# TMX-18

## High-Speed Data Acquisition System

- *17" LCD High-Resolution Touch Screen Display*
- *18 Channels of Voltage & DC Bridge Inputs*
- *Dedicated 1 TByte Removeable Hard Drive for Data Capture*
- *800 kHz Sample Rate/Channel*
- *100 kHz Bandwidth*

*Rugged Construction for Field or Lab Applications*

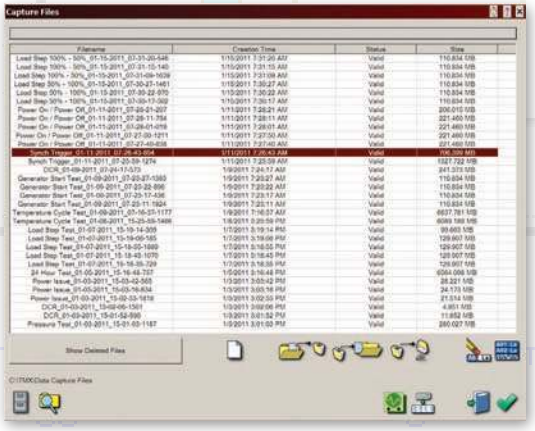
Astro-Med, Inc
TEST & MEASUREMENT PRODUCT GROUP

www.astro-med.com

## ASTRO-MED RECORDERS ARE THE EASIEST TO USE DATA ACQUISITION SYSTEMS ON THE MARKET

With the TMX-18, there's no need to fumble with awkward buttons or knobs and complicated configurations! The TMX-18 features a high resolution, 17" touch screen display, as well as pre-defined set up options, making test setup a breeze! With the TMX-18, you will be up and running in no time!

Do multiple users in your group require different setups? No problem. With the TMX-18, you can easily create and switch among multiple setup configurations.

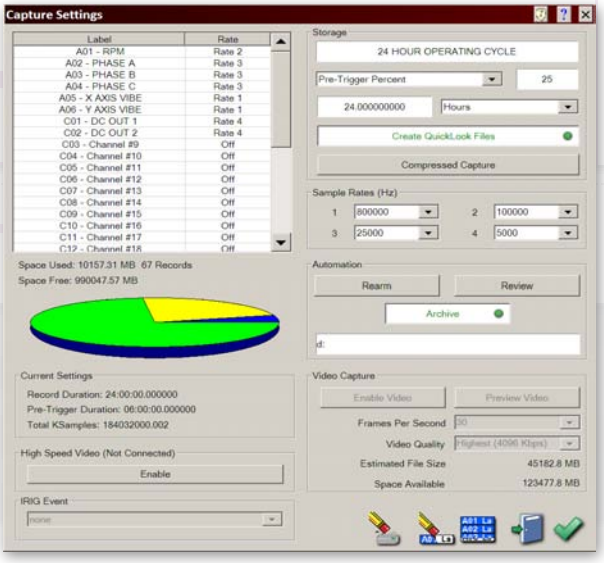


*The TMX enables you to stack thousands of data captures on the hard drive.*

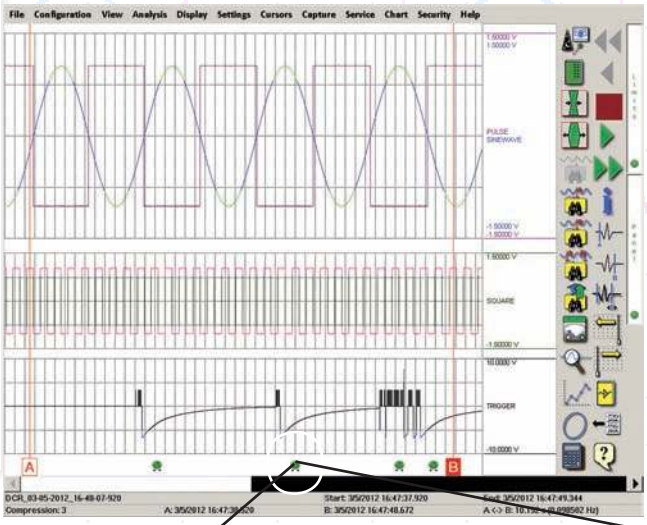
## PRECISELY SYNCHRONIZED DATA CAPTURE

### Don't Miss a Glitch!

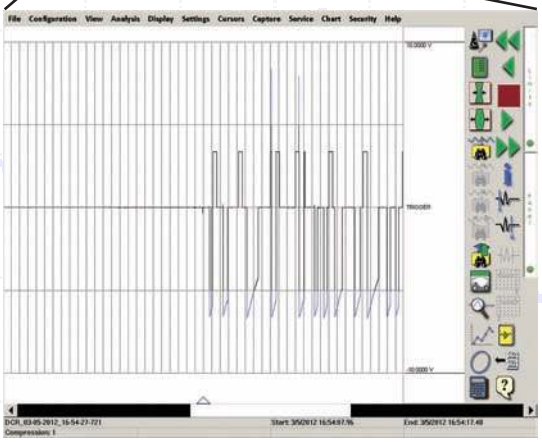
Whether your test runs for 100 milliseconds or 100 hours, the TMX-18 won't miss a glitch. With its dedicated, 1 TByte hard drive for data capture, the TMX-18 is ideal for long-term trending and high-speed event detection. Each channel uses a separate 16 bit A/D for perfect data synchronization. Astro-Med's powerful BackChannel technology ensures precise synchronization of analog, audio, video and data bus inputs. We do not rely on Windows® to synchronize your data.




## Embedded Scope Captures



Using the powerful embedded scope capture and intelligent triggering, TMX-18 provides low speed trending while simultaneously monitoring and storing highly sampled time synchronized transients or events. TMX-18 will time stamp and embed that important data into the trend recording, assuring that you capture details of critical data.



### Multiple Sample Rates

Up to four sample rates can be selected per TMX-18 data capture. This allows you to manage file size by assigning higher sample rates to critical signals and lower sample rates to trending signals.

### Triggering

TMX-18 contains advanced triggering capabilities that allow you to start and/or stop a recording based on changes in the input signals. The circular data buffer of the TMX-18 allows you to set and record large amounts of pre-trigger data. Window, level and slew triggering allows you to set up trigger conditions precisely for your application, while logical AND and OR triggering ensure that you trigger only on events that are important to you.

### Dedicated Hard Drive

Unlike Windows-based systems, the TMX-18 features a 1 TByte hard drive dedicated solely for capturing data. Removable drives allows data to be easily transferred and stored securely, leaving no proprietary data on the machine.

### IRIG/GPS (optional)

TMX-IR IRIG/GPS time option provides precise time-synchronization of data, video, and all TMX-18 inputs with other devices.

## Video (optional)

Why waste time and money on a video recording system for a video record of your important test? The TMX-18 can record 30 frames per second video perfectly synchronized with your analog data. Each frame is linked to a sample point giving you amazing detail of any test.

## Audio Notes

Save audio annotation into your data capture giving you a verbal account of your test. Why write notes down when you can speak them and save them with your data capture?

## Bus Inputs (optional)

The TMX-18 CAN bus and MIL-1553 input options allow your critical bus data to be displayed and recorded with great precision along with your analog signals.

## Filtering

The TMX-18 provides the most flexible data filtering options available. The raw unfiltered data is stored to the hard drive, allowing you the choice of pre- or post- data acquisition, low pass, high pass, band pass, and band stop filtering using Bessel, Butterworth or Chebyshev topologies.

Advanced DSP filtering allows you to see your real-time analog data as an RMS measurement, which is ideal for power monitoring applications. The integration and differentiation filter functions provide useful tools for acceleration and deceleration measurement applications.

## Hardware Counters

The TMX analog input modules all contain hardware counters that provide Frequency to Voltage (time and cycle based), Pulse Counter, Duty Cycle, Pulse Width, Quadrature and Period Detector measurements.

# DISPLAY

## Real-time Viewing & Setup

The TMX-18 has a large 17" color display which allows you to view your data in real-time and post capture. Operation of the TMX-18 is quick and easy with the intuitive touch-screen display. Interface icons and menus provide for straightforward setup and operation. There are no switches, push-buttons or other controls — complete operation is from the touch-screen. And, you can easily customize it to fit your exact needs. This means less setup time and more time for gathering data.

## Meters/Gauges/Bar Graphs

The advanced channel meters provide a variety of ways to visually indicate channel activity. View your data numerically or in other visual representations such as a gauge or horizontal/vertical bar, needle and LED readouts.

## Cursor Measurements

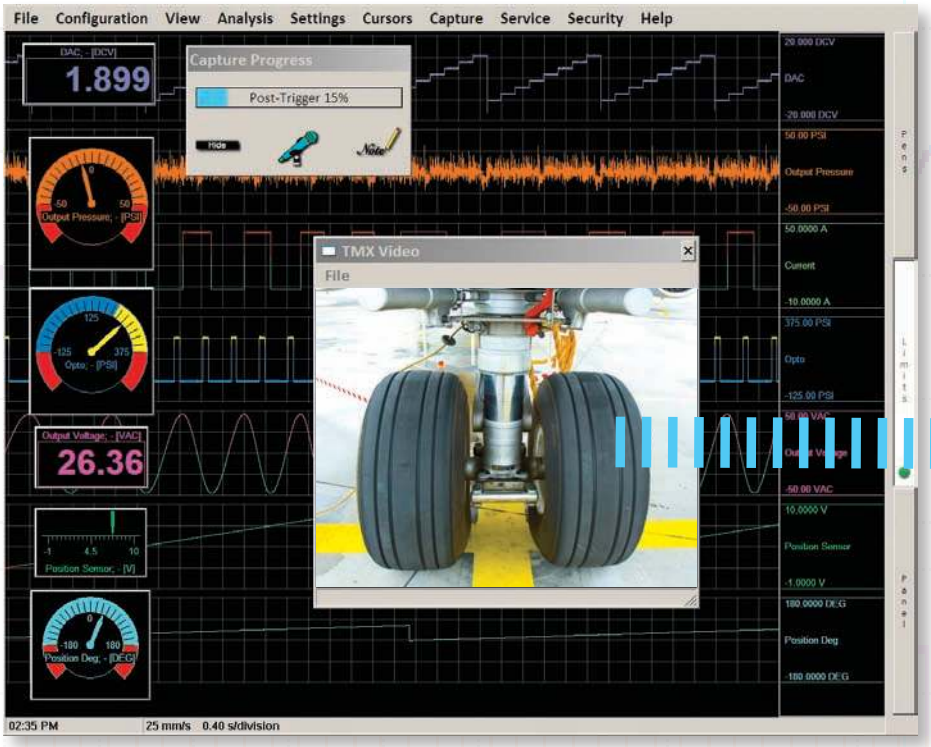
Placing cursors on the touch screen allows quick measurements of Time, Sample Point, Average, Min/Max & Peak-Peak Slope, RMS, Sum, Sum of Squares, Variance, Standard Deviation & Area.

## 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.

## Alarms

Alarms provide a visual indicator when signals extend below or above specified boundaries. These boundaries are defined by setting up low and high alarm levels. The utility / DIO port provides an alarm output pin that can be used to trigger an external process when alarm conditions for selected signals occur.




## Automation & Stimulation

Test stimulation and automation is possible with the analog outputs, digital outputs, relays and counters found on the DIOC-16 when coupled with a background program running on the TMX. Quick creation of temporary or unique test cells and even report files is possible with programs as simple as script files and as large as third party graphical programming packages.

# TMX-18

*High-Speed Testing. High-Speed Solutions.*

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## Compressed Capture

Compressed Capture is for long-term recording of data using a min/max method which keeps the file size small. It fully records the input signal amplitude at the full bandwidth of the system (glitch capture). Compressed Capture has real-time digitizing sample rates up to 800 kHz (input module dependent) and selectable capture rates for a wide variety of applications. It can be combined with Scope captures for capturing transient signals. Glitches are clearly seen when reviewing the data.

## REVIEW & POST PROCESSING WITHOUT THE DOWN TIME...

### QuickLook

The innovative QuickLook feature calculates compression and expansion factors while recording data allowing you to review GBytes of data in seconds and scan through large data files quickly and easily.

### LookBack

The TMX-18's unique LookBack feature allows you to review data during a capture and also allows the user to transfer previously recorded data without interruption to the active trend capture – truly a time saving benefit.

### Exporting Data

The TMX-18 offers a number of ways to archive and export captured data. Data can be exported in our packed binary format – minimizing file size – or a generic ASCII format, which is compatible with most analysis packages. The TMX-18 provides eight USB 2.0 ports that open up a world of possibilities. TMX-18 also has an integral 1000BaseT Ethernet port. Simply connect the TMX-18 to a network and upload only the data of interest. The Ethernet connection also provides the capability to control a TMX from a remote location using a suite of host commands.

## SOFTWARE

### AstroVIEW® X

Each TMX-18 includes free AstroVIEW X PC based data review and analysis program. AstroVIEW X runs on any Windows PC and lets you upload and review data captured on the recorder. AstroVIEW X has built-in analysis and converts data into ASCII, Excel®, Mathcad®, DADiSP® and other formats.

### TMX-18 Offline

With the TMX-18 Offline software, working with the TMX-18 has never been easier! This powerful software gives you the ability to create setups as well as review data on your PC. Running under Windows XP/Vista/7, the TMX-18 Offline software gives you all the tools necessary to quickly configure the system, transfer files, review and analyze your data.

## HARDWARE CONFIGURATION

The TMX-18 is designed to go anywhere your testing sends you. The tough, MIL-STD-810 tested industrial grade package gives you the freedom to bring it onto the production floor or out to a remote site.

## WHY BUY FROM ASTRO-MED

- **The TMX-18 is manufactured and tested in the USA, and completely supported in the USA as well as our Branch Offices and Dealers around the world.**
- **Our 24/7 customer service is rated #1 in the Test & Measurement industry by our customers.**
- **Astro-Med has been in the data recording business for *over 40 years* and is still going strong.**

## TMX SPECIFICATIONS

### 18-CHANNEL CHASSIS WITH 3 UNIV-6 UNIVERSAL ISOLATED VOLTAGE MODULES

| | |
|---|---|
| **Maximum Analog Modules** | 3 |
| **Maximum Analog Waveforms** | 18 |
| **Event Inputs (TTL)** | 16 |
| **Derived Channels** | +, -, x, ÷, Exponential, Sin, Cos, Tan, Asin, Acos, Atan, Exp √, Absolute Value |

### DATA ACQUISITION RECORDING

| | |
|---|---|
| **Operational Modes** | Scope, Review, Real-time (strip-chart) |
| **Recording Method** | Internal removable 1 TByte SATA disk drive |
| **Time Stamp** | Time and date automatically saved with data |
| **Trigger Point** | Amount of pre and post trigger is user adjustable |
| **Filtering** | Low pass, high pass, band pass, band stop, RMS, integration & differentiation |

### COLOR DISPLAY

| | |
|---|---|
| **Type** | Active matrix color LCD (TFT) |
| **Viewing Area** | 17" (43.2 cm) diagonal |
| **Resolution** | 1280 x 1024 |
| **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** | Aluminum, with armored end caps |
| **Dimensions** | 14.5" (36.8 cm) H x 19" (48.3 cm) W x 7.5" (19.1 cm) D (without handle) |
| **Weight (including 3 modules)** | 37 lbs (15.78 kg) |

### INTERFACE

| | |
|---|---|
| **Ethernet** | 1000BaseT |
| **VGA** | For displaying data on an external monitor |
| **USB 2.0 (8 ports/unit)** | For external peripherals and file export |
| **Expansion Port** | For connection of optional TMX-E |

### SYSTEM POWER

| | |
|---|---|
| **Input Voltage Range** | 100 to 264 VAC or 24 VDC at 11 A |
| **Frequency Range** | 47 Hz to 63 Hz |

## INPUT MODULE SPECIFICATIONS

### UNIV-6 UNIVERSAL ISOLATED VOLTAGE MODULE WITH DC BRIDGE

| | |
|---|---|
| **Channels (per module)** | 6 |
| **Maximum Sample Rate/Ch** | 800 kHz (400 kHz with TMX-E) |
| **Isolation** | 250 Vrms or DC, Cat II |
| **Maximum Bandwidth** | Up to 100 kHz |
| **Input Type** | Isolated, AC/DC coupled |
| **Specified Ranges** | 200 mVFS to 800 VFS |

## TMX OPTIONS — ADVANCED

### TMX-VA VIDEO/AUDIO ACQUISITION

| | |
|---|---|
| **Analog Input Type/Connector** | Composite/BNC |
| **Supported Video Formats** | NTSC, PAL |
| **NTSC Capture Rate** | 30 fps (frames per second) |
| **PAL Capture Rate** | 25 fps (frames per second) |
| **Audio Capture Rate** | Up to 44.1 kHz |

### TMX-HSV HIGH SPEED VIDEO

| | |
|---|---|
| **Maximum Frame Rate** | 1000 fps |
| **Maximum Storage** | 2 GBytes |

**TO READ FULL SPECIFICATIONS, PLEASE VISIT**
**www.astro-med.com**

**OR CALL US AT**
**401-828-4000**

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