New Ethernet-Based Instruments offer Continuous, High-Speed Data Acquisition

CLEVELAND, February 2003 — IOtech is introducing two new Ethernet-based data acquisition devices, bringing a new level of performance to the marketplace for external PC-based data acquisition. Unlike other seemingly similar products, the new DaqBook/2000E® and WaveBook/516E™ can *continuously* acquire data and transfer it to the PC via Ethernet, while operating at full speed and with *no loss in data*. Other devices can only send data to the PC which has been stored in their internal memory, due to bandwidth limitations on their Ethernet interface

In contrast, the new DaqBook/2000E and WaveBook/516E from IOtech can transfer *100%* of the acquired waveform information to the PC in *real time*! This is particularly important to users who require 100% of the digitized waveform information to perform post-acquisition analysis of acquired waveforms.

A unique Linux/PowerPC-based Ethernet engine makes the high-performance Ethernet capability in IOtech's new products possible. This engine, when coupled with IOtech's WaveBook and DaqBook acquisition engines, results in two product families that are able to provide high-performance capabilities normally associated with *closely-coupled solutions* such as a PCI plug-in boards or in high-end instruments that include large amounts of expensive, built-in memory.

The many advantages of Ethernet for PC-based data acquisition applications include:
- Ethernet is already built into most PC's, so unlike IEEE 488 there is no need to purchase an extra interface for the PC.
- Ethernet supports distances up to 100 ft., so unlike IEEE 1394 or USB, Ethernet allows the instrumentation to be located at remote sites from the PC. For example, in the case of a wind tunnel, the instrumentation can be located within the vehicle inside the wind tunnel, while the acquired data is viewed on an Ethernet-linked PC in the control room.
- Ethernet has the bandwidth to support most data acquisition applications. The WaveBook/516E can continuously acquire data at 1 Mreadings per second and continuously transfer acquired data back to the PC in real time.

The WaveBook/516E and the DaqBook/2000E share the same PC-connectivity features. Specifically, they include one 10/100BaseT Ethernet interface, plus three parallel expansion ports that are capable of attaching to up to 3 additional, parallel-port versions of the WaveBook and DaqBook. This enables multi-A/D systems, whereby one A/D can be used for high-speed acquisition such as waveform capture, and another A/D can be used for slower-speed measurements such as thermo-couple measurements. In this case, a single Ethernet connection back to the PC is all that is required to complete the system. A synchronization port is also included so that multi-A/D systems can be synchronized with one another.

Both products share the same powering features: a DC power input for in-vehicle applications, as well as an AC adaptor for lab applications. Optional battery and UPS modules are available for critical in-field applications where external power may not be available.

DaqBook/2000E Features

The DaqBook/2000E is a multi-function data acquisition device that provides the same level of performance as IOtech's popular DaqBoard/2000 series. Specifically, the /2000E has a 16-bit, 200-kHz A/D, which can be expanded up to 256 channels. With 13 built-in ranges, as well as 100% digital calibration, the /2000E is unparalleled in its class of external, multi-function data acquisition devices. Over 30 different signal conditioning and expansion options are available for the /2000E, including options to measure thermocouples, strain gages, accelerometers, RTD's, 4-20 mA, and much more.

The /2000E includes four 10-MHz counters that can synchronously measure frequency and count pulses concurrent with analog measurements. Also, there are 40 digital I/O lines on the /2000E, which can be synchronously read or updated along with analog and frequency measurements. The 40 TTL-level digital I/O lines can be expanded up to 272 channels, including options for optical isolation and relay closures for switching applications. Additionally, the 2 timer outputs are capable of generating square waves up to 1 MHz.

The /2000E can also be equipped with an internal, 4-channel, 16-bit analog output capability. Each channel is capable of generating waveforms from on-board buffers containing 64k locations per channel with a maximum update rate of 100 kHz.

In short, the DaqBook/2000E provides all of the features associated with high-performance plug-in boards — but in a compact, metal enclosure suitable for lab as well as portable applications. The /2000E will set the new standard for multi-function external data acquisition devices.

WaveBook/516E

The new Ethernet-based WaveBook/516E is targeted at dynamic measurement applications, such as vibration and sound. At the heart of the /516E is a 16-bit, 1-MHz A/D converter, with 8 built-in analog input channels. A DSP in the /516E performs real-time calibration on all readings, so that all readings are calibrated before being transferred to the PC. In addition to the 8 built-in analog inputs, the /516E also includes a 16-bit digital input port, capable of reading digital inputs synchronously with analog inputs.

The /516E includes a wide variety of triggering and clocking features, ideally suited for making transient as well as frequency-domain measurements. Some of the trigger features include pre- and post-triggering, multi-channel triggering, and triggering based on an external clock source. Normally these features are associated with instrumentation costing 2 to 4 times as much as the /516E.

The /516E is augmented by several high-performance signal-conditioning options, including options for measuring strain gages, accelerometers, microphones, high voltage, position encoders, thermo-couples, and more. Simultaneous sampling is standard on many options, ensuring that the phase relationship between channels is maintained regardless of the total number of signals.

In many ways, the new WaveBook/516E exceeds the performance of similar devices that are heavier, consume more space (which is critical for portable and in-vehicle applications), and cost substantially more. When the /516E's high-performance Ethernet engine is combined with one of today's powerful notebook PCs, the result is a data acquisition solution that is unrivaled in today's marketplace.

Extensive Software Support

As with all IOtech products, the DaqBook/2000E and WaveBook/516E are supported by a full suite of software. IOtech's DaqView™ and WaveView™ software packages are included with the DaqBook/2000E and WaveBook/516E, respectively. These programs provide effortless set-up, data acquisition, and a variety of data display options. eZ-PostView™ software is also included for easily reviewing of acquired waveforms. The WaveBook/516E is also supported by eZ-Analyst™, IOtech's powerful frequency-domain waveform analysis package that is ideally suited for vibration analysis applications.

Both the DaqBook/2000E and WaveBook/516E also include programming support for Visual Basic®, C++, Delphi™, LabVIEW®, and DASYLab®. Optional ActiveX/COM support is also available with IOtech's DaqCOM™ package.

Summary

The DaqBook/2000E is offered at $2,999; the WaveBook/516E is offered at $5,999. Both products — along with their full suite of signal conditioning, expansion, and software options — are available February 1, 2003.

About IOtech

IOtech produces data acquisition hardware and software for use in PC-based test and measurement, and industrial automation systems. Its products are used in research and manufacturing facilities and are sold throughout the world. IOtech, Inc. is located at 25971 Cannon Road, Cleveland, Ohio, 44146; Telephone: (440) 439-4091; Fax: (440) 439-4093; E-mail: sales@iotech.com; World Wide Web: www.iotech.com.

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