


Innovation, quality, strategy and vision



Headquartered in the suburbs of Shanghai, APsystems was originally founded in the Silicon Valley over 11 years ago by Dr Zhi Min Ling, current Chairman & CEO and Dr Yuhao Luo, CTO of the company. Today PES Solar reports back from an interview with Olivier Jacques, President, Global Executive VP of APsystems, who draws a portrait of the company revealing details of one of the major product innovations scheduled for launch this summer 2021, the 3rd generation of dual microinverters: the DS3.

PES: Welcome back to PES Solar. Would you like to give us a brief overview of APsystems?

Olivier Jacques: It has now been a decade since we gradually established ourselves as the global benchmark in multi-module microinverters for the solar industry. Firstly, in the USA and Australia, then in Europe for over 5 years now and more recently in Latin America, we have today become one of the major players and undisputed leaders in this market with more than 250 employees, 1 Gigawatt of equipment installed serving customers in more than 120 countries.

The company and its field of expertise could be translated by one term: MLPE. Module Level Power Electronics means the ability to control power and monitor production at module level. In this MLPE offer, one of the flagship products is the microinverter which is also the core business of the company.

Today APsystems is setting the bar of the ever-growing solar MLPE segment with strong leadership.

PES: What are the specificities of APsystems' microinverters range?

OJ: One of the main specificities of the APsystems microinverter range is that it is the most extensive on the market. We have products that will connect 4 single-phase panels for residential use, for example, with the QS1 having a maximum output of 1400W AC. Also, QUADs which will inject a native three-phase current for large industrial or agricultural roofs with the YC1000. Usually, our microinverters connect 2 to 4 modules.

This brings several advantages for solar professionals, in particular huge economies in the acquisition of materials and labor costs but also in the speed of installation. It also offers the user all the advantages that Microinverter technology provides, namely, maximizing the production of the installation,

providing more safety on the roof, allowing flexibility in the layout of the installation, and managing the installation remotely.

PES: How do you explain your growth on the market?

OJ: Our profitable growth is based on 4 main pillars:

The first, the company's DNA: innovation. This makes it possible to offer products that meet all the market's prerequisites, such as the management of the power factor for better integration of solar power into electricity networks.

The second pillar is a very high level of quality and reliability with a failure rate of less than 0.3% on the range and a product warranty of 10 or 20 years.

The 3rd pillar is a clear and visible strategy for all our customers and partners but also for all market players.

The 4th pillar, a vision, and a global organization but dedicated teams by region



Olivier Jacques



Jayman Homes, 2,1 MW across 1,100 installations

which allow us to bring a very close proximity to our customers and our partners and close support in terms of sales, marketing, technical support, and training.

PES: Tell us more about your R&D?

OJ: Research and Development at APsystems has always held a prominent place since its creation in 2010. It is one of the spearheads of both its development and its success.

As proof, we are about to release a new generation of dual microinverters platform with unique characteristics on the market. It will be the 3rd generation of our dual microinverter series, with derivatives having power outputs ranging from 730W to 960W AC to adapt to any power module sizes. With 2 MPPTS, encrypted Zigbee signals, the DS3 (920W) and DS3-L (730W) benefit from an entirely new architecture, but remain compatible with our current single-phase multi-module microinverter range.

We have added enhanced communication security leveraging Texas Instruments' Zigbee module, a global benchmark in this field, onto which we are adding a cybersecurity tool called Karamba to make code programming completely inviolable and all PV production data processed by our customers fully secured. In terms of form factor design and microinverter materials utilized for the casing, we have also opted for an innovative, optimized, compact design combining cast aluminum on the front and rugged polymer on the back making the product lighter while maximizing its power.



DS3 main view



DS3 back view

All components are still encapsulated with silicone to reduce stress on the electronic components, facilitate thermal dissipation, enhance waterproof properties, and ensure maximum reliability of the system via rigorous testing methods including 20 000 hours of accelerated life testing and many other procedures which are part of our ISO 9001 certification process.

At this stage, we also needed to make our products interactive with power grids. A feature commonly referred to as RPC (Reactive Power Control) or reactive power factor management, has been increasingly requested by utilities to better manage photovoltaic power spikes in the grid and

facilitate its integration. This is a requirement, already in force in countries like Germany, US, Italy or Australia, which is gradually spreading all over the world.

With a performance and an efficiency of 97%, plus an entirely new design offering an unprecedented integration with 20% less components, the DS3 is very promising and will be able to connect 2 PV modules of 650w each.

This product development is a good illustration of APsystems' skills in innovation. Coming from our 2 R&D centers, one based in the heart of Silicon Valley, the other in the suburbs of Shanghai, nearly two-thirds of APsystems' workforce works in R&D.

PES: So, how would you like to round off our interview?

OJ: We apply a very selective policy in terms of suppliers and electronic components that we use in the manufacture of our products.

Our skills range from the design of the electronic circuit to the integration of web technologies and very advanced communications such as Zigbee for example.

Our ambition at APsystems has always been to market very high-quality products and also to democratize the products by making them accessible to as many people as possible.

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Carrington view: 600 kw across multiple buildings, powering 474 apartments