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› Hyuduo 4-String PV Combiner Box Solar Protector (DC1000V) Instruction Manual

Hyuduo Hyuduo8raynbsv4x-12 (DC1000V)

Hyuduo 4-String PV Combiner Box Solar Protector (DC1000V) Instruction Manual

Model: Hyuduo8raynbsv4x-12 (DC1000V) | Brand: Hyuduo

1. INTRODUCTION

This manual provides essential information for the safe and efficient installation, operation, and maintenance of your Hyuduo 4-String PV Combiner Box Solar Protector. Please read this manual thoroughly before installation and keep it for future reference. Proper installation and adherence to safety guidelines are crucial for optimal performance and longevity of the product.

Safety Information

- Always ensure power is disconnected before performing any installation or maintenance.
- Installation should be performed by qualified personnel in accordance with local electrical codes and regulations.
- Do not open the combiner box or attempt repairs if you are not qualified.
- Wear appropriate personal protective equipment (PPE) during installation and maintenance.

2. PRODUCT OVERVIEW

The Hyuduo 4-String PV Combiner Box is designed to protect your solar photovoltaic system. It combines the DC input from multiple solar strings into a single output, providing essential protection against short circuits, overcurrents, and surges. Its robust construction and IP65 waterproof rating make it suitable for outdoor installations.



Figure 2.1: A front-angle view of the Hyduo 4-String PV Combiner Box, showcasing its white casing, transparent lid, and four external solar connectors on the bottom right side.



Figure 2.2: A side-angle view of the Hyuduo 4-String PV Combiner Box, showing the transparent lid and the overall robust design suitable for outdoor use.

Key features include a transparent lid for easy status monitoring of the main switch and lightning arrester, and pre-wired cables for simplified installation.

3. SPECIFICATIONS

Item Type	Solar Combiner Box
Material	PC Flame Retardant, ABS
Input	2 Strings
Output	2 Strings
Protection Class	IP65
Impact Resistance	IK10

Cable Input Port	PG 2.5-6mm ² , Solar Connector 2.5-6mm ²
Output Cable Voltage Lock	PG 2.5-6mm ² , Solar Connector 2.5-6mm ²
Maximum Discharge Current	40KA
DC Fuse Socket	Fuse: 10x38mm 15A

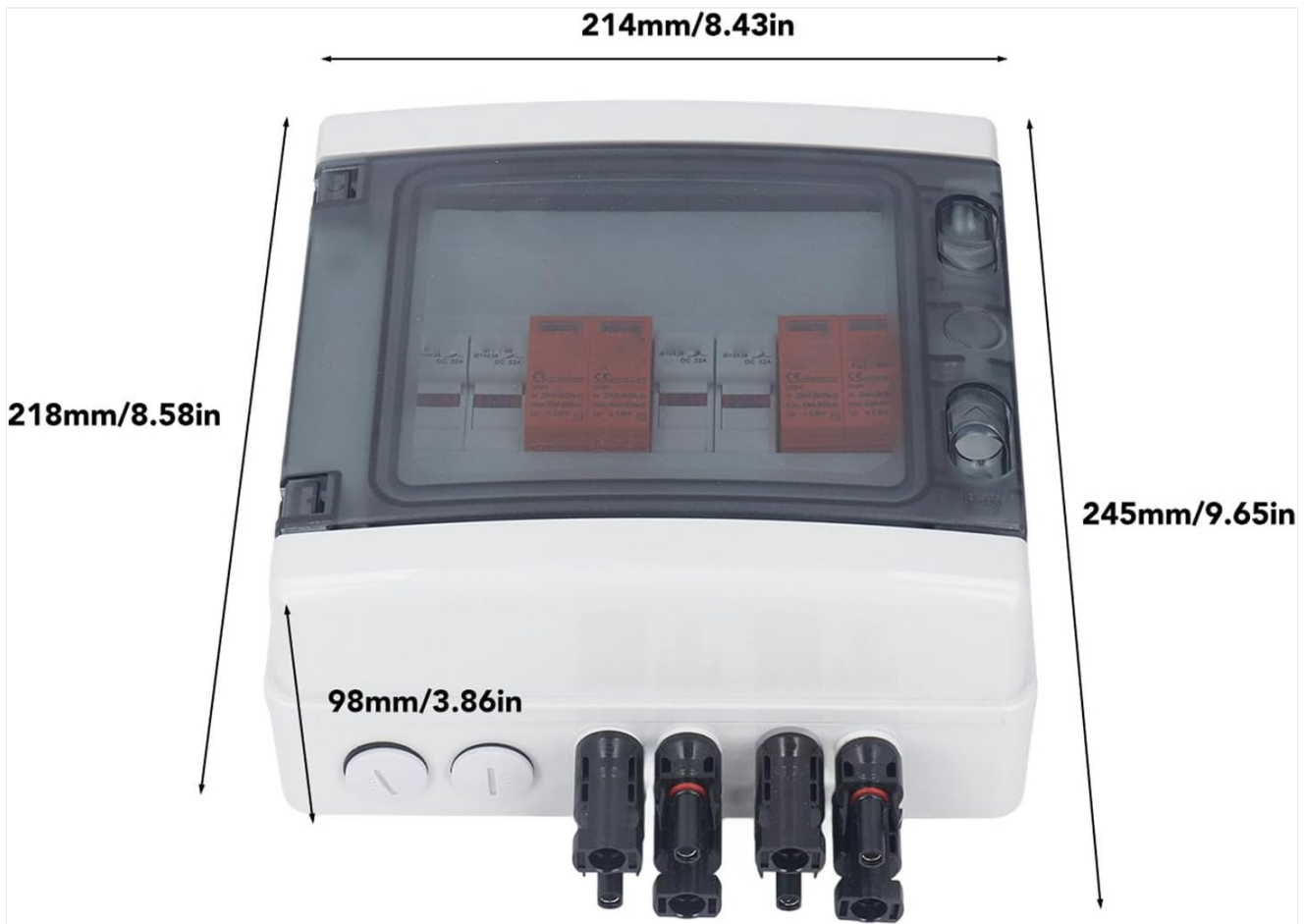


Figure 3.1: An image illustrating the physical dimensions of the Hyduo 4-String PV Combiner Box, with measurements in millimeters and inches for length (214mm/8.43in), height (218mm/8.58in), and depth (98mm/3.86in).

4. PACKAGE CONTENTS

Please verify that all items are present and undamaged upon opening the package:

- 1 x Solar Combiner Box
- 4 x Male Plugs
- 4 x Female Plugs
- 2 x Waterproof Connectors
- 8 x Cores (Terminals)
- 4 x Screws
- 4 x Anchors
- 1 x Solar Special Wrench
- 1 x Instruction Manual (this document)

5. INSTALLATION

The Hyduo PV Combiner Box is designed for easy installation with pre-wired cables and ground wires. Follow these steps for a secure setup:

5.1 Mounting the Combiner Box

1. Choose a suitable location for mounting the combiner box. Ensure it is easily accessible for maintenance and protected from direct sunlight if possible, though its IP65 rating allows outdoor exposure.
2. Use the provided screws and anchors to securely fasten the combiner box to a flat, stable surface. The installation clips allow for quick fixing to any regular surface.



Easy to Install
Equipped with pre wired cables and ground wires, plug and play
And installation clip, can quickly fix the box to any regular surface
Transparent Cover
Can check the status of the main switch and lightning arrester
Widely Applicable
Suitable for various photovoltaic grid connected and off grid power generation systems



Figure 5.1: An image featuring the PV Combiner Box superimposed over a rooftop with solar panels, accompanied by text describing its easy installation, transparent cover for status checks, and wide applicability for photovoltaic systems.

5.2 Wiring Connections

The combiner box supports 2 input strings and 2 output strings. Refer to the diagram below for typical off-grid and on-grid solar system connections.

- Connect the positive (+) and negative (-) cables from your solar panel strings to the designated input terminals within the combiner box.
- Connect the output cables from the combiner box to your inverter or charge controller, ensuring correct polarity.

- Utilize the provided waterproof connectors for all external cable connections to maintain the IP65 rating.
- Ensure all connections are tight and secure to prevent loose contacts and potential hazards.

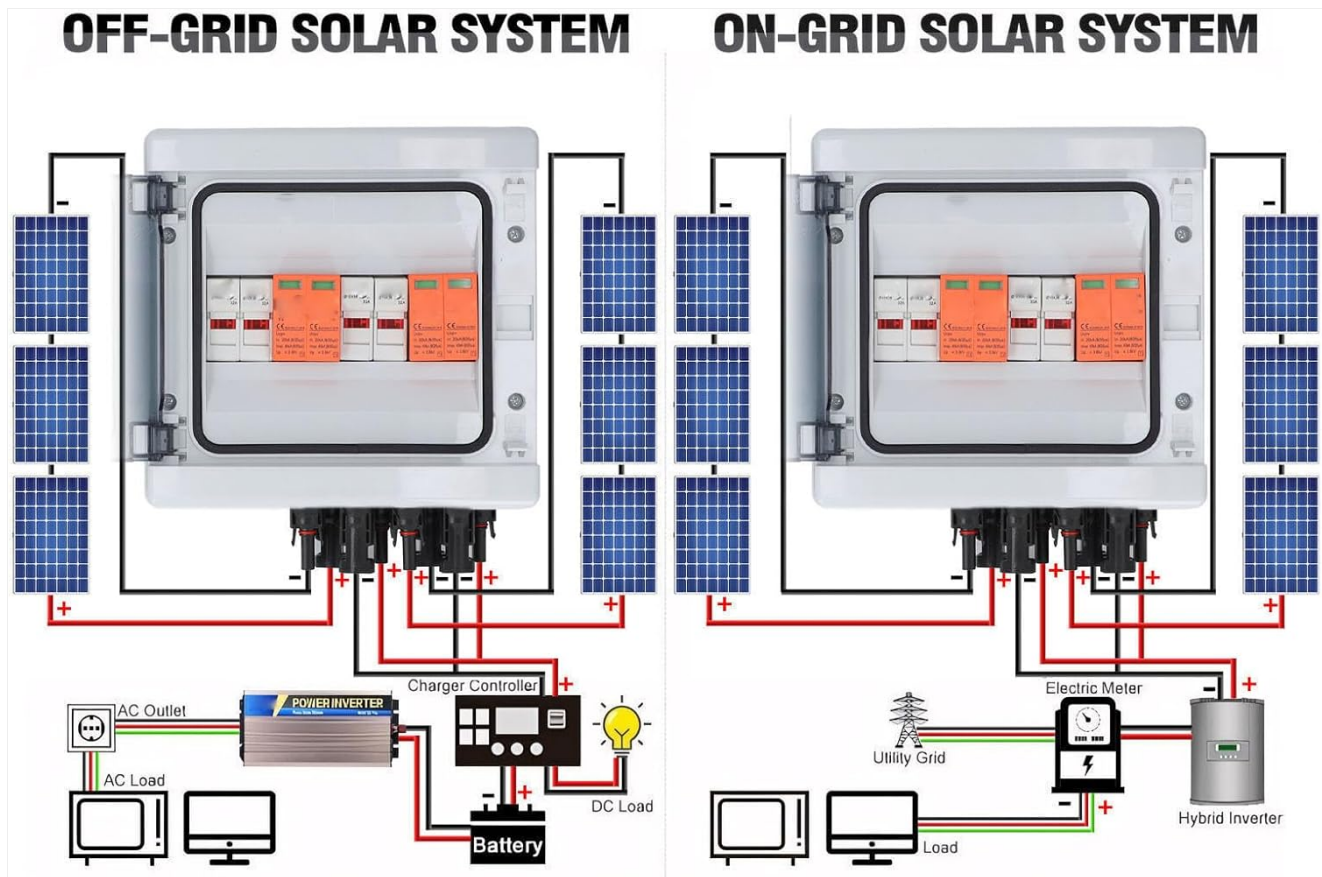


Figure 5.2: A detailed diagram comparing off-grid and on-grid solar power system configurations. Both diagrams show solar panels connected to the combiner box, which then connects to an inverter and other components like batteries (off-grid) or the utility grid (on-grid).

5.3 Initial Check

After all connections are made, double-check all wiring for correctness and security before energizing the system.

6. OPERATION

Once installed and connected, the Hyduo PV Combiner Box operates automatically to protect your solar system. The transparent lid allows for visual inspection of the internal components:

- **Main Switch Status:** Observe the main switch through the transparent cover. Its position indicates whether the circuit is open or closed.
- **Lightning Arrester Status:** The lightning arrester module typically has an indicator. A **green** indicator signifies normal operation, while a **red** indicator suggests the protection module needs replacement.

7. MAINTENANCE

Regular maintenance ensures the continued safe and efficient operation of your PV Combiner Box:

- **Periodic Visual Inspection:** Annually inspect the combiner box for any signs of physical damage, corrosion, or loose connections. Check the integrity of the waterproof seals.
- **Status Check:** Regularly check the status indicator of the lightning arrester through the transparent lid. If it shows **red**, replace the module promptly.
- **Cleaning:** Keep the exterior of the box clean from dust and debris. Use a soft, damp cloth for cleaning. Do not

use abrasive cleaners or solvents.

- **Fuse Replacement:** If a fuse blows, replace it with a fuse of the exact same rating (10x38mm 15A). Always disconnect power before replacing fuses.



Figure 7.1: An image split into two sections: the left shows the combiner box under simulated rain, emphasizing its IP65 waterproof protection. The right side shows the box with a lightning bolt graphic, indicating its surge protection capabilities.

8. TROUBLESHOOTING

This section addresses common issues you might encounter with your PV Combiner Box.

Problem	Possible Cause	Solution
Lightning arrester indicator is red .	The surge protection module has activated due to an overvoltage event and is no longer functional.	Disconnect power to the combiner box. Replace the damaged lightning arrester module with a new one of the same specifications. Reconnect power.

No power output from the combiner box.	Blown fuse(s) or loose wiring connections.	Disconnect power. Check all fuses and replace any blown fuses with 15A fuses. Inspect all wiring connections for tightness and correct polarity. If the issue persists, consult a qualified electrician.
Water ingress or condensation inside the box.	Improperly sealed cable glands or damaged housing/gasket.	Disconnect power. Ensure all cable glands are tightened correctly. Inspect the housing and lid gasket for damage. Replace any damaged components to restore IP65 protection.

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

9. APPLICATIONS

The Hyduo PV Combiner Box is compatible with various solar photovoltaic systems, offering broad applicability for both grid-connected and off-grid power generation setups. It works seamlessly with different brands of solar panels and connectors, making it a versatile component for diverse solar installations.

Wide Applications



Figure 9.1: A collage showing various environments where the PV Combiner Box can be used, including a garage with solar panels, a recreational vehicle (RV) setup, a workshop, and a general outdoor setting, highlighting its versatility.

10. WARRANTY AND SUPPORT

For warranty information, technical support, or service inquiries, please refer to the documentation provided at the time of purchase or contact your retailer. Keep your purchase receipt as proof of purchase.