Solar Panel Rapid Shutdown Safety Solution

BFS Series

Solar Panel Rapid Shutdown

- Module Level Rapid Shutdown
- Manual Shutdown by button switch
- Automatic Shutdown on AC Power Loss
- Over temperature Automatic Shutdown
- Compatible with most string inverters and panels
- No cross-talk with inverter or WIFI

Application

BFS-11/BFS-12 is a module level rapid shutdown device offers fire safety for solar rooftop and building, remains the rapid shutdown function period the solar PV system whole working life.

Emergency button switch is required to initiate the rapid shutdown operating, as a trigger place on the ground and easier to reach.

The communication cable on the rapid shutdown device should be connected in series and wire to the button switch.
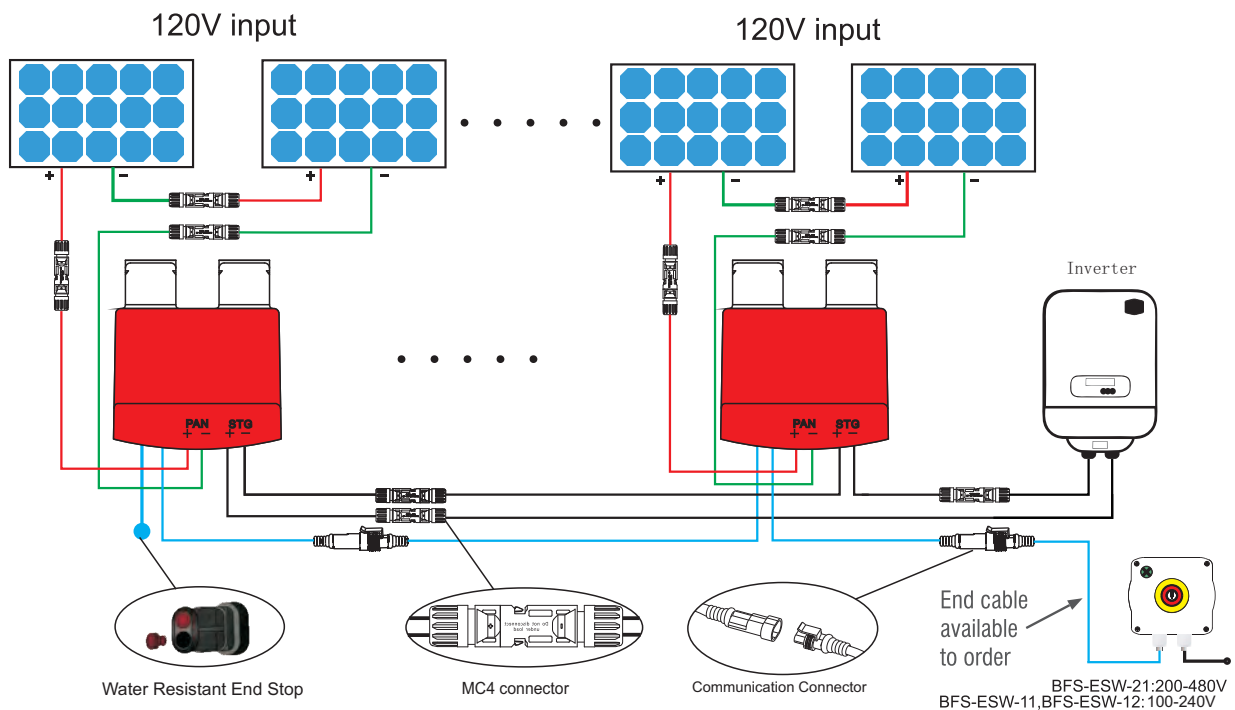
So the button switch can control the BFS rapid shutdown devices.

A communication that is no cross-talk with the inverter or WIFI source.

Solar Panel Rapid Shutdown
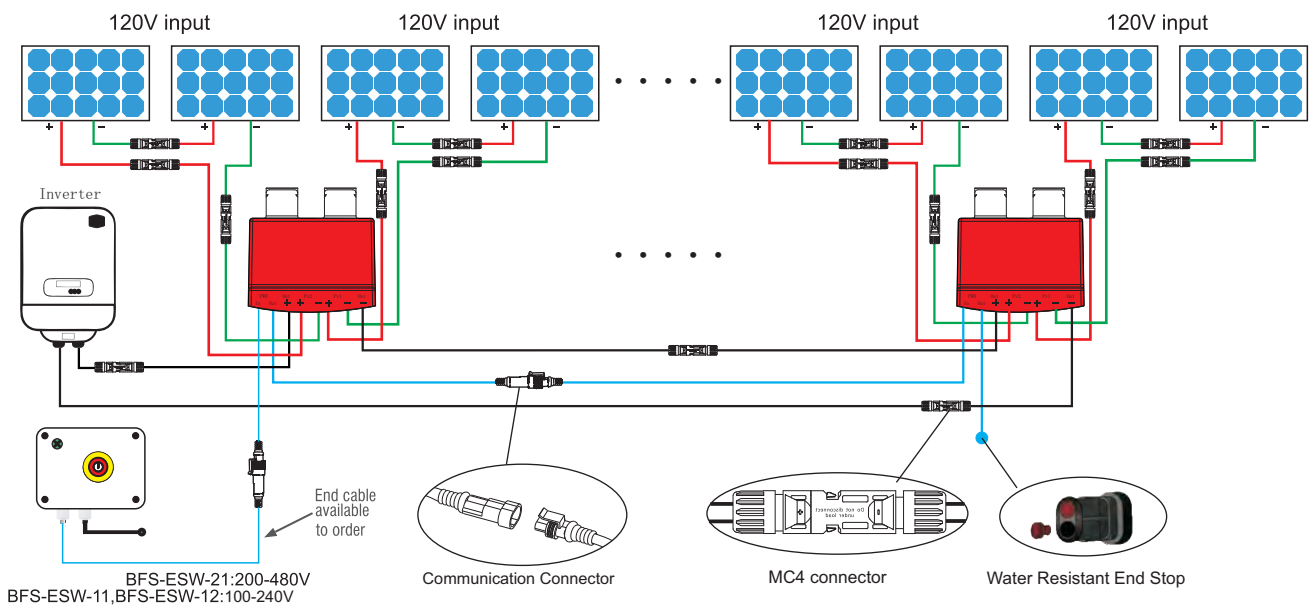
BFS-11 RSD Specifications

Model	BFS-11	
Maximum Input Voltage	120V Single Panel Or 60V Per Panel (Two Panels In Series)	
Maximum Input Current	18A	20A
Maximum Power	2160W in total	2400W in total
PV Input and Output Cables	4.0mm²(12AWG) Cables + MC4 Connectors	
PV Input Cables Length	180mm	
PV Output Cables Length	1800mm	
IP Protection	IP68	
Operating Temperature	−40°C to +85°C	
Ambient Operating Temperature	−40°C to +55°C	
Standard Compliance	EN 61646; EN 61000,EN 61215 IEC 60716 draft C(NH3 resistant)	
PV Connectors	Staubli MC4 (Standard) Jinko connectors for option	
DC Power Supply for each RSD		
Voltage Range	14VDC-28VDC	
Maximum Current	15mA	
Maximum Power	0.2W	
Power Supply Cables (Signal Cables)	2x0.823mm² (18AWG) Signal Cables + Signal Connectors	
Power Supply Cables Length	1800mm	

120V input   120V input

Inverter

Water Resistant End Stop   MC4 connector   Communication Connector   End cable available to order

BFS-ESW-21:200-480V
BFS-ESW-11,BFS-ESW-12:100-240V

Solar Panel Rapid Shutdown

BFS-12 RSD Specifications

Model	BFS-12
Maximum Input Voltage	240V in total (Input 1 + Input 2)
Maximum Voltage each Input	120V Single Panel Or 60V Per Panel (Two Panels In Series)
Maximum Input Current	18A
Maximum Power	4320W in total (Input 1 + Input 2)
PV Input and Output Cables	4.0mm²(12AWG) Cables + MC4 Connectors
PV Input 1 Cables Length	180mm
PV Input 2 Cables Length	300mm
PV Output Cables Length	1800mm
IP Protection	IP68
Operating Temperature	−40°C to +85°C
Ambient Operating Temperature	−40°C to +55°C
Standard Compliance	EN 61646; EN 61000,EN 61215 IEC 60716 draft C(NH3 resistant)
PV Connectors	Staubli MC4 (Standard) Jinko connectors for option
DC Power Supply for each RSD	
Voltage Range	14V ~ 28V
Maximum Current	15mA
Maximum Power	0.2W
Power Supply Cables (Signal Cables)	2x0.823mm²(18AWG) Signal Cables + Signal Connectors
Power Supply Cables Length	1800mm

120V input   120V input   120V input   120V input

Inverter

BFS-ESW-21:200-480V
BFS-ESW-11,BFS-ESW-12:100-240V

End cable available to order

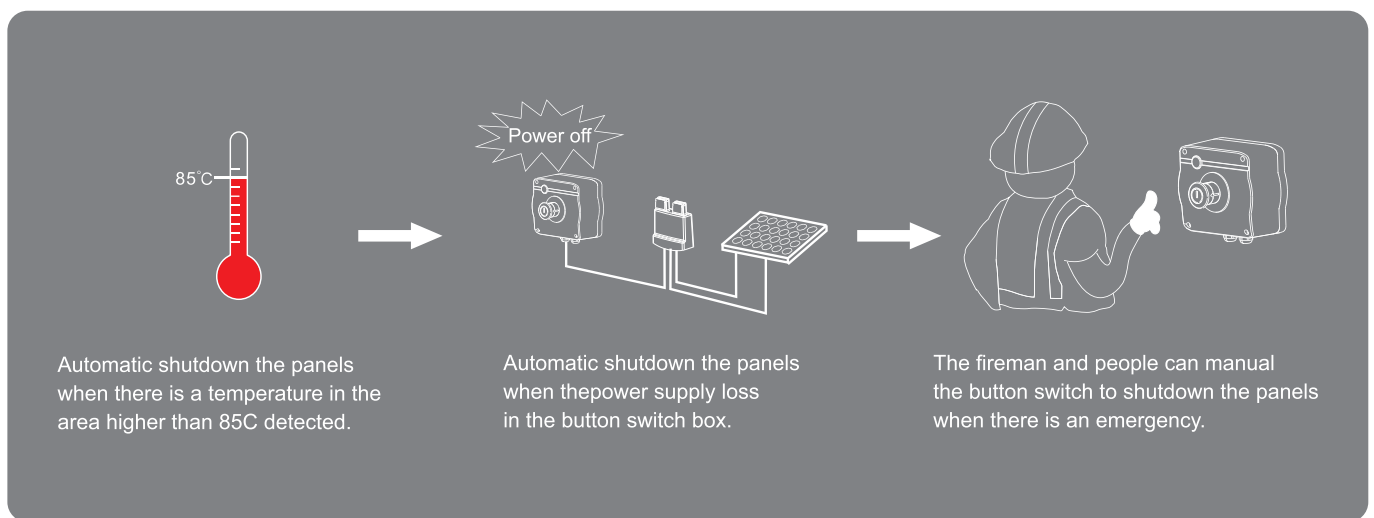Communication Connector

MC4 connector

Water Resistant End Stop

Solar Panel Rapid Shutdown

Each BFS-11/BFS-12 device can hold solar modules output at max 120V in total, the modules connect in series as solar string goes to inverter as PV system designing. One more thing on the rooftop is the connection of BFS-11/BFS-12 RSD and button switch via communication cable.

Note: If your market requires NEC2017/NEC2020 requirement, we recommend one RSD BFS-11 connects 1 panel(≥40V) or 2 panels (<40V); BFS-12 connects 2 panels (≥40V) or 4 panels (<40V).

A Complete RSD Solution

85°C

Power off

Automatic shutdown the panels when there is a temperature in the area higher than 85C detected.

Automatic shutdown the panels when thepower supply loss in the button switch box.

The fireman and people can manual the button switch to shutdown the panels when there is an emergency.

Solar Panel Rapid Shutdown

Emergency Shutdown Switch

The Emergency Switch offers the manual shutdown of solar panels on the rooftop by pushing the button.
AC power from grid or AC side at solar inverter both could be the power source for the emergency switch.

And when the AC power loss, automatic rapid shutdown the DC panels at the meantime.
（The green light is ON only indicate the AC power supply is live).
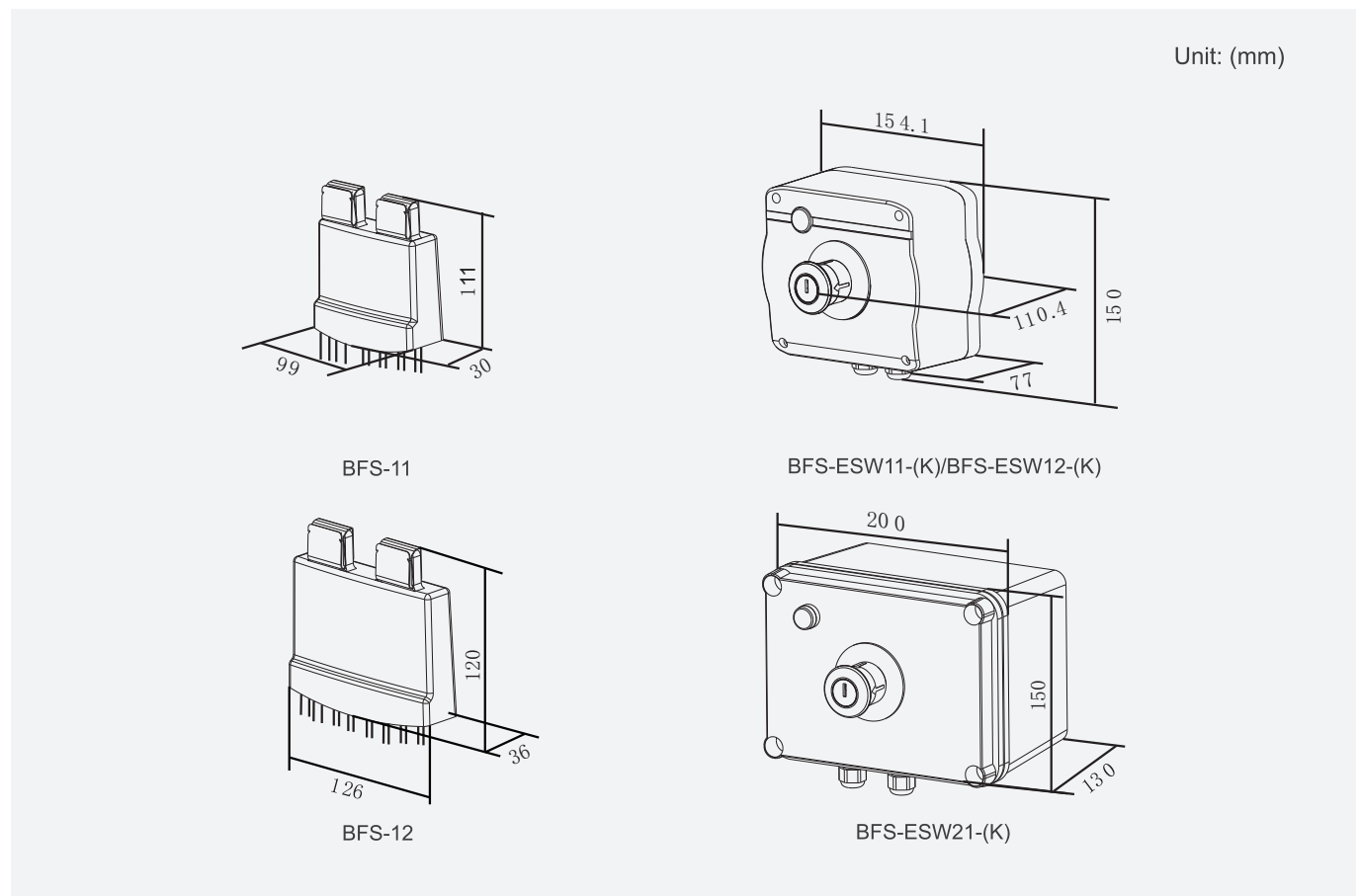
Emergency Button Switch Specifications

Model	BFS-ESW11(-K)	BFS-ESW12(-K)	BFS-ESW21(-K)
Input Voltage Range	100~240VAC		200V~480VAC
Maximum Working Current	0.5A	0.88A	0.7A
Input Frequency Range	47~63Hz		
Rated Output Voltage	24VDC		
Maximum Output Current	315mA	750mA	1250mA
Maximum Output Power	7.06W	18W	30W
Power Supply Cables	0.823mm² / 18AWG		
Cables Torque	0.5 NM/4.5lbin		
DIN Terminal Connector Wiring	0.5-4mm²/26AWG–10(Note:BFS-11/ BFS-12 uses communication connector 2x0.823mm²)		
DIN Terminal Torque	0.5-0.8Nm/4.5-7lbin		
Ambient Operating Temperature	−30°C to +70°C		−30°C to +85°C
Maximum BFS-11 Units	40 Units	90 Units	90 Units
Maximum BFS-12 Units	20 Units	45 Units	45 Units
Maximum Distance （Last RSD to the Emergency Button Switch）	150 m		

Solar Panel Rapid Shutdown

Ordering Information

Part Number	Description
BFS-11	Rapid Shutdown Unit for solar panel/panels 120V input
BFS-12	Rapid Shutdown Unit for solar panel/panels 2 x 120V input
BFS-ESW11	Emergency Button Switch for BFS-11/ BFS-12. (100-240V AC power input).
BFS-ESW12	Emergency Button Switch for BFS-11/ BFS-12. (100-240V AC power input).
BFS-ESW11-K	Emergency Button Switch with Key Lock for BFS-11 / BFS-12. (100-240V AC power input).
BFS-ESW12-K	Emergency Button Switch with Key Lock for BFS-11 / BFS-12. (100-240V AC power input).

BFS-ESW21	Emergency Button Switch for BFS-11 / BFS-12. (200V-480V AC power input).
BFS-ESW21-K	Emergency Button Switch with Key Lock for BFS-11 / BFS-12. (200V-480V AC power input).

BFS-CCABLE	20m signal cable with female connector for end of string.
BFS-CCABLES	2m signal cable with male and female connectors for between strings or panels.

Install Dimension

Unit: (mm)

BFS-11

BFS-ESW11-(K)/BFS-ESW12-(K)

BFS-12

BFS-ESW21-(K)

CASE STUDY:
Philippines with 1.2MW
solar installation.

CASE STUDY:
Bulacan, Philippines with 200kwp
solar installation.

CASE STUDY:
Festival Supermall Alabang
Solar Rooftop, 2.8MW

CASE STUDY:
Pampanga, Philippines 1.3MW