

*Outstanding performance with
Proven no false ARC detection in the field*

DIT ARC Detection PCB Module

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Dongil Technology (DIT)



Contents

- 1. Product Definition**
- 2. Market Overview**
- 3. DIT ARC Module**
- 4. Value Proposition to Customers**

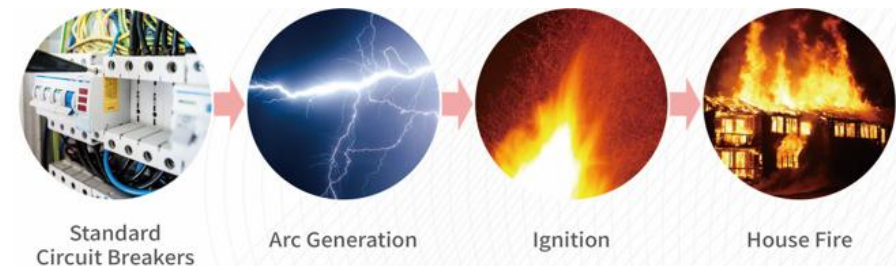
□ AFCI (Arc Fault Circuit Interrupter) / AFDD (Arc Fault Detection Device)



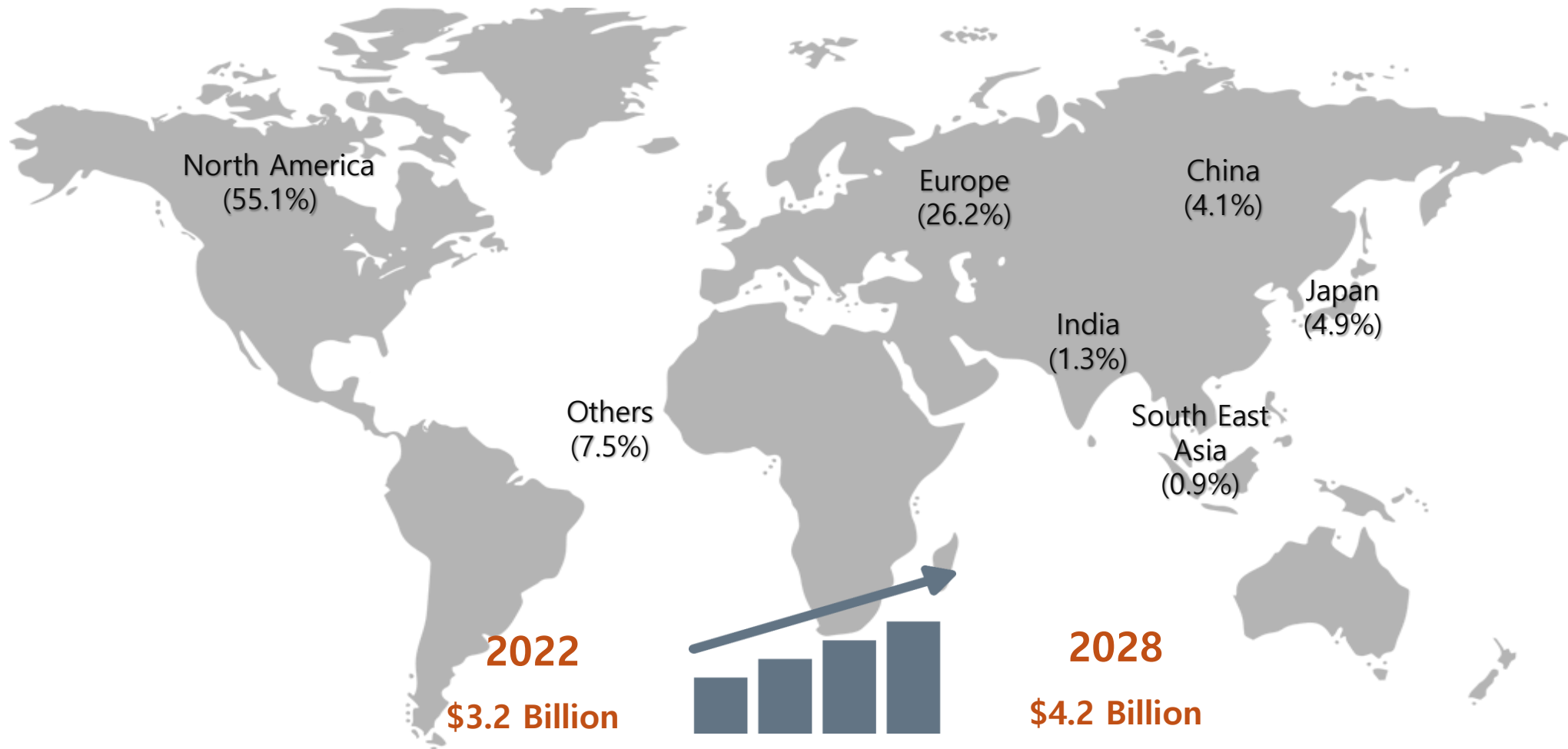
What is AFCI ?

AFCI(Arc Fault Circuit Interrupter) :

An electrical safety device that detects arcs caused by wire defects and cuts off the current in the circuit, which is necessary to prevent electrical fires.



□ Market size : Expected to grow up to \$4.2 Billion \$US by 2028 [CAGR: 4.5%]



□ AFCI/AFDD : Required for Reliable Detection

1

56% of U.S home electrical fires (2015-2019) were caused by arc faults

2

AFCI malfunctions can lead to hazardous fires or inconvenience from false interruptions

3

Advanced circuits are needed for accurate Detection to prevent malfunctions

□ DIT Solution has proven Market Track Record with Outstanding Features

① Enhanced Arc Detection Reliability

- ✓ Improved arc detection precision with high-speed FFT and DWT frequency and time-axis analysis technology
- ✓ Enhanced arc judgment reliability with complex index calculations for power fluctuations during arc occurrence

② Compact Size

- ✓ In-House designed 1-Chip LSI (5mm x 5mm)
- ✓ Miniaturization of PCB Module (24mm x 24mm) for easy application to existing circuit breakers



③ Minimized False Detections

- ✓ False detection prevention for various load environments

④ UL/IEC Standard Compliance

- ✓ Fully meets all UL1699 performance requirements

□ Application of a Composite Detection Algorithm Combining 10 Detection Indexes

- ❖ There is no single detection index that can respond to all load conditions
- ❖ Real arcs and similar arcs can be precisely distinguished through a combination of various detection indexes

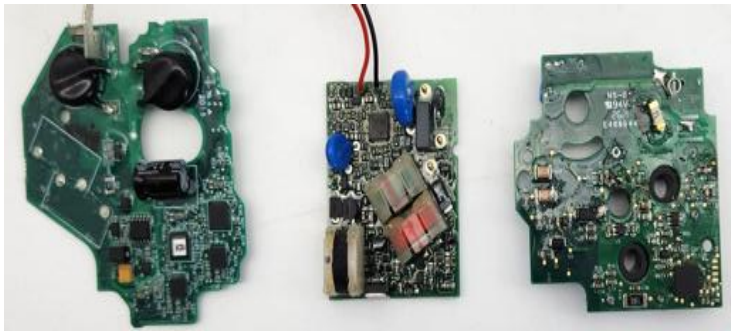
(○ =Detectable, X =Undetectable)

No	Loading Condition	Index									
		I-1	I-2	I-3	I-4	I-5	I-6	I-7	I-8	I-9	I-10
1	Resistance (Load: 640W)	X	○	○	X	X	X	X	○	X	○
2	Incandescent bulb (Load:1000W)	X	○	○	X	○	X	X	○	○	○
3	SMPS (Load:125W)	○	○	X	○	○	X	X	X	○	○
4	Incandescent Dimmer 60° (Load:330W)	X	○	X	X	○	X	X	X	○	X
5	Micro-wave Oven (Load:1120W)	X	X	○	X	○	○	X	X	X	X
6	Metal Cut-off Machine(Load1200W)	X	X	X	X	○	X	X	○	X	X
7	Electric Heating (Load:1600W)	X	X	○	X	○	X	X	○	X	○
8	Vacuum Cleaner (Load:1050W)	○	X	○	○	○	X	X	○	X	○
9	Fluorescent lamp (Load:91W)	○	○	X	○	○	X	X	○	X	○
10	Power Drill (Load:650W)	X	X	X	○	○	X	X	○	X	○
11	Air Compressor (Load:1500W)	○	○	○	X	X	○	○	X	○	X
12	EMI Filter(0.22uF)+R (LoadL640W)	○	○	○	X	X	X	X	○	X	○

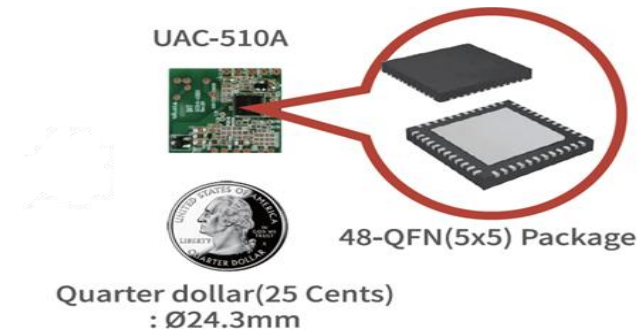
□ DIT Solution doesn't require additional Mechanical design change due to compact size

- ❖ PCB size : 24mm * 24mm (about 1/3 size compared to other companies' products)
- ❖ ELCB function included

Competitors' AFCI Module PCB



DIT AFCI Module PCB



Ultra Small Size

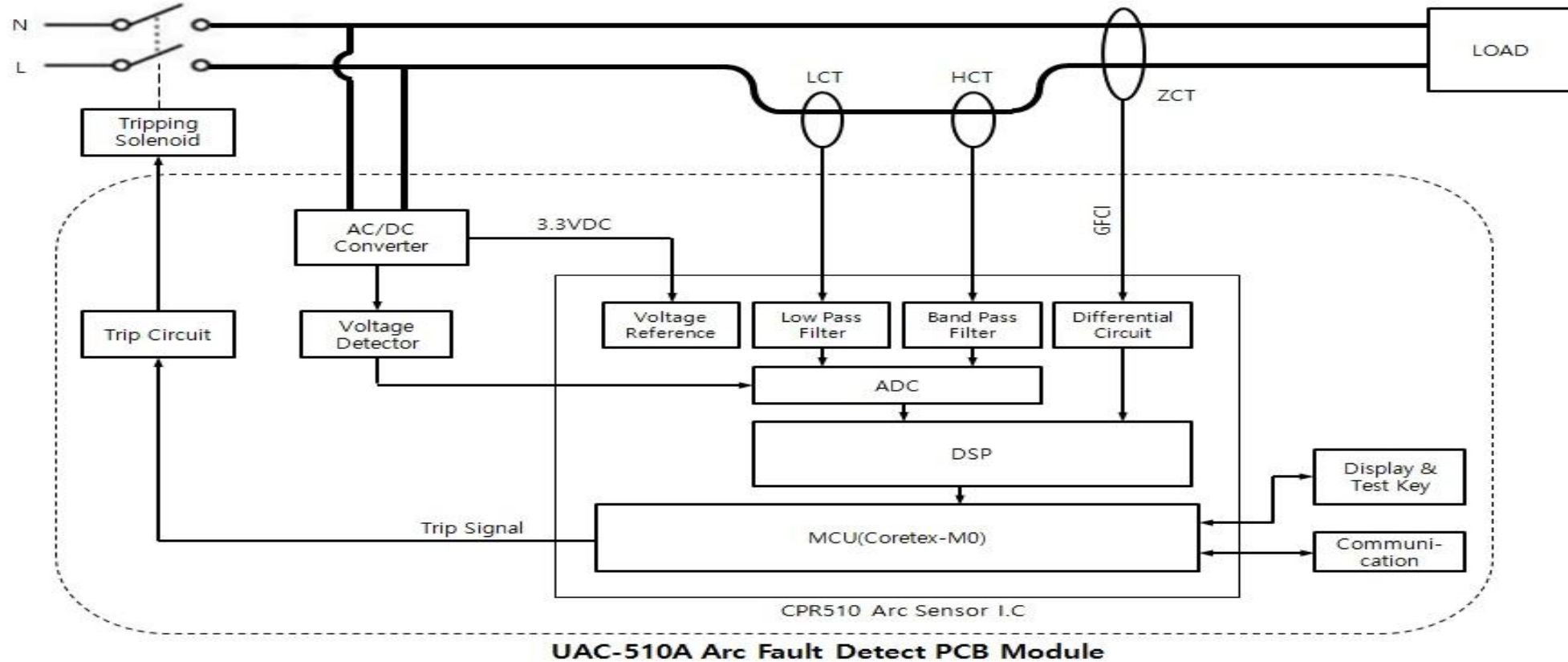
- PCB Size Max. 24x24x1.0t
- ELCB function included
- Secure price competitiveness



Super ultra-small size that can be installed without changing the structure of excising AFCI, AFDD, and ELCB

□ DIT AFCI Module Configuration

- ❖ Two current transformers applied to detect arcs in low and high frequency bands respectively
- ❖ Zero-phase current transformer (ZCT) can be connected to enable ELCB function



- For Customer's values improvement, DIT is ready to provide competitive solution



Product

Customized Design and High ARC Detection Accuracy

- ✓Flexible Design and Comprehensive technical support
- ✓Maximizing Arc Detection Accuracy with Integrated Multi-Algorithm to Minimize False Positives

Promotion

Market differentiation through independently developed ICs and the ability to offer competitive and reasonable Pricing

- ✓Completed the development of powerful ICs leveraging In-house IC design capabilities



Thank you !