

DIHOOL 1

DIHOOL Solar Panel Disconnect Switch Box (1 String 1000VDC) User Manual

Model: 1 String 1000VDC

1. INTRODUCTION

This manual provides essential information for the safe and efficient installation, operation, and maintenance of your DIHOOL Solar Panel Disconnect Switch Box. Please read this manual thoroughly before installation and retain it for future reference. This device is designed to protect photovoltaic (PV) systems, specifically for RV applications with a single string up to 1000VDC.

2. SAFETY INFORMATION

WARNING: Installation and maintenance should only be performed by qualified personnel. High DC voltage is present and can cause severe injury or death. Always disconnect power sources before servicing.

- Ensure all power sources are disconnected before installation or maintenance.
- Verify voltage and current ratings of your solar array match the specifications of this device.
- Use appropriate personal protective equipment (PPE), including insulated gloves and eye protection.
- Do not open the enclosure or attempt repairs if you are not qualified.
- Ensure proper grounding of the system.

3. PRODUCT OVERVIEW AND PACKAGE CONTENTS

The DIHOOL Solar Panel Disconnect Switch Box is an IP65-rated enclosure containing a 40 Amp DC circuit breaker and a 20-40kA 2P DC1000V surge protector. It is designed for outdoor use and offers protection against overcurrent and lightning strikes in a single string PV system.



Figure 3.1: DIHOOL Solar Panel Disconnect Switch Box and accessories. This image shows the main disconnect switch box along with MC4 connectors, mounting screws, wall anchors, and a grounding wire.

Package Contents:

- 1x IP65 Waterproof Housing (PC+ABS material)

- 1x Surge Protector DC 1000V 2P 20kA / 40kA Type 2
- 1x Solar Disconnect Switch 2-pole DC1000V 40A
- MC4 Connectors (for Type B wiring)
- Mounting Screws and Wall Anchors
- Grounding Wire

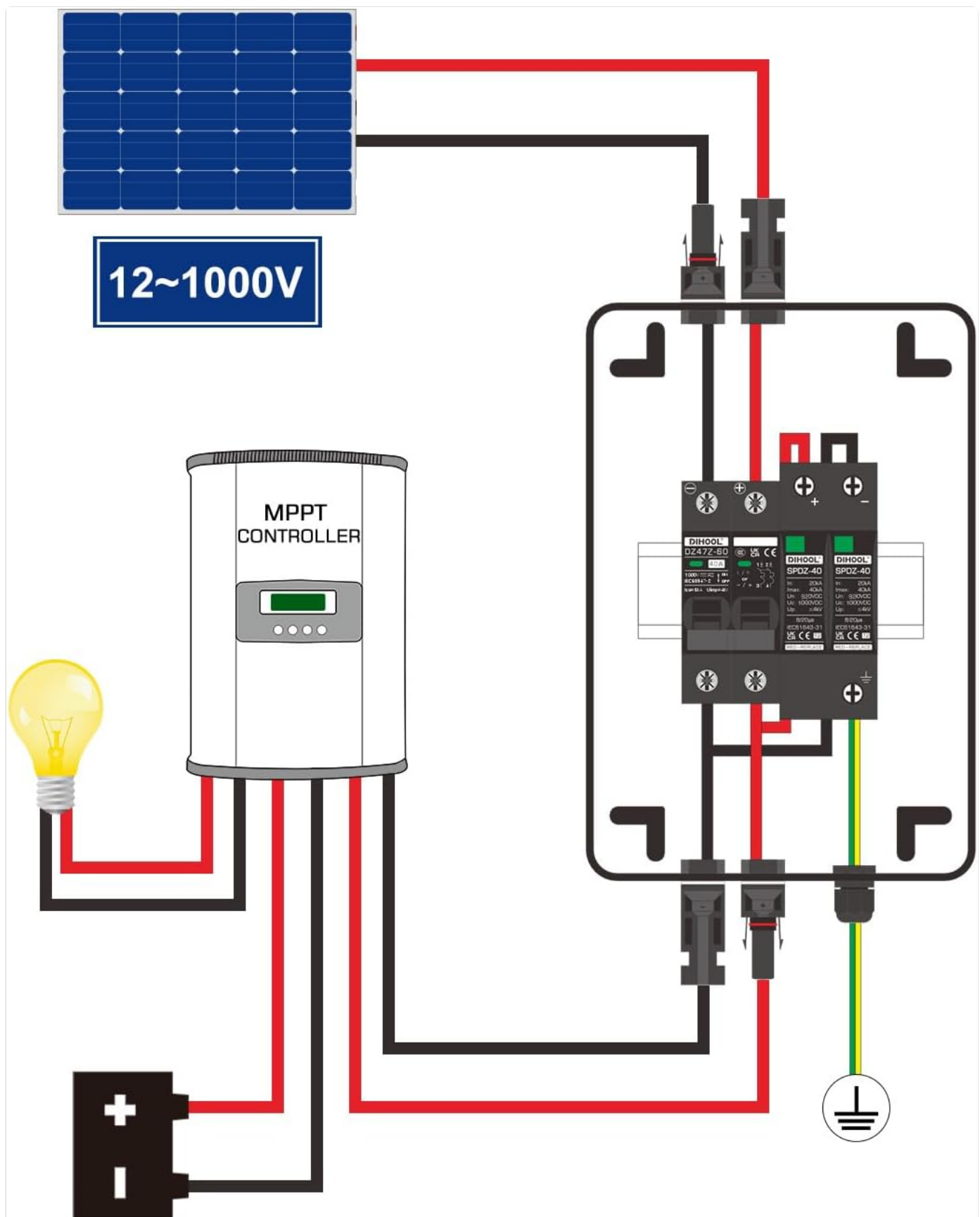


Figure 3.2: Detailed view of the disconnect switch box, showing the internal circuit breaker and surge protector, along with external connectors and mounting hardware.

Product Features:

- **Durable Enclosure:** Constructed from high-quality PC+ABS engineering plastics, offering long service life, IP65 waterproof and dustproof rating, anti-ultraviolet properties, and flame retardancy. Features a transparent viewing window for easy status checks.
- **Fast Arc Extinguishing:** The DC circuit breaker is designed with a robust arc extinguishing capability to safely interrupt high DC voltages.
- **Enhanced Surge Protection:** Utilizes a standard lightning protection chip for effective voltage surge absorption, superior to piezoresistor-based devices.



Figure 3.3: This image compares the PC+ABS material used for the enclosure, highlighting its superior corrosion resistance, heat resistance, and UV resistance compared to standard ABS or iron enclosures, making it suitable for harsh outdoor environments.



Figure 3.4: This image illustrates key features including the fast arc extinguishing capability of the circuit breaker, the flame-retardant properties of the PC+ABS enclosure material, and general wiring considerations.

4. SPECIFICATIONS

Product Dimensions	8.27 x 5.51 x 3.86 inches
Item Weight	3.02 pounds
Brand	DIHOOL

Model Number	1 (1 String 1000VDC)
Material	PC+ABS Engineering Plastics
Ingress Protection (IP) Rating	IP65 (Waterproof and Dustproof)
DC Circuit Breaker	40 Amp, 2-pole, 1000VDC
Surge Protector	20-40kA, 2-pole, 1000VDC
Applicable Voltage Range	DC 12V ~ 1000V
Applicable Cable	6mm ² / 10AWG Cable (for MC4), 5-10mm ² / 10-4AWG Cable (for direct wiring)
Ambient Air Temperature	-25°C ~ 55°C

IP65 Waterproof

Ambient air temperature -25°C~ 55°C



Figure 4.1: Physical dimensions of the DIHOOL Solar Panel Disconnect Switch Box, showing measurements of 140mm width and 285mm height.

IP65

Screw Installation

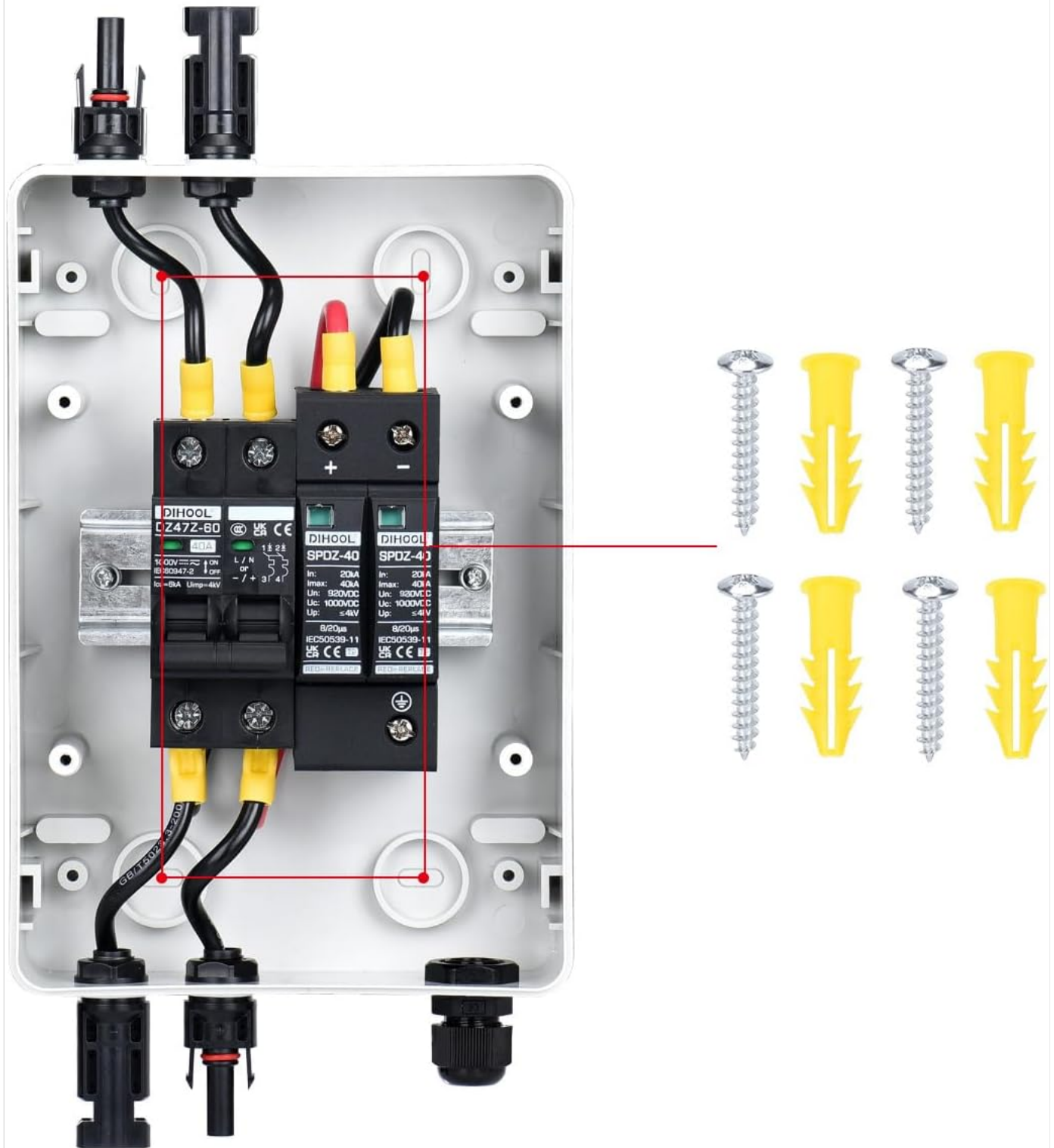


Figure 4.2: Illustration of the IP65 waterproof rating, indicating resistance to various environmental conditions including temperature, snow, and rain.

5. INSTALLATION AND SETUP

5.1 Mounting the Enclosure

The enclosure is designed for screw installation. Select a suitable outdoor location, ensuring it is easily accessible for

operation and maintenance, and protected from direct mechanical impact.

- Mark the drilling points on the mounting surface using the enclosure as a template.
- Drill holes and insert the provided wall anchors.
- Secure the enclosure to the surface using the provided screws.

Applicable Cable

6mm² Cable/10AWG Cable



Figure 5.1: Diagram showing the screw installation points within the enclosure and the included mounting hardware.

5.2 Wiring Methods

The DIHOOL Disconnect Switch Box supports two primary wiring methods:

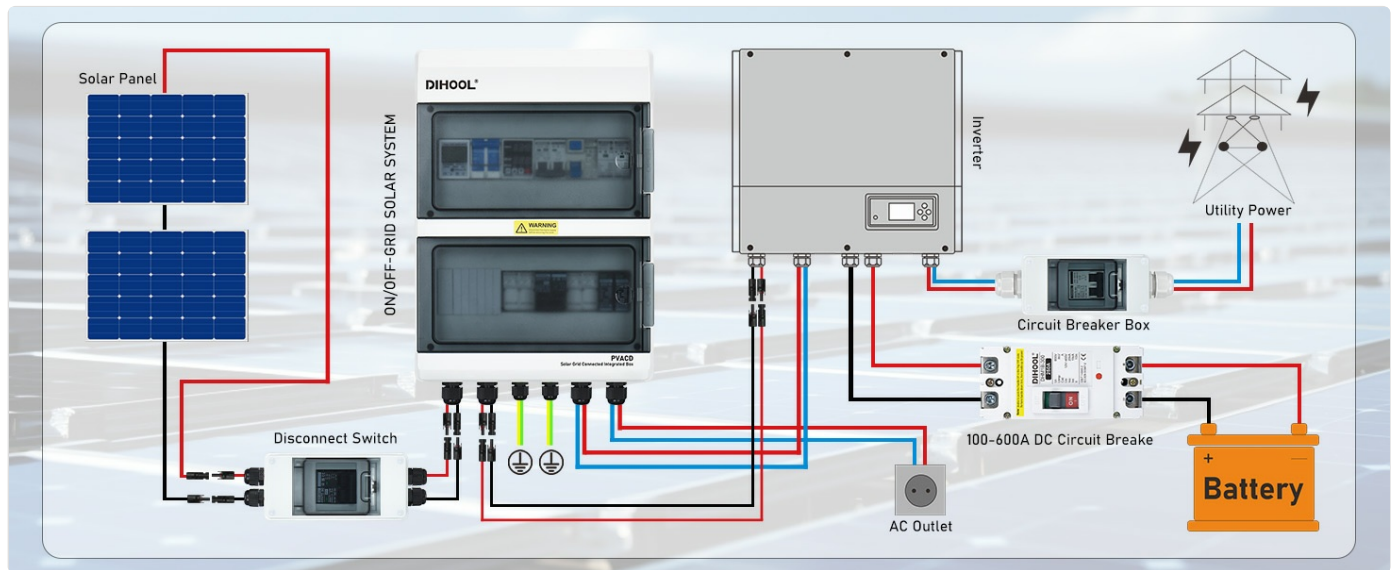


Figure 5.2: Illustration of Type A (direct wiring with cable gland) and Type B (plug-and-play with solar terminals) wiring methods.

Type A: Direct Wiring through Waterproof Connectors and Terminals

- For this method, use 5-10mm² (10-4AWG) cables.
- Feed the cables through the waterproof cable glands at the bottom of the enclosure.
- Strip the cable insulation and crimp appropriate terminals onto the wires.
- Connect the positive (+) and negative (-) wires from the solar panel string to the corresponding terminals inside the box.
- Connect the output wires to your MPPT controller or inverter.
- Ensure all connections are tight and secure.
- Tighten the cable glands to maintain IP65 rating.

Type B: Solar Connectors (MC4) for Plug-and-Play

- This method uses MC4 solar terminals for faster and safer connection.
- Use 6mm² (10AWG) cables with pre-attached MC4 connectors.
- Connect the MC4 connectors from your solar panel string directly to the input MC4 ports on the disconnect box.
- Connect the output MC4 ports from the disconnect box to your MPPT controller or inverter.
- Ensure all MC4 connections are fully seated and locked.

2 Installation Methods

Taking HASPD-2S as an example

Type A



Put the cable gland into the cable and crimp the terminal
Choice Of Cables: 5-10mm² Cable / 10-4AWG Cable

Type B



Solar terminals with cable gland, plug and play.
Choice Of Cables: 6mm² Cable / 10AWG Cable

Figure 5.3: Close-up view of the MC4 solar terminal, indicating compatibility with 6mm² / 10AWG cable.

5.3 System Wiring Diagram

Refer to the following diagram for a typical installation of the disconnect switch box within a solar PV system.

ALL APPLICABLE DC12V~1000V



Figure 5.4: A typical wiring diagram showing the connection of the solar panel disconnect switch box between the solar panel array and an MPPT charge controller, leading to a battery bank. The diagram also illustrates the grounding connection.

5.4 Grounding and Sealing

Proper grounding is crucial for safety. Connect the provided grounding wire from the designated grounding terminal inside the enclosure to a reliable earth ground point. Ensure all cable glands are securely tightened after wiring to maintain the IP65 waterproof and dustproof rating.



Figure 5.5: The image highlights the sealing rubber ring and waterproof cable gland, which contribute to the IP65 rating and protect internal components from moisture and dust.

6. OPERATING INSTRUCTIONS

6.1 DC Circuit Breaker Operation

The integrated DC circuit breaker acts as the main disconnect switch. It is designed to interrupt the DC current from the solar panels to the rest of the system.

- **To Turn ON:** Push the breaker switch to the "ON" position (typically indicated by a color, often red).
- **To Turn OFF:** Push the breaker switch to the "OFF" position (typically indicated by a color, often green). This disconnects the solar array from the system.
- In case of an overcurrent event, the breaker will automatically trip to the "OFF" position. Investigate the cause before resetting.

6.2 Surge Protector Status

The surge protector is designed to protect your system from lightning strikes and voltage surges.

- The surge protector has an indicator light.
- If the indicator light is **green**, the surge protector is functioning correctly.
- If the indicator light turns **red**, it indicates that a lightning strike or significant surge has occurred, and the surge protection module needs to be replaced.



Figure 6.1: This image illustrates the difference between DIHOOOL's surge protector, which uses a standard lightning protection chip for effective voltage release, and other brands that may use less effective piezoresistors.

7. MAINTENANCE

7.1 General Inspection

- Periodically inspect the enclosure for any signs of damage, cracks, or loose connections.
- Ensure the transparent viewing window is clean for clear visibility of the breaker and surge protector status.
- Check that all cable glands are securely tightened.

7.2 Surge Protector Replacement

If the surge protector indicator turns red, the module has absorbed a surge and needs replacement to ensure continued protection.

- **WARNING:** Disconnect all power to the solar array and the system before attempting to replace the surge protector.
- Open the enclosure.
- Carefully remove the old surge protector module from its DIN rail mounting.
- Install a new, compatible surge protector module (DC 1000V 2P 20kA / 40kA Type 2).
- Close the enclosure securely.
- Restore power and verify the new surge protector indicator is green.

7.3 Disassembly of Solar Terminals (MC4)

If you need to disconnect MC4 solar terminals, use an MC4 wrench as shown below:



Figure 7.1: Step-by-step guide for safely disassembling MC4 solar terminals using a specialized MC4 wrench. This process involves preparing the wrench, inserting it into the terminal groove, clamping, and applying force to separate the terminals.

8. TROUBLESHOOTING

Problem	Possible Cause	Solution
No power output from the box.	DC circuit breaker is in the "OFF" or tripped position.	Check the breaker position. If tripped, investigate for overcurrent (e.g., short circuit, overloaded panels) before resetting.
Surge protector indicator is red.	Surge protector has absorbed a voltage surge.	Replace the surge protector module immediately to restore protection.
Loose or intermittent connections.	Wiring not properly secured.	Ensure all MC4 connectors are fully seated and locked. For direct wiring, check terminal tightness and cable gland seals.
Water or dust ingress into the enclosure.	Improperly sealed cable glands or damaged enclosure.	Check and tighten all cable glands. Inspect the enclosure for damage; replace if compromised.

9. WARRANTY INFORMATION







DIHOOOL products are manufactured to high-quality standards. For specific warranty terms and conditions, please refer to the warranty card included with your product or contact DIHOOOL customer support. The warranty typically covers defects in materials and workmanship under normal use.

10. CUSTOMER SUPPORT

If you encounter any issues or have questions regarding your DIHOOOL Solar Panel Disconnect Switch Box, please contact DIHOOOL customer support through the retailer where you purchased the product or visit the official DIHOOOL website for contact information.

For more information about DIHOOOL products, you can visit the [DIHOOOL Store on Amazon](#).

Related Documents - 1

	<p>DIHOOL IPS-S2 DC Motor Controller: Features and Operation</p> <p>Discover the DIHOOL IPS-S2 DC Motor Controller, a versatile device for electric linear actuators. Learn about its integrated photoelectric, RF, and Wi-Fi controls, technical specifications, and setup options for automated systems.</p>
	<p>GEWISS Q-BOX Electrical Panel Declaration of Conformity and Technical Specifications</p> <p>Declaration of Conformity and technical specifications for the GEWISS Q-BOX electrical panel (GW68573F, GW68574), detailing main ratings, harmonized standards, directives, and electrical circuit diagrams.</p>
	<p>Span Panel Installation Manual - 2nd Generation Models</p> <p>Comprehensive installation manual for Span Panel 2nd Generation models (1-00800-xx), covering product specifications, safety instructions, installation procedures, wiring, and troubleshooting. Includes compatibility information and revision history.</p>
	<p>BLOCK EasyB EB-2724/EB-2824 1-Channel DC Circuit Breaker Technical Specifications and Safety</p> <p>Detailed technical specifications, safety instructions, and mounting guide for BLOCK EasyB EB-2724 and EB-2824 1-channel DC circuit breakers. Learn about features, connections, and operational data.</p>
	<p>Siemens Power Protection Devices: MCB, RCCB, MCCB, ACB - Product Overview and Technical Details</p> <p>Comprehensive overview of Siemens SENTRON and SINOVA circuit protection devices, including Miniature Circuit Breakers (MCBs), Residual Current Circuit Breakers (RCCBs), Moulded Case Circuit Breakers (MCCBs), and Air Circuit Breakers (ACBs). Details product portfolios, technical specifications, applications, and safety features.</p>
	<p>Schneider Electric NF Main Circuit Breaker Interiors - 600Y/347 Vac Max Panelboards</p> <p>Detailed specifications for Schneider Electric NF Main Circuit Breaker Interiors, designed for 600Y/347 Vac Max panelboards. This datasheet covers NEMA 1 and water/dirt-resistant enclosures, including part numbers, ratings, and dimensions for I-Line panelboard applications.</p>