elcometer NDT

MTG & PTG Range
Ultrasonic Thickness Gauges

Introducing the MTG & PTG Range

Ergonomic, rugged, accurate and easy to use, the Elcometer MTG & PTG range of ultrasonic Material and Precision thickness gauges is ideal for measuring and recording material thickness from just 0.15mm (0.006") to 500mm (20").

Easy

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

Accurate

Both the MTG & PTG range have a measurement accuracy of ±1% across its full range of 0.15mm (0.006") PTG up to 500m (20)" MTG. 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

Whilst the MTG2 and MTG4 have a set measurement repetition rate of 4Hz (4 readings per second), the MTG6, PTG6, MTG8 & PTG8 have user selectable measurement rates of 4, 8 and 16 Hz (4, 8 or 16 readings per second). The MTG6, PTG6, MTG8 & PTG8 also have high speed scan mode allowing 140+ readings per minute to be taken on large surface areas.

Powerful

The MTG6, MTG8 & PTG8 have data-logging functionality. The MTG6 can store up to 1,500 readings in a single batch whilst the MTG8 & PTG8 store 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 and PTG range is suitable for use in the harshest of environments.

*Compatible with iPod, iPhone and iPad.
**The Elcometer MTG range is extendable within 60 days from date of purchase, free of charge to two years via www.elcometer.com

2 YEAR** WARRANTY

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The Elcometer NDT MTG & PTG range has a number of measurement modes available to help the user establish the most accurate thickness value.
The modes available vary between models but normally increase as the model number increases.

P-E

Pulsed - Echo Mode (P-E):

Ideal for pit and flaw detection, the total thickness from the base of the transducer to the material density boundary (typically the back-wall) is measured.

E-E

Echo - Echo ThruPaint™ Mode (E-E):

Also known as ThruPaint™ mode, the coating thickness is ignored and the material thickness from the top surface of the material to the material density boundary (typically the back-wall) is measured. To use Echo-Echo ThruPaint™ mode, a high damped, coating thickness transducer is required.

I-E

Interface Echo (I-E):

A highly accurate measurement mode, Interface Echo displays the total thickness from the top surface to the material density boundary.

PLAS

Plastic Mode (PLAS)

A mode specifically used for measuring very thin plastics. A special graphite delay line accessory is required for this mode.

VM

Velcocity 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.

The PTG range of Ultrasonic thickness gauges is accurate to ±1% from 0.15mm (0.006") to 25mm (1.00").

The gauges have all the features and functionality necessary to measure material thickness and velocity on virtually any material in a wide range of applications.

Wide range of single and dual element transducers. (See page 19)

User selectable statistics

Main Reading

n:	59	x̄:	66.947	
Lo:	2.07	Hi:	469.50	
σ:	53.861		467.43	P-E

469.42 mm

Save Batch Display Menu

Battery Life indicator

Measurement mode (P-E, E-E, I-E, PLAS, VM)

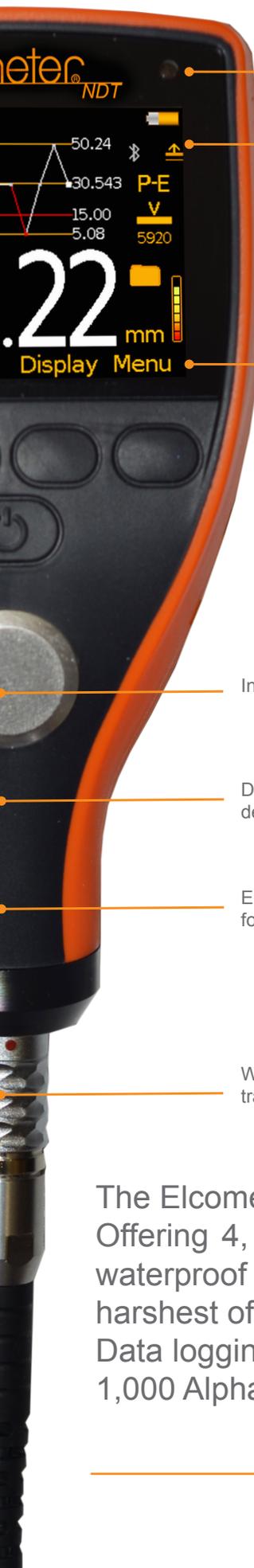Velocity of material

Stability Indicator

Menu driven soft keys

Large easy to read measurements in Metric or Imperial units.

Cross sectional 2D B-Scan, ideal for relative depth analysis.

In scan mode the gauge takes readings at a rate of 16 Hz (16 readings per second).

Red/Green LED's for Hi & Lo limit indicators

Large easy to read scratch and solvent resistant colour display

Easy to use menus in multiple languages

USB and Bluetooth® data output to ElcoMaster™ software

USB

Integral zero disc

Dust and waterproof rugged design equivalent to IP54

Ergonomic design for continuous use

Wide range of intelligent transducers (see page 19)

PC

Android™

Made for
iPod iPhone iPad

Bluetooth® wireless technology

compatible with **ElcoMaster™**

The Elcometer MTG & PTG range is easy to use and accurate to ±1%.

Offering 4, 8, & 16 Hz, the gauges are fast and incredibly powerful. Dust and waterproof equivalent to IP54, the MTG & PTG range is suitable for use in the harshest of environments.

Data logging versions can store up to 100,000 readings in Scan mode and up to 1,000 Alpha-numeric, Sequential or Grid batches.

Displays explained

The Elcometer MTG & PTG range has a choice of measurement modes allowing the user to select the most appropriate for their application.
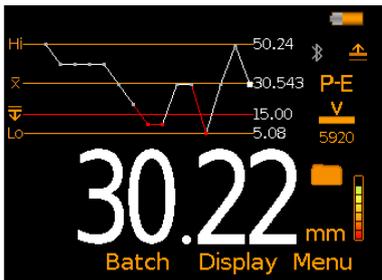
The Display

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), Interface Echo (I-E), Plastic Mode (PLAS) and Velocity mode (for more information on measurement modes, see page 3). 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.
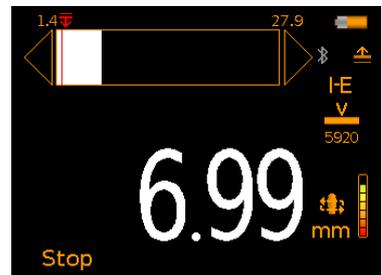
Scan Mode

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.

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.

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, $\overline{x}$), standard deviation (σ), low and high limit values, nominal value and range.

Velocity Mode

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.

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The modes available vary between models but normally increase as the model number increases.

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.
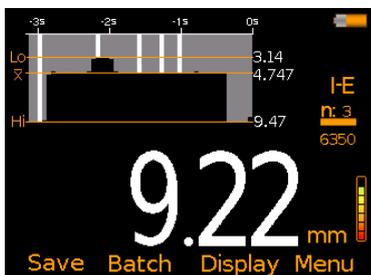

B-Scan Reading

A time based, cross sectional 2 dimentional B-Scan provides a graphical view of the material under test, ideal for relative depth analysis. The zoom of the B-Scan reading can either be set to automatic or can be defined by the user to focus on areas of interest.

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.
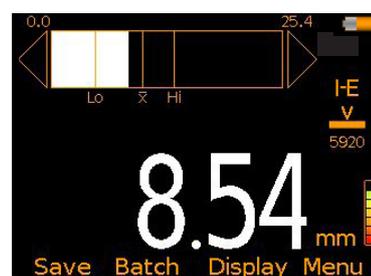
Bar Graph

An analogue representation of the current measurement value together with the highest (Hi), lowest (Lo) and average ($\bar{x}$) reading. The graph is updated automatically when each reading is taken.

Plastic Mode

Plastic mode is specifically designed for measuring very thin plastics.

* Grid batches only

MTG2

Features

- Pulsed -Echo (P-E) measurement Mode

- Pre-calibrated for measuring on steel only

- Pre-set measurement rate of 4 readings per second

- USB data output to PC or similar device

With automatic transducer recognition which ensures correct probe identification even when the transducer is changed, a measurement rate of 4Hz (4 readings per second) and integral zero disc ensuring maximum accuracy of ±1%, the MTG2 is ideal for taking basic thickness measurements.

The MTG2 is supplied complete with 5MHz, ¼" transducer and is pre-calibrated for measuring on steel only with a thickness range of up to 500mm (20") in Pulsed-Echo (P-E) mode. For further information on measurement modes, see page 3.

Compatible with ElcoMaster™ software, individual readings can be downloaded via USB to PC or similar device for further analysis.

Packing List
Elcometer MTG2 gauge, 5MHz 1/4" right angle transducer, couplant, wrist harness, screen protector, protective case, 2 x AA batteries, calibration certificate, two year warranty extension card, operating instructions

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Features

P-E   E-E

- Pulsed-Echo (P-E) and Echo-Echo ThruPaint™ (E-E) measurement modes
- 1-Point, Material and Factory calibration options
- Pre-set measurement rate of 4 readings per second
- USB data output to PC or similar device

With a choice of calibration options and measurement modes, the MTG4 is ideal for taking readings on a wide range of coated and uncoated materials.

As well as all the features of the MTG2, the MTG4 has two calibration options. Using an uncoated sample of test material of a known thickness, the gauge can be calibrated using 1-Point calibration. Alternatively, the user can select one of 39 pre-set materials stored within the gauge including; aluminium, steel, stainless steel, cast iron, plexiglass, PVC, polystyrene and polyurethane. For a full list of materials, see page 22.

Echo-Echo ThruPaint™ (E-E) measurement mode enables readings to be taken on coated materials with a thickness range up to 25.4mm (1"). In Echo-Echo ThruPaint™ mode, the coating thickness is ignored and the material thickness from the top surface of the material to the material density boundary is displayed. For further information on measurement modes, see page 3.

Compatible with ElcoMaster™ software, individual readings can be downloaded via USB to PC or similar device for further analysis.

Packing List
Elcometer MTG4, 5MHz 1/4" right angle transducer, couplant, wrist harness, screen protector, protective case,
2 x AA batteries, calibration certificate, two year warranty extension card, operating instructions

MTG6

Features

P-E	E-E	VM

- Pulsed-Echo (P-E), Echo-Echo ThruPaint™ & Velocity (VM) measurement modes
- 2-Point, 1-Point, Material, Velocity, Thickness Set and Factory calibration options
- User selectable measurement rate; 4, 8, 16 readings per second
- User selectable reading resolution; 0.1mm (0.01") or 0.01mm (0.001")
- Scan Mode
- Readings, Selected Statistics, Bar Graph & Run Chart
- Gauge memory; single sequential batch of up to 1,500 readings
- USB and Bluetooth® data output to ElcoMaster™ and ElcoMaster™ Mobile Apps

With a choice of calibration options, measurement modes – including high speed scan mode, display options and data-logging, the MTG6 is ideal for taking readings on a wide range of coated and uncoated materials and downloading data for further analysis and reporting.

As well as all the features of the MTG2 & MTG4, the MTG6 has additional calibration options; 2-Point, Velocity and known Thickness Value.

The MTG6 offers Velocity Mode (VM) which is ideal for determining the homogeneity of a material/alloy and the correct velocity of a material for calibration. For further information on measurement modes, see page 3.

Using Scan Mode, readings can be taken at a rate of 16Hz (16 readings per second) over a large surface area. 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. For further information on scan mode, see page 6.

With a user definable display, users can choose to view readings, statistical information, bar graph - an analogue representation of the current reading together with the highest (*Hi*) , lowest (*Lo)*; and average ($\overline{x}$), reading or a run chart; a trend graph of the last 20 readings. For further information on display options, see pages 6 and 7.

The MTG6 has a single batch gauge memory and can store up to 1,500 readings. 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.

Android™

Made for **iPod** **iPhone** **iPad**

Bluetooth® wireless technology

compatible with ElcoMaster™

Packing List
Elcometer MTG6DL, 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, two year warranty extension card, operating instructions

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Features

P-E	E-E	VM

- 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 (0.01") or 0.01mm (0.001")

- 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 offers B-Scan, a time based, cross sectional 2 dimentional graphical view of the material under test, ideal for relative depth analysis. The zoom of the B-Scan reading can either be set to automatic 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 stored in a spreadsheet type format. The Obst feature, allows the user to record an obstruction within the grid.

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

Android™

Made for
iPod iPhone iPad

Bluetooth® wireless technology

compatible with ElcoMaster™

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, two year warranty extension card, operating instructions

PTG6

Features

| I-E | PLAS | E-E |

- Echo-Echo ThruPaint™ (E-E) Interface Echo (I-E) & Plastic Mode (PLAS) measurement modes
- Measurement range from 0.15mm (0.006") to 25.40mm (1.00")
- 2-Point, 1-Point, Material, Velocity and Factory Calibration options
- User selectable measurement rate; 4,8,16 readings per second
- User selectable reading resolution; 0.1mm (0.01") or 0.01mm (0.001")
- USB output to ElcoMaster™

When precision is key, the PTG6 has a measurement range of 0.15mm(0.006") to 25mm (1.000") with ±1% accuracy, across three measurement modes, Echo-Echo ThruPaint™, Interface Echo (I-E) and Plastic Mode (PLAS). This gauge allows users to take measurements with pinpoint accuracy.

The PTG series of ultrasonic precision thickness gauges have ThruPaint™ technology allowing the accurate measurement of the thickness of extremely thin substrates. For further information on measurement modes, see page 3.

The PTG6 has a number of calibration options. Using an uncoated sample of test material of a known thickness, the gauge can be calibrated using 1-Point calibration. Alternatively, the user can select one of 39 pre-set materials stored within the gauge including; aluminium, steel, stainless steel, cast iron, plexiglass, PVC, polystyrene and polyurethane. For a full list of materials, see page 22.

The PTG6 also offers the additional calibration options of 2-Point & Velocity.

Compatible with ElcoMaster™ software, individual readings can be downloaded via USB to PC or similar device for further analysis.

Packing List
Elcometer PTG6 , 15MHz 1/4" Microdot right angle single element transducer, couplant, carry pouch, wrist harness, 3 x screen protector, protective case, plastic transit case, 2 x AA batteries, calibration certificate, two year warranty extension card, operating instructions

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Features

I-E   **PLAS**   **E-E**

- Echo-Echo ThruPaint™ (E-E) Interface Echo (I-E) & Plastic Mode (PLAS) measurement modes
- Measurement range from 0.15mm (0.006") to 25.40mm (1.00")
- 2-Point, 1-Point, Material, Velocity & Factory Calibration options
- Three user programmable calibration memories
- User selectable measurement rate; 4,8,16 readings per second
- User selectable reading resolution; 0.1mm (0.01") or 0.01mm (0.001")
- Scan Mode
- Readings, selected statistics, Bar Graph, Run Chart, B-Scan & Differential Mode
- Gauge memory; stores upto 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 PTG8 is the top of the range gauge with all the features and functionality necessary for measuring, with precision, material thickness on virtually any material.

With a user definable display, users can choose to view readings, statistical information, bar graph together with the highest *(Hi)*; lowest *(Lo)*; and average $(\overline{x})$; reading or a run chart; a trend graph of the last 20 readings.

In Scan Mode, readings can be taken at a rate of 16Hz (16 readings per second) over a large surface area. When the transducer is lifted off the surface, the average, lowest and highest thickness values are displayed.

The PTG8 allows users to store into memory up to three calibrations. Once saved the user can select a calibration 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 PTG8 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 turns red, the red LED flashes and the alarm beeps.

The PTG8 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 PTG8 offers B-Scan, a time based, cross sectional 2 dimentional graphical view of the material under test, ideal for relative depth analysis. The zoom of the B-Scan reading can either be set to automatic or can be defined by the user to focus on areas of interest.

The PTG8 can store 100,000 readings in up to 1,000 sequential or grid type batches. Using grid batching, readings are stored in a spreadsheet type format. The Obst feature, allows the user to record an obstruction within the grid.

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

Android™

Made for
iPod iPhone iPad

Bluetooth® wireless technology

compatible with **ElcoMaster™**

Packing List
Elcometer PTG8 BDL, 15MHz 1/4" Microdot right angle single element transducer, couplant, carry pouch, wrist harness, 3 x screen protector, protective case, plastic transit case, 2 x AA batteries, calibration certificate, USB cable, ElcoMaster™ Software, two year warranty extension card, operating instructions

Model Number	MTG2	MTG4	MTG6	MTG8	PTG6	PTG8
Part Number	MTG2-TXC	MTG4-TXC	MTG6DL-TXC	MTG8BDL-TXC	PTG6DL-TXC	PTG8BDL-TXC
Easy to use menu structure in multiple languages	■	■	■	■	■	■
Tough, impact, waterproof and dust resistant equivalent to IP54	■	■	■	■	■	■
Bright colour screen with permanent backlight	■	■	■	■	■	■
Ambient light sensor, with adjustable brightness	■	■	■	■	■	■
Scratch and solvent resistant display; 2.4" (6cm) TFT	■	■	■	■	■	■
Large positive feedback buttons	■	■	■	■	■	■
USB power supply via PC	■	■	■	■	■	■
Gauge software updates[1] via ElcoMaster™ Software	■	■	■	■	■	■
2 year gauge warranty[2]	■	■	■	■	■	■
Limits: 40 definable audible & visual pass/fail warnings				■		■
Measurement Mode						
Pulsed Echo (P-E)	■	■	■	■		
Echo-Echo ThruPaint™ (E-E)		■	■	■	■	■
Interface Echo (I-E)					■	■
Plastic Mode (PLAS)					■	■
Velocity Mode (VM)			■	■		
Measurement Rate						
4, 8, 16Hz	4Hz	4Hz	4, 8, 16Hz[3]	4, 8, 16Hz[3]	4, 8, 16Hz[3]	4, 8, 16Hz[3]
Thickness Range[4]						
P-E: 0.63-500mm (0.025-20")	■	■	■	■		
E-E 2.54 - 25.40mm (0.100-1.00")		■	■	■		
E-E 0.15 - 10.15mm (0.006-0.400")					■	■
I-E 1.65 - 25.40mm (0.065-1.0000")					■	■
PLAS 0.15 - 5.00mm (0.006-0.197")					■	■
Measurement Accuracy[5]	±1% or ±0.1mm (0.004")	±1% or ±0.1mm (0.004")	±1% or ±0.05mm (0.002")	±1% or ±0.05mm (0.002")	±1% or ±0.015mm (0.0006")	±1% or ±0.015mm (0.0006")
Measurement Units						
mm or inches	■	■	■	■	■	■
m/s, inch/µs			■	■		
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; 0.1mm, 0.01 Inch, 10m/s, or 0.001 in/µs	■	■	■	■	■	■
Hi; 0.01mm, 0.001 Inch, 1m/s, or 0.0001 in/µs			■	■	■	■
Statistics						
Number of readings, n; Mean average, $\bar{x}$; Standard deviation, σ.			■	■		■
Lowest reading, Lo; Highest reading, Hi			■	■		■
Low high limit value				■		■
Reading Range Value τ				■		■
Nominal Value				■		■
Number of readings below low limit				■		■
Number of readings above high limit				■		■

Model Number	MTG2	MTG4	MTG6	MTG8	PTG6	PTG8
Part Number	MTG2-TXC	MTG4-TXC	MTG6DL-TXC	MTG8BDL-TXC	PTG6DL-TXC	PTG8BDL-TXC
Calibration Options						
Zero (using the integral zero disc)	■	■	■	■		
1 - point		■	■	■	■	■
2 - point		■	■	■	■	■
Material selection; 39 preset materials[6]		■	■	■	■	■
Factory; resets to the factory calibration		■	■	■	■	■
Velocity (speed of sound)			■	■	■	■
Known thickness value			■	■		
Calibration Features						
Calibration lock; with optional PIN Lock			■	■	■	■
Test calibration feature			■	■	■	■
Calibration memories: 3 programmable memories				■		■
Measurement outside calibration warning			■	■		■
Data Logging						
Number of readings			1,500	100,000		100,000
Number of batches			1	1,000		1,000
Sequential batching			■	■		■
Grid batching				■		■
Fixed batch size mode; with batch linking				■		■
Obstruct entry; add 'obst' into grid location				■		■
Delete last reading			■	■		■
Date & time stamp			■	■		■
Review, clear & delete batches			■	■		■
Alpha numeric batch names; user definable				■		■
Batch review graph				■		■
Data Output						
USB; to PC	■	■	■	■	■	■
Bluetooth® to PC, Android™ & iOS devices			■	■		■
ElcoMaster™ software			■	■	■	■
Transducer Probe Type						
Dual Element	■	■	■	■		
Single Element					■	■
Auto transducer recognition	■	■	■	■	■	■
Auto V-path correction	■	■	■	■		
Battery Type[8]	2x AA	2x AA	2x AA	2x AA	2x AA	2x AA
Battery Life[8] Alkaline:15 hours Lithium: 28 hours	■	■	■	■	■	■
Operating Temperature -10 to 50°C (14 to 122°F)	■	■	■	■	■	■
Size (w x h x d) 145x73x37mm (5.7x2.84x1.46")	■	■	■	■	■	■
Gauge weight (including batteries)	210g (7.4oz)	210g (7.4oz)	210g (7.4oz)	210g (7.4oz)	210g (7.4oz)	210g (7.4oz)
Part Number (with Transducer)[7]	MTG2-TXC	MTG4-TXC	MTG6DL-TXC	MTG8BDL-TXC	PTG6DL-TXC	PTG8BDL-TXC
Part Number (gauge only)	-	MTG4	MTG6DL	MTG8BDL	PTG6	PTG8BDL

1 Internet connection required
2 The Elcometer MTG & PTG 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 See page 22 for lists of preset materials
7 MTG supplied with 5MHz 1/4" right angle transducer, PTG supplied with 15MHz 1/4"Microdot right angle single element transducer
8 Supplied with Alkaline, Lithium and rechargable can be used with the gauges, continuous use at 1 reading per second
STANDARDS MTG: ASTM E797, EN 14127, EN15317
STANDARDS PTG: EN14127, EN15317

ElcoMaster™ is a fast, easy to use software and mobile app for all your data management, reporting and quality assurance needs.

It's not just taking measurements but what you do with the collected data that matters.

What ElcoMaster™ can do:

- Import and combine measurements via Bluetooth® or USB from a full range of Elcometer gauges, including;
  - Surface Profile
  - Salt Contamination
  - Climatic Conditions
  - Oven Data Logging
  - Coating Thickness
  - Corrosion Thickness
  - Adhesion Testing
  - Gloss Measurements
- No need to learn different software for different gauges, all Elcometer products use the same expert platform
- Store data in a simple file tree, by project and by inspection type
- Easy on screen analysis with histograms, statistics, measurements, limits, notes, diagrams and photographs
- Export data direct to Microsoft Excel, .csv, txt or Cqatk formats to save time and prevent keying in errors

Easy to connect
Using ElcoMaster's™ gauge wizard, connecting a gauge & downloading data (via Bluetooth® or USB) is fast and easy

Import existing reports
Scan your existing report into ElcoMaster™ and drag & drop all your data where you want it, then simply save and print

ElcoMaster™ exports data direct to Microsoft Excel. csv, txt, cqatk formats etc. to save time and prevent keying in errors.
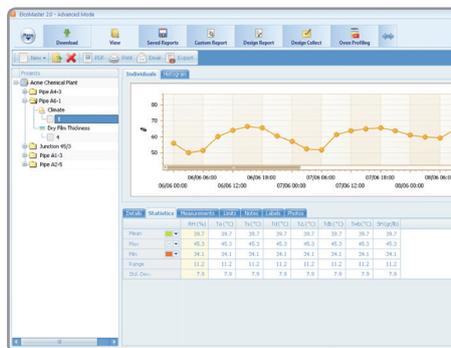
Data can be stored in a simple file tree, by project and by inspection type.
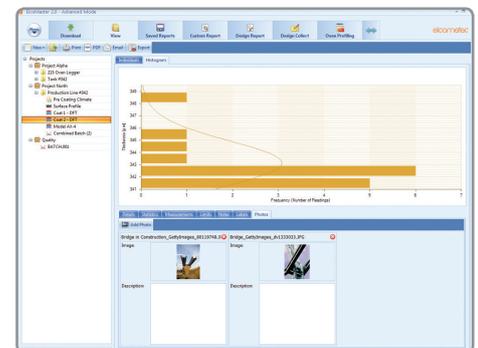
Add photographs and notes to your reports.

Export, print or send
Export, print, .pdf or email directly from ElcoMaster™ at the click of a button

Inspectors can spend up to 30% of their work week producing reports. ElcoMaster™ saves time and money by producing professional bespoke reports in seconds - even when out on site.
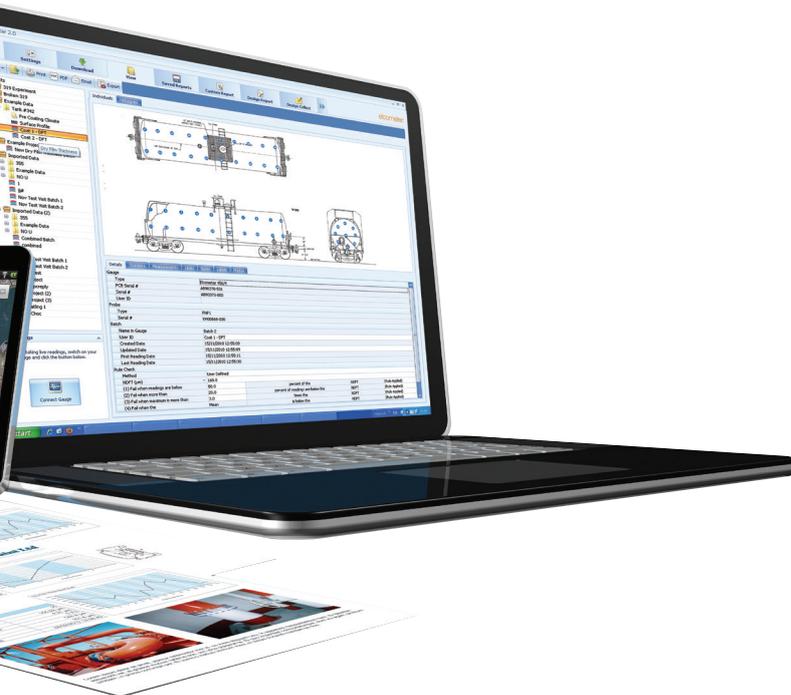
- Generate reports instantly using standard or pre-designed templates in seconds. No need for data manipulation simply connect the gauge, download data and drag & drop

- Combine multiple inspection parameters (such as material thickness, profile) together with images, notes and other project specific information in bespoke quality reports to set you apart from the competition

- In many industries multiple sites/locations/ production lines are used to fabricate the product components which are brought together at the final assembly line. Different inspection parameters all need to be combined to approve the final product. Using Cloud technology ElcoMaster™ gives you real time quality control monitoring inspection projects in any location

Cloud
Multi-site access through secure cloud computing
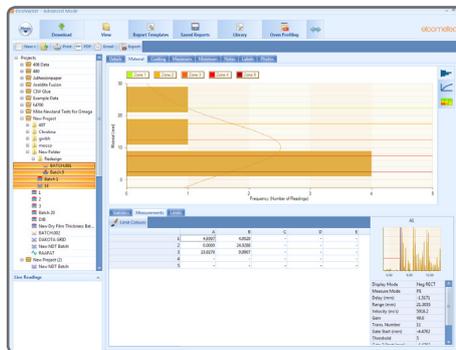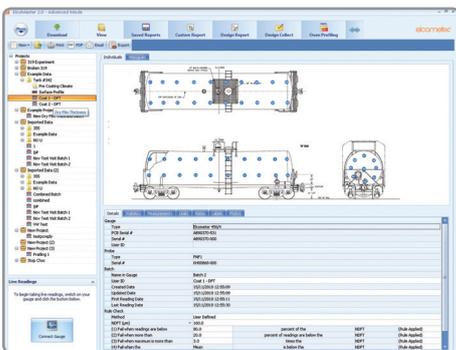
Email   Cloud

Using the Report Designer within ElcoMaster™, measurements can be quickly displayed on an image or drawing.

Combine multiple inspection parameters (Material thickness, profile, into bespoke reports.
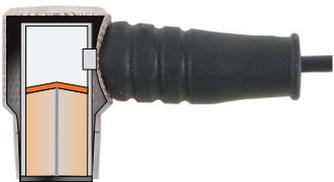
Transducers

Elcometer NDT offer a state-of-the-art range of Ultrasonic Gauge transducers

When selecting a transducer it is important to choose one which will meet the specific application's needs. The type of material to be tested, the measurement range, the shape of the substrate (curved or flat) and the size of the material should be considered when selecting the appropriate transducer.

◄ **Single Element**

Single element transducers feature a single crystal that sends and receives the pulse and are made for high frequency use.

◄ **Dual Element**

A dual element transducer consists of two crystal elements housed in the same case, separated by an acoustic barrier.

.500″ 1.0 MHZ **.500″ 2.25 MHZ** **.500″ HD 3.5 MHZ** **.250″ HD 5 MHZ** **.18.7″ 5 MHZ** **.250″ 7.5 MHZ**

.250″ 10 MHZ **.250″ 15MHz** **.250″ 20 MHz**

What connection does it have?

Potted: The transducer is strongly secured to the cable at the factory.

Microdot: The transducer is attached using two small screw type connectors, enabling replacement of the cable in case of accidental damage or wear.

All transducers are intelligent; when connected to the MTG or PTG range the gauge instantly recognises what transducer has been attached to the gauge.

Selecting the right transducer

Selecting the right transducer for your application is essential to maximise performance.

Choosing the right frequency and diameter

Different materials have different acoustic properties. In some a sound wave can travel easily, in others it's absorbed so achieving an accurate measurement can be difficult. To overcome this it is essential to choose the right frequency and diameter for your material.

High frequency transducers are ideal for precision measurement because the pulse they emit is highly focused, reducing the risk of return echoes outside of the measurement area. The high frequency and shorter wavelength also lends itself to measuring thin materials.

Low frequency transducers are designed for materials that absorb sound like plastics or composites. The pulse penetrates deeply into the material ensuring a strong return echo and therefore a measurement.
This high penetration also means that they are suitable for high material thicknesses.

Larger diameter probes feature larger crystals which transmit and receive the sound wave. A large crystal transmitter will produce a larger sound wave and a larger receiving crystal will be more sensitive.

As a result, larger transducers tend to have better penetration characteristics than the smaller types.

If this extended range is not required, the smaller transducers can be placed more precisely and in hard to reach areas such as narrow grooves in a material.

CT = Coating Thickness
HD = High Damping
 S = Standard

1MHz   2.25MHz   3.5MHz   5MHz   7.5 MHz   10MHz   15MHz   20MHz

Dual & Single Element Transducers

Part Number	Probe Diameter	Probe Configuration	Damping	ThruPaint™	Potted right angle	Microdot	Cast Iron	Plastics	Thin Plastics	Fibreglass	Thin Fibreglass	Steel	Glass	Aluminium	Titanium	MTG2	MTG4	MTG6	MTG8	PTG6	PTG8	Calibration Certificate
1.00 MHz Dual Element Thickness Transducer																						
TXC1M00EP-2	1/2"	Right Angle	S		●		●	●		●	●						●	●	●			●
2.25 MHz Dual Element Thickness Transducer																						
TXC2M25CP-2	1/4"	Right Angle	S		●		●	●	●	●							●	●	●			●
TXC2M25EP-2	1/2"	Right Angle	S		●		●	●		●							●	●	●			●
3.50 MHz Dual Element Thickness Transducer																						
TXC3M50EP-1	1/2"	Right Angle	CT, HD	●	●		●	●		●		●				●	●	●	●			●
5.00 MHz Dual Element Thickness Transducer																						
TXC5M00BP-4	3/16"	Right Angle	CT, HD	●	●			●				●	●			●	●	●	●			●
TXC5M00CP-4	1/4"	Right Angle	S		●			●				●	●			●	●	●	●			●
TXC5M00CP-6	1/4"	Right Angle	CT, HD	●	●			●				●	●			●	●	●	●			●
TXC5M00CP-8	1/4"	Hi Temp	HD		●			●				●	●			●	●	●	●			●
TXC5M00EP-3	1/2"	Right Angle	S		●			●				●	●			●	●	●	●			●
TXC5M00EP-4	1/2"	Right Angle	CT, HD	●	●			●				●	●			●	●	●	●			●
7.50 MHz Dual Element Thickness Transducer																						
TXC7M50BP-3	3/16"	Right Angle	CT, HD	●	●			●				●	●	●		●	●	●	●			●
TXC7M50CP-4	1/4"	Right Angle	S		●			●				●	●	●		●	●	●	●			●
TXC7M50CP-5	1/4"	Right Angle	CT, HD	●	●			●				●	●	●		●	●	●	●			●
10.0 MHz Dual Element Thickness Transducer																						
TXC10M0BP-1	3/16"	Right Angle	S		●							●	●	●			●	●	●			●
TXC10M0CP-4	1/4"	Right Angle	S		●							●	●	●			●	●	●			●
15.0 MHz Single Element Transducer																						
TXC15M0CM	1/4"	Right Angle	S		●			●				●		●	●					●	●	●
20.0 MHz Single Element Transducer																						
TXC20M0CM	1/4"	Right Angle	S		●			●				●		●	●					●	●	●

Delay Lines

Each gauge is supplied complete with 9mm and 12mm acrylic delay lines suitable for measuring on steel, aluminium and titanium.

If measuring on thin plastics using Plastic Mode (PLAS), a graphite delay line must be used. These are available to purchase as optional accessories.

Part Number	Description
T92016528	Acrylic Delay Line; 1/4 Dia x 9mm
T92016529	Acrylic Delay Line; 1/4 Dia x 12mm
T92023853-4	Graphite Delay Line; 1/4 Dia x 3/8"

All transducers are supplied with a calibration certificate
HD   Highly damped Transducer
CT   Damped Coating Thickness Transducer
S   Standard undamped Transducer

To select another transducer from the one supplied with the gauge please remove TXC from the part number

Accessories

Calibration Standards and Ultrasonic Couplant

Calibration blocks are available as a set or individually, allowing users to select the most appropriate thickness for their application. Elcometer calibration standards are manufactured from 4340 steel to a tolerance of ±1% of the nominal thickness and are supplied complete with calibration certificates.

Part Number	Description
Calibration Standard Sets	
T920CALSTD-SET1	Calibration Standard Set; Nominal Thickness; 2-30mm (0.08-1.18")[1,2] *Comprising of; 2, 5, 10, 15, 20, 25 & 30mm (0.08, 0.20, 0.39, 0.59, 0.79, 0.98 & 1.18"), complete with holder and calibration certificate.*
T920CALSTD-SET2	Calibration Standard Set; Nominal Thickness; 40 - 100mm (1.57 - 3.94")[1,2] *Comprising of; 40, 50, 60, 70, 80, 90 & 100mm (1.57, 1.97, 2.36, 2.76, 3.15, 3.54 & 3.94"), complete with holder and calibration certificate*
T920CALSTD-HLD	Calibration Holder; for thicknesses up to 100mm (3.94")

Part Number		
Individual Calibration Standards	Nominal Thickness (mm)	Nominal Thickness (inches)[1]
T920CALSTD-2	2	0.078
T920CALSTD-5	5	0.196
T920CALSTD-10	10	0.393
T920CALSTD-15	15	0.590
T920CALSTD-20	20	0.787
T920CALSTD-25	25	0.984
T920CALSTD-30	30	1.181
T920CALSTD-40	40	1.574
T920CALSTD-50	50	1.966
T920CALSTD-60	60	2.362
T920CALSTD-70	70	2.755
T920CALSTD-80	80	3.149
T920CALSTD-90	90	3.543
T920CALSTD-100	100	3.937

Ultrasonic Couplant & Adaptors

Elcometer has developed a viscous gel to work on both horizontal and vertical surfaces. The temperature range for regular couplant is -15 to 104^{0}C (5 to 220^{0}F)The Elcometer high temperature gel has a range of up to 510^{0}C (950^{0}F) for use with high temperature transducers.

Part Number	Description
T92015701	Ultrasonic Couplant; 120ml (4fl oz)
T92024034-7	Ultrasonic Couplant; 300ml (10fl oz)
T92024034-8	Ultrasonic Couplant; 500ml (17fl oz)
T92024034-3	Ultrasonic Couplant; 3.8l (1 US Gallon)
T92024034-9	High Temperature Couplant; 60ml (2fl oz) *For use with high temperature transducers up to 510^{0}C (950^{0}F)*

Transducer Adaptor

These adaptors allow single & dual element, 'non-intelligent' and other transducers with lemoconnectors from Elcometer and other manufacturers, to be used with the MTG & PTG product range.

Part Number	Description	Suitable for					
		MTG2	MTG4	MTG6	MTG8	PTG6	PTG8
T92024911 Dual Element[3]	Transducer Adaptor	●	●	●	●		
T92025657 Single Element[4]	Transducer Adaptor					●	●

[1] Imperial values for information purposes only. Calibration standards are manufactured and measured in millimeters.

[2] PTG nominal thickness is only 2 - 25mm

[3] This adaptor allows dual element, 'non-intelligent' and other transducers with Lemo Connectors from Elcometer and other manufacturers to be used with the MTG product range. See website for the full list of transducers www.elcometer.com

[4] This adaptor allows single element, 'non-intelligent' and other transducers with Lemo Connectors from Elcometer and other manufacturers to be used with the PTG product range. See website for the full list of transducers www.elcometer.com

Velocity chart of Preset Materials

Velocity chart for the preset choice of 39 materials in the MTG4, MTG6, MTG8, PTG6 & PTG8

Elcometer Material Number	Material Description (Chemical Symbol/Grouping)	Material Name	Sound Velocity (m/sec)	Sound Velocity (in/µsec)	Source of value NPL = National Physical Laboratory ASNT = The American Society for Non destructive testing Industry = Industry knowledge
1	Fe	Iron (soft)	5960	0.235	NPL
2	Fe	Iron Cast	4990	0.196	NPL
3	Al	Aluminium (7075-T6)	6350	0.250	ASNT
4	Ti	Titanium	6100	0.240	ASNT
5	Mg	Magnesium	5790	0.228	ASNT
6	Ni	Nickel	5630	0.222	ASNT
7	W	Tungsten	5180	0.204	ASNT
8	Cu	Copper	4660	0.183	ASNT
9	Zn	Zinc	4190	0.165	NPL
10	Ag	Silver	3600	0.142	Industry
11	Sn	Tin	3380	0.133	NPL
12	Pt	Platinum	3260	0.128	NPL
13	Au	Gold	3240	0.128	NPL
14	-	Cadmium	2780	0.109	NPL
15	Bi	Bismuth	2180	0.086	Industry
16	Pb	Lead	2160	0.085	ASNT
17	Cobalt-chromium Alloy	Stellite	6990	0.275	Industry
18	Iron Alloy	Steel (Carbon 1018)	5920	0.233	Industry
19	Iron Alloy	Steel (Alloy 4340)	5850	0.230	Industry
20	Nickle-chromium Alloy	Inconel (625)	5820	0.229	Industry
21	Silver Alloy	Stainless Steel, (Austentic 304)	5660	0.233	ASNT
22	Copper Alloy	Constantan	5180	0.204	NPL
23	Non-metal	German Silver	4760	0.187	Industry
24	Non-metal	Brass (Naval)	4430	0.174	ASNT
25	Non-metal	Glass (Quartz)	5930	0.233	ASNT
26	Non-metal	Glass (Crown)	5660	0.223	NPL
27	Non-metal	Glass (Flint)	5260	0.207	NPL
28	Non-metal	Porcelain	5840	0.230	Industry
29	Non-metal	Plexiglas	2760	0.109	Industry
30	Non-metal	Glass Fibre	2740	0.108	Industry
31	Non-metal	Nylon	2680	0.106	NPL
32	Non-metal	Epoxy Resin	2540	0.100	Industry
33	Non-metal	Polystyrene	2350	0.093	NPL
34	Non-metal	PVC	2330	0.092	NPL
35	Non-metal	Rubber (Butyl)	1830	0.072	Industry
36	Non-metal	Rubber (Natural)	1600	0.063	NPL
37	Non-metal	Polyurethane	1780	0.070	Industry
38	Non-metal	Teflon	1400	0.055	NPL
39	Non-metal	Water	1490	0.059	ASNT

elcometer

With their ergonomic sealed cases, water and dustproof membrane keypads and a wide range of ultrasonic transducer probes, capable of measuring materials at temperatures up to 482°C (900°F), the Elcometer NDT flaw detection gauges are the ideal ultrasonic instruments

CG100ABDL

The CG100ABDL Corrosion Thickness Gauge stores up to 16,000 readings with individual waveforms, displays A-Scan and B-Scan and offers full data logging through RS232 data output to Elcometer NDT data management software.

UG20DL

This underwater material and coating thickness gauge is ideal for offshore inspections.
Waterproof to a depth of 300 meters (1,000 feet) the UG20DL offers many of the features of the CG100 series in an easy to use brightly lit gauge.

PG70ABDL

With a user selectable resolution of either 0.01mm or 0.001mm (0.001/0.0001inch) the PG70ABDL can display the thickness value together with A and B-Scan display, providing users the ability to accurately assess a wide range of materials.

FD700DL+ Mini Flaw Detectors

This hand held gauge has all the features of the CG100ABDL+ Corrosion Thickness Gauge, and the FD700DL+ Flaw Detector. When in flaw detection mode it offers a variety of tool kits which enable fast and accurate flaw detection.

FD800DL+Bench Top Flaw Detectors

The bench-top FD800 flaw detectors series combine state-of-the-art flaw detection with advanced material thickness capabilities.

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