

# Specifications

|   |   |
|---|---|
| <b>Environment</b>  | VGA. VESA VP&D 1.0, VIP ver 2.0   |
| <b>Devices</b>  | CRT/LCD monitors, plasma, laptops, PCs, projectors.   |
| <b>Transmission</b>   | Transparent to the user   |
| <b>Bandwidth</b>  | DC to 60 MHz  |
| <b>Input Signals</b>  | Video: 1.1 Vp-p<br>H & V sync: TTL standard. 300 kHz max. bandwidth   |
| <b>Insertion Loss</b>   | Less than 3 dB per pair over the frequency range  |
| <b>Common Mode Rejection Ratio (CMRR)</b>                                       | 15 kHz -60 dB typ.<br>100 kHz to 10 MHz -40 dB typ.<br>200 MHz -20 dB typ.  |
| <b>Return Loss</b>  | -15 dB max from DC to 60 MHz  |
| <b>Connectors</b>   | 500040/500042: DB15 HD Plug, RJ45 Shielded<br>500041/500043: DB15 HD Receptacle, RJ45 Shielded  |
| <b>Max. Distance via Cat 5E/6 UTP/STP Cable</b>                                 | VGA: 640x480 pixels (15 MHz) 450 ft (137 m)<br>SVGA: 800x600 pixels (30 MHz) 350 ft (107 m)<br>XGA: 1024x768 pixels (60 MHz) 250 ft (76 m)<br>SXGA: 1280x1024 pixels (100 MHz) 200 ft (61 m)<br>WXGA: 1366x768 pixels 180 ft (55 m) |
| <b>RJ45 Pin Configuration<br/>EIA 568 A or B<br/>Reverse Polarity Sensitive</b> | Pin 1(R) Pin 2(T) Balanced – Red<br>Pin 4(R) Pin 5(T) Balanced – Green<br>Pin 7(R) Pin 8(T) Unbalanced – Blue (7 sig, 8 gnd)<br>Pin 3(R) Pin 6(T) Unbalanced – H & V Sync   |
| <b>Compatibility</b>  | Not compatible with the VGA Balun (500010, 500011, 500014) or Active VGA Balun Kit (500035, 500036)   |
| <b>Reset button</b>   | May be needed when used with certain display devices  |
| <b>Grounding screw</b>  | Grounding screw for optional use  |
| <b>Cable</b>  | Cat 5E/6 or better unshielded twisted pair (UTP)  |
| <b>Impedance</b>  | Input: RGB 75 ohms Output: RGB 100 ohms   |
| <b>Temperature</b>  | Operating: 0° to 55°C<br>Storage: -20° to 85°C Humidity: Up to 95% non-condensing   |
| <b>Enclosure</b>  | ABS fire retardant plastic  |
| <b>Dimensions</b>   | 2.40" x 2.25 x 1.00" (6.10 x 5.72 x 2.54 cm) plus 6" (15 cm) lead on 500040 and 500042.   |
| <b>Weight</b>   | 500041/500043: 2.34 oz (66 g)<br>500040/500042: 3.87 oz (110 g)   |
| <b>Mounting</b>   | Free-standing. Separate velcro mounting pad included  |
| <b>Warranty</b>   | Lifetime  |
| <b>Order Information</b>  | 500040 VGA Balun II, DB15 HD Plug, PC Side<br>500041 VGA Balun II, DB15 HD Receptacle, Monitor Side<br>500042 VGA Balun II, DB15 HD Plug, Monitor Side<br>500043 VGA Balun II, DB15 HD Receptacle, PC Side                          |



## 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 5E/6 unshielded twisted pair (UTP) cable. Used in pairs, the VGA Balun II allows VGA video to be transmitted up to 350 ft (107 m) via a Cat 5E/6 UTP cable at 800x600 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.

# MuxLab

8495 Dalton Road, Mount Royal, Quebec, Canada. H4T 1V5

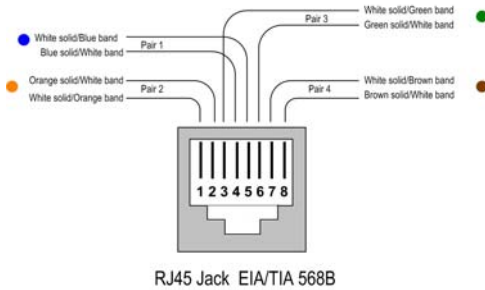
Tel: (514) 905-0588 Fax: (514) 905-0589

Toll Free (North America): (877) 689-5228

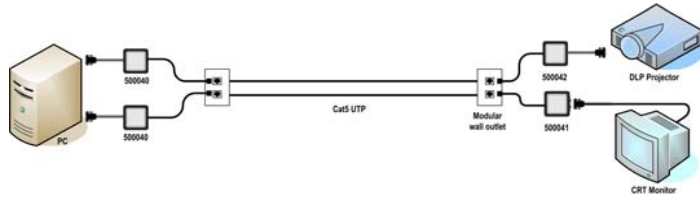
E-mail: [videoease@muxlab.com](mailto:videoease@muxlab.com) URL: [www.muxlab.com](http://www.muxlab.com)

# 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 Cat 5E/6 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.



3. Connect a 500041 or 500042 to the VGA input of the display.
4. Connect a Cat 5E/6 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 diagram below.

**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.

**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 table describes some of the symptoms, probable causes and possible solutions in respect to the installation of the VGA Balun II:

| Symptom   | Probable Causes                                     | Possible Solutions   |
|---|---|--|
| No video  | No continuity in video link                         | Verify cable continuity between baluns.  |
|   | Power off   | Check power supplies of VGA equipment.   |
|   | 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.   |
|   | 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 to 2 pixel object random dislocation                        | High noise level in the room.<br>Distance exceeded. | Set another resolution and refresh rate.<br>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.   |

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).