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Wengart WGM1PV-250 (125A) DC MCCB Circuit Breaker User Manual

Model: WGM1PV-250 (125A) | Brand: WENGART

1. INTRODUCTION

The Wengart WGM1PV-250 (125A) DC Molded Case Circuit Breaker (MCCB) is specifically engineered for direct current (DC) circuits. It provides essential overload and short-circuit protection in various DC systems. Constructed with an insulating plastic shell, its internal design is optimized for the unique characteristics of DC power, ensuring rapid detection and disconnection of faults to safeguard circuits and connected equipment.

This circuit breaker is widely utilized in applications such as solar photovoltaic power generation systems, DC transmission and power distribution networks, electric vehicle charging stations, data center DC power supplies, rail transit power systems, and marine DC power systems. It is an indispensable safety and protection device for maintaining stable operation and user safety in DC power environments.

Key Features:

- Advanced Protection:** Ensures rapid disconnection during overload or short circuit conditions, enhancing system safety.
- Durability & Reliability:** Designed for long-term stability and minimal maintenance.
- Versatile Application:** Suitable for solar power, EV charging, DC distribution, and other DC systems.
- User-Friendly Design:** Compact size, easy installation, and straightforward wiring.
- Environmental Adaptability:** Operates stably in a wide temperature range (-10°C to 50°C).

2. SAFETY INFORMATION

Please read all safety instructions carefully before installing, operating, or maintaining this device. Failure to follow these instructions may result in serious injury or property damage.

General Safety Precautions:

- Qualified Personnel:** Installation and maintenance should only be performed by qualified electricians or personnel with appropriate electrical training.

- **Power Disconnection:** Always ensure that all power sources are disconnected and locked out before working on the circuit breaker or associated wiring.
- **Proper Tools:** Use insulated tools and appropriate personal protective equipment (PPE) when handling electrical components.
- **Voltage & Current Ratings:** Do not exceed the rated voltage (DC550V) or current (125A) of the circuit breaker.
- **Environmental Conditions:** Install the circuit breaker in an environment that complies with its IP20 protection level and specified temperature range. Avoid exposure to excessive moisture, dust, or corrosive substances.
- **Wiring Integrity:** Ensure all connections are tight and secure to prevent loose contacts, which can lead to overheating or arcing.
- **Test Button:** Regularly test the circuit breaker using the test button as part of routine maintenance to ensure proper operation.

3. PRODUCT OVERVIEW

The Wengart WGM1PV-250 (125A) DC MCCB is designed for clear identification of its components and operational status.

PRODUCT STRUCTURE ANALYSIS

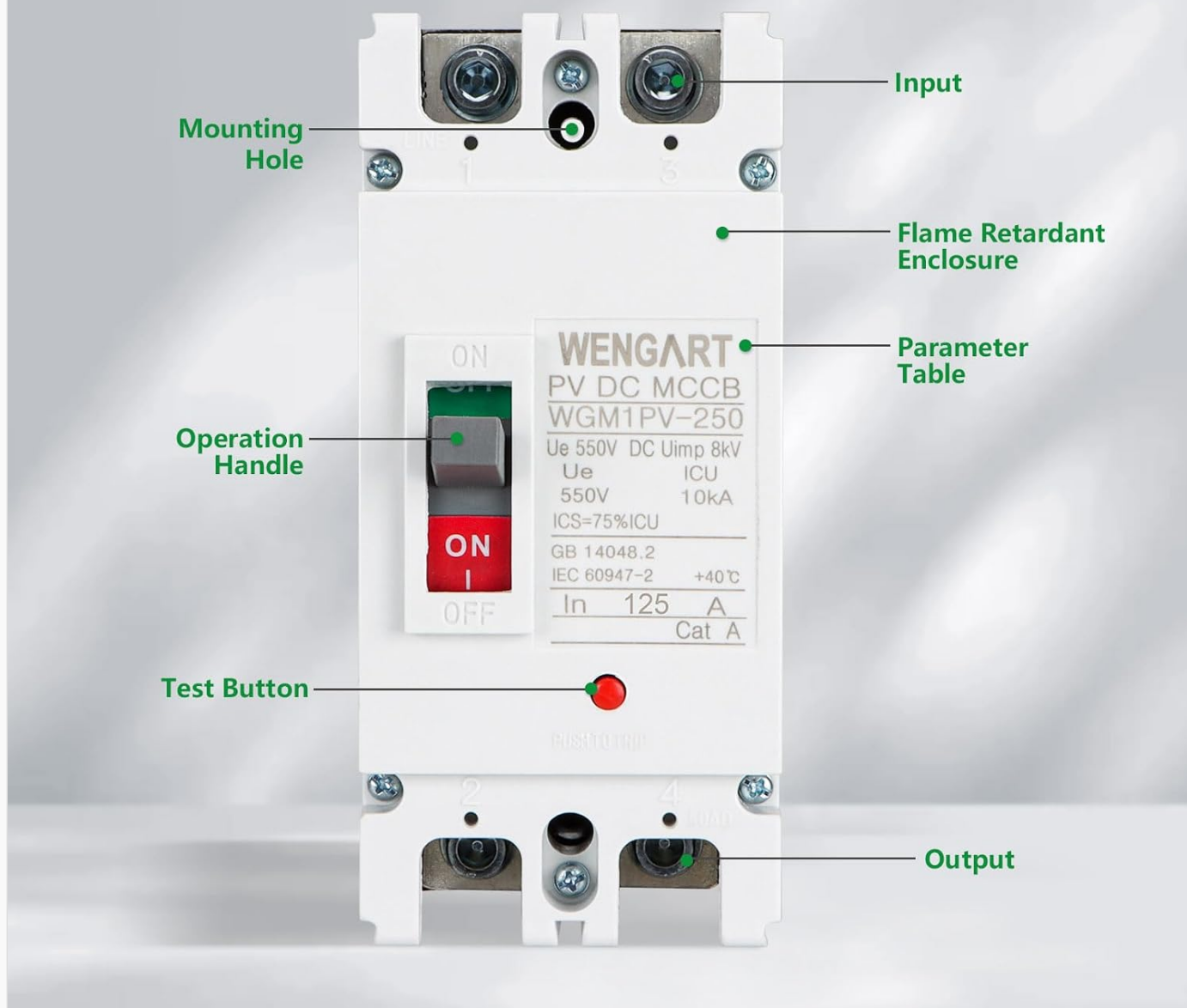


Figure 1: Product Structure Analysis

This image highlights the key components of the Wengart WGM1PV-250 DC MCCB, including the Input, Mounting Hole, Flame Retardant Enclosure, Parameter Table, Operation Handle, Test Button, and Output terminals.

Key Components:

- **Input/Output Terminals:** Points for connecting DC power lines.
- **Operation Handle:** Used to manually switch the circuit breaker ON or OFF.
- **Test Button:** Allows for manual testing of the trip mechanism.
- **Parameter Table:** Displays essential specifications like rated voltage, current, and breaking capacity.
- **Flame Retardant Enclosure:** Provides protection and ensures safety.
- **Mounting Holes:** For secure panel mounting.

4. SPECIFICATIONS

The following table details the technical specifications for the Wengart WGM1PV-250 (125A) DC MCCB Circuit Breaker.

PRODUCT PARAMETERS



Product Name :
PV DC MCCB CIRCUIT BREAKER

Product Model :
WGM1PV-250

Rated Voltage :
DC 550V

Rated Current :
125A

Function :
Overload, Short Circuit Protection

Texture :
PC Flame retardant

Certification :
CE , ISO , RoHS Certification

Figure 2: Product Parameters

This image visually presents the key specifications and dimensions of the Wengart WGM1PV-250 DC MCCB, including its physical size and electrical ratings.

Parameter	Value
Product Name	PV DC MCCB Circuit Breaker
Product Model	WGM1PV-250
Rated Current	125 Amps
Rated Voltage (Ue)	DC 550V
Uimp	8KA

Parameter	Value
Breaking Capacity (ICU)	10KA
Pole Number	2P
ICS	75% ICU
Protection Level	IP20
Operating Temperature	-10°C to 50°C
Product Dimensions (D x W x H)	17.3 x 12.2 x 8.2 cm (6.81 x 4.80 x 3.23 inches)
Item Weight	930 Grams
Mounting Type	Panel Mount
Enclosure Material	PC Flame Retardant
Certifications	CE, ISO, RoHS Certification

5. SETUP & INSTALLATION

Proper installation is crucial for the safe and effective operation of the DC MCCB. Always ensure power is disconnected before beginning installation.

Wiring Diagram:

WIRING DIAGRAM

1Pole 250V



500V Wiring (S-Shape)



Note: L+ L- Power +-  Load - +

Figure 3: Wiring Diagram

This diagram illustrates various wiring configurations for the Wengart WGM1PV-250 DC MCCB, including 1-pole 250V and 500V S-shape wiring. Pay close attention to the polarity (L+ and L-) and load connections. Ensure all connections are secure and follow local electrical codes.

Installation Steps:

- Mounting:** Securely mount the circuit breaker to a panel using the designated mounting holes. Ensure it is in a stable, vibration-free location.
- Wiring:** Connect the DC power input and output lines to the appropriate terminals as shown in the wiring diagram (Figure 3). Use M8 cable lugs for secure connections.
- Tighten Connections:** Ensure all terminal screws are tightened to the recommended torque to prevent loose connections and potential overheating.
- Verify Polarity:** Double-check the polarity of all DC connections (L+ and L-) to avoid damage to the circuit breaker or connected equipment.
- Enclosure:** Ensure the flame retardant enclosure is properly closed after wiring.

6. OPERATING INSTRUCTIONS

The Wengart WGM1PV-250 (125A) DC MCCB is designed for simple operation.



Figure 4: ON-OFF State Indication

This image shows the operation handle positions for the ON (red) and OFF (green) states of the circuit breaker.

Turning ON/OFF:

- **To Turn ON:** Push the operation handle upwards. The indicator will show RED, signifying the circuit is closed and power is flowing.
- **To Turn OFF:** Push the operation handle downwards. The indicator will show GREEN, signifying the circuit is open and power is interrupted.

Test Button:

The test button is located on the front of the circuit breaker. Pressing this button simulates an overload or short-circuit

condition, causing the breaker to trip. This is a crucial function for verifying the breaker's operational integrity.

- **Testing Procedure:** With the circuit breaker in the ON position, press the red test button. The handle should immediately move to the OFF (tripped) position.
- **Resetting:** After a test trip or an actual fault trip, move the handle fully to the OFF position before attempting to reset it to the ON position.

7. MAINTENANCE

Regular maintenance ensures the longevity and reliable performance of your Wengart DC MCCB.

- **Visual Inspection:** Periodically inspect the circuit breaker for any signs of physical damage, discoloration, or loose connections.
- **Cleaning:** Keep the circuit breaker clean and free from dust and debris. Use a dry, non-abrasive cloth for cleaning. Do not use solvents or liquids.
- **Test Functionality:** Perform a functional test using the test button at least once every six months to ensure the tripping mechanism is working correctly.
- **Terminal Tightness:** Periodically check and re-tighten terminal connections if necessary, especially after initial installation and during routine inspections.
- **Environmental Check:** Ensure the operating environment remains within the specified temperature and humidity ranges.

8. TROUBLESHOOTING

This section provides guidance for common issues you might encounter with your DC MCCB.

Circuit Breaker Trips Frequently:

- **Overload:** Check if the connected load exceeds the circuit breaker's 125A current rating. Reduce the load or consider a higher-rated breaker if appropriate for the system design.
- **Short Circuit:** Inspect the wiring and connected equipment for any short circuits. This requires immediate attention and repair by a qualified professional.
- **Ground Fault:** While this MCCB primarily protects against overload and short circuit, a persistent fault could indicate a ground fault in the system.
- **Loose Connections:** Verify all terminal connections are tight. Loose connections can cause localized heating and nuisance tripping.

Circuit Breaker Does Not Reset:

- **Persistent Fault:** The breaker will not reset if the fault (overload or short circuit) is still present. Identify and clear the fault before attempting to reset.
- **Internal Damage:** If no fault is present and the breaker still won't reset, it may be internally damaged and requires replacement.

No Power Output When ON:

- **Input Power:** Check if there is power supplied to the input terminals of the circuit breaker.
- **Wiring:** Verify all wiring connections are correct and secure.
- **Internal Failure:** If input power is present and connections are correct, the breaker may have an internal failure and

needs replacement.

For issues not covered here or if troubleshooting steps do not resolve the problem, please contact customer support.

9. APPLICATIONS

The Wengart WGM1PV-250 (125A) DC MCCB is suitable for a wide range of DC power applications, providing reliable protection for various systems.



Figure 5: Diverse Applications

This image illustrates the broad applicability of the Wengart WGM1PV-250 DC MCCB in various DC power systems, including solar power installations, wind power systems, marine vessels, recreational vehicles (RVs), and DC charging stations.

Common Applications Include:

- **Solar Photovoltaic Systems:** Protection for solar panels, inverters, and battery banks.
- **Wind Power Systems:** Safeguarding DC circuits in wind turbine installations.

- **Electric Vehicle (EV) Charging Stations:** Essential protection for DC charging infrastructure.
- **DC Power Distribution Systems:** General protection in industrial and commercial DC networks.
- **Data Centers:** Ensuring reliable DC power supply to critical equipment.
- **Rail Transit Systems:** Protection for DC traction power and auxiliary systems.
- **Marine & Offshore Platforms:** Robust protection for DC electrical systems in harsh environments.
- **Recreational Vehicles (RVs):** Overload and short-circuit protection for onboard DC systems.

10. WARRANTY & SUPPORT

Wengart products are manufactured to high-quality standards. For specific warranty details, please refer to the product packaging or contact your point of purchase. Keep your purchase receipt as proof of purchase.

Customer Support:

If you have any questions, require technical assistance, or need to report an issue, please contact Wengart customer support through the retailer where you purchased the product or visit the official Wengart website for contact information.

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