WolfPack Series

www.HDTVSUPPLY.com

Professional Matrix Switching System

User Manual

Before using this product, please read the instructions first.

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Chapter 1: Preface

● Welcome to choose our products. Thank you for your support of our products! For the safety of yourself and the equipment, please read the instruction manual carefully before using this equipment.

● Products are covered with a fragile label; please preserve it carefully, which will serve as the warranty certificate.

● Please read this guide first when you have any problems. The text has a detailed description of the device's operation. If you still have questions, please contact us, and we will give you a satisfactory answer as soon as possible.

● If this manual has version changes, we will not inform you, especially. Thank you for your understanding and cooperation!

Chapter 2: Notices

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

2.1 Do not use this product in the following places: dust, fumes, conductive dust, corrosive gas, and combustible gas places; exposure to high temperatures, dew, or rain; vibration or shock situations; electric shock, fire, and misoperation will result in product damage and deterioration.

2.2 At the end of the installation work, there is a need to ensure that there is no foreign body on the ventilation surface, including dust and other packaging items; otherwise, it may result in poor heat dissipation during operation, causing fire and error.

2.3 To avoid wiring and plugging an electric cable plug, which would easily lead to electric shock or cause damage to the circuit,

2.4 Installation and wiring must be solid and reliable; poor contact may lead to misoperation.

2.5 For applications where interference is serious, input or output high-frequency signal cable should be shielded to improve the anti-jamming performance of the system; the external power supply must be completely cut off to carry out the installation and wiring operation; otherwise, it may cause electric shock or damage to equipment.

2.6 This product is grounded through the grounding wire of the power supply line. To avoid the electric shock, the grounding wire must be connected to the earth.

2.7 Please do not touch the terminal when the power is on, which may cause electric shock and misoperation.

2.8 Please tighten and clean the terminals when the power is off. These operations may cause an electric shock when energized.

2.9 After the power supply is closed, the connection or removal of the communication signal cable, the cable connection of the expansion module or the control unit, or the removal of the device can result in equipment damage and misoperation.

2.10 Do not disassemble the equipment to avoid damage to the internal electrical components.

2.11 Be sure to read this manual to confirm the safety fully, then the program changes, commissioning, start and stop operation. If you cannot solve the problem,

please contact us.

Chapter 3: Product Introduction

3.1 A matrix switcher is a professional switching device embedded with intelligent control of high performance for the audio and video input signal synchronous switch to any output channels of audio and video.

3.2 A unique processing method is adopted, which greatly improves the switching speed of the device. Support a variety of control methods; a flexible operation switch is widely used in radio and television engineering, multimedia conference halls, large screen display works, TV teaching, command, and control centers.

3.3　Interface bandwidth 3.4Gbps (total bandwidth 10.2Gbps), support the highest resolution of 3840*2160 at 30 Hz.

3.4 Support HDCP1.4 revision, which provides outstanding security and digital content protection capabilities.

3.5　Support fast switching operation; support infrared remote control.
　　　*The input and output board support card function can be hot-swappable.

3.6 Supports basic matrix control instructions and basic matrix functions.
　　　*With the power down memory function, with power off-site protection function.

3.7 Flexible control mode, with the crystal button panel operation, but also provides 2 standard RS-232 communication interfaces and RJ45 port, compatible with a variety of environments, user-friendly and a variety of remote-control equipment with the use of:

　　　One RJ45 interfacer uses RS232, which is a serial port.
　　　One RJ45 interfacer uses TCP/IP, it is a LAN port.

3.8　Built-in International standard power.

3.9　Full metal chassis compatible with standard 19-inch cabinet.

3.10 Support user-defined matrix front panel LCD screen standby and control software LOGO.

3.11 Support HDCP can decode Blue-ray DVD and so the corresponding equipment.

Chapter 4: System Parameters

Matrix Specification	
Input numbers	4/8/12/16/20/24/28/32
Output numbers	4/8/12/16/20/24/28/32
Signal interface	HDMI\DVI\VGA\SDI\DP\AV\HDBaseT
HDMI protocol	Support HDCP1.4 and HDMI1.4,compatible with the DVI1.0
Bandwidth	3.4Gbps (total 10.2Gbps, each color 3.4Gbps)
HDMI resolution Max.	3840*2160@30Hz
DVI resolution Max.	3840*2160@30Hz
VGA resolution Max.	3840*2160@30Hz
SDI resolution Max.	3840*2160@30Hz
DP resolution Max.	3840*2160@30Hz
AV system	PAL, NTSC adaptive
HDBaseT resolution Max.	3840x2160@30Hz
Clock jitter	<0.15Tbit
Bit rise time	<0.3Tbit (20% - 80%)
Bit drop time	<0.3Tbit (20% - 80%)
Maximum transmission delay	5ns (±1ns)
Switching speed	200ns (Max.)
Signal intensity	T.M.D.S +/-0.4Vpp
Impedance	50Ω
Input EDID	EDID can read and write only for some models
The maximum input distance	3840*2160@30Hz less than 20 meters (good cable)
The maximum output distance	3840*2160@30hz less than 20 meters (good cable)
Serial port version (Standard)	RS232、Panel Key Remote
LAN port version(option)	TCP/IP、RS232、Panel key Remote
Baud rate and protocol	Baudrate: 9600, data bits: 8bits, stop: 1, no parity
RJ45 serial port	1 = TX,2 = RX,5 = GND
Power input	AC100 - 240V, 50/60hz
Temperature	Storage and use temperature: -20° ~ +70° C
humidity	Storage and use humidity:10% ~ 90%
Size	1U/2U/3U/7U with standard 19-inch box
Mean time between failures	30000hours

Chapter 5: Packaging and Panel and Keys

5.1. Matrix packing list

Name	Unit	Numbers
Matrix switcher	pcs	1
AC power cable cord	pcs	1
RS232 Serial communication cable	pcs	1
User manual	pcs	1
Data CD	pcs	1
Certificate	pcs	1
Warranty card	pcs	1

5.2. Structural representation
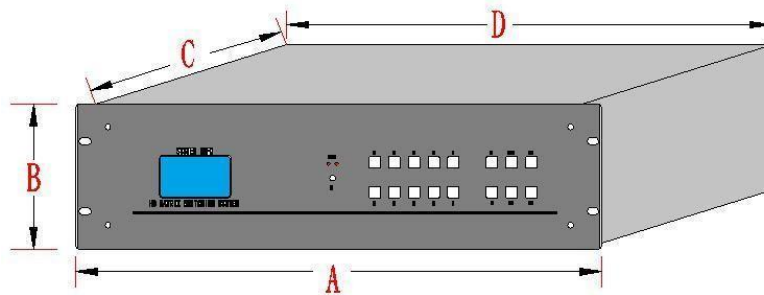
Size：

Model \ Lenth	A（mm）	B（mm）	C（mm）	D（mm）
0404/0808/0909 (Integral type)	480	44	240	440
0816/1616/1632 (Integral type)	480	88	310	440
0808(Plug type)	480	88	310	440
1616(Plug type)	480	132	320	440
3232(Plug type)	480	308	400	440
4040(Plug type)	480	308	400	440

5.3. Panel Description (16 X 16 Plug type as an example)
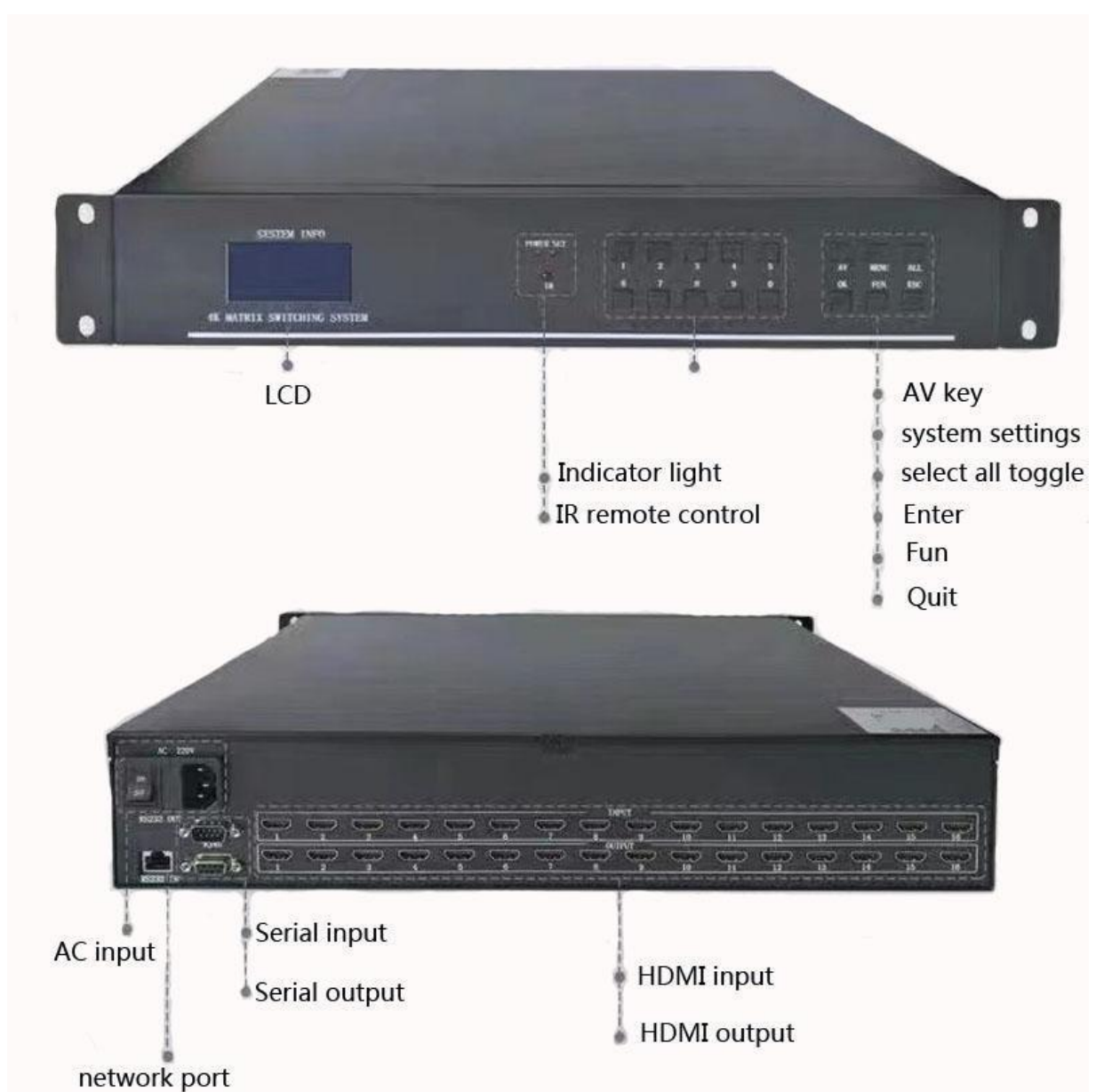
Note:

1. The machine does not have ALL keys, replaced by OK, all OK = Enter in the system.

2. The machine has no FUN key, instead of MENU, press the menu key menu of MENU, and then
press the menu of the function key.

5.4. Remote control button

Operating Instrucitons:

1、 Changing Input 2 channel to Output 5 channel

Press :   0   2   5   OK

2、 Changing Input 2 channel to Output 5 and 8 channel

Press :   0 2 5   OK

Press :   0 2 8   OK

3、 Changing Input 5 channel to ALL Output Channles

Method1   Press : 5

Method2   Press : 0   5   ALL   OK

4、 OTO function

The input and output channels correspond one to one

Chapter 6: Installation Instructions

6.1. Signal Connection

The matrix interface is divided into signal input and output interface, please use the corresponding cable to connect the input and output devices, the signal source (such as DVD, computer, etc.) output terminal matrix input device (INPUT), the matrix output (OUTPUT) connected to the Input interface of signal equipment (such as projector, TV, etc.).

6.2. RS232 Communication Interface Connection

Matrix switch provides a standard RS-232 serial communication port and RJ45 communication port, users can use a variety of remote-control equipment remote control. The RS-232 port of the matrix is a D shaped 9 pin male connector (the same as the serial port of the computer) Pin descriptions are as follows:

| Serial number	Pin	illustration
1	NC	None
2	RDX	Transmit Exchange Data（RXD）
3	TXD	Receive Exchange Data（TXD））
4	NC	None
5	GND	Ground
6	NC	None
7	NC	None
8	NC	None
9	NC	None

Attention: The matrix RS-232 port and the computer or the central control should pay attention to the TXD and RXD line sequence, specifically to consider the other device pin definition.

6.3. RJ45 for TCP/IP Control

The network matrix is supported by the TCP/IP protocol. When the matrix is connected to a switch or router or PC directly, the matrix can communicate. The premise is to keep the IP address of the matrix and the LAN to be the same segment, otherwise, the IP address of the set matrix should be entered first.

6.4. RJ45 for RS232 Control

RJ45 to RS232
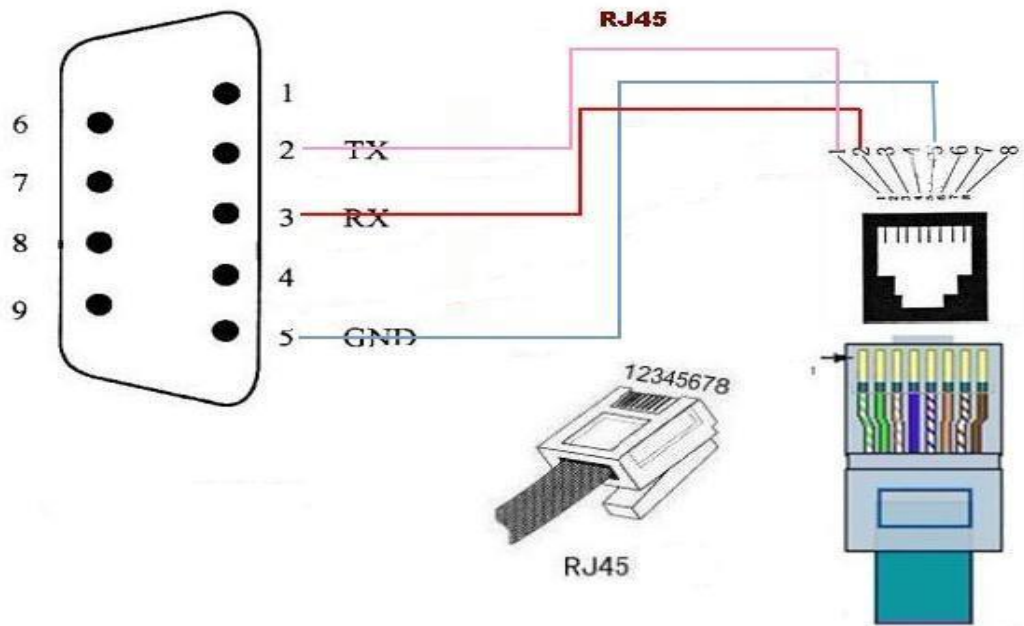
The diagram below is a schematic diagram of the connection with the computer:
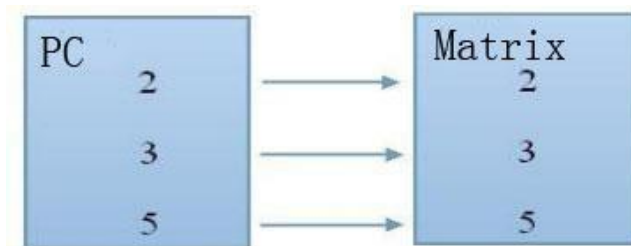
6.5. Power connection

Please connect one end of the power cord to the back of the matrix with a power supply interface of AC100-240V 50/60HZ, which connects to the 100-240V 50/60HZ AC power supply. Note that to ensure the safety and normal operation of the equipment, a single-phase three-wire AC power supply.

Chapter 7: Communication Protocol

7.1. TCP/IP LAN Control Parameter
Default IP address: 192.168.1.168

1.1.Query IP instruction: HWC

HNW192.168.1.168,6800,255.255.255.0,192.168.1.1,54.8
2.52.115.119.23

1.2.Reset Operation

instruction: HWR 1.3.

Setting up the IP

instruction: HWS

For example,　　HWS192.168.1.168.255.255.255.0.192.168.1.1

After the IP is set up, the communication of the host computer needs to be reconfigured and reconnected to normal communication control.

1.4: Port Number Support: Four 6800 / 6900 / 7000 / 7100

7.2. RS232 Serial Control Parameter

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

7.3. Communication Control Protocol

The following protocols support all types of matrices: All protocol symbols must be entered in English, and English letters must be capitalized.

Input ID	switch	Output ID1	Delimiter	Output ID2	End character
IN	V	OUT1	,	OUT2	.

For example:

1V1,2,3.

    Put the input channel 1 is switched to the output 1,2,3 channel sequentially.

    12V1,2,12,14.

Put the input channel 12 is switched to the 1,2,12,14 channel of the output channel once.

Switch an input channel to all output channels.

IDH	IDL	T	O	A	L	L
Input ID		Protocol identification				

01TOALL   Switching input channel 1 to all output channels.

12TOALL   Switching input channel 12 to all output channels.

Switch one to one

T	O	O	N	E
Protocol identification				

TOONE   Switch the matrix   input X to output X

Recall the mode.

CALL	ID
Protocol identification	MODE ID

For example,   CALL2   Recall the mode 2 of Matrix.

Save the mode.

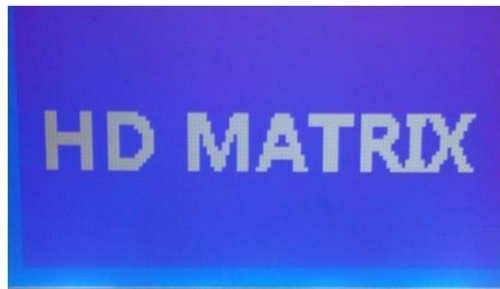| S	A	V	E	ID
Protocol identification				Model ID

For example,   SAVE2   Save the mode 2 of Matrix.

BUZON   Matrix Buzzer on

BUZOFF   Matrix Buzzer

Chapter 8: Operating Instructions

◆ Standby Image (LCD Screen)

For any state press "ESC" to return to the screen (different models, slightly different).


◆ "AV button" audio and video switch Press the AV button to enter the audio and video synchronization switch menu, as shown below; in this state, with the number keys select the input channel number and output channel number, and then press the OK key to switch. Select the "ALL" key instead of all output channels. For example, to switch the 1 input channel to all output channels, press "AV" - "01" - "ALL" - "OK".


◆ "FUN" function key in standby mode, press the "fun" button to enter the system operation menu, the menu can be stored in the scene and call function, and restore the factory settings.
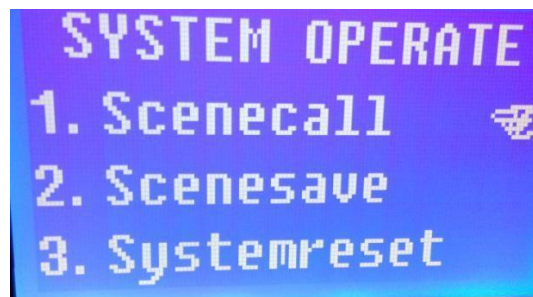
◆ For example, you can save a scene, and then call through the scene mode, selecting the save before the scene number, you can call directly, convenient, and quickly:
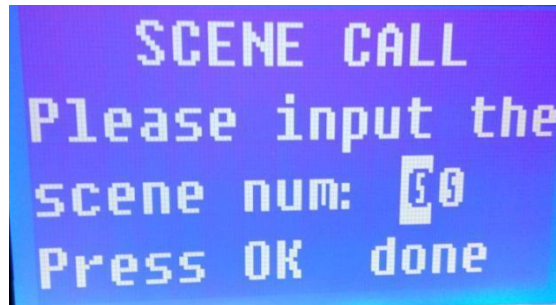
◆ "MENU" key in standby mode, press "MENU" to enter the system settings menu, the menu can be set for the buzzer switch, the identification code settings, and language switch settings:
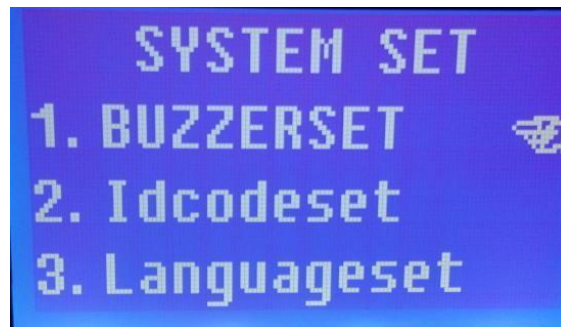

◆ For example, under this menu, press "1" to select the buzzer settings menu, and then press the "OK" button to enter the menu. In the submenu, press the "1" key to switch the state of the buzzer switch, and press "OK" to determine the settings that can be saved.
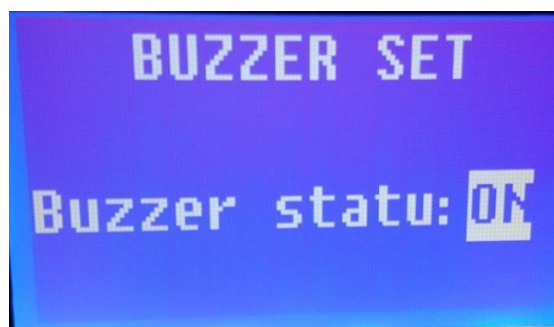
Chapter 9: Control Software

• In the flash disk attached to the packing box, the control software and the documentation of the product are stored; the user can read the manual in the flash drive.

• Copy the files in the flash disk to the PC computer of the Windows system and double-click HDMatrixcontroller.exe to enter the matrix control software.
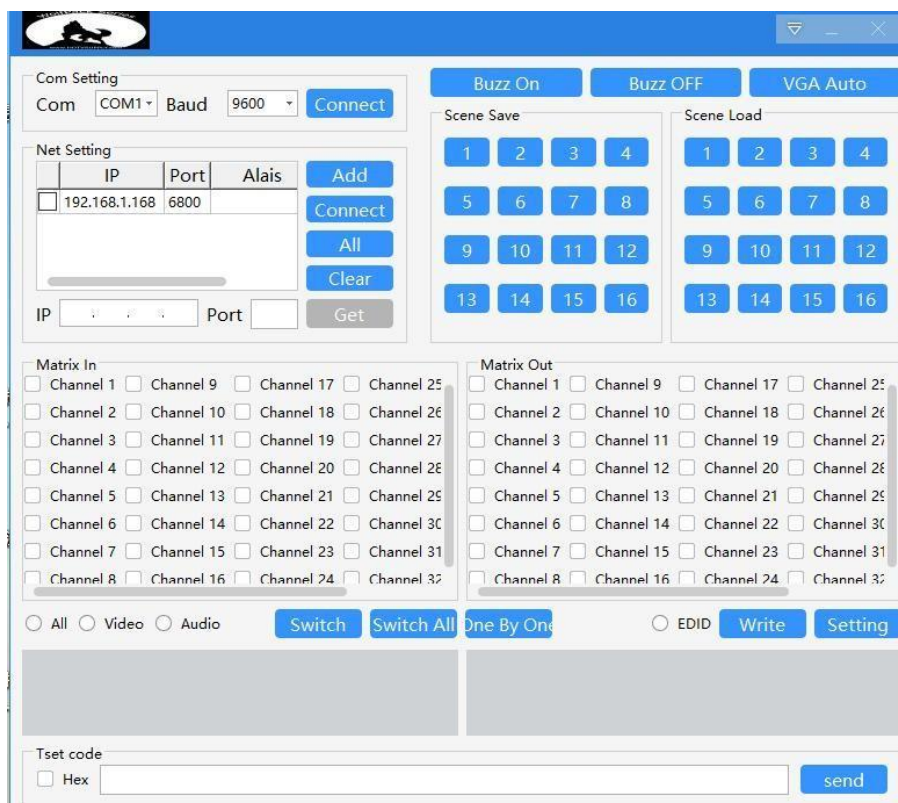

1. After confirming the serial port or network connection to the matrix, at the serial port selection point, select the serial port number needed, and click on the connection, then the connection will be successful and the communication can begin; the network version chooses the corresponding IP address to click on the connection, and the network version settings refer to the computer IP address settings.

2. Click the drop-down menu in the upper right corner of the software to set the language and ID number of the software. There is no special

definition. Please set the ID number of the matrix to 0.

3. Selecting the input channel number and output channel number and clicking on the switch can quickly complete the switch control of the matrix. By switching all of them, the input channel can be switched to all the output channels.

4. In addition, the current scenario can be saved. Next time you select the saved scenario number, click the call to restore immediately to the last saved scenario.

5. You can also rename the input and output channels and save the invocation mode.

6. Some models of EDID can support online writing, and advanced settings can set scene polling switch.

7. Change the IP address of the Matrix.

Press the right key of the mouse on the position of the IP address and click 'Setting.'
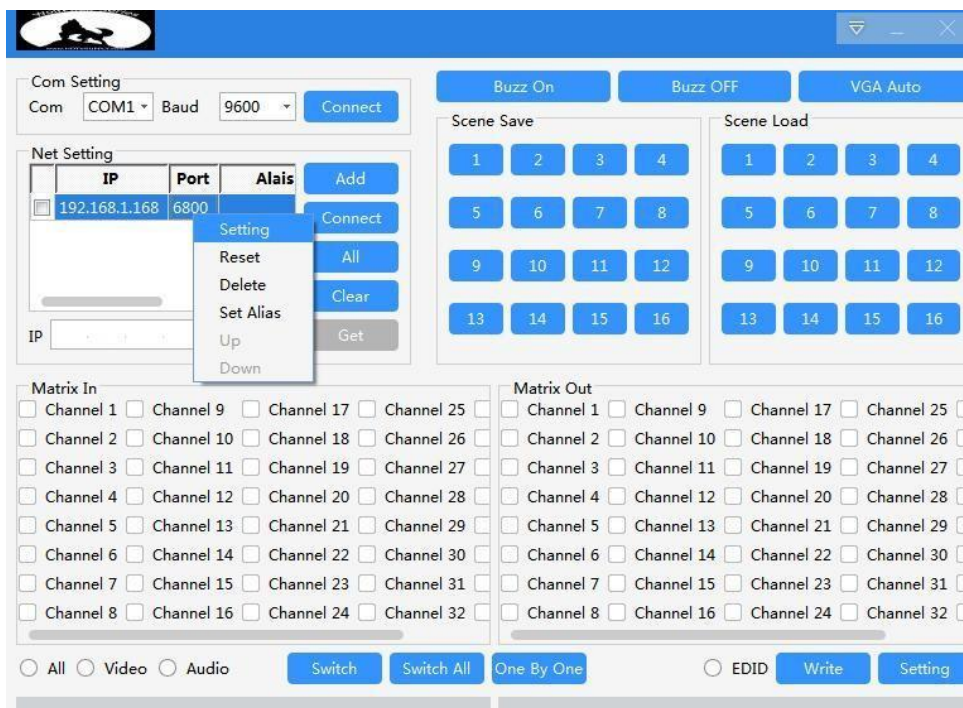
Chapter 10: Common Faults and Maintenance

◆ When the matrix peripheral image display device has ghosting, such as ghosting when the projector is not the main problem, in general, may be adjusted without the right projector or wire quality standards, with the corresponding projector button to adjust or replace the wire.

◆ When the color is lost or no video signal output, the audio and video interface may be in bad contact.

◆ When the remote control cannot control the matrix:
1. If the battery is dead, please replace the battery.
2. If the remote control is broken, please repair it.

◆ When the serial port cannot control the matrix, check whether the communication port of the control software corresponds to the serial port of the connected device.

◆ There is no corresponding image output when the matrix is switched:
1. check whether the corresponding input signal. (can be used oscilloscope or multimeter for testing) if there is no signal input, it is possible that the input line is broken or loose joints, try to replace the wire.

2. check the corresponding output signal. (can be used oscilloscope or multimeter for testing) if there is no signal output, it is possible that the output line is broken or has loose joints, try to replace the wire.

3. check whether the output port number is consistent with the controlled port number.

4. does not belong to the above three kinds of situations, and may host internal faults, please send professional maintenance.

◆ If the POWER lamp does not light, and the LCD is not displayed, the operation is not responding, please check whether the power input is good.

◆ The output image is disturbed, it is possible that the input and output devices do not have good grounding.

◆ When pulling, and inserting audio video interface, if you feel there is a clear static, it is possible that the equipment power supply ground wire is not a good grounding, according to the correct method of grounding, otherwise easy to damage the host, shorten the life of the mainframe.

◆ LCD display is normal, the communication port has a return code, but no image output or no audio output.

1. The audio and video interface may be loose and can be replaced.
2. A short circuit may be connected, try to replace the wire.
3. possible wiring break, try to replace the wire.

◆ When buttons, communications, and remote control cannot be controlled, the host may have been damaged inside, please send for professional maintenance

Chapter 11: Warranty Description

◆ Please identify the user, from the date of purchase, who can enjoy a year of warranty service. In addition to postal, transportation, and other miscellaneous charges, warranty services are provided free of charge.

◆ In the following circumstances, the company has the right to refuse to provide free warranty service, but can provide charge maintenance services:

1. Cannot provide the relevant purchase documents or product purchase certificate if the contents of the record do not match the product.

2. Products damaged due to bad weather, natural disasters caused by force majeure.

3. The product does not operate according to the installation instructions provided by the company to cause human damage.

4. Products without the authorization of the company to repair the damage caused by unauthorized.

5. Product failure and damage due to improper storage.

6. The appearance of the artificial scratch, break, stain, damage, etc.

◆ In addition: in addition to the product itself outside accessories and packaging, are not within the scope of the warranty; this warranty does not include transportation costs and provide door-to-door service; after the product packaging has been opened due to damage and damage and related accessories and the loss will lead to the value of the products have discounts, so businesses should pay attention to the return of the product, and due to the return of the packaging cost and the cost of parts, provided by the return party.