



DIGITAL COATING THICKNESS GAUGE (F & NF TYPE) OTC1210

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3.FRONT PANEL DESCRIPTIONS



Fig. 1

1.FEATURES

- * It meets the standards of both ISO2178 and ISO 2361 as well as DIN, ASTM and BS. It can be used both in the laboratory and in harsh field conditions.
- * The F probes measure the thickness of non-magnetic materials (e.g. paint, plastic, porcelain enamel, copper, zinc, aluminum, chrome etc.) on magnetic materials (e.g. iron, nickel etc.) . often used to measure the thickness of galvanizing layer, lacquer layer, porcelain enamel layer, phosphide layer, copper tile, aluminum tile, some alloy tile, paper etc.
- * The N probes measure the thickness of non-magnetic coatings on non-magnetic metals. It is used on anodizing, varnish, paint, enamel, plastic coatings, powder, etc. applied to aluminum, brass, non-magnetic stainless steel, etc.
- * Automatic substrate recognition.
- * Manual or automatic shut down.

4.MEASURING PROCEDURE

- 4.1 Press the power key to switch on the power and '0' displays on the Display. The gauge will restore the last operation on display itself, with 'Fe' or 'NFe' symbol showed on Display.
- 4.2 Press the probe on a coating layer to be measured. The reading on the display is the thickness of the coating layer. The reading can be corrected by pressing the Plus key and Minus key while the probe is away from the substrate or the measured body.
- 4.3 To take the next measurement , just

- * Two measurement mode: Single and Continuous
- * Wide measuring range and high resolution.
- * Metric/Imperial conversion.
- * Digital backlit display gives exact reading with no guessing or errors.
- * Can communicate with PC computer for statistics and printing by the optional cable.
- * Statistics is available.


2.SPECIFICATIONS

Display: 4 digits LCD, backlit
 Range: 0~2000 μm/0~80mil
 (other range may be specified)
 Resolution: 0.1 μm (0~99.9μm)
 1 μm (over 100μm)
 Accuracy:±1~3%n or 2.5 μm or 0.1mil
 (Whichever is the greater)
 PC interface:
 with RS-232C interface
 Power supply: 4x1.5 AAA(UM-4) battery

- 4.4 If suspecting the accuracy of measurement, you should calibrate the gauge before taking the measurements. For the calibration procedures, please refer to the calibration part.
- 4.5 The gauge can be switched off by pressing the Power key. On the other side, the gauge will power itself off a bout 50 seconds after the last operation.
- 4.6 To change the measurement unit 'μm' or 'mil' by
 - A. Depressing the μm/mil Convert Key.
 - B. Depressing Power key and not releasing it till 'UNIT' on the Display and then pressing Zero key (3-8).
- 4.7 To change measurement mode from the single to continuous or vice visa, just by
 - A. Depressing the Single/Continuous

- Operating condition:
 Temp. 0~40°C
 Humidity 10~90%RH
- Size: 140x72x34 mm
 5.5x2.8x1.3 inch
- Weight: about 215g
 (not including batteries)
- Standard accessories:
 Carrying case1 pc.
 Operation manual 1 pc.
 F/NF probe1 pc.
 Calibration foils1set.
 Substrate (Iron)1 pc.
 Substrate (Aluminium).....1 pc.
- Optional accessories:
 USB, RS-232C cable & software.
 Bluetooth data output & software

- B. Depressing Power key and not releasing it till 'SC' on the Display and then pressing Zero key (3-8). The measurement mode is the continuous mode if a symbol '(••)' never disappears on the display. Otherwise it is in a single measurement mode if ' (••) ' only appears for a while every time taking a measurement.
- ## 5. CALIBRATION
- ### 5.1 Zero adjustment
- Zero adjustment for 'Fe' and 'NFe' should be carried out separately. Take the iron substrate if 'Fe' on Display, while take the aluminium substrate if 'NFe' on the Display. Place the probe (3-10) on the substrate steadily. Press the zero key (3-8) and '0' will be on the Display before lifting the probe. If pressing the ZERO key but the probe is not placed on the substrate or an uncoated standard. The zero

- adjustment is invalid.
- 5.2 Select an appropriate calibration foil according to your measurement range.
 - 5.3 Place the standard foil selected onto the substrate or the uncoated standard.
 - 5.4 Place the sensor (3-10) mildly onto the standard foil and lift. The reading on the display is the value measured. The displayed reading value can be adjusted by pressing the plus key (3-3) or minus key (3-6) while the probe is away from the substrate or the measured body.
 - 5.5 Repeat step 5.4 until the result is correct.
- 6. BATTERY REPLACEMENT**
- 6.1 When it is necessary to replace the battery, the battery symbol '  ' will appear on the Display.
 - 6.2 Slide the Battery Cover away from the instrument and remove the

8

- can be adjusted by professional persons only under the cases of replacing a new probe or making the gauge more accurate. Generally, the larger the value of Ln, the smaller the reading on a same thickness. A little variation of value of Ln will cause a great change in reading at high end (e.g at 500 μm /20mil). The rules to adjust the value of Ln are as follow:
- A. Reading at low end can be adjusted to the exact value by the plus or minus key.
 - B. To enlarge the Ln if reading at low end (e.g at 51 μm) is ok but reading at high end (e.g at 432 μm) is too large. On the contrary, to decrease the Ln if reading at low end (e.g at 51 μm) is ok but reading at high end (e.g at 432 μm) is too small.
 - C. Repeat procedures from A to B till the readings on the every standard foil are satisfying the accuracy.

12

- batteries.
- 6.3 Install the batteries (4x1.5V AAA/UM-4) correctly into the case.
 - 6.4 If the instrument is not to be used for any extended period, remove batteries.
- 7. CONSIDERATIONS**
- 7.1 In order to weaken the influence of the measured material on the accuracy of measurement, it is recommended that the calibrations should be done on the uncoated material to be measured.
 - 7.2 Probes will eventually wear. Probe life will depend on the number of measurements taken and how abrasive the coating is. Replacement separate can be fitted by qualified persons only.
- 8. RESTORE FACTORY SETTINGS**
- 8.1 When to restore
It is recommended to restore factory settings in the one of following cases.
A. The gauge does not measure any more.

9

- B. Measurement accuracy is degraded caused By environmental conditions change greatly.
- 8.2 How to restore?
- Restore factory settings includes 'Fe' setting and 'NFe' setting. You can restore one of them or both of them respectively. Please follow procedures below to restore factory setting.
- 8.2.1 Please note the symbol on the display is 'Fe' or 'NFe'. If 'Fe' is on the display, the operation below is restoring the factory setting for 'Fe' type, and if 'NFe' is on the display, the operation below is restoring the factory setting for 'NFe' type.
 - 8.2.2 Depress Power key and not release it till 'CAL' appears on the Display. It is about 12 seconds from starting depressing Power key.
 - 8.2.3 when F:H or nF:H is on Display, lift the probe to more than 5 centimeters, then press the Zero key

10

- again and the gauge return to measurement state. The factory setting is restored. Remember, to restore factory setting should be done within 6 seconds at every stage. Or the gauge will quit itself and restoration is invalid.
- 9. notes**
- 9.1 Settings includes restoring factory setting, unit setting, S/C setting, which should be done within 6 seconds at every stage, or the gauge will quit itself and keep its status before.
 - 9.2 It is strongly recommended that no changes should be made to the value of Ln (controlled by power key, It takes about 14 seconds from starting depressing Power key. Its value can be changed by plus/minus key after displaying Ln and releasing the power key. Store its value and quit by pressing Zero key.) which will seriously affect the accuracy. Its value

11