



Instruction Manual

**IM-400 Series
400 Mhz Matrix Routing Switcher**

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1.0 INTRODUCTION

Thanks for purchasing this IM-400 series Matrix Routing Switcher from TV One. The IM-400 Matrix Router is designed to switch a wide variety of video signal formats. In addition to RGBHV, versions are available for YUV, YPbPr, YC (S-Video) and Composite Video. Our professional video conversion products have been serving the industry for over twenty years. TV One offers a full line of high quality Video Scalers, Scan Converters, Analog-Digital (DV, SDI, DVI) Converters, Standards Converters, Digital Video Recorders, Frame Synchronizers, Time Base Correctors, LCD Monitors, Matrix Routing Switchers and Distribution Amplifiers.

1.1 Liability Statement

Every effort has been made to ensure that this product is free of errors. TV One cannot be held liable for the use of this hardware or any direct or indirect consequential damages arising from its use. It is the responsibility of the user of the hardware to check that it is suitable for his/her requirements and that it is installed correctly. All rights reserved. No parts of this manual may be reproduced or transmitted by any form or means electronic or mechanical, including photocopying, recording or by any information storage or retrieval system without the written consent of the publisher.

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1.2 FEATURES

The IM-400 400Mhz Matrix Routing Switcher has many features that enable it to perform in a superior manner. Among those features you will find:

- 400 MHz RGB Bandwidth
- Optional Stereo Audio I/O for Balanced and Unbalanced Audio Signals
- Audio Output Volume Control and Mute
- Virtual Input Gain Trim Levels for Each Audio Input
- Audio-Follow-Video Switching or Breakaway Switching
- RGB Delay Mode for Seamless High Resolution Video Sources Switching
- Vertical Interval Switching for Synchronized Broadcast Video Sources
- Control From Front Panel, Remote Panel or Remotely Via RS-232
- Multiple Configuration Presets
- Universal AC Voltage Input with an IEC standard power cord.
- Windows software for configuration/operation of all IM-400 variations
- 4 Programmable I/O Groups
- Optional IP Addressable Ethernet Port (RJ-45)

2.0 IMPORTANT SAFETY INSTRUCTIONS

To insure the best from this product, please read this manual carefully. Keep it in a safe place for future reference.

To reduce the risk of electric shock, do not remove the cover from the unit. No user serviceable parts inside. Refer servicing to qualified personnel.

2.1 POWER AND CONNECTIONS

This unit is not disconnected from the AC power source as long as it is connected to the wall outlet. The off state for this unit is called standby mode. In standby mode the unit is designed to consume a reduced quantity of power compared to normal operating modes.

When not using the unit for a long period of time, insure that the AC power cord is disconnected from the wall outlet.

The AC wall outlet should be installed near to the unit and be easily accessible.

Do not plug in or attempt to operate an obviously damaged unit.

2.2 WATER AND MOISTURE

To reduce the risk of fire, do not expose the unit to rain, water or excessive moisture.

2.3 GENERAL CARE

Do not force switches or external connections.

When moving the unit, disconnect the serial port connections first then the power cable and finally the interconnecting cables to other devices.

Do not attempt to clean the unit with chemical solvents or aerosol cleaners, as this may damage the unit. Use a clean dry cloth.

2.4 LOCATION

Installation of this unit should be in a cool dry place, away from sources of excessive heat, vibration, dust, moisture and cold.

2.5 VENTILATION

Slots and openings in the sides of the unit are provided for ventilation. To insure reliable operation, avoid obstruction of these openings and insure the unit is installed in a well-ventilated area.

3.0 INTELLECTUAL PROPERTY

Some IC chips in this product include confidential and/or trade secret property. Therefore you may not copy, modify, adapt, translate, distribute, reverse engineer, reverse assemble, or decompile the contents thereof.

2.0 IMPORTANT: CONSIGNES DE SECURITE

Afin de tirer le meilleur de ce produit, merci de lire attentivement ce manuel. Gardez-le dans un endroit sûr pour pouvoir le consulter à nouveau.

Afin de réduire le risque de choc électrique, ne retirez pas l'unité de sa protection.

Aucune pièce réparable par l'utilisateur à l'intérieur. Référez-vous à des personnes qualifiées.

2.1 ALIMENTATION ELECTRIQUE ET CONNEXIONS

Cette unité n'est pas déconnectée de la source de courant électrique tant qu'elle est connectée à la prise murale. Le mode éteint de cette unité est appelé mode de veille. En mode de veille, cette unité est conçue pour consommer une quantité réduite de courant par rapport aux modes normaux d'utilisation.

Lorsque vous n'utilisez pas l'unité pendant une longue période, assurez-vous que le câble d'alimentation électrique est déconnecté de la prise murale.

La prise murale de courant doit être installée près de l'unité et aisément accessible.

Ne branchez pas et n'essayez pas d'utiliser une unité visiblement endommagée.

2.2 EAU ET HUMIDITE

Afin de réduire le risque d'incendie n'exposez pas l'unité à la pluie, l'eau ou à une humidité excessive.

2.3 ENTRETIEN GENERAL

Ne forcez pas les boutons ou connexions externes.

Lorsque vous déplacez l'unité, déconnectez d'abord les connexions de ports en série puis le câble d'alimentation et enfin les câbles de connexion avec d'autres appareils.

N'essayez pas de nettoyer l'unité avec des dissolvants chimiques ou des produits nettoyants en aérosol, car cela peut endommager l'unité. Utilisez un chiffon propre et sec.

2.4 EMLACEMENT

L'installation de cette unité doit se faire dans un endroit frais et sec, éloigné de sources excessives de chaleur, de vibrations, de poussière, d'humidité et de froid.

2.5 AERATION

Les rainures et les ouvertures sur les cotés de l'unité servent à l'aérer. Pour permettre une utilisation sûre, évitez d'obstruer ces ouvertures et assurez-vous que l'unité est installée dans un endroit bien aéré.

3.0 PROPRIETE INTELLECTUELLE

Certaines puces IC dans ce produit contiennent des éléments propriétaires confidentiels et/ou des secrets commerciaux. Vous ne devez donc pas copier, modifier, adapter, traduire, distribuer, démonter, désassembler, ou décomposer leur contenu.

2.0 INSTRUCCIONES IMPORTANTES DE SEGURIDAD

Para sacar el mejor provecho de este producto, léase este manual con detenimiento. Guárdelo en un lugar seguro para poder hacerle referencia en el futuro.

Para reducir el riesgo de calambre, no quite la cubierta del aparato.

No hay piezas utilizables dentro. Remítase todo mantenimiento a personal cualificado.

2.1 CORRIENTE Y CONEXIONES

Mientras esté conectada a una toma de electricidad, el aparato seguirá conectado a la fuente de corriente CA. A la posición de «off» de este aparato se le denomina posición de espera. En la posición de espera, el aparato está diseñado a consumir una cantidad reducida de electricidad en comparación con los modos de operación normales.

Asegúrese de desconectar el cable de corriente CA de la toma de la pared cuando no va a utilizar el aparato por un periodo largo de tiempo.

La toma CA de la pared ha de estar instalada cerca del aparato y debe ser fácilmente accesible.

No enchufe ni intente operar un aparato que esté evidentemente dañado.

2.2 AGUA Y HUMEDAD

Para reducir el riesgo de incendio no exponga el aparato a la lluvia, el agua o la humedad excesiva.

2.3 CUIDADO GENERAL

No forzar interruptores o conexiones externas.

Al mover el aparato, desconecte las conexiones del puerto en serie primero, luego el cable de electricidad y finalmente los cables interconectados a otros aparatos. No intente limpiar el aparato con disolventes químicos o productos de limpieza aerosol, ya que podrían dañar el aparato. Utiliza un paño limpio y seco.

2.4 UBICACIÓN

Este aparato se debe instalar en un lugar seco y fresco, lejos de fuentes de calor excesivas, la vibración, el polvo, la humedad y el frío.

2.5 VENTILACIÓN

El aparato viene provisto de ranuras y agujeros en los lados para la ventilación.

Para asegurar una operación eficaz, se debe evitar la obstrucción de estos agujeros y también asegurar que el aparato se instale en una zona con adecuada ventilación.

3.0 PROPIEDAD INTELECTUAL

Algunos chips con circuito integrado de este producto incluyen propiedad confidencial y/o propiedad de secreto comercial. Por lo tanto queda prohibido copiar, modificar, adaptar, traducir, distribuir, usar técnicas retroactivas, desmontar, o recopilar los contenidos del mismo.

2.0 WICHTIGE SICHERHEITSVORSCHRIFTEN

Lesen Sie diese Bedienungsanleitung bitte sorgfältig, um Ihr Produkt optimal nutzen zu können, und bewahren Sie sie zum späteren Nachschlagen an einem sicheren Ort auf.

Entfernen Sie bitte keinesfalls die Abdeckung, um der Gefahr eines Stromschlags vorzubeugen.

Im Inneren des Geräts befinden sich keine Teile, die vom Benutzer gewartet werden können. Lassen Sie Wartungsarbeiten nur von Fachpersonal durchführen.

2.1 STROMVERSORGUNG UND ANSCHLÜSSE

Solange das Gerät mit einer Steckdose verbunden ist, bleibt die Stromversorgung aufrecht. Der Ausschaltzustand des Geräts wird als Standbymodus bezeichnet. Im Standbymodus verbraucht das Gerät weniger Strom als in den üblichen Betriebsarten.

Wird das Gerät über einen längeren Zeitraum hinweg nicht verwendet, ziehen Sie bitte das Stromkabel aus der Steckdose.

Die Steckdose sollte sich in der Nähe des Geräts befinden und leicht zugänglich sein.

Verbinden Sie ein offensichtlich beschädigtes Gerät keinesfalls mit einer Steckdose und versuchen Sie auch nicht, es zu bedienen.

2.2 WASSER UND FEUCHTIGKEIT

Setzen Sie das Gerät weder Regen, Wasser noch übermäßiger Feuchtigkeit aus, um der Gefahr eines Brandes vorzubeugen.

2.3 ALLGEMEINE PFLEGE

Wenden Sie bei der Handhabung von Schaltern und Anschlüssen keine Gewalt an.

Beim Umstellen des Geräts entfernen Sie zuerst die seriellen Anschlüsse, dann das Stromkabel und zum Schluss die Verbindungskabel zu anderen Geräten.

Versuchen Sie keinesfalls, das Gerät mit chemischen Lösungsmitteln oder Sprayreinigern zu reinigen, da dies das Gerät beschädigen könnte. Verwenden Sie ein sauberes, trockenes Tuch.

2.4 AUFSTELLUNG

Das Gerät sollte an einem kühlen, trockenen Ort aufgestellt werden, fern von übermäßiger Wärme, Vibrationen, Staub, Feuchtigkeit und Kälte.

2.5 BELÜFTUNG

Seitliche Schlitze und Öffnungen sorgen für die Belüftung des Geräts. Um die ordnungsgemäße Belüftung zu gewährleisten, dürfen diese Öffnungen nicht verdeckt werden. Sorgen Sie außerdem dafür, dass das Gerät an einem gut belüfteten Ort aufgestellt wird.

3.0 GEWERBLICHES EIGENTUM

Einige integrierte Schaltkreise in diesem Produkt enthalten vertrauliche

Informationen und/oder Betriebsgeheimnisse. Sie dürfen daher diese Inhalte nicht kopieren, modifizieren, adaptieren, übersetzen, verteilen, rückentwickeln, rückassemblieren oder dekompilieren.

2.0 BELANGRIJKE VEILIGHEIDSINSTRUCTIES

Lees deze handleiding zorgvuldig door om het beste uit uw product te halen. Bewaar het op een veilige plek voor raadpleging in de toekomst.

Haal nooit het omhulsel van de eenheid af, dit om de kans op een elektrische schok te verminderen. Maak het apparaat nooit open: er bevinden zich geen door de gebruiker in te stellen onderdelen in het apparaat. Laat service en onderhoud over aan een gekwalificeerde technicus.

2.1 ELEKTRICITEIT EN AANSLUITING

Deze eenheid is niet van de wisselstroom voedingsbron gescheiden wanneer de stekker nog in het stopcontact zit. Wanneer de eenheid uitstaat, staat deze nog in de stand-by modus. In de stand-by modus vergt de eenheid minder stroom dan in de normale "aan" modus.

Wanneer u de eenheid voor langere tijd niet gebruikt, zorg er dan voor dat de stekker van het wisselstroomsnoer uit het stopcontact is getrokken.

Het wisselstroom stopcontact moet dichtbij de eenheid geïnstalleerd worden en makkelijk toegankelijk zijn.

Als de eenheid duidelijk beschadigd is moet u deze nooit op het lichtnet aansluiten of bedienen.

2.2 WATER EN VOCHTIGHEID

Zorg ervoor dat de eenheid niet aan regen, water of extreme vochtigheid wordt blootgesteld, dit om brand te voorkomen.

2.3 ALGEMEEN ONDERHOUD

Forceer schakelaars of externe aansluitingen nooit.

Bij verplaatsing van de eenheid, de seriële poortaansluitingen eerst loskoppelen, dan de voedingskabel en als laatste de snoeren naar andere apparaten.

Probeer de eenheid nooit met chemische oplosmiddelen of schoonmaakmiddelen in een spuitbus schoon te maken, omdat dit de eenheid kan beschadigen. Gebruik een schone droge doek.

2.4 PLAATSING

Deze eenheid moet geïnstalleerd worden op een koele droge plaats, uit de buurt van bronnen van extreme hitte, vibraties, stof, vocht en kou.

2.5 VENTILATIE

De sleuven en openingen aan de zijkant van de eenheid zijn voor ventilatie. Zorg er voor dat de eenheid op een goed geventileerde plek geïnstalleerd wordt zodat deze betrouwbaar werkt.

3.0 INTELLECTUEEL EIGENDOM

Sommige IC chips in dit product bevatten vertrouwelijke informatie en/of fabrieksgeheimen. U mag daarom de inhoud hiervan niet kopiëren, wijzigen, aanpassen, vertalen, verspreiden, nabouwen, of decompileren.

4.0 SPECIFICATIONS (ELECTRONIC)

Matrix Types	
RGBHV (<i>Note 1</i>)	16X16, 16X8, 12X8, 8X8
YUV (or YPbPr)	16X16, 16X8, 12X8, 8X8
YC (S-Video)	16X16, 16X8, 12X8, 8X8
Composite Video	16X16, 16X8, 12X8, 8X8
Audio for the Above Versions	With or Without Stereo Audio
Video	
Gain	Unity +/- 0.2dbm
R-G-B Bandwidth	400Mhz @ 0dbm In
Flatness (At 0dbm)	0-50Mhz +/- 0.25dbm
	0-100Mhz +1dbm to -0.5dbm
	0-400Mhz +2 to 0dbm
Crosstalk	-65dbm to 10Mhz
	-55dbm to 30Mhz
	-45dbm to 70Mhz
Linearity (-12 to +2dbm)	0-100Mhz +/- 0.2dbm
	0-300Mhz +/- 1.0dbm
Television Standards	NTSC, PAL, SECAM
Connectors	BNC
Sync	
I/O Type	RGBHV, RGBS, RGsB, RsGsBs
Input Level	4Vp-p Nominal, 0.5Vp-p to 5.0Vp-p
Output Level	TTL 2.0Vp-p into 75 Ω
Input Impedance	75 Ω
Output Impedance	75 Ω
Polarity	Same as Input Polarity
Connectors	BNC
Audio	
Type	Balanced/Unbalanced
Frequency Response	20Hz to 20Khz +/- 0.1db
HD + Noise	0.05% at 1Khz at Max Rated Output
Signal to Noise Ratio	>90db
Crosstalk	<80db @1Khz
Input Impedance	>10K Ω
Output Impedance	50 Ω
Maximum Output Level	+22dbm
Maxim Input Level	+22dbm
Input Trim	Virtual: +6/-14db (<i>Note 2</i>)
Volume Range	+31.5db/-95.5 Mute in 0.5db Steps
Connectors	Terminal

Control Methods	
Local Front Panel	Via Push Buttons and LCD
RS-232 Interface	Via DB9 Male Connector
Windows Interface	With Software via RS-232
IP Addressable	Via RJ45 Jack
Notes	
(1) Also RGBS, RGsB and RsGsBs	
(2) Factory Preset at 0db	

SPECIFICATIONS (MECHANICAL)

Vertical Rack Space Required	
IM400-RGBHVA-16X16	6 RU
IM400-RGBHVA-16X8	6 RU
IM400-RGBHVA-12X8	3 RU
IM400-RGBHVA-8X8	3 RU
IM400-YUVA-16X16	4 RU
IM400-YUVA-16X8	4 RU
IM400-YUVA-12X8	3 RU
IM400-YUVA-8X8	3 RU
IM400-SVA-16X16	3 RU
IM400-SVA-16X8	3 RU
IM400-SVA-12X8	2 RU
IM400-SVA-8X8	2 RU
IM400-CVA-16X16	2 RU
IM400-CVA-16X8	2 RU
IM400-CVA-12X8	2 RU
IM400-CVA-8X8	2 RU
Environmental	
Operating Temperature	+32° to +120° F (0° to +48° C)
Operating Humidity	10% to 85%, Non-Condensing)
Storage Temperature	-40° to +150° F (-40° to +65° C)
Storage Humidity	10% to 85%, Non-Condensing
Power Requirement	
Internal Power Supply	100-240VAC, 50-60Hz
Warranty	
Limited Warranty	2 Years parts and Labor
Regulatory Approvals	
Unit	FCC, CE
Power Supplies	UL, CE, CSA
Accessories Included	
Matrix Switcher Unit	
Operations Manual	
AC Power Cord	

5.0 CHECKING PACKAGE CONTENTS

Before attempting to use this unit, please check the packaging and make certain the following items are contained in the shipping carton:

- IM400 Matrix Switcher
- Instruction Manual
- AC Power Cord

Note: Please retain the original packing material should the need ever arise to return the unit. If you find any items are missing, contact your reseller or TV One immediately. Have the Model Number, Serial Number and Invoice available for reference when you call.

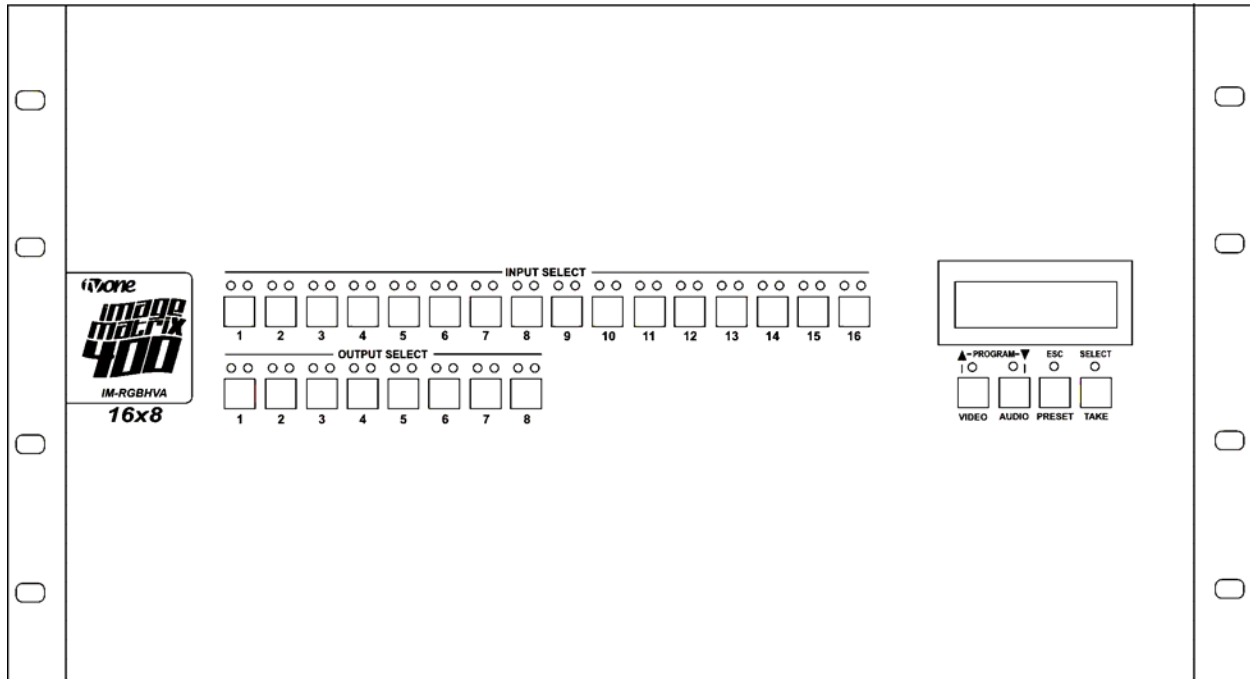
6.0 CONNECTING THE HARDWARE

The Front Panel of the IM400 Matrix Switcher provides for manual control of the unit. Audio Follow Video and Audio Breakaway switching can be accomplished from the front panel using standard Preset/Take techniques. An LCD display shows system status and allows for adjustment of signal trim, signal delay and other parameters via adjustment buttons.

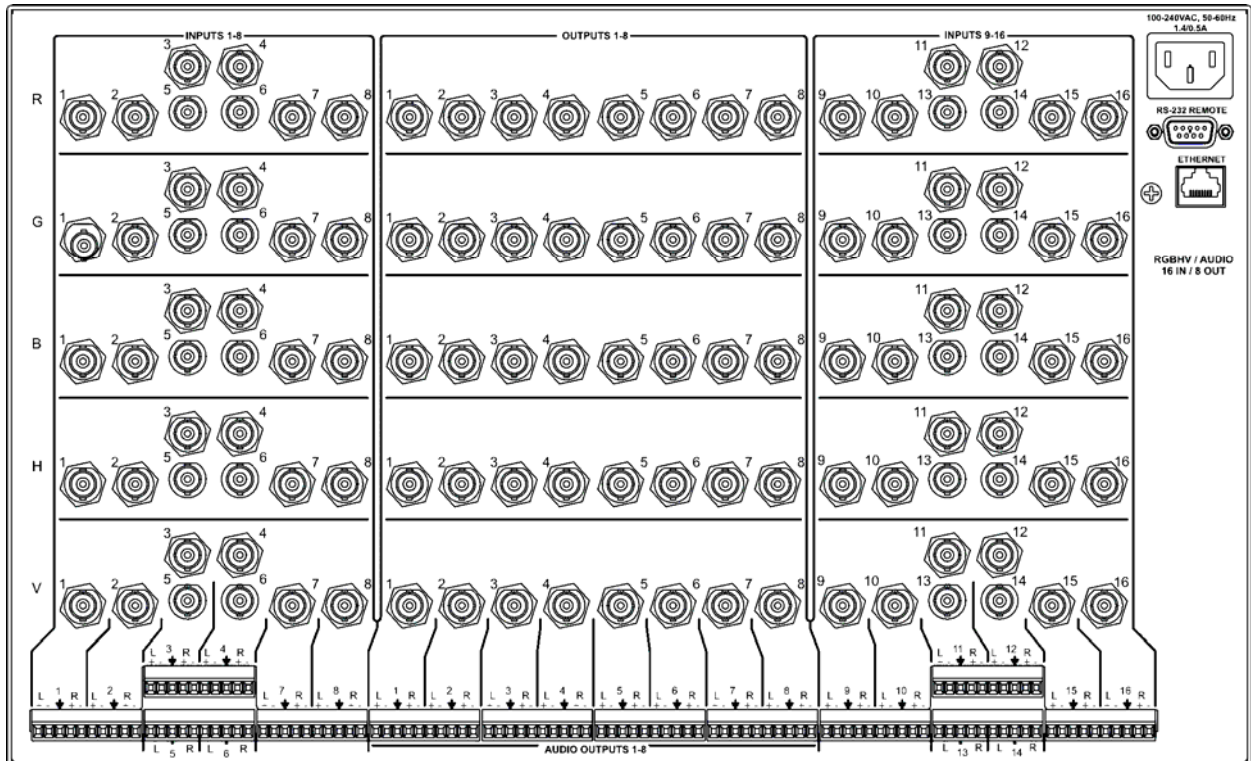
On the Rear Panel, you'll find an array of BNC connectors (or "S" connectors in the case of the S-Video model) that are used for Video I/O. Audio I/O is accomplished via a row of dedicated connectors located at the bottom of the Rear Panel.

The AC Power connection, RS-232 connector and RJ45 network connection are also located on the Rear Panel along the top, right quadrant. Please examine the drawings below to become more familiar with the mechanical layout of the product. After doing so, connect the appropriate cables to the various connectors and apply power.

(Note: The drawings are of a 16X8 RGBHV model with Audio. Aside from the number of switches and connectors varying with model type, the general location of the controls and connectors is the same for all models.)



IM400-RGBHVA-16X8 Front Panel



IM400-RGBHVA-16X8 Rear Panel

7.0 OPERATING THE UNIT

7.1 System Control:

The matrix switcher can be controlled in three ways: directly from the front panel, serial commands via the built in RS-232 port or through the optional web server card. The front panel is the most direct method and should be used for initial setup. The RS-232 port may be connected to a control system like AMX or Crestron or may be connected to a PC running the RS-232 Windows based control program available for download from our support web site <http://tvone.crmdesk.com>. Finally, the optional web server card connects via the RJ45 connector.

7.1.1 Manual Front Panel Operation:

The front panel can be used to enter a new route or view the current connections to a single input or output for video, audio or both. It can also be used to save and execute presets, adjust output volumes, adjust input level trims, protect output connections and perform all system setup.

7.1.2 Direct Switching Mode:

To enter a new selection or view a current connection, the user enters data via the Input and Output select buttons on the front panel.

When an Input button is pressed to enter a new connection or view a current connection, its associated Red and Green LED will blink and the outputs connected to it—if any—will light without blinking. The Green LEDs indicate Audio connections and the Red LEDs indicate video connections. After you view the current configuration, you may view another input, press the “Take” button or make any needed changes.

To add or remove a connection selection, you first select the type of connection required. The default operation is Audio Follow Video. If Audio Only or Video Only operation is desired, the corresponding button (Audio or Video) is depressed before depressing the desired output button to route the signal to the new destination. Note that the LED(s) will blink until the connection is executed by pressing “Take” button after which the input and output LED’s will stop blinking and be fully illuminated. Multiple destinations may be implemented by selecting multiple outputs prior to pressing the “Take” button.

If Audio Follow Video operation is desired (no Audio Breakaway), you can perform the selection operation in reverse: After depressing an Output button, it will blink and the present input connected to it, if any, will remain lighted without blinking. When a new input is selected, its LED will blink showing a new connection is pending. Pressing the “Take” button executes the new connection and both lights will be illuminated without blinking.

7.1.3 Preset Switching Mode:

In this mode the user can store frequently used configurations for easy recall with a single button. The memory stores all input / output connections as well as the current audio level for each output. (*Note: Input level trims are not to be stored or recalled by any preset operations.*)

To select a Preset configuration, the user will press the Preset button on the front panel. This action will change the LCD display to read, “ENTER PRESET NUM” and will light the LED of the current Preset selection (if there is one). To operate in this mode the user will simply press one of the I/O buttons on unit causing its LED to blink. The new configuration is then implemented by pressing the “Take” button.

To save a new preset, the PRESET button should be pressed and held for 2 seconds. At that point the LED on the preset button and the LEDs on the I/O buttons already used for presets should flash and the LCD display will read, “SELECT AN I/O BUTTON”. (This will let the operator know that he is about to overwrite a previously saved preset if one of the blinking paths is selected.) The operator will then select the button he wishes to use for the new preset, its LED will blink and the LCD display will read, “TAKE TO CONFIRM ESC TO CANCEL”. The operator will then press the “Take” button to confirm or the ESC button to escape.

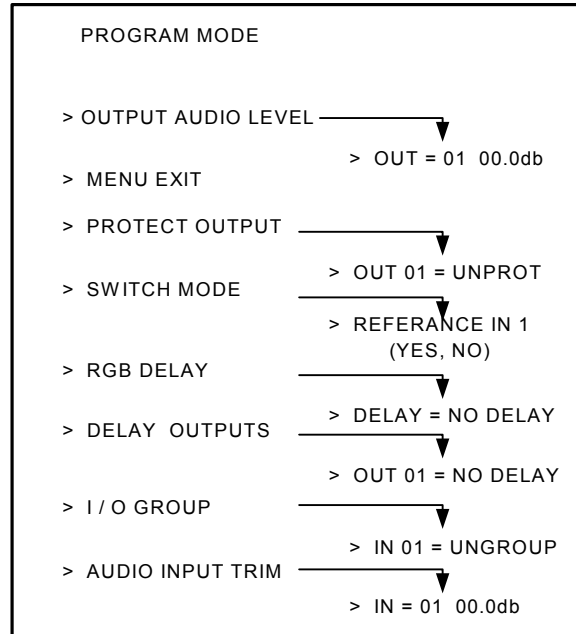
7.2 System Setup:

To enter the Setup Menu, press both the AUDIO and VIDEO together and hold for two (2) seconds. Once in the Menu mode, the individual menu items are structured in a “Menu Tree” shown in section 7.3 below. Menu navigation is accomplished as follows:

- When in the menu mode, the four control buttons change their functionality to the descriptions above the buttons. The ▲ and ▼ buttons will be used from scroll the menu function and also used to ramp the audio levels up and down in the Audio menu.
- The Select button is used to select the currently highlighted menu item.
- The ESC button will be used to escape from a selected menu item.
- To exit the menu, scroll down to EXIT and press Select.

7.3 Menu Tree:

The Menu Tree is depicted below.



7.4 Output Audio Level:

The output audio level has maximum value of +22dbm. When the minimum volume is reached the output will be muted, thus providing the best possible isolation.

To adjust the output level use the up/down buttons till the desired output is on the LCD is indicated. Press *SELECT*, then use the up or down buttons to adjust the setting. When the desired level is reached press *ESC* to select the next output.

Press *ESC* save your current setting to non-volatile memory and return to the main menu mode.

7.4.1 Audio Input Trim:

The input audio trim controls have a range of + 6 to -14 dB. To adjust, use the up and down arrows in main menu mode until the LCD reads *AUDIO INPUT LEVEL*, then press *SELECT*. You're now in Input Select mode.

Use up/down buttons until the desired input is displayed on the LCD. Press *SELECT*, then use the up or down buttons to set the desired level. When the desired level is reached, press *ESC* and select the next output.

When finished, press *ESC* again to save the current setting(s) to non-volatile memory and return to the main menu mode.

7.5 I / O Group:

Each input and output can be placed into one of five groups. These groups are used to classify the inputs and outputs. Once an output is placed in a group, it will only connect to like inputs; the unit will not allow different group interconnections. The default upon initial power up (and after a system reset) will be “Ungroup” for all inputs and outputs.

To change the group settings in the main menu mode, scroll up or down till *I/O GROUP* is displayed on the LCD, then press *SELECT*. You can now use the up or down arrows to display an input or output on the LCD, then press *SELECT*. Pressing the *SELECT* button will allow you to access the group selections, *1,2,3,4, UNGROUP*. Press *ESC* to save the new group setting and return to *I/O* selection menu. Press *ESC* again to return to the main menu mode.

7.6 RGB Delay:

The RGB video signals can be delayed from the sync signals during switching which causes the picture to break up for a moment after the switch. To hide that occurrence from the viewer, the RGB signals can be delayed up to 10 seconds. The RGB Delay sets the delay time, and the Delay Outputs let you individually select which output is to be delayed.

To adjust the delay time, while in the main menu mode scroll up or down till *RGB DELAY* is displayed on the LCD, then press *SELECT*. You then use the up/down buttons to select the delay time in seconds and tenths of seconds. When done, press *ESC* to save and return to the main menu.

7.7 Delay Output:

This function allows the user to select the individual outputs that the RGB delay parameter affects.

To select an output while in the main menu mode, scroll up or down until *DELAY OUTPUT* is displayed on the LCD, then press *SELECT*. You then use the up/down buttons to display an output, and press *SELECT* to set the delay state for that output. Use the *SELECT* button to toggle between *DELAY* and *NO DELAY*. To save the new delay settings press *ESC*.

7.8 Switch Mode:

The switch mode enables the unit to provide glitch free switching when a genlock signal is available.

If the Reference is YES on RGBHV units, the unit will look at the current output signal for the 1st vertical interval and then switch. If the output signal does not have vertical sync, the unit will look at the 1st vertical sync input connector to synchronize the switching.

In the Reference YES mode on Video units, the unit will switch on the 1st vertical interval 22 ms (milliseconds) after the switch command is received. If there is no genlock signal available, the unit will wait an additional 22 ms and then switch.

In the Reference "NO" mode on RGBHV units, the unit will look at the current output signal for the 1st vertical interval and then switch. If there is no sync signal available on the output, the unit will wait 22 ms then before switching.

In the Reference "NO" mode on Video units, the unit will switch 22 ms after the switch command is received.

To change the setting on the main menu screen, scroll up/down till SWITCH MODE is displayed on the LCD, and then press *SELECT*. The matrix will display REFERENCE_IN 1 on the top line and NO on the bottom. Use the up/down buttons to toggle between YES and NO. Press ESC to save your current setting to non-volatile memory and return to the main menu mode.

7.8 Output Protect

The output protect allows the user to protect selected outputs from being changed inadvertently from the front panel, preset switching or from any other control input. (*Note: Protection must be removed to make any changes to an output.*)

To protect an output, use the main menu mode to scroll up or down until *PROTECT OUTPUT* is displayed on the LCD, then press *SELECT*. Use the up/down buttons to display an output, then press *SELECT* to set protection on that output. Use the *SELECT* buttons to toggle between *PROT* and *UNPROT*. Changing the output (using up/down buttons) saves the protection setting on the formally selected output. Pressing *ESC* returns to the main menu.

8.0 TROUBLESHOOTING

The most common problem with the IM400 Matrix Switcher is inputting inappropriate commands. Examples would be trying to switch between dissimilar modes when you've set up groupings of the same formats or trying to make changes to an output when you've set output protection.

Additionally, S-Video connectors have a way of coming loose unless you've established some sort of strain relief and faulty or poor quality cables are often found even in the best of installations.

If none of these suggestions are the source of the trouble, make certain you have sufficient AC voltage and current available and then perform a system reset as detailed in section 7.2 on page 22.

After trying the above suggestions should the problem still persist, contact your dealer for additional suggestions before contacting TV One. Should the dealer's technical personnel be unable to assist you, contact TV One via our support website: ***<http://tvone.crmdesk.com>***. Create a technical support request on the site and our support team will respond within a short period of time.

9.0 LIMITED WARRANTY

LIMITED WARRANTY – With the exceptions noted in the next paragraph, TV One warrants the original purchaser that the equipment it manufactures or sells will be free from defects in materials and workmanship for a period of two years from the date of purchase. Should this product, in TV One's opinion, prove defective within this warranty period, TV One, at its option, will repair or replace this product without charge. Any defective parts replaced become the property of TV One. This warranty does not apply to those products which have been damaged due to accident, unauthorized alterations, improper repair, modifications, inadequate maintenance and care, or use in any manner for which the product was not originally intended.

Items integrated into TV One products that are made by other manufacturers, notably computer hard drives and liquid crystal display panels, are limited to the term of the warranty offered by the respective manufacturers. Such specific warranties are available upon request to TV One.

If repairs are necessary under this warranty policy, the original purchaser must obtain a Return Authorization Number from TV One and return the product to a location designated by TV One, freight prepaid. After repairs are complete, the product will be returned, freight prepaid.

LIMITATIONS - All products sold are "as is" and the above Limited Warranty is in lieu of all other warranties for this product, expressed or implied, and is strictly limited to two

years from the date of purchase. TV One assumes no liability to distributors, resellers or end-users or any third parties for any loss of use, revenue or profit.

TV One makes no other representation of warranty as to fitness for the purpose or merchantability or otherwise in respect of any of the products sold. The liability of TV One with respect to any defective products will be limited to the repair or replacement of such products. In no event shall TV One be responsible or liable for any damage arising from the use of such defective products whether such damages be direct, indirect, consequential or otherwise, and whether such damages are incurred by the reseller, end-user or any third party.

10.0 REGULATORY COMPLIANCE

The IM400 Matrix Switcher has been tested for compliance with: CE citation number IEC/CISPR 22 Class A /1997/ + A1 /2000 + A2 /2002/ and FCC Class A rules.

The Power Adaptor/Supply has been tested for compliance with UL, CE and CSA standards.

11.0 CONTACT INFORMATION

Should you have questions or require assistance with this product in areas not covered by this manual, please contact TV One at the appropriate location shown below:

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