

Specifications Cont'd

Remote Power			
Wiring	Remote low voltage power supported via two (2) twisted pairs.		
Maximum Distance @ 24VAC via two twisted pairs* <i>*Longer distances may be achieved @ 28 VAC.</i>	5 vA: 350 ft (107m)	10 vA: 175 ft (53m)	
	20 vA: 90 ft (30m)	30 vA: 60 ft (20m)	
	<i>*Based on 10% voltage drop at camera. Please consult your CCTV equipment vendor for more detailed performance specifications.</i>		
2-Wire PTZ Control (i.e. RS-422)			
Wiring	Remote 2-wire PTZ control supported via one (1) twisted pair.		
Maximum Distance	Up to 4,000 ft (1.2 km) depending on the PTZ camera vendor** <i>**Please consult your CCTV equipment vendor for more detailed performance specifications.</i>		
Mechanical & Environmental			
Cable – UTP	24 gauge 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		
Cable – Coax	Impedance: 75 Ω at 1 MHz. (RG59/U). Max. 25 ft. of coax allowed end to end.		
Connectors	Combined signals: RJ45 Power: 2-wire 18AWG lead	Video: BNC-male 8” mini-coax lead Control: 2-wire 24AWG twisted pair lead	
Pin Configuration* <i>*Reverse polarity sensitive</i>	Signal	RJ45 Pin	Cable Lead Color
	Power A	1 (common with 3)	Red
	Power B	2 (common with 6)	Black
	Power A	3 (common with 1)	Red
	Control +	4	Blue solid/White band*
	Control -	5	White solid/Blue band*
	Power B	6 (common with 2)	Black
	Video BNC Center (Tip)	7 [T] opposite to 500000	Mini-coax
	Video BNC Ground (Ring)	8 [R] opposite to 500000	Mini-coax
Temperature	Operating: 0° to 55°C. Storage: -20° to 85°C. Humidity: up to 95%		
Enclosure	ABS fire retardant plastic		
Dimensions	1.875” (4.7cm)x 1.0” (2.54cm) diameter plus cable leads; 8” (20cm) for video; 10” (25.4cm) for power and control leads		
Weight	1.95 oz (55 gms)		
Warranty	Lifetime		
Order Information	500022	VideoEase CCTV Pass-Thru Balun	

MuxLab

MuxLab Inc.
5450 Cote de Liesse, Montreal
Quebec, Canada, H4P 1A5
Tel.: (514) 905-0588; Fax: (514) 905-0589;
Toll Free (North America): (877) 689-5228

E-mail: videoease@muxlab.com; URL: www.muxlab.com

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VideoEase CCTV Pass-Thru Balun (500022)

Quick Installation Guide

Introduction

The VideoEase CCTV Pass-Thru Balun (500022) allows video, remote power and 2-wire pan, tilt, zoom (PTZ) control signals to be transmitted via one 4-pair Cat 5 cable, thus eliminating the need to install multiple cables for more efficient cabling.

The Pass-Thru Balun may be used in pairs or it may be installed at the camera and connected to standard twisted pair cross connect devices at the remote end. The product is fully compatible with other MuxLab CCTV baluns such as the 500000, 500009, 500023 and 500015.

Installation

The CCTV Pass-Thru Balun supports connectivity for video, remote power and control via one four-pair twisted pair cable. It is not mandatory that all signals be present. One or more of these signals may be present. To install the VideoEase CCTV Pass-Thru Balun at the camera, perform the following steps:

Connect Video:

1. Identify the pin configuration of the CCTV Pass-Thru Balun. One twisted pair is required for each camera video signal. **Note:** The CCTV Balun is reverse polarity sensitive. Please ensure that "Ring" is connected to "Ring" and "Tip" is connected to "Tip".
2. Plug the Pass-Thru Balun into the BNC connector of the CCTV camera

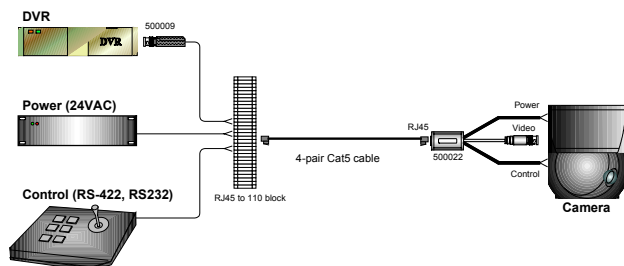
Connect PTZ Control (optional):

3. If pan, tilt, zoom (PTZ) control signals (i.e.; RS422) are being sent to the camera, first ensure that PTZ controls are turned off before making any connections.

- Connect the Blue/White-Blue wires to the control input of the camera. Please ensure straight-through polarity between the CCTV camera and the remote control device.

Remote Low Voltage Power (optional):

- If remote low voltage power is being sent to the camera, first ensure that the power supply is off before making any connections.
- Connect the red and black wires to the power input of the camera. Please ensure straight-through polarity between the CCTV camera and the remote control device. Remote power is transmitted via two twisted pairs up to the camera. MuxLab provides a guideline for maximum distance based on camera power requirement as stated in the specification section. Please consult the CCTV equipment manufacturer for more detailed performance specifications.
- Complete the connection between the two baluns, using straight-through 4-pair unshielded twisted pair cable and cross-connect blocks as required. The CCTV Balun is reverse polarity sensitive. Please ensure that straight-through wiring is maintained.
- At the remote end, the video, power and control signals are ungrouped following the specified pair assignment and respecting the signal polarity. The following diagram shows a typical configuration.



- Power-on the CCTV equipment and check the picture quality. The video should be clear and sharp within the maximum specified distances.

Troubleshooting

The following table describes some of the symptoms, probable causes and possible solutions regarding the CCTV Pass-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.

Symptom (cont'd)	Probable Causes	Possible Solutions
No video image	1. Power-off.	Check power supplies of CCTV equipment.
	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 at camera	1. Wrong pin config.	Check wiring
	2. Distance exceeded	Move power closer to camera.
PTZ controls not responding	1. Wrong pin config	Check wiring.

Specifications

Environment	Baseband video: NTSC, PAL, and SECAM.
Devices	Close circuit TV (CCTV) cameras, monitors, switchers, sequencers, multiplexers, digital video recorders (DVR) and other CCTV equipment.
Transmission	Transparent to the user.
Video	
Bandwidth	DC to 8 MHz.
Impedance	Input: 75 ohms (BNC); Output: 100 ohms (RJ45)
Maximum Input	1.1Vp-p
Insertion Loss	Less than 2 dB per pair over the frequency range from DC to 8 MHz
Return Loss	Greater than 15 dB over the frequency range from DC to 8 MHz
Common Mode Rejection	Greater than 40 dB @ 8 MHz
Max. Distance – Color	Cat 3 –1,200 ft (365m); Cat 5 – 2,200 ft. (670m)* *Certain models of DVR may yield shorter distances of 1,000 to 1,500 ft
Max. Distance – Black & White	Cat 3 –1,500 ft (457m); Cat 5 – 2,500 ft (762m)