

VideoEase™
VGA 1x4 Distribution Hub
(500150, 500151)



Installation Guide

P/N: 94-000624-A SE-000605-A

MuxLab

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1. Overview



1.1. **Description**

The VGA 1x4 Distribution Hub allows one (1) VGA (RGBHV) source to be distributed to up to four (4) displays via Cat5E/6 cable for more cost-efficient cabling. The hub works in conjunction with the Active VGA Balun II Kit (500140) and Active VGA Balun II Receivers (500142). At least one (1) 500140 is required to support one (1) display. Up to three (3) additional 500142 may be added to support up to three (3) additional displays.

1.2. Features

- Plug-and-Play: DDC1/DDC2 compliant
- Remote power pass-thru
- Up to 600 ft (180m) via Cat5E/6 @ 1920 x 1440
- Up to 600 ft (180m) via Cat5E/6 @ 1080p
- Modular RJ45 on input and output
- Ground loop isolation on every port
- Works with Active VGA Balun II (500140, 500142)
- Supports VGA and RGB/YPbPr

2. Technical Specifications

Environment	VGA, VESA VP&D 1.0, VIP ver 2.0 and DDC1.		
Devices	PCs, laptops, CRT monitors, LCD monitors, plasma screens, DLP projectors.		
Transmission	Transparent to the user.		
Bandwidth	Up to 280 MHz (1920 x 1440 resolution), 1080p		
Impedance – Video	Coax: 75 ohms. UTP: 100 ohms		
Connectors	VGA Input (Cat5E/6): One (1) RJ45 shielded VGA Output (Cat5E/6): Four (4) RJ45 shielded		
DDC Control	Transmits DDC control signals on pins 4&5 for plug-and-play operation.		
Remote Power	Transmits remote DC power on pins 4&5		
Maximum Distance – Remote Power	Tx Balun to Hub: 150 ft (46m) Hub to Rx Balun: 150 ft (46m)		
Max. Dist. between VGA source and display <i>Hub may be placed anywhere in between.</i>	640 x 480 (VGA): 1000 ft (305m) 800 x 600 (SVGA): 1000 ft (305m) 1024 x 768 (XGA): 1000 ft (305m) 1280 x 1024 (SXGA): 850 ft (260m)	1600 x 1200 (UXGA): 800 ft (245m) 1366 x 768 (WXGA): 850 ft (260m) 1680x1050 (WSXGA): 850 ft (260m) 1920x1200 (WUXGA): 600 ft (180m)	
RJ45 Pin Configuration Reverse Polarity Sensitive <i>Use EIA/TIA 568 A or B, straight-through wiring</i>	Red: Pin 7 (R) Green: Pin 3 (R) Blue: Pin 1 (R) DDC/Remote Power: Pin 4 (R)	Pin 8 (T) Pin 6 (T) Pin 2 (T) Pin 5 (T)	 
Gain Adjustment	Gain control via DIP switches on receiver (factory default setting: all OFF)		
LED Indicators	Power: One (1) green LED		
Cable	Category 5E (or better) twisted pair cable.		
Power Supplies	110-240V/12VDC/3.35A. Detachable AC power cords included. 12VDC power jacks.		
Temperature	Operating: 0° to 40° C. Storage:-10° to 70° C. Humidity: up to 95% non-condensing		
Enclosure	Black. ABS fire retardant plastic		
Dimensions	4.5" x 3.8" x 1.25" (11.4 cm x 9.7 cm x 3.2cm)		
Weight	2 lbs., 0.9 kg		
Regulatory	FCC/CE, RoHS		
Warranty	Two (2) years		
Order Information	500150 VGA Hub, 4 Ports, 110V 500151 VGA Hub, 4 Ports, 220-240V		

3. **Installation Procedure**

3.1. Parts List

The VGA 1x4 Distribution Hub (500150) comes with the following parts. Please verify that all pieces are present before proceeding.

- Base Unit
- One (1) External Power Supply
- One (1) AC Power Cord (North American or Continental Europe)
- Installation Guide

3.2. **Product Overview**

The external connections and diagnostic indicators of the VGA 1x4 Distribution Hub are detailed in the following diagrams. Please familiarize yourself with them before installing the components.



Figure 1: Hub Membrane

3.3. Pre-Installation Checklist

The VGA 1x4 Distribution Hub works in conjunction with the Active VGA Balun II Kit (500140) and Active VGA Balun Receiver (500142).

1. Verify that you have all the components necessary to install the complete system and determine the final location for each piece of equipment.
2. One (1) Active VGA Balun Kit (500140) is needed to support the first display screen.
3. One (1) Active VGA Balun Receiver (500142) is required for each additional display.
4. Consult the Technical Specifications to determine whether the Hub and the Active VGA Baluns are within MuxLab distance limitations for Remote Power. If so, then only the Hub needs to be powered.
5. If extended distance is required beyond the limits of Remote Power, verify that each Active VGA Balun is powered by its own power supply. Additional 12VDC/0.5A balun power supplies may be ordered from your MuxLab distributor (P/N: 500144).
6. Verify that the screen resolution and cable lengths are within MuxLab specifications (see Technical Specifications).

3.4. Installation Procedure

In order to install the VGA 1x4 Hub, please follow the steps below:

1. Install the VGA 1x4 Hub in its final location.
2. Connect the Active VGA Balun II Transmitter to the VGA source. If there is a local monitor, connect it to the Local Monitor Output of the Active VGA Balun II Transmitter via a VGA cable (not included).
3. If not using the Remote Power feature, connect a power supply that comes with the Active VGA Balun II Kit to the Active VGA Balun II Transmitter. The green power LED should be ON.
4. Connect a length of Category 5E/6 (or better) UTP cable between the Active VGA Balun II Transmitter and the VGA 1x4 Hub. Note: DDC is on port # 1.
5. Connect an Active VGA Balun Receiver to each display.
6. If the distance is within MuxLab specification for remote power, then no power supply is needed at the Receiver.
7. If the distance exceeds the MuxLab specification for remote power, connect a Power Supply (500144) to the Active VGA Balun II Receiver. The green power LED should be ON.

8. Connect a length of Category 5E/6 (or better) UTP cable between the VGA 1x4 Hub and each Active VGA Balun II Receiver.
9. The Active VGA Balun II features gain compensation switches. For more information, please refer to the Active VGA Balun II Installation Guide.
10. The following diagram shows the final configuration.

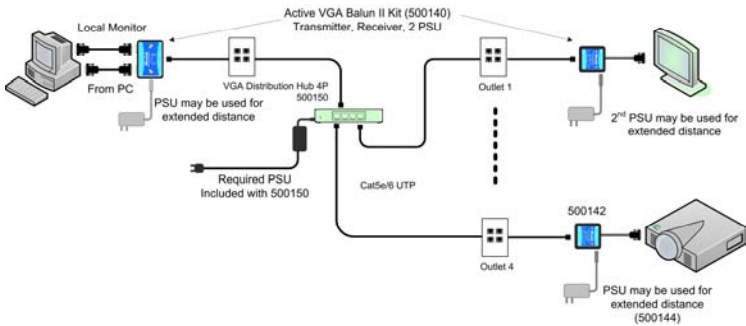


Figure 2: Typical Configuration – VGA

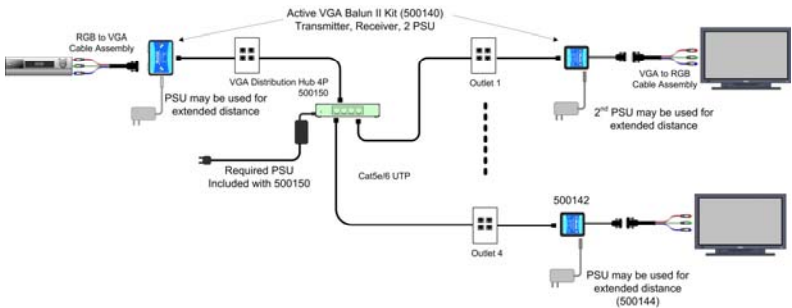
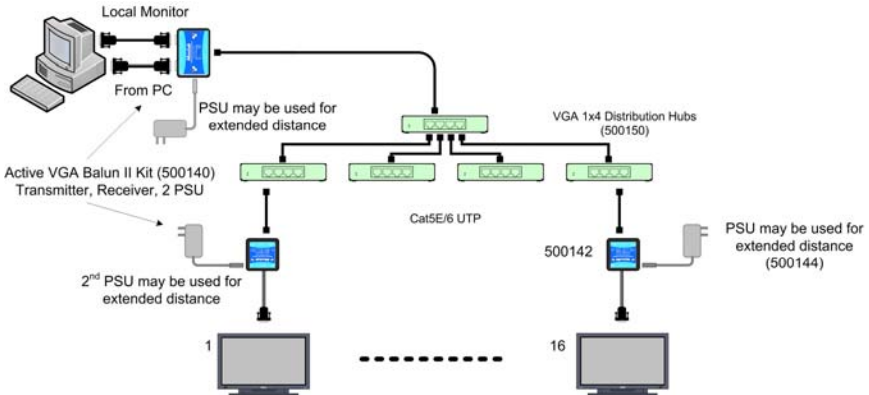


Figure 3: Typical Configuration – RGB/YpbPr

3.5. Cascadability

In order to distribute one (1) VGA source to more than four (4) displays, the VGA 1x4 Hub may be cascaded to up to two (2) levels. In other words, one master hub may feed up to four (4) slave hubs as shown in the following diagram.



4. Troubleshooting

The following table describes some of the problem symptoms, the probable causes and possible solutions. If the information below does not solve the problem, the technical support contact information can be found at the end of this section.

Picture	Power LED	Probable Cause	Possible Solution
No Image	OFF	No power	Check power connections
No Image	ON	Wiring	Check continuity Check correct wiring
Smearing	ON	Exceed cable length	Reduce cable length Adjust contrast and brightness
Ghosting	ON	Impedance mismatch	Check cabling Try different VGA card or display
Wrong colors	ON	Swapped pairs	Check wiring
Loss of detail	ON	Exceed cable length	Reduce cable length Adjust contrast and brightness
Image shakes	ON	Too much gain	Adjust Gain and Equalization on Active VGA Balun Receiver.

When contacting your nearest MuxLab dealer or MuxLab Technical Support please have the following information ready:

- Unit model number.
- Cabling layout. Include model of video source and display used, cable length and type.
- Description of problem.
- List of tests performed.

5. Product Warranty Policy

Items under warranty - Company Policy

MuxLab guarantees its products to be free of defects in manufacturing and workmanship for the warranty period from the date of purchase. If this product fails to give satisfactory performance during this warranty period, MuxLab will either repair or replace this product at no additional charge, except as set forth below. Repair and replacement parts will be furnished on an exchange basis and will be either reconditioned or new. All replaced parts and products become the property of MuxLab. This limited warranty does not include repair services for damage to the product resulting from accident, disaster, misuse, abuse, or unauthorized modifications or normal decay of battery driven devices. Batteries if included with the product, are not covered under this warranty.

Limited warranty service can be obtained by delivering the product during the warranty period to the authorized MuxLab dealer from whom you purchased the product, or by sending it to MuxLab. MuxLab will not accept any such product for repair without a Return Material Authorization number (RMA#) issued by its Customer Service Department and a proof of purchase date. If this product is delivered to MuxLab by mail, you agree to assume risk of loss or damage in transit, to prepay shipping charges to the warranty service location, and to use the original shipping container or equivalent.

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IF THIS PRODUCT IS NOT IN GOOD WORKING ORDER, YOUR SOLE REMEDY SHALL BE REPAIR OR REPLACEMENT AS PROVIDED FOR ABOVE. IN NO EVENT SHALL MuxLab BE LIABLE TO YOU FOR ANY DAMAGES, INCLUDING ANY LOSS OF PROFITS, LOST SAVINGS, OR OTHER INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OF OR INABILITY TO USE THIS PRODUCT, EVEN IF MUXLAB OR AN AUTHORISED MuxLab DEALER HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES; NOR WILL MUXLAB BE LIABLE FOR ANY CLAIM BY ANY OTHER PARTY. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES FOR CONSUMER PRODUCTS, SO THE ABOVE LIMITATIONS OR EXCLUSIONS MAY NOT APPLY TO YOU. THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS. YOU MAY ALSO HAVE OTHER RIGHTS WHICH MAY VARY FROM STATE TO STATE.

Warranty Periods

Any product found to be defective within three (3) months of invoice, including one (1) month shelf life, may be returned for replacement by a new unit or a satisfactory repair within one (1) month of receiving any returned product. The customer must provide MuxLab with the serial number and proof of purchase of the defective unit being returned. All R.M.A.'s issued are subject to inspection by MuxLab, and will be returned to customer if not properly package – units must be returned in original container or equivalent. MuxLab will not accept any such product for repair without an authorization for its Technical Support department and without a return authorization number issued by MuxLab Customer Service department. For credit & replace R.M.A., customer will be liable to pay replacement invoice if defective products are not returned.

Product more than six months old, including shelf life.

The defective unit must be returned prepaid to MuxLab and then the unit will be repaired or if repair is not possible, replaced by an equivalent unit and returned to the customer within one (1) month of receiving any returned product. There is no charge for repair (parts and labor) during the full warranty period.

Items Defective and not under Warranty

For products which are no longer under warranty the policy is repair and return. An amount of 25% of the products published list price at the time of purchase will be charged. Customer must issue a purchase order to cover the cost of repair.

Each unit will be returned to the customer within one (1) month from receipt of the unit by MuxLab. The defective unit must be returned prepaid to MuxLab. The repaired unit will be returned to the customer FOB MuxLab. The repaired unit has a 90 day warranty.



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