

Error 039 / 302 Low PV Insulation Resistance

Disclaimer

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A Low Insulation Resistance Error (039 for Grid-Connected and 302 for Hybrid Inverters) indicates that there could be an Earth Fault in the PV array. There can be a few things causing this issue, hence, they all need to be checked.

1. Firstly, **the insulation resistance for each PV string needs to be measured safely in accordance with AS/NZS:5033:2014 inc amdt 1&2 Appendix D4** for the steps. This needs to be checked between **the Positive and Earth** as well as the **Negative and Earth** terminals with the array(s) disconnected from the inverter.
2. **If the insulation resistance is less than minimum insulation resistance (see below table - less than 1 MΩ) for each string by using *Insulation Resistance Tester ('megger' or similar)***, check the rooftop isolator to make sure it has not been affected by moisture, and the DC cable for damage etc.

System voltage ($V_{oc\ stc} \times 1.25$)	Test voltage	Minimum insulation resistance, MΩ
<120	250	0.5
120–500	500	1
>500	1000	1

3. If the PV array and wiring are clear, please shut the inverter down and turn it back on after 10 minutes.
4. **Test each set of strings on each MPPT input** to identify which string / MPPT is causing the fault (e.g. only connect string 1 to the inverter and disconnect string 1 and only connect string 2 to the inverter).

If the issue still persists, please take photos testing on site and contact Sungrow Service Department on 1800 786 476 or email to service@sungrowpower.com.au.