This quick start guide describes how to install and use the Hardened Ethernet Extender over coaxial cable. This is the Hardened Ethernet Extender of choice for harsh environments constrained by space.

Installation

ED3638T (Transmitter): This is a PoL (Power over Link) transmitter. Data and power can be delivered at the same time through coaxial cable to turn on and communicate with ED3638R (Receiver) via BNC interface.

ED3638R (Receiver): This is a PoL (Power over Link) Receiver. ED3638R (Receiver) can be powered either by ED3638T (Transmitter) through coaxial cable or power supply. The Ethernet port supports IEEE802.3at PoE/PSE for fulfilling PoE/PD application.

<Warning>

- Removes the device power before installation.
- Removes the device power before any I/O and DIP switch configuration.
- Do not connect ED3638T and ED3638R to the same power source. Devices may be damaged due to power loop back through the PoL linked via coaxial cable.

PoL (Power over Link) Mode Enable Installation

- Ensures all power sources are disconnected from ED3638T and ED3638R.
- Ensures ED3638T PoL (Power over Link) DIP switch is in **On** position (Up position).
- Sets ED3638T Type DIP switch to Perf (Performance, Up position) to acquire better Line Speed (but poor noise immunity). Or sets Type DIP switch of ED3638T to Std (Standard, Down position) to acquire standard Line Speed (but better noise immunity).
- Checks if ED3638R Mode is set to Rmt on DIP switch (Remote, Up position).
- Connects one end of the coaxial cable to BNC interface of the ED3638T and the other end to BNC interface of the ED3638R.
- Connects power source to ED3638T.
- Data and power can be delivered from ED3638T, and at the same time through coaxial cable to turn on and communicate with ED3638R.

<Note> The equipment is designed for building installation and not intended to be connected to exposed (outside plant) networks including campus environment or equivalent.

PoL (Power over Link) Mode Disable Installation

For longer distance (e.g. over 1.4km) extension application, ED3638R may not be able to receive power from ED3638T. A separate power may be applied on ED3638R.

- Ensures all power sources are disconnected from ED3638T and ED3638R.
- Ensures ED3638T PoL (Power over Link) DIP switch is in **Off** position (Down position).
- Sets ED3638T Type DIP switch to Perf (Performance, Up position) to acquire better Line Speed (but poor noise immunity). Or sets Type DIP switch of ED3638T to Std (Standard, Down position) to acquire standard Line Speed (but better noise immunity).
- Connects power source to ED3638T.
- Checks if ED3638R Mode is set to Rmt on DIP switch (Remote, Up position).
- Connects power source to ED3638R.
- Connects one end of the coaxial cable to BNC interface of the ED3638T and the other end to BNC interface of the ED3638R.
- Data can be transmitted between ED3638T and ED3638R via coaxial cable.
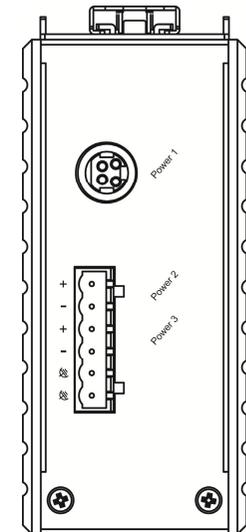
Physical Description

The Port Status LEDs and Power Inputs
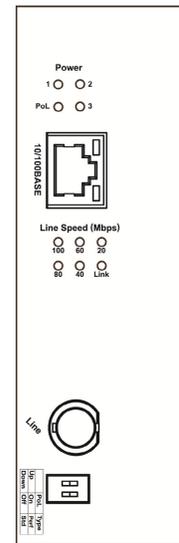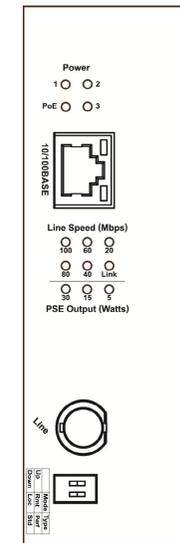
ED3638T   **ED3638R**

- DC Terminal Block Power Inputs: 2.5A @ 48VDC (Peak current 3.26A). There are two pairs of power inputs can be used to power up this Ethernet Extender. Redundant power supplies function is supported. You only need to have one power input connected to run the Ethernet Extender.
- DC JACK Power input: 2.5A @ 48VDC (Peak current 3.26A).

Power supply suggestion	30 watts application
SDR-120-48 / DR-120-48 (120W 48VDC)	For one pair
SDR-240-48 (240W 48VDC)	For three pairs
SDR-480-48 (480W 48VDC)	For seven pairs

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Power Input Assignment		
Power1	48VDC	DC Jack
Power2	+	T: 46-57VDC R: 46-57VDC	Terminal Block
	−	Power Ground	
Power3	+	T: 46-57VDC R: 46-57VDC	
	−	Power Ground	

DIP Switch	Down	Up
ED3638T		
PoL	Disable Power over Link	Enable Power over Link
Type	Std (Standard) Standard line speed Better noise immunity	Perf (Performance) Better line speed Poor noise immunity
ED3638R		
Mode	Loc (Local), Set ED3638R to Local Mode	Rmt (Remote), Set ED3638R to Remote Mode
Type	Std (Standard) Standard line speed Better noise immunity	Perf (Performance) Better line speed Poor noise immunity

10/100Base-TX and Ethernet Extender Connectors

10/100Base-TX Connection
The following lists the pinouts of 10/100Base-TX RJ-45 port.

Pin 8
Pin 7
RD- Pin 6
Pin 5
Pin 4
RD+ Pin 3
TD- Pin 2
TD+ Pin 1
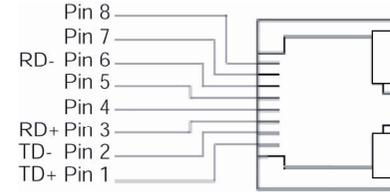
Pin	Regular Port	PoE Port
1	Output Transmit Data +	Output Transmit Data +
2	Output Transmit Data -	Output Transmit Data -
3	Input Receive Data +	Input Receive Data +
4		Positive (VCC+)
5		Positive (VCC+)
6	Input Receive Data -	Input Receive Data -
7		Negative (VCC-)
8		Negative (VCC-)

LEDs	State	Indication
Power 1/2/3	Steady	Power received
	Off	Power off
PoL	Steady	Power Ethernet extension interface function is enabled
	Off	No power is transmitted over Ethernet extension interface
PoE	Steady	Powered device (PD) is connected
	Off	Powered device (PD) is disconnected
Link	Steady	A valid Extender connection established
	Fast Flashing	Data transmission or receiving
	Slow Flashing	Extender port under negotiation mode
	Off	Extender interface connection is not established
Line Speed	Steady	Displays the link speed in Mbps
PSE Output	Steady	PoE power can be transmitted for PD
	All off	No PoE power can be transmitted for PD
	Green	Steady	A valid Ethernet connection established
		Flashing	Data transmission or receiving
		Off	Non-Ethernet connection is established
	Yellow	Steady	Link speed at 100Mbps
		Off	Link speed at 10Mbps

Functional Description

- Meets EN61000-6-2 & EN61000-6-4 EMC Generic Standard Immunity for industrial environment.
- Ethernet port: Supports IEEE802.3/802.3u/802.3x. Auto-negotiation: 10/100Mbps, full/half-duplex; Auto MDI/MDIX.
- Auto data rate negotiation for Ethernet extension interface.
- 5C2V/RG6AU coaxial cable for BNC connector.
- Six speeds with speed indicator LEDs on front panel of unit, up to 100Mbps @ about 600meters (1,968ft.), down to 1Mbps @ about 3,000meters (9,842ft.).
- Supports Power over Link (PoL) and provides IEEE802.3at power output up to 500meters (1,640ft.) and IEEE802.3af power output up to 800meters (2,624ft.).
- Supports Power over Ethernet application up to 1,900meters (6,233ft.) for Max. 5 watts power consumed PoE powered devices.
- Power consumption:
    - **Enable** Power over Link (PoL) function: Max. 65Watts
    - **Disable** Power over Link (PoL) function: ED3638T: Max. 5W
        ED3638R: Max. 35W with PoE output
                  Max. 5W without PoE output.
- Power Supply: Redundant T: 46-57V, R: 46-57V DC Terminal Block power inputs and 48VDC Latched DC JACK interface.
- Operating temperature range @ -40℃ to 75℃ (-40℉ to 167℉). Tested for functional operation @ -40℃ to 85℃ (-40℉ to 185℉).
- Supports Din-Rail or Panel Mounting installation.
- Warning: "The equipment is designed for building installation and not intended to be connected to exposed (outside plant) networks including campus environment." or equivalent.

Power over Link (PoL) Enabled		
Distance	Data Rate	ED3638R PoE Output
400M	100Mbps	30.0W
800M	60Mbps	15.4W
1000M	50Mbps	12.0W
1200M	45Mbps	8.0W
1600M	20Mbps	6.0W
1800M	15Mbps	4.0W

Power over Link (PoL) Disabled Power Supply Applied on ED3638R		
Distance	Data Rate	ED3638R PoE Output
2000M	9Mbps	30.0W
2200M	6Mbps	30.0W
2400M	4Mbps	30.0W

<Note> The Reference Performance is tested on 5C2V / RG6AU Coaxial Cable on a roll type (Cable impedance: 75ohm).

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