

## Grounding of SkyGateway and SkyExtender Series Devices

Correct ground of SkyGateway or SkyExtender series devices provides protection of both the SkyPilot equipment and the customer equipment indoors.

For the surge protection circuitry built into the SkyPilot equipment to be effective, proper grounding of the unit is necessary. This is especially true if it is to be located in an area prone to lightning storms or if the unit is located on a tall structure. To ensure the highest degree of reliability, the metal base of the SkyPilot unit must be properly grounded. The best way to achieve a reliable ground is to connect an 8 GA or larger wire to the nearest ground point on the structure or tower.

The three most popular ground connection points are:

- A cold water pipe (be sure it is well connected to Earth).
- The primary grounding point of the AC electrical system of the building.
- A copper clad ground rod of at least 10' in length driven into the ground. For a tower with multiple legs, one ground rod per leg is required with a ground wire loop connecting each of the rods. See figure 1.

Regardless of where you connect the ground wire, it is necessary that all connections are “gas tight,” retaining their low resistance and integrity over time and exposure to the elements. Use of anti-oxide compound and proper sealing against the elements is essential. Wrapping connections subject to corrosion with Scotch® 130-C tape is recommended. If using a cold water pipe, verify the integrity of the ground. Sometimes metal-cold water pipes have been repaired and/or extended with PVC piping elsewhere in the system. The introduction of PVC material or a dielectric union renders the cold water pipe ground unacceptable.

There should be no more than 5 ohms of resistance between any two ground points in the entire system. It is also crucial that all ground points within the structure be tied together. For example, if there is a ground rod and a cold water pipe used for grounding at different locations, they must be tied together.

### Additional Surge Protection

For added protection in areas prone to lightning storms and to increase reliability, SkyPilot recommends the installation of a Surge Protection Device (SPD) at each end of the Ethernet cable; one as close as possible to the SkyPilot unit and one at the point of entry to the building or enclosure. SkyPilot offers a Surge Protection Device with a bracket and cabling custom designed for use with SkyPilot equipment. See the accessory guide covering this product. Surge Protection Devices can be purchased from third party suppliers.



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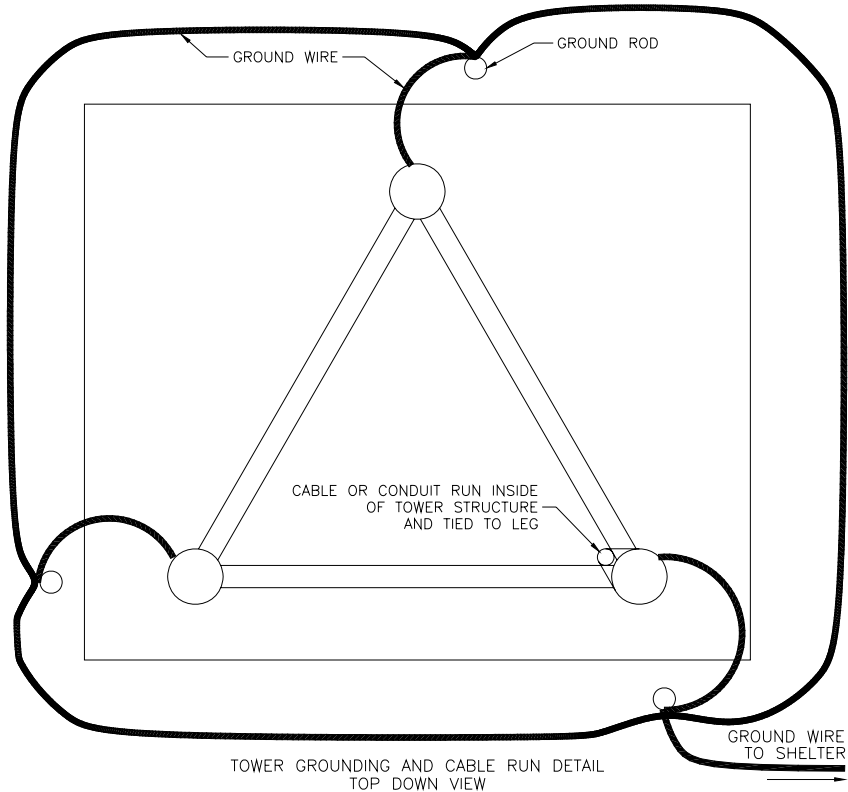


Figure 1

## Grounding Checklist

- Ground wire is connected from SkyPilot equipment to the ground system on the building or tower.
- The Cat-5 cable run is shielded cable and the drain wire of the shield is connected to ground at the SkyPilot equipment. The other end should be left unconnected.
- There is a properly sized down lead from the roof or tower installation location to the ground system of the indoor equipment. The SkyPilot unit must be connected to this down lead.
- All points of the ground system are tied together with less than 5 ohms of resistance between any two points.
- Run the Cat-5 cable inside the tower structure, tying the cable to the leg of the tower every 4 feet. See figure 1. For better protection, install metallic conduit on the tower and run the Cat-5 cable inside the conduit.
- Install a streamer delaying static dissipation array above the SkyPilot unit to bleed off any static charge.

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- All lightning and surge protection devices must be installed in accordance with UL 96A installation requirements for lightning protection systems and in accordance with the NFPA 780 lightning protection installation standard.

Above are general guidelines and techniques to ensure maximum reliability of your SkyPilot equipment, but are not intended to be a complete or comprehensive guide able to cover all installation scenarios. SkyPilot recommends that you consult a qualified installation specialist who is familiar with your particular type of installation. In situations where lightning presents a threat, SkyPilot recommends that you consult a lightning and transient protection specialist.

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