



# Product Datasheet

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Version 1.6

Smart PV Safety Controller FR-PVMS-TFQB



Scan code to learn more

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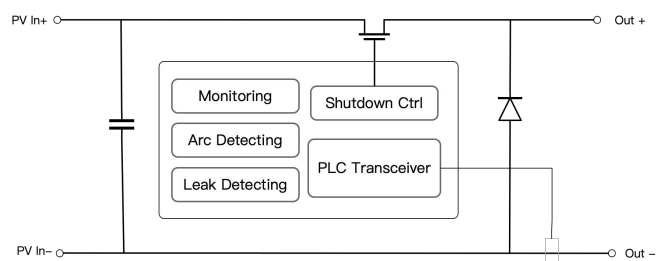
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## Key Features

- PV module rapid shutdown meeting NEC 2017 & 2020 (690.12) requirements
- Series and parallel ARC fault detection, protection
- PV module monitoring: on/off status, temperature, voltage, current, power etc.
- Support advanced data analysis with SafeSolar cloud: inverter performance, PV shading, PV module degradation, PV soiling
- Leak/Ground fault detection and location

## Schematic Diagram

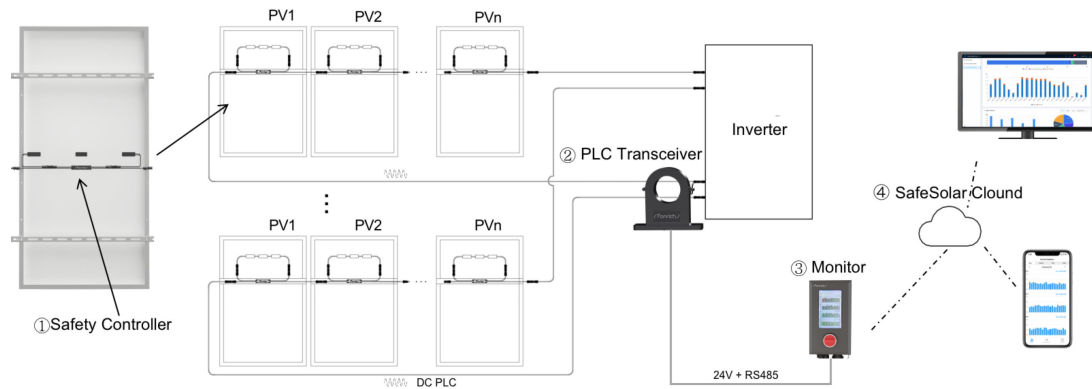


## Specifications

Item	Specification	Unit	Comment
<b>Electrical Data</b>			
Max input/output operating voltage	60	Vdc	
Range of input/output operating voltage	12~60	Vdc	
Max continuous input/output current (Imax)	18	Adc	
Max input short circuit current (Isc)	38	Adc	
Max system voltage (dc)	1500	Vdc	
<b>Mechanical Data</b>			
Dimensions (without bracket, cable & connectors)	134 x 28 x 22	mm	
Cable cross section size	TUV:4mm <sup>2</sup> , UL:12AWG		
Cable length	Input 400, output 1700	mm	customize
Connector	MC4 compatible		customize
Weight with bracket, cable & connector	380 ± 20	g	

Environmental Data			
Pollution degree	PD3		
Operating ambient temperature range	-40 ~ 75	°C	
Relative humidity range	4%~100%		
Ingress protection	IP68		
PLC Communication Performance Data			
Communication	Power Line Carrier Communication		
Max cable loop length	500	m	
Max PV modules under one head module	512		
Max PV strings under one head module	16		
Monitoring Performance Data			
Voltage monitoring accuracy	± 0.2	Vdc	STC
Current monitoring accuracy	± 0.05A	Adc	STC
Energy production metering accuracy	1	%	STC
Temperature monitoring accuracy	± 1	°C	
Arc Fault Detection, Protection			
Max arcing fault detection and shutdown time	2 ~ 90 selectable	Sec	
Leak/Ground Fault Detection, Protection			
Resolution of leak/ground fault detection setting	10	mA	
Max leak/ground fault detection and shutdown time	30	Sec	
Compliance			
Communication compliance	PLC		
Safety compliance	NEC 2017 & 2020 (690.12); UL1741; CSA C22.2 No. 330-17; IEC/EN62109-1		
Arc fault detection and protection	UL1699B		
EMC	EN IEC 61000-6-1:2019 EN IEC 61000-6-3:2021 EN IEC 61000-6-8:2020		

## Typical Application Wiring Diagram



## Detailed Feature List

### Rapid Shutdown Features:

- a. Manually shutdown
- b. Temperature protect shutdown
- c. Arc fault protect shutdown
- d. Leak/Ground fault protect shutdown
- e. PV cable break protect shutdown
- f. Self-test

### Arcing Fault Features:

- a. Series arcing detection
- b. Parallel arcing detection
- c. Arcing fault location \*

### Leak/Ground Fault Features:

- a. Ground fault at inter modules detection
- b. Ground fault location \*

### Monitoring Features:

- a. On-off status monitoring
- b. PV module voltage monitoring
- c. PV module current monitoring
- d. PV module energy metering
- e. Temperature monitoring
- f. PV plant data snapshot
- g. Inverter performance analysis \*
- h. Shading analysis \*
- i. PV module degradation analysis \*
- j. PV plant soiling analysis \*

## Revision Log

Version	Revision	Date
1.0	First edition	2021.5.31
1.1	Increase reverse current	2021.7.12
1.2	Separate datasheet of system to dedicated ones	2022.4.22
1.3	- Fix some typos	2022.5.18
1.4	- Modify the content sequence - Add Detailed Feature List	2022.5.19
1.5	- Add EMC standard	2022.6.13
1.6	Modify the product name to Smart PV Safety Controller from PVRSS Tail Module	2022.7.21

## Contact us

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