TAIDEN®

TMX Series Professional Matrix Switchers

RGB, VGA, AV, DVI, HDMI Professional Matrix Switchers

Installation and Operation Manual

V 1.6

Remark:

- All rights reserved for translation, reprint or reproduction
- Contents may change without prior announcement
- All technical specifications are guideline data and not guaranteed features
- Taiden Co., Ltd. is not responsible for any damage caused by improper use of this manual
- The equipment must be connected to earth!
- This product conforms to the rules of the European directive 2004/108/EC.
- If any detailed information needed, please contact your local agent or TAIDEN service center in your region.

  Any feedback, advice and suggestion about the products is appreciated
- TAIDEN is the registered trademark of TAIDEN Co., Ltd.

Important Safety Instruction

1. Read and keep these instructions.
2. Heed all warnings and follow all instructions.
3. The apparatus shall not be exposed to dripping or splashing and that no objects filled with liquids, such as vases, shall be placed on the apparatus.
4. The MAINS plug serving as a disconnection device, should be easy to operate.
5. The apparatus should be connected to the MAINS socket-outlet with protective earth.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade and the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
15. Do not place the equipment on any uneven or unstable stand; original product package or appropriate package should be used to avoid damage caused by strong impacts during transportation.
16. Power supply cords:
    AC 100 V-120 V 60 Hz or AC 220 V-240 V 50 Hz
17. The quantity of connected units in one system should not exceed prescribed quantity. For service, please contact the nearest TAIDEN Service Center.
18. Use ONLY specified connection cable to connect the system equipment.
19. All TAIDEN products are guaranteed for definite time (see the WARRANTY CARD for details) excluding the following cases:
    A. All damage or malfunction caused by human negligence;
    B. Damage or malfunction caused by improper operating by operator;
    C. Parts damage or loss caused by disassembling the product by non-authorized personnel.
20. Upon receipt of the product, please fill out the Warranty Card enclosed and post it to TAIDEN Service Center nearby in your region.

TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE.

CAUTION: To reduce the risk of electric shock, DO NOT open covers, no user serviceable parts inside. Refer servicing to qualified service personnel only.

CAUTION: DO NOT use alcohol, ammonia or petroleum solvents or abrasive cleaners to clean the devices.

The lightning flash with an arrowhead symbol, with an equilateral triangle, is intended to alert the user to the presence of uninsulated 'dangerous voltage' within the products enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

Important Safety Instruction

The exclamation mark within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING: To reduce the risk of fire or electric shock, DO NOT expose units to rain or moisture.

Attention: Installation should be performed by qualified service personnel only in accordance with the National Electrical or applicable local codes.

Power Disconnect: Units with or without ON – OFF switch have power supplied to the unit whenever the power cord is inserted into the power source; however, the unit is operational only when the ON – OFF switch is in the ON position. The power cord is the main power disconnect for all units

WARNING: The apparatus should be connected to a mains socket outlet with a protective earthing connection.

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About this manual

This manual is a comprehensive guide to the installation and operation of TAIDEN TMX Series Professional Matrix Switchers. It includes: operation and setup, installation and connection, software and protocol, etc.

The manual is divided into the following chapters:

Chapter 1: Ultra Wideband RGBHV Matrix Switchers

Descriptions in detail of the functions and indications, installation and connection, configuration and operation of Ultra Wideband RGBHV Matrix Switchers.

Chapter 2: Ultra Wideband VGA Matrix Switchers

Descriptions in detail of the functions and indications, installation and connection, configuration and operation of Ultra Wideband VGA Matrix Switchers.

Chapter 3: Composite Video & Audio Matrix Switchers

Descriptions in detail of the functions and indications, installation and connection, configuration and operation of Composite Video & Audio Matrix Switchers.

Chapter 4: Component Video Matrix Switchers

Descriptions in detail of the functions and indications, installation and connection, configuration and operation of Component Video Matrix Switchers.

Chapter 5: DVI Matrix Switchers

Descriptions in detail of the functions and indications, installation and connection, configuration and operation of DVI Matrix Switchers.

Chapter 6: HDMI Switchers

Descriptions in detail of the functions and indications, installation and connection, configuration and operation of HDMI Switchers.

Chapter 7: Mixed Switcher

Descriptions in detail of the functions and indications, installation and connection, configuration and operation of Mixed Switcher.

Chapter 8: IR Remote Control

Introduction into the operation of IR remote control.

Chapter 9: Communication Protocol and Control Code

Detailed description of codes and their function.

Chapter 10: Technical Data

Mechanical and electrical details of the complete TMX Series Professional Matrix Switchers.

This manual is applicable to:

■ Ultra Wideband RGBHV Matrix Switchers:

TMX-0802RGB

8×2 RGBHV Matrix Switcher, 450 M, BNC Connectors

TMX-0804RGB

8×4 RGBHV Matrix Switcher, 450 M, BNC Connectors

TMX-0808RGB

8×8 RGBHV Matrix Switcher, 450 M, BNC Connectors

TMX-0802RGB-A

8×2 RGBHV & Audio Matrix Switcher, 450 M, Video on BNC Connectors; Balanced audio stereo on 5 pin 3.81 mm Phoenix Connectors

TMX-0804RGB-A

8×4 RGBHV & Audio Matrix Switcher, 450 M, Video on BNC Connectors; Balanced audio stereo on 5 pin 3.81 mm Phoenix Connectors

TMX-0808RGB-A

8×8 RGBHV & Audio Matrix Switcher, 450 M, Video on BNC Connectors; Balanced audio stereo on 5 pin 3.81 mm Phoenix Connectors

TMX-1604RGB

16×4 RGBHV Matrix Switcher, 325 M, BNC Connectors

TMX-1608RGB

16×8 RGBHV Matrix Switcher, 325 M, BNC Connectors

TMX-1616RGB

16×16 RGBHV Matrix Switcher, 325 M, BNC Connectors

TMX-1604RGB-A

16×4 RGBHV & Audio Matrix Switcher, 325 M, Video on BNC Connectors; Balanced audio stereo on 5 pin 3.81 mm Phoenix Connectors

TMX-1608RGB-A

16×8 RGBHV & Audio Matrix Switcher, 325 M, Video on BNC Connectors; Balanced audio stereo on 5 pin 3.81 mm Phoenix Connectors

TMX-1616RGB-A

16×16 RGBHV & Audio Matrix Switcher, 325 M, Video on BNC Connectors; Balanced audio stereo on 5 pin 3.81 mm Phoenix Connectors

TMX-3208RGB

32×8 RGBHV Matrix Switcher, 500 M, BNC Connectors

TMX-3216RGB

32×16 RGBHV Matrix Switcher, 500 M, BNC Connectors

TMX-3232RGB

32×32 RGBHV Matrix Switcher, 500 M, BNC Connectors

TMX-3208RGB-A

32×8 RGBHV & Audio Matrix Switcher, 500 M, Video on BNC Connectors; Balanced audio stereo on 5 pin 3.81 mm Phoenix Connectors

TMX-3216RGB-A

32×16 RGBHV & Audio Matrix Switcher, 500 M, Video on BNC Connectors; Balanced audio stereo on 5 pin 3.81 mm Phoenix Connectors

TMX-3232RGB-A

32×32 RGBHV & Audio Matrix Switcher, 500 M, Video on BNC Connectors; Balanced audio stereo on 5 pin 3.81 mm Phoenix Connectors

TMX-6464RGB

64×64 RGBHV Matrix Switcher, 400 M, BNC Connectors

TMX-6464RGB-A

64×64 RGBHV & Audio Matrix Switcher, 400 M, Video on BNC Connectors; Balanced audio stereo on 5 pin 3.81 mm Phoenix Connectors

■ Ultra Wideband VGA Matrix Switchers:

TMX-0802VGA

8×2 VGA Matrix Switcher, 450 M, 15HDF Connectors

TMX-0804VGA

8×4 VGA Matrix Switcher, 450 M, 15HDF Connectors

TMX-0808VGA

8×8 VGA Matrix Switcher, 450 M, 15HDF Connectors

TMX-0802VGA-A

8×2 VGA & Audio Matrix Switcher, 450 M, Video on 15HDF Connectors; Balanced audio stereo on 5 pin 3.81 mm Phoenix Connectors

TMX-0804VGA-A

8×4 VGA & Audio Matrix Switcher, 450 M, Video on 15HDF Connectors; Balanced audio stereo on 5 pin 3.81 mm Phoenix Connectors

TMX-0808VGA-A

8×8 VGA & Audio Matrix Switcher, 450 M, Video on 15HDF Connectors; Balanced audio stereo on 5 pin 3.81 mm Phoenix Connectors

TMX-1608VGA

16×8 VGA Matrix Switcher, 325 M, 15HDF Connectors

TMX-1616VGA

16×16 VGA Matrix Switcher, 325 M, 15HDF Connectors

TMX-1608VGA-A

16×8 VGA & Audio Matrix Switcher, 325 M, Video on 15HDF Connectors; Balanced audio stereo on 5 pin 3.81 mm Phoenix Connectors

TMX-1616VGA-A

16×16 VGA & Audio Matrix Switcher, 325 M, Video on 15HDF Connectors; Balanced audio stereo on 5 pin 3.81 mm Phoenix Connectors

■ Composite Video & Audio Matrix Switchers:

TMX-0404A

4×4 Stereo Audio Matrix Switcher, Audio stereo on RCA Connectors

TMX-0804A

8×4 Stereo Audio Matrix Switcher, Audio stereo on RCA Connectors

TMX-0808A

8×8 Stereo Audio Matrix Switcher, Audio stereo on RCA Connectors

TMX-0804V

8×4 Composite Video Matrix Switcher, 50 M, BNC Connectors

TMX-0808V

8×8 Composite Video Matrix Switcher, 50 M, BNC Connectors

TMX-0802AV

8×2 Composite Video & Audio Matrix Switcher, 50 M, Video on BNC Connectors, Audio stereo on RCA Connectors

TMX-0804AV

8×4 Composite Video & Audio Matrix Switcher, 50 M, Video on BNC Connectors, Audio stereo on RCA Connectors

TMX-0808AV

8×8 Composite Video & Audio Matrix Switcher, 50 M, Video on BNC Connectors, Audio stereo on RCA Connectors

TMX-1604V

16×4 Composite Video Matrix Switcher, 50 M, BNC Connectors

TMX-1608V

16×8 Composite Video Matrix Switcher, 50 M, BNC Connectors

TMX-1616V

16×16 Composite Video Matrix Switcher, 50 M, BNC Connectors

TMX-1604AV

16×4 Composite Video & Audio Matrix Switcher, 50 M, Video on BNC Connectors, Audio stereo on RCA Connectors

TMX-1608AV

16×8 Composite Video & Audio Matrix Switcher, 50 M, Video on BNC Connectors, Audio stereo on RCA Connectors

TMX-1616AV

16×16 Composite Video & Audio Matrix Switcher, 50 M, Video on BNC Connectors, Audio stereo on RCA Connectors

TMX-0804AV-B

8×4 Composite Video & Balanced/Unbalanced Stereo Audio Matrix Switcher, Video on BNC Connectors; Audio stereo on 5 pin 3.81 mm Phoenix Connectors

TMX-0808AV-B

8×8 Composite Video & Balanced/Unbalanced Stereo Audio Matrix Switcher, Video on BNC Connectors; Audio stereo on 5 pin 3.81 mm Phoenix Connectors

TMX-1608AV-B

16×8 Composite Video & Balanced/Unbalanced Stereo Audio Matrix Switcher, Video on BNC Connectors; Audio stereo on 5 pin 3.81 mm Phoenix Connectors

TMX-1616AV-B

16×16 Composite Video & Balanced/Unbalanced Stereo Audio Matrix Switcher, Video on BNC Connectors; Audio stereo on 5 pin 3.81 mm Phoenix Connectors

TMX-1608A-B

16×8 Balanced/Unbalanced Stereo Audio Matrix Switcher, Audio stereo on 5 pin 3.81 mm Phoenix Connectors

TMX-1616A-B

16×16 Balanced/Unbalanced Stereo Audio Matrix Switcher, Audio stereo on 5 pin 3.81 mm Phoenix Connectors

TMX-3208V

32×8 Composite Video Matrix Switcher, 500 M, BNC Connectors

TMX-3216V

32×16 Composite Video Matrix Switcher, 500 M, BNC Connectors

TMX-3232V

32×32 Composite Video Matrix Switcher, 500 M, BNC Connectors

TMX-3208AV-B

32×8 Composite Video & Balanced/Unbalanced Stereo Audio Matrix Switcher, Video on BNC Connectors; Audio stereo on 5 pin 3.81 mm Phoenix Connectors

TMX-3216AV-B

32×16 Composite Video & Balanced/Unbalanced Stereo Audio Matrix Switcher, Video on BNC Connectors; Audio stereo on 5 pin 3.81 mm Phoenix Connectors

TMX-3232AV-B

32×32 Composite Video & Balanced/Unbalanced Stereo Audio Matrix Switcher, Video on BNC Connectors; Audio stereo on 5 pin 3.81 mm Phoenix Connectors

TMX-6464AV-B

64×64 Composite Video & Balanced/Unbalanced Stereo Audio Matrix Switcher, Video on BNC Connectors; Audio stereo on 5 pin 3.81 mm Phoenix Connectors

■ Component Video Matrix Switchers:

TMX-0804HD

8×4 Component Video Matrix Switcher, BNC Connectors

TMX-0808HD

8×8 Component Video Matrix Switcher, BNC Connectors

TMX-1608HD

16×8 Component Video Matrix Switcher, BNC Connectors

TMX-1616HD

16×16 Component Video Matrix Switcher, BNC Connectors

TMX-0804HD-A

8×4 Component Video & Balanced/Unbalanced Stereo Audio Matrix Switcher, Video on BNC Connectors, Audio stereo on 5 pin 3.81 mm Phoenix Connectors

TMX-0808HD-A

8×8 Component Video & Balanced/Unbalanced Stereo Audio Matrix Switcher, Video on BNC Connectors, Audio stereo on 5 pin 3.81 mm Phoenix Connectors

TMX-1608HD-A

16×8 Component Video & Balanced/Unbalanced Stereo Audio Matrix Switcher, Video on BNC Connectors, Audio stereo on 5 pin 3.81 mm Phoenix Connectors

TMX-1616HD-A

16×16 Component Video & Balanced/Unbalanced Stereo Audio Matrix Switcher, Video on BNC Connectors, Audio stereo on 5 pin 3.81 mm Phoenix Connectors

■ DVI Matrix Switchers:

TMX-0201DVI-A

2×1 DVI & Audio Switcher, 2.25 Gbps, Video on DVI-I Connectors, Audio stereo on 3.5 mm Phone jack (L+R) inputs and 3.5 mm Phone jack (L+R)/5 pin 3.81 mm Phoenix output

TMX-0401DVI-A

4×1 DVI & Audio Switcher, 2.25 Gbps, Video on DVI-I Connectors, Audio stereo on 3.5 mm Phone jacks (L+R)

TMX-0202DVI

2×2 DVI Matrix Switcher, 1.65 Gbps, DVI-I Connector

TMX-0202DVI-A

2×2 DVI & Audio Matrix Switcher, 1.65 Gbps, Video on DVI-I Connectors, Audio stereo on 3.5 mm Phone jacks (L+R)

TMX-0204DVI

2×4 DVI Matrix Switcher, 1.65 Gbps, DVI-I Connector

TMX-0204DVI-A

2×4 DVI & Audio Matrix Switcher, 1.65 Gbps, Video on DVI-I Connectors, Audio stereo on 3.5 mm Phone jacks (L+R)

TMX-0804DVI

8×4 DVI Matrix Switcher, 2.25 Gbps, DVI-I Connector

TMX-0804DVI-A

8×4 DVI & Audio Matrix Switcher, 2.25 Gbps, Video on DVI-I Connectors, Audio stereo on 5 pin 3.81 mm Phoenix Connectors

TMX-0808DVI

8×8 DVI Matrix Switcher, 2.25 Gbps, DVI-I Connector

TMX-0808DVI-A

8×8 DVI & Audio Matrix Switcher, 2.25 Gbps, Video on DVI-I Connectors, Audio stereo on 5 pin 3.81 mm Phoenix Connectors

■ HDMI Switchers:

TMX-0201HDMI

2×1 HDMI Switcher, 2.25 Gbps, HDMI 1.3-compliant

TMX-0401HDMI

4×1 HDMI Switcher, 2.25 Gbps, HDMI 1.3-compliant

TMX-0801HDMI

8×1 HDMI Switcher, 2.25 Gbps, HDMI 1.3-compliant

■ Mixed Switcher:

TMX-0401MA

4×1 VGA & Video & Audio Mixed Switcher

Chapter 1. Ultra Wideband RGBHV Matrix Switchers

TAIDEN TMX series Ultra Wideband RGBHV Matrix Switchers are designed to be suitable for most high-resolution computer video and audio transmission systems, and used for switching between inputs and outputs. They provide separate RGBHV inputs and outputs, individually isolated, featuring lossless transmission. At the same time, it is a convenient single machine solution for most common high-resolution video and audio transmission applications.

Ultra Wideband RGBHV Matrix Switchers use the most advanced analog switch chip with up to 500 MHz bandwidth. Matrix switchers can be connected to PC software and central control system via TCP/IP, RS-232 or infrared wireless.

RGB series matrix switchers are available in 22 options: from 8 x 2 to 128 x 128, perfect solutions for telecasting, multimedia auditorium, large-screen display, television education, command and control center, financial services, digital film projection and many more.

Product types:

TMX-0802RGB

8×2 RGBHV Matrix Switcher, 450 M, BNC Connectors

TMX-0804RGB

8×4 RGBHV Matrix Switcher, 450 M, BNC Connectors

TMX-0808RGB

8×8 RGBHV Matrix Switcher, 450 M, BNC Connectors

TMX-0802RGB-A

8×2 RGBHV & Audio Matrix Switcher, 450 M, Video on BNC Connectors; Balanced audio stereo on 5 pin 3.81 mm Phoenix Connectors

TMX-0804RGB-A

8×4 RGBHV & Audio Matrix Switcher, 450 M, Video on BNC Connectors; Balanced audio stereo on 5 pin 3.81 mm Phoenix Connectors

TMX-0808RGB-A

8×8 RGBHV & Audio Matrix Switcher, 450 M, Video on BNC Connectors; Balanced audio stereo on 5 pin 3.81 mm Phoenix Connectors

TMX-1604RGB

16×4 RGBHV Matrix Switcher, 325 M, BNC Connectors

TMX-1608RGB

16×8 RGBHV Matrix Switcher, 325 M, BNC Connectors

TMX-1616RGB

16×16 RGBHV Matrix Switcher, 325 M, BNC Connectors

TMX-1604RGB-A

16×4 RGBHV & Audio Matrix Switcher, 325 M, Video on BNC Connectors; Balanced audio stereo on 5 pin 3.81 mm Phoenix Connectors

TMX-1608RGB-A

16×8 RGBHV & Audio Matrix Switcher, 325 M, Video on BNC Connectors; Balanced audio stereo on 5 pin 3.81 mm Phoenix Connectors

TMX-1616RGB-A

16×16 RGBHV & Audio Matrix Switcher, 325 M, Video on BNC Connectors; Balanced audio stereo on 5 pin 3.81 mm Phoenix Connectors

TMX-3208RGB

32×8 RGBHV Matrix Switcher, 500 M, BNC Connectors

TMX-3216RGB

32×16 RGBHV Matrix Switcher, 500 M, BNC Connectors

TMX-3232RGB

32×32 RGBHV Matrix Switcher, 500 M, BNC Connectors

TMX-3208RGB-A

32×8 RGBHV & Audio Matrix Switcher, 500 M, Video on BNC Connectors; Balanced audio stereo on 5 pin 3.81 mm Phoenix Connectors

TMX-3216RGB-A

32×16 RGBHV & Audio Matrix Switcher, 500 M, Video on BNC Connectors; Balanced audio stereo on 5 pin 3.81 mm Phoenix Connectors

TMX-3232RGB-A

32×32 RGBHV & Audio Matrix Switcher, 500 M, Video on BNC Connectors; Balanced audio stereo on 5 pin 3.81 mm Phoenix Connectors

TMX-6464RGB

64×64 RGBHV Matrix Switcher, 400 M, BNC Connectors

TMX-6464RGB-A

64×64 RGBHV & Audio Matrix Switcher, 400 M, Video on BNC Connectors; Balanced audio stereo on 5 pin 3.81 mm Phoenix Connectors

1.1 Functions and indications

1.1.1 Front panel

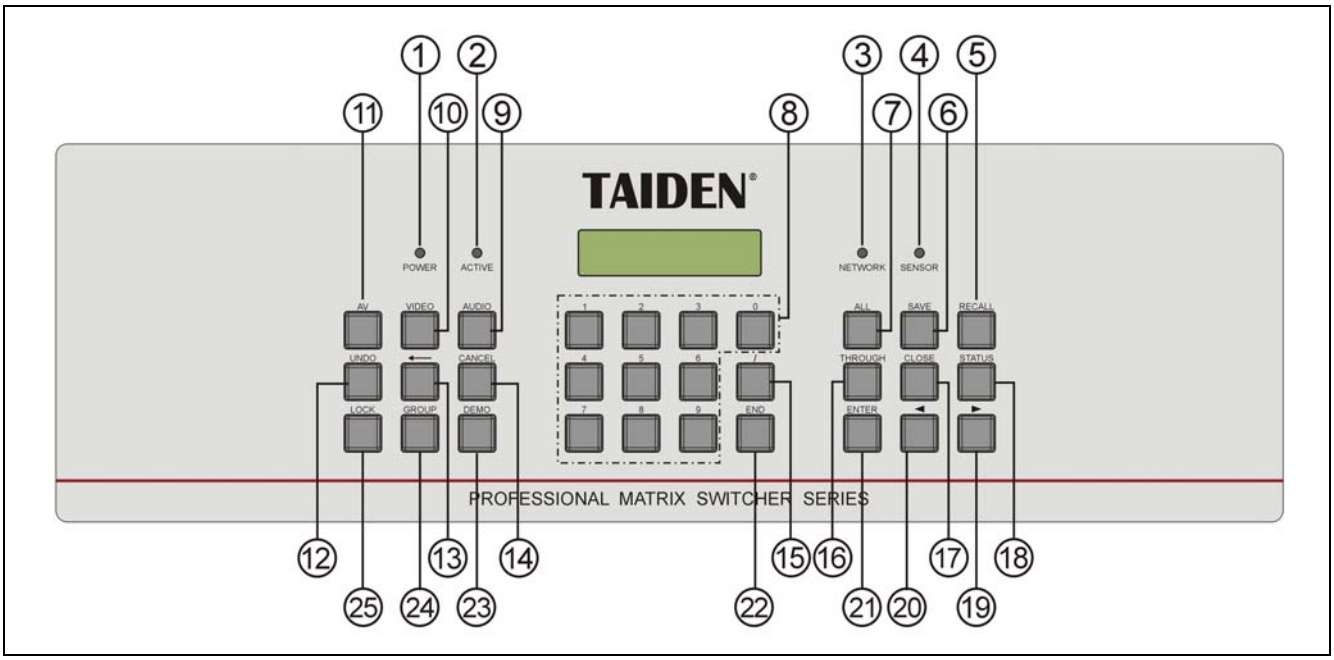


Figure 1.1 Front panel of RGBHV Matrix Switcher

Figure 1.1:

1. **"POWER" indicator**
2. **"ACTIVE" indicator**
   - Indicator will be turned on if Matrix Switcher executes switch instructions.
3. **"NETWORK" indicator**
   - Indicator flashes if Matrix Switcher is connected with PC software.
4. **IR receiving window**
   - Receives the IR signals from remote control; make sure the remote control aims at the window.
5. **"RECALL" button**
   - Recall the stored scene.
6. **"SAVE" button**
   - Save current channel status as appointed scene.
7. **"ALL" button**
   - Switch one input channel to all output channels.
8. **"0、1、2…9" button**
   - Number keys, used to select input or output channel, save scene number, recall scene number.
9. **"AUDIO" button**
   - Switch audio signal separately.
10. **"VIDEO" button**
    - Switch video signal separately.
11. **"AV" button**
    - Composite audio and video switch key.
12. **"UNDO" button**
    - Undo last switch operation.
13. **"←" button**
    - Backspace key, delete last input number or command.
14. **"CANCEL" button**
    - Back to root directory, when in setup menu, back to previous directory.
15. **"/" button**
    - Separator, displayed as "," on LCD. Used to space output channels if more than one channel is operated.
16. **"THROUGH" button**
    - Audio or video switch through from input channel to corresponding output channel.
17. **"CLOSE" button**
    - Close one or all output channels.
18. **"STATUS" button**
    - Query channel status.
19. **"►" button**
    - For right, forward and plus.

20. “◄” button

- For left, backward and subtract.

21. “ENTER” button

- Confirm or execute command.

22. “END” button

- End for a switch command.

23. “DEMO” button

- In DEMO status, channels are switched one by one.

24. “GROUP” button

- Maximum 5 groups and maximum 5 channels per group can be configured.

25. “LOCK” button

- Keyboard lock.

1.1.2 Rear panel

1.1.2.1 TMX-08xxRGB(-A) series

(Take TMX-0808RGB-A as example)

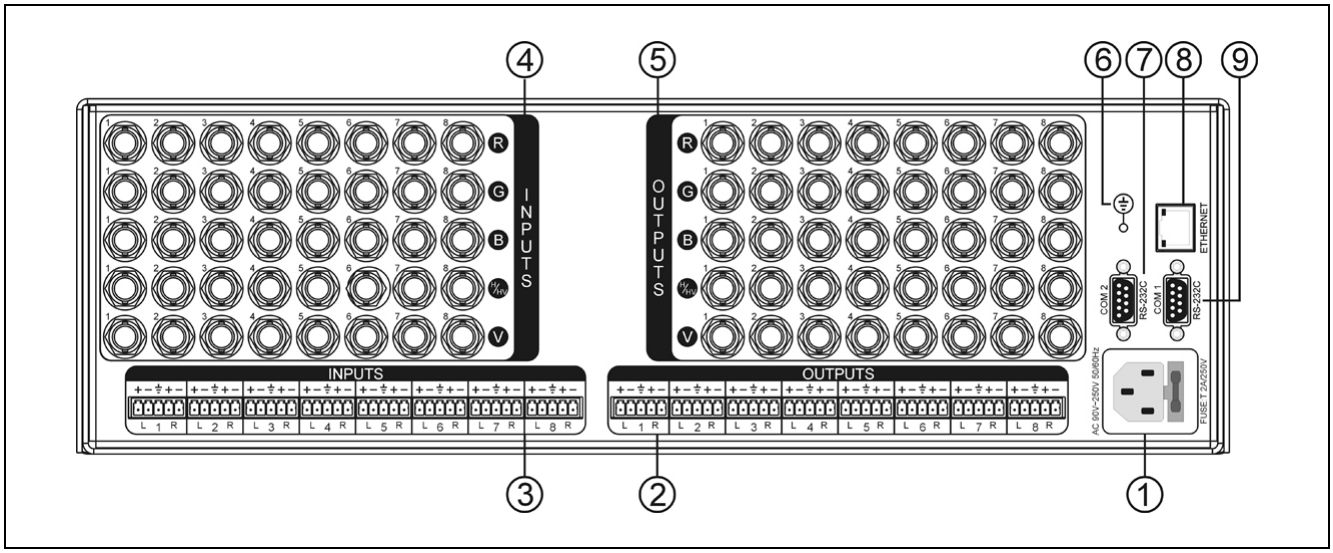


Figure 1.2 Rear panel of TMX-08xxRGB(-A) series

Figure 1.2:

1. **Power cable interface**
2. **Audio outputs (-A series)**
3. **Audio inputs (-A series)**
4. **Video inputs**
5. **Video outputs**
6. **Grounding point**
7. **RS-232 communication interface COM2**
8. **Ethernet interface**
9. **RS-232 communication interface COM1**

1.1.2.2 TMX-16xxRGB(-A) series

(Take TMX-1616RGB-A as example)

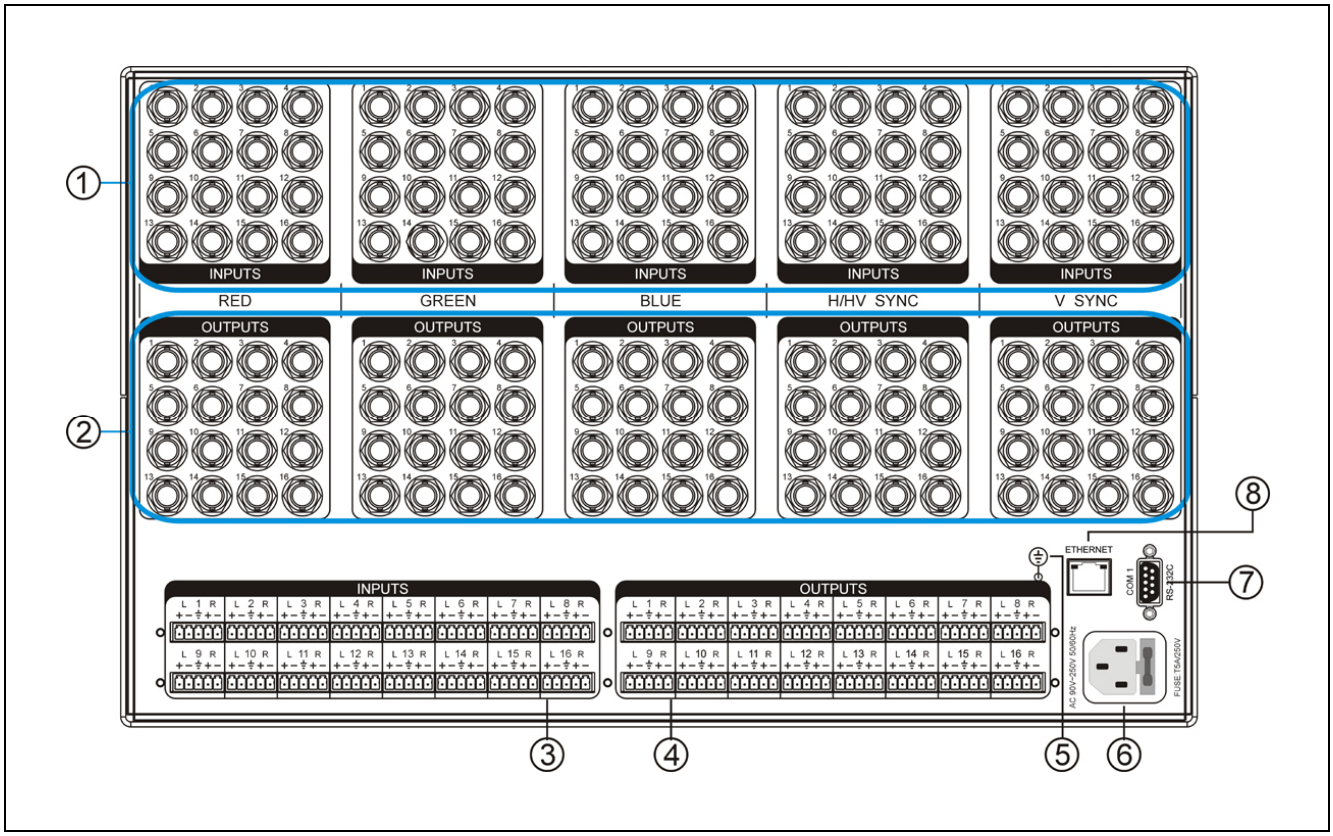


Figure 1.3 Rear panel of TMX-16xxRGB(-A) series

Figure 1.3:

1. **Video inputs**
2. **Video outputs**
3. **Audio inputs (-A series)**
4. **Audio outputs (-A series)**
5. **Grounding point**
6. **Power cable interface**
7. **RS-232 communication interface COM1**
8. **Ethernet interface**

1.1.2.3 TMX-32xxRGB(-A) series

(Take TMX-3232RGB-A as example)

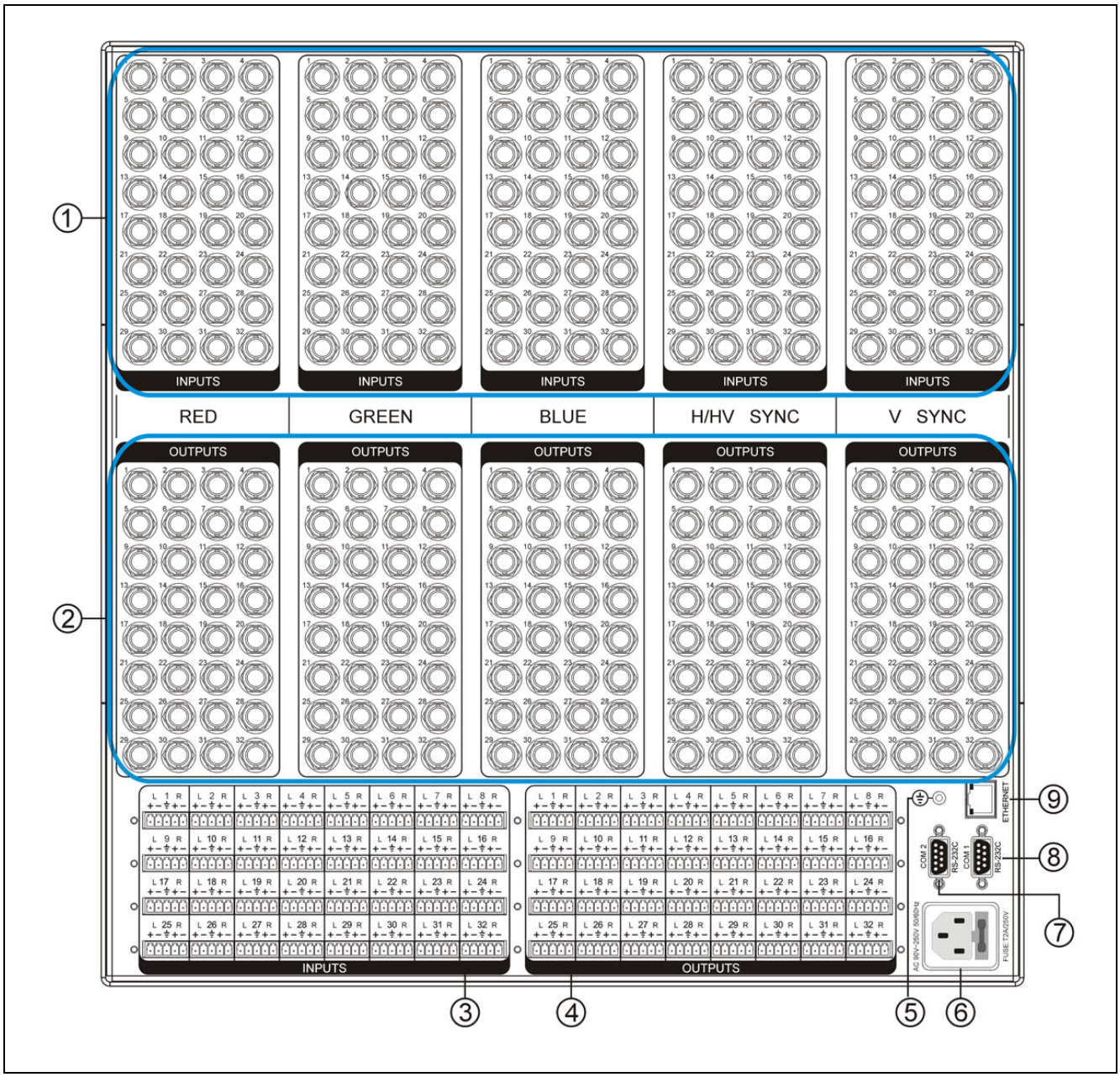


Figure 1.4 Rear panel of TMX-32xxRGB(-A) series

Figure 1.4:

1. **Video inputs**
2. **Video outputs**
3. **Audio inputs (-A series)**
4. **Audio outputs (-A series)**
5. **Grounding point**
6. **Power cable interface**
7. **RS-232 communication interface COM2**
8. **RS-232 communication interface COM1**
9. **Ethernet interface**

1.1.2.4 TMX-6464RGB(-A) series (Take TMX-6464RGB-A as example)

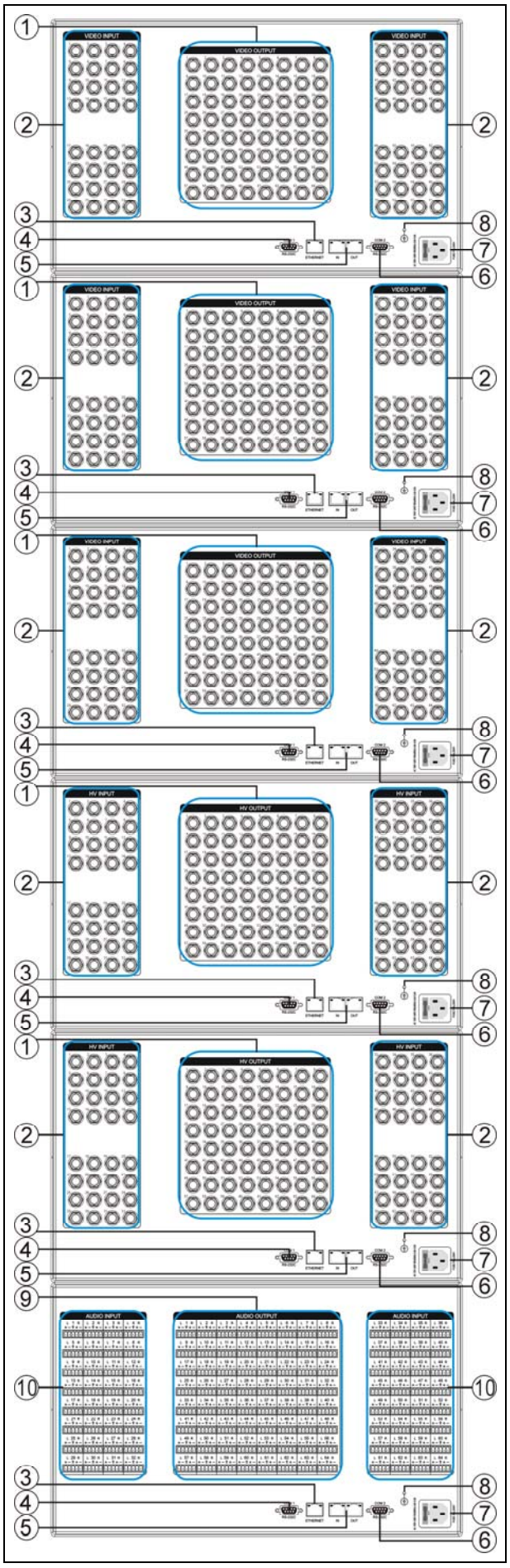


Figure 1.5 Rear panel of TMX-6464RGB(-A) series

Figure 1.5:

1. **Video outputs**
2. **Video inputs**
3. **Ethernet interface**
4. **RS-232 communication interface COM1**
5. **Loop in/out**
6. **RS-232 communication interface COM2**
7. **Power cable interface**
8. **Grounding point**
9. **Audio outputs (-A series)**
10. **Audio inputs (-A series)**

1.2 Installation and connection

1.2.1 Installation

TMX series Ultra Wideband RGBHV Matrix Switchers can be fixed in an exactly fitting standard cabinet.
A couple of mounting brackets ① are attached to the product package. First release the screws ② from the lateral sides of the matrix. Bolt on the brackets to the housing by using the screws previously released. Now put the unit into the cabinet, and fix it by screws. As figure 1.6.

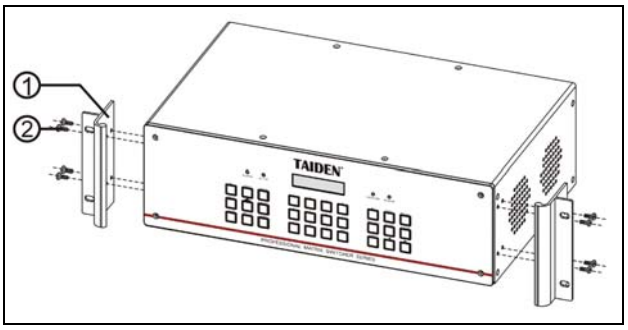


Figure 1.6 Installation

1.2.2 Audio Cable (-A series)

INPUTS from various audio source signals;
OUTPUTS to PA or active loudspeaker.

The audio signal can be injected both balanced and unbalanced.

Balanced Connection: two differential signals, one of which is the inverse of the other, are operated via a cable with two conductors of the same type and equal impedance to ground. Balanced connection minimizes unwanted interferences. Because audio signal tends to be disturbed in long distance transmission, balanced connection is commonly used in professional audio devices.

Unbalanced Connection: in unbalanced transmission the voltages on the two conductors are not equal to ground. Because non-balanced signal transmission tends to be disturbed, it is only used in non-professional audio devices.

The connection method should correspond to the requirements of the audio device interface. Whenever permitted balanced connection should be favored.

In case one device has a balanced interface and another device has an unbalanced interface, use balanced connection for balanced interface and unbalanced connection for unbalanced interface if there is no contradictory instruction.

If connection is strictly prescribed, please use balanced & unbalanced converter if required for appropriate connection.

As figure 1.7.

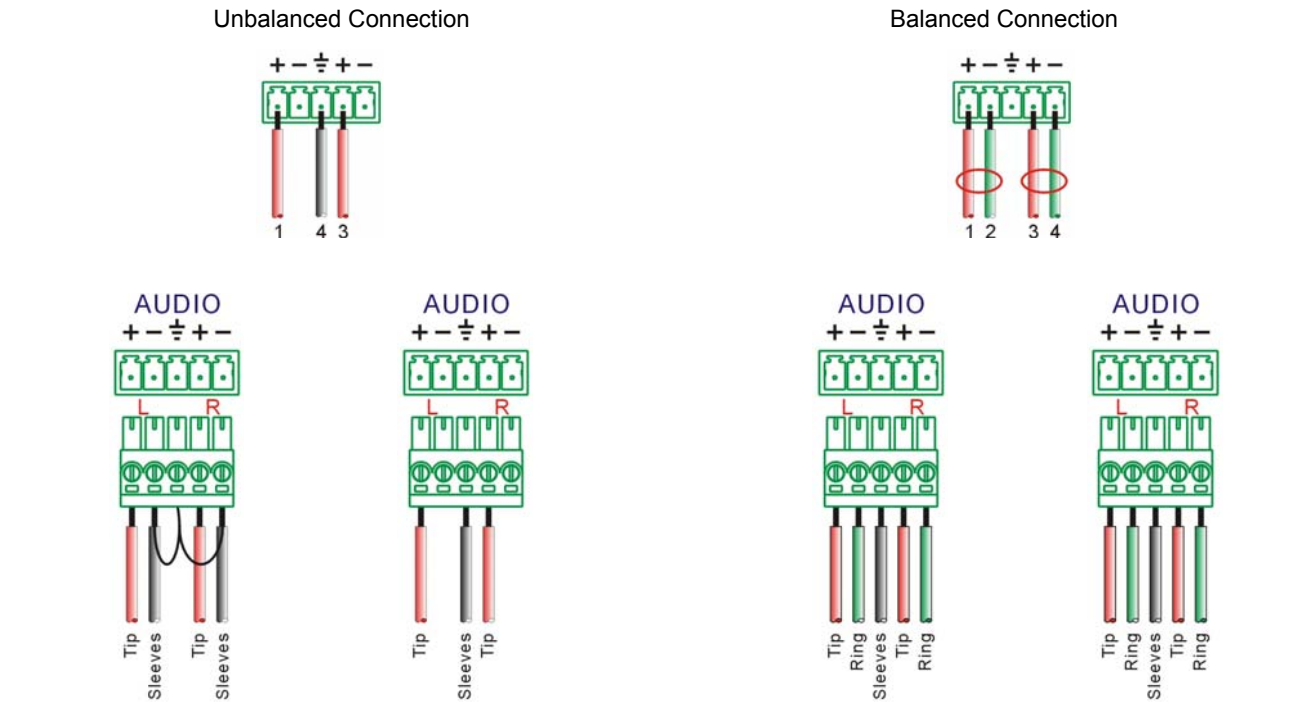


Figure 1.7 Balanced and Unbalanced connection

1.2.3 Connection between Matrix Switchers and PC

TMX series Ultra Wideband RGBHV Matrix Switchers can be controlled and setup by computer via TCP/IP or RS-232 interface COM2 (except TMX-16xxRGB(-A) series).

TCP/IP requires Cat.5 twisted pair cable.

TMX series Ultra Wideband RGBHV Matrix Switchers can be controlled by Central Control System via RS-232 interface COM1, this interface is also used for software upgrade.

As figure 1.8 and figure 1.9.

1.2.4 Connection with input, output devices

RGBHV Matrix Switchers support various AV and VGA signal sources. AV signal source equipment should have RGBHV or YC joints, VGA signal source equipment should have RGBHV joints. If VGA equipment does not have RGBHV joints, VGA-RGBHV converters or drivers provided by TAIDEN can be used.

Please use good quality 5-core RGBHV cable to connect input and output device.

Input connection example for PC, chosen INPUT = No.1: connect RGBHV cores 1 to 5 from PC to the corresponding RGBHV BNC INPUT joints 1 to 5, in each case marked No. 1 on the RGBHV Matrix Switchers (figure 1.8 and figure 1.9).

Output connection example to Projector, chosen OUTPUT= No. 4: connect RGBHV cores 1 to 5 from Projector, to the corresponding RGBHV BNC OUTPUT joints 1 to 5, marked No. 4 on the RGBHV Matrix Switchers (figure 1.8 and figure 1.9).

Note:

☞ Take care that both ends of a cable are correctly connected on both sides to the ports bearing the same name e.g. R to R, G to G etc. Otherwise there will be pseudocolors even if there is no signal output.

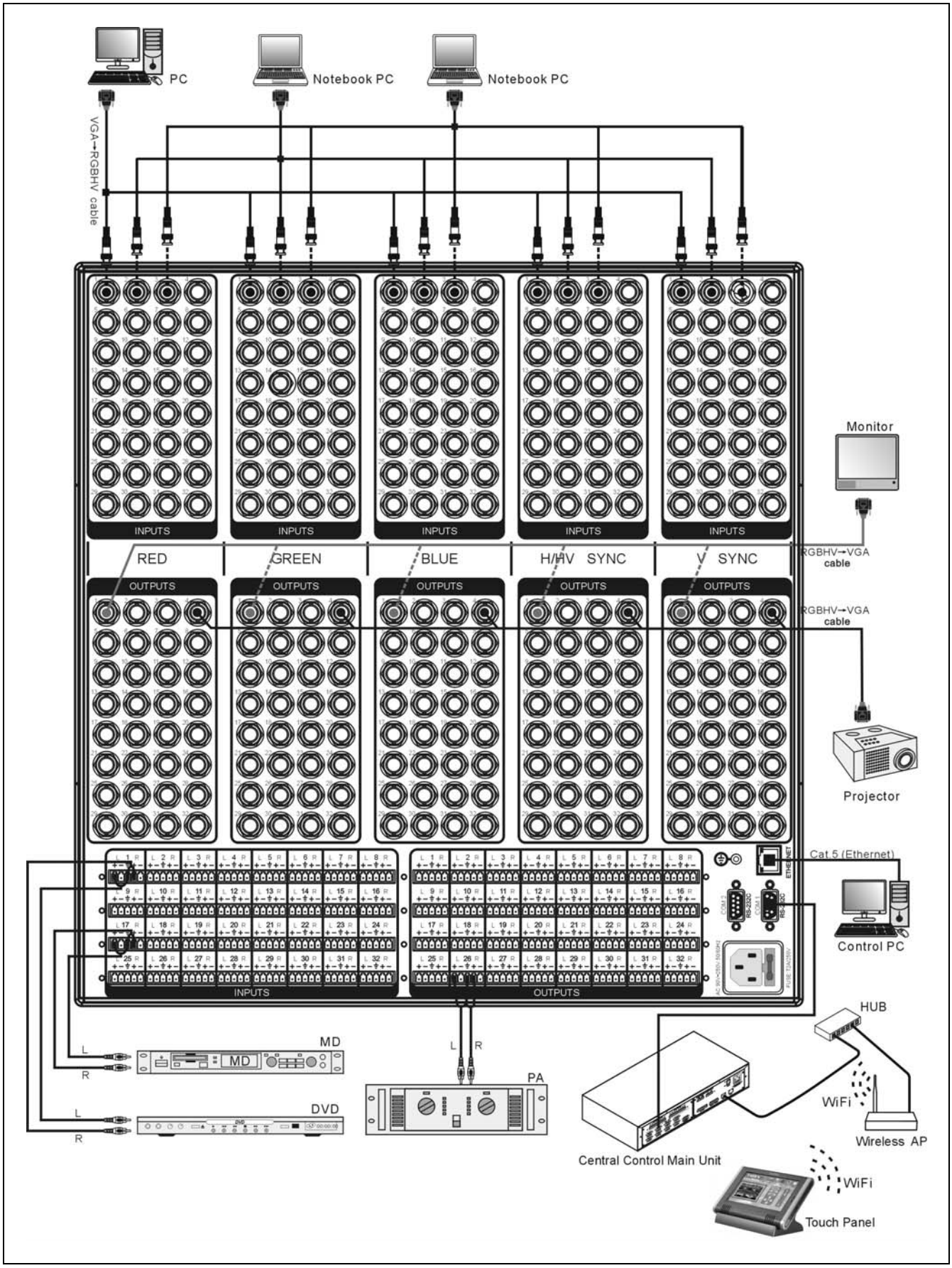


Figure 1.8 Connection example for input and output devices to RGBHV Matrix Switchers

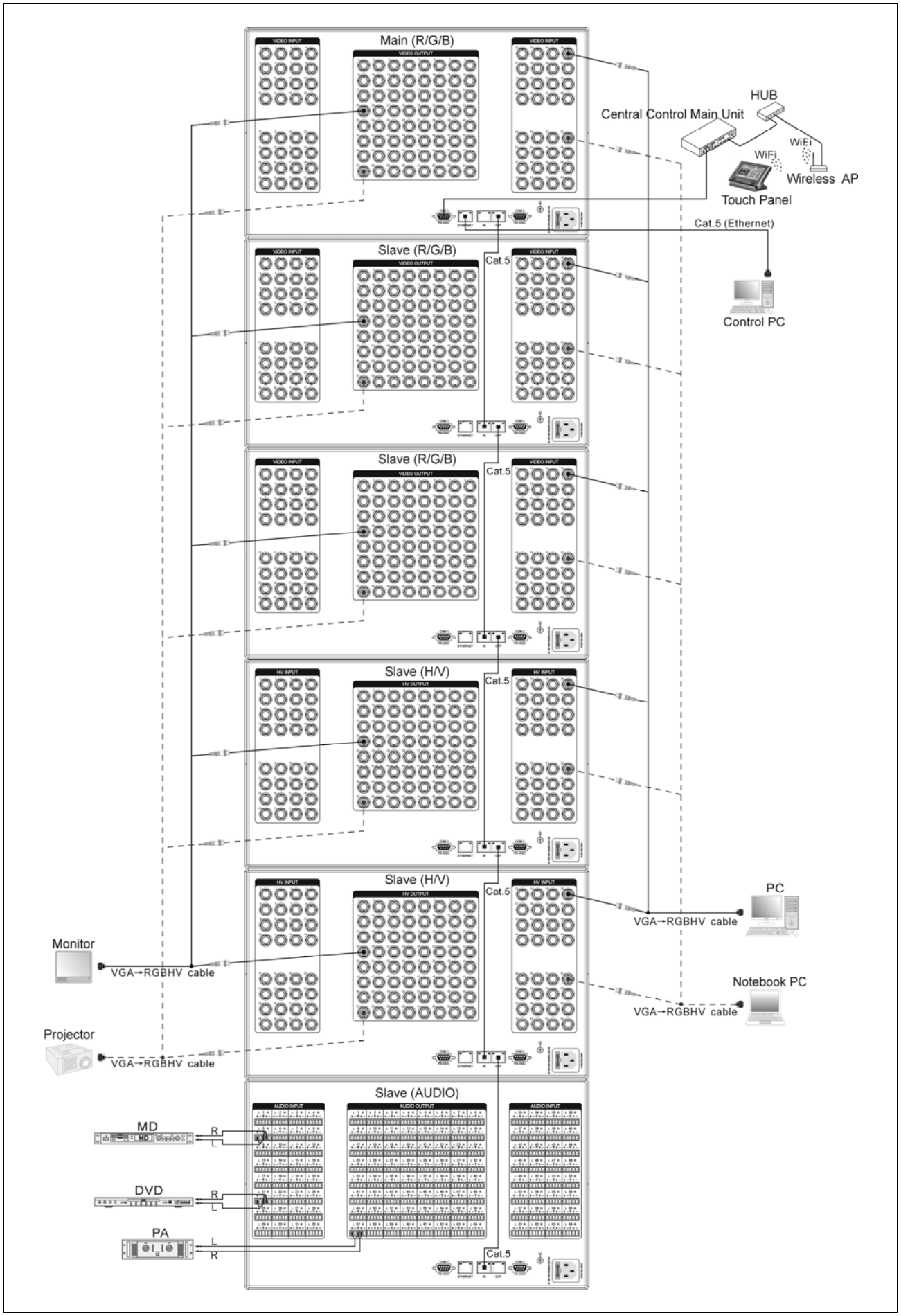


Figure 1.9 Connection example for input and output devices to TMX-6464RGB-A Matrix Switcher

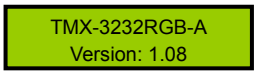
(The main switcher with the button panel, the others are slave switchers)

1.3 Setup and Operation

1.3.1 Menu setup

To explain menu setup of RGBHV Matrix Switchers, TMX-3232RGB-A serves as example. All types listed in chapter 1 can refer to it. Some types of RGBHV Matrix Switchers may not feature one or more of these functions.

TMX-3232RGB-A main interface:



Press “0” for 5 seconds to enter setup menu, including:

1. Sync Switch Delay
2. IP address
3. Subnet mask
4. Gate way
5. Ring
6. Input password
7. PC connect mode
* TMX-16xxRGB(-A) series does not have COM2 interface, PC connect mode is fixed to TCP/IP.

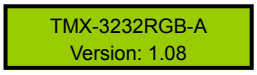
8. COM2 Baud rate
* TMX-16xxRGB(-A) series does not have COM2 interface and “COM2 Baud rate” menu.

9. Demo Switch Delay
10. COM1 protocol
11. Test button
* Tested button is working if character changes when button is pressed.

Menu 1 to menu 10 are explained explicitly:

1. Sync Switch Delay

When switching from one video input source to another, a brief time delay is required to adjust to sync data of the new source before a new undisturbed RGB signal is sent. User may select a value from 0 to 5 seconds for a proper transition to the new video source. Select by 50 ms steps.



1. Press “0” for 5 seconds to enter setup menu and press “◄/►” until “Sync Switch Delay” prompts;

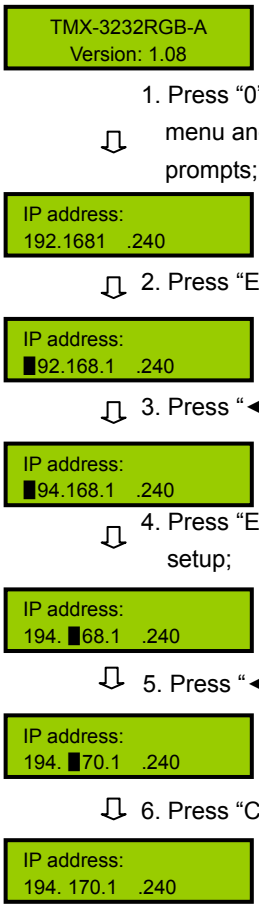
2. Press “ENTER” to enter setup;

3. Press “◄/►” to adjust parameter;

4. Press “ENTER” to confirm.

2. IP address

An IP address, Subnet mask and Gateway must be assigned to the matrix if connected to a TCP/IP Ethernet interface.



3. Subnet mask

For setup of “Subnet mask” proceed such as described in “IP address”.

4. Gate way

For setup of “Gate way” proceed such as described in “IP address”.

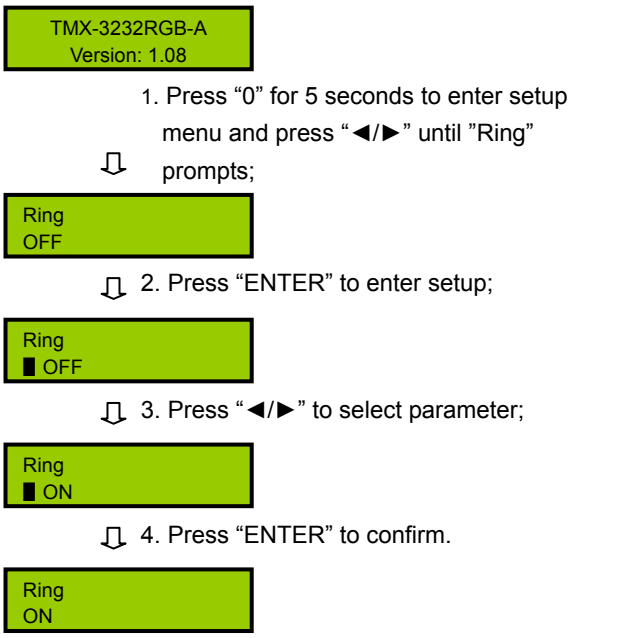
Note:

☞ After setup of the first parameter of the above four parameters of the IP address, Subnet mask or Gate way, user must press “ENTER” again, immediately after having pressed “END”, to modify the second parameter. Repeat for parameter 3 and 4 for continuous change. Otherwise setup is limited to one single parameter only.

5. Ring

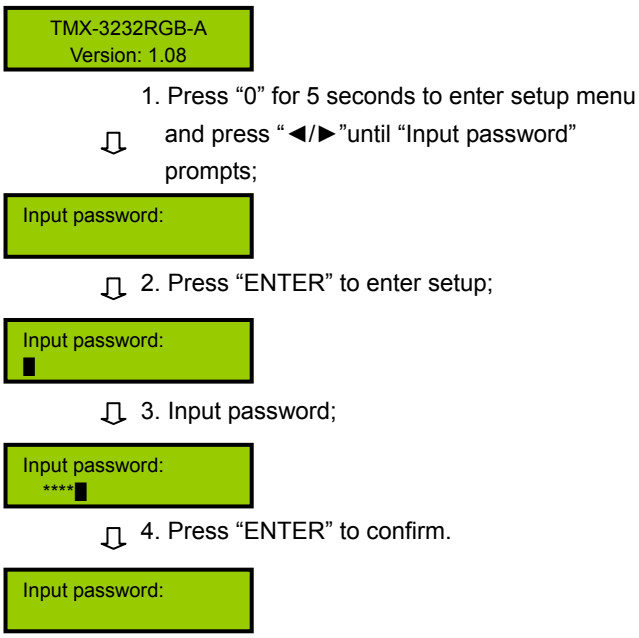
Buzzer ring on-off of this unit. If buzzer ring is setup “on”, the buzzer will ring when front panel operation, PC software executing switch and receiving command from central control system. The buzzer ring can be setup “off”.

- ON: open;
- OFF: close.



6. Input password

Set unlock password, password must be 5 bits. Original password is 11111.

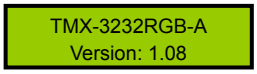


7. PC connect mode

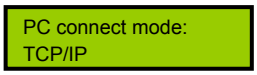
Select mode for PC connection:

- TCP/IP
- RS-232

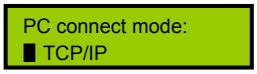
TMX-16xxRGB(-A) series does not have COM2 interface, PC connect mode is fixed to TCP/IP.



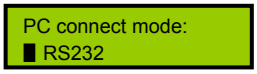
1. Press “0” for 5 seconds to enter setup menu and press “◄/►”until ”PC connect mode” prompts;



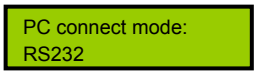
2. Press “ENTER” to enter setup;



3. Press “◄/►” to select parameter;



4. Press “ENTER” to confirm.



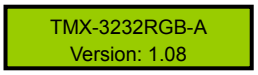
8. COM2 Baud rate

If PC connect mode RS-232 is selected, available COM2 baud rates are: 9600, 14400, 19200, 28800, 38400 and 57600.
COM1 is invariable and fixed to 9600 bit/s.

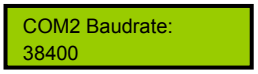
Note:

☞ If connect mode TCP/IP is selected, the baud rate is fixed to 115200 bit/s and cannot be modified.

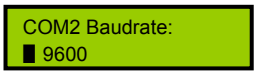
Setup example for mode is RS232:



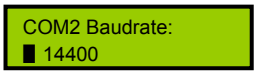
1. Press “0” for 5 seconds to enter setup menu and press “◄/►” until “COM2 Baud rate” prompts,



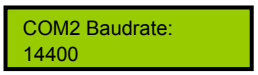
2. Press “ENTER” to enter setup;



3. Press “◄/►” to select parameter;

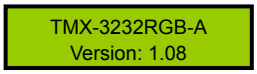


4. Press “ENTER” to confirm.



9. Demo Switch Delay

The interval between two switching operations can range from 2 seconds to 60 seconds by step of 2 s.



1. Press “0” for 5 seconds to enter setup menu and press “◄/►” until “Demo Switch Delay” prompts;

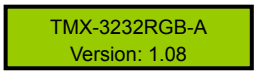
2. Press “ENTER” to enter setup;

3. Press “◄/ ►” to select parameter;

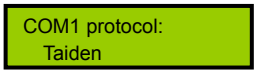
4. Press “ENTER” to confirm.

10. COM1 protocol

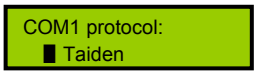
Select the protocol to connect an external central control system, including Taiden, Extron and Other. New protocols can be added by the user.



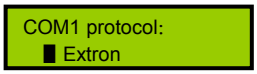
1. Press “0” for 5 seconds to enter setup menu and press “◄/►”until”COM1 protocol” prompts;



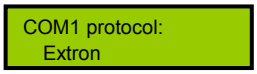
2. Press “ENTER” to enter setup;



3. Press “◄/►” to select parameter;



4. Press “ENTER” to confirm.



1.3.2 Switch operation

To explain menu operation of RGBHV Matrix Switchers, TMX-3232RGB-A type serves as example. All RGBHV Matrix Switchers listed in chapter 1 can refer to it. The functions of buttons have been introduced in section 1.1.

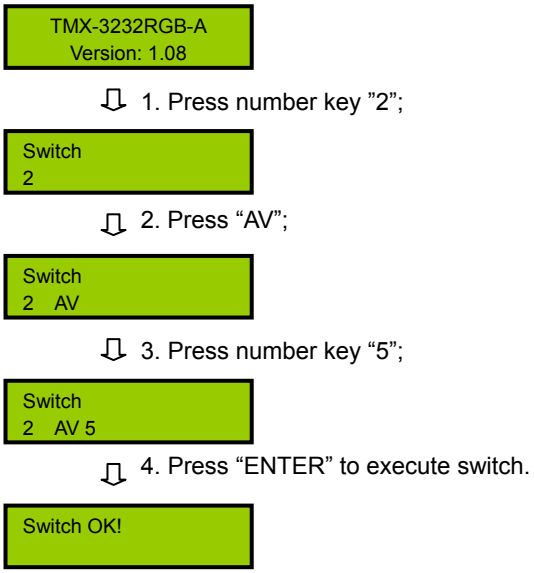
Note:

- ☞ The functions of buttons in this section have been introduced in section 1.1; “V” stands for video, “A” stands for audio.
- ☞ “Input channel” and “output channel” number must be less than matrix type. For example: TMX-16xxRGB series can only input number 1~16; TMX-32xxRGB series can input number 1~32.
- ☞ If any menu item is edited, except setup menu, a key must be pressed within 15 seconds otherwise the system will return to main menu item automatically and erase the previous channel setup.
- ☞ To return to main menu press any key if currently editing user interface is switch finish interface, display input, output status interface or DEMO interface. To return to main menu if editing other user interface press “CANCEL” or “←”.
- ☞ If new input source signal is switched, please wait until previous source is switched off. Wait according to Sync switch Delay (refer to section 1.3.1).

1. AV

Composite audio and video switch key, switch one input audio and video signal to any output channel.

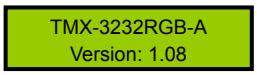
Example: Switch composite audio and video signal of input channel 2 to output channel 5 synchronously.



2. AUDIO

Switch audio signal separately, switch one input audio signal to any output channel.

Example: Switch audio signal of input channel 1 to output channel 3 and 7 synchronously.



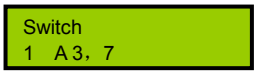
⇩ 1. Press number key ”1”;

⇩ 2. Press “AUDIO”;

⇩ 3. Press number key “3”;

⇩ 4. Press “/”;

⇩ 5. Press number key “7”;



⇩ 6. Press “ENTER” to execute switch.

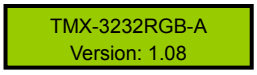
Note:

☞ If there are more than one output channels, use “/” key to separate them, and it will be shown as “,” on LCD.

3. VIDEO

Switch video signal separately, switch one input video signal to any output channel.

Example: Switch video signal of input channel 7 to all output channels synchronously.



⇩ 1. Press number key ”7”;

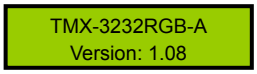
⇩ 2. Press “VIDEO”;

⇩ 3. Press “ALL” to execute switch.

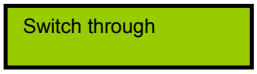
4. THROUGH

Audio and video signals switch through from input channel to corresponding output channel.

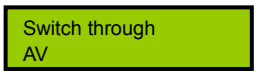
Example 1: Switch audio and video signals from input channel 1, 2, 3 to corresponding output channel 1, 2, 3 respectively.



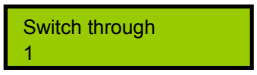
⇩ 1. Press “THROUGH”;



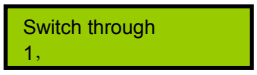
⇩ 2. Press “AV” to swith audio and video signals synchronously;



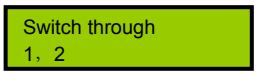
⇩ 3. Press number key “1”;



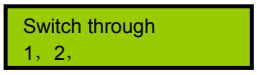
⇩ 4. Press “/”;



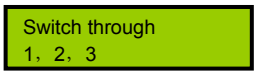
⇩ 5. Press number key “2”;



⇩ 6. Press “/”;

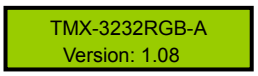


⇩ 7. Press number key “3”;

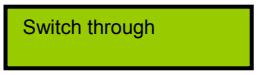


⇩ 8. Press “ENTER” to execute switch.

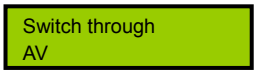
Example 2: Switch audio and video signal from all input channels to all corresponding output channels respectively, i.e. 1→1，2→2，3→3，4→4…



⇩ 1. Press “THROUGH”;



⇩ 2. Press “AV” to swith audio and video signals synchronously;



⇩ 3. Press “ALL” to execute switch.

5. CLOSE

Close one output channel or all output channels.

Example: Close audio of output channel 7.

⇩ 1. Press “CLOSE”;

⇩ 2. Press “AUDIO”;

⇩ 3. Press number key “7”;

⇩ 4. Press “ENTER” to execute switch.

Note:

☞ If “ALL” is pressed instead of “7”, all output channels are closed in this case.

6. UNDO

Undo last completely terminated and validated switch operation, and come back to the status before executing the last switch.

TMX-3232RGB-A
Version: 1.08

⇩ Press “UNDO” to execute.

Switch OK!

7. GROUP

Group key: to compose not more than 5 groups, each group with not more than 5 output channels.

Example 1: take output channel 1, 2, 3, 4, 5 as group 1.

TMX-3232RGB-A
Version: 1.08

⇩ 1. Press “GROUP”;

Group Define

⇩ 2. Press number key “1”;

Group Define 1:

⇩ 3. Press number key “1”;

Group Define 1:
1

⇩ 4. Press “/”;

Group Define 1:
1,

⇩ 5. Press number key “2”;

Group Define 1:
1，2

⇩ 6. Press “/”;

Group Define 1:
1，2,

⇩ 7. Press number key “3”;

Group Define 1:
1，2，3

⇩ 8. Press “/”;

Group Define 1:
1，2，3,

⇩ 9. Press number key “4”;

Group Define 1:
1，2，3，4

⇩ 10. Press “/”;

Group Define 1:
1，2，3，4,

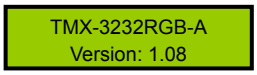
⇩ 11. Press number key “5”;

Group Define 1:
1，2，3，4，5

⇩ 12. Press “ENTER” to confirm.

TMX-3232RGB-A
Version: 1.08

Example 2: switch composite audio and video signal of input channel 2 to all output channels of group 1.



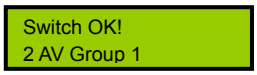
⇩ 1. Press number key “2”;

⇩ 2. Press “AV”;

⇩ 3. Press “GROUP”;

⇩ 4. Press number key “1”;

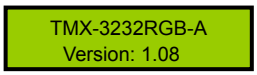
⇩ 5. Press “ENTER” to confirm.



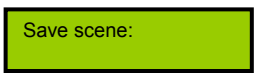
8. SAVE

Save current AV signal to appointed scene. 10 scenes can be saved at most, each scene has a number, from 0 to 9.

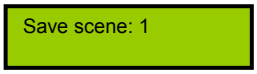
Example: Save current input and output channel status in scene 1



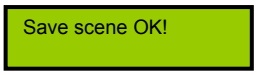
⇩ 1. Press “SAVE”;



⇩ 2. Press number key “1” to execute.



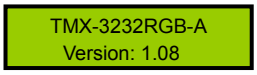
⇩



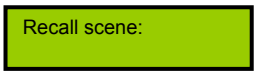
9. RECALL

Recall AV signal from selected scene.

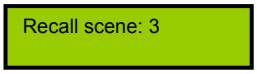
Example: Recall scene 3 and execute it.



⇩ 1. Press “RECALL”;



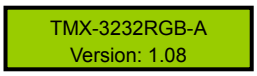
⇩ 2. Press number key “3” to execute.



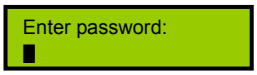
⇩

10. LOCK

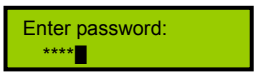
Keyboard lock: if “LOCK” is hold for 3 seconds, keyboard will be locked. Thereafter password is needed to unlock keyboard. Ethernet and RS-232 control are not locked. Original password is: 11111.



⇩ 1. Hold “LOCK” for 3 seconds, keyboard will be locked, Then password is needed to unlock keyboard;



⇩ 2. Input password;

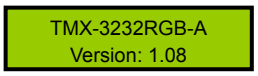


⇩ 3. Press “ENTER” to confirm.

11. END

End for a switch command.

Example: Switch video signal of input channel 3 to output channel 5, and switch composite audio and video signal of input channel 2 to output channel 1 synchronously.



⇩ 1. Press number key “3”;

⇩ 2. Press “V”;

⇩ 3. Press number key “5”;

⇩ 4. Press “END”;

⇩ 5. Press number key “2”;

⇩ 6. Press “AV”;

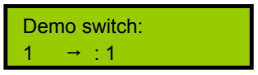
⇩ 7. Press number key “1”;

⇩ 8. Press “ENTER” to confirm.

12. DEMO

Switches one by one all possible combinations from 1→1, 1→2, …, 1→32, 2→1, 2→2, …, 2→32, …, 32→1, 32→2, …to 32→32. The interval can be setup via setup menu (Refer to section 1.3.1).

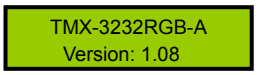
⇩ Press “DEMO” key, switch circularly.



13. STATUS

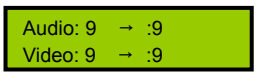
Query channel status, used to query corresponding state of input and output channels.

Example: Query channel 9 status.



⇩ 1. Press number key “9”;

⇩ 2. Press “STATUS” to execute.



Note:

- ☞ Pressing “STATUS” key permanently will display all channel status one by one.
- ☞ Pressing “◄/►” key permanently will display previous/next channel status one by one.

Chapter 2. Ultra Wideband VGA Matrix Switchers

TAIDEN TMX series Ultra Wideband VGA Matrix Switchers and Distribution Amplifiers are designed for transmitting high-resolution computer video signals and embedded intelligent control software. Any input channel of VGA/UXGA signal can be switched to any output channel by the user. Adopting gain compensation and synchronization signal AGC. Switches faster without blinking. No signal quality loss when switching.

Ultra Wideband VGA Matrix Switchers can be connected to PC software and central control system via TCP/IP, RS-232 or infrared wireless.

Ultra Wideband VGA Matrix Switchers are available in 10 options: from 8×2 to 16×16. 15HDF Connectors for all computer video connections is an ideal solution for classroom, computer training room, mobile emergency rescue center, short-term rent and many other occasions needing wideband signal transmission.

Product types:

TMX-0802VGA

8×2 VGA Matrix Switcher, 450 M, 15HDF Connectors

TMX-0804VGA

8×4 VGA Matrix Switcher, 450 M, 15HDF Connectors

TMX-0808VGA

8×8 VGA Matrix Switcher, 450 M, 15HDF Connectors

TMX-0802VGA-A

8×2 VGA & Audio Matrix Switcher, 450 M, Video on 15HDF Connectors; Balanced audio stereo on 5 pin 3.81 mm Phoenix Connectors

TMX-0804VGA-A

8×4 VGA & Audio Matrix Switcher, 450 M, Video on 15HDF Connectors; Balanced audio stereo on 5 pin 3.81 mm Phoenix Connectors

TMX-0808VGA-A

8×8 VGA & Audio Matrix Switcher, 450 M, Video on 15HDF Connectors; Balanced audio stereo on 5 pin 3.81 mm Phoenix Connectors

TMX-1608VGA

16×8 VGA Matrix Switcher, 325 M, 15HDF Connectors

TMX-1616VGA

16×16 VGA Matrix Switcher, 325 M, 15HDF Connectors

TMX-1608VGA-A

16×8 VGA & Audio Matrix Switcher, 325 M, Video on 15HDF Connectors; Balanced audio stereo on 5 pin 3.81 mm Phoenix Connectors

TMX-1616VGA-A

16×16 VGA & Audio Matrix Switcher, 325 M, Video on 15HDF Connectors; Balanced audio stereo on 5 pin 3.81 mm Phoenix Connectors

2.1 Functions and indications

2.1.1 TMX-08xxVGA series

2.1.1.1 Front panel

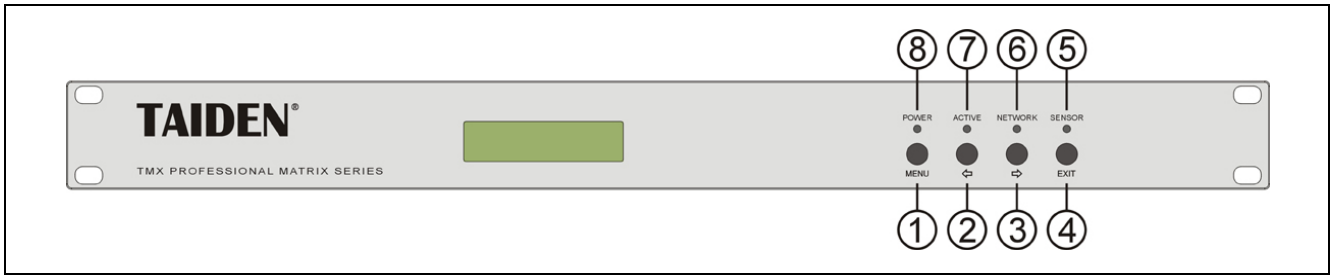


Figure 2.1 Front panel of TMX-08xxVGA series Matrix Switcher

Figure 2.1:

1. "MENU" button

a) If in current state, press "MENU" go to main menu;

b) If in menu state, press "MENU" go to sub menu;

c) Select/Deselect in network configuration.

2. "⇦" (Left) button

3. "⇨" (Right) button

4. "Exit" button

♦ Return to previous directory or root.

5. IR receiving window

♦ Receives the IR signals from remote control; make sure the remote control aims at the window.

6. "NETWORK" indicator

♦ Indicator flashes if Matrix Switcher is connected with PC software.

7. "ACTIVE" indicator

♦ Indicator will be turned on if Matrix Switcher executes switch instructions.

8. "POWER" indicator

2.1.1.2 Rear panel

(Take TMX-0808VGA as example)

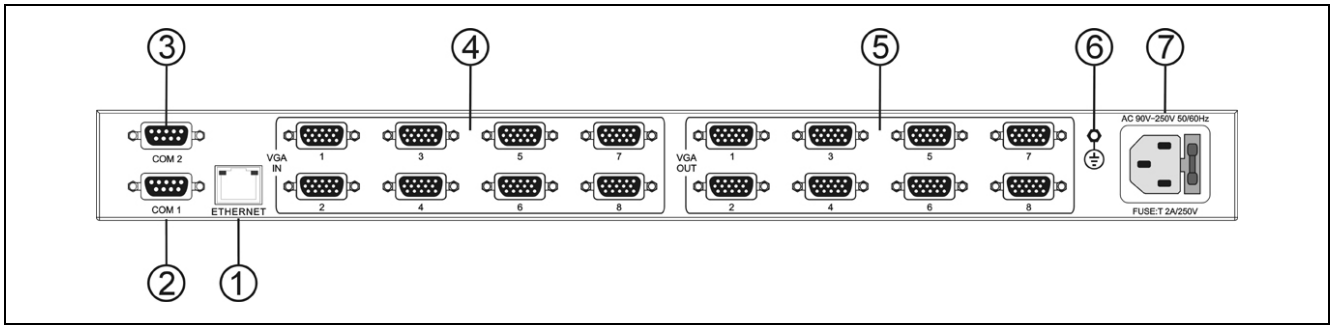


Figure 2.2 Rear panel of TMX-08xxVGA series Matrix Switcher

Figure 2.2:

1. Ethernet interface

2. RS-232 communication interface COM1

3. RS-232 communication interface COM2

4. VGA inputs

5. VGA outputs

6. Grounding point

7. Power cable interface

2.1.2 TMX-08xxVGA-A and TMX-16xxVGA(-A) series

2.1.2.1 Front panel

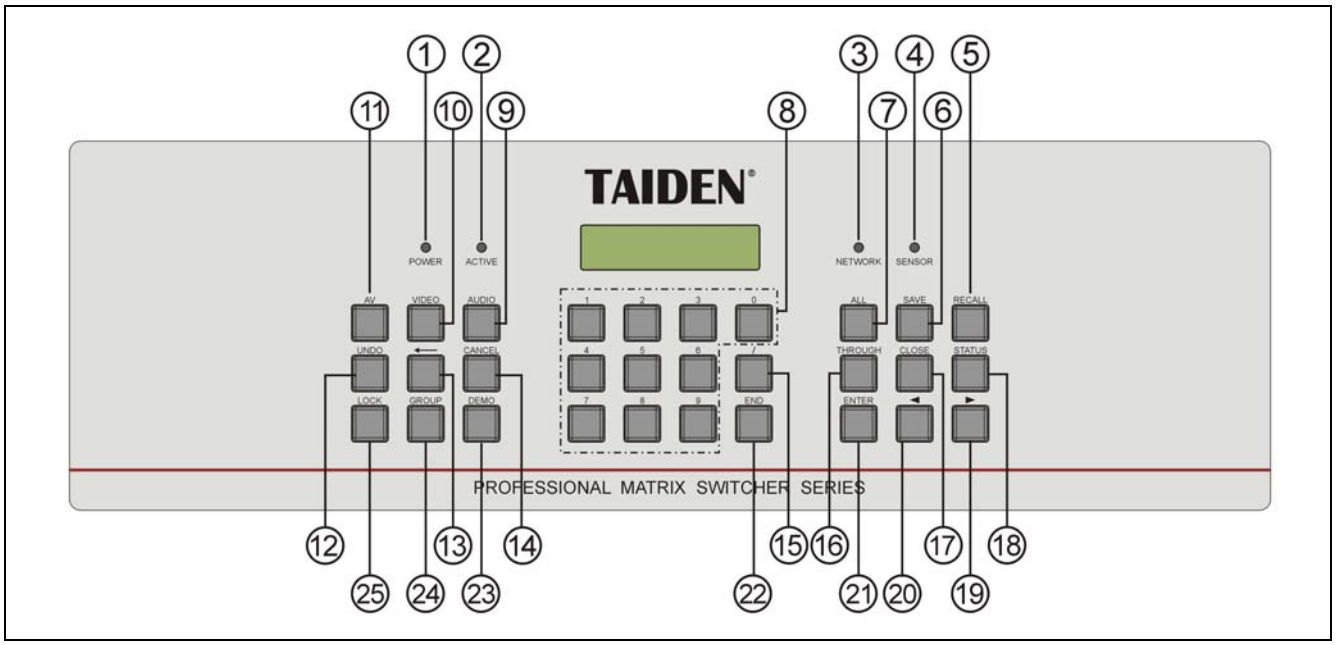


Figure 2.3 Front panel of TMX-08xxVGA-A and TMX-16xxVGA(-A) series Matrix Switcher

Figure 2.3:

1. **"POWER" indicator**
2. **"ACTIVE" indicator**
   - Indicator will be turned on if Matrix Switcher executes switch instructions.
3. **"NETWORK" indicator**
   - Indicator flashes if Matrix Switcher is connected with PC software.
4. **IR receiving window**
   - Receives the IR signals from remote control; make sure the remote control aims at the window.
5. **"RECALL" button**
   - Recall the stored scene.
6. **"SAVE" button**
   - Save current channel status as appointed scene.
7. **"ALL" button**
   - Switch one input channel to all output channels.
8. **"0、1、2…9" button**
   - Number keys, used to select input or output channel, save scene number, recall scene number.
9. **"AUDIO" button**
   - Switch audio signal separately.
10. **"VIDEO" button**
    - Switch video signal separately.
11. **"AV" button**
    - Composite audio and video switch key.
12. **"UNDO" button**
    - Undo last switch operation.
13. **"←" button**
    - Backspace key, delete last input number or command.
14. **"CANCEL" button**
    - Back to root directory, when in setup menu, back to previous directory.
15. **"/" button**
    - Separator, displayed as "," on LCD. Used to space output channels if more than one channel is operated.
16. **"THROUGH" button**
    - Audio or video switch through from input channel to corresponding output channel.
17. **"CLOSE" button**
    - Close one or all output channels.
18. **"STATUS" button**
    - Query channel status.
19. **"►" button**
    - For right, forward and plus.

20. "◄" button

- For left, backward and subtract.

21. "ENTER" button

- Confirm or execute command.

22. "END" button

- End for a switch command.

23. "DEMO" button

- In DEMO status, channels are switched one by one.

24. "GROUP" button

- Maximum 5 groups and maximum 5 channels per group can be configured.

25. "LOCK" button

- Keyboard lock.

2.1.2.2 Rear panel

(Take TMX-1616VGA-A as example)

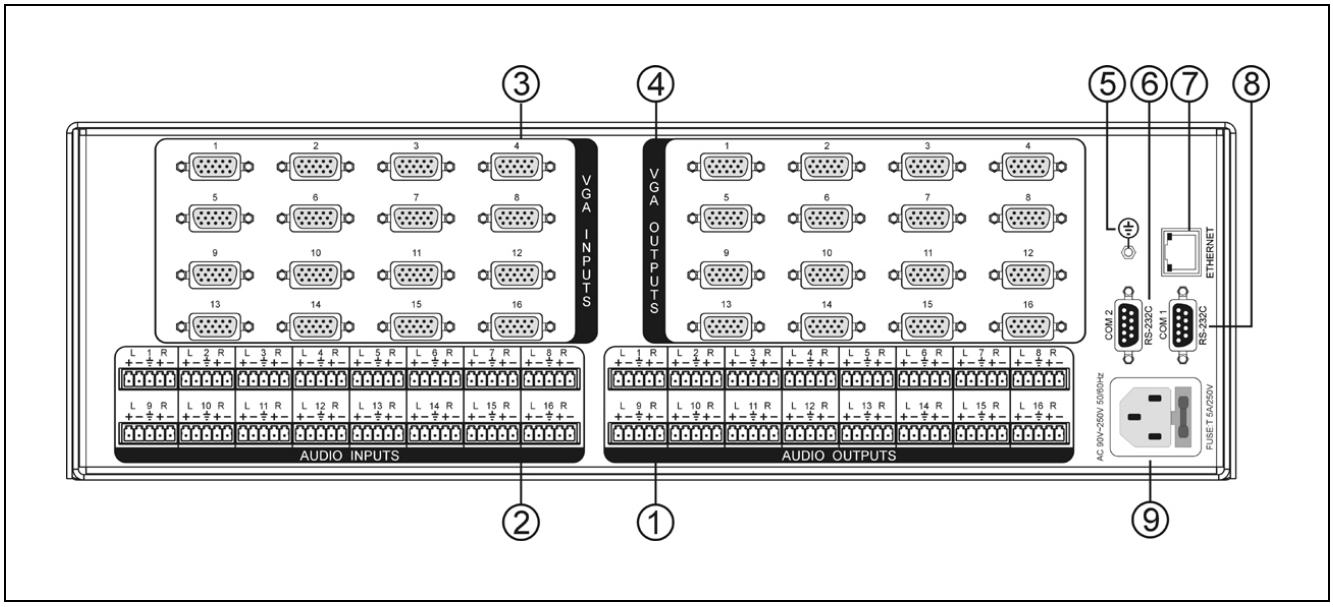


Figure 2.4 Rear panel of TMX-08xxVGA-A and TMX-16xxVGA(-A) series Matrix Switcher

Figure 2.4:

1. Audio outputs (-A series)

2. Audio inputs (-A series)

3. VGA inputs

4. VGA outputs

5. Grounding point

6. RS-232 communication interface COM2

7. Ethernet interface

8. RS-232 communication interface COM1

9. Power cable interface

2.2 Installation and connection

2.2.1 Installation

TMX series VGA Matrix Switchers can be fixed in an exactly fitting standard cabinet.

1U TMX series VGA Matrix Switcher just needs to put it into the cabinet, and fix it by screws.

Installation of 3U TMX series VGA Matrix Switchers: A couple of mounting brackets ① are attached to the product package. First release the screws ② from the lateral sides of the matrix. Bolt on the brackets to the housing by using the screws previously released. Now put the unit into the cabinet, and fix it by other screws. As figure 2.5.

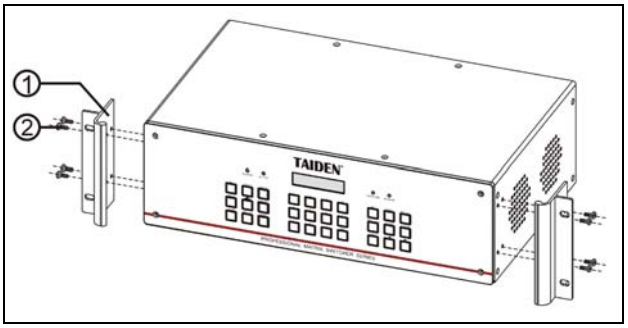


Figure 2.5 Installation

2.2.2 Audio Cable (-A series)

INPUTS from various audio source signals;
OUTPUTS to PA or active loudspeaker.

The audio signal can be injected both balanced and unbalanced.

Balanced Connection: two differential signals, one of which is the inverse of the other, are operated via a cable with two conductors of the same type and equal impedance to ground. Balanced connection minimizes unwanted interferences. Because audio signal tends to be disturbed in long distance transmission, balanced connection is commonly used in professional audio devices.

Unbalanced Connection: in unbalanced transmission the voltages on the two conductors are not equal to ground. Because non-balanced signal transmission tends to be disturbed, it is only used in non-professional audio devices.

The connection method should correspond to the requirements of the audio device interface. Whenever permitted balanced connection should be favored.

In case one device has a balanced interface and another device has an unbalanced interface, use balanced connection for balanced interface and unbalanced connection for unbalanced interface if there is no contradictory instruction.

If connection is strictly prescribed, please use balanced & unbalanced converter if required for appropriate connection.

As figure 2.6.

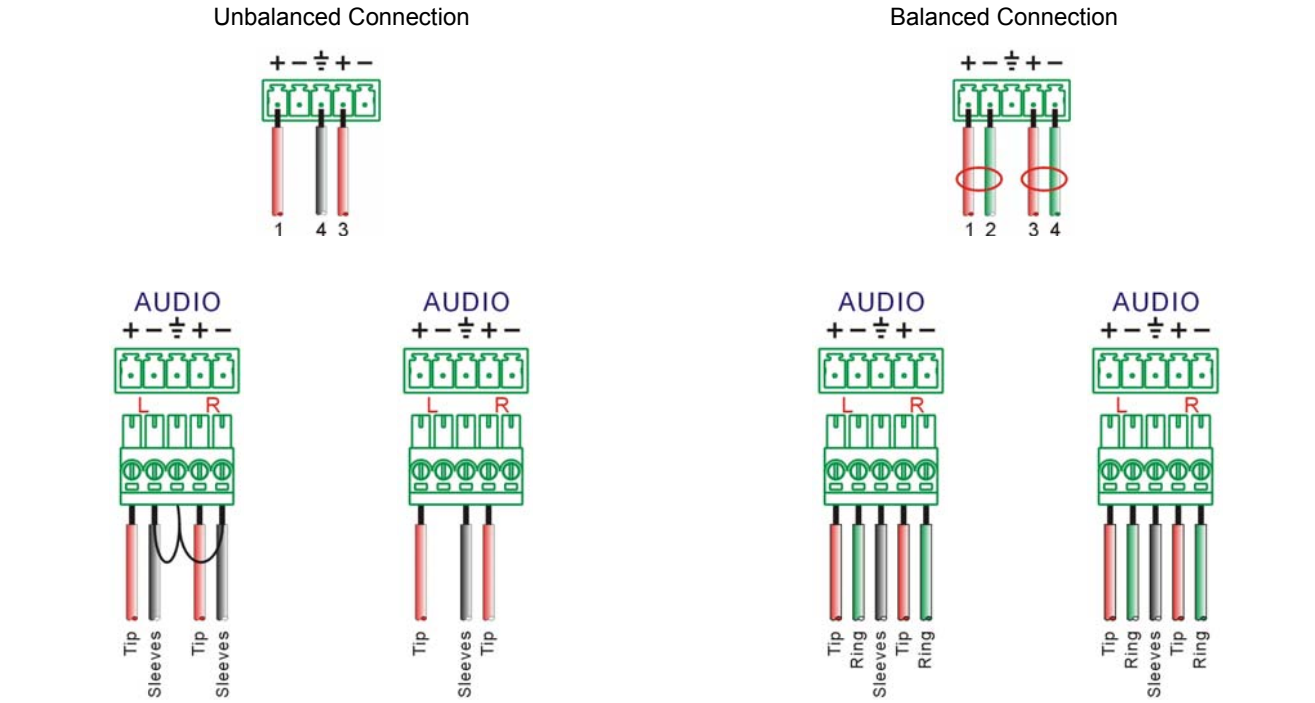


Figure 2.6 Balanced and Unbalanced connection

2.2.3 Connection between Matrix Switchers and PC

TMX series Ultra Wideband VGA Matrix Switchers can be controlled and setup by computer via TCP/IP or RS-232 interface COM2.

TCP/IP requires Cat.5 twisted pair cable.

TMX series Ultra Wideband VGA Matrix Switchers can be controlled by Central Control System via RS-232 interface COM1, this interface is also used for software upgrade.

As figure 2.7.

2.2.4 Connection with input, output devices

The number of input and output ports is differing, according to the type chosen. Every device with a VGA port can be connected to the VGA Matrix Switcher, such as DVD, PC, etc. Output ports can be connected to big screen projector, LCD projector, monitor, as shown in figure 2.7.

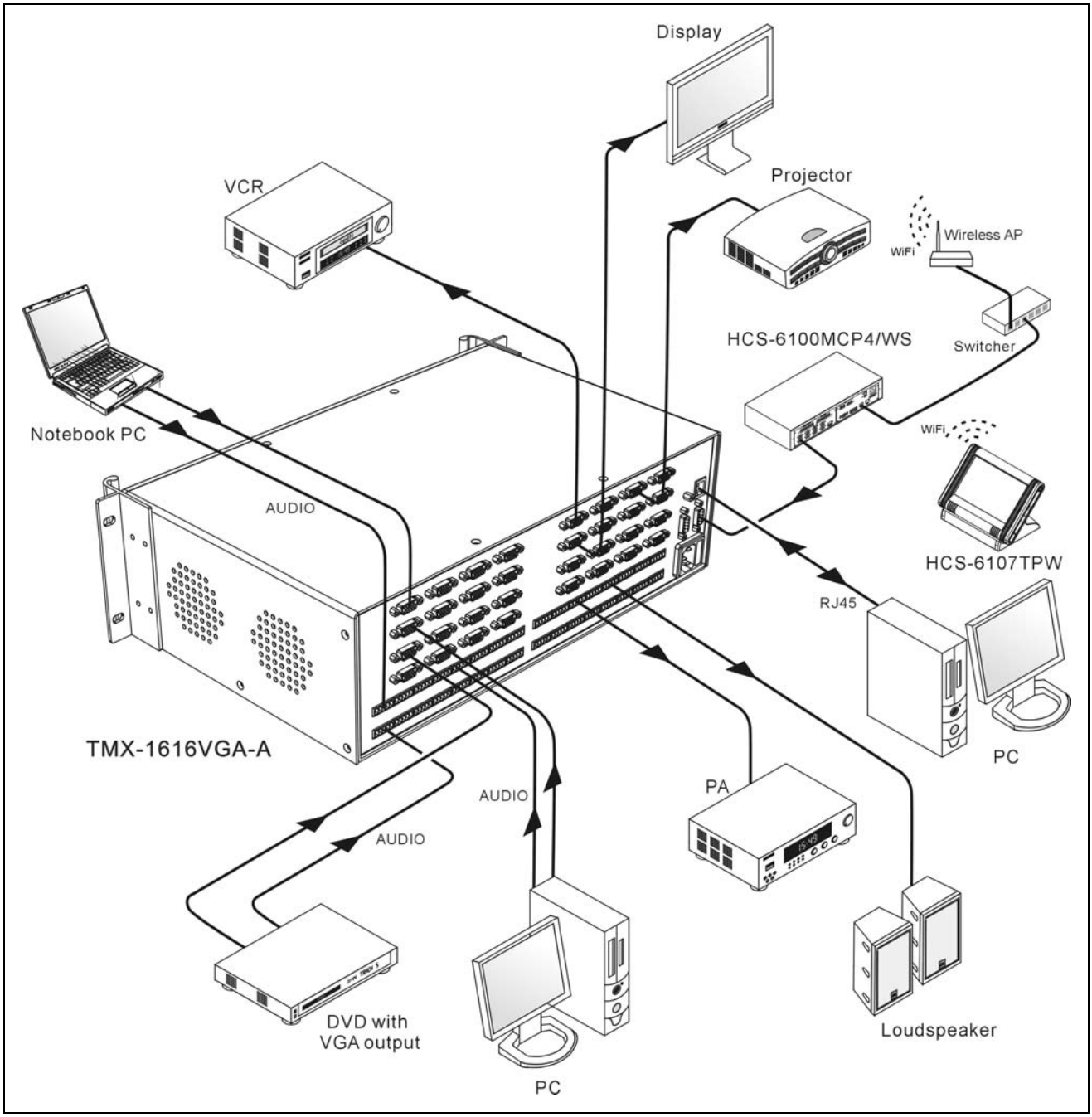


Figure 2.7 Connection example for input and output devices to VGA Matrix Switchers

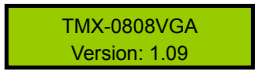
2.3 Setup and Operation

2.3.1 TMX-08xxVGA series

2.3.1.1 Menu setup

To explain menu setup of TMX-08xxVGA series Matrix Switcher, TMX-0808VGA serves as example.

TMX-0808VGA main interface:



Setup menu of TMX-08xxVGA series Matrix Switcher, including:

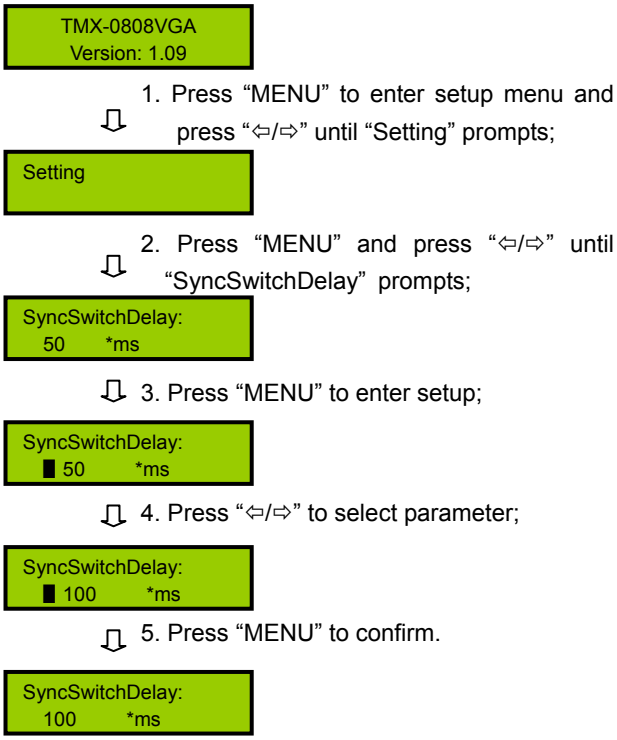
1. Sync Switch Delay
2. IP address
3. Subnet mask
4. Gate way
5. Ring
6. PC connect mode
7. COM2 Baud rate
8. Demo Switch Delay
9. COM1 protocol
10. Test button

* Tested button is working if character changes when button is pressed.

Menu 1 to menu 9 are explained explicitly:

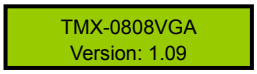
1. Sync Switch Delay

When switching from one video input source to another, a brief time delay is required to adjust to sync data of the new source before a new undisturbed RGB signal is sent. User may select a value from 0 to 5 seconds for a proper transition to the new video source. Select by 50 ms steps.



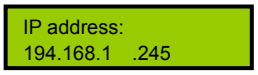
2. IP address

An IP address, Subnet mask and Gateway must be assigned to the matrix if connected to a TCP/IP Ethernet interface.

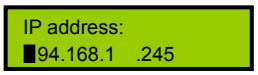


1. Press “MENU” to enter setup menu and press “⇦/⇨” until “Setting” prompts;

2. Press “MENU” and press “⇦/⇨” until “IP address” prompts;

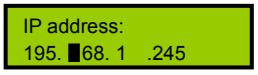


3. Press “MENU” to enter setup;

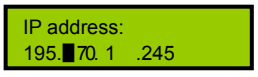


4. Press “⇦/⇨” to adjust parameter;

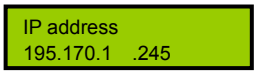
5. Press “MENU” to enter next parameter setup;



6. Press “⇦/⇨” to adjust parameter;



7. Press “EXIT” to confirm.



3. Subnet mask

For setup of “Subnet mask” proceed such as described in “IP address”.

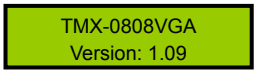
4. Gate way

For setup of “Gate way” proceed such as described in “IP address”.

5. Ring

Buzzer ring on-off of this unit. If buzzer ring is setup “on”, the buzzer will ring when front panel operation, PC software executing switch and receiving command from central control system. The buzzer ring can be setup “off”.

- ON: open ;
- OFF: close.



1. Press “MENU” to enter setup menu and press “⇦/⇨” until ”Setting” prompts;

2. Press “MENU” and press “⇦/⇨” until “Ring” prompts;

3. Press “MENU” to enter setup;

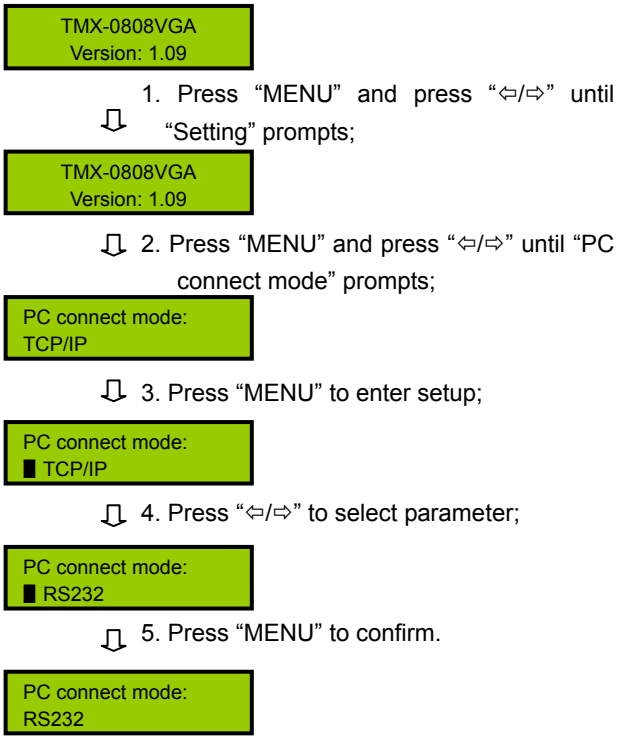
4. Press “⇦/⇨” to select parameter;

5. Press “MENU” to confirm.

6. PC connect mode

Select mode for PC connection:

- TCP/IP
- RS-232



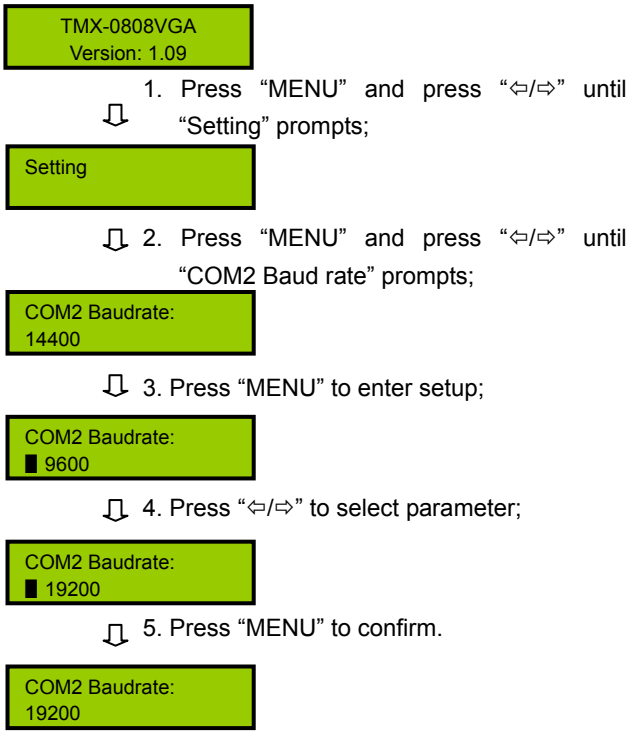
7. COM2 Baud rate

If PC connect mode RS-232 is selected, available COM2 baud rates are: 9600, 14400, 19200, 28800, 38400 and 57600.

COM1 is invariable and fixed to 9600 bit/s.

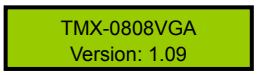
Note:

☞ If connect mode TCP/IP is selected, the baud rate is fixed to 115200 bit/s and cannot be modified.



8. Demo Switch Delay

The interval ranges from 2 seconds to 60 seconds by steps of 2 seconds.



1. Press “MENU” and press “⇦/⇨” until “Setting” prompts;

2. Press “MENU” and press “⇦/⇨” until “Demo Switch Delay” prompts;

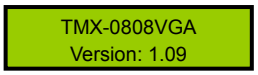
3. Press “MENU” to enter setup;

4. Press “⇦/⇨” to adjust parameter;

5. Press “MENU” to confirm.

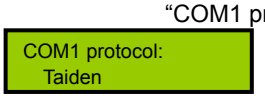
9. COM1 protocol

Select the protocol to connect an external central control system, including: Taiden, Extron, Other. New protocols can be added by the user.

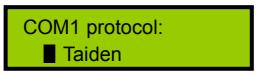


1. Press “MENU” and press “⇦/⇨” until “Setting” prompts;

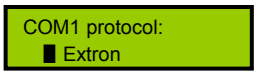
2. Press “MENU” and press “⇦/⇨” until “COM1 protocol” prompts;



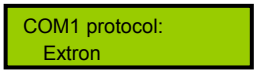
3. Press “MENU” to enter setup;



4. Press “⇦/⇨” to select parameter;



5. Press “MENU” to confirm.



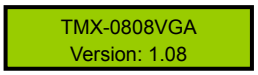
2.3.1.2 Switch operation

To explain menu operation of TMX-08xxVGA series Matrix Switcher, TMX-0808VGA type serves as example. All TMX-08xxVGA series Matrix Switcher can refer to it.

Note:

- ☞ If any menu item is edited, except setup menu, a key must be pressed within 15 seconds otherwise the system will return to main menu item automatically and erase the previous channel setup.
- ☞ To return to main menu press any key if currently editing user interface is switch finish interface, display input, output status interface or DEMO interface. To return to main menu if editing other user interface press “EXIT” or “⇦”.
- ☞ If new input source signal is switched, please wait until previous source is switched off. Wait according to Sync switch Delay (refer to section 2.3.1.1)

TMX-0808VGA main interface:



Press “MENU” to enter switch menu, including:

1. Switch VGA

2. Switch through

* Switch through one channel or all channels.

3. Close

* Close one output or all outputs.

4. Save scene

5. Recall scene

6. Undo

* Undo last switch.

7. Demo Switch

* Switch one by one.

8. Setting

* Setup menu.

9. Status

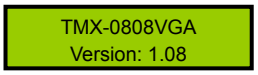
* Request channel state.

Menu 1 to menu 9 are explained explicitly:

1. Switch VGA

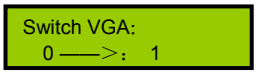
VGA switch key, switch one input VGA signal to any or all output channels.

Example: Switch VGA signal of input channel 1 to output channel 8

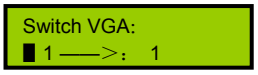


⇩ 1. Press “MENU” to enter menu;

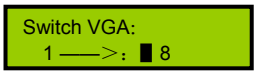
⇩ 2. Press “MENU” to enter “Switch VGA”;



⇩ 3. Press “MENU” to select input channel;
4. Press “⇦/⇨” to adjust input channel as “1”;



⇩ 5. Press “MENU” to select output channel;
6. Press “⇦/⇨” to adjust output channel as “8”;



⇩ 7. Press “MENU” to confirm and press “EXIT” twice.

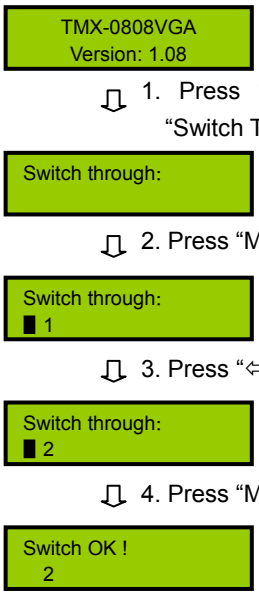
Note:

- ☞ If input channel displays “0”, output channel is closed.
- ☞ If output channel displays “ALL”, input channel is switched to all output channels.

2. Switch through

Switch through one input channel or all input channels to corresponding output channel(s).

Example: Switch through channel 2.



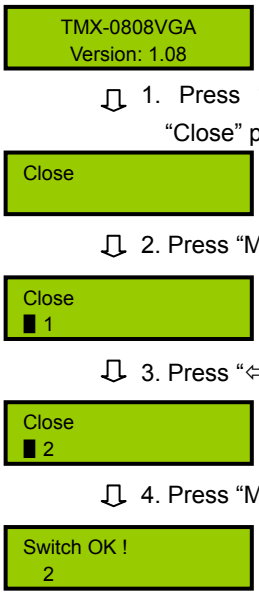
Note:

☞ Select "All" standing for switch through all channels.

3. Close

Close one output channel or all output channels.

Example: Close output channel 2



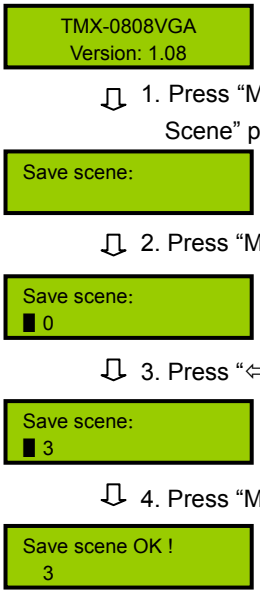
Note:

☞ Select "ALL" stands for closing all channels.

4. Save scene

Save current VGA signal to appointed scene. 10 scenes can be saved at most, each scene has a number, from 0 to 9.

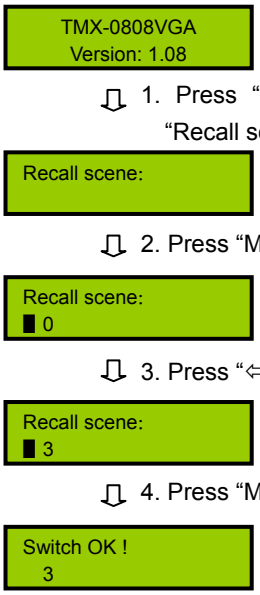
Example: Save scene 3



5. Recall scene

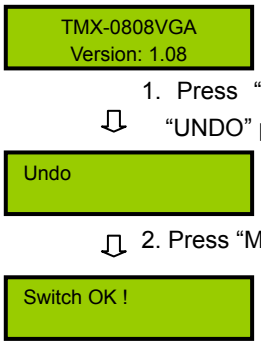
Recall VGA signal from selected scene.

Example: Recall scene 3



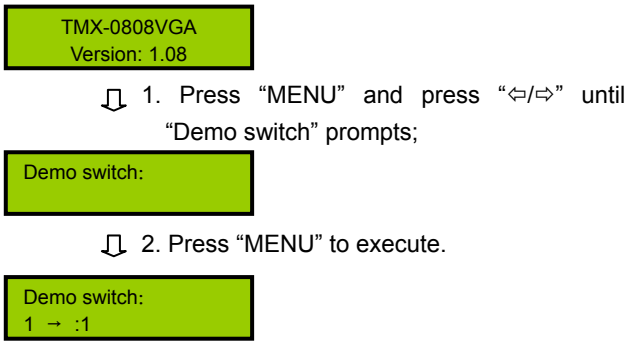
6. Undo

Undo last switch operation.



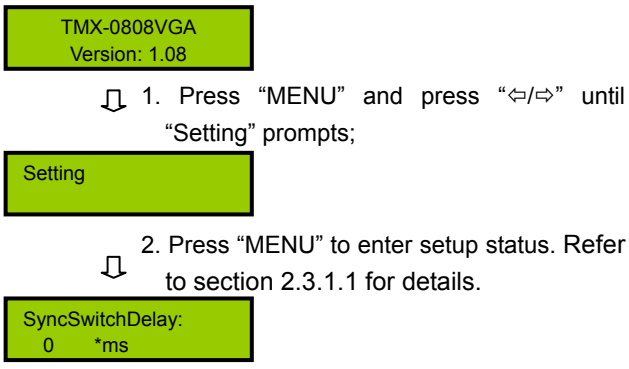
7. Demo Switch

Switches one by one all possible combinations from 1→1, 1→2, …, 1→8, 2→1, 2→2, …, 2→8, …, 8→1, 8→2, …to 8→8. The interval can be setup via setup menu (Refer to section 2.3.1.1).



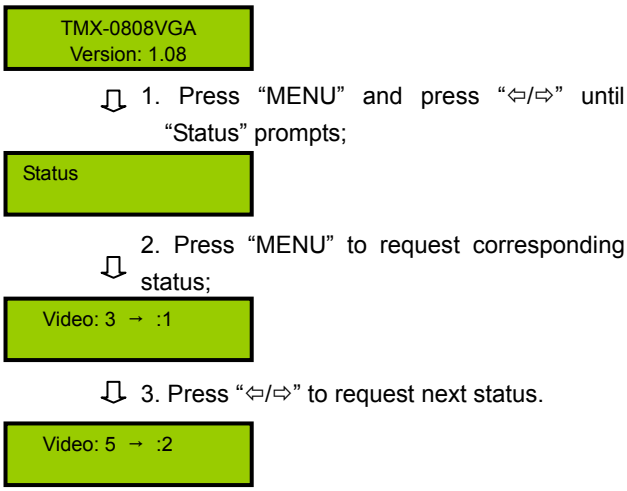
8. Setting

Setup menu.



9. Status

Request corresponding state of input and output channels.

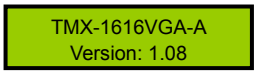


2.3.2 TMX-08xxVGA-A and TMX-16xxVGA(-A) series

2.3.2.1 Menu setup

To explain menu setup of 3U series VGA Matrix Switcher, TMX-1616VGA-A serves as example.

TMX-1616VGA-A main interface:



Setup menu of TMX-08xxVGA-A and TMX-16xxVGA(-A) series Matrix Switcher, including:

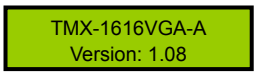
1. Sync Switch Delay
2. IP address
3. Subnet mask
4. Gate way
5. Ring
6. Input password
7. PC connect mode
8. COM2 Baud rate
9. Demo switch delay
10. COM1 protocol
11. Test button

* Tested button is working if character changes when button is pressed.

Menu 1 to menu 10 are explained explicitly:

1. Sync Switch Delay

When switching from one video input source to another, a brief time delay is required to adjust to sync data of the new source before a new undisturbed VGA signal is sent. User may select a value from 0 to 5 seconds for a proper transition to the new video source. Select by 50 ms steps.



1. Press “0” for 5 seconds to enter setup menu and press “◄/►” until “Sync Switch Delay” prompts;

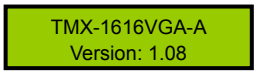
2. Press “ENTER” to enter setup;

3. Press “◄/►” to adjust parameter;

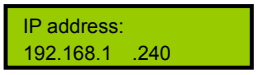
4. Press “ENTER” to confirm.

2. IP address

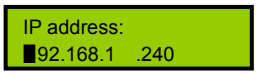
An IP address, Subnet mask and Gateway must be assigned to the matrix if connected to a TCP/IP Ethernet interface.



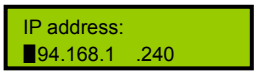
1. Press “0” for 5 seconds to enter setup menu and press “◄/►” until “IP address” prompts;



2. Press “ENTER” to enter setup;

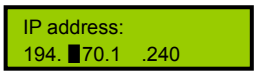


3. Press “◄/►” to adjust parameter;

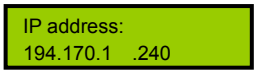


4. Press “END” to enter next parameter setup;

5. Press “◄/►” to adjust parameter;



6. Press “CANCEL” to confirm.



3. Subnet mask

For setup of “Subnet mask” proceed such as described in “IP address”.

4. Gate way

For setup of “Gate way” proceed such as described in “IP address”.

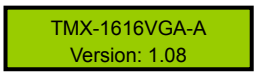
Note:

- After setup of the first parameter of the above four parameters of the IP address, user must press “ENTER” again, immediately after having pressed “END”, to modify the second parameter. Repeat for parameter 3 and 4 for continuous change. Otherwise setup is limited to one single parameter only.

5. Ring

Buzzer ring on-off of this unit. If buzzer ring is setup “on”, the buzzer will ring when front panel operation, PC software executing switch and receiving command from central control system. The buzzer ring can be setup “off”.

- ON: open;
- OFF: close.



1. Press “0” for 5 seconds to enter setup menu and press “◄/►” until “Ring” prompts;

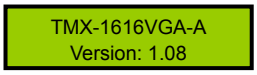
2. Press “ENTER” to enter setup;

3. Press “◄/ ►” to select parameter;

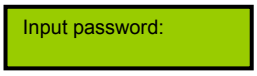
4. Press “ENTER” to confirm.

6. Input password

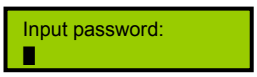
Set unlock password, password must be 5 bits. Original password is 11111.



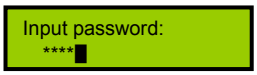
1. Press “0” for 5 seconds to enter setup menu and press “◄/►” until “Input password” prompts;



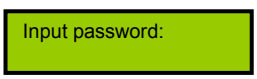
2. Press “ENTER” to enter setup;



3. Input password;



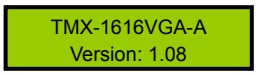
4. Press “ENTER” to confirm.



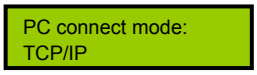
7. PC connect mode

Select mode for PC connection:

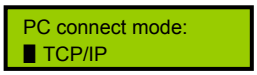
- TCP/IP
- RS-232



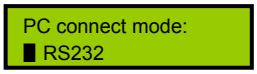
1. Press “0” for 5 seconds to enter setup menu and press “◄/►” until “PC connect mode” prompts;



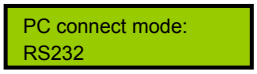
2. Press “ENTER” to enter setup;



3. Press “◄/►” to select parameter;



4. Press “ENTER” to confirm.



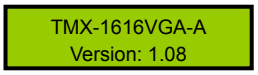
8. COM2 Baud rate

If PC connect mode RS-232 is selected, available COM2 baud rates are: 9600, 14400, 19200, 28800, 38400 and 57600.
COM1 is invariable and fixed to 9600 bit/s.

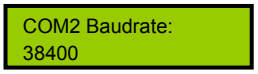
Note:

☞ If connect mode TCP/IP is selected, the baud rate is fixed to 115200 bit/s and cannot be modified.

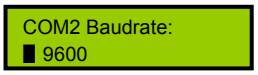
Setup example for mode is RS232:



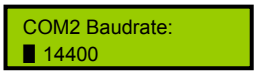
1. Press “0” for 5 seconds to enter setup menu and press “◄/►” until “COM2 Baudrate” prompts;



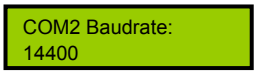
2. Press “ENTER” to enter setup;



3. Press “◄/►” to select parameter;

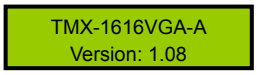


4. Press “ENTER” to confirm.



9. Demo Switch Delay

The interval between 2 switching operations can range from 2 s to 60 s by step of 2 s.



1. Press “0” for 5 seconds to enter setup menu and press “◄/►” until “DemoSwitchDelay” prompts;

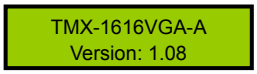
2. Press “ENTER” to enter setup;

3. Press “◄/►” to adjust parameter;

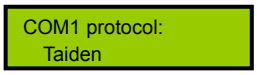
4. Press “ENTER” to confirm.

10. COM1 protocol

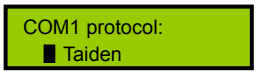
Select the protocol to connect an external central control system, including Taiden, Extron and Other. New protocols can be added by the user.



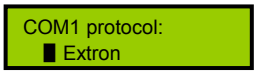
1. Press “0” for 5 seconds to enter setup menu and press “◄/►” until “COM1 protocol” prompts;



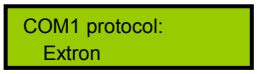
2. Press “ENTER” to enter setup;



3. Press “◄/►” to select parameter;



4. Press “ENTER” to confirm.



2.3.2.2 Switch operation

To explain switch operation of 3U series VGA Matrix Switcher, TMX-1616VGA-A serves as example. All 3U series VGA Matrix Switcher can refer to it.

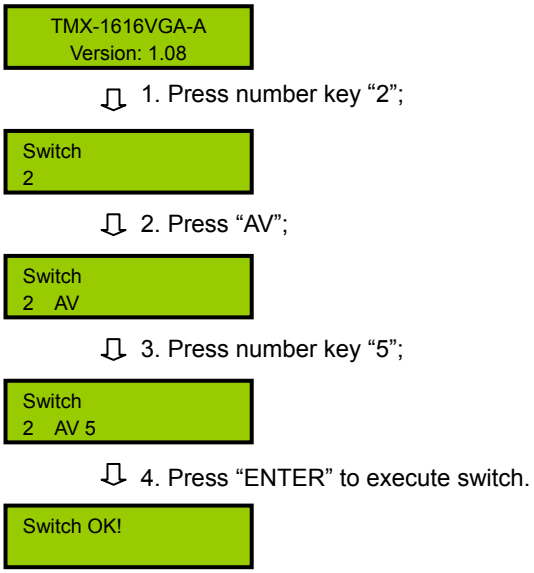
Note:

- The functions of buttons in this section have been introduced in section 2.1.2.1; “V” stands for video, “A” stands for audio.
- “Input channel” and “output channel” number must be less than matrix type. For example: TMX-08xxVGA series can only input number 1~8; TMX-16xxVGA-A series can input number 1~16.
- If any menu item is edited, except setup menu, a key must be pressed within 15 seconds otherwise the system will return to main menu item automatically and erase the previous channel setup.
- To return to main menu press any key if currently editing user interface is switch finish interface, display input, output status interface or DEMO interface. To return to main menu if editing other user interface press “CANCEL” or “←”.
- If new input source signal is switched, please wait until previous source is switched off. Wait according to Sync switch Delay (refer to section 2.3.2.1)

1. AV

Composite audio and video switch key, switch one input audio and video signal to any output channel.

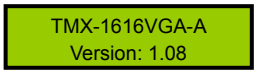
Example: Switch composite audio and video signal of input channel 2 to output channel 5 synchronously.



2. AUDIO

Switch audio signal separately, switch one input audio signal to any output channel.

Example: Switch audio signal of input channel 1 to output channel 3 and 7 synchronously.



1. Press number key “1”;

2. Press “AUDIO”;

3. Press number key “3”;

4. Press “/”;

5. Press number key “7”;

6. Press “ENTER” to execute switch.

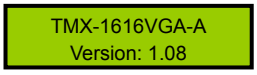
Note:

☞ If there are more than one output channels, use “/” key to separate them, and it will be shown as “,” on LCD.

3. VIDEO

Switch video signal separately, switch one input video signal to any output channel.

Example: Switch video signal of input channel 7 to all output channels synchronously.



1. Press number key “7”;

2. Press “VIDEO”;

3. Press “ALL” to execute switch.

4. THROUGH

AV switch through from input channel to corresponding output channel.

Example 1: Switch audio and video signal from input channel 1, 2, 3 to corresponding output channel 1, 2, 3 respectively.

TMX-1616VGA-A
Version: 1.08

⇩ 1. Press “THROUGH”;

Switch through

⇩ 2. Press “AV” to swith audio and video signals synchronously;

Switch through
AV

⇩ 3. Press number key “1”;

Switch through
1

⇩ 4. Press “/”;

Switch through
1,

⇩ 5. Press number key “2”;

Switch through
1，2

⇩ 6. Press “/”;

Switch through
1，2，

⇩ 7. Press number key “3”;

Switch through
1，2，3

⇩ 8. Press “ENTER” to execute switch.

Switch OK!

Example 2: Switch audio and video signal from all input channels to all corresponding output channels respectively, i.e. 1→1，2→2，3→3，4→4…

TMX-1616VGA-A
Version: 1.08

⇩ 1. Press “THROUGH”;

Switch through

⇩ 2. Press “AV” to swith audio and video signals synchronously;

Switch through
AV

⇩ 3. Press “ALL” to execute switch.

Switch OK!
AV ALL

5. CLOSE

Close one output channel or all output channels.

Example: Close audio of output channel 7.

TMX-1616VGA-A
Version: 1.08

⇩ 1. Press “CLOSE”;

Close

⇩ 2. Press “AUDIO”;

Close
A

⇩ 3. Press number key “7”;

Close
A 7

⇩ 4. Press “ENTER” to execute switch.

Switch OK!

Note:

☞ If “ALL” is pressed instead of “7”, all output channels are closed in this case.

6. UNDO

Undo last completely terminated and validated switch operation, and come back to the status before executing the last switch.

TMX-1616VGA-A
Version: 1.08

⇩ Press “UNDO” to execute.

Switch OK!

7. GROUP

Group key: to compose not more than 5 groups, each group with not more than 5 output channels.

Example 1: take output channel 1, 2, 3, 4, 5 as group 1.

TMX-1616VGA-A
Version: 1.08

⇩ 1. Press “GROUP”;

Group Define

⇩ 2. Press number key “1”;

Group Define 1:

⇩ 3. Press number key “1”;

Group Define 1:
1

⇩ 4. Press “/”;

Group Define 1:
1,

⇩ 5. Press number key “2”;

Group Define 1:
1，2

⇩ 6. Press “/”;

Group Define 1:
1，2,

⇩ 7. Press number key “3”;

Group Define 1:
1，2，3

⇩ 8. Press “/”;

Group Define 1:
1，2，3,

⇩ 9. Press number key “4”;

Group Define 1:
1，2，3，4

⇩ 10. Press “/”;

Group Define 1:
1，2，3，4,

⇩ 11. Press number key “5”;

Group Define 1:
1，2，3，4，5

⇩ 12. Press “ENTER” to confirm.

TMX-1616VGA-A
Version: 1.08

Example 2: switch composite audio and video signal of input channel 2 to all output channels of group 1.

TMX-1616VGA-A
Version: 1.08

⇩ 1. Press number key “2”;

Switch
2

⇩ 2. Press “AV”;

Switch
2 AV

⇩ 3. Press “GROUP”;

Switch
2 AV Group

⇩ 4. Press number key “1”;

Switch
2 AV Group 1

⇩ 5. Press “ENTER” to execute.

Switch OK!
2 AV Group 1

8. SAVE

Save current AV signal to appointed scene. VGA Matrix Switchers can save 10 scenes, each scene has a number, from 0 to 9.

Example: Save current input and output channel status in scene 1

TMX-1616VGA-A
Version: 1.08

⇩ 1. Press “SAVE”;

Save scene:

⇩ 2. Press number key “1” to execute.

Save scene OK!

9. RECALL

Recall AV signal from selected scene.

Example: Recall scene 3 and execute it.

TMX-1616VGA-A
Version: 1.08

⇩ 1. Press “RECALL”;

Recall scene:

⇩ 2. Press number key “3” to execute.

Switch OK!

10. LOCK

Keyboard lock: if “LOCK” is hold for 3 seconds, keyboard will be locked. Thereafter password is needed to unlock keyboard. Ethernet and RS-232 control are not locked. Original password is: 11111.

TMX-1616VGA-A
Version: 1.08

⇩ 1. Hold “LOCK” for 3 seconds, keyboard will be locked, Then password is needed to unlock keyboard;

Enter password:
▮

⇩ 2. Input password;

Enter password:
****▮

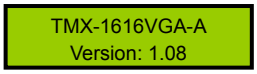
⇩ 3. Press “ENTER” to confirm.

Switch OK!

11. END

End for a switch command.

Example: Switch video signal of input channel 3 to output channel 5, and switch composite audio and video signal of input channel 2 to output channel 1 synchronously.



1. Press number key “3”;

2. Press “VIDEO”;

3. Press number key “5”;

4. Press “END”;

5. Press number key “2”;

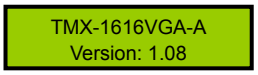
6. Press “AV”;

7. Press number key “1”;

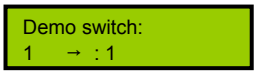
8. Press “ENTER” to confirm.

12. DEMO

Switches one by one all possible combinations from 1→1, 1→2, …, 1→16, 2→1, 2→2, …, 2→16, …, 16→1, 16→2, …to 16→16. The interval can be setup via setup menu (Refer to section 2.3.2.1).



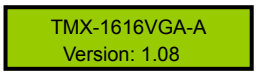
Press “DEMO” key, switch circularly.



13. STATUS

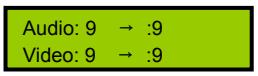
Query channel status, used to query corresponding state of input and output channels.

Example: Query channel 9 status.



1. Press number key “9”;

2. Press “STATUS” to execute.



Note:

- ☞ Pressing “STATUS” key permanently will display all channel status one by one.
- ☞ Pressing “◄/►” key permanently will display previous/next channel status one by one.

Chapter 3. Composite Video & Audio Matrix Switchers

TAIDEN TMX series AV Matrix Switchers are designed to switch various composite video and stereo audio signals. One or more individually isolated NTSC, PAL or SECAM video and/or stereo audio signals can be switched to one or more outputs. AV Matrix Switchers can be connected to PC software and central control system via TCP/IP, RS-232 or infrared wireless.

AV Matrix Switchers are available in 27 options: from 4×4 to 64×64, applicable to various situations such as company assembly room, command and control center, exhibitions, college room, family cinema, sports bar, etc.

Product types:

TMX-0404A

4×4 Stereo Audio Matrix Switcher, Audio stereo on RCA Connectors

TMX-0804A

8×4 Stereo Audio Matrix Switcher, Audio stereo on RCA Connectors

TMX-0808A

8×8 Stereo Audio Matrix Switcher, Audio stereo on RCA Connectors

TMX-0804V

8×4 Composite Video Matrix Switcher, 50 M, BNC Connectors

TMX-0808V

8×8 Composite Video Matrix Switcher, 50 M, BNC Connectors

TMX-0802AV

8×2 Composite Video & Audio Matrix Switcher, 50 M, Video on BNC Connectors, Audio stereo on RCA Connectors

TMX-0804AV

8×4 Composite Video & Audio Matrix Switcher, 50 M, Video on BNC Connectors, Audio stereo on RCA Connectors

TMX-0808AV

8×8 Composite Video & Audio Matrix Switcher, 50 M, Video on BNC Connectors, Audio stereo on RCA Connectors

TMX-1604V

16×4 Composite Video Matrix Switcher, 50 M, BNC Connectors

TMX-1608V

16×8 Composite Video Matrix Switcher, 50 M, BNC Connectors

TMX-1616V

16×16 Composite Video Matrix Switcher, 50 M, BNC Connectors

TMX-1604AV

16×4 Composite Video & Audio Matrix Switcher, 50 M, Video on BNC Connectors, Audio stereo on RCA Connectors

TMX-1608AV

16×8 Composite Video & Audio Matrix Switcher, 50 M, Video on BNC Connectors, Audio stereo on RCA Connectors

TMX-1616AV

16×16 Composite Video & Audio Matrix Switcher, 50 M, Video on BNC Connectors, Audio stereo on RCA Connectors

TMX-0804AV-B

8×4 Composite Video & Balanced/Unbalanced Stereo Audio Matrix Switcher, Video on BNC Connectors; Audio stereo on 5 pin 3.81 mm Phoenix Connectors

TMX-0808AV-B

8×8 Composite Video & Balanced/Unbalanced Stereo Audio Matrix Switcher, Video on BNC Connectors; Audio stereo on 5 pin 3.81 mm Phoenix Connectors

TMX-1608AV-B

16×8 Composite Video & Balanced/Unbalanced Stereo Audio Matrix Switcher, Video on BNC Connectors; Audio stereo on 5 pin 3.81 mm Phoenix Connectors

TMX-1616AV-B

16×16 Composite Video & Balanced/Unbalanced Stereo Audio Matrix Switcher, Video on BNC Connectors; Audio stereo on 5 pin 3.81 mm Phoenix Connectors

TMX-1608A-B

16×8 Balanced/Unbalanced Stereo Audio Matrix Switcher, Audio stereo on 5 pin 3.81 mm Phoenix Connectors

TMX-1616A-B

16×16 Balanced/Unbalanced Stereo Audio Matrix Switcher, Audio stereo on 5 pin 3.81 mm Phoenix Connectors

TMX-3208V

32×8 Composite Video Matrix Switcher, 500 M, BNC Connectors

TMX-3216V

32×16 Composite Video Matrix Switcher, 500 M, BNC Connectors

TMX-3232V

32×32 Composite Video Matrix Switcher, 500 M, BNC Connectors

TMX-3208AV-B

32×8 Composite Video & Balanced/Unbalanced Stereo Audio Matrix Switcher, Video on BNC Connectors; Audio stereo on 5 pin 3.81 mm Phoenix Connectors

TMX-3216AV-B

32×16 Composite Video & Balanced/Unbalanced Stereo Audio Matrix Switcher, Video on BNC Connectors; Audio stereo on 5 pin 3.81 mm Phoenix Connectors

TMX-3232AV-B

32×32 Composite Video & Balanced/Unbalanced Stereo Audio Matrix Switcher, Video on BNC Connectors; Audio stereo on 5 pin 3.81 mm Phoenix Connectors

TMX-6464AV-B

64×64 Composite Video & Balanced/Unbalanced Stereo Audio Matrix Switcher, Video on BNC Connectors; Audio stereo on 5 pin 3.81 mm Phoenix Connectors

3.1 Functions and indications

3.1.1 Front panel

3.1.1.1 TMX-0404A, TMX-08xxA/V, TMX-0802AV, TMX-0804AV and TMX-16xxV series

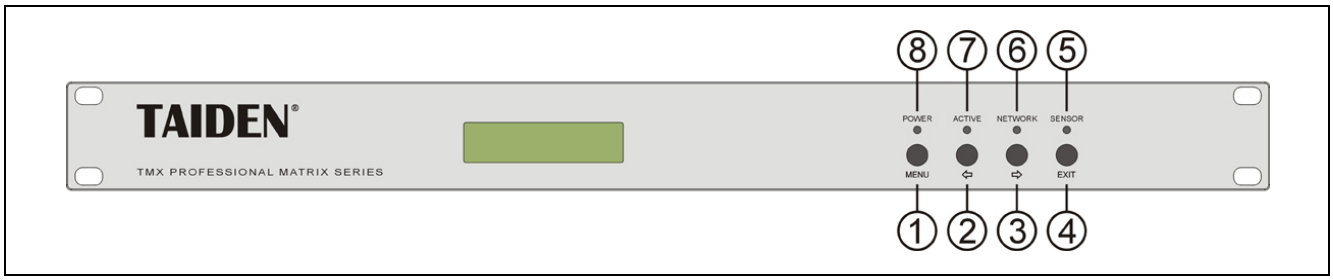


Figure 3.1 Front panel of TMX-0404A, TMX-08xxA/V, TMX-0802AV, TMX-0804AV and TMX-16xxV series Matrix Switcher

Figure 3.1:

1. "MENU" button

a) If in current state, press "MENU" go to main menu;

b) If in menu state, press "MENU" go to sub menu;

c) Select/Deselect in network configuration.

2. "⇦" (Left) button

3. "⇨" (Right) button

4. "Exit" button

- Return to previous directory or root.

5. IR receiving window

- Receives the IR signals from remote control; make sure the remote control aims at the window.

6. "NETWORK" indicator

- Indicator flashes if Matrix Switcher is connected with PC software.

7. "ACTIVE" indicator

- Indicator will be turned on if Matrix Switcher executes switch instructions.

8. "POWER" indicator

3.1.1.2 TMX-16xxA-B series

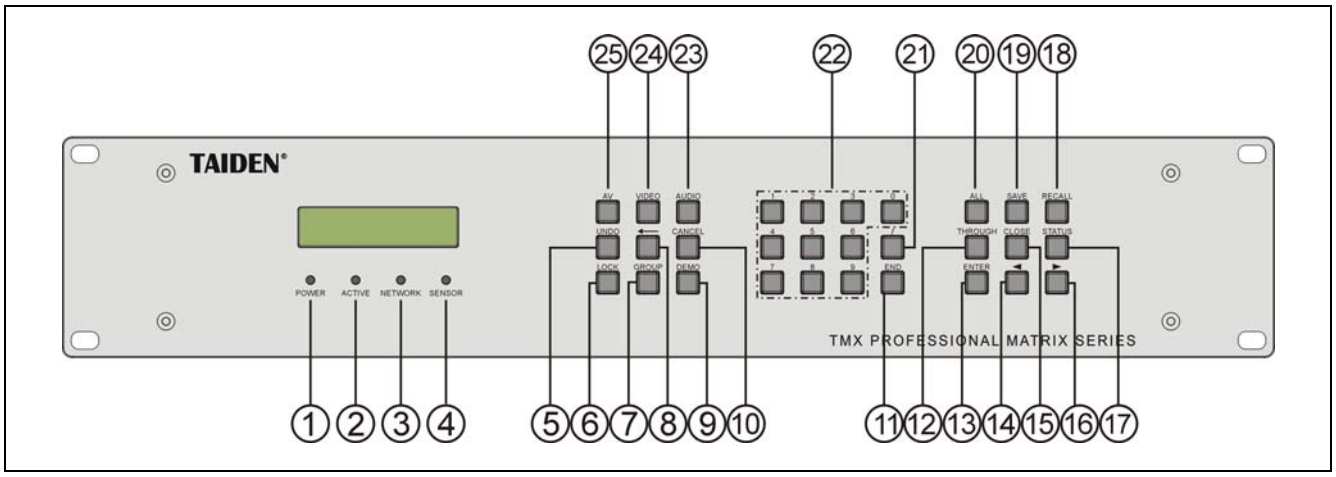


Figure 3.2 Front panel of TMX-16xxA-B series Matrix Switcher

Figure 3.2:

1. "POWER" indicator

2. "ACTIVE" indicator

- Indicator will be turned on if Matrix Switcher executes switch instructions.

3. "NETWORK" indicator

- Indicator flashes if Matrix Switcher is connected with PC software.

4. IR receiving window

- Receives the IR signals from remote control; make sure the remote control aims at the window.

5. "UNDO" button

- Undo last switch operation.

6. "LOCK" button

- Keyboard lock.

7. "GROUP" button

- Maximum 5 groups and maximum 5 channels per group can be configured.

8. "←" button

- Backspace key, delete last input number or command.

9. "DEMO" button

- In DEMO status, channels are switched one by one.

10. "CANCEL" button

- Back to root directory, when in setup menu, back to previous directory.

11. "END" button

- End for a switch command.

12. "THROUGH" button

- Audio or video switch through from input channel to corresponding output channel.

13. "ENTER" button

- Confirm or execute command.

14. "◄" button

- For left, backward and subtract.

15. "CLOSE" button

- Close one or all output channels.

16. "►" button

- For right, forward and plus.

17. "STATUS" button

- Query channel status.

18. "RECALL" button

- Recall the stored scene.

19. "SAVE" button

- Save current channel status as appointed scene.

20. "ALL" button

- Switch one input channel to all output channels.

21. "/" button

- Separator, displayed as "," on LCD. Used to space output channels if more than one channel is operated.

22. "0、1、2…9" button

- Number keys, used to select input or output channel, save scene number, recall scene number.

23. "AUDIO" button

- Switch audio signal separately.

24. "VIDEO" button

- Switch video signal separately.

25. "AV" button

- Composite audio and video switch key.

3.1.1.3 TMX-0808AV, TMX-08xxAV-B, TMX-1**6xxAV(-B), TMX-32xxV/AV-B and TMX-6464AV-B series**

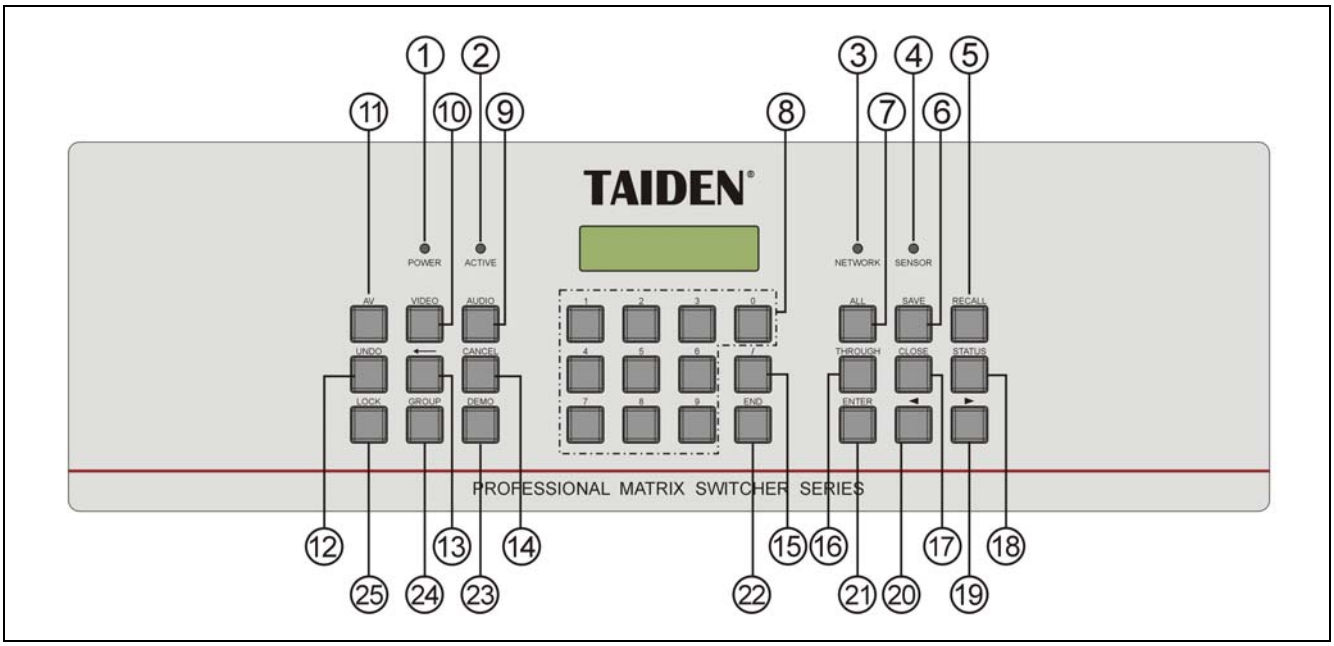


Figure 3.3 Front panel of TMX-0808AV, TMX-08xxAV-B, TMX-16xxAV(-B)), TMX-32xxV/AV-B and TMX-6464AV-B series Matrix Switcher

Figure 3.3:

1. "POWER" indicator

2. "ACTIVE" indicator

- Indicator will be turned on if Matrix Switcher executes switch instructions.

3. "NETWORK" indicator

- Indicator flashes if Matrix Switcher is connected with PC software.

4. IR receiving window

- Receives the IR signals from remote control; make sure the remote control aims at the window.

5. "RECALL" button

- Recall the stored scene.

6. "SAVE" button

- Save current channel status as appointed scene.

7. "ALL" button

- Switch one input channel to all output channels.

8. "0、1、2…9" button

- Number keys, used to select input or output channel, save scene number, recall scene number.

9. "AUDIO" button

- Switch audio signal separately.

10. "VIDEO" button

- Switch video signal separately.

11. "AV" button

- Composite audio and video switch key.

12. "UNDO" button

- Undo last switch operation.

13. "←" button

- Backspace key, delete last input number or command.

14. "CANCEL" button

- Back to root directory, when in setup menu, back to previous directory.

15. "/" button

- Separator, displayed as "," on LCD. Used to space output channels if more than one channel is operated.

16. "THROUGH" button

- Audio or video switch through from input channel to corresponding output channel.

17. "CLOSE" button

- Close one or all output channels.

18. "STATUS" button

- Query channel status.

19. "►" button

- For right, forward and plus.

20. "◄" button

- For left, backward and subtract.

21. “ENTER” button

- Confirm or execute command.

22. “END” button

- End for a switch command.

23. “DEMO” button

- In DEMO status, channels are switched one by one.

24. “GROUP” button

- Maximum 5 groups and maximum 5 channels per group can be configured.

25. “LOCK” button

- Keyboard lock.

3.1.2 Rear panel

3.1.2.1 TMX-0404A and TMX-08xxA series

(Take TMX-0808A as example)

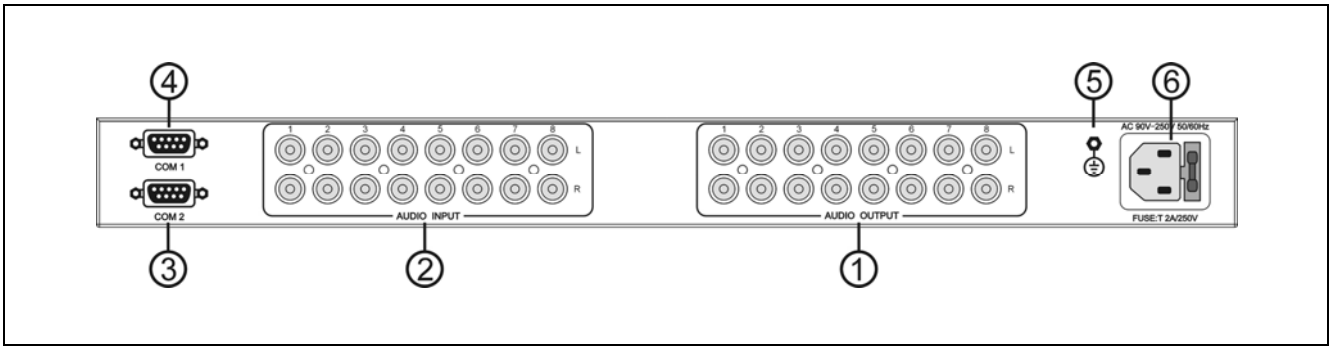


Figure 3.4 Rear panel of TMX-0404A and TMX-08xxA series

Figure 3.4:

1. Audio outputs
2. Audio inputs
3. RS-232 communication interface COM2
4. RS-232 communication interface COM1
5. Grounding point
6. Power cable interface

3.1.2.2 TMX-08xxV and TMX-16xxV series

(Take TMX-1616V as example)

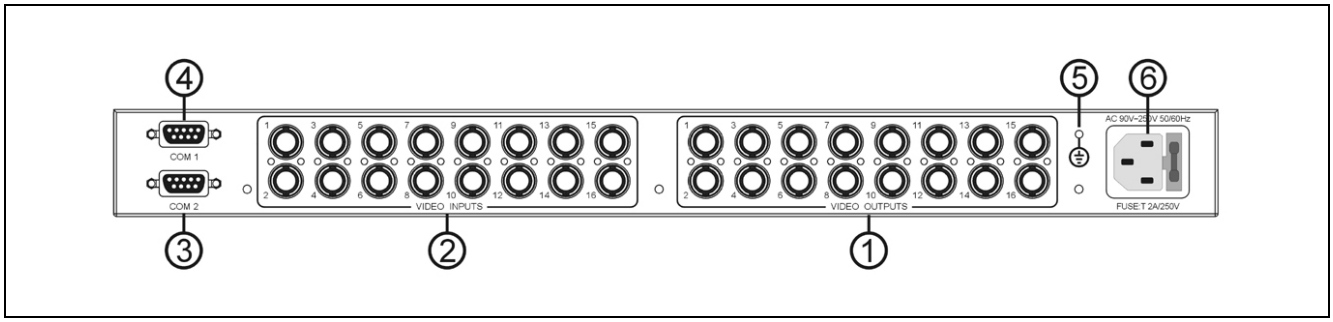


Figure 3.5 Rear panel of TMX-08xxV and TMX-16xxV series

Figure 3.5:

1. Video outputs
2. Video inputs
3. RS-232 communication interface COM2
4. RS-232 communication interface COM1
5. Grounding point
6. Power cable interface

3.1.2.3 TMX-0804AV and TMX-0802AV

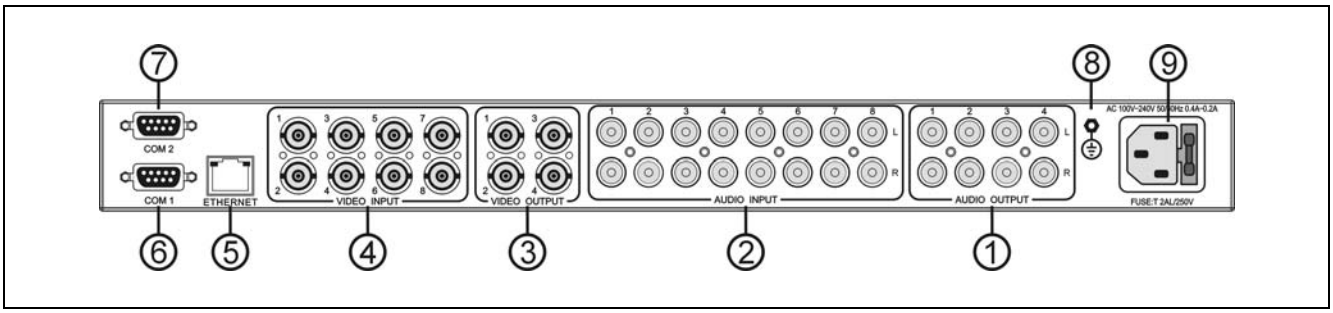


Figure 3.6 Rear panel of TMX-0804AV and TMX-0802AV series (Take TMX-0804AV as example)

Figure 3.6:

1. Audio outputs
2. Audio inputs
3. Video outputs
4. Video inputs
5. Ethernet interface
6. RS-232 communication interface COM1
7. RS-232 communication interface COM2
8. Grounding point
9. Power cable interface

3.1.2.4 TMX-0808AV and TMX-16xxAV series

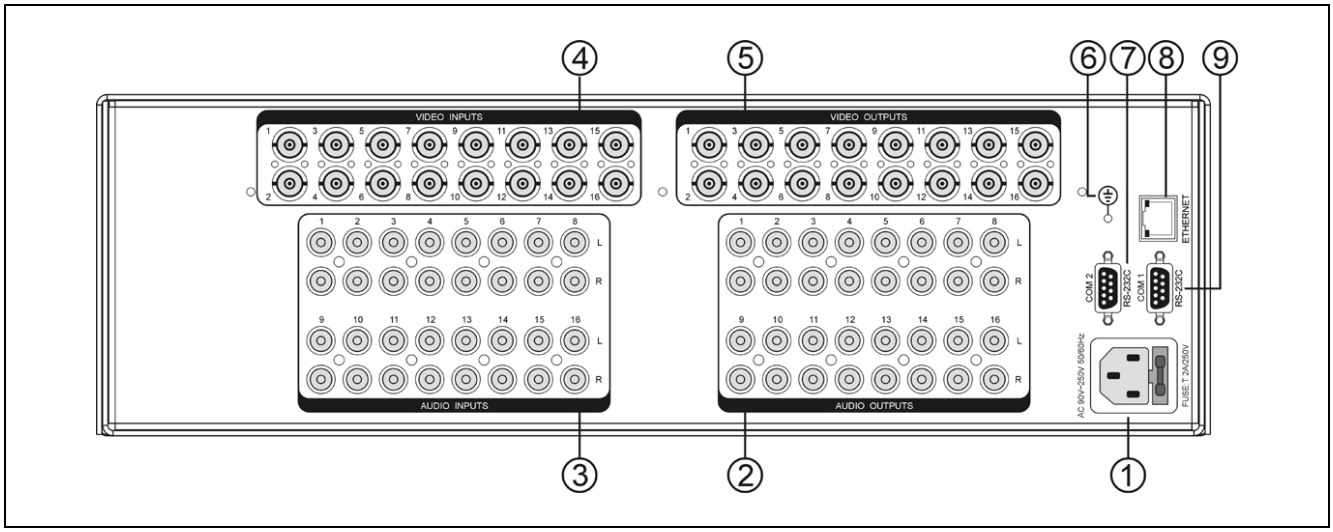


Figure 3.7 Rear panel of TMX-0808AV and TMX-16xxAV series (Take TMX-1616AV as example)

Figure 3.7:

1. Power cable interface
2. Audio outputs
3. Audio inputs
4. Video inputs
5. Video outputs
6. Grounding point
7. RS-232 communication interface COM2
8. Ethernet interface
9. RS-232 communication interface COM1

3.1.2.5 TMX-08xxAV-B and TMX-16xxAV-B series

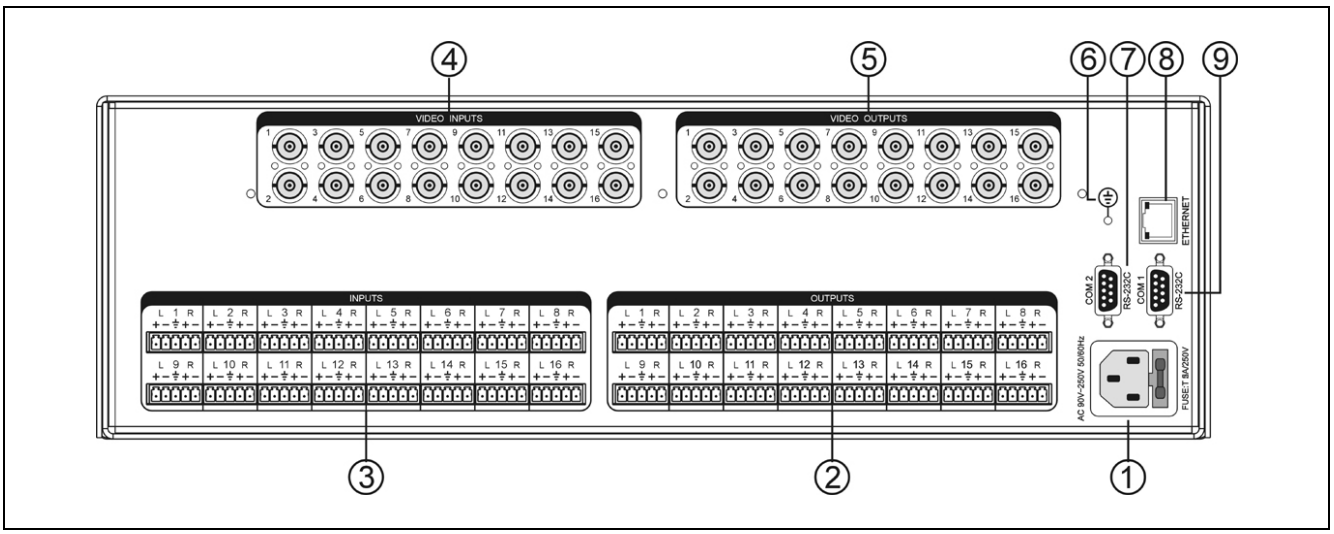


Figure 3.8 Rear panel of TMX-08xxAV-B and TMX-16xxAV-B series (Take TMX-1616AV-B as example)

Figure 3.8:

1. Power cable interface
2. Audio outputs
3. Audio inputs
4. Video inputs
5. Video outputs
6. Grounding point
7. RS-232 communication interface COM2
8. Ethernet interface
9. RS-232 communication interface COM1

3.1.2.6 TMX-16xxA-B series

(Take TMX-1616A-B as example)

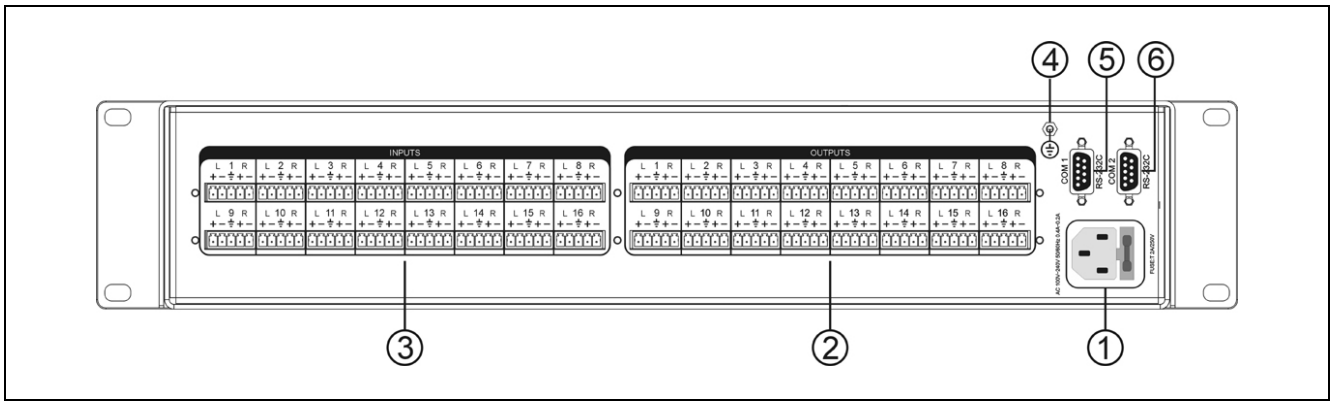


Figure 3.9 Rear panel of TMX-16xxA-B series

Figure 3.9:

1. Power cable interface
2. Audio outputs
3. Audio inputs
4. Grounding point
5. RS-232 communication interface COM1
6. RS-232 communication interface COM2

3.1.2.7 TMX-32xxV series

(Take TMX-3232V as example)

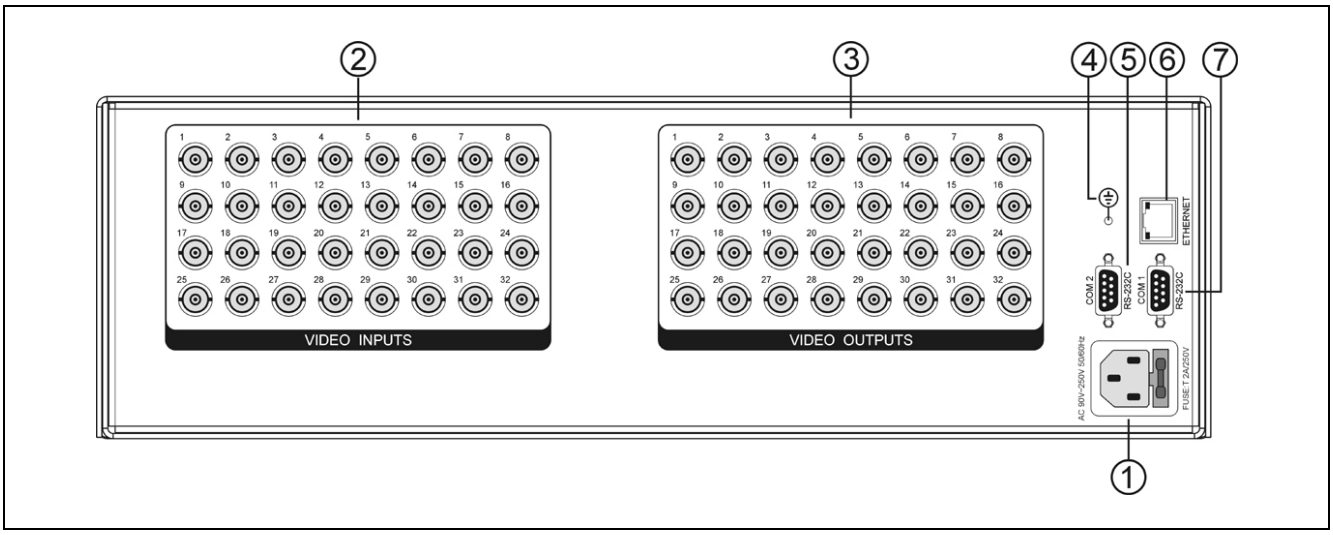


Figure 3.10 Rear panel of TMX-32xxV series

Figure 3.10:

1. **Power cable interface**
2. **Video inputs**
3. **Video outputs**
4. **Grounding point**
5. **RS-232 communication interface COM2**
6. **Ethernet interface**
7. **RS-232 communication interface COM1**

3.1.2.8 TMX-32xxAV-B series

(Take TMX-3232AV-B as example)

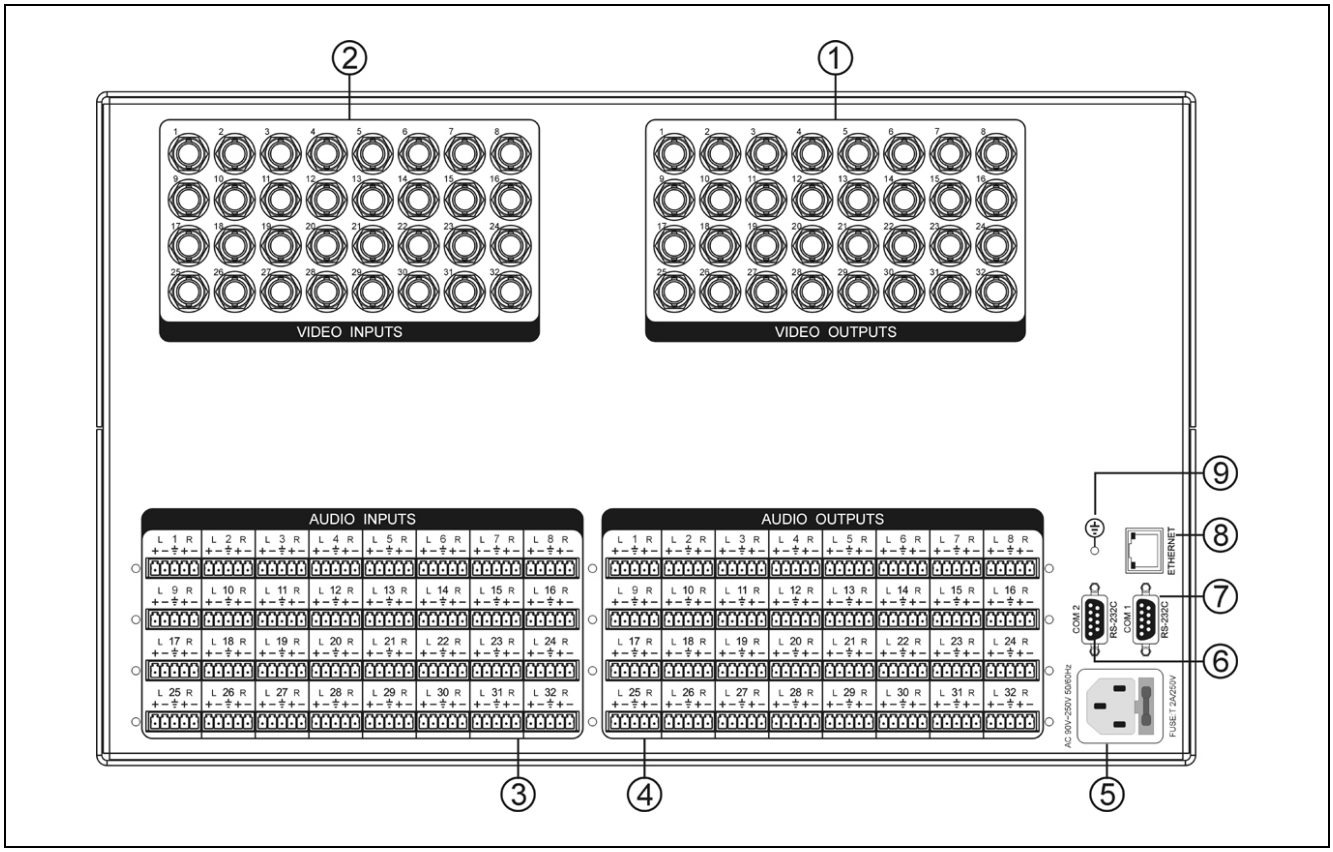


Figure 3.11 Rear panel of TMX-32xxAV-B series

Figure 3.11:

1. Video outputs
2. Video inputs
3. Audio inputs
4. Audio outputs
5. Power cable interface
6. RS-232 communication interface COM2
7. RS-232 communication interface COM1
8. Ethernet interface
9. Grounding point

3.1.2.9 TMX-6464AV-B series

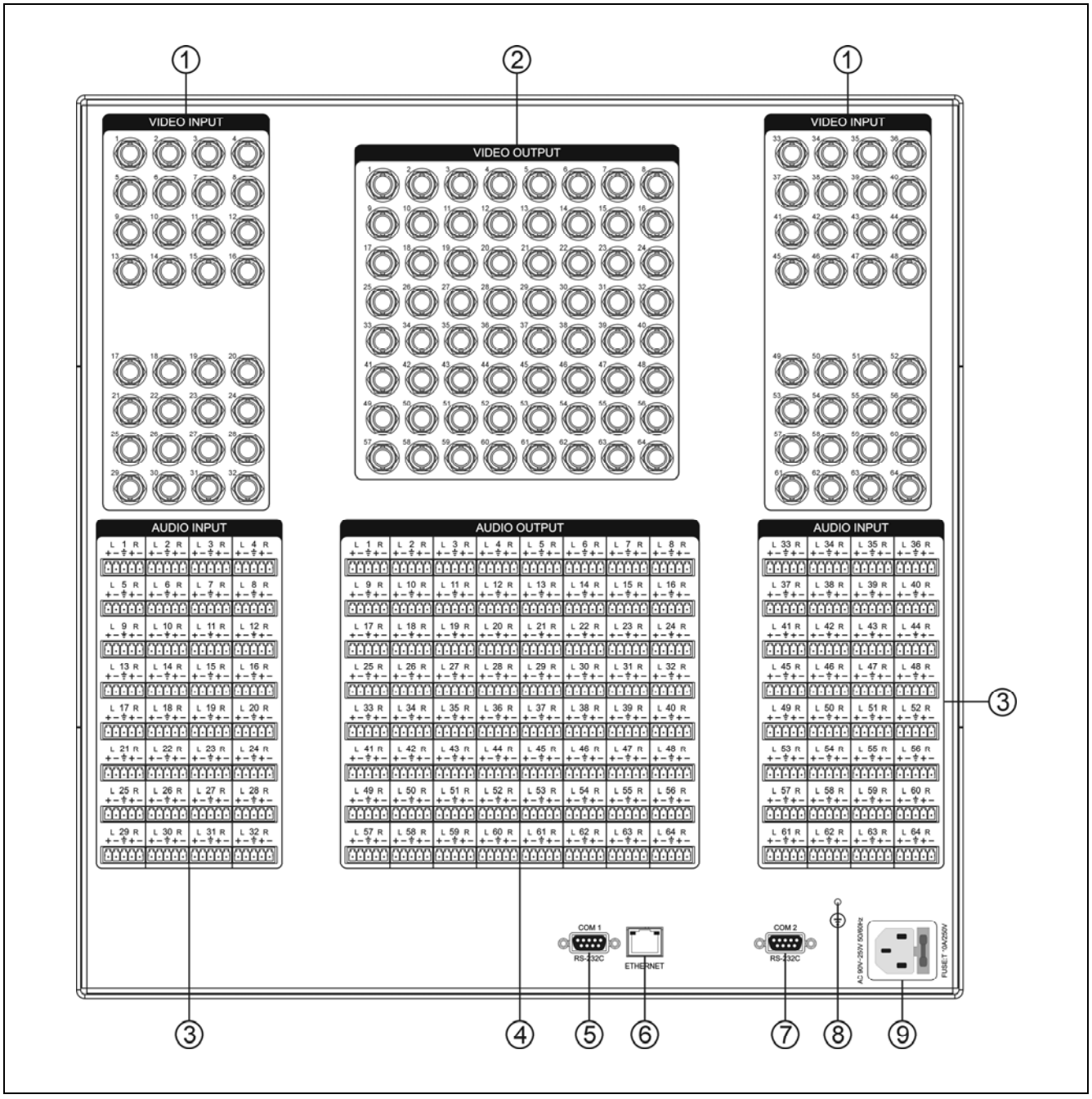


Figure 3.12 Rear panel of TMX-6464AV-B series

Figure 3.12:

1. **Video inputs**
2. **Video outputs**
3. **Audio inputs**
4. **Audio outputs**
5. **RS-232 communication interface COM1**
6. **Ethernet interface**
7. **RS-232 communication interface COM2**
8. **Grounding point**
9. **Power cable interface**

3.2 Installation and connection

3.2.1 Installation

TMX series AV Matrix Switchers can be fixed in an exactly fitting standard cabinet.

1U TMX series AV Matrix Switcher just needs to put it into the cabinet, and fix it by screws.

Installation of 3U TMX series AV Matrix Switchers: A couple of mounting brackets ① are attached to the product package. First release the screws ② from the lateral sides of the matrix. Bolt on the brackets to the housing by using the screws previously released. Now put the unit into the cabinet, and fix it by other screws. As figure 3.13.

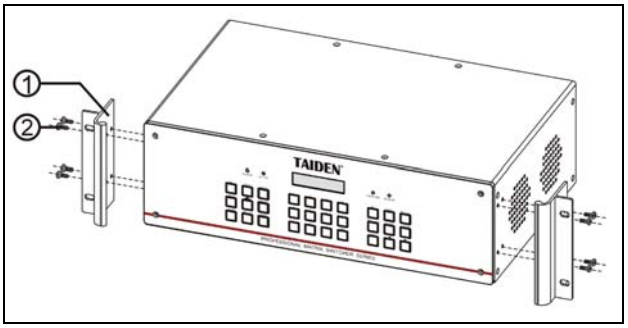


Figure 3.13 Installation

3.2.2 Audio Cable (-B series)

INPUTS from various audio source signals;
OUTPUTS to PA or active loudspeaker.

The audio signal can be injected both balanced and unbalanced.

Balanced Connection: two differential signals, one of which is the inverse of the other, are operated via a cable with two conductors of the same type and equal impedance to ground. Balanced connection minimizes unwanted interferences. Because audio signal tends to be disturbed in long distance transmission, balanced connection is commonly used in professional audio devices.

Unbalanced Connection: in unbalanced transmission the voltages on the two conductors are not equal to ground. Because non-balanced signal transmission tends to be disturbed, it is only used in non-professional audio devices.

The connection method should correspond to the requirements of the audio device interface. Whenever permitted balanced connection should be favored.

In case one device has a balanced interface and another device has an unbalanced interface, use balanced connection for balanced interface and unbalanced connection for unbalanced interface if there is no contradictory instruction.

If connection is strictly prescribed, please use balanced & unbalanced converter if required for appropriate connection.

As figure 3.14.

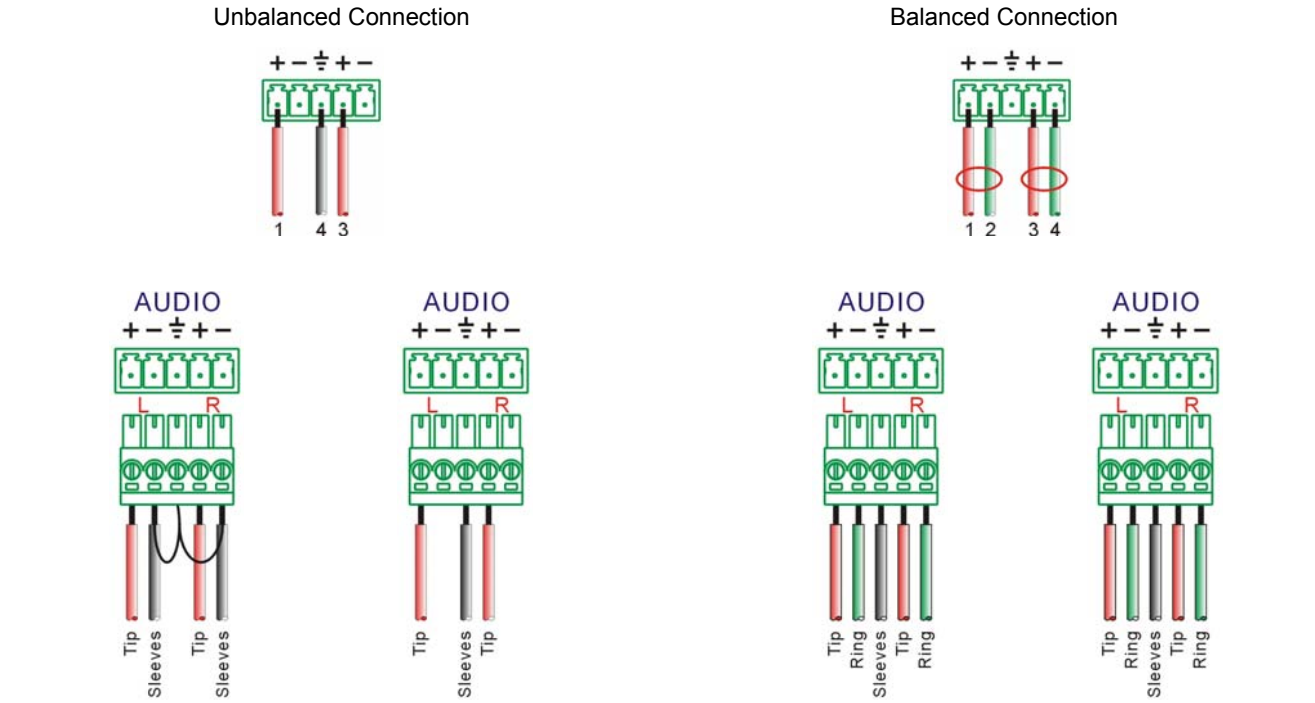


Figure 3.14 Balanced and Unbalanced connection

3.2.3 Connection between Matrix Switchers and PC

TMX series AV Matrix Switchers can be controlled and setup by computer via TCP/IP or RS-232 interface COM2.

TCP/IP requires Cat.5 twisted pair cable.

TMX series AV Matrix Switchers can be controlled by Central Control System via RS-232 interface COM1, this interface is also used for software upgrade.

As figure 3.15.

3.2.4 Connection with input, output devices

The number of input and output ports is differing, according to the type chosen. Every audio or video device with an AV port can be connected to the AV Matrix Switcher. Output ports can be connected to recorder、video or audio monitor, PA, as shown in figure 3.15.

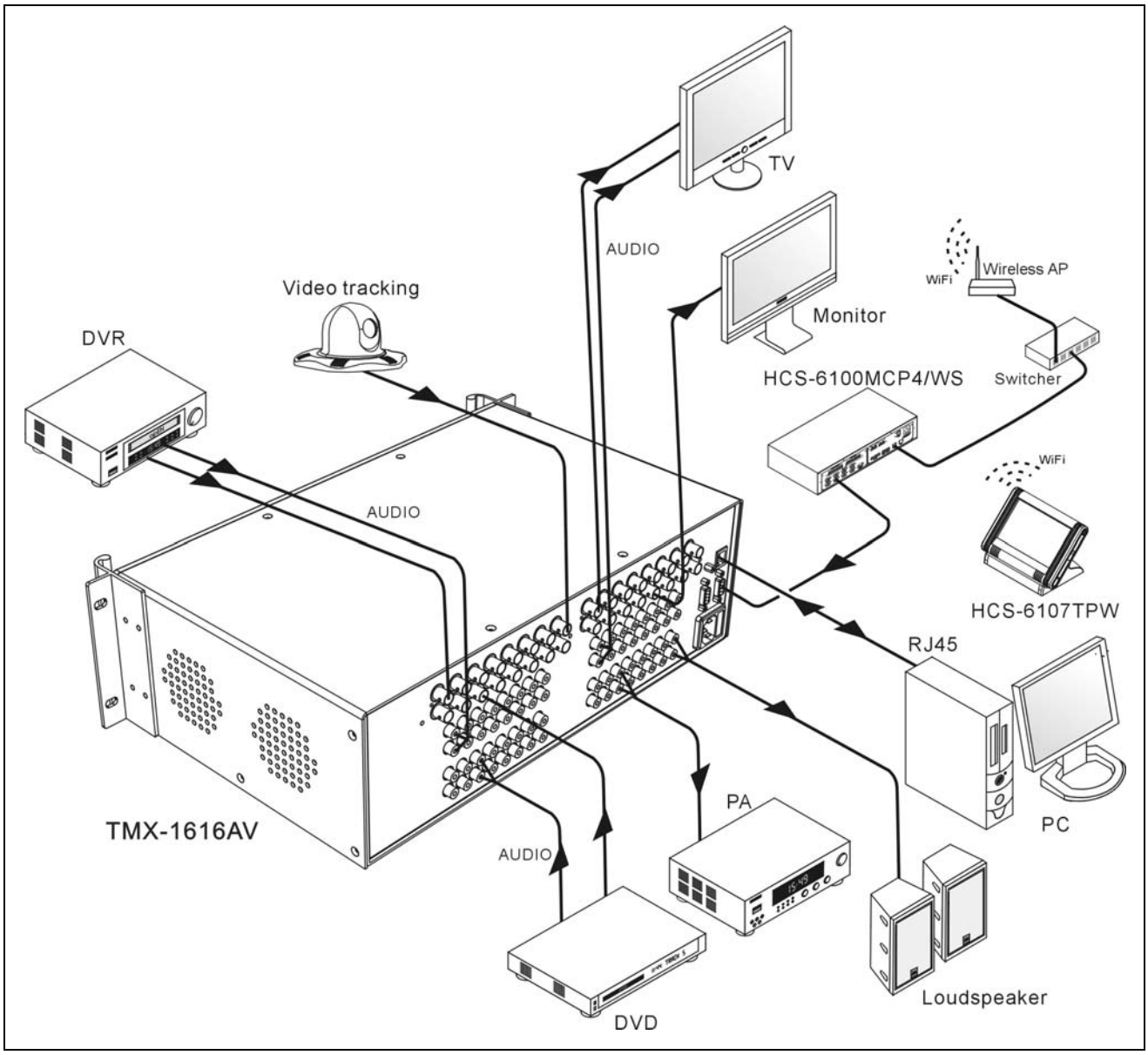


Figure 3.15 Connection example for input and output devices to AV Matrix Switchers

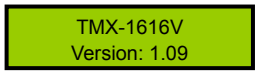
3.3 Setup and Operation

3.3.1 TMX-0404A, TMX-08xxA/V, TMX-0802AV, TMX-0804AV and TMX-16xxV series

3.3.1.1 Menu setup

To explain menu setup of 1U series AV Matrix Switcher, TMX-1616V serves as example.

TMX-1616V main interface:



Setup menu of TMX-1616V series Matrix Switcher, including:

1. Sync Switch Delay

* cannot adjust for TMX-0802AV and TMX-0804AV.

2. Ring

3. PC connect mode

* TMX-0404A, TMX-08xxA/V and TMX-16xxV series don't have Ethernet interface, PC connect mode is fixed to RS232.

4. IP address

5. Subnet mask

6. Gate way

* IP address、Subnet mask and Gate way are for TMX-0802AV and TMX-0804AV only.

7. COM2 Baud rate

8. Demo Switch Delay

9. COM1 protocol

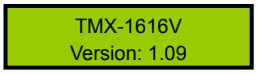
10. Test button

* Tested button is working if character changes when button is pressed.

Menu 1 to menu 6 are explained explicitly:

1. Sync Switch Delay

When switching from one video input source to another, a brief time delay is required to adjust to sync data of the new source before a new undisturbed signal is sent. User may select a value from 0 to 5 seconds for a proper transition to the new video source. 0 is default value. Select by 50 ms steps.



1. Press "MENU" to enter setup menu and press "⇦/⇨" until "Setting" prompts;

2. Press "MENU" and press "⇦/⇨" until "SyncSwitchDelay" prompts;

3. Press "MENU" to enter setup;

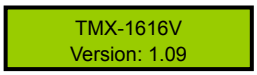
4. Press "⇦/⇨" to select parameter;

5. Press "MENU" to confirm.

2. Ring

Buzzer ring on-off of this unit. If buzzer ring is setup “on”, the buzzer will ring when front panel operation, PC software executing switch and receiving command from central control system. The buzzer ring can be setup “off”.

- ON: open;
- OFF: close.



1. Press “MENU” to enter setup menu and press “⇦/⇨” until “Setting” prompts;

2. Press “MENU” and press “⇦/⇨” until “Ring” prompts;

3. Press “MENU” to enter setup;

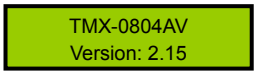
4. Press “⇦/⇨” to select parameter;

5. Press “MENU” to confirm.

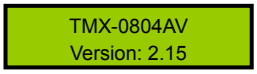
3. PC connect mode (for TMX-0802AV and TMX-0804AV only)

Select mode for PC connection:

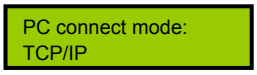
- TCP/IP
- RS-232



1. Press “MENU” and press “⇦/⇨” until “Setting” prompts;

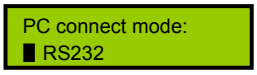


2. Press “MENU” and press “⇦/⇨” until “PC connect mode” prompts;

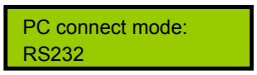


3. Press “MENU” to enter setup;

4. Press “⇦/⇨” to select parameter;

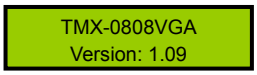


5. Press “MENU” to confirm.



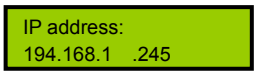
4. IP address

An IP address, Subnet mask and Gateway must be assigned to the matrix if connected to a TCP/IP Ethernet interface.



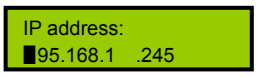
1. Press “MENU” to enter setup menu and press “⇦/⇨” until “Setting” prompts;

2. Press “MENU” and press “⇦/⇨” until “IP address” prompts;

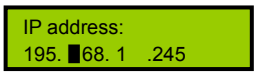


3. Press “MENU” to enter setup;

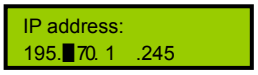
4. Press “⇦/⇨” to adjust parameter;



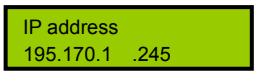
5. Press “MENU” to enter next parameter setup;



6. Press “⇦/⇨” to adjust parameter;



7. Press “EXIT” to confirm.



5. Subnet mask

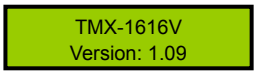
For setup of “Subnet mask” proceed such as described in “IP address”.

6. Gate way

For setup of “Gate way” proceed such as described in “IP address”.

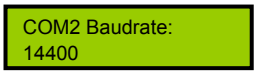
7. COM2 Baud rate

If PC connect mode RS-232 is selected, available COM2 baud rates are: 9600, 14400, 19200, 28800, 38400 and 57600.
COM1 is invariable and fixed to 9600 bit/s.

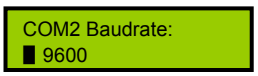


1. Press “MENU” and press “⇦/⇨” until “Setting” prompts;

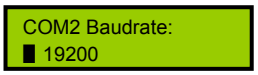
2. Press “MENU” and press “⇦/⇨” until “COM2 Baud rate” prompts;



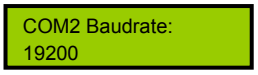
3. Press “MENU” to enter setup;



4. Press “⇦/⇨” to select parameter;

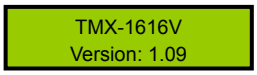


5. Press “MENU” to confirm.

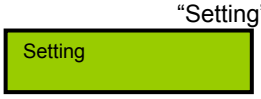


8. Demo Switch Delay

The interval ranges from 2 seconds to 60 seconds by steps of 2 seconds.



1. Press “MENU” and press “⇦/⇨” until “Setting” prompts;



2. Press “MENU” and press “⇦/⇨” until “Demo Switch Delay” prompts;

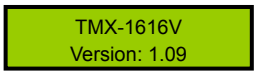
3. Press “MENU” to enter setup;

4. Press “⇦/⇨” to adjust parameter;

5. Press “MENU” to confirm.

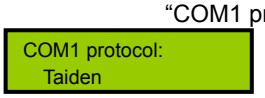
9. COM1 protocol

Select the protocol to connect an external central control system, including: Taiden, Extron, Other. New protocols can be added by the user.

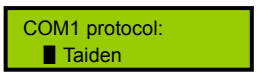


1. Press “MENU” and press “⇦/⇨” until “Setting” prompts;

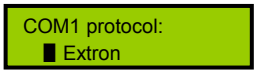
2. Press “MENU” and press “⇦/⇨” until “COM1 protocol” prompts;



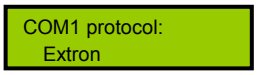
3. Press “MENU” to enter setup;



4. Press “⇦/⇨” to select parameter;



5. Press “MENU” to confirm.



3.3.1.2 Switch operation

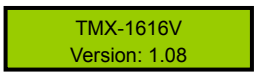
To explain menu operation of 1U series Composite Video & Audio Matrix Switcher, TMX-1616V type serves as example. TMX-08xxV and TMX-16xxV series Matrix Switcher can refer to it.

TMX-0404A and TMX-08xxA series Matrix Switcher can refer to it, except the type of switch signal is different.

Note:

- ☞ If any menu item is edited, except setup menu, a key must be pressed within 15 seconds otherwise the system will return to main menu item automatically and erase the previous channel setup.
- ☞ To return to main menu press any key if currently editing user interface is switch finish interface, display input, output status interface or DEMO interface. To return to main menu if editing other user interface press “EXIT” or “⇦”.
- ☞ If new input source signal is switched, please wait until previous source is switched off. Wait according to Sync switch Delay (refer to section 3.3.1.1)

TMX-1616V main interface:



Press “MENU” to enter switch menu, including:

1. Switch Video

2. Switch through

* Switch through one channel or all channels.

3. Close

* Close one output or all outputs.

4. Save scene

5. Recall scene

6. Undo

* Undo last switch.

7. Demo Switch

* Switch one by one.

8. Setting

* Setup menu.

9. Status

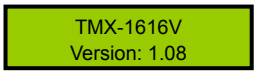
* Request channel state.

Menu 1 to menu 9 are explained explicitly:

1. Switch Video

Video switch key, switch one input video signal to any or all output channels.

Example: Switch Video signal of input channel 1 to output channel 9



⇩ 1. Press “MENU” to enter menu;

⇩ 2. Press “MENU” to enter “Switch Video”;

⇩ 3. Press “MENU” to select input channel;

4. Press “⇦/⇨” to adjust input channel as ”1”;

⇩ 5. Press “MENU” to select output channel;

6. Press “⇦/⇨” to adjust output channel as ”9”;

⇩ 7. Press “MENU” to confirm and press “EXIT” twice.

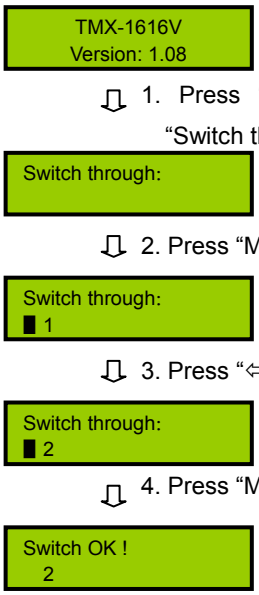
Note:

- ☞ If input channel displays “0”, output channel is closed.
- ☞ If output channel displays “ALL”, input channel is switched to all output channels.

2. Switch through

Switch through one input channel or all input channels to corresponding output channel(s).

Example: Switch through channel 2.



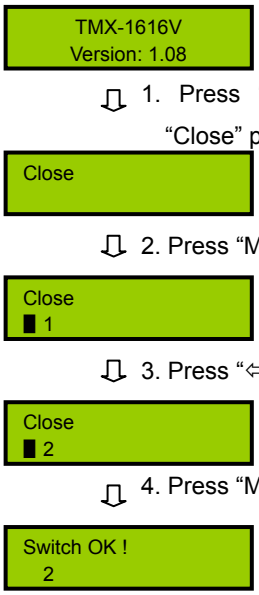
Note:

☞ Select “All” standing for switch through all channels.

3. Close

Close one output channel or all output channels.

Example: Close output channel 2



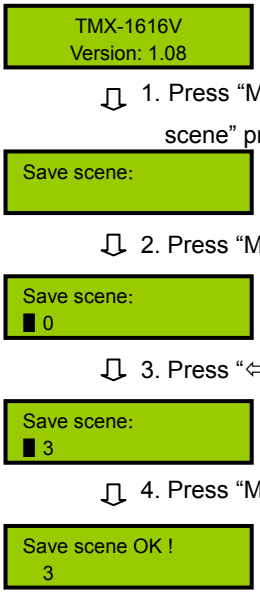
Note:

☞ Select “ALL” stands for closing all channels.

4. Save scene

Save current video signal to appointed scene. 10 scenes can be saved at most, each scene has a number, from 0 to 9.

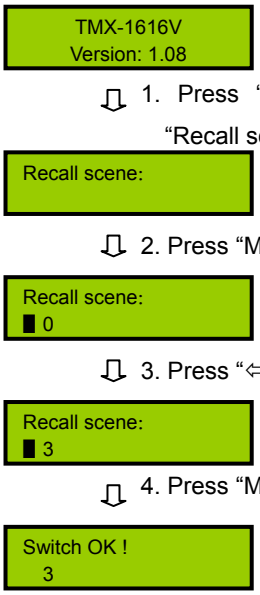
Example: Save scene 3



5. Recall scene

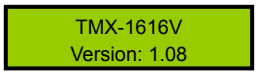
Recall video signal from selected scene.

Example: Recall scene 3

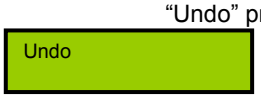


6. Undo

Undo last switch operation.



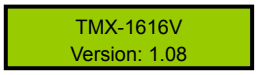
1. Press “MENU”, and press “⇦/⇨”until “Undo” prompts;



2. Press “MENU” to execute.

7. Demo Switch

Switches one by one all possible combinations from 1→1, 1→2, …, 1→16, 2→1, 2→2, …, 2→16, …, 16→1, 16→2, …to 16→16. The interval can be setup via setup menu (Refer to section 3.3.1.1).

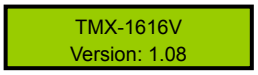


1. Press “MENU” and press “⇦/⇨” until “Demo switch” prompts;

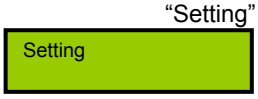
2. Press “MENU” to execute.

8. Setting

Setup menu.



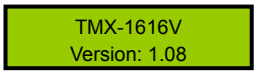
1. Press “MENU” and press “⇦/⇨” until “Setting” prompts;



2. Press “MENU” to enter setup status. Refer to section 3.3.1.1 for details.

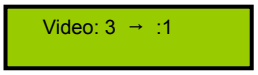
9. Status

Request corresponding state of input and output channels.

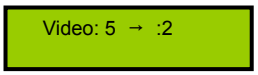


1. Press “MENU” and press “⇦/⇨” until “Status” prompts;

2. Press “MENU” to request corresponding status;



3. Press “⇦/⇨” to request next status.

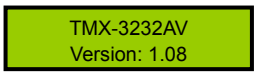


3.3.2 TMX-0808AV, TMX-08xxAV-B, TMX-16xxAV(-B), TMX-32xxV/AV(-B)and TMX-6464AV-B series

3.3.2.1 Menu setup

To explain menu setup of 3U and 6U series Composite Video & Audio Matrix Switcher, TMX-3232AV serves as example.

TMX-3232AV main interface:



Setup menu of TMX-08xxAV(-B), TMX-16xxAV(-B) and TMX-32xxV/AV(-B) series Matrix Switcher, including:

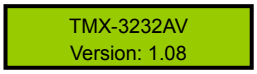
1. Sync Switch Delay
2. IP address
3. Subnet mask
4. Gate way
5. Ring
6. Input password
7. PC connect mode
8. COM2 Baud rate
9. Demo switch delay
10. COM1 protocol
11. Test button

* Tested button is working if character changes when button is pressed.

Menu 1 to menu 10 are explained explicitly:

1. Sync Switch Delay

When switching from one video input source to another, a brief time delay is required to adjust to sync data of the new source before a new undisturbed signal is sent. User may select a value from 0 to 5 seconds for a proper transition to the new video source. 0 is default value. Select by 50 ms steps.



1. Press “0” for 5 seconds to enter setup menu and press “◄/►” until “Sync Switch Delay” prompts;

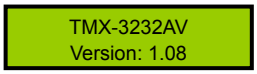
2. Press “ENTER” to enter setup;

3. Press “◄/►” to adjust parameter;

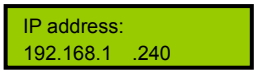
4. Press “ENTER” to confirm.

2. IP address

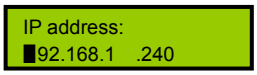
An IP address, Subnet mask and Gateway must be assigned to the matrix if connected to a TCP/IP Ethernet interface.



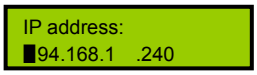
1. Press “0” for 5 seconds to enter setup menu and press “◄/►” until “IP address” prompts;



2. Press “ENTER” to enter setup;

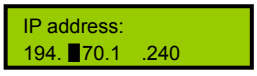


3. Press “◄/►” to adjust parameter;

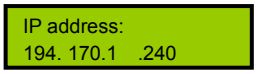


4. Press “END” to enter next parameter setup;

5. Press “◄/►” to adjust parameter;



6. Press “CANCEL” to confirm.



3. Subnet mask

For setup of “Subnet mask” proceed such as described in “IP address”.

4. Gate way

For setup of “Gate way” proceed such as described in “IP address”.

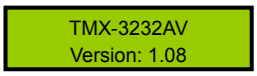
Note:

☞ After setup of the first parameter of the above four parameters of the IP address, Subnet mask and Gateway, user must press “ENTER” again, immediately after having pressed “END”, to modify the second parameter. Repeat for parameter 3 and 4 for continuous change. Otherwise setup is limited to one single parameter only.

5. Ring

Buzzer ring on-off of this unit. If buzzer ring is setup “on”, the buzzer will ring when front panel operation, PC software executing switch and receiving command from central control system. The buzzer ring can be setup “off”.

- ON: open;
- OFF: close.



1. Press “0” for 5 seconds to enter setup menu and press “◄/►” until “Ring” prompts;

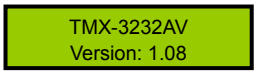
2. Press “ENTER” to enter setup;

3. Press “◄/►” to select parameter;

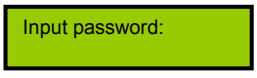
4. Press “ENTER” to confirm.

6. Input password

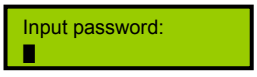
Set unlock password, password must be 5 bits. Original password is 11111.



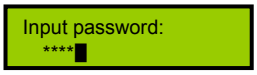
1. Press “0” for 5 seconds to enter setup menu and press “◄/►” until “Input password” prompts;



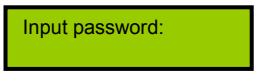
2. Press “ENTER” to enter setup;



3. Input password;



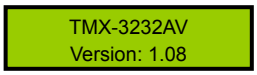
4. Press “ENTER” to confirm.



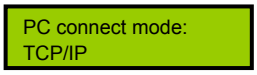
7. PC connect mode

Select mode for PC connection:

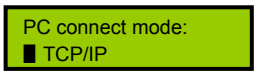
- TCP/IP
- RS-232



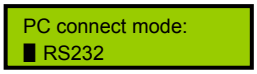
1. Press “0” for 5 seconds to enter setup menu and press “◄/►” until “PC connect mode” prompts;



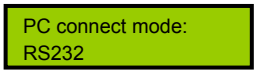
2. Press “ENTER” to enter setup;



3. Press “◄/►” to select parameter;



4. Press “ENTER” to confirm.



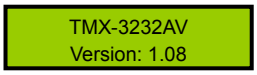
8. COM2 Baud rate

If PC connect mode RS-232 is selected, available COM2 baud rates are: 9600, 14400, 19200, 28800, 38400 and 57600.
COM1 is invariable and fixed to 9600 bit/s.

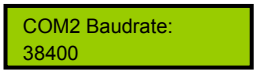
Note:

☞ If connect mode TCP/IP is selected, the baud rate is fixed to 115200 bit/s and cannot be modified.

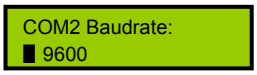
Setup example for mode is RS232:



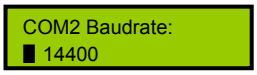
1. Press “0” for 5 seconds to enter setup menu and press “◄/►” until “COM2 Baudrate” prompts;



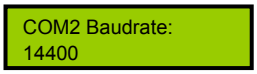
2. Press “ENTER” to enter setup;



3. Press “◄/►” to select parameter;

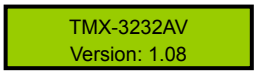


4. Press “ENTER” to confirm.



9. Demo Switch Delay

The interval between 2 switching operations can range from 2 s to 60 s by step of 2 s.



1. Press “0” for 5 seconds to enter setup menu and press “◄/►” until “DemoSwitchDelay” prompts;

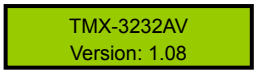
2. Press “ENTER” to enter setup;

3. Press “◄/►” to adjust parameter;

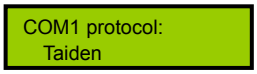
4. Press “ENTER” to confirm.

10. COM1 protocol

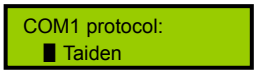
Select the protocol to connect an external central control system, including Taiden, Extron and Other. New protocols can be added by the user.



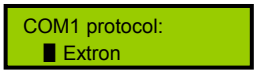
1. Press “0” for 5 seconds to enter setup menu and press “◄/►” until “COM1 protocol” prompts;



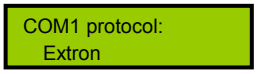
2. Press “ENTER” to enter setup;



3. Press “◄/►” to select parameter;



4. Press “ENTER” to confirm.



3.3.2.2 Switch operation

To explain switch operation of 3U and 6U series Composite Video & Audio Matrix Switcher, TMX-3232AV serves as example.

TMX-32xxV series Matrix Switcher can refer to it, except has no audio signal switch.

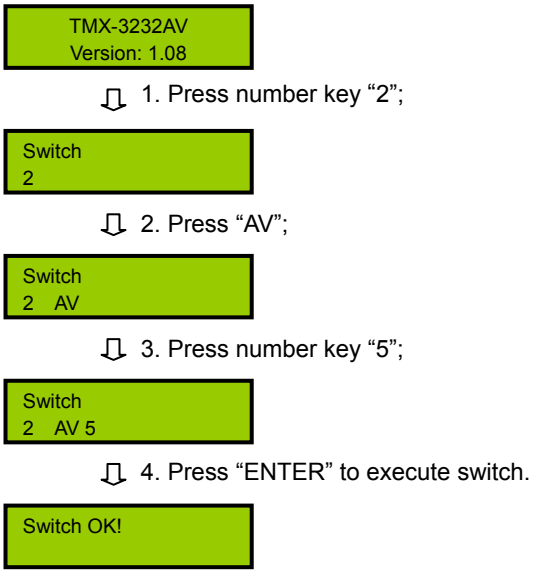
Note:

- ☞ The functions of buttons in this section have been introduced in section 3.1.1; “V” stands for video, “A” stands for audio.
- ☞ “Input channel” and “output channel” number must be less than matrix type. For example: TMX-08xxAV series can only input number 1~8; TMX-32xxV series can input number 1~32.
- ☞ If any menu item is edited, except setup menu, a key must be pressed within 15 seconds otherwise the system will return to main menu item automatically and erase the previous channel setup.
- ☞ To return to main menu press any key if currently editing user interface is switch finish interface, display input, output status interface or DEMO interface. To return to main menu if editing other user interface press “CANCEL” or “←”.
- ☞ If new input source signal is switched, please wait until previous source is switched off. Wait according to Sync switch Delay (refer to section 3.3.2.1)

1. AV

Composite audio and video switch key, switch one input audio and video signal to any output channel.

Example: Switch composite audio and video signal of input channel 2 to output channel 5 synchronously.



2. AUDIO

Switch audio signal separately, switch one input audio signal to any output channel.

Example: Switch audio signal of input channel 1 to output channel 3 and 7 synchronously.

TMX-3232AV
Version: 1.08

⇩ 1. Press number key “1”;

Switch
1

⇩ 2. Press “AUDIO”;

Switch
1 A

⇩ 3. Press number key “3”;

Switch
1 A 3

⇩ 4. Press “/”;

Switch
1 A 3,

⇩ 5. Press number key “7”;

Switch
1 A 3, 7

⇩ 6. Press “ENTER” to execute switch.

Switch OK!

Note:

☞ If there are more than one output channels, use “/” key to separate them, and it will be shown as “,” on LCD.

3. VIDEO

Switch video signal separately, switch one input video signal to any output channel.

Example: Switch video signal of input channel 7 to all output channels synchronously.

TMX-3232AV
Version: 1.08

⇩ 1. Press number key “7”;

Switch
7

⇩ 2. Press “VIDEO”;

Switch
7 V

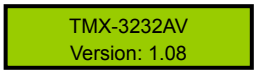
⇩ 3. Press “ALL” to execute switch.

Switch OK!
7 V ALL

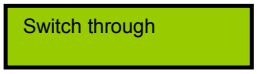
4. THROUGH

AV switch through from input channel to corresponding output channel.

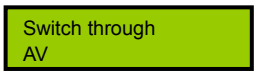
Example 1: Switch audio and video signal from input channel 1, 2, 3 to corresponding output channel 1, 2, 3 respectively.



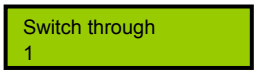
⇩ 1. Press “THROUGH”;



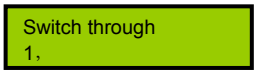
⇩ 2. Press “AV” to swith audio and video signals synchronously;



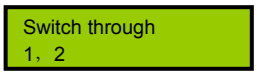
⇩ 3. Press number key “1”;



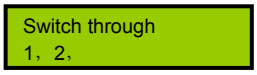
⇩ 4. Press “/”;



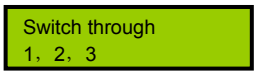
⇩ 5. Press number key “2”;



⇩ 6. Press “/”;

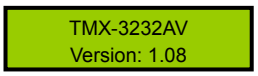


⇩ 7. Press number key “3”;

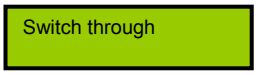


⇩ 8. Press “ENTER” to execute switch.

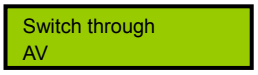
Example 2: Switch audio and video signal from all input channels to all corresponding output channels respectively, i.e. 1→1，2→2，3→3，4→4…



⇩ 1. Press “THROUGH”;



⇩ 2. Press “AV” to swith audio and video signals synchronously;

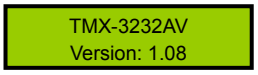


⇩ 3. Press “ALL” to execute switch.

5. CLOSE

Close one output channel or all output channels.

Example: Close audio of output channel 7.



⇩ 1. Press “CLOSE”;

⇩ 2. Press “AUDIO”;

⇩ 3. Press number key “7”;

⇩ 4. Press “ENTER” to execute switch.

Note:

☞ If “ALL” is pressed instead of “7”, all output channels are closed in this case.

6. UNDO

Undo last completely terminated and validated switch operation, and come back to the status before executing the last switch.

TMX-3232AV
Version: 1.08

⇩ Press “UNDO” to execute.

Switch OK!

7. GROUP

Group key: to compose not more than 5 groups, each group with not more than 5 output channels.

Example 1: take output channel 1, 2, 3, 4, 5 as group 1.

TMX-3232AV
Version: 1.08

⇩ 1. Press “GROUP”;

Group Define

⇩ 2. Press number key “1”;

Group Define 1:

⇩ 3. Press number key “1”;

Group Define 1:
1

⇩ 4. Press “/”;

Group Define 1:
1,

⇩ 5. Press number key “2”;

Group Define 1:
1，2

⇩ 6. Press “/”;

Group Define 1:
1，2,

⇩ 7. Press number key “3”;

Group Define 1:
1，2，3

⇩ 8. Press “/”;

Group Define 1:
1，2，3,

⇩ 9. Press number key “4”;

Group Define 1:
1，2，3，4

⇩ 10. Press “/”;

Group Define 1:
1，2，3，4,

⇩ 11. Press number key “5”;

Group Define 1:
1，2，3，4，5

⇩ 12. Press “ENTER” to confirm.

TMX-3232AV
Version: 1.08

Example 2: switch composite audio and video signal of input channel 2 to all output channels of group 1.

TMX-3232AV
Version: 1.08

⇩ 1. Press number key “2”;

Switch
2

⇩ 2. Press “AV”;

Switch
2 AV

⇩ 3. Press “GROUP”;

Switch
2 AV Group

⇩ 4. Press number key “1”;

Switch
2 AV Group 1

⇩ 5. Press “ENTER” to execute.

Switch OK!
2 AV Group 1

9. RECALL

Recall AV signal from selected scene.

Example: Recall scene 3 and execute it.

TMX-3232AV
Version: 1.08

⇩ 1. Press “RECALL”;

Recall scene:

⇩ 2. Press number key “3” to execute.

Switch OK!

8. SAVE

Save current AV signal to appointed scene. AV Matrix Switchers can save 10 scenes, each scene has a number, from 0 to 9.

Example: Save current input and output channel status in scene 1

TMX-3232AV
Version: 1.08

⇩ 1. Press “SAVE”;

Save scene:

⇩ 2. Press number key “1” to execute.

Save scene OK!

10. LOCK

Keyboard lock: if “LOCK” is hold for 3 seconds, keyboard will be locked. Thereafter password is needed to unlock keyboard. Ethernet and RS-232 control are not locked. Original password is: 11111.

TMX-3232V
Version: 1.08

⇩ 1. Hold “LOCK” for 3 seconds, keyboard will be locked, Then password is needed to unlock keyboard;

Enter password:
▮

⇩ 2. Input password;

Enter password:
****▮

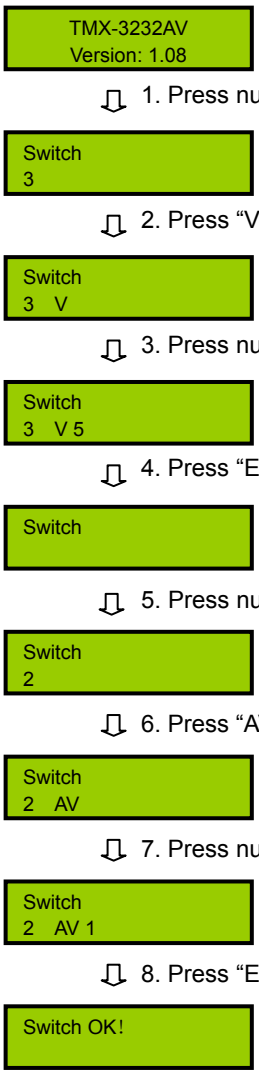
⇩ 3. Press “ENTER” to confirm.

Switch OK!

11. END

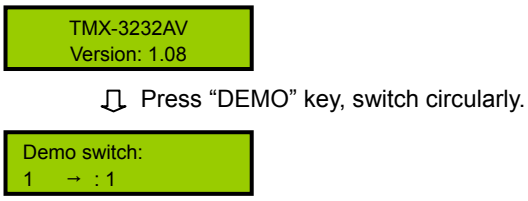
End for a switch command.

Example: Switch video signal of input channel 3 to output channel 5, and switch composite audio and video signal of input channel 2 to output channel 1 synchronously.



12. DEMO

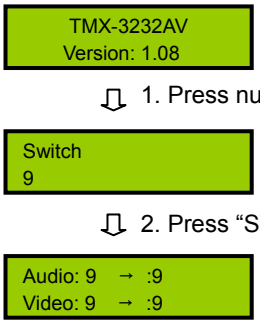
Switches one by one all possible combinations from 1→1, 1→2, …, 1→32, 2→1, 2→2, …, 2→32, …, 32→1, 32→2, …to 32→32. The interval can be setup via setup menu.



13. STATUS

Query channel status, used to query corresponding state of input and output channels.

Example: Query channel 9 status.



Note:

- ☞ Pressing “STATUS” key permanently will display all channel status one by one.
- ☞ Pressing “◄/►” key permanently will display previous/next channel status one by one.

Chapter 4. Component Video Matrix Switchers

TAIDEN TMX series Component Video Matrix Switchers are designed to switch various component video and stereo audio signals. One or more individually isolated component video and/or stereo audio signals can be switched to one or more outputs. Component Video Matrix Switchers can be connected to PC software and central control system via TCP/IP, RS-232 or infrared wireless.

AV Matrix Switchers are available in 8 options: from 8×4 to 16×16, applicable to various situations such as company assembly room, command and control center, exhibitions, college room, family cinema, sports bar, etc.

Product types:

TMX-0804HD

8×4 Component Video Matrix Switcher, BNC Connectors

TMX-0804HD-A

8×4 Component Video & Balanced/Unbalanced Stereo Audio Matrix Switcher, Video on BNC Connectors, Audio stereo on 5 pin 3.81 mm Phoenix Connectors

TMX-0808HD

8×8 Component Video Matrix Switcher, BNC Connectors

TMX-0808HD-A

8×8 Component Video & Balanced/Unbalanced Stereo Audio Matrix Switcher, Video on BNC Connectors, Audio stereo on 5 pin 3.81 mm Phoenix Connectors

TMX-1608HD

16×8 Component Video Matrix Switcher, BNC Connectors

TMX-1608HD-A

16×8 Component Video & Balanced/Unbalanced Stereo Audio Matrix Switcher, Video on BNC Connectors, Audio stereo on 5 pin 3.81 mm Phoenix Connectors

TMX-1616HD

16×16 Component Video Matrix Switcher, BNC Connectors

TMX-1616HD-A

16×16 Component Video & Balanced/Unbalanced Stereo Audio Matrix Switcher, Video on BNC Connectors, Audio stereo on 5 pin 3.81 mm Phoenix Connectors

4.1 Functions and indications

4.1.1 Front panel

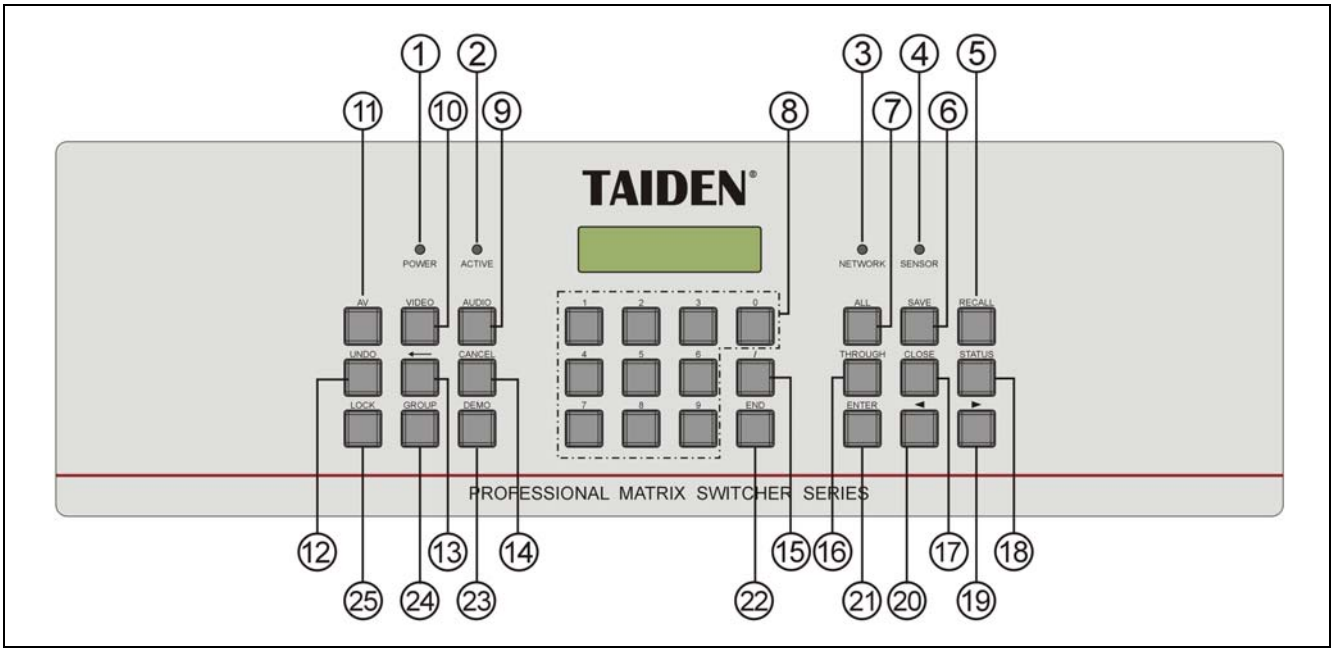


Figure 4.1 Front panel of Component Video Matrix Switcher

Figure 4.1:

1. **"POWER" indicator**
2. **"ACTIVE" indicator**
   - Indicator will be turned on if Matrix Switcher executes switch instructions.
3. **"NETWORK" indicator**
   - Indicator flashes if Matrix Switcher is connected with PC software.
4. **IR receiving window**
   - Receives the IR signals from remote control; make sure the remote control aims at the window.
5. **"RECALL" button**
   - Recall the stored scene.
6. **"SAVE" button**
   - Save current channel status as appointed scene.
7. **"ALL" button**
   - Switch one input channel to all output channels.
8. **"0、1、2…9" button**
   - Number keys, used to select input or output channel, save scene number, recall scene number.
9. **"AUDIO" button**
   - Switch audio signal separately.
10. **"VIDEO" button**
    - Switch video signal separately.
11. **"AV" button**
    - Composite audio and video switch key.
12. **"UNDO" button**
    - Undo last switch operation.
13. **"←" button**
    - Backspace key, delete last input number or command.
14. **"CANCEL" button**
    - Back to root directory, when in setup menu, back to previous directory.
15. **"/" button**
    - Separator, displayed as "," on LCD. Used to space output channels if more than one channel is operated.
16. **"THROUGH" button**
    - Audio or video switch through from input channel to corresponding output channel.
17. **"CLOSE" button**
    - Close one or all output channels.
18. **"STATUS" button**
    - Query channel status.
19. **"►" button**
    - For right, forward and plus.

20. “◄” button

- For left, backward and subtract.

21. “ENTER” button

- Confirm or execute command.

22. “END” button

- End for a switch command.

23. “DEMO” button

- In DEMO status, channels are switched one by one.

24. “GROUP” button

- Maximum 5 groups and maximum 5 channels per group can be configured.

25. “LOCK” button

- Keyboard lock.

4.1.2 Rear panel

4.1.2.1 TMX-08xxHD(-A) series

(Take TMX-0808HD-A as example)

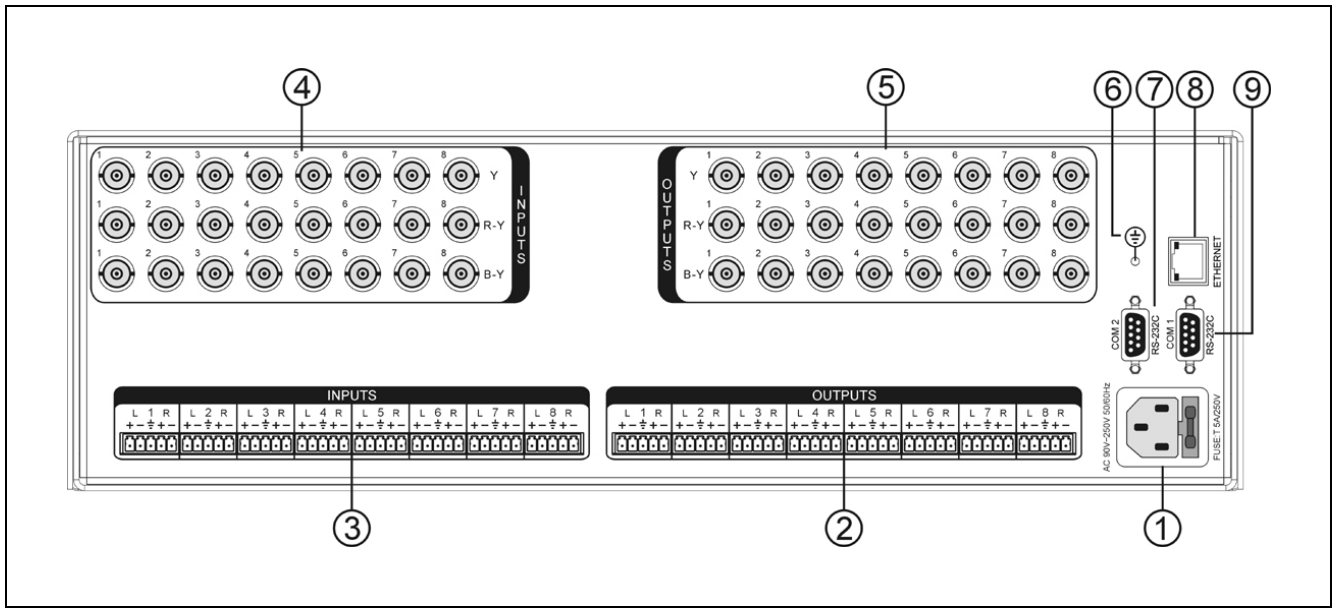


Figure 4.2 Rear panel of TMX-08xxHD(-A) series

Figure 4.2:

1. Power cable interface

2. Audio outputs

3. Audio inputs

4. Video inputs

5. Video outputs

6. Grounding point

7. RS-232 communication interface COM2

8. Ethernet interface

9. RS-232 communication interface COM1

4.1.2.2 TMX-16xxHD(-A) series

(Take TMX-1616HD-A as example)

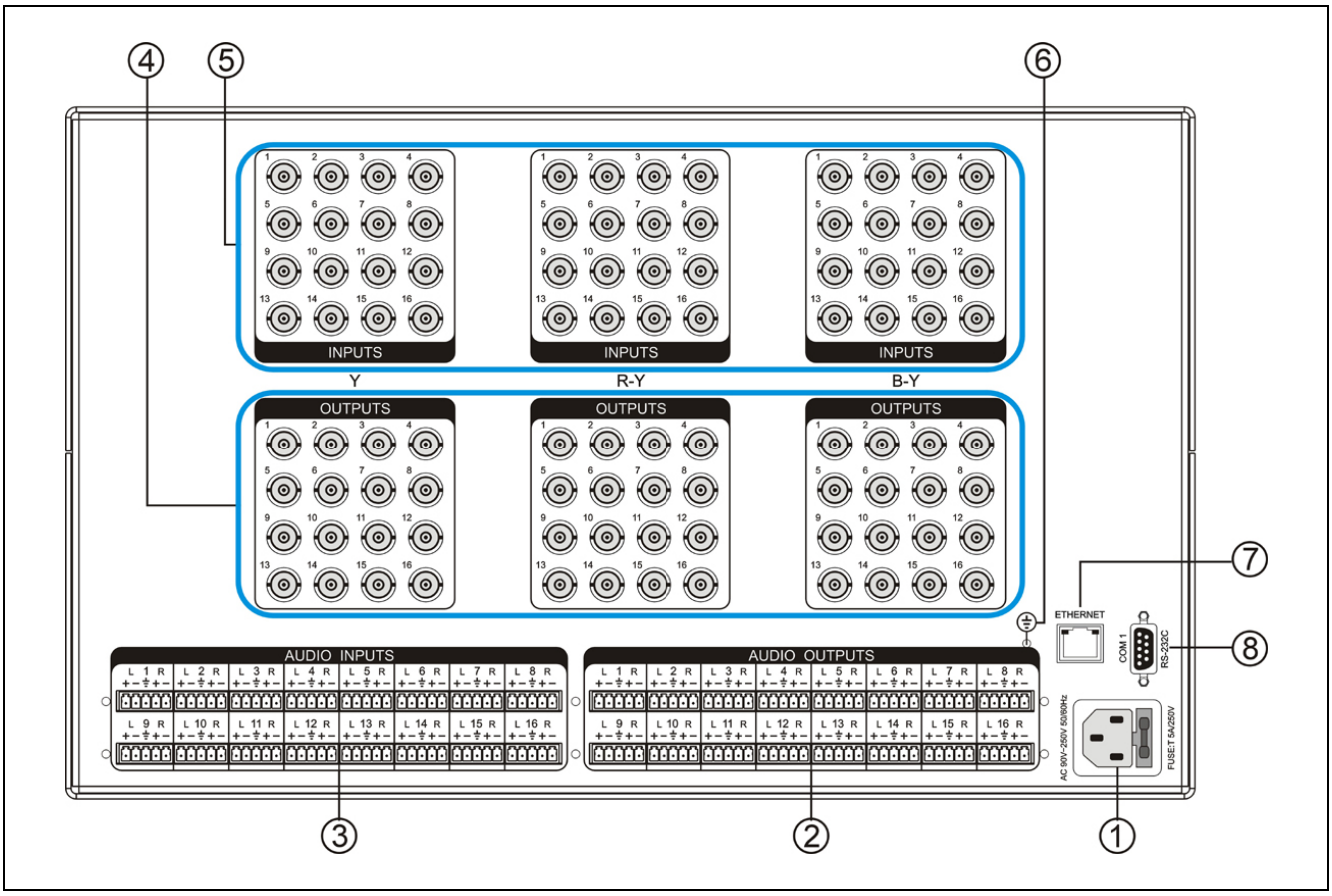


Figure 4.3 Rear panel of TMX-16xxHD(-A) series

Figure 4.3:

1. **Power cable interface**
2. **Audio outputs**
3. **Audio inputs**
4. **Video outputs**
5. **Video inputs**
6. **Grounding point**
7. **Ethernet interface**
8. **RS-232 communication interface COM1**

4.2 Installation and connection

4.2.1 Installation

TMX series Component Video Matrix Switchers can be fixed in an exactly fitting standard cabinet.

Installation of TMX series Component Video Matrix Switchers: A couple of mounting brackets ① are attached to the product package. First release the screws ② from the lateral sides of the matrix. Bolt on the brackets to the housing by using the screws previously released. Now put the unit into the cabinet, and fix it by other screws. As figure 4.4.

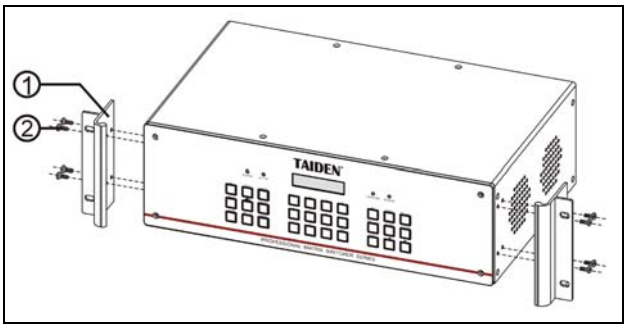


Figure 4.4 Installation

4.2.2 Audio Cable (-A series)

INPUTS from various audio source signals;
OUTPUTS to PA or active loudspeaker.

The audio signal can be injected both balanced and unbalanced.

Balanced Connection: two differential signals, one of which is the inverse of the other, are operated via a cable with two conductors of the same type and equal impedance to ground. Balanced connection minimizes unwanted interferences. Because audio signal tends to be disturbed in long distance transmission, balanced connection is commonly used in professional audio devices.

Unbalanced Connection: in unbalanced transmission the voltages on the two conductors are not equal to ground. Because non-balanced signal transmission tends to be disturbed, it is only used in non-professional audio devices.

The connection method should correspond to the requirements of the audio device interface. Whenever permitted balanced connection should be favored.

In case one device has a balanced interface and another device has an unbalanced interface, use balanced connection for balanced interface and unbalanced connection for unbalanced interface if there is no contradictory instruction.

If connection is strictly prescribed, please use balanced & unbalanced converter if required for appropriate connection.

As figure 4.5.

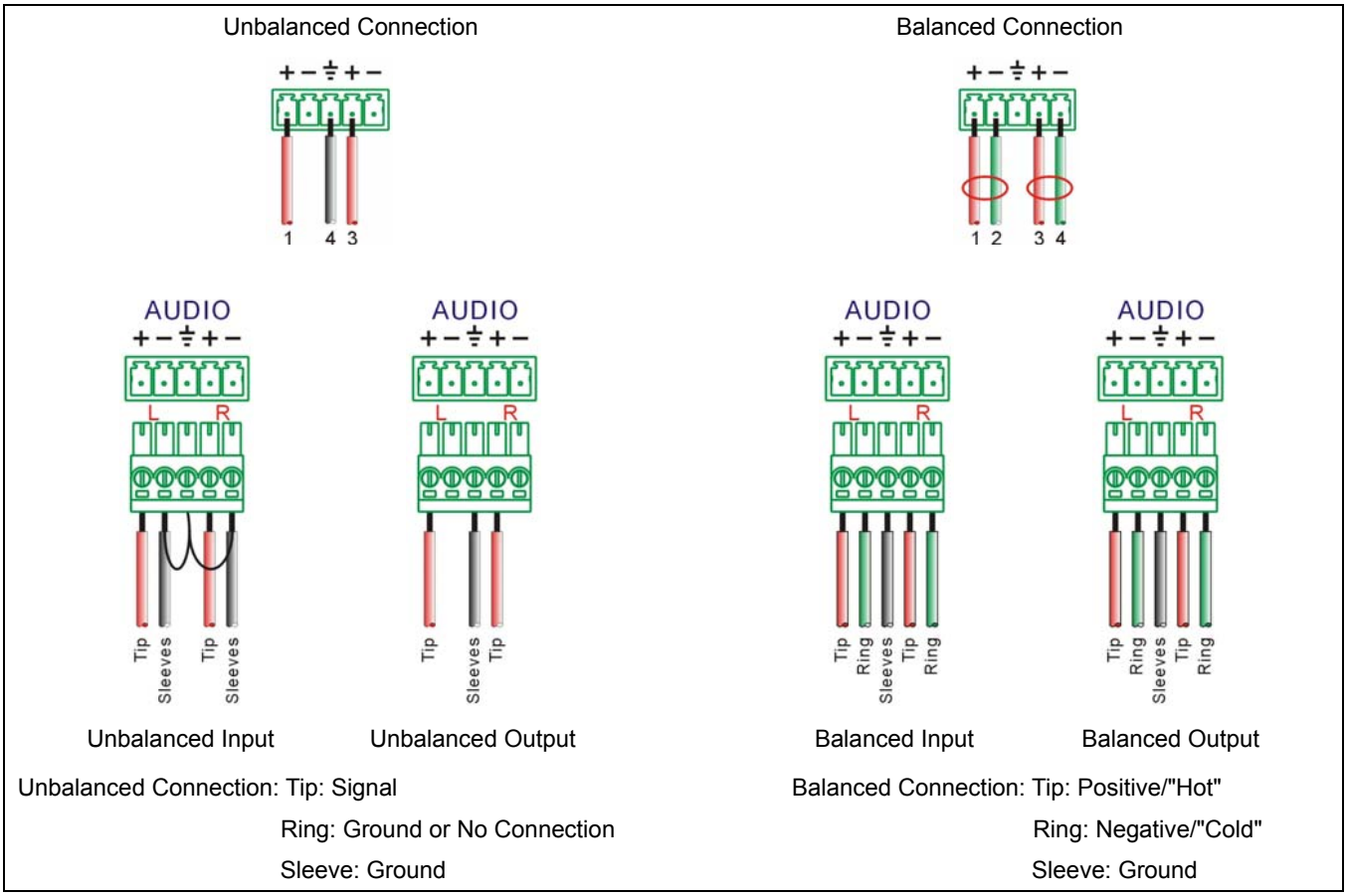


Figure 4.5 Balanced and Unbalanced connection

4.2.3 Connection between Matrix Switchers and PC

TMX series Component Video Matrix Switchers can be controlled and setup by computer via TCP/IP or RS-232 interface COM2 (except TMX-16xxHD(-A) series).

TCP/IP requires Cat.5 twisted pair cable.

TMX series Component Video Matrix Switchers can be controlled by Central Control System via RS-232 interface COM1, this interface is also used for software upgrade.

4.2.4 Connection with input, output devices

The number of input and output ports is differing, according to the type chosen. Every audio or video device can be connected to the Component Video Matrix Switcher. Output ports can be connected to recorder、video or audio monitor, PA, as shown in figure 4.6

.

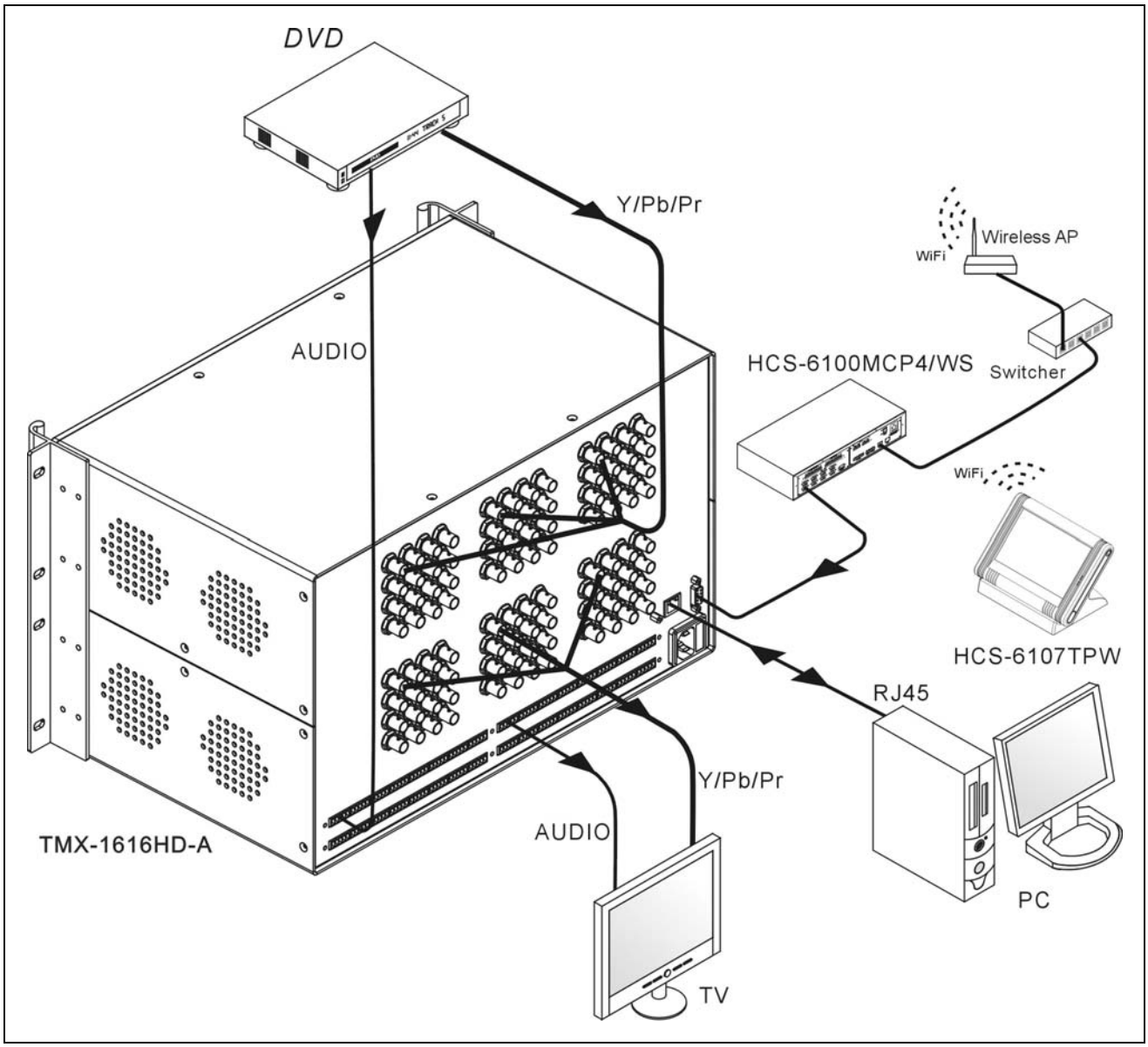


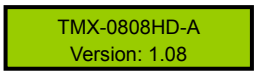
Figure 4.6 Connection example for input and output devices to Component Video Matrix Switchers

4.3 Setup and Operation

4.3.1 Menu setup

To explain switch operation of Component Video Matrix Switchers, TMX-0808HD-A serves as example. TMX-16xxHD(-A) series Matrix Switcher can refer to it, except has no COM2 interface.

TMX-0808HD-A main interface:



Setup menu of Component Video Matrix Switchers, including:

1. Sync Switch Delay
2. IP address
3. Subnet mask
4. Gate way
5. Ring
6. Input password
7. PC connect mode
* TMX-16xxHD(-A) series does not have COM2 interface, PC connect mode is fixed to TCP/IP.

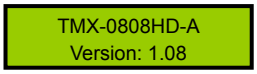
8. COM2 Baud rate
* TMX-16xxHD(-A) series does not have COM2 interface and “COM2 Baud rate” menu.

9. Demo switch delay
10. COM1 protocol
11. Test button
* Tested button is working if character changes when button is pressed.

Menu 1 to menu 10 are explained explicitly:

1. Sync Switch Delay

When switching from one video input source to another, a brief time delay is required to adjust to sync data of the new source before a new undisturbed signal is sent. User may select a value from 0 to 5 seconds for a proper transition to the new video source. 0 is default value. Select by 50 ms steps.



1. Press “0” for 5 seconds to enter setup menu and press “◄/►” until “Sync Switch Delay” prompts;

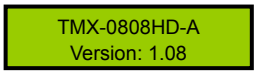
2. Press “ENTER” to enter setup;

3. Press “◄/►” to adjust parameter;

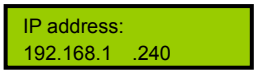
4. Press “ENTER” to confirm.

2. IP address

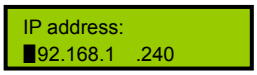
An IP address, Subnet mask and Gateway must be assigned to the matrix if connected to a TCP/IP Ethernet interface.



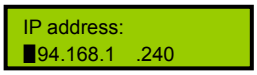
1. Press “0” for 5 seconds to enter setup menu and press “◄/►” until “IP address” prompts;



2. Press “ENTER” to enter setup;

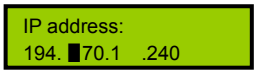


3. Press “◄/►” to adjust parameter;

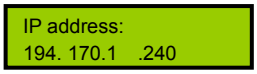


4. Press “END” to enter next parameter setup;

5. Press “◄/►” to adjust parameter;



6. Press “CANCEL” to confirm.



3. Subnet mask

For setup of “Subnet mask” proceed such as described in “IP address”.

4. Gate way

For setup of “Gate way” proceed such as described in “IP address”.

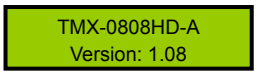
Note:

☞ After setup of the first parameter of the above four parameters of the IP address, Subnet mask and Gateway, user must press “ENTER” again, immediately after having pressed “END”, to modify the second parameter. Repeat for parameter 3 and 4 for continuous change. Otherwise setup is limited to one single parameter only.

5. Ring

Buzzer ring on-off of this unit. If buzzer ring is setup “on”, the buzzer will ring when front panel operation, PC software executing switch and receiving command from central control system. The buzzer ring can be setup “off”.

- ON: open;
- OFF: close.



1. Press “0” for 5 seconds to enter setup menu and press “◄/►” until “Ring” prompts;

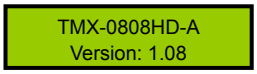
2. Press “ENTER” to enter setup;

3. Press “◄/►” to select parameter;

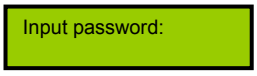
4. Press “ENTER” to confirm.

6. Input password

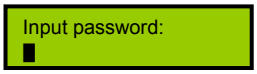
Set unlock password, password must be 5 bits. Original password is 11111.



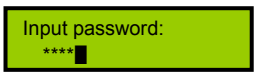
1. Press “0” for 5 seconds to enter setup menu and press “◄/►” until “Input password” prompts;



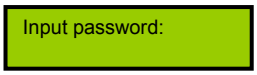
2. Press “ENTER” to enter setup;



3. Input password;



4. Press “ENTER” to confirm.

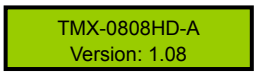


7. PC connect mode

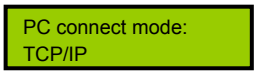
Select mode for PC connection:

- TCP/IP
- RS-232

TMX-16xxHD(-A) series does not have COM2 interface, PC connect mode is fixed to TCP/IP.

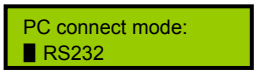


1. Press “0” for 5 seconds to enter setup menu and press “◄/►” until “PC connect mode” prompts;

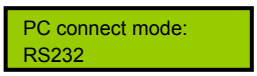


2. Press “ENTER” to enter setup;

3. Press “◄/►” to select parameter;



4. Press “ENTER” to confirm.



8. COM2 Baud rate

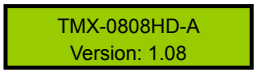
If PC connect mode RS-232 is selected, available COM2 baud rates are: 9600, 14400, 19200, 28800, 38400 and 57600.

COM1 is invariable and fixed to 9600 bit/s.

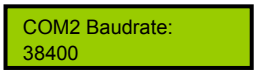
Note:

☞ If connect mode TCP/IP is selected, the baud rate is fixed to 115200 bit/s and cannot be modified.

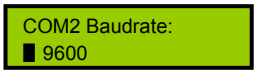
Setup example for mode is RS232:



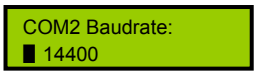
1. Press “0” for 5 seconds to enter setup menu and press “◄/►” until “COM2 Baudrate” prompts;



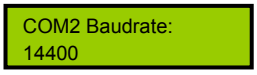
2. Press “ENTER” to enter setup;



3. Press “◄/►” to select parameter;

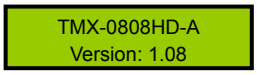


4. Press “ENTER” to confirm.



9. Demo Switch Delay

The interval between 2 switching operations can range from 2 s to 60 s by step of 2 s.



1. Press “0” for 5 seconds to enter setup menu and press “◄/►” until “DemoSwitchDelay” prompts;

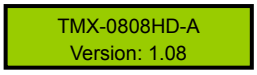
2. Press “ENTER” to enter setup;

3. Press “◄/►” to adjust parameter;

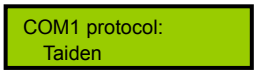
4. Press “ENTER” to confirm.

10. COM1 protocol

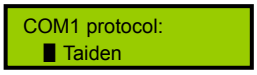
Select the protocol to connect an external central control system, including Taiden, Extron and Other. New protocols can be added by the user.



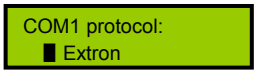
1. Press “0” for 5 seconds to enter setup menu and press “◄/►” until “COM1 protocol” prompts;



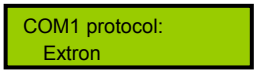
2. Press “ENTER” to enter setup;



3. Press “◄/►” to select parameter;



4. Press “ENTER” to confirm.



4.3.2 Switch operation

To explain switch operation of 3U and 6U series Component Video Matrix Switchers, TMX-0808HD-A serves as example.

The other Component Video Matrix Switchers can refer to it, except some types don't have audio signal switch.

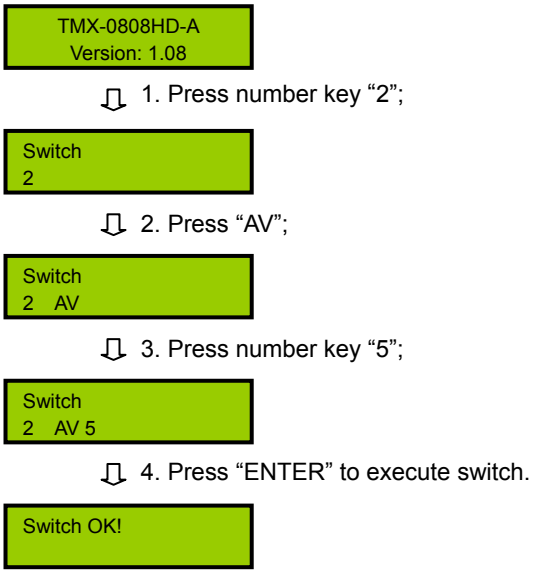
Note:

- ☞ The functions of buttons in this section have been introduced in section 4.1.1; "V" stands for video, "A" stands for audio.
- ☞ "Input channel" and "output channel" number must be less than matrix type. For example: TMX-08xxHD series can only input number 1~8; TMX-16xxHD series can input number 1~16.
- ☞ If any menu item is edited, except setup menu, a key must be pressed within 15 seconds otherwise the system will return to main menu item automatically and erase the previous channel setup.
- ☞ To return to main menu press any key if currently editing user interface is switch finish interface, display input, output status interface or DEMO interface. To return to main menu if editing other user interface press "CANCEL" or "←".
- ☞ If new input source signal is switched, please wait until previous source is switched off. Wait according to Sync switch Delay (refer to section 4.3.1).

1. AV

Composite audio and video switch key, switch one input audio and video signal to any output channel.

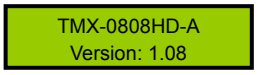
Example: Switch composite audio and video signal of input channel 2 to output channel 5 synchronously.



2. AUDIO

Switch audio signal separately, switch one input audio signal to any output channel.

Example: Switch audio signal of input channel 1 to output channel 3 and 7 synchronously.



1. Press number key “1”;

2. Press “AUDIO”;

3. Press number key “3”;

4. Press “/”;

5. Press number key “7”;

6. Press “ENTER” to execute switch.

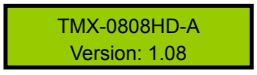
Note:

- If there are more than one output channels, use “/” key to separate them, and it will be shown as “,” on LCD.

3. VIDEO

Switch video signal separately, switch one input video signal to any output channel.

Example: Switch video signal of input channel 7 to all output channels synchronously.



1. Press number key “7”;

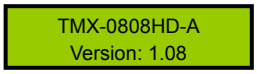
2. Press “VIDEO”;

3. Press “ALL” to execute switch.

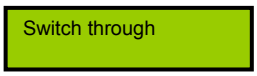
4. THROUGH

AV switch through from input channel to corresponding output channel.

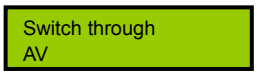
Example 1: Switch audio and video signal from input channel 1, 2, 3 to corresponding output channel 1, 2, 3 respectively.



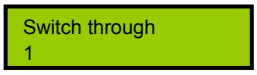
1. Press “THROUGH”;



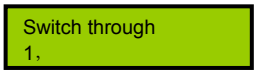
2. Press “AV” to swith audio and video signals synchronously;



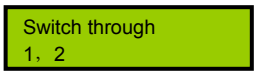
3. Press number key “1”;



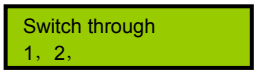
4. Press “/”;



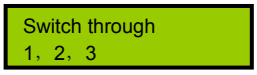
5. Press number key “2”;



6. Press “/”;

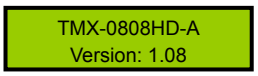


7. Press number key “3”;

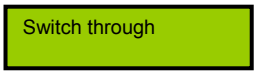


8. Press “ENTER” to execute switch.

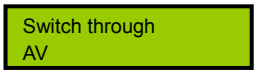
Example 2: Switch audio and video signal from all input channels to all corresponding output channels respectively, i.e. 1→1，2→2，3→3，4→4…



1. Press “THROUGH”;



2. Press “AV” to swith audio and video signals synchronously;

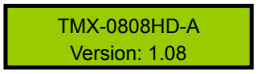


3. Press “ALL” to execute switch.

5. CLOSE

Close one output channel or all output channels.

Example: Close audio of output channel 7.



1. Press “CLOSE”;

2. Press “AUDIO”;

3. Press number key “7”;

4. Press “ENTER” to execute switch.

Note:

☞ If “ALL” is pressed instead of “7”, all output channels are closed in this case.

6. UNDO

Undo last completely terminated and validated switch operation, and come back to the status before executing the last switch.

TMX-0808HD-A
Version: 1.08

⇩ Press “UNDO” to execute.

Switch OK!

7. GROUP

Group key: to compose not more than 5 groups, each group with not more than 5 output channels.

Example 1: take output channel 1, 2, 3, 4, 5 as group 1.

TMX-0808HD-A
Version: 1.08

⇩ 1. Press “GROUP”;

Group Define

⇩ 2. Press number key “1”;

Group Define 1:

⇩ 3. Press number key “1”;

Group Define 1:
1

⇩ 4. Press “/”;

Group Define 1:
1,

⇩ 5. Press number key “2”;

Group Define 1:
1，2

⇩ 6. Press “/”;

Group Define 1:
1，2,

⇩ 7. Press number key “3”;

Group Define 1:
1，2，3

⇩ 8. Press “/”;

Group Define 1:
1，2，3,

⇩ 9. Press number key “4”;

Group Define 1:
1，2，3，4

⇩ 10. Press “/”;

Group Define 1:
1，2，3，4,

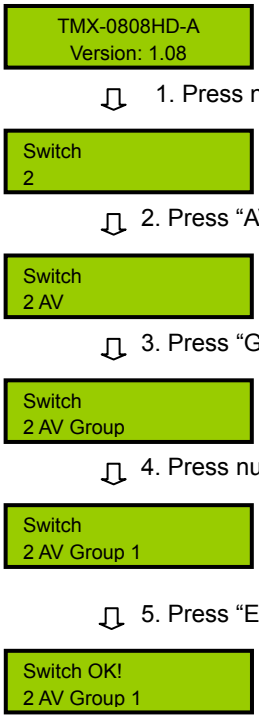
⇩ 11. Press number key “5”;

Group Define 1:
1，2，3，4，5

⇩ 12. Press “ENTER” to confirm.

TMX-0808HD-A
Version: 1.08

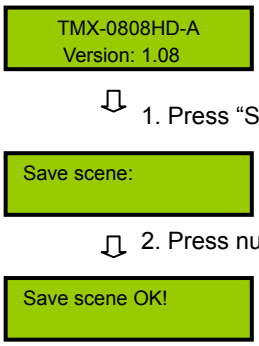
Example 2: switch composite audio and video signal of input channel 2 to all output channels of group 1.



8. SAVE

Save current AV signal to appointed scene. AV Matrix Switchers can save 10 scenes, each scene has a number, from 0 to 9.

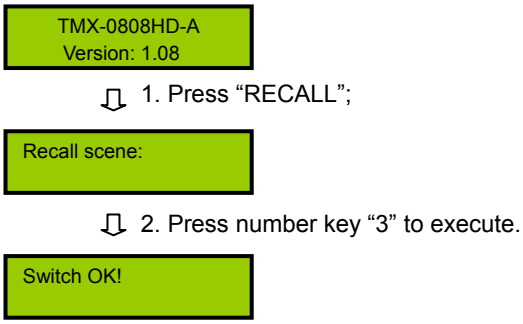
Example: Save current input and output channel status in scene 1



9. RECALL

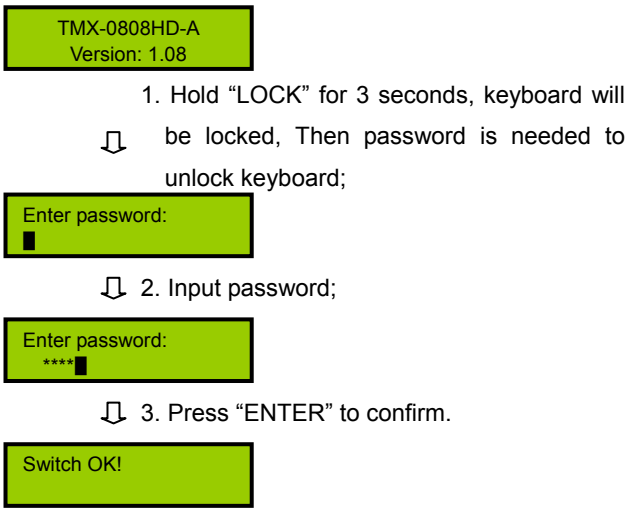
Recall AV signal from selected scene.

Example: Recall scene 3 and execute it.



10. LOCK

Keyboard lock: if “LOCK” is hold for 3 seconds, keyboard will be locked. Thereafter password is needed to unlock keyboard. Ethernet and RS-232 control are not locked. Original password is: 11111.



11. END

End for a switch command.

Example: Switch video signal of input channel 3 to output channel 5, and switch composite audio and video signal of input channel 2 to output channel 1 synchronously.

TMX-0808HD-A
Version: 1.08

1. Press number key “3”;

Switch
3

2. Press “VIDEO”;

Switch
3 V

3. Press number key “5”;

Switch
3 V 5

4. Press “END”;

Switch

5. Press number key “2”;

Switch
2

6. Press “AV”;

Switch
2 AV

7. Press number key “1”;

Switch
2 AV 1

8. Press “ENTER” to confirm.

Switch OK!

12. DEMO

Switches one by one all possible combinations from 1→1, 1→2, …, 1→8, 2→1, 2→2, …, 2→8, …, 8→1, 8→2, …to 8→8. The interval can be setup via setup menu.

TMX-0808HD-A
Version: 1.08

Press “DEMO” key, switch circularly.

Demo switch:
1 → : 1

13. STATUS

Query channel status, used to query corresponding state of input and output channels.

Example: Query channel 7 status.

TMX-0808HD-A
Version: 1.08

1. Press number key “7”;

Switch
7

2. Press “STATUS” to execute.

Audio: 7 → :7
Video: 7 → :7

Note:

- Pressing “STATUS” key permanently will display all channel status one by one.
- Pressing “◄/►” key permanently will display previous/next channel status one by one.

Chapter 5. DVI Matrix Switchers

TAIDEN TMX series DVI Matrix Switchers are designed to switch DVI signals. One or more individually isolated DVI signals can be switched to one or more outputs. DVI Matrix Switchers can be connected to PC software and central control system via TCP/IP, RS-232 or infrared wireless.
DVI Matrix Switchers are available in 10 options: from 2×1 to 8×8, applicable to various situations such as large-screen display, television education, exhibitions, college room, family cinema, etc.

Product types:

TMX-0201DVI-A
2×1 DVI & Audio Switcher, 2.25 Gbps, Video on DVI-I Connectors, Audio stereo on 3.5 mm Phone jack (L+R) inputs and 3.5 mm Phone jack (L+R)/5 pin 3.81 mm Phoenix output

TMX-0401DVI-A
4×1 DVI & Audio Switcher, 2.25 Gbps, Video on DVI-I Connectors, Audio stereo on 3.5 mm Phone jacks (L+R)

TMX-0202DVI
2×2 DVI Matrix Switcher, 1.65 Gbps, DVI-I Connector

TMX-0202DVI-A
2×2 DVI & Audio Matrix Switcher, 1.65 Gbps, Video on DVI-I Connectors, Audio stereo on 3.5 mm Phone jacks (L+R)

TMX-0204DVI
2×4 DVI Matrix Switcher, 1.65 Gbps, DVI-I Connector

TMX-0204DVI-A
2×4 DVI & Audio Matrix Switcher, 1.65 Gbps, Video on DVI-I Connectors, Audio stereo on 3.5 mm Phone jacks (L+R)

TMX-0804DVI
8×4 DVI Matrix Switcher, 2.25 Gbps, DVI-I Connector

TMX-0804DVI-A
8×4 DVI & Audio Matrix Switcher, 2.25 Gbps, Video on DVI-I Connectors, Audio stereo on 5 pin 3.81 mm Phoenix Connectors

TMX-0808DVI
8×8 DVI Matrix Switcher, 2.25 Gbps, DVI-I Connector

TMX-0808DVI-A
8×8 DVI & Audio Matrix Switcher, 2.25 Gbps, Video on DVI-I Connectors, Audio stereo on 5 pin 3.81 mm Phoenix Connectors

5.1 Functions and indications

5.1.1 Front panel

5.1.1.1 TMX-0201DVI-A

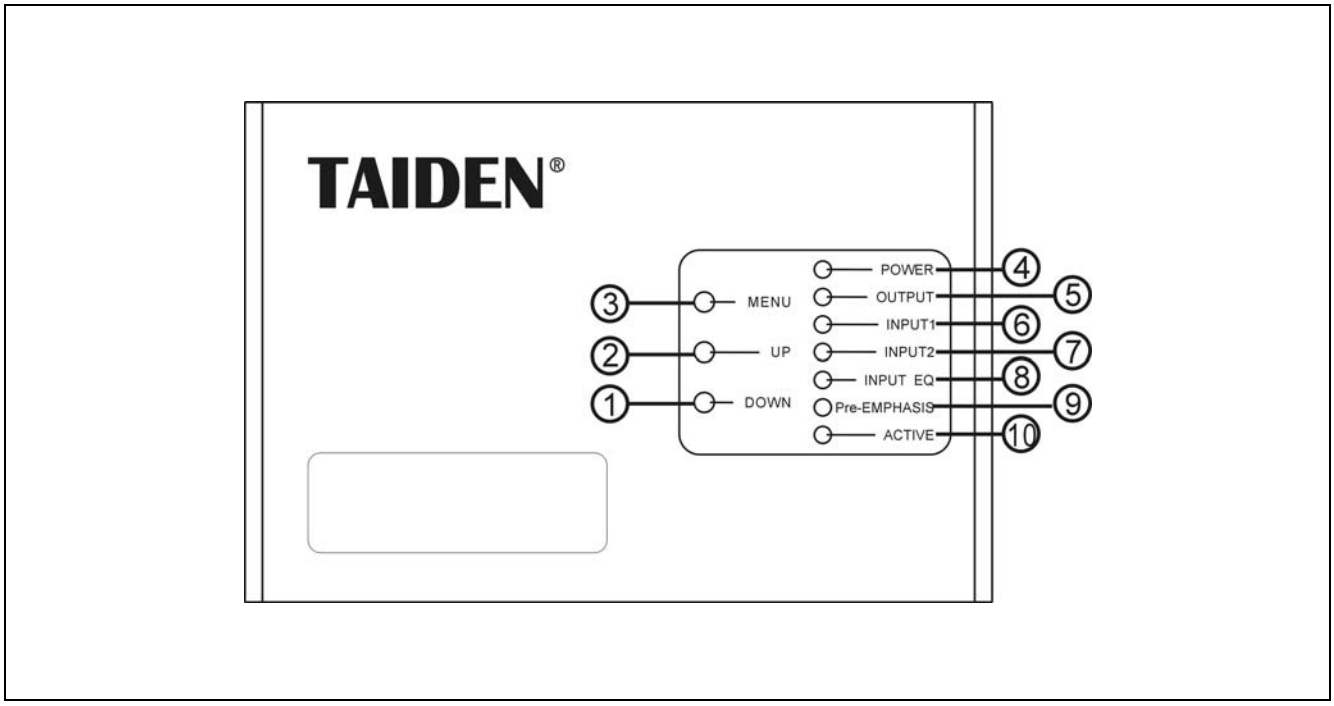


Figure 5.1 Front panel of TMX-0201DVI-A Switcher

Figure 5.1:

1. **"DOWN" button**
2. **"UP" button**
3. **"MENU" button**
4. **"POWER"** indicator
5. **"OUTPUT"** indicator
6. **"INPUT1"** indicator
7. **"INPUT2"** indicator
8. **"INPUT EQ"** indicator
9. **"Pre-EMPHASIS"** indicator
10. **"ACTIVE"** indicator
    - ♦ Indicator will be turned on if Matrix Switcher executes switch instructions.

5.1.1.2 TMX-0401DVI-A and TMX-02xxDVI(-A) series

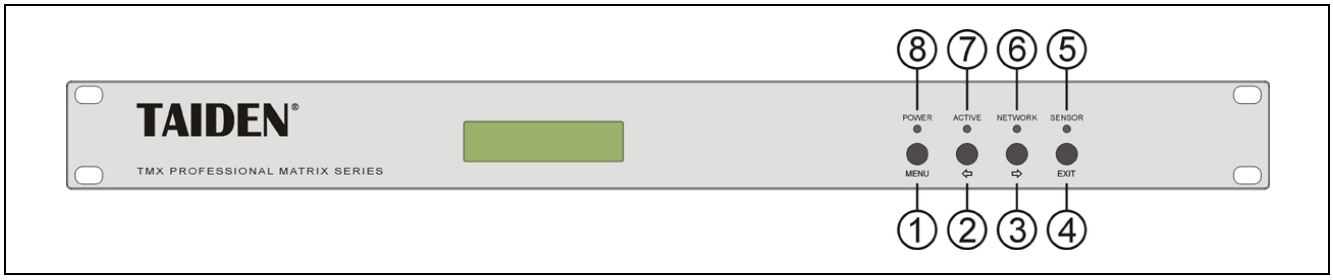


Figure 5.2 Front panel of TMX-0401DVI-A and TMX-02xxDVI(-A) series

Figure 5.2:

1. "MENU" button

a) If in current state, press "MENU" go to main menu;

b) If in menu state, press "MENU" go to sub menu;

c) Select/Deselect in network configuration.

2. "⇦" (Left) button

3. "⇨" (Right) button

4. "Exit" button

- Return to previous directory or root.

5. IR receiving window

- Receives the IR signals from remote control; make sure the remote control aims at the window.

6. "NETWORK" indicator

- Indicator flashes if Matrix Switcher is connected with PC software.

7. "ACTIVE" indicator

- Indicator will be turned on if Matrix Switcher executes switch instructions.

8. "POWER" indicator

5.1.1.3 TMX-08xxDVI(-A) series

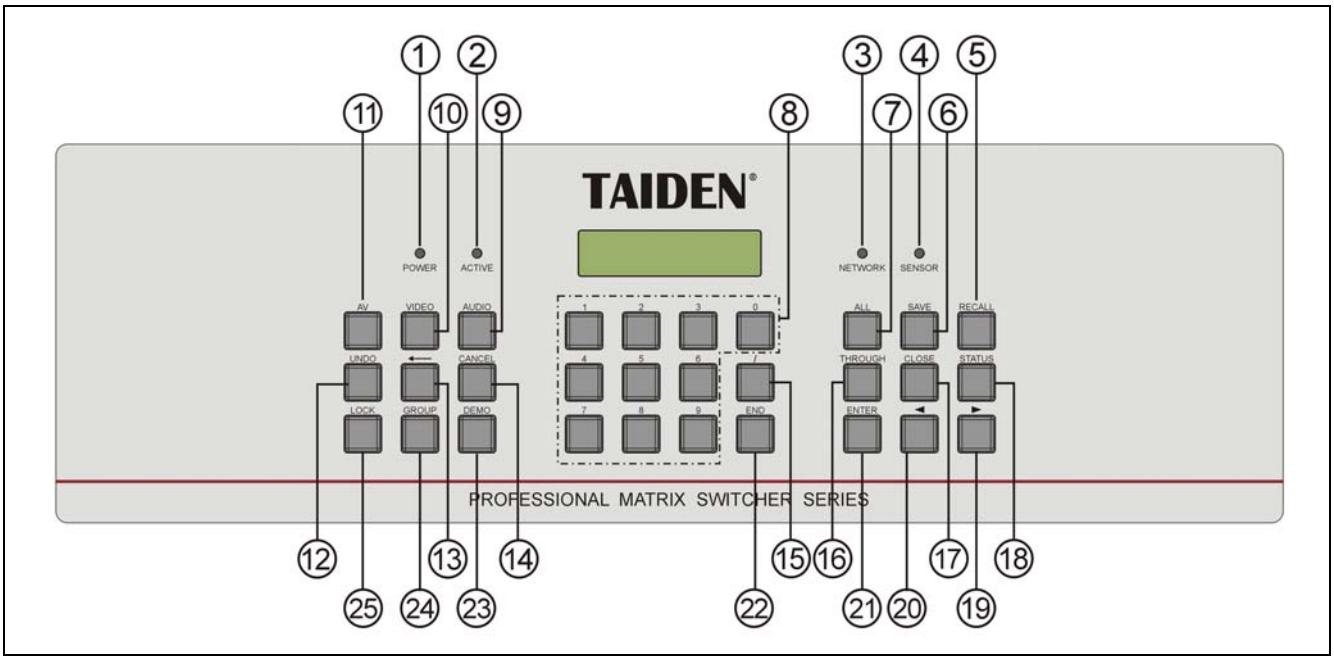


Figure 5.3 Front panel of TMX-08xxDVI(-A) series Matrix Switcher

Figure 5.3:

1. **"POWER" indicator**
2. **"ACTIVE" indicator**
   - Indicator will be turned on if Matrix Switcher executes switch instructions.
3. **"NETWORK" indicator**
   - Indicator flashes if Matrix Switcher is connected with PC software.
4. **IR receiving window**
   - Receives the IR signals from remote control; make sure the remote control aims at the window.
5. **"RECALL" button**
   - Recall the stored scene.
6. **"SAVE" button**
   - Save current channel status as appointed scene.
7. **"ALL" button**
   - Switch one input channel to all output channels.
8. **"0、1、2…9" button**
   - Number keys, used to select input or output channel, save scene number, recall scene number.
9. **"AUDIO" button**
   - Switch audio signal separately.
10. **"VIDEO" button**
    - Switch video signal separately.
11. **"AV" button**
    - Composite audio and video switch key.
12. **"UNDO" button**
    - Undo last switch operation.
13. **"←" button**
    - Backspace key, delete last input number or command.
14. **"CANCEL" button**
    - Back to root directory, when in setup menu, back to previous directory.
15. **"/" button**
    - Separator, displayed as "," on LCD. Used to space output channels if more than one channel is operated.
16. **"THROUGH" button**
    - Audio or video switch through from input channel to corresponding output channel.
17. **"CLOSE" button**
    - Close one or all output channels.
18. **"STATUS" button**
    - Query channel status.
19. **"►" button**
    - For right, forward and plus.
20. **"◄" button**
    - For left, backward and subtract.
21. **"ENTER" button**
    - Confirm or execute command.

22. “END” button

- ♦ End for a switch command.

23. “DEMO” button

- ♦ In DEMO status, channels are switched one by one.

24. “GROUP” button

- ♦ Maximum 5 groups and maximum 5 channels per group can be configured.

25. “LOCK” button

- ♦ Keyboard lock.

5.1.2 Rear panel

5.1.2.1 TMX-0201DVI-A

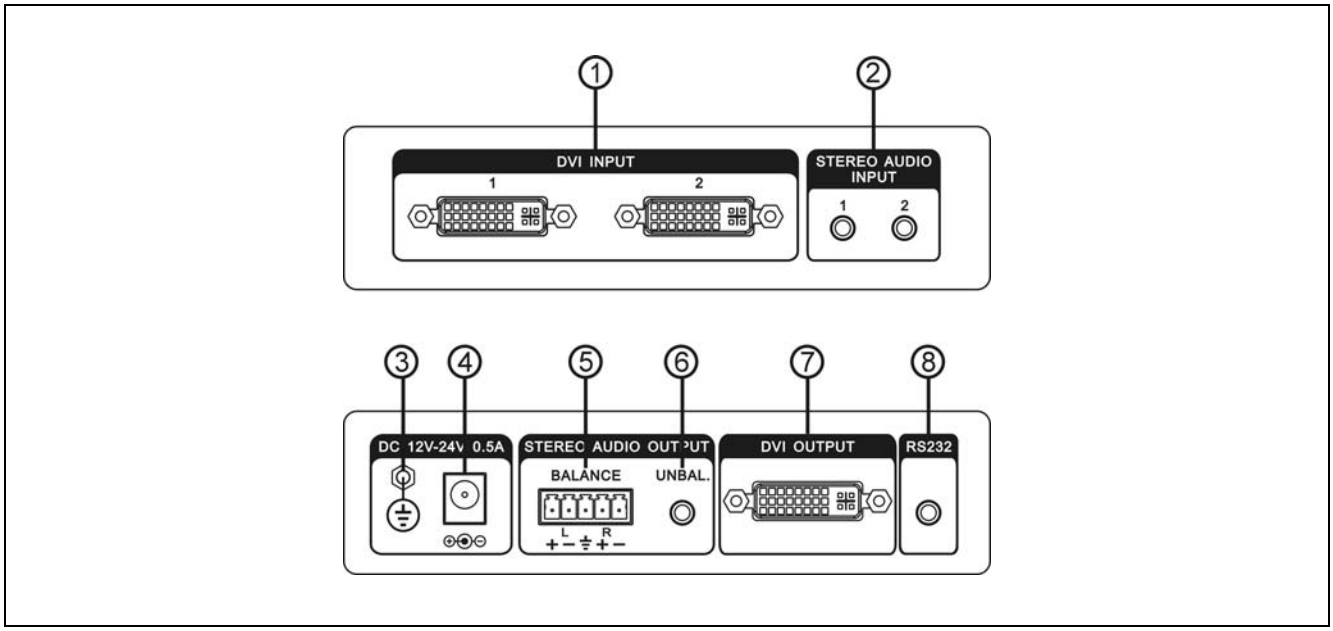


Figure 5.4 Side panels of TMX-0201DVI-A Switcher

Figure 5.4:

1. **DVI inputs**
2. **Stereo Audio inputs**
3. **Grounding point**
4. **Power cable interface**
5. **Stereo Audio output (Balanced)**
6. **Stereo Audio output (Unbalanced)**
7. **DVI output**
8. **RS-232 communication interface COM1**

5.1.2.2 TMX-0401DVI-A

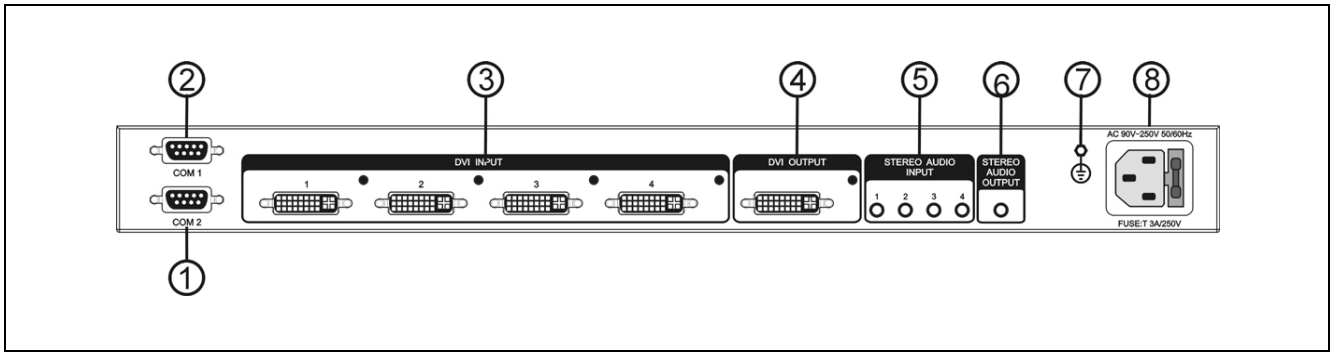


Figure 5.5 Rear panel of TMX-0401DVI-A Switcher

Figure 5.5:

1. **RS-232 communication interface COM2**
2. **RS-232 communication interface COM1**
3. **DVI inputs**
4. **DVI output**
5. **Stereo Audio inputs**
6. **Stereo Audio output**
7. **Grounding point**
8. **Power cable interface**

5.1.2.3 TMX-02xxDVI(-A) series

(Take TMX-0204DVI-A as example)

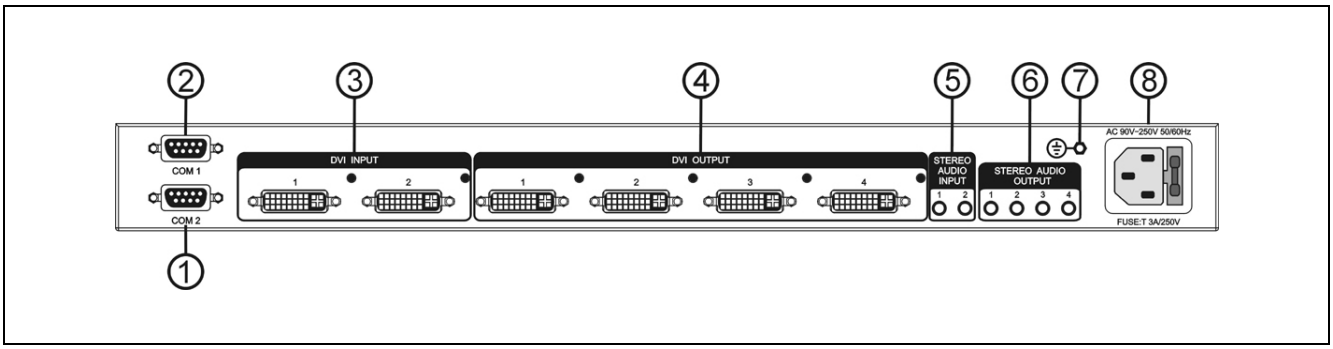


Figure 5.6 Rear panel of TMX-02xxDVI(-A) series Matrix Switcher

Figure 5.6:

1. **RS-232 communication interface COM2**
2. **RS-232 communication interface COM1**
3. **DVI inputs**
4. **DVI outputs**
5. **Stereo Audio inputs**
6. **Stereo Audio outputs**
7. **Grounding point**
8. **Power cable interface**

5.1.2.4 TMX-08xxDVI(-A) series

(Take TMX-0808DVI-A as example)

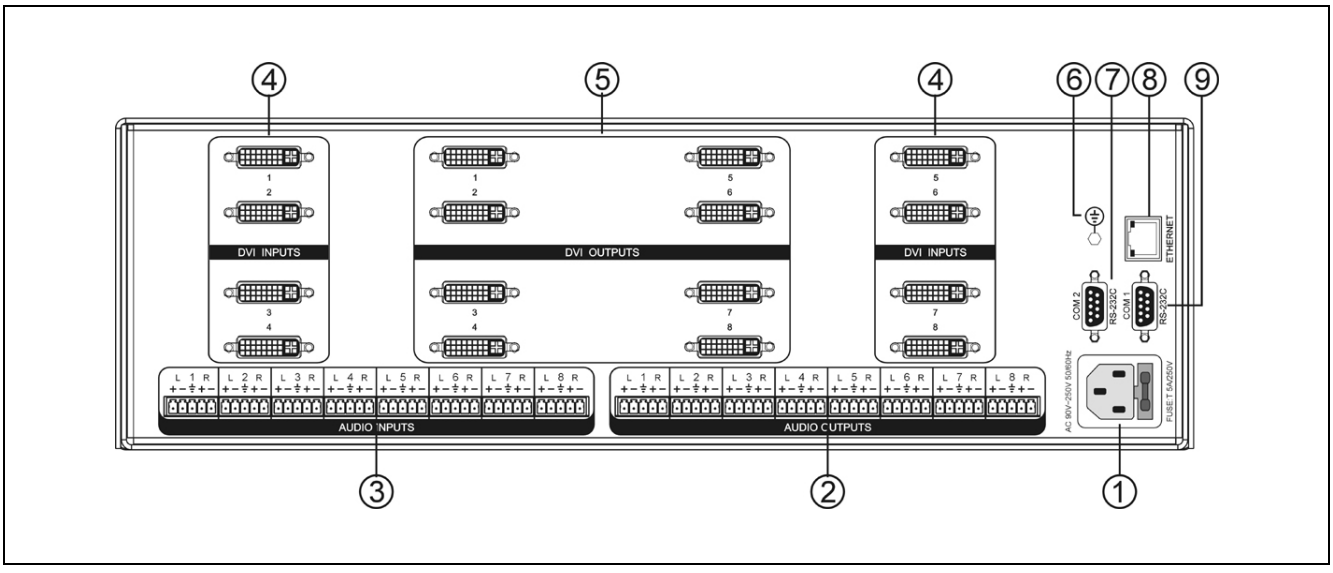


Figure 5.7 Rear panel of TMX-08xxDVI(-A) series Matrix Switcher

Figure 5.7:

1. **Power cable interface**
2. **Stereo Audio outputs**
3. **Stereo Audio inputs**
4. **DVI inputs**
5. **DVI outputs**
6. **Grounding point**
7. **RS-232 communication interface COM2**
8. **Ethernet interface**
9. **RS-232 communication interface COM1**

5.2 Installation and connection

5.2.1 Installation

TMX-0201DVI-A Switcher needn't installation, the other TMX series DVI Matrix Switchers can be fixed in an exactly fitting standard cabinet.

1U TMX series DVI Matrix Switchers just needs to put it into the cabinet, and fix it by screws.

Installation of 3U TMX series DVI Matrix Switchers: A couple of mounting brackets ① are attached to the product package. First release the screws ② from the lateral sides of the matrix. Bolt on the brackets to the housing by using the screws previously released. Now put the unit into the cabinet, and fix it by other screws. As figure 5.8.

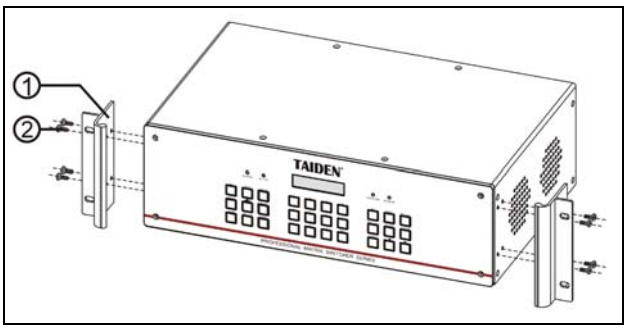


Figure 5.8 Installation

5.2.2 Audio Cable (TMX-08xxDVI-A series)

INPUTS from various audio source signals;
OUTPUTS to PA or active loudspeaker.

The audio signal can be injected both balanced and unbalanced.

Balanced Connection: two differential signals, one of which is the inverse of the other, are operated via a cable with two conductors of the same type and equal impedance to ground. Balanced connection minimizes unwanted interferences. Because audio signal tends to be disturbed in long distance transmission, balanced connection is commonly used in professional audio devices.

Unbalanced Connection: in unbalanced transmission the voltages on the two conductors are not equal to ground. Because non-balanced signal transmission tends to be disturbed, it is only used in non-professional audio devices.

The connection method should correspond to the requirements of the audio device interface. Whenever permitted balanced connection should be favored.

In case one device has a balanced interface and another device has an unbalanced interface, use balanced connection for balanced interface and unbalanced connection for unbalanced interface if there is no contradictory instruction.

If connection is strictly prescribed, please use balanced & unbalanced converter if required for appropriate connection.

As figure 5.9.

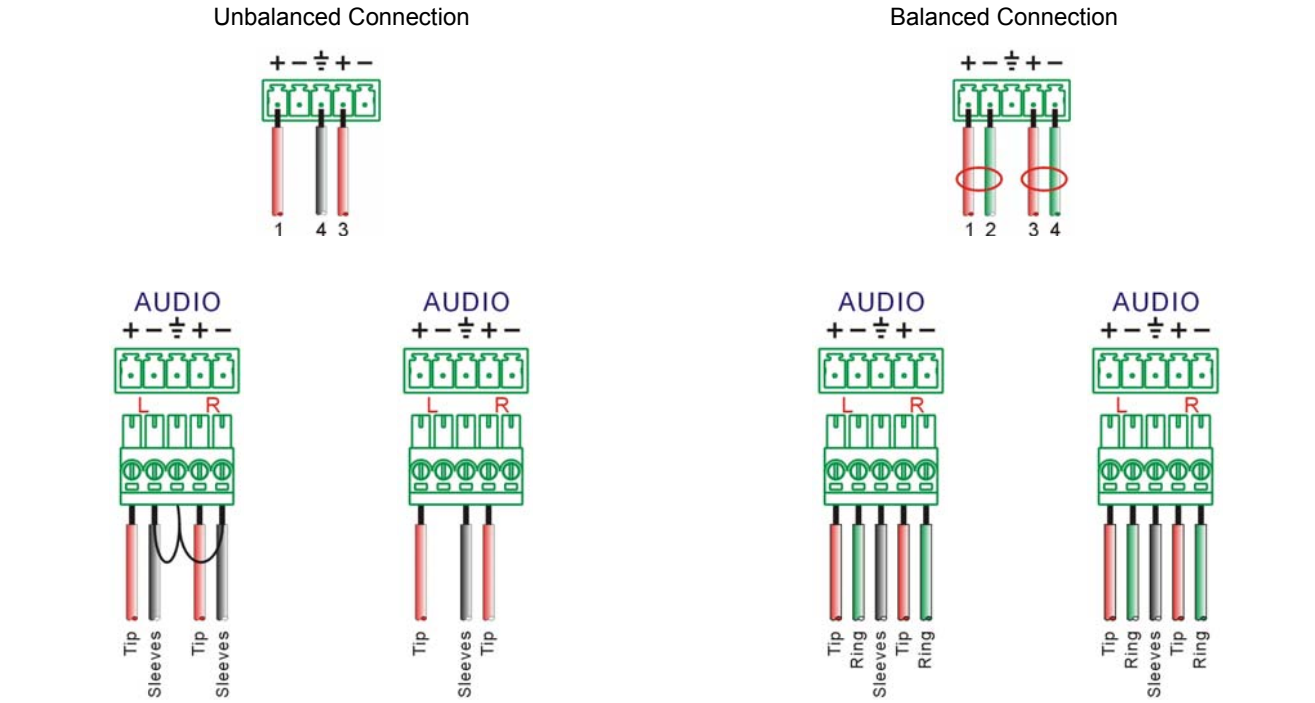


Figure 5.9 Balanced and Unbalanced connection

5.2.3 Connection between Matrix Switchers and PC

TMX series DVI Matrix Switchers can be controlled and setup by computer via TCP/IP or RS-232 interface COM2.

TCP/IP requires Cat.5 twisted pair cable.

TMX series DVI Matrix Switchers can be controlled by Central Control System via RS-232 interface COM1, this interface is also used for software upgrade.

5.2.4 Connection with input, output devices

The number of input and output ports is differing, according to the type chosen. Every audio or video device with an DVI port can be connected to the DVI Matrix Switcher. Output ports can be connected to recorder、video or audio monitor, PA, as shown in figure 5.10.

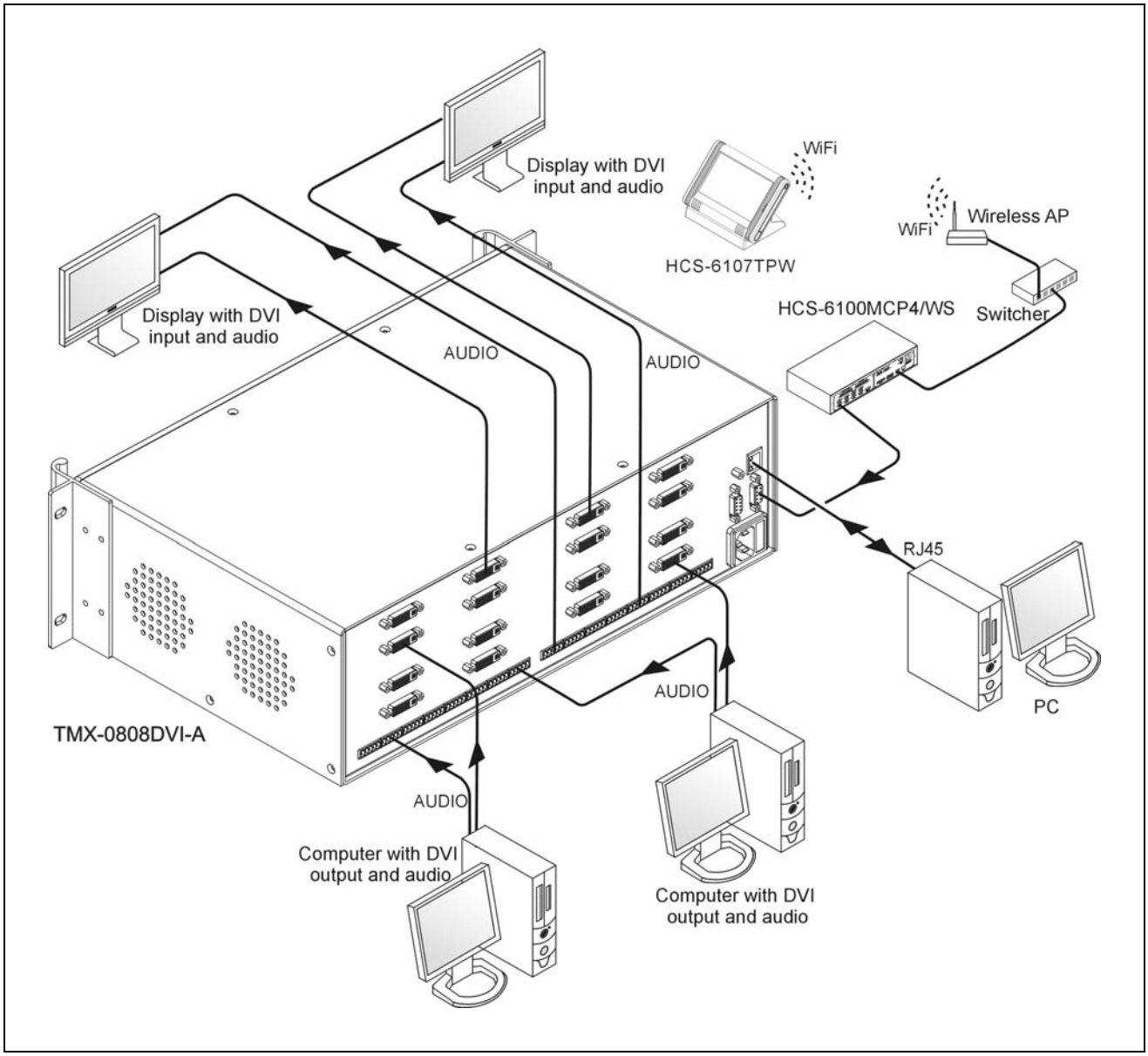


Figure 5.10 Connection example for input and output devices to DVI Matrix Switchers

5.3 Setup and Operation

5.3.1 TMX-0201DVI-A

5.3.1.1 Menu setup

Press “MEMU” to browse the menu, including: Input EQ, Pre-EMPHASIS.

1. Input EQ adjustment

Input cable can be much longer through input EQ adjustment, mostly used for long line input.
Enter “Input EQ” menu, the “Input EQ” LED on the front panel will be turned on. At this time, use “UP” and “DOWN” button to adjust EQ, EQ value can be: 0 dB, +6 dB, +12 dB.

2. Output pre-emphasis adjustment

Output distance can be extended through output pre-emphasis, mostly used for long line output.
Enter “Pre-EMPHASIS” menu, the “Pre-EMPHASIS” LED on the front panel will be turned on. At this time, use “UP” and “DOWN” button to adjust pre-emphasis value, pre-emphasis value can be: 0 dB, +2 dB, +4 dB, +6 dB.

3. Serial port configuration

When the light of “INPUT EQ” and “Pre-EMPHASIS” are turned on at the same time, serial port communication type can be configured by “UP” and “DOWN” button. There are two types: one for connecting to PC software, another for updating firmware or connecting to central control system. When connecting to PC software, you need to exit the menu. (Serial port will be set default as updating firmware or connecting to central control system when reboot).
Connecting to PC software: Baudrate: 38400, data: 8 bits, stop: 1 bit, no parity.
Connecting to central control system: Baudrate: 9600, data: 8 bits, stop: 1 bit, no parity.

5.3.1.2 Output selection

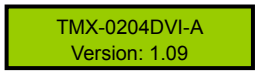
There are two inputs: INPUT1 and INPUT2. When not in setup menu, press “UP’ and “DOWN” button can switch between 2 inputs and corresponding LED will be turned on. When switching, “ACTIVE” LED will be turned on. Audio and video will be switched synchronously.

5.3.2 TMX-0401DVI-A and TMX-02xxDVI(-A) series

5.3.2.1 Menu setup

To explain menu setup of 1U series DVI Matrix Switcher, TMX-0204DVI-A serves as example.

TMX-0204DVI-A main interface:



Setup menu of TMX-0204DVI-A series Matrix Switcher, including:

1. Sync Switch Delay

2. Ring

3. PC connect mode

* TMX-0401DVI-A and TMX-02xxDVI(-A) series don't have Ethernet interface, PC connect mode is fixed to RS232.

4. COM2 Baud rate

5. Demo Switch Delay

6. COM1 protocol

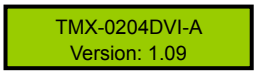
7. Test button

* Tested button is working if character changes when button is pressed.

Menu 1 to menu 6 are explained explicitly:

1. Sync Switch Delay

When switching from one video input source to another, a brief time delay is required to adjust to sync data of the new source before a new undisturbed signal is sent. User may select a value from 0 to 5 seconds for a proper transition to the new video source. 0 is default value. Select by 50 ms steps.



⇩ 1. Press "MENU" to enter setup menu and press "⇦/⇨" until "Setting" prompts;

⇩ 2. Press "MENU" and press "⇦/⇨" until "SyncSwitchDelay" prompts;

⇩ 3. Press "MENU" to enter setup;

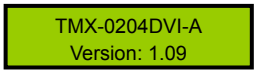
⇩ 4. Press "⇦/⇨" to select parameter;

⇩ 5. Press "MENU" to confirm.

2. Ring

Buzzer ring on-off of this unit. If buzzer ring is setup “on”, the buzzer will ring when front panel operation, PC software executing switch and receiving command from central control system. The buzzer ring can be setup “off”.

- ON: open;
- OFF: close.



1. Press “MENU” to enter setup menu and press “⇦/⇨” until “Setting” prompts;

2. Press “MENU” and press “⇦/⇨” until “Ring” prompts;

3. Press “MENU” to enter setup;

4. Press “⇦/⇨” to select parameter;

5. Press “MENU” to confirm.

3. PC connect mode

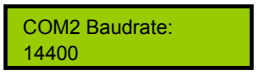
TMX-0401DVI-A and TMX-02xxDVI(-A) series don’t have Ethernet interface, PC connect mode is fixed to RS232.

4. COM2 Baud rate

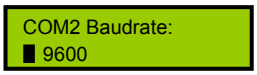
If PC connect mode RS-232 is selected, available COM2 baud rates are: 9600, 14400, 19200, 28800, 38400 and 57600.
COM1 is invariable and fixed to 9600 bit/s.

1. Press “MENU” and press “⇦/⇨” until “Setting” prompts;

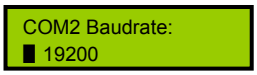
2. Press “MENU” and press “⇦/⇨” until “COM2 Baud rate” prompts;



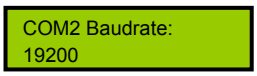
3. Press “MENU” to enter setup;



4. Press “⇦/⇨” to select parameter;

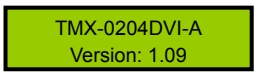


5. Press “MENU” to confirm.

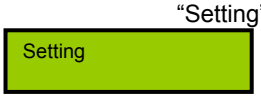


5. Demo Switch Delay

The interval ranges from 2 seconds to 60 seconds by steps of 2 seconds.



1. Press “MENU” and press “⇦/⇨” until “Setting” prompts;



2. Press “MENU” and press “⇦/⇨” until “Demo Switch Delay” prompts;

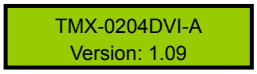
3. Press “MENU” to enter setup;

4. Press “⇦/⇨” to adjust parameter;

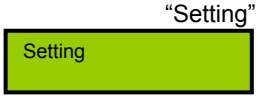
5. Press “MENU” to confirm.

6. COM1 protocol

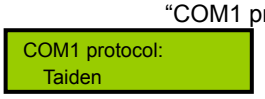
Select the protocol to connect an external central control system, including: Taiden, Extron, Other. New protocols can be added by the user.



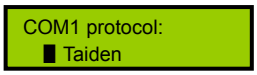
1. Press “MENU” and press “⇦/⇨” until “Setting” prompts;



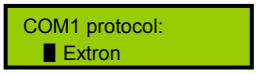
2. Press “MENU” and press “⇦/⇨” until “COM1 protocol” prompts;



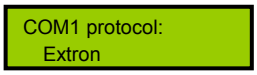
3. Press “MENU” to enter setup;



4. Press “⇦/⇨” to select parameter;



5. Press “MENU” to confirm.



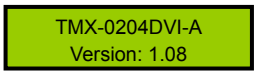
5.3.2.2 Switch operation

To explain menu operation of 1U series DVI Matrix Switcher, TMX-0204DVI-A type serves as example.

Note:

- ☞ If any menu item is edited, except setup menu, a key must be pressed within 15 seconds otherwise the system will return to main menu item automatically and erase the previous channel setup.
- ☞ To return to main menu press any key if currently editing user interface is switch finish interface, display input, output status interface or DEMO interface. To return to main menu if editing other user interface press “EXIT” or “⇦”.
- ☞ If new input source signal is switched, please wait until previous source is switched off. Wait according to Sync switch Delay (refer to section 5.3.2.1)

TMX-0204DVI-A main interface:



Press “MENU” to enter switch menu, including:

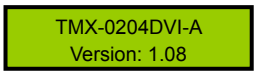
1. Switch Video
2. Switch Audio
3. Switch through
* Switch through one channel or all channels.
4. Close
* Close one output or all outputs.
5. Save scene
6. Recall scene
7. Undo
* Undo last switch.
8. Demo Switch
* Switch one by one.
9. Setting
* Setup menu.
10. Status
* Request channel state.
11. Auto Switch
12. Input EQ
13. DVI preemphasis

Menu 1 to menu 13 are explained explicitly:

1. Switch Video

Video switch key, switch one input video signal to any or all output channels.

Example: Switch Video signal of input channel 1 to output channel 3



⇩ 1. Press “MENU” to enter menu;

⇩ 2. Press “MENU” to enter “Switch Video”;

⇩ 3. Press “MENU” to select input channel;

4. Press “⇦/⇨” to adjust input channel as “1”;

⇩ 5. Press “MENU” to select output channel;

6. Press “⇦/⇨” to adjust output channel as ”3”;

⇩ 7. Press “MENU” to confirm and press “EXIT” twice.

Note:

- ☞ If input channel displays “0”, output channel is closed.
- ☞ If output channel displays “ALL”, input channel is switched to all output channels.

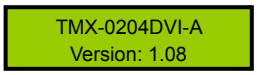
2. Switch Audio

Audio switch key, switch one input audio signal to any or all output channels.
For switch audio proceed such as described in “Switch Video”.

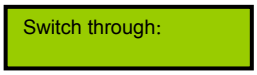
3. Switch through

Switch through one input channel or all input channels to corresponding output channel(s).

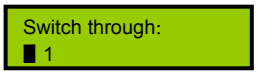
Example: Switch through channel 2.



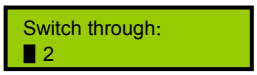
1. Press “MENU” and press “⇦/⇨” until “Switch through” prompts;



2. Press “MENU” to enter “Switch through”;



3. Press “⇦/⇨” to select channel “2”;



4. Press “MENU” to confirm.

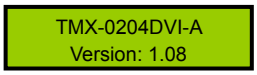
Note:

☞ Select “All” standing for switch through all channels.

4. Close

Close one output channel or all output channels.

Example: Close output channel 2



1. Press “MENU” and press “⇦/⇨” until “Close” prompts;

2. Press “MENU” to enter “Close” menu;

3. Press “⇦/⇨” to select channel “2”;

4. Press “MENU” to confirm.

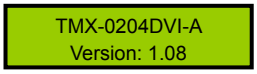
Note:

☞ Select “ALL” stands for closing all channels.

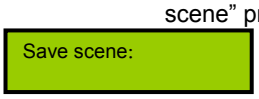
5. Save scene

Save current video signal to appointed scene. 10 scenes can be saved at most, each scene has a number, from 0 to 9.

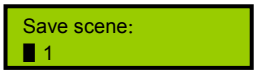
Example: Save scene 3



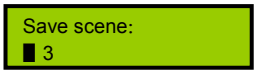
1. Press “MENU” and press “⇦/⇨”until “Save scene” prompts;



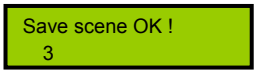
2. Press “MENU” to enter “Save scene”;



3. Press “⇦/⇨” to select scene number “3”;



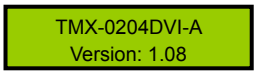
4. Press “MENU” to confirm.



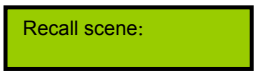
6. Recall scene

Recall video signal from selected scene.

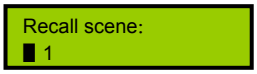
Example: Recall scene 3



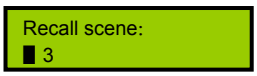
1. Press “MENU”, and press “⇦/⇨” until “Recall scene” prompts;



2. Press “MENU” to enter “Recall scene”;



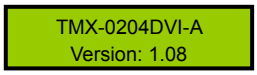
3. Press “⇦/⇨” select scene number “3”;



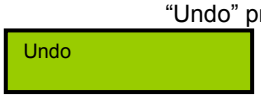
4. Press “MENU” to confirm.

7. Undo

Undo last switch operation.



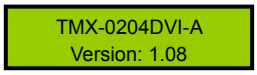
⇩ 1. Press “MENU”, and press “⇦/⇨”until “Undo” prompts;



⇩ 2. Press “MENU” to execute.

8. Demo Switch

Switches one by one all possible combinations from 1→1, 1→2, …, 1→4, 2→1, 2→2, … to 2→4. The interval can be setup via setup menu (Refer to section 5.3.2.1).



⇩ 1. Press “MENU” and press “⇦/⇨” until “Demo switch” prompts;

⇩ 2. Press “MENU” to execute.

9. Setting

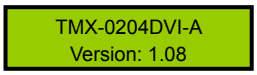
Setup menu.

⇩ 1. Press “MENU” and press “⇦/⇨” until “Setting” prompts;

⇩ 2. Press “MENU” to enter setup status. Refer to section 5.3.2.1 for details.

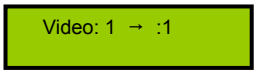
10. Status

Request corresponding state of input and output channels.

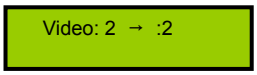


⇩ 1. Press “MENU” and press “⇦/⇨” until “Status” prompts;

⇩ 2. Press “MENU” to request corresponding status;



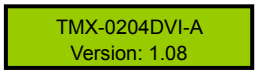
⇩ 3. Press “⇦/⇨” to request next status.



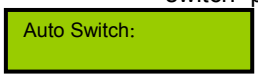
11. Auto Switch

When this function is open, and there is only one input and only one output is connected in the system, system will switch the input signal to output channel automatically without any operation.

- ON: open;
- OFF: close.

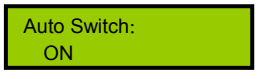


⇩ 1. Press “MENU” and press “⇦/⇨” until “Auto switch” prompts;

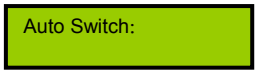


⇩ 2. Press “MENU” to enter “Auto switch” menu;

⇩ 3. Press “⇦/⇨” to select parameter;

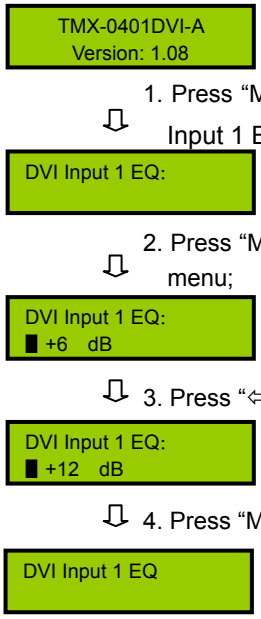


⇩ 4. Press “MENU” to execute.



12. Input EQ

Input cable can be much longer through input EQ adjustment, mostly used for long line input. For TMX-0401DVI-A, EQ value can be: +6 dB or +12 dB.



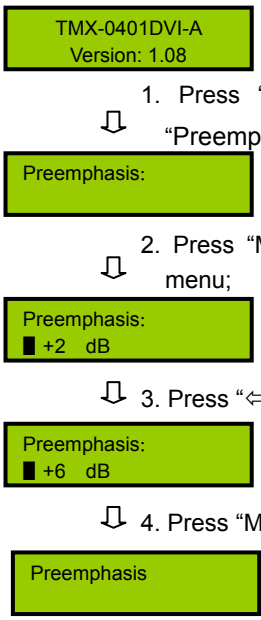
For setup “DVI Input 2 EQ” proceed such as described in “DVI Input 1 EQ”.

Note:

☞ For TMX-02xxDVI(-A), EQ will be adjusted automatically and no configuration is needed.

13. Preemphasis

Output distance can be extended through output pre-emphasis, mostly used for long line output. For TMX-0401DVI-A, pre-emphasis value can be: 0 dB, +2 dB, +4 dB, +6 dB.



Note:

☞ For TMX-02xxDVI(-A), pre-emphasis value will be adjusted automatically and no configuration is needed.

5.3.3 TMX-08xxDVI(-A) series

5.3.3.1 Menu setup

To explain menu setup of 3U series DVI Matrix Switcher, TMX-0808DVI-A serves as example.

TMX-0808DVI-A main interface:

Setup menu of TMX-08xxDVI(-A) series Matrix Switcher, including:

1. Sync Switch Delay
2. IP address
3. Subnet mask
4. Gate way
5. Ring
6. Input password
7. PC connect mode
8. COM2 Baud rate
9. Demo switch delay
10. COM1 protocol
11. Test button

* Tested button is working if character changes when button is pressed.

Menu 1 to menu 10 are explained explicitly:

1. Sync Switch Delay

When switching from one video input source to another, a brief time delay is required to adjust to sync data of the new source before a new undisturbed signal is sent. User may select a value from 0 to 5 seconds for a proper transition to the new video source. 0 is default value. Select by 50 ms steps.

1. Press “0” for 5 seconds to enter setup menu and press “◄/►” until “Sync Switch Delay” prompts;

2. Press “ENTER” to enter setup;

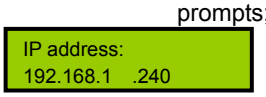
3. Press “◄/►” to adjust parameter;

4. Press “ENTER” to confirm.

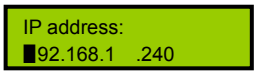
2. IP address

An IP address, Subnet mask and Gateway must be assigned to the matrix if connected to a TCP/IP Ethernet interface.

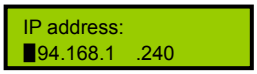
1. Press “0” for 5 seconds to enter setup menu and press “◄/►” until “IP address” prompts;



2. Press “ENTER” to enter setup;

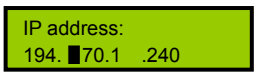


3. Press “◄/►” to adjust parameter;

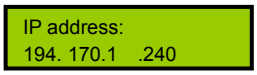


4. Press “END” to enter next parameter setup;

5. Press “◄/►” to adjust parameter;



6. Press “CANCEL” to confirm.



3. Subnet mask

For setup of “Subnet mask” proceed such as described in “IP address”.

4. Gate way

For setup of “Gate way” proceed such as described in “IP address”.

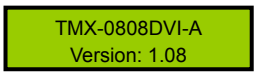
Note:

☞ After setup of the first parameter of the above four parameters of the IP address, Subnet mask and Gateway, user must press “ENTER” again, immediately after having pressed “END”, to modify the second parameter. Repeat for parameter 3 and 4 for continuous change. Otherwise setup is limited to one single parameter only.

5. Ring

Buzzer ring on-off of this unit. If buzzer ring is setup “on”, the buzzer will ring when front panel operation, PC software executing switch and receiving command from central control system. The buzzer ring can be setup “off”.

- ON: open;
- OFF: close.



1. Press “0” for 5 seconds to enter setup menu and press “◄/►” until “Ring” prompts;

2. Press “ENTER” to enter setup;

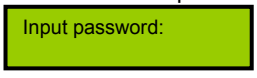
3. Press “◄/►” to select parameter;

4. Press “ENTER” to confirm.

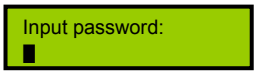
6. Input password

Set unlock password, password must be 5 bits. Original password is 11111.

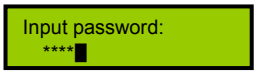
1. Press “0” for 5 seconds to enter setup menu and press “◄/►” until “Input password” prompts;



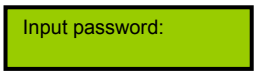
2. Press “ENTER” to enter setup;



3. Input password;



4. Press “ENTER” to confirm.

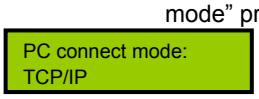


7. PC connect mode

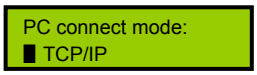
Select mode for PC connection:

- TCP/IP
- RS-232

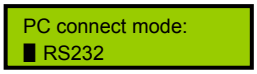
1. Press “0” for 5 seconds to enter setup menu and press “◄/►” until “PC connect mode” prompts;



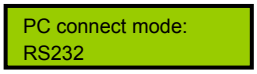
2. Press “ENTER” to enter setup;



3. Press “◄/►” to select parameter;



4. Press “ENTER” to confirm.



8. COM2 Baud rate

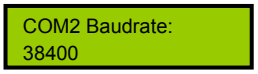
If PC connect mode RS-232 is selected, available COM2 baud rates are: 9600, 14400, 19200, 28800, 38400 and 57600.
COM1 is invariable and fixed to 9600 bit/s.

Note:

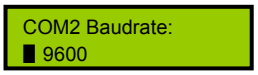
☞ If connect mode TCP/IP is selected, the baud rate is fixed to 115200 bit/s and cannot be modified.

Setup example for mode is RS232:

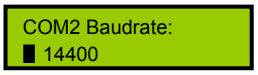
1. Press “0” for 5 seconds to enter setup menu and press “◄/►” until “COM2 Baudrate” prompts;



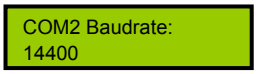
2. Press “ENTER” to enter setup;



3. Press “◄/►” to select parameter;



4. Press “ENTER” to confirm.



9. Demo Switch Delay

The interval between 2 switching operations can range from 2 s to 60 s by step of 2 s.

1. Press “0” for 5 seconds to enter setup menu and press “◄/►” until “DemoSwitchDelay” prompts;

2. Press “ENTER” to enter setup;

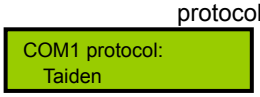
3. Press “◄/►” to adjust parameter;

4. Press “ENTER” to confirm.

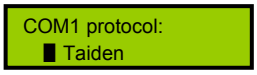
10. COM1 protocol

Select the protocol to connect an external central control system, including Taiden, Extron and Other. New protocols can be added by the user.

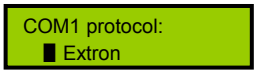
1. Press “0” for 5 seconds to enter setup menu and press “◄/►” until “COM1 protocol” prompts;



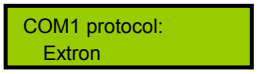
2. Press “ENTER” to enter setup;



3. Press “◄/►” to select parameter;



4. Press “ENTER” to confirm.



5.3.3.2 Switch operation

To explain switch operation of 3U series DVI Matrix Switcher, TMX-0808DVI-A serves as example.
The other 3U series DVI Matrix Switcher can refer to it, except some types have no audio signal switch.

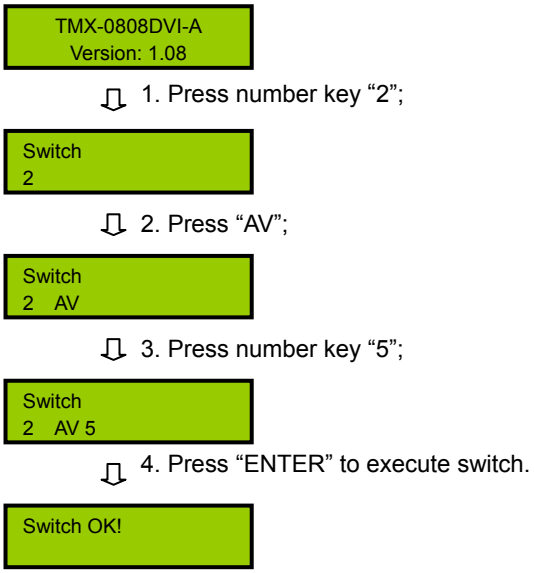
Note:

- The functions of buttons in this section have been introduced in section 5.1.1; “V” stands for video, “A” stands for audio.
- “Input channel” and “output channel” number must be less than matrix type. For example: TMX-08xxDVI-A series can only input number 1~8.
- If any menu item is edited, except setup menu, a key must be pressed within 15 seconds otherwise the system will return to main menu item automatically and erase the previous channel setup.
- To return to main menu press any key if currently editing user interface is switch finish interface, display input, output status interface or DEMO interface. To return to main menu if editing other user interface press “CANCEL” or “←”.
- If new input source signal is switched, please wait until previous source is switched off. Wait according to Sync switch Delay (refer to section 5.3.3.1)

1. AV

Composite audio and video switch key, switch one input audio and video signal to any output channel.

Example: Switch composite audio and video signal of input channel 2 to output channel 5 synchronously.



2. AUDIO

Switch audio signal separately, switch one input audio signal to any output channel.

Example: Switch audio signal of input channel 1 to output channel 3 and 7 synchronously.

1. Press number key “1”;

2. Press “AUDIO”;

3. Press number key “3”;

4. Press “/”;

5. Press number key “7”;

6. Press “ENTER” to execute switch.

Note:

☞ If there are more than one output channels, use “/” key to separate them, and it will be shown as “,” on LCD.

3. VIDEO

Switch video signal separately, switch one input video signal to any output channel.

Example: Switch video signal of input channel 7 to all output channels synchronously.

1. Press number key “7”;

2. Press “VIDEO”;

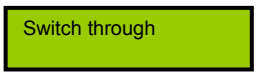
3. Press “ALL” to execute switch.

4. THROUGH

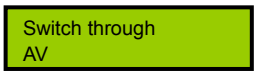
AV switch through from input channel to corresponding output channel.

Example 1: Switch audio and video signal from input channel 1, 2, 3 to corresponding output channel 1, 2, 3 respectively.

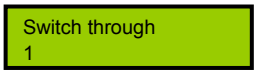
1. Press “THROUGH”;



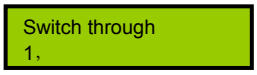
2. Press “AV” to swith audio and video signals synchronously;



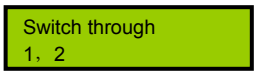
3. Press number key “1”;



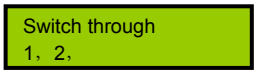
4. Press “/”;



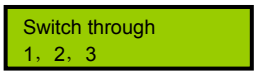
5. Press number key “2”;



6. Press “/”;



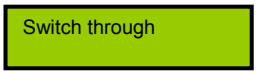
7. Press number key “3”;



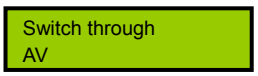
8. Press “ENTER” to execute switch.

Example 2: Switch audio and video signal from all input channels to all corresponding output channels respectively, i.e. 1→1，2→2，3→3，4→4…

1. Press “THROUGH”;



2. Press “AV” to swith audio and video signals synchronously;



3. Press “ALL” to execute switch.

5. CLOSE

Close one output channel or all output channels.

Example: Close audio of output channel 7.

1. Press “CLOSE”;

2. Press “AUDIO”;

3. Press number key “7”;

4. Press “ENTER” to execute switch.

Note:

☞ If “ALL” is pressed instead of “7”, all output channels are closed in this case.

6. UNDO

Undo last completely terminated and validated switch operation, and come back to the status before executing the last switch.

TMX-0808DVI-A
Version: 1.08

⇩ Press “UNDO” to execute.

Switch OK!

7. GROUP

Group key: to compose not more than 5 groups, each group with not more than 5 output channels.

Example 1: take output channel 1, 2, 3, 4, 5 as group 1.

TMX-0808DVI-A
Version: 1.08

⇩ 1. Press “GROUP”;

Group Define

⇩ 2. Press number key “1”;

Group Define 1:

⇩ 3. Press number key “1”;

Group Define 1:
1

⇩ 4. Press “/”;

Group Define 1:
1,

⇩ 5. Press number key “2”;

Group Define 1:
1，2

⇩ 6. Press “/”;

Group Define 1:
1，2,

⇩ 7. Press number key “3”;

Group Define 1:
1，2，3

⇩ 8. Press “/”;

Group Define 1:
1，2，3,

⇩ 9. Press number key “4”;

Group Define 1:
1，2，3，4

⇩ 10. Press “/”;

Group Define 1:
1，2，3，4,

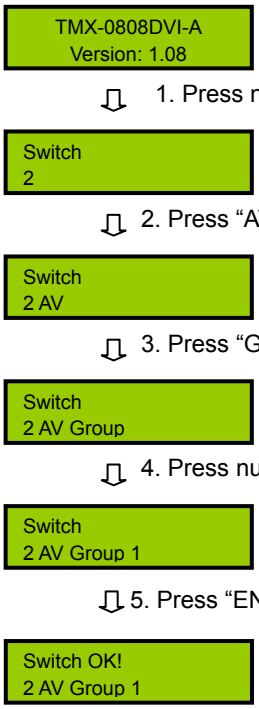
⇩ 11. Press number key “5”;

Group Define 1:
1，2，3，4，5

⇩ 12. Press “ENTER” to confirm.

TMX-0808DVI-A
Version: 1.08

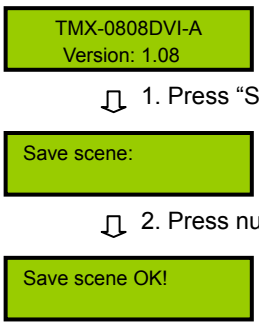
Example 2: switch composite audio and video signal of input channel 2 to all output channels of group 1.



8. SAVE

Save current AV signal to appointed scene. AV Matrix Switchers can save 10 scenes, each scene has a number, from 0 to 9.

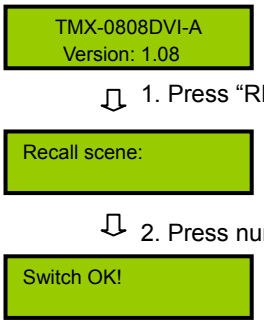
Example: Save current input and output channel status in scene 1



9. RECALL

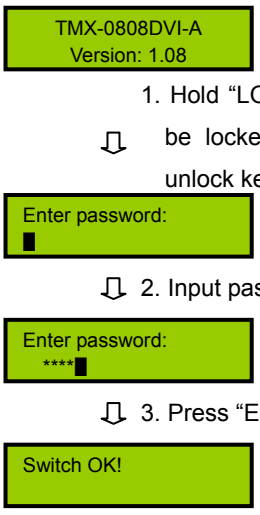
Recall AV signal from selected scene.

Example: Recall scene 3 and execute it.



10. LOCK

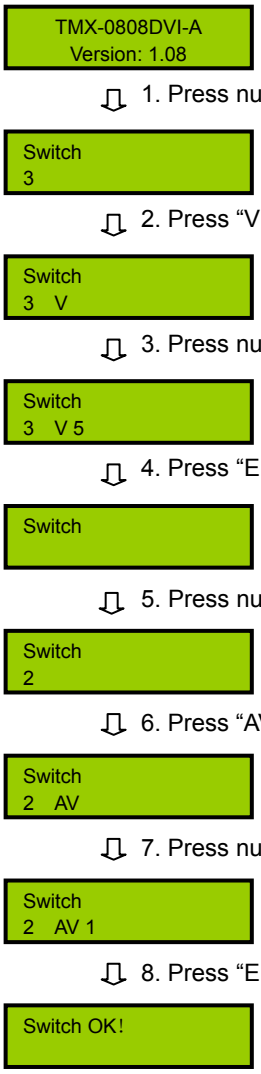
Keyboard lock: if “LOCK” is hold for 3 seconds, keyboard will be locked. Thereafter password is needed to unlock keyboard. Ethernet and RS-232 control are not locked. Original password is: 11111.



11. END

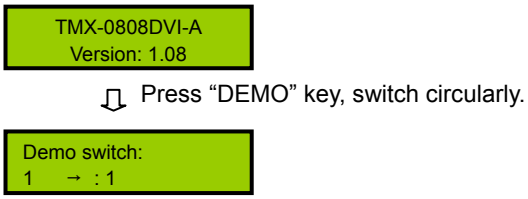
End for a switch command.

Example: Switch video signal of input channel 3 to output channel 5, and switch composite audio and video signal of input channel 2 to output channel 1 synchronously.



12. DEMO

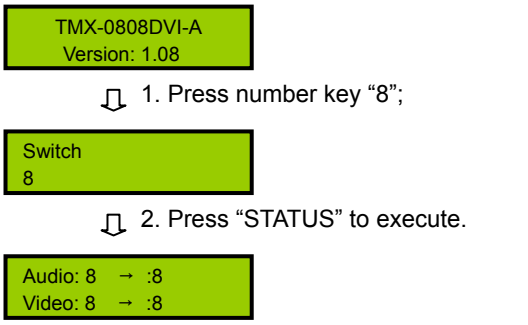
Switches one by one all possible combinations from 1→1, 1→2, …, 1→8, 2→1, 2→2, …, 2→8, …, 8→1, 8→2, …to 8→8. The interval can be setup via setup menu.



13. STATUS

Query channel status, used to query corresponding state of input and output channels.

Example: Query channel 8 status.



Note:

- ☞ Pressing “STATUS” key permanently will display all channel status one by one.
- ☞ Pressing “◄/►” key permanently will display previous/next channel status one by one.

Chapter 6. HDMI Switchers

TAIDEN TMX series HDMI Switchers are designed to switch HDMI signals. One individually isolated HDMI signal can be switched to output. HDMI Switchers can be connected to PC software and central control system via TCP/IP, RS-232 or infrared wireless.
HDMI Switchers are available in 3 options: from 2×1 to 8×1, applicable to various situations such as large-screen display, television education, exhibitions, college room, family cinema, etc.

Product types:

TMX-0201HDMI

2×1 HDMI Switcher, 2.25 Gbps, HDMI 1.3-compliant

TMX-0401HDMI

4×1 HDMI Switcher, 2.25 Gbps, HDMI 1.3-compliant

TMX-0801HDMI

8×1 HDMI Switcher, 2.25 Gbps, HDMI 1.3-compliant

6.1 Functions and indications

6.1.1 TMX-0201HDMI and TMX-0401HDMI

6.1.1.1 Front panel

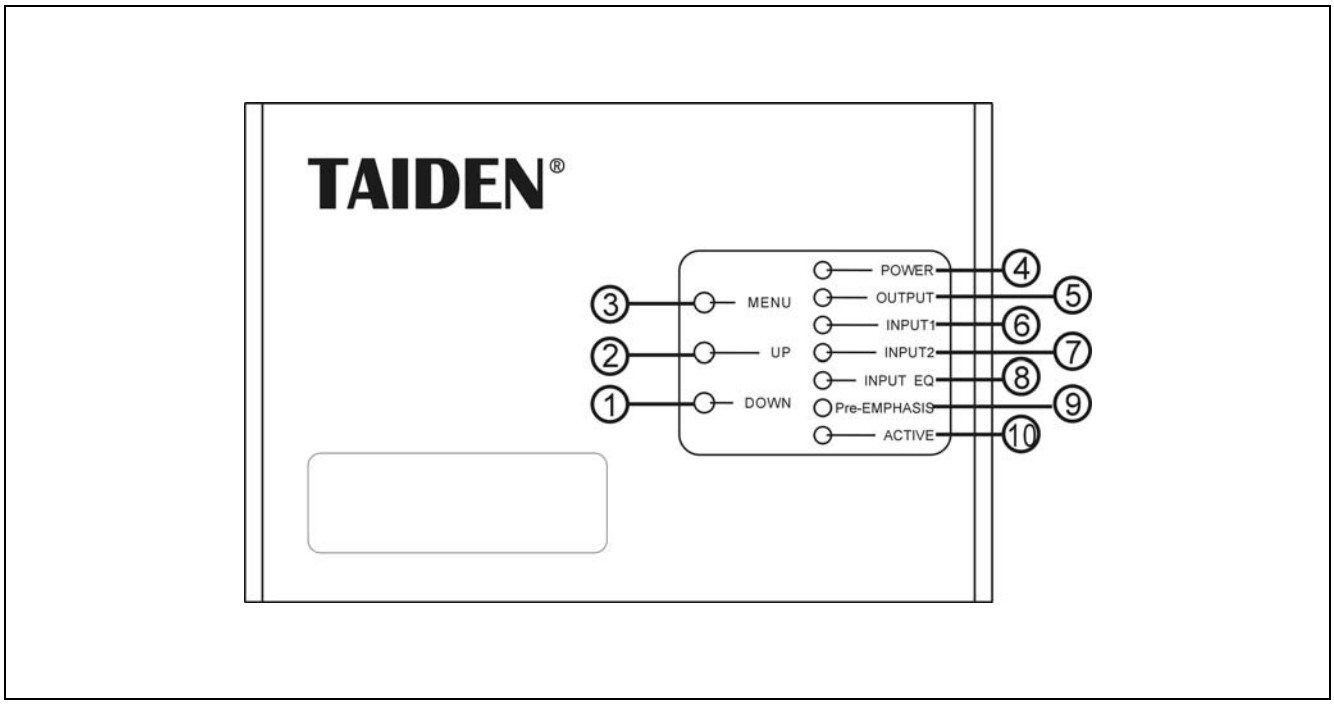


Figure 6.1 Front panel of TMX-0201HDMI and TMX-0401HDMI Switchers

Figure 6.1:

1. **"DOWN" button**
2. **"UP" button**
3. **"MENU" button**
4. **"POWER"** indicator
5. **"OUTPUT"** indicator
6. **"INPUT1"** indicator
7. **"INPUT2"** indicator
8. **"INPUT EQ"** indicator
9. **"Pre-EMPHASIS"** indicator
10. **"ACTIVE"** indicator
    - ♦ Indicator will be turned on if Matrix Switcher executes switch instructions.

6.1.1.2 Rear panel

(Take TMX-0401HDMI as example)

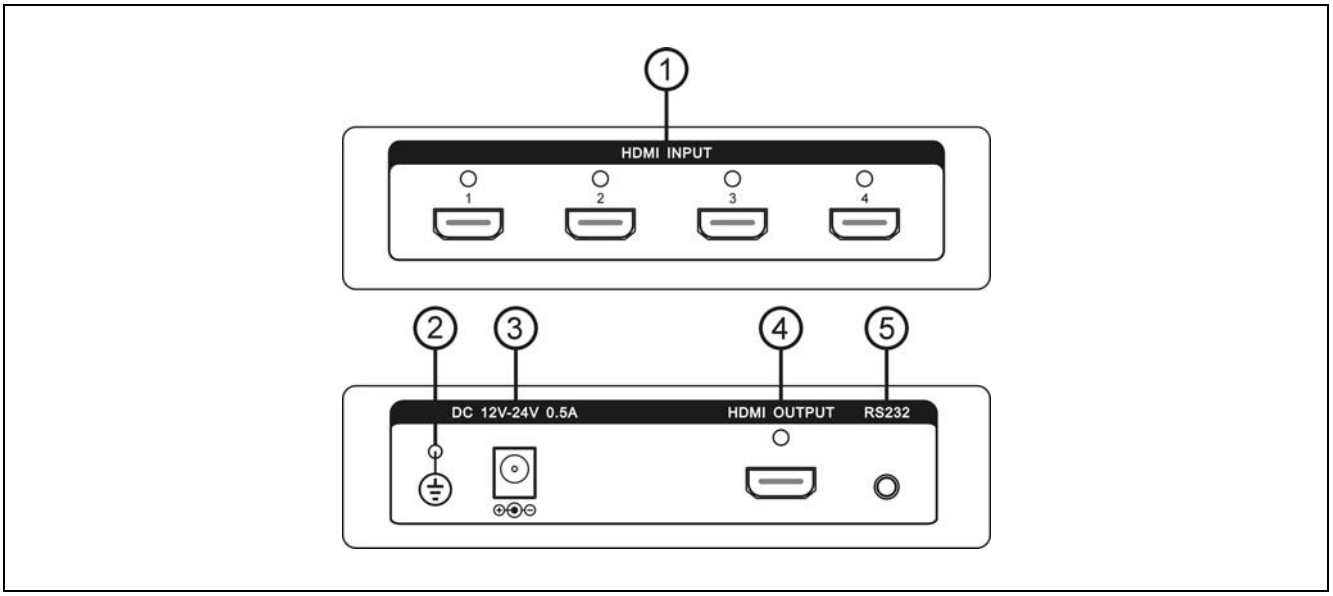


Figure 6.2 Rear panel of TMX-0201HDMI and TMX-0401HDMI Switchers

Figure 6.2:

1. **HDMI inputs**
2. **Grounding point**
3. **Power cable interface**
4. **HDMI output**
5. **RS-232 communication interface COM1**

6.1.2 TMX-0801HDMI

6.1.2.1 Front panel

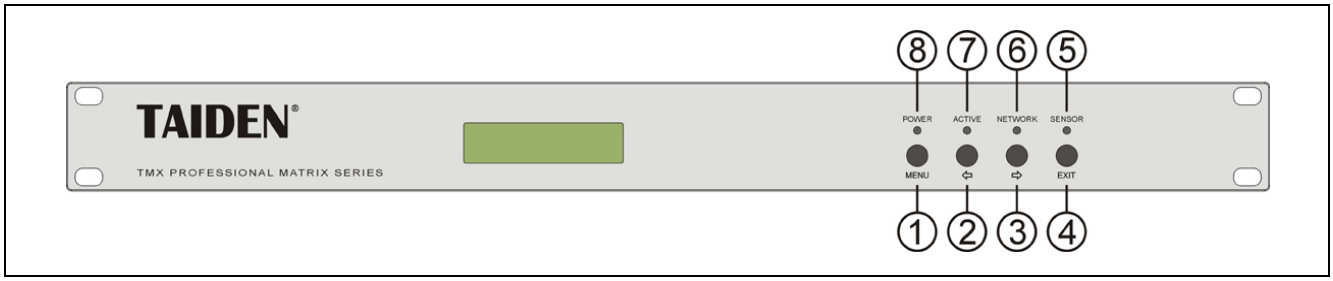


Figure 6.3 Front panel of TMX-0801HDMI Switcher

Figure 6.3:

1. **"MENU" button**
   a) If in current state, press "MENU" go to main menu;
   b) If in menu state, press "MENU" go to sub menu;
   c) Select/Deselect in network configuration.
2. **"⇦" (Left) button**
3. **"⇨" (Right) button**
4. **"Exit" button**
   - Return to previous directory or root.
5. **IR receiving window**
   - Receives the IR signals from remote control; make sure the remote control aims at the window.
6. **"NETWORK" indicator**
   - Indicator flashes if Matrix Switcher is connected with PC software.
7. **"ACTIVE" indicator**
   - Indicator will be turned on if Matrix Switcher executes switch instructions.
8. **"POWER"** indicator

6.1.2.2 Rear panel

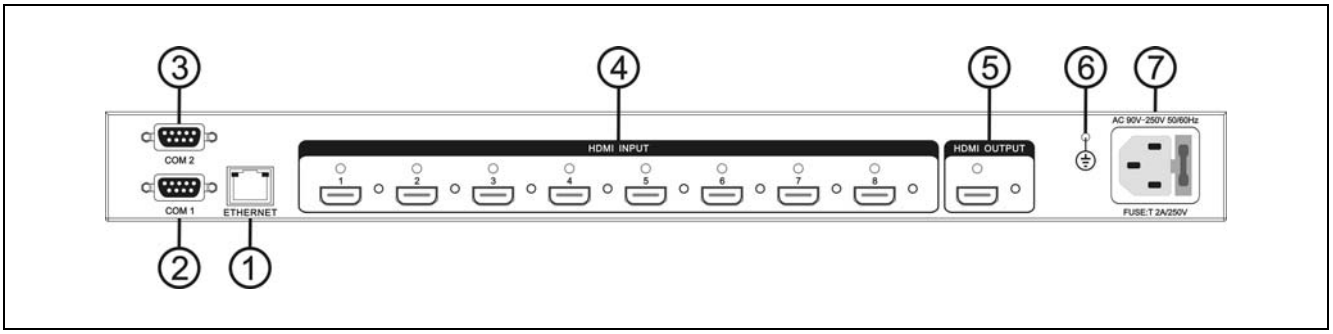


Figure 6.4 Rear panel of TMX-0801HDMI Switcher

Figure 6.4:

1. **Ethernet interface**
2. **RS-232 communication interface COM1**
3. **RS-232 communication interface COM2**
4. **HDMI inputs**
5. **HDMI output**
6. **Grounding point**
7. **Power cable interface**

6.2 Installation and connection

6.2.1 Installation

TMX-0201HDMI and TMX-0401HDMI Switchers needn't installation.

TMX-0801HDMI Switcher can be fixed in an exactly fitting standard cabinet, just needs to put it into the cabinet, and fix it by screws.

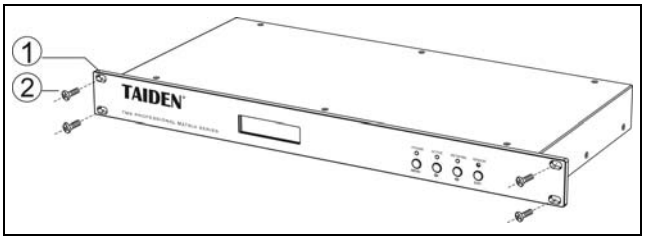


Figure 6.5 Installation

6.2.2 Connection between switchers and PC

TMX series HDMI Switchers can be controlled and setup by computer via TCP/IP or RS-232 interface COM2.

TCP/IP requires Cat.5 twisted pair cable.

TMX series HDMI Switchers can be controlled by Central Control System via RS-232 interface COM1, this interface is also used for software upgrade.

6.2.3 Connection with input, output devices

The number of input and output ports is differing, according to the type chosen. Every audio or video device with an HDMI port can be connected to the HDMI Switcher. Output ports can be connected to recorder、video or audio monitor, PA, as shown in figure 6.6.

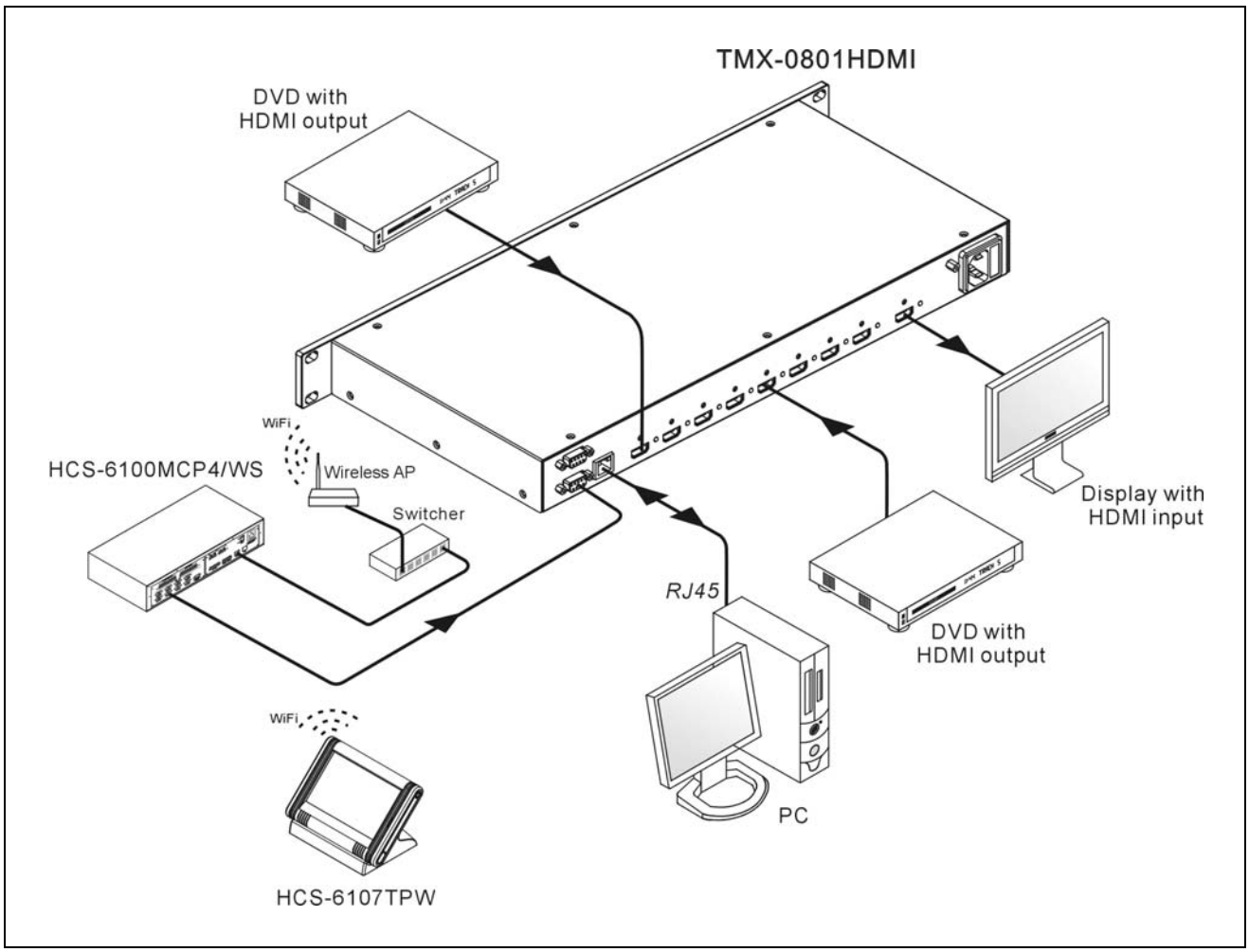


Figure 6.6 Connection example for input and output devices to HDMI Switchers

6.3 Setup and Operation

6.3.1 TMX-0201HDMI and TMX-0401HDMI Switchers

6.3.1.1 Menu setup

Press “MEMU” to browse the menu, including: Input EQ, Pre-EMPHASIS.

1. Input EQ adjustment

Input cable can be much longer through input EQ adjustment, mostly used for long line input.
Enter “Input EQ” menu, the “Input EQ” LED on the front panel will be turned on. At this time, use “UP” and “DOWN” button to adjust EQ, EQ value can be: 0 dB, +6 dB, +12 dB.

2. Output pre-emphasis adjustment

Output distance can be extended through output pre-emphasis, mostly used for long line output.
Enter “Pre-EMPHASIS” menu, the “Pre-EMPHASIS” LED on the front panel will be turned on. At this time, use “UP” and “DOWN” button to adjust pre-emphasis value, pre-emphasis value can be: 0 dB, +2 dB, +4 dB, +6 dB.

3. Serial port configuration

When the light of “INPUT EQ” and “Pre-EMPHASIS” are turned on at the same time, serial port communication type can be configured by “UP” and “DOWN” button. There are two types: one for connecting to PC software, another for updating firmware or connecting to central control system. When connecting to PC software, you need to exit the menu. (Serial port will be set default as updating firmware or connecting to central control system when reboot).
Connecting to PC software: Baudrate: 38400, data: 8 bits, stop: 1 bit, no parity.
Connecting to central control system: Baudrate: 9600, data: 8 bits, stop: 1 bit, no parity.

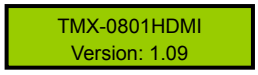
6.3.1.2 Output selection

There are two or four inputs. When not in setup menu, press “UP’ and “DOWN” button can switch between inputs and corresponding LED will be turned on. When switching, “ACTIVE” LED will be turned on. Audio and video will be switched synchronously.

6.3.2 TMX-0801HDMI

6.3.2.1 Menu setup

TMX-0801HDMI main interface:



Setup menu of TMX-0801HDMI Switcher, including:

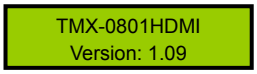
1. Sync Switch Delay
2. IP address
3. Subnet mask
4. Gate way
5. Ring
6. PC connect mode
7. COM2 Baud rate
8. Demo Switch Delay
9. COM1 protocol
10. Test button

* Tested button is working if character changes when button is pressed.

Menu 1 to menu 9 are explained explicitly:

1. Sync Switch Delay

When switching from one video input source to another, a brief time delay is required to adjust to sync data of the new source before a new undisturbed signal is sent. User may select a value from 0 to 5 seconds for a proper transition to the new video source. 0 is default value. Select by 50 ms steps.



⇩ 1. Press “MENU” to enter setup menu and press “⇦/⇨” until “Setting” prompts;

⇩ 2. Press “MENU” and press “⇦/⇨” until “SyncSwitchDelay” prompts;

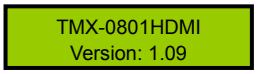
⇩ 3. Press “MENU” to enter setup;

⇩ 4. Press “⇦/⇨” to select parameter;

⇩ 5. Press “MENU” to confirm.

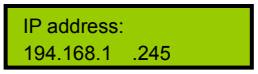
2. IP address

An IP address, Subnet mask and Gateway must be assigned to the matrix if connected to a TCP/IP Ethernet interface.

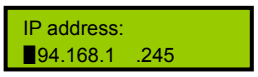


1. Press “MENU” to enter setup menu and press “⇦/⇨” until “Setting” prompts;

2. Press “MENU” and press “⇦/⇨” until “IP address” prompts;

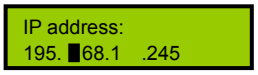


3. Press “MENU” to enter setup;

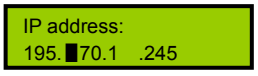


4. Press “⇦/⇨” to adjust parameter;

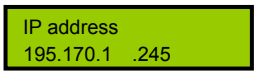
5. Press “MENU” to enter next parameter setup;



6. Press “⇦/⇨” to adjust parameter;



7. Press “EXIT” to confirm.



3. Subnet mask

For setup of “Subnet mask” proceed such as described in “IP address”.

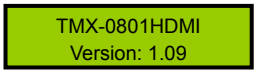
4. Gate way

For setup of “Gate way” proceed such as described in “IP address”.

5. Ring

Buzzer ring on-off of this unit. If buzzer ring is setup “on”, the buzzer will ring when front panel operation, PC software executing switch and receiving command from central control system. The buzzer ring can be setup “off”.

- ON: open ;
- OFF: close.



1. Press “MENU” to enter setup menu and press “⇦/⇨” until ”Setting” prompts;

2. Press “MENU” and press “⇦/⇨” until “Ring” prompts;

3. Press “MENU” to enter setup;

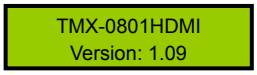
4. Press “⇦/⇨” to select parameter;

5. Press “MENU” to confirm.

6. PC connect mode

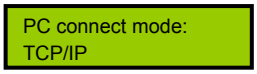
Select mode for PC connection:

- TCP/IP
- RS-232

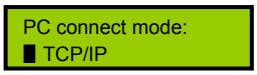


1. Press “MENU” and press “⇦/⇨” until “Setting” prompts;

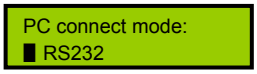
2. Press “MENU” and press “⇦/⇨” until “PC connect mode” prompts;



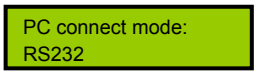
3. Press “MENU” to enter setup;



4. Press “⇦/⇨” to select parameter;



5. Press “MENU” to confirm.



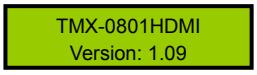
7. COM2 Baud rate

If PC connect mode RS-232 is selected, available COM2 baud rates are: 9600, 14400, 19200, 28800, 38400 and 57600.

COM1 is invariable and fixed to 9600 bit/s.

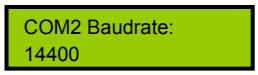
Note:

☞ If connect mode TCP/IP is selected, the baud rate is fixed to 115200 bit/s and cannot be modified.

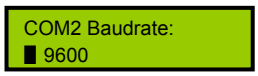


1. Press “MENU” and press “⇦/⇨” until “Setting” prompts;

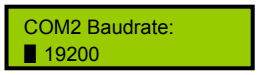
2. Press “MENU” and press “⇦/⇨” until “COM2 Baud rate” prompts;



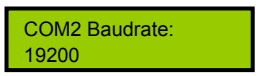
3. Press “MENU” to enter setup;



4. Press “⇦/⇨” to select parameter;

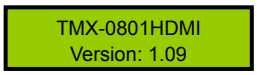


5. Press “MENU” to confirm.

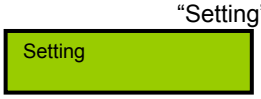


8. Demo Switch Delay

The interval ranges from 2 seconds to 60 seconds by steps of 2 seconds.



1. Press “MENU” and press “⇦/⇨” until “Setting” prompts;



2. Press “MENU” and press “⇦/⇨” until “Demo Switch Delay” prompts;

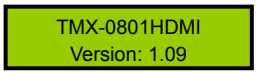
3. Press “MENU” to enter setup;

4. Press “⇦/⇨” to adjust parameter;

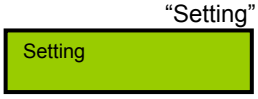
5. Press “MENU” to confirm.

9. COM1 protocol

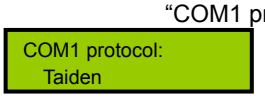
Select the protocol to connect an external central control system, including: Taiden, Extron, Other. New protocols can be added by the user.



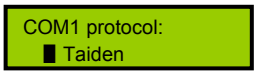
1. Press “MENU” and press “⇦/⇨” until “Setting” prompts;



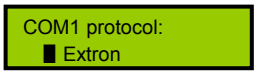
2. Press “MENU” and press “⇦/⇨” until “COM1 protocol” prompts;



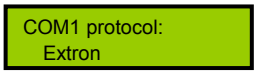
3. Press “MENU” to enter setup;



4. Press “⇦/⇨” to select parameter;



5. Press “MENU” to confirm.



6.3.2.2 Switch operation

Note:

- ☞ If any menu item is edited, except setup menu, a key must be pressed within 15 seconds otherwise the system will return to main menu item automatically and erase the previous channel setup.
- ☞ To return to main menu press any key if currently editing user interface is switch finish interface, display input, output status interface or DEMO interface. To return to main menu if editing other user interface press “EXIT” or “⇦”.
- ☞ If new input source signal is switched, please wait until previous source is switched off. Wait according to Sync switch Delay (refer to section 6.3.2.1)

TMX-0801HDMI main interface:

Press “MENU” to enter switch menu, including:

1. Switch Video

2. Switch through

* Switch through one channel or all channels.

3. Close

* Close one output or all outputs.

4. Save scene

5. Recall scene

6. Undo

* Undo last switch.

7. Demo Switch

* Switch one by one.

8. Setting

* Setup menu.

9. Status

* Request channel state.

10. Auto Switch

11. All Input EQ

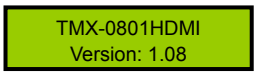
12. Preemphasis

Menu 1 to menu 12 are explained explicitly:

1. Switch Video

HDMI switch key, switch one input HDMI signal to any or all output channels.

Example: Switch HDMI signal of input channel 8 to output channel



⇩ 1. Press “MENU” to enter menu;

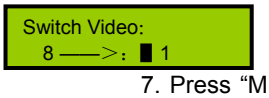
⇩ 2. Press “MENU” to enter “Switch Video”;

⇩ 3. Press “MENU” to select input channel;

4. Press “⇦/⇨” to adjust input channel as “8”;

⇩ 5. Press “MENU” to select output channel;

6. Press “⇦/⇨” to adjust output channel as “1”;



⇩ 7. Press “MENU” to confirm and press “EXIT” twice.

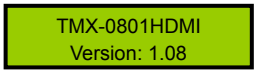
Note:

- ☞ If input channel displays “0”, output channel is closed.
- ☞ If output channel displays “ALL”, input channel is switched to all output channels.

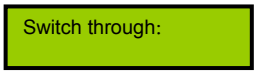
2. Switch through

Switch through one input channel to corresponding output channel.

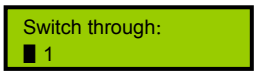
Example: Switch through channel 1.



1. Press “MENU” and press “⇦/⇨” until “Switch Through” prompts;



2. Press “MENU” to enter “Switch Through”;



3. Press “MENU” to confirm.

Note:

☞ The switcher has only one output, so this function can only switch from input 1 HDMI signal to output.

3. Close

Close output channel.

Example: Close output channel

1. Press “MENU” and press “⇦/⇨” until “Close” prompts;

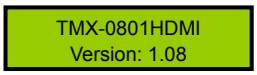
2. Press “MENU” to enter “Close” menu;

3. Press “MENU” to confirm.

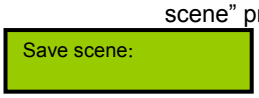
4. Save scene

Save current video signal to appointed scene. 10 scenes can be saved at most, each scene has a number, from 0 to 9.

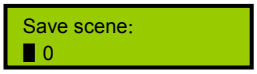
Example: Save scene 3



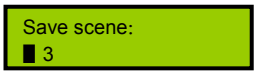
1. Press “MENU” and press “⇦/⇨”until “Save scene” prompts;



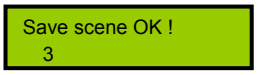
2. Press “MENU” to enter “Save scene”;



3. Press “⇦/⇨” to select scene number “3”;



4. Press “MENU” to confirm.

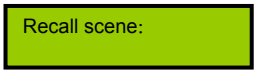


5. Recall scene

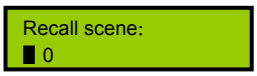
Recall video signal from selected scene.

Example: Recall scene 3

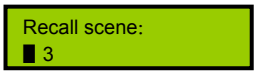
1. Press “MENU”, and press “⇦/⇨” until “Recall scene” prompts;



2. Press “MENU” to enter “Recall scene”;



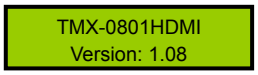
3. Press “⇦/⇨” select scene number “3”;



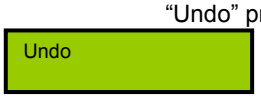
4. Press “MENU” to confirm.

6. Undo

Undo last switch operation.



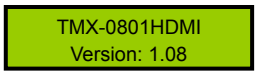
1. Press “MENU”, and press “⇦/⇨”until “Undo” prompts;



2. Press “MENU” to execute.

7. Demo Switch

Switches one by one all possible combinations from 1→1, 2→1, … to 8→1. The interval can be setup via setup menu (Refer to section 6.3.2.1).

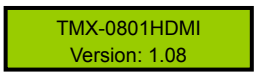


1. Press “MENU” and press “⇦/⇨” until “Demo switch” prompts;

2. Press “MENU” to execute.

8. Setting

Setup menu.

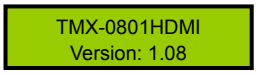


1. Press “MENU” and press “⇦/⇨” until “Setting” prompts;

2. Press “MENU” to enter setup status. Refer to section 6.3.2.1 for details.

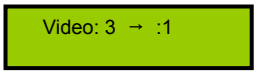
9. Status

Request corresponding state of input and output channels.



1. Press “MENU” and press “⇦/⇨” until “Status” prompts;

2. Press “MENU” to request corresponding status.

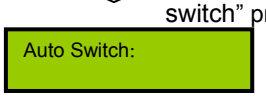


10. Auto Switch

When this function is open, and there is only one input and only one output is connected in the system, system will switch the input signal to output channel automatically without any operation.

- ON: open;
- OFF: close.

1. Press “MENU” and press “⇦/⇨” until “Auto switch” prompts;



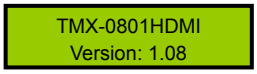
2. Press “MENU” to enter “Auto switch” menu;

3. Press “⇦/⇨” to select parameter;

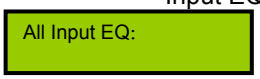
4. Press “MENU” to execute.

11. All Input EQ

Input cable can be much longer through input EQ adjustment, mostly used for long line input. EQ value can be: +6 dB or +12 dB.

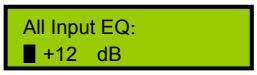


1. Press “MENU” and press “⇦/⇨” until “All Input EQ” prompts;



2. Press “MENU” to enter “All Input EQ” menu;

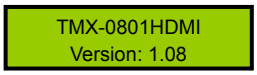
3. Press “⇦/⇨” to adjust parameter;



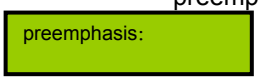
4. Press “MENU” to execute.

12. Preemphasis

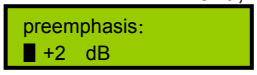
Output distance can be extended through output pre-emphasis, mostly used for long line output. Pre-emphasis value can be: +0 dB, +2 dB, +4 dB, +6 dB.



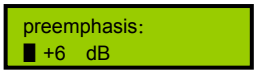
1. Press “MENU” and press “⇦/⇨” until “preemphasis” prompts;



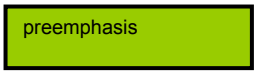
2. Press “MENU” to enter “preemphasis” menu;



3. Press “⇦/⇨” to adjust parameter;



4. Press “MENU” to execute.



Chapter 7. Mixed Switcher

7.1 Functions and indications

7.1.1 Front panel

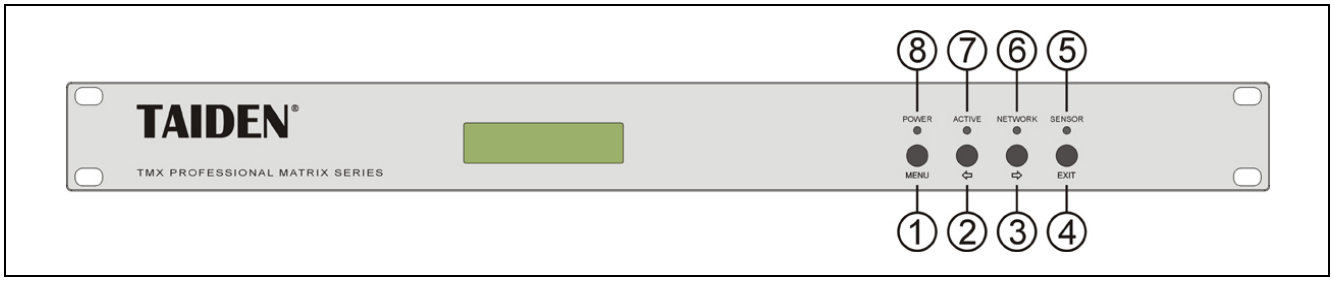


Figure 7.1 Front panel of TMX-0401MA Mixed Switcher

Figure 7.1:

1. "MENU" button

a) If in current state, press "MENU" go to main menu;

b) If in menu state, press "MENU" go to sub menu;

c) Select/Deselect in network configuration.

2. "⇦" (Left) button

3. "⇨" (Right) button

4. "Exit" button

- Return to previous directory or root.

5. IR receiving window

- Receives the IR signals from remote control; make sure the remote control aims at the window.

6. "NETWORK" indicator

- Indicator flashes if Matrix Switcher is connected with PC software.

7. "ACTIVE" indicator

- Indicator will be turned on if Matrix Switcher executes switch instructions.

8. "POWER" indicator

7.1.2 Rear panel

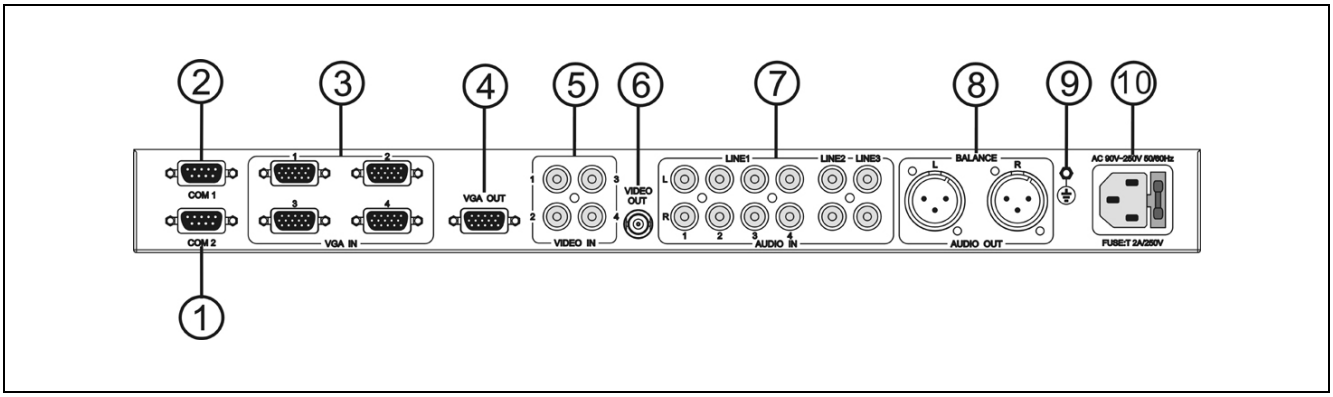


Figure 7.2 Rear panel of TMX-0401MA Mixed Switcher

Figure 7.2:

1. **RS-232 communication interface COM2**
2. **RS-232 communication interface COM1**
3. **VGA inputs**
4. **VGA output**
5. **Video inputs**
6. **Video output**
7. **Audio inputs**
   - ♦ LINE 1: 1 of 4 stereo audio signals input, Volume can be controlled
   - ♦ LINE 2: 1 stereo audio signal input
   - ♦ LINE 3: 1 stereo audio signal input
8. **Audio output**
   - ♦ LINE 1 (1 of 4), LINE 2 and LINE 3 stereo audio signals are mixed (balanced outputs, XLR)
9. **Grounding point**
10. **Power cable interface**

7.2 Installation and connection

7.2.1 Installation

1U TMX-0401MA Mixed Switcher just needs to put it into the cabinet, and fix it by screws. As figure 7.3.

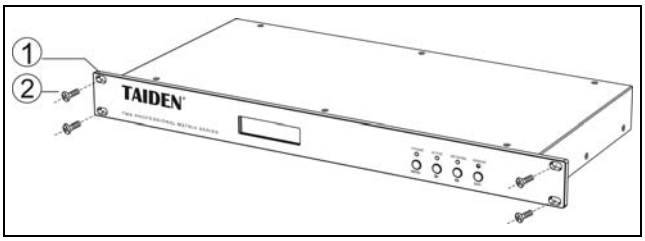


Figure 7.3 Installation

7.2.2 Connection between Mixed Switcher and PC

TMX-0401MA Mixed Switcher can be controlled and setup by computer via RS-232 interface COM2.
TMX-0401MA Mixed Switcher can be controlled by Central Control System via RS-232 interface COM1, this interface is also used for software upgrade.
As figure 7.4.

7.2.3 Connection with input, output devices

Mixed switcher can provide various types of input and output interface for the customer to connect various audio and video input devices, such as DVD player, PC, etc. according to different occasions. And output to various devices, such as video recorder, monitor and amplifier, etc. As shown in figure 7.4.

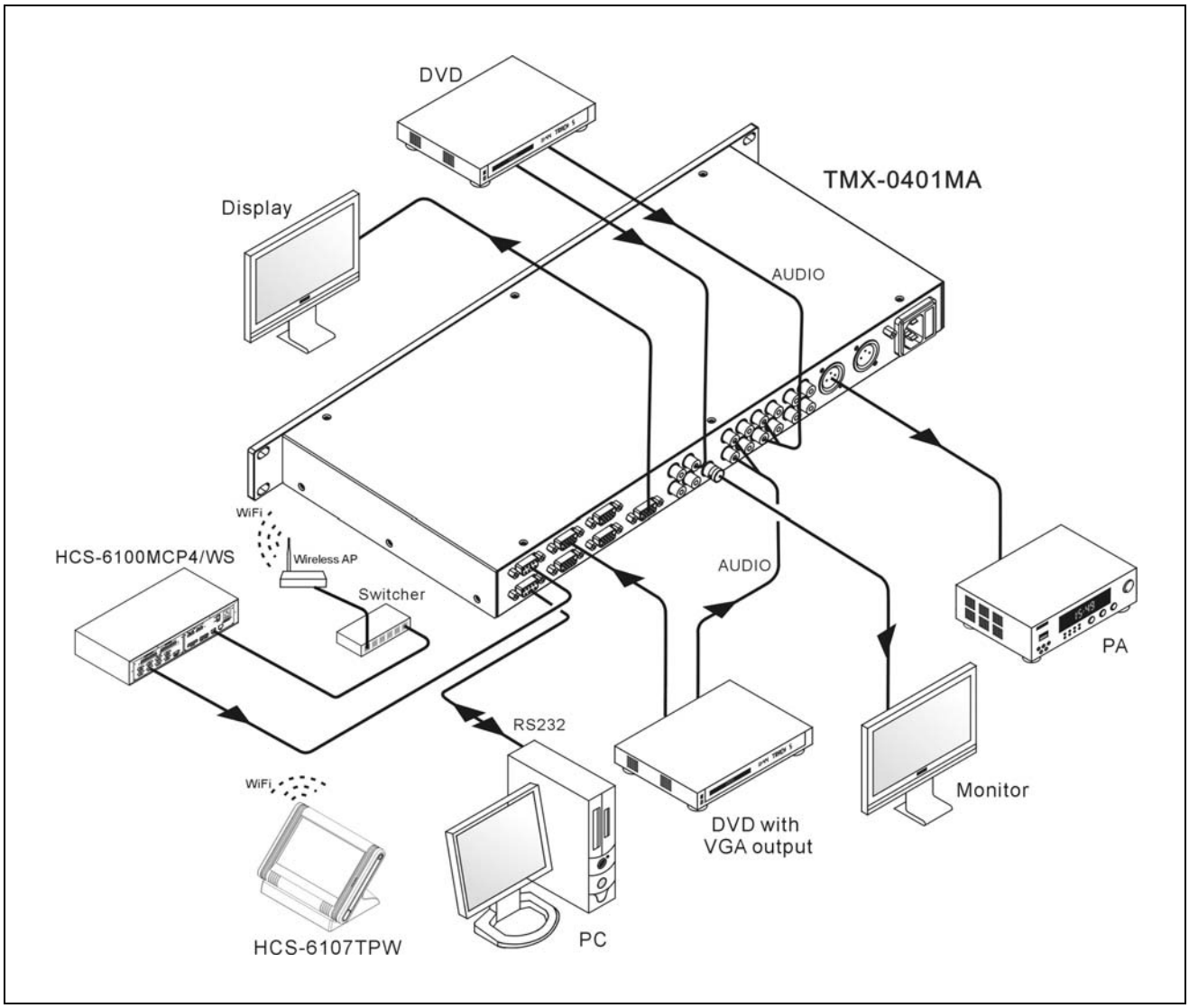
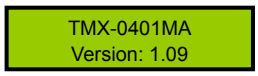


Figure 7.4 Connection example for input and output devices to Mixed Switcher

7.3 Setup and Operation

7.3.1 Menu setup

TMX-0401MA main interface:



Setup menu of TMX-0401MA Mixed Switcher, including:

1. Ring

2. COM2 Baud rate

3. Demo Switch Delay

4. COM1 protocol

5. Test button

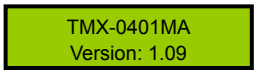
* Tested button is working if character changes when button is pressed.

Menu 1 to menu 4 are explained explicitly:

1. Ring

Buzzer ring on-off of this unit. If buzzer ring is setup “on”, the buzzer will ring when front panel operation, PC software executing switch and receiving command from central control system. The buzzer ring can be setup “off”.

- ON: open ;
- OFF: close.



1. Press “MENU” to enter setup menu and press “⇦/⇨” until “Setting” prompts;

2. Press “MENU” and press “⇦/⇨” until “Ring” prompts;

3. Press “MENU” to enter setup;

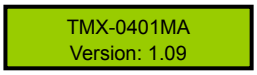
4. Press “⇦/⇨” to select parameter;

5. Press “MENU” to confirm.

2. COM2 Baud rate

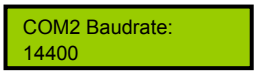
If PC connect mode RS-232 is selected, available COM2 baud rates are: 9600, 14400, 19200, 28800, 38400 and 57600.

COM1 is invariable and fixed to 9600 bit/s.

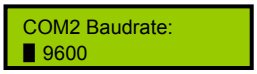


1. Press “MENU” and press “⇦/⇨” until “Setting” prompts;

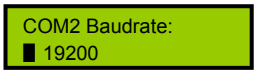
2. Press “MENU” and press “⇦/⇨” until “COM2 Baud rate” prompts;



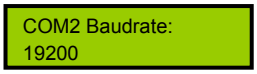
3. Press “MENU” to enter setup;



4. Press “⇦/⇨” to select parameter;

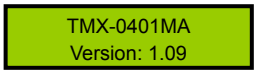


5. Press “MENU” to confirm.

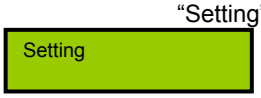


3. Demo Switch Delay

The interval ranges from 2 seconds to 60 seconds by steps of 2 seconds.



⇩ 1. Press “MENU” and press “⇦/⇨” until “Setting” prompts;



⇩ 2. Press “MENU” and press “⇦/⇨” until “Demo Switch Delay” prompts;

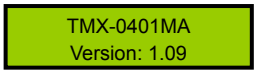
⇩ 3. Press “MENU” to enter setup;

⇩ 4. Press “⇦/⇨” to adjust parameter;

⇩ 5. Press “MENU” to confirm.

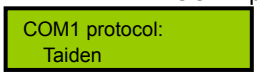
4. COM1 protocol

Select the protocol to connect an external central control system, including: Taiden, Extron, Other. New protocols can be added by the user.

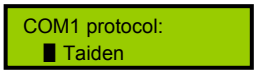


⇩ 1. Press “MENU” and press “⇦/⇨” until “Setting” prompts;

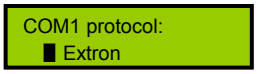
⇩ 2. Press “MENU” and press “⇦/⇨” until “COM1 protocol” prompts;



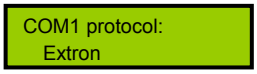
⇩ 3. Press “MENU” to enter setup;



⇩ 4. Press “⇦/⇨” to select parameter;



⇩ 5. Press “MENU” to confirm.

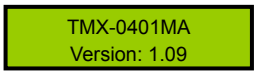


7.3.2 Switch operation

Note:

- ☞ If any menu item is edited, except setup menu, a key must be pressed within 15 seconds otherwise the system will return to main menu item automatically and erase the previous channel setup.
- ☞ To return to main menu press any key if currently editing user interface is switch finish interface, display input, output status interface or DEMO interface. To return to main menu if editing other user interface press “EXIT” or “⇦”.

TMX-0401MA main interface:



Press “MENU” to enter switch menu, including:

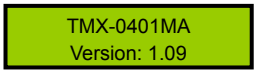
1. Switch Video
2. Switch Audio
3. Switch VGA
4. Switch through
* Switch through one channel or all channels.
5. Close
* Close one output or all outputs.
6. Save scene
7. Recall scene
8. Undo
* Undo last switch.
9. Demo Switch
* Switch one by one.
10. Setting
* Setup menu.
11. Status
* Request channel state.
12. Line1 Volume
13. Master Volume

Menu 1 to menu 13 are explained explicitly:

1. Switch Video

Video switch key, switch one input video signal to Video output channel.

Example: Switch Video signal of input channel 4 to Video output channel



⇩ 1. Press “MENU” to enter menu;

⇩ 2. Press “MENU” to enter “Switch Video”;

⇩ 3. Press “MENU” to select input channel;

4. Press “⇦/⇨” to adjust input channel as “4”;

⇩ 5. Press “MENU” to select output channel;

6. Press “⇦/⇨” to adjust output channel as “1”;

⇩ 7. Press “MENU” to confirm and press “EXIT” twice.

Note:

- ☞ If input channel displays “0”, output channel is closed.
- ☞ Due to there is only one output channel, when output channel is set to “ALL”, the signal of current input channel will be switch to output channel.

2. Switch Audio

Audio switch key, switch one input audio signal to audio output channel.

For switch audio proceed such as described in “Switch Video”.

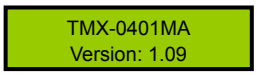
3. Switch VGA

VGA switch key, switch one input VGA signal to VGA output channel.
For switch audio proceed such as described in “Switch Video”.

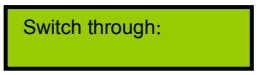
4. Switch through

Switch through one input channel or all input channels to corresponding output channel(s).

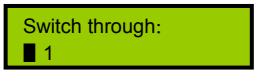
Example: Switch through channel 1.



1. Press “MENU” and press “⇦/⇨” until “Switch through” prompts;



2. Press “MENU” to enter “Switch through”;



3. Press “MENU” to confirm.

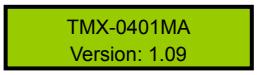
Note:

☞ Due to there is only one output, so this function can only switch from input 1 to output.

5. Close

Close one output channel or all output channels.

Example: Close output channel



1. Press “MENU” and press “⇦/⇨” until “Close” prompts;

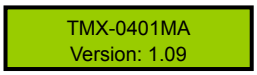
2. Press “MENU” to enter “Close” menu;

3. Press “MENU” to confirm.

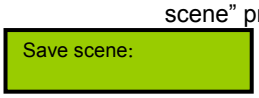
6. Save scene

Save current video signal to appointed scene. 10 scenes can be saved at most, each scene has a number, from 0 to 9.

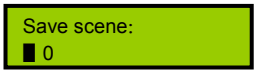
Example: Save scene 3



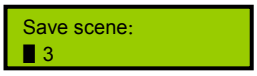
1. Press “MENU” and press “⇦/⇨”until “Save scene” prompts;



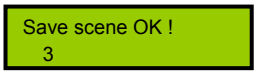
2. Press “MENU” to enter “Save scene”;



3. Press “⇦/⇨” to select scene number “3”;



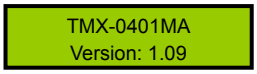
4. Press “MENU” to confirm.



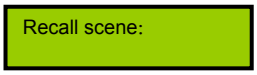
7. Recall scene

Recall video signal from selected scene.

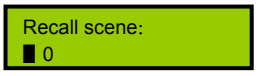
Example: Recall scene 3



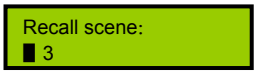
1. Press “MENU”, and press “⇦/⇨” until “Recall scene” prompts;



2. Press “MENU” to enter “Recall scene”;



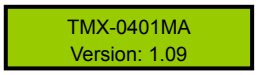
3. Press “⇦/⇨” select scene number “3”;



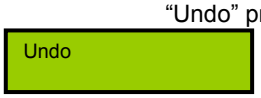
4. Press “MENU” to confirm.

8. Undo

Undo last switch operation.



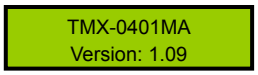
1. Press “MENU”, and press “⇦/⇨”until “Undo” prompts;



2. Press “MENU” to execute.

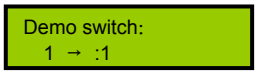
9. Demo Switch

Switches one by one all possible combinations from 1→1, 2→1, … to 4→1. The interval can be setup via setup menu (Refer to section 7.3.1).



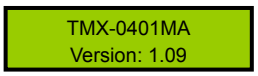
1. Press “MENU” and press “⇦/⇨” until “Demo switch” prompts;

2. Press “MENU” to execute.



10. Setting

Setup menu.

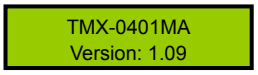


1. Press “MENU” and press “⇦/⇨” until “Setting” prompts;

2. Press “MENU” to enter setup status. Refer to section 7.3.1 for details.

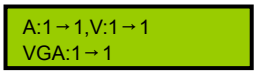
11. Status

Request corresponding state of input and output channels.



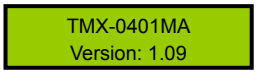
1. Press “MENU” and press “⇦/⇨” until “Status” prompts;

2. Press “MENU” to request corresponding status.



12. Line1 Volume

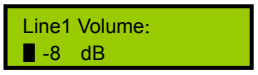
Volume of LINE 1 can range from -30 dB to -0 dB.



1. Press “MENU” and press “⇦/⇨” until “Line1 Volume” prompts;

2. Press “MENU” to enter “Line1 Volume” menu;

3. Press “⇦/⇨” to adjust volume;

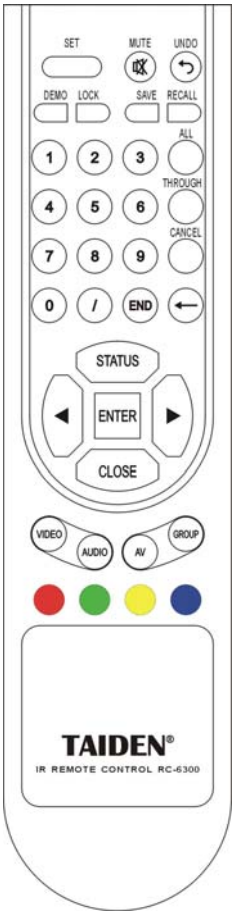


4. Press “MENU” to confirm.

13. Master Volume

For adjust Master Volume proceed such as described in “Line1 Volume”.

Chapter 8. IR Remote Control



1. Basic function

Users can use remote control to operate matrixes, the function of remote control key is the same as matrix front panel key (Please refer to chapter 1~7 for detailed instructions).

For buttons on front panel which need press and hold for a while to operate, these keys are not operable the same way on remote control. For example, press and hold "◄/►" button for a longer time on front panel can adjust parameters quickly (auto repeat), but on remote control, you can just use "◄/►" button to adjust parameter once a step.

Please refer to sections of menu operation for detailed operation method of remote control key.

2. Camera function

For the matrix with and has opened the video tracking function, users can use remote control to operate the cameras which connected to the matrix. The functions of camera operate as below:

1) Camera control

a. press the yellow button to enter the menu:

Camera Control
0

b. select a camera ID (1 to 8 buttons);

c. use the following buttons to adjust the camera;

Button	Function	Button	Function	Button	Function
◄	Left	STATUS	Up	Green	Magnify
►	Right	CLOSE	Down	Red	Lessen

d. press the "CANCEL" button to exit.

2) Camera scan

a. press the blue button to enter the menu:

Camera Scan
0

b. select a camera ID (1 to 8 buttons);

c. use the following buttons to control the direction of the camera;

Button	Function	Button	Function
1	Frame scan (between preset 30 and 31)	2	Auto cruise
3	scan 300°	4	scan 180°

d. press the "CANCEL" button to exit.

The remote control can be used for all TAIDEN matrix main units with IR receipt function.

Chapter 9. Communication protocol and control code

This code system is used for controlling and operating TAIDEN professional Matrix Switchers by central control system or user programming software.

Protocol: Baud Rate: 9600; Data: 8 bits; Stop: 1 bit; Parity Check Bit: No

Type	Code	Description
System Code	Lock;	Lock keyboard
	Unlock;	Unlock keyboard
	BeepOff;	Beep off
	BeepOn;	Beep on
	TAIDEN;	Select COM1 protocol to be TAIDEN;
	EXTRON;	Select COM1 protocol to be EXTRON;
	OTHER;	Select COM1 protocol to be OTHER;
Operation Code (TAIDEN)	If central control system does not execute switch within 15 s after input channel, TMX main unit cleans up channel automatically.	
	0xd9 0xe1 [x1] [x2]	Video of input channel [x1] switch to output channel [x2]. If input channel [x1] is 0, output channel [x2] will be closed.
	0xd9 0xe2 [x1] [x2]	Audio of input channel[x1] switch to output channel [x2]. If input channel [x1] is 0, the output channel [x2] will be closed.
	0xd9 0xe3 [x1] [x2]	Video and audio of input channel [x1] switch to output channel [x2]. If input channel is 0, the output channel [x2] will be closed.
	0xd9 0xe4 [x1] e9	Video of input channel [x1] switch to all output channels
	0xd9 0xe5 [x1] e9	Audio of input channel [x1] switch to all output channels
	0xd9 0xe6 [x1] e9	Video and audio of input channel [x1] switch to all output channels
	0xd9 0xec 0x01 0x00	Close all output channels
	0xd9 0xeb 0x03 0x00	Go through from all input channels to corresponding output channels
	0xd9 0xed 0x02 0x00	Execute switch
	0xd9 0xe7 0xe7 scene	Save corresponding relation to scene 0,1,2…9
	0xd9 0xe8 0xe8 scene	Recall scene XX
	0xd9 0xe9 0xe9 scene	Clear scene XX
	0xd9 0xc1 0xc1 0x00	Query the matrix type
	0xd9 0xc2 0xc2 0x00	Query the input status of all output channels
	0xd9 0xc4 [x1] 0x00	Query the input status of the output channel [x1]
Operation Code (OTHER)	[x1]All.	Input channel [x1] switch to all output channels
	All#.	Setup all channels one-to-one correspondence: 1->1, 2->2, 3->3…
	All$.	Close all channels
	[x1]#.	Input channel [x1] switch to output channel [x1]
	[x1]$.	Close output channel [x1]
	[x1]V[x2].	Video of input channel [x1] switch to output channel [x2]
	[x1]V[x2],[x3],[x4].	Video of input channel [x1] switch to output channel [x2], [x3], [x4]
	[x1]A[x2].	Audio of input channel [x1] switch to output channel [x2]
	[x1]A[x2],[x3],[x4].	Audio of input channel [x1] switch to output channel [x2],[x3],[x4]
	[x1]B[x2].	Video and audio of input channel [x1] switch to output channel [x2]
	[x1]B[x2],[x3],[x4].	Video and audio of input channel [x1] switch to output channel [x2],[x3],[x4]

	Save[X].	Save current status to scene [X]
	Recall[X].	Recall scene X]
	Clear[X].	Clear scene [X], status of all output channel are closed
	Type*.	Query the matrix type
	Status[x1].	Query the input status of the output channel [x1]
	Status.	Query the input status of all output channels
EXTRON;	[X1]*[X2]!	Video and audio of input channel [x1] switch to output channel [x2]
	[X1]*[X2]$	Audio of input channel [x1] switch to output channel [x2]
	[X1]*[X2]%	Video of input channel [x1] switch to output channel [x2]
	[X1]*[X2]&	Input channel [x1] switch to output channel [x2]

Note:

- ☞ [x1], [x2], [x3], [x4] is channel number of input or output; only 1~8/16/24/32/64 available, otherwise regarded as error.
- ☞ "[" and "]" do not send code;
- ☞ End each command by code such as ".", ";".

Command examples:

1. **System code: TAIDEN; EXTRON; OTHER;**

   For example: convert a TAIDEN code system unit to a EXTRON code system unit, run "EXTRON;", then the unit will only support code ends with "!$%&".

2. **[x1]All.**

   For example: Input channel 3 switch to all output channels, code is "3All.".

3. **All#.**

   Setup all channels one-to-one correspondence: 1->1, 2->2, 3->3…8->8.

4. **All$.**

   Close all output channels.

5. **[x]#.**

   For example: Input channel 5 switch to output channel 5, code is "5#.".

6. **[x]$.**

   For example: Close output channel 5, code is "5$.".

7. **[x1]V[x2].**

   For example: Video of input channel 3 switch to output channel 5, code is "3V5.". Video of input channel 3 switch to output channel 8, 9, 12, code is "3V8,9,12.".

8. **[x1]A[x2].**

   For example: Audio of input channel 10 switch to output channel 2, code is "10A2.". Audio of input channel 10 switch to output channel 2, 5, 6, code is "10A2,5,6.".

9. **[x1]B[x2].**

   For example: Video and audio of input channel 1 switch to output channel 2, 3, 5, code is "1B2,3,5.".

10. **Save[x].**

    For example: Save current status to scene 7, code is "Save7.".

11. **Recall[x].**

    For example: Recall scene 5, code is "Recall5.".

Chapter 10. Technical data

10.1 Ultra Wideband RGBHV Matrix Switchers

10.1.1 TMX-08xx/16xx/32xxRGB(-A) Series

Type / Spec.	TMX-08xxRGB(-A) Series	TMX-16xxRGB(-A) Series	TMX32xxRGB(-A) Series
Video			
Gain	0 dB		
Bandwidth	450 MHz (-3 dB), fully loaded 0 ~ 10 MHz: ≤±0.1 dB 0 ~ 100 MHz: ≤±0.8 dB	325 MHz (-3 dB), fully loaded 0 ~ 10 MHz: ≤±0.1 dB 0 ~ 100 MHz: ≤±0.8 dB	500 MHz (-3 dB), fully loaded 0 ~ 10 MHz: ≤±0.1 dB 0 ~ 100 MHz: ≤±0.8 dB
Crosstalk of channel	-53 dB @ 10 MHz，-45dB @ 30 MHz，-37 dB @ 100 MHz		
Crosstalk of luma and chroma	<-80 dB @1 kHz, fully loaded		
Differential phase error	Max. 0.05 Degrees, @ RL=150 Ohm		Max. 0.1 Degrees, @ RL=150 Ohm
Differential gain error	Max. 0.05%, @ RL=150 Ohm		Max. 0.1%, @ RL=150 Ohm
Typical propagation delay	5 ns @ 2 Vp-p, RL=150 Ω		1.3 ns @ 2 Vp-p, RL=150 Ω
Typical switching time	25 ns	50 ns	100 ns
Signal type	RGBHV, RGBs, RGsB, RsGsBs, HDTV, Component Video, S-Video and Composite Video		
Video input			
Interface	8 X 5 BNC Connectors	16 X 5 BNC Connectors	32 X 5 BNC Connectors
Min./Max. level	Analog Signal: 0.5 V - 2.0 Vp-p (no bias)		
Normal input level	RGB: 0.7 Vp-p Y Signal of Component Video, S-Video and Composite Video: 1.0 Vp-p R-Y/B-Y Signal of Component Video and C Signal of S-Video: 0.3 Vp-p		
Impedance	75 Ω		
Return loss	-30 dB @ 5 MHz		
Max. DC offset	1.5 V		
Video output			
Normal output level	RGB: 0.7 Vp-p Y Signal of Component Video, S-Video and Composite Video: 1.0 Vp-p R-Y/B-Y Signal of Component Video and C Signal of S-Video: 0.3 Vp-p		
Min./Max. level	Analog Signal: 0 V - 2.0 Vp-p (related to input)		
Impedance	75 Ω		
Return loss	-30 dB @ 5 MHz		
DC bias	±5 mV @ no bias at input		
Switching type	RGB synchronization		
Sync.			
Input level	1.1 V - 5.0 Vp-p, 4.0 Vp-p,normal		
Output level	AGC to TTL: 4.5 V - 5.0 Vp-p		

Type / Spec.	TMX-08xxRGB(-A) Series	TMX-16xxRGB(-A) Series	TMX32xxRGB(-A) Series
Input impedance	510 Ω		
Output impedance	75 Ω		
Max. input level	5.0 Vp-p		
Max. propagation delay	20 ns		
Audio (-A Series)			
Signal type	Stereo, balanced/unbalanced		
Input/Output interface	5 pin 3.81 mm Phoenix Connectors		
Gain	Unbalanced output: 0 dB; balanced output: +6 dB		
Frequency response	20 Hz ~ 22 kHz，±0.05 dB		
THD+ Noise	0.03% @ 1 kHz at normal level		
S/N	>110 dB, balanced, at maximum output (20.2 dBu), unweighted		
Crosstalk	>80 dB @ 1 kHz, fully loaded		
Stereo channel separation	>80 dB @ 1 kHz		
CMRR	>75 dB @ 20 Hz ~ 20 kHz		
Impedance	Input: >10 kΩ, (balanced or unbalanced)		
Maximum input level	+20.2 dBu (balanced or unbalanced)		
Gain error	±0.1 dB @ 20 Hz ~ 22 kHz		
Maximum output level	+20.2 dBu (balanced or unbalanced)		
Control			
COM (RS-232)	9 pin female D connector		
COM1	Baudrate: 9600, data: 8 bits, stop: 1 bit, no parity check bit		
COM2	Variable baudrate, data: 8 bits, stop: 1 bit, no parity check bit	-	Variable baudrate, data: 8 bits, stop: 1 bit, no parity check bit
Interface	2=TX，3=RX，5=GND		
Ethernet	RJ-45 female connector, Cat.5 only cross-pair		
Ethernet protocol	TCP/IP		
Ethernet speed	10 M/100 M, full-duplex or half-duplex with autodetect		
PC control	Matrix Switcher		
General spec.			
Power supply	100 V AC - 240 V AC，50/60 Hz		
Temperature	Operating: 0 °C to + 50 °C; storage: -20 °C to + 70 °C		
Humidity	Storage and Operating:10%-90%		
Dimensions w × d × h (mm)	478×310×132 (3U high)	478×310×264 (6U high)	478×310×440 (10U high)

Type / Spec.	TMX-08xxRGB(-A) Series	TMX-16xxRGB(-A) Series	TMX32xxRGB(-A) Series
Weight	TMX-0802RGB：4.8 kg TMX-0802RGB-A：5.0 kg TMX-0804RGB：5.1 kg TMX-0801RGB-A：5.3 kg TMX-0808RGB：5.6 kg TMX-0808RGB-A：5.8 kg	TMX-1604RGB：9.1 kg TMX-1604RGB-A：9.3 kg TMX-1608RGB：9.6 kg TMX-1608RGB-A：9.8 kg TMX-1616RGB：10.6 kg TMX-1616RGB-A：10.8 kg	TMX-3208RGB：14 kg TMX-3208RGB-A：14.2 kg TMX-3216RGB：15 kg TMX-3216RGB-A：15.2 kg TMX-3232RGB：17 kg TMX-3232RGB-A：17.2 kg
Mean time between failures	30,000 hours		

10.1.2 TMX-6464RGB(-A) Series

Type / Spec.	TMX-64xxRGB(-A) Series
Video	
Gain	0 dB
Bandwidth	400 MHz (-3 dB), fully loaded 0 ~ 10 MHz: ≤±0.1 dBK 0 ~ 100 MHz: ≤±0.8 dB
Crosstalk of channel	-53 dB @ 10 MHz，-45dB @ 30 MHz，-37 dB @ 100 MHz
Crosstalk of luma and chroma	<-80 dB @1 kHz, fully loaded
Differential phase error	Max. 0.1 Degrees, @ RL=150 Ohm
Differential gain error	Max. 0.1%, @ RL=150 Ohm
Typical propagation delay	1.3 ns @ 2 Vp-p, RL=150 Ω
Typical switching time	100 ns
Signal type	RGBHV, RGBs, RGsB, RsGsBs, HDTV, Component Video, S-Video and Composite Video
Video input	
Interface	64 X 5 BNC Connectors
Min./Max. level	Analog Signal: 0.5 V - 2.0 Vp-p (no bias)
Normal input level	RGB: 0.7 Vp-p Y Signal of Component Video, S-Video and Composite Video: 1.0 Vp-p R-Y/B-Y Signal of Component Video and C Signal of S-Video: 0.3 Vp-p
Impedance	75 Ω
Return loss	-30 dB @ 5 MHz
Max. DC offset	1.5 V
Video output	
Normal output level	RGB: 0.7 Vp-p Y Signal of Component Video, S-Video and Composite Video: 1.0 Vp-p R-Y/B-Y Signal of Component Video and C Signal of S-Video: 0.3 Vp-p
Min./Max. level	Analog Signal: 0 V - 2.0 Vp-p (related to input)
Impedance	75 Ω
Return loss	-30 dB @ 5 MHz
DC bias	±5 mV @ no bias at input
Switching type	RGB synchronization
Sync.	
Input level	1.1 V - 5.0 Vp-p, 4.0 Vp-p,normal
Output level	AGC to TTL: 4.5 V - 5.0 Vp-p
Input impedance	510 Ω
Output impedance	75 Ω
Max. input level	5.0 Vp-p

Type / Spec.	TMX-64xxRGB(-A) Series
Max. propagation delay	20 ns
Audio (-A Series)	
Signal type	Balanced/unbalanced stereo
Input/Output interface	5 pin 3.81 mm Phoenix Connectors
Gain	Unbalanced output: 0 dB; balanced output: +6 dB
Frequency response	20 Hz ~ 22 kHz，±0.05 dB
THD+ Noise	0.03% @ 1 kHz at normal level
S/N	>110 dB, balanced, at maximum output (20.2 dBu), unweighted
Crosstalk	>80 dB @ 1 kHz, fully loaded
Stereo channel separation	>80 dB @ 1 kHz
CMRR	>75 dB @ 20 Hz ~ 20 kHz
Impedance	Input: >10 kΩ, (balanced or unbalanced)
Maximum input level	+20.2 dBu (balanced or unbalanced)
Gain error	±0.1 dB @ 20 Hz ~ 22 kHz
Maximum output level	+20.2 dBu (balanced or unbalanced)
Control	
COM (RS-232)	9 pin female D connector
COM1	Baudrate: 9600, data: 8 bits, stop: 1 bit, no parity check bit
COM2	Variable baudrate, data: 8 bits, stop: 1 bit, no parity check bit
Interface	2=TX，3=RX，5=GND
Ethernet	RJ-45 female connector, Cat.5 only cross-pair
Ethernet protocol	TCP/IP
Ethernet speed	10 M/100 M, full-duplex or half-duplex with autodetect
PC control	Matrix Switcher
General spec.	
Power supply	100 V AC - 240 V AC，50/60 Hz
Temperature	Operating: 0 °C to + 50 °C; storage: -20 °C to + 70 °C
Humidity	Storage and Operating:10%-90%
Dimensions w × d × h (mm)	TMX-6464RGB：478×310×1320 (6U×5) TMX-6464RGB-A：478×310×1584 (6U×6)
Weight	TMX-6464RGB：10.6×5 kg TMX-6464RGB-A：11×6 kg
Mean time between failures	30,000 hours

10.2 Ultra Wideband VGA Matrix Switchers

Type / Spec.	TMX-08xxVGA Series	TMX-16xxVGA Series
Video		
Gain	0 dB	
Bandwidth	450 MHz (-3 dB), fully loaded 0 ~ 10 MHz: ≤ ±0.1 dB 0 ~ 100 MHz: ≤ ±0.8 dB	325 MHz (-3 dB), fully loaded 0 ~ 10 MHz: ≤ ±0.1 dB 0 ~ 100 MHz: ≤ ±0.8 dB
Crosstalk of channel	-53 dB @ 10 MHz, -45dB @ 30 MHz, -37 dB @ 100 MHz	
Crosstalk of luma and chroma	<-80 dB @1 kHz, fully loaded	
Differential phase error	Max. 0.05 Degrees, @ RL=150 Ohm	
Differential gain error	Max. 0.05%, @ RL=150 Ohm	
Typical propagation delay	5 ns @ 2 Vp-p, RL=150 Ω	
Typical switching time	25 ns	50 ns
Signal type	VGA~UXGA RGBHV, RGBs, RGsB, RsGsBs, HDTV, component video, S-video and composite video	
Video input		
Interface	15HDF Connectors	
Min./Max. level	Analog Signal: 0.5 V - 2.0 Vp-p (no bias)	
Normal input level	RGB: 0.7 Vp-p Y Signal of Component Video, S-Video and Composite Video: 1.0 Vp-p R-Y/B-Y Signal of Component Video and C Signal of S-Video: 0.3 Vp-p	
Impedance	75 Ω	
Return loss	-30 dB @ 5 MHz	
Max. DC offset	1.5 V	
Video output		
Normal output level	RGB: 0.7 Vp-p Y Signal of Component Video and S-Video, Composite Video: 1.0 Vp-p R-Y/B-Y Signal of Component Video and C Signal of S-Video: 0.3 Vp-p	
Min./Max. level	Analog Signal: 0 V - 2.0 Vp-p (related to input)	
Impedance	75 Ω	
Return loss	-30 dB @ 5 MHz	
DC bias	±5 mV @ no bias at input	
Switching type	RGB synchronization	
Sync.		
Input level	1.1 V - 5.0 Vp-p, 4.0 Vp-p,normal	
Output level	AGC to TTL: 4.5 V - 5.0 Vp-p	
Input impedance	510 Ω	
Output impedance	75 Ω	
Max. input level	5.0 Vp-p	

Type / Spec.	TMX-08xxVGA Series	TMX-16xxVGA Series
Max. propagation delay	20 ns	
Audio (-A Series)		
Signal type	Balanced/unbalanced stereo	
Input/Output iterface	5 pin 3.81 mm Phoenix Connectors	
Gain	Unbalanced output: 0 dB; balanced output +6 dB	
Frequency response	20 Hz ~ 22 kHz，±0.05 dB	
THD+ Noise	0.03% @ 1 kHz at normal level	
S/N	>110 dB, balanced, at maximum output (20.2 dBu), unweighted	
Crosstalk	>80 dB @ 1 kHz, fully loaded	
Stereo channel	>80 dB @ 1 kHz	
CMRR	>75 dB @ 20 Hz ~ 20 kHz	
Impedance	Input:>10 kΩ, (balanced or unbalanced)	
Maximum input level	+20.2 dBu (balanced or unbalanced)	
Gain error	±0.1 dB @ 20 Hz ~ 22 kHz	
Maximum output level	+20.2 dBu (balanced or unbalanced)	
Control		
COM (RS-232)	9 pin female D connector	
COM1	Baudrate: 9600, data: 8 bits, stop: 1 bit, no parity check bit	
COM2	Variable baudrate, data: 8 bits, stop: 1 bit, no parity check bit	
Interface	2=TX，3=RX，5=GND	
Ethernet	RJ-45 female connector, Cat.5 only cross-pair	
Ethernet protocol	TCP/IP	
Ethernet speed	10 M/100 M, full-duplex or half-duplex with autodetect	
PC control	Matrix Switcher	
General spec.		
Power supply	100 V AC - 240 V AC，50/60 Hz	
Temperature	Operating: 0 °C to + 50 °C; storage: -20 °C to + 70 °C	
Humidity	Storage and Operating:10%-90%	
Dimensions w × d × h (mm)	483×208×43 (1U high) 478×310×132 (3U high)	
Weight	TMX-08xxVGA：2.9 kg TMX-08xxVGA-A：4.8 kg	TMX-1608VGA：4.7 kg TMX-1608VGA-A：4.9 kg TMX-1616VGA：4.8 kg TMX-1616VGA-A：5.0 kg
Mean time between failures	30,000 hours	

10.3 Composite Video & Audio Matrix Switchers

10.3.1 TMX-0404A/080xA and TMX-16xxA-B Series

Type / Spec.	TMX-0404A/080xA Series	TMX-16xxA-B Series
Audio		
Signal type	Stereo Audio	Stereo, balanced/unbalanced
Connectors	Female RCA connectors	5-pin 3.81 mm Phoenix
Gain	0 dB	Unbalanced output: 0 dB, balanced output: +6 dB
Frequency response	20 Hz ~ 22 kHz, ±0.05 dB	
THD+ Noise	0.03% @ 1 kHz at normal level	
S/N	>110 dB, balanced, at maximum output (20.2 dBu), unweighted	
Crosstalk	>80 dB @ 1 kHz, fully loaded	
Stereo channel separation	>80 dB @ 1 kHz	
CMRR	>75 dB @ 20 Hz ~ 20 kHz	
Impedance	Input:>10 kΩ, (balanced or unbalanced)	
Maximum input level	+20.2 dBu	
Gain error	±0.1 dB @ 20 Hz ~ 22 kHz	
Maximum output level	+20.2 dBu	
Control		
COM (RS-232)	9 pin female D connector	
COM1	Baudrate: 9600, data: 8 bits, stop: 1 bit, no parity check bit	
COM2	Variable baudrate, data: 8 bits, stop: 1 bit, no parity check bit	
Interface	2=TX，3=RX，5=GND	
PC control	Matrix Switcher	
General spec.		
Power supply	100 V AC - 240 V AC，50/60 Hz	
Temperature	Operating: 0 °C to + 50 °C; storage: -20 °C to + 70 °C	
Humidity	Storage and Operating:10%-90%	
Dimensions w × d × h (mm)	483×208×43 (1U high)	483×208×88 (2U high)
Weight	2.7 kg	4.0 kg
Mean time between failures	30,000 hours	

10.3.2 TMX-08xxV/16xxV/32xxV Series

Type / Spec.	TMX-08xxV/16xxV Series	TMX-032xxV Series
Video		
Gain	0 dB	
Bandwidth	50 MHz (-3 dB), fully loaded	500 MHz (-3 dB), fully loaded
Crosstalk of channel	-53 dB @ 5 MHz	-53 dB @ 10 MHz; -45dB @ 30 MHz; -37 dB @ 100 MHz
Crosstalk of luma and	<-80 dB @ 1 kHz, fully loaded	
Differential phase error	Max. 0.1 degree, @ RL=150 Ω	
Differential gain error	Max. 0.1%, @ RL = 150 Ω	
Typical propagation	80 ns @ 2 Vp-p，RL=150 Ω	1.3 ns @ 2 Vp-p，RL=150 Ω
Typical switching speed	50 ns	100 ns
Signal type	Composite video	
Video Input		
Connectors	BNC Connectors	
Min./max. levels	Analog: 0.5 V to 2.0 Vp-p with no offset	
Nominal level	1.0 Vp-p	
Impedance	75 Ω	
Return loss	-30 dB @ 5 MHz	
Max. DC offset	1.5 V	
Video Output		
Connectors	BNC Connectors	
Nominal level	1.0 Vp-p	
Min./max. levels	Analog signal: 0 V to 2.0 Vp-p (follows input)	
Impedance	75 Ω	
Return loss	-30 dB @ 5 MHz	
DC bias	± 5 mV with no offset at input	
Control		
COM (RS-232)	9 pin female D connector	
COM1	Baudrate: 9600, data: 8 bits, stop: 1 bit, no parity check bit	
COM2	Variable baudrate, data: 8 bits, stop: 1 bit, no parity check bit	
Interface	2=TX，3=RX，5=GND	
Ethernet	-	RJ-45 female connector, Cat.5 only cross-pair
Ethernet protocol	-	TCP/IP
Ethernet speed	-	10 M/100 M, full-duplex or half-duplex with autodetect
PC control	Matrix Switcher	

Type / Spec.	TMX-08xxV/16xxV Series	TMX-032xxV Series
General spec.		
Power supply	100 V AC - 240 V AC，50/60 Hz	
Temperature	Operating: 0 °C to + 50 °C; storage: -20 °C to + 70 °C	
Humidity	Storage and Operating:10%-90%	
Dimensions w × d × h (mm)	483×208×43 (1U high)	478X310X132 (3U high)
Weight	TMX-0804V：2.5 kg TMX-0808V：2.6 kg TMX-1604V：2.7 kg TMX-1608V/1616V：2.8 kg	TMX-3208V：5.0 kg TMX-3216V：5.2 kg TMX-3232V：5.5 kg
Mean time between failures	30,000 hours	

10.3.3 TMX-08xxAV(-B)/16xxAV(-B)/32xxAV-B/6464AV-B Series

Type / Spec.	TMX-08xxAV/16xxAV Series	TMX-08xxAV-B/16xxAV-B Series	TMX-32xxAV-B Series	TMX-6464AV-B
Video				
Gain	0 dB			
Bandwidth	50 MHz (-3 dB), fully loaded		500 MHz (-3 dB), fully loaded	400 MHz (-3 dB), fully loaded
Crosstalk of channel	-53 dB @ 5 MHz		-53 dB @ 10 MHz， -45dB @ 30 MHz， -37 dB @ 100 MHz	
Crosstalk of lum and chroma	<-80 dB @1 kHz, fully loaded			
Differential phase error	Max. 0.1 degree, @ RL=150 Ω			
Differential gain error	Max. 0.1%, @ RL=150 Ω			
Typical propagation delay	80 ns @ 2 Vp-p，RL=150 Ω		1.3 ns@ 2 Vp-p，RL=150 Ω	
Typical switching speed	50 ns		100 ns	
Signal type	Composite video			
Video input				
Connectors	BNC Connectors			
Min./max. levels	Analog: 0.5 V to 2.0 Vp-p with no offset			
Nominal level	1.0 Vp-p			
Impedance	75 Ω			
Return loss	-30 dB @ 5 MHz			
Max. DC offset	1.5 V			
Video output				
Connectors	BNC Connectors			
Nominal level	1.0 Vp-p			
Min./max. levels	Analog signal: 0 V to 2.0 Vp-p (follows input)			
Impedance	75 Ω			
Return loss	-30 dB @ 5 MHz			
DC offset	± 5 mV with no offset at input			
Audio				
Signal type	unbalanced stereo	balanced/unbalanced stereo		
Connectors	female RCA connectors	5 pin 3.81 mm Phoenix Connectors		
Gain	0 dB	Unbalanced output: 0 dB, balanced output: +6 dB		
Frequency response	20 Hz ~ 22 kHz，±0.05 dB			
THD+ Noise	0.03% @ 1 kHz at normal level			
S/N	>110 dB, balanced, at maximum output (20.2 dBu), unweighted			
Crosstalk	>80 dB @ 1 kHz, fully loaded			

Type / Spec.	TMX-08xxAV/16xxAV Series	TMX-08xxAV-B/16xxAV-B Series	TMX-32xxAV-B Series	TMX-6464AV-B
Stereo channel separation	>80 dB @ 1 kHz			
CMRR	>75 dB @ 20 Hz ~ 20 kHz			
Impedance	Input: >10 kΩ, (balanced or unbalanced)			
Max. input levels	+20.2 dBu; +10 dBu (TMX-0804AV and TMX-0802AV)			
Gain error	±0.1 dB @ 20 Hz ~ 22 kHz			
Max. output levels	+20.2 dBu			
Control				
COM (RS-232)	RS-232, 9 pin female D connector			
COM1	Baudrate: 9600, data: 8 bits, stop: 1 bit, no parity check bit			
COM2	Variable baudrate, data: 8 bits, stop: 1 bit, no parity check bit			
Interface	2=TX，3=RX，5=GND			
Ethernet	RJ-45 female connector, Cat.5 only cross-pair			
Ethernet protocol	TCP/IP			
Ethernet speed	10 M/100 M, full-duplex or half-duplex with autodetect			
PC control	Matrix Switcher			
General spec.				
Power supply	100 V AC - 240 V AC，50/60 Hz			
Temperature	Operating: 0 °C to + 50 °C; storage: -20 °C to + 70 °C			
Humidity	Storage and Operating:10%-90%			
Dimensions w × d × h (mm)	TMX-0804AV & TMX-0802AV: 483×208×43 (1U high); 478×310×132 (3U high)		478×310×264 (6U high)	478×310×440 (10U high)
Weight	TMX-0802AV: 2.5 kg TMX-0804AV: 2.5 kg TMX-0808AV: 4.3 kg TMX-1604AV: 4.4 kg TMX-1608AV: 4.5 kg TMX-1616AV: 4.6 kg	TMX-0804AV-B: 4.8 kg TMX-0808AV-B: 4.8 kg TMX-1608AV-B: 4.9 kg TMX-1616AV-B: 5.0 kg	TMX-3208AV-B: 7.5 kg TMX-3216AV-B: 7.7 kg TMX-3232AV-B: 8.0 kg	13.0 kg
Mean time between failures	30,000 hours			

10.4 Component Video Matrix Switchers

Type / Spec.	08xxHD(-A) Series	TMX-16xxHD(-A) Series
Video		
Gain	0 dB	
Bandwidth	450 MHz (-3 dB), fully loaded 0 ~ 10 MHz: ≤±0.1 dB 0 ~ 100 MHz: ≤±0.8 dB	325 MHz (-3 dB), fully loaded 0 ~ 10 MHz: ≤±0.1 dB 0 ~ 100 MHz: ≤±0.8 dB
Crosstalk of channel	-53 dB @ 10 MHz, -45dB @ 30 MHz, -37 dB @ 100 MHz	
Crosstalk of lum and chroma	<-80 dB @1 kHz, fully loaded	
Differential phase error	Max. 0.05 degree, @ RL=150 Ω	
Differential gain error	Max. 0.05%, @ RL=150 Ω	
Typical propagation delay	5 ns @ 2 Vp-p, RL=150 Ω	
Typical switching speed	25 ns	50 ns
Signal type	RGB, RGBs, RGsB, RsGsBs, HDTV, component video, S-video and composite video	
Video input		
Connectors	8 × 3 female BNC Connectors	16 × 3 female BNC Connectors
Min./max. levels	Analog: 0.5 V to 2.0 Vp-p with no offset	
Nominal level	RGB: 0.7 Vp-p Y Signal of Component Video and S-Video, Composite Video: 1.0 Vp-p R-Y/B-Y Signal of Component Video and C Signal of S-Video: 0.3 Vp-p	
Impedance	75 Ω	
Return loss	-30 dB @ 5 MHz	
Max. DC offset	1.5 V	
Video output		
Connectors	4 or 8 × 3 female BNC Connectors	8 or 16 × 3 female BNC Connectors
Nominal level	RGB: 0.7 Vp-p Y Signal of Component Video and S-Video, Composite Video: 1.0 Vp-p R-Y/B-Y Signal of Component Video and C Signal of S-Video: 0.3 Vp-p	
Min./max. levels	Analog signal: 0 V to 2.0 Vp-p (follows input)	
Impedance	75 Ω	
Return loss	-30 dB @ 5 MHz	
DC offset	± 5 mV with no offset at input	
Switching type	RGB simultaneity	
Audio (-A series)		
Signal type	Balanced/unbalanced stereo	
Connectors	5 pin 3.81 mm Phoenix Connectors	
Gain	Unbalanced output: 0 dB, balanced output: +6 dB	
Frequency response	20 Hz ~ 22 kHz, ±0.05 dB	

Type / Spec.	08xxHD(-A) Series	TMX-16xxHD(-A) Series
THD+Noise	0.03% @ 1 kHz at normal level	
S/N	>110 dB, balanced, at maximum output (20.2 dBu), unweighted	
Crosstalk	>80 dB @ 1 kHz, fully loaded	
Stereo channel separation	>80 dB @ 1 kHz	
CMRR	>75 dB @ 20 Hz ~ 20 kHz	
Impedance	Input: >10 kΩ, (balanced or unbalanced)	
Max. input/output levels	+20.2 dBu (balanced or unbalanced)	
Gain error	±0.1 dB @ 20 Hz ~ 22 kHz	
Control		
COM (RS-232)	RS-232, 9-pin female D connector	
COM1	Baudrate: 9600, data: 8 bits, stop: 1 bit, no parity check bit	
COM2	Variable baudrate, data: 8 bits, stop: 1 bit, no parity check bit	-
Interface	2=TX，3=RX，5=GND	
Ethernet	RJ-45 female connector, Cat.5 only cross-pair	
Ethernet protocol	TCP/IP	
Ethernet speed	10 M/100 M, full-duplex or half-duplex with autodetect	
PC control	Matrix Switcher	
General spec.		
Power supply	100 V AC - 240 V AC，50/60 Hz	
Temperature	Operating: 0 °C to + 50 °C; storage: -20 °C to + 70 °C	
Humidity	Storage and Operating:10%-90%	
Dimensions w × d × h (mm)	478×310×132 (3U high)	478×310×264 (6U high)
Weight	TMX-0804HD(-A)：4.8 kg TMX-0808HD(-A)：5.4 kg	TMX-1608HD(-A)：9.0 kg TMX-1616HD(-A)：10.0 kg
Mean time between failures	30,000 hours	

10.5 DVI Matrix Switchers

10.5.1 DVI & Audio Switchers

Type / Spec.	TMX-0201DVI-A	TMX-0401DVI-A
Video		
Max. data rate	2.25 Gbps	
Resolution	Up to HDTV (1080 p) or 1920×1200 @ 60 Hz	
Video input		
Signal type	TMDS	
Connectors	DVI-I connectors **(Compatible with DVI-D)**	
Equalization	6 dB, 12 dB	
Video output		
Signal type	TMDS	
Connector	DVI-I Connector **(Compatible with DVI-D)**	
Pre-emphasize	0 dB, 2 dB, 4 dB, 6 dB	
Audio input		
Signal type	Unbalanced stereo	
Connectors	3.5 mm Phone jacks	
Audio output		
Signal type	Balanced/unbalanced stereo	Unbalanced stereo
Connectors	3.5 mm Phone jack (unbalanced) and 5 pin 3.81 mm Phoenix (balanced)	3.5 mm Phone jack (unbalanced)
Control		
COM (RS-232)	3.5 mm TRS jack	9-pin female D connectors
Connecting to central control system	Baudrate: 9600, data: 8 bits, stop: 1 bit, no parity check bit	-
Connecting to PC software	Baudrate: 38400, data: 8 bits, stop: 1 bit, no parity check bit	-
COM1	-	Baudrate: 9600, data: 8 bits, stop: 1 bit, no parity check bit
COM2	-	Variable baudrate, data: 8 bits, stop: 1 bit, no parity check bit
Interface	R=TX，T=RX，S=GND	2=TX，3=RX，5=GND
PC control	Matrix Switcher	
General spec.		
Power supply	12 V DC	100 V AC - 240 V AC, 50/60 Hz
Temperature	Operating: 0 °C to + 50 °C;storage: -20 °C to + 70 °C	
Humidity	Storage and Operating:10%-90%	
Dimensions w × d × h (mm)	150×100×40	483×208×43 (1U high)
Weight	0.4 kg	2.7 kg
Mean time between failures	30,000 hours	

10.5.2 DVI Matrix Switchers

Type / Spec.	TMX-02xxDVI(-A) Series	TMX-08xxDVI(-A) Series
Video		
Max. data rate	1.65 Gbps	2.25 Gbps
Resolution	Up to HDTV (1080 p) or 1600×1200 @ 60 Hz	Up to HDTV (1080 p) or 1920×1200 @ 60 Hz
Video input		
Signal type	TMDS	
Connectors	DVI-I connectors **(Compatible with DVI-D)**	
Equalization	Automatic, max. 40 dB	Automatic, max. 12 dB
Video output		
Signal type	TMDS	
Connectors	DVI-I connectors **(Compatible with DVI-D)**	
Pre-emphasize	Automatic	0 dB, 6 dB
Audio input (-A series)		
Signal type	Unbalanced stereo	Balanced/unbalanced stereo
Connectors	3.5 mm Phone jacks	5 pin 3.81 mm Phoenix Connectors
Audio output (-A series)		
Signal type	Unbalanced stereo	Balanced/unbalanced stereo
Connectors	3.5 mm Phone jacks	5 pin 3.81 mm Phoenix Connectors
Control		
COM (RS-232)	9-pin female D connectors	
COM1	Baudrate: 9600, data: 8 bits, stop: 1 bit, no parity check bit	
COM2	Variable baudrate, data: 8 bits, stop: 1 bit, no parity check bit	
Interface	2=TX，3=RX，5=GND	
Ethernet	-	RJ-45 female connector, Cat.5 only cross-pair
Ethernet protocol	-	TCP/IP
Ethernet speed	-	10 M/100 M, full-duplex or half-duplex with autodetect
PC control	Matrix Switcher	
General spec.		
Power supply	100 V AC - 240 V AC, 50/60 Hz	
Temperature	Operating: 0 °C to + 50 °C; storage: -20 °C to + 70 °C	
Humidity	Storage and Operating:10%-90%	
Dimensions w × d × h (mm)	483×208×43 (1U high)	478×310×132 (3U high)
Weight	2.7 kg	TMX-0804DVI：4.4 kg TMX-0804DVI-A：4.5 kg TMX-0808DVI：4.5 kg TMX-0808DVI-A：4.6 kg

10.6 HDMI Switcher

Type / Spec.	TMX-0201HDMI	TMX-0401HDMI	TMX-0801HDMI
Video			
Max. data rate	2.25 Gbps		
Resolution	Up to HDTV (1080 p) or 1920×1200 @ 60 Hz		
Input			
Signal type	TMDS		
Connectors	Female HDMI type A connectors		
Equalization	6 dB, 12 dB		
Output			
Signal type	TMDS		
Connectors	Female HDMI type A connector		
Pre-emphasize	0 dB, 2 dB, 4 dB, 6 dB		
Control			
COM (RS-232)	3.5 mm TRS jack		9-pin female D connectors
Connecting to central control	Baudrate: 9600, data: 8 bits, stop: 1 bit, no parity check bit		-
Connecting to PC software	Baudrate: 38400, data: 8 bits, stop: 1 bit, no parity check bit		-
COM1	-		Baudrate: 9600, data: 8 bits, stop: 1 bit, no parity check bit
COM2	-		Variable baudrate, data: 8 bits, stop: 1 bit, no parity check bit
Interface	R=TX，T=RX，S=GND		2=TX，3=RX，5=GND
Ethernet	-		RJ-45 female connector, Cat.5 only cross-pair
Ethernet protocol	-		TCP/IP
Ethernet speed	-		10 M/100 M, full-duplex or half-duplex with autodetect
PC control	Matrix Switcher		
General spec.			
Power supply	12 V DC		100 V AC - 240 V AC, 50/60 Hz
Temperature	Operating: 0 °C to + 50 °C; storage: -20 °C to + 70 °C		
Humidity	Storage and Operating:10%-90%		
Dimensions w × d × h (mm)	150×100×40		483×208×43 (1U high)
Weight	0.4 kg	0.4 kg	2.7 kg

10.7 Mixed Switcher

Type / Spec.	TMX-0401MA
VGA	
Gain	0 dB
Bandwidth	350 MHz (-3 dB) , fully loaded 0 ~ 10 MHz: ≤±0.1 dB 0 ~ 100 MHz: ≤±0.8 dB
Crosstalk of channel	-53 dB @ 10 MHz，-45dB @ 30 MHz，-37 dB @ 100 MHz
Crosstalk of lum and chroma	<-80 dB @1 kHz, fully loaded
Differential phase error	Max. 0.05 degree, @ RL=150 Ω
Differential gain error	Max. 0.05%, @ RL=150 Ω
Typical propagation delay	5 ns @ 2 Vp-p，RL=150 Ω
Signal type	VGA~UXGA RGBHV, RGBs, RGsB, RsGsBs, HDTV, component video, S-video and composite video
VGA input	
Connectors	15 pin-HDF connectors
Min./max. levels	Analog: 0.5 V to 2.0 Vp-p with no offset
Nominal level	RGB: 0.7 Vp-p Y Signal of Component Video and S-Video, Composite Video: 1.0 Vp-p R-Y/B-Y Signal of Component Video and C Signal of S-Video: 0.3 Vp-p
Impedance	75 Ω
Return loss	-30 dB @ 5 MHz
Max. DC offset	1.5 V
VGA output	
Connector	15 pin-HDF connector
Nominal level	RGB: 0.7 Vp-p Y Signal of Component Video and S-Video, Composite Video: 1.0 Vp-p R-Y/B-Y Signal of Component Video and C Signal of S-Video: 0.3 Vp-p
Min./max. levels	Analog signal: 0 V to 2.0 Vp-p (follows input)
Impedance	75 Ω
Return loss	-30 dB @ 5 MHz
DC offset	± 5 mV with no offset at input
Switching type	RGB simultaneity
VGA Sync.	
Input level	1.1 V to 5.0 Vp-p, 4.0 Vp-p normal
Output level	AGC to TTL: 4.5 V - 5.0 Vp-p
Input impedance	510 Ω
Output impedance	75 Ω
Max input voltage	5.0 Vp-p
Max. propagation delay	20 ns

Type / Spec.	TMX-0401MA
Video	
Gain	0 dB
Bandwidth	125 MHz (-3 dB), fully loaded
Crosstalk of channel	-53 dB @ 10 MHz
Crosstalk of lum and chroma	<-80 dB @ 1 kHz, fully loaded
Differential phase error	Max. 0.1 degree, @ RL=150 Ω
Differential gain error	Max. 0.1%, @ RL=150 Ω
Typical propagation delay	80 ns @ 2 Vp-p，RL=150 Ω
Typical switching speed	50 ns
Signal type	Composite video
Video input	
Connectors	Female RCA connectors
Min./max. levels	Analog: 0.5 V to 2.0 Vp-p with no offset
Nominal level	1.0 Vp-p
Impedance	75 Ω
Return loss	-30 dB @ 5 MHz
Max. DC offset	1.5 V
Video output	
Connector	Female BNC Connector
Nominal level	1.0 Vp-p
Min./max. levels	Analog signal: 0 V to 2.0 Vp-p (follows input)
Impedance	75 Ω
Return loss	-30 dB @ 5 MHz
DC offset	± 5 mV with no offset at input
Audio	
Signal type	Stereo
Input connectors	Female RCA connectors
Output connectors	XLR balanced outputs
Gain	LINE 1 and mixed audio output: 0 dB to -30 dB adjustable
Frequency response	20 Hz ~ 20 kHz, ±1 dB
THD+ Noise	0.03% @ 1 kHz at normal level
S/N	>110 dB, balanced, at maximum output (20.2 dBu), unweighted
Crosstalk	>80 dB @ 1 kHz, fully loaded
Stereo channel	>80 dB @ 1 kHz
CMRR	>75 dB @ 20 Hz ~ 20 kHz
Impedance	Input: >10 kΩ
Max. input/output levels	+20.2 dBu

Type / Spec.	TMX-0401MA
Gain error	±0.1 dB @ 20 Hz ~ 22 kHz
Control	
COM (RS-232)	9 pin female D connector
COM1	Baudrate: 9600, data: 8 bits, stop: 1 bit, no parity check bit
COM2	Variable baudrate, data: 8 bits, stop: 1 bit, no parity check bit
Interface	2=TX，3=RX，5=GND
PC control	Matrix Switcher
General spec.	
Power supply	100 V AC - 240 V AC，50/60 Hz
Temperature	Operating: 0 °C to + 50 °C; storage: -20 °C to + 70 °C
Humidity	Storage and Operating:10%-90%
Dimensions w × d × h (mm)	483×208×43 (1U high)
Weight	2.7 kg
Mean time between failures	30,000 hours

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