

Intersolar 2018: Show award winners push technology boundaries



Three solar companies were winners of the Intersolar Awards during a packed Intersolar Europe in Munich, Germany this year.

In 2018, the industry judges were said to have focused on product solutions that exploited design characteristics to achieve the best possible results.

In the upstream, finalists included PV module manufacturers such as Hanwha Q CELLS, a 'Silicon Module Super League' (SMSL) member, niche player, Lumeta Solar and electronics giant LG Electronics.

Supporting the upstream module manufacturers were encapsulant producer, RenewSys, anti-reflective coating specialist, Interfloat, glass specialist, Gujarat Borosil and module assembly equipment specialist, Ecoprogetti made the finalist list.

In the downstream, PV inverters were represented by ABB and Huawei, while PV plant design software specialist, Krinner Solar also made the award finals.

Maintaining Intersolar Europe's 'international' trade fair dominance, finalist came from the US, Korea, Italy, India, China, Germany and Liechtenstein.

Intersolar Award winners

Intersolar Award winners were Hanwha Q CELLS with its Q.PEAK DUO-G5 PV module, which is a 120 half-cell solar module with power classes up to 330Wp. The module efficiency of 19.9% comes from Q.ANTUM DUO (PERC) technology that combines the latest monocrystalline Q.ANTUM cells with a six-busbar advanced cell interconnection technology design, and smooth cut edges that were said to have improved the mechanical stability of the cells. Both electrical and optical losses that usually accompany cell interconnection were also reduced. The Q.PEAK DUO series was said by the judges to have set a new standard in power, energy yields and LCOE.

The jury was said to have been impressed by the technological evolution of this solution that combines many state-of-the-art technologies in one product. In a combination that is both innovative and effective, a very good temperature coefficient and improved mechanical reliability is realized, while the modular architecture leads to better resistance to shading and makes Q.PEAK DUO-G5 a drop-in-replacement for standard modules. This can be a new standard for residential and commercial rooftops.

Global CTO, Dr. Daniel JW Jeong, said at Intersolar after winning the award: “We are once again extremely pleased with the decision of the Intersolar Award Jury. Our Q.PEAK DUO-G5 module combines a number of innovations on different levels with our high performance cell technology Q.ANTUM DUO. The durability, power increase and improved shading response performance of the module ensure that the module stands out in an increasingly competitive field. The Q.PEAK DUO-G5 solar module series is now available for customers in Europe and various international markets.”



Hanwha Q CELLS Q.PEAK DUO-G5 module combines a number of innovations on different levels. Image: Hanwha Q CELLS

In the downstream, ABB was a winner with its PVS-175-TL inverter that is a cloud-connected three-phase string solution for commercial rooftop applications and utility-scale power plants.

The new 1500 V DC platform delivers up to 185 kW at 800 V AC, enabling the use of decentralized plant architecture without increasing AC distribution losses. With this cost-effective solution, from 35% up to 65% fewer inverters are required for the same overall AC capacity, while maintaining the key benefits of string inverter technology.

Several innovations caught the jury's attention, which included increasing the AC output voltage to 800 V with additional and independent boost-converters, reducing electrical losses in large PV systems.

With 12 MPP trackers, the PVS-175-TL inverter also provides high granularity, leading to higher yields and easier maintenance, while eliminating the need for fuses and combiner boxes. The solution was said to be a cost-effective and modular structure that can be steered via Wifi, all while delivering top performance on core inverter functions.

The jury was also impressed by the high power-density of 1.3 kW per kilogram, and the operating temperature range of -20° to + 60° Celsius.

“As demand for higher voltage and higher power class ratings continues to grow, we are very excited to bring to the solar energy industry a scalable and versatile solution. We are delighted to be recognized at the highest possible level in our industry, particularly with the market shifting towards new technologies to enhance solar power generation in a reliable, safe and cost-effective manner,” commented Giovanni Frassinetti, who heads up ABB's Solar Business Unit. “This latest product not only supports higher power densities, but also improves installation with reduced commissioning time. It also benefits from advanced communication and digitalization for condition-based monitoring and proactive maintenance for the operator.”



ABB was a winner with its PVS-175-TL inverter that is a cloud-connected three-phase string solution for commercial rooftop applications and utility scale power plants. Image: ABB

The other award winner was Krinner Solar for its CAS² CAD-based PV system design software and hardware, which was said to reduce the time for planning and installing large scale PV plants by 10% to 30%, and is among the first of its kind.

The claims were justified by the digital design, development, and installation applications for all kinds of ground-screw-based solar structures in all soil types. The CAS² combines the data from the surface and the soil in various depths from the surveying phase with the planned foundation of the solar racking systems on variable Krinner ground screws. This data base makes it possible to plan – and produce – variable lengths of the ground screws.

The jury noted that this was an important solution for the new digital energy world with every step of planning, production and installation is reported online and documented in a central database, allowing specified reports to fulfill bank, insurance companies, and operator requirements. Mapping data created by drones and surveying robots are used to control the installation robots and vary the length of the screws, reducing steel consumption by 3% to 6%.



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The Intersolar Award finalists

ABB (Italy): Presents the PVS-175-TL string inverter for large-scale PV plants with 12 MPP trackers. It is highly efficient and has an enormous power density. Other noteworthy aspects are its ability to operate at 1500 V, the integrated data logging and communication standards, the installation app, diverse grid integration features and the connection to ABB's cloud system.

Ecoprogetti Srl (Italy): The LED solar simulator Ecosun Bifacial, offering an excellent measurement accuracy (AAA), was developed to measure the I/V characteristics of the front and rear side of bifacial PV modules at the same time. Different irradiation intensities can be selected for the rear side, ensuring that the testing is flexible and realistic.

Gujarat Borosil Ltd (India): The new 2-millimeter-thick, fully tempered solar glass with an anti-reflection coating is a replacement for the standard 3.2 mm glass. The new glass is lighter and enables high transmission rates. The manufacturing process uses air cushion technology to prevent stripes, defective areas or discoloration and guarantees high production quality.

Hanwha Q CELLS GmbH (Germany): Designed with round wire cell contacts and six busbars (front contacts), the half-cut cell module Q.PEAK DUO-G5 achieves a module efficiency of 19.9% with cost-effective standard p-type cells. The innovative technology Q.ANTUM DUO halves the current passing through each cell, stabilizing them and increasing their shade tolerance.

Huawei Technologies Co., Ltd. (China): Thanks to its extremely high efficiency, the 60 kW Smart String Inverter (SUN2000-60KTL-M0) only requires passive ventilation. With features such as online monitoring of all connected strings including characteristic curve measurement, power line communications and a PID recovery mode, it has rightfully earned the product description “smart PV inverter.”

Interfloat Corporation (Liechtenstein): Thanks to its special geometry and anti-reflective coating, the extremely low-reflection solar glass GMB DEFLECT for PV modules enables solar projects to be carried out in glare-sensitive areas such as traffic routes (rail, highways, intersections), flight paths or heavily built-up residential areas.

Krinner Solar GmbH (Germany): The product CAS² optimizes the highly precise manufacture of support systems for free-standing PV installations. After the CAD-based system design has been drawn up, individual and optimized plans are prepared for every PV project and the installation robots are controlled with pinpoint accuracy.

LG Electronics Inc. (South Korea): The LG NeON R module series features 6-inch monocrystalline high-efficiency cells, entirely rear contacted, with multi ribbon busbar technology. An extremely high module efficiency of over 21% along with a 25-year module performance warranty, high mechanical resilience, reverse current carrying capacity and impressive temperature behavior make the series worthy of recognition.

Lumeta Solar (USA): The glassless module Lumeta Lynx for lightweight roofs is attached to the roof surface using a thermoplastic adhesive. Special cable ducts and junction boxes round off the concept. The use of monocrystalline PERC cells enables a module efficiency of 18.3% to be achieved.

RenewSys India Pvt. Ltd. (India): The new encapsulation film CONSERV E 360 Polyolefin Elastomer Encapsulant is anticipated to replace the commonly used EVA film in the production of solar modules. The material is particularly remarkable for its high insulating ability, excellent protection against potential-induced degradation (PID), improved mechanical stability and low permeability to moisture.