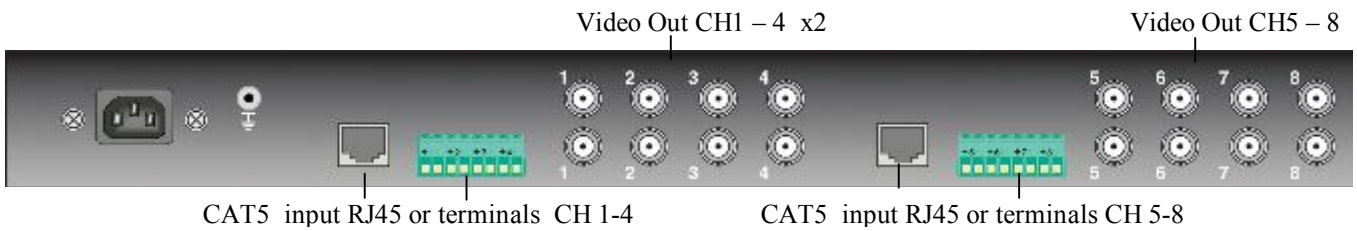**Features**

Video Present LED
Built in surge protection
Full ground-loop immunity
220v 50Hz power supply needed
70dB crosstalk and noise immunity
A single adjustment for various distances
RJ45 and detachable terminal blocks for UTP
Quality colour and B&W video over 1200 metres of UTP cable

Video Out CH1 – 4 x2   Video Out CH5 – 8

CAT5 input RJ45 or terminals CH 1-4   CAT5 input RJ45 or terminals CH 5-8

The BAL580 eight-way active video receiver device allows quality real-time monochrome or colour video over Unshielded Twisted Pair (UTP) CAT5. It has built-in surge suppression, ground loop isolation, gain and loss control and operates with other UTP equipment including, video balun transceivers, active transmitters or any twisted pair equipped camera. These active video hubs can be used on video runs up to 600 metres when used with passive transmitters or distances of up to 1200 metres with the Active transmitter. These receivers can be connected via an RJ45 connector or via the appropriate connection on the terminal block. The receiver output is via the BNC connectors. Two sets of 8 channel outputs are provided allowing connection of two 8 way distributors, DVRs or selection of channels for input to various splitters etc.

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 <u>so you will still need to power the camera</u> 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 200 metres apart you could use two CAT5 cables to run 8 CCTV images from one building to another using one passive BAL108 connecting to one BAL580. 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 BAL580 active video balun 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 BAL580 is an active video hub and multi-channel video receiver and can work with passive or active video transmitters. 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 pairs within the CAT5 cable. Four pair CAT5 cable has 4 easy to identify pairs.

Step 3 – Connect the SAME 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 pair* and you must get the polarity of the cores correct at the baluns.

Step 4 – Use BNC–BNC leads to connect from the BAL580 receiver to the DVR. You have video loopthroughs providing two outputs per channel.

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 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.

WEE/CG0783SS

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.

Technical Specification

Power		No external power required
Environmental	Temperature	-10ºC ~ + 50ºC
	Humidity (non-condensing)	0 ~ 95%
	Storage	-30ºC ~ + 70ºC
Mechanical	Dimensions	430mm x 85mm 44.5mm (HxWxL)
	Weight	2200g
	Material	Metal
Electrical	Video format	PAL, NTSC, SECAM
	Frequency response	DC to 6MHz
	CMRR	70dB
	Video Present	Yellow LED for each channel
	Coax, female BNC	75Ω
	UTP, Terminal block or RJ45	100Ω ± 20%, 24 AWG min up to 1200 metres Cat 2-7
	Power	220v AC 50Hz
	Video outputs	8 x BNC connectors x 2
	Video Connectors	Terminal Blocks or RJ45 connectors
	Transient Immunity	6000v, 1.2uS x 50uS

Transmitter	**Receiver**	**Distance**
Passive Balun	Active Receiver **BAL580**	600m / 1800ft
Active Balun	Active Receiver **BAL580**	1200m / 1800ft

All specifications are approximate. Kovert.com 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, kovert.com 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.