

Application Note: Importance Of Lightning Protection For Residential And Commercial Solar PV Systems

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A typical PV solar system normally consists of PV modules (usually mounted on the roof), inverter/s, a battery bank, ac grid supply, ac loads as well as DC & AC cables. The fore-mentioned equipment requires adequate protection against external and system generated faults. Typical protective equipment includes fuses, circuit breakers, isolators, surge protectors, etc. Surge arresters (commonly known as SPDs) are mainly used for protection against voltage surges – lightning strikes are a typical source of these voltages, this makes SPDs an ideal protection against lightning strikes.

Most manufacturer warranties do not cover equipment damages caused by lightning. Therefore, it is imperative for all PV solar systems to have appropriate protection against voltage surges caused by lightning. Generally, systems located in the highveld have a higher risk of lightning damages compared to systems deployed in the lowveld. As such, all PV system deployments should undergo a lightning risk assessment that would also determine the type of protection that would eventually be deployed on that respective site. To get specific detail regarding SPDs please follow this link:

<https://365segen.sharepoint.com/:w:/s/Technicaldepartment/EdmfgmrY6JNDm2RV2OtCHqQBX5gx-ZorQMwKutHnYtPYUYA?e=vfnrwS>

Apart from SPDs, installers can also make use of lightning rods. If lightning strikes the structure, it will preferentially strike the rod and be conducted to earth through a wire, instead of passing through the building, where it could start a fire or cause electrocution.

If the above-mentioned checks and precautions aren't considered. Then the unprotected system has an increased risk of sustaining lightning damages over time. This means the installer/end-user must cover the costs of replacing/repairing the damaged equipment. In addition, lots of inconveniences relating to the disruption of power would be incurred subsequently.