GOLDEN BLUE CG02

GOLDEN BLUE CG02 Coating Thickness Gauge User Manual

Model: CG02

1. Introduction

The GOLDEN BLUE CG02 Coating Thickness Gauge is a precision instrument designed for measuring the thickness of non-magnetic coatings on magnetic metal substrates (Fe) and non-conductive coatings on non-magnetic metal substrates (NFe). This device is ideal for applications such as automotive paint inspection, metal processing, and quality control, providing accurate and reliable measurements.
This manual provides detailed instructions for the proper setup, operation, and maintenance of your CG02 gauge to ensure optimal performance and longevity.

2. Safety Information

- Read all instructions carefully before using the device.
- Do not attempt to disassemble or modify the gauge. This will void the warranty and may cause damage.
- Keep the device away from strong magnetic fields, high temperatures, and corrosive environments.
- Ensure the battery compartment is securely closed to prevent dust and moisture ingress.
- Dispose of batteries according to local regulations.
- Use only the specified battery type (AAA*2).

3. Package Contents

Please check the contents of your package. If any items are missing or damaged, contact your supplier.

- CG02 Coating Thickness Gauge
- Calibration Substrates (Iron-based and Aluminum-based)
- Standard Calibration Films (various thicknesses)
- Storage Box
- User Manual

4. Product Overview

Familiarize yourself with the components and controls of the CG02 gauge.

Figure 4.1: Overview of the CG02 Coating Thickness Gauge. This image highlights the LCD display, control buttons (MAX/MIN, Power/Unit, MODE, CAL, ZERO), and the sensitive thickness probe at the bottom. It also shows the anti-slip concave-convex design and indicates the low battery symbol, backlight, and digital display features.

- **Sensitive Thickness Probe:** Located at the bottom, used for contact measurement.
- **LCD Bright Screen:** Displays measurement readings, mode, unit, and battery status.
- **Power Button (Center):** Long press to turn ON/OFF. Single press to switch measurement units (µm/mil).
- **MODE Button:** Single press to switch between Single and Continuous measurement modes. Long press to set upper/lower limits.
- **CAL Button (Left):** Used for calibration. Also functions as 'up' or 'increase' during settings.
- **ZERO Button (Right):** Used for zero calibration. Also functions as 'down' or 'decrease' during settings.
- **MAX/MIN Button:** Displays maximum and minimum readings in continuous measurement mode.

5. Setup

5.1 Battery Installation

1. Locate the battery compartment cover on the back of the device.
2. Slide or unclip the cover to open.
3. Insert two AAA batteries, ensuring correct polarity (+/-).
4. Close the battery compartment cover securely.

5.2 Power On/Off

- **To Power On:** Long press the **Power** button. The LCD screen will light up.
- **To Power Off:** Long press the **Power** button again. The device will also automatically shut down after ten minutes of inactivity to conserve battery.

6. Calibration

Accurate calibration is crucial for precise measurements. The CG02 gauge supports calibration on both iron-based (Fe) and non-ferrous (NFe) substrates using standard films.

Figure 6.1: Calibration trimming for iron-based (Fe) and non-ferrous (NFe) substrates. The image shows two gauges, one calibrated for Fe (1005 µm) and one for NFe (50 µm), demonstrating the use of standard boards for fine-tuning.

Figure 6.2: Calibration standard plates. This image displays a set of five transparent calibration films with thicknesses of 50 µm, 99 µm, 248 µm, 500 µm, and 1005 µm, along with two metal calibration substrates (Fe and NFe).

6.1 Zero Calibration

1. Place the gauge probe directly onto the bare iron (Fe) substrate.
2. Press the **ZERO** button. The display should show "0.0" or a very small value.
3. Repeat the process for the bare non-ferrous (NFe) substrate.

6.2 Multi-Point Calibration (4-point smooth calibration)

This method uses standard calibration films to ensure accuracy across the measurement range.

1. Perform Zero Calibration as described above.
2. Place a standard calibration film (e.g., 50 µm) on the appropriate substrate (Fe or NFe).
3. Place the gauge probe onto the film.
4. Press the **CAL** button. The display will show a value. Use the **CAL** (up) and **ZERO** (down) buttons to adjust the displayed value to match the known thickness of the film.
5. Repeat this process for other standard calibration films (e.g., 99 µm, 248 µm, 500 µm, 1005 µm) to cover the desired measurement range.
6. After adjusting, press the **MODE** button to save the calibration and exit.

7. Operating Instructions

7.1 Measurement Modes

- **Single Measurement Mode:** Press the **MODE** button until "SINGLE" appears on the display. In this mode, the gauge takes one measurement each time the probe is placed on the surface.
- **Continuous Measurement Mode:** Press the **MODE** button until "CONTINUOUS" appears. In this mode, the gauge continuously measures as the probe is moved across the surface, updating the display in real-time.

7.2 Unit Switching

To switch between micrometers (µm) and mils (mil), short press the**Power** button.

7.3 Setting High & Low Alerts

The CG02 allows you to set upper and lower thickness limits. If a measurement falls outside these limits, the gauge will provide an alert.

Figure 7.1: Setting high and low alerts. This image illustrates how to set upper and lower thickness alarm limits by long-pressing the MODE button and adjusting values with CAL and ZERO. It also shows the "Di Di Di" sound and red/green LED lights indicating when the set limit is exceeded.

1. Long press the **MODE** button until the alarm setting interface appears.

2. Use the **CAL** and **ZERO** buttons to adjust the upper limit value.
3. Press **MODE** again to switch to the lower limit setting.
4. Use the **CAL** and **ZERO** buttons to adjust the lower limit value.
5. Press **MODE** to save the settings and exit.
6. When a measurement exceeds the set limits, the gauge will emit an audible "Di Di Di" alert and flash red/green LED lights.

7.4 Taking Measurements

1. Ensure the gauge is calibrated for the material you are measuring (Fe or NFe).
2. Select your desired measurement mode (Single or Continuous) and unit (µm or mil).
3. Place the probe gently and perpendicularly onto the coated surface.
4. Read the thickness value displayed on the LCD screen.
5. For continuous measurements, slide the probe smoothly across the surface.

Figure 7.2: Examples of paint thickness measurements on various car body parts. This image shows measurements taken on a car's front fender (98.4 µm), door (313 µm, indicating a repaired area), roof (107 µm), and trunk (125 µm), demonstrating practical application.

7.5 Data Storage

The device features 6 groups of data storage, allowing you to record and compare measurements from different areas. Refer to the on-screen prompts or specific button combinations for saving and recalling data groups.

8. Maintenance

- **Cleaning:** Wipe the gauge body with a soft, dry cloth. Do not use abrasive cleaners or solvents. Keep the probe tip clean and free of debris.
- **Storage:** Store the gauge in its original box or a protective case when not in use. Keep it in a dry environment, away from extreme temperatures.
- **Battery Replacement:** Replace batteries when the low battery indicator appears on the display. Remove batteries if the device will not be used for an extended period.

9. Troubleshooting

Problem	Possible Cause	Solution
Gauge does not power on.	Dead or incorrectly installed batteries.	Check battery polarity, replace with new AAA batteries.
Inaccurate readings.	Not calibrated, dirty probe, incorrect substrate type selected.	Perform calibration, clean the probe, ensure correct Fe/NFe mode.
Display shows "OL" or "---".	Measurement out of range, probe not making proper contact.	Ensure measurement is within 0-1500µm. Re-position probe firmly and flat.
Gauge shuts off unexpectedly.	Low battery, automatic shutdown activated.	Replace batteries. Note that the device has an auto-shutdown feature after 10 minutes of inactivity.

10. Specifications

Detailed technical specifications for the GOLDEN BLUE CG02 Coating Thickness Gauge.

Figure 10.1: Product parameters of the CG02 Coating Thickness Gauge. This image lists key specifications such as measurement mode, type (Iron/Non-Iron), range, unit switching, minimum thickness, automatic shutdown, battery model, minimum convex/concave radius of curvature, screen type, minimum measure area diameter, weight material, measurement accuracy, and low battery reminder.

Measurement Type:	Magnetic metal (Fe) / Non-magnetic metal (NFe) / Automatic identification
Measurement Method:	Single measurement / Continuous measurement
Measurement Range:	0 ~ 1500 µm (0 ~ 59 mil)
Unit Switching:	µm (micron) / mil
Minimum Thickness (Iron):	0.5 mm
Minimum Thickness (Aluminum):	0.3 mm
Automatic Shutdown:	After 10 minutes of no operation
Battery Model:	AAA * 2
Min. Convex Radius of Curvature:	5 mm

Min. Concave Radius of Curvature:	50 mm
Screen Type:	LCD bright screen
Diameter of Min. Measure Area:	20 mm
Weight Material:	95g / ABS Silicone
Measurement Accuracy:	Iron-based or Aluminum-based / (3% + 2 µm)
Low Battery Reminder:	Lower than 2.4V

Figure 10.2: Dimensions of the CG02 Coating Thickness Gauge. The image shows the gauge with its dimensions: 122mm (4.8 inches) in length, 49mm (1.93 inches) in width, and 27mm (1.06 inches) in thickness.

11. Warranty and Support

This product comes with a standard manufacturer's warranty. Please refer to your purchase documentation for specific warranty terms and conditions. For technical support, troubleshooting assistance, or warranty claims, please contact your retailer or the GOLDEN BLUE customer service department.
Keep your purchase receipt as proof of purchase for warranty purposes.