

Aoleaby PM5100

Aoleaby PM5100 Power Meter Instruction Manual

Model: PM5100 (METSEPM5100)

1. INTRODUCTION

The Aoleaby PM5100 Power Meter (METSEPM5100) is a feature-rich instrument designed for precise measurement and analysis of electrical power parameters. It is suitable for various industrial and scientific applications requiring accurate monitoring of power consumption and quality.

Key features include:

- Comprehensive power and energy metering capabilities.
- Digital input and output for monitoring and control relays.
- Modbus 485 communication port for remote monitoring.
- High accuracy (Class 0.5S) for identifying energy savings opportunities.
- Harmonic measurement for power quality management.

2. SAFETY INFORMATION

Please read and understand all safety instructions before installing, operating, or maintaining the PM5100 Power Meter. Failure to follow these instructions may result in serious injury or equipment damage.

- Installation and servicing must be performed by qualified personnel only.
- Ensure all power sources are disconnected before installation or maintenance.
- Use appropriate personal protective equipment (PPE).
- Verify correct wiring and connections to prevent electrical hazards.
- Do not operate the device if it appears damaged.

3. SETUP AND INSTALLATION

The PM5100 Power Meter is designed for panel mounting. Follow these general steps for installation:

1. **Mounting:** Secure the meter into a standard panel cutout.
2. **Power Supply Connection:** Connect the meter to a stable power supply within the specified voltage range (90-450 V AC, 45-65 Hz or 100-300 V DC).

3. **Current Transformer (CT) Connections:** Connect the current transformers to the meter's current inputs (5 A or 1 A line rated current). Ensure correct polarity.
4. **Voltage Connections:** Connect the voltage inputs to the system being monitored.
5. **Communication (Optional):** If using Modbus 485, connect the communication cables to the designated port.
6. **Digital I/O (Optional):** Connect external devices to the digital input/output terminals as required for monitoring or control.

Refer to the detailed wiring diagrams provided with the product packaging for specific connection instructions.

4. OPERATING INSTRUCTIONS

Once installed and powered, the PM5100 Power Meter will display various electrical parameters on its screen. The front panel includes a display and control buttons for navigation.



Figure 1: Front panel of the Aoleaby PM5100 Power Meter.

This image shows the front panel of the Aoleaby PM5100 Power Meter. The display screen shows 'Summary' with readings for average voltage (Vavg), average current (Iavg), total power (Ptot), and delivered energy (E Del). Below the screen are four control buttons. The top right corner of the meter indicates 'Power' and 'PM5100'.

4.1. Display Navigation

The meter's display typically shows a 'Summary' screen with real-time measurements. Use the buttons below the screen to navigate through different measurement screens and settings.

- **Summary Screen:** Displays key parameters such as average voltage (Vavg), average current (avg), total power (Ptot), and delivered energy (E Del).
- **Harmonic Measurement:** The display can show harmonic analysis (e.g., "U-V Harm") for power quality assessment.
- **Buttons:** The four buttons are used for menu navigation, parameter selection, and value adjustment. Consult the detailed user interface guide for specific button functions.

4.2. Remote Monitoring (Modbus 485)

The integrated Modbus 485 communication port allows for remote monitoring and data acquisition. Connect the meter to a Modbus master device (e.g., PLC, SCADA system) and configure the communication settings (baud rate, parity, slave ID) as per your system requirements. Refer to the Modbus communication protocol documentation for detailed register maps and commands.

5. MAINTENANCE

The PM5100 Power Meter is designed for reliable operation with minimal maintenance. Regular checks can help ensure optimal performance.

- **Cleaning:** Keep the meter's front panel clean using a soft, dry cloth. Do not use abrasive cleaners or solvents.
- **Connections:** Periodically inspect all wiring connections for tightness and signs of corrosion.
- **Firmware Updates:** Check the manufacturer's website for any available firmware updates that may improve performance or add features.
- **Calibration:** For critical applications, periodic calibration by a certified laboratory may be required to maintain measurement accuracy.

6. TROUBLESHOOTING

This section provides solutions to common issues encountered with the PM5100 Power Meter.

Problem	Possible Cause	Solution
No display/No power	No power supply; Incorrect wiring; Blown fuse (internal/external)	Check power connections; Verify supply voltage; Inspect fuses.
Incorrect readings	Incorrect CT ratio setting; Incorrect wiring (CT polarity, voltage phase); Meter not calibrated	Verify CT settings; Check wiring diagrams; Consider recalibration.
Modbus communication failure	Incorrect communication settings (baud rate, parity, ID); Wiring issues; Master device problem	Verify Modbus settings on both devices; Check RS485 wiring; Test master device.

If the problem persists after attempting these solutions, contact technical support.

7. SPECIFICATIONS

Parameter	Value
Model Number	METSEPM5110 (Note: Product title indicates PM5100, please verify specific model if discrepancy exists)
Power Quality Analysis	Up to the 15th harmonic
Supply Voltage	90-450 V AC (45-65 Hz), 100-300 V DC
Network Frequency	60 Hz, 50 Hz
Line Rated Current	5 A, 1 A
Maximum Power Consumption	11 VA at 415 V
Measurement Current	5-8500 mA
Accuracy Class	0.5S
Communication Port	Modbus 485
Package Dimensions	1.18 x 0.79 x 0.39 inches
Item Weight	3.31 pounds

Note: Specifications are subject to change without notice. Refer to the product's data sheet for the most current information.

8. WARRANTY AND SUPPORT

For warranty information, please refer to the warranty card included with your product or contact the seller/manufacturer directly. Technical support may be available through the manufacturer's official channels.

Manufacturer: Aoleaby

For further assistance, please visit the Aoleaby official website or contact their customer service department.