Sauter GmbH
Tieringerstr. 11-15
D-72336 Balingen
E-Mail: info@sauter.eu

Tel: +49-[0]7433- 9976-174
Fax: +49-[0]7433-9976-285
Internet: www. sauter.eu

Instruction Manual
TC_car

DIGITAL COATING THICKNESS GAUGE

Model: TC 1250-0.1 FN- car

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Annotation: It is strongly recommended to calibrate the new instrument before the first use, as described in paragraph 5. By doing this it will be achieved a much better measurement result right from the start.

1. Features

»This instrument meets the standards of both ISO 2178, ISO 2360 as well as DIN, ASTM and BS. It is suitable for the laboratory and for use in “harsh field” conditions.

»The F- mode measures the thickness of nonmagnetic materials, e.g. paint, plastic, porcelain enamel, copper, zinc, aluminium, chrome, laquer layers etc. These layers are located on magnetic materials e.g. steel, iron, nickle etc. It is often used to measure the thickness of galvanizing layer, laquer layer, porcelain enamel layer, phosphide layer, copper tile, aluminium tile, some alloy tile, paper etc.

»The N- mode measures the thickness of nonmagnetic coatings on nonmagnetic materials.
It is used on anodizing, varnish, paint, enamel, plastic coatings, powder etc. It can be applied on aluminium, brass, nonmagnetic stainless steel etc.

»Automatic substrate recognition.

»Manual or automatically auto power off to conserve batteries

»Two measurement modes:- single and continuous

»Date transfer to PC possible

2. Specifications

Display: 4 digits

Range: 0 to 1250 µm/ 0 to 50 mil

Resolution: 0.1µm (0 to 100 µm)
1 µm (over 100 µm)

Accuracy:
- Standard: 3% of the measured value or min. ± 2.5 µm
Is valid within a tolerance range of ± 100 µm around the individually measured range, if a two-point calibration was performed within this tolerance range.

- *Off-Set Accur* Mode: 1% of the measured value or min. ± 1.0 µm

Is valid within ± 50 µm around the *Off-Set Accur* point.

PC- interface: with RS-232C interface

Power supply: 4x 1.5V AAA (UM-4) battery

Operating conditions:
Temperature: 0 to 50°C
Humidity: <80%

Size: 126 x 65 x 27mm (5.0 x 2.6 x 1.1 inch)

Weight: about 81g (not including batteries)

Accessories: Carrying case
Operation manual
F-sensor (inbuilt)
FN-sensor (inbuilt)
Calibration foils
Base plate (iron)
Base plate (aluminium)

Optional accessories: Cable & software for RS-232C

3. Front panel description

Fig. 1

3-1 Sensors (inbuilt)
3-2 Display
3-3 Zero- key, Power- on/ Power- off key

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3-4 Battery compartment/ cover
3-5 Jack for RS-232C interface

4. Measuring procedure

4.1 The Power- on/Power-off key 3-3 is to be pressed to switch on the instrument.`0`appears on the display 3-2. The instrument recognizes the sensor itself,by the symbol `Fe` (= F) or `NFe` (= N) which is indicated on the display. The instrument enters the auto mode which can automatically recognize the base plate.
4.2 The sensor 3-1 is to be placed onto a coating layer to be measured. The reading on the display is the thickness of the coating layer.
4.3 For the next measurement the sensor 3-1 is to be lifted for more than 1cm and step 4.2 is to be repeated.
4.4 In case of inaccuracies to the measurement result it is recommended to calibrate the instrument before measuring as described in part 5.
4.5 The instrument can be switched off by pressing the Power- on/ Power- off key 3-3. The power will switch itself off 50 seconds after the last operation.
4.6 The measurement unit can be indicated with `µm` or `mil`. To convert:
The Zero/ Power- on/ off key 3-3 has to be pressed and not to be released until `UNIT` appears on the display. The measurement unit changes by releasing. All in all this operation lasts about 6 seconds (from starting pressing the Zero-/ Power-on/ off key).
4.7 To change the measuring mode from `single` to `continuous or vice visa, the Zero/ Power- key 3-3 is to be pressed and not released until `SC` appears on the display. The measuring mode changes into the other one when the key is released. This lasts about 8 seconds. The symbol **((•))** on the display indicates the continuous mode.

5. Calibration

5.1 Zero adjustment:
Zero adjustment for `Fe` (=F) and `NFe` (=NF) should be carried out separately.
The iron base plate is to be used if `Fe` is shown on the display. The base plate of aluminium is to be used if `NFe` is shown on the display.
The sensor 3-1 is to be placed carefully onto the base plate and the Zero-/ Power key is to be pressed without lifting the sensor. `0` appears on the display.
Attention: The calibration is invalid if the sensor is not directly placed on the base plate or another uncoated material.

6. Battery replacement

6.1 If the battery symbol ``+/-`` appears on the display, the batteries should be replaced.
6.2 The battery cover 3-4 is to be removed and the batteries are to be taken off.
6.3 The batteries (4x1.5V AAA/UM-4) are to be installed correctly into the case.
6.4 If the instrument is not to be used for an extended period, batteries are to be extracted.

7. Calibration foils

As accessory there is included a foil set of different foils and ranges, which is to be seen below.

Range (µm)	STANDARD FOIL INCLUDED					
	CM 25	CM 50	CM 100	CM 200	CM 500	CM 1000
0-200	X	X	X	X		
0-500		X	X	X	X	
0-1000		X	X	X	X	X
0-2000		X	X	X	X	X

8. Trouble shooting

8.1 The instrument should always be calibrated on the uncoated base material to be measured instead of the base plate included in the delivery. Then the accuracy is more precise.
8.2 Sensors will eventually wear off. Life of the sensor will depend on the number of measurements taken and how abrasive the coating is.

9. Declaration of conformity

SAUTER

SAUTER GmbH
D-72458 Albstadt
E-Mail: info@sauter.eu
Tel: 0049-[0]7431- 938-666
Fax: 0049-[0]7431-938-292
Internet: www.sauter.eu

Konformitätserklärung

Declaration of conformity for apparatus with CE mark
Konformitätserklärung für Geräte mit CE-Zeichen
Déclaration de conformité pour appareils portant la marque CE
Declaración de conformidad para aparatos con marca CE
Dichiarazione di conformità per apparecchi contrassegnati con la marcatura CE

English We hereby declare that the product to which this declaration refers conforms with the following standards.

Deutsch Wir erklären hiermit, dass das Produkt, auf das sich diese Erklärung bezieht, mit den nachstehenden Normen übereinstimmt.

Français Nous déclarons avec cela responsabilité que le produit, auquel se rapporte la présente déclaration, est conforme aux normes citées ci-après.

Español Manifestamos en la presente que el producto al que se refiere esta declaración est¨a de acuerdo con las normas siguientes

Italiano Dichiariamo con ciò che il prodotto al quale la presente dichiarazione si riferisce è conforme alle norme di seguito citate.

Coating Thickness Gauge:
SAUTER TC 1250-0.1 FN-car

Mark applied	EU Directives	Standards
CE	89/336EEC EMC	EN 61326 : 1997+A1 : 1998+A2 : 2001 EN 55022 EN 61000-4-2 /-3

Date: 07.01.2009

Signature:
SAUTER GmbH
Management

SAUTER GmbH, Schumannstrasse 33, D-72458 Albstadt, Tel: +49 (0) 7431 938 666, Fax: +49 (0) 7431 938 292

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