

# PV マガジン アワード 2025年大賞 製造部門

## FSS 4 高い評価獲得 準大賞



Industry & suppliers

### The pv magazine Awards 2025

In a year that has posed challenges for the solar industry, the 2025 crop of pv magazine Award winners presented our expert jurors with a vision of what the future might hold. From world-first technologies supporting grid stability to second-life solutions that tackle sustainability, along with action in rapidly growing PV markets and innovation for emerging market segments, technical progress is driving the energy transition. The time has come to reveal the pv magazine Awards 2025 winners.

More than 260 entries were received for the pv magazine Awards 2025, and the additional news and expert commentary provided the size and effort made by all involved. From the most popular category in 2025, closely followed by BESS, followed by Inverters and PV.

There were winners from some categories that were new to the industry this year. How solutions to reduce O&M costs and maximize plant performance, increased engagement with the G&E regions, heightened interest from growing markets, and technical solutions to grid stability challenges.

What has been going on? In 2025, the industry faces constraints in various markets and emerging categories, from response to PV module performance specifications to creative and application to energy storage. This year arguably the year that the solar industry really woke up to the pressing need for greater grid stability and better battery energy storage systems (BESS) deployment. And the time has come to reveal the winners of the 2025 pv magazine Awards categories.

260 entries received from 40 countries  
20 independent jurors  
Eight winners

pv magazine AWARDS 2025

Winner: Würth Energy Storage, Blockstack BESS (PAGE 52)

Winner: Longi Green Energy Technology Co., Ltd. (PAGE 54)

Winner: SunEdge, High-performance second-life BESS (PAGE 56)

Winner: SMA Sunny Central Storage IAP-S (PAGE 58)

Winner: SMA SolarTech, BESS/Quiktech (PAGE 60)

Winner: Solar Materials, solar recycling (PAGE 62)

Winner: Inverters, Solar PV (PAGE 64)

Winner: Inverters (PAGE 66)

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### Manufacturing: Sustainable innovation

Despite difficult market conditions for many in the sector, solar manufacturers and technology suppliers have continued to innovate in 2025. This year's winner reflects the emergence of PV recycling as a manufacturing and technology sector in its own right, while the highly commended entry provided a great example of equipment supplier ability to quickly adapt to changes in cell technology and the new requirements that bring.

#### ソーラーパネルリサイクリング

**Winner**

**Solar Materials, solar recycling**

Germany's Solar Materials has developed a set of proprietary processes it can recover 98% of all raw materials in a typical solar panel waste per year with plans to scale this capacity and open a new site in Italy in 2026, as well as further sites in France and Spain later on – targeting a total capacity to handle 100,000 tons of PV waste by 2028.

Solar Materials uses the processes required up to 95% less energy and 80% less CO<sub>2</sub> emissions than the production of primary materials.

The company takes a "reverse production" approach, with automated processes to separate the panels into by-layers, including chemical treatments and high-temperature processing.

The company also continues to invest in optimization and furthering process throughput and energy efficiency of its recycling process, and is prepared to handle new module technologies and materials as they start to reach end-of-life.

At the time of writing, the company is in the process of securing a new site in Italy to expand its capacity to handle 100,000 tons of PV waste by 2028.

**Highly commended**

**Kynkin Electric, FSS 4 Probe Bar**

Changing PV cell technologies poses a challenge for suppliers of testing equipment, with new architectures and cell interconnections strategies increasingly incompatible with testing equipment for the industry.

Kynkin Electric's FSS 4 probe bar offers a flexible, plug-and-play approach to 200 contact strips. The solution features dual row configurations with a current probe and voltage probe in parallel with a meterage of 0.2 mm – meaning the device is able to measure five test-cell sizes in a module. Many companies are working on solutions to this, and this one is simple and functional compared to more complex approaches I have seen.

The device is ready to use – both as standalone or as a probe block. The manufacturer says it has been proven to work for more than 10 million test cycles, and can be upgraded into testing equipment with minimal modifications.

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### 革新的先端技術 プロビングバー FSS 4

**Highly commended**

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**The Jury**

Alan Clarke is a technical and business developer for electrical and electronic testing equipment manufacturer S&S, with a focus on power and energy testing equipment for power and energy sectors of King Abdulaziz City for Science and Technology, across the Kingdom of Saudi Arabia, and is also involved in testing and monitoring in local PV markets. He has an MSc in PV solar system engineering from the University of New South Wales (UNSW) in Australia.

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pv magazine  
**AWARDS 2025**

**HIGHLY COMMENDED**

industry & suppliers

**The Jury**

*How far has it technical and business developer for electrical and nuclear energy at South Africa based quality assurance provider SCC with address began to enter as a testing sponsor of King Abdullah City for Science and Technology when he switched to testing and monitoring to Solid Py director. He holds an MSc in Power System Energy engineering from the University of New South Wales (UNSW) in Australia.*

*Alban Corbis is a Scientific Industry and University early career research fellow at the School of Photovoltaics and Renewable Energy Engineering at UNSW. He has extensive experience in managing technology transfer and industry collaboration with many large scale multi-national and multi-industrial clients from Asia, Europe, and Americas.*

*Peter Falk is the CEO of ECT solutions, which works closely with global utilities, governments, and factories to establish integrated water manufacturing facilities by providing extensive engineering services. He is a member of the Solar Equipment Association (SEA) of IEC, a German engineering federation, and holds a managing director position of IEC Hydrogen.*

**Highly commended**

**Kyushu Electric, FSS 4 Probe Bar**

Changing PV cell architectures creates a challenge for suppliers of testing equipment, with new metallizations and cell interconnection strategies increasingly incompatible with cell testing equipment. Older pin-type cell probes struggle to maintain a consistent and uniform contact with fine electrodes on cells, requiring a new approach.

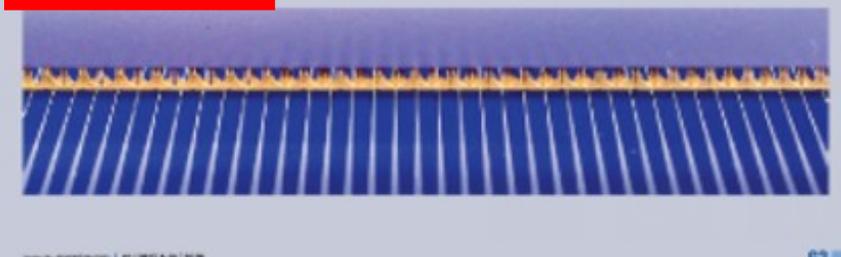
Kyushu Electric's FSS4 probe bar solution is a reliable spring suspension mechanism to align and support approximately 200 contact strips. The solution features dual row configurations with a current probe and voltage probe in parallel with a tolerance of 0.2 mm – ensuring the device is also able to measure four-terminal devices. It can also measure cell sizes from M2 (157 mm) to G12 (210 mm), in various formats including full-size, half-cut, and double half-cut.

The device is ready to use – both in laboratories and in production lines. The manufacturer says it has been proven to work for more than 11 million test cycles, and can be integrated into existing equipment with minimal modifications.

**Jury comments**

Peter Falk: This solution is a must. I cannot see the typical pin probes working anymore with modern cells and new busbar designs. It is a very technical and innovative product which solves a long problem for the industry.

Alban Corbis: This is a huge issue right now. Busbars and fingers have got so tiny, and sometimes there are none at all, and you have no way to accurately match the probe to the cell. Many companies are looking for a solution. This one is simple and functional compared to some contactless approaches I have seen.

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## 共進電機 (KOPEL), FSS 4 Probe Bar

太陽電池 (PV) セルのアーキテクチャの変化は、検査装置メーカーにとって新たな課題となっています。新しいメタライゼーション (電極形成) やセル接続方式は、従来のセル検査装置との互換性が低くなりつつあります。従来のピンタイプのセルプローブは、細くなった電極に対して一貫した均一な接触を維持することが難しく、新しいアプローチが求められています。

共進電機の FSS4 プローブバーは、約200本の接触子を支える柔軟なスプリング式サスペンション機構を採用しています。このソリューションは、電流プローブと電圧プローブが並列に配置されたデュアルロー構成を特徴とし、両者の間には0.2mmのマイクロギャップがあるため、4端子セルの測定も可能です。

また、M2 (157mm) から G12 (210mm) までのセルサイズに対応し、フルサイズ、ハーフカット、ダブルハーフカットといったさまざまなフォーマットを測定できます。

この装置はすでに研究所および生産ラインで使用されており、1,000万回以上のテストサイクルで実績があるとメーカーは述べています。また、既存設備への組み込みも、最小限の改造で可能です。



**審査委員 コメント**



**Dr. Peter Fath**  
CEO of RTC Solutions

本ソリューションは今後のPVセル検査において不可欠となる技術です。タンデムセルやゼロバスバー構造に対応できる従来型ピンプローブはもはや限界であり、本製品はその根本課題を解決する革新的なアプローチです。



**Dr. Alison Ciesla**  
Senior Lecturer at UNSW Sydney

これは現在、業界にとって非常に大きな問題です。バスバーやフィンガーは極めて細くなり、時にはまったく存在しない場合すらあり、モジュール内でセルを正確にマッチングする方法がなくなってきています。多くの企業がこの課題に対する解決策を研究していますが、このソリューションは、私が見てきた非接触方式のアプローチと比べても、シンプルで実用的です。