

# SMART ENDPOINT AI SENSING

NEXT-GENERATION ARC-FAULT PROTECTION: FASTER DETECTION, UNMATCHED ACCURACY

## Key Features

By 2030, AFCI shipments are forecast to top 40 million units annually as NEC, IEC 60364-4-42, and UL 1699B codes expand worldwide.

Future Electronics, leveraging the Renesas RA6M4 MCU and Reality AI Tools®, delivers a breakthrough endpoint AI-enabled system which offers near-perfect detection in <4ms utilizing <100kB Flash/RAM, virtually eliminating false alarms while identifying hazardous DC and AC arcs that other devices miss.

- **AI-enabled Signature-Based Recognition powered by Renesas Reality AI Tools®**
  - Arc faults (small & large arc)
  - Open & closed circuits
  - Tampering & abnormal current profiles
- **Virtually Eliminate Nuisance Tripping:** Overall Arcing Detection Accuracy of **99.74%**
- **Simplify Deployment and Adapt to Any Environment:** The 'One Button Learn' feature allows the device to quickly **auto-calibrate** to the specific electrical noise profile of its environment, ensuring optimal performance and reliability right out of the box.
- **Ultra-fast Detection:** Inference times including pre-processing and multi-window verification ensure margins are well within NEC/UL standards requirements.

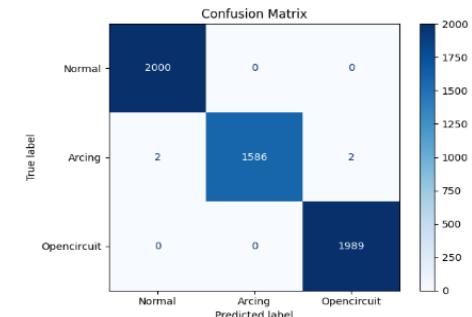
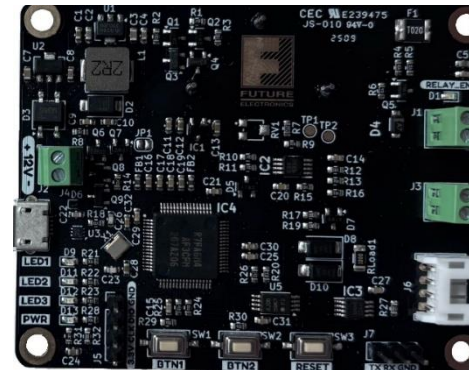
## Target Markets and Applications

Validated for:

- Solar Inverters
- Circuit Breakers

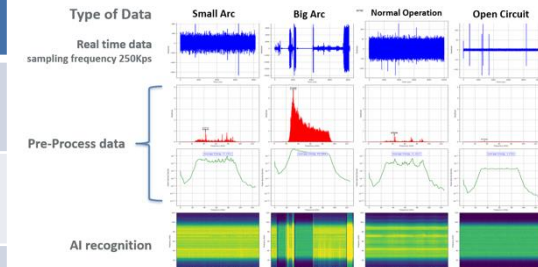
**FUTURE Electronics services available for implementation in:**

- Battery Energy Storage System (BESS) Inverters
- DC EV Chargers
- Industrial Switchgear
- PDUs for AI Datacenters
- High-power Battery Tools, e-mobility, and more!



Validation Metrics: **99.74%**

Characteristics	AI Sensing	Traditional Method
Arc Detection Accuracy	>90%	80%-90%
Small Arc Detection	Yes	No
Adaptability to Environment	Yes	No



Learn More:

- [SMART EDGE AI Sensing Arc Fault Circuit Interrupter \(AFCI\)](#)
- [www.futureelectronics.com](http://www.futureelectronics.com)

AMERICAS	●
EUROPE	●
JAPAN	●
CHINA	●
TAIWAN	●
ASEAN/ ANZ/ IND	●
KOREA	●

● Supported  
● Not supported