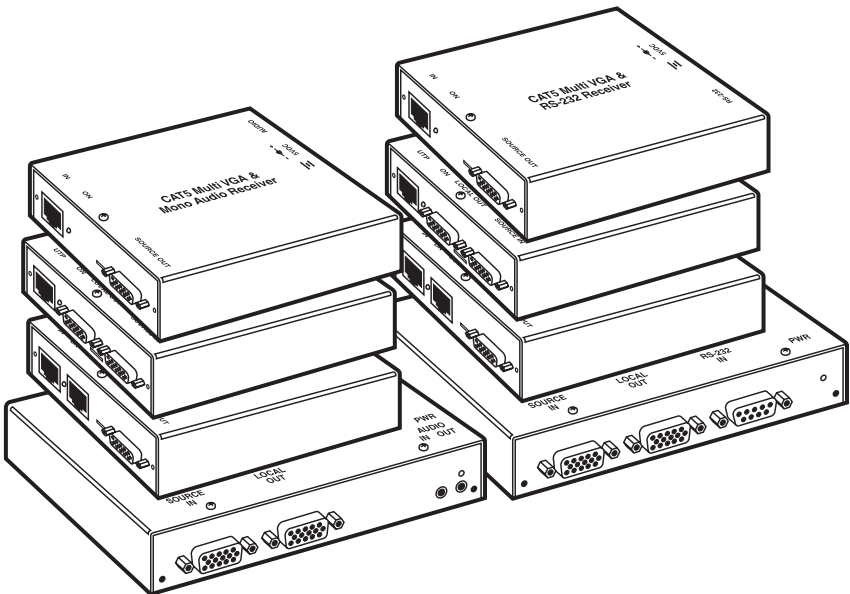




MARCH 2003

AC1000A	AC1007A
AC1001A	AC1008
AC1002A	AC1009
AC1003A	AC1010
AC1004A	AC1011
AC1005A	AC1012
AC1006A	

CAT5 Multi VGA System (VGA and RS-232 or Audio)



**CUSTOMER
SUPPORT
INFORMATION**

Order toll-free in the U.S.: Call **877-877-BBOX** (outside U.S. call **724-746-5500**)
FREE technical support 24 hours a day, 7 days a week: Call **724-746-5500** or fax **724-746-0746**
Mailing address: **Black Box Corporation**, 1000 Park Drive, Lawrence, PA 15055-1018
Web site: www.blackbox.com • E-mail: info@blackbox.com

**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 computing device in accordance with the specifications in Subpart B 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.

EUROPEAN UNION DECLARATION OF CONFORMITY

The manufacturer declares that this product meets the requirements of EU Directive 89/336/EEC.



**NORMAS OFICIALES MEXICANAS (NOM)
ELECTRICAL SAFETY STATEMENT**

INSTRUCCIONES DE SEGURIDAD

1. Todas las instrucciones de seguridad y operación deberán ser leídas antes de que el aparato eléctrico sea operado.
2. Las instrucciones de seguridad y operación deberán ser guardadas para referencia futura.
3. Todas las advertencias en el aparato eléctrico y en sus instrucciones de operación deben ser respetadas.
4. Todas las instrucciones de operación y uso deben ser seguidas.
5. El aparato eléctrico no deberá ser usado cerca del agua—por ejemplo, cerca de la tina de baño, lavabo, sótano mojado o cerca de una alberca, etc..
6. El aparato eléctrico debe ser usado únicamente con carritos o pedestales que sean recomendados por el fabricante.
7. El aparato eléctrico debe ser montado a la pared o al techo sólo como sea recomendado por el fabricante.
8. Servicio—El usuario no debe intentar dar servicio al equipo eléctrico más allá a lo descrito en las instrucciones de operación. Todo otro servicio deberá ser referido a personal de servicio calificado.
9. El aparato eléctrico debe ser situado de tal manera que su posición no interfiera su uso. La colocación del aparato eléctrico sobre una cama, sofá, alfombra o superficie similar puede bloquea la ventilación, no se debe colocar en libreros o gabinetes que impidan el flujo de aire por los orificios de ventilación.
10. El equipo eléctrico deber ser situado fuera del alcance de fuentes de calor como radiadores, registros de calor, estufas u otros aparatos (incluyendo amplificadores) que producen calor.
11. El aparato eléctrico deberá ser conectado a una fuente de poder sólo del tipo descrito en el instructivo de operación, o como se indique en el aparato.

12. Precaución debe ser tomada de tal manera que la tierra física y la polarización del equipo no sea eliminada.
13. Los cables de la fuente de poder deben ser guiados de tal manera que no sean pisados ni pellizcados por objetos colocados sobre o contra ellos, poniendo particular atención a los contactos y receptáculos donde salen del aparato.
14. El equipo eléctrico debe ser limpiado únicamente de acuerdo a las recomendaciones del fabricante.
15. En caso de existir, una antena externa deberá ser localizada lejos de las líneas de energía.
16. El cable de corriente deberá ser desconectado del cuando el equipo no sea usado por un largo periodo de tiempo.
17. Cuidado debe ser tomado de tal manera que objetos líquidos no sean derramados sobre la cubierta u orificios de ventilación.
18. Servicio por personal calificado deberá ser provisto cuando:
 - A: El cable de poder o el contacto ha sido dañado; u
 - B: Objetos han caído o líquido ha sido derramado dentro del aparato; o
 - C: El aparato ha sido expuesto a la lluvia; o
 - D: El aparato parece no operar normalmente o muestra un cambio en su desempeño; o
 - E: El aparato ha sido tirado o su cubierta ha sido dañada.

TRADEMARKS USED IN THIS MANUAL

Any trademarks mentioned in this manual are acknowledged to be the property of the trademark owners.

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1. Specifications

Cable Required:	Between transmitter and receiver(s): Category 5 shielded or unshielded twisted pair (STP or UTP), though STP is virtually never necessary
Compliance:	CE; FCC Class A, IC Class/classe A
Video Support:	VGA, SVGA, XGA, XGA-2, RGBHV, RGB
Resolution and Refresh Rate:	At 450 ft. (137.2 m) or less: Up to 1280 x 1024 at up to 75 Hz; At 400 ft. (121.9 m) or less: Up to 1600 x 1280 at up to 75 Hz; See the Maximum Distance specification
Transmission:	Transparent to users (automatic, no delay)
Required Source Impedance:	Video OUT: 75 ohms; Audio models: Audio OUT (if any): 600 ohms maximum
Required Destination Impedance:	Video IN: 75 ohms; Audio models: Audio IN (if any): 600 ohms minimum
Bandwidth:	Video (3 dB): DC to 8 MHz
Maximum Differential Input and Output:	Video: 0.55 volts peak-to-peak; Audio: 0.5 volts peak-to-peak
Differential Insertion Loss:	Video: 0 dB maximum at 4 MHz; Audio: 1 dB maximum at 1 MHz
Audio Characteristics:	AC1000A–AC1003A only: Channels: Monaural (mono); Bandwidth (+1 to -3 dB maximum): 20 Hz to 30 kHz, measured at 1 volt RMS with 400 ft. (121.9 m) of CAT5 cable between transmitter and receiver

CAT5 MULTI VGA SYSTEM

Serial

Characteristics: AC1004A–AC1007A only:
Protocol: Asynchronous; transparent to data format;
transparent to data rates up to 19.2 kbps;
Operation: AC1004A–AC1005A: Simplex or full-
duplex, user-selectable;
AC1006A–AC1007A: Simplex (broadcast) only

Maximum

Distance: Total end to end, from source device to farthest destination device, over good CAT5 cable (assuming A/V source outputs signal at normal strength):
Up to 450 ft. (137.2 m) at resolutions up to 1280 x 1024 at up to 75 Hz;
Up to 400 ft. (121.9 m) at resolutions up to 1600 x 1280 at up to 75 Hz

Connectors: AC1000A: (1) 3.5-mm, (1) RJ-45, (2) HD15 F;
AC1001A: (1) 3.5-mm, (1) RJ-45, (1) HD15 F;
AC1002A: (1) 3.5-mm, (2) RJ-45, (1) HD15 F;
AC1003A: (2) 3.5-mm, (4) RJ-45, (2) HD15 F;
AC1004A: (1) DB9 F (DCE), (1) RJ-45, (2) HD15 F;
AC1005A: (1) DB9 M (DTE), (1) RJ-45, (1) HD15 F;
AC1006A: (1) DB9 M (DTE), (2) RJ-45, (1) HD15 F;
AC1007A: (1) DB9 F (DCE), (4) RJ-45, (2) HD15 F;
All: (1) rear-mounted 5-pin DIN F power inlet

Temperature

Tolerance: Operating: 32 to 104°F (0 to 40°C);
Storage: -4 to +140°F (-20 to +60°C)

Humidity

Tolerance: Up to 80% noncondensing

Enclosure:

Steel

Power:

From utility-power (mains) outlet to power inlet, through detachable external power supply: Input: 100 to 250 VAC @ 50 or 60 Hz (autosensing);
Output: +5 VDC;
Consumption: 5 watts maximum

Size: AC1000A–AC1002A, AC1004A–AC1006A:
1.2"H x 4.1"W x 4.3"D (3.1 x 10.4 x 10.9 cm);
AC1003A, AC1007A: 1.2"H x 5.6"W x 4.5"D
(3.1 x 14.2 x 11.4 cm)

Weight: AC1000A–AC1002A: 0.8 lb. (0.4 kg);
AC1003A, AC1007A: 1.4 lb. (0.6 kg);
AC1004A–AC1006A: 1 lb. (0.5 kg)

2. Introduction

2.1 Overview

The CAT5 Multi VGA System extends VGA video signals over ordinary Category 5 cable. All models support RGBHV, RGB, and VGA video, and they use a transmitter-to-receiver setup. They can be used as video splitters as well as video extenders.

This manual covers CAT5 Multi VGA System Transmitters and Receivers with Audio (AC1000A–AC1003A) and CAT5 Multi VGA System Transmitters and Receivers with RS-232 (AC1004A–AC1007A). Their respective Rackmount Kits (AC1008–AC1012) are discussed in **Appendix D**.

The video/audio models enable you to broadcast line-level mono audio, along with video from your computer, to as many as 100 computer monitors up to 450 feet (137.2 m) away over CAT5.

The video/serial models transmit VGA signals at the same 450-ft. distance to RS-232 devices, such as touchscreen displays or newer plasma monitors that have RS-232 serial inputs. They do this by transmitting full modem serial signals along with the video signals over CAT5.

Among the transmitters available for both video/audio and video/serial models are single-port models and four-port (quad hub) versions. The quad hub transmitter is used to distribute the same signal to multiple display devices. Setup and cabling are the same as the single-port transmitters.

When using the quad hub serial transmitter model (AC1003A) with daisychained receivers, serial communication mode is unidirectionally broadcast. In this mode, all other CAT5 Multi VGA System devices must be of the simplex serial type.

CAT5 Multi VGA System receivers are available with single or dual daisychainable connections. The dual daisychainable receiver is used when the same signal is distributed to multiple display devices across a single CAT5 cable in a daisychain or loop-through fashion. Setup and cabling are the same as the single-port receiver.

The single-port serial transmitters and single-port and dual daisychainable serial receivers contain an internal Universal Digital Board (UDB) that can be reconfigured from its default setting for simplex operation to bidirectional operation. This way, you can connect touchscreens and high-end video projectors with interactive features. The bidirectional setting isn't an option on the the quad hub models because they broadcast serial data in one direction only.

All models support refresh rates/resolutions up to 1280 x 1024 @ 75 Hz at up to 450 feet (137.2 m) and 1600 x 1280 @ 75 Hz up to 400 feet (121.9 m).

WARNING

This equipment is not intended for, nor does it support, distribution through an Ethernet network. Do not connect these devices to any sort of networking or telecommunications equipment!

2.2 Package Contents

You should have received the following when ordering a CAT5 Multi VGA System transmitter or receiver:

- The transmitter or receiver.
- External power supply (100–250 VAC, 50–60 Hz, autosensing) with cord.
- This manual (transmitters only).

2.3 Equipment You May Also Need

- Rackmount Brackets:
 - For single-port transmitters or single-port/dual daisychainable receivers:
AC1008 for 1 unit; AC1009 for 4 units; AC1010 for 8 units;
 - For quad hub transmitters: AC1011 for 3 units; AC1012 for 6 units.
- Audio cable with RCA jacks.
- Video cable with HD15 connectors.
- Serial cable with DB9 connectors.
- CAT5 cable.
- For the single-port audio models, an audio splitter.

2.4 Compatible Cabling

CAT5 cabling for the CAT5 Multi VGA System must be pinned to the TIA-EIA T568B wiring specification. We also highly recommend that all CAT5 cables be pre-terminated and tested. Cables terminated on-site or in an existing infrastructure should be tested before use to ensure compliance with the TIA-EIA T568B specification. Using incorrectly terminated CAT5 cables can damage the CAT5 Multi VGA System.

3. Setup and Installation

3.1 Data Mode Configuration

For serial 1-port versions only: Configure the internal Universal Digital Board (UDB) if you want to change the transmitters/receivers from simplex operation (default) to bidirectional operation. (See **Appendix C.**) This configuration should be done before making any cable connections and applying power.

3.2 Cabling Considerations

- We recommend mounting and connecting all cabling to the CAT5 Multi VGA System components before applying power.
- Makes sure that the CAT5 cable you intend to use has been tested to comply with the TIA/EIA 568B wiring specification.
- We recommend that you use only CAT5 cable with the CAT5 Multi VGA System. If you must use CAT5e or CAT6 cable, call Technical Support.

3.3 Making the Connections

3.3.1 CONNECTIONS AND SETUP IN GENERAL

This section contains figures showing connections with the specific CAT5 Multi VGA System models. In general, however, the connection and setup procedure at both transmitter and receiver ends is as follows:

At the transmitter end:

1. Connect the source video to the CAT5 Multi VGA System transmitter video input port, which is an HD15 connector labeled SOURCE IN.
2. If desired, attach a local monitor via the local monitor port to LOCAL OUT.

NOTE

The single-port units with audio have a single audio input. So, for audio capabilities on the attached monitor, you'll need an audio splitter.

3. Make your audio or serial connections.

For audio versions: Connect the audio input to the AUDIO jack.

For RS-232 versions: Connect the serial input to the RS-232 (DB9 female) port.

4. Connect the CAT5 cable to the transmitter.
5. Apply power on the transmitter. The LED should light and, if there's a local monitor attached, a video image should appear on the monitor's screen.

At the receiver end:

1. Connect the SOURCE OUT HD15 connector to the display unit, and attach any audio or serial connections depending on the model of CAT5 Multi VGA System (see Sections 3.3.2 through 3.3.5 for model-specific connections).
2. Make sure that the CAT5 cable connection(s) from the transmitter are secure.
3. Apply power. The LED should light and video should appear on the display (make sure display is powered ON).
4. For video clarity, adjust the 3-position compensation switch, which optimizes the image for the length of CAT5 cable used (long, medium, or short).

If there are any problems at either end, see **Chapter 4**.

3.3.2 CONNECTIONS ON THE SINGLE-PORT VGA/AUDIO (AC1000A–AC1001A)

The single-port units with audio (AC1000A–AC1001A) support video and audio signals over CAT5 cable. The audio signal is line-level audio, and powered speakers are required. Note that there's a single connection for audio input. If you use a local station, you'll need an audio splitter for that jack. (For more information, call Technical Support.) You can also use the transmitters and receivers to make video-only connections without mono audio.

Figure 3-1 shows the Single-Port CAT5 Multi VGA System with Audio Transmitter connections, and Figure 3-2 shows the receiver connections.

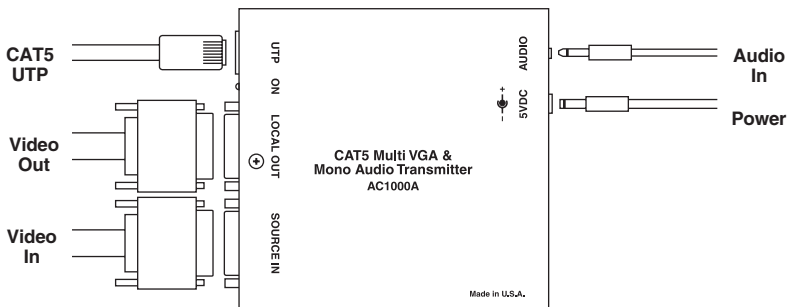


Figure 3-1. Transmitter connections on the AC1000A.

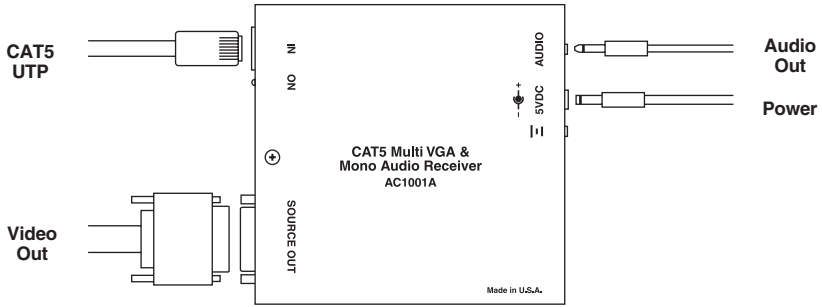


Figure 3-2. Receiver connections on the AC1001A.

3.3.3 CONNECTIONS ON THE SINGLE-PORT VGA/RS-232 (AC1004A–AC1005A)

The Single-Port CAT5 Multi VGA System with RS-232 (AC1004A–AC1005A) supports video and full-modem serial (RS-232) signals over CAT5 cable. You can also use the transmitters and receivers to make video-only connections without serial communications.

Figure 3-3 shows the Single-Port CAT5 Multi VGA System with RS-232 Transmitter connections, and Figure 3-4 shows the receiver connections.

NOTE

Even though both transmitter and receiver units contain audio jacks, audio is not supported on the RS-232 version. Plugging in audio cables will interfere with the RS-232 serial communications.

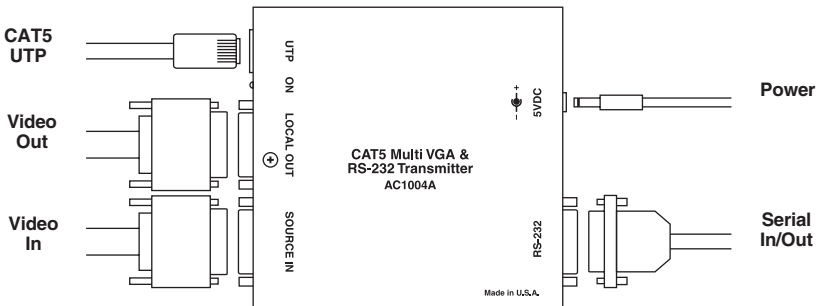


Figure 3-3. Transmitter connections on the AC1004A.

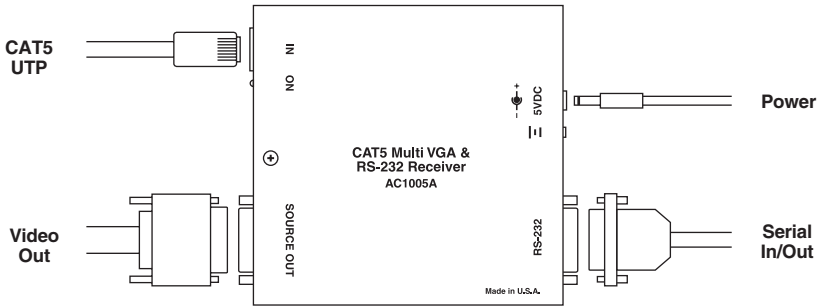


Figure 3-4. Receiver connections on the AC1005A.

3.3.4 CONNECTIONS ON THE QUAD HUB VGA/AUDIO TRANSMITTER (AC1003A) OR QUAD HUB VGA/RS-232 TRANSMITTER (AC1007A)

The quad hub (four-port) transmitter is used when the same signal is distributed to multiple display devices. You set it up and cable it the same as you would with the single-port transmitter. Figure 3-5 shows how connections are made on the audio quad hub (AC1003A) version, and Figure 3-6 shows how connections are made on the serial RS-232 quad hub model (AC1007A).

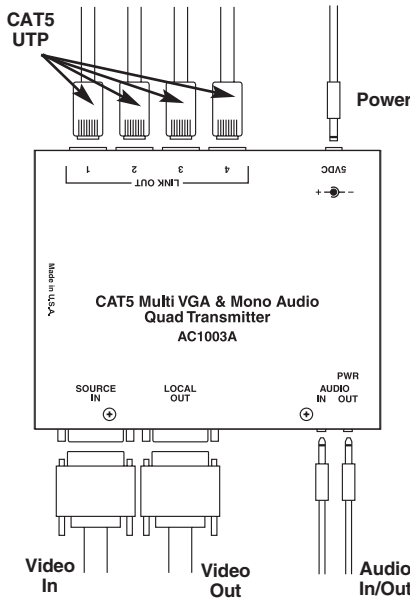


Figure 3-5. Quad hub connections on the AC1003A.

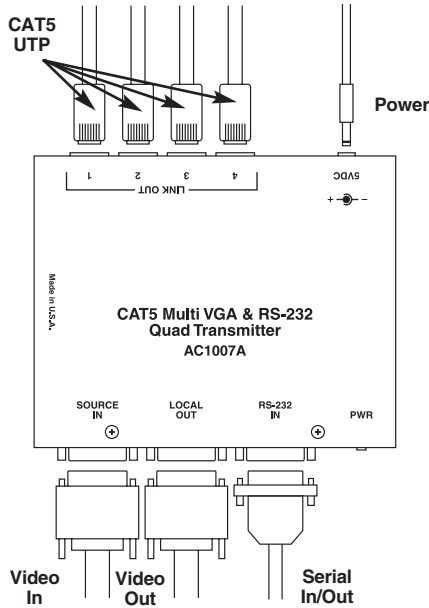


Figure 3-6. Quad hub connections on the AC1007A.

NOTE

Serial communication mode is unidirectionally broadcast when using transmitters and daisychained receivers. In this mode, all other CAT5 Multi VGA System devices must be of the simplex serial type. For more information, contact Technical Support.

3.3.5 CONNECTIONS ON THE DUAL DAISYCHAINABLE VGA/AUDIO RECEIVER (AC1002A) OR DUAL DAISYCHAINABLE VGA/RS-232 RECEIVER (AC1006A)

The dual daisychainable receiver is used when the same signal is distributed to multiple display devices on a single CAT5 cable in a daisychain or loop-through fashion.

Setup and cabling are the same as the single-port receiver, but the dual daisychainable model has an additional RJ-45 connector for linking to another dual daisychainable receiver or single-port receiver.

Figure 3-7 shows how connections are made on the dual daisychainable receiver with audio, and Figure 3-8 shows how connections are made on the dual daisychainable receiver with RS-232.

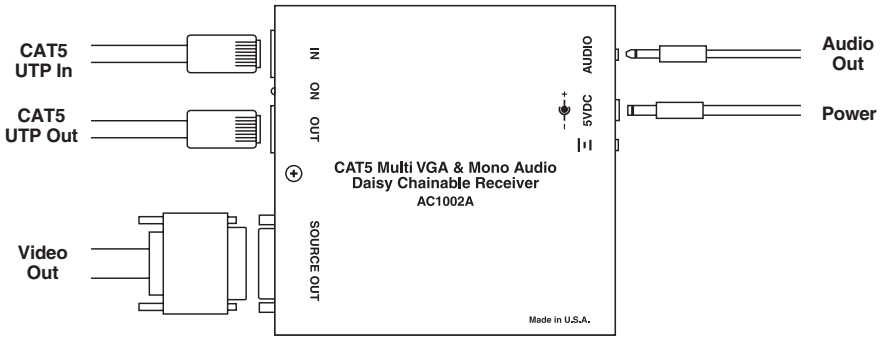


Figure 3-7. Dual daisychainable receiver connections on the AC1002A.

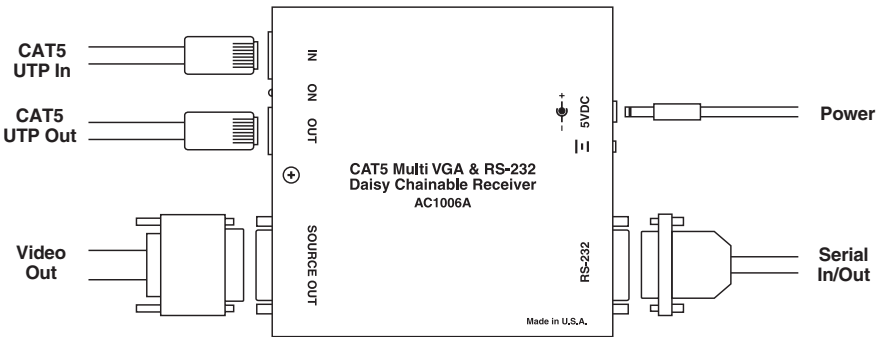


Figure 3-8. Dual daisychainable receiver connections on the AC1006A.

NOTE

Serial communication mode is unidirectionally broadcast when using transmitters and daisychained receivers. In this mode, all other CAT5 Multi VGA System devices must be of the simplex serial type. For more information, contact Technical Support.

CAT5 MULTI VGA SYSTEM

3.3.6 A TYPICAL SINGLE-PORT TRANSMITTER-RECEIVER APPLICATION

Figure 3-9 shows a typical application in which the single-unit transmitter (AC1000A or AC1004A) is connected over CAT5 to a single-unit receiver (AC1001A or AC1005A). Although the figure shows optional audio and RS-232 connections, no model supports both audio and RS-232 communications. You can use the audio or RS-232 units as video-only transmitters/receivers, too.

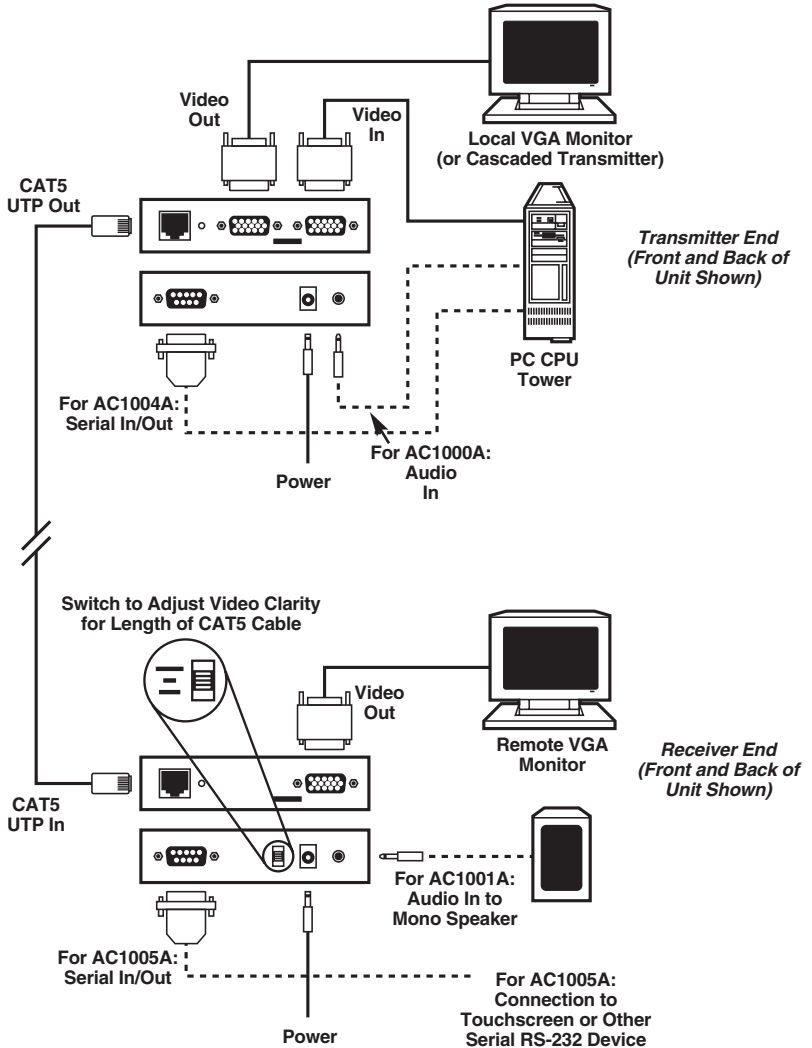


Figure 3-9. Transmitter to receiver connections.

3.3.7 A TYPICAL QUAD HUB TRANSMITTER–RECEIVER APPLICATION

Figure 3-10 shows an application in which a Quad Hub CAT5 Multi VGA System Transmitter is linked to four Single-Port CAT5 Multi VGA System Transmitters. Optional audio and serial connections are not shown.

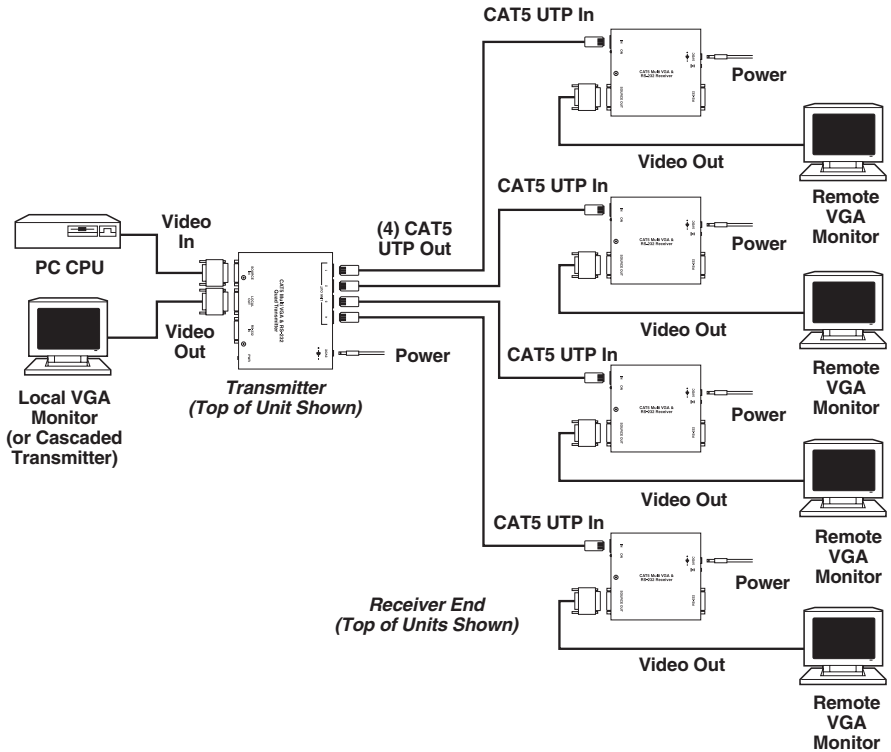


Figure 3-10. Quad hub to receiver connections.

4. Troubleshooting

4.1. Common Problems

In most cases, nearly every issue with the CAT5 Multi VGA System can be resolved by checking the CAT5 termination and making sure that it's pinned to the TIA/EIA 568B wiring specification. However, there may be other problems that cause the system to not perform as it's designed. Below are solutions to the most common installation errors.

Problem: No video signal at the transmitter local port or at the receiver.

Solution:

- Check that both units are powered.
- Make sure the CAT5 cable is terminated correctly per the TIA/EIA 568B wiring specification.
- Is the display device powered on and functioning?
In some cases, the video termination may be mismatched. The transmitters and receivers ship with 75-ohm termination as the default. To disable termination, see **Appendix B**.

Problem: Video signal is poor.

Solution:

- Is the compensation switch on the receiver in the correct position?
- Check all cable connections.
- The video signal's refresh rate may be set too high. Reset to a lower refresh rate in your monitor-configuration menu.
- There may be a delay skew issue. Call Technical Support.

Problem: Audio is poor.

Solution:

- Powered speakers are required. Make sure speaker power is ON.
- Check input source levels from the source device. Make sure the audio source is not overdriven or underdriven.

- Problem:** Serial communication doesn't work correctly.
- Solution:**
- Are the serial devices connected properly? Are the serial parameters correct for source/destination devices?
 - Are the serial cables terminated correctly? If a null-modem cable is used, it must be placed at the receiver end.
 - When using RS-232 transmitters or receivers, the serial signal is a unidirectionally broadcast mode only. In this mode, all other CAT5 Multi VGA System devices must be the simplex serial type. For assistance, contact Technical Support.
 - The last device in a quad hub or daisychain configuration must be a standard receiver unit with a terminated serial board (default).
- Problem:** "Blue shift" of video signal (a slight blue haze appears in areas of the screen that normally would appear black, or a slight blue tint appears in areas that would normally appear white). This is most often seen in applications that use inexpensive monitors, but it sometimes occurs with more expensive equipment.
- Solution:**
1. Go into the monitor's menu and select the "Blue-Black Level" function.
 2. Use the appropriate command to reduce the level.
 3. Reduce the "Blue-Black Level" until the black areas in the image truly appear black. For monitors with a "Blue Drive" adjustment, reduce this setting until the white areas of the screen appear normal.
- Problem:** "Green shift" or "green washout" on multimedia signals.
- Solution:** Please contact Technical Support.
- The standard video/serial model (AC1004A-AC1007A) is designed to function with DC coupled signals in which the black level is referenced to 0 volts. Nearly all VGA cards function this way.
- Some media servers, however, provide AC coupled signals and can cause a green color shift in the video. This is a result of the

sync clamping on the red and blue channels of the video/serial model.

For five-component (RGB/H&V) AC coupled video, an optional DC restoration adapter needs to be installed between the AC-coupled source and the transmitter. Technical Support can provide you with ordering and installation information.

4.2 Calling Black Box

If you determine that your CAT5 Multi VGA System is malfunctioning, do not attempt to alter or repair it. It contains no user-serviceable parts. Contact Black Box at 724-746-5500.

Before you do, make a record of the history of the problem. We will be able to provide more efficient and accurate assistance if you have a complete description, including:

- the nature and duration of the problem.
- when the problem occurs.
- the components involved in the problem.
- any particular application that, when used, appears to create the problem or make it worse.

4.3 Shipping and Packaging

If you need to transport or ship your CAT5 Multi VGA System:

- Package it carefully. We recommend that you use the original container.
- If you are shipping the CAT5 Multi VGA System for repair, make sure you include everything that came in the original package. Before you ship, contact Black Box to get a Return Authorization (RA) number.

Appendix A. Cabling Pinouts

Table A-1. HD15 video connector.

Pin	RGBHV (VGA)	RGBS	RGsB
1	Red+	Red+	Red+
2	Green+	Green+	Green+
3	Blue+	Blue+	Blue+
4	—	—	—
5	Gnd	Gnd	—
6	Red-	Red-	Red-
7	Green-	Green-	Green-
8	Blue-	Blue-	Blue-
9	—	—	—
10	Gnd	Gnd	—
11	Gnd	Gnd	—
12	—	—	—
13	H Sync	C Sync	—
14	V Sync	—	—
15	Gnd	Gnd	—

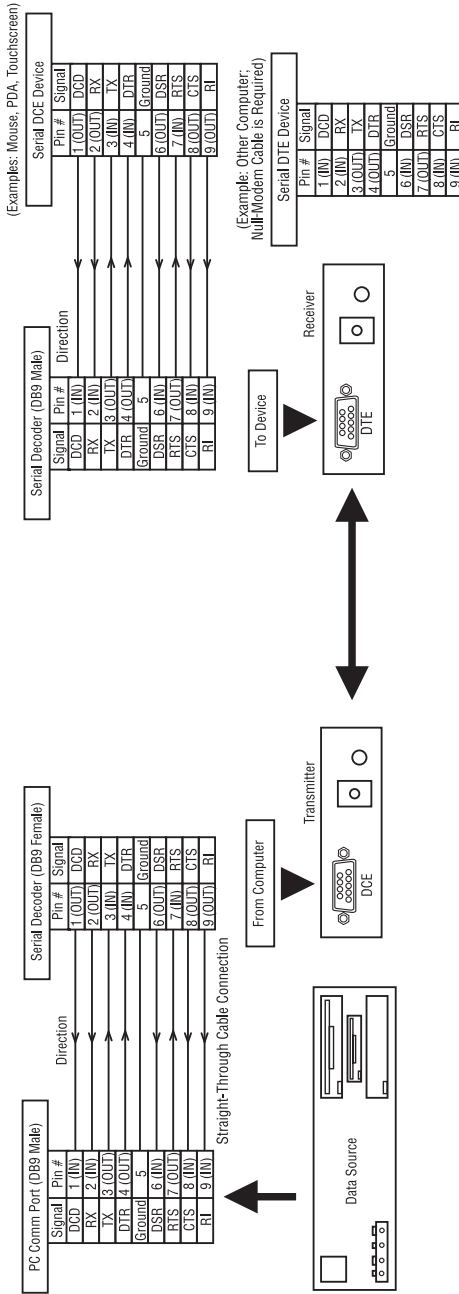


Figure A-1. DB9 serial connector.

Appendix B. Setting Sync Signal Output Termination

In some cases, it may be necessary to disable the 75-ohm termination of the video outputs on the CAT5 Multi VGA System units. This can be done by opening the case of each unit and installing jumpers on the circuit board. The settings disable/enable the 75-ohm termination on individual units. For instance, changing a transmitter termination affects the local monitor port only; it doesn't affect the receivers. Conversely, changing a receiver affects the output port of the receiver, not the transmitter. The following diagrams show the jumper locations for each type of assembly.

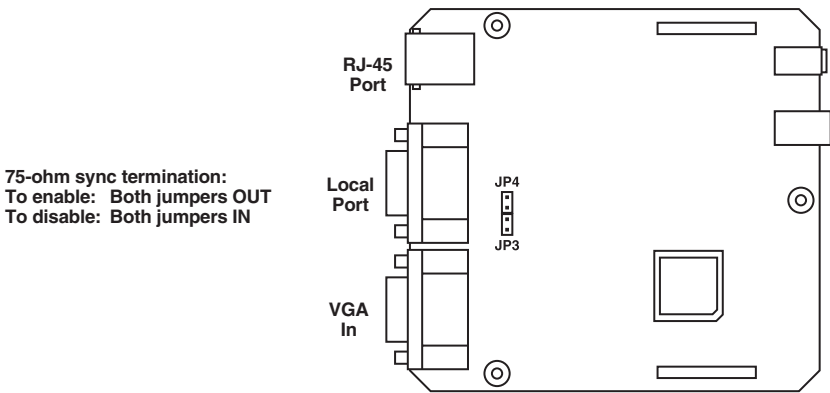


Figure B-1. 1-port transmitter.

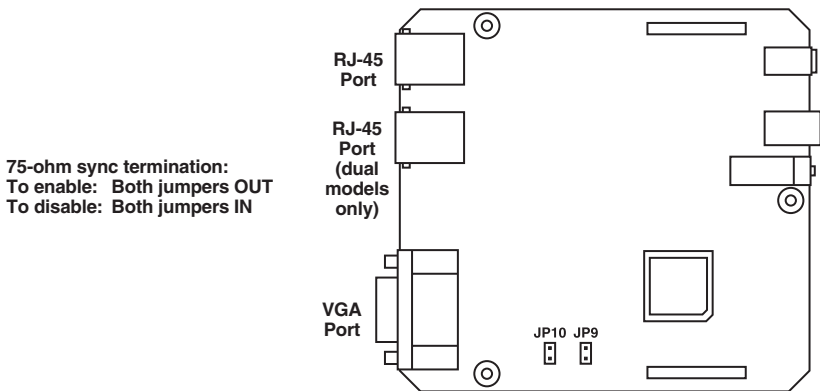


Figure B-2. 1-port or dual daisychainable receiver.

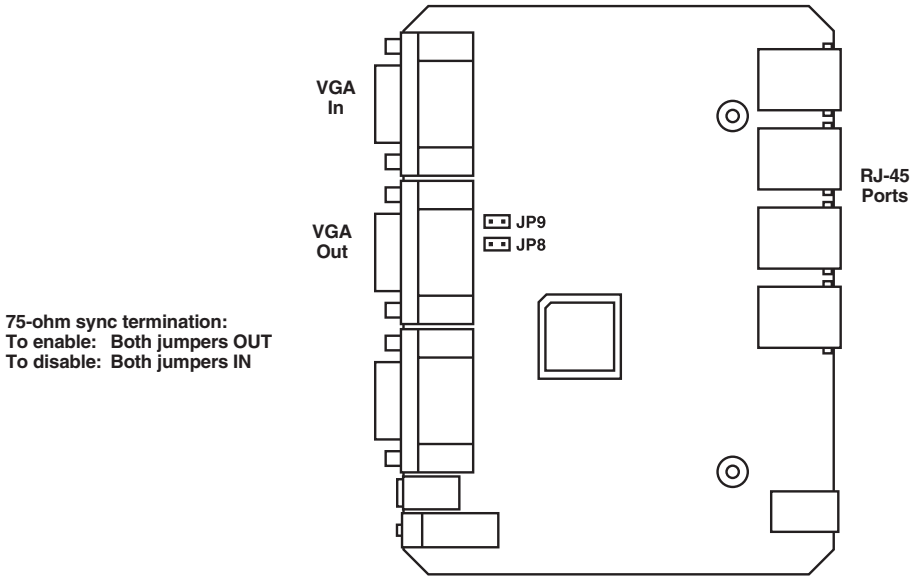


Figure B-3. Quad hub transmitter.

Appendix C. UDB Settings

The single-port serial transmitters and single-port and dual daisychainable serial receivers contain an internal Universal Digital Board (UDB) that can be reconfigured from its simplex operation default setting for bidirectional operation.

The UDB hardware configuration is done via jumper settings. These jumpers are used to route signals to the interface port(s) for the DB9 connector and to configure the transceiver for RS-485 operation.

To access the UDB on these transmitter and receivers:

1. Make sure the unit is powered OFF.
2. If necessary, unplug all cables to the unit.
3. Unscrew the top screw as well as the two set screws in the DB9 connector. Lift the cover off.

For reference Table C-1 shows the input/output jumper configuration for the DB9 connector as it's currently pinned on the board.

Table C-1. Input/output configuration on DB9 connector.

RS-232 Transmit Assembly			RS-232 Receiver Assembly		
JP-1	J2 Pin	Signal	JP-1	J2 Pin	Signal
Y1-A1	1	RS-232 DCD	Y1-A1	5	Gnd
Y2-A2	6	RS-232 DSR	Y2-A2	9	RS-232 RI
Y3-A3	2	RS-232 RD	Y3-A3	4	RS-232 DTR
Y4-A4	7	RS-232 RTS	Y4-A4	8	RS-232 CTS
Y5-A5	3	RS-232 TD	Y5-A5	3	RS-232 TD
Y6-A6	8	RS-232 CTS	Y6-A6	7	RS-232 RTS
Y7-A7	4	RS-232 DTR	Y7-A7	2	RS-232 RD
Y8-A8	9	RS-232 RI	Y8-A8	6	RS-232 DSR
Y9-A9	5	Gnd	Y9-A9	1	RS-232 DCD

Table C-2 shows the jumper settings for the serial data mode configuration. By default, the UDB is set for simplex operation.

Table C-2. Data mode configuration.

Interface	JP-2	JP-3	JP-9	JP-12
Bidirectional RS-232 Tx/Host	OUT	3-4	1-2 3-4	OUT
Bidirectional RS-232 Rx/Remote	OUT	3-4	1-2 3-4	OUT
Simplex RS-232 Tx/Host	OUT	1-2	1-2 3-4	IN
Simplex RS-232 1-Port Rx/Remote	OUT	5-6	1-2 3-4	IN
Simplex RS-232 Dual-Port Rx/Remote	OUT	5-6	OUT	IN

NOTE:

1. JP-2, JP-10, and JP-11 are reserved (not currently used).
2. JP-3 configures the RS-485 transceiver for unidirectional or bidirectional operation.
3. JP-4, JP-5, JP-6, and JP-7 are used for IR configurations only (not currently used).
4. JP-9 controls the RS-485 termination.
5. JP-12 selects simplex or duplex operation.

Figure C-1 shows the board for the Single-Port CAT5 Multi VGA System, RS-232 Transmitter (AC1004A). Figure C-2 illustrates the UDB for both CAT5 Multi VGA System, RS-232 Receivers (AC1005A and AC1006A).

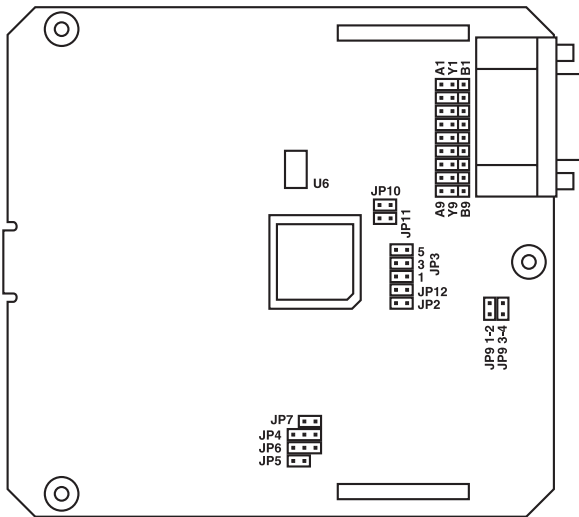


Figure C-1. AC1004A uncovered, showing jumper settings.

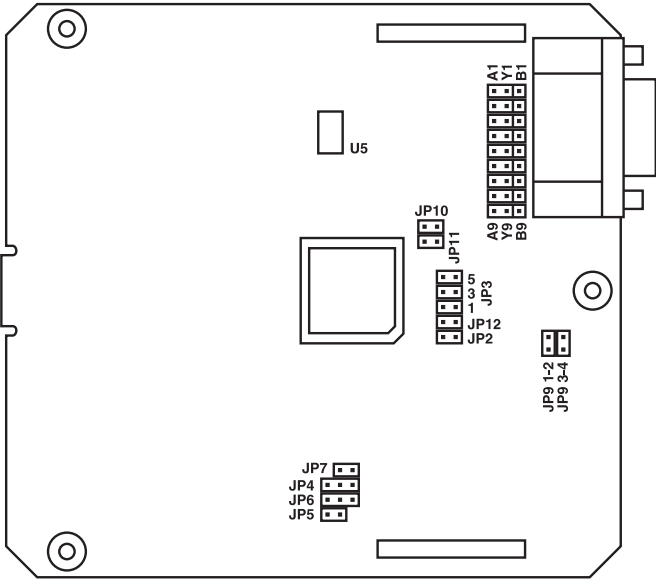


Figure C-2. AC1005A and AC1006A uncovered, showing jumper settings.

Appendix D. Rackmounting Units

The Rackmount Kits include brackets for mounting a single transmitter, single receiver, or a single dual daisychainable receiver. Figure D-1 shows the 1-Unit Rackmount Bracket (AC1008), which can be used to mount a single CAT5 Multi VGA System unit on a wall. Figure D-2 shows the 4-Unit Rackmount Bracket (AC1009), which holds four units in a 19" x 1U rack.

Not shown are brackets for 8 units and brackets for quad hub transmitters. The 8-Unit Rackmount Bracket (AC1010) holds the mounted units like the 4-Unit Rackmount Bracket (AC1009) but is 2U high instead of 1U high, stacking 4 slots directly above 4 slots. The 3-Unit Quad Hub Transmitter Bracket (AC1011) is like the AC1009 but holds 3 units instead of 4 in a 19" wide x 1U high panel. The 6-Unit Quad Hub Transmitter Bracket (AC1012) is like the AC1011 but occupies 2U of space instead of 1U in a 19" rack, stacking 3 quad hub transmitters atop 3 quad hub transmitters.

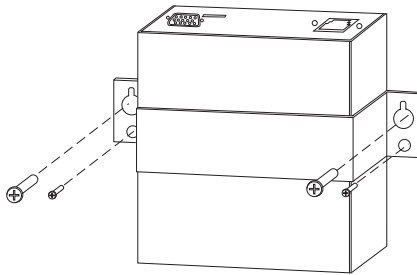


Figure D-1. Mounting with the AC1008 kit.

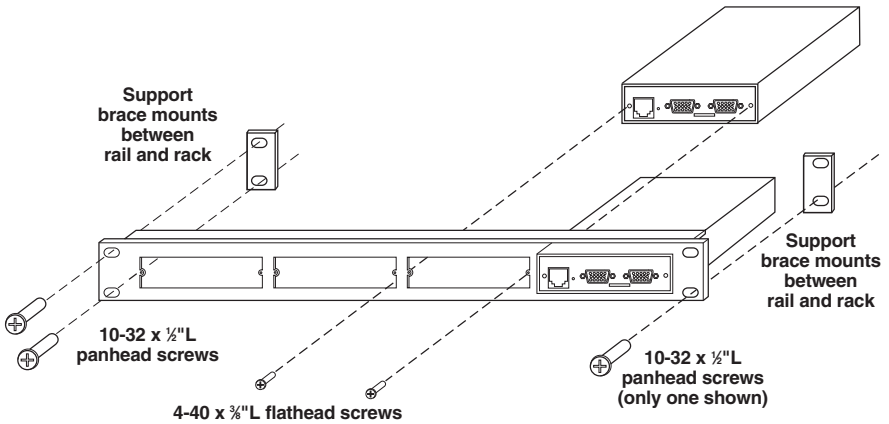


Figure D-2. Mounting with the AC1009 kit.



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