

# DAKOTA ULTRASONICS

## The CMX DL+ v2.0

A/B Scan Material & Coating Thickness Gauges



## The Finest in Portable Inspection!

### Highlights:

- ▶ Powered by a 100MHz DSP platform using FPGA technology.
- ▶ Display Options: Grayscale 1/8 VGA, or AMOLED color 1/4 VGA.
- ▶ Two Channels—Dual pulsers and receivers.
- ▶ Up to 250 Hz pulse repetition rate.
- ▶ Screen refresh: B&W 25 Hz, Color 60 Hz. Switchable A-Scan portrait & landscape views (color only).
- ▶ Adjustable gain: 110 dB range.
- ▶ Automatic gain control (AGC).
- ▶ Linear time dependent gain (TDG) with adjustable slope.
- ▶ Probes: Single, Dual, Delay line, Pencil.
- ▶ Memory: 4 gigabyte internal SD card.
- ▶ USB-C connectivity

# SOUND SOLUTIONS

# 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:** USB-C port. Windows® PC interface software.

**Display(Two Options):** 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). 20 Hz screen refresh rate.

1/4 VGA AMOLED color display (320 x 240 pixels). Viewable area 1.7 x 2.27 in (43.2 x 57.6 mm). 60 Hz screen refresh rate.

## 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). Adjustable damping (50-1500 ohms).

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

## Power Source

**Line Power:** USB to PC or power outlet.

**Batteries:** Three AA cells.

Alkaline - grayscale 35 hrs, color 12 hrs.

Nicad - grayscale 10 hrs, color 5 hrs.

NI-MH - grayscale 35hrs, color 12 hrs.

Power saving DIM (color), auto off 5

minutes. Battery status icon.

## Transducer

### Transducer Types:

Dual / Single Element (1 to 20MHz).  
Contact, matching layer, delay line, and pencil configurations.

Locking quick disconnect "00" LEMO connectors.

Standard 4 foot cable.

Custom transducers & cables lengths available for special applications.

## Measuring

**Pulse-Echo Mode (P-E)** - (Pit & Flaw Detection) measures from 0.025 in. to 100 ft. (0.63 mm to 30.48 M).

**Pulse-Echo Coating Mode (PECT)** - (Material, Coating, Pit & Flaw Detection); Material: 0.025 in. to 100 ft. (0.63 mm to 30.48 M). Coating: 0.001 to 0.100 in (0.01 to 2.54 mm).

**Pulse-Echo Temp Comp Mode (PETP)** - (Pit & Flaw Detection) Auto temperature compensation - measures from 0.025 in. to 100 ft. (0.63 mm to 30.48 M).

**Echo-Echo Mode (E-E)** - (Thru Paint & Coatings) measures from 0.100 to 6.0 in (2.54 to 152.4 mm). Range will vary +/- depending on the coating.

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

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

**Resolution:** +/- 0.001 in (0.01mm).  
+/- 0.0001 in (0.001 mm).

### Velocity Range:

0.0122 to 0.7300 inches/ $\mu$ s  
309.88 to 18542 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). Color 0.565 in (14.35 mm).

**A-Scan** - Rectified +/- (flaw view), RF (full waveform view). Portrait & landscape views (color only).

**Pulse Repetition Frequency** - 250 Hz

**A-Scan Refresh Rate** - B&W 25 Hz, color 60 Hz.

**B-Scan** - Time based cross section view. Display speed variable (10 to 200 readings per second).

**Scan Bar Thickness** - Speed 10 Hz. 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

**Log Formats:** Grid (Alpha Numeric), or Sequential (Auto Identifier).

**Capacity:** 4 Gb internal SD card.

**Screen Capture:** Bitmap graphic capture for quick documentation (.tif).

OBSTRUCT to indicate inaccessible locations.

## Connections

**Output:** Direct USB-C 1.1 PC connectivity.

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

## Certification

**Thickness Gauge:** Factory calibration traceable to NIST & MIL-STD-45662A.



# MADE IN THE USA

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