

MODEL : SB-5544LCM

4x4 AUDIO-VIDEO MATRIX SWITCHER



4x4 AUDIO-VIDEO MATRIX SWITCHER

Composite Video-Stereo Audio Matrix Switcher Series

Thank you for purchasing the SB-5544LCM 4x4 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 4x4 Composite Video and Audio Matrix 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 qualified 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.

THIS SAFETY INFORMATION IS OF A GENERAL NATURE AND MAY BE SUPERSEDED BY INSTRUCTIONS CONTAINED WITHIN THIS MANUAL

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INTRODUCTION

Congratulations on your purchase of one of the most innovative 4x4 AV (Composite Video/Audio) matrix switching product on the market Today. The SB-5544LCM is a true Matrix Routing Switcher for AV (Composite & Stereo Audio) signals. Full support any NTSC or PAL Composite Video & Stereo Audio system. It is a (4) individual Composite Video and Stereo Audio inputs with (4) individual Composite Video and Stereo Audio 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 video audio input and output cables. The SB-5544LCM 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.

PACKAGE CONTENTS

Check that you have the following components;

- SB-5544LCM Switcher
- IR remote controller (SW-5544LCM)
- 19-inch ear mount bracket (Part # 1U-440 L)
- IR extender SB-100 receiver (300M length)
- IR extender SB-100C receiver (2M length)
- RS-232 Cable
- CD contents: Windows GUI
- RS-232 operation manual (V2.0)
- Users Guide
- Power Supply: 12VDC, 2A Universal Type 50/60Hz, 100~240 VAC



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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We assume no responsibility for any inaccuracies that may be contained in this document. We make no commitment to update or to keep current the information contained in this document.

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FEATURES & SPECIFICATIONS

FEATURES

- Support 4x Inputs To 4x Outputs Matrix Switcher.
 - Video Audio signals support Composite Video and Stereo Audio (AR/AL)
 - High Bandwidth Video 450MHz each Composite Video ports.
 - Support IR remote and IR External, front panel and RS-232 serial interface protocol Controls.
 - Compatible NTSC or PAL TV Video systems.
 - RS-232 control via a PC Drive compatible PC win-98/2000/XP.
 - Various User Interface control :
 - Attached Window based control software for Desktop or NB control via RS-232 port.
 - The Front Panel button via manual control.
 - IR remote control or IR external to control Switcher
 - Support desktop with 19 inch 1RU Rack mount pack.
 - Power supply use Universal Type Switch AC 100~240VAC, Frequency 50/60Hz
-

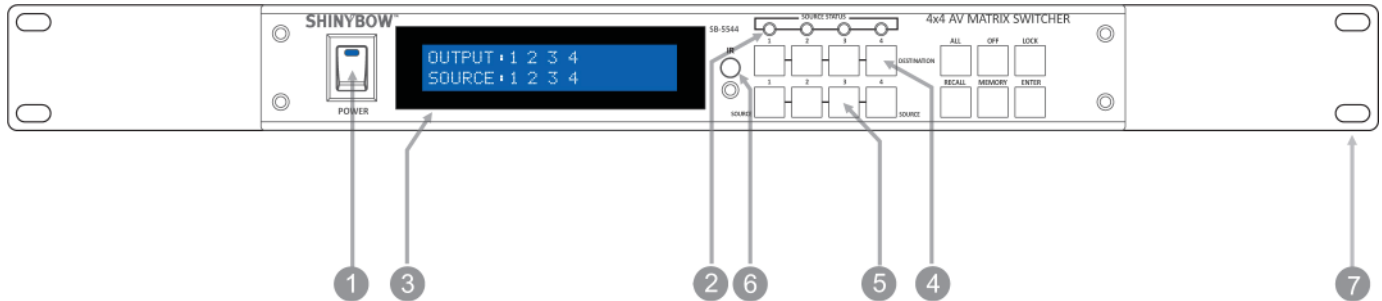
SPECIFICATIONS

- **Type of Switcher:** 4 inputs To 4 outputs Audio-Video Matrix Switcher
- **I/O Signals:**
 - Video: Composite Video (0.5~1.0 Vpp, 75Ohms. RCA(Yellow)
 - Audio: Stereo Audio (AR/AL). Via 2x RCA connector (Red/White)
- **Video Bandwidth:** 450MHz (-3db, 200mVp-p)
- **Audio specification:** 20Hz ~ 20KHz
- **Source Status:** Automatically scan sources Inputs via LED
- **Low all hostile crosstalk:** -83 db@5MHz
- **Gain control:** 60MHz-0.1 db gain flatness
- **IR Frequency:** 38Khz
- **IR External distance:**
 - SB-100 phone-jack 3.5mm 3C cable (1000 feet / 300 meters Max.)
 - SB-100C phone-jack 3.5mm 2C cable (2 meters)
- **RS-232 protocol control:** STD RS-232 interface serial via PC DRV
- **Rack Mount:** Support Rack mount 1RU High 19" pack (#1U-300L)
- **Safety Approvals:** CE, FCC, RoHS, REACH
- **Dimensions (LxWxH):** 11.97 x 5.90 x 1.73 in (304 x 150 x 44mm)
- **Power Supply:** DC-12, 2A Universal Switch Type AC100~240V, 50/60Hz
- **Power Consumption:** 750mA Maximum full load
- **Shipping Weight (net):** 3.25kgs / 5.41 lb

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 4 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 4 select buttons are provided for each destination assignment.

Routing can be Source to Destination or one source to multiple destinations.

Example : Press Destination 1,3,4 then press Source 2 will route Input 2 to Output 1,3,4 respectfully.

5. SOURCES SELECT DOWN BUTTONS

Separate inputs 1 thru 4 select buttons are provided each source selection.

6. IR SENSOR

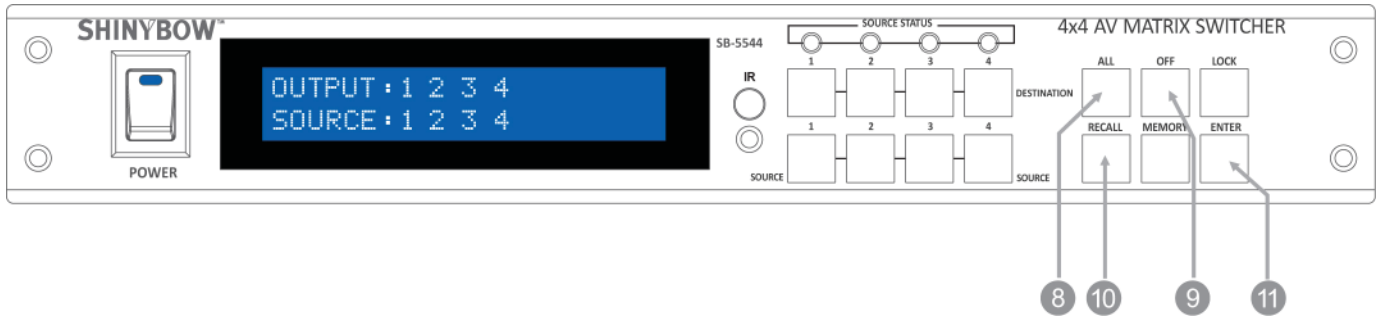
The IR sensor receives IR commands from the supplied remote controller or third party IR emitter.

7. 19 INCH EAR MOUNT PAIR

Converts desktop 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) video on all destinations OR Selects the same source to all destinations.

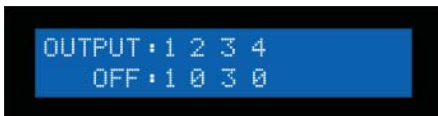
Option 1

- Press **ALL** followed by **OFF** button. The display will show "0" indicating all destinations have no video selected.

Option 2

- Press **ALL** followed by Source 1 thru 4. 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) video to selected channels. Either destinations.

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

10. FUNCTION KEY - RECALL



The system will show previously stored presets, up to a total of 8. Presets are stored in local memory using Source keys 1 thru 4 or Destination keys 1 thru 4 as the memory preset location.

- Press **RECALL** button.
- Press 1 thru 4 on either Source or Destination row.
- Press **ENTER** The pre-set configuration will execute.

Operation completes.

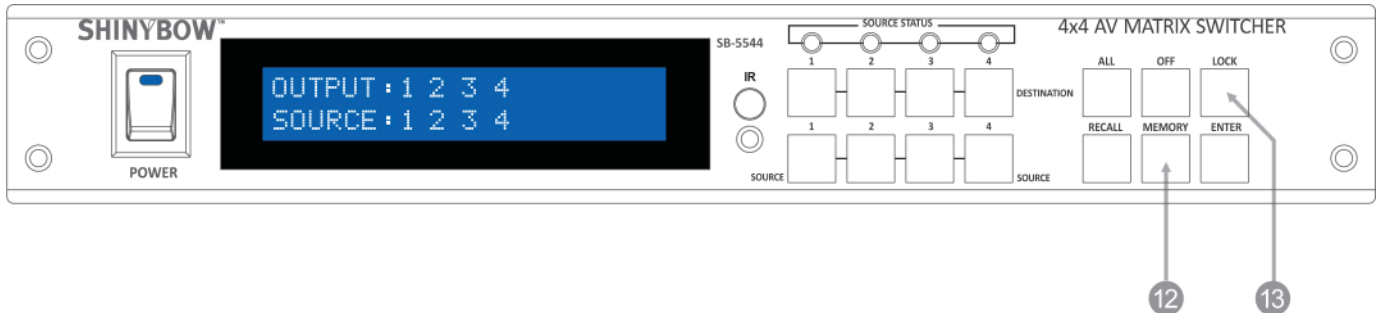
Note: Operation will abort if no keys are pressed within 5 seconds.

11. FUNCTION KEY - ENTER

Press **ENTER** to confirm entries.

FRONT PANEL

FRONT PANEL



12. FUNCTION KEY - MEMORY



The system will show store presets, up to a total of 8. Presets are stored in local memory using Source keys 1 thru 4 or Destination keys 1 thru 4 as the memory preset location.

- Configure desired matrices.
- Press **MEMORY** button.
- Press 1 thru 4 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.

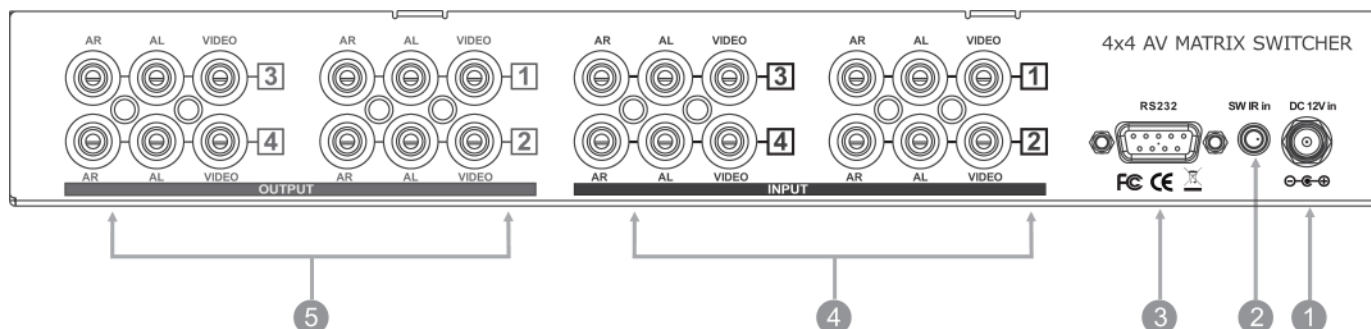
13. FUNCTION KEY - LOCK



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

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 2A Max.



Power Jack:

DC Jack - Inner OD Ø 2.1 mm (+)
Outside OD Ø 5.5mm (GND)
Power input -12VDC, 2A

2. IR EXTENDER CONTROL

Support one of IR Extender (IR input)
Extend distance maximum 300 M / 1000 ft

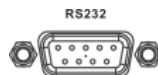
Note: DO NOT install or remote any connections while the power is ON.



IR Extender Jack: Female Jack - inner OD Ø 3.5 mm

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 switcher via this DB-9pin Female connector for serial RS-232 control.

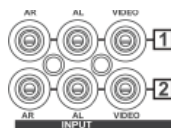


Remote Port: DB-9pin Female connector

4. INPUTS-1~4 COMPOSITE/AUDIO(AR/AL):

Connect a signal source of Composite Video and Stereo Audio (AR/AL) device to 4x4 matrix switcher.

Input 1~4 port source signals: Composite Video/Stereo Audio, 3x RCA Connectors

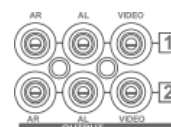


Composite Video Audio Via 3x RCAs
Note: With 3x RCA female connectors.

5. OUTPUTS: 1~4 COMPOSITE/AUDIO(AR/AL):

Connect a signal of Composite Video and Stereo Audio (AR/AL) direct to Female RCA connector. This connector supports Composite Video and Stereo Audio display device.

Output 1~4 display port signals: Composite Video and Stereo Audio, 3x RCA Connectors



Composite Video Audio Via 3x RCAs
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 various 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-5544LCM. 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 1-4 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 : SW-5544LCM

IR PCB : RA-02

IR CODE : 20DF

1./2. SWITCH POWER ON or OFF:

Controller with a power ON and OFF

3. OUTPUTS: 1 - 4 OUTPUT SELECTION:

Press the destination button to select the output display channel.

4. SOURCE : 1 thru 4 INPUT SOURCE SELECTION

Press input 1~4 sources with selection button

5. FUNCTION KEY

ALL - function selection button

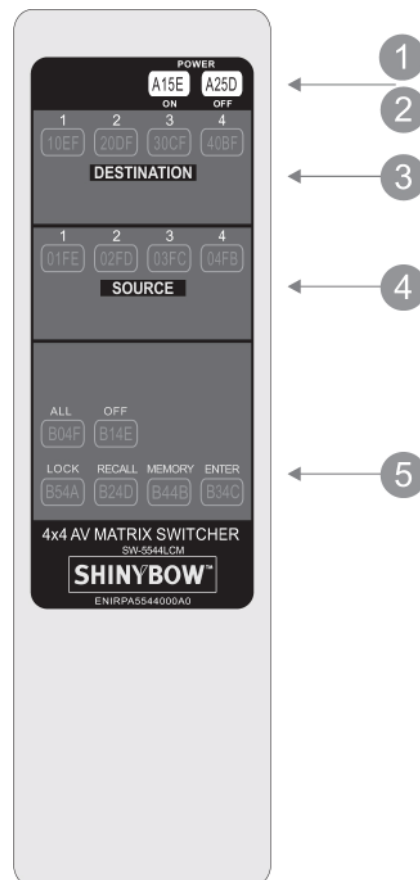
OFF - function selection button

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 :

POWER ON : 20DF A15E
POWER OFF : 20DF A25D
ALL : 20DF B04F
OFF : 20DF B14E

CUSTOM CODE : 20DF

LOCK : 20DF B54A
RECALL : 20DF B24D
ENTER : 20DF B34C
MEMORY : 20DF B44B

PRESS TV DESTINATION - # then PRESS SOURCE -

DESTINATION #1 : 20DF 01EF	SOURCE #1 : 20DF 01FE
DESTINATION #2 : 20DF 02DF	SOURCE #2 : 20DF 02FD
DESTINATION #3 : 20DF 03CF	SOURCE #3 : 20DF 03FC
DESTINATION #4 : 20DF 04BF	SOURCE #4 : 20DF 04FB

For example;

Select Destination # 1 to show Source #1~4,

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

Press Destination # 1 & Source #1	20DF	01EF	20DF	01FE
Press Destination # 1 & Source #2	20DF	01EF	20DF	02FD
Press Destination # 1 & Source #3	20DF	01EF	20DF	03FC
Press Destination # 1 & Source #4	20DF	01EF	20DF	04FB

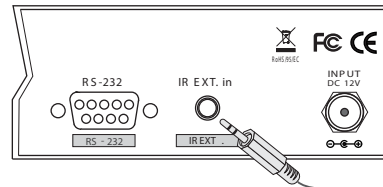
IR EXTENDER

IR RECEIVER:

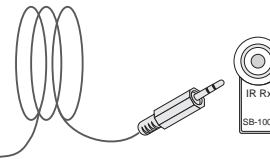
1. SB-100 IR 300M Receiver



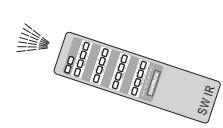
Device



Cable (3C)



IR Receiver (SB-100)

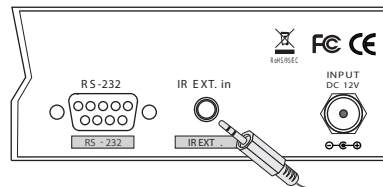


SB-100 Maximum Distance ~ 984 feet (300 meters)

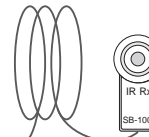
2. SB-100C IR 2M Receiver



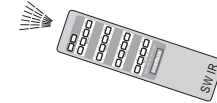
Device



Cable (3C)



IR Receiver (SB-100C)



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

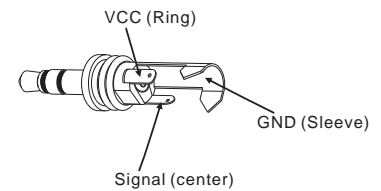
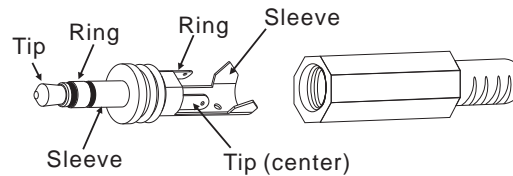
*** When you plug the External IR extender into the switcher, the front panel IR receiver remains active. ***

PIN CONFIGURATION:

SB-100 and SB-100C Receiver Pin configuration



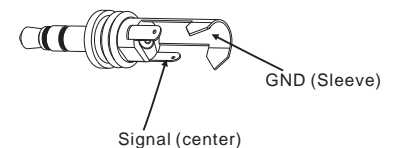
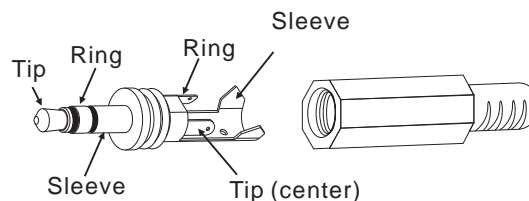
Tip: Signal
Ring :VCC
Sleeve: GND



SB-100 Maximum Distance ~ 984 feet (300 meters)



Tip: Signal
Ring: NC
Sleeve: GND



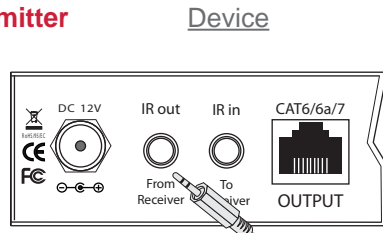
SB-100C Maximum Distance ~ 6 feet (2 meters)

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:

1. SB-101 IR 300M Transmitter



Cable (3C)

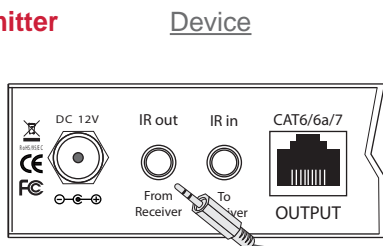


IR Transmitter (SB-101)

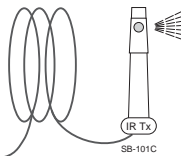


SB-101 Maximum Distance ~ 984 feet (300 meters)

2. SB-101C IR 2M Transmitter



Cable (3C)



IR Transmitter (SB-101C)



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

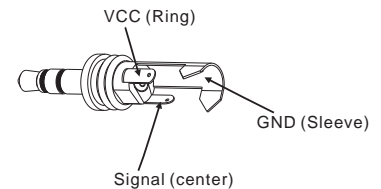
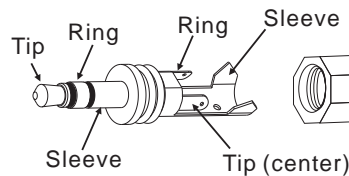
*** When you plug the External IR extender into the switcher, the front panel IR transmitter remains active. ***

PIN CONFIGURATION:

SB-101 and SB-101C Transmitter Pin configuration



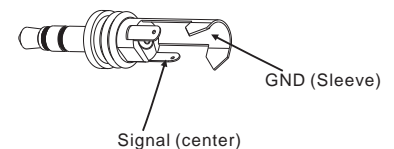
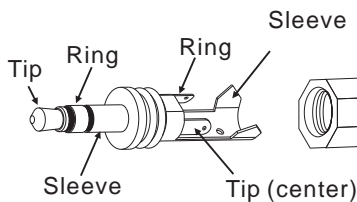
Tip: Signal
Ring :VCC
Sleeve: GND



SB-101 Maximum Distance ~ 984 feet (300 meters)



Tip: Signal
Ring: NC
Sleeve: GND

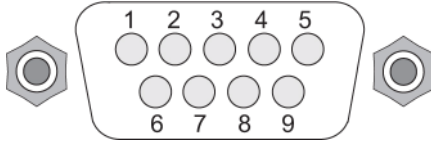


SB-101C Maximum Distance ~ 6 feet (2 meters)

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.

RS-232 SERIAL INTERFACE

RS-232



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

RS-232 PROTOCOL COMMANDS (RS-232 Control driver V2.0.1)

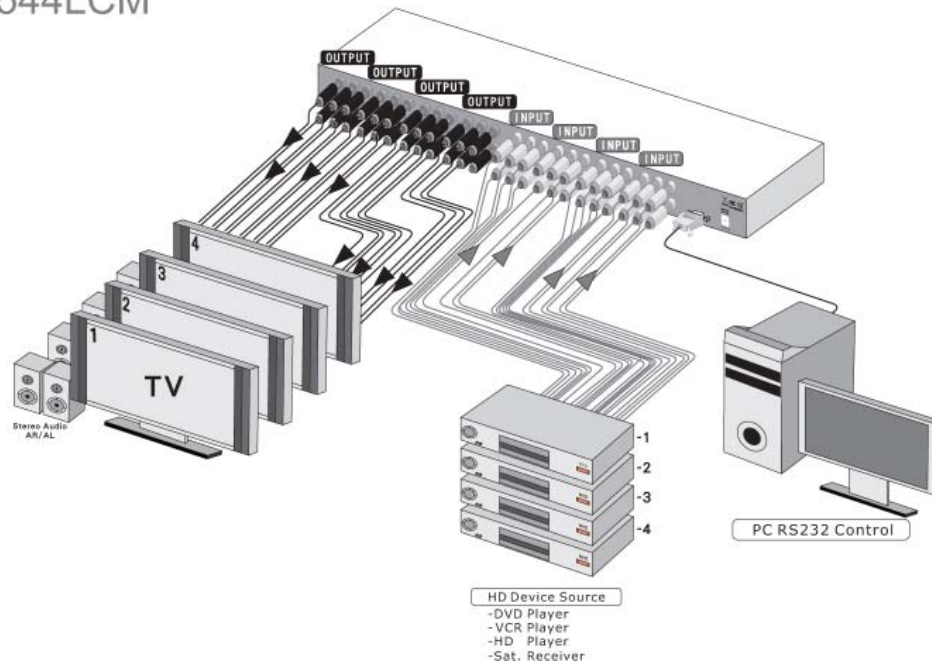
The ShinybowUSA switcher can be controlled via the RS-232 serial control port to allow for interfacing to a PC, or similar third party control system.

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 recognizes a complete command it will perform the requested action - there is no delimiter character required.

TYPICAL APPLICATION

4X A/V (COMPOSITE VIDEO) SOURCES TO 4X A/V OUTPUT MATRIX SWITCHER SB-5544LCM

SHINYBOW
SB-5544LCM



INSTALLING

CONTROL PORTS:

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

INPUTS 1 - 4 PORT HD SOURCE SIGNALS:

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

OUTPUT 1 - 4 PORT HDTV DISPLAY SIGNALS:

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

SB-5544LCM SUPPORT COMPOSITE FOUR INPUTS MATRIX TO FOUR SWITCH OUTPUTS
SUPPORT CONTROL IR & RS-232 INTERFACE SYSTEM PORTS.

LIMITED WARRANTY

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