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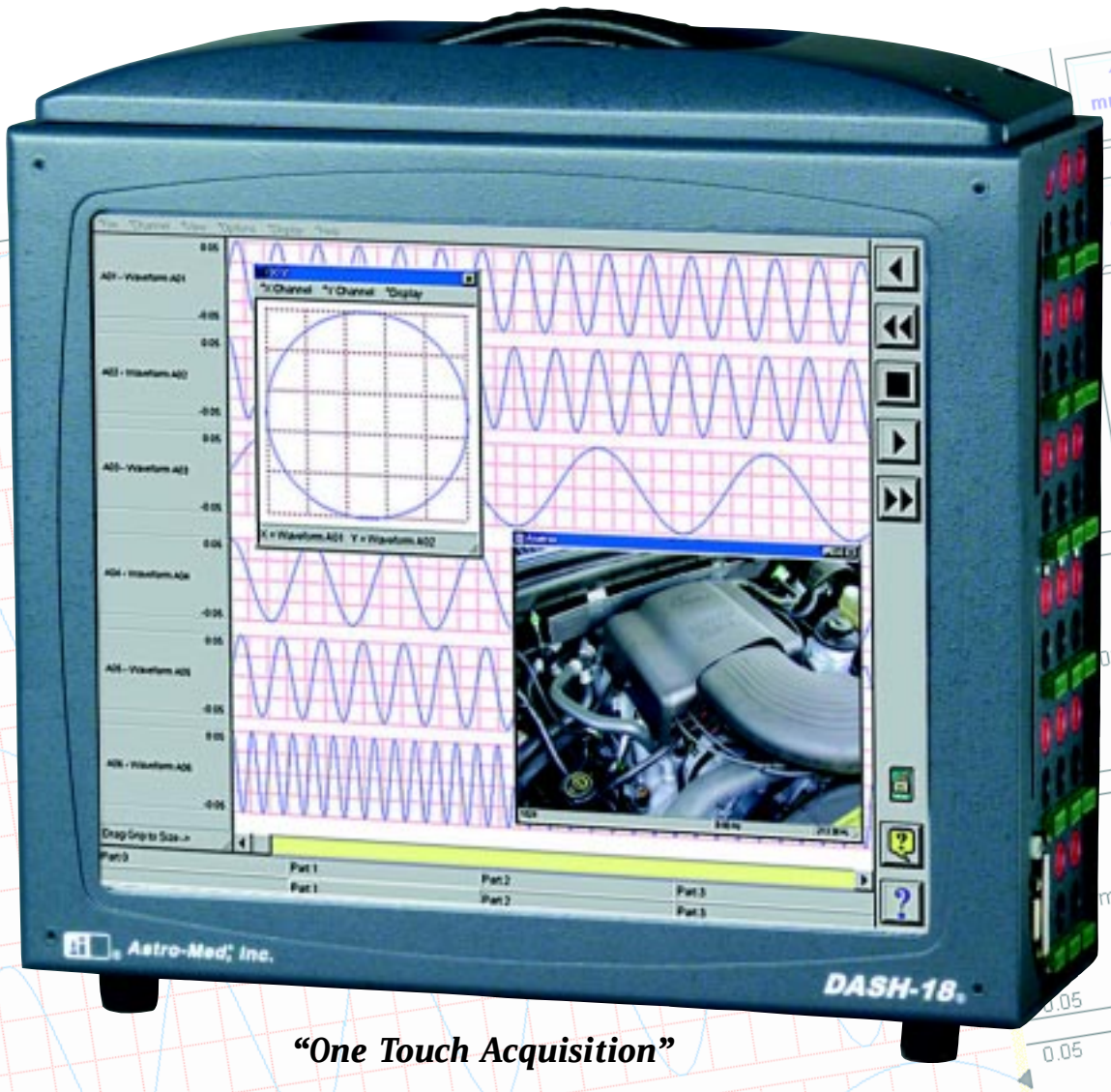
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Find the *AstroNova / Astro-Med Dash 18X* at our website: ***Click HERE***

Dash 18™
Data Acquisition Recorder



"One Touch Acquisition"

- Records waveform data, video snapshots and audio
- 18 Universal input channels for voltage, thermocouple and bridge
- 15.4" touchscreen display for data viewing and analysis
- Stream data directly to 9 GB hard drive at 100 kHz per channel
- Real-time filtering and math functions
- 10/100 BaseT Ethernet interface and 250 MB Zip® drive

Astro-Med, Inc®

Test & Measurement Product Group

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The Dash 18 - Combine waveform data, video, audio and analysis in a "take-it-anywhere" system

In today's work environment, you need to be ready to test at a moment's notice. You need a system that will handle all of your recording requirements in one instrument, so you don't have to bring a scope, meter, data recorder, datalogger and audio recorder. The Dash 18 gives you all of this in a system with the footprint of a laptop computer.

With 18 universal inputs for voltage, thermocouple and bridge signals, you'll never have to worry about having the right signal conditioning. And the Dash 18's large real-time waveform display, internal hard drive for capturing data, integral PC connectivity and optional chart recorder, give you data in any format that you want. With audio and video snapshot recording – synchronized to waveform data – the Dash 18 ensures that you will capture all aspects of your test.

Big 15.4" Touchscreen Display

Operation of the Dash 18 is quick and easy with the intuitive touch-screen display. Familiar Windows® icons and menus provide for straightforward setup and operation. There are no switches, push-buttons or other controls - complete operation is from the touchscreen. And, you can easily customize it to fit your exact needs.

High-speed Data Acquisition

The Dash 18 captures 18 channels of data continuously to a dedicated 9 GByte hard drive at a sample rate of 100 kHz per channel, meaning you'll never have to worry about missing the details in your high-speed glitches or transients. For long-term trend recording, the Dash 18 allows you to set the sample rate as low as one sample per minute for days, weeks or even months of recording. The flexible Dash 18 allows you to choose the sample rate that is best for your application, meaning that you never have to acquire too much or too little data.

Three Data Acquisition Modes

Three different data acquisition modes of the Dash 18 make it adaptable for any application. Choose real-time recording mode to display your waveforms while capturing to the hard drive. Signals are displayed on the large, color display, giving you instant data visibility. Scrolling waveforms show you exactly what your signals are doing in real-time.

Use the scope mode for high-speed signals requiring greater timebase resolution. Scope mode gives you a detailed, real-time view of high frequency signals while capturing data to the hard drive in the background. Traditional scope controls give you the quickest and easiest way to look at your high-speed data.

Acquire/review mode is ideal for applications where immediate access to captured data is important. It allows you to look back at previously captured data without interrupting real-time recording. The Dash 18 makes it easier than ever before to review and analyze your data while still recording!



The compact design and 12V power input make the Dash 18 the ideal data acquisition system for automotive applications.

Audio/Video Synchronization

The Dash 18 will bring your testing to new levels with its ability to capture audio and video snapshots along with waveform data. Imagine being able to recreate an entire test in one system! The audio, video and waveform data is synchronized, allowing a more detailed analysis of what events actually took place during a test.

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Several Powerful Tools in One Compact Unit

PC Interface

In today's environment, it is essential that your test equipment talk to your PC. The Dash 18's Ethernet Port, Zip drive and off-line software make it easier than ever to do this. From setting the system up through your PC to uploading captured data from the hard drive, the Dash 18 seamlessly integrates with your computer. Best of all, the Dash 18 comes standard with PC-based setup and review software, meaning you will be up and running in no time.

Rugged Enough for Any Environment

Test equipment is only useful if it will survive your most harsh environments. With its rugged case and compact design, the Dash 18 can handle almost any condition you give it. Whether you need to gather data in a steel mill, vehicle, power plant or in the comfort of your own office, the Dash 18 is guaranteed to survive - just attach the protective cover and record.

Universal Inputs

The universal inputs of the Dash 18 let you connect almost any signal without using external signal conditioning. With high voltage, low voltage, temperature, DC Bridge and frequency inputs, most signals can connect directly to the Dash 18. Channel-to-channel isolation means you will never have to worry about cross-talk and signal interference again. Since each input can be independently set up for any type of signal, it's like having an unlimited combination of signal conditioners!

6, 12 or 18 Channel Configuration

If your application requires fewer than 18 channels, the Dash 18 is also offered in 6 or 12 channel configurations. Best of all, the modular design of the Dash 18 allows you to easily upgrade from 6 to 12 to 18 channels as your application requires it.



The Dash 18 is light enough to carry anywhere!

IRIG Time Decoding

For applications requiring external time correlation, the Dash 18 offers an optional IRIG decoding module. This module decodes IRIG A, B, H and NASA 36 time codes, providing high-speed time synchronization of your data. During real-time recording, IRIG time is shown on the display. In acquisition mode, each data point is time-stamped with IRIG time.

Intelligent Power

Have you ever lost data due to a power loss? With the Dash 18, you never will. If power is lost in the middle of a data acquisition, the Dash 18 will shut down the acquisition and turn itself off. When power is restored, the Dash 18 will power on and immediately begin to acquire data again.

For automotive and other applications where AC power is not available, the Dash 18 has an optional 12 Volt DC power input module, making it ideal for in-vehicle or remote applications.

Optional Strip Chart Recorder

If you ever have a need for a real-time or post-capture strip chart output, the Dash 18 chart recorder is the perfect solution. Designed to be quickly attached to the main unit, it provides hard copy output wherever and whenever you need it. Take it to the field for on-location printing of vital data, or leave it at the lab to print out certain parts of your test when you return.



Attaching the Dash 18's optional chart recorder makes a compact recording and data acquisition system.

Overview

The Dash 18 was designed to be the Swiss Army knife of data acquisition devices. It combines the features of a wide variety of instruments – including a datalogger, a scope, a multimeter and a high-speed data acquisition system – into one versatile tool. The Dash 18 offers three powerful acquisition methods making it ideal for all of your recording needs.

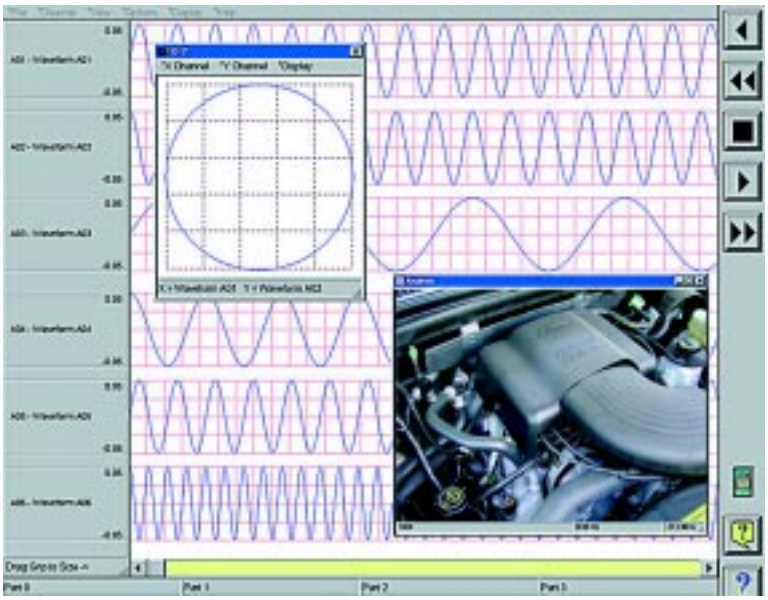
High-speed Data Acquisition

Whether you are looking for high-speed data acquisition, trend recording or triggered data capture, the Dash 18 is powerful enough to handle any application you have.

The Dash 18's internal 9 GByte hard drive gives you virtually unlimited capture capacity, even at the highest sample rates. Imagine being able to continuously capture weeks or months worth of data!

Intelligent Acquisition

For more intelligent data acquisition, the Dash 18 can capture data based on user defined trigger conditions. You can stack thousands of captures on the hard drive, ideal for unattended, triggered operation. Each record is time and date stamped for easy identification.



Real-time mode provides you with immediate visibility on waveform and video snapshot data.

The Dash 18 offers pre- and post-trigger memory storage, so you can program it to show you what caused an event, what followed an event, or both. With pre-trigger percentages from 0 to 100 percent, you can tailor the capture specifically to your requirement.

Variable Sample Rates

The Dash 18 offers selectable sample rates from 1 sample per minute up to 100,000 samples per second. Whether you're measuring slow-speed signals such as temperature, pressure or humidity or fast transients or glitches, the Dash 18 can fit any application. Even better, the Dash 18 can be set to capture different signals at different rates, optimizing your hard drive space.

Background Capture

With the Dash 18, there is no need to select between displaying, printing or capturing data. That's because the Dash 18 can capture data to memory in parallel with displaying, printing or reviewing waveforms.



With high-speed data acquisition and a rugged design, the Dash 18 is perfect for start-up and load testing in any environment.

A Recording Mode for Every Application

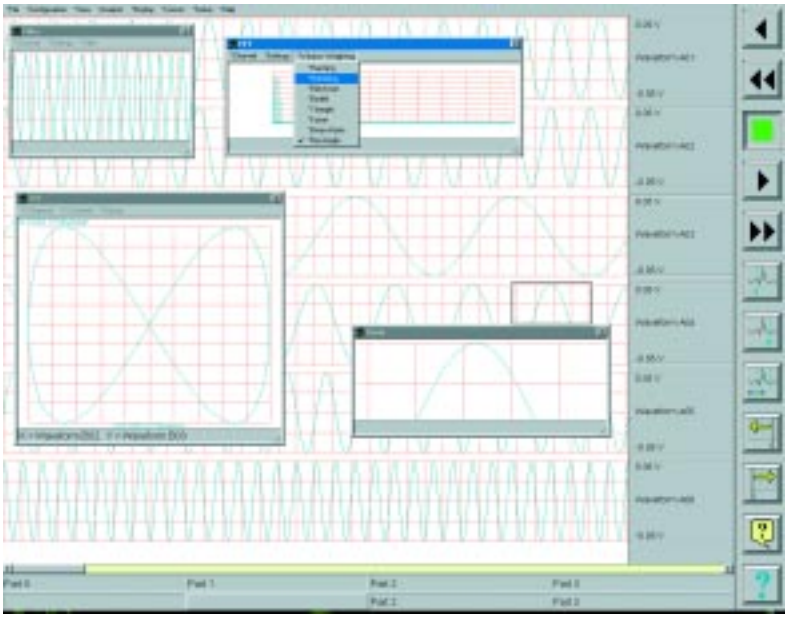
Real-time Mode

Designed for applications where viewing data immediately is important - such as field service, troubleshooting recurring problems, load testing and short-term monitoring - real-time mode scrolls waveforms on the display while acquiring the data to the hard drive. If you're most comfortable with using a strip chart recorder, this mode is ideal for you.

Scope capture

With the Dash 18 scope mode, you'll always have an 18 channel oscilloscope at your fingertips. Designed for timing and synchronization analysis, transient capture and high-speed testing, scope mode offers powerful triggering and capture capabilities for almost any application.

You can perform a scope capture while continuously capturing data to the hard drive – while you're monitoring slow-speed data, the Dash 18 is ready to capture any high-speed transients. The Dash 18 even embeds scope captures in your data acquisition files, so you can review high-speed and trend data at the same time.



With the Dash 18's built-in analysis functions, you won't have to rely on a PC to review and analyze your data.

Acquire/ Review Mode

With this mode, the Dash 18 can be used to review previously acquired data while still recording new data to the hard drive. You can even make measurements and perform analysis without interrupting on-going data recording. Applications include long-term monitoring, trend analysis, endurance testing and troubleshooting intermittent problems.

The Dash 18 even allows captured data files to be uploaded to your PC while another capture is in progress, giving you immediate access to your data without interrupting a data acquisition.



For high-speed signals, scope mode gives you the capabilities of a digital storage oscilloscope.

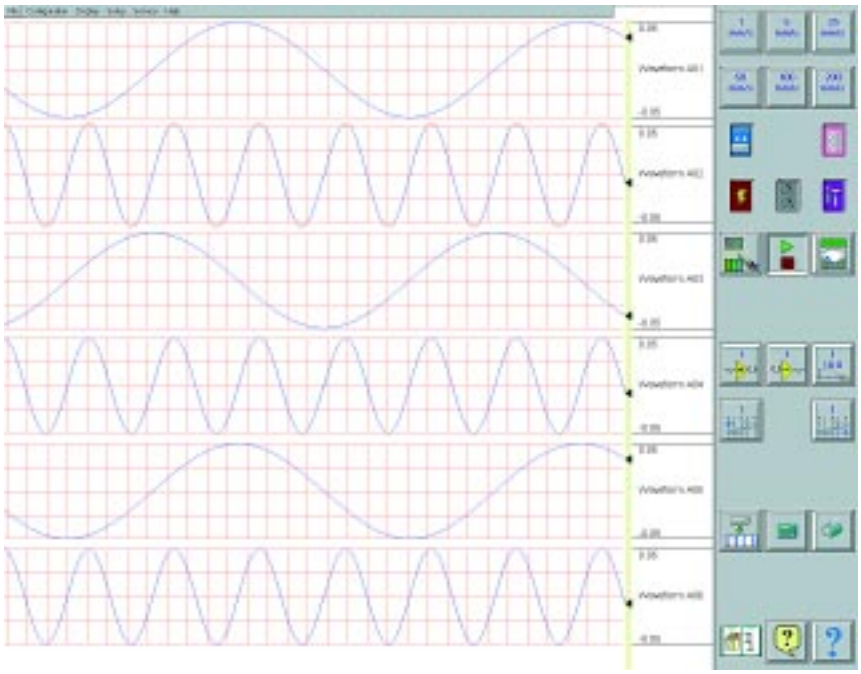
On-board Analysis

The Dash 18 has built-in analysis capability, ideal for applications where a PC and an office are luxuries! Imagine being able to view, acquire and print your data in one system, allowing you to make intelligent decisions on the spot.

The Dash 18 includes a number of functions to let you quickly analyze your data. From simple peak detection and post-capture filtering to more advanced statistical and frequency analysis, the Dash 18 has it all.

Touchscreen for Setup, Monitoring & Review

The Dash 18 has a 15.4" color touchscreen display for displaying waveform data, the largest display on any portable instrument. With 1280 x 1024 resolution, the display provides the clearest and most accurate waveform representation available. The versatile touchscreen interface simplifies setup and use of the Dash 18.



The Dash 18 allows you to customize the real-time user interface for your specific application. Display only the control functions you need!

Real-time display

View up to 18 waveforms simultaneously in discrete, overlap, or your own custom designed format. Choose different colors for each waveform for instant visual identification. Waveforms can even change color when an alarm threshold is exceeded. In real-time mode, waveforms can be displayed at user defined scroll speeds up to 50 mm per second.

Touchscreen Interface

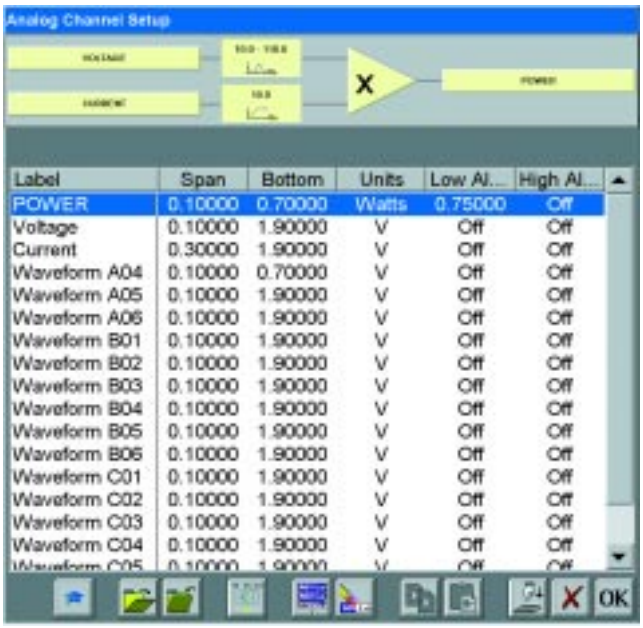
The built-in touchscreen and the intuitive graphical user interface make the Dash 18 one of the easiest instruments you'll ever use. The interface is completely customizable, allowing you to design a control panel that even the most casual user can understand. If you forget how to use a particular function, on-line help will step you through the operation.

Once your data is acquired, the touchscreen makes it easier than ever to review data and make measurements. You can scroll through your data at the touch of a button, allowing you to quickly find important events. For quick measurements, simply touch the screen to activate on-screen cursors for amplitude, timing and other information.

On-screen Waveform Information

The Dash 18 provides all the information you need to allow you to make a quick assessment of your data. Use the real-time multimeter function to display instantaneous values of your waveforms. Channel limits give you a quick indication of top and bottom grid values for each channel. And each channel can be uniquely identified with its own alphanumeric label.

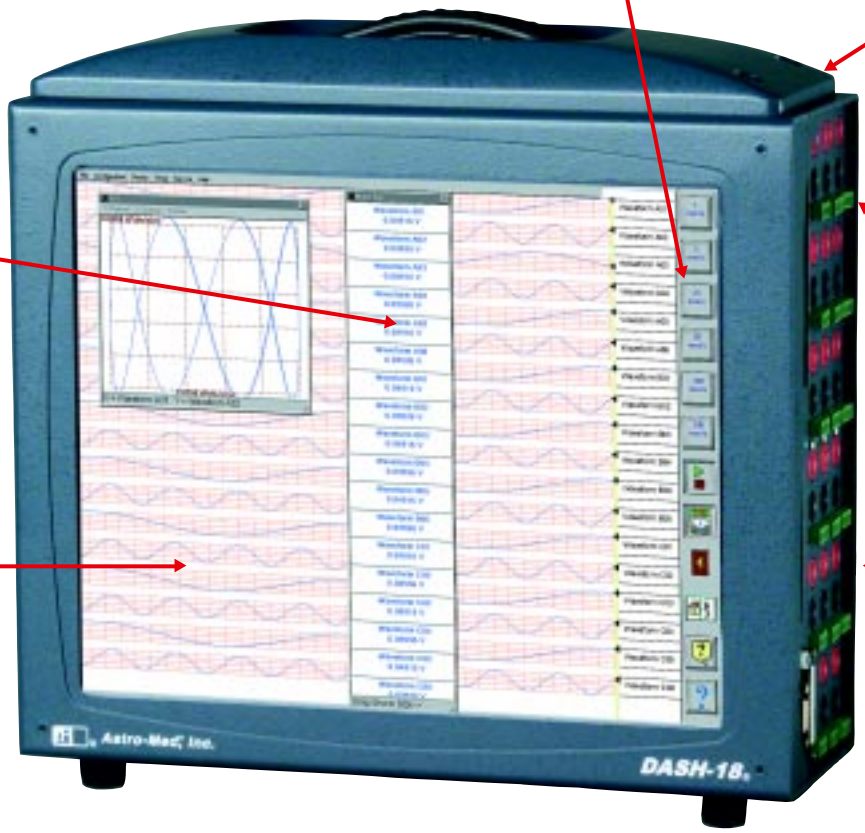
For many applications, waveform data alone isn't enough to tell the whole story. Often there is an audible or visual cue that determines the cause of a problem. With the Dash 18, you can record it all, allowing you to see and hear exactly what happened!



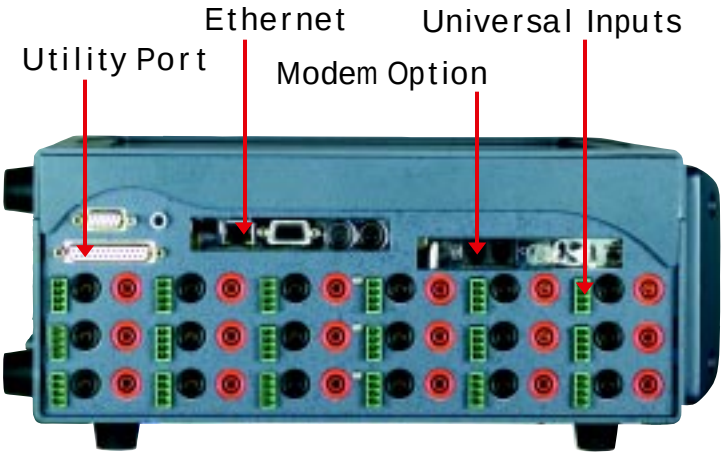
Intuitive, graphical menus make setting up the Dash 18 a breeze!

Special Features of the Dash 18

Front View



Side View





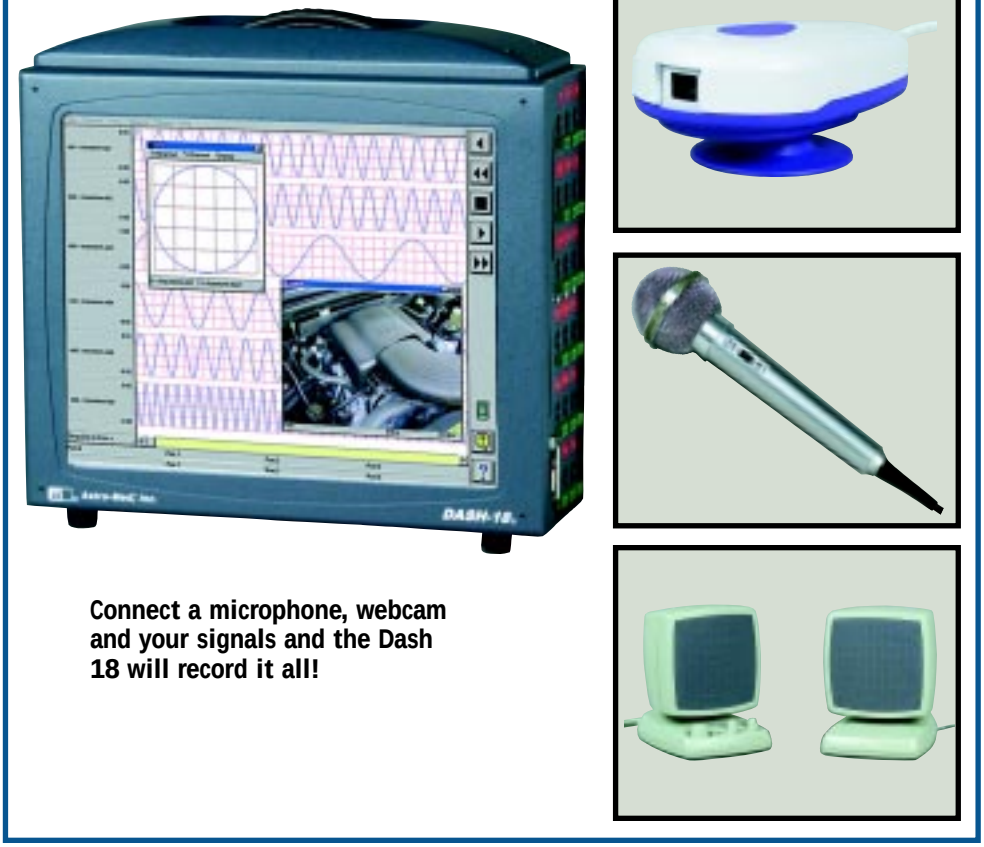
Dash 18 with Cover


Dash 18 with stand

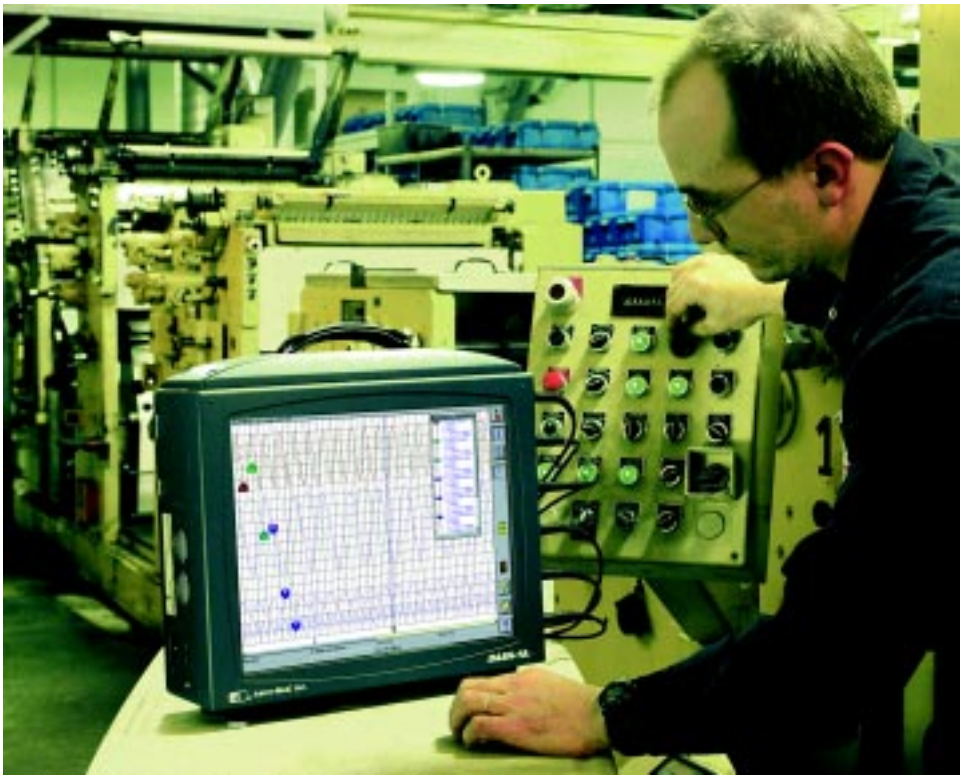
Video Snapshot

A picture is worth a thousand words, so the Dash 18 allows you to record video snapshots along with your waveforms for an accurate representation of your test. Simply connect a USB-compatible webcam and the Dash 18 displays and records real-time video snapshots up to 1 frame per second, synchronized to the waveform data.

Video snapshots are ideal for digital picture documentation of a test setup or subject. Before and after pictures can automatically become a standard part of your testing. If an event occurs, you have visible proof of exactly what happened. Continuous snapshots also provide details of physical changes that can occur during a long-term test. Video snapshots can also be used to illustrate your test reports.



Connect a microphone, webcam and your signals and the Dash 18 will record it all!



For applications such as DC drive and machinery troubleshooting, the Dash 18's audio and video recording capability make it much faster to locate problems.

Synchronized video snapshots are also displayed when reviewing waveform data, allowing you to fully recreate your test setup.

Audio capture

Have you ever been in the middle of a test and wished you could add a voice comment to your data? With the Dash 18, you can! Utilizing a USB-compatible microphone, voice or other audio can be synchronously recorded with your waveform data.

Whether it is voice comments, telltale noises or other audible indicators, the Dash 18 will faithfully record it. When reviewing waveform data, simply connect USB-compatible speakers to hear synchronized audio playback.

PC Connection

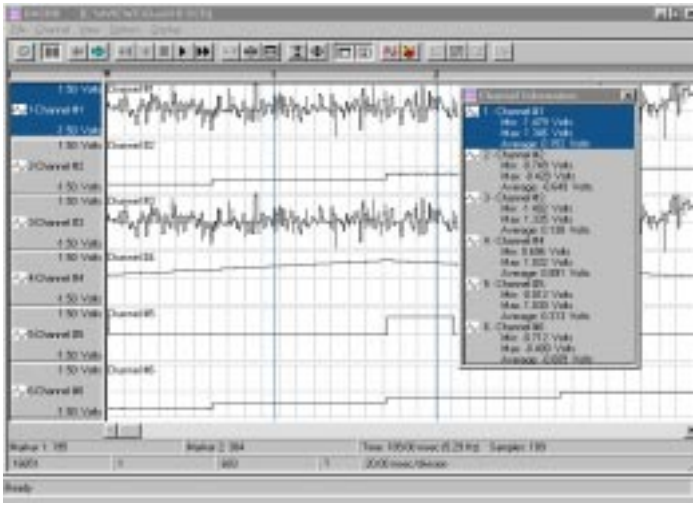
AstroVIEW C PC-based Review Software

The Dash 18 includes internal data review and analysis software for immediate analysis of captured data. Each Dash 18 also includes AstroVIEW C software, our PC-based data review and analysis program. AstroVIEW C lets you upload and review captured data on your PC. From post-capture filtering to FFT analysis, AstroVIEW C has analysis for almost any application. If you need to get data into your own spreadsheet or analysis program, AstroVIEW C easily converts data into ASCII, Excel, MathCAD, DADiSP and other popular formats.

Dash 18 Offline Software

For even more detailed analysis, as well as complete offline setup of the Dash 18, the optional Dash 18 Offline software runs on any PC running Windows 95, 98 or 2000. Dash 18 Offline lets you quickly and easily set up your Dash 18 on your PC, and transfer setups to the recorder via Ethernet or the 250 MByte Zip disk.

Dash 18 Offline is also a powerful analysis package offering a number of statistical, frequency and mathematical functions. This easy-to-use software also performs peak detection on your data, as well as post-capture filtering. Analyzing data and producing intelligent reports has never been easier!



Free AstroVIEW C software provides an easy to use yet powerful way to transfer and review your data on a PC.

Transfer Data via Zip, Ethernet or Modem

The Dash 18 has an integral 10/100BaseT Ethernet port to allow you to upload and download setups from your PC to the Dash 18. It can also be used to upload data files from the Dash 18 to your PC for analysis. For remote applications, the 250 MByte Zip disk to transfer setups along with data. Better yet, install a modem in the Dash 18 and download your setups using a dial-up connection!

Optional Chart Recorder

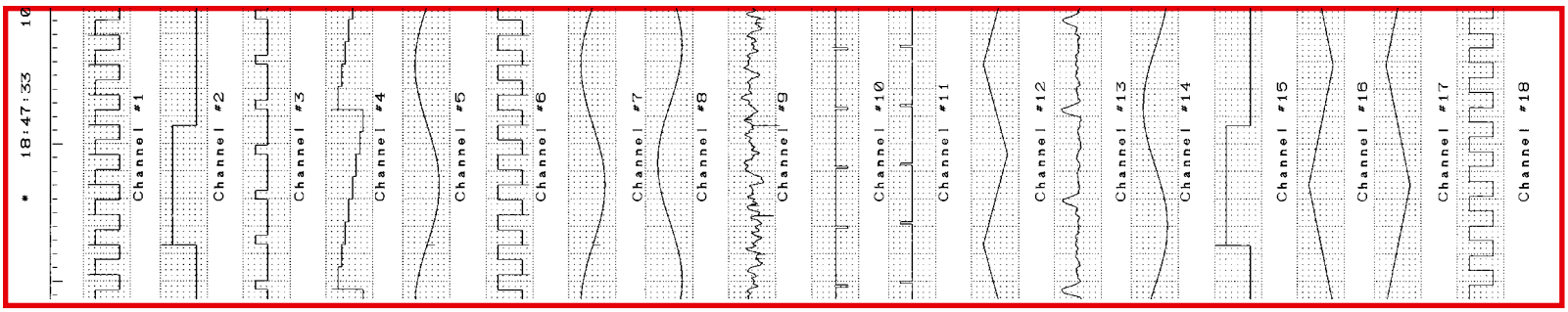
For applications requiring a strip chart output, the Dash 18 features an 11" wide chart and a 300 dot per inch thermal array recorder to give you the recording resolution you need. Attach the printer to the Dash 18 and you have a data acquisition system and chart recorder in one small box.

Customizable Chart Printing

The Dash 18 prints up to 18 waveform channels in discrete, overlap or custom modes. With time and date stamping of printouts, 128 character alphanumeric buffers for each channel and timebase/chart speed labeling, the Dash 18 printout gives you all of the information you need to interpret your data.

Real-time or Captured Data

The Dash 18 with the optional recorder is designed to print only the data you want. For real-time recording, the chart can be run anywhere from 1 mm per minute to 50 mm per second to give you immediate access to printed data. Or save paper by capturing data to the internal hard drive and printing it at a later time.



The optional recorder for the Dash 18 is ideal for real-time or post-capture strip chart output. With an 11 inch wide chart at 300 dpi, you'll get high resolution printouts of important data. (Chart printed at 80% of actual width)

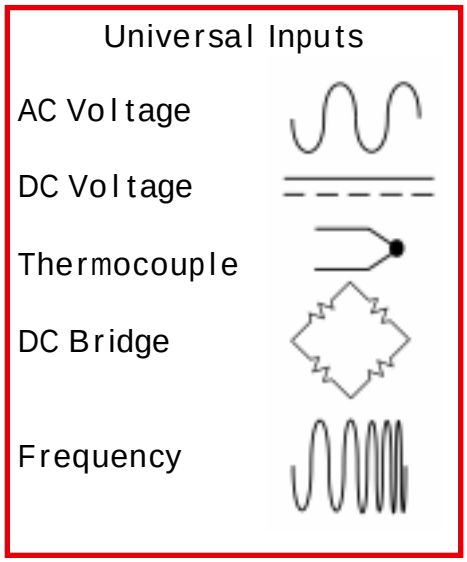
Universal Inputs

Versatile Inputs
Instead of forcing you to rely on external signal conditioners, isolators and amplifiers, the Dash 18 incorporates them internally! With universal inputs for voltage, thermocouple and DC bridge inputs, the Dash 18 is ready to connect to all your signals. And best of all, each channel can be independently configured as a different input type.

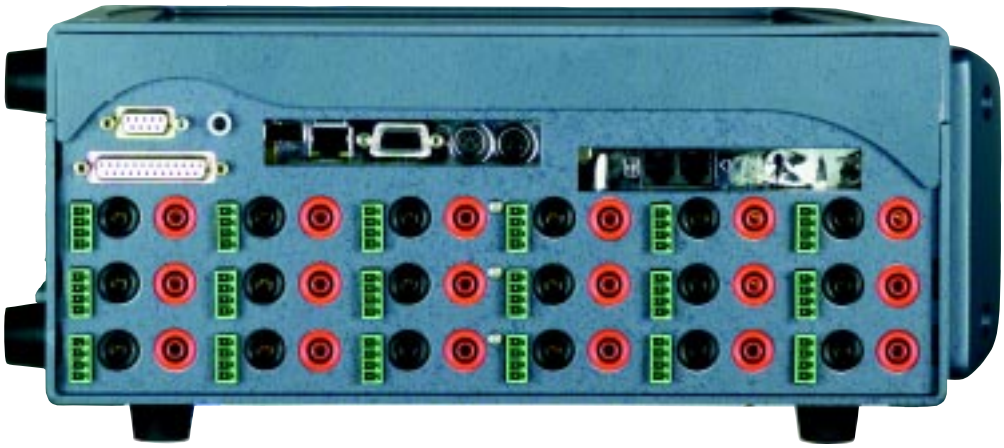
The Dash 18 also allows you to scale your signals based on your engineering units. Simply enter the scaling and units you require, and the Dash 18 will display your data in those units. Measurement couldn't be simpler!

Isolation
At one time, differential inputs were popular. Signals could be floated off ground – even up to 5 Volts. Then came isolated inputs. With isolation, signals can be floated up to 250 Volts off ground! With the Dash 18's isolated inputs, crosstalk and other problems associated with common grounds are things of the past.

High voltage
The Dash 18 can handle up to 250 Vrms directly. Utilizing shrouded banana jack inputs for safety, the Dash 18 is designed to handle high voltage measurements. The Dash 18 can even measure both AC and DC waveforms, with true RMS conversion built right in!



Low voltage
This true differential input is isolated and designed especially for millivolt range signals. The Dash 18 provides amplification and offset capabilities which allow you to accurately record even the most sensitive signals.



Universal input connectors make it easy to attach almost any signal to the Dash 18.

DC Bridge
Perfect for a wide variety of pressure transducers and load cells, the DC bridge input offers a variable isolated 10 V excitation source up to 20 mA. You can balance inherent offset at the touch of a button with the Dash 18's autobalance feature. Designed for transducers with 1 to 3 mV/V outputs, this input can also be used for other DC bridge measurements.

Thermocouple
The thermocouple input supports J, K, E, T and N thermocouples and has a bandwidth of 10 Hz. Linearization and cold junction compensation are standard, as well as Fahrenheit and Celsius scale measurements.

Frequency-to-Voltage
The frequency-to-voltage input is designed for direct frequency recording of your signals. Any input type can be used to measure frequencies from 5 Hz to 12 kHz.

DSP-based filtering
Have you ever tried to record data, only to find that electronic noise is interfering with your test? Instead of worrying, let the Dash 18 filter out unwanted components of your signals. The Dash 18 offers Low Pass, High Pass, Bandpass and Notch filtering. And best of all, you simply select the cutoff frequency you require for your application.

Real-time mathematics
With the built-in math functions of the Dash 18, you can add, subtract, multiply or divide different signals in real-time. Imagine, no more waiting until after you have captured your data to make important decisions.

Specifications

Color Display
- Type ..... Active matrix color LCD (TFT) with 15.4" viewing area
- Resolution ..... 1280 x 1024
- Touch ..... Full screen, resistive
- Functions ..... User interface with touch-based icons and menus; Real-time waveform monitoring; Review previous waveform records while recording; Overlay numeric values in Engineering Units

Signal Modules
- Number of Modules ... Up to 3
- Number of Channels ... Maximum of 18

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 > 0.01 msec

Real-time Signal Processing
- Filters ..... Low Pass Stops: 10 Hz to 10,000 Hz; High Pass Starts: 0.1 Hz to 100 Hz; Notch: 50 or 60 Hz center
- RMS ..... Time constant selectable from 0.02 to 2 seconds
- Frequency to Voltage ... 5 Hz to 20 kHz, +/- 0.05 % of measurement + 0.1 Hz
- Cross Channel ..... Sum, Difference, Ratio, Product (Power)

Real-time Signal Testing
- Basic ..... All active signals monitored simultaneously
- Test Types ..... Tests include window, slope/level, slew and event pattern
- Outputs ..... Result available for alarms, trigger, abort and external TTL.

Data Capture
- Recording Method ..... Internal 9 GByte hard drive
- Max. Sample Rate ..... 100,000 samples/second each channel (all channels)
- Min. Sample Rate ..... 1 sample/minute
- Dual Sample Rate ..... Second slower rate available when main rate is 50 kHz or less
- Total Capacity ..... Over 4 billion samples
- Maximum Record ..... 2 billion samples
- Header ..... Information on units, range, sample rates, etc. saved with data
- Events ..... All standard event inputs captured with waveforms
- Trigger Point Lock ..... Amount of pre- and post-trigger is user adjustable
- Auto Re-Arm ..... Allows automatic stacking of captures
- Auto Playback ..... Yes
- Ext. Sample rate ..... External TTL sample clock to 40,000 Hz

Signal Conditioner Specifications (SM-U)

General Specifications (all input types unless specified otherwise)
- Channels per module .. 6
- Isolation ..... 250 Vrms (iso-common to chassis and other iso-commons)
- Bandwidth ..... 12 kHz (-3 dB)
- Input Coupling ..... DC
- Zero Suppression ..... Yes
- User Engineering Units .. Yes
- Calibration ..... Semi-automated to external reference

Single-ended Voltage Input
- Connector ..... Guarded banana jack
- Max Rated Input ..... +/- 250 Vrms
- Max Transient Input .... +/- 400 V
- Specified Ranges ..... 40 to 400 VFS; 4 to 40 VFS; 0.4 to 4 VFS
- Accuracy (25 °C) ..... +/- 0.5% of full scale
- Min Input Impedance .. 1 Megohm

Differential Voltage Measurements (use for bridge measurements)
- Input Type ..... Isolated, differential
- Connector ..... Screw Terminal Header
- Absolute Max Input ..... +/- 40 V differential
- Measuring Ranges ..... 200 to 1600 mVFS; 50 to 500 mVFS; 5 to 50 mVFS
- Min Input Impedance .. 200 kOhm
- CMR at 60 Hz ..... > 60 dB
- Auto Balance ..... Yes (limited by maximum span)

Thermocouple Measurements
- Input Type ..... Isolated, differential with Screw Terminal Header Connector
- Absolute Max Input ..... +/- 40 V
- Specified Range ..... Type J: 0 to 760 °C; Type K: 0 to 1370 °C; Type T: -160 to 400 °C; Type E: -100 to 1000°C; Type N: 0 to 1300°C
- Accuracy (25°C) ..... 0.5% of measurement + 1 °C
- Bandwidth ..... 10 Hz (-3 dB)
- Intrinsic Noise ..... 0.5 °C (1 Hz filter)
- Linearization ..... NIST polynomial
- Units ..... °C or °F

Excitation
- Connector ..... Screw Terminal Header
- Excitation ..... Isolated 10 V @ 20 mA
- Adjustable ..... 0.1 to 10.1 V

Frequency Measurements
- Method ..... Zero-crossing, channels 1, 7 and 13 only
- Signal Amplitude ..... Peak to peak minimum is 20% of attenuator
- Hysteresis ..... Yes

Removable Drive
- Type ..... 250 MB Zip
- Format ..... MSDOS® format
- Function ..... Setup files, software upgrades, data transfer/archive

Power
- Input Voltage Range ..... 102 to 264 VAC
- Frequency Range ..... 47 Hz to 63 Hz
- Power Consumption .... 300 W maximum

Compliance
- Safety ..... EN 61010-1
- EMC ..... FCC Class A, EN 61326
- Power Harmonics IEC1000-3-2

Physical
- Enclosure ..... Aluminum
- Dimensions ..... 14.6" L x 13.9" W x 6.4" H
- Weight ..... 25 lbs

Environmental
- Operating Temp. ..... 5 to 40 °C (40 to 105 °F)
- Non-operating Temp ... -20 to 60 °C (-4 to 140 °F)
- Operating Humidity ..... 10% to 95% non condensing

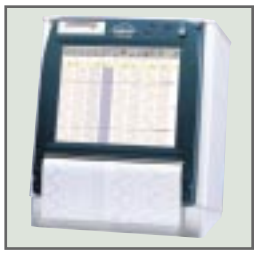
Optional Chart Recorder
- Chart Width ..... 11"
- Max. Chart Speed ..... 50 mm/sec

Optional DC Input Power
- Input Range ..... 9 - 24 V
- Input Power ..... 230 W max
- Fuse ..... User replaceable 30 A

***Specifications subject to change without notice.**

More Recorders and Data Acquisition Systems

Everest Telemetry Recorder



- Large color display for real-time data viewing
- Intuitive touch-screen interface simplifies setup
- Up to 32 analog or digital input channels
- Virtual Chart™ efficiently stores data, saving paper
- Ethernet interface for command and control
- High-resolution chart printing for clear, crisp traces

AstroDAQ2 Data Acquisition System



- Complete system - from signal to software
- Flexible enough to handle all your troubleshooting, monitoring, maintenance and recording needs.
- No PC, no paper, no worries
- Start recording manually or on specific conditions
- Connect any signal - high voltage, thermocouple, sensors and more

Dash 8u 8-channel Data Recorder



- 8 Channels with isolated inputs
- Signal conditioning for any application
- 10.4” color monitor for real-time viewing and playback
- 100 MByte removable ZIP® drive
- Optional real-time mathematics
- Rugged, compact and portable - less than 20 lbs.

Dash 4u 4-channel Data Recorder



- Isolated signal conditioning for any application
- 10.4” color monitor
- 4 channels with 50 kHz sample rate
- Two additional channels for real-time mathematics
- Internal 4 GByte hard drive for data capture
- 100 MByte removable ZIP drive for data transfer
- Rugged compact case - less than 22 lbs.

Customer Support – Technical Training

Astro-Med provides technical support to its customers around the world. In the U.S.A., Astro-Med provides field technical support and 24 hour per day, 365 days per year assistance via a toll-free number (1-877-867-9783). In Europe, Astro-Med provides service through its Factory Sales and Service Centers. Astro-Med also trains its customers through its unique three day Technical Training School, conducted at the factory located at its headquarters. Consult Astro-Med for details about this important program offered free to Astro-Med customers.

Astro-Med is system certified to ISO9001

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