

SPOT LIGHT ON Power Over Ethernet

Power over Ethernet (PoE) is a technology that allows the transfer of both power and data on the same cable.

Advantages of PoE

Some of the main advantages of PoE include:-

- Reduced infra structure cabling - no need to run separate power cable to devices.
- Reduced number of spurs and power supplies - numerous devices powered from one location.
- Energy saving – devices can be easily powered down remotely when not required.
- Flexibility – any data outlet (existing or new) can be used to run numerous types of devices as required.

How much power can be transferred (PoE v PoE Plus)

Data Cable (Cat 5 and above) has 8 cores split into 4 pairs. The table below shows the power delivered by PoE and the more recently released PoE Plus using 2 pairs (4 cores) of the cable.

	PoE	PoE Plus
Maximum Wattage (W)	12.95	25.5
Maximum Current (mA)	350	600
Minimum Voltage (DC)	44	50

How is this power put onto the cable

There are two devices that provide PoE power:-

- Endspans – referred to as PoE Switches, these units provide power directly from the network switch
- Midspans – referred to as power injectors, these units stand between a regular Ethernet switch and the powered device, injecting power onto the cable.

PoE and PoE Plus Products

PoE was originally developed for IP telephony, recently, many of the power limitations with PoE have been overcome with 'PoE Plus' allowing manufactures to develop a range of new devices that are controlled and powered with just one cable. Some examples include:-

- Access Control – Equipment manufacturers have started to release PoE Plus Access Control boards that can deliver up to 1.5A which is enough to power a set of double maglocks.
- CCTV – A range of PTZ camera that can be fully operated via PoE Plus are now available from certain manufacturers.
- Public Address – a range of manufactures provide IP based Public Address equipment that offers an alternative to traditional 100V line systems.

Design Considerations

Several considerations need to be taken into account when specifying PoE or PoE Plus systems:-

- Length of cables – as with data, PoE and PoE Plus are limited to maximum runs of 90m
- Heat – consideration should be given to the size of cable bunches and the ambient temperature of the cable route to prevent over heating.
- Equipment – care has to be taken to ensure compatibility between the end device and the PoE switch or midspan.

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