

**the
t.racks**



8x8 Matrix
digital speaker
management system

Musikhaus Thomann
Thomann GmbH
Hans-Thomann-Straße 1
96138 Burgebrach
Germany
Telephone: +49 (0) 9546 9223-0
E-mail: info@thomann.de
Internet: www.thomann.de

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1 General information

This user manual contains important information on the safe operation of the device. Read and follow all safety notes and all instructions. Save this manual for future reference. Make sure that it is available to all persons using this device. If you sell the device to another user, be sure that they also receive this manual.

Our products and user manuals are subject to a process of continuous development. We therefore reserve the right to make changes without notice. Please refer to the latest version of the user manual which is ready for download under www.thomann.de.

1.1 Further information

On our website (www.thomann.de) you will find lots of further information and details on the following points:

Download	This manual is also available as PDF file for you to download.
Keyword search	Use the search function in the electronic version to find the topics of interest for you quickly.
Online guides	Our online guides provide detailed information on technical basics and terms.
Personal consultation	For personal consultation please contact our technical hotline.
Service	If you have any problems with the device the customer service will gladly assist you.

1.2 Notational conventions

This manual uses the following notational conventions:

Letterings

The letterings for connectors and controls are marked by square brackets and italics.

Examples: *[VOLUME]* control, *[Mono]* button.

Displays

Texts and values displayed on the device are marked by quotation marks and italics.

Examples: *'24ch'*, *'OFF'*.

Text input

Text inputs that are carried out on the device are indicated by typewriter font.

Example: 2323

Instructions

The individual steps of an instruction are numbered consecutively. The result of a step is indented and highlighted by an arrow.

Example:

1. ▶ Switch on the device.
2. ▶ Press *[Auto]*.
 - ⇒ Automatic operation is started.
3. ▶ Switch off the device.

1.3 Symbols and signal words

In this section you will find an overview of the meaning of symbols and signal words that are used in this manual.

Signal word	Meaning
DANGER!	This combination of symbol and signal word indicates an immediate dangerous situation that will result in death or serious injury if it is not avoided.
NOTICE!	This combination of symbol and signal word indicates a possible dangerous situation that can result in material and environmental damage if it is not avoided.
Warning signs	Type of danger
	Warning – danger zone.

2 Safety instructions

Intended use

This device is intended to be used for amplification, mixing and playback of signals from musical instruments and microphones. Use the device only as described in this user manual. Any other use or use under other operating conditions is considered to be improper and may result in personal injury or property damage. No liability will be assumed for damages resulting from improper use.

This device may be used only by persons with sufficient physical, sensorial, and intellectual abilities and having corresponding knowledge and experience. Other persons may use this device only if they are supervised or instructed by a person who is responsible for their safety.

Safety



DANGER!

Danger for children

Ensure that plastic bags, packaging, etc. are disposed of properly and are not within reach of babies and young children. Choking hazard!

Ensure that children do not detach any small parts (e.g. knobs or the like) from the unit. They could swallow the pieces and choke!

Never let children unattended use electrical devices.



NOTICE!

Risk of fire

Do not block areas of ventilation. Do not install the device near any direct heat source. Keep the device away from naked flames.

**NOTICE!****Operating conditions**

This device has been designed for indoor use only. To prevent damage, never expose the device to any liquid or moisture. Avoid direct sunlight, heavy dirt, and strong vibrations.

Only operate the device within the ambient conditions specified in the chapter 'Technical specifications' of this user manual. Avoid heavy temperature fluctuations and do not switch the device on immediately after it was exposed to temperature fluctuations (for example after transport at low outside temperatures).

Dust and dirt inside can damage the unit. When operated in harmful ambient conditions (dust, smoke, nicotine, fog, etc.), the unit should be maintained by qualified service personnel at regular intervals to prevent overheating and other malfunction.



NOTICE!

Possible damage due to installation of a wrong fuse

The use of different types of fuses can cause serious damage to the unit. Fire hazard!

Only fuses of the same type may be used.

3 Features

Special features of the device:

- Digital 8x8 matrix processor
- 96 kHz sampling rate
- 32 bit DSP
- 24 bit AD/DA converter
- Inputs: 8 mono channels (screw terminal block) for microphone and line level signals
- Outputs: 8 mono channels (screw terminal) for line level signals
- Comprehensive setting options for optimal sound
 - Parametric Equalizer
 - Graphic Equalizer
 - High- and low-pass filters
 - Noise Gate
 - Phase inversion
- Internal Aux path with effects
- 21 user presets
- USB and Ethernet connection for control via PC using the supplied software
- Serial interface for remote control of the device or cascading of several devices

- Network connection for integration of the device into a local network
- Control via PC and remote control via RS232
- 19" rack mountable (1RU)

4 Installation and starting up

Unpack and check carefully there is no transportation damage before using the unit. Keep the equipment packaging. To fully protect the product against vibration, dust and moisture during transportation or storage use the original packaging or your own packaging material suitable for transport or storage, respectively.

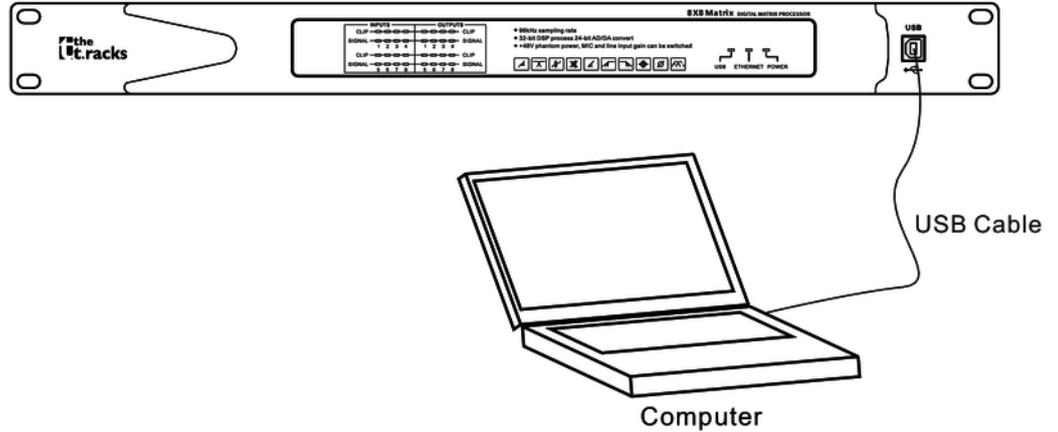
Create all connections while the device is off. Use the shortest possible high-quality cables for all connections. Take care when running the cables to prevent tripping hazards.

Rack mounting

The unit has been designed for rack mounting in a standard 19-inch rack; it occupies one rack unit.

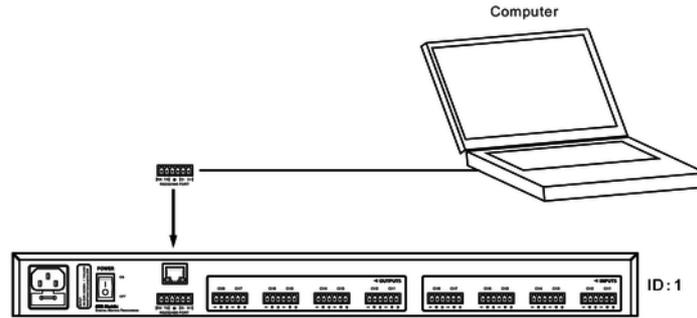
Configuration example 1

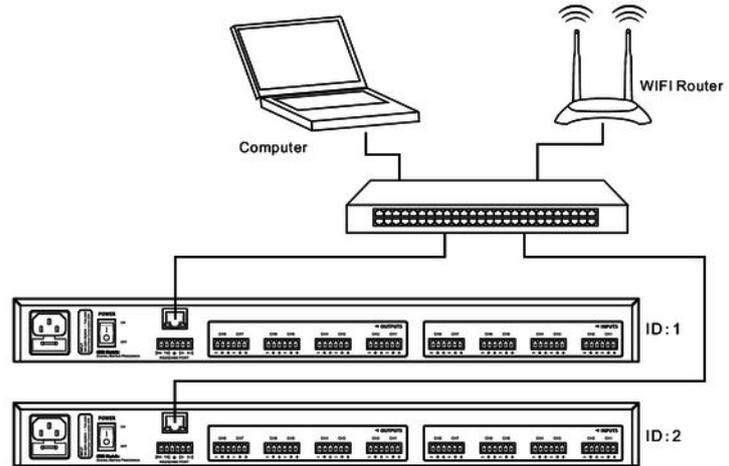
The figure schematically shows how the device can be controlled via a computer's USB port.



Configuration example 2

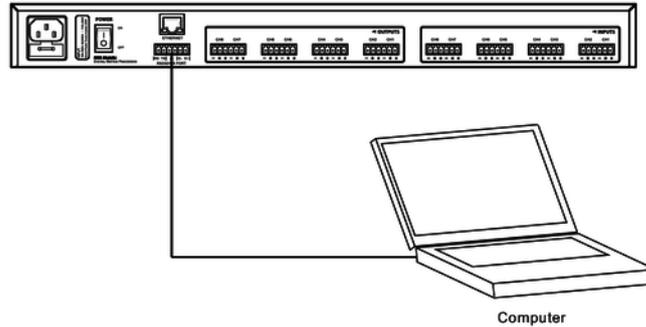
The illustrations show schematically how one device or several devices can be integrated into a local area network (LAN).





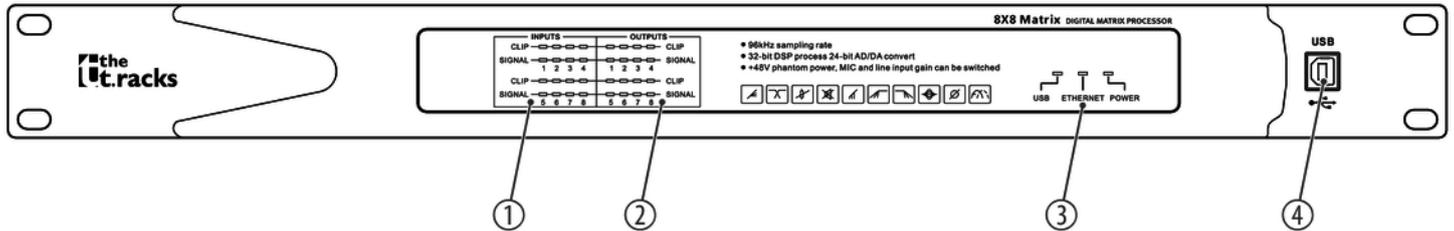
Configuration example 3

The illustrations show schematically how a device can be configured via the serial port.



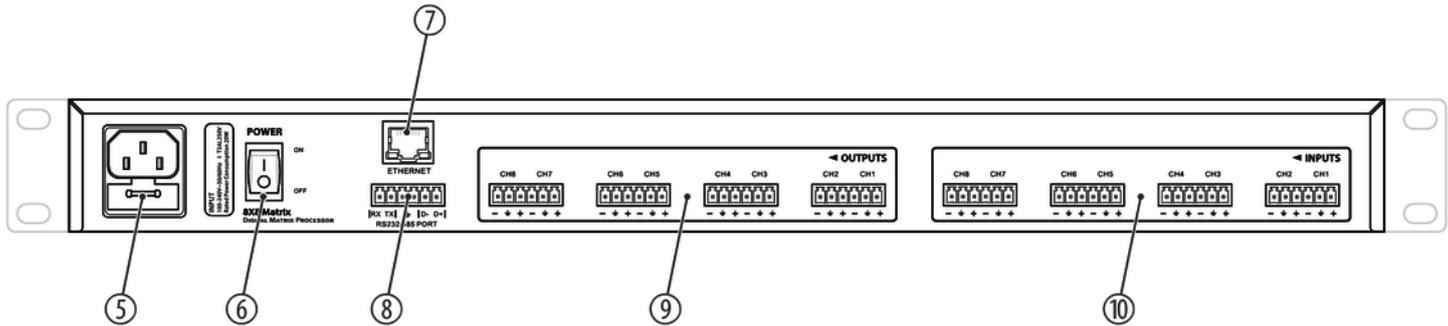
5 Connections and controls

Front panel



1	<p><i>[INPUTS]</i></p> <p><i>[SIGNAL]:</i> Level meter for the input channels.</p> <p><i>[CLIP]:</i> Clipping indicator. In this case, the level of the input signal is too high.</p>
2	<p><i>[OUTPUTS]</i></p> <p><i>[SIGNAL]:</i> Level meter for the output channels.</p> <p><i>[CLIP]:</i> Clipping indicator. In this case, the level of the output signal is too high.</p>
3	<p>Control LEDs</p> <p><i>[USB]:</i> The LED lights up when a signal is received via the USB connection.</p> <p><i>[ETHERNET]:</i> The LED lights up when a signal is received via the network connection.</p> <p><i>[POWER]:</i> This LED lights when the device is turned on.</p>
4	<p><i>[USB]</i></p> <p>USB port</p>

Rear panel



- 5 IEC chassis plug with fuse holder for the power supply
- 6 [POWER]
Main switch. Turns the device on and off
- 7 [ETHERNET]
RJ45 socket as LAN connection for connection to your network

8	<i>[RS232/485 PORT]</i> Serial interface for remote control of the device or cascading of several devices, designed as screw terminal block
9	<i>[OUTPUTS]</i> Screw terminal block for the output channels <i>[CH1] ... [CH8]</i> .
10	<i>[INPUTS]</i> Screw terminal block for the input channels <i>[CH1] ... [CH8]</i> .

6 Operating

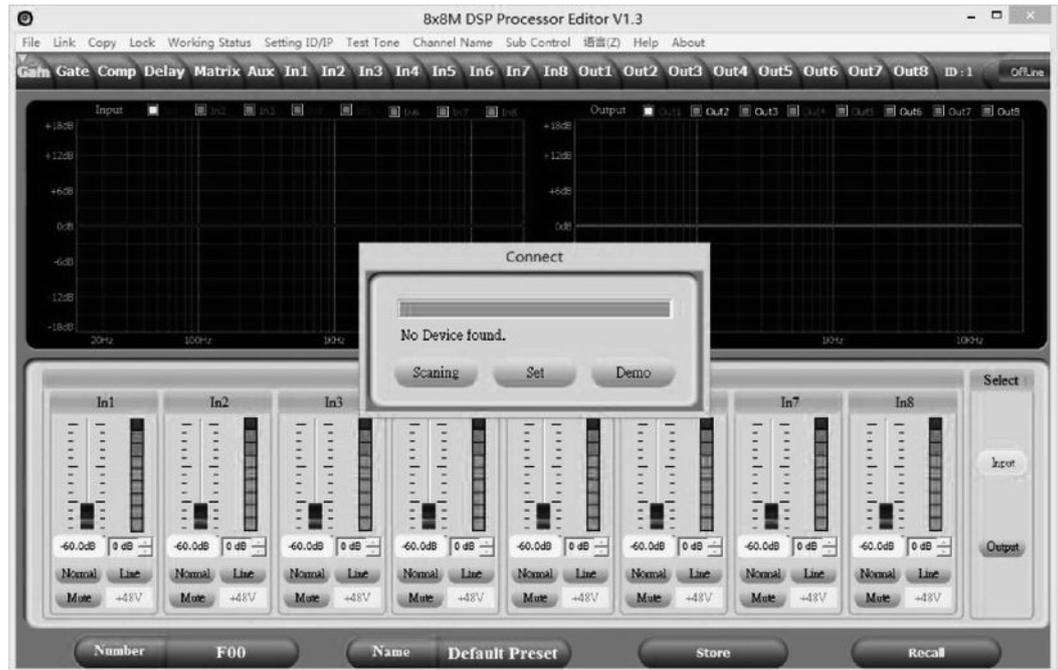
The device can be controlled with the supplied software. The connection from the PC to the device can be established via USB, LAN or the serial interface.



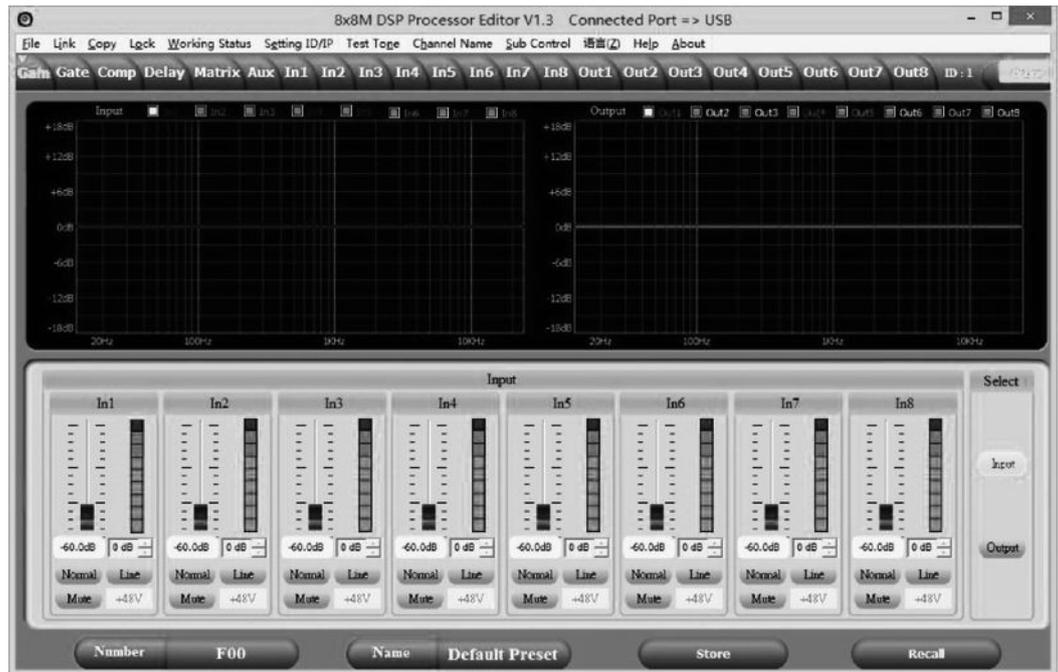
If you connect several devices via a switch, you have to assign a different IP address to each device and set a different ID code.

Install and start the software.

- 1.** ▶ Connect the device to the power grid.
- 2.** ▶ Insert the software CD into the disk drive of your Windows PC and start the installation programme that matches the device version.
- 3.** ▶ Follow the instructions of the installation programme to completion.
- 4.** ▶ Connect your PC to the device and switch on the device at the main switch.
 - ⇒ The operating system detects the newly added USB device.



5. ▶ Open the PC programme. The programme automatically detects the connected device.
 - ⇒ In the upper right corner of the programme window the marking '*Online*' appears.

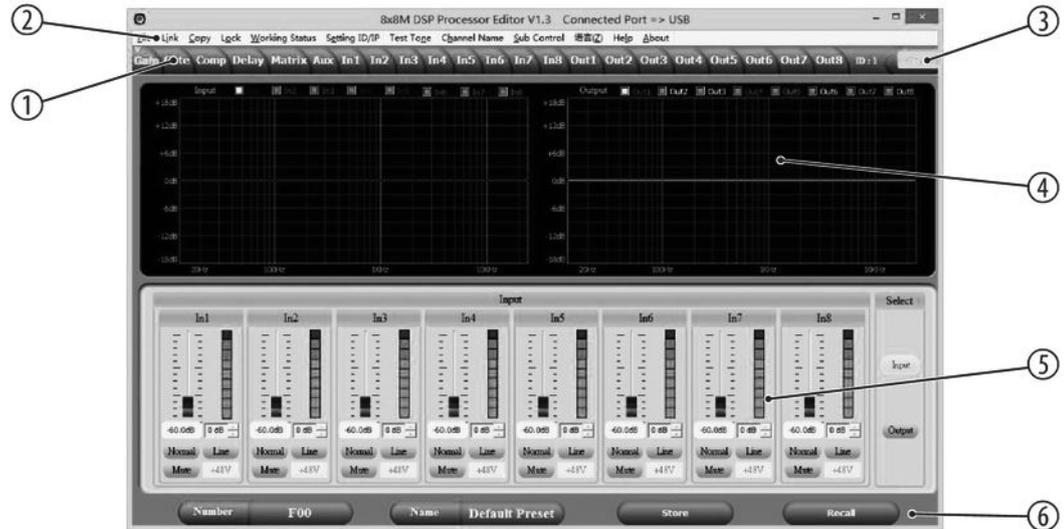


Exit software

1. ➤ Click on the '*Online*' button in the programme window.
2. ➤ Close the programme window.

Components of the programme window

All tabs of the programme window have a similar structure and are divided into the following areas:



1	Tab for selecting a function group
2	Main menu
3	Button for the status of the connection to the PC
4	Display area
5	Control area
6	Buttons for quick access to important presets

Main menu

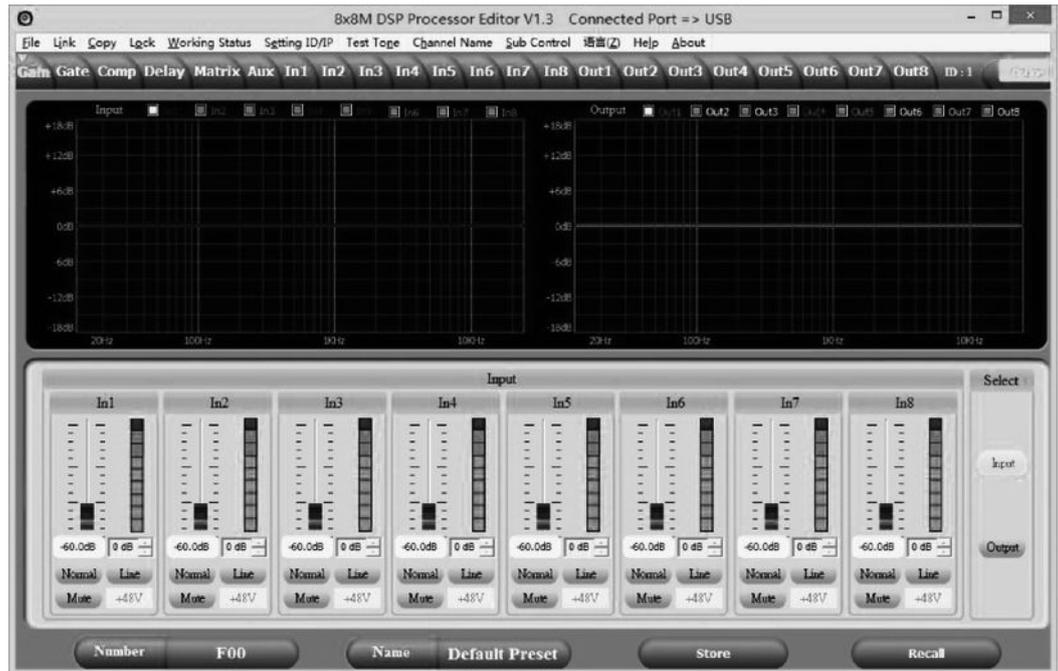
Menu item	Meaning
'File'	Loading user presets and saving them on the PC
'Link'	Linking input and output channels Example: Link input and output channels, e.g. to form a stereo group.
'Copy'	Copying parameter settings from one input or output channel to another
'Lock'	Changing device password
'Working Status'	Setting the memory mode 'not memory': Changes are not saved automatically. 'immediate memory': Changes are immediately saved automatically. This option is available in the U01...U21 user modes.
'Setting ID / IP'	Changing the unique identification of the device in a series connection or the IP address for the integration into a local network
'Test Tone'	Setting the internal test tone generator: Pink noise, white noise, sine wave 20 Hz...20 kHz.
'Channel Name'	Renaming of input and output channels

Menu item	Meaning
<i>'Sub Control'</i>	Changing the channel volume
<i>'Language'</i>	Language selection for the user interface of the programme (English or Chinese)

Buttons for quick access to important presets

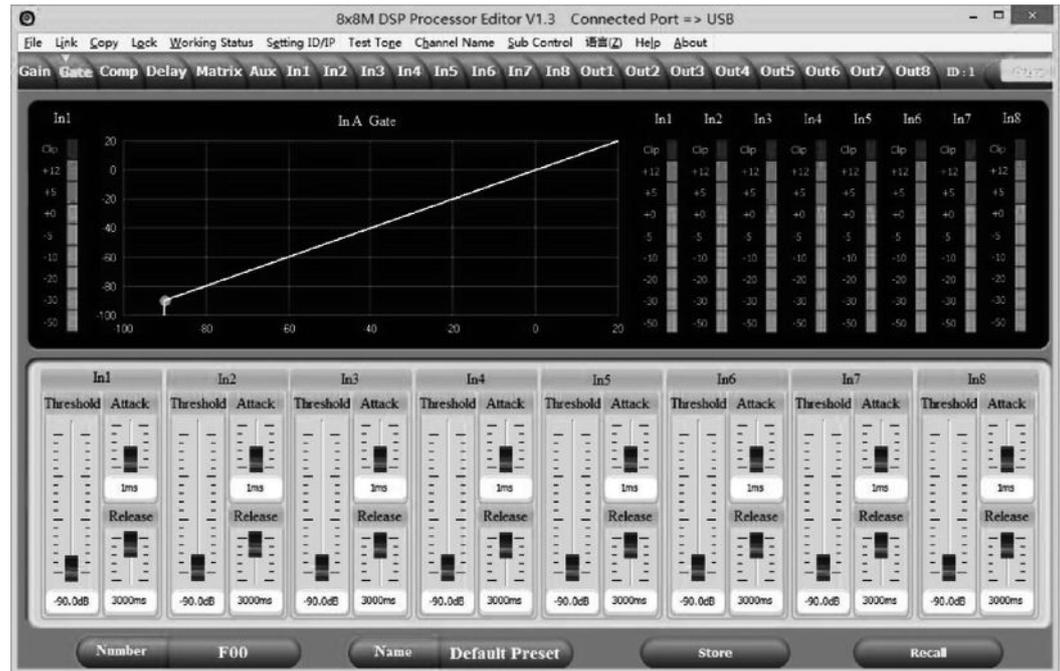
Range	Meaning
Number	Number of the current user's preset
Name	Name of the current user's preset
Store	Saving user preset
Recall	Recalling user preset

'Gain' tab



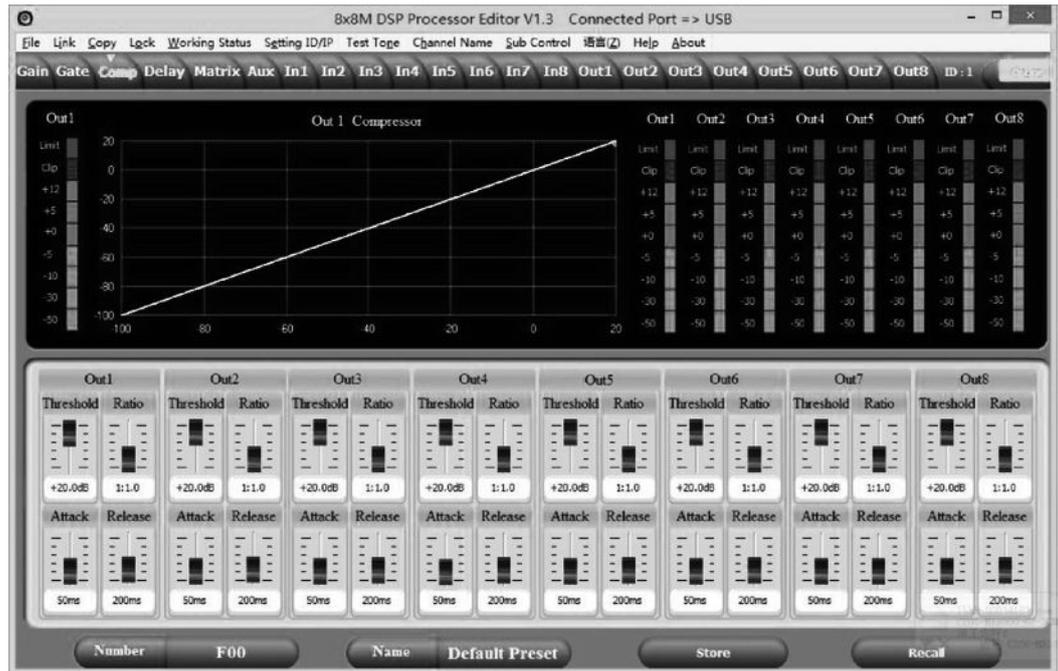
Range	Meaning
Display area	The waveform of input and output channels is graphically displayed. Use the radio buttons ' <i>Inx</i> ' and ' <i>Outx</i> ' to determine the inputs and outputs to be displayed.
Control area	Drag the faders with the mouse to adjust the levels for the input and output channels. The ' <i>Mute</i> ' button mutes or unmutes the respective channel. The ' <i>Normal</i> ' / ' <i>Inverse</i> ' button inverts the phase of the respective channel by 180° when needed. The ' <i>Line</i> ' / ' <i>Mic</i> ' button switches the respective input channel to Line mode or to Mic mode. The '+48V' button switches the phantom power of the respective input channel on or off.

'Gate' tab



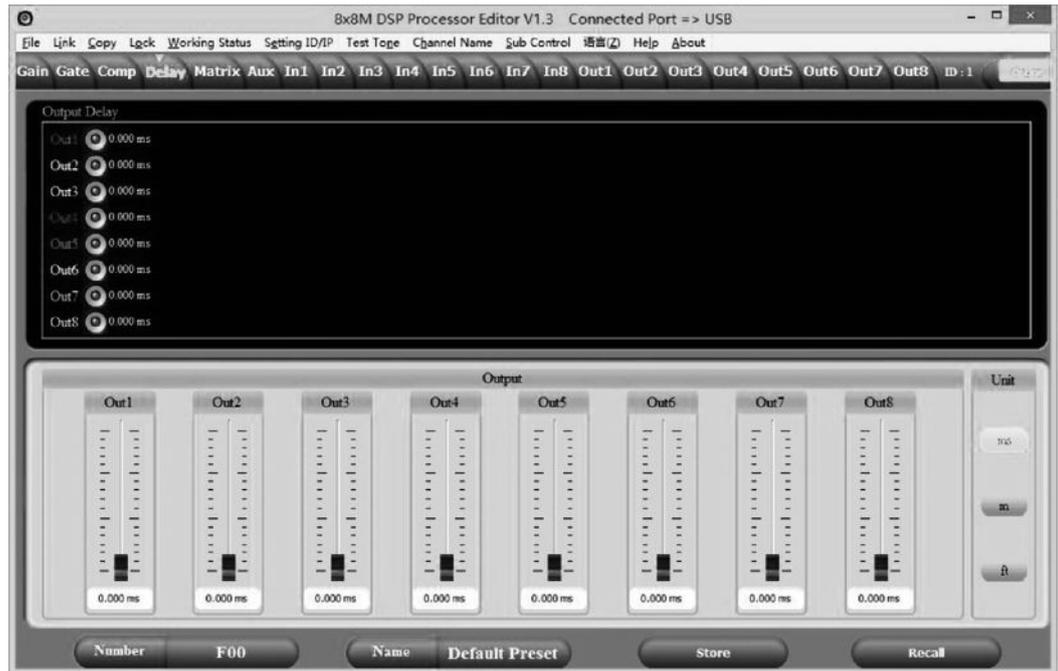
Range	Meaning
Display area	Shows the current settings of the noise gate for the respective channel, with a symbolic level indicator symbol appearing next to it for the input channels. The red dot in the curve corresponds to the current signal.
Control area	Drag the faders with the mouse to set the noise gate parameters for all input and output channels: Threshold, Attack, Release

'Comp' tab



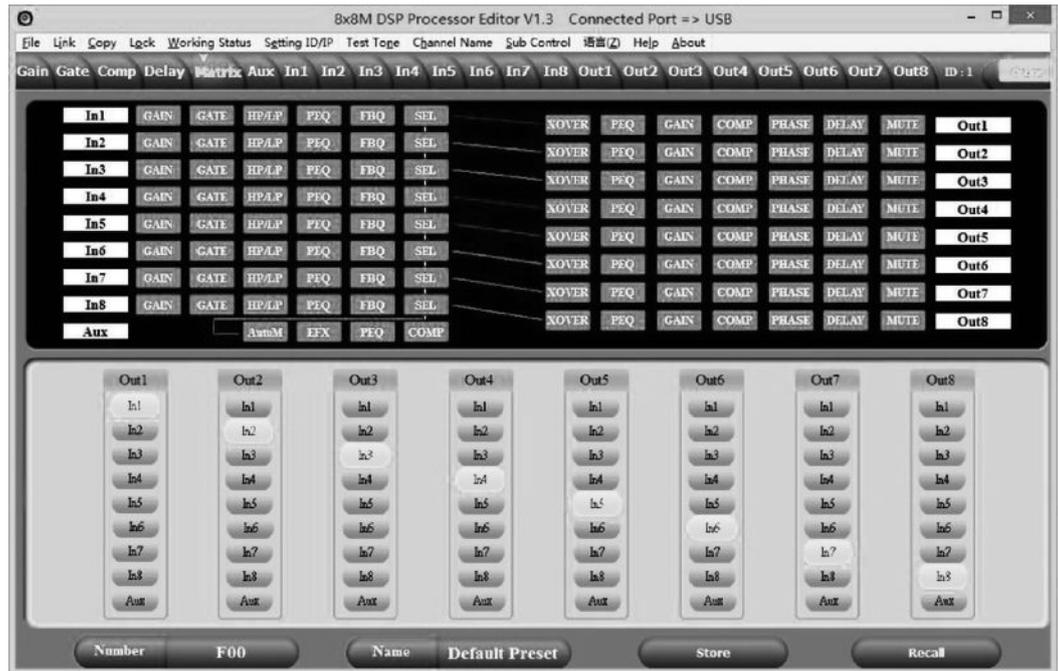
Range	Meaning
Display area	Shows the current settings of the compressor function for the respective output channel, with a symbolic level indicator symbol appearing next to it for all output channels. The red dot in the curve corresponds to the current signal.
Control area	Drag the faders with the mouse to set the compressor parameters for the output channels: Threshold, Ratio, Attack, Release

'Delay' tab



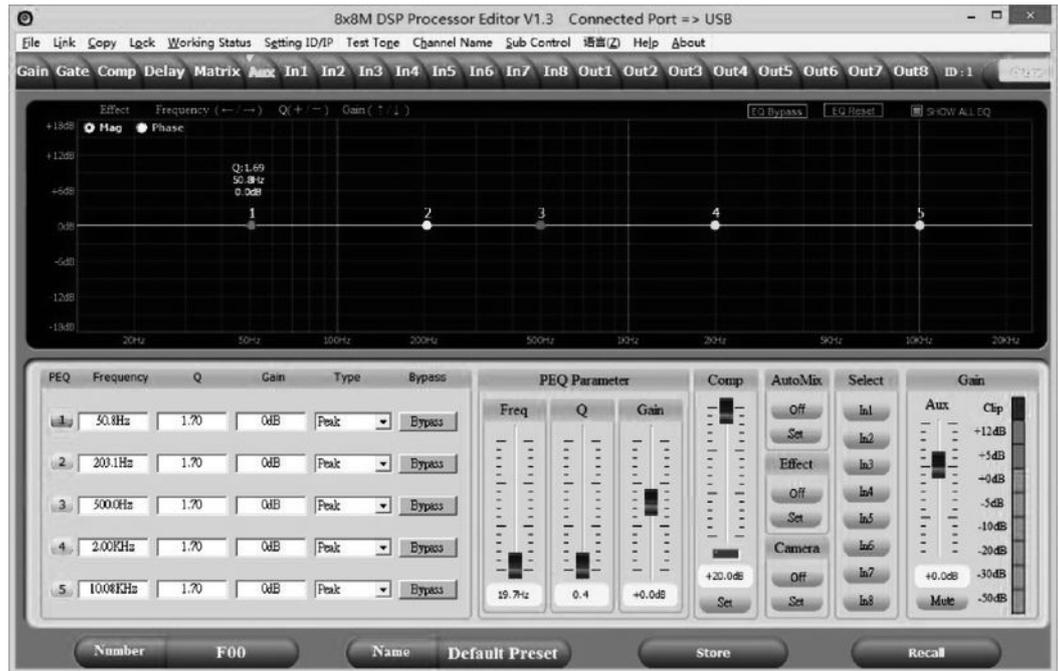
Range	Meaning
Display area	Shows the set delays for all in and output channels.
Control area	Drag the faders with the mouse to adjust the delay for the respective channel. Click on one of the buttons ' <i>ms</i> ', ' <i>m</i> ' or ' <i>ft</i> ' to select the unit used.

'Matrix' tab



Range	Meaning
Display area	<p>Shows the current interconnection of input to output channels.</p> <p>Input and output channels can be renamed. Click on a function area (e.g. 'Gain' or 'Gate') to open the tab where you can enter the relevant parameters directly.</p>
Control area	<p>With a mouse click you can interconnect each input with each output channel. To each output channel, an input channel or the mix of several input channels can be freely assigned. The green input channels are assigned to the respective output channel. You can adjust the level for each combination of input and output channel.</p>

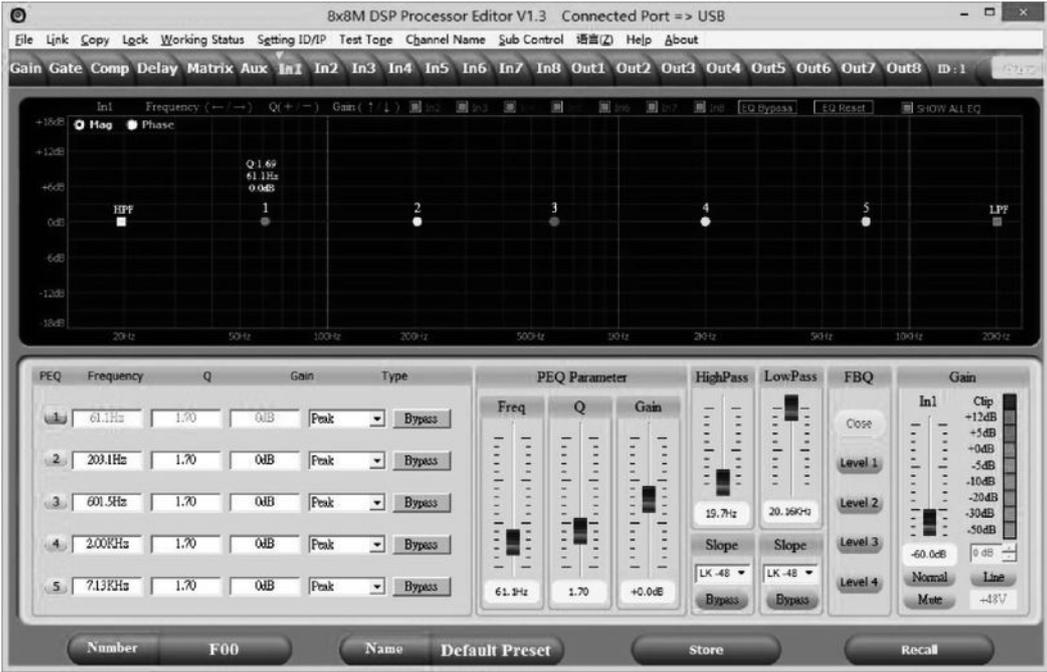
'Aux' tab



Range	Meaning
Display area	<p>Select <i>'Mag'</i> to set the <i>'PEQ'</i>, high pass, and low pass parameters. Select <i>'Phase'</i> to set the phase curve. You can also synchronously display the parametric equalizer and the phase curve of a channel that is not currently selected.</p>
Control area	<p>You can enter the parameters of the parametric equalizer for each input channel and all frequency bands (numbered with <i>'PEQ'</i>) in the left part of the window directly as numerical values: Centre frequency, filter quality, slope, filter type. With the <i>'Bypass'</i> button, the equalizer for the respective frequency band and the respective channel can be turned off temporarily.</p> <p>In the middle part of the window (<i>'PEQ Parameter'</i>) you can set the parameters centre frequency, filter quality, and slope using the faders. The setting refers to the frequency band that is highlighted green in the left part of the window.</p> <p>Comp: Click on <i>'Set'</i> and drag the fader with the mouse to set the parameters of the compressor function for the Aux channel: Compression ratio, ratio, limit, start time, recovery time.</p> <p>AutoMix: Click on <i>'Off/On'</i> to activate the AutoMix function. Click on <i>'Set'</i>. In the <i>'Select'</i> area, select the input channel. Enter the parameters for the threshold, start time, and recovery time.</p>

Range	Meaning
	<p>Effect: Click on 'Off/On' to activate the effect parameters. Click on 'Set'. In the 'Select' area, select the input channel. Enter the effect parameters for echo, reverb, overall volume.</p> <p>Camera: no function</p> <p>Select: Selection of input channels 1 to 8 for mixing into Aux channels</p> <p>Gain: Aux gain, mute and level indicators for Aux channels</p>

'In' tab

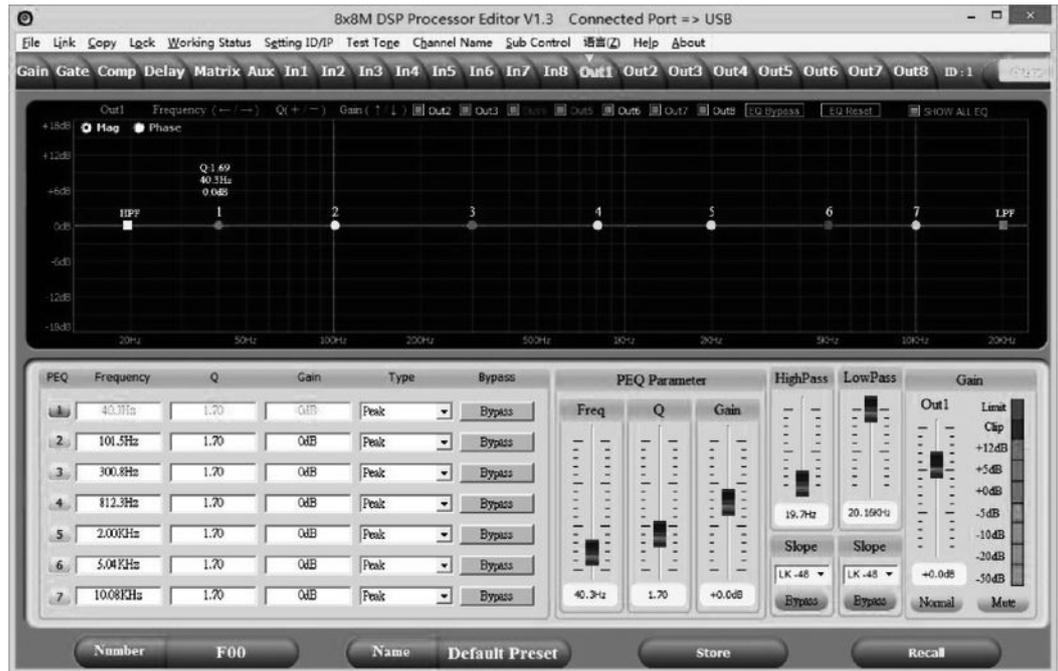


8x8 Matrix

Range	Meaning
Display area	<p>Use the radio buttons <i>'Mag'</i> or <i>'Phase'</i> to switch the diagram from Cartesian coordinates (level vs. frequency) to polar coordinates (angle vs. frequency).</p> <p>Use the radio button <i>'SHOW ALL EQ'</i> to show the parameters for all the frequency bands.</p>
Control area	<p>You can enter the parameters of the parametric equalizer for each input channel and all frequency bands (numbered with <i>'PEQ'</i>) in the left part of the window directly as numerical values: Centre frequency, filter quality, slope, filter type. With the <i>'Bypass'</i> button, the equalizer for the respective frequency band and the respective channel can be turned off temporarily.</p> <p>In the middle part of the window (<i>'PEQ Parameter'</i>) you can set the parameters centre frequency, filter quality, and slope using the faders. The setting refers to the frequency band that is highlighted green in the left part of the window.</p> <p>You can select the cut-off frequency and the filter type for the low pass and the high pass filter. Use the <i>'Bypass'</i> button to temporarily turn off the filter.</p>

Range	Meaning
	Drag the fader in the right part of the window using the mouse to set the level for the input channel. The <i>'Mute'</i> button mutes or unmutes the respective channel. The <i>'Normal'</i> / <i>'Inverse'</i> button inverts the phase of the respective channel by 180° when needed. The <i>'Line'</i> / <i>'Mic'</i> button switches the respective input channel to Line mode or to Mic mode. The <i>'FBQ'</i> button sets how strongly feedback suppression is effective.

'Out' tab



Range	Meaning
Display area	<p>Use the radio buttons '<i>Mag</i>' or '<i>PHASE</i>' to switch the diagram from Cartesian coordinates (level vs. frequency) to polar coordinates (angle vs. frequency).</p> <p>Use the radio button '<i>SHOW ALL EQ</i>' to show the parameters for all the frequency bands.</p>
Control area	<p>You can enter the parameters of the parametric equalizer for each input channel and all frequency bands (numbered with '<i>PEQ</i>') in the left part of the window directly as numerical values: Centre frequency, filter quality, slope, filter type. With the '<i>Bypass</i>' button, the equalizer for the respective frequency band and the respective channel can be turned off temporarily.</p> <p>In the middle part of the window ('<i>PEQ Parameter</i>') you can set the parameters centre frequency, filter quality, and slope using the faders. The setting refers to the frequency band that is highlighted green in the left part of the window.</p> <p>You can select the cut-off frequency and the filter type for the low pass and the high pass filter. Use the '<i>Bypass</i>' button to temporarily turn off the filter.</p>

Range	Meaning
	Drag the fader in the right part of the window using the mouse to set the level for the input channel. The <i>'Mute'</i> button mutes or unmutes the respective channel. The <i>'Normal'</i> / <i>'Inverse'</i> button inverts the phase of the respective channel by 180° when needed.

6.1 Remote control protocol (RS232)

Control Package Format

	0	1	2	3	4	5	6	7	8
	DLE	STX	Device Address	CMD	Data1	Data2	Data3	STX	DLE
Packet	0x7B	0x7D	1...254	0x40... 0x5C	0x??	0x??	0x??	0x7D	0x7B

Command Detail

Load Preset Matrix (0×40)

	0	1	2	3	4	5	6	7	8
	DLE	STX	Device Address	CMD	Factory/User	Preset	0×00	STX	DLE
Packet	0×7B	0×7D	1...254	0×40	F:0, U:1	0...12	0	0×7D	0×7B

Example (Load Preset Matrix U02): 7B7D01400101007D7B

Gain Control (0×41)

	0	1	2	3	4	5	6	7	8
	DLE	STX	Device Address	CMD	In/Out	Channel	+/-	STX	DLE
Packet	0×7B	0×7D	1...254	0×41	In:0, Out:1	00...15	+:0, -:1	0×7D	0×7B

Example (In1 Gain +): 7B7D01410000007D7B

Mute Control (0x42)

	0	1	2	3	4	5	6	7	8
	DLE	STX	Device Address	CMD	In/Out	Channel	No/Yes	STX	DLE
Packet	0x7B	0x7D	1...254	0x42	In:0, Out:1	00...15	No:0, Yes:1	0x7D	0x7B

Example (Out1 Un Mute): 7B7D01420100007D7B

Load Preset Control (0x43)

	0	1	2	3	4	5	6	7	8
	DLE	STX	Device Address	CMD	Factory/User	Preset	0x00	STX	DLE
Packet	0x7B	0x7D	1...254	0x43	F:0, U:1	0...12	0	0x7D	0x7B

Example (Recall user's preset U01): 7B7D01430100007D7B

Input Volume Control (0x44)

	0	1	2	3	4	5	6	7	8
	DLE	STX	Device Address	CMD	Channel	HI-VOL	LO-VOL	STX	DLE
Packet	0x7B	0x7D	1...254	0x44	00...15	0x??	0x??	0x7D	0x7B

Example (Set In1 Volume +0.0dB): 7B7D01440001187D7B

Output Volume Control (0x45)

	0	1	2	3	4	5	6	7	8
	DLE	STX	Device Address	CMD	Channel	HI-VOL	LO-VOL	STX	DLE
Packet	0x7B	0x7D	1...254	0x45	00...15	0x??	0x??	0x7D	0x7B

Example (Set Out2 Volume -3.0dB): 7B7D01450100FA7D7B

Sub Volume Control (0x46)

	0	1	2	3	4	5	6	7	8
	DLE	STX	Device Address	CMD	In/Out	Gain	0x00	STX	DLE
Packet	0x7B	0x7D	1...254	0x46	In:0, Out:1	0...100	0	0x7D	0x7B

Example (Sub Input Gain 90%): 7B7D0146005A007D7B

Sub Gain Control (0x47)

	0	1	2	3	4	5	6	7	8
	DLE	STX	Device Address	CMD	In/Out	+/-	0x00	STX	DLE
Packet	0x7B	0x7D	1...254	0x47	In:0, Out:1	+:0, -:1	0	0x7D	0x7B

Example (Sub Input Gain+): 7B7D01470000007D7B

Get Now Gain (0x48)

	0	1	2	3	4	5	6	7	8
	DLE	STX	Device Address	CMD	In/Out	Channel	0x00	STX	DLE
Packet	0x7B	0x7D	1...254	0x48	In:0, Out:1	00...15	0	0x7D	0x7B

MCU Return: 1st Byte: In/Out, 2nd Byte = Channel, 3rd Byte: 0-80 (-60...-20): 0.5dB/Step, 80-280(-20...0): 0.1dB/Step, 280-400(0...+12): 0.1dB/Step

Example (Read In1 volume parameter): 7B7D01480000007D7B 00~15 Channel HI-VOL 0x? ? 0x? ? LO-VOL

Get Now Mute (0x49)

	0	1	2	3	4	5	6	7	8
	DLE	STX	Device Address	CMD	In/Out	Channel	0x00	STX	DLE
Packet	0x7B	0x7D	1...254	0x49	In:0, Out:1	00...15	0	0x7D	0x7B

MCU Return: 1st Byte: In/Out, 2nd Byte = Channel, 3rd Byte: 0x00 or 0x01 = Un-Mute or Mute

Example (Read In1 mute parameter): 7B7D01490000007D7B

Get Now Preset (0x4A)

	0	1	2	3	4	5	6	7	8
	DLE	STX	Device Address	CMD	0x30	0x00	0x00	STX	DLE
Packet	0x7B	0x7D	1...254	0x4A	0	0	0	0x7D	0x7B

MCU Return: 0x00 ... 0x0C = 0: F00, 1...12: U01...U12

Example (Read preset parameter): 7B7D014A0000007D7B

Get Now Sub (0x4B)

	0	1	2	3	4	5	6	7	8
	DLE	STX	Device Address	CMD	In/Out	0x00	0x00	STX	DLE
Packet	0x7B	0x7D	1...254	0x4B	In:0, Out:1	0	0	0x7D	0x7B

MCU Return: 1st Byte: 0 ... 100%, 2nd Byte = 0x00 or 0x01 = Un-Mute or Mute

Example (Read Sub Input parameter): 7B7D014B0000007D7B

Sub Mute Control (0x4C)

	0	1	2	3	4	5	6	7	8
	DLE	STX	Device Address	CMD	In/Out	No/Yes	0x00	STX	DLE
Packet	0x7B	0x7D	1...254	0x4C	In:0, Out:1	No:0, Yes:1	0	0x7D	0x7B

Example (Sub Output Mute) : 7B7D014C0101007D7B

Get Now Level (0x4D)

	0	1	2	3	4	5	6	7	8
	DLE	STX	Device Address	CMD	In/Out	Channel	0x00	STX	DLE
Packet	0x7B	0x7D	1...254	0x4D	In:0, Out:1, Aux: 2	00...15	0	0x7D	0x7B

MCU Return: 1st Byte: In/Out, 2nd Byte = Channel, 3rd Byte: -128 ... -1, 0... +127dB = 0x80 ... 0xFF, 0x00 ... 0x7F

Example (Read In1 level): 7B7D014D0000007D7B

Example (Read Out1 level): 7B7D014D0100007D7B

Example (Read Aux level): 7B7D014D0200007D7B

Matrix Control (0x4E)

	0	1	2	3	4	5	6	7	8
	DLE	STX	Device Address	CMD	Channel	In	On / off	STX	DLE
Packet	0x7B	0x7D	1...254	0x4E	00...15	00...15	On:1, Off:0	0x7D	0x7B

Example (Out4 Matrix In2 On): 7B7D014E0301017D7B

Get Matrix (0x4F)

	0	1	2	3	4	5	6	7	8
	DLE	STX	Device Address	CMD	Channel	In	0x00	STX	DLE
Packet	0x7B	0x7D	1...254	0x4F	00...15	00...15	0	0x7D	0x7B

MCU Return: 0x00 or 0x01 = Off or On

Example (Read Out3 Matrix In3 Parameter): 7B7D014F0202007D7B

Aux Gain Control (0x51)

	0	1	2	3	4	5	6	7	8
	DLE	STX	Device Address	CMD	Aux	0x00	+/-	STX	DLE
Packet	0x7B	0x7D	1...254	0x51	0x02	0x00	+:0, -:1	0x7D	0x7B

Example (Aux Gain): 7B7D01510200007D7B

Aux Mute Control (0x52)

	0	1	2	3	4	5	6	7	8
	DLE	STX	Device Address	CMD	Aux	0x00	No/Yes	STX	DLE
Packet	0x7B	0x7D	1...254	0x52	0x02	0x00	No:0, Yes:1	0x7D	0x7B

Example (Aux Mute): 7B7D01520200017D7B

Aux Volume Control (0x53)

	0	1	2	3	4	5	6	7	8
	DLE	STX	Device Address	CMD	Aux	HI-VOL	LO-VOL	STX	DLE
Packet	0x7B	0x7D	1...254	0x53	0x02	0x??	0x??	0x7D	0x7B

Example (Aux Volume +0.0dB): 7B7D01530201187D7B

Volume Step Control (0x54)

	0	1	2	3	4	5	6	7	8
	DLE	STX	Device Address	CMD	In/Out	Channel	+/-	STX	DLE
Packet	0x7B	0x7D	1...254	0x54	In:0, Out:1	00...15	+:0, -:1	0x7D	0x7B

-60dB...-20dB: 2dB/Step, -20dB...+12dB: 1dB/Step

Example (Volume): 7B7D0154000007D7B

Aux On Off Control(0x55)

	0	1	2	3	4	5	6	7	8
	DLE	STX	Device Address	CMD	0...02	Select	On / off	STX	DLE
Packet	0x7B	0x7D	1...254	0x55	0x02	1: Camera 2: Auto Mix 0: Effect	0: Off 1: On	0x7D	0x7B

Example (Aux Camera On): 7B7D01550201017D7B

Example (Aux AutoMix On): 7B7D01550202017D7B

Example (Aux Effect On): 7B7D01550200017D7B

Aux CH Select Control (0x56)

	0	1	2	3	4	5	6	7	8
	DLE	STX	Device Address	CMD	Select	Ch 16...9	Ch 8...1	STX	DLE
Packet	0x7B	0x7D	1...254	0x56	0: AUX 1: Camera 2: Auto Mix	Bit0... Bit7: 0: No 1: Yes	Bit0... Bit7: 0: No 1: Yes	0x7D	0x7B

Example (Aux In1&In3): 7B7D01560000057D7B

Example (Aux Camera In2&In4): 7B7D015601000A7D7B

Example (Aux Auto Mix In5&In6): 7B7D01560200307D7B

FBQ Control (0x57)

	0	1	2	3	4	5	6	7	8
	DLE	STX	Device Address	CMD	0x00	Channel	FBQ	STX	DLE
Packet	0x7B	0x7D	1...254	0x57	0x00	00...15	0:Off 1... 4:Level	0x7D	0x7B

Example (In3 FBQ Level3): 7B7D01570002037D7B

Get Aux Now Gain (0x58)

	0	1	2	3	4	5	6	7	8
	DLE	STX	Device Address	CMD	Aux	0x00	0x00	STX	DLE
Packet	0x7B	0x7D	1...254	0x58	0x02	0x00	0x00	0x7D	0x7B

MCU Return: 1st Byte: Aux/Effect, 2nd and 3rd Byte: 0-80(-60...-20): 0.5dB/Step, 80-280(-20...0): 0.1dB/Step, 280-400 (0...+12): 0.1dB/Step

Example (Get Aux Gain): 7B7D01580200007D7B

Get Aux Now Mute (0x59)

	0	1	2	3	4	5	6	7	8
	DLE	STX	Device Address	CMD	Aux	0x00	0x00	STX	DLE
Packet	0x7B	0x7D	1...254	0x59	0x02	0x00	0x00	0x7D	0x7B

MCU Return: 1st Byte: Aux/Effect, 2nd Byte: 0x00 or 0x01 = Un-Mute or Mute

Example (Get Aux Mute): 7B7D01590200007D7B

Get Aux Now On Off (0x5B)

	0	1	2	3	4	5	6	7	8
	DLE	STX	Device Address	CMD	0x02	Select	0x00	STX	DLE
Packet	0x7B	0x7D	1...254	0x5B	0x02	1:Camera 2:Auto Mix 0:Effect	0x00	0x7D	0x7B

MCU Return: 1st Byte: Select, 2nd Byte: 0x00 or 0x01 = On or Off

Example (Get Effect): 7B7D015B0200007D7B

Get Aux Now Ch Select (0x5C)

	0	1	2	3	4	5	6	7	8
	DLE	STX	Device Address	CMD	0x02	Select	0x00	STX	DLE
Packet	0x7B	0x7D	1...254	0x5C	0x02	0:Aux 1:Camera 2:Auto Mix	0x00	0x7D	0x7B

MCU Return: 1st Byte: Select, 2nd Byte: Matrix

Example (Get Aux Ch Select): 7B7D015C0200007D7B

Get Aux Now FBQ (0x5E)

	0	1	2	3	4	5	6	7	8
	DLE	STX	Device Address	CMD	0x00	Channel	FBQ	STX	DLE
Packet	0x7B	0x7D	1...254	0x5E	0x00	0...15	0:Off 1... 4:Level	0x7D	0x7B

MCU Return: 1st Byte: Channel, 2nd Byte = Level

Example (Get In5 FBQ): 7B7D015E0004007D7B

Communication Parameter

Baud Rate	115 200
Data Bit	8
Stop Bit	1
Parity	None

Step	≥ 200 ms
ID	Default 1

7 Technical specifications

Inputs	Type	Screw terminal block
	Level (Line)	+18 dBu (max.)
	Gain (Line)	35 dBu (max.)
	Gain (Mic)	50 dBu (max.)
	Impedance (Line)	>10 kΩ
	Impedance (Mic)	2 kΩ
	Phantom voltage	+48 V
	USB port	1 × USB type B
	Ethernet	1 × RJ45 chassis socket
	Serial interface	1 × screw terminal block
Outputs	Type	Screw terminal block
	Level	+18 dBu (max.)

	Impedance	< 500 Ω
Frequency response		20 Hz ... 20 kHz (\pm 0.3 dB)
THD		< 0.005 % (1 kHz, 0 dBu)
Signal-to-noise ratio		> 115 dBu
Common-mode rejection ratio (CMRR)		> 75 dBu (1 kHz)
Crosstalk		> 70 dBu (20 Hz ... 20 kHz)
Digital signal processor	Resolution	24 Bit AD/DA
		32 Bit DSP
	Sampling rate	96 kHz
Voltage supply		AC 100 – 240 V~ 50/60 Hz
Power consumption		20 W
Fuse		5 mm \times 20 mm, 2 A, 250 V, slow-blow
Dimensions (W \times H \times D)		482 \times 44 \times 245 mm
Weight		2.7 kg

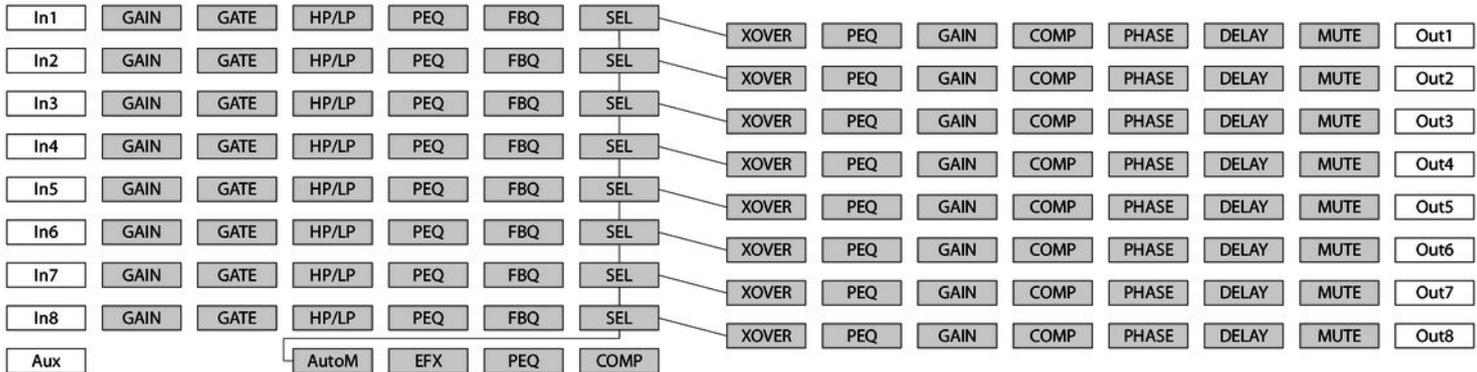
Ambient conditions	Temperature range	0 °C...40 °C
	Relative humidity	50 %, non-condensing

Further information

2-way stereo	No
3-way stereo	No
Digital	Yes
Delay	Yes
EQ	Yes
Number of frequency bands	5
Number of mono input channels	8
Number of stereo input channels	0
Number of output channels	8
Compressor	Yes
Gate	Yes
2-channel	No

Attack/Release adjustable	Yes
Tube	No

Block diagram



8x8 Matrix

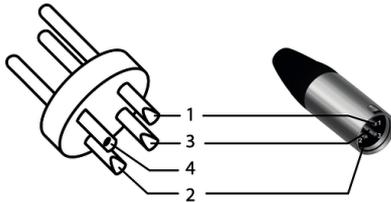
8 Plug and connection assignment

Introduction

This chapter will help you select the right cables and plugs to connect your valuable equipment in such a way that a perfect sound experience is ensured.

Please note these advices, because especially in 'Sound & Light' caution is indicated: Even if a plug fits into the socket, an incorrect connection may result in a destroyed power amp, a short circuit or 'just' in poor transmission quality!

XLR plug (balanced)



1	Ground, shielding
2	Signal (in phase, +)
3	Signal (out of phase, -)
4	Shielding on plug housing (option)

9 Protecting the environment

Disposal of the packaging material



For the transport and protective packaging, environmentally friendly materials have been chosen that can be supplied to normal recycling.

Ensure that plastic bags, packaging, etc. are properly disposed of.

Do not just dispose of these materials with your normal household waste, but make sure that they are collected for recycling. Please follow the notes and markings on the packaging.

Disposal of your old device



This product is subject to the European Waste Electrical and Electronic Equipment Directive (WEEE) in its currently valid version. Do not dispose with your normal household waste.

Dispose of this device through an approved waste disposal firm or through your local waste facility. When discarding the device, comply with the rules and regulations that apply in your country. If in doubt, consult your local waste disposal facility.

8x8 Matrix



