DASH MX

Portable

Data Acquisition Recorder

Compact, Lightweight, and Powerful...

At a price you won't believe!

Astro-Med, Inc
TEST & MEASUREMENT PRODUCT GROUP

www.astro-med.com

DASH MX

Data Acquisition

When and where you need it!

In today's demanding workplace, many test equipment decisions must be based on a combination of factors including performance, ease of use and value. That is why Astro-Med designed the Dash MX—a new advanced portable data acquisition recorder. It is smaller, lighter and more powerful than any other product we have produced in our 40 year history.

Do you need to record for days, weeks, or even months? We can do it. Need high sample rates up to 200 KHz or higher? We can do it. Need something under 20 pounds so you can grab and go to your job quickly? The Dash MX is under 20 pounds.

We designed the Dash MX with you in mind. Take a look at this impressive list of features:
- *8–16 Channels*
- *Sample rates up to 1 MHz*
- *Dedicated 160 GByte data capture hard drive*
- *12" color touch screen user interface*
- *Easy to set up & use*
- *Pre- & post-trigger capability*
- *Low pass, high pass, band pass, band stop, RMS filtering*
- *Internal rechargeable battery*
- *Weight: 20 pounds*

With the built-in viewing screen, you can see your data now, not later. No need to attach a computer to see the data or control the recorder. See everything real time, make your decisions now and get on with your next task. With our new LookBack feature you can even review data from the first part of the record without interrupting your present recording. Amazing!

Want the best news? You won't believe the low price. Contact us for pricing or a quotation.

SIGNAL INPUT MODULES

Each Dash MX series recorder comes complete with 4 input modules for 8 channels of recording. One part number and one price will get you a complete package. The Dash MX includes MX-1 modules for voltages up to 250 VRMS. The Dash MX-H with MX-2 modules is designed for high voltage applications for measuring 10 V to 600 VRMS. Additional optional modules are available. You can purchase and swap additional modules yourself. They include:

- **MX-1** Standard Voltage module—2 channels measures up to 250 VRMS
- **MX-2** High Voltage module—2 channels measures up to 600 VRMS
- **MX-3** Non-isolated Differential module—4 channels measures up to 50 VFS

- **MX-4** Universal Input module—1 channel of isolated Single-Ended Voltage, Differential voltage/Bridge, Thermocouple/RTD
- **MX-5** Isolated DC Bridge module—2 channels 5 mVFS to 4 VFS
- **MX-6** Isolated Thermocouple module—3 thermocouple channels and 1 RTD
- **MX-7** Isolated Piezoelectric Sensor Module—2 channels with TEDS capability

The ability to change modules makes both the Dash MX and Dash MX-H very flexible and suitable for virtually all applications. Module specification are located on page 4.

STANDARD FEATURES

Data Capture
Dash MX includes a 160 GByte hard drive dedicated for data capture and storage. A second on-board drive stores the operating program so data can never be corrupted. Up to 4 sample rates can be selected for each capture. This allows you to manage file sizes by assigning higher sample rates to critical channels and lower sample rates to trending signals. The large circular buffer provides plenty of pre-triggering capability. Window, level, slew and waveform pattern triggering allows you to set up trigger conditions precisely for your application, while logical AND and OR triggering ensures that you only trigger on events that are important to you.

A new feature called Variable Sample Rate allows you to set a trending capture rate, then based on a trigger, jump to a higher sample rate to capture glitches and spikes.

Derived Channel Capability
Advanced derived channel technology in the Dash MX enables real-time mathematics on-the-fly with no processing latency. Want to pass data through an equation to see calculated values? Create these derived channels from the 8 basic signal inputs and display them as additional channels. There are many built-in math functions to choose from including, +, -, x, ÷, √, Exponential, Sin, Cos, Tan, Absolute Value, Integration, Differentiation.

Channels can also be set up to display signals in Engineering units of your choice, allowing data to be monitored in familiar terms (e.g., PSI instead of volts).

Meter Package
A built-in meter package allows you to see real-time data in a visual format in addition to the waveform display. Choose from gauge, numeric readout, horizontal or vertical bar, needle and LED readouts. Place them anywhere on the screen and size them for your needs.

Scope Mode
Scope mode acts like a digital storage oscilloscope, providing high time-base resolution for viewing high-frequency signals. Scope mode is useful for timing and synchronization analysis, transient capture, and high-speed testing. It can be used while continuously capturing data and monitoring signals on the display.

Cursor Measurements
Placing cursors on the touch screen allows quick measurements of Time, Sample Point, Average, Min/Max & Peak-Peak Slope, RMS, Sum, Sum of Squares, Variance, Standard Deviation & Area.
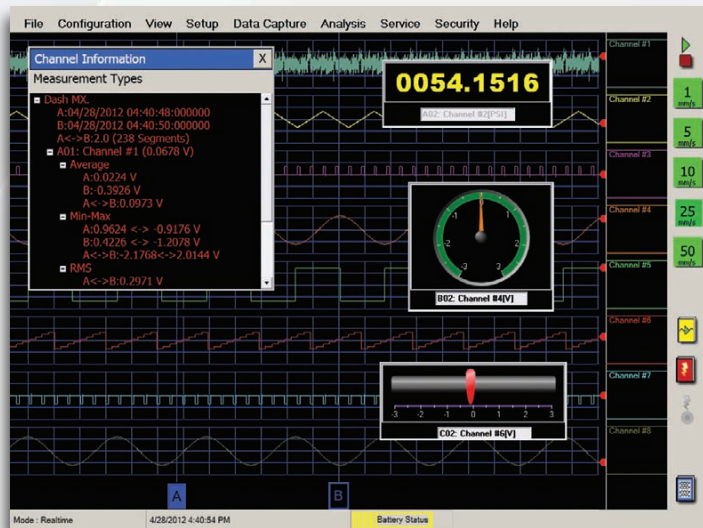
Real-time Monitor

Provides real-time scrolling display of waveform data. Scroll speeds can vary from 1 mm/min up to 50 mm/sec. A scope mode is also provided for viewing signals in O-scope format. Add meters for graphical representation of analog signals.

Analysis Functions

In real-time, choose from Cursors, Derived Channels, Meters, and XYY plot. In review, choose from Channel Meters, Derived Channels, XYY plot, Signals Transforms, Zoom window (shown below), Advanced Search, Note Viewer, Add Note, and Scope Viewer.
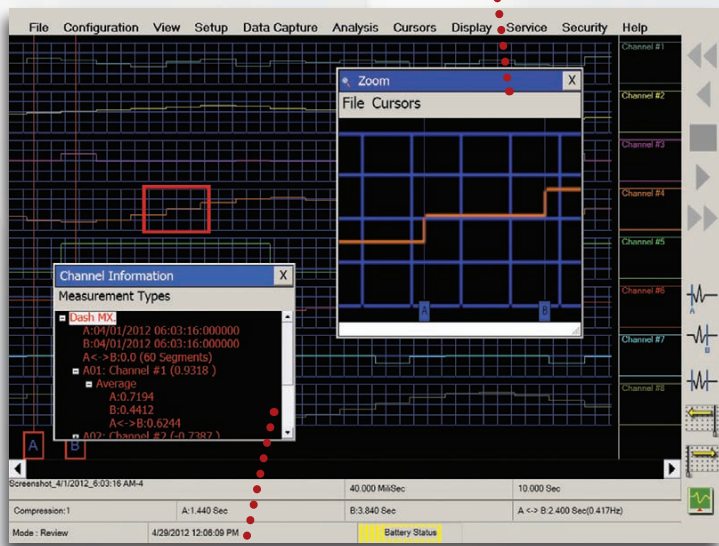

Channel Information

Drop down cursors and the Dash MX will make your measurements for you. Choose from Average, Peak-to-Peak, Min/Max, Slope, RMS, Sum, Sum of Squares, Variance, Standard Deviation & Area.
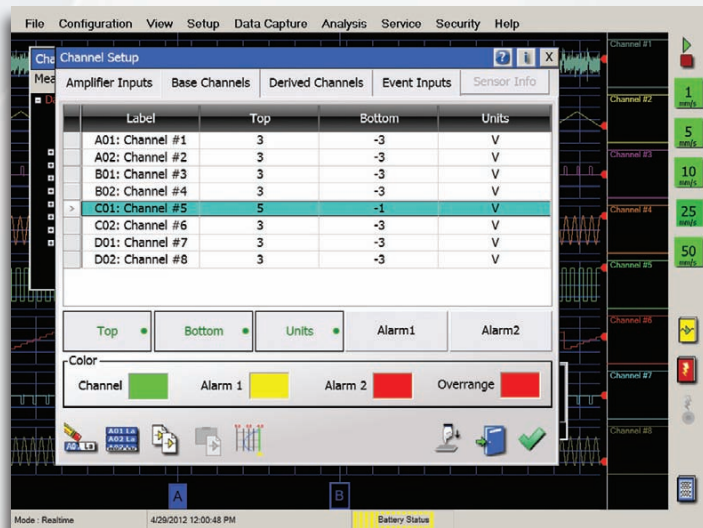
Touch-screen Interface

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 touching! The interface is completely customizable, allowing you to design and save control panels as well as all other settings in your global files to meet individual test needs.
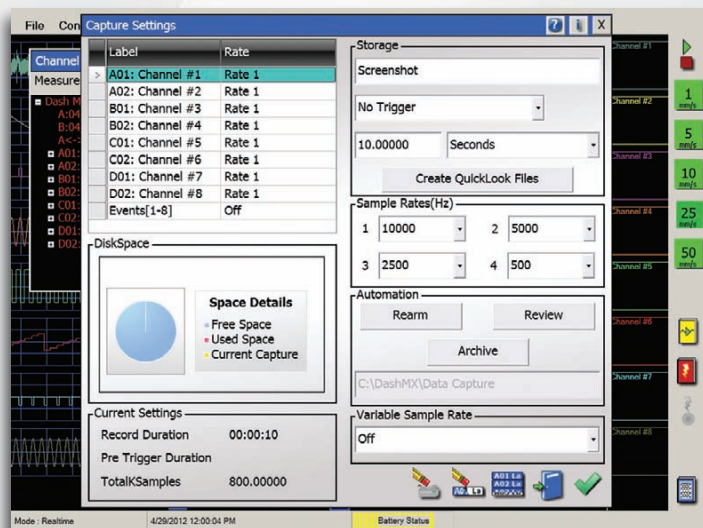
Easy to use Setup Menus

An intuitive graphical interface makes it easy to set up your Dash MX including data capture parameters as shown above. Setup menus are large and easy to understand. Create one-touch buttons for any menu item and add them to your control panel.

EVERYTHING YOU NEED IN ONE SMALL PACKAGE

How did we put all of this into one small portable data recorder? Simple—our customers told us what they wanted and we listened. They said build a lightweight and powerful recording device in one small package at a reasonable price and we did. Our goal is to provide you everything you need in one box so you can record, store, review and transfer data files easily. There is even a built-in battery if power is not available where you need to record data.

APPLICATIONS & INDUSTRIES

The Dash MX was designed with your industry in mind:

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

The Dash MX 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
- Battery testing
- Uninterruptable power system testing
...And more!

WHY BUY FROM ASTRO-MED

Astro-Med is a vibrant and financially sound company that has been in the data recording business for over 40 years and is still going strong. We have many patented technologies and continue to produce visionary new products such as the Dash MX.

Our excellent 24/7 customer service is highly rated in the Test and Measurement industry. We listen to our customers and they appreciate it.

Also Available from Astro-Med, Inc.

TMX® High Speed Data Acquisition System

- Expandable up to 96 channels
- 17" LCD high-resolution touch-screen display
- Dedicated 1 TByte data capture hard drive
- 800 kHz Sample Rate/Channel
- 100 kHz Bandwidth

DASH MX BASE SYSTEMS

DASH MX

8-channel system with isolated voltage input amplifiers (includes 4 MX-1 modules) Part Number 42370100

DASH MX-H

8-channel system with isolated high voltage input amplifiers (includes 4 MX-2 modules) Part Number 42370200

SYSTEM SPECIFICATIONS

Max Analog Modules	4
Event Inputs (TTL)	8
IRIG Time Codes	A, B, & E (standard)
Derived Channels	+, -, x, ÷, √, Exponential, Sin, Cos, Tan, Absolute Value, Integration, Differentiation
Counters	Frequency Counter, Event Counter, Quadrature Event Counter, Duty Cycle, Pulse Width, and Period Detector (module dependent)

DATA ACQUISITION RECORDING

Operational Modes	Scope, Review, Real-time
Recording Method	Internal 160 GByte Disk Drive
Sample Rates	200,000 samples/second/channel 1,000,000 samples/second/channel with Universal Module
Time Stamp	Time and date automatically saved with data
Trigger Point	Amount of pre and post trigger is user adjustable 0-100%
Auto Re-arm	Allows automatic stacking of captures
Filtering	Low pass, high pass, band pass, band stop, RMS

COLOR DISPLAY

Type	Active matrix color LCD (TFT)
Viewing Area	12.1" (30.73 cm) diagonal
Resolution	1024 x 768
Touch	Full screen, resistive

COMPLIANCE/ENVIRONMENTAL

Operating Temp	32 to 104 °F (0 to 40 °C)
Operating Humidity	10 % to 90 % non condensing
Shock	MIL-STD-810F Method 516.5, Procedure I
Vibration	MIL-STD-810F Method 514.5, Procedure I

PHYSICAL

Enclosure	ABS Plastic with armored end caps
Dimensions	13.3" (33.78 cm) x 12" (30.48 cm) x 5.3" (13.46 cm)
Weight (with 4 modules)	20 lbs (9.1 kg)

INTERFACE

Ethernet	1000BaseT
VGA	For displaying data on an external monitor
USB 2.0 (4 ports/unit)	For external peripherals and file export

SYSTEM POWER

Input Voltage Range	100 to 264 VAC or 24 VDC
Frequency Range	47 Hz to 63 Hz
Battery	Internal rechargeable battery (30 minutes of operation)
Power Consumption	180 W maximum

MODULES

(Optional Modules may be ordered in addition to the modules in the base systems)

MX-1 - ISOLATED VOLTAGE MODULE

Model Part Number	32880010
Channels (per module)	2
Bandwidth	40 kHz
Isolation	250 VRMS or DC, Cat II
Input Type	Isolated, DC coupled
A/D Converter	16-bit
Connector	Guarded banana jack
Measurement Range	1 V to 250 VRMS full scale
Maximum Sample Rate	200 kHz per channel

MX-2 - ISOLATED HIGH VOLTAGE MODULE

Model Part Number	32880020
Channels (per module)	2
Bandwidth	40 kHz
Isolation	600 VRMS or 1000 VDC, Cat III
A/D Converter	16-bit
Connector	Guarded banana jack
Measurement Range	50 V to 600 VRMS full scale
Maximum Sample Rate	200 kHz per channel

MX-3 - NON-ISOLATED DIFFERENTIAL VOLTAGE MODULE

Model Part Number	32880030
Channels (per module)	4
Bandwidth	40 kHz
A/D Converter	16-bit
Connector	25 pin D-sub male connector
Measurement Range	80 mVFS to 50 VFS
Maximum Sample Rate	200 kHz

MX-4 - UNIVERSAL INPUT MODULE

Model Part Number	32880040
Channels (per module)	1 (Isolated Single-Ended Voltage, Differential Voltage/Bridge, Thermocouple/RTD)
Bandwidth	200 kHz (voltage)
Isolation	250 VRMS or DC, Cat II
Thermocouple Types	J, K, E, T, N, B, R, S
RTD	Pt 100
A/D Converter	16-bit
Connectors	Guarded banana jack, Screw terminal header, Type U miniature thermocouple
Measurement Range	50 mV to 250 VRMS (Isolated, Single Ended) 20 mV to 2 VFS (Non-isolated, differential)
Maximum Sample Rate	1 MHz per channel

MX-5 - ISOLATED BRIDGE MODULE

Model Part Number	32880050
Channels (per module)	2
Bandwidth	40 kHz
Isolation	250 VRMS or DC, Cat II
Excitation	Voltage- up to 10 VDC Current- up to 100 mA
A/D Converter	16-bit
Connector	Screw terminal header
Measurement Range	10 mVFS to 2 VFS
Maximum Sample Rate	200 kHz per channel

MX-6 - ISOLATED THERMOCOUPLE MODULE

Model Part Number	32880060
Channels (per module)	4- including 3 Thermocouple channels and 1 RTD channel
Bandwidth	2.5 Hz update rate
Isolation	250 VRMS or DC, Cat II
Thermoucouple Types	J, K, E, T, N, B, R, S
RTD Type	Pt 100
A/D Converter	24-bit
Connector	Type U miniature thermocouple, screw terminal header
Measurement Range	J -210 to 1200 °C, K -200 to 1372 °C, E -200 to 1000 °C, T -200 to 400 °C, N -200 to 1300 °C, B 600 to 1820 °C, R -20 to 1768 °C, S -20 to 1768 °C

MX-7 - ISOLATED PIEZOELECTRIC SENSOR MODULE

Model Part Number	32880070
Channels (per module)	2
Bandwidth	30 kHz
Input Type	Isolated LIVM
TEDS Capable	Yes
Isolation	250 VRMS or DC, Cat II
A/D Converter	16-bit
Connector	BNC
Measurement Range	10 mVFS to 5 VFS
Maximum Sample Rate	200 kHz per channel