

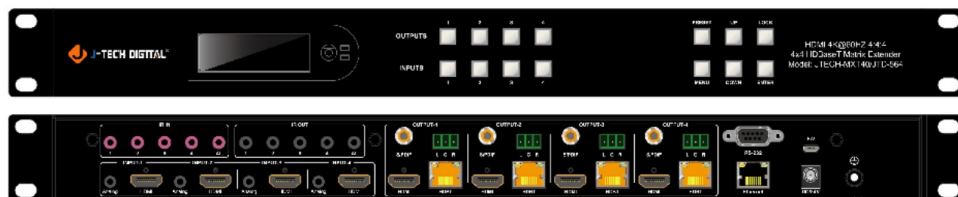


J-TECH DIGITAL JTECH-MXT40B 18 W4x4 HD Base T Matrix Extender User Manual

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Features

- Incorporates HDBaseT technology
- 4 x HDMI input and 4 x HDBaseT output with 4 x HDMI Loop out
- HDMI 2.0 version support 4K@60Hz YUV4:4:4, 8bit, 18G, HDR10
- Transmit up to 70m/230ft. under 1080p, 40m/131ft. under 4K@60Hz
- HDCP 2.2/1.4 compliant
- With wide-band Bi-Direction IR routed control(38~56KHz)
- Supports 4x Analog Audio input
- Supports 4x Analog Audio and 4x SPDIF Audio extraction output
- Supports Panel Button with LCD, IR Routing, RS232, TCP/IP, PC Tool Control
- Supports POC (Receiver powered by HDBaseT Matrix)
- Supports Micro USB for FW updating

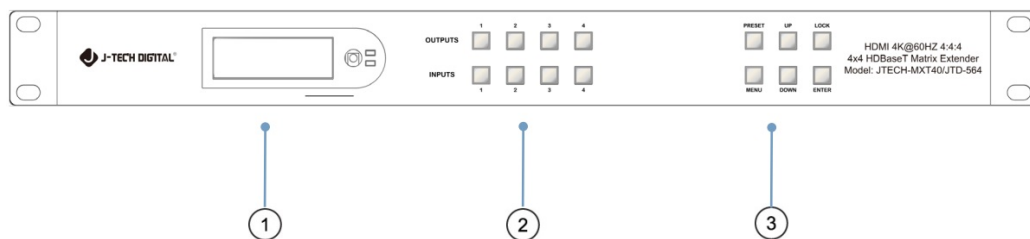
Package Contents

1. (1) x Main Unit (HDBaseT Matrix)
2. (1) x DC24V4A Power adapter
3. (1) x Remote control
4. (5) x IR Transmitter cables, 5x Wide-Band IR Receiver cables
5. (1) x CD for control software & user manual & Command list
6. (4) x 3Pin plug for Analog audio output
7. 1U rack design metal case with 2 mounting ears.

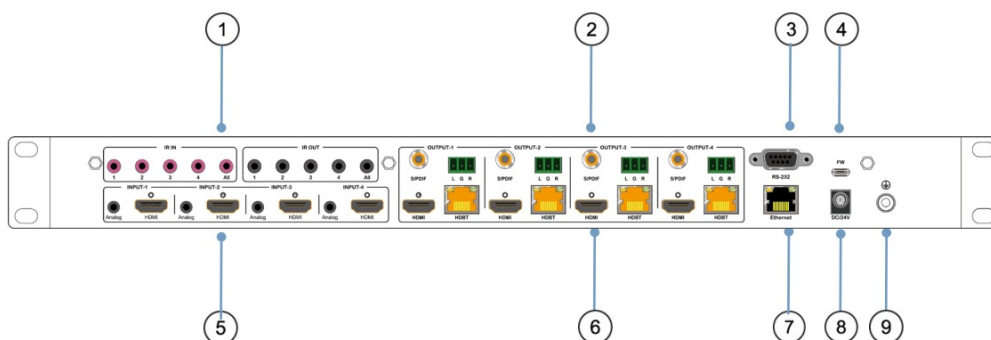
Specifications

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	18Gbit/s
Video Format Supported	4K@60Hz, YUV4:4:4 8bit4k@30Hz/1080P/1080i/720P/576P/480P/576i/480i
HDCP Compliant	HDCP2.2 and HDCP1.4
Output Video	HDMI2.0 and HDMI 1.4 (over HDBaseT and HDMI)
Audio Format Supported	PCM, Dolby5.1, DTS5.1 digital audio
Maximum Transmission Distance	1080P 70m/230ft. 4K 40m/131ft.
Power Consumption	68 watts (Max.)
Dimensions	L438 x W394 x H44 mm
Mass (Main Unit)	3kg/6.6lbs

Panel Descriptions

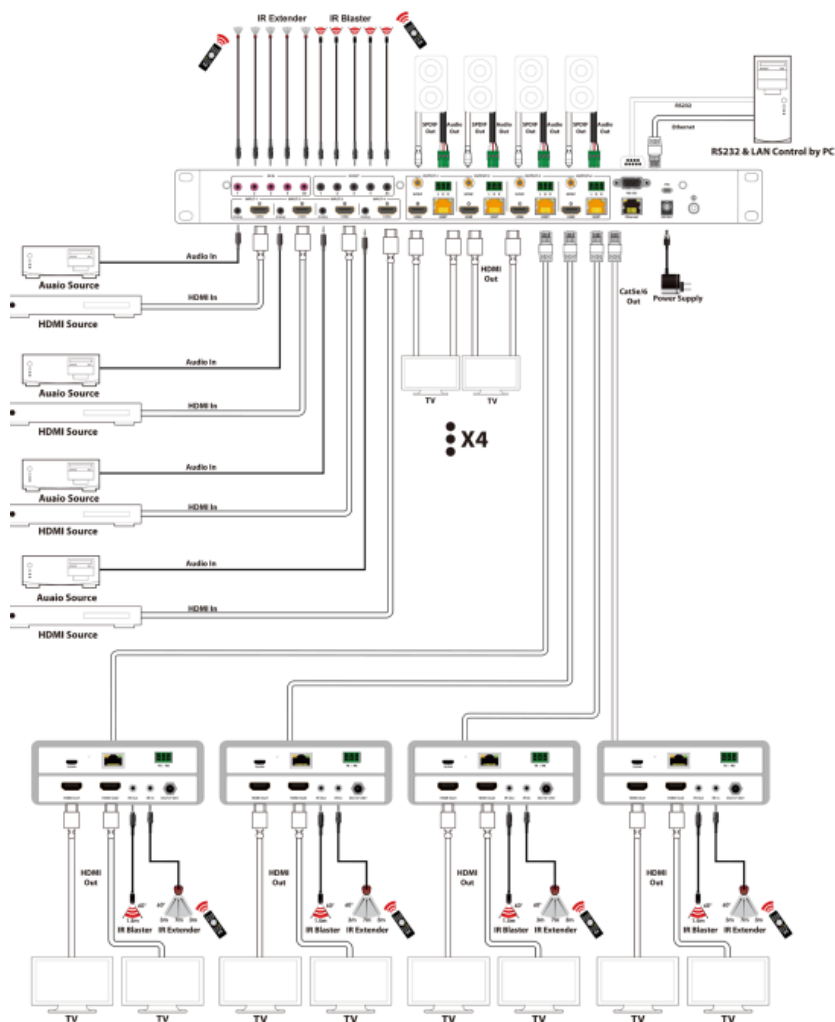


1. **LCD:** Shows Matrix information
2. Output button OUT1~8 & Input button IN1~8
3. **Function button:** MUTE; MENU; UP; DOWN; LOCK; ENTER



1. IR input port x4 & All in & IR output port x4 & All out
2. Audio out (Analog x4; SPDIF x4)
3. RS232 port
4. FW update port
5. HDMI Input x4 AUDIO IN (Analog x4)
6. HDBaseT out x4 & HDMI Loop out x4
7. Ethernet port
8. Power On/Off
9. Grounding

Wiring Diagram



4X8 HDBaseT
Matrix 18gbps
Initializing...

Input / output channel key operation

Channel	Button method
Input 1-4	1. 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) 2. Long press means all outputs select current input
Output 1-4	Directly press the number key, such as the output channel 2, press button “2” and press it again to cancel the selection; Long press output 4 to select all channels, and long press again to cancel
MENU	Function Button; 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
PRESET	Preset, short press to quickly enter the preset call function
LOCK	Long press to LOCK, Long press again to UNLOCK

Video switching operation

Video switch

The signal switch includes 4 free switching channels, which can be configured as input/output according to the requirements, forming a matrix of 1 x 4 ~ 4 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
Input	1	2	3	4

Switch the input to the output

Operation format: “output channel” + “input channel”

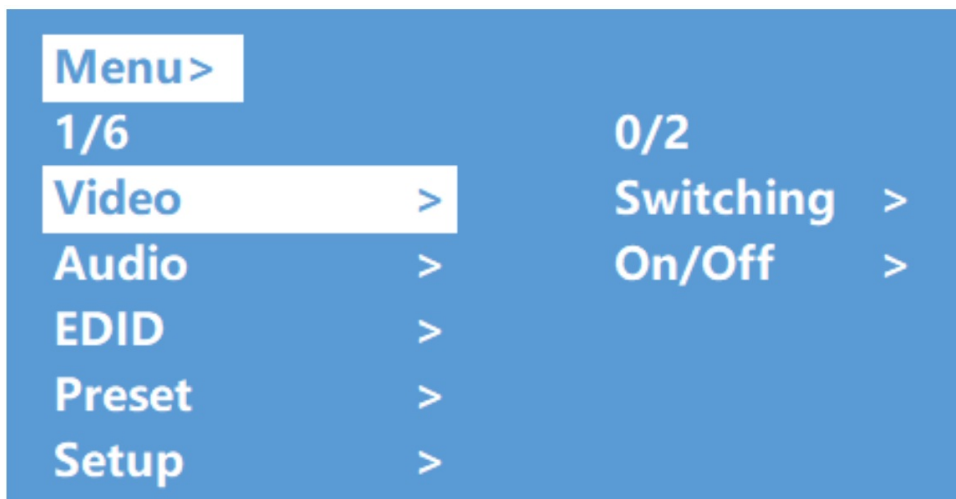
For Example: Output port 2 switch to input 1

Operation: Press OUT number “2” + IN number “1” to complete the switch

Video Control

The video interface has two sub menus:

1. Video Routing
2. Video On/Off

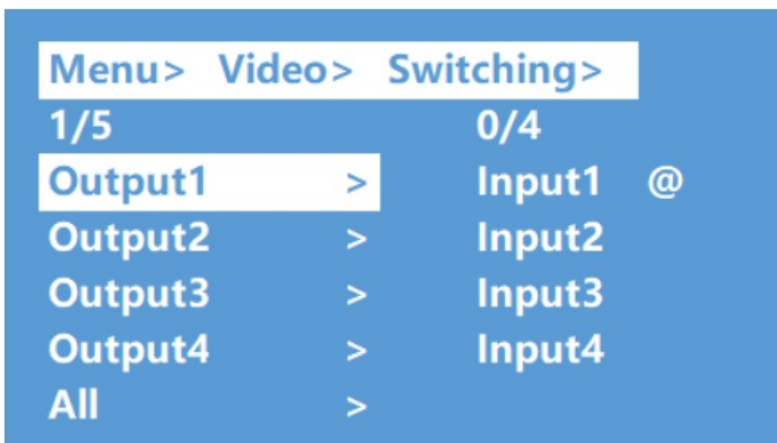
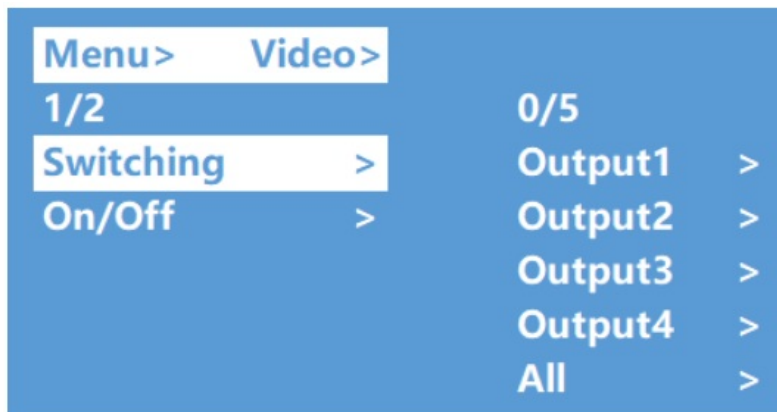


The specific operation as follows:

1. Video Switch

Switch any output to one input or all outputs to the same input, default PTP.

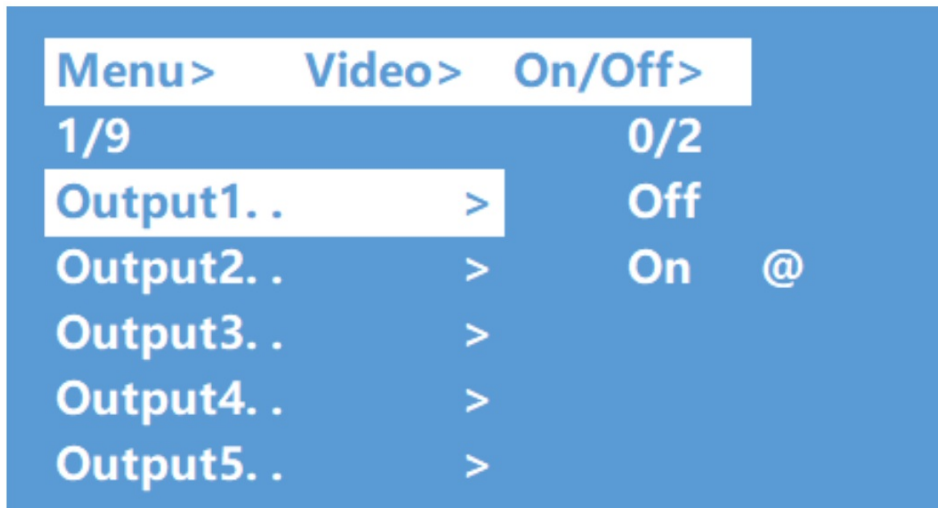
1. Select "Video" in the menu and press "ENTER"
2. Then use "UP" "DOWN" button to select "Switching"
3. Press "ENTER" enter next page
4. Press "UP" "DOWN" button to select the output The fifth port means ALL
5. Press "ENTER"
6. Press "UP" "DOWN" to select the input
7. Press "ENTER" Switch Done



2. Video On/Of

Turn on/off any output video or all outputs video

1. Select "Video" in the menu and press "ENTER"
2. Then use "UP" "DOWN" button to select "On/Off"
3. Press "ENTER" enter next page
4. Press "UP" "DOWN" button to select the output The 9th port means ALL
5. Press "ENTER" to select the HDMI 1~4; HDBT 1~4
6. Press "UP" "DOWN" to select "On" or "Off"
7. Press "ENTER" Switch Done



Audio Control

The Audio Control have three sub menus:

1. Line Out
2. Audio Embed
3. Audio De-Embed

The specific operation is as follows:

1. Line Out

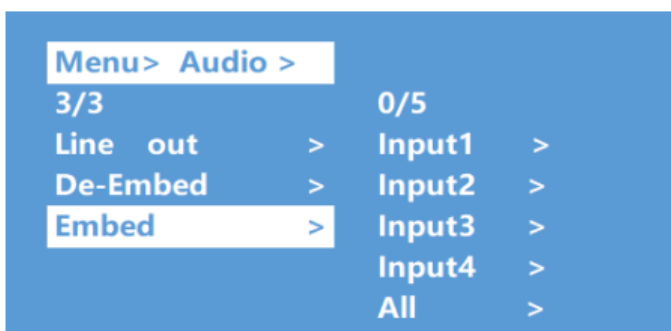
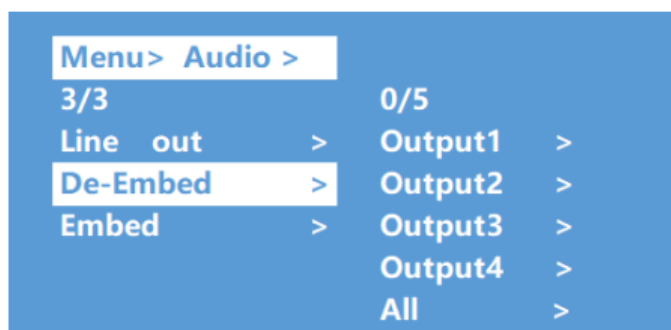
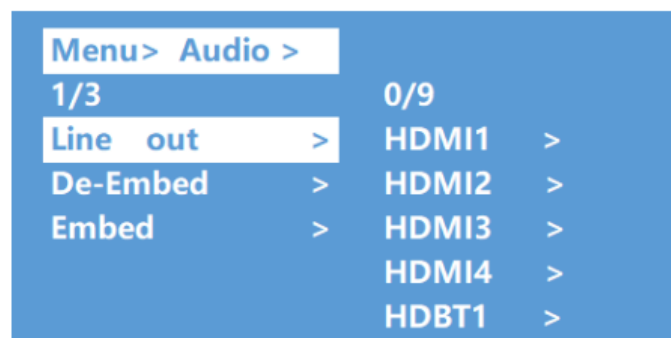
HDMI output audio switch. You can select a channel of HDMI output to mute the sound of the TV

2. Audio Embed

Audio can be embedded to HDMI input. The embedded sound will cover the original sound of the signal source. You can select any input to embed

3. Audio De-Embed

You can set the output audio (analog audio and coaxial audio) at the same time. You can choose a certain audio output or mute



EDID Set Mode Interface

Default EDID

Default1	4K60 444-LPCM: 2.0 FXN1234	Default2	4K60 420-LPCM: 2.0 FXN1234
Default3	4K30 444-LPCM: 2.0 FXN1234	Default4	1080P60 444-LPCM: 2.0 FXN1234

EDID Mode can set each input's EDID. Includes: Default EDID; User EDID; Copy EDID; Copy HDBT EDID.

Menu>			
3/6		0/5	
Video	>	Input1	>
Audio	>	Input2	>
EDID	>	Input3	>
Preset	>	Input4	>
Setup	>	All	>

Menu> EDID>			
1/5		0/12	
Input1	>	Default1	@
Input2	>	Default2	
Input3	>	Default3	
Input4	>	Default4	
All	>	User1	

Menu> EDID> Input1>			
1/12			
Default1	@	3840x2160@60 444	
Default2	>	HDR:HLG	
Default3	>	LPCM: 2.0	
Default4	>	FXN1234	
User1	>		

Preset Interface

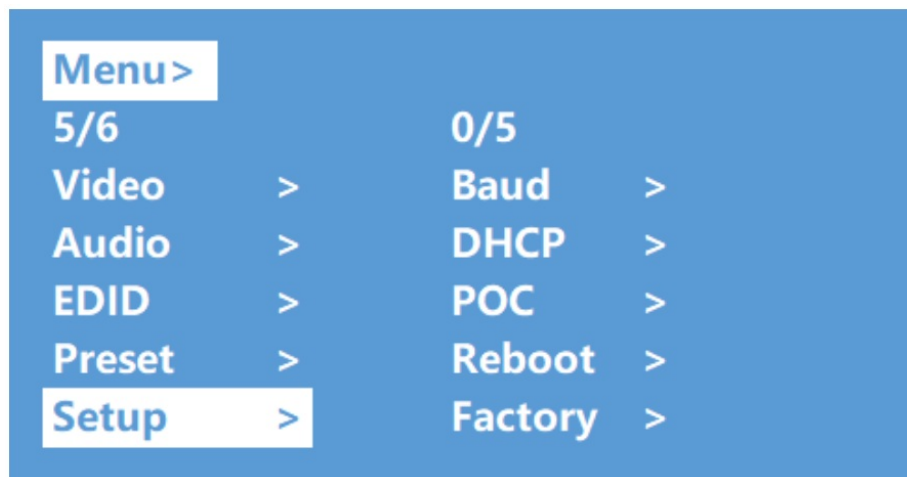
The PRESET interface can save the current video, audio, EDID, system Settings, etc., and supports 8 different scenes. Scenes can be modified and cleared through web pages, commands, and panels. The default preset is consistent with factory Settings

Menu>			
4/6		0/3	
Video	>	Call	>
Audio	>	Save	>
EDID	>	Clear	>
Preset	>		
Setup	>		

Menu> Preset>			
1/3		0/8	
Call	>	Preset1	@
Save	>	Preset2	
Clear	>	Preset3	
		Preset4	
		Preset5	

SETUP mode Interface

SETUP mode can set the device's RS-232 baud rate, POC Switch, DHCP, Reboot, Factory Specific operations are as follows

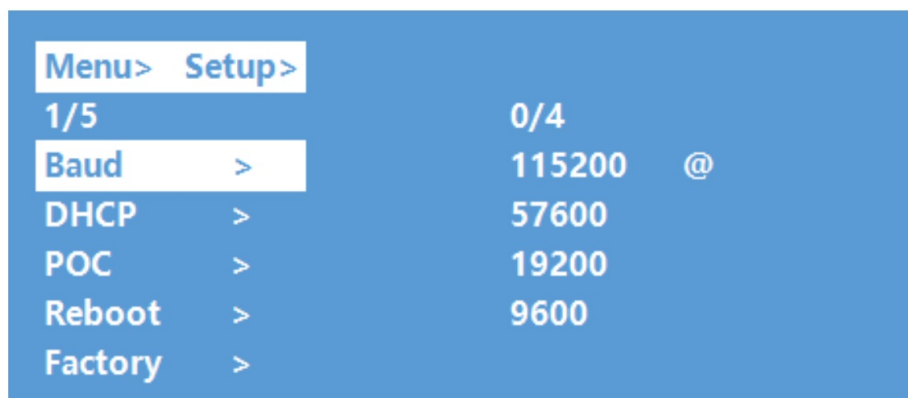


RS-232 Baud Rate setting

It has 4 kinds of baud rates inside the device: 9600; 19200; 57600; 115200

Default Baud Rate is: 115200

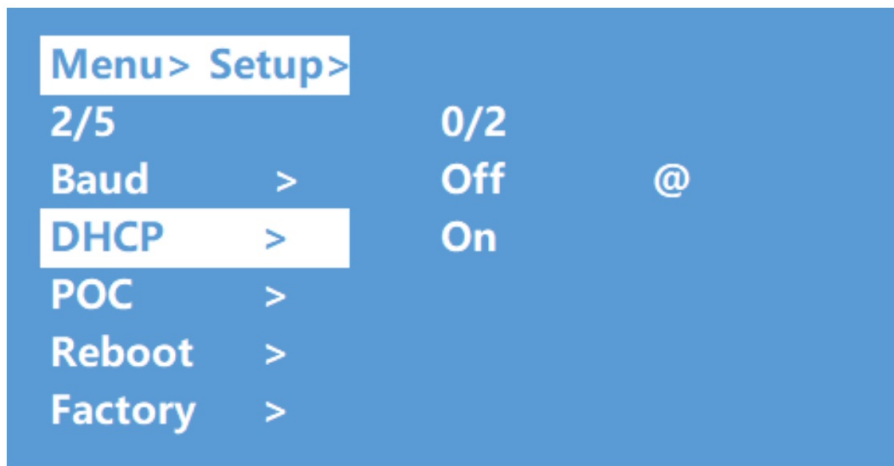
1. Select "Setup" in the menu and press "ENTER"
2. Then use "UP" "DOWN" button to select the "BAUD" and press "ENTER"
3. Press "UP" "DOWN" button to select the baud rate and press "ENTER" to confirm



DHCP On/Off setting

On means Dynamic; Off means Static

1. Select "Setup" in the menu and press "ENTER"
2. Then use "UP" "DOWN" button to select the "DHCP" and press "ENTER"
3. Press "UP" "DOWN" button to select "On" or "Off" and press "ENTER" to confirm

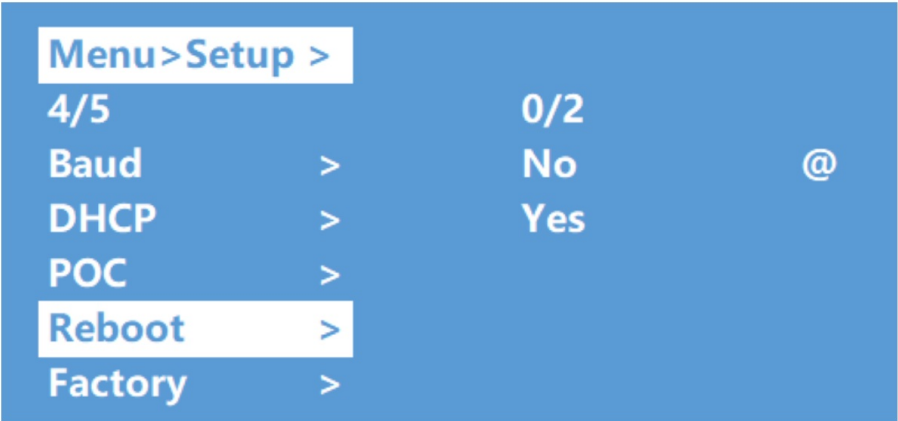


POC power switch

The POC interface can select a certain HDBT output switch to control POC power supply, and the default POC is “On



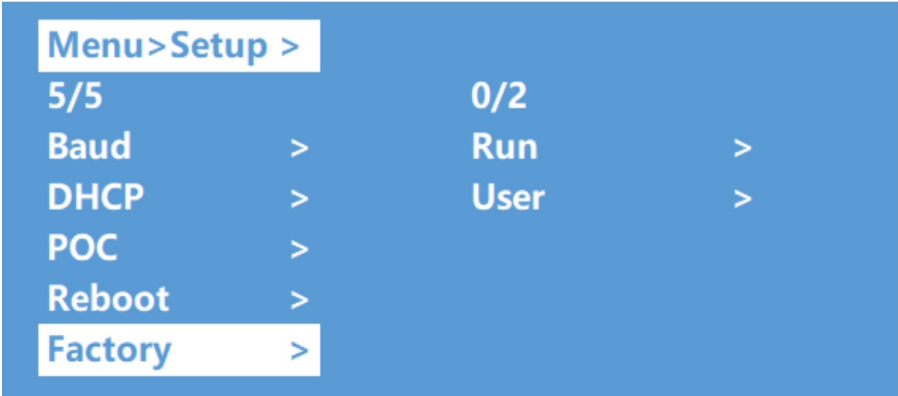
Reboot setting



Factory setting

Factory Run: Reset Video, Audio, EDID, Setup setting, Preset, Device name.

Factory User: Reset Video, Audio, EDID, Setup setting.



Menu> Setup> Factory >User>

1/2

No @

Yes

Reset information:

1.Video

2.Audio

3.EDID

4.Setup

Menu> Setup> Factory >Run>

1/2

No @

Yes

Reset information:

1.Video

2.Audio

3.EDID

4.Setup

5.Preset

6.Name

INFO mode Interface

Check the device information: IP or System information

Menu>

5/5

Video

>

Audio

>

EDID

>

Setup

>

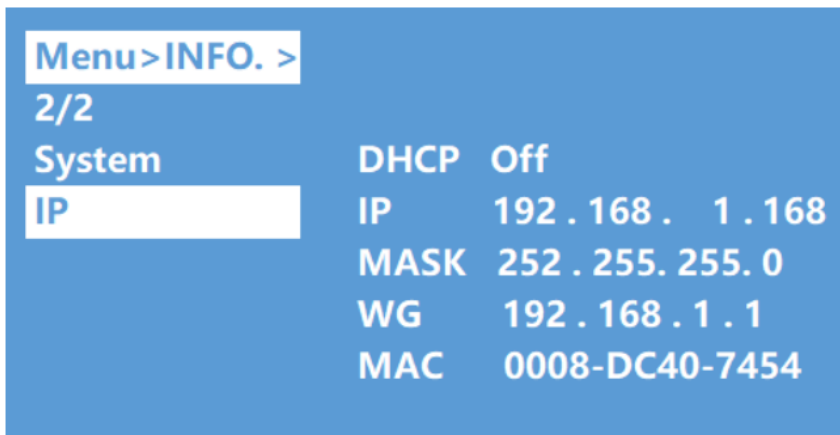
INFO.

>

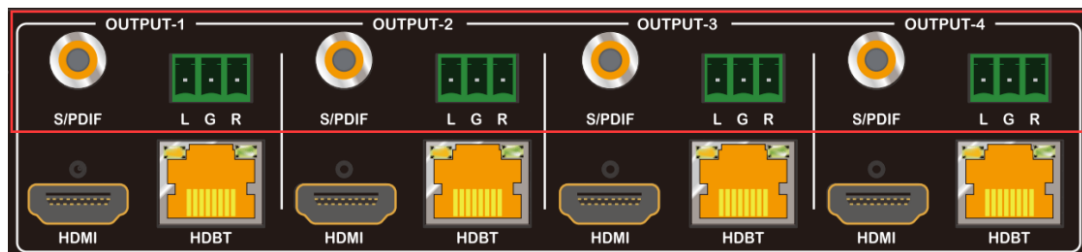
0/2

System

IP

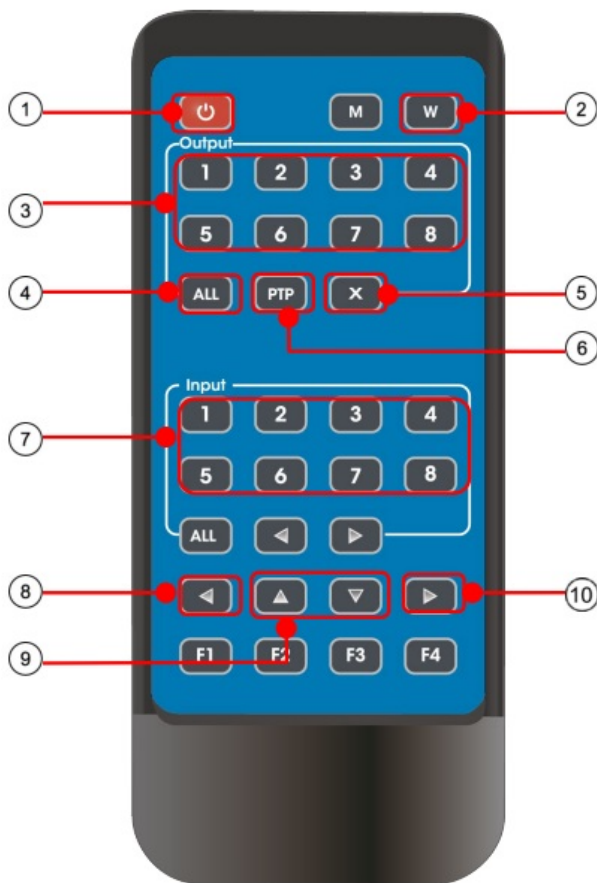


Audio Extraction



HDMI audio output supports uncompressed audio PCM, compressed audio Dolby and DTS, with a maximum support of 7.1 sound channels and a maximum sampling rate of 192KHz. Analog audio supports PCM 2.0 channel. S/PDIF audio supports Dolby or DTS, 5.1 channel.

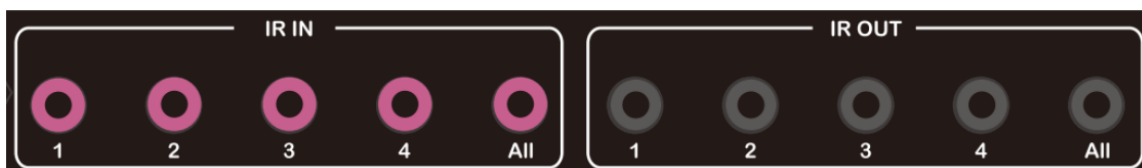
Remote Control Description



1. Standby Mode
2. Lock or Unlock the Panel Button
3. Choose output from 1-4
4. Choose all the outputs.
5. X: Turn on/off output port which you select
6. PTP button: Mirror all inputs and outputs (Ex. Input 1 to output 1, input 2 to output 2, etc)
7. Choose input from 1-4
8. Menu (back to previous option) button
9. UP and DOWN button
10. Enter button

IR system

The matrix can pass the IR signal through the IR system to the HDMI source or pass the IR signal from the HDMI source to the HDMI sink



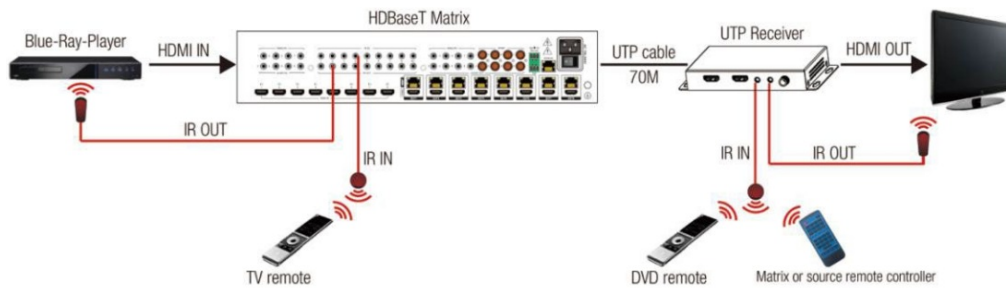
Dual way IR using:

Step1: "IR IN" is for HDBaseT output, "IR OUT" is for input channel

Step2: "IR IN ALL" Controlled by all input IR; "IR OUT ALL" Controlled by all output IR.

Step3: HDBaseT receiver support connect with IR receiver to control the Matrix by remote

Step4: Matrix IR channel "IR IN ALL" support connect with IR-RX cable to control the Matrix by remote



Command Control

Control software operation:

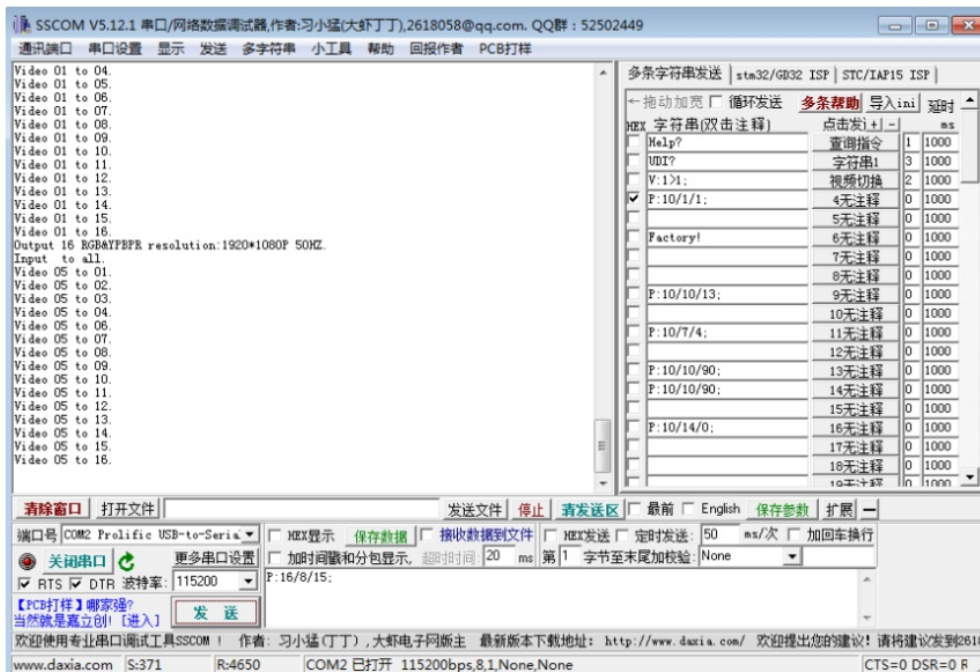
The serial control software is illustrated with SSCOM32 as an example.

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



In the parameter configuration 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

Instructions

1. All commands start from "#", command head "%c": "d" parameters, "l" lock, "s" saves.
2. The "_" in the commands cannot omit. Parameter: %d: 0 means ALL.
3. Command head & Parameter1 & Parameter2... need to add one "SPACE".

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

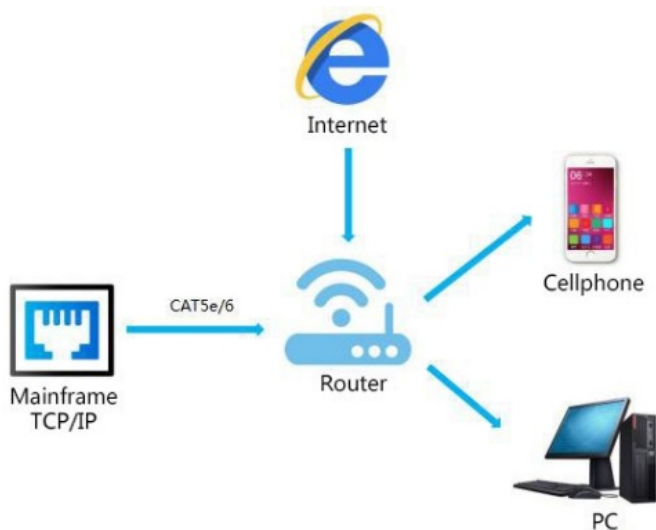
Instruction description	instruction	parameter 1	parameter 2
Video switch	#video_d		
Audio Mode Switch	#audio_%c	in%d	enc=%d
EDID	#EDID_%c	In%d	cfg=%d

Please refer to the "Command list" for details.

Example: ALL output switches to input 4.

Operation format: #video_d out0 matrix=4

Web Control



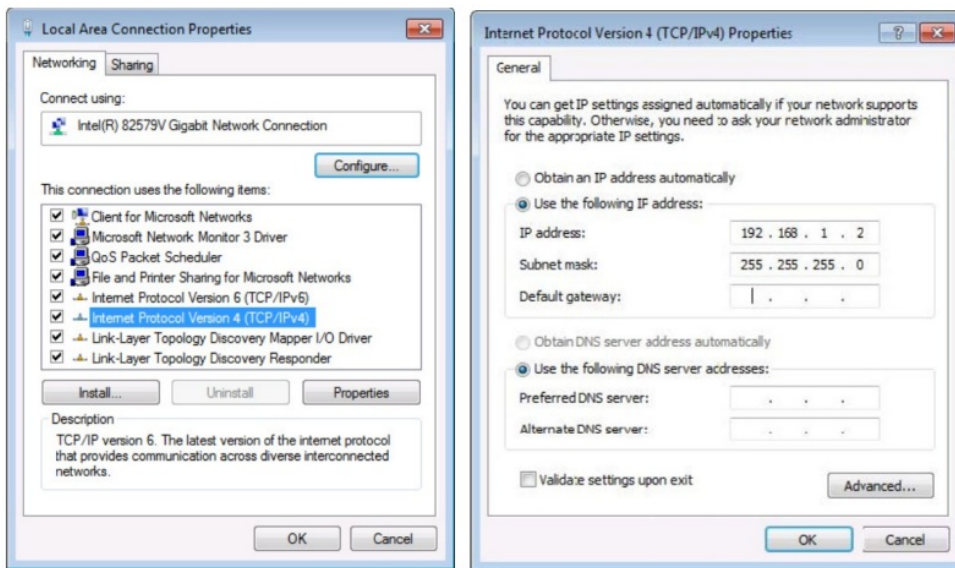
1. Connect the Ethernet port of matrix to the Ethernet port on PC by a crossover cable with RJ45 connectors.
2. Configure your PC as follows:
 1. Click Start > Control Panel > Network and Sharing Center.
 2. Click Change Adapter Settings.
 3. Highlight the network adapter you want to use to connect to 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.

Default IP Address: 192.168.1.168

MASK: 255.255.255.0

Gateway:192.168.1.1

MAC:0008-DCCA-CF3F



Enter Web and Control

Enter the default IP address of the matrix: 192.168.1.168

Account: admin

Password: admin

“Status” interface:

Input Info & Output Info & Device Info:

1. **CONNECT:** The input status display bar. After connecting with the device, it will check whether the current input terminal has access signal source. When no signal source connected, it will be displayed as “x”, and when there is a normal working signal source connected, it will be displayed as “√”.
2. **AUDIO-EMBED:** The Audio Embed status display bar. After connecting with the device, it will check whether the current HDMI output terminal has Audio Embed. When audio is not embedded, it will be displayed as “x”. When audio is embedded, it will be displayed as “√”.
3. **Connect (Local) and (Remote):** It will be displayed as “X” when there is no display device access, and “√” when there is display device access.
4. **Audio De-Embed:** Indicates if Audio separation is turned on. “X”: means off. “√”: means on
5. **Audio HDMI & HDBT:** Indicates if the current local (HDMI) / Remote (HDBT) Audio output is available. When the HDMI/HDBT Audio output is turned off, displayed as “x”, and when the HDMI/HDBT Audio output is turned on, displayed as “√”.
6. **POC (Remote):** “ON” “OFF” means POC turned on or off
7. **HTML Version:** Current WEB Version

Status
Input
Output
Preset
User EDID
Network
System

Input Info

	Connect	Audio-Embed
In1	✓	×
In2	✓	×
In3	✓	×
In4	✓	×

Output Info

	Connect(Local)	Connect(Remote)	Audio De-Embed	Audio-HDMI	Audio-HDBT	POC(Remote)
Out1	✓	✓	✓	✓	✓	OFF
Out2	✓	✓	✓	✓	✓	OFF
Out3	✓	✓	✓	✓	✓	OFF
Out4	✓	✓	✓	✓	✓	OFF

Device Info

HTML Version: V0.0.1

“Input” interface:

Noted: Double Click the Rename column can change the name of the ports

Status
Input
Output
Preset
User EDID
Network
System

Input	Rename	Audio-Embed	Copy EDID From
In1	Input1	<input type="checkbox"/>	Default1 3840x2160P@60 444
In2	Input2	<input type="checkbox"/>	Default1 3840x2160P@60 444
In3	Input3	<input type="checkbox"/>	Default1 3840x2160P@60 444
In4	Input4	<input type="checkbox"/>	Default1 3840x2160P@60 444
All		<input type="checkbox"/>	Default1 3840x2160P@60 444

“Output” interface:

Status
Input
Output
Preset
User EDID
Network
System

Output	Rename	Video HDMI	Video HDBT	Audio De-Embed	Audio HDMI	Audio HDBT	Source	POC
Out1	Output1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	In1 CHANGHONG	<input type="checkbox"/>
Out2	Output2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	In1 CHANGHONG	<input type="checkbox"/>
Out3	Output3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	In1 CHANGHONG	<input type="checkbox"/>
Out4	Output4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	In1 CHANGHONG	<input type="checkbox"/>
All		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	In1 CHANGHONG	<input type="checkbox"/>

“Preset” interface:

Status
Input
Output
Preset
User EDID
Network
System

Preset	Rename	Save	Call
Preset1	Preset1	Save	Call
Preset2	Preset2	Save	Call
Preset3	Preset3	Save	Call
Preset4	Preset4	Save	Call
Preset5	Preset5	Save	Call
Preset6	Preset6	Save	Call
Preset7	Preset7	Save	Call
Preset8	Preset8	Save	Call

“User EDID” interface:

Status
Input
Output
Preset
User EDID
Network
System

User	Copy EDID From
User1	Select The EDID Information
User2	Select The EDID Information
User3	Select The EDID Information
User4	Select The EDID Information

“Network” interface:

Status
Input
Output
Preset
User EDID
Network
System

Mac Address :

IP Address :

Net Mask Address :

Gate Way Address :

DHCP :

Off

Apply

“System” interface:

Status	Account management	
Input	User Name :	<input type="text"/>
Output	New Password :	<input type="text"/>
Preset	Confirm the Password :	<input type="text"/>
User EDID	<input type="button" value="Apply"/>	
Network	Reboot :	<input type="button" value="Reboot"/>
System	User Reset :	<input type="button" value="Factory User"/>
	Factory Reset :	<input type="button" value="Factory Run"/>

FW UPGRADE

First upgrade MCU (layer of application) and then upgrade CPLD, finally upgrade HTML (web page), (CPLD, HTML, MCU all support to use USB Micro port for upgrading)

- A1 means MCU
- C0 means CPLD
- F0 means HTML

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

UART_ISP V1.6

MCU Fw encrypt

COM: COM21 USB-SERIAL CH340 BAUD: 115200

PORT: A1 REFRESH

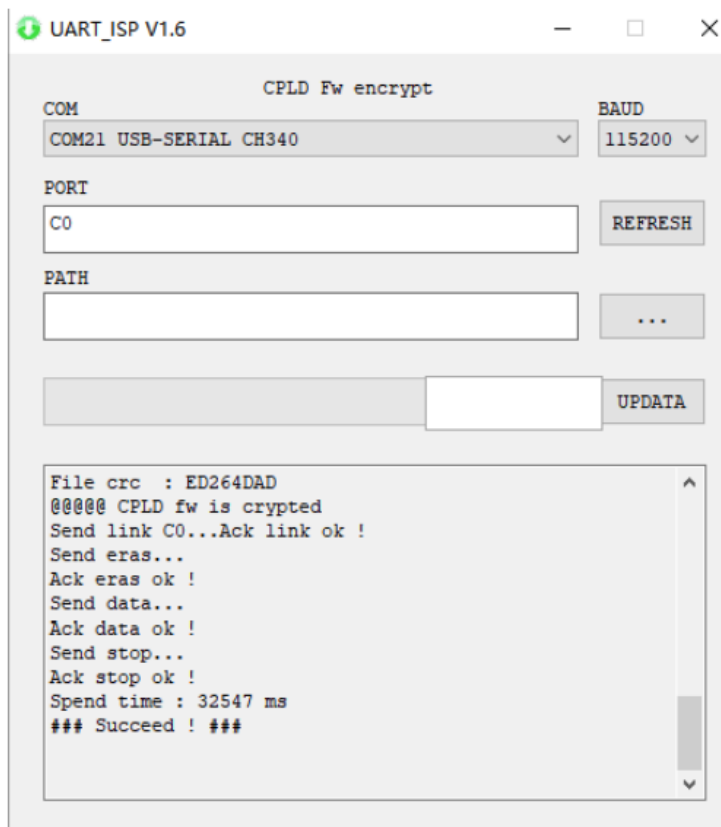
PATH: ...

UPDATE

```
##### MCU fw is encrypted
File start : 0x3000
Send link A1...Ack link ok !
Send eras...
Ack eras ok !
Send data...
Ack data ok !
Send stop...
Ack stop ok !
Spend time : 38546 ms
### Succeed ! ###
```

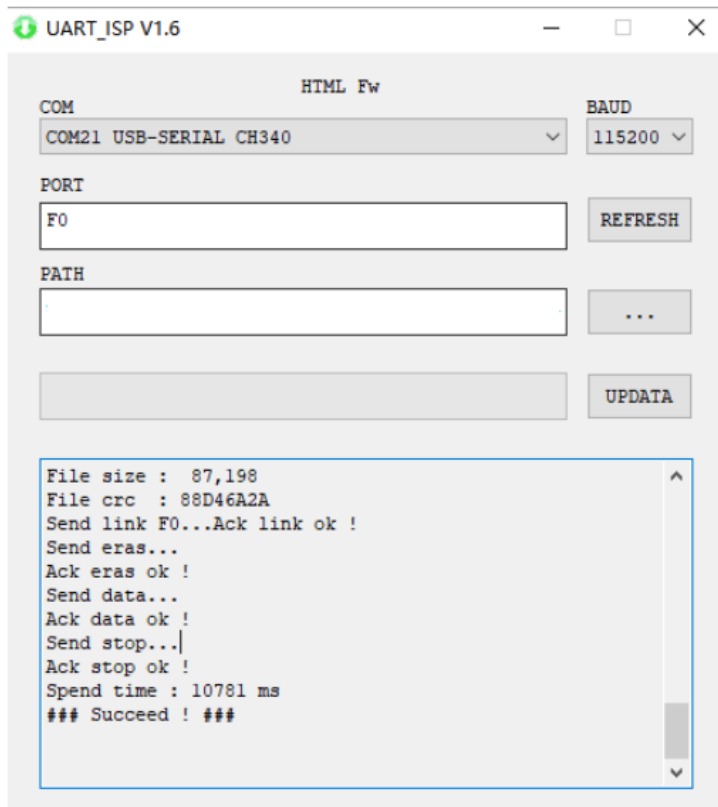
CPLD Upgrade:

Open the software UART_ISP_V1.6.exe on PC, select the correct port and baud rate 115200, enter “C0” in Port, then select the path of the program (XXX. VME) in PATH, and click UPDATA to complete the upgrade



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



MAINTENANCE

Clean this unit with a soft, dry cloth. Never use alcohol, paint thinner or 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) 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 or 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

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Matrix Extender, HD Base T Matrix Extender, T Matrix Extender, Matrix Extender, Extender

References

- **[B J-Tech Digital ® Official Site | Professional AV Solution Provider](#)**
- **[User Manual](#)**

Manuals+.