

## Using your WS-GPOE-16A-48v load balancing Gigabit power injector for 802.3af or 48 volt devices



**60 and 120w versions**



**240 watt version**

- **WS-GPOE-16A-48v60w** with a 60 watt supply, use either input - use for IP phones
- **WS-GPOE-16A-48v120w** with a 120 watt supply, use either input
- **WS-GPOE-16A-48v240w** with 2x 120 watt supplies – connect one to each input
- **WS-GPOE-16-48v120w** with 1x 120 watt supply – see version 1 data sheet.

This device injects power passively. 48 Volts is available all the time, there is no autonegotiation with the attached client device. This device has no switching function – there is no configuration needed, and VLANs and other management features of any switch will be handled transparently thru the injector.

Power and Data is shared on two pairs in the Ethernet cable – this device works to allow power on the same wires as data – therefore all 4 pairs can support Ethernet data. We can answer your questions at Skype: wifiqos or Phone 512-479-0317. .

Connect one or two power supplies to the DC input, Then connect the AC power to the power supply, then plug in one device on the POE side at a time. You will see a Sync light on your switch. As the load increases, the load light will turn on, then change color per the table below.

The WS-GPOE-16 has 2 power supply connectors – each is 2.1mm x 5.5mm. Either can be used. If one power supply is attached, all 16 ports are powered from that one supply. If two power supplies are attached, then 1-8 will be powered from the left input and 9-16 will be powered from the right input. If either power supply fails, then all 16 will be powered from the remaining operating input.



ROUTER

Connect the LAN port to your Ethernet switch. This device handles all 10/100/1000 mb modes – so all gigabit and fast Ethernet switches are compatible. Power is provided on the POE ports on pins 1 and 2 (minus) and 3 and 6 (plus) and also on pins 4 and 5 (plus) and 7 and 8 (minus).

1-4 Rj45 socket	LED1	5-8 Rj45 socket	LED2	9-12 Rj45 socket	LED3
Port current 0-20ma	off		off		off
Port current 0-400ma	green		green		green
Port current >400ma	yellow		yellow		yellow

The Master LED shows green if there is power – more than 12 volts. Each socket has a 650 ma current limiter on pins 36. This device will shut down the power if the current exceeds .65 amps per side. It will restore power if the load is less than 650 ma. Groups of 4 sockets share one “current sensor” LED. There are four LED’s – one for each group of 4 sockets.

## Passive vs 802.3af/at PoE

Passive PoE	Power is on all the time only PoE capable devices should be plugged in devices can take from 0 to 30 watts per port
802.3af PoE	Up to 15 watts per port of power is available power is applied only if the device accepts PoE current is limited to 300 ma per port
802.3at PoE	Up to 25 watts per port of power is available power is applied only if the device accepts PoE current is limited to 500 ma per port A 802.3at client plugged into a Passive or 802.3af may operate in low power mode

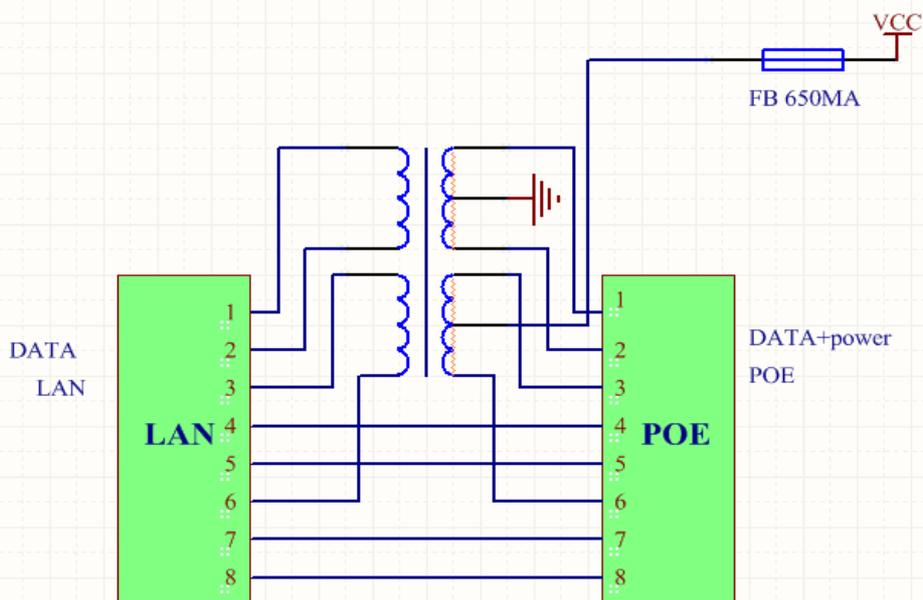
## 568A vs 568B wiring and power polarity

You can use either 568A ( green wires on pins 12, orange on 36) or 568B wiring ( orange on pins 12, green on 36). Your client device can accept either wiring. Because of this, the polarity makes no difference in PoE devices in mode A. If your device states 12+ and 36- , you can use an Ethernet crossover cable.

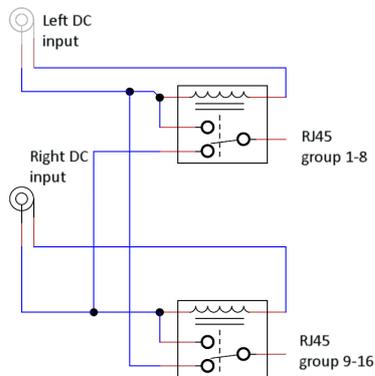
URL: <http://wifi-texas.com/> Skype:wifiqos

## Power Supply Connections

Usage	Input	Number of attached PSU	Watts/Port Max	Note
802.3at (passive)	56 volts	1 2	30 30	up to 150 watts total up to 150 watts on 1-8 and 150 watts on 9-16
802.3af (passive)	48 volts	1 2	30 30	up to 150 watts total up to 150 watts on 1-8 and 150 watts on 9-16
802.3af (passive) redundant	48 or 56	2	30	2x 150 watts supplies, automatic failover if one supply fails.
Passive 24v	24 volts	1 2	15 15	Mikrotik, UBNT – undocumented mode A support in some devices.



PoE power diagram



Failover / Load Balance relay

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## 10/100 and gigabit compatibility

	10/100 Switch	Gigabit switch
10/100 Device	Works	Works
10/100/1000 or "gigabit" Device	Works	Works

## How PoE works

A device needs power to operate. Not volts or amps – power expressed as watts.

That power can be supplied at different voltages. The electronics inside the device needs usually about 3.3 or 5 volts. But at low voltages, the wires from power supply have a lot of loss beyond about 5 feet. So for short distance power, most IP phones and Cameras are shipped with a 12v or 24v power supply because 12v supplies are cheap. But these same devices, when powered via the Ethernet cable, use 48 volts. This is the 802.3af standard voltage. 802.3at using 56v – because the loss is even lower.

## Is 120 watts going to damage my device?

No. High **Voltage** can damage a device, because if the **voltage** is higher than allowed, the circuitry in the device “breaks down” **drawing** a lot of **power**, and that power will melt things. But at any allowed voltage – the device takes only the power it needs to operate - you cannot “push” power.

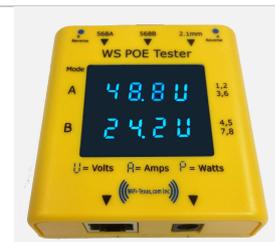
## Other Products from WiFi-Texas



12, 16 and 24 port rack mount  
passive or 802.3at



8 port wall mount  
passive or 802.3at



PoE Tester