Lightning and Surge Suppression in Residential Systems

Although not common, transient voltage surges and/or lightning strikes can occur anywhere. Following the guidelines presented here will help minimize any surge or lightning related issues with your Enphase solar installation.

Enphase Microinverters, like all electrical components, can be damaged by lightning strikes or voltage surges from the electrical grid. For this reason, Enphase recommends that you protect your system with lightning and/or surge suppression devices. In addition to having some level of surge suppression, it is important to have insurance that protects against lightning and electrical surges.

Enphase Microinverters have integral surge protection that is more robust than most traditional inverters. However, if the surge has sufficient energy, the protection built into the microinverter can be exceeded and the equipment may be damaged.

There is a wide range of devices that can be installed with a wide range of warranties available from the equipment manufacturers. Though Enphase cannot warrant or guarantee the performance of any of these products, this document recommends some specific lightning protection and surge suppression devices.

Lightning Protection

A lightning arrester is a device that diverts a portion of the energy from a lightning strike to earth, using a site grounding system. More advanced lightning protection systems also dissipates electrical charges from the building, lowering the chance of experiencing a lightning strike.

A lightning strike does not actually need to strike the equipment or building where a PV system is installed to cause damage. A strike on or near to the electric grid can induce voltage spikes that can damage equipment.

Surge Suppression

Surge suppression devices protect site loads from lightning and electrical surges and can be installed in parallel or in-line. A panel level surge suppressor interrupts the circuit and isolates equipment from the source of the surge.

A whole-house surge suppression system generally consists of in-line devices and surge suppressors. These systems are the most robust, but can be expensive and cost prohibitive.

Enphase Recommended Devices

Since the Enphase Limited Warranty does not cover “acts of God” such as lightning strikes, and since lightning strikes can occur anywhere, it is best practice to install surge protection as part of any solar installation. Enphase recommend the following protection devices. These have been
tested to ensure that they do not interfere with Enphase power line communications, but most devices should work fine. Install per vendor instructions.

- Citel DS72-RS-120 surge protector; [data sheet](#)
- Delta LA-302 lightning arrester; [website](#)
- Leviton 51110 or 51110-001; whole house surge protection panel; [website](#)
- Midnight solar surge protection device MNSPD-300 or MNSPD-300FM (with flush mount box); [website](#)

The protection device is usually wired to the load center, but mounted in a separate box as shown. Install per vendor instructions.