

***10Base-T***

***to***

***10Base-2 Converter***

***User's Manual***

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### ***FCC WARNING***

This equipment has been tested and found to comply with the limits for class A device, pursuant to part 15 of FCC rules. These limits are designed to provide reasonable protection against harmful interference in a commercial installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communication. Operation of this equipment in a residential area is likely to cause harmful interference, in which case, the user will be required to correct the interference at the user's own expense.

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# 1 *Introduction*

## **Product Summary & Benefits**

The 10Base-T to 10Base-2 Media Converter was specifically designed to offer the network designer the tools for migration from Coaxial based Ethernet to UTP based Ethernet. Now, migration or expansion of existing networks can be achieved with minimum cost and complexity. The converter is completely transparent to the network so the network performs exactly the way it did before - only now it can migrate both UTP and Coaxial mediums.

## **Expands the Size of an Existing Network**

Provides UTP/Coaxial connectivity to Ethernet segments, allowing for even further networking expansion between extended nodes. Allows for the quick and easy addition of Coaxial segments to existing 10Base-T networks.

## **Enhances Networking Distances**

Connecting this converter to UTP segments can further extend distances of up to 185 meters for a total segment length of 285 meters. The Converter can be connected to an additional Fiber converter for even longer extensions.

### Cabling Flexibility

This unit allows network managers to put UTP cabling anywhere within a network without retrofitting the arrangement of the Ethernet network. Its sleek design makes it easy to be install in a compact space or on wall mount locations. Several converters can be simultaneously installed by using a 19" Rack-mount Chassis.



**Converter with BNC T-connector Attached**

### Features

- Complies with IEEE 802.3 10Base-2/T standards
- MDI/MDI-X push button selection for RJ-45 port connection
- Extended distances of up to 285m
- Operates in half duplex mode
- Compatible with other 10Base-2/T devices
- Status LEDs for RCV, LNK, & Part to easily monitor network activities
- External and Internal power supply options
- FCC Class A & CE approved

### Specifications

**Standard:** IEEE 802.3 10Base-T/2

**Connectors:** 1x shielded RJ-45, 1x BNC  
1 x BNC T-connector

**Max. Distance:** UTP: 100 meters (Cat 3.)  
Coaxial: 185 meters

**Unit LED:** Power , Link, Receive, and Partitioning

**Delay:** Same as Class 1 repeater, Typically less than 23Bit

**Power:** AC voltage 12VDC at 0.8A power adapter  
Frequency: 47Hz to 63Hz  
Please see Appendix A for internal Power Supply

**Temp:** Operating: 0C<sup>o</sup>– 70C<sup>o</sup>  
Storage: -20C<sup>o</sup> to 70C<sup>o</sup>

**Humidity:** Operating: 10% to 80% RH

**Dimensions:** 109.2 x 73.8 x 23.4mm (L x W x H)

## 2 *Installation*

### **Package Contents**

Before proceeding, please check that your package contains the following items, and that they are in good order:

- One converter
- One AC adapter (external) or one power cord (internal)
- One BNC T-connector
- Four self-adhesive pads
- One user's manual

To successfully install your converter, please see the following procedures below:

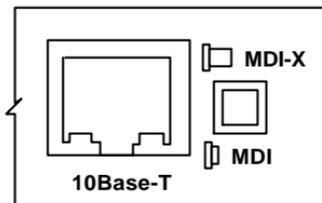
- Using 10Base-2 Cable
- MDI/MDI-X Connection
- Positioning of Converter
- Install Your Converter

### MDI/MDI-X Connection

The MDI/MDI-X push button alleviates the worry of cable type configuration when connecting the converter with another 10Base-T device. Simply refer to the table below for the correct switch selection:

Device	Cable Configuration	Selection
Hub or Switch	Straight Through	Select MDI
Hub or Switch	Crossover	Select MDI-X
DTE (NIC)	Straight Through	Select MDI

Crossover Selection Table



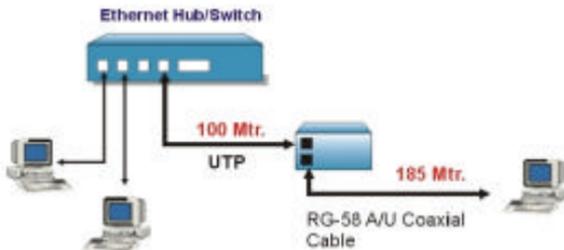
Location of Crossover Switch

### Positioning of Converter

The following are drawings of typical Applications for the Converter. Obviously the actual distances will depend on your network, the quality of cables used, and the terminal equipment employed.

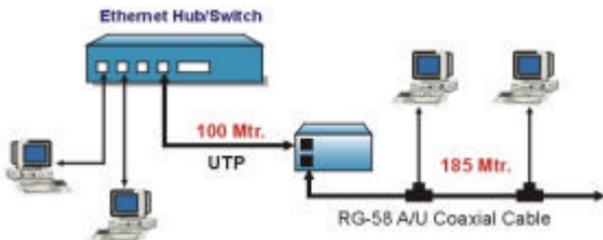
#### Example 1

The unit allows conversion from 10Base-T UTP to 10Base-2 Coaxial cable. In this configuration, equipment can be added to existing 10Base-T networks. Distances of up to 185 meters can be achieved.



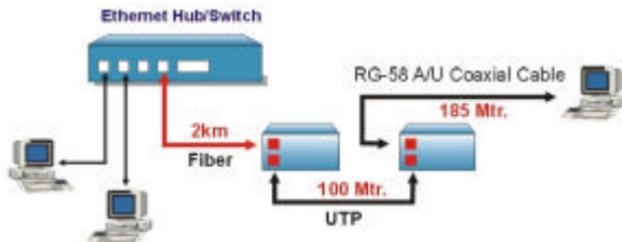
### Example 2

The unit allows conversion from 10Base-T UTP to 10Base-2 Coaxial cable. In this configuration an additional 10Base-2 segment can be added to the network.



### Example 3

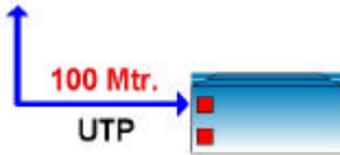
By using a combination of fiber and UTP converters, it is possible to achieve extended 10Base-2 segments.



### Connections

#### 10Base-T Connection

1. Make sure that the length for straight through twisted pair cable between 10Base-T device (hub or switch) and converter is no greater than 100 meters.
2. Connect one end of twisted pair cable to RJ-45 jack on the converter and the other to the RJ-45 jack on the 10Base-T device.



#### 10Base-2 Connection

To connect to an Ethernet using 10Base2 cable, do the following:

1. Attach the supplied BNC T-connector to the converter's BNC connector.
2. Connect one end of a Thinnet (10Base2) coaxial cable to the BNC T-connector attached to the media converter.
3. Connect the other end of the coaxial cable to the BNC T-connector attached to the Ethernet device.

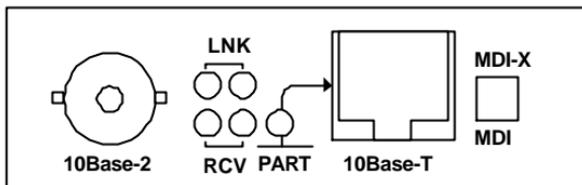
**Note: If either your converter or the Ethernet device is an end node, attach a BNC terminator to the open connector on the BNC T-connector.**



### 3

## LED Indicators

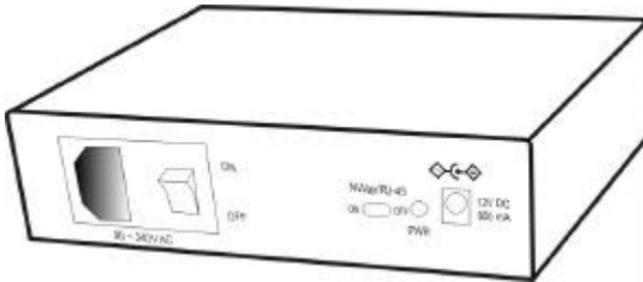
This converter has several LEDs to enable you to determine the status of the converter and to see what is happening across your network. They are as follows:



- |      |   |
|------|---|
| PWR  | Green light - Illuminates when power is on  |
| LNK  | Green light - Illuminates when receiving link pulses from compliant devices.                                    |
| RCV  | Amber light - Flashes or illuminates when receiving data packets (depends on the rate of data passing through). |
| PART | Green light - Illuminates when partitioning occurs.   |

## Appendix A

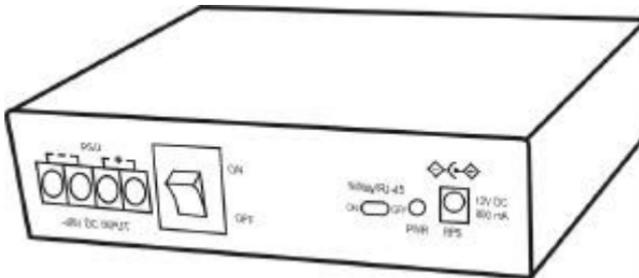
### Internal Power Supply Models



**Rear View of Converter with AC Power Supply**

Power: 90 - 240V AC (Optional 12V Adapter)

Dimensions: 109 x 174 x 44.3 mm (LxWxH)



**Rear View of Converter with DC Power Supply**

Power: -48V DC (Optional 12V Adapter)

Dimensions: 109 x 174 x 44.3 mm (LxWxH)

## ***Appendix B***

### **Converter Mounting**

This converter can be placed in any location that will make its installation convenient. If you place the converter on a horizontal surface or on top of existing networking equipment, please affix the four rubber pads included in the package.

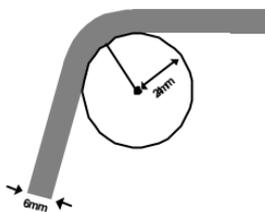
This converter can also be mounted on a vertical surface. Simply use the underside of the unit as a template to measure and mark out the position of the holes on to the surface where the unit is to be installed. Then use two screws to mount the converter firmly in place.

Please exercise caution when using power tools. Also, install this unit away from damp or wet locations, or in close proximity to very hot surfaces. These types of environments can have a detrimental effect on the converter and cables. An ideal location is a lightly cooled place such as a typical equipment room.

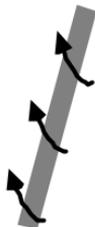
## Appendix C

### Cables

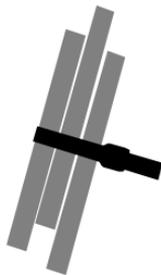
The following are some recommendations as to what you should and should not do when installing cables. Remember - cables are the deciding factor in network performance



Try to maintain a bend radius of (min.) 4x the diameter of the cable for UTP and 100x for fiber.



Try not to allow the cable to twist too much - this creates a strain on the internal cables.



Place cable ties at regular intervals - do not over tighten cable ties - try to avoid using with fiber.



Do not stretch the cable especially on corners, in vertical cable trays and when spanning long distances.

## Appendix D

### About RJ-45 Cables

When connecting your network devices, use standard Category 3 eight-way cables for 10Base-T configurations and Category 5 cable for 100Base-TX. The pin assignments are as follows:

<b>Pin 1</b>	<b>TD+</b>	<b>Pair 2</b>	<b>White/Orange</b>
<b>Pin 2</b>	<b>TD-</b>	<b>Pair 2</b>	<b>Orange/White</b>
<b>Pin 3</b>	<b>RX+</b>	<b>Pair 3</b>	<b>White/Green</b>
<b>Pin 4</b>	<b>N/A</b>	<b>Pair 1</b>	<b>Blue/White</b>
<b>Pin 5</b>	<b>N/A</b>	<b>Pair 1</b>	<b>White/Blue</b>
<b>Pin 6</b>	<b>RX-</b>	<b>Pair 3</b>	<b>Green/White</b>
<b>Pin 7</b>	<b>N/A</b>	<b>Pair 4</b>	<b>Brown/White</b>
<b>Pin 8</b>	<b>N/A</b>	<b>Pair 4</b>	<b>Brown/White</b>

Application	Cable Type	Application
Converter to Converter or Network Adapter	Straight-through Cable	
Converter to Switch	Cross-Over Cable	