

# MM2 Series MM2-0808/MM2-1616/ MM2-3232

## 8x8, 16x16, 32x32 Multi Format Matrix Switcher



**User Manual** 

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## Introduction

HD Modular Matrix system is a flexible integrated solution for signal transmission, switching and distribution in meeting room. Modular design allow Matrix to be customized for each application from 4\*4 to 32\*32. Its high bandwidth backplane ensures full compatibility with the highest resolution signals currently in use, while also providing a future-ready upgrade path for new formats with higher resolutions. I/O cards are available for HDBaseT/Fiber/HDMI/DVI/3G SDI/VGA/YPbPr/CVBS. They are HDCP compliant and EDID manageable. Also, they offer flexible RS232 control signal routing to inputs and outputs for remote device control and power up remote extender. For reliability running, matrix card-cage support redundant power supply and all cards hot swap. Matrix card-cage provide preset, recall and Key, RS232 and TCP/IP control function.

## **Package Contents**

- 1×Matrix
- 1×Power Cable
- 1×RS232 Cable
- 1×FW update cables
- 1×Front door key
- 1×CD(User manual)

## Features

- Card-cage sizes are 8\*8, 16\*16, 32\*32;
- Wide selection of input and output cards such as HDMI/DVI/3G-SDI/VGA/ YPBPR/CVBS/HDBaseT and Fiber Optic;
- Video, Power and Bidirectional RS232 control pass through matrix and send to HDBaseT extender over a Catx cable;
- Extends 1080p/60 Deep Color and 1920 x 1200 signals up to 330 feet(100 meters) over Catx and up to 4921 feet(1500 meters) over fiber optic;
- HDCP compliant;
- EDID management support EDID route among output, input and system;
- Support 16 EDID preset and update in system;
- Support 10 preset and recall;
- RS232 TCP/IP and Key control;
- Status real time display in LCD;
- Redundant power supply and all cards hot swap.

## **Panel Description**

1. Front Panel



- 1. LCD Display;
- 2. Power Led; Active Led; Network Led
- 3. Panel Lock;
- 4. Keyboard.
- 2. Rear Panel



- 1. Fan Module;
- 2. Cardcage;
- 3. Power;
- 4. RS232, LAN, FW update USB.

## **Keyboard Description**

As image below, furthermore 0-9 of 10 key caps are designed for disassembly, based on the need to replace the base map.

Down	&       A 11       Save       Recall       Status       Cancel       Menu       End       Enter
0 9	I/O channel selection keys, used to set the I/O channel, call the status or save the selected number
Up	Move the highlighted area UP to select the option
Down	Move the highlighted area Down to select the option
Switch	Signal toggle selection key
A 11	All connected Eg1: "7→All " means tie input 7 to all output ports
Save	Save current status of I/O connection
	Eg1: "Save $\rightarrow$ 2", save current I/O status to NO.2 memory block
Recall	The recall key will restore a saved memory preset.
Status	memory preset The status shown the matchup of inputs to outputs
	The channel key, return the Matrix standby mode
Cancel	Eg1:"1 $\rightarrow$ Switch $\rightarrow$ 2 $\rightarrow$ End $\rightarrow$ Cancel"' clear the input order and
Menu	user can type the new one you need Menu function keys used to enter the menu to setup
End	The end key, finish a selection order
Enter	Command execution key, confirm switching selection and execute the switching action

## Signal Switching Example

#### 1. Switch signal

#### 1. Switch signal from one input to all output ports

Press <Input Port NO.>+<All> in the front panel, as image below, switching signal from 8 to all output ports. Press <8>+<All>, it will be done. If success, LCD monitor will display "Switch OK! 008 To All".



#### 2. Switch one input to one output

Press <3>+<Switch>+<1>+<End>+<Enter> in the front panel, as image below, switch signal from input NO.3 to output NO.1.



#### 3. Switch one input to several outputs

Press <1> + <Switch> + <2> + <&>+ <4> + <&>+ <6> + <End> + <Enter> in the front panel, as image below, switch signal from input NO.1 to output NO.2&NO.4&NO.6.



### 2. Mute output port

#### 1. Mute all output ports

Press <Cancel>+<All> in the front panel, as image below, it will close all output port.



#### 2. Mute several output ports

Press <Cancel>+<1>+<&>+<2>+<End>+<Enter> in the front panel, as image below, it will close output NO.1&NO.2.



## 3. Check the status of output

#### 1. Check all output status

Press <Status> in the front panel, as image below, the LCD monitor will display the status of the output ports.





#### 2. Check one output port status

Press <7>+<Status> in the front panel, as image below, it will display the status of output port 7 in the LED monitor.



ChannelsStatus 02 IN -->070UT

## 4. Save and Recall

#### **1. Save current ports status**

Press <Save>+<4> in the front panel, as image below, Save the I/O configuration into a memory preset, save all I/O status into NO.4 memory cell. "0-9" ten presets in all.



#### 2. Recall the stored status

Press <Recall>+<5> in the front panel, as image below, recall the I/O status from the NO.5 memory preset.

Recall + 5 
$$\rightarrow$$
 Recall From F<sub>-</sub>  
F0-F9 available  $\rightarrow$  Recall To F5  
Finished!

## **Advanced Setting**

## 1. Function Menu

Main Menu	Second-class Menu	Third-class Menu
		1.External EDID
1 EDID Catting	1. EDID Update	2.Default EDID
		3. Back
		1. Save EDID
I. EDID Setting	2. EDID Manage	2. Delete EDID
		3.Back
	3. EDID Info	/
	4.Back	/
		1. Baud Rate
		2.Data Bits
	1.Main Board	3.Stop bit
		4.Parity
		5. Back
		1. Baud Rate
2.RS232 Setting	2 In Port1	2. Data Bits
Note:Port RS232 is for	2. 111 FOI UI	3.Stop bit
the HDBaseT card RS232	17 In Pont 16	4. Parity
pass through setting,RX	17.111101010	5.Rx on/off
on/off is data feedback		6.Back
control		1. Baud Rate
	18 Out Port1	2. Data Bits
		3.Stop bit
	33 Out Port16	4. Parity
	55. Out 101 t10	5.Rx on/off
		6.Back
	34. Back	/
		1.1920*1080p
		2.1280*720p
	1 Resolution Set	3.1440*900
3 Soomloss Sot	I. Resolution bet	4.1366*768
J. Seamress Set		5. 1024*768
		6.Back
	2. DemoMode Set	/
	3. Back	/
	1.Main Board	FO-X. X. X
		INC1–X. X. X
	2. Input Card	•••
		INC (16/4) -X. X. X
		OUTC1-X. X. X
	3. Output Card	***
A Manadan Tafa	901×	OUTC (16/4) – X. X. X
4.Version Info		INP01-X. X. X
	4. In RS232 Card	•••
	enter automo estimatora-1512/444 ESTERNINANAS	INP16-X. X. X
		OUTP1-X. X. X
	5.Out RS232 Card	•••
		OUTP16-X. X. X
	6.Back	/

Main Menu	Second-class Menu	Third-class Menu
5. Languague	1.English 2.Back	1
6.Beep Setting	1. Turn On 2. Turn Off 3. Back	1
1. Turn On       7. Keypad Light       2. Turn Off       3. Back		1
8.LCD Backlight	Always on 20 Min 14 Min 10 Min 5 Min Back	1
9.System Reset		1
10.Back		/

Enter the menu, use <Up> and <Down> to select the corresponding options, the selected option will highlight, then press <Enter>, as image below.



### 2. EDID Management

#### 1. Update EDID

Press <Menu>, enter the menu management, choose "1.EDID Setting" $\rightarrow$  "1.EDIDUpdate"  $\rightarrow$  "1.External EDID" means route EDID of sink device connecting output port to source device connection input port.

For example, update EDID from output <1> to input <1>, <2>, <3>, please press keys as image below.



But, if you want to update EDID to all, please operate as image below.



#### 2. Update from stored EDID

Matrix System can store 16 groups of EDID data, the data can be recalled at any time.

Press <Menu>, select "1.EDID Setting"  $\rightarrow$  "1.EDID Update"  $\rightarrow$  "2.Default EDID" use <Up> or <Down> to select the appropriate EDID. Update EDID to input port <1> and <3>, as image below.

Update EDID to input port <1> and <3>, as image below.



#### **3. Save EDID from sink device**

Press<Menu>, choose "1.EDID Setting"  $\rightarrow$  "2.EDID Manage"  $\rightarrow$  "1.Save EDID", type in <output port> + <memory cell>, save output port <3>EDID into memory <1>, please do as follows<3> + <Switch> + <1> + <End> + <Enter>, as image below.



#### 4. Delete EDID

Delete EDID information which you have stored, please operate as follows: press <Menu> choose "1.EDID Setting"  $\rightarrow$  "2.EDID Manage"  $\rightarrow$  "2.Delete EDID", as image below.



#### 5. Check the stored EDID information

Check EDID information you stored, please operate as follows press <Menu> choose "1.EDID Setting"  $\rightarrow$  "2.EDID Info"

### <u>3. RS232 Setup</u>

RS232 parameters include Baud Rate, Data Bits, Stop bit, Parity, and you can change the parameters, press <Menu> choose "RS232 Setting", use <Up> or <Down> to select, then press <Enter> to enter into change parameters. If the parameters set OK, please press <Enter> to confirm.



### 4. Seamless Switch Setup

Seamless switching card is a scaler output card. Now, DVI is available, press <Menu> choose "3.Seamless Set"  $\rightarrow$  "1.Resolution Set", use <Up> or <Down> to select, then press <Enter> to change parameters. Note that you need to input slot number rather than port number. 4 port at a card will output same resolution.



#### 5. Beep Setup

Press <Menu>, choose "4.Beep Setting", use <Up> or <Down> to select turn on or turn off the beep.



## 6. Keypad Light Setup

Press <Menu>, choose "5.Keypad Light', use <Up> or <Down> to select turn on or turn off the Keypad light.



## 7. LCD Backlight Setup

Any operation in the keypad, the backlight will turn on. Press <Menu>, choose "6.LCD Backlight", use <Up> or <Down> to select turn on or turn off the light. Always on indicate the backlight won't turn off. "x Min" indicate if not operate backlight will turn off automatically after x min.



#### 8. Reset

When you are saving EDID or switching EDID, but LCD display indicates that "system error". Please use this function-RESET. Note Reset is requirement when finish FW update, otherwise EDID function will be failed.



## **PC Control Software**

"Matrix Series" is PC control software for HD Modular Matrix Switcher, it support RS232 and LAN control.



#### 1. RS232 Setting

Set matrix main RS232 Baud Rate to 115200, Data to 8, Stop to 1, Parity to None by the front panel. Connect Matrix to PC by RS232 cable and run Matrix Control Software. Set Serial Baud Rate to 115200 and click Link as below Figure.

🖳 Matrix Client Link V1.0.1	×
VLan Link Serial Link	
Serial: 2001 - Baut Rate: 115200 -	•
Link	

#### 2. LAN Control Setting

Connect Matrix to PC. Set PC IP address to 192.168.1.xxx. Run Matrix Control software and select Lan link, select IP address and click link. Note: Initial IP address of Matrix is 192.168.1.114 or 192.168.1.115

🖳 Matrix Client Link V1.0.1	<b>—</b>
VLan Link Serial Link	
Auto Search Devices IP: 192.168.1.115 - Port	.: 8000
Link	

#### 3.How to modify Matrix IP address

There is a LAN convert to RS232 model inside matrix. The name of model is C2000. C2000 supports configure IP by webserver.

#### 1. Please login 192.168.1.115 and there is no password.

Please input password -			
★ (n) C < □ 192.168.1.115			
Please input password × +			
Please input password: Login			

2. C2000 Configuration system, click "Config C2000 Plus".

## Welcome to C2000 Plus system

Change Password

Config C2000 Plus

Apply Configuration

3. Take care of the red area as picture below:

a. IP Address Setting, Mask, and Gateway could be change as you need;

- b. Workstyle must be TCP Client and C2000 Port is 8000;
- c. Make sure Click Socket Communication;
- d. Just keep Other selections it as default.

## **Config C2000 Plus System**

#### Net Parameter

MAC address:00 09 F6 08 C6 5C

Automatic get IP address (DHCP)	
C2000 IP address: 192.168.1.115	Mask: 255.0.0.0
Gateway: 0.0.0.0	
Workstyle TCP Client 🗸	
C2000 port: 8000	
Server IP address: 10.1.1.1	Server port: 8000
Socket Communication:	
Proxy	
Proxy server IP: 255.255.255.255	Proxy server port: 65535

4. Make sure Com Parameter is the same as Matrix Main RS232 Setting. Otherwise it will fail to control by LAN for C2000 is convert LAN to RS232 and transfer to matrix.



#### 5. Click Config to save the change.

C2000 port: 8000	
Server IP address: 192.168.1.123 Server port: 8000	来自网页的消息
Socket Communication:	
Proxy	Config system succeeded!
Proxy server IP: 255.255.255 Proxy server port: 65535	
COM Parameter	确定
Baudrate: 115200 V Databit: 8 V Parity: None V Stopbit: 1 V	
Least send time: 20 ms (range 0~65535)	
Least send bytes: 1000 byte (range 0~1000)	
$\Box$ CTS/RTS flow control	
$\Box$ Xon/Xoff flow control	
Config Return	

6. Do not forget to Apply Configuration when finish configuration.

## Welcome to C2000 Plus system

## **Exit system succeeded!**

#### 4. Software Introduction

Base on the steps, you will succeed to link matrix by RS232 or LAN, you could see the home page as below:

Software version is on the top left corner, you can change the background by clicking the right button, and the three dots on the bottom separately direct to 'User Configure Page', 'Function Page', 'System Configure Page' from left to right.



## 5. User Configure Page



#### 1. Home Page Introduction



Page of defining device name of input and output



Page of switching preset for quick switch function



Page of switching scene save for scene recall function



Export current channel name to a DB file



Export current preset to a DB file



Page of setting control command for HDBaseT RS232 control pass through

#### 2. Channel Name

You can define the input and output in this page.

🖳 Matrix Client			<b>X</b>
Input Channel Areas	2 TTT Lap Top		
5 777	6 777	7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	
9	10 +==+	11 👄	12
13 🔲 🗖 Sony Camera	14 88	15 🖼 🖬	
17 👄	18 👄	19 👄	20 👄
21 777	22	23 777	24 ***
25 ***	26	27 ***	28
Output Channel Areas			
1	2	3	
5 777	6	7	8 ***
9 👄	10 👄	11 😁	12 👄
13 MDT421S	14	15	16
17 8011	18 801.1	19 No.1.	20 1001
21	22	23 ***	24
25	26	27	28 ****
Export	Import	Cancel	Save

#### **3. Switch Preset**

You can define switching for quick switch function.

🖳 Matrix Client Link   Quick Switch		×
Switch Name Room 3 Display	<b></b> ✓ ON	
Switch Type 💿 One 2 More	More 2 More	
Input Channel	Output Channel	
1,2,3,4,5	4,5,6,7,8	
	Save	Cancel
Switch Name Input Channel C	Output Channel Status	Edit Delete
Room 3 Display 1, 2, 3, 4, 5 4,	, 5, 6, 7, 8	Edit Delete
Room 3 Display 1, 2, 3, 4, 5 4,	, 5, 6, 7, 8	Edit Delete
Room 3 Display 1, 2, 3, 4, 5 4,	, 5, 6, 7, 8	<u>Edit</u> <u>Delete</u>
Room 3 Display 1, 2, 3, 4, 5 4	, 5, 6, 7, 8	<u>Edit</u> <u>Delete</u>
Room 3 Display 1,2,3,4,5 4	, 5, 6, 7, 8	Edit Delete
Room 3 Display 1, 2, 3, 4, 5 4,	, 5, 6, 7, 8	Edit Delete
Room 3 Display 1, 2, 3, 4, 5 4	, 5, 6, 7, 8	Edit Delete

#### 4. Save Scene

You can store the current display status for scene recall function.

🖳 Matrix Client   Save Scene	<b>×</b>
Quick Switch	
Save Scene O	Save Scene 1
Save Scene 2	Save Scene 3
Save Scene 4	Save Scene 5
Save Scene 6	Save Scene 7
Save Scene 8	Save Scene 9

#### 5. RS232 Switch Set

- a. Set HDBaseT input channel 13, RS232 Baud Rate:38400, Data:8, Parity: None, Stop:1, RX:ON(Device RS232 Feedback).
- b. Baud Rate Setup Command ">B384008N1ONIN13<cr>" will be sent out to matrix when click save button.
- c. Define HDBaseT input port 13 RS232 device is a Sony Camera and the turn on and turn off command.
- d. Hex code of turn on:3030210D, Hex code of turn off:3030220D.

🛃 Cli	ent Link   RS2	232 Switch Se	et				×
Cha	nnel's Attrib Wedge Char Channel I	oute eType • In nnelId 13 Name Sony	put Output	P, Save	Baut Rate 38 Validata 81 assthrough St H	B400 M1 Eatus IDCP ON	
Pas	sthrough Orde	er Config					
	O	rder Name	Turn On Camera			🖌 ON	
	Or	rder Details	30 30 21 OD				
			Save			Cancel	
	WedgeType	ChannelId	Order Name	Order Detai	ls Stat	us Edit	Delet
•	Input	13	Turn On Camera	30 30 21 OD		Z <u>Edit</u>	<u>De</u>
	Input	13	Turn Off Camera	30 30 33 OD		Z <u>Edit</u>	De

e. Sony Camera and the turn on command has been created at the RS232 switching function. HEX code:30 30 21 0D will be send to matrix when you operate at the RS232 switching.

Channel's A W	(KS232 SWICH (edgeType ) ChannelId 11 nnel Name So	Input Output 3 • ony Camera	Baut Val Passthro Save	Rate 38400 idata 811 ough Status HDCP	▼ 0N ○ 0N
Passthrough	Order Confis Order Nam Order Deta	e Turn On Camera ils 30 30 21 0D			
		Jave		Ca	ncel
WedgeT	ype Channell	Jave	Order Details	Ca Status	Edit Delet.
WedgeT	ype Channell 13	Id Order Name Turn On Camera	Order Details 30 30 21 0D	Ca Status	Edit Delet.
WedgeT	ype Channell 13 13	Id Order Name Turn On Camera Turn Off Camera	Order Details 30 30 21 0D 30 30 33 0D	Status	Edit Delet Edit De Edit De

## 6. Function Page



#### 1. Home Page Introduction



Page of HDBaseT RS232 pass through function



Page of video switching function



Page of EDID copy function

Edid Switch



Page of scene recall switching function

Scene Switch



Page of fast switching function

Quick Switch

#### 2. RS232 Switch

Input card 4(port 13,14,15,16) is HDBaseT card and port 13 has been define as Sony Camera and Turn on/off command before at the define page. HEX CODE:3E 43 53 49 4E 31 33 54 58 30 34 30 30 21 0D 0D will send to matrix and "30 30 21 0D" will pass through to the Camera finally.

Input Channel Areas	ID: 15	ID: 16		
		Matrix Client   Edid Switch	23	
		Turn Off Camera		
		Turn On Camera		
Output Channel Areas				
-				
MDT421S ID: 14	ID: 15			
MDT421S ID: 14	ID: 15			
MDT4215 ID: 14	ID: 15			
MDT4215 ID: 14	ID: 15			
MDT4215 ID: 14	ID: 15			

#### 3. Video Switch(Matrix Style)

You can choose Matrix Style or Console Style in the System configuration page, you could view details in the next chapter.

a. You can choose any square, the reading on coordinate axis is the input and output configuration (the red square means input 10 to output 7).



b. You can choose one channel input to all output by click the corresponding square on the input coordinate axis(the image below means input 13 to all output channels).



#### c. Green block will disappear when click it and mean mute this output.

	🖳 Matrix Client   Video Switch												x																			
HI TWO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	3 ^
1																																
2																																
3																																
4																																
5																																
6																																
7																																Ξ
8																																
9																																
10																																
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12																																
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14																																
15																																
16																																
17																																L
18																																L
19																																
20																																L
21																																
•				1	1	1	1	1	1	-			-	-	1	1	1		1	1	1	1		1	1		1	1	1	1		•

#### 4. Video Switch(Console Style)

Channel name and port icon will be shown at this page, you can view all the cards include Null or only the online cards at the System Config Page.

📲 Matrix Client   Video Switch 🤤										
777	***	***	***	***	***	***	***			
Blue Ray	Lap Тор	lnpur:3	lûpur:4	lapur: 5	lapur:6	lapur:7	lûpur:8			
•=====										
lapur:9	Inpur: 10	Inpur:11	Inpur:12	Sony Camera	Inpur: 14	Inpur:15	Inpur:16			
		0		***	***					
Inpur:17	lapur:18	Inpur: 19	lapur:20	Inpur:21	Inpur:22	lûpur:23	Inpur:24			
lapur:25	lapur:26	lnpur:27	lnpur:28	lúpur:29	Inpur:30	Input:31	Inpur:32			
(=0)	(	(==)								
Ourpur: 1	Curpur:2	Ourpur:3	Ourpur:4	Ourpur:5	Ourpur:6	Ourpur:7	Ourpue:8			
Ourpur:1	Ourpur:2	Ourpur:3	Ourpur:4	Ourpur:5	Ourpur:6	 Ourput:7	Ourpur:8			
Curpur:1	Curpur:2	Curpur:3	Curpur:4	Ourpur: 5	Ourpur: 6 Ourpur: 14	Ourpur:7	Ourpur:8			
Curpur: 1 Curpur: 9	Ourpur:2	Ourpur:3	Ourpur:4	Curpur:5	Curpur:6	0urpur:7	Ourpur:8			
Curpur:1	Ourpur:2	Curpur:3	Curpur.4	Curpur:5	Curpur:6 Ourpur:14	Ourpur:7 Ourpur:15 Ourpur:23	Ourput:8			
Curpur:1 Curpur:9 NULL Curpur:17	Ourpur:2	Curpur:3	Curpur.4	Curpur:5	Сигрит.6 Оигрит.14 Оигрит.14 Оигрит.22	Curput:7 Curput:15 Curput:23 NULL	Сигрис:8 Оигрис:16 Оигрис:16 Учет Оигрис:24			

#### **5. EDID Switch**

You can copy EDID in this page.

Client   Edid Switch     Client   Edid Switch     Example Areas													
Output Channel A	reas												
ID: 1	ID: 2	ID: 3	ID: 4	ID: 5	ID: 6	ID: 7	ID: 8						
ID: 9	ID: 10	ID: 11	ID: 12	MDT421S	ID: 14	ID: 15	ID: 16						
ID: 21	ID: 22	ID: 23	ID: 24	ID: 25	ID: 26	ID: 27	ID: 28						
Input Channel Ar	eas												
Blue Ray	Lap Top	ID: 3	ID: 4	ID: 5	ID: 6	ID: 7	ID: 8						
ID: 9	ID: 10	ID: 11	ID: 12	Sony Camera	ID: 14	ID: 15	ID: 16						
ID: 17	ID: 18	ID: 19	ID: 20	ID: 21	ID: 22	ID: 23	ID: 24						
ID: 25	ID: 26	ID: 27	ID: 28	ID: 29	ID: 30	ID: 31	ID: 32						

#### 6. Scene Switch

Recall the switching which save in Scene Switch page.



#### 7. Quick Switch

Executing switching which be defined in Quick Switch configure page.



## 7. System Configure Page



The seamless Card option will only show when there is seamless card in work.

#### 1. System Config

Show Channel Icon: Icon of input and output port could be show at channel definition and switching function.

Switch Style: input and output channel name and port icon could be show at console switch style.

Matrix style is the traditional view of matrix.

🖳 Matrix Client   System Config	<b>••••</b>
System Config	
Black Box Function :	ON
Show Channel Icon :	🖌 ON
Shown Only Online :	ON
Play Tip Sound :	🖌 ON
System Default Skin :	Default Skin 🔽
System Default Language :	English
Switch Style :	Matrix Switch 🔽
	Save
	THE AND A LAND A REAL IN THE

#### 2. Seamless Card

You can set resolution and for each seamless output card in this page.

🖳 Matrix Client   Seamless Ca	ard 🔀
Seamless Card	
Card NO	6 🗸
Resolution	1920x1080P60
	Save

## **Command Table**

> - Command, # - Query, < Response</p>

<cr> = 0x0D Hex / 13 Decimal

Command	String	Information	Example	Example String	Example Respons
Route Command	>Cxtoz< cr>	<ul> <li>x = input port number</li> <li>z = output port number(s)</li> <li>For more than one port</li> <li>number use a comma to</li> <li>separate.</li> </ul>	Route Input 5 to Output 1, 2, 3, and 4	>C5to1,2 ,3,4 <cr></cr>	<c5to1,2, 3,4<cr></cr></c5to1,2, 
Serial Transmit Input Command	>CSINx TXnns< CR>	<ul> <li>x = port number(s).More</li> <li>than one port # use space</li> <li>between</li> <li>nn = byte count for string =</li> <li>00 - 99 Number must be</li> <li>double digit and in ASCII.</li> <li>Single digits must have zero</li> <li>in front</li> <li>s = string is in ascii and can</li> <li>have non-printable ascii</li> <li>characters as well. Refer to</li> <li>the control system manual</li> <li>how to send hexadecimal</li> <li>inside a string. Note the</li> <li>hexadecimal counts as only</li> <li>1 byte for the byte count.</li> </ul>	Send ASCII Serial string "123 <cr>" to Input ports 1, 3, and 5.</cr>	>CSIN1 3 5TX04123 <cr><c R&gt;</c </cr>	<csin1 3<br="">5TX04123 <cr><cr &gt;</cr </cr></csin1>
Preset Command	>Rx <cr &gt;</cr 	x = 1-9	Trigger Preset 2	>R2 <cr></cr>	<sa1, 1, 1, 1, 1, 1, 1, 1<cr></cr></sa1, 
EDID Copy Command	>ExtoZ< cr>	<ul> <li>x = output port number</li> <li>z = input port number(s)</li> <li>For more than one port</li> <li>number use a comma to</li> <li>separate.</li> </ul>	Copy output port1 EDID to input port1,4,5	>E1to1,4, 5 <cr></cr>	<e1to1,4, 5<cr></cr></e1to1,4, 
Query Firmware Input Card	#FINCx <cr></cr>	x = Card number	Query Input Card 1 Firmware	#FINC1< cr>	<finc1- 1.0.1<cr></cr></finc1- 
Baud Rate Setup Input Command	>BabcIN x <cr></cr>	<pre>a = baud rate = 9600, 19200, 38400 b = bits, parity, stop = 8N1, 8E1, 801 c = ON/OFF turn on or off RX x = port number(s). More than one port # use space between.</pre>	Set Input Port 1 Baud Rate to 96008N1 and turn off RX.	>B96008 N1OFFIN 1 <cr></cr>	<b96008 N1OFFIN1 <cr></cr></b96008 

Preset Save Command	>Sx <cr &gt;</cr 	x = 1-9	Save current configuration into Preset 5	>S5 <cr></cr>	<\$5 <cr></cr>
Baud Rate Setup Output Command	>BabcO UTx <cr></cr>	a = baud rate = 9600, 19200, 38400 b = bits, parity, stop = 8N1, 8E1, 8O1 c = ON/OFF turn on or off RX x = port number(s).More than one port # use space between.	Set Output Ports 1, 3, 5, and 8 Baud Rate to 192008N1 and turn on RX.	>B19200 8N1ONOU T1 3 5 8 <cr></cr>	<b192008 N1ONOUT 1 3 5 8<cr></cr></b192008 
Query Output Card Baud Rate	#BOUTx <cr></cr>	x = port number(s).More than one port # use space between	Query Baud Rate on Output 4, 7, & 8. Response is output 4 96008N10FF; output 7 192008N10N ; output 8 384008N10N ;	#BOUT4 7 8 <cr></cr>	<b96008 N1OUT40 FF<cr> <b192008 N1OUT70 N<cr> <b384008 N1OUT80 N<cr></cr></b384008 </cr></b192008 </cr></b96008 
Query Firmware Input Port (only for RS-232 ports)	#FINPx <cr></cr>	x = port number	Query Input Port 1 Firmware	#FINP1< cr>	<finp1- 1.0.1<cr></cr></finp1- 
Query Input Card Baud Rate	#BINx< cr>	x = port number(s).More than one port # use space between	Query Baud Rate on Inputs 1, 2, & 3. Response shows input 1 384008N1ON ; input 2 96008N1ON; input 384008N1OF F;	#BIN1 2 3 <cr></cr>	<b384008 N1IN1ON <cr> <b96008 N1IN2ON <cr> <b384008 N1IN3OFF <cr></cr></b384008 </cr></b96008 </cr></b384008 
Query Firmware Output Card	#FOUTC x <cr></cr>	x = Card number	Query Output Card 1 Firmware	#FOUTC1 <cr></cr>	<foutc1 - 1.0.1<cr></cr></foutc1 

Query Firmware Output Port (only for RS-232 ports)	#FOUTP x <cr></cr>	x = port number	Query Output Port 1 Firmware	#FOUTP1 <cr></cr>	<foutp1- 1.0.1<cr></cr></foutp1- 
Query Input Card Hot Plug	#PIN <cr &gt;</cr 	Query Input Card HPD.Note that 1 means have detected Source Input and 0 means not,X means there is not this input Port or the port is not HDMI or HDBT cards.	Query Input Card HPD. Response shows there is Source link to Input Port1 but Port2 3 4 are not,and there are not Input Port5 6 7 8.	#PIN <cr &gt;</cr 	<pin1000 XXXX<cr &gt;</cr </pin1000 
Query Firmware Main Processor	#F0 <cr &gt;</cr 	Zero is default for main processor firmware query	Query Main Processor firmware	#F0 <cr></cr>	<fo- 1.0.1<cr></cr></fo- 
Serial Transmit Output Command	>CSOUT xTXnns< CR>	<ul> <li>x = port number(s).More</li> <li>than one port # use space</li> <li>between</li> <li>nn = byte count for string =</li> <li>00 - 99 Number must be</li> <li>double digit and in ASCII.</li> <li>Single digits must have zero</li> <li>in front</li> <li>s = string is in ascii and can</li> <li>have non-printable ascii</li> <li>characters as well. Refer to</li> <li>the control system manual</li> <li>how to send hexadecimal</li> <li>inside a string. Note the</li> <li>hexadecimal counts as only</li> <li>1 byte for the byte count.</li> </ul>	Send ASCII Serial string "123 <cr>" to output ports 1, 3, and 5.</cr>	>CSOUT1 3 5TX04123 <cr><c R&gt;</c </cr>	<csout1 3 5TX04123 <cr> <cr &gt;</cr </cr></csout1 
Query Input Route	#Cx <cr &gt;</cr 	x = port number. Note if input is routed to more than one output then multiple port numbers will be listed in response separated by a space.	Query Input 3 Route. Response shows it is routed to 1, 2, & 5	#C3 <cr></cr>	<c3to1,2, 5<cr></cr></c3to1,2, 

Query Output Card Hot Plug	#POUT< cr>	Query Output Card HPD.Note that 1 means have detected Sink Input and 0 means not,X means there is not this Output Port or the port is not HDMI or HDBT cards.	Query Output Card HPD. Response shows there is Sink link to Output Port8 but Port5 6 7 are not, and there are not Output Port1 2 3 4.	#POUT <c r&gt;</c 	<poutxx XX00001 <cr></cr></poutxx 
Query I/O card online status	#SY <cr &gt;</cr 	Query Input Card and Output Card online status.	Query Input Card and Output Card online status on MVM- 88.Zero indicate that slot is empty.And 1 for HDMI Card,2 for DVI Card ,3 for HDBT Card etc.	#SY <cr &gt;</cr 	<sy1,0,2, 3,1,2,3,0 <cr></cr></sy1,0,2, 

## I/O Card

## 1. HDBaseT I/O Card

#### Mode:

Input-MC2-IN-HDBT-70 / MC2-IN-HDBT-100 Output- MC2-OUT-HDBT-70 / MC2-OUT-HDBT-100





Model	EDID Management	HDCP Management	DVI Format Auto Adapted	Distance	CATx
S1	Yes	Yes	Yes	70m	28V, HDMI, RS232
S2	Yes	Yes	Yes	100m	28V, HDMI, RS232

LED	Description	Status
۱۸/	Working LED	Always off - Fail to work
vv		Blinking - Working normally
6	Connection LED	Always off - Fail to connect to extender
J		Always on - Connect to HDBaseT extender
		Always off - No video signal input or output
		Always on - Video signal input or output
V Signal LED		<b>Note:</b> V-LED of port 1 and 3 is blinking 3s and off when system boot up. If V-LED of port 1 and 3 always blinking mean there is defective on the card, please remove it
D		Blinking - Signal without HDCP
		Always on - Signal with HDCP

## 2. DVI I/O Card

#### Mode:

Input-MC2-IN-DVI Output-MC2-OUT-DVI Output-MC2-OUT-DVI-S



Model	EDID Management	HDCP Management	Seamless	Audio
Input-DVI	Yes	Yes	No	No
Output-DVI	Yes	Yes	No	No
Output-DVI-S	No	No	Yes	No

LED	Description	Status		
4		Always off - No video signal input or output		
		Always on - Video signal input or output		
State	Video LED	<b>Note:</b> V-LED of Port 1 and 3 is blinking 3s and off when system boot up. If V-LED of port 1 and 3 always blinking mean there is defective on the card, please remove it		

## 3. HDMI I/O Card

#### Mode:

Input-MC2-IN-HDMI Output-MC2-OUT-HDMI



Model	EDID Management	HDCP Management	DVI Format Auto Adapted	Audio
Input-HDMI	Yes	Yes	Yes	Yes
Output-HDMI	Yes	Yes	Yes	Yes

LED	Description	Status
Δ	Audio Output LED	Always Off - No audio output
~		Always On - Audio output
	Video LED	Always off - No video signal input or output
		Always on - Video signal input or output
V		Note:V-LED of port 1 and 3 is blinking 3s
v		and off when system boot up. If V-LED of
		port 1 and 3 always blinking mean there is
		defective on the card, please remove it

## 4. HDBaseT Input Card with Ethernet Port

#### Mode:

Input-MC2-HDBT-100-HDBT2E



Model	EDID Management	HDCP Management	DVI Format Auto Adapted	Distance	САТх
					28V,HDMI,
Input-HDBT2E	Yes	Yes	Yes	100m	Ethernet,
				A GENERAL CONTROL IN A TRACK AND A	RS232

LED	Description	Status
١٨/	Working LED	Always off - Fail to work
VV		Blinking - Working normally
V		Always off - No video signal input or output
	Signal LED	Always on - Video signal input or output
		<b>Note:</b> V-LED of port 1 and 3 is blinking 3s and off when system boot up. If V-LED of port 1 and 3 always blinking mean there is defective on the card, please remove it

5. HDMI Input Card with Looping Output

#### Mode:

Input-MC2-IN-HDMI2



Model	EDID Managemen	HDCP Management	Audio	Loop
Input-HDMI2	Yes	Yes	Yes	4 channels loop output

## 6. Fiber Optic I/O Card for DVI

#### Mode:

Input-MC2-IN-Optic-D Output-MC2-OUT-Optic-D





Model	EDID Management	HDCP Management	Distance	Audio
Input-Optic-D	Optic TX Leam EDID	Νο	1500m single-mode 500m multi-mode	No
Output-Optic-D	No	No	1500m single-mode 500m multi-mode	No

LED	Description	Function
1	Optic Channel 1	Connect to extender channel 1
2	Optic Channel 2	Connect to extender channel 2

#### 7. 3GSDI Input Card

#### Mode:

Input-MC2-IN-3GSDI



## 8. Analog Input Card

#### Mode:

Input-MC2-IN-VGA Input-MC2-IN-2V1Y1C V=VGA, Y=YUV, C=CVBS



Model	EDID Management	Scaler	Audio
VGA	Yes	No	Yes
YPbPr	No	720/1080 at factory	Yes
CVBS	No	720/1080 at factory	Yes



Cable for VGA&Audio



Cable for YPbPr&Audio



Cable for CVBS&Audio

## 9. SDI&HDMI Multi-input Card

#### Mode:

Input-MC2-IN-2S2H

6	6	6	HDMI	HDMI	F

Port	Decripution	Compliance	Looping
SDI	SDI input		Support 1 channel
			SDI looping output

Port	EDID Management	HDCP Management	DVI Format Auto Adapted	Audio
HDMI	Yes	Yes	Yes	Yes

## 10. Analog&HDMI Input Card

#### Mode:

Input-MC2-IN-2V2H

	0				-
IN	∟ VGA ⊐	∟ VGA ⊐	L HDMI J	L HDMI J	

Port	EDID Management	Scaler	Audio
VGA	Yes	No	Yes

Port	EDID Management	HDCP Management	DVI Format Auto Adapted	Audio
HDMI	Yes	Yes	Yes	Yes

## **Firmware Update**

Current FW Version is V2.2.6 but also offer an easy update way for future application.

#### 1. Driver Installation:

1. Open DRIVER Folder, run "CH341PAR.exe", click "安装".



🛃 驱动安装 📃 🗖 🔀
驱动安装/卸载
选择INF文件: CH341WDM.INF 🗸 🗸
安装 WCH.CN IUSB-EPP/I2CCH341A I06/05/2009, 2.2.20 卸载
帮助 Click this button

2. If Pop-up "驱动预安装成功" dialog box, indicate that the drive has been successfully installed.

📲 驱动安装	
┌驱动安装/卸载一	
选择INF文件:	CH341WDM.INF
安装	DriverSetup 🔀. CH341A
卸载	3. 2.2.2 €
帮助	确定 Driver
	installed

2. FW Update for Cardcage

1. Connect PC and Matrix USB port by USB cable and switch to System as picture



3. If the Program Info dialog box indicate "Device open successfully", then you can download your FLASH or EEPROM.

😡 Matrix system firm	nware update to	ols	- • •
Download Prog Program Info:	ress: Device	open successf	ully
Browse	EEPROM	Load	Reset

4. Load Flash:

• [FW_Matrix_3232_V2.2.6.hex]				
Download Progress:				
Program Info: E:\Matrix 3	2X32\FW_Matrix_3232_	_V2. 2.		
	🕠 Select the download o	of the target program files		<b>—</b>
	- 🕖 - 📕 « 本地磁	盘 (E:) 🕨 Matrix 32X32 🛛 👻 🍫	搜索 Matrix 32X32	Q
	- 组织 ▼ 新建文件夹			
v Click this button	■ 图片 4	名称	修改日期	类型
		FW_Matrix_3232_V2.2.6.BIN	2014/4/2 11:37	BIN 文件
	□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□	FW_Matrix_3232_V2.2.6.hex	2014/4/2 11:37	HEX 文件
	▶ 计算机			
	🏭 本地磁盘 (C;) 🗦	Locate this HEX file		
	👝 本地磁盘 (D:)			
	👝 本地磁盘 (E:)			
	□□ 本地磁盘 (F:)			•
	➡ Ivio Web Sites C 文件	⊧賓(Ŋ: FW_Matrix_3232_V2.2.6.hex ▼	FLASH file(*.HEX *.BIN) 打开(①	

🔾 - [FW_Matrix_3232_V2.2	.6.hex]	- • •
Download Progress: Program Info:	E:\Matrix 32X32\FW_M	Matrix_3232_V2.2.
Browse	EPROM Load V Load Flash	Reset Quit

#### 5. Load EEPROM:

G - [FW_Matrix_3232_V2.2.6.hex]					
Download Progress:					
Program Info: Download	led to the EEPROM				
	😡 Select the download of	the target program files			×
	〇〇〇一〇 《 本地磁盘	盐 (E:) ▶ Matrix 32×32 -	• ••	搜索 Matrix 32X32	Q
Drowse	组织 ▼ 新建文件夹			•	
Click this button and option		名称		修改日期	类型
		FW_Matrix_3232_V2.2.6.BIN		2014/4/2 11:37	BIN 文件
	□□ 地雷 N或 ♪ 音乐	FW_Matrix_3282_V2.2.6.hex		2014/4/2 11:37	HEX 文件
	🖳 计算机	$\Psi$ Locate this BIN file			
	🏭 本地磁盘 (C:) 🗏				
	□ 本地磁盘 (D:)				
	本地磁盘 (F:)				
-	💙 Mv Web Sites r 🍷	•			F
	文件	名(N): FW_Matrix_3232_V2.2.6.BIN	•	FLASH file(*.HEX *.BIN	) -
				打开(2) 🔻	<b>取消</b>

🔾 - [FW_Matrix_3232_V2.2.	5.BIN]	- 0 -
Download Progress:		
Program Info:	E:\Matrix 32X32\FW_Ma	atrix_3232_V2.2.
Browse	PROM Load	Reset
	↓ Load Eeproom	Quit

6. You must click "Reset" button when you have finished loading your Flash and EEPROM.

🕠 - [FW_Matrix_3232_V2.2	.6.BIN]				- • •
Download Progress:					
Program Info:	Reset	MCU	successf	ull	
					Reset MCU
Browse 🗹 E	EPROM		Load		Reset

Note: do not forget to run System Reset on the front panel when finish FW update.



#### You can find the FW info with different Cardcage in the chart below.

Cardcage	Current FW File	Current EEPROM File	
 Matrix 88	FW_Matrix_88 V2.2.6.hex	FW_Matrix_88 V2.2.6.bin	7
Matrix 1616	FW_Matrix_1616 V2.2.6.hex	FW_Matrix_1616 V2.2.6.bin	/
Matrix 3232	FW_Matrix_3232 V2.2.6.hex	FW_Matrix_3232 V2.2.6.bin	

#### 3. FW Update for I/O Card

1. Connect PC and Matrix USB port by USB cable; Move card from cardcage and connect cards and Matrix by 6 pins update cable; switch to I/O as picture



You will get 3 Updating cables with the Matrix, it's used for connecting FW UPDATE port of Matrix to I/O card.



M8-B

# I/O card's connecting port is in different place as different Mode, 5 types in all, please see as below







This type is applied to Input-HDMI, Output-HDMI, Input-HDMI2.

Connect M64-A



This type is applied to Input-2S2H, Input-2V2H,Input-OPTIC-D, Output-OPTIC-D

Connect M64-A

# You can find the corresponding cable with different I/O card in the chart below.

I/O Card	Current FW File	Current EEPROM File	Updating Cable
Tourist IDDT C1/C2	FW_4HDBT_IN V2.2.6.hex	None	M64B
Input-HDb1-51/52	FW_4HDBT_RS232_IN V2.2.6.hex	None	M8B
Output_UDDT_C1/C2	FW_4HDBT_0UT V2. 2. 6. hex	FW_4HDBT_0UT V2.2.6.bin	M64B
Output-HDB1-51/52	FW_4HDBT_RS232_0UT V2. 2. 6. hex	FW_4HDBT_RS232_0UT V2.2.6.bin	M8B
Input-DVI	FW_4DVI_IN V2.2.6.hex	None	M64A
Output-DVI	FW_4DVI_0UT V2.2.6.hex	FW_4DVI_0UT V2.2.6.bin	M64A
Output-DVI-S	FW_4DVIS_0UT V2. 2. 6. hex	FW_4DVIS_0UT V2.2.6.bin	M64A
Input-HDMI	FW_4HDMI_IN V2.2.6.hex	None	M64A
Output-HDMI	FW_4HDMI_0UT V2. 2. 6. hex	FW_4HDMI_0UT V2.2.6.bin	M64A
Tanat IDDTOP	FW_4HDBT2E_IN V2.2.6.hex	None	M64A
Input-HDb12E	FW_4HDBT_RS232_IN V2.2.6.hex	None	M64A
Input-HDMI2	FW_4HDMI_IN V2.2.6.hex	None	M64A
Input-Optic-D	FW_4MULTI_IN V2.2.6.hex	None	M64A
Output-Ontic-D	FW 4MILTI OUT V2.2.6. hex	FW 4MILTI OUT V2.2.6. hin	M64A

2. Run Update Tools.exe and operate as Cardcage FW update.

## **Safety Information**



To reduce the risk of electric shock, do not expose this product to rain or moisture



Do not modify the wall plug. Doing so will void the warranty and safety features



If the wall plug does not fit into your local power socket, hire and electrician to replace your obsolete socket.



This equipment should be install near the socket outlet and the device should be easily accessible in the case it requires disconnection

## Warranty

Warranty time is two year and from the date of original shipment. This warranty shall be void if a serial number has been removed from the product.

Upon determination of a legitimate defect covered by this warranty and at sole discretion, user should bear the transport cost during the warranty.

If product is out of warranty then repair charge is required. Minimum repair charge: 10% of the retail price plus the cost of failed components. We will repair the failed product after repair cost has been approved by Customers and proper financial arrangements are made. Customer must cover round trip shipment expenses.

## **Return and RMA Policies**

Shipments will not be receiver and processed for warranty repair/replacement without an RMA(Return Materials Authorization).