SB-5612

12x2 HDMI Routing Selector Switch (both outputs mirrored)

INSTRUCTION MANUAL

IMPORTANT WARRANTY INFORMATION.

If you remove the HDMI screw posts, you must use the provided HDMI Locking Post replacement screws to keep the internal HDMI jack secure. Removing the HDMI screws without installing the HDMI Locking Post replacement screws will <u>void your warranty</u>.

SHINYBOW™USA
MULTIMEDIA AUDIO AND VISUAL

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

HDMI Routing Selector Switch Series

Thank you for purchasing the SB-5612 HDMI Routing Selector Switch. 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 12x2 HDMI Routing Selector Switch.

CONTENTS

INTRODUCTION

The SB-5612 is a high-performance 12x2 HDMI routing switcher for HDMI signals. This switcher supports a wide frequency range of 25MHz ~ 340MHz, enabling 1080p HDMI formats and UXGA/WUXGA/DVI resolutions to any HD display. High definition digital signals can be selected and distributed to any of the (2) outputs simultaneously. This switcher is certified as being fully HDMI and HDCP compliant, with RoHS, CE, FCC certifications. Supports high resolution HDMI sources routed to HDMI displays, monitors, projectors or audio receivers. Control is provided via front panel push buttons, IR remote or via RS-232. A RS-232 Windows GUI interface is provided for matrix routing.

PACKAGE CONTENTS

Check that you have the following components;
- SB-5612 Matrix Switcher
- IR Remote Controller (SW-5612)
- 19 inch Ear mount bracket (Part # 1U-440L)
- SB-100 IR Extender Receiver Set
- CD Contents: Manual, Windows GUI, ISP V16 Windows driver
- RS-232 Cable 6 feet (2M)
- RS-232 V16 Protocol Instructions
- HDMI Locking Post Replacement Screws
- Users Guide
- Power Supply 12VDC, 3A Universal Type 50/60Hz, 100~230 VAC
- *Optional: SB-100C IR Extender Receiver Cable (6.5ft (2M))*

IR Extender 300M Receiver   19-inch ear mount   ISO SCREW
SB-100 IR Receiver set   # 1U-440L   ISO SCREW L=5mm/OD=3mm

LOOK A PUPPY!!   NOW READ THIS!!

IMPORTANT WARRANTY INFORMATION.

If you remove the HDMI screw posts, you must use the provided HDMI Locking Post replacement screws to keep the internal HDMI jack secure. Removing the HDMI screws without installing the HDMI Locking Post replacement screws will void your warranty.

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

- (12) HDMI digital source devices matrix switched to (2) HDMI devices
- HDMI digital video w/ embedded audio, DVI format and CEC/HDCP 1. compliant
- Wide frequency range 25MHz ~ 340 MHZ. Supports HDMI 1.3b 3D formats
- Wide range of HD resolutions from PC XGA to WUXGA 1920x1200 and HDTV/DTV resolutions 480i/480p, 576i/576p, 720p, 1080i & 1080p
- Compatible with all HDMI source devices, PC monitors, Plasma HD display, HDTV and audio receivers/amplifiers
- Digital video TMDS formats for resolutions up to 1080p-60 with Deep color 36-bit
- Digital Audio Support : Dolby TrueHD, Dolby Digital, Dolby Digital Plug/ex, DTS, DTS-HD, DTS-HD Master, DTS-EX, PCM, PCM2, LPCM2
- Various User Interface Control:
  - Windows based GUI control via RS-232 (RS-232 interface 2000/XP/WIN7-32/WIN7-64/WIN8)
  - Front panel push button
  - IR wireless remote control
  - Third party RS-232 controller (via simple ASCII)
- Automatic scanning output status via LED show on front panel
- Simultaneously supports output #2 via output #1
- Supports IR remote and IR extenders for distances up to ~ 1000 ft (300M) Maximum

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

SPECIFICATIONS

- **Type of HDMI Switcher:** (12) HDMI Inputs to (2) HDMI Outputs Routing Switcher
- **HDMI Support:** HD 1080p-@60Hz, H36-bit Deep color, 3D (1.3b) formats
- **HDCP / CEC Support:** HDCP 2.0 Compliant, CEC Compliant
- **Video Bandwidth:** Wide frequency range 25MHz ~ 340MHz
- **Digital Video Support:** Full HD Resolution: 480i / 480p / 720p / 1080i / 1080p
- **Digital Audio Support:** Multi Audio Formats 5.1 / 7.1, MAT(MLP), Dolby Digital, Dolby TrueHD, Dolby Digital Plus, DTS, DTS-ES 6.1, DTS-HD, DTS-HD-HRA, DTS-HD Master, (PCM-2CH)
- **Controls:**
  - IR remote controller
  - IR External port (OD 3.5mm ear phone jack)
  - Select & Function buttons on front panel
  - RS-232 series interface
- **Double Output:** Supports output #2 port simultaneously via Output #1
- **Source Status:** (12) auto LEDs illuminate white to indicate
- **Infrared Frequency:** 38Khz
- **IR External Distance:** ~1000 feet / 300M maximum
- **HDMI I/O Connector:** HDMI Type A - SMD 19pin female type
- **Temperature:** 32°F - 100°F Operation (0°C - 38°C)
- **Dimensions (WxDxH):** 17.5 x 10 x 1.75 in
- **Rack Mount:** Rack Mount 1RU high 19 in rack mount (with rack mount)
- **Power Supply:** DC12V / 3A, Universal world wide type 50/60Hz, 100~240VAC
- **Power Consumption:** 1750 mA Maximum
- **Safety Approvals:** CE, FCC, RoHS, REACH
- **Weight:** 6.8 lb (Unit only) / 9.5 lb (Net)

As product improvements are continuous, specifications are subject to change and without notice.
Because of limitations on source and display devices, not all EDID data is compatible and subsequently not all equipment will function correctly with this switcher.

FRONT PANEL

FRONT PANEL
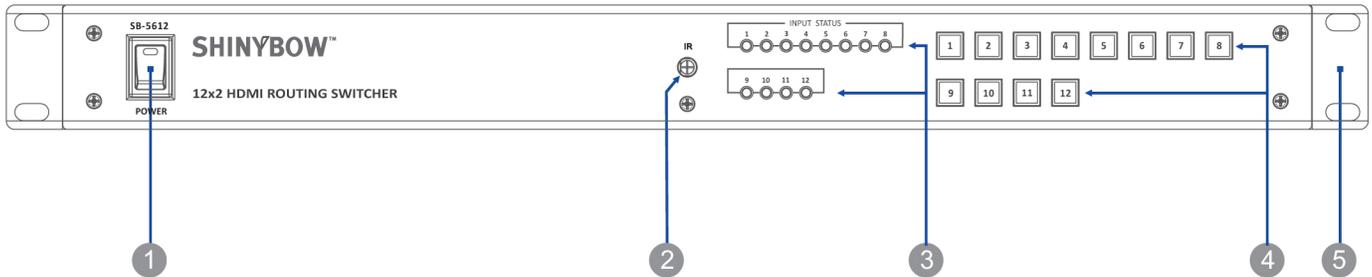
1. POWER ON SWITCH: The power switch turns the unit on and off. The LCM will illuminate red to indicate that the switcher is ON and is receiving power. The switcher will remember that last state during a power cycle. When power is removed and resorted, the last configuration will be evoked.

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

3. INPUT STATUS DISPLAY: Input sources 1 to 12 LED illuminates blue to indicate that a video source is present on that input.

4. SOURCE SELECT BUTTONS: Separate inputs 1 thru 12 select buttons are provided for each source selection.

5. 19 INCH EAR MOUNT PAIR: Converts desktop to 19 inch rack mount. Bracket (part # 1U-440L) INCLUDED. Image shows rack mount bracket attached.

BACK PANEL

BACK PANEL
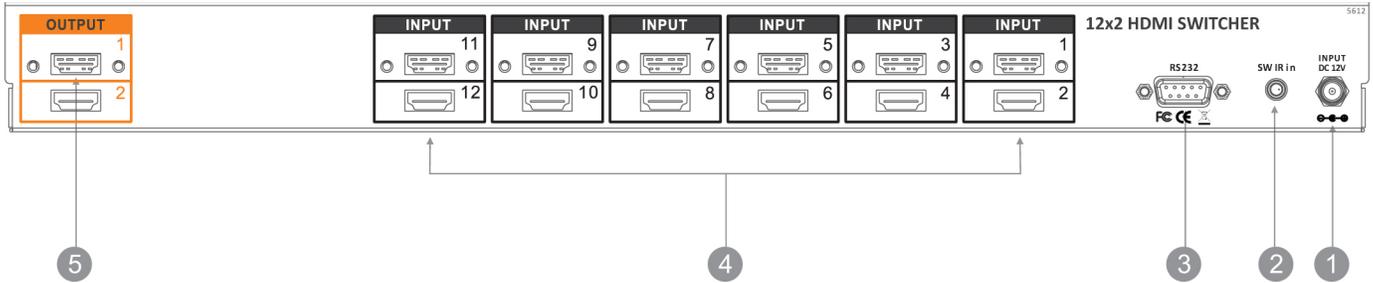
1. DC POWER INLET: The switcher is fitted with a DC power plug input connector. Ensure that the plug used is of an approved type and is of sufficient current carrying connector capacity with the correct voltage and connector polarity. 12Volt DC power supply 3A Max (Center pin positive).
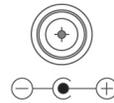
POWER JACK:
DC Jack - Inner OD Ø 2.1mm (+)
          Outside OD Ø 5.5mm (GND)
Power input -12VDC, 3A

2. IR EXTENDER CONTROL: Supports (1) IR extender. Extends a maximum distance of ~1000 feet/300M. When you plug the external IR extender into the switcher, the front panel IR receiver remains active.
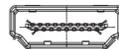
IR EXTENDER JACK: Female Jack - inner OD Ø 3.5 mm

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 the DB-9pin female connector for serial RS-232 control.
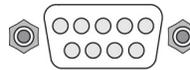
REMOTE PORT: DB-9pin female connector

4. INPUTS- 1,2,3,4,5,6,7, ~ 12 HDMI: Connects a HDMI digital video/audio signal link direct to the female HDMI connector. This connector supports HDMI digital video/audio and DVI digital video sources. If you remove the HDMI screw posts, you must use the provided HDMI Locking Post replacement screws to keep the internal HDMI jack secure. Removing the HDMI screws without installing the HDMI Locking Post replacement screws will void your warranty.

HDMI Digital Video/Audio. Connector with fix screws Input 1 ~ 12.

HDMI DIGITAL VIDEO/AUDIO CONNECTOR:
HDMI Female connector.
Note: With the proper adapters, the switcher can be used with DVI digital video signals, as it is HDCP compliant. DVI does not support audio.

5. OUTPUTS- 1,2 HDMI: Connects a HDMI digital video/audio signal link direct to the female HDMI connector. This connector supports HDMI digital video/audio and DVI digital video sources.If you remove the HDMI screw posts, you must use the provided HDMI Locking Post replacement screws to keep the internal HDMI jack secure. Removing the HDMI screws without installing the HDMI Locking Post replacement screws will void your warranty.

HDMI Digital Video/Audio. Connector with fix screws Output 1 & 2.

HDMI DIGITAL VIDEO/AUDIO CONNECTOR:
HDMI Female connector.

Note: With the proper adapters, the switcher can be used with DVI digital video signals, as it is HDCP compliant.

REMOTE CONTROL & REMOTE PROTOCOL COMMANDS

Before making any connections to the SB-5612. 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 power up the switcher will return to its last used setting before being powered down.
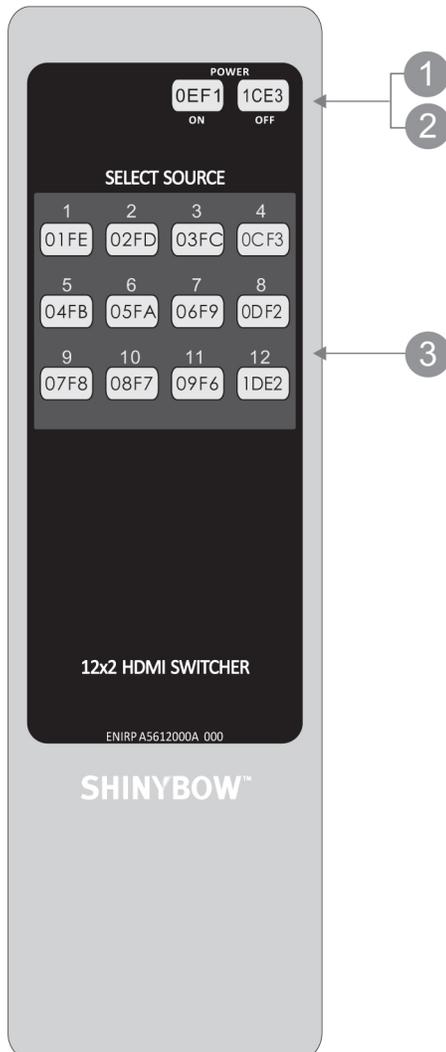
REMOTE CONTROL

1 & 2 . SWITCH POWER ON or OFF:
Controller with a separate power ON and OFF

3. SOURCE : 1 thru 12 INPUT SOURCE SELECTION:
Press input 1~12 sources with selection buttons

IR REMOTE CUSTOM AND DATA CODES (NEC Standard)

REMOTE CUSTOM AND DATA CODES (NEC Standard)
HOW TO SETUP IR CODES:
CUSTOM CODE: 396C
POWER ON: 396C   0EF1
POWER OFF: 396C   1CE3

PRESS SOURCE -
SOURCE #1 :   01FE
SOURCE #2 :   02FD
SOURCE #3 :   03FC
SOURCE #4 :   0CF3
SOURCE #5 :   04FB
SOURCE #6 :   05FA
SOURCE #7 :   06F9
SOURCE #8 :   0DF2
SOURCE #9 :   07F8
SOURCE #10 : 08F7
SOURCE #11 : 09F6
SOURCE #12 : 1DE2

For Example:

Select source to show Source #1~12 on display,
The IR Data Code list :
SOURCE #1 :   396C   01FE
SOURCE #2 :   396C   02FD
SOURCE #3 :   396C   03FC
SOURCE #4 :   396C   0CF3
SOURCE #5 :   396C   04FB
SOURCE #6 :   396C   05FA
SOURCE #7 :   396C   06F9
SOURCE #8 :   396C   0DF2
SOURCE #9 :   396C   07F8
SOURCE #10 :   396C   08F7
SOURCE #11 :   396C   09F6
SOURCE #12 :   396C   1DE2

RS-232 & ETHERNET SERIAL INTERFACE

RS-232 SERIAL INTERFACE CONNECT a PC or CONTROL SYSTEM. VERSION COMPATIBLE V16

Example of the commanded string to select Inputs:

FUNCTION	COMMAND	VARIABLES	
Select source	Output xx;	xx = Input Channel 01=Source1 02=Source2 03=Source3 04=Source4 05=Source5 06=Source6 07=Source7 08=Source8	09=Source9 0A=Source10 0B=Source11 0C=Source12 0D=Source13 0E=Source14 0F=Source15 10=Source16

COMMAND EXAMPLE	RESPONSE	RESPONSE DESCRIPTION
Output 01;	SB56xx 01;	Select source number 1
Power 01;	SB56xx 00;	Power ON
Power 00;	SB56xx 00;	Power OFF
ACTIVESOURCE ?;	Activesource 010000010101010100;	Each position indicates which source is active(01) or inactive(00)

FOR EXAMPLE:

01 00 00 01 01 01 01 00;

- Input 1> Inactive
- Input 2> Inactive
- Input 3> Active
- Input 8> Inactive
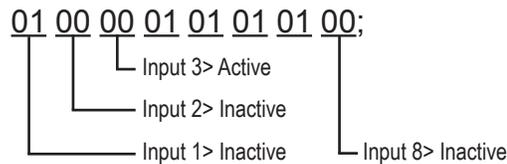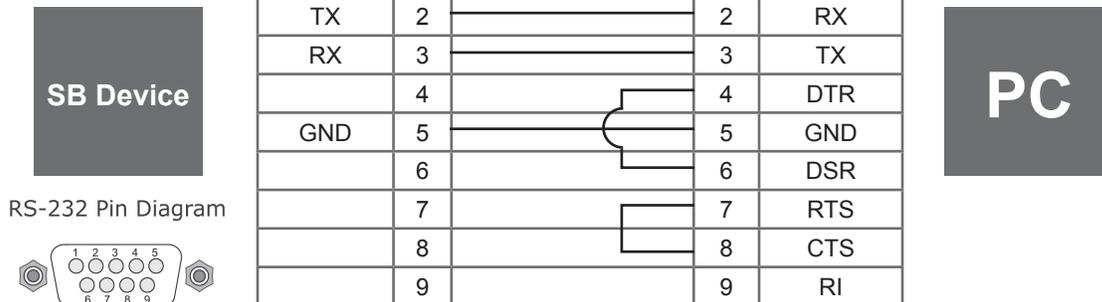
Note: This does not validate if the signal is within proper format (ex: 1VPP Video), only that one is present and active.

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

SB Device

RS-232 Pin Diagram

Definition	Pin		Pin	Definition
	1		1	DCD
TX	2		2	RX
RX	3		3	TX
	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 (RS-232 Control driver V1.6)

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.

IR EXTENDER

1. SB-100 IR 300M Receiver

SB-100 IR Receiver Set

Switcher IR EXT. In

Cable (3C)
Distance: Max.300M

IR Receiver (SB-100)

IR PN#: SB-XXXX

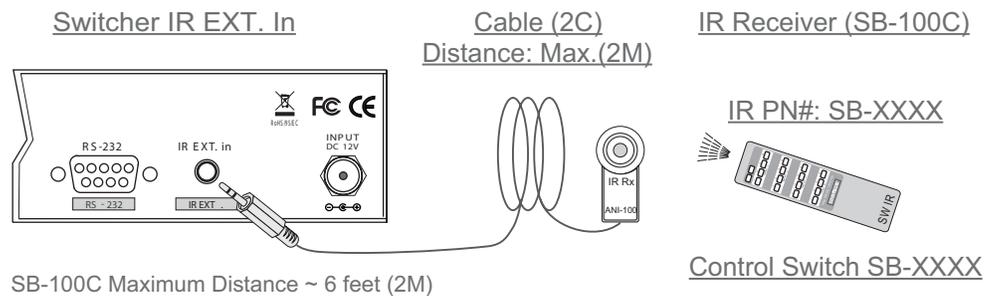RS-232 IR EXT. in INPUT DC 12V

IR Rx ANI-100

Control Switch SB-XXXX

SB-100 Maximum Distance ~ 984 feet (300M)
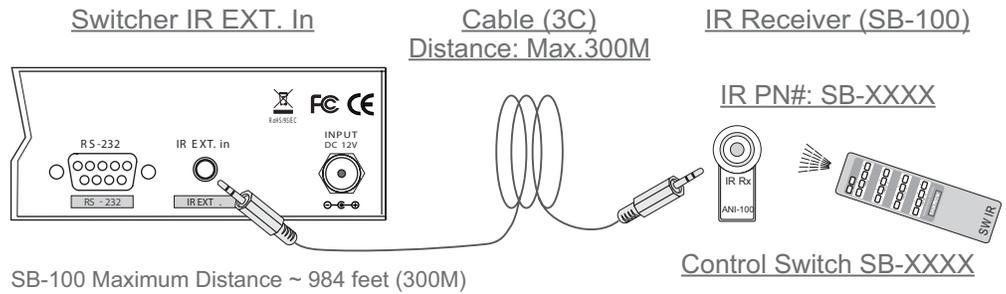
The SB-100 IR Receiver is required when using the port "ALL in" Jack.

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2. SB-100C IR 2M Receiver

IR Receiver cable 6ft (2M)

SB-100C IR Receiver Cable

Switcher IR EXT. In

Cable (2C)
Distance: Max.(2M)

IR Receiver (SB-100C)

IR PN#: SB-XXXX

RS-232 IR EXT. in INPUT DC 12V

IR Rx ANI-100

Control Switch SB-XXXX

SB-100C Maximum Distance ~ 6 feet (2M)
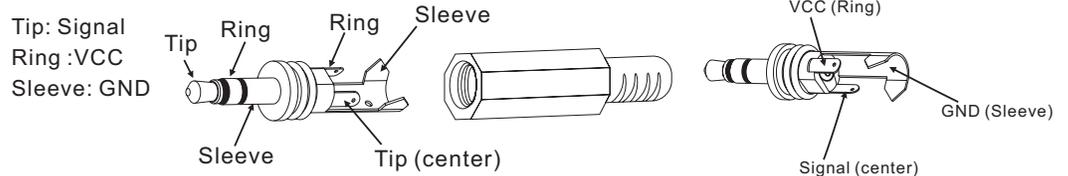
The SB-100C IR Receiver will not function on the port "ALL in" Jack.

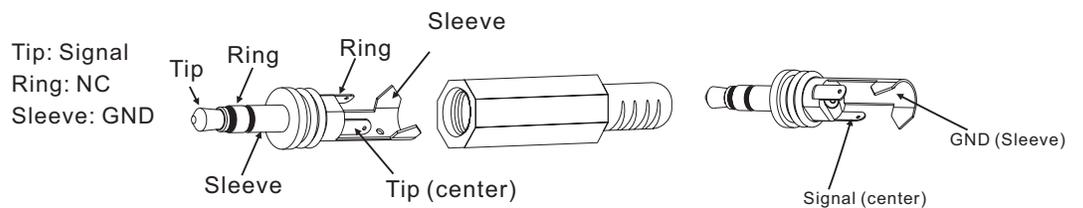
*** *When you plug the External IR extender into the switcher, the front panel IR receiver remains active.* ***

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

SB-100 IR Receiver Set

Tip: Signal
Ring :VCC
Sleeve: GND

Tip Ring Ring Sleeve
Sleeve Tip (center)

VCC (Ring)
GND (Sleeve)
Signal (center)

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

IR Receiver cable 6ft (2M)

SB-100C IR Receiver Cable

Tip: Signal
Ring: NC
Sleeve: GND

Tip Ring Ring Sleeve
Sleeve Tip (center)

GND (Sleeve)
Signal (center)

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

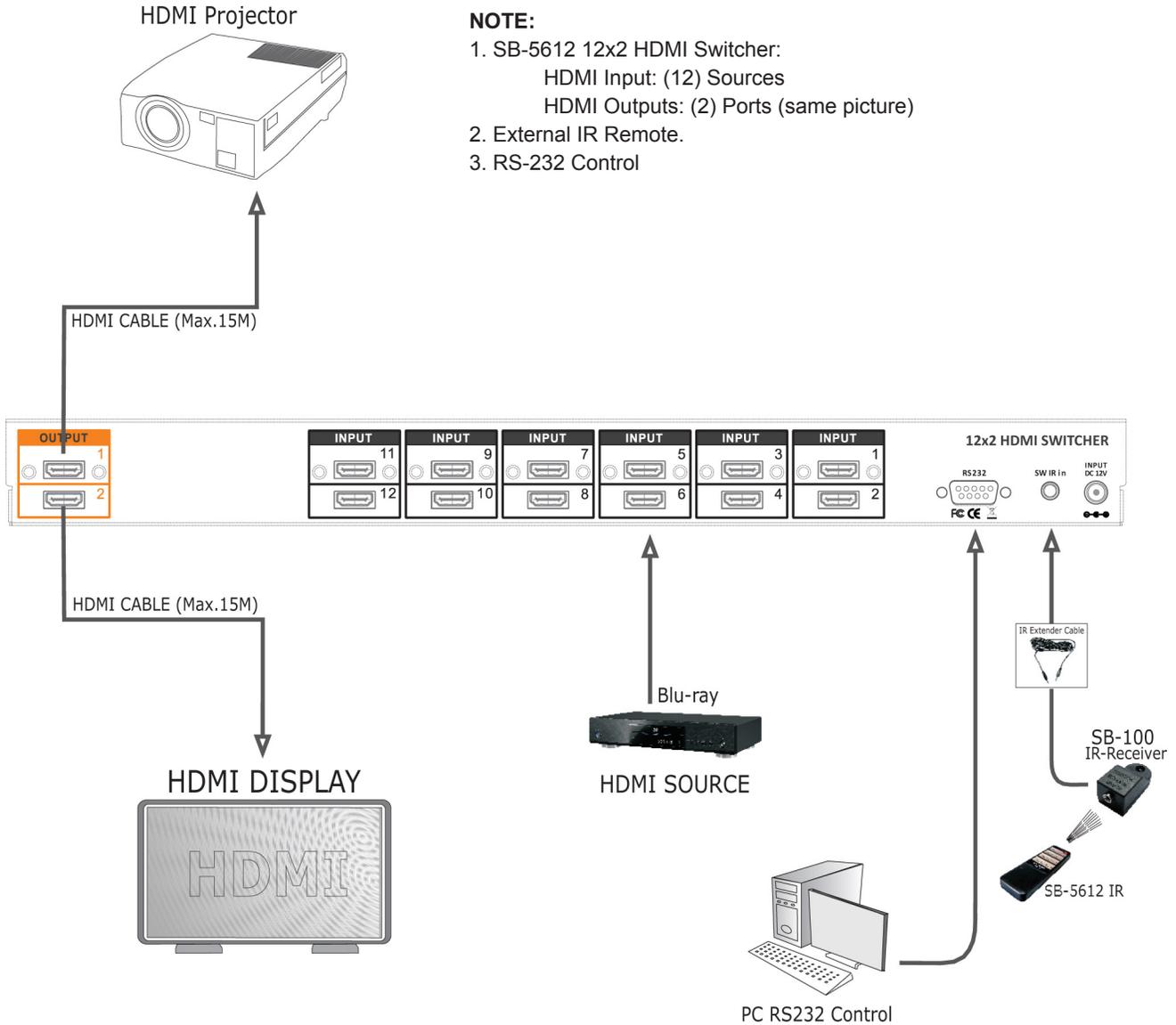*Note: The External IR jack has voltage on the "Ring" portion of a 3-conductor plug. You must use a 3-conductor plug (aka: stereo plug). Using a 2-conductor plug will short out the power supply. Always make connections with the switcher power off.*

TYPICAL APPLICATION

INSTALLING DIAGRAM

Sample Connection:
Using SB-5612 switch (12) sources to (2) displays via HDMI signals via SB-100 IR Receiver. (Max 300M distance).

HDMI Projector

NOTE:
1. SB-5612 12x2 HDMI Switcher:
    HDMI Input: (12) Sources
    HDMI Outputs: (2) Ports (same picture)
2. External IR Remote.
3. RS-232 Control

HDMI CABLE (Max.15M)

HDMI CABLE (Max.15M)

OUTPUT 1 2

INPUT 11 12 INPUT 9 10 INPUT 7 8 INPUT 5 6 INPUT 3 4 INPUT 1 2

12x2 HDMI SWITCHER

RS232   SW IR in   INPUT DC 12V

IR Extender Cable

SB-100 IR-Receiver

SB-5612 IR

Blu-ray

HDMI DISPLAY   HDMI SOURCE

HDMI

PC RS232 Control

Supports (12) HDMI Sources and (2) outputs (same pictures) controlled via IR/RS-232/FRONT PANEL.

LIMITED WARRANTY

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