

SR20 independently tested

Independent testing confirms good performance of Hukseflux pyranometers

Hukseflux is proud to notice pyranometer model SR20's performance during independent testing by PV Performance Labs (a consultant to the PV industry) supported by the European Commission Joint Research Centre's European Solar Test Installation and the US Department of Energy's Sandia National Laboratories.



Figure 1 The 2-axis tracking facility at Sandia National Laboratories (Photo by Daniel Riley)

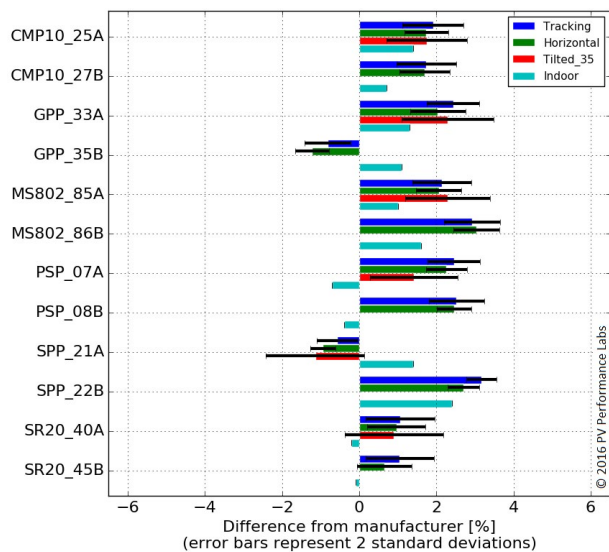


Figure 2 Comparison results for secondary standard pyranometers when subject to 4 different methods of testing. The coloured bars show the difference between the local calibration reference and the pyranometer reading using the factory sensitivity. Thus, the shorter the bars, the better. The test employs two pyranometers of every model. Hukseflux SR20 is displayed at the bottom. The black error bars show the variability of the measurements. The uncertainty of the secondary standard pyranometer factory calibration is in the order of 1 % ($k = 2$). Copyright: PV Performance Labs, 2016

The test

Purpose of the test was to determine the sensitivity of pyranometers and semiconductor solar irradiance sensors using 4 different methods, and to compare these sensitivities to the one supplied by the manufacturer. The comparison tests were carried out under 4 different conditions:

- indoor under a solar simulator
- outdoor horizontal
- outdoor tilted at a constant tilt angle
- outdoor on a 2-axis tracker

The tests were carried out using 4 different instrument types:

- secondary standard pyranometers
- second class pyranometers
- semiconductor solar irradiance sensors
- PV reference cells

The test results

Test results are presented in graphs as the one of Figure 2. Among the different instrument types, the secondary standard pyranometers show the least variability. SR20 performance is remarkably consistent under different test conditions. The report concludes that it is too early to draw final conclusions about the absolute accuracy. We think the causes of the good consistency are SR20's low zero offsets and high calibration accuracy.

Reference

Anton Driesse, Willem Zaaiman, Daniel Riley, Nigel Taylor, Joshua S. Stein, *Investigation of Pyranometer and Photodiode Calibrations under Different Conditions*, conference paper presented at IEEE PVSC 2016, published on internet, accessed 10-Oct-2016.

Interested in SR20?
E-mail us at: info@hukseflux.com