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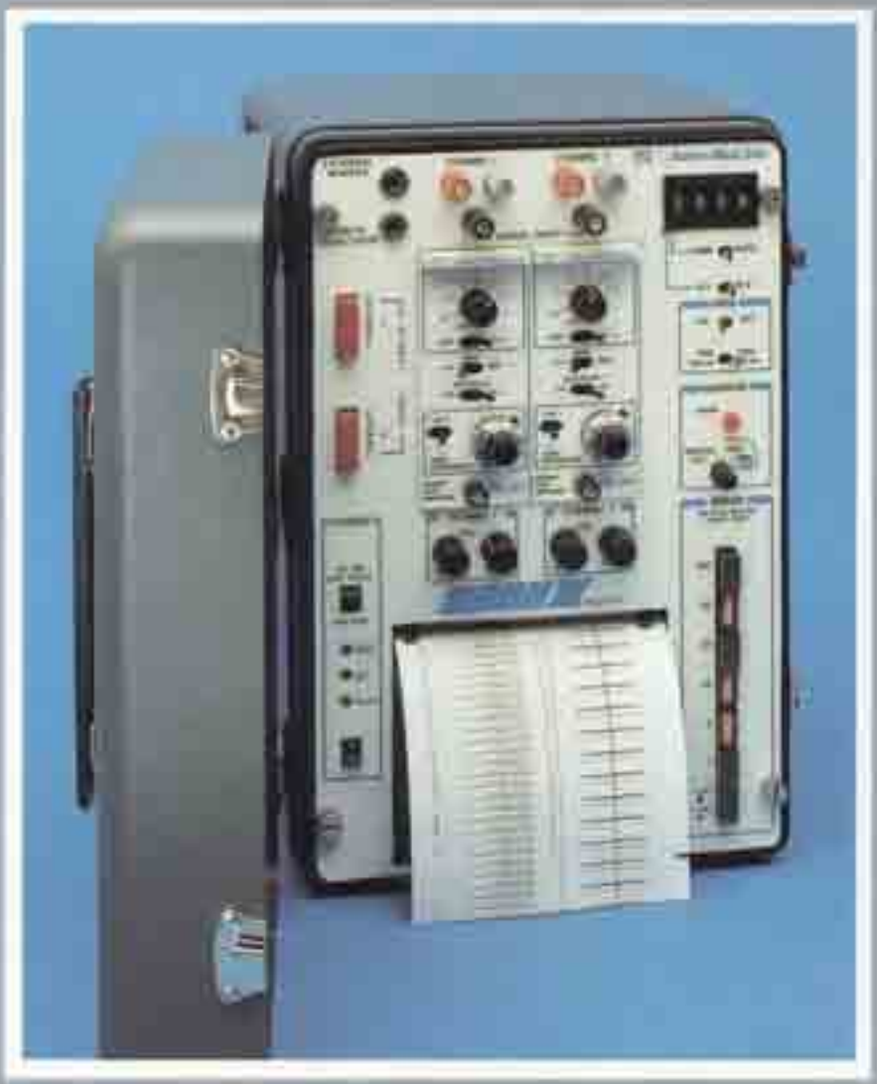
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2-CHANNEL NEW TECHNOLOGY FIELD RECORDER

Solid-state, rugged design for Industrial, Utility, Geological and other applications



- DC to 500 Hz Frequency Response
- Separate or Overlapping Waveforms
- No Styluses, Inks or Toners
- Text Printing on the Chart
- AC, 12 VDC or Built-In Battery Operation
- Proven Reliability —Full 2-Year Warranty

Dash II model MT New Technology 2-Channel Field Recorder

The World's Only Field Recorder

The Dash II model MT is the only recorder in the world especially designed for field service. Built for reliable operation under the most demanding physical and environmental conditions, the Dash II is equally at home logging data from oil wells; monitoring operations at steel and paper mills and industrial processing plants; accurately recording data while strapped onto bouncing army tanks; monitoring nuclear power stations; or at work in electric power utilities or troubleshooting telephone lines. Other recorders, with their delicate moving parts or ink writing systems, just can't survive in these applications.

The Dash II operates from various power sources: 110/220 VAC, external 11-18 VDC or through built-in rechargeable batteries lasting up to three hours.* Recharge while recording. Just plug the unit into AC line power, and the batteries recharge as the recorder runs.

Built into a tank-tough aluminum case, and weighing only 32 lbs., the compact Dash II is easy to carry wherever you go. It fits neatly beneath most airline seats. A convenient pouch on the side of the case carries an operating manual, extra chart paper, and your signal hook-up cables.

*Battery life between re-charges is affected by chart paper speed and signal amplitude and frequency.



Accurate, Crisp, Sharp Charts

The Dash II produces remarkably vivid, sharp, uniform traces and prints clear text. And skipping, a particularly troublesome recorder problem, has been eliminated because there are no styluses or pens.

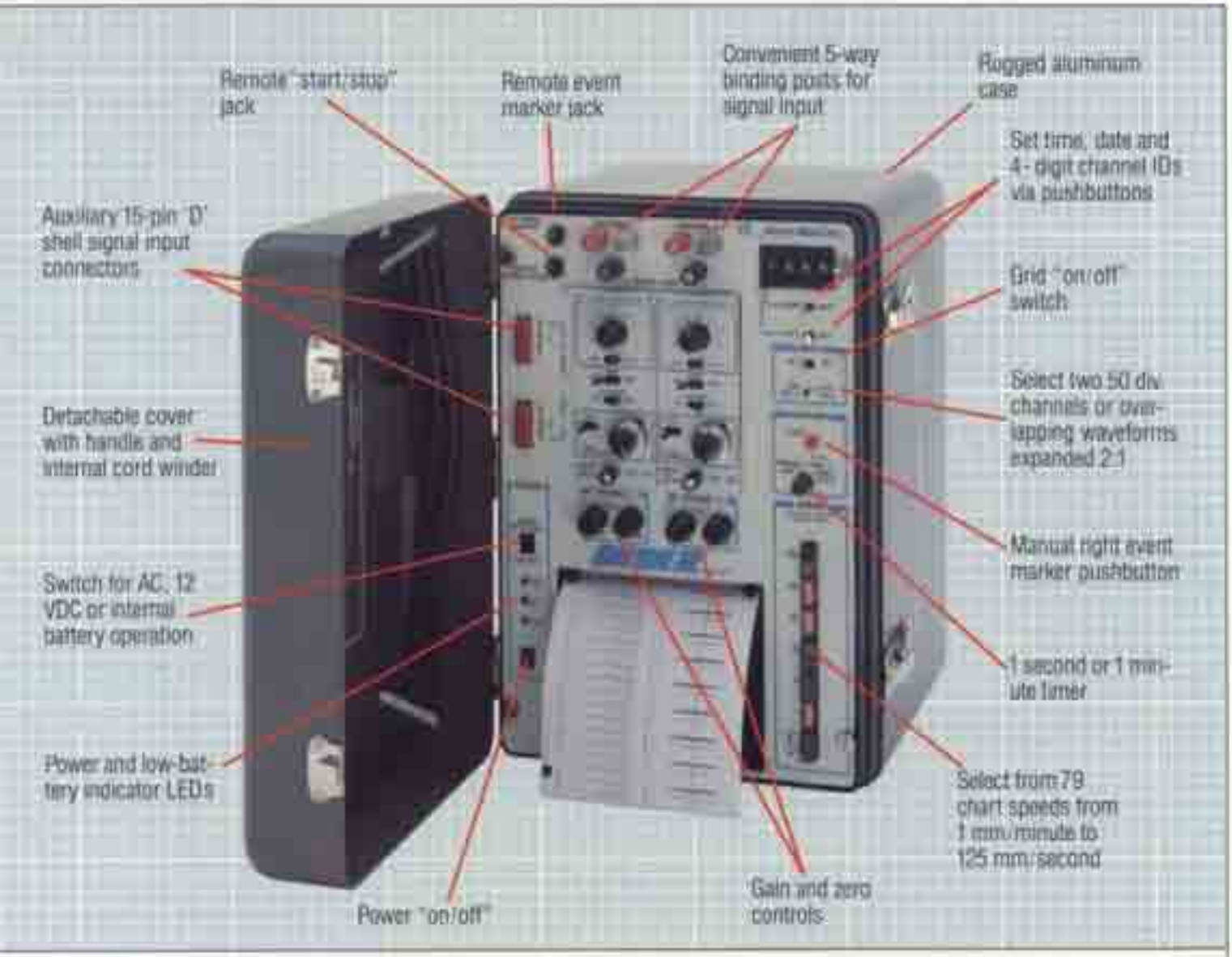
Accuracy is *assured* by the Dash II's 10-bit digital technology, with a high sampling rate that permits signals as short as 1 millisecond to be faithfully recorded. And accuracy is *preserved* because the grid and data are printed simultaneously, completely eliminating chart paper drift and skew.

Full Two-Year Warranty

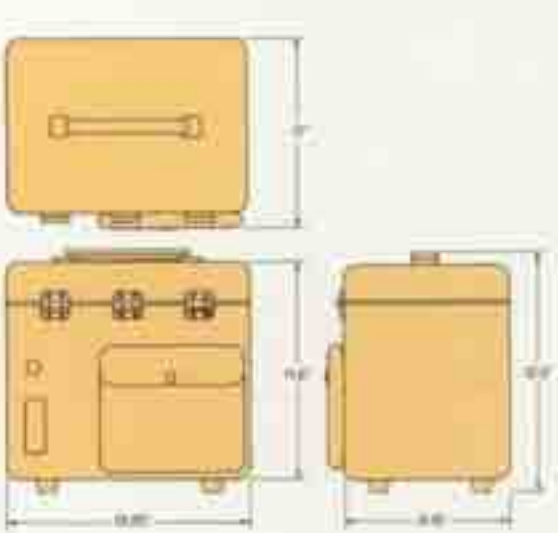
The remarkable reliability of the New Technology has made it possible to offer an unprecedented full 2-year warranty for both parts and labor for the Dash II. Without pens or styluses to break, no fluids or chemicals, no exotic plumbing, and with no moving parts, the Dash II is virtually trouble-free.

Astro-Med's New Technology and the Dash II model MT

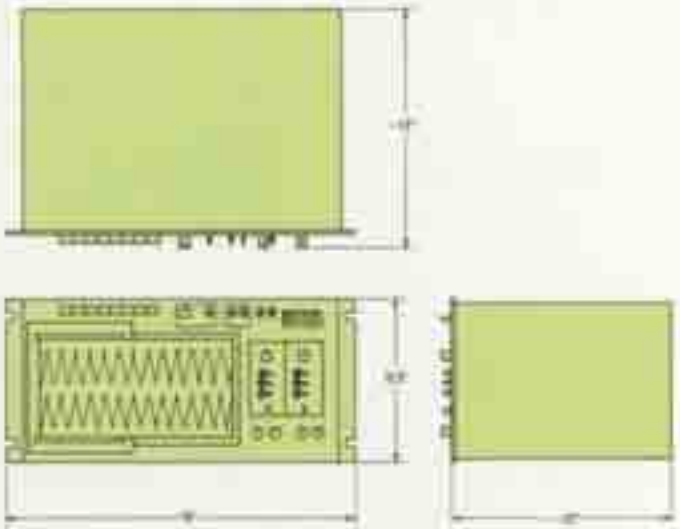
Years ago, the evolution of recorders came to a natural end because of their dependence on moving mechanical parts such as pen motors. And so recorders have continued to be inaccurate and troublesome with breakable pens and messy inks. Enter Astro-Med's New Technology: It eliminates old fashioned mechanical and liquid components which inhibit and delay the recording process. In the Dash II, only the chart paper and the electrons move. Incoming data is processed digitally with 10-bit accuracy, and waveforms and other data are printed with a high density therr printhead. And the tracings are unbelievably clear, accurate and free of any distortion.



Mechanical Configurations and Dimensional Data



Dash II portable model



Dash IIR rack-mounting model

Dash II model MT New Technology 2-Channel Field Recorder

The Best Chart Record... Ever

The Dash II MT has important features never before available in a field recorder. For example, while recording two separate 50 division channels of data, you can expand both channels to 2:1 and overlap them, at the flick of a switch. This feature permits easy comparison of two different signals and greatly increases resolution. *And you can do this at frequencies up to 500 Hz full scale!* You get clear, crisp traces. No overshoot, no skips, no fading. Writing quality far surpasses that of any existing recorder. In addition, a system log channel *automatically* prints time, date, chart speed, and time scale information in the chart margin. The Dash II will also mark each channel with a four-digit ID number which you enter through front panel pushbuttons.



And there's more. The plug-in signal conditioners contain a "talking" feature that permits the recorder to print out switch settings and other data in the margins of the chart. Thus, there is never a question about data when a chart is analyzed: you know "when, where and how" data was recorded. Every time.

Chart Skew Eliminated

Some people call it chart skew, drift or wander. Whatever you call it, it is one of the most common and serious errors in old technology recorders. That's because they use pre-printed charts, and charts don't track perfectly. Because they're made of paper, they wander slightly from side to side. But the New Technology Dash II prints its own chart grid as it records the data, so even if the chart wanders, the Dash II is entirely free from chart drift error.

Two 50 div. channels—grid "off"

Two 50 div. channels—grid "on"

CHARTS SHOWN ACTUA



Z-Fold Simplicity

You can load the Dash II with a pack of Z-fold chart paper in less than 10 seconds, whether the power is on or off.

Simply slide a fresh pack of chart paper into the compartment, push the first sheet under the drive roller, and close the door.

Z-fold provides immediate access to any page of recorded data. Without rewinding or searching through hundreds of feet of roll paper to find the required portion. Examining your charts is as easy as flipping through a book.

Text channel includes 4-digit ID, and switch settings from ASC-900 Series signal conditioners

Left Event Marker—actuated by remote TTL-Low/switch closure

Unique System Log prints hours, minutes, seconds, day, month, year, chart speed and time scale automatically.

2:1 expanded overlapping channels—grid "on"

Event Marker—actuated second or 1 minute timer on front panel pushbutton

2:1 expanded overlapping channels—grid "off"

. SIZE. UNRETOUCHED.

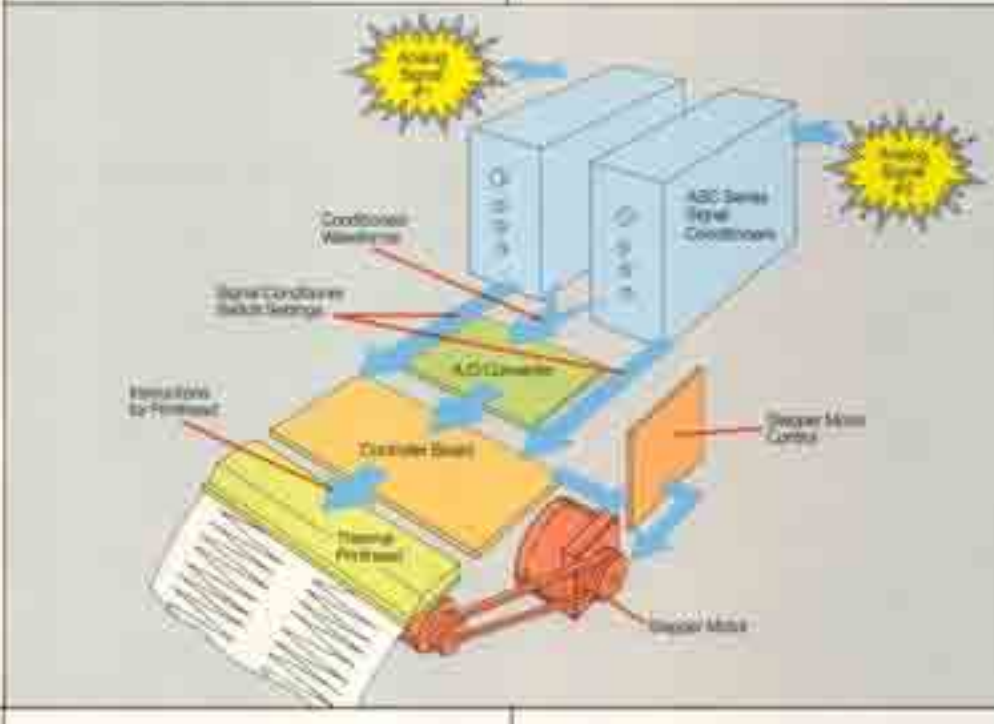
Dash II model MT New Technology 2-Channel Field Recorder

How the New Technology Works

ASC-900 series amplifiers condition your incoming analog signals, and then send them to the A/D board. Here, the data is sampled at 5 KHz and converted into a continuous stream of digital values. The controller board converts the signals into either separate 50 division or 2:1 expanded channels, selectable via a front panel switch.

Each of the 800 writing elements in the printhead receives up to 1000 print commands per second. This creates an instantaneous, permanent record on thermally sensitive paper, which is moved across the printhead by a precise crystal-referenced stepper motor. The extremely smooth, sharp, and clear traces are visible immediately after printing and need no developing or processing.

Grids and event markers are generated simultaneously with waveforms.

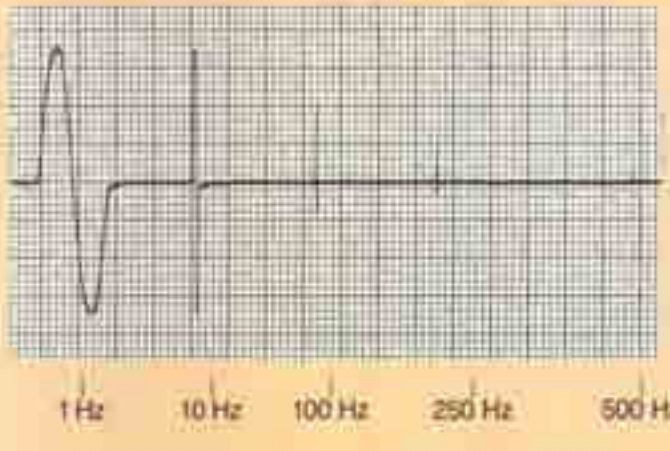


High Frequency Response

The high *sampling* rate allows transients as short as 1 ms to be faithfully recorded. Because of the high *printing* rates, complete waveform analysis is limited only by paper speed, not by the filtering and attenuating effect of a moving pen or stylus.

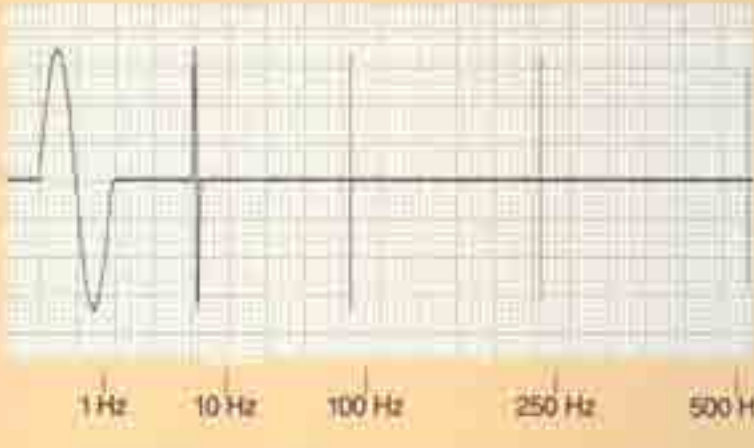
The actual chart sample below illustrates how accurately single cycles of varying frequencies are faithfully recorded by the Dash II.

Conventional Stylus Recorder



Unretouched chart demonstrates characteristic non-linear frequency response of conventional stylus recorder. Note dramatic attenuation as frequency increases.

New Technology Dash II



Ten-fold improvement in linearity and frequency response of Dash II reproduces 500 Hz signal within 3 dB.

[ıg-In Signal Conditioners

A complete family of Astro-Med ASC plug-in signal conditioners adapts the Dash II instantly to specific applications such as monitoring power lines, industrial processes, aircraft and automotive functions, and many more.

Each signal conditioner is complete with all controls required for its particular function. Signal conditioner models include General Purpose ASC-902, High Voltage ASC-903, DC Bridge ASC-906, High Gain ASC-908, Medium-High Gain ASC-909, Thermocouples ASC-910J and ASC-910K, Frequency-to-Voltage ASC-912, and Logarithmic ASC-913.

Complete specifications for all models are provided in a separate brochure.



Specifications, Performance and Engineering Data

Recording Method	Direct writing with thermal array printhead (no moving parts)
Recording Medium	Low cost permanent thermal paper, black imaging
Chart Width	5" (125 mm)
Chart Length	150' (45.5 meters)
Number of Channels	Two, plus two event markers
Frequency Response	DC to 500 Hz full scale, -3dB
Resolution	200 dot-per-inch across printhead
Linearity	Within 0.2% of full scale
A/D Type	16-bit
Chart Drift	Not applicable since grid is printed simultaneously with waveform
Signal Input	(Varies with ASC-900 Signal Conditioner model used, see examples below) ASC-902 General Purpose—1 mv/div to 500 V ASC-903 High Voltage—0.5 mv/div to 1000 V ASC-908 High Gain—1 µV/div to 5 V
Input Type	Differential or single-ended (see ASC-900 brochure)
Input Connector	5-way binding posts, plus 15 pin 'D' shells
Zero Control	Full scale via front panel pot
Gain Control	CAL, and variable (0-100%) via front panel pot/switch
Chart Speeds	19, from 1 mm/ min to 125 mm/sec
Chart Motor Type	Stepper, crystal-referenced
Chart Speed Accuracy	±0.2%
Grid Types	Two 50 div.—10 major, 50 minor subdivisions One 50 div.—10 major, 50 minor subdivisions
Grid Control	On/off via front panel switch
Dimensions	Portable Model: 12" (30.5 cm) D x 16" (25.4 cm) W x 13¼" (33.7 cm) H Rack Mount Model: 12" (30.5 cm) D x 19" (48.3 cm) W x 8¾" (22.2 cm) H
Weight	32 lbs (14.5 kg) with batteries
Temperature Range	5-45°C (30-113°F), 5-95% RH, operating
Power Requirements	AC: 110/220 VAC selectable, 48-440 Hz DC: 11-18 VDC Internal, built-in batteries (portable model only)
Batteries	Rechargeable gel type, factory installed, 2-3 hours of operation per charge
Charger & Indicator	Built-in charger. Recharges automatically when plugged into AC line power. Front panel LEDs indicate low battery and power
Manufactured	U.S.A.
Warranty	2 years

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Gold-standard solutions

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