elcometer **MTG8 Material Thickness Gauge**

Conforms to the following standards : ASTM E797, EN 14127, EN15317

With their ergonomic, rugged design, accurate and easy to use menus in multiple languages, the Elcometer MTG (Material Thickness Gauge) range of ultrasonic thickness gauges are ideal for measuring and recording material thickness and sound-velocity on a variety of substrates, in a wide range of industrial applications.

Features

- Pulsed-Echo (P-E), Echo-Echo ThruPaint™ & Velocity (VM) measurement modes
- 2-Point, 1-Point, Material, Velocity, Thickness Set and Factory calibration options
- Three user programmable calibration memories
- User selectable measurement rate; 4, 8, 16 readings per second
- User selectable reading resolution; 0.1mm or 0.01mm
- Scan Mode
- Readings, Selected Statistics, Bar Graph, Run Chart, B-Scan & Differential Mode
- Gauge memory; stores 100,000 readings in up to 1,000 sequential or grid batches
- User definable upper and lower limits with audible & visual pass/fail warnings
- USB and Bluetooth® data output to ElcoMaster™ and ElcoMaster™ Mobile Apps

The MTG8 is the top of the range gauge with all the features and functionality necessary for measuring material thickness and velocity on virtually any material and for a wide range of applications.

As well as all the features of the MTG2, MTG4 and MTG6, the MTG8 allows users to store into memory up to three calibrations. Once saved the user can select a calibration memory without the need to re-calibrate the gauge, ideal for users who are measuring a variety of materials or thicknesses. Using the gauge's alpha-numeric function, calibration memories can be re-named to suit the calibration setting.

The MTG8 has user definable upper and lower limits with audible and visual pass/fail warnings. Limits can be set for individual readings or for each batch. If a measurement is taken which falls outside set limits, the reading value and the limit icon turn red, the red LED flashes and the alarm beeps providing immediate indication of problem areas.

The MTG8 has Differential Mode; once a user defined nominal thickness value is set, the gauge displays the measured thickness together with the variation from the set nominal value thus indicating areas of the material which are thinner or thicker than expected.

The MTG8 is the only gauge in the range to offer B-Scan, a time based, cross sectional 2D block, graphical view of the material under test, ideal for relative depth analysis. The zoom of the B-Scan reading can be set automatically or can be defined by the user to focus on areas of interest.

The MTG8 can store 100,000 readings in up to 1,000 sequential or grid type batches. Using grid batching, readings are taken and stored in a grid, a template of the measurement area and where each reading is to be taken. If for any reason a reading cannot be taken in a particular location, due to a steel girder for example, the obstruction feature (Obst), allows the user to record this within the batch data.

Compatible with both ElcoMaster™ and ElcoMaster™ Mobile Apps, readings can be downloaded via USB or Bluetooth® to PC, iOS or Android™ devices for further analysis and reporting.

Easy

The MTG range of ultrasonic thickness gauges have been designed specifically to make them easy to use, calibrate, take readings and create inspection reports.

Accurate

With a measurement accuracy of ±1% up to 500mm in Pulsed-Echo (P-E) mode and 25mm in Echo-Echo ThruPaint™ (E-E) mode, accurate and repeatable readings can be taken on smooth, rough and curved, coated or uncoated surfaces. The stability indicator provides a visual indication of both the strength and reliability of the ultrasonic signal.

Efficient

The MTG8 has a user selectable measurement rate of 4, 8 and 16 Hz (4, 8 or 16 readings per second). The unit also has a high speed scan mode allowing 140+ readings per minute to be taken on large surface areas.

Powerful

The MTG8 has data-logging functionality. The unit stores up to 100,000 readings in up to 1,000 sequential or grid type batches, with alpha-numeric batch naming. Compatible with ElcoMaster™ and ElcoMaster™ Mobile Apps, data can be downloaded via USB or Bluetooth® direct to PC, iOS* or Android™ mobile devices for instant report generation.

Rugged

With a scratch and solvent resistant display, sealed, heavy duty and impact resistant design - dust and waterproof equivalent to IP54 - the MTG range is suitable for use in the harshest of environments.
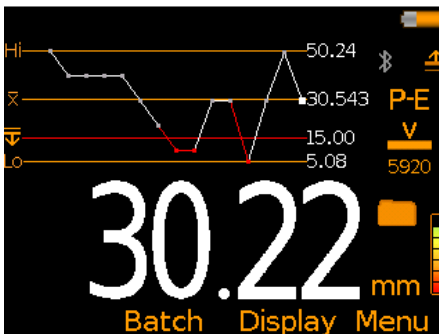
Packing List

- Elcometer MTG8BDL
- 5MHz 1/4" right angle transducer
- couplant
- wrist harness
- 3 x screen protector
- protective case
- plastic transit case
- 2 x AA batteries
- calibration certificate
- USB cable
- ElcoMaster™ Software
- operating instructions

Displays explained

The Display

All gauges have a fully customisable, scratch and solvent resistant colour LCD display. Measurement modes available include Pulsed-Echo (P-E), Echo-Echo ThruPaint™ (E-E) and Velocity mode (for more information on measurement modes, see page 19). A choice of measurement units are available, depending on the measurement mode selected. A stability indicator shows clearly both the strength and reliability of the ultrasonic signal.

On Screen Statistics

Up to 8 statistical values can be displayed from a choice of number of readings (η) , lowest, highest and average reading (Hi, Lo, $\dot{x}$,), standard deviation (σ), low and high limit values, nominal value and range.

Run Chart

A trend graph of the last 20 readings, showing the variation in material thickness over the test area. The graph is updated automatically as each reading is taken and any readings outside the set and enabled limits are displayed in red thus allowing the user to easily identify areas where corrosion may be present or the material is too thick for purpose.
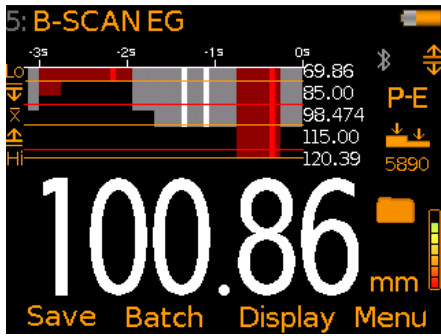
B-Scan Reading

A time based, cross sectional 2D block, graphical view of the material under test, ideal for relative depth analysis. The zoom of the B-Scan reading can be set automatically or can be defined by the user to focus on areas of interest.
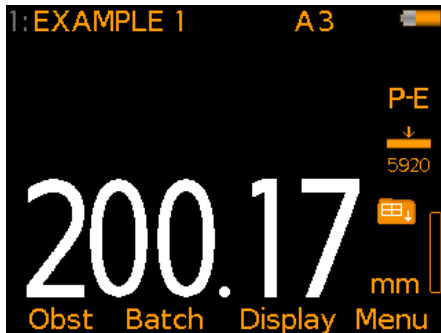
Sequential or Grid Batching

Individual readings can be stored in up to 1,000 sequential or grid type, alpha-numeric batches, together with date and time stamp and reading location*. Users have the option to view batch readings, statistics and a graph of all readings stored with the batch. The obstruction feature (Obst)*, allows the user to record areas where measurements could not be taken.
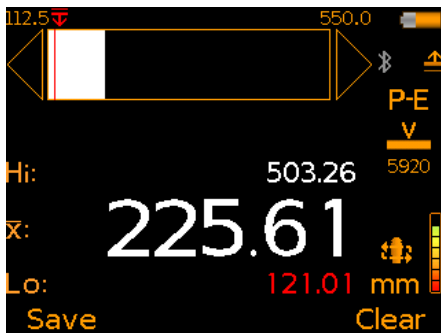
Scan Mode

When enabled, users can slide the transducer over a large surface area whilst the gauge takes readings at a rate of 16 Hz (16 readings per second). During each scan, the live thickness is displayed together with an analogue bar graph showing the thickness relative to the set nominal and any user defined limits, with audible and visual warnings if any readings fall outside set limits. When the transducer is lifted off the surface, the average, lowest and highest thickness value is displayed making scan mode ideal for checking a sample's overall uniformity.

Differential Mode

Once a user defined nominal thickness value has been set, the gauge displays the measured thickness together with the variation from the set nominal value thus indicating areas of the material which are thinner or thicker than expected.

Velocity Mode (VM)

Velocity mode measures the speed of sound of materials and is ideal for determining the homogeneity of a material/alloy and the correct velocity of a material for calibration.

Technical Specifications

	MTG2	MTG4	MTG6	MTG8
Easy to use menu structure in multiple languages	●	●	●	●
Tough, impact, waterproof and dust resistant equivalent to IP54	●	●	●	●
Bright colour screen with permanent backlight	●	●	●	●
Scratch and solvent resistant display; 2.4" (6cm) TFT	●	●	●	●
Large positive feedback buttons	●	●	●	●
USB power supply via PC	●	●	●	●
Low battery indicator	●	●	●	●
Ambient light sensor, with adjustable brightness	●	●	●	●
Emergency light	●	●	●	●
Tap awake from sleep	●	●	●	●
Gauge software updates[1] via ElcoMaster TM Software	●	●	●	●
2 year gauge warranty[2]	●	●	●	●
Limits: user definable audible & visual pass/fail warnings				●
Measurement Mode				
Pulsed Echo (P-E)	●	●	●	●
Echo-Echo ThruPaintTM (E-E)		●	●	●
Velocity Mode (VM)			●	●
Measurement Rate				
4, 8, 16Hz	4Hz	4Hz	4, 8, 16Hz[3]	4, 8, 16Hz[3]
Thickness Range[4]				
P-E: 0.63-500mm	●	●	●	●
E-E: 2.54 - 25.40mm		●	●	●
Velocity Range	1250 - 10,000m/s			
Measurement Accuracy[5]	±1% or ±0.1mm		±1% or ±0.05mm	
Measurement Units (selectable)	mm		mm or m/s	
Repeatability / Stability Indicator	●	●	●	●
Display Mode:				
Reading	●	●	●	●
Selected statistics			●	●
Scan thickness bar graph			●	●
Run Chart			●	●
Readings and Differential				●
B-Scan cross sectional display				●
Selectable Reading Resolution				
Lo; ie 0.1mm, 10m/s	●	●	●	●
Hi; ie 0.01mm, 1m/s			●	●
On Screen Statistics				
Number of readings n; mean average ẋ; standard deviation σ			●	●
Lowest reading Lo; Highest reading Hi				●
Low limit value				●
High limit value				●
Number of readings below low limit				●
Number of readings above high limit				●
Nominal Value x				●
Range				●
Calibration Options				
Zero set: using the integral zero disc	●	●	●	●
1 - point		●	●	●
2 - point			●	●

	MTG2-TXC	MTG4-TXC	MTG6DL-TXC	MTG8BDL-TXC
Material selection; present choice of 39 materials		●	●	●
Factory; resets to the factory calibration		●	●	●
Velocity (speed of sound)			●	●
Known thickness value			●	●
Calibration lock: with optional PIN code unlock			●	●
Test calibration feature			●	●
Calibration memories: 3 - programmable memories				●
Measurement outside calibration warning			●	●
Data Logging				
Number of readings			1,500	100,000
Number of batches			1	1,000
Reading save function			●	●
Sequential batching; a listed-based storage of readings			●	●
Grid batching; reading storage in a 2 dimensional array				●
Fixed batch size mode; with batch linking				●
Obstruct entry; add 'obstruct' label into grid location				●
Delete last reading			●	●
Date & time stamp			●	●
Review, clear & delete batches			●	●
Alpha numeric batch names; user definable				●
Copy batches and calibration settings				●
Live reading trend graph in batching mode				●
Batch review graph				●
Data Output				
USB; to computer	●	●	●	●
Bluetooth® to computer, AndroidTM & iOS devices			●	●
ElcoMaster™ software			●	●
Transducer Probe Type		Dual element		
Auto transducer recognition	●	●	●	●
Auto V-path correction	●	●	●	●
Battery Type		2 x AA		
Battery Life (approximate)		Approx 15 hours continuous use at 1 reading per second		
Operating Temperature		-10 to 50°C		
Size (w x h x d)		145 x 73 x 37mm		
Weight (including batteries, without transducer)		210g		
Part Number (with Transducer)6	MTG2-TXC	MTG4-TXC	MTG6DL-TXC	MTG8BDL-TXC
Part Number (gauge only)		MTG4	MTG6DL	MTG8BDL

1 Internet connection required

2 The Elcometer MTG range is extendable within 60 days from date of purchase, free of charge to two years via www.elcometer.com

3 User selectable default setting in scan mode is 16 Hz

4 Dependent on the material being measured and the transducer being used

5 Whichever is the greater

6 5MHz 1/4" right angle transducer supplied