

# HD-88Kp

8x8 UHD 4K2K HDMI MATRIX SWITCH

4K2K  
CAPABLE



**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 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.

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**DEAR CUSTOMER**

Thank you for purchasing this product. For optimum performance and safety, please read these instructions carefully before connecting, operating or adjusting this product. Please keep this manual for future reference.

**PACKAGE CONTENTS**

Before connecting the unit, it is necessary to unpack it from the shipping carton and inspect the unit for any damage. While the cards are hot-swappable, it is recommended to install the cards before connecting the unit. This will make the installation easier.

- HD-88Kp Matrix Switcher
- RS-232 V2.0 / Ethernet V1.0 Protocol Instructions
- Master wireless IR Remote Control (SW-HD88K)
- 19 inch ear mount bracket (Part# 1U-440L)
- HD-100 IR Extender Receiver Set
- CD Contents: Manual, Windows GUI, ISP V1.0 Windows driver
- RS-232 Cable 6.5 feet (2M)
- HDMI Locking Post Replacement Screws
- Users Guide
- Power Supply Input: Worldwide Universal 100~240VAC, AC 50/60Hz



**SAFETY PRECAUTIONS**

Please read all instructions before attempting to unpack, install or operate this equipment and before connecting the power supply. Please keep the following in mind as you unpack and install this equipment:

- Always follow basic safety precautions to reduce the risk of fire, electrical shock and injury to persons.
- To prevent fire or shock hazard, do not expose the unit to rain, moisture or install this product near water.
- Never spill liquid of any kind on or into this product.
- Never push an object of any kind into this product through any openings or empty slots in the unit, as you may damage parts inside the unit.
- Do not attach the power supply cabling to building surfaces.
- Use only the supplied power supply unit (PSU). Do not use the PSU if it is damaged.
- Do not allow anything to rest on the power cabling or allow any weight to be placed upon it or any person walk on it.
- To protect the unit from overheating, do not block any vents or openings in the unit housing that provide ventilation and allow for sufficient space for air to circulate around the unit.

**DISCLAIMERS**

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## INTRODUCTION

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The HD-88Kp is a professional 8x8 matrix routing switch. Supporting (8) HDMI Inputs and (8) HDMI Outputs with (1) preview Output port. The HD-88Kp is based on HDMI standards and supports full resolution HDMI video with embedded HDCP, with a signal bandwidth of 340Mhz, so there is no signal degradation. High definition digital signals can be selected and distributed to any of the (8) Inputs to the (8)+(1) preview Outputs. The switcher is certified as being fully CEC, ARC and HDCP 1.3 compliant, full HD 4K2K HDCP 1.3, HDMI 1.4a, 4K2K@30Hz, DVI 1.0, 3D formats and a wide frequency range of 25MHz ~ 340MHz. Supports UXGA/WUXGA/DVI 1920x1200 resolution to any HD display. EDID management can be selected between (7) different modes. Control is provided via front panel push buttons, IR remote, RS-232 or TCP/IP (not a web-browser). A RS-232 Windows GUI interface is provided for matrix routing control (Windows only). This product has a 1 year warranty.

## FEATURES

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- (8) HDMI source devices matrix switched to (8)+(1) preview HDMI Output destinations
- HDMI digital video w/ embedded HDCP, DVI format and CEC/HDCP 1.3 compliant
- Worldwide EDID control modes for HDMI full 4K2K (24/30Hz) HD video resolutions
- Wide frequency range of 25MHz ~ 340MHz, Supports HDMI 4K2K, 1.4b 3D formats
- Wide range of HD resolutions from PC XGA to WUXGA 1920x1200 and HDTV/DTV HDMI resolutions of 480i/480p, 576i/576p, 720p, 1080i/p & 3860x2160p (24/30Hz)
- Compatible with all HDMI source devices, PC monitors, Plasma HD displays, HDTVs and audio receivers or audio amplifiers
- Digital video TMDS formats resolutions up to 4K2K with Deep color 36bit
- Digital Audio Support: Dolby TrueHD, Dolby Digital, Dolby Digital Plus/EX, DTS, DTS-HD, DTS-HD Master, DTS-EX, PCM, PCM2, LPCM2
- Various User Interface Controls:
  - Windows based GUI control via RS-232 port interface control driver for WIN2000/XP/WIN7-32/WIN7-64/WIN8
  - Front panel push button
  - IR wireless remote control
  - Ethernet switch control
  - Third party RS-232 controller (via simple ASCII)
- Supports (1) preview Output port (same picture with Output #1)
- Supports (7) world wide control function keys:
  - Full function front panel controls: ALL / OFF / EDID / LOCK / RECALL / MEMORY / ENTER
- Using the build-in booster, each HDMI Output port is capable of driving cable lengths for 1080p up to 98 ft (30M) & 4K2K up to 66 ft (20M)
- Supports EDID Modes:
  - a. Embedded EDID Modes: FSS/ H24-3D/ H24-3D-M/ H36-3D/ H36-3D-M/ 4K2K-3D / DVI-D 1920x1200-60Hz
  - b. External Modes: Learning mode-1 (Single Learning) & Learning mode-2 (Multiple Learning)
- Supports IR remote and IR extenders for distances up to ~ 984 ft (300M) Maximum
- Supports Universal power adaptor AC100V~AC240V, 50/60Hz

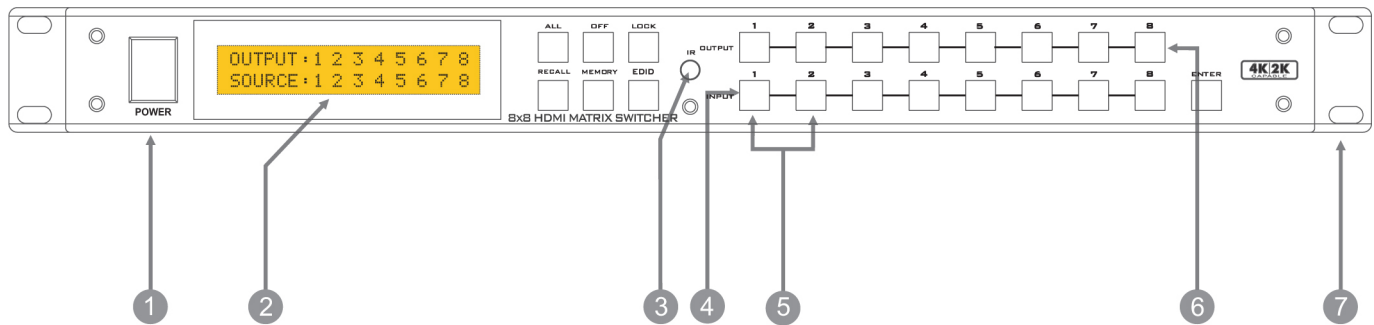
The switcher will remember that last state during a power cycle. When power is removed and resorted, the last configuration will be invoked.

## SPECIFICATIONS

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- **Type of Switcher:** (8) Inputs to (8) HDMI Outputs Matrix Routing Switch
- **HDMI Support:** HDMI 4K2K, 1080p@60Hz, 36bit Deep color, 3D for HDMI V1.4 formats
- **HDCP / CEC Support:** HDCP 1.3 Compliant, CEC Compliant
- **Video Bandwidth:** Double Data Rates: 340MHz
- **Digital Video Supported:** HD: 480i/ 480p/ 720p/ 1080i/p and 2160p up to 36bit deep color
- **Video Inputs:** (8) HDMI (HDMI or DVI digital source)
- **Video Outputs:** (8) HDMI with Booster Output for 1080p up to ~98 ft (30M) & 4K2K up to ~66 ft (20M)
- **Audio Supported:** Multi Audio Formats 5.1 / 7.1, MAT (MLP), Dolby Digital, Dolby TrueHD, Dolby Digital Plus, DTS, DTS-ES 6CH, DTS-HD, DTS-HD-HRA, DTS-HD Master, (PCM-2CH)
- **Preview Output:** (1) preview Output (same picture as Output#1)
- **Switch Controls:**
  - Select & Function buttons on front panel (Data status via LCM panel show out)
  - IR Remote Control (switch control)
  - IR External port (switch control via 3.5mm OD Jack)
  - RS-232 series interface (switch control)
  - Ethernet series interface (switch control)
- **(23) Function Control Keys:** ALL, OFF, RECALL, ENTER, MEMORY, LOCK, EDID, Destination button 1 thru 8, Source button 1 thru 8
- **(7) EDID Management Modes:**
  - 1. 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 1920x1200-60Hz
  - 2. Select LEARNING Mode: Learning destination EDID to Link source
- **Infrared Frequency:** 38KHz
- **Video Booster:** HDMI Output for 1080p with lengths up to 98 feet (30M) / 4K2K up to 66 feet (20M)
- **IR External Distance:** ~984 ft/300M maximum
- **HDMI I/O Connector:** HDMI Type A - SMD 19pin female type
- **Temperature:** 32°F - 100°F Operation (0°C - 32°C)
- **Dimensions (LxWxH):** 17.5 x 10 x 1.75 in
- **Rack Mount:** 1RU High 19 in Rack Mount #1U-440L (with rack mount)
- **Power Supply:** Power Input: AC 100~240VAC 50/60Hz (120V/0.5A/60W; 220V/0.27A/60W)
- **Safety Approvals:** CE, FCC, RoHS, REACH
- **Weight:** 7.7 lb (Unit only) / 10.4 lb (Net)

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

**3 IR SENSOR:** The IR sensor receives IR commands from the supplied remote control or third party IR emitter.

**4 SOURCE SELECT BUTTONS:** Separate Inputs 1 thru 8 select buttons are provided each source selection.

**5 EDID MODE SELECT BUTTONS:** Used to select EDID modes using Input buttons #1 and #2.

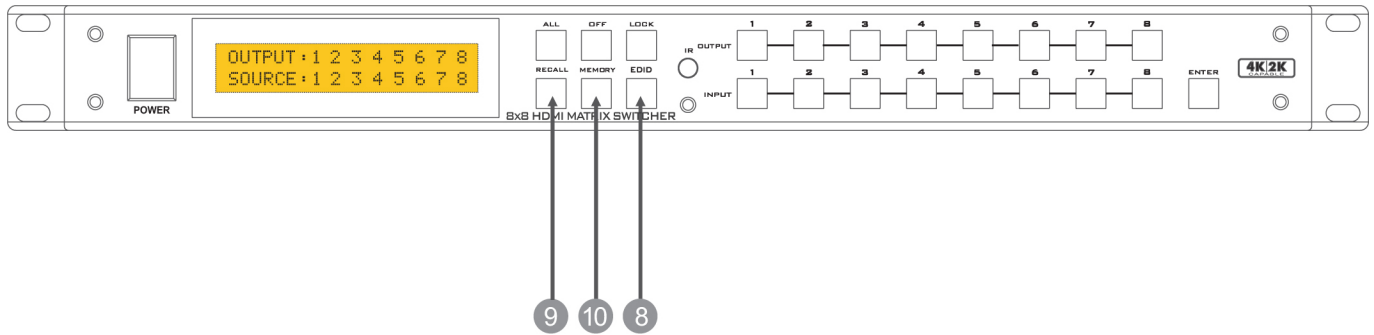
**6 DESTINATION SELECT BUTTONS:** Separate Outputs 1 thru 8 select buttons are provided for each destination assignment. Routing can be source to destination or one source to multiple destinations.

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

**7 19 INCH EAR MOUNT PAIR:** Converts desktop to 19 inch rack mount. Bracket (part# 1 U-440L) INCLUDED. Image shows rack mount bracket attached.



FRONT PANEL - EDID, MEMORY & RECALL



8 FUNCTION KEY - EDID:



Used to display change the current EDID mode.

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

Operation completes.

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

9 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 the **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 with 5 seconds.

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

10 FUNCTION KEY - MEMORY:



The system will show 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.

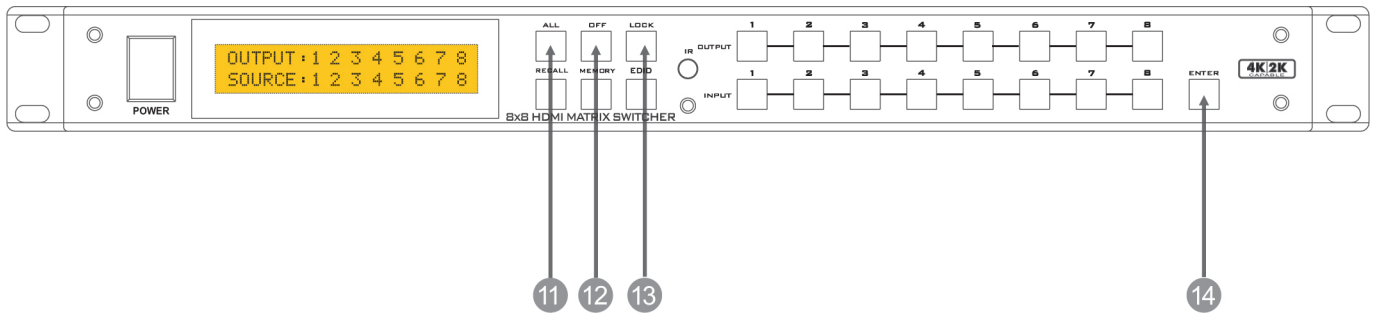
- Configure desired matrices.
- Press the **MEMORY** button.
- Press **1 THRU 8** on either Source or Destination row.
- Press **ENTER** to ready memory location.
- Or press **MEMORY** again to cancel the operation.

Operation completes.

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

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

FRONT PANEL - ALL, OFF, LOCK & ENTER



11 FUNCTION KEY - ALL:



Disables (mutes) video on all destinations OR selects the same source for all destinations.

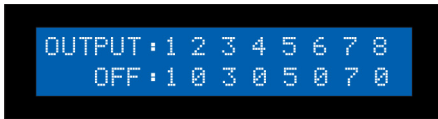
**Option 1**

- Press **ALL** followed by the **OFF** button. The display will show "0" indicating all destinations do not have video selected.

**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 to all destinations.

12 FUNCTION KEY - OFF:



Disables (mutes) video to selected channels for either destination.

- 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 is selected.

13 FUNCTION KEY - LOCK:



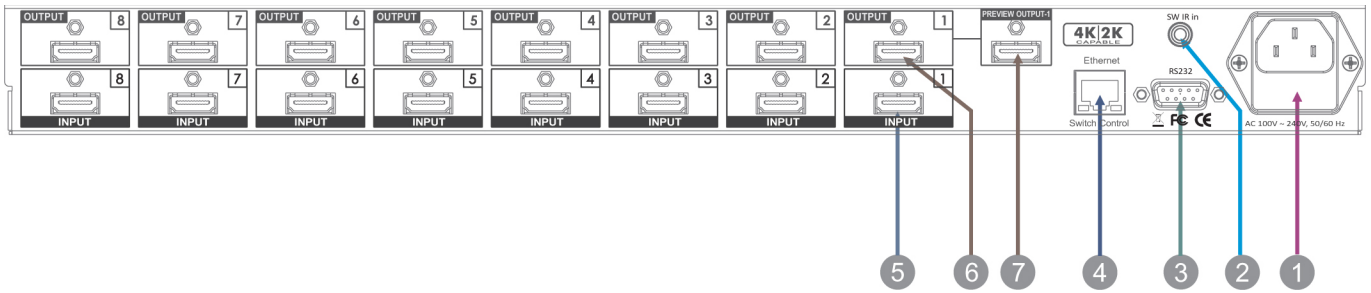
- Press and hold **LOCK** button for two seconds lockout the front panel.

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

14 FUNCTION KEY - ENTER: Press **ENTER** to confirm entries.



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. 100~240Volt AC, 50/60Hz power supply.

**2 IR EXTENDER CONTROL:** Supports one IR extender. Extends a maximum distance of up to ~984 feet/300M. When you plug the external IR extender into the switcher, the front panel IR receiver remains active.

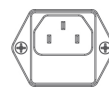
**3 RS-232 CONNECTION:** RS-232 control port allows for interfacing to a PC, such as a computer or touch panel control, to the switcher via this DB-9pin female connector for serial RS-232 control.

**4 ETHERNET CONNECTION:** ETHERNET control port allows 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 the switcher.

**5 INPUTS- 1, 2, 3, 4, 5, 6, 7, & 8 HDMI:** Connects a HDMI signal source to this Input. This HDMI port supports HDMI with embedded audio and DVI with AUX audio 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.

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

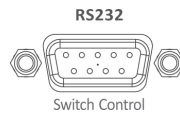
**7 PREVIEW OUTPUT-01 HDMI:** Connects a HDMI direct digital video/audio signal link to this female HDMI connector. This connector supports HDMI digital video/audio and DVI digital video sources. Preview port HDMI signal is the same as Output 1. If you remove the HDMI screw posts, you must use the provided 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.



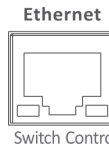
**POWER SOCKET:**  
Connector Type: IEC 60320 C13



**IR EXTENDER JACK:**  
Female jack - inner OD Ø 3.5mm



**REMOTE PORT:**  
D-SUB-9pin female connector  
This port also for Firmware updates



**REMOTE PORT:** 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 sent to the RS-232 port.*



**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. DVI supports the Audio input.*



**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. DVI Audio is supported.*



**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. DVI does not support audio.*

**BEFORE MAKING ANY CONNECTIONS TO THE SWITCHER. OBSERVE THE FOLLOWING:**

- Ensure the main voltage supply matches the label on the supplied plug-pack (+/-10%).
- Ensure that the power switch is OFF.
- Ensure that all system grounds (earth) are connected to a common point.
- Avoid powering equipment within a system from multiple power sources that may be separated by large distances.
- Connect all audio video sources and destination equipment.
- Power up all source and destination audio-visual sources.
- For each destination output select the appropriate input source by using the front panel input select buttons. The supplied IR remote control. Or through the RS-232 serial communications port.
- Upon powering up the switcher, it will return to its last used setting before being powered down.

**IR REMOTE CONTROL KEY**

**1 2 SWITCH POWER ON or OFF:**

Power ON and OFF

**3 DESTINATION: 1 thru 8 OUTPUT SELECTION:**

Destination buttons to select the output display channel

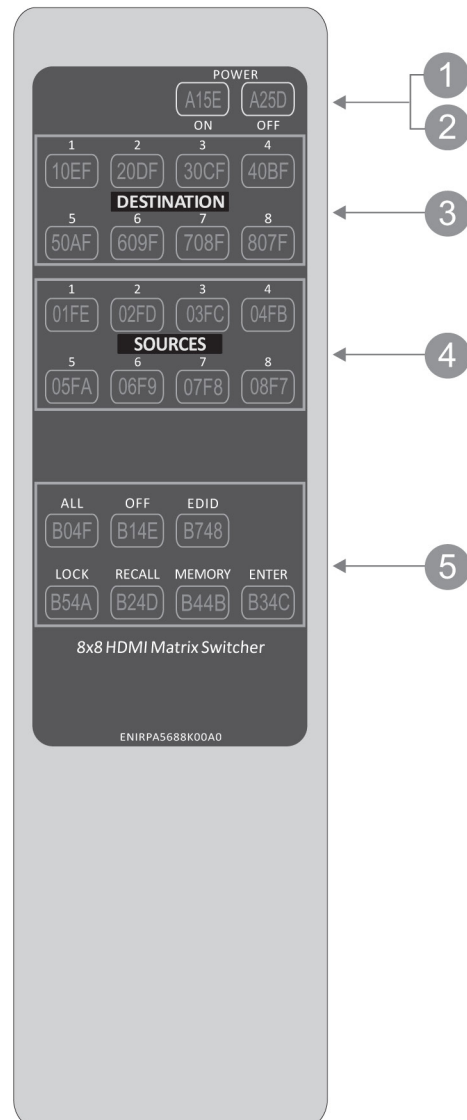
**4 SOURCE: 1 thru 8 INPUT SOURCE SELECTION:**

Input 1~ 8 source selection button

**5 FUNCTION KEY:** Function selection buttons

ALL	OFF	EDID	RECALL
MEMORY	ENTER	LOCK	

IR REMOTE : SW-HD88K



**IR REMOTE CUSTOM AND DATA CODES (NEC STANDARD)**

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**HOW TO SETUP IR CODES:**

Model Number: HD-88K

CUSTOM CODE:	8A75	ALL:	8A75	B04F
POWER ON:	8A75 A15E	OFF:	8A75	B14E
POWER OFF:	8A75 A25D	EDID:	8A75	B748
		LOCK:	8A75	B54A
		RECALL:	8A75	B24D
		MEMORY:	8A75	B44B
		ENTER:	8A75	B34C

**PRESS DESTINATION then - # PRESS SOURCE - #**

DESTINATION #1 : 8A75 10EF	SOURCE #1 : 8A75 01FE
DESTINATION #2 : 8A75 20DF	SOURCE #2 : 8A75 02FD
DESTINATION #3 : 8A75 30CF	SOURCE #3 : 8A75 03FC
DESTINATION #4 : 8A75 40BF	SOURCE #4 : 8A75 04FB
DESTINATION #5 : 8A75 50AF	SOURCE #5 : 8A75 05FA
DESTINATION #6 : 8A75 609F	SOURCE #6 : 8A75 06F9
DESTINATION #7 : 8A75 708F	SOURCE #7 : 8A75 07F8
DESTINATION #8 : 8A75 807F	SOURCE #8 : 8A75 08F7




*For Example:*







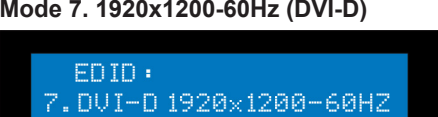
**Select Destination # 1 to Show Source #1~8.**

**The IR Data Code List:**

Destination # 1 , Source #1	8A75 10EF	8A75 01FE
Destination # 1 , Source #2	8A75 10EF	8A75 02FD
Destination # 1 , Source #3	8A75 10EF	8A75 03FC
Destination # 1 , Source #4	8A75 10EF	8A75 04FB
Destination # 1 , Source #5	8A75 10EF	8A75 05FA
Destination # 1 , Source #6	8A75 10EF	8A75 06F9
Destination # 1 , Source #7	8A75 10EF	8A75 07F8
Destination # 1 , Source #8	8A75 10EF	8A75 08F7

**EDID FUNCTION SETUP**

EDID SETUP	TO CHANGE THE EDID SETUP
<b>Step 1.</b> Press the <b>EDID</b> button	The display will show the currently selected EDID mode
<b>Step 2.</b> Press <b>SOURCE #1 or #2</b> button row	The button will flash blue and the display will show the current Embedded EDID Status.
<b>Step 3.</b> Press the <b>ENTER</b> button	To set EDID mode. The switcher will return to operation mode.
Operation will abort if no keys are pressed within 5 seconds.	
EDID STATUS	TO VIEW THE CURRENT EDID STATUS
<b>Step 1.</b> Press the <b>EDID</b> button	The button will flash blue and the display will show the current Embedded EDID Status.
<b>Step 2.</b> Press the <b>EDID</b> button	To exit.
EMBEDDED EDID MODES	TOTAL 7 EDID MODES
<p style="text-align: center;"><b>Embedded EDID setup</b></p> <p style="text-align: center;">Press <b>EDID &gt; SOURCE &gt; ENTER</b></p> <p style="text-align: center;">SOURCE #1 or SOURCE #2</p> 	<p>To select <b>Embedded EDID</b> mode or <b>LEARNING</b> mode Press <b>EDID</b> button: The LCM will show the current EDID status.</p> <p>Repeatedly pressing the <b>SOURCE 1</b> button will cycle <b>UP</b> thru the options. Repeatedly pressing the <b>SOURCE 2</b> button will cycle <b>DOWN</b> thru the options.</p> <p>Select <b>Embedded EDID</b> :</p> <p>Mode 1 : FSS                      Mode 5 : H36-3D-M Mode 2 : H24-3D                Mode 6 : 4K2K Mode 3 : H24-3D-M            Mode 7 : DVI-D 1920x1200-60Hz Mode 4 : H36-3D</p>
RESET	EDID RETURN TO FACTORY DEFAULT
<p style="text-align: center;"><b>How to RESET EDID mode</b></p> <p style="text-align: center;">Press <b>EDID &gt; RECALL &gt; ENTER</b></p>  	<p><b>RESET</b> To the <b>FACTORY DEFAULT</b> (1080p-2CH). Press <b>EDID</b> Button: The LCM will show the current EDID status.</p> <p>Press <b>RECALL</b> Button: The LCM will show the <b>RESET EDID</b>.</p> <p>Press <b>ENTER</b> to confirm entries. The EDID will return to <b>FSS</b> mode and resolution 1080p-2CH.</p>
HOW TO SETUP FSS® FUNCTION	FAST SPEED START®
<b>Step 1.</b> Press the Destination <b>#1~8</b> button row Then Press the Source <b>#1~8</b> button row	To setup and Install all devices.
<b>Step 2.</b> Press the <b>EDID</b> button	Select a optimum status of <b>Embedded EDID</b> mode.
<b>Step 3.</b> Press <b>ENTER</b> button	To conform entries.
<b>Step 4.</b> Press the <b>EDID</b> button	To select the EDID <b>FSS®</b> mode.
<b>Step 5.</b> Press <b>ENTER</b> button	To conform entries.





EDID FUNCTION: (7) EMBEDDED EDID MODES	
<p><b>Mode 1. FSS® (Fast Speed Start)</b></p> 	<p><b>Fast Speed Start®</b> 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><b>Mode 2. H24-3D (1080p-24 bits)</b></p> 	<p>Audio Support: PCM 2CH</p>
<p><b>Mode 3. H24-3D-M (1080p-24bits)</b></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><b>Mode 4. H36-3D (1080p-36 bits)</b></p> 	<p>Audio Support: PCM 2CH</p>
<p><b>Mode 5. H36-3D-M (1080p-36 bits)</b></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><b>Mode 6. 4K2K (24/30Hz)</b></p> 	<p>HDMI Support: 4K2K-3D, PCM 2CH (3860x2160-24/30Hz)</p> <p>Audio Support: PCM 2CH</p>
<p><b>Mode 7. 1920x1200-60Hz (DVI-D)</b></p> 	<p>DVI Support: DVI-D 1920 x 1200 60Hz</p>

**EDID FUNCTION: LEARNING**

LEARNING EDID SINGLE TO SINGLE	EXAMPLE: LEARN DESTINATION #4 EDID TO SOURCE #2.
<b>Step 1.</b> Press the <b>EDID</b> button	The button will flash blue and the display will show the current Embedded EDID Status.
<b>Step 2.</b> Press the <b>DESTINATION #4</b> button row	Copy the Destination #4 Display EDID.
<b>Step 3.</b> Press the <b>SOURCE #2</b> button row	Learning the Destination #4 EDID to Source # 2.
<b>Step 4.</b> Press <b>ENTER</b> button	To confirm entries.
LEARNING EDID SINGLE TO MULTIPLE	LEARNING DESTINATION EDID LINK TO THE MAJORITY SOURCES
<b>Step 1.</b> Press the <b>EDID</b> button	The button will flash blue and the display will show the current Embedded EDID Status.
<b>Step 2.</b> Press the Destinations <b>#1~8</b> button row	Copy any 1~8 Destinations EDID.
<b>Step 3.</b> Press the Source <b>#1 ~ #8</b> button row	Learning the Destination EDID link to source #1 ~ #8.
<b>Step 4.</b> Press <b>ENTER</b> button	To confirm entries.
LEARNING EDID SINGLE TO ALL	LEARNING DESTINATION EDID LINK TO ALL SOURCES
<b>Step 1.</b> Press the <b>EDID</b> button	The button will flash blue and the display will show the current Embedded EDID Status.
<b>Step 2.</b> Press Destination button <b>1 THRU 8</b>	Learning anyone 1~8 Destination EDID to all sources.
<b>Step 3.</b> Press <b>ALL</b> button	Learning selected destination EDID to all sources.
<b>Step 4.</b> Press <b>ENTER</b> button	To confirm entries.
LEARNING EDID DEFINITION	LEARNING EDID FROM DESTINATION TO SOURCE
<p>1. Switcher will <b>LEARN</b> destination EDID and pass the selected source.</p> <p>2. To set up learning between a single destination and single source:            Press <b>EDID</b> button &gt; Press <b>DESTINATION 1 THRU 8</b> &gt; Press <b>SOURCE 1 THRU 8</b> &gt; Press <b>ENTER</b> 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 <b>EDID</b> button &gt; Press <b>DESTINATION 1 THRU 8</b> &gt; Press the majority <b>SOURCES 1 THRU 48</b> &gt; Press <b>ENTER</b>.            Switcher will learn single destination EDID to many source devices.</p> <p>4. How to Learning single destinations with all sources. Press <b>EDID</b> button &gt; Press <b>ALL</b> button &gt; Press <b>ENTER</b> to confirm.</p>	
MULTIPLE LEARNING #2 DEFINITION	MULTIPLE LEARNING EDID FROM DESTINATION TO SOURCE
<p>1. Switcher will multiple LEARN destination EDID and pass the selected source.</p> <p>2. To set up multiple learning between a single destination and single source: Press <b>EDID</b> button &gt; Press <b>OFF</b> button &gt; Press <b>DESTINATION 1 THRU 8</b> &gt; Press <b>ENTER</b> to confirm. Switcher will learn destination EDID to source device.</p> <p>3. When the Source has “Learned” the EDID data from a destination, it will save that EDID information into EPROM and the EDID data will not change. To change a saved HDMI EDID information, you have to select a new LEARNING destination to source or Disable the LEARNING.</p>	







**EDID SINGLE LEARNING MODE 1**

LEARNING EDID MODE-#1	LEARNING EDID FROM DESTINATION TO SOURCE
<p><b>Single Learning Mode#1 EDID setup</b></p> <p>Key Press Sequence:</p> <p><b>EDID &gt; DESTINATION # &gt; SOURCE # &gt; ENTER</b></p> <p>The EDID for HDMI has been learned from the Destination port to the Source port.</p>	<p>Press <b>EDID &gt; DESTINATION &gt; SOURCE &gt; ENTER</b></p> <p>1. Press the <b>EDID</b> button: The LCM will show the current EDID status.</p>  <p>2. Press the <b>DESTINATION 1-8</b> button: The LCM will show LEARNING HDMI. The switcher will <b>LEARN</b> the destination HDMI EDID.</p>  <p>3. Press the <b>SOURCE 1-8</b> button: The switcher will Learn destination HDMI EDID and pass to the selected source.</p>  <p>4. Press the <b>ENTER</b> button to confirm changes. The LCM will return to the default screen showing selected matrix routing status.</p> 

**NOTE:** The already learned EDID cannot be modified. You can only rebuild a new Learning EDID.

**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.

**EDID SINGLE LEARNING MODE 2**

LEARNING EDID #2	PASSING EDID FROM DESTINATION TO SOURCE
<p><b>Multiple Learning mode #2 EDID setup</b></p> <p>Key Press Sequence:  <b>EDID &gt; OFF &gt; DESTINATION #1 thru #8 &gt; ENTER</b></p> <p>The EDID for HDMI has been Learned from the Destination port to the Source port.</p>	<ol style="list-style-type: none"> <li>1. Press the <b>EDID</b> button: The LCM will show the current EDID status.                      </li> <li>2. Press the <b>OFF</b> button: The LCM will show the current EDID LEARN status.                      </li> <li>3. Press the <b>DESTINATION 1-8</b> button: The switcher will LEARN destination HDMI EDID and pass to the selected source. The switcher will Enable or Disable HDMI EDID for the selected source.                      </li> <li>4. Press the <b>ENTER</b> button to confirm changes. The LCM will return to the default screen showing selected matrix routing status.                      </li> </ol>

**NOTE:** When the Source has “Learned” the EDID data from a destination, it will save that EDID information into EPROM and the EDID data will not change. To change a saved HDMI EDID information, you have to select a new LEARNING destination to source or Disable the LEARNING.

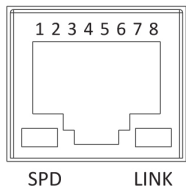
## ETHERNET / RS-232 SERIAL INTERFACE CONNECTS A PC OR CONTROL SYSTEM VERSION COMPATIBLE V2.0

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

### Example of the commanded string to select Inputs:

Function	Command	Variables
<b>Set channel status</b>	OUTPUTxx yy;	xx = Output Channel yy = Input Channel
Command Example	Response	Description
<b>OUTPUT02 04;</b>	HD-88 00;	Set output 2 to input 4
	HD-88 01;	UN-KNOW Command

### Ethernet



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

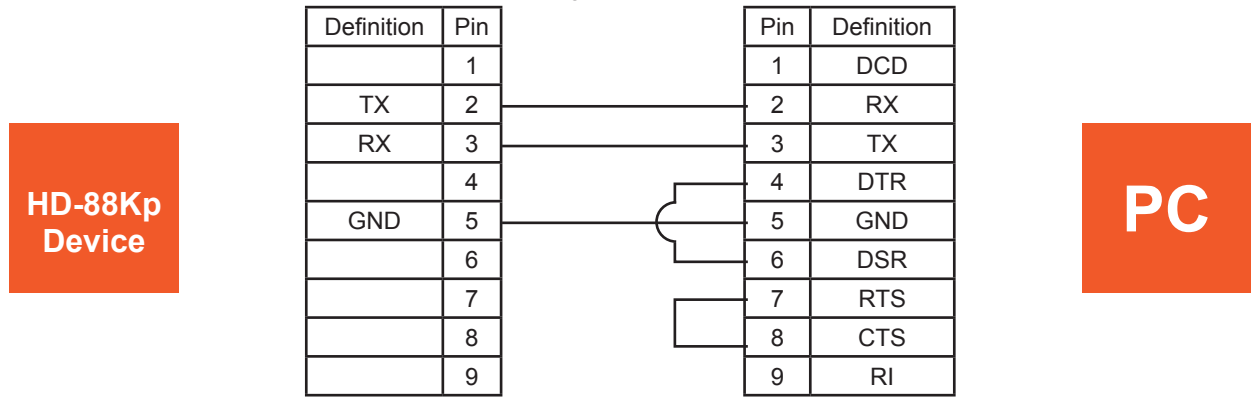
TCP, Port 5000

## ETHERNET TCP/IP PROTOCOL COMMANDS ( ETHERNET / RS-232 CONTROL DRIVER V2.0 )

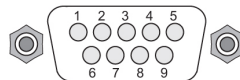
\*\*\* The Ethernet port and RS-232 port cannot be used simultaneously. Any connection to the Ethernet Control port will disable serial commands sent to the RS-232 port.\*\*\*

### RS-232 Configuration

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



RS-232 Pin Diagram

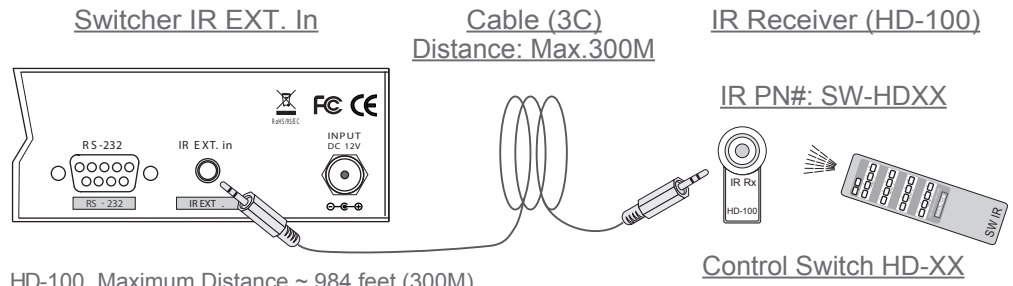


## RS-232 SERIAL INTERFACE PROTOCOL COMMANDS ( ETHERNET / RS-232 CONTROL DRIVER V2.0 )

The HD-88Kp switcher can be controlled via the RS-232 serial control port to allow for interfacing to a PC, or similar third party control system. The serial communication parameters are 9600 baud, 8 bit, No Parity and 1 stop bit - this is often referred to as 9600 8N1. When the unit recognizes a complete command it will perform the requested action - there is no delimiter character required.

REAR PANEL IR EXTENDER PORT

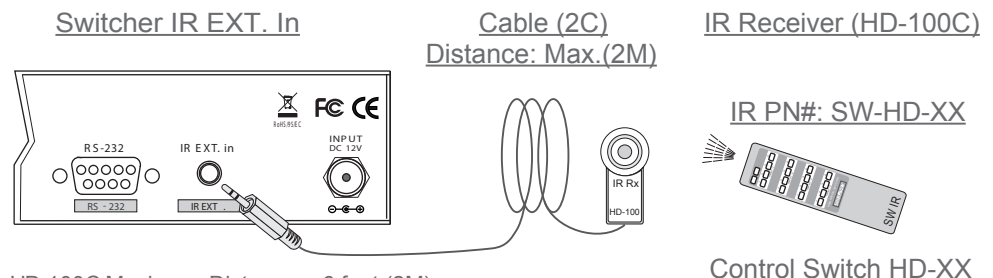
1. HD-100 IR 300M Receiver



HD-100 Maximum Distance ~ 984 feet (300M)

The HD-100 IR Receiver is required when using the port "ALL in" Jack.

2. HD-100C IR 2M Receiver

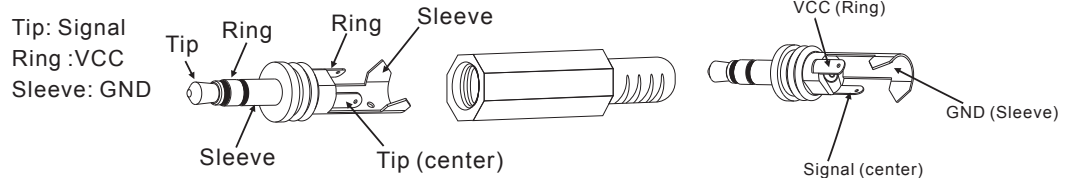


HD-100C Maximum Distance ~ 6 feet (2M)

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

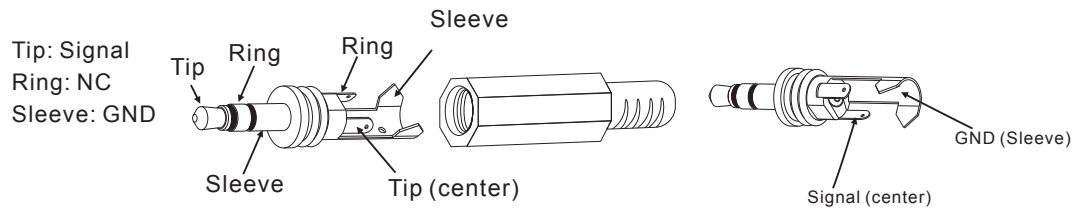
\*\*\* When you plug the External IR extender into the switcher, the front panel IR receiver remains active. \*\*\*

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



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

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



HD-100 Receiver and HD-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.

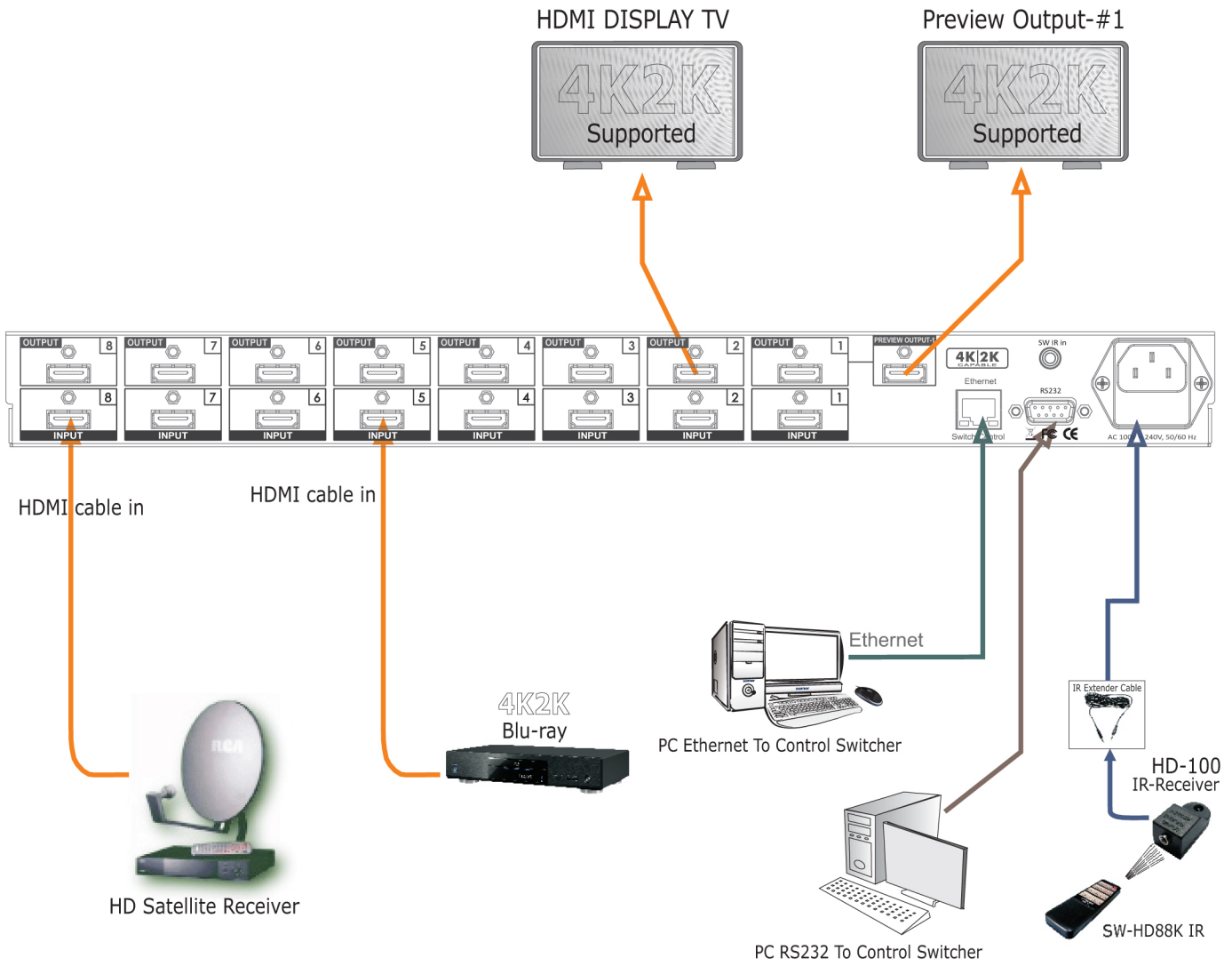
INSTALLING DIAGRAM

**Samples Connection:**

Using external IR, RS-232 or Ethernet commands to control the HD-88Kp via a PC or HD-100 IR receiver to transmit the HD-88Kp's IR signal.

**NOTE:**

1. Switcher IR External Port: Use HD-100 IR signal Receiver.
2. 4K2K Source: Use 4K2K Blu-ray HD Source.
3. Control Switch via a PC RS-232.
4. Control Switch via a PC Ethernet.



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

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