**Portable Ultrasonic Flaw Detector MFD800C**



OVERVIEW

The MFD800C 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.

KEY FEATURES

The instrument extends the performance and range of applications that are capable of being satisfied by a portable instrument. The quality, portability, durability, and dependability that you have come to expect from the popular series of instruments remain.

DISPLAY

Hi-resolution (640 × 480 pixels) multi-color TFT LCD with 4 user-selectable brightness control provides high contrast viewing of the waveform from bright, direct sunlight to complete darkness. 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 many applications including nuclear power plant inspections.

RANGE

Up to 9999 mm in steel. Suitable for use on large work pieces and in high-resolution measurements.

PULSER

Pulse Energy selectable among Low, Medium and High. Pulse Width tunable from 0.1μs 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.

RECEIVER

Sampling: 10 digit AD Converter at the sampling speed of 160 MHz.

Rectification: Positive Halfwave, Negative Halfwave, Fullwave and RF.

Analog Bandwidth: 0.5MHz to 15MHz capability with selectable frequency ranges (automatically set by the instrument) to match probe for optimum performance.

Gain: 0 dB to 110 dB adjustable in selectable steps 0.1 dB, 2 dB, 6 dB, and locked.

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 1000 channel files to store calibration set-ups.

Memory of 10000 wave files to store A-Scan patterns and instrument settings.

All the files can be stored, recalled and cleared.

VIDEO RECORDER

Screen scenes can be captured as movie files. More than 10 hours movie can be saved

to the inside memory. Scenes can be re-played using the instrument or the PC software

delivered with the instrument. Video Recorder is useful in many situations, it is very convenient for those who want to analyze the probing activities later.

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 Beam 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.

TVG(Time Varied Gain).

AWS D1.1.

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. Two USB modes can be selected: U-DISK and U-BRIDGE. In UDISK mode, the instrument acts as a USB flash disk when connected with PC. Configuration files, saved pictures and recorded movies can be copied to PC when possible. In U-BRIDGE mode, the instrument exchanges data with DataPro Software. The optional DataPro software helps manage and format stored inspection data for highspeed 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: Internal rechargeable Li-ion battery pack rated 7.2V at 8800 mAh.

10 hours nominal operating time depending on display brightness.

8-10 hours typical recharge time.

Knob: Operating adjustments are easily and quickly made using the rotary knob.

SPECIFICATIONS

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| Range: | 0 to 9999 mm at steel |
| Material Velocity: | 1000 to 9999m/s |
| Bandwidth (amplifier bandpass): | 0.5 to 15 MHz |
| Amplifier Accuracy: | +/-1 dB |
| Sensitivity: | 110 dB in selectable resolution 0.1, 1.0, 2.0, 6.0 dB and locked |
| Reject (suppression): | 0 to 80% full screen height |
| Display Delay: | -20 to 3400 μs |
| Probe Delay/Zero Offset: | 0 to 99.99μs |
| Damping: | 68 Ω, 100 Ω, 150 Ω, 500 Ω |
| Pulser: | Tunable Square Wave Pulser from 0.1μs to 0.5 μs |
| Pulse Repetition: | Frequency ranges from 10 Hz to 1000 Hz in 1 Hz increments |
| Pulse Energy: | 200V, 300V, 400V, 500V, 600V selectable |
| Test Modes: | Pulse echo, dual element and thru-transmission |
| Display Modes: | A-Scan, B-Scan |
| Rectification: | Positive halfwave, negative halfwave, fullwave, RF |
| Gate Monitors: | Two independent gates controllable over entire sweep range |
| Flaw sizing: | Automatic flaw sizing using AVG or DAC |
| Memory: | Memory of 1000 channel files to store calibration set-ups.  Memory of 10000 wave files to store A-Scan patterns and instrument settings.  All the files can be stored, recalled and cleared |
| Video Recorder: | More than 10 hours of screen scenes can be saved to the internal memory |
| Units: | Millimeter or inch |
| Interoperability with external devices: | PC interoperability through the USB serial interface |
| Power Requirements: | AC Mains 100-240 VAC, 50-60 Hz |
| Battery: | Internal rechargeable Li-ion battery 7.2V, 8800 mAh |
| Continuous operation time (battery): | Approx. 10 h |
| Weight: | 1.5 kg |
| External dimensions: | 250 x 170 x 55 mm |
| Operating Temperature: | -100 to 500 C |
| Storage Temperature: | -300 to 500 C |