BLACK BOX®
NETWORK SERVICES

VIDEO BALUNS & VIDEO CCTV-A/V HUB

IC445A

IC440A

IC444A

IC441A-R2
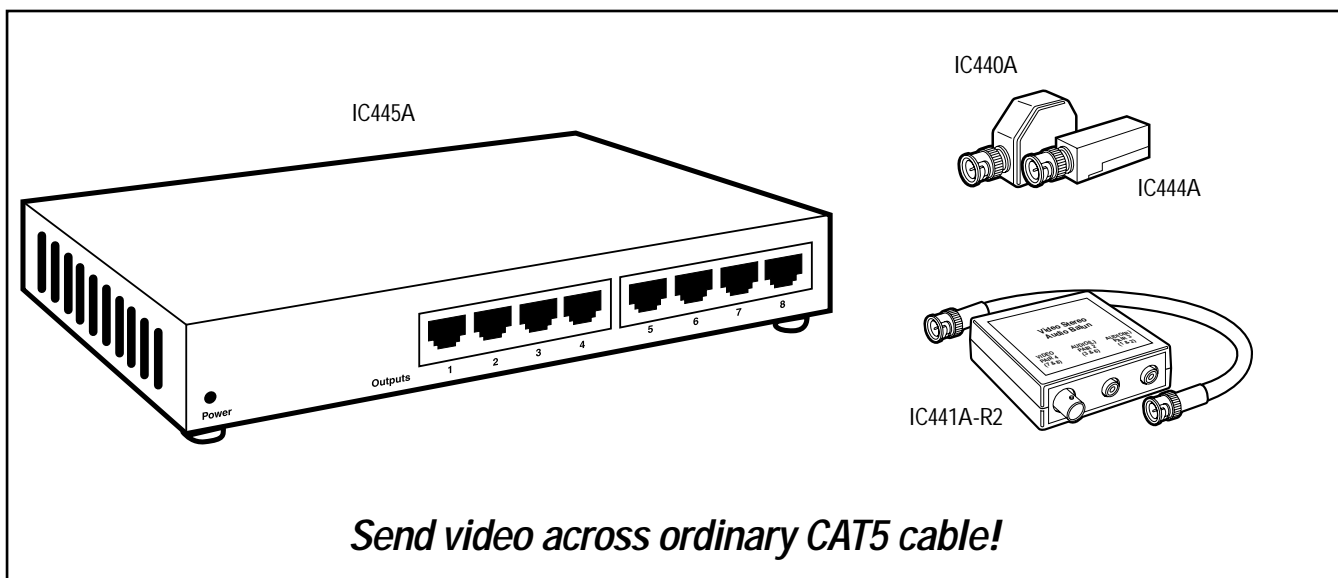
Send video across ordinary CAT5 cable!

Key Features

▶ *Use CAT5 UTP or STP cable to connect audio/video equipment.*

▶ *Transmit colour video up to 2200 feet (670.6 m) or black-and-white video up to 2500 ft. (762 m).*

▶ *Use the Video CCTV-A/V Hub to run two baseband composite video and two audio signals to eight different locations.*

▶ *S-Video models available, including one with dual audio.*

Coaxial video cable is expensive. The farther you have to run it, the bigger the bite it takes out of your budget. Isn't there some cheaper alternative?

Twisted-pair cable, on the other hand, is more economical. But its impedance and signal characteristics differ from those of coax. You can't just attach it directly to video inputs and outputs.

This is when you could use our Video Baluns and Video CCTV-A/V Hub. With them, you can translate your video-only or video-and-audio signals for transmission across twisted pair, so you don't spend a lot to give your customers an eyeful!

Video Balun, 1-Way, Video Only (IC440A)

Use this balun to convert a single composite baseband video signal (such as NTSC, PAL, and SECAM) from 75-ohm coax cable to UTP cable. The one-way, video-only connection is ideal for connecting security cameras.

Video Balun, 1-Way, Stereo Audio (IC441A-R2)

This balun converts a single composite baseband video signal (such as NTSC, PAL, and SECAM) from 75-ohm coax cable to UTP cable. Additionally it converts 600-ohm RCA audio signals for transmission across UTP.

It includes a 10" BNC-male-to-BNC-male coax cable.

RGB Video Balun (IC442A-R2)

This balun converts a composite baseband RGB signal from coax to three Category 3 or CAT5 UTP pairs. It includes three colour-coded coax jumper cables.

2-Way Video Mono Audio Balun (IC443A-R2)

This dual video balun is designed for standard baseband

audio/video equipment using RCA connectors for both audio and video. It has two RCA connectors for video 1 and 2 and two RCA connectors for audio.

CCTV Video Balun (IC444A)

Use a pair of CCTV Video Baluns to transmit Closed-Circuit TV (CCTV) video signals over a single Category 3 or CAT5 cable. This balun has 2-position terminal screw locks for connection to the twisted-pair cable.

Video CCTV-A/V Hub (IC445A)

Use the Video CCTV-A/V Hub to broadcast programs to multiple monitors throughout your building. It takes a single video and multiplies it for transmission to each of the hub's eight ports. Each port supports two baseband composite video and two audio signals. Or, you can run one S-Video signal instead of two baseband composite signals.

A looping output enables you to easily connect to other baseband audio/video equipment such as VCRs, DVDs, audio/video matrix switches, CCTV cameras, and monitors.

The Video CCTV-A/V Hub is compatible with our Video-Only Balun (IC440A), the Video Stereo Audio Balun (IC441A-R2), the Dual-Audio/Video Balun (IC446A),

the S-Video Balun (IC447A), and the S-Video with Dual-Audio Balun (IC449A). You need one balun for the input port and one balun for each output port.

Dual-Audio/Video Balun (IC446A)

Use this balun in pairs or use it with the Video CCTV-A/V Hub. The Dual-Audio/Video Balun extends two composite video signals and two audio signals over CAT5

cable to one other site up to 2200 feet (670.6 m) away.

S-Video Balun (IC447A)

A pair of S-Video Baluns enables you to to transmit S-Video baseband signals up to 1000 feet (304.8 m) across CAT5 cable.

S-Video with Dual-Audio Balun (IC449A)

A pair of these baluns enables you to transmit S-Video baseband

and left and right audio channel signals via UTP cable up to 1000 feet (304.8 m). Use the IC449A with S-Video equipment such as DVD players, VCRs, satellite receivers, MPEG players, laptop computers, LCD projectors, CCD cameras, splitters, converters, muxes, and more!

NOTE: All video baluns must be used in pairs.

Specifications

Bandwidth:
IC440A, IC441A-R2–IC443A-R2, IC444A, IC446A:
Video: DC to 8 MHz;
Audio: 20 Hz to 50 kHz;
IC445A: Video DC to 8 MHz;
Audio: 50 Hz to 16 kHz;
IC447A: Video: DC to 6 MHz;
IC449A: Video: DC to 6 MHz;
Audio: 600 ohms: 73 to 156 kHz
at 1000 ft. (304.8 m);
1200 ohms: 128 Hz to 91 kHz
at 1000 ft. (304.8 m)

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

Compliance: FCC Part 15 Class B, IC Class/classe B; CISPR Pub. 22 Class B

Composite Video Standard:
IC442A-R2: RGB;
IC445A: Composite baseband audio/video (NTSC, PAL, SECAM), S-Video, CCTV;
IC447A, IC449A: S-Video;
All other models: NTSC, PAL, or SECAM

Distance (Maximum):
IC442A-R2:
With Category 3 cable: 330 ft. (100.6 m);
With Category 5 cable: 500 ft. (152.4 m);
IC445A: With Category 5 cable:
Composite video colour: 2200 ft. (670.6 m);
Composite video black and white: 2500 ft. (762 m);
S-Video: 1000 ft. (304.8 m);
IC447A, IC449A:
With Category 5 cable: 1000 ft. (304.8 m);
All other models:
With Category 3 cable: 1200 ft. (365.8 m) for colour video,

1500 ft. (457.2 m) for black and white video and audio;
With Category 5 cable: 2200 ft. (670.6 m) for colour video, 2500 ft. (762 m) for black and white video and audio

Impedance:
Coaxial connections: 75 ohms;
UTP connections:
IC449A: 600 or 1200 ohms;
All others: 100 ohms;
Phone connections: 600 ohms;
S-Video connections: 75 ohms

Insertion Loss:
IC449A: Less than 2 dB over the DC-to-6-MHz frequency range;
All others: Less than 2 dB over the DC-to-10-MHz frequency range

Return Loss: Greater than 15 dB over the frequency range

RF Input (Maximum): 1.1 volts at 60 Hz

RJ-45 Pins Used:
IC440A, IC444A: Ring 7, Tip 8;
IC441A-R2: Pins 1 (audio right), 2 (audio right ground) 3 (audio left), 6 (audio left ground), 7 (video), and 8 (video ground);
IC442A-R2: Pins 1 (blue), 2 (blue ground), 3 (green), 6 (green ground), 7 (red), and 8 (red ground);
IC443A-R2: Pins 1 (video 2), 2 (video 2 ground), 3 (audio 2), 4 (audio 1), 5 (audio 1 ground), 6 (audio 2 ground), 7 (video 1), 8 (video 1 ground);
IC445A: Reverse polarity sensitive:
Video 1: Ring 7, Tip 8;
Audio 1: Ring 1, Tip 2;
Video 2: Ring 4, Tip 5;
Audio 2: Ring 3, Tip 6;

IC446A:
Video 1: Ring 7, Tip 8;
Audio 1: Ring 1, Tip 2;
Video 2: Ring 4, Tip 5;
Audio 2: Ring 3, Tip 6;
IC447A:
S-Video luma: Ring 7, Tip 8;
S-Video chroma: Ring 4, Tip 5 (Reverse polarity sensitive);
IC449A:
S-Video luma: Ring 7, Tip 8;
S-Video chroma: Ring 4, Tip 5 (Reverse polarity sensitive);
Audio 1: Pins 1 and 2;
Audio 2: Pins 3 and 6

Connectors:
IC440A: (1) RJ-45, (1) BNC M;
IC441A-R2: (1) RJ-45, (1) BNC F, (2) RCA F;
IC442A-R2: (1) RJ-45, (3) BNC F;
IC443A-R2: (1) RJ-45, (4) RCA F;
IC444A: (2) internal screw terminals, (1) BNC M;
IC445A: (10) RJ-45: (8) distribution outputs, (1) input, (1) looping output;
IC446A: (1) RJ-45, (4) RCA F;
IC447A: (1) RJ-45, (1) 4-pin mini-DIN S-Video;
IC449A: (1) RJ-45, (1) 4-pin mini-DIN S-Video, (2) RCA F

Environmental:
Operating temperature: 32 to 131°F (0 to 55°C);
Storage temperature: -4 to +185°F (-20 to +85°C);
Humidity tolerance: Up to 95% noncondensing

Power:
IC445A: 100–250 VAC, 47–63 Hz, external autosensing;
All others: From the interface
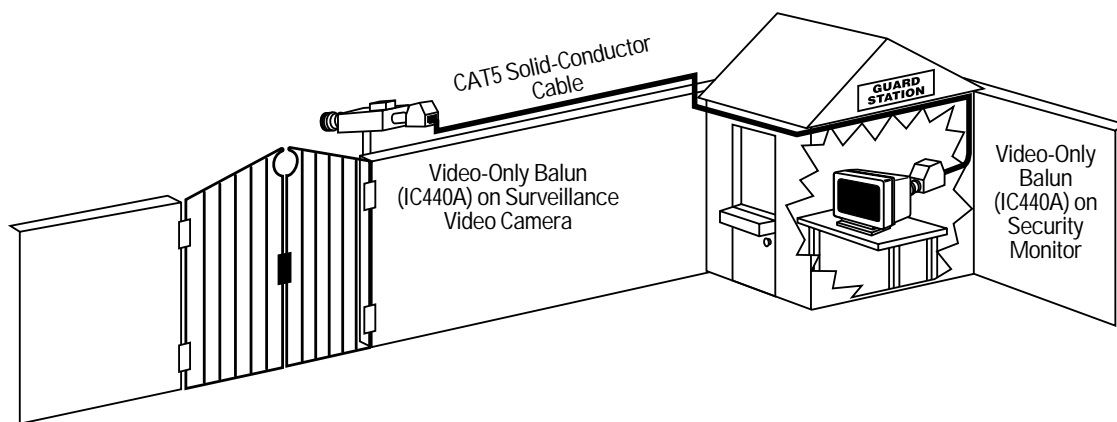
Size:
IC440A: 1"H x 0.8"W x 1.8"D (2.5 x 2 x 4.6 cm);

IC441A-R2–IC443A-R2, IC446A: 2.3"H x 2.4"W x 1"D (5.8 x 6.1 x 2.5 cm);
IC444A: 0.6"H x 0.6"W x 2.3"D (1.5 x 1.5 x 5.8 cm);
IC445A: 1.3"H x 8.5"W x 4"D (3.3 x 21.6 x 10.2 cm);
IC447A: 1.9"H x 1"W x 1.8"D (4.8 x 2.5 x 4.6 cm);
IC449A: 2.3"H x 2.3"H x 1"D (5.8 x 5.8 x 2.5 cm) plus 5" (12.7-cm)S-Video cable attached

Weight:
IC440A, IC444A, IC446A, IC447A, IC449A: <0.1 lb. (<0.1 kg);
IC441A-R2: With included cable: 0.3 lb. (0.1 kg);
Without included cable: 0.2 lb. (0.1 kg);
IC442A-R2:
With included cables: 0.4 lb. (0.2 kg);
Without included cables: 0.2 lb. (0.1 kg);
IC443A-R2: 0.2 lb. (0.1 kg);
IC445A: Unit: 1 lb. (0.5 kg),
Power supply: 1.5 lb. (0.7 kg)

Use a pair of video baluns to connect a single video source——such as a security camera——to a single monitor. Choose from video-only or audio _and_ video models.

CAT5 Solid-Conductor Cable

Video-Only Balun (IC440A) on Surveillance Video Camera

GUARD STATION

Video-Only Balun (IC440A) on Security Monitor

To connect a single video source to multiple monitors, choose the Video CCTV-A/V Hub. It supports two audio and two video channels, making it ideal for broadcasting television to multiple locations such as classrooms.

DVD or VCR

S-Video with Dual-Audio Balun (IC449A)

Video CCTV-A/V Hub (IC445A)

Classroom
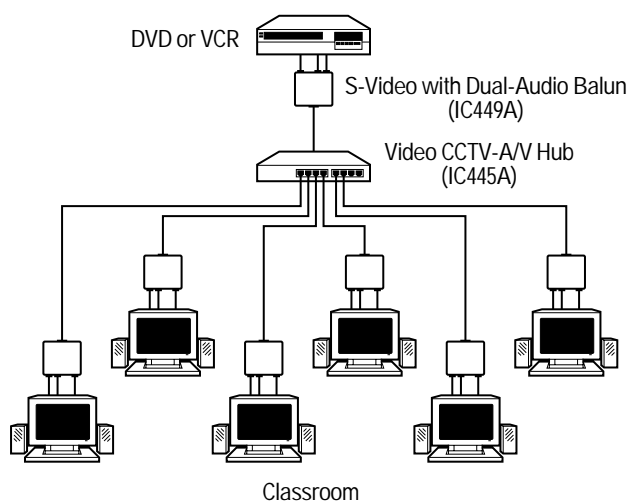
▼ *Ordering Information*

ITEM	CODE
Video Balun, 1-Way	
Video Only	IC440A
with Stereo Audio	IC441A-R2
RGB Video Balun	IC442A-R2
2-Way Video Mono Audio Balun	IC443A-R2
CCTV Video Balun	IC444A
Video CCTV-A/V Hub	IC445A
Dual-Audio/Video Balun	IC446A
S-Video Balun	IC447A
S-Video with Dual-Audio Balun	IC449A

For optimum performance, order:

CAT5 Solid-Conductor Cable, 4-Pair, Straight-Pinned, PVC, Terminated	EYN737MS
CAT5 Solid-Conductor Cable, 4-Pair, Straight-Pinned, PVC, Bulk	EYN737A
CAT5 Termination Kit	FT470A-R2