Cuanbo WP-MAC-E1

User manual

Before using the system, please read the manual carefully and keep the manual

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Note

Some features and functions of the product and its accessories described in this manual depend on the design and performance of the site environment and the software you install. Some features and functions may not be implemented due to the field environment devices or the software you installed is not support, or due to the limitations of the field environment. Therefore, the description in this manual may not exactly correspond to the product you purchased or its accessories.

Prompt symbol

In order to ensure that you can correctly complete the installation and use of this product, please pay attention to the special meaning of the following symbols in the manual
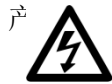
产　This symbol on the product intend to warn the user that there is a dangerous voltage exposed in the case of the product, danger of electric shock

This symbol on the product intend to remind the user that there are important operation and maintenance (repair) instructions in the user manual attached with the equipment

illustration: XXXXXXXXXXXXXXXX － XXXXXXXXXX － XXXXXXXXXXX
This symbol on the user's manual intend to remind the user that there are important instructions or operations in this position of the manual

Content

Safety instructions

If these precautions are ignored, it may lead to personal injury or casualties, equipment damage, data loss, equipment performance degradation or unpredictable results

⚡ Electrical safety

- In order to avoid serious damage caused by possible electric shock, please remove the power cord from the product power interface temporarily before moving the product.
- When you need to add new hardware to the product or remove the existing hardware in the product, be sure to turn off the product power first. If conditions permit, it is recommended to remove the power cord from the product interface temporarily.
- Before use, confirm whether the product has been grounded and whether the power supply voltage has been adjusted to the applicable range of the product. Otherwise, it may cause damage, performance degradation or unpredictable results.
- Don't use the loose or damaged power socket or touch the power socket when hands are wet, otherwise there will be the danger of electric shock and fire.
- If you hear the noise from the power cord and the power interface, please unplug the power cord immediately and ask your sales representative for help, otherwise there will be a risk of fire or electric shock.
- If any foreign matter or liquid enters the product or needs to clean the product, please remove the power cord and any other cables from the product, otherwise there will be the risk of electric shock, fire and damage to the product.
- If the power supply is damaged, please do not try to repair it by yourself. Please contact the professional and technical service personnel or dealers to deal with it.
- This product uses 60227 IEC 53 300 / 500V, power supply connecting wire conform to GB / T 5023.5-2008 / IEC 60227-5:2003 standard.

⚠ Operation safety

- Please keep away from the damp place when operating the product, otherwise the product may work abnormally and cause the risk of short circuit.
- Please operate the equipment in the temperature range of 0-70 ℃ (32-158 ℃) and humidity range of 10% — 80%.
- Please do not directly expose the equipment to direct sunlight in the enclosed space. Prolonged exposure to high temperature may cause abnormal work, deformation or fire of the product.

- Please handle packaging materials properly, such as plastic bags, etc.
- Please try to keep the environment clean and avoid dust, otherwise there is a risk of damaging the product.
- When using the product, keep away from electromagnetic field as far as possible.

Do not discard this product as general garbage. The components of this product are designed to be recyclable. This crossed dustbin symbol indicates that this product (Electrical and electronic equipment) should not be regarded as general garbage. Please dispose according to the disposal method of waste electronic products in your area

1 outline

The integration of educational panel(WP-MAC-E1) IOT into smart classroom is the practical demand of school application: with the continuous expansion of school scale, the traditional school life and teaching management methods have been unable to meet the needs of classrooms and students under the current situation of information expansion. It has become the inevitable demand of school construction to make full use of Internet, Internet of things and other technologies to build smart classroom, The application of IOT in smart classroom is mainly reflected in teaching management and campus life.

1. Teaching management: in the aspect of teaching management, through the IOT system, the equipment in the space is automatically managed and controlled, which brings the convenience of information for teachers. At the same time, the data generated in this process can provide decision-making basis for teaching after processing.

2. Campus life: intelligent monitor and control of lighting, power monitor, energy consumption management and other aspects can be realized through the Internet of things technology. The system can achieve the goal of "Low Carbon Campus" and "green campus", and realize the fine use of equipment and real-time management through the system, which greatly facilitates the school management, It can provide decision-making reference for system optimization management.

The panel type Internet of things central control integrated machine is a multimedia central management system ,which integrate key control panel, central control, video matrix and card reader. Compared with the products on the market, our products are more integrated, simpler wiring, better stability, more convenient operation, more cost saving for customers, and more responsive. In addition, the device can be connected with the campus card system and centralized management software, providing a comprehensive and unique solution for the campus multimedia classroom.

Function introduction

Multi type video interface signal exchange

WP-MAC-E1 education panel has 4 channel input and 3channel output. The input interface has 2 HDMI interfaces, 2 VGA interfaces, the output interface has 2 VGA

interfaces and 1 HDMI interface. Each HDMI interface supports HDMI 1.4 standard, 4K × 2K resolution, 3D video and other high-resolution signal exchange, max resolution up to 3840 × 2160@30Hz

It has the ability of local signal equalization and long-distance transmission

WP-MAC-E1 education panel has the ability of local signal equalization and long-distance transmission. The local signal equalization function can provide 30 m automatic cable equalization for each HDMI or VGA input when using Cuanbo DX cable.

Audio function

WP-MAC-E1 education panel supports one channel of embedded and one channel of de-embedded audio, and the channel can be customized

Simple management and more comprehensive functions

WP-MAC-E1 education panel is equipped with 5-inch LCD touch screen. The touch screen can customize the control interface and scene according to the user's needs, which is flexible and convenient to operate. supporting app software of IPAD and web pages, it can manage the working signals of the education panel, such as: view the signal source connection status information, input and output signal format, resolution, HDCP status view, EDID saving and distribution, switch relay, etc. In addition, WP-MAC-E1 also supports the functions of one click to class and one click to finish class. At the same time, it also supports web online burning host program and 2pcs USB3.0 input interfaces.

Central control management, control mode

WP-MAC-E1 education integrates central control management functions, it can send control commands to external devices. Control data types include RS-232, RS-485, IR (infrared), relay switch, etc, The RS232 control signal on the education panel function can realize the creation of central control key, code input, IR learning and control through APP software and control web page. It supports RS232 industrial host control, PC Ethernet web page control implementation, iPad, mobile phone control

Main technical parameters
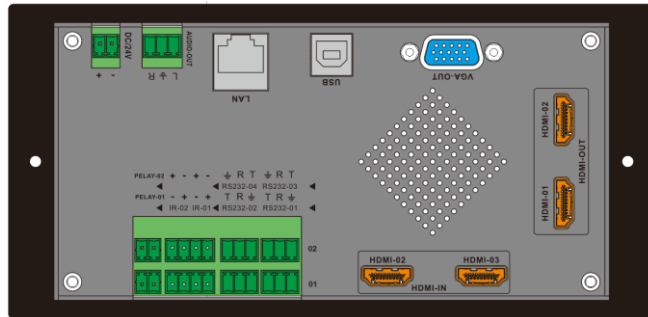
model	WP-MAC-E1
size	19.2*9.4cm
Video input	3*HDMI，1*VGA
Video output	2*HDMI，1*VGA
input voltage	DC 12-24V
Input current	≤ 3 A
power dissipation	machine≤ 15 W
fuse spec	32 V 3A
Storage temperature / humidity	-20℃ ～ 85℃ / 20%～60%
working temperature / humidity	0℃ ～ 60℃ / 10%～80%
Environmental height limit	0 ～ 2000M
Environmental pressure limit	≤ 79.5 kPa
Exchange signal	TMDS
exchange electrical level	+0.6 V ～ +1.2 V
max TMDs channel bandwidth	3.2G bit/s
Max video interface bandwidth	3.2G bit/s
Max audio sampling	48kHz
Max color depth	1080P 36 bit/px; 4K 24 bit/px
Port impedance	50Ω / 100Ω
Clock recovery	automatic
DDC Channel protocol	DDC DDC2B

DDC electrical level	5 Volts p-p(TTL)
Average channel switching time	≤ 5S
Serial control interface	4 bidirectional RS-232, 3pin Phoenix connector jack 2 RS-422 / RS-485 interfaces, 4Pin Phoenix connector jack
Interface definition	RS-232：PIN 1:TX PIN 2:RX PIN 3:GND RS-422/RS485：PIN1：RX- PIN2：RX+ PIN3：TX- PIN4：TX+
Baud rate	9600 ~ 115200 (default)option, 8 data bits, 1 stop bit, no parity, no flow control
control protocol	ASCII 码
Ethernet control interface	1pc RJ-45 jack
Ethernet data rate	10/100BaseT, Half / full duplex, adaptive
Ethernet Support Protocol	ICMP, ARP, IP, TCP, UDP, DHCP, HTTP
Upgrade interface	RJ45 network port
Upgrade mode	WEB Control platform
USB interface	2pcs USB3.0 input,1pc USB3.0 output
size/weight	L192×W94×H41.1mm / 0.5kg

Table1.1 Main technical parameters

> illustration：
>
> ● Input VGA interface supports the input of video and audio signals
> ● The output VGA interface supports the output of video and audio signals
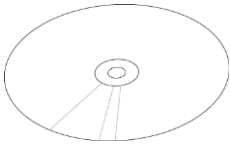
2 Installation and preparation

Thank you for purchasing Cuanbo ®WP-MAC-E1 education panel. The advent of this product not only shows the strict requirements of the product for high quality, high performance, high stability and high service once again, but also adds many new

functions and a large number of applications, WP-MAC-E1 education panel is a rare shining star in the products of cuanbo.

2.1 Product list

After you get the package of this product, please check whether the standard accessories listed below are included

WP-MAC-E1 **Education Panel** 1pc	user's manual 1pc	Program CD 1pc
power adapter 1pc	IR/TX **extension** cable 2pcs	3PIN Phoenix connector 5pcs
2PCS 4PIN Phoenix connector 2pcs	2PIN Phoenix connector 5pcs	

illustration：

● If any of the accessories listed above are damaged or missing, please contact your dealer as soon as possible
● The above graphic for reference only. The contents of the actual packing box will vary with the model you purchase

Interface description

DC Power interface

The DC power interface of WP-MAC-E1 education plane adopts 2pin3.5mmm Phoenix

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connector. Connected with the power connector of the product is a power adapter with rated voltage of 12-24 v. the power supply voltage should not exceed the rated voltage range of the switching power supply to avoid accidents. Figure 2.3 shows the power connector used in the product; the left side is the negative pole connected to the power connection cord, and the right side is the positive pole connected to the power connection cord
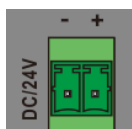
Figure 2.3 Definition of 12-24V power cable connector interface

RS-232 control interface

WP-MAC-E1 education panel provides standard serial communication port, which allows users to use various control systems (such as personal computer and central controller) to control in addition to switching operation by using the front panel keys. The RS-232 control interface is connected with the control equipment by 3pin cable connector male seat. The cable connector on the product is 3pin female seat. The specific definition is shown in Figure 2.4. Please use the matching cable when connecting.

GND
RX
TX
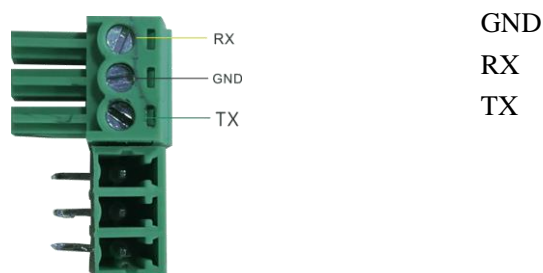
Figure 2.4 RS-232 cable connector interface definition

IR and RS-422/485control interface

WP-MAC-E1 education panel provides IR control and IR learning functions, which can control peripheral device through IR. At the same time, there is RS-422 / 185 communication port, which allows users to use various control systems (such as personal computer and central controller) to control in addition to switching operation by using the front panel keys.

The IR and RS-422 / 485 control interfaces are connected with the control equipment by the 4Pin cable connector. The cable connector on the product is the 4Pin female block. The specific definition is shown in Figure 2.4. Please use the matching cable when connect.

IR-
IR+
IR-
IR+

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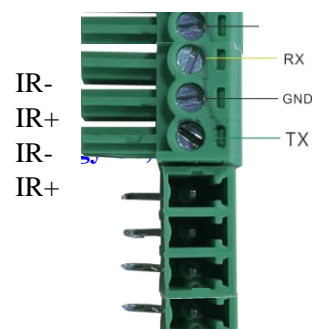
Figure2.6 IR cable connector definition

TX+
TX-
RX+
RX-
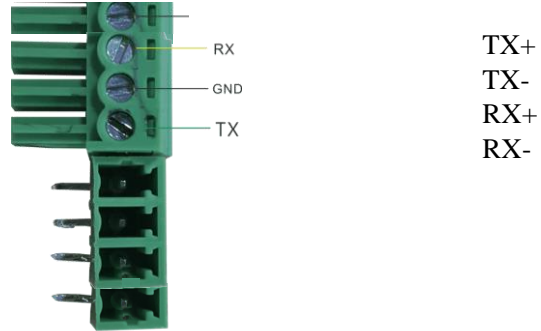
Figure2.7 RS-422/485 IR cable connector definition

LAN control interface

WP-MAC-E1 education panel provides not only serial communication port, but also LAN control interface. The RJ-45 connector is used to connect the LAN control interface with the control equipment; if the control mode is point-to-point, the network cable should use the cross cable. If the control mode passes through the switch, router and other switching equipment, the direct network cable can be used. The specific definition is shown in Figure 2.5

Figure 2.8 LAN control interface

2.2 placement of education integrated machine

WP-MAC-E1 education panel can be horizontally installed on the desktop or hollow wall, but it must be fixed with screws to prevent falling damage. The display screen is fragile. It is forbidden to place objects or collide with other objects. In order to ensure the normal heat dissipation of the equipment, it is better to reserve some space on both sides

Figure2.9 mainstay diagrammatic sketch

3 Operate instruction

education panel of Cuanbo®WP-MAC-E1 can be controlled by RS-232, Ethernet and touch screen. Users can choose one or more combinations according to the actual situation. This chapter mainly introduces the operation and control mode of education integrated machine.

3.1 Turn on the power

WP-MAC-E1 education panel is powered by DC 12-24 V voltage. Before turning on the power supply, the power cable should be correctly connected as required. For details, please refer to the previous chapter

Physical key control

WP-MAC-E1 The layout of each interface and LCD screen of the education panel (front) is shown in Figure 3.2

Figure 3.2 diagram of each interface

interface	function
HDMI-IN1	HDMI input 1 channel (input 1 channel)
VGA-IN	VGA input 1 channel (input 1 channel)
USB-IN1	Support mouse, keyboard U disk, mobile phone power supply, USB3.0
USB-IN2	Support mouse, keyboard U disk, mobile phone power supply, USB3.0
AUDIO-IN	Audio input (support notebook, computer, mobile phone and other devices)

Figure 3.1 Interface menu

The specific functions of the display and indicator are shown in table 4.2

Interface / key	function
display screen	display screen
1	input port 1（（VGA-IN1）selection key
2	input port 2（HDMI-IN3）selection key
3	input port 3（HDMI-IN1）selection key
4	input port 4（HDMI-IN2）selection key
5	output port 1（HDMI-OUT1）selection key
6	output port 2（VGA-OUT1）selection key
7	output port 3（HDMI-OUT2）selection key
IR receiver	IR receiver for receiving IR signals from a remote control

Table 3.2 Specific functions of display screen and indicator light

After opening the WP-MAC-E1 education panel, the LCD display as shown in the below figure

3.2 signal source switching

WP-MAC-E1 video interfaces are VGA-IN1，HDMI-IN2，HDMI-IN1，HDMI-IN3, VGA-OUT1, HDMI-OUT2 and HDMI-OUT from left to right

Switch any input channel to any one or more output channels

Just press the cursor on the top left of the touch screen to enter the "video switching" interface

For example, to switch input channel 2 to output channel 2, just touch and click HDMI1and HDMI-OUT1 on the screen respectively, and the output interface of the display screen shows: HDMI-IN1-HDMI-OUT1,then switch can be completed
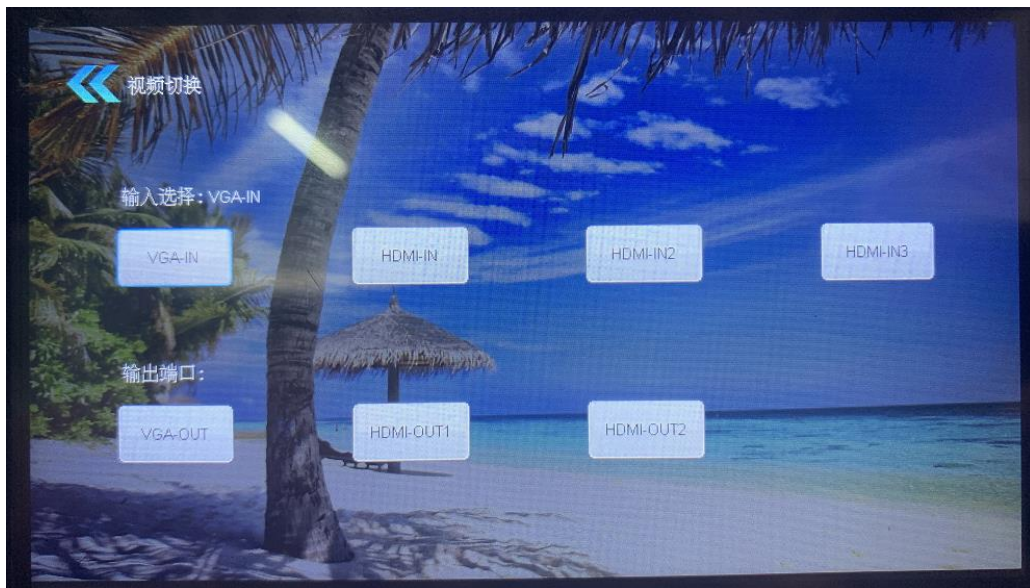
Fiture 3.4 One input to any one output

3.3 system setting

WP-MAC-E1 education panel supports the system to restore the factory settings. Select "reset system" in the main menu page, and select "OK" to restart the device. finally restore the factory setting is complete

Fiture 3.21 Reset system

3.4 RS232/LAN control instruction

When the WP-MAC-E1 education panel is connected with the external control equipment through RS232 and set, the external control settings can be used for control operation. The default baud rate of RS232 is 115200bps, 8 data bits, 1 stop bit and no check bit.

Number	Action	Basic ASCII String	Variables
Switch management instruction			
1	Video switching, input switching to output or multiple	>Catob,c<CR>	a = input port (1 ~ matrix max port or x < next chann b c= output port (1 ~ matrix maxi port or all)
2	Select the input video port, combine with CSWO to use (the default value of power on is 0,close)	>CSWI:a<CR>	a = input port (1 ~ max port of matrix)
3	Select the input video from > CSWI and switch to output	>CSWO:a<CR>	a = output port (1 ~ matrix max port or all)
4	Query video switching status (return correspondence)	#CR<CR>	NULL

5	Save scene	>Sa<CR>	a= scene number (1-6 max)
6	invocation scenario	>Ra<CR>	a = scene number (1-6 max)
7	Set scene name (Chinese characters cannot normal display on WEB)	>SNAMEa:b<CR>	a = scene number (1-6 max) b = scene name (15 English characters)
8	Query the name of the scene	#SNAMEa<CR>	a = scene number (1-6 max)
	Switching mode	>SW-MODE:a<CR>	a = 0:Auto 1:Autolast 2:Manual
9	USB switch command	>USB:a<CR>	a = 1(usb input1) or 2(usb input2)
EDID management instruction			
1	Switch EDID, output switch to input	>EDIDatob<CR>	a = input port (1 ~ max port of matrix) b = output port (1 ~ matrix max port or all)
2	Switch to EDID and switch to input in the system	>SYSEatob<CR>	a = system number (1 ~ 6) b = output port (1 ~ matrix max port or all)
3	Save the EDID and switch the output to the internal system	>SOEDatob<CR>	a = output port (1 ~ matrix max port or all) b = system number (1 ~ 6)
4	Save the EDID and switch the input to the internal system	>SIEDatob<CR>	a = output port (1 ~ matrix max port or all) b= system number (1 ~ 6)
Sub card management instruction			
1	Set port name of sub card	>PORT_NAME:a,b<CR>	a = sub card port (1 ~ max port of matrix) b = port name
2	Query the port name of the sub card	#PORT_NAME:a<CR>	a= sub card port (1 ~ max port of matrix)
3	Set forced output HDMI / DVI format	>HDMODE:a,b<CR>	a = output port (1 ~ max port of matrix) b = 0:DVI 1:HDMI
4	Set audio embed and external embed	>AUMODE:a<CR>	a = 0: embedded 1: external embedded

5	Setting DIV-M input format	>DIVM-FORMAT:a<CR>	a = 0:AUTO 1:CVBS 2:YPBPR 3:VGA 4:DVI
5	Set DIV-M output resolution	>DIVM-RES:a<CR>	a = resolution number 0:1024x768P60 1:1360x768P60 2:1920x1200P60 3:720P60 6:1080P50 7:1080P60
6	Set the resolution of the output scaler sub card	>SCALER_RES:a,b<CR>	a = sub card port (1 ~ max port of matrix) b = resolution number
7	Set the video properties of the output scaler sub card	>SCALER_ATTR:a,b:c<CR>	a = sub card port (1 ~ matrix max port) b = option (0 = brightness 1 = capability 2 = contract c = value(0~99)

HDCP management instruction

1	Set the HDCP of the input sub card	>HDCPIN:a,b<CR>	a = input port (1 ~ max port of matrix) b = 0:OFF 1:ON
2	Set the default HDCP state of the output sub card, depending on the input source	>HOUTNM:a<CR>	a= output port (1 ~ matrix max port or all, code: 0)
3	Set output sub card HDCP on	>HOUTON:a<CR>	a = output port (1 ~ matrix max port or all, code: 1)
4	Set the output sub card HDCP off (hdcp2.2 does not support closing)	>HOUTOFF:a<CR>	a = output port (1 ~ matrix max port or all, code: 2)
5	Query all input HDCP status	#AHDCPIN:a<CR>	a = query type (0 = input source HDCP, 1 = set state)
6	Query all output HDCP status	#AHDCPOUT:a<CR>	a = query type (0 = output source HDCP, 1 = set state

Wireless projection management instruction

1	Disconnect the projection connection	>MIR:a<CR>	a = Disconnect\Restart\Power
2	Send screen control key value	>MIR-KEY:a<CR>	a = key (see table)

Data transmission instruction

1	Sending data to serial port of main control board	>SEND-MU:a,b<CR>	a = port(0:UART1 1:232-1 2:232-2 3:232-3~485) b = data
2	Sending data to socket client of main control board	>SEND-MS:a<CR>	a = data
3	Sending data to TCP socket server	>SEND-SS:a:b,c<CR>	a = IP b = Server port c = data

Central control management instruction

1	TTL output 5V / 12 electrical level configuration	>COM-TTL-POWER:a<CR>	a = electrical Level selection (0:5V 1:12V)
2	TTL electrical Level output control	>COM-TTL-OUT:a,b<CR>	a = port(0~3) [OUT-1,OUT-2,OUT-3,OUT-4] b = output electrical level(0:low 1:high)
3	Through serial command	>COM-CPC:a,b<CR>	a = port(0~5) [232-1,232-2,232-3,232-4,RS485,RS422] b = data
4	Specified baud rate through serial command	>COM-CPC-BAUD:a,b,c<CR>	a = port(0~6) [232-1,232-2,232-3,232-4,RS485,RS422,HD b = Baud rate number（0~8） [115200,57600,56000,38400,19200,14400,9600,4800,2400] c = data
5	Control relay switch	>COM-RELAY:a,b<CR>	a = port (0 ~ 3) [power-map, power-out, screen]_ UP, S b = switch status (0: off 1: on)
6	delay control,turn on —>time-delay->turn off(apply to project screen)	>COM-RELAY-ONTIME:a,b<CR>	a = port(0~3) [POWER-MAP,POWER-OUT,SCREEN_UP,SCREEN_D b = ms

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7	Configure IR carrier frequency	>COM-IR-CLK:a<CR>	a = carrier (0~4) [33KHz,36KHz,38KHz,40KHz,56KHz]
8	IR learning IR code	>COM-IR-LEARN-CODE:a<CR>	a = waiting time (1 ~ 20s)
9	Send test learned IR code	>COM-IR-LEARN-TX:a,b<CR>	a = port (0 ~ 2) [TX1, TX2, hdbt]_ TX] b = IR code (optional, if NULL, send learning buffer)

IR coding management

Application scenario management instruction

1	Add application scenarios	>APPS-ADD:a<CR>	a = name (can not repeat)
2	Delete application scenario	>APPS-REMOVE:a<CR>	a = name
3	Modify application scenario name	>APPS-MODIFY:a,b<CR>	a = old name b = new name (can not repeat)
4	Adjust the position of application scenarios	>APPS-MOVE:a,c<CR>	b = current index position c = 0: move up 1: move down

18

5	Hide Web interface, application scene view	>APPS-HIDDEN-VIEW:a,b<CR>	a = name b = 0: close 1: hide view
6	Set the application to run automatically when it is turned on	>APPS-STARTING-UP:a,b<CR>	a = name b = 0:close 1:Auto start
7	Set the application x to restart after it starts	>APPS-REPEAT-RUN:a,b<CR>	a = name b = 0: close 1: repeat working
8	Add application scenario execution command item	>APPS-ADD-ITEM:a,b,c<CR>	a = name b = execution completion delay (MS) c = system command
9	Delete application scenario execution command item	>APPS-REMOVE-ITEM:a:b<CR>	a = name b = command item index position
10	Modify application scenario execution command item	>APPS-MODIFY-ITEM:a:b,c,d<CR>	a = name b = command item index position c = execution completion delay (MS) d = system command (add% h at the beginning of hexade
11	Adjust the index position of application scenario command items	>APPS-MOVE-ITEM:a:b,c<CR>	a = name b = current index position c = 0: move up 1: move down
12	Running application scenarios	>APPS-START:a,b<CR>	a = name b = number of cycles (0 = infinite cycle, x = infinite cycle by setting)
13	Abort application scenario	>APPS-STOP:a<CR>	a = name ("all" = abort all scenarios)
14	boot command	>START-ADD:a,b<CR>	a = name b = system command
15	Delete boot command	>START-REMOVE:a<CR>	a = name ("all" = delete all)
16	Modify startup command	>START-MODIFY:a,b<CR>	a = name b = system command

Audio processing control instruction			
Port number (see table)			
1	Adjust the volume	>AUD-VOLUME:a,b<CR>	a = I / O port number (0-12) b = volume (1 ~ 84) unit: - 72db ~ 12dB Step = 1
2	Left and right channels, balance the volume	>AUD-XLR-VOLUME:a,b,c<CR>	a = I / O port number (0-12) b = 0:L 1:R 2:LR c = balance volume (1 ~ 84) unit: - 72db ~ 12dB Step
3	mute control	>AUD-MUTE:a,b<CR>	a = I / O port number (0-12) b = 0:MUTE OFF 1:MUTE ON
4	Left and right channels, mute control	>AUD-XLR-MUTE:a,b,c<CR>	a = I / O port number (0-12) b = 0:L 1:R c = 0:MUTE OFF 1:MUTE ON
5	Adjust mix output volume	>AUD-MIXING:a,b,c<CR>	a = output port number (8-12) b=Input port number (b = 0 ~ 7) c = volume (1 ~ 82) unit: - 70dB ~ 12dB Step = 1
6	Adjust AEC mix output volume	>AUD-MIXING-AEC:a,c<CR>	**a** = output port number (8-12) b = volume (1 ~ 82) unit: - 70dB ~ 12dB Step = 1
7	Adjust ANC mix output volume	>AUD-MIXING-ANC:a,c<CR>	a = output port number (8-12) b = volume (1 ~ 82) unit: - 70dB ~ 12dB Step = 1
8	Port mix input switch	>AUD-MIXING-SW:a,b,c<CR>	a = output port number (8-12) b=Input port number (0 ~ 7) c = switch (0: off 1: on)
9	AEC mix input switch	>AUD-MIXING-AEC-SW:a,c<CR>	a = output port number (8-12) b = switch (0: off 1: on)
10	ANC mix input switch	>AUD-MIXING-ANC-SW:a,c<CR>	a = output port number (8-12) b = switch (0: off 1: on)
11	Channel delay control	>AUD-DELAY:a,b,c<CR>	a = I / O port number (0-12) b = 0:L 1:R 2:LR c = delay (0 ~ 2000) unit: 0 ~ 200ms, step = 0.1

12	Channel phase control	>AUD-PHASE:a,b,c<CR>	a = I / O port number (0-12) b = 0:L 1:R 2:LR c = 0:JUST 1:REVERSE
13	limiter control	>AUD-LIMITING:a,b,c,d,e<CR>	a = I / O port number (0-12) b = threshold value (0 ~ 1000) unit: - 100dB ~ 0dB St c = ratio (0 ~ 990) unit: 1.0 ~ 100, step = 0.1 d = starting time (0 ~ 999) unit: 1 ~ 1000ms, step = e = recovery time (0 ~ 999) unit: 1 ~ 1000ms, step =
14	limiter - threshold	>AUD-LIMITING-THRES:a,b<CR>	a = I / O port number (0-12) b = threshold value (0 ~ 1000) unit: - 100dB ~ 0dB St
15	limiter - ratio	>AUD-LIMITING-RATIO:a,b<CR>	a = I / O port number (0-12) b = ratio (0 ~ 990) unit: 1.0 ~ 100, step = 0.1
16	limiter - start time	>AUD-LIMITING-START:a,b<CR>	a = I / O port number (0-12) b = start time (0 ~ 999) unit: 1 ~ 1000ms, step = 1
17	limiter - recovery time	>AUD-LIMITING-RESTORE:a,b<CR>	a = I / O port number (0-12) b = recovery time (0 ~ 999) unit: 1 ~ 1000ms, step =
18	Equalizer switch control	>AUD-EQ-SW:a,b<CR>	a = I / O port number (0-12) b = 0:EQ OFF 1:EQ ON a = I / O port number (0~12) A = I / O port number (b = 0:EQ OFF 1:EQ ON
19	Equalizer gain control	>AUD-EQ-GAIN:a,b,c<CR>	a = I / O port number (0~12) b = EQ segment number (0 ~ 15) frequency Hz 25,40,63,100,159,252,399,632,1002,1589,2518,3991,6325 7500 c = gain(0~300) unit:-15~+15dB(step=0.1dB)
20	Output divider control	>AUD-DIVIDER:a,b,c,d,e<CR>	a = output port number b = 0:HPF 1:LPF c = frequency (0~19980) unit:20~20000(step=1Hz) d = gain(0~300) unit:-15~+15dB(step=0.1dB) e = Filter type (0~19) Bypass, 6dB 1st Order,12dB E Butterworth,12dB Link-Riley,18dB Bessel, 18dB Butterw Bessel,24dB Butterworth,24dB Link-Riley,30dB Bessel,3 Butterworth,36dB Bessel,36dB Butterworth,36dB Link-Ril 42dB Butterworth,48dB Bessel,48dB Butterworth,48dB Li

21	Output divider filter type selection	>AUD-DIVIDER-TYPE:a, b,c<CR>	a = output port number(8~12) b = 0:HPF 1:LPF c = Filter type (0~19) Bypass, 6dB 1st Order,12dB B Butterworth,12dB Link-Riley,18dB Bessel, 18dB Butterw Bessel,24dB Butterworth,24dB Link-Riley,30dB Bessel,3 Butterworth,36dB Bessel,36dB Butterworth,36dB Link-Ri 42dB Butterworth,48dB Bessel,48dB Butterworth,48dB Li
22	Output divider – frequency	>AUD-DIVIDER-FREQ:a, b,c<CR>	a = (8~12) output port number b = 0:HPF 1:LPF c = frequency (0~19980) unit:20~20000(step=1Hz)
23	Output divider– gain	>AUD-DIVIDER-GAIN:a, b,c<CR>	a = output port number(8~12) b = 0:HPF 1:LPF d = gain(0~300) unit:-15~+15dB(step=0.1dB)
24	AGC automatic gain control	>AUD-AGC:a,b,c,d,e,f <CR>	a = input port number(0~7) b = threshold (0~400) unit:-60dB~-20dB(step=0.1) c = Target threshold (0~400) unit:-60dB~-20dB(step=0 d = rate (0~990) unit:1.0~100（step=0.1） e = start time(0~999) unit:1~1000ms,step=1 f = recovery time (0~999) unit:1~1000ms,step=1
25	AGC automatic gain – threshold	>AUD-AGC-THRES:a,b<C R>	a = input port number(0~7) b = threshold(0~400) unit:-60dB~-20dB(step=0.1)
26	AGC automatic gain target threshold	>AUD-AGC-TARGET:a,b< CR>	a = input port number(0~7) b = target threshold(0~400) unit:-60dB~-20dB(step=0.1)
27	AGC automatic gain rate	>AUD-AGC-RATIO:a,b<C R>	a = input port number(0~7) b = rate(0~990) unit:1.0~100,step=0.1
28	AGC auto gain – start time	>AUD-AGC-START:a,b<C R>	a = input port number(0~7) b = start time(0~999) unit:1~1000ms,step=1
29	AGC automatic gain recovery time	>AUD-AGC-RESTORE:a,b <CR>	a = input port number(0~7) b = recovery time(0~999) unit:1~1000ms,step=1
30	AFC feedback elimination control	>AUD-AFC:a,b<CR>	a = 0:MIC1 1:MIC2 b = Frequency shift level (0~5) OFF/2Hz/4Hz/6Hz/8Hz/
31	AEC echo cancellation control, select mic	>AUD-AEC-MIC:a<CR>	a = 0:MIC1+MIC2 1:MIC1 2:MIC2

32	AEC echo cancellation control, configure remote input	>AUD-AEC-REMOTE:a,b<CR>	a = Input port number (0~7) Input port number b = 0:OFF 1:ON
33	AEC echo cancellation control, configure cancellation level	>AUD-AEC-LEVEL:a<CR>	a = Elimination level (0 ~ 3) off / small room / medi room
34	ANC noise elimination control, configuration input	>AUD-ANC-IN:a,b<CR>	a = Input port number (0~7) b = 0:OFF 1:ON
35	ANC noise elimination control, configuration elimination level	>AUD-ANC-LEVEL:a<CR>	a = Elimination level (0 ~ 4) off / weakest / weakes strongest
36	Priority input channel switch	>AUD-PRIOR-CH:a,b<CR>	a = Priority port number (0~4) LINE_IN1/LINE_IN2/LIN c = Priority port switch 0:OFF 1:ON
37	Priority input channel threshold. When the priority channel level is greater than the threshold, the background channel gain is set for all selected background channels	>AUD-PRIOR-THRES:a<CR>	a = Priority port threshold (0~840) unit:-72~+12dB(s
38	Priority background input channel switch	>AUD-PRIOR-BACK-CH:a,b<CR>	a = Priority port number(0~7) c = Priority port switch 0:OFF 1:ON
39	Priority background input channel gain	>AUD-PRIOR-BACK-GAIN:a<CR>	a = Priority port gain (0~840) unit:-72~+12dB(step=0
40	Mic type selection	>AUD-MIC-TYPE:a,b<CR>	a = 0:MIC-IN1 1:MIC-IN2 b = 0:simulation 1:Difference 2:Differential phantom power supply 48V
41	Read all audio channel levels	>AUD-LEVEL:NULL<CR>	NULL

System management instruction			
1	Set IP address of network port	>IP:a.b.c.d<CR>	a b c d = (0~255)
2	Setting subnet of network port	>SUBNET:a.b.c.d<CR>	a b c d = (0~255)
3	Setting gateway of network port	>GATEWAY:a.b.c.d<CR>	a b c d = (0~255)
4	Set socket server port (1001 by default)	>PORT:a<CR>	a = Server port
5	Setting DHCP for network port	>DHCP:a<CR>	a = 0:OFF 1:ON
6	Query network port configuration information	#NETWORK<CR>	NULL
7	Set serial port	>UART:x,a,b,c,d<CR>	x = port(0:UART1 1:232-1 2:232-2 3:232-3~485) a = Baud rate (115200 57600 56000 38400 19200 14400 9 b = Data bits (8 9) c = Stop bit (1 1.5 2) d = Check digit (None Odd Even)
8	Query serial port configuration information	#UART:x<CR>	x = port(0:UART1 1:UART2 2:HDBT-TX)
9	Query command processing prompt sound state	#CSOUND<CR>	NULL
10	Set command processing prompt sound	>CSOUND:a<CR>	a = 0:no sound 1:voice
11	Set up management user name and password (only numbers and case letters are supported)	>MUNP:a,b<CR>	a = name(15 English characters) b = password(15 English characters)
12	Query management user name and password	#MUNP<CR>	NULL
13	Set system language	>LANG:a<CR>	a = 0：English 1：Chinese

14	Query system language	#LANG<CR>	NULL
15	Dormancy system	>POWER:a<CR>	a = 0:OFF 1:ON
16	Restart the system	>SOF-RESTART<CR>	NULL
17	Restore factory settings	>SYS-RESET<CR>	NULL
System information inquiry instruction			
1	Query the status information and return it in JSON format	#JSON:a,b<CR>	a = ("video","system","login","audio","apps") b = mark(status update version, 0 = Request all data)
2	Query the software version of the main control board	#SVER<CR>	NULL
3	Query hardware version	#HVER<CR>	NULL
4	Query matrix type	#MO<CR>	NULL

table 3.3 Control instruction list

3.5   Web Management

WP-MAC-E1 yijnggang Education panel supports Ethernet web management. A RJ45 network cable is used to connect the LAN port of WP-MAC-E1 with PC. in the browser, enter the IP address, login user name and password of WP-MAC-E1 education panel, and click the login button to enter the web management interface. As shown in Figure 4.20

Figure 3.22 Web management user login interface

```
illustration：

●    When the network port is connected, if direct connection is adopted.
     It is necessary to set the IP network segment of the device and
     WP-MAC-E1 in the same network segment
●    The default user name and password are 123456
●    MAC-E1 factory default setting is 192.168.88.225 network segment
```

Web management options

Enter the web management item, you can select video management, audio management, application scenarios, EDID management, system settings and other functions. As shown in Figure 4.21

figure 3.23 Management interface

Video management

1.Switch the video input to output, click the input channel, then select the output channel to be switched. If input 1 channel to output 1 channel and output 3 channel, just click input 1 channel then point out 1 channel and output 3 channel. When a channel is selected, the channel becomes rounded and a small white circle appears in the upper right corner. As shown in Figure 4.22

Figure 3.24 video management interface

1. Click the icon in the upper right corner ⚙ to enter the video setting interface. You can perform the following operations

Figure 3.25 video setting interface

Change standby picture

1、 If you need to make standby screen, please contact the manufacturer。

Application scenarios

In the application scenario, customers can add specific commands in a scenario according to specific needs to realize the function of one key control of WP-**MAC-E**1and peripherals.

As shown in the below figure , there are two applications in the application scenario, and users can also add applications according to actual needs. When you need to mobilize an application, just click the application　icon to mobilize　it

Figure 3.32 application scenario interface

To add a new application, click the "add application" icon, enter the name of the new application, and click "save, next" to enter the application editing interface. In the application editing interface, you can re -edit the application name of the application, setting weather to hide the   icon, weather   to start automatically and   run
repeatedly

Figure 3.33 application editing interface 1

In the edit window, you can set the execution delay of the application (the default is 500 ms), which is the delay before executing the command. Click the "command generation" button, and

one or more options can be selected in the options bar on the left to configure. For example, "video switch 1 to all", video switch > input 1 > output all > after testing, click OK to generate a command in "edit application". Only one command can be generated in a window. Click "save" after generating the command. Click "Add option" to add edit window and command. After adding more than one command, you can manage the command, "move up" and "move down" can adjust the position of the command, "delete" button can delete the command

Figure 3.34 application editing interface 2

In the "application management" on the right, you can backup and restore the application, and save the configuration to PC without secondary configuration. "Show hidden" can see the hidden application. Click "edit application" and then click the button in the upper right corner of the application to edit

EDID management
1. Input represents the EDID saved by the input interface;
2. Output indicates that the output interface reads the EDID of the display device
3. The system indicates the switch of internal / external EDID

Figure 3.47 DEID management

4. EDID switching

① For EDID switching, click the "switch" button on the right, select the output channel or system EDID option, and click the input channel to switch the EDID to the corresponding output channel, as shown in Figure 4.27
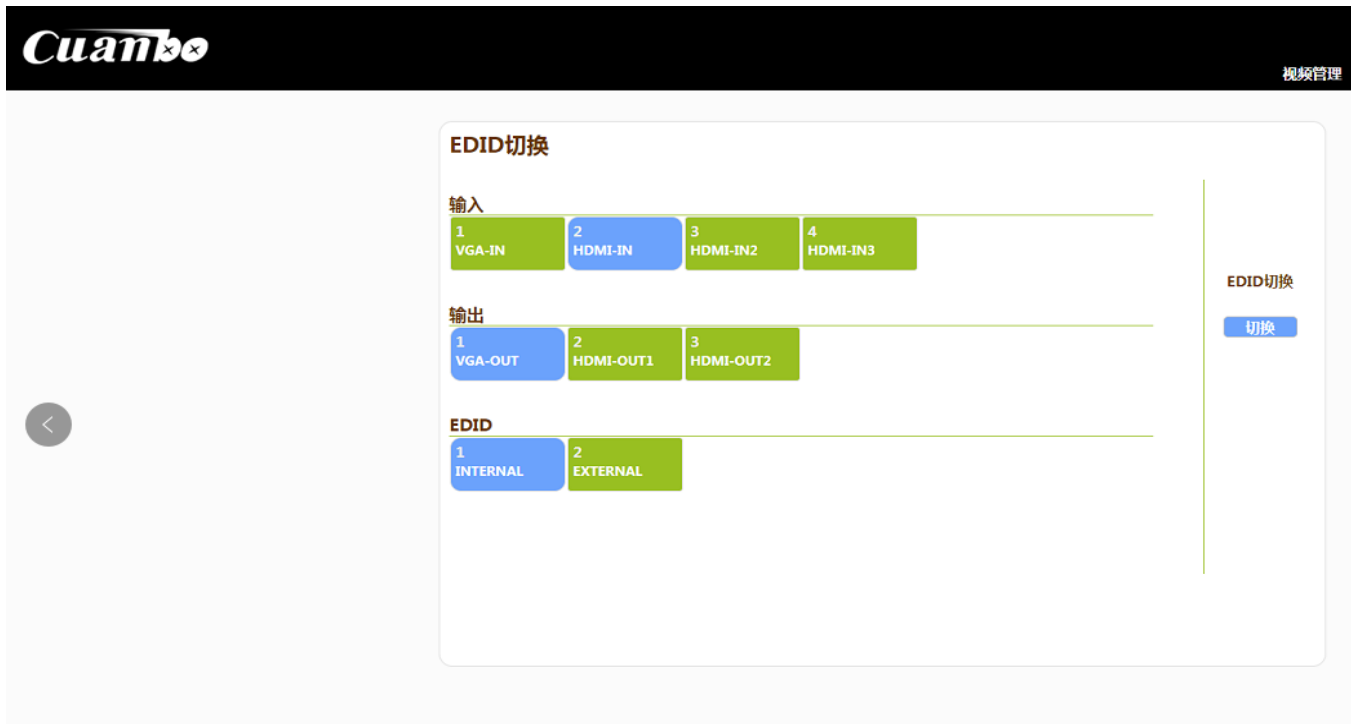

Figure 3.48 deid switching

```
system management
```

In the system management, you can manage the network, IR serial port, relay and other projects

1. Network settings, change the IP address and gateway of   MAC-E1 education panel

图 3.51 网络设置 Figure 3.51 network settings
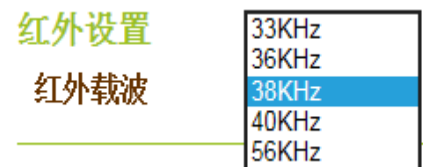
2. Serial communication, setting baud rate, data bit, stop bit and check bit of each serial port (RS-232, RS-485 / 422)

Figure 3.52 serial communication configuration

3. IR setting, setting IR carrier frequency band

Figure 3.53 IR settings

4. switch setting of relay switch and strong current relay

继电器开关

RELAY1   OFF / ON

RELAY2   OFF

Figure 3.54 relay switch

Relay1: relay switch, on, off

1. The administrator user can reset the user name and password after modifying, then log in again after setting

管理员用户修改

用户名

密码

新用户名

新密码

确定修改

Figure 3.57 administrator user modification

2. User data, data backup and recovery

用户数据

数据恢复备份   浏览...   恢复   备份

Figure 3.58 data backup

3. For the host , you can know the software and hardware version and upgrade time of WP-MAC-E1 yijingang education panel

关于主机

| Host | WP-MAC-E1-V2 |
Hardware	v1.0.0
Software	v1.0.0
BuildTime	2020-04-01

Figure 3.59 about the host

System update

1. Click the top right button 系统更新 to enter the login interface of the update system;

2. Time 10 seconds after login to enter Guidance mode

Figure 3.60 system update

3. In the Guidance mode, select the local update file and click "update" to start the update or click "update OK enter app". After the update, it will automatically enter the main interface to complete the update;

4. After the update, click "starapp" for 10 seconds to enter the main interface to complete the update
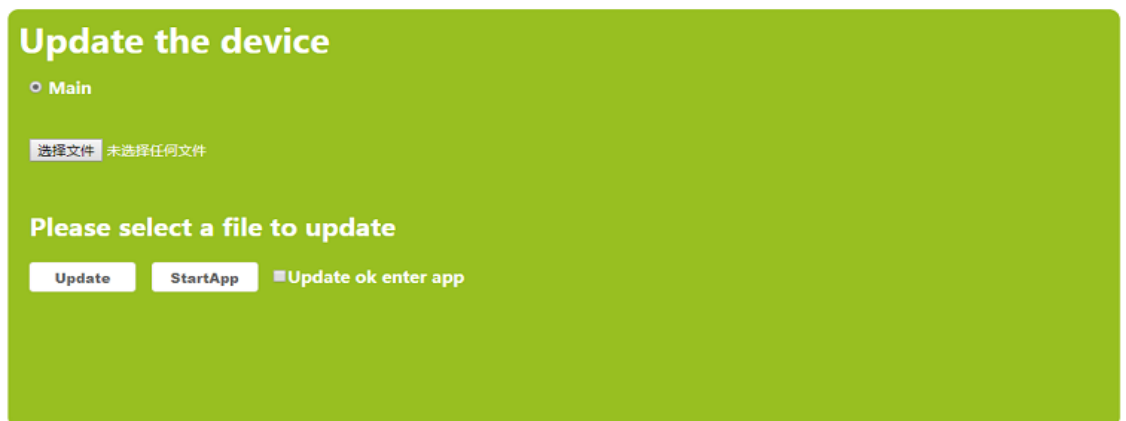
Figure 3.61 guidance mode

illustration：

● If you enter the guidance mode by mistaking, click "StarApp" to count for 10 seconds and return to the main interface

The management personnel shall regularly check the working environment, cable connection, communication network connection, video and audio input and output of the signal management platform to ensure the normal operation of the signal management platform system composed of the signal management platform and its peripheral equipment

4.1 regular inspection of working environment

The working environment of the signal management platform shall meet the relevant technical parameters. The following table lists the items that should be paid attention to

item	requirement
working environment	0℃ ～ 60℃
Working relative humidity	10%～80%
Cooling system	no shelter at the bottom
Liquid crystal display	Normal display, no display messy code, normal backlight

Note: if the environmental project is beyond the scope required by the signal management platform, it is suggested that the signal management platform should be powered off first, and the environmental conditions should be improved before starting the signal management platform. If the cooling system fails, please contact the dealer as soon as possible to avoid unnecessary losses

4.2 regular inspection of terminal cables

regularly (once a week is recommended)check the cables between the signal management platform and peripheral equipment and power supply are loose or not Turn on the power of the signal management platform and peripheral equipment, and start the signal management platform and peripheral equipment. Test whether the cable connection and signal are normal. If it is loose, please tighten it immediately. If the cable is damaged, please replace it in time

4.3 software upgrade

MAC-E1 yijingang education panel supports software upgrade. When the product is abnormal, please contact the relevant technical personnel or upgrade the software under the guidance of technical personnel. Please contact the technical personnel for software upgrade tools and methods. When performing the upgrade operation, ensure that the power connection of the equipment is reliable, and do not power off during the upgrade.

Upgrade packages are generally divided into upgrade tools, product firmware and configuration files. Whether it is to upgrade the main body of signal management platform or the board of signal management platform, the obtained upgrade package must contain upgrade tools and product firmware, otherwise the upgrade will fail and affect the use.

A PC or notebook with Windows platform should be prepared before upgrading. Connect the PC or notebook with the network port on the back of the main body of the signal management platform with a network cable, or log in to the web operation interface in the LAN to enter the system update burning. As shown in Figure 5.1
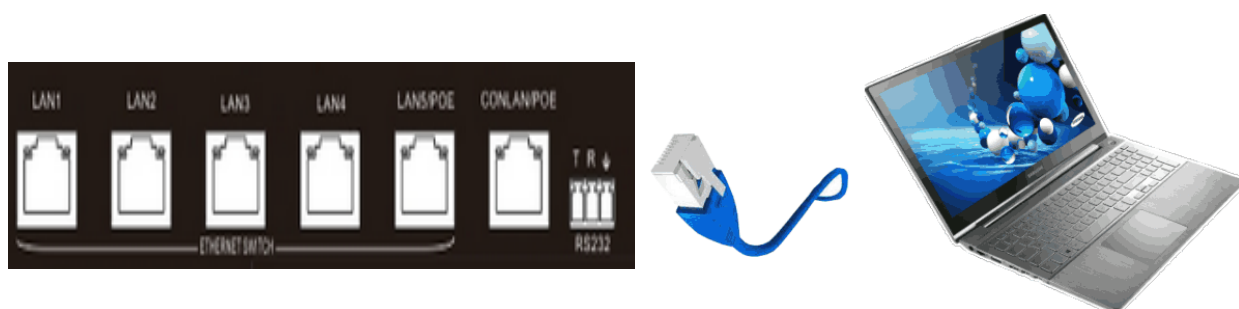

Figure 5.1 upgrade connection

Enter the matrix IP to enter the web interface, click 系统更新 and enter the user name and password in the system management to enter the program burning mode, as shown in Figure 5.2.
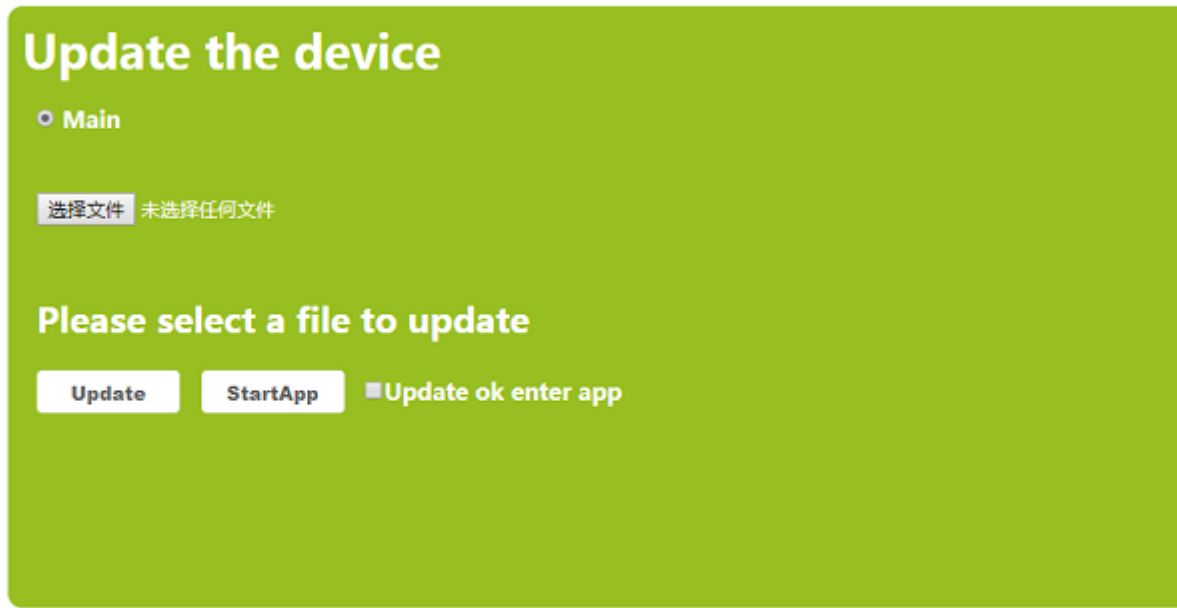
Figure 5.2 upgrade interface

Boot mode

1. In the web interface system management, click 系统更新 and enter the user name and password to enter the boot;
2. <mark>Click the touch screen and select guidance into enter boot.</mark>
Burning steps:
1 - > select the upgrade file. The file name is usually "MAC-E1-Main.bin"
2 - > start upgrade and enter APP mode

Note: if the upgrade fails and you cannot enter the APP, you can power on again, and the matrix will automatically enter the boot mode. Save the upgrade file and update the firmware again in the same way

4.4　fault diagnosis

The fault diagnosis model of Multivideo plus signal management platform is shown
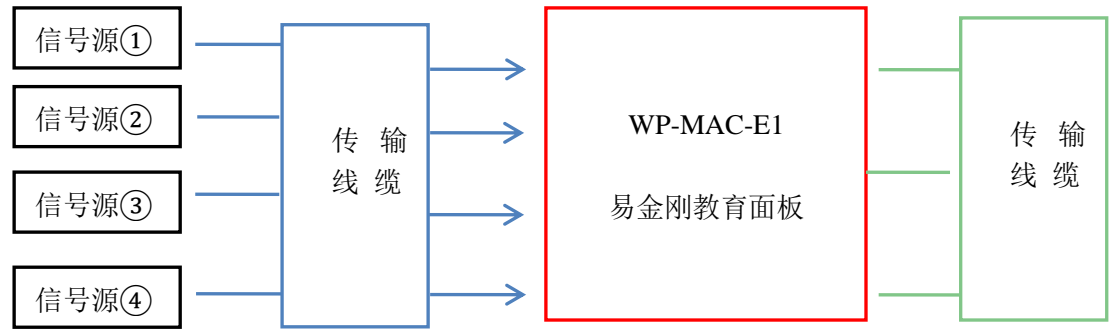
in 4.3

Figure 4.3 fault diagnosis model

According to figure 4.3, the fault diagnosis model is divided into five parts: signal source, signal source transmission facilities, MAC-E1 education panel, display transmission facilities and display equipment. When any fault occurs, it may cause abnormal operation. When eliminate the fault, it can be carried out from left to right according to figure 4.3

4.5 common faults treatment

1. No reaction after power on

The power switch should be in the open state, the connection between the power connecting cable and the connecting base should be stable, and the contact should be good.

2. The brightness of the display screen is dim or no display after power on

When the brightness of the display screen is dark, check whether the machine under boot mode and connect to the web. If it is in boot mode, connect it with upgrade software and reset it.

If there is no display on the display screen, please open the front cover and check whether the relevant connecting cable behind the front cover is loose. If it is loose, please connect it firmly.

3. Unable to carry out normal control operation

Please restart the equipment. If the fault cannot be eliminated, please contact the dealer in time.

4. There is no signal output in the output channel

Please go to the port information on the web page to check whether the cable

connection status, resolution information and HDCP status of the signal source are normal. If the fault cannot be eliminated, please contact the dealer in time.

5. The output image is not perfect or compatible

Please update the EDID information of input port or signal transmission facilities. If the fault cannot be eliminated, please contact the dealer in time.

6. The output signal has no sound

Please check whether the signal source contains audio signal, whether the device is silent, whether the volume of the sound channel is too low, the status of EDID information and audio switching, and whether the audio signal cable is connected normally. If the fault cannot be eliminated, please contact the dealer in time.

7. Unstable interface and discontinuous signal

Please go to the port information on the web page to check whether the cable connection status, resolution information and HDCP status of the signal source are normal. Please check whether the interface cable is too heavy and whether the interface is damaged. If the fault cannot be eliminated, please contact the dealer in time.

8. External control interface cannot be used

Please check whether the control interface is firmly connected and whether the connection cable sequence is correct. If the fault cannot be eliminated, please contact the dealer in time.

9. Leakage inductance of touch case

Please check whether the power supply and shell ground cable are well grounded. If the fault cannot be eliminated, please contact the dealer in time

4.6 maintenance of abnormal parts

In order to facilitate subsequent maintenance or emergency needs, all parts of MAC-E1 yijingang Education panel are designed to be replaceable. After communicating with the technical personnel and determining the fault point, we will send the replacement products to you in the form of parts for replacement.

4.7 cleaning precautions

Please use a soft, dry cloth to clean the equipment. Forbid to use alcohol, paint thinner or gasoline for cleaning. Ensure that the equipment is kept and operated away from liquids and stains. There are no parts handled by users themselves. Please contact Cuanbo or other authorized distributors for all service and maintenance

matters

4.8　warranty instructions

Guarantee information

    Cuanbo guarantees that the products are free from defects in workmanship and materials under normal use and service support for a period of 12 months after purchase from Cuanbo or its authorized distributors. If the product fails to work normally within the warranty period, Cuanbo will choose and pay for the cost of repairing the defective product or component, delivering the equivalent product or component to the user to replace the defective project, or refund the price paid by the user for purchasing the defective product. All products replaced will become the property of cuanbo. The replacement product may be new or repaired. No matter which time is longer, any replaced or repaired product or component has a 3-month warranty or the remaining period of the initial warranty. Whether within the warranty period or not, cuanbo shall not be responsible for any software, firmware, information or memory data contained, stored or integrated in the products returned by customers to cuanbo for repair.

Warranty limitations and exceptions

    In addition to the above limited warranty, cuanbo shall not be liable for any additional liability if the product is damaged due to abuse, misuse, negligence, accident, abnormal physical pressure or voltage, unauthorized modification, tampering, alteration or service provided by any person other than cuanbo or its authorized agent. Except for the faults caused by normal use or proper use of the product in the applicable application

4.9　warm tips

    If you have urgent problems, you can call the technical support hotline for help. Please prepare the following information before calling technical support. In addition, it is recommended to turn on the device at this time, so as to conduct guiding operation during communication.

    Problem description, and any information you think is relevant

    Configuration information of main body and board.