

# SunSpec Solar Module Level Rapid Shutdown Safety Solution

BFS-21/22/X1 Series



- Module Level Rapid Shutdown
- Manual Shutdown by RSD Transmitter
- Automatic Shutdown on AC Power Loss
- Over temperature Automatic Shutdown
- Compatible with most string inverters and panels



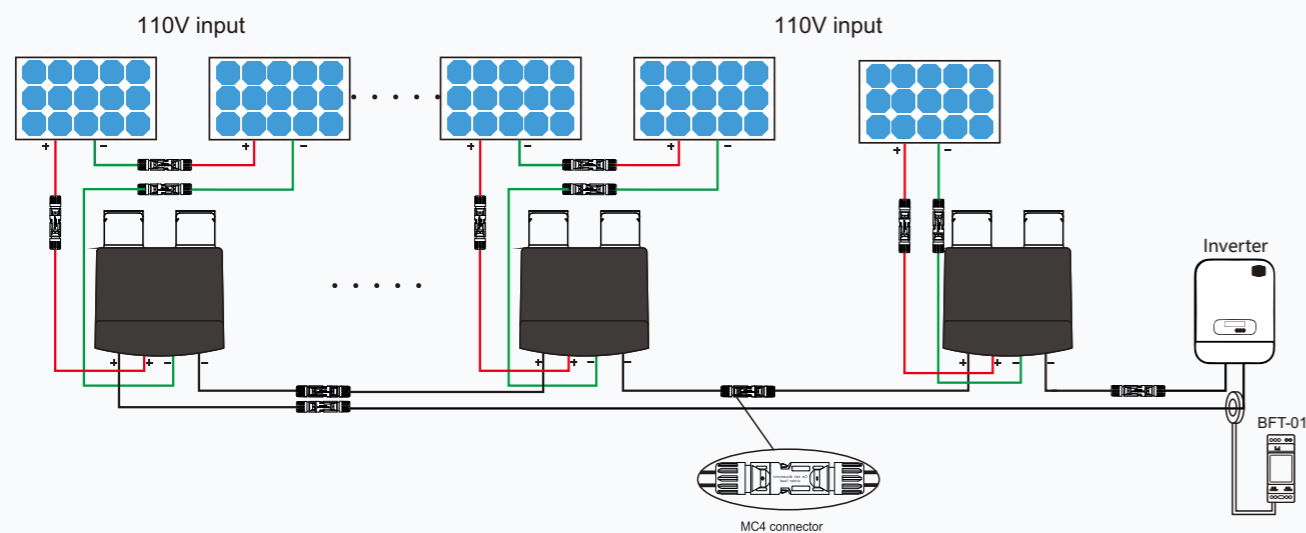
## Application

BFS-21/BFS-22/BFS-X1 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.

The BENEY Rapid Shutdown Device Transmitter(BFT-01) is part of a rapid shutdown solution when paired with BENEY BFS-21/BFS-22/BFS-X1, a PV module rapid shutdown unit. While powered on, the RSD Transmitter sends a signal to the BFS-21/BFS-22/BFS-X1 units to keep their PV modules connected and supplying energy.BFS-21/BFS-22/BFS-X1 units automatically enter rapid shutdown mode when the RSD Transmitter is switched off.

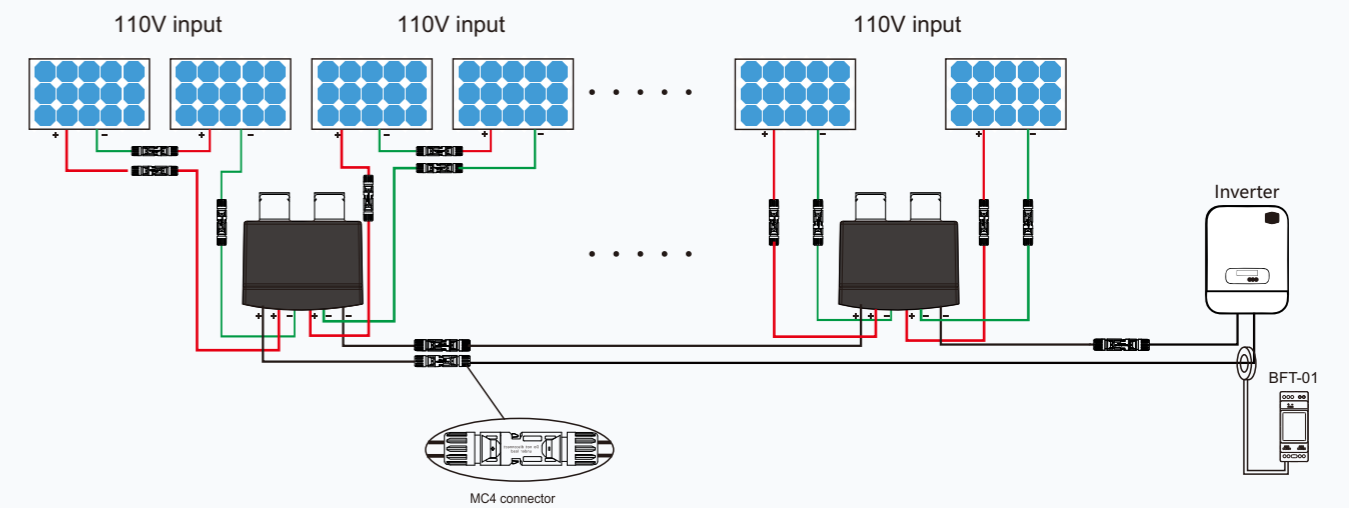
## BFS-21 RSD Specifications

Model	BFS-21
Maximum Input Voltage	110V
Operating Voltage Range	16-110V
Maximum Input Current	20A
Maximum Power	2200W
PV Input and Output Cables	4.0mm <sup>2</sup> (12AWG) Cables + MC4 Connectors
PV Input 1 Cables Length	180mm
PV Output Cables Length	1800mm
PV Connectors	Staubli MC4 (Standard) Jinko connectors for option
IP Protection	IP68
Operating Temperature	-40°C to +85°C
Storage Temperature	-40°C to +85°C
Standard Compliance	EN 62109-1:2010, EN 61058-1:2018
Over Temperature Protection	100°C
Communication	PLC(Sunspec)



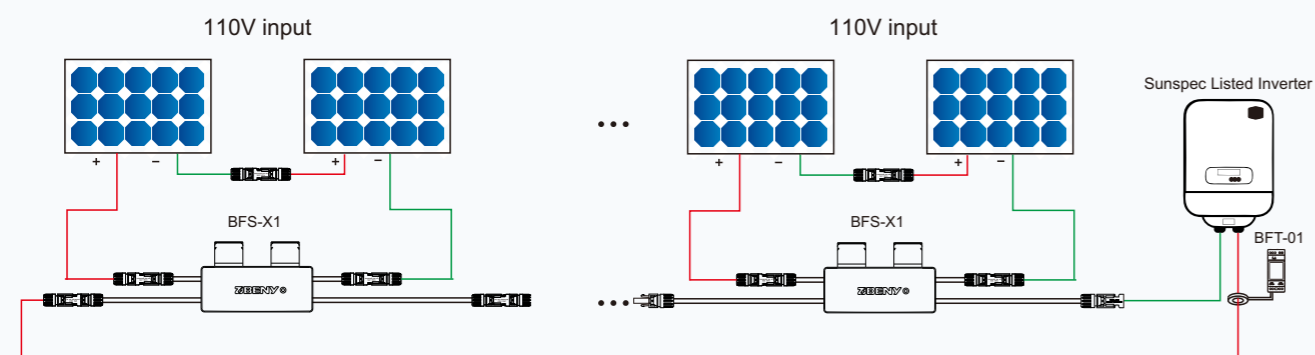
## BFS-22 RSD Specifications

Model	BFS-22
Maximum Input Voltage	110V*2
Operating Voltage Range	16-110V*2
Maximum Input Current	20A
Maximum Power(Input1+Input2)	4400W
PV Input and Output Cables	4.0mm <sup>2</sup> (12AWG) Cables + MC4 Connectors
PV Input 1 Cables Length	180mm
PV Input 2 Cables Length	300mm
PV Output Cables Length	1800mm
PV Connectors	Staubli MC4 (Standard) Jinko connectors for option
IP Protection	IP68
Operating Temperature	-40°C to +85°C
Storage Temperature	-40°C to +85°C
Standard Compliance	EN 62109-1:2010, EN 61058-1:2018
Over Temperature Protection	100°C
Communication	PLC(Sunspec)



## BFS-X1 RSD Specifications

Model	BFS-X1-110V-20A	BFS-X1-70V-25A
Maximum Input Voltage	110V	70V
Operating Voltage Range	16-110V	16-70V
Maximum Input Current	20A	25A
Maximum Wattage	2200W	2200W*2
Maximum System Voltage	1500V	
PV Casing	Polyamide 6(PA6)-UL94-V0	
PV Panel Cable Length(Customized)	Out+/-	1800mm
	Pv1+/-	180mm
PV Connectors	Staubli MC4 (Standard)	
	Jinko connectors for option	
Operating Temperature Range	-40°C to +85°C	
Storage Temperature Range	-40°C to +85°C	
Installation Environment	Outdoor	
Relative Humidity	90%	
Pollution degree	2	
Overvoltage category	CAT II /2	
Maximum altitude above sea level for operation	3000m	
IP Class Protection	IP68	
Over Temperature Protection	100°C	
Communication	PLC	



Each BFS-21/BFS-22/BFS-X1 device can hold solar modules output max: 1500V total, the modules connect in series as solar string goes to inverter as PV system designing. The connection of BFS-21/BFS-22/BFS-X1 RSD and Rapid Shutdown Monitoring Device is via communication cable.

**Note:** If your market requires NEC2017/NEC2020 requirement, we recommend one RSD BFS-21/BFS-X1 connects 1 panel( $\geq 40V$ ) or 2 panels( $< 40V$ ); BFS-22 connects 2 panels( $\geq 40V$ ) or 4 panels( $< 40V$ ).

## A Complete RSD Solution

Method 1

Automatic shutdown the panels when there is a temperature in the area higher than 100°C detected.

Method 2

Automatic shutdown the panels when the power supply loss in the Rapid Shutdown Device Transmitter.





### Application

The BENY Rapid Shutdown Device (RSD) Transmitter(BFT-01) is part of a rapid shutdown solution when paired with BENY BFS-21/BFS-22/BFS-X1 , a PV module rapid shutdown unit. While powered on, the RSD Transmitter sends a signal to the BFS-21/BFS-22/BFS-X1 units to keep their PV modules connected and supplying energy.

BFS-21/BFS-22/BFS-X1 units automatically enter rapid shutdown mode when the RSD Transmitter is switched off and resume energy production when power is restored to the RSD Transmitter. This solution uses PLC signaling for rapid shutdown.

### BFT-01 Specifications

BFT-01	
Max Working Voltage (DC)	12V
Max Working Current	1A
Average Supply Power	0.85W
Installation method:	DIN-rail mounting
Operating Temperature range:	-20°C to +50°C
Storage Temperature range	-40°C to +85°C
RSD Core	
Maximum Current	Single Core:100A,Dual Core:200A
Maximum String Voltage	1500VDC
Maximum Number of Strings Per Core	5
Maximum Supported PV Modules Per String	30
Max cable length from inverter (+) to inverter (-)	1000ft (300m)
Inside Dimension of RSD Core	25mm
Installation method	DIN-rail mounting

### Ordering Information

Model Number	Description
BFS-21	Rapid Shutdown Unit for solar panel(s)
BFS-22	Rapid Shutdown Unit for solar panel(s)
BFS-X1	Rapid Shutdown Unit for solar panel(s)
BFT-01(single)	One RSD core Rapid Shutdown Activator for BFS-21/BFS-22/BFS-X1
BFT-01(dual)	Two RSD Core Rapid Shutdown Activator for BFS-21/BFS-22/BFS-X1

### Install Dimension

Unit: (mm)

