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Professional matrix switching system

WolfPackLite Matrix Switcher User manual

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Before using the product, please carefully read this manual

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## I. Foreword

- Welcome to use our product. Thank you for supporting our product! For the security of you and the equipment, please be sure to carefully read the product manual before using the equipment.
- Please carefully protect the frangibility label pasted on the product, as it is the warranty voucher.
- This manual only serves as the direction for operation instead of maintenance service. Additional remarks will be provided if the functions or relate parameters change in future.
- Please first read this manual if any doubt in using the product. The equipment operation is described in detail in the manual. Please follow the specification in the book. Please contact us if you still have questions, and we will give you a satisfactory answer as soon as possible.
- The edition of the manual is subject to change without notice!

## II. Notices

- Please observe the following notices in installing, using and maintaining the equipment to guarantee reliable use of equipment and personnel security.
- Please don't use the product in the following occasions: the occasions with dust, oil smoke, conductible dust, active gases, flammable gases, the occasions exposed to high temperature, dew and rain and wind, the occasions with vibration and impact. The electroshock, fire and poor operation will also result in damage to the product.
- Shall guarantee no foreign matters on the ventilation face like packaging materials such as the contact paper after the product is installed, as this may lead to unsmooth rejection of heat to result in fire, fault and poor operation in running.
- Shall avoid connecting wire, plugging and unplugging the cable, as this may cause electroshock or damage to the circuit.
- The installation and wiring must be firm and reliable, lest the poor contact should result in poor operation.
- For the application occasions with severe interference, the input and output cables of high-frequency signal shall be shield cables to improve the system's interference free performance. The installation and wiring, etc. shall not be performed until the external power supply is all cut off, as this may cause electric shock or damage to the equipment.
- The product is earthed via the earthed conductor of powerline. To avoid the electroshock, the earthed conductor must be connected with the ground. Please be sure to correctly earth the product before connecting the input end or output end of the product.
- Please don't touch the terminal when the product is energized, lest electroshock or poor operation be caused.

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- Don't clean the product or tighten the terminal until the power is turned off, as electric shock may be caused by live operation.
  - Don't connect or dismantle the communication signal cable, connect or dismantle the cable of expansion module or control unit until the power is turned off, as this may cause damage to or poor operation of the equipment.
  - Don't dismantle the equipment lest the interior electric elements be damaged.
  - Be sure to read up this manual and fully confirm the security before change, pilot run, stain and stopping of the program. Please contact us in case of insoluble problems.

## Product overview

### III. Product overview

- The matrix switcher is a high-performance professional switching system with built-in intelligent control to synchronously switch the channels of audio and video input signals to any output channel of the audio and video.
- It adopts a unique processing mode to significantly raise the switching speed of the equipment. Supporting manifold control modes, it can flexibly operate the switcher, and is extensively applied to radiated television engineering, multimedia meeting hall, large screen display engineering, video lecturing, command control center, etc.
- Band width of interface is 2.25Gbps (overall bandwidth is 12Gbps). The maximal resolution supported is  
HDCP:4096x2160@30HZ\_24Bit ; HDTV:4096x2160@30HZ\_24Bit

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- Support HDCP1.4 revised version and provide outstanding protective capability for security and digital content.
  - Support rapid switching and infrared remote control
  - The input output board card supports the function of plugging in card, and you can hot plug on site.
  - Support the basic matrix control instruction and basic matrix function.
  - The memory function in case of power failure, and the function of site protection in case of power breakdown
  - Flexible control mode with key panel and remote control as well as two channels of standard RS-232 communication interface and RJ45 port, to be compatible with various environments and facilitate the user's use in conjunction with various remote controlled devices.
  - Built-in international universal power
  - Compatible with all-metal case of standard inch cabinet
  - Support user customization of standby LOGO on the matrix front panel LCD (for the matrix with model of LCD panel) and control software.
  - Support HDCP, able to connect to corresponding equipment such as Blu-ray DVD, etc.



#### IV. Technical parameters of system

Technical parameters of slot-type HD matrix system (support mixed insertion)	
Input channel number	4/8/12/16/20/24/28/32
Output channel number	4/8/12/16/20/24/28/32
Input board card (sheet)	1/2/3/4/5/6/7/8
Output board card (sheet)	1/2/3/4/5/6/7/8
Signal interface	HDMI- D, DVI-D, VGA
Protocol	Support HDCP1.4 protocol, HDMI 1.4 protocol, compatible with DVI 1.0 protocol
Band width of interface	2.25Gbps (12Gbps in total, 2.25Gbps for each color)
Max supported resolution	HDCP:1920x1200P@60HZ_24Bit 4096x2160@30HZ_24Bit HDTV:1920x1080P@60HZ_36Bit 4096x2160@30HZ_24Bit
Clock jitter	<0.15Tbit
Rise time	<0.3Tbit (20%-80%)
Fall time	<0.3Tbit (20%-80%)
Max transmission delay	5ns (±1ns)
Signal intensity	T.M.D.S +/-0.4Vpp
Impedance	50 oh
Input EDID	EDID is erasable on site
Recommended maximal transmission range	Smaller than 30m, recommend HDMI to CATx Extenders - 4096x2160@_30hz
Recommended maximum output distance	Smaller than 20m, recommend HDMI to CATx Extenders - 4096x2160@_30hz

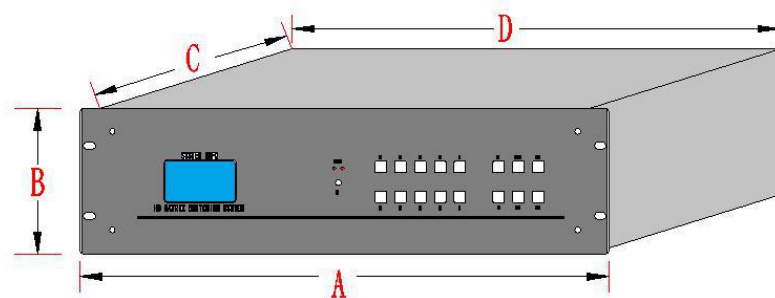
Control type	Serial port control, keys, remote controller
Serial control interface	RS-232, 9-pin male/female D-type interface
Baud rate and protocol	Baud rate: 9600, data bit:8-bit, stop bit:1, no parity bit
Definition of serial control port	2 = TX,3 = RX,5 = GND
Power	International self-adaptive power
Temperature	Storage and service temperature: - 20°C-70°C
Humidity	Storage and service humidity:10%-90%
Case size	2U\3.5U\7U standard case
Product weight	7.85kg\13.5KG\22KG
Mean time between failure	30000hs

## V. Package, panel and keys

### 1. Package list of matrix system

Name	Unit	Quantity
Matrix switcher	Set	1
220V powerline	Piece	1
RS232 serial port communication line	Piece	1
Service manual	Piece	1
Material disk	Piece	1
Certificate of conformity	Piece	1
Warranty card	Piece	1

### 2. Schematic diagram of matrix structure and correspondence table of matrix size



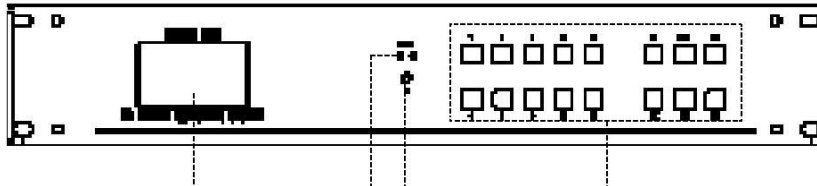
### Correspondence table of matrix size

Type	A(mm)	B(mm)	C(mm)	D(mm)
0808	482	83	315	440



3. Description of front and rear panel of matrix (Take HDMI 08x08 for example)

- Front panel of matrix (HDMI08X08)



①

② ③

④

- Rear panel of matrix (HDMI08X08)



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⑤ ⑥ ⑦ ⑧

⑨

⑩

① LCD

② POWER indicator

③ IR Infrared receive window

④ Keys of front panel

⑤ AC Outlet

⑥ RS-232 Serial port control output port

⑦ RS-232 Serial port control input port

⑧ RJ45 Serial port control input port

⑨ HDMI input channel

⑩ HDMI output channel

4. Description for remote controller keys



Name	Function
SW/SP	Switch between audio and video
INPUT	System operation
MENU	System setting
EXIT	Exit
OK	Confirm
AUTO	All channels
0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9

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## Installation and description

### VI. Installation description

#### 1. Signal connection

The interfaces of matrix are divided into signal input and output interfaces. The INPUT part is the signal input end, and the OUTPUT part is the signal output end. Please use corresponding wire cable to connect the input and output equipment. Connect the output end of source equipment (such as DVC, computer, etc.) to the input end of matrix (INPUT) and connect the matrix output end (OUTPUT) to the input interface of signal use equipment (such as projector, TV set, etc.).

#### 2. Connection of RS232 communication interface

The matrix switcher provides standard RS-232 COM port and RJ45 communication port. The user can use various remote-control devices for remote control. The RS-232 port of matrix is D-shaped 9-pin male pin end (The definition of transmitting and receiving is the same with that of the serial port of computer). The description of pin is as follows:

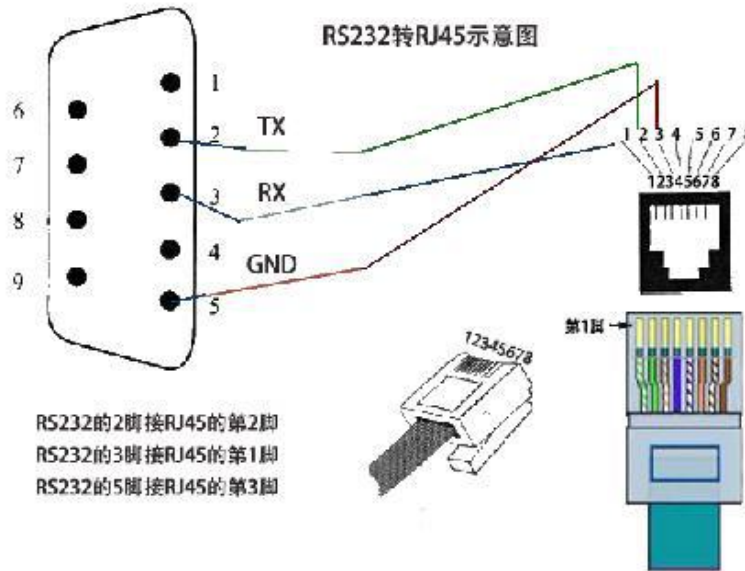
Pin No.	Pin	Description
1	NC	Not connected
2	RXD	Signal receiving end, receiving end of matrix control signal (RXD)
3	TXD	Signal transmitting end, transmitting end of matrix control signal (TXD)
4	NC	Not connected
5	GND	Ground
6	NC	Not connected
7	NC	Not connected
8	NC	Not connected
9	NC	Not connected

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Special notice: Pay attention to the line order of TXD and RXD when the RS-232 port of matrix is connected to the computer or central control room. Consider the definition of pin of the counterpart's equipment.

## Installation and description

### 3. Schematic diagram for serial port to RJ45



### Schematic diagram for RS232 to RJ45

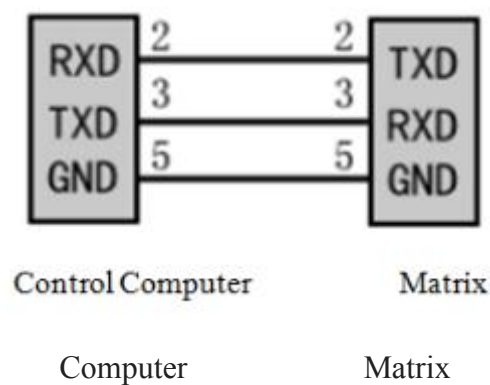
Pin 2 of RS232 connects to pin 2 of RJ45

Pin 3 of RS232 connects to pin 1 of RJ45

Pin 5 of RS232 connects to pin 3 of RJ45

Pin 1

The figure below is the schematic diagram for connection to computer.



### 4. Power connection

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Please connect the female end of the power line to the power interface labeled AC220V 50 / 60HZ on the matrix back and connect the male end to the 117/220V 50 / 60HZ AC supply. Note: To guarantee the security and normal operation of the equipment, use single-phase three-wire AC supply with protective grounding.

## VII. RS232 serial communication protocol

### 1. Control parameter

When serial port control is adopted, please set the baud rate as 9600, set 8-bit data bit, 1-bit stop bit, and no check bit.

### 2. Communication control protocol

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

- Change audio and video simultaneously: "Input channel No. V Output channel No.", for example, the code is "2V15" to switch the channel 2 input to channel 15 output.
- Switch a channel of input audio and video to all outputs: "Input channel No. V TOALL.", for example, the code is "2TOALL" to switch the channel 2 audio and video input to all outputs.
- Save mode. To save a mode with mode No. of N, the code is "SAVEN". For example, the code is "SAVE2" to save the mode with mode No. of 2.
- Call mode. To call a mode with mode No. of N, the code is "CALLN". For example, the code is "CALL2" to call the saved mode with mode No. of 2.
- Switching between Chinese and English: The code is "LANGC" to switch the system language to Chinese, and "LANGE" to switch the system language to English.
- Restore factory defaults. The code is "RESET" to restore the system to factory settings.
- Buzzer switch. The code is "BUZON" to turn on the buzzer of equipment, and "BUZOFF" to turn off the buzzer.

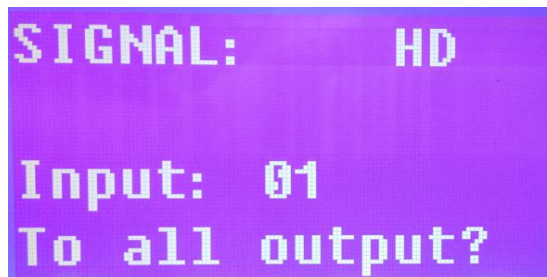
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- Equipment identification code: The code is "IDN" to change the machine cognition code of equipment. For example, the code is "ID2" to change the equipment identification code into 2.

## VIII. Operation instruction

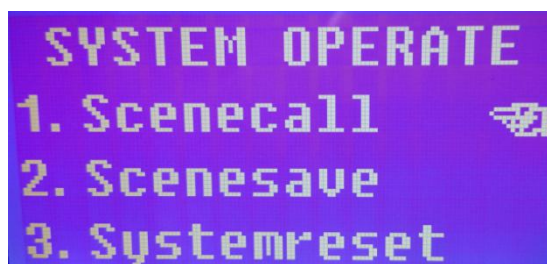
- Standby picture (LCD): Press "ESC" to return to this picture in any state (somewhat different for different models)



- AV key Switch key for audio and video: Press AV key to enter the menu of synchronous switching of audio and video, as shown below: In this state, press the digital keys to select the input channel No. and output channel No., then press the OK key to switch. Selecting "ALL" represents all output channels. For example, to switch the input channel 1 to all the output channels, shall press AV-01-ALL-OK in turn.



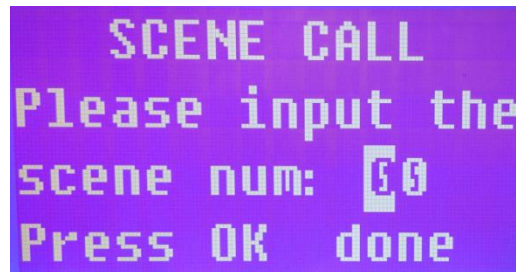
- FUN Function key: Press the "Fun" key in the standby state to enter the system operation menu, which menu can be used to save the scene and call the functions as well as restore the factory defaults.



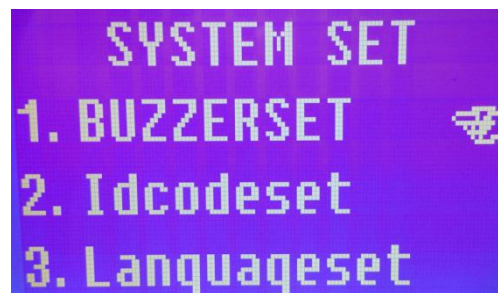
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## Operation instruction

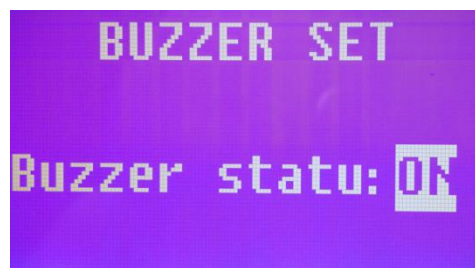
For example, you can save a scene, then select the previously saved scene No. via calling the scene mode to directly call it, convenient and rapid.



- MENU key: Press the "MENU" key in the standby state to enter the system setting menu, which menu can be used to set the buzzer switch, identification code and switch between languages.



For example, in this menu, press "1" to select the buzzer setting menu, then press the "OK" key to enter the menu. In the submenu, press "1" key to switch the state of buzzer switch, press "OK" key to confirm to save the setting.





## IX. Common faults and maintenance

- When image in the peripheral display device connected to the matrix is double, such as projector, generally the problem is not with the host, but may be caused by the failure to correctly adjust the projector or the not up-to-standard line materials. Now just adjust the corresponding buttons of projector or change line material.
- The color loss or no video signal output may be due to poor contact of audio and video interfaces.
- When the remote controller cannot control the matrix:
  1. The battery maybe has run out. Please change the battery.
  2. Maybe the remote controller fails, please mend it.
- When the serial port cannot control the matrix, check whether the communication port set by the control software corresponds to the serial port of connected equipment, and check whether the computer communication port is in good condition.
- No corresponding image output in switching of matrix.
  1. Check whether the corresponding input end has signal (can use oscillograph or multimeter for detection). If no signal input, maybe the input line is broken or joint becomes loose, just change the line.
  2. Check whether the corresponding output end has signal (can use oscillograph or multimeter for detection). If no signal output, maybe the output line is broken or joint becomes loose, just change the line.
- Check whether the output port No. is consistent with the controlled port No.

If the above three situations are not the cases, the problem may be the internal fault of host. Please send it to the professional personnel for maintenance.

- If the POWER indicator is not ON, and the LCD displays nothing, operation is not irresponsive, please check whether the power input of the equipment is in good contact.

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- The output image is interfered. Maybe this is caused by no good earthing of the input and output equipment.
  - If you feel obvious static in plugging and unplugging the audio and video interfaces, maybe the earth wire of equipment power is not earthed well. Please earth it as per correct method, or the host may be damaged and service life may be shortened.
  - LCD displays normally and communication port has code returned, yet there is not image output or audio output.
    1. The audio and video interfaces become loose. Just change them.
    2. The connection wire is short-circuited. Just change it.
    3. The connection wire is broken. Just change it.
    4. The host interior may have been damaged when panel keys, communication port and remote controller of the matrix are beyond control. Please send it to professional personnel for service.

## X. Warranty

Please know clearly that the user enjoys five-year warranty service from the date of purchase for free except the incidental expenses such as the postal expenses and transportation expenses.

Our company is entitled to refuse to provide free warranty service in the following cases, yet can provide charged maintenance service:

1. Failure to provide related purchase vouchers or the content recorded in the purchase voucher is not consistent with the product.
2. The product is damaged due to bad weather, nature or other forces majeure
3. Artificial damage caused by failure to operate the equipment as per the installation direction provided by the company.
4. The damage to the product due to repair not authorized by our company. Product failure and damage due to improper storage. The artificial scratch, breakage, stain, damage, etc. on the product appearance.

Note: The appurtenances and package, etc. otherwise than the product itself are not within the scope of warranty. This warranty excludes the transportation expenses and provides no door-to-door service. The product value will be reduced due to unsealing of and damage to the product package and the damage to or loss of related appurtenances, so those wanting to return goods please notice that the packaging expenses and appurtenance expenses caused by returning of goods shall be assumed by the returning party.

## XI. Control software of matrix

- In the disk in the product packing box are stored the control software and the direction manual for the product. Just place the disk into the DVD CD-ROM to read the document.
  - Double-click the control software operation instruction to decompress it to obtain the control software of matrix V1.0 to enter the software.
1. After confirming the serial port is connected to the matrix, select the needed serial port No. at the selection place of serial port, click "Connect" to successfully connect it before starting communication.
  2. Select the input channel No. and output channel No., click "Switch" to rapidly complete the switchover control of matrix. Switching all can switch the input channel to all the output channels.
  3. In addition, the current scene can be saved to be selected next time. Click "Call" to immediately restore the scene saved last time.

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## Control software

- Change of software title

Double-click the .ini file named "MWS\_ Cfg" in the file folder of the control software. Wherein, Title = matrix control system V1.0, just change the rear letters into the desired title to finish changing.

- Change of LOGO picture of software

Double-click the file folder named "USERLOGO" in the file folder of the control software, replace the picture named "default.jpg" to finish changing of LOGO picture for the software.

## XII. Appendices

Pictures of the matrices

- Picture for 8-input and 8-output HDMI



- Picture for 16-input and 16-output HDMI



- Picture for the input and output cards of HDMI



## Appendices

- Real picture for the input and output cards of DVI



- Real picture for the mixed insertion input card of VGA



- Real picture for the input and output cards of seamless switching





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Thank you for using our WolfPack Product!

Please contact us directly for more products!

HDTV Supply, Inc

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