POE162/401/801/802 Power over Ethernet Switches

A POE switch is a network switch that has Power over Ethernet injection built-in. When you connect other network devices to the switch as normal, the switch will detect whether they are POE-compatible and enable power automatically.

EXTEND TX DISTANCE

POE162   16 Down Links **10/100 Mbps**
2 Up Links **1000 Mbps**

POE401 4 Down Links 100 Mbps
1 Up Link 100 Mbps

EXTEND TX DISTANCE

POE802   8 Down Links 100 Mbps
2 Up Links 100 Mbps

POE801 8 Down Links 100 Mbps
1 Up Link 100 Mbps

SPECIAL NOTE:
The **POE162** and **POE802** switches have an Extend dipswitch that allows the switching of the 100Mbps down link rating to 10Mbps increasing the range from **100m** to **250m**. See Limitations on next page.

What is Power Over Internet

Power over Ethernet (PoE) is a technology that lets network cables carry electrical power. If a camera is a PoE enabled, only a network connection is needed as it receives electrical power from this cable as well. This may be beneficial for the following reasons:

a) Reduce manpower costs and expense as no separate power cabling required
b) Easier to install as not dependent on appropriate power supply
c) PoE is safer as there is power overload protection
d) Power comes from a central compatible source and can be easily backed up by UPS.

When would I need a POE Switch

If you purchase an IP NVR that does not have network ports to cater for the IP cameras you are installing, you will probably need a network switch. If you want to power the IP cameras using POE then you will need an appropriate POE switch. The models above are for 4, 8 or 16 POE cameras using the Down Links and the Up Link which is non POE is for connecting to the router that is generally non POE. If you buy the POE162 16 channel POE switch, this has two Up Links, allowing you to use one for the router and one for the NVR.

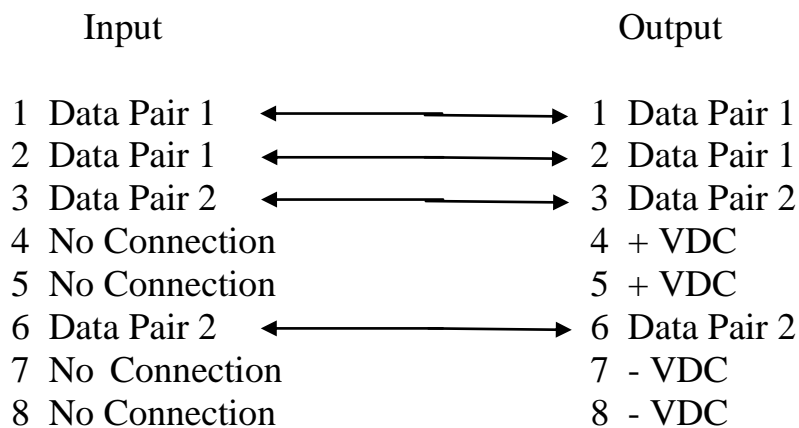**PoE Network Runs - Limitations**

PoE network runs are generally limited to about 100 metres. Our POE100 PoE extenders can extend a run by another 100 metres and using 2 extenders on a run, can achieve a maximum run of 300 metres. *The POE162 and POE802 also have an Extend dipswitch. By default it is off, so this POE switch is rated at 100Mbps per channel up to 100 metre range. If Extend is switched on, it is rated at 10Mbps with up to 250 metre range. Most IP cameras installed are below the 10Mbps limit.

When using Injectors, Splitters or Extenders or a mixture of devices, you may find that you incur power limitations. These will be dependent on cable type, cable distances between products, quality of connections and mixture of equipment used. As it is therefore impossible to guarantee expected power resource, we recommend that installers should purchase a small range of these products, including a test monitor such as the LCD390 CCTVMate, to ascertain power availability.

PoE Standards

There are several ways for transmitting power over Ethernet cables. Two ways have been standardised and are known as Alternative A and Alternative B. For 10BASE-T and 100BASE-TX only two of the four data pairs in CAT5 cable are used. Alternative B separates the data and the power providing use of all four twisted pairs. (Positive voltage on pins 4 and 5, negative on 7 and 8)

Alternative A uses power on the same pairs as data for both 10 and 100 Mbit/s. Data transmission does not interfere with voltage because twisted pair technology uses different signalling. For Gigabit 1000BASE-T and upwards, all fours pairs are used for data transmission so both Alternative A and B use power on data pairs. The standards also provide for power sourcing equipment (PSE) and powered devices (PD) to regulate the power required by the device to be detected by the power source, so that power requirements are made available. A device can use up to 25.5 watts. To stay powered up the PD must continuously use 5 ~ 10 mA for 60m/secs with no more than 400m/secs since last or else it will be depowered by the PSE. There are two types of PSE's, Endspans and Midspans. Endspans are (PoE switches) and Midspans are power injectors that are fitted between a regular Ethernet switch and the powered device.

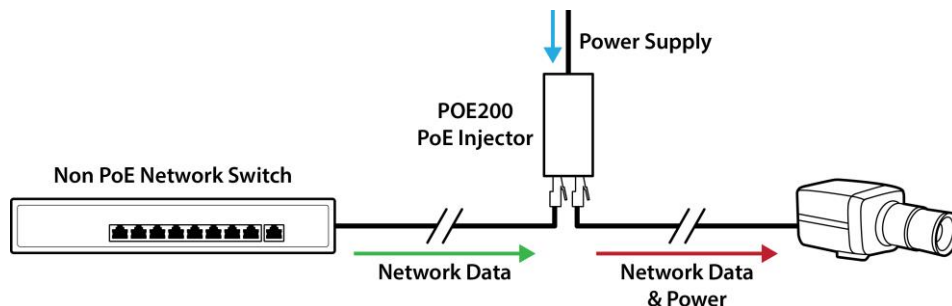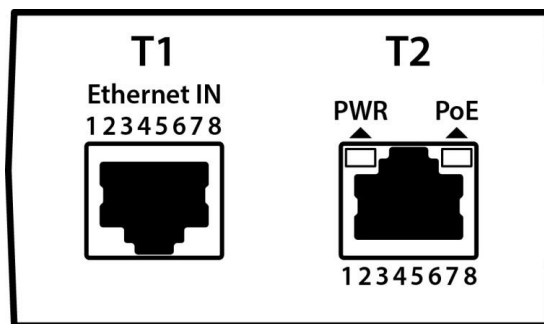| Input		Output
1 Data Pair 1	←——————→	1 Data Pair 1
2 Data Pair 1	←——————→	2 Data Pair 1
3 Data Pair 2	←——————→	3 Data Pair 2
4 No Connection		4 + VDC
5 No Connection		5 + VDC
6 Data Pair 2	←——————→	6 Data Pair 2
7 No Connection		7 - VDC
8 No Connection		8 - VDC

Using POE equipment

If you have a PoE Network Switch it uses a standard single Ethernet cable that carries data and power to a PoE camera.

If you have a non-PoE Network switch and a PoE camera, if you take a connection from the Network switch to a **POE200 PoE Injector** which is powered, this will combine the data and power so that a PoE camera can be incorporated on the same network.

POE200 PoE Injector Connections

T1 Pins		T2 Pins
1 Data Pair 1	⟷	1 Data Pair 1
2 Data Pair 1	⟷	2 Data Pair 1
3 Data Pair 2	⟷	3 Data Pair 2
4 No Connection		4 + VDC
5 No Connection		5 + VDC
6 Data Pair 2	⟷	6 Data Pair 2
7 No Connection		7 - VDC
8 No Connection		8 - VDC

Technical Description

Model	POE162	POE401	POE801	POE802
Up Links	**2 x** 10/100/1000Mbps	1x 10/100Mbps	1x 10/100Mbps	**2x** 10/100Mbps
Down Links	16 x 10/100 - *10Mbps	4 x 10 / 100Mbps	8x 10/100Mbps	8x 10/100Mbps - *10Mbps
Input Voltage	240v AC	240v AC	240vAC	240vAC
Maximum Load	250W	65W	150W	120W
PoE Standard 802.3 AT	25.5W per SKT	25.5W per SKT	25.5W per SKT	25.5W per SKT
Use	Internal Only	Internal Only	Internal Only	Internal Only
Brackets Supplied	19" Rack & Wall Mount	Wall Mount	19" Rack & Wall Mount	19" Rack & Wall Mount
Dimensions	270 x 180 x 45mm	200 x 118 x 39mm	270 x 180 x 45mm	200 x 118 x 45mm

* Refer to PoE Network Runs - Limitations

This symbol on the products and/or accompanying documents means that used electronic equipment must not be mixed with general household waste. For treatment, recovery and recycling please return this unit to your trade supplier or local designated collection point as defined by your local council.

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