HDMI2.0 Version 4K60hz 18GBPS 16x16 HDMI MATRIX







Thank you for purchasing this product. For optimum performance and safety, please read these instructions carefully before connecting, operating or adjusting this product. Please keep this manual for future reference.

SURGE PROTECTION DEVICE RECOMMENDED

This product contains sensitive electrical components that may be damaged by electrical spikes, surges, electric shock, lightning strikes, etc. Use of surge protection systems is highly recommended in order to protect and extend the life of your equipment.

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1. Features

- 16 x HDMI 2.0 input & 16 x HDMI 2.0 output
- HDMI 2.0 version support 4K@60Hz YUV4:4:4, 18Gbps, Deep color 8bit
- HDCP 2.2/1.4 compliant (follow input)
- Supports Dolby Vision, HDR10, HLG
- Supports LPCM up to 7.1, Dolby Atmos and DTS-X Atmos, 192KHz
- Supports 16 x Analog & 16 x SPDIF Audio Matrix
- Supports Analog Audio Volume control from level 1 ~ 10
- Supports Panel Button with LCD, IR Remote control, RS232 Control, TCP/IP Control
- Supports 4K downscale to 1080p (Only for outputs)
- Supports smart EDID management
- Supports FW updating through RS-232 port

2. Package Contents

- 1). 1x Main Unit (HDMI Matrix)
- 2). 1x DC 24V/4A power adapter
- 3). 1x Remote control
- 4). 1x IR Receiver cable
- 5). User manual & Command list (Download in WEB)
- 6). 1x 3Pin Phoenix terminal plug
- 7). 1.5U rack design metal case with 2 mounting ear
- 8). 1x USB2.0 to RS232 upgrade cable

3. Specifications

Operating Temperature Range	-5 to +40°C(23 to +104 °F)
Storage Temperature Range	-10 to +60°C(-14 to +140 °F)
Operating Humidity Range	5 to 90 % RH (no condensation)
Input Video Signal	0.5-1.0 volts p-p
Input DDC Signal	5 volts p-p (TTL)
Bandwidth	18G
Vila - Estimat Service et al	4K@60Hz,YUV4:4:4 8bit
Video Format Supported	4k@30Hz/1080P/1080i/720P/576P/480P/576i/480i
HDCP Compliant	HDCP 2.2 and HDCP 1.4
Output Video	HDMI 2.0 Version
Audio Format Supported	LPCM up to 7.1, Dolby Atmos and DTS-X Atmos
Power Consumption	80watts (Max.)
Dimensions	L438xW310xH66 mm
Mass (Main Unit)	5.38 KG

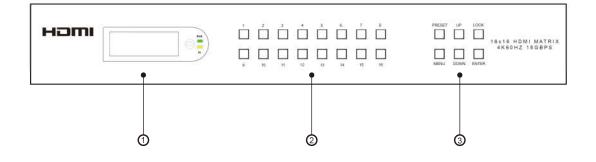
VESA Resolution List

Rate	Resolution	Supported	Mark
	640×480	\checkmark	
	800×600	\checkmark	
	1024×768	\checkmark	
	1280×768	\checkmark	
	1280×1024	\checkmark	
	1600×1200	\checkmark	
60Hz	1400×1050	\checkmark	
	1920×1080	\checkmark	
	1280×720	\checkmark	
	1360×768	\checkmark	
	1920×1200	√	

Testing Resolution List

Rate	I/P	Resolution	Supported	Mark
	I	576i	×	
	Р	576P	\checkmark	
50Hz	Р	720P / 1080P / 4K2K	\checkmark	
<u> </u>	I	480i/1080i	\checkmark	
60Hz /59.94Hz	Р	480P / 720P / 1080P / 4K2K	\checkmark	
30/29.97Hz	Ρ	720P / 1080P / 4K2K	\checkmark	
24Hz	Р	1080P / 4K2K	\checkmark	
25Hz	Р	720P / 1080P / 4K2K	\checkmark	

4. Panel Descriptions

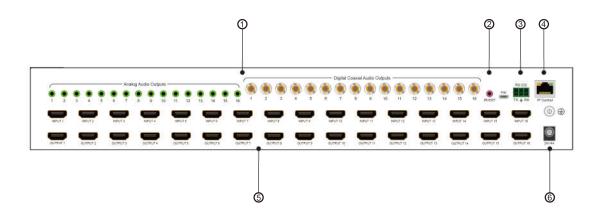


1) LCD: Showing Matrix information

2 Output button OUT1~16 & Input button IN1~16

(By using UP / DOWN Button to select Output or Input channel)

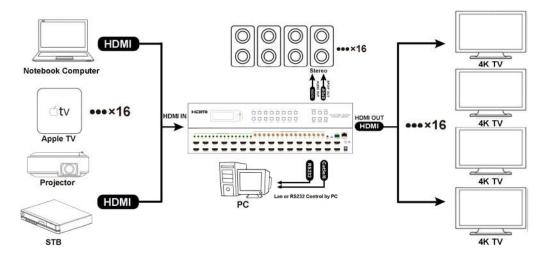
③ Function button: PRESET; MENU; UP; DOWN; LOCK; ENTER



(1) Analog and Digital Coaxial Audio output ports x16 (supports Audio Matrix)

- 2 IR EXT
- 3 RS232 port & FW update port
- ④ TCP/IP port
- ⁽⁵⁾ Power On/Off
- ⁽⁶⁾ HDMI inputs x16 & outputs x16

5. Wiring Diagram



5.1. HDMI Cable Testing:

1080P60Hz YUV 4:4:4

Input				
Output	5m	8m	10m	15m
5m	\checkmark	\checkmark	\checkmark	×
8m	\checkmark	\checkmark	\checkmark	×
10m	\checkmark	\checkmark	\checkmark	×
15m	×	×	×	×

4K30Hz YUV 4:4:4

Input				
Output	5m	8m	10m	15m
5m	\checkmark	\checkmark	\checkmark	×
8m	\checkmark	\checkmark	\checkmark	×
10m	\checkmark	\checkmark	\checkmark	×
15m	×	×	×	×

4K60Hz YUV 4:4:4

Input				
Output	5m	8m	10m	15m
5m	\checkmark	\checkmark	\checkmark	×
8m	\checkmark	×	×	×
10m	\checkmark	×	×	×
15m	×	×	×	×



6. Input / output channel key operation

Channel	Button method
Any Key	The first operation of the button can wake up the screen and do the command
Output 1-16 Input 1-16	 1: By using UP / DOWN Button to select Output or Input channel 2: Directly press the number key, such as the output channel 5, press button "5" and press it again to cancel the selection; Long press output to select all channels, and long press again to cancel 3: Directly press the number key, such as input channel 1, and select "1" to press (only when the output port is selected, the input channel number will be valid) Long press means all outputs select current input
PRESET	Shortcut key for calling the preset
MENU	Function Button; Short press to enter the function option or back to previous option
ENTER	Confirm Button: enter function selection mode
UP	Button for UP option
DOWN	Button for NEXT option
LOCK	Long press to LOCK(button blue light on), Long press again to UNLOCK (button blue light off)

7. Video switching operation

7.1. Video switch

The signal switch includes 16 free switching channels, which can be configured as input/output according to the requirements, forming a matrix of 1 x $16 \sim 16 x 1$, which can switch any input signal to 1 channel output or all channel output.

The specific operation as follows:

Output	1	2	3	4	5	6	7	8
Input	1	2	3	4	5	6	7	8
Output Input								

Switch the input to the output

Operation format: "output channel" + "input channel"

For Example: Output port 1 switch to input 5

Operation: Press OUT number "1" + Button "DOWN" + IN number "5" to complete the switch

7.2. Video Control

The Main interface have five sub menu

1. Output Setting

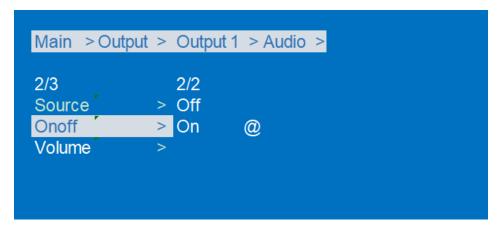
Including 17 sub menu (Output1~16, All). Each sub menu with Video and Audio option Video supports switching the channels and turn on/off the video signals

Main >			
1/5		1/17	
Output >	> (Output1	>
Input >	> (Output2	>
Preset >	> (Output3	>
Config >	> (Output4	>
Info >	> (Output5	>

Main > Outp 1/17 Output1 Output2 Output3 Output4 Output5	ut > 1/2 > Video > > Audio > > >
Main > Outpu 1/2 Source Onoff	ut > Output 1 > Video > 1/16 > Input1 @ > Input2 Input3 Input4 Input5
Main > Outpu 2/2 Source Onoff	ut > Output 1 > Video > 2/2 > Off > On @

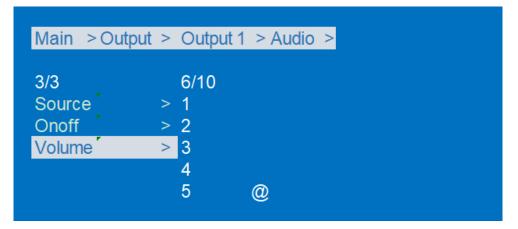
Audio supports turn on/off HDMI / Analog / Digital, Supports switching and Volume Control

Main	> Output	>	Output 1	> Audio	>
1/3			1/33		
Sourc	e	>	Auto	@	
Onoff			Input1		
Volum	e	>	Input2		
			Input3		
			Input4		
			Input5		



Analog Volume Control

Default analog volume is in level 5, only support in Analog ports. When input change to digital, will be mute.



2. Input Setting

Including 17 sub menu (Output1~16, All). Each sub menu with Video and EDID option Video supports turning on/off the video signals, and won't effect the Audio extraction

∕lain > In	put >		
1/47	1/0		
1/17	1/2		
nput1	> Video	>	
nput2	> EDID	>	
nput3	>		
nput4	>		
nput5	>		

EDID including 25 options: 5xDefault, 4xUser, 16x Copy Output

Default-1	4096x2160P@60Hz 444 LPCM2.0	Default-2	4096x2160P@60Hz 420 LPCM2.0
Default-3	4096x2160P@30Hz 444 LPCM2.0	Default-4	1920x1080P@120Hz 444 LPCM2.0
Default 5	1920x1200P@60 444 LPCM2.0		

Main > Intput	> Intput 1 >
2/2 Video EDID	1/24 > Default1 @ > Default2 Default3 Default4 User1

3. Preset setting

Including Clear, Save, Call option. Total support 8 presets.

t >	
1/1 > Scene > >	>
<pre>> Save ></pre>	Scene >
	> Scene > >

4. Config setting

Including Network, RS-232, User EDID, System

Main > Config >	
Network > RS-232 > System >	1/6 DHCP > IP > MASK > Gateway > Port >
Main > Config >	Network > DHCP >
On	DHCP : Off IP : 192.168.1.168 MASK : 255.255.255.0 GW : 192.168.1.1 MAC : 4658-4E94-B465
>>Network > IP > F	Part 4 >
169/256 164 165 166 167 168 @	DHCP : Off IP : 192.168.1.168 MASK : 255.255.255.0 GW : 192.168.1.1 MAC : 4658-4E94-B465
>>Network > Port >	TCP >
8000/65534 7996 7997 7998 7999 8000 @	DHCP : Off IP : 192.168.1.168 MASK : 255.255.255.0 GW : 192.168.1.1 MAC : 4658-4E94-B465

Main > Config > RS-232 > Baud >
6/6 9600 19200 38400 57600 115200 @
Main > Config > System >
1/2RebootFactoryYes
Main > Config > System >
2/2 1/2 Reboot > Keep user > Factory > Erease all >
Main > Config > System >
1/2 1/2 Keep user > No @ Erease all > Yes

*KEEP USER: restore running info.(include video,Audio,EDID,Setup). *EREASE ALL: reset all default setup functions.

5. Info setting

Including Input, Output, System, LOG

Input: Showing connection status, input resolution, deep color, audio format and HDCP version etc. Output: Showing TV info.

System: Showing the device info., Versions, Network

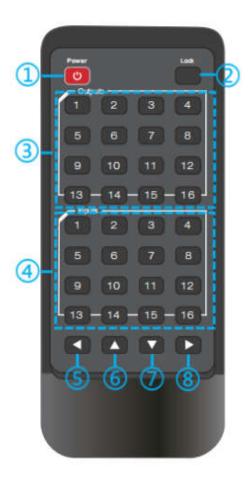
LOG: Showing products common information like running time, booting times etc.

Main >
5/51/4Output >Input >Input >Output >Preset >System >Config >LOG >Info >
Main > Info > Input >
1/16 Input 1 Link : Unconnect Input 2 Input 3 Input 4 Input 5
Main > Info > System >
1/2SystemCO. : Model nameVersionsType : can be showed hereID : 3CB4B465IP : 192.168.1.168MAC : 4658-4E94-B465

Main > Info >	LOG >	
1/1 Common	Time : Boot : EXE : ERR : TMP :	6912 0

8. Remote Control Description

- ① Standby Mode
- 2 Lock or Unlock the Panel Button
- (3) Choose output from 1-16
- 4 Choose input from 1-16
- ⁽⁵⁾ Menu (back to previous option) button
- ⁽⁶⁾ UP button
- 0 Down button
- 8 Enter button



9. RS232 Command Control

Default	Biller offi
Default IP Address	192.168.1.168
TCP Port	5000
UDP Port	5001
Telnet Port	23
Baud Rate	115200

***Default DHCP OFF!

Control software operation:

The serial control software is illustrated with SSCOM32 as an example. Basic Settings:



Double-click the software in the installation package to run specifically (as shown in figure 1 below) and install the RS232 software on the computer.

Enter the main interface of the software, as shown in the figure below.

(▲ SSCOM V5.12.1 串口/网络数据调试器,作者:习小适(大虾丁丁),2618058@qq.com. QQ群: 52502	449	
通讯端口 串口设置 显示发送 多字符串 小工具 帮助 回报作者 PCB打样		
Video 01 to 04. Video 01 to 05.	多条字符串发送 stm32/GD32 IS	P STC/IAP15 ISP
Video 01 to 06. Video 01 to 07	←拖动加宽 [循环发送 多]	茶期 导入ini 3000 ▲
Video 01 to 08.	HEX 字符串(双击注释)	点击发;+ - es
Video O1 to O9. Video O1 to 10.	Help?	查询指令 1 1000
Video 01 to 10. Video 01 to 11.	UDI?	字符串1 3 1000
Video 01 to 12.	V:1>1;	视频切换 2 1000
Video O1 to 13. Video O1 to 14	▼ P:10/1/1;	4无注释 0 1000
Video O1 to 15.	F	5无注释 0 1000
Video O1 to 16. Output 16 RGB&YPBPR resolution:1920*1080P 50HZ.	Factory!	6开注释 0 1000
Input to all.		7无注释 0 1000
Video 05 to 01.	E T	8无注释 0 1000
Video 05 to 02. Video 05 to 03.	P:10/10/13;	9无注释 0 1000
Video 05 to 04.		10无注释 0 1000
Video 05 to 06. Video 05 to 07.	P:10/7/4;	11无注释 0 1000
Video 05 to 01. Video 05 to 08.		12无注释 0 1000
Video 05 to 09.	P:10/10/90;	13无注释 0 1000
Video 05 to 10. Video 05 to 11.	P:10/10/90;	14无注释 0 1000
Video 05 to 12.	E	15无注释 0 1000
Video 05 to 13. Video 05 to 14.	P:10/14/0;	16无注释 0 1000
Video 05 to 15.	E	17无注释 0 1000
Video O5 to 16.	E	18无注释 0 1000 ,
		10年注意 10 1000 -
清除窗口 打开文件 发送文件 停止 清发送区	 □ 最前 □ English 保存参数	扩展
端口号 COM2 Prolific USB-to-Seria▼ □ HEX显示 保存數据 □ 接收数据到文件 □ HEX发送 □		回车换行
	素尾加校验:None ▼	
▼ RTS ▼ DTR 波特率: 115200 ▼ P:16/8/15;		*
【PCB打样】哪家强? 当然就是嘉立创![进入] 发送		-
欢迎使用专业串口调试工具SSCOM / 作者: 习小猛(丁丁),大虾电子网版主 最新版本下载地址: ht	tp://www.daxia.com/ 欢迎提出您	的建议!请将建议发到2618
www.daxia.com S:371 R:4650 COM2 已打开 115200bps,8,1,None,None		CTS=0 DSR=0 R

In the parameter config. area, select the serial port number that the serial line connects to the PC Baud rate: 115200 (default)

Data location: 8.

Stop bit: 1

Check bit: no

Then can input commands in the command input area to control the local or remote receiver

Such as changing IP address to be 192.168.1.168: Command is: #network ip=192.168.1.168

Instructions:

1. All commands start from "#", command head "%c": "d" parameters, "l" lock,

"s" save.

2. The "_" in the commands cannot omit. Parameter: %d: 0 means ALL.1-x means specified output($1 \sim 16$).

3. Command head & Parameter1 & Parameter2... need to add one "SPACE".

The following table is only an example. Please refer to the list of instructions.

Instruction description	instruction	parameter 1	parameter 2	parameter 3
Video switch	#video_%c	out%d	in%d	matrix=%d
Audio Mode Switch	#audio_%c	in%d	/	enc=%d
EDID	#EDID_%c	In%d	cfg=%d	/

Please refer to the "Command list" for details.

Example: ALL output switches to input 4.

Operation format: #video_d out0 matrix=4

Supports multi-Outputs selecting, such as: #video_d out3,2,1 source=3

TCP/UDP Control

- $(\underline{1})$ Commands are the same as the RS232 commands
- 2 TCP supports command feedback, UDP only for sending commands, no data feedback
- ③ Can't support PUTTY type's tools

Telnet Control

- ① "window"+ "R" typing"cmd"+ "Enter"
- 2 Typing: Telnet 192.168.1.168 (According to the correct IP address) + "Enter"
- ③ User: admin; Password: admin
- ④ Command: "#cmd" to get the command list

10. Web Control



1). Connect the Ethernet port of matrix to the Ethernet port on PC by a crossover cable with RJ45 connectors.

2). Configure your PC as follows:

- ① Click Start > Control Panel > Network and Sharing Center.
- 2 Click Change Adapter Settings.
- (3) Highlight the network adapter you want to use to connect to the device and click **Change settings of this connection**.
- 3). The local Area commotion properties window for Network selection appears as below:
- 4). Click the Highlight Internet Protocol Version 4 (TCP/IPv4).
- 5). Click Properties.
- 6). Select Use the following IP Address for static IP addressing and fill in the details.

For TCP/IPv4 you can use any IP address in the range 192.168.1.1 to 192.168.1.255 (excluding 192.168.1.168).

- 7). Click OK.
- 8). Click Close.

tworking Sharing	General	
Connect using:		d automatically if your network supports need to ask your network administrator
	for the appropriate IP settings.	
This connection uses the following items:	Obtain an IP address autor	matically
Gentection uses the following items:	Use the following IF address	55:
Glerit for Microsoft Network S	IP address:	192.168.1.2
QoS Packet Scheduler	Subnet mask:	255.255.255.0
File and Printer Sharing for Microsoft Networks Anternet Protocol Version 6 (TCP/IPv6)	Default gateway:	
Internet Protocol Version 4 (TCP/IPv4)		
	Obtain DNS server address	automatically
LINK-Layer Topology Discovery Responder	 Use the following DNS serv 	er addresses:
Install Uninstall Properties	Preferred DNS server:	
Description TCP/IP version 6. The latest version of the internet protocol	Alternate DNS server:	
that provides communication across diverse interconnected		
networks.	Validate settings upon exit	Advanced

10.1. Enter Web and Control

Enter the default IP address of the matrix: 192.168.1.168 (Not available when DHCP ON) Account: admin Password: admin (If forgetting the account information, sending command: "#factory1" back to the default account information)

LOG IN -	
admin	
P	
Log in	

10.2. Status interface:

Input Info & Output Info & Preset Info:

1 1 March 1 1 A 1 A 1 A 1 A 1 A 1 A 1 A 1 A 1 A							
Status	Video Switching			Presets			
Video	Output	Current Inp	ut	Name	Activate	Save	Clear
Million:	OUTPUT 1	INPUT 1	7	Preset1	Save	Call	Clear
Input	OUTPUT 2	INPUT 1	4	Preset2			
	OUTPUT 3	INPUT 1	-	Presetz	Save	Call	Clear
Output	OUTPUT 4	INPUT 1	- 44	Preset3	Save	Call	Chear
	OUTPUT 5	INPUT 1	-	Preset4	Save	Call	Clear
Network	OUTPUT 6	INPUT 1	200				
1.0000000000	OUTPUT 7	INPUT 1		Preset5	Save	Call	Oear
System	OUTPUT 8	INPUT 1	1.00	Presetb	Sam	Call	Christ
	OUTPUT 9	INPUT 1	~	Preset7	Save	Call	Clear
	OUTPUT 10	INPUT 1			-	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
	OUTPUT 11	INPUT 1	-	Presetä	5ave	Call	Clinic
	OUTPUT 12	INPUT 1	1				
	OUTPUT 13	INPUT 1	(196)) (196)				
	OUTPUT 14	INPUT 1	-				
	OUTPUT 15	INPUT 1	1				
	OUTPUT 16	INPUT 1	~				
	All Output	INPUT 1	4				

10.3. "Input" interface:

Rename: Double click to revise the input port's name, max 15 characters

Active: Connecting information

EDID: For setting and checking Default EDID, Copy output and User EDID information USER EDID: Supports saving Default or Output's EDID to User EDID, and using the BIN documents upload to the User EDID

	Input Settings					
Status	Input	Active	Rename	Video	EDID	
	HDMI 1	0	input f	OFF ON	Default1:	
Video	HDMI 2	0	input 2	OFF ON	Default1:	2
Input	HDMI 3		Input 1	OFF ON	Default1:	
Output	HDMI 4	0	input 4	OFF CN	Default1:	
	HDMI 5		loput 5	OFF ON	Default1:	
Network	HDMI 6		input 6	off on	Default1:	-
System	HDML7		liquet 7	055 014	Default1:	14
	HDMI 8	0	imput 8	Off ON	Default1:	17
	HDMI 9	0	input 9	OTT ON	Default1:	24
	HDML10		input 10	OFF ON	Default1:	
	HDMI 11	0	input 11	OFF ON	Default3:	4
	HDMI 12	0	input 12	OFF ON	Default1:	
	HDMI 13		input 13	OFF ON	Default1:	
	HDMI 14		input 14	OFF ON	Default1:	
	HDMI 15	0	input 15	OFF ON	Default1:	
	HDMI 16		input 16	OFF ON	Default1:	24
	All			OFF ON	Default1:	

10.4. "Output" interface:

Rename: Double click to revise the output port's name, max 15 characters Active: Connecting information

Stream: Turn On / off the output signal, won't effect the audio extraction function

	Output Settings					
Status	Output	Active	Rename	Video	Audio	Dec Src
Status	Output 1		output 1	OFF ON	OFF ON	Auto HDMI
Video	Output 2	0	output 2	OFF ON	DFF ON	Auto HDMI
Input	Output 3		output 3	OFF ON	OFF ON	Auto HDMI
1000000	Output 4	0	output 4	DH ON	Off ON	Auto HDMI
Output	Output 5	.0	output 5	OFF ON	OFF ON	Auto HDMI
Network	Output 6	0	output 6	off on	Off ON	Auto HDMI
System	Output 7		output 7	OFF ON	OFF ON	Auto HDMI
	Output 8	•	output 8	OFF ON	OFF ON	Auto HDMI
	Output 9	•	output 9	OFF ON	OFF ON	Auto HDMI
	Output 10	•	output 10	OFF ON	OFF ON	Auto HDMI
	Output 11	•	output 11	OFF ON	OFF ON	Auto HDMI
	Output 12	•	output 12	OFF ON	OFF ON	Auto HDMI
	Output 13	•	output 13	OFF ON	OFF ON	Auto HDMI
	Output 14	•	output 14	OFF ON	OFF ON	Auto HDMI
	Output 15	•	output 15	OFF ON	OFF ON	Auto HDMI
	Output 16	•	output 16	OFF ON	OFF ON	Auto HDMI

10.5. "Network" interface:

For IP Setting and Web Login Settings, including turn on/off the DHCP and Change user name and PW here.

Status	IP Settings			
Video	DHCP	OFF ON		
Input	IP Address		Gateway	
Output	Subnet Mask		TCP Port	
Network	Subnet Mask		UDP Port	
System	Web Login Settings User Name New Password Confirm the Password			
		Set Nerveut Det	Save	

10.6. "System" interface:

Output Network System Reboot	Status Video Input	Serial Baud Rate	
Reboot	Network		λοφόν
		Reboot	Apply

11. FW UPGRADE

First upgrade MCU (layer of application) and then upgrade CPLD, finally upgrade MCU,HTML, (CPLD = C0, HTML = F0, MCU = A1 all support to use USB Micro port for upgrading)

MCU Upgrade:

Open the software UART_ISP_V1.6.exe on PC, select the correct port and baud rate 115200, enter "A1" in Port, then select the path of the program in PATH (XXX. Bin), and click UPDATA to complete the upgrade

MCU Fw encrypt COM		BAUD
COM21 USB-SERIAL CH340	~	115200 \
PORT		
Al		REFRESH
PATH		
		UPDATA
		-
00000 MCU fw is encrypted		^
File start : 0x3000		^
		^
File start : 0x3000		^
File start : 0x3000 Send link AlAck link ok !		Ŷ
File start : 0x3000 Send link AlAck link ok ! Send eras		Â
File start : 0x3000 Send link AlAck link ok ! Send eras Ack eras ok !		^
File start : 0x3000 Send link AlAck link ok ! Send eras Ack eras ok ! Send data		^
File start : 0x3000 Send link AlAck link ok ! Send eras Ack eras ok ! Send data Ack data ok !		Ŷ
File start : 0x3000 Send link AlAck link ok ! Send eras Ack eras ok ! Send data Ack data ok ! Send stop		^
File start : 0x3000 Send link AlAck link ok ! Send eras Ack eras ok ! Send data Ack data ok ! Send stop Ack stop ok !		^

HTML (WEB GUI) Upgrade:

Open the software UART_ISP_V1.6.exe on PC, select the correct port and baud rate 115200, enter "F0" in Port, then select the path of the program (XXX. HTML) in PATH, and click UPDATA to complete the upgrade

UART_ISP V1.6		-3	
COM	HTML Fw		BAUD
COM21 USB-SER	IAL CH340	~	115200 ~
PORT			
FO]	REFRESH
PATH		Į	
E.		-	
			UPDATA
Send eras Ack eras ok ! Send data			Ŷ
Ack data ok ! Send stop Ack stop ok ! Spend time : 1 ### Succeed !			
			v

MAINTENANCE

Clean this unit with a soft, dry cloth. Never use alcohol, paint thinner of benzine to clean this unit.

PRODUCT SERVICE

(1) Damage requiring service:

The unit should be serviced by qualified service personnel if:

- (a) The DC power supply cord or AC adaptor has been damaged;
- (b) Objects or liquids have gotten into the unit;
- (c) The unit has been exposed to rain;
- (d) The unit does not operate normally or exhibits a marked change in performance;

The unit has been dropped or the cabinet damaged.

(2) Servicing Personnel: Do not attempt to service the unit beyond that described in these operating instructions.Refer all other servicing to authorized servicing personnel.

(3) **Replacement parts:** When parts need replacing ensure the servicer uses parts

specified by the manufacturer or parts that have the same characteristics as the

original parts. Unauthorized substitutes may result in fire, electric shock, or other Hazards.

(4) **Safety check:** After repairs or service, ask the servicer to perform safety checks to confirm that the unit is in proper working condition.

WARRANTY

If your product does not work properly because of a defect in materials or workmanship, our Company (referred to as "the warrantor") will, for the length of the period indicated as below, (Parts(1)Year, Labor(90) Days) which starts with the date of original purchase ("Limited

Warranty period"), at its option either(a) repair your product with new or refurbished parts, or (b) replace it with a new of a refurbished product. The decision to repair or replace will be made by the warrantor.

During the "Labor" Limited Warranty period there will be no charge for labor.

During the "Parts" warranty period, there will be no charge for parts. You must mail-in your product during the warranty period. This Limited Warranty is extended only to the original purchaser and only covers product purchased as new. A purchase receipt or other proof of original purchase date is required for Limited Warranty service.