



## Quick Installation Guide



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

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# 1. Bevor Sie anfangen

TFC-1000 Gehäuse für Glasfaserkonverter der Serie TFC-210 und TFC-2000:



## Packungsinhalt

- TFC-1000
- Kurzanleitung zur Installation
- Stromkabel
- Befestigungsbügel und Schrauben

Glasfaserkonverter der Serie TFC-210 oder TFC-2000:



## Packungsinhalt

- Glasfaserkonverter
- Kurzanleitung zur Installation
- Netzteil (9 V Gleichstrom, 700 mA)

## 2. Produktbeschreibung

10/100Base-TX zu 100Base-FX Glasfaserkonverter					
Modellname	Multi/ Single-Mode	Fiber Connector	Leistungsbudget	Wellenlänge	Entfernung
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)
TFC-210S20D3	Single-Mode Einzelmodus/ bidirektional	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 zu 1000Base-SX/LX Glasfaserkonverter					
Modellname	Multi/ Single-Mode	Fiber Connector	Leistungsbudget	Wellenlänge	Entfernung
TFC-2000MSC	Multi-Mode		50/125um:8,5dBm	850nm (830nm ~ 860nm)	550M
			62,5/125um:8,5dBm		220M
TFC-2000S20	Single-Mode	SC (Duplex)	9/125um:15dBm	1310nm (1270nm ~ 1355nm)	20Km
TFC-2000S50			9/125um:19dBm	1550nm (1520nm ~ 1580nm)	50Km
TFC-2000S10D3	Single-Mode Einzelmodus/ bidirektional	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. Installation der Hardware

### Installation eigenständiger Glasfaserkonverter

1. Verbinden Sie den Glasfaserkonverter mit einem Glasfaserkabel.

2. Verbinden Sie den Ethernet-Port des Glasfaserkonverters über ein RJ-45-Ethernetkabel mit einem Ethernet-Port Ihres Umschalters (z.B. TE100-S24R oder TEG-S240TX).

3. Verbinden Sie das Netzteil mit der Buchse auf der Rückseite des Konverters.



#### Hinweis:

- Kabel:  
Multimodus-Glasfaserkabel: TFC-210MST, TFC-210MSC, TFC-2000MSC  
Einzelmodus-Glasfaserkabel: TFC-210S30, TFC-210S50, TFC-2000S30, TFC-2000S50  
Einzelsträngiges Glasfaserkabel für TFC-210S20D3/D5, TFC-210S10D3/D5
- Auf der anderen Seite der Glasfaserverbindung müssen TX- und RX-Kabel vertauscht werden.
- Der TFC-210S20D3 muss mit dem TFC-210S20D5. Der TFC-2000S10D3 muss mit dem TFC-2000S10D5.
- Die TX- und FX-Ports des TFC-2000- Serie unterstützen Auto-Negotiation nicht. Die entsprechenden Kupfer- und Glasfaseranschlüsse müssen Gigabit-fähig sein.

## Installation eines Glasfaserkonverters mit einem Umschalter

1. Verbinden Sie den Glasfaserkonverter über das Glasfaserkabel mit einem Glasfaser-Umschalter (z.B. TE100-S810Fi)

2. Verbinden Sie den Ethernet-Port des Glasfaserkonverters über ein RJ-45-Ethernetkabel mit einem Ethernet-Port Ihres Umschalters (z.B. TE100-S24R oder TEG-S240TX).

3. Verbinden Sie das Netzteil mit der Buchse auf der Rückseite des Converters.



Hinweis: Diese Anwendung ist mit TFC-210S20D3, TFC-210S20D5, TFC-2000S10D3 und TFC-2000S10D5 nicht möglich.

## Installation eines Glasfaserkonverters mit einem PC

1. Schließen Sie den Glasfaserkonverter über das Glasfaserkabel an einen PC mit Glasfaseradapter an (z.B. TE100-PCIFX+).

2. Verbinden Sie den Ethernet-Port des Glasfaserkonverters über ein RJ-45-Ethernetkabel mit einem Ethernet-Port Ihres Umschalters (z.B. TE100-S24R oder TEG-S240TX).

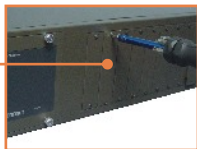
3. Verbinden Sie das Netzteil mit der Buchse auf der Rückseite des Konverters.



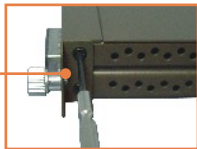
Hinweis: Diese Anwendung ist mit TFC-210S20D3, TFC-210S20D5, TFC-2000S10D3 und TFC-2000S10D5 nicht möglich.

## Installation des Glasfaserkonverters in einem Gehäuse

1. Entfernen Sie die Abdeckung des jeweiligen Einschubs mit Hilfe eines Schraubendrehers. Bewahren Sie die Schrauben und die Abdeckung für den Fall auf, dass Sie den Einschub später wieder verschließen müssen.



2. Befestigen Sie die Halterung an der Seite des Glasfaserkonverters.



3. Schieben Sie den Glasfaserkonverter in einen freien Steckplatz. Installieren Sie den Glasfaserkonverter so, dass sich der Glasfaser-Port in der Nähe des Gehäusebodens befindet. Ziehen Sie dann die Schrauben fest.





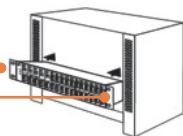
## Montage in Gestell

Das Gehäuse lässt sich in ein standardmäßiges 19"-EIA-Gestell einbauen, das seinerseits gemeinsam mit anderen Geräten in einen Kabelschrank montiert werden kann.

1. Bringen Sie die Befestigungsbügel mit den mitgelieferten Schrauben an der Vorderseite des Gehäuses an (an jeder Seite einen).



2. Bügel an den Schraubenlöchern im Gestell aus und befestigen Sie das Gehäuse dann mit den zum Gestell gehörenden Schrauben.



## Anschluss der Stromversorgung

1. Stecken Sie das mitgelieferte Stromkabel in die Buchse auf der Rückseite des Gehäuses.

2. Stecken Sie das Stromkabel in eine Steckdose

3. Stellen Sie den Einschalter auf die Position EIN..



## DIP-Schalter

<b>TFC-210-Serie</b>	Schalter 1: Ein: TX-Vollduplexbetrieb Aus: TX-Auto-Negotiation Schalter 2: Ein: FX-Halbduplex Aus: FX-Vollduplex Schalter 3: Ein: LLCF aktiviert Aus: LLCF deaktiviert Schalter 4: Ein: Einfacher Modus Aus: Umschaltmodus
<b>TFC-2000-Serie</b>	Schalter 1: Ein: TX-LLCF aktiviert Aus: TX-LLCF deaktiviert Schalter 2: Ein: Glasfaser-LLCF aktiviert Aus: Glasfaser-LLCF deaktiviert

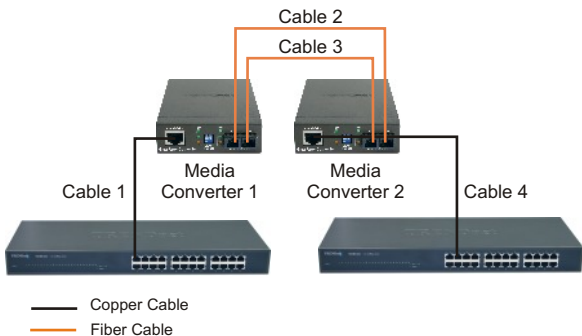
\* Schalten Sie den Glasfaserkonverter nach der Änderung der DIP-Schalterstellungen aus und wieder ein.

\*\*LLCF bedeutet „Link Loss Carry Forward“ (Mitteilung über Übertragungsfehler).

# 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 disabled 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 on. 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	Cable 1 Link Down	OFF	OFF	OFF	OFF	
	Cable 2 Link Down	OFF	OFF	OFF	OFF	
	Media Converter 2 LLCF Enable	Cable 3 Link Down	OFF	OFF	OFF	OFF
		Cable 4 Link Down	OFF	OFF	OFF	OFF
Media Converter 1 LLCF Enable	Cable 1 Link Down	OFF	OFF	ON	OFF	
	Cable 2 Link Down	OFF	OFF	ON	OFF	
	Media Converter 2 LLCF Disable	Cable 3 Link Down	OFF	OFF	ON	OFF
		Cable 4 Link Down	ON	ON	OFF	ON
Media Converter 1 LLCF Disable	Cable 1 Link Down	OFF	ON	ON	ON	
	Cable 2 Link Down	ON	OFF	OFF	OFF	
	Media Converter 2 LLCF Enable	Cable 3 Link Down	ON	OFF	OFF	OFF
		Cable 4 Link Down	ON	OFF	OFF	OFF
Media Converter 1 LLCF Disable	Cable 1 Link Down	OFF	ON	ON	ON	
	Cable 2 Link Down	ON	OFF	ON	OFF	
	Media Converter 2 LLCF Disable	Cable 3 Link Down	ON	OFF	ON	OFF
		Cable 4 Link Down	ON	ON	OFF	ON

# Specifications

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

## Fiber Chassis

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

**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.



WARRANTIES EXCLUSIVE: IF THE TRENDNET PRODUCT DOES NOT OPERATE AS WARRANTED ABOVE, THE CUSTOMER'S SOLE REMEDY SHALL BE, AT TRENDNET'S OPTION, REPAIR OR REPLACEMENT. THE FOREGOING WARRANTIES AND REMEDIES ARE EXCLUSIVE AND ARE IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, EITHER IN FACT OR BY OPERATION OF LAW, STATUTORY OR OTHERWISE, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. TRENDNET NEITHER ASSUMES NOR AUTHORIZES ANY OTHER PERSON TO ASSUME FOR IT ANY OTHER LIABILITY IN CONNECTION WITH THE SALE, INSTALLATION, MAINTENANCE OR USE OF TRENDNET'S PRODUCTS.

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Governing Law: This Limited Warranty shall be governed by the laws of the state of California.

Note: AC/DC Power Adapter, Cooling Fan, Cables and Power Supply carry a 1-Year Warranty

## 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.



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



**NOTE:** THE MANUFACTURER IS NOT RESPONSIBLE FOR ANY RADIO OR TV INTERFERENCE CAUSED BY UNAUTHORIZED MODIFICATIONS TO THIS EQUIPMENT. SUCH MODIFICATIONS COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.

### ADVERTENCIA

En todos nuestros equipos se mencionan claramente las características del adaptador de alimentación necesario para su funcionamiento. El uso de un adaptador distinto al mencionado puede producir daños físicos y/o daños al equipo conectado. El adaptador de alimentación debe operar con voltaje y frecuencia de la energía eléctrica domiciliar existente en el país o zona de instalación.



## TRENDnet Technical Support

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### Worldwide

English/Espanol - 24/7

Francais/Deutsch - 11am-8pm, Monday - Friday MET



## 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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