



FONRICH NEW ENERGY



**A LEADER IN
CLEAN ENERGY SAFETY**

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COMPANY PROFILE

Founded in 2011, Fonrich (Shanghai) New Energy Technology Co., Ltd. is dedicated to providing intelligent new energy solutions to global customers. By optimizing solar plant operation efficiency and ensuring safety, the company promotes the efficient and secure management of renewable energy systems. As a global leader in DC arc fault detection technology, Fonrich continuously innovates in the fields of PV system optimization, energy storage integration, and smart energy management. Fonrich has filed over 280 patent applications, with nearly 100 granted invention patents, covering the full technology stack of new energy. Its core technologies span multiple fields and include module-level shutdown and monitoring management, arc fault detection and protection devices, power optimizers and DC microgrid safety solutions.





15 Years of experience

The first company in China passed UL1699B certification



100GW+

Global solar plant service capacity



280+

Patent applications, including 100 invention patents



100+

Countries & regions with global business presence



COMPANY HISTORY

2011-2017

Fonrich New Energy founded

First combiner box monitoring system launched

Arc fault detector launched and certified with UL1699B

2018-2021

1st-generation PV module optimizer released

R&D of PV module-level smart safety protector initiated

Arc fault detector ranked No.1 in shipments in China

2022

2nd-generation PV module optimizer released

1st-generation PV module-level smart safety protector released

Arc fault detector successfully applied in overseas PV projects

SafeSolar Cloud Platform officially launched

2023

Fonrich (International) established

Fonrich products sold in dozens of countries worldwide

2nd-generation PV module-level smart safety protector released

2024

Fonrich product shipments exceeded one million units

Fonrich (Thailand) and Fonrich (Shandong) established

2025

Fonrich (Europe) established

Released white paper on AFCI solutions in cooperation with TÜV

Issuance of T/CES 379 technical specification for photovoltaic module level AFCI system

2026

Insulation monitoring products launched

New-generation ESS arc fault detector released



GLOBAL BUSINESS

Localized Support



Shanghai
Headquarters



Thailand
Thai Subsidiary



Spain
European Subsidiary



Shandong
Manufacturing Base



Business Cooperation
Direct Sales or Authorized Agents

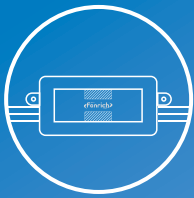


Fonrich is headquartered in Minhang, Shanghai, with subsidiaries in Thailand and Spain. The company has established a dual manufacturing center system of "Shanghai + Shandong", covering the entire business chain including hardware and software R&D, production and manufacturing, global supply chain management, full-cycle quality control, pre-sales and after-sales services, and marketing. Fonrich provides comprehensive market sales and technical support to global customers. Cooperating with distribution partners in many countries and regions worldwide, Fonrich delivers localized support to clients across the globe.

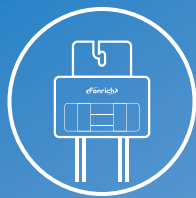
MLPE

Module-Level Power Electronics

C&I Rooftops: Module-Level Rapid Shutdown, Power Optimization



Smart Safety Protector



Smart Power Optimizer



Smart Logger



Smart PLC Transceiver



Solution Advantages

The module-level safety solution enables rapid shutdown, AFCI protection, and remote monitoring at the module level, helping to prevent economic losses and personal injury caused by fire damage.

The module-level power optimization solution effectively addresses issues such as orientation and shading, reducing power generation loss, improving energy output, and increasing plant revenue.



Auto Protection / Manual Rapid Shutdown



Improved Power Generation Efficiency



Module-Level AFCI Protection



1600m PLC Communication

Product Overview



Smart Power Optimizer



Smart Safety Protector



Smart Logger



Smart PLC Transceiver

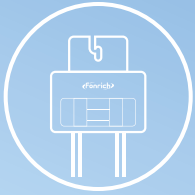


SafeSolar Cloud Platform

MLPE

Module-Level Power Electronics

Residential: Module-Level Power Optimization, Safety Protection



Smart Power Optimizer



Emergency Controller



Smart PLC Transceiver



Solution Advantages

The module-level power optimizer integrates both power optimization and rapid shutdown protection functions. It effectively avoids installation area reduction caused by orientation differences and minimizes power generation losses caused by shading and obstruction. The product supports data monitoring via the SafeSolar Cloud Platform.



Improved Power Generation Efficiency



Auto Protection / Manual Rapid Shutdown

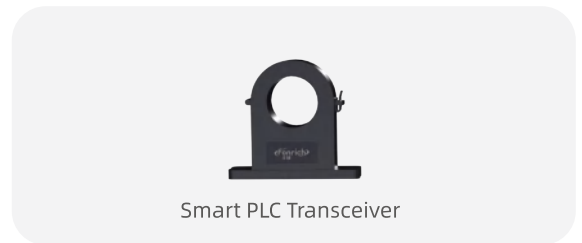
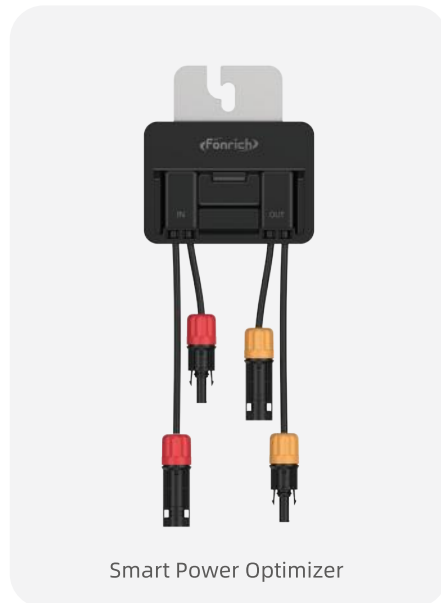


Supports Remote Data Monitoring



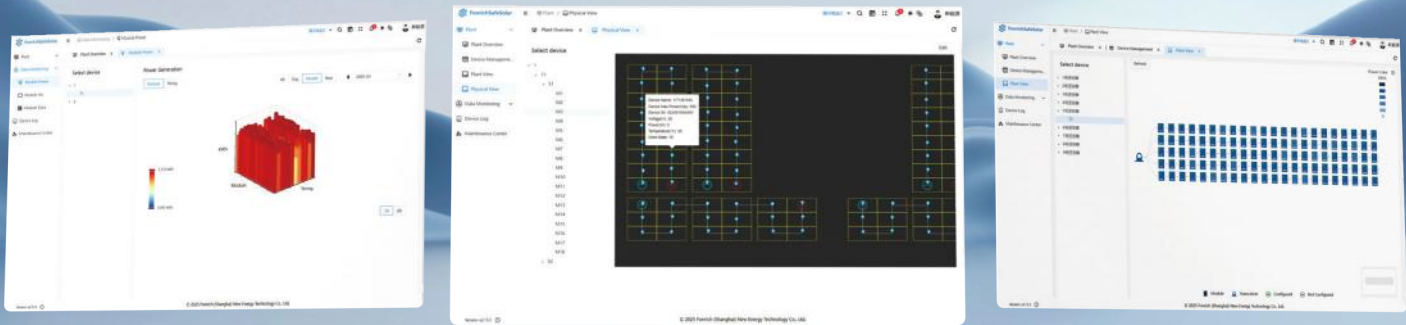
1600m PLC Communication

Product Overview



SafeSolar Cloud Platform

Fonrich SafeSolar Cloud Platform is an intelligent management system deeply integrated with expertise in PV safety protection. The platform is designed to meet comprehensive monitoring requirements of PV systems, enabling core functions such as real-time monitoring of power generation, power output, voltage, current, temperature, arc fault detection and module status through the Fonrich safety protector. Users can quickly locate faulty PV modules and view real-time power generation data and operating status via mobile phones, tablets, or computers. Additionally, the platform allows technical teams to provide remote O&M support, forming a closed-loop management system from data monitoring to fault alerts. This significantly enhances the safety and operational efficiency of PV systems and builds an intelligent protective barrier for the stable operation of solar plants.



Solution Advantages



Granular Monitoring



Anomaly Diagnosis & Analysis



Remote Fault Alerts



Physical Layout-Based Fault Localization

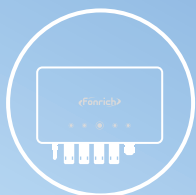


SafeSolar Cloud Platform

AFCI

AFCI Protection

Residential: String-Level AFCI Protection Solution



DC AFCI Box



SafeSolar APP



Solution Advantages

Designed for rooftop PV systems, this solution quickly meets arc fault detection and protection requirements. It supports up to 4-channel arc fault detection and offers both WiFi and Bluetooth communication options.



Rapid AFCI Protection



Convenient Wall-Mounted Installation

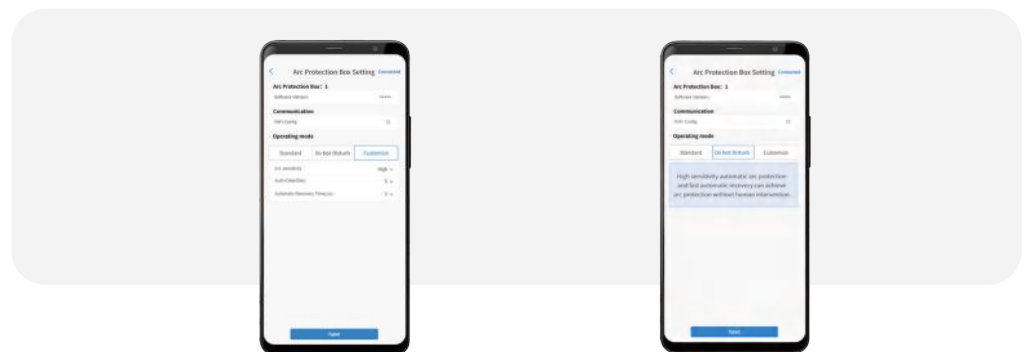
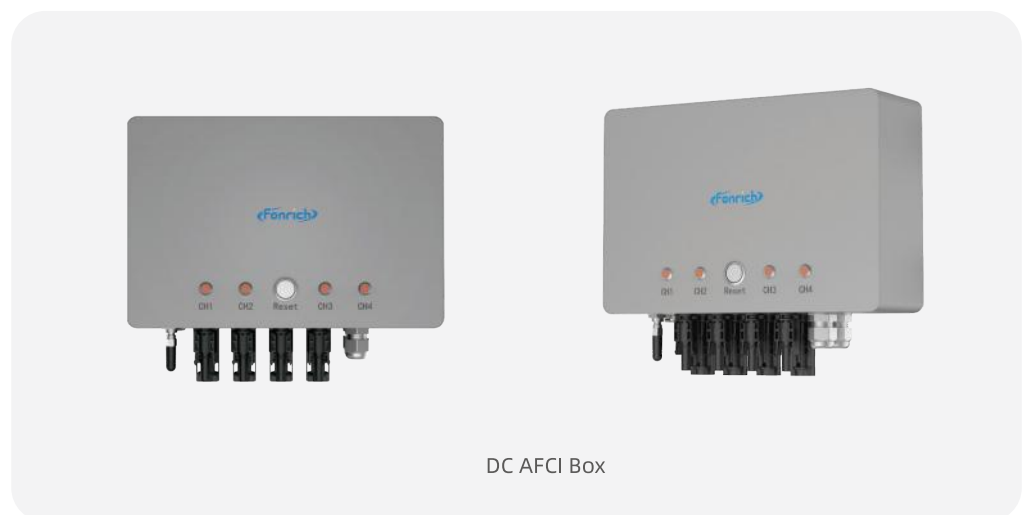


Remote Fault Monitoring



Compatible with System Voltage up to 1100V

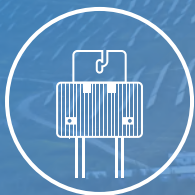
Product Overview



AFCI

AFCI Protection

Utility-Scale: String-Level AFCI Protection Solution



String-Level AFCI Device
(PLC Version)



String-Level AFCI Device
(LoRa Version)

Solution Advantages

Effectively addresses arc issues in ground-mounted PV systems by enabling arc fault detection and shutdown at the string level. When an arc is detected in a string, the system performs a string-level shutdown.



String-Level
AFCI Protection



String-Level
Current Monitoring



Remote Data
Monitoring



Flexible Configuration
No Limitation on
Number of Strings

Product Overview



String-Level AFCI Device
(PLC Version)



String-Level AFCI Device
(LoRa Version)



SafeSolar Cloud Platform



Smart PLC Transceiver



PV Safety Control Box

AFD

Arc Fault Detection

Arc Fault Detection Solution



Arc Fault Detector
(30A, 4 Channels)



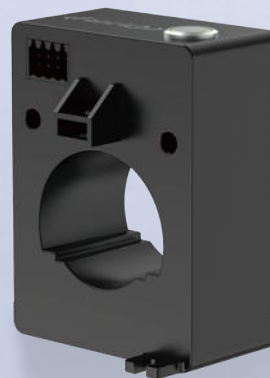
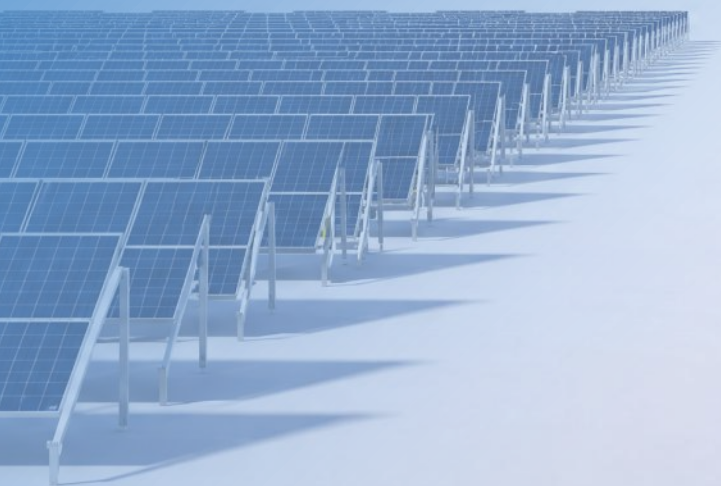
Arc Fault Detector
(48A, 4 Channels)



ESS Arc Fault Detector
(1000A, High Current)



ESS Arc Fault Detector
(300A, High Current)



Solution Advantages

The high-performance arc fault detector module enables arc fault detection functionality. By monitoring arc faults in real time, it quickly identifies abnormalities and triggers protective mechanisms, thereby enhancing system safety and reliability.



10+ Years of Arc Fault Detection Experience



Quick Integration Easy to Embed



Adopted by Over 80 Inverter Manufacturers



Supports OTA and Remote Learning

Product Overview



CBM

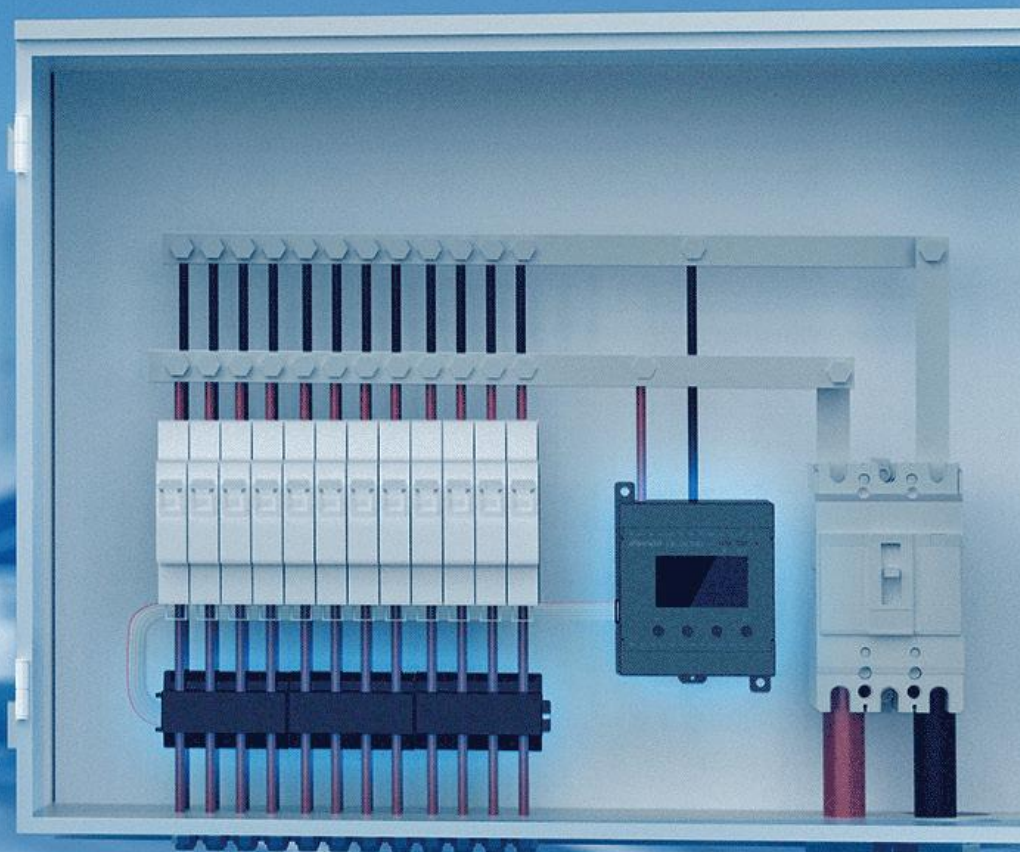
Combiner Box Monitoring System Solution



DC System Monitor



Hall Sensor



Solution Advantages

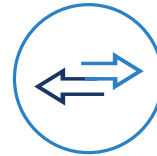
The combiner box monitoring system provides monitoring and management for each device in a solar power generation system. It can monitor the status of surge protectors and circuit breakers without requiring an external power supply. The system supports RS485 communication, DC arc fault detection, and shunt trip functionality.



15 Years of AFCI Expertise



String-Level Arc Detection

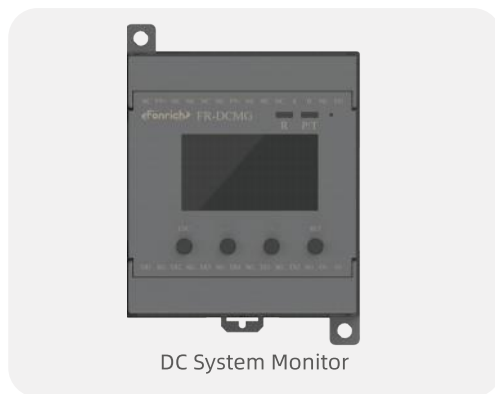


Supports HPLC Communication

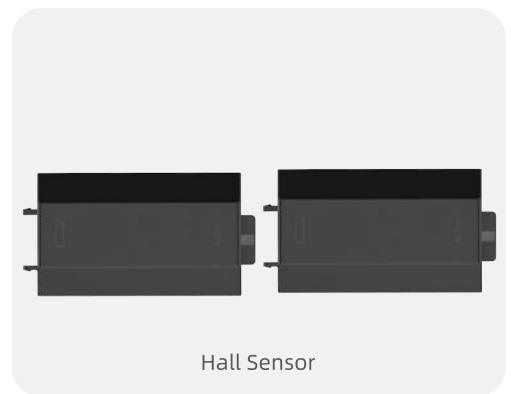


Supports IV Curve Scanning

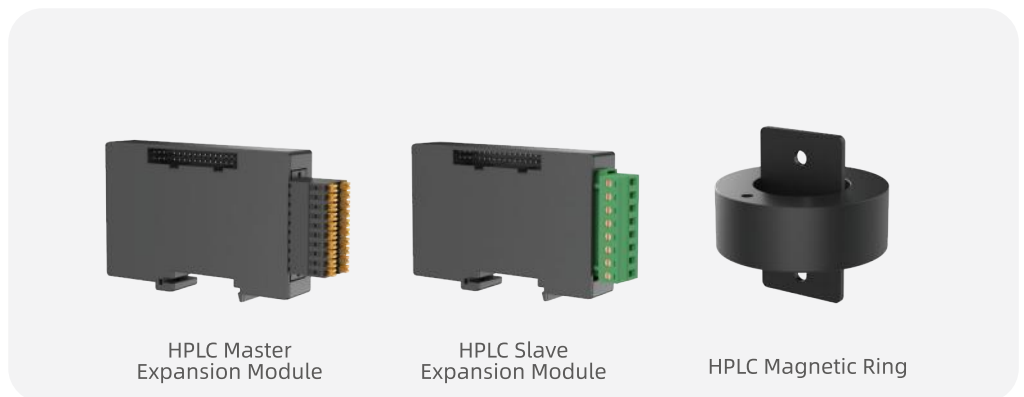
Product Overview



DC System Monitor



Hall Sensor



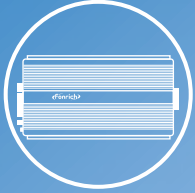
HPLC Master Expansion Module

HPLC Slave Expansion Module

HPLC Magnetic Ring

IMD

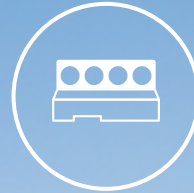
Insulation Monitoring Solution



Insulation Monitoring
Main Unit



DC System Monitor



Leakage Current Sensor

Solution Advantages

A comprehensive solution for insulation fault detection, monitoring and location in PV systems. It fully supports insulation fault detection and arc fault detection, with multiple communication options including RJ45 Ethernet, RS485 Modbus, and Bluetooth.



String Insulation Resistance



String Leakage Capacitance



String-Level Insulation Fault Location



Monitoring Range:
0.2-990 kΩ

Product Overview



Insulation Monitoring Main Unit

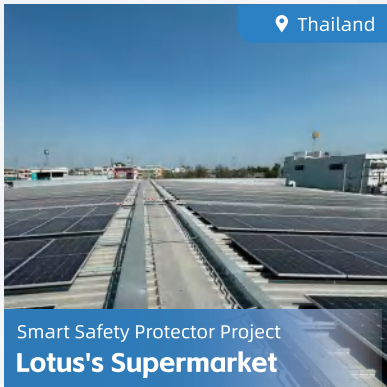


DC System Monitor

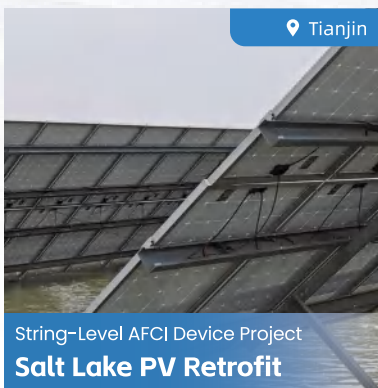
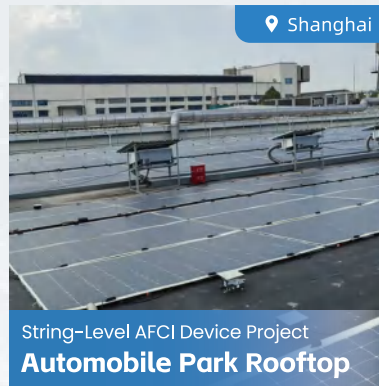


Leakage Current Sensor

International Cases



Domestic (China) Cases



Guard Energy Security, Empower Green Development



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

Address: 1st Floor, Building 2, S&T Innovation Building,
No.1588 Lianhang Road, Minhang District, Shanghai, China
Email: info@fonrich.com
Website: www.fonrich.com



Official Website



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