

PoE or Power over Ethernet

In easy to understand terms (not to be confused with Point-to-Point Protocol over Ethernet)

A wireless LAN access point, powered by a PoE splitter, Power over Ethernet or PoE technology describes a system to safely pass electrical power, along with data, through Ethernet cabling. Standard versions of PoE will specify category 5 or higher cable usage. The power can come from a power supply within a PoE-enabled networking device such as an Ethernet switch or from a "power injector", a device built for "injecting" power onto the Ethernet cabling.

The **IEEE 802.3af** PoE standard (ratified June, 2003) provides up to 15.4 W [of DC power and the **IEEE 802.3at** PoE standard (ratified September 11, 2009) and is sometimes called "POE+", provides up to 25 W of power. Numerous non-standard schemes had been used prior to PoE standardization to provide power over Ethernet cabling. Some are still in active use.

This technology is especially useful for powering remote Ethernet switches, IP telephones, wireless LAN access points, cameras with pan tilt and zoom (PTZ), embedded computers, thin clients and LCDs. All of these require more power than USB offers and often need to be powered over longer runs of cable than USB cabling permits. In addition, PoE uses only one type of connector, an 8P8C (RJ45), whereas there are four different types of USB connectors.

PoE is presently deployed in applications where USB is unsuitable and where AC power would be inconvenient, and/or expensive or infeasible to supply. However, even where USB or AC power could be used, PoE has several advantages over either, including the following:

1. Cheaper cabling — even category 5 cable is cheaper than USB repeaters, and the task of meeting building code requirements to run AC power cable is eliminated.
2. A Gigabit of data per second to every device is possible, which exceeds 2009 USB and the AC power line networking capabilities.
3. Global organizations can deploy PoE everywhere without concern for any local variance in AC power standards, outlets, plugs, or reliability.
4. Direct injection from standard 48 V DC battery power arrays; this enables critical infrastructure to run more easily in outages, and make power rationing decisions centrally for all the PoE devices.
5. Symmetric distribution is possible. Unlike USB and AC outlets, power can be supplied at either end of the cable or outlet. This means the location of the power source can be determined after cables and outlets are installed.