



Comprehensive®
Connectivity Company

CSW-HD 442-4K60

HDMI 4x4 True Matrix Switcher Splitter with Control



Operation Manual

I. Introduction

This is a high performance HDMI Matrix with four HDMI inputs & four outputs, it allows any source (Blue-Ray player, HD DVD player, satellite receiver, game system, etc.) to be shown on the any of the four displays simultaneously, and supports 4K×2K, 3D, 12-bit Deep Color. With its 3Gbps bandwidth and the additional features of the latest HDMI standards you can be sure of great HDMI distribution. It support four channel ARC fuciton also.

II. Feature

- Compliant with HDMI 2.0,HDCP 2.2
- Supports multiplexed HDMI 4-input and 4-output
- Supports video format up to 4k2k@30Hz with 24bit RGB/YcbCR 4:4:4/YCBCR 4:2:2,and up to 4k2k@60Hz with 12bit YCBCR 4:2:0.
- Deep Color support 48/36/30/24-bit
- Supports reception of any audio data conforming to the HDMI specification such PCM at up to 192kHz,compressed audio(IEC 61937),DSD,DST,DTS and HBR.
- Supports four channel ARC control
- Supports button,IR,RS232 etc various controlled ways;

III. Package Contents

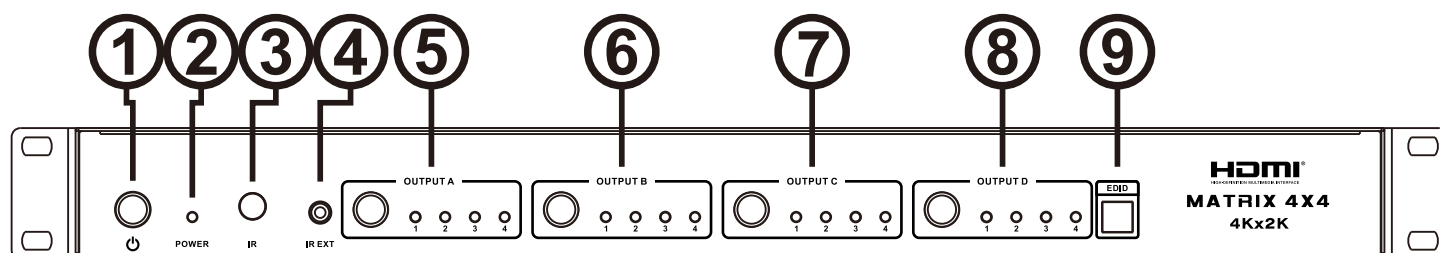
- 4x4 HDMI Matrix ----- 1pcs
- 12V/2.5A DC power adaptor ----- 1pcs
- Remote Control ----- 1pcs
- Operation Manual ----- 1pcs
- RS232 Cable ----- 1pcs
- WideBand IR Receiver Cable ----- 1pcs

IV. Specifications

1. Video Bandwidth	300MHz/3 Gbps
2. Input Ports	4 × HDMI (Female type)
3. Output Ports	4 × HDMI (Female type)
4. Output Resolution	480i ~ 1080p50/60, 4Kx2K@24/30, 4k2k@60Hz with 12bit YCBCR 4:2:0
5. HDMI Cable In	1080p/12bits (15m)
6. HDMI Cable Out	1080p/12bits (15m)
7. ESD Protection	Human Body model: ±8 kV (air-gap discharge) ±4 kV (contact discharge)
8. Power Supply	12 V/2.5A DC (US/EU standards, CE/FCC/UL certified)
9. Dimensions	440 mm (D) × 110 mm (W) × 45 mm (H)
10. Weight	1150g
Chassis Material	Metal
Silkscreen Color	Black
Operating Temperature	0 °C ~ 40 °C / 32 °F ~ 104 °F
Storage Temperature	-20 °C ~ 60 °C / -4 °F ~ 140 °F
Relative Humidity	20 ~ 90 % RH (non-condensing)
Power Consumption	9 W

V. Operation controls and Functions

Front panel

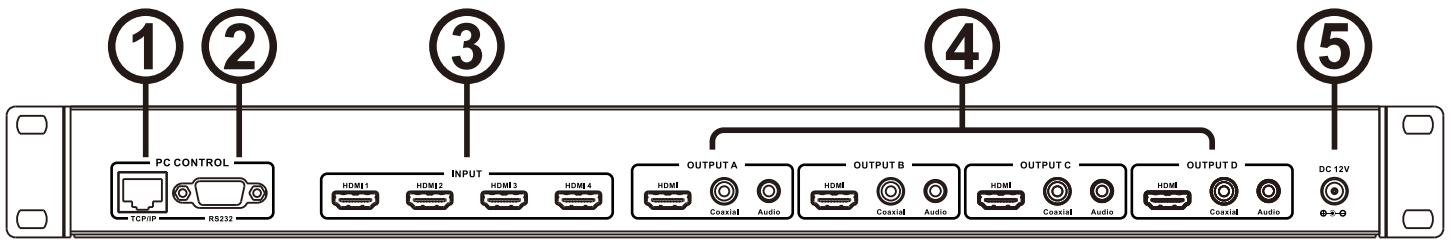


1. **ON/OFF:** Power on/off Button.
2. **POWER LED:** This LED illuminates when the device is connected with power supply.

3. **IR:** Remote control receiver window.
4. **IR EXT:** if the panel sensor is obstructed or the unit is installed in a closed area out of infrared line of sight, the IR RX receiver included can be inserted into the IR EXT port at the rear to extend the IR sensor range and enable local control of the matrix.
5. **OUT A:** These LED illuminates when the output A channel select to the corresponding input.
6. **OUT B:** These LED illuminates when the output B channel select to the corresponding input.
7. **OUT C:** These LED illuminates when the output C channel select to the corresponding input.
8. **OUT D:** These LED illuminates when the output D channel select to the corresponding input.
9. **EDID switch:**

EDID Mode	EDID Description
0	1080p, 2CH AUDIO
1	1080p, DOLBY/DTS 5.1
2	1080p, HD AUDIO
3	1080i, 2CH AUDIO
4	1080i, DOLBY/DTS 5.1
5	1080i, HD AUDIO
6	3D, 1080p, 2CH AUDIO
7	3D, 1080p, DOLBY/DTS 5.1
8	3D, 1080p, HD AUDIO
9	4kx2k30, 2CH AUDIO
A	4kx2k30, DOLBY/DTS 5.1
B	4kx2k30, HD AUDIO
C	4kx2k60, 2CH AUDIO
D	4kx2k60, DOLBY/DTS 5.1
E	4kx2k60, HD AUDIO
F	RS232 Control mode

Rear panel

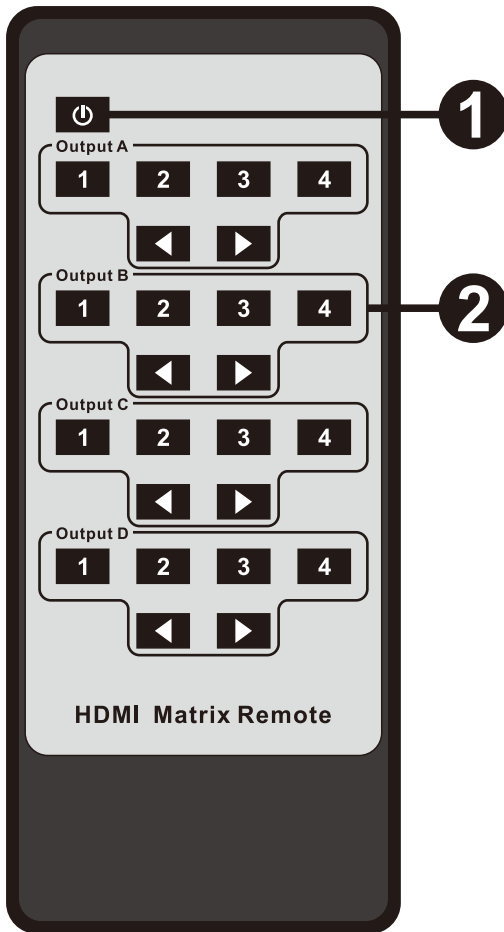


- 1. TCP/IP:** This port is the link for TCP/IP controls, connect to an active Ethernet link with an RJ45 terminated cable.
- 2. RS232:** Connect to a PC or control system with D-Sub 9-pin cable for the transmission of RS-232 commands.
- 3. Input:** These slot is where you connect the HDMI source output from DVD, PS3, Set-top Box or Note Book.
- 4. Output A, B, C, D:** The HDMI is where you connect the HDTV or monitor with HDMI cable for input source display. The Coaxial audio output is where you connect to the digital amplifier with coaxial cable. The audio output is where you connect to the speaker with earphone cable.
- 5. DC 12V:** Plug the 12V2.5A DC power supply into the unit and connect the adaptor to AC wall outlet.

Connect and Operate

1. Connect the signal sources such as Blu-Ray Player, Play Station 3, audio/video receiver, satellite receivers and computers equipped with HDMI output interfaces with a short high-speed HDMI cable to the HDMI Matrix inputs.
2. Connect the HDMI output from the HDMI Matrix to a high-definition display device such as HD-LCD, HD-DLP and HD projectors with HDMI input interfaces. Use high-speed HDMI cables that are recommended for the distances that are required for each connection.
3. The Matrix is powered by an external power supply which is included. Connect power first to the source, then to the Matrix and then to each HD TV or projector.

VI. Remote Control



1. Standby: Press this button to power on the matrix or set it to standby mode.

2. OUTPUT A,B,C,D : Press IN1\IN2\IN3\IN4 button will fast switch to select input source to HDMI OUTPUT A,B,C,D, and the LED will indicate the corresponding input source.

Press ◀ ▶ button OUTPUT A,B,C,D will cycle from input I N 1 \ I N 2 \ I N 3 \ I N 4 .

VII. PC controller user guide

Installation

The PC controller is green software. Just use a cable to connect the PC via RS232 port and copy “4x4 HDMI matrix Controller.exe” to PC to complete installation.

Preparation

1. Connect PC and multi-viewer by RS232 cable (headers of both sides of cable should be FEMALE)
2. Power-up multi-viewer
3. Double click “4x4 HDMI matrix Controller.exe” icon to run it

◆ General Page

The screenshot shows the 'General' page of the '4x4 HDMI Matrix Controller' software. The interface has a blue header bar with the title and window controls. Below the header are four tabs: 'General' (highlighted with a red box), 'EDID', 'Matrix', and 'FW Upgrade'. The main content area is divided into several sections:

- Control Mode Select:** Contains two radio buttons. 'COM Control Mode' is selected and marked with a black circle containing the number 1. 'TCP Control Mode' is unselected.
- COM:** Contains a 'Port' dropdown menu showing 'COM1' and a 'Connect' button. This section is marked with a black circle containing the number 2.
- TCP Control Mode:** Contains a 'Switcher IP' input field, a 'Connect' button, a 'Search' button, and a 'Config...' button. This section is marked with a black circle containing the number 3.
- Reset to the factory settings:** Contains a 'Factory Reset' button. This section is marked with a black circle containing the number 5.
- Device Information:** A large rectangular area for displaying device information, marked with a black circle containing the number 4. It includes 'Status' and 'Clear' buttons at the bottom.
- Disable/Enable Beep:** Contains a checkbox labeled 'Enable Beep'. This section is marked with a black circle containing the number 6.

1. Select RS232 COM or TCP mode
2. Select RS232 COM port
3. Select TCP/IP control
4. Click to refresh device status: include device information and Input/Output Settings on “Matrix” page
5. Click to reset to the factory settings
6. Enable or disable Beep

◆ EDID Page

4x4 HDMI Matrix Controller

General **EDID** Matrix FW Upgrade

Manual Mode

Set EDID Mode 1080p,Stereo Audio 2.C to IN1 Set 1

Copy EDID From HDMI OUTA to IN1 Set 2

Open EDID ... to IN1 Set 3

Input EDID List

IN1:	Default EDID
IN2:	Default EDID
IN3:	Default EDID
IN4:	Default EDID

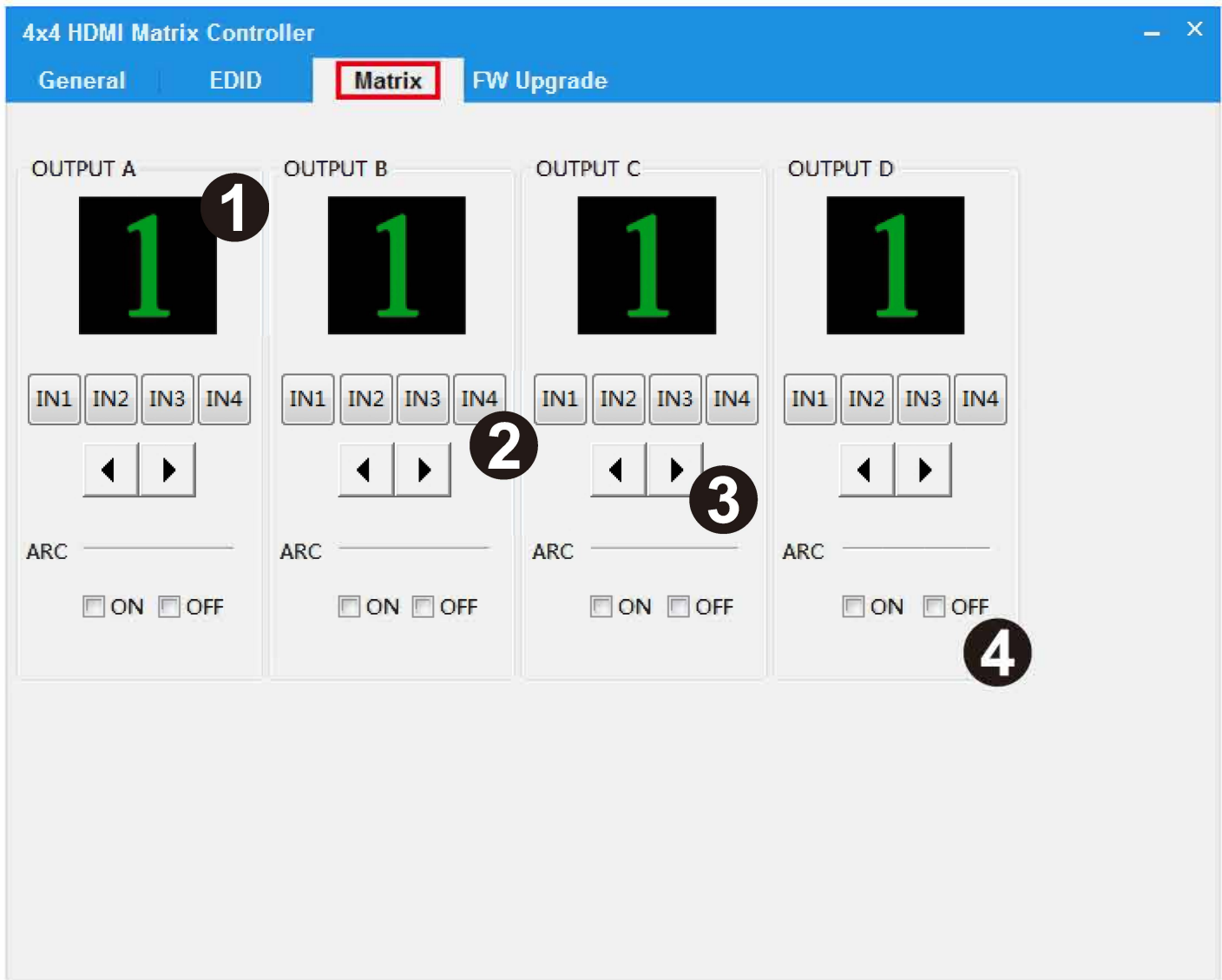
Status

The controller have 3 methods to set the EDID mode. Manual mode, Copy mode and open EDID file mode.

1. Select the needed EDID to input port and click set button the EDID will write to the selected HDMI input ports.
2. Copy the selected HDMI output output EDID and click set button to write to the selected HDMI input ports.
3. Open the user define EDID file and click set button to write to the selected HDMI input ports.
4. Click the status button to refresh input EDID status.

Attention: If you want to control the EDID by RS232 or TCP/IP port,you must select the Matrix panel “EDID SWITCH” to “F” positon.

◆ Matrix Page



1. LED which display Input number for respective Output
2. Click to select Input port for respective Output port
3. Click to select previous or next Input port for respective Output port
4. Click to open or close output ARC fuction

Attention:

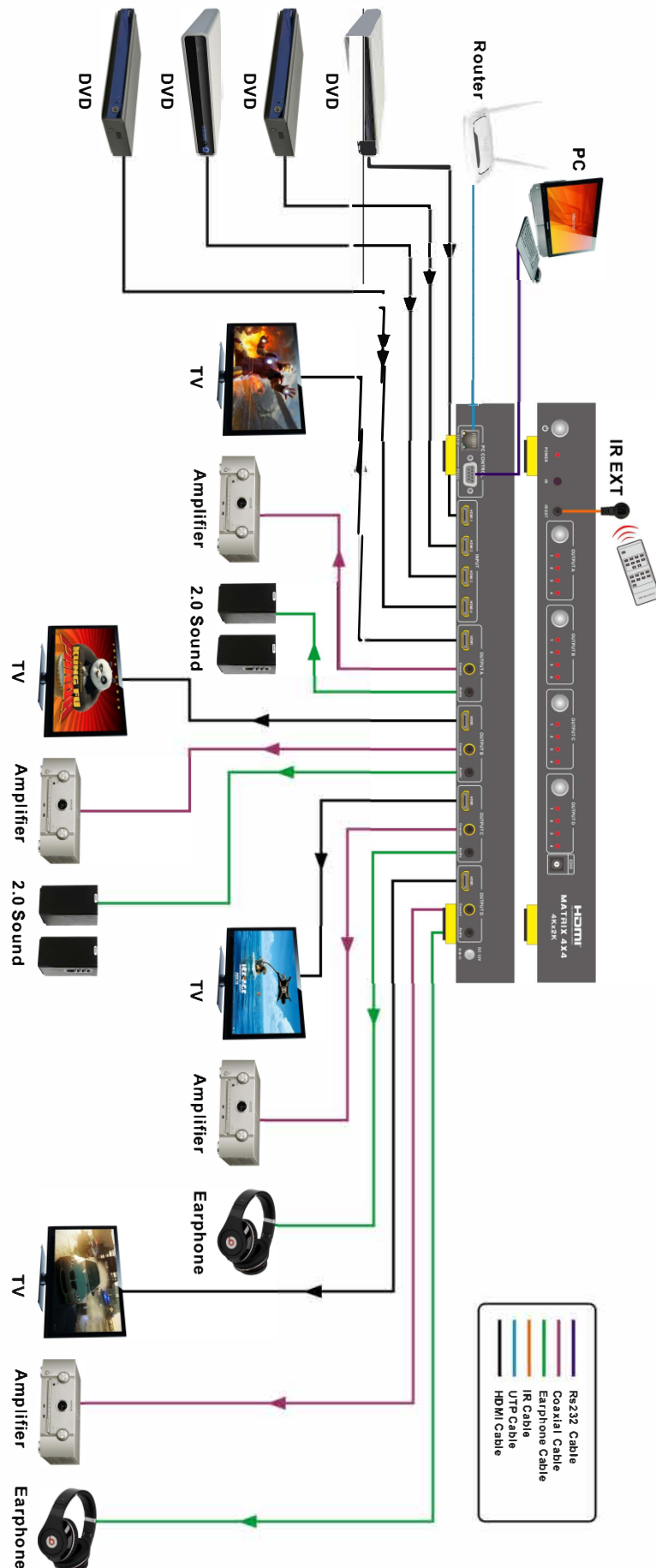
ARC fuciton : If you need use ARC,your HDTV must support this fuction, When you open the ARC fuciton,the COAXIAL of matrix will output the HDTV current display content audio signal. Otherwise it will output the selected HDMI source(DVD,set-top-box ,etc) audio signal.

◆ Firmware Upgrade Page

The screenshot shows a web interface for the '4x4 HDMI Matrix Controller'. The top navigation bar is blue and contains four tabs: 'General', 'EDID', 'Matrix', and 'FW Upgrade'. The 'FW Upgrade' tab is highlighted with a red border. Below the navigation bar, the 'FW Upgrade' section contains two input fields and two buttons. The first input field is labeled 'Open FW File' and has a button labeled 'Open' next to it, marked with a black circle containing the number '1'. The second input field is empty and has a button labeled 'Upgrade' next to it, marked with a black circle containing the number '2'. Below these fields is a large white rectangular area labeled 'Messages', marked with a black circle containing the number '3'.

1. Click to open FW file(file extension is “.fw”)
2. Click to upgrade the Matrix software
3. Display the message of the software upgrade process.

VIII. Connection Diagram



1.RS-232 Command:

Baudrate: 115200

Data width: 8bit

Parity: none

Stop: 2bit

Port switch command package length is 13byte:

[0xa5+0x5b+0x02+0x03+**input port(1~4)**+0x00+**output port(1~4)**+0x00+0x00+0x00+0x00+**checksum**]

All you need to change is just "input port", "output port", "checksum"

Checksum = 0x100 - (0xa5+0x5b+0x02+0x03+**input port**+0x00+**output port**+0x00+0x00+0x00+0x00+0x00)

For example: Set output 1 form input 2 command:

A5 5B 02 03 02 00 01 00 00 00 00 00 F8

Port switch query package length is 13byte:

This is a query command which mean you must send query package and then receive an answer.

For example: Query output A input port (1~4)

Send package: A5 5B 02 01 **01** 00 00 00 00 00 00 00 FC

Receive package: A5 5B 02 01 01 00 **01** 00 00 00 00 00 FB

The red **01** mean the output port number, it should be 1~4.

The blue **01** mean the input port number, it should be 1~4.

ARC on/off command package length is 13byte:

[0xa5+0x5b+0x10+0x01+**ARC (0x0f:ON;0xf0:OFF)**+0x00+**input port(1~4)**+0x00+0x00+0x00+0x00+0x00+**checksum**]

ARC on/off query package is 13byte:

This is a query command which mean you must send query package and then receive an answer.

For example:

Send package: A5 5B 10 02 00 00 **input port(1~4)** 00 00 00 00 00 **checksum**

Receive package: A5 5B 10 02 **F0** 00 **input port(1~4)** 00 00 00 00 00 **checksum**

The blue **F0** mean ARC off, if **0F** mean ARC on.

Edid set command package length is 13byte:

[0xa5+0x5b+0x03+0x02+**Edid index(1~15)**+0x00+**input port(1~4)**+0x00+0x00+0x00+0x00+0x00+**checksum**]

[0xa5+0x5b+0x03+0x01+**Edid index(1~15)**+0x00+0x00+0x00+0x00+0x00+0x00+0x00+**checksum**]

Means: set edid mode to all input port

Edid query command package length is 13byte:

This is a query command which mean you must send query package and then receive an answer.

For example: Query input 1 Edid index (1~15)

Send package: A5 5B 01 0C **01** 00 00 00 00 00 00 00 **checksum**

Receive package: A5 5B 01 0C 01 00 **01** 00 00 00 00 00 **checksum**

The red **01** mean the input port number, it should be 1~4.

The blue 01 mean the Edid index number, it should be 1~15.

Edid index list:

1080p,Stereo Audio 2.0	= 1
1080p,Dolby/DTS 5.1	= 2
1080p,HD Audio 7.1	= 3
1080i,Stereo Audio 2.0	= 4
1080i,Dolby/DTS 5.1	= 5
1080i,HD Audio 7.1	= 6
3D,Stereo Audio 2.0	= 7
3D,Dolby/DTS 5.1	= 8
3D,HD Audio 7.1	= 9
4K2K30,Stereo Audio 2.0	= 10
4K2K30,Dolby/DTS 5.1	= 11
4K2K30,HD Audio 7.1	= 12
4K2K60,Stereo Audio 2.0	= 13
4K2K60,Dolby/DTS 5.1	= 14
4K2K60,HD Audio 7.1	= 15

Edid copy command package length is 13byte:

[0xa5+0x5b+0x03+0x04+**output port (1~4)**+0x00+**input port(1~4)**+0x00+0x00+0x00+0x00+0x00+**checksum**]

Means: copy output port X edid to input port X

[0xa5+0x5b+0x03+0x03+**output port (1~4)**+0x00+0x00+0x00+0x00+0x00+0x00+0x00+**checksum**]

Means: copy output port X edid to all input port

Output HDP status query package is 13byte:

This is a query command which mean you must send query package and then receive an answer.

For example: Query output 1(1~4) HPD status

Send package: A5 5B 01 05 **01** 00 00 00 00 00 00 00 F9

Receive package: A5 5B 01 05 01 00 **FF** 00 00 00 00 00 FA

The red **01** mean the output port number, it should be 1~4.

The blue **FF** mean this port's HPD is LOW, if **00** mean HIGH.

Input port status query package is 13byte:

This is a query command which mean you must send query package and then receive an answer.

For example: Query input 1(1~4) status

Send package: A5 5B 01 04 01 00 00 00 00 00 00 00 FA

Receive package: A5 5B 01 04 01 00 FF 00 00 00 00 00 FB

The red 01 mean the input port number, it should be 1~4.

The blue FF mean this port is plug out, if 00 mean plug in.

Beep on/off command package length is 13byte:

[0xa5+0x5b+0x06+0x01+Beep onoff(0x0f:ON; 0xf0:OFF)+0x00+0x00+0x00+0x00+0x00+0x00+0x00+checksum]

Beep on/off query package is 13byte:

This is a query command which mean you must send query package and then receive an answer.

For example:

Send package: A5 5B 01 0B 00 00 00 00 00 00 00 00 F4

Receive package: A5 5B 01 0B 00 00 FF 00 00 00 00 00 F5

The blue FF mean Beep off, if 00 mean Beep on.



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