

User's Manual

WARNING Do not connect this device to a computer data or telecommunications network



CAT 5 R AV



CAT 5 R BNC A



CAT 5 R BNC AV

CAT 5 Receivers Family

High resolution Video, Composite Video, and Stereo Audio
UTP Transmission Products

68-547-01

Printed in the USA



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Precautions

Safety Instructions • English



This symbol is intended to alert the user of important operating and maintenance (servicing) instructions in the literature provided with the equipment.



This symbol is intended to alert the user of the presence of uninsulated dangerous voltage within the product's enclosure that may present a risk of electric shock.

Caution

Read Instructions • Read and understand all safety and operating instructions before using the equipment.

Retain Instructions • The safety instructions should be kept for future reference.

Follow Warnings • Follow all warnings and instructions marked on the equipment or in the user information.

Avoid Attachments • Do not use tools or attachments that are not recommended by the equipment manufacturer because they may be hazardous.

Consignes de Sécurité • Français



Ce symbole sert à avertir l'utilisateur que la documentation fournie avec le matériel contient des instructions importantes concernant l'exploitation et la maintenance (réparation).



Ce symbole sert à avertir l'utilisateur de la présence dans le boîtier de l'appareil de tensions dangereuses non isolées posant des risques d'électrocution.

Attention

Lire les instructions • Prendre connaissance de toutes les consignes de sécurité et d'exploitation avant d'utiliser le matériel.

Conservier les instructions • Ranger les consignes de sécurité afin de pouvoir les consulter à l'avenir.

Respecter les avertissements • Observer tous les avertissements et consignes marqués sur le matériel ou présentés dans la documentation utilisateur.

Eviter les pièces de fixation • Ne pas utiliser de pièces de fixation ni d'outils non recommandés par le fabricant du matériel car cela risquerait de poser certains dangers.

Sicherheitsanleitungen • Deutsch



Dieses Symbol soll dem Benutzer in der im Lieferumfang enthaltenen Dokumentation besonders wichtige Hinweise zur Bedienung und Wartung (Instandhaltung) geben.



Dieses Symbol soll den Benutzer darauf aufmerksam machen, daß im Inneren des Gehäuses dieses Produktes gefährliche Spannungen, die nicht isoliert sind und die einen elektrischen Schock verursachen können, herrschen.

Achtung

Lesen der Anleitungen • Bevor Sie das Gerät zum ersten Mal verwenden, sollten Sie alle Sicherheits- und Bedienungsanleitungen genau durchlesen und verstehen.

Aufbewahren der Anleitungen • Die Hinweise zur elektrischen Sicherheit des Produktes sollten Sie aufbewahren, damit Sie im Bedarfsfall darauf zurückgreifen können.

Befolgen der Warnhinweise • Befolgen Sie alle Warnhinweise und Anleitungen auf dem Gerät oder in der Benutzerdokumentation.

Keine Zusatzgeräte • Verwenden Sie keine Werkzeuge oder Zusatzgeräte, die nicht ausdrücklich vom Hersteller empfohlen wurden, da diese eine Gefahrenquelle darstellen können.

Instrucciones de seguridad • Español



Este símbolo se utiliza para advertir al usuario sobre instrucciones importantes de operación y mantenimiento (o cambio de partes) que se desean destacar en el contenido de la documentación suministrada con los equipos.



Este símbolo se utiliza para advertir al usuario sobre la presencia de elementos con voltaje peligroso sin protección aislante, que puedan encontrarse dentro de la caja o alojamiento del producto, y que puedan representar riesgo de electrocución.

Precaución

Leer las instrucciones • Leer y analizar todas las instrucciones de operación y seguridad, antes de usar el equipo.

Conservar las instrucciones • Conservar las instrucciones de seguridad para futura consulta.

Obedecer las advertencias • Todas las advertencias e instrucciones marcadas en el equipo o en la documentación del usuario, deben ser obedecidas.

Evitar el uso de accesorios • No usar herramientas o accesorios que no sean específicamente recomendados por el fabricante, ya que podrían implicar riesgos.

Warning

Power sources • This equipment should be operated only from the power source indicated on the product. This equipment is intended to be used with a main power system with a grounded (neutral) conductor. The third (grounding) pin is a safety feature, do not attempt to bypass or disable it.

Power disconnection • To remove power from the equipment safely, remove all power cords from the rear of the equipment, or the desktop power module (if detachable), or from the power source receptacle (wall plug).

Power cord protection • Power cords should be routed so that they are not likely to be stepped on or pinched by items placed upon or against them.

Servicing • Refer all servicing to qualified service personnel. There are no user-serviceable parts inside. To prevent the risk of shock, do not attempt to service this equipment yourself because opening or removing covers may expose you to dangerous voltage or other hazards.

Slots and openings • If the equipment has slots or holes in the enclosure, these are provided to prevent overheating of sensitive components inside. These openings must never be blocked by other objects.

Lithium battery • There is a danger of explosion if battery is incorrectly replaced. Replace it only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

Avertissement

Alimentations • Ne faire fonctionner ce matériel qu'avec la source d'alimentation indiquée sur l'appareil. Ce matériel doit être utilisé avec une alimentation principale comportant un fil de terre (neutre). Le troisième contact (de mise à la terre) constitue un dispositif de sécurité: n'essayez pas de le contourner ni de le désactiver.

Déconnexion de l'alimentation • Pour mettre le matériel hors tension sans danger, déconnectez tous les cordons d'alimentation de l'arrière de l'appareil ou du module d'alimentation de bureau (s'il est amovible) ou encore de la prise secteur.

Protection du cordon d'alimentation • Acheminer les cordons d'alimentation de manière à ce que personne ne risque de marcher dessus et à ce qu'ils ne soient pas écrasés ou pincés par des objets.

Réparation-maintenance • Faire exécuter toutes les interventions de réparation-maintenance par un technicien qualifié. Aucun des éléments internes ne peut être réparé par l'utilisateur. Afin d'éviter tout danger d'électrocution, l'utilisateur ne doit pas essayer de procéder lui-même à des opérations car l'ouverture ou le retrait des couvercles risquent de l'exposer à de hautes tensions et autres dangers.

Fentes et orifices • Si le boîtier de l'appareil comporte des fentes ou des orifices, ceux-ci servent à empêcher les composants internes sensibles de surchauffer. Ces ouvertures ne doivent jamais être bloquées par des objets.

Lithium Batterie • Il a danger d'explosion s'il y a remplacement incorrect de la batterie. Remplacer uniquement avec une batterie du même type ou d'un type équivalent recommandé par le constructeur. Mettre au reut les batteries usagées conformément aux instructions du fabricant.

Vorsicht

Stromquellen • Dieses Gerät sollte nur über die auf dem Produkt angegebene Stromquelle betrieben werden. Dieses Gerät wurde für eine Verwendung mit einer Hauptstromleitung mit einem geerdeten (neutralen) Leiter konzipiert. Der dritte Kontakt ist für einen Erdschluß, und stellt eine Sicherheitsfunktion dar. Diese sollte nicht umgangen oder außer Betrieb gesetzt werden.

Stromunterbrechung • Um das Gerät auf sichere Weise vom Netz zu trennen, sollten Sie alle Netzkabel aus der Rückseite des Gerätes, aus der externen Stromversorgung (falls dies möglich ist) oder aus der Wandsteckdose ziehen.

Schutz des Netzkabels • Netzkabel sollten stets so verlegt werden, daß sie nicht im Weg liegen und niemand darauf treten kann oder Objekte darauf- oder unmittelbar dagegestellt werden können.

Wartung • Alle Wartungsmaßnahmen sollten nur von qualifiziertem Servicepersonal durchgeführt werden. Die internen Komponenten des Gerätes sind wartungsfrei. Zur Vermeidung eines elektrischen Schocks versuchen Sie in keinem Fall, dieses Gerät selbst öffnen, da beim Entfernen der Abdeckungen die Gefahr eines elektrischen Schlags und/oder andere Gefahren bestehen.

Schlitze und Öffnungen • Wenn das Gerät Schlitze oder Löcher im Gehäuse aufweist, dienen diese zur Vermeidung einer Überhitzung der empfindlichen Teile im Inneren. Diese Öffnungen dürfen niemals von anderen Objekten blockiert werden.

Litium-Batterie • Explosionsgefahr, falls die Batterie nicht richtig ersetzt wird. Ersetzen Sie verbrauchte Batterien nur durch den gleichen oder einen vergleichbaren Batterietyp, der auch vom Hersteller empfohlen wird. Entsorgen Sie verbrauchte Batterien bitte gemäß den Herstelleranweisungen.

Advertencia

Alimentación eléctrica • Este equipo debe conectarse únicamente a la fuente/tipo de alimentación eléctrica indicada en el mismo. La alimentación eléctrica de este equipo debe provenir de un sistema de distribución general con conductor neutro a tierra. La tercera pata (puesta a tierra) es una medida de seguridad, no puede ser eliminada.

Desconexión de alimentación eléctrica • Para desconectar con seguridad la acometida de alimentación eléctrica al equipo, desenchufar todos los cables de alimentación en el panel trasero del equipo, o desenchufar el módulo de alimentación (si fuera independiente), o desenchufar el cable del receptáculo de la pared.

Protección del cables de alimentación • Los cables de alimentación eléctrica se deben instalar en lugares donde no sean pisados ni apretados por objetos que se puedan apoyar sobre ellos.

Reparaciones/mantenimiento • Solicitar siempre los servicios técnicos de personal calificado. En el interior no hay partes a las que el usuario deba acceder. Para evitar riesgo de electrocución, no intentar personalmente la reparación/mantenimiento de este equipo, ya que al abrir o extraer las tapas puede quedar expuesto a voltajes peligrosos u otros riesgos.

Ranuras y aberturas • Si el equipo posee ranuras o orificios en su caja/alojamiento, es para evitar el sobrecalentamiento de componentes internos sensibles. Estas aberturas nunca se deben obstruir con otros objetos.

Batería de litio • Existe riesgo de explosión si esta batería se coloca en la posición incorrecta. Cambiar esta batería únicamente con el mismo tipo (o su equivalente) recomendado por el fabricante. Desachar las baterías usadas siguiendo las instrucciones del fabricante.

FCC Class A Notice

Note: This equipment has been tested and found to comply with the limits for a Class A 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.

Note: This unit was tested with shielded cables on the peripheral devices. Shielded cables must be used with the unit to ensure compliance.

Extron's Warranty

Extron Electronics warrants this product against defects in materials and workmanship for a period of two years from the date of purchase. In the event of malfunction during the warranty period attributable directly to faulty workmanship and/or materials, Extron Electronics will, at its option, repair or replace said products or components, to whatever extent it shall deem necessary to restore said product to proper operating condition, provided that it is returned within the warranty period, with proof of purchase and description of malfunction to:

USA, Canada, South America, and Central America:

Extron Electronics
1230 South Lewis Street
Anaheim, CA 92805, USA

Europe, Africa, and the Middle East:

Extron Electronics, Europe
Beeldschermweg 6C
3821 AH Amersfoort
The Netherlands

Asia:

Extron Electronics, Asia
135 Joo Seng Road, #04-01
PM Industrial Bldg.
Singapore 368363

This Limited Warranty does not apply if the fault has been caused by misuse, improper handling care, electrical or mechanical abuse, abnormal operating conditions or non-Extron authorized modification to the product.

If it has been determined that the product is defective, please call Extron and ask for an Applications Engineer at (714) 491-1500 (USA), 31.33.453.4040 (Europe), or 65.383.4400 (Asia) to receive an RA# (Return Authorization number). This will begin the repair process as quickly as possible.

Units must be returned insured, with shipping charges prepaid. If not insured, you assume the risk of loss or damage during shipment. Returned units must include the serial number and a description of the problem, as well as the name of the person to contact in case there are any questions.

Extron Electronics makes no further warranties either expressed or implied with respect to the product and its quality, performance, merchantability, or fitness for any particular use. In no event will Extron Electronics be liable for direct, indirect, or consequential damages resulting from any defect in this product even if Extron Electronics has been advised of such damage.

Please note that laws vary from state to state and country to country, and that some provisions of this warranty may not apply to you.

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1 Chapter One

Introduction

Introduction

Features

Introduction

The Extron CAT 5 receivers receive long-distance transmissions of RGB video, component video, S-video, composite video, and stereo audio over shielded twisted pair (STP) or unshielded twisted pair (UTP) cable.

The minimum reliable transmission distance is 50 feet. The maximum distance is determined by the output frequency and resolution. The following table specifies the recommended maximum transmission distances using Belden Media Twist 1872A 350 MHz cable or equivalent terminated with Category 6, or at least Category 5e, rated connectors.

NOTE *Extron recommends using the highest quality cable available and affordable. We also recommend the use of pre-terminated and tested cables. Cables terminated on site should be tested before use to ensure that they comply with Category 5e specifications.*

Recommended transmission ranges at 60 Hz

Video format	Maximum range
Composite video and audio	1000 feet
Component video and S-video	1000 feet
640 x 480	1000 feet
800 x 600	800 feet
1024 x 768	600 feet
1280 x 1024	400 feet
1600 x 1280	200 feet

NOTE *It is possible to exceed the recommended distances, however, image quality may be reduced.*

The CAT 5 receivers can only receive and output signals transmitted by Extron CAT 5 transmitters. This user's manual documents the installation, features, and operation of the CAT 5 receivers only. For information about the CAT 5 receivers, refer to the *CAT 5 Transmitter Family User's Manual*, which accompanies the transmitters.

Features

All Extron CAT 5 receivers provide the following features:

Audio output — Provides unbalanced (left/right) audio on RCA connectors, and balanced or unbalanced audio on 3.5 mm, 5-pole captive screw connectors.

Cable length compensation — Allows you to select whether to compensate for long cable runs automatically or manually.

Level control — If manual cable length compensation is selected, allows you to control the image brightness.

Peaking control — If manual cable length compensation is selected, allows you to control the image sharpness.

CAT 5 R BNC A

The CAT 5 R BNC A receiver has the following features:

Video output — Provides RGBHV, RGBS, RGsB, or RGB video on 5 BNC connectors.

RJ-45 connector — Allows attachment to an Extron CAT 5 TX transmitter.

Mounting —

Mounts in a rack with Extron's 1U rack shelf (part #60-190-01).

Mounts in a rack with Extron's Projector Mounting Kit (part #70-077-04).

Mounts under or through furniture with Extron's Under Desk Mounting Kit (part #70-077-01) or Through Desk Mounting Kit (part #70-077-02).

CAT 5 R BNC AV

The CAT 5 R BNC AV receiver has the following features:

Video output — Provides RGBHV, RGBS, RGsB, or RGB video on 5 BNC connectors, and composite video on 1 BNC connector.

RJ-45 connector — Allows attachment to an Extron CAT 5 TX transmitter. One connector is for computer input, and one is for A/V input.

Mounting —

Mounts in a rack with Extron's 1U rack shelf (part #60-190-01).

Mounts in a rack with Extron's Projector Mounting Kit (part #70-077-04).

Mounts under or through furniture with Extron's Under Desk Mounting Kit (part #70-077-01) or Through Desk Mounting Kit (part #70-077-02).

CAT 5 R AV

The CAT 5 R AV receiver has the following features:

Video output — Provides composite video on one BNC connector.

RJ-45 connector — Allows attachment to an Extron CAT 5 TX transmitter.

Mounting —

Mounts to a projector bracket with Extron's Projector Mounting Kit (part #70-077-04).

Mounts under or through furniture with Extron's Under Desk Mounting Kit (part #70-077-01) or Through Desk Mounting Kit (part #70-077-02).



CAT 5 Receivers

Chapter Two

Installation and Operation

Installation

Front Panel Controls and Indicators

Troubleshooting

Installation overview

To install and set up a CAT 5 receiver and the associated CAT 5 transmitter(s) for operation, perform the following steps:

- 1 Disconnect power from all of the equipment, including the video source(s) (such as computers or DVD players), the transmitter, the receiver, and the output display(s).
- 2 For component, S-video, or composite video, ensure that the internal jumpers are in the correct position (all except CAT 5 R AV). See *Jumpers* in this chapter.
- 3 Mount the receiver in a rack (CAT 5 R BNC A or CAT 5 R BNC AV only), under a desk or podium, in a desk or table, or on a projector bracket. See the instructions that accompanied the mounting kit for specific information.
- 4 Connect the cable(s) between the CAT 5 transmitter(s) and the receiver. See *Transmitted signal cabling* in this chapter and refer to the *CAT 5 Transmitter Family User's Manual*, part #68-546-01.
- 5 Connect the output cables. See *Output cabling* in this chapter.
- 6 Configure the CAT 5 transmitter(s). Refer to the *CAT 5 Transmitter Family User's Manual*, part #68-546-01.
- 7 Connect power cords to the CAT 5 receiver, the CAT 5 transmitter, and turn on the video source(s) and the output display(s).

NOTE All CAT 5 transmitters include a 15V external power supply. The transmitters also receive power from the associated Extron CAT 5 receiver(s) via the CAT 5 cable. Extron recommends using the local power supply; however the power supply may not be necessary in some applications. Use the following guidelines:

- The CAT 5 T 15HD A, CAT 5 T 15HD AV, and CAT 5 T BNC may not require a local power supply for cable lengths of 300 feet or less.
- The CAT 5 T AV may not require a local power supply for cable lengths of 800 feet or less.
- The CAT 5 T BNC DA4 always requires the local power supply.

If problems are encountered, use the local power supply.

- 8 Adjust the picture controls on the front panel of the transmitter(s) and receiver. See *Front Panel Controls and*

Indicators in this chapter and refer to the *CAT 5 Transmitter Family User's Manual*, part #68-546-01.

Jumpers

The RGB video receivers can be configured to receive component video, S-video, or composite video.

NOTE The receivers are factory configured for RGB video. To receive any other type of video, reconfigure the jumpers.

1. Remove the three screws on each side and the two screws on top of the cover (figure 2-1).

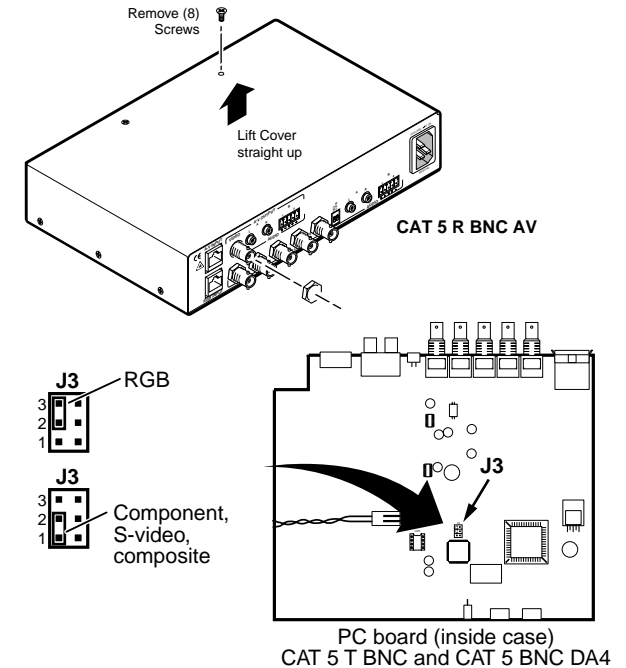


Figure 2-1 — Jumper configuration

2. Using an Extron BNC extraction tool (part #100-096-01) or a 9/16", deep well socket with thin walls, remove the five or six hex nuts securing the BNC connectors to the rear panel.
3. Slide the cover forward until the cover clears the BNC connectors and then lift the cover off.
4. **CAT 5 R BNC AV only:** Remove the four screws securing the video board to the RGB board and lift the video board out of the way.
5. Locate J3 on the RGB video printed circuit board.

Installation and Operation, cont'd

- a. For RGB video, ensure that pin 2 is jumpered to pin 3.
 - b. For any other video format, ensure that pin 1 is jumpered to pin 2.
6. Reinstall the video board, replace the cover, and reinstall the screws and BNC connector hex nuts.

Transmitted signal cabling

WARNING Do not connect this device to a computer data or telecommunications network

NOTE RJ-45 termination must comply with the TIA/EIA T 568A wiring standards for all connections.

- ① **RGB video transmission connector** — Attach one end of a CAT 5 UTP cable to this RJ-45 female connector (figure 2-2). Attach the other end to an Extron CAT 5 15HD or BNC transmitter.

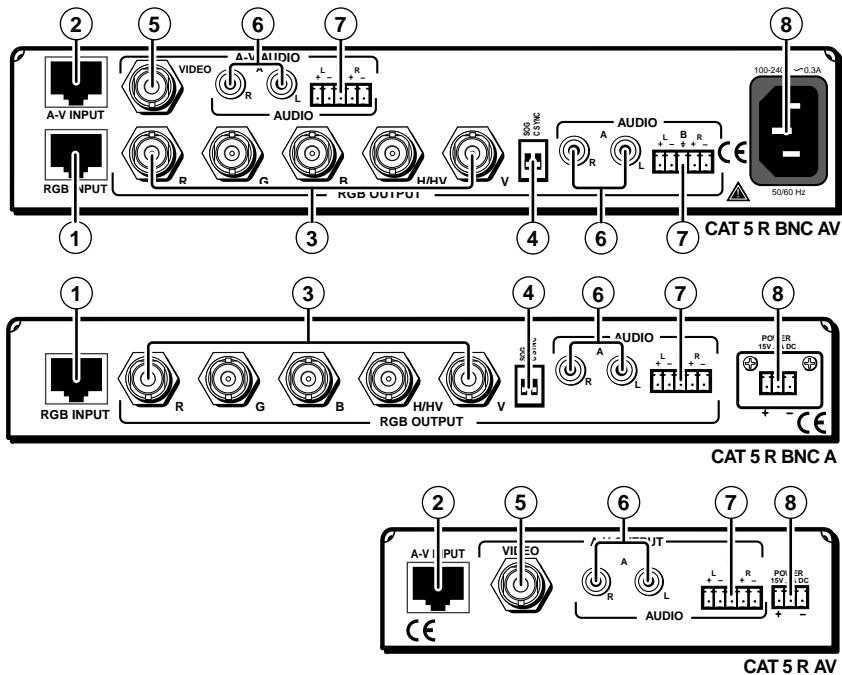


Figure 2-2 — Installation features, CAT 5 receivers

- ② **Composite video transmission connector** — Attach one end of a CAT 5 UTP cable to this RJ-45 female connector. Attach the other end to an Extron CAT 5 composite video transmitter.

Termination of CAT 5 cable

Figure 2-3 details the recommended termination of CAT 5 cables in accordance with the TIA/EIA T 568A wiring standards.

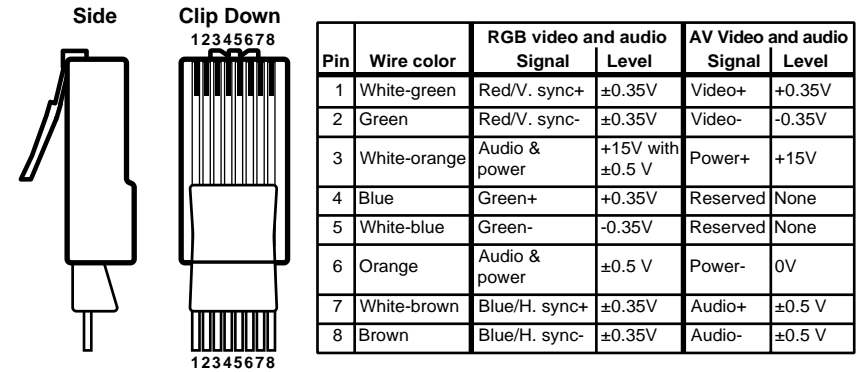


Figure 2-3 — CAT 5 cable termination

Cable testing

To ensure proper cable termination, each transmission cable system should be tested. Testing the cable from the RJ-45 connections at the transmitter and receiver gives the most accurate indications of cable problems.

There are two varieties of cable runs: simple runs, in which a single cable is terminated only at the transmitter and receiver, and complex runs, which can include patch bays and multiple terminations and lengths of cable. In either case, the entire cabling system should be tested.

A complete test measures cable length and tests the wire map, attenuation, NEXT, PSNEXT, ELFEXT, PSELFEXT, return loss, ACR and PSARC. All of these tests are critical for digital data transfer. While all of these tests are important indicators of the quality of the cable termination, the most critical testing parameters for video transfer are wire map (T-568-A termination) and pair length measurements. The largest concern is equalization of skew between cable pairs. Cable systems of 300 feet or less should exhibit no transmission problems if they pass at least CAT 5e or preferably CAT 6-D5 channel certification testing.

The Microtest OMNI SCANNER 2 performs comprehensive certification testing to the proposed CAT 6 standards. Other manufacturers also make testing equipment. The tests include advanced diagnostics for troubleshooting the cause and location of many cable and termination problems. For simple installation testing, the Microtest MICRO SCANNER PRO tests

wire map and cable length, including individual cable pair length.

Equalizing pair skew

The manufacturing process for UTP cable leads to a condition called pair skew. Skew exists between pairs when the physical length of one wire pair is different from another. As the transmission cable length increases, the amount of skew increases. Skew affects the displayed image when the differential length between wire pairs exceeds 2 feet, causing the timing of the red, green, and blue video signals to appear out of alignment (horizontal registration errors). A white vertical line on a black field can appear as individual red, green, and blue lines that are close together; the signal transmitted on the shortest wire pair leads the other colors and appears to the left on the display.

UTP cable test equipment measures and reports wire pair length. The report on the various pair lengths can be used in equalizing pair skew. The nominal velocity of propagation (NVP — the speed at which the signal travels on the transmission line, measured as a percentage of the speed of light) is very close to that of conventional coax cable. The similarity in NVP means that an additional length of coax equal to the length of pair skew, placed on the receiver's output, equalizes the effects of pair skew (figure 2-4).

If UTP cable test measurement cannot be done, pair skew can still be equalized by viewing a test pattern with a critical eye. Examine the test pattern for loss of horizontal registration and, through a process of trial and error, equalize any pair skew with coax extensions on the red, green, and/or blue outputs.

Output cabling

Computer video

The CAT 5 R BNC AV and the CAT 5 R BNC AV receive and output RGB video. These receivers can also receive component video, S-video, or composite video and output them on the R, G, and B BNCs.

Reception of component video, S-video, or composite video requires that internal jumper be reconfigured. See *Jumpers* in this chapter.

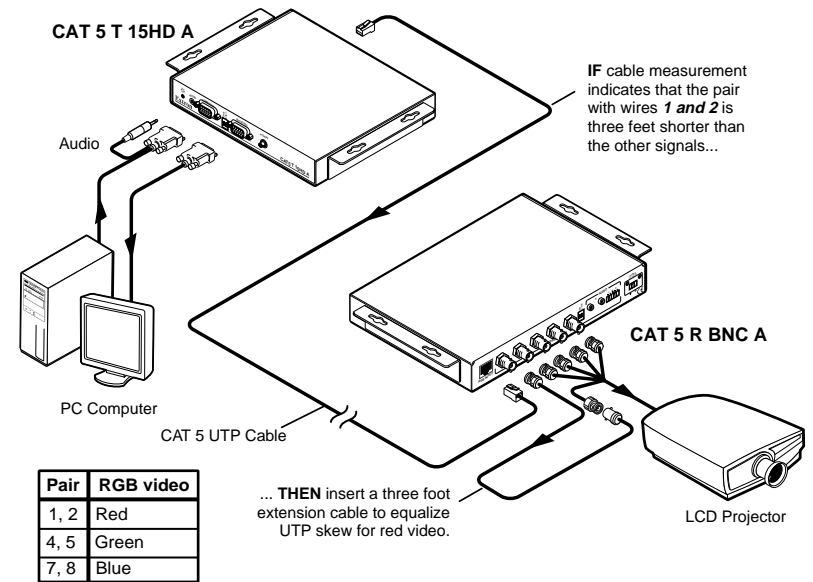


Figure 2-4 — Pair skew equalization

- 3 **RGB Output BNCs** — Connect the desired video output device to the rear panel output BNCs:

For RGBHV video, use the R, G, B, H/HV, and V BNCs.



For RGBS video, use the R, G, B, and H/HV BNCs.



For RGsB or component video, use the R (R-Y), G (Y), and B (B-Y) BNCs.



For S-video, use the R and B BNCs.



For composite video, use the R, G, and/or B BNC.



NOTE The H/HV and V BNCs only output sync, not video, signals.

4 DIP switches

SOG switch — Set this rear panel switch up for RGsB video and down for RGBHV or RGBS video.

C Sync switch — Set this rear panel switch up for RGBS video and down for RGBHV or RGsB video.

NOTE Set both DIP switches down for RGBHV video.

Composite video

The CAT 5 R BNC AV and the CAT 5 R AV receive and output composite video.

5 **Video connector** — Connect a composite video device to this rear panel BNC connector. Digital audio can also be connected to this connector.

Audio

All Extron CAT 5 receivers receive and output stereo audio. The receivers output the audio on both left and right RCA connectors and on 3.5 mm, 5-pole captive screw connectors.

6 **Stereo audio output connectors** — Connect left and right stereo audio cables between these rear panel RCA connectors and the output device's stereo audio inputs.

NOTE Only analog, line level, unbalanced audio signals can be output on these connectors.

7 **Stereo audio 5-pole captive screw connector** — Connect audio devices, such as an audio amplifier or powered speakers, to these connectors. These 3.5 mm, 5-pole captive screw connectors output unamplified, line level audio. Figure 2-5 shows how to properly wire an output connector.

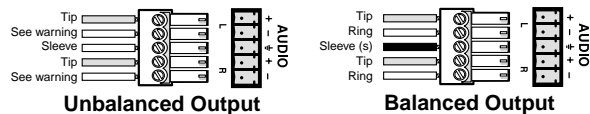


Figure 2-5 — Audio output captive screw connector wiring

WARNING Connect the sleeve to ground (Gnd). Connecting the sleeve to a negative (-) terminal will damage the audio output circuits.

NOTE If only an audio signal, no video, is received, connect a ground wire between the chassis ground and an earth ground in the equipment rack or other grounded device. If the receiver is not grounded, a crackling sound may be heard in the audio output.

Power connector

8 **Power**

CAT 5 R BNC AV — Plug a standard IEC power cord into this connector to connect the CAT 5 R BNC AV to a 100 to 240VAC, 50 Hz or 60 Hz power source.

NOTE If the remote power distance is too great to power the transmitter, the video image is missing, distorted, or noisy, or the receiver's Manual/Auto LED flashes. The transmitter requires a local 15V power supply.

CAT 5 R BNC AV and CAT 5 R AV — Plug the external 15V power supply into this captive screw connector. The power supply is included with both units.

Front Panel Controls and Indicators

All of the CAT 5 receivers have similar controls and indicators (figure 2-6).

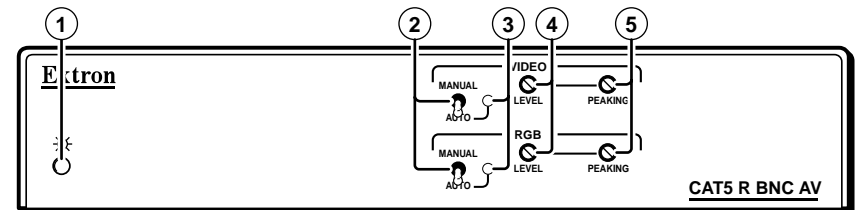


Figure 2-6 — Control and indicators

1 **Power indicator**

Amber — indicates that power is applied, but that the transmitter is not connected to a receiver.

Green — indicates that a transmitter is connected to the receiver.

2 **Manual/Auto switch** — With this switch in the Auto position, the receiver automatically adjusts the level and peaking to compensate for long cable runs. In the Manual position, you can manually compensate for long cable runs using the level and peaking controls.

- ③ **Auto LED** — Indicates that the Manual/Auto switch is in the Auto position.
- ④ **Level control** — Adjusts the image brightness.
- ⑤ **Peaking control** — Adjusts the image sharpness.

NOTE For details on the SOG and C SYNC switches, see Computer video earlier in this chapter.

Troubleshooting

If the image does not appear

1. Ensure that all devices are receiving power. The transmitter's and receiver's front panel Power LEDs indicate that they are receiving power.
2. Ensure that the transmitter is receiving a video input.
3. Ensure that the CAT 5 cable(s) are properly terminated in accordance with TIA/EIA T 568A standards and that the RJ-45 connections are securely made. If the Power LEDs on the transmitter and the receiver are lit green, a transmitter is properly connected to a receiver.
4. For computer/RGB video, ensure that the receiver's SOG and C Sync switches are in the correct positions for the video output.
5. For computer video, ensure that the transmitter's ID bit switches are on.
6. For computer video on an LCD projector, ensure that the transmitter's DDSP switch is on.
7. The transmission distance may be too far for remote power. Try connecting the local 15V power supply to the transmitter.
8. The transmission distance may be too short. Ensure that the UTP cable is at least 50 feet long.
9. If the Manual/Auto switch is in the manual position, ensure that the receiver's level controls are not set too high. Too much level and peaking can cause display problems.
10. For computer video from a laptop or for ungrounded AC distribution systems, the transmitter may need to be grounded. See *Grounding the transmitter* in the *CAT 5 Transmitter Family User's Manual*, part #68-546-01.
11. Call the Extron S³ Sales & Technical Support Hotline if necessary.

If the image is not displayed correctly

1. For computer/RGB video, if the output image looks too green, ensure that the receiver's SOG switch is off.
2. For computer video, if the picture hangs off the edge of the screen, adjust the transmitter's H Shift control.

NOTE DDSP disables the horizontal shift control.

3. Place the receiver's Manual/Auto switch to manual and adjust the level and peaking controls for optimum quality.
4. The transmission distance may be too far for remote power. Try connecting the local 15V power supply to the transmitter.
5. For computer video from a laptop or for ungrounded AC distribution systems, the transmitter may need to be grounded. See *Grounding the transmitter* in the *CAT 5 Transmitter Family User's Manual*, part #68-546-01.
6. If the image still does not display properly, call the Extron S³ Sales & Technical Support Hotline.

If the receiver's Manual/Auto LED flashes

1. The transmission distance may be too far for remote power. Connect the local 15V power supply to the transmitter.
2. Check the RJ-45 connector for a loose connection.



A

Appendix

Specifications, Accessories and Part Numbers

Specifications

Included Parts

Accessories

Cables/Adapters

Specifications, Accessories, and Part Numbers

CAT 5 Receivers Specifications

Video

Number/signal type	1 or 2 sets of proprietary analog signals
Connectors	1 or 2 RJ-45 female

Video input — refer to the CAT 5 Transmitters Family User's Manual, part #68-546-01

Video output

Number/signal type	
CAT 5 R BNC A	1 analog RGBHV, RGBS, RGsB, component video, or S-video; or 1 S-video and 1 NTSC/PAL/SECAM composite video from a single source; or 3 NTSC/PAL composite video from a single source
CAT 5 R BNC AV	1 analog RGBHV, RGBS, RGsB, component video, or S-video; or 1 S-video and 1 NTSC/PAL/SECAM composite video from a single source; or 3 NTSC/PAL/SECAM composite video from a single source <i>and</i> 1 NTSC/PAL/SECAM composite video
CAT 5 R AV	1 NTSC/PAL/SECAM composite video
Connectors	
CAT 5 R BNC A	5 BNC female
CAT 5 R BNC AV	6 BNC female
CAT 5 R AV	1 BNC female
Minimum/maximum levels	0.3V to 1.45V p-p
Impedance	75 ohms

Audio

Number/signal type	1 or 2 sets of analog proprietary signals
Connectors	1 or 2 RJ-45 female
Frequency response	20 Hz to 20 kHz, ± 0.05 dB
THD + noise	0.03% @ 1 kHz, 0.3% @ 20 kHz at rated maximum output drive (+19.5dBu input, +21dBu output)
S/N	>90dB at output +21dBu
Crosstalk	>80dB @ 1 kHz, fully loaded

Stereo channel separation	>80dB @ 1 kHz
CMRR	>75dB @ 20 Hz to 20 kHz

Audio input — refer to the CAT 5 Transmitters Family User's Manual, part #68-546-01

Audio output

Number/signal type	
CAT 5 R BNC A,	
CAT 5 R AV	1 stereo audio balanced/unbalanced, and 1 stereo audio unbalanced
CAT 5 R BNC AV	2 stereo audio balanced/unbalanced, and 2 stereo audio unbalanced
Connectors	2 female RCA (left/right) per input 1 3.5 mm, 5-pole captive screw connector per input
Impedance	50 ohms unbalanced, 100 ohms balanced
Gain error	± 0.1 dB channel to channel
Maximum level (600 ohm)	>+14dBm, balanced at stated %THD+N

General

Power

CAT 5 R BNC A,	
CAT 5 R AV	15VDC, 0.8A, external
CAT 5 R BNC AV	100VAC to 240VAC, 50/60 Hz, 40 watts, internal

Temperature/humidity	Storage -40° to +158°F (-40° to +70°C) / 10% to 90%, non-condensing Operating +32° to +122°F (0° to +50°C) / 10% to 90%, non-condensing
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Rack mount

CAT 5 R AV	No, but projector mountable with optional mounting kit (#70-077-04), furniture mountable with optional mounting brackets (#70-077-01 and #70-077-02).
CAT 5 R BNC A,	
CAT 5 R BNC AV	Yes, with optional 1U rack shelf, part #60-190-01 and rack shelf mounting kit #70-123-01. Also, projector mountable with optional mounting kit, part #70-077-04 or furniture mountable with optional mounting brackets #70-077-01, 70-077-02.

Specifications, Accessories, and Part Numbers cont'd

Enclosure type	Metal
Enclosure dimensions	
CAT 5 R BNC A	1.25" H x 8.7" W x 7.0" D 3.18 cm H x 22.10 cm W x 17.78 cm D (Depth excludes connectors.)
CAT 5 R BNC AV	1.68" H x 8.7" W x 7.0" D 4.27 cm H x 22.10 cm W x 17.78 cm D (Depth excludes connectors.)
CAT 5 R AV	1.25" H x 4.75" W x 7.0" D 3.18 cm H x 12.07 cm W x 17.78 cm D (Depth excludes connectors.)
Shipping weight	3 lbs (1.4 kg)
Vibration	ISTA/NSTA 1A in carton (International Safe Transit Association)
Approvals	UL, CUL, CE, FCC Class A
MTBF	30,000 hours
Warranty	2 years parts and labor

NOTE Specifications are subject to change without notice.

Included Parts

These items are included in each order for a specific CAT 5 receiver:

Included parts	Part number
CAT 5 R BNC A	60-348-01
CAT 5 Receivers User's Manual	68-547-01
CAT 5 Receivers label	33-603-04
External power supply, 15V, 0.8A	70-057-01
Captive screw connector, 5 pole, 3.5 mm	10-319-10
Captive screw connector, 3 pole, 3.5 mm	10-265-03
CAT 5 R BNC AV	60-345-01
CAT 5 Receivers User's Guide	68-547-01
CAT 5 Receivers label	33-603-04
Captive screw connector, 5 pole, 3.5 mm	10-319-10

CAT 5 R AV	60-346-01
CAT 5 Receivers User's Guide	68-547-01
CAT 5 Receivers label	33-603-04
External power supply, 15V, 0.8A	70-057-01
Captive screw connector, 5 pole, 3.5 mm	10-319-10
Captive screw connector, 3 pole, 3.5 mm	10-265-03

Accessories

Accessories	Part number
Extron 19" 1U Universal Rack Shelf	60-190-01
Extron Under Desk Mounting Kit	70-077-01
Extron Thru-desk Mounting Kit	70-077-03
Extron Projector Mounting Kit	70-077-04

Cables/Adapters

Cable/adaptor	Part number
BNC-5-3' MHR (3 feet/0.9 meters)	26-260-15
BNC-5-6' MHR (6 feet/1.8 meters)	26-260-01
BNC-5-12' MHR (12 feet/3.7 meters)	26-260-02
BNC-5-25' MHR (25 feet/7.6 meters)	26-260-03
BNC-4-3' MHR (3 feet/0.9 meters)	26-210-01
BNC-4-6' MHR (6 feet/1.8 meters)	26-210-02
BNC-4-12' MHR (12 feet/3.7 meters)	26-210-03
BNC-4-25' MHR (25 feet/7.6 meters)	26-210-04
SVHS 6' (6 feet/1.8 meters)	26-316-02
SVHS 12' (12 feet/3.7 meters)	26-316-03
SVHS 20' (20 feet/6.1 meters)	26-316-01
S-video male to 2 BNC adapter, female, 8"	26-353-02
S-video female to 2 BNC, male, 8"	26-353-01
SHR 1-3' (3 feet/0.9 meters)	26-383-01
SHR 1-6' (6 feet/1.8 meters)	26-383-12
SHR 1-12' (12 feet/3.7 meters)	26-383-07
SHR 1-25' (25 feet/7.6 meters)	26-383-04

Specifications, Accessories, and Part Numbers cont'd