

MODEL : SB-5688CK

8x8 HDMI-HDBaseT Matrix Switcher



8x8 HDMI Over HDBaseT Matrix Switch with Single CATx

HDMI over HDBaseT Matrix Switcher Series

Thank you for purchasing the SB-5688CK HDMI-HDBaseT 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 8x8 HDMI-HDBaseT 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.

TABLE OF CONTENTS

CONTENTS

INTRODUCTION	1
PACKAGE CONTENTS	2
FEATURES	3
SPECIFICATIONS	4
FRONT PANEL	5
FRONT PANEL - EDID	6
FRONT PANEL - ALL - OFF - LOCK - ENTER	7
FRONT PANEL - RECALL - MEMORY	8
REAR PANEL	9
BACK PANEL - HDMI INPUT / OUTPUT	10
BACK PANEL - HDBaseT CONTROLS	11
BACK PANEL - HDBaseT I/O	12
REMOTE CONTROL	13
EDID FUNCTIONS	17
TYPICAL APPLICATION	20
IR EXTENDER	23
ETHERNET SERIAL INTERFACE	25
RS-232 PROTOCOL	26

INTRODUCTION

The SB-5688CK is professional 8x8 matrix routing switch. Supporting eight (8) HDMI Inputs and (8) HDMI and (8) HDBaseT (PoH optional via the SB-5688CAP*) Outputs. The SB-5688CK is based on the HDBaseT standard and supports full HDMI video resolution with embedded EDID and PoH function (optional via the SB-5688CAP), Audio, RS-232, Ethernet and Bi-Directional IR, all over a single CATx cable. With a signal bandwidth of 340Mhz, so there is no signal degradation. High definition digital signals can be selected and distributed to any (8) Inputs to (16) Outputs simultaneously (channel outputs mirrored). The switcher is certified as being fully CEC and HDCP 2.0 compliant, full HD 4K2K HDMI V1.4a, 3D formats, data rates up to 6.75 Gbps. Supports UXGA/WUXGA/DVI 1920x1200 resolution to any HD displays. The SB-5688CK has 1x HDMI for Input, effectively making this an 8 in x16 out switcher (same signal on both HDMI and HDBaseT outputs). Using IR remote the switcher's HDBaseT extender transmitter (Tx) allows you to connect a source in a remote location. Likewise, the HDBaseT output and our HDBaseT receiver allows you to connect a display in a remote location. The EDID management can be selected between eight (8) different modes. Control is provided via Front panel push buttons, IR remote, RS-232 or TCP/IP (not a web-browser). An RS-232 Windows GUI interface is provided for matrix routing control (Windows only).

** The SB-5688CAP optional PoH feature can be ordered separately. This is considered a special order item and requires approximately a 10 day lead time.*

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

The information in this manual has been carefully checked and is believed to be accurate. We assume no responsibility for any infringements of patents or other rights of third parties which may result from its use.

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PACKAGE CONTENTS

PACKAGE CONTENTS

Check that you have the following components;

- SB-5688CK Matrix Switcher
- RS-232 V2.0 Protocol Instructions
- Ethernet V2.0 Protocol Instructions
- Master wireless IR Remote Control (SW-HD88CK)
- (8) each; Individual wireless IR Control (SW-HD88CK-IR01~IR08)
- 19 inch Ear mount bracket (Part # 2U-440L)
- SB-101 IR Extender distance ~982 feet (300M) Transmitter set.
- SB-100 IR Extender distance ~982 feet (300M) Receiver set.
- SB-101C IR Extender distance 6.5 feet (2M) Transmitter Cable.
- SB-100C IR Extender distance 6.5 feet (2M) Receiver Cable.
- CD Contents : This manual, Windows GUI, ISP V1.0 Windows driver
- RS-232 Cable 6.5 feet (2M)
- ISO Screws
- Users Guide
- Worldwide Universal Power Supply Input : 100~240 VAC, AC 50/60Hz



-- SB-6335R HDBaseT Receiver sold separately --

FEATURES

FEATURES

Based on HDBaseT; bi-directional IR, RS-232, Multi Format Audio, Ethernet and PoH (Optional via the SB-5688CAP). Full Resolution HD Video, all HDBaseT signals over single CATx cable.

- (8)x HDMI digital video and digital multi-channel audio player source devices matrix switched to (8)x HDMI outputs and (8)x HDBaseT Transmitter with optional PoH (via the SB-5688CAP) output to (8)x destinations.
- Application HDBaseT specification with optional PoH (via the SB-5688CAP), IR, RS-232, multi-channel digital audio format and HD video signals over single CATx (6/6a/7) category cable.
- HDMI digital video w/ embedded HDCP, DVI format and CEC/HDCP 2.0 compliant
- Worldwide control EDID modes for HDMI full 4K2K (24/30 Hz) HD video resolutions.
- Link speeds of up to 6.75 Gbps (link clock rate of 340MHz). Supports HDMI 4K2K, 1.4a 3D formats.
- Wide range of HD resolutions from PC: XGA to WUXGA 1920x1200 and HDTV/DTV HDMI: resolutions 480i/480p, 576i/576p, 720p, 1080i/p & 4K2K (24/30Hz).
- Compatible with all HDMI source devices, PC monitors, Plasma HD displays, HDTV and audio receivers or audio amplifiers.
- Digital video TMDS formats resolution up to 4K2K 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
- Audio Input Supports: HDMI multi-channel digital Audio
- Audio Output Supports: HDMI multi-channel digital Audio
- Various User Interface Controls:
 - Windows based GUI control via RS-232 port
 - Front panel push button
 - IR wireless remote controller
 - Ethernet switch control
 - Third party RS-232 controller (via simple ASCII)
- Support world wide (10)x control function keys:
 - Full function front panel controls: ARC / AUX/ ALL / OFF / EDID / LOCK / RECALL / MEMORY / ENTER
- Support EDID modes :
 - a. Embedded EDID modes : FSS/ H24-3D/ H24-3D-M/ H36-3D/ H36-3D-M/ 4K2K-3D / DVI-D 1920x1200-60Hz/ AUTO
 - b. External modes : Learning mode.
- Automatic scanning input & output status via LCM show on front panel.
- Support IR Remote and IR Extender with distances up to ~ 984 feet (300M) Maximum
- Support Universal power adaptor AC90V~AC240V, 50/60Hz.

The Switcher will remember that last state during a power cycle.

When power is removed and resorted, the last configuration will be invoked.

SPECIFICATIONS

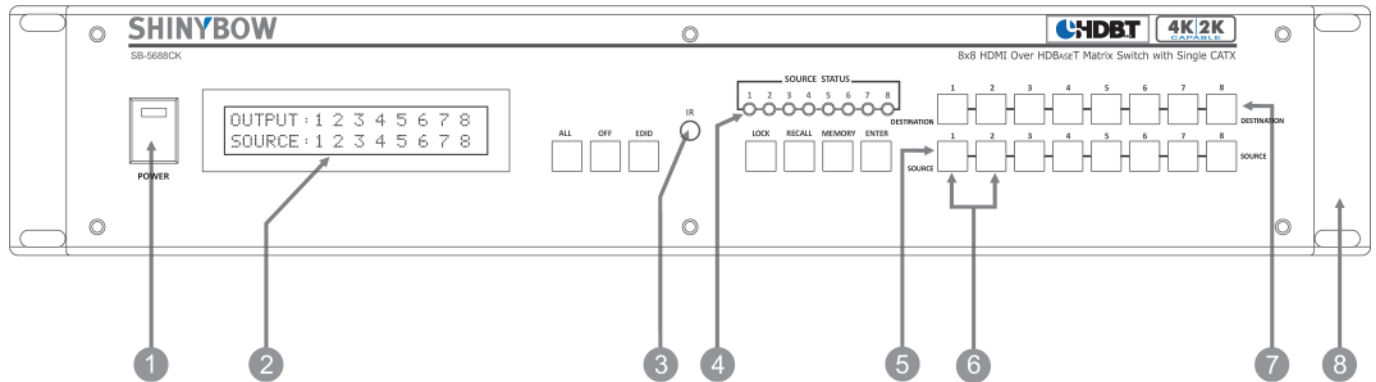
SPECIFICATIONS

- **Type of HDMI Switcher:** 8x inputs To 8x Outputs HDMI over HDBaseT Matrix Switch with Single CATx
- **HDMI Support:** HDMI 4K2K, 1080p-@60Hz, H36-bit Deep color, 3D of HDMI V1.4 formats
- **HDBaseT Support:** Bi-directional IR, RS-232, Multi Format Audio, Ethernet and optional PoH (via the SB-5688CAP), over one CATx cable.
- **HDCP / CEC Support:** HDCP 2.2 Compliant, CEC Compliant
- **Video Bandwidth:** Double Data Rates: 340 MHz, Total 6.75Gbps bandwidth
- **Digital Video Support:** HD: 480i/ 480p/ 720p/ 1080i/p and 4K2K up to 36bit deep color
- **Inputs:** 8x HDMI (HDMI or DVI digital source).
- **Outputs:**
 - **Video Outputs**
 - **HDMI:** 8x HDMI (to Destination).
 - **HDBaseT:** 8x HDBaseT Transmitter with optional PoH (via the SB-5688CAP) over a CATx cable & RJ-45 connector
- **HDBaseT Control Inputs:**
 - 8x IR in (Send IR signals To 8x Rooms via HDBaseT Transmitter)
 - 1x ALL IR in (Send IR Signals To 8x Rooms - Via HDBaseT Transmitter)
- **HDBaseT Control Out:**
 - 8x IR out (Link to Receive IR signals from 8x Rooms via HDBaseT Extender)
 - 1x ALL IR out (Link to Receive IR signals from 8x Rooms via HDBaseT Extender)
 - 1x All Tx LAN (All Switcher HDBaseT Transmitter Ethernet link to HDBaseT Receiver)
- **HDBaseT Control I/O:**
 - 8x RS-232 I/O (Control 8x Rooms RS-232 via Switcher HDBaseT Extender Tx)
- **Switcher Controls:**
 - 1x Select & Function buttons on front panel (Data status via LCM panel show out)
 - 1x IR Remote Controller (switch control)
 - 8x IR Room Remote Controller (switch control)
 - 1x IR External port (switch control via 3.5mm OD Jack)
 - 1x RS-232 series interface (switch control)
 - 1x Ethernet series interface (switch control)
- **Source Status:** Input status LEDs indicates presence of a live signal.
- **(25) Function Control Keys:** 1. ARC, 2. AUX, 3. ALL, 4. OFF, 5. RECALL, 6. ENTER, 7. MEMORY, 8. LOCK, 9. EDID, 10. Destination button 1 thru 8, 11. Source button 1 thru 8
- **(8) EDID management:**
 - **Select Embedded EDID modes :** Mode1: FSS, Mode2: H24-3D, Mode3: H24-3D-M, Mode4: H36-3D, Mode5: H36-3D-M, Mode6: 4K2K-3D, PCM-2CH, Mode7: DVI-D 1920x1200, Mode8: Auto
 - **Select LEARNING mode :** Learning Destination EDID To Link Source.
- **Infrared Frequency:** 38 KHz
- **IR Extend Distance:** ~984 feet / 300 meters maximum.
- **HDBaseT Extender Distance:** ~328 feet / 100 meters maximum.
- **HDMI I/O Connector:** HDMI Type A - SMD 19-pin female type
- **Temperature:** Operating Temperature 32°F - 100°F (0°C - 32°C)
- **Dimensions (LxWxH):** 19 x 9.85 x 3.46 in (482 x 250 x 88mm)
- **Rack Mount:** 2RU High 19in Rack Mount #2U-440L (with rack mount)
- **Power Supply:** AC 100~240 VAC 50/60Hz (Power Consumption:10A Maximum)
- **Safety Approvals:** CE, FCC, RoHS, REACH.
- **Product Weight:** 3.75 Kgs / 6.25 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 LCM will illuminate blue to indicate the switcher is ON and receiving power. The switcher will remember the last setting during a power cycle. When power is removed and resorted, the last configuration will be evoked.

2. STATUS DISPLAY

Front panel status display shows current matrix routing configuration. This same display also shows particular configuration settings depending on your current function. In run mode (as shown above), the display shows each Output (destination) Channel shows which input (source) is assigned.

3. IR SENSOR

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

4. INPUT STATUS DISPLAY

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

5. SOURCE SELECT BUTTONS

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

6. EDID MODE SELECT BUTTONS

Used to select EDID mode using buttons Source button #1 or #2.

7. 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.

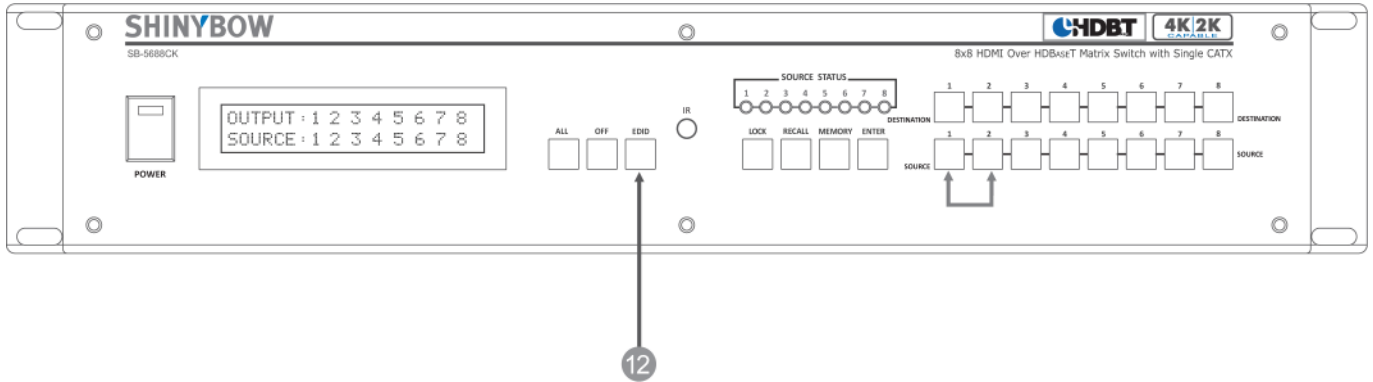
Example : Press Destination 1,3,5 then press Source 2 will route Input 2 to Output 1,3,5 respectively.

8. 19 INCH EAR MOUNT PAIR

Converts desktop to 19 inch rack mount. Bracket (part # 2U-440L) INCLUDED. Image shows rack mount bracket attached.

FRONT PANEL- EDID

FRONT PANEL



12. FUNCTION KEY - EDID (1)



Used to display change current **EDID** mode.

- Press **EDID** to select new EDID mode or select
- Press **SOURCE** row #1 or #2 Select EDID modes.
- Press **ENTER** to ready memory location.
- Or press **EDID** again to cancel operation.

Operation completes.

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

FUNCTION KEY - EDID (2)



Select external **LEARNING** mode

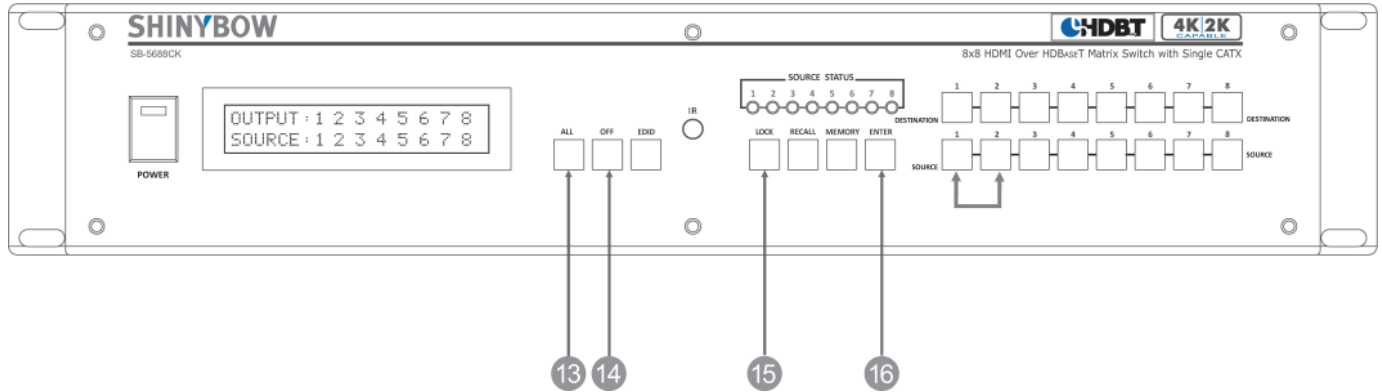
- Press **EDID** to select new EDID mode or select
- Press **Destination** again, press the same Destination #1 thru #8 to learn HDBaseT out port EDID, The EDID for HDBaseT (CATx) has been learned.
- Press **ENTER** to ready memory location.
- Or press **EDID** again to cancel operation.

Operation completes.

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

FRONT PANEL - ALL - OFF - LOCK - ENTER

FRONT PANEL



13. FUNCTION KEY - ALL



Disables (mute) video on all destinations OR assign the same source to all destinations.

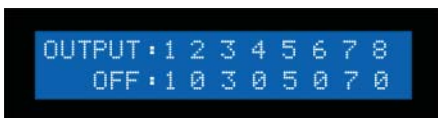
Option 1

- Press **ALL** followed by **OFF** button. The display will show "0" to indicate none of the destinations are assigned a video source.

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.

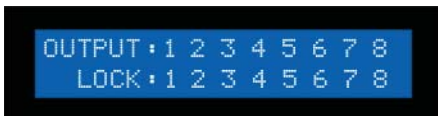
14. FUNCTION KEY - OFF



Disables (mute) video on the selected 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.

15. FUNCTION KEY - LOCK



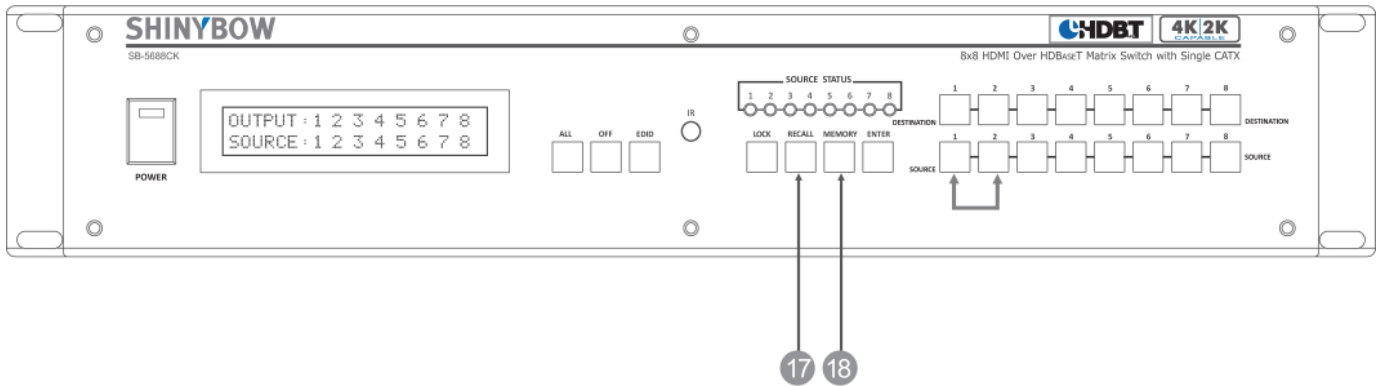
- Press and hold LOCK button for two seconds lockout the front panel.
- Press and hold LOCK button for two seconds to enable the front panel.

16. FUNCTION KEY - ENTER

Press **ENTER** to confirm entries.

FRONT PANEL - RECALL - MEMORY

FRONT PANEL



17. FUNCTION KEY - RECALL



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 pressed within 5 seconds.

- Or press **RECALL** again to cancel operation.

18. 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.

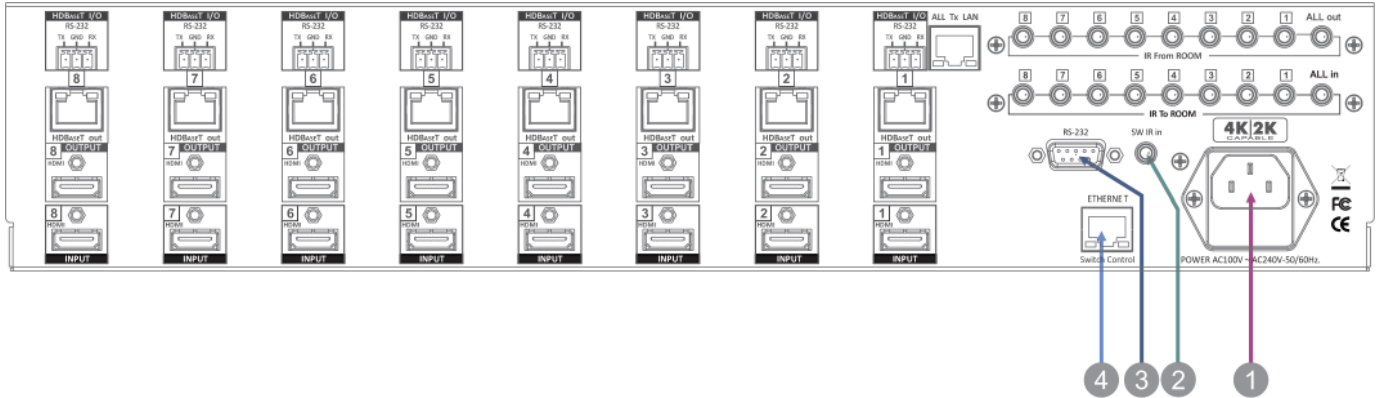
Operation completes.

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

- Or press **MEMORY** again to cancel operation.

BACK PANEL - SWITCH CONTROLS

BACK PANEL



1. DC POWER INLET:

The Switcher is fitted with a AC power plug input connector. Ensure that the used is of an approved type and is of sufficient current carrying connector capacity with the correct voltage and connector polarity. 100~240Volt AC, 50/60Hz power supply.



Power Socket :

Connector Type : IEC 60320 C13

2. IR EXTENDER CONTROL:

Support one of IR Extender. Extend distance maximum 300 Meters / ~984 feet. When you plug the External IR extender into the switcher, the front panel IR receiver remain active.



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

3. RS-232 CONNECTION:

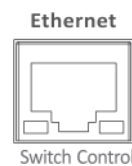
RS-232 control port to allow for interfacing to a PC. Such as a computer or touch panel control, to the switcher via this DB-9pin Female connector for serial RS-232 control.



Remote Port: D-SUB-9pin Female connector

4. ETHERNET CONNECTION:

ETHERNET control port to allow for TCP/IP interfacing to a PC. Such as a computer or touch panel control (not a web-browser), to the switcher via this RJ-45 Female connector to control switcher.



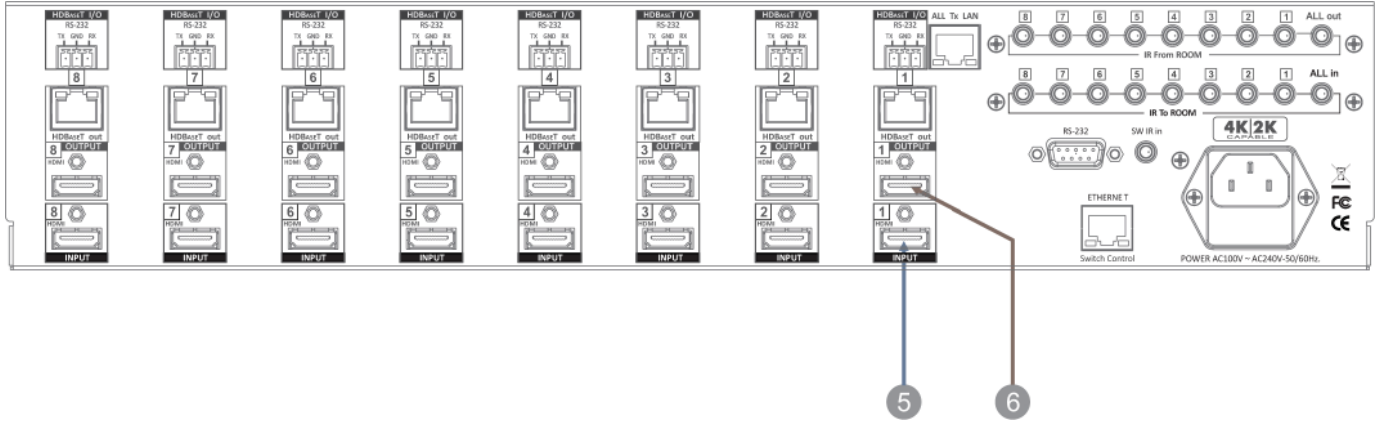
Remote Port : Control the switcher RJ-45 Female connector

Ethernet Port:

Note: the Ethernet port and RS-232 port cannot be used simultaneously. Any connection to the Ethernet port will disable serial commands send to the RS-232 port.

BACK PANEL - HDMI INPUT / OUTPUT

BACK PANEL



5. INPUTS- 1,2,3,4,5,6,7, & 8 HDMI:

Connect a HDMI signal source link of HDMI source direct HDMI digital video/audio to this Female HDMI connector. This HDMI port support HDMI and DVI digital video sources. If you remove the HDMI screw post, use the provides ISO screw to keep the internal HDMI jack secure. Removing the HDMI Screws without installing the ISO screws will void your warranty.



HDMI Connector: HDMI Type A SMD 19pin Female socket connector.

Note: *With the proper adapters, the switcher can be used with DVI digital video signals HDCP compliant. The DVI support Audio input.*

7. OUTPUTS- 1,2,3,4,5,6,7 & 8 HDMI:

Connect an HDMI signal source to this Output. This HDMI port supports HDMI with embedded audio and DVI with AUX audio. If you remove the HDMI screw post, you must use the provided ISO screws to keep the internal HDMI jack secure. Removing the HDMI Screws without installing the ISO screws will void your warranty.

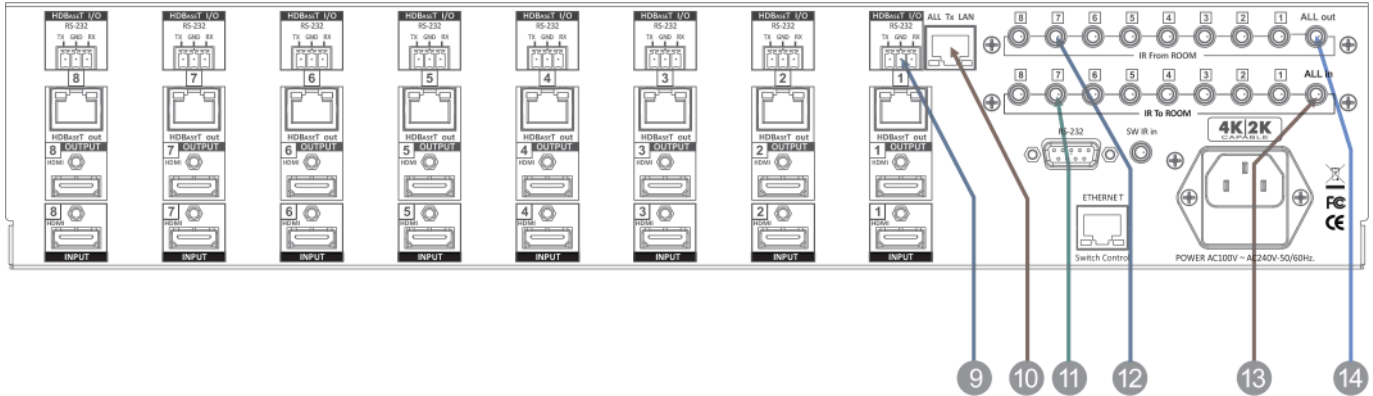


HDMI Connector: HDMI Type A SMD 19pin Female socket connector

Note: *With the proper adapters, the switcher can be used with DVI digital video signals HDCP compliant. The DVI Audio supported.*

BACK PANEL - HDBaseT CONTROLS

BACK PANEL



9. HDBaseT RS-232 - 1,2,3,4,5,6,7 & 8 CONNECTION:

(8)x RS-232 control port to allow for interfacing to a PC. Controls I/O via Switcher HDBaseT Transmitter (8) Rooms each via this Terminal Block-3pin Female socket for serial RS-232 control.



Remote Port : Terminal Block-3pin Female socket

10. HDBaseT LAN CONNECTION:

All Tx LAN : Provides Ethernet (LAN) connection from the switcher to All HDBaseT Transmitter (ie. SB-6320T).



ALL HDBaseT Tx LAN Port Connector: HDBaseT Phone-Jack 8P8C, RJ-45 Female socket.
LAN Controls: Note: from switcher to HDBaseT Transmitter.

11. HDBaseT IR INPUT - 1,2,3,4,5,6,7 & 8 REMOTE IR SIGNAL TO ROOM:

Send (8)x IR signals to (8) rooms via Switcher HDBaseT Transmitter. When you plug the Switcher HDBaseT IR Transmitter into the external port, the room IR HDBaseT receiver remain active.



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

12. HDBaseT IR OUTPUT - 1,2,3,4,5,6,7 & 8 REMOTE IR SIGNAL FROM ROOM:

Receive (8)x IR signals from (8) rooms each via HDBaseT Transmitter. When you plug the Switcher HDBaseT IR Transmitter into the external port, the room IR HDBaseT receiver remain active.



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

13. HDBaseT ALL IN : 1,2,3,4,5,6,7 & 8 REMOTE IR SIGNAL TO ROOM:

Send IR signal to room via Switcher HDBaseT Transmitter. When you plug the Switcher HDBaseT IR Transmitter into the external port, the room IR HDBaseT receiver remain active.



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

14. HDBaseT ALL OUT : - 1,2,3,4,5,6,7 & 8 REMOTE IR SIGNAL FROM ROOM:

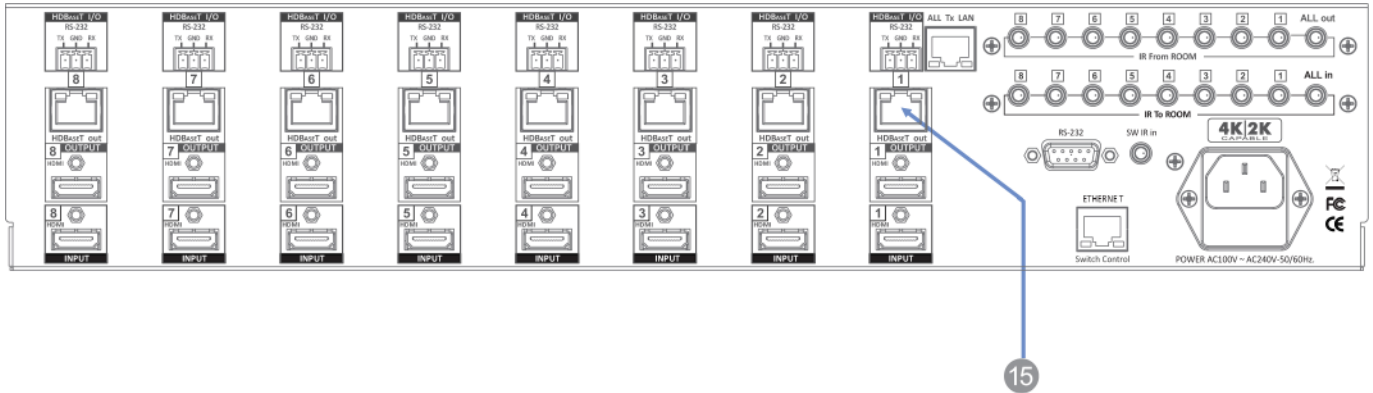
Receive IR signal from room via Switcher HDBaseT Transmitter. When you plug the Switcher HDBaseT IR Transmitter into the external port, the room IR HDBaseT receiver remain active.



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

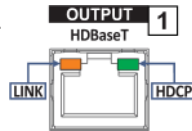
BACK PANEL - HDBaseT I/O

BACK PANEL



15. OUTPUT - 1,2,3,4,5,6,7 & 8 HDBaseT (Transmitter):

To send (8) HDMI and control signals via Switcher (8)x HDBaseT Transmitters to link (8)x external HDBaseT Receiver. Switcher used (8)x HDBaseT Transmitter Output #1 ~ Output #8 with optional PoH (via the SB-5688CAP) RJ-45 via CATx(6/6a/7) category cable. Controls signals RS-232, Ethernet, IR input, IR output and optional PoH (via the SB-5688CAP) between Switcher and Receiver.



HDBaseT Transmitter Connector: 8x RJ-45 Jack 8P8C Female socket.

Link LED :

solid = valid link
Flash = attempting to link
Off = no link established

HDBaseT I/O Transmission :



Projector
RS-232 & IR

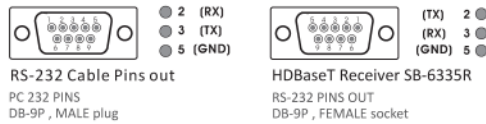


SB-6335R
HDBaseT Receiver

Application HDBaseT Receiver :

- SB-6333R, SB-6333R3
- SB-6335R, SB-6335R4, SB-6335R5
- SB-6320R, SB-6320R4, SB-6320R5

RS-232 Pin Define:



SB-5688CK 8x8 HDMI-HDBaseT Matrix Switcher



RS-232 & IR

TX

Category cable lengths via Switcher and HDBaseT Receiver.

Cable Type	Pixel clock rate (MHz)	CAT5e	CAT6	CAT6
Resolution	(MHz)	70M	100M	100M
1024x768@60Hz	65.00 MHz	Yes	Yes	Yes
1280x720p@60Hz	73.84 MHz	Yes	Yes	Yes
1920x1080i@60Hz	74.25 MHz	NA	NA	NA
1280x1024@60Hz	108.00 MHz	Yes	Yes	Yes
1920x1080p@60Hz	148.50 MHz	Yes	Yes	Yes
1920x1200@60Hz	152.90 MHz	Yes	Yes	Yes
1600x1200@60Hz	162.00 MHz	Yes	Yes	Yes
BD player : 1080p	174.00 MHz	Yes	NA	Yes

REMOTE CONTROL

Before making any connections to the switcher, 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 separate power ON and OFF

3. DESTINATION : 1 thru 8 OUTPUT SELECTION:

Press the destination button to select the output display channel.

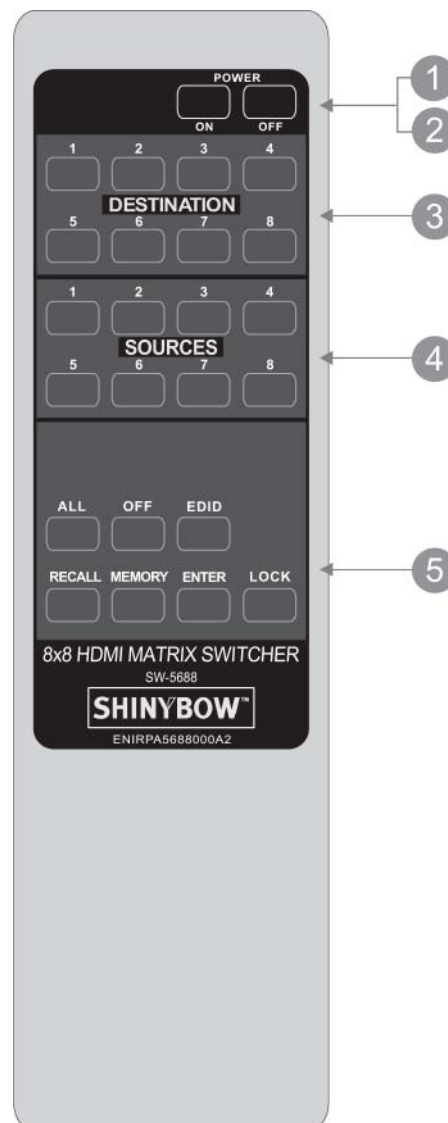
4. SOURCE : 1 thru 8 INPUT SOURCE SELECTION:

Press input 1~8 sources with selection button.

5. FUNCTION KEY:

ALL	- function selection button
OFF	- function selection button
EDID	- function selection button
RECALL	- function selection button
MEMORY	- function selection button
ENTER	- function selection button
LOCK	- function selection button

IR REMOTE : SW-5688



REMOTE PROTOCOL COMMANDS

IR REMOTE CUSTOM AND DATA CODES (NEC STANDARD)

HOW TO SETUP IR CODES :

CUSTOM CODE : 09F6

POWER ON : 09F6 A15E
POWER OFF : 09F6 A25D
ALL : 09F6 B04F LOCK : 09F6 B54A
OFF : 09F6 B14E EDID : 09F6 B748
RECALL : 09F6 B24D ENTER : 09F6 B34C
MEMORY : 09F6 B44B

PRESS DESTINATION - # then PRESS SOURCE -

DESTINATION #1 : 09F6 10EF	SOURCE #1 : 09F6 01FE
DESTINATION #2 : 09F6 20DF	SOURCE #2 : 09F6 02FD
DESTINATION #3 : 09F6 30CF	SOURCE #3 : 09F6 03FC
DESTINATION #4 : 09F6 40BF	SOURCE #4 : 09F6 04FB
DESTINATION #5 : 09F6 50AF	SOURCE #5 : 09F6 05FA
DESTINATION #6 : 09F6 609F	SOURCE #6 : 09F6 06F9
DESTINATION #7 : 09F6 708F	SOURCE #7 : 09F6 07F8
DESTINATION #8 : 09F6 807F	SOURCE #8 : 09F6 08F7

For example;

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

The IR Data Code list :

Destination # 1 , Source #1	09F6	10EF	09F6	01FE	01FE
Destination # 1 , Source #2	09F6	10EF	09F6	01FE	02FD
Destination # 1 , Source #3	09F6	10EF	09F6	01FE	03FC
Destination # 1 , Source #4	09F6	10EF	09F6	01FE	04FB
Destination # 1 , Source #5	09F6	10EF	09F6	01FE	05FA
Destination # 1 , Source #6	09F6	10EF	09F6	01FE	06F9
Destination # 1 , Source #7	09F6	10EF	09F6	01FE	07F8
Destination # 1 , Source #8	09F6	10EF	09F6	01FE	08F7

REMOTE CONTROL

ROOM REMOTE CONTROL #1 ~ #8 CUSTOM CODE AND DATA CODES

IR CUSTOM AND DATA CODES (NEC Standard)

PRESS Number To Select SOURCE

CUSTOM CODE : 09F6

8x8 CAT5e/6 SWITCHER
SW-5688CT-IR01



IR-01 DATA CODE:

SOURCE #1 : 09F6 11EE
SOURCE #2 : 09F6 12ED
SOURCE #3 : 09F6 13EC
SOURCE #4 : 09F6 14EB
SOURCE #5 : 09F6 15EA
SOURCE #6 : 09F6 16E9
SOURCE #7 : 09F6 17E8
SOURCE #8 : 09F6 18E7

8x8 CAT5e/6 SWITCHER
SW-5688CT-IR02



IR-02 DATA CODE:

SOURCE #1 : 09F6 21DE
SOURCE #2 : 09F6 22DD
SOURCE #3 : 09F6 23DC
SOURCE #4 : 09F6 24DB
SOURCE #5 : 09F6 25DA
SOURCE #6 : 09F6 26D9
SOURCE #7 : 09F6 27D8
SOURCE #8 : 09F6 28D7

8x8 CAT5e/6 SWITCHER
SW-5688CT-IR03



IR-03 DATA CODE:

SOURCE #1 : 09F6 31CE
SOURCE #2 : 09F6 32CD
SOURCE #3 : 09F6 33CC
SOURCE #4 : 09F6 34CB
SOURCE #5 : 09F6 35CA
SOURCE #6 : 09F6 36C9
SOURCE #7 : 09F6 37C8
SOURCE #8 : 09F6 38C7

8x8 CAT5e/6 SWITCHER
SW-5688CT-IR04



IR-04 DATA CODE:

SOURCE #1 : 09F6 09F6
SOURCE #2 : 09F6 42BD
SOURCE #3 : 09F6 43BC
SOURCE #4 : 09F6 44BB
SOURCE #5 : 09F6 45BA
SOURCE #6 : 09F6 46B9
SOURCE #7 : 09F6 47B8
SOURCE #8 : 09F6 48B7

REMOTE CONTROL

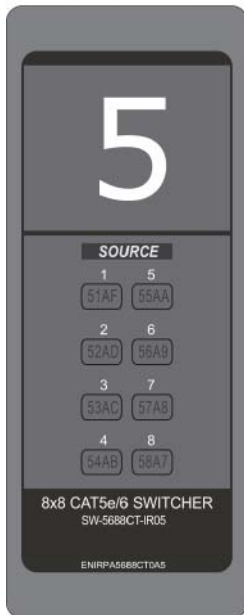
ROOM REMOTE CONTROL #1 ~ #8 CUSTOM CODE AND DATA CODES

IR CUSTOM AND DATA CODES (NEC Standard)

PRESS Number To Select SOURCE

CUSTOM CODE : 09F6

8x8 CAT5e/6 SWITCHER
SW-5688CT-IR05



IR-05 DATA CODE:

SOURCE #1 : 09F6 51AE
SOURCE #2 : 09F6 52AD
SOURCE #3 : 09F6 53AC
SOURCE #4 : 09F6 54AB
SOURCE #5 : 09F6 55AA
SOURCE #6 : 09F6 56A9
SOURCE #7 : 09F6 57A8
SOURCE #8 : 09F6 58A7

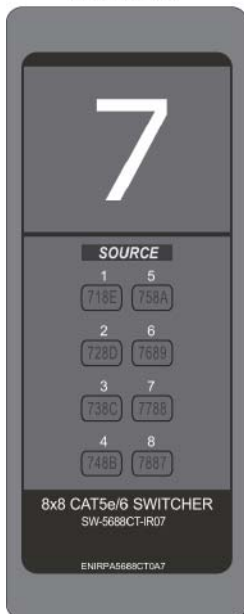
8x8 CAT5e/6 SWITCHER
SW-5688CT-IR06



IR-06 DATA CODE:

SOURCE #1 : 09F6 619E
SOURCE #2 : 09F6 629D
SOURCE #3 : 09F6 639C
SOURCE #4 : 09F6 649B
SOURCE #5 : 09F6 659A
SOURCE #6 : 09F6 6699
SOURCE #7 : 09F6 6798
SOURCE #8 : 09F6 6897

8x8 CAT5e/6 SWITCHER
SW-5688CT-IR07



IR-07 DATA CODE:

SOURCE #1 : 09F6 718E
SOURCE #2 : 09F6 728D
SOURCE #3 : 09F6 738C
SOURCE #4 : 09F6 748B
SOURCE #5 : 09F6 758A
SOURCE #6 : 09F6 7689
SOURCE #7 : 09F6 7788
SOURCE #8 : 09F6 7887

8x8 CAT5e/6 SWITCHER
SW-5688CT-IR08










IR-08 DATA CODE:







SOURCE #1 : 09F6 817E
SOURCE #2 : 09F6 827D
SOURCE #3 : 09F6 837C
SOURCE #4 : 09F6 847B
SOURCE #5 : 09F6 857A
SOURCE #6 : 09F6 8679
SOURCE #7 : 09F6 8778
SOURCE #8 : 09F6 8877

EDID FUNCTION

EDID FUNCTION FOR HDMI MATRIX SWITCHER

EDID Setup	To Change the EDID Setup
Step 1. Press the EDID button	The display will show the currently selected EDID mode
Step 2. Press SOURCE #1 or #2 button row	The button will flash blue and the display will show the current Embedded EDID Status.
Step 3. Press the ENTER button	To set EDID mode. The switcher will return to operation mode.
Operation will abort if no keys are pressed within 5 seconds.	
RESET	EDID Return To Factory default
<p>How to RESET EDID mode</p> <p>Press EDID > RECALL > ENTER</p>  	<p>RESET To the FACTORY DEFAULT (1080p-2CH).</p> <p>Press EDID button : The LCM will show the current EDID status.</p> <p>Press RECALL button : The LCM will show the RESET EDID.</p> <p>Press ENTER to confirm entries. The EDID will return to FSS mode and resolution 1080p-2CH.</p>
Embedded EDID Modes	Total 8 EDID Modes
<p>Embedded EDID setup</p> <p>Press EDID > SOURCE > ENTER</p> <p>SOURCE #1 or SOURCE #2</p> <p>Select Embedded EDID :</p> <p>Mode 1 : FSS Mode 5 : H36-3D-M Mode 2 : H24-3D Mode 6 : 4K2K-3D, PCM-2CH Mode 3 : H24-3D-M Mode 7 : DVI-D 1920x1200-60Hz Mode 4 : H36-3D Mode 8 : AUTO</p>	<p>To select Embedded EDID mode or LEARNING mode.</p> <p>Press EDID button: The LCM will show the current EDID status.</p>  <p>Repeatedly depressing the Source 1 button will cycle up thru the options. Repeatedly depressing the Source 2 button will cycle down thru the options.</p>
EDID function for HDMI Matrix Switcher	
<p>Mode 1. FSS (Fast Speed Start)</p> 	<p>Fast Speed Start mode shortens the startup time of the switcher. Selecting this mode does not force the EDID setup to be cancelled. Users may first select one EDID mode from mode 2 to 3, and then select mode 1 for fast speed start.</p>
<p>Mode 2. H24-3D (1080p-24 bits)</p> 	<p>Audio Support: PCM 2CH</p>
<p>Mode 3. H24-3D-M (1080p-24 bits)</p> 	<p>Audio Support: MAT(MLP) 7.1CH, PCM-2CH, One Bit Audio 2CH, AC-3 5.1CH, DTS 5.1CH, PCM 7.1CH, Dolby Digital + 7.1CH, DTS-HD 7.1CH</p>
<p>Mode 4. H36-3D-M (1080p-36 bits)</p> 	<p>Audio Support: PCM 2CH</p>

EDID FUNCTION

<p>Mode 5 . H36-3D-M (1080p-36 bits)</p> 	<p>Audio Support : MAT(MLP) 7.1CH, PCM 2CH, One Bit Audio 2CH, AC-3 5.1CH, DTS 5.1CH, PCM 7.1CH, Dolby Digital + 7.1CH, DTS-HD 7.1CH</p>
<p>Mode 6 . 4K2K (24/30Hz)</p> 	<p>HDMI Support : 4K2K-3D, PCM 2CH (3860x2160-24/30Hz) Audio Support: PCM 2CH</p>
<p>Mode 7 . 1920x1200-60Hz (DVI-D)</p> 	<p>DVI Support : DVI-D 1920 x 1200 60Hz</p>
<p>Mode 8 . AUTO <Default></p> 	<p>All Outputs will be set to the highest common resolution of all connected display devices.</p>
LEARNING EDID	
<p style="text-align: center;">Learning EDID Setup</p> <p style="text-align: center;">Press</p> <p style="text-align: center;"> EDID > DESTINATION > SOURCE > ENTER </p>	<p style="text-align: center;">Learning EDID from Destination to Source</p> <p>Press EDID > DESTINATION Button: The LCM will be show LEARNING. Switcher will LEARN destination HDMI EDID and pass the selected source.</p>  <p>Learning EDID setup for HDMI: Key Press Sequence:</p> <p style="text-align: center;"> EDID > DESTINATION # > SOURCE # > ENTER </p> <p>The EDID for HDMI has been learned</p>
<p style="text-align: center;">Press</p> <p style="text-align: center;"> EDID > DESTINATION > DESTINATION > SOURCE > ENTER </p>	<p>Switcher will LEARN destination HDBaseT CATx EDID and pass the selected source.</p>  <p>Learning EDID setup for HDBaseT CATx: Key Press Sequence:</p> <p style="text-align: center;"> EDID > DESTINATION # > DESTINATION # > SOURCE # > ENTER </p> <p>Again, Press the same DESTINATION # to learn HDBaseT CATx EDID The EDID for HDBaseT CATx has been learned</p>
<p>NOTE : The already learned EDID cannot be modified. You can only rebuild a new Learning EDID.</p> <p>For example: When the Source has “Learned” the EDID data from a destination, It will save that EDID information into EPROM and the EDID data cannot change. Please select new learning destination to sources or change to one of the embedded EDID modes when you want to remove the learning EDID memory from EPROM.</p>	

EDID FUNCTION

Learning EDID Single to Single	Example : Learn Destination #8 EDID To Source #5.
Step 1. Press EDID button	The button will flash blue and the display will show the current Embedded EDID Status.
Step 2. Press the Destination #8 button row	Copy the Destination #8 Display EDID.
Step 3. Press the Source #5 button row	Learning the Destination #8 EDID to Source # 5.
Step 4. Press ENTER button	To confirm entries.
Learning EDID Single to Multiple	Learning destination EDID link to the majority Sources
Step 1. Press EDID button	The button will flash blue and the display will show the current Embedded EDID Status.
Step 2. Press the Destinations #1 ~ 8 button row	Copy any 1~8 Destinations EDID.
Step 3. Press the Source #1, #6~#8 button row	Learning the Destination EDID link to Source #1, #6 ~ #8 .
Step 4. Press ENTER button	To confirm entries.
Learning EDID Single to ALL	Learning destination EDID link to All Sources
Step 1. Press EDID button	The button will flash blue and the display will show the current Embedded EDID Status.
Step 2. Press destination button 1 thru 8	Learning anyone 1~8 Destination EDID to all sources.
Step 3. Press ALL button	Learning selected destination EDID to all sources.
Step 4. Press ENTER button	To confirm entries.
EDID status	To view the current EDID status
Step 1. Press EDID button	The button will flash blue and the display will show the current Embedded EDID Status.
Step 2. Press EDID button	To exit.
How to setup FSS Function	Fast speed start
Step 1. Press the Destinations #1 ~ 8 button row Then Press the Source #1~8 button row	To setup and Install all devices.
Step 2. Press EDID button	Select a optimum status of Embedded EDID mode.
Step 3. Press ENTER button	To conform entries.
Step 4. Press EDID button	To select the EDID FSS mode.
Step 5. Press ENTER button	To conform entries.
LEARNING EDID definition	Learning EDID from Destination to Source
<p>1. Switcher will LEARN destination EDID and pass the selected source.</p> <p>2. To set up learning between a single destination and single source: Press EDID button > Press Destination 1 thru 8 > Press Source 1 thru 8 > Press ENTER to confirm. Switcher will learn destination EDID to source device.</p> <p>3. To set up learning between a single destination and Multiple sources: Press EDID button > Press Destination 1 thru 8 > Press the majority Sources 1 thru 8 > Press ENTER. Switcher will learn single destination EDID to many source devices.</p> <p>4. How to Learning single destinations with all sources. Press EDID button > Press ALL button > Press ENTER to confirm.</p>	
Auto mode definition	Common Resolution and Audio
Switcher will find highest common Resolution and Audio from all destination EDID to link Source.	
Example for single source	
Destination > press #1 and then Source > press #1	
Destination device #1 will set to the highest <u>common</u> resolution and Audio of source #1	
Example for multiple sources	
Destination device #1, #2, #3 will be set to the highest <u>common</u> resolution and Audio available and source device #1 will output this same resolution.	

TYPICAL APPLICATION

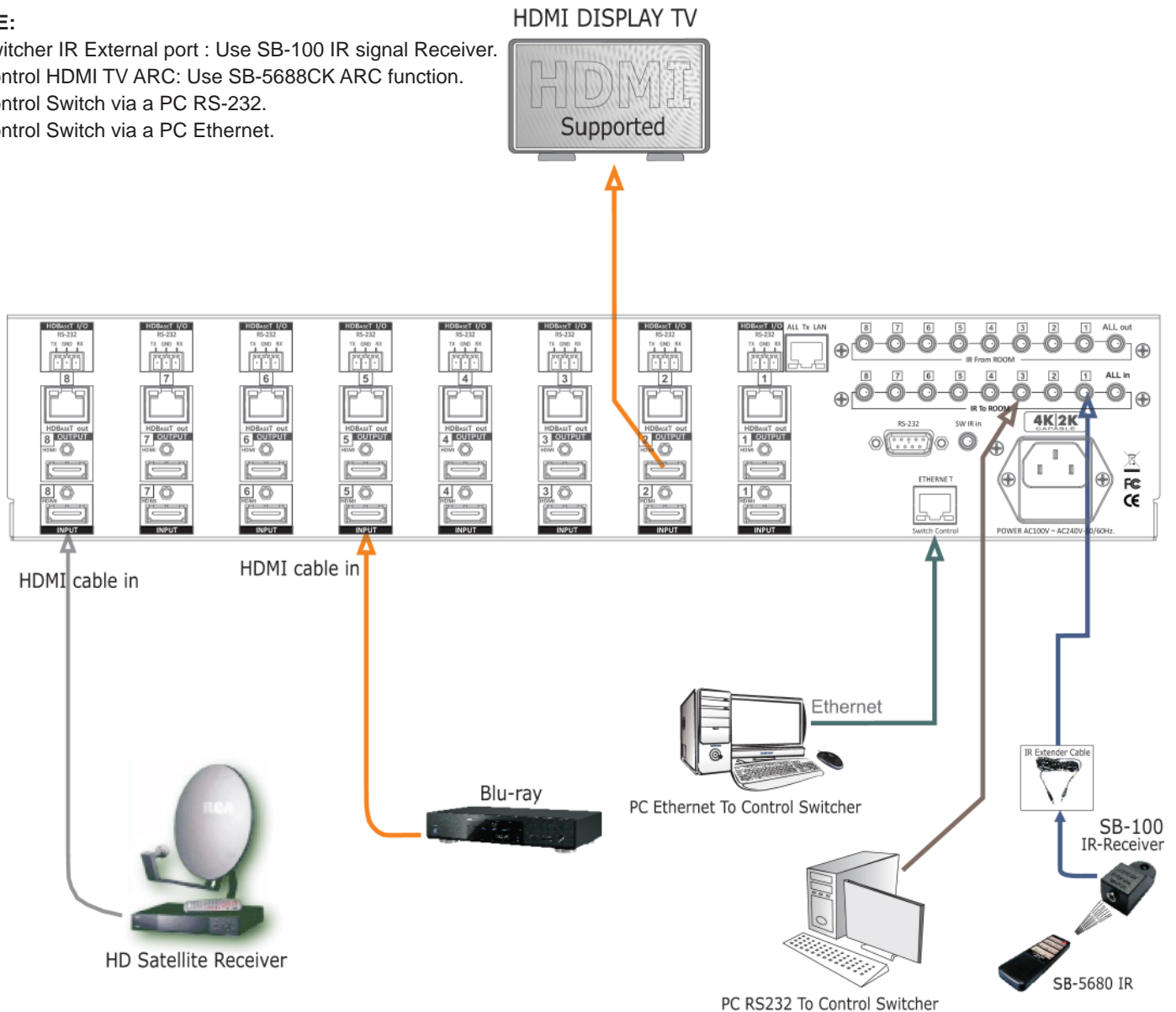
INSTALLING DIAGRAM

Samples connection :

1. Using IR External, RS-232 or Ethernet command to control Switcher SB-5688CK via PC or SB-100 IR receiver transmit the SB-5688CK's IR signal.
2. Audio output link ARC from TV return channel, HDMI audio source or mixing Auxiliary audio.

NOTE:

1. Switcher IR External port : Use SB-100 IR signal Receiver.
2. Control HDMI TV ARC: Use SB-5688CK ARC function.
3. Control Switch via a PC RS-232.
4. Control Switch via a PC Ethernet.

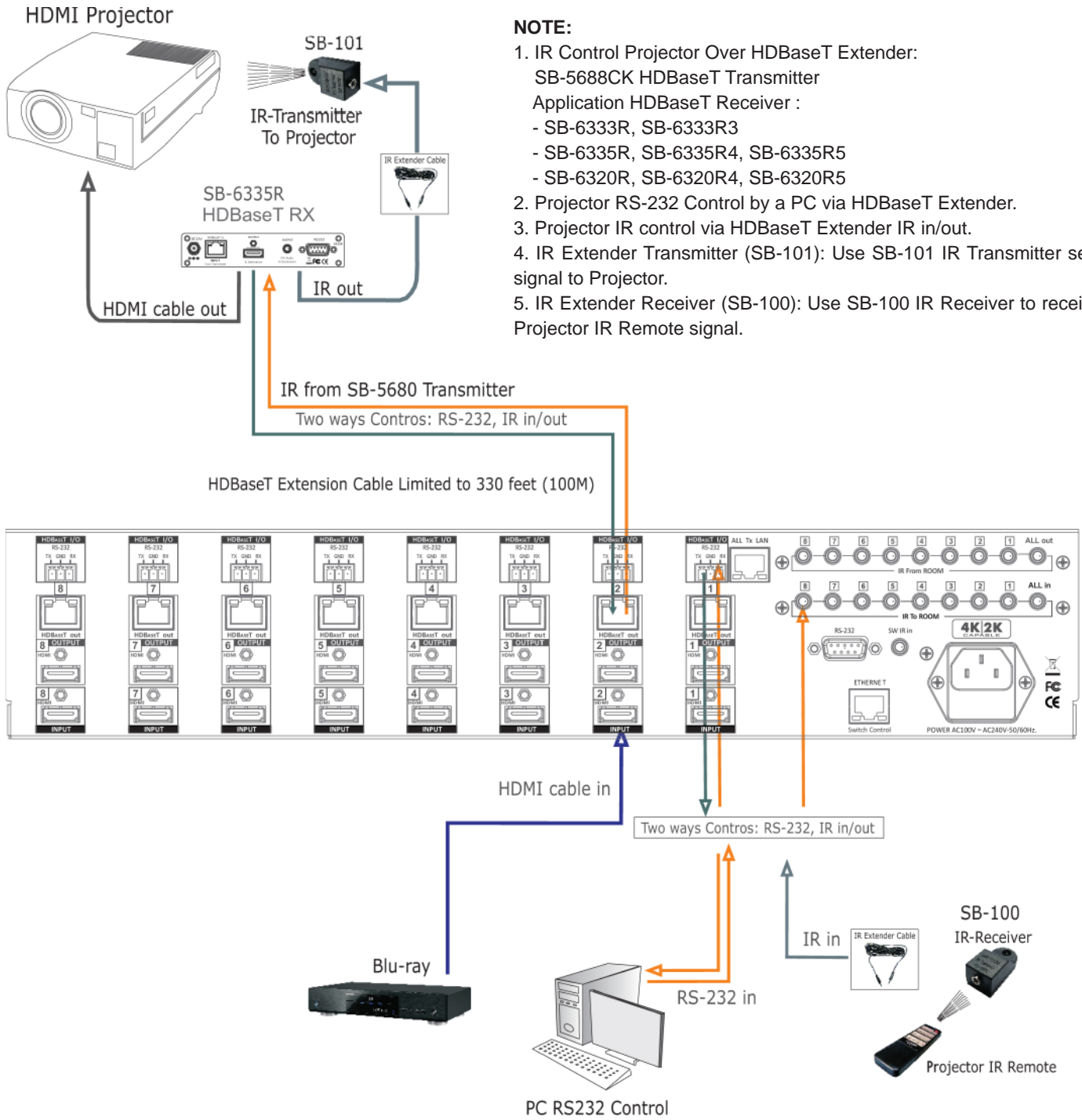


Application RS-232, IR and Ethernet control the Switcher.

TYPICAL APPLICATION

INSTALLING DIAGRAM

Sample connection using SB-5688CK HDBaseT Transmitter and one HDBaseT Receiver (SB-6320R) to control a projector via RS-232 or IR signals.



NOTE:

1. IR Control Projector Over HDBaseT Extender:
 - SB-5688CK HDBaseT Transmitter
 - Application HDBaseT Receiver :
 - SB-6333R, SB-6333R3
 - SB-6335R, SB-6335R4, SB-6335R5
 - SB-6320R, SB-6320R4, SB-6320R5
2. Projector RS-232 Control by a PC via HDBaseT Extender.
3. Projector IR control via HDBaseT Extender IR in/out.
4. IR Extender Transmitter (SB-101): Use SB-101 IR Transmitter send IR signal to Projector.
5. IR Extender Receiver (SB-100): Use SB-100 IR Receiver to receive the Projector IR Remote signal.

TYPICAL APPLICATION

INSTALLING DIAGRAM

Sample connection using SB-5688CK with IR Transmitters (SB-101) via SB-6320R to control a IR signal from Satellite Receiver.

NOTE:

1. IR Control Satellite Receiver Over HDBaseT Extender via CATx (6/6a/7) cable:

Extender via CATx (6/6a/7) cable:

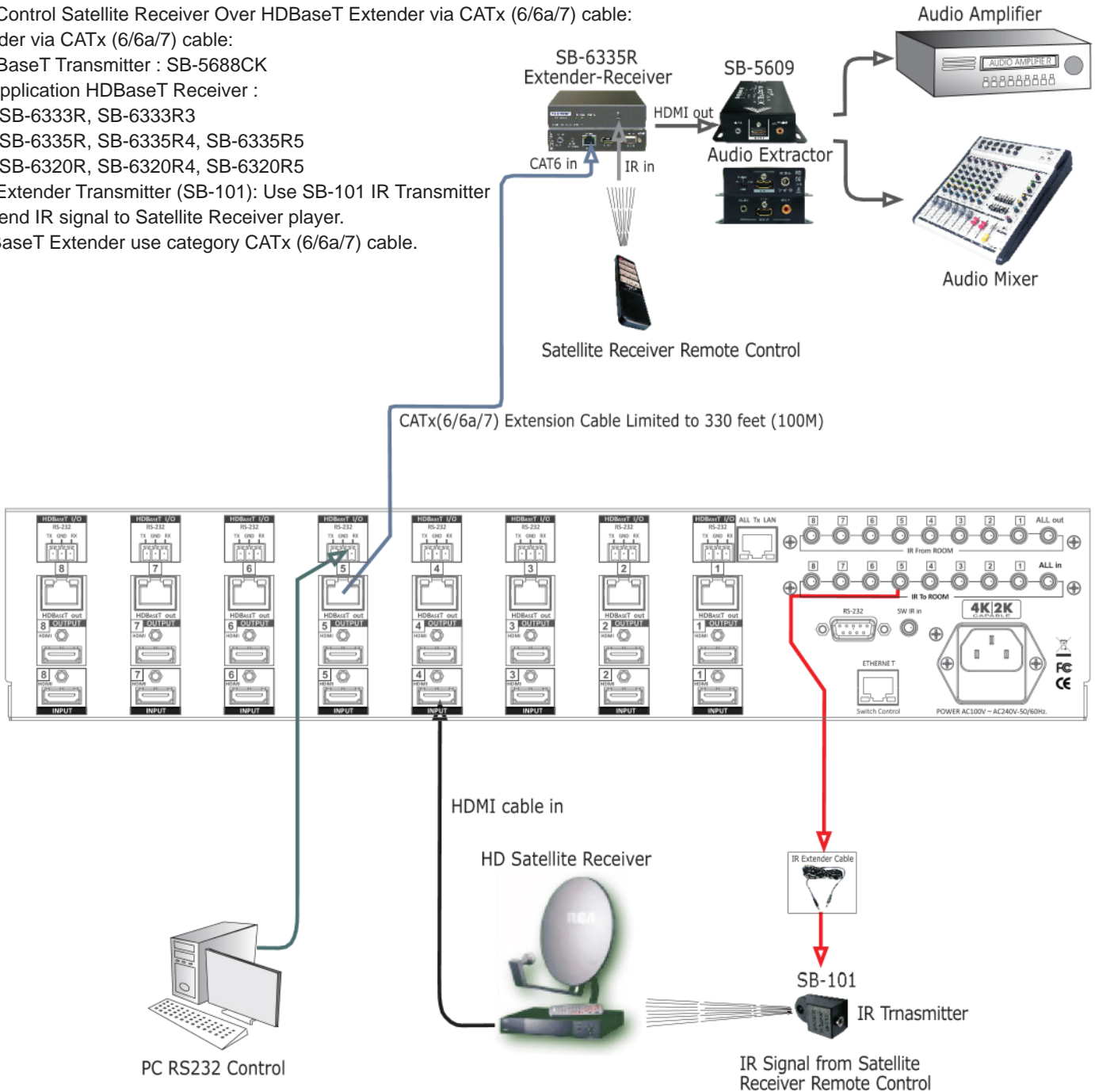
HDBaseT Transmitter : SB-5688CK

Application HDBaseT Receiver :

- SB-6333R, SB-6333R3
- SB-6335R, SB-6335R4, SB-6335R5
- SB-6320R, SB-6320R4, SB-6320R5

2. IR Extender Transmitter (SB-101): Use SB-101 IR Transmitter to Extend IR signal to Satellite Receiver player.

* HDBaseT Extender use category CATx (6/6a/7) cable.

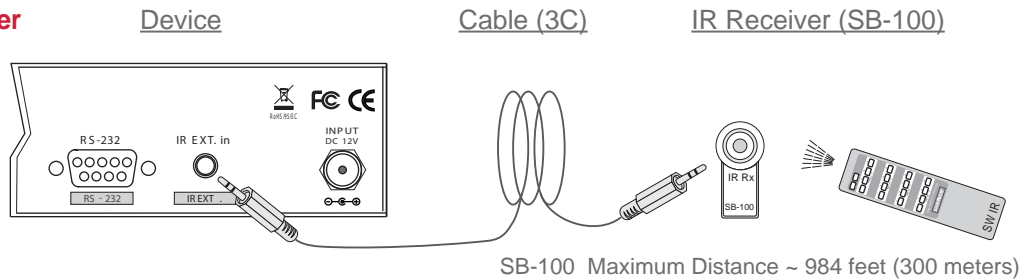


Support HDBaseT Extender by Switcher Transmitter and SB-6335R Receiver via CATx(6/6a/7) cable.

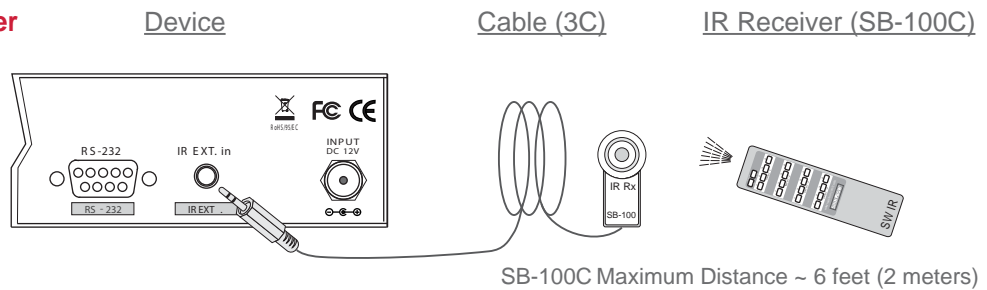
IR EXTENDER

IR RECEIVER:

1. SB-100 IR 300M Receiver



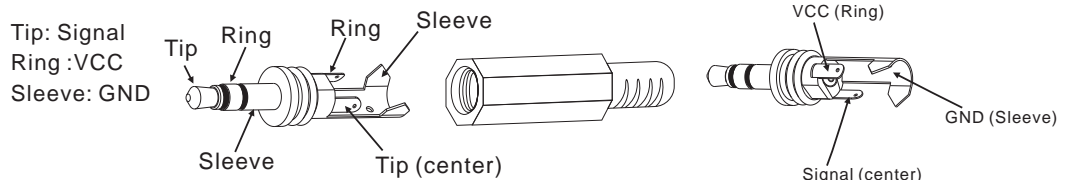
2. SB-100C IR 2M Receiver



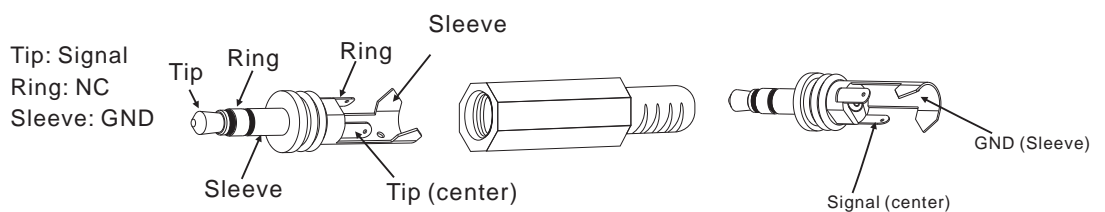
*** When you plug the External IR extender into the switcher, the front panel IR receiver remains active. ***

PIN CONFIGURATION:

SB-100 and SB-100C Receiver Pin configuration



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



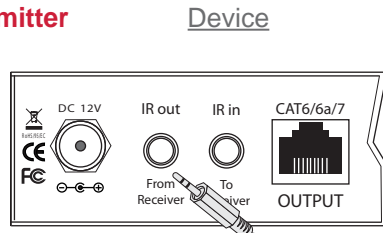
SB-100C Maximum Distance ~ 6 feet (2 meters)

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.

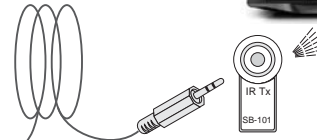
IR EXTENDER

IR EMITTER:

1. SB-101 IR 300M Transmitter



Cable (3C)

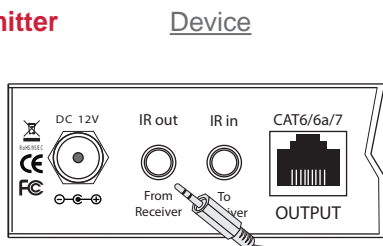


IR Transmitter (SB-101)

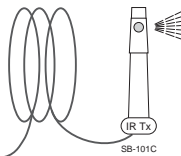


SB-101 Maximum Distance ~ 984 feet (300 meters)

2. SB-101C IR 2M Transmitter



Cable (3C)



IR Transmitter (SB-101C)



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

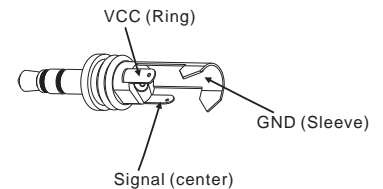
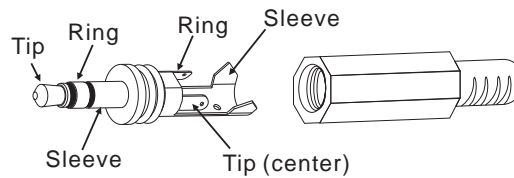
*** When you plug the External IR extender into the switcher, the front panel IR transmitter remains active. ***

PIN CONFIGURATION:

SB-101 and SB-101C Transmitter Pin configuration



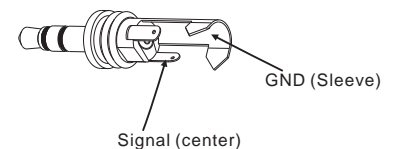
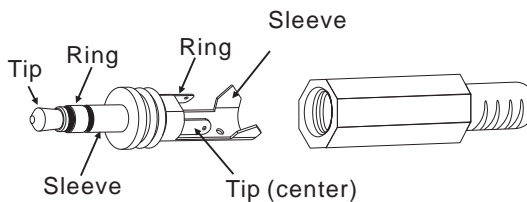
Tip: Signal
Ring :VCC
Sleeve: GND



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



Tip: Signal
Ring: NC
Sleeve: GND



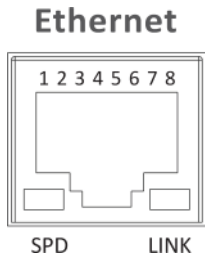
SB-101C Maximum Distance ~ 6 feet (2 meters)

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.

ETHERNET SERIAL INTERFACE

ETHERNET SERIAL INTERFACE CONNECT A PC OR CONTROL SYSTEM. VERSION COMPATIBLE V2.0

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



Note :
Control the switcher
SPD : Speed
LINK : Ethernet link
RJ-45 Female 8P-8 Connector

ETHERNET SERIAL INTERFACE

Pin	Ethernet	Reference
1	TXOP	TX +
2	TXON	TX -
3	RXIP	RX +
4	NC	
5	NC	
6	RXIN	RX -
7	NC	
8	GND	

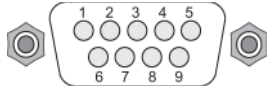
ETHERNET TCP/IP PROTOCOL COMMANDS (Ethernet / RS-232 Control driver V2.0.1)

*** The Ethernet port and RS-232 port cannot be used simultaneously. Any connection to the Ethernet Control port will disable serial commands send to the RS-232 port.***

RS-232 SERIAL INTERFACE

RS-232 SERIAL INTERFACE CONNECT A PC OR CONTROL SYSTEM. VERSION -2.0 COMPATIBLE

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



RS-232 SERIAL INTERFACE

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

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

The ShinybowUSA switcher can be controlled via the TCP/IP 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.

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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