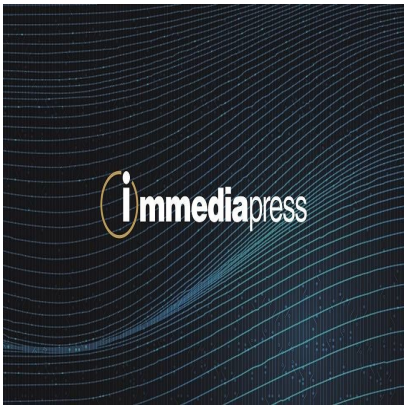

Europeâ??s Rising Temperatures Make PV Safety More Critical Than Ever

Descrizione

COMUNICATO STAMPA â?? CONTENUTO PROMOZIONALE

YIWU, China, July 27, 2026 /PRNewswire/ â?? Europe is experiencing increasingly frequent and intense heatwaves. From Southern Europe to Central Europe, record-breaking temperatures are posing new challenges for energy infrastructure. As photovoltaic installations continue to expand across the continent, solar systems are increasingly being tested by more extreme climate conditions.

For years, PV innovation has focused primarily on efficiency and cost reduction. But as operating environments become more demanding, safety is emerging as another critical measure of module performance.

AIKO ABC brings PV safety into sharper focus

Against this backdrop, AIKOâ??s ABC (All Back Contact) modules are gaining attention not only for their high efficiency and aesthetics, but also for their exceptional safety performance.

AIKO ABC modules are the worldâ??s first PV modules to receive TÃ?V Rheinlandâ??s â??PV Module Anti-Ignition Hazardâ?• certification. Under TÃ?V Rheinlandâ??s enhanced testing conditions, ABC modules recorded hot spot temperatures more than 35% lower than traditional modules, demonstrating their enhanced ability to reduce thermal risks associated with localized overheating.

Beyond this certification, ABC technology is designed to effectively limit hot spot temperatures to below 100Â°C under relevant operating conditions, helping reduce excessive thermal stress and mitigate potential ignition risks. This advantage has also been demonstrated in comparative shading tests, where ABC modules recorded significantly lower hot spot temperatures than traditional modules under both single-cell shading and large-area shading conditions.

But what enables ABC modules to achieve such strong thermal safety performance?

Why can ABC technology better suppress hot spots?

Hot spots can occur when partial shading, micro-cracks or other internal defects disrupt normal current flow within a PV module.

When part of a cell is shaded, its ability to generate current decreases. Because cells within a module are electrically interconnected, the affected area may be driven into reverse bias, causing electrical energy to dissipate locally as heat. If this localized heating continues, temperatures can rise rapidly, accelerating material degradation and, in severe cases, resulting in fire hazards.

AIKO ABC technology addresses these risks through two key design advantages.

Cell-level bypass diode-like function helps suppress localized overheating

AIKO ABC cells feature a unique cell-level bypass diode-like function designed to improve current flow under partial shading conditions.

When part of a cell is shaded, the architecture provides alternative current pathways that help redistribute current around the affected area, rather than allowing electrical stress and power dissipation to become highly concentrated in one location.

By reducing localized power dissipation, the design helps suppress excessive hot spot temperature rise and improve thermal safety under partial shading conditions.

This difference in thermal behavior was also illustrated in a live demonstration at Intersolar Europe 2026. Under the same lighting and shading conditions, ABC and traditional modules were compared side by side, offering a direct visual indication of how the two technologies respond to partial shading.

Copper interconnection technology reduces hot spot risks associated with micro-cracks

AIKOâ??s copper interconnection technology also significantly reduces the risk of hot spots associated with micro-cracks. Unlike conventional silver-paste metallization, which typically contains glass frit, AIKO ABC cells use pure copper grids bonded to the silicon wafer.

This robust copper-based structure significantly enhances cell toughness and mechanical strength, improving resistance to micro-cracks and reducing the associated risk of hot spot formation.

Protection extends beyond internally generated hot spots

PV fire safety is not only about preventing overheating from within the module. Solar installations may also be exposed to external fire sources, making flame resistance another important dimension of module safety.

Under IEC fire resistance testing, in which modules are exposed to a 760Â°C flame for 10 minutes, AIKO ABC dual-glass modules achieved the highest Class A fire resistance rating, while traditional modules were rated Class C, highlighting the difference in flame resistance and fire propagation performance between the two technologies.

Toward a safer and more resilient solar future

As Europe accelerates its renewable energy transition, efficiency alone is no longer enough. Thermal safety, fire resistance and long-term reliability are becoming increasingly important considerations in the evaluation of next-generation PV technologies.

Against this evolving backdrop, AIKO ABC technology represents a broader step toward solar solutions that can deliver both high performance and greater safety, supporting the development of a more resilient and sustainable energy future.

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