DIHOOL HT3-10A

DIHOOL AC DC Circuit Breaker with IP65 Din Box (10 Amp) - User Manual

Model: HT3-10A

1. Introduction

This manual provides essential information for the safe and effective installation, operation, and maintenance of your DIHOOL AC DC Circuit Breaker with IP65 Din Box. This device is designed to provide protection for various electrical systems, including photovoltaic solar panel arrays, solar charge controllers, batteries, power inverters, household lighting, and small motor control applications.
The circuit breaker features a robust IP65-rated enclosure, multiple protection mechanisms, and a non-polarized design for simplified wiring. Please read this manual thoroughly before installation and use.

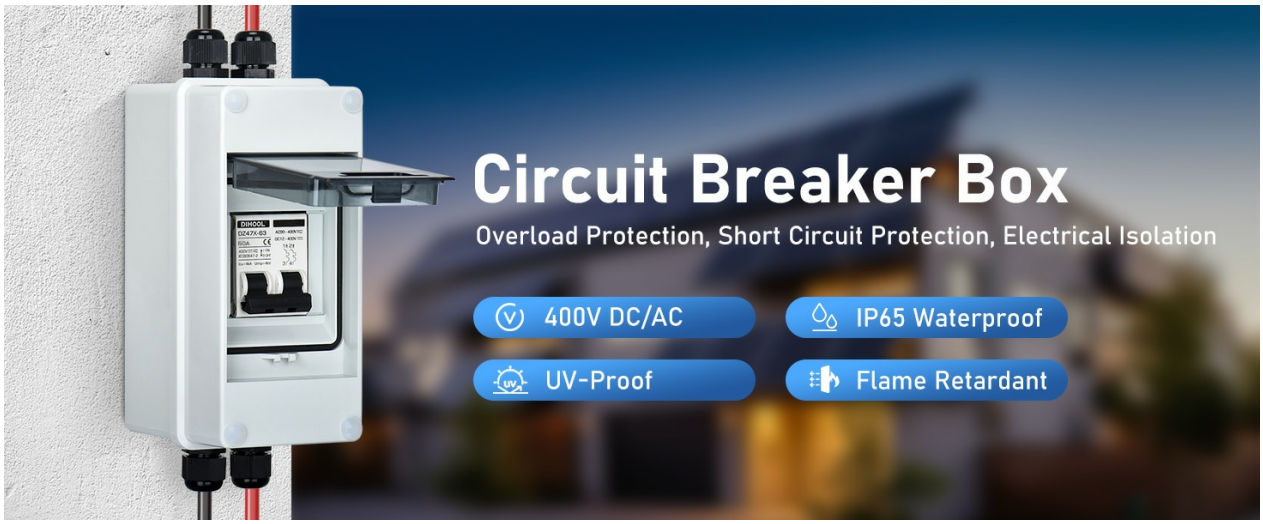


Image 1.1: Overview of the DIHOOL Circuit Breaker Box, highlighting overload protection, short circuit protection, and electrical isolation.

2. Safety Information

WARNING: Electrical work should only be performed by qualified personnel. Failure to follow these safety instructions may result in electric shock, fire, or serious injury.

- Always disconnect power before installing or servicing the circuit breaker.
- Ensure all wiring complies with local and national electrical codes.
- Do not exceed the specified voltage and current ratings of the device.
- Verify all connections are secure to prevent loose contacts and overheating.
- Keep the enclosure lid closed and sealed to maintain IP65 protection.
- Do not modify the circuit breaker or its enclosure.

3. Product Features

- **IP65 Circuit Breaker DIN Rail Box:** Constructed from durable PC+ABS material, offering high impact resistance, high heat resistance, and excellent dimensional stability. It is V1 grade flame retardant, resistant to acid, alkali, solvents, and UV radiation. The transparent cover allows for easy visual inspection of the circuit breaker status. This 3-way box provides ample space for convenient wiring and installation.
- **Miniature Circuit Breaker:** Features a built-in arc squelching magnet for high arc extinction, a flame-retardant enclosure, silver contacts, and pure copper coils to ensure high quality and reliable performance.
- **Multiple Protection:** Provides isolation, short circuit protection (for 48-400V DC or 90-400V AC systems), and overload protection with a C-curve trip characteristic and thermal magnetic trip mechanism. It is suitable for systems ranging from 12V-400V DC or 90-400V AC.
- **Non-Polarized Design:** The circuit breaker does not require polarity distinction, allowing for connection in either direction. This simplifies installation and reduces wiring errors, making it ideal for applications where polarity may reverse, such as reversible motors, battery charge/discharge switching, bidirectional current protection (EV charging/discharging circuits, solar power systems), and industrial reversible drive systems.
- **Wide Cable Range:** Includes two types of IP68 cable glands. One-hole glands are suitable for 2-conductor wires ranging from 9-16mm (0.35-0.63 inches). Two-hole glands are suitable for wires ranging from 4-6mm (0.15-0.23 inches).

Image 3.1: High-quality housing features, including flame retardancy, UV resistance, and IP65 waterproof rating.

Image 3.2: Comparison of IP44 and IP65 waterproof ratings, showing the enhanced dust-proof and splash-proof design.

Image 3.3: Details on the upgraded shell material (ABS+PC+Flame retardant) for improved outdoor use, UV-proof, impact resistance, and longer service life.

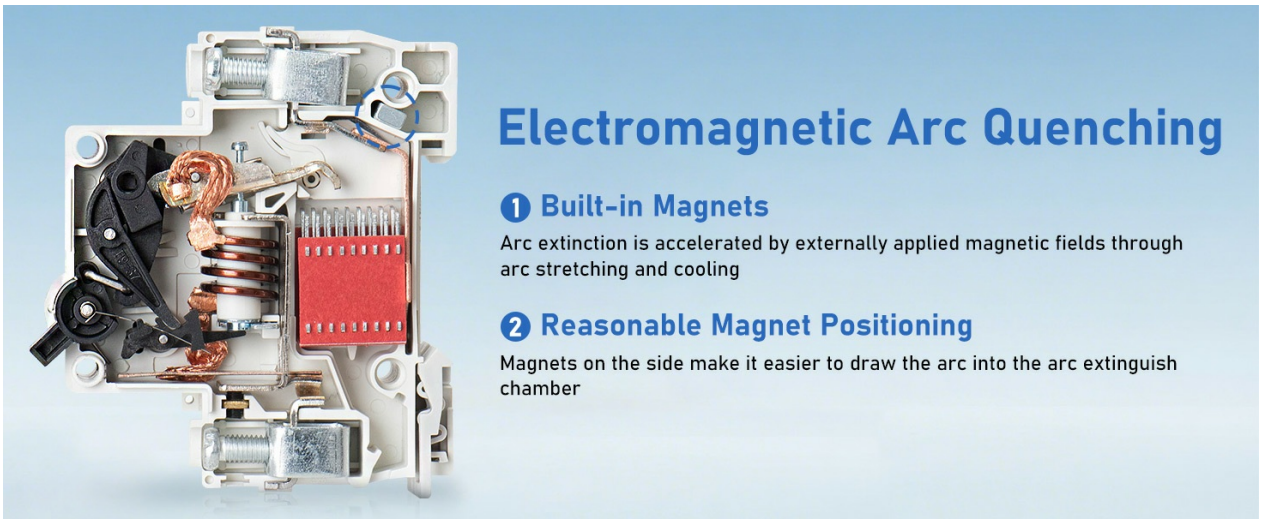


Image 3.4: Illustration of the electromagnetic arc quenching mechanism with built-in magnets for accelerated arc extinction.

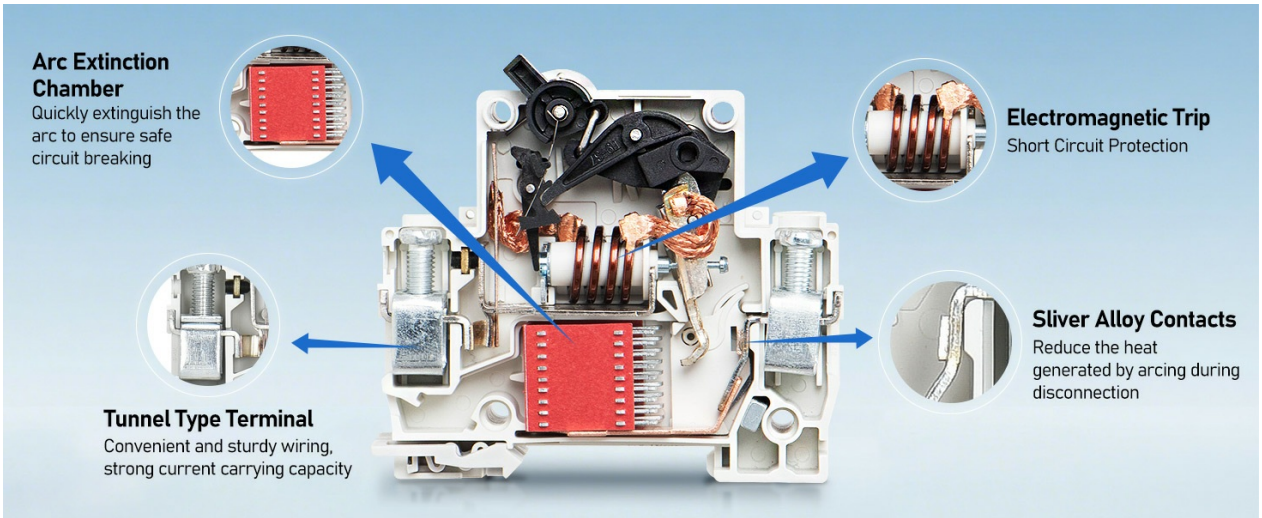


Image 3.5: Detailed view of the circuit breaker's internal components, including the arc extinction chamber, electromagnetic trip, silver alloy contacts, and tunnel type terminal.

4. Package Contents

Verify that all items are present in the package:

- 1x DIHOOL AC DC Circuit Breaker with IP65 Din Box (10 Amp)
- 2x Mounting Screws
- 4x Crimp Ferrules for wiring
- 4x Rubber Plugs for screw holes
- 1x Insulating Tape
- Cable Glands (quantity and type as per order)

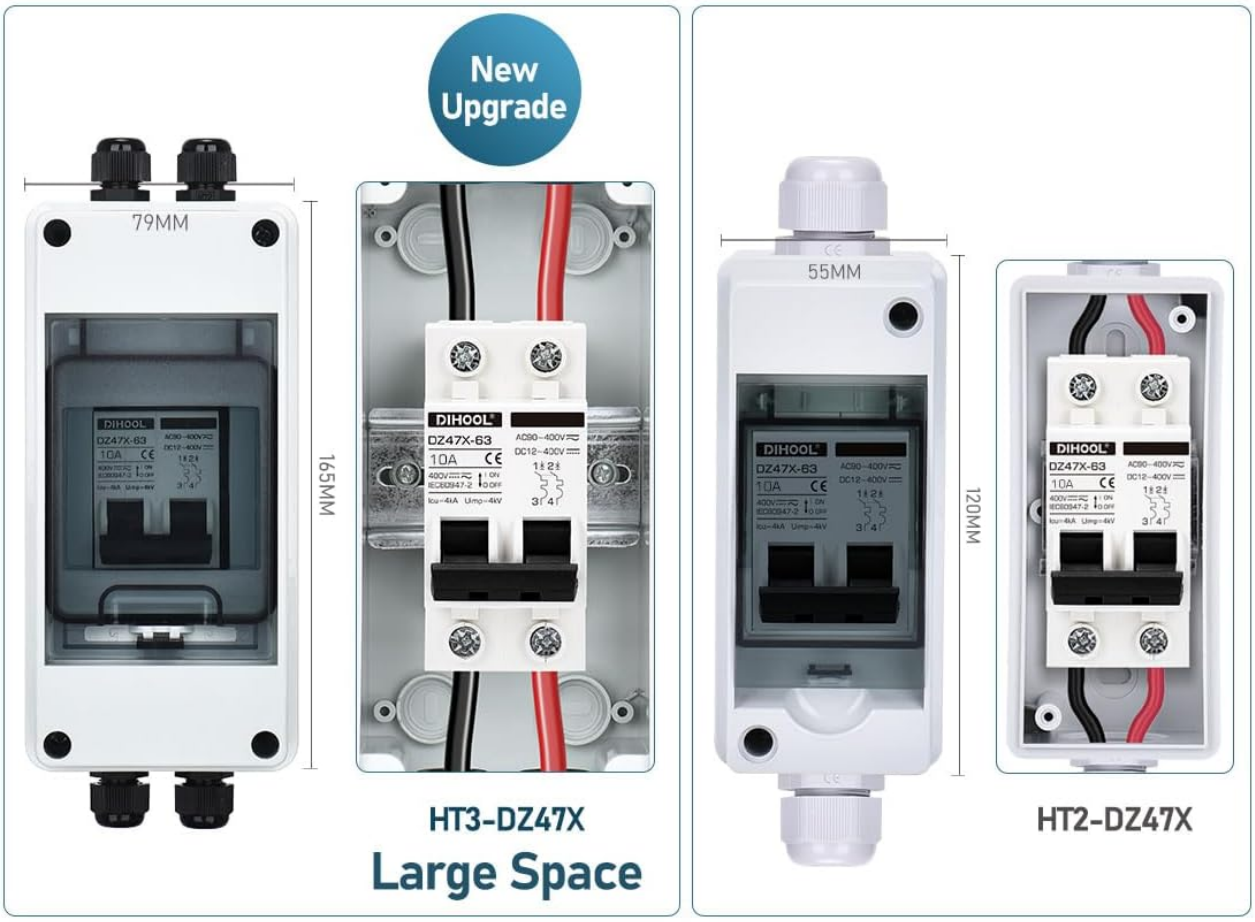
Image 4.1: Visual representation of the package contents, including the circuit breaker box, cable glands,

screws, crimp ferrules, and insulating tape. Also shows box dimensions.

5. Specifications

Attribute	Value
Brand	DIHOOL
Model Number	HT3-10A
AC Adapter Current	10 Amps
Material	Acrylonitrile Butadiene Styrene (ABS), Polycarbonate (PC)
Number Of Circuits	2
Phase Type	Single Phase
Voltage	12V - 400V (DC), 90V - 400V (AC)
Wattage	120 watts (for 12V system)
Item Weight	1.12 pounds
Product Dimensions	3.86 x 3.15 x 9.77 inches
Mounting Type	Plug-In Mount
UV Proof Level	High (5 stars)

Installation Space



Model	HT3-DZ47X	HT2-DZ47X
Material	ABS+PC	ABS
Circuit Breaker	AC/DC circuit breaker	AC/DC circuit breaker
Rated Voltage Ue	DC 12V-440V or Ac 90V-440V	DC 12V-440V or Ac 90V-440V
Internal Spatial	Bigger	Smaller
Service Life(Indoor)	10-20 Years	5-10 Years
Service Life(Outdoor)	2-10 Years	0.5-2 Years
UV Proof Level	★★★★★	★★★

Image 5.1: Comparison of installation space between HT3-DZ47X (larger) and HT2-DZ47X (smaller) models, highlighting dimensions and material differences.

6. Setup and Installation

Follow these steps for proper installation of your circuit breaker box:

1. **Prepare the Mounting Surface:** Choose a suitable location for mounting. For outdoor installations, **vertical mounting is crucial** to prevent water ingress through panel gaps.
2. **Drill Mounting Holes:** Open the lid of the waterproof box. Use the box as a template to mark the screw

hole positions on the wall. Drill holes with an appropriate drill bit and insert expansion tubes if necessary.

3. **Mount the Box:** Fix the box to the wall using the provided screws.
4. **Install Cable Glands:** Insert the waterproof cable glands into the designated holes on the box. Screw the lock nut tightly from the inside.
5. **Wire Connections:**
    - Strip the insulation from your cables to the appropriate length.
    - Insert the cable through the gland and connect it to the circuit breaker terminals. Use the provided crimp ferrules to ensure tight and secure connections.
    - If the cable is too thin for the gland, use the provided insulating tape to seal the cable with the gland for a waterproof seal.
    - Refer to the wiring diagrams below for AC and DC system connections.
6. **Secure the Lid:** After wiring, cover the circuit breaker box with its lid and fix it with the remaining screws. Insert the rubber plugs into the screw holes on the box cover to prevent rust and enhance waterproofing.

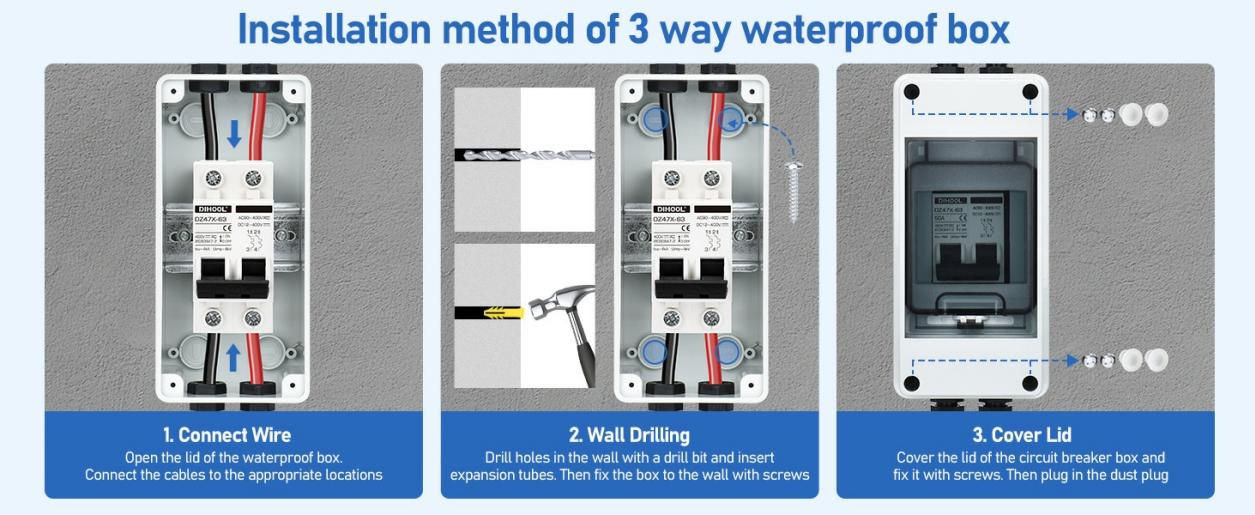


Image 6.1: Step-by-step installation method for the 3-way waterproof box, showing wire connection, wall drilling, and lid covering.

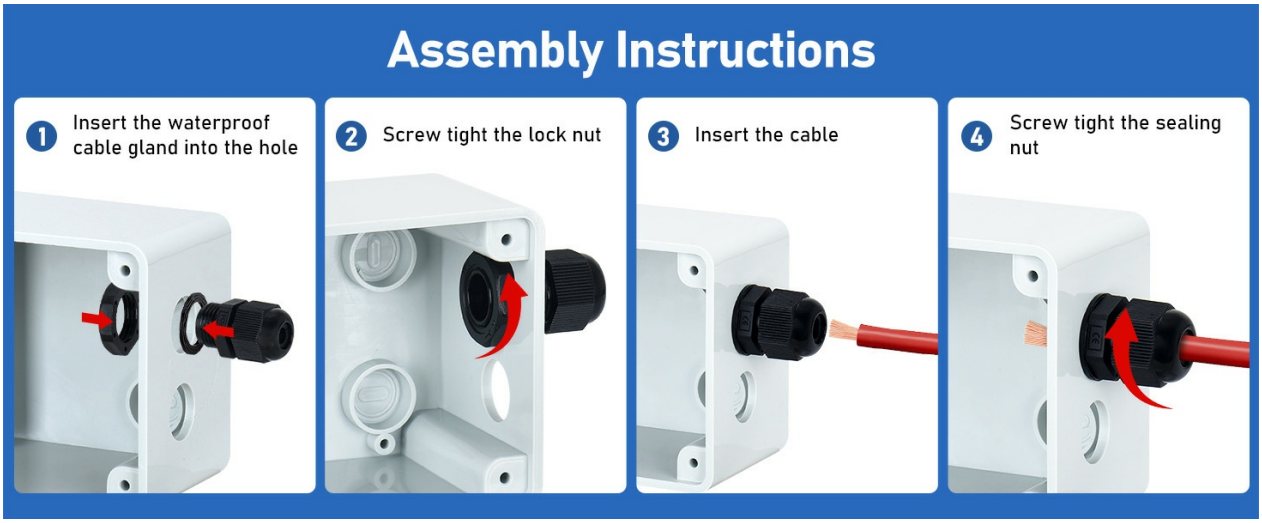


Image 6.2: Detailed assembly instructions for the waterproof cable gland, showing insertion, tightening, cable insertion, and sealing.

Image 6.3: Close-up of screw installation and the waterproof rubber ring, along with cable gland details for 2-10mm² cables.

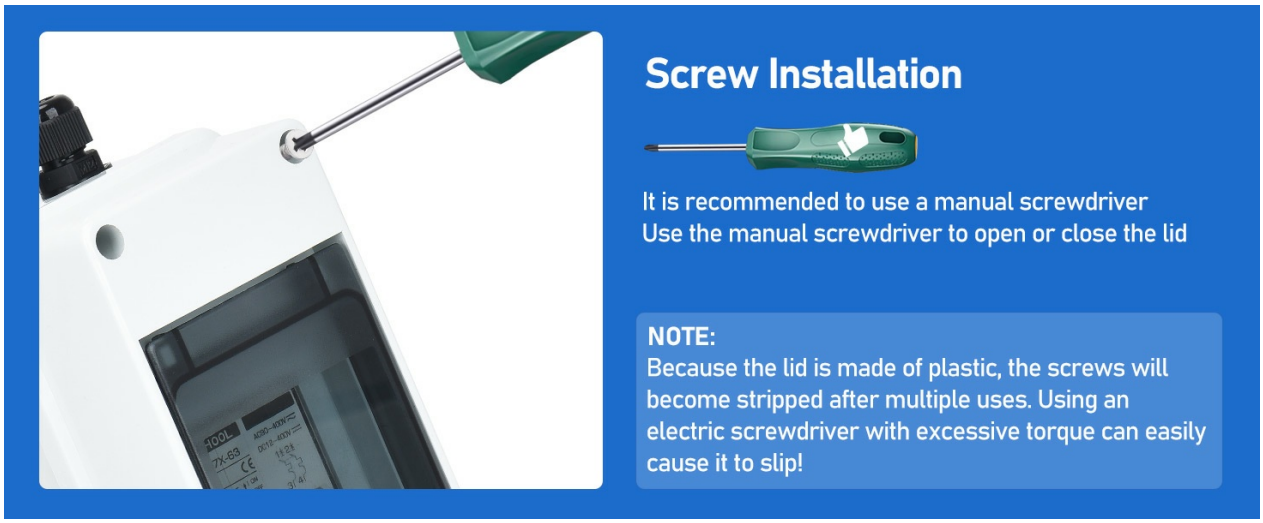


Image 6.4: Important note regarding screw installation: use a manual screwdriver to avoid stripping the plastic lid.

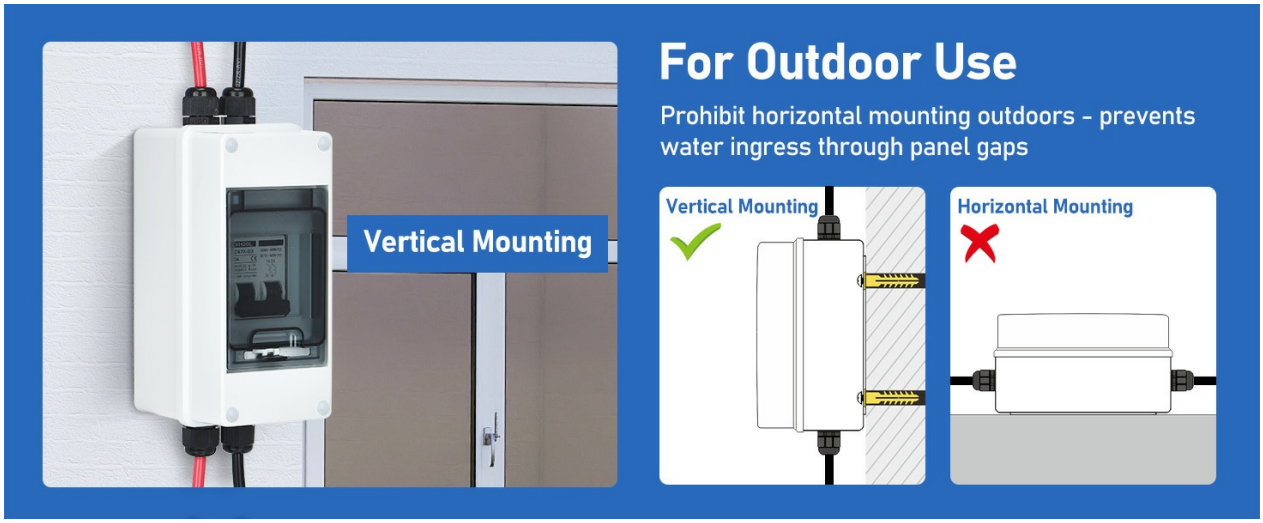


Image 6.5: Illustration emphasizing vertical mounting for outdoor use to prevent water ingress, contrasting with incorrect horizontal mounting.

Wiring Diagrams

The non-polarized design allows for flexible wiring. Below are typical wiring configurations for AC and DC systems.

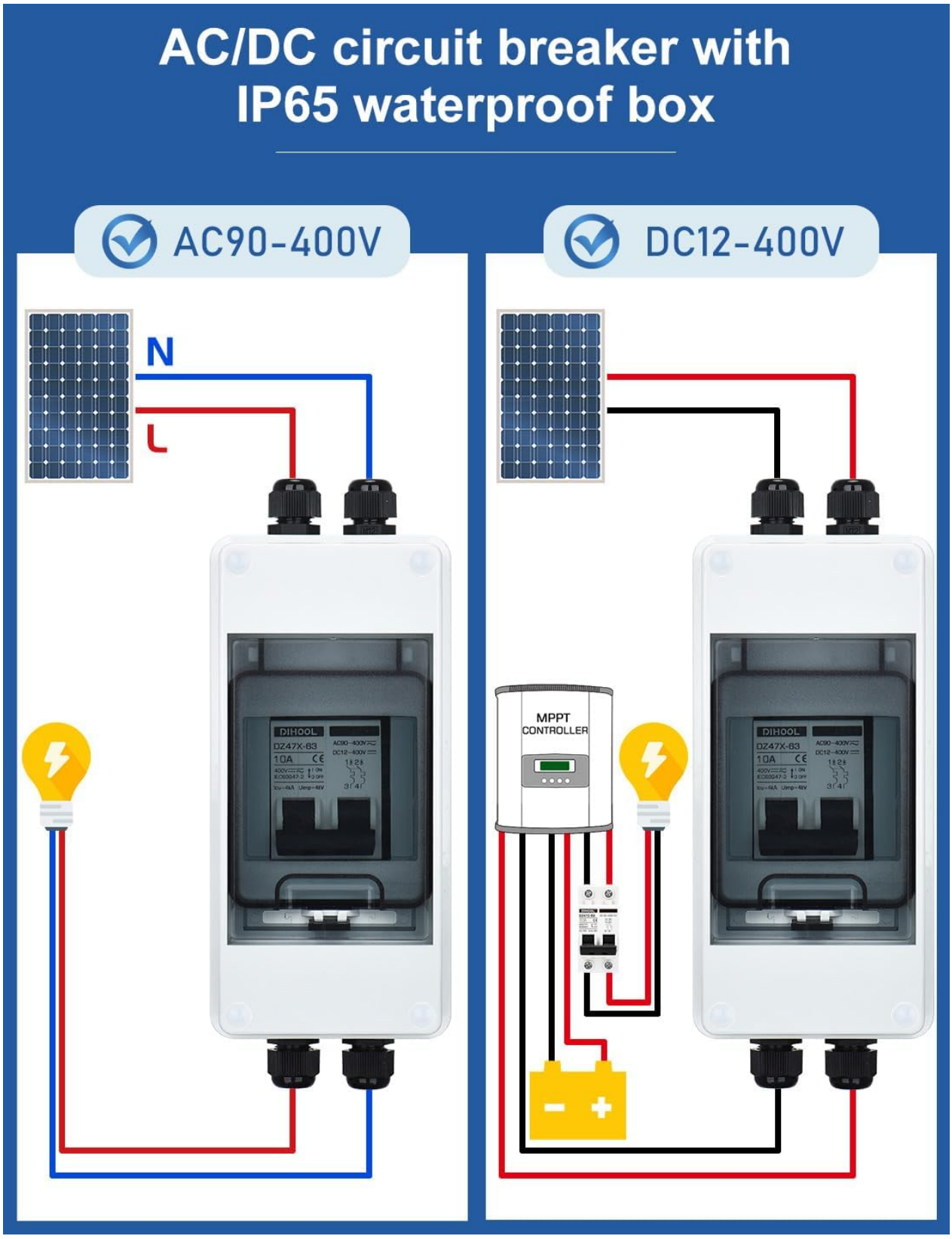


Image 6.6: Wiring diagrams for connecting the circuit breaker in both AC (90-400V) and DC (12-400V) systems, showing connections to solar panels, MPPT controller, battery, and load.

7. Operating Instructions

The DIHOOL AC DC Circuit Breaker operates as a standard miniature circuit breaker. The toggle switch on the breaker indicates its status:

- **ON:** Power is flowing through the circuit.
- **OFF:** Power to the circuit is interrupted.

- **TRIPPED:** The breaker has automatically switched to the OFF position due to an overload or short circuit.

To restore power after a trip, first identify and resolve the cause of the trip. Then, firmly push the toggle switch to the OFF position before pushing it back to the ON position.
Due to its non-polarized nature, the input and output connections are reversible. This means the left/right polarity sequence and the cable in/out direction can be reversed without affecting functionality, simplifying installation in various setups.

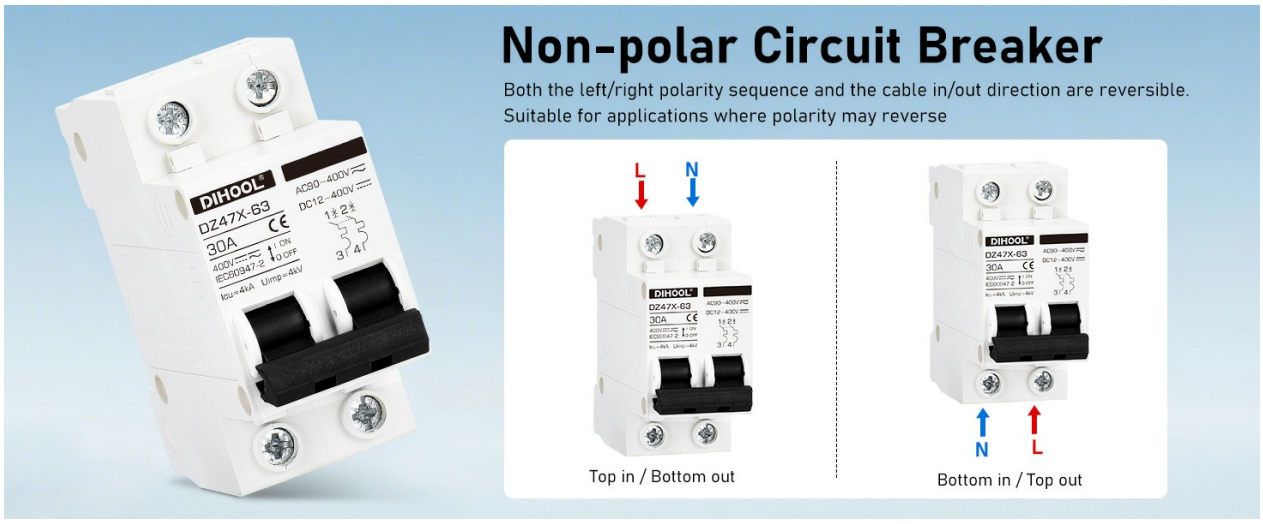


Image 7.1: Illustration demonstrating the non-polar nature of the circuit breaker, allowing for both top-in/bottom-out and bottom-in/top-out wiring configurations.

8. Maintenance

Regular maintenance helps ensure the longevity and reliable operation of your circuit breaker:

- **Visual Inspection:** Periodically inspect the circuit breaker box for any signs of physical damage, cracks, or discoloration. Check the transparent lid for clarity.
- **Connection Check:** Ensure all wire connections remain tight and secure. Loose connections can lead to overheating and potential hazards.
- **Cleanliness:** Keep the exterior of the box clean and free from dust, dirt, and moisture. Use a soft, dry cloth for cleaning. Do not use abrasive cleaners or solvents.
- **Seal Integrity:** Verify that the cable glands and rubber plugs for the screw holes are properly seated and sealed to maintain the IP65 waterproof rating.

9. Troubleshooting

If you encounter issues with your circuit breaker, consider the following common troubleshooting steps:

- **Breaker Trips Frequently:**
  - **Overload:** The connected load may be drawing too much current. Reduce the load or ensure the circuit capacity matches the demand.
  - **Short Circuit:** A direct connection between live and neutral/ground wires. Inspect wiring for damage, loose connections, or faulty appliances.
  - **Faulty Appliance:** Disconnect appliances one by one to identify a malfunctioning device.
- **No Power to Circuit:**

- **Breaker in OFF position:** Check if the breaker is simply switched off.
- **Loose Connections:** Inspect all wiring connections within the box and at the load for tightness.
- **Upstream Power Issue:** Check the main power supply or any upstream breakers/fuses.

- **Water Inside Box:**
  - **Improper Gland Installation:** Ensure cable glands are tightened correctly around the cables.
  - **Missing Rubber Plugs:** Verify all screw holes on the lid have their rubber plugs inserted.
  - **Horizontal Mounting (Outdoor):** If mounted horizontally outdoors, water can ingress. Re-mount vertically.
  - **Damaged Enclosure:** Inspect the box for cracks or damage that could compromise the seal.

If the problem persists after performing these checks, consult a qualified electrician.

10. Warranty Information

This DIHOOL AC DC Circuit Breaker comes with a**2-year warranty** from the date of purchase. This warranty covers defects in materials and workmanship under normal use. It does not cover damage resulting from improper installation, misuse, unauthorized modifications, or acts of nature.
Please retain your proof of purchase for warranty claims.

11. Support

For technical assistance, product inquiries, or warranty claims, please contact DIHOOL customer support through the retailer where the product was purchased or visit the official DIHOOL website for contact information.
When contacting support, please have your product model number (HT3-10A) and purchase details readily available.