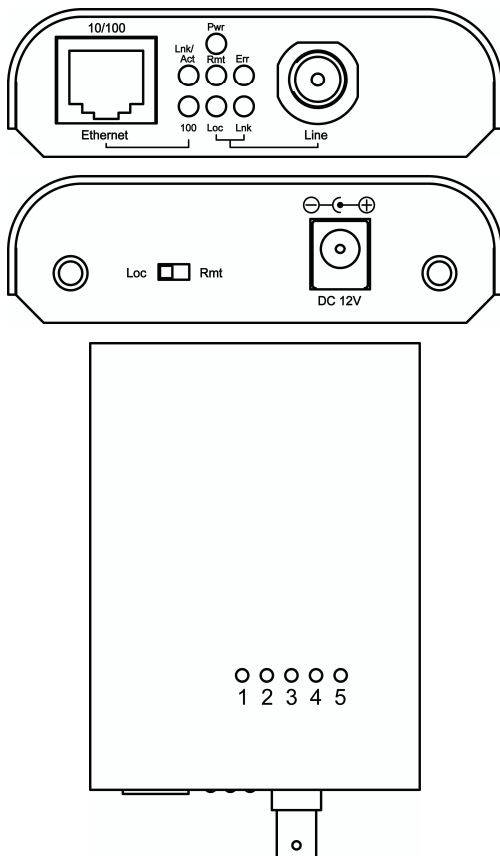


## Quick Start Guide

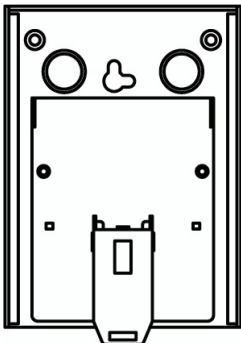
This quick start guide describes how to install and use the Ethernet Extender. The Ethernet Extender introduced here provides one channel for Ethernet over existing coaxial cable.

## Product Overview



## Use DIN-Rail Mounting Kit

Fit the DIN-Rail mounting kit onto the bottom of the unit and fasten the screws. The Ethernet Extender can use DIN-Rail mounting kit to fix on the DIN-Rail.



### Product Features

- Complies with EN61000-6-2 & EN61000-6-4 EMC Generic standard immunity for Industrial environment.
- Operates transparent to higher layer protocols.
- One Ethernet port (RJ-45 connector): 10/100Mbps-Full/Half-duplex, Auto-negotiation, Auto-MDI/MDIX.
- Complies with IEEE802.3 10Base-T and IEEE802.3u 100Base-TX standards.
- One Ethernet Extender port (BNC connector): Symmetrical on the VDSL, high-speed Full-duplex 85Mbps communications link over existing coaxial cable.
- Provides BNC to F-Type connector.
- Supports one DIP switch to select local or remote site.
- Ten reference speeds supports up to 85Mbps @ about 200 meters (656ft.), down to 1Mbps @ about 2,600 meters (8,530ft.).
- External AC to DC power adapter.
- Operating voltage and Max. current consumption: 0.5A @ 12VDC. Power consumption: 6W Max.
- -10°C to 60°C (14°F to 140°F) operating temperature range. UL508 Industrial Control Equipment certified Maximum Surrounding Air Temperature @ 60°C (140°F).
- For use in Pollution Degree 2 Environment.
- Hardened aluminum case.
- Supports DIN-Rail or Wall Mounting installation.
- Used as a stand-alone device or with a chassis.
- Hot-swappable when used with a chassis.

## Ethernet Extender Mode Settings

Ethernet Extender mode settings are made very simple by means of a switch at the rear panel of the Ethernet Extender. The switch has two positions for Ethernet Extender mode settings. Refer to the table below for more details. One device must be set to Loc and the other to Rmt when two devices are connected.

Loc	Rmt
The device operates in local mode	The device operates in remote mode

## Connecting to Power

This Ethernet Extender is a plug-and-play device. Connect the supplied AC to DC power adaptor to the receptacle on the rear panel of the Ethernet Extender, and then attach the plug into a standard AC outlet.

## Front Panel & LEDs

The LED indicators give you instant feedback on status of the Ethernet Extender:

LEDs	State	Indication
Pwr	Steady	Power on Pwr stands for POWER
	Off	Power off
Ethernet		
Lnk/Act	Steady	A valid Ethernet connection established Lnk stands for LINK
	Flashing	Transmitting or receiving Ethernet data Act stands for ACTIVITY
	Off	Neither valid Ethernet connection established nor transmitting/receiving Ethernet data
100	Steady	Ethernet Connection transferring at 100Mbps
	Off	Ethernet Connection transferring at 10Mbps
Ethernet Extender		
1	Green	Link Speed: 1~5Mbps, Distance: 2,600 meters (8,530ft.)
	Amber	Link Speed: 6~10Mbps, Distance: 2,400 meters (7,874ft.)
2	Green	Link Speed: 11~16Mbps, Distance: 2,000 meters (6,561ft.)
	Amber	Link Speed: 17~20Mbps, Distance: 1,800 meters (5,905ft.)
3	Green	Link Speed: 21~29Mbps, Distance: 1,600 meters (5,249ft.)
	Amber	Link Speed: 30~43Mbps, Distance: 1,400 meters (4,593ft.)
4	Green	Link Speed: 44~54Mbps, Distance: 1,200 meters (3,937ft.)
	Amber	Link Speed: 55~63Mbps, Distance: 1,000 meters (3,280ft.)
5	Green	Link Speed: 64~74Mbps, Distance: 600 meters (1,968ft.)
	Amber	Link Speed: 75~85Mbps, Distance: 200 meters (656ft.)
Rmt	Steady	The device operates in remote mode
Loc	Steady	The device operates in local mode
Err	Steady	Error occurred
Lnk	Steady	A valid connection established

## Self-diagnostic Test Procedure

- Two Industrial Ethernet Extenders are connected in pairs by BNC connectors over coaxial cable.

## 10/100Base-TX Industrial Ethernet Extender

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- One Industrial Ethernet Extender is configured as local unit located at local site of Ethernet extension by setting mode switch at rear panel of this Industrial Ethernet Extender to Loc (local mode).
- The other Industrial Ethernet Extender is configured as remote unit located at remote site of Ethernet extension by setting mode switch at rear panel of this Industrial Ethernet Extender to Rmt (remote mode).
- Connect supplied AC to DC power adaptors to receptacle on rear panel of these two Industrial Ethernet Extenders and then attach plugs into standard AC outlet sockets to power on these two Industrial Ethernet Extenders.
- LED 5 on top panel of these two Industrial Ethernet Extenders might light on in amber or green color if these two Industrial Ethernet Extenders are connected in pairs by BNC connectors over a short coaxial cable (less than 200 meters). This means that these two Industrial Ethernet Extenders could operate in normal condition since they finally negotiate a best performance for symmetrical transmission.

## Preface

This manual describes how to install and use the Ethernet Extender. The Ethernet Extender introduced here provides one channel for Ethernet over existing voice grade copper wire.

The Ethernet Extender fully complies with IEEE802.3 10Base-T and IEEE802.3u 100Base-TX standards.

In this manual, you will find:

- Product overview
- Features on the Ethernet Extender
- Illustrative LED functions
- Installation instructions
- Specifications

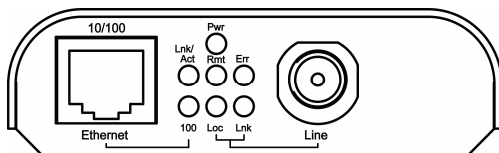
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## Introduction

The Ethernet Extender provides one channel for Ethernet over existing coaxial cable. It can be used as a stand-alone device.

## Product Overview



## Product Features

- Complies with EN61000-6-2 & EN61000-6-4 EMC Generic standard immunity for Industrial environment.
- Operates transparent to higher layer protocols.
- One Ethernet port (RJ-45 connector): 10/100Mbps-Full/Half-duplex, Auto-negotiation, Auto-MDI/MDIX.
- Complies with IEEE802.3 10Base-T and IEEE802.3u 100Base-TX standards.
- One Ethernet Extender port (BNC connector): Symmetrical on the VDSL, high-speed Full-duplex 85Mbps communications link over existing coaxial cable.
- Provides BNC to F-Type connector.
- Supports one DIP switch to select local or remote site.
- Ten reference speeds supports up to 85Mbps @ about 200 meters (656ft.), down to 1Mbps @ about 2,600 meters (8,530ft.).
- External AC to DC power adapter.
- Operating voltage and Max. current consumption: 0.5A @ 12VDC. Power consumption: 6W Max.
- -10°C to 60°C (14°F to 140°F) operating temperature range. UL508 Industrial Control Equipment certified Maximum Surrounding Air Temperature @ 60°C (140°F).
- For use in Pollution Degree 2 Environment.
- Hardened aluminum case.
- Supports DIN-Rail or Wall Mounting installation.
- Used as a stand-alone device or with a chassis.
- Hot-swappable when used with a chassis.

## Packing List

When you unpack this product package, you will find the items listed below. Please inspect the contents, and report any apparent damage or missing items immediately to our authorized reseller.

## 10/100Base-TX Industrial Ethernet Extender

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- The Ethernet Extender
- User's Manual
- AC to DC Power Adaptor
- BNC to F-Type connector



## One-Channel Ethernet Extender

### Ports

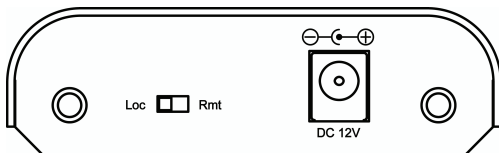
The Ethernet Extender provides one TX port and one Ethernet Extender port.

For the TX port, it uses RJ-45 connector and auto senses the speed of 10/100Mbps.

For the Ethernet Extender port, it uses BNC connector and auto senses the speed of 1/5/10/20/30/40/50/60/70/75Mbps.

### Ethernet Extender Mode Settings

Ethernet Extender mode settings are made very simple by means of a 2 position switch at the rear panel of the Ethernet Extender.



### Mode switch

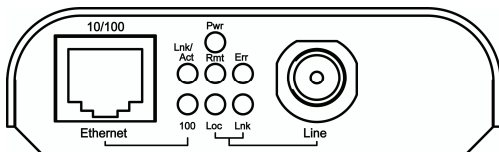
There is one position on the Mode switch for Ethernet Extender mode settings. Refer to the table below for more details. One end must be set to Loc and the other to Rmt when two devices are connected.

Loc	Rmt
The device operates in local mode	The device operates in remote mode

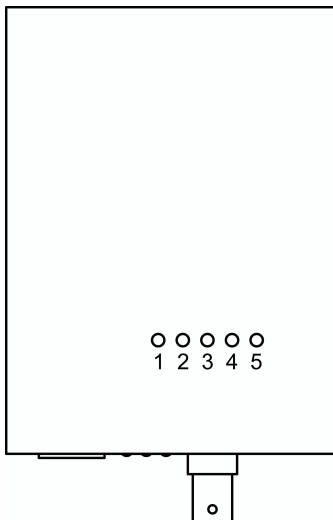
### Front Panel & LEDs

#### LED Indicators

The LED indicators give you instant feedback on status of the Ethernet Extender:



## 10/100Base-TX Industrial Ethernet Extender



LEDs	State	Indication
Pwr	Steady	Power on Pwr stands for POWER
	Off	Power off
Ethernet		
Lnk/Act	Steady	A valid Ethernet connection established Lnk stands for LINK
	Flashing	Transmitting or receiving Ethernet data Act stands for ACTIVITY
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	Amber	Link Speed: 75~85Mbps, Distance: 200 meters (656ft.)
Rmt	Steady	The device operates in remote mode
Loc	Steady	The device operates in local mode
Err	Steady	Error occurred
Lnk	Steady	A valid connection established

## Installation

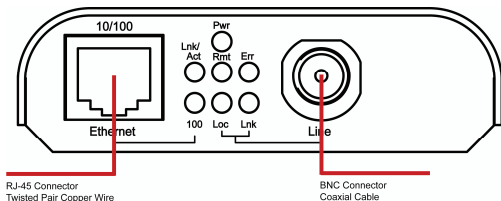
This chapter gives step-by-step installation instructions for the Ethernet Extender.

### Selecting a Site for the Equipment

As with any electric device, you should place the equipment where it will not be subjected to extreme temperatures, humidity, or electromagnetic interference. Specifically, the site you select should meet the following requirements:

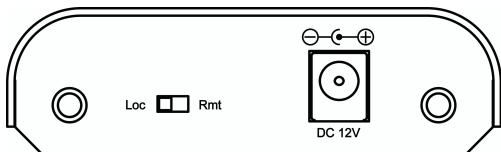
- The ambient temperature should be between -10 to 60 degrees Celsius.
- The relative humidity should be less than 95 percent, non-condensing.
- Surrounding electrical devices should not exceed the electromagnetic field (RFC) standards.
- Make sure that the equipment receives adequate ventilation. Do not block the ventilation holes on each side of the equipment.
- The power outlet should be within 1.8 meters of the product.

### Wiring Diagram



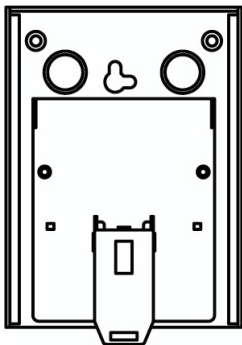
### Connecting to Power

- This Ethernet Extender is a plug-and-play device.
- Connect the supplied AC to DC power adaptor to the receptacle on the rear panel of the Ethernet Extender, and then attach the plug into a standard AC outlet.



### Use DIN-Rail Mounting Kit

Fit the DIN-Rail mounting kit onto the bottom of the unit and fasten the screws. The Ethernet Extender can use DIN-Rail mounting kit to fix on the DIN-Rail.



## Specifications

Applicable Standards	IEEE 802.3 10Base-T IEEE 802.3u 100Base-TX Ethernet over VDSL
Fixed Ports	1 x 10/100Mbps Ethernet port with RJ-45 connector 1 x Ethernet Extender port with BNC connector
Speed 10Base-T 100Base-TX Ethernet Extender	10/20Mbps for half/full-duplex 100/200Mbps for half/full-duplex 1, 5, 10, 20, 30, 40, 50, 60, 70, 75Mbps
Cable 10Base-T 100Base-TX Ethernet Extender	2-pair UTP/STP Cat. 3, 4, 5 2-pair UTP/STP Cat. 5 Coaxial cable (5C2V, RG6A/U)
Switching Method	Store-and-Forward
Forwarding rate	14,880/148,810pps for 10/100Mbps
LED Indicators	Per Unit- (8 LEDs): Pwr; Rmt, Loc, 1, 2, 3, 4, 5 Per Port- RJ-45 (2 LEDs): Lnk/Act; 100 BNC (2 LEDs): Err, Lnk
Dimensions	80.3mm (W) x 109.2mm (D) x 23.8mm (H) (3.16" (W) x 4.30" (D) x 0.94" (H))
Weight	150g (0.33lb.)
Power	External power adaptor 12VDC, 0.5A
Power Consumption	6W Max.
Operating Temperature	-10°C ~ 60°C UL508 Industrial Control Equipment certified Maximum Surrounding Air Temperature @ 60°C (140°F)
Storage Temperature	-20°C ~ 70°C
Humidity	5 ~ 95%, non-condensing
Safety	UL508
EMI	FCC Part 15, Class A VCCI, Class A EN61000-6-4: EN55022, EN61000-3-2, EN61000-3-3
EMS	EN61000-6-2: EN61000-4-2 (ESD Standard) EN61000-4-3 (Radiated RFI Standards) EN61000-4-4 (Burst Standards) EN61000-4-5 (Surge Standards) EN61000-4-6 (Induced RFI Standards) EN61000-4-8 (Magnetic Field Standards)
Environmental Test Compliance	IEC60068-2-6 Fc (Vibration Resistance) IEC60068-2-27 Ea (Shock) IEC60068-2-32 Ed (Free Fall)