Specifications

Environment	Baseband video; NTSC, PAL, 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 – Colour	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)		
Remote Power (i.e.; 24 VAC, 28 VAC)			
Wiring	Remote power via three (3) twisted pairs. Class II power supply recommended.		
Max. Distance @ 24VAC via three (3) twisted pairs* **Longer distances may be achieved @ 28 VAC.*	5 VA: 518 ft (170m)* 10 VA: 259 ft (85 m)* 20 VA: 130 ft (43 m)* 30 VA: 86 ft (28 m)* **Based on 10% voltage drop at camera. Please consult your CCTV equipment vendor for more detailed performance specifications.*		
Maximum Input Voltage	50 Volts (AC RMS/DC)		
Maximum Current Rating	4.5A (AC RMS/DC)		
Mechanical & Environmental			
Cable – UTP	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		
Cable – Coax	Impedance: 75 O at 1 MHz. (RG59/U). Max. 25 ft. of coax allowed end to end.		
Connectors	Combined signals: RJ45 Video: BNC-male 8" mini-coax lead Power: 2-wire 18AWG lead		
Pin Configuration* **Reverse polarity sensitive*	**Signal**	**RJ45 Pin**	**Cable Lead**
	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
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 lead		
Weight	1.95 oz (55 gms)		
Warranty	Lifetime		
Order Information	IC560A CCTV Power-Thru Balun, RJ45 IC561A CCTV Power-Thru Balun, Screw Terminals		

94-000388-A SE-000420-A

CCTV Power-Thru Balun (IC560A, IC561A) Quick Installation Guide

Introduction

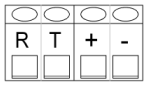
The CCTV Power-Thru Balun allows video and remote power to be transmitted via one 4-pair Cat 5 cable, thus eliminating the need to install multiple cables for more efficient cabling. There are two models: IC560A; with modular RJ45 connector and IC561A; with screw terminal connectivity. The CCTV Power-Thru Balun may be used in pairs or in conjunction with other Black Box CCTV baluns such as the IC440A, IC444A, IC451A, IC452A and IC453A.

Installation

Pre-Installation Check List:

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 Black Box specifications.
4. If the IC560A 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 IC561A 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.

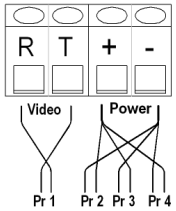


Connections:

1. At the camera side, connect the balun's coaxial cable lead into the BNC-F connector of the CCTV camera.
2. At the camera side, connect the balun's red and black wires to the power input of the camera.

3. If the IC560A 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 IC560A supports TIA 568A and 568B wiring standards.

4. If the IC561A 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.

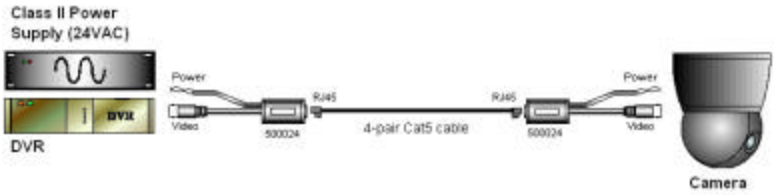


<u>Note:</u> The CCTV Power-Thru Balun is reverse polarity sensitive. When connecting the baluns, ensure that "Ring [R]" is connected to "Ring [R]" and "Tip [T]" is connected to "Tip [T]". Verify that there are no split pairs or crossed wires.

5. At the receiver side (i.e.; DVR side), repeat steps 1 to 4 for the second balun.

6. Power-on the CCTV equipment and remote power supply. Verify image quality.

7. The following diagram shows a typical configuration using the IC560A.



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 Black Box Technical Support at 724-746-5500.

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.