KIPP & ZONEN
SINCE 1830

RaZON+

ALL-IN-ONE Solar Monitoring System

- New and innovative sensor technology
- Extremely low maintenance
- Complete validated solar radiation data
- Easy on-site check via Wi-Fi
- Internal data logging with Web access
- Resistant to soiling
- Most affordable turn-key system

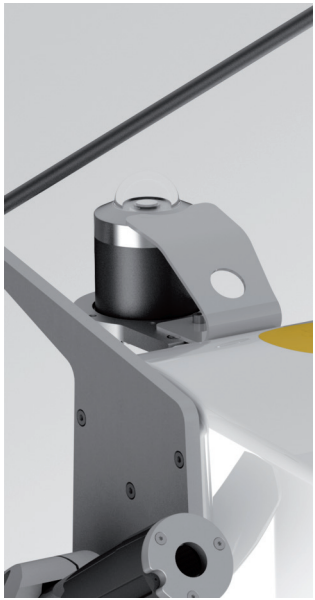
RaZON+: ALL-IN-ONE Solar Monitoring System

DNI measurement with impressive accuracy
All-in-one system including a pyrheliometer, pyranometer and data logger
User-friendly from installation, to operation, to maintenance
Designed for remote locations and resistant to soiling
Patent pending

Customer feedback over the years has led to the development of an innovative all-in-one system; **RaZON+**. A turn-key solution that provides all the components of Solar Irradiance; Direct Normal (DNI), Diffuse Horizontal (DHI) and calculated Global Horizontal (GHI), all in W/m^2; plus Sunshine Duration in hours and energy in kilowatt hours. Thanks to Ethernet and RS-485 interfaces, **RaZON+** can easily be integrated into any solar energy plant's systems. It outperforms all rotating shadow band and shadow mask systems on the market.

New and innovative sensor technology

New Smart pyrheliometer with anti-soiling design
New Smart pyranometer with quartz diffuser technology
Temperature corrected, fast response digital sensors
Sensors meet ISO 9060 requirements



For **RaZON+** Kipp & Zonen has designed an innovative pyrheliometer and a shaded pyranometer optimized for diffuse radiation measurements. The new Smart sensors with digital signal processing have a very fast response time and are integrated parts of the **RaZON+**. Built-in data logging and data processing make it a complete turn-key system for solar radiation monitoring. This is the first all-in-one system to measure DNI accurately and affordably.

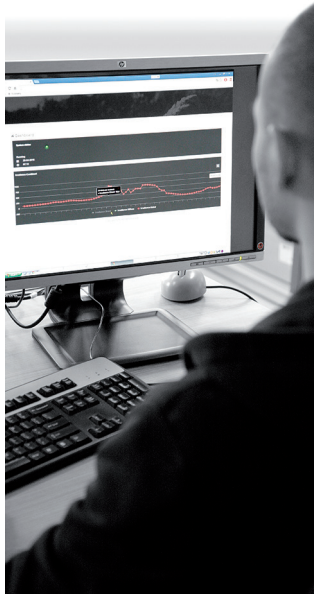
Extremely low maintenance

Gear Drive sun tracker with no maintenance
New anti-soiling pyrheliometer design
Long lasting integrated desiccant
Integrated remote status check

One of the important innovations in **RaZON+** is the new pyrheliometer design. The effect of soiling is minimized by the open collimator tube and the quartz diffusor. Thanks to decades of experience with sun tracking systems, Kipp & Zonen has selected completely maintenance free gear drive components for **RaZON+**, making it reliable and robust. The pre-configured components form a matched set that allows a quick and easy set-up and installation.

Complete solar radiation data

Accurate DNI, DHI, calculated GHI, sunshine duration
GPS time, date and location
Sun position, zenith and azimuth
Solar irradiance values in W/m^2



The most accurate way to measure Global Horizontal Irradiance (GHI) is by calculation from direct sun and diffuse sky radiation. The **RaZON$^+$** uses this method. The integrated GPS receiver provides precise time and location information to calculate the sun position and time-stamps the logged data. You can even connect additional weather sensors to expand **RaZON$^+$** to a complete weather station.

Easy on-site check via Wi-Fi

Set-up and configuration via smartphone, tablet or PC

Local status and sensor check

On site graphic visualization of data

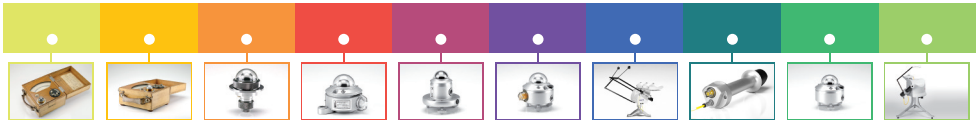
Password protection

RaZON+ has a built-in Wi-Fi connection that allows set-up and configuration using any smart device. You can check status and irradiance on-site and in real-time. The state-of-the-art interactive design of the interface is user-friendly and provides a graphical overview of the logged data and system status. It is also possible to determine the uncertainty of real-time measurements for the site conditions using Kipp & Zonen's free Suncertainty app.

Internal data logging with Web access

Integrated webpage
Ethernet and RS-485 Modbus® connections
Input for extra Modbus® sensors
Download of logged data

RaZON+ is world's first ALL-IN-ONE tracking system with internal data logging of all relevant parameters in one data set. It is equipped with both Ethernet and RS-485 interfaces (Modbus® RTU or ASCII). Use one of the two, or both, to download the data. An extra input for Modbus® weather sensors is provided. The data set consists of DNI, DHI, GHI, sunshine duration, energy, GPS time and location information, sun position, and system status.



Why it is important to invest in Quality Radiation Measurements

Meteorology and mature solar energy markets all buy high quality instruments. Most solar energy markets went through a learning curve, and investors now realise how important good quality solar radiation measurements are, both in site prospecting and in the operational phase of plants.

For financial return, investors need to know the exact ratio of real power output to the actual solar radiation on site. Data must be collected locally, accurately and in real time, with continuous assessment and analysis of the data. This is the only way to determine whether the power plant meets the contracted efficiency or not. Good measurements not only guide the daily operation, but also indicate the fundamental value of the plant and provide knowledge for future investments.

For a complete system, please contact Omni Instruments Ltd.
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