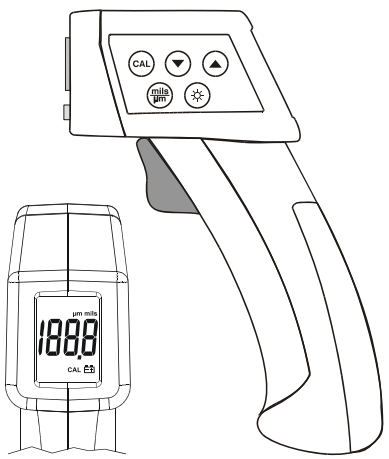
OPERATING INSTRUCTIONS
MODEL: 113 CE
COATING THICKNESS GAUGE



INTRODUCTION

This instrument is a portable easy to use 3½ digit, compact-sized digital ferrous coating thickness gauge designed for simply one hand operation. Meter comes with backlight LCD display and Auto Power Off (15 seconds approx.) to extend battery life.

CAUTION

- Do not use the unit near any device which generates strong electromagnetic radiation or near a static electrical charge, as these may cause errors.
- Do not use the unit where it may be exposed to corrosive or explosive gases. The unit may be damaged, or explosion may occur.

- Do not keep or use this unit in an environment where it will be directly illuminated by sunshine, or where it condensation. If you do, it may be deformed, its insulation may be damaged, or it may no longer function according to specification.
- Do not place the meter on or around hot objects (70°C/158°F). It may cause damage to the case.
- If the meter is exposed to significant changes in ambient temperature, allow 30 minutes for temperature stabilization, before taking measurement.
- If the meter continues to use over one minute, the accuracy of the measurement of the higher thickness will become degraded. But the meter is still within its specified accuracy.
- Condensation may form on the sensor when going from a cold to hot environment. Wait for 10 minutes for condensation to dissipate before taking measurements.
- This unit is not constructed to be waterproof or dust proof. Do not use it in a wet or very dusty environment.
- In order to take accurate measurement, make sure the sensing tip contacts the coated surface tightly without tilting.

- Please make sure there is no air bubbles between substrate and coating.
- **One point calibration must be implemented for each use.**
- **Two point calibration is suggested to implement for frequent testing points to increase measuring accuracy.**

SPECIFICATION

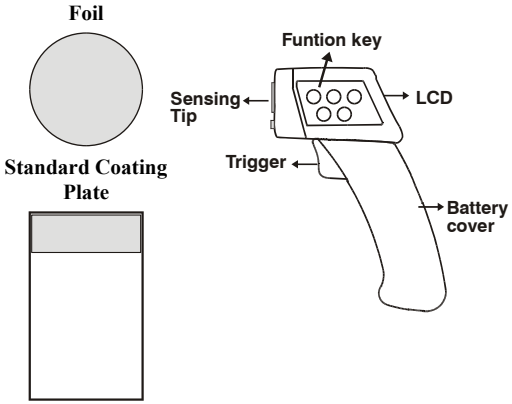
GENERAL

Display: 3½ digit liquid crystal display (LCD) wit maximum reading of 1999.
Low Battery Indication: The "⊟" is displayed when the battery voltage drops below the operating level.
Measurement Rate: 1 second, nominal.
Operating Environment: 32°F to 122°F (0°C to 50°C) at < 75% R.H.
Storage Temperature: -4°F to 140°F (-20°C to 60°C), 0 to 80% R.H. with battery removed from meter.
Auto Power Off: 15 seconds.
Standby Consuming Current: < 6μA.
Battery: Standard 9V battery (NEDA 1604, IEC 6F22 006P).
Battery Life: 9 hours (continuity) typical (contain Backlit).
Dimensions: 148mm (H) x 105mm(W) x 42mm(D).
Weight: Approx. 157g (including battery).
Detectable Substrate Material: Ferrous metal (iron, steel)

ELECTRICAL

Thickness Range: 0 to 40.0mils (0 to 1000μm).
Display Resolution: 0.1mils/1μm.
Accuracy:
±4dgts on 0 to 7.8mils
±10dgts on 0 to 199μm
±(3%+4dgts) on 7.9mils to 40mils
±(3%+10dgts) on 200μm to 1000μm
Temperature Coefficient: 0.1x (specified accuracy) / °C (< 18°C or > 28°C)
Response Time: 1 second.

DEFINITION



※Peel off the protection films from foil before first use.

FUNCTION KEY

"☼"

Use "☼" key to turn backlight on and off.

"mils/μm"

Use "mils/μm" key to switch between mils and μm.
(1 mils = 25.4 μm)

"CAL"

1. When power is on, hold both "CAL" and ▼ key for 4 seconds to start one point calibration.
2. When power is on, hold "CAL" key for 4 seconds to start two point calibration.
3. In calibration mode, press "CAL" key to confirm and proceed next step; hold "CAL" key for 4 seconds to exit calibration mode.

INSTRUCTION

Power on and off:

1. Keep the sensing tip of the meter away from any substrate or any magnetic field.
2. Pull the trigger to turn on power. When LCD shows "run(um) or ru.n(mils)", the meter is ready for use.
3. Auto Power Off (APO) function: Leave the gauge without operation for 15 seconds, power turns off automatically.

Measuring:

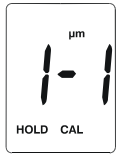
1. Pull the trigger to power on.
2. Press the sensing tip to contact coated surface tightly. Hold the trigger until reading appears, and measurement is completed. DO NOT remove the sensing tip from surface until reading is shown.
3. If the coating thickness is out of range, the meter still shows reading, but the accuracy of the measurement will become degraded.

CALIBRATION

※Before calibration, choose unit(mils/μm) for it can not be switched during calibration mode.
※During calibration, Auto Power Off function will be inactivated.

One Point Calibration:

※Because the calibration point is defaulted at 4.0mils (102μm), please have the attached standard coating plate ready for one point calibration.



1. Power on. Hold both "CAL" and ▼ key for 4 seconds to start one point calibration. LCD will blink "1－1".
2. Press the sensing tip to the standard coating plate on top of the foil. Hold the trigger and wait for reading to appear.
3. Press "CAL" key to confirm. LCD will blink "－－－" and then "1－2".
4. Hold "CAL" key for 4 seconds to exit one point calibration and return to operation.

Two Point Calibration:

※During two point calibration, the foil and standard coating plate 4.0mils (102μm) can be replaced by uncoated substrate and known-thickness standard coating plate.

1. Power on. Hold "CAL" key for 4 seconds to start two point calibration. LCD will blink "2－1".
2. Press the sensing tip to the foil. Hold the trigger and wait for reading to appear. Use ▲ or ▼ key to adjust reading to 0.
3. Press "CAL" key to confirm. LCD will blink "－－－" and then "2－2".

4. Press the sensing tip to the standard coating plate on top of the foil. Hold the trigger and wait for reading to appear. Use ▲ or ▼ key to adjust reading until it matches the standard's thickness 4.0mils (102μm).
5. Press "CAL" key to confirm. LCD will blink "－－－" and then "2－3".
6. Hold "CAL" key for 4 seconds to exit two point calibration. The meter turns off automatically.
7. If holding "CAL" key for 4 seconds during calibration mode, the meter will skip two point calibration and return to operation. At the meanwhile, calibration is not saved or completed.

OPERATION

1. Keep the meter away any substrate or any magnetic field. Pull the trigger to power on, and wait for “run” and HOLD sign.
2. Press the sensing tip to contact coated surface tightly.
3. Pull the trigger until reading appears. DO NOT remove the sensing tip from surface until reading is shown.
4. If the coating thickness is out of range, the meter still shows reading, but the accuracy of the measurement will become degraded.

MAINTENANCE

Battery Replacement

1. Power is supplied by a 9 volt “transistor” battery (NEDA 1604, IEC 6F22).
2. Pull off battery cover “”.
3. Remove the battery cover by gently sliding it onwards the bottom of the meter.
4. Remove and disconnect the old battery from the meter and replace with a new unit. Wind the excess lead length and put the top of battery beneath the battery chamber. Install the battery and put the battery cover.

Cleaning

Periodically wipe the case with a damp cloth and detergent, do not use abrasives or solvents.

Caution