



Connect with Confidence

# ***MultiView*** ***AK500*** **Receiver**

## Quick Reference & Setup Guide



### **Magenta Research**

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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.*

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# 1. Specifications

<b>Cable Required:</b>	Category 5, 5e, 6 shielded or unshielded twisted pair
<b>Compliance:</b>	CE; FCC Class A, IC Class/class A
<b>Video Support:</b>	VGA, SVGA, XGA, XGA-2, RGBHV, RGB, Composite, S-Video, Component Video modes
<b>Resolution and Refresh Rate:</b>	At 500 ft. (152 m) or less: Up to 2048 x 1536 at up to 70 Hz;
<b>Required Source Impedance:</b>	Video OUT: 75 ohms; Audio models: Audio OUT (if any): 600 ohms maximum SPDIF audio models: 75 Ohm.
<b>Required Destination Impedance:</b>	Video IN: 75 ohms; Audio models: Audio IN (if any): 600 ohms minimum SPDIF audio models: 75 Ohm.
<b>Audio Characteristics:</b>	Channels: Right/Left summed; Line Level 600 Ohm Unbalanced SA version is full stereo audio
<b>Serial Characteristics:</b>	Protocol: Asynchronous; transparent to data format; transparent to data rates up to 19.2 kbps full duplex; data rates to 115 kbps simplex, half-duplex modes SA version is 3 wire, fixed baud rate of 9600
<b>Connectors:</b>	AK500: (1) 4 position phoenix, (1) RJ-45, (1) HD15 F; AK500DP: (1) 4 position phoenix, (2) RJ-45, (1) HD15 F; AK500232: (1) DB9 M (DTE), (1) RJ-45, (1) HD15 F; AK500SA/SAP: (1) 4 position phoenix, (1) DB9 M (DTE), (1) RJ-45, (1) HD15 F; AK500DPSA/SAP: (1) 4 position phoenix, (1) DB9 M (DTE), (2) RJ-45, (1) HD15 F;
<b>Temperature Tolerance:</b>	Operating: 32 to 104°F (0 to 40°C); Storage: -4 to +140°F (-20 to +60°C)
<b>Humidity Tolerance:</b>	Up to 80% noncondensing
<b>Enclosure:</b>	Steel
<b>Power:</b>	+5 VDC; Consumption: 5 watts maximum
<b>Size:</b>	1.2"H x 4.1"W x 5.5"D (3.0 x 10.4 x 14.0 cm)
<b>Weight:</b>	1.0 lb. (0.45 kg)
<b>MTBF:</b>	100,000 hours

## 2. Introduction

### 2.1 Overview

The Magenta MultiView™ Series extends VGA and video signals over ordinary Category 5 cable.

This manual covers Magenta MultiView™ AK500 Series Receivers. These units are field configurable for various video, audio and serial options. See Appendix C for configuration settings.

SA series feature video, stereo audio, and RS-232 signals on a single cat5 and SAP series units are similar to the above but have additional features for pollable serial.

The Magenta MultiView™ AK500 Receiver features integrated skew compensation that can be turned on for a 10 ns delay per color.

For information on the respective transmitter unit, please refer to the appropriate manual included with the transmitter.

All models support refresh rates/resolutions up to 2048x1536 @ 70 Hz to 500 feet (152 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 Equipment You May Also Need

- Audio cable with RCA jacks.
- Video cable with HD15 connectors.
- Serial cable with DB9 connectors.
- CAT5 cable.

### 2.3 Compatible Cabling

Magenta Research products are compatible with Cat5/5e/6 data cabling as well as skew free CAT5/5e cabling manufactured for video applications. Note that some skew free Cat5 is specific to a particular vendor and is not compatible with our products. Please ensure any skew free CAT5 cable is non-proprietary prior to purchase/installation.

CAT6 cable, due to the manufacture method, can exhibit much greater skew than standard CAT5/5e and may require skew compensation beyond what the standard product offers. Please contact Magenta Research for assistance.

CAT5/5e/6 cabling for the Magenta MultiView™ Series must be pinned to the TIA-EIA T568B wiring specification (see appendix A) 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 Magenta MultiView™ Series.

## 3. Setup and Installation

### 3.1 Data Mode Configuration (RS232 and SA/SAP versions)

AK500 232 serial receivers are configured in full modem bidirectional serial modes. If you are using the daisy chain option or a multi-output transmitter (T4,T5) a MultiView™ CAT5 matrix switch or MultiView™ CAT5 distribution amp, this mode must be changed to uni-directional broadcast. To do this, configure the internal Serial Digital Board (SDB) to change the transmitters & receivers serial mode operation (See **Appendix D**). This configuration should be done before making any cable connections and applying power.

Alternatively, remove the internal daughterboard and use the AK500 receivers built in simplex serial option with the appropriate jumper changes.

SA series offer RS232 serial in addition to stereo audio. The serial signal is 3 wire TX, RX and does not support full modem signals. Baud rates for the SA series are fixed at 9600. Simplex modes are supported without jumper or other changes by simply using the TX signal only. SA units require no configuration.

SAP series offer pollable RS232 serial in addition to stereo audio. The serial signal is 3 wire TX, RX and does not support full modem signals. Baud rates for the SAP series are fixed at 9600. Simplex modes are supported without jumper or other changes by simply using the TX signal only. See Appendix F on configuration and using SAP Series.

### 3.2 Cabling Considerations

- We recommend mounting and connecting all cabling to the Magenta MultiView™ Series 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 (See **Appendix A**).

### 3.3 Making the Connections

#### 3.3.1 CONNECTIONS AND SETUP IN GENERAL

This section contains figures showing connections with the specific Magenta MultiView™ Series models. In general, however, the connection and setup procedure at both transmitter and receiver ends is as follows:

*NOTE: all units must be the same type for all supported features to function correctly. For example, a UTX 232 must be connected to an AK500 232 for the serial signals to function. You cannot use the serial option with a UTX 232 and an AK500 that is configured for simplex serial. Similarly, A UTX SA cannot be used with an AK500A. Video modes may function normally, but 4th pair options will not.*

*At the transmitter end (refer to the transmitter user guide) :*

1. Connect the source video to the Magenta MultiView™ Series 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.
3. Make your audio or serial connections via the phoenix connector or DB9 connector as appropriate.

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 VIDEO OUTPUT HD15 connector to the display unit, and attach any audio (AUX I/O) and/or serial connections (IOIO) depending on the model of MultiView™ CAT5 Video System.

2. Connect the CAT5 cable to the LINK INPUT connection. If daisy chaining units, connect the output CAT5 cable to the LINK OUTPUT connection.

3. Apply power. The LED should light and video should appear on the display (make sure display is powered ON).

4. To adjust video levels and skew compensation see **Section 3.4**.

### 3.3.2 CONNECTIONS ON THE SINGLE-PORT VGA/AUDIO

The single-port units with audio 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. You can also use the transmitters and receivers to make video-only connections without mono audio. Figure 3-1 shows the Single-Port MultiView™ CAT5 Video System with Audio Transmitter connections, and Figure 3-2 shows the receiver connections.

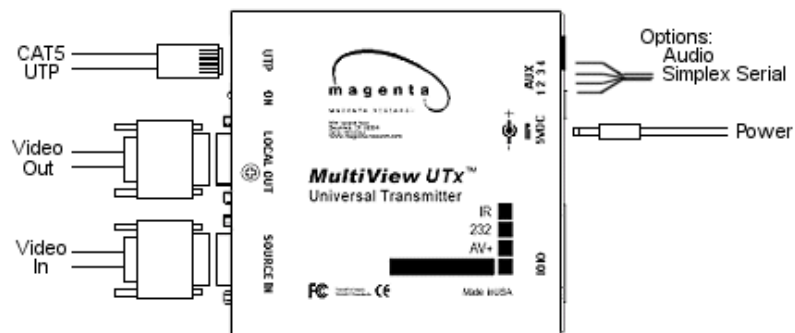


Figure 3-1. Transmitter connections on the UTx Universal Transmitter.

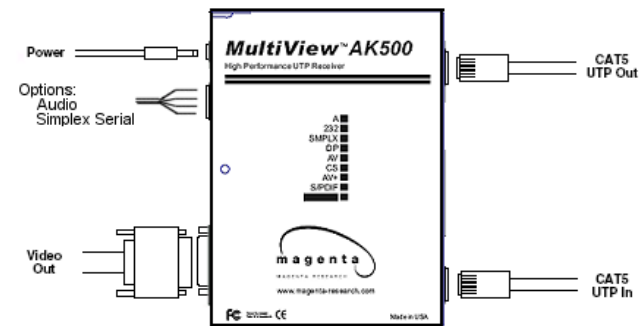


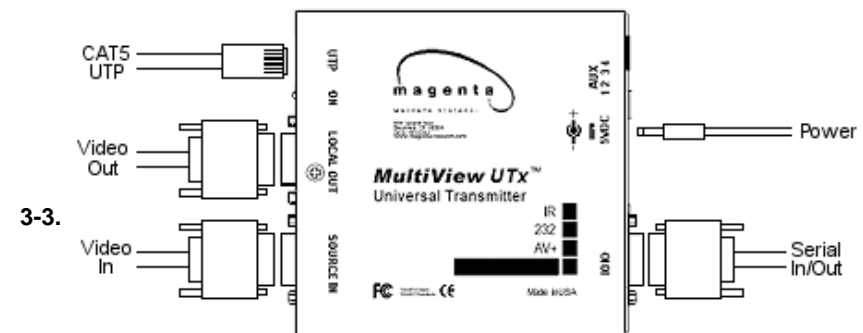
Figure 3-2. Receiver connections on the AK500 with audio.

### 3.3.3 CONNECTIONS ON THE SINGLE-PORT VGA/RS-232

The Single-Port MultiView™ CAT5 Video System with RS-232 supports video and full-modem serial (RS-232) signals over CAT5 cable for the AK1000S and the AK1500S. You can also use the transmitters and receivers to make video-only connections without serial communications. Figure 3-3 shows the Single-Port MultiView™ CAT5 Video 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 may interfere with the RS-232 serial communications.



3-3.

Figure

Transmitter connections on the UTx 232 Universal Transmitter.

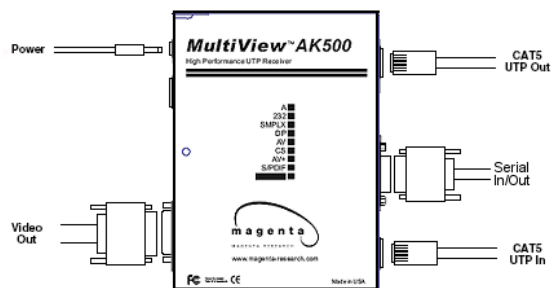


Figure 3-4. Receiver connections on the AK500 232

### 3.3.4 CONNECTIONS ON THE VGA/AUDIO T4/T5 TRANSMITTERS

The T4 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 version, and Figure 3-6 shows how connections are made on the serial RS-232 T4S version.

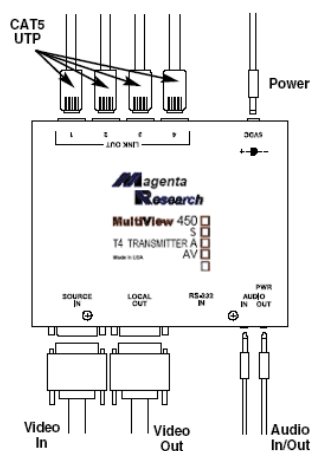


Figure 3-5. T4 transmitter connections with audio

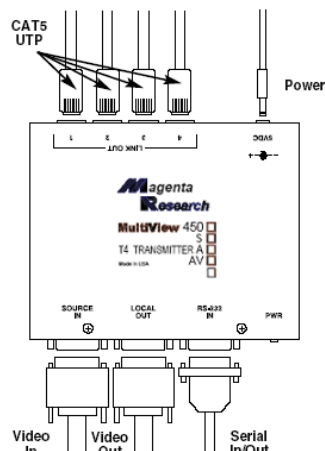


Figure 3-6. T4 transmitter connections with serial

## NOTE

Serial communication mode is unidirectionally broadcast when using T4, T5 transmitters and daisy-chained receivers. In this mode, all other MultiView CAT5 devices must be of the simplex serial type. For more information, contact Technical Support.

### 3.3.5 CONNECTIONS ON THE SINGLE-PORT VGA SA and SAP

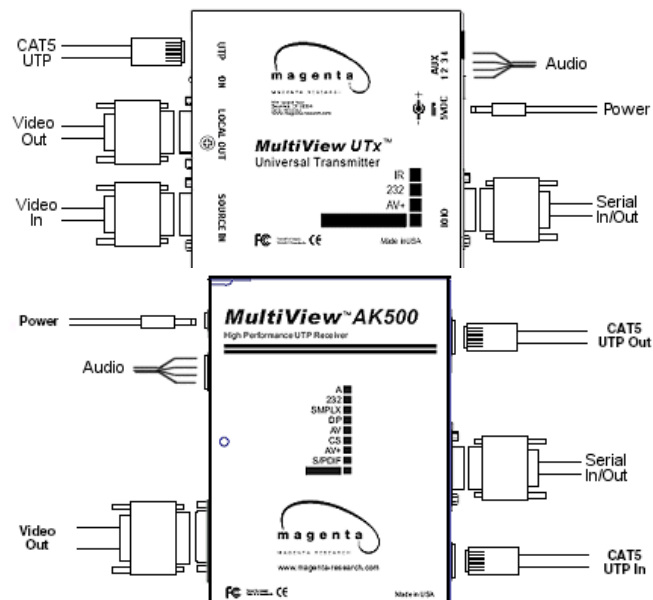
The Single-Port MultiView™ CAT5 Video System SA/SAP series supports RS-232, video and stereo audio signals over CAT5 cable. SAP offers pollable serial modes so a bi-directional serial session can be established with a receiver in a daisy chain. At this time the Magenta MultiView units that support the SA/SAP versions are the Magenta MultiView UTx Universal Transmitter, AK500, AK1000, and AK1500 receivers. The Magenta MultiView T4, T5 transmitters do not support SA/SAP versions. In order to utilize the full potential of the Magenta MultiView SA/SAP series, all transmitters and receivers must be SA/SAP versions.

You cannot connect a standard RS232 or L/R audio version to an SA/SAP version to get a single serial or audio signal. Video modes are not affected by this. Serial signals are 3 wire RS232 (Tx, Rx, ground) and fixed at 9600 baud. Full 9 pin modem signals are not supported.

Note when using the Magenta MultiView SA/SAP series with a MultiView 9D Cat5 DA, or Cat5 matrix switch, the serial is transmit only. There are no configuration changes required to the units. The serial application in use should be changed to transmit only. Audio is full stereo, line level. One or two separate channels of mono audio may also be used.

See figures below for cabling connections.

Appendix F details the configuration and use of the SAP series.



## NOTE

SA units are pre-configured from the factory and require no configuration changes. SAP Units require unique addresses when pollable serial is used. See Appendix F.

### 3.4 Video Adjustment

#### 3.4.1 Cable Distance Compensation Settings

Before performing the adjustment procedure below, be certain that the MultiView AK500 Receiver is connected to the CAT5 cable that will be used in your particular installation. This is because the adjustments are specific to the type and length of UTP cable being used.

In order to get the highest quality video signals from your MultiView AK500DP, please follow the instructions and diagrams below:

An image file is available for download at [www.magenta-research.com/MV1500test.bmp](http://www.magenta-research.com/MV1500test.bmp) to assist in these settings. If the image file cannot be downloaded, use a utility to draw a black box on a white background.

Before you begin, ensure the EQ Adjust knob is fully counter clockwise and all skew compensation switches are in the off position.

Turn the EQ Adjust knob clockwise until the shadow next to the black box just disappears. The brightness in the white area should be the same as the white area above and below the black box.

#### Magenta Research Distance Compensation Setting Utility

Adjust Cable Compensation control to obtain a minimum shadowing effect in the white area to the right of the black window



#### 3.4.2 Skew Compensation Settings

Skew compensation may be necessary for signal timing differences due to differing pair lengths within the CAT5 cable. An alternative to using skew compensation is to utilize Skew Free CAT5 cable. Contact Magenta Research for details.

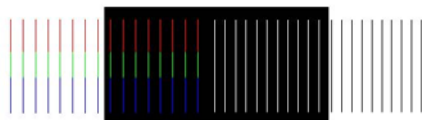
Using the skew compensation switches, 10 nanoseconds of skew may be compensated for each color pair.

An image file is available for download at [www.magenta-research.com/MV1500test.bmp](http://www.magenta-research.com/MV1500test.bmp) to assist in these settings. See Figure 3-2 for an example.

Using the switches, adjust each color to align the Red, Green, Blue lines so that they are stacked on top each other as a single line.

#### Cable Skew Compensation Setting Utility

Adjust skew equalizer to align Red, Green and Blue lines so they are stacked one on top of the other. Next, check white and black lines. Make fine adjustments until there is a minimum of color fringing.



## 4. Troubleshooting

### 4.1. Common Problems

In most cases, nearly every issue with the MultiView™ CAT5 Video 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:**

**Solution:**

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

- Check that both units are powered.
- Ensure EQ adjustment is set correctly — turn knob slowly. The knob is equivalent to 0 feet of cable when fully counter-clockwise and equivalent to 500 feet of cable when fully clockwise.
- Make sure the CAT5 cable is terminated correctly per the TIA/EIA 568B wiring specification.
- Is the display device powered on and functioning?

Check to ensure display settings (resolution, refresh rate, etc) are compatible with input signal.

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:**

**Solution:**

Poor video quality:

- Have all receiver adjustments been finished (see section 3.4).
- Ensure EQ adjustment is set correctly — turn knob slowly. The knob is equivalent to 0 feet of cable when fully counter-clockwise and equivalent to 500 feet of cable when fully clockwise.
- 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. See Section on Skew.

**Problem:**

**Solution:**

Poor audio quality:

- 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.
- Audio is summed left and right for "A" versions. If using a single channel, both audio inputs must be connected at the transmitter end for full audio gain. Audio is line level.
- SA serial//audio units support full stereo line level. A high frequency noise may be heard if the cat5 cable from the transmitter is disconnected, or the transmitter is not power up. This is normal. And will disappear once a complete link connection is made.
- If Daisy Chaining, audio termination must be removed in DP units. Only the last receiver requires termination. For SA units a special un-terminated version must be used between transmitters and the last receiver with a standard End-Of-Line unit installed at the end. SA units cannot be terminated/unterminated in the field. This does not apply to SAP units.

**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 in daisy chains, Cat5 switches, Cat5 distribution amps, or Multi-output transmitters, the serial signal is a unidirectionally broadcast mode only. In this mode, all other MultiView™ CAT5 Video System devices must be the simplex serial type. For assistance, contact Technical Support.
- The last device in a T4 transmitter or daisy chain configuration must be a receiver unit with a terminated serial board. See Appendix D for Serial board settings.
- For SA units a special unterminated version must be used between transmitters and the last receiver with a standard End-Of-Line unit installed at the end. SA units cannot be terminated/ unterminated in the field. This does not apply to SAP units.
- SA/SAP units have a fixed baud rate of 9600 bps and use 3 wire (TX,RX,GND) signals only.

**Problem:****Solution:**

“Green shift” or “green washout” on multimedia signals.

The standard video/serial model 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, the MultiView™ CAT5 Video System UTx Universal transmitter has been designed with full DC restoration capability. This problem is easily solved via a simple switch setting in the UTx Transmitter. Please refer to the UTx Transmitter user manual.

## Appendix A. Cabling Pinouts

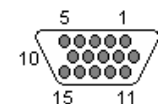


Table A-1. HD15 video connector.

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

Table A-2. Phoenix pinout:

PIN	Audio	SA Audio	Simplex Serial	SPDIF Audio	Composite Video	S-Video & Stereo Audio
Pin 1	Left Channel	Right Channel	Tx	Signal +	Signal +	Left Channel
Pin 2	Ground	Ground	ground	Signal -	Signal -	Ground
Pin 3	Right Channel	Left Channel	-	-	-	Right Channel
Pin 4	-		Shell	-	-	-



## Appendix A. Cabling Pinouts

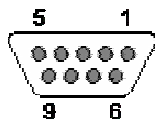
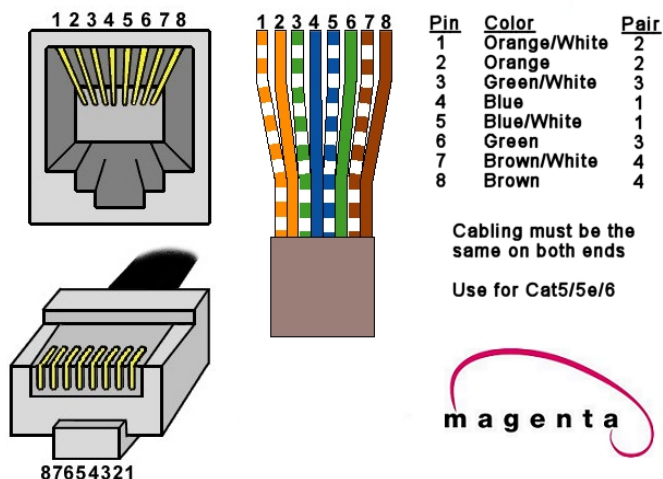


Table A-3. DB9 Male Serial connector

Pin	Full Duplex	3 wire (SA)	Simplex
1	DCD		
2	RX	RX	
3	TX	TX	TX
4	DTR		
5	Ground	Ground	Ground
6	DSR		
7	RTS		
8	CTS		
9	RI		

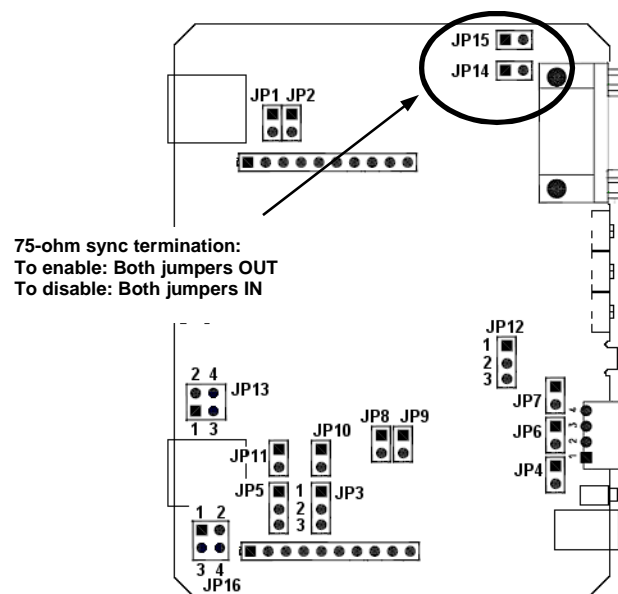
Table A-4. T568B CAT5 pinout

### T568B CAT5 Specification



## 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 MultiView™ CAT5 Video 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.



## Appendix C. AK500 Configuration Settings

Note: AK500 receivers are typically pre-configured at time of order and will have factory configuration indicated on the top of the unit by an X in the appropriate checkbox.

The factory configuration may be changed or checked by using the following jumper location diagram as well as Table C-1 for jumper settings.

Figure C-1. AK500 Jumper locations.

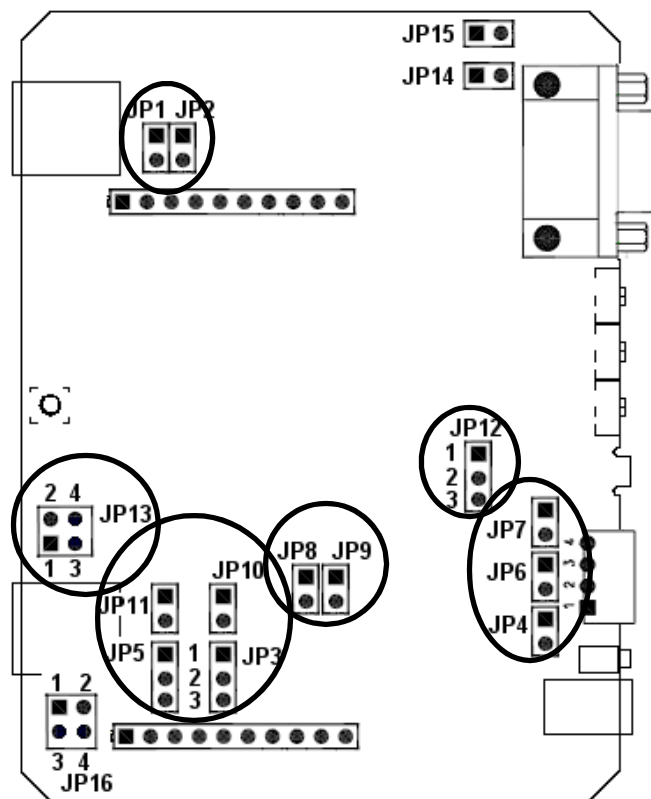


Table C-1: MultiView AK500 Configuration Jumper Settings

Configuration Option (all options utilize 4th pair, except special configurations):	JP1	JP3	JP4	JP5	JP6	JP7	JP8	JP9	JP10 JP11	JP12	JP13
<b>RGBHV Computer Video</b>											
With Left/Right Line Level Audio	IN	1-2	out	1-2	IN	IN	out	out	All IN	1-2	All out
With SDPIF Digital Audio	IN	1-2	out	1-2	IN	out	IN	out	All IN	1-2	All out
With Simplex Serial (receive only)	IN	1-2	IN	1-2	out	out	out	IN	All IN	1-2	All out
With Composite Video	IN	1-2	out	1-2	IN	out	IN	out	All IN	1-2	All out
With RS232 serial or SA series (requires separate daughterboard installed)	IN	2-3	out	2-3	out	out	out	out	All IN	1-2	All out
<b>Composite, S-Video, Component Video</b>											
With Left/Right Line Level Audio	out	1-2	out	1-2	IN	IN	out	out	All IN	1-2	All out
With SDPIF Digital Audio	out	1-2	out	1-2	IN	out	IN	out	All IN	1-2	All out
With Simplex Serial (receive only)	out	1-2	IN	1-2	out	out	out	IN	All IN	1-2	All out
With Composite Video	out	1-2	out	1-2	IN	out	IN	out	All IN	1-2	All out
With RS232 serial or SA series (requires separate daughterboard installed)	out	2-3	out	2-3	out	out	out	out	All IN	1-2	All out
<b>Special configurations:</b>											
Composite Video and Stereo Audio	out	1-2	out	1-2	IN	out	out	out	All IN	1-2	All out
S-Video and Stereo Audio (requires UTx AV+ version)	out	1-2	out	1-2	IN	out	out	out	All IN	2-3	All out
<b>Dual Port Daisy Chain units</b>											
*Use configuration above, but remove JP10 & JP11 (see last unit note below).	*	*	*	*	*	*	*	*	All OUT	*	1-2 3-4
For DP versions, the last unit in chain requires JP10, JP11 IN and JP13 out:	*	*	*	*	*	*	*	*	All IN	*	All Out

## Appendix D. Serial Daughterboard (SDB) Settings

The single-port serial transmitters and single-port and dual daisy chainable serial receivers contain an internal serial daughterboard (SDB) that can be configured for various serial modes. Multi Port Cat5 transmitters do not utilize the SDB and are configured for Mode 1 only.

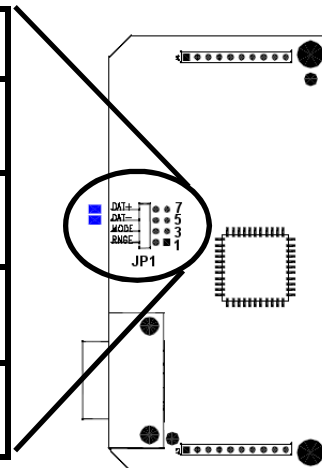
The SDB hardware configuration is done via jumper settings. These jumpers are used to set the various modes of operation. As shown below. Both ends must be set the same.

To access the SDB on transmitters 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

Table D-1 shows the **Transmitter SDB** configuration settings.

Mode	Type	Baud (Max)	JP1 1-2	JP1 3-4
1	Simplex (one way) (to 1500 ft)	115k	OUT	IN
2	Full Duplex (2 way) Short (< 500 ft)	19.2K	OUT	OUT
3/5 Default Setting	Full Duplex (2 way) Long (to 1500 ft)	19.2k	IN	OUT
4	Half Duplex (2 way) Long (to 1500 ft)	115k	IN	IN



### Notes:

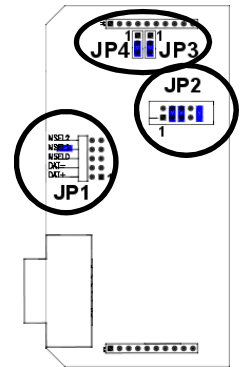
- **Mode 1 is required when using multi output transmitters and when daisy chaining receivers.**
- **Mode 3 may introduce noise in video over 1,000 ft when serial communication occurs. This does not apply when mode 5 is used on the receiver.**
- **JP1 5-6 and 7-8 terminate the serial bus and must be IN on the transmitter.**

## Appendix D. Serial Daughterboard (SDB) Settings, cont

Table D-2. Receiver SDB jumper settings

Mode	Type	Baud (Max)	JP1	JP2
1	Simplex (one way) (to 1500 ft)	115k	1-2 See Notes 3-4 See Notes 5-6 IN 7-8 OUT 9-10 OUT	1-2 IN 3-4 OUT 5-6 OUT 7-8 OUT 9-10 IN
2	Full Duplex (2 way) Short (< 500 ft)	19.2K	1-2 See Notes 3-4 See Notes 5-6 OUT 7-8 OUT 9-10 OUT	1-2 IN 3-4 OUT 5-6 OUT 7-8 IN 9-10 OUT
3	Full Duplex (2 way) Long (to 1000 ft)	19.2k	1-2 See Notes 3-4 See Notes 5-6 OUT 7-8 IN 9-10 OUT	1-2 IN 3-4 OUT 5-6 OUT 7-8 IN 9-10 OUT
4	Half Duplex (2 way) Long (to 1500 ft)	115k	1-2 See Notes 3-4 See Notes 5-6 IN 7-8 IN 9-10 OUT	1-2 IN 3-4 OUT 5-6 OUT 7-8 IN 9-10 OUT
5* Default	Full Duplex (2 way) Long (to 1500 ft)	19.2k	1-2 OUT 3-4 OUT 5-6 OUT 7-8 IN 9-10 OUT	1-2 OUT 3-4 IN 5-6 IN 7-8 OUT 9-10 IN

\*JP3 and JP4 are OUT for all modes except MODE 5. In Mode 5, JP3 and JP4 should be jumpered across pins 2-3.



### Notes:

- **Mode 1 is required when using multi output transmitters and when daisy chaining receivers.**
- **Mode 3 may introduce noise in video over 1,000 ft when serial communication occurs.**
- **JP1 1-2 and 3-4 terminate the serial bus and must be IN on the last receiver in a daisy chain or if using a point to point link UNLESS using Mode 5**

## Appendix E. Rackmounting Units

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

Not shown are brackets for 8 units and brackets for AK series receivers and T4 transmitters. The 8-Unit Rackmount Bracket holds the mounted units like the 4-Unit Rackmount Bracket but is 2U high instead of 1U high, stacking 4 slots directly above 4 slots. The 3-Unit AK receiver and T4 Transmitter Bracket holds 3 units in a 19" wide x 1U high panel. The 6-Unit AK receiver and T4 Transmitter Bracket occupies 2U high rack space stacking 3 units atop 3 units.

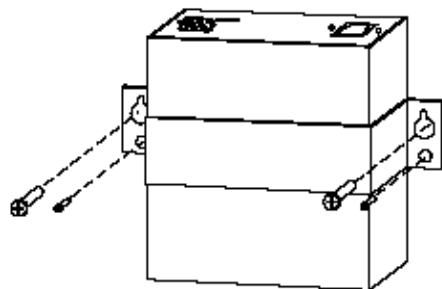


Figure F-1. Receiver Mounting Bracket.

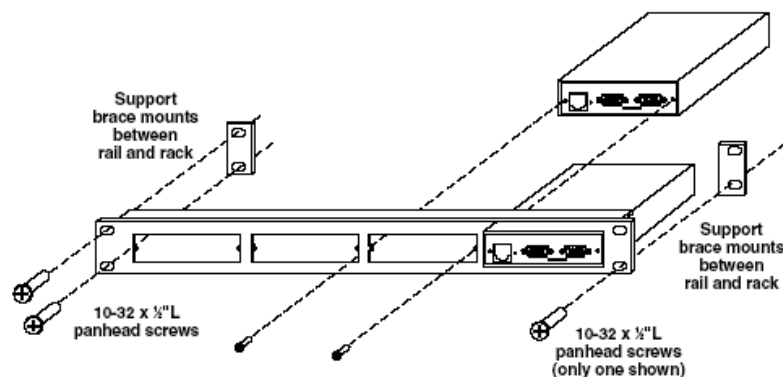


Figure F-2. Rack Mounting kit.

## Appendix F. Pollable Serial Mode

The SAP pollable serial daisychainable receivers with video, audio and RS232 serial feature the ability to open a bi-directional session between a pollable transmitter and a single pollable receiver in a daisychain installation.

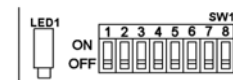
Each pollable receiver must have a unique address set first. Once this has been done, a special command (discussed below) is sent to the transmitter to specify the receiver to open a session with. Once this has been done, serial communication can occur between the RS232 source and display. The transmitter is always addressed 0.

If an address of 0 is sent, the RS232 commands will be broadcast to all receivers.

The following details the installation and setup procedure.

To set the receiver address requires that each internal serial audio daughterboard in the receiver have a unique address set. This is done via an 8 position dipswitch. Use the following chart to determine the proper switch addresses. All receivers must have a unique address. *It is recommended to write the address on each receiver once this step has been completed.* It is also recommended to keep a list of receiver addresses and locations to make it easier to determine which receiver/display is desired to communicate with.

- 1) Remove the top cover assembly of the receiver
- 2) Locate the 8 position dipswitch on the internal daughterboard assembly and using the following chart, set the receiver address.



- 3) Replace cover assembly and install unit.
- 4) See below on using pollable serial mode.

In order to utilize the pollable serial mode in normal operation and connect to individual receivers, a special command needs to be sent to the transmitter in order to establish a session between transmitter and receiver.

Follow the steps below to do this (must be done from serial control application in use).

- 1) To establish a bi-directional RS232 session with a specific receiver, the transmitter needs the receivers address set. To do this send a CTRL-D <ID> carriage return, where <ID> is the receiver address (between 1-254)
- 2) To broadcast serial commands to all receivers, set <ID> to 0.
- 3) To disable serial communication to all receivers, set <ID> to 255 (to enable serial communication again, simply set <ID> to a receiver address).

Once a transmitter has the correct ID set, normal bi-directional communication can occur between transmitter and intended receiver.

## Appendix F. Pollable Serial Mode Address Chart

Addr	Switch Setting	Addr	Switch Setting	Addr	Switch Setting	Addr	Switch Setting
00		32		64		96	
01		33		65		97	
02		34		66		98	
03		35		67		99	
04		36		68		100	
05		37		69		101	
06		38		70		102	
07		39		71		103	
08		40		72		104	
09		41		73		105	
10		42		74		106	
11		43		75		107	
12		44		76		108	
13		45		77		109	
14		46		78		110	
15		47		79		111	
16		48		80		112	
17		49		81		113	
18		50		82		114	
19		51		83		115	
20		52		84		116	
21		53		85		117	
22		54		86		118	
23		55		87		119	
24		56		88		120	
25		57		89		121	
26		58		90		122	
27		59		91		123	
28		60		92		124	
29		61		93		125	
30		62		94		126	
31		63		95		127	

## Appendix F. Pollable Serial Mode Address Chart (cont.)

Addr	Switch Setting	Addr	Switch Setting	Addr	Switch Setting	Addr	Switch Setting
128		160		192		224	
129		161		193		225	
130		162		194		226	
131		163		195		227	
132		164		196		228	
133		165		197		229	
134		166		198		230	
135		167		199		231	
136		168		200		232	
137		169		201		233	
138		170		202		234	
139		171		203		235	
140		172		204		236	
141		173		205		237	
142		174		206		238	
143		175		207		239	
144		176		208		240	
145		177		209		241	
146		178		210		242	
147		179		211		243	
148		180		212		244	
149		181		213		245	
150		182		214		246	
151		183		215		247	
152		184		216		248	
153		185		217		249	
154		186		218		250	
155		187		219		251	
156		188		220		252	
157		189		221		253	
158		190		222		254	
159		191		223			

