

CAT5e / CAT6 Compensator

INSTALLATION AND OPERATIONS MANUAL



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LIMITED WARRANTY

Rose Electronics warrants the CAT5e / CAT6 Compensator to be in good working order for one year from the date of purchase from Rose Electronics or an authorized dealer. Should this product fail to be in good working order at any time during this one-year warranty period, Rose Electronics will, at its option, repair or replace the Unit as set forth below. Repair parts and replacement units will be either reconditioned or new. All replaced parts become the property of Rose Electronics. This limited warranty does not include service to repair damage to the Unit resulting from accident, disaster, abuse, or unauthorized modification of the Unit, including static discharge and power surges.

Limited Warranty service may be obtained by delivering this unit during the one-year warranty period to Rose Electronics or an authorized repair center providing a proof of purchase date. If this Unit is delivered by mail, you agree to insure the Unit or assume the risk of loss or damage in transit, to prepay shipping charges to the warranty service location, and to use the original shipping container or its equivalent. You must call for a return authorization number first. Under no circumstances will a unit be accepted without a return authorization number. Contact an authorized repair center or Rose Electronics for further information.

ALL EXPRESS AND IMPLIED WARRANTIES FOR THIS PRODUCT INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED IN DURATION TO A PERIOD OF ONE YEAR FROM THE DATE OF PURCHASE, AND NO WARRANTIES, WHETHER EXPRESS OR IMPLIED, WILL APPLY AFTER THIS PERIOD. SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU.

IF THIS PRODUCT IS NOT IN GOOD WORKING ORDER AS WARRANTED ABOVE, YOUR SOLE REMEDY SHALL BE REPLACEMENT OR REPAIR AS PROVIDED ABOVE. IN NO EVENT WILL ROSE ELECTRONICS BE LIABLE TO YOU FOR ANY DAMAGES INCLUDING ANY LOST PROFITS, LOST SAVINGS OR OTHER INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OF OR THE INABILITY TO USE SUCH PRODUCT, EVEN IF ROSE ELECTRONICS OR AN AUTHORIZED DEALER HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, OR 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 MAY NOT APPLY TO YOU. THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH MAY VARY FROM STATE TO STATE.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

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**FEDERAL COMMUNICATIONS COMMISSION
AND INDUSTRY CANADA
RADIO-FREQUENCY INTERFERENCE STATEMENTS**

This equipment generates, uses and can radiate radio frequency energy and if not installed and used properly, that is in strict accordance with the manufacturer's instructions may cause interference to radio communication. It has been tested and found to comply with the limits for a Class A digital device in accordance with the specifications of Part 15 of FCC rules, which are designed to provide reasonable protection against such interference when the equipment is operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user at his own expense will be required to take whatever measures may be necessary to correct the interference. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This digital apparatus does not exceed the Class A limits for radio noise emission from digital apparatus set out in the Radio Interference Regulation of Industry Canada.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe A prescrites dans le Règlement sur le brouillage radioélectrique publié par Industrie Canada.

CE DECLARATION OF CONFORMITY



This equipment is in conformity with the Council Directives 89/336/EEC
The Declaration of Conformity is based upon compliance of the product with the following standards:
EN55022: 1994
EN55024: 1998
EN61000-3-2: 1995
EN61000-3-3: 1995

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Disclaimer

While every precaution has been taken in the preparation of this manual, the manufacturer assumes no responsibility for errors or omissions. Neither does the manufacturer assume any liability for damages resulting from the use of the information contained herein. The manufacturer reserves the right to change the specifications, functions, or circuitry of the product without notice.

The manufacturer cannot accept liability for damages due to misuse of the product or other circumstances outside the manufacturer's control. The manufacturer will not be responsible for any loss, damage, or injury arising directly or indirectly from the use of this product.

System introduction

Thank you for choosing the Rose Electronics® CAT5e / CAT6 Compensator™. The CAT5e / CAT6 Compensator is the result of Rose Electronics commitment to providing state-of-the-art solutions for today's demanding workplace.

The CAT5e / CAT6 Compensator is designed to work in conjunction with Rose Electronics' CrystalView KVM extender product line. It corrects the majority of skew issues caused by differences in cable types, and electrical lengths of the CAT5x/CAT6 wire pairs. This differing length of the RGB components can cause smearing and color fringing. The red, green, and blue color channels can be delayed from 0 to 36ns in increments of 3ns using the CAT5e / CAT6 Compensator. Each color channel can be independently adjusted so the three RGB components arrive at the monitor at the same time to produce a clear image.

Package contents

The package contents consists of the following:

- The CAT5e / CAT6 Compensator Unit
- UTP Patch Cable (1.64 feet / 0.5 meter)
- Installation and Operations Manual

Rose Electronics web site

Visit our web site at www.rose.com for additional information on the CAT5e / CAT6 Compensator and other products offered by Rose Electronics that are designed for data center applications, classroom environments, and many other switching and extending applications.

Model



Figure 1. Model

Connectors:

- RJ45 (8-pin) – Extender
- RJ45 (8-pin) – Interconnect

RJ45 Pins	Function	Diagram
1 & 2 (Orange)	Blue Video (Adjustable from 0 to 36ns)	<p style="text-align: center;">RJ-45 JACK EIA/TIA 568B STANDARD</p>
3 & 6 (Green)	Green Video (Adjustable from 0 to 36ns)	
4 & 5 (Blue)	Red Video (Adjustable from 0 to 36ns)	
7 & 8 (Brown)	Data (Straight through data lines, no delay)	

Table 1. RJ45 Pin-out information

Installation

Please refer to the safety section first before proceeding with any installation or configuration of the CAT5e / CAT6 Compensator product.

The CAT5e / CAT6 Compensator module can add a delay on the red, blue, and green RGB color line pairs (pins 1&2, 3&6, and 4&5). The fourth line pair (Pins 7 & 8) is routed straight through the module with no delay (data lines). This configuration is compatible with all models of Rose Electronics CrystalView CAT5 KVM extenders. If your KVM extender is a different model, verify that the pin-out or your extender is compatible. As long as the RGB colors are routed on pins 1&2, 3&6, and 4&5 and the data is routed on pins 7 & 8, the module should function properly (See Table 1). The actual RGB colors labeled on the module may differ with different extenders (Blue may actually adjust the Red delay).

Connecting the CAT5e / CAT6 Compensator

The CAT5e / CAT6 Compensator should be placed in series with the main CAT5x/CAT6 cable. It is normally placed next to the Remote unit to allow for easy adjustments on both the Compensator and the KVM extender. See Figure 2. When the Compensator module has been installed, adjust the Remote unit for the best image with no video delay set on the CAT5e / CAT6 Compensator, then adjust the delay.

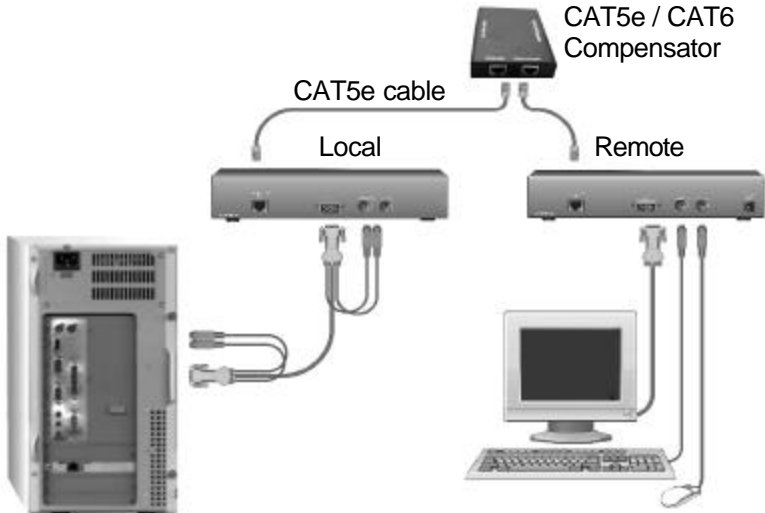


Figure 2. Module application

Switch settings

Before setting the delay switches, determine which colors need to be delayed. Using the Remote KVM station, open a text editor and enter some text using a large font (36 or greater). Use black text with a white background. If color fringing appears on the right edges of each character, that color is arriving at the monitor before the other colors. Note the fringe color and adjust the appropriate color delay switch using Table 2 as a guide. Adjust the switches while viewing the image on the Remote KVM station's monitor.

Note: When switching in/out the delay switches, the sync pulse are interrupted and you may temporarily lose the picture. Each delay setting (3, 6, 9, and 18ns) uses two switches, eight total. Make sure both switches for each delay setting is set to the same position. For example, to set the Blue channel to a 12nS delay, switches 1, 2, 5, and 6 would be set to the delay position.

Figure 3 shows an example of setting a delay of 3ns for the Blue channel, 15ns for the Green channel, and 24ns for the Red channel. The shaded areas represent the position of both switches. The delay added to any given color is the sum of the set switches for that color. If you needed a delay of 30nS, you would set both switches for the 3nS, 9nS, and the 18nS switches ($3+9+18=30$).

Alternative Skew correction method

Presently on the market, there are two main types of CAT5x/CAT6 cables. One is referred to as a 2+2, where two of the four pairs are similar in electrical length and the other two pairs are a different electrical length. The other type is referred to as a 3+1, where three pairs are similar in length. If you encounter skew using the 2+2 type cable, a Compensator module needs to be used because, to obtain the clearest possible image, there must be three pairs of similar electrical length wires, one for the red, green, and blue channels.

If a skew is present using a 3+1 type CAT5x/CAT6 cable, the three similar twisted pairs for the color channels could be pair swapped on the RJ45 pins to switch the RGB signals.

TIP: If a color needs compensating, start with a delay setting of 18nS and increase or reduce the delay as needed.

Right-hand color fringe	Red delay	Green Delay	Blue Delay
Red	Adjust		
Green		Adjust	
Blue			Adjust
Yellow	Adjust	Adjust	
Purple	Adjust		Adjust
Turquoise		Adjust	Adjust

Table 2. Initial delay adjustment

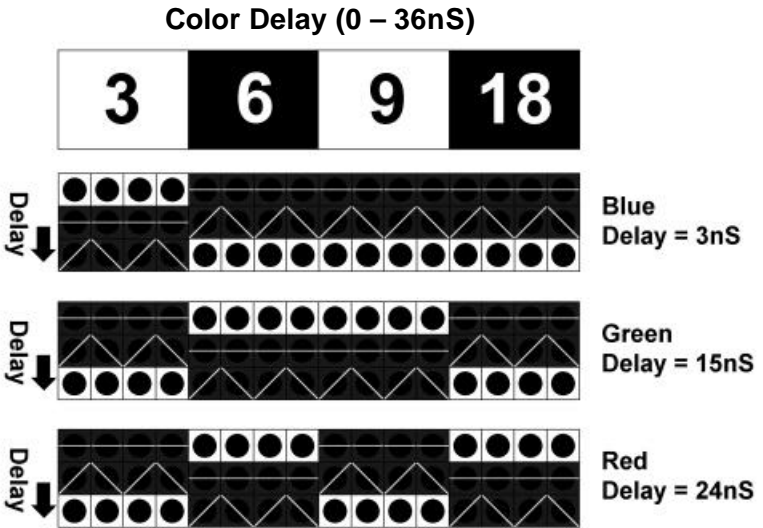


Figure 3. Delay switch settings

Service Information

Maintenance and Repair

This Unit does not contain any internal user-serviceable parts. In the event a Unit needs repair or maintenance, you must first obtain a Return Authorization (RA) number from Rose Electronics or an authorized repair center. This Return Authorization number must appear on the outside of the shipping container. See Limited Warranty for more information.

When returning a Unit, it should be double-packed in the original container or equivalent, insured and shipped to:

Rose Electronics
Attn: RA _____
10707 Stancliff Road
Houston, Texas 77099 USA

Technical Support

If you are experiencing problems, or need assistance in setting up, configuring or operating your product, consult the appropriate sections of this manual. If, however, you require additional information or assistance, please contact the Rose Electronics Technical Support Department at:

Phone: (281) 933-7673
E-Mail: TechSupport@rose.com
Web: www.rose.com

Technical Support hours are from: 8:00 am to 6:00 pm CST (USA), Monday through Friday.

Please report any malfunctions in the operation of this Unit or any discrepancies in this manual to the Rose Electronics Technical Support Department.

Safety

The CAT5e / CAT6 Compensator has been tested for conformance to safety regulations and requirements, and has been certified for international use. Like all electronic equipment, the Compensator module should be used with care. To protect yourself from possible injury and to minimize the risk of damage to the Unit, read and follow these safety instructions.

- Follow all instructions and warnings marked on this Unit.
- Except where explained in this manual, do not attempt to service this Unit yourself.
- Do not use this Unit near water.
- Assure that the placement of this Unit is on a stable surface.
- Keep objects that might damage this Unit and liquids that may spill, clear from this Unit. Liquids and foreign objects might come in contact with voltage points that could create a risk of fire or electrical shock.
- Operate this Unit only when the cover is in place.
- Do not use liquid or aerosol cleaners to clean this Unit
- Refer servicing to a qualified service center if any of the following conditions occur:
 - The Unit has been exposed to any liquids.
 - The Unit does not operate normally when all operating instructions have been followed.
 - The Unit has been dropped or the case has been damaged.
 - The Unit exhibits a distinct change in performance, indicating a need for service.

Safety information



Documentation reference symbol. If the product is marked with this symbol, refer to the product documentation to get more information about the product.

WARNING A WARNING in the manual denotes a hazard that can cause injury or death.

CAUTION A CAUTION in the manual denotes a hazard that can damage equipment.

Do not proceed beyond a WARNING or CAUTION notice until you have understood the hazardous conditions and have taken appropriate steps.

Grounding

These are Safety Class I products and have protective earthing terminals. There must be an un-interruptible safety earth ground from the main power source to the product's input wiring terminals, power cord, or supplied power cord set. Whenever it is likely that the protection has been impaired, disconnect the power cord until the ground has been restored.

Servicing

There are no user-serviceable parts inside these products. Only service-trained personnel must perform any servicing, maintenance, or repair.

APPENDICES

Appendix A. General specifications

Part number	ACC-DLCAT6
Minimum delay (Each color)	0ns (Default setting)
Maximum delay (Each color)	36ns
Delay Increments	3ns
Placement	In series with CAT5x/CAT6 cable
Connectors	RJ45 (2)
Adjustment method	Manual using changeover switches
Technology	Passive using switched differential delay lines
Weight	11.99 oz / 340g
Dimensions	H: 1.18 in / 30 mm W: 3.15 in / 80 mm L: 4.72 in / 120 mm



Server Management



Solutions

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