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## Instruction Manual Ultrasonic Material Thickness Gauge

### SAUTER TD-US

Version 1.1  
12/2014  
GB



PROFESSIONAL MEASURING

TD\_US-BA-e-1411



# SAUTER TD-US

Version 1.1 12/2014

## Instruction Manual

### Ultrasonic Material Thickness Gauge

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Thank you for buying a SAUTER digital Ultrasonic Thickness Gauge. We hope you are pleased with your high quality Thickness Gauge with its big functional range. If you have any queries, wishes or helpful suggestions, do not hesitate to call our service number.

#### Summarize:

1	Features.....	3
2	Specifications .....	3
3	Front panel description .....	4
4	Material selection.....	4
5	Calibration .....	5
6	Measuring procedure .....	5
7	Measuring by velocity setting.....	6
8	Battery replacement .....	6
9	CE Declaration of Conformity.....	7

**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**

- \* The exclusive Micro- computer LSI offers high measurement accuracy.
- \* The instrument offers high power of emission and a wide spectrum of receiving sensitivity.
- \* Sensors of different frequencies can be identified.
- \* Rough surfaces, even cast iron, can be measured.
- \* It is used in almost all kinds of industries.
- \* Convenient to measure the thickness of many materials, e.g. steel, cast iron, aluminium, red copper, brass, zinc, quartz glass, Polyethylene, PVC, grey cast iron, nodular cast iron.
- \* Automatic power-off to preserve batteries.
- \* Data transfer to PC possible. Cable and software can be obtained as optional accessory.

## **2 Specifications**

Display: 4 digits, 10mm LCD

Range: 1.2-225mm (45# steel)

Resolution: 0.1mm / 0.001 inch

Accuracy:  $\pm (0.5\%n+0.1)$

Sound velocity: 500 to 9000m/s

Power supply: 4x1.5V AAA (UM-4) battery

Operating conditions: Temperature: 0 to 50°C

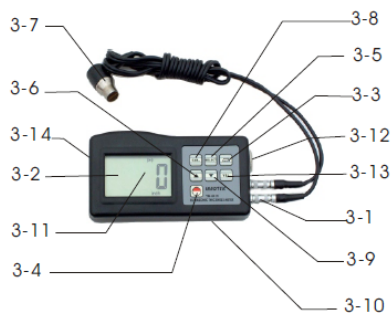
Humidity: <80%

Dimensions: 120 x 62 x 30mm (4.7 x 2.4 x 1.2 inch)

Weight: about 164g (batteries not included)

Accessories: Carrying case  
Instruction manual  
Ultrasonic sensor

### 3 Front panel description



- 3- 1 Sensor plug
- 3- 2 Display
- 3- 3 mm/ inch key
- 3- 4 Power- key
- 3- 5 Material selection key
- 3- 6 Plus- key
- 3- 7 Ultrasonic sensor
- 3- 8 Calibration key
- 3- 9 Minus- key
- 3-10 Battery compartment/ cover
- 3-11 Coupling indicator
- 3-12 Base plate
- 3-13 Velocity key
- 3-14 RS-232C interface

### 4 Material selection

4a) The instrument has to be switched on by the Power- key 3-4. the code `cdxx` or `xxxx`.

`cd` is the abbreviation for `code` and `xx` is a number among 0.1 and 11 that stands for the material to be measured as shown in the scale below.

. `xxxx` is a 4-digit number describing the sound velocity of the material defined by the user.

The `cdxx` material relationship is as follows:

Nr.	Code	Material
1	cd01	Steel
2	cd02	Cast iron
3	cd03	Aluminium
4	cd04	Red copper
5	cd05	Brass
6	cd06	Zinc
7	cd07	Quartz glass
8	cd08	Polyethylene
9	cd09	PVC
10	cd10	Grey cast iron
11	cd11	Nodular cast iron
12	xxxx	Sound velocity

4c) The Plus key 3-6 or the Minus key 3-9 is to be pressed to select the material code to measure. Then the material selection key 3-5 is to be pressed to confirm.

The instrument changes into the measuring mode and on the display occurs `0`. If a material code is selected without confirming this selection, the instrument will automatically change back into the measuring mode after a few seconds. In this case the primary material code will still be stored before switching off.

4d) A 4-digit number will be shown on the display by pressing the Plus key 3-6 when displaying `cd11` or the Minus key 3-9 is to be pressed when displaying `cd01`. The 4-digit number is the last sound velocity being defined by the user. By changing the velocity, varying qualities of materials can be compensated.

4e) If the material code has once been selected and saved, it is stored in the memory of the instrument. As long as no modification is done, the instrument will always raise (use) this material code.

4f) To get into the menu selection of the material code, the Material selection key 3-5 has to be pressed. To quit the menu the material selection key is to be pressed again or it has to be waited until the instrument- after a few seconds- changes back into Measuring mode. On the display appears `0`.

## 5 Calibration

5a) 5.1 A little oil is to be dropped on the base plate 3-12.

5b) The calibration key 3-8 is to be pressed and `CAL` appears on the display. `CAL` is the abbreviation for calibration.

5c) The sensor 3-7 is to be pressed on the base plate. The coupling symbol ((•)) (measurement in action) occurs if the measuring procedure has been established successfully by the process of sound sending and receiving. On the display appears `5.0mm` or 0.197 inch (debit thickness of the base plate) and `CAL` in turn.

As soon as the value is stabilized, the `CAL` key 3-8 has to be pressed to confirm. Then the instrument changes back to the measuring mode.

5d) The calibration has been finished and automatically saved in the instrument.

## 6 Measuring procedure

6a) The Power key 3-4 has to be pressed to switch on the instrument.

6b) The mm/ inch key 3-3 has to be pressed to select the correct measurement unit.

6c) The sensor 3-7 has to be placed onto the material surface to be measured, provided that the material code has been selected correctly. Assure yourself that coupling is fine and the symbol ((•)) 3-11 is active. The measurement result is to be shown on the display.

6d) The measurement result is saved until a new measurement is performed. The last value is conserved on the display until the instrument is switched off.

6e) The instrument can be switched off by the Power- on/ Power- off key or by Auto Power off function, one minute from last key operation.

## **7 Measuring by velocity setting**

7a) By pressing the VEL- key 3-13, on the display appears last saved velocity.

### 7b) Measuring of coatings & materials by a known thickness:

Velocity can be adjusted by pressing the Plus- or the Minus- key. By doing this, the value shown on the display is changed higher or lower. First the increase is 10m/ s. If the Plus- or Minus- key is pressed for longer than 4 seconds, the increase is 100m/ s.

7c) A little oil is to be dropped onto the material to be measured. Now the sensor 3-7 is pressed onto the surface to be measured. The reading on the display is the thickness, assumed that coupling is well.

If velocity of a special material is known, it is easy to measure the thickness with the help of step 7b).

### 7d) Measuring of coatings & materials with an unknown thickness:

A test material of known thickness is to be selected.

Step 7.b) (velocity setting) and 7.c) is to be repeated until the measured value is exactly the same as the known thickness. In this case the set value is the velocity of the material to be measured. With this, any number of unknown thicknesses of the same material can now be measured.

7e) To change velocity, VEL- key 3-13 has to be pressed.

To return into the measuring mode, this key has to be pressed again or it has to be waited until the instrument automatically shows `0`.

7f) By using velocity measurement, the coating thickness or the thickness of any hard materials can easily be measured.

## **8 Battery replacement**

a) If the battery symbol appears on the display, batteries should be replaced.

b) The battery cover is to be removed from the instrument and the batteries are to be taken off.

c) Batteries are to be installed, paying carefully attention to polarity.

d) If the instrument is not used for a longer period, batteries should be removed.

## 9 CE Declaration of Conformity



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## 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

<b>D</b>	Konformitäts- erklärung	Wir erklären hiermit, dass das Produkt, auf das sich diese Erklärung bezieht, mit den nachstehenden Normen übereinstimmt.
<b>GB</b>	Declaration conformity	of We hereby declare that the product to which this declaration refers conforms with the following standards.
<b>E</b>	Declaración conformidad	de Manifestamos en la presente que el producto al que se refiere esta declaración está de acuerdo con las normas siguientes
<b>F</b>	Déclaration conformité	de Nous déclarons avec cela responsabilité que le produit, auquel se rapporte la présente déclaration, est conforme aux normes citées ci-après.
<b>I</b>	Dichiarazione di conformità	Dichiariamo con ciò che il prodotto al quale la presente dichiarazione si riferisce è conforme alle norme di seguito citate.

## Material Thickness Gauge: SAUTER TD 225-0.1US series

EU Directive	Standards
07/108EC EMC	EN 61326 : 1997+A1 : 1998+A2 : 2001 EN 55022 EN 61000-4-2 /-3

**Datum** 07.04.2009  
*Date*

**Signatur**  
*Signature*

**Geschäftsführer**  
*Managing director*

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