectrum graphics. WINDAQ allows you to graphically edit power spectrum for high-pass, low-pass, bandpass, and notch filters. It enables you to examine the relationship of one channel to another (X-Y), allowing X-Y excursions, instantaneous rate-of-change, 2-point and linear regression rate of change, and area bounded by curve. WINDAQ reports more than 10 statistical variables over any waveform length with export capabilities.

## **Recording Software: WINDAQ/Lite vs. WINDAQ/HS**

### **WINDAQ/Lite Recording Software**

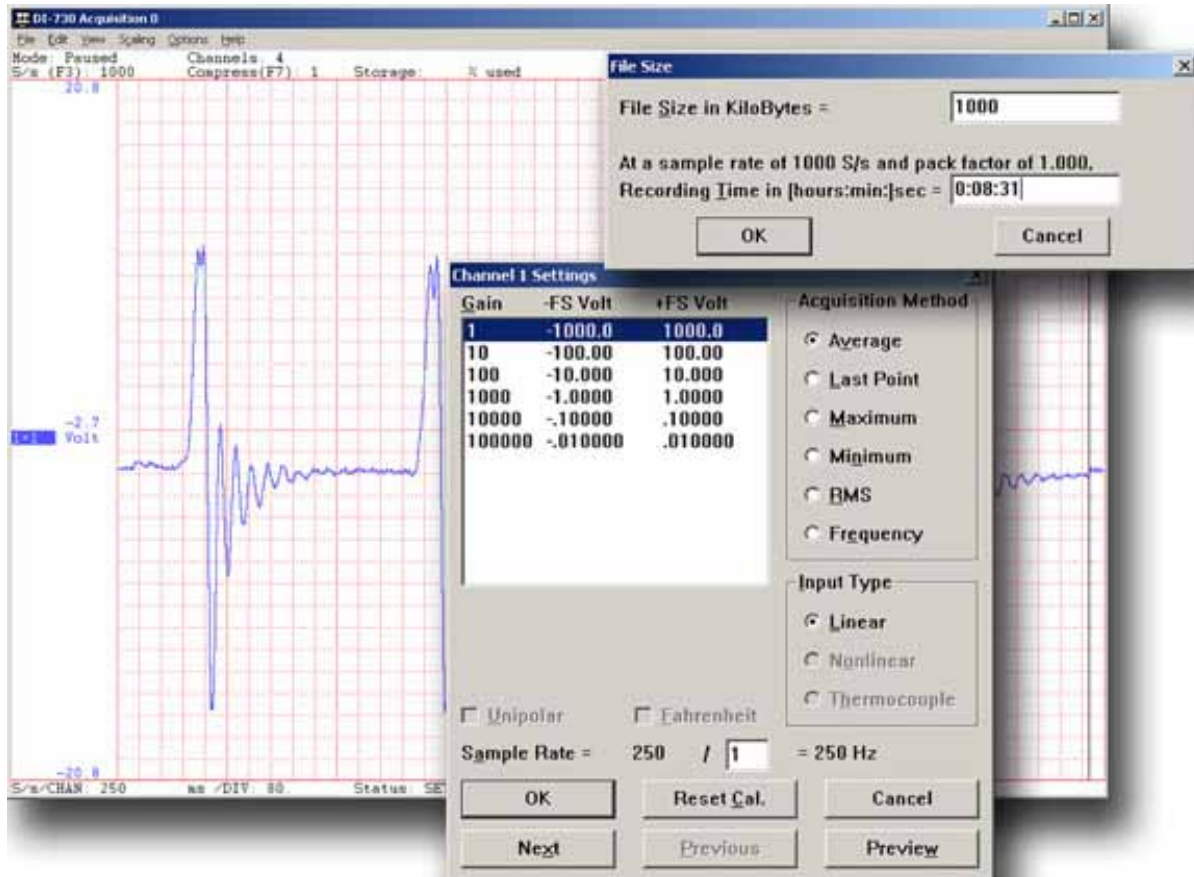
WINDAQ/Lite is a FREE version of WINDAQ/HS that works at the full sample rate of the instrument for a single channel, but is restricted to a maximum throughput of 1108Hz when recording two or more channels.

### **WINDAQ/HS Recording Software**

This allows you to assign different sample rates to different channels, which is done by entering a sample rate divisor value (1 to 255) for each channel. WINDAQ/Lite can be upgraded to WINDAQ/HS by purchasing and activating a high-speed license (see ordering guide).

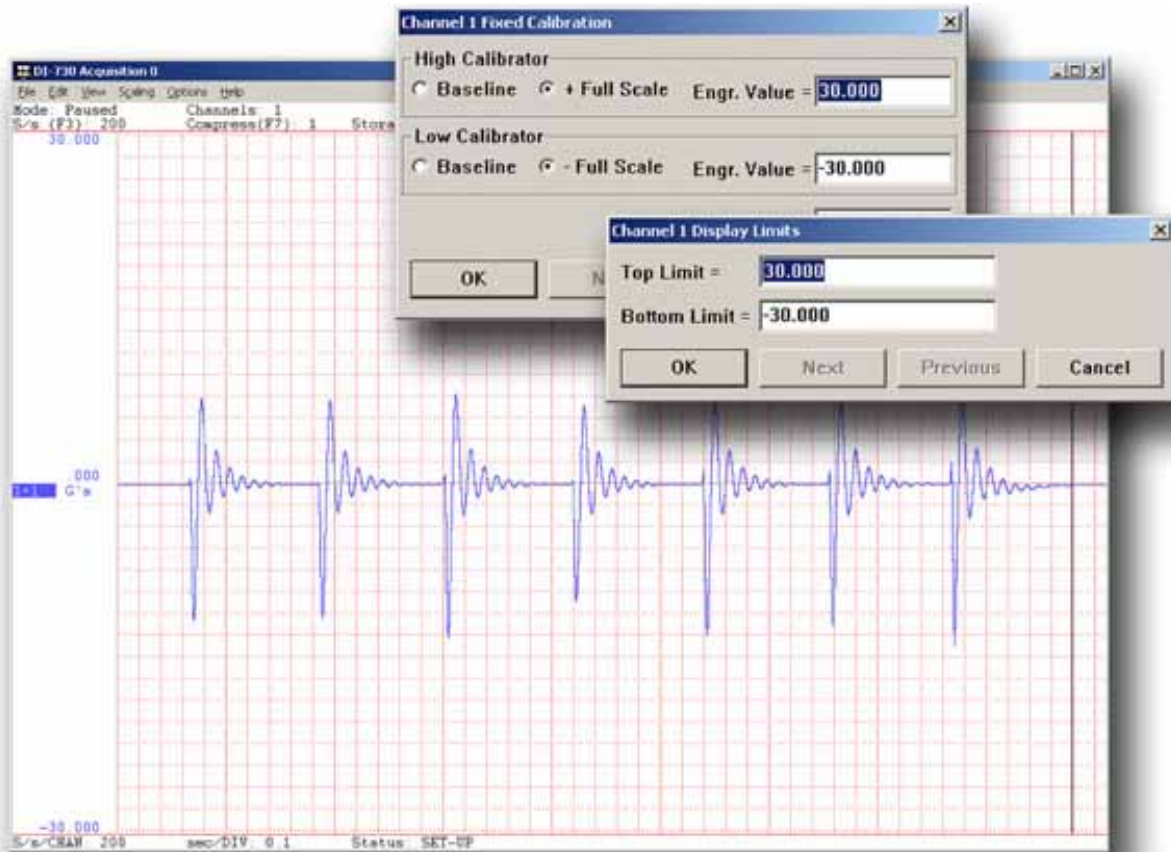
## WINDAQ Recording Software

### Channel Setup



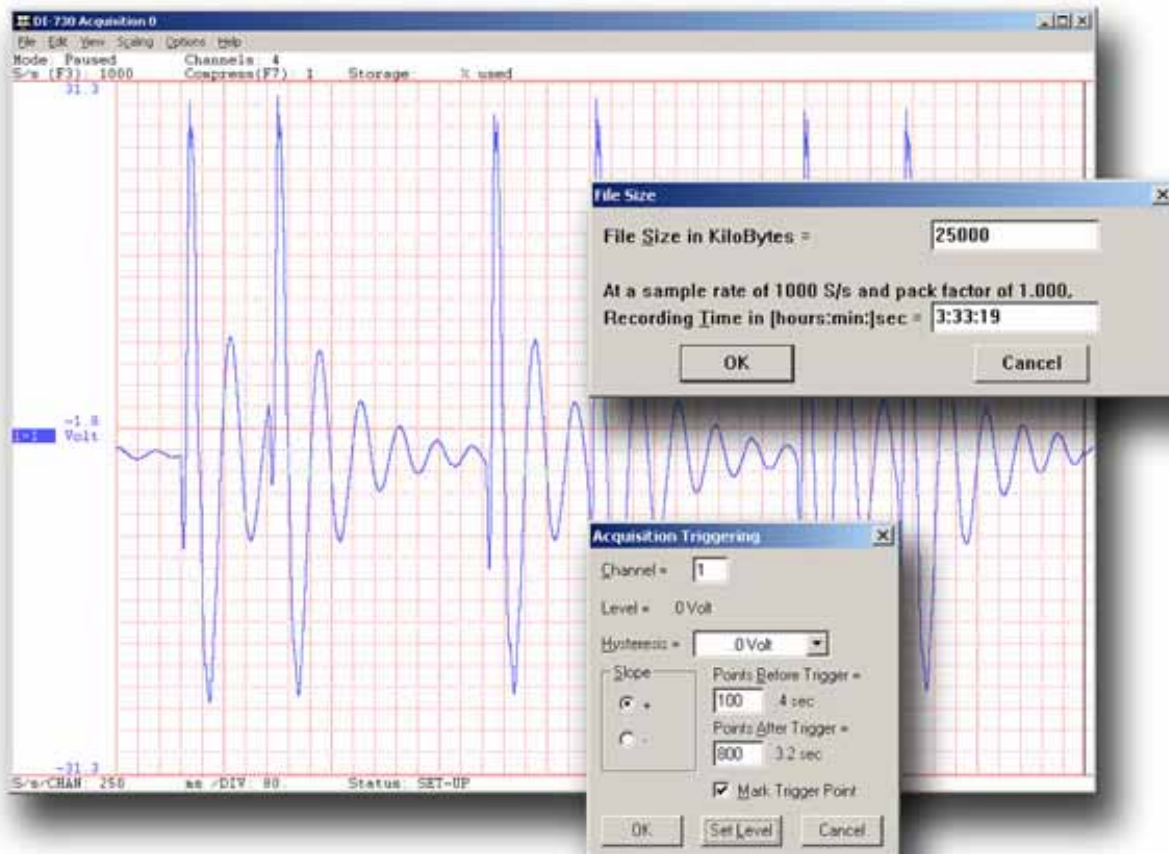
Double-click and enter the channels you want to add to the WINDAQ scan list. Click to select gain, signal averaging, true RMS, frequency, and peak or valley detection per channel. Click to define a single to 8-channel display – either triggered sweep (oscilloscope-like) or scrolling (chart recorder-like). Click again to define a sample rate ranging from less than one up to 14,400 per second. With WINDAQ/HS you can also define different sample rates on a per channel basis.

## Calibrate



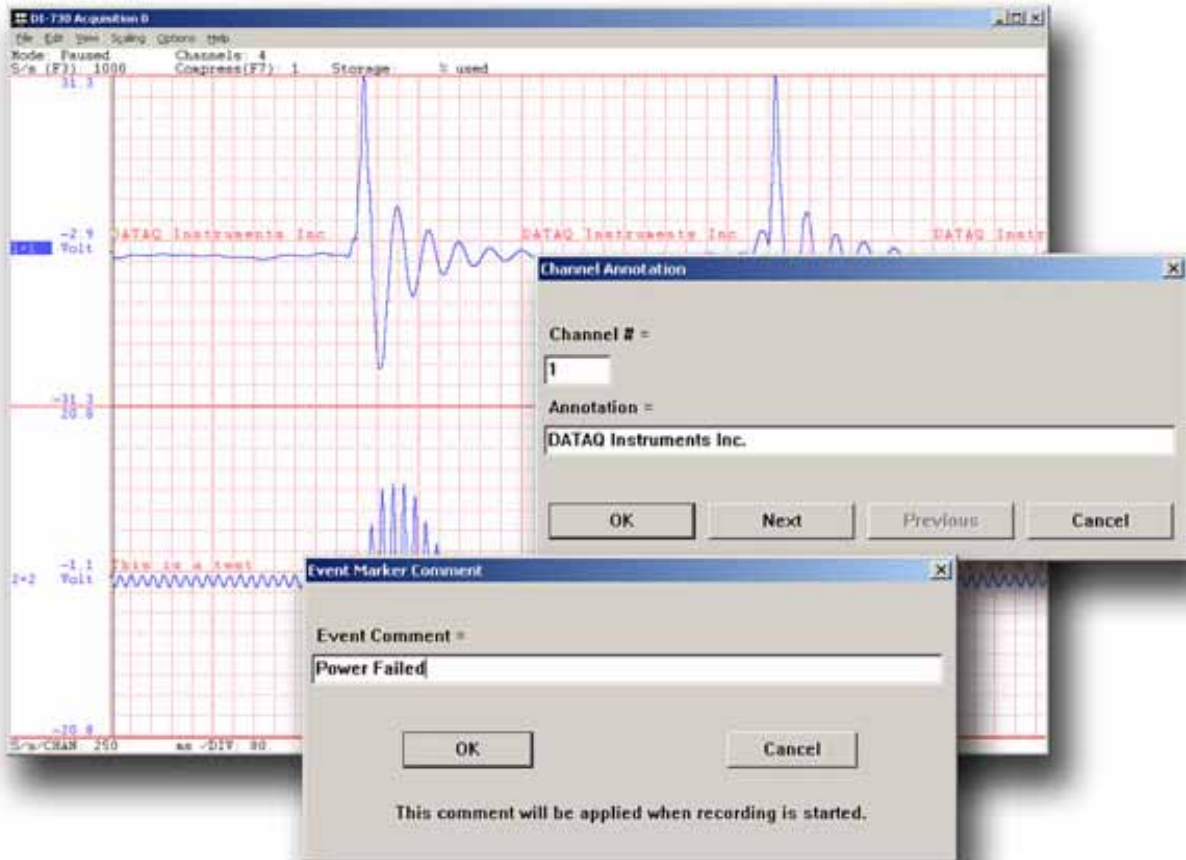
Define calibration per channel to display waveform values in meaningful units such as psi, °F or °C, amps, rpm, watts, horsepower – virtually any unit of measure you need.

## Record to Disk



Choose a continuous waveform recording mode or the triggered mode with selectable trigger level, slope, and pre- and post-trigger times. While recording as much data as you need, WINDAQ automatically time- and date-stamps the acquired data, then streams it to disk. At the same time, WINDAQ supplies a real-time graphical display of any or all channels, so you can always see exactly where you are in the process.

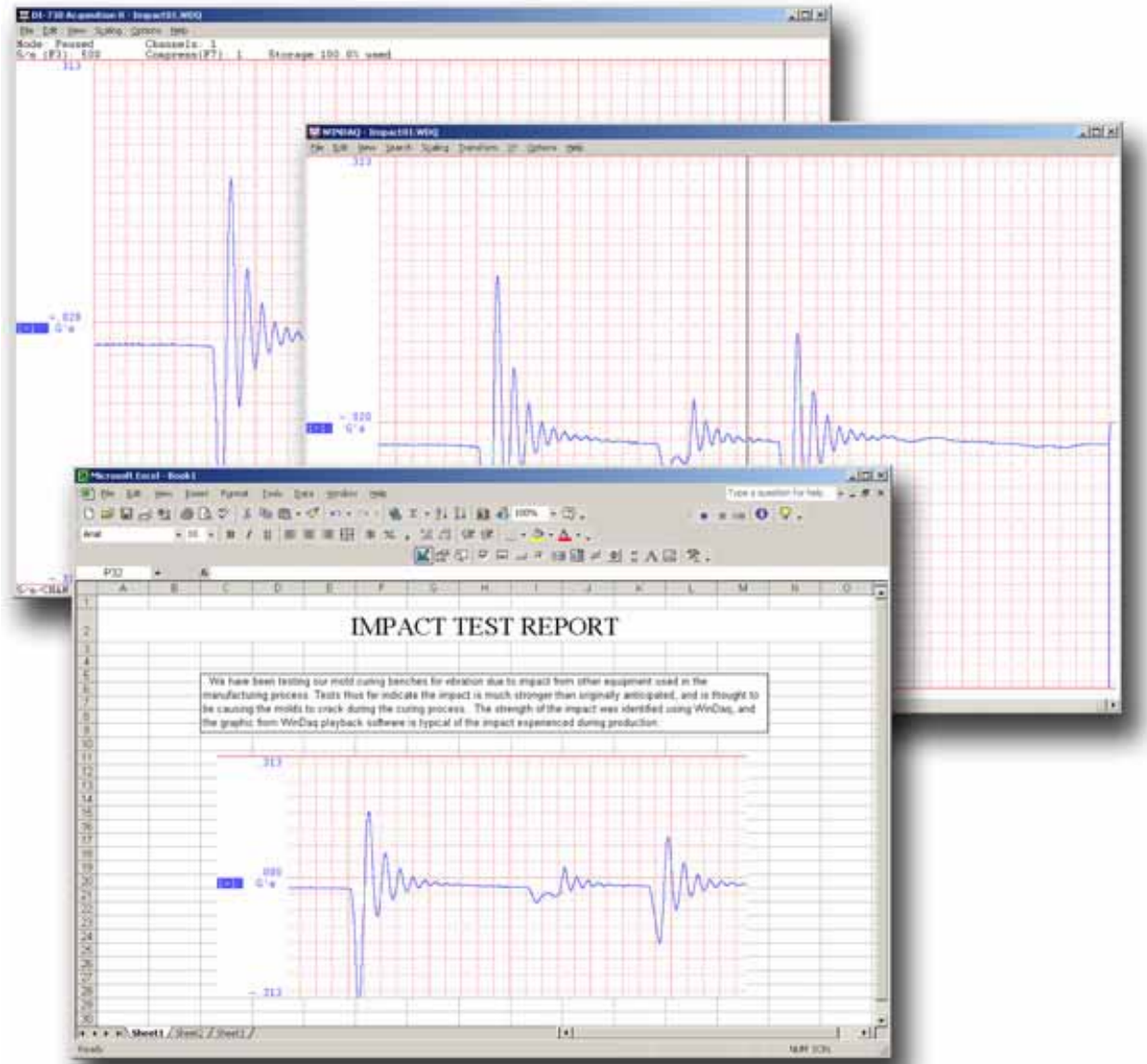
## Annotate



You can label any channel with text that describes it, such as “Motor 1,” “Engine speed,” “Vertical position,” etc., but WINDAQ also allows you to provide comments on event markers while you record, for example, “Beginning test phase 1,” “Small vibrations noticed,” “Starting cool-down cycle,” etc. Your comments and the data acquired with WINDAQ combine to form a complete diary of your data acquisition session.

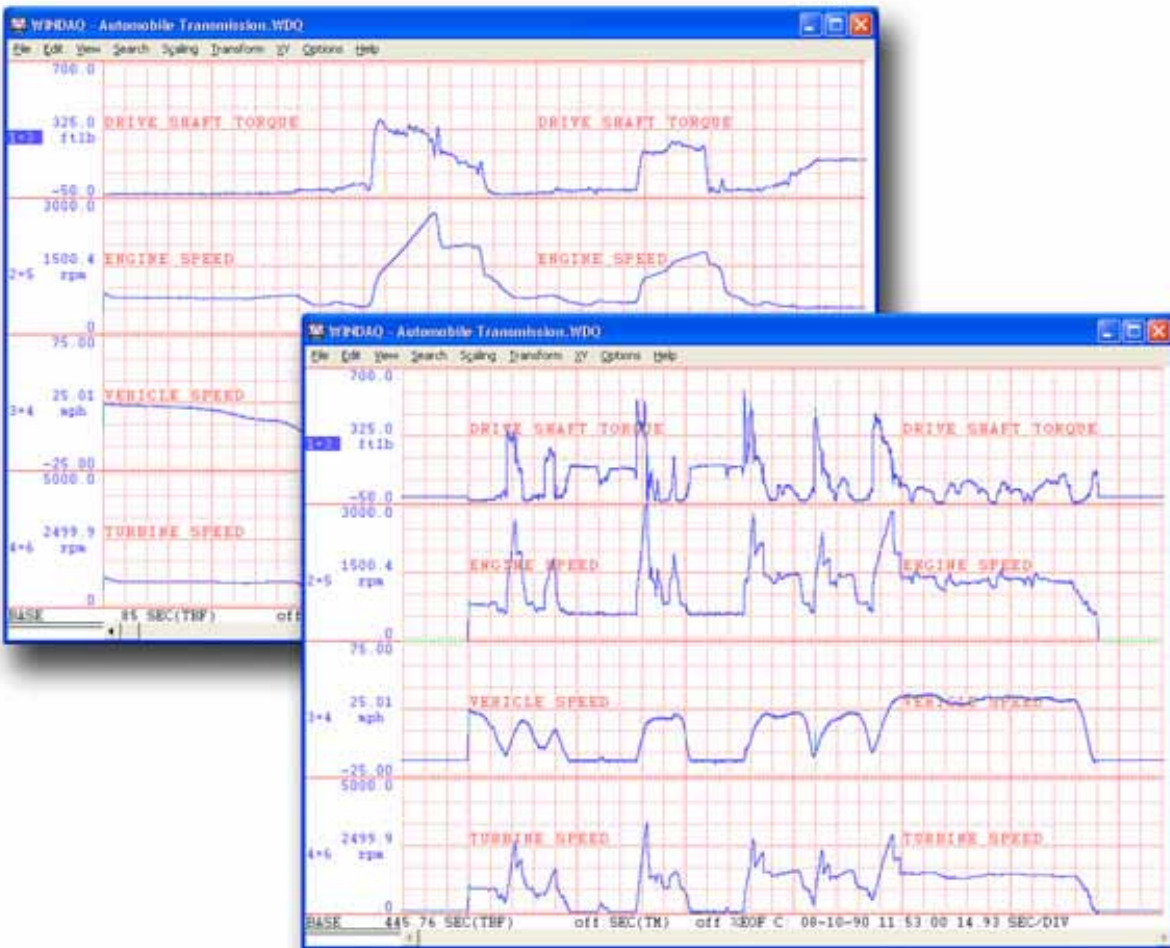
## WINDAQ Playback Software

### Full Multitasking



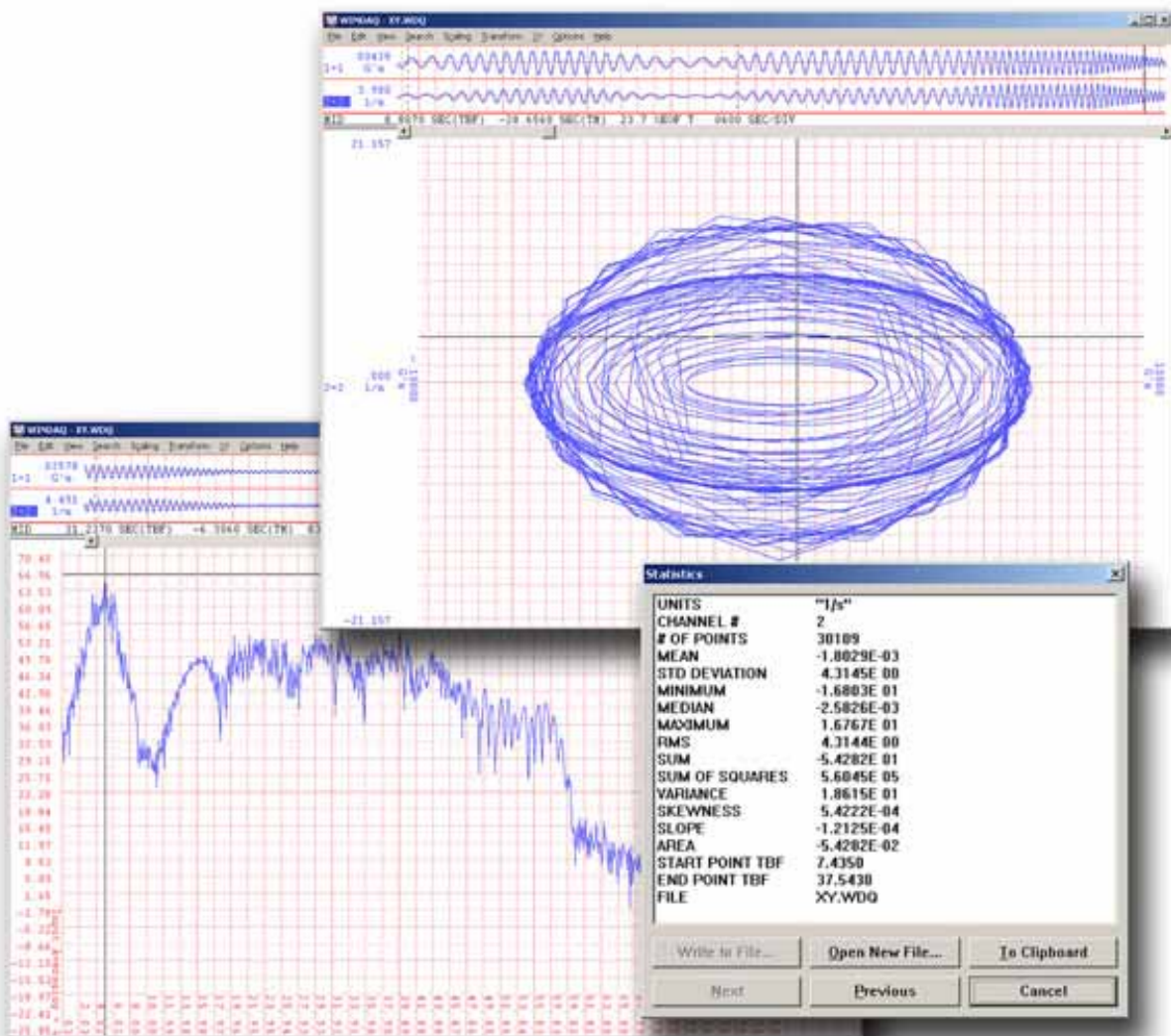
Double your productivity by letting WINDAQ record while you review last week's results from your spreadsheet, or compose a memo on your word processor. You can even play back data already stored to disk while you're still recording.

## Playback



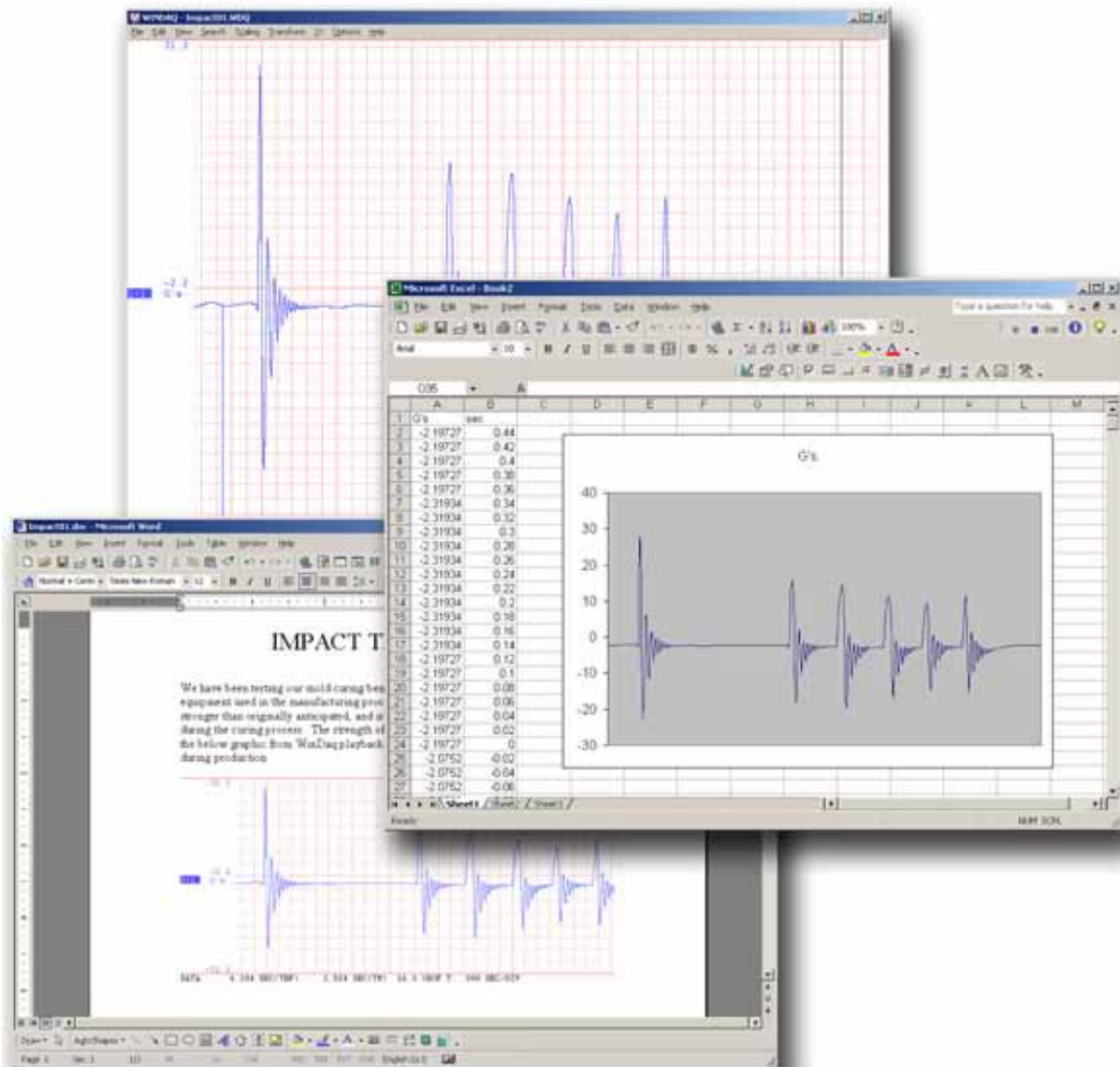
Recording is only half the solution. WINDAQ's Waveform Browser playback software allows you to graphically manipulate waveforms in a variety of ways. Compress an entire recording to one screen-width for a bird's eye view; then expand around an area of interest for a closer look. Use the cursor to measure amplitudes and timing with precision, or move to any event marker with the click of a mouse button.

## Analyze



Waveform interpretation is easy with WINDAQ's built-in analysis functions. Apply frequency and filtering analysis with the WINDAQ Waveform Browser FFT and DFT functions; analyze any range of waveform data with the statistics function, and use X-Y plotting to examine the relationship of one channel to another. Extended analysis functions allow waveform peak detection, integration, differentiation, arithmetic operations, and more.

## Export



The WINDAQ Waveform Browser can export any range of data to your spreadsheet, or to any other analysis or presentation package. You can copy a graphical image displayed by the WINDAQ Waveform Browser and paste it directly into a word processing document. You also can export any range of waveform graphics to your printer for a hard copy record.

## WINDAQ Software Specifications Table

Hardware and Software Requirements	Any Intel or compatible computer running Windows 98 or greater
Help Facilities	Built-in context-sensitive help facility supporting HLP and CHM

### Disk and Display (Acquisition Software)

Maximum continuous throughput to disk	WINDAQ/Lite: 1108Hz throughput for all channels to the maximum limit of the hardware for a single channel WINDAQ/HS: The maximum limit of the hardware
Maximum continuous real-time display throughput	Hardware dependent (PC and data acquisition instrument)
Waveform display nodes	Continuous smooth-scrolling; freeze; triggered and non-triggered sweep. Dot-joined at all sample rates.
Display trigger conditions	Selectable $\pm$ slope, level, and source
Waveform compression	Allows display rate to vary independently of sample rate. Compression factors of 1 (no compression) to 9,000.
Number of displayed channels	1 to 8
Number of acquired channels	1 to 8
Display formats	Overlapping (two channel max) and non-overlapping
WINDAQ/HS ONLY	Allows variable sample rates on a per channel basis
Maximum data file size	4GB

### Waveform Display Scaling (Acquisition Software)

Screen scaling	Waveform expansion, contraction, and offset per channel
Engineering units conversion	Scale and offset applied to each channel as $y=mx+b$
Software selections	Amplifier gain and input configuration (for hardware products supporting programmable gain)
Grid scaling	Allows each displayed channel to be scaled between user-defined limits
Hard copy	Supports print screen hard copy in the background regardless of disk streaming activity

### Event Marker and Time and Date Stamps (Acquisition Software)

Event marker operating modes	Asynchronous manual or remote activation with or without comments
Maximum number of commented event markers per file	8,184
Time and date stamping	Automatic for acquired data and event markers

### Programmability (Acquisition Software)

Hardware-dependent software selections	Amplifier gain, unipolar or bipolar, single-ended, differential, or thermocouple per channel. Additionally, WINDAQ/HS allows software selection of sample rate per channel.
Data storage format	16-bit, 2's complement binary data with header and trailer information
Toolbox	Provides a toolbox of icons used to make setup fast and virtually effortless and to otherwise customize a recording session

### Waveform Display (Playback Software)

Number of supported channels	8
Display formats	Overlapping and non-overlapping
Compression	Allows compressed view of displayed waveforms with compression factors of 1 (no compression) to whatever factor is required to compress the waveform to one screen-width
Display modes	Y vs. t; frequency vs. amplitude
Waveform search feature	Allows you to immediately go to a specific part of the data file based on range or date and time. Specify a range of data for the search and immediately jump to the next or previous data point occurring inside or outside the range. Specify a time and/or date and immediately jump to that position in the file.
Analog waveform playback	Allows you to output previously recorded data in analog form to a speaker, LED, chart recorder, etc., for all hardware products supporting a printer port interface
Event marker display	Displays event marker number, time and date of activation, and supplied comment in special display window (applies only to waveforms recorded with WINDAQ)

### Waveform Measurement (Playback Software)

Single-point cursor-oriented measurements (Y vs. t)	Amplitude measurements per channel in calibrated units; elapsed time; time and date at cursor (applies only to waveforms recorded with WINDAQ)
Dual-point cursor-oriented measurements (Y vs. t)	Time measurements on the same or across different channels; D%; Y-value difference; 2-point slope (d/dt); number of samples; Hz; cycles per minute
Cursor-oriented measurements (frequency vs. amplitude)	Frequency vs. db; frequency vs. magnitude (in engineering units)

### Waveform Analysis (Playback Software)

Statistical calculations	Min; max; standard deviation; mean; median; sum; sum-of-squares; skewness; rms; least squares differential; area bounded by curve
Statistical calculation range	Unlimited
Fourier transform calculation ranges	32 to 16,384 points (FFT) 2 to 8,191 points (DFT)
Selectable FFT windows	sin2; Hamming; Bartlett; Blackman
Inverse Fourier transform range	2 to 16,384 points. Time domain waveforms are inserted into display windows as calculated channels.
X-Y plotting calculations	Area bounded by curve; instantaneous rate of change; 2-point rate of change; regression rate of change; max X and Y excursions; time measurements on the same or across channels; amplitude measurements per channel in calibrated units; elapsed time; time and date at cursor

### File Management (Playback Software)

Maximum data file size	Unlimited
Supported data file export translators	WINDAQ (CODAS) format to any spreadsheet (CSV), DADiSP, general purpose binary, and ASCII
Supported data file import translators	Any spreadsheet (CSV), DADiSP, CODAS, ASCII, and binary integer/real to WINDAQ (CODAS) format
Data file translator range	Unlimited
Data file format	16-bit binary with data file header and trailer

### Waveform Hard Copy (Playback Software)

Type	Print screens and continuous form
Continuous form hard copy	Generates an unlimited length of continuous hard copy of any combination of channels
Supported printers	Any supported by Windows
Supported printer resolution	Printer-dependent

### Ordering Guide

Description	Order No.
<b>WINDAQ/Lite Acquisition and Playback Software</b> FREE data acquisition and playback software limited to 1108 maximum throughput rate	WINDAQ/Lite
<b>WINDAQ/HS Acquisition and Playback Software</b> Full-feature data acquisition and playback software with added capability of sampling different channels at different rates	WINDAQ/HS

The information on this data sheet is subject to change without notice.

WINDAQ® software is a product of DATAQ Instruments, Inc.