# User Manual

# MMX3232

## Modular Matrix Switcher 32x32


## Preface

Read this user manual carefully before using this product. Pictures shown in this manual is for reference only, different model and specifications are subject to real product.

This manual is only for operation instruction only, not for any maintenance usage. The functions described in this version are updated till March 2015. Any changes of functions and parameters since then will be informed separately. Please refer to the dealers for the latest details.

**All product function is valid till 2015-3-13.**

## Trademarks



## FCC Statement

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. It has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a commercial installation.

Operation of this equipment in a residential area is likely to cause interference, in which case the user at their own expense will be required to take whatever measures may be necessary to correct the interference.

Any changes or modifications not expressly approved by the manufacture would void the user's authority to operate the equipment.

# SAFETY PRECAUTIONS

To insure the best from the product, please read all instructions carefully before using the device. Save this manual for further reference.

- Unpack the equipment carefully and save the original box and packing material for possible future shipment
- Follow basic safety precautions to reduce the risk of fire, electrical shock and injury to persons.
- Do not dismantle the housing or modify the module. It may result in electrical shock or burn.
- Using supplies or parts not meeting the products' specifications may cause damage, deterioration or malfunction.
- Refer all servicing to qualified service personnel.
- To prevent fire or shock hazard, do not expose the unit to rain, moisture or install this product near water.
- Do not put any heavy items on the extension cable in case of extrusion.
- Do not remove the housing of the device as opening or removing housing may expose you to dangerous voltage or other hazards.
- Install the device in a place with fine ventilation to avoid damage caused by overheat.
- Keep the module away from liquids.
- Spillage into the housing may result in fire, electrical shock, or equipment damage. If an object or liquid falls or spills on to the housing, unplug the module immediately.
- Do not twist or pull by force ends of the optical cable. It can cause malfunction.
- Do not use liquid or aerosol cleaners to clean this unit. Always unplug the power to the device before cleaning.
- Unplug the power cord when left unused for a long period of time.
- Information on disposal for scrapped devices: do not burn or mix with general household waste, please treat them as normal electrical wastes.

# Table of Contents

# 1. Introduction

## 1.1. About MMX3232

MMX3232 is a high-performance video and audio modular matrix switcher supporting max 32 input signal sources and 32 output display synchronously. It supports different video signals with cross switching. Every video or audio signal is transmitted and switched independently to decrease signal attenuation. MMX3232 supports various changeable cards including HMDI, DVI, VGA, SDI and HDBaseT etc, and all the cards support hot plug & play. Users can choose to insert different signal card for different application.

MMX3232 have power fail memory function and audio can break away from or follow the video to switch. It has RS232 port for serial control and optional IP port for TCP/IP control, can be easily controlled by third-part devices.

With its flexible design, MMX3232 can be used for different project and tend to be an all-in-one solution. It is the combo solution for multimedia conference rooms, control rooms, broadcasting rooms, shopping center etc. It will handle all the audiovisual management, including the switching, driving, scaling etc.

## 1.2. Features

- Modular chassis with configurable I/O slots, ranging from 4x4 to 32x32.
- Various I/O cards, includes HDMI, HDBaseT, SD/HD/3G-SDI, DVI and VGA cards (Compatible with YUV, YC & CVBC.) to configure any matrix.
- Truly cross-point switching, any input to any output, regardless signal format.
- Support HDMI1.4a, support 3D.
- Integrated HDBaseT technology.
- Controllable via button, RS232 & optional TCP/IP, also compatible with 3rd parties control.
- HDCP compliant.
- LCD display.

### 1.2.1. MMX signal card (changeable cards)

To meet different situation and users, the MMX3232 cards are classified into the following models:

| | Spec / Models | Inputs | Signal Format |
|---|---|---|---|
| **Input Cards** | 4I-HD | 4 | HDMI |
| | 4I-DV | 4 | DVI |
| | 4I-DS | 4 | DVI, HDMI, VGA, AV, YPbPr |
| | 4I-VG | 4 | VGA |
| | 4I-VA | 4 | VGA& PCM audio |

**Input Cards**

| Spec / Models | Inputs | Signal Format |
|---|---|---|
| 4I-SD | 4 inputs & 4 LOOP outputs for each channel) | SDI |
| 4I-TP | 4 | HDMI TP, IR, RS232 |
| 4I-UH | 4 | HDMI& PCM Audio |
| 4I-UF | 4 | Optical Fiber |
| 4I-BT | 4 | HDBT, RS232, Audio |

| Spec / Models | Outputs | Signal Format |
|---|---|---|
| 4O-HD | 4 | HDMI |
| 4O-DV | 4 | DVI |
| 4O-DS | 4 | DVI, HDMI, VGA, AV, YPbPr |
| 4O-VG | 4 VGA, 4 Stereo audio | VGA, analog audio |
| 4O-SD | 4 outputs & 4 LOOP outputs for each channel) | SDI |
| 4O-TP | 4 | HDMI TP, IR, RS232 |
| 4O-UH | 4 | HDMI& PCM Audio |
| 4O-UF | 4 | Optical Fiber |
| 4O-BT | 4 | HDBT, RS232, Audio |

## 1.4 Package List

- 1 x MMX3232
- 1 x RS232 cable
- 4 x Plastic cushions
- 1 x IR remote (The cell battery is not included)
- 1 x Power Cord
- 4 x Male VGA to female YPbPr cable (packed only when includes the 4I-VG/4I-VA cards)
- 4 x Male VGA to female S-video & RCA (C-video) cable (packed only when includes the 4I-VG/4I-VA cards)
- 1 x User manual

**Notes**: Please confirm if the product and the accessories are all included, if not, please contact with the dealers.

# 2. Panel Description

## 2.1. MMX3232

### 2.1.1. Front Panel

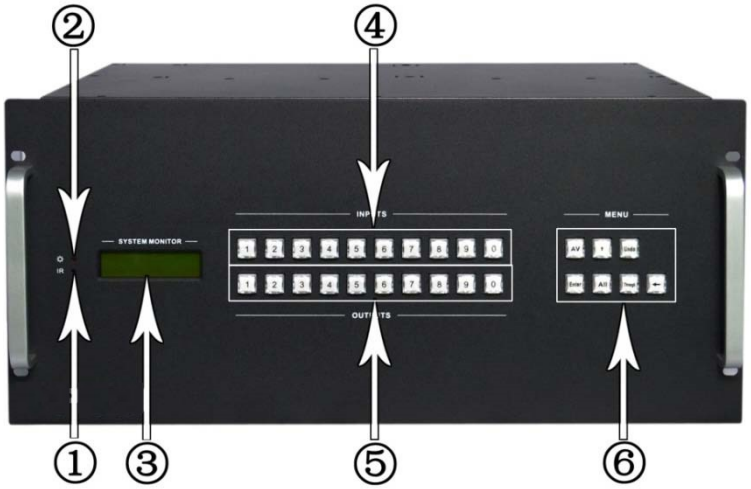



**Figure 2- 1 Front Panel of MMX3232**

| No. | Name | Description |
|---|---|---|
| ① | IR | IR sensor, receive IR signal sent from IR remote |
| ② | Power indicator | Illuminate red once powered on |
| ③ | LCD screen | Display real-time operation status |
| ④ | INPUTS | Buttons for input channels with green back-light indicating, ranges from 0~ 9, 32 selectable channels in total. |
| ⑤ | OUTPUTS | Buttons for output channels with green back-light indicating, ranges from 0 ~ 9, 32 selectable channels in total. |
| ⑥ | MENU | **AV**: Transfer video and audio signal synchronously |
| | | **,**: division button, to divide the output channels when switching to more than one channel. |
| | | **ENTER**: Confirm switching operation. Operation will not be executed by the matrix without confirmation. |
| | | **ALL:** To transfer an input channel to all output channels. |

| | | |
|---|---|---|
| | | **THROUGH**: To transfer the signals directly to the corresponding output channels. |
| | | **UNDO**: Undo button, to resume to the status before the command just performed. |
| | | ←: Backspace button, to backspace the latest input button. |

### 2.1.2. Rear Panel

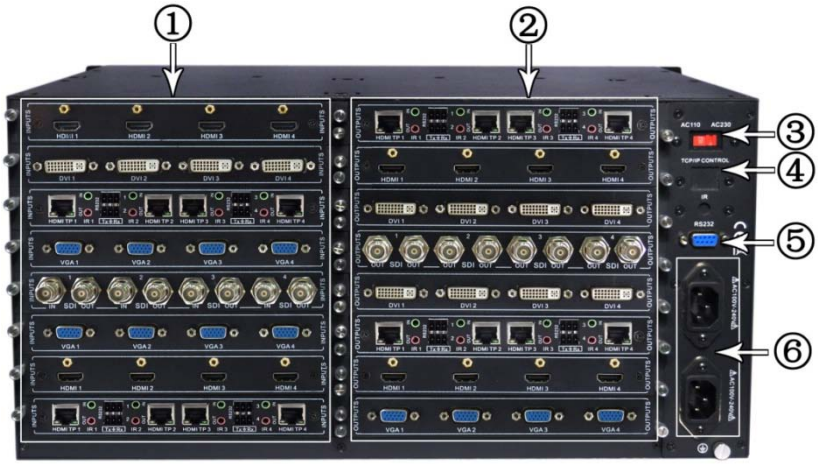



**Figure 2- 2 Rear Panel of MMX3232**

| No. | Name | Description |
|---|---|---|
| ① | INPUTS | Input signal card slots, 8 in total |
| ② | OUTPUTS | Output signal card slots, 8 in total |
| ③ | Power switch | Switch between AC110V and AC230V to access different power |
| ④ | TCP/IP | (Optional) Used for TCP/IP control port |
| ⑤ | RS232 | Serial control port, connect with RS232 port of control device. |
| ⑥ | Power ports | Connect with household alternating current power, including one redundant power. |

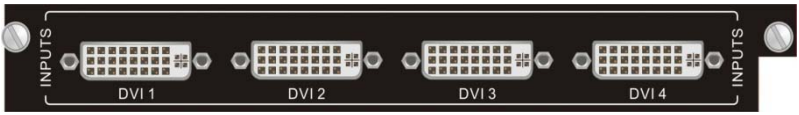
**Note**: There are only 8 input and 8 output slots for MMX3232, which enables only 8 input cards and 8 output cards to be installed on MMX3232. The input/output cards can be changed based on your requests and supports hot plug and play.

## 2.2. Changeable Cards

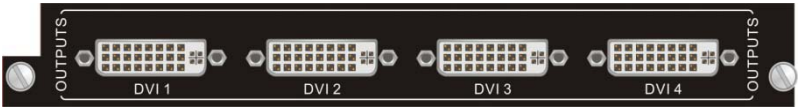
MMX3232 support expansion through various changeable input/ output cards of different signals including DVI, HDMI, VGA, twisted pair, SDI etc. Here is a brief introduction to the changeable cards.

### 2.2.1. 4I-DV & 4O-DV

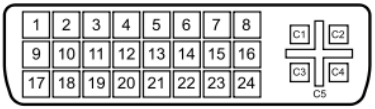
DVI signal card. (Please check the specification from 5*.2.1*)
It is fully compatible with HDMI1.3 and HDCP, but not supporting analogy signal.
It is embedded EDID management technology, supporting DDC.
**4I-DV**: input card, maximum four input signal. Input signal can pass to output device through 4O-DV, or pass through other kinds of output cards.




**4O-DV**: output card, maximum four output signal, output signals from 4I-DV, or other kinds of input cards.




Pin Layout of the DVI-I connector (Dual-Link). (Female)




| PIN | Function | PIN | Function |
|---|---|---|---|
| 1 | T.M.D.S.Data2- | 13 | T.M.D.S.Data3+ |
| 2 | T.M.D.S.Data2+ | 14 | +5V Power |
| 3 | T.M.D.S. Data 2/4 Shield | 15 | Ground (return for +5V, Hsync and Vsync) |
| 4 | T.M.D.S. Data 4- | 16 | Hot Plug Detect |
| 5 | T.M.D.S. Data 4+ | 17 | T.M.D.S. Data 0- |
| 6 | DDC Clock | 18 | T.M.D.S. Data 0+ |
| 7 | DDC Data | 19 | T.M.D.S. Data 0/5 Shield |
| 8 | Analog Vertical Sync | 20 | T.M.D.S.Data5- |
| 9 | T.M.D.S.Data1- | 21 | T.M.D.S.Data5+ |
| 10 | T.M.D.S.Data1+ | 22 | T.M.D.S. Clock Shield |
| 11 | T.M.D.S.Data1/3 Shield | 23 | T.M.D. S. Clock + |
| 12 | T.M.D.S.Data3- | 24 | T.M.D.S .Clock- |

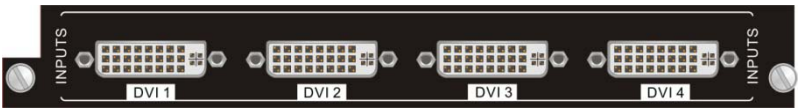
### 2.2.2. 4I-DS& 4O-DS

Seamless DVI signal card. (*Please check the specification from 5.2.2*)

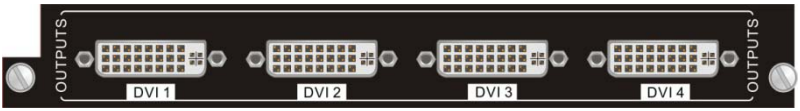
It is fully compatible with HDMI1.3 and HDCP 1.2, and supports seamless transmission for high-definition DVI, HDMI, VGA, AV, YPbPr signals. It can automatically identify the format of input signal, and the output resolution can be adjusted.

It is embedded the EDID management technology, supporting DDC.

**4I-DS**: seamless input card, maximum four input signal. Input signal can pass to output device through 4O-DS, or pass through other kinds of output cards.




**4O-DS**: seamless output card, maximum four output signal. Output signal can come from 4I-DS, or from other kinds of input cards. It supports off memory for resolution, signal format, HDCP compliant status.



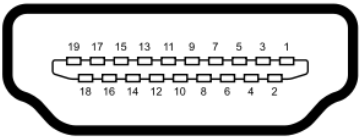

**Note:** When 4O-DS works with input cards except 4I-DS, adjust the 4 input signals to any one of the following 5 resolutions to enable seamless output: 1024x768, 1280x720, 1600x1200, 1920x1080, 1920x1200.
DVI interfaces on the signal card are same with the interfaces on 4I-DV& 4O-DV.

### 2.2.3. 4I-HD & 4O-HD

HDMI signal card. (Please check the specification from 5.*2.3*)
It is embedded the EDID management technology, supporting DDC.
It is also compatible with DVI signal (HDCP required).
**4I-HD**: input card, maximum four input signal. Input signal can pass to output device through 4O-HD, or pass through other kinds of output cards.


**4O-HD**: output card, maximum four output signal, output signals from 4I-HD, or other kinds of input cards.

Pin layout of the HDMI connectors (female).



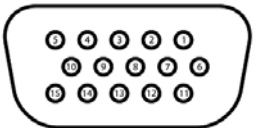

| No. | Signal Name | No. | Signal Name |
|---|---|---|---|
| **1** | TMDS Data 2+ | **20** | SHELL |
| **2** | TMDS Data 2 Shield | **19** | Hot Plug Detect |
| **3** | TMDS Data 2- | **18** | +5V Power |
| **4** | TMDS Data 1+ | **17** | Ground |
| **5** | TMDS Data 1 Shield | **16** | DDC Data |
| **6** | TMDS Data 1- | **15** | DDC Clock |
| **7** | TMDS Data 0+ | **14** | No Connect |
| **8** | TMDS Data 0 Shield | **13** | CEC |
| **9** | TMDS Data 0- | **12** | TMDS Clock- |
| **10** | TMDS Clock+ | **11** | TMDS Clock Shield |

### 2.2.4. 4I-VG & 4O-VG

VGA signal card. (Please check the specification from 5.*2.4*)
Scale all inputs to 1080p.
Compatible with C-Video, YUV, YC (Factory preset function).
The bandwidth is up to 350MHz (-3dB);
Supporting RGBHV, RGsB, RGBS, RsGsBs, YUV, YC and Composite video.
**4I-VG**: input card, maximum four input signal. Input signal can pass to output device through any kinds of output cards.


**4O-VG**: output card, maximum four VGA output signal and 4 stereo audio outputs, output video signal from 4I-VG, or other kinds of input cards, and output audio signal from the audio of the input signal.

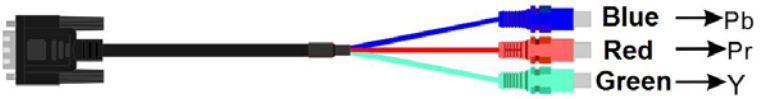

Pin layout of the VGA connectors (female):



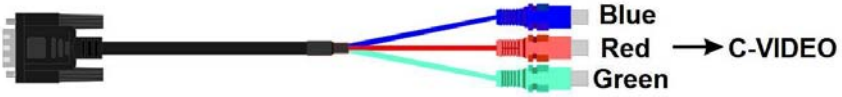
| Pin Number | Signal Name | Pin Number | Signal Name |
|---|---|---|---|
| Pin 1 | RED | Pin 9 | KEY/PWR |
| Pin 2 | GREEN | Pin 10 | GND |
| Pin 3 | BLUE | Pin 11 | ID0/RES |
| Pin 4 | ID2/RES | Pin 12 | ID1/SDA |
| Pin 5 | GND | Pin 13 | HSync |
| Pin 6 | RED_RTN | Pin 14 | VSync |
| Pin 7 | GREEN_RTN | Pin 15 | ID3/SCL |
| Pin 8 | BLUE_RTN | | |

Connect the devices via VGA converting cable as shown below:

- **Connect with Component Video (YPbPr) Source**



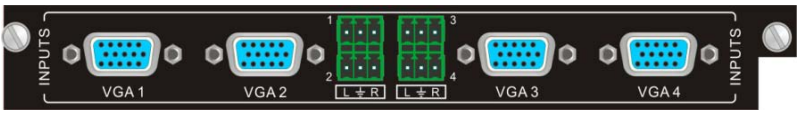

- **Connect with Composite Video (C-VIDEO) Source**




### 2.2.5. 4I-VA

VGA signal card. (*Please check the specification from 5.2.5*)
Scale all inputs to 1080p.
Compatible with C-Video, YUV, YC (Factory preset function).
Supporting RGBHV, RGsB, RGBS, RsGsBs, YUV, YC and Composite video.

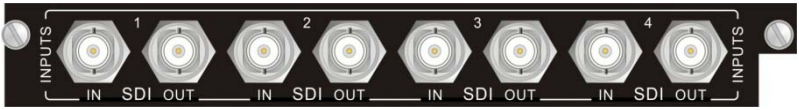
**4I-VA**: input card, maximum four VGA inputs and four stereo audio inputs. Input signal can pass to output device through any kinds of output cards.




The VGA connector and source connection is same with the 4I-VG.

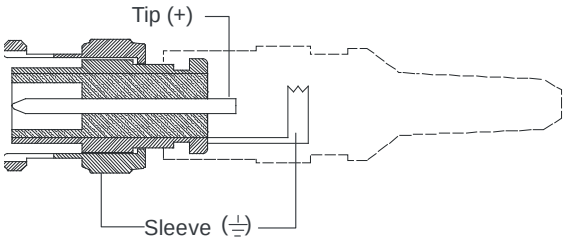
### 2.2.6. 4I-SD & 4O-SD

SDI signal card. (Please check the specification from 5.*2.6*)
It is compatible with different SDI signal formats, including SD/HD/3G-SDI (adaptive)
Every port has loop output for local monitoring.
**4I-SD**: input card, maximum four input signal. Input signal can pass to output device through 4O-SD, or pass through other kinds of output cards.




**4O-SD**: output card, maximum four output signal, output signals from 4I-SD, or other kinds of input cards.

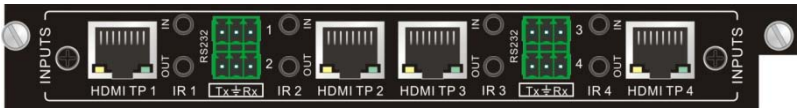

The BNC connector is shown as the figure below.



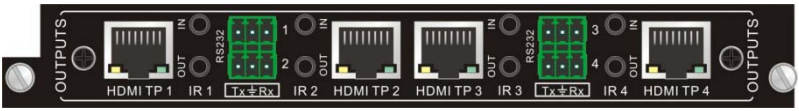

BNC Connector

### 2.2.7. 4I-TP & 4O-TP

Twisted pair card (HDMI/DVI extender). (Please check the specification from 5.*2.7*)
Support HDTV, compatible with HDMI1.3 and HDCP
**4I-TP**: input card, maximum input four HDMI TP signal. Input signal can pass to output device through 4O-TP, or pass through other kinds of output cards, need to work with TPHD402T.



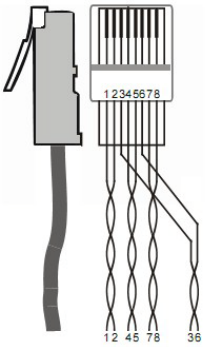

**4O-TP**: output card, maximum output four HDMI TP signal, output signals from 4I-TP, or other kinds of input cards, need to work with TPHD402R.




Pin layout of the RJ45 connectors:

Two different connection standards can be chose; the connectors of same cable should use the same standard.

| TIA/EIA T568A | | | TIA/EIA T568B | |
|---|---|---|---|---|
| | Cable color | | | Cable color |
| 1 | green white | | 1 | orange white |
| 2 | green | | 2 | orange |
| 3 | orange white | | 3 | green white |
| 4 | blue | | 4 | blue |
| 5 | blue white | | 5 | blue white |
| 6 | orange | | 6 | green |
| 7 | brown white | | 7 | brown white |
| 8 | brown | | 8 | brown |




**Notice**: Cable connectors MUST be metal one, and the shielded layer of cable MUST be connected to the connector's metal shell, to well share the grounding.

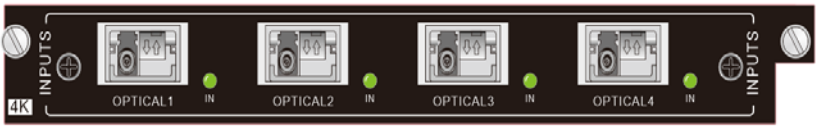
### 2.2.8. 4I-UH & 4O-UH

4K HDMI signal card. (Please check the specification from 5*.2.8*)
Support hot-plug, HDMI 1.4& HDCP 1.4 compliance; Compatible with DVI signal; Support high-definition HDMI source up to 4kx2k, 1080p 3D compliance; Provide auxiliary audio port as supplement to HDMI embedded audio.
It is also embedded the EDID management technology.
**4I-UH**: input card, maximum four input signal. Input signal can pass to output device through 4O-UH, or pass through other kinds of output cards.


**4O-UH**: output card, maximum four output signal, output signals from 4I-UH, or other kinds of input cards, HDCP compliant status settable via RS232 command

### 2.2.9. 4I-UF & 4O-UF

4K optical signal card. (Please check the specification from 5.*2.9*)
Support hot-plug; High bandwidth: 10.2Gbps; Compliant with HDMI 1.4, capable to transmit 4K×2K& 1080P 3D (max) signals; Support multi-mode transmission up to 300m and single mode transmission up to 1km.
**4I-UF**: input card with indicators, maximum four input signal, corresponding indicator illuminates green when there is input signal. Input signal can pass to output device through 4O-UF, or pass through other kinds of output cards.




**4O-UF**: output card with indicators, maximum four output signal, output signals from 4I-UF, or other kinds of input cards; corresponding indicator illuminates green when there is output signal.


**Note:** Use the 4I-UF/ 4O-UF with optical fiber transmitter/ receiver.

### 2.2.10. 4I-BT & 4O-BT

Twisted pair card (HDMI/DVI extender). (Please check the specification from 5.*2.10*)
Support hot-plug, support HDTV, compatible with HDBT 1.0, HDMI1.4a& HDCP1.4; Wide resolution range from 480p to 4kx2k, 1080p 3D compliant; Extend HDBT signal up to 70m at 1080p or 40m at 4k; Bi-directional RS232 transmission on single cable; Auxiliary audio ports support stereo signal.
It is also embedded the EDID management technology.
**4I-BT**: input card, maximum input four HDMI TP signal. Input signal can pass to output device through 4O-BT, or pass through other kinds of output cards, need to work with HDBT transmitter (e.g. TPHD402T).


**4O-BT**: output card, maximum output four HDBT signal, output signals from 4I-BT, or other kinds of input cards, need to work with HDBT receiver (e.g. TPHD402R).


# 3. System Connection

## 3.1. Usage Precautions

**1)** System should be installed in a clean environment and has a prop temperature and humidity.

**2)** All of the power switches, plugs, sockets and power cords should be insulated and safe.

**3)** All devices should be connected before power on.

## 3.2. Connection Diagram

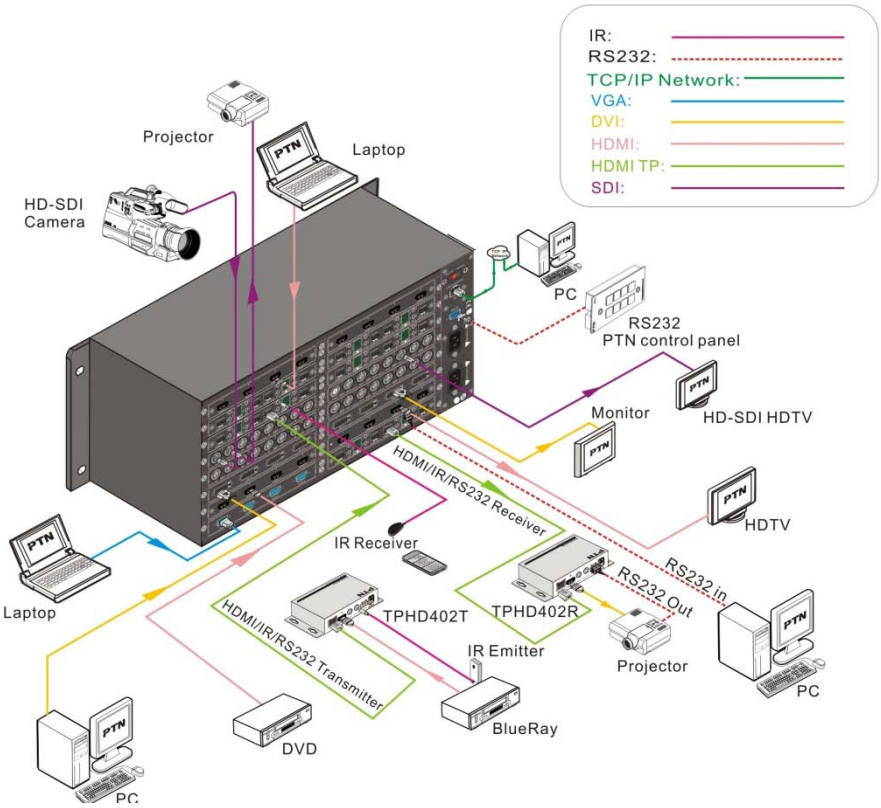



**Figure 3- 1 System Diagram**

## 3.3. Application

MMX series has a good application in various occasions, such as radio & television, multi-media meeting room, big screen displaying, television education and command & control center etc.

# 4. Control Operations

## 4.1. Front Panel Button control

Users can control MMX3232 rapidly and directly with its front panel buttons. To switch AV/ A/ V signal, please operate the buttons under the following format:

Format: "**Input Channel**" + "**AV**" +"**Output Channel**"+"**Enter**"

**Note:**

**1)** "Switch Mode": Audio & Video synchronal (AV) or separate switching mode (Audio/ Video)

**2)** "Input Channel": Fill with the number of input channel to be controlled,

**3)** "Output Channel": Fill with the number of output channels to be controlled. Press "All" to select all the outputs.

**4)** Use "**,**" button to separate multiple I/O channels, and press "**ENTER**" button to confirm the operation.

**5)** The input/output channels on the rear panel are counting from left to right, top to bottom.

**6)** The input delay time between two numbers of every input& output channel must be less than 5 seconds; otherwise the operation will be cancelled.

Example:

1. To transfer input 1 to output 11, press input "**1**", output "**0**" "**1**" and "**Enter**".
2. To transfer signals from input 1 to all output channels, press buttons in this order: "**1**", "**All**".

**Other Functional Buttons:**

| Buttons | Description | Operation |
|---|---|---|
| **UNDO** | return to the previous status | Status 1: Input 6 -> output 6<br>Press input "6" + "AV"+ output 4 to change the connection. Press "Undo" to return to Status 1. |
| ← | Backspace the last operation | If you press buttons "1", "AV", "2", "←" in order, then "2" will be canceled. |
| **THROUGH** | Get straight I/O connection, e.g. input 1-> output 1, input 2-> output 2. | Format: "Input Channel"+"Through"<br>If you press buttons "ALL", "THROUGH" in order, then the result will be like input 1→ output 1, input 2→output 2, input 3→output 3 … input 16→output 16. |

## 4.2. IR Remote control

With the IR remote, MMX3232 could be controlled remotely. As the function buttons on the IR remote are the same with the ones on the front panel, the IR remote shares the same operations and commands with the control panel.

Press the buttons under below format:

"**Input Channel**" + "**Switch Mode**" +"**Output Channel**"

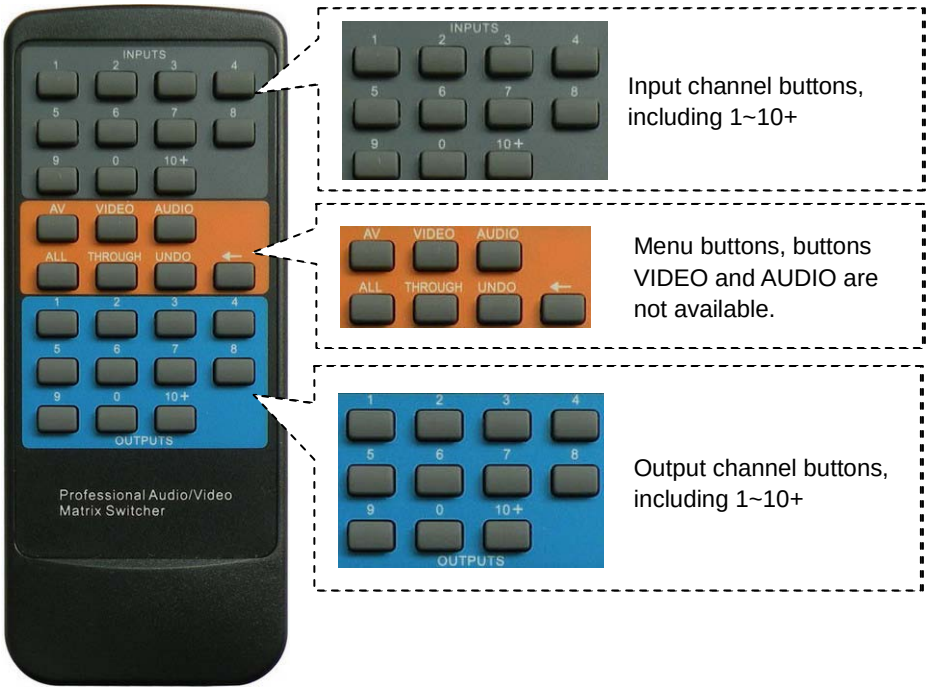
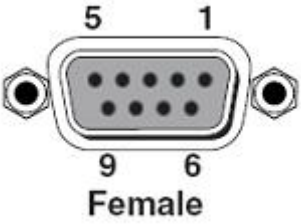



**Figure 4- 1 Panel of the IR Remote**

## 4.3. RS232 Control

### 4.3.1. Connection of RS232 Communication Port

Except the front control panel and IR remote, MMX3232 can be controlled by far-end control system or through the Ethernet control via the RS-232 communication port. This RS-232 communication port is a female 9- D connector. The definition of its pin layout is shown in the table below.




| No. | | Function |
|---|---|---|
| 1 | N/u | Unused |
| 2 | Tx | Transmit |
| 3 | Rx | Receive |
| 4 | N/u | Unused |
| 5 | Gnd | Ground |
| 6 | N/u | Unused |
| 7 | N/u | Unused |
| 8 | N/u | Unused |
| 9 | N/u | Unused |

When MMX3232 connects to the RS232 port of a computer with control software, users can control it by that computer. To control the switcher, users need to use RS232 control software.

### 4.3.2. RS232 Communication Commands

With this command system, users are able to control and operate the MMX3232 with RS232 software remotely.

**Communication protocol:** Baud rate: 9600; Data bit: 8; Stop bit: 1; Parity bit: none.

| Type | Command | Description |
|---|---|---|
| Commands for Main Unit | /*Type; | Inquire the models information. |
| | /%Lock; | Lock the keyboard of the control panel on the Matrix. |
| | /%Unlock; | Unlock the keyboard of the control panel on the Matrix. |
| | /^Version; | Inquire the version of firmware |
| | /:MessageOff; | Turn off the feedback command from the com port. It will only show the “switcher OK”. |
| | /:MessageOn; | Turn on the feedback command from the com port. |
| | Undo. | To cancel the previous operation. |
| | Demo. | Switch to the “demo” mode, 1->1, 2->2, 3->3 … and so on. |

| | | |
|---|---|---|
| | [x]All. | Transfer signals from the input channel [x] to all output channels |
| | All#. | Transfer all input signals to the corresponding output channels respectively. |
| | All$. | Switch off all the output channels. |
| | [x]#. | Transfer signals from the input channel [x] to the output channel [x]. |
| | [x]$. | Switch off the output channel [x]. |
| | All@. | Switch on all the output. |
| | [x]@. | Switch on output [x]. |
| | [x1]V[x2]. | Transfer the video signals from the input channel [x1] to the output channel [x2]. |
| | [x1]A[x2]. | Transfer the audio signals from the input channel [x1] to the output channel [x2]. |
| | [x1]B[x2]. | Transfer signal from the input channel [x1] to the output channel [x2]. |
| | Status[x]. | Inquire the input channel to the output channel [x]. |
| | Status. | Inquire the input channel to the output channels one by one. |
| | Save[Y]. | Save the present operation to the preset command [Y]. [Y] ranges from 0 to 9. |
| | Recall[Y]. | Recall the preset command [Y]. |
| | Clear[Y]. | Clear the preset command [Y]. |
| | PWON. | Work normally. |
| | PWOFF. | Enter in standby mode. |
| | HDCPON. | Turn on the HDCP output. |
| | HDCPOFF. | Turn off the HDCP output. |
| | /V00. | Inquire the version of backboard software. |
| | UpgradeIntEDID[x]. | Upgrade built-in EDID data. Supports 6 types of EDID data (see *Note 6*). When the switcher gets the command, it will show a message to send EDID file (.bin file). |
| | EDIDUpgrade[x]. | Upgrade EDID data of input ports<br>When the switcher gets the command, it will show a message to send EDID file (.bin file). Operations will be canceled after 10 seconds. |

| | | |
|---|---|---|
| | EDID/[x]/[y]. | Set the EDID data of input port [x] to built-in EDID data of type [y].<br>The value of [y] varies from 1~6. The EDID data types are same as mentioned above. |
| | EDIDG[x]. | Get EDID data from output channel X and display the data on serial port control software. [x] is the output port number. |
| | EDIDMInit. | Recover the factory default EDID data for every input channel. |
| | EDIDM[X]B[Y]. | Manually EDID switching. Enable input [Y] to learn the EDID data of output[X]. If there is problem learning the EDID data, it will automatically set the default EDID data for input [Y]. |
| | USER/[Y]/[X]:*****; | Custom command for signal cards, [Y]=I/O; [X]= port number; *****: User-definable command, e.g. 0623% |
| | 0911%. | Restore factory default. |
| **Commands for Signal Cards** | **4I-VA** | |
| | USER/I/[x]:0622%; | Set the signal of input channel [x] to VGA. |
| | USER/I/[x]:0623%; | Set the signal of input channel [x] to YCBCR. |
| | USER/I/[x]:0624%; | Set the signal of input channel [x] to SVIDEO. |
| | USER/I/[x]:0625%; | Set the signal of input channel [x] to CVIDEO. |
| | USER/I/[x]:0626%; | Set the resolution of input [x] to 1024x768@60Hz. |
| | USER/I/[x]:0627%; | Set the resolution of input [x] to 1280X720@60Hz. |
| | USER/I/[x]:0628%; | Set the resolution of input [x] to 1280X800@60Hz. |
| | USER/I/[x]:0619%; | Set the resolution of input [x] to 1360X768@60Hz. |
| | USER/I/[x]:0621%; | Set the resolution of input [x] to 1600X1200@60Hz. |
| | USER/I/[x]:0629%; | Set the resolution of input [x] to 1920X1080@60Hz. |
| | USER/I/[x]:0620%; | Set the resolution of input [x] to 1920X1200@60Hz. |
| | USER/I/[x]:0617%; | Restore to factory default. |
| | USER/I/[x]:0606%; | Auto-adjust VGA signal |

| | | |
|---|---|---|
| | USER/I/[x]:0698%; | Update software |
| | **4I-VG** | |
| | USER/I/[x]:0698%; | Update software |
| | USER/I/[x]:0622%; | Set the signal of input channel [x] to VGA. |
| | USER/I/[x]:0623%; | Set the signal of input channel [x] to YCBCR. |
| | USER/I/[x]:0624%; | Set the signal of input channel [x] to SVIDEO. |
| | USER/I/[x]:0625%; | Set the signal of input channel [x] to CVIDEO. |
| | USER/I/[x]:0626%; | Set the resolution of input [x] to 1024x768@60Hz. |
| | USER/I/[x]:0627%; | Set the resolution of input [x] to 1280X720@60Hz. |
| | USER/I/[x]:0628%; | Set the resolution of input [x] to 1280X800@60Hz. |
| | USER/I/[x]:0629%; | Set the resolution of input [x] to 1920X1080@60Hz. |
| | **4I-DS** | |
| | USER/I/[x]:02xx%; | Set the brightness of input [x] to xx, xx=00~99 |
| | USER/I/[x]:03xx%; | Set the contrast of input [x] to xx, xx=00~99 |
| | USER/I/[x]:04xx%; | Set the saturation of input [x] to xx, xx=00~99 |
| | USER/I/[x]:05xx%; | Set the sharpness of input [x] to xx, xx=00~99 |
| | USER/I/[x]:0606%; | (For 4I-DS/ VA) Auto-adjust VGA input signal |
| | USER/I/[x]:0607%; | Set picture's color temperature |
| | USER/I/[x]:0608%; | Configure image scale |
| | USER/I/[x]:0614%; | Configure picture mode |
| | USER/I/[x]:0617%; | Restore to factory default. |
| | USER/I/[x]:0619%; | Set the resolution of input [x] to 1360x768, HD |
| | USER/I/[x]:0626%; | Set the resolution of input [x] to 1024x768, XGA |
| | USER/I/[x]:0627%; | Set the resolution of input [x] to 1280x720, 720P |
| | USER/I/[x]:0628%; | Set the resolution of input [x] to 1280x800, WXGA |
| | USER/I/[x]:0629%; | Set the resolution of input [x] to 1920x1080, 1080P |
| | USER/I/[x]:0620%; | Set the resolution of input [x] to 1920x1200, WUXGA |

| | | |
|---|---|---|
| | USER/I/[x]:0621%; | Set the resolution of input [x] to 1600x1200, UXGA |
| | USER/I/[x]:0698%; | Software update |
| | USER/I/[x]:0686%; | Set the output signal of input [x] to HDMI |
| | USER/I/[x]:0687%; | Set the output signal of input [x] to DVI |
| | **4O-DS** | |
| | USER/O/[x]:0201%; | Set the input source of output [x] to YPbPr |
| | USER/O/[x]:0202%; | Set the input source of output [x] to VGA |
| | USER/O/[x]:0203%; | Set the input source of output [x] to C-VIDEO |
| | USER/O/[x]:0804%; | Set the resolution of output [x] to 1280x720P @60Hz |
| | USER/O/[x]:0813%; | Set the resolution of output [x] to 1280x1080P @60Hz |
| | USER/O/[x]:0824%; | Set the resolution of output [x] to 1024x768 @60Hz |
| | USER/O/[x]:0826%; | Set the resolution of output [x] to 1280x1024 @60Hz |
| | USER/O/[x]:0837%; | Set the resolution of output [x] to 1920x1200 @60Hz |
| | USER/O/[x]:0106%; | Switch on the HDCP compliance of output [x] |
| | USER/O/[x]:0107%; | Switch off the HDCP compliance of output [x] |
| | GetResolution[x]. | Capture output resolution of output [x] |
| | GetVGAPortMode[x]. | Inquire the output status of VGA port [x] |
| | **4I-UH/BT** | |
| | AUDIO[X]I[Z]. | Select audio source from audio inputs or AV signal inputs |

**Note:**

1. Please disconnect all the twisted pairs before sending command EDIDUpgrade[X].

2. In above commands, “[”and “]” are symbols for easy reading and do not need to be typed in actual operation.

3. Please remember to end the commands with the ending symbols “.” or “;”.

4. Type the command carefully, it is case-sensitive.

5. Commands pertaining to EDID only avails for signal cards that support EDID management.

6. The switcher boasts 6 in-built EDID data, the chart below illustrates the detailed information:

| No. | Detailed Information |
|---|---|
| 1 | 1080p 2D 5.1CH |
| 2 | 1080p 2D 2.0CH |
| 3 | 720p 2D 5.1CH |
| 4 | 720p 2D 2.0CH |
| 5 | 4kx2k 2D 5.1CH |
| 6 | 4kx2k 2D 2.0CH |

Update in-built EDID data by sending command **UpgradeIntEDID[x].**.

## Examples:

**1、Transfer signals from an input channel to all output channels: [x]All.**

Example: Send “3All.” to transfer signals from the input 3 to all output channels.

**2、Transfer all input signals to corresponding output channels respectively: All#.**

Example: If this command is carried out, the status of matrix will be: 1->1, 2->2, 3->3, 4->4…… 8->8….

**3、Switch off all the output channels: All$.**

Example: After running this command, there will be no signals on all the outputs.

**4、Switch off the detail feedback command from the COM port: /:MessageOff;**

But, it will leave the “switch OK” as the feedback, when you switch the matrix.

**5、Switch on the detail feedback command from the COM port: /:MessageOn;**

It will show the detail switch information when it switch. Example: when switch 1->2, it will feedback “AV01 to 02”.

**6、Transfer signals from an input channel to corresponding output channel: [x]#.**

Example: “5#.” to transfer signals from the input5 to the output5.

**7、Switch off an output channel: [x]$.**

Example: “5$.” to switch off the output 5.

**8、Switch signal: [x1] B[x2].**

Example: “12B12,13,15.” to transfer signal from the input12 to the output No.12,13,15.

**9、Inquire the input channel to the output channel [x]: Status[x].**

Example: Send “Status3.” to inquire the input channel to the output 3.

**10、Inquire the input channel to the output channels one by one: Status.**

Example: “Status.” to inquire the input channel to the output channels one by one.

**11、Save the present operation to the preset command [Y]: Save[Y].**

Example: “Save7.” to save the present operation to the preset command No.7.

**12、Recall the preset command [Y]: Recall[Y].**

Example: “Recall5.” to recall the preset command No.5.

**13、Clear the preset command [Y]: Clear[Y].**

Example: “Clear5.” to clear the preset command No.5.

**14、EDID management command:. EDIDM[X]B[Y].**

Example: “EDIDM5B3.” to enable input 3 to learn the EDID data of output 5.

**15、Command for signal cards: USER/[Y]/[X]*****.**

Example: “USER/I/7:0623%;” to set the input 7 to support YPbPr signal, the card is plugged in the second input slot of the matrix.

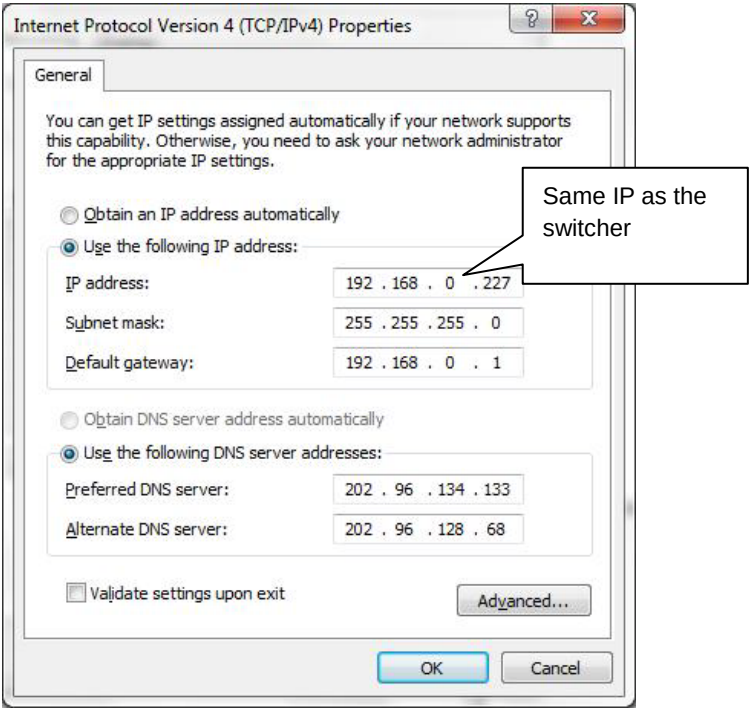
## 4.4. TCP/IP Control (Optional)

### 4.4.1. Control Modes

TCP/IP default settings: IP is 192.168.0.178, Gateway is 192.168.0.1, and Serial Port is 4001. IP & Gateway can be changed as you need, Serial Port cannot be changed.

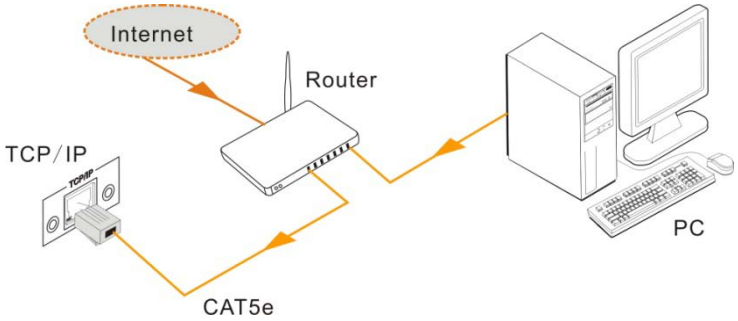
- **Controlled by Single PC**

Connect a computer to the TP port of the MMX3232, and set its IP address and gateway to the same IP section as the default IP of the MMX3232 (192.168.0.178).




- **Controlled by PC(s) in LAN**

The MMX3232 can be connected with a router to make up a LAN with the PC(s), this make it able to be controlled in a LAN. When control, just make sure the MMX3232's IP section is the same with the router. Please connect as the following figure for LAN control.




**Step1.** Connect the TCP/IP port of the MMX3232 to Ethernet port of PC with twisted pair.

**Step2.** Set the PC's IP address and gateway to the same IP section as the MMX3232. Do please remember the PC's original IP address and gateway.

**Step3.** Set the MMX3232's IP address and gateway to the same IP section as the router.

**Step4.** Set the PC's IP address and gateway as the original one.

**Step5.** Connect the MMX3232 and PC(s) to the router. In the same LAN, each PC is able to control the MMX3232 asynchronously.

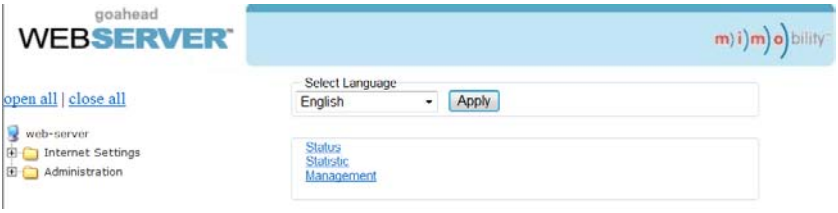
### 4.4.2. TCP/IP Settings

**Step1.** Connect the TCP/IP port of the MMX3232 to Ethernet port of PC with twisted pair.

**Step2.** Set the PC's IP and gateway to the same IP section as the default IP of the MMX3232 (192.168.0.178).

**Step3.** Enter the http://192.168.0.178:100 to the Internet Explorer, you will see the LOGIN page.

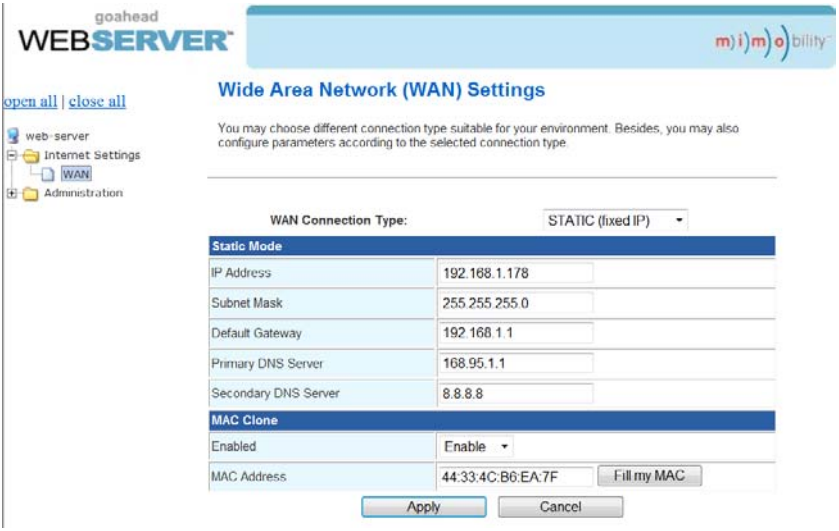
**Step4.** Enter user name "admin" and password "admin", then press the **Enter** button. (Not the Enter key on your keyboard.) Then you can enter the configuration page to configure the IP port, including the IP reset, Serial reset and password reset etc. As picture below:




**Step5.** **Change IP/Serial Port**

- **Change IP**

**a)** Select the tab "**system info**", and then you are able to change the IP.




**b)** Press the button **Apply** to save your settings. Then the PC(s) in this LAN (connected with this router) will be able to control the matrix switcher.

- **Change Serial Port**

**a)** Select the tab "**serial info**", and then you are able to change the serial port.

**b)** Set the port number to 4001 (unique, other numbers are unavailable).

**c)** Press the button **Apply** on present page to save your settings.

**Step6.** Select the tab "**reset device**", then your settings will be loaded to the MMX3232.

# 5. Specification

## 5.1. Main Unit

| | | | |
|---|---|---|---|
| **Control parts** | | | |
| Serial control port | RS-232, 9- female D connector | Configurations | 2 = TX, 3 = RX, 5 = GND |
| Installation | Rack Mountable | Front panel control | Buttons |
| Options | TCP/IP control | | |
| **General** | | | |
| Power Supply | 100VAC ~ 240VAC, 50/60Hz | Power Consumption | 220W (Max) |
| Temperature | -10 ~ +40℃ | Humidity | 10% ~ 90% |

| | | | |
|---|---|---|---|
| Dimension (W*H*D) | 483 x 222 x 320mm (5U high) | Weight | 5Kg |

## 5.2. Changeable Cards

### 5.2.1. 4I-DV & 4O-DV

| **Input** | | **Output** | |
|---|---|---|---|
| Input | 4 DVI | Output | 4 DVI |
| Input Connector | Female DB24+5 | Output Connector | Female DB24+5 |
| Input Level | T.M.D.S. 2.9V~3.3V | output Level | T.M.D.S. 2.9V~3.3V |
| Input Impedance | 75Ω | Output Impedance | 75Ω |
| **General** | | | |
| Gain | 0 dB | Bandwidth | 340 MHz (10.2 Gbit/s) |
| Video Signal | DVI 1.0/HDMI 1.3 full digital T.M.D.S signal | Switching Speed | 200ns (Max.) |
| Max Time-delay | 5nS (±1nS) | Crosstalk | <-50dB@5MHz |
| EDID and DDC | Supports Extended Display Identification Data (EDID) and Display Data Channel (DDC) data using DVI and HDMI standards. EDID and DDC signals are actively buffered | | |
| HDCP | Compliant with HDCP using DVI and HDMI 1.3 standards | | |

### 5.2.2. 4I-DS & 4O-DS

| **Input** | | **Output** | |
|---|---|---|---|
| Input | 4 DVI | Output | 4 DVI |
| Input Connector | Female DB24+5 | Output Connector | Female DB24+5 |
| Input Level | T.M.D.S. 2.9V~3.3V | output Level | T.M.D.S. 2.9V~3.3V |
| Input Impedance | 75Ω | Output Impedance | 75Ω |
| **General** | | | |
| Gain | 0 dB | Bandwidth | 340 MHz (10.2 Gbit/s) |
| Video Signal | DVI,HDMI,VGA,C-VIDEO,YPbPr | Switching Speed | 200ns (Max.) |
| Max Time-delay | 5nS (±1nS) | Crosstalk | <-50dB@5MHz |
| EDID and DDC | Supports Extended Display Identification Data (EDID) and Display Data Channel (DDC) data using DVI and HDMI standards. EDID | | |

| | |
|---|---|
| | and DDC signals are actively buffered |
| HDCP | Compliant with HDCP using DVI and HDMI 1.3 standards |

### 5.2.3. 4I-HD & 4O-HD

| **Input** | | **Output** | |
|---|---|---|---|
| Input | 4 HDMI | Output | 4 HDMI |
| Input Connector | Female HDMI | Output Connector | Female HDMI |
| Input Level | T.M.D.S. 2.9V/3.3V | output Level | T.M.D.S. 2.9V/3.3V |
| Input Impedance | 75Ω | Output Impedance | 75Ω |
| **General** | | | |
| Gain | 0 dB | Bandwidth | 6.75Gbit/s |
| Video Signal | DVI 1.0/HDMI 1.4a full digital T.M.D.S signal | Max Time-delay | 5nS (±1nS) |
| Switching Speed | 200ns (Max.) | Crosstalk | <-50dB@5MHz |
| EDID and DDC | Supports Extended Display Identification Data (EDID) and Display Data Channel (DDC) data using DVI and HDMI standards. EDID and DDC signals are actively buffered | | |
| HDCP | Compliant with HDCP using DVI and HDMI 1.4a standards | | |

### 5.2.4. 4I-VG & 4O-VG

| **Input** | | **Output** | |
|---|---|---|---|
| Input | 4 VGA | Output | 4 VGA |
| Input Connector | Female 15 pin HD | Output Connector | Female 15 pin HD |
| Input Level | 0.5 ~ 2.0Vp-p | Output Level | 0.5 ~ 2.0Vp-p |
| Input Impedance | 75Ω | Output Impedance | 75Ω |
| **General** | | | |
| Gain | 0 dB | Bandwidth | 350MHz (-3dB), fully load |
| Video Signal | VGA-UXGA, RGBHV, RGBS, RGsB, RsGsBs, component video, S-video & C-video. | | |
| Switching Speed | 200ns (Max.) | Crosstalk | <-50dB@5MHz |

### 5.2.5. 4I-VA

| **Input** | | | |
|---|---|---|---|
| **Video** | | **Audio** | |
| Input | 4 VGA | Input | 4 Stereo Audio |
| Input Connector | Female 15 pin HD | Input Connector | 3P Captive connector |
| Input Level | 0.5 ~ 2.0Vp-p | CMRR | >90dB @20Hz ~ 20KHz |
| Input Impedance | 75Ω | Input Impedance | >10K Ω |
| **General** | | | |
| Gain | 0 dB | Bandwidth | YPbPr:170MHz; C-video:150MHz; VGA:170MHz |
| Video Signal | VGA-UXGA, RGBHV, RGBS, RGsB, RsGsBs, component video, S-video& composite video. | | |
| Switching Speed | 200ns (Max.) | Crosstalk | <-50dB@5MHz |

### 5.2.6. 4I-SD & 4O-SD

| **Input** | | **Output** | |
|---|---|---|---|
| Input | 4 SDI | Output | 4 SDI |
| Input Connector | Female BNC | Output Connector | Female BNC |
| Input Level | 0.8Vp-p ± 10% | output Level | 0.8Vp-p ± 10% |
| Input Impedance | 75Ω | Output Impedance | 75Ω |
| **General** | | | |
| Gain | Unity | Maximum Data Rate | 2.97 Gbps |
| Transmission Distance | 300M (Max.) | Data rate Lock | Auto |
| Input Return Loss | <-14 dB @ 1 MHz ~ 1.5 GHz | Input Return Loss | <-14 dB @ 1 MHz ~ 1.5 GHz |
| Video Standard | SMPTE 292M, SMPTE 259M, SMPTE 424M, ITU-RBT.601, ITU-RBT.1120 | Data Type | 8bit, 10bit |
| Audio Bits per Sample | 18 bits per channel, 2 channels (L, R) | | |

### 5.2.7. 4I-TP & 4O-TP

| **Video Input** | | **Video Output** | |
|---|---|---|---|
| Input | 4 RJ45 | Output | 4 RJ45 |
| Input Connector | Female RJ45<br>3.5mm mini jack for IR<br>3 poles captive screw connector for RS232 | Output Connector | Female RJ45<br>3.5mm mini jack for IR<br>3 poles captive screw connector for RS232 |
| Input Impedance | 75Ω | Output Impedance | 75Ω |
| **Video General** | | | |
| Gain | 0dB ~ 10dB@100MHz | Bandwidth | 6.75Gbps |
| Resolution range | 800x600 ~ 1920x1200 | Transmission Distance | 70M(Max) |
| SNR | >70dB@ 100MHz-100M | Return Loss | <-30dB@ 5KHz |
| THD | ＜0.005%@1KHz | Min.～Max. Level | ＜0.3V ~ 1.45Vp-p |
| HDMI Standard | Support HDMI1.4a and HDCP | Differential Phase Error | ±10° @ 135MHz_100M |

### 5.2.8. 4I-UH & 4O-UH

| **Input** | | | |
|---|---|---|---|
| **Video Input** | | **Audio Input** | |
| Input | 4 HDMI | Input | 4 Analog |
| Input Connector | Female HDMI | Input Connector | 3.5mm pluggable terminal block |
| Min.～Max. Level | T.M.D.S. 2.9V~3.3V | Input Impedance | 75Ω |
| Input Impedance | 100Ω (Differential) | Frequency Response | 20Hz～20K Hz |
| **Output** | | | |
| **Video Output** | | **Audio Output** | |
| Output | 4 HDMI | Output | 4 Stereo |
| Output Connector | Female HDMI | Output Connector | 3.5mm Stereo audio connector |
| Min.～Max. Level | T.M.D.S. 2.9V~3.3V | Output Impedance | 75Ω |
| Output Impedance | 100Ω (Differential) | Frequency Response | 20Hz～20K Hz |

| **General** | | | |
|---|---|---|---|
| Gain | 0dB | Bandwidth | 6.75Gbps |
| Max Resolution | 4Kx2K | Crosstalk | <-50dB@5MHz |
| Transmission Distance | 1080P≤70m<br>4Kx2K ≤ 40m | Switching Speed | 200ns (Max.) |
| Work Temperature | -10℃～+40℃ | Reference Humility | 10%～90% |
| SNR | >70dB@ 100MHz-100M | Return Loss | <-30dB@ 5KHz |
| Supported Audio Format | Embedded HDMI audio: PCM, Dobly Digital, DTS, DTS-HD<br>Analog audio: PCM | | |
| HDMI Standard | Support HDMI1.4& DVI1.0 | | |
| EDID& HDCP Management | Compliant with HDCP 1.4; Support manual EDID management | | |

### 5.2.9. 4I-UF & 4O-UF

| **Input** | | **Output** | |
|---|---|---|---|
| Input | 4 Fiber Optical | Output | 4 Fiber Optical |
| Input Connector | SPF Fiber Optical Connector | Output Connector | SPF Fiber Optical Connector |
| Fiber Type | Multi-mode, Single mode | Fiber Type | Multi-mode, Single mode |
| **General** | | | |
| Data Rate | 10.2 Gbps | Color Depth | 8bit, 10bit, 12bit, 16bit |
| Work Temperature | 0～55℃ | Reference Humility | 10%～90% |
| **Optical Fiber Mode** | | | |
| Connector | LC connector | | |
| Resolution | Up to 4Kx2K | | |
| Transmission Distance | 1km (Single mode transmission, using Single Mode Optical Module and OM3 Single Mode Fiber Cable)<br>300m (Multi-mode transmission, using Single/ Multi mode Optical Module and OM3 Multi-Mode Fiber Cable) | | |
| Data Rate | 10.2Gbit/s | | |

### 5.2.10. 4I-BT & 4O-BT

| **Input** | | | |
|---|---|---|---|
| **Video Input** | | **Audio Input** | |
| Input | 4 HDBT | Input | 4 Stereo |
| Input | 4 Female RJ45 (with | Input | 3.5mm Stereo audio |

| | | | |
|---|---|---|---|
| Connector | dual-color indicator) | Connector | connector |
| Min.～Max. Level | T.M.D.S 2.9V～3.3V | Input Impedance | 75Ω |
| Input Impedance | 100Ω (Differential) | Frequency Response | 20Hz～20K Hz |
| **Output** | | | |
| **Video Output** | | **Audio Output** | |
| Output | 4 HDBT | Output | 4 Stereo |
| Output Connector | 4 Female RJ45 (with dual-color indicator) | Output Connector | 3.5mm Stereo audio connector |
| Min.～Max. Level | T.M.D.S 2.9V～3.3V | Output Impedance | 75Ω |
| Output Impedance | 100Ω (Differential) | Frequency Response | 20Hz～20K Hz |
| **Control Part** | | | |
| Control Signal | 4 RS232 | Control Connector | 3-pin pluggable terminal block |
| Protocol | TCP/IP | | |
| **General** | | | |
| Gain | 0dB | Bandwidth | 6.75Gbps |
| Max Resolution | 4Kx2K | Crosstalk | <-50dB@5MHz |
| Transmission Distance | 1080P≤70m<br>4Kx2K ≤ 40m | Switching Speed | 200ns (Max.) |
| Work Temperature | -10℃～+40℃ | Reference Humility | 10%～90% |
| SNR | >70dB@ 100MHz-100M | Return Loss | <-30dB@ 5KHz |
| Supported Audio Format | Embedded HDMI audio: PCM, Dobly Digital, DTS, DTS-HD<br>Analog audio: PCM | | |
| HDMI Standard | Support HDMI1.4 | | |
| EDID& HDCP Management | Compliant with HDCP 1.4; Support manual EDID management | | |

# 6. Troubleshooting & Maintenance

| Problems | Causes | Solutions |
|---|---|---|
| Output image with ghost | Bad quality of the connecting cable | Try another high quality cable |
| | Impropriate image setting of the displayer | Adjust corresponding image settings |
| Output image with color losing or no video signal output | Fail connection | Reconnect the displayer and the matrix |
| No output image when switching | No signal at the input / output end | Check with oscilloscope or multimeter if there is any signal at the input/ output end. |
| | Fail or loose connection | Make sure the connection is good |
| | The switcher is broken | Send it to authorized dealer for repairing. |
| IR remote does not work | Run out of battery | Change for another battery |
| | IR remote is broken | Send it to authorized dealer for repairing. |
| **POWER** indicator doesn't work or no respond to any operation | Fail connection of power cord. | Make sure the power cord connection is good. |
| EDID management does not work normally | The HDMI cable is broken at the output end. | Change for another HDMI cable which is in good working condition. |
| There is a blank screen on the display when switching | The display does not support the resolution of the video source. | Switch again. |
| | | Manage the EDID data manually to make the resolution of the video source automatically compliant with the output resolution. |
| Static becomes stronger when connecting the video connectors | Bad grounding | Check the grounding and make sure it is connected well. |

| | | |
|---|---|---|
| Cannot control the device by control device (e.g. a PC) through RS232 port | Wrong RS232 communication parameters | Type in correct RS232 communication parameters. |
| | Broken RS232 port | Send it to authorized dealer for checking. |
| Cannot control the device by front panel buttons while can control it through RS232 port | The front panel buttons are locked | Send command **50605%** to unlock the front panel buttons. |
| Cannot control the device by RS232 / IR remote / front panel buttons | The device has already been broken. | Send it to authorized dealer for repairing. |

If your problem persists after following the above troubleshooting steps, seek further help from authorized dealer or our technical support.

# 7. After-sales Service

If there appear some problems when running MMX3232, please check and deal with the problems referring to this user manual. Any transport costs are borne by the users during the warranty.

1) **Product Limited Warranty:** AV-BOX warrants that its products will be free from defects in materials and workmanship for **three years,** which starts from the first day you buy this product (The purchase invoice shall prevail).
   Proof of purchase in the form of a bill of sale or receipted invoice which is evidence that the unit is within the Warranty period must be presented to obtain warranty service.
2) **What the warranty does not cover (servicing available for a fee):**
   - Warranty expiration.
   - Factory applied serial number has been altered or removed from the product.
   - Damage, deterioration or malfunction caused by:
     - Normal wear and tear
     - Use of supplies or parts not meeting our specifications
     - No certificate or invoice as the proof of warranty.
     - The product model showed on the warranty card does not match with the model of the product for repairing or had been altered.
     - Damage caused by force majeure.
     - Servicing not authorized by AV-BOX
     - Any other causes which does not relate to a product defect
   - Delivery, installation or labor charges for installation or setup of the product
3) **Technical Support:** Email to our after-sales department or make a call, please inform us the following information about your cases.
   - Product version and name.
   - Detailed failure situations.
   - The formation of the cases.

**Remarks**: For any more questions or problems, please try to get help from your local distributor, or email at i@av-box.ru