# TRENDNET®

Quick Installation Guide

**TFC-1000**
**TFC-210 Series**
**TFC-2000 Series**

# Table of Contents

# 1. Before You Start

TFC-1000 Fiber Converter Chassis for TFC-210 and TFC-2000 Series Converters:

| | Package Contents |
|---|---|
|  | • TFC-1000<br>• Quick Installation Guide<br>• AC Power Cord<br>• Mounting Bracket and Screws |

TFC-210 or TFC-2000 Series Fiber Converter:

| | Package Contents |
|---|---|
|  | • Fiber Converter<br>• Quick Installation Guide<br>• AC Power Supply (9V DC, 700mA) |

# 2. Product Detail

| 10/100Base-TX to 100Base-FX Fiber Converters | | | | | |
|---|---|---|---|---|---|
| **Model Name** | **Multi/ Single-Mode** | **Fiber Connector** | **Power Budget** | **Wavelength** | **Distance** |
| TFC-210MST | Multi-Mode | ST (Duplex) | 50/125um: 7.5dBm 62.5/125um: 11dBm | 1310nm (1270nm ~ 1380nm) | 2Km |
| TFC-210MSC | | SC (Duplex) | 50/125um: 8.5dBm 62.5/125um: 8.5dBm | | |
| TFC-210S30 | Single-Mode | | | 1310nm (1260nm ~ 1360nm) | 30Km |
| TFC-210S20D3 | Single-Mode Single/ Bidirectional | SC (Simplex) | 9/125um: 12dBm | TX:1310nm (1280nm ~ 1355nm) RX:1550nm (1530nm ~ 1570nm) | 20Km |
| TFC-210S20D5 | | | | TX:1550nm (1530nm ~ 1570nm) RX:1310nm (1280nm ~ 1355nm) | |

| 1000Base-T to 1000Base-SX/LX Fiber Converters | | | | | |
|---|---|---|---|---|---|
| **Model Name** | **Multi/ Single-Mode** | **Fiber Connector** | **Power Budget** | **Wavelength** | **Distance** |
| TFC-2000MSC | Multi-Mode | SC (Duplex) | 50/125um:8.5dBm | 850nm (830nm ~ 860nm) | 550M |
| | | | 62.5/125um:8.5dBm | | 220M |
| TFC-2000S20 | Single-Mode | | 9/125um:15dBm | 1310nm (1270nm ~ 1355nm) | 20Km |
| TFC-2000S50 | | | 9/125um:19dBm | 1550nm (1520nm ~ 1580nm) | 50Km |
| TFC-2000S10D3 | Single-Mode Single/ Bidirectional | SC (Simplex) | 9/125um:12dBm | TX:1310nm (1280nm ~ 1355nm) RX:1550nm (1530nm ~ 1570nm) | 10Km |
| TFC-2000S10D5 | | | | TX:1550nm (1530nm ~ 1570nm) RX:1310nm (1280nm ~ 1355nm) | |

# 3. Hardware Installation

## Installing Two Stand Alone Fiber Converters

**1.** Connect the fiber cable to the Fiber Converters.

**2.** Connect an RJ-45 Ethernet cable from the Ethernet port on the fiber converters to an Ethernet port on your switch (e.g TE100-S24R or TEG-S240TX).

**3.** Connect the power adapter to the back of the fiber converter.

Note:
– Cabling:
  Multi-Mode Optic Cable: TFC-210MST, TFC-210MSC, TFC-2000MSC
  Single-Mode Optic Cable: TFC-210S30, TFC-210S50, TFC-2000S30, TFC-2000S50
  Single Strand Optic Cable for TFC-210S20D3/D5, TFC-210S10D3/D5
– The TX and RX cables must be reversed on the opposing Fiber connection.
– The TFC-210S20D3 must be paired with the TFC-210S20D5.  The TFC-2000S10D3 must be paired with the TFC-2000S10D5.
– The TX and FX ports on the TFC-2000 series do not support auto negotiation.  The opposing Copper and Fiber connection must be Gigabit.

## Installing a Fiber Converter to a Switch

**1.** Connect the fiber cable from the Fiber Converter to a Fiber Switch (e.g. TE100-S810Fi)



**2.** Connect an RJ-45 Ethernet cable from the Ethernet port on the Fiber Converters to an Ethernet port on your Switch (e.g. TE100-S24R or TEG-240TX).

**3.** Connect the power adapter to the back of the Fiber Converter.

Note: This application does not apply to the TFC-210S20D3, TFC-210S20D5, TFC-2000S10D3 and TFC-2000S10D5.

## Installing a Fiber Converter to a PC

**1.** Connect the fiber cable from the Fiber Converter to a PC with a Fiber Adapter (e.g. TE100-PCIFX+)

**2.** Connect an RJ-45 Ethernet cable from the Ethernet port on the Fiber Converters to an Ethernet port on your Switch (e.g. TE100-S24R or TEG-240TX).

**3.** Connect the power adapter to the back of the Fiber Converter.

Note: This application does not apply to the TFC-210S20D3, TFC-210S20D5, TFC-2000S10D3 and TFC-2000S10D5.

## Installing Fiber Converter in a Chassis

**1.** Using a screwdriver unscrew the Module Bay Cover from the desired bay on the Chassis and remove the cover. Save the screw and cover in case you need to cover up the module bay in the future.
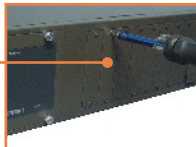


**2.** Attach the Mounting Bracket to the side of Fiber Converter.
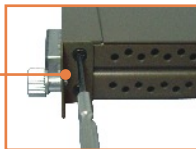


**3.** Slide the Fiber Converter into an available slot. Install the Fiber Converter with the fiber port near the bottom of the Chassis. Then fasten the screws to secure the Fiber Converter.

## Rack Mount

The Chassis can be mounted in an EIA standard-size, 19-inch rack, which can be placed in a wiring closet with other equipment.

**1.** Attach the mounting brackets to the Chassis's front panel (one on each side), and secure them with the provided screws.



**2.** Carefully position the Chassis onto the rack. Align the bracket to the screw holes on the rack, then use the screws provided with the equipment rack to mount the Chassis.
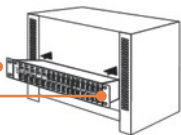
## Connecting the Power



**1.** Connect the supplied power cord to the back of the Chassis.

**2.** Connect the power cord into a power outlet.

**3.** Flip the switch to the **ON** position to power up the Chassis.

## DIP Switches

| | |
|---|---|
| **TFC-210 series** | Switch 1:  ON: TX Full Duplex Mode<br>OFF: TX Auto-Negotiation<br>Switch 2:  ON: FX Half Duplex    OFF: FX Full Duplex<br>Switch 3:  ON: LLCF Enable      OFF: LLCF Disable<br>Switch 4:  ON: Pure Mode        OFF: Switch Mode |
| **TFC-2000 series** | Switch 1: ON: TX LLCF Enable OFF: TX LLCF (Disable)<br>Switch 2: ON: Fiber LLCF Enable<br>OFF: Fiber LLCF (Disable) |

*After changing the DIP Switch settings, power cycle the Fiber Converter.

* L LCF stands for Link Loss Carry Forward.

# LLCF Function

LLCF allows the network administrator to quickly troubleshoot the network connection based on the LEDs on the Fiber Converters. When the TX port link is down, the converter will force the fiber port link to shutdown. When the fiber port link is down, the converter will force the TX port link to shutdown.

## LLCF (Link Loss Carry Forward) Diagram
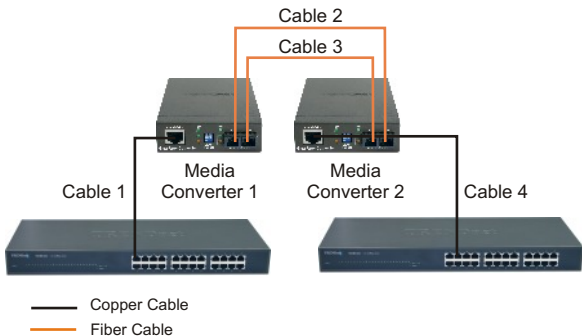


Below are examples on how to read the LLCF Function Table:
**Example 1:** If LLCF is enabled on Fiber Converter 1 and disable on Media Converter 2, when Cable 1 link is down, Fiber Converter 1's Copper and Fiber LED and Fiber Converter 2's Fiber LED will shut off. Fiber Converter 2's Copper LED remains on.
**Example 2:** If LLCF is disabled on both Fiber Converters, when Cable 4 link is down, Fiber Converter 1's Copper and Fiber LED and Fiber Converter 2's Fiber LED remains. Fiber Converter 2's Copper LED will shut off.

## LLCF (Link Loss Carry Forward) Function Table

| | | Media Converter 1 | | Media Converter 2 | |
|---|---|---|---|---|---|
| | | Copper LED | Fiber LED | Copper LED | Fiber LED |
| Media Converter 1 LLCF Enable<br><br>Media Converter 2 LLCF Enable | Cable 1 Link Down | OFF | OFF | OFF | OFF |
| | Cable 2 Link Down | OFF | OFF | OFF | OFF |
| | Cable 3 Link Down | OFF | OFF | OFF | OFF |
| | Cable 4 Link Down | OFF | OFF | OFF | OFF |
| Media Converter 1 LLCF Enable<br><br>Media Converter 2 LLCF Disable | Cable 1 Link Down | OFF | OFF | ON | OFF |
| | Cable 2 Link Down | OFF | OFF | ON | OFF |
| | Cable 3 Link Down | OFF | OFF | ON | OFF |
| | Cable 4 Link Down | ON | ON | OFF | ON |
| Media Converter 1 LLCF Disable<br><br>Media Converter 2 LLCF Enable | Cable 1 Link Down | OFF | ON | ON | ON |
| | Cable 2 Link Down | ON | OFF | OFF | OFF |
| | Cable 3 Link Down | ON | OFF | OFF | OFF |
| | Cable 4 Link Down | ON | OFF | OFF | OFF |
| Media Converter 1 LLCF Disable<br><br>Media Converter 2 LLCF Disable | Cable 1 Link Down | OFF | ON | ON | ON |
| | Cable 2 Link Down | ON | OFF | ON | OFF |
| | Cable 3 Link Down | ON | OFF | ON | OFF |
| | Cable 4 Link Down | ON | ON | OFF | ON |

# Specifications

| Fiber Converters | |
|---|---|
| **Standards:** | TFC-210 series:<br>IEEE 802.3 10Base-T<br>IEEE 802.3u 100Base-TX & 100Base-FX<br><br>TFC-2000 series:<br>1000Base-T, 1000Base-SX/LX, IEEE 802.3ab/ 802.3z |
| **LED Indicators:** | TFC-210 series:<br>Power; 100Mbps, Full Duplex/ Collision, Link/Activity<br><br>TFC-2000 series:<br>Power; 1000Mbps, Full Duplex/ Collision, Link/Activity |
| **Cable :** | TFC-210 series:<br>**10Base-T** – UTP/STP Cat. 3, 4, 5<br>**100Base-TX** – UTP/STP Cat 5<br>**100Base-FX – Multi-Mode** –<br>62.5/125µm or 50/125µm Multi-Mode Fiber Optic Cable<br>**100Base-FX – Single-Mode** –<br>9/125µm Single-Mode Fiber Optic Cable<br><br>TFC-2000 series:<br>**1000Base-T** – UTP/STP: Cat. 5e or Cat. 6<br>**1000Base-SX– Multi-Mode** –<br>50/125µm or 62.5/125µm Multi-Mode Fiber Optic Cable<br>**1000Base-LX– Single-Mode** –<br>9/125µm Single-Mode Fiber Optic Cable |
| **Dimensions:** | 85mm × 125mm × 25mm (W × D × H) |
| **Weight:** | Around 300 g (10 oz.) |
| **Power:** | 9VDC, 700mA External Power Adapter |
| **Temperature:** | Operating: 0°C ~ 40°C   (32°F ~ 104°F)<br>Storage: -25°C ~ 70°C   (-13°F ~ 158°F) |
| **Humidity:** | 10 ~ 90%, non-condensing |
| **Certifications:** | CE, FCC |

| Fiber Chassis | |
| --- | --- |
| **Capacity:** | Ten bays for housing up to Ten media converters |
| **Material:** | Metal |
| **Power:** | AC 100~240V AC, 50/60Hz |
| **Power Consumption:** | 90 Watts (Max) |
| **Cooling:** | One Fan |
| **Dimensions:** | 440 mm × 266mm × 133 mm (W × D × H)<br>Standard 19" Rack Mount Size (3U) |
| **Weight:** | 6.4 kg (14.2 lb.) |
| **Temperature:** | Operating: 0°C ~ 40°C   (32°F ~ 104°F)<br>Storage: -25°C ~ 70°C   (-13°F ~ 158°F) |
| **Humidity:** | 10 ~ 90%, non-condensing |
| **Certification:** | CE, FCC |

# Troubleshooting

**Q1: After connecting the Fiber Converter, the LEDs do not turn on.  What should I do?**
> **A1:** First, check that the power outlet is receiving power.   Second, make sure the power adapter is firmly connected to the Fiber Converter and the power outlet.  Third, make sure the Ethernet and the Fiber cables are connected.

**Q2: All the LEDs are on, but I can't make a connection.  What should I do?**
> **A2:** First, verify that you are using the proper fiber cable (e.g. multi-mode fiber cable for multi-mode converters; single-mode fiber cables for single-mode converters).  Second, verify that the TX and RX cables have been reversed on the opposite Fiber connection.  Third, power down the Fiber Converters and the switches.  Wait 15 seconds, then plug the switches and the Fiber Converters back in.

**Q3: What is the maximum distance that is supported by the Fiber Converter?**
> **A3:** Please refer to Product Detail for distance information.

**Q4: After connecting the Chassis to a power outlet, the LEDs do not turn on.**
> **A4:** First, check that the power outlet is receiving power.   Second, make sure the power cord is firmly connected to the chassis and the power outlet.  Third, make  sure the power switch is flipped to the **ON** position.

If you still encounter problems or have any questions please contact TRENDnet's Technical Support Department.

**Limited Warranty**

TRENDnet warrants its products against defects in material and workmanship, under normal use and service, for the following lengths of time from the date of purchase.

**Fiber Chassis / Fiber Converters - 5-Year Warranty**

If a product does not operate as warranted above during the applicable warranty period, TRENDnet shall, at its option and expense, repair the defective product or deliver to customer an equivalent product to replace the defective item. All products that are replaced will become the property of TRENDnet. Replacement products may be new or reconditioned.

TRENDnet shall not be responsible for any software, firmware, information, or memory data of customer contained in, stored on, or integrated with any products returned to TRENDnet pursuant to any warranty.

There are no user serviceable parts inside the product. Do not remove or attempt to service the product through any unauthorized service center. This warranty is voided if (i) the product has been modified or repaired by any unauthorized service center, (ii) the product was subject to accident, abuse, or improper use (iii) the product was subject to conditions more severe than those specified in the manual.

Warranty service may be obtained by contacting TRENDnet office within the applicable warranty period for a Return Material Authorization (RMA) number, accompanied by a copy of the dated proof of the purchase. Products returned to TRENDnet must be pre-authorized by TRENDnet with RMA number marked on the outside of the package, and sent prepaid, insured and packaged appropriately for safe shipment.

**Certifications**

This equipment has been tested and found to comply with FCC and CE Rules.

Operation is subject to the following two conditions:

(1) This device may not cause harmful interference.

(2) This device must accept any interference received. Including interference that may cause undesired operation.

FC  CE  P꒰

Waste electrical and electronic products must not be disposed of with household waste. Please recycle where facilities exist. Check with you Local Authority or Retailer for recycling advice.

# TRENDnet Technical Support

**Toll Free Telephone:** 1(866) 845-3673

### US · Canada
24/7 Tech Support

### Europe (Germany · France · Italy · Spain · Switzerland · UK)

**Toll Free Telephone:** +00800 60 76 76 67

English/Espanol - 24/7
Francais/Deutsch - 11am-8pm, Monday - Friday MET

**Telephone:** +(31) (0) 20 504 05 35

### Worldwide
English/Espanol - 24/7
Francais/Deutsch - 11am-8pm, Monday - Friday MET

24/7 Technical Support 365

# Product Warranty Registration

Please take a moment to register your product online.
Go to TRENDnet's website at http://www.trendnet.com

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