

# User Manual

## Professional 10/100/1000 Ethernet PoE Switch

AVN-S09-1P08W135G



## Introduction

Power over Ethernet (PoE) eliminates the need to run DC power to other devices on a wired LAN. Using a Power-over-Ethernet system, installers only need to run a single Category 5 Ethernet cable that carries both power and data to each device. This reduces equipment and installation cost significantly and allows much more flexibility in locating a network device.

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 located between the switch and the PD (Midspan configuration). The PD is the natural termination of this link, receiving the power, and could be an IP phone, a WLAN access point, or any other IP device that requires power. The current is transmitted over two of the four twisted pairs of wires in a Category-5 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 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 the PSEs exactly how much power they need.

The PoE switch is a multi-port fast ethernet switch that can be built high-performance switch network. This is a store-and-forward device that offers low latency for high-speed network. It also allows the switch to auto-learn and store source addresses in a 4K-entry MAC address table. The switch is targeted at workgroup, department or backbone computing environments.

# Product Specification

Fixed Port	9 x 10/100/1000Base-TX Ports
PoE Ports	8 PoE Ports (1-8 Port)
LED Indicators	PWR, PoE, Link/Act LED
Input Voltage	100V ~ 240V AC, 50/60Hz (for power adapter) 48VDC (for switch)
Network Standard	IEEE 802.3 10Base-T IEEE 802.3u 100Base-TX IEEE 802.3x Flow Control IEEE 802.3az
Network Media	10BASE-TX: UTP Category 5/5e Cable (≤250m) 100BASE-TX: UTP Category 5/5e Cable (≤150m) 1000BASE-TX: UTP Category 5/5e Cable (≤150m)
Total PoE Budget	120W
Operating Temperature	0°C ~ 40°C (32°F ~ 104°F)
Storage Temperature	-10°C ~ 70°C (14°F ~ 158°F)
Relative Humidity	20% ~ 85% (Non-condensing)
Thermal Management	Fanless
Switching Capacity	18Gbps
MAC Address Table	4K
Traffic Control	IEEE 802.3x Full-duplex Flow Control
Dimensions	218mm x 105mm x 29mm (W x D x H)
Weight	<2kg (<4.4lbs)
Package	AVN-S09-1P08W135G PoE Switch User Manual Power Adapter Power Cable
PoE Port	8 10/100/1000Base-TX ports
PoE Standard	IEEE802.3af, IEEE802.3at, Per port 15.4W, Max. 30W
Pin Assignment	V+ (RJ45 Pin1, 2), V- (RJ45 Pin 3, 6)
Advanced Functions	Power Lightning Protection, Port Lightning Protection, Solid VLAN

## FCC Statement

This equipment has been tested and found to comply with the limits for a class B device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a commercial installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with instructions, may cause harmful interference with radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case, the user will be required to correct the interference at the user's expense.

## • RJ-45 Ports

Use unshielded twisted-pair (UTP) or shield twisted-pair (STP) cable for RJ-45 connections: 100Ω Category 3, 4 or 5 cable for 10 Mbps connections, 100Ω Category 5 cable for 100Mbps connections, or 100Ω Category 5e/above cable for 1000Mbps connections. Also be sure that length of any twisted-pair connection does not exceed 100 meters (328feet). We suggest using Category 5e cable when connect a power to the device.

## • Improper Network Topologies

It is important to make sure that the network topology is valid. Common topology faults include excessive cable length and too many repeaters (hubs) between the nodes. In addition to that, you should make sure your network topology contains no data path loops. Between any two ends nodes, there should be only one active cabling path at any time. Data path loops will cause broadcast storms which could severely impact your network performance.

## • Diagnosing LED Indicators

To identify the problems, switches can be easily monitored through panel indicators, which describe common problems the user may encounter and where the user can find possible solutions. If the LED display detection isn't correct, please unplug and plug back into the cable again. If the power indicator does not light when the power cord is plugged in, you may have a problem with the power outlet or power connections, power losses, or surges at power outlet. If the problem still cannot be resolved, please contact the local service technician for assistance.

# Hardware Description

## • The Front Panel

The front panel consists of LED Indications and 9 auto-sensing ports.

## • LED Indicators

Per Device: Power

Per Port: LINK/ACT (Link/Activity)

Per PoE Port: PoE



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
	Off	-	No PD is connected or power forwarding fails

## • RJ-45 Ports (Auto MDI/MDIX)

Auto-sensing ports of 10/100/1000 N-way for 10Base-T, 100Base-T, 1000Base-T connections. [In general, MDI means connecting to another Hub or Switch while MDIX means connecting to a workstation or PC. Therefore, Auto MDI/MDIX means that you can connect to another Switch or workstation without changing pin-to-pin or crossover cabling.] All of these ports can supply to PDs.

## • The Rear Panel

The rear panel view of the PoE switch consists of a DC power connector

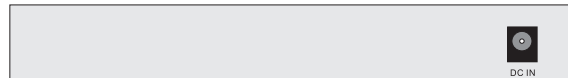


Figure 3. Rear panel view of the switch

## • DC Power Connector

Plug the female connector into the switch and male connector into the power outlet.

Supports input voltages 44-57 VDC.

# Package Contents

Package contents include the following:

- PoE Switch
- DC Power adapter
- 4 Adhesive-backed rubber feet
- User's manual

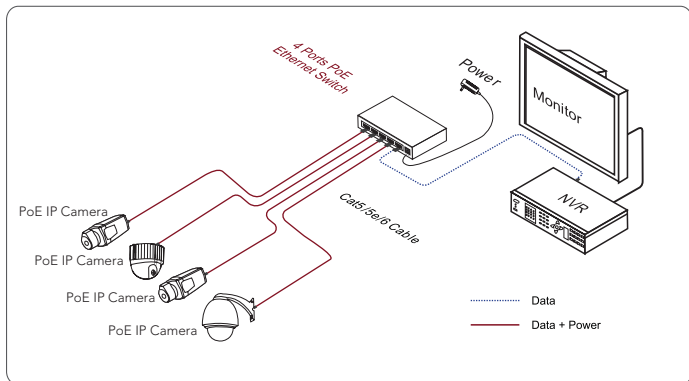
\*IMPORTANT: If any piece is missing or damaged, please contact your local dealer or reseller for service.

# Network Application

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 nodes addresses, which are subsequently used to filter and forward all the traffic based on destination address.

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



## Troubleshooting

This section is intended to help solve the most common issues with the PoE Switch

- **Incorrect Connection**

Every port on the switch can automatically detect either straight or crossover cables when you connect it to the Ethernet devices. However, depending on the device, others may demand a specific cable type. Choose appropriate cable to connect between the units. The RJ-45 connector should use correct UTP or STP cable, 10/100 Mbps port use 2-pairs of twisted cable. If the RJ-45 connector is not correctly pinned then the link will fail.

- **Faulty or Loose Cables**

Look for loose or faulty cable connections. If they are appeared to be okay, make sure the connections are snug. If the problem is not fixed, try a different cable and disconnect the cable and reconnect it.

- **Non-Standard Cables**

Non-Standard and miswired cables may cause numerous network collisions and corrupt other network performance. A cable tester is the recommended tool to verify the connection in a cable signal.

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