



IE 2000 Series Switches

Industrial Power over Ethernet

Why Should I Care About Power over Ethernet (PoE)?

PoE powers IT equipment using a power source and an Ethernet cable. It eliminates the need for power outlets all over the plant floor and data center. It also simplifies wiring by converging communications traffic and power onto a single cable. So you have an easy way to move your various networked devices around without additional wiring or outlets. There are two basic versions of PoE:

- **PoE (IEEE 802.3af)** provides up to 15.4W of power over a standard Category 5 Ethernet cable or higher. The power is delivered over the same cable as the data across distances of up to 100 meters (328 feet). Many organizations use PoE to power IP phones, wireless LAN (WLAN) access points, and surveillance cameras.
- **PoE+ (IEEE 802.1at)** provides 30W of power over a standard Category 5 Ethernet cable or higher. Typical PoE+-powered devices include cameras with pan/tilt/zoom (PTZ) functionality, ruggedized cameras that draw more power in harsh outdoor environments, and wireless devices with wider coverage.

Industrial Environments Suited for PoE



Industrial PoE Benefits

In industrial environments, the same PoE benefits apply. This is especially useful in hard-to-wire environments and in harsh outdoor locations, where the installation of electrical wiring or panels is costly or difficult. Industrial PoE provides a ruggedized solution to power and connect devices while sustaining stringent environment requirements. For example, you can operate in wider operating temperature and humidity ranges. And PoE allows you to meet the compliance and regulatory requirements of your industry. Industrial PoE also provides these other benefits:

- **Reduced cabling complexity and cost:** A single cable carries both connectivity and power, requiring no additional wiring or qualified electrician for power provisioning. Devices such as security cameras and outdoor WLAN access points in difficult-to-reach areas get power without requiring a separate power line or conduit.
- **Reduced cost:** You save money by reducing the cost of wiring, distribution panels, and circuit breakers. The solution does not require additional power supplies, so you require less space and reduce heat dissipation.
- **Plug-and-play:** Powered devices can be easily moved to locations where Ethernet cable is reachable, so power lines don't need to be rewired.

Industrial PoE Applications

- **Factory floor deployment:** Supplies power to security cameras; inspection cameras located in out-of-the-way places; IP phones; sensors (pressure, temperature, location, and others); public announcement systems and other HMI devices; access points; RFID readers; touch panels, and other equipment.
- **Passenger train and metro:** Powers cameras, IP phones, and WLAN access points for on-board Wi-Fi.
- **Intelligent transportation systems and traffic intersections:** Supplies power to switches installed at intersections connecting traffic light controllers and IP cameras.
- **Security monitoring:** Powers IP video cameras attached to switches along streets in municipalities, refineries, oil/gas companies, mines, and many other locations. When used with IP phones, helps support emergency communication in untraditional places.



- **Surveillance:** Supplies power to security cameras in multiple types of facilities, linking those cameras directly to corporate networks and making surveillance video accessible from anywhere.
- **Highway toll booths:** Switches with PoE ports connect security cameras and IP phones for emergency and support calls.

Cisco IE 2000 Series Switches

PoE Solution with Cisco IE 2000 Series Switches

The Cisco® Industrial Ethernet 2000 Series is a family of Layer 2 switches that brings Cisco's leadership in switching to industrial Ethernet applications. With innovative features, robust security, and superior ease of use, IE 2000 Series PoE solutions include the following models:

- **IE-2000-16PTC-G-L:** 16-port 10/100M with 4-port PoE/PoE+, 2xGE uplinks. LAN Lite base license.
- **IE-2000-16PTC-G-E:** 116-port 10/100M with 4-port PoE/PoE+, 2xGE uplinks, LAN base license with 1588.
- **IE-2000-16PTC-G-NX:** 16-port 10/100M with 4-port PoE/PoE+, 2xGE uplinks, LAN base license with 1588, network address translation (NAT) and CC.



The four available PoE ports in each of the switches can be configured as PoE or PoE+ as long as the total power consumption doesn't surpass the power volume required to power the switch and all PoE/PoE+ ports.

Additional Power Supplies

The PoE-capable IE2000 switches have a separate power input for PoE that takes 48 to 54 VDC. Additional DC or AC power supplies are available to support different types and ranges of power.



PWR-IE65W-PC-DC=
54VDC/1.2 Amp Output, 65W DC to DC PoE power supply with 18 to 60 VDC input



PWR-IE65W-PC-AC=
54VDC/1.2 Amp Output, 65W AC-CPoE power supply with 100 to 240 VAC input



IE 2000 IP67 Series PoE solutions include the following modules:

- **IE-2000-8T67P-G-E:** 8-port 10/100BASE-T, 4-port PoE/PoE+, 2-port 10/100/1000 uplink, Precision Time Protocol (PTP) support



Out of the eight available ports, the first four can be configured as PoE or PoE+ ports.

- **IE-2000-16T67P-G-E:** 16-port 10/100BASE-T, 8-port PoE/PoE+, 2-port 10/100/1000 uplink, Precision Time Protocol (PTP) support.



The eight available PoE ports can be configured as PoE or 4 ports with PoE+.

Additional Power Supply

The IE2000 IP67 PoE models take 48 to 54 VDC input.

In case 48 to 54VDC input is not available, an additional DC power supply module is available to support different types and ranges of power.

- **PWR-IE160W-67-DC=** accepts inputs from 18 to 60V DC convert the power into 54V DC.



For More Information

- Cisco IE 2000 Series Switches: <http://www.cisco.com/go/ie2000>
- Cisco Manufacturing Industrial Solutions: <http://www.cisco.com/go/manufacturing>