



# SPENCE ELECTRONICS

32 Amphitheatre Circuit  
Baulkham Hills NSW 2153

Phone: (02) 9674 9600

Fax: (02) 9674 9611

Mobile: 0417 434 667

E-mail: [enquiries@spence-electronics.com.au](mailto:enquiries@spence-electronics.com.au)

[rspence@bigpond.net.au](mailto:rspence@bigpond.net.au)

Web: [www.spence-electronics.com.au](http://www.spence-electronics.com.au)

## POWER OVER ETHERNET FOR VOIP TELEPHONES

### Overview

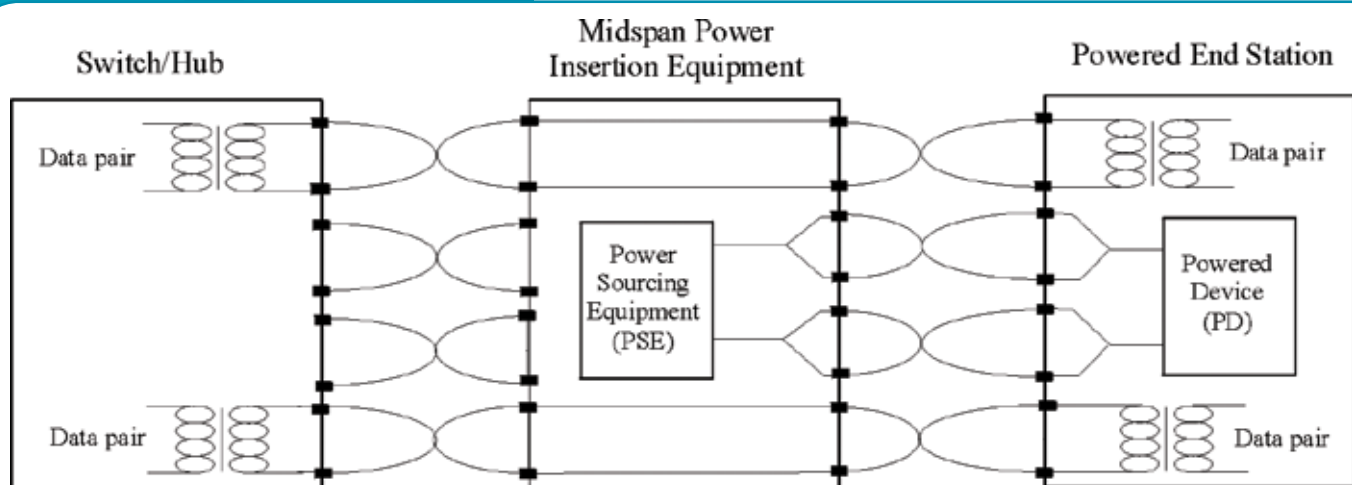
Power-over-Ethernet (PoE) or "Active Ethernet" eliminates the need to run 240 Volts AC to IP Telephone Points and other devices on a wired LAN. Using Power-over-Ethernet, system installers need to run only a single CAT5 Ethernet cable that carries both power and data to each device. This allows greater flexibility in the locating of IP telephones and network devices, significantly decreasing installation costs in many cases.

Power-over-Ethernet begins with an "Injector" that inserts a DC Voltage onto the CAT5 cable. The power insertion is done at the horizontal cabling distribution point (floor by floor). The Injector is typically installed in the "Distribution Frame cabinet" near the Ethernet switch or hub.

Some devices accept the injected DC power directly from the CAT5 cable through their RJ45 jack. These devices are considered to be "PoE-Compatible" or "Active Ethernet Compatible".

Devices that are not "PoE Compatible" can be converted to Power-over-Ethernet by way of a DC "Splitter" or "Tap". These are often called Active Ethernet "Splitters". This device picks-off the DC Voltage that has been injected into the CAT5 cable by the Injector and makes it available to the equipment through the regular DC power jack

**Therefore in order to use  
Power-over-Ethernet you need:  
(Injector) + (PoE compatible device)**





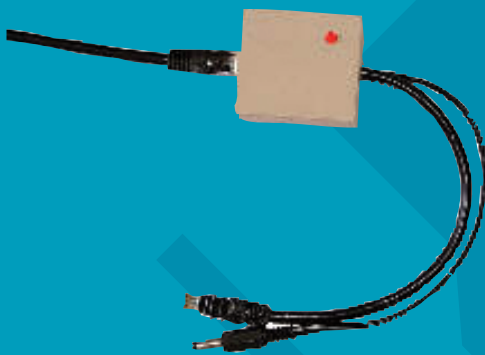
## *Types of Splitters*

*Two basic types of Splitters are available: Passive and Regulated.*

A Passive Splitter simply takes the voltage from the CAT5 cable and directs it to the equipment for direct connection. Therefore if 12 VDC is injected into the cable by the Insertion equipment, then 12 VDC will be produced at the output of the Passive Splitter.



A Regulated Splitter takes the voltage on the CAT5 cable and converts it to another voltage. Several standard regulated voltages are available: 24VDC, 12VDC, 6 VDC, 5 VDC. This allows a wide variety of non-PoE equipment to be powered through the CAT5 cable.



## *Voltage and Pin-out Standards*

Although the IEEE has a PoE standard called IEEE802.3af, different equipment vendors use different PoE voltages and CAT5 pin configurations to provide the DC power. Therefore it is important to select the appropriate PoE devices for each piece of equipment you plan to power through the CAT5 cable.

The IEEE has standardized on the use of 48 VDC as the Injected PoE voltage. The use of this higher voltage reduces the current flowing through the CAT5 cable and therefore increases the load and increases the CAT5 cable length limitations. Where the maximum cable length has not been a major consideration, 12 VDC and 5 VDC can be used as the "injected" voltage.

### ***Standard Configuration:***

*Pin Number*      *Description*

1      Data Pair TX

2      Data Pair TX

3      Data Pair RX

4      Power +ve

5      Power +ve

6      Data Pair RX

7      Power -ve

8      Power -v

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ETHERNET  
FOR VOIP TELEPHONES**



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## *Multi-Port Injectors*

The Midspan Power Insertion Equipment available are 1 port, 3 port, 12 port & 24 port.

*24 Port Patch panel*

*24 Ports In*

*24 Ports Out*

*19" rack mounting*

*Power Supplies*

*240 Volt input voltage*

*48, 12 or 5 Volt output voltage*

*Dimensions:*

**24 Port Patch Panel**

*Short circuit protection*



*12 Ports In*

*12 Ports Out*

*19" rack mounting*

*Power Supplies*

*240 Volt input voltage*

*48, 12 or 5 Volt output voltage*

*Current Limiting*

*Short circuit protection*

**12 Port Patch Panel**

*Dimensions: 1U High,  
486mm wide & 260mm deep*



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## **3 Port Patch Panel**

*3 Port*

*Powered by 48, 24, 12 or 5 Volt plugpack*

*Installed in standard GPO mounting Block*



## **1 Port Patch Panel**

*1 Port*

*Powered by 48, 24, 12 or 5 Volt plugpack*

*Installed in standard dual RJ45 mounting Block*

## *Item Numbers*

1 Port Patch Panel	Item No. 3001
3 Port Patch Panel	Item No. 3004
12 Port Patch Panel	Item No. 3006
24 Port Patch Panel	Item No. 3008
Passive Splitter	Item No. 3010
Regulated Splitter	Item No. 3020