

MFD500 ULTRASONIC FLAW DETECTOR

Description :

The MFD500B is an advanced digital ultrasonic flaw detector featuring a multi-color TFT LCD and a host of new features to meet challenging inspection requirements. It combines powerful flaw detection and measurement capabilities, extensive data storage, and the ability to transfer detailed inspection data to the PC via its high-speed USB port.

The instrument incorporates many advanced signal processing features including a 15MHz RF bandwidth to permit testing of thin materials, narrowband filters to improve signal to noise in high gain applications, a spike pulser for applications requiring higher frequencies, and a tunable square wave pulser to optimize penetration on thick or highly attenuating materials.

The instrument can be widely used in locating and sizing hidden cracks, voids, disbands, and similar discontinuities in welds, forgings, billets, axles, shafts, tanks and pressure vessels, turbines, and structural components.



Features :

Display :

- Hi-resolution (320×240 pixels) multi-color TFT LCD Display with 4 user-selectable brightness control provides high contrast viewing of the waveform.

The hi-resolution multi-color TFT LCD display with fast 60 Hz update gives an “analog look” to the waveform providing detailed information that is critical in main applications.

Range :

- 0 to 9999 mm in steel. Selectable fixed in steps of 1 mm.
Suitable for use on large work pieces and in high-resolution measurements.

Receiver :

- Bandwidth** : 0.5MHz to 15MHz capability with selectable frequency ranges to match probe for optimum performance.
- Gain** : 0 to 110 dB adjustable in steps of 0.1 dB, 2 dB, 6 dB, 12dB & 20dB.
- Sampling** : 10 digit AD converter at sampling speed of 160 MHz.
- Rectification** : Positive Halfwave, Negative Halfwave, Fullwave and RF.

Pulser :

Pulse Energy selectable among Low, Medium and High.

Pulse Width tunable from 0.1 μs to 0.5 μs to match the probes with different frequency.

Pulse Repetition Frequency adjustable from 10 Hz to 1 KHz in 1 Hz increments. Damping selectable among 100Ω, 200Ω and 400Ω for optimum probe performance.

Test Modes include Pulse echo, dual and thru-transmission

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Gates :

Two fully independent gates offer a range of measurement options for signal height or distance using peak triggering.

The echo-to-echo mode allows accurate gate positioning for signals which are extremely close together.

Gate Start: Variable over entire displayed range.

Gate Width: Variable from Gate Start to end of displayed range.

Gate Height: Variable from 0 to 99% Full Screen Height.

Alarms: Threshold positive/negative.

Memory :

Memory of 100 channel files to store calibration set-ups.

Memory of 1000 wave files to store A-Scan patterns and instrument settings.

All the files can be stored, recalled and cleared.

Functions :

- Semiautomatic two point calibration: Automated calibration of transducer zero offset and/or material velocity.
- Flaw Locating : Live display Sound-path, Projection (surface distance), Depth, Amplitude.
- Flaw sizing: Automatic flaw sizing using AVG/AVG or DAC, speeds reporting of defect acceptance or rejection.
- Digital Readout and Trig. Function: Thickness/Depth can be displayed in digital readout when using a normal probe and Peam path, Surface Distance and Depth are directly displayed when angle probe is in use.
- Both the DAC and the AVG method of amplitude evaluation are available.
- DAC curve for 2 to 10 points. 0 to 100% full scale height rejection facility with LED indicator.
- Curved Surface Correction feature.
- Crack Height Measure function.
- Weld figure feature.
- Magnify gate spreading of the gate range over the entire screen width.
- Video Recording and play.
- Auto-gain function.
- Envelope: Simultaneous display of live A-scan at 60 Hz update rate and envelope of A-scan display.
- Peak Hold: Compare frozen peak waveforms to live A-Scans to easily interpret test results.
- A Scan Freeze : Display freeze holds waveform and sound path data.
- B Scan display feature.

Real Time Clock :

The instrument clock keeps running tracking the time.

Communication :

High speed USB2.0 port.

The optional DataPro software helps manage and format stored inspection data for high-speed transfer to the PC.

Data can be printed or easily copied and pasted into word processing files and spreadsheets for further reporting needs. New features include live screen capture mode and database tracking.

Battery Life :

Internal rechargeable Li-ion battery pack rated 7.2V at 8800 mAh 8 hours nominal operating time depending on display brightness 8-10 hours typical recharge time.

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Specifications :

Range	0 to 9999 mm, at steel velocity
Material Velocity	1000 to 9999m/s
Display Delay	-20 to 3400 μ s
Probe Delay/Zero Offset	0 to 99.99 μ s
Sensitivity	110 dB max in selectable resolution 0.1, 1.0, 2.0, 6.0, 12.0, 20.0 dB and locked.
Test Modes	Pulse echo, dual element and thru-transmission
Pulser	Tunable Square Wave Pulser
Pulse Repetition Frequency ranges	10 Hz to 1000 Hz
Pulse Energy	Low, Medium and High
Damping	100, 200, 400 ohms
Bandwidth (amplifier bandpass)	0.5 to 15 MHz
Gate Monitors	Two independent gates controllable over entire sweep range
Rectification	Positive halfwave, negative halfwave, fullwave, RF
System Linearity	Horizontal: +/-0.2% FSW, Vertical: 0.25% FSH, Amplifier Accuracy +/-1 dB.
Reject (suppression)	0 to 80% full screen height
Units	Inch or millimeter
Transducer Connections	BNC or LEMO
Power Requirements	AC Mains 100-240 VAC, 50-60 Hz
Dimensions	263Hx170Wx61D mm
Operating Temperature	-10°C to 50°C
Storage Temperature	-30°C to 50°C

Item Code : ST-MFD500

Product Supply Includes : Portable Ultrasonic Flaw Detector With Multi-color TFT LCD Display,
 Normal Probe 24mm Dia 4 MHz with BNC connector,
 Normal Probe 24mm Dia 6 MHz with BNC connector,
 Normal Probe 10mm Dia 2 MHz with Mini LEMO BNC connector,
 Normal Probe 10mm Dia 6 MHz with Mini LEMO BNC connector,
 Angle Probe 20 x 22 mm for 45, 60, 70 Degree angle, 2MHz, with BNC Connector,
 Angle Probe 20 x 22 mm for 45, 60, 70 Degree angle, 6MHz, with BNC Connector,
 Interconnect Cable For The Transducer (Q9-C5),
 Rechargeable Li-ion Battery Package, 8.8 Ah,
 Power Supply/charger Unit,
 Operating Manual In English,
 Datapro Software For MFD Series Instrument,
 USB Cable
 Reference Block V1, V2 and VW.