Morelian CM81

Morelian CM81 Smart AC Clamp Multimeter User Manual

Model: CM81

1. Introduction

Thank you for choosing the Morelian CM81 Smart AC Clamp Multimeter. This device is a high-precision, multi-functional, and portable electrical testing tool designed for both professional and home use. It offers a wide range of measurement capabilities, including AC/DC voltage, AC current, resistance, capacitance, frequency, diode, and continuity tests. Its compact design, large backlit LCD screen, and advanced features like non-contact voltage detection and automatic shutdown make it an essential tool for electrical maintenance and troubleshooting.

2. Safety Information

WARNING: To avoid possible electric shock, fire, or personal injury, please read all safety information before you use the product. Improper use of this meter can cause damage, shock, injury or death. Always follow all safety procedures and precautions.

- Do not exceed the maximum input value specified for any function.
- Do not use the meter if it is damaged or if the test leads are damaged.
- Exercise extreme caution when working with voltages above 30V AC RMS, 42V peak, or 60V DC. Such voltages pose a shock hazard.
- Remove the test leads from the circuit before changing functions.
- Always ensure the meter is in the correct function and range for the measurement.
- Do not operate the meter around explosive gas, vapor, or dust.
- Use caution when measuring current on live circuits. Only clamp around a single conductor for current measurement.

3. Product Overview

3.1 Key Features

- Multi-functional Clamp Meter: Measures AC/DC voltage, 600A AC current, resistance, capacitance, frequency, diode, and continuity.
- Real-time Temperature Display: Convenient for checking ambient temperature.
- Large Jaw Design: 36mm clamp head for non-invasive current measurement on single-strand wires.
- Convenient Data Review: Large backlit LCD screen with data hold function.
- Compact and Portable: Small body with full functionality and easy one-handed operation.
- Durable ABS Material Body: Good electrical insulation, durable, and anti-drop.

- Other Features: Non-contact inductive voltage measurement (NCV), built-in flashlight, and automatic shutdown.

3.2 Device Components

Figure 3.2.1: Overall view of the CM81 Clamp Multimeter and its included test leads.

Figure 3.2.2: The CM81 Clamp Meter, emphasizing its core functionalities like 600A AC current measurement, AC/DC voltage, capacitance, resistance, frequency, diode, and data hold.

Figure 3.2.3: A close-up view of the CM81's high-definition backlit LCD screen, ensuring clear readings even in low-light conditions.

Figure 3.2.4: The high-quality PVC test leads included with the CM81, designed for durability and good conductivity.

4. Setup

4.1 Battery Installation

The CM81 requires two 1.5V AAA batteries (not included). To install the batteries:

1. Ensure the meter is turned off.
2. Locate the battery compartment cover on the back of the meter.
3. Use a screwdriver to open the battery compartment.
4. Insert two AAA batteries, observing the correct polarity (+ and -) as indicated inside the compartment.
5. Replace the battery compartment cover and secure it with the screw.

4.2 Connecting Test Leads

For most measurements (voltage, resistance, capacitance, diode, continuity), you will need to use the included test leads.

1. Insert the black test lead into the 'COM' (Common) input jack.
2. Insert the red test lead into the 'VΩHz' input jack.

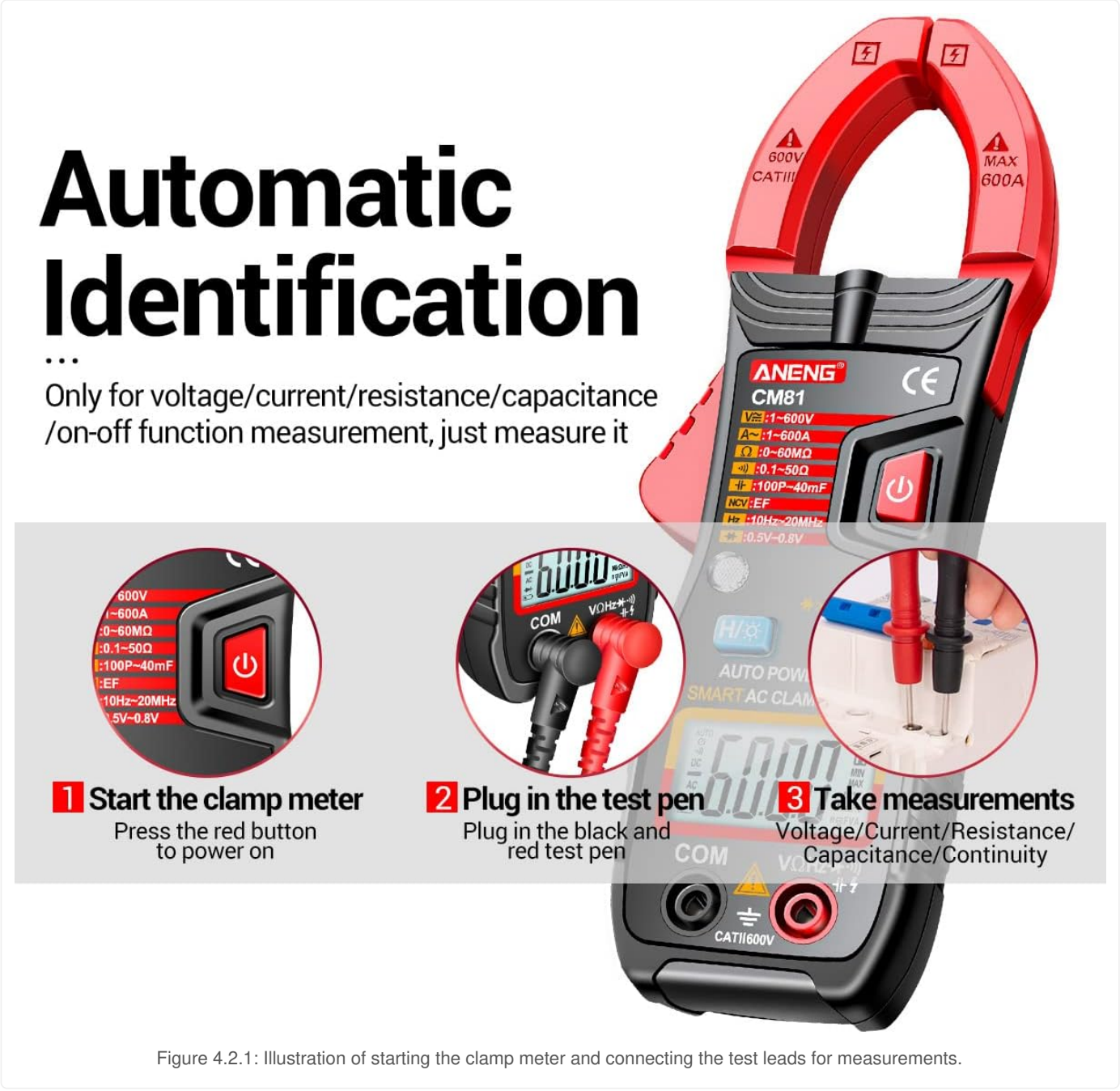

Figure 4.2.1: Illustration of starting the clamp meter and connecting the test leads for measurements.

4.3 Initial Power On

Press the red power button to turn on the clamp meter. The device will automatically enter the auto-identification mode for voltage, current, resistance, and capacitance measurements.

5. Operating Instructions

5.1 Automatic Measurement Mode

The CM81 features an intelligent automatic identification function. For voltage, current, resistance, and capacitance measurements, simply connect the test leads or clamp the wire, and the meter will automatically detect the type of measurement and display the reading.

5.2 AC Current Measurement

To measure AC current, use the clamp jaw. Ensure the circuit is live and safe to access.

1. Turn on the meter.
2. Open the clamp jaw by pressing the trigger.
3. Place the clamp jaw around a **single conductor** of the circuit you wish to measure. **Note: Only one wire can be detected, and multiple wires cannot be detected!**
4. Close the clamp jaw securely. The meter will display the AC current reading.

Figure 5.2.1: The CM81 clamp meter demonstrating its capability to measure up to 600A AC current by clamping around a single conductor.

Figure 5.2.2: The CM81 in action, automatically recognizing and measuring AC current by clamping the wire.

5.3 Non-Contact Voltage (NCV) Detection

The NCV function allows you to detect the presence of AC voltage without direct contact with the conductor.

1. Press the 'SELECT' button to switch to NCV mode.
2. Move the top part of the meter close to the conductor or outlet.
3. If AC voltage is detected, the red LED will flash, and a buzzer will sound.

Figure 5.3.1: The CM81 demonstrating its NCV (Non-Contact Voltage) detection capability near a circuit breaker, indicating non-contact induction.

5.4 Data Hold Function

To freeze the current reading on the display, press the 'H/*' button. Press it again to release the data hold.

5.5 Backlight and Flashlight

Long press the 'H/*' button to turn on the screen backlight. This improves visibility in dark environments. The meter also has a built-in flashlight for illuminating the work area.

5.6 Automatic Shutdown

To conserve battery life, the CM81 will automatically turn off after 15 minutes of inactivity. To disable or re-enable this feature, refer to the full English user manual included in the package.

Figure 5.6.1: The CM81's automatic shut-down feature, which activates after 15 minutes of inactivity to save power.

6. Maintenance

6.1 Cleaning

Wipe the case with a damp cloth and mild detergent. Do not use abrasives or solvents. Periodically clean the terminals with a cotton swab and detergent; dirt or moisture in the terminals can affect readings.

6.2 Battery Replacement

When the low battery indicator appears on the display, replace the batteries immediately to ensure accurate readings. Follow the steps in Section 4.1 for battery installation.

6.3 Storage

If the meter is not to be used for a long period, remove the batteries to prevent battery leakage and damage to the meter.

7. Troubleshooting

- **No Display:** Check battery installation and ensure batteries are not depleted. Replace if necessary.
- **Inaccurate Readings:** Ensure test leads are properly connected. Check for dirty terminals. Verify the correct measurement mode is selected (though auto-ranging helps). Ensure the clamp is properly closed around a single conductor for current measurements.
- **Buzzer Not Working:** Check if the continuity function is selected and if the circuit is closed.

8. Specifications

Parameter	Value
Color	Red (Optional: Black)
AC Voltage Range/Resolution/Accuracy	1~600V / 0.001~1V / ±(1.5%+8)
DC Voltage Range/Resolution/Accuracy	1~600V / 0.001~1V / ±(1.2%+5)
AC Current Range/Resolution/Accuracy	1~600A / 1mA~0.1A / ±(2.8%+8)
Resistance Range/Resolution/Accuracy	0~60MΩ / 0~10kΩ / ±(1.2%+5)
Capacitance Range/Resolution/Accuracy	100pF ~ 40mF / 1pF ~ 10μF / ±(6%+10)
Frequency Range/Resolution/Accuracy	10Hz ~ 20MHz / 0.1Hz ~ 10kHz / ±(4.0%+10)
Diode Test	Yes
Buzzer (Continuity)	Yes
Data Hold	Yes
Non-contact Voltage Test (NCV)	Yes
Flashlight	Yes
Low Battery Indicator	Yes
Real-time Temperature Display	Yes
Range	Auto Range
Automatic Shutdown	15 minutes
Display	Backlit LCD Screen
Max Display	6000 Counts
Power Source	Two 1.5V AAA batteries (not included)
Jaw Opening Size	36mm / 1.41 inches
Product Size	185 × 65 × 32 mm / 7.28 × 2.56 × 1.26 inches
Product Weight	136g / 4.80 ounces
Manufacturer Part Number	TNE2100864367868XT

Parameter	Value
UPC	752874090679

9. Warranty and Support

This Morelian product is manufactured to high-quality standards. For any technical support or warranty inquiries, please refer to the contact information provided with your purchase or visit the official Morelian store on Amazon.sa: Morelian Store.