

Calix PoE PSE for Outdoor Wi-Fi AP Applications

Context

The Calix Revenue EDGE ultimate Wi-Fi solution now extends to the great outdoors, with recent introductions of hardened outdoor Wi-Fi AP systems including the GigaPro p6he (GPR2032H). For all outdoor deployments, it is imperative to properly ground the Wi-Fi AP system (connect to an earth ground electrode) for safety, equipment protection, and performance.

Issue

The GigaPro p6he outdoor Wi-Fi AP system is an 802.3bt Power over Ethernet (PoE) Powered Device (PD). As a standards-based PoE PD, the system can accept power from any 802.3bt-compliant PoE power sourcing equipment (PSE).

However, Calix has observed some performance inconsistencies in the field across a variety of third-party PSEs. Calix has tested and found that some PoE injectors cannot overcome the natural 60Hz frequency noise from AC power magnetic fields which sometimes is further accentuated by grounding. When this condition occurs, the PoE injector may fail to apply power to the PD.

Because it is unacceptable to *not* ground outdoor Wi-Fi AP systems, you must use a compliant, in-spec PoE PSE to supply PoE power to the Calix GigaPro p6he.

Solution

To ensure that BSP operators have reliable PoE PSE options available to avoid the potential conditions described above (and related uncertainties that may come with using third-party equipment), Calix is offering its own PoE PSE solutions to support outdoor PoE applications.

Calix offers two PoE PSE options for use based on application requirements. You can use the Calix PoE injector for single-line PoE power applications, or use the Calix PoE+ switch for multi-line PoE applications supporting up to eight (8) PoE PDs:

- **PoE injector (100-06005)** - 802.3bt compliant PoE injector, single-port 5GE (one WAN/one LAN) with AC power cord
- **PoE+ switch (100-05774)** - GigaPro GPR8802x SBU/MDU ONT + PoE Switch (8 PoE ports)

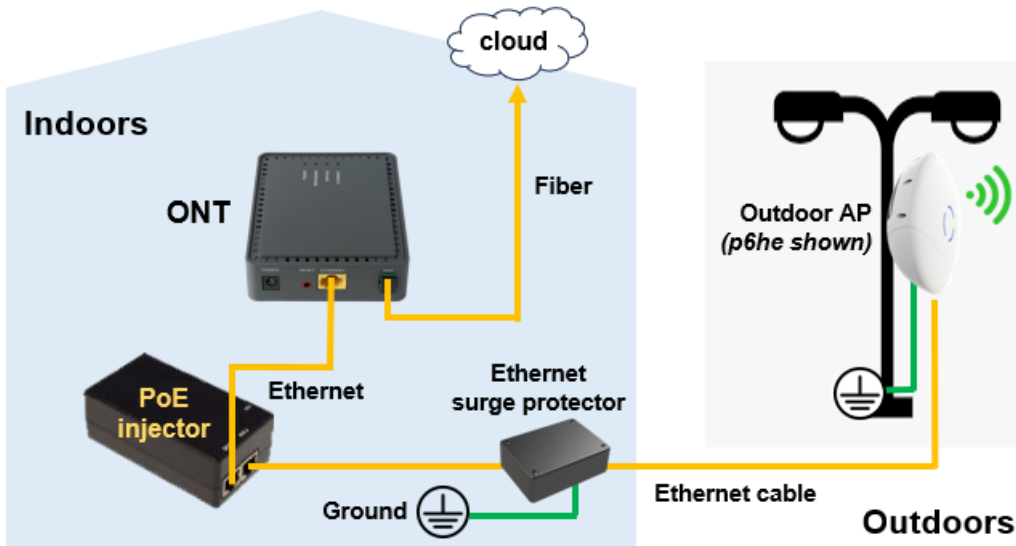
These Calix PoE PSE units have been thoroughly performance tested with all supported use cases for Calix outdoor Wi-Fi APs. Both PSE options have a 2.5GE-capable PoE port to accommodate and support the bandwidth of the GigaPro p6he 2.5GE WAN Ethernet port.

Recommended Action

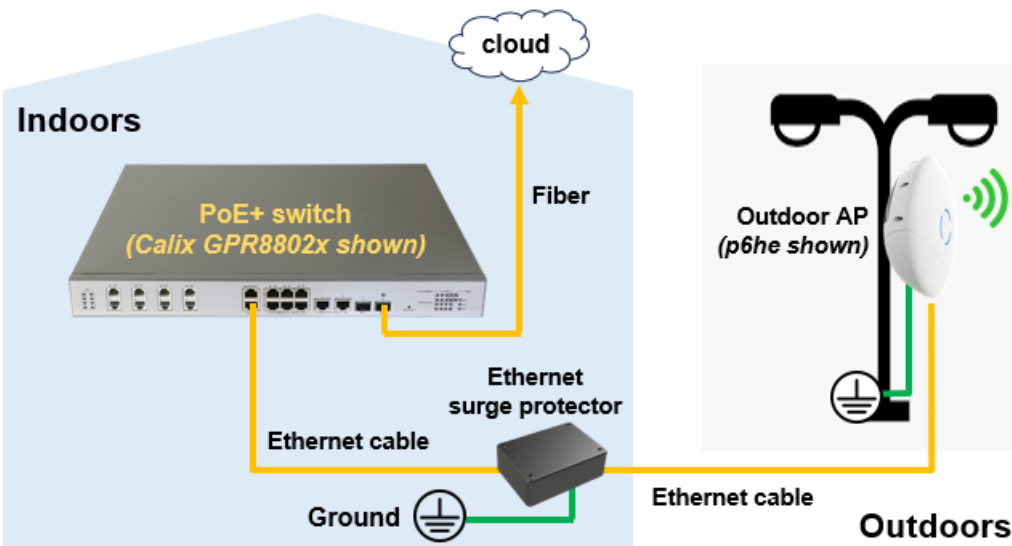
For outdoor Wi-Fi AP applications that require PoE power, Calix recommends using one of the Calix 802.3bt compliant PoE PSE solutions as appropriate for your application.

Additionally, Calix advises that GigaPro p6he outdoor systems must be properly grounded when installed outdoors in accordance with Calix best practices [defined in its installation guide](#). When using PoE power, be sure to install an Ethernet surge protector (ESP) between the PSE and PD; and be sure to ground the ESP, so that connecting Ethernet cables through the ESP also grounds the PoE line as illustrated in the diagrams below.

Using a PoE injector



Using a PoE switch



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