



## From Wireless Access Points to Network Switches, NETGEAR Provides Reliable, Affordable and Simple PoE Solutions

### What is PoE?

PoE is **Power Over Ethernet**. It allows network switches to pass power through Cat5 cabling to power devices and peripherals.

### Why use PoE?

Traditionally, devices connected to the network had at least two types of cables connected to them. The Ethernet cable for data and a power cable for power. The need for the power cable has been a limiting factor in device deployment, requiring that devices either need to be located near existing power outlets, or install new outlets in the vicinity of the device. PoE solves this issue and greatly enhances the flexibility of deploying such devices. PoE is an IEEE standard for distributing simultaneous data transmission and low-voltage power across the network using existing Ethernet data cabling. This centralized, reliable source of power enables network devices such as IP telephones, WLAN Access Points and CCTV devices to operate without additional power adapters, cords, or AC outlets.

### What is the difference between PoE and PoE+?

PoE was the first generation and PoE+ is the latest generation. The original PoE standard (IEEE 802.3af) provides up to 15.4 W of DC power to each device. The latest standard IEEE 802.3at is also known as PoE+ or PoE plus and provides up to 30W of power to each device. PoE+ is suited to devices that draw more power, for example, Pan Zoom Tilt CCTV cameras and high performance 11n Access Points.

### Can I plug a non-PoE device into a PoE capable port?

PoE switches can detect if a non-PoE device is connected and ensure no power is supplied.

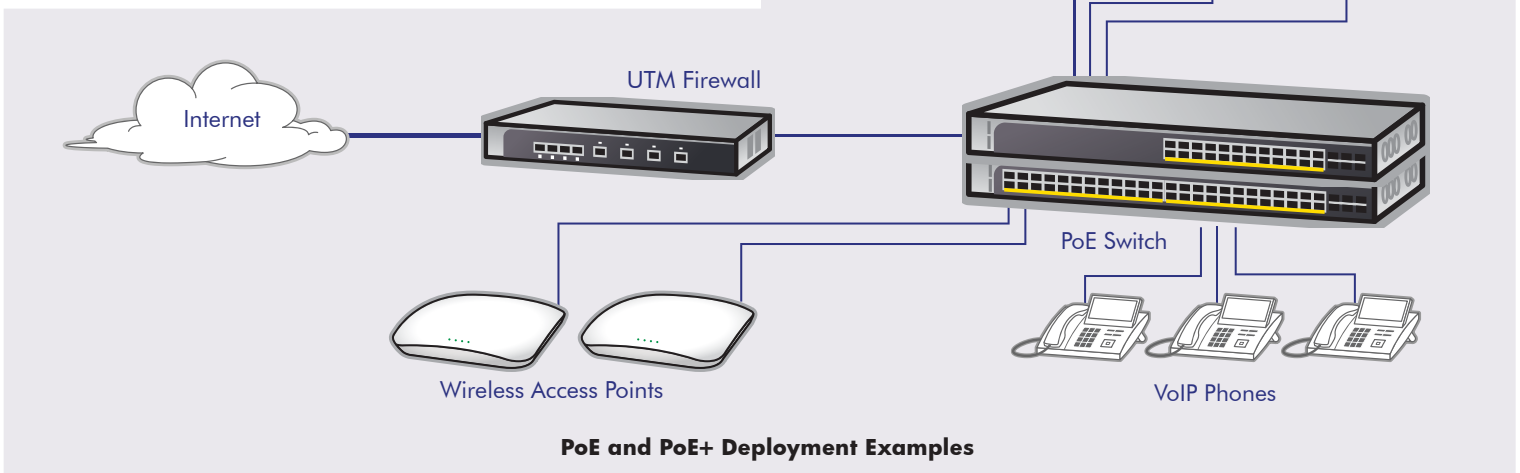
### What are the benefits of using PoE?

- **Lower infrastructure and installation costs:** Fewer, separate power adapters are needed and only one cable run is required rather than two
- **No need for electricians;** uses existing IT networking infrastructure
- **Extends wired and wireless network reach;** not limited to fixed power outlet placements
- **Overcomes hard to wire environments** such as old or 'protected' buildings
- **Reliability:** Redundant Power Supply (RPS) backup options helps keep devices running even in the event of a power outage. This makes it more acceptable to deploy for business critical services, such as IP Telephony based Call Centers
- **Centralized control:** Manage power to devices from a centralized switch. Power down/up devices as required for energy and cost savings

### How much power do typical devices need?

The following are a guide and actual power requirements vary and should be checked device by device when defining PoE budget requirements.

- IP Camera: 7-10W
- IP Phone: 3-7W
- PZT Camera: 15-25+ W
- Access Point: 8W for a/g radios and upwards of 20W for n radios



Questions and points to consider when specifying a PoE network	NETGEAR options
<ul style="list-style-type: none"> <li>• What devices will need PoE?</li> </ul>	<p>This should also consider future PoE+ requirements, even if not initially needed today.</p> <ul style="list-style-type: none"> <li>• All ProSafe Access Points support PoE</li> <li>• GSM5212P can receive power from an upstream switch</li> </ul>
<ul style="list-style-type: none"> <li>• How many devices will need PoE?</li> </ul>	<p>Some PoE switches only have a proportion of ports supporting PoE; e.g. a 24-port switch may only have 12 ports capable of supporting PoE. This will influence the number and type of PoE switch needed.</p> <ul style="list-style-type: none"> <li>• Partial and Full PoE switches are available</li> </ul>
<ul style="list-style-type: none"> <li>• What power will each device require, in Watts?</li> </ul>	<p>Some switches allow you to prioritize PoE ports and vary the power per port providing flexibility of deployment. A feature called LLDP supports this need and determines the status of the powered device and its power needs.</p> <ul style="list-style-type: none"> <li>• ProSafe Smart and Fully managed switches auto-sense power requirements and adjust accordingly</li> </ul>
<ul style="list-style-type: none"> <li>• Per switch, what is the total Wattage of all devices that will be connected?</li> </ul>	<p>Each PoE switch has a Power Budget. This is shared across the PoE enabled ports, so the right switch should be specified to ensure the right power is provided to the devices connected.</p> <ul style="list-style-type: none"> <li>• Power Budgets are available on all PoE switch data sheets</li> </ul>
<ul style="list-style-type: none"> <li>• Do you need a switch downstream, but that is powered upstream by another PoE switch?</li> </ul>	<p>For hard to wire places, a Powered Switch can receive power from another switch and in turn provide PoE to connected devices</p> <ul style="list-style-type: none"> <li>• GSM5212P can receive power from an upstream switch</li> </ul>
<ul style="list-style-type: none"> <li>• How many PoE ports are needed?</li> </ul>	<p>A partial PoE switch may be sufficient depending on user needs.</p> <ul style="list-style-type: none"> <li>• PoE can be found on a range of NETGEAR switches from 8 port 10/100 unmanaged models through to Fully Managed Gigabit 48 ports</li> </ul>
<ul style="list-style-type: none"> <li>• Can ports be prioritized for power?</li> </ul>	<p>Powered Source Equipment (PSE), such as PoE switches can detect how much power is needed as well as monitor and stop supply.</p> <ul style="list-style-type: none"> <li>• ProSafe Smart and Fully Managed PoE switches can prioritize port for power and benefit from dynamic power management</li> </ul>
<ul style="list-style-type: none"> <li>• How many ports will need to be PoE+ enabled?</li> </ul>	<p>PoE+ support on every port for a given switch may not be supported. Check how many ports are PoE+ capable.</p> <ul style="list-style-type: none"> <li>• A number of ProSafe Smart and Fully Managed Switches support PoE+ (see next page for applicable models)</li> </ul>
<ul style="list-style-type: none"> <li>• Do you need a Redundant Power Supply (RPS) back-up solution for the PoE switch?</li> </ul>	<p>Where critical services are supported by a PoE solution, backup is essential. An RPS is needed to provide backup power in the event of a power outage.</p> <ul style="list-style-type: none"> <li>• Select NETGEAR products include an RPS module option, e.g. GSM72xx – GSM72xxPS – GSM73xxS.</li> </ul>
<ul style="list-style-type: none"> <li>• Are you expanding or putting in a new Wireless LAN?</li> </ul>	<p>As roaming and concentration patterns change over time, the need to add more or re-locate access points becomes easier providing for a dynamic deployment environment.</p> <ul style="list-style-type: none"> <li>• All ProSafe Access Points support PoE (see next page for current listing)</li> </ul>

Products	Switch Type	Ports	PoE Ports	PoE Power Budget
FS108P	Unmanaged Switch	8 x FE	4	53W
FS116P	Unmanaged Switch	16 x FE	8	55W
GS108P	Unmanaged Switch	8 x GE	4	50W
GS108PE	Plus Switch	8 x GE	4	45W
GS110TP	Smart Switch	8 x GE + 2 SFP	8	46W
GS510TP	Smart Switch	10 x GE + 2 SFP	8 (8 PoE+ ports)	130W
GS728TPSB	Stackable Smart Switch (2nd generation)	28 GE	24 (8 PoE+ ports)	192W
GS752TPSB	Stackable Smart Switch (2nd generation)	52 GE	48 (8 PoE+ ports)	384W
FS726TP	Smart Switch	24 x FE + 2 x GE	12	100W
FS728TP	Smart Switch	24 x FE + 4 x GE	24	195W
FS752TP	Smart Switch	48 x FE + 4 x GE	48 (4 PoE+ ports)	384W
GS724TP	Smart Switch	24 x GE + 2 Combo SFP	24	192W
GS748TP	Smart Switch	48 x GE + 4 Combo SFP	48	384W
GS724TPS	Stackable Smart Switch	24 x GE + 4 Combo SFP	24 (4 PoE+ ports)	192W
GS748TPS	Stackable Smart Switch	48 x GE + 4 Combo SFP	48 (4 PoE+ ports)	384W
GSM5212P	Managed Switch	12 x GE + 4 combo SFP	10 PoE+ ports	125W
GSM7212F	Managed Switch	12 x GE + 12 combo SFP	4 PoE+ ports	150W
GSM7212P	Managed Switch	12 x GE + 4 combo SFP	12 PoE+ ports	380W
GSM7224P	Managed Switch	24 x GE + 4 combo SFP	24 PoE+ ports	380W
GSM7228PS	Stackable Managed Switch	24 x GE + 4 Combo SFP + 2 x 10GbE (SFP+)	24 (8 PoE+ ports)	384W
GSM7252PS	Stackable Managed Switch	48 x GE + 4 Combo SFP + 2 x 10GbE (SFP+)	48 (8 PoE+ ports)	384W

PD Product	Product Description	Power Consumption
GS108T	Gigabit Smart Switch	6W
GSM5212P	Gigabit Managed Switch	15.4W typical, 60W max
WG103	Wireless 11G Access Point	5W
WNAP210	Wireless 11N Access Point	6W
WNAP320	Wireless 11N Access Point	5.8W
WNDAP350	Dual-Band Wireless 11N Access Point	12.7W
WNDAP360	Dual-Band Wireless 11N Access Point	12.7W

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