

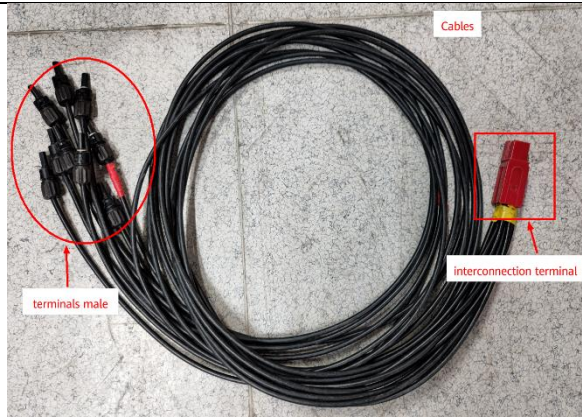
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## SUN 2000 110KTL、100KTL、115KTL PV- Test Scheme for Withstanding Voltage to Ground

### Revision History

Version 1.0 Jan 31, 2023 , 2023 – Initial release

<b>Application Solution</b>	SUN 2000 110KTL、100KTL、115KTL PV- Test Scheme for Withstanding Voltage to Ground
<b>Solution Background and Purpose</b>	<p>Background:</p> <p>At present, PV-to-ground short circuit faults occur in the early stage of on-grid. The PV-cable is damaged due to construction reasons, which leads to inverter failure. Such faults severely affect the energy yield of inverters on the customer side. In addition, the V5 and V5+ application scenarios are industrial and commercial and surface power plants, so the labor cost of installing inverters is high, and the labor cost is high when the faults occur.</p> <p>Purpose.</p> <ol style="list-style-type: none"><li>1、 Reduce inverter failures caused by PV-to-ground short circuits at the early stage of on-grid.</li><li>2、 Prevent faults from affecting the inverter energy yield and labor installation costs.</li></ol>
<b>Solution Configuration</b>	<ol style="list-style-type: none"><li>1) Tools required<ol style="list-style-type: none"><li>1、 One insulation resistance tester-1500V or above electrician megometer (The voltage test level of the megoometer must be higher than 1500 V、 Two pens are attached.</li><li>2、 One new cable(Optional) One end is an interconnection terminal, and the other end is 20 PV terminals male. Remove the male connectors.</li></ol></li></ol>



## 2) Test Procedure

- 1、 Connect the negative terminal led out from the PV module to the positive end (L end) of the withstand voltage meter. (Or connect all negative terminals led out of the PV module to cable 1 through optional cables, and connect the interconnection terminal of cable 1 to the positive (L end) of the voltage withstand meter.)
- 2、 Connect the black probe of the withstand voltage meter to the EARTH end of the withstand voltage meter, and connect the other end to the ground cable of the inverter.



- 3、 Select the insulation impedance test gear, set the voltage to 1500 V, press the test switch, and then start the test (test for more than 30s), and read the insulation impedance value of the withstand voltage meter.
    - (1) If the insulation resistance is greater than 1 MΩ , it is normal.
    - (2) If the insulation resistance is less than 1 MΩ , check the insulation of the cables.
  - 4、 After the test is complete, turn off the withstand voltage meter, remove all cables, and connect the cables to the inverter according to the normal procedure.
- ## 3) Precautions
- 1、 Pay attention to the safety of power consumption on site. During the test, do not touch the exposed terminal of the voltage withstand meter with your

hands.

- 2、 After the test is complete, there may be unreleased voltage at the test end.  
Short-circuit the test line and discharge the test line before releasing the test cable.

4) Since there are different insulation impedance testers, the method used by the instrument may different. For details, see the manufacturer's guide.

5) Standard basis for withstand voltage test

**Judgment Criteria:** (IEC 62446-1 ED2 Photovoltaic (PV) systems - Requirements for testing, documentation and maintenance - Part 1 Grid connected systems - Documentation, commissioning tests and ins) , According to this document, when the system voltage is 1000–1500 V, the minimum insulation resistance is 1 MΩ.

<b>System voltage (<math>V_{oc} (stc) \times 1,25</math>) V</b>	<b>Test voltage V</b>	<b>Minimum insulation resistance MΩ</b>
<120	250	0,5
120 to 500	500	1
500 to 1000	1000	1
1000 to 1500	1500	1

**Solution  
Notes**

Please contact your local support for more detail.