



Ultrasonic Corrosion Thickness Gauge - CMX Series

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APPLICATIONS

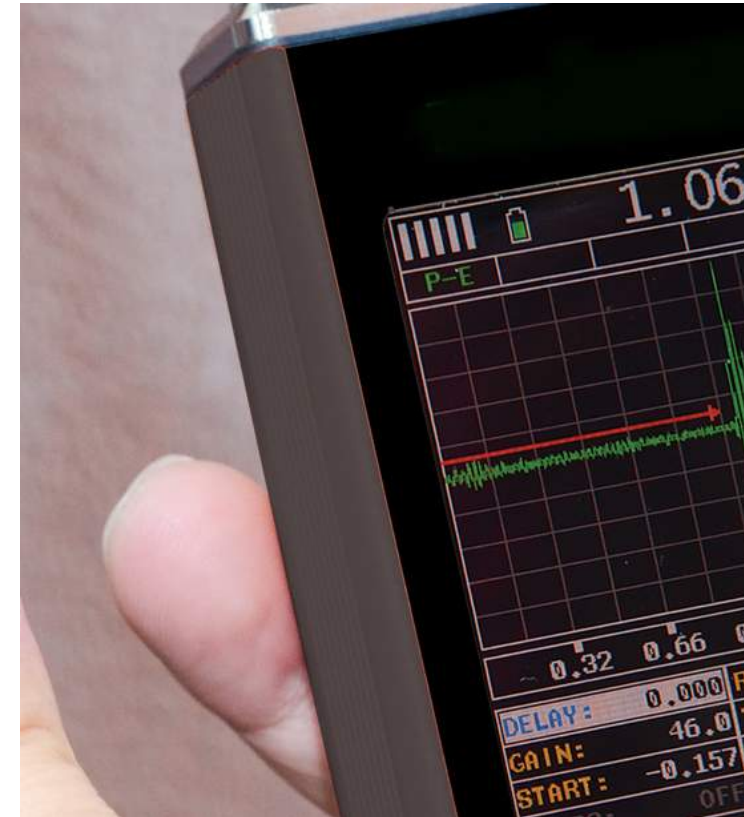
Ultrasonic Corrosion Thickness Gauge - CMX Series

Ultrasonic Corrosion Thickness Gauge - CMX Series is advanced and user-friendly, the CMX series offer inspectors all the essential features to measure both material and coating thickness simultaneously.

Intelligent

Customizable Pass/Fail Limits

Set specific limits for pass/fail indications on individual readings or entire batches, with both audible and visual alerts.





Powerful

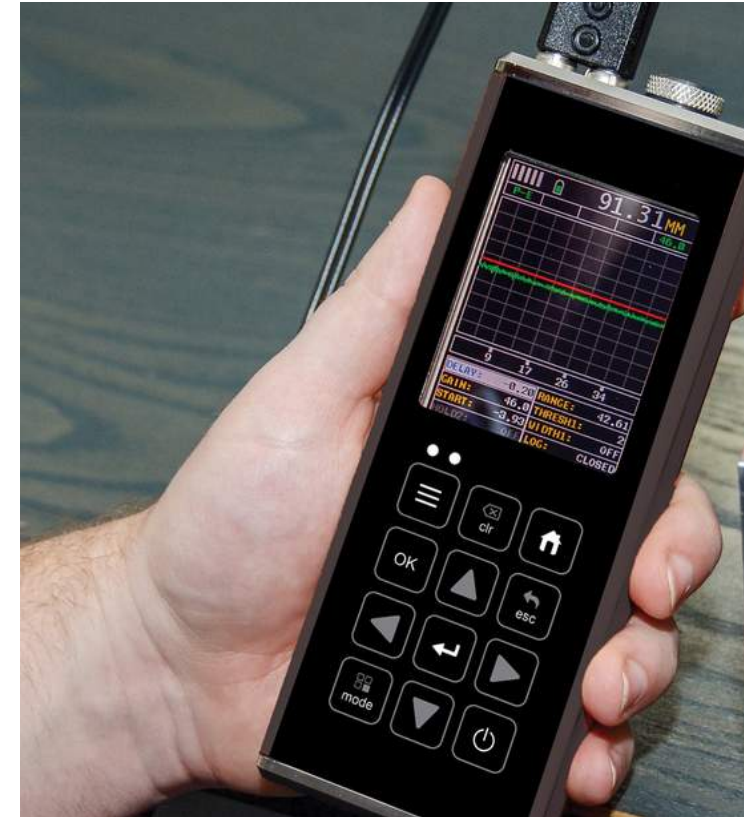
Save Measurements for In-Depth Analysis

Store up to 4GB of readings in the gauge's memory for easy application or Software for detailed analysis and reporting.

Versatile

Measure Coating & Material Thickness

The CMX Ultrasonic Thickness Gauges simultaneously measure coating and material thickness while detecting pits, flaws, and defects.





Customizable

Customizable Reading Display

The CMX Thickness Gauges offer multiple display modes, all customizable to meet your specific needs. Options include Readings, B-Scan, B-Scan with Readings, and B-Scan with Readings (DL and CMX3-DL models).

Ultrasonic Corrosion Thickness Gauge - CMX Series

CMX Ultrasonic Corrosion Thickness Gauge - Four Versatile Models

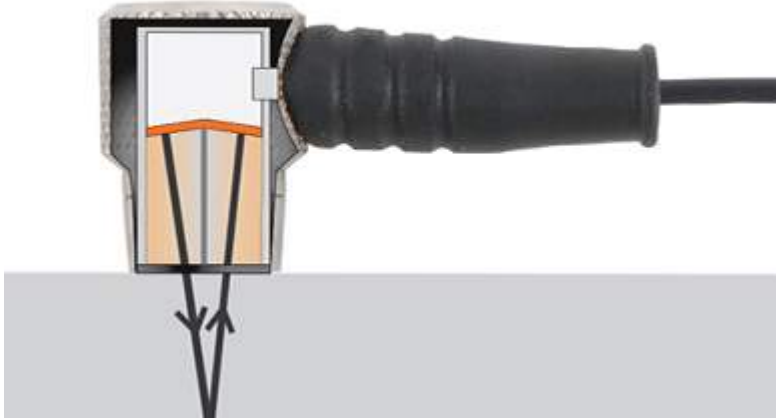
The CMX series includes four models, from the entry-level CMX1 to the high-performance CMX3-DL.

Key Features:

- Multiple display & measurement modes: Pulse-Echo, Echo-Echo, Pulse-Echo Temp Comp (PETP), Coating Only (CT), and Pulse-Echo Coating (PECT).
- Manual or Automatic Gain Control (AGC) with a 110dB adjustable range.
- Gate control & threshold adjustment.
- 64 user-defined setups.
- Multi-language display.
- Extensive calibration & material selection options.
- **High-speed scan mode:**
 - 250 readings/sec (CMX1 & CMX1-DL).
 - 50 readings/sec (CMX2-DL & CMX3-DL).
- A-Scan in portrait & landscape (CMX3-DL only).
- Differential & minimum thickness alarm modes.
- **Data Management:**
 - 4GB internal storage.
 - Export data to management software.



V-Path Correction



Dual element transducers feature a probe with two crystals—one for transmitting and one for receiving sound pulses. Separated by an acoustic barrier, these crystals create a V-shaped sound path. Since this path is slightly longer than a direct path, V-path correction is applied to ensure accurate thickness measurements.

Measurement Modes Explained



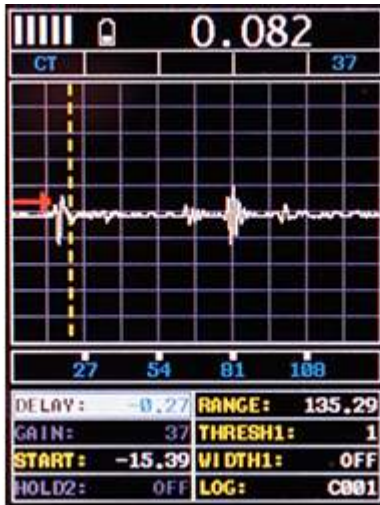
Pulse-Echo Mode (PE)

The standard measurement mode, Pulse-Echo (PE), calculates total thickness from the base of the transducer probe to the material's density boundary (typically the back wall). This mode is ideal for detecting pits and flaws.



Pulse-Echo Temp Comp Mode (PETP)

Similar to Pulse-Echo mode, PETP adjusts for measurement variations caused by temperature fluctuations, ensuring accurate thickness readings in changing conditions.



Coating Only Mode (CT)

Measures and displays only the thickness of the coating applied to the material.



Basic Flaw Mode

Available on the CMX2-DL and CMX3-DL models, this mode enables basic flaw detection using single-element angle beam transducers.



Echo-Echo Mode (EE) - ThruPaint™ Mode

Also called ThruPaint™ Mode, EE ignores coating thickness and measures only the material thickness from the top surface to the material's density boundary.



Echo-Echo Verify Mode (EEV)

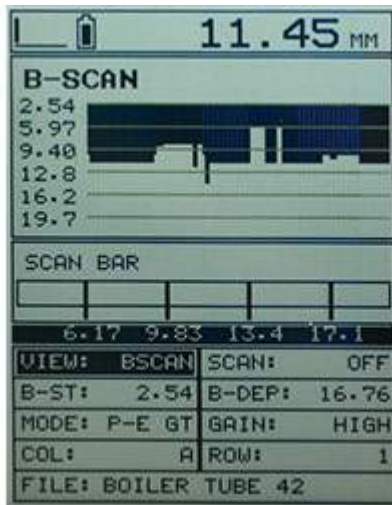
EEV measures thickness by comparing values from three reflections. This mode helps eliminate errors from surface coatings and is useful for measuring multi-layered materials.



Pulse-Echo Coating Mode (PECT)

Simultaneously displays both material thickness (PE) and coating thickness (CT) for comprehensive measurement.

Display Modes Explained



Material Thickness Digits Display

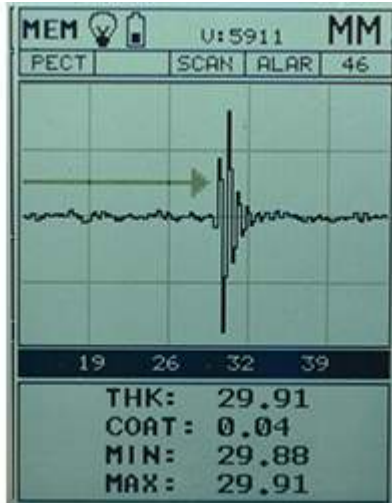
The standard display on all models, showing numerical thickness values in **millimeters (MM)** or **inches (IN)**.

Scan Bar Display

A linear graphic display that visually tracks thickness changes. With an adjustable scale range, it's ideal for detecting small variations in material thickness.

B-Scan Display

A time-based **2D cross-sectional view** of thickness, providing a graphical representation of material depth—perfect for relative depth analysis.



A-Scan Display; Full Wave (RF):*

Displays the full sine waveform created by the reflected sound from the material being measured.

A-Scan Display; Rectified (+ or -):*

Allows users to view either the **positive** or **negative** cycle of the full waveform. This **rectified (RECT) display** shows echo amplitude versus transit time for precise analysis.

Available on CMX2-DL and CMX3-DL models only.

Firmware Upgrades

Regular firmware updates are essential for maintaining peak performance and ensuring compatibility with new features.

Make sure your corrosion thickness gauge is running the latest firmware for optimal accuracy and functionality.

FEATURES

Ultrasonic Corrosion Thickness Gauge - CMX Series Features

Repeatability / Stability Indicator

A 6-bar visual indicator ensures accurate measurements. When all bars are fully illuminated and the last digit remains stable, the gauge is reliably measuring thickness.

High-Speed Scan with Minimum Thickness Display

This mode increases the measurement refresh rate, allowing users to scan test materials quickly. The smallest thickness value is stored and displayed after scanning. It also works with the min/max limit alarm feature (model-dependent).

Differential Mode

Once a nominal thickness is set, the gauge displays the variation (+/-) from the entered value.

Limit Alarm Mode

Users can set minimum and maximum thickness limits. If a measurement falls outside the set range, a red LED and an audible alert activate. A green LED indicates an acceptable reading.

Model	CMX1-DL	CMX2-DL	CMX3-DL
Display Mode			
Material thickness digits display	■	■	■
B-Scan cross sectional display	■	■	■
Combined B-Scan and digits display	■	■	■
Coating Thickness Display	■	■	■
Scan Bar Display	■	■	■
A-Scan Display		+ Rectified, - Rectified, Full Waveform (RF)	+ Rectified, - Rectified, Full Waveform (RF) Portrait & landscape views

Measurement Range	PE: 0.63 - 1219.2mm (0.025 - 48") PETP: 0.63 - 1219.2mm (0.025 - 48") EE: 2.54 - 152.4mm (0.100 - 6.0") EEV: 1.27 - 25.4mm (0.050 - 1.0") CT: 0.01 - 2.54mm (0.0005 - 0.100") PECT: 0.63 - 1219.2mm (0.025 - 48") PECT: 0.01 - 2.54mm (0.001 - 0.100")	PE: 0.63 - 1219.2mm (0.025 - 48") PETP: 0.63 - 1219.2mm (0.025 - 48") EE: 2.54 - 152.4mm (0.100 - 6.0") EEV: 1.27 - 25.4mm (0.050 - 1.0") CT: 0.01 - 2.54mm (0.0005 - 0.100") PECT: 0.63 - 1219.2mm (0.025 - 48") PECT: 0.01 - 2.54mm (0.001 - 0.100")	PE: 0.63 - 1219.2mm (0.025 - 48") PETP: 0.63 - 1219.2mm (0.025 - 48") EE: 2.54 - 152.4mm (0.100 - 6.0") EEV: 1.27 - 25.4mm (0.050 - 1.0") CT: 0.01 - 2.54mm (0.0005 - 0.100") PECT: 0.63 - 1219.2mm (0.025 - 48") PECT: 0.01 - 2.54mm (0.001 - 0.100")
Measurement Rate			
Manual	8 readings per second	8 readings per second	8 readings per second
Scan Mode	250 readings per second	50 readings per second	50 readings per second
Scan bar display	10 readings per second	10 readings per second	10 readings per second
Measurement Resolution	0.01mm (0.001")	0.01mm (0.001"), 0.001mm (0.0001") selectable	0.01mm (0.001"), 0.001mm (0.0001") selectable
Velocity Calibration Range	309.88 - 18,542m/s (0.0122 - 0.7300in/ μ s)	309.88 - 18,542m/s (0.0122 - 0.7300in/ μ s)	309.88 - 18,542m/s (0.0122 - 0.7300in/ μ s)
Additional Features			
High Speed Scan Mode			■
Differential Mode			■
Limit alarm mode			■
B-Scan Display Speed	15 readings per second	15 readings per second	10 to 200 readings per second
Flaw Mode		Basic prove-up flaw detection using single element angle beam transducers	Basic prove-up flaw detection using single element angle beam transducers

Calibration Setups			64 user-definable setups transferable to and from a PC archive
Gates		3 fully adjustable gates: start, stop, width & threshold	3 fully adjustable gates: start, stop, width & threshold
Damping		Adjustable damping (50 - 1500ohms)	Adjustable damping (50 - 1500ohms)
Pulser Type	Dual square wave pulsers Pulse repetition frequency up to 250Hz	Dual square wave pulsers Pulse repetition frequency up to 250Hz	Dual square wave pulsers Pulse repetition frequency up to 250Hz
Gain	Manual or automatic gain control (AGC) with 110dB range (limited)	Manual, automatic gain control (AGC) with 110dB range (limited), Linear time dependent gain (TDG) with adjustable slope	Manual, automatic gain control (AGC) with 110dB range (limited), Linear time dependent gain (TDG) with adjustable slope
Timing	Precision temperature controlled crystal oscillator (TCXO) timing with single shot 100MHz 8bit ultra-low power digitizer	Precision temperature controlled crystal oscillator (TCXO) timing with single shot 100MHz 8bit ultra-low power digitizer	Precision temperature controlled crystal oscillator (TCXO) timing with single shot 100MHz 8bit ultra-low power digitizer
Memory and Data Logging	<ul style="list-style-type: none"> • 4GB internal memory • Sequential and grid logging • Alpha numeric batch identification • OBSTRUCT indicates inaccessible locations • Bitmap graphic capture and capture viewer 	<ul style="list-style-type: none"> • 4GB internal memory • Sequential and grid logging • Alpha numeric batch identification • OBSTRUCT indicates inaccessible locations • Bitmap graphic capture and capture viewer 	<ul style="list-style-type: none"> • 4GB internal memory • Sequential and grid logging • Alpha numeric batch identification • OBSTRUCT indicates inaccessible locations • Bitmap graphic capture and capture viewer
Calibration Options			
1 - point	■	■	■
2 - point	■	■	■
Material selection	■	■	■

Velocity (speed of sound)	■	■	■
Transducer Probe Type	Dual element	Dual element	Dual Element, Single Element (1 - 20MHz), Contact, Matching Layer, Delay Line and Pencil
Transducer Frequency Range	1 - 10MHz	1 - 10MHz	1 - 20MHz
Transducer Recognition	Automatic & manual - selectable from a list	Automatic & manual - selectable from a list	Automatic & manual - selectable from a list
V-path / dual path error correction	Automatic	Automatic	Automatic
Probe Zero	Automatic & manual (via integrated probe disk)	Automatic & manual (via integrated probe disk)	Automatic & manual (via integrated probe disk)
Display	1/8 VGA (greyscale) 62 x 45.7mm (2.4 x 1.8") viewable area	1/8 VGA (greyscale) 62 x 45.7mm (2.4 x 1.8") viewable area	1/4 VGA AMOLED colour display 57.6 x 43.2mm (2.27 x 1.78") viewable area Landscape Mode
Display Refresh Rate	25Hz	25Hz	120Hz
Units (selectable)	mm or inches	mm or inches	mm or inches
LED Backlight	on/off/auto	on/off/auto	adjustable brightness
Repeatability / Stability Indicator	■	■	■
Battery Save Mode	Auto	Auto	Auto

¹ Measuring range & accuracy depends on material, surface conditions and the transducer selected

Ultrasonic Corrosion Thickness Gauge - CMX Series Technical Specifications

Part Number	Description	Certificate
Z-171-0005	CMX1-DL Thickness Gauge (CMX-DL)	●
Z-172-0005	CMX2-DL Thickness Gauge (CMX-DL+)	●
Z-187-0005	CMX3-DL Thickness Gauge (CMX-DL+ Colour)	●
Transducer Probe Type	Dual Element	
Measurement Accuracy ¹	0.01mm (0.001")	
Memory	4GB Internal Memory	
Operating Temperature	-10 to 60°C (14 to 140°F)	
Data Output	USB	
Power Supply	3 x AA batteries and via USB	
Battery Life	Alkaline: greyscale 35 hrs, colour 12 hrs, Nicad: greyscale 10 hrs, colour 5 hrs, NI-MH: greyscale 35 hrs, colour 12 hrs	
Gauge Weight	383g (13.5oz) - including batteries	
Gauge Dimensions	63.5 x 165 x 31.5mm (2.5 x 6.5 x 1.24")	
Packing List	Unit, Selectable Transducer, Couplant, Manual, Plastic Carrying Case, Certificate of Calibration and AA Batteries. PC Software and Data Transfer Cable included with data logging gauges.	

¹Measuring range & accuracy depends on material, surface conditions and the transducer selected

²Approximate battery life when in continuous measurement mode

- Certificate of Calibration supplied as standard.



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