# FVT-0103TXFC

10/100TX to 100FX-SC
MM POE Converter

USER MANUAL

## 10. FVT-0103TXFC Technical Specifications

- **Standards** : IEEE802.3u 10/100Base-TX, 100Base-FX
  IEEE802.3af Power over Ethernet
- **UTP Cable** : Cat. 5 cable and up to100m
  **Fiber Cable** :
  50/125, 62.5/125 or 100/140$\mu$m multi-mode
- **PoE Power Reception Supports :**
  "Endpoint" via TP pin 1, 2, 3, 6
  " Midspan" via TP pin 4, 5, 7, 8
- **LED Indicators :**
  POWER, PoE, TP LNK/ACT, 100, FX LNK/ACT,
  FDX/COL
- **Data Transfer Rate :**

| Speed | Forwarding Rate |
|--------|-----------------|
| 100Mbps | 148,800 PPS |
| 10Mbps | 14,880 PPS |

- **Flow Control :** IEEE802.3x compliant for full duplex
  Backpressure flow control for half duplex
- **Power Requirement :**
  60mA@-48VDC from IEEE802.3af PSE or PoE injector
- **Ambient Temperature** : 0° to 50°C
- **Humidity** : 5% to 90%
- **Dimensions :** 26.2(H) × 70.3(W) × 94(D) mm
- **Complies with FCC Part 15 Class A and CE Mark**

Note: For connecting this device to Router, Bridge or
Switch, please refer to the corresponding device's
Technical Manual.

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FVT-0103TXFC
10/100TX to 100FX-SC MM POE Converter
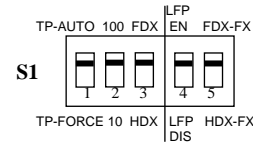
Fig. 11  S1—Bit 1, 2, 3, 4, 5 Configuration and Setting

S1-1 TP port mode    :    AUTO(default) or FORCE
S1-2 TP port speed    :    100 or 10 when TP at Force
S1-3 TP port duplex   :    FDX or HDX when TP at Force
S1-4 LFP              :    LFP enabled(default) or disabled
S1-5 Fiber port duplex:    100FDX(default) or 100HDX
Note:
1. S1-2 and S1-3 will take effect only when S1-1 is set
   at TP-FORCE.
2. S1-5 must be set to 100FDX for Single Fiber Model.
**Warning:**
— When TP NWay port is connected to TP 100FDX(force
   mode) instead of NWay partner, it will result in 100HDX
   mode with invalid collision signal
— Ensure that all network nodes are configured at an
   identical operation mode. Improper operation and flow
   control mode between TP and Fiber port connections will
   render the LAN to work poorly

## 9.    Cable Connection Parameter

100Base-X network allows 512-bit time delay between any
two node-stations in a collision domain. Switch-based Media
Converter breaks up TP and Fiber segments' collision domain
to extend the cabling distance.
- **TP Cable Limitations:** Cat. 5 and up to 100m
- **Converter Fiber Cable Limitations:**

| FVT-0103TXFC | |
|---|---|
| Multi-mode Half-duplex | 412m |
| Multi-mode Full-duplex | 2Km |

## 6. LED Description

| LED | Color | Function |
|---|---|---|
| FX LNK/ACT | Green | Lit when fiber connection is good<br>Blinks when fiber data is present |
| FX FDX/COL | Amber | Lit when full-duplex mode is active<br>Off when half-duplex is active<br>Blinks when collision is present |
| TP LNK/ACT | Green | Lit when TP connection is good<br>Blinks when TP data is present |
| TP 100 | Green | Lit when TP speed is 100Mbps<br>Off when TP speed is 10Mbps |
| PWR | Green | Lit when +5V power is coming up |
| PoE | Green | Lit when PoE power is coming up |

## 7. DC Jack and AC-DC Power Adapter
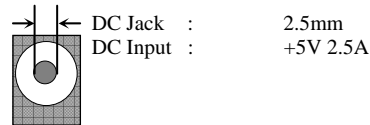
The DC jack's central post is 2.5mm wide.

DC Jack  :      2.5mm
DC Input  :      +5V 2.5A

Fig. 10  DC+5V Input Jack and Dimension

## 8. Connecting to TP, Fiber Device

| | |
|---|---|
| Converter TP Port 10/100TP | AUTO, FORCE selectable: Bit 1, 2, 3 of S1<br>a. AUTO: 10/100 NWay Auto-negotiation<br>b. FORCE: 100 or 10, FDX or HDX |
| Converter Fiber Port 100FX | 100Mbps duplex selectable: Bit 5 of S1<br>a. FDX for 100FDX fiber link partner, default<br>b. HDX for 100HDX fiber link partner |

## 1. Overview

IEEE802.3u 100Mbps Fast Ethernet supports two types of media, 10/100Base-TX and 100Base-FX, for network connection.  LFP (Link Fault Pass Through) feature enhances the TP-Fiber Link integrity and conformity.  Either one of TP or Fiber port is in link-fail state, the LFP converter forces the other port to be at link-disabled state. Comply with IEEE 802.3af, its advanced auto-sensing algorithm enables taking power form IEEE 802.3af Power Source Equipment (PSE) or Power over Ethernet (PoE) injector. It also supports high safety with short circuit protection and power-in auto-detection (power from AC/DC power adapter or PSE device).

The power adapter is optional, not included in the standard package. Please contact your local dealer for purchasing.

## 2. Model Description

| Model | Power Description |
|---|---|
| FVT-0103TXFC | 60mA@-48VDC over Cat.5 |

| The 100Mbps Fiber Transceiver | Wavelength |
|---|---|
| SC multi-mode 2Km | 1310nm |

## 3.  Checklist

Before you start installing the FVT-0103TXFC Converter, verify that the package contains the following:

— 100TX to 100FX SC multi-mode POE Converter

— This User's Manual

Please notify your local dealer if any of the item is missing.

## 4.  Installing the Converter

**TP-Fiber Converter with Power Source Equipment (PSE)** ：

⇒ Install the TP media cable to the IEEE 802.3af PSE device or PoE injector (See Fig. 2)

⇒ Install the media cable for network connection

**Warning:**

— Please make sure that the power of PSE device is turned on, or else the converter will not work.

— In case that no 802.3af PSE is available or PSE with PoE power fails, you may install an AC-DC adapter for a backup solution. Do not connect PSE TP port and AC-DC adapter at a time. The power adapter is optional, not included in the standard package. Please contact your local dealer for purchasing.

⇒ Verify that the AC-DC adapter conforms to your country AC power requirement and then insert the power plug

⇒ Install the media cable for network connection

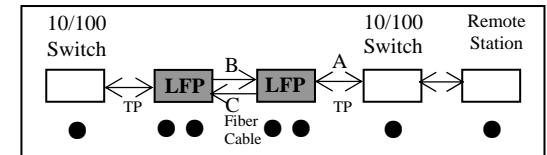| | |
|---|---|
| **TP Port** | **Default**: AUTO<br>AUTO or FORCE setting, see Fig. 11 S1—Bit 1 |
| | Attach TP Cat. 5 cable to TP port, and the distance can be up to 100m.<br>Use the straight-through cable to connect the switch or workstation, the 10/100 TP port can support AUTO MDI-X sensing. |
| **Fiber Port** | **Default**: 100FDX<br>"100FDX"/"100HDX" setting, see Fig. 11 S1—Bit 5 |



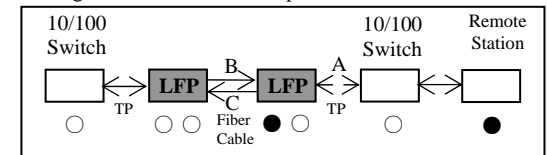Fig. 7  Normal status via a pair of LFPs
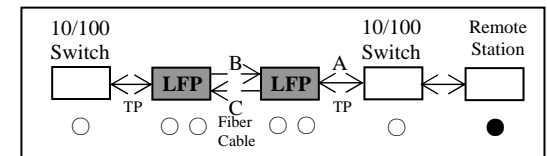


Fig. 8  The status as TP Cable A is broken



Fig. 9  The status as Fiber Cable B or C is broken

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

**Warning:**

The LFP ( Link Fault Pass Through) function works only when both two converters own this capability in pairs. Furthermore, both LFP converters should be supplied only by the same manufacturer/vender. The connection coming from LFP converters with odd models or non-LFP converters will cease the LFP function.

## 5. Link Fault Pass Through

This PoE converter supports link fault pass through (LFP) in TX/FX converter application. Link status on one port is propagated to the other port to notice the remote nodes. If TP port is unplugged, this converter stops transmission on fiber port. This causes the remote fiber node link to fail. LED shows the link failure on both TP and fiber ports. If fiber link fails, this converter restarts auto-negotiation on TP port but always stays in the link failure state. This causes the remote TP node link to fail. LED also shows the link failure on both TP and fiber ports. Refer to Fig. 7 shown below for the normal status when the link succeeds. Also refer to Fig. 8 and Fig. 9 for the erroneous status when TP Cable A, Fiber Cable B or Fiber Cable C fails to connect.

Note: Link fault pass through (LFP) function only takes effect as S1-Bit4 (see Fig. 11) is enabled. Disabled S1-Bit4 will turn this media converter into a general one.
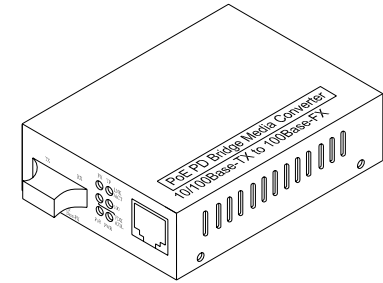


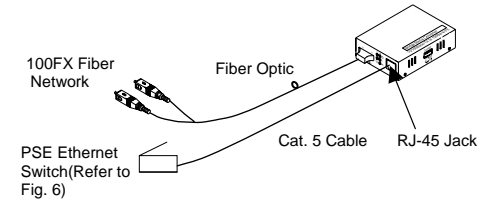Fig. 1  The View of  FVT-0103TXFC PoE Converter



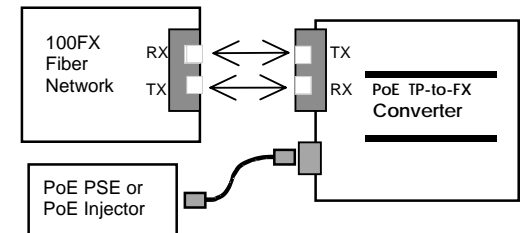Fig. 2  Connection among PSE Ethernet Switch, Fiber and TP Cables



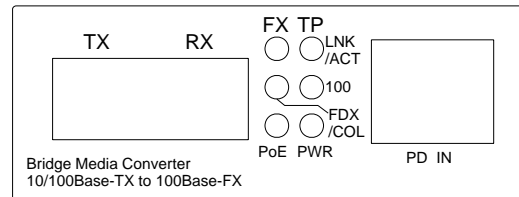Fig. 3  Power from PSE or PoE Injector
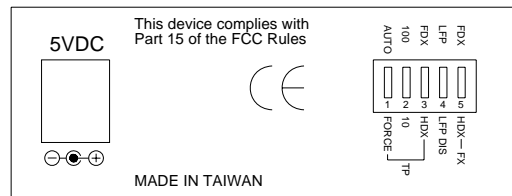
Fig. 4  FVT-0103TXFC PoE Converter Front Panel



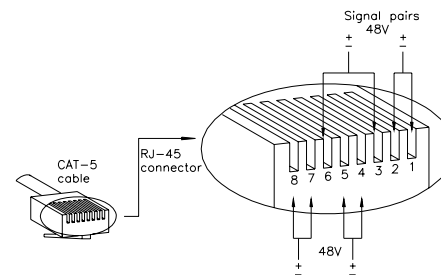Fig. 5  FVT-0103TXFC PoE Converter Rear Panel



Fig. 6  RJ-45 Male Connector

**Note:**
IEEE802.3af assigns pairs on the RJ-45 connector and Cat.5 cable, either Endpoint or Midspan.

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

Midspan  : -48V via TP pin 4,5,7,8