

Using your WS-POE-5v DC-DC converter for Cameras, Kiosks and other 5v or USB devices



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

- Are you using our power injector? If not, note that a "PoE switch" sends 48v not 24v. **48 volts will destroy the splitter** – only use approved 24v power supplies, battery, or a Solar PV system.
- We have kits of 1, 3, 4, 8 and 12 cameras. We also have 12 volt splitters.

Each splitter can handle 10 watts or 2 amps max. Cameras typically need about 7 watts each, so your power supply can be selected for the number of cameras connected. Our 3 and 4 camera kits have a 30 watt supply, the 8 camera kit has a 60 watt supply. The 12 camera kit has a 120 watt supply.

Connect each LAN port to your Ethernet switch, router or hub. Connect each POE port to a splitter, and connect the output of the splitter to the 5v or USB device.

Any Ethernet cable will work. Since cameras operate at about 2 mb/s max – even CAT-5 cable will work fine up to 328 ft.

The POE side of the injector goes to an Ethernet cable that goes to the 5v splitter. Connect the DC plug to the 5v input of the device, and the RJ-45 ethernet cable to the Data socket of your device – it will power up and connect – and you are all set.

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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!

DC connector options



We ship our splitter with the Foscam standard 1.35mm x 3.5mm DC plug. We have adapters in stock for 0.7mm, 2.1mm, 2.5mm, USB, mini USB, and 30pin iPhone 4s standards.

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 (+24v on 45 and ground on 78), but there is no negotiation between the power supply and the device.

Our 6 and 12 port gigE devices are Mode A and will not work with these splitters.