

# Power over Ethernet (PoE) - FAQ

Power over Ethernet (PoE) technology describes a method of transmitting electrical power, along with data, to remote devices using standard CAT-5 Ethernet cabling.

## PoE Specifications

- Invented in the late 1990s for the Telecom industry, and now widely accepted.
- Established standard by IEEE in 2003 as 802.3af.
- Also called “Power over LAN” and “Inline Power”.
- Uses standard CAT-5 Ethernet cabling.
- Supports 10/100 megabit and gigabit Ethernet.
- Nominally 48VDC power with wide input voltage tolerance of 37V - 57V.
- Standard allows for devices up to 12.95W.
- Building automation and factory automation are beginning to adopt PoE.

## Common PoE Devices (Powered Devices)

- Wireless access points.
- Voice over Internet Protocol (VoIP) phones.
- Security and web cameras.
- Security card readers.
- Gibson guitars and electric razors.
- In-Sight Micro vision systems.
- DataMan ID readers.

## Advantages of PoE

### Reduction of Cabling

- Reuse existing Ethernet cables.
- Provide power and communications through only one connection.

### Universal Compatibility

- RJ-45 Ethernet jack is now the first worldwide standard power plug.

### Safety

- PoE insulates devices from AC line surges or spikes.
- Low voltage DC is safer for personnel.

### Power Management

- Can use centralized Uninterruptible Power Supplies (UPS).
- Manage power consumption remotely.

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## The DataMan 200 ID Reader & PoE

### DataMan 200 ID Reader - PoE Connector (M12 Connector)

- Powers the DataMan 200 ID reader via industry-standard PoE.
- Ethernet communications.
- Same Ethernet cabling as the In-Sight systems.

### Cognex PoE Offerings

- The Cognex VisionView™ provides 4 built-in Vision Sensor Ports that can supply PoE to the DataMan 200 ID reader.
  - Please note: VisionView™ display is not yet supported with DataMan 200, so only power can be applied to DataMan 200 with VisionView™ at this point.
- Low-cost AC injector.

### Powered Device (PD) – DataMan 200 ID Reader

#### Power Levels Available (PoE Class)

#### The DataMan 200 ID Reader is classified as a Class 1 device.

- Class 1: 0.44W - 3.84W.
- Class 2: 3.84W - 6.49W.
- Class 3: 6.49W - 12.95W.

### Power Sourcing Equipment (PSE) – VisionView and AC Injector

#### Power Transmission Modes

DataMan supports both Type A and Type B power transmission modes.

- Type A: 4- or 8-wire cable (VisionView or endspan injectors).
- Type B: 8-wire cable (AC injector).

#### Types of PSEs

- PoE Switches: Endspan devices (VisionView) that provides Ethernet switch and power.
- PoE Injectors: Midspan devices (AC injector) that “injects” power between the switch and the device.

## Questions and Answers

**Q:** Will I damage anything if I plug non-PoE devices/switches into PoE devices/switches?

**A:** No. Upon insertion, the PoE supply will first check the cable for a resistance value corresponding to PoE and the class of wattage the product consumes. Only after it has been validated, will the PoE device/switch provide power. Consequently, no power will be seen by non-PoE devices.

**Q:** Are there noise problems or voltage drops when applying power with Ethernet?

**A:** No. The nature of the PoE architecture and CAT-5 wiring minimizes any noise on the line, and the architecture is designed to account for large voltage drops or large power supply variations.

**Q:** Are there special PoE cable requirements?

**A:** No. PoE was designed to work with standard CAT-5 installations in cable type and length.

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