

Using your WS-POE-5v DC-DC converter for Tablets, iPads and other USB devices



5 volts splitter and USB cable

24 volt power supply and injector

Before plugging in your device – please check a few things.

- Are you using our power injector? If not, note that a “PoE switch” will not work. **48 volts will destroy the splitter** – only use approved 24v power supplies, battery, or a Solar PV system.

We also offer kits for up to 12 tablets. Each splitter can handle 10 watts or 2 amps max. iPads need about 10 watts while charging, less in operation, so your power supply can be selected for the number of devices connected.

Note – in almost all USB applications, the male RJ45 connectors are not used. Ignore them. If you need the Ethernet connection, connect the male RJ45 from the injector to your Ethernet switch, router or hub. Connect the male RJ-45 on the WS-POE-5v to your tablet.

To power everything, connect the 2.1mm DC connector from the 24v 12 watt power supply to the Injector, connect an Ethernet cable up to 328 ft between the two Female RJ-45 connectors. Connect the USB adapter to the 1.35mm DC output of the WS-POE-5v device. Plug in the USB cord to the tablet. It will work.

Any Ethernet cable will work – but all 4 pairs must be wired. Use 568A or 568B pinouts.

We have adapters in stock for 0.7mm, 2.1mm, 2.5mm, and 30pin iPhone 4s standards, also USB female, USB mini and USB Micro

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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 6 feet. So for short distance power, 5v Cameras are shipped with a 5v power supply because 5v supplies cost less. But if you try to make a longer DC cord there are problems. There are no problems with 24v on Ethernet.

If the device needs 2 amps at 5 volts, that is 10 watts. With our convertor, 10 watts at 24v is less than .5 amps. So 6x 10 watt devices at 5 volts just need a 60 watt 24 volt power supply if used with our WS-POE-5v product.

Here is why 24v is used on Ethernet cables

The device needs power – a simple non-IR camera needs about 4 watts. So at 5 volts – that is .8 amps. The power cord in the 5v supply is very short – say 6 feet. The loss in 6 ft of power cord is about 120 milliwatts – not a problem. Power loss is the current squared times the distance.

If we use 24 volts for a 4 watt device, – the power is the same, but the current is lower – about 160 milliamps. An ethernet wire can be up to 328 ft – so the loss is 50 times greater than at 6 ft, but since the current is 5 times lower – the power loss (a square of the current) is 25 times lower – the loss in the entire cable is therefore 310 milliwatts. A 10 watt device will cause about 2 watts to be lost in 328 ft of cable, so we should budget 12 watts worst case total per 10 watt device. At 5 volts – the cable loss over 328 ft for a 10 watt device would be 40 watts!

802.3af vs Passive PoE

This device uses passive PoE at 24 volts. More expensive 5v splitters work with 802.3af – that is a 48v technology. Passive PoE uses 802.3af mode B for power, but there is no negotiation between the power supply and the device. Power is on pins 45 and 78, 45 is plus and 78 is ground.

Other Products from WiFi-Texas



12 and 16 port



8 port



12 volt



802.3af Splitters

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