USER MANUAL

MPA88

Stereo Audio Matrix Switcher 8x8, with EQ/Mixer

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1. General Instruction

MPA88 is a high-performance matrix switcher for stereo audio, and built in the EQ for every channel of input and output, and built in the audio mixer in the output channel 1. It the great audio processor, which can work in the high-end conference rooms, multimedia rooms etc.

It supports the cross-point switching, and each input channel is bass/treble independently preset, and each output volume is independently preset.

2. Product Picture

3. Features

- Each input volume is built in the EQ function, working independently. The bass/Treble is 15 degree preset-able. The volume is 61 degree preset-table.
- Each output volume is independently preset-able, 61 degrees.
- Output 1 is built in the audio mixer, which can programmable mix any input channel, by RS232 or PTN software.
- Compatible with stereo audio, balance/unbalance connection is available.
- Cross-point switching
- 9 global preset function, which can save the switching/setting status, and recall it anytime.
- Programmable grouping function. The user can group several input/output channels, and control at the same time.
- RS232 controlling function, with smart feedback.
- Extensibility: It can be controlled by PTN panel (WP18R,WP19), optional function.
- GCSSP(Gain Compensation and Synchronization Signal Proofread technology) inside
- Antistatic case design: providing good protection for long-term and stable performance
- Rack-mountable metal enclosure, suitable for 19inch rack standard.
- Internal international power supply (100Volt~240Volt AC, 50/60Hz) For worldwide compatibility, all models are equipped with an internal, auto-switching power supply that meets or exceeds all appropriate safety certifications.
- Fast switching speed. It is the high speed for the good performance.
- LED indicator, for power and working status.

4. Specification

Audio Input		**Audio Output**	
Input	8 stereo, balanced/unbalanced	Output	8 stereo, balanced/unbalanced
Input Connector	Captive screw connectors, 5 pole	Output Connector	Captive screw connectors, 5 pole
Input Impedance	>10KΩ	Output Impedance	50Ω
Audio General			
Mixer Processor	Built in DSP effects	Mixer Max. Output Gain	21 dB
Input Volume	61 degrees controllable/preset	Output Volume	61 degrees controllable/preset 13 degrees Bass/Treble controllable/preset
Frequency Response	20Hz ~ 20KHz, ±0.5dB	CMRR	>90dB@20Hz~20KHz
Stereo Channel Separation	>80dB@1KHz	THD + Noise	1%@1 kHz, 0.3%@20KHz at nominal level
Audio Bits per Sample	18 bits per channel, 2 channels (L, R)		
Control Parts			
Control/Remote	buttons; RS-232 (9-pin female D connector)	Pin Configurations	2 = TX, 3 = RX, 5 = GND
Options	TCP/IP control by PTNET		
General			
Max DC Compensation	1.5V	Humidity	10% ~ 90%
Temperature	-20℃ ~ +70℃	Power Consumption	15W
Power Supply	100VAC ~ 240VAC, 50/60Hz	Product Weight	2Kg
Case Dimension	W483 x H44 xD235mm (1U high, full rack wide)		

NOTE: All nominal levels are at ±10%.

5. Audio Connection

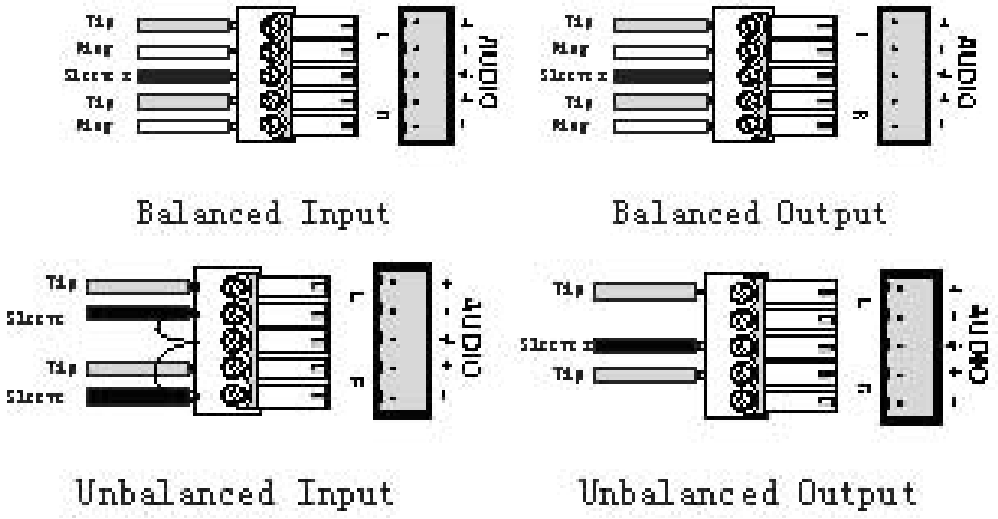
"AUDIO INPUT", "AUDIO OUTPUTS" audio network interface in MPA matrix switchers can be connected to the audio signal and amplify of the DVD player.

Audio connection is little complicated than video. It has two kinds of connection: balanced and unbalanced.

The balanced connection transmits a pair of balanced signals with two signal cords. Because interferences will have the same intensity and the opposite phases on the two signal cords, it will be counteracted in the end. For the low frequency extent of the audio signal, it would be easily interfered under long distance transmission. Therefore，as an anti-interference connection , it is mostly used in audio connection of special device.

The unbalanced connection transmits signals only with a signal cord. Without counteraction, it can be interfered more easily. Accordingly, it is adopted for household appliance or some cases with low technical demand.

Take the audio signal line for example: 1.Unbalanced: pin "G" connect to SLEEVE, pin "+" connect to TIP, pin "–" connect to pin "G"; 2.Balanced: pin "G" connect to SLEEVE, pin "–" connect to RING, pin "+" connect to TIP. As shown in the F 6-3:



F 5-3 Balanced/unbalanced connection on captive screw connector

To select which connection is up to the interface of the device. When available, the balanced connection is the first choice. Before connection, please read the command or relevant demand in the user manual carefully. In some cases, maybe there is balanced in source signal end but unbalanced in the destination end. If in a nonstandard case, it is done to connect balanced for the balanced end and unbalanced for unbalanced end. But if in a standard one, the converter must be used to switch the signals as the same, balanced or unbalanced.

6. Front Panel Controlling

The front panel buttons provides the control of audio signal switching, preset

6.1 Audio switching:

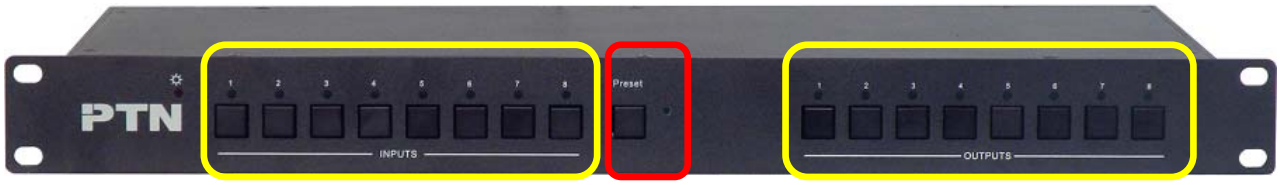
We can switch the MAP matrix switcher by front panel number “1,2,3,4,5,6,7,8”. (the buttons in yellow table)

The operation is : Input ⇨ Output

Example 1, switching the audio input 3 to output 8. We need to press input “3” in the front panel, and press output “8”.

Example 2, switching the audio input 5 to output 1,3,4,5. We need to press input “5” in the front panel, and press output “1”, “3”,”4”,”5”.

After the pressing, the matrix switcher will carry out the operation and the LED will flash for three times.



6.2 Audio Preset:

The MPA88 provides 9 global presets (from F1 to F9), which can remember the switcher status and save inside the MPA88, and recall it for action. The RS232 command “Save” can remember 9 presets in total. The button “preset” can recall the preset, by pressing “number” button and “preset” button.

For example, recalling the preset F3, you need to press “3” in the front panel, and then press “preset” in the front panel.

7. The switching command: RS232 controlling

Communication protocol:

Baud rate: 9600 Data bit: 8 Stop bit: 1 Parity bit: none

RS232 commands	Function Desctription
/*Type;	Check the system information and ID information.
/%Lock;	Lock the keyboard of the control panel on the matrix.
/%Unlock;	Unlock the keyboard of the control panel on the matrix.
/^Version;	Inquire the version of firmware.
/:MessageOff;	Switch off the feedback command from the com port. It will only show “switcher OK”.
/:MessageOn;	Switch on the feedback command from the com port.
Demo.	Switch to the “demo” mode, 1->1, 2->2, 3->3 … and so on, every 2 seconds, and cycled switching.
Save[Z].	Save the present operation to the preset command [Z]. [Z] ranges from 0 to 9. (check example 19)

RS232 commands	Variable Code	Function Desctription	
Recall[Z].		Recall the preset command [Z]. (check example 20)	
Clear[Z].		Clear the preset command [Z]. (check example 21)	
Undo.		To cancel the previous operation.	
Audioinit.		Initialize the Volume/Bass/Treble, recover to the factory default level.	
VOICE.		Checking the level of Volume/Bass/Treble of all the channels	
[y]API[xx].	y=9	preset the volume of all the 8 inputs. (check example 1)	
	y=y1,y2…y7	preset the volume of input y1,y2..y7 at the same time. (check example 2,5)	
	[xx] is from "00" to "60"	preset the volume of input [Y], 61 degrees. (check example 4,5)	
	[xx] = [UP]	Turning up the volume of input [Y]. (check example 1,2)	
	[xx] = [DO]	Turning down the volume of input [Y]. (check example 3)	
[z]APO[y] [xx].	[z]=9	Preset the volume of all the 8 outputs. (check example 6)	
	[z]=z1,z2…zn	preset the volume/bass/treble of input y1,y2..yn at the same time. (check example 7)	
	[Y] = [H]	[xx] is ranging from "00" to "12"	Preset the treble of output [Z]. (check example 16)
		[xx] = [UP]	Turning up the treble of output [Z]. (check example 12)
		[xx] = [DO]	Turning down the treble of output [Z] . (check example 14)
	[Y] = [L]	[xx] is ranging from "00" to "12"	Preset the bass of output [Z]. (check example 15)
		[xx] = [UP]	Turning up the bass of output [Z]. (check example 11)
		[xx] = [DO]	Turning down the bass of output [Z]. (check example 13)
	[Y] = [A]	[xx] is ranging from "00" to "60"	Preset the volume of output [Z]. (check example 7,8)
		[xx] = [UP]	Turning up the volume of output [Z]. (check example 7,9)
		[xx] = [DO]	Turning down the volume of output [Z]. (check example 10)
[x1]AND[x2],[x3]…[x8].	Input audio mixed to output 1. Maximum 8 channels mixed.(check example 17,18)		

Notice:

1: The letter inside bracket [ ] is the variable code, which is the changeable.

2: The bracket [ ] is not included to the RS232 commands.

3: The mixer output is the output 1, which is different from the MXPA8 whose mixer output is channel 8.

Example 1

Turning down the volume of all the 8 inputs at the same time. We should send the RS232 command:

[9APIUP.]

Example 2

Turning up the volume of input 1,2,3,5,6 at the same time. We should send the RS232 command:

[1,2,3,5,6APIUP.]

Example 3

Turning down the volume of input 6,7 at the same time. We should send the RS232 command:

[6,7APIDO.]

Example 4

Set the volume of input 5 to be the level "37". We should send the RS232 command:

[5API37.]

Example 5

Set the volume of input 3,4,5 to be the level "37" at the same time. We should send the RS232 command:

[3,4,5API37.]

Example 6

Turning up the volume of all the 8 outputs at the same time. We should send the RS232 command:

[9APOAUP.]

Example 7

Set the volume of output 3,4,5 to be the level "37" at the same time. We should send the RS232 command:

[3,4,5APOA37.]

Example 8

Set the volume of output 7 to be the level "31". We should send the RS232 command:

[7APOA31.]

Example 9

Turning up the volume of output 5. We should send the RS232 command:

[5APOAUP.]

Example 10

Turning down the volume of output 5. We should send the RS232 command:

[5APOADO.]

Example 11

Turn up the bass of output 5. We should send the RS232 command:

[5APOLUP.]

Example 12

Turn up the treble of output 5. We should send the RS232 command:

[5APOHUP.]

Example 13

Turn down the bass of output 5. We should send the RS232 command:

[5APOLDO.]

Example 14

Turn down the treble of output 5. We should send the RS232 command:

[5APOHDO.]

Example 15

Set the bass of output 3,4,5 to be the level "37" at the same time. We should send the RS232 command:

[3,4,5APOL37.]

Example 16

Set the treble of output 5 to be the level "37" . We should send the RS232 command:

[5APOH37.]

Example 17

Mix the input 1,2,3,4,5,6,7,8 to the "mixer" output. We should send the RS232 command:

[1AND2,3,4,5,6,7,8.]

Example 18

Mix the input 5,6 to the "mixer" output. We should send the RS232 command:

[5AND6.]

Example 19

Save the preset operation to preset command 3. We should send the RS232 command:

[Save3.]

Example 20

Recall the preset operation to preset command 3. We should send the RS232 command:

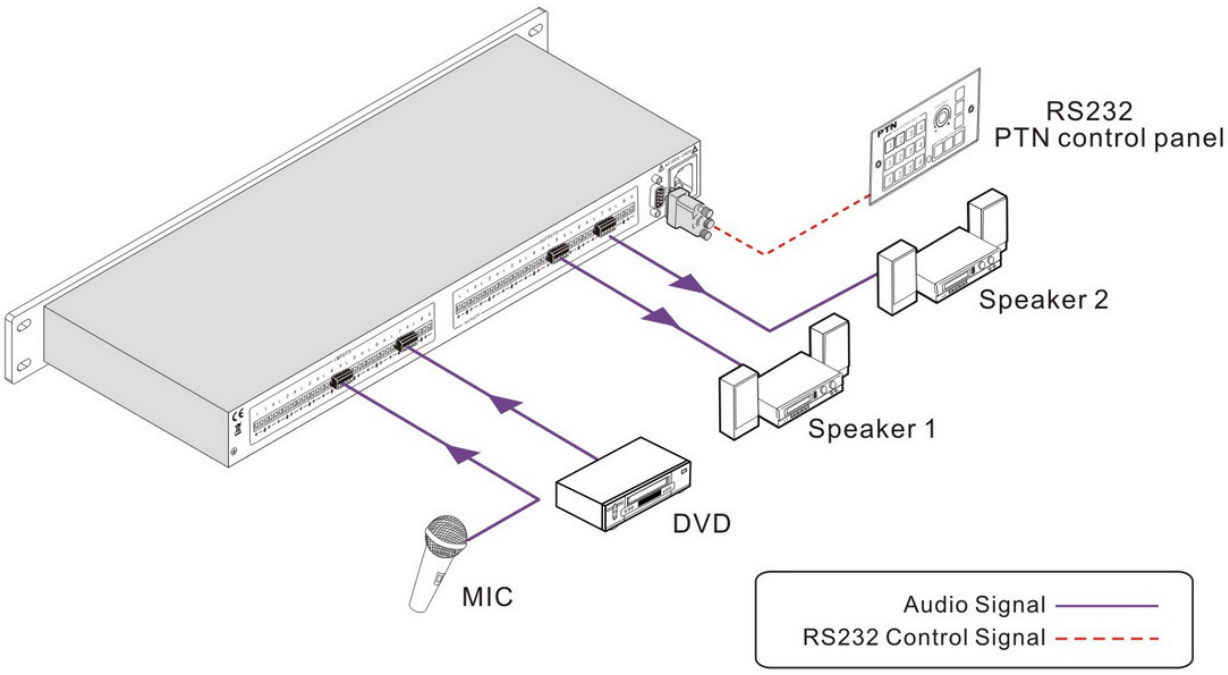
[Recall3.]

Example 21

Remove the preset operation to preset command 3. We should send the RS232 command:

[Clear3.]

8. System Diagram



9. Panel Drawing

Unit: mm