POE100 Series

10/100 Base-TX to 100Base-FX Converter
POE Power Provider

Version 1.01
Date: 13 July 2005

1. Overview

The POE Series IEEE 802.3u compliant media converters support two types of media 10/100 Base-TX and 100Base-FX. With LFP (Link Fault Propagation) support it allows the administrator to easily diagnose link faults on their network. If the Copper or Fibre link fails, the converter forces the link status of the connecting device to also fail.

The POE100 Series of media converters are designed for applications where the supply of power to attached Ethernet devices needs to be via the network connection, rather than by a power cord. Typical devices that use this method of powering are VoIP Phones, Wireless Access points and IP based Cameras.

The POE100 Series media converters are fully compliant to the IEEE 802.3af standard. The converters include PD (Power Devices – POE120 Series, IP Phones, Wireless Access Points etc.) signature sensing and power monitoring features compliant with the IEEE 802.3af standard, This includes, PD discovery, classification, current limiting and other necessary functions. It also supports high levels of safety support with short circuit protection and power-out auto-detection to the PD.

2. Model Description

Model	Power Description
POE100 Series	AC: 100 ~ 240V 50 ~ 60Hz

100Mbps Fibre Transceiver	Wavelength
ST/SC Multimode 2Km	1310nm
SC.S05/S20/S40/S60Km Single Mode	1310nm
SC.S80/S100Km Single Mode	1550nm

Single Fibre Model	TX, RX Wavelength
1310nm Single Mode 20Km	TX (Transmit) 1310nm
	RX (Receive) 1550nm
1550nm Single Mode 20Km	TX (Transmit) 1550nm
	RX (Receive) 1310nm

Note:
The 1310nm and 1550nm models must be installed in pairs,
i.e., install 1310nm model at one end and the 1550nm model at the other end.

3. Checklist

Before you start installing the POE converter, please verify that the package contains the following items.

- The POE100 Series
- AC Power Cord
- CD containing this manual

Please notify your sales representative if any of the above items are missing or damaged.

4. Installing the Converter

4.1 POE100 converter with a Powered Device (PD)

1. Connect the POE100 converter to an AC power source.

2. Connect the copper cable to your IEEE 802.3af compliant PD device. e.g. Wireless Access Point, IP Phone, IP Camera
   Note:
   The POE100 can also work as a standard media converter and connect to a non POE device.

3. Connect the fibre cable to your connecting device.

TP Port	**Default:** Auto Auto or Force setting, see figure 10. S1-Bit 1
	Attach Cat. 5 cable to the copper port and ensure the cable run is not over 100m in distance. The Copper port supports Auto MDI-X, therefore there is no need to use a cross-over cable when connecting to a switch.
Fibre Port	**Default:** 100FDX ”100FDX”/”100HXD” setting, see figure 10. S1-Bit 5

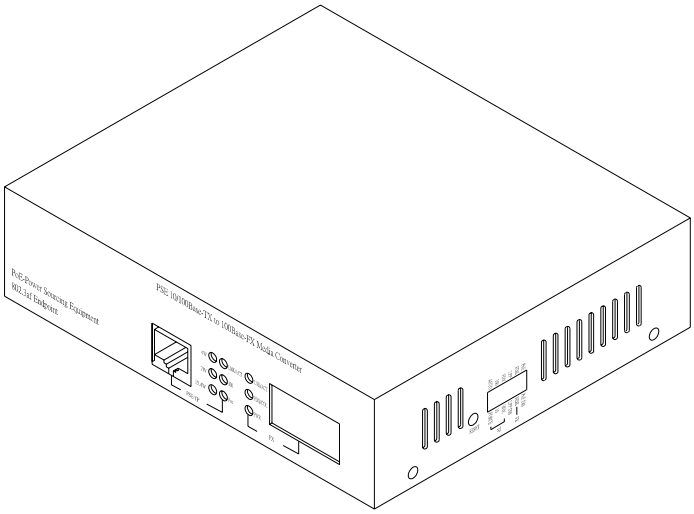

Fig. 1 View of the POE100 Series Media Converter

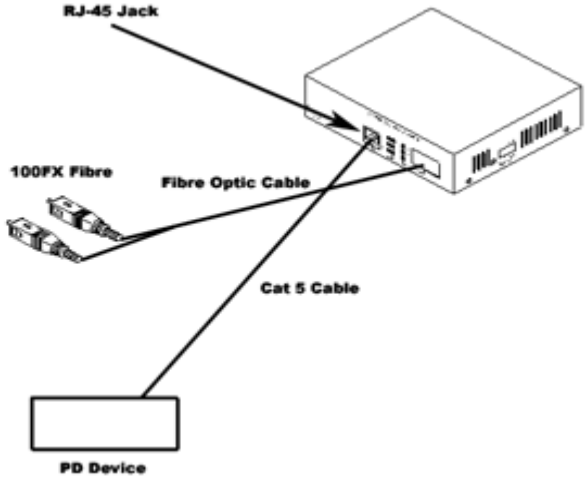

Fig. 2 Example connection between POE100, PD device and Fibre Cable

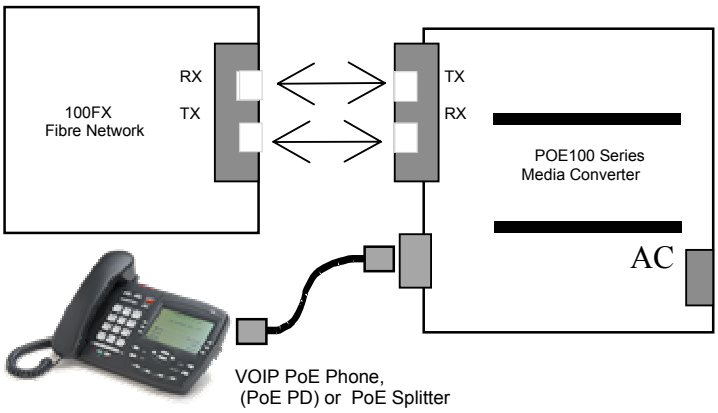

Fig. 3 POE100 Series to PD Device or POE Splitter (VOIP Phone)

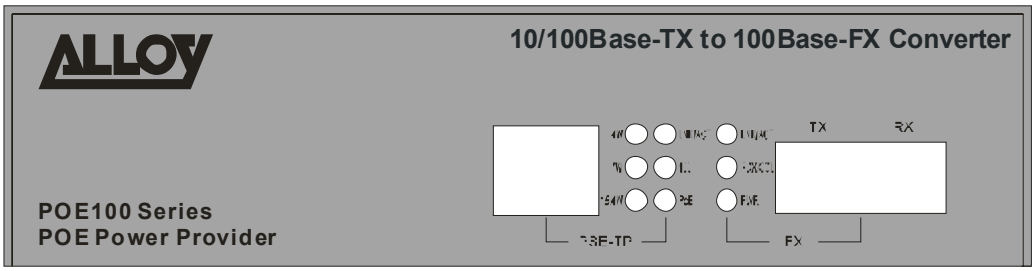

Fig. 4 POE100 Series Media Converter Front Panel

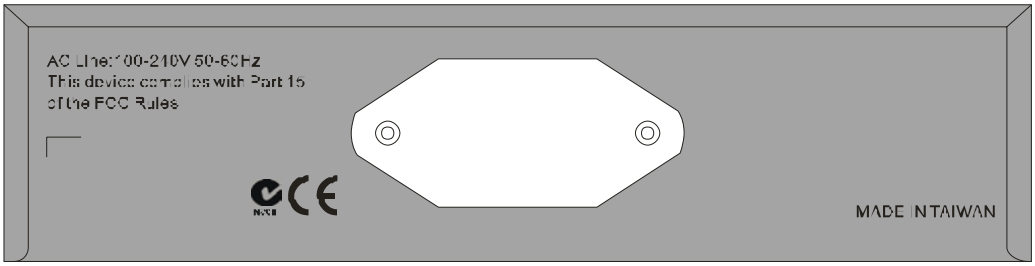

Fig. 5 POE100 Series Media Converter Rear Panel

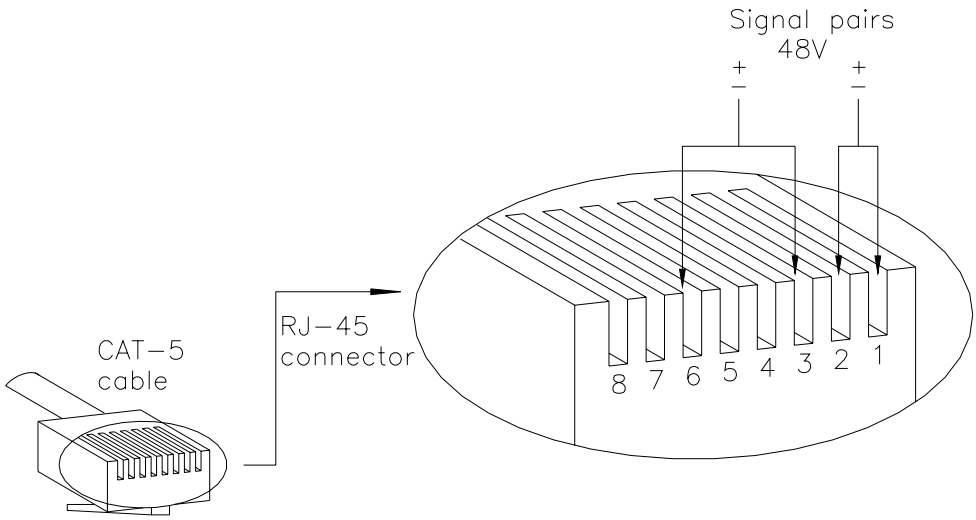

Fig. 6 Pairs used for transmitting power over Ethernet Cable.

Note:

The pins used for delivering power to the Powered Device follow the IEEE 802.3af standard.

Endpoint: -48V via TP pins 1, 2, 3, 6

5. WDM Single Fibre Model

The POE100 Series media converter has an optional Wavelength Division Multiplexing (WDM) Model that can transport bi-directional full duplex signals over a single fibre simultaneously.

Single Fibre Model	TX, RX Wavelength
1310nm Single Mode 20Km	TX (Transmit) 1310nm
	RX (Receive) 1550nm
1550nm Single Mode 20Km	TX (Transmit) 1550nm
	RX (Receive) 1310nm

Note:
The 1310nm and 1550nm models must be installed in pairs, i.e., install 1310nm model at one end and the 1550nm model at the other end.

6. Link Failure Propagation

The POE100 Series media converters support Link Failure Propagation (LFP). If the Copper port is unplugged, the converter stops transmission on the fibre port. This causes the remote fibre node link to fail as well. The LED's on the converter will now show link failure on both the copper and fibre ports. If the fibre link fails, the converter restarts auto-negotiation on the copper port but always stays in the link failure state. This causes the remote copper node link to fail as well. The LED's on the converter will now show link failure on both the copper and fibre ports.
Refer to Fig. 7 shown below for the normal status when link is active. Also refer to Fig. 8 and Fig. 9 for the LED status when copper Cable A, Fibre Cable B or Fibre Cable C fails.

Note:
The Link Failure Propagation (LFP) function only take effect when S1-Bit4 (see Fig. 10) is enabled. When S1-Bit4 is disabled the media converter will function normally.

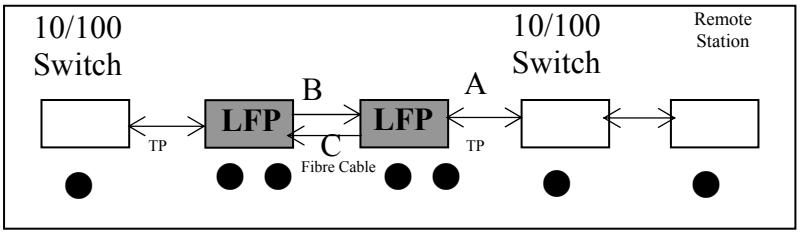

Fig. 7 Normal Status via a pair of LFP's

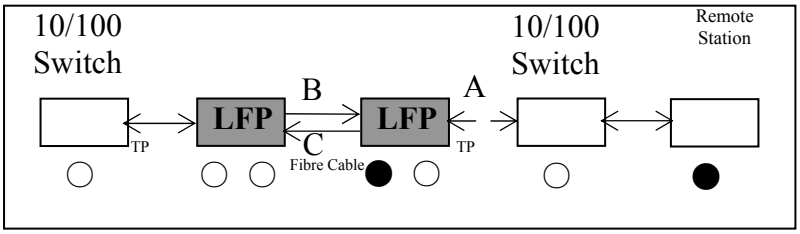

Fig. 8 The Status when Copper Cable A link is broken

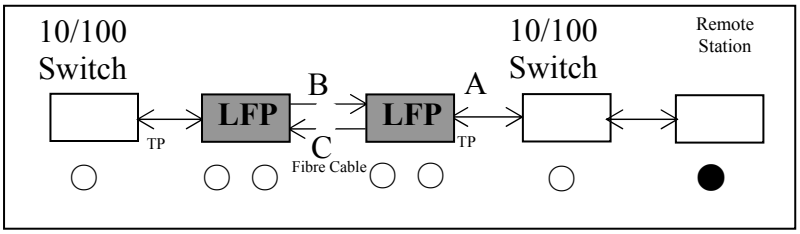

Fig. 9 The Status when Fibre Cable C or B link is broken

Note : ● indicates LNK/ACT LED Lit
○ indicates LNK/ACT LED Off

7. LED Description

The following table describes the LED's located on the POE100 Series media converter.

LED	Colour	Function
FX LNK/ACT	Green	Lit when fibre connection has link Blinks when fibre data is present
FX FDX/COL	Amber	Lit when full-duplex mode is active Off when half-duplex is active Blinks when collision is present
TP LNK/ACT	Green	Lit when Copper connection has link Blinks when Copper data is present
TP 100	Green	Lit when Copper speed is 100Mbps Off when Copper speed is 10Mbps
PWR	Green	Lit when +5V power is supplied
PoE PSE-TP	Green	Lit when PoE power output is active
	Red	Lit when PoE power output is disrupted (In case of over temperature or over current)
4W	Green	Lit when PD Class Type is Class 1
7W	Green	Lit when PD Class Type is Class 2
15.4W	Green	Lit when PD Class Type is Class 0 or 3

8. DIP Switch Configuration

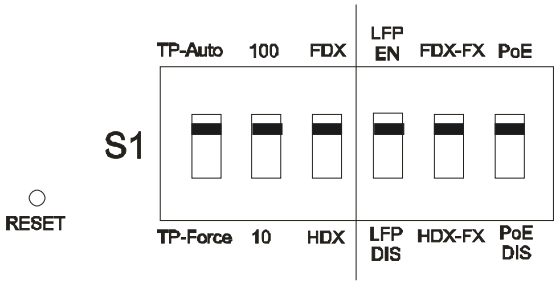

Fig. 10 Reset button and S1 – Bit 1, 2, 3, 4, 5, 6, Configuration and Settings

Reset : If S1-1, S1-2, S1-3, S1-4 or S1-5 status is changed, please press this button for your settings to take effect.

S1-1 TP Port Mode : AUTO(Default) or FORCE

S1-2 TP Port Speed : 100 or 10 when TP is at Force

S1-3 TP Port Duplex : FDX or HDX when TP is at Force

S1-4 LFP : LFP Enabled (Default) or Disabled

S1-5 Fibre Port Duplex : 100FDX (Default) or 100HDX

S1-6 POE ON/OFF : Enabled (Default) or Disabled

Note:

1. *S1-2 and S1-3 will take effect only when S1-1 is set to TP-Force*
2. *S1-5 must be set to 100FDX for Single Fibre Model*
3. *S1-6 must be set to POE when you need to supply power to a PD.*

Warning:

- When the copper port is set to AUTO and is connected to a device that is forced to 100Mbps FDX, an unknown state may result.
- Please ensure that all network nodes that this device connects to are set to the same mode at each end of the link.
  e.g., Both ends are set to Auto-Negotiation mode (AUTO)

9. Cable Distances and Limitations

- **TP Cable Limitations:** Cat 5 up to 100m
- **Fibre Cable Limitations:**

SC/ST Converter Models	
Multi Mode Half Duplex	412m
Multi Mode Full Duplex	2Km
Single Mode Half Duplex	412m
Single Mode Half Duplex	5/20/40/60/80/100Km

10. Technical Specifications

Standards:	IEEE 802.3u 10/100Base-TX, 100Base-FX IEEE 802.3af Power Over Ethernet
UTP Cable:	Cat. 5 cable up to 100m
Fibre Cable:	50/125, 62.5/125 or 100/140 µm multi mode 8.3/125, 8.7/125, 9/125 or 10/125 µm single mode
Power Feeding Support:	Via TP Pins 1, 2, 3 and 6
LED Indicators:	Power, POE, TP LNK/ACT, 100, FX LNK/ACT, FDX/COL, 4W, 7W, 15.4W
Data Transfer Rate:	100Mbbps – 148,800pps 10Mbps – 14,880pps
Flow Control:	IEEE 802.3x compliant for Full Duplex Backpressure flow control for Half Duplex
Power Requirements:	AC 100 ~ 240V 50 ~ 60Hz
Power Consumption:	24W
Ambient Temperature:	0º to 50º C
Humidity:	5% to 90%
Dimensions:	40(H) x 158(W) x 133(D) mm
Complies with C-Tick, FCC Part 15 Class A and CE Mark	