

# ***Electra*** by **ernitec**

## Manual Electra S16F



## Introduction

Power-over-Ethernet (PoE) eliminates the need to run DC power to other devices on a single wired LAN. Using Power-Over-Ethernet, installers only need to run a single CAT 5 cable that carries both data and power to each device. This allows greater flexibility in the location of the network devices. And in many cases significantly decreases the installation costs.

There are two system components in PoE – the PSE (Power Sourcing Equipment) and the PD (Powered Device). The IEEE 802.3af/at specification defines PSE as a device that inserts power onto an Ethernet cable. The PSE may be located at the switch (Endspan configuration). Or it may be a separate device (Poe Injector) located between the switch and the PD (Midspan configuration). The PD is the natural termination of this link, receiving the power and the data. And it could be an IP camera or an IP phone or a WLAN Access Point that require power. The current is transmitted over 2 of the 4 twisted pairs of wires in a Category-5, 6, 7 cable.

Power-over-Ethernet follows the IEEE 802.3af/at specification and is completely compatible with existing Ethernet switches and networked devices. Because the Power Sourcing Equipment (PSE) tests whether a networked device is PoE-capable, power is never transmitted unless a Powered Device is at the other end of the cable. It also continues to monitor the channel. If the Powered Device does not draw a minimum current, because it has been unplugged or physically turned off, the PSE shuts down the power to that port. Optionally, the standard permits Powered Devices to signal to the PSEs exactly how much power they need.

The PoE switch is a multi-port fast Ethernet switch that can be used to build high-performance switched workgroup networks. This switch is a store-and-forward device that offers low latency for high-speed networking. It also features a “store-and-forward” switching scheme that allows the switch to auto-learn and store source addresses in a 8K-entry MAC address table. The switch is targeted at workgroup, department or backbone computing environments.

## Hardware Description

### The Front Panel:

The front panel consists of LED Indications, 16 x 10/100/1000M RJ45 ports plus 4 x 1000M SFP ports



Figure 2

### Figure 2. Front panel view of LED indications

LED	Status	Color	Description
Power	On	Green	The switch is supplied with suitable power
	ON	Green	The port is connecting
LINK/ACT	Blinks	-	The port is receiving or transmitting data
	Off	-	The port is not linked successfully with the device
PoE	On	Green	PD is connected
	Of	-	No PD is connected or the device does not need power

### The Rear Panel:

The Rear panel consists of AC outlet, power switch and fuse.



Figure 3

## Network Application

This section provides a sample of network topology in which the switch can be used. The PoE switch is designed as a segment switch that has a large address table and high performance to deal with interconnecting networking segments

PC, workstations and servers can communicate with each other by directly connecting with the PoE switch. The switch automatically learns node addresses, which are subsequently used to filter and forward all traffic based on the destinations address.

The PoE switch can provide power to PDs that follow the IEEE 802.3af/at standard in the network and solves the problem of position limitation. The network devices can be installed in more appropriate positions for better performance. The following figure is an example of a network application for Power over Ethernet Switch.

