

# DAKOTA ULTRASONICS

## The **UMX-2** Underwater Material & Coating Thickness Gauge



### HIGHLIGHTS:

- ▶ 1000 ft. (300 m) depth rating.
- ▶ Probe types: Single Membrane & Dual Element.
- ▶ Automatic: Probe recognition & Zero.
- ▶ Measurement modes: Pulse-Echo, Pulse-Echo w/Coating, Echo-Echo, Triple-Echo (TCG).
- ▶ Data Storage: Alpha numeric & Sequential w/ID.
- ▶ Windows PC software included.
- ▶ 3 year limited warranty.

Captures an A-Scan waveform snapshot with every measurement; viewable using our Windows PC interface software.

SOUND SOLUTIONS

# UMX-2 SPECIFICATIONS

## Physical

### Size:

Length (9.0 in/229 mm).  
Diameter (2.375 in/60.33 mm).

### Weight:

1.5 lbs (0.680 kg) with 3 AA batteries.

### Keyboard:

Single button, magnetically coupled switch.

### Operating Temperature:

-20 to 140F (-29C to 60C).

### Underwater Case:

High strength transparent plastic housing. Depth rating of 1000 feet (300 meters).

### Data Output:

Bi-directional RS232 serial port, with USB converter. Windows® PC inter- face software.

### Display:

1/2 in (12.7 mm) 4.5 digit LCD display.  
3/8 in (9.5 mm) 6 alpha LCD display.  
Both displays backlit (on/ off/auto).

**LED Lighting:** 8 blue leds (on/off).

## Ultrasonic Specifications

### Measurement Modes:

#### Dual Element Probes

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

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

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

#### Single Element Probes

**Triple-Echo (TCg):** Thru-Paint.

**Pulser:** Dual square wave pulsers.

### Receiver:

Dual receivers - manual or AGC gain control with 100 dB range.

**Manual gain:** Limited to 5 gain settings (vlow, low, med, high, vhigh (42 to 50 dB).

**AGC:** Automatic gain setting.

### 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 50 hours on alkaline and 20 hours on NiCad (backlight off). 15 hours on alkaline and 8 hours on NiCad (backlight on).

Auto power off if idle 5 min.

Battery status displayed on power up.

## 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).

**Echo-Echo Mode (E-E)** - (Thru Paint & Coatings) measures from 0.100 to 4.0 inches (2.54 to 102 milli- meters). Will vary based on coating.

**Triple-Echo (TCg)** - 0.040 to 6.00 (1 to 152 millimeters) inches in steel. Range will vary based on coating thickness, material type, and probe.

### Resolution:

+/- 0.001 inches (0.01 mm).

### Units:

English & Metric

### Velocity Range:

0.0492 to 0.5510 in/us  
1250 to 13995 meters/sec

8 fixed and 1 programmable Material Velocities (in/us):

1. Aluminum 2024	.251
2. Steel 4340	.233
3. Stainless Steel 302	.223
4. Iron	.232
5. Cast Iron	.180
6. PVC	.094
7. Polystyrene	.092
8. Polyurethane	.070
9. Custom	User

## Computer Interface

RS232 serial interface. PC software & USB converter cable included.

## Display

### Segmented Displays:

4.5 Digit LCD - Primary measurement display.

**6 Character LCD** - Displays menu options.

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

## Data Storage

### File Formats:

Grid (alpha numeric).  
Sequential (auto identifier).

**Programming:** Storage capacity of 1 file template. Size and dimension specified by the user.

**Storage capacity:** 5,000 readings, settings, and waveform graphics.

### Memory:

32 megabit non-volatile ram.

## Transducer

**Auto Probe Zero:** Applies to dual element probes only.

### Transducer Types

**Dual Element:** 1 to 10 MHz frequency range. Custom auto recognition probes. (flaw & pit detection).

**Single Element:** 1 to 10 MHz frequency range - (General purpose).

LEMO underwater connectors.

Standard 4 foot cable.

Custom transducers and cable lengths available for special applications.

## Certification

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

IP68 rating



# MADE IN THE USA

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