



## **What is a Balun?**

A balun is a small transformer which converts an audio or video signal from unbalanced to balanced and vice-versa. By doing so, baluns make the necessary impedance adjustment for A/V signal transmission between different types of wiring. An example is to use the Cables for Less 052-122 model to send HDTV signals on component video cables up to 500' away using a single CAT5e wire!

## **Why would I use a Balun?**

**Baluns extend transmission distances.** Baluns allow you to extend audio/video signals which are limited to short lengths when utilizing standard cables. For example using baluns from Cables for Less allows you to send:

- Analog audio as far as 500 feet
- Digital audio as far as 500 feet
- Composite video as far as 500 feet
- Component video at up to 1080i/p HDTV resolutions as far as 500 feet
- All of this using reliable passive (no power supply) Baluns!

### **Baluns can use existing wiring.**

Many buildings and homes already have CAT5e wiring installed! If this is the case for you, the hard work is already done. Just connect a Balun at each end of the cable run with whichever signal wire you need, such as audio or video, to connect the baluns to source and destination equipment.

### **Baluns lower installation cost.**

In many installations, the cost of your Cables for Less Baluns in addition to the required CAT5e or CAT6 cable is far less than the cost of standard cables, especially for longer distances.

### **Increase efficiency and simplify installations.**

Traditionally, a single cable could not transmit both audio and video. With Baluns from Cables for Less, both audio and video signals of many different types can be sent on one inexpensive length of CAT5e or CAT6.

### **Baluns eliminate background hum and rolling interference.**

Because Cables for Less Baluns are built using isolation transformers or chokes and utilize twisted pair cabling, these Baluns eliminate the ground loops that cause background audio hum and rolling bar video interference.



## How are Baluns used?

It's easy, Cables for Less Baluns are packed in pairs. Simply choose the model that is right for you and place a Balun at each end of your cable run.

Cables for Less Baluns will yield best performance when terminated to the T-568A wiring standard. Enclosed versions use a simple RJ45 connector. In-wall versions use 110 punch-down terminals or RJ45 connectors. Make sure that the cable you use is terminated as straight through.

## When should I *not* use a Balun?

Baluns from Cables for Less are not the perfect choice for every application, just most of them! Some factors can degrade Balun performance. It is critical that you check your situation and note any potential issues.

- CAT5e cables carrying an audio/video signal should not be split or connected through an Ethernet hub or switcher.
- CAT5e cables carrying an audio/video signal may be connected through a passive patch bay as long as point-to-point connections are used.
- Do not use a CAT5e cable that is also being used for data, such as computer Ethernet traffic, for connecting Baluns.
- CAT5e cables carrying an audio/video signal should be kept at least 12" away from fluorescent lights.
- CAT5e cables carrying an audio/video signal should not be run **parallel** for more than 36" with high voltage lines (110 volts AC or greater). If you must **cross** high voltage lines with the CAT5e, you should do so at a 90 degree angle.
- Balun performance will almost always be compromised with excessive connections and signal conversions. Every time you make a new connection, there will be some loss of signal strength.
- Balun performance may be reduced in areas with excessive RF interference, such as a location near large AC motors.

## OK, I read all of that and I want some Baluns! Which ones should I get?

For standard definition items, such as cameras, VCRS, some satellite receivers, DVD players, cable boxes, game consoles and more that feature a single yellow RCA jack for Video output and two RCA jacks for Audio output (normally red and white in color), you can use the Cables for Less 052-121 or 052-123. The 052-121 is the enclosed version and is small enough to conceal behind just about any equipment. The 052-123 is the in-wall version for the simplest installation with the least amount of space required. Remember, both models are packaged in pairs!

For high definition (HD) items, such as some satellite receivers, Blu-ray™ DVD players, standard DVD players with progressive scan capability, cable boxes, game consoles and more that feature component Video output (Y, Pb, Pr RCA jacks colored Green, Blue and Red) and have coax digital audio output (RCA jack normally orange in color), you can use the Cables for less 052-122 or 052-124. The 052-122 is the enclosed version and is small enough to conceal behind just about any equipment. The 052-124 is the in-wall version for the simplest installation with the least amount of space required. Remember, both models are packaged in pairs!



## Frequently Asked Questions

**I just need to run video alone or audio alone a long distance. Do I need to connect both audio and video to my Balun?**

No, your Balun will work fine being used just for Video or Audio with any of the Cables for Less models. In fact, your maximum distance is likely to increase!

**I would like to use Baluns with my HD source, but it does not have a coax digital audio output. What do I do?**

The best solution is to get two sets of baluns. Use the Component Video set just for video and the Composite Video set for analog audio. If running two CAT5e cables is not possible, there are converters available to change an optical connection to a coax and vice-versa. Doing this conversion before and after the Baluns will work fine.

**I love that these will transmit up to 500', but I need a much shorter distance than that. Will that cause any issues?**

No, the Cables for Less Baluns will work fine at any distances shorter than the maximum.

**I love that these will transmit up to 500', but I need to get further than that. What to do I do?**

For some applications, such as Composite Video only, Analog Audio only or Component Video at resolutions lower than 1080i/p, the maximum range will be greater than 500'. However, a maximum distance for these cases cannot be listed simply due to all of the variables. A good rule of thumb is that you will not be able to increase the maximum distance of 500' by more than 50% in any situation.

**Will using CAT6 cable give me better performance?**

CAT6 cable used with Baluns may help with interference issues from AC sources such as fluorescent lighting, high voltage lines or AC motors. However, do not count on it to make a potentially risky installation work well.

**Can I use CAT3 or CAT5 wiring?**

Both of these have less bandwidth than CAT5e or CAT6. They may work in some situations, but are both risky and should be avoided.



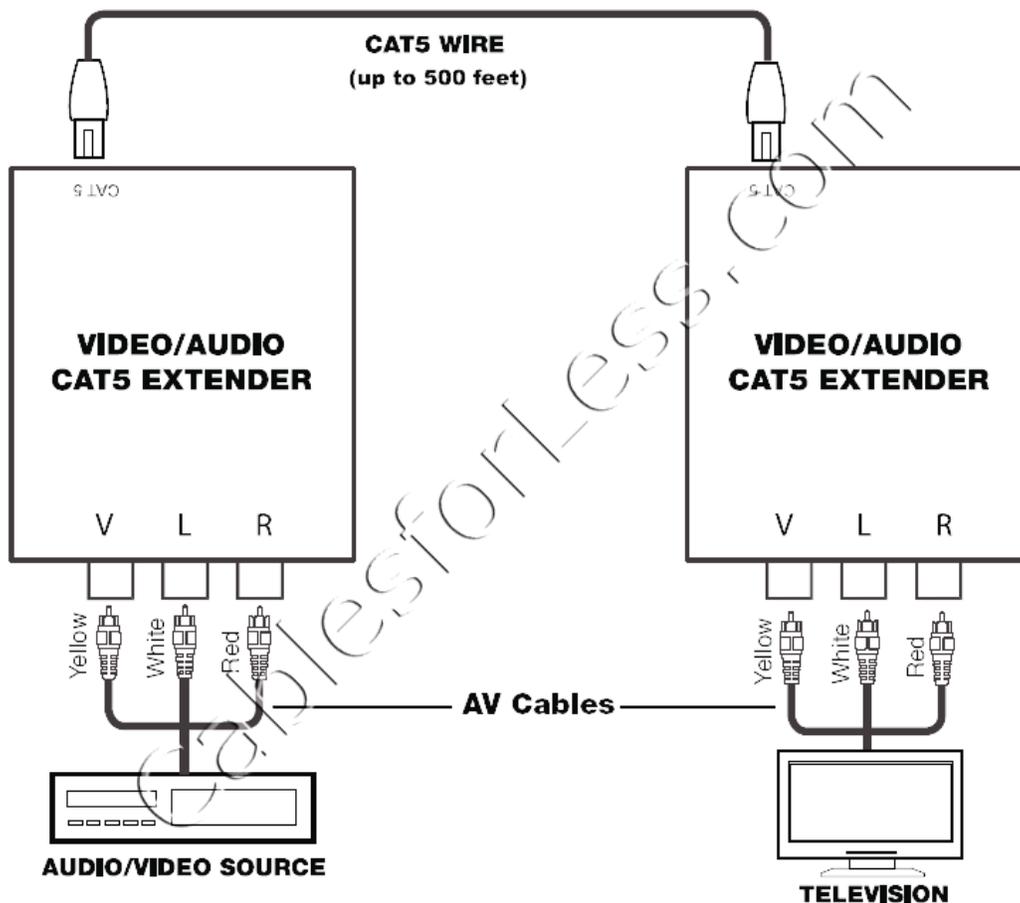
## 052-121

**Enclosed Composite Video with Analog Audio Balun for use with standard definition items, such as cameras, VCR's, satellite receivers, DVD players, cable boxes, game consoles and more that feature a single yellow RCA jack for Video output and two RCA jacks for Audio output.**

The 052-121 Baluns from Cables for Less are designed to support the widest variety of source equipment and displays. Using Composite Video and Analog Audio, these Baluns will allow virtually any source component to be connected to virtually any television and display standard definition video and audio. These models feature a low profile plastic enclosure that is easily hidden within most installations. Wiring is simple, just a standard RJ45 connection in each enclosure. With a maximum distance of 500' on standard CAT5e cabling, no other Composite Video Balun provides better value. Packed in pairs.

### 052-121 Features at a Glance

- Composite Video and Analog Audio connections
- Low profile plastic enclosure
- Simple connection with a single RJ45
- 500' maximum transmission distance
- Packed in pairs





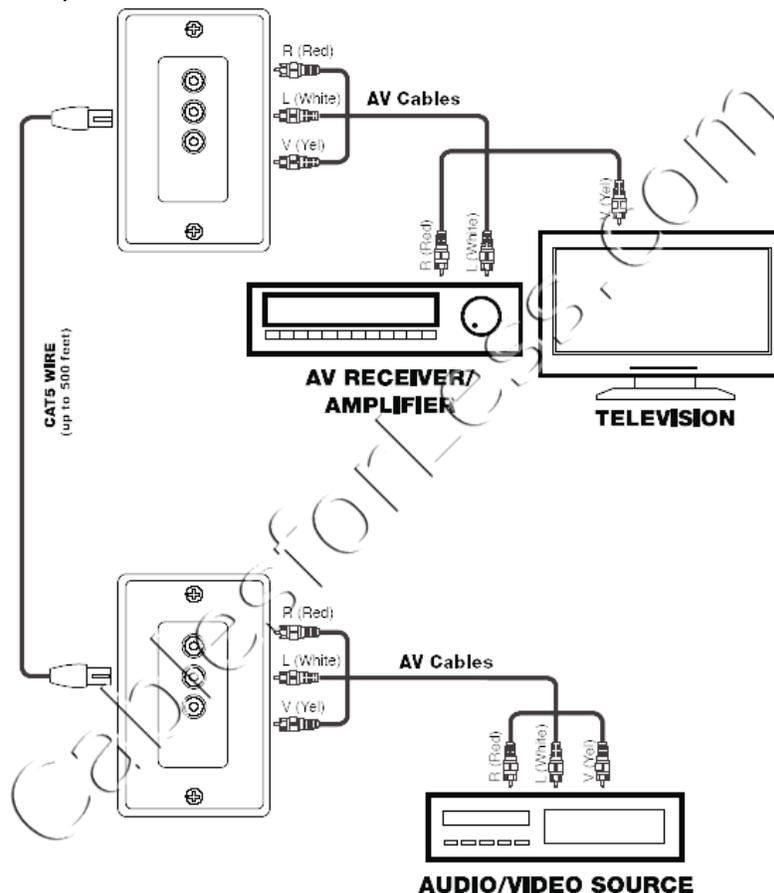
## 052-123

**In-wall Composite Video with Analog Audio Balun for use with standard definition items, such as cameras, VCR's, satellite receivers, DVD players, cable boxes, game consoles and more that feature a single yellow RCA jack for Video output and two RCA jacks for Audio output.**

The 052-123 Baluns from Cables for Less are designed to support the widest variety of source equipment and displays. Using Composite Video and Analog Audio, these Baluns will allow virtually any source component to be connected to virtually any television and display standard definition video and audio. These models are wall mountable using any standard wall box or retro ring. Cover plates are included! Wiring is simple, just connect your CAT5e cable to the 110 punch-down block and install in the wall! With a maximum distance of 500' on standard CAT5e cabling, no other Composite Video Balun provides better value. Packed in pairs.

### 052-123 Features at a Glance

- Composite Video and Analog Audio connections
- In-wall design, cover plates included
- Simple connection with a 110 punch-down block
- 500' maximum transmission distance
- Packed in pairs





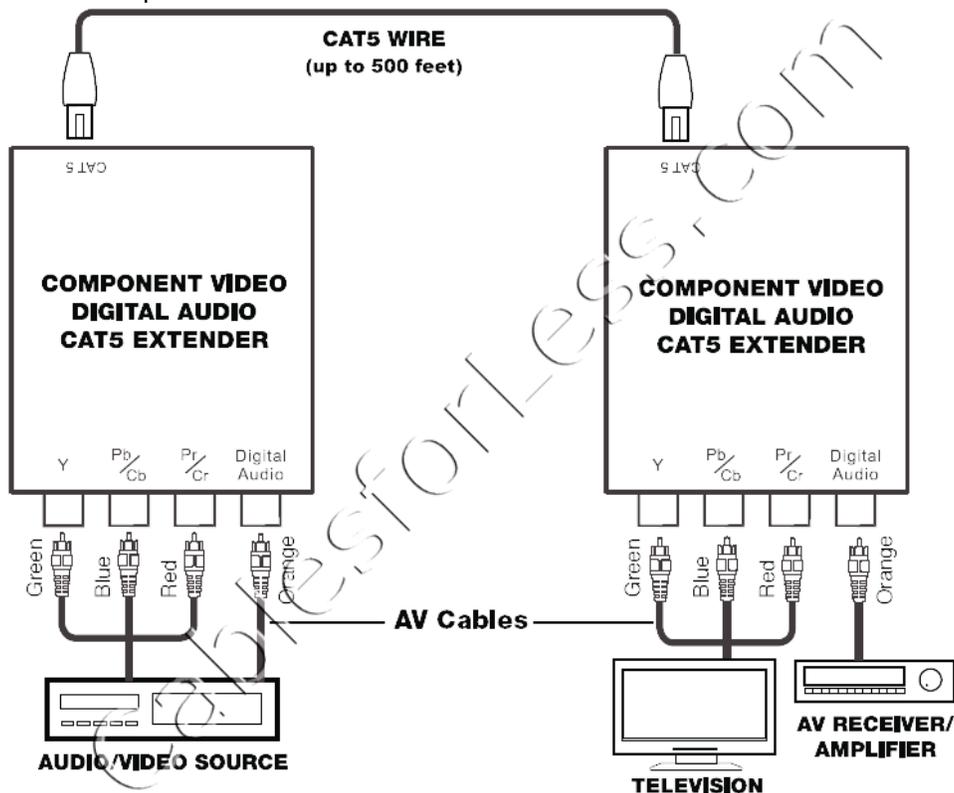
## 052-122

**Enclosed Component Video with Coax Digital Audio Balun for use with high definition (HD) items, such as satellite receivers, Blu-ray™ DVD players, standard DVD players with progressive scan capability, cable boxes, game consoles and more that feature component Video output (Y, Pb, Pr RCA jacks colored Green, Blue and Red) and have coax digital audio output (RCA jack normally orange in color).**

The 052-122 Baluns from Cables for Less are designed to support the widest variety of high definition (HD) source equipment and displays. Using Component Video and Coax Digital Audio, these Baluns will allow virtually any HD source component to be connected to virtually any HD television and display high definition video and audio. Video resolution can be up to 1080p! These models feature a low profile plastic enclosure that is easily hidden within most installations. Wiring is simple, just a standard RJ45 connection in each enclosure. With a maximum distance of 500' on standard CAT5e cabling, no other Component Video Balun provides better value. Packed in pairs.

### 052-122 Features at a Glance

- Component Video and Coax Digital Audio connections
- Low profile plastic enclosure
- Simple connection with a single RJ45
- 500' maximum transmission distance
- Packed in pairs





## 052-124

**In-wall Component Video with Coax Digital Audio Balun for use with high definition (HD) items, such as satellite receivers, Blu-ray™ DVD players, standard DVD players with progressive scan capability, cable boxes, game consoles and more that feature component Video output (Y, Pb, Pr RCA jacks colored Green, Blue and Red) and have coax digital audio output (RCA jack normally orange in color).**

The 052-124 Baluns from Cables for Less are designed to support the widest variety of HD source equipment and HD displays. Using Component Video and Coax Digital Audio, these Baluns will allow virtually any HD source component to be connected to virtually any HD television and display high definition video and audio. Video resolution can be up to 1080p! These models are wall mountable using any standard wall box or retro ring. Cover plates are included! Wiring is simple, just connect your CAT5e cable to the 110 punch-down block and install in the wall! With a maximum distance of 500' on standard CAT5e cabling, no other Component Video Balun provides better value. Packed in pairs.

### 052-124 Features at a Glance

- Component Video and Coax Digital Audio connections
- In-wall design, cover plates included
- Simple connection with a 110 punch-down block
- 500' maximum transmission distance
- Packed in pairs

