Paint Test Equipment

Coating Thickness Meter

Coating Thickness

Coating Thickness Meter

Information

The Paint Test Equipment Coating Thickness Meter easily measures all coatings on metallic Substrates using the magnetic induction or eddy-current principles, ensuring the correct coating thickness has been applied.

It is one of the most advanced Coating Thickness Meters on the market, using up-to-date technology in a robust portable instrument and incorporating all the following user functions.

Calibration. Calibrate on any blasted profile or any shape of substrate using the Calibration Foils supplied.

Calibration Memories. The calibration settings for different substrates and shapes can be stored and recalled when required.

Statistics. Continually shows Mean, Number of Readings, Max/Min, Coefficient of Variation and Standard Deviation.

Limits. Pass and fail with audible and visual alarm.

Metric/Imperial. Select the measurement units that you require.

Batching. Measurements that are taken can be stored into batches which incorporate batch number, unique job number, and date and time. You can also go back to previous batches and look at the statistics and add or cancel readings from previous batches.

Download. Enables all measurements, statistics and out-of-limit readings to be downloaded to a computer either by batch number or job number into Microsoft Word or Excel.

The Calibration Certificates with traceability to UKAS are an optional extra. The Certificates are supplied as hard copy and are available online through the Calibration Management Cloud (under Calibration) on our website.

Coating Thickness Meter

ISO 2808: Paints and varnishes. Determination of film thickness.

ISO 19840: Corrosion protection of steel structures by protective paint systems. Measurement of, and acceptance criteria for, the thickness of dry films on rough surfaces.

ISO 2360: Non-conductive coatings on non-magnetic electrically conductive basis materials. Measurement of coating thickness. Amplitude-sensitive eddy-current method.

ISO 1461: Hot dip galvanized coatings on fabricated iron and steel articles. Specifications and test methods.

ISO 2063: Thermal spraying. Metallic and other inorganic coatings. Zinc, aluminium and their alloys.

All models are supplied in an industrial foam-filled Carrying Case with flexible lead Measuring Probe (Ferrous and Non-Ferrous instruments have two Measuring Probes), set of 8 Calibration Foils and Zero Disk (Ferrous and Non-Ferrous instruments have two Zero Disks and C5003 Model has 3 Foils).

The USB PC Download Cable shown below is available as an optional extra.

Coating Thickness Meter

Coating Thickness Meter Specifications

Part No	Substrate	Range Metric	Range Imperial	Resolution Metric	Resolution Imperial	Accuracy	Cal Cert Part No	Foil Cert Part No
C5001	Ferrous	0–1000µm	0–40mils	1µm	0.1mil	±1 to 3%	NC101	NC002
C5002	Ferrous	0–2000µm 0–5mm	0–80mils 0–200mils	1µm 0.01mm	0.1mil	±1 to 3%	NC101	NC002
C5003	Ferrous	1–20mm	40–800mils	0.1mm	0.1mil	±1 to 3%	NC101	NC002
C5004	Non-Ferrous	0–1000µm	0–40mils	1µm	0.1mil	±1 to 3%	NC201	NC002
C5005	Non-Ferrous	0–2000µm	0–80mils	1µm	0.1mil	±1 to 3%	NC201	NC002
C5006	Ferrous & Non-Ferrous	0–1000µm	0–40mils	1µm	0.1mil	±1 to 3%	NC101 NC201	NC002
C5007	Ferrous & Non-Ferrous	F 0–2000µm F 0–5mm N 0–2000µm	0–80mils 0–200mils 0–80mils	1µm 0.01mm 1µm	0.1mil	±1 to 3%	NC101 NC201	NC002
CA101	USB PC Download Cable							

Ferrous models measure all non-ferromagnetic coatings on steel and iron. Non-Ferrous models measure all non-conductive, non-ferromagnetic coatings on conductive non-ferrous substrates.

Coating Thickness Meter

Spare Probes Specifications

Part No	Product	Cal Cert Part No
CS301	Spare Ferrous Probe 0–1000µm (to fit Coating Thickness Meter C5001 & C5006)	NC101
CS302	Spare Ferrous Probe 0–2000µm & 0–5mm (to fit Coating Thickness Meter C5002 & C5007)	NC101
CS303	Spare Ferrous Probe 0–20mm (to fit Coating Thickness Meter C5003)	NC101
CS304	Spare Non-Ferrous Probe 0–1000µm (to fit Coating Thickness Meter C5004 & C5006)	NC201
CS305	Spare Non-Ferrous Probe 0–2000µm (to fit Coating Thickness Meter C5005 & C5007)	NC201
CA201	Ferrous Right Angle Probe 0–1000µm (to fit Coating Thickness Meter C5001 & C5006)	NC101
CA203	Non-Ferrous Right Angle Probe 0–1000µm (to fit Coating Thickness Meter C5004 & C5006)	NC201

Coating Thickness Meter

Probe Sizes & Minimum radius’s / Sample Area

Probe	Probe Diameter	Working Headroom	Minimum Convex Radius	Minimum Concave Radius	Minimum Sample Area
Ferrous 0–1000µm	9mm (360mils)	75mm (3”)	4mm (160mils)	25mm (1”)	4mm (160mils)
Ferrous 0–2000µm/0–5mm	15mm (600mils)	75mm (3”)	10mm (400mils)	50mm (2”)	10mm (400mils)
Ferrous 1–20mm	50mm (2”)	150mm (6”)	100mm (4”)	500mm (20”)	100mm (4”)
Non-Ferrous 0–1000µm	10mm (400mils)	75mm (3”)	5mm (200mils)	25mm (1”)	5mm (200mils)
Non-Ferrous 0–2000µm	10mm (400mils)	75mm (3”)	5mm (200mils)	25mm (1”)	5mm (200mils)
Ferrous Right Angle 0–1000µm	9mm (360mils)	40mm (1.5”)	4mm (160mils)	25mm (1”)	4mm (160mils)
Non-Ferrous Right Angle 0–1000µm	10mm (400mils)	40mm (1.5”)	5mm (200mils)	25mm (1”)	5mm (200mils)

Coating Thickness Meter

Probe Selection for Substrates

Coating	Substrate								
	Aluminium	Brass	Bronze	Copper	Magnesium	Steel	Stainless	Titanium	Zinc
Aluminium	—	—	—	—	—	Ferrous	—	—	—
Anodizing	Non-Ferrous	—	—	—	Non-Ferrous	—	—	—	—
Brass	—	—	—	—	—	Ferrous	—	—	—
Bronze	—	—	—	—	—	Ferrous	—	—	—
Cadmium	—	—	—	—	—	Ferrous	—	—	—
Ceramic	—	—	—	—	—	Ferrous	—	—	—
Chrome	—	—	—	—	—	Ferrous	—	—	—
Copper	—	—	—	—	—	Ferrous	—	—	—
Eloxal	Non-Ferrous	—	—	—	—	—	—	—	—
Epoxy	Non-Ferrous	Non-Ferrous	Non-Ferrous	Non-Ferrous	—	Ferrous	Non-Ferrous	Non-Ferrous	Non-Ferrous
Galvanizing	—	—	—	—	—	Ferrous	—	—	—
Metal Spray	—	—	—	—	—	Ferrous	—	—	—
Lacquer	Non-Ferrous	Non-Ferrous	Non-Ferrous	Non-Ferrous	—	Ferrous	Non-Ferrous	—	Non-Ferrous
Paint	Non-Ferrous	Non-Ferrous	Non-Ferrous	Non-Ferrous	Non-Ferrous	Ferrous	Non-Ferrous	Non-Ferrous	Non-Ferrous
Plastic	Non-Ferrous	Non-Ferrous	Non-Ferrous	Non-Ferrous	Non-Ferrous	Ferrous	Non-Ferrous	Non-Ferrous	Non-Ferrous
Rubber	Non-Ferrous	—	—	—	—	Ferrous	—	—	—
Tin	—	—	—	—	—	Ferrous	—	—	—

Calibration Foils

Information

Calibration Foils are required for the calibration of Coating Thickness Meters.

Each individual Calibration Foil is measured in the centre and the value is printed on the attached label.

Supplied in packs of eight in a protective Wallet.

All values shown are nominal values.

Ferrous and Non-Ferrous Zero Disks (Plates) are also available.

The Calibration Certificate with traceability to UKAS is an optional extra. The Certificate is supplied as hard copy and is available online through the Calibration Management Cloud (under Calibration) on our website.

Calibration Foils

Calibration Foils Specifications

Part No	Range	Values	Accuracy	Foil Cert Part No
F2001	0–1000µm	25, 50, 75, 125, 175, 250, 500, 750µm	±2%	NC002
F2002	0–40mils	1, 2, 3, 5, 7, 10, 20, 30mils	±2%	NC002
F2003	0–2000µm	50, 250, 500, 750, 1000, 1250, 1500, 2000µm	±2%	NC002
F2004	0–80mils	2, 10, 20, 30, 40, 50, 60, 80mils	±2%	NC002
F2005	0–5.00mm	50, 250, 500, 750, 1000, 1500, 2000, 3000µm	±2%	NC002
F2006	0–200mils	2, 10, 20, 30, 40, 60, 80, 120mils	±2%	NC002
F2007	1–20.0mm	5, 9.5, 15mm	±2%	NC002
F2008	1–800mils	200, 360, 600mils	±2%	NC002
FV001	Special Range Select 8 values	12, 25, 50, 75, 100, 125, 150, 175, 190, 200, 225, 250, 275, 300, 350, 375, 500, 625, 750, 1000, 1250, 1500, 2000, 3000µm (also available in mils on request)	±2%	NC002
Z1003	Zero Disk Ferrous			
Z1004	Zero Disk Non-Ferrous			
Z1005	Zero Plate Ferrous (1–20mm Coating Thickness Meter)			

Coating Thickness Meter Operation

General

Switch On/Off

To switch the Coating Thickness Meter on, press the on/off keypad for approximately 1 second. The display will show the last reading taken.

The Coating Thickness Meter will automatically switch off after approximately 5 minutes if no readings have been taken.

The instrument can also be switched off by pressing the on/off keypad again.

Connecting Probe

With the Coating Thickness Meter switched off, plug the Probe into the connector located on the bottom of the instrument. Take care to align the red dots before pushing the plug in.

On combined Ferrous and Non-Ferrous instruments the display will show Setting up Probe when the Probes are changed.

On the Non-Ferrous Probe the display will ask you to place the Probe on the Non-Ferrous Zero Disk. Hold the Probe on the Zero Disk until Zero Detected is shown.

When changing Ferrous and Non-Ferrous Probes the display will ask you to enter a job number. This will enable the readings taken with the last Probe to be stored. If you do not require the readings to be stored, press Enter.

Taking Readings

Ensure that the correct Probe for the substrate is selected. If you have a combined Ferrous and Non-Ferrous Coating Thickness Meter, the display will show if a Ferrous or Non-Ferrous Probe is connected.

Place the Probe onto the surface to be measured – there will be a double beep and the reading will be displayed. This reading will be retained on the display until replaced by the next reading.

Replacing Batteries

When the batteries require replacement, Low Battery will flash on the display and the instrument will switch off.

To replace, remove the cover located on the rear of the
instrument. Replace with two alkaline AAA batteries, ensuring correct polarity.

Coating Thickness Meter Operation

Menu

All functions are accessed through a menu-driven display. To scroll through the menus use the up and down arrows and enter where indicated.

To exit from the menu, press the Menu button again and the Coating Thickness Meter will revert back to normal
measurement mode.

Coating Thickness Meter Operation

Calibration Menu Functions

Calibration of the Coating Thickness Meter can be checked at any time by using the Calibration Foils and Zero Disks supplied.

Zero and Calibration

This function will work from Factory Calibration (standard calibration) or Operator Calibration (special calibration).

For the highest accuracy of measurement, the instrument has a variable calibration facility, enabling precise measurements to be obtained on virtually all substrate types.

The zero is carried out by placing the Probe onto an uncoated substrate or Zero Disk – this will set the zero value.

The calibration is carried out by placing a Calibration Foil on the same uncoated substrate or Zero Disk (select the Calibration Foil value to be just above the coating thickness value to be measured). Place the Probe on this Calibration Foil and enter the Foil value into the instrument.

Factory Calibration

When selected this will reset the Coating Thickness Meter to a standard calibration.

If you are using a combined Ferrous and Non-Ferrous instrument, the calibration is only reset to the Probe fitted.

Calibration Foils are not required for this calibration.

Calibrations stored in Calibration Memories are not affected. Limits, if selected, will be cleared.

Operator Calibration

This calibration enables the operator to access a special calibration curve that has been set up under Control in the menu. This will assist in overcoming inaccuracies due to slight probe wear.

When selected, the operator can still use the other functions under Calibration.

Factory Calibration will revert the instrument back to the standard calibration.

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Coating Thickness Meter Operation

Calibration Menu Functions Continued

Profile

This facility enables a special zero calibration that will assist in calibration on blast-cleaned surfaces and will also enable a top coat to be measured in a multiple-coating application – for example, if a coating of 25 microns has another coating of 50 microns applied then the profile feature will allow the operator to zero the Coating Thickness Meter on the 25 micron coat, and the instrument will measure the top coat only.

To use this facility, the operator must first select Factory Calibration.

Calibration Memories

For specific calibrations that have to be retained on a temporary basis the Coating Thickness Meter has nine calibration memories which will retain any special calibrations.

These can be recalled when required – for example, the current calibration can be stored under Calibration Memory 1, then the calibration can be changed for another job and saved under Calibration Memory 2. Then if required the first stored calibration can be recalled from Calibration Memory 1.

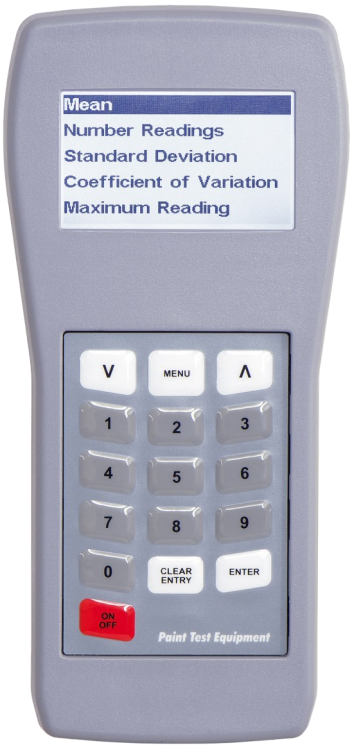
Clear Memory Menu Function

Clears the Coating Thickness Meter memory of all batches and stored readings. Does not affect calibration values and Calibration Memories.

Coating Thickness Meter Operation

Statistics Menu Functions

At any time the appropriate statistics can be displayed on the lower line of the display. The statistics will be automatically updated when additional readings are taken.



Mean
Average of all readings.

Number Readings
Number of readings taken.

Standard Deviation
Standard Deviation of readings taken.

Coefficient of Variation
Coefficient of Variation of readings taken (SDV/ Mean)*100.

Maximum Reading
Maximum reading.

Minimum Reading
Minimum reading.

Statistics Off
Removes the displayed Statistics.

Coating Thickness Meter Operation

Batching Menu Functions

Multiple batches can be stored to a maximum of 10,000 readings.

Multiple batches can be stored to a maximum of 10,000 readings.

Batch Store

Readings taken can be stored in a batch and a job number allocated (up to 6 digits). Multiple batches can be stored with a maximum of 100 readings per batch. The 100th reading taken will automatically enter into a batch and you will be asked to enter the job number.

Batch Recall

Previous batches stored can be recalled either by batch number or by job number, so that further readings can be added, statistics viewed or job number changed.

Auto Batch

A batch quantity can be allocated and the Coating Thickness Meter will automatically enter the batch and you will be asked to enter the job number when this quantity of readings has been taken (the maximum batch limit is 99 readings).

Batching On/Off

Always ensure that batching is on if you need to store readings. When you do not need to store readings switch the batching off. This will enable you to take readings above 100 without automatically being stored into a batch.

When changing Probes on combined Ferrous and Non-Ferrous instruments with batching on, your readings will automatically be entered into a batch and you will be asked to enter the job number.

Coating Thickness Meter Operation

Computor Download Menu Function

This enables the stored batches to be downloaded to a computer directly into Microsoft Word and Excel.

Connection is made using the optional USB PC Download Cable to the download socket on the Coating Thickness Meter and the USB port on the computer. Ensure the Coating Thickness Meter is switched off when connecting the cable.

Switch the Coating Thickness Meter on and USB Connected will show on the display. Locate the PteMeter storage device on the computer and view the files.

Coating Thickness Meter Operation

Control Menu Functions

Check Bat Life

Battery Life can be accessed to check the percentage of battery life available. Low Battery will appear on the display when the batteries require replacement.

To replace, remove the cover located on the rear of the instrument. Replace with 2 alkaline AAA batteries, ensuring correct polarity.

All readings and calibrations stored in the memory will not be affected by the battery change.

Set Limits

Limits can be set to establish a high and also a low pass/fail threshold.

For out-of-limit readings an error display will be shown and the alarm will be sounded. The error amount will be shown as a percentage, which is the difference between the set high or low limit and the particular reading.

To remove Limits press Clear Entry instead of Entering numbers when setting limits.

Set Date/Time

The date and time can be set. This will be recorded with every batch stored, and appear on all batches downloaded.

Operator Calibration Set

Enables the operator to create a special calibration curve by entering 8 Calibration Foil values. This will assist in overcoming inaccuracies in the calibration due to slight probe wear.

The zero is carried out by placing the probe onto the Zero Disk – this will set the zero. The values of the 8 Calibration Foils can then be entered by placing the lowest value Calibration Foil onto the Zero Disk, place the Probe on this Calibration Foil and enter the Foil value into the instrument. Then enter the other Calibration Foils in order of value. The instrument will revert to normal measurement mode when the last Foil value has been entered.

Once set up, the calibration curve can be accessed through Operator Calibration under Calibration in the menu.

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Coating Thickness Meter Operation

Control Menu Functions Continued

Engineers Mode

This function is for Paint Test Equipment use only.

Micron/Thou

Enables the instrument to operate either in metric or imperial measurements.

Install Name

The Coating Thickness Meter can be personalised with your company, department or operator's name. This will appear on every download and on the display when the instrument is switched on.

By entering the following Ascii codes the name can be entered:

A-65, B-66, C-67, D-68, E-69, F-70, G-71, H-72, I-73, J-74, K-75, L-76, M-77, N-78, O-79, P-80, Q-81, R-82, S-83, T-84, U-85, V-86, W-87, X-88, Y-89, Z-90.

a-97, b-98, c-99, d-100, e-101, f-102, g-103, h-104, i-105, j-106, k-107, l-108, m-109, n-110, o-111, p-112, q-113, r-114, s-115, t-116, u-117, v-118, w-119, x-120, y-121, z-122.

Space character is 32.

When Enter is pressed without a character input, then the display will exit to normal measurement mode.

Select Probe

This function is only available on instruments with the ferrous range of 0–2000µm/0–5mm. On other models this function will not be shown.

This gives the operator the option of selecting either a 0 to 2000µm measurement range with a display resolution of 1 micron, or a 0 to 5.00mm measurement range with a display resolution of 0.01mm.

Probe Speed

Select a fast or slow reading speed when the Probe is placed on the surface.

About Us

Paint Test Equipment is a global leader in the manufacture of specialist test equipment specifically for the industrial painting and coating industries for the protection of steel assets from corrosion, mainly in the oil, renewables and steel construction sectors. We have over 30 years experience and extensive knowledge in delivering practical solutions in supporting our customers with world class products for corrosion prevention.

Prevention of corrosion on steel is essential to extend the asset lifetime, optimise performance and minimise downtime for expensive maintenance work. Using Paint Test Equipment products ensures that industrial coatings are applied to the highest achievable quality standards of ISO compliance.

We supply small, medium and multinational companies with the full range of technologies and innovations in our unrivalled portfolio of products for our customers to grow their business and enhance profits through cost effective corrosion management equipment.

Paint Test Equipment is committed to providing proactive and innovative solutions to meet customer requirements for the highest quality, user friendly inspection equipment. Paint Test Equipment is the partner of choice.

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