LogBooks™

Stand-Alone, Intelligent PC-Based Data Acquisition Systems, Models /300, & /360

Features

- **Operates without a PC at the test site**
- **16-bit, 100-kHz analog and digital sampling**
- **Compact yet expandable architecture can accommodate over 400 channels of analog, digital, and frequency I/O**
- **Stand-alone nonvolatile storage of over 500 million samples via removable PC-Card memory**
- **Card swapping and uploading during acquisition allows continuous data acquisition**
- **Communication with PC via RS-232, parallel port, modem, or by transporting a PC-Card; optional RS-422 interface**
- **Built-in analog inputs support 14 programmable ranges up to 20V**
- **Synchronous, mixed signal acquisition of analog, digital, and counter inputs**
- **Optional modem support provides remote communication**
- **Optional GPS support (LogBook/360 only) logs location information**
- **Optional control terminal provides channel inspection, and acquisition queries**
- **AC or DC powerable**

Signal Conditioning Options

- **Expansion cards and modules for high-voltage/current, strain gages, thermocouples, isolation, relays, accelerometers, filtering, simultaneous sample & hold, vehicle network measurements, and more**

Software

- **Includes LogView™ *Out-of-the-Box*™ software for easy setup, calibration, & more; no programming required**
- **Simple spreadsheet-style interface provides powerful setup features for immediate startup**
- **Acquisition configurations can be transported to the LogBook via PC-Card, serial port, parallel port, or modem connection**
- **Provides direct support for a wide variety of transducers**
- **Includes eZ-PostView™ for post-acquisition data viewing**

The LogBook/360 data acquisition system includes an expansion bay for up to three signal conditioning cards

The LogBook/300™ and LogBook/360™ are portable data acquisition systems that can be used for remote, portable, and unattended operation. They are also operational with a PC attached.

The LogBook combines on-board intelligence and a large capacity PC-Card removable memory, with the industry's easiest and most powerful data logging software. Its 16-bit, 100-kHz A/D and triggering capabilities make it ideal for collecting high *and* low speed phenomena. A comprehensive array of signal conditioning expansion cards and modules are offered that allow the LogBook to take measurements from virtually any transducer, from thermocouples to accelerometers.

The LogBook data acquisition system includes LogView *Out-of-the-Box*™ graphical display and acquisition software, which allows for fast setup and easy use, with no programming required. LogView software uses a spreadsheet metaphor rather than programming to configure the channels and the acquisition parameters.

The LogBook/300 data acquisition system with PC-Card memory and Remote Operation Terminal

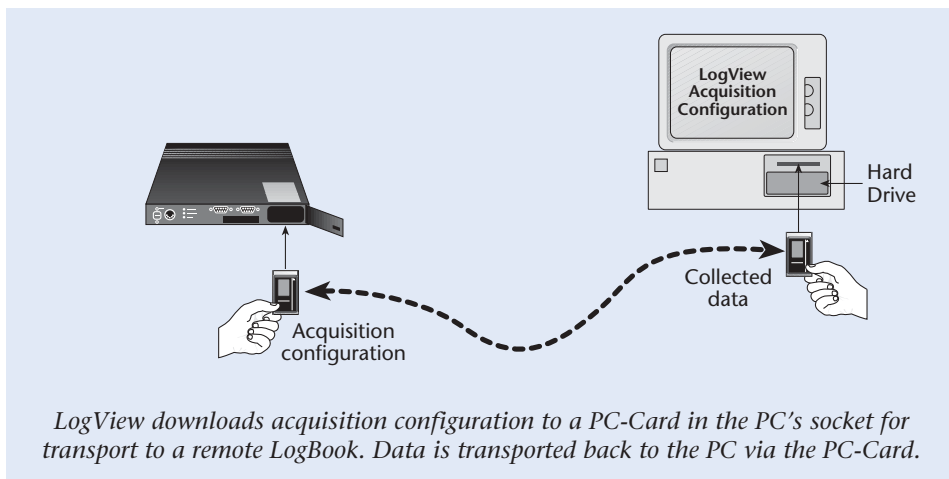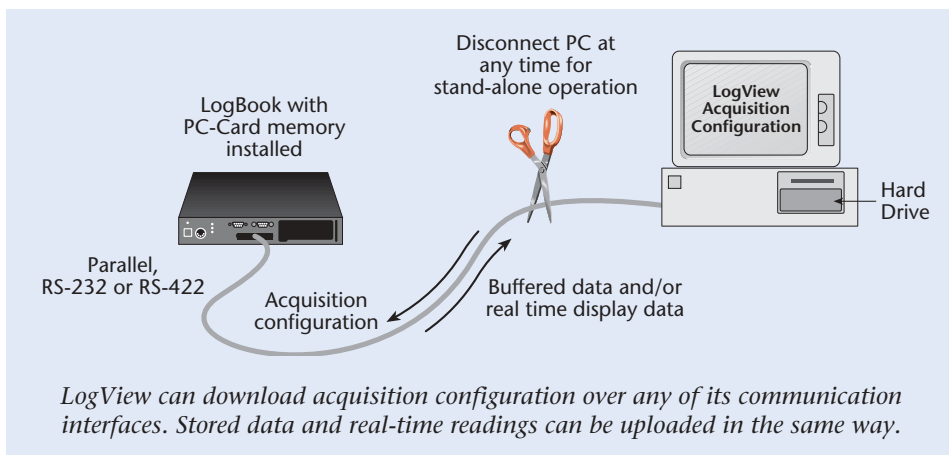**PC Data Acquisition Hardware**

LogBooks™
General Information

Operating Modes

Once an acquisition configuration has been developed, it can be downloaded to a PC-Card for transport to a remote LogBook, or it can be directly downloaded to an attached LogBook via a serial port, parallel port, or modem connection. The LogBook can be used in stand-alone mode where no PC is present, or it can be linked to a PC via a serial port, parallel port, or modem for interactive data collection.

A PC running LogView can interact with an attached LogBook at any time, both during the setup and/or while the acquisition is taking place. To observe acquired data, channel values can be displayed in any or all of LogView's many real-time indicators.

LogBook/300 Operating Modes

Disconnect PC at any time for stand-alone operation

LogBook with PC-Card memory installed

LogView Acquisition Configuration

Hard Drive

Parallel, RS-232 or RS-422

Acquisition configuration

Buffered data and/or real time display data

LogView can download acquisition configuration over any of its communication interfaces. Stored data and real-time readings can be uploaded in the same way.

LogView Acquisition Configuration

Hard Drive

Collected data

Acquisition configuration

LogView downloads acquisition configuration to a PC-Card in the PC's socket for transport to a remote LogBook. Data is transported back to the PC via the PC-Card.

Removable Nonvolatile Memory

The LogBook requires a standard Type I, Type II, or Type III solid-state or rotating media PC-Card for use as its nonvolatile memory. The cards can transport acquisition configurations and collected data between the PC and the LogBook. Using a 1 Gbyte PC-Card, for example, up to 500 million samples can be stored, equating to more than forty minutes of recording time at the full 100-kHz acquisition rate. The LogBook/300 and LogBook/360 support standard ATA memory PC-Cards, as well as PC-Cards from IOtech.

One PC-Card can be removed and another PC-Card inserted without causing a gap in the acquired data

LogBooks™
General Information

For downloading acquisition configurations to a remote LogBook or uploading collected data to a PC, these cards can be inserted directly into the PC's standard PC-Card socket. No card reader or additional hardware is necessary to interact with the data.

For continuous data collection, PC-Cards can be swapped while the acquisition is taking place. As one card becomes nearly full, it can be removed and another card inserted without causing a gap in the acquired data.

During the card swapping process, acquired data is temporarily stored in the LogBook's internal 4 Mbytes of RAM. If card swapping is required during a fast acquisition, a 16 Mbyte memory option is available. At 100-kHz sampling, the standard 4 Mbytes of RAM memory provides approximately 10 seconds to swap cards, while the 16 Mbyte option provides over 1 minute.

At slower acquisition speeds, there is even more time to swap cards. At 10 kHz, the standard 4M RAM memory provides approximately 1.5 minutes of swap time, while the 16M RAM upgrade provides more than 11 minutes of swap time.

I/O, Expansion and Signal Conditioning

The LogBook data acquisition system is equipped with the following I/O:

- 16 single-ended or eight differential analog inputs, with seven programmable ranges:

  Bipolar: 10V, 5V, 2.5V, 1.25V, 0.625V, 0.3125V, 0.15625V

  Unipolar: 20V, 10V, 5V, 2.5V, 1.25V, 0.625V, 0.3125V

- 40 lines of general purpose digital I/O
- Four pulse counting channels for totalizing
- Two pulse train outputs
- Four optional 16-bit, 100-kHz analog outputs

The system can be expanded using a comprehensive line of DBK signal conditioning and expansion options. The LogBook

The LogBook/360's drawer-style architecture supports up to three DBK signal conditioning cards

is expandable to up to 256 analog inputs and 208 digital I/O lines. Economical signal conditioning hardware includes thermocouple, RTD, high gain, high voltage, current, strain gage, accelerometer, filter, and simultaneous sample and hold.

The LogBook/300 attaches to DBK options externally, via a simple ribbon cable connection. The LogBook/360 provides added functionality by providing space for up to three DBK signal conditioning cards housed internally.

User-selectable termination panels offer a choice of connector types including BNC, removable screw terminal, thermocouple, and safety jack. Each panel includes pre-stripped wires by which the user can connect to any of the three DBK cards installed in the LogBook/360 enclosure. A user-customizable blank termination panel is also available for custom applications.

All of the channels in a LogBook system, including the base I/O and expansion channels, are sampled synchronously,

LogBook/360 Termination Panels

BNC termination panel (DBK602) features 16 BNC connectors

Removable-block screw-terminal termination panel (DBK606) offers 48 convenient connections

Safety-jack termination panel offers 16 connectors (Red and black jack-pairs, DBK604 shown)

Slotted panel with adjustable clamp that holds wires in place (DBK607)

Thermocouple termination panel (DBK605) features 14 connectors for types J, K, and T thermocouples

DB37-style termination panel (DBK608) features three standard 37-pin female connectors

Note: DBK601 and DBK603 not shown.

PC Data Acquisition Hardware

LogBooks™
General Information

providing time correlation of all collected data. The LogBook provides both internal and external pacer clock control so that scans can be collected using the LogBook's internal programmable oscillator or an externally supplied custom frequency clock. Users have bit-wise control of digital I/O.

Unlike many multiplexed input data loggers, the LogBook's base analog input channels have a unique buffer-amplifier-per-channel design to eliminate noise and channel-to-channel crosstalk while maximizing accuracy—even with high-impedance transducers. For ease of use, all of the LogBook's settings are software controlled, eliminating the need for switches and jumpers. Each channel is digitally calibrated, eliminating drift-prone potentiometers.

Unlike many plug-in board data acquisition systems, the LogBook's programmable channel/gain sequencer scans expansion channels at the same rate as its on-board channels. For this reason, the LogBook is well suited for test applications that require both high channel-count and high speed.

Triggering and Sampling
Along with simple triggering and continuous data logging, the LogBook can be configured to collect only the data you want. For sophisticated triggering, a calculated channel can be specified as the trigger or the stop event. A calculated channel can describe virtually any combination of channel conditions. For example, you can develop a calculated channel called TRIG and specify it as the trigger channel. If the channel's equation is TRIG = (Temp1 - Temp2) > 50.0, the data collection process will be triggered when the difference between the 2 temperature channels is above 50.0 degrees.

The LogBook is capable of continuous, gapless data collection or exception capturing using triggering.

If data collection is only desired under specific conditions, an appropriate trigger can be specified. When using a trigger to start the acquisition, a pre-trigger count can be supplied so that information just before

Channel-Scanning Flexibility
The LogBook offers a 512-location scan sequencer that allows you to select each channel and associated input amplifier gain at random. The sequencer circuitry circumvents a major limitation encountered with many plug-in data acquisition boards—a drastic reduction in the scan rate for external expansion channels. All LogBook channels, including the 256 potential expansion channels, are scanned at 100 kHz (10 µs/channel). In addition, the LogBooks' digital and counter inputs can be scanned using the same scan sequence employed for analog inputs, enabling the time correlation of acquired digital data to acquired analog data. The LogBook permits each scan group, which can contain up to 512 channel/gain combinations, to be repeated immediately or at programmable intervals of up to 10 hours. Within each scan group, consecutive channels are measured at a fixed 10 µs/channel rate.

LogBook Scanning Example
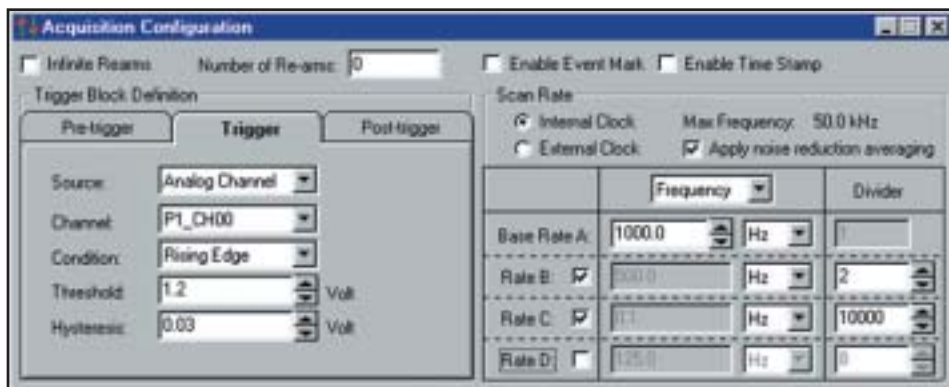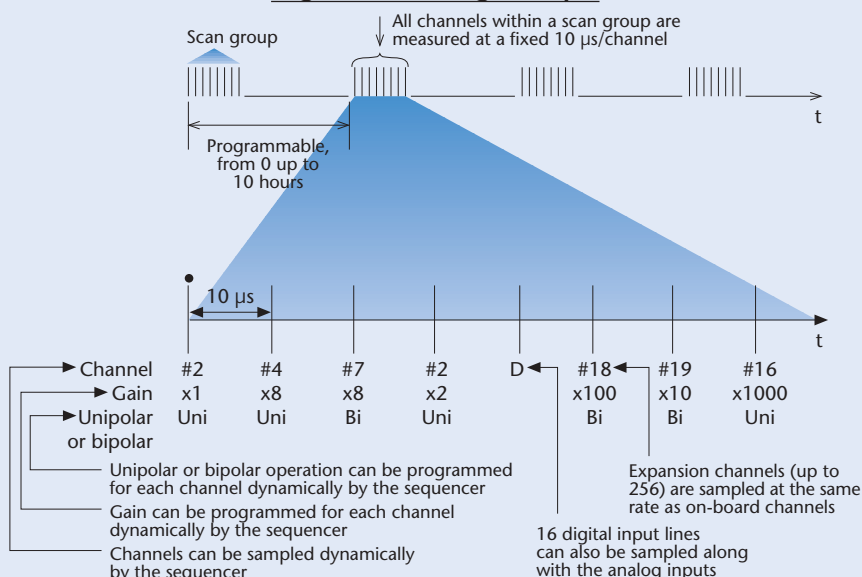
The acquisition configuration dialog box allows the selection of trigger and scanning specifics

the trigger can be collected and saved. The stop event definition specifies when the data collection activity should end. A wide variety of trigger sources and stop event choices provide a high degree of exception capture flexibility. For example, the LogBook can be configured to capture all data from all input channels for as long as the temperature difference between channels 1 and 2 is greater than 50 degrees.

The LogBook offers significant channel scanning flexibility to accommodate the wide variety of signals and sensors that can be measured. The channel scanning capability applies to all signals attached to the LogBook, including analog inputs, digital inputs, frequency inputs, and all signals attached to expansion and signal conditioning options.

The user first selects the fastest rate at which any channel will be measured. This can range from once per hour to 100 Ksamples/s. They can then select up to four lower sampling rates that can be assigned to any channel. These "sub-rates" are integer sub-multiples of the fastest rate. For example, if the fastest desired sample rate is 10 kHz, then four sub-rates of 10 kHz/n, where n is an integer, can be selected. This feature allows slower-changing signals, such as temperature from a thermocouple, to be sampled at a much lower rate, and thereby consume less storage space in the PC-Card memory.

Remote Operation Terminal

The optional LBK1 Remote Operation Terminal provides control of the LogBook system in the field when no PC is present

LogBook Block Diagram
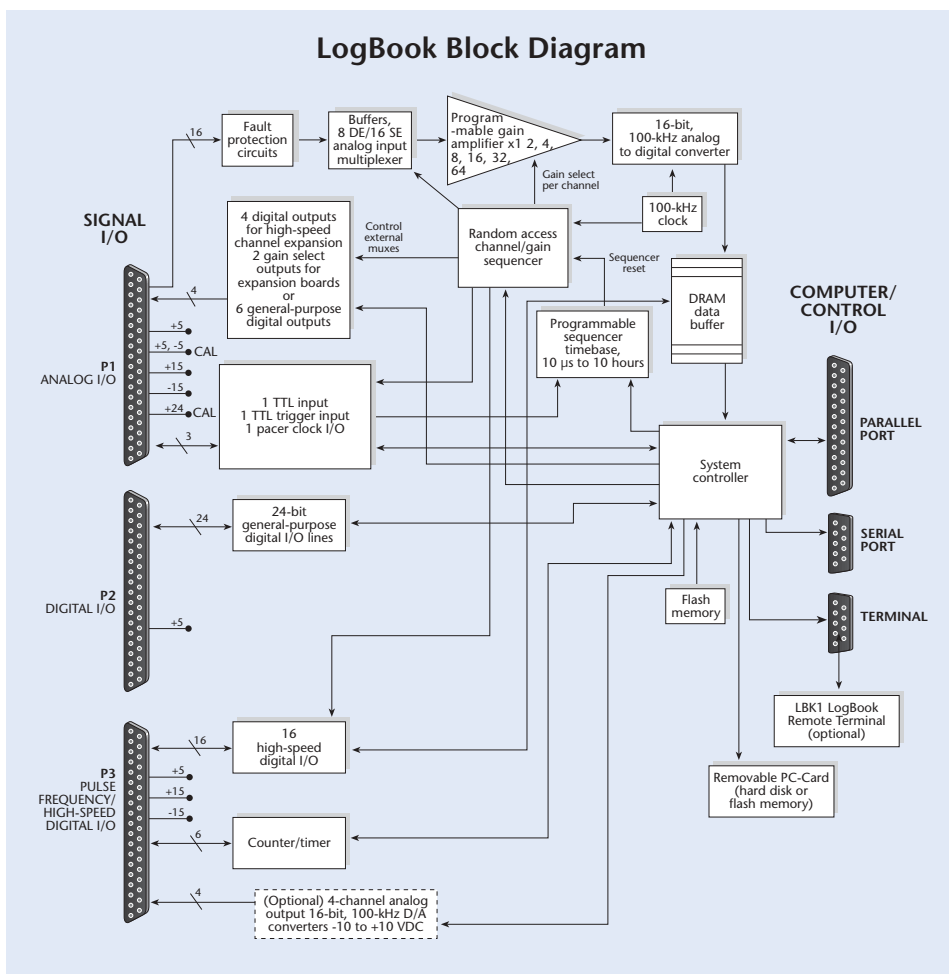
The optional LBK1™ Remote Operation Terminal connects directly to the LogBook, providing control of the LogBook without a computer. Without the terminal, the LogBook is immediately armed once power is applied and a programmed PC-Card is present. With the terminal connected, operation can be started and stopped with a push of a button. The terminal requires no external power connection.

The terminal connects to the LogBook via a standard 6-pin RJ11 to RJ11 modular telephone cable up to 100 feet long.

The rugged terminal provides many useful functions including the ability to:

- Inspect channel values
- Check acquisition and storage status
- Trigger the acquisition when "Manual Trigger" is the selected trigger source
- Manually mark events using the keyboard, tagging a location in the file
- Query acquisition settings and disk status
- Set terminal parameters

PC Data Acquisition Hardware

Module-to-Module Connection
for LogBook Systems

Assembling a LogBook™ system is easy with our new packaging and module-to-module connection system. Every LogBook and DBK™ option is housed in an all-metal enclosure, and is encased with rugged molded bumpers on all corners. The bumpers serve to protect the connectors as well as to attach multiple modules together. Within each bumper are tabs which can be rotated 90° to lock with other modules attached to either the top or bottom of each module. The end result is a rugged system that can be expanded to a virtually unlimited number of modules.

One handle is included with each LogBook, and additional handles can be purchased for in-vehicle applications where a handle on both sides of the system is desirable for securing the system to the vehicle. When multiple modules are attached in a system, the handle can be easily moved from the LogBook to any other module in the system.

For owners of existing LogBook and/or DBK systems, the new bumpers can be easily added to your existing hardware. Contact IOtech or your local IOtech representative for details.

An assembled system consisting of a LogBook/360 plus one DBK60 3-slot expansion option

Built-in connection tabs in every expansion module make assembling a system easy – above illustrates how a DBK84 thermocouple option would attach to a LogBook/300

An assembled system consisting of a LogBook/360 plus a DBK84 thermocouple option, plus a DBK85 voltage option

An assembled system consisting of a LogBook/300 pluse one DBK84 thermocouple option, plus one DBK85 voltage input option

LogBook/Modem™ Option
Modem Support for the LogBooks

Features
- **Allows modem communication with a remote LogBook virtually anywhere in the world**
- **Remotely query a LogBook for present channel values, acquisition status, and PC-Card status**
- **Remotely configure and download a new acquisition configuration, arm and/or trigger the LogBook system, and upload collected data**
- **Automatic modem initialization means the LogBook is always modem-ready**

The modem-support software option allows a modem-connected PC to communicate with a remote LogBook/300™ or LogBook/360™ stand-alone data acquisition system located virtually anywhere in the world. Using this option, any Hayes-compatible modem, either standard desktop or wireless, can communicate with the LogBook system via the system's existing serial port. When a LogBook system is attached to a wireless phone modem, users can remotely collect data from a LogBook in a moving car, train, boat, or other mobile test platform.

LogView supports standard desktop modems

Connect to mobile LogBook using a wireless modem
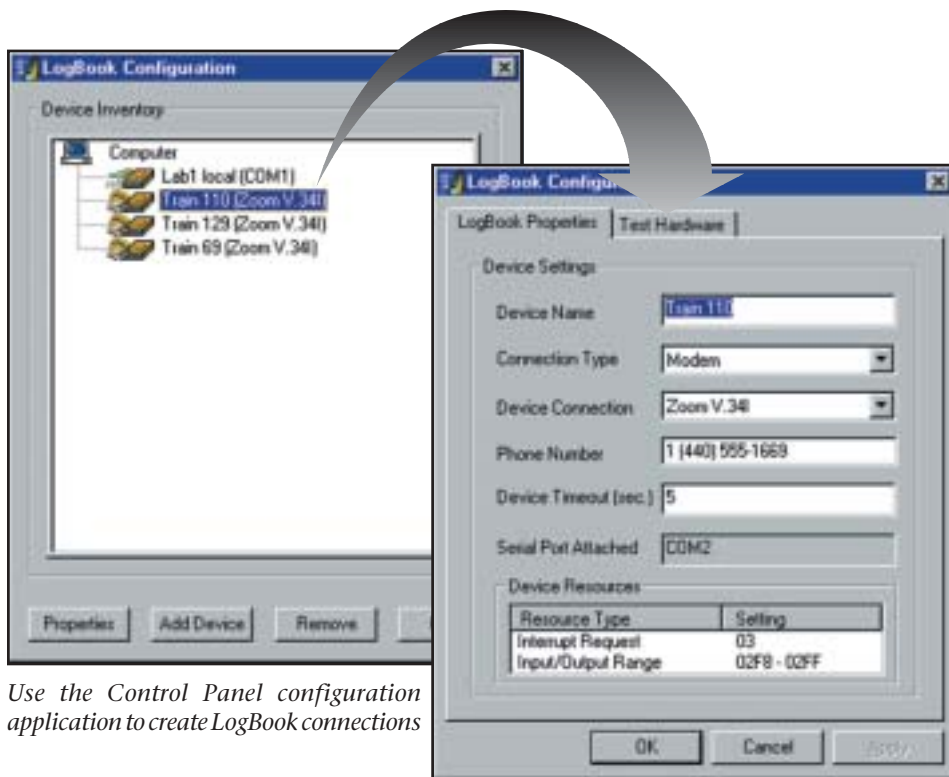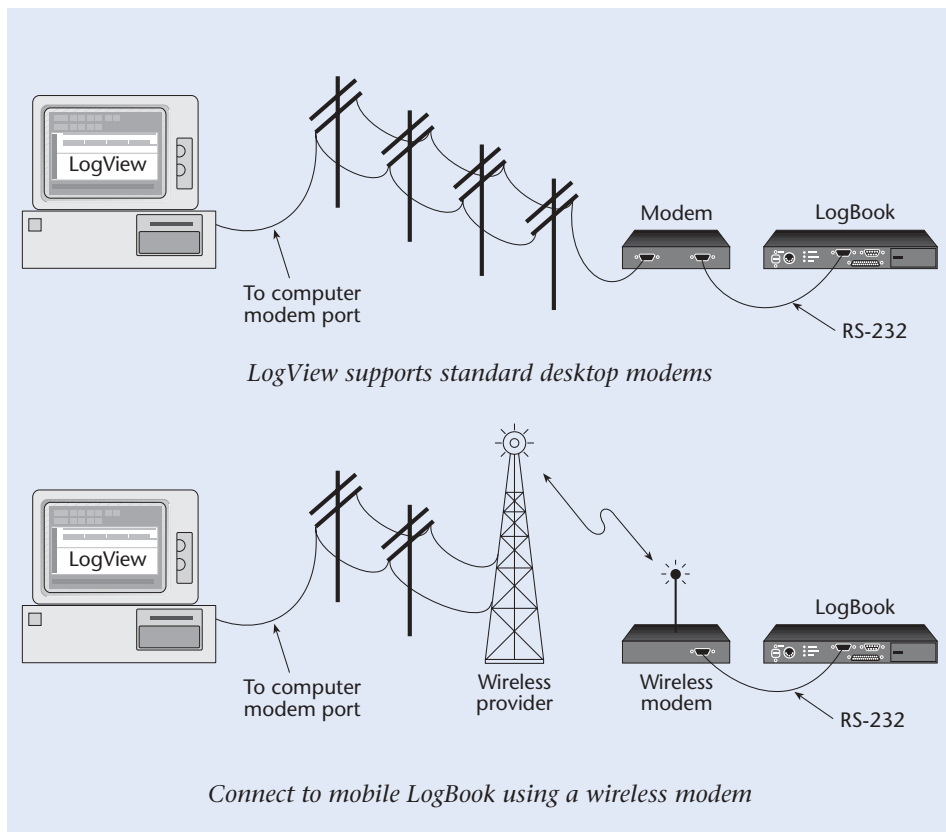
Use the Control Panel configuration application to create LogBook connections

## Easy Control Using LogView Software
LogView™ provides a Windows® control panel application used to configure the communication attributes of LogBooks in the field. A virtually unlimited number of connections can be described, each with its own communications attributes and user-assigned name. Along with the standard interface choices of serial and parallel port, the application also allows you to select a modem option and specify an associated telephone number of a remote LogBook.

While engaged in a session with a remote LogBook system, LogView software can query the present channel values, check the acquisition status, query the PC-Card status, configure and download a new acquisition configuration, arm and/or trigger the system, and upload collected data.
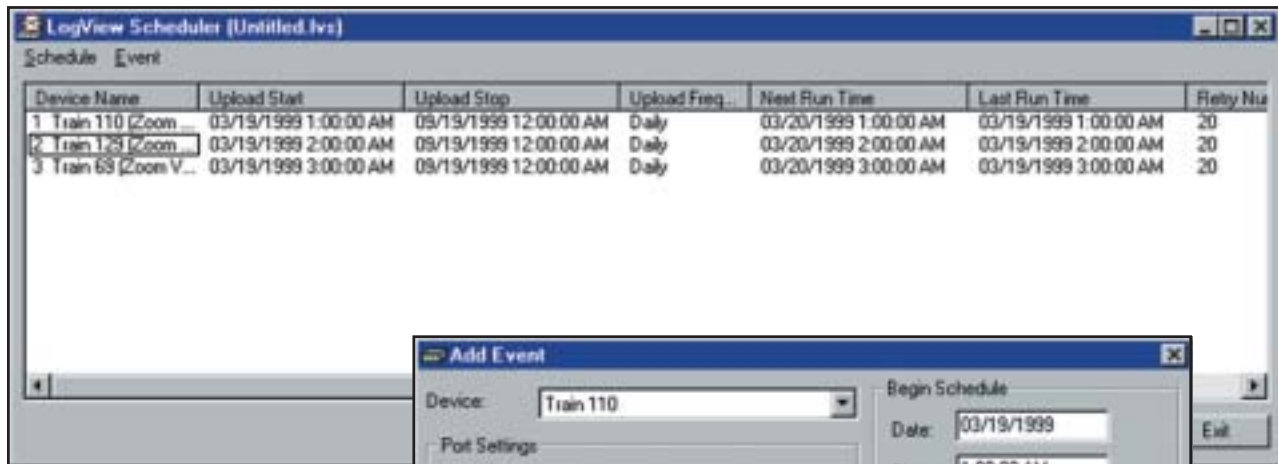
The Upload Scheduler automates the process of uploading data from one or many LogBooks

Upload events can execute once or periodically

At power-up, the LogBook issues the modem the necessary commands to prepare it to receive incoming calls. No operator interaction at the LogBook site is required to initialize the remote modem. If modem or LogBook power is interrupted, when power returns, the LogBook will re-initialize the modem automatically.

Upload Scheduler™

Included with the LogBook/Modem™ software is an application designed to automate the task of uploading data from one or several LogBook systems. The Upload Scheduler is an independent software application that allows the user to configure upload events on one or more LogBooks.

To avoid waiting for a lengthy upload to complete, the Upload Scheduler can be configured to perform the upload during unattended off-hours. For example, 3 upload events can be configured in the Upload Scheduler to upload data at different hours of the early morning. Especially for LogBook systems communicating at slow modem baud rates, the Upload Scheduler can save valuable time by performing unattended uploads.

In the above example, the Upload Scheduler automatically initiates a session with each LogBook at the specified time and uploads the available data. When the user arrives in the morning, all the data is immediately available for inspection on the PC's hard drive. A scheduled event can be configured to execute one time or periodically so that an upload can be performed on the specified LogBook every hour, day, week, or month, without operator intervention.

For applications that require continuous data collection, the Upload Scheduler can periodically upload the data to a local PC, making new space on the LogBook's PC-Card memory for more data. For a continuous acquisition, each upload will create a new file called a data segment. LogView software contains a utility to concatenate multiple segments into one, continuous file.

LogBook/GPS™ Option

## Global Positioning System (GPS) & Serial Instrument Support for the LogBook/360

Features

- **Allows the LogBook/360™ to record GPS and/or serial instrument data along with regular measurements**
- **Allows the LogBook/360 to record GPS longitude, latitude, altitude, fix quality, and UTC as independent data channels**
- **Collects and records data from any serial instrument that transmits ASCII data**
- **Easy channel configuration, without programming, via LogView™ Out-of-the-Box™ software.**

The LogBook/GPS software option adds GPS (Global Positioning System) and serial instrument data collection capability to the LogBook/360* data acquisition system.

When connected to a user-supplied GPS receiver, a LogBook/360 with the LogBook/GPS option can store latitude, longitude, and altitude coordinates along with the analog and digital data from the attached transducers. The LogBook/GPS option provides direct support for any GPS receiver that conforms to the NMEA 0183 protocol standard. No programming or string manipulation is required. The captured coordinates are recorded in units of degrees for latitude and longitude, and meters for altitude. In addition to the position coordinates, the quality of the fix can also be recorded showing the validity of the coordinates. If the GPS receiver looses its fix, it will be reflected in the Quality channel.

The LogBook/GPS option also enables data collection from any serial device (RS-232C) that transmits ASCII strings. This includes specialized instruments like navigational devices and weight scales. A virtually unlimited number of channels can be defined in LogView, each describing the criteria for selecting the string segment of interest within the ASCII sentence, and the instructions for converting it into a numeric or character value.
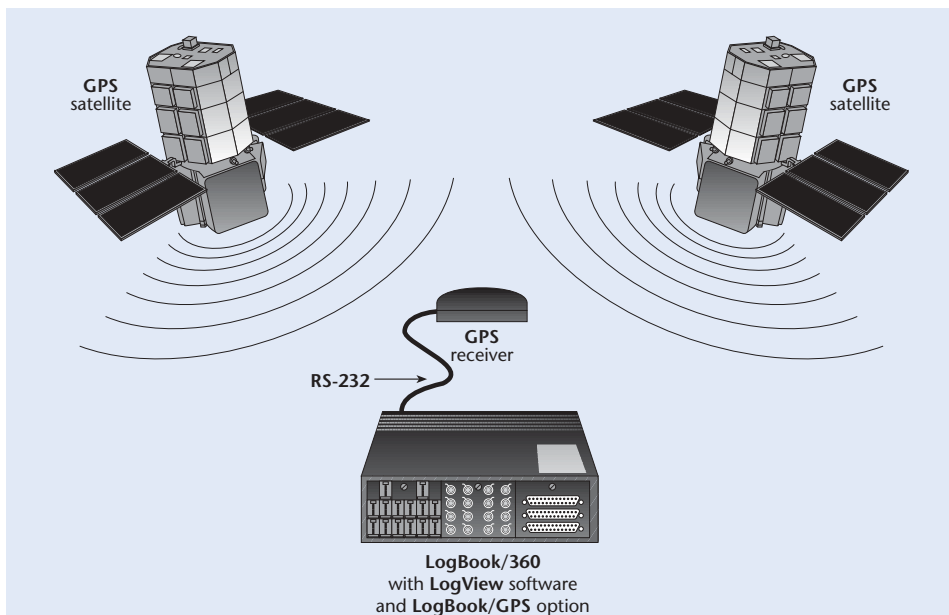
When connected to a GPS receiver, the LogBook/360 can correlate latitude, longitude, and altitude coordinates with transducer data

For GPS channels, simply select the desired GPS data element from the list

Each channel defines one data item that can be recorded at any combination of the LogBook's 4 timebases
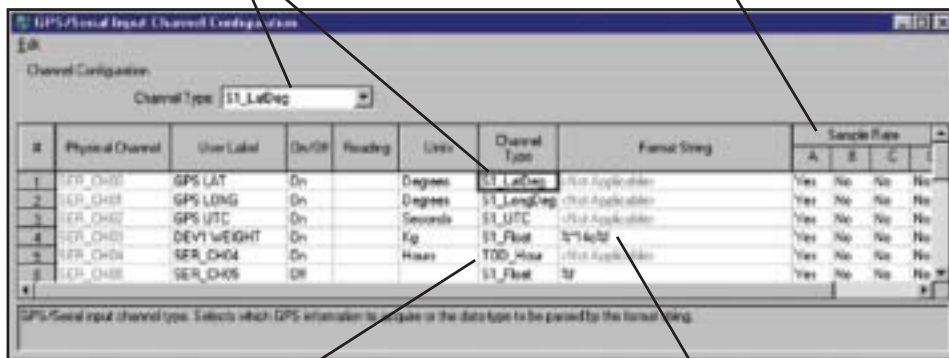
The LogBook/GPS option also allows time-of-day channels to be defined. These channels can be used in calculated channels to derive triggering equations based on channel values and time-of-day

The channel's format string allows any value to be extracted and converted from a serial instrument's ASCII string

GPS and serial instrument channels can be concurrently recorded with transducer and voltage channels at up to 4 unique timebases. The LogBook/360 provides (2) RS-232C serial input ports, to which, any combination of GPS and serial instruments can be attached.

This option does not include the GPS receiver itself. These devices are available from many sources including Garmin, Inc. and Magellan, Inc.

* Only the LogBook/360 has the necessary serial ports (2 RS-232 ports) to support this option

PC Data Acquisition Hardware

LogView™
Out-of-the-Box™ Software

## LogView™ Software Simplifies Setup

LogView uses a series of spreadsheets to allow simple setup and display of all channel parameters. No auxiliary dialog boxes, configurable block diagrams, or programming methodologies are employed. Simply select the appropriate cell, choose the desired setting from the dropdown list, and the parameter is set. To apply the same setting to multiple channels, select a block of cells within a column and use the spreadsheet's fill down feature.

After the channels and the acquisition parameters have been configured, download the configuration to a PC-Card in one of your PC's sockets, or send the configuration directly to the LogBook via the serial port, parallel port, or modem. When a PC-Card is used to transport the acquisition configuration to a remote LogBook, inserting the card into its socket signals the LogBook/300 and LogBook/360 to read and execute the new acquisition configuration.

Once the channel configuration parameters have been downloaded to the LogBook, LogView can display the channel values of a connected LogBook in real time, both before and during an acquisition. LogView conveniently displays channel values in the channel configuration spreadsheet or in real-time bargraphs, analog meters, and digital indicators.

Spreadsheets Make It Simple

All of the parameters for the analog I/O, digital I/O, counter/timers, and calculated channels can be viewed and adjusted through LogView's unique spreadsheet interface. The spreadsheets make it possible to see and adjust the parameters of many channels concurrently, unlike typical data logging software that requires channels to be set up one at a time through auxiliary dialog boxes.
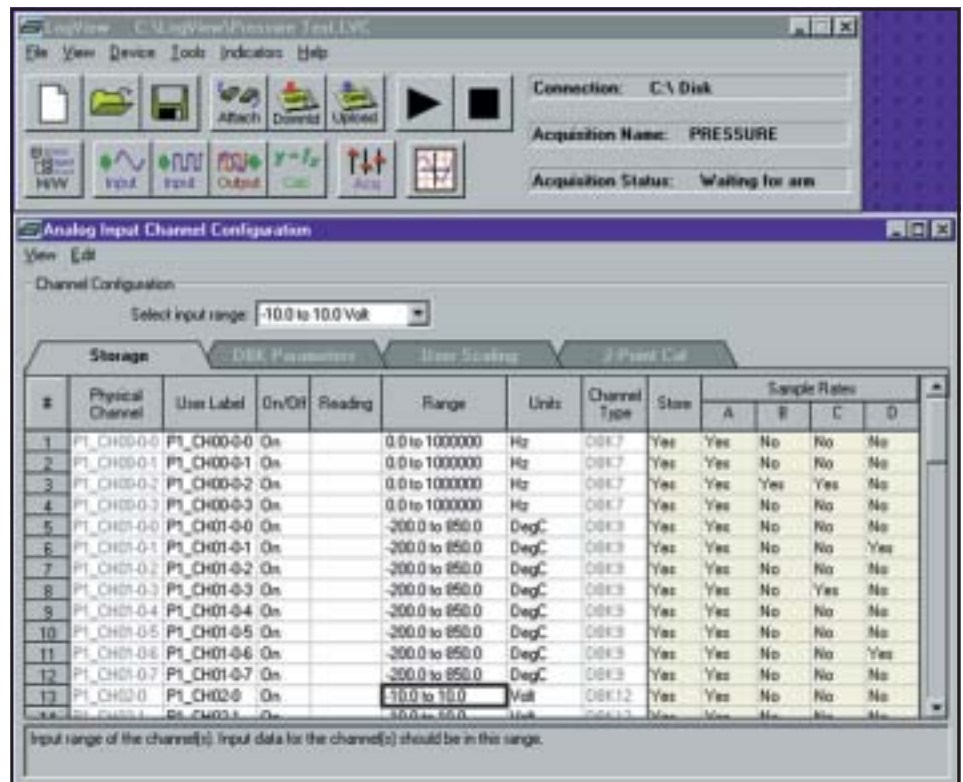
LogView's analog input spreadsheet makes viewing and adjusting many channels easy

Channel parameters are independent of one another. Channel parameters include:

- Turning the channel on or off
- Programmable input range for analog input channels
- Scaling and offset for engineering units conversion
- Any or all of four timebases to log the channel
- The equation that defines the calculated channel
- The physical output channel to direct a calculated or input channel
- Special parameters specific to certain signal conditioning modules

All inputs including analog, digital, frequency and calculated channels are collected synchronously so that data from widely dissimilar inputs can be correlated in time.

Within the analog spreadsheet, an offset adjustment or 2-point calibration can be performed for each channel. This function compensates for inaccuracies in signal conditioning circuitry and sensors.

LogView provides a file concatenate feature for combining separately uploaded data segments into one file.

LogView™
Out-of-the-Box™ Software

Analog and Digital Outputs

The LogBook's analog and digital outputs allow it to control external devices and/or stimulate the unit-under-test. Using LogView's calculated channels, equations can be derived that can be used to stimulate digital outputs for use as alarms or for on/off control. For example, the equation DIG1 = (CH1 - CH2) < 20 turns on digital output 1 if the difference between channels 1 and 2 is less than 20.

The system's optional four 16-bit analog outputs can also be used for controlling or stimulating external devices. The values of the analog output channels can be calculated using algebraic functions of the analog input channel values.
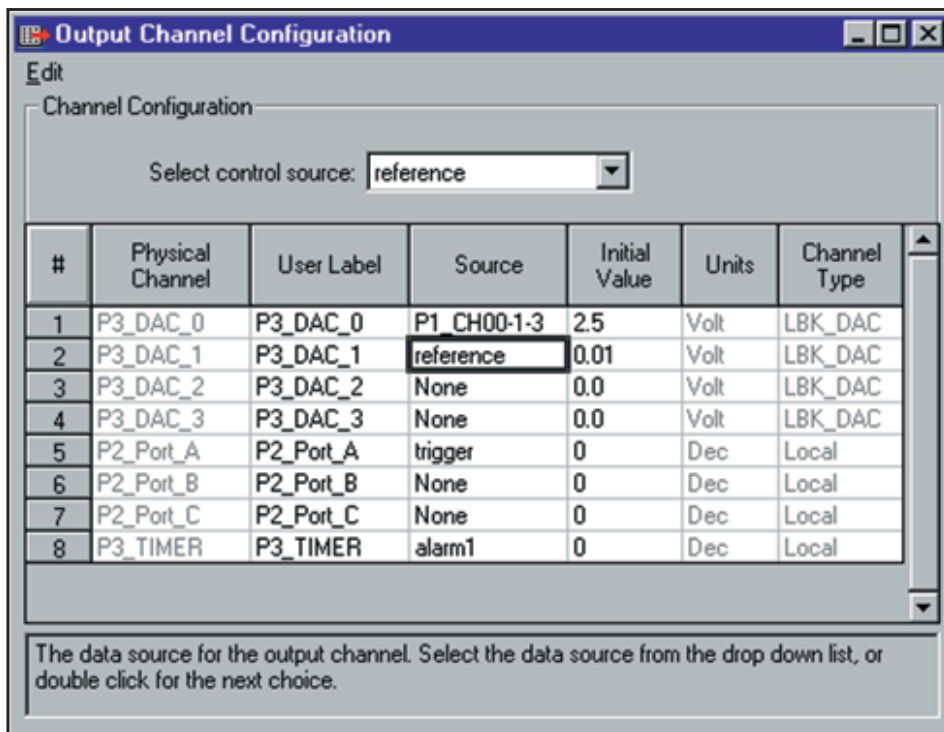
Output values are easily computed using calculated channels

Data Formats and Data Files*

Data collected with the LogBook can be uploaded to your PC's hard disk in any or all of several data formats for post acquisition analysis. Some of the available file formats include ASCII Text, Snap-Master™, DASYLab®, DADiSP™, MATLAB®, DIAdem, .WAV, UFF58A, and UFF58B, which are compatible with virtually all post acquisition analysis software. LogView creates the necessary headers for each data format so that the post acquisition analysis software can use the channel labels, the acquisition timebase information, and other necessary parameters.
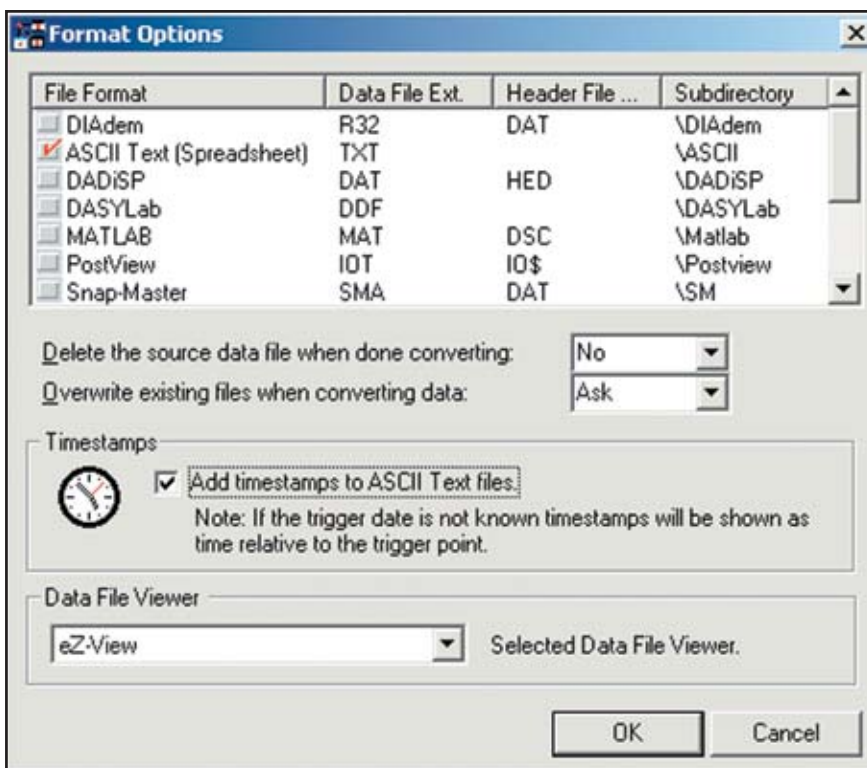
LogView can convert collected data to several file formats

* New formats are continuously being developed, contact factory for availability

LogView™
Out-of-the-Box™ Software

Auxiliary Real-Time Indicators

Along with displaying channel data from an attached LogBook in real time in the setup spreadsheets, LogView also provides real-time indicators. These indicators provide a means of monitoring the real-time channel values so that signals can be verified. Each indicator provides a high degree of setup flexibility to customize your display.
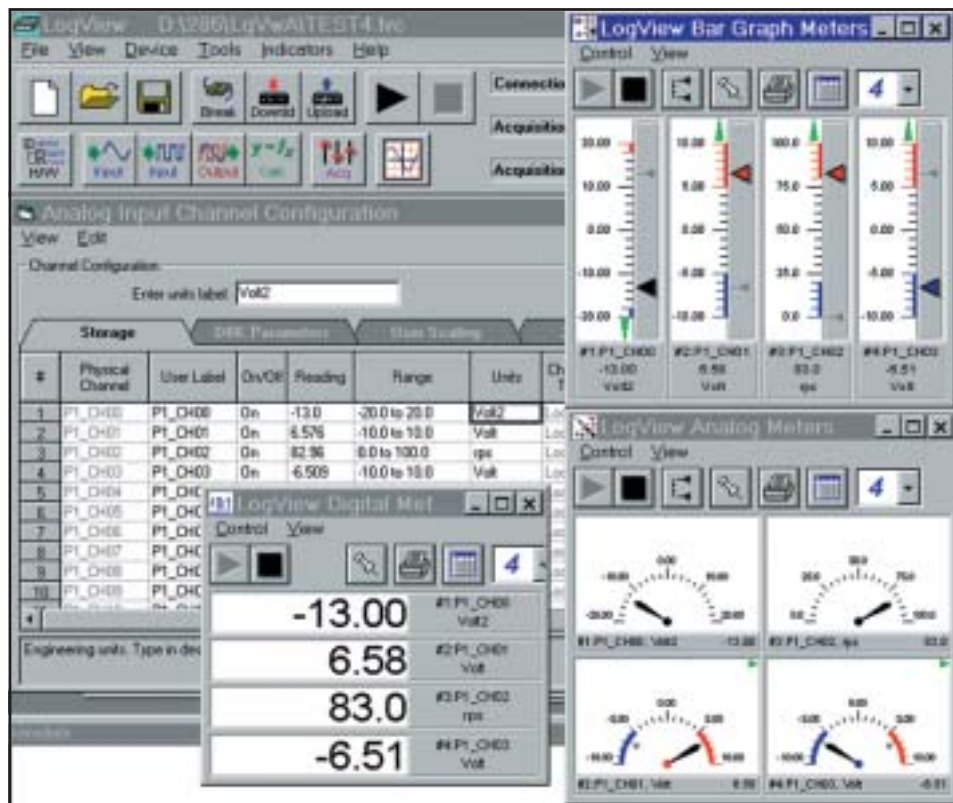

Real-time indicators provide channel feedback from an attached LogBook

eZ-PostView™

The basic eZ-PostView™ system that is included free with the *Out-of-the-Box*™ application software is powerful, yet easy-to-use. eZ-PostView's interactive graphics make it possible to quickly inspect enormous data files at fast speeds. Interactive zooming and cursors allow the user to view even the smallest details of collected data.

As needs evolve, the basic system can be enhanced by adding optional software modules. When needs exceed the capabilities of the free eZ-PostView, add-on eZ-PostView options are available that provide additional data viewing and management tools along with data analysis capabilities. Also, see eZ-TimeView™ and eZ-FrequencyView™.
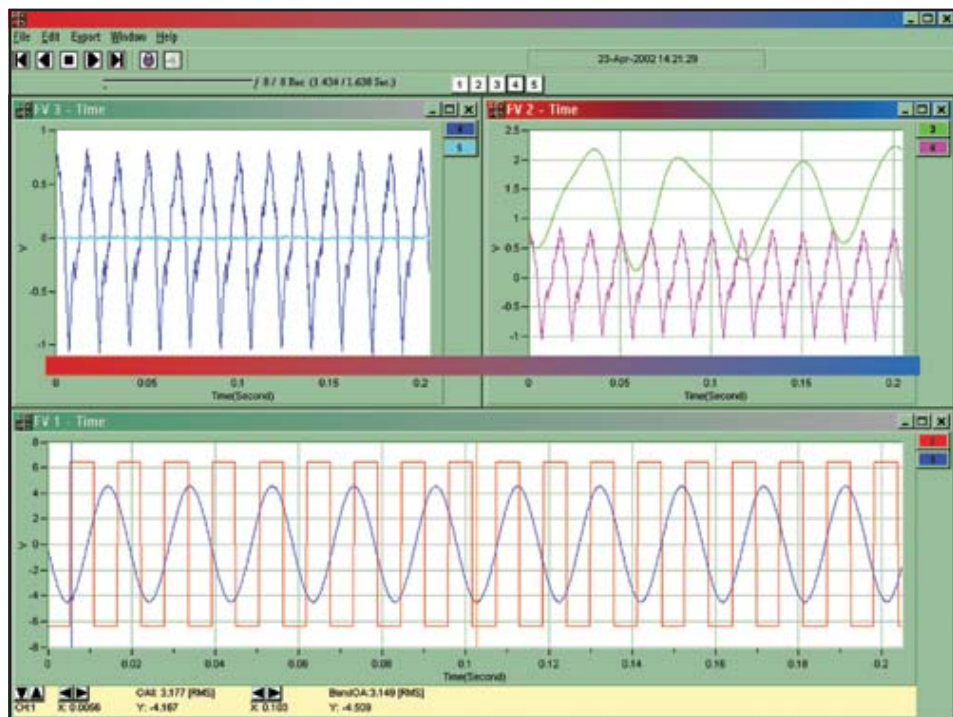
eZ-PostView for post-acquisition viewing

LogBooks™
Specifications

Specifications

General
Power Consumption: 0.9A @ 15VDC
Operating Temperature: -40˚ to +60˚C
Storage Temperature: -40˚ to 80˚C
Shock and Vibration: MIL-STD-810E
Humidity: 0 to 95% RH, non-condensing
Dimensions
  /300: 280 mm W x 216 mm D x 44 mm H
    (11" x 8.5" x 1.75")
  /360: 280 mm W x 356 mm D x 89 mm H
    (11" x 14" x 3.5")
Weight
  /300: 1.8 kg (4 lbs)
  /360: 4.1 kg (9 lbs)
PC-Card Memory: Standard ATA Type

A/D Specifications
Type: Successive approximation
Resolution: 16 bit
Conversion Time: 10 µs
Monotonicity: No missing codes
Linearity: ±1 bit

Analog Inputs
Channels: 16 single-ended, 8 differential, expandable to 256 differential; single-ended or differential operation is software programmable
Connector: DB37 male, P1
Resolution: 16 bits
Accuracy: ±0.01% FS
Ranges
  Unipolar/bipolar operation is switch selectable
      Unipolar: 0 to +20V, 0 to +10V,
                0 to +5V, 0 to +2.5V, 0 to +1.25V,
                0 to +0.625V, 0 to +0.3125V
      Bipolar: ±10V, ±5V, ±2.5V, ±1.25V,
                ±0.625V, ±0.3125V, ±0.1563V
Maximum Overvoltage: -35V to +45V
Input Current
  Differential: 0.4 µA typ
                0.7 µA max
  Single-Ended: 0.2 µA typ
                0.35 µA max
Input Impedance
  Single-Ended: 5M Ohm in parallel with 30 pF
  Differential: 10M Ohm in parallel with 20 pF
Gain Temp. Coefficient: ±30 ppm/˚C max
Offset Temp. Coefficient: ±10 ppm/˚C max

Triggering
Analog Trigger
  Programmable Level Range: Full range of specified channels
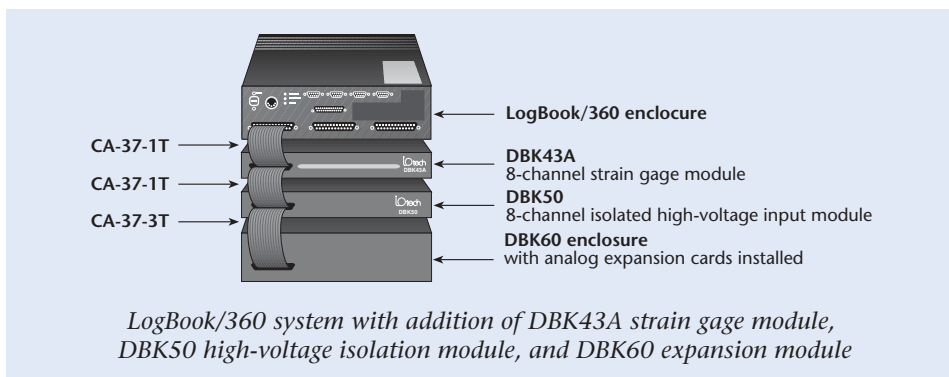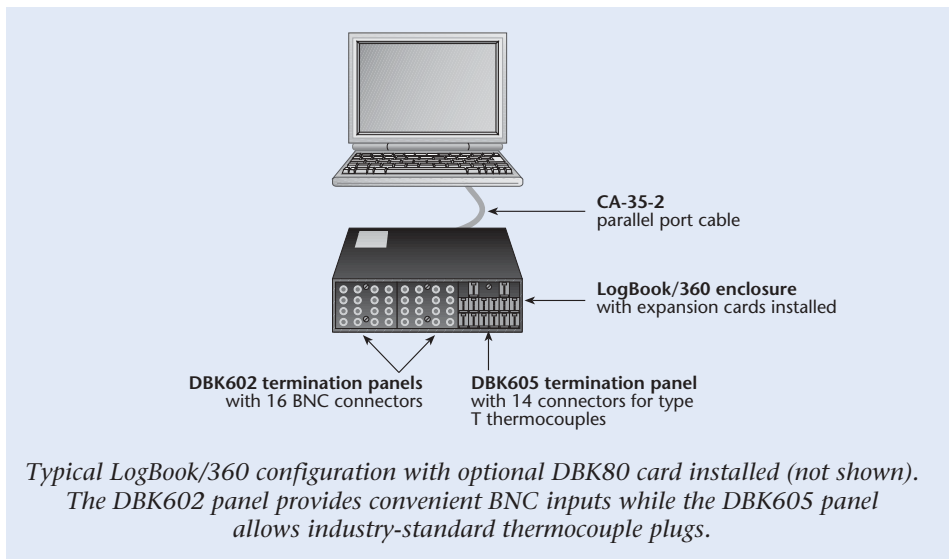**Digital Trigger**
  Logic Level Range: 0.8V low/2.2V high
  Trigger to A/D Latency: 10 µs max
Software Trigger
  Trigger to A/D Latency: Dependent on PC

LogBook System Examples

Typical LogBook/360 configuration with optional DBK80 card installed (not shown). The DBK602 panel provides convenient BNC inputs while the DBK605 panel allows industry-standard thermocouple plugs.

LogBook/360 system with addition of DBK43A strain gage module, DBK50 high-voltage isolation module, and DBK60 expansion module

Sequencer
Randomly programmable for gain
Channel-to-Channel Rate: 10 µs/channel, fixed
Maximum Repeat Rate: 100 kHz
Expansion Channel Sample Rate: Same as on-board channels, 10 µs/channel

Analog Output Option (Internal)
Channels: 4
Connector: DB37 male, P3
Resolution: 16 bit
Voltage Range: ±10V
Maximum Output Current: 10 mA

General Purpose Digital I/O
Channels: 24 I/O channels, expandable up to 192
Connector: DB37 male, P2
Output Voltage Levels
  Minimum "1" Voltage: 3.0 @ 2.5 mA sourcing
  Maximum "0" Voltage: 0.4 @ 2.5 mA sinking
Output Current
  Maximum Source Current: 2.5 mA
  Maximum Sink Current: -2.5 mA
Input Voltage Levels
  Minimum Required "1" Voltage Level: 2V
  Maximum Allowed "0" Voltage Level: 0.8V
Output Float Leakage Current: 10 µA

LogBooks™
Specifications & Ordering Information

Pulse Counters

Channels: 4
16 bits per channel
Connector: DB37 male, P3
Maximum Pulse Count: 16-bit binary
Maximum Input Rate: 1 MHz
Input Voltage: -15V to +15V
Threshold Voltage
Low: 0.8V typ, 0.5V min
High: 1.6V typ, 2.1V max
Hysteresis: 400 mV min
Pulse Width
Low or High: 520 ns min
Input Impedence: 27K Ohm pull-up to +5V in parallel with 50 pF

Frequency/Pulse Generator

Channels: Two, 16 bits
Connector: DB37 male, P3
Frequency/Pulse Generating Mode: Input frequency divided by 1 to 65,535
Input Low Voltage: 0.8V max
Input High Voltage: 2V min
Input Low Current: -10 µA max
Input High Current: 10 µA max
Output High Voltage: 2.4V min @ -8 mA
Output Low Voltage: 0.5V max @ 8 mA
Supply Power Range: 10 to 45 VDC (90 to 240V AC adapter included)

Modem Support

Supported Modems: Hayes-compatible
Maximum Baud Rate: 115K baud

GPS Support
(LogBook/360 only)

Supported Protocol: NMEA 0183
Electrical: RS-232
Connection: DB9 female connector
Baud Rate: 4800 baud

Ordering Information

Description	Part No.
Data acquisition system including AC adapter; LogView™ and eZ-PostView™ software	LogBook/300
Data acquisition system with signal conditioning bay including serial ports; AC adapter; LogView and eZ-PostView software	LogBook/360

Accessories

PC-Card Memory (required)	
128 MB solid state memory	MEMCARD-6
1 GB rotating hard drive memory	MEMCARD-10
Hand-held terminal with 2 ft. cable to LogBook (no external power required)	LBK1
Internal 4-channel analog output module	LBK2
Panel for fastening LBK1 to top of LogBook/300 and LogBook/360	Mount1
Internal DRAM 16 MB internal memory option (factory installed)	LBKMEM1
Interface RS-422 and RS-485 interfaces added to existing RS-232 and parallel ports	LBK/COM/422/485
Modem support software and Upload Scheduler application (does not include modem)	LogBook/Modem
GPS support software for LogBook/360	LogBook/GPS

Termination Panels
(LogBook/360 only)

Blank termination panel	DBK601
16-connector BNC termination panel	DBK602
16-connector red safety-jack termination panel and wiring kit	DBK603
16-connector (8 pairs) red and black safety-jack termination panel and wiring kit	DBK604
14-connector type J thermocouple panel and wiring kit (male thermocouple connector sold separately)	DBK605-J
14-connector type K thermocouple panel and wiring kit (male thermocouple connector sold separately)	DBK605-K
14-connector type T thermocouple panel and wiring kit (male thermocouple connector sold separately)	DBK605-T
48-connector removable-block screw-terminal panel and wiring kit	DBK606
Slotted termination panel with adjustable clamp	DBK607
Three DB37 female connector termination panel and wiring kit	DBK608

Male Connectors for Subminiature TC Jacks

Description	Part No.
Type J male connector	CN-144-JM
Type K male connector	CN-144-KM
Type T male connector	CN-144-TM

Cables

Description	Part No.
DB25 male to DB25 female parallel cable, 2 ft.	CA-35-2
DB25 male to DB25 female parallel cable, 6 ft.	CA-35-6
Expansion cable from LogBook to DBK expansion products,	
2.5 in expansion cable	CA-37-1T
4.5 in expansion cable	CA-37-3T
5.5 in expansion cable	CA-37-4T
11.5 in expansion cable	CA-37-8T
Null-modem cable, 6 ft.	CA-47
Ribbon cable with female DB37 connector, provides convenient wiring to LogBook P1, P2, and P3 ports without requiring soldering to DB37 connectors, 6 ft.	CA-113
5-pin male locking DIN to automobile cigarette lighter power cable, 8 ft.	CA-171
Retractable cable from LBK1 to LogBook/300 and LogBook/360, 6 ft.	CA-173
Shielded cable for CE compliance, from LBK1 to LogBook/300, 3 ft.	CA-174

For complete information on accessories and cables, visit
www.iotech.com/acc

Related Products

Expansion Hardware