

**VideoEase™**

**Active Component Video Balun Kit  
500090**



**Installation Guide**

P/N: 94-000650-A SE-000650-A

---

**MuxLab**

**Copyright Notice:**

Copyright © 2009 MuxLab Inc. All rights reserved.

Printed in Canada. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise without prior written permission of the author.

**Trademarks:**

MuxLab and VideoEase are registered trademarks of MuxLab Inc.

## Table of Contents

- 1. Overview .....4**
  - 1.1. Description.....4
  - 1.2. Features.....5
- 2. Technical Specifications .....6**
- 3. Installation Procedure .....7**
  - 3.1. Parts List .....7
  - 3.2. Product Overview .....8
  - 3.3. Pre-Installation Checklist.....9
  - 3.4. Installation Procedure .....10
- 4. Troubleshooting .....14**
- 5. Product Warranty Policy .....16**

# 1. Overview

## 1.1. Description

The Active Component Video Balun Kit allows component video, analog stereo audio and/or digital audio, and one IR-emitter signal to be transmitted via a cost-effective unshielded copper twisted cable in a point-to-point configuration.

The product supports simultaneous stereo audio and digital audio transmission. The product provides IR-emitter pass-through connectivity, supports up to 1080p resolution, and features manual brightness and sharpness adjustments.

The product converts a component video signal from an unbalanced to balanced signal, and amplifies and equalizes the signal at the receiving end. It provides excellent image quality and minimizes distortions due to smearing, propagation delay, and phase deviation. The transmitter and receiver are shown on page 8.

Applications for the Active Component Video Balun Kit include digital signage, residential, boardroom, classroom, and home theater video systems.

## **1.2. Features**

- Up to 500 ft (152 m) via Cat 5e/6 @ 720p/1080i and 1080p
- Up to 1000 ft (305 m) via Cat 5e/6 @ 480i/p
- Supports stereo audio and digital audio simultaneously
- IR-Emitter pass-through
- Manual brightness compensation
- Manual sharpness compensation

## 2.

# Technical Specifications

<b>Environment</b>	Component Video with Analog Stereo and/or Digital Audio, IR-Emitter Pass-Through	
<b>Devices</b>	DVD Players, Satellite Receivers, PCs, laptops, CRT monitors, LCD monitors, plasma screens, DLP projectors	
<b>Transmission</b>	Transparent to the user	
<b>Bandwidth</b>	Up to 220 MHz (1080p)	
<b>Input Impedance</b>	Video & Digital Audio RCA: 75 ohms; Stereo Audio: 2.2 Kohms	
<b>Output Impedance</b>	Cat 5e: 100 ohms	
<b>Connectors: Transmitter</b>	Component Input:	3 x female RCAs
	Stereo Audio Input:	2 x female RCAs
	Digital Audio Input:	female RCA
	IR-Emitter Pass-Through:	2 position terminal block
	Transmitter Output (Cat 5e):	RJ45 shielded
<b>Connectors: Receiver</b>	Receiver Input (Cat 5e):	RJ45 shielded
	Component Output:	3 x female RCAs
	Stereo Audio Output:	2 x female RCAs
	Digital Audio Output:	female RCA
	IR-Emitter Pass-Through:	2 position terminal block
<b>Max Distance: Component Video (Y/Pb/Pr) via Cat 5e UTP Cable (or better)</b>	480i/p: 1,000 ft (305 m)	
	720p/1080i: 500 ft (152 m)	
	1080p: 500 ft (152 m)	
<b>Max Distance: Audio (Stereo/Digital) via Cat 5e UTP Cable (or better)</b>	Analog Stereo Audio:	1,000 ft (305 m)
	Digital Audio:	1,000 ft (305 m)
<b>RJ45 Pin Configuration Reverse Polarity Sensitive</b> <i>Use EIA/TIA 568A or 568B straight-through wiring</i>	Green (Y):	Pin 1 (R) Pin 2 (T)
	Blue (Pb):	Pin 4 (R) Pin 5 (T)
	Red (Pr):	Pin 7 (R) Pin 8 (T)
	IR-Emitter Pass-Through:	Pin 3 (R) Pin 6 (T)
<b>Brightness Adjustment</b>	Brightness control via rotary switch on the receiver (Factory default setting: "None")	
<b>Sharpness Adjustment</b>	Sharpness control via potentiometer on the receiver (Factory default setting: Completely rotated counterclockwise)	
<b>LED Indicators</b>	Tx Balun: Power: One (1) green LED Rx Balun: Power: One (1) green LED	
<b>Cable</b>	Cat 5e unshielded twisted pair (or better)	
<b>Power Supplies</b>	110-240V/12VDC/0.5A, 12VDC power jacks Removable AC blades included for North America, Continental Europe & UK	
<b>Temperature</b>	Operating: 0° C to 40° C Storage: -10° C to 70° C Humidity: Up to 95% non-condensing	
<b>Enclosure</b>	Black, ABS fire retardant plastic	
<b>Dimensions</b>	6" x 4.25" x 1.50" (15.3 cm x 10.8 cm x 3.8 cm)	
<b>Weight</b>	2.8 lbs (1.3 kg)	
<b>Regulatory</b>	FCC/CE, RoHS	
<b>Warranty</b>	Two (2) years	
<b>Order Information</b>	500090: Active Component Video Balun Kit	

## **3.** **Installation Procedure**

### **3.1. Parts List**

The Active component Balun Kit (500090) comes with the following parts:

- Transmitter
- Receiver
- Two (2) External Power Supplies (12 VDC, 0.5 A)
- Blades for North America, Continental Europe & UK
- Installation Guide

Please verify that all pieces are present before proceeding.

Component & audio jumper cables and category 5e/6 cable are not included.

### 3.2. Product Overview

The external connections and diagnostic indicators of the Active Component Video Balun are described on the following pages. Please familiarize yourself with them before proceeding with the installation.



Figure 1: Transmitter



Figure 2: Receiver



### **3.3. Pre-Installation Checklist**

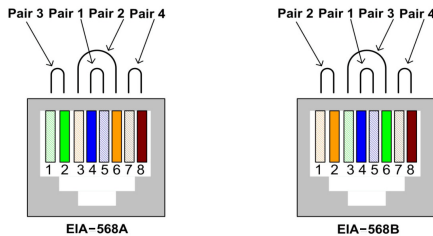
There are two (2) components that must be verified before installation can begin: the transmitter and the receiver.

1. The transmitter is connected to the video source, usually a DVD player, via component video & audio jumper cables (not included).
2. The transmitter is connected to the receiver by a Category 5e/6 (or higher) unshielded twisted pair cable (not included).
3. The receiver is connected to the display equipment, usually a projector or screen, via component video & audio jumper cables (not included).
4. Verify that the desired image resolution is within the specifications of the Active Component Video Balun Kit.

### 3.4. Installation Procedure

Verify that the distance between the Active Component Video Balun transmitter and receiver are within MuxLab specifications (see Technical Specifications). In order to install the transmitter, please follow the steps below:

1. Connect the transmitter to the audio-video source with the appropriate component video & audio jumper cables.
2. (Optional) Connect an infrared transmitter to the 2 positions terminal block.
3. Connect a length of Category 5e/6 (or higher) UTP cable to the transmitter. Ensure that the wiring is in accordance with EIA-568A or EIA-568B standards and straight-through.



4. Connect the 12 VDC power supply to the transmitter.
5. Plug the power supply into an AC power outlet. If power is present, the green power LED will be ON.

To install the receiver, please follow the steps below:

6. Connect the Active Component Video Balun receiver to the display equipment with the appropriate component video & audio jumper cables.
7. (Optional) Connect an infrared receiver to the 2 position terminal block.
8. Connect the UTP cable to the Video IN/UTP connector of the receiver.
9. Connect the second 12 VDC power supply to the receiver.
10. Plug the power supply into an AC power outlet. If power is present, the green power LED will be ON.
11. To adjust the picture quality, rotate the brightness rotary switch and/or sharpness potentiometer on the rear panel of the Active Component Video Balun receiver. The factory default position for the brightness (“Bright”) is “None,” and the factory default position for the sharpness (“Sharp”) is zero (rotated completely counterclockwise).



**Figure 3: Brightness and Sharpness Adjustment**

12. The following table provides suggested rotary switch settings for adjusting picture brightness.

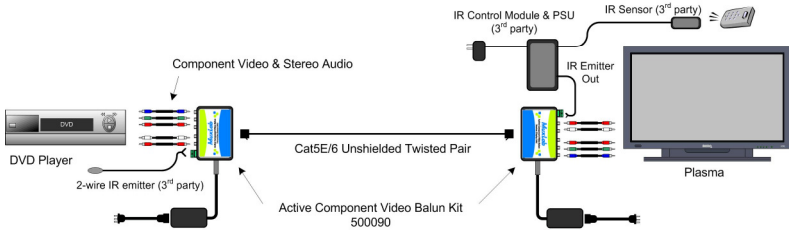
Brightness Setting	Actual Gain
Less	-25%
None	0%
Medium	25%
High	50%

**Table 1: Rotary Switch Settings for Brightness Adjustment**

13. To adjust picture sharpness, begin with the sharpness potentiometer (“Sharp”) rotated completely counterclockwise, and slowly rotate it in the clockwise direction until picture details become clear.

**Note:** For display equipment with automatic brightness control (for example, certain models of projectors), complete all installation procedures and ensure that the brightness rotary switch (“Bright”) is set to “None” and the sharpness potentiometer (“Sharp”) is rotated completely counterclockwise before turning the display equipment on. Otherwise, the display could override the brightness adjustment feature of the VideoEase Active Component Balun Kit.

- 14. The brightness rotary switch adjusts the luminance level to compensate for low frequency signal loss due to the Cat 5e/6 cable.
- 15. The sharpness potentiometer adjusts the equalization to compensate for high frequency signal loss due to the Cat 5e/6 cable.
- 16. Figure 4 shows the final configuration.



**Figure 4: Typical Configuration**

## 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.

<b>Problem</b>	<b>LED (Tx) Power</b>	<b>LED (Rx) Power</b>	<b>Probable Cause</b>	<b>Possible Solution</b>
No Image	OFF	OFF	No power	Check power connections
No Image	OFF	ON	No power at Transmitter	Check power connections
No Image	ON	OFF	No power at receiver	Check power connections
No Image	ON	ON	Source not present or cable problem	Check component cable
No Image	ON	ON	Cat 5 cable	Check continuity Check correct wiring
Smearing	ON	ON	Cable length exceeded	Reduce cable length Adjust Brightness and Sharpness
Ghosting	ON	ON	Impedance mismatch	Check cabling Try different source or display
Wrong Colors	ON	ON	Swapped pairs	Check wiring
Loss of Detail	ON	ON	Cable length exceeded	Reduce cable length Adjust Sharpness
Shaky Image	ON	ON	Too much gain	Reduce cable length Adjust Brightness and Sharpness

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

- Unit model number.
- Cabling layout. Include model of PC 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.

THE ABOVE LIMITED WARRANTY IS THE ONLY WARRANTY COVERING YOUR MUXLAB PRODUCT. THERE ARE NO OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. SOME STATES DO NOT ALLOW LIMITATIONS ON IMPLIED WARRANTIES, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU.

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.*





## ***MuxLab***

MuxLab Inc.

Tel.: +1 (514) 905-0588 Fax: +1 (514) 905-0589

Toll Free (North America): 877 689-5228

URL: [www.muxlab.com](http://www.muxlab.com)

E-mail: [videoease@muxlab.com](mailto:videoease@muxlab.com)