CTION MANUAI









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.

TABLE OF CONTENTS

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 the 4x4 Composite Video and Audio Matrix Switcher.

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INTRODUCTION

Congratulations on your purchase of one of the most innovative 4x4 AV (Composite Video/Audio) matrix switching products on the market today. The SB-5544LCM is a true matrix routing switcher for AV (Composite & Stereo Audio) signals with full support of NTSC or PAL Composite Video & Stereo Audio systems. It has (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 can be made via the front panel push buttons or an infrared remote control or RS-232 control by computer.

PACKAGE CONTENTS

Check that you have the following components;

- SB-5544LCM 4x4 Matrix Switcher
- IR remote controller (SW-5544LCM)
- 19-inch ear mount bracket (Part # 1U-300L)
- SB-100 IR Extender Receiver Set
- RS-232 Cable
- CD contents: Windows GUI
- RS-232 operation manual (V2.0)
- Users Guide
- Power Supply 12VDC, 1.25A Universal Type 50/60Hz, 100~240 VAC
- Optional: SB-100C IR Extender Receiver Cable (6.5ft (2M))



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.

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FEATURES & SPECIFICATIONS

FEATURES

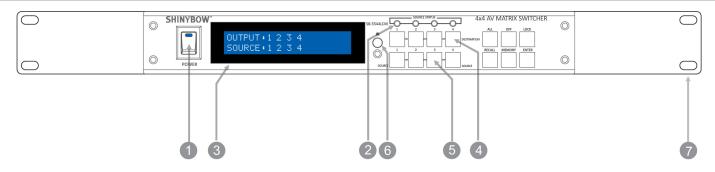
- (4) Inputs to (4) Outputs Matrix Switcher
- · Supports Composite Video and Stereo Audio (AR/AL) signals
- · High bandwidth video 450MHz for each Composite Video port
- · Supports IR remote and external IR, front panel buttons and RS-232 serial interface protocol controls
- · Compatible NTSC or PAL TV video systems
- Various User Interface Control:
 - Attached Window based GUI control software via control interface driver for 2000/XP/WIN7-32/WIN7-64/WIN8
 - · Front panel button for manual control
 - · IR remote control or external IR to control the switcher
- Supports desktop with ear mounts and 19 inch 1U rack mountable type panel
- Power supply uses universal switch type 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 (0.5~1.0Vpp, 75Ohms-RCA (Yellow)
 - Audio: Stereo Audio (AR/AL) via (2) RCA connectors (Red/White)
- Video Bandwidth: 450MHz (-3dB), 200mVpp
- Audio Specification: 20Hz ~ 20KHz
- · Source Status: Automatically scan source inputs via LED
- Low All Hostile Crosstalk: -83dB@5MHz
- Gain Control: 60MHz -0.1dB gain flatness
- IR Frequency: 38Khz
- IR External Distance: SB-100 phone-jack 3.5mm 3C cable (1000 ft / 300M Max) / SB-100C phone-jack 3.5mm 2C cable (2M)
- RS-232 Protocol Control: STD RS-232 interface serial via PC DRV
- Rack Mount: Supports 1RU High 19 in rack mount pack (#1U-300L)
- Safety Approvals: CE, FCC, RoHS, REACH
- Dimensions (LxWxH): 12 x 6 x 1.75 in
- Power Supply: DC12, 1.25A Universal Switch Type AC100~240V, 50/60Hz
- Power Consumption: 750mA Maximum full load
- Weight: 3.3 lb (Unit only) / 5.5 lb (Net)

FRONT PANEL

FRONT PANEL



1. POWER ON SWITCH: The power switch turns the unit on and off. The LED will illuminate blue 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.

CONNECTING THE HARDWARE

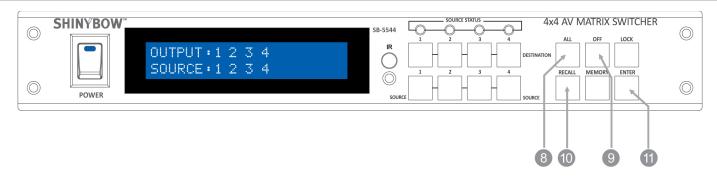
Please study the panel drawings and become familiar with the signal input-output power requirements plus any controls present.

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.

FRONT PANEL

FRONT PANEL



8. FUNCTION KEY - ALL:



Disables (mutes) video 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 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 (mutes) video to selected channels. Either destinations.

- Press **OFF** button followed by any Destination channel.

- Press <u>**1 THRU 4</u>** output destination. The display will show "0" for the selected channel indicating no video selected.</u>

10. FUNCTION KEY - RECALL:

RECALL S-02	:1234 :2225
RECALL	:1234
D-02	:8888

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 **<u>1 THRU 4</u>** on either Source or Destination row.

- Press ENTER. The pre-set configuration will execute.

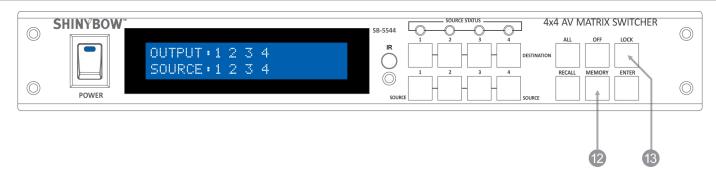
Operation completes.

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:

	32	2	2	2	2		
MEMO	RY :	1	2	3	4		
S-I	25 :	2	2	5	5		

The system will show 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.

- 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 pressed within 5 seconds.

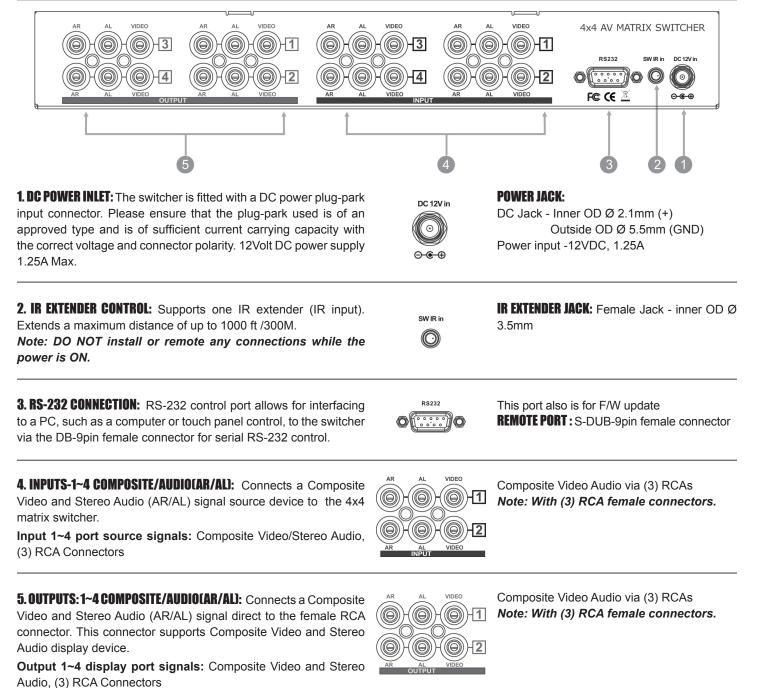
13. FUNCTION KEY - LOCK:



- Press and hold $\underline{\textbf{LOCK}}$ button for two seconds lockout the front panel.
- Press and hold $\underline{\textbf{LOCK}}$ button for two seconds to enable front panel.

BACK PANEL

BACK PANEL



REMOTE CONTROL

Before making any connections to the SB-5544LCM. Observe the following:

- Ensure the main 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 select buttons. The supplied IR remote control. Or through the RS-232 serial communications port.
- Upon powering up the switcher, it will return to its last used setting before being powered down.

REMOTE CONTROL

IR REMOTE : SW-5544LCM IR PCB : RA-02 IR CODE : 20DF

1./2. SWITCH POWER ON or OFF:

Power ON and OFF

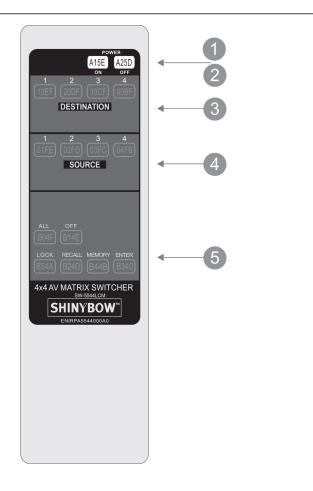
3. OUTPUTS: 1 - 4 OUTPUT SELECTION:

Destination button to select the output display channel

4. SOURCE : 1 thru 4 INPUT SOURCE SELECTION:

Input 1~4 source selection buttons

5. FUNCTION KEY: Function selection buttons					
ALL	OFF	RECALL			
ENTER	MEMORY	LOCK			



REMOTE PROTOCOL COMMANDS

IR REMOTE CUSTOM AND DATA CODES (NEC Standard)

HOW TO SETUP IR	CODES :	CUSTOM CODE : 20DF			
POWER ON:	20DF	A15E	LOCK:	20DF	B54A
POWER OFF:	20DF	A25D	RECALL:	20DF	B24D
ALL:	20DF	B04F	MEMORY:	20DF	B44B
OFF:	20DF	B14E	ENTER:	20DF	B34C

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

1. SB-100 IR 300M Receiver Switcher IR EXT. In Cable (3C) IR Receiver (SB-100) Distance: Max.300M IR PN#: SB-XXXX 🗵 F© (E IR EXT. ir R S -232 00000 \cap C • IR EXT RS - 232 SB-100 IR Receiver Set Control Switch SB-XXXX SB-100 Maximum Distance ~ 984 feet (300M) The SB-100 IR Receiver is required when using the port "ALL in" Jack. 2. SB-100C IR 2M Receiver IR Receiver (SB-100C) Switcher IR EXT. In Cable (2C) Distance: Max.(2M) IR Receiver cable 6ft (2M) F© (€ IR PN#: SB-XXXX IR EXT. i R S - 232

SB-100C IR Receiver Cable

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

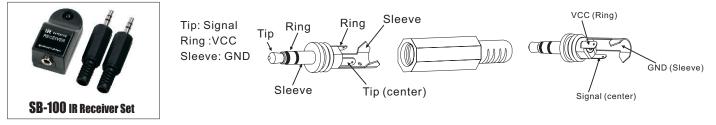
The SB-100C IR Receiver will not function on the port "ALL in" Jack.

Control Switch SB-XXXX

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

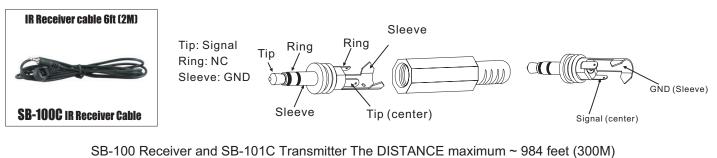
Pin configuration for IR 984 feet (300M) Extender Receiver such as SB-100 compatible

0000



SB-100 Receiver and SB-101 Transmitter The DISTANCE maximum ~ 984 feet (300M)

Pin configuration for IR Receiver 6 feet (2M) cable such as SB-100C compatible



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 CONNECT a PC or CONTROL SYSTEM. VERSION COMPATIBLE V2.0

For a complete list of commands, please reference external document extended RS-232 Protocol Instruction Manual. Example of the commanded string to select Inputs:

Function	Command	Variables
Select source		xxx = Input Channel (001=Source1, 002=Source2.etc)

Command Example	Response	Description
Source 001;	Source 001#ok;	Select source number 1

RS-232 CONFIGURATION

RS-232 cable is a straight thru cable and not null-modem

SB
Device

Definition	Pin		Pin	Definition	
	1		1	DCD	
TX	2		. 2	RX	
RX	3		. 3	ТΧ	
	4		. 4	DTR	
GND	5	(. 5	GND	
	6		. 6	DSR	
	7		. 7	RTS	
	8		. 8	CTS	
	9		9	RI	

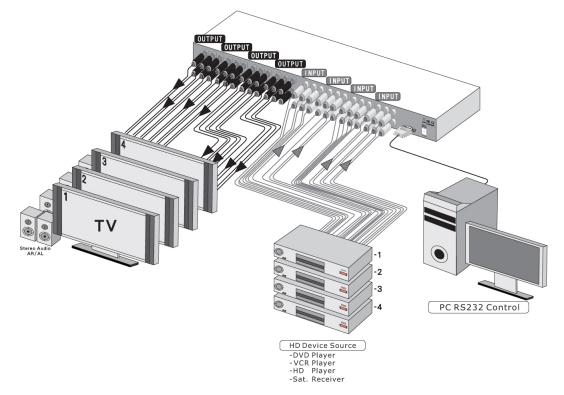
PC

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, 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.

4X A/V (COMPOSITE VIDEO) SOURCES TO 4X A/V OUTPUT MATRIX SWITCHER



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 SUPPORTS (4) COMPOSITE INPUTS MATRIX TO (4) SWITCH OUTPUTS. SUPPORTS IR & RS-232 INTERFACE SYSTEM CONTROL PORT.

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