Installation Guide

Modular Converter System

KC-1200 Series

KTI
NETWORKS

For more information, contact:

TRADEMARKS

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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 expressively 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 **C E** 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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1. Introduction

The Modular Convert System 1200 is a configurable media converter rack that can host 12 slots of 10Base and 100Base network media converter modules. A wide range of media modules are available depending on your variety of network cabling environment. These optional media converter modules include UTP to multimode or single mode fiber cable for Ethernet and Fast Ethernet networks.

The rack unit provides a centered power supply to the converter modules and serves as a converter center and wiring concentrator.
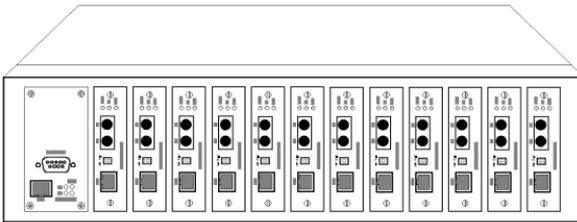
To meet different application needs, the series comes with several different configurations as follows:

Model	Management	Power supply
1200/L	Unmanaged	Standard
1200/LR	Unmanaged	Redundant Power
1200	Managed	Standard
1200/R	Managed	Redundant Power

The management function allows network administrators to monitor the status of the modules installed in the managed unit remotely via standard web browsers, SNMP manager software, or telnet software.

With redundant power supply support, downtime is reduced when power supply failure occurs, as the unit has two redundant power modules which are both hot-swappable.

1.1 Features

Some of the key features include:

- 12-slot modular 10/100 Media Converter Center
- Complies with IEEE 802.3 10BASE-T 10BASE-FL and IEEE 802.3u 100BASE-TX 100BASE-FX standard
- Supports both SNMP and web-based management
- Supports hot-swap redundant power supply for high availability
- 19-inch rack-mountable
- Support variety of media converter modules:
  - 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

Management Features

It also includes some key management features such as :

- Provides SNMP and Web management for the unit power status and module type, port link status of each media converter module
- Management from anywhere and any platform using a web browser
- Easy-to-use point and click user interface
- Photographic quality interface to configure and monitor the device
- In-band/out-of-band remote telnet management
- Local console management via RS232 port
- TFTP Software Upgrade

1.2 Specifications

Base Unit	1200/L	1200/LR	1200	1200/R
Management	N/A	N/A	Yes	Yes
Redundant Power	N/A	Yes	N/A	Yes
Max. Slots	12	12	12	12
LAN Port	N/A	N/A	RJ-45	RJ-45
Console Port	N/A	N/A	RS232	RS232
Environment	Temperature 0ºC to 40ºC			
	Humidity 10% to 90% non-condensing			
Dimension	440mm x 290mm x 110mm			
Power Consumption	100W	110W	110W	110W

10Base Modules	1200-FLT	1200-FLC	1200-FLS
Fiber mode	multimode	multimode	single mode
Wave length	850nm	850nm	1300nm
Fiber connector	ST	SC	ST
Fiber cable	62.5/125mm	62.5/125mm	8/125mm
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	95mm x 99mm x 25.4mm		

| 100Base Modules	1200-FXT	1200-FXC	1200-FXS
Fiber mode	multimode	multimode	single mode
Wave length	1300nm	1300nm	1300nm
Fiber connector	ST	SC	SC
Fiber cable	62.5/125mm	62.5/125mm	8/125mm
Fiber max. length	2km	2km	15km
TP port	Shielded RJ-45 jack		
UTP cables	Cat. 5 UTP cable (100m max.)		
LEDs	Power, TP Link/Activity, Fiber Link/Activity		
Dimension	95mm x 99mm x 25.4mm		

2. Installation

2.1 Unpacking

The product package contains the converter center unit, a power cord, a rack mounting kit and an installation guide. It also includes a RS232 cable and diskette if the device is a managed unit.

2.2 Front Panels

The following figure illustrates the front panel of the unmanaged unit and managed unit respectively.

Unmanaged Unit
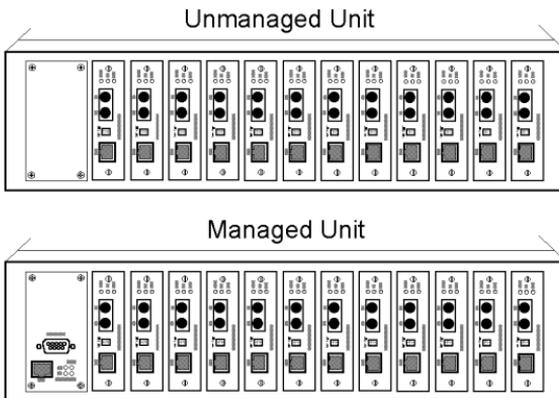
Managed Unit

From these figures, one can easily recognize a managed unit as it includes extra components on the left part of the device.

2.3 Setting AC Voltage Switch

It is recommended before connecting the power cord that was supplied with the 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.
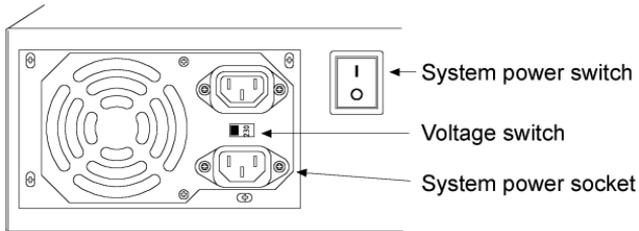
Unit with standard power supply
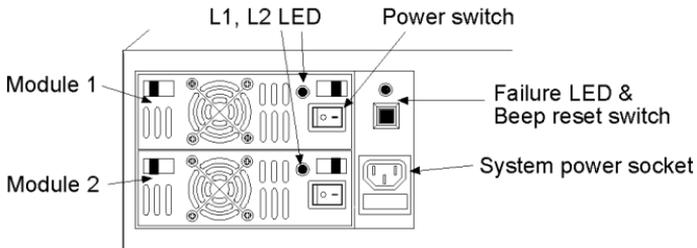
Unit with Redundant Power Supply (auto voltage detection)

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.
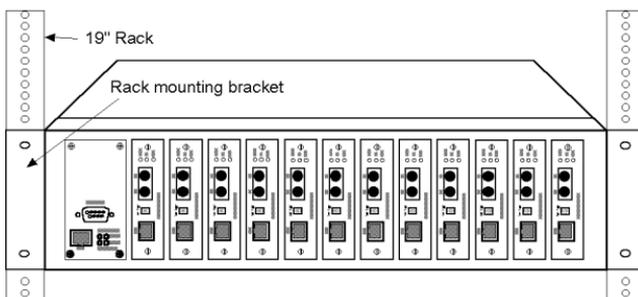

2.5 Media Converter Modules

The functions of all 12 slots are identical. Any type of modules can be installed into any available slot. However, it is important to make sure before installing or removing a module that the unit is turned off.

To remove a converter module from the chassis, unscrew the module until both screws are loose. Hold both screws and pull the module out from the chassis.

To install a module, insert the module into an available slot until it is seated in the slot properly. Screw the module onto the chassis securely.
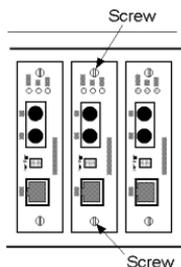
2.6 Redundant Power Modules

As the device is equipped with redundant power supply support. It comes with two pre-installed hot-swappable redundant power supply modules. For a detailed diagram, refer to the figure shown in section 2.3.

Checking Power Status
The following LED indicators are provided to display the power status:

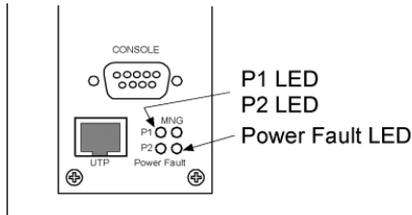| LEDs	State	Interpretation
L1,P1	On	The upper power module is in operation.
L2,P2	On	The lower power module is in operation.
Power Fault	On	Power system fault

* L1 and L2 LEDs are located on the redundant power modules.

The system power fault indicator is on 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 at the same time to indicate a failure condition and 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. However, make sure after installing a module that it is screwed onto the unit securely.

3. Media Converter Modules

3.1 Types of Converter Modules

A 10Base network media converter module can convert a 10BASE-T signal to a 10BASE-FL signal. A 100Base media converter module 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 converter modules are supported:

1200-FLT	10BASE-T to 10BASE-FL ST multimode fiber
1200-FLC	10BASE-T to 10BASE-FL SC multimode fiber
1200-FLS	10BASE-T to 10BASE-FL ST single mode fiber
1200-FXT	100BASE-TX to 100BASE-FX ST multimode fiber
1200-FXC	100BASE-TX to 100BASE-FX SC multimode fiber
1200-FXS	100BASE-TX to 100BASE-FX SC single mode fiber

3.2 Network Ports

The following figure illustrates the typical drawing of a module:
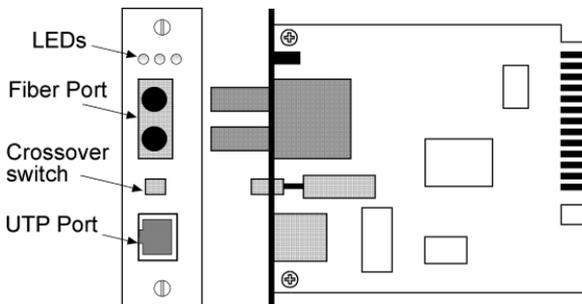
3.3 UTP Port

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

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 modules, refer to section 1.2 for more specifications.

10Base Modules	1200-FLT	1200-FLC	1200-FLS
Fiber mode	multimode	multimode	single mode
Wave length	850nm	850nm	1300nm
Fiber connector	ST	SC	ST
Fiber cable	62.5/125mm	62.5/125mm	8/125mm
Fiber max. length	2km	2km	14km

100Base Modules	1200-FXT	1200-FXC	1200-FXS
Fiber mode	multimode	multimode	single mode
Wave length	1300nm	1300nm	1300nm
Fiber connector	ST	SC	SC
Fiber cable	62.5/125mm	62.5/125mm	8/125mm
Fiber max. length	2km	2km	15km

Module LED Indicators

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

4. Network Management

4.1 Management Unit

The following figure illustrates the management panel of a managed unit:
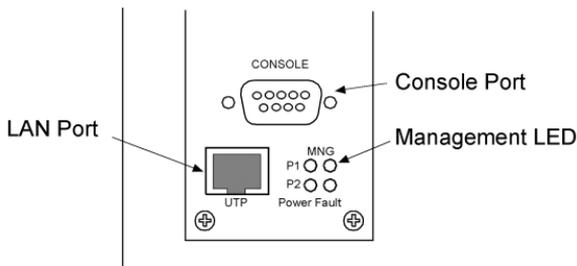
The functions of three management related components are:

LAN Port   The LAN port for in-band management
Console Port   The console port for out-of-band management
Management LED   The management module is working.

To perform an in-band management, it is necessary to connect the managed device to your TCP/IP network. The LAN port located on the front panel is used for this purpose. It is a 10BASE-T MDI port.

The console port is a 9-pin male D-sub connector. It serves as an RS232 DTE port. One RS232 cable is supplied in the managed unit package.

4.2 Management Support

The managed device can be managed by using the following methods:

- Direct console connection over an RS232 cable
- Web browser software from Internet or Intranet over TCP/IP network
- Telnet software over TCP/IP network
- SNMP manager software over TCP/IP network

The following figure illustrates a management model diagram:
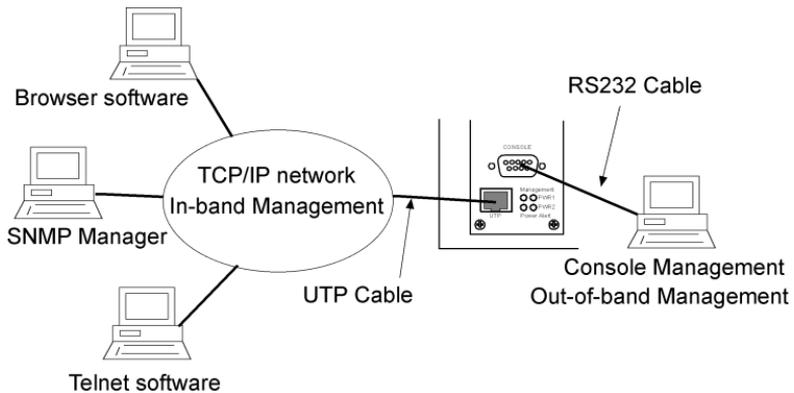
The managed objects are:

- The management configurations
- How many converter modules are installed in the unit
- The type of each converter module
- The slot position where each converter module is installed
- The UTP link status of each converter module
- The fiber link status of each converter module
- The operation status of redundant power modules

The management configurations for the managed unit are:

- **Username** : The username to access the configurations
- **Password** : The password to access the configurations
- **IP Address** : IP address for the installed device
- **SystemName** : A logical name for the device
- **SystemContact** : The contact person regarding the device
- **SystemLocation** : The location where the device is installed
- **Community** : The SNMP community to which the device belongs.
- **Gateway** : The IP address of the default router in the TCP/IP network.
- **Netmask** : The subnet mask of the TCP/IP network
- **Broadcast** : The broadcast IP address in the TCP/IP network

The factory default settings are:

Username:	**root**
Password:	**12345678**
IP address:	**192.168.1.5**
SystemName:	**KC1200**
SystemContact:	**none**
SystemLocation:	**none**
Community:	**public**
Gateway:	**0.0.0.0**
Netmask:	**255.255.255.0**
Broadcast:	**192.168.1.255**

4.3 Setting IP Address

Before performing any management operation, the most important thing is to learn the detailed information about the TCP/IP network where the managed unit is located. The information includes the network address, subnet mask, broadcast IP, IP of the default router. The second thing is to assign an IP address to the managed unit when it is received for the installation. A unique IP address is used to identify each managed device from others. The factory default IP address is 192.168.1.5. Modify it to a unique IP address in your network.

4.4 Console Management

Any PC running Windows 95/98/ or NT can be used as a console. Use the supplied RS232 cable and connect the console port to the COM port of console PC. Use Windows Hyper Terminal program to perform the management operations. Note that the COM port setting is Baud 57600, N, 8, 1 with hardware flow control.

4.5 Web Management

Use any web browser with JAVA script support like Netscape Communicator 4.x or Microsoft Internet Explorer 4.0 or later on any platform. Connect to the managed unit using the IP address as web address.

```
http://xxx.xxx.xxx.xxx
```

4.6 Telnet Management

Use Telnet software to perform the management operation. The most convenient solution is using the built-in Telnet function in a Windows 95/98/ or NT PC. Enter into DOS window and invoke telnet command :

```
>telnet xxx.xxx.xxx.xxx
```

to connect to the managed device. The specified xxx.xxx.xxx.xxx is the IP address of the managed device.

4.7 SNMP Management

Use SNMP manager software to perform the management operation. One MIB file containing standard MIB and private MIB objects is available in the supplied diskette. Use the SNMP manager program to compile the MIB file first before performing any management operation.

4.8 TFTP Software Upgrade

The device supports a Software Upgrade feature through TFTP protocol. The following steps are used to upgrade software:

1. Enable the device to be ready for a software upgrade operation. This can be done by using either the console, telnet, or web management operations.
2. Use TFTP command to transfer the new version of software to the device.
3. Reboot the device using the supported command within the console, telnet, or web management operations.

The TFTP file transfer operation can be done in any system that supports TFTP protocol. It is an embedded function supported in the DOS window of any Windows NT system.

Contact your dealer for any new available software version.

Support
The guide covers the basic information about the management functions supported by the managed unit. The detailed operation guides for all management functions are available in the supplied diskette. However, more features may be included into future new software upgrade. Contact the dealer where you purchased the device for the availability of new software and/or technical support.