BAL550/555 ACTIVE VIDEO BALUN TRANSMITTER & RECEIVER

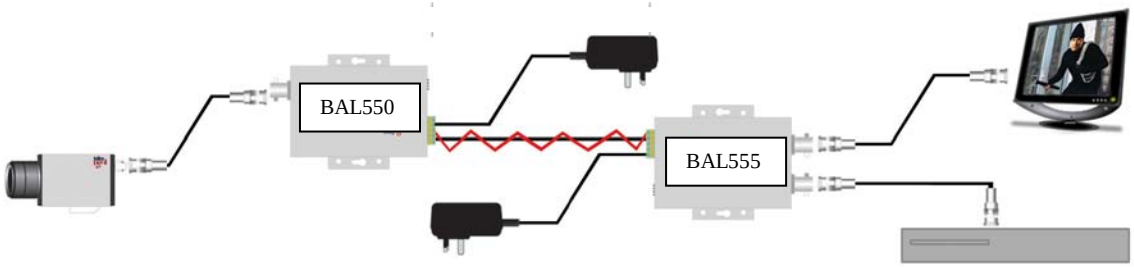
BAL550 TRANSMITTER

BAL555 RECEIVER

Features

Video and Power present LED
12vDC power supply needed
40mA Power Consumption
Dipswitch adjustment for various distances
Co-ax connection from camera
Detachable terminal block for UTP & power
Quality colour and B&W video over 1200M

Video and Power present LED
12vDC power supply needed
35mA Power Consumption
Dipswitch adjustment for various distances
2 x Co-ax connections for video out
Detachable terminal block for UTP & power
Quality colour and B&W video over 1200M



The BAL550 active video transmitter and BAL555 receiver allow transfer of a quality real-time monochrome or colour video signal over Unshielded Twisted Pair (UTP) CAT5. These units incorporate a bank of dipswitches to increase gain on both the transmitter and receiver providing distances of over 1Km. Set these dipswitches the same in both units according to the distance between the units. The BAL550 has a BNC connector for attaching a camera and the CAT5 twisted pair is connected to the VIDEO connection on the terminal block. The BAL555 receiver output is via two BNC connectors and also has a VIDEO connection for the CAT5 cable. Both units require a 12vDC power supply and draw about 20mA each.

Background Information

Co-axial cables are classed as an "unbalanced" mode of transmission and CAT5 twisted pair is known as a balanced mode. In this balanced mode, the two cores carrying the video signal are balanced to a particular reference point and the cable twists enable a uniform rejection of interference, effectively cancelling it out. To produce an unbalanced signal **BALUNs** are used, standing for **BAL**anced to **UN**balanced.

Baluns come in two distinct groups. ***Passive*** baluns require no power to operate and work up to distances of about 500M although if you are using baluns to send video signals back to multiplexers, quads and DVRs it is recommended not to use passive baluns over 200mtrs. ***Active*** baluns require power for their "active" circuitry and can send video signals over 1Km down low-cost CAT5 cable. Most baluns do not allow you to send power down the CAT5 cable so you will still need to power the camera locally or run another separate cable for power.

What's in a balun?
Baluns contain small signal transformers that are specially tuned to match the cables impedance and convert the unbalanced signal to a balanced one and vice versa. Passive baluns just have the transformers and very little else in them. Active baluns have extra electronic circuits used to amplify the signals helping prevent losses and also filtering out unwanted noise.

The Advantage of using CAT 5 cable.
CAT5 cable allows a tremendously flexible way to install and distribute CCTV signals around buildings and between locations. If for example you have two buildings 600 metres apart you could use one CAT5 cable to run four CCTV images from one building to another using an active BAL550 transmitter and a BAL555 receiver for each channel. This provides savings on both labour and cable costs. Often you can find a spare CAT5 cable that is not being used but was put in originally as a spare data cable. CAT5 cable is also easy to handle and quite low cost. New commercial buildings are often "flooded" with CAT5 cabling, allowing tremendous scope to alter where and how CCTV cameras are used without necessarily having to install new and additional cables. Computer installation engineers use what are called "patch panels" and can also be used with great success for CCTV installations. In this structured cabling system you have to work out where CCTV equipment may be needed and install the appropriate CAT5 outlets nearby. It is also wise to provide some local source (or potential source) of power. By bringing all the CAT5s to one area and installing what is called a "patch panel" you can then re-distribute the signals however you please.

Using the BAL550 and BAL555 active video balun transmitter and receiver.
The balun requires a pair of cores in the CAT5 cable to send each video signal down, and there will be a balun at each end of the CAT5 cable. One balun converts the unbalanced signal to balanced for communication across the CAT5 balanced twisted pair and the second balun converts the balanced signal to an unbalanced signal. Therefore two baluns are always required. The BAL550 is an active video transmitter and must be matched with a BAL555 active receiver. The transmission distance is up to 600 metres used with a Passive balun and up to 1200 metres with an Active balun.

Step 1– Run in your CAT5 cable. This needs to be run between your camera and the rest of your CCTV equipment. One CAT5 cable with 4 pairs can theoretically carry 4 video signals, one per each pair of cores. It is good practice to run in more CAT5 cable than you actually need as this gives tremendous flexibility to add extra cameras, audio feeds etc.
Step 2– Identify the various matched pairs within the CAT5 cable. Four pair CAT5 cable has 4 easy to identify pairs.
Step 3 – Connect the SAME matched pair of cores to both the active/passive video transmitter baluns using the terminal connections or RJ45. Always adopt the same standard using the SOLID colour core as "-" and the striped core as "+" when connecting to the balun terminals. It does not matter which pair of cores you choose to use but they must be ***a matched pair*** and you must get the polarity of the cores correct at the baluns.
Step 4 – Use BNC–BNC leads to connect from the BAL555 receiver to the DVR. You have video loopthroughs providing two video outputs.

IMPORTANT –You may get a good picture when connecting directly into a monitor but a poor or bright picture when connecting into a DVR or a quad. This is because monitors are very "forgiving" with the level and quality of the video signal supplied to it. Quads, Multiplexers and DVRs are far less forgiving and require a near perfect video signal to give good results.

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This symbol on the products and/or accompanying documents means that used electronic equipment must not be mixed with general household waste. For treatment, recovery and recycling please return this unit to your trade supplier or local designated collection point as defined by your local council.

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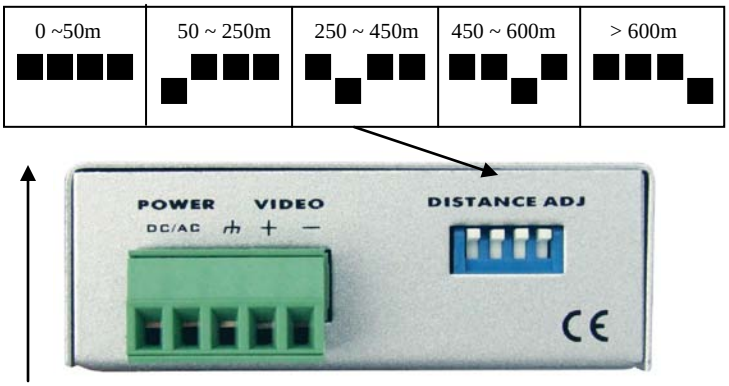

Connecting Power

These baluns will run on 12vDC or 24vAC. Connections are not polarity sensitive but do not connect an earth using 24vAC.

CAT5 connection

Connect a matched pair to the Video connection ensuring cables match at both transmitter and receiver.

DISTANCE ADJ

A bank of dipswitches control the distance settings. The dipswitches should be set identical in both the BAL550 and the BAL555. The distances can be found on the product but are shown above.

Fault finding.

Baluns are incredibly reliable. This means if the balun does not work when it is installed you really need to investigate the installation thoroughly.

No Picture

1. The wrong core colours have been used in the wrong order, re-check the connection order.
2. There is no power to the camera or the camera is not working. The baluns can only send a video signal down the cable if the video signal is actually there. **Make sure the camera is producing a picture using a test monitor.**
3. The cable is damaged or there is an open circuit or short caused by stretching, clipping or when dragged in. Replace.

Poor Picture

1. The camera is not working properly. The baluns can only send a GOOD signal down the cable if the camera is producing a GOOD picture to start with. **Make sure the camera is producing a good picture with a test monitor.**
2. If you have the polarity of the CAT5 the wrong way around or use two cores from two different pairs you will get unpredictable results so please change.
3. Try changing the dipswitch settings on both units to increase or reduce transmission distance. Poor pictures can occur when settings are too low or too high.

Technical Specification

	BAL550 TRANSMITTER	BAL555 RECEIVER
Video Inputs	1	1
Video Input Connection	BNC	Terminal Block
Video Outputs	1	2
Video Output Connection	Terminal Block	BNC
Maximum TX distance	100m ~ 1.2Km	-
Video Bandwidth	12 MHz	12 MHz
Power	12vDC or 24vAC	12vDC or 24vAC