



PV Reverse Combiner Box

PVR-10S / PVR-12S / PVR-18S / PVR-24S

Installation Manual

Version 2.0

www.solaxpower.com

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Safety

General Notice

- 1. Contents may be periodically updated or revised. SolaX reserves the right to make improvements or changes in the product(s) and the program(s) described in this manual without the prior notice.
- 2. The installation and maintenance can only be performed by qualified personnel who:
 - Are licensed and/or satisfy state and local jurisdiction regulations;
 - Have good knowledge of this manual and other related documents.
- 3. Before installing the device, carefully read, fully understand and strictly follow the detailed instruction of the installation manual and other related regulations. SolaX shall not be liable for any consequences caused by the violation of the installation, and operation regulations specified in this document.
- 4. Use insulated tools when installing the device. Individual protective tools must be worn during installation, electrical connection and maintenance.
- 5. Please visit the website www.solaxpower.com of SolaX for more information.

Descriptions of Labels



Do not operate this device until it is isolated from on-site PV generation suppliers.

\Lambda DANGER!

Potential risk of lethal electrical shock associated with the photovoltaic (PV) system

- Exposure to sunlight can result in the generation of high DC voltage by PV modules, which can lead to electric shock causing severe injuries or even death.
- Never touch the positive or negative poles of the PV connecting device, and avoid touching both poles simultaneously.
- Do not ground the positive or negative poles of the PV modules.
- Only qualified personnel can perform the wiring of the PV modules.

\Lambda DANGER!

The grounding cable must be well connected to ground

- Incorrect connection may cause fatal electric shock!
- If not connected correctly, the device may be damaged when struck by lightning!

DANGER!

Lethal danger from electrical shock due to the device

- Only operate the device when it is technically faultless. Otherwise, electric shock or fire may occur.
- Do not open the enclosure in any case without authorization from SolaX. Unauthorized opening will void the warranty and cause lethal danger or serious injury due to electric shock.

WARNING!

- The inverter, which connected in parallel mode with a PV Reverse Combiner Box, should be switched on before sunrise or after sunset.
- When power on the system, the correct order is: switch on the PV Reverse Combiner Box, turn the inverter DC switch to ON, then turn the switch of the PV Combiner box to ON.

WARNING!

Touching the internal terminals of the device may result in electric shock or fire!

• Do not touch the terminals or conductors connected to the inverter or string.

\Lambda warning!

- The screws of the terminal must be tightened in place, otherwise the terminal would be heated and burned after a prolonged period.
- Multi-strand copper core flame-retardant cables must be used, with the wire diameter not less than the recommended value.
- The screw of the waterproof terminal must be tightened in place, otherwise it may cause water leakage.

- Keep children away from the device.
- Pay attention to the weight of the device. Personal injuries may be caused if not handled properly.
- All the product labels and nameplate on the device shall be maintained clearly visible.

Introduction

PV Reverse Combiner Box is usually installed between the PV modules and inverter, and can divide the input of centralised PV modules into 10 to 24 strings of PV module outputs evenly, which is suitable for distributed grid-connected PV inverters, such as X3-MEGA G2 \ X3-FORTH and other series of inverters.

Composition of the PV grid-connected generation system



Appearance and Dimensions



External Ports of Box



Internal Ports of Box

Here take PVR-24S for example.



NO	Port	Note
NO.	TOIL	Note
A	Positive output fuse box and terminal	1~12
В	Positive output fuse box and terminal	13~24
С	Grounding port	/
D	Positive Input terminal	/
E	Negative Input terminal	/
F	Negative output fuse box and terminal	1~12
G	Negative output fuse box and terminal	13~24

Note: As for PVR-10S, you should connect 10 positive output terminals and 10 negative output terminals; as for PVR-24S, you should connect 24 positive output terminals and 24 negative output terminals; and other models in the same way.

Preparation

Installation Tools



Additionally Required Materials

Safety gloves

No.	Required Materials	Туре	Quantity
1	Input terminal*	Gland (Max. 240 mm ²)	2 pcs
2	Fireproof mud	/	1 pc
3	Output terminal		20 pcs for PVR-10S:
		$Cland (6 mm^2)$	24 pcs for PVR-12S:
		Giana (o mm)	36 pcs for PVR-18S;
			48 pcs for PVR-24S
4	OT terminal	/	1 pc

* For copper input cables, please use copper terminals, for aluminium input cables, please use aluminium-to-copper terminals.

No.	Required Cable	Туре	Conductor Cross-section
5	Input cable	Single core wire	PG42 (32-38 mm ²)
6	Output cable	Single core wire	PG9 (4-8 mm ²)
7	Grounding cable	Yellow and green wire	PG16 (10-14 mm ²)

Packing List



Item	Description	Quantity	Remark
/	PV Reverse Combiner Box	1 pc	
A	Кеу	2 pcs	For locking the door
В	M8×20 screw	4 pcs	
С	Nut	4 pcs	For mechanical installation
D	Washer	4 pcs	
E	Document	/	

Installation Site

- The ambient temperature: -40°C to +60°C.
- The relative humidity shall be between 0-95%RH.
- Install the device in a well-ventilated environment for heat dissipation. It is recommended to install an awning over the device if it is installed on a support outdoor.
- Do not install the device in areas with flammable, explosive and corrosive materials or near combustibles and antennas.
- For outdoor installation, precautions against direct sunlight, rain exposure and snow accumulation are recommended.
- Exposure to direct sunlight raises the temperature inside the device. This temperaturerise poses no safety risks, but may impact the device performance.

Mechanical Installation



Electrical Connection

ANGER!

• Before electrical connection, make sure all switches and DC breaker are disconnected. Otherwise, the high voltage may cause electric shock, resulting in severe personal injuries or even death.

Preparation Before Connection



2 Remove the PC Cover.

Input Connection



0.8 N·m





- NOTICE
- During connection, pay attention to the polarity, and do not reverse it.

Output Connection





NOTICE

• During connection, pay attention to the polarity, and do not reverse it.



Grounding Connection





Preparation After Connection



Power On/Off

NOTICE

• During operation, please wear protective equipment and make sure that all cables has connected to the inverter.

Power on the System

- Step 1: Use keys to open the door.
- **Step 2:** Ensure that all switches are disconnected before proceeding.
- **Step 3:** Check that the positive and negative terminals of the PV Reverse Combiner Box are not reversed.
- **Step 4:** Use a multimeter to measure the voltage on the output side of the PV Reverse Combiner Box, ensure that the voltage of each circuit is basically equal and there is no negative voltage (wrong polarity will cause damage to the box and inverter!).

- **Step 5:** Turn the inverter DC switch to ON, then turn the switch of the PV Combiner box to ON.
- **Step 6:** Lock the door and pull out the key.

Power off the System

- **Step 1:** Use keys to open the door.
- Step 2: Disconnect the switch on the input side of the PV Reverse Combiner Box (if any). (Do not disconnect the DC switch of the inverter first, it is possible to cause damage to the PV Reverse Combiner Box and the inverter!)
- **Step 3:** Turn the switch of the PV Combiner box to OFF. Then turn the inverter DC switch to OFF.
- **Step 4:** Lock the door and pull out the key.

Replacing the fuse

NOTICE

- Once the fuse has blown, it cannot be restored and must be replaced immediately.
- The fuse replacement must be of the same grade as the original one!
- Do not check or replace the fuse with load! Installation and removal of the fuse must be proceeded with no load to avoid arc damage and personal injury.
- Step 1: Pull out the fuse cover.
- Step 2: Replace the fuse.
- Step 3: Close the fuse cover tightly.



Technical Data

• DC input & AC output

Model	PVR-10S	PVR-12S	PVR-18S	PVR-24S
Max. PV string voltage [V]	1100	1100	1100	1100
Number of DC inputs	1	1	1	1
Number of DC outputs	10	12	18	24
Max. input current [A]	150	180	264	264
Max. input short circuit current [A]	200	240	300	350
Nominal output current per string [A]	15	15	15	15
Input terminal type	Gland (Max. 240 mm²)			
Output terminal type	Gland (6 mm²)			

• Protection

Model	PVR-10S	PVR-12S	PVR-18S	PVR-24S
Ingress protection	IP65			
Environment temperature	-40°C ~ +60 °C			
Relative humidity [%]	0 ~ 95%			
Anti-corrosion	C5			

• System data

Model	PVR-10S	PVR-12S	PVR-18S	PVR-24S
Dimensions (W \times H \times D) [mm]	$820 \times 520 \times 170$ (Bracket not included)			
Weight [kg]	<30			
Certification	IEC 61439-1, IEC 61439-2			

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Warranty Registration

Please visit the website: https://www.solaxcloud.com/user-center/ to complete the warranty registration. For more detailed warranty terms, please visit SolaX official website: www.solaxpower.com.



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