

Specifications

Environment	Baseband video; NTSC, PAL, SECAM		
Devices	Close-circuit TV (CCTV) cameras, monitors, switchers, sequencers, multiplexers, digital video recorders (DVR), IP Encoders and other CCTV equipment.		
Transmission	Transparent to the user		
Video			
Bandwidth	20 Hz to 8 MHz		
Impedance	Input: 75 ohms (BNC) Output: 100 ohms (RJ45)		
Maximum Input	1.1 Vp-p		
Insertion Loss	Less than 4 dB per pair from 20 Hz to 8 MHz		
Return Loss	Less than -15 dB		
Common Mode Rejection Ratio	Greater than 20 dB		
Ground Loop Isolation	Up to 50 VDC		
Max. Distance: Color	Cat 3: 1,200 ft (365 m) Cat 5E/6: 2,200 ft (670 m)* *Certain models of DVR may yield shorter distances of 1,000 to 1,500 ft		
Remote Power (i.e., 24 VAC, 28 VAC)			
Wiring	Remote low voltage power supported via two (2) twisted pairs. A Class II power supply is recommended.		
Max. Distance at 24 VAC via two twisted pairs*	5 VA: 350 ft (107 m)* 10 VA: 175 ft (53 m)* 20 VA: 90 ft (30 m)* 30 VA: 60 ft (20 m)* *Longer distances may be achieved at 28 VAC. *Based on 10% voltage drop at camera. Please consult your CCTV equipment vendor for more info.		
2-Wire PTZ Control (i.e., RS-422, Manchester/Bi-Phase, half duplex RS485)			
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		
Maximum Input Voltage	50 Volts (AC RMS/DC)		
Maximum Current Rating	3 A (AC RMS/DC)		
Mechanical & Environmental			
Cable: Cat 5E/6 UTP/STP	24 AWG or lower solid copper twisted pair wire Impedance: 100 ohms at 1 MHz Maximum capacitance: 20 pf/ft Attenuation: 6.6 dB/1,000 ft at 1 MHz		
Cable: Coax	Impedance: 75 ohm at 1 MHz (RG59/U). Max. 25 ft. of coax allowed end to end.		
Connectors	Combined signals: RJ45 Video: BNC-F Power: 2-pole terminal block Control: 2-pole terminal block		
Switch	Select between Power-Thru (500024/29) and Pass-Thru (500022) Mode		
RJ45 Pin Configuration* *Reverse polarity sensitive	Signal	500022 Mode	500024/500029 Mode
	Power A (+)	1, 3	1, 3, 5
	Power B (-)	2, 6	2, 4, 6
	Control (+)	4	N/A
	Control (-)	5	N/A
	Video BNC Center (T)	7[T] same as 500000R	7[T] same as 500000R
Video BNC Gnd (R)	8[R] same as 500000R	8[R] same as 500000R	
Temperature	Operating: 0° to 55°C Storage: -20° to 85°C Humidity: Up to 95% non-condensing		
Enclosure	ABS fire retardant plastic		
Dimensions	2.40" x 2.25" x 1.00" (6.10 x 5.72 x 2.54 cm)		
Weight	1.95 oz (55 g)		
Warranty	Lifetime		
Order Information	500132 CCTV Pass-Thru/GLI Balun		



CCTV Pass-Thru / GLI Balun 500132

Quick Installation Guide

Overview

The CCTV Pass-Thru/GLI Balun (500132) allows video, remote power and 2-wire PTZ control to be transmitted via one 4-pair Cat 5E/6 cable and is designed for installations where ground loop issues may be present. The product features ground loop isolation (GLI) and is installed either at the camera or DVR side in conjunction with other standard MuxLab CCTV baluns such as the 500009, 500022, 500024/29 and 500130.

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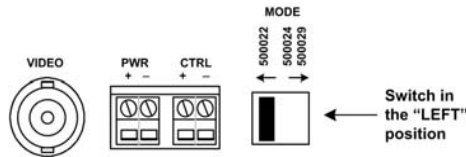
E-mail: videoease@muxlab.com URL: www.muxlab.com

Installation

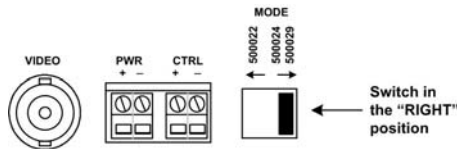
The CCTV Pass-Thru/GLI Balun supports connectivity for video, remote power and control via one four-pair twisted pair cable. It is not mandatory that all signals be present. Furthermore, it is not necessary to use the balun in pairs. In order to provide ground loop isolation, the product is typically connected at the camera or DVR and a standard CCTV balun is connected at the opposite end. The factory default switch setting of the balun is Pass-Thru Mode (500022). To install the CCTV Pass-Thru/GLI Balun, perform the following steps:

MODE Switch Settings:

- Determine whether video, power and/or control will be transmitted via the same Cat 5E/6 cable. If only video is present, then the PWR/CTRL terminals and MODE switch may be disregarded.
- In order to transmit video on one (1) twisted pair, remote power on two (2) twisted pairs and control on one (1) twisted pair, set the MODE switch to Pass-Thru Mode (500022) using a small flathead screwdriver, as shown below. Ensure that there is a 500022 or 500132 at the other end.



- In order to transmit video on one (1) twisted pair and remote power on three (3) twisted pairs, set the port switch to Power-Thru Mode (500024/500029). Ensure that there is a 500024, 500029 or 500132 at the other end.



Video:

- Connect one coax jumper cable between the balun's BNC video port and the CCTV equipment.

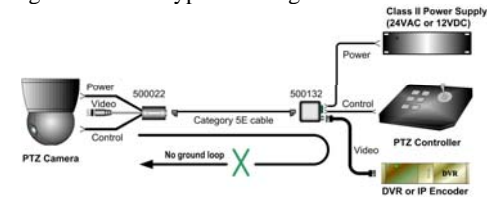
Remote Power:

- If remote power is being transmitted to the camera, verify that the distance between the camera and the hub is within MuxLab specifications. When the MODE switch is set to Pass-Thru Mode (500022), two (2) twisted pairs are used for remote power. When the port switch is set to Power-Thru Mode (500024/500029), three (3) twisted pairs are used for remote power thus supporting greater distance.
- Depending where the 500132 is installed, connect two (2) 18-20AWG wires between the balun PWR terminals and the CCTV camera or power supply (PSU).

It is recommended to use a Class II power supply with fuse protection on each output port.

PTZ Control:

- If PTZ Control is transmitted to the camera, check that the distance between the camera and the hub is within the distance specifications for sending PTZ control over twisted pair. Consult the PTZ equipment vendor for maximum distances. Ensure that the MODE switch is set to Pass-Thru Mode (500022). When the port switch is set to Pass-Thru Mode (500022), one (1) twisted pair is used for PTZ control. For optimum results, use control protocols such as RS-422, RS-485 or Bi-phase. **Due to crosstalk issues, RS-232 is not recommended.**
- Depending where the 500132 is installed, connect two (2) wires between the balun CTRL terminals and the camera PTZ motor or PTZ controller.
- Power on the CCTV equipment; cameras, power supply and PTZ controller. The following diagram shows a typical configuration.



Troubleshooting

The following table describes some of the symptoms, probable causes and possible solutions regarding the CCTV Pass-Thru/GLI Balun. If you still cannot diagnose the problem, please call MuxLab Technical Support at (+1) 514-905-0588.

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