



**POE2000 Series**  
10/100/1000Base-TX to 1000Base-SX/LX  
and SFP Converter  
POE Power Provider



Version 1.01  
Date: October 2009

### **Caution**

Electronic Circuit devices are sensitive to static electricity. Dry weather conditions or walking across a carpeted floor may cause you to acquire a static electrical charge.

To protect your switch, always:

- Touch the metal chassis of your computer to ground the static electrical charge before you handle the switch.
- Pick up the switch by holding it on the left and right edges only.

### **Electronic Emission Notices**

#### **Federal Communications Commission (FCC) Statement**

This equipment has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment.

#### **European Community (CE) Electromagnetic Compatibility Directive**

This equipment has been tested and found to comply with the protection requirements of European Emission Standard EN55022/EN60555-2 and the Generic European Immunity Standard EN50082-1.

EM	EN55022(1988)/CISPR-	
C:	22(1985)	class A
	EN60555-2(1995)	class A
	EN60555-3	
	IEC1000-4-2(1995)	4K V CD, 8KV, AD
	IEC1000-4-3(1995)	3V/m
	IEC1000-4-4(1995)	1KV – (power line), 0.5KV – (signal line)

#### **Australian C-Tick Compliance**

This equipment is compliant with the required Australian C-Tick standard.

## 1. Overview

The POE2000 Series media converters support two types of media 10/100/1000Base-TX and 1000Base-SX/LX or a SFP module slot. 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 POE2000 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 POE2000 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, including, 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	Description
POE2000SC	10/100/1000Base-T to 1000Base-SX PoE PSE GbE converter, MM SC
POE2000SC.Sxx	10/100/1000Base-T to 1000Base-LX PoE PSE GbE converter, SM SC 10/30/50km
POE2000Sx.Sxx	10/100/1000Base-T to 1000Base-LX PoE PSE GbE converter, SM WDM SC 10/20km, 1310nm/1550nm
POE2000LC	10/100/1000Base-T to 1000Base-SX PoE PSE GbE converter, MM LC
POE2000LC.Sxx	10/100/1000Base-T to 1000Base-LX PoE PSE GbE converter, SM LC 10/30/50km
POE2000SFP	10/100/1000Base-T to 1000Base-xx PoE PSE GbE converter with SFP module slot

### 3. Checklist

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

- The POE2000 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 POE2000 converter with a Powered Device (PD)

1. Connect the POE2000 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 POE2000 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	<b>10/100Base-TX</b> Auto-Negotiation Auto-MDIX flow control for Full-Duplex backpressure for Half-Duplex
	<b>1000Base-TX</b> Auto-Negotiation mode Auto-MDIX only for Auto-Negotiation flow control for Full-Duplex only
Fibre Port	<b>1000Base-SX/LX (SC/LC)</b> with NWay flow control Link partner must be 1000FDX with NWay flow control

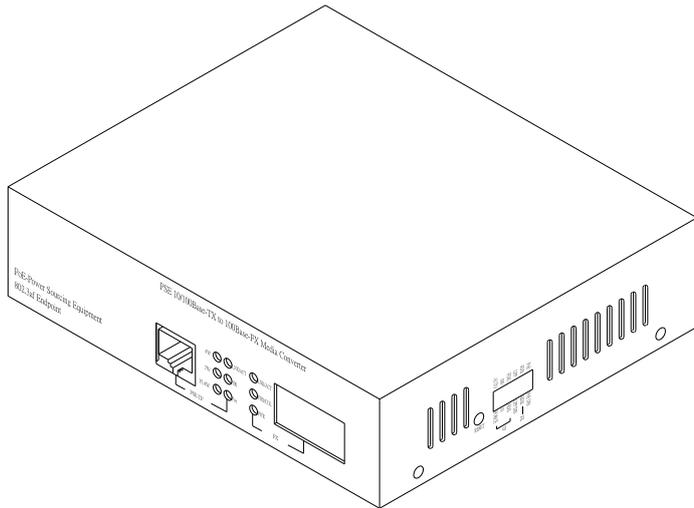


Fig. 1 View of the POE2000 Series Media Converter

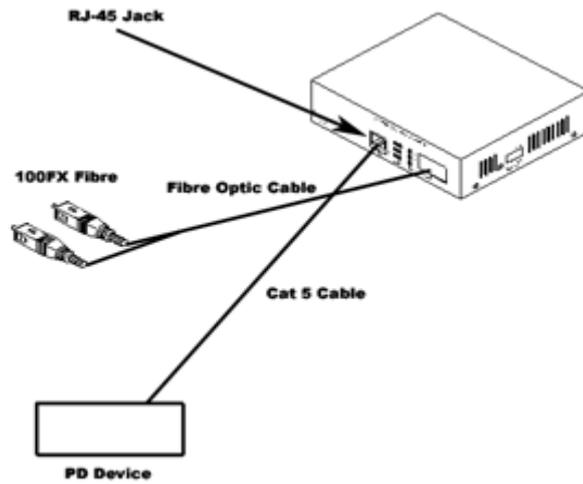


Fig. 2 Example connection between POE2000, PD device and Fibre Cable

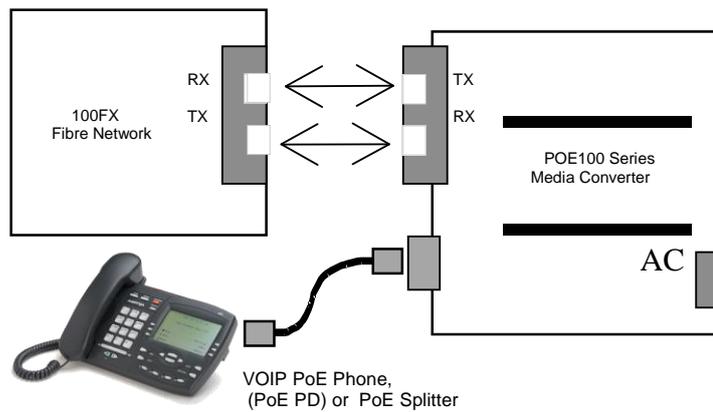


Fig. 3 POE200 Series to PD Device or POE Splitter (VOIP Phone)

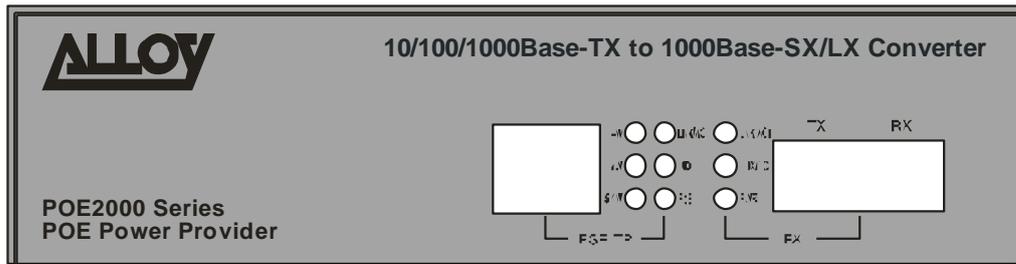


Fig. 4 POE2000 Series Media Converter Front Panel

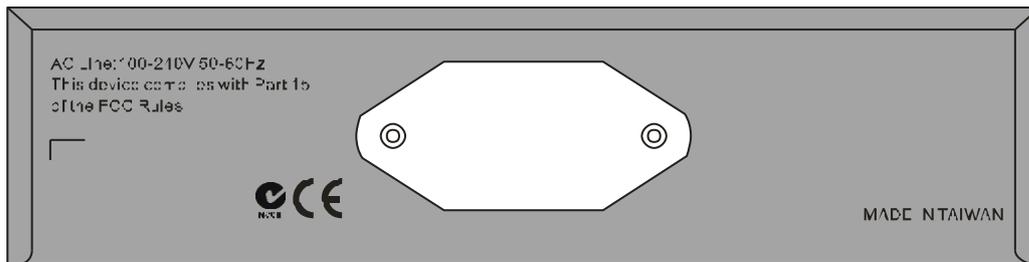


Fig. 5 POE2000 Series Media Converter Rear Panel

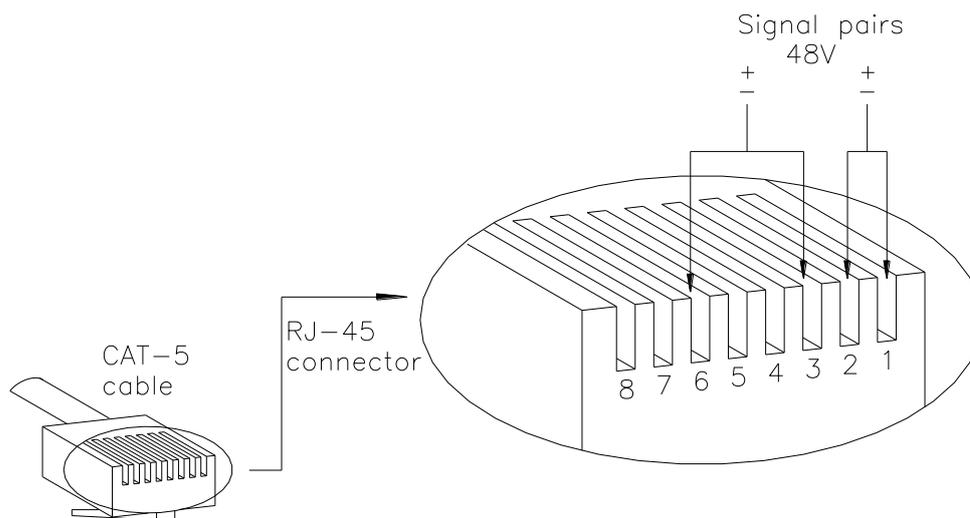


Fig. 6 Pairs used for transmitting power over Ethernet Cable.

**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 POE2000 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 POE2000 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 takes effect when S1-Bit4 (see Fig. 10) is enabled. When S1-Bit2 is disabled the media converter will function normally.*

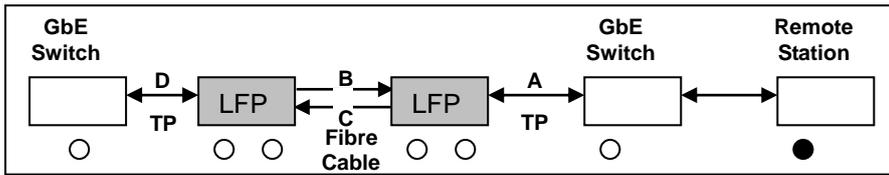


Fig. 7 The status as Fibre Cable B or C is broken

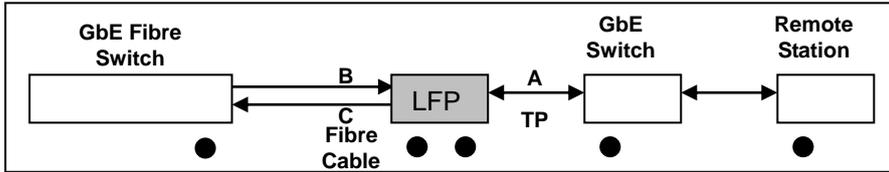


Fig. 8 Normal status via LFP converter

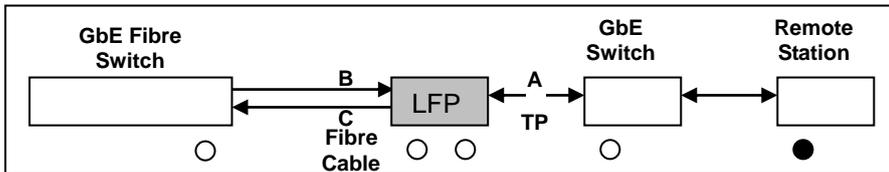


Fig. 9 The status as TP Cable A is broken

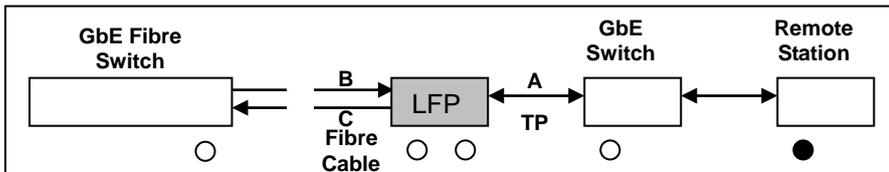


Fig. 10 The status as Fibre Cable B or C is broken

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

**Notice:** Please note the POE2000's LFP functionality allows the converter to be used with a Fibre Optic switch as well as another POE2000.

## 7. LED Description

The following table describes the LED's located on the POE200 Series media converter.

LED	Colour	Function
FX LNK/ACT	Green	Lit when fibre connection is present Blinks when fibre data is present
TP LNK/ACT	Green	Lit when TP connection is present Blinks when TP data is present
TP SPD	Green Amber	Green Lit when TP speed is 1000Mbps Amber Lit when TP speed is 100Mbps Off when TP speed is 10Mbps
PWR	Green	Lit when +5V power is applied
PoE PSE-TP	Green	Lit when PoE feeding power is active
	Red	Lit when PoE feeding power is disrupted (In case of overtemperature/overcurrent )
4W	Green	Light when PD Class Type is Class 1
7W	Green	Light when PD Class Type is Class 2
15.4W	Green	Light when PD Class Type is Class 0 or 3

## 8. DIP Switch and Reset Button

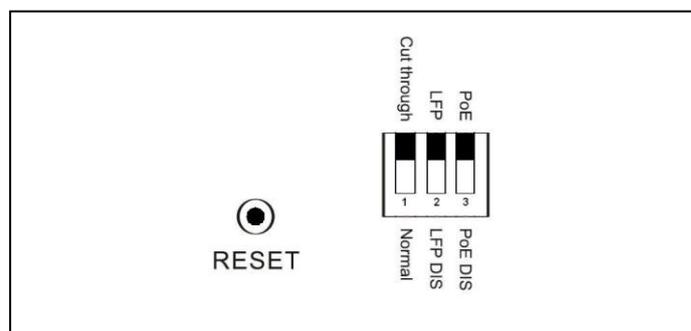


Fig. 11 Reset button and S1—Bit 1, 2, 3 Configuration and Setting

**Reset :** Once S1-1, S1-2 is changed, please press this button to have the settings take effect.

S1-1 Bridge mode : Cut through (default) or Normal  
 S1-2 LFP : LFP enabled(default) or disabled  
 S1-3 PoE ON/OFF : Enable(default) or disable

**Note:**

- S1-1 : Cut through mode supports jumbo frame size up to 9216Bytes.  
Normal mode supports frame size up to 2048 Bytes
- S1-3 : Must be set to PoE ON to supply power to PD device.

## 9. Cable Distances and Limitations

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

Mode	Multi-Mode Fibre 62.5/125µm		Multi-Mode Fibre 50/125µm	
	Bandwidth MHz-Km	Distance	Bandwidth MHz-Km	Distance
1000SX (SC/LC) 850nm	160	220m	400	500m
	200	275m	500	550m
1000LX (SC/LC) 1310nm/ 1550nm	Single Mode Fibre 9/125µm Single Mode transceiver 1310nm: 10Km Single Mode transceiver 1550nm: 30/50Km			

## 10. Technical Specifications

- **Standards** : IEEE802.3u 10/100Base-TX, 100Base-FX  
IEEE802.3z/ab 1000Base-T  
IEEE802.3af Power over Ethernet
- **UTP Cable** : Cat. 5 cable and up to 100m
- **Fibre Cable** : 50/125, 62.5/125 or 100/140µm multi-mode  
8.3/125, 8.7/125, 9/125 or 10/125µm single-mode
- **PSE Power Feeding Supports** :  
“Endpoint” via TP pin 1, 2, 3, 6
- **LED Indicators** :  
POWER, PoE, TP LNK/ACT, SPD, FX LNK/ACT, 4W, 7W, 15.4W
- **Data Transfer Rate** :

Speed	Forwarding Rate
1000Mbps	148,8000 PPS
100Mbps	148,800 PPS
10Mbps	14,880 PPS

- **Flow Control** : IEEE802.3x compliant for full duplex  
Backpressure flow control for half duplex
- **Power Requirement** :  
AC Line: 100-240V 50-60Hz
- **Power Consumption** : 24W
- **Ambient Temperature** : 0° to 50°C
- **Humidity** : 5% to 90%
- **Dimensions** : 40(H) × 158(W) × 133(D) mm
- **Complies with C-Tick, FCC Part 15 Class A and CE Mark**