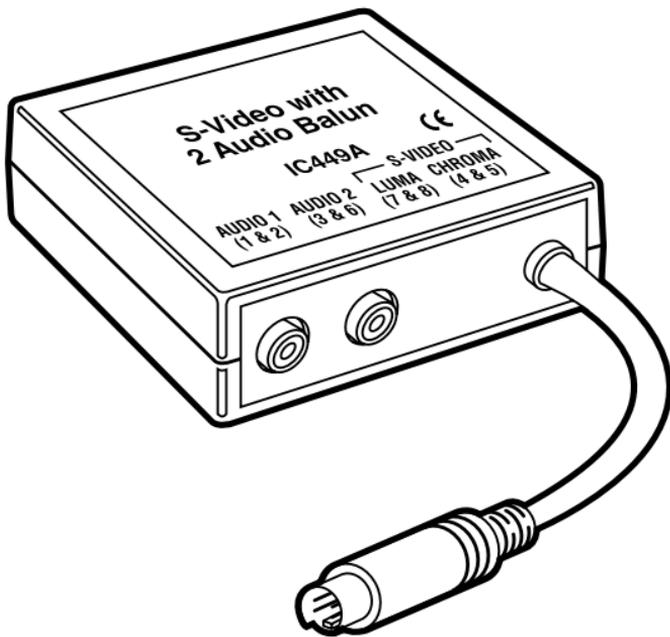




# S-Video with Dual-Audio Balun



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## CUSTOMER SUPPORT INFORMATION

Order **toll-free** in the U.S.: Call **877-877-BBOX** (outside U.S. call **724-746-5500**)

FREE technical support 24 hours a day, 7 days a week: Call **724-746-5500** or fax **724-746-0746**

Mailing address: **Black Box Corporation**, 1000 Park Drive, Lawrence, PA 15055-1018

Web site: [www.blackbox.com](http://www.blackbox.com) • E-mail: [info@blackbox.com](mailto:info@blackbox.com)

**FEDERAL COMMUNICATIONS COMMISSION  
AND  
INDUSTRY CANADA  
RADIO FREQUENCY INTERFERENCE STATEMENTS**

This equipment generates, uses, and can radiate radio-frequency energy, and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio communication. It has been tested and found to comply with the limits for a Class A computing device in accordance with the specifications in Subpart B of Part 15 of FCC rules, which are designed to provide reasonable protection against such interference when the equipment is operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user at his own expense will be required to take whatever measures may be necessary to correct the interference.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

*This digital apparatus does not exceed the Class A limits for radio noise emission from digital apparatus set out in the Radio Interference Regulation of Industry Canada.*

*Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de classe A prescrites dans le Règlement sur le brouillage radioélectrique publié par Industrie Canada.*

**TRADEMARKS USED IN THIS MANUAL**

*Any trademarks mentioned in this manual are acknowledged to be the property of the trademark owners.*

# 1. Specifications

**Environment:** S-Video equipment

**Devices:** DVD, VCR, monitors, LCD projectors, CCD cameras, video switchers, sequencers, multiplexors, and other S-Video equipment

**Transmission:** Transparent to the user

**Bandwidth:** Video: DC to 6 MHz;  
Audio: 100 Hz to 16 kHz

**Impedance:** S-Video: 75 ohms;  
Audio 600 ohms minimum

**Maximum Input (Audio or Video):** 1.1 V<sub>p-p</sub>

**Insertion Loss (S-Video):** Less than 2 dB per pair over the frequency range

**Return Loss:** Better than 15 dB over the frequency range

**Common Mode Rejection:** Greater than 40 dB over the frequency range

## S-VIDEO WITH DUAL-AUDIO BALUN

**Maximum Distance:** 1000 ft. (30.5 m) over CAT5 twisted-pair cable

**Cable:** 24 AWG or lower solid copper twisted-pair wire (UTP);

Impedance: 100 ohms at 1 MHz;

Maximum Capacitance: 20 pF/ft.;

Attenuation: 6.6 dB/1000 ft. at 1 MHz;

Note that up to 12 feet (3.7 m) of audio cable (not included) may be used with this balun

**Connectors:** (1) 4-pin mini-DIN, (2) RCA audio jacks, (1) RJ-45

**Pin Configuration:** Reverse polarity sensitive;

S-Video Luma: Pins 7 & 8;

S-Video Chroma: Pins 4 & 5;

Audio 1: Pins 1 & 2;

Audio 2: Pins 3 & 6

**Enclosure:** Fire-retardant plastic

**Temperature Tolerance:**

Operating: 32 to 131°F (0 to 55°C);

Storage: -4 to +185°F (-20 to +85°C)

**Humidity Tolerance:** Up to 95% noncondensing

**Size:** 2.4"H x 2.25"W x 1"D (6.1 x 5.7 x 2.5 cm) plus 5"  
(12.7-cm) S-Video lead

## 2. Introduction

### 2.1 Overview

The S-Video with Dual-Audio Balun allows a single S-Video signal to be transmitted via unshielded twisted-pair (UTP) cable in a point-to-point connection for more versatile cabling.

Used in pairs, the balun eliminates costly and bulky S-Video cable, allowing S-Video equipment to be connected or moved to any convenient modular outlet. The S-Video with Dual-Audio Balun works in conjunction with the Video CCTV-A/V Hub (IC445A) to allow S-Video programming to be distributed via UTP.

### 2.2 Applications

The S-Video with Dual-Audio Balun allows pre-existing twisted-pair cable to be used in S-Video environments such as classroom video distribution, overhead projector systems, PC-training systems, and tradeshow PC-demo systems.

## 3. Installation

To install the S-Video with Dual-Audio Balun, perform the following steps:

### CAUTION

Do not attempt to open the housing. There are no user-serviceable parts inside the S-Video with Dual-Audio Balun.

1. Turn off power and disconnect the S-Video source and S-Video monitor.
2. Make certain that modular outlets and cross connects to which you will connect the S-Video with Dual-Audio Balun are configured properly and labeled appropriately to identify the circuit.
3. *Do not connect the S-Video with Dual-Audio Balun to a telecommunication outlet wired to unrelated equipment.* Making such a connection may damage the equipment and/or the balun. Make sure that all wiring is “straight-through” twisted pair.
4. Verify that the desired twisted pairs are not being used for other LAN or telephone equipment.
5. The S-Video with Dual-Audio Baluns operate in pairs.

6. Connect the S-Video with Dual-Audio Balun to the S-Video port of the source equipment (DVD or VCR). Connect the audio connectors to the audio source via RCA-type audio/video jumper cables.
7. *Do not mount the balun over equipment ventilation openings.* Covering the openings may cause the equipment to overheat.
8. Connect a 4-pair CAT5 cable from the S-Video with Dual-Audio Balun's RJ-45 8-position modular jack to the building's twisted-pair cabling. The balun requires four pairs if both S-Video and stereo audio are used.
9. At the destination point, connect another S-Video balun to the S-Video monitor or projector.
10. Connect a 4-pair CAT5 cable from the balun's RJ-45 connector to the appropriate modular wall outlet. See Figure 3-1. Connect the audio connectors to the audio inputs (loudspeakers) via RCA-type audio/video jumper cables.
11. Power on the S-Video equipment at both ends and adjust the monitor image and audio levels to the desired settings.

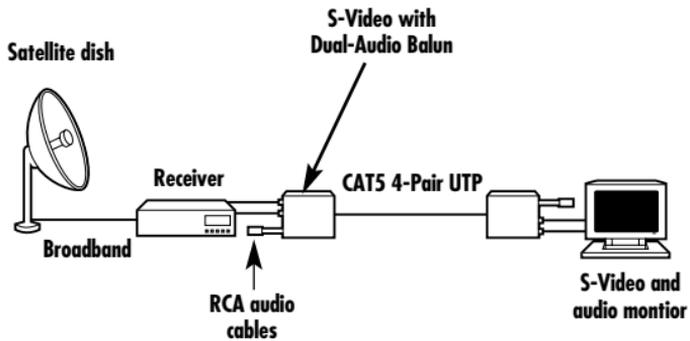


Figure 3-1. Satellite S-Video and audio typical application.

## 4. Troubleshooting

### 4.1 Guidelines

If your equipment malfunctions with S-Video with Dual-Audio Baluns in place, follow the procedures below.

1. Perform diagnostics on your video equipment by following the manufacturer's instructions.
2. Check all the connections and verify the pin configuration.
3. Check for reverse polarity.
4. Check for split pairs, improper splices, broken or partially cut wires, or damaged cabling insulation.
5. The maximum distances supported by the S-Video with Dual-Audio Balun are dependent on the type of UTP cable. Make sure that the maximum recommended operational distances have not been exceeded.
6. Check that only twisted-pair patch cords are being used.

7. Replace the balun with another S-Video with Dual-Audio Balun that is known to be working.
8. If you still cannot diagnose the problem, refer to **Section 4.2**.

## **4.2 Calling Black Box**

If you determine that your S-Video with Dual-Audio Balun is malfunctioning, do not attempt to alter or repair the unit. It contains no user-serviceable parts. Contact Black Box at 724-746-5500.

Before you do, make a record of the history of the problem. We will be able to provide more efficient and accurate assistance if you have a complete description, including:

- the nature and duration of the problem.
- when the problem occurs.
- the components involved in the problem.
- any particular application that, when used, appears to create the problem or make it worse.

### 4.3 Shipping and Packaging

If you need to transport or ship your balun:

- Package it carefully. We recommend that you use the original container.
- If you are shipping the balun for repair, make sure you include everything that came in the original package. Before you ship, contact Black Box to get a Return Authorization (RA) number.





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