

## Specifications

<b>Environment</b>	Baseband video; NTSC, PAL, SECAM		
<b>Devices</b>	Close-circuit TV (CCTV) cameras, monitors, switchers, sequencers, multiplexers, digital video recorders (DVR) and other CCTV equipment.		
<b>Transmission</b>	Transparent to the user.		
<b>Video</b>			
<b>Bandwidth</b>	DC to 8 MHz.		
<b>Impedance</b>	Input: 75 ohms (BNC); Output: 100 ohms (RJ45)		
<b>Maximum Input</b>	1.1Vp-p		
<b>Insertion Loss</b>	Less than 2 dB per pair over the frequency range from DC to 8 MHz.		
<b>Return Loss</b>	Greater than 15 dB over the frequency range from DC to 8 MHz		
<b>Common Mode Rejection</b>	Greater than 40 dB @ 8 MHz		
<b>Max. Distance – Colour</b>	Cat 3 – 1,200 ft (365m); Cat 5 – 2,200 ft. (670m)* <i>*Certain models of DVR may yield shorter distances of 1,000 to 1,500 ft</i>		
<b>Max. Distance – Black &amp; White</b>	Cat 3 – 1,500 ft (457m); Cat 5 – 2,500 ft (762m)		
<b>Remote Power (i.e.; 24 VAC, 28 VAC)</b>			
<b>Wiring</b>	Remote low voltage power supported via three (3) twisted pairs. A Class II power supply is recommended.		
<b>Max. Distance @ 24VAC via three (3) twisted pairs*</b> <i>*Longer distances may be achieved @ 28 VAC.</i>	5 VA: 518 ft (170m)*	10 VA: 259 ft (85 m)*	
	20 VA: 130 ft (43 m)*	30 VA: 86 ft (28 m)*	
<i>*Based on 10% voltage drop at camera. Please consult your CCTV equipment vendor for more detailed performance specifications.</i>			
<b>Mechanical &amp; Environmental</b>			
<b>Cable – UTP</b>	24 AWG or lower solid copper twisted pair wire impedance: 100 ohms at 1 MHz Maximum capacitance: 20 pF/foot. Attenuation: 6.6 dB/1000 ft at 1 MHz		
<b>Cable – Coax</b>	Impedance: 75 Ω at 1 MHz. (RG59/U). Max. 25 ft. of coax allowed end to end.		
<b>Connectors</b>	Combined signals: RJ45	Video: BNC-male 8" mini-coax lead	
<b>Power:</b>	2-wire lead		
<b>Pin Configuration*</b> <i>*Reverse polarity sensitive</i>	<b>Signal</b>	<b>RJ45 Pin</b>	<b>Cable Lead Color</b>
	Power A	1 (common with 3&5)	Red
	Power B	2 (common with 4&6)	Black
	Power A	3 (common with 1&5)	Red
	Power B	4 (common with 2&6)	Black
	Power A	5 (common with 1&3)	Red
	Power B	6 (common with 2&4)	Black
	Video BNC Center (Tip)	7 [T] opposite to 500000	Mini-coax
Video BNC Ground (Ring)	8 [R] opposite to 500000	Mini-coax	
<b>Temperature</b>	Operating: 0° to 55°C. Storage:-20° to 85°C. Humidity: up to 95%		
<b>Enclosure</b>	ABS fire retardant plastic		
<b>Dimensions</b>	1.875" (4.7cm)x 1.0" (2.54cm) diameter plus cable leads; 8" (20cm) for video; 10" (25.4cm) for power lead		
<b>Weight</b>	1.95 oz (55 gms)		
<b>Warranty</b>	Lifetime		
<b>Order Information</b>	500024	CCTV Power-Thru Balun, RJ45	
	500029	CCTV Power-Thru Balun, Screw Terminals	

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## CCTV Power-Thru Balun (500024, 500029) Quick Installation Guide

### Introduction

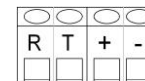
The VideoEase CCTV Power-Thru Balun allows video and remote power to be transmitted via one 4-pair Cat 5 cable, thus eliminating the need to install multiple cables for more efficient cabling. There are two models: 500024; with modular RJ45 connector and 500029; with screw terminal connectivity. The CCTV Power-Thru Balun may be used in pairs or in conjunction with other MuxLab CCTV baluns such as the 500000, 500009, 500015, 500022 and 500023.

### Installation

#### Pre-Installation Checklist:

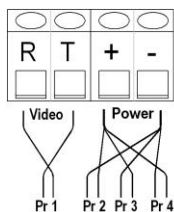
**Note: For regulatory reasons, use of a Class II power supply is recommended and may be required with the use of this product in some regions.**

1. Ensure the CCTV equipment and remote power supply is turned off.
2. One (1) twisted pair is required for the camera video signal. Three (3) twisted pairs are required for remote power.
3. Verify that the cable length is within MuxLab specifications. The maximum distance for video and remote power may be determined by consulting the product specifications or the CCTV Balun Application Guide available on-line at [www.muxlab.com/support](http://www.muxlab.com/support).
4. If the 500024 is being used, identify the pin configuration of the balun by checking the product label or the specification section of this installation guide.
5. If the 500029 is being used, remove the balun cover with the help of a small flathead screwdriver. The screw terminals are labeled "R/T" (Ring/Tip) and "+/-" for video and remote power respectively.

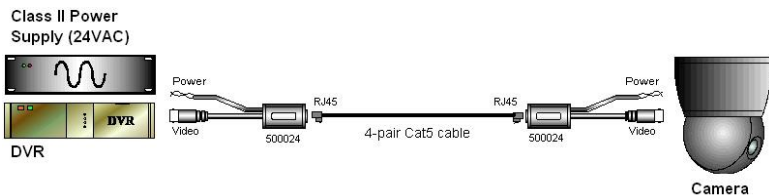


**Connections:**

- At the camera side, connect the balun's coaxial cable lead into the BNC-F connector of the CCTV camera.
- At the camera side, connect the balun's red and black wires to the power input of the camera.
- If the 500024 is being used, connect a 4-pair unshielded twisted pair cable to the balun. The cable must be terminated with an RJ45 modular plug. Cross-connection hardware such as wall outlets and patch panels may be used as required. The 500024 supports TIA 568A and 568B wiring standards.
- If the 500029 is being used, connect one (1) twisted pair to the "R/T" terminals for video. Connect three (3) twisted pairs to the "+/—" terminals for remote power, by connecting one wire from each twisted pair to each terminal. See diagram below.



- Note:** The CCTV Power-Thru Balun is reverse polarity sensitive. When connecting the baluns, ensure that "Ring [R]" is connected to "Ring [R]" and "Tip [T]" is connected to "Tip [T]". Verify that there are no split pairs or crossed wires.
- At the receiver side (i.e.; DVR side), repeat steps 1 to 4 for the second balun.
- Power-on the CCTV equipment and remote power supply. Verify image quality.
- The following diagram shows a typical configuration using the 500024.



## Troubleshooting

The following table describes some of the symptoms, probable causes and possible solutions regarding the CCTV Power-Thru Balun. If you still cannot diagnose the problem, please call MuxLab Technical Support at 514-905-0588.

Symptom	Probable Causes	Possible Solutions
Poor picture quality, distortion, interference	1. EMI interference.	Check that wiring is not too close to transformers and ballasts.
	2. Wires reversed on signal pair on one side	Make sure that the wires on the signal pair are not reversed on one side.
	3. Split pair	Check if the UTP pairs are split and correct. Each signal pair must be twisted.
No video image	1. Power-off.	Check power supplies of CCTV equipment. Check power supply fuse.
	2. Wrong pin configuration	Check pin configuration and verify straight-through wiring.
	3. Defective CCTV Balun	Change CCTV baluns for another pair.
Picture faded or weak	1. Exceeded distance specifications	Check DC loop resistance and verify if distance spec is exceeded. Reduce cable length or eliminate high-loss components.
	2. Lower grade UTP cable is introducing high signal losses.	Use signal repeater for extended distance or replace cable by higher grade.
No power or intermittent power at camera	1. Wrong pin config.	Check wiring
	2. Distance exceeded	Verify distance specifications for remote power. Move power closer to camera.