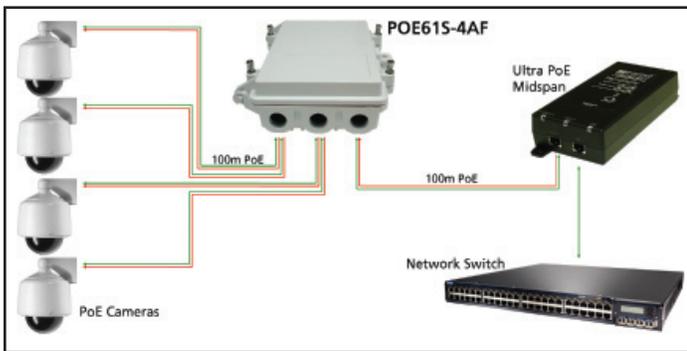




# POE61S-4AF User Manual

## Power over Ethernet and Data Extender

As security applications develop, the switch to PoE is seamless as powering devices over a single cable becomes more cost effective and energy efficient. The limitation of this new technology is that security networking cannot be restricted to purely internal applications; security cameras need to be placed in a variety of locations including outdoors. To meet this need, Phihong has developed the POE61S-4AF, an external extender that allows powered devices to operate up to 200 meters from a network switch.



Using your standard RJ45 connecting Ethernet cables the POE61S-1AF takes its power from an Ultra (75W) or Mega (95W) PoE source. The output is converted to an IEEE802.3af compatible 15.4W per port maximum allowing four IEEE802.3af compliant devices to be powered from a single Ethernet cable. The image above illustrates a simple set up diagram showing the connection between the network switch and the end devices with a POE61S-4AF powered by and Ultra PoE midspan in the middle. Not shown is the conduit piping that fastens to the front of the unit and would be directed to the Ultra PoE Midspan and to the separate powered devices.

Also not shown is a bracket mount to install the unit to fixed surfaces including walls and ceilings. As this unit is designed with plug and play technology; it is ready to work out of the box. There are no firmware uploads or software and no remote access required for this device to operate. Upon power up, the POE61S-4AF will take its power from the Ultra PoE midspan and distribute it evenly across all four ports.

### Installation Sequence:

- 1) Using the appropriate Ethernet cable, Category 5e or above, connect the PoE In/WLAN to the Ultra PoE(75W) (POE OUT) in the midspan communications cabinet.
- 2) Using the same type of cable as before, connect the "Power Out" to the given devices, i.e. security cameras.
- 3) Wait a few seconds to allow for connectivity

<b>Data (IN/OUT)</b>	Full Duplex - Solid Green Half Duplex - Off Blinking LED indicates fault
	100M - Solid Green 10M - Off
	Ethernet activity - Yellow blinking
<b>PoE In</b>	On: Input power OK Off: No power or voltage low
<b>PoE Out (per port)</b>	On: POE output OK Off: No POE output

Should any fault occur with the connection, the LED's will indicate as per the direction above.

<b>Input Power</b>	Phihong's Ultra or Mega Power (75W or better). or equivalent or optional DC power adapter
<b>Output Power</b>	4 ports at IEEE802.3af standard: 15.4W per port for 62W total power
<b>Ethernet Cable</b>	Designed to operate with Categories 5e or 6. All cables must be the same category for full functionality.
<b>Dimensions</b>	252.1x176x78mm (9.93x6.93x3.07in)
<b>Weight</b>	1.7kg (3.75lb)
<b>Operating Temperature</b>	-40 to +60°C -40 to +149°F



## FAQ

### What are the benefits to using PoE?

Power over Ethernet is best suited to users who want to expand and extend the capabilities of their existing network switches. PoE uses standard Category 5 or 6 cables and uses them to transfer both data and power to remote locations. Since extensive wiring is not needed, these remote locations are able to be easily changed. PoE power standards are also universal. Unlike traditional power supplies which are only compatible with specific standards to their region, PoE is able to self regulate to work with a variety of international power standards. PoE also offers more flexibility in power events, such as a surge or brownout.

### Why am I limited to 100 meters?

Power can be transmitted over an Ethernet cable to distances that exceed 100 meters depending on the amount of power being put out by the midspan and loss on the cable across the distance. If the port powering the Ethernet puts out 15.4W (IEEE802.3af standard) of power and the distance is 100 meters then the power could dissipate to 12.95W in the worst case scenario by the time it reaches the end device. PoE is possible over distances greater than 100 meters but is not guaranteed or recommended as the IEEE specification guarantees only 100 meters for data transmission. Should a distance exceed 100 meters or more then an Ethernet extender such as Phihong's POE61S-4AF or POE60S-4AF are recommended. Although power is possible at greater distances, users may experience severe data loss after traveling 100 meters or more.

### Will I be able to use this device with my midspan that has an output of 15.4 or 30W per port?

No. In order for this device to operate the user must be using an Ultra or Mega PoE power injector or equivalent. Because this device detects an internal signature resistance of 12.5K, if it does not detect an output of 75W or better then it will not work. Phihong has developed several Ultra and Mega PoE midspans and single port power injectors that put out at full power 75-

95W per port which is ideal for the POE61S-4AF to be fully functional. The PoE61S-4AF cannot act as a power injector by itself and will split the incoming power across all ports to a limit of 15.4W per port, the IEEE802.3af standard.

### Can I use this unit for my security cameras outside?

Yes, this unit is designed specifically for external use with its new protective covering. The POE61S-4AF is rated as IP 67 indicating that the unit is waterproof. It is not recommended for use in total underwater submersion however it will continue to operate through severe weather including heavy rain and snow provided that the case is fastened securely. It is not rated for prolonged submersion or to depths beyond 1 meter. The unit also carries a wide temperature range from -40°C up to +60°C (-40°F up to +149°F) for use in extreme temperature environments.

### Do I need a special configuration for my network?

No, the POE61S-4AF is set to DHCP and will obtain an IP address automatically from the network. It should not affect any existing network applications. The device acts as an extender and switch only. The data and power will enter the device and be relayed on to the powered devices. There should be no change as if it were one continuous cable. Phihong does recommend professional installation to ensure that should any faults occur at installation, a technician is on hand to handle any problems should they arise.

### Where should I install my PoE Extender?

Your new PoE extender can be installed anywhere between the midspan or power injector and the device that needs powering provided that the extender's input and output connecting cables do not exceed the 100 meter limit. The device can be wall or ceiling mounted with the mounting bracket that ships with the unit (not shown), but under no circumstances may the device use the connecting Ethernet cables as support.



# FAQ and Troubleshooting

## Can I use this device with equipment that is not PoE ready?

No, this device will not act as a splitter to divide the data over Ethernet and power via a DC cable. There is a list of available splitters available on the website [www.phihong.com](http://www.phihong.com).

## Can I connect multiple devices to extend my reach beyond 200 meters?

Yes it is possible to add more than one device to extend the reach of PoE; however only one can be a POE61S-4AF and it must be connected directly into the Ultra or Mega PoE midspan power injector. To extend the connection an additional 100m to 300 or more, then Pihong recommends the POE16S-1AFG extender which will be available in the first half of 2010. Since the POE61S-4AF has an internal signature resistance at 12.5K and its output must detect 25K signature resistance, the device will not work if connected to another POE61S-4AF or POE60S-4AF. It should be noted that the POE16S-1AFG is not rated for use outdoors and is not recommended for use in wide temperature ranges or wet conditions. An outdoor version is coming soon.

If your question is not listed here and need further information please contact Pihong Sales. For a full listing of available contact information please visit the Contact Us section of the Pihong website [www.phihong.com](http://www.phihong.com).

## Troubleshooting

### Detection:

Once a compliant load is attached to the input and output RJ45 connectors, the Green LED for POWER IN will illuminate as well as the POWER OUT LED for each connected port indicating that the power is connected. If data is being transferred then a yellow LED will blink for DATA IN and under each connected port. A 100M Data Rate and Full Duplex will yield Green LEDs for DATA in and DATA OUT for each connected port. The LEDs will not illuminate if Half Duplex or 10M Data Rate. Should the load be non-complaint all LEDs will remain off.



## Features

<b>Input</b>	Pihong Ultra or Mega PoE or Equivalent
<b>Output</b>	4 Ports at 15.4W max. per port; IEEE802.3af compatible
<b>Ease of Installation</b>	No need for system recognition
<b>Safety Approval</b>	CE Certified IP67 Rating

Pihong is not responsible for any error, and reserves the right to make changes without notice. Please visit our website at [www.phihong.com](http://www.phihong.com) for the most up-to-date specifications and contact information.