VISSONIC

VIS-PHD1616
4K2K HDMI 16x16 Matrix Switcher

User Manual
V1.0 Version

Content

Important note

⚠ Warning

In order to ensure the reliable performance of the equipment and the safety of the user, please observe the following matters during the process of installation, use and maintenance:

◆Please do not use this product in the following places: the place of dust, soot and electric conductivity dust, corrosive gas, combustible gas; the place exposed to high temperature, condensation, wind and rain; the occasion of vibration and impact. Electric shock, fire, wrong operation can lead to damage and deterioration to the product, either;

◆In processing the screw holes and wiring, make sure that metal scraps and wire head will not fall into the shaft of controller, as it could cause a fire, fault, or incorrect operation;

◆When the installation work is over, it should be assured there is nothing on the ventilated face, including packaging items like dust paper. Otherwise, this may cause a fire, fault, incorrect operation for the cooling is not free;

◆Should avoid wiring and inserting cable plug in charged state, otherwise it is easy to cause the shock, or electrical damage;

◆The installation and wiring should be strong and reliable, contact undesirable may lead to false action;

◆For a serious interference in applications, should choose shield cable as the high frequency signal input or output cable, so as to improve the anti-jamming ability of the system.

Attention in the wiring

◆Only after cutting down all external power source, can install, wiring operation begin, or it may cause electric shock or equipment damage;

◆This product grounds by the grounding wires .To avoid electric shocks, grounding wires and the earth must be linked together. Before the connection of input or output terminal, please make sure this product is correctly grounded;

◆Immediately remove all other things after the wiring installation. Please cover the terminals of the products cover before electrification so as to avoid cause electric shock.

Matters needing attention during operation and maintenance:

◆Please do not touch terminals in a current state, or it may cause a shock, incorrect

operation;

◆Please do cleaning and terminal tighten work after turning off the power supply. These

operations can lead to electric shock in a current

state;

◆Please do the connection or dismantle work of the communication signal cable , the expansion

module cable or control unit cable after turning

off the power supply, or it may cause damage to the equipment, incorrect operation;

◆Please do not dismantle the equipment, avoid damaging the internal electrical component;

◆Should be sure to read the manual, fully confirm the safety, only after that can do program

changes, commissioning, start and stop operation.

Matters needing attention in discarding product:

◆Electrolytic explosion: the burning of electrolytic capacitor on circuit boards may lead to

explosion;

◆Please collect and process according to the classification, do not put into life garbage;

◆Please process it as industrial waste, or according to the local environmental protection

regulations.

1 Product Overview

1.1 Product Overview

VIS-PHD1616 HDMI matrix is professional switcher routs UHD 4Kx2K HDMI signals from 16 inputs to 16 outputs in need. It support 3D video, HDCP1.4,HDMI1.4 ,4K at 30Hz and 16 bit color. The control way is included Rs232,TCP/IP and front panel. It can be widely used in command control center, multi-screen systems, conference room, high definition medical or education teaching etc.

1.2 Features

◆ High speed switching

◆ Resolution is up to 4Kx2K at 30Hz.

◆ Support 3D video

◆ Support HDMI1.4.

◆ Control way is front panel,RS-232,TCP/IP.

◆ EDID reading function to fix any compatible problems.

◆   Built-in varied of control protocols to work with control system, like AMX,CRESTRON,VISSONIC.

◆ The firmware can be updated by the TCP/IP and be convenient for remote support and OEM the special features.

◆ Input distance is up to 30m(98 feet)

◆ ；Powerful memory support to preset and call switching mode. With power-down memory function, with power-off site protection;

◆ 2U standard housing with rack-mounting design

1.3 Specification

| Model	VIS-PHD1616
Specification	Input/output support 16 channels
Input	HDMI

Output	HDMI
Control way	Front panel, RS-232, TCP/IP
Resolution	Up to 4k x 2k（4096×2160 ）
HDMI version	HDMI 1.4，Support 3D TV
HDCP	Compliant to HDCP 1.4
Hot plug and play	Support
Input cable	Up to 30m (98 feet)
Output cable	Up to 15m (50 feet)
HDMI input/output interface	Type A, 19 pin, female
Power supply	110~220 VAC
Environment	Storage and Work Temperature: -20°~+70°C; humidity:10%~90%
Weight	7KG
Consumption	20W
Dimension (WxDxH)	2U（440mmx333mmx88mm ）
Warranty	3 years

1.4 Connection Diagram
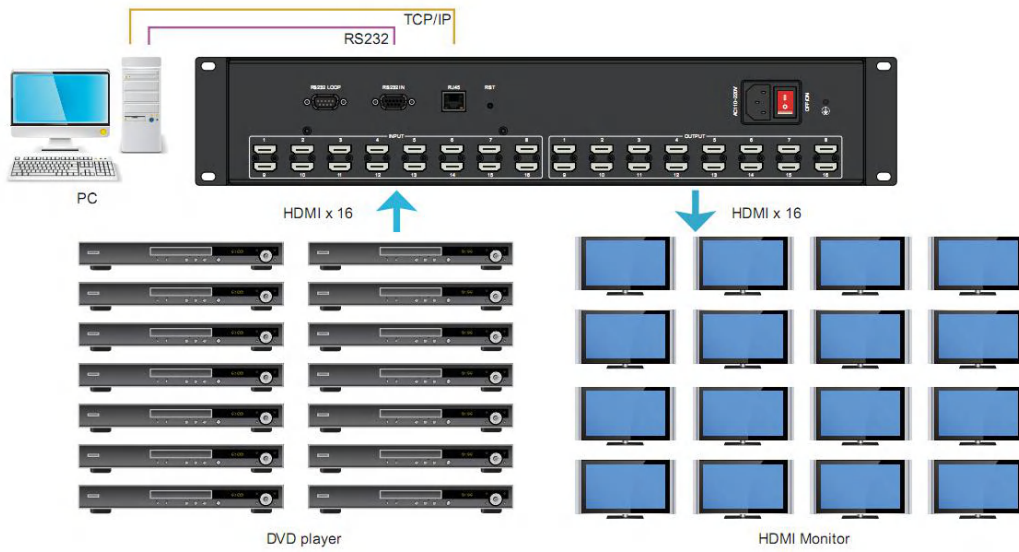
2 Hardware

2.1 Front panel introduction
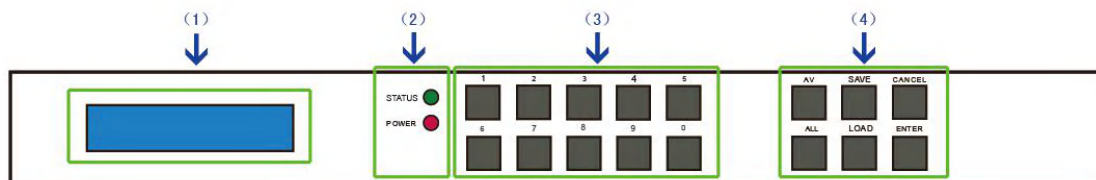
(1)　LCD display: Display the button inputs and switching status.

(2)　POWER：　Power on/off indicator

　　STATUS：　The indicator is flashing, while the command is executing and. After the command is executed, the indicator is constantly on.

(3)　Number button 0 to 9

(4)　Function buttons. Description as bellowing,

AV	Switching button to divide the input and output number
ALL	Switch the input to all output
SAVE	Save the current status and combine with number button
LOAD	Load the status and combine with number button
CANCEL	Cancel the operation
ENTER	Confirm the operation

2.1.1 Display format on the LCD

```
IN    1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
OUT   1 2 3 4 5 6 7 8 9 A B C D E F G
```

As above picture, the every two number is a channel, IN mean input channel, OUT mean output channel.IN row will change according to the switching. The OUT row is fixed number.

2.1.2 Front panel operation.

1、one input to one output switch

For example, input 3 switch to output 4, and we need to press the buttons as bellowing,

"3"+"AV" + "4"+"ENTER"（LCD display as bellow picture）；

```
I N     1 1 1 3 1 1 1 1 1 1 1 1 1 1 1 1
O U T   1 2 3 4 5 6 7 8 9 A B C D E F G
```

2、one input to all output channel

For example, switch input 2 to all output, we need to press the buttons as bellowing,

"2"+"AV"+"ALL"+"ENTER"（LCD display as bellow picture）

```
I N     2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
O U T   1 2 3 4 5 6 7 8 9 A B C D E F G
```
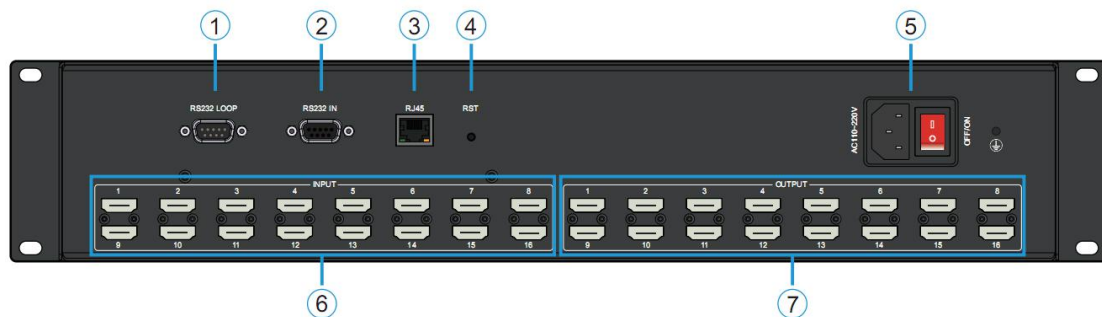
3、Save and Load the status

Save the current input and output status, press the button as ： "number" + "SAVE"

Call the status saved before, press the button as： "number" + "LOAD"

Noted: The matrix can save 9 status (number is 1 to 9)

2.2Rear panel introduction

（1）Local RS232 loop out for daisy chain connection of multi matrix.

（2）RS-232 serial port for control

（3）TCP/IP control port

（4）Reset button

（5）Power supply jack

（6）HDMI input

（7）HDMI output

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3 Control Way

3.1 RS232 Control

The matrix provide the standard RS232 serial port. The user can control the matrix by PC or other controller.

The matrix also provide the RS-232 loop out to transfer the command to other peripherals
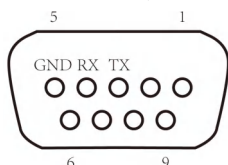
Serial port default setting:

Bit rate：9600 ， Data bit：8 bits ， Stop bit：1 ，No parity bit

RS232 IN port（Connect to the PC）PIN defined as bellowing,
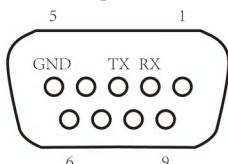
Pin	Signal	Statement
1	-	-
2	TXD	RS-232 protocol，PC send the data
3	RXD	RS-232 protocol, PC receive data.
4	-	-
5	GND	Ground
6	-	-
7	-	-
8	-	-
9	-	-

RS232 LOOP Port (connect to next matrix) pin defined as bellowing,

Pin	Signal	Statement
1	-	-
2	-	-
3	RXD	RS-232 protocol, PC receive data.
4	TXD	RS-232 protocol，PC send the data
5	GND	Ground
6	-	-
7	-	-
8	-	-
9	-	-

RS232 Connection

Link the HDMI matrix to host control computer by using RS-232 cable, when connection is finished, you can control the matrix with the instructions we provided in the following chapter.
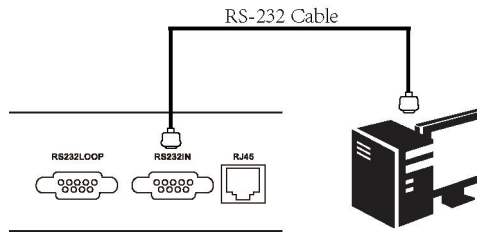
3.2 RJ45 TCP/IP Control

The network port is based on the TCP/IP Network communication protocol and apply the remote control by Ethernet. The remote user can control the local equipment by Ethernet.
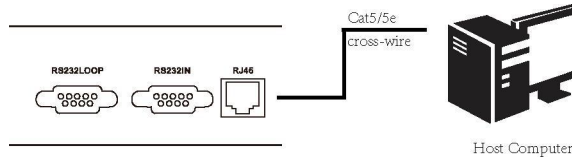
TCP/IP port default setting:

| Port no.	1030
IP add.	192.168.0.188 （Static IP; While connecting to routing, the matrix get the dynamic IP. ）
Subnet Mask	255.255.255.0
Gateway	192.168.0.1

RJ45 two connection ways

1） Cross-wire connection

Directly connect the matrix to host computer by using Cat5/5e cross-wire.

2） Straight wire connection

Connect the matrix to router or switch by using Cat5/5e straight link wire.
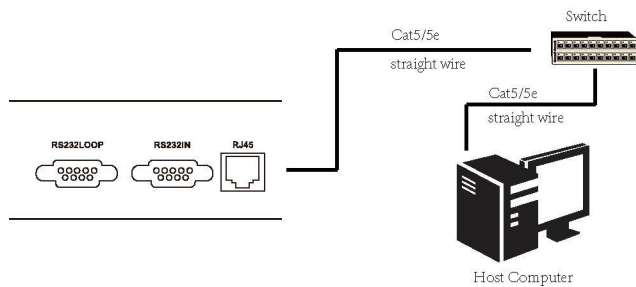
Wire line order

In this system, the CAT5/5e cable is used to connect the matrix to network control equipment, each end of the line is fixed with the RJ-45 connector (commonly known as the crystal head). The standard line order is not random, the purpose is to ensure the symmetry of the cable connector layout, so that the interference between the cable and the cable can be offset. Generally, Cat5/5e cable has four twisted pairs which are marked by different colors.
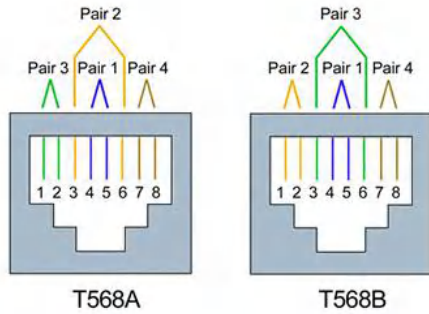


EIA/TIA 568B and EIA/TIA 568A standard:

T568A standard							
1	2	3	4	5	6	7	8
white green	green	white orange	blue	white blue	orange	white brown	brown
T568B standard							
1	2	3	4	5	6	7	8
white orange	orange	white green	blue	white blue	green	white brown	brown

Straight wire connection：both ends use T568B standard.

Cross-wire connection：one end use T568A standard, one end use T568B standard.
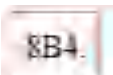
4　Software

4.1 Switch
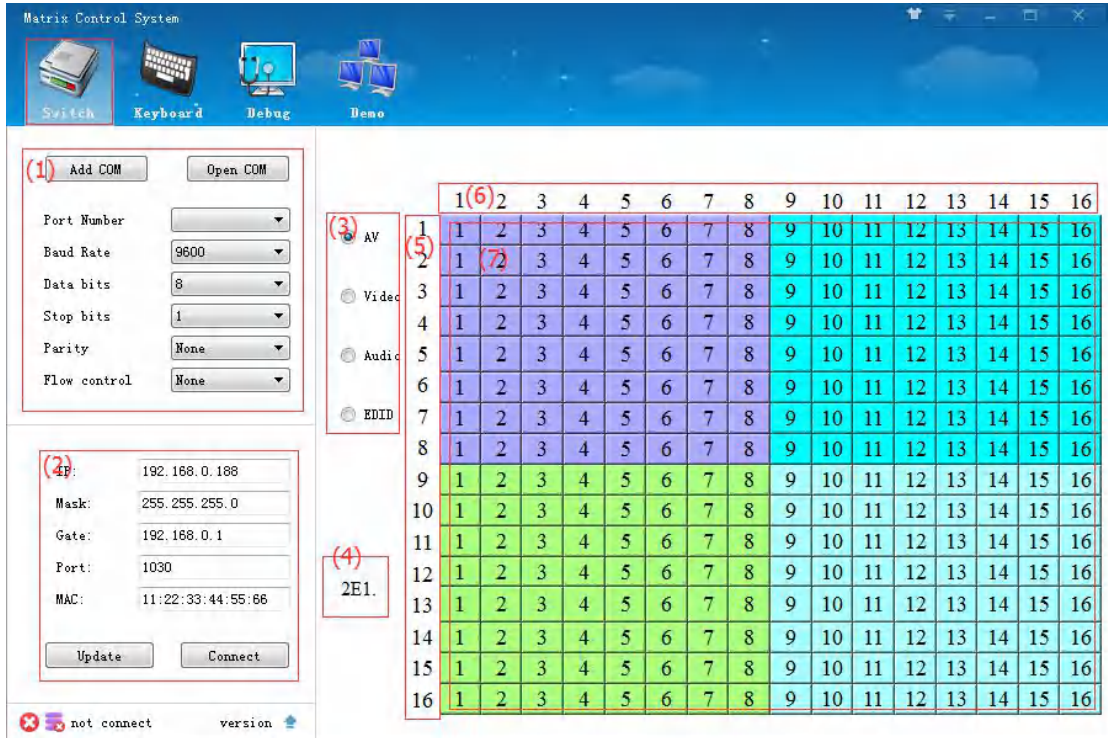
(1) Connect to the matrix switcher by RS232.

(2) Connect to the matrix switcher by TCP/IP

(3) Select your operation,

　"AV" means switching audio and video

"Video" means switching video

"Audio" means switching audio

"EDID" means read the EDID from input to output

(4) Display executing the command

(5) Input channel number

(6) Output channel number

(7) Press the button to switch/EDID from input to output

For example,

We switch audio/video from input 8 to output 4.

Then we select the ＿＿＿＿＿ and press the button ＿＿ as bellowing picture. The video & audio will

switch from input 8 to output 4, as the command ＿＿＿ .

4.2 Keyboard

We get the same function as the front panel on the software.

(1) Select your operation "Video","AV","Audio", press input (Up zone) and outputs (down zone) to switch the signal. Select "EDID" to read the input EDID to outputs. Select "Reboot MATRIX" to confirm/cancel reboot the matrix switcher.

(2) Select the operation "All" and press the button number N ("1" to "16") to switch the input N to all output.

Select the operation "THROUGH" and press the button number N ("1" to "16") to switch the input N to corresponding output N.

Select the operation "CLOSE" and press the button number N ("1" to "16") to output N.

(3) Select the operation "LOAD" and press the button number N ("1" to "9") to switch the preset status N.
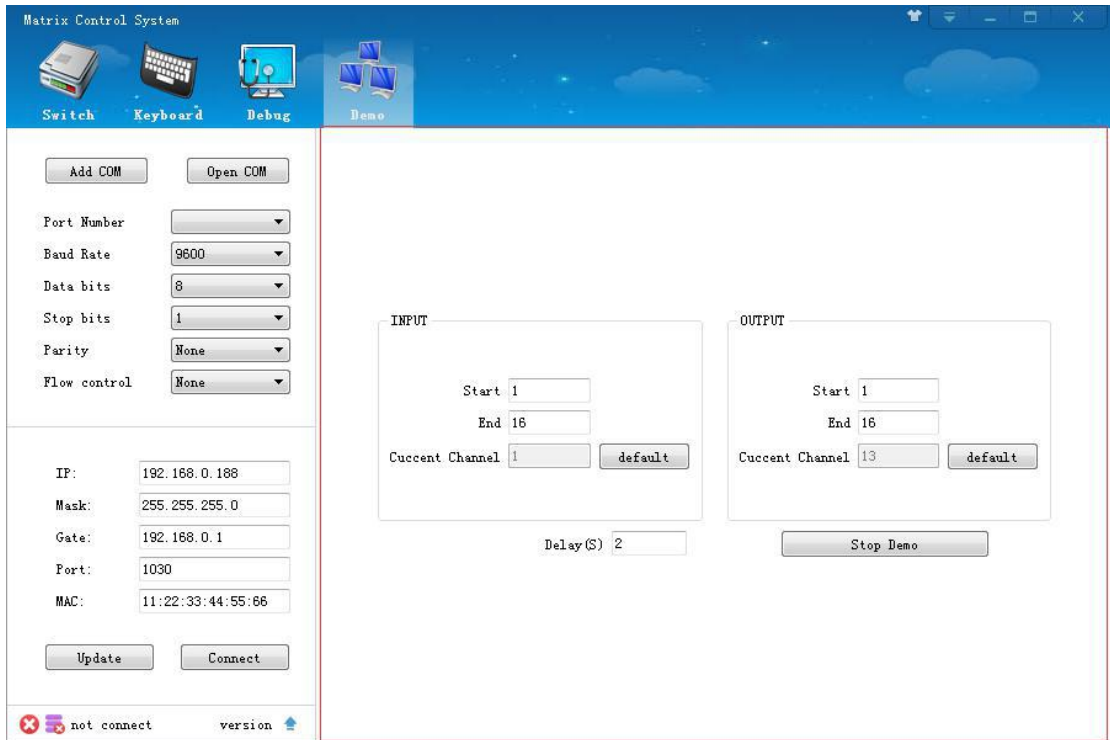
Select the operation "SAVE" and press the button number N ("1" to "9") to save the current status to preset status N.
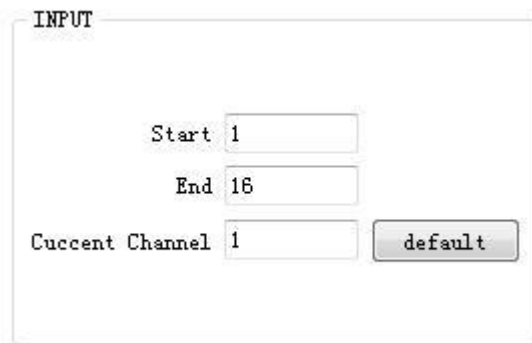
4.3 Debug
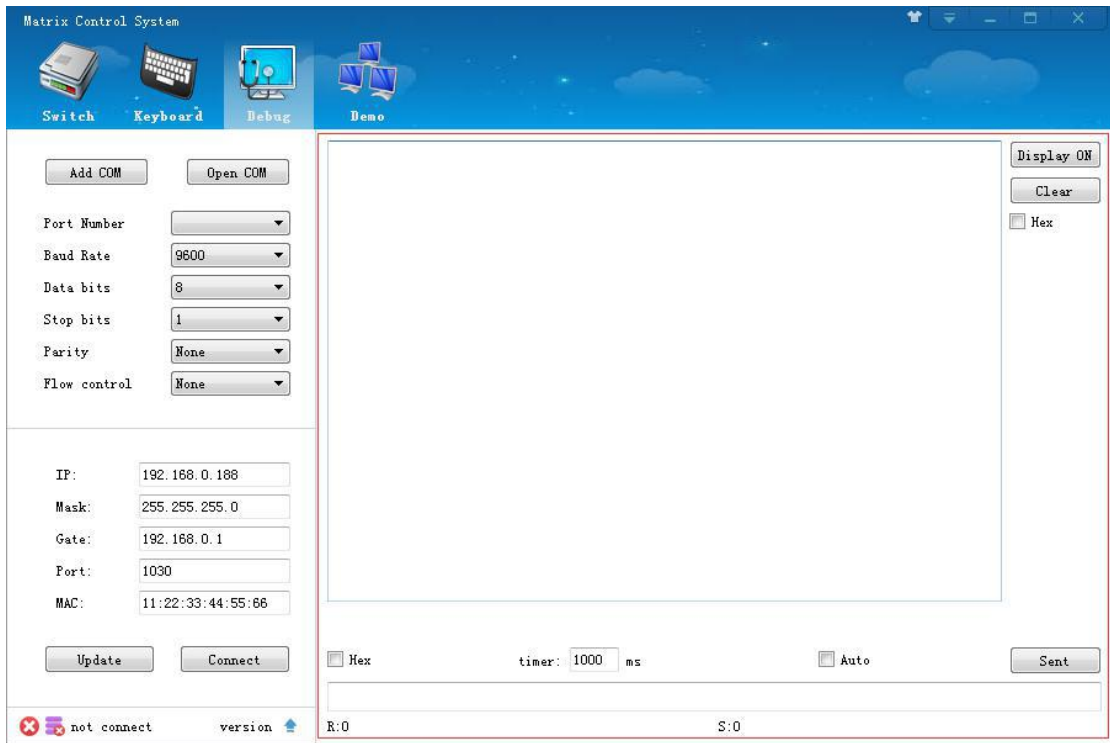
Use to send the command directly to the matrix and you can set the "Auto" sending for debug the matrix.
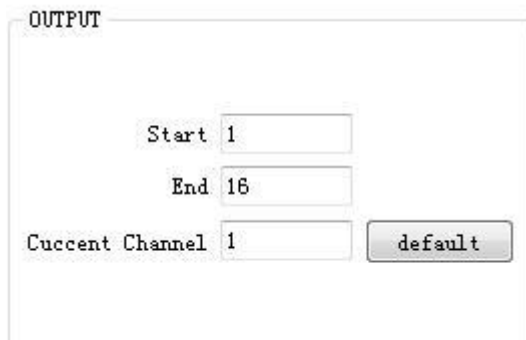
from input "START" to output channel "START", delay time, next output, delay time, until the "END" output

….

from input "END" to output channel "END", delay time, next output, delay time, until the "END" output

5 Command list

5.1 Switching command

1.One input to one output switch

PC TO Matrix	Function	Matrix to PC	Sample
[X1]V[Y1].	1 video input [X1] switch to output [Y1]	V:[X1]->[Y1]!	1V1.
[X1]V#.	1 video input [X1] switch to corresponding output [Y1]	[X1] V Through!	1V#.
[X1]#.	1 video and audio input [X1] switch to corresponding output [Y1]	[X1] A/V Through!	1#.

2. Multi input/output switch

PC TO Matrix	Function	Matrix to PC	Sample
[X1]V[Y1],[Y2].	Video input [X1] switch to output [Y1], [Y2], [Y3],~[Yn].	V:[X1]->[Y1],[Y2] !	1V1,2,3.
[X1]All.	Audio & video input [X1] switch to all outputs	[X1]A/V TO All!	1All.
AllV#.	All video channel input [X1], [X2]~ [Xn] switch to corresponding output[Y1], [Y2]~ [Yn]	All V Through!	AllV#.
All#.	All video & audio channel input [X1], [X2]~ [Xn] switch to corresponding output[Y1], [Y2]~ [Yn]	All A/V Through!	All#.
[X1],[X2]V#.	Video input [X1],[X2] switching corresponding output [Y1],[Y2]	[X1],[X2] V Through!	1,2,3V#.
[X1],[X2]#.	Video & Audio input [X1],[X2] switching corresponding output [Y1],[Y2]	[X1],[X2] A/V Through!	1,2,3#.

5.2 Save and call status

PC TO Matrix	Function	Matrix to PC	Sample
Save[N].	Save the current input/output status to number N preset	Save To F[N]!	Save1.
Load[N].	Load the number N preset status to switch	Load From F[N]!	Load1.

5.3 Enquiry

PC TO Matrix	Function	Matrix to PC	Sample
Status[Y1].	Enquiry 1 channel audio & video status	V:[X1]->[X2] !	Status1.
Status.	Enquiry all channel audio & video status	V:[X1]->[X2] ! ……	Status.

6 Common Faults and Maintenance

1. Signal interference: the power supply must be connected to the power protection ground, and to ensure that the input and output devices with the same power protection ground. For the use of computer communication control users must ensure that the computer used and the device are connected to the power protection, and the same protection.

2. The serial port cannot control the device: check the control software set the communication port is connected with the serial port corresponding to the device; check the computer's communication port is good.

3. There is no corresponding image output when this unit is switched:

(1) Check whether the corresponding input signal. (Available oscilloscope or multimeter to detect) If there is no signal input, it may be broken or loose input connector, replace the cable can be; HDMI cable is too long lead to no signal input, you can replace the short cable.

(2) Check whether the corresponding output signal. (Available oscilloscope or multimeter to detect) If there is no signal output, there may be broken output connector or connector loose, replace the cable can be; HDMI cable is too long lead to no signal output, can replace the short cable.

4. Pull, plug video interface, you feel a significant static: Check the equipment power supply grounding is good ground, according to the correct method of grounding, or easy to damage the host.

5. LCD screen does not shine, and the button operation No response: the power supply may not be normal.

(Do not belong to the above situation, may be the internal fault of the equipment, please give the professional service.)