



**~Introduction~**

Thank you for buying this GEM product.

BLN-RJ45 is a passive type video balun to allow you to send video signals through CAT5 cable with RJ45 plug and requires no power. The transmission distance is about 2300 feet, but with multiplexers, quads, and DVRs, please restrict the distance to 650 feet.

**~Installation~**

*[Step 1]*

Run your CAT5 cable between camera and the rest of your CCTV equipment. There are 4 pairs of wire in the CAT5 cable and will be able to carry 4 video signals, one per each pair of wire. It is recommended running more CAT5 cable than you actually need to give tremendous flexibility to add extra cameras and audio feeds etc.

*[Step 2]*

Strip the CAT5 cable sheath with proper length (approximate 10mm) and identify the various pairs in the CAT5 cable.

*[Step 3]*

Assemble the RJ45 plug on CAT5 cable. Please refer to the following diagram (fig.1) of standard connection order carefully. Mistakes are easy to make at this point. Please make sure that the cores slide into the RJ45 plug with correct order and all cores go to the end of the plug before crimping. The crimp tool will press the brass pins in to the individual cores and lock the plug on to the cable.

*[Step 4]*

Connect the baluns to your camera and the other end with the BNC connection to your control equipment or monitor.

**~Important Notice for Installation~**

1. The fig.2 shows the connection order for standard CAT5 cable with RJ45 plug.
2. Strip the cable with proper length (10mm) will make the connection stronger and the CAT5 cable will be locked by the RJ45 plug.

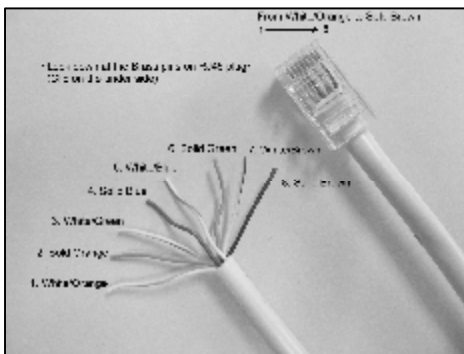


fig.1

Looking down at the brass pins on the RJ45 plug  
From Left to right:

Pin	Color of Core
1 (Left)	White/Orange
2	Solid Orange
3	White/Green
4	Solid Blue
5	White/Blue
6	Solid Green
7	White/Brown
8 (Right)	Solid Brown

fig.2

**~Tip~**

You can mix various types of our passive balun when installation, such as BLN-TL, BLN-MTL or BLN-RJ45PT. When installing with the TOOL LESS type balun, please connect the IDC strip according to the instruction on the right.

IDC STRIP	CAT5 CABLE
TIP (+)	White/Brown (pin 7)
RING (-)	Solid Brown (pin 8)
G	NO CONNECTION



Part Number: BLN-RJ45

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**~Trouble Shooting~**

[No Picture]

1. Camera is not working or not feeding power to camera. Please make sure the camera is working normally.
2. The connection of CAT5 and RJ45 plug is not correct please re-check the connection order to standard.
3. The RJ45 plug has not been put on correctly, either with incorrect connection order or the cores are not far enough into the plug and not been crimped properly. Cut off the end again and re-crimp.
4. The cable is damaged or there is a short or open circuit on the wire, please replace the wire.

[Poor Picture]

1. Camera is not working properly. Please make sure the camera is working normally and sending good quality picture.
2. The RJ45 plug has not been put on correctly, either with incorrect connection order or the cores are not far enough into the plug and not been crimped properly. Cut off the end again and re-crimp.
3. Polarity incorrect with one balun being wired opposite to the other one, please re-wire.
4. Cable run too long. The picture will deteriorate if the CAT5 cable run too long. 2300 feet is the maximum distance for a passive balun to be functioned with adjustments to DVR and monitor. HOWEVER, a maximum distance 650 feet is recommended for using with equipment such as DVRs, multiplexers and quads.

**~Specification~**

Cable-UTP: 24 gauge or lower solid copper twisted pair wire,  
Impedance: 100ohm at 1MHz  
Max. capacitance: 20pf/ft  
Attenuation: 6.6dB/1000ft at 1MHz

Cable-BNC: Impedance: 75ohm at 1MHz (RG59/U),  
Max. 25ft of coax allowed per end to end link

Max. distance: Color: 1200ft/Cat.3 ; 2300ft/Cat.5  
Monochrome: 1500ft/Cat.3  
2500ft/Cat.5

Pin Configuration: **Video 7+/8-**

Environment required: Operating temp. 0 to 55°C  
Storage temp. -22 to 85°C  
Humidity up to 95%

**~Electrical Characteristic and Performance~**

- Bandwidth: Video DC to 8 MHz
- Max. input: 1.1Vp-p
- Impedance: 75ohm to 100ohm
- Insertion loss: Max. 2dB
- Return loss: Greater than 15 dB
- Common mode rejection: Greater than 40dB at 8MHz

**~Limited Lifetime Warranty~**

Gem Electronics warrants that this product is to be free from defect in materials and workmanship, for the life of the product. The warranty given by Gem is in lieu of any other warranties, express or implied. This warranty does not apply to units abused through misuse or subjected to improper and/or excessive voltage, beyond our control. Gem assumes no responsibility for damages or penalties incurred resulting from the use of this product. Gem's liability under any warranties shall be discharged by replacing or repairing, at our option, the defective product. Gem's liability for any product shall not exceed a refund of the purchase price. The warranty listed here is intended only as a summary of your full and complete warranty. For a full and complete warranty of this product contact Gem Electronics.