

Installation Guide
Converter Rack System



P/N:750-0149-001
DOC.000913-KC1000-K

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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
URL: <http://www.ktinet.com/>

International

Fax: 886-2-26983873
E-mail: kti@ktinet.com.tw
URL: <http://www.ktinet.com.tw/>

Converter Rack System

Installation Guide

DOC.000913-KC1000-NK
P/N: 750-0149-002

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WARNING:

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual may cause harmful interference in which case the user will be required to correct the interference at his own expense.

NOTICE:

- (1) The changes or modifications not expressly approved by the party responsible for compliance could void the user authority to operate the equipment.
- (2) Shielded interface cables and AC power cord, if any, must be used in order to comply with the emission limits.


CISPR A COMPLIANCE:

This device complies with EMC directive of the European Community and meets or exceeds the following technical standard.

EN 55022 - Limits and Methods of Measurement of Radio Interference Characteristics of Information Technology Equipment. This device complies with CISPR Class A.

WARNING: This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

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:

EN 55022: Limits and Methods of Measurement of Radio Interference characteristics of Information Technology Equipment.

EN 50082/1: Generic Immunity Standard -Part 1: Domestic Commercial and Light Industry.

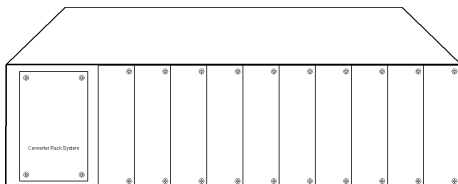
EN 60555-2: Disturbances in supply systems caused by household appliances and similar electrical equipment - Part 2: Harmonics.

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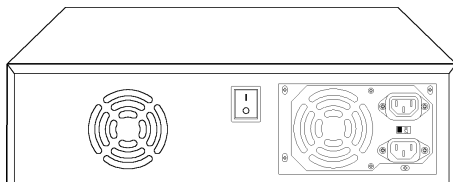
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1. Introduction

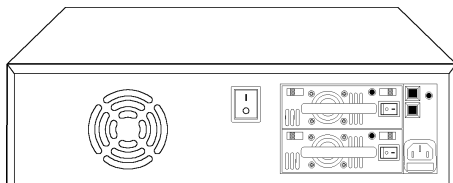
The Converter Rack System is a configurable media converter rack that can host 10 slots of 10Base and 100Base network media converters. A wide range of media converters are available depending on your variety of network cabling environment. These optional media converters include UTP to multimode or single mode fiber cable for Ethernet and Fast Ethernet networks. The rack system provides a central power supply to the converters and serves as a converter center and wiring concentrator.



To meet different application needs, two models which are equipped with different power supply are available as follows:



Regular Power Supply



Redundant Power Supply

With redundant power supply support, downtime is reduced when power supply failure occurs, as the unit has two hot-swappable power modules which can back up with each other.

1.1 Features

Some of the key features include:

- 10-slot modular 10/100 Media Converter Rack
- Complies with IEEE 802.3 10BASE-T 10BASE-FL and IEEE 802.3u 100BASE-TX 100BASE-FX standard
- Supports hot-swap redundant power supply for high availability
- 19-inch rack-mountable
- Support a variety of media converters:
 - 10BASE-T to 10BASE-FL ST multimode fiber
 - 10BASE-T to 10BASE-FL SC multimode fiber
 - 10BASE-T to 10BASE-FL ST single mode fiber
 - 100BASE-TX to 100BASE-FX ST multimode fiber
 - 100BASE-TX to 100BASE-FX SC multimode fiber
 - 100BASE-TX to 100BASE-FX SC single mode fiber
 - 100BASE-TX to 100BASE-FX MT-RJ multimode fiber
 - 100BASE-TX to 100BASE-FX MT-RJ single mode fiber
 - 100BASE-TX to 100BASE-FX VF-45 multimode fiber

1.2 Specifications

Base Unit	Regular Power	Redundant Power
Redundant Power	N/A	Yes
Max. Slots	10	10
Environment	Temperature 0°C to 40°C Humidity 10% to 90% non-condensing	
Dimension	440mm x 330mm x 120mm	
Power Consumption	90W	90W

10Base Converters	10TF/T	10TF/C	10TF/S
Fiber mode	MM	MM*1	SM*2
Wave length	850nm	850nm	1300nm
Fiber connector	ST	SC	ST
Fiber cable	62.5/125µm	62.5/125µm	8/125µm
Fiber max. length	2km	2km	14km
TP port	Shielded RJ-45 jack		
UTP cables	Cat. 3, 4, or 5 UTP cable (100m max.)		
LEDs	Power, TP Link/Activity, Fiber Link/Activity		
Dimension	101mm x 96mm x 25mm		

100Base Converters	100TF/T	100TF/C	100TF/SA	100TF/S3	100TF/S5
Fiber mode	MM	MM	SM	SM	SM
Wave length	1300nm	1300nm	1300nm	1300nm	1300nm
Fiber connector	ST	SC	SC	SC	SC
Fiber cable	62.5/125µm	62.5/125µm	9/125µm	9/125µm	9/125µm
Fiber max. length	2km	2km	15km	30km	50km
TP port	Shielded RJ-45 jack				
UTP cables	Cat. 5 UTP cable (100m max.)				
LEDs	Power, TP Link/Activity, Fiber Link/Activity				
Dimension	101mm x 96mm x 25mm				

100Base Converters	100TF/JM	100TF/JS	100TF/VM
Fiber mode	MM	SM	MM
Wave length	1300nm	1300nm	1300nm
Fiber connector	MT-RJ	MT-RJ	VF-45
Fiber cable	62.5/125µm	9/125µm	62.5/125µm
Fiber max. length	2km	15km	2km
TP port	Shielded RJ-45 jack		
UTP cables	Cat. 5 UTP cable (100m max.)		
LEDs	Power, TP Link/Activity, Fiber Link/Activity		
Dimension	101mm x 96mm x 25mm		

*1 MM: Multimode

*2 SM: Single mode

2. Installation

2.1 Unpacking

The product package contains the converter rack unit, a power cord, a rack mounting kit, a set of side rails and an installation guide.

2.2 Front Panels

The following figure illustrates the front panel of the system with no converter installed:



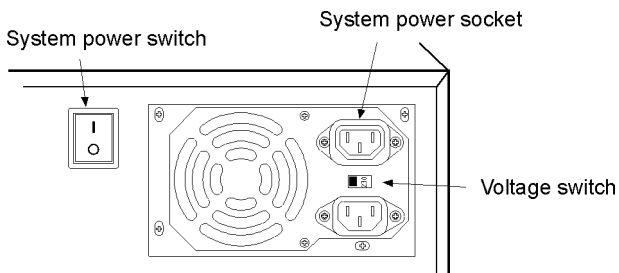
2.3 Setting AC Voltage Switch

It is recommended before connecting the power cord that was supplied with the regular power unit that the voltage switch should be set to the correct position according to the country of origin. The AC voltage and switch settings are as follows:

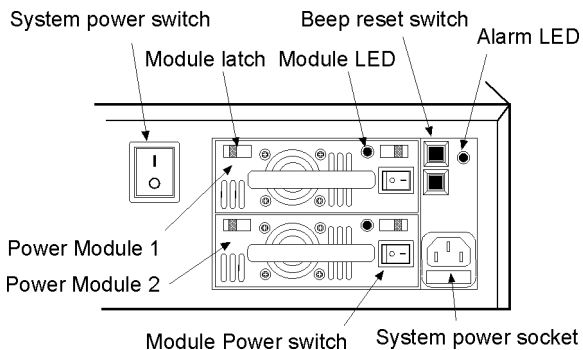
Setting Position	Voltage Range
115	90 ~ 132VAC
230	180 ~ 264VAC

The figures below, illustrate switch locations on the different units.

System with regular power supply



System with redundant power supply



System power switch : the main power switch of the system unit

Module power switch : the power switch of the power module

Module LED : power indicator for power module

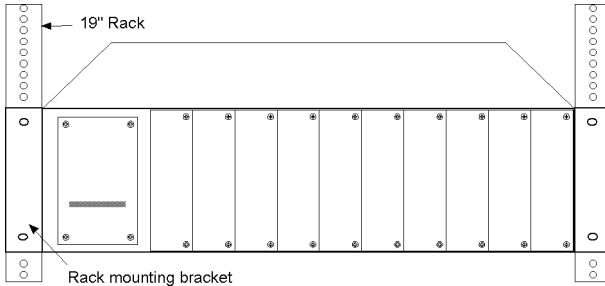
Alarm LED : indicator for power failure on any power module

Beep reset switch : reset the beep alarm for power failure

Module latch : secure latch to lock the module onto the unit chassis

2.4 Rack Mounting

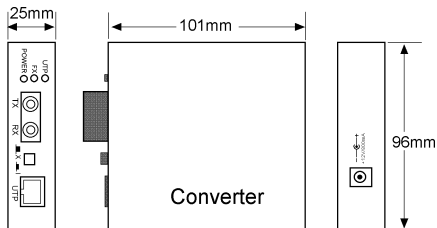
Included with the base unit is a rack mounting kit which includes two brackets for installing the unit into a 19-inch rack.



2.5 Installing and Removing Media Converters

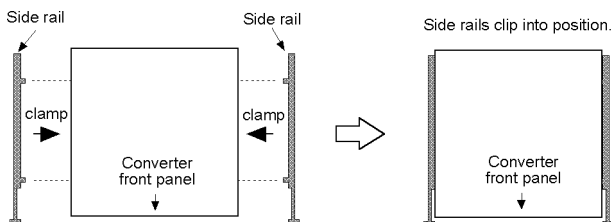
The functions of all 10 slots are identical. Any type of converters can be inserted into any available slot.

The figure below shows the outline drawing of a typical converter:



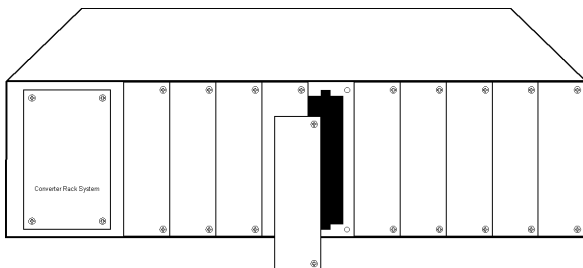
Install side rails onto converter

Before installing the converter into the system, clamp the side rails to both side panels of the converter first. The side rails are supplied in the product package. Two holes are provided on the panel so that the side rail can clip snugly into position. The following figure illustrates how to clamp the side rails:



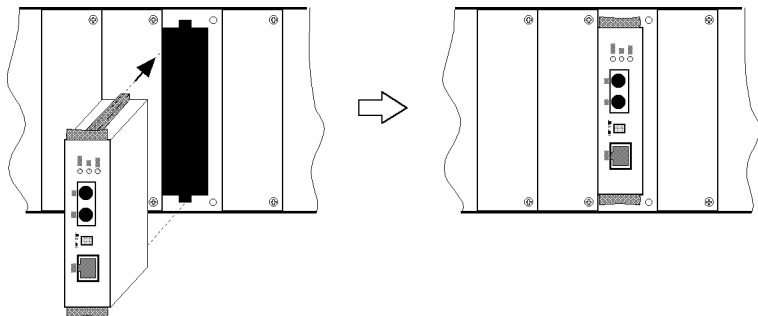
Unscrew slot cover

Each empty slot is covered with a metal plate. Unscrew the cover.



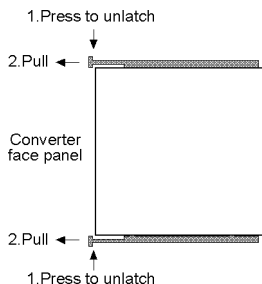
Install converter into rack system

To install the converter, slide the converter into an available slot along the slot guide brackets. The side rails can latch itself onto the system chassis until the converter reach the slot seat properly. See the figure below:



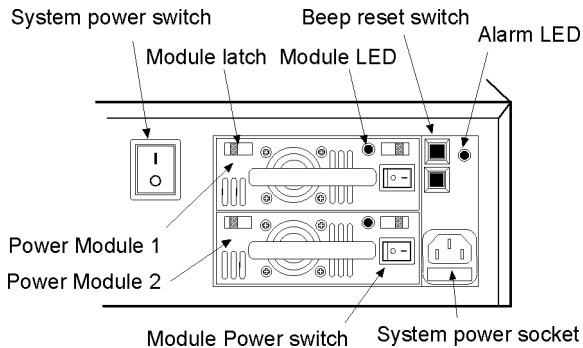
Remove converter from rack system

To remove a converter from the chassis, press the heads of side rails to unlatch the converter and pull it out from the system chassis. See the figure below:



2.6 Redundant Power Modules

As the system is equipped with redundant power supply support. It comes with two pre-installed hot-swappable redundant power supply modules.



Checking power status

Three LED indicators are provided on the power system:

LEDs	State	Interpretation
Upper module LED	On	The upper power module is in operation.
Lower module LED	On	The lower power module is in operation.
Alarm LED	On	When there is any power failure

In addition to the LED indicators, when any power module is being shut down automatically due to over load, over voltage, or module failure, an alarm beep sound is also generated to indicate a power failure condition. A replacement of the defective power module might be necessary. The beep sound can be shut off by pressing the beep reset switch.

Remove and install a Redundant Power Module

Because the power system is equipped with hot-swap feature, it is not necessary to turn off the system power when removing or installing a power module. Push the module latches outward to remove the power module.

3. Media Converters

3.1 Types of Converters

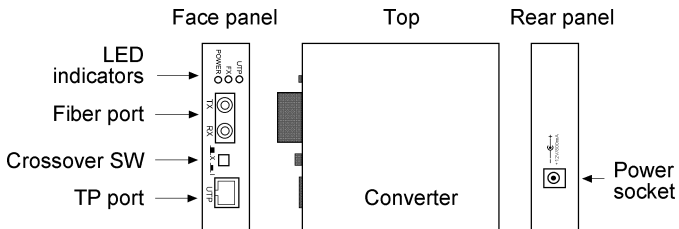
A 10Base network media converter can convert a 10BASE-T signal to a 10BASE-FL signal. A 100Base media converter converts a 100BASE-TX signal to a 100BASE-FX signal. Both serve as an interface between a UTP cable and fiber cable.

For connecting to different types of fiber cables and fiber connectors, the following optional media converters are supported:

10TF/T	10BASE-T to 10BASE-FL ST multimode fiber
10TF/C	10BASE-T to 10BASE-FL SC multimode fiber
10TF/S	10BASE-T to 10BASE-FL ST single mode fiber
100TF/T	100BASE-TX to 100BASE-FX ST multimode fiber
100TF/C	100BASE-TX to 100BASE-FX SC multimode fiber
100TF/SA	100BASE-TX to 100BASE-FX SC single mode 15km fiber
100TF/S3	100BASE-TX to 100BASE-FX SC single mode 30km fiber
100TF/S5	100BASE-TX to 100BASE-FX SC single mode 50km fiber
100TF/JM	100BASE-TX to 100BASE-FX MT-RJ multimode fiber
100TF/JS	100BASE-TX to 100BASE-FX MT-RJ single mode fiber
100TF/VM	100BASE-TX to 100BASE-FX VF-45 multimode fiber



3.2 Network Ports

The following figure illustrates the typical drawing of a converter:



3.3 TP Port

This RJ-45 connector is used for connecting to a UTP cable. One push button switch next to the RJ-45 is provided to set the crossover function of the RJ-45 connector. Its settings are shown as follows:

Crossover SW	Crossover function	Jack type
	Enable	MDI-X
	Disable	MDI

The pin assignments of MDI-X and MDI types are:

PIN#	MDI-X Type	MDI Type
1	Rx+	Tx+
2	Rx-	Tx-
3	Tx+	Rx+
6	Tx-	Rx-
4,5,7,8	NC	NC

This crossover setting allows you to use standard straight-through UTP cable for making any UTP connection to another device.

The compliant UTP Cable for 10Base and 100Base modules are:

Standard	Compliant Cables	Maximum Length
10BASE-T	Cat. 3, 4, or 5 UTP	100 meters
100BASE-TX	Cat. 5 UTP	100 meters

Auto-negotiation

The TP port is equipped with auto-negotiation capability which supports connection to an auto-negotiation device in full-duplex operation. This feature preserves the connection performance of the connected device.

3.4 Fiber Port

Two fiber optic connectors are provided for fiber optic cable connection, labeled **TX** for transmitting and **RX** for receiving operations. For the connector types and the fiber cables supported by the available converters, refer to section 1.2 for more specifications. The following table lists the available converters and its related information:

Model	Speed	Connector	Cable Used	Cable Length
10TF/T	10Mbps	ST	MM	2Km
10TF/C	10Mbps	SC	MM	2Km
10TF/S	10Mbps	ST	SM	14Km
100TF/T	100Mbps	ST	MM	2Km
100TF/C	100Mbps	SC	MM	2Km
100TF/SA	100Mbps	SC	SM	15Km
100TF/S3	100Mbps	SC	SM	30Km
100TF/S5	100Mbps	SC	SM	50Km
100TF/JM	100Mbps	MT-RJ	MM	2Km
100TF/JS	100Mbps	MT-RJ	SM	15Km
100TF/VM	100Mbps	VF-45	MM	2Km

3.5 LED Indicators

LED	State	Interpretation
PWR	On	The power to the module is on.
	On	The fiber link is active.
	Off	The fiber link is inactive.
UTP	Blink	There is traffic on the fiber port.
	On	The UTP link is active.
	Off	The UTP link is inactive.
	Blink	There is traffic on the UTP port.