D-Link®

PoE guide-
Power over Ethernet

What is PoE, what does it do
and do you need it?

What is PoE

Power over Ethernet (PoE) is a technology used within wired Ethernet cabling, it enables electrical current to power a variety of electronic devices, in local area networks (LANs.)

Why do I need it?

One big advantage of PoE, is that it can be used to cut down on the number of electrical sockets being used, devices like access points and cameras can be powered by a single ethernet cable, reducing trip hazards and the need to stock multiple different types of power adaptors. Another advantage of PoE is it sends power down the cable between 44-57V, instead of the standard 110/240V. This means there is no need for a certified electrician to add or move devices.

PoE (or 802.3af)

15.4 Watts per channel max
Great for powering;

- VoIP Phones
- Wireless Access Points
- Security Cameras

PoE+ (or 802.3at)

30 Watts per channel max
Great for powering;

- Outdorr/PTZ cameras
- Wi-Fi 6 Access Points
- 5G Premises Equipment

PoE++ (or 802.3bt)

60 Watts per channel max
Great for powering;

- Laptops and Thin Clients
- LED Lighting
- Wi-Fi 7 Access Points

Different Types of Poe

Power over Ethernet switches allow both power and data to be connected simultaneously to operate devices. As the diagram above shows, there are different standards of PoE. Our switch range offers a wide choice of PoE (802.3af) and PoE+ (802.3at) switches, these can power devices such as Access Points, CCTV Cameras, IP Phones.

Recently the PoE++ (802.2bt) standard has been developed/launched this will be able to deliver 60 watts of power to devices, meaning things like laptops and TV screens can now be powered via an Ethernet cable, this standard will be available on the upcoming DMS-3130 series.

What can we power with PoE?

What Devices can use a PoE Switch?

There are many devices that can be powered by PoE. However, the amount of power needed will differ by device- see examples below;

Low Watt PoE devices

- VoiP Phones
- IP cameras
- Wireless Access Points
- Audio Devices, i.e. Speakers

Medium Watt PoE devices

- Wi-Fi 6 Access Points
- Video Phones
- Outdoor and PTZ Cameras

High Watt PoE Devices (UPoE)

- TV's and other displays
- LED Lighting
- Remote Computer Terminals and Thin Clients
- Wi-FI 7 Access Points

D-Link's PoE switch range

Unmanaged PoE Switches

Unmanaged PoE switches can provide instant connectivity for plug-and-play simplicity - add PoE to your network with no configuration.

Our DGS-10xx switch range starts with five ports up to the largest at 26 ports providing a power budget of of 370 W.

Smart Switch PoE

The DGS-1100v2 series introduces a web based interface to take more control of your network.

The DGS-1210/DGS-1250 series, our best selling switches, introduce both layer 3 features and SFP ports for fibre cabling.

The DGS-1510/DGS-1520 series introduce 10G fibre and 'stacking' which allows many switches to combine together into one. Smart switches have PoE options from 8 to 52 ports with power budgets up to 370W.

Long ranged PoE

Designed for surveillance deployments with high PoE+ power budgets, the DSS-100E Series Switches allow security cameras to be deployed at an extended distance without the need for additional equipment, providing flexibility and convenience while saving on installation costs.

The DSS series has nine ports and by using PoE extenders can reach 650m distance.

IEEE 802.3bt - the latest PoE standard

The **DMS-3130** Series is a range of Layer 3 Stackable Multigigabit Managed Switches.

PoE models support 802.3af, 802.3at PoE and UPoE standards with power budgets of 740 watts (upgradable to 1440W)

Features

High Availability and Flexibility

- Multigigabit 2.5G/5G/10G/25G support
- 2.5GBASE-T PoE+ and 5GBASE-T UPoE support
- Four 25G SFP28 uplink ports

Reliability

- Redundant power supply (RPS) support
- Ethernet Ring Protection Switching (ERPS)
- Embedded 6 kV surge protection on all Gigabit Ethernet ports and on all GE RJ-45 access ports
- IEEE 802.1D/802.1w/802.1s Spanning Tree
- Loopback Detection (LBD)

L3 Features

- Static Route
- RIP/RIPng
- OSPFv2/v3Operations, Administration and Maintenance• IEEE 802.3ah Ethernet Link OAM
- IEEE 802.1ag/ITU-T Y.1731 Service OAM

High Bandwidth Stacking

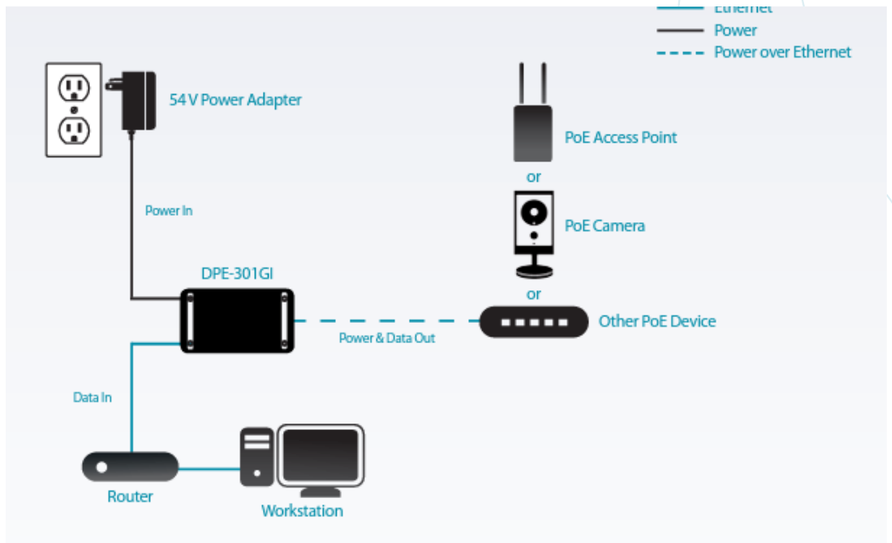
- Physical stack of up to 9 units
- Supports long-distance stacking over fiber
- 200 Gbps per device physical stacking bandwidth

*Maximum wireless signal rate derived from IEEE Standard 802.11ax and 802.11n specifications. Actual data throughput will vary. Network conditions and environmental factors, including volume of network traffic, building materials and construction, and network overhead, may lower actual data throughput rate. Environmental factors may adversely affect wireless signal range.

Already have a switch?

If you already have a switch or just need to power one or two devices, a PoE injector might be suitable.

D-Link offer a wide variety of PoE-enabled switches, sizes range from five to fifty two port models, but what if you only have a couple of devices requiring a PoE connection? Consider a PoE Injector as an alternative. They are simple devices plugged into a power source and sit between the Ethernet switch and the device to be powered, depending on the model, D-Links range can deliver up to 30 watts of power to a device or extend up to 500m.



1. Up to 500 m extension requires 802.11at PSE source. Maximum distance as per IEEE 802.3u specifications. Distances exceeding 100 m can be reached by linking additional DPE-302GE units.

Glossary

PoE Switch

A PoE switch is basically a network switch with the ability to provide power and data.

The advantage of a PoE switch over a basic PoE-injector is that, a PoE switch can route network traffic as well as power to the required devices, meaning only one cable is required for all data/ PoE requirements.

PoE Injector

A PoE injector connects your PoE-enabled network device to a non-PoE switch.

Whilst it adds electrical power to an Ethernet cable, it doesn't transmit data, so each connected device must have data and PoE connections.

PoE Standards

24 Volt Passive
Can be a cheaper form of power, that is either on or off (no autosensing) and provides a constant 24V. This could lead to accidental damage of connected devices if they are not the intended recipient.

IEEE 802.3af - PoE
PoE works by using twisted-pair Ethernet cabling to provide both data connection and electrical power to devices such as access points (APs), IP cameras, and VoIP phones. PoE standard provides up to 15.4 W of DC power on each port.

IEEE 802.3at or PoE+
802.3at or PoE+ or PoE plus, provides up to 30W of power on each port.

IEEE 802.3bt or PoE++
PoE++ increases the power capabilities of PoE by introducing two new standards. Type 3 is up to 60W and type 4 up to 90W.

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