

# DAKOTA ULTRASONICS

## Performance, Power & Perfection!

### The CMX Series

#### Material & Coating Thickness Gauges

##### Electronic Platform:

- ▶ Powered by a 100MHz DSP platform using FPGA technology.
- ▶ Two Channels - Dual pulsers and receivers.
- ▶ Up to 140Hz pulse repetition rate.
- ▶ Display update rate of 25 times per second.
- ▶ Adjustable gain settings - vlow, low, med, hi, vhi.
- ▶ Automatic gain control (AGC).
- ▶ Time corrected gain (TCG).
- ▶ Massive data storage (32 Megabit of non-volatile RAM).

##### Features:

- ▶ Measurement modes: Pulse-Echo, Pulse-Echo w/Coating, Pulse-Echo w/Temperature Compensation, Echo-Echo, Echo-Echo Verify & Coating Only.
- ▶ Automatic: probe zero, probe recognition, and temperature compensation.
- ▶ Stores up to 64 custom setups for specific applications.
- ▶ High Speed Scan of up to 50 readings per second.
- ▶ Audible/visual alarm with hi and lo limit settings.
- ▶ Built-in differential mode for QC inspections.
- ▶ Time based B-Scan feature for cross section material scans.
- ▶ Data storage formats: Alpha numeric grid and sequential w/auto identifier.
- ▶ Windows PC software included.
- ▶ 2 year limited warranty.

SOUND SOLUTIONS

# CMX & CMX DL SPECIFICATIONS

## Physical

### Size:

Width (2.5in/63.5 mm)  
Height (6.5 in/165 mm)  
Depth (1.24 in/31.5 mm)

**Weight:** 13.5 ounces (with batteries).

**Keyboard:** Membrane switch pad with twelve tactile keys.

**Operating Temperature:**  
14 to 140F (-10C to 60C)

**Case:** Extruded aluminum body with nickel-plated aluminum end caps (gasket sealed).

**Data Output:** Bi-directional RS232 serial port. Windows® PC interface software.

**Display:** 1/8in VGA grayscale display (240 x 160 pixels). Viewable area 2.4 x 1.8in (62 x 45.7mm). EL backlit (on/off/auto).

## Ultrasonic Specifications

### Measurement Modes:

**Coating Off:** Pulse-Echo (P-E)

**Coating On:** Pulse-Echo Coating (PECT)

**Temp Comp:** Pulse-Echo Temperature Compensation (PETP)

**Thru-Paint:** Echo-Echo (E-E)

**Thru-Paint Verify:** Echo-Echo Verify (E-EV)

**Coating Only:** Coating (CT)

**Pulser:** Dual square wave pulsers.

**Receiver:** Dual receivers - manual or AGC gain control with 110dB range (limited).

**Timing:** Precision 25 MHz TCXO with single shot 100 MHz 8 bit ultra low power digitizer.

## Power Source

Three 1.5V alkaline or 1.2V NiCad AA cells.

Typically operates for 35 hours on alkaline and 10 hours on NiCad (charger not included).

Auto power off if idle 5 minutes.

Battery status icon.

## Transducer

### Transducer Types:

Dual Element (1 to 10 MHz).

Locking quick disconnect  
"00" LEMO connectors.

Standard 4 foot cable.

Custom transducers and cable lengths available for special applications.

## Measuring

**Pulse-Echo Mode (P-E)** - (Pit & Flaw Detection) measures from 0.025 to 19.999 inches (0.63 to 508 millimeters).

**Pulse-Echo Coating Mode (PECT)** - (Material, Coating, Pit & Flaw Detection); Material: 0.025 to 19.999 inches (0.63 to 508 millimeters). Coating: 0.001 to 0.100 inches (0.01 to 2.54 millimeters).

**Pulse-Echo Temp Comp Mode (PETP)** - (Pit & Flaw Detection) Auto temperature compensation - measures from 0.025 to 19.999 inches (0.63 to 508 millimeters).

**Echo-Echo Mode (E-E)** - (Thru Paint & Coatings) measures from 0.100 to 4.0 inches (2.54 to 102 millimeters). Range will vary +/- depending on the coating.

**Echo-Echo Verify Mode (E-EV)** - (Thru Paint & Coatings) measures from 0.100 to 1.0 inches (2.54 to 102 millimeters). Range will vary +/- depending on the coating.

**Coating Only Mode (CT)** - (Coating Thickness) Measures from 0.0005 to 0.100 inches (0.0127 to 2.54 millimeters). Range will vary +/- depending on the coating.

### Resolution:

+/- 0.001 inches (0.01 mm)

### Velocity Range:

0.0492 to 0.5510 inches/ $\mu$ s  
1250 to 13995 meters/sec

Single and Two point calibration option for material & coating, or selection of basic material types.

### Units:

English & Metric

## Display

**Large Digits** - Standard thickness view. Digit Height: 0.700 inches (17.78 millimeters).

**B-Scan** - Time based cross section view. Display speed of 15 secs per screen.

**Scan Bar Thickness** - 6 readings per second. Viewable in B-Scan and Large Digit views.

**Repeatability Bar Graph** - Bar graph indicates stability of reading.

**Feature Status Bar** - Indicates features currently active.

## Memory (CMX DL)

### Log Formats:

Grid (alpha numeric)

Sequential (auto identifier)

### Cell contents:

**Graphics On:** 16,000 readings ,BScan image, & gauge settings for every reading.

**Graphics Off:** 210,000 readings (coating, material, min & max).

**OBSTRUCT** to indicate inaccessible locations.

### Memory:

32 megabit non-volatile ram.

## Connections

**Output:** RS232 serial interface. PC software & USB converter cable included.

**Transducer Connectors:** Two LEMO 00 connectors.

## Certification

Factory calibration traceable to NIST & MIL-STD-45662A.

## Warranty

2 year limited



# MADE IN THE USA

Distributed By:



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