LINK-MI®

LINK-MULTIMEDIA INTERFACE

LM-MX44H

4K HDMI Matrix Switcher System

User Manual

Please read this manual carefully before using this system.

Note：

LM-MX44H 4x4 4K HDMI Matrix Switching System User Manual:

This manual is intended only as a user instruction and is not intended for use as a service.

⚠Safe operation guide

To ensure the reliable use of the equipment and the safety of personnel, please observe the following when installing, using and maintaining:

When installing the device, make sure that the ground wire in the power cord is well grounded. Do not use a two-pin plug. Make sure the input power of the device is 100V-240V 50/60Hz AC.

Do not place the device in a location that is too cold or too hot.

Keep the working environment well ventilated, so that the heat generated by the equipment during work can be discharged in time to avoid damage to the equipment due to excessive temperature.

Turn off the unit's main power supply in a humid condensation environment or when unused for long periods of time.

Always unplug the unit's AC power cord from the AC outlet before doing the following:
Remove or re-install any part of the device.
A. Remove or re-install any part of the device.
B. Disconnect or reconnect any electrical plugs or other connections to the device.

There are AC high-voltage components in the equipment. Non-professionals are not allowed to disassemble the equipment without permission, so as to avoid the risk of electric shock, and do not repair it privately, so as not to damage the equipment.

Do not spill any corrosive chemicals or liquids on or near the equipment.

Catalog

1st Product Description

4X4 matrix switcher is a high-performance video signal professional switching device for cross-switching of multiple video signal input and output. It adopts advanced high-performance image processing chip to minimize signal transmission attenuation, image and The sound signal can be high fidelity output.

4X4 series matrix is mainly used in broadcasting and television engineering, multimedia conference halls, large-screen display engineering, television teaching, command and control centers and other occasions. This product supports chassis keys, infrared remote control, RS-232 serial port, TCP/IP (non-standard) and open control code for central control.

Figure 1-1 4x4 Mixed Matrix Switcher

2nd Packing Contents

Hybrid matrix switcher host

Infrared remote control

RS-232 communication cable

Power cable

Matrix control software CD

Equipment user manual and warranty card

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3rd Installation

The 4X4 matrix host is housed in an all-metal chassis that can be placed with a variety of devices. In addition, the matrix mainframe also provides standard machine mounting brackets, which users can install on standard industrial cabinets.

4th Panel Description

4.1 The front panel schematic

4.2 The rear panel schematic

5th Connection Diagram

5.1 Input and Output Interface Description

The product adopts an integrated design structure with input and output of 4 HDMI signals.

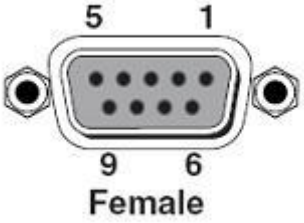
5.2 Communication port and connection method

The 4X4 matrix provides a standard RS-232 serial communication port and a LAN network control port. In addition to the front panel buttons for switching operations, the matrix allows users to control using various control systems or remotely via Ethernet. Ethernet control can be expanded with optional Ethernet interface accessories.

5.2.1 4x4 matrix connection to control system

The 4X4 matrix can be controlled using a variety of control systems to control the matrix via an RS-232 serial interface or an optional Ethernet control port.

The RS-232 port is a 9-pin female connector with the following pin descriptions:



Number	Pin	Description
1	N/u	null
2	Rx	receive
3	Tx	send
4	N/u	null
5	Gnd	gnd
6	N/u	null
7	N/u	null
8	N/u	null
9	N/u	null

5.2.2 Matrix and control computer connection

Use the RS-232 cable to connect the serial communication port (COM1 or COM2) of the computer to the RS-232 communication port of the HDMI matrix host. After installing the application software, you can use the computer to control the mixing matrix. Users can use the application software that comes with the matrix as the computer control software, or they can write their own control software.

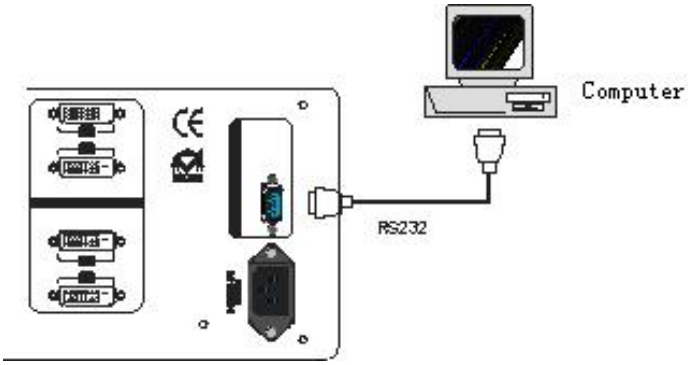
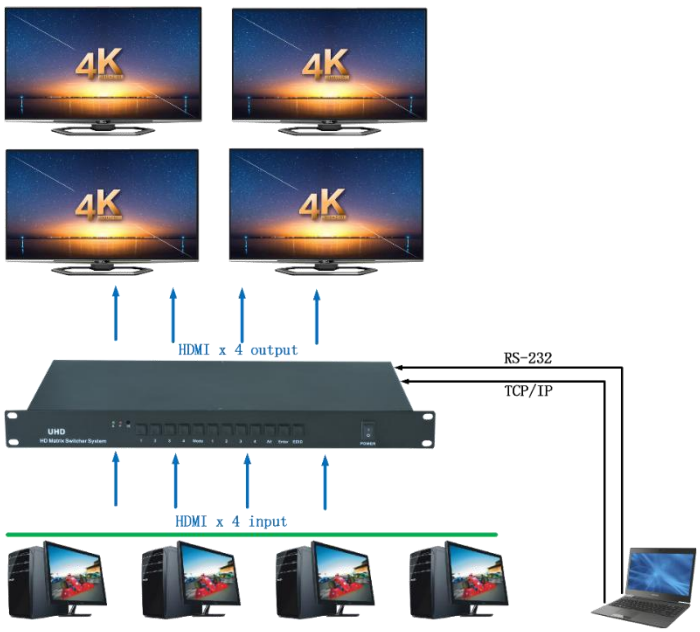


Figure 5-1 RS-232 connection between HDMI matrix and computer

5.3 Connection method between matrix and computer signal input and output device

4X4 matrix switcher can be equipped with DVI and HDMI input/output modules. Users can connect various computer signals, audio and video signal devices, such as DVD players, desktop computers, graphics workstations, digital display consoles, etc. according to different occasions. The terminals can be connected to projectors, video recorders, computer monitors, amplifiers, etc.

System topology:

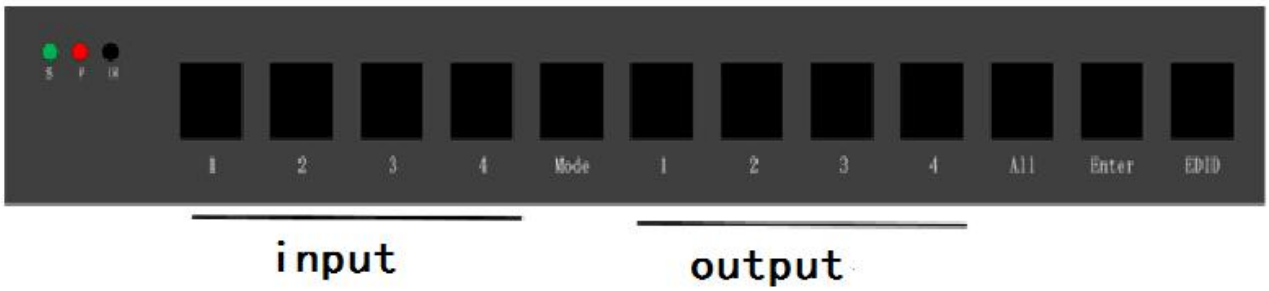


6th EDID Management Operations

The matrix switcher adds EDID data identification to exchange EDID data with display and source machines. When connected to the display and source machine, the display and source exchange EDID data via the matrix.

7th Control Panel Instructions

7.1 Front panel schematic



Input channel 1, 2, 3, 4 number keys: corresponding to the input port number;

Output channel 1, 2, 3, 4 number keys: corresponding to the output port number;

Mode button: switch function button;

All: The input signal source is switched to all output ports;

Enter: confirm button;

EDID: EDID information binding setting button;

Red P light: Power indicator, flashes when burning EDID information;

Green S light: operation indicator, it will flash when you press the button;

7.2 Front panel function operation

7.2.1 Signal switching:

First press the Mode button, then press the left input channel number button, then press the right output channel number button (if you need to assign the input signal to all the output ports, press All), then press the Enter button. , complete the switch.

If the input 2 port signal is switched to the 3 port, the operation button flow is as follows:

Mode→2→3→Enter

Assign the No. 3 input port signal to all output ports. The operation button flow is as follows:

Mode→3→All→Enter

7.2.2 EDID information burning

Insert the signal source into the input port where the EDID information needs to be written;

Connecting the output terminal 1 to a display unit that needs to match the EDID information;

After the machine is powered on for about 30s, the operation button is started. For example, the process of burning the port 2 into the EDID button is as follows:

EDID→2→Enter,after the red indicator light flashes, and the EDID information is written after the machine is restarted;

8th Infrared Remote Control Instructions

The device can be set by infrared remote control. The function is the same as the setting of the chassis key. This section lists the buttons and profiles corresponding to the remote control and the chassis keys.;

Switch：The signal switching button is consistent with the function of the chassis Model button. Press the Switch button and press the number to set the input and output ports, press OK to complete the switch;

OK: Same as the chassis button Enter;

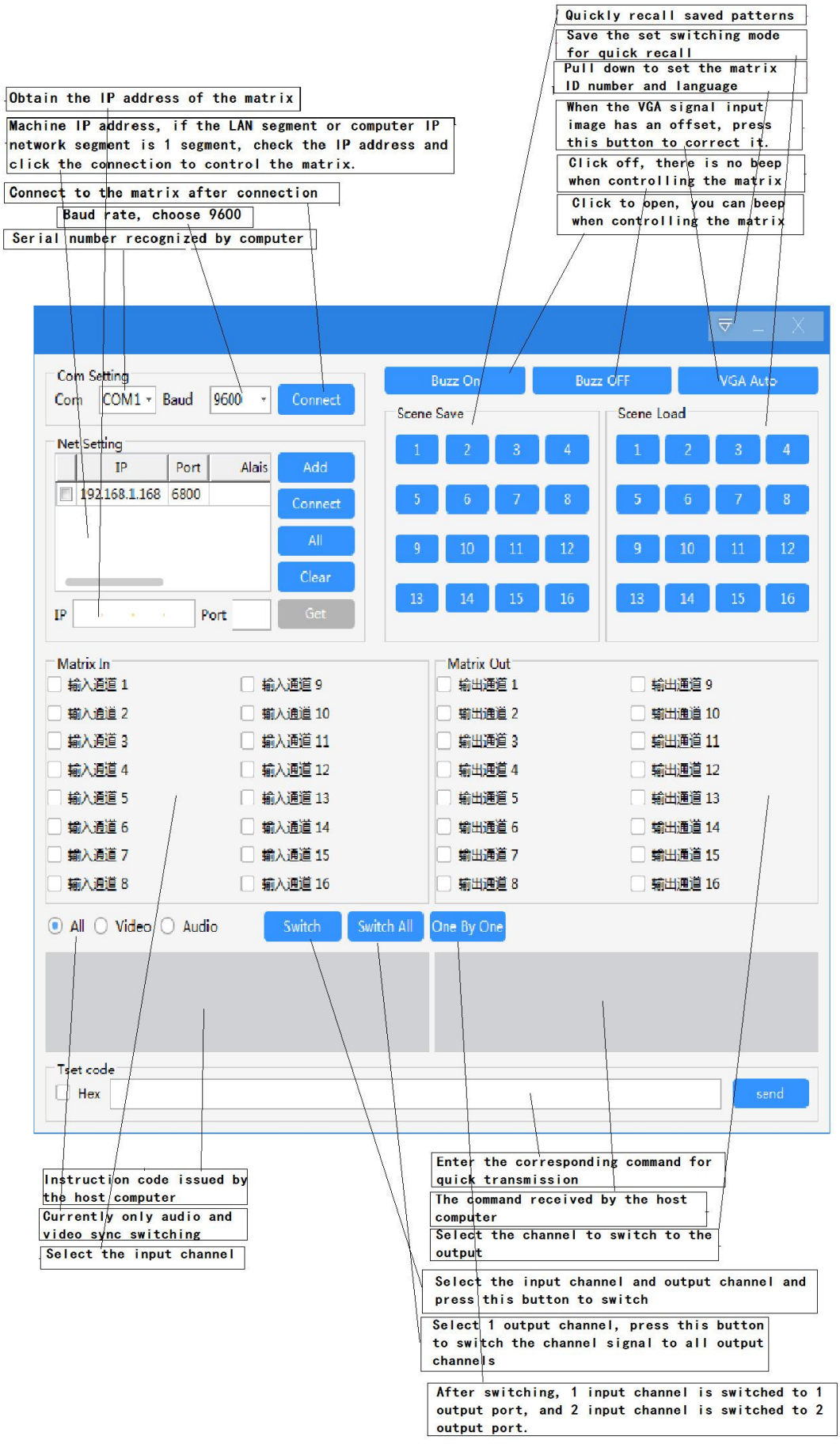
 : Same as the chassis All button, set to switch to all outputs;

Source : Shortcut mode save key. If you press the Source key and press the number key 1, you can save the current scene to scene 1. After saving, you can directly call the remote control 1 button or the chassis button 1.

9th Host Computer Operation Instructions

Communication via RS-232 serial port or TCP/IP, control the device through the control software on the computer,

and the lower computer diagram：



1. Communication connection: first connect the computer and equipment through the RS-232 serial cable, or connect the device directly to the computer or connect to the local area network through the network cable；
2. The RS-232 connection must correspond to the corresponding COM port number on the computer. The serial port number can be queried on the device manager of the control panel.；
3. Through TCP / IP control, LAN or computer IP network segment must initially be set to 1 segment;
4. Open the control software: Open the file in the Software file, and pop up the following software interface. Click the serial port connection or check the IP address of the IP machine and click Connect. Then you can operate the matrix switcher.
5. Channel naming: In order to facilitate memory, you can rename the input and output channels of the control software, the name can be Chinese or English. The naming method is to right-click the corresponding input channel or output channel;
6. Renaming the scene save or scene load: Rename the scene by right-clicking the corresponding button;
7. After the RS-232 or TCP/IP connection is successful, the device still cannot be controlled. Check whether the device ID number on the control software is consistent with the ID number of the matrix query by the button. The ID number is the same to control the device.
8. Modification of matrix IP address - The default IP address of the matrix is **192.168.1.168**. If you need to modify the IP address for other reasons, please modify it as follows:

   8.1. First ensure that the device can communicate normally through the serial port;

   8.2. Perform the following steps to modify the IP address:

   8.2.1. Open the control software and connect to the serial port.

   8.2.2. Click Add to pop up the network settings window;

   8.2.3. After modifying the IP address, make sure that the IP address must be on the same network segment as the control computer or LAN.

   8.2.4. Right click on the IP address, pop up the settings window again, and then click OK again (Note: IP can not be selected before clicking the IP address);

   8.2.5. Check the IP, click on the connection, the connection shows the disconnected state, and the IP setting is successful;
9. IP address query: through the serial port assistant input HWC point can be sent to view the existing IP address in the assistant window.

10th Communication Control Parameter Protocol

10.1 Network control parameter

1.1. Query IP command: HWC

HNW192.168.1.172,6800,255.255.255.0,192.168.1.1,54.82.52.115.119.23

1.2. Reset operation Instruction: HWR

1.3. Set the IP command: HWS

Example: HWS192.168.1.172.255.255.255.0.192.168.1.1

After setting the IP, the host computer communication needs to be reconfigured and reconnected in order to normal communication control.

1.4: Port number support: 6800 / 6900 / 7000 / 7100

10.2 Serial port control parameters

The baud rate is set to 9600, 8-bit data bit, 1 stop bit, no parity bit, communication mode: asynchronous half-duplex serial communication.

10.3 Communication control protocol

The following protocols support matrices for all models, including the VGA series, DVI series, and HDMI series:

Matrix ID	ID identifier	Enter ID	Switch identifier	Output ID1	Separator	Output ID2	Terminator
ID	D	IN	V	OUT1	,	OUT2	.

Example: 1D1V1, 2, 3.

When the ID is 0, all matrices can be used. The ID value is 0~99.

Put the matrix with matrix ID 1 and input channel 1 to switch to output 1, 2, 3 channels.

16X16 matrix.

12D12V12, 2, 14, 1.

Put the matrix ID 12 into a matrix, and switch the input channel 12 to the output channel 12, 2, 15, and 1 channels at a time.

Switch one input channel to all output channels

Matrix ID	ID identifier	IDH	IDL	T	O	A	L	L
ID	D	INPUT ID		Protocol identification				

12D01TOALL sets the matrix with matrix ID 12, and switches input channel 1 to all output channels.

12D12TOALL puts a matrix with a matrix ID of 12, switching input channel 12 to all output channels

Switch one input channel to one-to-one correspondence

Matrix ID	T	O	O	N	E
ID	Protocol identification				

12TOONE puts the matrix with the matrix ID as 12, and the input channels are one-to-one corresponding to the output channel.

Calling a profile

Matrix ID	CALL	ID
ID	Protocol identification	Profile ID

Example: 12CALL2 calls scene mode 2 with matrix ID 12

Save profile

Matrix ID	S	A	V	E	ID
ID	Protocol identification				Profile ID

Example: 12SAVE2 saves scene mode 2 with matrix ID 12

12BUZON matrix ID is 12, buzzer on

12BUZOFF matrix ID is 12, buzzer off