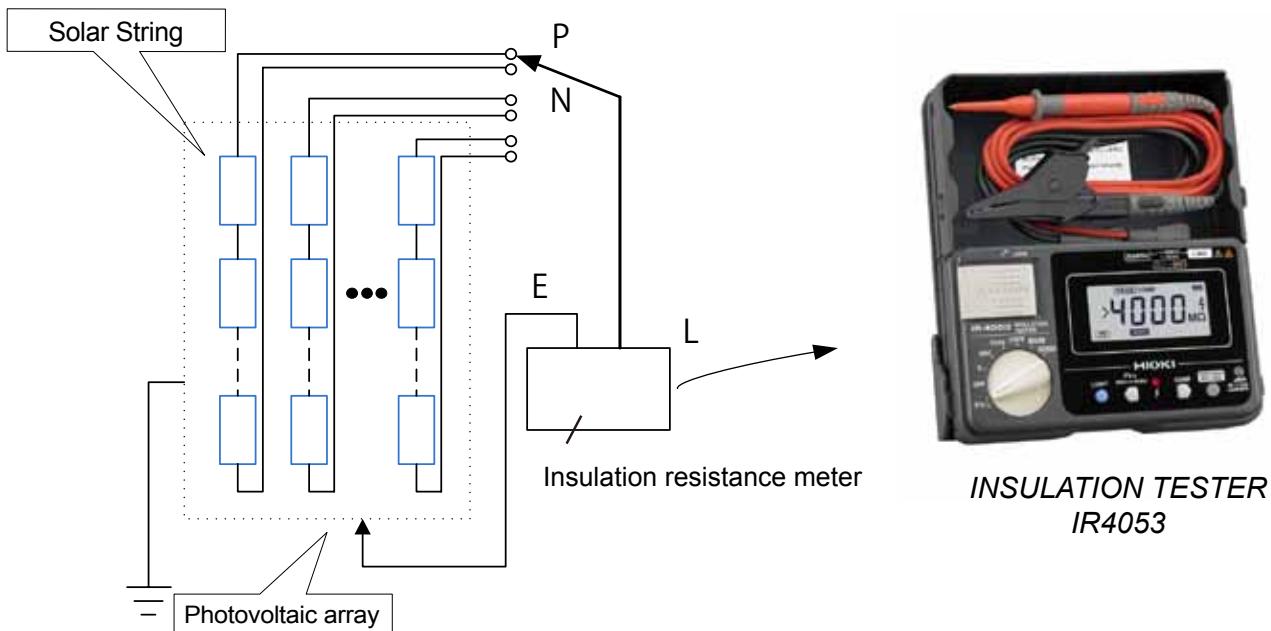


# Insulation Resistance Measurement of Solar Panels

Measure the insulation resistance of a solar cell panel that is generating power.

## ■ Highlights

- When measuring the insulation resistance of a solar panel that is generating electricity, remember not to apply the standard method for measuring the circuit's insulation resistance and bear in mind that the photovoltaic cell voltage affects the test voltage and that there is the risk of damaging other equipment if the array is grounded.
- The Hioki IR4053 Insulation Tester can accurately measure insulation resistance without being affected by generating PV.



## Procedure of PV insulation resistance measurements

- Open the output switch. If the input side is equipped with a surge absorber, remove the ground terminals. If the N pole is grounded inside the DC circuit, disconnect it temporarily.
- Connect the Insulation Tester IR4053's E (earth) side to the ground terminal and the L (line) side to the photovoltaic cell string's P side.
- Measure the resistance value at the P-side terminal, verify that there is no degradation in the insulation, and then measure the N-side terminal. Be sure to measure the P side first and to verify that there is no degradation in the insulation. If you find degradation, do not measure the N side. Measuring the N-side terminal when the module has degraded insulation may cause the bypass diode to reverse polarity, which will cause the simulation tester's voltage to be applied directly to the module.
- After measurement is complete, return the surge absorber's ground terminals to their pre-measurement state without touching them directly with your hands.
- Measure the voltage between P and E and between N and E using the Insulation tester IR4053's DCV range and verify that each value is less than or equal to the voltage between P and N. Then restore operation, for example by reactivating the output switch.

## Products used

**INSULATION TESTER IR4053**

Information valid as of September 2015.

Specifications are subject to change and revision without notice.

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