



KRAMER ELECTRONICS LTD.

USER MANUAL

MODEL:

VA-10
Cable Delay Corrector

P/N: 2900-000052 Rev 2

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1 Introduction

Welcome to Kramer Electronics! Since 1981, Kramer Electronics has been providing a world of unique, creative, and affordable solutions to the vast range of problems that confront the video, audio, presentation, and broadcasting professional on a daily basis. In recent years, we have redesigned and upgraded most of our line, making the best even better!

Our 1,000-plus different models now appear in 11 groups that are clearly defined by function: GROUP 1: Distribution Amplifiers; GROUP 2: Switchers and Matrix Switchers; GROUP 3: Control Systems; GROUP 4: Format/Standards Converters; GROUP 5: Range Extenders and Repeaters; GROUP 6: Specialty AV Products; GROUP 7: Scan Converters and Scalers; GROUP 8: Cables and Connectors; GROUP 9: Room Connectivity; GROUP 10: Accessories and Rack Adapters and GROUP 11: Sierra Products.

Congratulations on purchasing your Kramer **VA-10** *Cable Delay Corrector*, which is ideal for the following typical applications:

- Using long cable runs of analog video
- Correcting relative color shifts in RGBHV systems

2 Getting Started

We recommend that you:

- Unpack the equipment carefully and save the original box and packaging materials for possible future shipment
- Review the contents of this user manual
Use Kramer high performance high resolution cables.



Go to <http://www.kramerelectronics.com> to check for up-to-date user manuals, application programs, and to check if firmware upgrades are available (where appropriate).



Caution: No operator serviceable parts inside the unit

Warning: Use only the Kramer Electronics input power wall adapter that is provided with the unit

Warning: Disconnect the power and unplug the unit from the wall before installing

2.1 Achieving the Best Performance

To achieve the best performance:

- Use only good quality connection cables to avoid interference, deterioration in signal quality due to poor matching, and elevated noise levels (often associated with low quality cables)
- Avoid interference from neighboring electrical appliances that may adversely influence signal quality
- Position your Kramer **VA-10** away from moisture, excessive sunlight and dust

3 Overview

The Kramer **VA-10 Cable Delay Corrector** is a cable delay (skew) corrector for RGB signals. The unit is designed to correct the problem of differing delay times in analog signals, such as RGB, or twisted pair signals that causes misconvergence on the display. The **VA-10** lets you adjust and thus match the delays in the three signals. The **VA-10** features controls for adjusting the red, green and blue skew (delay) individually and independently. It is 12V DC fed and is housed in a Kramer TOOLS enclosure.

For example, if the RGB was sent via a CAT 5 cable at some stage during the video processing, then the different lengths of the pairs within the CAT 5 cable create different delays (skewing) of the R, G and B.

3.1 Defining the VA-10 Cable Delay Corrector

This section defines the **VA-10**.

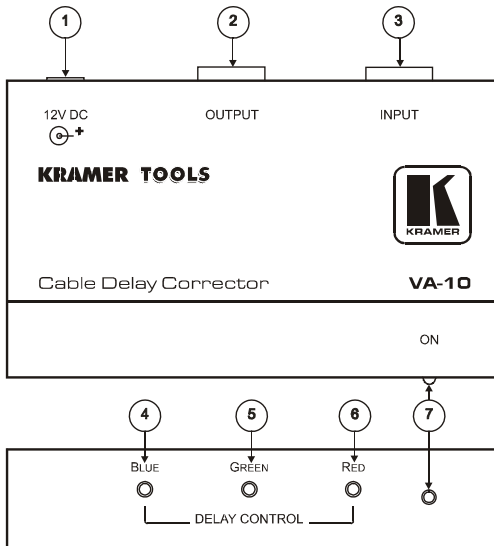


Figure 1: VA-10 Cable Delay Corrector

#	Feature	Function
1	12V DC	+12V DC connector for powering the unit
2	15-pin HD (F) <i>OUTPUT</i> Connector	Connects to the output acceptor
3	15-pin HD (F) <i>INPUT</i> Connector	Connects to the input source
4	DELAY CONTROL	<i>BLUE</i> Trimmer Adjusts the blue delay (up to 62ns) Insert a screwdriver into the small hole and carefully rotate it to adjust the delay
5		<i>GREEN</i> Trimmer Adjusts the green delay (up to 62ns) Adjust as above
6		<i>RED</i> Trimmer Adjusts the red delay (up to 62ns) Adjust as above
7	ON LED	Illuminates when receiving power

4 Connecting the VA-10



Always switch off the power to each device before connecting it to your **VA-10**. After connecting your **VA-10**, connect its power and then switch on the power to each device.

To connect the **VA-10** (as the example in [Figure 2](#) illustrates), do the following:

1. Connect a computer graphics source to the XGA INPUT of a **PT-110 XGA Line Transmitter** and connect the LINE OUTPUT on the **PT-110** to the LINE IN RJ-45 connector on a **TP-120 XGA Line Receiver** unit. Connect the XGA OUT connector on the **TP-120** unit to the 15-pin HD (F) INPUT connector on the **VA-10**.
Refer to the **PT-110**, **WP-110**, **TP-120** user manuals that can be downloaded at <http://www.kramerelectronics.com>.
2. Connect the 15-pin HD (F) OUTPUT connector on the **VA-10**, to the RGB acceptor (for example, a projector).
3. On each of the **VA-10**, **TP-120** and **PT-110**, connect the 12V DC power adapter to the power socket and connect the adapter to the mains electricity.
4. Use the BLUE, RED and GREEN trimmers to adjust the blue, red and green color delays, as required.

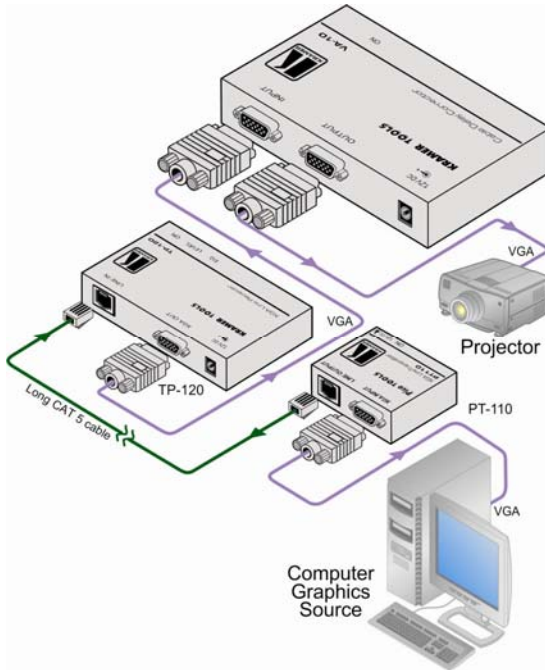


Figure 2: Connecting the VA-10 Cable Delay Corrector

5 Technical Specifications

INPUTS:	1 analog red, green, blue input signals - 0.7 Vpp/75Ω, H & V sync, TTL level, on an 15-pin HD (F) connector
OUTPUTS:	1 analog red, green, blue output signals - 0.7 Vpp/75Ω, H & V sync, TTL level, on an 15-pin HD (F) connector
MAX. OUTPUT LEVEL:	1Vpp
RESOLUTION:	Up to UXGA
DIFF. GAIN:	0.8%
DIFF. PHASE:	0.7Deg
K-FACTOR:	0.4%
S/N RATIO:	71dB
CONTROLS:	Delay control via 3 (RGB) trimmers, 0 to 62ns
COUPLING:	AC
OPERATING TEMPERATURE:	0° to +55°C (32° to 131°F)
STORAGE TEMPERATURE:	-45° to +72°C (-49° to 162°F)
HUMIDITY:	10% to 90%, RHL non-condensing
POWER SOURCE:	12 VDC, 150mA
DIMENSIONS:	12 cm x 7.5 cm x 2.5 cm (4.7" x 2.95" 0.98", W, D, H)
WEIGHT:	0.3 kg (0.67 lbs.) approx
ACCESSORIES:	Power supply, mounting bracket
OPTIONS:	RK-T3 19" rack adapter
Specifications are subject to change without notice at http://www.kramerelectronics.com	

LIMITED WARRANTY

The warranty obligations of Kramer Electronics for this product are limited to the terms set forth below:

What is Covered

This limited warranty covers defects in materials and workmanship in this product.

What is Not Covered

This limited warranty does not cover any damage, deterioration or malfunction resulting from any alteration, modification, improper or unreasonable use or maintenance, misuse, abuse, accident, neglect, exposure to excess moisture, fire, improper packing and shipping (such claims must be presented to the carrier), lightning, power surges, or other acts of nature. This limited warranty does not cover any damage, deterioration or malfunction resulting from the installation or removal of this product from any installation, any unauthorized tampering with this product, any repairs attempted by anyone unauthorized by Kramer Electronics to make such repairs, or any other cause which does not relate directly to a defect in materials and/or workmanship of this product. This limited warranty does not cover cartons, equipment enclosures, cables or accessories used in conjunction with this product.

Without limiting any other exclusion herein, Kramer Electronics does not warrant that the product covered hereby, including, without limitation, the technology and/or integrated circuit(s) included in the product, will not become obsolete or that such items are or will remain compatible with any other product or technology with which the product may be used.

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Seven years as of this printing; please check our Web site for the most current and accurate warranty information.

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What Kramer Electronics will do

Kramer Electronics will, at its sole option, provide one of the following three remedies to whatever extent it shall deem necessary to satisfy a proper claim under this limited warranty:

1. Elect to repair or facilitate the repair of any defective parts within a reasonable period of time, free of any charge for the necessary parts and labor to complete the repair and restore this product to its proper operating condition. Kramer Electronics will also pay the shipping costs necessary to return this product once the repair is complete.
2. Replace this product with a direct replacement or with a similar product deemed by Kramer Electronics to perform substantially the same function as the original product.
3. Issue a refund of the original purchase price less depreciation to be determined based on the age of the product at the time remedy is sought under this limited warranty.

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If this product is returned to Kramer Electronics or the authorized dealer from which it was purchased or any other party authorized to repair Kramer Electronics products, this product must be insured during shipment, with the insurance and shipping charges prepaid by you. If this product is returned uninsured, you assume all risks of loss or damage during shipment. Kramer Electronics will not be responsible for any costs related to the removal or re-installation of this product from or into any installation. Kramer Electronics will not be responsible for any costs related to any setting up this product, any adjustment of user controls or any programming required for a specific installation of this product.

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To obtain a remedy under this limited warranty, you must contact either the authorized Kramer Electronics reseller from whom you purchased this product or the Kramer Electronics office nearest you. For a list of authorized Kramer Electronics resellers and/or Kramer Electronics authorized service providers, please visit our web site at www.kramerelectronics.com or contact the Kramer Electronics office nearest you.

In order to pursue any remedy under this limited warranty, you must possess an original, dated receipt as proof of purchase from an authorized Kramer Electronics reseller. If this product is returned under this limited warranty, a return authorization number, obtained from Kramer Electronics, will be required. You may also be directed to an authorized reseller or a person authorized by Kramer Electronics to repair the product.

If it is decided that this product should be returned directly to Kramer Electronics, this product should be properly packed, preferably in the original carton, for shipping. Cartons not bearing a return authorization number will be refused.

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For the latest information on our products and a list of Kramer distributors, visit our Web site where updates to this user manual may be found.

We welcome your questions, comments, and feedback.

Web site: www.kramerelectronics.com

E-mail: info@kramerel.com



SAFETY WARNING

Disconnect the unit from the power supply before opening and servicing