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Instruction Manual Digital Coating Thickness Gauge

SAUTER TB

Version 2.1
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GB



PROFESSIONAL MEASURING

TB-BA-e-2321



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1. Introduction

1.1 General description

This coating thickness gauge is small, light and handy. Although it has complex and advanced equipment, it is convenient and easy to use.

Its robustness allows it to be used for many years, provided that all instructions in this manual are carefully followed.

Therefore, please keep them always within reach!

Note: It is strongly recommended to adjust the new meter before first use, as described in chapter 6. This will result in a higher measurement accuracy from the beginning.

2. Functions

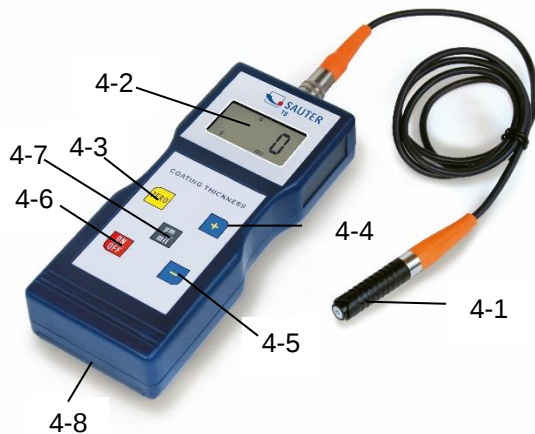
- This device complies with ISO standard 2178, making it equally suitable for use under laboratory conditions as well as "in the field" under harsh environmental conditions.
- In F mode, the thickness of non-magnetic layers, e.g. paint, plastic, enamelled porcelain, copper, zinc, aluminium, chrome, lacquer layers, galvanised or phosphorescent layers, alloys, etc. can be determined.
These layers should be on magnetic metals such as steel, iron, nickel etc.
- In the N- mode, the layer thickness of non-magnetic layers on non-magnetic metals. It is used to measure anodizations, lacquer layers, glazes, colours, enamel, plastic layers, powder coating etc. These should be on non-magnetic metals such as aluminium, sheet metal, non-magnetic stainless steel and others.
- Automatic switch-off to conserve battery power.
- Selectable units: mm, μm , inch (mil)
- The backlit display allows accurate reading

3. Technical data

	TB 1000-0.1F	TB 1000-0.1FN	TB 2000-0.1F
Display	4 digits, 10mm LCD display with backlight		
Measuring range	0 to 1000 μm		0 to 2000 μm
Resolution	0.1 μm (0 to 99.9 μm), 1 μm (100 μm to 1000 μm)		0.1 μm (0 to 199.9 μm), 1 μm (100 μm to 2000 μm)
Measurement uncertainty	3 % of the measured value or $\text{Min} \pm 2,5 \mu\text{m}$. Applies within the tolerance band of $\pm 100 \mu\text{m}$ around the typical measuring range if a two-point calibration was also performed within this tolerance band		5 % of the measured value or $\text{Min} \pm 2,5 \mu\text{m}$. Applies within the tolerance band of $\pm 100 \mu\text{m}$ around the typical measuring range if a two-point calibration was also performed within this tolerance band
off-set accuracy	1 % of the measured value Applies within $\pm 50 \mu\text{m}$ around the <i>offset Accur</i> point		
Smallest measuring surface	6mm		
Power supply	4x1.5 AA batteries, included as standard		
Ambient temperature	0°C to 50°C		
Air humidity	$\leq 80\%$		
Dimensions	161 x 69 x 32mm		
Weight	About 260g (including batteries)		
Scope of delivery	Carrying case, operating instructions, measuring device and probe, 1 set of adjustment foils (included with each model), zero plate (aluminium or iron; both included with type FN)		

Attention: All accuracy specifications apply after adjustment!

4. Description of the control panel



- 4-1 Measuring probe
- 4-2 Display
- 4-3 Zero key
- 4-4 Plus button
- 4-5 Minus key
- 4-6 On/off button
- 4-7 $\mu\text{m}/\text{mil.}$ button
- 4-8 Battery compartment (back of housing)

5. Measuring procedure

1. The power button 4-6 is pressed to switch on the instrument. '0' appears on display 4-2.
Note: The instrument will self-calibrate once it has been switched on. Care should be taken to ensure that the probe is not in the direct vicinity of the zero plate or other magnetic materials during this initial calibration.
2. The probe is placed on the layer to be tested to measure it. The layer thickness is now shown on the display.
3. To take the next measurement, lift the measuring probe by a little more than 1 cm and repeat step 2.
4. In case of possible inaccuracies in the measurement result, we recommend to calibrate the measuring instrument as described in section 7.
5. The measuring instrument can be switched off with the off button 4-6. On the other hand, it switches itself off 2 minutes after the last key has been pressed.

6. Offset-Accur

With the present instrument it is possible to improve the measuring accuracy considerably with the *OFFSET-Accur* function. For this purpose, it is necessary to adjust your measuring instrument with a reference coating in the typically measured measuring range. This fine adjustment can also be carried out using the spacer foils supplied. Ideally, the fine adjustment should be carried out on the base material used for the actual measurement, instead of the supplied zero plate.

1. The reading result of the original measurement is still shown on the display (as in point 5. step 2).
2. The reading result is corrected by pressing the Plus key or the Minus key. During this procedure the probe should be kept away from the zero plate (made of iron) or the body to be measured.

7. Calibration (Adjustment)

1. The zero setting for "Fe" and "NFe" should be carried out separately. Either the iron zero plate is used, in which case "Fe" appears on the display when using the F measuring probe, or the aluminium zero plate is used. In this case the display will show "NFe" when using the LF probe. The probe 3-1 is now placed on the zero plate. The zero key 3-3 is pushed and "0" appears on the display without lifting the probe before.

Attention:

The zero calibration is useless if the probe is not directly on the zero plate or other uncoated standard material.

2. A suitable spacer foil must be selected according to the typical measuring range.
3. The selected spacer foil is placed on the zero plate or the uncoated standard material.

Note: Please place the measuring probe at least 3mm from the edge of the plate.

4. The measuring probe is carefully pressed onto the spacer foil and lifted off again. The reading result appears on the display. This can be corrected again by pressing the plus key 4-4 or the minus key 4-5. To do this, however, the measuring probe must be removed from the zero plate or the measuring body.
5. Step 4 is repeated until the measuring accuracy is reached.

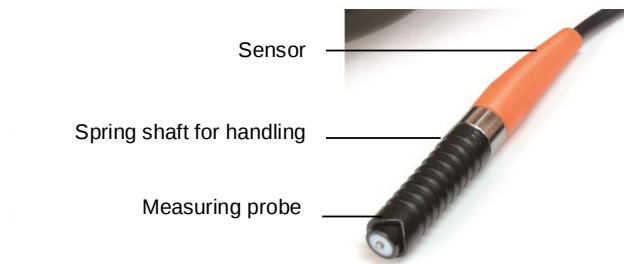
8. Battery replacement

1. If the battery symbol "+/-`" appears on the display, or the battery voltage is less than 4.8V, the batteries should be replaced.
2. The battery cover 4-8 is removed from the meter and the batteries are removed.
3. The batteries (4x1.5V AA) are inserted by paying attention to the polarity when inserting them.
4. If the device is not used for a longer period of time, the batteries should be removed.

9. Adjusting foils

This instrument includes an adjustment foil set with different foils and measuring ranges, but always covers the measuring range from 20 to 2000µm. These are also available as optional accessories, article ATB-US07

10. Correct handling of coating thickness measurement with external sensors



The sensor is to be grasped at the lower shaft segment and is only lightly pressed onto the test object.

The black, grooved shaft segment is mounted on a spring for movement. Through the spring, the sensor head presses with a defined force on the test object and thus avoids measuring errors.

Furthermore, measurement errors can be avoided if several measurements are taken for practice when using the device for the first time.

11. Troubleshooting

1. The measuring instrument should always be adjusted on the base material used for the actual measurement, instead of on the supplied zero plate. This ensures that the measuring accuracy is more accurate from the outset.
2. The measuring probe may wear out. The service life of the measuring probe usually depends on the number of measurements and the roughness of the layer to be measured. Replacing such a probe should only be carried out by qualified personnel.
3. Measuring probes of coating thickness gauges can only be replaced by the same models from the same manufacturer. Otherwise the measuring accuracy may be impaired or the instrument may be damaged to such an extent that it can no longer be used.

Note:

To view the CE declaration, please click on the following link:

<https://www.kern-sohn.com/shop/de/DOWNLOADS/>