



# **KFC-200**

**10/100BASE-TX to 100BASE-FX**

**Media Converters**

Installation Guide



DOC.121221

(C) 2011-2012 KTI Networks Inc. All rights reserved. No part of this documentation may be reproduced in any form or by any means or used to make any derivative work (such as translation or transformation) without permission from KTI Networks Inc.

KTI Networks Inc. reserves the right to revise this documentation and to make changes in content from time to time without obligation on the part of KTI Networks Inc. to provide notification of such revision or change.

For more information, contact:

**United States**      KTI Networks Inc.  
P.O. BOX 631008  
Houston, Texas 77263-1008

Phone: 713-2663891  
Fax: 713-2663893  
E-mail: [kti@ktinet.com](mailto:kti@ktinet.com)  
URL: <http://www.ktinet.com/>

**International**      Fax: 886-2-26983873  
E-mail: [kti@ktinet.com.tw](mailto:kti@ktinet.com.tw)  
URL: <http://www.ktinet.com.tw/>

The information contained in this document is subject to change without prior notice.  
Copyright (C) All Rights Reserved.

## **TRADEMARKS**

Ethernet is a registered trademark of Xerox Corp.

## **FCC NOTICE**

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including the interference that may cause undesired operation.

## **CE NOTICE**

Marking by the symbol indicates compliance of this equipment to the EMC directive of the European Community. Such marking is indicative that this equipment meets or exceeds the following technical standards:

EMC Class B

EN55022:2006/A1:2007

EN61000-3-2:2006

EN61000-3-3:1995/A1:2001/A2:2005 Class B

EN55024:1998/A1:2001/A2:2003

IEC 61000-4-2:2001

IEC 61000-4-3:2002/A1:2002

IEC 61000-4-4:2004

IEC 61000-4-5:2001

IEC 61000-4-6:2003

IEC 61000-4-8:2001

IEC 61000-4-11:2001

# Table of Contents

<b>1. Introduction.....</b>	<b>5</b>
1.1 Features.....	5
1.2 Product Panels.....	6
1.3 Specifications.....	7
<b>2. Installation.....</b>	<b>8</b>
2.1 Unpacking.....	8
2.2 Safety Cautions.....	8
2.3 Mounting the Device.....	9
2.4 Applying Power with Power Adapter.....	12
<b>3. Making LAN Connections.....</b>	<b>12</b>
3.1 Making UTP Connections.....	12
3.2 Making FX Port Connection.....	13
3.3 LED Indication.....	15

# 1. Introduction

---

The 10/100BASE-TX to 100BASE-FX media converter series provides a media conversion allowing high-speed integration of fiber optic and twisted-pair segments. With 10BASE-T and 100BASE-TX support, the converters provide seamless translation between Ethernet and Fast Ethernet networks. A complete set of LEDs allows for quick status verification.

## Media Converter with duplex SC Connector



## Media Converter with duplex ST Connector



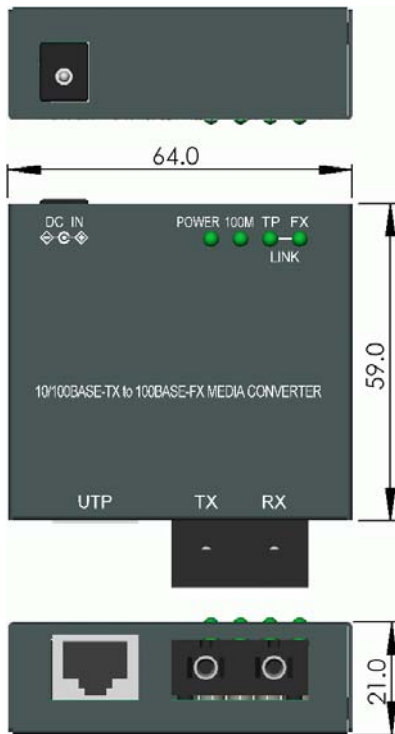
## 1.1 Features

- Support full wire speed conversion for 10/100Mbps speed and media types
- Support auto-negotiation 10/100Mbps or forced mode on the copper port
- Auto MDI/MDI-X crossover function on the copper port
- Flow control
- Transparent conversion to 802.1Q VLAN tagged packets
- Provides Far End Fault function on FX (fiber) port
- Low power consumption
- Supports DIN rail mounting and wall mounting

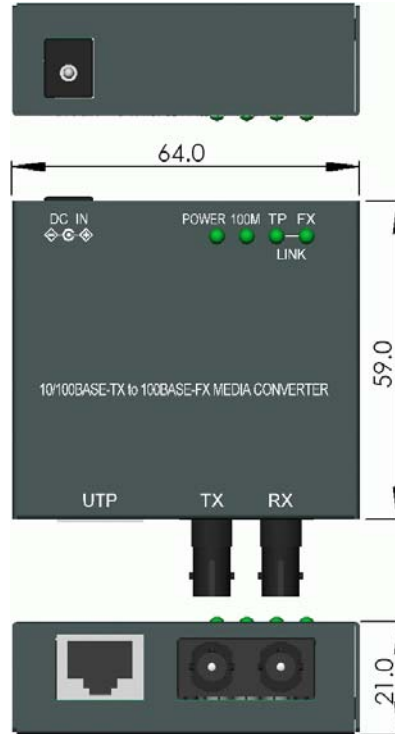
## 1.2 Product Panels

The following figure illustrates the panels of the media converters:

**Media Converter with duplex SC connector**



**Media Converter with duplex ST connector**



## 1.3 Specifications

---

TP Port	IEEE 802.3 10BASE-T, IEEE 802.3u 100BASE-TX Shielded RJ-45 jacks with Auto MDI/MDI-X detection Auto-negotiation for speed and duplex auto detection Speed for 10Mbps or 100Mbps Full-duplex or half-duplex support
FX Port	IEEE 802.3u 100BASE-FX compliant Forced 100Mbps, Full duplex Far end fault Function Options: Duplex SC for MMF, Duplex ST for MMF, Duplex SC for SMF, BiDi SC for SMF
Cables	10/100BASE-TX: Cat. 5 UTP cable, 100BASE-FX: MMF - 62.5/125 $\mu$ m, 50/125 $\mu$ m, SMF - 9 /125 $\mu$ m
LEDs	Power status, TP speed, TP Link/Activity, FX Link/Activity
Packet Size	Up to 1536 bytes
Environment	Operating Temperature: 0°C ~ 50°C Storage Temperature: -30°C ~ 80°C Relative Humidity: 5% ~ 95% non-condensing
Dimension	64 x 59 x 21 mm (WxDxH)
Mounting Support	Desktop, Wall mounting Optional: DIN-Rail, Panel
Power Input	+3.3VDC via external power adapter
Power Consumption	1.8W max. @+3.3V

---

## 2. Installation

---

### 2.1 Unpacking

The product package contains:

- The media converter unit
- One AC power adapter
- One product CD-ROM

### 2.2 Safety Cautions

To reduce the risk of bodily injury, electrical shock, fire and damage to the product, observe the following precautions.

- Do not service any product except as explained in your system documentation.
- Opening or removing covers may expose you to electrical shock.
- Only a trained service technician should service components inside these compartments.
- If any of the following conditions occur, unplug the product from the electrical outlet and replace the part or contact your trained service provider:
  - The power cable, extension cable, or plug is damaged.
  - An object has fallen into the product.
  - The product has been exposed to water.
  - The product has been dropped or damaged.
  - The product does not operate correctly when you follow the operating instructions.
- Do not push any objects into the openings of your system. Doing so can cause fire or electric shock by shorting out interior components.
- Operate the product only from the type of external power source indicated on the electrical ratings label. If you are not sure of the type of power source required, consult your service provider or local power company.



## 2.3 Mounting the Device

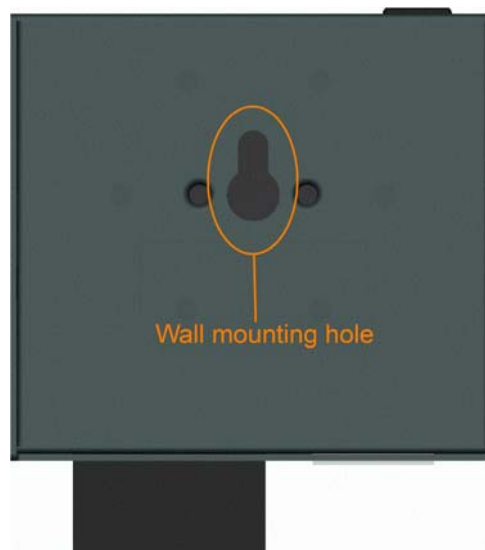
### Desktop Mounting

The media converter can be mounted on a desktop or shelf. Make sure that there is proper heat dissipation from and adequate ventilation around the device. Do not place heavy objects on the device.



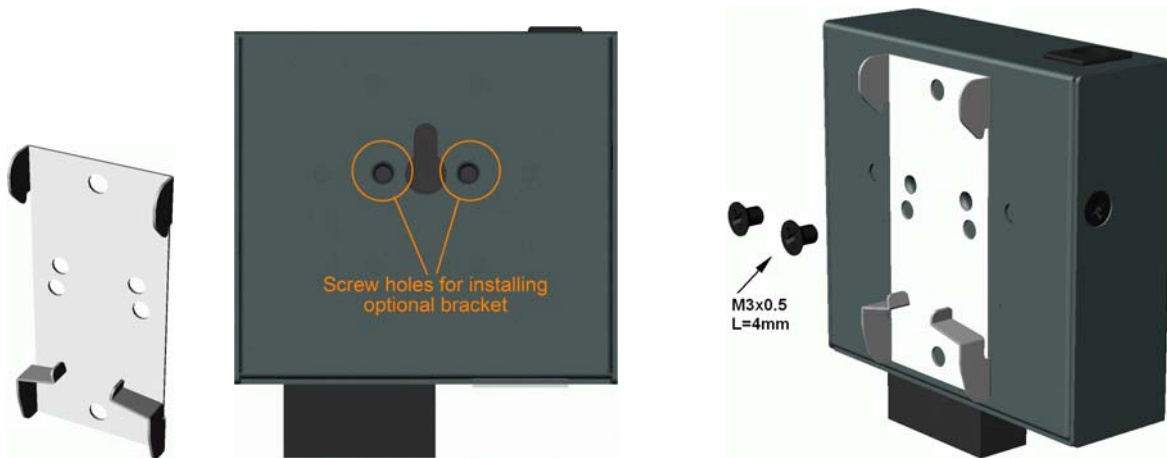
### Wall Mounting

To mount the device on a wall, one wall mounting hole is provided on the bottom of the device. Hang the device on the wall reliably. The following figure illustrates example of a device bottom face:

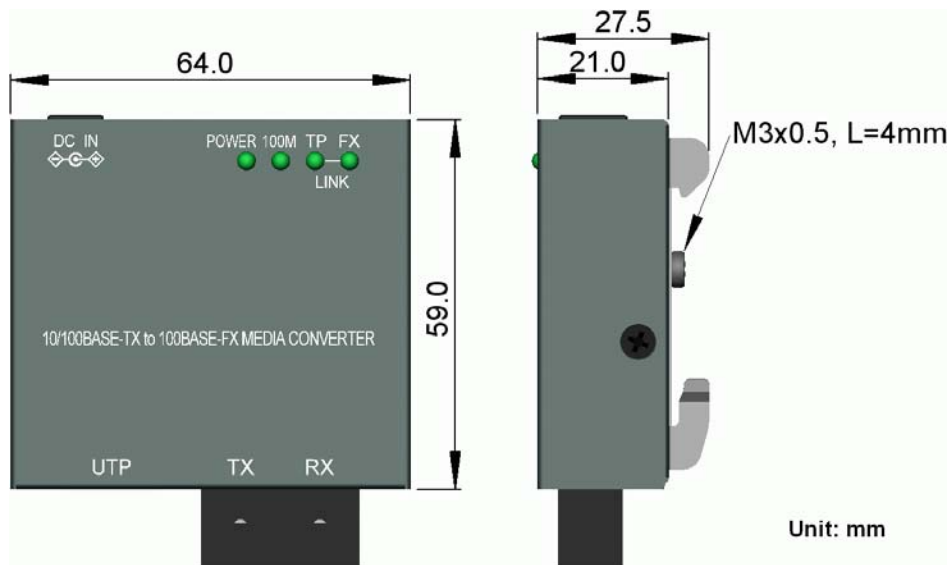


### Optional Din-Rail Mounting

To mount the media converter on a Din-Rail, one optional Din-Rail mounting bracket is required. Screw the bracket onto the bottom of the device with M3x0.5 screws as follows:

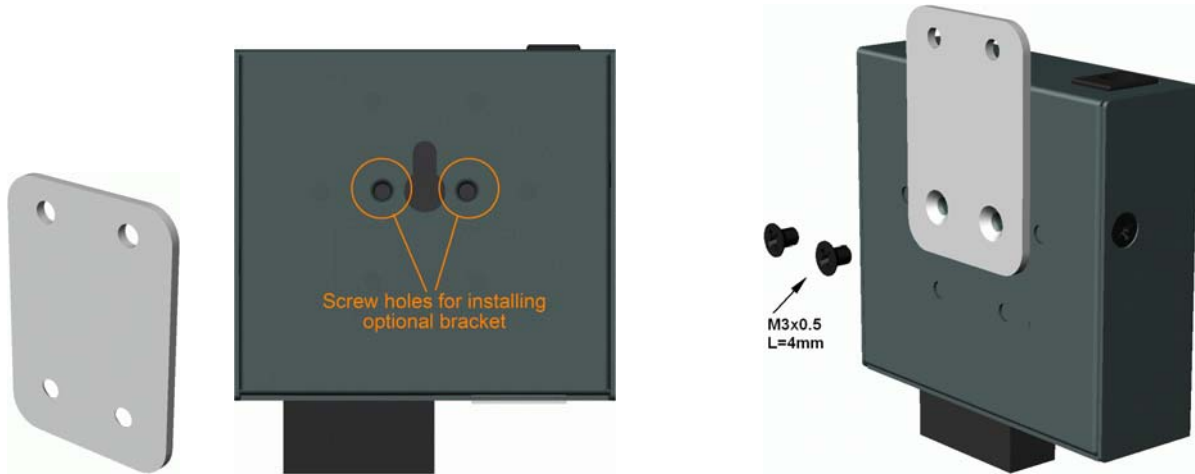


Dimension with installed bracket

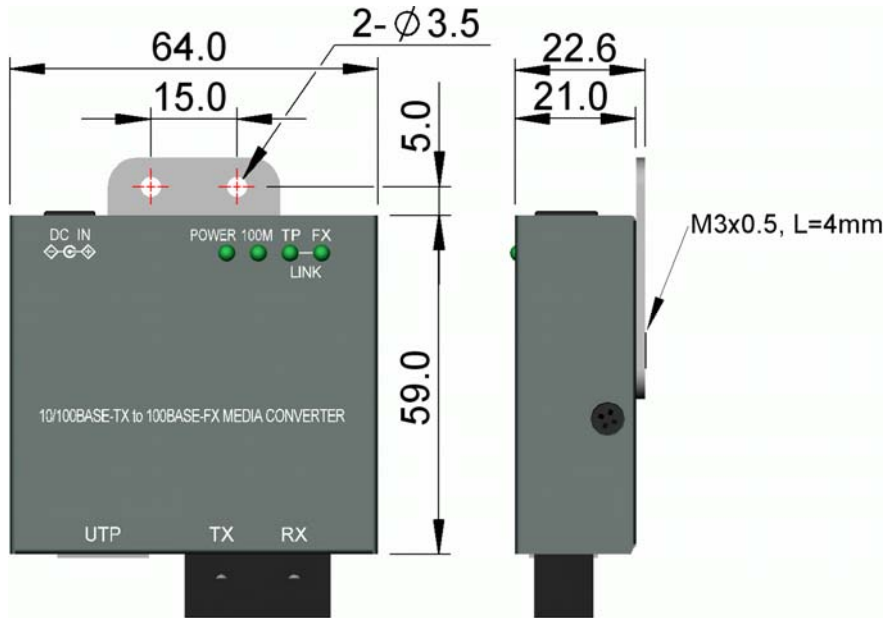


### Optional Panel Mounting

To mount the media converter on a plane face, wood board or panel, one optional panel mounting bracket is required. Screw the bracket onto the bottom of the device with M3x0.5 screws as follows:



Dimension with installed bracket



## 2.4 Applying Power with Power Adapter

The device provides a DC power jack for receiving DC power input from an external AC-DC power adapter.

One power adapter is packed in each product package. Consult your purchasing agency for the right part number which matching the operating rating you require.

*Note: Before you begin the installation, check the AC voltage of your area. The AC-DC power adapter should have the AC voltage matching the commercial power voltage in your area.*

## 3. Making LAN Connections

---

### 3.1 Making UTP Connections

The copper ports support the following connection types and distances:

#### Network Cables

10BASE-T: 2-pair UTP Cat. 3,4,5 , EIA/TIA-568B 100-ohm

100BASE-TX: 2-pair / 4-pair UTP Cat. 5, EIA/TIA-568B 100-ohm

Link distance: Up to 100 meters

#### Auto MDI/MDI-X Function

This function allows the port to auto-detect the twisted-pair signals and adapts itself to form a valid MDI to MDI-X connection with the remote connected device automatically. No matter a straight through cable or crossover cable connected, the port can sense the receiving pair automatically and configure self to match the rule for MDI to MDI-X connection. It simplifies the cable installation.

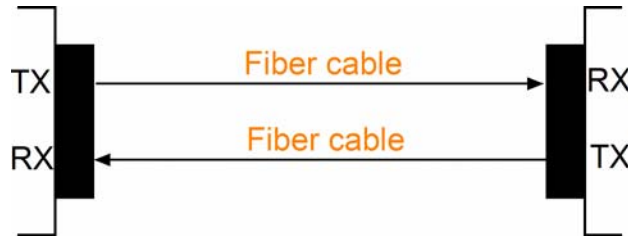
#### Auto-negotiation Function

The port is featured with auto-negotiation function and full capability to support connection to any Ethernet devices. The port performs a negotiation process for the speed and duplex configuration with the connected device automatically when each time a link is being established. If the connected device is also auto-negotiation capable, both devices will come out the best configuration after negotiation process. If the connected device is incapable in auto-negotiation, the switch will sense the speed and use half duplex for the connection.

### 3.2 Making FX Port Connection

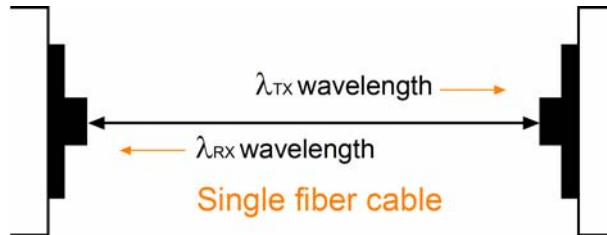
FX port operates on 100Mbps and full duplex. The following figures illustrate a connection example between two fiber ports:

#### Duplex Connection



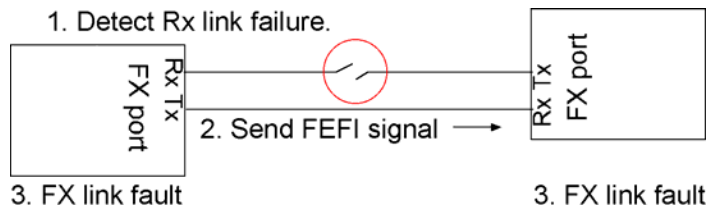
Make sure the Rx-to-Tx connection rule is followed on the both ends of the fiber cable.

#### Bi-Di Connection (Bi-Directional)



#### Far End Fault Function

The FX port is facilitated with this function, which conforms to IEEE 802.3u 100BASE-FX specifications. When the FX port detects a link failure on its receiving circuitry, it will send out an FEFI (Far End Fault Indication) signal to the remote connected device to indicate a remote fault is detected. It also is capable to receive FEFI signal sent from the remote link partner. Upon receiving an FEFI signal, it indicates a link failure occurred on the transmitting path. This function allows the converter to report a fiber link fault even when a link failure occurred on transmitting fiber cable.



A variety of fiber options is provided as follows:

<b>Model</b>	<b>Connector</b>	<b>Wavelength</b>	<b>Fiber</b>	<b>Tx Power</b>	<b>Rx Sensitivity</b>	<b>Max. distance</b>
-T	Duplex ST	1310nm	MMF	-20 ~ -14dBm	-32dBm	2km
-C	Duplex SC	1310nm	MMF	-20 ~ -14dBm	-31dBm	2km
-SL3	Duplex SC	1310nm	SMF	-15 ~ -8dBm	-34dBm	30km
-W3520	Bi-Di SC	TX: 1310nm RX: 1550nm	SMF	-14 ~ -8dBm	-31dBm	20km
-W5320	Bi-Di SC	TX: 1550nm RX: 1310nm	SMF	-14 ~ -8dBm	-31dBm	20km

### **Network Cables**

Multimode (MMF) - 50/125µm, 62.5/125 µm

Single mode (SMF) - 9/125 µm

Bi-Di SMF – Single SMF

### 3.3 LED Indication

<b>LED</b>	<b>Function</b>	<b>State</b>	<b>Interpretation</b>
POWER	Power status	ON	The power is supplied to the switch.
		OFF	The power is not supplied to the switch.
TP Speed	Port speed status	ON	A speed of 100Mbps is selected.
		OFF	A speed of 10Mbps is selected.
TP Link/Act.	Port link status	ON	A link is established. (No traffic)
		BLINK	Port link is up and there is traffic.
		OFF	Port link is down.
FX Link/Act.	Port link status	ON	A link is established. (No traffic)
		BLINK	Port link is up and there is traffic.
		OFF	Port link is down.