

PROJOY
electric

– *Switch To Safety!* –



Installation Guide

RSD PEFS-EL Series

www.projoy-electric.com

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Operation Manual of Array Level Rapid Shutdown

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1 Scope and General

The manual only used to PEFS-EL Series Array-level Rapid Shutdown.

Version	Date	Remark	Chapter
V1.0	2021-10-15	First Edition	-
V2.0	2022-04-20	Content Modified	6 Installation

1. Changes or modifications not explained/approved in this manual voids your authority to operate this equipment.
2. PROJOY shall not be held responsible for any damage caused due to incorrect installation of the product and/or the misunderstanding of this manual.
3. PROJOY reserves the right to make any modification to this manual or the information contained herein at any time without notice.
4. No design data such as sample pictures provided in this manual may be modified or duplicated except for the purpose of personal use.
5. To ensure the recycling of all possible materials and proper disposal treatment of components, please return the product to PROJOY at end-of-life.
6. Check the system regularly (once per 3 months) on faults.

2 Important Safety Precautions

Components in the installations are exposed to high voltages and currents. Follow these instructions carefully in order to reduce the risk of fire or electric shock.

The following regulations and standards are considered applicable and mandatory to read prior to the installation of electrical equipment:

1. Connection with the main circuit, Wiring should be done by professional qualified personnel; Wiring should be done after confirmation of complete disconnection of input power supply; Wiring should be done after installation of breaker body.
2. International Standards: IEC 60364-7-712 Electrical installations of buildings-Requirements for special installations or locations-Solar Photovoltaic (PV) power supply systems.
3. Local building regulations.
4. Guidelines for lightning and overvoltage protection.

Note!

1. It is essential to uphold the limits for voltage and current in all possible operating conditions. Also keep in mind the literature on correct dimensioning and sizing of cabling and components.
2. The installation of these devices may only be performed by certified technical personnel.
3. The wiring schematics of the Firefighter Safety Switch can be found at the end of this manual.
4. All the installation works should be tested in accordance with relevant local legislation at the time of installation.

3 About Rapid Shutdown

3.1 Intended Use of the Rapid Shutdown

The Rapid Shutdown has been especially developed as a safety device for direct current (DC) photovoltaic installations. The DC disconnect switch is used to disconnect the connected strings of the installation in case of an emergency situation. Such an emergency situation could be in case of fire.

3.2 Location of the Rapid Shutdown

The Rapid Shutdown needs to be placed as close to the solar panels as possible. Due to its enclosure, the switch is protected against external influences like dust and moisture. The whole set-up conforms to IP66 which makes it suitable for outdoor usage when needed.

4 Operation

4.1 Normal operation:

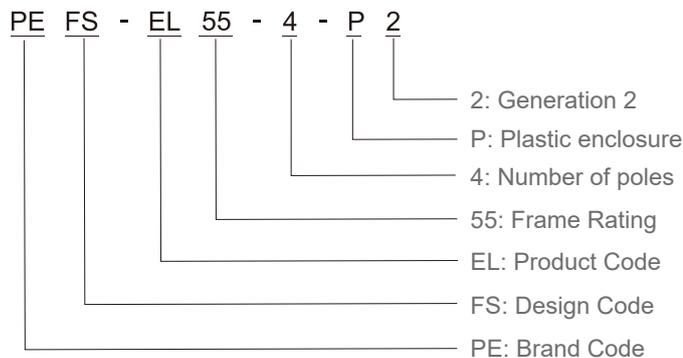
The PEFS will automatically switch to the off position, breaking the DC connection between the solar panels and the inverter, after the AC power to the PEFS is interrupted for longer than five seconds. The PEFS will automatically switch to the on position, restoring the DC connection between the solar panels and the inverter, once the AC power to the PEFS is restored longer than five seconds.

4.2 Special Operation:

If the temperature inside the PEFS enclosure exceeds the 70°C, the PEFS will automatically switch to OFF to protect the internal components and create a safe situation. When the installation is checked and the PEFS is not affected, the PEFS can be switched ON again by removal and re-applying the AC voltage to the PEFS. The PEFS will also automatically switch to OFF if there is an internal failure. If this occurs please try to reset the PEFS by removal and re-applying the AC voltage to the PEFS.

5 About PEFS Array-level Rapid Shutdown

5.1 Model Description



5.2 Technical parameters

Number of poles	2	4	6	8	10	12	14	16	18	20
Appearance										
Frame Rating In(A)	16、25、32、40、50、55									
Working temperature	-40 ~ +70°C									
Fiducial temperature	+40°C									
Pollution degree	3									
Protection class	IP66									
Outline dimensions(mm)	210×200×100		375×225×96			375×225×162				
Installation dimensions(mm)	Φ6×269		Φ6×436							

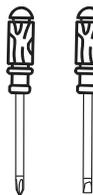
5.3 Wiring Options

Number of poles	2	4	6	8	10	12	14	16	18	20
Appearance										
3-core wire	1 *1.2m for AC power supply									
MC4 cable	4	8	12	16	20	24	28	32	36	40

6 Installation

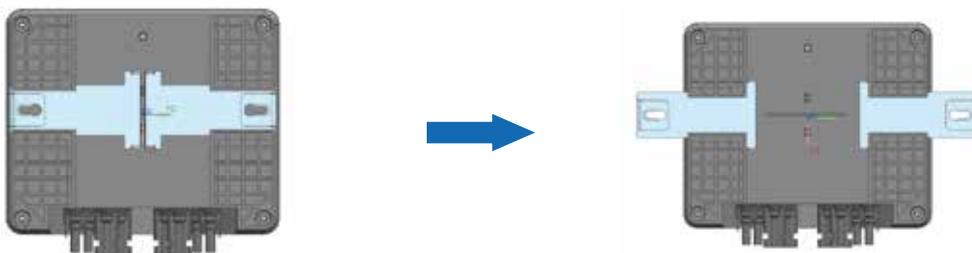
6.1 Installation Requirements

Open the box, take out PEFS, read this manual, and prepare cross/straight screwdriver.

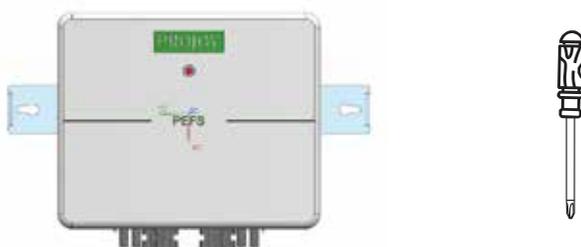


6.2 Installation Steps

1) Pull out the product bottom bracket to both sides.



2) Mount the switch enclosure on the wall.



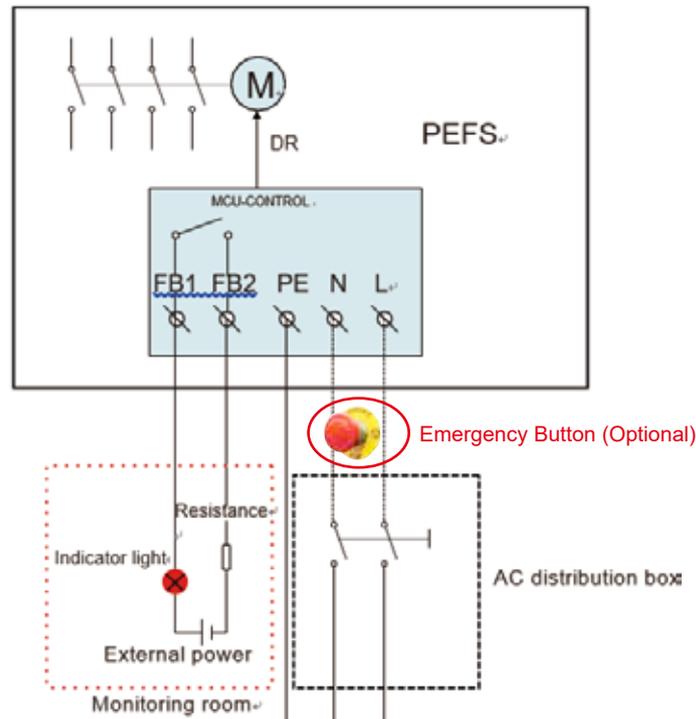
3) Wire the power AC connection to the terminals.

Wire Color: According to American and Europe standard requirements --
American standard: L: Black; N: White; G: Green
Europe standard: L: Brown; N: Blue; G: Green&Yellow

	L	N	G
American			
Europe			

Note!

FB1, FB2 are used to remotely display the on and off states of the switch. When the switch is closed, FB1 is connected to FB2; when the switch is open, FB1 is disconnected from FB2.



Resistor is selected according to supply voltage, to ensure circuit current less than the rated current of the Indicator light and $< 320\text{mA}$

4) Wire the string cables to the interface.



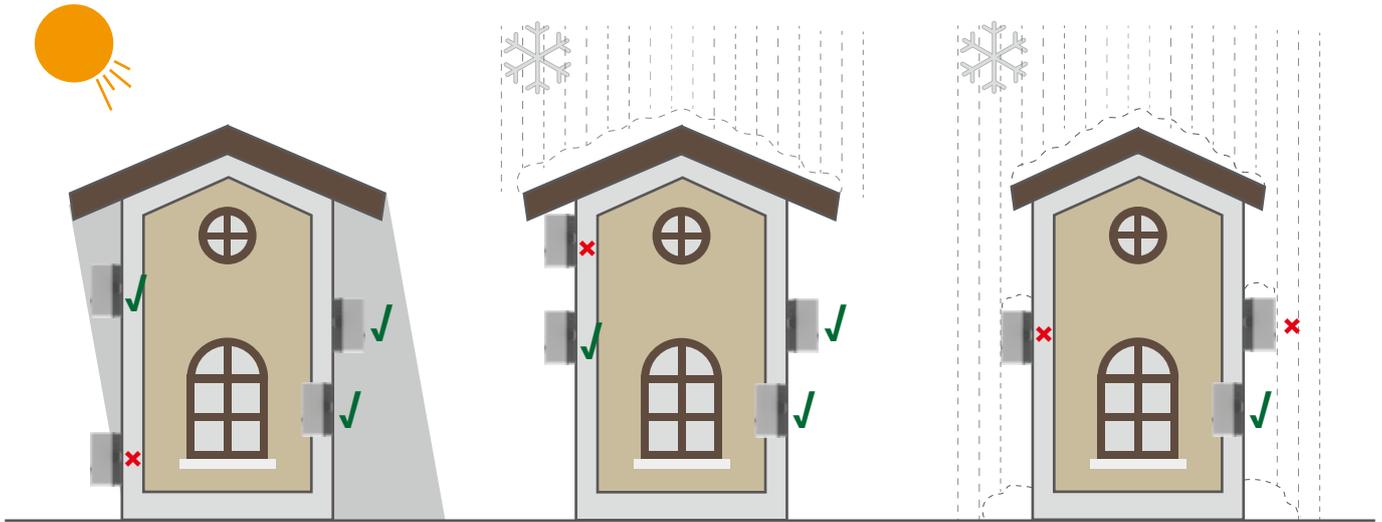
Note!

Please follow the marks (1+, 1-, 2+, 2-) for PV wiring.

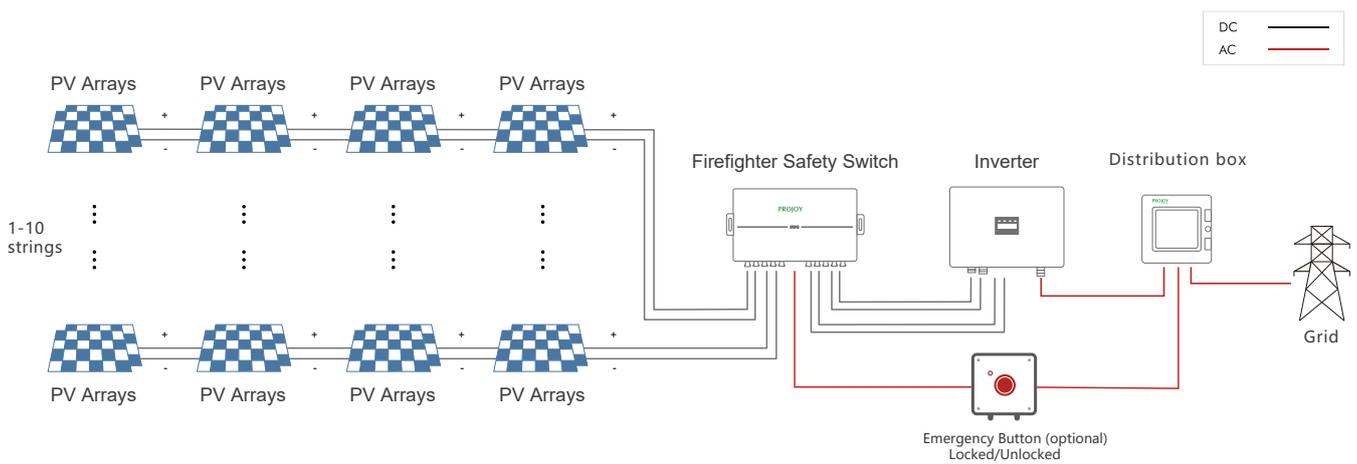
5) Note the installation environment (See the schematic on the next page).

Note!

- Do not expose to direct sunlight.
- Do not expose to rain and snow cover.
- Do not be in direct contact with (continuous) ingress water.
- The installation site must have good ventilation condition.



6) Diagram



6.3 Test

1) Step1. Activate AC power circuit. PEFS switches on.



Approx. 35 sec.

2) Step 2. Wait one minute. UPS is charging.



Approx. 1 min

3) Step 3. Deactivate AC power circuit. PEFS will switch off in about 7 seconds. Red LED light off.

AC POWER OFF



Approx. 7 sec.

4) Step 4. Activate AC power circuit. PEFS switches on in 8 seconds. Red LED light on.

AC POWER ON



Approx. 8 sec.

5) Step 5. Test is completed.

7 Aftersales service and warranty

This product is manufactured in a sophisticated quality management system. In case of fault, following warranty and after services clauses are applicable.

7.1 Warranty

On the premise of user's compliance with reservation and use specifications of the breaker, for breakers whose delivery date is within 60 months from now and whose seals are intact, PROJOY will repair or replace any of these breakers which are damaged or cannot work normally due to manufacture quality. However, as for faults caused by following reasons, PROJOY would repair or replace the breaker with a charge even it is still in warranty.

- 1) Due to incorrect use, self-modification and improper maintenance, etc.;
- 2) Use beyond the requirements of standard specifications;
- 3) After the purchase, due to falling and damage during installation, etc.;
- 4) Earthquakes, fires, lightning strikes, abnormal voltages, other natural disasters and secondary disasters, etc.

7.2 Aftersales service

- 1) Please contact the supplier or our company's after-sales service department in case of failure;
- 2) During the warranty period: For failures caused by the company's manufacturing problems, free repairs and replacements;
- 3) After the warranty period expires: If the function can be maintained after the repair, make a paid repair, otherwise it can be replaced with a paid.

8 Contact us

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