

Operating Instruction for Coating Thickness Tester



Please read this manual before switching the unit on.
Important safety information inside.



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1. General Information

- The coating thickness gauges work either on the magnetic.
- Induction principle or on the eddy current principle, depending on the type of probe used.
- You can select the type of probe via MENU system, or it will be work automatically.
- The gauges conform to the following industrial standards: GB/T 4956-1985; GB/T 4957-1985; JB/T 8393-1996; JJG 889-95; JJG 818-93.

2. Features

- Measured Coatings: Non-magnetic coatings (e.g. paint, zinc) on steel; Insulating coatings (e.g. paint, anodizing coatings) on no-ferrous metals
- 2.4" TFT color LCD display
- Temperature, Humidity and Dew point temperature measurement
- Auto-rotatable screen: 0°, 90°, 180°, 270°
- Stability test
- Continuous test
- Set auto power off time
- SSPC mode
- Warning with Beeper and Backlight Flash, 3-Color LED indication
- Menu operation system
- Working modes: DIRECT, GROUP and SSPC mode
- AVG, MAX, MIN, Stand and Deviation (S.DEV) Display
- Basic, One point and SSPC mode calibration
- Low battery, error indication
- USB interface for PC analysis software
- 10 levels of LCD lighting adjustable
- Language selection: English, German, Italian, French, Chinese, Japanese

3.Application

- This compact and handy gauge is designed for non-destructive, fast and precise coating thickness measurement, the principal applications lie in the field of corrosion protection.
- It is ideal for manufacturers and their customers, for offices and specialist advisers, for paint shops and electroplaters, for the chemical, automobile, shipbuilding and aircraft industries and for light and heavy engineering.
- The gauges are suitable for laboratory, workshop and outdoor use.
- The probe can work on both principles, magnetic induction and on the eddy current principle.
- One probe only is required for coating measurement both on ferrous and non-ferrous metal substrates.
- It is adaptable to specific tasks: i.e. they can be used on special geometries or on materials with special properties.

4.Description of The Gauge

- For measurement on steel substrates, the gauge work on the magnetic induction principle, for measurement on non-ferrous metal substrates, it works on the eddy current principle.
- Measurement values and user information are shown on LCD, display back light ensures easy reading of screen data in dark conditions.
- Three different operating modes are available: DIRECT mode, GROUP mode and SSPC mode.
- DIRECT mode is recommended for simple, quick, occasional measurements.
- It provides statistical analysis, single values are not saved, the statistical analysis program can evaluate 80 readings.
- GROUP mode permits measurement and storage of readings in a free programmable memory, maximum of 400 readings and 4 series of measurements can be analyzed according to various statistical criteria.
- SSPC mode: Spot and Area averaging mode to comply with SSPC (Society of Protective Coatings) methods, the minimum number of measurements per spot is 3, the minimum number of measurements per area is 5.

5. Supply Schedule

- Gauge with two AA 1.5V battery, plastics carrying case, operating instructions, steel and aluminum substrate.
- USB connecting cable
- Connect software

6. Probe

- The Probe systems are spring-mounted in the probe sleeve, this ensures safe and stable positioning of the probe and constant contact pressure.
- A V-groove in the sleeve of the probes facilitates reliable readings on small cylindrical parts.
- The hemispherical tip of the probe is made of hard and durable material. Hold the probe by the spring mounted sleeve and put on measuring object.

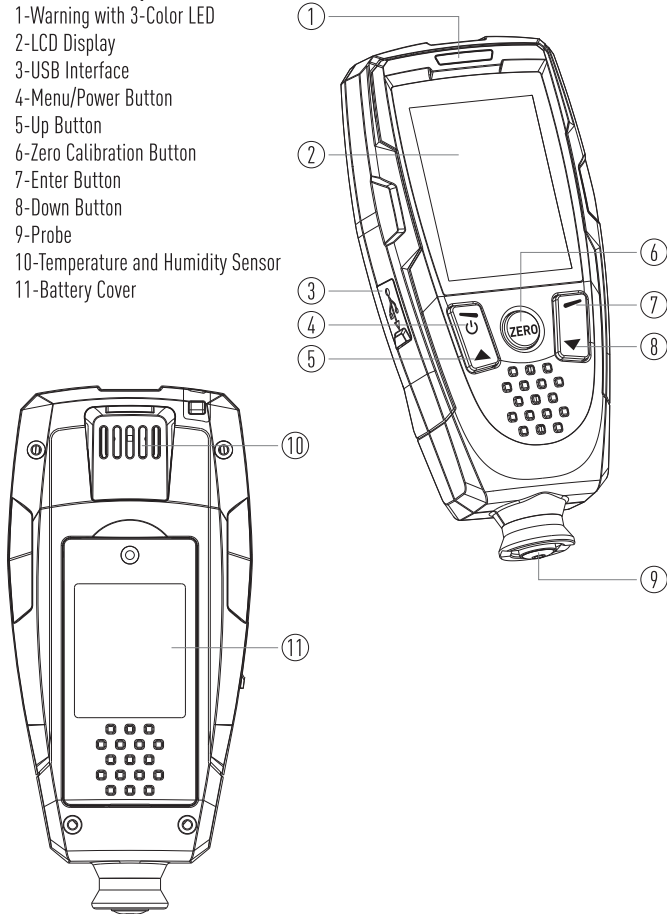
7. Specifications

Sensor Probe	F	N
Working Principle	Magnetic Induction	Eddy Current Principle
Measuring Range	0~2000 μ m	0~2000 μ m
Guaranteed to Larence (of reading)	($\pm 2\% \pm 2$) μ m	($\pm 2\% \pm 2$) μ m
Repeatability	($\pm 1\% \pm 1$) μ m	($\pm 1\% \pm 1$) μ m
Low Range Precision	0.1 μ m	0.1 μ m
Minimum Curvature Radius	1.5mm	3mm
Diameter of Minimum Area	7mm	5mm
Basic Critical Thickness	0.5mm	0.3mm
Temperature Range	0 to 50°C/32 to 122°F	
Temperature Accuracy	$\pm 1.2^\circ\text{C}$	
Humidity Range	0 to 100%RH	
Humidity Accuracy	$\pm 3.2\%$ RH at 20%~70%; $\pm 4\%$ RH other	
Size (HxWxD)	35x64x137mm	
Weight	175g	

8. Description

8-1. Meter Description

- 1-Warning with 3-Color LED
- 2-LCD Display
- 3-USB Interface
- 4-Menu/Power Button
- 5-Up Button
- 6-Zero Calibration Button
- 7-Enter Button
- 8-Down Button
- 9-Probe
- 10-Temperature and Humidity Sensor
- 11-Battery Cover



8-2. Symbols on the Display

1-Material Type

- NFE: Indicates readings on non-ferrous metals
- FE: Indicates readings on ferrous metals

2-Time

3-Battery Level

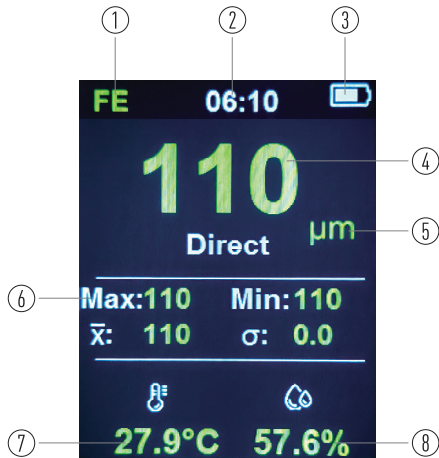
4-Measurement Data

5-Scale

6-Statistic Display: AVG, MAX, MIN, SDEV

7-Temperature Display

8-Humidity Display



9. Ready to Start

9-1. Power Supply

- For power on, please press and hold "⏻" Button.
- If no LCD display, please check if the battery is correctly installed or it is in low battery.
- "🔋" Display: Gauge switches off after about one second, replace battery immediately.

Note: That the gauge will make faulty measurements if the voltage is very low.

Note: When power on, please away from any metal at least 10cm.

Note: Before each measurement, zero calibration is recommended.

9-2. Replacing the Battery

1. Power off the meter.
2. Open the battery cover.
3. Remove the battery.
4. Insert new battery.
5. Close the battery cover.

Note: Make sure the anode and cathode are correctly positioned.

10. Menu System and Basic Settings

10-1. Menu System

- Once the instrument is powered on, press the **Menu/Power** Button.
- This brings up the setting menu where the following selections are available: Work mode; Fe/NFe; Units; Environment; Calibration; Limits; User Settings

Note: Menu system arrangements need to be known well for your works.

10-2. Set Up

- Move the green selection bar “▲” and “▼” with the **Up** and **Down** Buttons and press Enter to select that setting.
- The options for each selection are described below.

10-2-1. Work Mode

The Work mode screen has the following selections:

1. Mode select

- Group Mode
- SSPC Mode: Spot and Area averaging mode to comply with SSPC (Society of Protective Coatings) methods.

2. Group select

- Direct, calculations are based on Number of Readings to Average setting
- Group1.....Group50, there are 50 groups, 50 measured data can be stored in each group.

3. SSPC setting

- SSPC Mode Times/Spots: Use **Up** and **Down** Buttons to set the number of measurements per spot, minimum number is 3.
- SSPC Mode Spots/Area: Use **Up** and **Down** Buttons to set the number of spots per area, minimum number is 5.

4. Clear Memory: Clears the statistics memory.

10-2-2. Fe/NFe

- Fe
- NFe
- Both

10-2-3.Units

The Units screen has the following selections:

- Microns
- Mills
- mm
- Inches

10-2-4.Environment

- Temp only
- Temp/Humidity
- Temp/Dew Point
- Enviro off
- Units °C/°F: Select between °C or °F for the Temperature display.

10-2-5.Calibration

1.Zero only

- Calibration on the zero plate only, take one or more readings on a zero plate.
- When finished press the Enter button to save.

2.SSPC Mode 1: Calibration like Single Point.

3.SSPC Mode 2: Calibration like Single Point except with 2 shims, a low and high value.

4.Reset to Factory Values: Resets the instrument to the factory programmed calibration.

10-2-6.Limits

1.Limits On/Off: Turns limit warnings on and off.

2.Warning Indication

- Beeper: Beeper only, long beep indicates limits exceeded.

Note: The Key Beep must be set to ON in the System Settings to hear the beeper.

- LED Flash: 3-Color LED flashes once for a no-sound limit indicator.
- Both: The beeper will long beep and the LED will flash together.
- Off: Both are turned off.

3.Set High Limit: Use the **Up** and **Down** Buttons to enter the High Limit, Enter button moves the highlight to the next number, press the **Menu** Button saves and exits.

4.Set Low Limit: Use the **Up** and **Down** Buttons to enter the Low Limit, Enter button moves the highlight to the next number, press the **Menu** Button saves and exits.

10-2-7. User Settings

Each System Settings selection brings up a sub-menu to choose from.

- **Rotation On/Off:** Turn automatic screen rotation on or off.
- **Key Beep On/Off:** Turns the beeper off and on.
- **Stability Test On/Off:** Turns off stability testing for use on moving vehicles, stability mode is indicated by the letter **S** in the display, this setting is overridden when Continuous Mode is selected.
- **Continuous Mode On/Off:** Turns continuous reading mode on or off, continuous mode is indicated by the letter **C** in the display, continuous mode selection overrides.
- **Time:** Sleep Timer, 30 seconds, 1 minute, 5 minutes, Disable sleep, Time Set.
- **Brightness:** Use the Up or Down arrows to change the brightness, 0 is backlight off, 9 is brightest.
- **Language:** Choose between English, German, French, Spanish, Italian, Portuguese, Chinese or Japanese.
- **About:** Information screen, shows current software version and copyright information.

11. Operation

1. Grip the instrument in your hand with your thumb on the ribbed section between the buttons and your other fingers on the back.
2. Press the **Menu/Power** Button to power on the instrument.
3. Press the instrument probe firmly against the surface to be measured, read the measurement directly on the screen, the backlight will turn off in 15 seconds, to restore the backlight simply press either the **Up** or **Down** Buttons.
4. Statistics are shown on the lower area of the screen, the reading number in the statistics count is shown above the stats preceded by the letter N.
5. Along the lower edge of the screen are the environmental measurements, air temperature and humidity are measured by a sensor system located below the three small slots on the upper back of the instrument, make sure these are clear of debris for the best accuracy in measurements, the display can be set to show dew point instead of humidity if so desired.
6. Environment measurements are best taken shortly after powering on the instrument.
7. Prolonged continuous use of the display backlight may raise the indicated temperature slightly, if the temperature appears to be rising, turn off the instrument for a few minutes and then power it on and take another measurement to confirm.

12. Maintenance and Repair

12-1. Cleaning and Routine Maintenance

- Care should be taken to avoid dropping the instrument, do not immerse in water or any other liquid.
- If the instrument case becomes dirty, clean the covers with mild soap and water as soon as practical.
- Avoid using solvents to clean the instrument as it may be seriously damaged by strong solvents.

12-2. Troubleshooting

- If an error occurs, first remove the batteries and replace with a new set.
- Use of high quality alkaline batteries are preferred however, rechargeable batteries may be used.
- The instrument has no provision to charge rechargeable batteries so they must be recharged using a separate charger (not included), do not mix battery types.
- If the instrument is going to be stored for more than 30 days, remove the batteries to prevent discharge and subsequent leakage.
- If new batteries do not restore use, contact your local office for assistance.

12-3. Service and Spare Parts

For all service and spare parts requirements, please contact your local office.



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