CREATOR Electronics

RGB Matrix Switchers System

User Manual

Please read this manual carefully before using this product.

Notice,

This **RGB Matrix Switchers User Manual** takes example of the Matrix model RGB1616-A. It can be used as user's manual of other RGB matrix switcher models.

This manual is only an instruction for operators, not for any maintenance usage. Any changes of functions and parameters since then will be informed separately. Please refer to the dealers for the latest details.

All product function is valid till 2006-6-30

⚠ Safety Operation Guide

In order to ensure the credibility use of the product and the user's safety, please comply with the following items during installation and maintenance:

①

The system must be earthed properly. Please do not use two blades plugs and ensure the alternating power supply ranged from 100v to 240v and from 50Hz to 60Hz.

②

Do not put the switcher in a place of too hot or too cold.

③

To avoid any damage by over heat, please keep the working environment good in ventilation to radiate the heat when running the switcher.

④

The switchers should be turned off when in rainy and humid days or nonuse for a long time,

⑤

The alternating power supply line should be disconnected with the power socket during the following operation.

A. Take out or reinstall any component of the switcher
B. Disconnect or re-connect any connector of the switcher

⑥

Please do not attempt to maintain and uncover the switcher for there is a high-voltage component inside and the risk of the electric shock.

⑦

Do not splash any chemical product or liquid on or near the equipment.

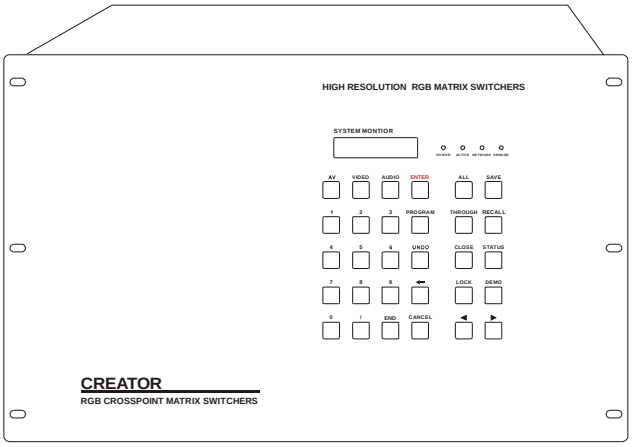
Contents

1. Introduction

1.1 About RGB Matrix Switcher System

RGB series Matrix switcher is a high-performance professional computer and audio signal switcher that can be used for cross switching of multi computer and audio signal. Independent RGBHV component and balance/unbalance I/O terminals make each component signal transmit and switch separately; this design can reduce attenuation of signal transmission to minimum and output the image and audio signal in high-fidelity quality.

RGB series switcher mostly apply in broadcasting TV engineering, multi-media meeting room, big screen display engineering, television education, command control center or other fields. It provides power-fail locale protection function, LCD displaying, A/v timing or separating switching function. With RS232 interface, it can be worked with PC, remote control system and any other far-end control system devices. The user manual takes RGB1616-A as the example, other models can take reference from it too.



F 1-1 RGB1616-A

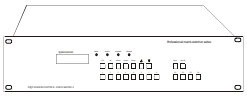
1.2 RGB Matrix Switcher Models

According to different situation and users, the RGB series can be classified into the following models:

Specifications / Models	Video Inputs	Video Outputs	Audio Inputs	Audio Outputs	RS232 Interface
RGB0802	8	2	×	×	✓
RGB0802-A	8	2	8	2	✓
RGB0804	8	4	×	×	✓
RGB0804-A	8	4	8	4	✓
RGB0808	8	8	×	×	✓
RGB0808-A	8	8	8	8	✓
RGB1604	16	4	×	×	✓
RGB1604-A	16	4	16	4	✓
RGB1608	16	8	×	×	✓
RGB1608-A	16	8	16	8	✓
RGB1616	16	16	×	×	✓

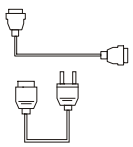
Specifications / Models	Video Inputs	Video Outputs	Audio Inputs	Audio Outputs	RS232 Interface
RGB1616-A	16	16	16	16	✓
RGB2408	24	8	×	×	✓
RGB2408-A	24	8	24	8	✓
RGB2416	24	16	×	×	✓
RGB2416-A	24	16	24	16	✓
RGB2424	24	24	×	×	✓
RGB2424-A	24	24	24	24	✓
RGB3208	32	8	×	×	✓
RGB3208-A	32	8	32	8	✓
RGB3216	32	16	×	×	✓
RGB3216-A	32	16	32	16	✓
RGB3224	32	24	×	×	✓
RGB3224-A	32	32	32	24	✓
RGB3232	32	32	×	×	✓
RGB3232-A	32	32	32	32	✓
All modules above are for combined case design.					
RGB4824	48	24	×	×	✓
RGB4832	48	32	×	×	✓
RGB4848	48	48	×	×	✓
RGB6424	64	24	×	×	✓
RGB6432	64	32	×	×	✓
RGB6448	64	48	×	×	✓
RGB6464	64	64	×	×	✓
RGB9664	96	64	×	×	✓
RGB9696	96	96	×	×	✓
RGB12864	128	64	×	×	✓
RGB12896	128	96	×	×	✓
RGB128128	128	128	×	×	✓
All modules above are for separated case design, audio case is the optional accessory. There will be wider bandwidth.					

2. Packing of the Product



RGB Matrix Switcher

RJ45 Network Cable

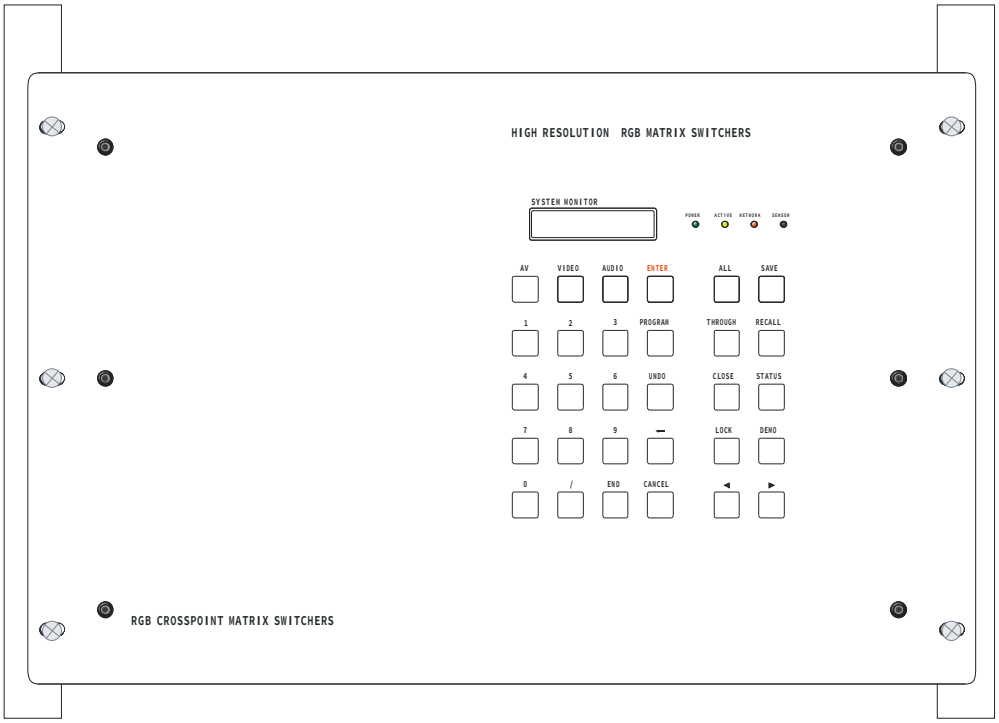


RS-232 Communication Cord

	Power Supply Cord
	CD with Application **SWITCHER 2.0**
	User Manual and Quality Guarantee

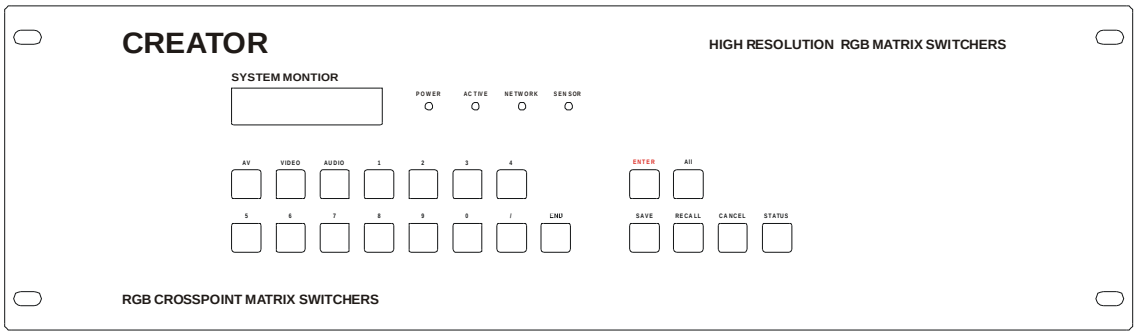
3. Installation

RGB matrix switchers adopt metal shell and can be stacked with other device. Moreover, they are rack-mountable enclosure and can be installed in the standard 19 inches case.

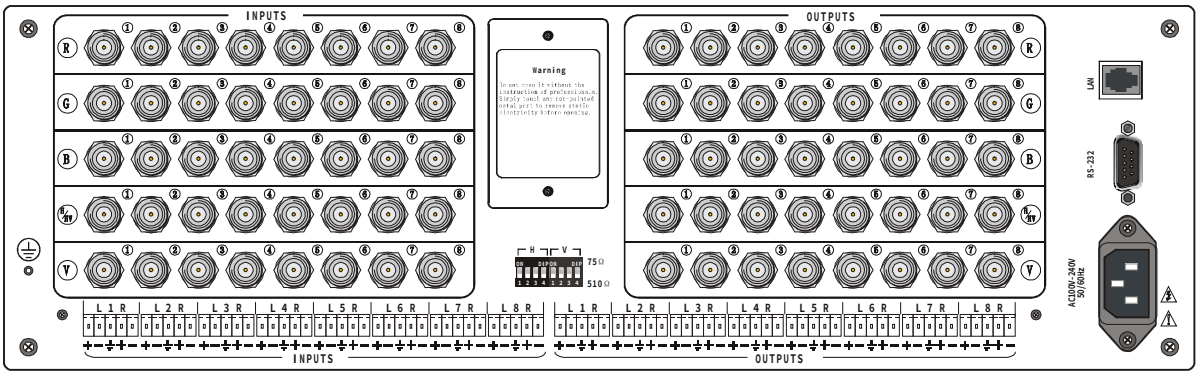


4. Front View and Rear View of the Product

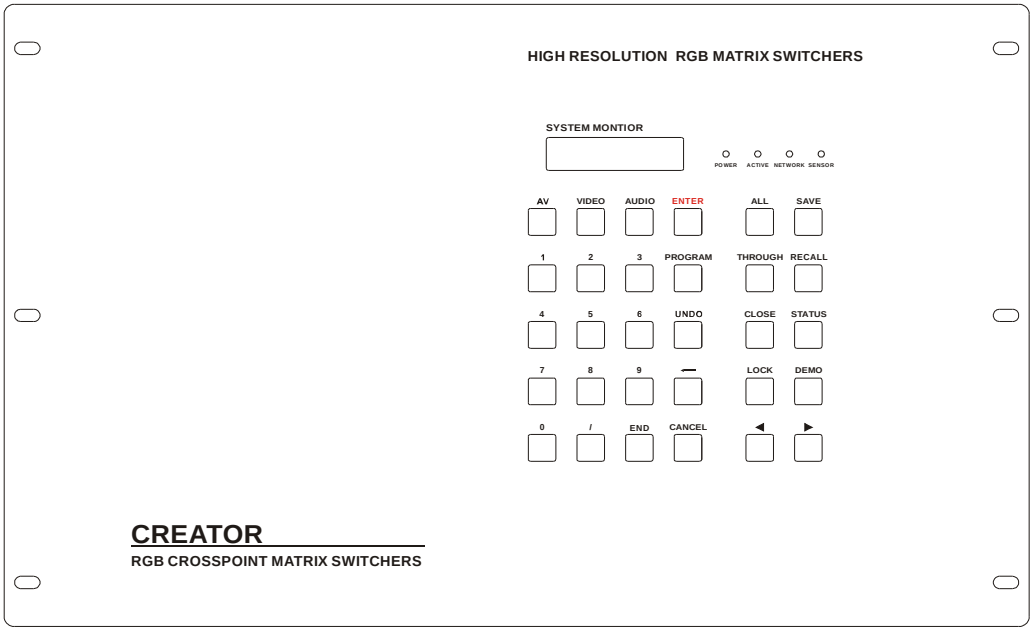
4.1 Front View of the RGB0802-A,RGB0804-A,RGB0808-A



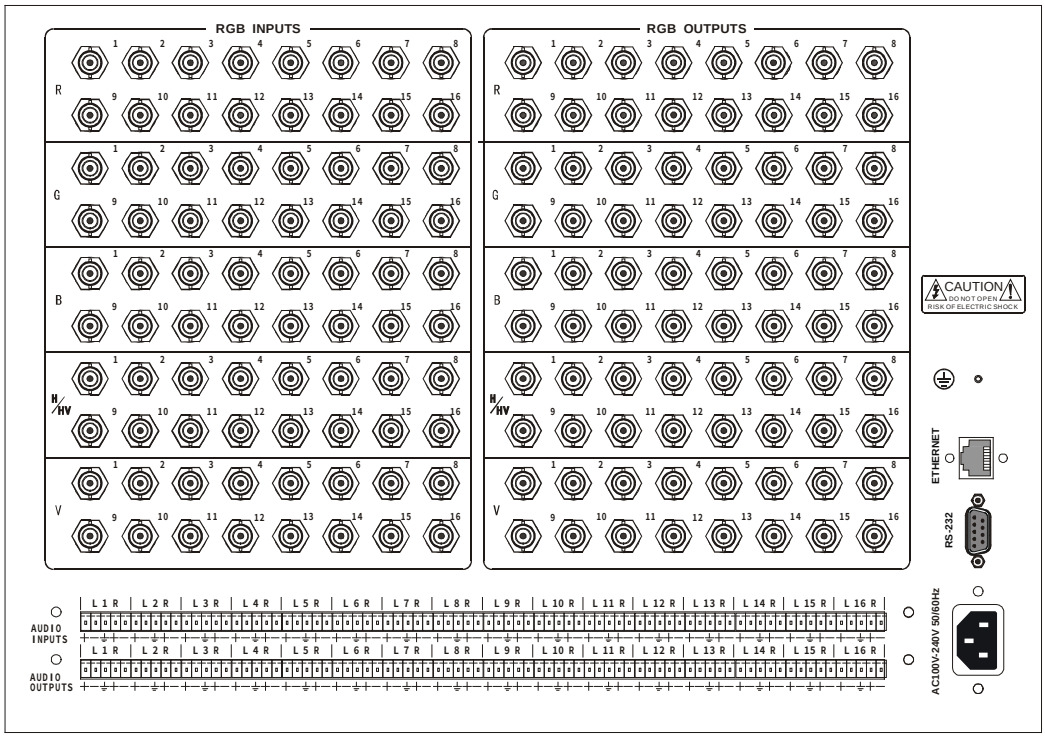
4.2 Rear View of the RGB0802-A,RGB0804-A,RGB0808-A



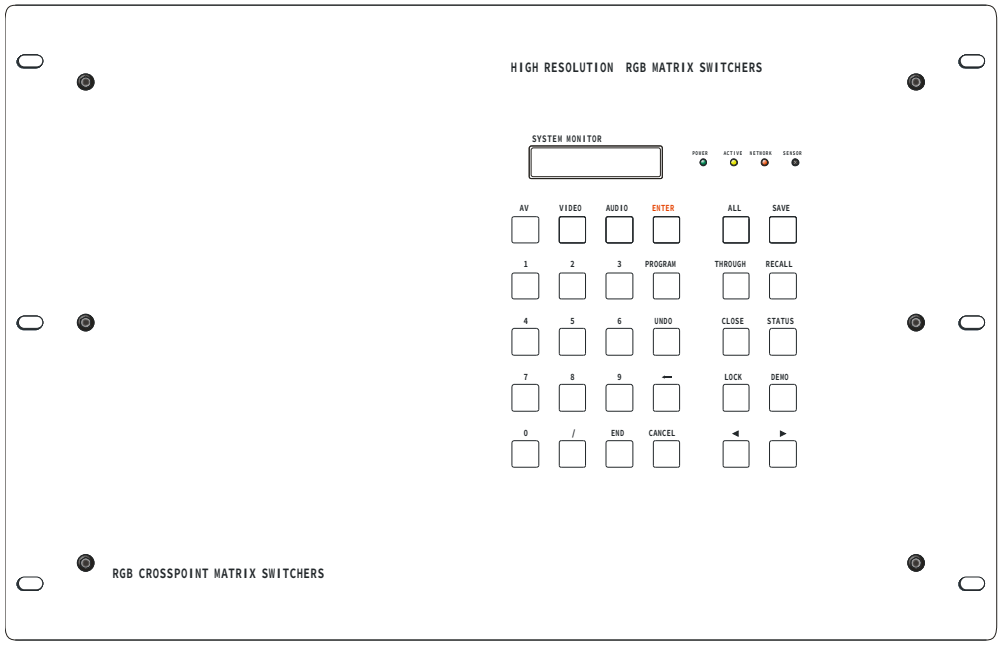
4.3 Front View of the RGB1604-A,RGB1608-A



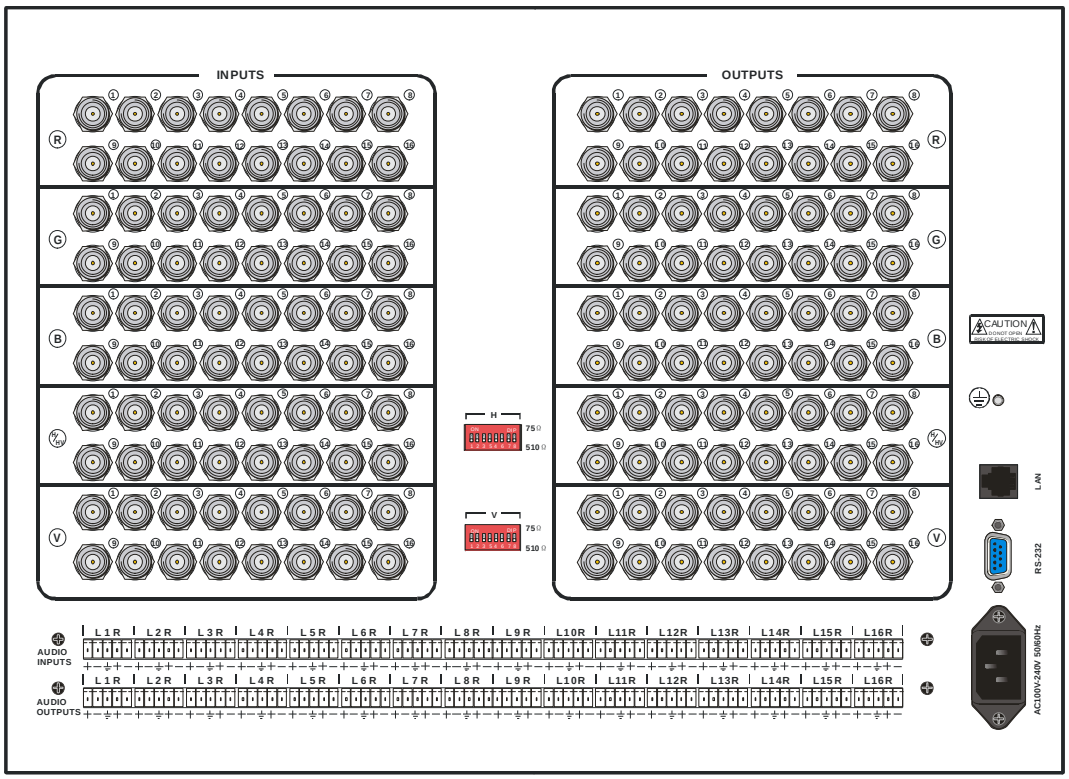
4.4 Rear View of the RGB1604-A,RGB1608-A



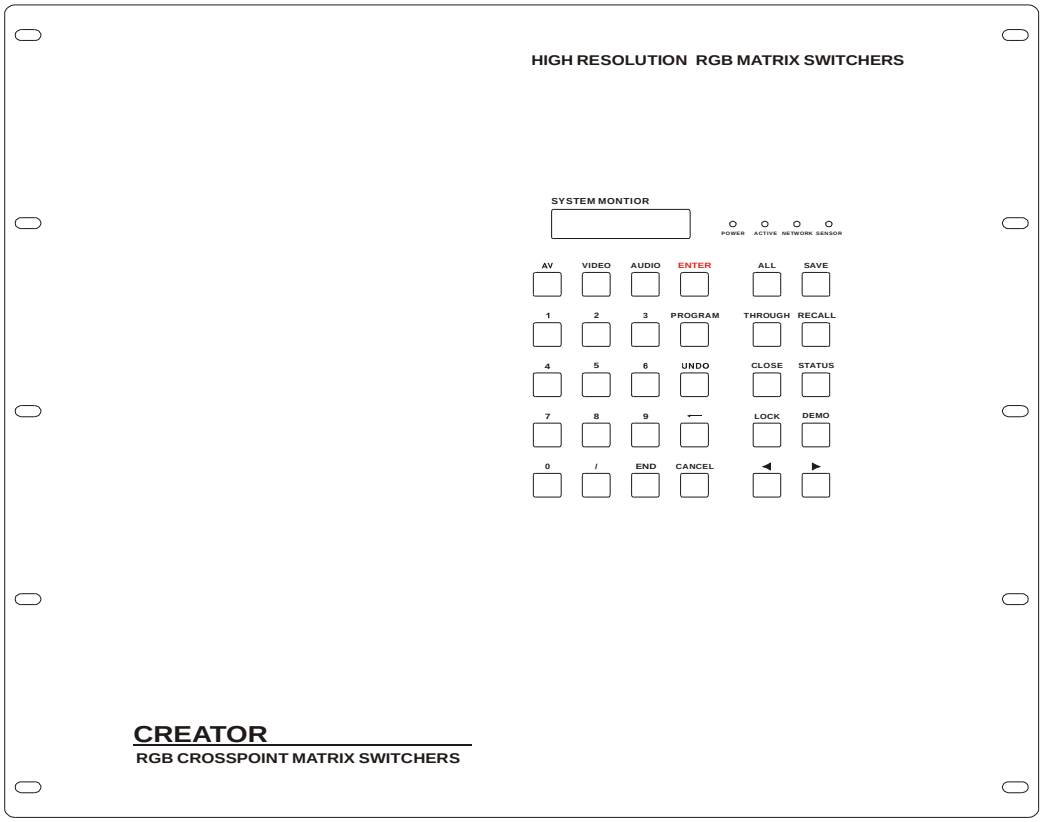
4.5 Front View of the RGB1616-A



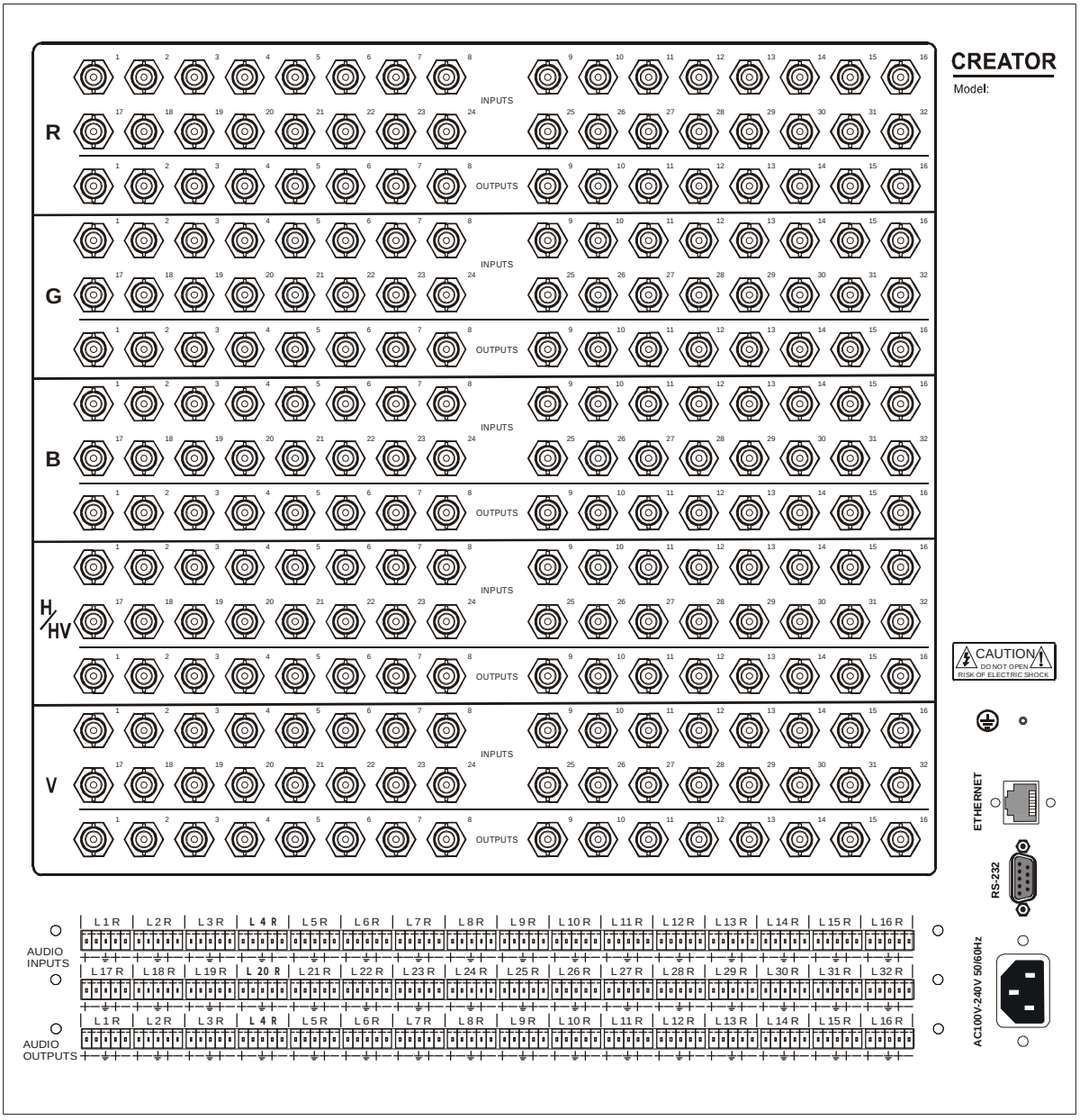
4.6 Rear View of the RGB1616-A



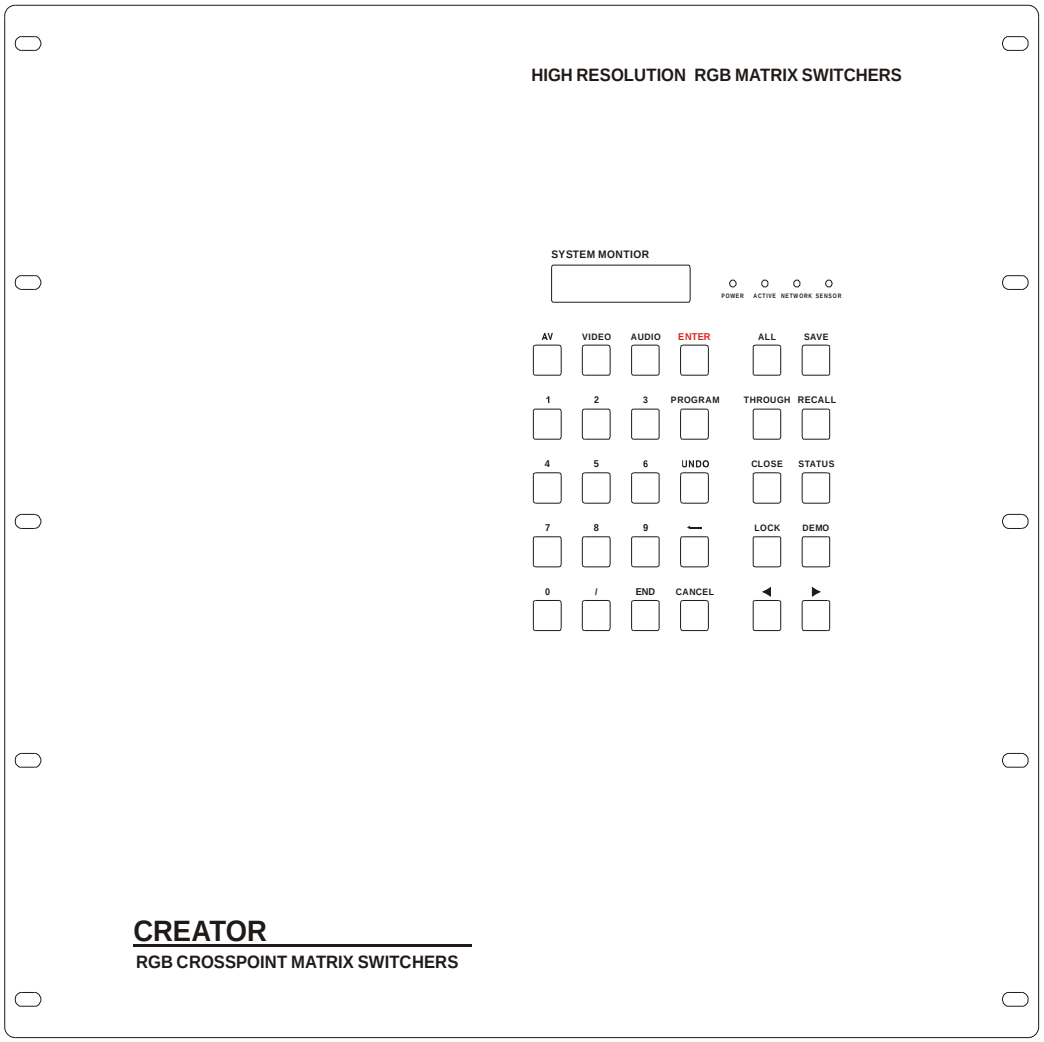
4.7 Front View of the RGB24/3208-A RGB24/3216-A



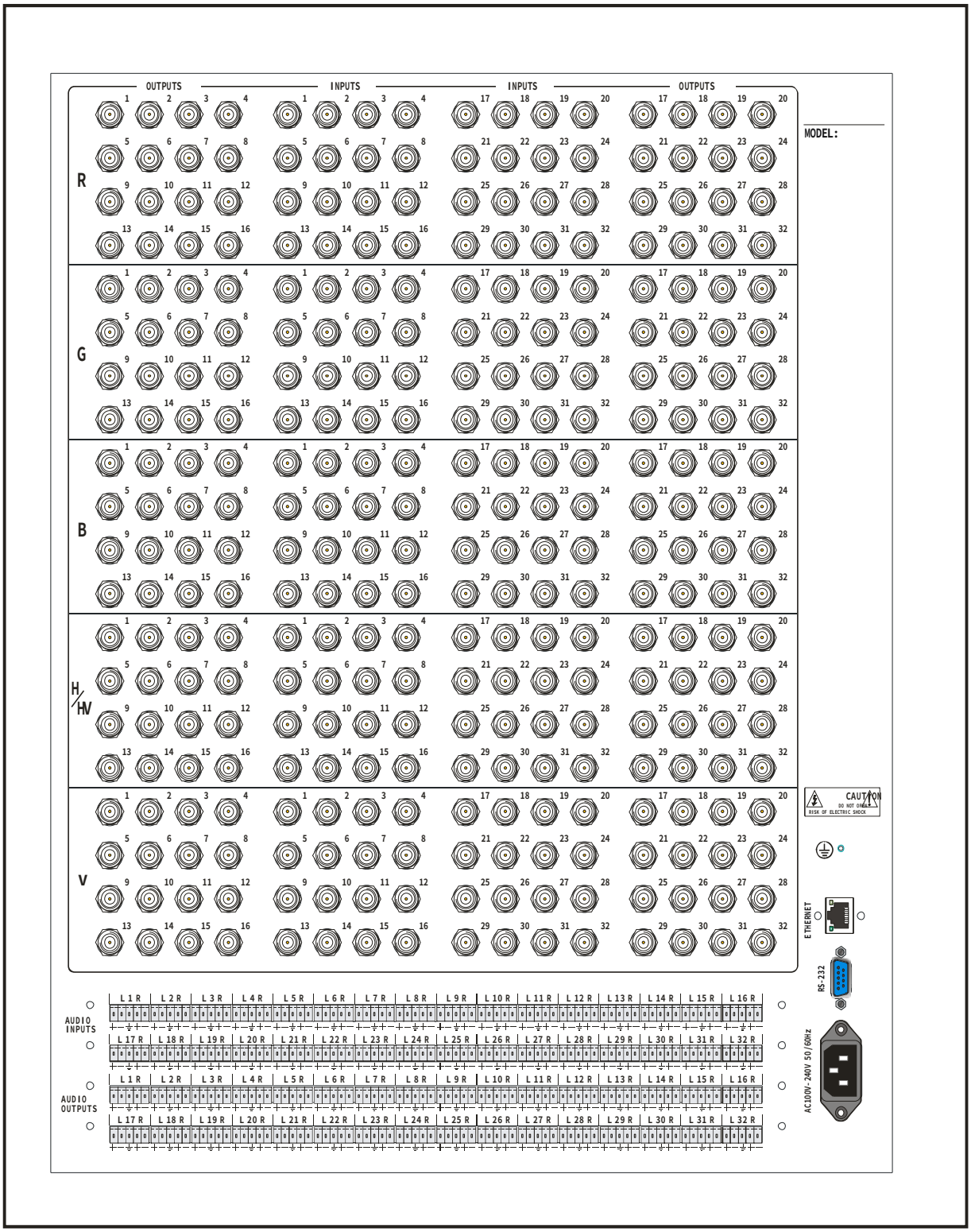
4.8 Rear View of the RGB24/3208-A,RGB24/3216-A



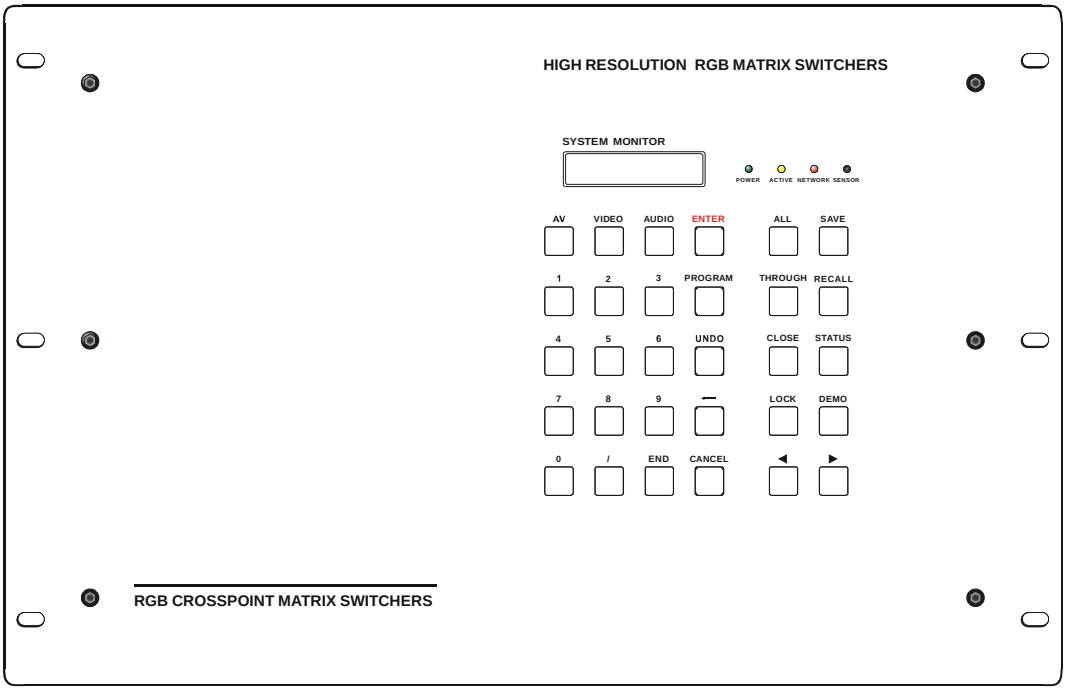
4.9 Front View of the RGB24/3224-A RGB3232-A



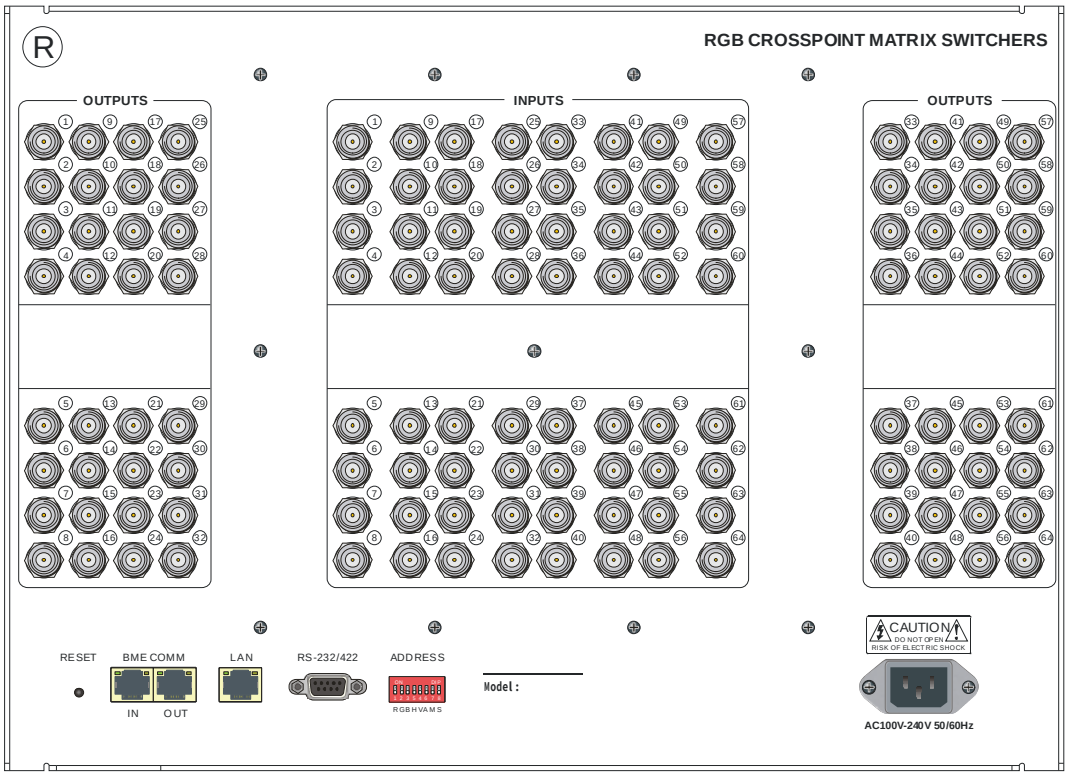
4.10 Rear View of the RGB24/3224-A,RGB3232-A



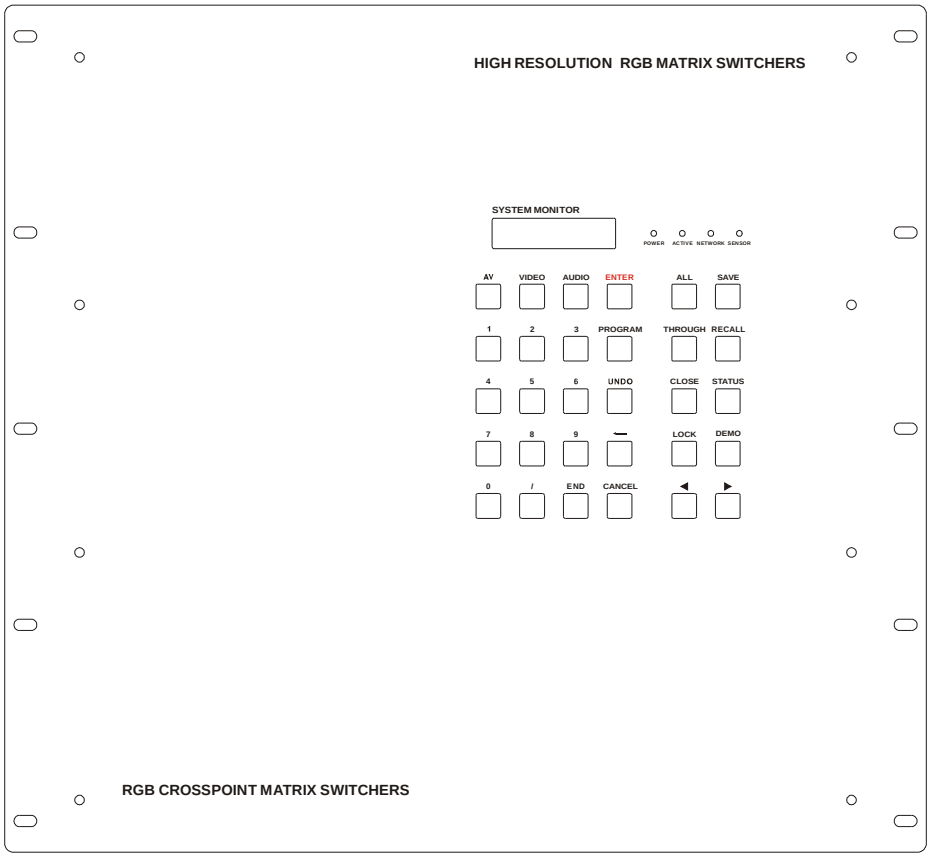
4.11 Front View of RGB48/6424,RGB48/6432,RGB48/6448,RGB6464



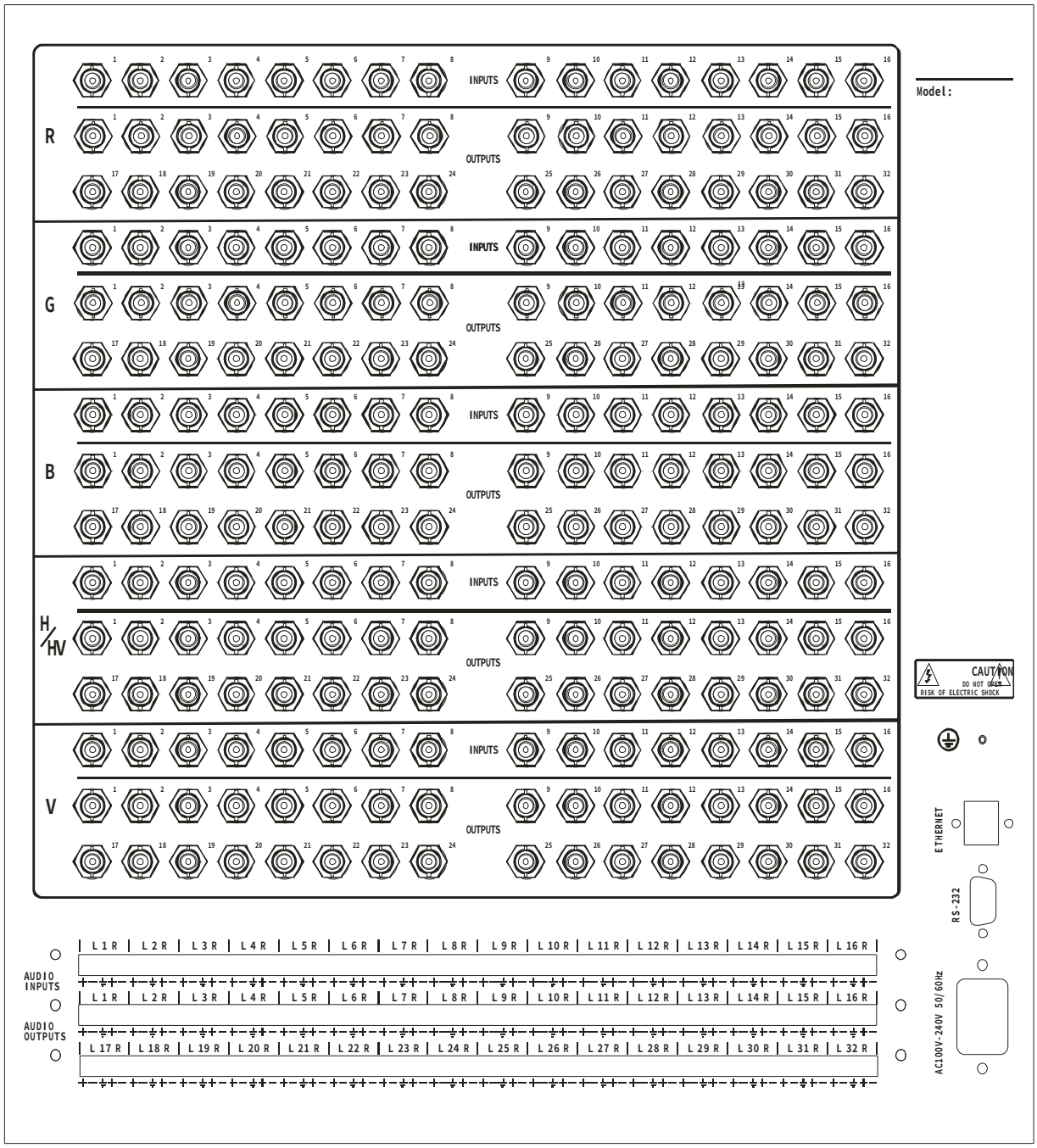
4.12 Rear View of RGB48/6424,RGB48/6432,RGB48/6448,RGB6464(R CH)



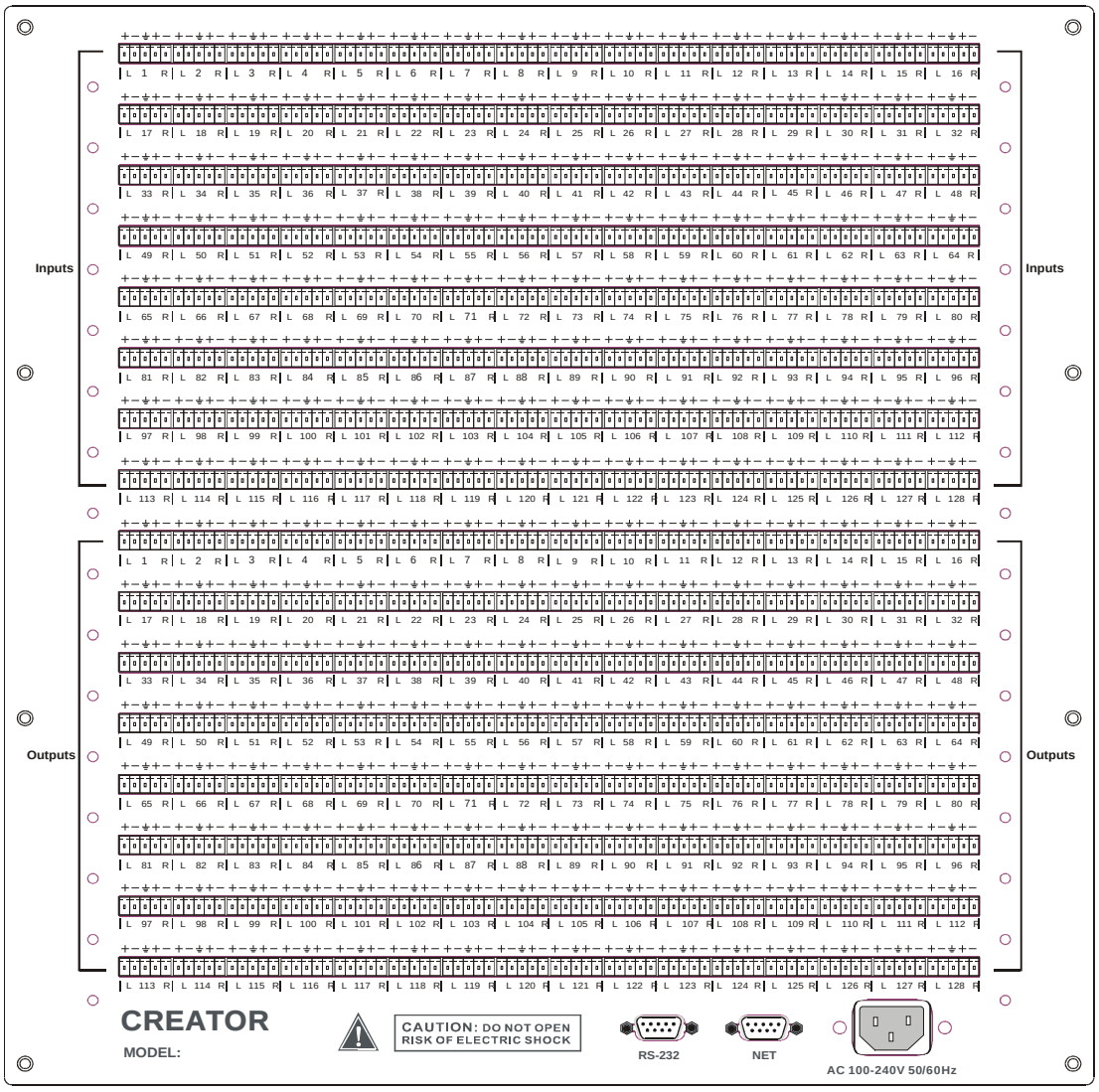
4.13 Front View of RGB08/1624-A,RGB08/1632-A



4.14 Rear View of RGB08/1624-A,RGB08/1632-A



4.15 Rear View of the RGB48/64 Series Audio box



5. External Connection

5.1 Introduction of the Input and Output Connectors

According to different type of matrix, computer signal I/O interface are make up of Channel 8,Channel 16,Channel 24,Channel 32,Channel 48,Channel 64,Channel 96, Channel 128 BNC female terminals, audio signal I/O terminals are make up of Channel 2,Channel 4,Channel 8,Channel 16,Channel 24,Channel 32,Channel 48,Channel 64,Channel 96,Channel 128 3.8mm captive screw connectors. The channel number of RGB16X16 computer signal I/O terminals are form Channel 1 to Channel 16(form left to right, display in two rows), The interfaces are R,G,B,H,V signal terminals of the computer(form up to down),the channel number of audio signal I/O terminals are form Channel 1 to Channel 16(from left to right).Please refer to shell silk-screen figure about other types of interface.

5.2 Connection of RS-232 Communication Port

Except the front control panel, the RGB matrix switcher can be control by far-end control system (Such as PC,CRESTRON control system, AMX control system, CREATOR control system) or through the Ethernet control via the RS-232 communication port.

This RS-232 communication port is a female 9-pin D connector. The definition of its pins is as the table below.

Pin No.	Name	Function
1	N/u	Unused
2	Tx	Transmit
3	Rx	Receive
4	N/u	Unused
5	Gnd	Ground
6	N/u	Unused
7	N/u	Unused
8	N/u	Unused
9	N/u	Unused

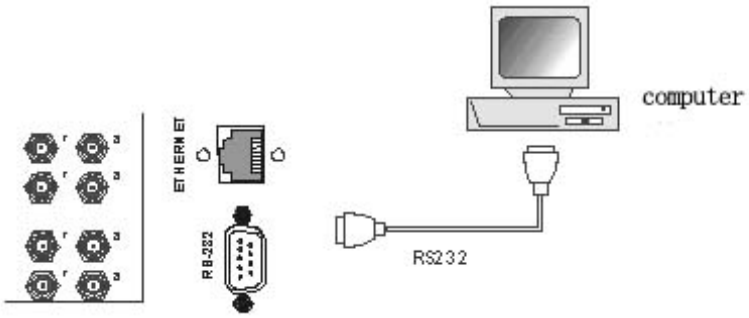
5.2.1 Connection with Control Systems

With the RS-232 port, the RGB matrix switchers can be control by several kinds of control systems.

5.2.2 Connection with Computer

When the switcher connects to the COM1 or COM2 of the computer with control software, users can control it by that computer.

To control the switcher, users may use the application SWITCHER 2.0 in the supplied CD or develop their own control software. Please refer the details in Chapter 10.Communication Protocol and Command Codes



F 5-1 Connection between RGB matrix switcher and the computer

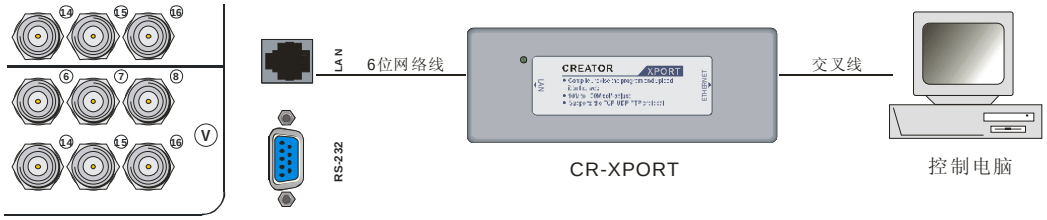
5.2.3 Using Of Ethernet Adapter

5.2.3.1 Connection Of Hardware

There are two ways to connect the RGB matrix switcher and the hardware of Ethernet Adapter.

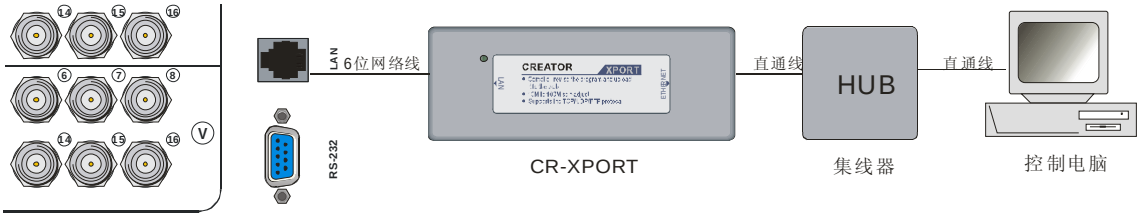
A. Cross connection

The RGB matrix switchers connect to the LAN port of Ethernet Adapter XPORT via 6-bit network connections directly. The Ethernet Adapter connects to the Ethernet port of the computer via CAT-5 across cable directly.



B. The RGB matrix switchers connect to the LAN port of Ethernet Adapter XPORT via 6-bit network

connections directly. The Ethernet Adapter connects to the Ethernet port of the computer via Hub with CAT-5 straight cable.



5.2.3.2 Declaring of across cable and straight cable

We use CAT-5 as wire in this system, connecting network equipment via installing RJ-45 connection in both side of CAT-5. The connection standard of twisted-pair is not set casually, it must ensure the symmetry of the cable connector, so the interference of those cables can be counteract each other. Super CAT-5 wire usually contains 4-pairs thin wire wring together, distinguishing by different colors.

There are two ways to connect the twisted-pair: Standard EIA/TIA 568B and Standard EIA/TIA 568A.

T568A line order							
1	2	3	4	5	6	7	8
Green White	Green	Orange White	Blue	Blue White	Orange	Palm White	Palm

T568B line order							
1	2	3	4	5	6	7	8
Orange White	Orange	Green White	Blue	Blue White	Green	Palm White	Palm

Straight cable: According to Standard T568B in both side.

Across cable: According to Standard T568A in one side, and Standard T568B in another.

5.2.2.3 Configure Declaring Of Ethernet Control Adapter

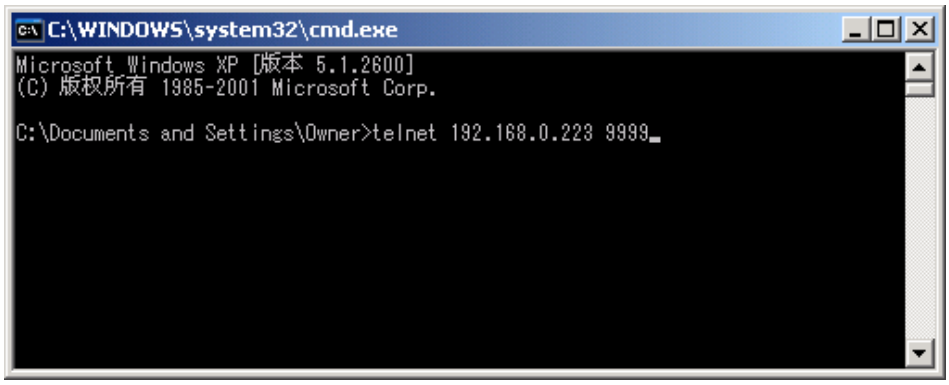
6-bit cable facture:

6-bit cable are used to connect RGB matrix switcher and Ethernet adapter. Connecting crystal-head of two ports just as 1-1, 2-2, 3-3 … 6-6.

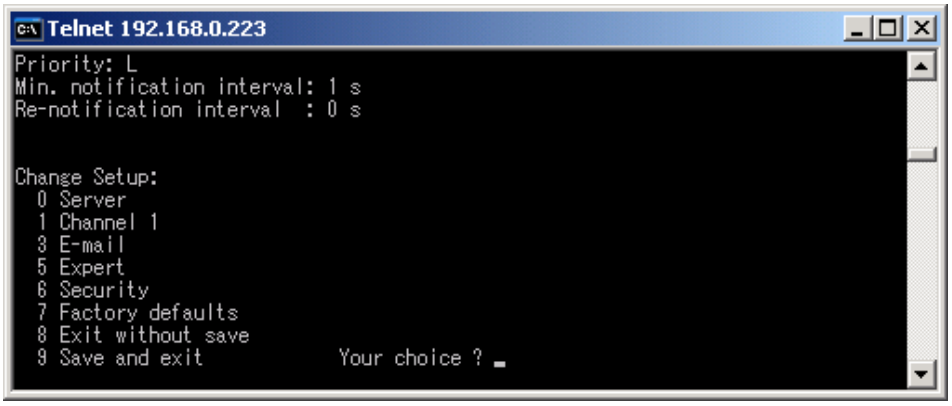
A. Modify the IP Address of Ethernet control adapter.

Suppose the old IP address of Ethernet control adapter is 192.168.0.223

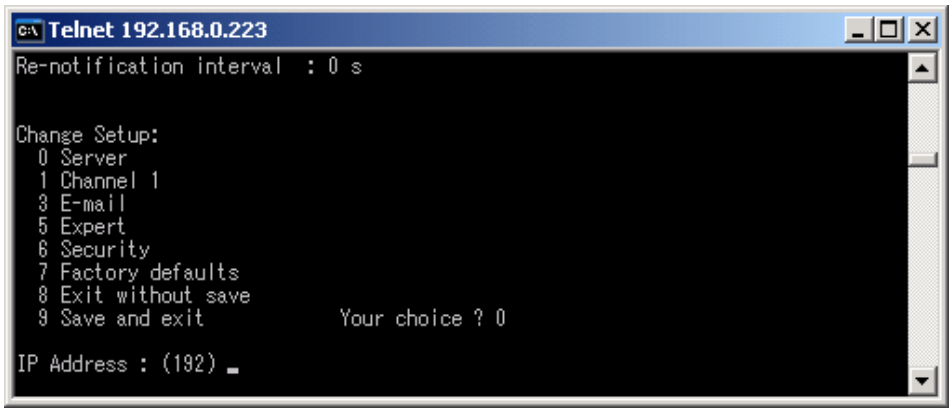
Step1: AS the graph shows, input “telnet 192.168.0.223 9999, Enter”, then display reminding information. Input “Enter” again, turn into the main setup interface.



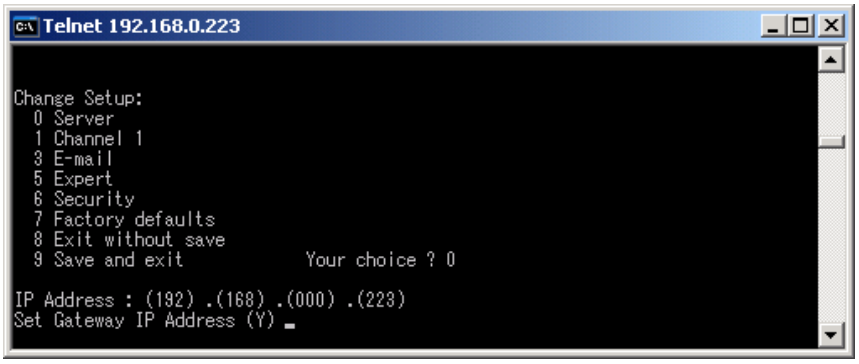
Step 2: Main control interface as follow, reminding you to choose the options you want to modify.



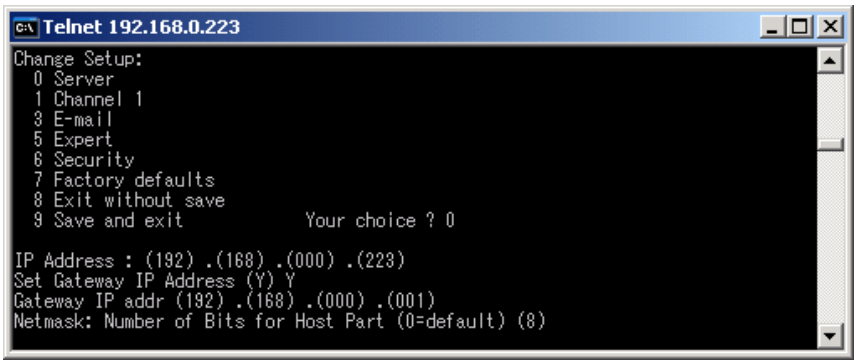
Step 3: We choose 0 Server 1 channel 1 to setup here. Input “0, enter”.



Step 4: Now the system would display the head of the IP Address 192.168.0.223, “192”, if you want to change it for “193”, input the number”193, Enter”, finish the modification of head. Now the system would display the second segment of the IP Address (193), (168); you can modify them one after another. Finish all the modification after input “Enter” for four times. Now the system remind you that whether to change the gateway.



B. Modify the gateway of Ethernet control adapter.
Modifying segments one after another, input “Enter” after each segment. As follows,”192.168.0.1”

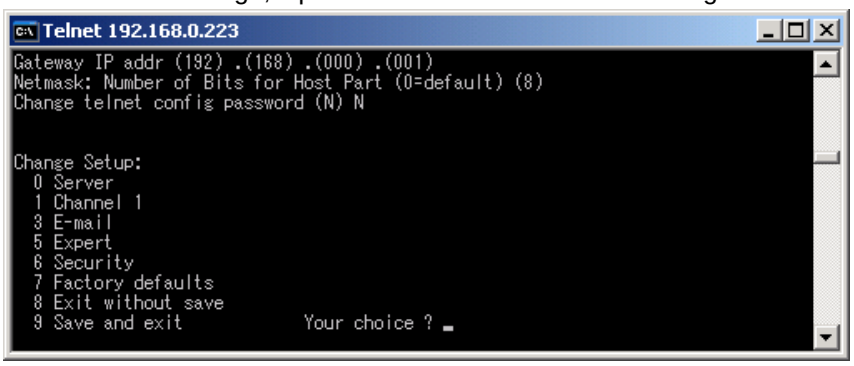


C. Modify the netmask of Ethernet control adapter

Choose default 0 will be OK.

D. Modify the telnet config password of Ethernet control adapter

Needless to change, input “Enter” to return the main configure menu.



E. SAVE(Y/N) configure of Ethernet control adapter.

In the main configure menu, input “9, Enter”, Save the settings and quit.

In the main configure menu, input “8, Enter”, Quit and not save.

F. Please refer to “Ethernet control adapter Using Manual” for the details.

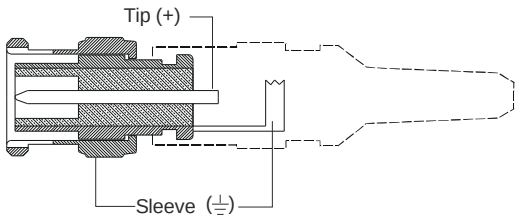
5.3 How to Connect with the Input and Output Terminals

The RGB matrix switchers may take DVD players, computers, graphic workstations and digital showing platform as their input signal source, and projectors, video recorders, displayers and amplifiers as their output signal destinations according to different situation.

RGBHV connection:

The RGB matrix switchers support the AV video and VGA signal source. RGBHV signal output terminals or YC output terminals are needed in AV device; RGBHV signal output terminals are needed in VGA device.

The BNC connector is shown as the figure below.



BNC Connector

If the VGA device doesn’t with RGBHV output terminals, please convert the signals with a VGA to RGB

switcher for getting high quality RGB output effects.
Please use the special five core RGB signal cord to connect the input and output devices and connect the BNC connector R(red),G(green),B(blue),H(horizontal),V(vertical)carefully.
Attention:
Please make sure the RGBHV connectors from the source and to the destination should be in the same order, otherwise it world cause color loss or no output signal at all.

Audio signal connection:

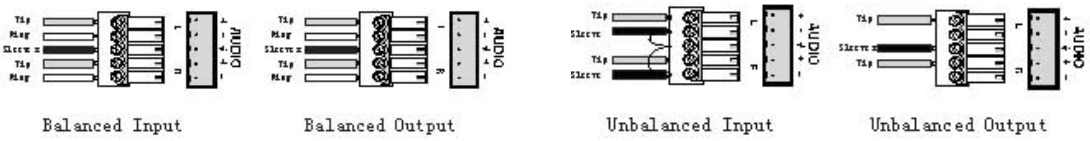
“AUDIO INPUT”, “AUDIO OUTPUTS” audio network interface in RGB matrix switchers can be connected to the audio signal and amplify of the DVD player.

Audio connection is little complicated than video. It has two kinds of connection: balanced and unbalanced.

The balanced connection transmits a pair of balanced signals with two signal cords. Because interferences will have the same intensity and the opposite phases on the two signal cords, it will be counteracted in the end. For the low frequency extent of the audio signal, it would be easily interfered under long distance transmission. Therefore,as an anti-interference connection , it is mostly used in audio connection of special device.

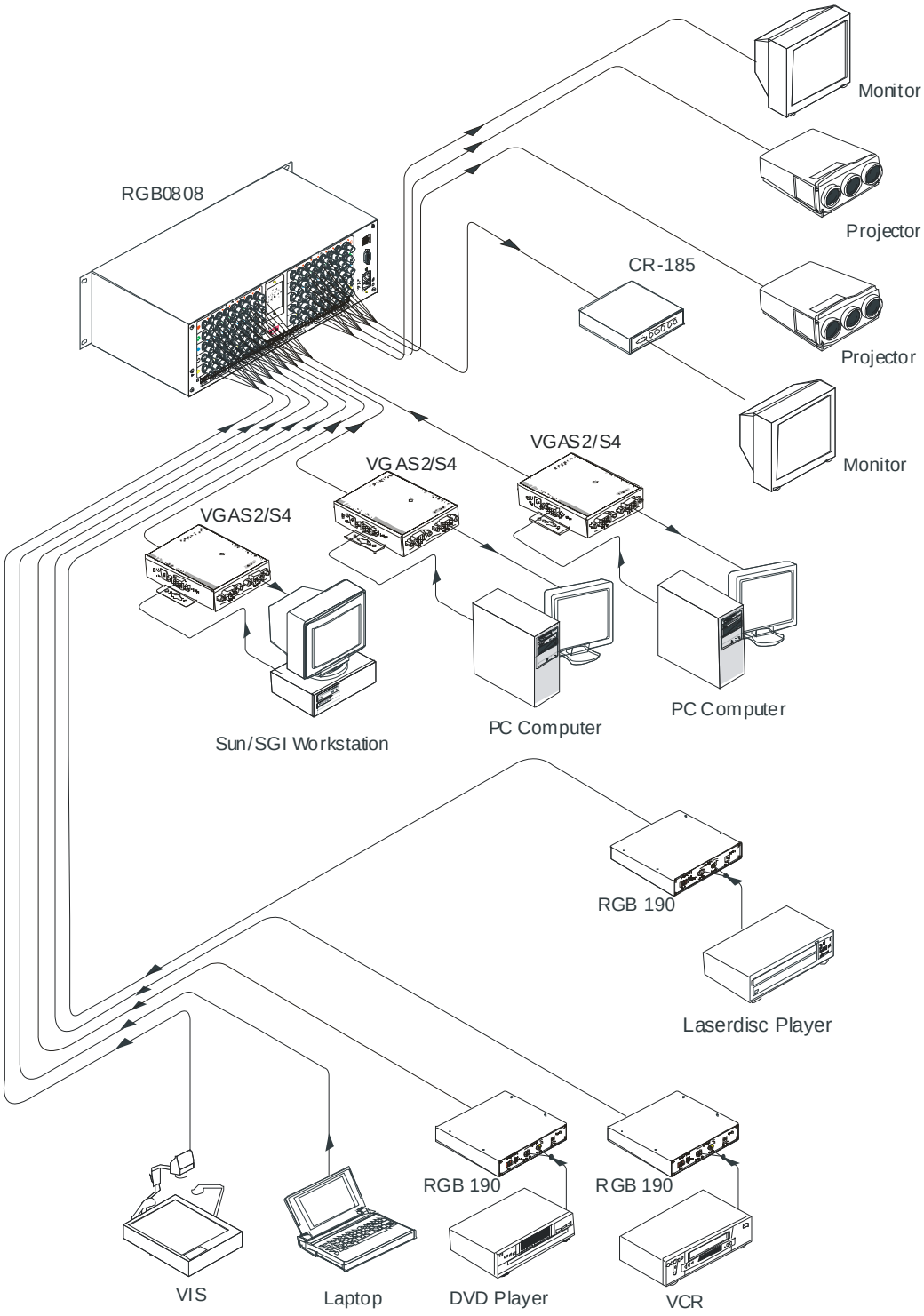
The unbalanced connection transmits signals only with a signal cord. Without counteraction, it can be interfered more easily. Accordingly, it is adopted for household appliance or some cases with low technical demand.

Take the audio signal line for example: 1.Unbalanced: pin “G” connect to SLEEVE, pin “+” connect to TIP, pin “－” connect to pin “G”; 2.Balanced: pin “G” connect to SLEEVE, pin “－” connect to RING, pin “+” connect to TIP. As shown in the F 6-3:



F 5-3 Balanced/unbalanced connection on captive screw connector

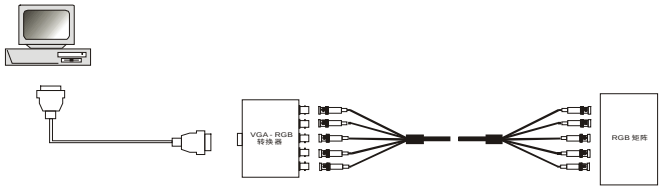
To select which connection is up to the interface of the device. When available, the balanced connection is the first choice. Before connection, please read the command or relevant demand in the user manual carefully. In some cases, maybe there is balanced in source signal end but unbalanced in the destination end. If in a nonstandard case, it is done to connect balanced for the balanced end and unbalanced for unbalanced end. But if in a standard one, the converter must be used to switch the signals as the same, balanced or unbalanced.



F 5-4 Connection of RGB matrix switcher system

5.4 How to Connect with the VGA/RGB Signal Converter

VGA/RGB signal converter is for the VGA signal source without RGB output ports, such as: desktop computers and notebooks. It can convert the VGA signals to RGBHV signals.



F 6-5 Connection of VGA/RGB converter

5.5 Declaring of RGB48/6424,RGB48/6432,RGB48/6448,RGB6464

5.5.1 Connection of RGB48/6424,RGB48/6432,RGB48/6448,RGB6464

Step1,Set one box as the main control box. Choose box R as main control box as example, then must turn the “R” and “M” in the “Address” of R box backboard to the state “On”; Turn the others to the state “Off”, and finish the selection of main control box. Other boxes are all slave.

Set “G” and “S” of G box to the state “On”, others the state “Off”.

Set “B” and “S” of B box to the state “On”, others the state”Off”.

Set “H” and “S” of H box to the state “On”, others the state “Off”.

Set “V” and “S” of V box to the state “On”, others the state “Off”.

Step 2,Using CAT-5 ordinary net wire, connect from OUT port of the backboard BME COMM of main control box, to IN port of the backboard of the first slave control box directly. Connect from OUT port of the backboard BME COMM of the first slave control box, to IN port of the backboard BME COMM of the second slave control box directly. Repeat above steps until the fourth slave control box. Treating the five boxes as a whole, and connect it to the outside throughout main control box.

5.5.2 Function of RGB48/6424,RGB48/6432,RGB48/6448,RGB6464 control box

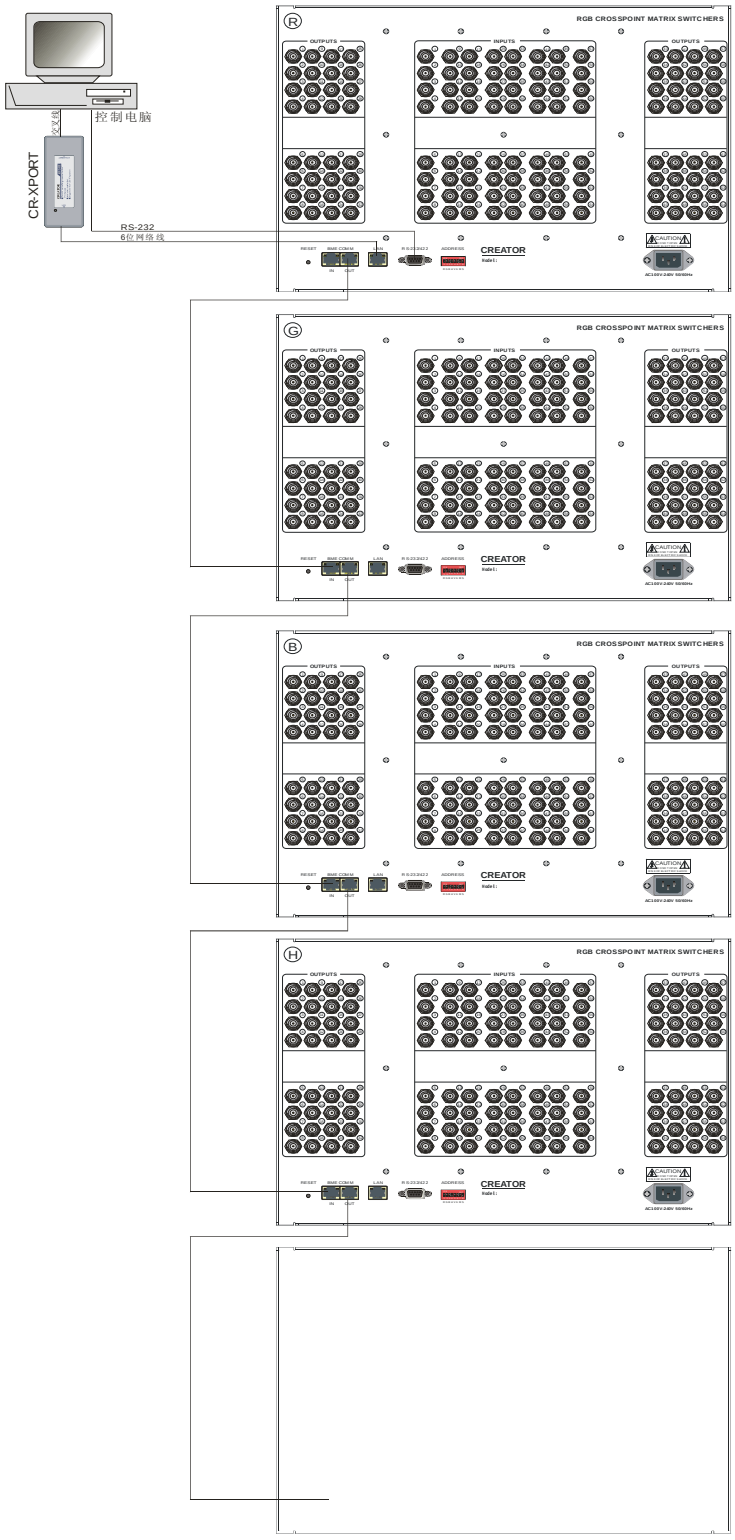
① RESET. Press the button “RESET” of main control box with assistant tools, it can put all the slave boxes to the state of replacement, equivalent to the operation of electrify]

② When the communication ports of BME COMM box are in the main control box, it is needless to connect the”IN” ports. Orange LED lightening on the ports means sending data, green LED lightening means receiving data.

③ LAN port. LAN port of mail control box is availability. When connected to the Ethernet adapter, it can make the function of Ethernet control.

④ RS-232/422 port in main control box is availability. Realizing the function of RS-232 control when connected to computer. This port can be connected to the PGM II host produced by our company, realizing the control function of RS-422.

⑤ ADDRESS is used to appoint the identification address, availability when put it to “ON”. R,G,B,H,V,A(Audio) represent five video boxes and one audio box. Any two boxes can not be set with the same identification address. M(Master) appoint main control box while S(Slave) appoint slave control box. Only one main control system can be set simultaneity, others are all set to be slave control boxes.



F 5-6 Connection of RGB matrix switcher

6. Operation of the Control Panel

6.1 Front Panel Description

LCD display: Real time monitor of the operations and status

"0, 1,…,9" Keypad: Keys to select I/O channels and save/recall preset commands

"AV" AV synchronal button: To transfer video and audio signal synchronously by the switcher

Example: To transfer both the video and the audio signals from input channel No.3 to output channel No.6.

Operation: Press buttons in this order "3", "AV", "6", "END", "ENTER"

"VIDEO" Video button: To transfer only video signals from input channel to output channel

Example: To transfer video signals from input channel No.3 to output channel No.10.

Operation: Press buttons in this order "3", "VIDEO", "1", "0", "END","ENTER"

"AUDIO" Audio button: To transfer only audio signals from input channel to output channel

Example: To transfer audio signals from input channel No.12 to output channel No.6.

Operation: Press buttons in this order "1", "2", "AUDIO", "6", "END","ENTER"

" / " Break button: To break different channels in a command

Example: To transfer video and audio signals from input channel No.1 to output channel No.2,13,6 at the same time

Operation: Press buttons in this order "1", "AV", "2", "/", "1","3", "/", "6", "END", "ENTER"

"END" Ending command button: To finish inputting a command

"ENTER" Performance button: To perform a command after inputting it

"ALL" All button: To transfer an input channel to all output channels or switch off all the output channels

Example1: To transfer video and audio signals from input channel No.7 to all output channels

Operation: Press buttons in this order "7", "ALL"

Note: This command need not follow by "END" & "ENTER"

Example2: **To transfer all input signals to the corresponding output channels respectively. In another word, to switch to this status:** 1->1, 2->2, 3->3, 4->4••••••16->16.

Operation: Press buttons in this order "ALL", "1"

Example3: To switch off all the output channels

Operation: Press buttons in this order "ALL", "2"

"SAVE" Save button: To save the present operation to a preset command

Example: To save the present operation to the preset command No.2

Operation: Press buttons in this order "SAVE", "2"

Note: There are altogether 10 preset commands ranged from No.0 to No.10.

"RECALL" Recall button: To recall the preset command

Example: To recall the preset command No.2

Operation: Press buttons in this order "RECALL", "2"

"CANCEL" Cancel button: To return to the standby status without performing any command
Example: To cancel the input instructions "1", "AV", "2", "END"
Operation: Just press button"CANCEL" after the above inputs

"STATUS" Inquiring status button: To inquire the present status
Example1: To inquire the status of output channel No.7
Operation: Press buttons in this order "7", "STATUS"
Example2: To inquire the status of all the output channels one by one
Operation: Press only the button "STATUS"

"UNDO" Undo button: To resume to the status before the command just performed

"PROGRAM" Group programming button: To define, recall and clear a group of output channel
Example1: To group the output channels No.1,2,3,4,5 under the Group1
Operation: Press buttons in this order "1", "Program", "Program", "1", "2", "3", "4", "5"
Example2: To transfer signals from input channel No.1 to Group2
Operation: Press buttons in this order "1", "Program", "2"
Example3: To clear the output channels under Group1
Operation: Press buttons in this order "1", "Program", "0"
Note: Please clear the group to be set before grouping it.

" ← " Backspace button: To backspace the latest input button

"THROUGH" Through button: To transfer the signals directly to the corresponding output channels
Example: To transfer the signals from input channels No.1,2,3 to their corresponding output channels
Operation: Press buttons in this order "1", "/", "2", "/", "3", "THROUGH"

"CLOSE" Close button: To switch off the output channels
Example: To switch off the output channels No.1,2
Operation: Press buttons in this order "1", "END", "2", "END", "CLOSE"

"LOCK" Lock button: To lock buttons on the front control panel by pressing it for 3 seconds
Note: When the control panel is being locked, the switcher still can be control via the RS232 port. To unlock it, a password is needed.

"DEMO" Demo button: To demonstrate the commands one by one every 3 seconds

6.2 Command Format of the Switching Operation

With the front control panel, the switcher could be control directly and rapidly by pressing the buttons under below format. Please refer the details in **7.1 Front Panel Description.**

Operating Method:

"Input Channel" + "Switching Mode" + "Output Channel 1" + "/" +"Output Channel 2" + "END"+ "ENTER"

"Switching Mode": **"AV", "Audio", "Video"**

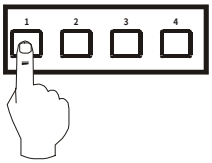
"Input Channel": Fill with the number of input channel to be controlled

"Output Channel": Fill with the number of output channels to be controlled

6.3 Examples of Operation

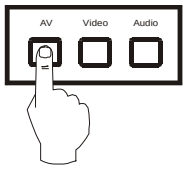
Example 1,To transfer video and audio signals from input channel No.1 to output

channel No.3,4



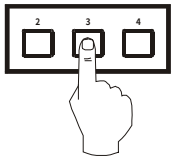
Input Command:
1

1,Press the button for input channel number"1"
Display feedback on LCD: "1" for the input channel



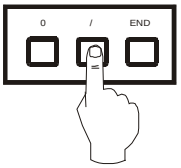
Input Command:
1B

2,Press the button for switching mode "AV"
Display feedback on LCD: "B" for the switching mode of video and audio ("A" for the switching mode of audio only; "V" for the switching mode of video only)



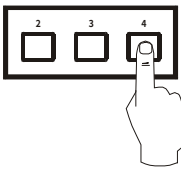
Input Command:
1B3

3,Press the button for the first output channel number "3"
Display feedback on LCD: "3" for the first output channel



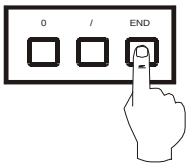
Input Command:
1B3,

4,Press the break button"/"
Display feedback on LCD: "," for a break between two channels in a command



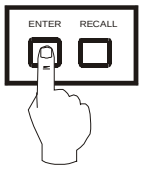
Input Command:
1B3，4

5,Press the button for the second output channel number "4"
Display feedback on LCD: "4" for the second output channel



Input Command:
1B3，4.

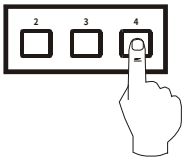
6,Press the button"END" to finish the command
Display feedback on LCD: "." for the end of a command

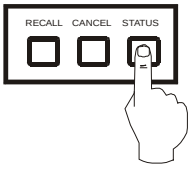


1B3,4.
Switch OK

7,Press the button "ENTER" to perform this command
Display feedback on LCD: "Switch OK" for the successful performance of switching

Example **2**: To inquire the status on the output channel No.4
Operation: Press buttons in this order "4", "STATUS"





VIDEO: 3 → 4
AUDIO: 2 → 4

Display feedback on LCD: The video signal of output channel No.4 is transferred from the input channel No.3 and the audio signal is from the input channel No.2

7. Usage of the Remote Controller (Optional Accessory)

With the optional infrared remote controller, the matrix switcher could be control remotely. Because the function buttons on the remote controller are the same with the ones on the front control panel, the remote controller shares the same control operation and command format with the control panel. Please refer the details in **Chapter 6 Operation of the Control Panel**.

8. Operation of the Switcher Application

8.1 Introduction of SWITCHER 2.0

SWITCHER 2.0 is a matrix switcher control application compatible with switchers with different input and output channels.

8.1.1 About the Application

SWITCHER 2.0 is developed for matrix system test and control. Its running condition is as below:

Operating System: Window98/2000/NT

Memory: At least 32M

Space in hard disk: At least 10M

CD-ROM

COM Port

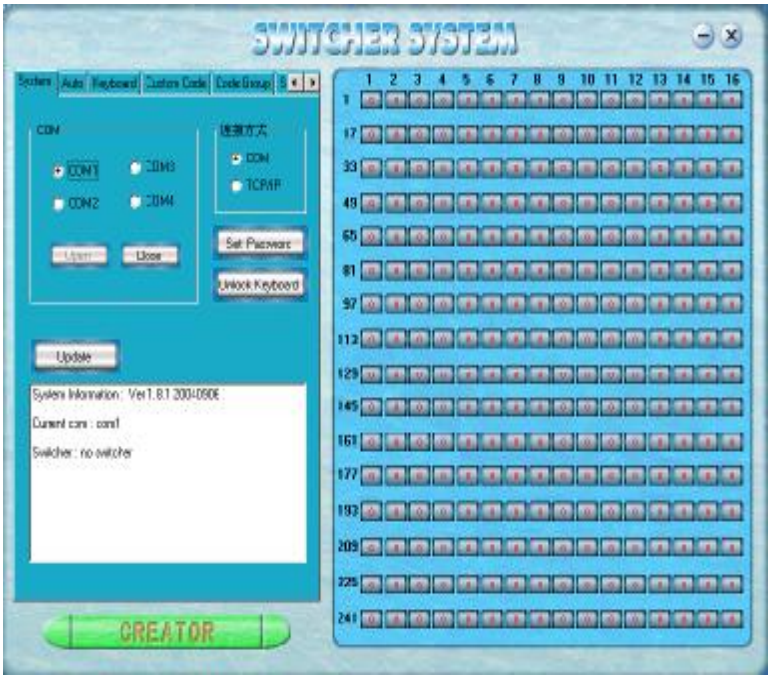
8.1.2 Starting the Application

Firstly, connect the matrix switcher and computer via their RS232 ports with the cord supplied in the package. (Please refer to **6.2.2 Connection with Computer** for details).
Secondly, turn on the power of the matrix switcher and computer.
Thirdly, run the application **SWITCHER 2.0** at the computer.

8.2 Functions of the Application

According to practical needs, user can select and operate at different function tabs such as SYSTEM, AUTO, KEYBOARD, CUSTOM CODE, CODE GROUP and SEND/RECEIVE CODE LIST.

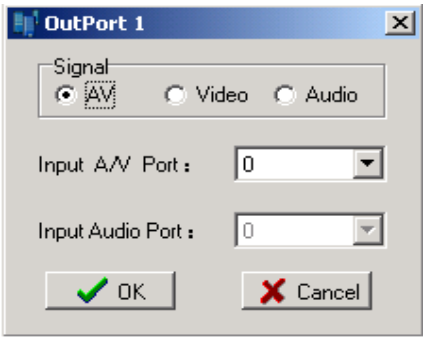
The interface of main window is as below:



F 8-2 The interface of main window

8.2.1 Interface Description

In the right hand of the main window, there are 256 buttons standing for the 256 output channels. When clicking on the button, say output 1, the dialogue **OutPort 1** like the graph at right will come up.



"SIGNAL": Select the switching mode among "AV", "VIDEO" and "AUDIO"

"INPUT A/V PORT": Select an input A/V channel

"INPUT AUDIO PORT": Select an input audio channel

8.2.2 Description of SYSTEM Tab

Startup

Choose SYSTEM Tab from the main window. (F 8-2)

Description

"连接方式": Select the communication mode between "COM" or "TCP/IP"

"COM": Select a COM port to control the switcher (if select the "TCP/IP" as the communication mode, this sub-page will appear as an IP input blank for the address of switcher)

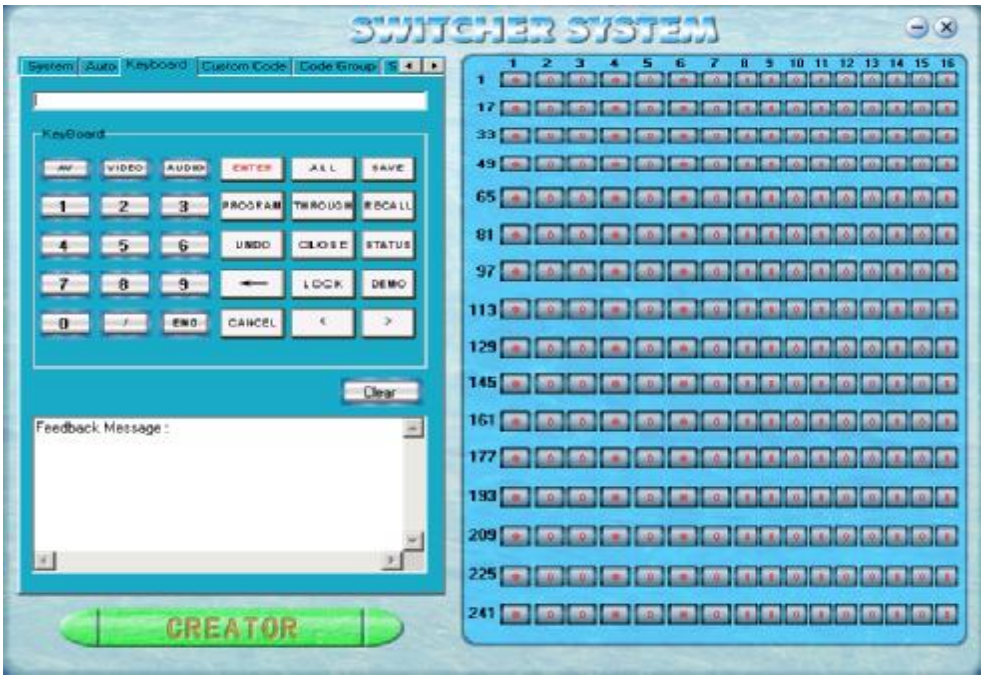
"Set Password": Set the password for the control panel on the Matrix (The password should be an 8 digits number)

"Unlock Keyboard": Unlock the keyboard of the control panel on the Matrix

8.2.3 Description of KEYBOARD Tab

Startup

Choose KEYBOARD Tab from the main window. (F 8-3)



F 8-3 Keyboard tab

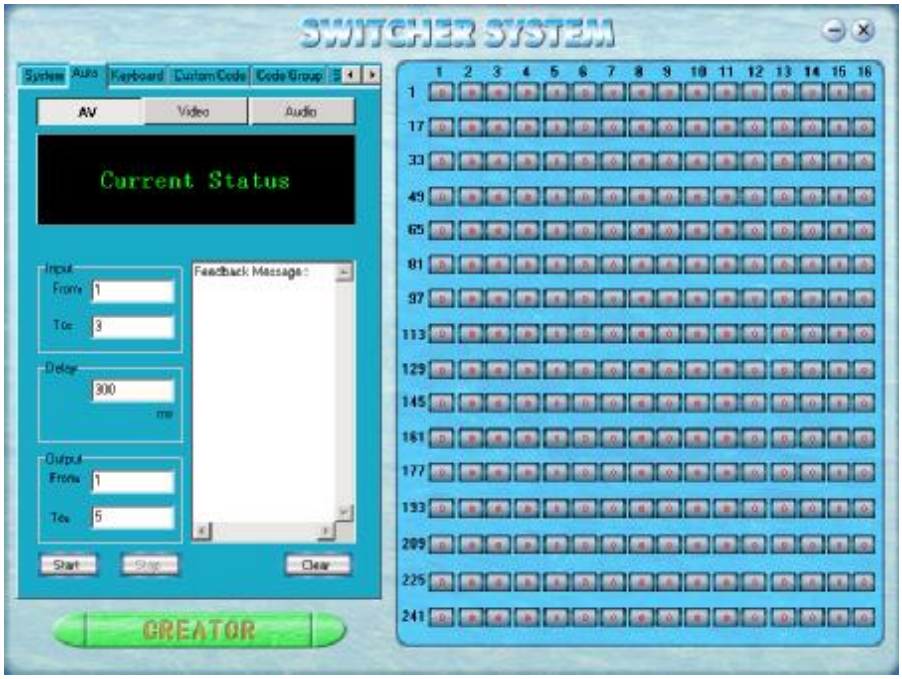
Description

Because the function buttons on this tab are the same with the ones on the front control panel, it shares the same control operation and command format with the control panel. Please refer the details in **Chapter 7 Operation of the Control Panel**.

8.2.4 Description of Auto Tab

Startup

Choose the Auto Tab from the main window. (F 8-4)



F 8-4 Auto Tab

Description

This function tab is used to test the matrix switcher after connecting it to all the input and output devices. For example, to test the function of an RGB64X32 matrix switcher, the Auto Tab is set as below after finishing all the connection.

Switch Mode: “AV”

INPUT: From 1 to 64

OUTPUT: From 1 to 32

Delay: 1000ms (1 second)

When click on the button “START” to perform this test, the matrix switcher will:

Transfer the signals from the input channel No.1 to the output channel No.1-32;

Transfer the signals from the input channel No.2 to the output channel No.1-32;

.....

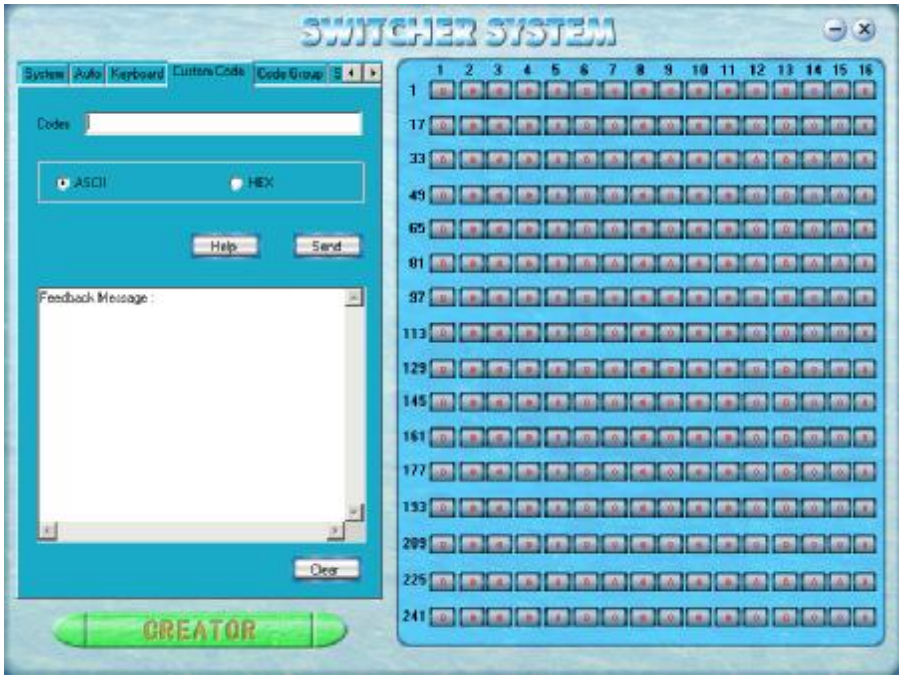
Transfer the signals from the input channel No.64 to the output channel No.1-32;

This switching test will perform in this way one by one every one second until the test is over.

8.2.5 Description of Custom Code Tab

Strarup

Choose the Custom Code Tab from the main window. (F 8-5)



F 8-5 Custom Code Tab

Description

Format: Select the format of command codes between ASCII and HEX (For the format details, please refer to the **Chapter 10. Communication Protocol and Command Codes**)

Help: Click this button to read the explanation of commands

Send: Click this button to send out the command

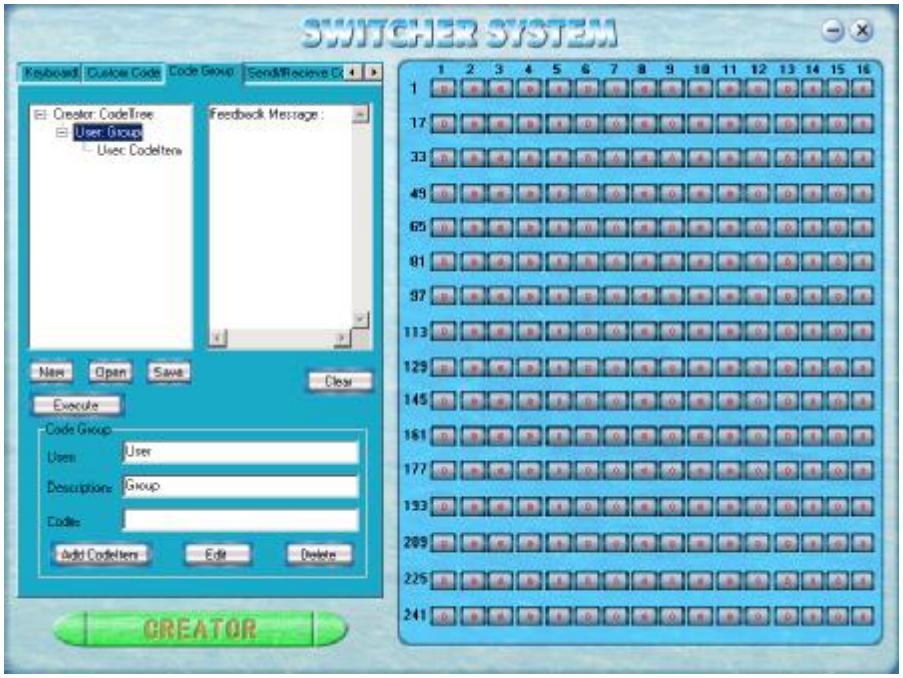
For example, to transfer the video and audio signals from the input channel No.1 to the output channel No.7, and the audio signals from the input channel No.2 to the output channel No.4, just perform the several steps below.

1. Select the “ASCII” as the command codes format;
2. Input the command codes “1B7.2A4.” at the blank of Codes;
3. Click the button “Send” to perform it.
4.

8.2.6 Description of Code Group Tab

Startup

Choose the Code Group Tab from the main window. (F 8-6)



F 8-6 Code Group Tab

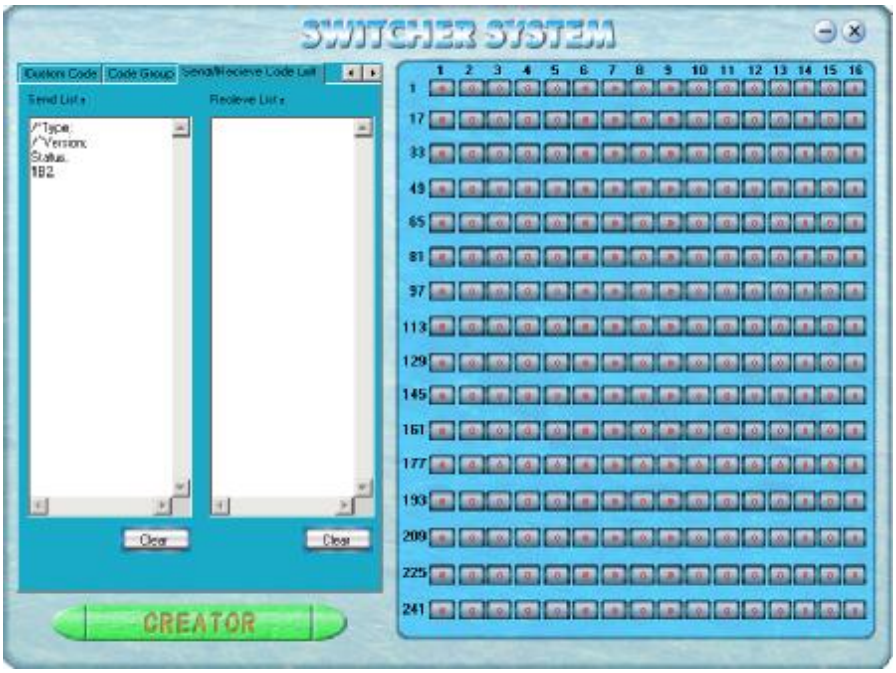
Description

New: To new a group of preset commands
Open: To open a group of preset commands
Save: To save the present group of preset commands
Execute: To execute a selected preset command or a selected group of preset commands
Clear: To clear the feedback window
Add CodeItem: To add another new group of preset commands
Edit: To edit the User's name (User), the Group's name (Description), the Code of command (Code)
Delete: To delete the selected group

8.2.7 Description of Send/receive Code List Tab

Startup

Choose the Send/receive Code List Tab from the main window. (F 8-7)



F 8-7 Send/receive Code List Tab

Description

Send List window: A send list of command code
Received List window: A feedback list from the switcher
Clear: To clear the two lists

9. Communication Protocol and Command Codes

With this command system, the application “Switcher 2.00” is able to control and operate the RGB Matrix with remotely.
Communication protocol:
Baud rate: 9600 Data bit: 8 Stop bit: 1 Parity bit: none

Command Types	Command Codes	Functions
System Command	/*Type;	Inquire the models information.
	/+xxxxxxxx;	Rewrite the password of the control panel on the Matrix. The new password, xxxxxxxx, should be an 8 digits number.
	/%Lock;	Lock the keyboard of the control panel on the Matrix.
	/%Unlock;	Unlock the keyboard of the control panel on the Matrix.
	/:BellOff;	Turn off the buzzer.
	/:BellOn;	Turn on the buzzer.

	/^Version;	Inquire the version of software
	/~CREATOR20;	Switch to the CREATOR2.0 command system.
	[x1]All.	Transfer signals from the input channel [x1] to all output channels
Operation Command (CREATOR2.0 Command System)	All#.	Transfer all input signals to the corresponding output channels respectively.
	All$.	Switch off all the output channels.
	[x1]#.	Transfer signals from the input channel [x1] to the output channel [x1].
	[x1]$.	Switch off the output channel [x1].
	[x1] V[x2].	Transfer the video signals from the input channel [x1] to the output channel [x2].
	[x1] V[x2],[x3],[x4].	Transfer the video signals from the input channel [x1] to the output channels [x2], [x3] and [x4].
	[x1] A[x2].	Transfer the audio signals from the input channel [x1] to the output channel [x2].
	[x1] A[x2],[x3],[x4].	Transfer the audio signals from the input channel [x1] to the output channels [x2], [x3] and [x4].
	[x1] B[x2].	Transfer both the video and the audio signals from the input channel [x1] to the output channel [x2].
	[x1] B[x2],[x3],[x4].	Transfer both the video and the audio signals from the input channel [x1] to the output channels [x2], [x3] and [x4].
	[x1]P[x2].	Transfer signals from the input channel [x1] to all the output channels in group [x2].
	[x1]PP[x2],[x3],[x4].	Group the output channels [x2], [x3] and [x4] under the group [x1].
	S[x].	Inquire the output channels in Group[x].
	Status[x1].	Inquire the input channel to the output channel [x1].
	Status.	Inquire the input channel to the output channels one by one.
	Save[Y].	Save the present operation to the preset command [Y]. [Y] ranges from 0 to 9.
	Recall[Y].	Recall the preset command [Y].
	Clear[Y].	Clear the preset command [Y].
	[X1]*[X2]!	Transfer both the video and the audio signals from the input channel [x1] to the output channel [x2].
Compatible Command	[X1]*[X2]$	Transfer the audio signals from the input channel [x1] to the output channel [x2].
	[X1]*[X2]%	Transfer the video signals from the input channel [x1] to the output channel [x2].
	[X1]*[X2]&	Transfer the video signals from the input channel [x1] to the output channel [x2].

Note:

1. [x1], [x2], [x3] and [x4] are the symbols of input or output channels ranged according to the model of the matrix switcher. If the symbols exceed the effective range, it would be taken as a wrong command.
2. In above commands, "[" and "]" are symbols for easy reading and do not need to be typed in actual operation.
3. Please remember to end the commands with the ending symbols "." and ";".
4. The commands are case-sensitive.

Detail Examples:

1、 Transfer signals from an input channel to all output channels: [x1]All.

Example: To transfer signals from the input channel No.3 to all output channels

Run Command: "3All."

2、 Transfer all input signals to the corresponding output channels respectively: All#.

Example: If this command is carried out on an RGB 16X16 matrix switcher, the status of it will be: 1->1, 2->2, 3->3, 4->4……16->16.

3、 Switch off all the output channels: All$.

Example: After running this command, there will be no signals on all the output channels.

4、 Transfer signals from an input channel to the corresponding output channel: [x]#.

Example: To transfer signals from the input channel No.5 to the output channel No.5.

Run Command: "5#."

Example: To transfer signals from the input channel No.1,2,3,4 to the corresponding output channel No.1,2,3,4.

Run Command: "1,2,3,4#."

6,Switch off an output channel: [x]$.

Example: To switch off the output channel No.5.

Run Command: "5$."

Example: To switch off the output channel No.1,2,3,4.

Run Command: "1,2,3,4$."

7,Switch video signals command: [x1] V[x2].

Example: To transfer the video signals from the input channel No.3 to the output channel No.5.

Run Command: "3V5."

Example: To transfer the video signals from the input channel No.3 to the output channel No.8,9,12.

Run Command: "3V8,9,12."

8,Switch audio signals command: [x1] A[x2].

Example: To Transfer the audio signals from the input channel No.10 to the output channel

Run Command: "10A2."

Example: To transfer the audio signals from the input channel No.10 to the output channel No2,20,30,40.

Run Command: "10A2,20,30,40."

9,Switch both video and audio signals synchronously: [x1] B[x2].

Example: To transfer both the video and the audio signals from the input channel No.120 to the

output channel No.12,13,15.

Run Command: “120B12,13,15.”

10,Transfer signals to group channels: [x1]P[x2].

Example: After the command “2PP1,3,5,7.” was carried out, the command “1P2.” would transfer signals from the input channel No.1 to all output channels in Group2 (1,3,5,7). If [x2] was filled with “0”, this command will clear the Group[x1]. Please clear the group to be set before grouping it.

11,Group channel command: [x1]PP[x2],[x3],[x4].

Example: To group the output channels No.1,3,5,7 under the Group2.

Run Command: “2PP1,3,5,7.”

In this command, the maximum value of [x1] equals to the maximum output channels the matrix switcher has. To new a Group[x1], the command is “[x1]P0.[x1]PP[x2],[x3],[x4].”. To expand the Group[x1], the command is “[x1]PP[x7],[x8],[x9].”. Each output channel belongs the only group claims it the latest.

12,Inquire the output channels in Group[x]: S[x].

Example: To inquire the output channels in Group1.

Run Command: “S[1]”

13,Inquire the input channel to the output channel [x]: Status[x].

Example: To inquire the input channel to the output channel No.23.

Run Command: “Status23.”

14,Inquire the input channel to the output channels one by one: Status.

Example: To inquire the input channel to the output channels one by one

Run Command: “Status.”

15,Save the present operation to the preset command [Y]: Save[Y].

Example: To save the present operation to the preset command No.7.

Run Command: “Save7.”

16,Recall the preset command [Y]: Recall[Y].

Example: To recall the preset command No.5.

Run Command: “Recall5.”

17,Clear the preset command [Y]: Clear[Y].

Example: To clear the preset command No.5.

Run Command: “Clear5.”

10. Technical Specifications

Models / Specifications	Matrix RGB8 Series	Matrix RGB16 Series	Matrix RGB64,48 Series
Video			
Gain	0 dB		
Bandwidth	450MHz (-3dB), fully loaded 0 -10MHz @ ± 0.1dB 0 -100MHz @ ± 0.6dB		
Cross talk sum	-56dB@10M, -40dB@100M,		
Differential phase I/0S	<1.28°,3.58MHz		
Differential phase error	0.1°, 3.58-4.43MHz		
Differential gain error	0.1%, 3.58-4.43MHz		
Max transfer delay	5nS(±1nS)		
Switching speed	200 ns (Max)		
Signal type	RGBHV,RGBS, RGsB, RsGsBs, HDTV, Component video,S-video, Composite video		
Input video			
Connector	BNC female		
Signal strength	1V p-p Y component video,S-video,composite video; 0.7V p-p RGB;0.3V p-p R-Y & B-Y component video, S-video		
Maximum/Minimum level	Analog signals: 0.5V ~ 2.0V p-p		
Impedance	75 Ω		
Echo loss	-30dB@5MHz		
Max error in DC offset	15mV		
Output video			
Connector	BNC female		
Maximum/Minimum level	2.0V p-p		
Impedance	75 Ω		
Echo loss	-30dB@5MHz		
Max compensation in Dc offset	±5mV		
Sync signal			
Input/output signals	RGBHV, RGBS, RGsB, RsGsBs,		
Input level	0.5V- 5.0V p-p,: 4.0V p-p normal		
Output level	AGC-TTL: 5Vp-p, unterminated		

Models / Specifications	Matrix RGB8 Series	Matrix RGB16 Series	Matrix RGB64,48 Series
Input impedance	510 Ω		
Output impedance	75 Ω		
Polarity	Straight or subtractive according to input		
Audio signal			
I/O connector	3.8mm with screw , 5 pole		
Gain	0dB		
Frequency respond	20 Hz ~ 20 kHz,		
General harmonic distortion + noise	0.03% @ 1 kHz (under rating voltage)		
S/N	>90dB		
Segregation rate	>80dB @ 1 kHz		
CMRR	>75dB @: 20 Hz ~ 20 kHz		
Signal	Stereo ,balanced /unbalanced		
Impedance	Input,>10 kΩ(balanced /unbalanced) Output,50 Ω (unbalanced), 100 Ω(balanced)		
Maximum input level	+19.5dBu, (balanced /unbalanced)		
Gain error	±0.1dB		
Max output level	+19.5dBu, (balanced /unbalanced)		
Control type			
Serial control port	RS-232, 9-pin FD connector		
Baud rate and protocol	Baud rate: 9600 Data bit: 8 Stop bit: 1 Parity bit: none		
Serial control poling protocol	2 = TX, 3 = RX, 5 = GND		
Ethernet	Connector	RJ-45 Female(Optional accessory)	
	Protocol	TCP/IP	
	Speed	Full/half-duplex 10/100M	
Control application	《Switch 2.0》		
Features			
Power supply	100VAC ~ 240VAC, 50/60 Hz, universal international power supply		
Temperature	Storing and operating temperature: -20° ~ +70°C		
Humidity	Storing and operating humidity: 10% ~ 90%		
Size	485(L)X133(W)X266mm(H)	485(L)X311(W)X266mm(H)	485(L)X315(W)X266mm(H) (single box)
weight	4.5kg	9.5kg	10kg
MTBF	30,000 hours		
Quality guarantee	1 year free guarantee		

11. Troubleshooting & Maintenance

1) When the output image in the destination device connected to the RGB Matrix has ghost, such as the projector output with ghost, please check the projector's setting or try another high quality connection cord.

2) When there is a color losing or no video signal output, it may be the unmatched RGBHV connector order between the input and output end.

3) When the remote controller doesn't works:
   A. Maybe the battery is run out of, please change a new one.
   B. Maybe the controller is broken, please ask the dealer to fix it.

4) When user can not control the RGB Matrix by computer through its COM port, please check the COM port number in the software and make sure the COM port is in good condition.

5) If there is not "beep" sound when switching the I/O signal, please make sure the beeper is switched on. If so, the beeper inside the matrix may be broken. Please send it to the dealer for fixing.

6) When switching , the beeper beeps but without any output image,
   A. Check with oscilloscope or multimeter if there is any signal at the input end. If there is no signal input, it may be the input connection cord broken or the connectors loosen.
   B. Check with oscilloscope or multimeter if there is any signal at the output end. If there is no signal output, it may be the output connection cord broken or the connectors loosen.
   C. Please make sure the destination device is exactly on the controlled output channel
   D. If it is still the same after the above checking, it may be something wrong in the switcher. Please send it to the dealer for fixing.

7) If the POWER indicator doesn't work and there is no display on LCD or no respond to any operation, please make sure the power cord connected well.

8) If the output image is interfered, please make sure the system is earthed well.

9) If the static becomes stronger when connecting the BNC connectors, it may be due to the incorrect earthing of the power supply, Please earth it again correctly, and otherwise it would bring damage to the switcher or shorten its natural life.

10) If the beeper beeps, the LCD displaying normally and there is also returning code, but without any output image or audio output.
   A. Maybe A/V connection cord broken, please change a new one.
   B. Maybe the connection cord cutting-out, please change a new one.
   C. May be the connection cord broken, please change a new one.

11) If the Matrix can not be controlled by the keys on the front panel, RS232 port or remote controller, the host may has already been broken. Please send it to the dealer for fixing.