MAT.HDMI88A-4K

4K 8x8 HDMI2.0 Matrix Switcher
Preface

Read this user manual carefully before using the product. Pictures shown in this manual is for reference only, different model and specifications are subject to real product.

This manual is only for operation instruction only, not for any maintenance usage. The functions described in this version are updated till November 8, 2017. In the constant effort to improve our product, we reserve the right to make functions or parameters changes without notice or obligation. Please refer to the dealers for the latest details.

Trademarks

Any other trademarks mentioned in this manual are acknowledged as the properties of the trademark owner. No part of this publication may be copied or reproduced without the prior written consent.

FCC Statement

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. It has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a commercial installation.

Operation of this equipment in a residential area is likely to cause interference, in which case the user at their own expense will be required to take whatever measures may be necessary to correct the interference

Any changes or modifications not expressly approved by the manufacture would void the user’s authority to operate the equipment.
SAFETY PRECAUTIONS

To insure the best from the product, please read all instructions carefully before using the device. Save this manual for further reference.

- Unpack the equipment carefully and save the original box and packing material for possible future shipment.
- Follow basic safety precautions to reduce the risk of fire, electrical shock and injury to persons.
- Do not dismantle the housing or modify the module. It may result in electrical shock or burn.
- Using supplies or parts not meeting the products’ specifications may cause damage, deterioration or malfunction.
- Refer all servicing to qualified service personnel.
- To prevent fire or shock hazard, do not expose the unit to rain, moisture or install this product near water.
- Do not put any heavy items on the extension cable in case of extrusion.
- Do not remove the housing of the device as opening or removing housing may expose you to dangerous voltage or other hazards.
- Install the device in a place with fine ventilation to avoid damage caused by overheat.
- Keep the module away from liquids.
- Spillage into the housing may result in fire, electrical shock, or equipment damage. If an object or liquid falls or spills on to the housing, unplug the module immediately.
- Do not twist or pull by force ends of the optical cable. It can cause malfunction.
- Do not use liquid or aerosol cleaners to clean this unit. Always unplug the power to the device before cleaning.
- Unplug the power cord when left unused for a long period of time.
- Information on disposal for scrapped devices: do not burn or mix with general household waste, please treat them as normal electrical wastes.
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1. Introduction

1.1 Brief Introduction

This product is a professional 4K 8x8 HDMI2.0 Matrix Switcher with 8 HDMI inputs, 8 HDMI outputs, and 8 SPDIF audio outputs, which is designed for switching four HDMI2.0 and HDCP2.2 compliant signals. It also provides powerful EDID management to ensure reliable AV distribution and routing.

You can control the unit via the front panel, IR, RS232, TCP/IP and web-based GUI.

1.2 Features

- 8 SPDIF ports provide de-embedded HDMI audio output;
- Supports 4Kx2K@60Hz 4:4:4 & 1080p 3D signals;
- Supports HDMI 2.0, HDCP2.2 compatible, and is backward compatible to the earlier versions;
- Transmits 4Kx2K@60Hz 4:4:4 signal up to 16.4 feet (5m) via HDMI port;
- Provides powerful EDID management, built-in EDID can be invoked via DIP switcher on rear panel, RS232 command or web-based GUI;
- Controllable via front panel button, IR, RS232, TCP/IP or web-based GUI;
- LCD screen shows real-time I/O connection status;
- Convenient firmware upgrade through Micro USB port;
- Easy installation with rack-mounting design.

1.3 Package List

- 1 x MAT.HDMI88A-4K 8x8 HDMI2.0 Matrix Switcher
- 6 x Screws
- 1 x RS232 cable (3-pin to DB9)
- 1 x IR remote
- 1 x User manual
- 2 x Mounting ears
- 4 x Plastic cushions
- 1 x IR receiver
- 1 x Power adaptor(DC 24V 2.71A)

Confirm if the product and the accessories are all included, if not, please contact with the dealers.
## 2. Panel Description

### 2.1 Front Panel

![Figure 2-1 Front Panel](image)

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Firmware</td>
<td>Micro USB port for updating firmware.</td>
</tr>
<tr>
<td>2</td>
<td>Power Indicator</td>
<td>- Illuminates red when power on;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Turns green in standby mode;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Blinks red when upgrading.</td>
</tr>
<tr>
<td>3</td>
<td>IR sensor</td>
<td>Built-in IR sensor, receive IR signal sent from IR remote.</td>
</tr>
<tr>
<td>4</td>
<td>LCD Screen</td>
<td>Displays real-time operation status.</td>
</tr>
<tr>
<td>5</td>
<td>INPUT selector button</td>
<td>Total 8 input selector buttons, press one of buttons to switch input source.</td>
</tr>
<tr>
<td>6</td>
<td>OUTPUT selector button</td>
<td>Total 8 output selector buttons, press the buttons to select output channel.</td>
</tr>
</tbody>
</table>

*Pictures shown in this manual are for reference only.*
## 2.2 Rear Panel

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>①</td>
<td>INPUTS</td>
<td>HDMI input ports, 8 in total, connect with HDMI sources.</td>
</tr>
<tr>
<td>②</td>
<td>OUTPUTS</td>
<td><strong>SPDIF</strong>: audio output ports for de-embedded HDMI audio, 8 in total. <strong>HDMI</strong>: 8 in total, connect with HDMI displays.</td>
</tr>
<tr>
<td>③</td>
<td>Control</td>
<td><strong>EDID</strong>: 4-pin EDID DIP switchers to set EDID data, “1” stands for “On”, “0” stands for “Off”. Refer to 4. 2 EDID Configuration for more details. <strong>RS232</strong>: Serial control port, connect with control device. <strong>IR IN</strong>: Connects with external IR receiver for using the IR remote to control the Matrix Switcher. <strong>TCP/IP</strong>: TCP/IP port for unit control.</td>
</tr>
<tr>
<td>④</td>
<td>DC 24V</td>
<td>Connect with 24VDC 2.71A power adaptor.</td>
</tr>
<tr>
<td>⑤</td>
<td>Ground</td>
<td>Connect to ground.</td>
</tr>
</tbody>
</table>

*Pictures shown in this manual are for reference only.*
3. System Connection

3.1 Usage Precautions

- System should be installed in a clean environment with proper temperature and humidity.
- All of the power switches, plugs, sockets and power cords should be insulated.
- All devices should be connected before power on.

3.2 Connection Diagram

![Connection Diagram](image)

**Figure 3-1 Connection diagram**

3.3 Connection Procedure

**Step 1.** Connect HDMI sources (e.g. DVD/PS4/Laptop) to HDMI input ports with HDMI cables;

**Step 2.** Connect HDMI displays (e.g. HDTV/Projector) to HDMI output ports with HDMI cables;

**Step 3.** Connect speakers/amplifiers to the SPDIF audio outputs with Toslink cables;

**Step 4.** Connect the RS232 ports of the control device (e.g. Central Control System, PC) and the Matrix Switcher to enable serial control.

**Step 5.** Insert an IR receiver to the IR IN port to control this switcher via IR Remote.
**Step 6.** Connect the TCP/IP ports of the control device (e.g. Laptop) and the Matrix Switcher to enable TCP/IP control.

**Step 7.** Plug a 24VDC power adapter to the DC24V power port.

- When connecting to HDMI2.0 sources, make sure the HDMI cable is compliant with HDMI2.0 to ensure reliable transmission;
- Connect amplifiers that are capable to decode HDMI audio to the SPDIF ports, or there will be no output on the amplifiers.

### 3.4 System Applications

As its good performance in control and transmission, the Matrix Switcher can be widely used in computer realm, monitoring, large screen displaying, conference system, television education and bank securities institutions etc.
4. Panel Button Control

4.1 I/O connection switching

The front panel features four input selection buttons and four output selection buttons for switching I/O connection.

1) **To convert one input to an output:**
   - Example: Input 1 to Output 3
   → Press INPUTS 1 + OUTPUTS 3

2) **To convert an input to several outputs:**
   - Example: Convert Input 2 to Output 3 and 4
   → Press INPUTS 2 + OUTPUTS 3 + OUTPUTS 4

**NOTE:** Indicators of the pressed buttons will blink green for three times if the conversion is done, then it will be off. If the conversion failed, they will be off immediately.

4.2 EDID Configuration

The rear panel boasts a 4-pin EDID DIP switcher to manage EDID. The EDID data and its corresponding DIP switcher status are shown in the below list.

<table>
<thead>
<tr>
<th>NO.</th>
<th>Status</th>
<th>EDID</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0000</td>
<td>Pass through (default)</td>
</tr>
<tr>
<td>1</td>
<td>0001</td>
<td>720P 2D Pass-through CH</td>
</tr>
<tr>
<td>2</td>
<td>0010</td>
<td>720P 3D Pass-through CH</td>
</tr>
<tr>
<td>3</td>
<td>0011</td>
<td>1080P 2D Pass-through CH</td>
</tr>
<tr>
<td>4</td>
<td>0100</td>
<td>1080P 3D Pass-through CH</td>
</tr>
<tr>
<td>5</td>
<td>0101</td>
<td>4K@30HZ Pass-through CH</td>
</tr>
<tr>
<td>6</td>
<td>0110</td>
<td>4K@30HZ 2.0CH</td>
</tr>
<tr>
<td>7</td>
<td>0111</td>
<td>4K@30HZ 7.1CH</td>
</tr>
<tr>
<td>8</td>
<td>1000</td>
<td>4K@60HZ 4:2:0 Pass-through CH</td>
</tr>
<tr>
<td>9</td>
<td>1001</td>
<td>4K@60HZ 4:2:0 7.1CH</td>
</tr>
<tr>
<td>10</td>
<td>1010</td>
<td>4K@60HZ 4:4:4 Pass-through CH</td>
</tr>
<tr>
<td>11</td>
<td>1011</td>
<td>4K@60HZ 4:4:4 7.1CH</td>
</tr>
<tr>
<td>-</td>
<td>1111</td>
<td>Enable Software EDID management mode: RS232 control or Web-based GUI control.</td>
</tr>
</tbody>
</table>
4.3 I/O connection Inquiry

Press OUTPUTS button 1, 2, 3, 4,5,6,7 or 8 to inquiry its corresponding input, and then the indicator of the input button will turn green.
5. IR Control

The Matrix Switcher features one built-in IR receiver to receive IR signal from IR remote to enable IR control. If the external IR receiver or other IR control device need to be used, the IR IN port on rear panel can be connected.

① Standby button:
Press it to enter/exit standby mode.

② INPUTS:
Input channel selection buttons, same with the corresponding front panel buttons

③ OUTPUTS:
Output channel selection buttons, same with the corresponding front panel buttons.

④ Menu buttons:
- **ALL**: Select all inputs/outputs.
To convert an input to all outputs:
Example: Input 1 to all Outputs:
   → Press INPUTS 1 + ALL + ENTER
- **EDID** management button:
  1) One input port learns the EDID data from one output port.
  Example: Input 2 learns EDID data from output 4:
   → Press EDID + INPUTS 2 + OUTPUTS 4 + ENTER
  2) All input ports learn EDID data from one output port.
  Example: All input ports learn EDID data from output 3:
   → Press EDID + ALL + OUTPUTS 3 + ENTER
- **CLEAR**: Withdraw button.
- **ENTER**: Confirm operation.
6. RS232 Control

6.1 Installation/uninstallation of RS232 Control Software

- **Installation** Copy the control software file to the computer connected with the Matrix Switcher.
- **Uninstallation** Delete all the control software files in corresponding file path.

6.2 Basic Settings

Firstly, connect the Matrix Switcher with necessary input devices and output devices. Then, connect it with a PC installed RS232 control software. Double-click the software icon to run this software.

Here we take the software `CommWatch.exe` as example. The icon is showed as below:

![Figure 6-1 Icon of CommWatch](image)

The interface of the control software is showed as below:

![Figure 6-2 Control Interface of CommWatch](image)

Parameter Configuration

- **Monitoring area**, indicates whether the command sent works.
- **Command Sending area**
Set the parameters (baud rate, data bit, stop bit and parity bit) correctly to ensure reliable RS232 control.

6.3 RS232 Communication Commands

- Case-sensitive.
- “[“ “]” in the commands are for easy recognition only and not necessary in real operations. Other symbols including “.” “,” “/” “%” “;” “^” are parts of the commands.
- Feedbacks listed in the column “Feedback Example” are only for reference, feedbacks may vary according to different operations.
- Dial the EDID switcher to “1111” before sending commands pertaining to software EDID management (with grey background)

| Baud rate: 9600 | Data bit: 8 | Stop bit: 1 | Parity bit: none |

6.3.1 System Commands

<table>
<thead>
<tr>
<th>Command</th>
<th>Function</th>
<th>Feedback Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>/*Type;</td>
<td>Query the model.</td>
<td>XXXXX</td>
</tr>
<tr>
<td>/*^Version;</td>
<td>Query the version of firmware</td>
<td>VX.X.X</td>
</tr>
<tr>
<td>Demo.</td>
<td>Switch to the “demo” mode, convert input and output in turn like 1B1,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1B2, 4B3, 4B4, 1B1... and so on. The switching interval is 2 seconds.</td>
<td>Demo Mode</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AV:01-&gt;01</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AV:01-&gt;02</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AV:01-&gt;03</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AV:01-&gt;04</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AV:02-&gt;01</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Normal Mode</td>
</tr>
<tr>
<td>Undo.</td>
<td>To cancel the current operation.</td>
<td>Undo Ok!</td>
</tr>
<tr>
<td>PWON.</td>
<td>Work in normal mode.</td>
<td>PWON</td>
</tr>
<tr>
<td>PWOFF.</td>
<td>Enter into standby mode, send the “PWON.” to start.</td>
<td>PWOFF</td>
</tr>
</tbody>
</table>
### 6.3.2 Lock/unlock Commands

<table>
<thead>
<tr>
<th>Command</th>
<th>Function</th>
<th>Feedback Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>/%Lock;</td>
<td>Lock the front panel buttons.</td>
<td>System Locked!</td>
</tr>
<tr>
<td>/%Unlock;</td>
<td>Unlock the front panel buttons.</td>
<td>System Unlock!</td>
</tr>
<tr>
<td>%9961.</td>
<td>Query the system locking status.</td>
<td>System Locked/Unlock!</td>
</tr>
</tbody>
</table>

### 6.3.3 Switching Commands

<table>
<thead>
<tr>
<th>Command</th>
<th>Function</th>
<th>Feedback Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>[x]All.</td>
<td>Transfer signals from the input channel [x] to all output channels. (x=1~8)</td>
<td>02 To All.</td>
</tr>
<tr>
<td>All#.</td>
<td>Transfer all input signals to the corresponding output channels respectively like 1-&gt;1, 2-&gt;2...</td>
<td>All Through.</td>
</tr>
<tr>
<td>All$.</td>
<td>Switch off all the output channels.</td>
<td>All Closed.</td>
</tr>
<tr>
<td>[x]#.</td>
<td>Transfer signals from the input channel [x] to the output channel [x]. (x=1~8)</td>
<td>04 Through.</td>
</tr>
<tr>
<td>[x]$</td>
<td>Switch off the output channel [x]. (x=1~8)</td>
<td>02 Closed.</td>
</tr>
<tr>
<td>[x]@.</td>
<td>Switch on the output channel [x]. (x=1~8)</td>
<td>02 Open.</td>
</tr>
<tr>
<td>All@.</td>
<td>Switch on all output channels.</td>
<td>All Open.</td>
</tr>
<tr>
<td>[x1]V[x2].</td>
<td>Switch the input channel [x1] to one or several output channels ([x2], separate output channels with comma).</td>
<td>AV: X1-&gt; X2 (AV: 02-&gt; 04)</td>
</tr>
</tbody>
</table>
### Status[x].

Query the I/O connection status of output [x]. (x=1~8, y=1~8)

<table>
<thead>
<tr>
<th>AV: Y-&gt;X</th>
<th>AV: 04-&gt;02</th>
</tr>
</thead>
<tbody>
<tr>
<td>AV:01-&gt;01</td>
<td></td>
</tr>
<tr>
<td>AV:01-&gt;02</td>
<td></td>
</tr>
<tr>
<td>AV:01-&gt;03</td>
<td></td>
</tr>
<tr>
<td>AV:01-&gt;04</td>
<td></td>
</tr>
<tr>
<td>AV:01-&gt;05</td>
<td></td>
</tr>
<tr>
<td>AV:01-&gt;06</td>
<td></td>
</tr>
<tr>
<td>AV:01-&gt;07</td>
<td></td>
</tr>
<tr>
<td>AV:01-&gt;08</td>
<td></td>
</tr>
</tbody>
</table>

### Status.

Query the input channel to the output channels one by one.

| In 01 02 03 04 Connect Y N Y Y |
| In 05 06 07 08 Connect Y Y Y N |

### %9971.

Query the connection status of the inputs.

| Out 01 02 03 04 Connect Y Y Y Y |
| Out 05 06 07 08 Connect Y Y Y Y |

### %9972.

Query the connection status of the outputs.

<table>
<thead>
<tr>
<th>Resolution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Out 1 3840x2160P</td>
</tr>
<tr>
<td>Out 2 3840x2160P</td>
</tr>
<tr>
<td>Out 3 3840x2160P</td>
</tr>
<tr>
<td>Out 4 3840x2160P</td>
</tr>
<tr>
<td>Out 5 3840x2160P</td>
</tr>
<tr>
<td>Out 6 3840x2160P</td>
</tr>
<tr>
<td>Out 7 3840x2160P</td>
</tr>
</tbody>
</table>

### %9975.

Query the I/O connection status.

| In 03 03 03 03 |
| Out 05 06 07 08 |
| In 03 03 03 03 |

### %9976.

Query the output resolution.
### 6.3.4 Scene Commands

<table>
<thead>
<tr>
<th>Command</th>
<th>Function</th>
<th>Feedback Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Save[Y].</td>
<td>Save the present operation to the preset command [Y], ranges from 1 to 10.</td>
<td>Save To F6</td>
</tr>
<tr>
<td>Recall[Y].</td>
<td>Recall the preset command [Y].</td>
<td>Recall From F2</td>
</tr>
<tr>
<td>Clear[Y].</td>
<td>Clear the preset command [Y].</td>
<td>Clear F8</td>
</tr>
</tbody>
</table>

### 6.3.5 HDCP Compliance

<table>
<thead>
<tr>
<th>Command</th>
<th>Function</th>
<th>Feedback Example</th>
</tr>
</thead>
</table>
|/%[Y]/[X]:[Z]. | HDCP management command.  
Y=O is for output;  
X=1~8 is the number of the port, if the X=ALL, it means all ports;  
Z is for HDCP compliant status, the value may be 1 (HDCP compliant) or 0 (not HDCP compliant). | /%[Y]/[X]:[Z].   |
|%0801.     | Auto HDCP management, activate carrier native mode                                                                       | %0801            |
|%9973.     | Query the HDCP status of the input signals.                                                                             | In 01 02 03 04  
HDCP Y N Y N  
In 05 06 07 08  
HDCP Y Y Y N |
|%9974.     | Query the HDCP status of the output signals.                                                                            | Out 01 02 03 04  
HDCP Y Y Y Y  
Out 05 06 07 08  
HDCP Y Y Y Y |
### 6.3.6 EDID Configuration

The DIP switcher status should be set as 1111 to enable Software EDID management mode: RS232 control or Web-based GUI control.

<table>
<thead>
<tr>
<th>Command</th>
<th>Function</th>
<th>Feedback Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDIDH[x]B[y].</td>
<td>Input port [y] learns the EDID from output port [x].</td>
<td>EDIDH[x]B[y]</td>
</tr>
<tr>
<td></td>
<td>If the EDID data is available and the audio part supports not only PCM mode, then force-set it to support PCM mode only. If the EDID data is not available, then set it as initialized EDID data.</td>
<td></td>
</tr>
<tr>
<td>EDIDPCM[x].</td>
<td>Set the audio part of input port [x] to PCM format in EDID database.</td>
<td>EDIDPCM[x]</td>
</tr>
<tr>
<td>EDIDG[x].</td>
<td>Get EDID data from output [x] and display the output port number.</td>
<td>Hexadecimal EDID data and carriage return character</td>
</tr>
<tr>
<td>EDIDMInit.</td>
<td>Restore the factory default EDID data for each input.</td>
<td>EDIDMInit.</td>
</tr>
<tr>
<td>EDIDM[X]B[Y].</td>
<td>Manually EDID switching. Enable input [Y] to learn the EDID data of output [X]. If the EDID data is not available, then set it as initialized EDID data.</td>
<td>EDIDM[X]B[Y]</td>
</tr>
<tr>
<td>EDID/[x]/[y].</td>
<td>Set the EDID data of input port [x] to built-in EDID No. [y]. [y]=0~11, correspond to the 12 embedded EDID data separately</td>
<td>EDID/[x]/[y]</td>
</tr>
<tr>
<td>EDIDUpgrade[x].</td>
<td>Upgrade EDID data via the RS232 port. X represents the input port, and x=9 represents all input ports. When the switcher receives the command, it will show a message to prompt you to send EDID file (.bin file). Operations will be canceled after 10 seconds.</td>
<td>Please send the EDID file EDID Upgrade OK!</td>
</tr>
<tr>
<td>GetInPortEDID[X]</td>
<td>Get the EDID data of input [x], [x]=1~8</td>
<td></td>
</tr>
<tr>
<td>%9979.</td>
<td>Get the DIP switcher status</td>
<td>EDID RS232 GUI CONTROL 1111</td>
</tr>
</tbody>
</table>
6.3.7 Enable/disable Digital Audio

<table>
<thead>
<tr>
<th>Command</th>
<th>Function</th>
<th>Feedback Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>DigitAudioON[x]</td>
<td>Enable SPDIF audio output port x.</td>
<td>DigitAudio ON with [x]/ ALL Outputs</td>
</tr>
<tr>
<td></td>
<td>• X=1~8, enable the port x.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• X=9, enable all ports.</td>
<td></td>
</tr>
<tr>
<td>DigitAudioOFF[x]</td>
<td>Disable SPDIF audio output port x.</td>
<td>DigitAudio OFF with [x]/ ALL Outputs</td>
</tr>
<tr>
<td></td>
<td>• X=1~8, disable the port x.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• X=9, disable all ports.</td>
<td></td>
</tr>
<tr>
<td>%9977.</td>
<td>Query the status of digital audio of output channels.</td>
<td>Out 01 02 03 04 Audio Y Y Y Y Out 05 06 07 08 Audio Y Y Y Y</td>
</tr>
</tbody>
</table>
7. TCP/IP Control

7.1 Control Modes

TCP/IP default settings: IP is 192.168.0.178, Gateway is 192.168.0.1, and Serial Port is 4001. IP can be changed as you need, Serial Port cannot be changed.

- Controlled by single PC

Connect a computer to the TCP/IP port of the Matrix Switcher, and set its network segment to the same as the default IP of the Matrix Switcher (192.168.0.178).

![Figure 7-1 Modify the IP of PC](image)

- Controlled by PC(s) in LAN

The Matrix Switcher can be connected with a router to make up a LAN with the PC(s), this make it able to be controlled in a LAN. When control, just make sure the Matrix Switcher’s network segment is the same with the router. Please connect as the following figure for LAN control.
**Figure 7-2 Connect to LAN**

**Step1.** Connect the TCP/IP port of the Matrix Switcher to Ethernet port of PC with twisted pair.

**Step2.** Set the PC’s network segment to the same as the Matrix Switcher. Do please remember the PC’s original network segment.

**Step3.** Set the Matrix Switcher’s network segment to the same as the router.

**Step4.** Set the PC’s network segment to the original one.

**Step5.** Connect the Matrix Switcher and PC(s) to the router. In the same LAN, each PC is able to control the Matrix Switcher asynchronously.

Then it’s able to control the device via a TCP/IP communication software.

**7.2 TCP/IP Communication Software Control**

(Exampled by TCPUDP software)

1) Connect a computer with TCPUDP software to the Matrix Switcher. Open the TCPUDP software (or any other TCP/IP communication software) and create a connection, enter the IP address and port of the Matrix Switcher (default IP: 192.168.0.178, port:4001):
2) Enter commands in designed area to control the Matrix Switcher, see as below:

Enter your command here. Commands are the same with RS232 commands listed in 6.3 RS232 Communication

Here you will receive the feedback after a command is sent.
7.3 Web-based GUI Control

The Matrix Switcher can be controlled via web-based GUI. It allows users to interact with the Matrix Switcher through graphical icons and visual indicators.

Access GUI interface through any one of the following methods:

1) Access through web browser: Type the default IP **192.168.0.178** in the browser at first login. The IP address also can be found via sending “%9964.” on RS232 control software.

2) Access through UPnP: Go to My Network Place in your PC, and click the icon as below:

Books: PCs running Windows XP system may occur issues in finding UPnP icon, follow these steps to switch on UPnP protocol:


② Enable Windows Firewall: go to “Control Panel” -> double-click “Windows Firewall” -> click “Others” -> tick “UPnP framework”

③ Enable UPnP auto-starting: go to “Control Panel” -> double-click “Administrative Tools” -> double-click “Services” -> find and click SSDP Discovery Servic and Universal Plug and Play Device Host -> click “OK”

UPnP will now automatically start when you turn on your computer.

④ Reboot the device.
Type **192.168.0.178** in your browser, it will enter the log-in interface shown as below:

![Login GUI](image)

**Figure 7-5 Login GUI**

This system divides into administrator and user mode.

**Administrator mode:** User name: admin; Password: admin (default setting)

**User mode:** User name: user; Password: user (default setting)

**NOTE:** Log in as admin can access more configuration interfaces than user. Here is a brief introduction to the interfaces.
7.3.1 Scene Setting

Type the user name: admin, password: admin, and then click LOGIN, it will show the Scene menu as shown below:

![Scene Menu Image](image-url)

**Figure 7-6 Scene Menu**

All ten scenes are shown in above interface.

Select a scene and then click “Load” can invoke the selected scene.

Click “Cancel” to cancel the current operation.
7.3.2 I/O connection switching

Click  to enter the following interface, it provide intuitive I/O connection switching.

Figure 7-7 Control Menu

The button matrix displays every possible connection between every input and output; users can carry on the connections by clicking corresponding button.

Buttons 1~8 at the right-bottom corner provides quick saving and recall for overall connection status. For example:

**Step1:** Select button1 at INPUT column

**Step2:** Select button 2, 3 and 4 at OUTPUT column (If all OUTPUT ports in needed, you only need to click “All”.)

**Step3:** Choose a scene that you want to save.

**Step4:** Click “Confirm” to save the setting or Click “Clear” to clear set up.
7.3.3 EDID Configuration

1) Click setting button to enter configuration interfaces.

![Figure 7-8 Embedded EDID](image)

All embedded EDID of the Matrix Switcher are shown in the above interface. User can select EDID in accordance with actual needs.

2) Select “EDID Copy” to enter the following interface:

![Figure 7-9 Copy EDID](image)
The EDID of INPUT device can be gained from OUTPUT devices.

**Step1:** Select one OUTPUT device that you want to copy its EDID.

**Step2:** Select one or more input devices that need to gain EDID. When select To All inputs, all input devices will copy the EDID from output device.

**Step3:** Click “Confirm” to save the setting or click “Cancel” to cancel operation.

### 7.3.4 Audio Output

Select “Audio Out” to enter the following interface to turn on/off the Audio Output.

![Figure 7-10 Audio Out](image-url)
7.3.5 Status Setting

- **Product Name& Model:**

Click “Status” to enter the following interface to modify the name and mode of this machine, and then they will be display in LCD screen.

![Figure 7-11 Status- LCD](image)

- **Button label:**

Select “Button” to enter the following interface to modify the name of buttons.

![Figure 7-12 Status- Button](image)
• **Scene name:**
Select "Scene" to enter the following interface to modify the name of scenes.

![Figure 7-13 Status-Scene](image)

**7.3.6 Network Configuration**
Click "Network" to enter the following interface to inquire and configure network settings including MAC address, IP address, subnet mask, and Gateway.

![Figure 7-14 Network](image)
7.3.7 Password Modification

Click "Password" to enter the following interface to inquire and modify the admin or user password.

![Password Interface](image)

**Figure 7-15 Password**

In the above interface, turn on the Front Panel to lock all buttons of machine, they cannot be operated.

7.4 TCP/IP Configuration

IP address, subnet mask, and Gateway of the Matrix Switcher can be modified via GUI from the above description, but beyond that users can configure the IP port, including IP reset, password reset, and IP module firmware update on the WebServer.

Type the designed website (Default: 192.168.0.178:100, changeable) in your browser. Enter correct username and password to log in the WebServer:

**Username:** admin; **Password:** admin

Here is the main configuration interface of the WebServer:
7.5 GUI Update

GUI for the Matrix Switcher supports online update in http://192.168.0.178:100. Type the username and password (the same as the GUI log-in settings, modified password will be available only after rebooting) to log in the configuration interface. After that, click Administration at the source menu to get to Upload Program as shown below:

![Figure 7-17 GUI Update](image)

Select the desired update file and press Apply, it will start upgrading then.
8. Firmware Upgrade through USB port

The matrix switcher boasts a USB port for online firmware upgrade on the front panel. Follow these steps to upgrade firmware:

**Step1.** Copy the upgrade software and the latest upgrade file (.bin) to PC.

**Step2.** Connect the USB ports of the matrix switcher and the PC via USB cable.

**Step3.** Double-click the update software icon (see as below).

![Upgrade software icon](image)

It will enter the upgrade interface shown as below:

![Upgrade interface](image)

**Step4.** Click **Connect USB**.

**Step5.** Click **Open** to load the upgrade file, then click **Update** to start firmware upgrading.

**Note:** To ensure available control, the COM number of the PC should be 1~9.
## 9. Specification

<table>
<thead>
<tr>
<th>Input Signal</th>
<th>8 HDMI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input Connector</td>
<td>Female Type-A HDMI</td>
</tr>
<tr>
<td>Output Signal</td>
<td>8 HDMI; 8 SPDIF audio</td>
</tr>
<tr>
<td>Output Connector</td>
<td>Female Type-A HDMI; 3.5mm mini jack</td>
</tr>
<tr>
<td>Control Signal</td>
<td>1 IR IN; 1 TCP/IP; 1 RS232</td>
</tr>
<tr>
<td>Control Connector</td>
<td>3.5mm mini jack; female RJ45; 3-pin pluggable terminal block</td>
</tr>
<tr>
<td>Video Signal</td>
<td>HDMI2.0 &amp; HDCP2.2</td>
</tr>
<tr>
<td>Audio Signal</td>
<td>Dolby Digital, DTS, DTS-HD</td>
</tr>
</tbody>
</table>

### General

- **EDID Management**: In-built EDID data and manual EDID management
- **Resolution Range**: 640x480@60Hz ~ 4Kx2K@60Hz 4:4:4, 1080P 3D
- **HDMI Cable Length**: ≤5m
- **Power Supply**: 24VDC, 2.71A
- **Power Consumption**: 21W
- **Dimension (W*H*D)**: 437mm × 44mm × 236.5mm
- **Weight**: 1.82Kg
- **Temperature**: -10°C ~ 55°C
- **Reference Humidity**: 10% ~ 90%
10. Panel Drawing
## 11. Troubleshooting & Maintenance

<table>
<thead>
<tr>
<th>Problems</th>
<th>Potential Causes</th>
<th>Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color losing or no video signal output</td>
<td>The connecting cables may not be connected correctly or it may be broken.</td>
<td>Check whether the cables are connected correctly and in working condition.</td>
</tr>
<tr>
<td></td>
<td>Fail or loose connection</td>
<td>Make sure the connection is good.</td>
</tr>
<tr>
<td>No output image when switching</td>
<td>No signal at the input / output end</td>
<td>Check with oscilloscope or multimeter if there is any signal at the input/output end.</td>
</tr>
<tr>
<td></td>
<td>Fail or loose connection</td>
<td>Make sure the connection is good.</td>
</tr>
<tr>
<td></td>
<td>Input source is with HDCP while the HDCP compliance is switched off.</td>
<td>Send command /%[x]:[1]. to change HDCP compliance status.</td>
</tr>
<tr>
<td></td>
<td>The display doesn’t support the input resolution.</td>
<td>Switch for another input source or enable the display to learn the EDID data of the input.</td>
</tr>
<tr>
<td>No output on the amplifiers connected to audio output ports</td>
<td>The amplifiers are not able to decode HDMI audio.</td>
<td>Change for amplifiers that are capable to decode HDMI audio.</td>
</tr>
<tr>
<td>Cannot control the device via front panel buttons</td>
<td>Front panel buttons are locked.</td>
<td>Send command /%Unlock; to unlock.</td>
</tr>
<tr>
<td>Cannot control the device via IR remote</td>
<td>The battery has run off.</td>
<td>Change for new battery.</td>
</tr>
<tr>
<td></td>
<td>The IR remote is broken.</td>
<td>Send it to authorized dealer for repairing.</td>
</tr>
<tr>
<td></td>
<td>Beyond the effective range of the IR signal or not pointing at the IR receiver</td>
<td>Adjust the distance and angle and point right at the IR receiver.</td>
</tr>
<tr>
<td>Power Indicator remains off when</td>
<td>Fail or loose power connection</td>
<td>Check whether the cables are connected correctly</td>
</tr>
<tr>
<td>Powered on</td>
<td>EDID management does not work normally</td>
<td>EDID management does not work normally</td>
</tr>
<tr>
<td>------------</td>
<td>--------------------------------------</td>
<td>--------------------------------------</td>
</tr>
<tr>
<td></td>
<td>The HDMI cable is broken at the output end.</td>
<td>Change for another HDMI cable which is in good working condition.</td>
</tr>
<tr>
<td>There is a blank screen on the display when switching</td>
<td>The display does not support the resolution of the video source.</td>
<td>Switch again.</td>
</tr>
<tr>
<td>Cannot control the device by control device (e.g. a PC) through RS232 port</td>
<td>Wrong connection</td>
<td>Check to ensure the connection between the control device and the unit</td>
</tr>
<tr>
<td></td>
<td>Wrong RS232 communication parameters</td>
<td>Type in correct RS232 communication parameters: Baud rate: 9600; Data bit: 8; Stop bit: 1; Parity bit: none</td>
</tr>
<tr>
<td></td>
<td>Broken RS232 port</td>
<td>Send it to authorized dealer for checking.</td>
</tr>
<tr>
<td>Static becomes stronger when connecting the video connectors</td>
<td>Bad grounding</td>
<td>Check the grounding and make sure it is connected well.</td>
</tr>
<tr>
<td>Cannot control the device by RS232 / IR remote / front panel buttons</td>
<td>The device has already been broken.</td>
<td>Send it to authorized dealer for repairing.</td>
</tr>
</tbody>
</table>

If your problem persists after following the above troubleshooting steps, seek further help from authorized dealer or our technical support.
12. Customer Service

The return of a product to our Customer Service implies the full agreement of the terms and conditions hereinafter. There terms and conditions may be changed without prior notice.

1) Warranty
   The limited warranty period of the product is fixed 3 (three) years.

2) Scope
   These terms and conditions of Customer Service apply to the customer service provided for the products or any other items sold by authorized distributor only.

3) Warranty Exclusions:
   - Warranty expiration.
   - Factory applied serial number has been altered or removed from the product.
   - Damage, deterioration or malfunction caused by:
     - Normal wear and tear.
     - Use of supplies or parts not meeting our specifications.
     - No certificate or invoice as the proof of warranty.
     - The product model showed on the warranty card does not match with the model of the product for repairing or had been altered.
     - Damage caused by force majeure.
     - Servicing not authorized by distributor.
     - Any other causes which does not relate to a product defect.
   - Shipping fees, installation or labor charges for installation or setup of the product.

4) Documentation:
   Customer Service will accept defective product(s) in the scope of warranty coverage at the sole condition that the defect has been clearly defined, and upon reception of the documents or copy of invoice, indicating the date of purchase, the type of product, the serial number, and the name of distributor.

Remarks: For further assistance or solutions, please contact your local distributor.