

Note 2 from the Technical Committee, December 2011

Over the last couple of months, the Technical Committee has received several questions and made a number of observations. By means of this note we would like to address two important items which may influence your designs

Maximum voltage in the electrical system

Rule 7.4 states the following:

The maximum allowed voltage is 52 V DC or AC RMS.

Some participants have asked the technical committee how to interpret this rule in case of an open circuit voltage of the solar panels that may be higher than 52 V. The technical committee has decided to accept a set-up of the solar panels where the open circuit voltage is higher than 52 V under the condition that when the electrical system is switched on (e.g. a maximum powerpoint tracker or solar controller is active) the maximum voltage in the complete electrical system is 52 V or below. In case the electrical system is switched off the maximum voltage measured in the system is also 52 V with the exception of the part of the electrical system between the solar panels and the maximum powerpoint tracker or solar controller. In that part of the system and under that specific condition the maximum voltage must be 100 V or less.

Positive grounding of Sunpower solar cells

The solar panels made available in the Challenge classes are built up out of Sunpower solar cells. High voltages present in these cells may produce a static charge on their surface. This static charge accumulation produces a reversible reduction in the module efficiency over time. It would be a pity to reduce the performance of the solar cells. A way to counteract this effect is positive grounding.

Participants in the Challenge classes and in the Top class making use of Sunpower solar cells are therefore required to address this issue. Grounding of the positive pole of the solar panels to the frame of the solar panels with the use of a 1 M Ω resistor will be an approved means of compliance. However this solution is not the only one that will be accepted. The participants are required to address this issue in step 4 of the design process. This will also be inspected during the technical inspections. The following figure shows the principle of positive grounding.



Fuse 30 mA fast
Min 100 V

