Smart Module Technology for Free!

Due to increased numbers the leading smart solar module technology SunSniffer® is now so low-priced that modules with SunSniffer® are offered at the same price as modules without monitoring technology.

SunSniffer® marks the latest technology trend in the photovoltaic field, the move towards smart modules. In Germany STORM is offering modules from ZNShine, ET Solar and the Canadian GMA with a new generation of SunSniffer® chips. The result: modules with innovative and fully integrated electronics from well-known manufacturers cost the same as conventional modules.

Demand for the smart module technology SunSniffer® has quadrupled in the last twelve months, due, in part, to the increasingly prominent problems encountered with poorly installed solar panels, even those from reputable manufacturers. The German Technical Inspections Organization, TÜV Rheinland, revealed in its 2013 study, "Quality Monitor Solar", how imperative it is to check the functionality of a PV system: around 30% of all large plants verified by TÜV Rheinland showed serious flaws, of which half could be traced back to errors in installation. Ordinarily these errors would not be apparent, as it is impossible to know if modules are working correctly without monitoring them. Even inverter level monitoring only provides information about whether the system as a whole is operating; without close monitoring a visit to the site involving time-consuming inspections is unavoidable. These costs are often spared and it is accepted that the plant may not be working smoothly. By contrast, the module-specific PV operating system "SunSniffer®", with integrated chip in each junction box and interactive webportal, offers perfect real-time monitoring.

For the installer, the advantages are in the immediate verifiability of all installed components and their affiliations: any assembly errors or material damage are immediately visible after installation and stringing errors will be immediately apparent as the modules log on with each string and corresponding inverter. And repair costs are reduced during the operation of the PV system, as any fault is made apparent via the webportal – without any lengthy on-site search. Furthermore, minimal electronics makes SunSniffer® extremely robust.

And for owners, it is not just the low maintenance that pays dividends but also the increased efficiency through close module monitoring: 7% if not substantially higher returns are obtained with SunSniffer®.

The following figures demonstrate clearly how knowledge is consolidated from level to level: in Figure 1, in which the inverter level is displayed in the SunSniffer® webportal, you can only tell, as with the other inverter portals, whether the inverter is working or to what extent it deviates from the average. It is not possible to say whether a problem actually exists or even to draw conclusions about the nature of the potential problem. You can only see - that you see nothing!
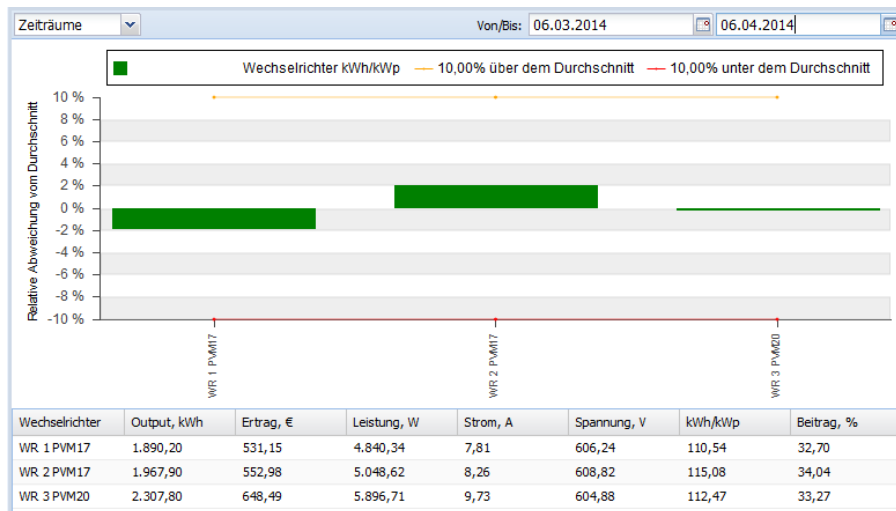
Figure 1: Inverter level display. The photo shows a negative deviation of 2% on the average at inverter 1. Problem identification or conclusions on the nature of the problem are not possible. Source: SunSniffer® webportal

Figure 2 depicts one level down the representation of the string level of inverter 1 as seen from above: it is significantly easier to see that there is a problem with the system and where to look for it; however, a string usually contains up to 20 modules – which of them has the problem? And even if you can narrow it down to about 20 modules, you still do not know the nature of the problem.
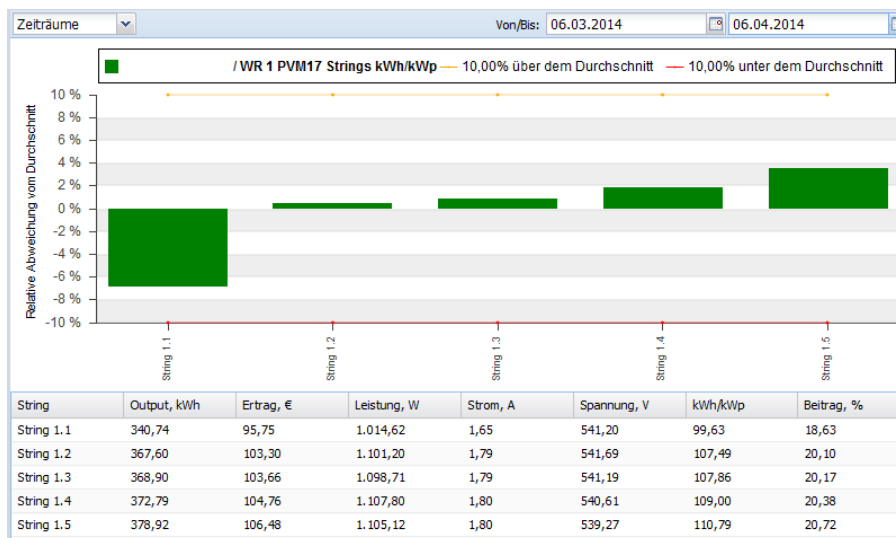

Figure 2: String level display of inverter 1. It can be seen that string 1 of inverter 1 clearly deviates negatively from the average. But which module of this string is the problem? And what exactly is the problem? Source: SunSniffer® webportal

And finally, in figure 3, you can see the module level of string 1 of inverter 1: all modules with their respective outputs are clearly distinguishable. Here you can see exactly which particular module deviates from the average, leading, due to the series circuit, to a reduction in the performance of the entire PV facility.
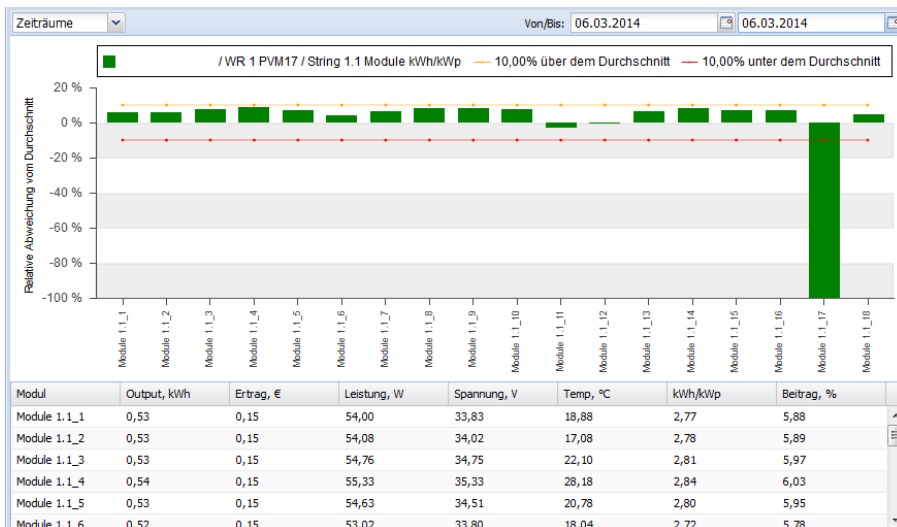
Figure 3: Module level view. A module of string 1 (inverter 1) shows a significant performance deviation from the average. Source: SunSniffer® webportal

With just a few clicks on your PC or smart phone you have already saved yourself a costly and lengthy inspection of the PV system. This one module can now be replaced quickly and inexpensively. SunSniffer® recognizes not only that there is a problem, but can also discern its nature. The installer can therefore make a straightforward decision about whether it is necessary to go to the plant and if so, what needs to be done.

And to make the replacement even easier for the installer, the module can, as shown here in figure 4, be precisely indicated – it really is not possible to make it any more elegant or easier. This is how troubleshooting a PV plant should be!
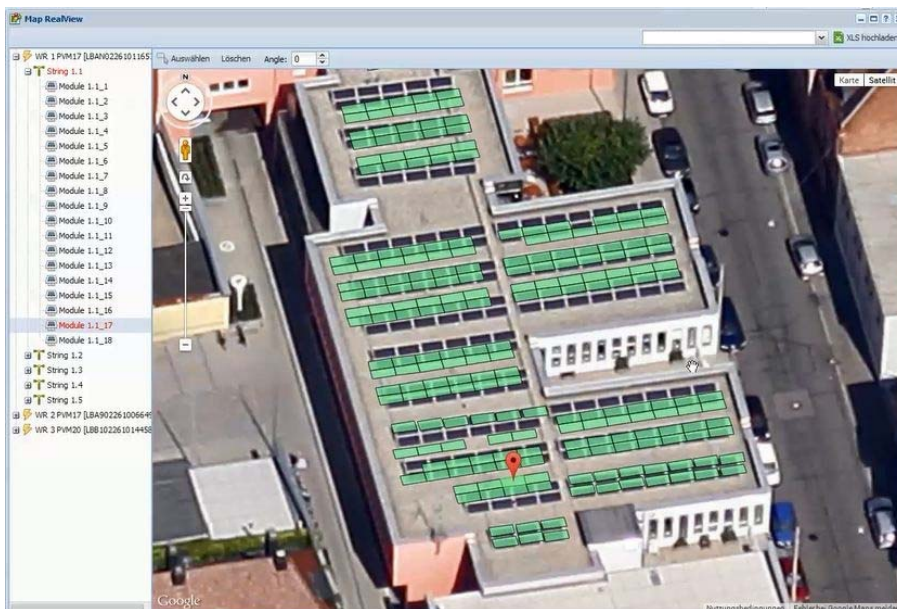

Figure 4: Real view of the PV facility with localization of the module concerned. Source: SunSniffer® webportal

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About STORM:

The STORM Energy GmbH is a company of Storm Holding, which has engaged in the development of new technologies in the field of real-time processes and big data for over 25 years. With the establishment of a new division in 2006 the move towards renewable energy, particularly photovoltaics, was made. The experience and knowledge gained from the construction and operation of solar power plants together with the constructive discussion of these specific challenges led to the formation of their current core competency: the development of an operating system for solar installations.

Press contact:

STORM Energy GmbH
Daniela Kramer
Ludwig Feuerbach-Str. 69
90489 Nürnberg

Tel: 0911 - 99 39 92 22
Mail: presse@sunsniffer.de

Press material and images:
http://www.stormenergy.de/index.php/de/service/downloads

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about the company: www.stormenergy.de