

Specifications

Specifications subject to change without notice.

Maximum Distance*	330 feet
Bandwidth (3 dB)	5 MHz to 900 MHz
Supported Video Channels	CATV 2-150, VHF channels 2-13, FM broadcast band
Insertion Loss	<9 dB: 5-10 MHz <3 dB: 10-900 MHz
Return Loss	>10 dB: 15-370 MHz >7 dB: 370-770 MHz >10 dB: 770-900 MHz
Common Mode Rejection	-20 dB or higher at 5-900 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 <i>Cat 3, Cat 5, Cat 5e, Cat 6, Cat 7 compatible</i>
Connectors	One (1) male F to one (1) RJ45
RJ45 Pinout	7 & 8, pair 4
Temperature	Operating: 32 to 104 F (0 to 40 C) Storage: 14 to 158 F (-10 to 70 C) Humidity: up to 95%
Enclosure	Black plastic
Dimensions	2.5" x 1" diameter
Weight	0.07 lbs (1.05 oz.)
Regulatory Approval	FCC, CE
Ordering Information	<i>RF</i> : single RF balun in bulk packaging <i>RF-PAC</i> : two RF 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, cable patches, channel frequency and input power. Maximum distance of 330 feet at CATV channel 2. May require tilt amplifiers at higher frequencies. Intelix specifications are based on straight-through cabling with standard-grade Cat 5.

Contact Information



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Intelix RF Broadband Video Balun Installation Manual

The Intelix RF balun passively transmits broadband (RF) video over unshielded twisted pair cabling, such as Cat 5. Used in pairs, the RF transmits video up to 330 feet, providing a low-cost, versatile cabling solution which uses a building's existing structured cabling system.

The RF is ideal for private RF networks, guestroom TV and internet services, apartments and condominiums, schools and universities, and corporate audio/visual environments. The RF is designed for point-to-point connections only.

Installation

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

To install an RF balun, perform the following steps:

1. Turn off power and disconnect the video equipment by following the manufacturer's instructions.
 2. Make certain that outlets and cross connects to which you will connect the RF are configured properly and labeled appropriately to identify the circuit.
- Caution:** Do not connect the RF 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. Verify the desired twisted pairs are not being used for other LAN or telephony equipment.
 4. Connect the video input from the source equipment to one of the two baluns. Two RF's are needed—one at each end of the run—and are interchangeable.

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

5. Connect a 4-pair structured cable, such as Cat 5, to the RJ45 connector on the balun.
6. Connect the second balun's video input to the destination equipment.
7. Connect the 4-pair structured cable attached to the first balun to the RJ45 connector on the second balun.
8. Power on the source and destination equipment and test for correct operation.

Note: When first powering on the source and destination equipment or switching video through the balun, there may be a 2-3 second delay followed by 12 seconds of yellow video. This is normal operation and the result of the balun correctly syncing to the monitor.

Troubleshooting

If your equipment malfunctions with RF baluns in place, follow the troubleshooting procedures below:

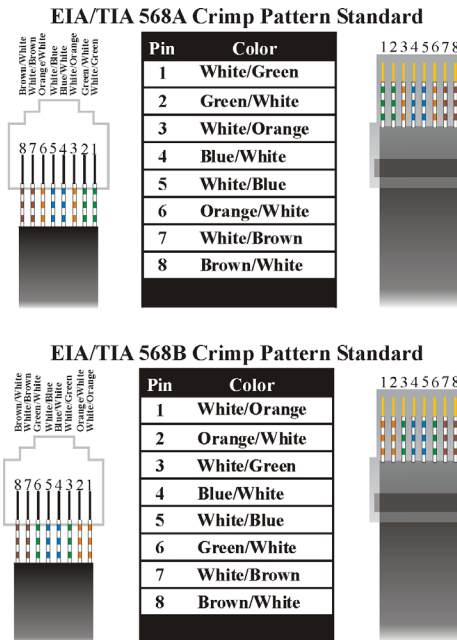
1. Perform diagnostics on your video equipment by following the manufacturer's instructions.
2. Check all the connections and the structured cabling system. Verify the RJ45 crimp pattern conforms to either EIA/TIA 568A or 568B standards.
3. Check the pin configuration on the structured cable.
4. The maximum operational distances over which the RF can be transmitted is dependant on the equipment and cable used. Ensure that the maximum recommended operational distances have not been exceeded.
5. If the picture is snowy, the signal strength may be insufficient. Increase the signal power at the head-end using a tilt amplifier or use a higher grade cable.
6. If the picture is overly bright, the signal strength may be too great. Attenuate the signal by reducing amplifier gain or by inserting a signal attenuator in the link.
7. Check that only twisted pair patch cords are being used.
8. Replace the RF balun with another RF that is known to be working.
9. If you still cannot diagnose the problem, contact Intelix for support.

Frequently Asked Questions

How do I crimp an unshielded RJ45 connector onto Cat 5?

Crimping an RJ45 connector onto Cat 5 is a fairly straight-forward task, assuming you have the proper tools. Keep in mind that baluns require either the EIA/TIA 568A or 568B crimp pattern, which are the industry standards for networking.

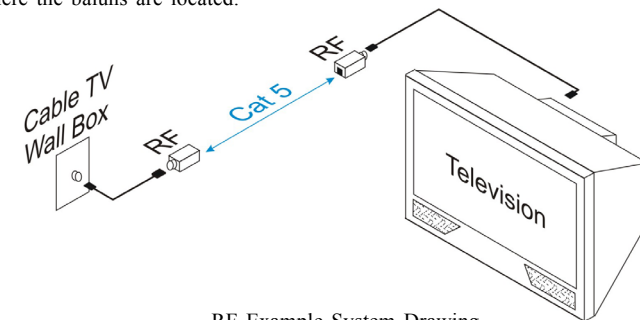
1. First, strip a portion of the insulation about 3/4" to expose the four twisted pairs.
2. Next, untwist the wires and fan them out so that they match either the EIA/TIA 568A or 568B pattern.
3. Evenly trim the wires to about 1/2". Most RJ45 crimp tools feature a built-in wire trimmer.
4. Insert the trimmed wires into the RJ45 connector so that each wire is in its individual slot. Verify each wire is completely inserted.
5. Finally, insert the RJ45 connector into the crimp tool and squeeze firmly.
6. Repeat the above steps on the other end of the Cat 5 cable and verify pinout is identical on each end.



Application Tips

In a point-to-point scenario for CATV (superband and hyperband), VHF, and FM, cable lengths of up to 150 feet may be achieved without amplification if the nominal input is about 15 dBm. In some applications, a tilt amplifier may be required since the Cat 5 cable losses are higher than coax at the higher frequencies. Linear gain compensation of up to 20-25 dB at 750 MHz is usually adequate. Conversely, if amplification is used to compensate for losses at high frequencies and longer distances, it may be necessary to attenuate the lower frequency and shorter distance signals to avoid over-driving the TV monitors. The Intelix RF may be used in conjunction with tilt/gain amplifiers, CATV splitters, and splitters with built-in amplifiers. The following are some helpful guidelines when planning your cabling:

1. Try for 10 dBmV of signal level at each television channel. Use a little more for big screen TVs. Measure the signal level at the high and low end of the spectrum to determine whether a tilt amplifier is needed.
2. When laying out your system, there will be approximately 5dB of signal loss per 100' of RG6-coaxial cable.
3. Please ensure all splitters and amplifiers are broadband. For Cat 5 installations, splitters should have 5 MHz to 900 MHz bandwidth with a bi-directional filter at 5 to 50 MHz.
4. Check and make sure that all televisions are set up for the proper frequency spectrum (i.e. UHF or cable).
5. If extra channels are available, allow 1 to 2 channels spacing between "modulated" and "active" channels.
6. Always compensate for insertion loss with a good amplifier. There will always be a drop in signal strength when combining a modulator to an existing system due to insertion loss from the combiner.
7. When combining an existing signal with a modulated signal, make sure to have equal signal strength at the point of the combiner so one signal does not degrade the other.
8. When possible, use the lowest frequencies available for the modulated channels. Lower frequency channels have lower signal loss on the cable runs.
9. When in doubt, run the signal a little high to the television and use an attenuator to lower the signal strength going into the TV. Attenuators may be combined (i.e. two -3dB attenuators will = -6dB).
10. Combine the modulator into the video distribution system as far "up-stream" as possible.
11. If the system needs to be amplified, use the amplifier as far "up-stream" as possible. For example, place one amplifier at the head end and one tilt amplifier in each wiring closet where the baluns are located.



RF Example System Drawing