

Instruction Manual



MODEL : HD-44 4x4 HDMI Matrix Switcher

HDMI Matrix Switcher Series

Thank you for purchasing the HD-44 HDMI 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 HDMI Matrix switcher.



SAFETY INFORMATION



1. 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.
2. Read all documentation before operating your equipment. Retain all documentation for future reference.
3. Follow all instructions printed on unit chassis for proper operation.
4. Do not spill water or other liquids into or on the unit, or operate the unit while standing in liquid.
5. Make sure power outlets conform to the power requirements listed on the back of the unit.
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. 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.
8. Mains 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.
9. Power down & disconnect unit from mains voltage before making connections.
10. Never hold a power switch in the " ON " position.
11. Do not use the unit near stoves, heat registers, radiators, or other heat Producing devices.
12. 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 matter.
13. Do not remove the cover. Removing the cover will expose you to potentially dangerous voltages. There are no user serviceable parts inside.
14. Do not drive the inputs with a signal level greater than that required to drive equipment to full output.
15. Non-use periods. The power cord of equipment should be unplugged from the outlet when left unused for a long period of time.
16. Service Information Equipment should be serviced by qualifier service personnel when:
 - A. The power supply cord or the plug has been damaged.
 - B. Objects have fallen, or liquid has been spilled into the equipment.
 - C. The equipment has been exposed to rain
 - D. The equipment does not appear to operate normally, or exhibits a marked change in performance
 - E. The equipment has been dropped, or the enclosure damaged.

IMPORTANT SAFETY INSTRUCTIONS

To insure the best from this product, please read this manual carefully. Keep it in a safe place for future reference.

To reduce the risk of electric shock, do not remove the cover from the unit. No user serviceable parts inside. Refer servicing to qualified personnel.

To reduce the risk of fire, do not expose the unit to rain, water or excessive moisture.

Do not force switched or external connections.

When moving the unit disconnect the serial port connections first then the power cable and finally the interconnecting cables to other devices.

Do not attempt to clean the unit with chemical solvents or aerosol cleaners, as this may damage the unit. Use a clean dry cloth.

Installation of this unit should be in a cool dry place, away from sources of excessive heat, vibration, dust, moisture and cold.

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INTRODUCTION AND PACKAGE CONTENTS

INTRODUCTION

The HD-44 is high-performance 4x4 matrix routing switcher for HDMI signals. This switcher supports data rates up to 6.75 Gbps, enabling 1080p HDMI formats and UXGA/WUXGA/DVI resolution to any HD display. High Definition Digital signals can be selected and distributed to any 2 outputs simultaneously. The Switcher is certified as being fully HDMI[®] and HDCP[®] compliant, with RoHS, CE, FCC certification. Support high resolution HDMI sources routed to HDMI displays, monitors, projector or audio receivers. The EDID can be selected between seven (7) different modes. Control is provided via Front panel push buttons, IR remote or via RS-232. An RS232 Windows GUI interface is provided for matrix routing.

The HD-44 is a 4x4 HDMI Matrix Switcher featuring 4 inputs and pre-emphasized 4 outputs. Full support HDMI / HDCP compliant.

- 4 inputs as following :
 - 4 x HDMI (Digital Video/Audio)
- 4 matrix outputs as following :
 - 4 x HDMI
 - 1x Preview port (Digital Video/Audio)

Support Seven Control Function Keys :
ALL >OFF >PREV >PALY >SAVE >LOCK >EDID

EDID support :

- INTERNAL modes
 - Auto
 - 1080P- 2CH
 - 1080P- 5.1
 - 1080P-7.1
 - 1080I- 2CH
 - 720P- 2CH

PACKAGE CONTENTS

1. Main console unit
2. Operating Instructions
3. IR Remote Controller
4. 19 inch Ear mount bracket (Part # 1U-440L)
5. IR Extender receiver (SB-100)
6. CD Contents: This manual, Windows GUI
7. RS232 Cable
8. Power Supply 12VDC, 3A Universal Type 50/60Hz, 100~230 VAC

FEATURES and SPECIFICATIONS

FEATURES

1. Support 4x HDMI digital source devices matrix switched to 4x HDMI devices.
2. HDMI digital video w/embedded audio, DVI format and HDCP compliant
3. Seven (7) function key control and worldwide EDID modes for HDTV resolutions.
4. Link speeds of up to 6.75 Gbps (link clock rate of 340Mb Hz), for 3D formats.
5. Wide range of HD resolutions from PC XGA to WUXGA 1920x1200 and HDTV/DTV resolutions 480i/480p, 576i/576p, 720p, 1080i & 1080p
6. Compatible with all HDMI source devices, PC monitors, Plasma HD display, HDTV and audio receivers/amplifiers.
7. Digital Video TMDS formats
8. Support IR Remote and IR Extender with distance up to ~ 1000' (300M) Maximum.
9. Various User Interface control:
 - Windows based GUI control via RS232 port
 - Front Panel push button
 - IR wireless remote control
 - Third party RS232 controller (via simple ASCII)
10. Front panel buttons: ALL/OFF/PREV/PLAY/SAVE/EDID/LOCK
11. Automatic scanning input & output status
12. Desktop with optional rack mount via included 19 inch bracket.
13. EDID configuration via Internal modes.
14. Consumer Electronic Control (CEC) switch all open or OFF
The Switcher will remember that last state during a power cycle.
When power is removed and resorted, the last configuration will be invoked.

SPECIFICATIONS

1. Type of Switcher: HDMI 4 x 4 Matrix Routing Switcher
2. Input Signals: Video (TMDS) 0.5~1.0Vpp, DDC 5Vpp
3. Signal Supports : HDMI Standard, DVI and HDCP Compliant
4. Video Supported: 1080p HDMI formats and DVI UXGA 1600x1200 HD resolutions.
5. Audio Supported: (HDMI only) DTS-HD Master Audio, Dolby True -HD & Dolby Digital Plus
6. Video input interface:
 - RGB/YCBCR : 24/30/36-bits
 - YCBCR : 8/10/12/16/20/24-bits
 - Double data rate interface for RGB/YCBCR : 12/15/18-bits
7. Controls: IR, IR EXT, Select & function buttons on the front panel & RS232
8. Data Rates: 250Mbps to 6.75Gbps.
9. IR Extender Distance: ~1000 feet / 300 meters maximum.
10. Infrared frequency: 38KHz.
11. Safety Approvals: CE, FCC, RoHS (2002/95/EC).
12. Dimensions (WDH): 19 " x 9.85 " x 1.75 " (482mm x 250mm x 44mm) *with rack mount
13. Power Supply: DC12V / 3A (consumption 2580mA Maximum)
Universal world wide Type 50/60Hz, 100~230 VAC
14. Product Weight : 2.50 Kgs / 5.50 lb

As product improvement is continuous, specifications are subject to change and without notice or liability.

EDID FUNCTION

EDID function for HDMI Matrix Switcher

Method 2

In some cases, the display screen maybe dark, or no picture, distorted color or without sound. This is caused by import ability of the EDID.

Some caused of this are :

1. Destination resolution 480p EDID. Source is 1080p or 720p
2. Destination resolution 1080p EDID. Source is 480p, 720p or 1080p
3. Either Source or destination has no EDID code, or firmware is older version.

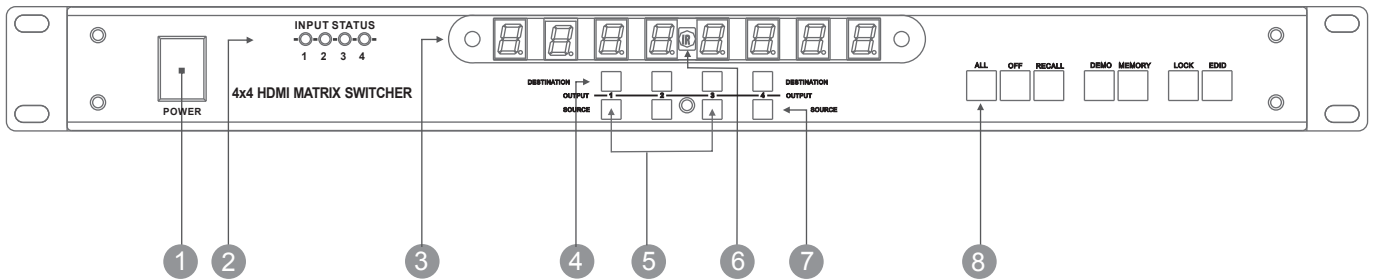
in this event. you can manually link source EDID to destination EDID.

Step 1 . Press EDID button, the button will flash blue and the display will show the current EDID Status.

Step 2 . Press Output button 1 thru 8 destination row on the affected display.

FRONT PANEL

FRONT PANEL



1 POWER 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 then press Source 2 will route Input 2 to Output 1,3 respectively.

5 EDID MODE SELECT BUTTONS

Used to select EDID mode using buttons 1 thru 7

6 IR SENSOR

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

7 SOURCE SELECT BUTTONS

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

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.

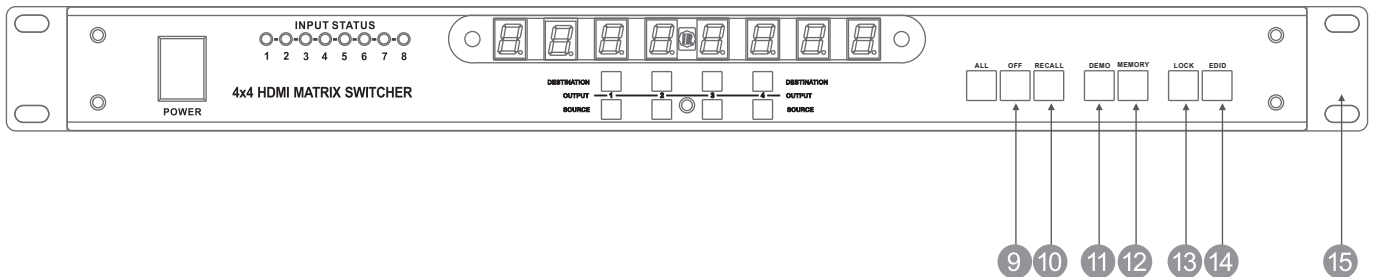
Option 2

- Press **ALL** followed by Source 1 thru 4. The display will show the Source selected.

- Press **DEMO** The pre-set source selection will be assigned all destinations.

FRONT PANEL

FRONT PANEL



9 FUNCTION KEY - **OFF**

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

- Press **OFF** button followed by any Destination channel.
- Press 1 thru 4 output destination. The display will show " 0 " for the selected channel indicating no video selected.

10 FUNCTION KEY - **RECALL (preview)**

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.

- Configure desired matrices.
 - press **RECALL** button.
 - Press 1 thru 4 on either Source or Destination row.
 - Press **DEMO** The pre-set configuration will execute.
- Operation completes.

Operation will abort if no keys are pressed with 5 seconds.

11 FUNCTION KEY - **DEMO**

The system will execute a previously stored preset.

- Press **ALL**, **OFF** or **RECALL** button.
- Press 1 thru 8 on either Source or Destination row.
- Press **DEMO** The pre-set configuration will execute.

12 FUNCTION KEY - **MEMORY**

The system will **SAVE** current configuration into memory.

- press **MEMORY** to store memory location.
- Press 1 thru 4 on either Source or Destination row.

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 the front panel.

14 FUNCTION KEY - **EDID**

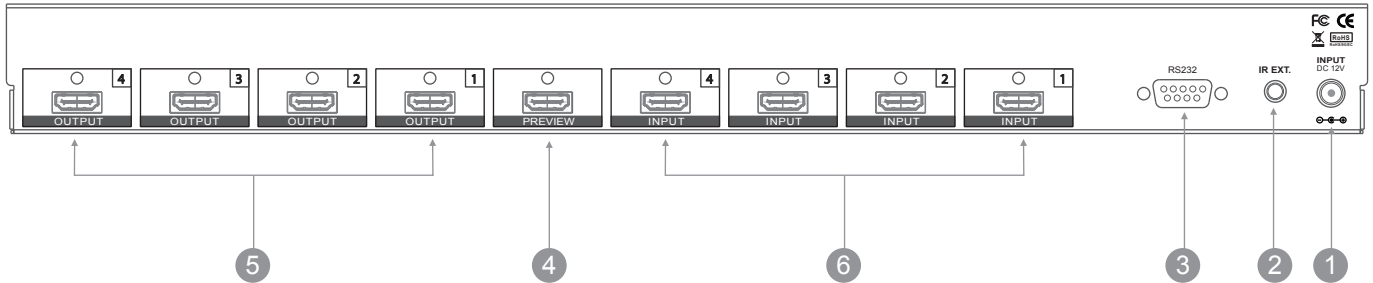
- press **EDID** to select new EDID mode or select destination row 1 thru 4 for LINK source EDID again.

15 19 INCH EAR MOUNT PAIR

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

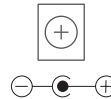
REAR PANEL

REAR PANEL



1 DC POWER INLET

The Switcher is fitted with a DC 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. 12Volt DC power supply 3A Max (Center pin positive).



Power Jack:
DC Jack - inner OD \varnothing 2.1mm (+)
Outside OD \varnothing 5.5mm (GND)
Power input - 12VDC, 3A

2 IR EXTENDER CONTROL

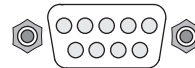
Support one of IR Extender
Extend distance maximum 300Meters / ~1000 feet
When you plug the External IR extender into the switcher, the front panel IR receiver remain active.



IR Extender Jack:
Female Jack - inner OD \varnothing 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.

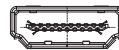


Remote port :
DB-9pin Female connector

4 PREVIEW OUTPUT-01 HDMI

Connect a signal link of HDMI direct digital video/audio to this Female HDMI connector. This connector supports HDMI digital video/audio and DVI digital video sources.

Preview port HDMI signal as the same as Output 1



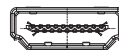
HDMI digital video/audio connector:
HDMI Female connector.

Note:
With the proper adapters, the switcher can be used with DVI digital video signals
HDCP compliant. DVI does not support audio.

5 INPUTS- 1,2,3,4 HDMI

Connect a signal link of HDMI direct digital video/audio to this Female HDMI connector. This connector supports HDMI digital video/audio and DVI digital video sources.

HDMI Digital Video/Audio, Connector with fix screw
Input 1 ~ Input 4



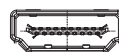
HDMI digital video/audio connector:
HDMI Female connector.

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With the proper adapters, the switcher can be used with DVI digital video signals
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6 OUTPUTS- 1,2,3,4 HDMI

Connect a signal link of HDMI direct digital video/audio to this Female HDMI connector. This connector supports HDMI digital video/audio and DVI digital video sources.

HDMI Digital Video/Audio, Connector with fix screw
Output 1 ~ Output 4



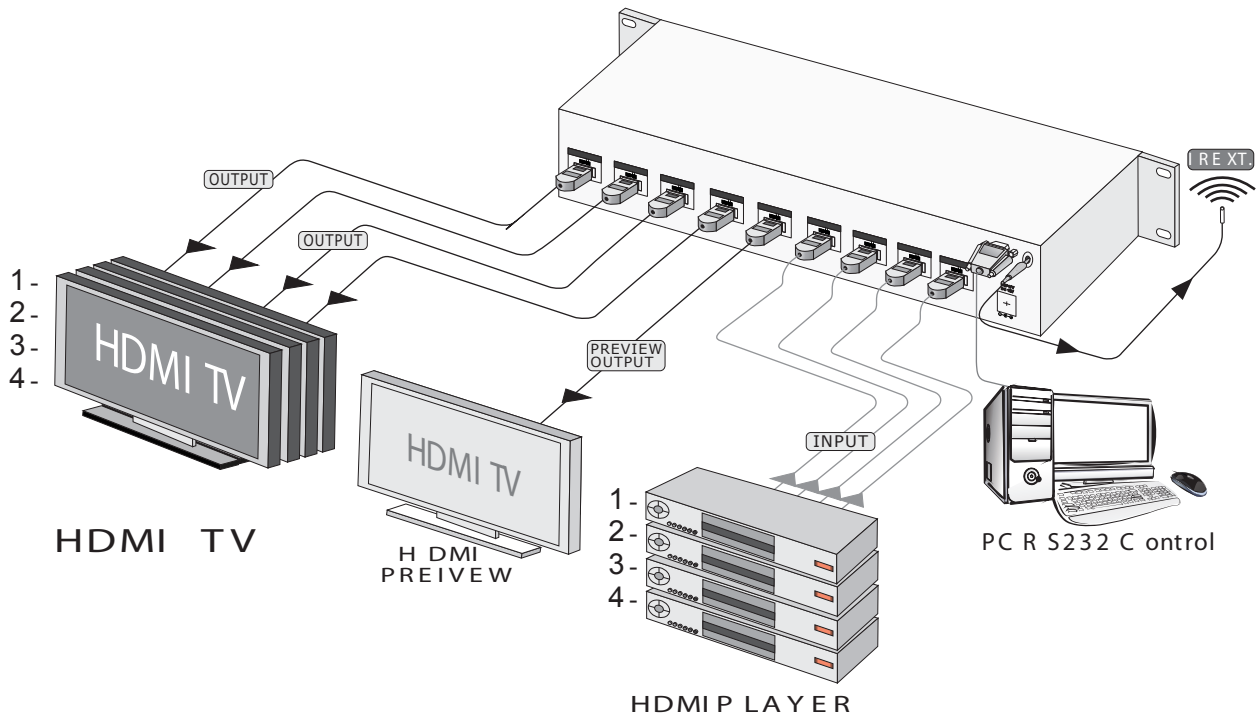
HDMI digital video/audio connector:
HDMI Female connector.

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

TYPICAL APPLICATION

INSTALLING DIAGRAM

4x4 HDMI MATRIX SWITCHER HD-45



CONNECTION PORTS:

CONTROL PORTS :

1. IR EXTEND - External IR receiver
2. RS-232 - PC RS-232 Series port

INPUTS PORT SIGNALS :

1. HDMI (HDCP Compliant)
2. HDMI (HDCP Compliant)
3. HDMI (HDCP Compliant)
4. HDMI (HDCP Compliant)

OUTPUT PORT SIGNALS :

1. HDMI (HDCP Compliant)
2. HDMI (HDCP Compliant)
3. HDMI (HDCP Compliant)
4. HDMI (HDCP Compliant)
5. PREVIEW OUTPUT-01

DC POWER INPUT :

SUPPORT DC12V POWER INPUT

HD-45 SUPPORT FOUR HDMI INPUTS TO FOUR HDMI MATRIX OUTPUTS
SUPPORT IR EXTENDER & RS232 CONTROLS.

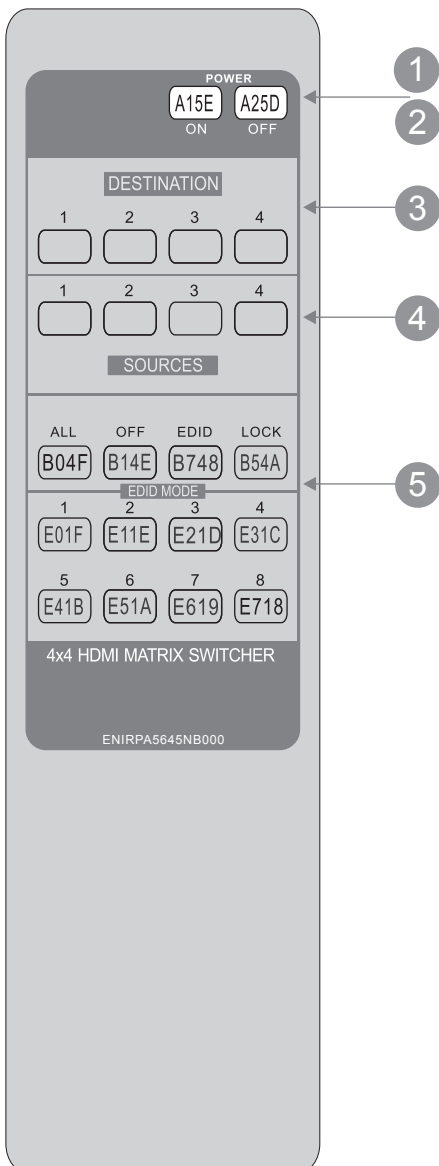
REMOTE CONTROL

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 1~4 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-5645



IR REMOTE CONTROL KEY :

- 1 2** SWITCH POWER ON or OFF
Controller with a separate power ON and OFF
- 3** DESTINATION : 1 thru 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
 - EDID - function selection button
 - LOCK - function selection button
 - ENTER - function selection button
 - MEMORY - function selection button
 - RECALL - function selection button

REMOTE CONTROL

IR REMOTE CUSTOM AND DATA CODES (NEC Standard)

HOW TO SETUP IR CODES :

CUSTOM CODE : 1CE3

POWER ON : 1CE3 A15E

POWER OFF : 1CE3 A25D

TV- # INPUT / AV - # OUTPUT

DESTINATION #1:1CE3 10EF

SOURCE #1 : 1CE3 11EE

SOURCE #2 : 1CE3 12ED

SOURCE #3 : 1CE3 13EC

SOURCE #4 : 1CE3 14EB

DESTINATION #2:1CE3 20DF

DESTINATION #3:1CE3 30CF

DESTINATION #1:1CE3 40BF

SOURCE #1 : 1CE3 01FE

SOURCE #2 : 1CE3 02FD

SOURCE #3 : 1CE3 03FC

SOURCE #4 : 1CE3 04FB

FUNCTION KEY

FUNCTION KEY

ALL : 1CE3 B04F

OFF : 1CE3 B14E

EDID : 1CE3 B748

LOCK : 1CE3 B54A

EDID MODE

1# Auto mode : 1CE3 E01F

2# 1080p-2CH mode : 1CE3 E11E

3# 1080p-5.1CH mode: 1CE3 E21D

4# 1080p-7.1CH mode: 1CE3 E31C

5# 1080i-2CH mode : 1CE3 E41B

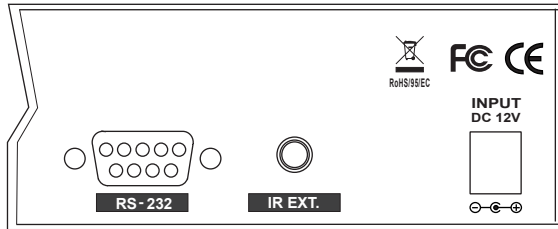
6# 720p-2CH mode : 1CE3 E51A

7# EXTERNAL mode : 1CE3 E619

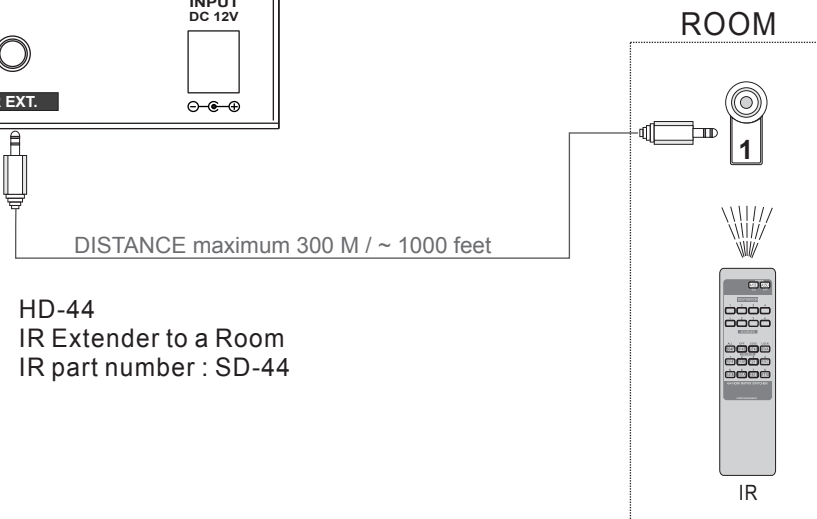
8# RESERVE : 1CE3 E718

IR EXTENDER

REAR PANEL IR EXTENDER PORT



IR EXTENDER CONNECTION

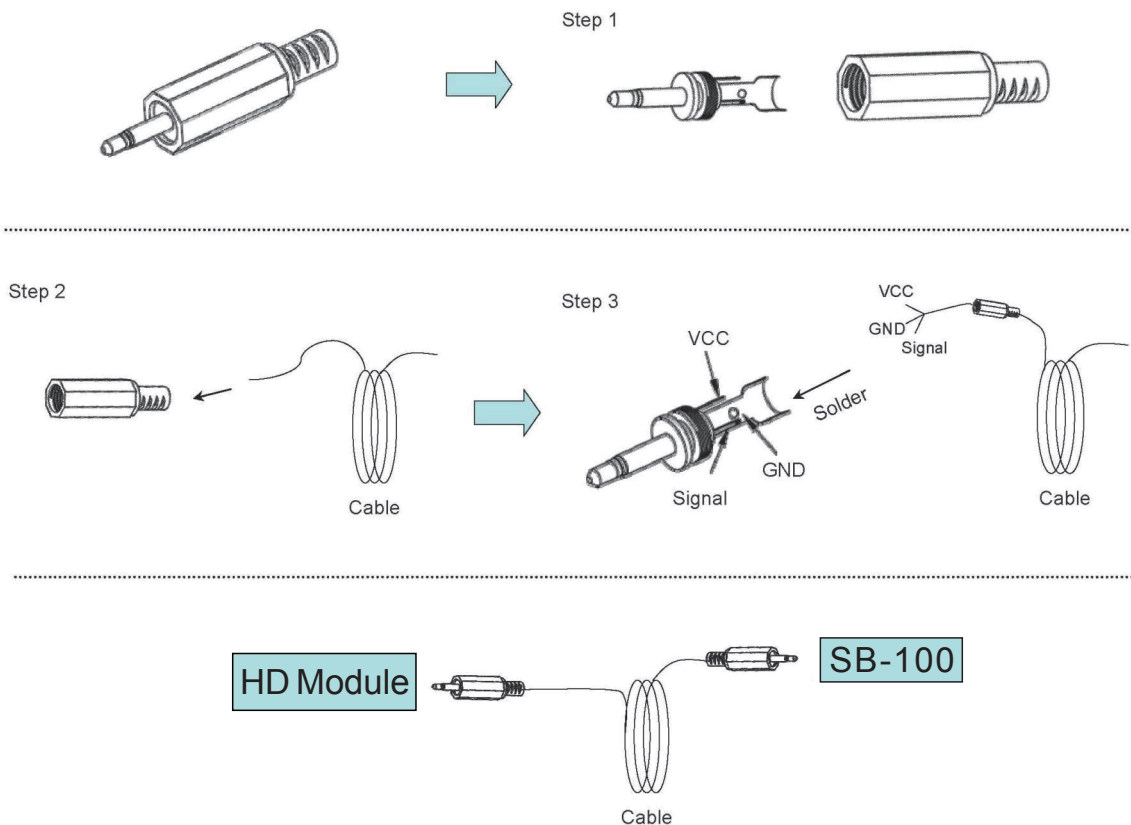


HD-44
IR Extender to a Room
IR part number : SD-44

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

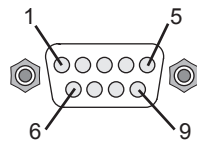
IR EXTENDER PACKAGE :

HOW TO SETUP THE IR EXTENDER COMPONENTS



RS-232 SERIAL INTERFACE

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



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

RS232

The 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.

0 = the number

O = the letter

COMMANDS (RS232 Control driver V1.0)

To Switch Inputs to Outputs

SBI0X00Y - Where X is Output Number (1-8) and Y is Input Number (1-8)

Unit will respond with

SBUD0X0Y - Where X is Output Number (1-8) and Y is Input Number (1-8)

Example : Send Input 4 to Output 3

SBI04003 -Send

SBUD0403 -Rcvd

RS-232 SERIAL COMMANDS

MORE STUFF



Note: Turning the unit System Power Off via RS232 will extinguish the LED channel display leaving only the Power Switch LED on. The Video and Audio outputs will also mute. While the unit is turned off by RS232 it will continue to accept and act upon switching commands. For example, if the unit is in the off mode (via RS232) and you send a command to switch an input to an output, that route will complete and the video and audio will now appear on that channel only. The front panel LED channel display for that particular output will also show the input selected (for that single output channel only). The remaining LED's will remain off and video and audio outputs muted. The unit will still return status and change messages in response to commands sent while in Power Off state. A hard reset command (SBALLRST) will return the unit to normal operation and also unlock the front panel.

Power Off mode.

SBSYSMOF - Put system into Standby (Soft Power Off)

SBSYSMON - Bring unit out of Standby (Soft Power On)

Unit will respond with

SBALOFAK - Unit is in Standby

SBALONAK - Unit is no longer in Standby

Example : Put Unit in Standby (Soft Power)

SBSYSMOF -Send

SBALOFAK -Rcvd

FRONT PANEL LOCK



Note : Hard resetting the unit will unlock the Front Panel controls.

SBSYSMLK - When front panel is locked, changes can only be made by RS232

SBSYSMUK - Front Panel Unlock

Unit will respond with

SBSYSLOK - Front Panel has been Locked

SBSYSULK - Front Panel has been Unlocked

Example : Lock Front Panel Buttons

SBSYSMLK -Send

SBSYSLOK -Rcvd

UNIT RESET

SBALLRST - Reset every output to Input 1

Unit will respond with

SBRSTACK - Unit has reset each Output to Input 1

Example : Reset all outputs to Input 1

SBALLRST -Send

SBRSTACK -Rcvd

LIMITED WARRANTY

LIMITED WARRANTY

The warrants this product against defects in materials and workman ship for a period of **1 year** from the date of purchase.

Should this product, Prove defective within this warranty period, will repair this product without charge, to whatever extent it shall deem necessary to restore said product to proper operation condition. This does not extend the warranty period.

This warranty does not apply if the fault has been caused by misuse, improper handling care, electrical or mechanical abuse, and abnormal operating condition or modification to the product.

If repairs are necessary under the warranty policy, the original purchaser must return the product to local distributor, freight prepaid.

After repairs are complete, the product will be returned.

REGULATORY COMPLIANCE

The product complies with the relevant standards for CE, FCC and RoHS approval.

The power Adaptor/Supply has been tested for compliance with UL.CSA and CE standards.

TROUBLESHOOTING

If you experience a <no signal> with this switcher or distributor outputs, first make certain that the signal being fed to its inputs is acceptable.

Disconnect the cables from the this switcher or distributor inputs and connect them directly to an appropriate monitoring device, if you do not see or hear a signal the problem may well be he signal source itself. Also check that the AC outlet you have used to power the switcher or distributor is actually providing power as a wall switch often controls an AC outlet.

The second most common problem with this switcher or distributor revolves around the cables, Inspect the cables for loose connectors or cable damage such as crushed cable or cables with cuts or nicks. Replace any cable exhibiting these problem.

You also must use the highest quality cables if you want to achieve the best results. Poor quality cables provide will poor quality signals.

