

# Data Acquisition

## **Transonic Flowmeters**

### **Standard**

- Analog Output to recording device
  - Chart Recorder
  - A-D Interface

### **Options**

- Digital output & software for your PC

Transonic flowmeters comes equipped with standard analog voltage output of flow signals. The standard analog output connects directly to any of a wide range of physiological chart recorders to observe and save pulsatile waveforms or mean flow signals. This analog port can also be connected to your analog-to-digital interface board which you may use with any type of computer system.

Transonic Systems' optional computer interface with WINDAQ acquisition and playback software will record, store and allow you to retrieve complete flow data on your Windows-equipped IBM-compatible PC.

### **Analog Outputs**

#### **to Chart Recorder**

The analog output ports on Transonic flowmeters are BNC connectors with -5 to +5 volt DC signals (0 to + 5 in BLF21's). This signal can be connected to the physiological recorder. The recording device can then be calibrated to the flowmeter and probe with procedures described in the instrument manual. Transonic Systems would be happy to work with you in developing a package including a chart recorder.

#### **to A - D Interface & Computer**

If you are currently outfitted with an A-D board for your computer and have a software package that will support flow data, you may also acquire the flow information from Transonic flowmeters standard analog ports without any additional modifications required.

The analog output ports on Transonic flowmeters are BNC connectors with -5 to +5 volt DC signals (0 to + 5 in BLF21's). This signal can be connected to a computer's analog to digital interface board. The recording device can then be calibrated to the flowmeter and probe with the procedures described in the instrument's manual.



## ***Personal Computer (-P) Interface Option***

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Provides the capability to record, store and playback flow data on an IBM-PC compatible computer with Windows capability

The Computer Interface Option turns your IBM-compatible personal computer into a low cost data acquisition system for up to 8 channels of data. If you do not currently have a computer-based data acquisition system, or if it is outdated or has no available channels for flow data, the Transonic computer interface option can provide you with stand-alone data acquisition simplicity.



The (-P) Personal Computer Interface consists of A/D converter circuitry, microprocessor and RS-232 circuitry and cable to connect the flowmeter to a standard IBM-PC via its serial RS-232 port.

Up to 8 channels of data are transmitted at 19200 baud to the computer via an on-board processor which continuously transmits instantaneous or mean FLOW data converted from analog to 12-bit digital values. Sample rate is 200 samples per second for 4 channels; 100 samples per second for 8 channels.

The (-P) Option includes:

- a microprocessor board mounted within the flowmeter cabinet
- a female RS-232 connector on the flowmeter's rear panel
- an RS-232 cable to connect the the flowmeter to the serial port of your computer
- a 25-pin to 9-pin adapter needed for some computers
- WINDAQ Data Acquisition and WINDAQ Playback software

# WINDAQ Data Acquisition Software



## Plug & Play Serial Interface

4 Channels 200 Samples per Second or  
8 Channels 100 Samples per Second

Smooth Scrolling & Sweep Display Modes

Fully Supported by WINDAQ Playback Software

DATAQ Instrument's special version of award-winning WINDAQ complements the Computer Interface Option's plug and play capability. It offers real time display and disk streaming for the Windows environment. Its display can operate in a smooth scroll or sweep mode, and can be scaled into any unit of measure.

Event markers with comments allow the user to annotate a data acquisition session with descriptive information, even while recording to disk.

The unique multi-tasking feature allows the user to increase productivity by recording waveform data to disk in the background while running any combination of programs in the foreground.

## Features

### **Fully Compatible with Windows**

Adheres rigorously to the Windows standards of pull-down menus, context-sensitive help, scroll bars, error reporting and handling, etc.

### **Multi-tasking Operation**

WINDAQ leverages the Windows' multi-tasking capability to provide fully automatic foreground/background operation—even while streaming data to disk

### **Exclusive Heads-up Display**

Up to 8 channels. Smooth scrolling or triggered sweep with level, slope and source selections. Zero plot delay for true real time performance. Control plot speed independently of sample rate.

### **Event Markers with Comments**

Accepts up to 8,000 event markers while recording to disk. Each is time and date stamped and may be commented as an aid to playback and analysis.

### **Automatic Time and Date Stamping**

Correlates waveform data with time and date of acquisition with 1 second resolution

### **True Disk Streaming**

Creates data files limited in length only by the size of your disk.

### **Real-Time Scaling**

Scales each waveform display channel in its own unit of measure

## Hardware Requirements

- One of the following: Transonic flowmeter with P-Option, or any data file format compatible with WINDAQ's file importer.
- Supported computers: 80x86 DX/Sx IBM-compatible computers
- Math coprocessor contributes marginally to performance
- Microsoft Windows 3.0 or higher
- One DSDD 5.25 or 3.5 inch disk
- One hard drive, 5 Mg Ram
- One Hercules, CGA, EGA, VGA, or XGA monitor (color or monochrome)
- One parallel port (for hard copy),



# Waveform Review & Analysis Software

**WINDAQ Playback Software**

**for Windows**

***Built-in Data File Translator***

***Displays up to 8 Channels at Once***

***Cursor-oriented Measurements***

***Supports WINDAQ Acquisition***

WINDAQ Waveform Playback offers an easy way to review and analyze waveforms recorded with WINDAQ Acquisition software. Its built-in data file translator lets WINDAQ display multiple waveforms acquired with any of a wide range of data acquisition packages. 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 measurement, and optional frequency domain and statistical analysis function help simplify waveform interpretation.

## *Features*

### **Versatile Playback Modes**

WINDAQ supports smooth scrolling in either time direction, as well as any degree of waveform compression.

### **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 ASYST, ASYSTANT, and DADiSP formats.

### **Data Acquisition File Translators**

Import data files stored in LabTech Notebook's and I/O Tech's ASCII and binary integer and real formats.

### **Dual Cursor Measurements**

Reports waveforms value at cursor, time from marker, samples from marker, difference, % slope (d/dt).

### **Multi-Tasking**

Both WINDAQ and WINDAQ/EX support the WINDAQ data acquisition software package for Windows. Full multi-tasking performance allows simultaneous data acquisition and analysis-even with a common file! You can literally record to, and analyze data from the same file at the same time.

## WinDAQ Playback Software cont.



### **Options with Extended Package (WinDAQ/EX)\***

#### Statistical Analysis

Reports more than 10 statistical variables over any waveform length with export capability to any spreadsheet.

#### Frequency Analysis

Calculates an 8,191-point DFT or 16,384 FFT with 4 pre-programmed windows and on-screen power spectrum graphics.

#### Digital Filtering

Graphically edits power spectrum for high-pass, low-pass, band-pass, and notch filters. Supports IFT of modified spectrum for comparison with original time domain waveforms.

\*additional cost

### **WinDAQ's Advanced CODAS Package\***

Advanced CODAS is an analysis tool enhancement to WinDaq playback software. It offers greater flexibility in waveform analysis. Acquired waveform information is streamed from the disk through the analysis function, and then back to the disk as a calculated channel. (The quantity of data you can analyze is limited only by the size of your hard drive.) All waveforms generated by Advanced CODAS are automatically calibrated to the appropriate unit of measure. For further details, contact our customer service representative.

\*additional cost



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