MODEL : SB-5548BNC

8x8 AUDIO-VIDEO MATRIX SWITCHER



8x8 AUDIO-VIDEO MATRIX SWITCHER

Composite Video-Stereo Audio Matrix Switcher Series

Thank you for purchasing the SB-5548BNC 8x8 Composite Video-Audio Matrix Switcher. You will find this unit easy to install and highly reliable but it is essential that you read this manual thoroughly before attempting to use this switcher.



SAFETY INFORMATION



- 1. To ensure the best results from this product, please read this manual and all other documentation before operating your equipment. Retain all documentation for future reference.
- 2. Follow all instructions printed on unit chassis for proper operation.
- 3. To reduce the risk of fire, do not spill water or other liquids into or on the unit, or operate the unit while standing in liquid.
- 4. Make sure power outlets conform to the power requirements listed on the back of the unit. Keep unit protected from rain, water and excessive moisture.
- 5. Do not attempt to clean the unit with chemical solvents or aerosol cleaners, as this may damage the unit. Dust with a clean dry cloth.
- 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. Do not force switched or external connections in any way. They should all connect easily, without needing to be forced.
- 8. 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.
- 9. AC 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.
- 10. Turn power off and disconnect unit from AC current before making connections.
- 11. Never hold a power switch in the "ON" position.
- 12. This unit should be installed in a cool dry place, away from sources of excessive heat, vibration, dust, moisture and cold. Do not use the unit near stoves, heat registers, radiators, or other heat producing devices.
- 13. 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 dust and matter.
- 14. To reduce the risk of electric shock, do not remove the cover. There are no user serviceable parts inside. Refer all servicing to qualified service personnel. There are no user serviceable parts inside.
- 15. When moving the unit, disconnect input ports first, then remove the power cable; finally, disconnect the interconnecting cables to other devices.
- 16. Do not drive the inputs with a signal level greater than that required to drive equipment to full output.
- 17. The equipment power cord should be unplugged from the outlet when left unused for a long period of time.
- 18. 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.
- 19. 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.

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INTRODUCTION

Congratulations on your purchase of one of the most innovative 8x8 AV (Composite Video-BNC/Audio) matrix switching product with adjust audio volume & balance on the market Today. The SB-5548BNC is a true Matrix Routing Switcher for AV (Composite & Stereo Audio) signals. Full support any NTSC or PAL Composite Video & Stereo Audio TV system. It is a (8) individual Composite Video (BNC connector) and Stereo Audio inputs with (8) individual Composite Video (BNC connector) and Stereo Audio outputs (Audio output with control volume and AR/AL balance). 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 video audio input and output cables. The switcher is useful for Matrix signals from Composite Video and stereo audio source devices (such as: VCRs, Camcorders, Video Game Consoles, Video CDs, DVDs, Satellite Receivers, CAT5 Set Top Boxes, etc.) To Composite Video/Audio destination devices (such as: LCD TV, HDTV, Plasma displays, Projectors, etc.). Selection of inputs is made via the Front Panel push buttons or an Infrared Remote Control unit or RS-232 control by computer. An RS-232 Windows GUI interface is provided for matrix routing control (Windows only).

PACKAGE CONTENTS

Check that you have the following components;

- SB-5548BNC 8x8 Matrix Switcher
- RS-232 V2.0 Protocol Instructions
- Master wireless IR Remote Control (SW-5548BNC)
- 19 inch Ear mount bracket (Part # 1U-440L)
- SB-100 IR Extender distance ~984 feet (300M) Receiver set.
- SB-100C IR Extender distance 6ft(2M) Receiver Cable.
- · CD Contents : This manual, Windows GUI, ISP V1.0 Windows driver
- RS-232 Cable 6 feet (2M)
- ISO Screws
- Users Guide
- Power Supply Input : DC12V, 3A, (Worldwide Universal 100~230 VAC, AC 50/60Hz.)







RoHS

SAFETY PRECAUTIONS

Please read all instructions before attempting to unpack, install or operate this equipment and before connecting the power supply. Please keep the following in mind as you unpack and install this equipment:

- Always follow basic safety precautions to reduce the risk of fire, electrical shock and injury to persons.
- To prevent fire or shock hazard, do not expose the unit to rain, moisture or install this product near water.
- Never spill liquid of any kind on or into this product.
- Never push an object of any kind into this product through any openings or empty slots in the unit, as you may damage parts inside the unit.
- Do not attach the power supply cabling to building surfaces.
- Use only the supplied power supply unit (PSU). Do not use the PSU if it is damaged.
- Do not allow anything to rest on the power cabling or allow any weight to be placed upon it or any person walk on it.
- To protect the unit from overheating, do not block any vents or openings in the unit housing that provide ventilation and allow for sufficient space for air to circulate around the unit.

DISCLAIMERS

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FEATURES & SPECIFICATIONS

FEATURES

- Supports (8)x inputs to (8)x outputs A/V (Composite Video & Stereo Audio) Matrix Switcher
- Input/Output signals via Composite Video (BNC) & Stereo Audio(AR/AL)
- Higher Video Bandwidth 450MB each path signals.
- Supported selection buttons direct channel on front panel
- Video support Composite Video switch the NTSC or PAL TV system, via BNC connectors.
- Audio support control Volume(+/- 100 level) and balance +50-AR / -50-AL
- · Compatible with all Composite Video devices, Plasma TV display and HDTV
- · Supported RS-232 serial interface protocol commands list
- Control PC RS-232 Drive compatible with win-95/98/2000/xp
- Various User Interface controls:
 - Windows based GUI control via RS-232 port
 - Front Panel push button
 - IR wireless remote controller
 - Third party RS-232 controller (via simple ASCII)
- Support world wide (7)x control function keys:
- Full function front panel controls: ALL / OFF / VOL-BAL / LOCK / RECALL / MEMORY / ENTER
- Support desktop with Ear mount and 19 inch 1U Rack mountable type panel
- Power supply DC12Volt, Universal Type Switch 100~230VAC, 50/60Hz

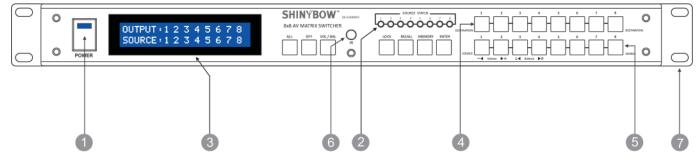
SPECIFICATIONS

- Type of AV Switcher: (8) in To (8) out, A/V (Composite Video-Audio) Matrix Switcher
- Video Support: Video : Composite Video 0.5~1.0Vpp, 75 Ohms, 1x BNC connector
- Audio Support: Stereo Audio (AR/AL), Via 2x RCA connector(color Red/white)
- Video Bandwidth: 4450MHz (-3db), 200mVp-p, Higher resolution formats
- Inputs:
 - Video: (8)x Video (Composite Video) use BNC connectors
 - Audio: (8)x Audio (Stereo audio) use RCA connectors
- Outputs:
 - Video: (8)x Video (Composite Video) use BNC connectors
 - Audio: (8)x Audio (Stereo audio) use RCA connectors
- Audio Volume Control: Volume Level +0 ~ +100 (+6db)
- Audio Balance Control: Balance AR +51~100, AL 0~+50
- Low All Hostile Crosstalk: -83 db@5MHz
- Gain Control: 60MHz 0.1 db gain flatness
- Switch Controls:
 - 1x Select & Function buttons on front panel (Data status via LCM panel show out)
 - 1x IR Remote Controller (switch control)
 - 1x IR External port (switch control via 3.5mm OD Jack)
 - 1x RS-232 series interface (switch control)
- Source Status: Input status LEDs indicates presence of a live signal
- (23) Function Control Keys: 1.ALL, 2.OFF, 3.RECALL, 4.ENTER, 5.MEMORY, 6.LOCK, 7.VOL/BAL, 8.Destination button 1 thru 8, 9.Source button 1 thru 8
- Infrared Frequency: 38 Khz
- IR External Distance: SB-100 IR Receiver support ~984 feet / 300 meters maximum
- AV I/O Connector: Video : BNC / Audio : RCA connector
- Dimensions (WxDxH): 19 x 7.87 x 1.73 in (482mm x 200mm x 44mm)
- Rack Mount: 1RU High 19 in Rack Mount #1U-440L (with rack mount)
- Shipping Weight: 3.25 Kgs / 7.2 lb
- Safety Approvals: CE, FCC, RoHS, REACH.
- Power Supply: DC12V / 3A (consumption 1750mA), Use Universal Type 50/60Hz,100~230 VAC

As product improvements are continuous, specifications are subject to change without notice.

FRONT PANEL

FRONT PANEL



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. The Switcher will remember that last state during a power cycle. When power is removed and resorted, the last configuration will be evoked.

2. INPUT STATUS DISPLAY

Input sources 1 to 8 LED illuminates blue to indicate that a video source is present on that input.

3. OUTPUT STATUS DISPLAY

Each Output (destination) Channel shows which input (source) is assigned..

4. DESTINATION SELECT BUTTONS

Separate outputs 1 thru 8 select buttons are provided for each destination assignment. Routing can be Source to Destination or one source to multiple destinations.

Example: Press Destination 1,3,5 then press Source 2 will route Input 2 to Output 1,3,5 respectfully.

5. SOURCE SELECT BUTTONS

Separate inputs 1 thru 8 select buttons are provided each source selection.

6. IR SENSOR

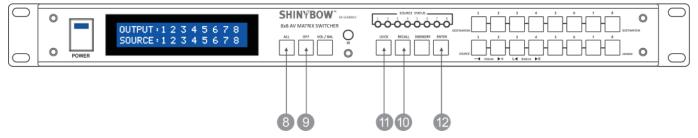
The IR sensor receives IR commands from the supplied remote controller or third party IR emitter.

7. 19 INCH EAR MOUNT PAIR

Converts desk-top to 19 inch rack mount bracket (part # 1U-440L) INCLUDED. Image shows rack mount bracket attached.

FRONT PANEL

FRONT PANEL



8. FUNCTION KEY - ALL



Disables (mute) audio on all destinations OR Selects the same source to all destinations. *Option 1*

- Press <u>ALL</u> followed by <u>OFF</u> button. The display will show "0" indicating all destinations have no audio selected.

Option 2

- Press ALL followed by Source 1 thru 8. The display will show the Source selected.
- Press **ENTER** The pre-set source selection will be assigned all destinations.

9. FUNCTION KEY - OFF



Disables (mute) audio to selected channels. Either destinations.

- Press OFF button followed by any Source or Destination channel.
- Press 1 thru 8 output destination. The display will show "0" for the selected channel indicating no audio selected.

10. FUNCTION KEY - RECALL

RECALL S-02	•12345678 •22255566	
RECALL D-02	•12345678 •888888888	

The system will show previously stored presets, up to a total of 16. Presets are stored in local memory using Source keys 1 thru 8 or Destination keys 1 thru 8 as the memory preset location.

- Press RECALL button.
- Press 1 thru 8 on either Source or Destination row.
- Press ENTER The pre-set configuration will execute.

Operation completes.

Note: Operation will abort if no keys are dressed within 5 seconds.

11. FUNCTION KEY - LOCK

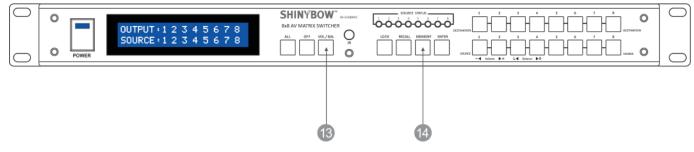


- Press and hold **LOCK** button for two seconds lockout the front panel.
- Press and hold LOCK button for two seconds to enable front panel.

12. FUNCTION KEY - ENTER or DEMO Press <u>ENTER</u> to confirm entries.

FRONT PANEL

FRONT PANEL



13. FUNCTION KEY - VOL / BAL (Volume / Balance)

OUTPUT	X
VOLUME	

- VOLUME: To affect the volume on any Output,
 - Press VOL / BAL button once.
 - Select 1 thru 8 on the Destination row, for the Output you wish to change.
 - Press Volume + or (Source #1 or #2) button to adjust the audio volume level.
 - Press ENTER to store the new setting.

Repeatedly depressing the Source 1 button will decrease the volume setting.

Repeatedly depressing the Source 2 button will increase the volume setting.

With each push, the button will flash blue and the display will show the current Audio Volume setting.

The available options are "0" thru "100" in increment of "1".



BALANCE: To affect the balance on any Output,

- Press VOL / BAL button once.
- Select 1 thru 8 on the Destination row, for the Output you wish to change.
- Press Balance L or R (Source #3 or #4) button to adjust the audio balance.
- Press ENTER to store the new setting.

Repeatedly depressing the Source 3 button will increase the Left channel and decrease the Right channel. Repeatedly depressing the Source 4 button will decrease the Left channel and increase the Right channel. With each push, the button will flash blue and the display will show the current Audio Volume.

The available options are Audio Left = "0" thru "50" and Audio Right = "51" thru "100" in increments of "1". Operation completes.

Note: Operation will abort if no keys are dressed within 5 seconds.

14. FUNCTION KEY - MEMORY



The system will show store presets, up to a total of 16. Presets are stored in local memory using Source keys 1 thru 8 or Destination keys 1 thru 8 as the memory preset location.

- Configure desired matrices .
- Press MEMORY button.
- Press 1 thru 8 on either Source or Destination row.
- Press ENTER to ready memory location.
- Or press **MEMORY** again to cancel operation.

Operation completes.

Note: Operation will abort if no keys are dressed within 5 seconds.

BACK PANEL

BACK PANEL

1. DC POWER INLET: The Switcher 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.	INPUT DC 12V © ©	Power Jack: DC Jack - Inner OD Ø 2.1 mm (+) Outside OD Ø 5.5mm (GND) Power input -12VDC, 3A
2. IR EXTENDER CONTROL: Support one of IR Extender (IR input) Extend distance maximum 300 Meters.	IR EXT.	IR Extender Jack: Female Jack - inner OD Ø 3.5mm
3. RS-232 CONNECTION: RS-232 control port allows for interfacing to a PC, Such as a computer or touch panel control, to the switcher via this DB-9pin Female connector for serial RS-232 control.	RS232	Remote port: DB-9pin Female connector
 4. INPUTS-1~8 COMPOSITE VIDEO (BNC): Connect a signal source Composite Video device to the (8)x(8) matrix switcher. Input 1~8 port source signals: - Composite Video (BNC), 1x BNC Connectors 	IT I INPUT	Composite Video source Via BNC in <i>Note: Input with 1x BNC female connectors.</i>
 5. OUTPUTS-1~8 COMPOSITE VIDEO (BNC): Connect matrix switcher signal to Composite Video to a display device from the (8)x(8) matrix switcher. Output 1~8 port signals: Composite Video (BNC), 1x BNC Connectors 		Composite Video out Via BNC out <i>Note: Output with 1x BNC female connectors.</i>
 6. INPUTS-1~8 STEREO AUDIO(AR/AL): Connect a signal source Stereo Audio (AR/AL) to the (8)x(8) matrix switcher via Female RCA connector. Input 1~8 ports Audio source signals: Stereo Audio (AR/AL), 2x RCA Connectors 		Stereo Audio (AR/AL) Via 2x RCAs <i>Note: Input with 2x RCA female connectors.</i>
 7. OUTPUTS-1~8 STEREO AUDIO(AR/AL): Connect matrix switcher's Stereo Audio (AR/AL)signal direct to Audio device via Female RCA connector. Output 1~8 ports Audio source signals: Stereo Audio (AR/AL), 2x RCA Connectors 		Stereo Audio (AR/AL) Via 2x RCAs <i>Note: Output with 2x RCA female connectors.</i>

REMOTE CONTROL

Before making any connections to the SB-5548BNC. 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 REMOTE CONTROL KEY :

1. & 2. SWITCH POWER ON or OFF:

Controller with a power ON and OFF

3. DESTINATION : 1 thru 8 OUTPUT SELECTION: Press the destination button to select the output display channel.

4. SOURCE : 1 thru 8 INPUT SOURCE SELECTION:

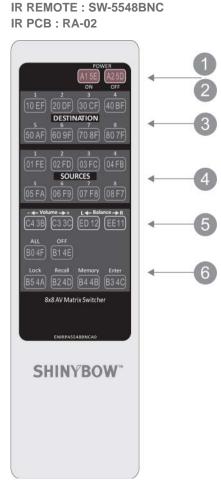
Press input 1~8 sources with selection button

5. AUDIO VOLUME / BALANCE KEY:

Adjust Audio **Volume** from $+0 \sim +100$ levels. Adjust Audio **Balance** from L= $+0 \sim +50$ levels. Adjust Audio **Balance** from R= $+50 \sim +100$ levels.

6. FUNCTION KEY:

ALL - function selection button OFF - function selection button VOL/BAL - function selection button RECALL - function selection button ENTER - function selection button MEMORY - function selection button LOCK - function selection button



REMOTE PROTOCOL COMMANDS

IR REMOTE CUSTOM AND DATA CODES (NEC STANDARD)

HOW TO SETUP IR CODES :			ES:	CUSTOM CODE : 2CD3			
	POWER ON	2CD3	A15E	BALANCE +	2CD3	EE11	
	POWER OFF	2CD3	A25D	BALANCE -	2CD3	ED12	
	ALL	2CD3	B04F	LOCK	2CD3	B54A	
	OFF	2CD3	B14E	RECALL	2CD3	B24D	
	VOLUME +	2CD3	C33C	ENTER	2CD3	B34C	
	VOLUME -	2CD3	C43B	MEMORY	2CD3	B44B	

PRESS TV DESTINATION - # then PRESS SOURCE -

DESTINATION #1 :	2CD3	10EF	SOURCE #1 : 2CD	3 01FE
DESTINATION #2 :	2CD3	20DF	SOURCE #2 : 2CD	3 02FD
DESTINATION #3 :	2CD3	30CF	SOURCE #3 : 2CD	3 03FC
DESTINATION #4 :	2CD3	40BF	SOURCE #4 : 2CD	3 04FB
DESTINATION #5 :	2CD3	50AF	SOURCE #5 : 2CD	3 05FA
DESTINATION #6 :	2CD3	609F	SOURCE #6 : 2CD	3 06F9
DESTINATION #7 :	2CD3	708F	SOURCE #7 : 2CD	3 07F8
DESTINATION #8 :	2CD3	807F	SOURCE #8 : 2CD	3 08F7

For example;

Select Destination # 1 to show Source #1~8,

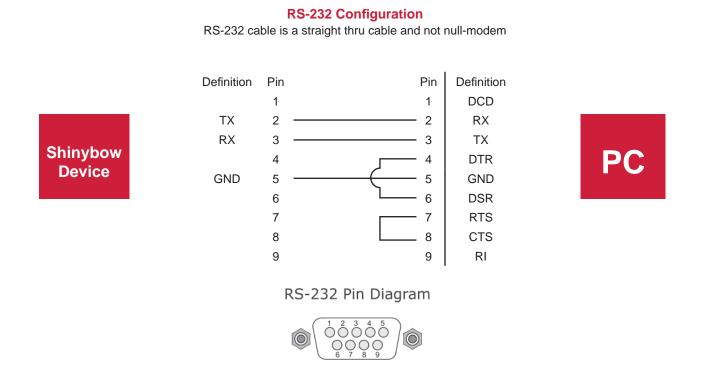
The IR Data Code list when press Destination # then press Source #

Press Destination # 1 & Source #1	2CD3	01FE	2CD3	01FE
Press Destination # 1 & Source #2	2CD3	01FE	2CD3	02FD
Press Destination # 1 & Source #3	2CD3	01FE	2CD3	03FC
Press Destination # 1 & Source #4	2CD3	01FE	2CD3	04FB
Press Destination # 1 & Source #5	2CD3	01FE	2CD3	05FA
Press Destination # 1 & Source #6	2CD3	01FE	2CD3	06F9
Press Destination # 1 & Source #7	2CD3	01FE	2CD3	07F8
Press Destination # 1 & Source #8	2CD3	01FE	2CD3	08F7

RS-232 SERIAL INTERFACE

RS-232 SERIAL INTERFACE CONNECT A PC OR CONTROL SYSTEM. VERSION COMPATIBLE V1.0 & V1.5

For a complete list of commands, please reference external document extended RS-232 Protocol Instruction Manual.

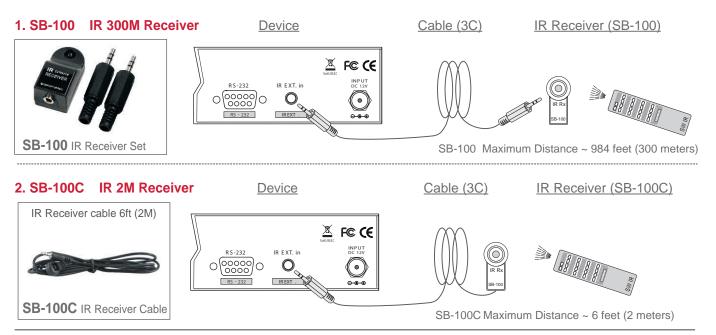


RS-232 SERIAL INTERFACE PROTOCOL COMMANDS (ETHERNET / RS-232 CONTROL DRIVER V2.0)

The Shinybow switcher can be controlled via the RS-232 serial control port to allow for interfacing to a PC, 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 recognizes a complete command it will perform the requested action - there is no delimiter character required.

IR EXTENDER

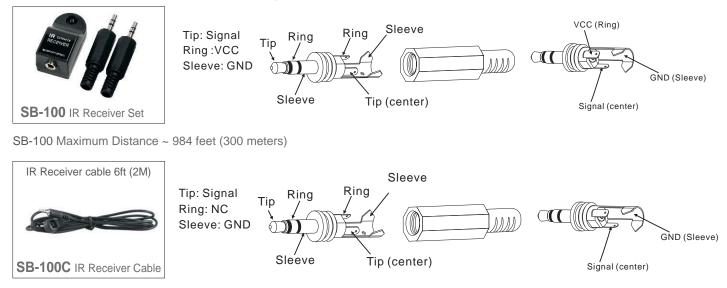
IR RECEIVER:



*** When you plug the External IR extender into the switcher, the front panel IR receiver remains active. ***

PIN CONFIGURATION:

SB-100 and SB-100C Receiver Pin configuration

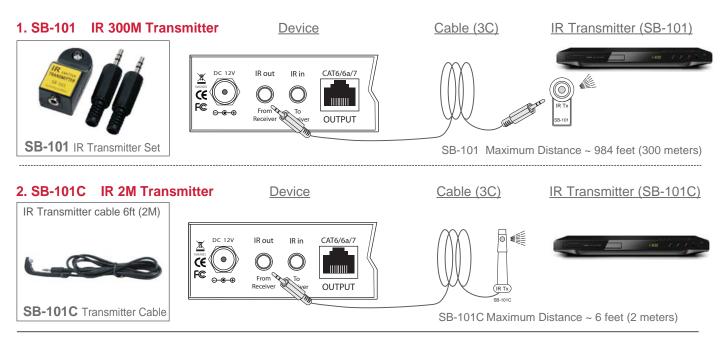


SB-100C Maximum Distance ~ 6 feet (2 meters)

Note: The External IR jack has voltage on the "Ring" portion of a 3-conductor plug. You must use a 3-conductor plug (aka: stereo plug). Using a 2-conductor plug will short out the power supply. Always make connections with the switcher power off.

IR EXTENDER

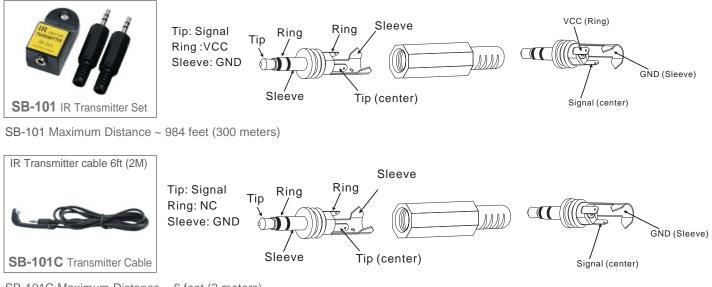
IR EMITTER:



*** When you plug the External IR extender into the switcher, the front panel IR transmitter remains active. ***

PIN CONFIGURATION:

SB-101 and SB-101C Transmitter Pin configuration

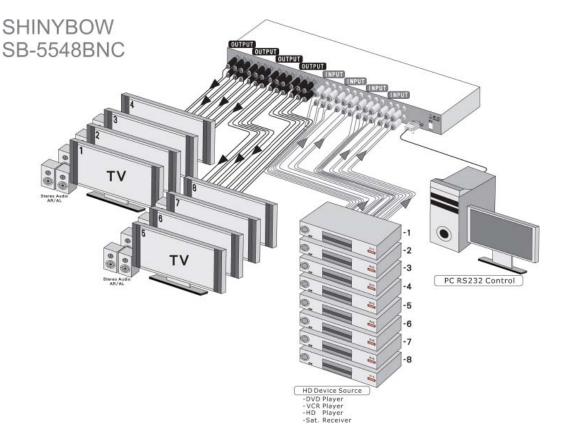


SB-101C Maximum Distance ~ 6 feet (2 meters)

Note: The External IR jack has voltage on the "Ring" portion of a 3-conductor plug. You must use a 3-conductor plug (aka: stereo plug). Using a 2-conductor plug will short out the power supply. Always make connections with the switcher power off.

TYPICAL APPLICATION

8X A/V (COMPOSITE VIDEO) SOURCES TO 8X A/V OUTPUT MATRIX SWITCHER SB-5548BNC



INSTALLING

CONTROL PORTS:

1. IR REMOTE - IR Remote Controller

2. RS-232 Interface - RS-232 interface system

INPUTS 1 ~ 8 PORT HD SOURCE SIGNALS:

COMPOSITE VIDEO - Composite Video, connector with BNC AUDIO - Stereo Audio (AR/AL), connector with RCA

OUTPUT 1 ~ 8 PORT HDTV DISPLAY SIGNALS:

COMPOSITE VIDEO - Composite Video, connector with BNC AUDIO - Stereo Audio (AR/AL), connector with RCA

SB-5548BNC SUPPORT COMPONENT EIGHT INPUTS MATRIX TO EIGHT SWITCH OUTPUTS SUPPORT CONTROL IR & RS-232 INTERFACE SYSTEM PORTS.

LIMITED WARRANTY

PLEASE READ THE FOLLOWING TERMS AND CONDITIONS CAREFULLY BEFORE USING THIS HARDWARE, COMPONENTS AND SOFTWARE PROVIDED BY, THROUGH OR UNDER SHINYBOWUSA, INC (COLLECTIVELY, THE "PRODUCT"). By using installing or using the Product, you unconditionally signify your agreement to these Terms and Conditions. If you do not agree to these Terms and Conditions, do not use the Product and return the Product to SHINYBOWUSA, Inc. at the return address set forth on the Product's packing label at your expense. SHINYBOWUSA, Inc. may modify these Terms and Conditions at anytime, without notice to you.

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