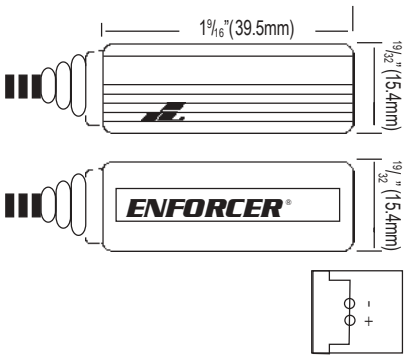
FIG. 6: Dimensions.



Specifications:

Range*	B/W: 2,000 feet (610m) Color: 1,300 feet (400m)
Video Format	RS170, NTSC, PAL, SECAM, CCIR
Maximum Input	1vpp
Insertion Loss	< 2dB per pair from DC ~ 5 Mhz
Return Loss	>-15dB from DC ~ 5 Mhz
Frequency Response	DC ~ 5 Mhz
Attenuation	DC ~ 5 Mhz, 1.5dB max
Common Mode Rejection	60dB, 15 KHz~5 MHz
Impedance Coax, Male BNC Terminal Block	 75 Ohms @ 1 MHz 100 Ohms @ 1 MHz
Power	No power required
Temperature Range	14°~165°F (-10°~74°C)
Humidity Range	0 ~ 95%
Wire Type	UTP (Unshielded Twisted Pair) 16 - 24 AWG
Wire Category	CAT2 or better, CAT5 ideal, CAT6 improves range
UTP Connection	Terminal Block
Case	ABS Plastic

***NOTE:** Shorter range may result when Baluns are used with DVR.

TROUBLE SHOOTING

Problem	Possible Cause	Possible Solution
Wavy or ghost image if connected to image processor (e.g., multiplexer or DVR), but not if directly to monitor?	a. Strong electromagnetic interference. b. Poor signal, or balun separation is too long. c. Split pairs. d. Crimped cable.	a. Move the cable away from possible sources of interference. b. Install video amplifier between image processor and balun. c. Ensure same twisted pair connects to balun at both ends of cable. d. Replace cable with new cable.
Image background flutters between dark and light.	Interference from external power source.	Remove power source, or adjust monitor's brightness and contrast.
Image is wavy and shakes?	Twisted pair wires reversed.	Try reversing polarity of the 2 wires at one end of cable.
Image is weak or faded?	a. Exceeded recommended balun separation. b. Using lower-grade cable than recommended.	a. Reduce cable length. b. Replace with a higher-grade cable. CAT5 cable meets specifications in the manual. CAT6 cable allows longer range.
No image?	a. Power is off. b. Cable is incorrectly connected. c. Cable was accidentally cut. d. Defective camera or remote video device. e. Defective video balun.	a. Check the power supplies of all devices connected to the cable. b. Double-check that the cable was connected properly. c. Run a continuity test on all wires in the cable. d. Replace the camera or device with a new unit. e. Replace the balun with a new unit.
Poor image quality when testing using cable on a reel.	Induction from the coiled cable.	Test only with cable laid out in such a way that it is not coiled and does not double back on itself.

LIMITED LIFETIME WARRANTY: This SECO-LARM product is warranted against defects in material and workmanship while used in normal service for the life of the product from the date of sale to the original customer. SECO-LARM's obligation is limited to the repair or replacement of any defective part if the unit is returned, transportation prepaid, to SECO-LARM.
This Warranty is void if damage is caused by or attributed to acts of God, physical or electrical misuse or abuse, neglect, repair, or alteration, improper or abnormal usage, or faulty installation, or if for any other reason SECO-LARM determines that such equipment is not operating properly as a result of causes other than defects in material and workmanship.
The sole obligation of SECO-LARM, and the purchaser's exclusive remedy, shall be limited to replacement or repair only, at SECO-LARM's option. In no event shall SECO-LARM be liable for any special, collateral, incidental, or consequential personal or property damages of any kind to the purchaser or anyone else.

NOTICE: The information and specifications printed in this manual are current at the time of publication. However, the SECO-LARM policy is one of continual development and improvement. For this reason, SECO-LARM reserves the right to change specifications without notice.
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Installation Manual

ENFORCER®

EVT-PBP-V1TQ

Passive Video Balun
with 6" pigtail

Range: 2,000 feet (610M) B/W
1,300 feet (400M) Color



What it is

The EVT-PBP-V1TQ Passive Video Balun is the quick, low-cost way to connect CCTV cameras to a monitor, multiplexer, or video recorder at up to 2,000 feet away for monochrome or 1,300 feet away for color.

The EVT-PBP-V1TQ allows a CCTV camera's video signal to be transmitted over low-cost CAT5 unshielded twisted pair (UTP) cable instead of costly coax cable. It is suitable for full-motion color and monochrome cameras.

Installation

NOTE: Video baluns are connected in pairs. One connects to the CCTV camera's BNC connector, and the other connects to the BNC connector of a remote video device. See fig. 1.

1. Make sure the maximum distance between the CCTV camera and the remote video monitor, recorder, multiplexer, or other device to which it is connected does not exceed 2,000 feet for monochrome or 1,300 feet for color. See fig. 1.
2. Run the UTP cable from the remote video device to where it will be connected to the CCTV camera. Follow the CCTV camera's wiring instructions for information on how to safely run and hide this wire.
3. Connect the UTP cable to the two video baluns. NOTE: The video baluns are polarity-sensitive. See fig. 2 and fig. 3.
   a. Strip approximately ¼" (6mm) of insulation from two of the wires at one end of the UTP cable. Do the same to the two same-colored wires at the other end of the cable. See fig. 2.
   b. Slide off the cover of the video balun.
   c. At one end of the UTP cable, push the two stripped wires directly into the holes in the green connector (see fig. 3). Tighten the screws to hold the wire in place. The wires should be fixed inside the two wire holes.
   d. Repeat for the second video balun at the other end of the UTP cable. NOTE: The placement of the colored wires must match in both video baluns. For instance, if the green wire is in the right hole and the white wire is in the left hole of the first video balun, the green wire must be in the right hole and the white wire in the left hole of the second video balun.
4. Plug the video baluns into the BNC connector of the CCTV camera and the remote video device.
5. Test the connection by powering up the CCTV camera and remote video device to make sure they operate as expected.
6. Replace the covers of the video baluns. Make sure the wires come through the two small holes on the back of the units.

   NOTE: Bare wires must not be exposed outside of the video baluns.

Multiple cameras

Standard CAT5 UTP cable includes four pairs of colored wires. Up to four CCTV cameras can be connected using EVT-PBP-V1TQ video baluns per single run of CAT5 UTP cable without interfering with each other under normal conditions. See fig. 4.

However, for installations where multiple cameras cannot be run over the same cable, separate cables must be run between the cameras and the remote devices. See fig. 5.

Other cable types

The EVT-PBP-V1TQ video baluns, when used with CAT5 UTP cable, offer the performance characteristics mentioned in this manual. Other types of twisted cable can be used as well. However, the performance characteristics vary from cable to cable, and so care must be taken when using other types of cable. Specifically, the maximum distance between the camera and the remote device may decrease significantly with lower grades of cable.

Figure 1:
Typical installation of a single pair of video baluns.

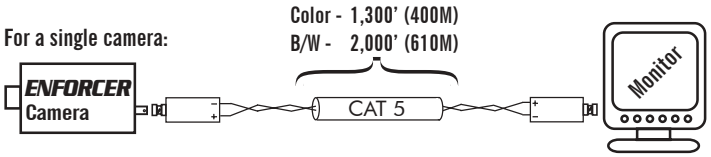


Figure 2:
Measuring ideal copper length (1/4" or 6mm).
Note: Use the convenient "Ideal Copper Length" gauge on the bottom of the balun.

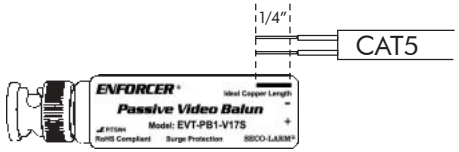
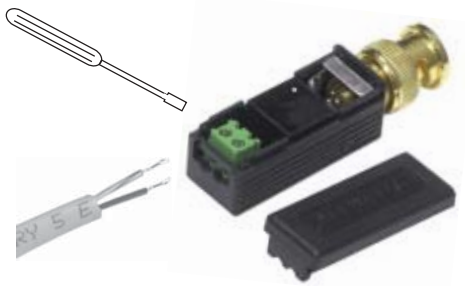


Figure 3:
Inserting wires into video balun – Directly push into holes, then tighten the terminals with a small screwdriver, but not too tight.



Built-in Transient Voltage Surge Suppressors						
Reverse Stand-Off Voltage Vrwm(V)	Breakdown Voltage Vbr (V) MIN.@1T	Breakdown Voltage Vbr (V)	Test Current 1t (mA)	Maximum Clamping Voltage @1pp Vc(V)	Peak Pulse Current 1pp (A)	Reverse Leakage @ VRWM 1r(uA)
8.55	9.5	10.5	1	14.5	42.1	10

Figure 4:
Connecting multiple CCTV cameras to a remote device over one CAT5 cable.

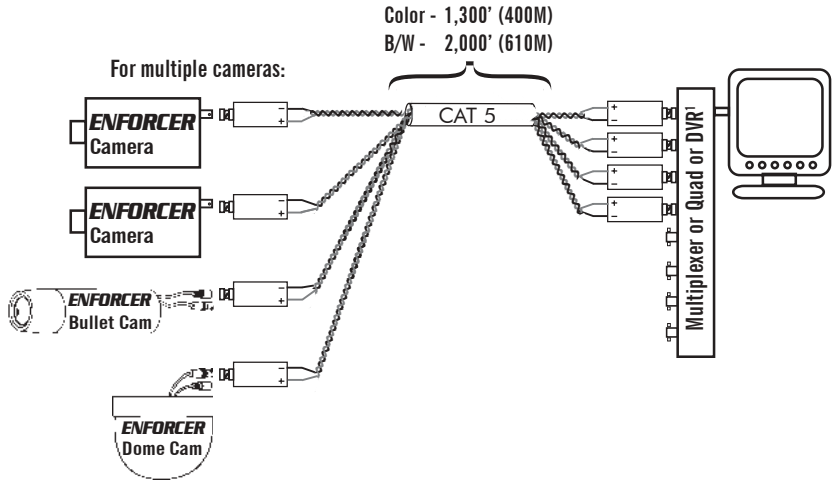
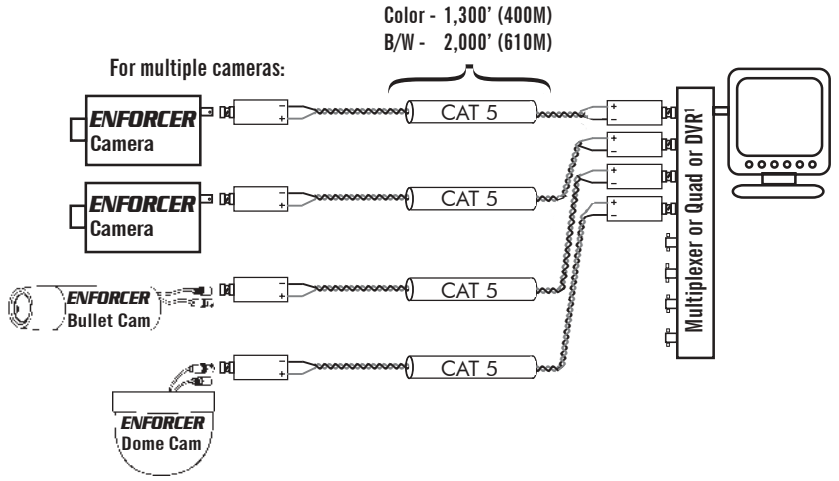


Figure 5:
Connecting multiple CCTV cameras to a remote device over multiple CAT5 cables.



1NOTE: Shorter range may result when Baluns are used with digital video recorders (DVRs).