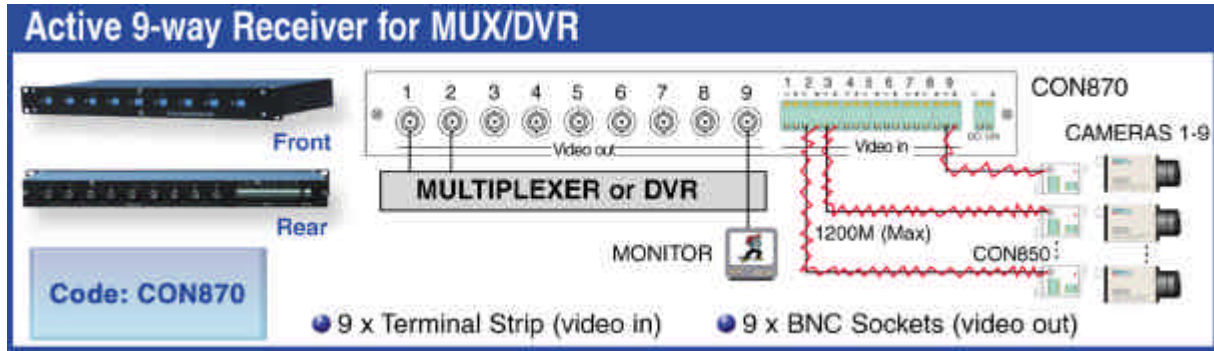


CON870 9 way Active Balun Receiver**INSTRUCTIONS**

The CON870 is a 9-way Active balun receiver.

If you are installing a multi-camera system and wish to connect up to 9 CCTV cameras with CAT5 cable to a DVR or similar device the CON870 can keep the installation neat and tidy. Instead of having 9 separate baluns at the receiving end you have one combined unit.

PLEASE NOTE- The CON870 does not power the cameras or send power to the cameras, this needs to be done locally to the cameras or by a separate means. The CON870 uses the CON850 Active balun at the camera end.

Whereas co-ax cables are classed as an “unbalanced” mode of transmission, 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 the interference, effectively cancelling it out. To produce a balanced 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 DVR, 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. The CON870 is an active type balun and is used for receiving the signals from the CON850 active baluns.

Because a continuous signal is required, baluns cannot send the video through “hubs” or computer “switches” as they work in purely analogue method rather than the digital “packet” method of hubs or switches. This means that you cannot use baluns to send video pictures through existing computer networks that use switches or hubs.

Using the CON870 9-way active receiver

On the rear of the receiver you will see a terminal block for power, a 9 way terminal block for the CAT5 camera inputs and 9 BNC video outputs.

The 9-way terminal block is where the incoming twisted pairs connect. The other ends of these twisted pairs goes to the CON850 baluns located at the actual cameras.

Installing the CON870

Step 1– Run in your CAT5 cables. These need to be run between your camera and the CON870.

Step 2– Identify the various pairs within the CAT5 cable. Four pair CAT5 cable has 4 easy to identify pairs. If you have used the new type of CAT5 cable for CCTV then the pairs are even easier to identify.

Step 3 – At each camera you will now have a CAT5 cable and a CON850 balun. You need to connect the “video out” of the balun (green terminal strip) to one of the nine pairs of “Video in” on the CON870 receiver. The following diagram on the next page shows this connection using your CAT5 cable between the two devices. As with all the baluns, observe the correct polarity and use a PAIR of cores or the balun will not work correctly. By a pair of cores we mean two cores that are twisted together in the CAT5 cable, they will always share a common colour, for example, Solid blue & White/blue are a pair.

Step 4 – Once you have connected your CAT5 to the CON850, you need to power the CON850 locally. This can be from any suitable local supply. The CON850 balun accepts any input voltage from 24V A.C to 12V D.C, and then regulates this to 12V D.C. The camera can also get its power from the balun but this is restricted to an absolute maximum of 300ma. Please note a camera and heated housing will be MORE than 300ma so don’t use the balun to feed a heated housing.

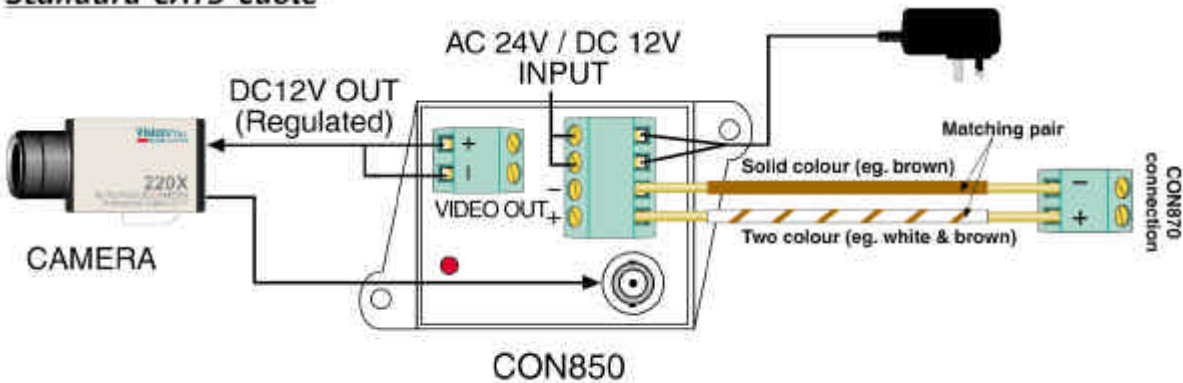
Step 5 - You now need to run a BNC-BNC cable between the CON850 and the camera. If the camera does not have a BNC connector and is the terminal strip type, you may need to use a BNC-BNC cable and cut off one end using the resulting centre core of the cable to the video out of the camera and the shielding or ground to the negative or ground of the camera.

CON870 9 way Active Balun Receiver

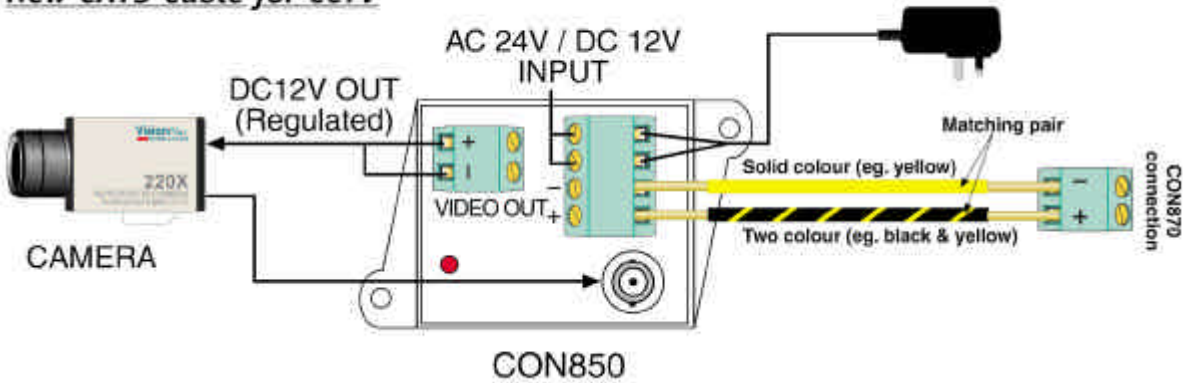
INSTRUCTIONS

Step 6 – At the CON870 receiver you should now have all the CAT5 cables from your various cameras. All the CAT5s should be connected as per the following diagram, observing that you get the polarities correct.

Standard CAT5 Cable



New CAT5 Cable for CCTV



Step 7 – You can now use BNC-BNC leads to connect the Video outs of the CON870 to the “Video-Ins” of your quad, mux or DVR.

Step 8 – At the CON870 balun you have a “gain adjust” set of switches. By altering the switches the CON870 alters how much it amplifies the signal from the CON850. Too much amplification can result in a very bright or white picture. With everything correctly connected you can now turn on the power and see what picture you are getting out of the CON870 receiver from each camera. On each camera you can adjust the corresponding “amplifier dip switches” that can be located on the front of the CON870.

Always start on the lowest possible amplification; this is with all the switches set to off (or up). If you are not satisfied with the picture quality try the first mode of amplification using the “Video Gain Adjustment” table on the left, this would be done by putting the first switch down. If this is not enough raise this switch and put the second switch down and so on. Once you have a satisfactory picture you can leave the gain control alone.

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. This may mean you need to tweak the amplification switches when you finally get your signals going through extra equipment such as DVRs. Please also remember that DVRs often have their own built in gain controls these may also need adjusting on each channel.

VIDEO GAIN ADJUSTMENT	
 ON 1 2 3 4 5	
 ON 1 2 3 4 5	1 = 0-300m
 ON 1 2 3 4 5	2 = 300-600m
 ON 1 2 3 4 5	3 = 600-900m
 ON 1 2 3 4 5	4 = 900-1200m
 ON 1 2 3 4 5	5 = 1200-1500m
 ON 1 2 3 4 5	1+5 = 1500-1800m
 ON 1 2 3 4 5	2+5 = 1800-2100m
 ON 1 2 3 4 5	3+5 = 2100-2400m



Faultfinding.

A few common questions and answers are listed below. If however you require a COMPLETE instruction set and faultfinding guide for ALL our baluns, you can download this from our web site, www.planetcc.tv. Alternatively you can use our automated eback service that will automatically email you the information. To use this service send an email to eback@planetcc.tv and write **balun instructions** in the subject line. Our automated service will then email you back with our comprehensive balun information package. **IMPORTANT** - Please note this courtesy information is not available by fax or by post *so please do not call us for it* - you will need to use either the download service or our eback service.

Baluns are incredibly reliable as they have no or very little active electronic circuitry and therefore failure of a balun is very, very rare. 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. The RJ45 plug has not been put on correctly, either the cores are in the wrong order or they are not far enough into the plug and have not been crimped correctly. Make off the end again and re-crimp.
3. 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.**
4. 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 RJ45 plug has not been put on correctly, either the cores are in the wrong order or they are not far enough into the plug and have not been crimped correctly. Make off and re-crimp.
2. The camera is not working properly. The baluns can only send a GOOD picture 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.**
3. Cable run too long. If the CAT5 cable run is too long the picture will deteriorate. 500M is the absolute maximum that the passive baluns will work at and would drive a monitor **HOWEVER**, equipment such as quads, multiplexers and DVRs require a much stronger signal and therefore restrict passive balun use up to a maximum of 200mtrs with such equipment. A word of caution here – on short runs say less than 100mtrs active baluns can **over** amplify the video signal and cause problems of their own, so passive and active baluns need to be selected correctly for the right job.

Specifications

Video inputs	9
Data /Audio	0
Video Bandwidth	12MHz
Power	12V 300ma
Connections	Terminal – BNC
Max TX distance	500mtrs (to monitor)
Size	580mm x 260mm x 100mm

All specifications are approximate. System Q reserves the right to change any product specification or features without notice. Whilst every effort is made to ensure that these instructions are complete and accurate, System Q cannot be held responsible in any way for any losses, no matter how they arise, from errors or omissions in these instructions, or the performance or non-performance of the camera or other equipment that these instructions refer to. © All contents are subject to copyright, System Q Ltd 2003.