

V1-AR Active Receiver Balun Installation Guide



Features:

- Transmit up to one mile via Cat 5 UTP
- Automatic Gain Control for brightness, sharpness, and color
- Ground Loop Blocking
- Surge suppression
- Auto-resetting fuse
- Diagnostic LED's
- Connects directly to receiver equipment
- Compatible with V1 and V1-ST passive video baluns
- Requires floating 24V, 2W AC power supply
- 2 year warranty

Introduction

The Intelix V1-AR Active Receiver Balun allows video signals to be transmitted up to 1 mile (1.6 km) via Cat 5 twisted pair cable when used in conjunction with a passive Intelix V1 or V1-ST video balun. The V1-AR features Automatic Gain Control (AGC) and Ground Loop Blocking (GLB) for reliable and stable image quality. Once installed, no adjustments to the V1-AR are needed.

The V1-AR automatically adjusts the brightness, sharpness, and color intensity of the video signal based on actual cable conditions, such as cable grade, distance, and environmental effects on the cable. Once installed, there is no further need to go on-site to check the video signal. Any further enhancements to the image may be made on the transmitting and receiving equipment. The product requires a 24V, 2W AC power supply and connects directly to the video multiplexer or switcher. It features screw terminals with built-in strain relief for ease of installation.

Pre-Installation Checklist

Warning: Do not connect power supply to video signal or ground terminals. Unit can be damaged and warranty will be void.

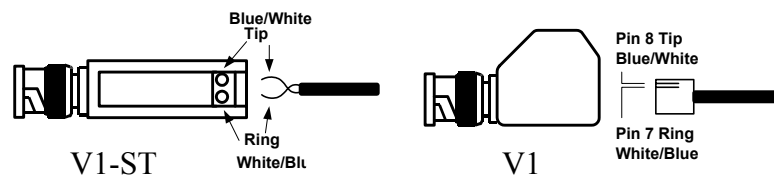
The V1-AR is used to provide extended distance via copper twisted pair. Before installing the product, please verify the following checklist to ensure a trouble-free installation.

1. The V1-AR is always connected to the receiver side video equipment. For example, it is connected directly to the video input ports of the CCTV multiplexer, DVR, or matrix switcher at a central CCTV monitoring location.

2. The V1-AR is used in conjunction with the Intelix passive V1 or V1-ST video balun. The passive baluns are connected at the video source, such as a CCTV camera.
3. For best image quality and operator safety, the receiving equipment should be properly grounded. If this is not possible, then the V1-AR should be properly grounded. Please ensure there is a building ground available. Note: If more than one V1-AR is connected to the same multiplexer, only one balun needs to be properly grounded.
4. The V1-AR must be powered by a 24V, 2W AC power supply (not supplied with the product).
5. The V1-AR is calibrated to work with CCTV sources that conform to RS-343 (RS-170).

Installation Procedure

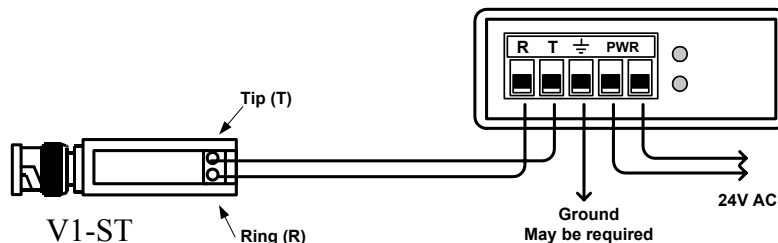
1. Connect the passive V1 or V1-ST to the transmitting video output port.
2. Connect one twisted pair to the passive balun. If the balun is the V1-ST, use a small flat-head screwdriver. If the balun is the V1, crimp an RJ45 modular plug to the end of the cable, ensuring that pins 7&8 of the RJ45 are connected to a twisted pair.



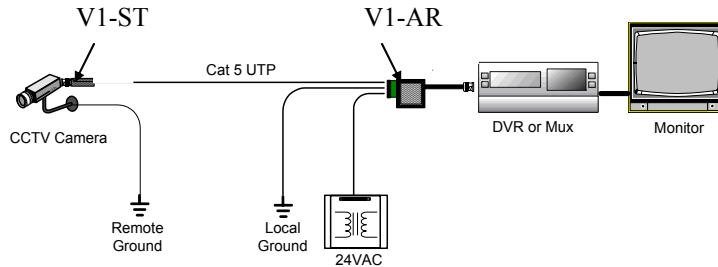
3. Identify the screw terminals on the V1-AR.

Warning: Do not connect power supply to video signal or ground terminals. The unit can be damaged and warranty will be void.

4. Ensure the power is off on the receiving equipment. Connect the V1-AR to the appropriate video input port.
5. Connect the two power wires from the 24VAC power supply. If power is present, then the green LED will be ON and dim. Multiple V1-ARs may be powered from one 24VAC power supply. Consult the power rating of the V1-AR in the *Specifications* section to determine how many units may be powered from one supply.
6. Using a small flat-head screwdriver, connect one twisted pair for video. Please note the baluns are polarity sensitive. Connect Ring (R) to Ring (R) and Tip (T) to Tip (T) as indicated by the label on each balun.



7. Power on the equipment. When a video signal is detected, the green LED on the Active Balun will change from dim to bright.
8. Due to the Automatic Gain Control of the V1-AR, the image may take a couple of seconds to stabilize -- this is normal. The V1-AR automatically restores the video signal to its original quality, compensating for effects due to UTP cable and electrical noise. Use the monitor's standard controls to fine tune the final picture.
9. If there is visible low frequency background noise (wood grain pattern) in the picture, connect the ground wire of the V1-AR to a true building ground.
10. If there is a severe ground loop problem where the voltage differential between the transmitting device and the V1-AR exceeds 1.5 VDC, then the red LED will light up. If this occurs and there is image distortion, correct the problem by installing additional ground loop blocking equipment or eliminating the voltage differential. If there is no image distortion, the V1-AR will continue to function normally and there is no need to take corrective action.
11. The following diagram illustrates a typical configuration.



12. The V1-AR is equipped with resettable fuses to protect the circuitry. In the event of a power surge, the fuse(s) will trip and the green LED will dim. In order for the fuse(s) to reset, the power to the V1-AR must be turned OFF for 2-3 minutes. The fuse(s) will then reset and then the power can be turned on again.

Installation

The following table describes common problem symptoms, probable causes, and possible solutions. If the information below does not solve the problem, please contact an authorized Intelix balun distributor.

Picture	Green LED	Red LED	Probable Causes	Possible Solutions
No image	OFF	OFF	<ul style="list-style-type: none"> ▪ Power off 	<ul style="list-style-type: none"> ▪ Check power supplies of equipment
No image	Dim	OFF	<ul style="list-style-type: none"> ▪ Wrong pin configuration 	<ul style="list-style-type: none"> ▪ Check pin configuration and verify straight-thru wiring
No image	Dim	OFF	<ul style="list-style-type: none"> ▪ Fuse tripped due to power surge 	<ul style="list-style-type: none"> ▪ Turn off power. Wait 2-3 minutes. Turn power on. Investigate cause of power surge
Picture distorted	Bright or blinking	OFF	<ul style="list-style-type: none"> ▪ EMI interference ▪ Wires reversed on signal 	<ul style="list-style-type: none"> ▪ Check that wiring is not too close to transformers

			<ul style="list-style-type: none"> pair on one side Split pair 	<ul style="list-style-type: none"> and lighting ballasts Make sure the wires on the signal pair are not reversed on one side Check if the UTP pairs are correct (not split)
Picture loses color	Bright	OFF	<ul style="list-style-type: none"> Exceeded distance specifications Lower grade UTP cable is introducing high losses 	<ul style="list-style-type: none"> Check DC loop resistance and verify if distance spec is exceeded. Reduce cable length or eliminate high-loss components Replace cable with higher grade
Picture contains background noise (wood grain pattern)	Bright	OFF	<ul style="list-style-type: none"> Poor grounding 	<ul style="list-style-type: none"> Connect ground of V1-AR to true building ground
Image occasionally fading, synchronization not perfect	Bright	ON or blinking	<ul style="list-style-type: none"> Ground Loop Fault; i.e., ground differential voltage between transmit and receive ends exceeds 2 V DC or AC 	<ul style="list-style-type: none"> Isolate transmitting device's power entry and enclosure from local ground Ensure device is secured against static discharges (i.e., is inside metal, grounded cage)

Frequently Asked Questions

- 1. What is the main function of the V1-AR?**

The main function is to provide extended distance via twisted pair cable between video transmitting and receiving equipment.
- 2. Will the V1-AR help in situations where the cabling is marginal?**

Yes. The V1-AR will work in installations where the cabling is marginal or where certain equipment is sensitive to the video signal it receives. For example, with some digital video recorders (DVR), the tolerance on the input video signal level is stricter than with analog multiplexers, therefore shorter distances may result when cameras are connected using passive baluns. The V1-AR restores the signal level to industry standards and allows longer distances to be achieved in these applications.
- 3. How does the Automatic Image Adjustment feature work?**

The V1-AR automatically adjusts picture sharpness and luminosity without the need for manual DIP switches or rotary potentiometers. It measures the incoming video signal and automatically takes into account other variables that may affect the signal, such as temperature and cable attenuation. The V1-AR restores the signal to industry standards and provides optimum signal quality.
- 4. Does an active balun have to be installed on the transmitting end?**

No. The V1-AR does not require an active transmitter balun at the receiving end. The V1-AR is connected at the receiver input and is designed to work with transmitting V1 and V1-ST baluns.
- 5. Will the V1-AR work with other vendors' passive baluns?**

Yes. The V1-AR works with most third party passive video baluns; however, there may be an issue with signal polarity, and performance may be affected.
- 6. Will the V1-AR work with other cable besides Cat 5?**

Yes. The V1-AR will work with lower grades of cable such as Cat 3 or Cat 2. It is estimated that for each unit decrease in cable grade there is a 10% reduction in distance. For example, Cat 3 may yield 20% less distance than Cat 5.
- 7. Does the V1-AR support PAL as well?**

Yes. The V1-AR supports PAL. The maximum distance specified for PAL is 4,000 feet (1.2 km).

8. **What type of power supply is needed?**

The V1-AR requires a *floating* 24V AC power supply.

