OPERATIONAL MANUAL

# TOP-CHECK FN


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# 1 INTRODUCTION

You have chosen the coating thickness meter and you have done so for a good reason, because you have bought a device that is not only designed and manufactured according to the state of the art, but is above all light and convenient to operate.

We have made every effort to make this operating manual as short and as clear as possible.

Nevertheless, if you should have any questions about operation, please contact our competent service technicians, who are always ready to help. They will be pleased to assist you.

# 2 What can be measured with the TOP-CHECK FN?

On **iron and steel** (FE): all non-magnetic coatings such as varnish, paint, synthetics, enamel, rubber, ceramics and galvanic layers (with the exception of nickel) up to 5.0 mm,

On **non-ferrous metals** (NFE) (aluminium, brass, bronze, zinc, lead, copper, non-magnetic steels): all non-conductive layers such as varnish, paint, synthetics, Eloxal, rubber, etc. up to 2.0 mm

***and additionally varnish and paint coatings on zinc-plated sheet metal, without measuring the zinc layer itself.***

**And what is really unique:**

- **TOP-CHECK FN automatically recognises the base material on which it is measuring, whether on iron/steel (FE) or on non-ferrous metal (NFE), and indicates this with each measured value.**
- **TOP-CHECK FN is as small as a probe and is sturdily packed in a beautifully designed, dust and splash-proof light metal housing (IP 64).**
- **TOP-CHECK FN has a high-contrast illuminated OLED graphic display with operator guidance.**
- **The worldwide unique swivelling measuring probe permits measurement inside pipes and in poorly accessible places**

# 3 SHORT OPERATION

So that you can begin measuring with the device immediately, we have already calibrated it for you. Therefore, you no longer need to make any complicated settings.

**Switch-On:** Press and hold the red button until „*Ready“ is displayed*

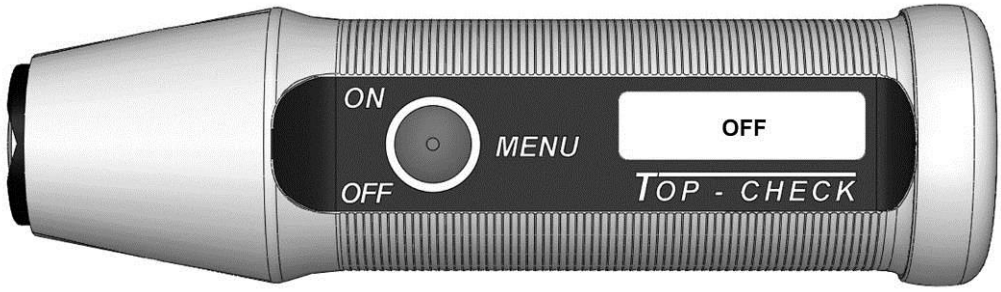
**Measuring:** Apply the device with the measuring probe on the coated item and wait until a sound signal confirmed the measurement and the thickness value will be displayed. (Measurements on FE metalls – 1 x sound, measurments on NFE metalls – 2 x sounds).
**Switch-Off:** Press and hold the red button, until the display is switched off.

# 4 USING THE MENU

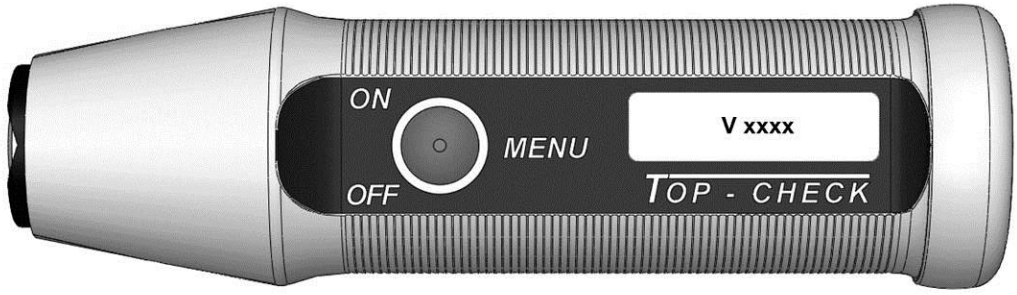
You can scroll through the menu functions with short presses of the button; the desired menu function is activated by pressing and holding the button (long sound).
The menu functions can be only called up when the measuring probe is not applied!
At the end of each submenu comes the display “Back”, with which you can exit from the menu level again.
On delivery “English” is preselected as the language; this can be changed to “German” under the menu item *Setting* → *Language*.

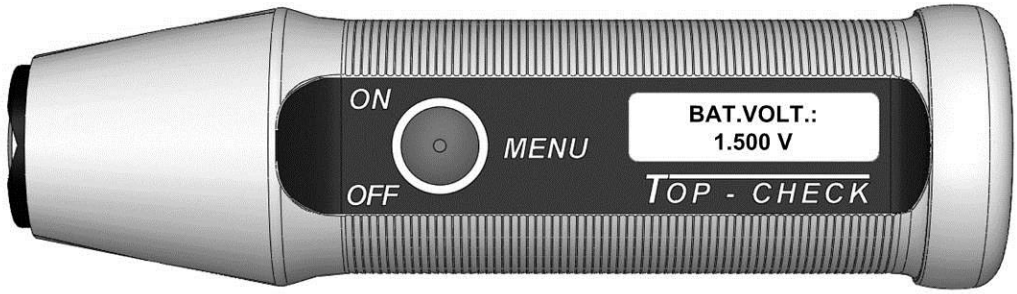
### 4.1.1 MENU FUNCTIONS:

***OFF:***




The device is manually switched off by pressing and holding the button (long sound).
If the button is kept pressed for > 3 seconds after switching off, then both the program version and the battery voltage are displayed before the device switches off:



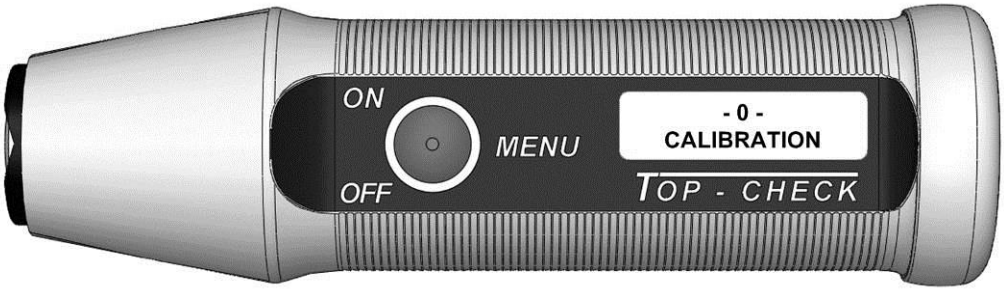

The automatic switch-off time on delivery is 1 minute; this can be changed under the menu item *Setting*.

## 4.2 CALIBRATION:

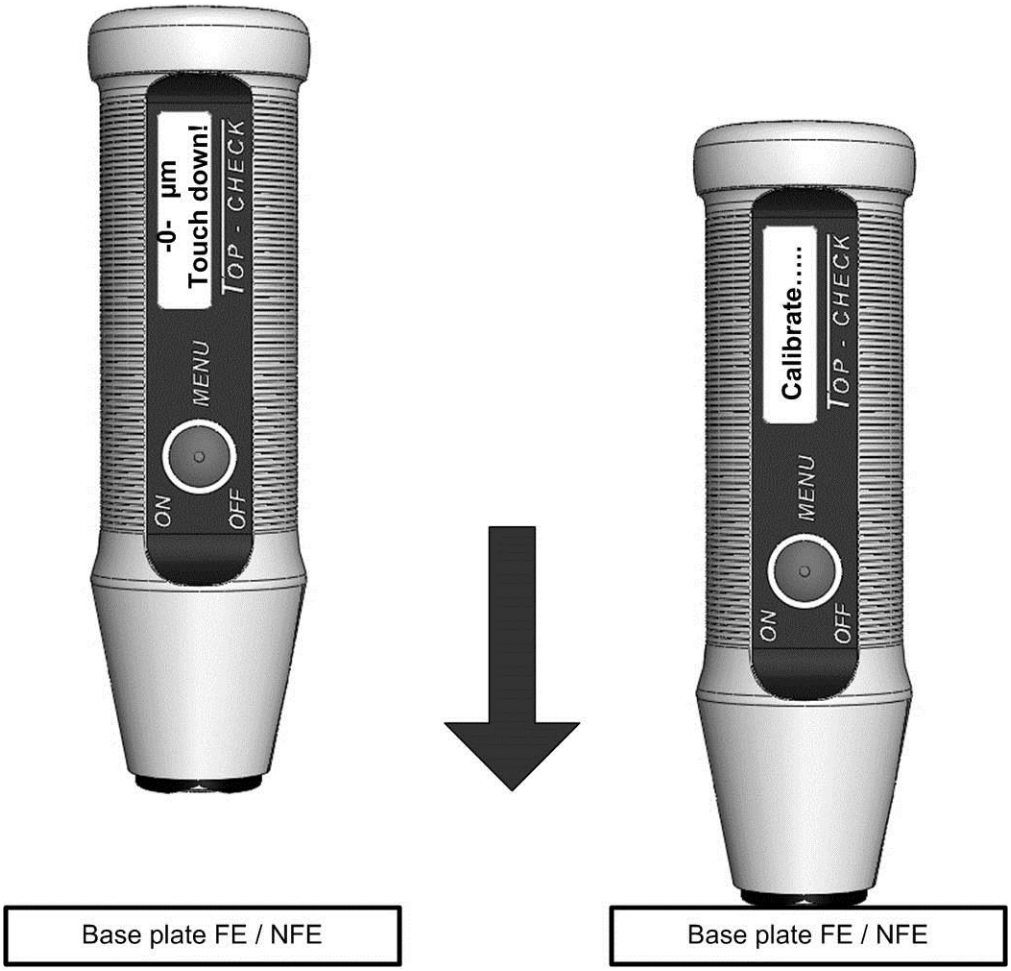
According to standard specification ISO 2178 it is recommended to recalibrate the instrument if measurements are taken on small or curved parts, on parts with a higher surface roughness or on different base materials.

**The calibration must take place separately on both base plates (FE and NFE)!**

### 4.2.1 CALIBRATION → -0- CALIBRATION:

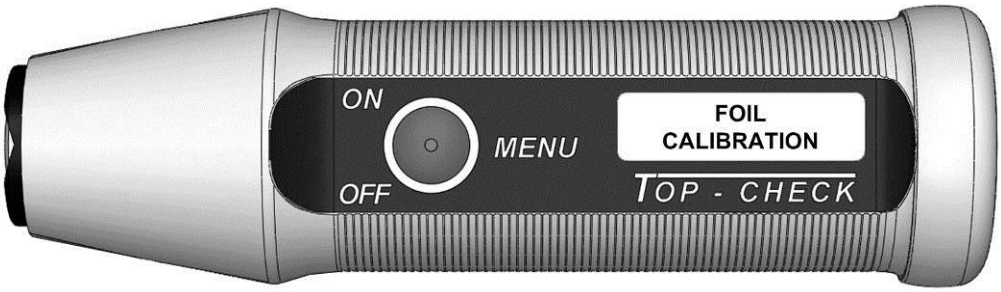



In the raised state activate *-0- CALIBRATION*, then apply the device with the measuring probe to the bare FE / NFE ground plate and wait until *0.0 µm* is displayed and confirmed by a long sound on FE or two short sounds on NFE.

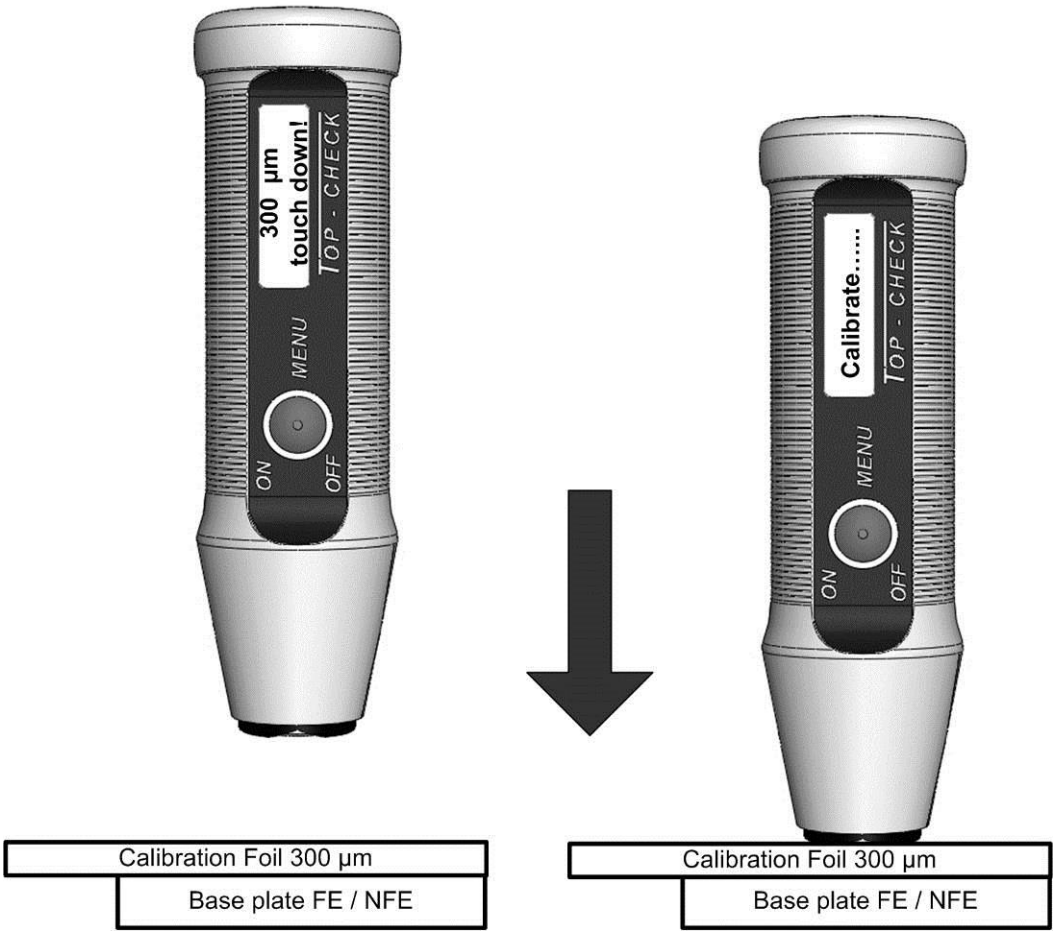


### 4.2.2 CALIBRATION → FOIL CALIBRATION:

The foil calibration assigns a second calibration point for a accurate calibration of the device (two-point calibration).




Place the 300 µm calibration foil on the bare FE / NFE ground plate.
In the raised state activate *FOIL CALIBRATION*, then apply the device with the measuring probe to the measuring foil and wait until the foil value is displayed and confirmed by a long sound on FE or two short sounds on NFE.

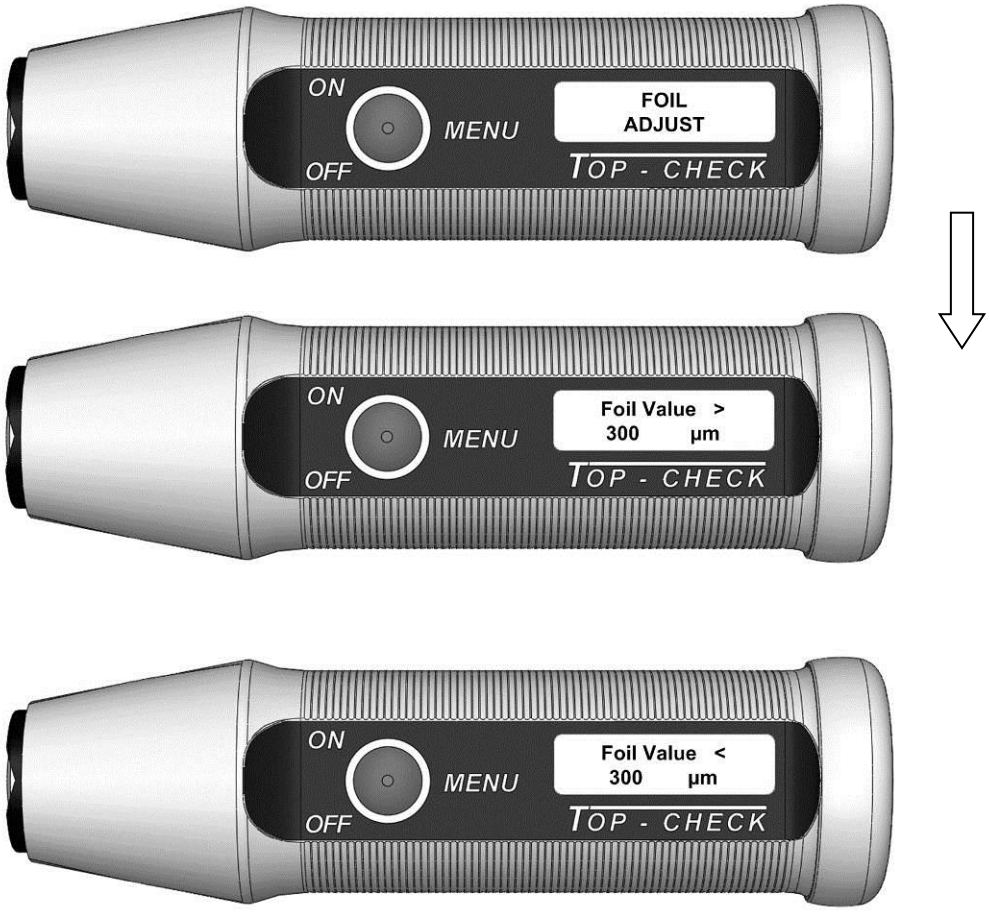



**The measuring foil with the higher value (~ 300 µm) should be always used for a accurate calibration of the whole measuring range.**
**The calibration for FE measurements is carried out on the blue FE ground plate, the calibration for NFE measurments on the red NFE ground plate !**

The device can also be calibrated with the optionally available 1 mm ceramic plate in order to achieve even greater accuracy in particular in the case of measurements in the higher measuring range.

#### 4.2.3 CALIBRATION → ADJUST FOIL:

The calibration foil value can be changed here:




A short press of the button changes the foil value in 1 µm steps; after releasing the button for > 1 second, the “<” sign switches to “>” and back in order to increase or decrease the foil value.

To change the range of the foil value, the values will be increased or decreased automatically after the tenth step in one direction until the button is pressed again to stop, the accurate value can be adjusted by a single press of the button in both directions.

The foil value is confirmed and saved by pressing and holding the button.

## 4.3 MEASUREMENT MODE→ JUST NFE MEASUREMENT and AUTOMATIC MEASUREMENT:


***AUTOMATIC MEASUREMENT*** is switched on as standard; the measuring probe recognises the base material (FE or NFE) and automatically switches to the correct measuring method (magnetic-inductive on FE or eddy current method on NFE).

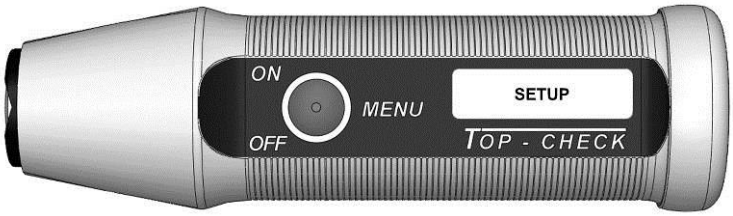
In the following special cases you can switch the device to "***JUST NFE MEASUREMENT*** "; measurements then take place using the eddy current method only:

- Measurement of a paint or varnish coating on galvanised sheet steel. In automatic mode both coatings are measured together here; if ***JUST NFE MEASUREMENT*** is activated, only the individual paint or varnish coat on the zinc plating is measured. Hence, the thickness of the zinc layer can be determined from the difference between the two measuring methods. **In order to avoid false measurements the zinc layer must be > 30 µm; at the same time the zero point calibration should be performed using the eddy current method on an identical galvanised steel sheet without a coating.**
- Measurement on slightly magnetic stainless steels; in ***AUTOMATIC MEASUREMENT*** mode the measuring probe cannot switch to the eddy current measuring method and a false measured value is displayed. Here again, the zero point calibration should be performed using the eddy current method on identical uncoated stainless steel.

During the "***JUST NFE MEASUREMENT*** " measurement, 2 long sounds are emitted when the measured value is displayed (measurement on NFE).

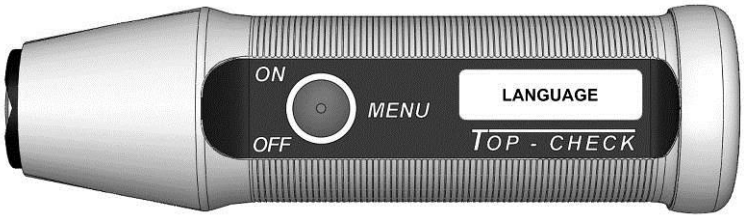
**IMPORTANT:**
When measuring on ferromagnetic steels it is essential to switch back to *AUTOMATIC* ***MEASUREMENT***, otherwise false measured values will be displayed using the eddy current method!

### 4.4 SETUP →



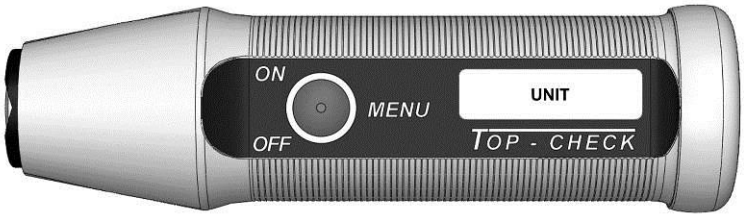

### 4.5 LANGUAGE:

Selection of the menu language – ENGLISH or GERMAN.



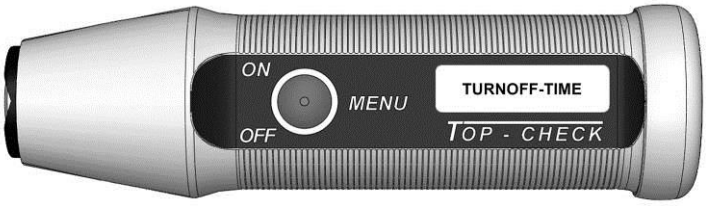

### 4.6 MEASURING UNIT:

Selection of the measuring unit – *"µm"* or *"mils"*.

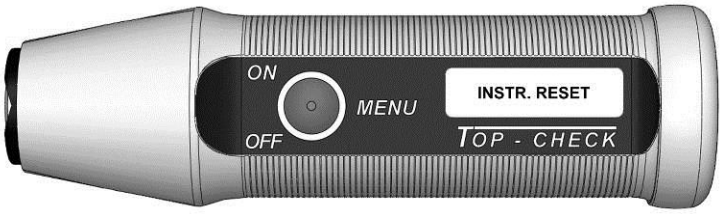



### 4.7 TURNOFF-TIME:

Selection of the automatic switch-off time of the device (1 min / 5 mins / 30 mins).
30 minutes should be selected only in special cases, since the power consumption can greatly increase as a result!




### 4.8 INSTR. RESET:




If the device can no longer be calibrated properly or if other malfunctions occur, the works calibration can be restored here by means of a instrument reset.

## 4.9 IMPORTANT NOTES

- *Do not drag* the measuring probe over the measuring object – always measure point-by-point, *i.e. hold the device up in the air for about 1 sec. after each measurement*. By doing so the stored calibration is automatically checked and if necessary corrected.

- Make sure that the measuring head and the calibration plate are clean and free from swarf and dust.

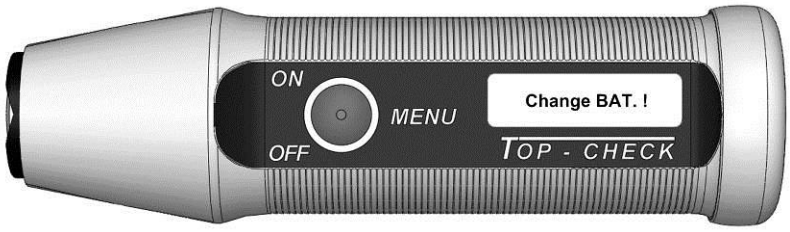
- When taking measurements on small or curved parts or on different, in particular alloyed materials, it is advisable to carry out the calibration on a bare part with same geometry or the same material as the measuring object (according to ISO 2178) instead of on the base plate provided.

- When taking measurements in the upper measuring range (> 2000 µm), better accuracy will be obtained if the device is calibrated using the optionally available 1 mm calibration plate.

- **Thickness of the base material**

Base material iron/steel FE: at least 300 µm
Base material non-ferrous metal NFE: at least 50 µm

## 4.10 BATTERY REPLACEMENT




The battery must be replaced as soon as the warning ***Change BAT.!*** appears with the device switched on.
The device switches itself off automatically if the battery voltage falls below 1.0 V.
**Please use only leak-proof batteries!**

## 4.11 TECHNICAL DATA

| | | |
|---|---|---|
| Measuring method: | Magnetic-inductive on iron and steel (ISO 2178)<br>Eddy current on non-ferrous metals & V2A-V4A steel (ISO 2360) | |
| Measuring method switchover: | automatic or manual (NFE) | |
| Measuring ranges: | Magnetic-inductive | 0 - 5000 µm (FE) |
| | Eddy current: | 0 - 2000 µm (NFE) |
| Display: | Graphic OLED display with operator guidance | |
| Resolution: | < 100 µm: | 0.1 µm |
| | < 1000 µm: | 1 µm |
| | from 1.00 mm: | 0.1 mm |
| Smallest area: | Ø 8mm | |
| Smallest curvature radius: | convex – 3 mm<br>concave – 38 mm | |
| Accuracy: | below100 µm: | ± 1 µm |
| | 100 -1000 µm: | ± 1 % |
| | 1000 -2000 µm: | ± 3 % |
| | > 2000 µm: | ± 5 % |
| Power supply: | one 1.5 V Mignon battery | |
| Measured value acceptance: | on steel (FE): | one beep tone |
| | On non-ferrous metals (NFE): | two beep tones |
| Measuring probe: | 90° swivelling | |
| Dimensions: | Ø 28 x 98 mm | |
| Weight: | approx. 72 g | |
| Warranty: | Display device: | 24 months |
| | Measuring head: | 3 months |