

Wiring of PoE Switch



Article Overview

A PoE switch delivers both data and power over Ethernet cables, using either Mode A (data pairs) or Mode B (spare pairs) wiring depending on the standard.

Understanding PoE Wiring

PoE (Power over Ethernet) allows a single Ethernet cable to carry both network data and electrical power to devices like IP cameras, VoIP phones, and wireless access points . The wiring depends on the PoE standard and the type of cable used:

- Cable Types: Cat5e, Cat6, or higher is recommended for PoE to ensure safe and efficient power delivery .
- Voltage and Power: Standard PoE delivers 44–57V DC, with power levels ranging from 15.4W (IEEE 802.3af) to 60W or more (Cisco UPOE or IEEE 802.3bt), .

Pinouts and Wiring Modes

Ethernet cables have 8 wires (4 pairs), numbered 1 through 8. PoE can deliver power in two main modes:

- Mode A (Alternative A): Power is sent over the same pairs used for data. For 10/100 Mbps Ethernet, this is typically pairs 1/2 and 3/6 .
- Mode B (Alternative B): Power is sent over the spare pairs not used for data, usually pairs 4/5 and 7/8 .
- Gigabit Ethernet (1000BASE-T): All four pairs carry data, so PoE uses a phantom power technique to superimpose DC voltage on the data pairs

Article Content

Sep 02, 2025

A Guide to Successful Installation of Power over Ethernet

What Is a PoE Circuit? Years ago, someone conceived the idea of delivering low-voltage direct current

Jul 02, 2026

What is Power over Ethernet (PoE)?

Power over Ethernet (PoE) is a technology for delivering DC power to devices over copper Ethernet cabling, without separate power

Feb 23, 2026

Power Over Ethernet Wiring Diagram

A Power over Ethernet (PoE) wiring diagram is an electrical wiring diagram used in an installation of a PoE system. It

Sep 24, 2025

PoE Configuration Guide

These sections provide information about the conditions required for a PoE capable switch to provide power, how the PoE-capable

May 31, 2026

PoE Switch Tutorial: Simplifying Network Power Management

PoE switches have become increasingly popular in both residential and commercial settings due to their convenience

Jun 01, 2026

Poe Ethernet Wiring Diagram

Additionally, Poe switches can power multiple devices, making it an ideal solution for businesses with numerous

Dec 02, 2025

A Comprehensive guide to PoE Switches and their Uses

A PoE (Power over Ethernet) switch is a network switch that delivers both power and data through a single Ethernet cable to

Nov 12, 2025

How to wire an IP camera to a PoE switch

In this wiring guide, we will show how to connect an IP camera to an external PoE switch. The NVR will be connected to the same

Jan 26, 2026

Power over Ethernet (POE) pinout signals @ PinoutGuide

There are several common techniques for transmitting power over Ethernet cabling; two of them have been

Oct 04, 2025

PoE Switch Tutorial: Simplifying Network Power Management

First, connect the main PoE switch to a router or a network switch using an Ethernet cable. Second, connect the other

Jun 10, 2026

Installation Guide

PoE budget calculations are based on laboratory testing. Actual PoE power budget is not guaranteed and will vary as a result of

Mar 07, 2026

Poe Switch Wiring Diagram

To summarize, Poe switch wiring diagrams are an essential part of any network installation. They provide a

Dec 27, 2025

Using POE switches to reduce cabling

Using POE Switches on our Imperial Line (NON-POE NVRs with Dual Nics and Subnet)
Ideally, whenever you use a POE switch

Mar 28, 2026

PoE vs PoE+ vs PoE++ Switch: How to Choose?

This article explains the differences between PoE, PoE+, and PoE++ switches, and how to choose the right type that

Jul 09, 2026

Power over Ethernet (PoE, PoE+, UPOE, UPOE+)

In this lesson, we are going to learn what is Power over Ethernet. What is the difference between the different standards PoE, PoE+,

Mar 14, 2026

Installation Guide

The 10/100 Mbps RJ45 ports on the switch support the Power over Ethernet (PoE*) function, which can automatically detect and

Aug 11, 2025

What is a PoE Switch? [Comprehensive Guide]

A PoE switch delivers power and data over Ethernet, simplifying network setups and reducing costs for devices like IP

Jun 08, 2026

What Is a PoE Switch? Complete 2025 Guide (For Everyone)

Learn what is a PoE switch, how it works, types, power budgets, and real uses. Simple 2025 guide for home, office,

Dec 22, 2025

What is Power Over Ethernet (POE)?

Power Over Ethernet (POE) is a technique used for building wired Ethernet local area networks (LANs) which use

Nov 08, 2025

Power over Ethernet

In this configuration, an Ethernet connection includes Power over Ethernet (PoE) (gray cable looping

Jun 17, 2026

Power Over Ethernet (POE)

POE allows an Ethernet cable to carry DC power as well as data signals to attached devices. It is used for connecting

May 30, 2026

What is a PoE Switch

PoE Switches - what are they, when to use them, what to know about them, and when not to use them. Power over

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