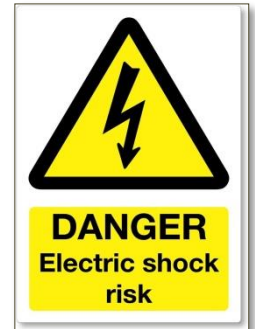


How to Manage an Event of Earth Fault Alarm Solar System

WHAT IS AN EARTH FAULT?

DC Voltage is not generally referenced to earth, so earth fault risk is commonly overlooked by electricians. However, when DC voltage is connected to an operating transformer-less inverter, the potential difference between the DC and earth can be over 400 VDC. This means that the cable tied to the rail (often with sharp stainless steel cable ties) has a 400 VDC potential to the rail, all day every day. A breakdown in this insulation, wherever it occurs on the solar installation, is an earth fault.



In case of an earth fault alarm

1. Switch off the Solar Supply Main Switch in the main switchboard or meter box
2. Switch off the AC isolator adjacent to the inverter
3. Switch off the DC isolator adjacent to the inverter/inbuilt in the inverter.
4. Please Call 1300 852 843 for immediate help.
5. Do not re-start the solar PV system until advised by your installer or an Abacus Solar technician to resolve your problem.

In systems where the PV array is operating at low voltage (LV), an earth fault alarm system shall be installed which, on an earth fault, causes an action to be initiated to correct the earth fault. The alarm system is to continue repeating its operation at least at hourly intervals until the earth fault is corrected.

The alarm system may be an audible signal placed in an area where operational staff or system owners will be aware of the signal or another form of fault communication, for example fax, email, SMS or similar, shall be applied to inform to the system operator.

A set of operational instructions shall be provided to the system owner that includes the actions to take when the alarm operates.

THE POTENTIAL RISK

At best, an earth fault will cause your system to stop operating. At worse it can cause a worker on the roof a shock. If multiple faults occur at the same time, then a person working on a roof could receive a shock big enough to throw them off the roof. It is both the risk of lost revenue and personal injury that has prompted the regulators to introduce mandatory earth fault alarms.

MINIMISING RISK

While there are rudimentary ways of activating an appropriate alarm, the best way is to combine it with online inverter monitoring. When an earth fault occurs, an email alert is sent to the owner every hour, hopefully causing them to take action. The advantage of online monitoring should not be understated. It's not just a gimmick for geeks, but a clever way of using technology so that both you and your electrician can automatically and remotely monitor your solar system's performance for years to come.