

## eBridge1PCRTX - IP and PoE+ over Coax Solution

eBridge1PCRX Receiver and eBridge1PCTX Transceiver kit



### Overview:

The eBridge1PCRX and eBridge1PCTX are CAT5 to Coax cable Ethernet adapters media converters that deliver data and power over the coax cable in a PoE+ compliant format. The paired set enables fast 10/100 Base-T Ethernet digital communication to be transmitted over Coax cable. An eBridge1PCRX receiver sends power over the coax to the eBridge1PCTX transmitter under PoE protocol. The eBridge1PCTX in turn delivers that PoE+ compliant power to a PoE enabled camera or IP device. The eBridge1PCRX will not deliver power to non compliant devices, thus avoiding accidental power turn into improperly connected analog cameras. These plug and play units facilitate system upgrades from analog to IP cameras/devices utilizing existing legacy Coax and eliminating the costs and labor associated with installing new network cabling. In addition, data transmission over the Coax is possible up to 457m in comparison to 100m Ethernet maximum distance (see *Maximum Length of Coax Type vs. Camera Power/PoE Class, pg. 3*). A maximum range from head end to the PoE camera/device is 610m taking into consideration that up to 100m of structured cable may be deployed at each end.

### Agency Listings:

- UL/CUL Listed for Information Technology Equipment (UL 60950-1).
- CE approved.
- C-Tick compliant.

### Input:

- 24VDC to 56VDC Class 2 power supply (polarity observed).

### Power Consumption (under maximum load):

- eBridge1PCRX: 24VDC/1,500mA, 56VDC/900mA.
- eBridge1PCTX (30W): Powered by eBridge1PCRX.
- eBridge1PCTX (15W): Powered by eBridge1PCRX.

### Ethernet:

- Connectivity: RJ45, auto-crossover.
- Wire type: 4-pair CAT5 or better structured cable.
- Distance: up to 100m.
- Speed: 10/100 BaseT, half/full duplex, auto negotiation. PoE compliant to IEEE 802.3af (15W) and PoE+ compliant to IEEE 802.3at (30W) Delivered to camera by eBridge1PCTX. Power provided by eBridge1PCRX to eBridge1PCTX by PoE protocol.
- Throughput is rated to pass 25mbps of data at distances up to 457m. With proper headend equipment this supports Megapixel, HD720, HD1080.

### Coax:

- Distance: up to 457m (see *Maximum Length of Coax Type vs. Camera Power/PoE Class, pg. 3*) for power delivery of coax.
- Connectivity: BNC, RG-59/U or similar.

### LED Indicators:

- eBridge1PCRX:
  - Blue LED - Coax link connection.
  - Green - PoE ON.
  - Green - Power ON.

### Features:

#### LED Indicators (cont'd):

- eBridge1PCRX:
  - Yellow and Green LED (RJ45) IP Link status, 10/100 Base-T/active.
- eBridge1PCTX:
  - Blue LED - Coax link connection.
  - Green LED - PoE from eBridge1PCR.

#### Environmental:

- **Operating Temperature:**
  - eBridge1PCRX:**
    - 15W: -4°F to 113°F (-20°C to +45°C).
    - 30W for 24VDC: -4°F to 98.6°F (-20°C to +37°C).
    - 30W for 48VDC: -4°F to 113°F (-20°C to +45°C).
  - eBridge1PCTX:** -4°F to 120.2°F (-20°C to +49°C).
- **Storage Temperature:** -22° to 158°F (-30° to +70°C).
- Humidity: 20 to 85%, non-condensing.

#### Functions:

- Auto detection and protection of legacy non-PoE cameras/devices.

#### Applications:

- Retrofit digital IP cameras in an analog CCTV installation.
- Works with Megapixel, HD720, HD1080 and VGA (SD) cameras (see note, pg. 2).
- Extend Network link distance in an industrial environment over 610m (see note, pg. 2).
- Upgrade deployed CCTV Coax to a digital network in Retail, Hospitality, Arenas, Casinos, Airports, Schools, Hospitals, Transportation, etc.

#### Mechanical:

- Dimensions (W x L x H approx.):
  - eBridge1PCRX:
    - 3.5" x 4.375" x 1" (88.89mm x 111.125mm x 25.4mm)
  - eBridge1PCTX:
    - 2.5" x 4.375" x 1" (63.5mm x 111.125mm x 25.4mm)

## Installation Instructions:

Wiring methods shall be in accordance with the National Electrical Code/NFPA 70/ANSI, and with all local codes and authorities having jurisdiction. Wiring should be UL Listed and/or Recognized wire suitable for the application. eBridge1PCTX and eBridge1PCRX are not intended to be connected to outside plant leads and should be installed indoors within the protected premises. eBridge1PCTX and eBridge1PCRX are intended for indoor use only.

### 1. eBridge1PCRX installation:

- a. Secure unit to desired mounting surface with a proper fastening device utilizing the unit's mounting hole (Fig. 2a, pg. 3). Unit should be mounted in proximity to ethernet switch/network, NVR or video server.
- b. Connect 24VDC to 56VDC Class 2 power supply to wire insert connector [Power – Input +] (polarity observed) (Fig. 1, pg. 2). Use 22AWG-16AWG wire for this connection.
- c. Connect structured cable from ethernet switch/NVR (network video server) to RJ45 jack marked [10/100BaseT] (Fig. 2, pg. 3).
- d. Connect Coax cable to BNC connector marked [Coax] (Fig. 2, pg. 3).

### 2. eBridge1PCTX installation:

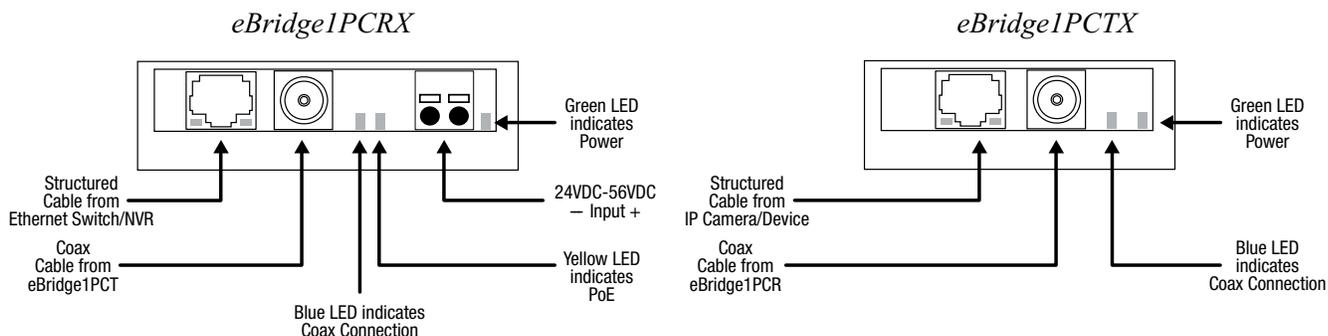
- a. Secure unit to desired mounting surface with a proper fastening device utilizing the case's mounting hole (Fig. 2a, pg. 3). Unit should be mounted in proximity of camera/device.
- b. Connect structured cable from IP camera/device to RJ45 jack marked [10/100BaseT] (Fig. 2, pg. 3).
- c. Connect Coax cable to BNC connector marked [Coax] (Fig. 2, pg. 3).

**Note:** The eBridge1PCRTX is designed to accommodate Megapixel, HD720, HD1080 and VGA (SD) cameras. It is important to note that some high resolution and high frame rate cameras may demand faster headend processing ability, such as a PC graphics card to present a quality image. If the headend processing equipment is insufficient in speed, the image may show pixelation and latency. It is advisable to pretest system if unsure. Alternatively, frame rate and resolution may be reduced to accommodate system equipment.

## Technical Specifications:

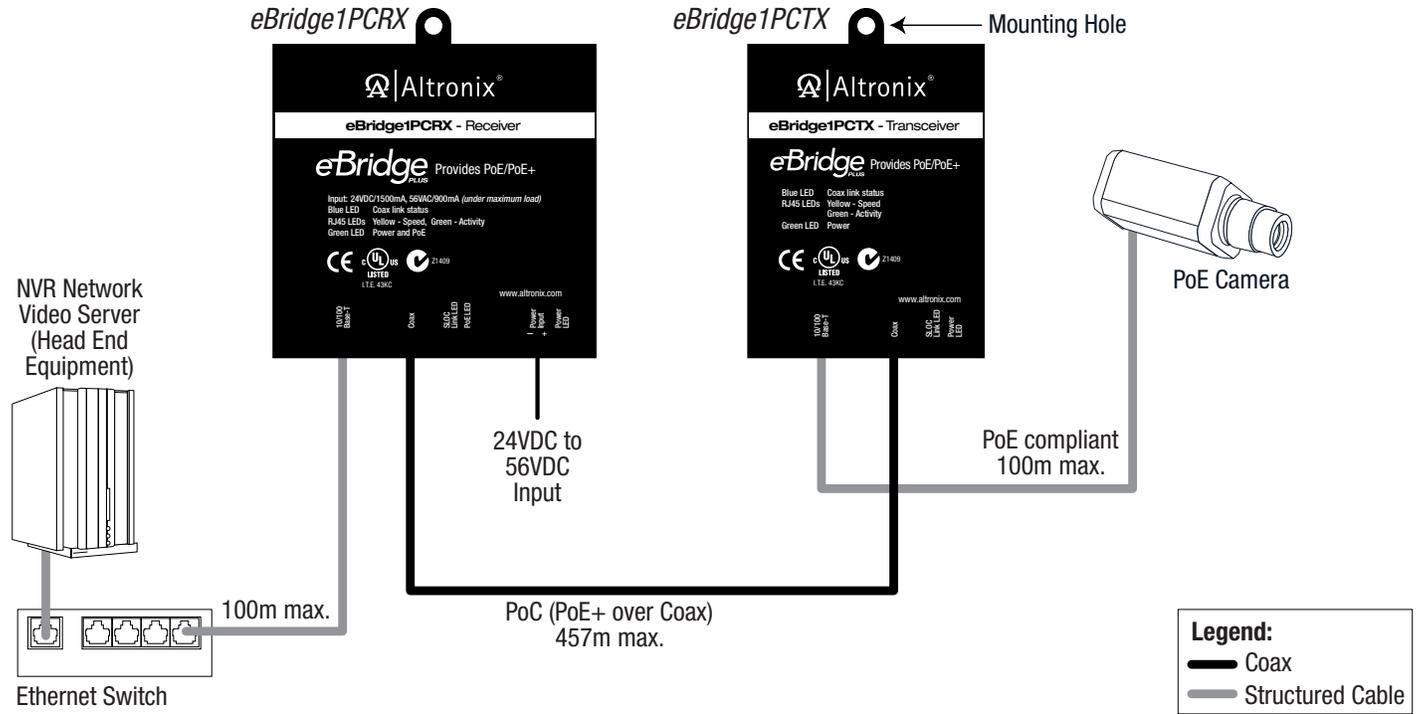
Parameter	Description
Connections	BNC for Coax link. RJ45 for ethernet link.
Input power requirements	24VDC/1,500mA, 56VDC/900mA
Indicators	Blue: Coax Link. Yellow (RJ45 connector): On - Link, Off - No Link, Blinking - Activity. Green (RJ45 connector): On - 100 Base-TX, Off - 10 Base-T. Green: Power.
Environmental Conditions	Operating Ambient Temperature: UL60950-1 <b>eBridge1PCRX:</b> <b>15W:</b> -4°F to 113°F (-20°C to +45°C). <b>30W for 24VDC:</b> -4°F to 98.6°F (-20°C to +37°C). <b>30W for 48VDC:</b> -4°F to 113°F (-20°C to +45°C). <b>eBridge1PCTX:</b> -4°F to 120.2°F (-20°C to +49°C). Relative humidity: 85%, +/- 5% Storage Temperature: -4° to 158°F (-20° to 70°C) Storage Operating Altitude: -1000 to 6,561.679 ft. (-304.8 to 2000m).
Regulatory Compliance	UL/CUL Listed for Information Technology Equipment (UL 60950-1). CE approved. C-Tick compliant.
Weights (approx.)	Product: 5.1 oz. (0.144 kg), Shipping: 7.76 oz. (0.22 kg)

Fig. 1



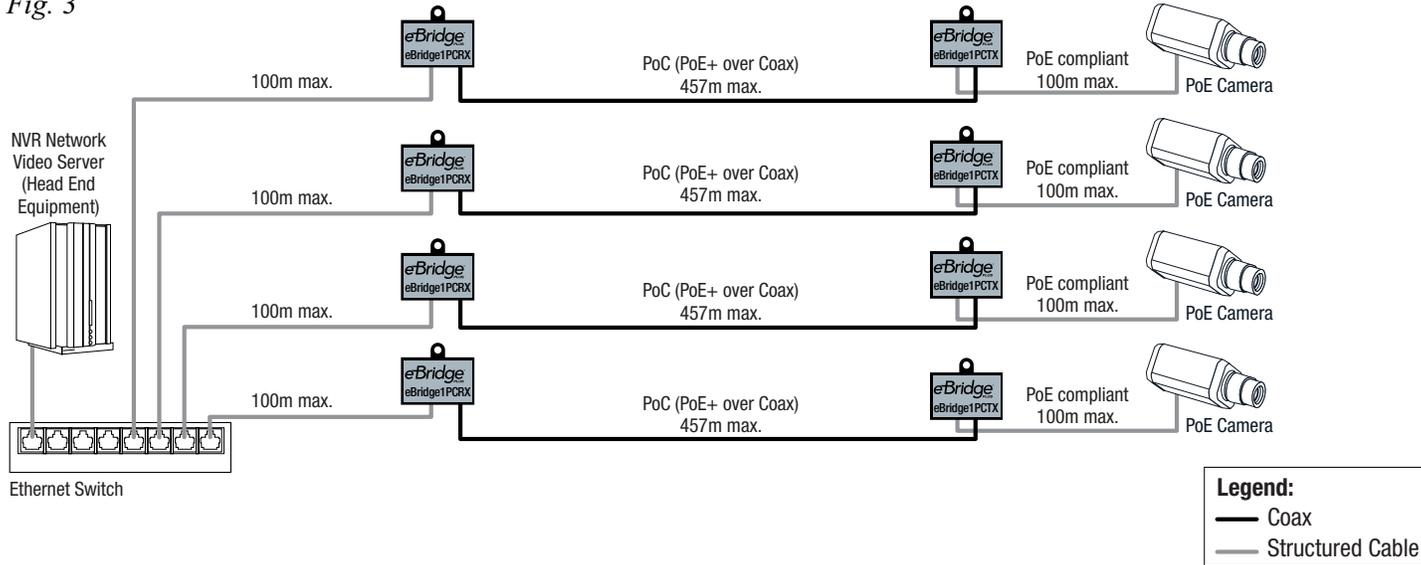
## Single PoE camera connection:

Fig. 2



## Multiple PoE camera connection:

Fig. 3



## Maximum Length of Coax Type vs. Camera Power/PoE Class:

Camera Power/ PoE Class	Coax Type				
	RG59/U - 23AWG	RG59/U - 22AWG	RG59/U - 20AWG	RG59/U - 18AWG	RG6/U - 18AWG
	Max. Length (meters)				
13W/0	260.64	335.28	457.20+	457.20+	457.20+
4W/1	457.20+	457.20+	457.20+	457.20+	457.20+
6.5W/2	457.20+	457.20+	457.20+	457.20+	457.20+
13W/3	260.64	335.28	457.20+	457.20+	457.20+
19W	152.4	198.1	315.5	457.20+	457.20+
25W	118.9	150.6	239.3	365.8	365.8

## **Notes:**

Altronix is not responsible for any typographical errors.

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