



# Product Datasheet

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Version 1.1

Arc Fault Protection Box FR-DCBS-AFC4C



Scan code to learn more

Fonrich (Shanghai) New Energy Technology Co., Ltd.

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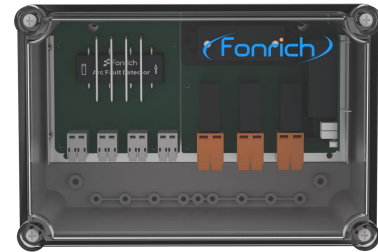
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## Introduction

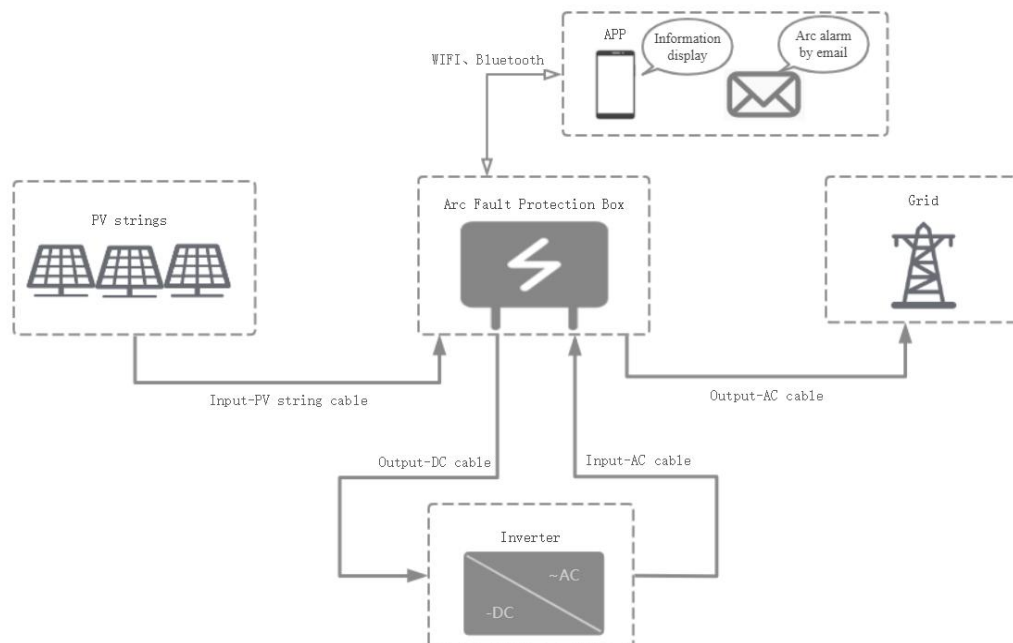
FR-DCBS-AFC4C is solar AFCI (Arc Fault Circuit Interrupter), which is mainly used in small sizes of distributed PV system, such as <10KW residential solar system. Its main function is to detect the arc fault of the PV strings and make the string cables in the state of no current when arc fault occurs. If the arc fault is detected, it will issue an alarm signal by the indicator and Email. At the same time, the AC relay will be driven to break off the AC circuit between the inverter and the grid. So that the inverter will stop working to ensure that the DC circuit is in the state of no current, which can effectively prevent fire hazard. In addition, users can remotely monitor the state of arc box by the mobile phone APP, such as arc alarm, relay contact, current, etc.



## Features

- 1-4 PV strings each box supports
- Arc fault detecting of each PV string
- Fonrich IP technology to self-adapt with different inverters
- UL 1699B 2018 conformity
- The protection arc sensitivity is adjustable
- Wifi internet connection, email alarm notification

## Typical Application

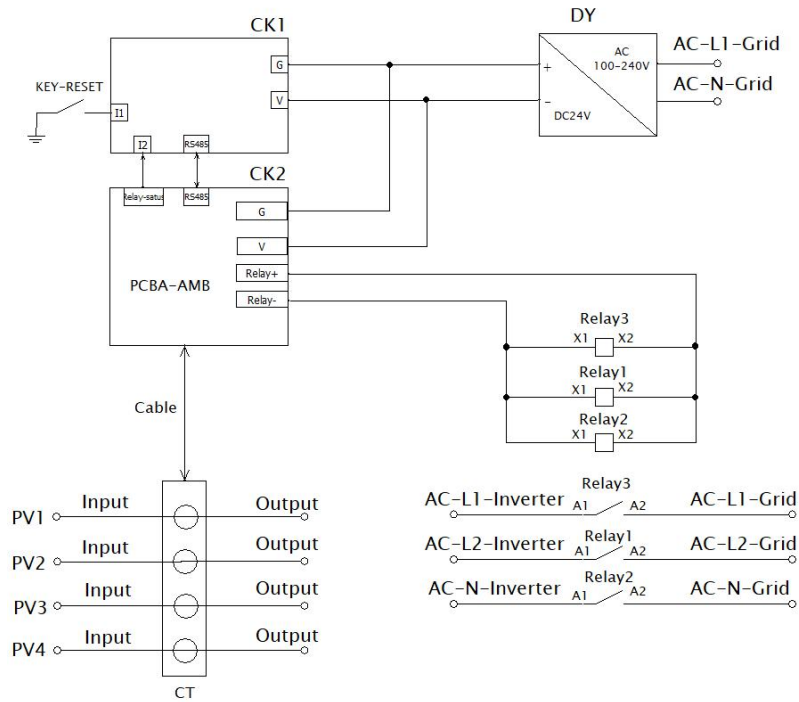


**Key Technical Specifications:**

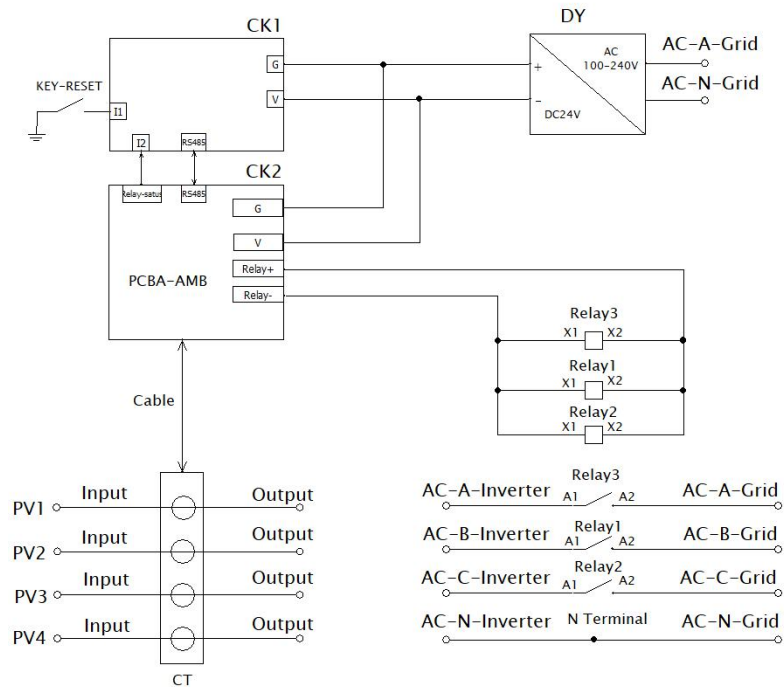
Classification	Item	Parameter
Arc Detection	Maximum number of detection channels	4 channels
	Maximum system voltage	DC1000V
	Arc type	UL1699B(Type 1)
Current Measurement	Maximum number of detection channels	4 channels
	Current range	-20A~ +20A
	Imbalance offset	$\leq \pm 0.1A$
	Temperature drift	$\leq \pm 0.005A/^{\circ}C$
	Linearity	$\leq 1\%FS$
Local Display	Operating status indicator	1
Power Supply and Power Consumption	Input voltage of power supply	100-240VAC
	Maximum input current	0.15A@100VAC
	Maximum power consumption	$\leq 15W$
Environment	Operating Temperature	$-30^{\circ}C \sim +60^{\circ}C$
	Storage temperature	$-40^{\circ}C \sim +85^{\circ}C$
	Operating humidity	0~95%
	Waterproof level	IP65

## Schematic Diagram

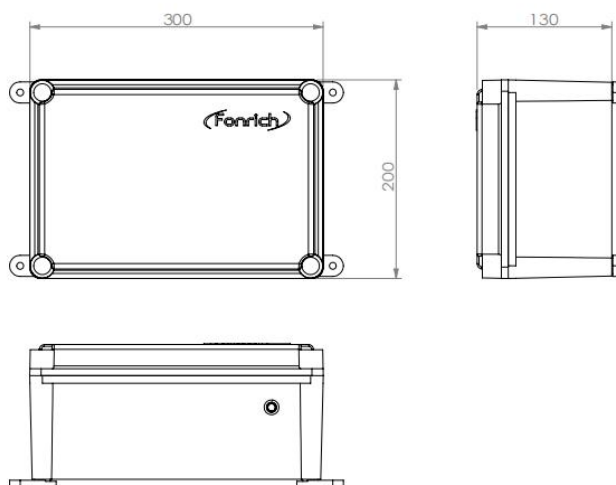
### Single-phase three-wire



### Three-phase four-wire



## Mechanical Data(mm)



## Revision Log

Version number	Change content	Revision date
1.0	First edition	2021.04.15
1.1	Updated Schematic Diagram.	2021.07.29

## Contact us

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## Appendix

### Arc Fault Detector (FR-DCMG-AS4A) CSA Certificate

	
<h2>Letter of Attestation</h2>	
<b>Document:</b> 80057054	<b>Master Contract:</b> 301511
<b>Project:</b> 80057054	<b>Date Issued:</b> April 2, 2021
<b>Issued to:</b> Fonrich (shanghai) New Energy Technology Co., Ltd 1st Floor, Building 5, No.999, Jiangyue Road, Minhang District Shanghai, Shanghai 201114 China	
<b>Attention:</b> Yuan Xiao	
<p><i>CSA Group hereby confirms that it has completed an evaluation of: Arc-fault detector (AFD), model: FR-DCMG-AS4A</i></p>	
<p><i>CSA Group hereby attests that the products identified above and described in test report 80057054 dated April 2, 2021 complies with the following standards/tests, to the extent applicable:</i></p>	
<p><i>UL 1699B - Photovoltaic (PV) DC Arc-Fault Circuit Protection (First Edition, Revision Dated August 22, 2018)</i></p>	
<p><i>Issued by: Magic Zhang Magic Zhang</i></p> <hr/> <p><b>CSA Group</b></p>	
<p><small>THIS LETTER OF ATTESTATION DOES NOT AUTHORIZE THE USE OF THE CSA MARK ON THE SUBJECT PRODUCTS. QUOTATIONS FROM THE TEST REPORT OR THE USE OF THE NAME CSA GROUP OR ITS REGISTERED TRADEMARK, IN ANY WAY, IS NOT PERMITTED WITHOUT PRIOR WRITTEN CONSENT OF CSA GROUP TESTING &amp; CERTIFICATION INC.</small></p>	
<small>DOD 507.10 Rev 2021-01-13</small>	<small>Page 1</small>

## UL 认证

## CERTIFICATE OF COMPLIANCE

Certificate Number 20170106-E484344  
Report Reference E484344-20161221  
Issue Date 2017-JANUARY-06

Issued to: Fonrich (Shanghai) New Energy Technology Co.,Ltd  
1st FI No 5 Bldg  
No 999 Jianguyue Rd, Minhang District  
Shanghai, 201112 CHINA


This is to certify that representative samples of COMPONENT - PHOTOVOLTAIC DC ARC-FAULT CIRCUIT PROTECTION  
SEE ADDENDUM PAGE FOR MODELS

Have been investigated by UL in accordance with the Standard(s) indicated on this Certificate.

Standard(s) for Safety: SEE ADDENDUM PAGE FOR STANDARDS

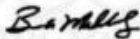
Additional Information: See the UL Online Certifications Directory at [www.ul.com/database](http://www.ul.com/database) for additional information

Only those products bearing the UL Certification Mark should be considered as being covered by UL's Certification and Follow-Up Service.

The UL Recognized Component Mark generally consists of the manufacturer's identification and catalog number, model number or other product designation as specified under "Marking" for the particular Recognition as published in the appropriate UL Directory. As a supplementary means of identifying products that have been produced under UL's Component Recognition Program, UL's Recognized Component Mark:  may be used in conjunction with the required Recognized Marks. The Recognized Component Mark is required when specified in the UL Directory preceding the recognitions or under "Markings" for the individual recognitions.

Recognized components are incomplete in certain constructional features or restricted in performance capabilities and are intended for use as components of complete equipment submitted for investigation rather than for direct separate installation in the field. The final acceptance of the component is dependent upon its installation and use in complete equipment submitted to UL LLC.

Look for the UL Certification Mark on the product.



Brian Mahanovich, Director North American Certification Program

UL LLC

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL. For questions, please contact a local UL Customer Service Representative at <http://ul.com/about/certification>.



## CERTIFICATE OF COMPLIANCE

**Certificate Number** 20170106-E484344  
**Report Reference** E484344-20161221  
**Issue Date** 2017-JANUARY-06

This is to certify that representative samples of the product as specified on this certificate were tested according to the current UL requirements.

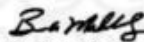
US - Recognized Component – 4-Channel Photovoltaic DC Arc-Fault Detector  
Module (PV AFD) Cat nos.FR-DCMG-AS4A and FR-DCMG-AS4T.

CAN - Recognized Component – 4-Channel Photovoltaic DC Arc-Fault Detector  
Module (DC-AFD) Cat nos.FR-DCMG-AS4A and FR-DCMG-AS4T.

### STANDARDS

UL Subject 1699B - Outline of Investigation for Photovoltaic (PV) DC Arc-Fault Circuit  
Protection.

CSA Technical Information Letter No. M-07 - Interim Certification Requirements for  
Photovoltaic (PV) Arc-Fault Protection (DC-AFP).



Bruce Malinich, Director North American Certification Program  
UL LLC

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contact a local UL Customer Service Representative at [www.ul.com/about/contact](http://www.ul.com/about/contact)

