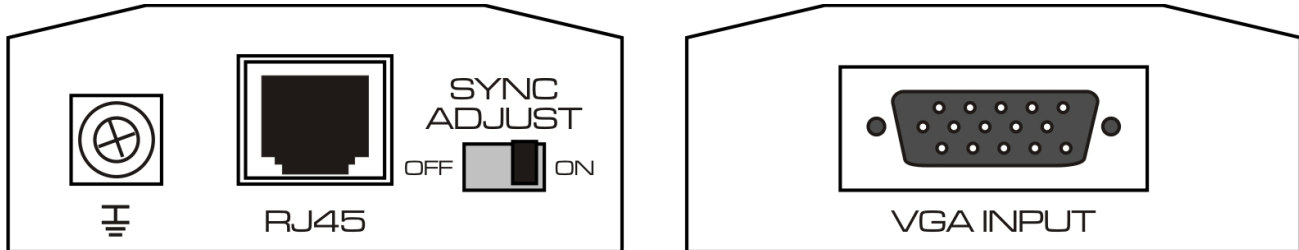


# Intelix AVO-VGA

## Installation Manual

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## Introduction

The Intelix AVO-VGA balun set transmits VGA video passively over standard unshielded twisted pair cable, such as Cat 5, Cat 5e or Cat 6. The AVO-VGA eliminates costly and bulky VGA cable, and extends video transmission distances.

## Pre-Installation

**Note:** The AVO-VGA does not support VGA handshaking and control signals. Therefore, it is necessary to set the monitor attributes prior to installing the balun set. First connect the source (typically a computer) directly to the destination (typically a monitor) with a standard VGA cable. After doing so, set the monitor attributes to the required settings (i.e., resolution, color, etc.). For best results, also set the contrast and brightness to the maximum level.

The AVO-VGA features shielded RJ45 connectors, which are provided as an option in harsh electrical environments, such as installations with large motors or cable runs near sources of interference. In such environments, shielded twisted pair cable (STP) may provide additional noise immunity. When using STP, ensure the shield on both ends of the cable run is terminated to a shielded RJ45 connector.

**Caution:** Do not attempt to disassemble or alter the balun housing. There are no user-serviceable parts inside the unit. Doing so will void your warranty.

# Installation

1. Power off the source and destination devices which will be connected to the baluns.
2. Verify the modular outlets and cross connects to which you will connect the AVO-VGA are configured properly and labeled appropriately to identify the circuit.

**Caution:** To minimize the possibility of equipment damage from electrostatic discharge (ESD), all source and destination equipment must be powered off during installation. This includes signal extenders, splitters, and switches.

3. Verify the desired twisted pairs are not being used for other LAN or telephone equipment.

**Caution:** Do not connect the balun to a telecommunication outlet wired to unrelated equipment. Doing so may damage the unit or any connected equipment. Ensure all connected twisted pair cabling is straight-through (point-to-point).

4. Connect the send balun (AVO-VGA-S) to the VGA port of the source equipment. Tighten the mounting screws on each balun.
5. Connect one end of the twisted pair cable to the send balun. The RJ45 pinout in the twisted pair cabling should conform to the EIA/TIA 568A or 568B standard.
6. Connect the receive balun (AVO-VGA-R) to the destination equipment.
7. Connect the other end of the twisted pair cable to the receive balun. The RJ45 pinout in the twisted pair cabling should conform to the EIA/TIA 568A or 568B standard.

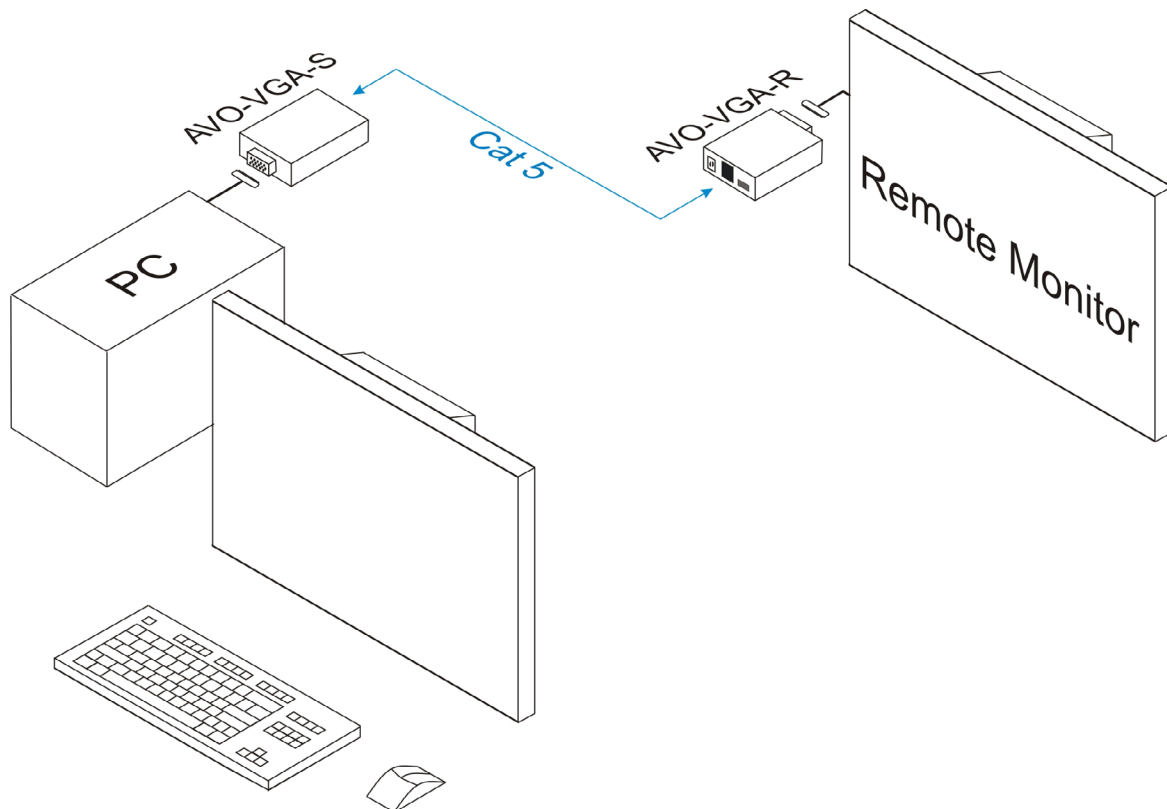
**Note:** For your convenience, it is recommended that you uniquely mark the ends of the twisted pair cable before pulling them through a wall or conduit.

8. Power on the source and destination equipment.
9. If necessary, set monitor contrast and brightness to the desired levels.
10. Set the monitor refresh rate to the optimal rate for the display at the desired resolution.
11. If necessary, adjust the image quality with the *Sync Adjust* switch on the send and receive baluns. It is recommended that both switches be in the same position.

**Note:** The AVO-VGA features an optional grounding screw that may be used to correct any image anomalies, such as differences in hue from one side of a monitor to the next. Should this occur, connect the balun ground to earth ground. However, if the building has a grounding problem, such as ground loops, grounding the balun may negatively affect the signal. Only ground the AVO-VGA if it positively affects the signal.

# Troubleshooting

Symptom	Probable Causes	Possible Solutions
Image distorted or skewed	Weak or distorted sync signal	Change the screen refresh rate of the video source to the next higher or lower setting
No image		Adjust the <i>Sync Adjust</i> switch on both the send and receive baluns
Unusual colors	Reversed polarity	Verify RJ45 pinout conforms to EIA/TIA 568A or 568B standard. If not, re-crimp the cable.
	Bad RJ45 crimp	
Smearing or weak video contrast	Exceeded cable distance	Verify cable grade and total cabling distance
		Reduce the screen resolution
		Reduce the screen refresh rate
Horizontal bars moving upward in background	Ground loop problem	Attach or detach the grounding screw on either or both of the baluns to earth ground
Shaking image		Verify the source and destination equipment are at the same ground potential.
Background pattern		Change the screen refresh rate of the video source to the next higher or lower setting
Background pattern	EMI interference	Identify possible radiating frequency sources and isolate them from the cabling. Use shielded twisted pair cabling.



# Technical Specifications

<b>Environment</b>	VGA. VESA VP&D 1.0, VIP ver 2.0
<b>Devices</b>	CRT/LCD monitors, plasmas, laptops, PCs, projectors
<b>Bandwidth</b>	DC to 60 MHz
<b>Input Signals</b>	Video: 1.1 Vp-p H/VSync: TTL standard; 300 kHz max bandwidth
<b>Insertion Loss</b>	Less than 3 dB per pair over the frequency range
<b>Return Loss</b>	-15 dB max from DC to 60 MHz
<b>Max. Distance via Cat 5</b>	VGA: 640 x 480 pixels (14 MHz)      450ft (137m) SVGA: 800 x 600 pixels (22 MHz)      350ft (107m) XGA: 1024 x 768 pixels (35 MHz)      250ft (76m) SXGA: 1280 x 1024 pixels (59 MHz)   200ft (61m)
<b>RJ45 Pin Configuration</b> <i>Reverse Polarity Sensitive</i>	Pins 4 and 5      Green (balanced) Pins 1 and 2      Red (balanced) Pins 7 and 8      Blue (balanced) Pins 3 and 6      Horizontal and Vertical Sync (unbalanced)
<b>Cable</b>	Unshielded Cat 5, Cat 5e, Cat 6 or better
<b>Temperature</b>	Operating: 0 to 55 C. Storage: -20 to 85 C. Humidity: up to 95% non-condensing
<b>Warranty</b>	2 years
<b>Order Information</b>	AVO-VGA: one send and one receive balun AVO-VGA-R: one receive balun AVO-VGA-S: one send balun

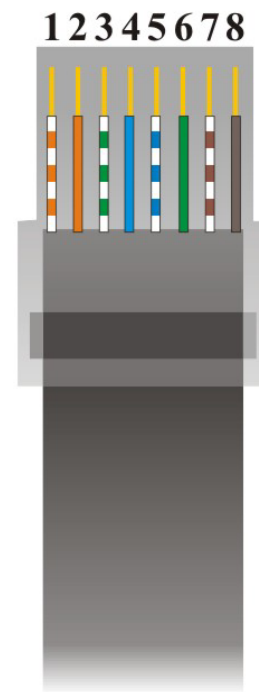
Distances and picture quality may be affected by cable grade, cable quality, source and destination equipment, RF and electrical interference, and cable patches. Intelix specifications are based on straight-through cabling with standard-grade Cat 5.

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Pin	Color
1	Orange/White
2	Orange
3	Green/White
4	Blue
5	Blue/White
6	Green
7	Brown/White
8	Brown



**EIA/TIA 568B Crimp Pattern Standard**