INSTRUCTION MANUAL

HDTViM88

8x8 HDMI 1.4a Matrix Routing Switcher
Support Button/IR/UART/NET/Web Control
Full EDID Management/Learning
LCM Display

HDTViM88 HDMI Matrix Instruction Manual V1.0

SAFETY INFORMATION

1. To ensure the best results from this product, please read this manual and all other documentation before operating your equipment. Retain all documentation for future reference.
2. Follow all instructions printed on unit chassis for proper operation.
3. To reduce the risk of free, do not spill water or other liquids into or on the unit, or operate the unit while standing in liquid.
4. Make sure power outlets conform to the power requirements listed on the back of the unit. Keep unit protected from rain, water and excessive moisture.
5. Do not attempt to clean the unit with chemical solvents or aerosol cleaners, as this may damage the unit. Dust with a clean dry cloth.
6. Do not use the unit if the electrical power cord is frayed or broken. The power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords and plugs, convenience receptacles, and the point where they exit from the appliance.
7. Do not force switched or external connections in any way. They should all connect easily, without needing to be forced.
8. Always operate the unit with the AC ground wire connected to the electrical system ground. Precautions should be taken so that the means of grounding of a piece of equipment is not defeated.
9. AC voltage must be correct and the same as that printed on the rear of the unit. Damage caused by connection to improper AC voltage is not covered by any warranty.
10. Turn power off and disconnect unit from AC current before making connections.
11. Never hold a power switch in the “ON” position
12. This unit should be installed in a cool dry place, away from sources of excessive heat, vibration, dust, moisture and cold. Do not use the unit near stoves, heat registers, radiators, or other heat producing devices.
13. Do not block fan intake or exhaust ports. Do not operate equipment on a surface or in an environment which may impede the normal flow of air around the unit, such as a bed, rug, carpet, or completely enclosed rack. If the unit is used in an extremely dusty or smoky environment, the unit should be periodically “blown” free of foreign dust and matte.
14. To reduce the risk of electric shock, do not remove the cover. There are no user serviceable parts inside. Refer all servicing to qualified service personnel. There are no user serviceable parts inside.
15. When moving the unit, disconnect input ports first, then remove the power cable; finally, disconnect the interconnecting cables to other devices.
16. Do not drive the inputs with a signal level greater than that required to drive equipment to full output.
17. The equipment power cord should be unplugged from the outlet when left unused for a long period of time.
18. Save the carton and packing material even if the equipment has arrived in good condition. Should you ever need to ship the unit, use only the original factory packing.
19. Service Information Equipment should be serviced by qualified service personnel when:
    A. The power supply cord or the plug has been damaged.
    B. Objects have fallen, or liquid has been spilled into the equipment.
    C. The equipment has been exposed to rain
    D. The equipment does not appear to operate normally, or exhibits a marked change in performance
    E. The equipment has been dropped, or the enclosure damaged.

➢TABLE OF CONTENTS

HDMI Matrix Switcher Series

Thank you for purchasing the HDTViM88 HDMI Matrix Switcher. You will find this unit easy to install and highly reliable but it is essential that you read this manual thoroughly before attempting to use the 8x8 HDMI Matrix switcher.

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INTRODUCTION

The HDTViM88 is our next-generation 8x8 HDMI Matrix Routing Switch, designed for multiple sources and displays. There are (8) HDMI connections for inputs and (8) HDMI connections for outputs located on the back panel. This unit has EDID management and EDID memory, including button/remote/UART/net/web control, easy and friendly to user.. The HDTViM88 supports data rates up to of 6.75Gbps, enabling 4K/1080p HDMI formats and UXGA/WUXGA/ DVI 1920x1200 resolutions. The HDTViM88 is based on HDMI standards and supports full resolution HDMI video with a signal bandwidth of 340Mhz so there is no signal degradation.

The HDTViM88 front panel includes a LCD display with (2) data display lines. Functional manual control is provided via front panel push buttons, IR remote, RS-232 or TCP/IP/web-browser. A RS-232 Windows GUI interface is provided for matrix routing control (Windows only). The RS-232 connection allows functions to be controlled by systems like Control4 (drivers included) or any computerized software/hardware control system. The switcher is certified as being fully HDMI, CEC and HDCP 1.4 compliant, with RoHS, CE, FCC certifications and full HD HDMI V1.4a 3D formats.

When using the HDTViM88 Matrix Routing Switch, one-to-many or many-to-one connections can be established. You can easily connect any input device to any output device. You can also establish a single input device to many output devices, eliminating the need to constantly re-route video input and output cables.

SAFETY PRECAUTIONS

Please read all instructions before attempting to unpack, install or operate this equipment and before connecting the power supply. Please keep the following in mind as you unpack and install this equipment:

- Always follow basic safety precautions to reduce the risk of free, electrical shock and injury to persons.
- To prevent free or shock hazard, do not expose the unit to rain, moisture or install this product near water.
- Never spill liquid of any kind on or into this product.
- Never push an object of any kind into this product through any openings or empty slots in the unit, as you may damage parts inside the unit.
- Do not attach the power supply cabling to building surfaces.
- Use only the supplied power supply unit (PSU). Do not use the PSU if it is damaged.
- Do not allow anything to rest on the power cabling or allow any weight to be placed upon it or any person walk on it.
- To protect the unit from overheating, do not block any vents or openings in the unit housing that provide ventilation and allow for sufficient space for air to circulate around the unit.

DISCLAIMERS

The information in this manual has been carefully checked and is believed to be accurate. We assume no responsibility for any infringements of patents or other rights of third parties which may result from its use.

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➢ FEATURES

FEATURES

- 8x HDMI with DVI-Audio source devices matrix switched to 8x HDMI output devices
- HDMI digital video embedded HDCP, HDCP 1.4 compliant
- Worldwide control EDID modes for HD Video resolutions
- Link speeds of up to 6.75 Gbps (link clock rate of 340MbHz), Supports HDMI 1.4a 3D formats
- Wide range of HD resolutions from PC XGA to WUXGA 1920x1200 and HDTV/DTV HDMI resolutions 480i/480p, 576i/576p, 720p, 1080i & 1080p 4K 24/25/30
- Compatible with all HDMI source devices, PC monitors, Plasma HD displays, HDTV and audio receivers or audio amplifiers
- Digital Video TMDS formats for resolutions up to 1080p-60 with Deep color 36-bit
- Various User Interface control:
  Windows based GUI control via RS-232 port
  - Front panel push button
  - IR wireless remote control
  - Ethernet switcher control
  - RS232 control
  - Web browser control
- Supports worldwide control functions: ALL /RECALL/SAVE/EDID/LOCK
- Supports EDID modes :
  - AUTO
  - External modes : Learning mode
- Easy to install as either desktop or provided rack mount brackets

The switcher will remember that last state during a power cycle. When power is removed and resorted, the last configuration will be invoked.

PACKAGE CONTENTS

Check that you have the following components;

- HDTViM88 Matrix Switcher
- Master wireless IR Remote Control
- CD Contents: This manual, Windows GUI,RS-232 cable windows driver
- RS-232 Cable 3 feet (1M)
- Universal Power Supply: DC12V, 3A, Input: (100~230 VAC, AC 50/60Hz)

➢SPECIFICATIONS

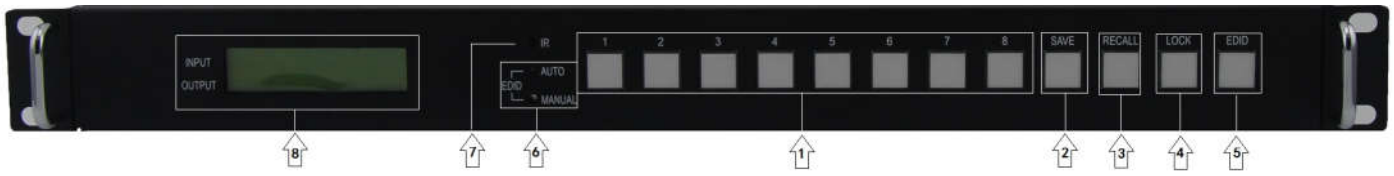
SPECIFICATIONS

- **Type of HDMI Switcher:** 8x HDMI Inputs to 8x HDMI Outputs Matrix Switcher
- **HDMI Support:** HD 1080p-@60Hz, H36-bit Deep color, 3D (1.4a) formats
- **HDCP Support:** HDCP 1.4 Compliant
- **Video Bandwidth:**Double Data Rates: 340Mhz, Total 6.75Gbps bandwidth
- **Digital Video Support:** Full HD Resolution: 480i / 480p / 720p / 1080i / 1080p
- **Digital Audio Support:** Multi Audio Formats 5.1 / 7.1, MAT(MLP), Dolby Digital, Dolby TrueHD, Dolby Digital Plus, DTS, DTS-ES 6.1, DTS-HD, DTS-HD-HRA, DTS-HD Master, (PCM-2CH)
- **Controls:**
  - 1x IR Remote Controller (remote switcher)
  - 1x Select & Function buttons on front panel
  - 1x RS-232 series interface (switch control)
  - 1x RJ45 interface (switch control)
- **Function Control Key:** ALL / RECALL /SAVE / LOCK / EDID
- **Infrared Frequency:** 38 Khz
- **RS-232 Cable:** Straight thru, 6 ft, 9D-M to 9D-F
- **HDMI I/O Connector:** HDMI Type A 19pin Female Type
- **Temperature:** 32°F - 100°F Operation (0°C - 38°C)
- **Dimensions (LxWxH):** 430(L)X220(W)X44 (H)
- **Power Supply:** DC12V / 3A, Universal world wide Type 50/60Hz, 100~230 VAC
- **Power Consumption:** 3880 mA Maximum
- **Safety Approvals:** CE, FCC, RoHS (2002/95/EC)
- **Product Weight:** 3Kg

As product improvements are continuous, specifications are subject to change without notice.

➢FRONT PANEL

FRONT PANEL



1. **OUTPUT SELECT BUTTONS:** Separate outputs 1 thru 8 select buttons are provided for each destination assignment. Routing can be Source to Destination. *Example: Press Button 1, will route the input show in the LCM (press one time, input increase 1, switch input 1~8 in circle) to Output 1.*

2. **SAVE:** Press SAVE button, then press OUTPUT xx button, to save the current route info to mode xx.
Example: Press save button, then press OUTPUT 1 button, then will save the current route info to mode 1

3. **RECALL:** Press RECALL button, then press OUTPUT xx button, to set the current route to mode xx.
Example: Press recall button, then press OUTPUT 1 button, then will set the route according to the mode 1 route info that stored in the memory.

4. **LOCK:** Press LOCK button, if the front panel is not locked, will lock the front panel button; if the front panel is locked, then will unlock the front panel button.

5. **EDID:** Press EDID button, then press OUTPUT 1 button, to set the EDID mode to auto, then the system will auto control the system EDID for all the inputs; Press EDID button, then press OUTPUT 2 button, to set the EDID mode to manual, then the system all the inputs will use the EDID that set by the user;

6. **EDID Mode LED:** If the AUTO LED is on, then the EDID mode led is auto, else if the MANUAL LED is on the EDID mode is manual;

7. **IR receive sensor:** The IR receive sensor.

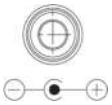
8. **LCM:** The LCM have two line, one to display the input info, the other line display the OUTPUT.

➢BACK PANEL

BACK PANEL

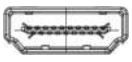
1. **POWER SWITCH:** The power switch turns the unit on and off. The LCM will illuminate to indicate that the switcher is ON and is receiving power. The switcher will remember that last state during a power cycle. When power is removed and resorted, the last configuration will be evoked.

2. **DC POWER INLET:** The switcher is fitted with a DC power plug input connector. Be sure it is an approved type and is of sufficient current carrying connector capacity with the correct voltage and connector polarity. 12Volt DC power supply 3A Max (Center pin positive).



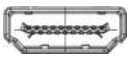
Power Jack:
Inner OD Ø 2.1mm (+)
Outside OD Ø 5.5mm (GND)
Power input - 12VDC, 3A

3. **OUTPUTS- 1,2,3,4,5,6,7 & 8 HDMI:** Connect HDMI digital video/ audio direct to the female HDMI connector. This connector supports HDMI digital video/audio and DVI digital video sources. HDMI Digital Video/Audio, Connector Outputs 1 ~ 8



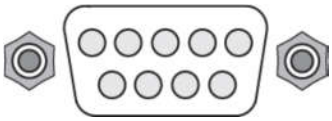
HDMI Digital Video/Audio Connector:
HDMI female connector.

4. **INPUTS- 1,2,3,4,5,6,7, & 8 HDMI:** Connect HDMI digital video/audio direct to the female HDMI connector. This connector supports HDMI digital video/audio and DVI digital video sources. HDMI Digital Video/Audio.



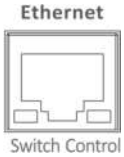
HDMI Digital Video/Audio Connector:
HDMI female connector.

5. **RS-232 CONNECTION:** RS-232 control port allows for interfacing to a PC, such as a computer or touch panel control, to the switcher via this DB-9pin female connector for serial RS-232 control.



Remote Port: DB-9pin Female connector

6. **ETHERNET CONNECTION:** ETHERNET control port allows for TCP/IP interfacing to a PC, such as a computer or touch panel control (not a web-browser), to the switcher via this RJ-45 female connector to control switcher.



Remote Port: Control the switcher female connector

Ethernet Port: Note: the Ethernet port and RS-232 port cannot be used simultaneously. Any connection to the Ethernet port will disable serial commands send to the RS-232 port.

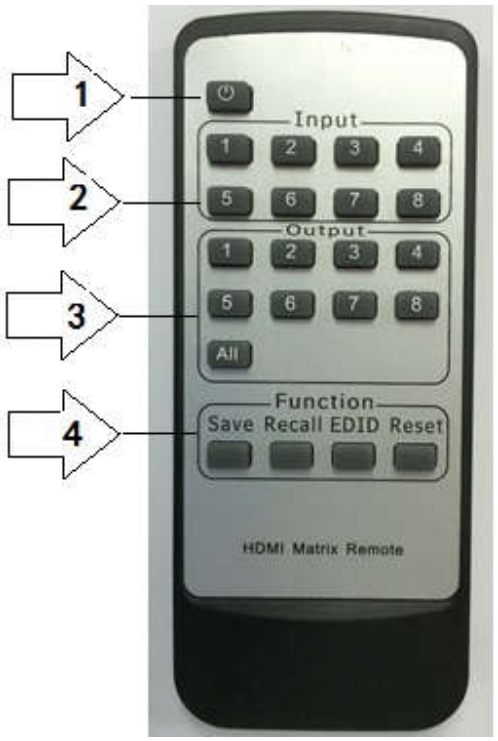
➢REMOTE CONTROL

Before making any connections to the switcher, observe the following:

- Ensure the mains voltage supply matches the label on the supplied plug- Pack (+/- 10%).
- Ensure that the power switch is OFF.
- Ensure that all system grounds (earth) are connected to a common point.
- Avoid powering equipment within a system from multiple power sources that may be separated by large distances.
- Connect all audio video sources and destination equipment.
- Power up all source and destination audio-visual sources.
- For each destination output, select the appropriate input source by using the front panel input 1~8 select buttons. The supplied IR remote control or through the RS-232 serial communications port.
- Upon power up the switcher will return to its last used setting before Powered down.

REMOTE CONTROL

IR REMOTE CONTROL KEY:



1. **SWITCH 1 POWER ON or OFF:**
   Controller with a separate power ON and OFF

2. **INPUT : 1 thru 8 INPUT SOURCE SELECTION:**
   Press input 1~8 sources with selection button

3. **OUTPUT : 1 thru 8 OUTPUT SELECTION, ALL for all the output**
   Press the destination button to select the output display channel.

   Press Input XX, then Press Output XX, switch Input XX to Output XX
   Press Input XX, then Press ALL, switch Input XX to all Outputs;
   Press Output XX, then Press Input XX, switch Input XX to Output XX
   Press ALL, then press Input XX, switch Input XX to all Outputs;

4. **FUNCTION KEY:** Function selection button
   - Save: Press SAVE button, then press OUTPUT xx button, to save The current route info to mode xx.
     Example: Press save button, then press OUTPUT 1 button, then will save the current route info to mode 1
   - Recall: Press RECALL button, then press OUTPUT xx button, to set the current route to mode xx.
     Example: Press recall button, then press OUTPUT 1 button, then will set the route according to the mode 1 route info that stored in the memory.
   - EDID: Press EDID button, then press OUTPUT 1 button, to set the EDID mode to auto, then the system will auto control the system EDID for all the inputs; Press EDID button, then press OUTPUT 2 button, to set the EDID mode to manual, then the system all the inputs will use the EDID that set by the user;
   - Reset: Press this key will restore the unit into factory default set;

➢REMOTE PROTOCOL COMMANDS

IR REMOTE CUSTOM AND DATA CODES (NEC Standard)

HOW TO SETUP IR CODES:

CUSTOM CODE: 00FF

POWER: 00FF 14EB

PRESS OUTPUT - # then PRESS INPUT - #

Output #1: 00FF 17E8
Output #2: 00FF 12ED
Output #3: 00FF 59A6
Output #4: 00FF 08F7
Output #5: 00FF 50AF
Output #6: 00FF 55AA
Output #7: 00FF 48B7
Output #8: 00FF 4AB5

Input #1: 00FF 09F6
Input #2: 00FF 1DE2
Input #3: 00FF 1FE0
Input #4: 00FF 0DF2
Input #5: 00FF 19E6
Input #6: 00FF 1BE4
Input #7: 00FF 11EE
Input #8: 00FF 15EA

ALL: 00FF 5EA1
SAVE: 00FF 18E7
RECALL: 00FF 44BB
EDID: 00FF 0FF0
RESET: 00FF 51AE

For example;
Select Output # 1 to show Source #1~8,

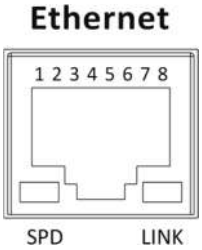
The IR Data Code list :

Output # 1, Input #1 00FF 17E8 00FF 09F6
Output # 1, Input #2 00FF 17E8 00FF 1DE2
Output # 1, Input #3 00FF 17E8 00FF 1FE0
Output # 1, Input #4 00FF 17E8 00FF 0DF2
Output # 1, Input #5 00FF 17E8 00FF 19E6
Output # 1, Input #6 00FF 17E8 00FF 1BE4
Output # 1, Input #7 00FF 17E8 00FF 11EE
Output # 1, Input #8 00FF 17E8 00FF 15EA

➢ETHERNET SERIAL INTERFACE

ETHERNET SERIAL INTERFACE CONNECT A PC OR CONTROL SYSTEM VERSION COMPATIBLE V2.0

For a complete list of commands, please reference external document extended Ethernet Protocol Instruction Manual.



Note :
Control the switcher
SPD : Speed
LINK : Ethernet link
RJ-45 Female 8P-8 Connector

ETHERNET SERIAL INTERFACE

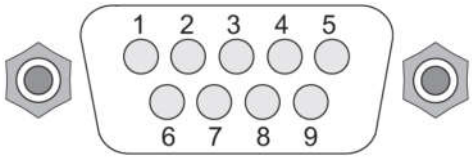
Pin	Ethernet	Reference
1	TXOP	TX +
2	TXON	TX -
3	RXIP	RX +
4	NC	
5	NC	
6	RXIN	RX -
7	NC	
8	GND	

ETHERNET TCP/IP PROTOCOL COMMANDS (ETHERNET / RS-232 CONTROL DRIVER V1.0.1)

****** The Ethernet port and RS-232 port cannot be used simultaneously.Any connection to the Ethernet Control port will disable serial commands send to the RS-232 port.******

➢RS-232 SERIAL INTERFACE

RS-232 SERIAL INTERFACE CONNECT A PC OR CONTROL SYSTEM. VERSION -2.0 COMPATIBLE



RS-232 SERIAL INTERFACE

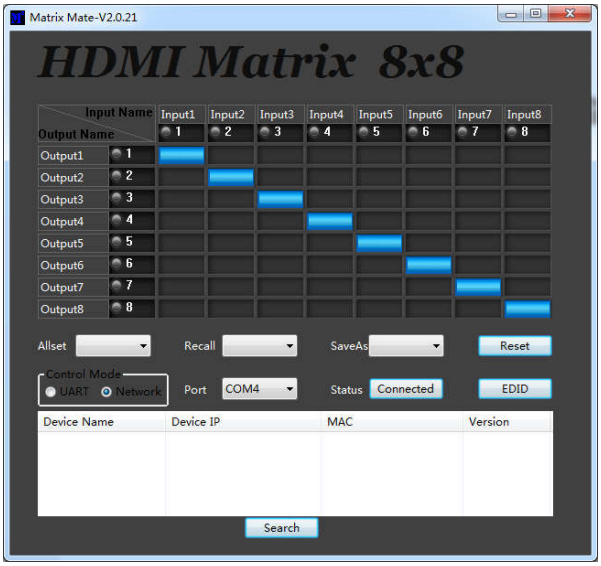
Pin	RS-232	Definition
1	--------	Not used
2	TX	Transmitter
3	RX	Receiver
4	--------	Not used
5	GND	Ground
6	--------	Not used
7	--------	Not used
8	--------	Not used
9	--------	Not used

The HDTViM88 switcher can be controlled via the RS-232 serial control port to allow for interfacing to a PC, or similar third party control system.

The serial communication parameters are 9600 baud, 8 bit, No Parity and 1 stop bit - this is often referred to as 9600 8N1. When the unit recognizes a complete command it will perform the requested action - there is no delimiter character required.

➢PC Tool Matrix Mate User Guide

Matrix Mate GUI:



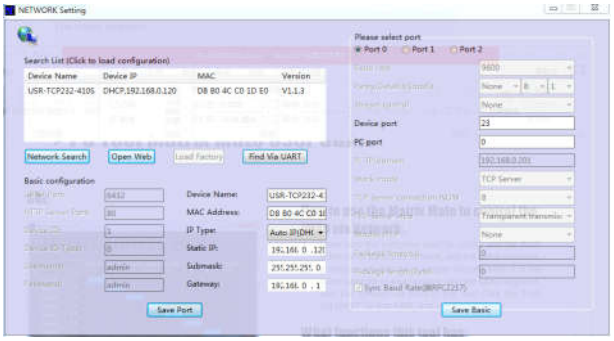
- ✧ **Matrix Mate is non installation, double click the Matrix Mate.exe, then will run the PC tool;**
- ✧ **User can use this tool to control HDTViM88 via RS-232, or Network;**

How to use the Matrix Mate to control the HDTViM88 via RS-232:

1. Use the RS-232 cable that packaged together with the HDTViM88, all RS-232 cable that fulfill with the RS-232 SERIAL INTERFACE that list in RS-232 SERIAL INTERFACE to connect with the computer and the HDTViM88;***(If first use the RS-232 cable, please first install the RS-232 cable driver, the drive is in the CD, which is packaged)***
2. Double click the **Matrix Mate.exe**.
3. Select the right COM port, and select UART, then press the status button, if connected successful, then the Connected will show on the button, and the route information will show.
4. Click the block to switch the input, if switch success, the block will filled with blue;
5. Troubleshoot : If can't connect the HDTViM88 via RS-232, please check as follows:
   (1) Check COM port selected is right or not;(Matrix Mate will auto detect the COM port, if only one RS-232 cable connected to the computer, the COM port show in the tool is the right COM port)
   (2) Make sure the RS-232 cable is Direct serial port line;

How to use the Matrix Mate to control the HDTViM88 via Network:

1. Make sure the computer used to control and the HDTViM88 in the same local area network, and the same segment;
2. If not sure whether the computer and the HDTViM88 is in the in the same local area network, and the same segment, user can connect via RS-232 first, and Click the "Find Via UART" to find HDTViM88, and then configure the HDTViM88 net configuration to full fill with: the computer and the HDTViM88 in the same local area network, and the same segment;

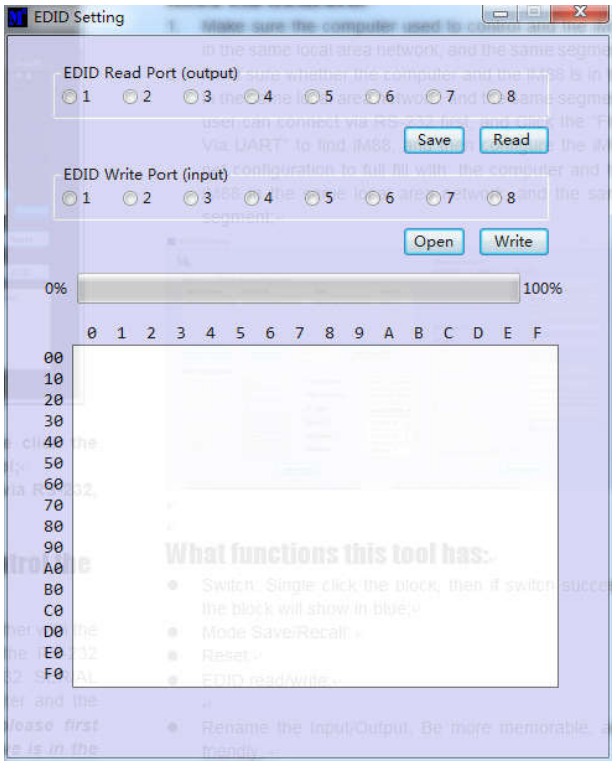


3. Troubleshoot : If can't connect the HDTViM88 via RS-232, please check as follows:
   (1) Connect the HDTViM88 and the computer via RS-232 first, and Click the "Find Via UART" to find HDTViM88. If find the HDTViM88, then and then configure the HDTViM88 net configuration to fulfill with: the computer and the HDTViM88 in the same local area network, and the same segment;
   (2) If can't find the HDTViM88 "Find Via UART", then check the net cable is ok or not;

What functions Matrix Mate has:

- **Switch:** Single click the block, then if switch success, the block will show in blue;
- **Mode Save/Recall:**
- **Reset:**
- **EDID read/write:** Click the EDID button, then will show the EDID control GUI.
    1. Read the EDID from every output, and can save the EDID data;
    2. Open a EDID file, and write to every input port

- Rename the Input/Output, Be more memorable, and friendly;

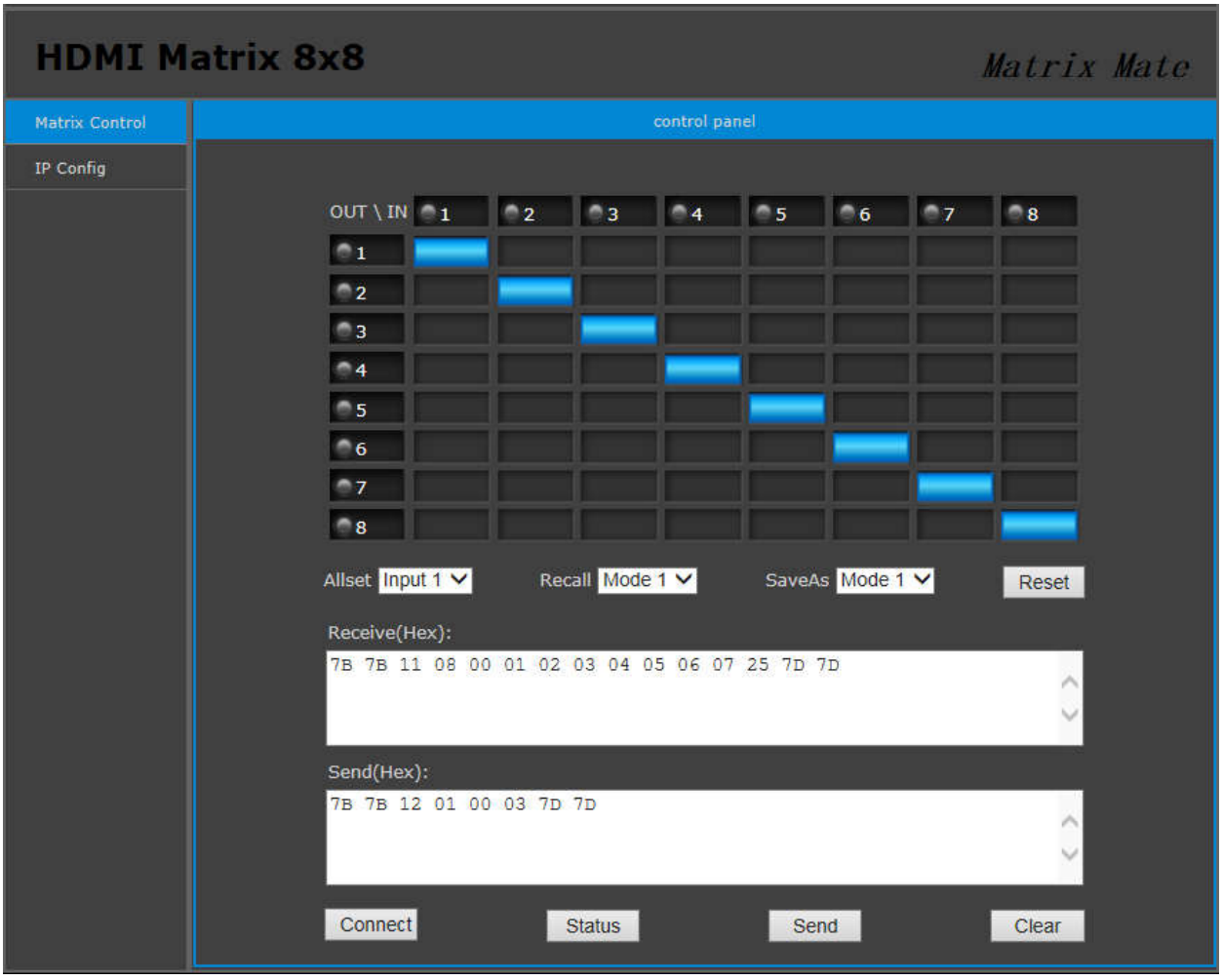


➢Web control

How to control the JHDTViM88 via Web browser

Note:
- The computer used to control and the HDTViM88 in the same local area network, and the same segment;
- The Web browser must support socket; IE 10, or higher version;

1. If don't know the HDTViM88 IP address, use the Matrix Mate to get the HDTViM88 IP address, then input the HDTViM88 IP address in the web browser;
2. If know the HDTViM88 IP address, then input the HDTViM88 IP address in the web browser;
3. User name: admin Password: admin
4. Connect success, then will show:
5. Use to web control support switch/recall/save/Rest function;



➢ Appendix 1: RS232 communication protocol

Serial communication protocol format:

Baud Rate: 9600
Data bits: 8
Parity: None
Stop bits: 1

Command head (2 byte)	Command index (1 byte)	Command length (1 byte)	Command body (CMD_LENGTH bytes)	Check-sum (1 byte)	Command tail (2 byte)
CMD_HEAD	CMD_INDEX	CMD_LENGHT	CMD_BODY	CMD_CHECKSUM	CMD_TAIL
{{					}}
7b 7b					7d 7d

Note:

- **Check-sum is the low 8bits of the sum of CMD_HEAD,CMD_INDEX,CMD_LENGHT,CMD_BODY and CMD_TAI**
- **The length of all the command is CMD_LENGHT+7;**
- **All command data is in hex mode;**
-

Example: 7B 7B 01 02 01 01 F5 7D 7D
7b 7b: Command head
01: Command index（Change routing command）
02: Command length: the length of the command body
01 01: Command body
F5: Check-sum: 7b+7b+01+02+01+01+7d+7d=1F5, so Checksum is F5
7d 7d: Command tail

Serial communication protocol list:

(01)Switching（01）:

Command head (2byte)	Command index (1byte)	Command length (1byte)	Command body (CMD_LENGTH byte)		Check-sum (1byte)	Command tail (2byte)
{{	01	02	Input	Outputs		}}
7b 7b	01	02				7d 7d

Note:

(1) Every bit of the "Outputs" byte means whether to switch the input to this output port. 1: switch the input to the output port. 0: Do nothing

(2) Bit 0~Bit7 of the "Outputs" byte represent HDMI output port 1~8;

(3) The "input" byte represent the input port index, 0~7 represent HDMI input port 1~8

Example:

Switch the input 2 to output 1	Switch the input 4 to all the Output ports(Output port 1~8)
Command: 7B 7B 01 02 01 01 F5 7D 7D	Command: 7B 7B 01 02 03 FF F5 7D 7D
7b 7b: Command head 0: Command index 02: Command length 02 01: Command body F5: Check-sum 7d 7d: Command Tail	7b 7b: Command head 01: Command index 02: Command length 03 ff: Command body F5: Check-sum 7d 7d: Command Tail
Return: 7B 7B 01 02 01 01 F5 7D 7D	Return: 7B 7B 01 02 03 FF F5 7D 7D

After the devices received the command successfully, will send back the whole command back..

(02)Routing configuration save: Save the current routing configuration

Command head (2byte)	Command index (1byte)	Command length (1byte)	Command body (CMD_LENGTH byte)	Check-sum (1byte)	Command tail (2byte)
{{	02	01	Routing configuration Index		}}
7b 7b	02	01			7d 7d

Note :

（1）The device supports store 8 different routing configuration. From 0~7, represent Routing configuration index 1~8

Example:

Save the current routing configuration to index 1	Save the current routing configuration to index 8
Command: 7B 7B 02 01 00 F3 7D 7D	Command: 7B 7B 02 01 07 FA 7D 7D
7b 7b: Command head 02: Command index 01: Command length 00: Command body ,00 means Routing configuration index 1;（0~7 **represent** Routing configuration index 1~8） F3: Check-sum 7d 7d: Command tail	7b 7b: Command head 01: Command index 01: Command length 07: Command body ,07 means Routing configuration index 8;（0~7 **represent** Routing configuration index 1~8） FA: Check-sum 7d 7d: Command tail
Return: Don't return any command	Return: Don't return any command

(03)**Recall the routing configuration that saved before (03): To set the current routing configuration the same as the routing configuration index xx that saved before**

Command head (2byte)	Command index (1byte)	Command length (1byte)	Command body (CMD_LENGTH byte)	Check-sum (1byte)	Command tail (2byte)
{{	03	01	Routing configuration Index		}}
7b 7b	03	01			7d 7d

Note:

（1）The device support 8 different Routing configuration

Example:

Recall the routing configuration index 1	Recall the routing configuration index 8
Command: 7B 7B 03 01 00 F4 7D 7D	Command: 7B 7B 03 01 07 FB 7D 7D
7b 7b: Command head 03: Command index 01: Command length 00: Command body，00：Means 1 routing configuration index 1（0~7 represent routing configuration index 1~8） F4: Check-sum 7d 7d: Command tail	7b 7b: Command head 03: Command index 01: Command length 07: Command body，07：Means 1 routing configuration index 8（0~7 represent routing configuration index 1~8） FB: Check-sum 7d 7d: Command tail
Return: 7B 7B 11 04 00 01 02 03 0B 7D 7D（Please refer to command index 11）	Return: 7B 7B 11 04 00 01 02 03 0B 7D 7D (Please refer to command index 11）

(11）The routing configuration information（11）

Command head (2byte)	Command Index (1byte)	Command length (1byte)	Command body (CMD_LENGTH byte)					Check-sum (1byte)	Command tail (2byte)
{{	11		The input port index of the output 1	The input port index of the output 2	The input port index of the output 3	The input port index of the output 4	……		}}
7b 7b	11		0~7 means Input 1~8	0~7 means Input 1~8	0~7 means Input 1~8	0~7 means Input 1~8	……		7d 7d

Note:

（1） The Command length is determined by the HDMI device outputs port counter;

Example:

HDMI 4x4 Matrix: The current routing information is 1-1,2-2,3-3,4-4	HDMI 4x4 Matrix: The current routing information is 1-1,1-2,1-3,1-4
Command: 7B 7B 11 04 00 01 02 03 0B 7D 7D	Command: 7B 7B 11 04 00 00 00 00 05 7D 7D
7b 7b: Command head 11: Command index 04: Command length 00 01 02 03: Command body, Means input 1 to output 1, input 2 to output 2, input 3to output 3, input 4 to output 4, 0B: Check-sum 7d 7d: Command tail	7b 7b: Command head 11: Command index 04: Command length 00 00 00 00: Command body. Means input 1 to output 1, input 1 to output 2, input 1 to output 3, input 1 to output 4, 05: Check-sum 7d 7d: Command tail
Return: Don’t return any command	Return: Don’t return any command

(15)EDID Read Command (15): Read the EDID data of the device that connect to the HDMI output
Need to read 16 times, due to each time will return only 16 bytes EDID data.

Command head (2byte)	Command Index (1byte)	Command length (1byte)	Command body (CMD_LENGTH byte)		Check-sum (1byte)	Command tail (2byte)
{{	15	2	Output port index, 0~7 means port 1~8	The beginning of the EDID index to read from		}}
7b 7b	15	2				7d 7d

Note: After device received this command, will return 16 bytes EDID data, from the EDID data index that set by the command. If failed, then the device will return read failed command, please refer to command index 16.
Please make sure that the port which to read EDID data from, do have picture display well, otherwise, will failed;
Example: Read the EDID data from the device that connected to HDMI output 1

Receive（With respect to the HDMI device）	Send（With respect to the HDMI device）
7B 7B 15 02 00 00 07 7D 7D	7B 7B 15 12 00 00 00 FF FF FF FF FF FF 00 4D 77 01 00 01 00 00 00 D7 7D 7D
7B 7B 15 02 00 10 07 7D 7D	7B 7B 15 12 00 10 1C 16 01 03 80 3C 22 78 0A 0D C9 A0 57 47 98 27 90 7D 7D
7B 7B 15 02 00 20 07 7D 7D	7B 7B 15 12 00 20 12 48 4C BF EF 00 01 01 01 01 01 01 01 01 01 01 95 7D 7D
7B 7B 15 02 00 30 07 7D 7D	7B 7B 15 12 00 30 01 01 01 01 01 01 01 1D 00 72 51 D0 1E 20 6E 28 D2 7D 7D
7B 7B 15 02 00 40 07 7D 7D	7B 7B 15 12 00 40 55 00 C4 8E 21 00 00 1E 01 1D 80 18 71 1C 16 20 B6 7D 7D
7B 7B 15 02 00 50 07 7D 7D	7B 7B 15 12 00 50 58 2C 25 00 C4 8E 21 00 00 9E 00 00 00 FC 00 53 70 7D 7D
7B 7B 15 02 00 60 07 7D 7D	7B 7B 15 12 00 60 6B 79 77 6F 72 74 68 20 55 48 44 0A 00 00 00 FD 97 7D 7D
7B 7B 15 02 00 70 07 7D 7D	7B 7B 15 12 00 70 00 31 4C 0F 50 0E 00 0A 20 20 20 20 20 20 01 B1 ED 7D 7D
7B 7B 15 02 00 80 07 7D 7D	7B 7B 15 12 00 80 02 03 29 74 4B 84 10 1F 05 13 14 01 02 11 06 15 92 7D 7D
7B 7B 15 02 00 90 07 7D 7D	7B 7B 15 12 00 90 26 09 7F 03 11 7F 18 83 01 00 00 6D 03 0C 00 10 10 7D 7D
7B 7B 15 02 00 A0 07 7D 7D	7B 7B 15 12 00 A0 00 B8 3C 2F 80 60 01 02 03 01 1D 00 BC 52 D0 1E DA 7D 7D
7B 7B 15 02 00 B0 07 7D 7D	7B 7B 15 12 00 B0 20 B8 28 55 40 C4 8E 21 00 00 1E 01 1D 80 D0 72 CD 7D 7D
7B 7B 15 02 00 C0 07 7D 7D	7B 7B 15 12 00 C0 1C 16 20 10 2C 25 80 C4 8E 21 00 00 9E 8C 0A D0 81 7D 7D
7B 7B 15 02 00 D0 07 7D 7D	7B 7B 15 12 00 D0 8A 20 E0 2D 10 10 3E 96 00 13 8E 21 00 00 18 8C F8 7D 7D
7B 7B 15 02 00 E0 07 7D 7D	7B 7B 15 12 00 E0 0A D0 90 20 40 31 20 0C 40 55 00 13 8E 21 00 00 75 7D 7D
7B 7B 15 02 00 F0 07 7D 7D	7B 7B 15 12 00 F0 18 00 00 00 00 00 00 00 00 00 00 00 00 00 00 22 41 7D 7D

(16)EDID Read failed return command (16):

Command head (2byte)	Command Index (1byte)	Command length (1byte)	Command body (CMD_LENGTH byte)		Check-sum (1byte)	Command tail (2byte)
{{	16	2	Output port 0~7 represent 1~8	The beginning of the EDID index to read from		}}
7b 7b	16	2				7d 7d

Example: Read from EDID data index 60 failed, the device will Return:7B 7B 16 02 00 60 68 7D 7D

(18)Write EDID (18):

Command head (2byte)	Command Index (1byte)	Command length (1byte)	Command body (CMD_LENGTH byte)			Check-sum (1byte)	Command tail (2byte)
{{	18	12	0~7 represent HDMI input 1~8	The beginning of the EDID index to write to	16 bytes data that to write		}}
7b 7b	18	12					7d 7d
Return	If write successes, will return the same command as that the device received						

Note: After device received this command, will write the 16 bytes EDID data, from the EDID data index that set by the command. If write successes, will return the same command as that the device received. Please make sure that the port which to write EDID data to be normal, otherwise, will fail;

Example:

Receive（With respect to the HDMI device）	Send（With respect to the HDMI device）
7B 7B 18 12 00 00 00 FF FF FF FF FF FF 00 4D 77 01 00 01 00 00 00 DA 7D 7D	7B 7B 18 12 00 00 00 FF FF FF FF FF FF 00 4D 77 01 00 01 00 00 00 DA 7D 7D
7B 7B 18 12 00 10 1C 16 01 03 80 3C 22 78 0A 0D C9 A0 57 47 98 27 93 7D 7D	7B 7B 18 12 00 10 1C 16 01 03 80 3C 22 78 0A 0D C9 A0 57 47 98 27 93 7D 7D
7B 7B 18 12 00 20 12 48 4C BF EF 00 01 01 01 01 01 01 01 01 01 98 7D 7D	7B 7B 18 12 00 20 12 48 4C BF EF 00 01 01 01 01 01 01 01 01 01 98 7D 7D
7B 7B 18 12 00 30 01 01 01 01 01 01 01 1D 00 72 51 D0 1E 20 6E 28 D5 7D 7D	7B 7B 18 12 00 30 01 01 01 01 01 01 01 1D 00 72 51 D0 1E 20 6E 28 D5 7D 7D
7B 7B 18 12 00 40 55 00 C4 8E 21 00 00 1E 01 1D 80 18 71 1C 16 20 B9 7D 7D	7B 7B 18 12 00 40 55 00 C4 8E 21 00 00 1E 01 1D 80 18 71 1C 16 20 B9 7D 7D
7B 7B 18 12 00 50 58 2C 25 00 C4 8E 21 00 00 9E 00 00 00 FC 00 53 73 7D 7D	7B 7B 18 12 00 50 58 2C 25 00 C4 8E 21 00 00 9E 00 00 00 FC 00 53 73 7D 7D
7B 7B 18 12 00 60 6B 79 77 6F 72 74 68 20 55 48 44 0A 00 00 00 FD 9A 7D 7D	7B 7B 18 12 00 60 6B 79 77 6F 72 74 68 20 55 48 44 0A 00 00 00 FD 9A 7D 7D
7B 7B 18 12 00 70 00 31 4C 0F 50 0E 00 0A 20 20 20 20 20 01 B1 F0 7D 7D	7B 7B 18 12 00 70 00 31 4C 0F 50 0E 00 0A 20 20 20 20 20 01 B1 F0 7D 7D
7B 7B 18 12 00 80 02 03 29 74 4B 84 10 1F 05 13 14 01 02 11 06 15 95 7D 7D	7B 7B 18 12 00 80 02 03 29 74 4B 84 10 1F 05 13 14 01 02 11 06 15 95 7D 7D
7B 7B 18 12 00 90 26 09 7F 03 11 7F 18 83 01 00 00 6D 03 0C 00 10 13 7D 7D	7B 7B 18 12 00 90 26 09 7F 03 11 7F 18 83 01 00 00 6D 03 0C 00 10 13 7D 7D
7B 7B 18 12 00 A0 00 B8 3C 2F 80 60 01 02 03 01 1D 00 BC 52 D0 1E DD 7D 7D	7B 7B 18 12 00 A0 00 B8 3C 2F 80 60 01 02 03 01 1D 00 BC 52 D0 1E DD 7D 7D
7B 7B 18 12 00 B0 20 B8 28 55 40 C4 8E 21 00 00 1E 01 1D 80 D0 72 D0 7D 7D	7B 7B 18 12 00 B0 20 B8 28 55 40 C4 8E 21 00 00 1E 01 1D 80 D0 72 D0 7D 7D
7B 7B 18 12 00 C0 1C 16 20 10 2C 25 80 C4 8E 21 00 00 9E 8C 0A D0 84 7D 7D	7B 7B 18 12 00 C0 1C 16 20 10 2C 25 80 C4 8E 21 00 00 9E 8C 0A D0 84 7D 7D
7B 7B 18 12 00 D0 8A 20 E0 2D 10 10 3E 96 00 13 8E 21 00 00 18 8C FB 7D 7D	7B 7B 18 12 00 D0 8A 20 E0 2D 10 10 3E 96 00 13 8E 21 00 00 18 8C FB 7D 7D
7B 7B 18 12 00 E0 0A D0 90 20 40 31 20 0C 40 55 00 13 8E 21 00 00 78 7D 7D	7B 7B 18 12 00 E0 0A D0 90 20 40 31 20 0C 40 55 00 13 8E 21 00 00 78 7D 7D
7B 7B 18 12 00 F0 18 00 00 00 00 00 00 00 00 00 00 00 00 00 22 44 7D 7D	7B 7B 18 12 00 F0 18 00 00 00 00 00 00 00 00 00 00 00 00 00 22 44 7D 7D

(AA）Restore to factory default setting:

Command head (2byte)	Command Index (1byte)	Command length (1byte)	Command body (CMD_LENGTH byte)		Check-sum (1byte)	Command tail (2byte)
{{	AA	02	01	01	9c	}}
7b 7b	AA	02	01	01	9c	7d 7d

After the device received this command, will restore to the factory default setting, and will return the routing configuration information by command 11

➢Appendix 2: Route command

Matrix Routing command

Input \ Output	1	2	3	4	5	6	7	8
1	7B 7B 01 02 00 01 F4 7D 7D	7B 7B 01 02 00 02 F5 7D 7D	7B 7B 01 02 00 04 F7 7D 7D	7B 7B 01 02 00 08 FB 7D 7D	7B 7B 01 02 00 10 03 7D 7D	7B 7B 01 02 00 20 13 7D 7D	7B 7B 01 02 00 40 33 7D 7D	7B 7B 01 02 00 80 73 7D 7D
2	7B 7B 01 02 01 01 F5 7D 7D	7B 7B 01 02 01 02 F6 7D 7D	7B 7B 01 02 01 04 F8 7D 7D	7B 7B 01 02 01 08 FC 7D 7D	7B 7B 01 02 01 10 04 7D 7D	7B 7B 01 02 01 20 14 7D 7D	7B 7B 01 02 01 40 34 7D 7D	7B 7B 01 02 01 80 74 7D 7D
3	7B 7B 01 02 02 01 F6 7D 7D	7B 7B 01 02 02 02 F7 7D 7D	7B 7B 01 02 02 04 F9 7D 7D	7B 7B 01 02 02 08 FD 7D 7D	7B 7B 01 02 02 10 05 7D 7D	7B 7B 01 02 02 20 15 7D 7D	7B 7B 01 02 02 40 35 7D 7D	7B 7B 01 02 02 80 75 7D 7D
4	7B 7B 01 02 03 01 F7 7D 7D	7B 7B 01 02 03 02 F8 7D 7D	7B 7B 01 02 03 04 FA 7D 7D	7B 7B 01 02 03 08 FE 7D 7D	7B 7B 01 02 03 10 06 7D 7D	7B 7B 01 02 03 20 16 7D 7D	7B 7B 01 02 03 40 36 7D 7D	7B 7B 01 02 03 80 76 7D 7D
5	7B 7B 01 02 04 01 F8 7D 7D	7B 7B 01 02 04 02 F9 7D 7D	7B 7B 01 02 04 04 FB 7D 7D	7B 7B 01 02 04 08 FF 7D 7D	7B 7B 01 02 04 10 07 7D 7D	7B 7B 01 02 04 20 17 7D 7D	7B 7B 01 02 04 40 37 7D 7D	7B 7B 01 02 04 80 77 7D 7D
6	7B 7B 01 02 05 01 F9 7D 7D	7B 7B 01 02 05 02 FA 7D 7D	7B 7B 01 02 05 04 FC 7D 7D	7B 7B 01 02 05 08 00 7D 7D	7B 7B 01 02 05 10 08 7D 7D	7B 7B 01 02 05 20 18 7D 7D	7B 7B 01 02 05 40 38 7D 7D	7B 7B 01 02 05 80 78 7D 7D
7	7B 7B 01 02 06 01 FA 7D 7D	7B 7B 01 02 06 02 FB 7D 7D	7B 7B 01 02 06 04 FD 7D 7D	7B 7B 01 02 06 08 01 7D 7D	7B 7B 01 02 06 10 09 7D 7D	7B 7B 01 02 06 20 19 7D 7D	7B 7B 01 02 06 40 39 7D 7D	7B 7B 01 02 06 80 79 7D 7D
8	7B 7B 01 02 07 01 FB 7D 7D	7B 7B 01 02 07 02 FC 7D 7D	7B 7B 01 02 07 04 FE 7D 7D	7B 7B 01 02 07 08 02 7D 7D	7B 7B 01 02 07 10 0A 7D 7D	7B 7B 01 02 07 20 1A 7D 7D	7B 7B 01 02 07 40 3A 7D 7D	7B 7B 01 02 07 80 7A 7D 7D

INPUT1 To All	7B 7B 01 02 00 FF F2 7D 7D
INPUT2 To All	7B 7B 01 02 01 FF F3 7D 7D
INPUT3 To All	7B 7B 01 02 02 FF F4 7D 7D
INPUT4 To All	7B 7B 01 02 03 FF F5 7D 7D
INPUT5 To All	7B 7B 01 02 04 FF F6 7D 7D
INPUT6 To All	7B 7B 01 02 05 FF F7 7D 7D
INPUT7 To All	7B 7B 01 02 06 FF F8 7D 7D
INPUT8 To All	7B 7B 01 02 07 FF F9 7D 7D