SHINYBOW™ USA
MULTIMEDIA AUDIO AND VISUAL

Instruction Manual

MODEL : SB-8804
8x8 DIGITAL-AUDIO MATRIX SWITCHER

AUDIO/DIGITAL Matrix Switcher Series

Thank you for purchasing the SB-8804 Digital/Audio Matrix Switcher. You will find this unit easy to install and highly reliable but it is essential that you read this manual throughly before attempting to use 8x8 Digital(Video0-Stereo Audio Matrix Switcher.

SAFETY INFORMATION

1. Save the carton and packing material even if the equipment has arrived in good condition. Should you ever need to ship the unit, use only the original factory packing.

2. Read all documentation before operating your equipment. Retain all documentation for future reference.

3. Follow all instructions printed on unit chassis for proper operation.

4. Do not spill water or other liquids into or on the unit, or operate the unit while standing in liquid.

5. Make sure power outlets conform to the power requirements listed on the back of the unit.

6. Do not use the unit if the electrical power cord is frayed or broken. The power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords and plugs, convenience receptacles, and the point where they exit from the appliance.

7. Always operate the unit with the AC ground wire connected to the electrical system ground. Precautions should be taken so that the means of grounding of a piece of equipment is not defeated.

8. Mains voltage must be correct and the same as that printed on the rear of the unit. Damage caused by connection to improper AC voltage is not covered by any warranty.

9. Power down & disconnect unit from mains voltage before making connections.

10. Never hold a power switch in the   ON   position.

11. Do not use the unit near stoves, heat registers, radiators, or other heat Producing devices.

12. Do not block fan intake or exhaust ports. Do not operate equipment on a surface or in an environment which may impede the normal flow of air around the unit, such as a bed, rug, carpet, or completely enclosed rack. If the unit is used in an extremely dusty or smoky environment, the unit should be Periodically   blown free   of foreign matter.

13. Do not remove the cover. Removing the cover will expose you to potentially dangerous voltages. There are no user serviceable parts inside.

14. Do not drive the inputs with a signal level greater than that required to drive equipment to full output.

15. Non-use periods. The power cord of equipment should be unplugged from the outlet when left unused for a long period of time.

16. Service Information Equipment should be serviced by qualifier service personnel when:

    A.   The power supply cord or the plug has been damaged.

    B.   Objects have fallen, or liquid has been spilled into the equipment.

    C.   The equipment has been exposed to rain

    D.   The equipment does not appear to operate normally, or exhibits a marked change in performance

    E.   The equipment has been dropped, or the enclosure damaged.

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.

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

Do not force switched 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.

Installation of this unit should be in a cool dry place, away from sources of excessive heat, vibration, dust, moisture and cold.
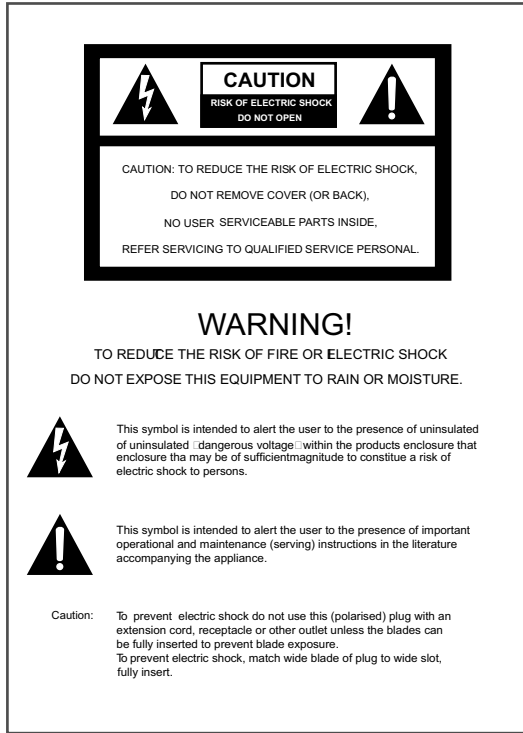
THIS SAFETY INFORMATION IS OF A GENERAL NATURE AND MAY BE SUPERSEDED BY INSTRUCTIONS CONTAINED WITHIN THIS MANUAL

TABLE OF CONTENTS & INTRODUCTION

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK),
NO USER SERVICEABLE PARTS INSIDE,
REFER SERVICING TO QUALIFIED SERVICE PERSONAL.

WARNING!

TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK
DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE.

This symbol is intended to alert the user to the presence of uninsulated of uninsulated dangerous voltage within the products enclosure that enclosure tha may be of sufficientmagnitude to constitue a risk of electric shock to persons.

This symbol is intended to alert the user to the presence of important operational and maintenance (serving) instructions in the literature accompanying the appliance.

Caution: To prevent electric shock do not use this (polarised) plug with an extension cord, receptacle or other outlet unless the blades can be fully inserted to prevent blade exposure.
To prevent electric shock, match wide blade of plug to wide slot, fully insert.

INSTRUCTION

Congratulations on your purchase of one of the most innovative Digital(SPDIF) or Video/Audio matrix switching product on the market Today. The **SB-8804** is a true Matrix Routing Switcher for Digital(SPDIF) or Video(Composite)/Audio(Stereo Audio) signals. It is an 8 individual A/V(Composite Video) inputs with 8 individual A/V outputs. Because it is a matrix router, any input may be routed to any output; or the same input may be routed to all outputs or any combination. It completely eliminates the need to constantly move around audio and video(composite) input and output cables. The **SB-8804** is useful for Matrix signals from Audio source devices (such as: VCRs, Camcorders, Video Game Consoles, Video CDs, DVDs, Satellite Receivers, CATV Set Top Boxes, etc.) to Audio destination devices (such as: Speaker, Digital Audio Speaker, Audio Amplifier, Audio Receivers, etc.). Selection of inputs is made via the Front Panel push buttons or an Infrared Remote Control unit or RS 232 control by computer.

PACKAGE CONTENTS

Before attempting to use this unit, please check the packaging and make certain the following items are contained in the shipping carton :
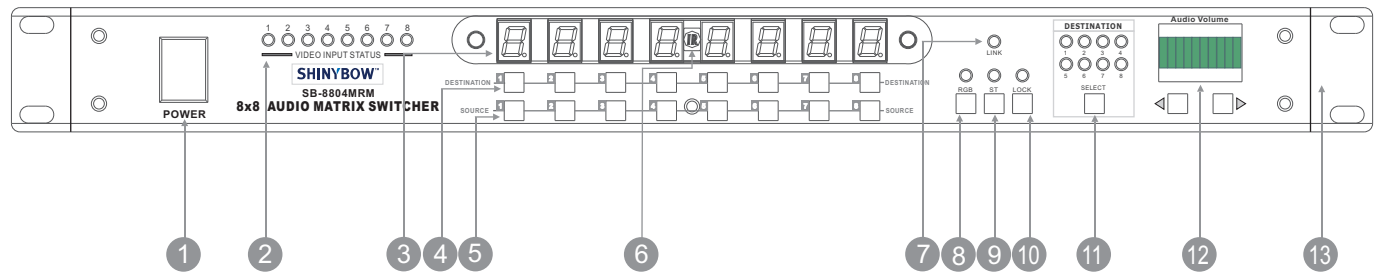
1. Main console unit
2. Operating Instructions
3. IR Remote Controller (SW-8804)
4. 19 inch 1D(1U) high Ear mount pair
5. RS232 DRV package
6. Power Supply 12VDC, Universal Type 50/60Hz, 100~230 VAC

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 Shinybow immediately.
Have the model number, Serial Number and Invoice available for reference when you call.

FRONT PANEL

1 POWER

SHINYBOW
SB-8804MRM
8x8 AUDIO MATRIX SWITCHER

DESTINATION

SOURCE

LINK

RGB ST LOCK

DESTINATION SELECT

Audio Volume

① POWER ON SWITCH

The power switch turns the unit on and off.
The LED will illuminate red to indicate
that the switcher is ON and is receiving power

② INPUT SOURCES STATUS

The 1 to 8 source status show from LED display red
to indicate that a audio source is present on that input.

③ DESTINATION SELECT BUTTONS

Depressing this button completes the routing
selection assigned to the particular destination.

④ SOURCE SELECT BUTTONS

Depressing this button selects the source assigned
to the specific channel.

⑤ SOURCES SETUP BUTTONS

Setup the input sources 1 ~ 8 channel

⑥ IR SENSOR

The IR sensor receives IR commands from the
supplied remote controller.

⑦ LINK

Function by optional.

⑧ RGB

Function by optional.

⑨ ST

The switcher automatically set to standby mode
after remove all inputs five minutes.

⑩ LOCK

The front panel push buttons will be lock after you
press <LOCK> keep two seconds, press two
seconds again to remove.

⑪ AUDIO CHANNEL SELECT BUTTONS

Press the <SELECT> push button to select the audio
channels in before range the audio volume.

⑫ AUDIO VOLUME

Total ten LED display to indicate the audio volume.

⑬ 19 INCH EAR MOUNT PAIR

19 inch 1U(1D) high case Ear Mount pair
Part number : 1U-440L

To configure a matrix, depress the Source Button under the channel number of the source you desire. Then depress the Destination Button above the channel number you want to assign the source to. You can depress as many destinations as you desire provided you do it within x seconds of depress the Source Button.

For example, to assign Source 2 to Destination 3,5,and 6 you would:

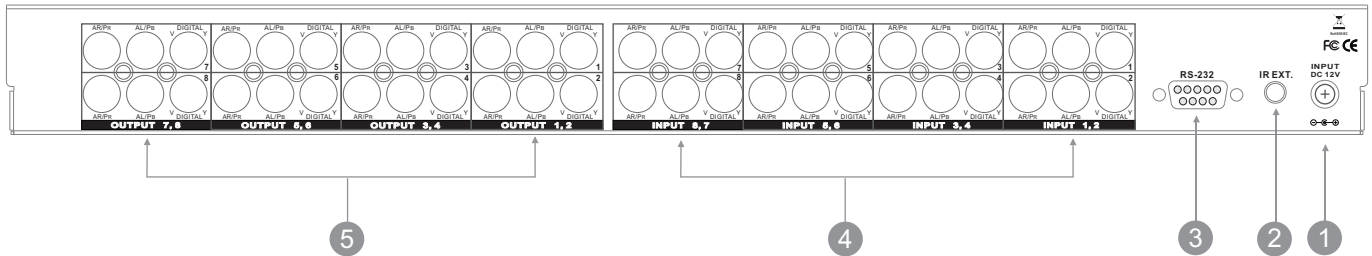Depress Destination 3,5,6

Depress Source 2

That's it.

After 5 seconds, the Source button depress will time out and you can no longer assign it to a destination without depressing it again. You can however, select Source/Destination assignments back to back without waiting. For example, you can assign Source 3 to Destination 5,6 immediately followed by Source 4 to Destination 1,2.

OPERATION THE UNIT

Once you have connected your devices to the SB-8804 and energized the chassis, the SOURCE DEVICE STATUS LED DISPLAY will eliminate indicating that a valid video signal is connected.

REAR PANEL

1 DC POWER INLET

The SB-8804 is fitted with a DC power plug-park input connector. Please ensure that the plug-park used is of an approved type and is of sufficient current carrying capacity with the correct voltage and connector polarity. 12Volt DC power supply 3A Max.

Power Jack:
DC Jack - inner OD Ø 2.1mm (+)
Outside OD Ø 5.5mm (GND)
Power input - 12VDC, 1.25~3A
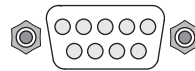
3 IR EXTENDER CONTROL

Support one IR Extender for 300M distance.

IR Extender port :
Phone Jack OD3.5mm Female connector

3 RS 232 CONNECTION

RS 232 control port to allow for interfacing to a PC, Such as a computer or touch panel control, to the SB-8804 switcher via this DB-9pin Female connector for serial RS-232 control.
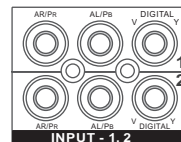
Remote port :
DB-9pin Female connector

4 INPUTS-1~8 DIGITAL - STEREO AUDIO

Connect a signal source of Digital (SPDIF) or Composite Video and Stereo Audio) devise to 8x8 matrix switcher.
Input 1~8 port source signals :
- Digital(SPDIF) or Composite Video, 1x RCA Connector
- Stereo Audio(AR/AL), 2x RCA Connectors

Digital Audio (SPDIF) or composite Video or component video (Y) Via 1x RCA connector Stereo Audio(AR/AL) Via 2x RCA connectors
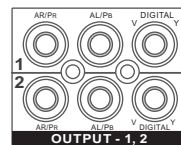
Note:
With 3x RCA female connectors.

5 OUTPUTS-1~8 DIGITAL - STEREO AUDIO

Connect a signal of Digital(SPDIF) or Composite Video and Stereo Audio direct to Female RCA connector. This connector supports digital audio & stereo audio to Audio device.

Output 1~8 port source signals :
- Digital(SPDIF) or Composite Video, 1x RCA Connector
- Stereo Audio(AR/AL), 2x RCA Connectors

Digital Audio (SPDIF) or composite Video or component video (Y) Via 1x RCA connector Stereo Audio(AR/AL) Via 2x RCA connectors

Note:
With 3x RCA female connectors.

CONNECTING THE HARDWARE

Please study the panel drawings below and become familiar with the signal input-output, Power requirements plus any controls present.

Before using the switcher, please take the time to make certain that the device you wish to connect to its inputs is functioning properly in all respects. Verify that the video and audio signals are present and are being displayed properly on a suitable device.

If all is well connect the appropriate cables between the output of the device you wish to distribute to output(s) of the switcher to the carious devices you wish to feed a signal to. Lastly, connect the AC to DC adaptor, connect the DC connector to the switcher first and then plug the adaptor into a functional AC outlet.

REMOTE CONTROL

Before making any connections to the SB-8804. Observe the following:

> Ensure the mains voltage supply matches the label on the supplied plug-
  Pack (+/- 10%)

> Ensure that the power switch is OFF

> Ensure that all system grounds (earth) are connected to a common point.

> Avoid powering equipment within a system from multiple power sources
  that may be separated by large distances

> Connect all audio video sources and destination equipment

> power up all source and destination audio-visual sources

> For each destination output select the appropriate input source by using
  The front panel input 1~8 select buttons. The supplied IR remote control.
  Or through the RS 232 serial communications port.

> Upon power up the switcher will return to its last used setting before
  Powered down.

REMOTE CONTROL

IR CODE : SW-8804

CUSTOMER CODE : 956A

POWER ON   : 956A 807F
POWER OFF : 956A C23D

1 2 SWITCH POWER ON or OFF

Controller with a separate power ON and OFF

3 AUDIO VOLUME BUTTONS

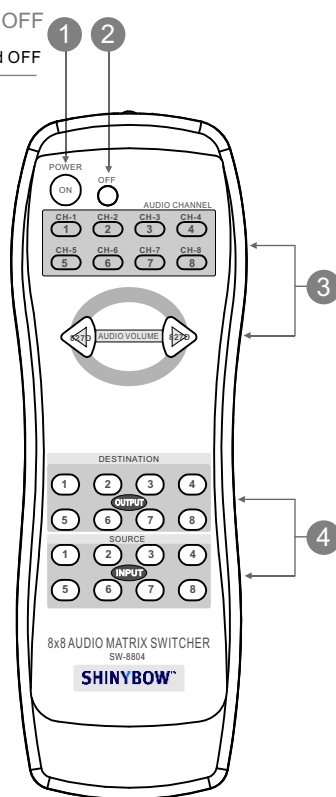Audio Volume Select push button
as from Channel -1 ~ Channel - 8

**4 DESTINATION & SOURCE
SELECT BUTTONS**

Press the Destination button then
to select the channel 1~8 input sources.

HOW TO SETUP IR CODES :

AUDIO VOLUME : LIFT < : 956A 827D
              RIGHT > : 956A 847B

AUDIO CHANNEL VOLUME CONTROL

CHANNEL #1 : 956A 9A65
CHANNEL #1 : 956A 9B64
CHANNEL #1 : 956A 9C63
CHANNEL #1 : 956A 9D62
CHANNEL #1 : 956A 9E61
CHANNEL #1 : 956A 9F60
CHANNEL #1 : 956A C03F
CHANNEL #1 : 956A C13E

DESTINATION OUTPUT / SOURCE INPUT

OUTPUT #1 / INPUT #1 : 8A75 926D	OUTPUT #5 / INPUT #1 : 8E71 926D
OUTPUT #1 / INPUT #2 : 8A75 936C	OUTPUT #5 / INPUT #2 : 8E71 936C
OUTPUT #1 / INPUT #3 : 8A75 946B	OUTPUT #5 / INPUT #3 : 8E71 946B
OUTPUT #1 / INPUT #4 : 8A75 956A	OUTPUT #5 / INPUT #4 : 8E71 956A
OUTPUT #1 / INPUT #5 : 8A75 9669	OUTPUT #5 / INPUT #5 : 8E71 9669
OUTPUT #1 / INPUT #6 : 8A75 9768	OUTPUT #5 / INPUT #6 : 8E71 9768
OUTPUT #1 / INPUT #7 : 8A75 9867	OUTPUT #5 / INPUT #7 : 8E71 9867
OUTPUT #1 / INPUT #8 : 8A75 9966	OUTPUT #5 / INPUT #8 : 8E71 9966
OUTPUT #2 / INPUT #1 : 8B74 926D	OUTPUT #6 / INPUT #1 : 8F70 926D
OUTPUT #2 / INPUT #2 : 8B74 936C	OUTPUT #6 / INPUT #2 : 8F70 936C
OUTPUT #2 / INPUT #3 : 8B74 946B	OUTPUT #6 / INPUT #3 : 8F70 946B
OUTPUT #2 / INPUT #4 : 8B74 956A	OUTPUT #6 / INPUT #4 : 8F70 956A
OUTPUT #2 / INPUT #5 : 8B74 9669	OUTPUT #6 / INPUT #5 : 8F70 9669
OUTPUT #2 / INPUT #6 : 8B74 9768	OUTPUT #6 / INPUT #6 : 8F70 9768
OUTPUT #2 / INPUT #7 : 8B74 9867	OUTPUT #6 / INPUT #7 : 8F70 9867
OUTPUT #2 / INPUT #8 : 8B74 9966	OUTPUT #6 / INPUT #8 : 8F70 9966
OUTPUT #3 / INPUT #1 : 8C73 926D	OUTPUT #7 / INPUT #1 : 906F 926D
OUTPUT #3 / INPUT #2 : 8C73 936C	OUTPUT #7 / INPUT #2 : 906F 936C
OUTPUT #3 / INPUT #3 : 8C73 946B	OUTPUT #7 / INPUT #3 : 906F 946B
OUTPUT #3 / INPUT #4 : 8C73 956A	OUTPUT #7 / INPUT #4 : 906F 956A
OUTPUT #3 / INPUT #5 : 8C73 9669	OUTPUT #7 / INPUT #5 : 906F 9669
OUTPUT #3 / INPUT #6 : 8C73 9768	OUTPUT #7 / INPUT #6 : 906F 9768
OUTPUT #3 / INPUT #7 : 8C73 9867	OUTPUT #7 / INPUT #7 : 906F 9867
OUTPUT #3 / INPUT #8 : 8C73 9966	OUTPUT #7 / INPUT #8 : 906F 9966
OUTPUT #4 / INPUT #1 : 8D72 926D	OUTPUT #8 / INPUT #1 : 916E 926D
OUTPUT #4 / INPUT #2 : 8D72 936C	OUTPUT #8 / INPUT #2 : 916E 936C
OUTPUT #4 / INPUT #3 : 8D72 946B	OUTPUT #8 / INPUT #3 : 916E 946B
OUTPUT #4 / INPUT #4 : 8D72 956A	OUTPUT #8 / INPUT #4 : 916E 956A
OUTPUT #4 / INPUT #5 : 8D72 9669	OUTPUT #8 / INPUT #5 : 916E 9669
OUTPUT #4 / INPUT #6 : 8D72 9768	OUTPUT #8 / INPUT #6 : 916E 9768
OUTPUT #4 / INPUT #7 : 8D72 9867	OUTPUT #8 / INPUT #7 : 916E 9867
OUTPUT #4 / INPUT #8 : 8D72 9966	OUTPUT #8 / INPUT #8 : 916E 9966

POWER
ON   OFF

AUDIO CHANNEL
CH-1 CH-2 CH-3 CH-4
1   2   3   4
CH-5 CH-6 CH-7 CH-8
5   6   7   8

AUDIO VOLUME

DESTINATION
1 2 3 4
OUTPUT
5 6 7 8

SOURCE
1 2 3 4
INPUT
5 6 7 8

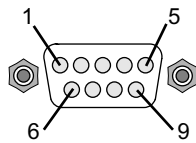8x8 AUDIO MATRIX SWITCHER
SW-8804

SHINYBOW

FEATURES

1. Supports 8x inputs to 8x outputs Digital (SPDIF) & Stereo Audio Matrix Switcher
2. Input / Output signals via Digital(SPDIF) or Composite Video & Stereo Audio(AR/AL)
3. Higher Video Bandwidth 300MB each path signals.
4. Supported selection buttons direct channel on front panel
5. Support Audio Volume control via Push Button select Audio Value from unit front panel
6. Compatible with all Digital(SPDIF) and Stereo Audio devices,
   Digital port support : Composite Video or Component (Y) signal with 480i resolution.
   AR/AL port support : Component Video (PR/PB) 480i resolution.
7. Supported RS232 serial interface protocol commands list
8. Control PC RS232 Drive compatible with win-95/98/2000/xp
9. Various User Interface controls:
   Attached Window based control software for Desktop or NB control by RS232 port
   Manual controlled by Front Panel button
   IR remote control
10. Support desktop with Ear mount and 19 inch 1U Rack mountable type panel
11. Power supply DC12Volt, Universal Type Switch 100~230VAC, 50/60Hz

SPECIFICATIONS

Type of Switcher:	8 in To 8 out, Digital (SPDIF) / Stereo Audio Matrix Switcher
I/O Signals:	Digital : Digital or Composite Video 0.5~1.0Vpp, 75 Ohms, RCA(Orange)
	Analog : Stereo Audio (AR/AL), Via 2x RCA connector(Red/white)
Video Bandwidth :	300MHz (-3db), 200mVp-p
Digital Supported:	Digital Audio SPDIF, Composite Video and Component Video (Y)
Audio Supported:	Stereo Audio(AR/AL)
Low all hostile crosstalk:-83 db@5MHz	
Controls:	IR remote, Select buttons on the front panel & RS232
PC RS232 Control :	RS232 interface serial via DRV on a PC
Gain control:	60MHz 0.1 db gain flatness
Safety Approvals:	CE, FCC, RoHS(2002/95/EC).
Dimensions (LWH):	17.32″ x 7.87″ x 1.73″ (440mm x 200mm x 44mm)
Power Supply:	DC12V / 2A (consumption 1250mA Max)
	Use Universal Switch Type 50/60Hz,100~230 VAC
Shipping Weight :	2.85 Kgs / 4.75 lb

RS-232 SERIAL INTERFACE

RS-232 SERIAL INTERFACE CONNECT a PC or CONTROL SYSTEM

RS-232 SERIAL INTERFACE

Pin	RS-232	Definition
1	------	Not used
2	TX	Transmitter
3	RX	Receiver
4	------	Not used
5	GND	Ground
6	------	Not used
7	------	Not used
8	------	Not used
9	------	Not used

RS232

The Shinybow switcher can be controlled via the RS-232 serial control port to allow for interfacing to a PC, or similar third party control system.

The serial communication parameters are 9600 baud, 8 bit, No Parity and 1 stop bit - this is often referred to as 9600 8N1. When the unit recognises a complete command it will perform the requested action - there is no delimiter character required.

The unit does not send out a message when a value is changed from the front panel or by IR control. If the unit needs to be controlled via the front panel in addition to the RS232 control, you should regularly poll the unit status to ensure the control system accurately reflects the current settings.

PROTOCOL COMMANDS

To Switch Inputs to Outputs

SBI0XO0Y   - Where X is Output Number (1-8) and Y is
                      Input Number (1-8)

Unit will respond with

SBUD0XOY   - Where X is Output Number (1-8) and Y is
                      Input Number (1-8)

Example : Send Input 8 to Output 3
SBI08O03   -Send
SBUD08O3   -Rcvd

MORE STUFF FOR SB-8804

Note: Turning the unit System Power Off over RS232 will distinguish the LED display leaving only the Power Switch LED on. The Video and Audio outputs will also mute. While the unit is turned off by RS232 it will continue to accept and act upon switching commands. For example, if the unit is in the off mode (via RS232) and you send a command to switch an input to an output, that route will complete and the video and audio will now appear on that channel only. The front panel LED for that particular output will also show the input selected (for that single output channel only). The remaining LED's will remain off and video and audio outputs muted. The unit will still return status and change messages in response to commands sent while in Power Off state. A hard reset command (SBALLRST) will return the unit to normal operation and also unlock the front panel.

Power Off mode.

SBSYSMOF - Put system into Standby (Soft Power Off)
SBSYSMON - Bring unit out of Standby (Soft Power On)

Unit will respond with

SBALOFAK - Unit is in Standby
SBALONAK - Unit is no longer in Standby

Example : Put Unit in Standby (Soft Power)
SBSYSMOF -Send
SBALOFAK -Rcvd

FRONT PANEL LOCK

Note : Hard resetting the unit will unlock the Front Panel controls.
SBSYSMLK - When front panel is locked, changes can only be made by RS232

SBSYSMUK - Front Panel Unlock

Unit will respond with
SBSYSLOK - Front Panel has been Locked
SBSYSULK - Front Panel has been Unlocked

Example : Lock Front Panel Buttons
SBSYSMLK -Send
SBSYSLOK -Rcvd

UNIT RESET

SBALLRST - Reset every output to Input 1

Unit will respond with
SBRSTACK - Unit has reset each Output to Input 1
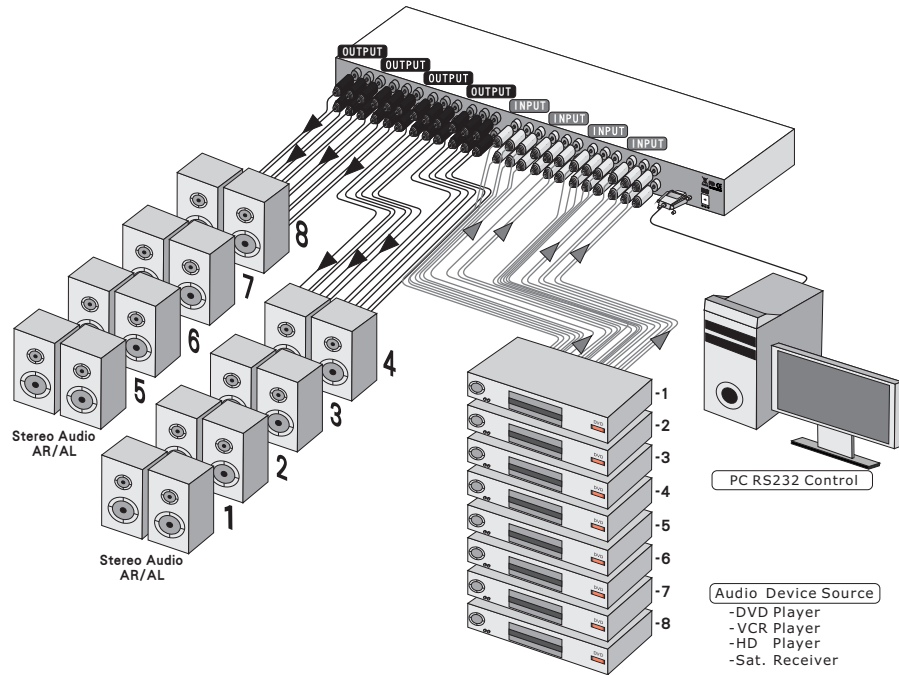
Example : Reset all outputs to Input 1
SBALLRST -Send
SBRSTACK -Rcvd

TYPICAL APPLICATION

8x Digital / Audio sources to 8x Digital / Audio Output Matrix Switcher

SHINYBOW
SB-8804

PC RS232 Control

Audio Device Source
-DVD Player
-VCR Player
-HD Player
-Sat. Receiver

Stereo Audio AR/AL

INSTALLING

CONTROL PORTS :

1. IR REMOTE   - IR Remote Controller
2. RS 232 Interface - RS 232 interface system

INPUTS 1 ~ 8 PORT DIGITAL / AUDIO SOURCE SIGNALS :

   DIGITAL - Digital (SPDIF) or Composite Video, connector with RCA
   AUDIO   - Stereo Audio (AR/AL), connector with RCA

OUTPUT 1 ~ 8 PORT AUDIO SIGNALS DEVICE :

   DIGITAL - Digital (SPDIF) or Composite Video, connector with RCA
   AUDIO   - Stereo Audio (AR/AL), connector with RCA

SB-8804 SUPPORT DIGITAL/AUDIO EIGHT INPUTS MATRIX TO EIGHT SWITCH OUTPUTS
SUPPORT CONTROL IR & RS 232 INTERFACE SYSTEM PORTS.

SHINYBOW WARRANTY

SHINYBOW Technology warrants this product against defects in materials and workman ship for a period of **1 year** from the date of purchase.

Should this product, in SHINYBOW Technology,s opinion, Prove defective within this warranty period, SHINYBOW Technology, at its option, repair this product without charge, to whatever extent it shall deem necessary to restore said product to proper operation condition.

This warranty does not apply if the fault has been caused by misuse, improper handling care, electrical or mechanical abuse, and abnormal operating condition or non-SHINYBOW Technology authorized modification to the product.

If repairs are necessary under the warranty policy, the original purchaser must return the product to local distributor, freight prepaid.

After repairs are complete, the product will be returned.

REGULATORY COMPLIANCE

The product complies with the relevant standards for CE, FCC and RoHS approval.

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

TROUBLESHOOTING

If you experience a <no signal> with this switcher or distributor outputs, first make certain that the signal being fed to its inputs is acceptable.

Disconnect the cables from the this switcher or distributor inputs and connect them directly to an appropriate monitoring device, if you do not see or hear a signal the problem may well be he signal source itself. Also check that the AC outlet you have used to power the switcher or distributor is actually providing power as a wall switch often controls an AC outlet.

The second most common problem with this switcher or distributor revolves around the cables, Inspect the cables for loose connectors or cable damage such as crushed cable or cables with cuts or nicks. Replace any cable exhibiting these problem.

You also must use the highest quality cables if you want to achieve the best results. Poor quality cables will provide poor quality signals.

SHINYBOW™USA

MULTIMEDIA AUDIO AND VISUAL

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