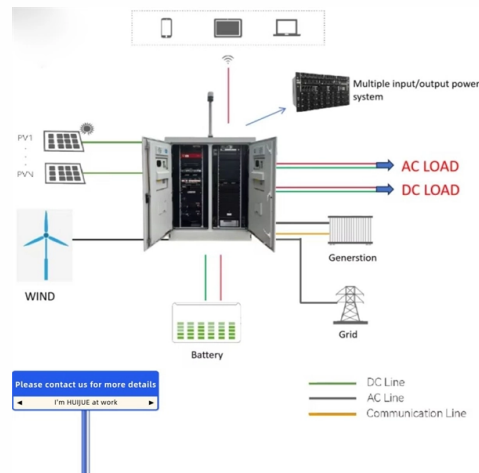


National Standard PoE Switch Subdivision



AI Overview

Standard PoE switches are subdivided into PoE (802.3af), PoE+ (802.3at), and PoE++ (802.3bt Type 3 and Type 4), each defined by power output, voltage, and pin usage. Overview of Standard PoE Switches A standard PoE switch delivers both data and electrical power over a single Ethernet cable while negotiating the correct voltage with the powered device (PD) to prevent damage. These switches comply with IEEE standards and are also called active PoE switches. Non-standard or passive PoE switches, in contrast, provide constant voltage without negotiation, which can damage devices not designed for PoE. Subdivisions of Standard PoE

IEEE 802.3af (PoE)
 Output Voltage: 44–57V (typically 48V)
 Max Power per Port: 15.4W
 Usable Power at Device: 12.95W
 Applications: Low-power devices like basic IP cameras and VoIP phones

IEEE 802.3at (PoE+)
 Output Voltage: 50–57V (typically 54V)
 Max Power per Port: 30W
 Usable Power at Device: 25.5W
 Applications: Mid-power devices such as advanced IP cameras with PTZ features and wireless access points

IEEE 802.3bt (PoE++)
 Type 3: Max Power per Port: 60W
 Usable Power at Device: 51W
 Applications: High-power devices like high-end PTZ cameras and multi-radio access points
 Type 4: Max Power per Port: 100W
 Usable Power at Device: 71.3W
 Applications: Very high-power devices such as LED lighting systems and advanced IoT applications

Power Delivery Modes
 Mode A (Alternative A): Power is delivered over the same pairs used for data (pins 1, 2, 3, 6)
 Mode B (Alternative B): Power is delivered over spare pairs (pins 4, 5, 7, 8)
 4-Pair PoE (4PPoE): Power is delivered over all four pairs simultaneously, used in higher-power standards like 802.3bt

National Electrical Code (NEC) Considerations
 The NEC 2017 edition specifies restrictions on PoE systems to minimize thermal rise in cable bundles. For example: IEEE 802.3af and 802.3at use four conductors, while 802.3bt and Cisco UPOE use all eight conductors
 TIA-568 compliant horizontal cables require a minimum of 24 AWG conductors
 Current limits...

Article Content

Power over Ethernet (PoE) Explained: PoE Standards and Wattage

Explore different PoE standards and wattage levels to power devices efficiently. Unlock smarter networking with the right PoE switch today!

Power Sourcing Equipment (PSE) in IEEE 802.3 Standard ¶

PSE vs. PoDL PSE ¶ PSE in the IEEE 802.3 standard generally refers to equipment that provides power alongside data over Ethernet cables, typically associated with Power over Ethernet (PoE).

Exploring Non-PoE, Non-standard, and Standard PoE Switches

Confused about non-PoE, standard PoE, and non-standard PoE switches? Learn how standard and non-standard PoE differ in safety, cost, and power delivery, plus tips to choose right.

PoE Standards, Wattage, Cabling Requirements & Power Budget 2026

This guide provides an engineering-level explanation of how PoE works, what each standard delivers, how wattage is calculated, how cable selection impacts voltage drop and heating,

How to Choose a PoE Switch, Standard or Non-Standard?

Non-standard PoE, also known as the passive Power over Ethernet. It also delivers power over the Ethernet lines, but does not perform the negotiation or communication process. Passive PoE switch

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 best suits your needs.

Power over Ethernet

Power over Ethernet (PoE) describes any of several standards or ad hoc systems that pass electric power along with data on twisted-pair Ethernet cabling. This

PoE vs PoE+: Detailed Guide to Power over Ethernet Standards

Explore PoE vs PoE+ in our guide! Discover key differences, and benefits, and choose the ideal power standard for your network devices.

What is Power Over Ethernet (POE)?

The following devices are supported by this standard : Video Conferencing Wireless, high-performance APs Video surveillance cameras Security card readers LED lighting Upgrading to POE:

Exploring Non-PoE, Non-standard, and Standard PoE Switches

This article gives a detailed introduction of Standard, Non-standard, and Non-PoE Switches. Browse our FAQs to find the difference between them.

PoE Power Standards and Technical Parameters

Technical overview of PoE power delivery covering PSE/PD roles, detection/classification, wiring alternatives (A/B), pair polarity and four-pair IEEE 802.3bt.

An Introduction to Power-over-Ethernet | DigiKey

This article provides an introduction to PoE and the higher-power PoE+, outlining the standards, explaining the component parts, Powered

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 supplies or outlets.

Intro to PoE: Fundamentals, standards and implementations-Part I

Part I is an extremely thorough introduction to PoE from fundamentals to implementations, this how to represents. Next week, Part II covers PD specs, PoE implementations,

Standard and Non-Standard PoE

Standard and Non-Standard PoE Because Power over Ethernet (PoE) delivers power over the same cable as data, it's popular for powering devices such as VoIP phones, wireless access points, and

Overview of Official PoE Standards (And Why

And how can you tell if a switch or camera is compatible with your infrastructure? This blog provides a clear overview of the official IEEE PoE

Power over Ethernet (PoE) standards and compatibility

PoE power can be supplied from a PoE switch or from a power supply that is connected to a PoE "injector" that can be connected along the Ethernet cable. A PoE switch can supply PoE

PoE vs. PoE+ vs. PoE++: What's the Difference?

Learn key differences between PoE vs PoE+ vs PoE++. Compare power output, device compatibility, and use cases to find the best PoE switch for

What Is Power over Ethernet (PoE)?

PoE Power Supply Mode According to the IEEE standards, PSEs are classified into midspans and endpoints. Midspan indicates that the PoE module is installed outside the device,

2024 PoE Switch Quick Reference Guide

Power over Ethernet (PoE) switches are a revolutionary technology that enable devices to be powered and network-connected over a single Ethernet cable.

How to Choose a PoE Switch, Standard or Non-Standard?

Thus, standard PoE switches can be applied in both traditional 10/100BASE-T and modern 1000BASE-T PoE networks. While non-standard PoE switches are usually used in the past 10BASE-T and

Contact Us

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