GOLDCHAMP GC-4070L-1

GOLDCHAMP GC-4070L-1 Capacitor Tester User Manual

Model: GC-4070L-1 | Brand: GOLDCHAMP

1. Introduction

The GOLDCHAMP GC-4070L-1 is a professional digital multimeter designed for precise measurement of capacitance, inductance, and resistance. It also features a transistor hFE test function. This device is equipped with a manual range selection, a clear LCD with backlight, and an auto power-off function for energy efficiency. It is an essential tool for home use, educational settings, electrical repair, and electronics engineering.

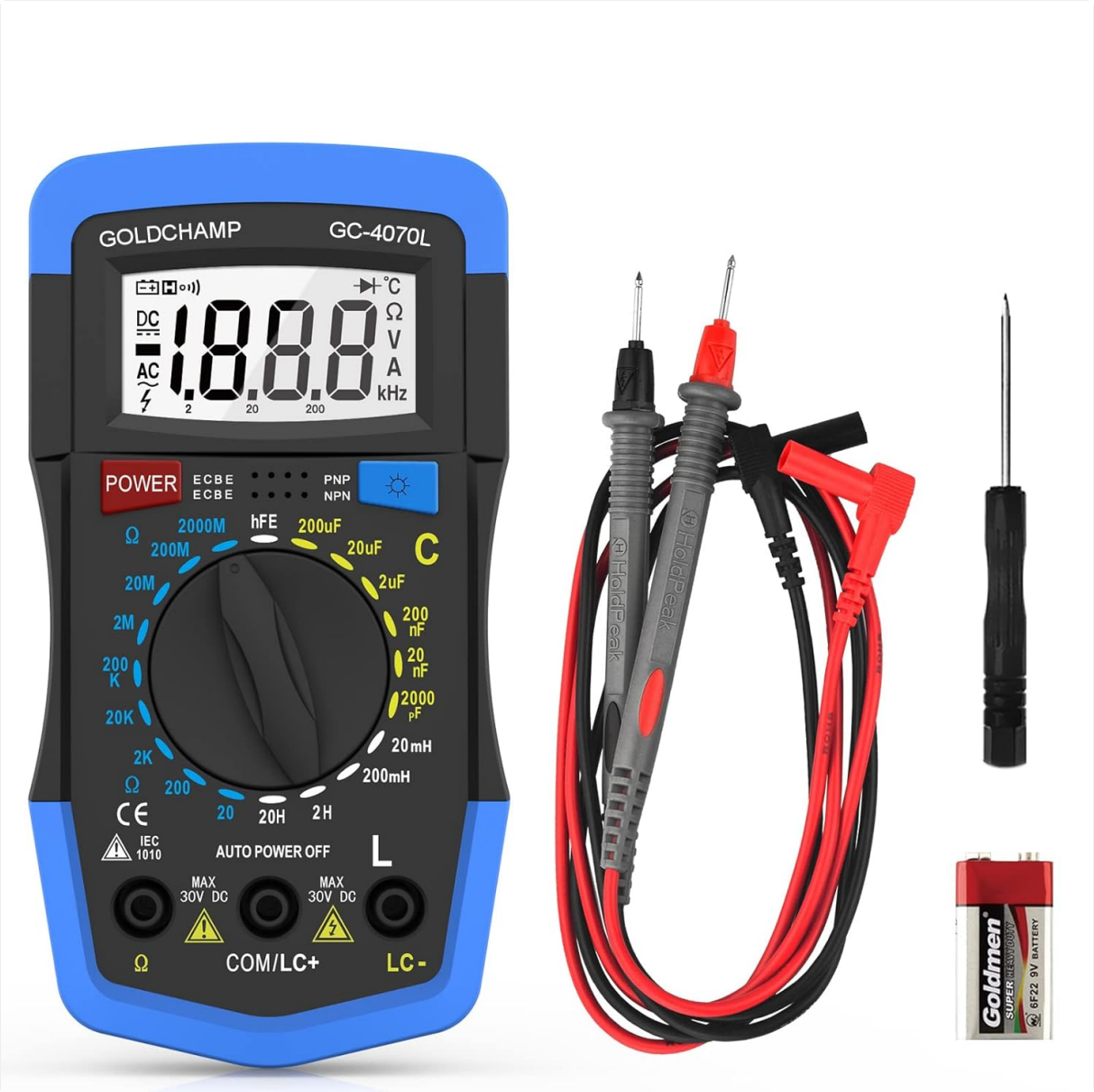

Figure 1: GOLDCHAMP GC-4070L-1 Capacitor Tester and included accessories.

2. Safety Information

To ensure safe operation and to avoid damage to the meter, please read this manual carefully before use. Always adhere to the following safety precautions:

- Do not exceed the maximum input values for any measurement range.
- Exercise extreme caution when working with voltages above 30V AC RMS, 42V peak, or 60V DC. These voltages pose a shock hazard.
- Before measuring resistance, capacitance, or inductance, ensure that the circuit under test is de-energized and all capacitors are discharged.
- Always use the correct function and range for measurements.
- Inspect test leads for damage before each use. Do not use if insulation is compromised.
- Do not operate the meter if it appears damaged or if the case is open.
- Replace the battery when the low battery indicator appears to ensure accurate readings.

3. Product Overview and Components

The GC-4070L-1 meter consists of a main unit, test leads, a screwdriver, and a 9V battery. Familiarize yourself with the meter's layout:

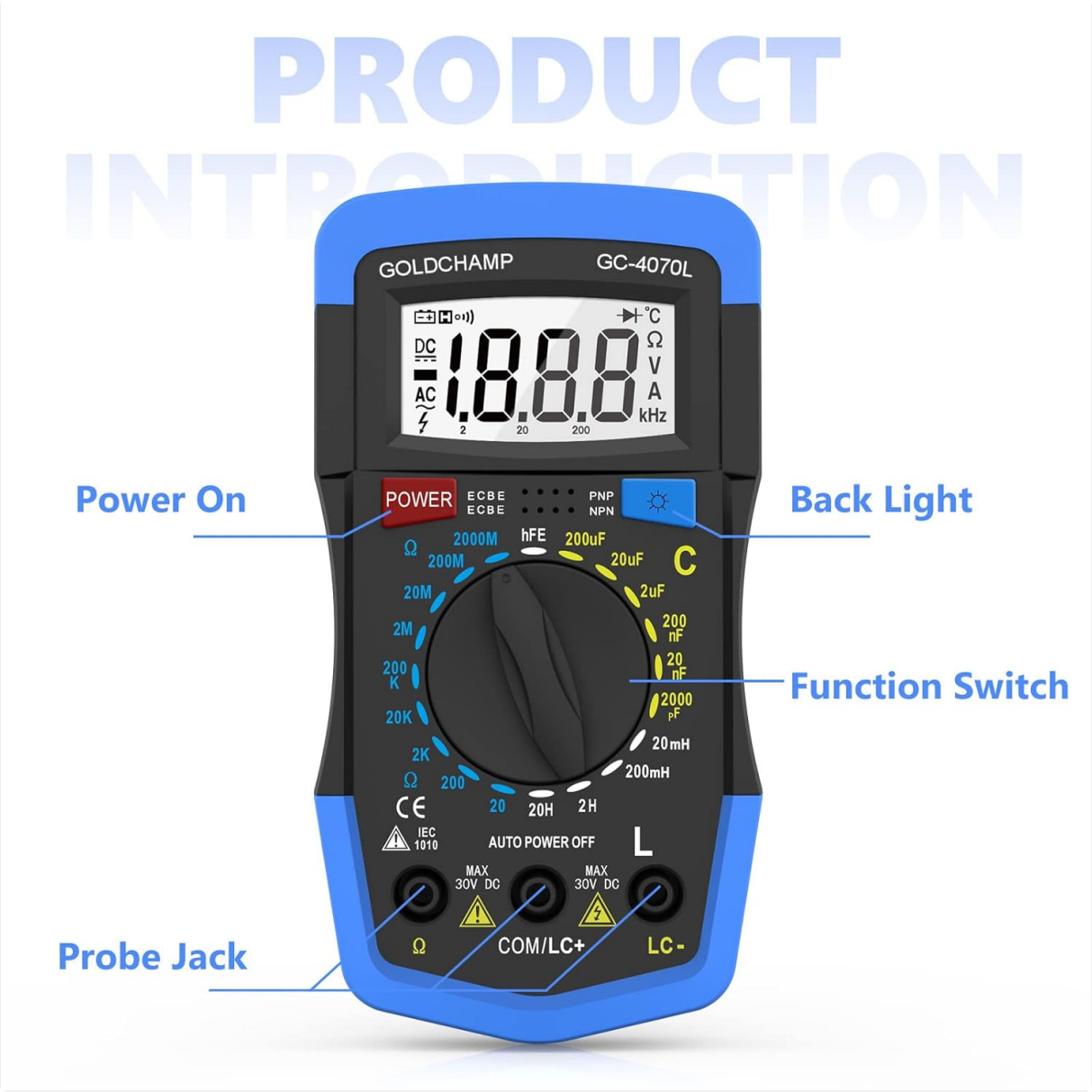

Figure 2: Front panel layout of the GC-4070L-1, highlighting key controls and jacks.

Included Items:

- 1 x GOLDCHAMP GC-4070L-1 Multimeter
- 1 x Pair of Test Leads (Red and Black)
- 1 x Screwdriver
- 1 x 9V Battery
- 1 x User Manual

4. Setup

4.1 Battery Installation

The GC-4070L-1 requires one 9V battery for operation. Follow these steps to install or replace the battery:

1. Ensure the meter is powered off.
2. Locate the battery compartment on the back of the meter.

3. Use the included screwdriver to loosen the screw securing the battery cover.
4. Remove the battery cover.
5. Connect the 9V battery to the battery clips, observing correct polarity.
6. Place the battery inside the compartment and replace the cover, securing it with the screw.

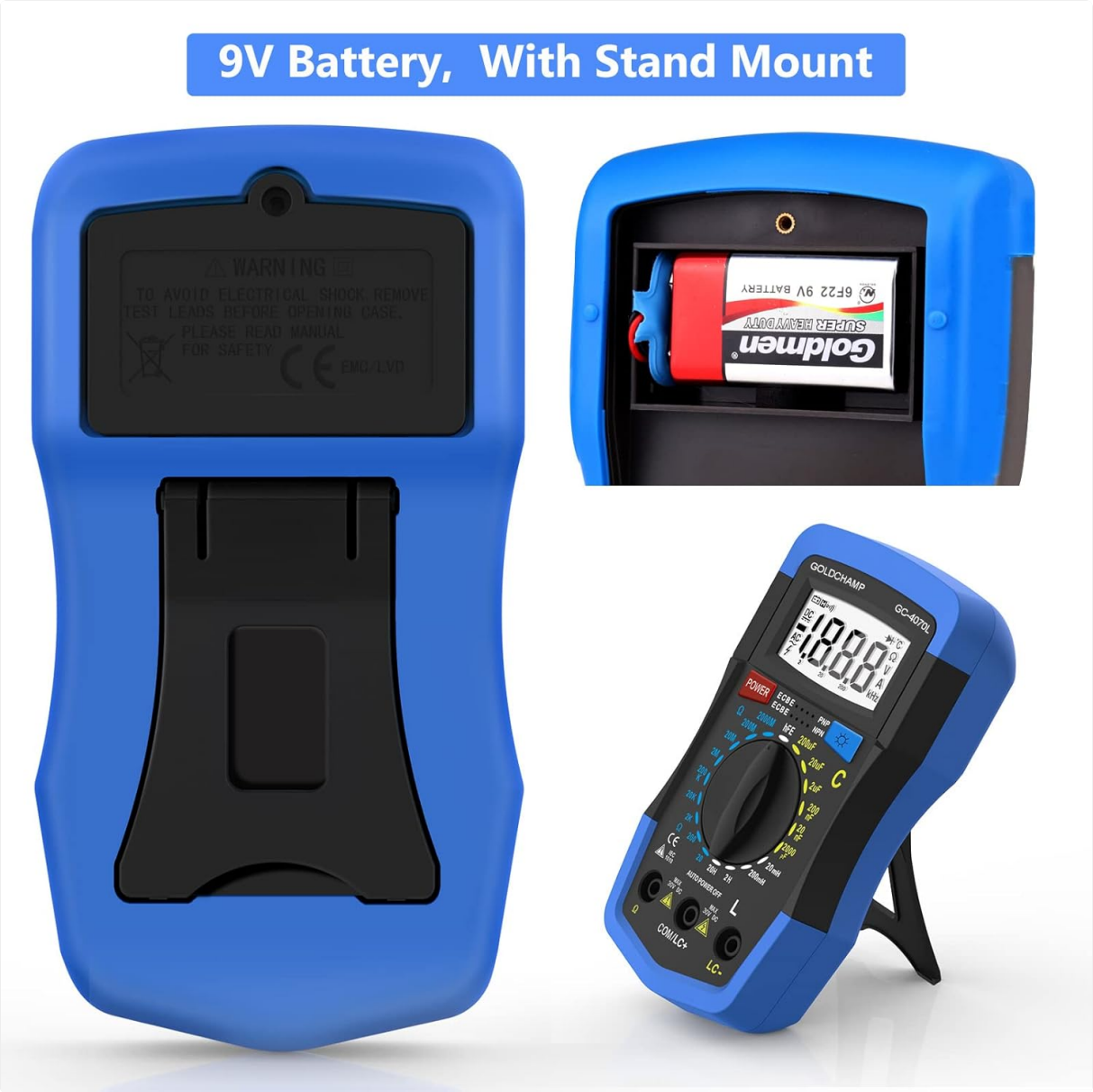

Figure 3: Battery compartment and installation of the 9V battery.

4.2 Connecting Test Leads

Connect the test leads to the appropriate input jacks:

- Insert the **red** test lead into the **COM/LC+** jack for most measurements.
- Insert the **black** test lead into the **LC-** jack for most measurements.
- For resistance measurements, the red lead connects to **Ω** and the black lead to **COM/LC+**.

5. Operating Instructions

5.1 Power On/Off

Press the red **POWER** button to turn the meter on. Press it again to turn the meter off.

5.2 Function Selection

Rotate the central function switch to select the desired measurement mode (e.g., Capacitance 'C', Inductance 'L', Resistance 'Ω', or hFE).

5.3 Backlight Function

Press the blue **Back Light** button to illuminate the LCD display. This feature is useful in dimly lit environments. Press it again to turn off the backlight.

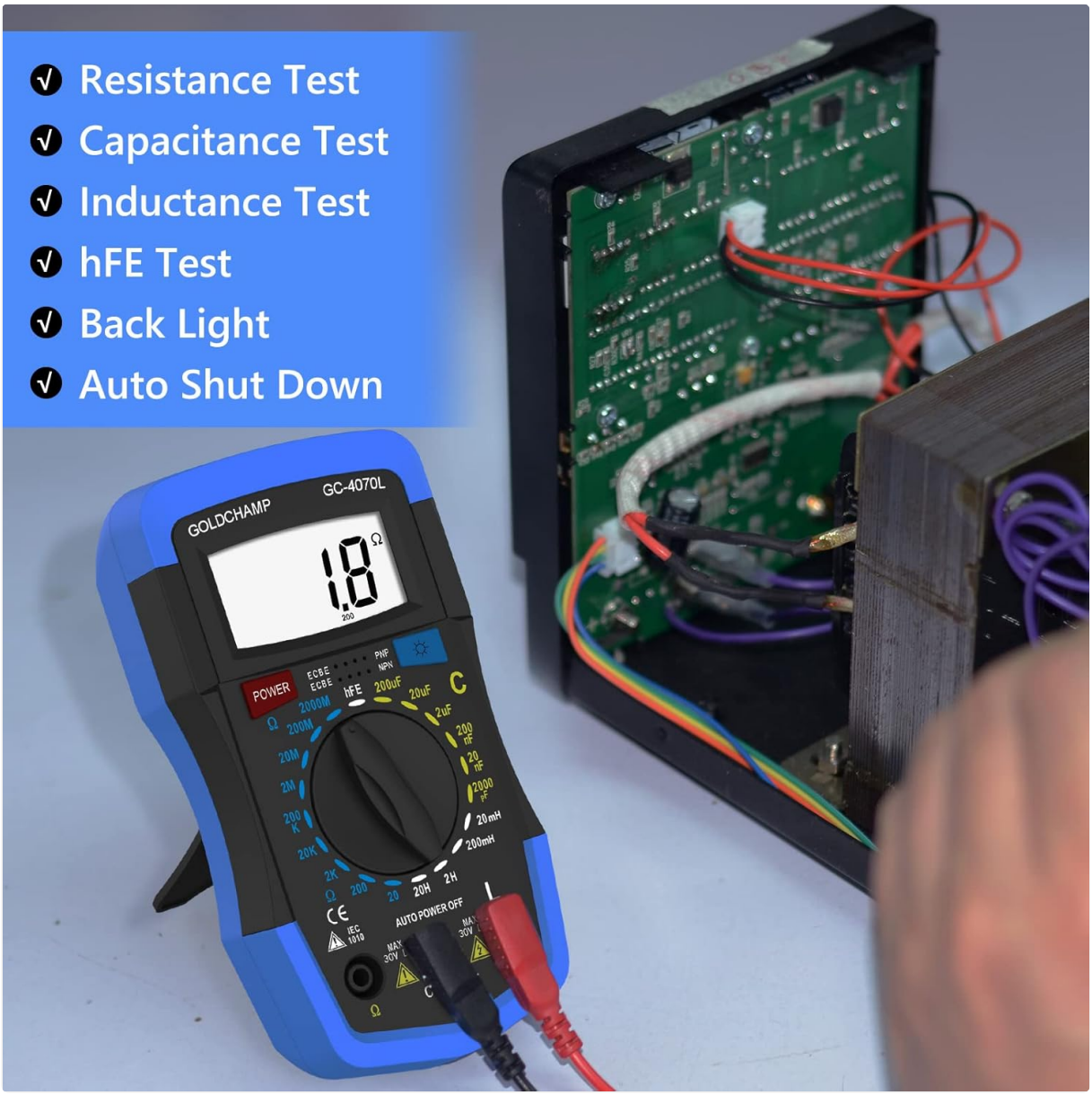

Figure 4: The backlight feature enhances display visibility.

5.4 Auto Power Off

The meter is designed to automatically power off after approximately 10 minutes of inactivity to conserve battery life. To reactivate, press the **POWER** button.

5.5 Measurement Procedures

Always ensure the component or circuit is de-energized and discharged before connecting the test leads.

5.5.1 Capacitance Measurement (C)

1. Rotate the function switch to the desired capacitance range (e.g., 2000pF, 20nF, 200nF, 2uF, 20uF, 200uF).
2. Connect the red test lead to the **COM/LC+** jack and the black test lead to the **LC-** jack.
3. Connect the test leads across the capacitor to be measured.

4. Read the capacitance value on the LCD display.

5.5.2 Inductance Measurement (L)

1. Rotate the function switch to the desired inductance range (e.g., 20mH, 200mH, 2H, 20H).
2. Connect the red test lead to the **COM/LC+** jack and the black test lead to the **LC-** jack.
3. Connect the test leads across the inductor to be measured.
4. Read the inductance value on the LCD display.

5.5.3 Resistance Measurement (Ω)

1. Rotate the function switch to the desired resistance range (e.g., 20Ω, 200Ω, 2KΩ, 20KΩ, 200KΩ, 2MΩ, 20MΩ, 200MΩ, 2000MΩ).
2. Connect the red test lead to the **Ω** jack and the black test lead to the **COM/LC+** jack.
3. Connect the test leads across the resistor or circuit to be measured.
4. Read the resistance value on the LCD display.

5.5.4 hFE Test (Transistor Test)

1. Rotate the function switch to the **hFE** position.
2. Identify if the transistor is NPN or PNP.
3. Insert the transistor's emitter (E), base (B), and collector (C) leads into the corresponding holes in the hFE socket on the meter.
4. Read the hFE value (DC current gain) on the LCD display.

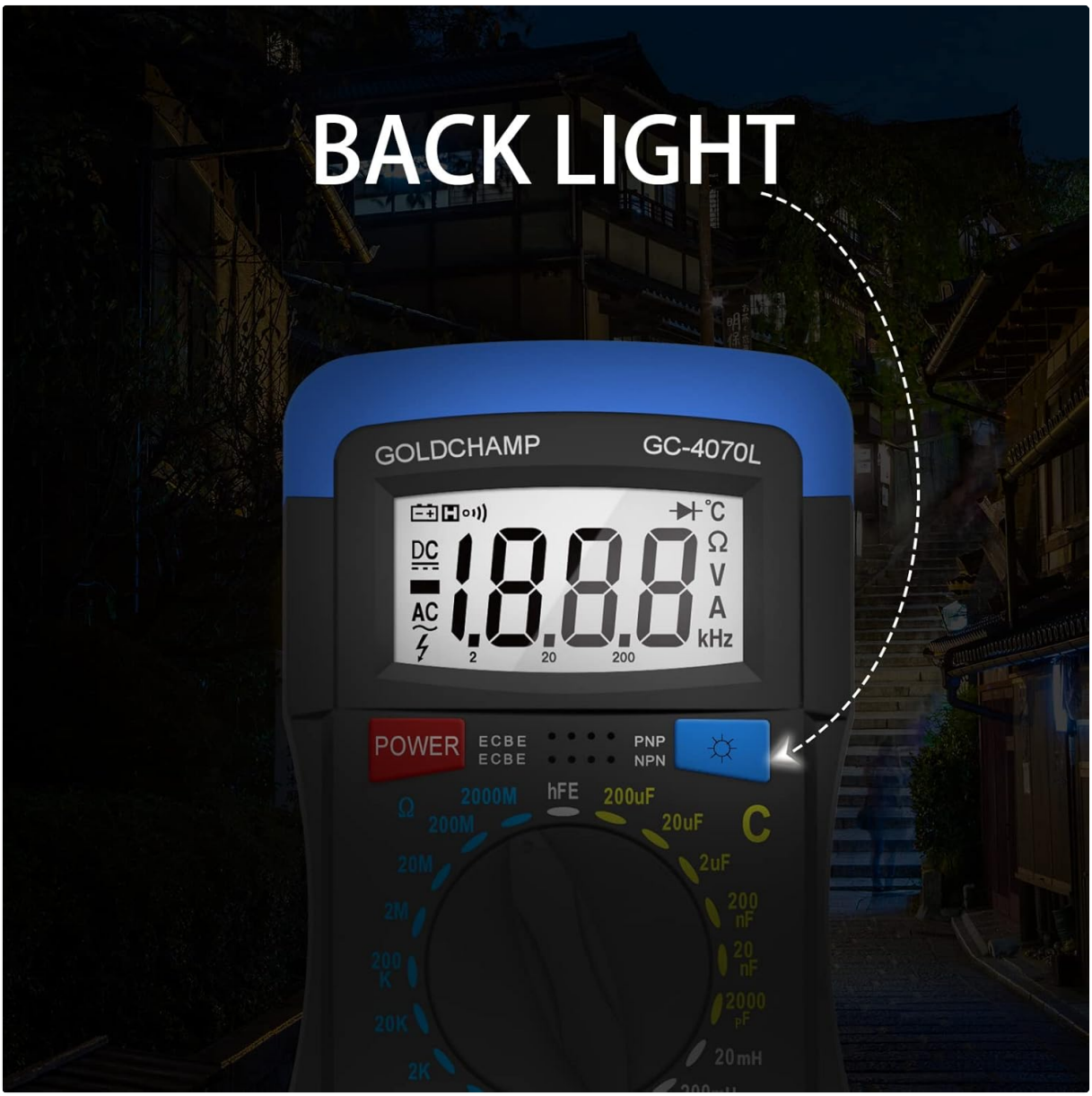

Figure 5: The GC-4070L-1 performing a measurement.

6. Maintenance

6.1 Cleaning

Wipe the meter's case with a damp cloth and a mild detergent. Do not use abrasives or solvents. Ensure the meter is completely dry before use.

6.2 Battery Replacement

Refer to Section 4.1 for detailed instructions on replacing the 9V battery.

6.3 Storage

If the meter is not used for an extended period, remove the battery to prevent leakage and damage. Store the meter in a cool, dry place, away from direct sunlight and extreme temperatures.

7. Troubleshooting

If you encounter issues with your GC-4070L-1, refer to the table below for common problems and their solutions:

Problem	Possible Cause	Solution

Problem	Possible Cause	Solution
No display or dim display	Low or dead battery; Incorrect battery installation	Replace the 9V battery; Check battery polarity.
Incorrect readings	Wrong function/range selected; Test leads not properly connected; Component not fully discharged	Select the correct function and range; Ensure test leads are securely connected; Discharge capacitors before measurement.
Meter does not power on	Battery issue; Power button malfunction	Check/replace battery; If problem persists, contact support.

8. Specifications

The following are the technical specifications for the GOLDCHAMP GC-4070L-1:

Feature	Specification
Capacitance Range	2000pF, 20nF, 200nF, 2uF, 20uF, 200uF
Inductance Range	20mH, 200mH, 2H, 20H
Resistance Range	20Ω, 200Ω, 2KΩ, 20KΩ, 200KΩ, 2MΩ, 20MΩ, 200MΩ, 2000MΩ
hFE Test	Yes (for NPN/PNP transistors)
Display	Large LCD, 1999 counts
Backlight	Yes
Auto Power Off	Approximately 10 minutes of inactivity
Power Source	1 x 9V Battery (included)
Operating Voltage	9 Volts (DC)
Dimensions	6.02 x 4.45 x 1.81 inches
Weight	9.59 ounces

9. Warranty and Support

For warranty information and technical support, please refer to the documentation provided with your purchase or contact GOLDCHAMP customer service directly. Contact details can typically be found on the manufacturer's official website or through your retailer.