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Walfront WALFRONT6fpkum5ebr

Walfront DC1000V PV Combiner Box User Manual

Model: WALFRONT6fpkum5ebr

PRODUCT OVERVIEW

The Walfront DC1000V PV Combiner Box is designed to combine the DC output from multiple solar strings into a single output, providing essential protection for your solar power generation system. It features an IP65 waterproof rating, surge protection, and pre-wired components for easy installation.



Figure 1: Internal view of the Walfront DC1000V PV Combiner Box, showcasing its pre-wired components including fuses and circuit breakers.

SAFETY INFORMATION

Always observe safety precautions when working with electrical systems. This device handles high DC voltage (up to 1000V). Ensure power is disconnected before installation or maintenance. Only qualified personnel should perform installation and wiring.

- Disconnect all power sources before servicing.
- Wear appropriate personal protective equipment (PPE).
- Ensure proper grounding.
- Do not operate if the box is damaged or open.

PACKAGE CONTENTS

Verify that all items listed below are included in your package:

- 1 x PV Combiner Box
- 4 x Gasket
- 4 x Long Screw
- 4 x Short Screw
- 4 x Anchor



Figure 2: The PV Combiner Box and its accompanying installation hardware.

SETUP AND INSTALLATION

The PV Combiner Box is designed for wall-mounted installation. Ensure the mounting surface is stable and can support the weight of the box and associated wiring.

Mounting the Box

1. Select a suitable location for installation, away from direct sunlight if possible, but accessible for maintenance. The IP65 rating ensures protection against dust and water jets.
2. Use the provided screws and anchors to securely mount the combiner box to the wall. Ensure the box is level.
3. Utilize the gaskets for the cable entries to maintain the IP65 waterproof rating.



Figure 3: The anchors included for secure wall mounting.

Wiring Connections

The combiner box is pre-wired internally. Connect your solar panel strings to the input terminals and the output to your inverter. Refer to the wiring diagram for correct connections.

1. Connect the positive (+) and negative (-) cables from each solar string to the corresponding input terminals (IN 1, IN 2, IN 3, IN 4). The box supports up to 4 input strings.
2. Connect the output cables from the combiner box (OUT 1, OUT 2) to your inverter. The box has 2 output strings.
3. Ensure all connections are tight and secure to prevent loose contacts and potential hazards.

4. The built-in grounding wire connector should be properly connected to your system's ground.

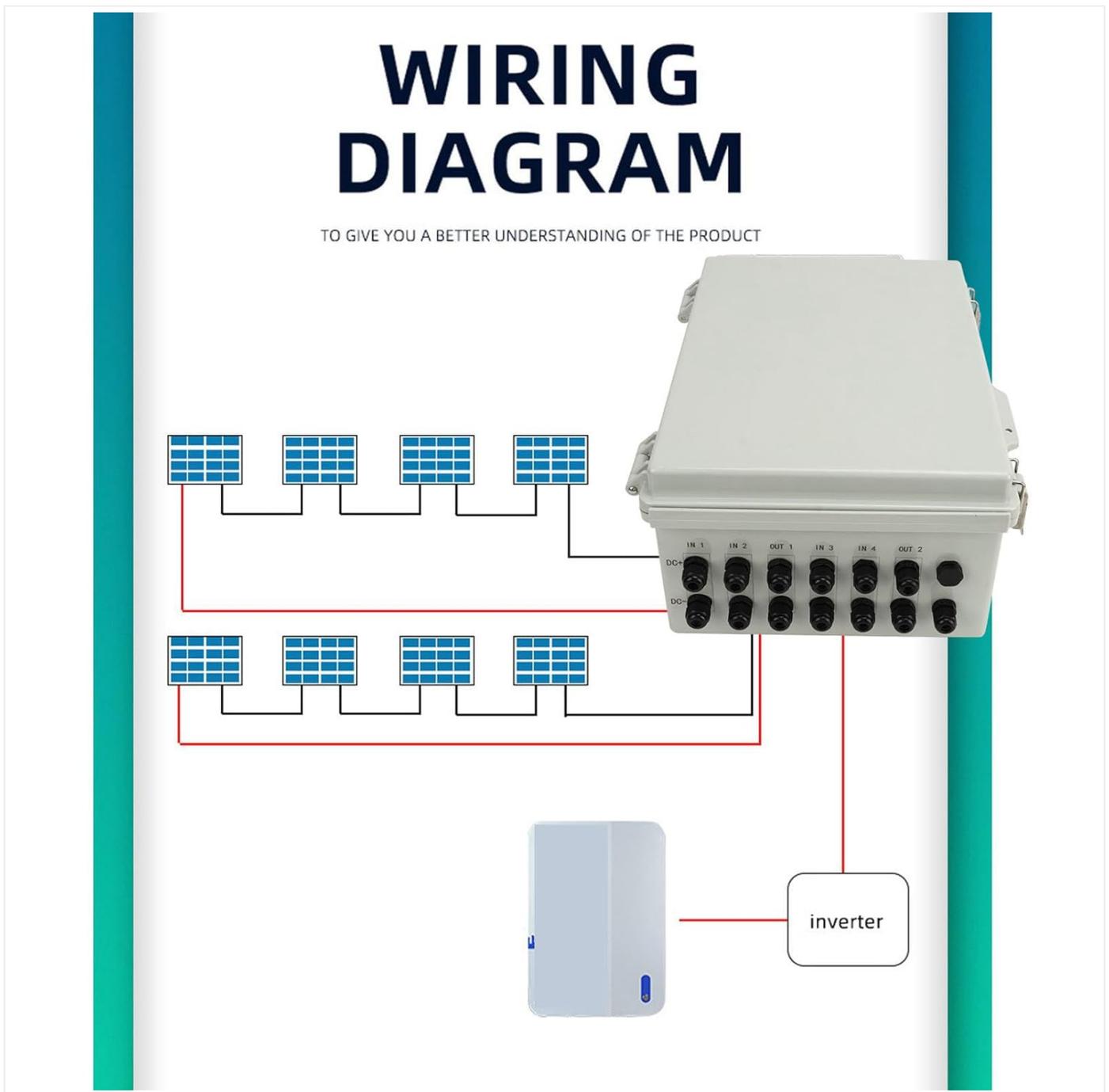


Figure 4: General wiring diagram for connecting solar panels to the combiner box and then to an inverter.

*Standard Wiring
Neat and simple*

*Standard red positive cable and black negative cable
The wiring of the combiner box adopts terminals and wiring blocks, which are safe,
clear, and simple*



Figure 5: Internal wiring detail, highlighting the neat and simple pre-wired connections.



Figure 6: Top view of the combiner box indicating input and output terminals.

OPERATING INSTRUCTIONS

Once installed and wired correctly, the PV Combiner Box operates automatically to combine and protect your solar strings. The internal components provide overvoltage, overcurrent, and short circuit protection.

Circuit Breaker Operation

The 63A circuit breaker provides overvoltage and overcurrent protection. In case of a fault, the breaker will trip, disconnecting the load circuit. To reset, identify and resolve the fault, then push the breaker switch back to the 'ON' position.



PV Combiner Box

*63A Circuit Breaker
With overvoltage and overcurrent protection,
it can cut off and connect load circuits,
providing short circuit fault protection*

*Simple Wiring
Suitable for any traditional surface and
compatible with any brand of solar panels*

Figure 7: The 63A circuit breaker, an essential safety component.

Surge Protection

The high voltage arrester provides surge protection, diverting excess voltage to ground during lightning strikes or other surge events, protecting your connected equipment.

Photovoltaic Dedicated Protection Device

The photovoltaic junction box not only has the function of photovoltaic bus, but also has a series of complete protection functions such as overcurrent protection, overvoltage protection, lightning protection, etc.



Photovoltaic power station system

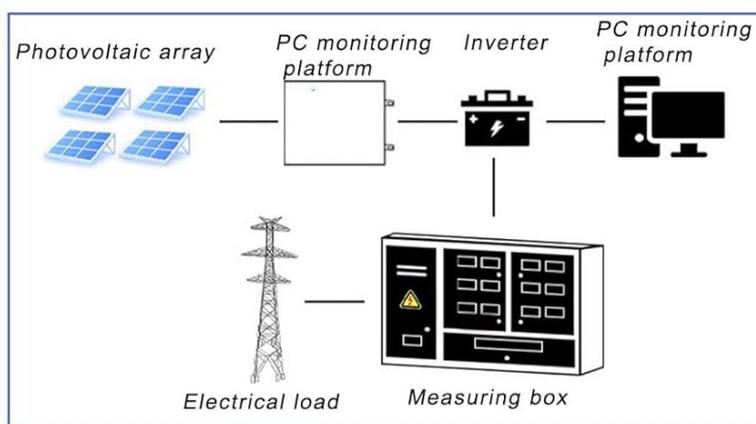


Figure 8: Overview of the protection features integrated into the combiner box.

MAINTENANCE

Regular maintenance ensures the longevity and optimal performance of your PV Combiner Box.

- **Periodic Inspection:** Annually inspect the box for any signs of physical damage, corrosion, or loose connections.
- **Cleaning:** Keep the exterior of the box clean from dust and debris. Use a damp cloth; do not use abrasive cleaners.
- **Terminal Check:** Periodically check all terminal connections for tightness. Loose connections can lead to overheating and system inefficiency.
- **Fuse Replacement:** If a fuse blows (15A fuse), replace it with a fuse of the same rating and type. Always disconnect power before replacing fuses.

TROUBLESHOOTING

This section provides solutions to common issues you might encounter.

Problem	Possible Cause	Solution
No power output from combiner box.	Circuit breaker tripped; Blown fuse; Loose wiring connection; No input from solar panels.	Check and reset circuit breaker; Inspect and replace blown fuses; Verify all wiring connections are secure; Check solar panel output.
Water ingress into the box.	Improperly sealed cable glands/gaskets; Damaged enclosure.	Ensure all cable glands are tightened and gaskets are properly seated; Inspect the enclosure for cracks or damage and replace if necessary.
Overheating of components.	Loose connections; Overload; Insufficient ventilation.	Tighten all electrical connections; Ensure total current does not exceed box ratings; Verify proper air circulation around the box.

SPECIFICATIONS

Detailed technical specifications for the Walfront DC1000V PV Combiner Box:

Parameter	Value
System Maximum DC Voltage	1000V
Maximum Input Current Per Group	15A
Maximum Input String	4
Maximum Output Conversion Current	32A
Output String	2
Inverter Maximum Power Point Tracking (MPPT)	2
Nominal Discharge Current (Surge Protector)	20kA
Maximum Discharge Current (Surge Protector)	40kA
Voltage Grade (Surge Protector)	3.6kV
Maximum Continuous Working Voltage (Surge Protector)	1000V
Number of Poles (Circuit Breaker)	3 Poles
Structural Feature	Push in Module
Waterproof and Dustproof Rating	IP65
Box Material	PC, ABS Plastic
Installation Mode	Wall Mounted
Output Conversion	DC Isolation Switch
Waterproof Connector	Waterproof Joint
DC Fuse	Yes (15A)

Parameter	Value
DC Surge Protector	Yes
Dimensions	42.7 x 29.2 x 18.6 cm
Weight	4.35 kg

WARRANTY AND SUPPORT

For warranty information and technical support, please refer to the Walfront official website or contact your point of purchase. Keep your purchase receipt for warranty claims.

Manufacturer: WALFRONT

Model Number: WALFRONT6fpkum5ebr

