Antenna MAX

Grounding Guide

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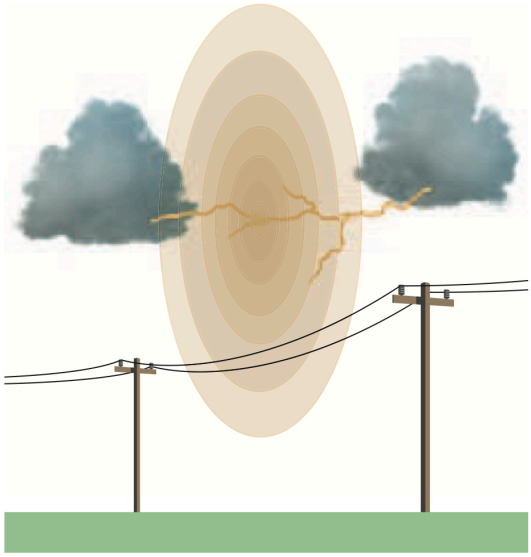
Lightning strikes and overvoltage transients in data lines

Lightning strikes create electromagnetic fields which can extend horizontally for many miles. If data communications lines pass through this electromagnetic field, a voltage will be picked up by, or induced onto this line. If not sufficiently prepared for, the overvoltage can potentially cause irreversible damage to your devices.



Transient overvoltages caused by lightning can reach magnitudes of 6,000 Volts in a well-insulated power distribution system. This is over 8 times the level tolerated by many electronic systems. Most importantly, lightning doesn't have to strike the building to cause destructive transient overvoltages.

Lightning can also cause transient overvoltages through secondary means, such as:

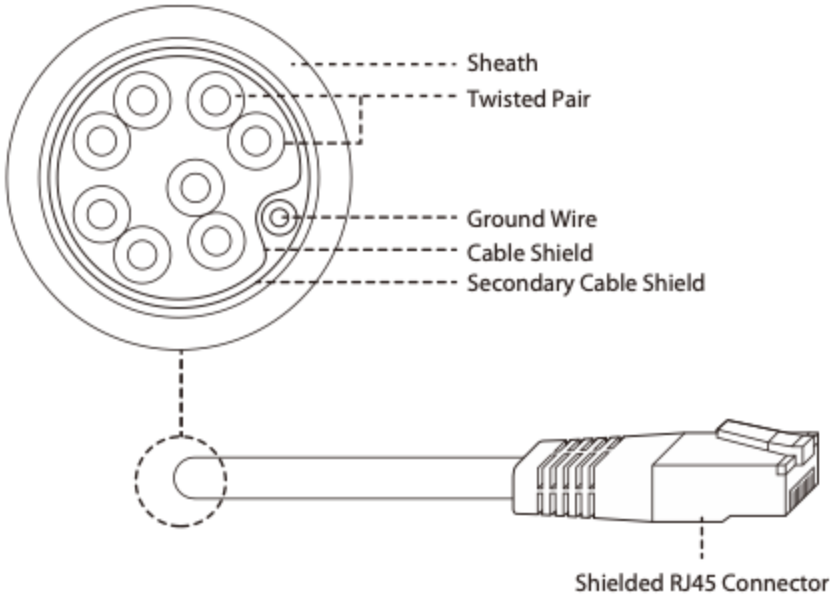
- Electromagnetic pick-up (inductive coupling)
- Differences in potential, between two connected earths (resistive coupling)

Installation Recommendations

Ethernet cable requirements

We recommend considering the following when installing the ethernet cable in your deployment:

- Use shielded CAT5e (or above) cables that include a ground wire.
- We recommend 23AWG cable wire thickness. Smaller wire diameters may work, but this will increase voltage drop and is not recommended for longer cable runs.
- Make sure that the cable is grounded both at the top and at the bottom.
- Make sure that there is no potential difference between grounds
- Make sure the cable is rated as outdoor and has a UV resistant jacket.
- When selecting the cable, make sure all wires are pure copper. Lower cost cables use Copper Clad Aluminum (CCA) which have a higher resistance (power loss) and are not recommended when PoE supply type is used.



Equipment grounding considerations

- If a power injector is used for powering the device, make sure the RJ45 is grounded.
- If a switch is used as the power source, make sure the switch is grounded.
- All ground arrestor PoE Injectors/Switches must use the same ground and there should be no differences in potential between all grounds.
- The **BR1 Pro 5G** comes with integrated surge protection. However for outdoor installations, we still recommend using external surge arrestors for a higher degree of protection.