

# ***MultiView™ II***

## ***AK600DP***

## ***AK1200DP***

Receiver



## **Installation and User Guide**

Version 1.00



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PDF-UG-MVII-AK

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## Precautions

### Safety Instructions • English



This symbol calls attention to important information.



This symbol alerts the user of important maintenance (or servicing) and operating information.



This symbol alerts the user to the presence of un-insulated dangerous voltages or other conditions in, or around, the product enclosure. These conditions can present a risk of electric shock or damage to equipment or facilities.

**Connection** • Not for direct connection to Telecommunication Network Circuitry (TNV)

**Power sources** • This equipment should be operated only from the power source indicated on the product.

Disconnect all power sources before servicing.

**Power disconnection** • To remove power from the equipment safely, remove all power cords from the rear of the equipment, 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.

**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.

## Caution:

**Read Instructions:** Read and understand all operating, installation, and safety instructions before using this equipment.

**Avoid Attachments:** Only use accessories, attachments, tools, and materials that are recommended by the equipment manufacturer. Doing otherwise can compromise operating performance, create an unsafe condition, damage equipment, or violate the terms of usage or warranty.

**Follow Warnings:** Always follow all instructions and warnings marked on the equipment or as detailed in related users' guides.

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## Chapter 1 About this Manual

This manual describes the Magenta MultiView™ II AK600DP and AK1200DP receivers, and contains the following information:

- Product overview (Chapter 2)
- Product specifications (Chapter 3)
- Installation and configuration instructions (Chapter 4)
- Troubleshooting (Chapter 5)
- Additional information (Appendices)

The Magenta MultiView™ II family (MVII) of products introduces greater compatibility for handling HD video standards, as well as making nearly all user-configurable options “jumperless” via a digital front-panel user-interface.

**Note:** MultiView II products are fully backwards-compatible with previous MultiView products. Combining MVII with original MV products may limit access to some of the improved capabilities of the MVII series, so for best possible compatibility with sources and displays, always try to use MVII products throughout your system configuration.

The following table shows the factory-configured versions of the MVII-AK600(1200)DP.

**Table 1: Available MVII-AK600(1200)DP Versions**

Version	Description
MVII-AK600(1200)DP-S/A	Supports L+R summed audio or simplex serial (user-configuration setting).
MVII-AK600(1200)DP-SAP	Supports 3-wire RS-232 serial (simplex or duplex), and true stereo audio. The serial feature is POLLABLE, so that multiple receivers on a daisy-chained link can be addressed individually for display control or status-query. <b>Contains the (SAP) option module.</b>

**Note:**

1. Each of the above variants is also available with the AkuComp-II skew-compensation module installed.
2. The –S/A version is also field-configurable for S/PDIF digital audio extension on the 4<sup>th</sup>-pair.



**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.**



**Use only approved MultiView™ II power adapters. Failure to do so may damage this device and will void the warranty.**

## Chapter 2 Product Overview

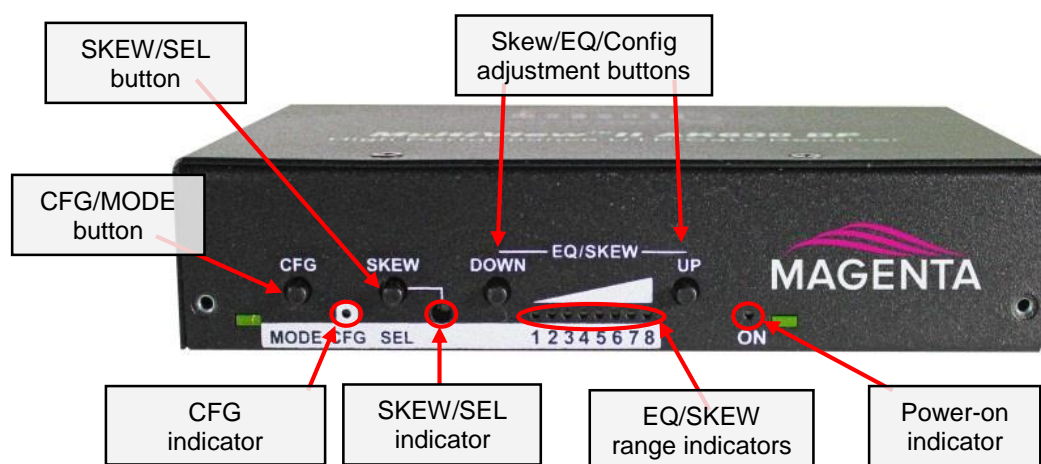
The MVII-AK600(1200)DP is a video receiver that is compatible with the entire MultiView™ family of products. It extends an analog video signal over standard CAT cable (CAT5, 5x, 6, 7 etc). There are user-configurable settings for video, audio, and serial options which can be controlled from the front panel.

The MVII-AK600(1200)DP features optional integrated skew compensation that can be varied in 2 ns increments to 65 ns total per color-channel to cancel the effects of skew in Category cables. This feature allows you to use CAT5e and reduced-skew CAT6 cables to lengths up to 600ft (186m) for AK600DP, or 1200ft (366m) for AK1200DP.

All models support video refresh rates/resolutions up to 1920x1200 to 600 feet (183m) with the AK600DP, and 1200ft (366m) with the AK1200DP.

### 2.1 Front Panel Interfaces

The front panel of the MVII-AK600(1200)DP has the following controls and indicators:



**Figure 1: MVII-AK600(1200)DP Front Panel Interfaces**

There are four buttons (**CFG/MODE**, **SKEW/SEL**, **DOWN**, and **UP**) and several LED status indicators. All are used to display and control the operating modes of the receiver, with the LEDs having multiple functions. The **CFG** indicator shows these modes:

- In normal mode, the **CFG** indicator is off.
- In configuration mode, the **CFG** indicator will be on or flashing.

## 2.2 Rear Panel Interfaces

The rear panel of the MVII-AK600(1200)DP has the following ports:

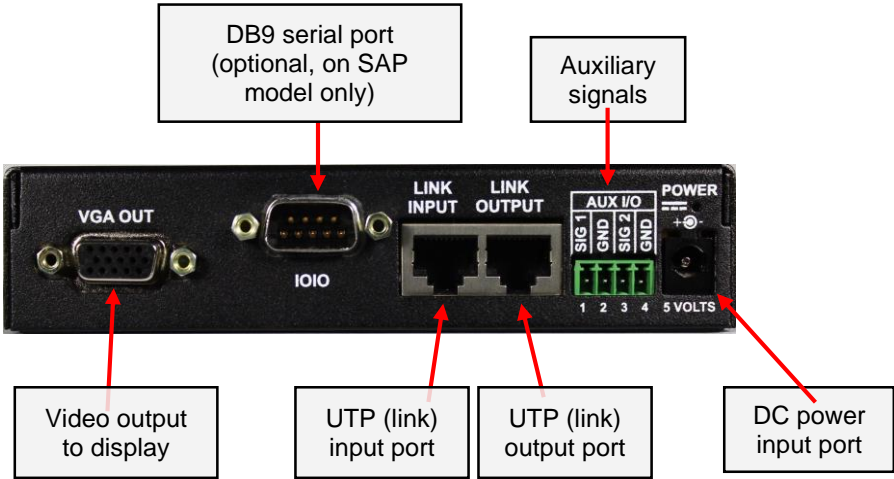


Figure 2: MVII-AK600(1200)DP Rear Panel Interfaces

## Chapter 3 Specifications

This section describes the following specifications:

- General specifications
- Category cable compatibility

### 3.1 General Specifications

The following table lists the general specifications of the MVII-AK600(1200)DP.

**Table 2: MVII-AK600(1200)DP General Specifications**

Item	Description
Cable Required	Category 5, 5e, or 6 cable. Shielded or unshielded twisted pair. Low-skew.
Compliance	CE; FCC Class A, IC Class A, UL listed I.T.E Device.
Video Support	All supported VESA modes to WUXGA (1920x1200), RGBHV, RGsB, RGBs, Composite (NTSC, PAL, SECAM), S-Video, Component Video, widescreen modes, HDTV modes including 1080p, 1080i, 720p
Resolution & Refresh Rate	<b>MVII-AK600DP:</b> At 600ft(183m) or less: a maximum of 1920x1200. <b>MVII-AK1200DP:</b> At 1200ft(366m) or less: a maximum of 1920x1200.
Required source impedance	Video OUT: 75 ohms Audio models: Audio OUT (if any): capable of driving 10K ohms load. SPDIF audio mode: 75 Ohm
Required destination impedance	Video IN: 75 ohms Audio models: Audio IN (if any): 1K ohms minimum input impedance SPDIF audio mode: 75 Ohm
Audio Characteristics	<b>(S/A) model:</b> Right/Left summed, 50K input impedance, line level, unbalanced. <b>(SAP) models:</b> Full stereo, 10K ohms input impedance, line level, unbalanced.
Serial Characteristics	<b>(S/A) model:</b> Protocol: Asynchronous; transparent to data format; transparent to data rates up to 115 kbps simplex. <b>(SAP) model:</b> Protocol: Asynchronous; transparent to data format; transparent to data rates up to 19.2 kbps full duplex or simplex (9 fixed baud rates are supported).
Connectors	(1) 4 pin phoenix (2) RJ-45 (1 input, 1 active loop-through) (1) HD15 (F) (1) DB9M (only if the SAP option module is installed) (1) DC Power jack
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% non-condensing
Enclosure	Steel, black powder-coat finish.
Power	Input voltage: +5 VDC @ 1.2 Amps max. Consumption: 6 watts maximum
Size	1.2"H x 3.6"W x 5.5"D (3.0 x 9.2 x 14.0 cm)
Weight	1.0 lb. (0.45 kg)

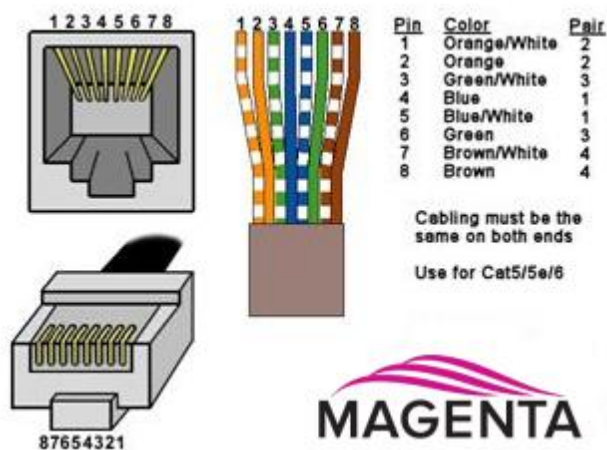


### 3.2 Twisted-Pair Cable Compatibility

MultiView products are compatible with Cat5/5e/6 data cabling, as well as “minimized skew” CAT5/5e cabling (also referred to as “low-skew”) manufactured specifically for video applications. Follow these tips to ensure proper usage of your Category cabling:

- Some “low-skew” is specific to a particular vendor and is incompatible with our products. Ensure that any “low-skew” cable is non-proprietary before purchase and installation.
- CAT6 cable, due to the manufacture method, can exhibit much greater skew than standard CAT5/5e and might require skew compensation beyond what the capabilities of the AkuComp-II option module offers. Please contact tech-support for assistance.
- Cabling for the Magenta MultiView™ Series must be pinned to the TIA-EIA T568B wiring specification.
- We also highly recommend that all 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 cables can damage the Magenta MultiView™ Series.
- The cable should be suitably rated Listed cable ( DUZX ) communication cables, TYPE CMP, CMR, CMG or CM as designated in the NEC.
- Cables are to be installed in accordance with the NEC and local building and electrical codes. This is the responsibility of the end user/installer of this product.

The following figure shows the T568B Wiring specification.



**Figure 3: T568B pinout for RJ45 connectors and twisted-pair cables**

## Chapter 4 Installation

This section describes the following installation topics:

- Data mode configuration
- Prerequisites to installation
- Installation procedure
- Post-installation adjustments
- Post-installation configuration settings



**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!**



**Do not connect DC power until instructed to do so.**

### 4.1 Option-Module Configuration

If you are installing a MVII-AK600(1200)DP-**SAP** version receiver (this is equipped with the SAP hardware option module), then the following information will be important to review BEFORE installing the receiver:

The **MVII-AK600(1200)DP-SAP** version offers pollable RS232 duplex serial in addition to stereo audio. The serial interface is 3-wire (TX, RX, GND) and does not support full modem signals. The factory-default serial baud rate is 9600 baud, but this is a user-configurable option using “SAP-II” serial commands. Simplex modes are supported without jumpers or other changes, by simply using the TX signal only. The SAP-module capability of polling and interacting with specific receivers requires that each receiver have a unique address setting. Please refer to Appendix-C for (SAP) module configuration information, and Appendix-D for SAP-address settings. Setting this address involves opening your unit and setting DIP switches inside.

### 4.2 Prerequisites

Depending on the specific installation requirements, some common tools (screwdrivers, nut-drivers) and related hardware (mounting screws) might be required. These are not provided with Magenta products.

The following items might be necessary, which are available from Magenta Research:

- Audio cable: Phoenix 4-pin to RCA.
- Video cable: HD15 connectors, or one of several BNC/RCA/S-Video breakout cables.
- Serial cable: Phoenix 4-pin to DB9, or one of several DB9-M/F, M/M or F/F extension cables.

**Note:** You will need appropriate twisted-pair cable as previously described, to connect the MVII-AK600(1200)DP to other MultiView™ and MultiView™ II devices. tvONE does not supply Category cable.

### 4.3 Installation Procedure



Ensure that all connectors are clean and free of contaminants prior to making the connections. Appropriate connector locking hardware (screws/latches) should be used to prevent cables from disconnecting or causing intermittent operation.



All units must be the same type for 4<sup>th</sup>-pair supported features to function correctly. For example, an “XRTx-A” must be connected to a MVII-AK600(1200)DP-A, as both must be identical to work properly with L/R summed audio. Similarly, an “XRTx-SA” cannot be used with an MVII-AK600(1200)DP-A”. Video modes may function normally, but 4th pair options will not.

To install a typical MultiView transmitter (these steps are generic - refer to the appropriate MultiView transmitter manual):

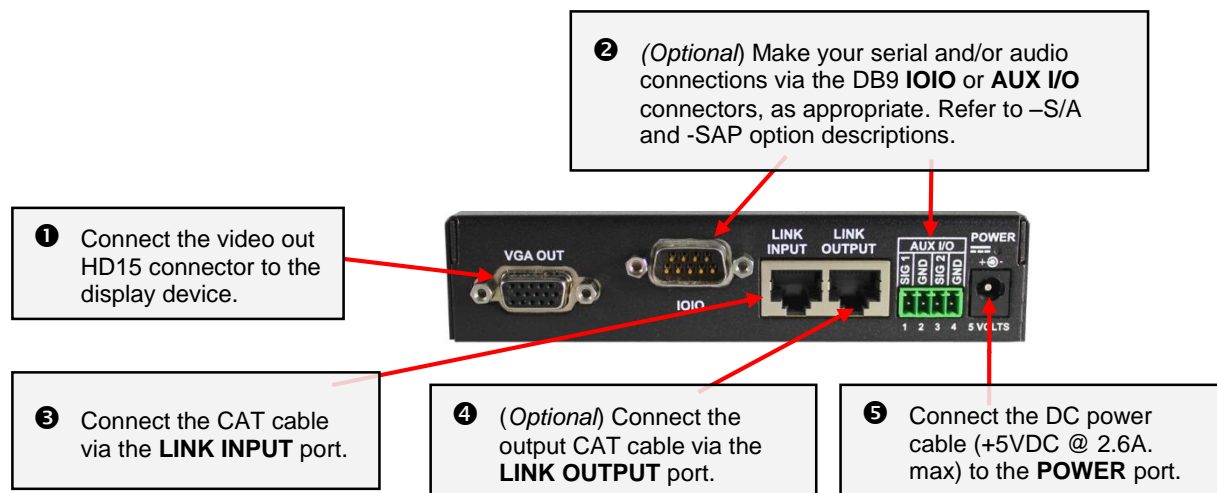
1. Connect the source video to the Magenta MultiView™ transmitter video input port, which is an HD15 connector labeled SOURCE IN or VIDEO IN.
2. If desired, attach a local monitor to the HD15 connector labeled LOCAL OUT (if available).
3. Make your audio or serial connections via the phoenix connector or DB9 connector as appropriate.
4. Connect the twisted-pair cable to the transmitter.
5. Apply power to the transmitter.
  - a. The power-on LED should light up.
  - b. If there is a local monitor attached, a video image should appear on the monitor.

**To install the MVII-AK600(1200)DP receiver:**

1. Connect the VGA OUT connector to the display.
2. Connect any audio and/or serial cables to the (AUX I/O) and (IOIO) connectors, depending on the specific model of receiver you are installing. Please refer to the –S/A, –SAP option descriptions for more information.
3. Connect the twisted-pair cable from a MultiView transmitter to the LINK INPUT connector on the receiver.
4. If you are daisy-chaining multiple receivers, also connect the downstream twisted-pair cable to the LINK OUTPUT port on the receiver.
5. Connect the DC power cable to the POWER port, and check for the following indicators:
  - The power-on LED should light up (Green).
  - The CFG indicator is off.
  - The SKEW/RGB indicator is off.
  - The EQ/SKEW indicators display the current EQ settings (0 to 100%).
6. **IMPORTANT:** Adjust the receiver's EQ and/or SKEW (optional) settings for the best image.
7. When the EQ setting is properly adjusted, the video should appear on the display (make sure display is powered ON).
8. Make any other required configuration changes via the LED/button user-interface.



It is critical that the EQ setting be adjusted to compensate for the length of the twisted-pair cable leading back to the transmitter. Skew compensation adjustment (if your MVII-AK600(1200)DP is equipped with an AkuComp-II module) will also be important for best image quality.



**Figure 4: MVII-AK600(1200)DP Receiver Installation Procedure**

## 4.4 Adjustments

This section describes how to make the following adjustments:

- Cable distance (EQ) compensation
- Skew compensation

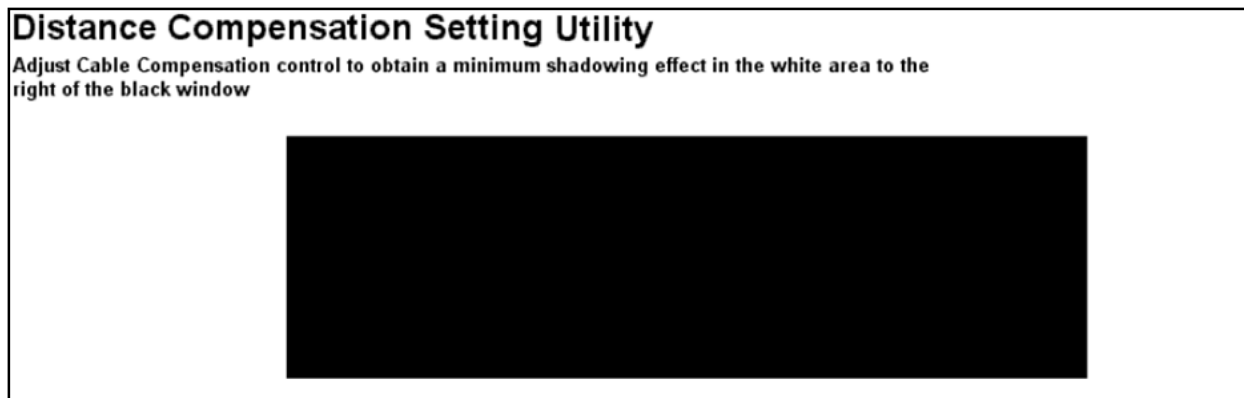
### 4.4.1 Cable Distance (EQ) Compensation Settings

When the MVII-AK600(1200)DP is operating in normal mode (CFG indicator is off), it is possible to quickly adjust the EQ. The EQ/SKEW indicators 1-8 will change accordingly to show (in “bargraph” form) 0 to 100% of the available EQ adjustment range (AK600DP = 0 to 600 ft, AK1200DP = 0 to 1200 ft).



**For best results, use the Magenta EQ/Skew test pattern image if possible. A test pattern image and video instructions is available at <http://www.tvone.com>.**

The following figure shows the test image you can use to make the EQ adjustment.



*Figure 5: EQ-adjustment test image*

#### To adjust EQ:

1. From normal-mode, press and hold the UP or DOWN button until the SKEW/RGB indicator turns on (VIOLET). Release the UP or DOWN button.
2. Press the UP or DOWN buttons repeatedly to adjust the EQ setting, either one step at a time or hold for auto-repeat.
3. To exit EQ-ADJUST mode, leave the buttons untouched for 10 seconds, or press the CFG button once.

#### 4.4.2 Skew Compensation Settings

If the AkuComp-II skew module is installed, it is possible to quickly adjust the RGB values when the MVII-AK600(1200)DP is operating in normal mode. The EQ/SKEW indicators 1-8 will change accordingly to show (in “bargraph” form) 0 to 100% of the available SKEW adjustment range (0 to 65nSec).



**For best results, use the Magenta EQ/Skew test pattern image if possible. A test pattern image and video instructions is available at <http://www.tvone.com>.**

**If skew compensation is required, but the skew module is not installed, call for technical assistance. Your product may need to have the skew-module added to it.**

The following figure shows the test image you can use to make the SKEW adjustment.

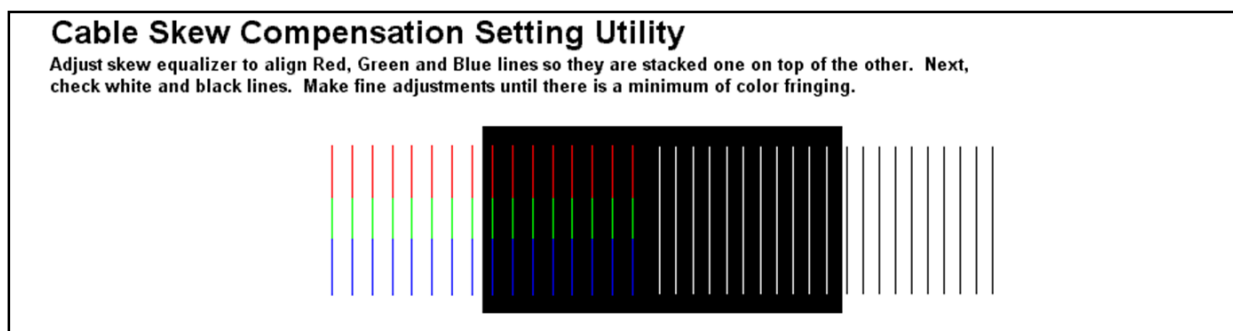


Figure 6: Image Adjustment Utility Skew

##### To adjust skew:

1. From normal mode, press and hold the SKEW/SEL button until the SKEW/RGB indicator turns on RED. Release the SKEW button.
2. Press the UP or DOWN button repeatedly to adjust the RED skew value.
3. Press and release the SKEW/SEL button. The SKEW/RGB indicator will turn GREEN.
4. Press the UP or DOWN button repeatedly to adjust the GREEN value.
5. Press and release the SKEW/SEL button. The SKEW/RGB indicator will turn BLUE.
6. Press the UP or DOWN button to adjust the BLUE value.
7. Pressing the SKEW/SEL button again will return you to step-2, allowing adjustment of the RED skew again.
8. To exit SKEW-ADJUST mode, leave the buttons untouched for 10 seconds or press the CFG button.

## 4.5 Configuration Settings

There are a number of configurable operating parameters, and the factory-default settings should work for most applications. However, some applications might require slight configuration changes.

This section describes how to configure the following settings:

- **Config-1 mode, LEDs 1-2:** Sync-mode settings
- **Config-1 mode, LEDs 4-6:** 4<sup>th</sup> pair settings
- **Config-1 mode, LED 7:** Vsync polarity settings
- **Config-1 mode, LED 8:** Hsync polarity settings
- **Config-2 mode, LED 1-2:** Clamp-mode settings
- **Config-2 mode, LED 3:** 4<sup>th</sup> pair termination settings

Nearly all settings are available from the front-panel buttons/LEDs. The enclosure does not need to be opened **unless** an option module is being installed or removed, or settings specific to the option module need to be changed.

### 4.5.1 Configuration Modes 1 & 2

For configuration settings, the receiver must be in Config Mode-1 or Config Mode-2 (CFG indicator is **ON** or **FLASHING**). Once in a configuration mode, any changes are effective immediately and are saved in non-volatile memory.

#### To enter Configuration Mode-1:

- Press and hold the **CFG button** until the **CFG indicator** turns **on**.
  - Once in this mode, the LED indicators 1-8 will display the current settings for the Config Mode-1 settings.

#### To enter Configuration Mode-2:

- Press and hold the **CFG button** until the **CFG indicator** turns **on**.
- Press the **SEL button** exactly 5 times. The **CFG indicator** will **start flashing**.
  - Once in this mode, the LED indicators 1-8 will display the current settings for the Config Mode-2 settings.

#### To exit configuration-mode:

- Leave the buttons untouched for 10 seconds. The **CFG indicator** will turn off (normal-mode).
- Or, press the **CFG button** once. You will immediately leave the current Config mode.

#### To quickly reset all user-configurable options back to factory-default settings:

1. Disconnect the DC power cable (or AC power).
2. Press and hold the **CFG button**.
3. Connect the DC power cable (or AC power). All LEDs blink 3 times, indicating all settings are now changed back to factory-defaults.
4. Release the **CFG button**.

#### 4.5.2 Sync-mode Settings (LED1-2)




The receiver is factory-configured for auto-detecting the proper sync-mode (RepliSync-I normal/stretched). This mode is generally compatible with all existing MultiView transmitter and receiver products that support RepliSync (if they are also using their default settings).

However, some video sources may require a custom sync-mode setting (especially at 1080p and 1920x1200 video resolutions). For these cases, one of the other sync-modes can be selected. Note that any connected MultiView device (transmitter or daisy-chained receiver) **MIGHT** also require a change to its sync-mode settings. Otherwise, you may not get a proper video display output at one or more receivers.

Perform the following procedure while the receiver is in the normal operating state (**CFG** indicator is off):

1. Press and hold the **CFG** button until the **CFG** indicator is **ON**. Release the **CFG** button.
  - a. LEDs 1-8 will show the current value for all Mode-1 configuration settings as **bright** (same as **ON**), **dim** (same as **OFF**).
2. Press and release the **SKEW/SEL** button once.
3. **LED indicators 1 and 2** should be illuminated (either **ON** or **DIM**); all others (indicators 3-8) should be off.
4. Press the **UP** and **DOWN** buttons to step through the available sync-mode settings as shown below.
5. To leave configuration-mode, leave the buttons untouched for 10 seconds or press the **CFG** button.

**Table 3: Sync-Mode Settings**

LED1	LED2	Front Panel View	Sync-mode Setting
<b>dim</b>	<b>dim</b>		<b>The receiver will auto-detect the required RepliSync-I mode (“normal” or “stretched”). This is the <u>factory-default</u> setting.</b>
dim	ON		Force RepliSync-II mode. This is compatible with MultiView II “RepliSync-II” mode only (when connected to a MultiView-II transmitter).
ON	dim		Force fixed-sync mode. <b>NOTE:</b> The source MultiView transmitter must also be in fixed-sync mode. Note that H/V polarity settings must also be selected at each receiver.








### 4.5.3 4<sup>th</sup> Pair Settings (LED4-6)

The receiver provides several options for using the 4<sup>th</sup>-pair signals (pairs 1-3 are generally used for video). The factory-default setting (-S/A) supports summed L+R analog audio on the 4<sup>th</sup>-pair. Note that the connected MultiView transmitter and any daisy-chained receivers must be configured with a matching 4<sup>th</sup>-pair operating mode. Otherwise, the desired 4<sup>th</sup>-pair signal will not work as expected (but the video will not be affected).

Perform the following procedure while the receiver is in the normal operating state (**CFG** indicator is off):

1. Press and hold the **CFG** button until the **CFG** indicator is **ON**. Release the **CFG** button.
  - a. LEDs 1-8 will show the current value for all Mode-1 configuration settings as bright/off.
2. Press and release the **SKEW/SEL** button twice.
3. **LED indicators 4-6** should be illuminated (either **DIM** or **ON**); all others (indicators 1-3, 7 and 8) should be off.
4. Press the **UP** and **DOWN** buttons to step through the available 4<sup>th</sup>-pair settings as shown below.
5. To leave configuration-mode, leave the buttons untouched for 10 seconds or press the **CFG** button.

**Table 4: 4<sup>th</sup>-Pair Settings**

LED4	LED5	LED6	Front Panel View	4 <sup>th</sup> -pair Operating Mode
dim	dim	dim		<b>If option-module is installed:</b> 4 <sup>th</sup> -pair operating mode is defined by the presence of the option-module (SAP) and this setting cannot be changed. <b>If the option-module is not installed:</b> 4 <sup>th</sup> -pair signals are disabled. This effectively “mutes” anything being sent on the 4 <sup>th</sup> pair. This can be useful for diagnostic purposes.
dim	dim	ON		Direct pass-through of 4 <sup>th</sup> -pair wires (custom applications).
<u>dim</u>	<u>ON</u>	<u>dim</u>		<b>External analog (L+R summed) audio (“-A” mode). This is the <u>factory-default</u> mode if no daughterboard option is installed.</b> (Remember to also check 4 <sup>th</sup> -pair termination setting)
dim	ON	ON		External S/PDIF digital audio. Output-impedance = 75-ohms. (Remember to also check 4 <sup>th</sup> -pair termination setting)
ON	dim	dim		Simplex-serial (“-S” mode) (Remember to also check 4 <sup>th</sup> -pair termination setting)

#### 4.5.4 Vsync Polarity Settings (LED7)

The receiver provides settings for Vsync polarity: (+) or (-).

**The factory default setting is (+) Vsync polarity, or “ON” for configuration LED 7.**

Perform the following procedure while the receiver is in the normal operating state (*CFG indicator is off*):

1. Press and hold the **CFG** button until the **CFG** indicator is **ON**. Release the **CFG** button.
  - a. LEDs 1-8 will show the current value for all Mode-1 configuration settings as bright/off.
2. Press and release the **SKEW/SEL** button three times.
3. **LED indicator 7** should be illuminated (either DIM or ON); all others (indicators 1-6 and 8) should be off.
4. Press the **UP** and **DOWN** buttons to change Vsync polarity from Positive (**ON**) to Negative (**DIM**).
5. To leave configuration-mode, leave the buttons untouched for 10 seconds or press the **CFG** button.

**Note:** This setting only has an effect if the sync-mode is set to “Fixed”.

#### 4.5.5 Hsync Polarity Settings (LED8)

The receiver provides settings for Hsync polarity: (+) or (-).

**The factory default setting is (+) Hsync polarity, or “ON” for configuration LED 8.**

Perform the following procedure while the receiver is in the normal operating state (*CFG indicator is off*):

1. Press and hold the **CFG** button until the **CFG** indicator is **ON**. Release the **CFG** button.
  - a. LEDs 1-8 will show the current value for all Mode-1 configuration settings as bright/off.
2. Press and release the **SKEW/SEL** button four times.
3. **LED indicator 8** should be illuminated (either DIM or ON); all others (indicators 1-7) should be off.
4. Press the **UP** and **DOWN** buttons to change Hsync polarity from Positive (**ON**) to Negative (**DIM**).
5. To leave configuration-mode, leave the buttons untouched for 10 seconds or press the **CFG** button.

**Note:** This setting only has an effect if the sync-mode is set to “Fixed”.


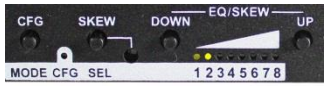
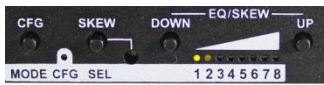
#### 4.5.6 Clamp-mode Settings (CFG2: LED1-2)

The receiver allows you to select the video clamp-mode.

Perform the following procedure while the receiver is in the normal operating state (**CFG** indicator is off):

1. Press and hold the **CFG** button until the **CFG** indicator is ON. Release the **CFG** button.
  - a. LEDs 1-8 will show the current value for all Mode-1 configuration settings as bright/off.
2. Press and release the **SKEW/SEL** button exactly five times.
  - a. The **CFG** indicator will start flashing.
  - b. LEDs 1-8 will show the current value for all Mode-2 configuration settings as bright/off.
3. Press and release the **SKEW/SEL** button once.
4. LED indicators 1 and 2 should be illuminated (either DIM or ON); all others (indicators 3-8) should be off.
5. Use the **UP** and **DOWN** button repeatedly to step through the available video-option settings as shown below.
6. To leave configuration-mode-2, leave the buttons untouched for 10 seconds or press the **CFG** button.

**Table 5: Clamp-mode Settings**

LED1	LED2	Front Panel View	Clamp-mode Settings
<u>dim</u>	<u>dim</u>		<b>Auto-detect the required clamp-mode based on the video signal format.</b> <b>This is the <u>factory-default</u> mode.</b>
dim	ON		Force clamp-mode Off. If needed, this is the preferred setting for component/composite video.
ON	dim		Force clamp-mode On. If needed, this is the preferred setting for RGBHV (VGA) video.

**Note:** The default **auto-detect** clamp-mode setting will usually work for any RGBHV(VGA), component or composite video signal being received from a MultiView transmitter. However, in some cases it may be necessary to manually select either the **OFF** or **ON** setting: **OFF** is preferred for component & composite signals; **ON** is preferred for RGBHV(VGA) signals.

#### 4.5.7 4<sup>th</sup> Pair Termination Settings (CFG2: LED3)

The AK600 provides settings for 4<sup>th</sup> pair termination: **ON** or **OFF**. This setting has an effect only for “-S/A” and S/PDIF operating modes.

**Note:** It is not possible to access the 4<sup>th</sup>-pair setting if an option board is installed – since this setting is ignored.

- Set to **ON** for all **single-receiver** applications, and for the **last receiver** in a daisy-chained configuration. This is the factory-default.
- Set to **OFF** only for **mid-span** receivers in a daisy-chain configuration.

Perform the following procedure while the receiver is in the normal operating state (*CFG indicator is off*):

1. Press and hold the **CFG** button until the **CFG** indicator is **ON**.
  - a. LEDs 1-8 will show the current value for all Mode-1 configuration settings as bright/on.
2. Press and release the **SKEW/SEL** button five times.
  - a. The **CFG** indicator will start **flashing**.
  - b. LEDs 1-8 will show the current value for all Mode-2 configuration settings as bright/off.
3. Press and release the **SKEW/SEL** button twice.
4. LED indicator 3 should be illuminated (either DIM or ON); all others (indicators 1, 2 and 4-8) should be off.
5. Use the **UP** and **DOWN** buttons to turn 4<sup>th</sup>-pair termination ON (**ON**) or OFF (**DIM**).
6. To leave configuration Mode-2, leave the buttons untouched for 10 seconds or press the **CFG** button.

## Chapter 5 Troubleshooting

In most cases, nearly every issue with the MultiView™ video system can be resolved by checking the Category cable 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. The following table lists the most common installation errors and their solutions.

**Table 6: Troubleshooting Problems and Solutions**

Problem	Solution
No video signal at the receiver	<ul style="list-style-type: none"> <li>• Check that both units are powered and all necessary cables are firmly connected.</li> <li>• Ensure receiver EQ and SKEW adjustments are set correctly. Change EQ settings slowly to allow the display to re-acquire a valid signal and display the image.</li> <li>• During initial installation of a MVII receiver, it is very helpful to pre-set the EQ to an approximately correct value. For example, if the UTP cable is known to be approximately 300ft long:               <ul style="list-style-type: none"> <li>○ If you have a MVII-AK600DP, set the EQ to about ½ the maximum setting on the EQ-range LEDs, which is approximately 300ft. This would result in your EQ being set almost right for a 300ft cable and you should be able to get a video image.</li> <li>○ If you have a MVII-AK1200DP receiver, set the range to about ¼ of the maximum setting on the EQ-range LEDs, which again would be approximately 300ft.</li> <li>○ Once you have a video image, it's much easier to fine-tune the EQ setting to get the best possible image on your display.</li> </ul> </li> <li>• Make sure the Category cable is terminated correctly per the TIA/EIA 568B wiring specification.</li> <li>• Is the display device powered on and functioning?</li> <li>• Check to ensure display settings (resolution, refresh rate, etc) are compatible with input signal.</li> </ul>
Poor video quality at receiver	<ul style="list-style-type: none"> <li>• Ensure receiver EQ and SKEW adjustments are set correctly. Change EQ settings slowly to allow the display to re-acquire a valid signal and display the image.</li> <li>• Check all cable connections.</li> <li>• The video signal's refresh rate may be set too high. Reset to a lower refresh rate in your display-configuration menu (for example, under Windows on a PC).</li> <li>• There may be a video-skew delay issue.</li> </ul>
Poor audio quality	<ul style="list-style-type: none"> <li>• The audio output at the receiver is line-level only. An amplifier or powered speakers are required. Make sure amplifier or speaker power is ON.</li> <li>• Check input source levels from the source device. Ensure the audio source level does not exceed the audio-input ratings for the transmitter (ex: XRTx). Clipping or distortion can result.</li> <li>• Audio is summed left and right for "A" versions. If using a single channel, both audio inputs must be connected at the transmitter end to obtain proper audio gain through the link (1:1, input to output).</li> <li>• If daisy chaining, audio termination must be removed in DP receivers (AK600(1200)DP and XR2000DP). Only the last receiver requires termination. This does not apply to SAP units. <i>Refer to the appropriate receiver user manual.</i></li> </ul>

Problem	Solution
<p>Serial communication doesn't work correctly</p>	<ul style="list-style-type: none"> <li>• Are the serial devices connected properly? Are the serial parameters correct for source/destination devices?</li> <li>• Are the serial cables terminated correctly? Is a null-modem cable required at the TX or RX end?</li> <li>• When using RS-232 capable receivers with video switches, distribution amps, or multi-output transmitters, the serial data is sent transmit-only. Please take this into account when trying to control displays or other devices. <i>For assistance, contact Magenta Technical Support.</i></li> <li>• SA units have no configuration settings. They work from 50 to 9600 baud automatically, and use 3 wire (TX, RX, GND) signals only.</li> <li>• SAP units have a factory default baud rate of 9600 bps and use 3 wire (TX, RX, GND) signals only. If necessary, use SAP-II serial commands to change the baud rate to match your connected device.</li> </ul>
<p>"Green shift" or "green washout" on multimedia signals</p>	<p>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 PC VGA cards function this way.</p> <p>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.</p> <p>For five-component (RGB/H&amp;V) AC coupled video, the MultiView-II XRTx transmitter has been designed with full DC restoration capability. This problem is easily solved via a configuration setting in the transmitter. Please refer to the appropriate transmitter user manual.</p>
<p>Notes on daisy chaining</p>	<p>When utilizing a receiver's RJ45 daisy chain port, the following rules apply:</p> <ul style="list-style-type: none"> <li>• If using L+R summed audio (-A), simplex serial (-S), or (-A) in SPDIF mode, a maximum of 12 units may be daisy chained within the rated cable length of the receiver.</li> <li>• When using SA units, a maximum of 4 units may be daisy chained within the rated cable length of the receiver.</li> <li>• When using SAP units, a maximum of 12 units may be daisy chained within the rated cable length of the receiver if using standard CAT5/6, or a maximum of 8 units may be daisy chained within the rated cable length of the receiver if using low-skew cable.</li> <li>• When daisy chaining, the maximum cable distance is not increased beyond the rated distance of the receiver used. For example, an MVII-AK600DP can only daisy chain within 600ft of the transmitter. It is possible to daisy chain out of a short range receiver into a longer range receiver to increase the range. For example, over 600 ft an MVII-AK600DP can be daisy chained into an MVII-AK1200DP, which allows for daisy chaining to 1,200 ft.</li> </ul>

## Chapter 6 Connector Pinouts

### VGA Output Connector Pinout

The video output port connector is a standard HD-15 female connector (three-row, 15-pin).

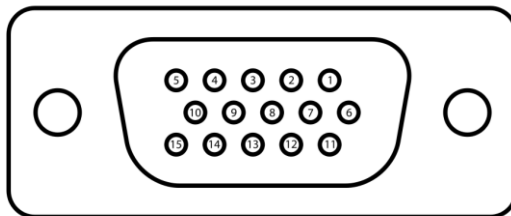
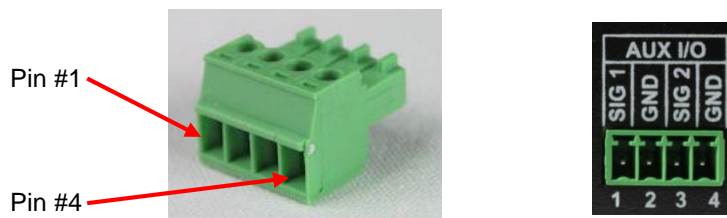


Figure 7: HD-15 Female Connector

Table 7: HD-15 Pin Usage

Pin	RGBHV	RGBs	RGsB	Composite	S-Video (Y/C)	YUV (YPrPb)
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	—	—	—			

## Auxiliary I/O (AUX-I/O) Connector Pinout



**Figure 8: 4-pin Phoenix Connector Pinout**

**Table 8: Auxiliary I/O (4-pin Phoenix) Pin Usage**

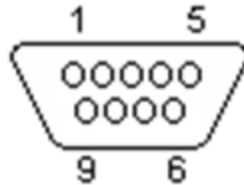
PIN#	(S/A) Audio	(SAP) Audio	(S/A) Simplex Serial	(S/A) SPDIF Audio
1 (SIG1)	Left Channel	Left Channel	Tx	Signal +
2 (GND)	Ground	Ground	ground	Signal -
3 (SIG2)	Right Channel	Right Channel	-	-
4 (GND)	-		Shell	-



## Serial port (IOIO) Connector Pinout

If the receiver is a “-SAP” version, then the serial interface will be provided on the “IOIO” connector. This is a DB9-M type serial connector, configured to look like a standard 9-pin “DTE” serial port.

Therefore, in most applications a straight through serial cable or adapter-plug (DB9-Female-to-Male) is used to connect an external serial device (for example, a display’s serial control port) to the receiver.



**Figure 9: DB9-M Serial Port Connector**

**Table 9: Serial Port Pins**

Pin#	Full Duplex (RS 232)	3 wire (-SAP)	Simplex (-S/A)
1	DCD		
2	RX	RX	
3	TX	TX	TX
4	DTR		
5	Ground	Ground	Ground
6	DSR		
7	RTS		
8	CTS		
9	RI		

## RJ45 (MultiView Link) Wiring Standard

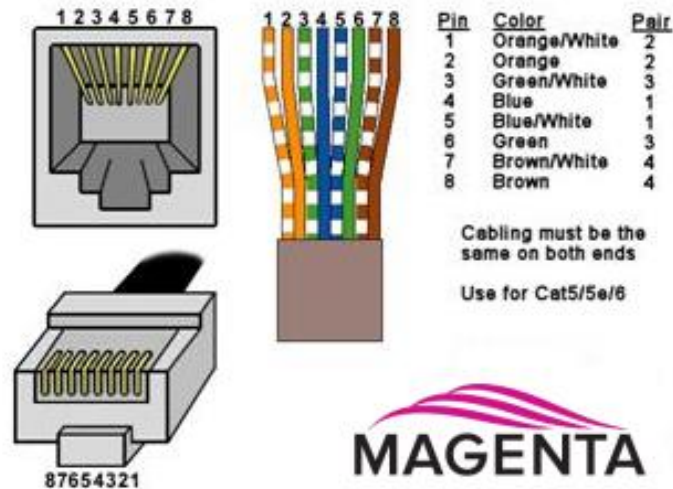
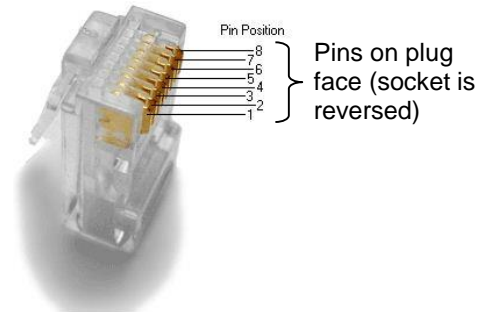


Figure 10: T568B Category Cable Wiring Standard

Table 10: T568B wiring for RJ-45 plug

PIN #	COLOR	PAIR
1	White / Orange Stripe	2
2	Orange Solid	2
3	White / Green Stripe	3
4	Blue Solid	1
5	White / Blue Stripe	1
6	Green Solid	3
7	White / Brown Stripe	4
8	Brown Solid	4

Figure 11: Typical RJ-45 Plug



## DC Power Connector

tvONE provides ready-to-use power supplies for MultiView™ II products. However, if there is a reason a substitute power supply must be used, then the following information is important for maintaining product reliability and performance:

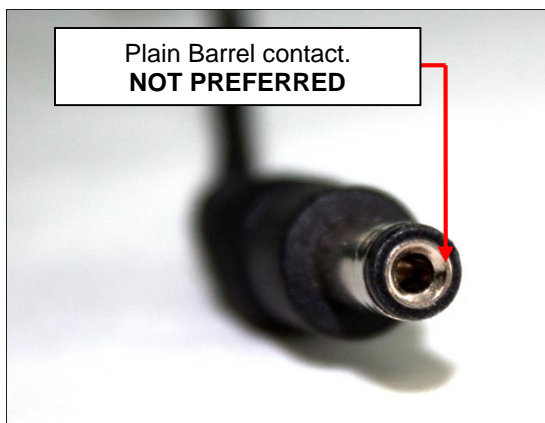
**Magenta AC/DC Power supply output rating:** Regulated +5VDC @ 2.6Amps.

**Power-input rating for MVII-AK600(1200)DP:** 5VDC, 1.2Amps max.

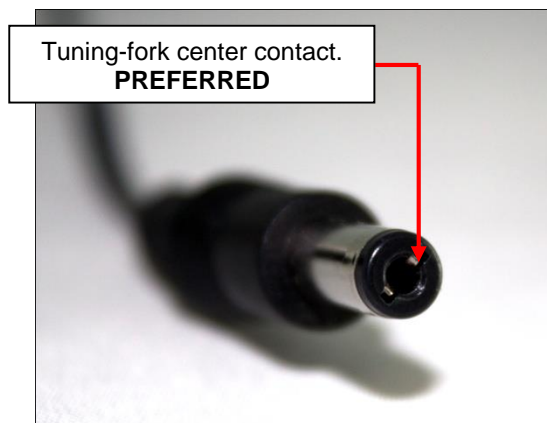
The DC power input connector accepts an industry-standard coaxial-DC plug with the following specifications:

- Coaxial power connector
- OD = 5.5mm
- ID = 2.5mm (accepted center-pin diameter)
- Length = 11mm (overall length of insertable plug end)
- Inner contact (pin-socket) = +5VDC
- Outer contact (sleeve) = Ground

It is highly recommended that the inner contact (center-pin contact) of any mating DC plug utilize a “tuning-fork” shaped design, rather than a plain barrel shape. The tuning-fork design greatly increases the reliability of the power connection. The plain barrel style connector can cause intermittent operation, often resulting in “mysterious” system problems that are difficult to identify.



*Figure 12: Plain Barrel Connector*



*Figure 13: Tuning-fork Connector*



**The Magenta-provided power supply already comes with the correct output ratings and DC-plug configuration**

## Appendix A Skew Module Installation

The AK600(1200)DP receivers have an optional skew compensation module that can be installed or removed.

To install the Skew Module:

1. Disconnect external DC power and remove the top cover.
2. In the center area of the PCB there should be 3 jumpers installed on J16, pins 1-2, 4-5 and 7-8.
3. Remove these jumpers (save for future use).



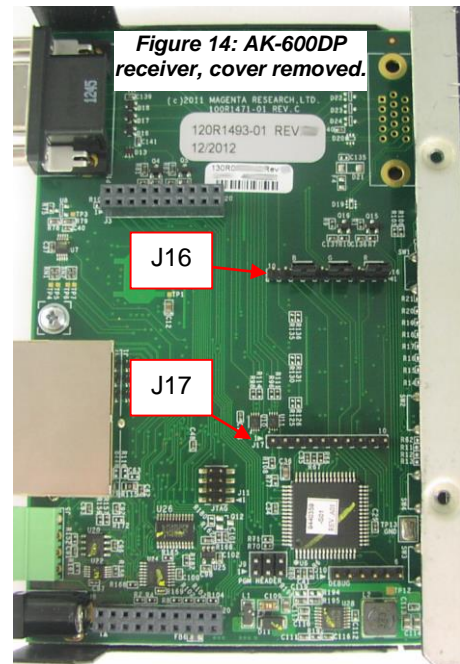
**Figure 15: Jumpers across J16 installed**



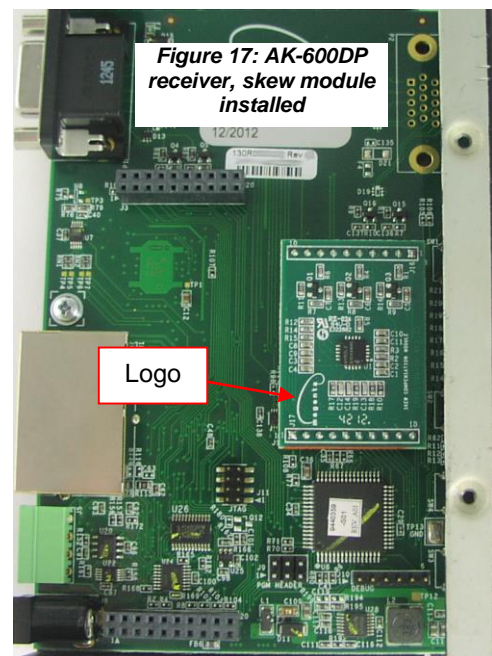
**Figure 16: Jumpers across J16 removed**

4. Carefully orient the skew module with the Magenta logo positioned as shown, and then firmly plug in the module so that it mates completely with J16 and J17 on the mainboard. Incorrect orientation can cause damage to the circuitry.
5. Double-check that all the J16 and J17 pins on the mainboard are properly connected to the mating pins on the skew module. It is easy to have a bent pin that causes a shorted signal and possible circuitry damage.
6. Reassemble cover.
7. Connect power.

To remove the Skew Module, the procedure is reverse of above. It is important to replace the 3 jumpers on J16 as shown, or you will not have a video signal.



**Figure 14: AK-600DP receiver, cover removed.**



**Figure 17: AK-600DP receiver, skew module installed**

## Appendix B (SAP) Option Module Settings

The SAP option module allows a bi-directional session to be established between a SAP-equipped transmitter (XRTx-SAP), and a specific SAP-equipped receiver even in a multiple-receiver daisy chain installation.

The SAP transmitter devices (XRTx-SAP for example) do not have address DIP-switches. The factory-default address of the transmitter is “0”.

The SAP receiver devices (AK600(1200)DP-SAP for example) have address DIP-switches.

Each SAP-equipped receiver must have a unique address set first, via DIP-switch settings or by a serial command entered directly at the receiver.

Once this has been done, a special “set destination address” command is sent into the transmitter to specify which receiver to open a session with.

If the XRTx-SAP is commanded to use destination address 0 (zero), serial data will be broadcast to all receivers. This is the factory-default behavior.

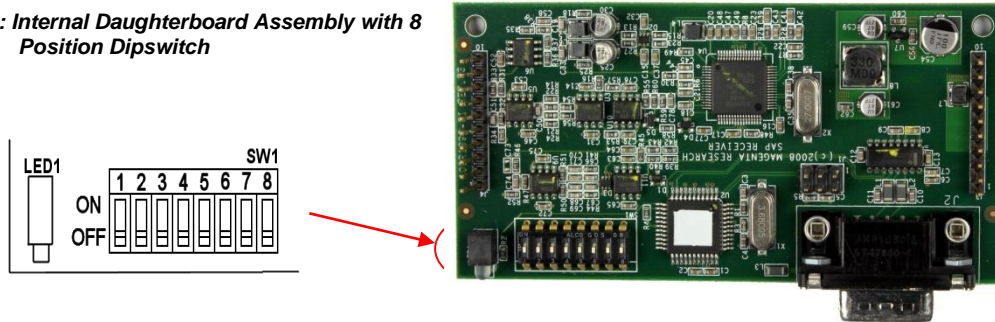
To set the SAP receiver’s address switches, you will need to open the **receiver** enclosure and set the DIP-switches directly on the SAP module. The DIP-switch has 8 switches, one for each address bit position. Use the SAP addressing chart provided on the next page to determine the proper switch addresses.

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.

### To set SAP address DIP-switches (at SAP-receiver units):

1. Remove the top cover assembly of the receiver
2. Remove the –SAP daughterboard.
3. Locate the 8 position dipswitch on the internal daughterboard assembly and using the SAP-addressing chart, set the receiver address as needed.

**Figure 18: Internal Daughterboard Assembly with 8 Position Dipswitch**



4. Replace –SAP PCB with caution. Double check all the pins are aligned correctly.
5. Replace cover assembly and install unit.

**Note:** It is also possible to set a SAP receiver’s address by a **serial-command** entered at the receiver itself. In this case, simply ensure all DIP switches are set to address 0 (zero).

Please also refer to the *SAP II Programmer’s Guide* for additional information on SAP related settings and operation.

## Appendix C

## Pollable Serial Mode Address Chart

ADDR	Switch Settings								
00	1	2	3	4	5	6	7	8	ON
									OFF
01	1								ON
		2	3	4	5	6	7	8	OFF
02		2							ON
	1		3	4	5	6	7	8	OFF
03	1	2							ON
			3	4	5	6	7	8	OFF
04			3						ON
	1	2		4	5	6	7	8	OFF
05	1		3						ON
		2		4	5	6	7	8	OFF
06		2	3						ON
	1			4	5	6	7	8	OFF
07	1	2	3						ON
				4	5	6	7	8	OFF
08				4					ON
	1	2	3		5	6	7	8	OFF
09	1			4					ON
		2	3		5	6	7	8	OFF
10		2	4						ON
	1		3		5	6	7	8	OFF
11	1	2		4					ON
			3		5	6	7	8	OFF
12			3	4					ON
	1	2			5	6	7	8	OFF
13	1		3	4					ON
		2			5	6	7	8	OFF
14		2	3	4					ON
	1				5	6	7	8	OFF
15	1	2	3	4					ON
					5	6	7	8	OFF
16					5				ON
	1	2	3	4		6	7	8	OFF
17	1				5				ON
		2	3	4		6	7	8	OFF
18		2			5				ON
	1		3	4		6	7	8	OFF
19	1	2			5				ON
			3	4		6	7	8	OFF
20			3	5					ON
	1	2	4		6	7	8		OFF
21	1		3	5					ON
		2	4		6	7	8		OFF
22		2	3	5					ON
	1		4		6	7	8		OFF
23	1	2	3	5					ON
				4	6	7	8		OFF
24				4	5				ON
	1	2	3		6	7	8		OFF
25	1			4	5				ON
		2	3		6	7	8		OFF
26		2	4	5					ON
	1		3		6	7	8		OFF
27	1	2	3	4	5				ON
						6	7	8	OFF
28			3	4	5				ON
	1	2				6	7	8	OFF
29	1		3	4	5				ON
		2				6	7	8	OFF
30		2	3	4	5				ON
	1					6	7	8	OFF
31	1	2	3	4	5				ON
						6	7	8	OFF

ADDR	Switch Settings								
32					6				ON
	1	2	3	4	5		7	8	OFF
33	1					6			ON
		2	3	4	5		7	8	OFF
34		2				6			ON
	1		3	4	5		7	8	OFF
35	1	2				6			ON
			3	4	5		7	8	OFF
36			3			6			ON
	1	2		4	5		7	8	OFF
37	1		3			6			ON
		2		4	5		7	8	OFF
38		2	3			6			ON
	1			4	5		7	8	OFF
39	1	2	3			6			ON
				4	5		7	8	OFF
40				4		6			ON
	1	2	3		5		7	8	OFF
41	1			4		6			ON
		2	3		5		7	8	OFF
42		2	4		6				ON
	1		3		5		7	8	OFF
43	1	2		4		6			ON
			3		5		7	8	OFF
44			3	4		6			ON
	1	2			5		7	8	OFF
45	1		3	4		6			ON
		2			5		7	8	OFF
46		2	3	4		6			ON
	1				5		7	8	OFF
47	1	2	3	4		6			ON
					5		7	8	OFF
48					5	6			ON
	1	2	3	4		7	8		OFF
49	1				5	6			ON
		2	3	4		7	8		OFF
50		2			5	6			ON
	1		3	4		7	8		OFF
51	1	2			5	6			ON
			3	4		7	8		OFF
52			3	5	6				ON
	1	2	4		7	8			OFF
53	1		3	5	6				ON
		2	4		7	8			OFF
54		2	3	5	6				ON
	1		4		7	8			OFF
55	1	2	3	5	6				ON
				4		7	8		OFF
56				4	5	6			ON
	1	2	3		7	8			OFF
57	1			4	5	6			ON
		2	3			7	8		OFF
58		2	4	5	6				ON
	1		3		7	8			OFF
59	1	2	3	4	5	6			ON
							7	8	OFF
60			3	4	5	6			ON
	1	2					7	8	OFF
61	1		3	4	5	6			ON
		2					7	8	OFF
62		2	3	4	5	6			ON
	1						7	8	OFF
63	1	2	3	4	5	6			ON
							7	8	OFF

ADDR	Switch Settings								
64							7		ON
	1	2	3	4	5	6		8	OFF
65	1						7		ON
		2	3	4	5	6		8	OFF
66		2					7		ON
	1		3	4	5	6		8	OFF
67	1	2					7		ON
			3	4	5	6		8	OFF
68			3				7		ON
	1	2		4	5	6		8	OFF
69	1		3				7		ON
		2		4	5	6		8	OFF
70		2	3				7		ON
	1			4	5	6		8	OFF
71	1	2	3				7		ON
				4	5	6		8	OFF
72				4			7		ON
	1	2	3		5	6		8	OFF
73	1			4			7		ON
		2	3		5	6		8	OFF
74		2	4		6				ON
	1		3		5	6		8	OFF
75	1	2		4			7		ON
			3		5	6		8	OFF
76			3	4			7		ON
	1	2			5	6		8	OFF
77	1		3	4			7		ON
		2			5	6		8	OFF
78		2	3	4			7		ON
	1				5	6		8	OFF
79	1	2	3	4			7		ON
					5	6		8	OFF
80					5	7			ON
	1	2	3	4		6	8		OFF
81	1				5	7			ON
		2	3	4		6	8		OFF
82		2			5	7			ON
	1		3	4		6	8		OFF
83	1	2			5	7			ON
			3	4		6	8		OFF
84			3	5	7				ON
	1	2	4		6	8			OFF
85	1		3	5	7				ON
		2	4		6	8			OFF
86		2	3	5	7				ON
	1		4		6	8			OFF
87	1	2	3	5	7				ON
				4		6	8		OFF
88				4	5	7			ON
	1	2	3		6	8			OFF
89	1			4	5	7			ON
		2	3		6	8			OFF
90		2	4	5	7				ON
	1		3		6	8			OFF
91	1	2	3	4	5	7			ON
						6	8		OFF
92			3	4	5	7			ON
	1	2				6	8		OFF
93	1		3	4	5	7			ON
		2				6	8		OFF
94		2	3	4	5	7			ON
	1					6	8		OFF
95	1	2	3	4	5	7			ON
						6	8		OFF

ADDR	Switch Settings								
96						6	7		ON
	1	2	3	4	5			8	OFF
97	1					6	7		ON
		2	3	4	5			8	OFF
98		2				6	7		ON
	1		3	4	5			8	OFF
99	1	2				6	7		ON
			3	4	5			8	OFF
100			3			6	7		ON
	1	2		4	5			8	OFF
101	1		3			6	7		ON
		2		4	5			8	OFF
102		2	3			6	7		ON
	1			4	5			8	OFF
103	1	2	3			6	7		ON
				4	5			8	OFF
104				4		6	7		ON
	1	2	3		5			8	OFF
105	1			4		6	7		ON
		2							




## SAP Addressing chart, cont'd:

ADDR	Switch Settings									
128	1	2	3	4	5	6	7	8	ON	
									OFF	
129	1							8	ON	
		2	3	4	5	6	7		OFF	
130		2						8	ON	
	1		3	4	5	6	7		OFF	
131	1	2						8	ON	
			3	4	5	6	7		OFF	
132			3					8	ON	
	1	2		4	5	6	7		OFF	
133	1		3					8	ON	
		2		4	5	6	7		OFF	
134		2	3					8	ON	
	1			4	5	6	7		OFF	
135	1	2	3					8	ON	
				4	5	6	7		OFF	
136				4				8	ON	
	1	2	3		5	6	7		OFF	
137	1			4				8	ON	
		2	3		5	6	7		OFF	
138		2		4				8	ON	
	1		3		5	6	7		OFF	
139	1	2		4				8	ON	
			3		5	6	7		OFF	
140			3	4				8	ON	
	1	2			5	6	7		OFF	
141	1		3	4				8	ON	
		2			5	6	7		OFF	
142		2	3	4				8	ON	
	1				5	6	7		OFF	
143	1	2	3	4				8	ON	
					5	6	7		OFF	
144					5			8	ON	
	1	2	3	4		6	7		OFF	
145	1				5			8	ON	
		2	3	4		6	7		OFF	
146		2			5			8	ON	
	1		3	4		6	7		OFF	
147	1	2			5			8	ON	
			3	4		6	7		OFF	
148			3		5			8	ON	
	1	2		4		6	7		OFF	
149	1		3		5			8	ON	
		2		4		6	7		OFF	
150		2	3		5			8	ON	
	1			4		6	7		OFF	
151	1	2	3		5			8	ON	
				4		6	7		OFF	
152				4	5			8	ON	
	1	2	3			6	7		OFF	
153	1			4	5			8	ON	
		2	3			6	7		OFF	
154		2		4	5			8	ON	
	1		3			6	7		OFF	
155	1	2		4	5			8	ON	
			3			6	7		OFF	
156			3	4	5			8	ON	
	1	2				6	7		OFF	
157	1		3	4	5			8	ON	
		2				6	7		OFF	
158		2	3	4	5			8	ON	
	1					6	7		OFF	
159	1	2	3	4	5			8	ON	
						6	7		OFF	
160					6			8	ON	
	1	2	3	4		7			OFF	
161	1				6			8	ON	
		2	3	4		7			OFF	
162		2			6			8	ON	
	1		3	4		7			OFF	
163	1	2			6			8	ON	
			3	4		7			OFF	
164			3		6			8	ON	
	1	2		4		7			OFF	
165	1		3		6			8	ON	
		2		4		7			OFF	
166		2	3		6			8	ON	
	1			4		7			OFF	
167	1	2	3		6			8	ON	
				4		7			OFF	
168				4		6		8	ON	
	1	2	3		5		7		OFF	
169	1			4		6		8	ON	
		2	3		5		7		OFF	
170		2		4		6		8	ON	
	1		3		5		7		OFF	
171	1	2		4		6		8	ON	
			3		5		7		OFF	
172			3	4		6		8	ON	
	1	2			5		7		OFF	
173	1		3	4		6		8	ON	
		2			5		7		OFF	
174		2	3	4		6		8	ON	
	1				5		7		OFF	
175	1	2	3	4		6		8	ON	
					5		7		OFF	
176					5		6	8	ON	
	1	2	3	4			7		OFF	
177	1				5		6	8	ON	
		2	3	4			7		OFF	
178		2			5		6	8	ON	
	1		3	4			7		OFF	
179	1	2			5		6	8	ON	
			3	4			7		OFF	
180			3		5		6	8	ON	
	1	2		4			7		OFF	
181	1		3		5		6	8	ON	
		2		4			7		OFF	
182		2	3		5		6	8	ON	
	1			4			7		OFF	
183	1	2	3		5		6	8	ON	
				4			7		OFF	
184				4	5		6	8	ON	
	1	2	3				7		OFF	
185	1			4	5		6	8	ON	
		2	3				7		OFF	
186		2		4	5		6	8	ON	
	1		3				7		OFF	
187	1	2		4	5		6	8	ON	
			3				7		OFF	
188			3	4	5		6	8	ON	
	1	2					7		OFF	
189	1		3	4	5		6	8	ON	
		2					7		OFF	
190		2	3	4	5		6	8	ON	
	1						7		OFF	
191	1	2	3	4	5		6	8	ON	
							7		OFF	
192						7		8	ON	
	1	2	3	4	5		6		OFF	
193	1					7		8	ON	
		2	3	4	5		6		OFF	
194		2				7		8	ON	
	1		3	4	5		6		OFF	
195	1	2				7		8	ON	
			3	4	5		6		OFF	
196			3			7		8	ON	
	1	2		4		5		6	OFF	
197	1		3			7		8	ON	
		2		4		5		6	OFF	
198		2	3			7		8	ON	
	1			4		5		6	OFF	
199	1	2	3			7		8	ON	
				4		5		6	OFF	
200				4			7	8	ON	
	1	2	3		5		6		OFF	
201	1			4			7	8	ON	
		2	3		5		6		OFF	
202		2		4			7	8	ON	
	1		3		5		6		OFF	
203	1	2		4			7	8	ON	
			3		5		6		OFF	
204			3	4			7	8	ON	
	1	2			5		6		OFF	
205	1		3	4			7	8	ON	
		2			5		6		OFF	
206		2	3	4			7	8	ON	
	1				5		6		OFF	
207	1	2	3	4			7	8	ON	
					5		6		OFF	
208					5		7	8	ON	
	1	2	3	4		6			OFF	
209	1				5		7	8	ON	
		2	3	4		6			OFF	
210		2			5		7	8	ON	
	1		3	4		6			OFF	
211	1	2			5		7	8	ON	
			3	4		6			OFF	
212			3		5		7	8	ON	
	1	2		4		6			OFF	
213	1		3		5		7	8	ON	
		2		4		6			OFF	
214		2	3		5		7	8	ON	
	1			4		6			OFF	
215	1	2	3		5		7	8	ON	
				4		6			OFF	
216				4	5		7	8	ON	
	1	2	3			6			OFF	
217	1			4	5		7	8	ON	
		2	3			6			OFF	
218		2		4	5		7	8	ON	
	1		3			6			OFF	
219	1	2		4	5		7	8	ON	
			3			6			OFF	
220			3	4	5		7	8	ON	
	1	2				6			OFF	
221	1		3	4	5		7	8	ON	
		2				6			OFF	
222		2	3	4	5		7	8	ON	
	1					6			OFF	
223	1	2	3	4	5		7	8	ON	
						6			OFF	
224					6		7	8	ON	
	1	2	3	4		5			OFF	
225	1				6		7	8	ON	
		2	3	4		5			OFF	
226		2			6		7	8	ON	
	1		3	4		5			OFF	
227	1	2			6		7	8	ON	
			3	4		5			OFF	
228			3		6		7	8	ON	
	1	2		4		5			OFF	
229	1		3		6		7	8	ON	
		2		4		5			OFF	
230		2	3		6		7	8	ON	
	1			4		5			OFF	
231	1	2	3		6		7	8	ON	
				4		5			OFF	
232				4		6		7	8	ON
	1	2	3		5		6		OFF	
233	1			4		6		7	8	ON
		2	3		5		6		OFF	
234		2		4		6		7	8	ON
	1		3		5		6		OFF	
235	1	2		4						

## Appendix D      **Mounting Kits**

The following table shows several kits available for mounting the MultiView™ II AK600(1200)DP receiver.

**Table 11: AK600(1200)DP Mounting Kits**

Mounting Kit #	Description	
2211054-01	Rigid-mount bracket. This mounts a single device to a surface (wall/desk/etc.). Comes with 4 self-tapping screws.	
8310203-02	1U Rack-mount Plate for standard 19" rack. Mounts 3 devices in a 1U space. Comes with (6) device-mounting screws, (4) rack-mounting screws.	
8310204-02	2U Rack-mount Plate for standard 19" rack. Mounts 6 devices in a 2U space. Comes with (12) device-mounting screws, (4) rack-mounting screws.	



**Note:** When installing AK600(1200)DP receivers in an area susceptible to elevated operating temperatures (near the maximum specified operating temperature), it is important to give careful consideration to maintaining adequate air flow. Within a rack assembly, cable bundles and other equipment in the same rack can impede proper cooling. In some rack-mount applications you may even need to leave a 1U gap (using a blank filler plate) between receiver groups. For surface-mount applications, ensure the device will have adequate air circulation and that air-vents on the enclosure are not blocked.



*Figure 19: AK600(1200)DP with Rigid Mount Bracket*



*Figure 20: AD600(1200)DP with 1U Rack-mount Plate*



*Figure 21: AK600(1200)DP with 2U Rack-mount Plate*

## Appendix E System Design Drawings

The following drawings are available from tvONE as an aid in system design and configuration. You may download them from the tvONE website <http://www.tvone.com>. There is no charge for obtaining these drawings.

**Table 12: MultiView™ II AK600(1200)DP Drawings**

Drawing #	Description
2500133-01	MultiView™ II AK600(1200)DP Sales Drawing (.dwg and .pdf format)
2510004-01	MultiView™ II AK600(1200)DP Autocad Symbols (.dwg and .pdf format)

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