elcometer®
inspection equipment

Elcometer 224
surface profile gauge

elcometer®

Elcometer 224

STANDARDS:
ASTM D 4417-B, SANS 5772,
SSPC PA 17, US Navy NSI 009-32,
US Navy PPI 63101-000

Digital Surface Profile Gauge

The Elcometer 224 provides the very latest in surface profile measuring technology for measuring profile on either flat or curved surfaces.

Fast reading rate of 50+ readings per minute^

Stores up to 150,000 readings in up to 2,500 alpha numeric batches

Integral & separate probe options for flat and convex** surfaces

Dust and water resistant rugged design equivalent to IP64

USB and Bluetooth® data output to ElcoMaster® software

2 YEAR* WARRANTY

Suitable for use in Cloud Computing

* Elcometer 224 gauges are supplied with a one year warranty against manufacturing defects. The warranty can be extended to two years via www.elcometer.com

** USA Patent Numbers: 9,261,345

^ Convex probe up to 25 readings per minute

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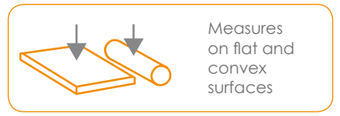
Digital Surface Profile Gauge

Elcometer 224

Fast, accurate and very user friendly, the Elcometer 224 is available with or without memory and Bluetooth®.



Accurate, immediate and repeatable results

Review batch data or last 20 readings in a graph format

Time and date stamped measurements

Auto rotating display with tap awake feature

User replaceable tough tungsten carbide tips

2.4” colour screen provides enhanced reading visibility at all angles

Ergonomic design for comfort during continuous use

Integral or separate probes measure profiles up to 500µm (20mils) on flat or curved surfaces**

Made for iPod iPhone iPad

Android™

available with Bluetooth® wireless technology

compatible with ElcoMaster®

Elcometer 224 Model T: Made for iPhone 6 Plus, iPhone 6, iPhone 5s, iPhone 5c, iPhone 5, iPhone 4s, iPhone 4,iPad Air 2, iPad mini 3, iPad Air, iPad mini 2, iPad (3rd and 4th generation), iPad mini, iPad 2, and iPod touch (4th and 5th generation). “Made for iPod,” “Made for iPhone,” and “Made for iPad” mean that an electronic accessory has been designed to connect specifically to iPod, iPhone, or iPad, respectively, and has been certified by the developer to meet Apple performance standards. Apple is not responsible for the operation of this device or its compliance with safety and regulatory standards. Please note that the use of this accessory with iPod, iPhone, or iPad may affect wireless performance.

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Elcometer 224 **Digital Surface Profile Gauge**

Designed with you in mind

User Friendly

- Large buttons ideal for gloved hands
- Easy to use menus in multiple languages
- High contrast colour LCD with auto rotate
- High and low reading limit indicators
- Factory calibrated for immediate use

Tough

- Sealed, heavy duty and impact resistant
- Dust and waterproof equivalent to IP64
- Suitable for use in harsh environments
- Scratch and solvent resistant display
- Durable gauge and probe construction

Accurate

- Measurement capability to ±5%
- Can be used in accordance with National and International Standards
- Temperature stable measurements
- Statistics are calculated and displayed in real time
- Live and batch readings graph format for instant analysis

Efficient

- Fast reading rate of 50+ per minute
- Integral and separate probe versions to suit your application
- Alpha numeric batch identification
- Compatible with ElcoMaster® and ElcoMaster® Mobile App
- Powersave mode with tap awake

Reliability

- Repeatable and reproducible measurements
- 2 year gauge warranty†
- Supplied with fully traceable Test Certificates
- Batch & individual readings are date and time stamped

Powerful

- User replaceable tough tungsten carbide tip - can be used for up to 20,000 readings
- USB and Bluetooth® data output to iPhone* or Android™ devices
- Stores up to 150,000 readings in 2,500 batches
- Measures profiles up to 500µm (20mils)

*Compatible with iPod, iPhone and iPad.

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Digital Surface Profile Gauge **Elcometer 224**

Product Features

	Model B	Model T
Fast, accurate reading rate; *50+ readings per minute^*	■	■
Repeatable & reproducible measurements	■	■
Easy to use menu structure; *in 30+ languages*	■	■
Tough, impact, waterproof & dust resistant; *equivalent to IP64*	■	■
Bright colour screen; *with permanent back light*	■	■
Scratch & solvent resistant display; *2.4" (6cm) TFT*	■	■
Large positive feedback buttons	■	■
Flat & convex surfaces*	■	■
USB power supply; *via PC*	■	■
Test certificate	■	■
2 year gauge warranty†	■	■
Automatic rotating display; *0°, 90°, 180° & 270°*	■	■
Ambient light sensor; *with adjustable auto brightness*	■	■
Emergency light mode	■	■
Gauge software updates[1]; *via ElcoMaster® software*	■	■
Data output	■	■
USB; *to computer*	■	■
Bluetooth®: *to computer, Android™ & iOS‡ devices*		■
On screen statistics	■	■
Number of readings, *η;* Mean (average), $\bar{x}$ *;* Standard deviation, σ; Highest reading, *Hi;* Lowest reading, *Lo;* Coefficient of variation, *CV%*	■	■
High & low limits; *definable audible & visual alarms*		■
Number above high limit;		■
Number below low limit;		■
ElcoMaster® software & USB cable		■
Date and time stamp *for each reading*		■
Replaceable screen protectors	■	■
Protective case	■	■
Plastic transit case	□	■
Measurement range	0-500µm (20 mils)	0-500µm (20 mils)
On-screen calibration instructions; *in 30+ languages*	■	■
Number of batches		2,500
Gauge memory; *number of readings*	Last 5	150,000
Delete last reading	■#	■
Limits; *user definable audible & visual pass/fail warnings*		■
Gauge (g) or gauge & batch specific (gb) limits		gb
Batch types; *normal, counted average*		■
Review, clear & delete batches		■
Copy batches and calibration settings		■
Alpha-numeric batch names; *user definable on the gauge*		■
Fixed batch size mode; *with batch linking*		■
Trend graph; *last 20 readings*		■
Review batch graph		■

■ Standard □ Optional ‡ Visit www.elcometer.com/sdk to find out how to integrate Elcometer's MFi certified products to your App.
[1] Internet connection required # Up to the last 5 readings can be deleted * USA Patent Numbers: 9,261,345 ^Up to 25 readings per minute for the convex probe
† The Elcometer 224 is extendable within 60 days from date of purchase, free of charge, to 2 years via www.elcometer.com.
Elcometer 224 probes are covered by a 1 year warranty.

Elcometer 224 — Digital Surface Profile Gauge

Model Options

Part Number		Description	Certificate
Integral Gauge	Separate Gauge^		
E224C-BI	E224C-BS	Elcometer 224 Model B Digital Surface Profile Gauge	●
E224C-TI	E224C-TS	Elcometer 224 Model T Digital Surface Profile Gauge	●

Technical Specification

Display information	2.4” (6cm) QVGA colour TFT display, 320 x 240 pixels	
Battery type	2 x AA batteries, rechargeable batteries can also be used	
Battery life	Approximately 24 hours of continuous use at 1 reading per second#	
Minimum Headroom	Integral:	185mm (7.3”)
	Separate:	See page 7
Gauge dimensions (h x w x d)	Integral:	168 x 73 x 37mm (5.61 x 2.87 x 1.46”)
	Separate:	141 x 73 x 37mm (5.55 x 2.87 x 1.46”)
Gauge weight (including batteries)	Integral:	218g (7.69oz)
	Separate:	161g (5.68oz)
Measurement range	0-500µm (0-20mils)	
Probe tip	Tungsten carbide tip 60° angle; Tip Radius: 50µm (2mil)	
Operating temperature	-10 to 50°C (14 to 122°F) Storage temperature	-10 to 60°C (14 to 140°F)
Accuracy & Resolution	Accuracy*: ±5% or ±5µm (±0.2mil); Resolution: 1µm (0.1mil)	
Packing List†	Elcometer 224 gauge, glass zero tile†, 2 x calibration foils†, wrist harness, plastic transit case (T), protective case, screen protector, probe protection cap†, 2 x AA batteries, test certificate, operating instructions, USB cable (T) & ElcoMaster® software (T)	

Elcometer — Digital Inspection Kits

These digital inspection kits have been specifically designed to undertake the three principal inspection requirements in the Protective and Industrial Coatings Industry– climate, surface profile and dry film thickness. Ideal for ‘paperless’ quality assurance systems the kits come complete with ElcoMaster® Data Management Software for professional reporting and analysis.

Technical Specification

Part Number	Description
YKIT-DIGITAL-B	Elcometer Basic Digital Inspection Kit (F)
YKIT-DIGITAL-T	Elcometer Top Digital Inspection Kit (F)
YKIT-DIGITALFNF-B	Elcometer Basic Digital Inspection Kit (FNF)
YKIT-DIGITALFNF-T	Elcometer Top Digital Inspection Kit (FNF)

* Whichever is the greater

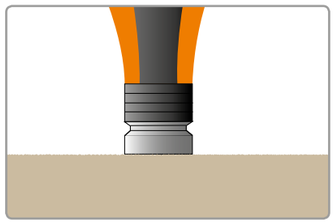
^ Probes are supplied separately, see page 7 for details

Using default settings & lithium batteries, alkaline or rechargeable batteries may differ.

† For separate gauges, the test foils, glass zero tile and probe protection cap are supplied with the separate probe.

● Test Certificate supplied as standard.

Digital Surface Profile Probes — Elcometer 224

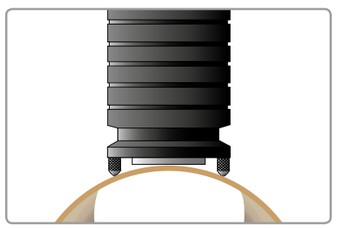


Flat Surface Profile Probes
Supplied with either standard cables or armoured metal reinforced heavy duty cables, Elcometer surface profile probes are supplied with a glass zero plate, calibration test foils; nominal values 125µm (5.0mils) & 508µm (20mils) and an Elcometer test certificate.

Technical Specification

Range: 0-500µm (0-20mils) Resolution: 1µm (0.1mil) Accuracy: ±5% or ±5µm (±0.2mil)

Probe Design	Part Number	Minimum Headroom	Minimum Sample Diameter	Certificate
Flat Surface: Standard	T224C500US	125mm (4.92”)	25mm (1.0”)	●
Flat Surface: Armoured	T224C500UARM	165mm (6.50”)	25mm (1.0”)	●



Convex Surface Profile Probes
Supplied with either standard cables or armoured metal reinforced heavy duty cables, Elcometer convex surface profile probes are supplied with a glass zero tile, calibration test foils (nominal values 125µm (5.0mils) & 508µm (20mils)) and an Elcometer test certificate.

Technical Specification

Range: 0-500µm (0-20mils) Resolution: 1µm (0.1mil) Accuracy: ±5% or ±5µm (±0.2mil)

Probe Design	Part Number	Minimum Headroom	Minimum Pipe Diameter	Certificate
Convex Surface: Standard*	T224C500UX	135mm (5.31”)	75mm (3.0”)	●
Convex Surface: Armoured*	T224C500UXARM	175mm (6.89”)	75mm (3.0”)	●

Accessories

Part Number		Description
Integral Gauge	Separate Gauge	
T22419793	T22419793	Probe Tip Protection Cap
T22420072	T22420072	Glass Zero Tile with Wallet
T22421882C	T22421882C	Certified Calibration Test Kit: 125µm & 500µm (5 & 20mils) Calibration Foils, Glass Zero Tile & Calibration Certificate
T99921325	T99921325	USB Cable
T99924797	T99924797	USB Bluetooth® Adaptor (V2.0+) - for PC’s without Bluetooth®
T99922341	T99922341	Self Adhesive Screen Protectors (x10)
T22420053	T22420053	Replacement Tip (Pack of 2) with Fixing Tool
T22420095	T22420095	Replacement Tip (Pack of 5)
-	T45622371	Benchtop Inspection Stand

● Test Certificate supplied as standard.
Elcometer 224 probes are covered by a 1 year warranty

* USA Patent Numbers: 9,261,345

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ElcoMaster® data management software

Data Management Software

ElcoMaster® Mobile App brings the office to where you are.

You can connect Elcometer Bluetooth® enabled inspection gauges directly to iPhone, iPad and iPods or Android™ mobile phones and tablets via ElcoMaster® Mobile App.

When out in the field or on site, you can review data instantly using our free ElcoMaster® Mobile App. Press 'Generate PDF' and watch the ElcoMaster® App produce a professional report instantly. Email the report to your client seconds after you have finished inspecting or upload it via cloud technology so it can be accessed anywhere in the world.

With data transferred to mobile devices whilst out in the field, the Elcometer gauge does not have to be returned to the office for data download. Inspection work can continue without interruption.

ElcoMaster® Mobile App shares many features of ElcoMaster® for PC:

- Download batches from Elcometer Bluetooth® enabled gauges
- Add notes, photographs and diagrams
- Pdf.[1] and email reports
- Using the phone's GPS feature, add this data to batch files
- Use collection batch measurement location points on photos or images to indicate to users where each measurement needs to be taken[2]

- Surface Profile
- Salt Contamination
- Climatic Conditions
- Coating Thickness
- Corrosion Thickness
- Adhesion Testing
- Gloss Measurement

[1] Available on iOS devices only
[2] Availabe on Android™ only

ANDROID APP ON Google play

Download on the App Store

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Data Management Software

ElcoMaster® data management software

With data transferred to mobile communication devices, the Elcometer gauge does not have to be returned to the office for data download. Inspection work can continue without interruption.

Connect
Connect gauge via Bluetooth® to phone to see live readings directly on the phone and save them into batches.

Review
Review average, maximum and minimum readings instantly.

Analyse
Analyse data via sequential readings, statistics, charts & histograms or on images.

Manage & Print
Store all data; dry film thickness, surface profile, climate and manual reports in easy to manage folders.

Photos & Notes
Add photos, notes and comments.

Send
Email inspection data from a mobile device to a PC for further analysis and reporting or transfer data via the Cloud.

Cloud Email

GPS
Store GPS locations in batches and view location on Google Maps.

ElcoMaster® data management software

How ElcoMaster® Works

The different ways ElcoMaster® can help you do your job better

ElcoMaster® has been designed to be a very intuitive method of developing professional reports, it is however extremely versatile. Here are just a few ways ElcoMaster® can be used in day-to-day activities of a coating professional.

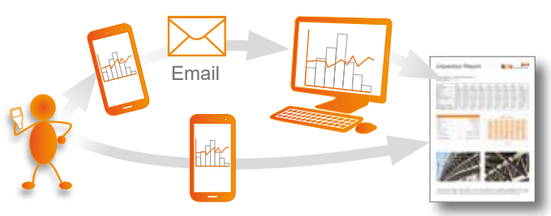
1. Gauge to PC to Excel

Transferring inspection data straight into Microsoft Excel via Bluetooth® or USB is simple and easy.

2. Gauge to PC data transfer into ElcoMaster®

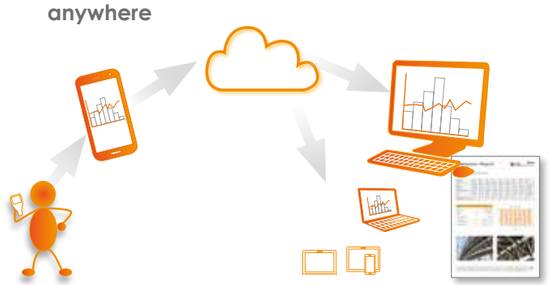
Using Bluetooth® or USB, ElcoMaster® transfers inspection data in seconds, archiving data and generating reports at the click of a button.

3. ElcoMaster® Mobile App for immediate data transfer from the site to the office



Transfer inspection data straight to mobiles and tablets via Bluetooth® when on site for instant analysis, generate .pdf reports[1] and email them back to the office for storing, review and QA reporting.

4. Upload to a cloud for real time analysis anywhere



Using ElcoMaster® Mobile App you can upload inspection data, photos, notes and GPS coordinates direct to a Cloud[2] account of your choice via 3G/4G or WiFi.

All data is instantly visible to other approved users of the account - through a secure log-in on any computer or mobile device anywhere in the world.

5. Seamlessly link multiple sites or production lines

ElcoMaster® gives you real time quality control monitoring from multiple inspection projects in any location.
You can compare and combine inspection data from different production lines or different locations, to produce specific Project Inspection Reports quickly and easily.

[1] Available on iOS devices only

[2] Available on Android™ only

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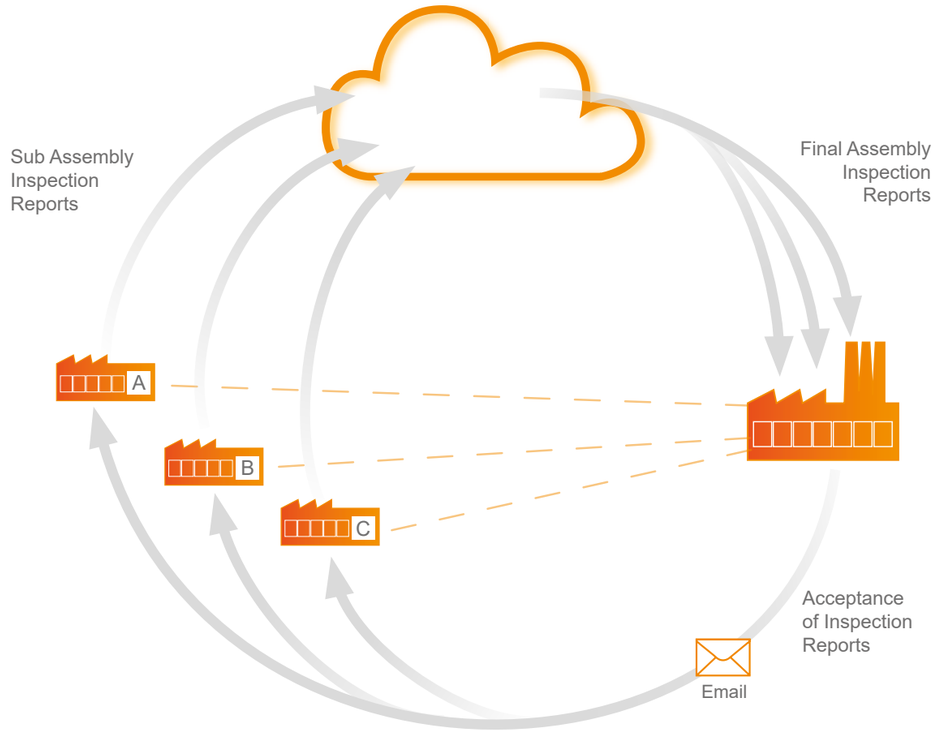
Data Management Software

How ElcoMaster® Works

ElcoMaster® data management software

6. Real time collaboration for multi-site projects



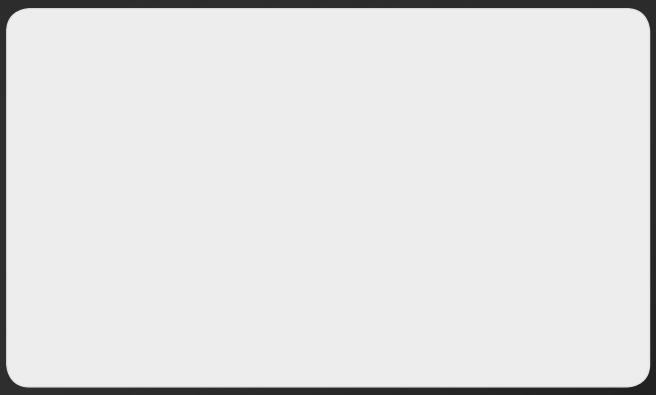
Real time collaboration for multi-site projects
When working with manufacturers of sub-assemblies across the globe ElcoMaster® can collate all inspection data from each site, assembly line and project into one shared location. Contractors can then:

- Accept or reject parts before shipment from sub-assembly plants.
- Combine all data from sub assembly and final assembly inspection to generate Project Inspection Reports for quality management, both during the project and after completion of the project.
- Have real time in progress visibility across the whole project, no matter where the sub-assembly manufacturing is in the world.
- Have multi-site collaboration, real time dialogue and decision making to improve efficiency and quality throughout the production process.

Real time communication
Featuring instant messaging the ElcoMaster® Mobile App lets you add messages to inspection data, projects and files, allowing you to immediately discuss key points with your colleagues, managers or clients, send work instructions and store messages within the project file.

Your data - your choice - your control
ElcoMaster® allows you to decide which Cloud service provider to use. It is your data, it is secure as only approved users can have access, no third parties can see your data.
ElcoMaster® Mobile App is compatible with a range of cloud service providers and FTP servers including:

works with Google Drive · FTP server · Dropbox



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Elcometer 224 Model T: Made for iPhone 6 Plus, iPhone 6, iPhone 5s, iPhone 5c, iPhone 5, iPhone 4s, iPhone 4, iPad Air 2, iPad mini 3, iPad Air, iPad mini 2, iPad (3rd and 4th generation), iPad mini, iPad 2, and iPod touch (4th and 5th generation)."Made for iPod," "Made for iPhone," and "Made for iPad" mean that an electronic accessory has been designed to connect specifically to iPod, iPhone, or iPad, respectively, and has been certified by the developer to meet Apple performance standards. Apple is not responsible for the operation of this device or its compliance with safety and regulatory standards. Please note that the use of this accessory with iPod, iPhone, or iPad may affect wireless performance.

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Due to our policy of continuous improvement, Elcometer Limited reserves the right to change specifications without notice. All gauges come with a 1 year warranty as standard, the Elcometer 224 is extendable within 60 days from date of purchase, free of charge, to 2 years via www.elcometer.com

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