Altronix® eBridge™

eBridge1CT
IP over Coax Transceiver
Installation Guide

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CE
Z1409

I.T.E. 43KC

Overview:

eBridge1CT is a CAT5 to Coax cable Ethernet adapter. The transceiver enables fast 10/100Base-T Ethernet digital communication to be transmitted over Coax cable. This plug and play unit facilitates 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 can be extended to 500m (five times the 100m Ethernet maximum length), eliminating the need for repeaters. At the same time the unit can combine composite video signal with the Ethernet data enabling connection to an analog input on a monitor or matrix switch.

eBridge1CR Reciever is required for connecting to an ethernet switch/NVR (Network Video Server).

Features:

Agency Listings:
- UL/CUL Listed for Information Technology Equipment (UL 60950-1).
- CE European Conformity.
- C-Tick compliant.

sloc™ Compliant:
- Incorporates *sloc™ (Security Link over Coax) technology.

Compatible Receivers:
- eBridge1CR, eBridge4CR, eBridge16CR. Visit www.altronix.com for the latest compatibility list.

Input:
- 12VDC to 24VDC Class 2 power supply (polarity not observed) or 16VAC to 24VAC Class 2 plug-in transformer.

Power Consumption (under maximum load):
- 12VDC/275mA, 24VDC/110mA, 16VAC/375mA, 24VAC/200mA.

Ethernet:
- Connectivity: RJ45, auto-crossover.
- Wire type: 4-pair CAT5 or better structured cable.
- Distance: up to 100m.
- Speed: 10/100BaseT, half/full duplex, auto negotiation.
- Throughput is rated to pass 25Mbps of data at distances up to 500m. With proper headend equipment multiple Megapixel cameras can be used.

Coax:
- Distance: up to 500m.
- Connectivity: BNC, RG-59/U or similar.

LED Indicators:
- Blue LED - Coax link connection.
- Yellow and Green LED (RJ45) IP Link status, 10/100Base-T/active.
- Green LED - Power.

Environmental:
- Operating Temperature: – 10ºC to 50ºC (14ºF to 122ºF).
- Storage Temperature: – 20ºC to 70ºC (– 4ºF to 158ºF).
- Humidity: 20 to 85%, non-condensing.

Accessories:
- Composite video cables (included) - enables simultaneous composite video signal over the same Coax.
- Two (2) power connectors.

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.
- Upgrade deployed CCTV Coax to a digital network in Retail, Hospitality, Arenas, Casinos, Airports, Schools, Hospitals, Transportation, etc.
- Enables simultaneous transmission of composite and digital IP video.

Mechanical:
- Dimensions (W x L x H approx.): 2.5" x 3.8" x 1" (63.5mm x 96.52mm x 25.4mm).

Also Available:

eBridge1CTPK:
Four (4) eBridge1CT Ethernet over Coax Transceivers.

* sloc is a registered trademark of Intersil Corporation.

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. eBridge1CT is not intended to be connected to outside plant leads and should be installed indoors within the protected premises. The eBridge1CT is intended for indoor use only.
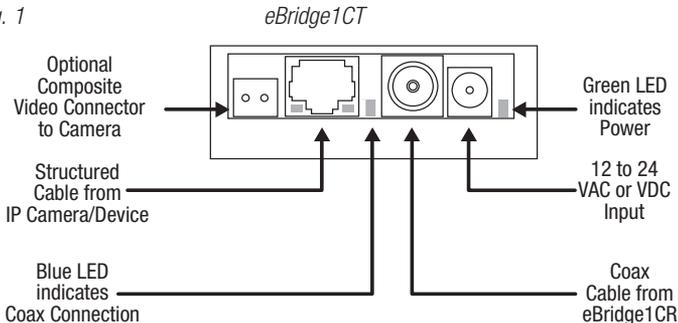
1. Secure unit to desired mounting surface with a proper fastening device utilizing the unit's mounting hole *(Fig. 2a, pg. 3)*. Unit should be mounted in proximity to the IP camera/device.
2. Connect 16VAC/24VAC Class 2 plug-in transformer or 12VDC/24VDC (polarity not observed) Class 2 power supply to the jack marked [Power Input] utilizing barrel connector (supplied) *(Fig. 1, pg. 2)*. Use 22AWG-16AWG wire for this connection.
3. Connect structured cable from the IP camera/device to RJ45 jack marked [10/100BaseT] *(Fig. 2, pg. 3)*. Connect Coax cable to BNC connector marked [Coax] *(Fig. 2, pg. 3)*.
4. For optional simultaneous composite video transmission, attach the Composite Video Cable *(Fig. 2, pg. 3)* by plugging the two (2) position connector into the Comp. Video input marked on the unit (**Note:** connector is polarized). Connect the BNC side to the composite video output of the IP camera, monitor display, matrix switch or other headend equipment.

Note: The eBridge 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:

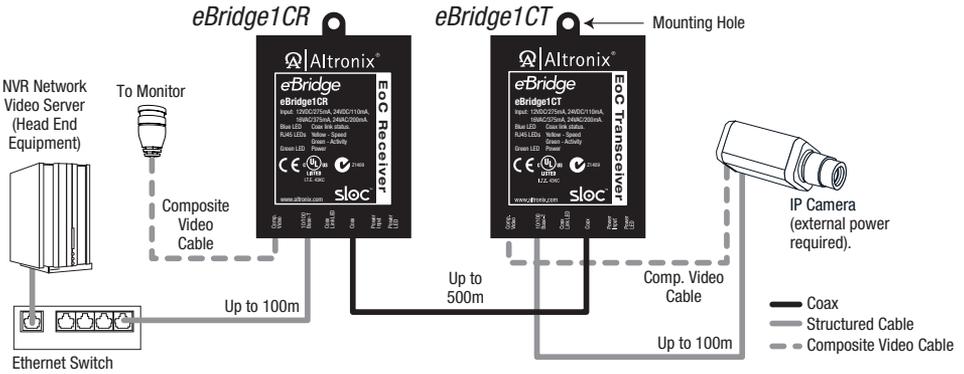| Parameter	Description		
Connections	BNC for Coax link. RJ45 for ethernet link. Composite video connector for optional composite video service		
Input power requirements	12VDC/275mA, 24VDC/110mA, 16VAC/375mA, 24VAC/200mA		
Indicators	**Blue:**	Coax Link.	
	Yellow (RJ45 connector):	On - Link, Off - No Link, Blinking - Activity.	
	Green (RJ45 connector):	On - 100Base-TX, Off - 10Base-T.	
	Green:	Power.	
Environmental Conditions	Operating Ambient Temperature (UL60950-1): − 10ºC to 50ºC (14ºF to 122ºF). Relative humidity: 85%, +/- 5% Storage Temperature: − 20ºC to 70ºC (− 4ºF to 158ºF). Operating Altitude: − 304.8 to 2,000m.		
Regulatory Compliance	UL/cUL Listed for Information Technology Equipment (UL 60950-1). CE European Conformity.		
Weights (approx.)	Product: 4 oz. (0.11 kg)	Shipping: 7 oz. (0.17 kg)		

Fig. 1   eBridge1CT

Optional Composite Video Connector to Camera

Structured Cable from IP Camera/Device

Blue LED indicates Coax Connection

Green LED indicates Power

12 to 24 VAC or VDC Input

Coax Cable from eBridge1CR

Single IP Camera Shown with Composite Video Option:

Fig. 2 *Fig. 2a*

eBridge1CR eBridge1CT ← Mounting Hole

NVR Network Video Server (Head End Equipment)

To Monitor

Composite Video Cable

IP Camera (external power required).

Up to 100m

Up to 500m

Comp. Video Cable

Up to 100m

Ethernet Switch

— Coax
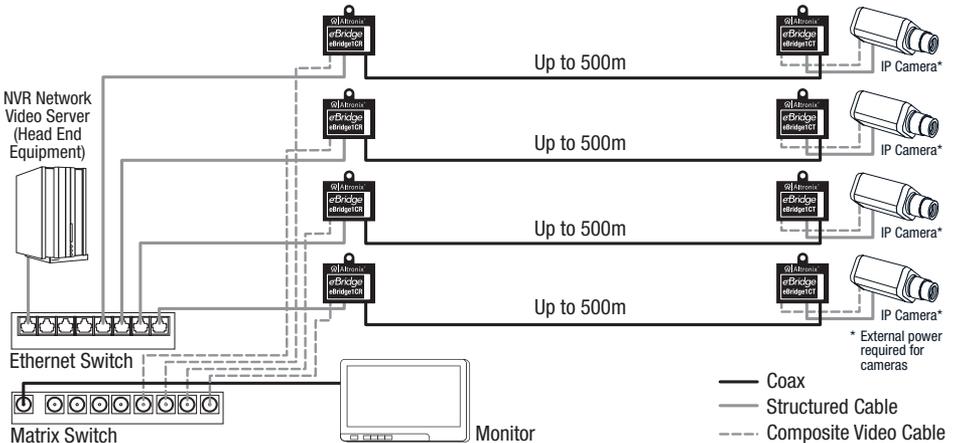— Structured Cable
- - - Composite Video Cable

Solutions and Installation Notes:

Currently Matrix Switchers, DVRs and NVRs do not readily accommodate multi-picture (Matrix) monitor display capability (typically 4X4 – 16 channel display) for some of the higher resolution cameras. In addition, HD cameras use a wide screen format (16:9 aspect ratio). This may not fit as well into the matrix display as the standard screen format (4:3 aspect ratio). In addition, high resolution multichannel recording can introduce unacceptable latency in the real-time monitor display.

To achieve high resolution recording along with real-time multi-channel viewing: Record the high resolution IP video via the NVR and the simultaneous composite video via the Matrix switcher to achieve proper display format *(Fig. 3, pg. 3)*.
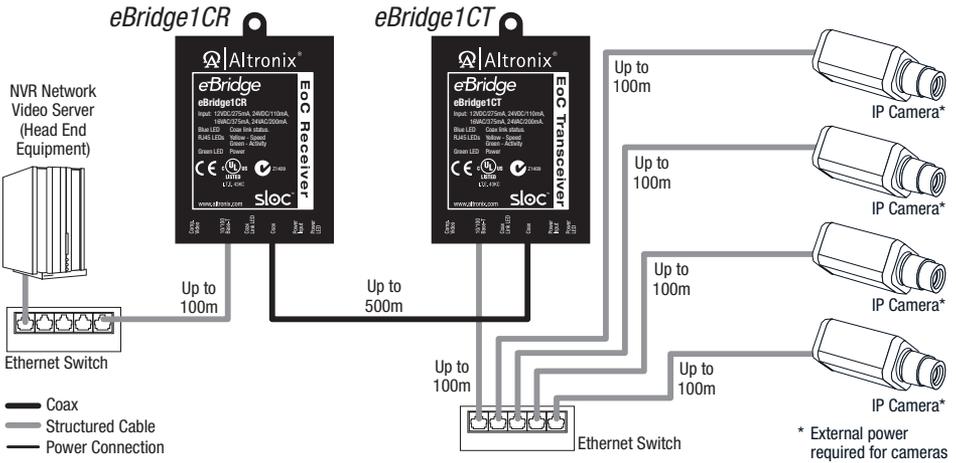
Multiple IP Cameras Shown With Composite Video Option:

Fig. 3

Up to 500m — IP Camera*

Up to 500m — IP Camera*

Up to 500m — IP Camera*

Up to 500m — IP Camera*

NVR Network Video Server (Head End Equipment)

Ethernet Switch

Matrix Switch

Monitor

* External power required for cameras

— Coax
— Structured Cable
- - - Composite Video Cable

Multiple IP Cameras Over a Single Coax:

Fig. 4

*Note: Multiple cameras require higher bandwidth and headend equipment processing speed.
It is advised to test this configuration. eBridge is rated to pass 25Mbps of data at distances up to 500m.
With proper headend equipment multiple Megapixel cameras can be used.