

Manual HV2.5





HDMI/DVI HD Hybrid Matrix Switcher




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Significance of Symbols

■ Safety Indication

Symbols are included in the manual and equipment to indicate possible injuries to user or others and risks of property loss, so that you can run the equipment in safe and correct ways. Symbols and their meanings are shown as follow. Please make sure to understand these symbols correctly before reading the manual.

	This is a class-A product. The product may cause radio interference in living environment. User may be required to take feasible measures in this situations.
	It warns user that an uninsulated dangerous voltage within equipment may cause electric shock.
	CE Certification indicates that the product has met the safety requirements of EU. User can rest assured to use.
	SGS certification indicates that the product has achieved the quality control standard of Societe Generale de Surveillance, the largest surveyor in the

	<p>本产品通过 ISO9001 国际质量认证 (认证机构：德国莱茵TUV)。</p>
	<p>Warning: in order to prevent electric shock, please do not open machine cover or leave any useless part inside machine. Please contact qualified service personnel.</p>
<p>■ General information indication</p> 	<p>List the contents and some information to be noticed, which may cause a failure of operation or setting.</p>

Important



Warning

To ensure the reliability of equipment and safety of personnel, please conform to the following items during installation, use and maintenance.

Notes for Installation:

- ◆ Do not operate the product in the occasions with existence of dusts, lampblack, conductive dusts, corrosive and inflammable gases; or expose to high temperature, moisture condensation, winds and rains, vibration and impact. Electric shock, fire and misoperation will also damage or worsen the conditions of product.
- ◆ Prevent metal scraps and wire residues from falling into air hole of controller during threaded hole processing and wiring; otherwise, it may cause a fire, failure or misoperation;
- ◆ After installation, make sure there is no foreign matter blocking ventilation surface, e.g. dustproof paper and other packaging items; otherwise, it may weaken heat dissipation resulting in a fire, failure or misoperation;
- ◆ Hot wiring and plugging should be forbidden; otherwise, it would be likely to cause electric shock or broken circuit;
- ◆ Installation and wiring must be reliable. Bad contact may cause misoperation;
- ◆ Shield cable is suggested for the input of high-frequency signal or as output cable in the occasions of serious interference to improve the anti-interference capacity of system.

Notes for Wiring:

- ◆ Must cut off all external power sources before installation and wiring; otherwise, it may cause an electric shock or damage;
- ◆ The product is grounded by earth lead of power source. To prevent electric shock, the earth lead must be connected to the ground. Before connecting to input or output terminal, make sure to ground the product correctly;
- ◆ After installation and wiring, please clear foreign matters immediately. Before connecting to power, please fix terminal cover to prevent an electric shock.

Notes for operation and maintenance:

- ◆ Do not touch any terminal while power on; otherwise, it would cause electric shock or misoperation;
- ◆ Cleaning and tightening of terminals should be done after power off; otherwise, it may cause an electric shock;
- ◆ Connection or removal of communication signal cable and cable of expansion module or control unit should be done after power off; otherwise, it may cause damage to equipment or misoperation;

- ◆ Do not disassemble equipment lest internal electric components would be damaged;
- ◆ Must read this manual carefully and confirm safety sufficiently before proceeding to alteration, pilot run, startup and stop operations.

Notes for Disposal:

- ◆ Explosion of electrolytic capacitors: electrolytic capacitors onboard may explode on fire;
- ◆ Please collect and separate machine parts from household garbage for disposal;
- ◆ Please dispose as industrial wastes or by local environment protection regulations.

Catalog

■ Safety Indication.....	2
Chapter 1 Overview	1
1.1.2 Classification of HDMI Matrix Series	1
1.2.2 HDMI Function Characteristics	2
2. HDMI front panel.....	3
2.2 Rear panel of HDMI0808.....	3
2.3 Rear panel of HDMI1616.....	4
2.4 HDMI matrix system connection diagram.....	4
.....	4
Chapter 3 Connection to peripheral devices	5
3.1 Input/output interface	5
3.2 Communication ports and connection methods	5
3.2. RS-232 control port.....	5
3.2.2 Connection to computer	6
3.2.3 Ethernet interface of HDMI Matrix (optional)	6
3.3 Connection methods.....	7
4.2 Instructions for panel keys operation	9
4.2.1 Startup page.....	10
4.2.2 Switch Example.....	10
3. After a switch success, screen will return to step 1 for the convenience of next operation. If screen stays for too long, it will return to homepage.....	12
4.2.3 Disconnect example	13
Example 1: to disconnect the audio/video output signal of Channel 01, steps are as follow:	13
4.2.4 Example of storage and recalling	14
4.2.6 Set the configuration of host.....	17
4.3 Usage of remote controller (optional)	22
4.3.1 Structural diagram of remote controller	22
1) Numeric keys: the keys to adjust input and output channels;	22
2) #: the key to return	22
3) OK: the key to confirm	22
4) UP/DOWN: the keys to browse the relation of input and output.....	22
4.3.2 Instructions for remote controller.....	22
4.4 EDID live erasing operation (unique for HDMI matrix).....	22
EDID live erasing function can map the EDID information (i.e. displaying/receiving the EDID information of device) of output terminal to input terminal of HDMI matrix.	22
4.4.1 When to perform EDID erasing	23
If the following situations happen during testing, perform EDID erasing to solve the problems; 23	
1. Display screen is dark. The EDID of HDMI matrix input terminal may be incompatible with	

screen's resulting in the conflict between resolution of video source output and display screen, and thereby failure of display. Erasing of EDID is required in this situation.....	23
2. Display screen can support high resolution, for example, 1920×1200@60Hz, but if 1920×1200@60Hz is not available in video source terminal (for example, PC), erasing of EDID is required in this situation.	23
3. When display screen cannot show the image in full screen, erasing of EDID is required in this situation.	23
4.4.2 Map the EDID information of one display device to input terminal	23
Chapter 5 Instructions for serial port control software	25
5.1 Software introduction	25
5.2 Operating environment.....	25
5.3 Instructions for use	25
5.3.1 Software display page	25
.....	26
Chapter 6 instruction set	26
6.1 Preparation	26
6.2 RS-232 serial communication protocol.....	26
For example: synchronously switch audio and video of input No.4 to output No.7.	27
Chapter 7 Accessories	28
7.1 RS-232 Communication Cable.....	28
7.2 Power cord.....	28
7.3 Manual.....	28
Chapter 8 Cautions and Trouble Shooting.....	29
8.1 Cautions.....	29
1) Power source: single-phase three-wire AC system (with PGND) is required. Make sure the power source shares the same PGND and keep grounding pin in good conditions;	29
2) Hot plugging: hot plugging is forbidden lest circuit would be broken down (note: the damage caused by hot plugging is excluded from warranty coverage);	29
3) Environment: prevent dust, moisture, heat accumulation and fall;.....	29
4) Maintenance: all maintenances should be handed over to professional personnel. Do not attempt to do the maintenance on your own. To prevent electric shock, do not open the housing without permission.	29
8.2 Trouble shooting.....	29

Chapter 1 Overview

HDMI matrix switcher is a high-performance professional switching device with built-in intelligent controller. The device is capable to switch audio/video input signal to any audio/video output channel in synchronous or asynchronous way.

With unique processing way, switching speed is greatly improved. Flexible control ways, durable keypad, large-sized lattice LCD displaying various information, standard RS-232 communication port convenient for the connection with various remote control devices (such as Creston, AMX, CREATOR and so on), as well as infrared remote controller

Model	Video		Audio	
	Input	Output	Input	Output
HDMI0404	4-CH	4-CH	4-CH	4-CH
HDMI0804	8-CH	4-CH	8-CH	4-CH
HDMI0808	8-CH	8-CH	8-CH	8-CH
HDMI1608	16-CH	8-CH	16-C	8-CH
HDMI1604	16-CH	4-CH	16-C	4-CH
HDMI1608	16-CH	8-CH	16-C	8-CH
HDMI1616	16-CH	16-C	16-C	16-CH
HDMI2408	24-CH	8-CH	24-C	8-CH
HDMI2416	24-CH	16-CH	24-C	16-CH
HDMI2424	24-CH	24-CH	24-C	24-CH
HDMI3216	32-CH	16-CH	32-C	16-CH
HDMI3232	32-CH	32-C	32-C	32-CH
HDMI3636	36-CH	36-C	36-C	36-CH
HDMI4040	40-CH	40-C	40-C	40-CH

HDMI matrix switcher is mainly applied to radio and television engineering, multimedia conference hall, large screen display engineering, TV teaching, command and control center, and so on.

1.1.2 Classification of HDMI Matrix Series

According to application occasions and user demands, HDMI matrix series can be classified into following models:



Customization by customer's requirements

1.2.2 HDMI Function Characteristics

- ◆ 19-inch standard machine housing, plug-in design supports free expansion;
- ◆ Compatible with all HDTV resolutions, including 1080p/60, and PC resolutions up to 1920*1200;
- ◆ Long-line input automatic equalization—make sure to provide independent compensation to each input automatically for the signal loss due to long-distance transmission or poor-quality cables;
- ◆ Support HDMI 1.3a, HDCP 1.3, HDCP 1.4 and DVI 1.0 protocol, and high color depth and high rate up to 6.75Gbps;
- ◆ HDCP compatible—make sure protected media can be displayed normally and cooperate with other HDCP compatible devices;
- ◆ Built-in round-robin switching function supports random interval and channel;
- ◆ 32 built-in scenarios storage: user can save 32 common modes or specific modes in the equipment and recall a required mode when necessary;
- ◆ Compatible with all the codes and commands of similar products in the market;
- ◆ Multiple code formats are provided to meet the requirements of industries and customers and make it more flexible, human-oriented and convenient;
- ◆ Multiple control ways: panel, central controller, computer software, TCP/IP, splicing software, third-party software are provided to set the functions;
- ◆ Computer software provides the definition of channel name and makes it more visual;
- ◆ Compatible with all available central control systems in the market with additional input/output channel commands which make programming more effective, simpler and more flexible;
- ◆ Provide 1-Ch network port (optional) which supports the simultaneous connection of multiple users through Ethernet remote control;
- ◆ Provide 2-CH RS-232 communication ports and support RS-232→RS-485 communication port;
- ◆ Dual serial ports makes the connection to large screen faster and more convenient;
- ◆ Ultra-high command reception and switching speed, receiving over 64 commands without any delay;
- ◆ Open control protocol and protocol standard supports the control of third-party and self-developed software;
- ◆ Multi-machine cascading is possible by ID address setting and supports 255 matrixes at most;
- ◆ High-quality, mass production, higher compatibility and stability;
- ◆ Key control: the keys on front panel can control all actions of matrix;
- ◆ Remote control: a standard remote controller is provided and can control all actions of matrix;
- ◆ RS-232/485 control: matrix can be connected to computer through RS-232/485. With a

Manual

MCON matrix special management software installed in computer, user can have full control on all the actions of matrix;

- ◆ Splicing software control: in a large screen splicing system, user can control all the actions of matrix by splicing software for large screen;

- ◆ Touch screen control: touch screen communicates with matrix by WIFI and controls all the actions of matrix (optional);

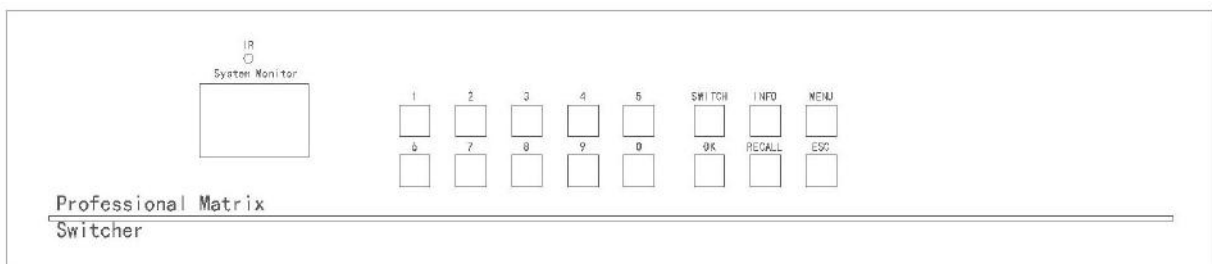
- ◆ Central controller: matrix is compatible with the codes and commands of other manufacturers. User can control all the actions of matrix through central controller (optional);

- ◆ Network control: control all the actions of matrix by TCP/IP network control management and Ethernet network (optional).

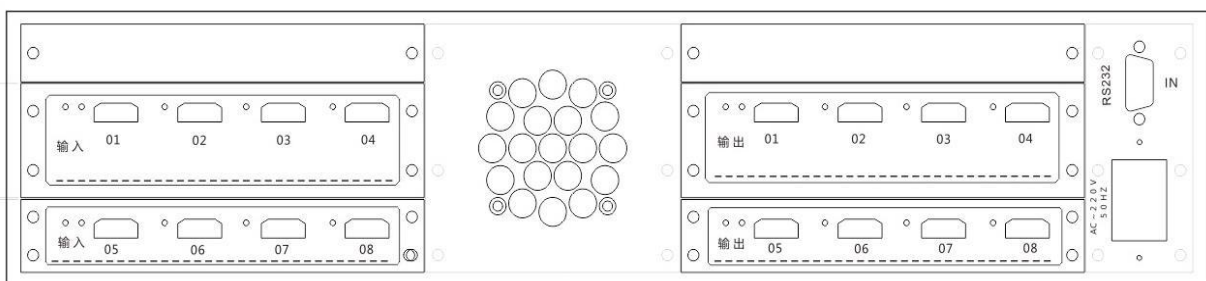
Chapter 2 HDMI Series Panel

HDMI series matrixes have the same front panel and rear panels are different in the type and number of ports. The front and rear panels of HDMI 0808 and HDMI1616 are provided as follow. For the panels of other models, please refer to the following diagrams:

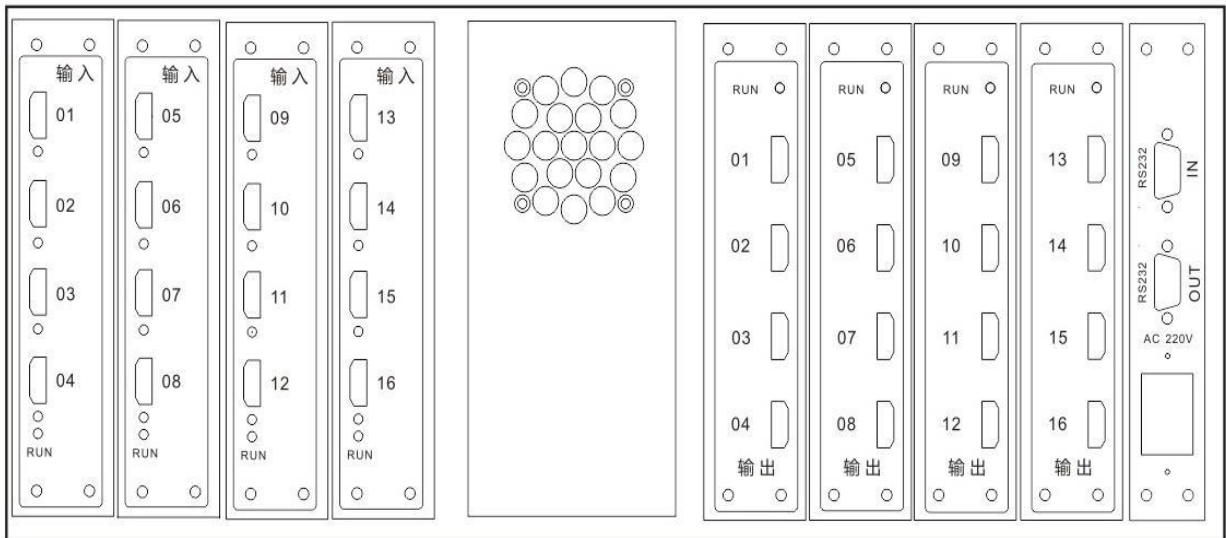
2. HDMI front panel



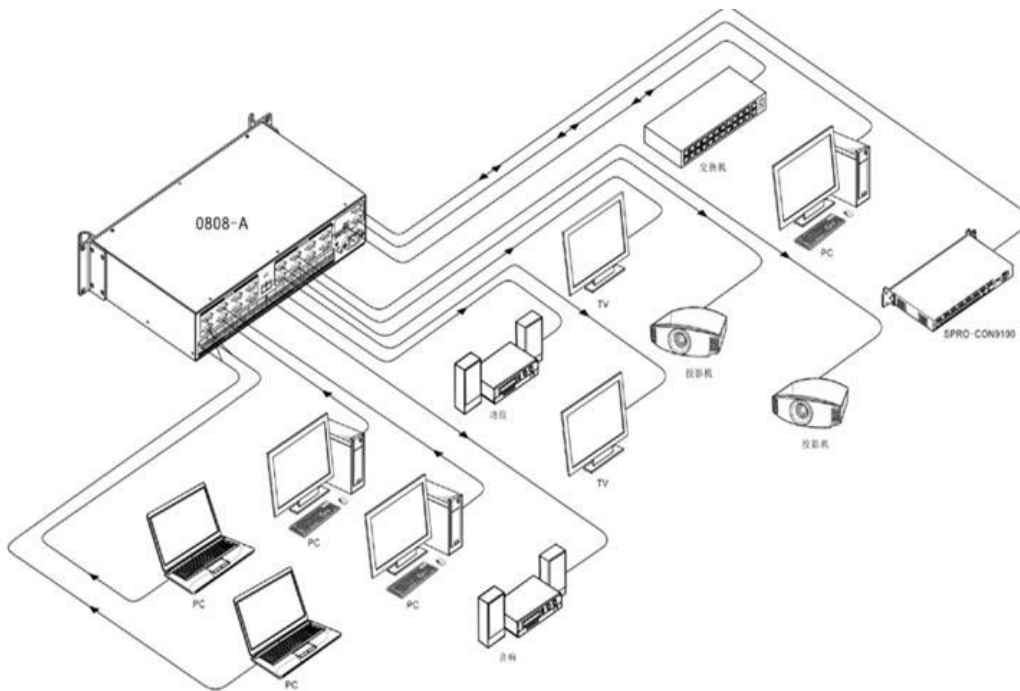
2.2 Rear panel of HDMI0808



2.3 Rear panel of HDMI1616



2.4 HDMI matrix system connection diagram



Chapter 3 Connection to peripheral devices

3.1 Input/output interface

HDMI interface is a kind of digital video/audio interface and a special digital interface for image communication. Audio and video signal can be transmitted synchronously at the rate up to 6.75GB/s without the necessity of conversion, analogue -to-digital or otherwise.

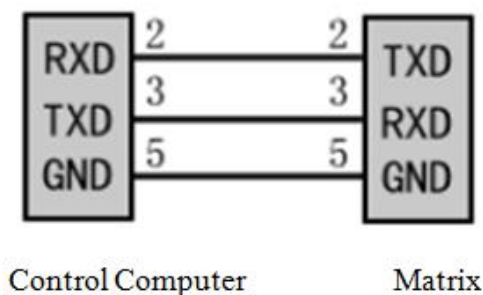
3.2 Communication ports and connection methods

HDMI matrix provides 1-CH standard RS-232 input and output port, as well as 1-CH RJ45 Ethernet control port (optional). Besides operating on front key panel, user can also operate from various control systems (such as PC, control systems provided by other manufacturers and so on), or conduct remote control through Ethernet or remote controller.

Pin	Signal	Description
1	-	-
2	TXD	Compatible with RS-232 protocol for sending data
3	RXD	Compatible with RS-232 protocol for data reception
4	-	-
5	GND	Signal earth
6	-	-
7	-	-
8	-	-
9	-	-

3.2. RS-232 control port

This series of products provide 2 serial ports: RS-232 input and output port. Input port should be connected to computer and output port is cascaded to control other matrix hosts. RS-232 input port is a 9-pin female joint and their pins are described as follow:



3.2.2 Connection to computer

Connect the serial communication port of computer (COM1 or COM2) to RS-232 input port of HDMI matrix host with a RS-232 cable. After installing app, user can control HDMI matrix from computer by attached app or customized control software.

3.2.3 Ethernet interface of HDMI Matrix (optional)

HDMI matrix can be connected to Ethernet adaptor in two ways:

1) Cross-connection

HDMI matrix and control computer is connected by a CAT-5 cross Ethernet cable.

2) Straight-through connection

HDMI matrix is connected by a CAT-5 straight-through Ethernet cable to Ethernet switch or concentrator.

3.2.3.2 Description of crossover and straight-through cable

The system is connected by CAT-5 (enhanced Category 5 cable) which links up network devices by a RJ-45 connector (RJ-45 plug) fixed on the both ends of CAT-5. The standard connection of twisted-pair is not by random but to guarantee the arrangement symmetry of cable connector, so that the mutual interference of cables inside can be cancelled out. A common enhanced category 5 cable contains 4 twisted pairs marked by different colors.

Twisted pair has 2 connection methods: EIA/TIA 568B standard and EIA/TIA 568A.

T568 A Line Sequence							
1	2	3	4	5	6	7	8
White Green	Green	White Orange	Blue	White Blue	Orange	White Brown	Brown

T568 B Line Sequence							
1	2	3	4	5	6	7	8
White Orange	Orange	White Blue	Blue	White Blue	Green	White Brown	Brown

Straight-through line: both ends are connected by T568B line sequence.

Manual

Crossover cable: one end is connected by T568A line sequence and the other end by T568B line sequence.

3.3 Connection methods

The number of input and output terminals of HDMI matrix system varies with models and user can make connection to various kinds of HDMI players according to different occasions, or connect to computer signal or audio signal devices through HDMI signal converter, such as video player, desktop, graphics processor, digital display stand and other video signal sources. Output terminal can be connected to HD display, LED display and so on.

3.3.1 HDMI connection cable

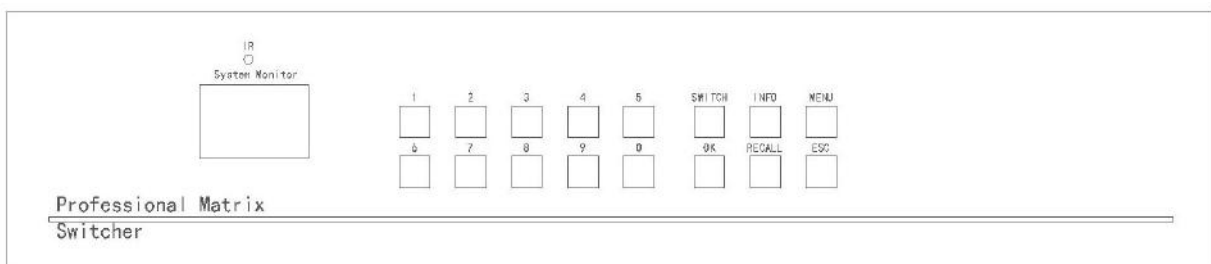
HDMI is a HD multimedia port and provides the data transmission bandwidth of 6.75Gbps, and capable to carry lossless audio signal and high resolution audio signal. Meanwhile, top quality audio and video signal transmission can be guaranteed without the necessity to conduct an analog-digital or digital-analog conversion before transmission.

Chapter 4 Instructions for Use

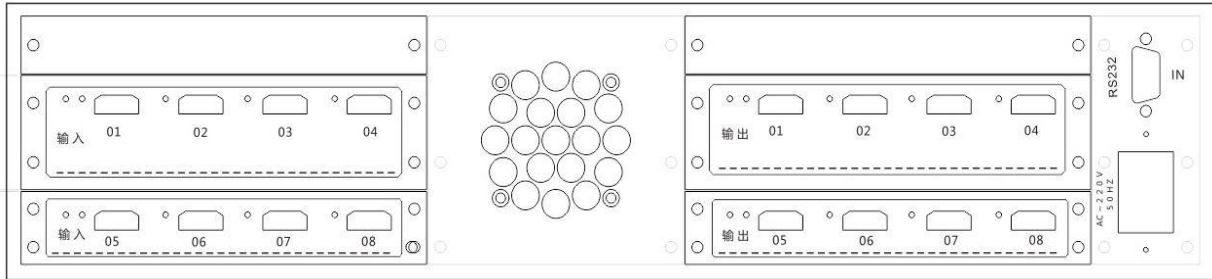


4.1 HDMI Matrix Panel Description

HDMI0808 front panel:



HDMI0808 rear panel:



1) Numeric Keys

Input/output channel option keys: used to set an input or output channel for audio/video signal,

or recall a state or select a number to be saved.

2) Function keys

SWITCH—option key for audio/video channel

HDMI channel option key: used to choose an input/output channel for audio/video channel or disconnect a channel.

INFO—LCD display option key

When INFO key is pressed, LCD display will show an input channel and its corresponding output channel.

MENU—menu key

The key is used to set address code of host, communication Baud rate and so on.

OK—command execution key

Confirm a switching option and execute a switching command.

RECALL—recalling option key

Save and recall a saved relation of input and output.

ESC—the key to quit

Quit current status.

3) Display

System Monitor—LCD display shows current information of host.

4) Ports

INPUT—HDMI video input port provides a HD-15pin connector used to connect peripheral devices owning a HD-15Pin video port, such as PC, DVD, HD player and so on.

OUTPUT—HDMI video output port provides a HD-15pin connector used to connect peripheral devices owning a HD-15Pin video port, such as monitor, TV, projector and so on.



HDMI connectors at both ends of signal cable must be in right manner; otherwise, there would be color loss and even no signal output.

ETH (optional)—provides 1-CH Ethernet network port to connect LAN, Ethernet and so on. Green light indicates normal connection and blinking orange light indicates receiving or sending data.

RS232-IN/ RS232-OUT—provide 2-CH independent RS-232 ports which are connected to computer or central controller to have control on matrix system.

AC220V 50/60Hz—system power source input port, supports AC100~240V 50/60Hz input.

5) Others

IR (optional)—receiving port for multifunctional IR remote controller.

4.2 Instructions for panel keys operation

Instructions will be provide by taking the usage of HDMI0808 as an example. As for the usage of other models, please refer to the instructions of model 0808.

User can make quick switching between audio and video by front panel keys (please refer to “*Function Descriptions of Front Panel Keys*” for details). Operations are shown as follow:

Switching key “SWITCH” + input channel + output channel + confirm key “OK”

There are 2 ways available, “audio-image synchronous switch mode” and “disconnection switch mode”. Select a required mode according to the tips shown on LCD display.

Input channel

Currently connected channel of signal source to be switched;

The keys “1~9” on front panel indicates Channel 1 – 9. When input number is below 9 (including 9), user should input 01, 02 and the like; when input number is above 10 (including 10), user should input the combination of numeric keys.

Output channel

This is the channel for peripheral display device. The keys “1~9” on front panel indicates Channel 1 – 9. When input number is below 9 (including 9), user should input 01, 02 and the like; when input number is above 10 (including 10), user should input the combination of numeric keys.

Command execution key “OK”

This is the key to execute an operation. Buzzer will give prompt tone indicating the

Manual

completion of switching action and success of operation.

4.2.1 Startup page

After start-up, screen display is shown as follow:

Waiting for an upgrade

After buzzer sends a beep sound, screen will automatically skip to homepage, as shown in the following:

16*16	H4U	F
Matrix device		
		HV2.5

4.2.2 Switch Example

Example 1: synchronously switch the audio/video signal of Channel 1 to output channel of channel 3. Steps are shown as follow:

1. Press “SWITCH” key and LCD display is shown as follow:

Switch	Mode
In	----- out
--	--
Input	numbers

2. Press “01” key from input channel and LCD display is shown as follow:

Switch	Mode
In	----- out
01	--
Input	numbers

Manual

3. Press “03” key from output channel and LCD display is shown as follow:

Switch	Mode
In ----- out	
01	03
Input	numbers

4. Press command key “OK” to execute the operation and LCD display is shown as follow:

Switch	Mode
In ----- out	
01	03
Success	6DB

5. After a switch success, screen will return to step 1 for the convenience of next operation. If screen stays for too long, it will return to homepage.

Example 2: synchronously switch the audio/video signal of Channel 1 to all output channels (to Channel 8, for example). Steps are shown as follow:

1. Press “SWITCH” key and LCD display is shown as follow:

Switch	Mode
In ----- out	
--	--
Input	numbers

2. Press “01” key from input channel and LCD display is shown as follow:

Switch	Mode
In ----- out	
01	--
Input	numbers

3. Without entering an output channel, but press command key “OK” to execute the operation. LCD display is shown as follow:

Switch	Mode
In ----- out	
01	08
Success	6DB

4. After a switch success, screen will return to step 1 for the convenience of next operation. If screen stays for too long, it will return to homepage.

Example 3: to relate input with output, simple steps are shown as follow:

1. Press “SWITCH” key and LCD display is shown as follow:

Switch	Mode
In ----- out	
--	--
Input	numbers

2. Without entering an output channel, but press command key “OK” to execute the operation. LCD display is shown as follow:

Switch	Mode
In ----- out	
08	08
Success	6DB

3. After a switch success, screen will return to step 1 for the convenience of next operation. If screen stays for too long, it will return to homepage.

Manual

4.2.3 Disconnect example

Example 1: to disconnect the audio/video output signal of Channel 01, steps are as follow:

1. Press “SWITCH” key twice from homepage and LCD display is shown as follow:

```
Break  Mode
In  -----  out
XX           --

Input  number
```

2. Press “01” key from input channel and LCD display is shown as follow:

```
Break  Mode
In  -----  out
XX           01

Input  numbers
```

3. Press command key “OK” to execute the operation and LCD display is shown as follow

```
Break  Mode
In  -----  out
XX           01

Break OK
```

4. After a success of disconnection, LCD display is shown as follow. If screen stays for too long, it will return to homepage.

```
Break  Mode
In  -----  out
XX           01
```

Manual

Example 2: disconnect all audio/video output signals and steps are as follow:

1. Press “SWITCH” key twice from homepage and LCD display is shown as follow:

```
Break  Mode
In  -----  out
XX           --

Input  numbers
```

2. Without entering an output/input channel, but press command key “OK” to execute the operation. LCD display is shown as follow:

```
Break  Mode
In  -----  out
XX           00

Break ok
```

3. After a success of disconnection, LCD display is shown as follow. If screen stays for too long, it will return to homepage.

```
Break  Mode
In  -----  out
XX           00
```

4.2.4 Example of storage and recalling

Example 1: synchronously switch the audio/video signal of Channel 1 to all output channels (to Channel 8, for example) and save it as No.01. Steps are shown as follow:

1. Synchronously switch the audio/video signal of Channel 1 to all output channels first. Refer to example 2 for specific steps.

2. Press ESC key to return to homepage and LCD display is shown as follow:

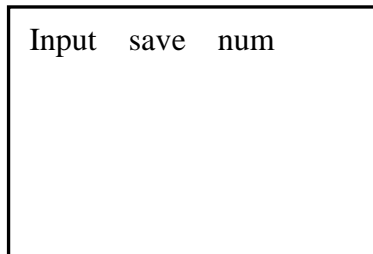
```
16*16  H4U  F

Matrix device

HV2.5
```

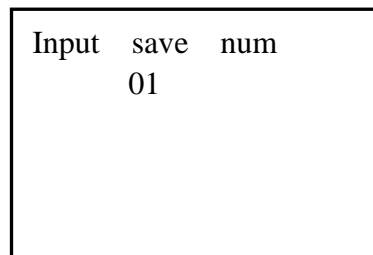
Manual

3. Long press on “RECALL” key and LCD display is shown as follow:



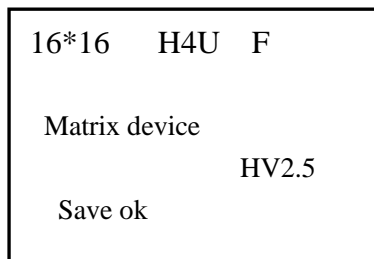
Input save num

4. Enter number 01 and LCD display is shown as follow:



Input save num
01

5. Press “OK” key and LCD display is shown as follow:

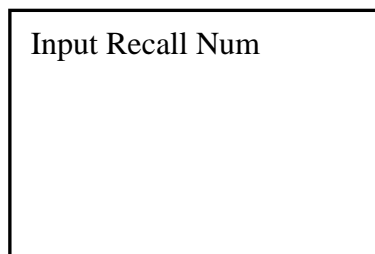


16*16 H4U F
Matrix device HV2.5
Save ok

6. After operation success, screen will return to homepage.

Example 2: recall the saved contents above. Steps are shown as follow:

1. Press “**RECALL**” key and LCD display is shown as follow:



Input Recall Num

Manual

2. Enter number 01 and LCD display is shown as follow:

Input Recall Num 01

3. Press “OK” key and LCD display is shown as follow:

16*16	H4U	F
Matrix device		
		HV2.5
Recall ok		

4. After operation success, screen will return to homepage.

4.2.5 Example of checking input/output relation: check the relation of synchronously switching the audio/video signal of Channel 1 to all output channels (8 channels for example). Steps are shown as follow:

1. Synchronously switch the audio/video signal of Channel 1 to all output channels first. Refer to example 2 for specific steps.

2. Press “ESC” key to return to homepage and then press “INFO” key. The screen will display the current relation of input and output, as shown in the following:

Out	01	-----01
Out	02	-----01
Out	03	-----01
Out	04	-----01

3. Press “INFO” key again and LCD screen skip to next page. Likewise, it displays different page numbers by different inputs and outputs.

Manual

4.2.6 Set the configuration of host

Press “MENU” key and LCD display is shown as follow:

Select a function by numeric keys:

1:Addr	2: Baud
3: Beep	4: S troll
5: Lock	6: reset

4.2.6.1 Set matrix address



Matrix address is the number of matrix!

a) Press 1 button and LCD display is shown as follow:

Set addr:
Addr— __
Press ok finily

b) For example, enter 01 and press “OK” key. LCD display is shown as follow:

Set addr:
Addr— __
Press ok finily
Set ok



Matrix address must be consistent with the one used in controlling matrix with serial port.

4.2.6.2 Set Baud rate

a) Press 2 key and LCD display is shown as follow:

Baudrate = 9600

1: 2400	2: 4800
3: 9600	4: 19200

Press ok finaly

b) Select a Baud rate by the requirements of customers, for example, Baud rate = 4800. After pressing numeric key 2, setting is successful and LCD display is shown as follow:

Baudrate = 4800
1: 2400 2: 4800
3: 9600 4: 19200
Press ok finally



Matrix Baud rate must be consistent with the one used in controlling matrix with serial port.

4.2.6.3 Set prompt tone

a) Press numeric key 3. Prompt tone is enabled by default. LCD display is shown as follow:

Key beep —Close
1: Open 0: Close

Press ok finally

b) Select to enable or disable prompt tone according to requirement of customer.

4.2.6.4 Set automatic switch



The images shown on display will be automatically switched. Contents to be switched are the scenarios saved by customer.

a) Press numeric key 4 and LCD display is shown as follow:

Strolling time:
Time Seted—000
Input 00 close
Press ok finally

b) Select the duration of automatic switch by customer requirement or disable automatic

Manual

switch by entering 00.

c) If automatic switch is enabled, it will return to homepage and top right corner of screen will circularly display the scenario number of automatic switch by set time.

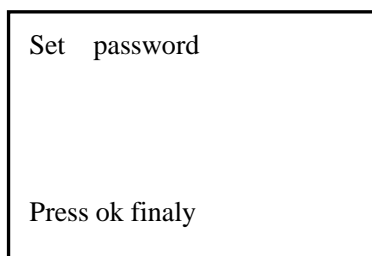
d) During automatic switch, press any key to pause and operate the matrix. If no action is made after 30sec, automatic switch will resume automatically.

4.2.6.5 Set and cancel password



A password is set to prevent unauthorized access.

Press numeric key 5 and LCD display is shown as follow. User can set or cancel a password.

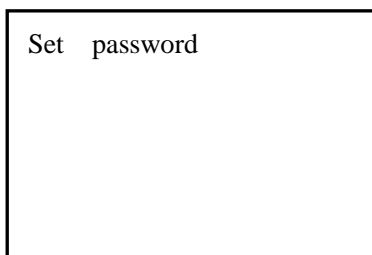


1. Set a password

1) User can set a 4-digit password and press confirm key to confirm the setting. **When no other operation is required, return to homepage and long-press return key "ESC". Password becomes effective.**

2) When password setting is successful and becomes effective, a lock icon will be displayed in the top right corner of homepage.

3) When matrix is locked and any key is pressed, the following display will be shown:



Enter a 4-digit password and press "OK" key to unlock. After that, user can operate the matrix.

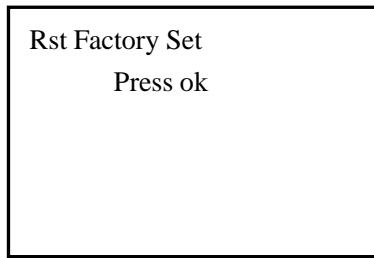
2. Cancel a password

Enter "0" and press "OK" key to cancel a password.

4.2.6.6 Reset

a) Press numeric key 6 and LCD display is shown as follow:

Manual



b) To resume default setting by requirement, press confirm key; otherwise, press cancel.

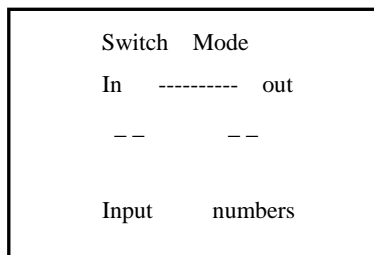
 **Default parameter settings are shown as follow:**

Address code	Baud rate	Machine status	Keypad status	Buzzer status	Channel switch status	Switch status of preset group
01	9600	Work status	Enabled	Normal	1-1, 2-2, N-N	All present groups are 1-1, 2-2, N-N

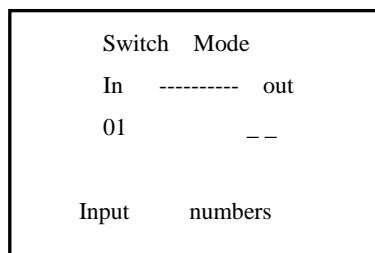
Note: N is the maximum number of input and output channels.

4.2.6.7 Adjust magnification times of input

1. Press “SWITCH” key and LCD display is shown as follow:



2. Press numeric key “01” from input channel and LCD display is shown as follow:



Press “INFO” key and screen display is shown as follow:

Manual

Switch	Mode
In	----- out
01	--
Input	numbers 6DB

Magnification times can be 6DB, 7DB, 10DB and 11DB. Press “INFO” key again to adjust magnification times. User can make an adjustment by requirement.

4. Press numeric key “03” from output channel and LCD display is shown as follow:

Switch	Mode
In	----- out
01	03
Input	numbers 6DB

5. Press OK key and LCD display is shown as follow:

Switch	Mode
In	----- out
01	03
Input	numbers 6DB

4.2.6.8 Check current status of host

Long-press on “INFO” key from homepage and LCD screen will display current status of host, as shown in the following (example):

Matrix address: 001
Baud rate: 9600
Prompt tone: enabled
Automatic switch: disenabled

User can judge if resetting is required according to current status. Please refer to section 4.2.6

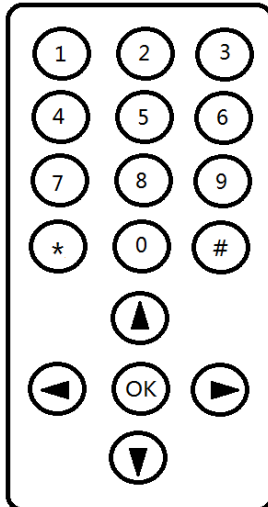
Manual

set the configuration of host for details.

4.3 Usage of remote controller (optional)

Remote controller can control the host within a certain distance to facilitate the operation of user.

4.3.1 Structural diagram of remote controller



- 1) Numeric keys: the keys to adjust input and output channels;
- 2) #: the key to return
- 3) OK: the key to confirm
- 4) UP/DOWN: the keys to browse the relation of input and output.

4.3.2 Instructions for remote controller



Every time matrix receives the signal from remote controller, buzzer will give out beep sound.

- 1) Align remote controller to the IR receiving port of front panel within a certain distance, directly enter required input/output channel, and then press “OK” to switch; otherwise, press “#” to return.
- 2) Press “0” + “OK” from homepage to make one-to-one correspondence of input and output;
- 3) Directly press UP or DOWN to check current relation of input and output.

4.4 EDID live erasing operation (unique for HDMI matrix)

EDID live erasing function can map the EDID information (i.e. displaying/receiving the EDID information of device) of output terminal to input terminal of HDMI matrix.

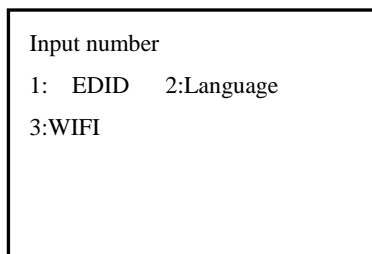
4.4.1 When to perform EDID erasing

If the following situations happen during testing, perform EDID erasing to solve the problems;

1. Display screen is dark. The EDID of HDMI matrix input terminal may be incompatible with screen's resulting in the conflict between resolution of video source output and display screen, and thereby failure of display. Erasing of EDID is required in this situation.
2. Display screen can support high resolution, for example, 1920×1200@60Hz, but if 1920×1200@60Hz is not available in video source terminal (for example, PC), erasing of EDID is required in this situation.
3. When display screen cannot show the image in full screen, erasing of EDID is required in this situation.

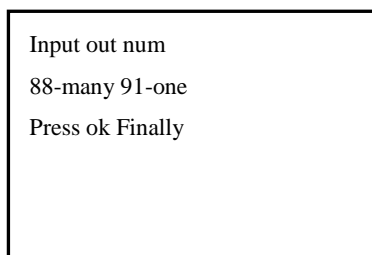
4.4.2 Map the EDID information of one display device to input terminal

1. Connect a display device, whose EDID information should be read, to the first port of output terminal by HDMI cable;
2. Long-press on MENU key from homepage. Display is shown as follow:



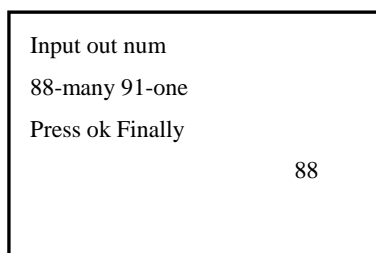
```
Input number
1: EDID  2:Language
3:WIFI
```

3) Press corresponding numeric key 1 and the display is shown as follow:



```
Input out num
88-many 91-one
Press ok Finally
```

4) Enter 88 and LCD display is shown as follow:



```
Input out num
88-many 91-one
Press ok Finally
88
```

Manual

5) Press OK and LCD display is shown successively as follow:

Input out num
88-many 91-one
Press ok Finally
1/16

Input out num
88-many 91-one
Press ok Finally
2/16

Input out num
88-many 91-one
Press ok Finally
3/16

Input out num
88-many 91-one
Press ok Finally
1 6/16

6) If all are a success, LCD display will be shown as follow:

Input out num
88-many 91-one
Press ok Finally
Fin
010203040506070809010111213
141516 ok



The number after error is the number of display which fails to be read and copied!

Chapter 5 Instructions for serial port control software

5.1 Software introduction

Matrix Control is specially designed for HDMI matrix switcher and can provide highly effective and precise control on HDMI matrix through computer. The software can be downloaded from company website.

5.2 Operating environment

The software should be run in PC and other compatible machines with at least Pentium II CPU, 128 RAM and 10G hard disk.

The software should be run in WINDOWS XP and systems above.

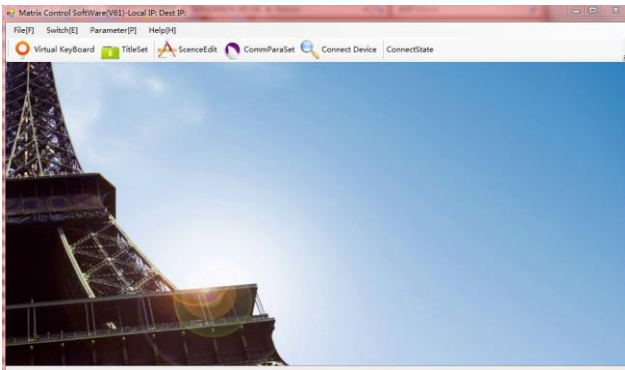
Software operation requires Microsoft .NET4.0 operating environment which has been installed in Windows 7 and systems above. The software can directly work in Windows 7 and systems above. To run the software in Windows XP system, user needs to install .NET 4.0.

5.3 Instructions for use

The software is a green software and can work without installation. Directly double-click MatrixControl.exe to run after download and extract, as shown in the following diagram:



5.3.1 Software display page



Please refer to the attached manual of software for specific operations of serial port control software!

Chapter 6 instruction set

6.1 Preparation

Before use, please confirm carefully the following parameters are correctly set:

- 1) Baud rate is consistent with control device;
- 2) Confirm both ends of serial port line are straight-through, namely, pin-2 to hole 2, pin-3 to hole 3 and pin-5 to hole 5. Please refer to the instructions in previous chapters for details.

6.2 RS-232 serial communication protocol

Data bits: 8 Stop bit: 1 Check bit: none

- 1) Hexadecimal communication protocol:

Baud rate: 2400, 4800, 9600, 19200

- 2) ASCII communication protocol:

Baud rate: 2400, 4800, 9600, 19200

Data: ASCII

Baud rate: 2400, 4800, 9600, 19200

Data: ASCII

6.3 Control code

6.3.1 Hexadecimal control code

1. Control code is composed by 8 bytes:

Byte 1 is fixed to 0XA5 and “source address” is the number of control device. When matrix host is controlled by multiple computers or devices, source address is used to distinguish. “Target address” is the address of controlled devices and should be consistent with the internal setting of matrix host. “Instruction” byte is used to distinguish different control instructions. Data 1, data 2 and data 3 is the additional parameters of instructions. “Check” is the sum of byte 1 ~ 7 (when exceeding 1 byte, lower byte part prevails). Device checks and verifies all

Manual

the data. Only the right data will be interpreted and executed; otherwise, wrong data will be abandoned and tips be shown on LCD screen.

Target address code: 01—FFH, FFH is broadcast code; default address of matrix host is 01H.

Note: the 8 bytes in control code are HEX format.

2. Example

Note: address code is 1.

1) Switch appointed input image and audio to appointed output.

For example: synchronously switch audio and video of input No.4 to output No.7.

A5 00 01 01 07 04 01 B3

Byte 1	0XA5
Byte 2	Source address (00H-FFH)
Byte 3	Target address (00H-FFH)
Byte 4	Instruction
Byte 5	Data 1
Byte 6	Data 2
Byte 7	Data 3
Byte 8	Verify (the sum of byte 1~7; 0X99 is an universal check code for testing)

2) Switch the input of one channel to all output channels.

For example: switch input No.4 to all outputs:
A5 00 01 03 04 00 00 AD

3) Input and output one-to-one switch (CH 1 input is switched to CH1 output, CH2 input switched to CH2 output)

A5 00 01 02 AA BB CC D9

6.3.2 ASCII Control Code

1. ASCII control code is composed by following parts:

XX V XX .

Note: XX is the number of channels and the “.”

at the back cannot be neglected!

2. Example

Switch appointed input image and audio to appointed output channel.

For example: synchronously switch audio and video from input No.4 to output No.7.

04V07.

Chapter 7 Accessories

7.1 RS-232 Communication Cable

It is used to connect to computer and control the host.



7.2 Power cord

It is used to connect electric supply and power input port of host.



7.3 Manual

The manual introduces the operation and parameters of system.



Chapter 8 Cautions and Trouble Shooting

8.1 Cautions

- 1) Power source: single-phase three-wire AC system (with PGND) is required. Make sure the power source shares the same PGND and keep grounding pin in good conditions;
- 2) Hot plugging: hot plugging is forbidden lest circuit would be broken down (note: the damage caused by hot plugging is excluded from warranty coverage);
- 3) Environment: prevent dust, moisture, heat accumulation and fall;
- 4) Maintenance: all maintenances should be handed over to professional personnel. Do not attempt to do the maintenance on your own. To prevent electric shock, do not open the housing without permission.

8.2 Trouble shooting

In the following cases, please make corresponding examinations first:

- 1) Ghosting can be seen in the images received. If the ghosting is created by projector, it is probable that projector is not well-adjusted or bad quality of wires causes unmatched impedance which creates secondary or multiple reflections. It is feasible to adjust the projector or replace wires.
- 2) When remote controller cannot control matrix:
 - A. An obstacle is in the way of controlled device;
 - B. Low battery. Please replace the battery. It should be noted that there is a protective film on the battery of new remote controller. Please remove it before use;
 - C. Remote controller may be broken. Please contact our after-sale service;
- 3) When serial port RS-232 (usually refer to the serial port of computer) cannot control matrix, check if the communication ports of software correspond to the serial port of device; if communication port of computer is in good conditions.
- 4) If there is no beep sound during switching of input/output signal, it is probable that the software has disabled buzzer or buzzer goes wrong. Please call on professional personnel.
- 5) During matrix switch, buzzer, LCD display and serial port is normal, but there is no image output;
 - A. Check the input terminals of row and field with oscilloscope or universal meter. If there is no signal input, input cable may be broken or have a loose connector. Replace the connection wire;
 - B. Check the input terminals of row and field with oscilloscope or universal meter. If there is no signal output, output cable may be broken or have a loose connector. Replace the connection wire;
 - C. If problem still remains after replacement, inside of machine may go wrong. Please hand over to professional personnel.
- 6) Overlapping curve, ripple, shaking low-frequency interference can be seen in some channel. It may be caused by bad contact of ground wire.
- 7) If static is obvious when releasing and plugging HDMI connector, ground wire of power source may have bad contact with ground. Please ground the wire reliably; otherwise, it would be likely to damage equipment or shorten the service life of host.
- 8) Panel keys, RS-232 and infrared remote controller don't work. Inside of device may be broken. Please hand over to professional personnel.