WINAICO®

Power to Perform

Bulletin: Potential Induced Degradation (PID)

Over the last few years the degradation of crystalline silicon solar modules has been observed in installations if the cell has been polarized with a negative voltage bias. This occurs when transformer-less inverters are used in the PV System, the effect is called Potential Induced Degradation (PID).

Potential Induced Degradation (PID) is regarded as one of the major negative influences on the energy output of solar modules. The observed performance degrades over 30 percent.*

Four independent institutes, the Fraunhofer Institute for Solar Energy Systems (ISE), the Photovoltaic-Institute Berlin (PI-Berlin), TÜV Rheinland and the VDE institute of testing- and certification, have set up test conditions for the PID sensitivity of crystalline PV modules.**

During the test of TÜV Rheinland, a negative voltage of 1,000 Volts is applied to the modules while at room temperature (25 degree Celsius) over a period of 7 days (168 hours). For an exact comparison the module front is covered and grounded with aluminium foil or a constant water film. Those modules with performance declines of less than 5 % are deemed to have passed the test.

The WINAICO solar modules have passed the test brilliantly with a reduction in performance of less than 1 %; further evidence for the premium quality and reliability of WINAICO modules. Worldwide WINAICO is one the first manufacturers successfully passing this important test.

“The use of high-quality encapsulation materials and state-of-the-art plant technology at WINAICO ensures a consistent production of PID-resistant modules. The positive test result gives certainty to WINAICO customers, because it confirms the nearly constant performance of the modules”, said Cheng-Lien Wang, Production Manager at Win Win Precision Technology Co., Ltd.

In WINAICO´s own in-house test laboratory components and modules are tested continuously beyond TÜV standard and this assures consistently high quality products. Thus, a PID test under stricter conditions, of up to 80 % humidity, temperatures of up to 80 degrees Celsius and test duration of up to 300 hours has been performed. Due to the use of only high-quality encapsulation materials and the good decoupling of the frame and laminate, WINAICO once again measured a power loss of less than 5 %.

WINAICO modules have already passed further tests like the FokusTest “Ammonia Resistance” of DLG and the salt spray corrosion test.

***Source: Fraunhofer CSP, http://www.en.csp.fraunhofer.de/aktuelles/details/id/51/**
****Source: TÜV Rheinland, http://www.tuv.com/de/deutschland/ueber_uns/presse/meldungen/newscontentde_66118.jsp**