

LED SAVES

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Earth fault alarm procedure:

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
4. Please Call 03-9088-0285 for immediate help.
5. Do not re-start the solar PV system until advised by your installer or a Phenix LED Saves technician to resolve your problem.

3.4.3 Earth fault alarm

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.

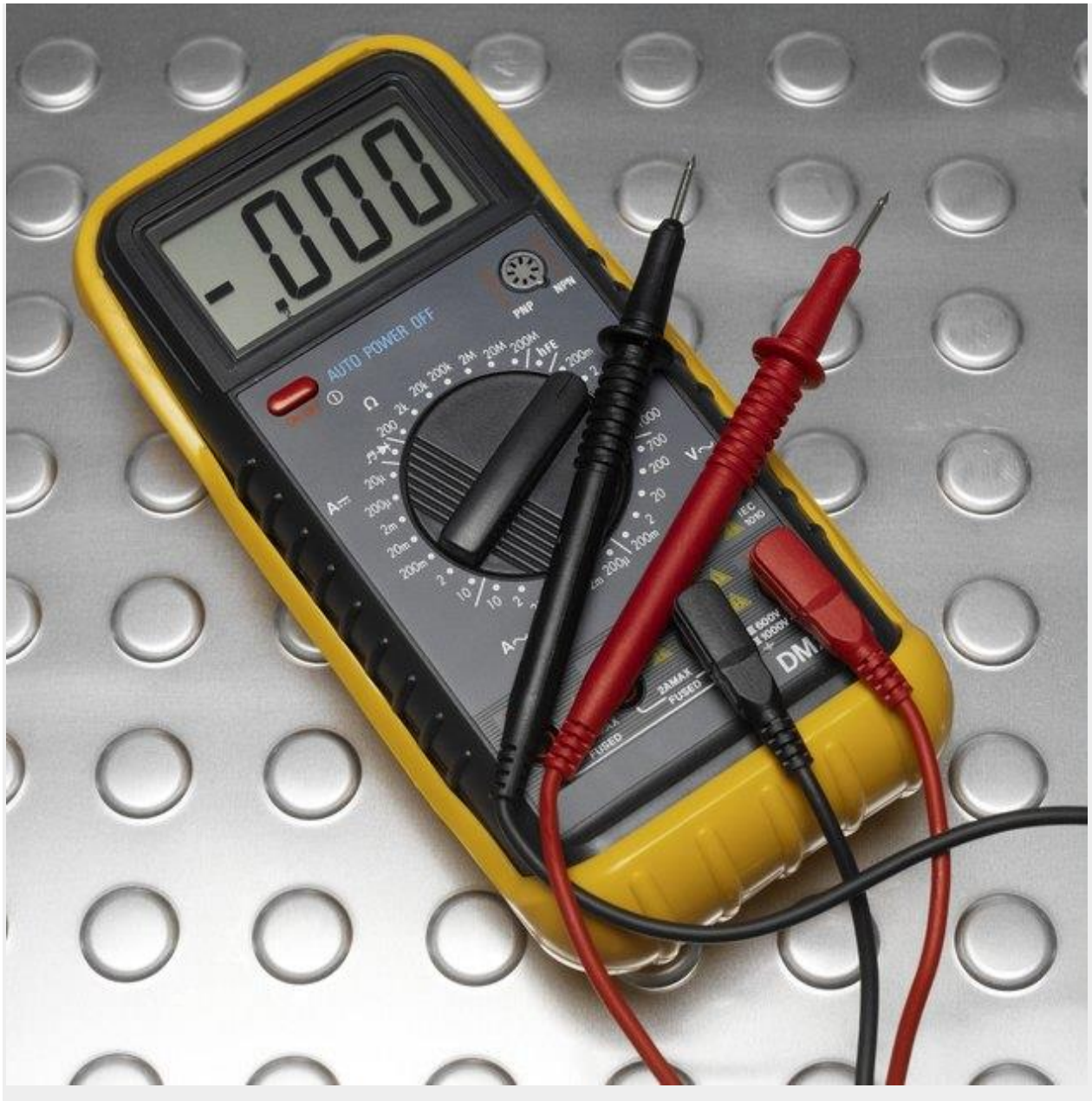
The alarm system may be an audible signal placed in an area where operational staff or system owners will be aware of the signal or another form of fault communication, for example fax, email, SMS or similar, shall be applied to inform to the system operator.

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

NOTE: Many inverters have earth fault detection and indication in the form of indicator lights.

This indication is generally not in an area that will be noticed. IEC 62109-2 requires that inverters have a local indication and also a means of signalling an earth fault externally. The external alarm function should be used to 'cause an action to be initiated to correct the earth fault' (i.e. by placing a light or audible signal where it will be noticed).

Fixing a Ground Fault with a Multimeter in a Fire Alarm System



A multimeter can locate ground faults in fire alarm circuits.

Image Credit: Polka Dot Images/Polka Dot/Getty Images

Ground faults in commercial fire alarm systems are difficult to find. An electrical ground fault is unintentional grounding of an electric wire. This accidental ground causes a current leak, which means devices on the affected circuit may not work at all or may falsely signal an alarm condition. Most fire alarm control panels can warn that a ground fault exists, but can't say where it is, so technicians have to use a multimeter to pinpoint the fault.

Positive and Negative

A ground fault on the positive or hot side of the circuit usually results in a short circuit and immediate tripping of the circuit breaker. A ground fault on the negative or neutral side doesn't necessarily short out the circuit. Instead, it can drain off enough electricity to cause odd and intermittent circuit troubles. A negative ground fault can also electrically energize fixtures and places never meant to carry power, creating a shock hazard to anyone touching the hot spot.

Circuit Suspects

Hunting a ground fault is a process of elimination. First, disconnect all alarm circuit wires from the main control panel. Each circuit will have two, three or four conductor wires. Disconnect all the wires. This should reset the panel's ground fault indicator. Reconnect one of the circuits and wait 60 seconds to see if the ground fault indicator turns on. If it stays off, reconnect the next circuit. Repeat until you find the circuit that triggers the panel's ground fault indicator. That's your suspect. An old alarm system may have more than one ground fault. Disconnect the suspect circuit again and mark it. Continue reconnecting the rest of the circuits, looking to see if the ground fault indicator goes on again.

Multimeter Testing

Make sure all wires of the suspect circuit are disconnected from the main panel. Take out your multimeter and set it for ohms. That's the symbol that looks something like a horseshoe. Use the lowest ohms setting. Touch the multimeter's black lead to a grounded metal surface and touch the red lead to each wire of the circuit. A meter reading of infinity, O.L., Open Loop, or a needle that stays all the way to the left of the scale indicates an open circuit with no path to ground. That means the wire is OK. Any other reading on the meter indicates there's an accidental path to ground somewhere along that wire.

Hunting with Meter

Now that you've found the faulty conductor, your next step is to physically check that wire along the entire circuit. Take your meter and move down the circuit to the first device. Disconnect the wire on the side of the device that's "downstream" from the main alarm panel and test the wire with the meter. If

the meter still shows a ground fault, the problem is further down the wire. Move to the next device on the circuit, disconnect on the downstream side and test again. Repeat until you find the faulty segment. Closely inspect that segment until you find the bare wire, pierced insulation, cross connection, corroded connection or defective device causing the ground fault.