The DM5E Family of Corrosion Thickness Gauges

A Range of High Performance, Reliable and Easy-to-Use Instruments

The DM5E family allows you to choose the functionality to suit you at a price to suit you.

Instrument Specifications

Operating Principle
Ultrasonic, Pulse-Echo Measurement Method

Measuring Range
Dependent on Probe and Material, determined to 0.60 mm (0.025") to 200.00 mm (8") in 1st BW Measurement Mode, 2.00 mm to 127.0 mm (0.079" to 5.00") in Dual-Multi Measurement Mode, the Coating Thickness Range Shall be 0.3 mm to 2.50 mm (0.010" to 0.100")

Material Velocity Range
0.60 mm to 20.00 mm (0.025" to 0.787") Max

Material Velocity Resolution
1.0 mm (0.0039"") Min.

DM5E

Calibration
One-Wire Cal, On-Block and Off-Block, Two-Point Cal

Pulse
Excitation Pulse
Digital Pulse

Receiver
Bandwidth: 50 MHz to 75 MHz for 3.0 MHz
Type: Automatic Gain Control

Display Type
High-Resolution Graphical LCD, 64 x 128 pixels, 53.0 mm x 27.0 mm with Backlight and Adjustable Contrast

Output Mode
8-Pin, User Selectable: 24 Hz Data Mode / Capture Rate

Thickness Display
0.01 mm, 0.0001", 0.001 mm, 0.0001"

Display of Last Reading
Solid Filled or Hollow Digits Indicate Coupled or Uncoupled Condition

Setups
9 Standard Setups for Probes

Alarm Settings
Minimum and Maximum Alarms, Range of 0.25 mm to 508 mm, 0.100" to 20.00"

Reading Alternates Between Solid and Hollow When Alarms Are Enabled and Violated

Power Requirements
2 "AA" Size Batteries

Battery Life/Operating Time
Approximately 60 Hours

Language
Selection English, German, French, Spanish, Italian, Russian, Japanese and Chinese

I/O Connectors
Transducer: Twin Lemo 00 (coax)
Mini-USB

Temperature
Operating: -10°C to +50°C (+10°F to +120°F)
Storage: -20°C to +60°C (-10°F to +140°F)

Weight
223 g (0.597 lb) Including Batteries

Shock
IEC 68-2-27, 6 g, per IEC 60068-2-27

Sealing
IEC 529 / IP54, Dust Proof/Dripping Water Proof

Data Recorder Option Features
Capacity
50,000 Readings

File Structure
Grid File

Number of Rows
1 to 50,000

Number of Columns
1 to 223

File Naming
Up to 24 Character Alphanumeric Name

Optional Software
UltraMATE and UltraMATE Lite

DM5E Probe/Transducer Specifications

<table>
<thead>
<tr>
<th>Model DA501</th>
<th>Model DA503</th>
<th>Model DA512</th>
<th>Model DA590</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td>2.5 MHz</td>
<td>5.0 MHz</td>
<td>5.0 MHz</td>
</tr>
<tr>
<td>Probe Style</td>
<td>Standard</td>
<td>Standard</td>
<td>Fingertip</td>
</tr>
</tbody>
</table>
| Operating Temperature Range 
Continuous | -20 to 70°C | -20 to 70°C | -20 to 70°C |
| Contact Diameter | 15 mm (0.60") | 20 mm (0.78") | 7.5 mm (0.30") |
| Measurement | 0.040 to 0.040" | 0.100 to 0.125" | 0.000 to 0.003" |
| Minimum Multi-Echo Measurement Range | 0.118 to 3.931" | 0.393 to 9.000" |

Note: Instrument specifications are subject to change without prior notice.

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GE Sensing & Inspection Technologies

GE imagination at work
The DM5E Family

The DM5E family is the latest generation of portable corrosion monitoring thickness gauges from GE Sensing & Inspection Technologies. It offers significant improvement in performance over previous corrosion thickness gauges in terms of better thickness measurement stability and repeatability at normal and elevated temperatures. It has been designed for operation in the harshest of working environments, performing wall thickness measurements on pipelines, pressure vessels and storage tanks in the oil and gas industry, as well as the petrochemical and power generation sectors.

Three levels

There are three versions in the DM5E Family, which offer three levels of functionality:
• DM5E Basic
• DM5E
• DM5E DL

The DM5E Basic
The rugged housing of the DM5E Basic is common to all versions. It is ergonomically designed with a weight of just 225g, including its AA batteries, which allow up to 60 hours of operation. The basic version is specified to EN 15317 and features an LCD data display, which is backlit to be visible in all lighting conditions. Instrument operation is carried out with one hand via a user-friendly interface. This is a sealed, watertight and dust-proof membrane keypad, which features a minimum of function keys and arrow keys. Navigation through menus is simple and intuitive. The basic version incorporates a wide range of features including Min/Max capture, B-Scan generation, alarms and differential thickness measurement to allow instant comparison between measured and nominal thickness.

The DM5E
The DM5E incorporates all the features of the DM5E Basic but also offers the DUAL MULTI operating mode. This has been used in previous GE corrosion thickness gauges and has proved invaluable in measuring thickness of metal through coatings. There is no need to remove the coating at the measuring point, saving time and money. Users can up-grade from DM5E Basic to DM5E in the field.

The DM5E DL
The DM5E DL is identical to the DM5E Basic but features a built-in datalogger supporting grid style data file formats. This is capable of holding up to 50,000 readings. Files can be transferred to a PC by means of a Mini USB Com port. Files can also be imported directly into Microsoft Excel through a macro. All alphanumeric data for filenames and notes is directly entered via the keypad.

User-Friendly Operator Interface

All versions of the DM5E have the same user-friendly operator keypad interface. This has a central Mode key, a calibration/on/off key, two function arrow keys to activate and set functional control and four arrow keys for adjusting parameter values and for navigating through the intuitive single level menu. The keypad allows access to all calibration, set-up and measurement display modes of the instrument. With the DL version, a file display mode allows users to create and store thickness reading in files. All calibration is menu-driven and the operator is guided through every step. There is a built-in calibration reminder, which can be set to remind the user to calibrate after a specified number of measurements or after a given time period.

New Range of High Performance Probes

A new set of ultrasonic probes has been developed for the DM5E family to provide the instruments with optimized performance, even at very high temperatures. The DA5xx series includes a 5 MHz standard probe for general purpose applications, a 2MHz version, for high penetration as well as a 7.5MHz fingertip probe. A newly developed 5MHz high temperature probe offers an operating range from -10°C up to +204°C. (Standard probes operate to 70°C)

Thickness Measurement Under Coating

Both the DM5E and the DM5E DL offer Dual Multi Measurement. Virtually all components and structures subjected to thickness measurement will have some kind of protective coating. Such coatings, including paint, contribute significant error to thickness measurements of underlying metal walls when using conventional methods. In addition, the removal of coatings, and their subsequent reapplication, involves considerable cost and time. With the field proven Dual Multi feature there is no need to remove any protective coating. It is only necessary to select Dual Multi mode, place the probe in position and take the measurement.

Flexible Data Processing

The DM5E DL has a built-in datalogger, with a capacity to store up to a massive 50,000 reading in grid and linear files. This makes the measurement data available for further processing. Using our UltraMATE software, Measurement data files can be transferred from the instrument to a PC, where they can be stored and, if required, printed out in different fixed format reports. Typically, these can be colour histograms, where ranges of measured values are colour-coded, or colour can be used to highlight the distribution of minimum/maximum limit values exceeded. Data can also be pasted into Windows Clipboard for easy transfer into spreadsheet and word processing applications.

A Range of Measurement Displays

All versions of the DM5E offer a range of measurement displays. These include:
• Normal: the thickness value appears as large digits in the centre of the display.
• MIN Scan: a minimum thickness scan that allows the user to run the probe over the wall surface. After the evaluation period, the minimum material thickness measured is displayed.
• MAX Scan: a maximum thickness scan. In this mode the thickness has to be cut to exactly the same as the MIN Scan. Apart from the fact that the maximum thickness measured is displayed.
• DIFF/RR%: compares the measured thickness with a user-specified nominal thickness. The dimensional difference between the two values is displayed, as is the percentage difference.
• B-Scan: displays a graphic representation of a B-Scan showing minimum thickness values. The graph is derived by measuring and recording at 1 point per second.

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