

Enterprise Cabling For PoE+ Applications



Introduction to PoE

Power Over Ethernet (POE) delivers both electrical power and data to remote devices through the same cable. Data and electrical power co-exist on copper conductors and do not affect each other. POE+ is a technology that has revolutionized digital transformation, mobility, high-performance wireless, ip phone, internet of things (IoT) and so on. POE still continues to gain momentum and acceptance. It is the much popular medium to transmit power through a copper ethernet cable to an endpoint.

Power transmits from power sourcing equipment (PSE) through the ethernet cable. It provides the data connectivity to powered devices (PD) such as wireless access points, IP phones, led luminaires, video cameras, access control card readers, point-of-sale machines, and other industrial and building automation applications.

It helps to reduce the amount of building material that is required to power and connect the devices. The amount of power for endpoints differ based on their complexity, function, and application. For example, led lighting fixtures can draw up to 50w for routine operation whereas basic IP phones draw nearly 6w of power. The growing power needs of PDS led to the emergence of POE+ (IEEE 802.3at) that

Provides up to 30w of DC power on a PSE, assuring 25.5w of power to a PD due to power dissipation.

POE has been playing a pivotal role for providing support for commercial network infrastructure since 2003 and is continuing to adapt to new applications and standards as they develop.

PoE and PoE+

The difference between POE (802.3af) and POE+ (802.3at) is the amount of power delivered over each standard. The original POE provides up to 15.4w of DC power to each device over cat5 cables and POE+ can deliver up to 30 watts over cat 5 cables with 25.5 watts available to devices. The current limitation of POE+ is that current POE standard only supports up to 30w of power to devices. This limitation is going to change soon. The next generation POE transmits power up to 100watts.

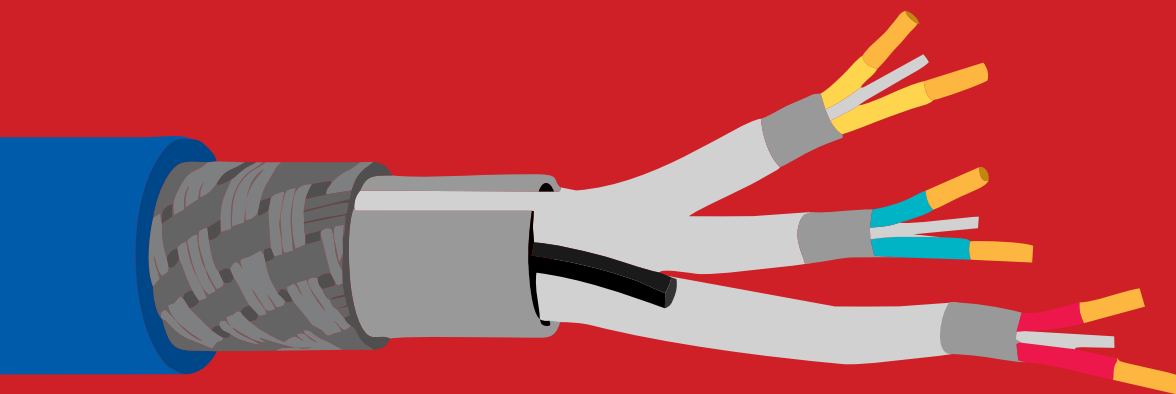
The following data shows POE+ has more advantages than the original POE:

Type	Standards	Power at Source	Power at Device	Maximum Current
POE (Type 1)	IEEE 802.3af	15.4 W	13 W	350 mA
POE+ (Type 2)	IEEE 802.3at	30 W	25.5 W	600 mA
POE++ (Type 3)	Proposed IEEE 802.3bt	60 W	51W	600 mA
4PPoE (Type 4)	Proposed IEEE 802.3bt	100 W	71W	960 mA

The Evolution of PoE+

The POE technology has been around for over a decade and it is growing and evolving. Industry experts foresee 90 percent of voice-over IP devices, 80 percent of wireless access points, and the applications such as security cameras, phone, building infrastructure, and life safety systems, led lights will utilize POE by 2020.

IEEE has introduced POE standards with increasingly higher power outputs to account for the evolving use-case scenarios for POE+. Power over ethernet has evolved and is still evolving. POE+ use-cases are growing beyond the usual computer networking applications.



Benefits of PoE+

POE+ is an ever-evolving technology that continues to gain acceptance in the industry as a low cost and a viable method. The technology has established itself as an easier way to transmit power and data over the same cable since its inception in the early 2000.

The main advantages of POE includes:

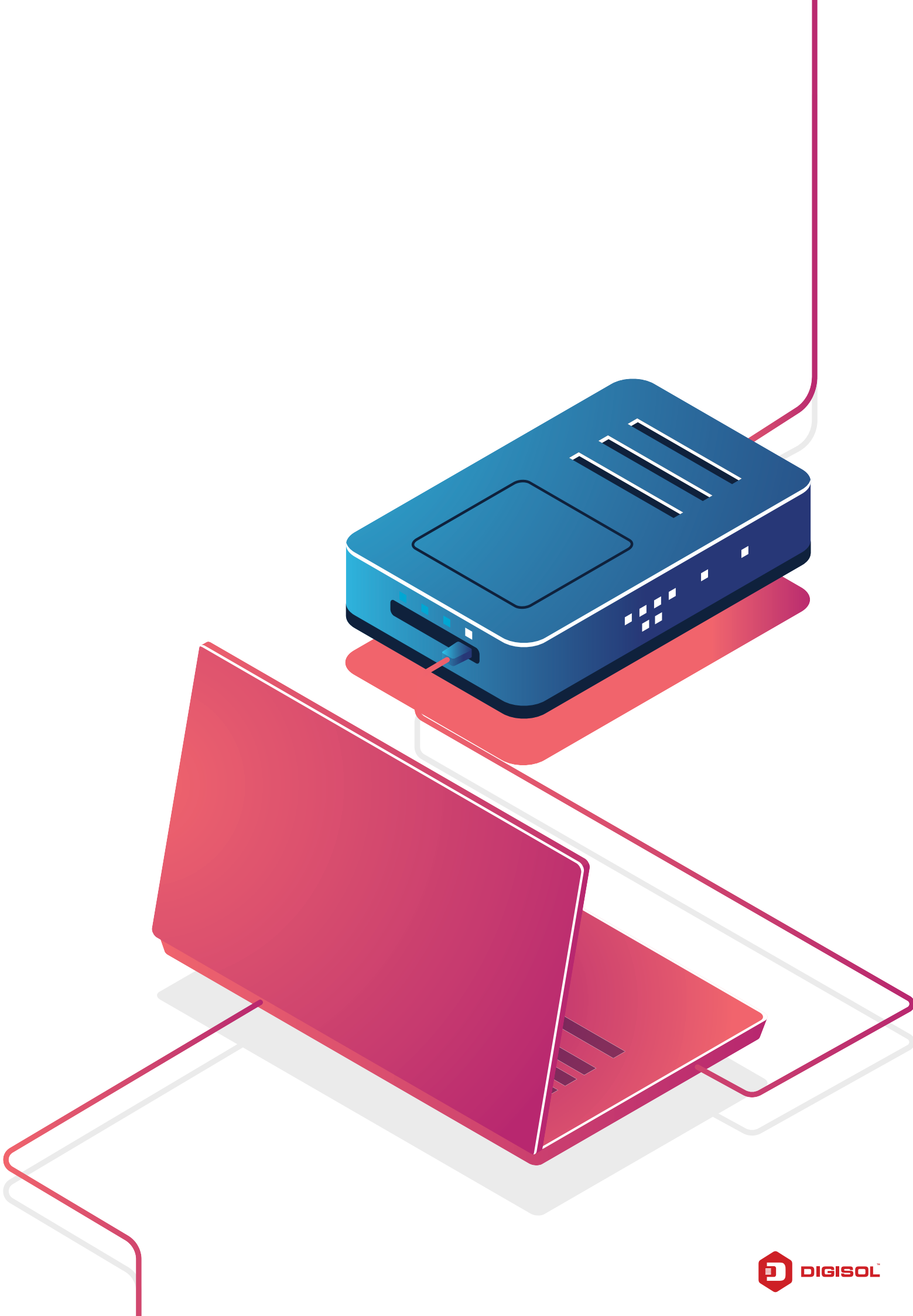
Cost-Effective: POE+ is a cost effective method. It does not require electrician costs for wiring and endpoint installations. One twisted pair cable can deliver both data and power to devices. When comparing to traditional wiring, POE installation and operational costs are far less. You can reuse or repurpose copper from legacy phone systems. It does not require any wall circuits and AC-to-DC adapters for the endpoints. This helps to reduce deployment cost and time. You can also combine data analytics with power provisioning and centralized control that help to cut further expenditures.

Adaptability: POE+ devices are well-known for their adaptability to the changing environments. The devices can easily be disconnected or reconnected at the switch level. You can integrate POE devices easily for the changing network configurations. It is not required to bring down the entire network to add or detract devices. You can power up devices simply by plugging in an ethernet cable that is for data connectivity too.

Flexibility: as POE+ is standards based technology, the devices from industry leaders are interoperable. Poe+ is applicable to different network topologies including ring, mesh and other networks.

Safe Installation: POE installations do not require the metal cladding and conduits. POE type 3 voltage is less than 60 volts and type 4 less than 90 volts. A licensed electrician is not required as the use of one cat5e or cat6 ethernet cable is straightforward.

Data Gathering: POE technology collects data. Analytics software helps to identify when an area is occupied, at what time components are turned off and so on. POE enhances employee productivity by



PoE+ Devices

Power sourcing equipment and powered devices are classified as type 1 or type 2.

1. devices that provide up to 15.4W or draw up to 12.95W of power belong to the type 1 category.

2. devices that provide up to 30W or draw up to 25.5W belong to the type 2 category.



Applications of PoE+

POE+ is simple and cost effective solution for endpoint connectivity. POE enables newer applications and exciting use cases. It supports modern digital building architectures and conventional industries such as retail, hospitality, IT, and healthcare.



PoE+ for Industrial Applications

POE is best for industries that require large data transfers and flexible distribution of power.

Security: IP surveillance cameras can greatly benefit from POE as it uses huge amount of bandwidth. Poe+ is ideal for any automated security system with its capability to provide power and control to gate entry systems.

RFID/Infrared: POE+ makes it easy to place readers in more places, faster. From radio frequency identification, infrared bar code readers, and devices that track components, assemblies and people.

Wireless Access Points: POE expands options for optimal placement of the last wired link if something is moving or cannot easily be wired.

Interconnectivity/accessibility: POE power of control and communication systems enables backup, continuity and orderly shutdown in case of primary power failure.

Other industrial POE+ use cases include: building automation, rugged VOIP, audio and video systems, retail and shipping point of information systems, building access control systems, smart signs/web signs, EPOS systems, battery chargers for phones, laptop and PDA access points, time and attendance systems, and lighting controllers.

PoE+ and IoT

POE+ simplifies everything. The technology plays a pivotal role in the exponential growth of IoT. POE has changed the way that IoT is distributed. You can reduce the costs and network complexity without sacrificing the spots where you can deploy devices. With POE, you no need to spend for long USB cables or for electricians to run new power lines. POE + allows you use your existing wired ethernet network to supply data and power to your IoT devices.



DIGISOL POE + Solutions

POE+ Will Remain The Core Of The Industrial Networks For A Very Long Time In Future. Reliability, Stability, Cost Effectiveness, Flexibility Of POE+ Are Real Reasons For The Potential Of The Technology. Cost And Simplicity Are What Make POE A Preferred Choice For A Full-scale Adoption In Industrial Settings By Many Leaders.

Digisol Offers Top-notch And End-to-end POE+ Solutions That Are Tailored To Meet The Requirements Today's Industry. Digisol Is Also Leading The Way With Its POE+ Innovations And Next-generation Industry Offerings. Some Of The Our Products Include:

DIGISOL DG-FS1526HPE:

Digisol DG-FS1526HPE Is An Intelligent Network Manageable Switch Designed For Network Environments That Require High Performance. it Supports High Port Density And It Is Easy For Installation. It Provides 8 10/100mbps fast Ethernet Poe+ Ports And 2 Combo Ge Ports (RJ-45/SFP). It Supports VLAN, SNMPv1, Port Mirroring And Port Trunking.

DIGISOL CONVERGEX ENTERPRISE SCS INDUSTRIAL FIELD PLUGS:

DIGISOL CONVERGEX ENTERPRISE SCS INDUSTRIAL FIELD PLUGS CAT 6A UTP, 3 PIECE, 180°, TOOLLESS, POE+

DIGISOL CONVERGEX ENTERPRISE SCS INDUSTRIAL FIELD PLUGS CAT 6A STP, 7 PIECE, 360°, TOOLLESS, POE+

DIGISOL CONVERGEX ENTERPRISE SCS INDUSTRIAL FIELD PLUGS CAT 6A STP, 5 PIECE, 180°, TOOLLESS, POE+

Digisol's Industrial Field Plugs Provides Maximum Efficiency That Exceeds Performance Requirement For CAT6A At Field Terminations. These Plugs Have Contact Pins Assembled With Solderless Process, Solving Performance Issues That Arise From Oxidation Of Flux.

