



Enhancing solar performance

In a conversation with Craig Plaatjes, Global Solar Product Manager at OTT HydroMet, we discuss the SMP Series from in-house brand Kipp & Zonen. The SMP Series includes the following three spectrally flat and Class A pyranometers, SMP10, SMP22 and SMP12.

PES: When we've featured OTT HydroMet in the past the focus has primarily been on the European and North American markets. What prompted your recent push to reach a global audience, and what regions are you targeting?

Craig Plaatjes: We have always had a global outlook and focus. Since our core brands, like Kipp & Zonen, originated in Europe and North America, these regions by default received more attention. However, we have always served customers globally.

With offices in Dubai, China, Singapore and channel partners in South America, our solar solutions are installed in PV plants across the globe. These instruments are deployed in a variety of climates around the world; from harsh and extremely cold

Arctic regions to hot, dry, and dusty desert areas.

Our recent push is motivated by a desire to ensure all our customers continue to receive the same attention, service, and support regardless of region.

PES: For those unfamiliar with the Kipp & Zonen SMP Series pyranometers, could you briefly explain what they are and their role in the industry?

CP: The Kipp & Zonen SMP Series are our smart digital pyranometers. These are instruments implemented to accurately measure solar irradiance and help predict and trace PV energy generation. The pyranometers that make up the SMP Series are spectrally flat, and Class A ranked based on ISO 9060:2018.

The first in the SMP Series is the SMP10, which was introduced to the market ten years ago with a novel dying cartridge to save customers on maintenance. This was followed by the SMP22 which continues to be the most accurate and scientific grade pyranometer in the market. This is due to its unparalleled directional response accuracy.

The newest pyranometer, the SMP12, delivers uninterrupted tilt and internal humidity measurement data. With a dome heater, the SMP12 is equipped to prevent or remove frost or dew, so customers never have to worry about environmental factors causing data interruptions.

Compared with our analogue CMP Series, the SMP Series offers real-time and constant instrument status and measurement data, e.g. last calibration date and calibration value; raw measurement data next to temperature compensated measurement value; and ease of installation.

While there are several digital pyranometers in the market, not all have the same features or provide the same amount and accuracy of

data. Our pyranometer portfolio has been carefully curated to meet a broad range of irradiance monitoring needs. From basic to intermediate measurements through to Class A measurement accuracy, our pyranometers deliver the highest range of measurement accuracy.

PES: What sets these pyranometers apart from other products in the market? How do they offer unique value to solar customers?

CP: Our Kipp & Zonen pyranometers, both analogue and digital, are known for their quality, stability, and durability. Unlike other pyranometers in the market, the SMP Series has very few to zero disruptions in measurement range.

Also, the Series eliminates the need for reprogramming data loggers after recalibration as all the pyranometers within the series have standardized output ranges. This makes them easily exchangeable, saving time and money.

Finally, depending on the maintenance provided, customers with pyranometers from the SMP Series can use the same instrument for 20 years or longer. We often receive 20-year-old pyranometers back for recalibration that are still performing well within specifications.

Specific to the SMP12, solar customers can take advantage of a newly developed detector and filter allowing for a Class A instrument that is both spectrally flat and fast response. The internal multi-axis tilt sensor is the most accurate on the market with a tilt accuracy of $\pm 0.5^\circ$.

PES: Can you talk about the technology and innovations behind the line of SMP Series pyranometers? How do these features contribute to improved solar PV irradiance measuring and remote monitoring?



Craig Plaatjes

CP: The technology and innovations behind the SMP Series pyranometers are diverse. They provide versatile outputs and two-way data communication, they have identical sensitivity and output levels, making them easily interchangeable for recalibration or service.

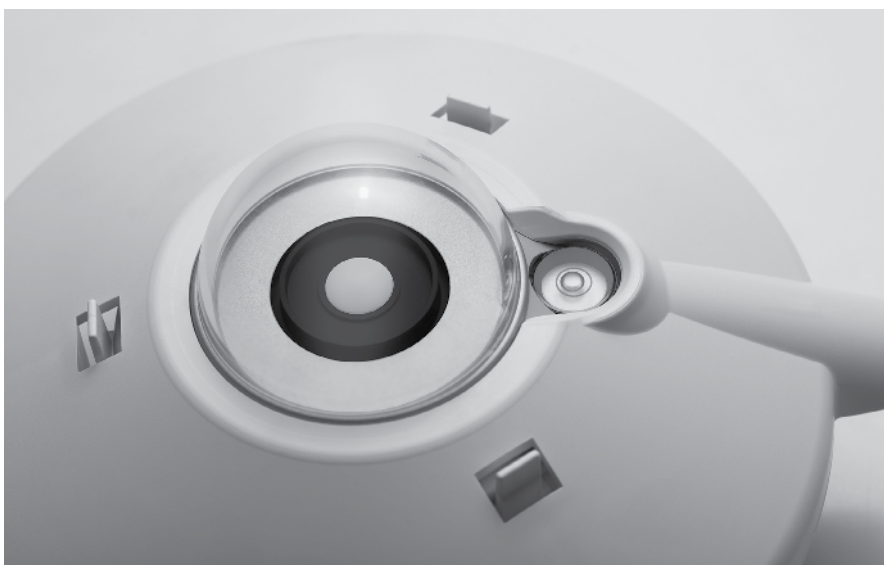
When we talk about a SMP12, we have a novel pyranometer that enables internal heating enhancing measurement accuracy by preventing dew and frost. Additionally, customers that test our SMP12 remain impressed by the accuracy of the onboard tilt sensor. With the tilt sensor, customers in the field can check if their sensor, or the tracker it is mounted on, is oriented accurately.

Regarding the SMP22, the scientific grade it provides, due to its design and its premium quartz dome, results in an unparalleled directional response. Considering this, the SMP22 should be the preferred option when wanting to reach the highest of accuracies.

PES: Have the instruments that make up the SMP Series been adapted for use in diverse environments around the world? What challenges did you face when doing this?

CP: Like the CMP, the SMP Series has been tested thoroughly, both internally and externally. We have test sites across the world and in different climates. While some of the sites are our own, some are owned by research groups who help us test and improve our portfolio. When testing our instruments, we have them face conditions from at least -40° Celsius to $+80^\circ$ and they continue to operate optimally.

Additionally, when developing the pyranometers that make up the SMP Series, our team considered the temperature dependence of ISO 9060 which is specified to be lower than $\pm 0.3\%$ for the digital Class A pyranometers from -20° Celsius to $+70^\circ$ Celsius. Being ranked Class A, the SMP Series pyranometers therefore meet the



demands of many diverse environments around the world.

Our SMP Series has always been adaptable to diverse environments which is proven by the diversity of our customer base. We have supplied our pyranometers to not only the solar PV market but also to Baseline Surface Radiation Network (BSRN) stations, which are spread globally. As an example, current BSRN locations include sites in the Arctic and Antarctic.

PES: In what ways do you see the SMP Series contributing to the overall growth and efficiency of the solar industry? Are there any industry trends that have influenced its development?

CP: Overall, because the SMP Series are high quality, reliable and accurate pyranometers,

users can easily rely on their measurements in calculating performance. Reliable measurements, upfront during prospecting phase, as well during operations, support in making the right decisions in terms of design and during operation. This then reduces the cost of development and increases the return on investment, thus making an investment in solar energy more predictable and more profitable.

Moreover, with the level of accuracy from the pyranometers in the SMP Series, customers in the solar industry can attain the highest quality of input on their performance ratio calculation or solar prospecting studies. With higher quality input customers can make better informed decisions on how and where to build future power plants or more accurately manage existing power plants.

Many industry trends influence our developments. One example, the trend for larger solar parks with less pyranometers installed per MW has meant an increased demand for accuracy. Consider, with less pyranometers per MW, any error or inaccuracy in irradiance measurement will have a higher impact on calculated total energy output. Such errors can be very costly, hence the demand for proven accuracy like Class A pyranometers over Class B.

PES: Do you see the SMP Series playing a role in promoting sustainability in the industry?

CP: When it comes to sustainability, the SMP Series, along with all Kipp & Zonen instruments, have a long history of delivering high quality measurements over the long lifetime of the product.





That is why with the Kipp & Zonen pyranometers you get an extended guarantee of five years on your product when you register it. The SMP Series pyranometers help PV sites to manage their plants with high quality input data. With this we help to enable a solar future by reducing CO₂ emissions and supporting a greener planet.

PES: What measures have been taken to ensure environmental responsibility?

CP: The SMP Series pyranometers are manufactured at our facilities in the Netherlands where we follow a supplier code of conduct with specific standards. These standards focus not just on sustainability, but on the entire breadth of the Environmental, Social, and Governance (ESG) framework.

These are strict ethics and integrity standards, as well as employee, human rights, health & safety, and environmental standards. Each supplier must comply with each of these standards and have the relevant monitoring and reporting tools to ensure compliance.

Since OTT HydroMet is part of Veralto, we utilize the Veralto Energy Management Toolkit to improve our energy efficiency, the Waste Management Toolkit for comprehensive waste elimination and minimization, and the Water Stewardship Tool to reduce water usage and increase water reuse and recycling where possible.

PES: What kind of support and training do you offer customers who are implementing the pyranometer in their projects?

CP: The type of support and training we offer customers depends on the phase of the implementation, e.g. planning, procurement, or installation, and their location. Alternatively, all our manuals and installation videos are available on our website. But where needed, we provide personal support, either direct from our own sales & service team, or through our global network of channel partners. All our channel partners

go through training to ensure they can help customers with minimal time delay, in the local language and if needed, on site.

Currently, our service team is running open registrations for a Solar Radiation Measurement Training which will run in November 2024. This training is open for anyone in the global PV market that wants to learn how to plan, design, commission, and interpret findings related to solar radiation measurement using hands-on training techniques.

These training sessions incorporate our SMP Series pyranometers, the SMP10, and help attendees become familiar with our pyranometers and gain the required knowledge and skills to measure and interpret solar radiation parameters. You can learn more about our trainings tailored to the global solar PV market here.

PES: What does the future hold for Kipp & Zonen products and OTT HydroMet's presence in the solar industry? Are there any new features or products in the pipeline that you can share with us?

CP: We analyze and improve existing products by evaluating their components, focusing on both the types of components used and their sources. Electronic components, in particular, present both the risk of obsolescence and the opportunity to reduce costs and enhance features. Any cost savings achieved while maintaining our quality standards can be reinvested in new features or new instruments.

With regards to new products, our current aim is to be able to deliver, in-house, more of the components needed in a solar monitoring station. To our customers, we want to be a one-stop shop and for us this means better quality control of all the instruments we sell because we are now overseeing the manufacturing process.

[otthydro.com](https://www.otthydro.com)

This year our EU Solar Team will be at Intersolar in Munich at booth B3.139 from June 19th to 21st where attendees will get a first look at the products, solutions, and services we are rolling out. Get a look at our complete offerings for Solar Resource Monitoring, see the equipment making up our Complete Meteorological Stations for Solar PV, and interact with Kipp & Zonen's DustIQ soiling solution.

If you would like to book time with the OTT HydroMet team to learn more about our Kipp & Zonen or Lufft products and our solutions for solar PV during Intersolar EU, find a time that works for you here. You can find an overview of the solar PV products being showcased at our booth here.

About the interviewee

Prior to joining OTT HydroMet as a Global Solar Product Manager, Craig Plaatjes served as a consultant engineer in the industrial power and automation industry for five years.

He holds a Master of Business Administration (MBA) from the international Institute for Management Development (IMD) and a Bachelor of Science (BS) in Electrical and Computer Engineering.

Craig remains a registered engineer with the Engineering Council of South Africa.

Plaatjes will be at Intersolar EU available to answer any questions related to the SMP Series and our portfolio of instruments. You can schedule a time to chat with Plaatjes at booth b3.139 here.