DaqView Overview

Out-of-the-Box Spreadsheet-Style Setup, Data Acquisition, & Display Software

Features

- Included with all Daq Series and Personal Daq/3000 Series products from IOtech
- Spreadsheet-style channel configuration and set-up
- Real-time displays include Digital, Dial, Bar Graph, Strip Chart, and Scope
- Real-time storage to disk
- Scaling and averaging functions built-in
- Setpoint output configuration mode
- Export directly to Excel® and MATLAB®, plus a wide variety of output formats including Text, DIAdem®, DASYLab®, .wav, UFFA, and UFFB
- Overlay recorded with real-time data
- Frequency analysis and display
- Supported Windows® Operating Systems: Windows 7/Vista/XP SP2, 32-bit or 64-bit

DaqView allows you to verify signal connections, acquire and save data to disk, and graphically view real-time data within moments of taking your IOtech hardware Out-of-the-Box. Easily set up all of your hardware, acquisition, and display parameters without programming via a simple spreadsheet-style screen. DaqView is a full-featured acquisition and display application that provides all the functionality you’ll need for most data-logging applications.

DaqView includes real-time export to Microsoft® Excel® as well as increased charts/scope capabilities and time-domain analysis. DaqView also includes frequency-domain analysis, digital filtering, and spectrum analysis.

<table>
<thead>
<tr>
<th>DaqView Support</th>
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<tbody>
<tr>
<td>Version</td>
<td>DaqView</td>
</tr>
<tr>
<td>Signal type to log or view</td>
<td>Analog, digital, or counter</td>
</tr>
<tr>
<td>Real-time log to disk</td>
<td>Yes</td>
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<tr>
<td>Post-acquisition waveform viewer</td>
<td>Yes</td>
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<tr>
<td>Real-time strip chart and scope displays</td>
<td>Yes</td>
</tr>
<tr>
<td>Scope zooming</td>
<td>Cursor, mouse, area</td>
</tr>
<tr>
<td>Save screenshot</td>
<td>Yes</td>
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<tr>
<td>Print scope or chart</td>
<td>Yes</td>
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<tr>
<td>Data scrolling</td>
<td>Yes</td>
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<tr>
<td>Max. no. of traces per scope or chart</td>
<td>16</td>
</tr>
<tr>
<td>Max. no. of scope or chart displays</td>
<td>64</td>
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<tr>
<td>Copy text data to clipboard</td>
<td>Yes</td>
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<tr>
<td>Real-time Excel update</td>
<td>Yes</td>
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<tr>
<td>Overlay recorded with real-time data</td>
<td>Yes</td>
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<tr>
<td>Signal analysis</td>
<td>Avg, RMS, Dec, Time, Window, Digital Filter, FFT, Spectrum Analysis</td>
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<tr>
<td>Meter displays</td>
<td>Yes</td>
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<tr>
<td>View recorded data</td>
<td>Yes</td>
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<tr>
<td>Export to 3rd party</td>
<td>Excel, Text, DIAdem, DASYLab, DADisp, MATLAB, .wav, UFFA, UFFB</td>
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<tr>
<td>Simulated Instrument Mode</td>
<td>Yes</td>
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</tbody>
</table>

Out-of-the-Box spreadsheet-style setup, data acquisition, and display software for DaqBoard, DaqBook, DaqLab, DaqScan, and Personal Daq/3000 Series
Acquire up to 10 million scans post-trigger. In addition, you can acquire up to 100K pre-trigger scans.

Program the scan sequencer, from one scan every 1 µs to once per hour.

Set up analog output, digital I/O, and counter/timer functions.

Review acquired waveforms with a stripchart-style display via PostView (see PostView software section for complete information).
DaqView
Out-of-the-Box Software

I/O Support
In addition to analog input, DaqView lets you easily set up and configure analog output, digital I/O, and counter/timers prior to beginning an analog scan sequence.

Digital I/O
Each of the three 8-bit digital I/O ports can be configured for input or output. DaqView also allows you to set up and configure up to 192 channels of digital I/O expansion if DBK digital options are installed in your system. Signals are updated each time the execute button is pressed.

Counter/Timers
You can set 5 counter/timers to measure frequency, totalize pulses, or generate periodic digital outputs. Signals are updated each time the execute button is pressed.

Analog Output
You can set up the analog outputs as simple voltage levels or as waveforms. DaqView lets you draw waveforms, load files containing waveforms, or choose from a variety of pre-loaded waveform types. The maximum waveform update rate is dependent upon maximum rate attainable by the hardware.
DaqView
Out-of-the-Box Software

Signal Conditioning & Expansion I/O Support
DaqView supports a wide variety of input and output signals via IOtech's DBK signal conditioning and expansion hardware options. These DBK products support various analog and digital I/O signals from thermocouples and RTDs to accelerometers and strain gages. DaqView automatically converts readings from the DBK options into real-world parameters such as temperature, displacement, frequency, and many other engineering units. For example, DaqView automatically performs cold-junction compensation and linearization on thermocouple readings before passing them along for display or for storage to disk.

DaqView lets you expand up to 1024 analog inputs. A sample hardware installation screen, which identifies different DBK options attached to an IOtech data acquisition system, is depicted below.

1. Thermocouples
2. RTDs
3. Accelerometers
4. 5B & 8B signal conditioning
5. Frequency input
6. High-voltage input
7. Strain gages
8. Low-pass filtering
9. Simultaneous sample & hold
10. 4-20 mA current input
11. Analog output
12. 4-20 mA current output
13. Isolated high-voltage input
14. Isolated low-voltage input
15. Analog input simultaneous sample & hold, and low-pass filtering
16. Digital I/O expansion
17. Isolated digital input
18. Isolated digital output
19. Relay
20. Vehicle Bus
Custom Real-Time Display
You can create your own real-time display screen using DaqView’s built-in display options. No programming is required—simply point, click, and drag desired display options to create a custom screen. Examples of DaqView’s real-time displays follow.

1 Digital Display
You can display up to 32 channels of digital readings. You can enable or disable the trend indicator.

2 Dial Meter
DaqView allows you to show up to 32 channels in a dial display format. Each dial indicates instantaneous levels, as well as peak hold and trends.

3 Bar Graph
You can select up to 32 channels for display in a bar graph format. Each bar graph shows instantaneous levels, as well as peaks and trends.

4 Scope & Strip Chart
DaqView lets you display up to 1 display page of scope or strip charts of data, all of which scroll at the same rate. See Scope and Strip Chart sections on the following pages for more details.
**Setpoint Configuration Dialog**

DaqView has a new setpoint configuration dialog that allows the user to configure setpoints for their /3000 Series hardware. The setpoint configuration dialog allows up to 16 individual setpoints to be configured. Each setpoint can utilize any valid voltage, digital, or counter input as an input source, and can evaluate that channel against configured limit conditions as follows:

- Input channel greater than limit
- Input channel equal to limit
- Input channel less than limit
- Input channel inside high and low limits
- Input channel outside high and low limits
- Input channel satisfies hysteresis criteria

The setpoint configuration dialog also allows configuration of output actions when the input criteria has been met. The output action can be to drive any of the valid analog, digital, or timer output ports to a value configured by the user. Refer to the /3000 Series for further information on setpoint features and operation.

**Scope & Strip Chart Display**

DaqView now has greatly enhanced scope and strip chart displays including Analog, Logic, and Counts display modes. The Analog display modes allow users to display analog channels such as voltage, temperature, and other analog measurements in either a scrolling strip chart or scope format. In a like manner, digital and counter values can be displayed in strip chart or scope format by using the Logic and Counts display modes respectively.

Each display can allow up to 16 channel traces and up to 4 displays can be added to the standard display page. An unlimited number of display pages can be created. Channels are easy to add to each display by simply dragging and dropping them onto the display of choice. A main toolbar allows easy display manipulation and operation that includes button controls for acquisition starting, triggering, and stopping as well as overall cursor and gridline controls. In addition, each display has its own toolbar controls allowing independent operation.
Analog Display

The Analog display allows users to display analog measurement data such as temperature, voltage, strain, and acceleration in an easy to understand format. A status bar indicates current cursor information as well as overall Average, Minimum, Maximum, and RMS values for the data in the display. Cursor annotations are available for easy data interpretation. If dual cursors are enabled, annotations for differences of X and Y values are displayed.

Logic Display

The Logic display allows users to display digital data that is measured in a synchronous manner to be displayed in a logic analyzer format. Each bit of the digital port is displayed as a separate trace allowing users to easily analyze digital data. Its value is indicated as either High or Low. A status bar indicates current cursor information for each bit as well as overall value of the port in a Hex format. Duty cycle information is also included. Cursor annotations are available for easy data interpretation. If dual cursors are enabled, annotations for duty cycle between the cursor values are displayed.

The Analog Scope allows users to easily display and analyze analog data such as temperature, voltage, strain, acceleration, or other analog data.

The Logic display allows users to display and analyze digital data in a Logic Analyzer format.
Counts Display

The Counts Scope allows users to easily display and analyze counter based data.

Display Modes

There are several types of display modes available for the Analog, Logic, and Counts display types.

- **Scrolling Strip Chart** continuously scrolls new data to the right while old data falls off the display to the left.
- **Scrolling Overlay Chart** will continually overlay the oldest data with newest data on the display.
- **Scrolling Block Chart** will add new data from the left until the display is filled and then clear the display and begin again displaying new data from the left.
- **Scope Display** will not display data until the entire acquisition is complete and then render all the data on the display.

Scrolling chart displays allow data to be displayed as the acquisition runs. This mode allows real-time interpretation of slower moving signals such as temperature. The Scrolling chart displays each have settings allowing the total display time as well as history settings to allow the user to scroll back and view previously collected data. The Scope display can be used to analyze fast moving or transient signals in display frames. The Scope display mode is utilized for advanced signal analysis found in DaqView.

Excel® Integration

DaqView provides complete data acquisition functionality and is seamlessly integrated into Excel's tool palette. Excel is an ideal tool for test engineers because it provides a variety of graph and charting functions for presenting data in a graphical format, as well as mathematical and analysis functions such as FFTs. Excel's ability to retrieve and manipulate previously acquired data in a spreadsheet format and DaqView's advanced data acquisition functions form a comprehensive data acquisition solution.

With DaqView there is no limit to the number of displays or display pages that can be added thus allowing hundreds of acquired channels to be displayed and analyzed. The unique display page design allows numerous display pages to be added and managed. In addition, each display page can have a nearly unlimited number of displays that can be scrolled through by the user.
DaqView provides advanced signal processing and analysis features in an easy-to-use and intuitive graphical environment. Setup is easy with intuitive configuration dialogs. Useful analysis information is also provided in the DaqView Scope display status bar.

DaqView includes Windowed time functions such as Blackman, Blackman-Harris, Cosine Tapered, Exact Blackman, Exponential, Flat Top, Force, Hamming, Hanning, and Kaiser Windowing functions.

In addition, advanced digital filtering is included with DaqView. Bessel, Butterworth, Chebyshev, Elliptic, EquiRipple, Inverse Chebyshev, Kaiser and Windowed FIR for Band Pass, Stop Band, High- and Low-Pass Filters are provided. Filter Cutoff Frequencies are also configurable via an easy to understand dialog.

DaqView offers a rich selection of Frequency Transforms including FFT, Fast Hartley, Fast Hilbert, and Power Spectrum. When in this mode the status bar reflects Minimum, Maximum, Peak, and Power calculations.

Also included are spectrum analysis functions such as Auto Spectrum, Amplitude Spectrum, Phase Spectrum, and a Harmonic Analyzer. When in this mode, the status bar reflects AC and DC component, Frequency Peak, Power, and THD (Total Harmonic Distortion) calculations. Linear and DB scaling is user selectable.