MX2222AT

2 - IN, 1 - OUT RGBHV+VIDEO+AUDIO

SWITCHER

USER'S GUIDE

ALTINEX

SIGNAL
MANAGEMENT
SOLUTIONS

SWITCHERS

INTRODUCTION

ALTINEX appreciates your purchase of the **MX2222AT** Switcher. We are sure you will find it a reliable and useful product.

Superior performance for the right price backed by solid technical and customer support is what we have to offer.

The product you are holding in your hands is designed using state-of-the-art technology and is superior to anything available on the market. You will find this and our other products reliable, long lasting, and simple to operate.

We are committed to providing our customers with solutions to the most demanding audio-visual installations at very competitive pricing.

We appreciate your selection of our products and are confident that you will join the ranks of our many satisfied customers throughout the world.

This manual covers:

MX2222AT – 2–in, 1-out RGBHV+Video+Audio Switcher

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PRECAUTIONS / SAFETY WARNINGS   1

Please read this manual carefully before using your **MX2222AT** Switcher. Keep this manual handy for future reference. These safety instructions are to ensure the long life of your **MX2222AT** and to prevent fire and shock hazard. Please read them carefully and heed all warnings.

1.1 GENERAL

- Unauthorized personnel shall not open the unit since there are high-voltage components inside.
- Qualified ALTINEX service personnel, or their authorized representatives must perform all service.

1.2 SAFETY GUIDELINES FOR THE RACK-MOUNTING OF THE MX2222AT

- Maximum operating ambient temperature is 35 (degrees C).
- Never restrict the air flow through the devices' fan or vents.
- When installing equipment into a rack, distribute the units evenly. Otherwise, hazardous conditions may be created by an uneven weight distribution.
- Connect the unit to a properly rated supply circuit.
- Reliable Earthing (Grounding) of Rack-Mounted Equipment should be maintained.

1.3 INSTALLATION

- For best results, place the **MX2222AT** Switcher on a flat, level surface in a dry area away from dust and moisture.
- To prevent fire or shock, do not expose this unit to rain or moisture. Do not place the **MX2222AT** Switcher in direct sunlight, near heaters or heat radiating appliances, or near any liquid. Exposure to direct sunlight, smoke, or steam can harm internal components.
- Handle the **MX2222AT** Switcher carefully. Dropping or jarring can damage internal components.
- Do not place heavy objects on top of the **MX2222AT**. If the **MX2222AT** is to be mounted

to a table or wall, use only ALTINEX made mounting accessories, such as rack mount shelf **DA1298RM** or rack mount ears **DA1299RM** and cables for optimum setup.

- To turn off the main power, be sure to remove the cord from the power outlet. The power outlet socket should be installed as near to the equipment as possible, and should be easily accessible.
- Do not pull the power cord or any cable that is attached to the **MX2222AT** Switcher.
- If the **MX2222AT** Switcher is not used for an extended period, disconnect the power cord from the power outlet.

1.4 CLEANING

- Unplug the **MX2222AT** power cord before cleaning. Clean surfaces with a dry cloth. Never use strong detergents or solvents, such as alcohol or thinner. Do not use a wet cloth or water to clean the unit.

1.5 FCC / CE NOTICE

- This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
- This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.
- Any changes or modifications to the unit not expressly approved by ALTINEX, Inc. could

void the user's authority to operate the equipment.

ABOUT YOUR SWITCHER   2

The **MX2222AT** is an extremely flexible 2-in 1-out RGBHV+Video+Audio Switcher designed to handle the switching requirements of several different multimedia applications.

The **MX2222AT** offers two inputs for RGBHV, RGBS, or RGsB signal formats, two inputs for composite video signals, and two inputs for balanced or unbalanced stereo audio signals. A selection of inputs can be made through the built-in front panel control or through RS-232. In addition, the **MX2222AT** can be preset to auto-switch each individual video/sync channel. In auto-switch-mode, if both channels are active, input 1 is selected as the priority input.

Switching between inputs can either be made independently for each type of signal or in a follow configuration. For example, audio can be assigned to follow RGBHV, video, or both. Audio channels are not designed for independent auto switching, but they may be preset to follow RGBHV or video channels.

The **MX2222AT** can also preset to provide sync delay switching; a feature that eliminates the "glitch" normally associated with switching between high resolution RGB type sources. This is accomplished by disconnecting the sync portion of a signal before the incoming video making the glitch take place off-screen. The Sync Delay feature is only designed to work with RGBS and RGBHV signal formats.

Although primarily designed for RGBHV + Video + Audio, the **MX2222AT** can be used in a variety of configurations due to its great flexibility. For instance, a single unit can act as six 2-in 1-out Composite Video Auto-Switchers or the **MX2222AT** can be used as a 2-in 1-out RGBS+S-Video Switcher, controllable through RS-232. Please note that the front panel of the **MX2222AT** is designed for primary functions and that some advanced functions are only accessible through RS-232 control.

Using optional hardware, a single **MX2222AT** can be rack mounted by itself or two units can be rack-mounted side-by-side.

TECHNICAL SPECIFICATION   3

FEATURES/DESCRIPTION	MX2222AT
GENERAL	
Inputs	6
RGBHV Input Connector	Two 5-BNC Female
Video Input Connector	Two BNC Female
Stereo Audio Input (balanced) Connector	Two 5 Conductor Terminal Blocks
Outputs	3
RGBHV Output Connectors	5-BNC Female
Video Output Connectors	BNC Female
Stereo Audio Output Connectors	4 Conductor Terminal Blocks
Compatibility	RGBHV, RGBS, RGsB, Component Video (Y, R-Y, B-Y), S-Video (Y/C), Composite Video, and Stereo Audio

Table 1. **MX2222AT** General

MECHANICAL	MX2222AT
Width (inches)	8.50in (216mm)
Height (inches)	3.38in (86mm)
Depth (inches)	4.38in (111mm)
Weight (pounds)	3.0lbs (1.36kg)
Ship Weight (pounds)	4.0lbs (1.82kg)
Material	0.1" Al
Finish	Gray
Front/Rear Panel	Lexan
T° Operating	10°C-35°C
T° Maximum	50°C
Humidity	90% non-condensing
MTBF (calculations)	40,000hrs (min.)

Table 2. **MX2222AT** Mechanical

ELECTRICAL	MX2222AT
Input Video Signals	
Analog Signal	+/-10 V p-p max
Impedance	75 Ohms (unselected inputs)
Input Sync Signal	
Composite Sync	TTL(+/-), Analog 0.3-1.0 V
Sync on Green	-0.3V
Impedance	pass-through
Input Audio Signals	
Type	Differential

CMRR	>80dB @ 10Hz to 20kHz
Impedance	10 k Ohms
Voltage	10 V p-p, +/-5 V
Output Video Signals	
Analog Signal	+/-10 V p-p max
Fall/Rise Time (ns)	0.8
Impedance	75 Ohms (pass-through)
Output Sync Signals	
Composite Sync	TTL(+/-)
Sync on Green	-0.3V
Impedance	pass-through
Output Audio Signal	
Type	Single Ended, 0dB (Line Level)
Impedance	<22 Ohms (drives 600 Ohms directly)
Cross-talk	<80 dB @ 1 kHz

| Signal-to-Noise Ratio	>95 dB
Bandwidth	10 Hz – 40 kHz
Stereo Channel Separation	>75 dB @ 1 kHz, >60 dB @ 20 kHz
Frequency Compatibility	
Typical Video Bandwidth	1100MHz
Horizontal/Vertical	15-200kHz, 30-190Hz
Power	
External Power Adapter	90-140V/200-240V selectable
Power Consumption	12 watts max.

Table 3. **MX2222AT** Electrical

DESCRIPTION OF MX2222AT   4

FRONT PANEL OF MX2222AT
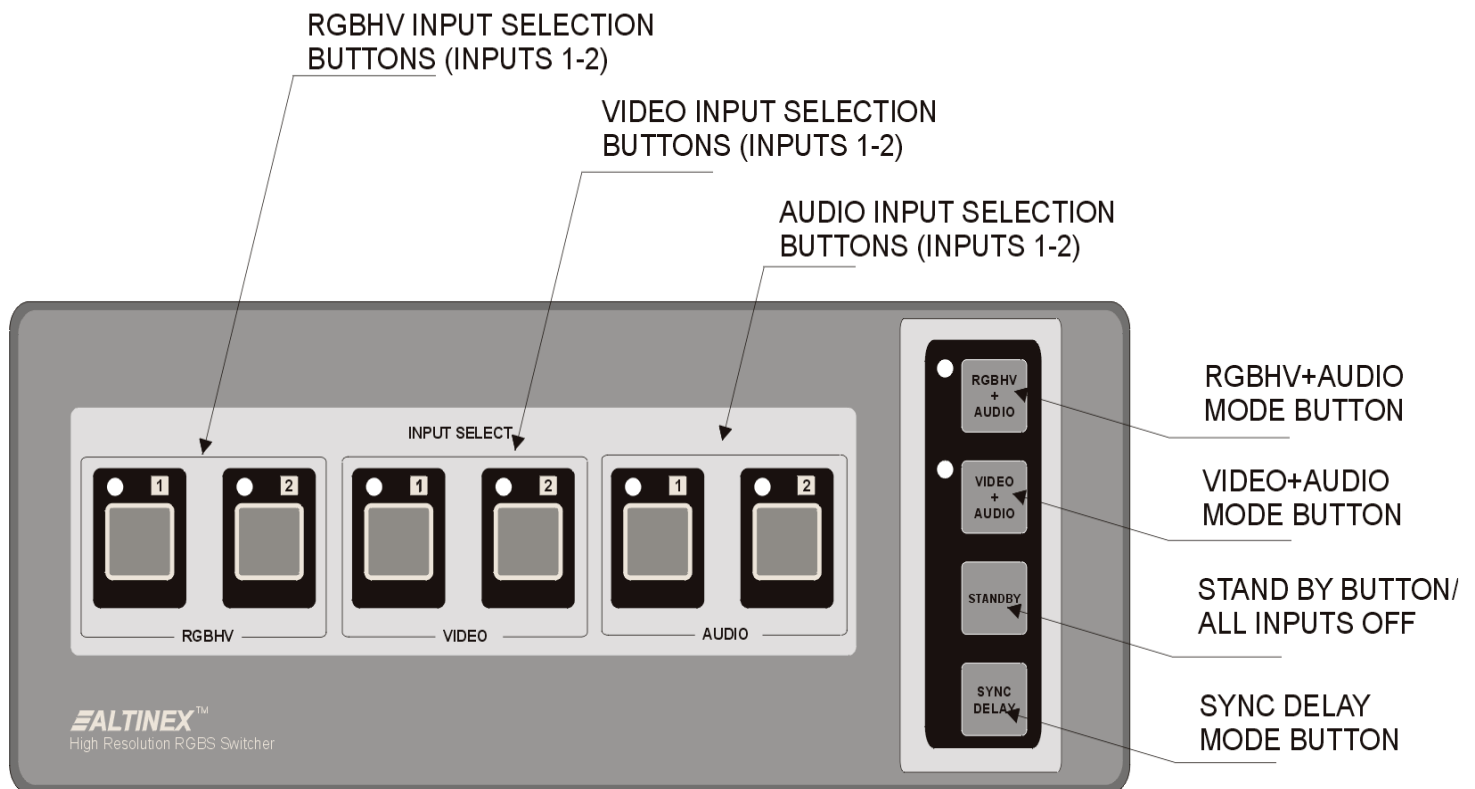
BACK PANEL OF MX2222AT
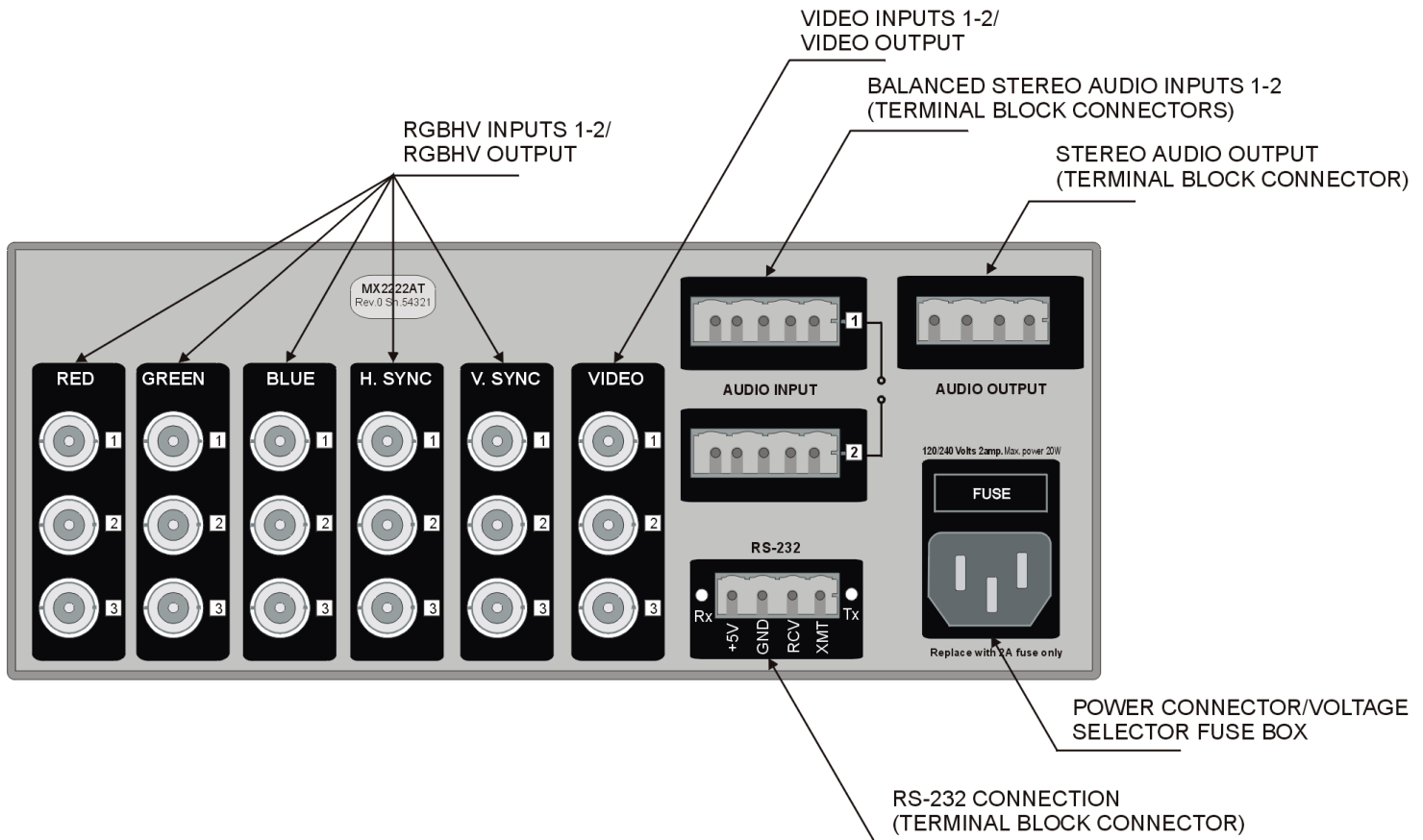
There are two sections on the front panel of the **MX2222AT**: input select and switcher control. The buttons within the input select section allow for the actual switching of the source signals. The buttons within the switcher control section allow access to the switcher setup features.

4.1 INPUT SELECTION BUTTONS

In the input selection section on the front panel of the **MX2222AT**, there are three pairs of buttons. Each of the buttons is labeled for the source signals (RGBSHV, VIDEO, and AUDIO) they affect in normal operating mode.

4.1.1 RGBHV INPUT SELECTION BUTTON

To switch between RGBHV sources, select Input1 or Input 2 within the section that is labeled RGBHV. A red LED will light above the left corner of the selected button, indicating that the switch has been made. On the rear panel, red LED's for the red, green, blue, Horizontal sync, and vertical sync channels should all indicate the selected input.

4.1.2 VIDEO INPUT SELECTION BUTTON

To switch between composite video sources, select Input 1 or Input 2 within the section that is labeled VIDEO. A red LED will light above the left corner of the selected button, indicating that the switch has been made. On the rear panel, a red LED for the video channel should also indicate the selected input.

4.1.3 AUDIO INPUT SELECTION BUTTON

To switch between stereo (mono) audio sources, select Input 1 or Input 2 within the

section labeled AUDIO. A red LED will light above the left corner of the selected button, indicating that the switch has been made. On the rear panel, a red LED for the audio channel should also indicate the selected input.

4.2 RGBHV+AUDIO MODE BUTTON

When this button is selected, the audio channels will be "slaved" to the "master" RGBHV. In other words, when you select an RGBHV source, the same audio input will switch with the RGBHV source. Note that the audio channels may still be switched separately, using the buttons in the AUDIO section of the front panel control.

4.3 VIDEO+AUDIO MODE BUTTON

When this button is selected, the audio channels will be slaved to the master VIDEO. When you select a VIDEO source, the same audio input will switch with the VIDEO source. Note that the audio channels may still be switched separately, using the buttons in the AUDIO section of the front panel control.

Note: In normal operating mode with the RGBHV+AUDIO and the VIDEO+AUDIO buttons turned OFF, the **MX2222AT** will allow complete independent control over the RGBHV, video, and audio sources through the front panel. For example, if Input 1 is selected for RGBHV, Input 1 or 2 may be selected for video or audio sources.

4.4 RGBHV+VIDEO+AUDIO FEATURE

When both the RGBHV+AUDIO and the VIDEO+AUDIO buttons are selected simultaneously, the audio input will follow either RGBHV switching or VIDEO switching. In this mode, RGBHV will act as a "master" to the VIDEO as well (e.g. if RGBHV switches both, the VIDEO and AUDIO will follow).

4.5 STAND-BY BUTTON/ALL INPUTS OFF

When selected, this button will put all inputs into a stand-by mode with no inputs active. This affects RGBHV, VIDEO, and AUDIO simultaneously. All LED's in the input select section of the front panel should turn off. It does not affect the power mode of the switcher. This mode is used when a user wishes to have none of the inputs selected.

The STAND-BY button is also used to RESET the switcher to factory defaults. This is done using the following procedure:

1. Turn OFF or disconnect power to the **MX2222AT**.
2. Press and hold the STAND-BY button.
3. While holding this button, reconnect the power.

The **MX2222AT** will respond with a beeping noise. You may also hear the relays resetting internally. This will reset all previous settings.
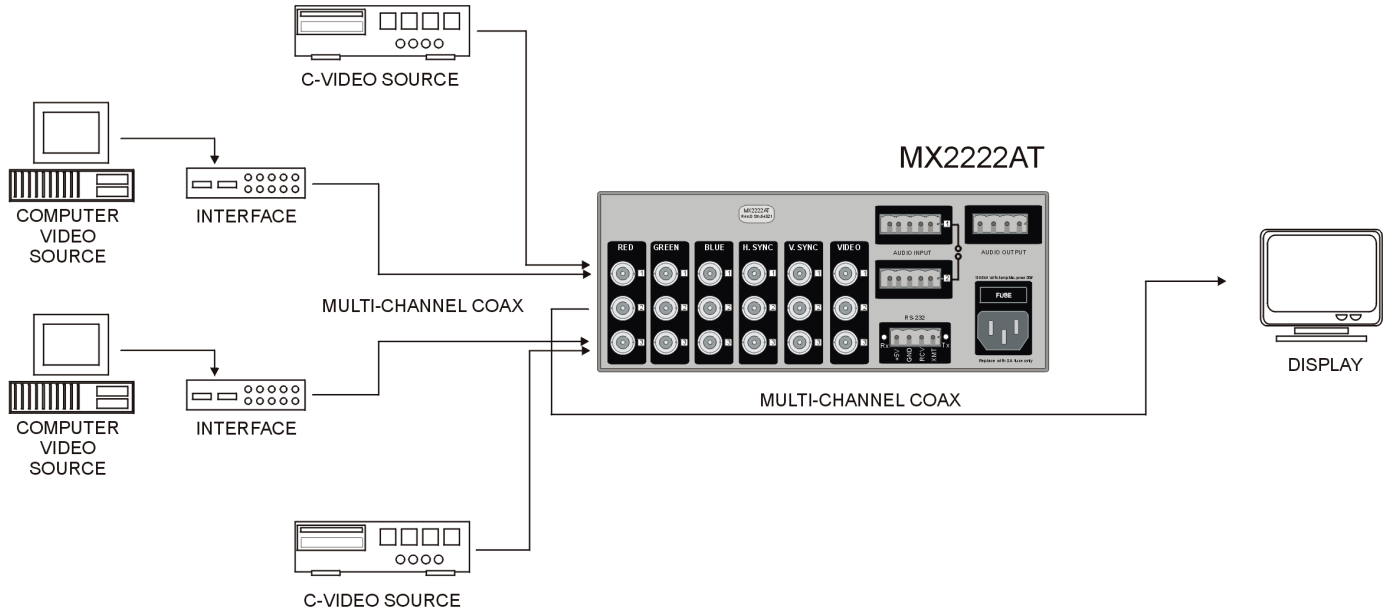
Note: If the **MX2222AT** is set for auto switching, only the channels that are not set for auto switching will go into stand-by-mode.

4.6 SYNC DELAY MODE BUTTON

The Sync Delay feature is offered as an option for the **MX2222AT.** If this feature has not been installed, pressing the SYNC DELAY button will have no affect on the switcher.

If the SYNC DELAY feature is already installed, enable sync delay switching by pressing and holding this button for approximately 3 seconds until a beeping sound is heard. SYNC DELAY switching will only affect the horizontal and vertical channels, thus it may only be used for RGBS and RGBHV signal formats. The SYNC DELAY feature offers a 0.5 second delay between the disconnection of the outgoing video and the reconnection of the incoming video (the sync is switched off-screen during this delay).

APPLICATION DIAGRAM   5

C-VIDEO SOURCE

COMPUTER VIDEO SOURCE

INTERFACE

MX2222AT

MULTI-CHANNEL COAX

COMPUTER VIDEO SOURCE

INTERFACE

DISPLAY

MULTI-CHANNEL COAX

C-VIDEO SOURCE

INSTALLING YOUR SWITCHER   6

Step 1. Make sure that the power input is set to the proper AC voltage for the country of usage. <u>An incorrect setting may result in unit damage not covered by warranty.</u>

Step 2. Connect the power cord to the unit and plug it into the power outlet.

Step 3. Connect the cables from the video sources and the audio sources (computers, VCR, etc.) to the input channels and connect the display devices (monitor or projector) and the appropriate audio equipment (mixer, amplifier, etc.) to the outputs. Shielded, high quality coaxial cables are recommended for video cable runs.

Step 3. Test all the required switching features. If you experience difficulties or abnormal switching, you may wish to reset the unit to factory defaults to make sure that you have not entered a particular operation mode. To reset the switcher, unplug the unit and then plug it in again while pressing and holding the STAND BY button on the

front panel. For additional information on the control of the switcher with a third-party control system or a computer, please refer to the RS-232 protocol in section 7.

Step 4. Verify that the display and audio equipment operates properly and results in perfect images and sound.

CONGRATULATIONS! YOU ARE DONE.

If you experience any problems, please call 1-800-258-4623 or 1-714- 990-2300 for international calls.

OPERATION 7

7.1 SETUP

7.1.1 SETTING "POWER-ON" DEFAULTS

In some applications, it may be desirable to force the switcher to select particular inputs and audio-follow features when the system is powered on.

The default input selection for all sources upon powering up the **MX2222AT** is Input 1. The **MX2222AT** allows the user to set "power-on" inputs for RGBHV, VIDEO, and AUDIO independently.

To set the default for each source type, <u>press and hold the desired input for approximately 3 seconds.</u> The **MX2222AT** will beep. This default will be stored in memory until it is changed or until the unit has been reset to factory defaults.

The user may wish to enable the audio-follow features of the **MX2222AT** for a particular setting at power up. To set these defaults follow this procedure:

1. Select either RGBHV+AUDIO or VIDEO+AUDIO and make sure that the appropriate LED is on.
2. Press and hold the desired feature for approximately 3 seconds until the **MX2222AT** beeps to indicate that it has stored this setting into memory.

If you wish to have both audio-follow features enabled upon power-up, follow the procedure above for each button.

7.1.2 SETTING RGBHV AUTO-SWITCHING

To set the **MX2222AT** to auto-switch upon sensing an active signal on one of the two RGBHV inputs, use the following procedure:

Reset Unit

1. Unplug or turn OFF power to the unit.
2. Press and hold the STAND BY button while plugging the unit back in (power on).

Set Auto Switch.

3. Unplug or turn OFF power to the unit.

4. Press and hold Input 1 in the RGBHV section on the front panel while plugging the unit back in (power on).

In auto switch mode, the default input is Input 2. When an active source is sensed on the red, green, blue, horizontal sync, or vertical sync channels of one of the inputs, the **MX2222AT** will select that channel. When two active sources are present, on both Input 1 and Input 2, the **MX2222AT** will select Input 1.

Note: The **MX2222AT** detects signals on all of the video and sync channels, therefore it can also be used for RGsB, and RGBS signal formats as well.

When the **MX2222AT** is set to auto switch RGBHV, the audio-follow features will perform as follows:

"RGBHV +Audio" OFF**.** "Video + Audio" OFF

In this mode, the video and audio channels can be controlled independently of each other.

"RGBHV +Audio" ON**.** "Video +Audio" OFF

In this mode, audio follows RGBHV input selection. The audio channel can not be independently selected; it will always auto-switch with RGBHV. The video channels remain independent.

"RGBHV +Audio" OFF. "Video +Audio" ON

In this mode, audio follows the video input selection. The audio channel can still be independently selected until the video is selected. The RGBHV channels are completely independent.

"RGBHV +Audio" ON**.** "Video +Audio" ON

This mode is not recommended and should not be used.

7.1.3 SETTING C-VIDEO AUTO-SWITCHING

To setup the **MX2222AT** to auto-switch upon sensing an active signal on one of the two video inputs, follow the following procedure:

Reset Unit.

1. Unplug or turn OFF power to the unit.

2. Press and hold the STAND BY button while plugging the unit back in (power on).

Set Auto-Switch.

3. Unplug or turn OFF power to the unit.

4. Press and hold Input 2 in the RGBHV section on the front panel while plugging the unit back in (power on).

In auto-switch mode, the default input is Input 2. When an active source is sensed on one of the video inputs, the **MX2222AT** will select that channel. When two active sources are present, on both Input 1 and Input 2, the **MX2222AT** will select Input 1.

When the **MX2222AT** is set to auto-switch VIDEO, the audio-follow features will perform as follows:

"RGBHV +Audio" OFF**.** "Video +Audio" OFF**.**

In this mode, the RGBHV and audio channels can be controlled independently.

"RGBHV +Audio" ON**.** "Video +Audio" OFF**.**

In this mode, audio follows the RGBHV input selection. The audio channel can be selected independently, but will match frequency with RGBHV when the channel is selected.

"RGSHV +Audio**"** OFF**.** "Video +Audio" ON

In this mode, the audio follows the video input selection. The audio channel can not be selected independently. The RGBHV channels are still completely independent.

"RGBHV +Audio" ON**.** "Video +Audio" ON

This mode should not be used when VIDEO auto switching has been enabled.

7.1.4 SETTING RGBHV & C-VIDEO AUTO-SWITCHING

To setup the **MX2222AT** to auto-switch RGBHV and VIDEO sources, use the following procedure:

Reset Unit

1. Unplug or turn OFF the power to the unit

2. Press and hold the STAND BY button while plugging the unit back in (power on).

Set Auto-Switch

3. Unplug or turn OFF the power to the unit.

4. Press and hold Input 1 in the VIDEO section on the front panel while plugging the unit back in (power on).

In auto switch mode, the default input is Input 2 for both the RGBHV and video channels. The **MX2222AT** will allow the RGBHV and video channels to auto-switch independently. When two active sources are present the **MX2222AT** will select Input1 for either source type.

When the **MX2222AT** is set to auto-switch RGBHV and VIDEO, the audio-follow features will perform as follows:

"RGBHV +Audio" OFF**.** "Video +Audio" OFF**.**

In this mode, the RGBHV, Video, and Audio sources are all independent. The RGBHV and Video sources auto switch while the audio must be manually switched.

"RGBHV +Audio" ON. "Video +Audio" OFF.

In this mode, audio follows RGBHV auto-switch input selection. Audio can not be controlled independently. The video channel is still in auto switch mode but affects neither RGBHV nor audio.

"RGBHV +Audio" OFF. "Video +Audio" ON.

In this mode, audio follows the video auto switch input selection. The audio channel can not be independently selected. The RGBHV channels are still in auto-switch mode but affect neither the video nor audio.

"RGBHV +Audio" ON**.** "Video + Audio" ON**.**

This mode is not recommended and should not be used when RGBHV & VIDEO auto-switching has been enabled.

7.1.5 TURNING AUTO-SWITCH OFF

To turn the auto-switch feature OFF and resume normal switching, use the following procedure:

1. Unplug or turn OFF the power to the unit

2. Press and hold the STAND BY button while

plugging the unit back in (power on).

7.2 RS-232 CONTROL

The **MX2222AT** Switcher offers remote control capabilities through RS-232; the primary communications standard used by control systems and computers.

In fact, the **MX2222AT** offers more features using RS-232 than are currently available from the front panel of the unit.

The **MX2222AT** offers a terminal block using solder-free, screw-down contacts, making it extremely easy to connect the switcher to a control system or a computer in the field.
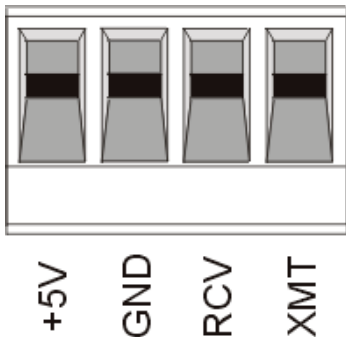
RS-232 Terminal Block

PIN No.	PIN Designation
1	+5V (not needed for RS-232 connection)
2	GND (Ground)
3	RCV (Receive)
4	XMT (Transmit)

The terminal block is labeled with the proper contact designations: Transmit (XMT), Receive (RCV), and Ground (GND). Always remember that the Transmit pin from the control system or computer must be connected to the Receive pin on the switcher control port; do not connect Transmit to Transmit or Receive to Receive.

Note: the contact labeled +5V is not used for RS-232 connections. This contact is used for providing DC voltage to other equipment installed within close proximity of the **MX2222AT**.

Typically, a control system or computer will offer RS-232 connections on a 9-pin D connector.

The following are typical cable pin-out designations for RS-232 connections on a 9-pin D connector. Always verify that the pin-outs for your system are correct to ensure the proper wiring.

IBM PIN No.	**MX2222AT** Contact
3	RX
2	TX
7	GND

Connection of IBM-PC 25-pin D to the **MX2222AT** Terminal Block

IBM PIN No.	**MX2222AT** Contact
2	TX
3	RX
5	GND

Connection of IBM-PC 9-pin D to the **MX2222AT** Terminal Block

The **MX2222AT** has two LEDs on either side of the control port terminal block connector. These LEDs are used to determine that a proper connection has been made. If both LEDs turn green, the connection is correct.

Port setting preferences for the control system or computer being used to control the switcher should be set as follows:

BAUD RATE (Bits per second)	2400
Data bits	8
Parity	None
Stop Bits	1

There is no software or hardware flow control implemented. The RS-232 input has a 6-character buffer and will not execute additional commands until the previous command is fully processed.

7.3 RS-232 PROTOCOL

The following commands are used to control the **MX2222AT** Switcher. The commands must be issued as shown, in ALL CAPS and with the brackets [ ] included in the command string.

Command	Function
[VERN]	Returns the version number of the firmware followed by an [OK] command. Delay: 50 milliseconds
[RSET]	Resets switcher to "power-on" state. Feedback code: [OK]. Delay: 500 milliseconds
[FRSET]	Resets switcher to the factory state. Memory is reset to factory default. Feedback code: [OK]. Delay: 2 seconds
[Ixnn]	Selects switcher input. Feedback code: [OK]. Delay: 200 milliseconds

x - refers to group to be switched. There are a total of 6 groups available. Each group can have up to 6 channels associated with it.

nn – refers to the channel selected. This should be either 01 or 02. No other values are allowed.

When controlling the **MX2222AT** by RS-232, it will typically be preset in either its standard factory default mode or in independent channel switching mode (these modes are preset during power-up of the unit).

In the factory default mode, the groups are set as follows:

Group 1   RGBHV

Group 2   Video

Group 3   Audio

Group 4   User programmable

Group 5   User programmable

Examples of input selections in factory default mode:

To switch RGBHV
to Channel 1   [I101]

To switch RGBHV + Audio
to Channel 2   [I102][I302]

The buttons in the RGBHV section of the front panel affect Group 1, the buttons in the VIDEO section of the front panel affect Group 2, and the buttons in the AUDIO section of the front panel affect Group 3.

For most applications, there is no need to change the groups. For applications requiring unusual switching capabilities, the **MX2222AT** allows the user to control each individual channel independently or to assign specific channels to specific groups with any group being able to contain up to all six channels.

In the independent channel switching mode, the groups are set up as follows:

Group 1   Red

Group 2   Green

Group 3   Blue

Group 4   Horizontal Sync

Group 5   Vertical Sync

Group 6   Video

Examples of input selections in independent channel switching mode:

To switch Green
to Channel 2   [I202]

To switch H & V Sync
to Channel 1   [I401][I501]

Note: if the control system or computer being used to control the **MX2222AT** is not setup to pause for the [OK] string, it is important to include a delay between each command. Delay times are shown for each of the commands.

7.4 SPECIAL FEATURE

7.4.1 INDEPENDENT CHANNEL SWITCHING

To enable the **MX2222AT** to switch all six channels independently, use the following procedure:

Reset Unit

1. Unplug or turn OFF the power to the unit.

2. Press and hold the STAND BY button while plugging the unit back in (power on).

Set Independent Switching

1. Unplug or turn OFF the power to the unit.

2. Press and hold Input 2 in the AUDIO section on the front panel while plugging the unit back in (power on).

When the **MX2222AT** is in this mode, each of the channels is assigned to a group as follows:

Group 1   Red

Group 2   Green

Group 3   Blue

Group 4   Horizontal Sync

Group 5   Vertical Sync

Group 6   Video

Only the first three groups may be controlled through the front panel. The RGBHV buttons control red, the VIDEO buttons control green, and the AUDIO buttons control blue.

Through RS-232, control of each of the six groups is available.

When the **MX2222AT** is in independent channel switching mode, the audio-follow features will be as follows:

"RGBHV +Audio" OFF. "Video +Audio" OFF

In this mode, the six channels of the **MX2222AT** are fully independent and can be controlled using RS-232 commands. The front panel can also control three of the six channels.

"RGBHV +Audio" ON. "Video +Audio" OFF

In this mode, audio follows the RGBHV auto-switch input selection. The audio channel can be selected independently, but it will synchronize with RGBHV when selected. The video channel is independent.

"RGBHV +Audio" OFF, "Video +Audio" ON

In this mode, audio follows the video auto switch input selection. The audio channel can be selected independently. The RGBHV channel is still completely independent.

"RGBHV +Audio" ON. "Video +Audio" ON

In this mode, video and audio follow the RGBHV channel selection. Audio follows the video channel selection. In other words, RGBHV is master to video and audio. Video is master to audio only. Audio can still be completely independent until video or RGBHV is used to select another channel.

7.4.2 INDEPENDENT CHANNEL AUTO-SWITCHING

The **MX2222AT** may also be set up to auto switch each channel independently. To put the switcher into this mode, use the following procedure:

Reset Unit

1. Unplug or turn OFF the power to the unit.

2. Press and hold the STAND BY button while plugging the unit back in (power on).

Set Independent Switching

3. Unplug or turn OFF the power to the unit

4. Press and hold Input 2 in the AUDIO section on the front panel while plugging unit back in (power on).

Set Auto-Switching

5. Unplug or turn OFF the power to the unit.

6. Press and hold Input 2 in the VIDEO section on the front panel while plugging the unit back in (power on).

Note: It is important not to reset the switcher in-between these steps.

This mode will allow the **MX2222AT** to act as six 2-in 1-out C-video Auto-Switchers. Since there are detectors on each channel, the unit can also be used in this mode for three 2-in 1-out S-Video Switchers or two 2-in 1-out RGsB auto switchers. Similarly, the **MX2222AT** can be used in this mode to act as one RGBS 2-in 1-out auto switcher and two separate 2-in 1-out auto switchers.

The default input for each channel is Input 2. If two active sources are present on any channel, Input 1 will remain active.

In this mode, the audio channel will always follow the video channel.

<u>Do not use the "RGBHV+ Audio" or "Video + Audio" control buttons.</u> If these buttons are activated, the **MX2222AT** will receive conflicting commands.

7.4.3 SUMMARY OF OPERATING MODES

The following is a summary of the operating modes that can be setup by using the front panel of the **MX2222AT**. When setting the **MX2222AT** into any of these modes, it is important to reset the switcher as follows:

1. Unplug or turn OFF the power to the unit

2. Press and hold the STAND BY button while plugging the unit back in (power on).

Normal:

After Resetting the **MX2222AT**, it will operate in a normal mode with switching done manually through the front panel or through RS-232.

7.4.4 AUTO SWITCH/ADVANCED MODES - FRONT PANEL SUMMARY

These modes are also accessible as a power-up feature. Press and hold the indicated button while plugging the unit in or turning it on.

Input 1 RGBHV:

Set group 1 for auto-switching mode. Group 1 is RGBHV by default. The number of channels in group 1 can be modified using RS-232 commands.

Input 2 RGBHV:

Set group 2 for auto-switching mode. Group 2 is VIDEO by default. The number of channels in group 2 can be modified using RS-232 commands.

Input1 Video:

Set group 1 and 2 to auto-switching mode. Group 1 and 2 is RGBHV and VIDEO respectively by default. The number of channels in group 1 and 2 can be modified using RS-232 commands.

Input 2 Video:

Set groups 1, 2, 3, 4, 5, and 6 to auto-switching mode. The command should be used when each group contains only 1 channel. This command should also be used with Input 2 audio mode (independent switching).

Input1 Audio:

Input1 audio turns off the auto-switching of all groups and channels.

Input 2 Audio:

Separate all channels into independent groups. Red - Group 1, Green - Group 2, Blue - Group 3, Horizontal Sync - Group 4, Vertical Sync - Group 5, Video and Audio - Group 6.

SWITCHERS

ACCESSORIES 8

Model No.	Description
	TABLE MOUNT HARDWARE
TM1276	Table Mount bracket for 2U ½ Rack-Wide
	RACK MOUNTING ACCESSORIES
DA1298RM	Rack mount shelf for two units side by side
DA1299RM	Rack mount kit for single unit.
	HIGH RESOLUTION 5 BNC to 5 BNC COAXIAL CABLE
CB4200MR	Bulk Cable 5 coaxes (500ft minimum)
CB4203MR	3 feet, 5 BNC to 5 BNC coaxial cable
CB4206MR	6 feet, 5 BNC to 5 BNC coaxial cable
CB4212MR	12 feet, 5 BNC to 5 BNC coaxial cable
CB4225MR	25 feet, 5 BNC to 5 BNC coaxial cable
CB4250MR	50 feet, 5 BNC to 5 BNC coaxial cable
CB4275MR	75 feet, 5 BNC to 5 BNC coaxial cable
CB42100MR	100 feet, 5 BNC to 5 BNC coaxial cable
CB42150MR	150 feet, 5 BNC to 5 BNC coaxial cable
	SUPER HIGH RESOLUTION 5 BNC to 5 BNC COAX
CB4400MR	Bulk Cable 5 coaxes (500ft minimum)
CB4406MR	6 feet, 5 BNC to 5 BNC coaxial cable
CB4412MR	12 feet, 5 BNC to 5 BNC coaxial cable
CB4425MR	25 feet, 5 BNC to 5 BNC coaxial cable
CB4450MR	50 feet, 5 BNC to 5 BNC coaxial cable
CB4475MR	75 feet, 5 BNC to 5 BNC coaxial cable
CB44100MR	100 feet, 5 BNC to 5 BNC coaxial cable
CB44150MR	150 feet, 5 BNC to 5 BNC coaxial cable
	POWER CABLES
PC5301US	Power cable for US
PC5302US	Power cable for U.K.
PC5303US	Power cable for Australia
PC5304US	Power cable for Germany

FREQUENTLY ASKED QUESTIONS 9

No:	Question	Answer
1.	Why does the **MX2222AT** not respond, when I press the RESET button?	You must <u>press and hold</u> the button for approximately 2 seconds, until you hear a beeping sound and all of the LED lights flash. This is designed to avoid accidental resetting.
2.	Which types of signals can I pass through the **MX2222AT**?	The **MX222AT** can be used with RGBHV, RGBS, RGsB, Component Video (Y, R-Y, B-Y), S-Video (Y/C), Composite Video and Stereo Audio signals. All video/sync channels use relays and will pass both video and sync. Audio channels are only designed to pass audio signals.
3.	Does the Auto-Switch Mode work in the **MX2222AT**?	Yes, it works by sensing an active signal on one of two RGBHV inputs.
4.	How is the **MX2222AT** controlled?	Control can be made through the built-in front panel or through RS-232.
5.	Can I control each channel independently in auto-switch mode?	The **MX2222AT** may be set up to auto-switch each channel independently. To put the switcher into this mode, use the following procedure: (1)Unplug or turn OFF the power to the unit. (2)Press and hold Input 2 in the AUDIO section on the front panel while plugging the unit back in (power on).
6.	Why is sync delay switching useful?	It eliminates the glitch normally associated with switching between high-resolution RGB type sources. This is accomplishing by disconnecting the sync portion of a signal before

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SIGNAL MANAGEMENT SOLUTIONS

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		the incoming video–making the glitch takes place off-screen. The Sync Delay feature is only designed to work with RGBS and RGBHV signal formats.
7.	Can the **MX2222AT** be rack mounted?	The **MX2222AT** can be rack mounted by itself or with two units side by side. The width of the unit is 1/2 rack wide. ALTINEX offers rack mount ears for single unit mounting (part# **DA1299RM**) and rack shelf for mounting two units (part# **DA1298RM**).
8.	Can the **MX2222AT** Switcher be used outside of the United States?	Yes, the **MX2222AT** uses a universal internal power supply, enabling it to be used throughout the world. Please make sure that the voltage setting is in the correct position and please make sure to use the proper adapter cable for the country in which it will be used. Adapter cables for several countries are available through ALTINEX.

TROUBLESHOOTING GUIDE   10

- Please make sure, that input signal formats are the same for the input (source) and the output (display).
- Please make sure that the input signal amplitude levels are as follows:
  1. RED, GREEN, and BLUE are less than 10V.
  2. SYNC is less than 1.0 V and more than 0.3V.
  3. Please use the appropriate input voltage 110 VAC or 220 VAC.
- Please make sure that the proper quality of cables is used. We recommended ALTINEX made cables for the best results.
- If a problem arises after continuous usage at higher voltage, higher temperature, higher humidity, or at other extreme environmental conditions, please correct the problem.
- Please reset the unit by pressing the RESET key for more than 2 seconds, if a problem exists with the switcher.
- Make sure that all channels (inputs) are ON (i.e. RED LED next to the STAND BY key is OFF).
- If using any control software or hardware to control the **MX2222AT**, verify the operation of the unit with the MX Control software (available from the ALTINEX web-site: www.altinex.com) when using RS-232 commands to the switcher. Make sure that the cable is made according to the manual, where the RX pin of the **MX2222AT** is connected to the TX pin of the computer.

ALTINEX POLICY   11

11.1 LIMITED WARRANTY

ALTINEX warrants that its products and cables are free from defects in materials under normal use and service. This warranty is limited to repairing at company's factory any part or parts of the product, which upon company's examination shall disclose to be, thus defective. Products considered defective should be returned to company with transportation charges pre-paid within 2 years or (90 days for cables) from date of shipment to the purchaser. The warranty is expressly instead of all other warranties expressed or implied. ALTINEX neither assumes nor authorizes any other person to assume for it any other liability in connection with the sale of the products. This warranty shall not apply to any product that shall have been repaired or altered outside of company's factory in any way so as, in its judgment, to affect its stability or reliability, or that has been subject to misuse, negligence or accident.

11.2 RETURN POLICY

It is very important to ALTINEX that you receive the products that you have ordered and that this product fulfills your need. In the unlikely event, that an ALTINEX product needs to be returned please follow the policies below:

ALTINEX will accept product returns for a period of 30 days from authorized ALTINEX dealers. Products should be returned in an unopened package.

If a product has been opened, the restocking fees will apply. For the restocking fee amount, please contact an ALTINEX Sales Representative.

If the product is in your possession for more than 30 days, the restocking fees will apply.

ALTINEX will not accept any returns on cables or custom products.

If your product is in warranty and needs service, contact the ALTINEX Sales Department for an RMA (Return Material Authorization). Products returned without an RMA number may experience a delay in service.

If your product is out of warranty and needs service, contact the ALTINEX Sales Department for an RMA (Return Material Authorization). Products returned without an RMA number may experience a delay in service. The service charges will be quoted to you before the actual repairs are done.

11.3 CONTACT INFORMATION

Sales Department

Phone:	714-990-2300
Fax:	714-990-3303

Accounting Department

Phone:	714-990-6088
Fax:	714-990-5778