Specifications

Environment	VGA. VESA VP&D 1.0, VIP ver 2.0.
Devices	CRT/LCD monitors, plasma, laptops, PCs, projectors.
Transmission	Transparent to the user.
Bandwidth	DC to 60MHz
Input Signals	Video: 1.1Vp-p H &V sync: TTL standard. 300kHz max. bandwidth
Insertion Loss	Less than 3 dB per pair over the frequency range.
Common Mode Rejection (CMMR)	15kHz -60dB typ. 100kHz to 10MHz -40dB typ. 200MHz -20dB typ.
Return Loss	-15dB max from DC to 60MHz
Connectors	500040/500042: DB15 HD Plug, RJ45 Shielded 500041/500043: DB15 HD Receptacle, RJ45 Shielded
Max. Distance via Cat 5 Twisted Pair	VGA: 640x480 pixels (15MHz) 450ft (137m) SVGA: 800x600 pixels (30MHz) 350ft (107m) XGA: 1024x768 pixels (60MHz) 250ft (76m) SXGA: 1280x1024 pixels (100MHz) 200ft (61m) WXGA:1366x768 pixels 180ft (55m)
RJ45 Pin Configuration *EIA 568 A or B* *Reverse Polarity Sensitive*	Pin 1 (R) Pin 2 (T) Balanced - Red Pin 4 (R) Pin 5 (T) Balanced – Green Pin 7 (R) Pin 8 (T) Unbalanced – Blue (7 sig, 8 gnd) Pin 3 (R) Pin 6 (T) Unbalanced – H & V Sync
Compatibility	Not compatible with the VGA Balun (500010, 500011, 500014) or Active VGA Balun Kit (500035. 500036)
Reset button	May be needed when used with certain display devices.
Grounding screw	Grounding screw for optional use.
Cable	Cat 5 or better unshielded twisted pair (UTP)
Impedance	Input: RGB 75 ohms Output: RGB 100 ohms
Temperature	Operating: 0° to 55° C. Storage:-20° to 85° C. Humidity: up to 95% non-cond.
Enclosure	ABS fire retardant plastic
Dimensions	2.40" x 2.25 x 1.00" (6.1 x 5.7 x 2.54 cm) plus 6: (15.2cm(lead on 500040 and 500042.
Weight	500041/500043: 2.34 oz (66 gms). 500040/500042: 3.87 oz (110 gms)
Mounting	Free-standing. Separate Velcro mounting pad included
Warranty	Lifetime
Order Information	500040 VGA Balun II, HD15 Plug, PC Side 500041 VGA Balun II, HD15 Receptacle, Monitor Side 500042 VGA Balun II, HD15 Plug, Monitor Side 500043 VGA Balun II, HD15 Receptacle, PC Side

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VGA Balun II (500040, 500041, 500042, 500043)

Quick Installation Guide

Overview

The VGA Balun II eliminates costly and bulky VGA cable, allowing a VGA source to be connected to a VGA monitor via one 4-pair Cat 5 unshielded twisted pair (UTP) cable. Used in pairs, the VGA Balun II allows VGA video to be transmitted up to 350ft (107m) via Cat 5 at 800 x 600 resolution.   Each VGA connection requires a VGA Balun II at the source (500040, 500043) and a VGA Balun II (500041 or 500042) at the display.

Notes:

- The VGA Balun II does not support VGA handshaking and control signals. Therefore it is necessary to set the monitor attributes prior to installing the VGA Baluns. In order to do this, first connect the standard VGA cable directly from the PC to the monitor and then set the monitor attributes to the required settings (i.e.; resolution, color, etc). Also, in order to achieve optimum results via twisted pair, set the Contrast and Brightness levels to maximum.

- The shield on the RJ45 connector is provided as an option for use in harsh electrical environments where shielded twisted pair cable (STP) may provide additional noise immunity. When using STP, ensure that the shield on both sides is grounded.

Installation

1. Connect the 500040 or 500043 to the VGA output of the PC or VGA distribution amplifier. Tighten the mounting screws on each balun.

2. Connect a Cat5 4-pair cable from the modular RJ45 jack of the 500040 or 500043 to the twisted pair cabling of the building. Wiring must be straight-through and according to EIA 568A or 568B as shown in the following diagram.
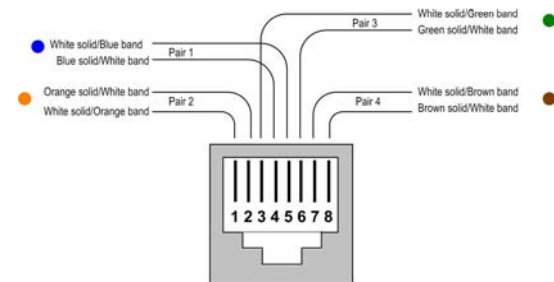
RJ45 Jack EIA/TIA 568B

3. Connect a 500041 or 500042 to the VGA input of the display.

4. Connect a Cat5 4-pair cable from the RJ45 connector of the 500041/500042 to the twisted pair cabling of the building.

5. Power on the PC and VGA monitor.

6. Set monitor Contrast and Brightness to the desired levels. See typical application below.
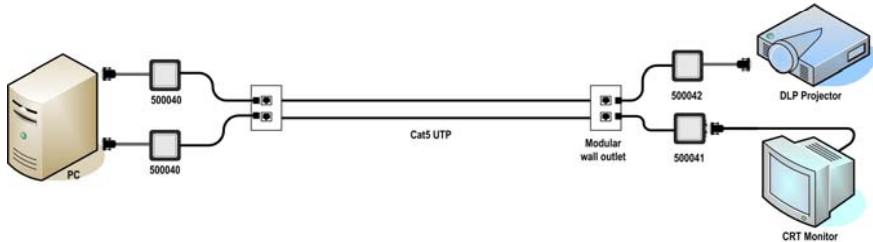
7. Set the monitor refresh rate to 60 Hz.

8. Due to the fact that some displays are more sensitive than others and may not sync up correctly, a RESET button is provided on each VGA Balun II to allow these displays to re-synchronize. A RESET button is on both the transmit and receive side baluns for greater convenience and ease of access. If the initial setup yields an improperly positioned image on the screen, using a pen or small screw driver, press the RESET button located next to RJ45 jack on one of the baluns and then immediately press the AUTOSET button located on the display unit. During this time the image will change hue and gradually return to normal after approximately fifteen (15) seconds. Please see following diagram.

Note: Some displays do not require the AUTOSET button to be pressed.

9. Set monitor Contrast and Brightness to the desired levels.

Note: In order to avoid accidentally resetting the connection, the Screensaver options under Windows Display Settings must be set as follows:

   a. Choose any screensaver except "NONE"
   b. The "Turn Off Monitor" setting must be set to "NEVER".

10. The VGA Balun features an optional grounding screw (see diagram above) that may be used to clear up any image anomalies. For example, under some conditions, there may be a slight difference in hue between the left hand side of screen and the right. Connecting the ground terminal to earth ground will help clear this up.

However, if there is a ground loop problem in the building, connecting the ground terminal may negatively affect the image. Therefore the ground screw should only be used if it improves the overall image quality.

11. **Note:** During start-up, there may be a two (2) to three (3) second delay before an image appears and the initial image may have a yellow hue. This is a normal function of the product and is required in order to allow the monitor to sync up correctly.

Troubleshooting

The following tables describe some of the symptoms, probable causes and possible solutions in respect to the installation of the VGA Balun II. If you still cannot diagnose the problem, please call MuxLab Customer Technical Support at 877-689-5228 (toll-free in North America) or (+1) 514-905-0588 (International).

Symptom	Probable Causes	Possible Solutions
No video	No continuity in video link	Verify cable continuity between baluns.
No video	Power off	Check power supplies of VGA equipment.
No video	PC settings	Perform diagnostics on your VGA equipment by following the manufacturer's instructions.
Image distorted or skewed.	Specific display unable to sync up.	Follow RESET procedure in manual to force display to sync up correctly.
Image not stable	Defective link or equipment	Verify VGA equipment interface integrity.
Unusual colors	Reversed polarity	Ensure wiring is straight-through polarity.
Background pattern	EMI interference	Identify possible radiating frequency sources Try to isolate them from the video. Use shielded twisted pair grounded at both ends.
Smearing	Exceeded distance	Verify cable grade. Use higher grade cable.
Weak contrast	Exceeded distance	Verify cable grade. Use higher grade cable if necessary. Adjust contrast on monitor.
Weak contrast	Unusual link attenuation	Verify cable distance using cable tester.
Horizontal bars moving upward in background	Ground loop problem	Assure that PC and Monitor are connected to the same ground. Disconnect PC or monitor from the ground
1~2 pixel object random dislocation	High noise level in the room. Distance exceeded.	Set another resolution and refresh rate. Review connectivity.
Slight variance in hue between left and right display margins	Slight background noise	Connect ground terminal to earth ground.
Shaking image	Possible ground loop problem	Disconnect gnd terminal from earth ground.
Image has yellowish tint	Marginal cabling	Check Cat5 cable. Try different cable or re-crimp RJ45 plugs.