



***EtherNodePlus* Model OTEN-4P-01**
4-Port Media Converter, 10/100/1000M, SFP



OPERATING MANUAL

24926 Highway 108
Sierra Village, CA 95346
Phone: (800) 545-1022
Fax: (209) 586-1022

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Figure 2 - OTEN-4P-01 Internal Configuration



Typical Mating SFP Module



Typical AC Power Supply (Ships with Unit)

SAFETY

Safety Precautions

The optical emissions from the units are laser-based and may present eye hazards if improperly used. **NEVER USE ANY KIND OF OPTICAL INSTRUMENT TO VIEW THE OPTICAL OUTPUT OF THE UNIT.** Be careful when working with optical fibers. Fibers can cause painful injury if they penetrate the skin.

Laser Safety Procedure

ALWAYS read the product data sheet and the laser safety label before powering the product. Note the operation wavelength, optical output power and safety classifications.

If safety goggles or other eye protection are used, be certain that the protection is effective at the wavelength emitted by the device under test **BEFORE** applying power.

ALWAYS connect a fiber to the output of the device **BEFORE** power is applied. Power should never be applied without an attached fiber. If the device has a connector output, a connector should be attached that is connected to a fiber. This will ensure that all light is confined within the fiber waveguide, virtually eliminating all potential hazard.

NEVER look at the end of the fiber to see if light is coming out. **NEVER!** Most fiber optic laser wavelengths (1310nm and 1550nm) are totally invisible to the unaided eye and will cause permanent damage. Shorter wavelength lasers (e.g., 780nm) are visible and are very damaging. Always use instruments, such as an optical power meter, to verify light output.

NEVER, NEVER, NEVER look into the end of a fiber on a powered device with **ANY** sort of magnifying device. This includes microscopes, eye loupes and magnifying glasses. This **WILL** cause a permanent and irreversible burn on your retina. Always double check that power is disconnected before using such devices. If possible, completely disconnect the unit from any power source.

If you have questions about laser safety procedures, please call Olson Technology before powering your product.

INTRODUCTION

The OLSON TECHNOLOGY, INC. Model OTEN-4P-01 EtherNodePlus 4-Port Media Converter supports two 10/100/1000Mb/s UTP ports and two 1000Mb/s SFP sockets to convert between 1000Base-T, 1000Base-SX, 1000Base-LX, etc. This allows network operators to convert signals between an electrical Ethernet 10/100/1000Mb/s UTP interface and an optical interface. The traditional 10/100/1000Mb/s gigabit Ethernet signal can be extended to distances of 80+km through an optical fiber.

The OTEN-4P-01 incorporates the latest gigabit IC technology. Indicator LED's on the front panel allow the unit's status to be fully monitored, simplifying installation and maintaining network performance.

PANEL LAYOUT

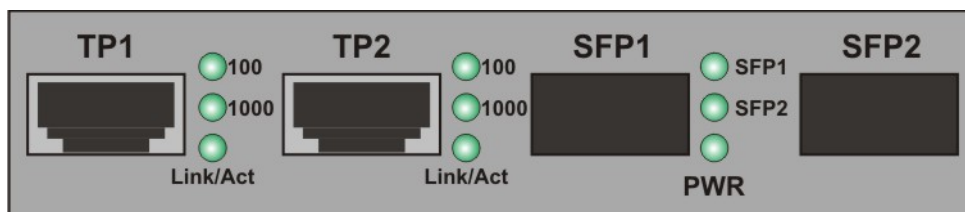


Figure 1 — Converter Front Panel

LED INDICATOR FUNCTIONS

| Designation | Meaning |
|-------------|---------------------------------------------------------------------------------------------|
| 100 | Lit when TP1 or TP2 speed is 100Mb/s. |
| 1000 | Lit when TP1 or TP2 speed is 1000Mb/s. |
| Link/Act | Lit when the TP1 or TP2 connection is good. Blinks when TP1 or TP2 data is transmitting. |
| SFP1 | Lit when SFP1 connection is good. Blinks with SFP1 data is transmitting. |
| SFP2 | Lit when SFP2 connection is good. Blinks with SFP2 data is transmitting. |
| PWR | Lit when the unit is powered. |

ETHERNET SPECIFICATIONS

| Parameter | Specification |
|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Standards | IEEE802.3z/AB, 10/100/1000Base-T and 1000Base-SX/LX/HX |
| Cables | UTP Category 5e or Category 6 (100m max. distance) 50/125µm Multimode Fiber (500m max. distance at 1000Mb/s) 9/125µm Single-mode Fiber (80+km max. distance) |
| Connectors | UTP: RJ-45, 10/100/1000Mb/s Optical: SFP Module |
| Mac Add. Table | 1K |
| Data Buffer | 512K |
| Flow Control | Full-duplex IEEE802.3x Half-duplex Back Pressure |

TYPICAL PERFORMANCE WITH DIFFERENT SFP MODULES

| Fiber Type | Max. Distance | Wavelength | Tx Power | Sensitivity | Link Budget |
|----------------|---------------|--------------|--------------|-------------|-------------|
| 50µm Multimode | 550m | 850nm | -11 to -6dBm | <-18dBm | 7dB |
| Single-mode | 30km | 1310nm | -8 to 0dBm | <-25dBm | 17dB |
| Single-mode | 80+km | 1550nm, CWDM | -5 to 0dBm | <-25dBm | 20dB |

ELECTRICAL CHARACTERISTICS

| | Min. | Typ. | Max. | Units |
|-----------------------------------------------|------|------|------|----------|
| Converter Power Requirements (See Note 1) | | 5 | | Volts DC |
| | | 140 | | mA |
| Power Supply Voltage | 100 | | 240 | Volts AC |
| | 50 | | 60 | Hz |
| Note 1) Using Model OTOLS-1312-30 SFP module. | | | | |

ENVIRONMENTAL CHARACTERISTICS

| | Min. | Typ. | Max. | Units |
|------------------------------|------|------|------|-------|
| Operating Temperature Range | 0 | | +50 | °C |
| Storage Temperature Range | -20 | | +70 | °C |
| Humidity, RH, non-condensing | 5 | | 90 | % |

PHYSICAL CHARACTERISTICS

| | Min. | Typ. | Max. | Units |
|---------------------------|--------------------|------|------|-------|
| Weight | | 9.8 | | oz. |
| | | 280 | | g |
| Weight with 2 SFP Modules | | 11 | | oz. |
| | | 310 | | g |
| Dimensions | 4.92 x 3.35 x 1.06 | | | in. |
| | 125 x 85 x 27 | | | mm |

INSTALLATION

- 1) Insert the SFP modules into the SFP cages on the converter.
- 2) Attach a fiber cable from the SFP on the converter to the fiber network. The fiber connections must match: transmit socket to receive socket.
- 3) Attach UTP cables from the TP network device to the RJ45 ports on the converter.
- 4) Connect the power supply to the converter and check that the Power LED lights up. The TP Act and FX Act LED's will light when all the cable connections are satisfactory.

Figure 2 - OTEN-4P-01 Internal Configuration

VLAN: Style 1

VLAN1: SFP1 - TP1

VLAN2: SFP2 - TP2

