

AXAUCHOZ EM-07

AXAUCHOZ EM-07 Multimeter User Manual

Voltage, Current, Frequency, Apparent Power Protection Multimeter for 3-Phase 4-Wire Systems

1. INTRODUCTION

This manual provides detailed instructions for the installation, operation, and maintenance of the AXAUCHOZ EM-07 Multimeter. The EM-07 is designed for monitoring voltage, current, frequency, and apparent power in 3-phase 4-wire electrical systems. Please read this manual thoroughly before using the device to ensure safe and correct operation.

2. SAFETY INFORMATION

WARNING: Electrical shock hazard. Installation and servicing should only be performed by qualified personnel.

- Always disconnect power before installing or servicing the device.
- Ensure all connections are secure and correctly wired according to the diagrams.
- Do not operate the device if it appears damaged.
- Observe all local and national electrical codes.
- The device is designed for indoor use in a clean, dry environment.

3. PRODUCT OVERVIEW

3.1 Features

- Measures Voltage, Current, Frequency, and Apparent Power.
- Supports 3-Phase 4-Wire connection.
- Wide operating voltage range: 85V - 240V AC.
- Current measurement up to 10000A with standard CTs.
- High accuracy: $\pm 1\%$ for Voltage and Current.
- RS485 RTU communication for remote monitoring.
- Large 71.5 x 61.5mm Glass LCD display.

- Panel-mounted design with IP41 front panel protection.

3.2 Components

The EM-07 Multimeter consists of the main display unit and external Current Transformers (CTs) for current measurement. The main unit features a large LCD display and control buttons.



Figure 1: Front view of the AXAUCHOZ EM-07 Multimeter and associated Current Transformers (CTs). The display shows voltage readings for L1, L2, L3 and corresponding current readings.



Figure 2: Side view of the AXAUCHOZ EM-07 Multimeter, illustrating the mounting mechanism and ventilation design.

4. SPECIFICATIONS

Parameter	Value
Operating Voltage (Un)	85V - 240V AC
Operating Frequency	50/60 Hz
Power Consumption	<10VA
Operating Temperature	-20°C to +55°C
Voltage Input Range	5V ~ 330V AC
Voltage Range (with VT)	5V ~ 330kV
Current Range (with CT)	50mA - 10000A
Voltage, Current Accuracy	±1%
Supported Connection	3P4W (3-Phase 4-Wire)
Current Transformer Ratio	1.0 - 2000 (EM-07/E)
Voltage Transformer Ratio	1.0 - 999.9
Communication	RS485 RTU
Display	71.5 x 61.5mm Glass LCD
Output	2A / 250V AC (Resistive Load)
Weight	<300gr.
Protection Class	IP41 (Front Panel), IP20 (Body)
Panel Hole Sizes	91mm x 91mm
Connection Type	Plug-in terminal
Cable Diameter	1.5mm ²
Mounting	On panel front cover

5. SETUP AND INSTALLATION

5.1 Panel Mounting

1. Cut a square opening of 91mm x 91mm in the desired panel location.
2. Insert the EM-07 Multimeter into the opening from the front.
3. Secure the device using the provided mounting clips on the sides, ensuring a snug fit.

5.2 Wiring Connections (3P4W)

The EM-07 supports 3-Phase 4-Wire connections. Refer to the wiring diagram provided with the product for exact terminal assignments. Ensure all connections are made with appropriate cable diameters (e.g., 1.5mm² for control wiring).

- **Voltage Inputs:** Connect the phase voltages (L1, L2, L3) and neutral (N) to the designated voltage input terminals.

- **Current Transformer (CT) Connections:** Connect the secondary windings of the three Current Transformers to the corresponding current input terminals (e.g., I1, I2, I3). Ensure correct polarity. The primary side of the CTs should be installed around the respective phase conductors.
- **Power Supply:** Connect the operating voltage (85V - 240V AC) to the dedicated power supply terminals.
- **RS485 Communication:** If using RS485, connect the A and B terminals to your communication network.
- **Relay Output:** If using the relay output, connect the load to the output terminals (2A / 250V AC resistive load).

IMPORTANT: Incorrect wiring can damage the device or lead to inaccurate readings. Double-check all connections before applying power.

6. OPERATING INSTRUCTIONS

6.1 Initial Power-Up

Once all connections are secure, apply power to the device. The LCD display will illuminate and show the default measurement screen, typically displaying voltage and current values for each phase.

6.2 Display Navigation and Button Functions

The EM-07 features four control buttons:

- **ESC:** Exit menu, return to previous screen, or cancel an operation.
- **SET:** Enter menu, confirm selection, or save settings.
- **UP (↑):** Navigate up through menu options, increase a value.
- **DOWN (↓):** Navigate down through menu options, decrease a value.

6.3 Parameter Settings

To access the settings menu:

1. Press the **SET** button to enter the main menu.
2. Use the **UP** or **DOWN** buttons to navigate through menu items (e.g., CT Ratio, VT Ratio, Communication Settings).
3. Press **SET** to select a menu item.
4. Use **UP** or **DOWN** to adjust values.
5. Press **SET** to confirm and save the new value.
6. Press **ESC** to exit the current menu or return to the measurement screen.

6.3.1 Setting Current Transformer (CT) Ratio

It is crucial to set the CT ratio correctly to ensure accurate current readings. The ratio should match the CTs installed (e.g., 1000A/5A would be a ratio of 200). The EM-07 supports ratios from 1.0 to 2000.

1. Navigate to the "CT Ratio" setting in the menu.
2. Enter the primary current value of your CTs (e.g., 1000 for 1000A CTs).
3. Confirm the setting.

6.3.2 Setting Voltage Transformer (VT) Ratio

If Voltage Transformers (VTs) are used for high voltage applications, set the VT ratio accordingly. The EM-07 supports ratios from 1.0 to 999.9.

1. Navigate to the "VT Ratio" setting in the menu.
2. Enter the primary voltage value of your VTs.
3. Confirm the setting.

6.4 Reading Measurements

The default display screen shows real-time measurements. Use the **UP** and **DOWN** buttons on the main screen to cycle through different measurement views, which may include:

- Phase-to-Neutral Voltages (L1-N, L2-N, L3-N)
- Phase Currents (I1, I2, I3)
- Frequency (Hz)
- Apparent Power (VA)
- Other derived parameters (if available)

7. MAINTENANCE

- **Cleaning:** Clean the display and front panel with a soft, dry cloth. Do not use abrasive cleaners or solvents.
- **Inspection:** Periodically inspect wiring connections for tightness and signs of wear or damage.
- **Environment:** Ensure the operating environment remains within the specified temperature and humidity ranges.
- No user-serviceable parts inside. Refer all servicing to qualified personnel.

8. TROUBLESHOOTING

Problem	Possible Cause	Solution
Device does not power on.	No power supply, incorrect wiring, or blown fuse.	Check power connections and supply voltage. Verify wiring.
Inaccurate current readings.	Incorrect CT ratio setting, incorrect CT wiring (polarity), or faulty CT.	Verify CT ratio setting in the menu. Check CT wiring polarity. Test or replace CTs if necessary.
Inaccurate voltage readings.	Incorrect VT ratio setting, incorrect voltage input wiring.	Verify VT ratio setting. Check voltage input wiring.
Display is blank or frozen.	Power interruption, internal error.	Cycle power to the device. If problem persists, contact support.

9. WARRANTY AND SUPPORT

Specific warranty information for the AXAUCHOZ EM-07 Multimeter is not provided in the product data. For warranty details, technical support, or service inquiries, please contact your vendor or the manufacturer directly. Keep your purchase receipt as proof of purchase.

