Specifications

Specifications subject to change without notice.

Maximum Distance*	2200 feet
Maximum Video Input	1.1 Vp-p
Bandwidth (video)	DC to 8 MHz
Impedance (video)	75 ohms
Insertion Loss	Less than 2 dB per pair over the frequency range from DC to 8 MHz
Return Loss	Greater than 15 dB over the frequency range from DC to 8 MHz
Common Mode Rejection	Greater than 40 dB @ 8 MHz
Unshielded Twisted Pair Cabling Specifications (24 gauge or lower solid copper)	Maximum capacitance: 20 pf/foot Impedance: 100 ohms @ 1 MHz Attenuation: 6.6 dB/1000 ft. @ 1 MHz *Cat 3, Cat 5, Cat 5e, Cat 6, Cat 7 compatible*
Connectors	Two (2) spring tension blocks to one (1) male BNC
Temperature	Operating: 32 to 131 F (0 to 55 C) Storage: -4 to 185 F (-20 to 85 C) Humidity: up to 95%
Enclosure	Black plastic
Dimensions	1.6" x 2.8" x 1"
Ordering Information	*AVO-V1-ST-PAIR-F*: single AVO-V1-ST-F balun in bulk packaging *AVO-V1-ST-PAC-F*: two AVO-V1-ST-F baluns in retail-ready packaging
Warranty	2 years

* Distances and picture quality may be affected by cable grade, cable quality, source and destination equipment, RF and electrical interference, and cable patches. Intelix specifications are based on straight-through cabling with standard-grade Cat 5.

Contact Information

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RoHS

AvoCat Series — Intelix AVO-V1-ST-PAIR-F Video Balun
Installation Manual

The Intelix AVO-V1-ST-F video balun eliminates 75-ohm coaxial cable and allows composite baseband video to be transmitted via a single unshielded twisted pair (UTP) cable, such as Cat 5. Four AVO-V1-ST-F baluns may be used with one UTP, four pair cable. Typically, AVO-V1-ST-F baluns are used in pairs to transmit standard NTSC, PAL, or SECAM composite video.

The AVO-V1-ST-F balun is typically used with CCTV security and surveillance equipment, such as CCTV cameras, monitors, DVRs, video sequencers, video multiplexers, quads, video switchers, CCTV camera servers, and time-lapse VCRs. The AVO-V1-ST-F balun may also be used with other baseband video equipment.

Installation

Caution: Do not attempt to open the balun housing. There are no user-serviceable parts inside the AVO-V1-ST-F. Opening the unit will void your warranty.

To install an AVO-V1-ST-F balun, perform the following steps:

1. Turn off power and disconnect the video equipment by following the manufacturer's instructions.
2. Identify the pin configuration of the baluns. One twisted pair is required for each camera signal. Note: The AVO-V1-ST-F is reverse polarity sensitive. Please ensure that "Ring" is connected to "Ring" and "Tip" is connected to "Tip."

Caution: Do not connect the AVO-V1-ST-F to a telecommunication outlet wired to unrelated equipment. Making such a connection may damage the equipment and/or balun. Please ensure all wiring is "straight-through."

3. The AVO-V1-ST-F works in pairs. Plug one AVO-V1-ST-F into the BNC connector of the source device.
2. Plug a second balun into the BNC connector of the destination equipment at the other end.

Caution: Do not mount the balun over equipment ventilation openings. Covering the openings may cause the equipment to overheat.

4. Slice open the outer jacket of the UTP (Cat 5) cable to expose the individual wire pairs.
5. Complete the connection between the two baluns using standard UTP cable. Ensure the same wire pair is used on each end.
6. Power-on the video equipment and check the picture quality. The video should be clear and sharp within the maximum specified distances.

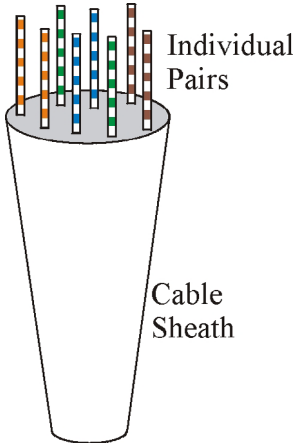
Troubleshooting

If your equipment malfunctions with AVO-V1-ST-F baluns in place, follow the trouble-shooting procedures below:

1. Perform diagnostics on your audio equipment by following the manufacturer's instructions.
2. Check that both baluns use the same cable pairs.
3. The maximum operational distances over which the AVO-V1-ST-F can be transmitted is dependant on the equipment used and cable. Ensure that the maximum recommended operational distances have not been exceeded.
4. Check that only twisted pair patch cords are being used.
5. Replace the AVO-V1-ST-F balun with another AVO-V1-ST-F that is known to be working.
6. Swap the conductors terminated to the balun to ensure common conductors on both the send and receive baluns.
7. If you still cannot diagnose the problem, contact Intelix for support.

Frequently Asked Questions

How do I expose the individual pairs in Cat 5 cabling?
There is no single method when exposing the four individual pairs in twisted pair cabling, such as Cat 5 and Cat 6; however, it does help to have a cable stripping tool designed to strip the cable jacket/ insulation.



Begin by stripping back the cable's outer jacket/ insulation about an inch (or more depending on whether multiple baluns will be connected to the pairs of a single cable) so that the internal wires are exposed. Be careful not to cut the internal wires when stripping the insulation/jacket. Eight twisted wires and a string should now be visible; the string is unnecessary and may be removed. These eight wires, which when combined form four pairs, connect directly to the baluns. Typical protocol pairs similar colors; the important thing is to verify the same color-coded pairs are used on each end.

Is the AVO-V1-ST balun reverse polarity sensitive?
Yes.

Can more than one camera signal be transmitted under one 4-pair Cat 5 UTP cable?
Yes. Up to four (4) camera signals can be transmitted under a 4-pair Cat 5 UTP cable. Each camera signal uses one pair.

Can 25-pair and 50-pair bulk twisted pair cable be used to transmit multiple camera signals?
Yes. As long as the 25-pair and 50-pair cable meets Cat 5 specifications, it may be used to transmit up to 25 or 50 camera signals, respectively.

Can CCTV camera power and audio be transmitted under the same UTP cable jacket as video?
Yes. On separate twisted pairs.

Will the AVO-V1-ST baluns work with other cable besides Cat 5?
Yes. The AVO-V1-ST baluns will work with lower grades of cable such as Cat 3. Maximum distances will be less than with Cat 5.

Where can I find an outside Cat 5 cable?
Major cable vendors offer outside Cat 5 cable.

What is the maximum length of twisted pair at a given gauge wire?
Maximum cable lengths are specified for 24AWG UTP cable. If lower gauge cable (i.e., 22AWG) is used, greater distances may be achieved.

Will the AVO-V1-ST Baluns work with 100-ohm shielded twisted pair (STP)?
Yes; however, shorter distances may be achieved due to higher capacitance. If used, ground the shield at least on one end.

Does the AVO-V1-ST Balun work in conjunction with other Intelix baluns, such as the V1-AR, AVO-V1, V1, and V1-ST?
Yes. Providing that the signal polarity of the baluns match.