

INSTALLATION GUIDE

Firefighter PV Safety Switch

BPE-FFSS-S1 BPE-FFSS-S2 BPE-FFSS-S3



BPE[®]

BADGER POWER ELECTRONICS
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GENERAL NOTICE & SAFETY INSTRUCTIONS

SAVE THESE INSTRUCTIONS -This manual contains important instructions for the BPE Solar building FireFighter Safety Switch that shall be followed during installation and maintenance of the FireFighter Safety Switch.

General Notice

DISCLAIMER

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Important Safety Precautions

Attention! Components in PV 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:

- International Standards: IEC 60364-7-712 Electrical installations of buildings - Requirements for special installations or locations - Solar Photovoltaic (PV) power supply systems.
- MIS3002: Microgeneration Installation Standard - requirements for contractors undertaking the supply, design, installation, set to work commissioning and handover of solar photovoltaic (PV) microgeneration systems.
- Local building regulations.
- Guidelines for lightning and overvoltage protection.

Note

- It is essential to uphold the limits for voltage and current in all possible operating conditions. Also keep in mind the literature on correct sizing of cabling and components.
- The installation of these devices may only be performed by certified technical personnel.
- All the installation works should be tested in accordance with relevant local legislation at the time of installation.

Intended use of the Domestic Firefighter Safety Switch

- The Domestic Firefighter safety Switch 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.

Location of the Domestic Firefighter Safety Switch

- The switch 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 use when needed.

Normal Operation

- **AC Supply Cut-Off Shutdown**
When the AC power to the BPE-FFSS is interrupted, the BPE-FFSS will automatically switch to OFF, breaking the DC connection between the solar panels and the inverter. Once the AC power to the BPE-FFSS is restored, the BPE-FFSS will automatically switch to ON, restoring the DC connection between the solar panels and the inverter.

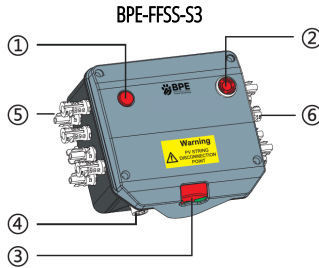
Special Operation

- **Over Temperature Shutdown**
If the temperature inside the BPE-FFSS enclosure exceeds 85°C, the BPE-FFSS will automatically switch to OFF, breaking the DC connection between the solar panels and the inverter, to protect the internal components and create a safe situation. Once the temperature drops to below 75°C, the BPE-FFSS will automatically switch to ON, restoring the DC connection between the solar panels and the inverter.
- **Manual Shutdown**
Upon the user activating the red push button switch located in BPE-FFSS enclosure, the BPE-FFSS performs a Rapid Shutdown, breaking the DC connection between the solar panels and the inverter.

Specification

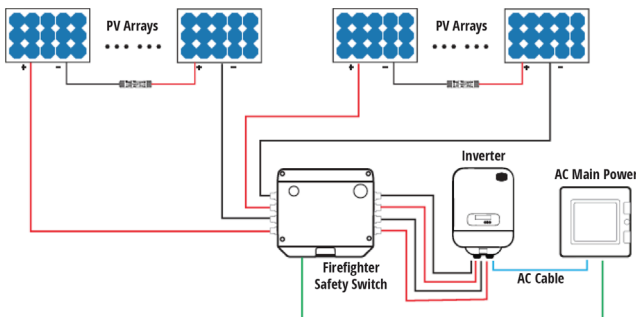
Model	BPE-FFSS			
Max DC Voltage IEC/EN 60947-3	1500V	1350V	1000V	800V
Max DC Current IEC/EN 60947-3	50A	50A	50A	50A
Models	BPE-FFSS-S1	BPE-FFSS-S2	BPE-FFSS-S3	
Number of Strings	1 String	2 Strings	3 Strings	
Operating Voltage	90Vac-260Vac			
Nominal Voltage	220Vac			
Nominal Current	30mA			
Start Up Current	Average 100mA			
Switch On Action Current	Max 300mA			
Standard Compliance	CE, IEC/EN60947-1&3			
Operating Temperature Range	-20°C - +85°C			
Protection Degree	IP66			
Storage Temperature	-40°C - +85°C			
Max. Operating Temperature Before Automatic Switch OFF	+85°C			
Protection Level	Class II			
Mechanical Endurance	9700			
Electrical Endurance	300			

Appearance Introduction



Model	Description and Status
1 - LED Indicator	Red light ON: 220VAC power connected. Red light OFF: 220VAC power disconnected.
2 - Emergency Button	Button Released and Red LED light ON: 220VAC power connected. Button Pressed and Red LED light OFF: 220VAC power disconnected.
3 - Switch Indicator	Indicator light RED, means DC Switch ON Indicator light GREEN, means DC Switch OFF
4 - AC Connector	Connect to AC Main Power
5 - MC4 Connector	PV DC Input
6 - MC4 Connector	PV DC Output

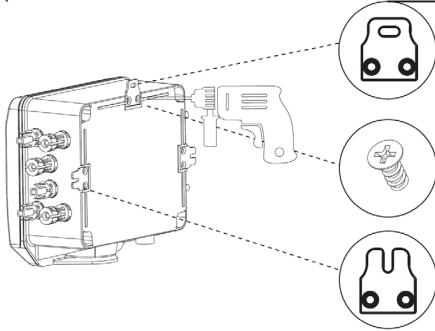
Wiring Diagram



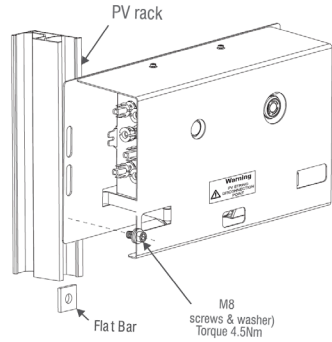
Installation Introduction

Step 1 - Install the switch

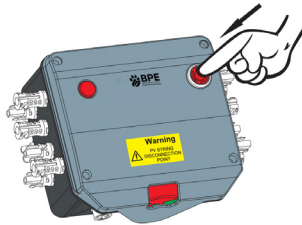
★ Installation for switch



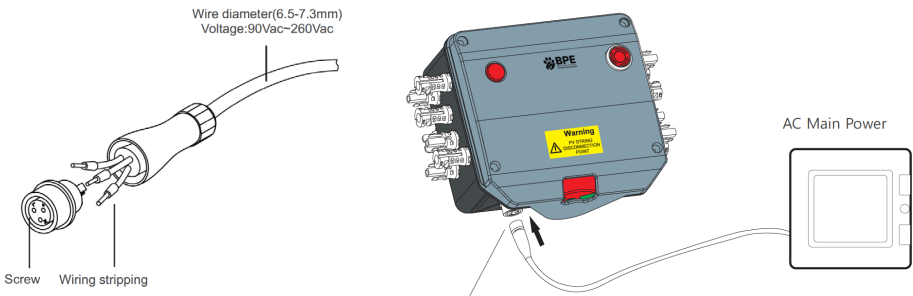
★ Installation for switch with protection cover(Optional)



Step 2 - Press Emergency Button to keep AC circuit disconnected



Step 3 - Connect to AC Main Power



Step 4 - Testing before use

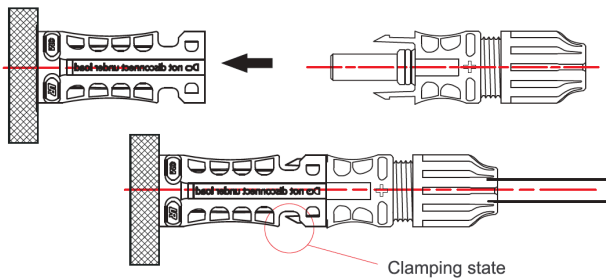
After the AC Power is connected, Red light is still OFF

Release Emergency Button, Red light ON, within 60 seconds, Switch Indicator turn GREEN to RED.

After 60 seconds, Press Emergency Button, Red light OFF, Switch Indicator turn RED to GREEN.

Step 5 - Connect to PV arrays

Wiring Requirement for EVO2



Note!

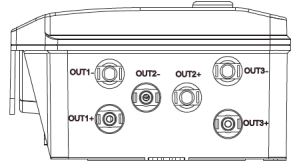
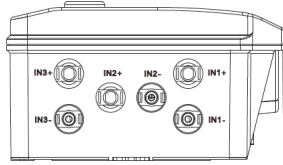
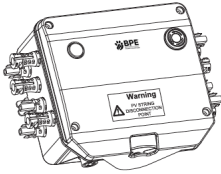
Before Connection to PV arrays, Make sure the BPE-FFSS is in "OFF" status .(Red Indicator OFF, Switch Indicator switch to GREEN)

Warning

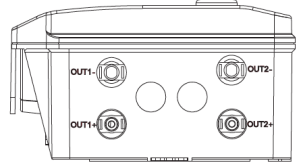
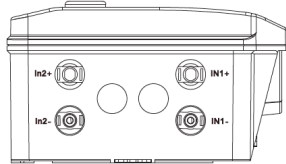
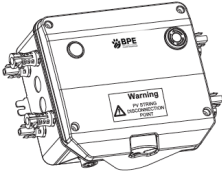


All EVO2 connectors must be installed and sealed properly with isolator to maintain IP66NW rating.

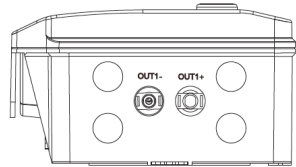
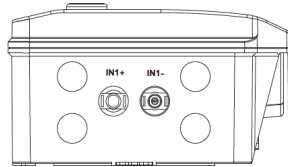
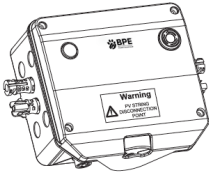
BPE-FFSS-S3



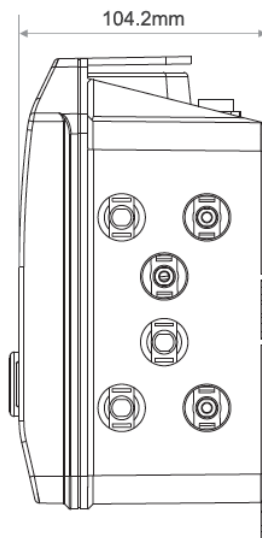
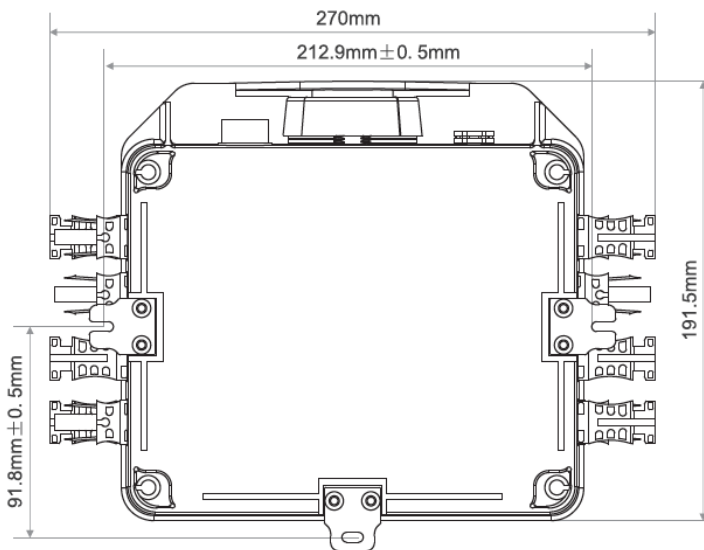
BPE-FFSS-S2

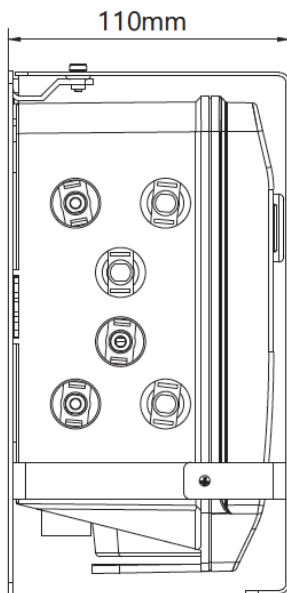
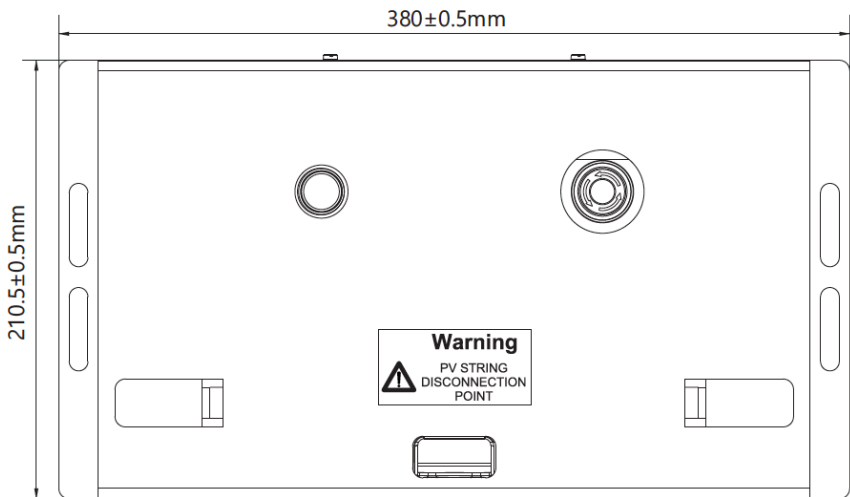


BPE-FFSS-S1



Dimensions





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