
RGB Matrix User Manual

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Part 1. The Function of RGB Matrix

RGB series matrix switchers are a high performance and professional audio signal switching equipment for computer signal(RGBHV) , CVBS, S - VIDEO, Y CbCrused and so on. Popularly used in the multi-channel VIDEO signals and audio input and output cross switch, provides independent Video and Audio balanced/unbalanced input and output terminals, supports each component of Video and Audio signals transmission, switching independently, provides a minimum signal transmission attenuation and make sure the output high fidelity graphics and sound signal.

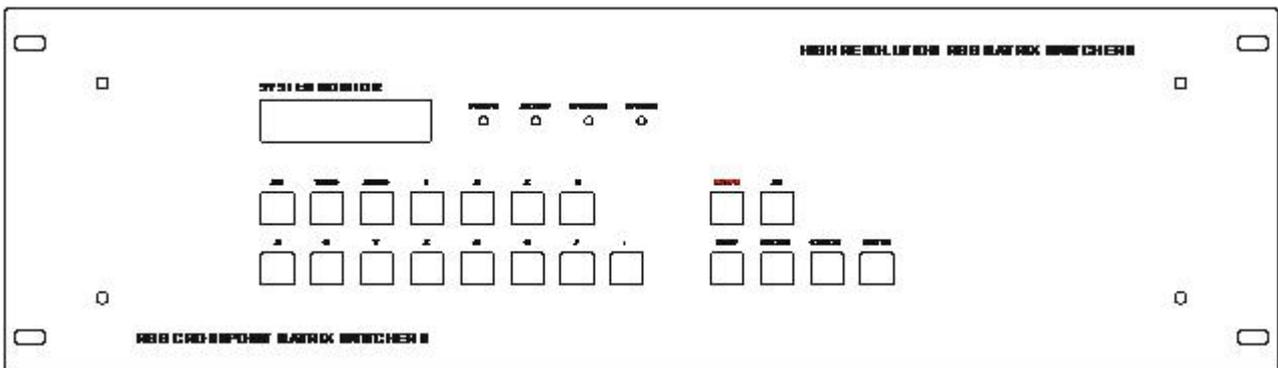
Mainly used in radio and television engineering, multimedia conference room, large screen display, television teaching, command and control center, etc.The main function this product is as follows:

1. With on-site power protection function
2. LCD synchronous display function
3. Audio and video synchronization or separate switch, etc
4. With RS232 communication port, provides and a convenient way to work with a PC or lots of control equipment(Eg.RAM-RC,AMX,CREATOR)
5. Infrared remote control function
6. Strengthen port electrostatic protection function
7. Realizing the remote (Firmware) upgrade software functions through the Internet
8. Realizing the remote view and control function through the Internet
9. Realizing automatic identification of the EXTRON instructions and compatible functions
10. Optimization of binding commands can realize the control function on screen wall mass.
11. Powerful security access control, which can realize the keyboard lock, password settings and related functions.
12. Convenient to cancel the current switch state and return to the first time working state with the special UNDO function.
13. Convenient operations with preset storage/call functions.
14. Programmable user environment, users can easily realize:
 - a) Setting the time of LCD back light time
 - b) Starting or forbidding the buzzer
 - c) Checking the feedback of the Matrix signals' details and accuracy.

Part 2. Component Function

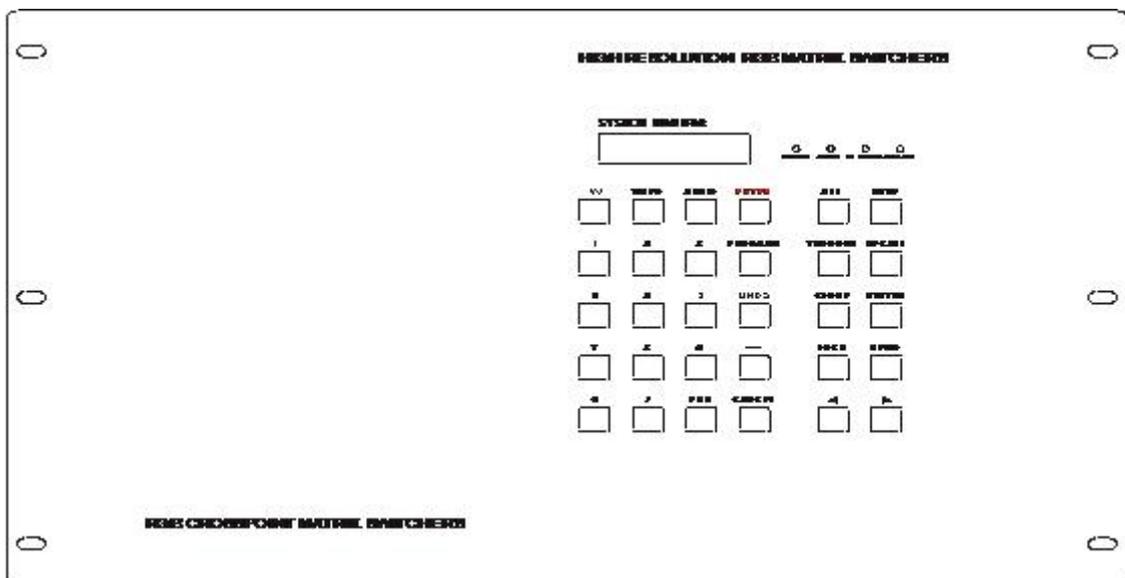
1. Front Panel Schematic

1.1 RGB8 Series



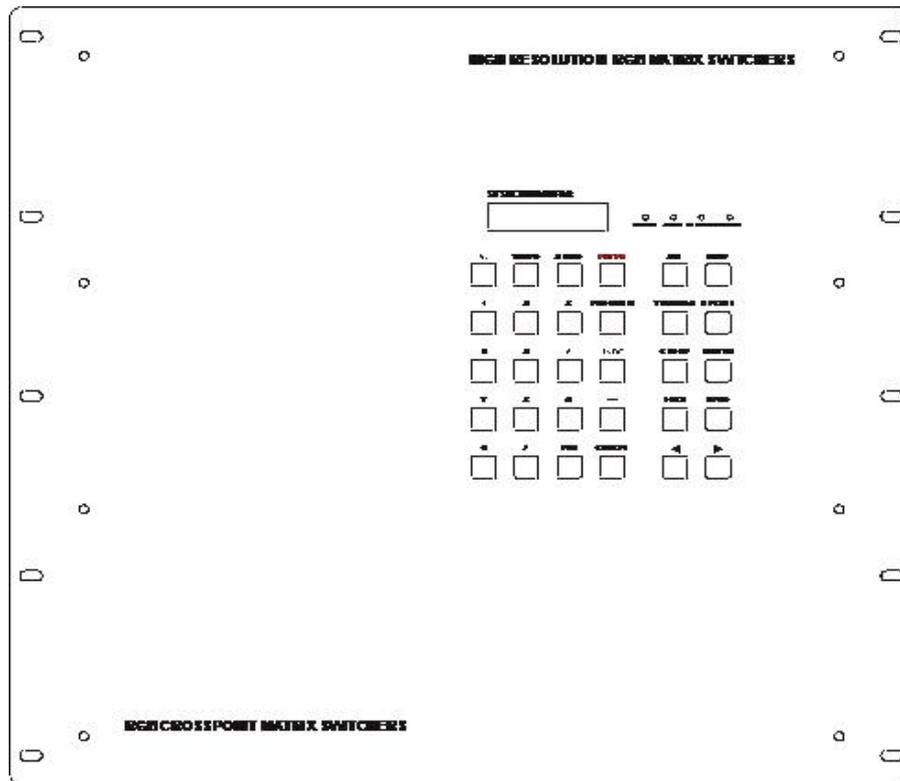
RGB8X2、8X4、8X8

1.2 RGB16 Series



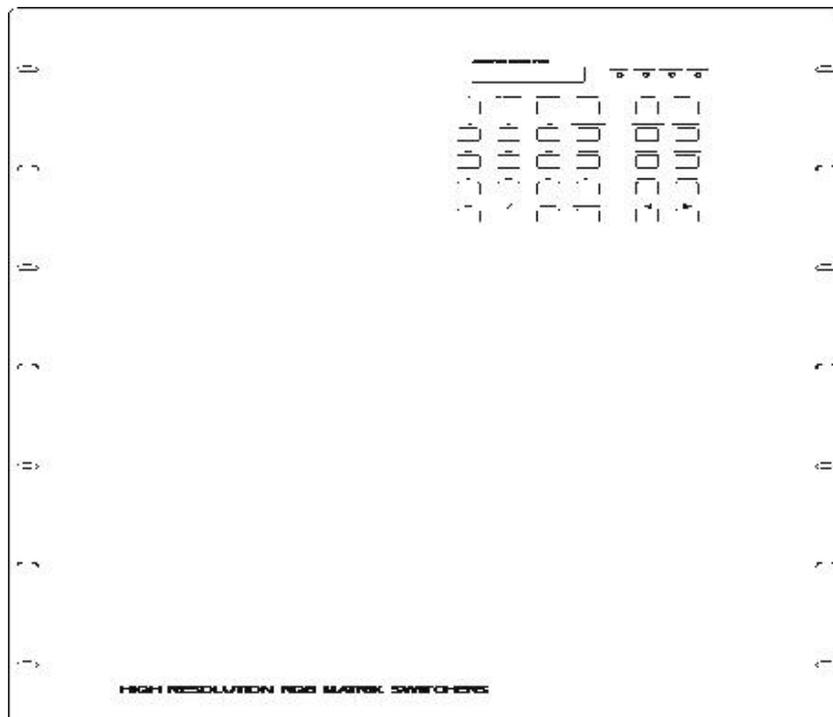
RGB16X4、16X8、16X16

1.3 RGB32 Series



RGB 24X8, 24X16, 24X24, 32X8, 32X16, 32X24, 32X32

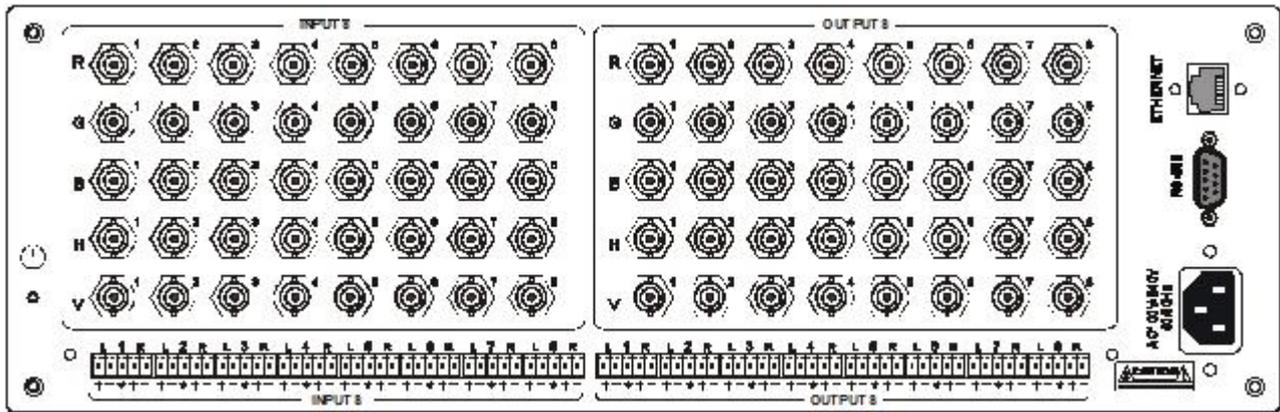
1.4 RGB 48, 64, 96, 128, Series



RGB 48, 64, 96, 128

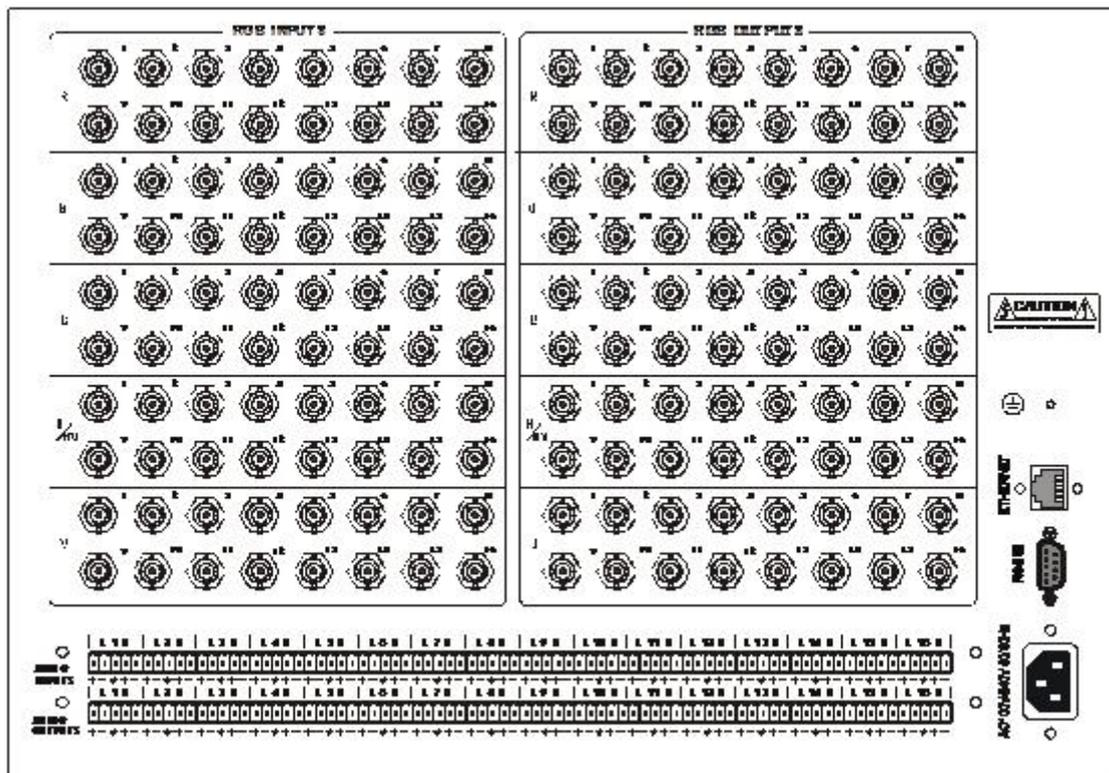
2. Rear Panel Schematic

2.1 RGB8 series



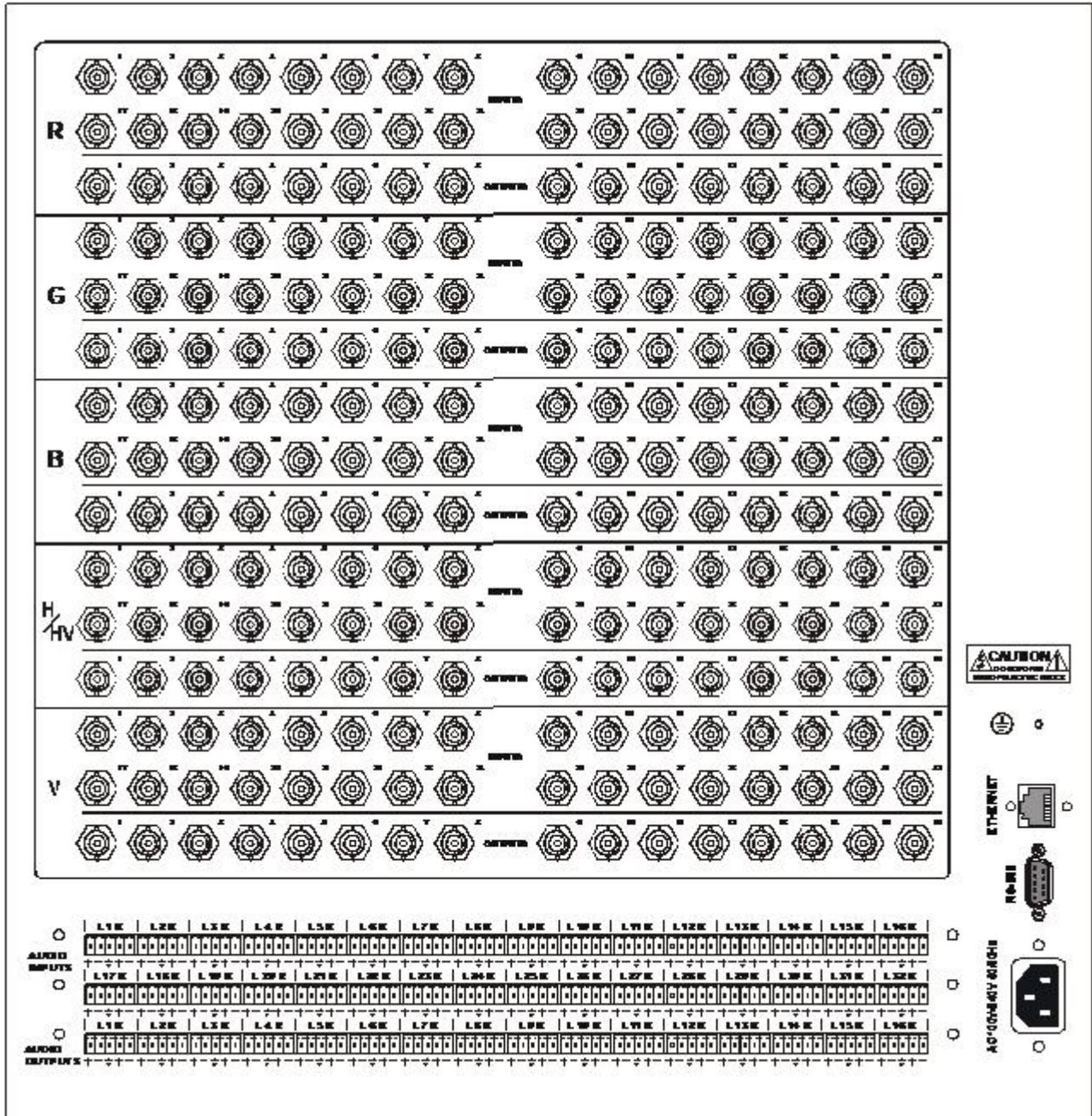
RGB8X2, 8X4, 8X8

2.2 RGB16 Series



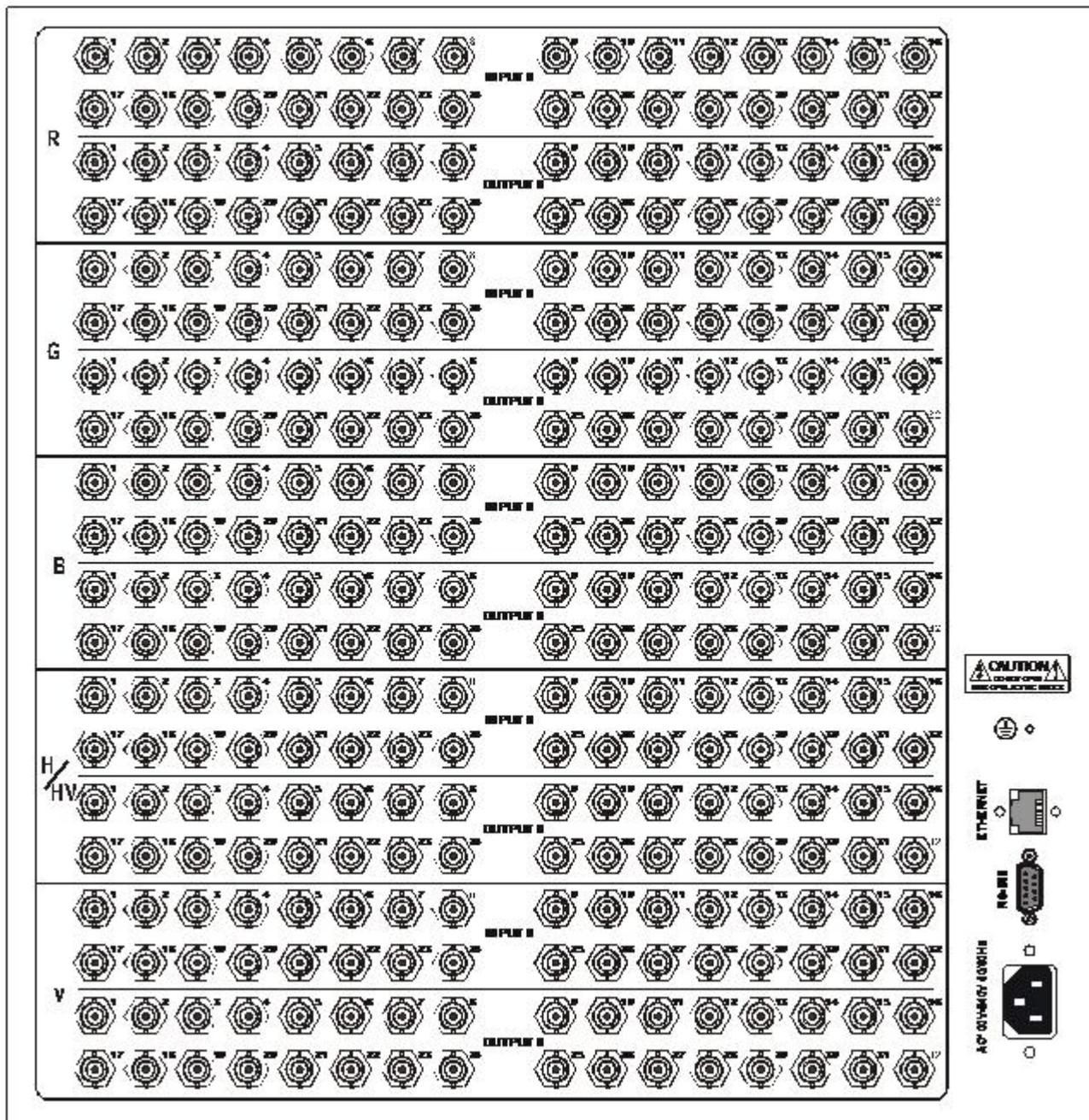
RGB16X4, 16X8, 16X16

2.3 RGB24X8, 24X16, 32X8, 32X16 series



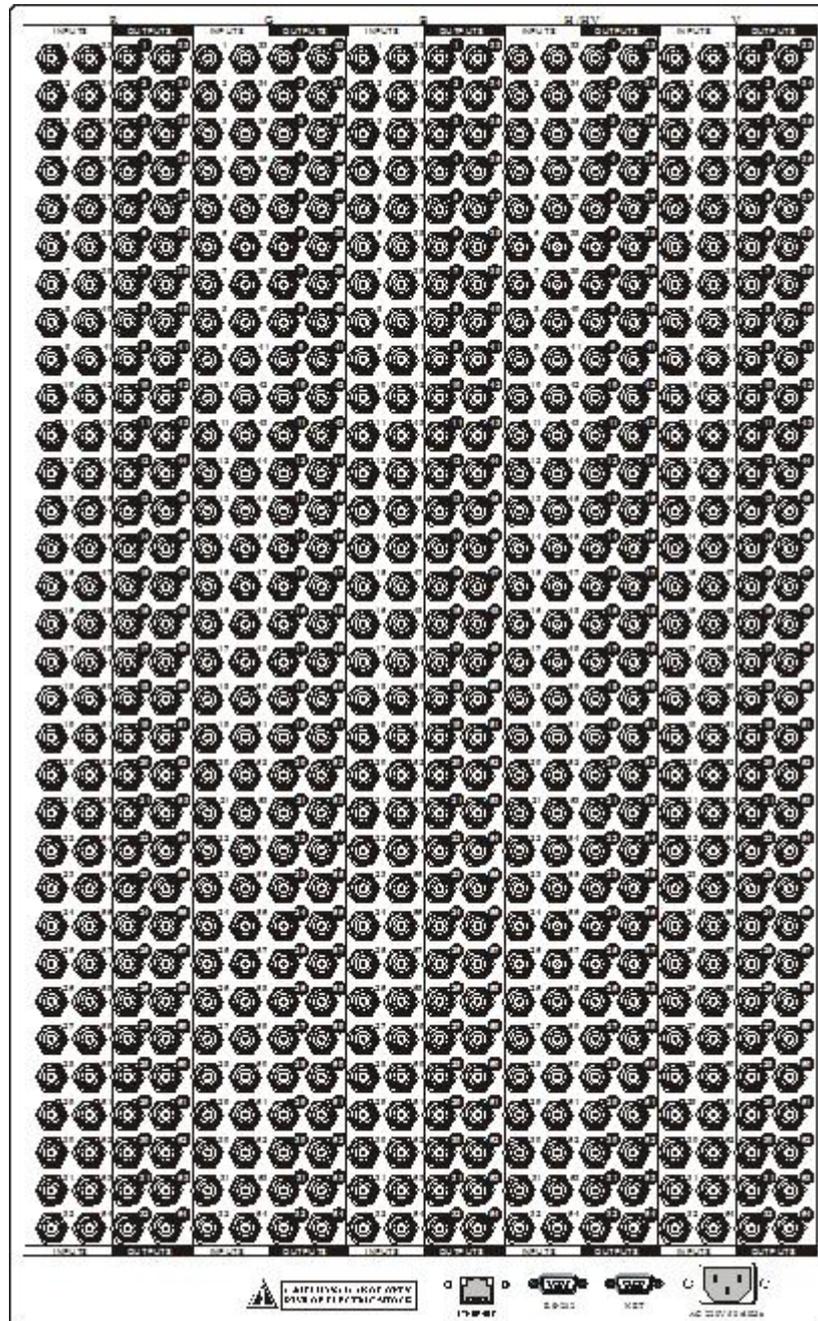
RGB24X8, 24X16, 32X8, 32X16

2.4 RGB24X24、32X24、32X32 Series



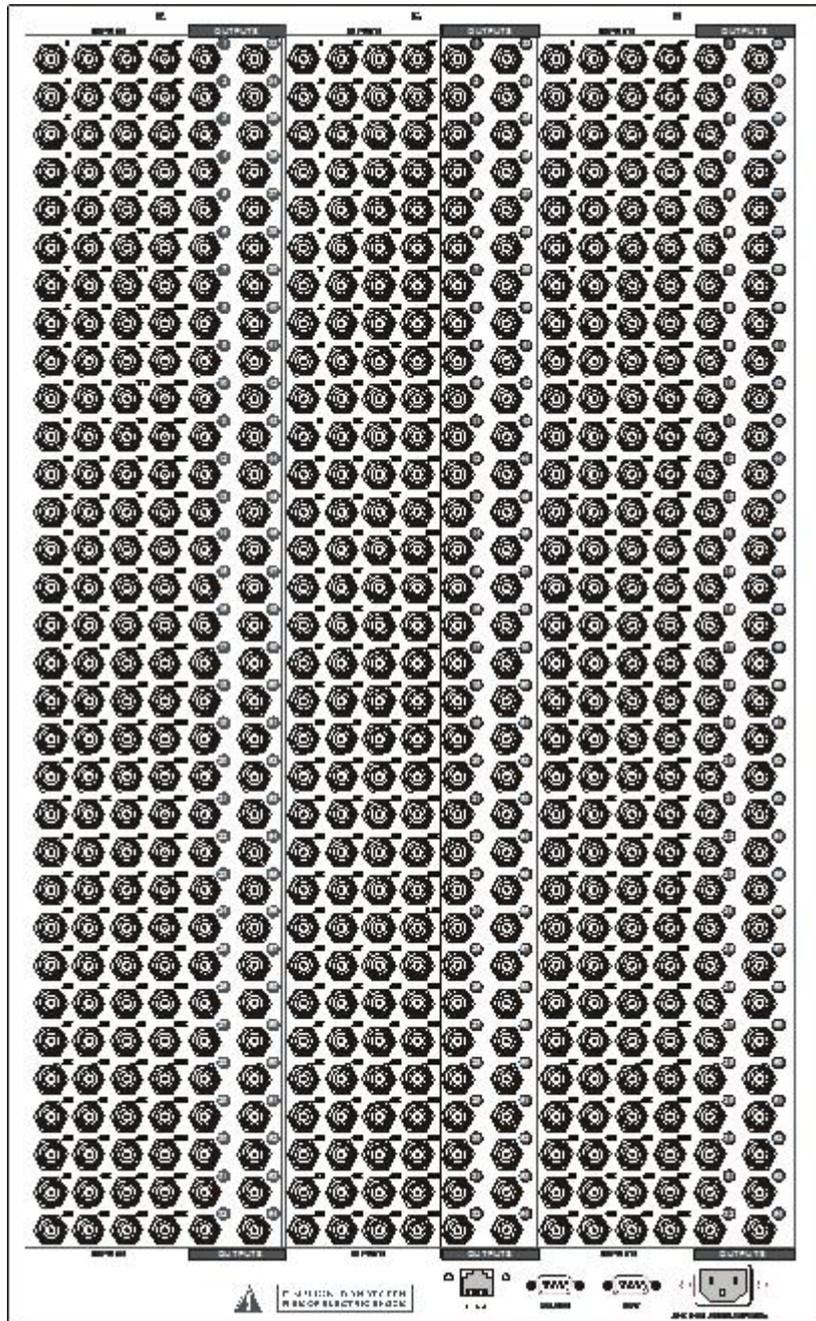
RGB24X24、32X24、32X32

2.5 RGB48、64 Series



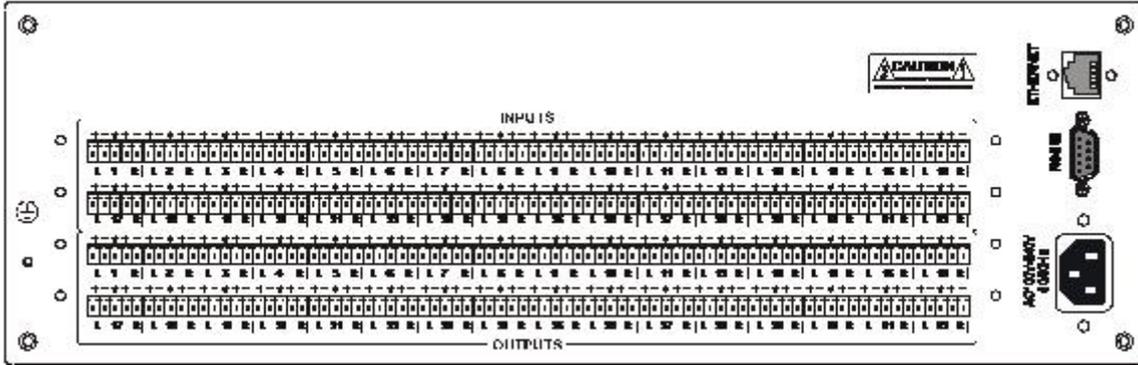
RGB48X32、48X48、64X32、64X48、64X64

2.6 RGB96、128 Series



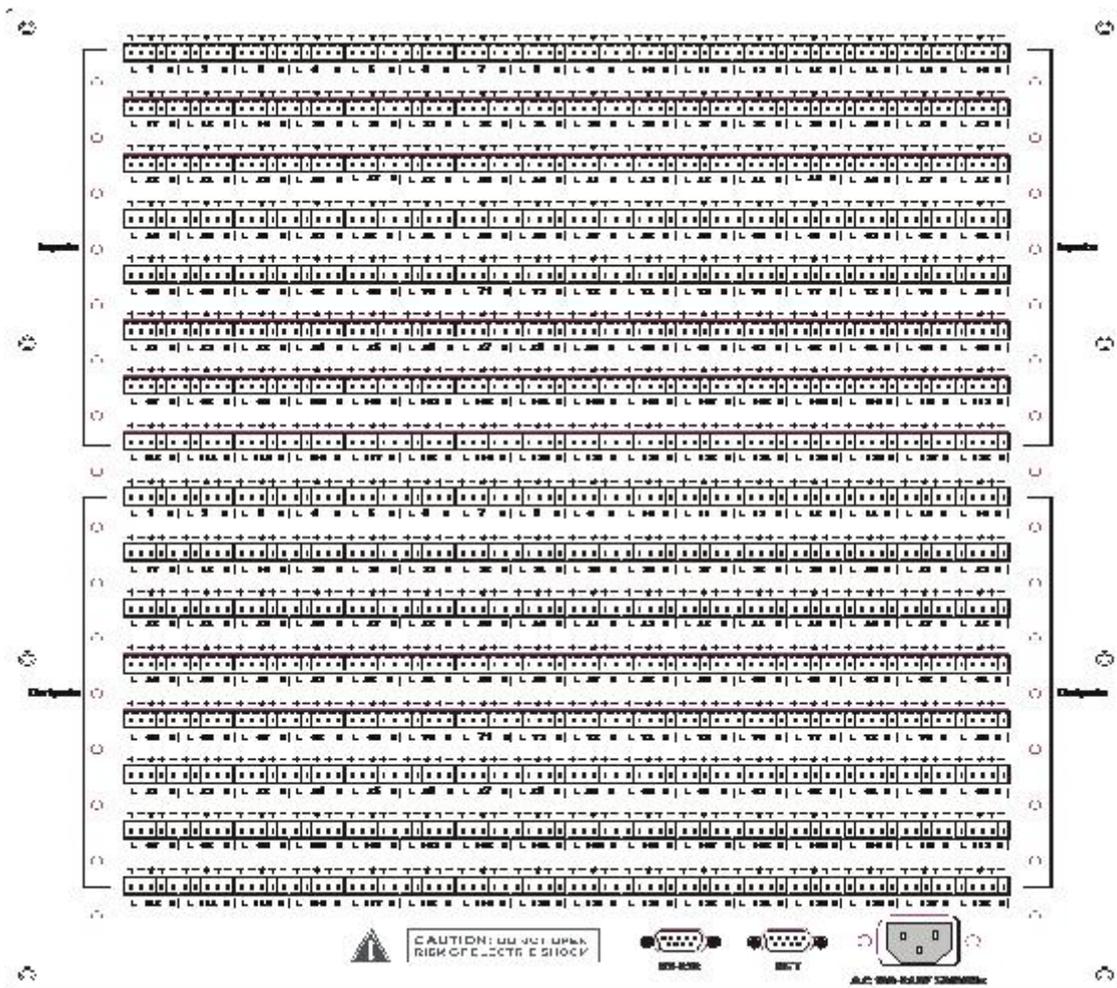
RGB96、128

2.7 RGB24、32 Series



RGB24、32

2.8 RGB64、96、128 Series



RGB48、64、96、128

Part 3. The Connection of RGBMatrix with other equipments

1. Introductions for the input and output ports

According to different matrix model, the computer signal input/output interface consist of 8, 16, 24, 32, 64, 48, 96 and 128 of BNC female terminals, audio input/output interface consist of 2, 4, 8, 16, 24, 32, 64, 48, 96, 128 with 3.8mm 5 connection socket. RGB16X16 computer signal input and output terminals of the channel number from left to right respectively is from 1 to 16 road (two lines), the interface from top to bottom respectively are R, G, B, H, V signal terminal of computer, audio signal input and output terminals of the channels are numbered from left to right are from 1 to 16 road, the other types of interface terminal please reference case printing figure.

2. RS-232 communication port and the connection ways

RGB matrix provides standard RS232 serial communication port (above RGB16 series can provide an optional accessories Ethernet interface), in addition to using the front panel buttons to switch operation, also allows the user to use all kinds of control systems (e.g.PC, CRESTRON, AMX and MXTRON control system etc) to control or remote control with via Ethernet.

RS232 port is 9-pin male connector, pin description is as follows:

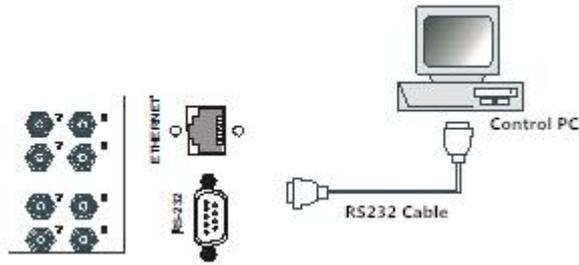
Pin No	Pin-out	Description
1	N/u	Empty
2	Tx	Send
3	Rx	Receive
4	N/u	Empty
5	Gnd	Ground
6	N/u	Empty
7	N/u	Empty
8	N/u	Empty
9	N/u	Empty

2.1 Connection between the RGB Matrix and Control System

Through the RS232 serial interface, RGB series matrix can be controlled with various control system

2.2 Connection between the Matrix and Control PC

With RS232 cable to connect the computer serial communication port (COM1 or COM2) and RGB matrix host RS232 communication port. Users can use computer to control the RGB matrix after installed applications.



RGB matrix and computer connection

Users can use the matrix the incidental application software as the computer control software, you also can write your own control software, details please refer to "RGB matrix RS232 communication protocol and the control code".

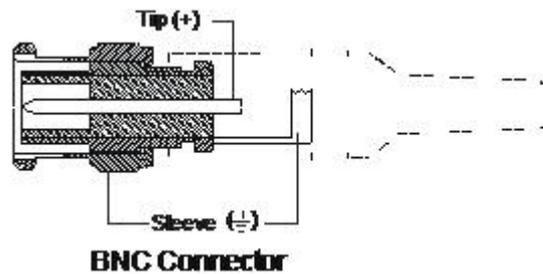
3. Connection of PC input&output devices and Matrix

RGB matrix system according to the different models with different number of input and output interface terminals, users can according to different situations to connect all kinds of computer signals, audio and video equipment, such as VCD, desktop computers, graphics workstations, digital display, etc, the output terminals can be connected to the projector, video recorders, computer monitors, amplifiers, etc.

RGBHV connecting cable

RGB matrix supports a variety of AV video , VGA signal source. AV signal source equipment need the RGBHV signal output terminals, or YC component output terminals; RGBHV signal output terminals are required by VGA signal sources.

RGB matrix BNC interface connection method as below:



BNC connection diagram

If VGA signal source equipment no RGBHV output terminals, advised to choose a VGA - RGB converter, in order to obtain high quality output RGB signals.

Please use a dedicated five core RGB signal lines to connect the input and output devices, and the signal source equipment of the output terminal of R (red), G (green) and B (blue), H (line), V (field) of the BNC connector, respectively connected to the RGB matrix (INPUTS) RGBHV joint of the same channel, the RGB matrix OUTPUTS (OUTPUTS) RGBHV joint, through special five core RGB signal lines, connect to the output device RGBHV input interface.

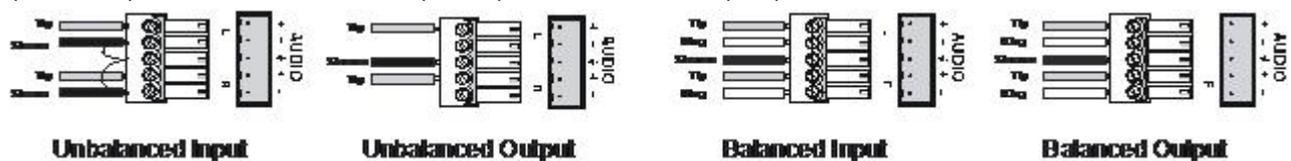
Note: the corresponding RGBHV joints at the ends of the line must be the same, otherwise color will loss and even no signals.

Audio connecting cable

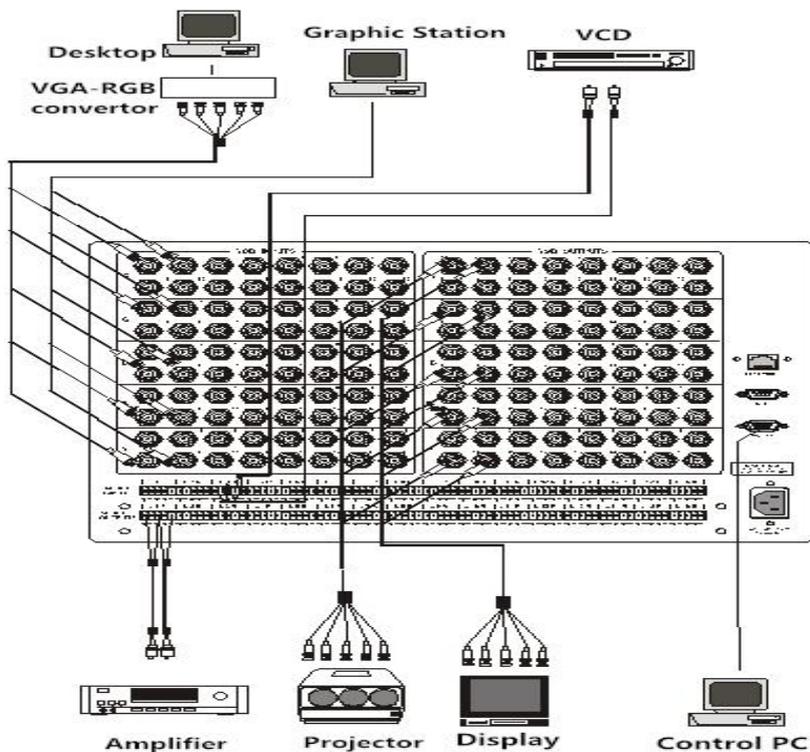
RGB matrix "AUDIO INPUTS", "AUDIO OUTPUTS" AUDIO network interfaces can separate to connect with DVD AUDIO signal and power amplifier.

Audio line compare with video line it's a bit more complicated, can be divided into: balance method and unbalanced connection.

Specific connection in audio signal lines, for example: 1, unbalanced connection: "G" foot shielding (SLEEVE) "+" red line (TIP) "-" foot and the "G" feet short connection; 2, balanced connection: "G" foot shielding (SLEEVE), "-" the foot black line (RING), "+" foot red line (TIP).



Choose what connection generally according to the specific requirements of the device interface, can use the balanced connection better use the balanced connection, please read the instruction manual to connect the relevant specifications and requirements. On several occasions could also meet interface device is balanced on one side, the other side is unbalanced, in the case of not very strict, only need to use the balanced connection on the balance side, the unbalanced side with the unbalanced connection. If on the strict situation, we must me two side as the same.

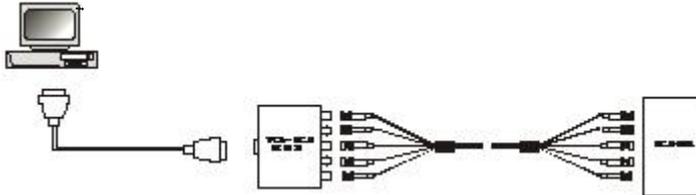


RGB matrix system connection diagram

4. Connection of VGA/RGB convertor

VGA - RGB converters are suitable for VGA signal source without RGB output terminals, such as: ordinary desktop computers, laptops, etc. Convert common VGA signals into RGBHV signals.

VGA - RGB converters, except working with RGB matrix also can be directly output to a variety of professional RGB devices, such as a variety of professional video editing machines, video, graphics workstations, projector, etc. As shown in the figure below:



5. Connections between RGBMatrix and Audio box

RGB 64, 96, 128 series RGBHV switch and audio switch by fractal box structure. Audio t matrix and RGB matrix "NET" interface connected when using it, and then make the control serial port connected with one of the RS232 interface of the matrix(with Ethernet interface control,only need to put the computer's Ethernet interface and a matrix of the ENTERNET interface connected), as shown in the figure below:

