////DASH 8Xe®

////DATA ACQUISITION RECORDER

FEATURING:

- 8 channels of modular inputs for any type of signal
- Record direct to hard drive at 200 kHz sample rate per channel
- Optional 4-channel, 5 MHz scope card for a total of 12 channels of acquisition
- 15-inch touch-screen for data viewing, review and analysis
- GBit Ethernet and USB 2.0

IDEAL FOR:

- Drive system troubleshooting
- Power system monitoring & analysis
- Process sequencing & timing
- Automotive testing
  and more...

Ai ® **Astro-Med,Inc**®

TEST & MEASUREMENT PRODUCT GROUP

Measurement has never been this easy

THE DASH 8Xe
Measurement has never been this easy

THE DASH 8Xe IS THE LATEST INNOVATION IN DATA ACQUISITION AND RECORDING FROM ASTRO-MED. ITS COMPACT, RUGGED DESIGN MAKES IT IDEALLY SUITED FOR USE IN METAL MILLS, PAPER MILLS AND OTHER HARSH ENVIRONMENTS. WITH 8 CHANNELS OF MODULAR INPUTS AND FOUR ADDITIONAL CHANNELS OF SCOPE RECORDING, THE DASH 8Xe IS SO VERSATILE THAT ONCE YOU USE IT, YOU'LL WONDER WHY YOU USED TO CARRY AROUND SO MUCH OTHER TEST EQUIPMENT! A DEDICATED 73 GBYTE HARD DRIVE FOR DATA CAPTURE AND INTEGRAL ETHERNET INTERFACE MAKE IT EASIER THAN EVER TO CAPTURE DATA AND UPLOAD IT TO YOUR PC FOR DATA ANALYSIS.

1 Modular high performance inputs
The Dash 8Xe is designed for direct input from a wide variety of sensors and signals, with selectable input modules for differential voltage, high voltage, DC bridge, thermocouples, RTDs, ICP® transducers and more. With individual 16-bit A/D converters sampling each channel at 200,000 samples per second, you are assured of high accuracy, high resolution recording. Programmable, digital filtering allows you to filter out noise and other unwanted signals so you will only see data that is important to you.

2 Triggered data capture and high speed scope recording in one system
If you are interested in long-term trend recording, traditional data capture, or high speed oscilloscope recording, the Dash 8Xe has it all. All eight signals can be captured to a dedicated 73 Gbyte hard drive so you'll never have to worry about running out of memory. Sample rates are selectable from one sample per minute to 200,000 samples per second per channel, allowing you to maximize memory and eliminate unneeded data points. For high speed recording, the Dash 8Xe offers 4 additional channels of oscilloscope recording with sample rates up to 5 MHz per channel.

3 Real-time data viewing with color, touchscreen display
The 15-inch color display of the Dash 8Xe lets you view all of your signals as they occur, allowing you to make important decisions when you need to – in real-time. From a scrolling display of discrete channels to overlapped waveforms or numeric datalogger, the Dash 8Xe gives you the information you need in the format that you want. The Dash 8Xe's large color display makes it easy to view multiple data windows on one screen. With its intuitive touchscreen interface, you'll be up and running in no time.
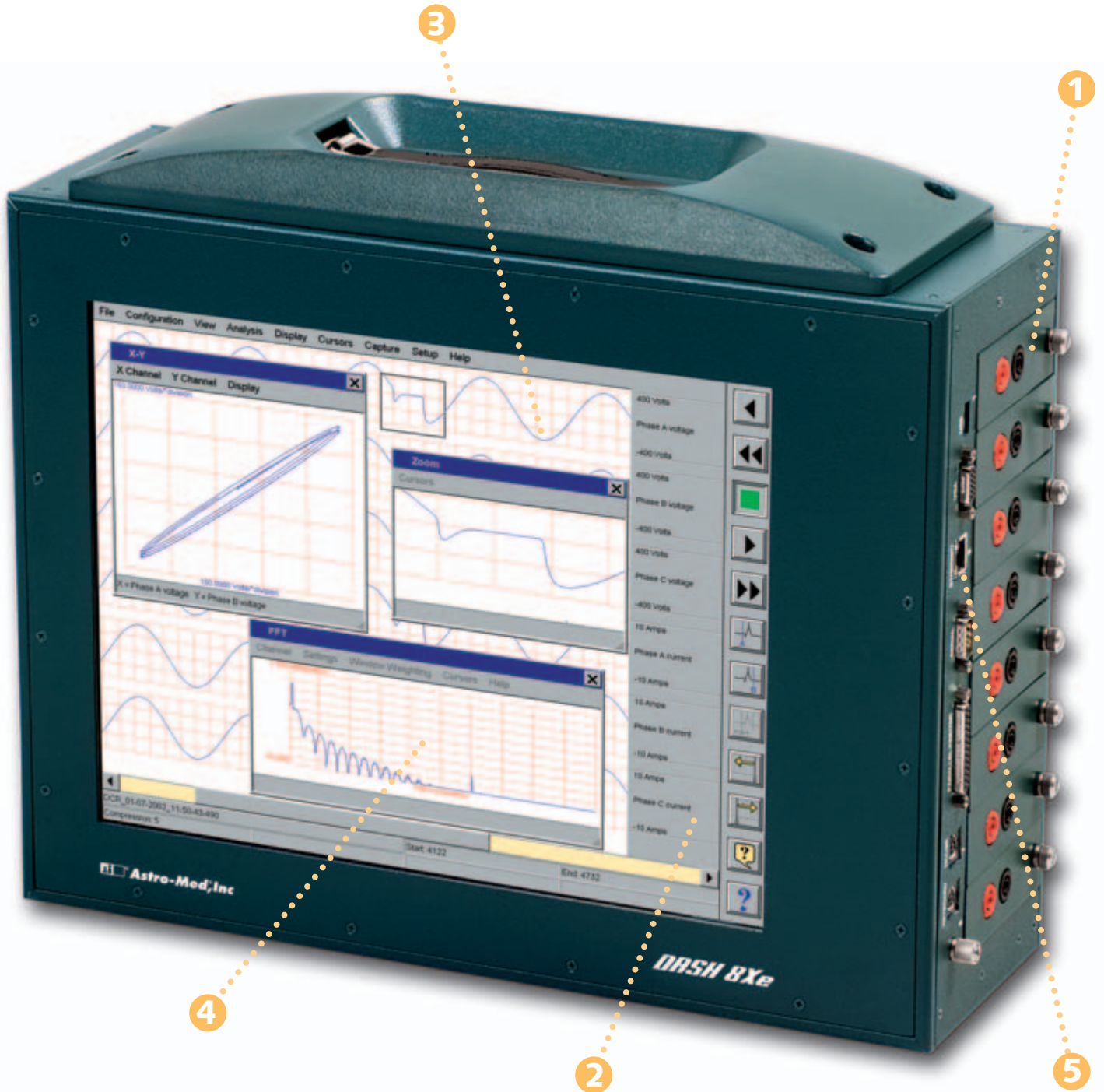
4 Advanced data analysis
From basic data review to advanced data analysis, the Dash 8Xe has it all. Captured data can be reviewed on the screen, while cursors make timing and amplitude measurements a snap. For even more precise measurements, use the Dash 8Xe's integral zoom and filter windows. Add our optional FlexPro™ data analysis and presentation software, and you have a complete data acquisition and analysis system in one small box.

5 Use your own PC to setup the Dash 8Xe and upload data for review
The Dash 8Xe has an integral 10/100/1000BaseT Ethernet interface to make importing data to your PC as easy as ever. Simply connect your Dash 8Xe to a network and upload some or all of your data files. Our PC-based AstroVIEW X and Dash 8Xe Offline programs allow you to setup your recorder and upload data files to your PC. For applications requiring transportable media, the Dash 8Xe's USB port opens up a world of possibilities. Connect an external CD-RW or an external DiskOnKey® storage device, and archive hundreds of Mbytes of data at once.

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DASH 8Xe WITH CHART RECORDER

Attach the optional 8.5-inch wide thermal array strip chart recorder to the Dash 8Xe, and you have a portable chart recorder and data acquisition system in one small package. The chart recorder can print both real-time and post capture data – perfect for trend recording or printing just what is important to you.
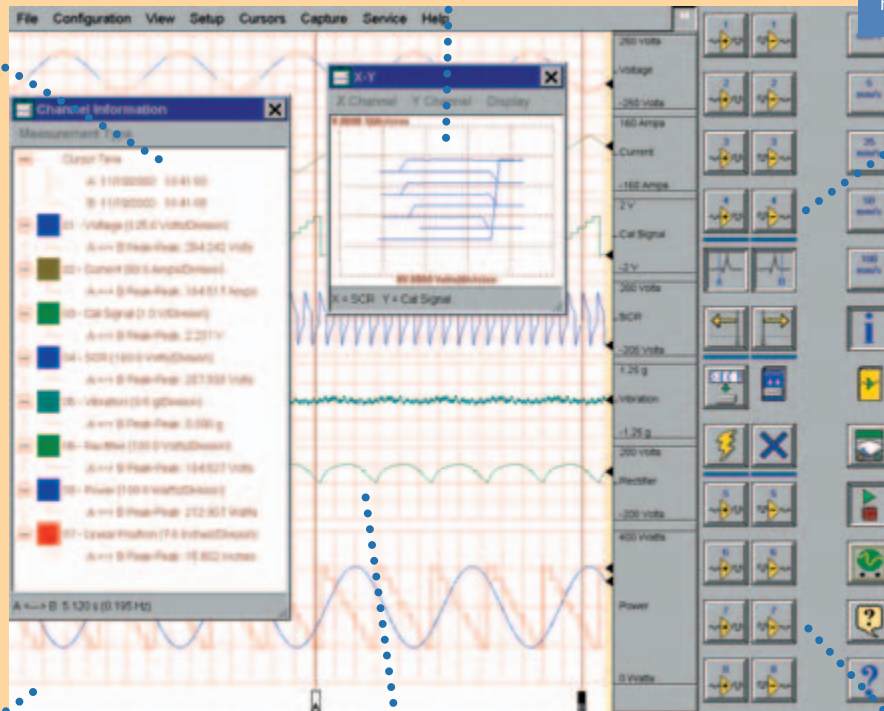
Channel Information: Drop down cursors, and the Dash 8Xe will make your measurements for you. Choose from average, min/max, peak-peak, slope or RMS measurements.

X-Y Plot: Provides a real-time graphical display of any two inputs. It is ideal for measuring phase relations or phase angles.

Customizable user interface: An intuitive, graphical user interface makes it easy to set up your Dash 8Xe and capture data. The interface is completely customizable, allowing you to design and save control panels to meet individual test needs.

Custom grid layout: View up to eight channels on discrete, overlapped, or custom grids. Each channel can be color coded for easy identification.

Real-time monitor: Provides real-time scrolling display of waveform data, with pen simulators. Scroll speeds can be varied from 1 mm/min up to 100 mm/sec.

Touch-screen interface: A touch-screen interface makes data recording quick and easy. From changing settings to making data measurements, it's as simple as pointing your finger and clicking!
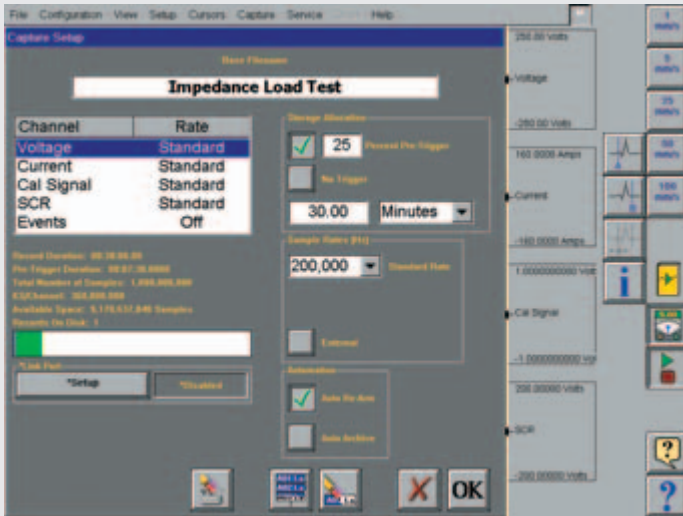
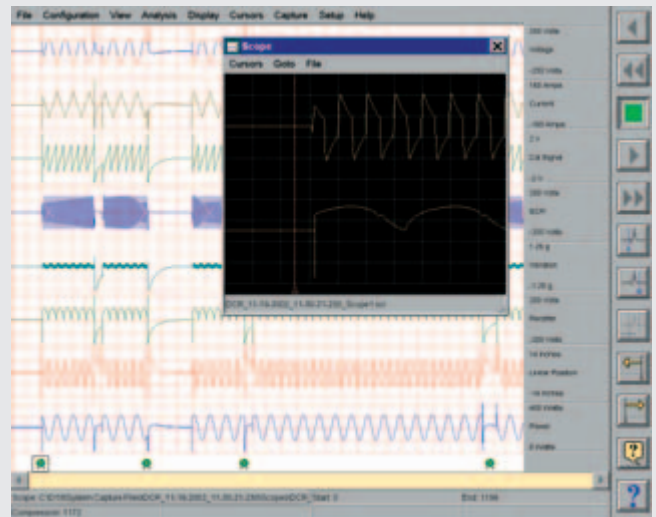*Connect an **external monitor** to your Dash 8Xe and view data remotely.*

***Linkability** - Up to 8 Dash 8Xe systems can be linked together for synchronous recording of up to 64 channels!*
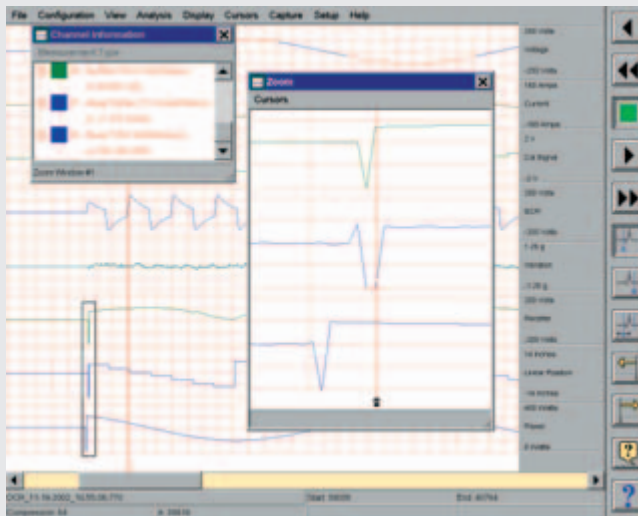
THE DASH 8XE IS A POWERFUL DATA ACQUISITION AND RECORDING SYSTEM. A DEDICATED 73 GBYTE HARD DRIVE LETS YOU CAPTURE HOURS, DAYS OR EVEN YEARS WORTH OF DATA. SAMPLE RATES CAN BE VARIED FROM ONE SAMPLE PER MINUTE TO 200,000 SAMPLES PER SECOND PER CHANNEL, PROVIDING CAPTURE RATES FOR ANY APPLICATION YOU HAVE. POWERFUL TRIGGERING UTILITIES LET YOU CAPTURE DATA BASED ON TRANSIENTS, DROPOUTS OR OTHER ANOMALIES. FOR HIGHER FREQUENCY SIGNALS, THE DASH 8XE HAS AN OPTIONAL SCOPE CARD THAT ACQUIRES AN ADDITIONAL FOUR CHANNELS OF DATA AT SAMPLE RATES UP TO 5 MHZ PER CHANNEL.

▲ **Simple Capture Setup:** Select pre-trigger percentage, sample rates and capture duration, and let the Dash 8Xe go to work for you. A visual "gas gauge" indicator lets you know exactly how much hard drive space you are using!

▲ **Embedded Scope Capture:** Data acquisition can be performed in the background without interrupting real-time recording. Internal scope captures and optional scope card captures can be embedded in standard data captures, giving you trend recording and triggered captures in one file![1]

◄ **Data Review with Zoom:** Once data has been captured, the Dash 8Xe makes it easier than ever to review large amounts of data. View an entire capture on one screen, or use the Dash 8Xe's controls to scroll forward and backward through your data. If you see data of interest, you can select a zoom window for even more detail, and use on-screen cursors to give you precise measurements.

CAPTURE MINUTES, HOURS, WEEKS OR EVEN YEARS WORTH OF DATA! THE DASH 8XE HAS A DEDICATED 73 GBYTE HARD DRIVE FOR CAPTURING DATA – LARGE ENOUGH TO HANDLE ALL YOUR NEEDS. WITH THE ABILITY TO VARY SAMPLE RATES FROM ONE SAMPLE PER MINUTE TO 200,000 SAMPLES PER SECOND, AND A MAXIMUM OF 3,000 RECORDS ON THE HARD DRIVE, THE DASH 8XE IS VERSATILE ENOUGH FOR ALL YOUR DATA ACQUISITION NEEDS.

The following examples illustrate the amount of data that can be captured on the Dash 8Xe for 8 channels and 8 events at various sample rates:[2]
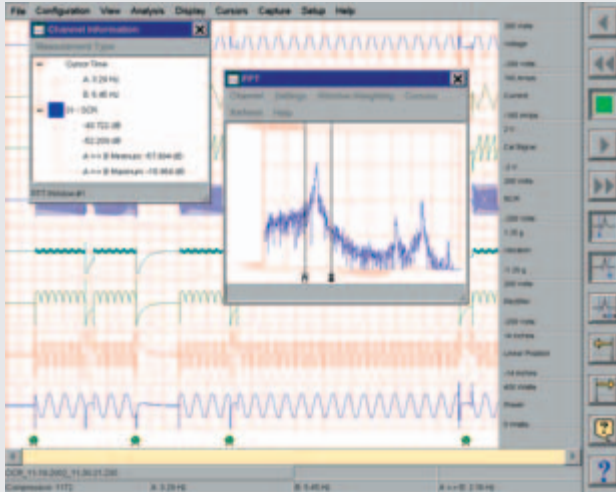
Sample rate	Total capture time
200 kSamples per second	5.76 hours
5 kSamples per second	222 hours
1 sample per minute	7,608 years

[1] Under some conditions, triggered scope captures and scope captures larger than 16 kSamples may be ignored.
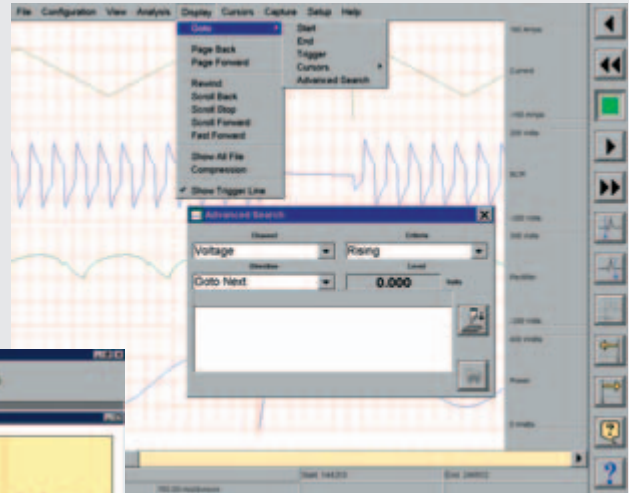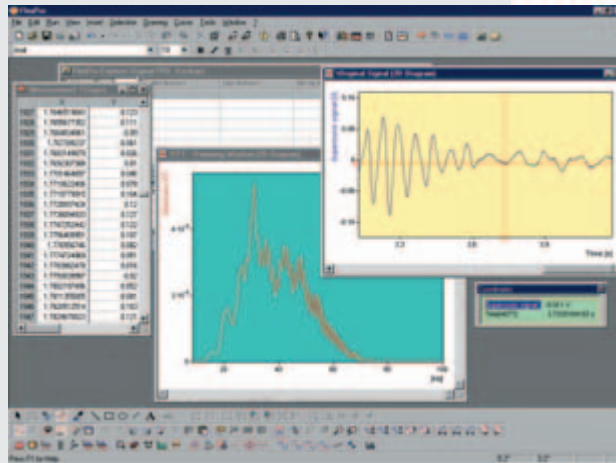[2] Event data is TTL logic. 8 event channels = 1 analog channel

THE DASH 8Xe HAS A WIDE VARIETY OF DATA REVIEW AND ANALYSIS TOOLS THAT MAKES REVIEWING MULTI-GBYTE FILES EASY. YOU CAN REVIEW AN ENTIRE RECORD ON A SINGLE SCREEN, PROVIDING AN OVERVIEW OF WHAT HAPPENED DURING A CAPTURE. ZOOM WINDOWS AND ON-SCREEN CURSORS ALLOW YOU TO MAKE PRECISE TIMING AND AMPLITUDE MEASUREMENTS. POST CAPTURE FILTERING AND FFT ANALYSIS CAN BE DONE AT THE TOUCH OF A BUTTON, GIVING YOU INSTANTANEOUS ANALYSIS OF YOUR DATA. INSTALL THE FLEXPRO DATA ANALYSIS PROGRAM FOR EVEN MORE ADVANCED ANALYSIS CAPABILITY.

On Screen Analysis: *On screen cursors let you make precise, error-free waveform measurements. The FFT analysis window gives you access to your data in the frequency domain – ideal for power or audio applications. Embedded scope captures can be reviewed, along with waveform data, at the touch of a button.*

FlexPro Advanced Data Analysis: *Install FlexPro advanced data analysis and presentation software in the Dash 8Xe, and you have a complete data acquisition and analysis system in one small package. With over 160 functions, plus the ability to customize algorithms, you can be sure that FlexPro has the functionality you need.* ▶

▲ **Advanced Search Capability:** *Advanced search functions let you go right to events of interest in large files. Searches can be performed on any channel, and can be based on a channel rising above a level, falling below a level, or both.*
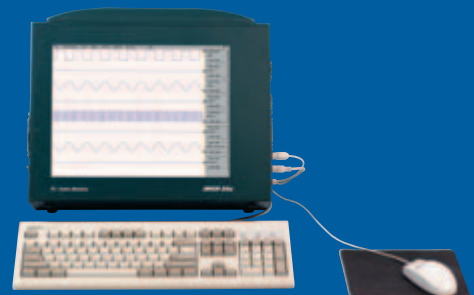
DASH 8Xe ACCESSORIES

State of the art USB Flash drive technology lets you transfer Gbytes of data quickly and easily.

Connect a **CDR/CDRW** *to your Dash 8Xe to archive data to CD.*

The Dash 8Xe supports standard **keyboard and mouse** *connections for operating the system and simplifying data entry.*
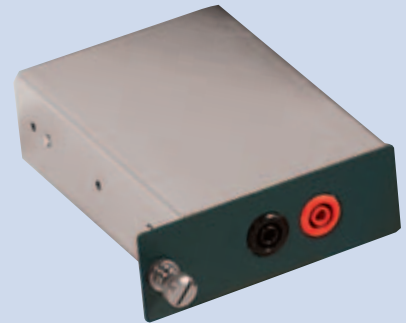
Modular Inputs

The Dash 8Xe is designed for direct input from a wide variety of sensors and signals, with selectable input modules for differential voltage, isolated high voltage, DC bridge, thermocouple and more. Each module is fully programmable from the touchscreen. DSP-based filtering lets you filter out noise and other unwanted signals so you can see only the data that is important to you.

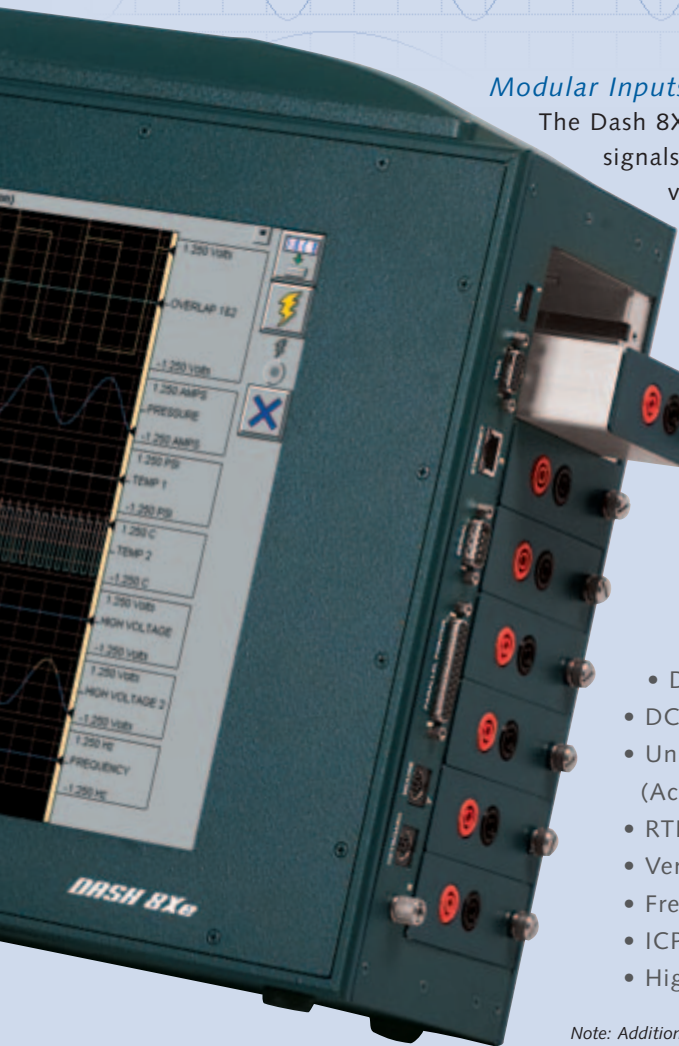## High Resolution, High Accuracy Recording

Each Dash 8Xe module is dedicated and optimized for the type of input it accepts. The modules are designed to give you high resolution and high accuracy recording. Built-in software routines allow you to calibrate your inputs with ease. Intuitive, graphical menus for setup make it amazingly simple to configure each module to fit your needs.

MODULES ARE AVAILABLE FOR THE FOLLOWING MEASUREMENTS:

- Differential high voltage
- DC bridge
- Universal thermocouple
  (Accepts types J, K, E, T, N, S, B & R)
- RTD for PT-100
- Very high voltage (up to 600 Vrms)
- Frequency to Voltage
- ICP transducer
- High accuracy DC voltmeter

Note: Additional modules may be available. Contact factory for details.

APPLICATIONS AND INDUSTRIES

THE DASH 8Xe WAS DESIGNED WITH YOUR INDUSTRY IN MIND:

- Metal mills
- Aerospace
- Power
- Automotive
- Oil/NDT
- Transportation
- Pulp & Paper

THE DASH 8Xe IS IDEALLY SUITED FOR:

- R & D testing
- Drive system troubleshooting
- Power system monitoring & analysis
- Relay and control signal timing
- Environmental testing
- Rod drop testing
- Process sequencing & timing
- Rail car maintenance
- Vehicle testing

…And More!

Color Display

Type	Active matrix color LCD (TFT)
Viewing Area	15-inch (diagonal)
Resolution	1024 x 768
Touch	Full screen, resistive

Inputs

Maximum Modules	8
Maximum Waveforms	8
User Engineering Units	Yes
Calibration	Semi-automated to external reference

Standard Event Inputs

Number of Inputs	8
Connector	D-shell (9 pin)
Input Type	TTL with pull up (0 to 5 V)
Response	Detects if duration is greater than 0.005 msec

Data Acquisition

Recording Method	Internal 73 GByte hard drive
Maximum Sample Rate	200,000 samples/second per channel
Minimum Sample Rate	1 sample/minute per channel
Dual Sample Rate	Yes
Total Capacity	Over 36 billion samples
Maximum Record	2 billion sample periods
Time Stamp	Time and date automatically saved with data
Trigger Point Location	Amount of pre and post trigger is user adjustable
Auto Re-Arm	Allows automatic stacking of captures
Auto Playback	Yes
External Sample Rate	External TTL sample clock to 200 KHz (5 μs jitter)

Power

Input Voltage Range	102 to 264 VAC
Frequency Range	47 to 63 Hz
Power Consumption	150 W maximum
DC Power Input	24 V (regulated supply required)

Compliance

Safety	EN 61010-1, UL 61010A-1, CSA C22.2, No. 1010.1-92
EMC	FCC Class A, EN 61326
Power Harmonics	IEC1000-3-2

Physical

Enclosure	Aluminum
Dimensions	12.6" L x 16.7" W x 5.8" H (without feet)
Weight	22 lbs with 8 NDV1 modules
Input Module Size	1.25" W x 3" H x 4.5" D

Environmental

Operating Temperature	5 to 40°C (40 to 105°F)
Operating Humidity	10% to 90% non condensing

OPTIONS & ACCESSORIES

Chart Recorder

Paper Width	8.5-inch
Chart speed	1 mm/min to 50 mm/sec
Resolution	300 dpi x 300 dpi
Weight	9 lbs without paper
Input Voltage Range	102 to 264 VAC
Frequency Range	47 to 63 Hz
Power Consumption	130 W maximum

Removable Storage

USB Key	USB 2.0

DC Input Power

Input Range	9 to 18 VDC
Input Power	150 W maximum

Scope Card

Number of Channels	4
Input Connector	BNC
Input Type	Single ended, DC coupled
Input Range	+/-5 V, +/-1 V selectable
Sample Rate	5 MSamples per second per channel maximum
	5 KSamples per second per channel minimum

Signal Conditioner Modules

NDV1 Non-isolated, Differential Voltage Module

Model Part Number	32750-000
Input	Differential, DC coupled
Isolation	No
Bandwidth	28 kHz (-3 db), 5 V attenuator
	34 kHz (-3 db), 40 V attenuator
Measurement Ranges	0.5 VFS to 80 VFS
Max Rated Input	40 V
A/D Converter	14-bit
Accuracy	+/-0.25% of attenuator
Connector	Guarded banana jack

IHV1 Isolated, Single-Ended High Voltage Module

Model Part Number	32750-010
Input	Single-ended, DC coupled
Isolation	250 Vrms
Bandwidth	39 kHz (-3 db), 100 V attenuator
	40 kHz (-3 db), other attenuators
Measurement Ranges	0.5 VFS to 800 VFS
Max Rated Input	250 Vrms
A/D Converter	16-bit
Accuracy	+/-0.15% attenuator
Connector	Guarded banana jack

IHV2 Isolated, Very High Voltage Module

Model Part Number	32750-030
Input	Isolated differential, balanced to common
Isolation	600 Vrms
Bandwidth	30 kHz (-3 db)
Measurement Ranges	10 VFS to 2000 VFS
Max Rated Input	600 Vrms
A/D Converter	16-bit
Accuracy	+/-0.5% of attenuator
Connector	Guarded banana jack

IHV3 Isolated, Single-ended High Voltage Module

Model Part Number	32750-130
Input	Single-ended, DC coupled
Isolation	250 Vrms
Bandwidth	22 KHz (-3db) (350 to 40 V Atts)
	20 KHz (-3db) (20 V Atts)
	17 KHz (-3db) (10,000-500 mV Atts)
	12 KHz (-3db) (100 to 50 mV Atts)
Measurement Ranges	50 mVFS to 350 VFS
Max Rated Input	250 Vrms
A/D Converter	16-bit
Accuracy	+/-0.15% of attenuator
Connector	Guarded banana jack

IBR1 Isolated, Differential Voltage Module (DC Bridge)

Model Part Number	32750-020
Input	Differential, DC coupled
Isolation	250 Vrms
Bandwidth	40 kHz (-3 db)
Measurement Ranges	2 mVFS to 4 VFS
Max Rated Input	60 V
A/D Converter	16-bit
Accuracy	+/-0.25% of attenuator + 0.1 mV
Excitation Range	0.1 to 10 V DC
Autobalance	Yes
Connector	5 wire screw terminal, removable

ITCU Isolated Universal Thermocouple Module

Model Part Number	32750-090
Types	J, K, E, T, N, S, B & R thermocouple
Isolation	Yes
Max Rated Input	+/-10 V
Bandwidth	5 Hz (-3 db)
Linearization	Yes
Cold Junction Compensation	Yes
A/D Converter	24-bit
Accuracy	+/-0.25% of measurement + 1.5°C
Connector	Universal miniature thermocouple

IRTD Isolated RTD Module

Model Part Number	32750-040
Input	Platinum RTD, 100 ohm
Isolation	Yes
Max Rated Input	+/-10 V
Bandwidth	5 Hz (-3 db)
Measurement Ranges	-100 to 450°C
Linearization	Yes
A/D Converter	24-bit
Accuracy	0.5% of measurement + 0.2°C
Connector	4 wire screw terminal, removable

LIVM Low Impedance Voltage (ICP) Module

Model Part Number	32750-070
Input	From ICP transducer
Isolation	No
Bandwidth	30 kHz (-3 db)
Max Rated Input	40 V
A/D Converter	16-bit
Connector	BNC

IDCV Isolated, High Accuracy, DC Voltmeter

Model Part Number	32750-110
Input	Single-ended, Isolated
Input Coupling	DC
Min Input Impedance	>1 MΩ
Isolation	250 Vrms
Bandwidth	6 Hz
Max Rated Input	-5 V to +130 V
A/D Converter	24-bit
Accuracy	+/-55 ppm of reading + .7 mV
IMR (DC)	>110 db
Connector	Guarded banana jack

Specifications subject to change. ICP is a registered trademark of PCB Piezotronics, Inc. FlexPro is a trademark of Wiesang GMBH.

OTHER PRODUCTS AVAILABLE FROM ASTRO-MED, INC.

Dash 18X: Features 18 channels of universal inputs, data acquisition to internal hard drive at 100 kHz sample rate per channel.

Dash 8XPM: Features the capabilities of a three phase power monitor and high end data acquisition recorder in one useful tool!

Dash 8HF: Features 8 channels of analog inputs, data acquisition to internal hard drive at 2 MHz sample rate and 200 kHz bandwidth.

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