News Letter 9

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An Improved Drying Cartridge

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KIPP & ZONEN
SINCE 1830

Content

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Contact

If you have a news item for the news letter or want to share your experiences with Kipp & Zonen applications and contribute to our next issues, please e-mail the editor: kelly.dalu@kippzonen.com

Summer Sunshine

With summer well on its way and holidays coming up, we have prepared another newsletter with the latest from Kipp & Zonen. We have sent out many questionnaires in the past to investigate your needs, requirements and experiences and we put your feedback to good use by continuously updating our products.

Examples of this interaction are the new CNR 4, which features a dome on the upper long wave sensor, lower weight and a ventilation unit; and the improvements to the Lite range. In this newsletter we introduce another example of product improvement. The screw-in drying cartridge used on most of our instruments has been modified with a square boss to provide a better grip than the previous coin-slot, for removal of the cartridge if it becomes tight in the housing.

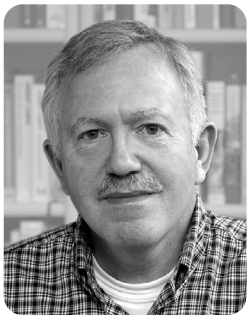
The research and development of alternative energy sources such as solar thermal energy and photovoltaic, is creating a need for specialized employees and engineers. Education specifically on solar energy techniques is now using Kipp & Zonen instruments. Precicon of Singapore has developed a solar training system that includes our CMP 3 pyranometer.

The economic situation in the world is without doubt not as good as a year ago. However, business at Kipp & Zonen is still going strong, with increasing sales of the Brewer spectrophotometer and rapid developments in the Renewable Energy market. We are working on a solar energy resource for our website and we will keep you updated on progress via our monthly e-news.

I wish you a pleasant summer, with a lot of sunshine, and hope to see many of you at meetings, exhibitions and conferences in the autumn ■

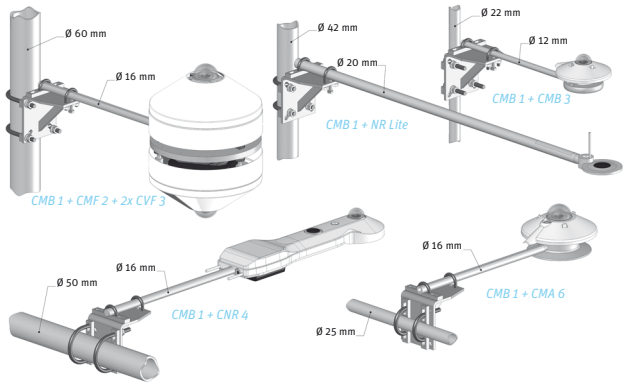
Yours sincerely,

Ben Dieterink, President
Kipp & Zonen BV



CMB 1 Mounting Bracket

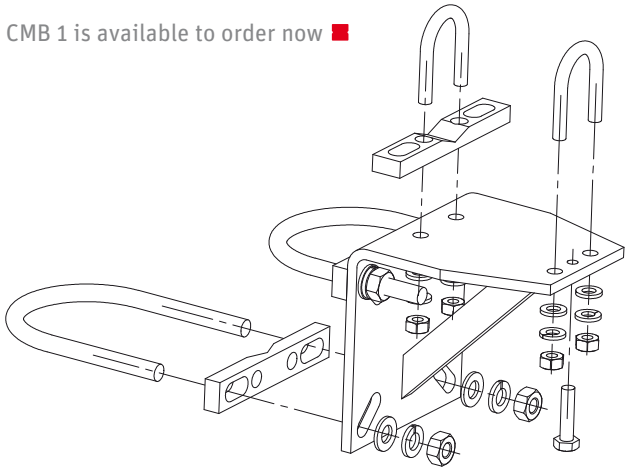
Several of our instruments, such as albedometers and net radiometers, are supplied with a mounting rod as standard, and others have a screw-in mounting rod available as an accessory. For instruments without these features we have the CMF 1 and CMF 2 mounting fixtures available which incorporate a rod. We have now designed a bracket to enable easy attachment of a mounting rod to a pole or a wall.



Attachment of various mounting rods to poles with the CMB 1

CMB 1 is a universal mounting bracket that can accommodate all our mounting rod sizes, from 12 mm to 20 mm diameter. The radiometer can be levelled by rotating and tilting the rod. The bracket includes u-bolts for fixing to poles and masts from 22 mm to 60 mm diameter. If the u-bolts are removed, the bracket can be fixed to a wall. CMB 1 is made entirely of stainless steel for a long life and is very robust. It can support our heaviest instrument combinations in extreme conditions.

CMB 1 is available to order now ■



Installation drawing Mounting Bracket CMB 1

CNR 4 Net Radiometer Stars at EGU 2009

For many years Kipp & Zonen has been a regular exhibitor at the General Assembly of the European Geosciences Union, which has been held in Vienna, Austria since 2005. For Kipp & Zonen this conference is an excellent opportunity to meet with the scientific community and discuss the latest research. In addition it provides us with valuable feedback on our instruments helping us to start new developments and improve the quality of our instruments even further.

One example of how we take this user feedback to heart is the development of the new CNR 4 net radiometer. This latest addition to our net radiation sensor portfolio was the main feature of this year's booth and received a lot of interest. Visitors to our booth got a chance to handle and examine the instrument and check it out for themselves. Net radiometer users were pleased to see the many improvements this new instrument offers, with improved accuracy, enhanced long wave-radiation measurements, integrated ventilation and lower weight.

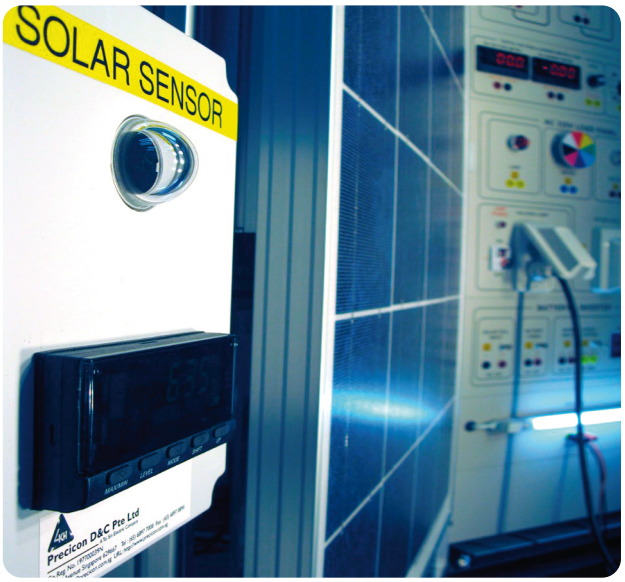
Accurate measurement of the net radiation balance, as offered by the CNR 4, provides important data for many fields of research including climatology, hydrology and also glacier studies. These topics are traditionally well represented during the EGU conference. All together, this year's conference and exhibition were a big success with over 9000 participants.

Kipp & Zonen will continue to participate in the EGU General Assembly and we look forward to greeting everyone again next year, in Vienna ■

Our booth at the EGU

Pyranometer in Solar Training System

With the growing importance of environmental issues worldwide, renewable 'green' energy is rapidly becoming the leading alternative energy source to coal, oil and gas. With this trend, the industry is seeing a great demand for engineers and technicians specialized in the solar energy field.



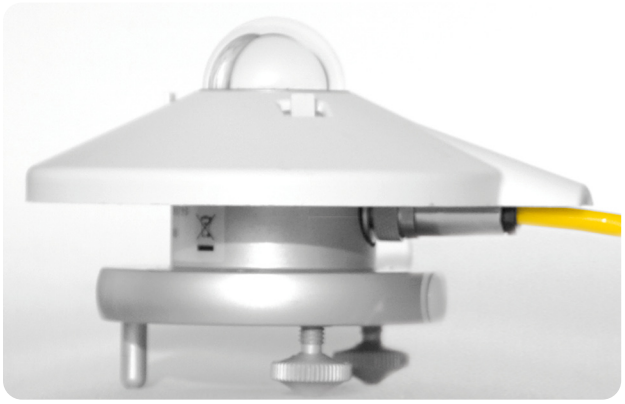
CMP 3 pyranometer housed in an IP 65 sealed enclosure

In response to this demand, Precicon D&C Pte. Ltd. of Singapore has produced a Solar Training System. It has been developed for educational purpose in institutes of higher learning where green technology or alternative energy is taught. It enables the students to experiment and to understand the basic principles and concepts of solar energy generation and to gain in-depth understanding of power conversion and the characteristics of solar cells and panels by real-time training.

The solar training system is able to perform demonstrations and experiments at various measurement points to understand the solar power generating structure and its process from the solar panel to the final AC Voltage.

Originally, the solar training system did not provide the trainee with the component to understand the relationship between the intensity of the solar source and the power output. To solve this issue, the system was improved by installing a Kipp & Zonen CMP 3 pyranometer beside the solar panel and connected to a meter to display the radiation in W/m^2. This greatly improved the trainee's understanding of the importance of mounting the solar panel in the right place to achieve maximum efficiency. The CMP 3 was selected due to its compact size, good performance and economical price.

The CMP 3 is housed in an IP 65 sealed enclosure together with a display meter. With this installation, the trainee is now able to experiment with the simulated solar source to observe the radiation level that the solar panel is receiving and the effect on the voltage output. This improvement greatly enhances the training and completes the entire solar generation cycle from monitoring to conversion.



Precicon D&C Pte. Ltd., one of the Tai Sin Electric group of companies, is a Singapore based distribution company established in 1985. For 24 years, they have been delivering quality products and solutions in industrial automation covering control, sensing and monitoring. In recent years, Precicon has also expanded into the areas of industrial wireless, power protection and green energy. It brings together leading technological solutions to help industrial users improve asset performance, productivity and efficiency, covering automated machines, equipments, systems and installations ■

Precicon's Solar Training System

An Improved Drying Cartridge

Feedback from customers and instrument testing have lead to an improvement of the drying cartridge that is used in the majority of our radiometers.

The present version of the drying cartridge has a coin-slot in the end and sometimes it can be difficult to unscrew it from the housing without damaging the plastic material. This can happen on cold days when pressure drops inside the radiometer, causing suction on the cartridge, or if it is over-tightened during fitting.

To overcome this problem we have redesigned the outside of the cartridge in such a way that it can be opened and closed by hand or by using a spanner. The new square top allows for 16 mm or 5/8" open-ended spanners (wrenches). With the new design the orange-yellow color of the desiccant inside is now even more visible.

The desiccant is mainly used to keep the radiometer detector and electronics dry inside and to prevent condensation forming inside the domes. The exchange interval is affected by humidity, changes in air pressure and temperature cycling. On average, in humid areas, the desiccant needs replacement twice a year.

When the self-indicating orange-yellow silica gel in the drying cartridge becomes transparent it has absorbed 6 - 8 % of water by weight and is still working, but must be replaced soon by fresh material. In case replacement silica gel packs are not directly available, the transparent silica gel can be re-activated by heating in an oven at 130 °C for several hours.

The optimal way of fitting the drying cartridge is to screw it in until the rubber sealing ring is fully compressed by the cartridge, then unscrew it 1/8 turn (45 degrees). In practice this is to turn it in by hand as far as possible.

Other things to check when changing the desiccant:

- Make sure the surfaces of the pyranometer and the cartridge that touch the rubber sealing ring, are clean (corrosion can do a lot of harm here and dirt in combination with water can cause this).
- The rubber ring should be covered with a silicon grease (Vaseline will also do) to make the seal even better. If the ring looks dry apply some grease to it.

The new drying cartridge is now fitted to all production radiometers and is a direct replacement for the original coin-slot type ■

The new type drying cartridge is used in:

- Pyranometers CMP 6, CMP 11, CMP 21 and CMP 22
- Pyrgeometer CGR 4
- Pyrheliometer CHP 1
- Albedometers CMA 6, CMA 11
- UV Radiometer CUV 4

Lidar Helps to Reduce Environmental Impact of Bio-Fuels in Brazil

In March 2009 Kipp & Zonen and Raymetrics, together with our local representative Campbell Scientific do Brazil, installed the Raman Lidar System of the National Space Research Center (INPE) in Sao Paolo, Brazil. The installation and training took place at the Institute of Energy and Nuclear Research (IPEN). This is the first commercial Lidar system to be delivered in Brazil.

Brazil is becoming the world leader in clean and renewable energy production from bio-ethanol, which is used both as an alternative and as an additive to fossil fuels, allowing cleaner combustion. With 350 sugar mills, Brazil is the largest sugar cane producer in the world. In 2007/2008 the total production was 496 million tons.

However, during the manual harvesting process the sugar cane fields are burnt, generating large amounts of smoke and particles. But since the introduction of sugar cane combines 10 years ago, the Brazilian government introduced new regulations to reduce the burning process. Brazil's goal is to reduce the impact on the environment of the entire process, from crop production to the conversion of sugar into ethanol, as much as possible. To achieve this, accurate monitoring of the atmosphere is of great importance and the advanced aerosol profiling capabilities of the model LR-101-V-200 Lidar system will be a key part of the research.

The Lidar system is durable, portable and accurate under harsh conditions. This is important because the system will be moved around to be operated by several different Brazilian research institutes, located in an area where sugar cane crops are an important economic activity.

The institutions that support this Lidar Project in Brazil are: the Institute of Energy and Nuclear Research (IPEN), the University of São Paulo (USP); São Paulo State University (UNESP) and the Environment Education and Research Center (CEPEMA). The Brazilian oil and energy company Petrobras is the main source of funds for the Lidar Project.

There are already two other Lidar systems in Brazil, but neither of these are portable. **One is at IPEN and the other at INPE.**

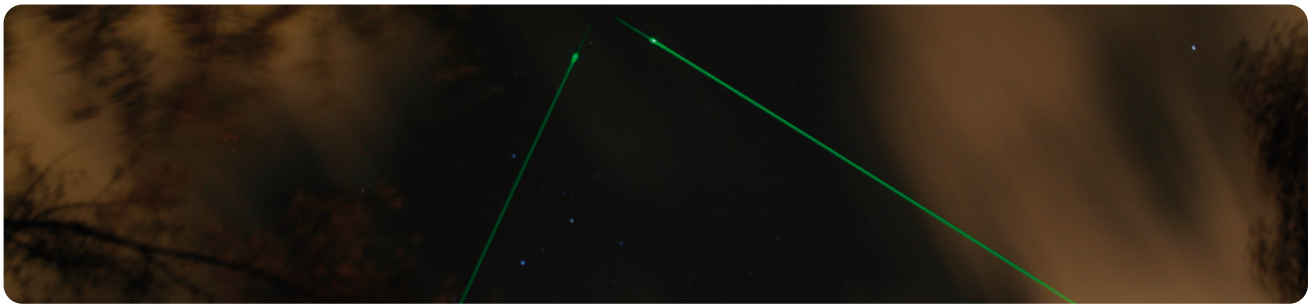
The compact Raman Lidar system model LR-101-V-200 is equipped with a powerful Nd:YAG Laser source emitting 130 mJ pulses at 532 nm (green). The Cassegrainian receiving telescope has a primary mirror diameter of 200 mm with a custom made reflective coating.

The received backscattered light is filtered using narrow bandwidth hard-coated optical filters and detected using high quality photo-multiplier tube (PMT) detectors. The data acquisition system from Licel ensures an excellent temporal and spatial resolution of the data.

The Lidar can be operated using the integrated industrial PC, or remotely using the built-in Ethernet connection. The entire system is protected by an IP56 enclosure, making it fully weather proof.

With every Lidar system a full software suite is included free of charge. This operates the Lidar and offers full data archiving, processing and visualization capabilities. In addition to the ready-to-run programs the source code is also included, allowing expert users to fully customise the software.

The unique features of Raymetrics Lidar systems are ideally suited to projects such as this, where measurements need to be made in different locations ■



Appointment of New Customer Support Engineer

Over the years we have sold many thousands of instruments to hundreds of customers, which resulted in a growing number of product related and after sales questions that had to be answered by our product managers. Now there is increasing interest in our products from customers, such as in the solar energy industry, with no experience of measuring solar radiation and who require detailed advice. Dealing with these enquiries has become a large part of our product managers' work.

Customer support and after sales service have always been very important in our relationships with our customers, accordingly we have decided to expand our resources in this area.

We are pleased to announce the appointment of Michael van Alebeek as our new dedicated Customer Support Engineer.

Michael has a background in electronics and several years of experience in the field of customer support activities. After an intensive "Kipp & Zonen training", he is ready to answer all your technical questions and to provide any additional information you might need about solar instruments.

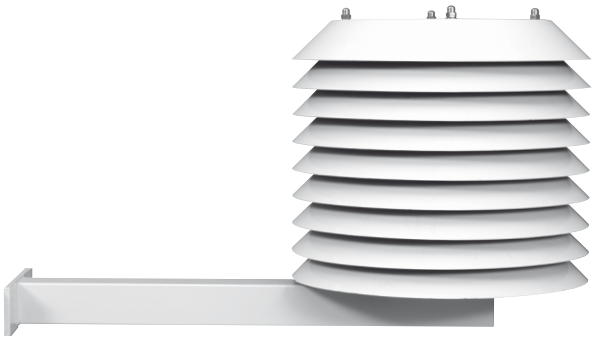
We congratulate Michael on his new job and wish him all the best for his future career at Kipp & Zonen ■

Techsense: Our New Malaysian Distributor

We are happy to inform you that we have appointed a second distributor for Malaysia; Techsense Solutions of Kuala Lumpur. Techsense provides meteorological solutions and services. This distributorship will allow Techsense to further enhance the choice of equipment that they can offer to their local customers.

Kipp & Zonen is confident that this partnership will benefit both parties, as well as our customers in Malaysia.

Mierij Meteo Radiation Shields



The Professional Class MA 11 radiation shield

Mierij Meteo offers a wide range of radiation shields for a variety of temperature and humidity probes. These radiation shields protect humidity and temperature sensors from direct solar radiation, wind and precipitation that can produce errors.

The Mierij Meteo shields offer high reflectivity, low thermal conductivity and rugged weather resistance. The Professional Class (MA 11) radiation shield is manufactured according to the requirements of the World Meteorological Organization (WMO) and is ideal for applications with high accuracy requirements. The shape of the discs and the distances between them are optimised to provide maximum ventilation, even in situations of very low wind speed.

Mierij Meteo's Industrial Class lightweight models (MA 32 and MA 33) perform very well in applications in renewable energy, building automation, environment and greenhouses. Please contact Mierij Meteo to check which model fits your sensor best.

All materials used are designed for a long operating life with minimum maintenance. The radiation shields are delivered with a bracket for wall or mast mounting ■

Fairs & Events

MOCA-09 - Montréal - Canada	19 - 29 July '09
Brewer User Group Meeting Aosta - Italy	20 - 26 September '09
EMS	28 Sept. - 2 Oct. '09

Passion for Precision

Kipp & Zonen is the worldwide authority in measuring solar radiation and atmospheric properties. Our passion for precision has led to the development of a large range of high quality instruments: from all weather radiometers to complete measurement networks.

We promise our customers guaranteed performance and quality in various markets: Meteorology, Climatology, Hydrology, Industry, Renewable Energy, Agriculture and Public Health & Safety. We hope you will join our passion for precision.

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