eBridge™ PLUS

eBridge1PCRTX

IP and PoE+ Over Coax Solution

eBridge1PCRX Receiver and eBridge1PCTX Hardened Transceiver Kit

Installation Guide

c UL us LISTED
I.T.E. 43KC

CE Z1409

Altronix®

More than just power.™

Rev. 022213

Installing Company: _____ Service Rep. Name: _____

Address: _____ Phone #: _____

Overview:

Altronix 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. eBridge1PCRX receiver sends power over the coax to eBridge1PCTX transmitter under PoE protocol. eBridge1PCTX, in turn, delivers that PoE+ compliant power to a PoE-enabled camera or IP device. 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 500m in comparison to 100m Ethernet maximum distance *(see Maximum Length of Coax Type vs. Camera Power/PoE Class, pg. 3)*. A maximum range from headend to the PoE camera/device is 700m taking into consideration that up to 100m of structured cable may be deployed at each end.

Features:

Agency Listings:

- UL/cUL Listed for Information Technology Equipment (UL 60950-1).
- CE European Conformity.
- C-Tick compliant.

Input:

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

Power Consumption (under maximum load):

- **eBridge1PCRX:** 24VDC/1,500mA.
  eBridge1PCTX (30W): 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.

Coax:

- Distance: up to 500m *(see Maximum Length of Coax Type vs. Camera Power/PoE Class, pg. 3)* for power delivery of coax.
- Throughput is rated to pass 25Mbps of data at distances up to 500m. With proper headend equipment this supports Megapixel, HD720, HD1080.
- Connectivity: BNC, RG-59/U or similar.

LED Indicators:

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

Environmental:

- **Operating Temperature:**
  eBridge1PCRX:
  15W: – 20ºC to 45ºC (– 4ºF to 113ºF).
  30W: – 20ºC to 37ºC (– 4ºF to 98.6ºF).
  eBridge1PCTX:
  15W: – 40ºC to 75ºC (– 40ºF to 167ºF).
  30W: – 40ºC to 49ºC (– 40ºF to 120.2ºF).
- **Storage Temperature:**
  – 30ºC to 75ºC (– 22ºF to 167ºF).
- 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 700m *(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"
  (88.9mm x 111.1mm x 25.4mm)
  eBridge1PCTX:
  2.5" x 4.375" x 1"
  (63.5mm x 111.1mm 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.

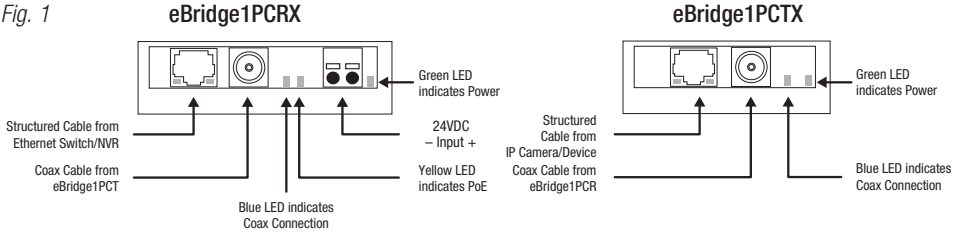
1. **eBridge1PCRX** installation:
   a. Secure unit to desired mounting surface with a proper fastening device utilizing the unit's mounting hole *(Fig. 2a, pg. 3)*. Unit should be mounted in proximity to ethernet switch/network, NVR or video server.
   b. Connect 24VDC Class 2 power supply to wire insert 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: 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.
Indicators	**Blue:** Coax Link. **Yellow (RJ45 connector):** On - Link, Off - No Link, Blinking - Activity. **Green (RJ45 connector):** On - 100Base-TX, Off - 10Base-T. **Green:** Power.
Environmental Conditions	Operating Ambient Temperature (UL60950-1): **eBridge1PCRX: 15W:** – 20ºC to 45ºC (– 4ºF to 113ºF). **30W:** – 20ºC to 37ºC (– 4ºF to 98.6ºF). **eBridge1PCTX: 15W:** – 40ºC to 75ºC (– 40ºF to 167ºF). **30W:** – 40ºC to 49ºC (– 40ºF to 120.2ºF). **Storage Temperature:** – 30ºC to 75ºC (– 22ºF to 167ºF). Relative humidity: 85%, +/– 5% Operating Altitude: – 304.8 to 2,000m.
Regulatory Compliance	UL/cUL Listed for Information Technology Equipment (UL 60950-1). CE European Conformity. C-Tick compliant.
Weights (approx.)	Product: 0.4 lb. (0.18 kg) I Shipping: 1 lb. (0.45 kg).

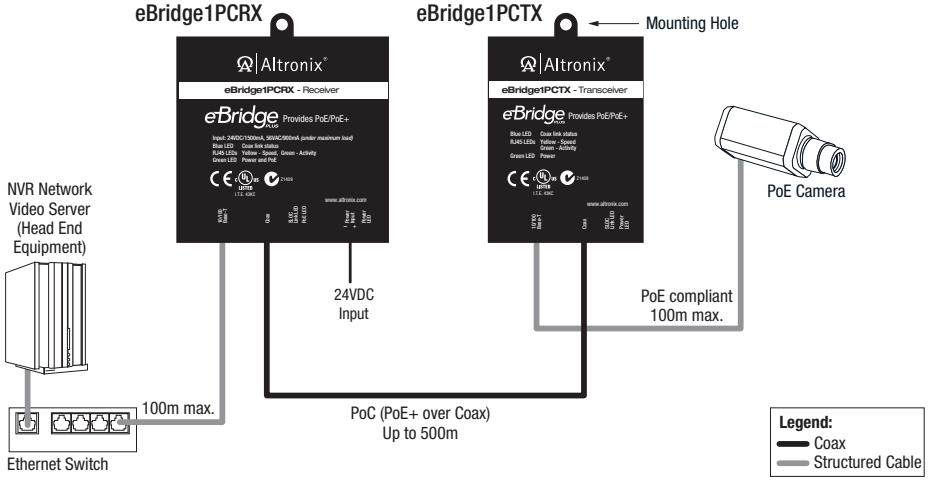
Fig. 1



Single PoE Camera Connection:

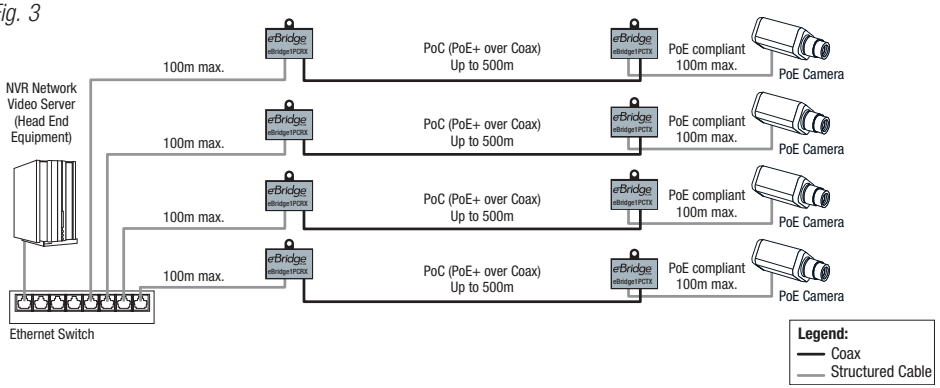
Fig. 2

Fig. 2a



Multiple PoE Cameras 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	261	336	500	500	500
4W/1	500	500	500	500	500
6.5W/2	500	500	500	500	500
13W/3	261	336	500	500	500
19W	153	199	316	500	500
25W	119	152	240	366	366