

# the t.mix

20.12  
mixer



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## Table of contents

<b>1</b>	<b>General notes</b> .....	<b>4</b>
	1.1 Further information.....	4
	1.2 Notational conventions.....	4
	1.3 Symbols and signal words.....	5
<b>2</b>	<b>Safety instructions</b> .....	<b>6</b>
<b>3</b>	<b>Features</b> .....	<b>8</b>
<b>4</b>	<b>Installation</b> .....	<b>9</b>
<b>5</b>	<b>Connections and controls</b> .....	<b>10</b>
<b>6</b>	<b>Operating</b> .....	<b>16</b>
	6.1 Main menu.....	16
	6.2 Parametric Equalizer.....	18
	6.3 Graphic Equalizer.....	19
	6.4 Compressor.....	20
	6.5 Noise Gate.....	21
<b>7</b>	<b>Technical specifications</b> .....	<b>22</b>
<b>8</b>	<b>Plug and connection assignment</b> .....	<b>24</b>
<b>9</b>	<b>Cleaning</b> .....	<b>26</b>
<b>10</b>	<b>Protecting the environment</b> .....	<b>27</b>

# 1 General notes

This manual contains important instructions for the safe operation of the unit. Read and follow the safety instructions and all other instructions. Keep the manual for future reference. Make sure that it is available to all those using the device. If you sell the unit please make sure that the buyer also receives this manual.

Our products are subject to a process of continuous development. Thus, they are subject to change.

## 1.1 Further information

On our website ([www.thomann.de](http://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'*.



### Cross-references

References to other locations in this manual are identified by an arrow and the specified page number. In the electronic version of the manual, you can click the cross-reference to jump to the specified location.

Example: See  *'Cross-references'* on page 4.

### 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
<b>DANGER!</b>	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.
<b>NOTICE!</b>	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 – high-voltage.
	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.



#### **DANGER!**

##### **Electric shock caused by high voltages inside**

Within the device there are areas where high voltages may be present. Never remove any covers.

There are no user-serviceable parts inside.

Do not use the device if covers, protectors or optical components are missing or damaged.



#### **DANGER!**

##### **Electric shock caused by short-circuit**

Always use proper ready-made insulated mains cabling (power cord) with a protective contact plug. Do not modify the mains cable or the plug. Failure to do so could result in electric shock/death or fire. If in doubt, seek advice from a registered electrician.



#### **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.



**NOTICE!**

**Power supply**

Before connecting the device, ensure that the input voltage (AC outlet) matches the voltage rating of the device and that the AC outlet is protected by a residual current circuit breaker. Failure to do so could result in damage to the device and possibly injure the user.

Unplug the device before electrical storms occur and when it is unused for long periods of time to reduce the risk of electric shock or fire.

### 3 Features

- 20 × microphone and line inputs with separate volume and tone control, 16 of them as XLR / 1/4" combo jack, 4 as 1/4" jack
- Stereo monitor output
- Master outputs, 2 of them as XLR sockets, 1/4" jacks for left and right channels.
- 2 × headphones outputs (stereo, as 1/4" jack)
- 8 × AUX outputs (1/4" jack)
- Control room outputs (stereo, as 1/4" jack)
- 7" touch screen
- 1 × motorized fader (100 mm)
- Phantom power switchable
- Digital signal processor with extensive setting options and internal effects module
- 2 × USB ports for recording and playback, for software updates and for presets import and export
- Operation via buttons and touch screen on the unit or via local area network (LAN, external router required)
- Control via tablet possible (not included)



## 4 Installation



### NOTICE!

#### Danger of short circuit

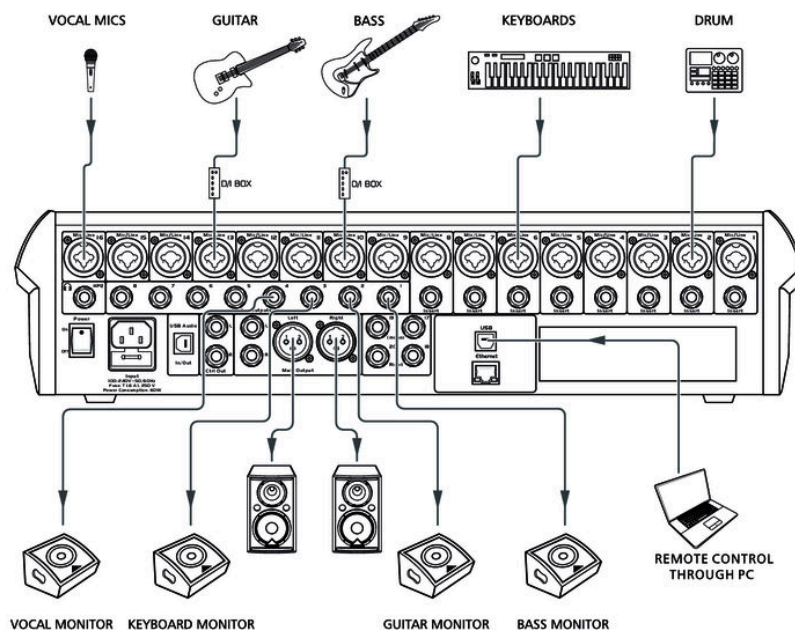
Switching on phantom power will damage the device if unbalanced XLR cables are connected.

Only turn on phantom power when exclusively balanced XLR cables are connected.

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

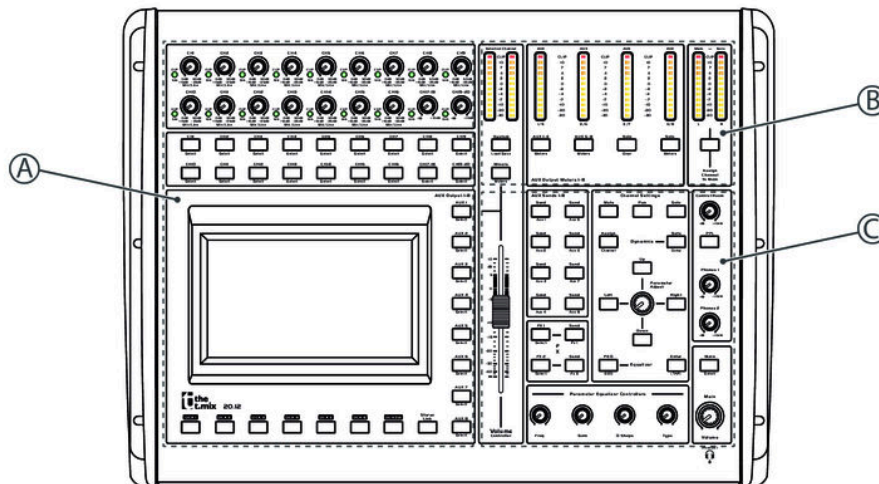
Create all connections while the device is off. Use the shortest possible high-quality cables for all connections. Take care when running the cables to prevent tripping hazards.

### Connection options



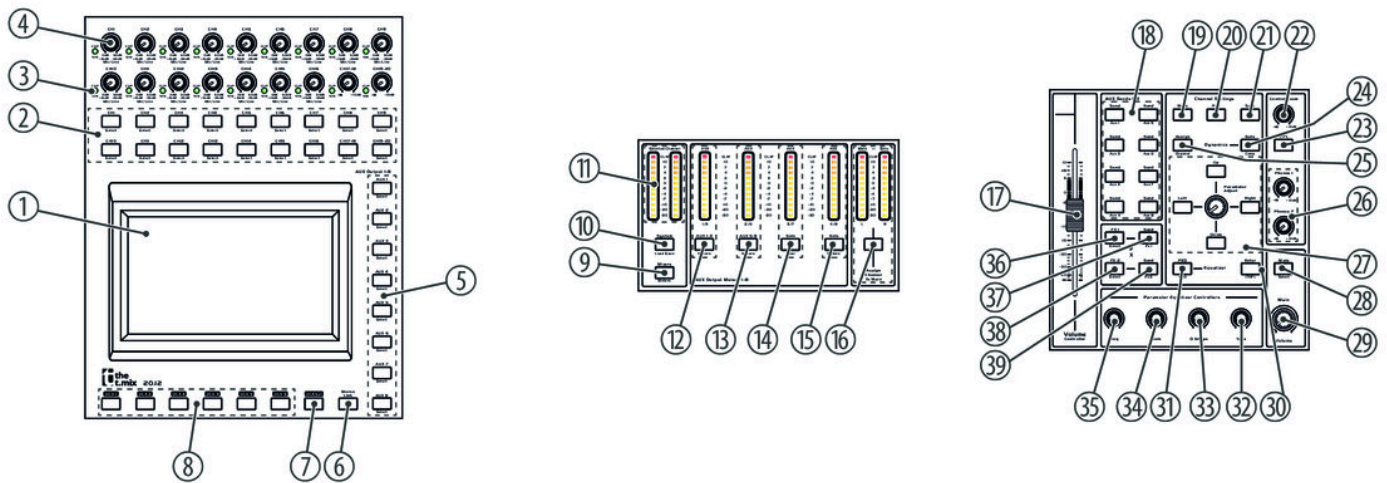
## 5 Connections and controls

### Overview



- |   |   |
|---|---|
| A | Settings for the inputs                 |
| B | Settings for tone and signal processing |
| C | Settings for the outputs                |

Front panel

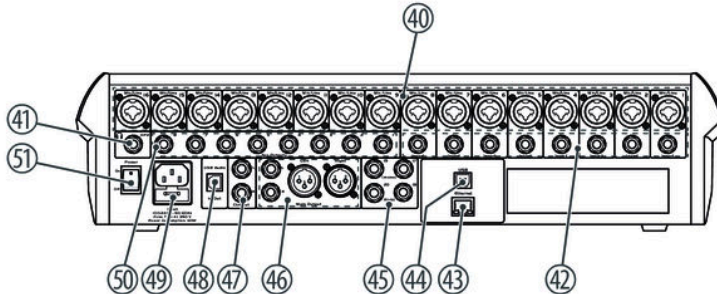


1	7" touch screen
2	[Select] Selects the respective channel to perform tone control and assignment to outputs.
3	[Sig/Clip] The LED lights up green when a signal is present at the respective input (level > -30 dB). The LED lights up red when the signal level is too high and distortion due to clipping occur (level > +15 dB). In this case, reduce the level with the [Mic/Line] control.
4	Controls [CH1]...[CH16] adjust the input signal to the working level of the unit. Controls [CH17]...[CH20] adjust the input level.
5	[AUX Output 1 -8] Selects the respective AUX bus to perform tone control and assignment to outputs.
6	[Stereo Link] Input channels 1...16 and buses AUX1...AUX8 can each be paired as stereo channels. When pairing is on, the button lights up blue.
7	[DCASet] Confirmation button for setting up DCA groups that can control the volume of multiple channels with one fader without mixing the signals into one signal.
8	[DCA 1]...[DCA 6] Selection buttons for DCA groups
9	[Mixers / Meters] Switches the display between the different display modes

10	<i>[System / Load Save]</i> Opens the system menu and the menus for loading or saving presets one by one
11	<i>[Selected Channel]</i> Level meter for currently selected input channel.
12.13	<i>[AUX / AUX 1-4 / Meters], [AUX / AUX 5-8 / Meters]</i> Level meters, switchable between the buses AUX1...AUX8 with the respective buttons.
14	<i>[Solo / Clear]</i> Cancels the solo mode for all input channels and buses. The button lights when at least one channel or bus is operating in solo mode.
15	<i>[AUX / Solo / Meters]</i> Switches the level meter <i>[Main – Solo]</i> on the top right between Main and Solo.
16	<i>[Assign Channel To Main]</i> Assigns the currently selected channel or bus to the Main output.
17	<i>[Volume Controller]</i> Motor fader to adjust the volume of the currently selected channel, bus or DCA group.
18	<i>[AUX Sends 1-8]</i> Allows the assignment to outputs (routing) for the respective bus.
19	<i>[Mute]</i> Mutes or unmutes the respective channel.
20	<i>[Pan]</i> When the pan function is switched on (button <i>[Pan]</i> lights up), use the rotary control <i>[Parameter Adjust]</i> to set the position of the signal in the stereo panorama. When Pan is off, the rotary knob <i>[Parameter Adjust]</i> controls the volume of the currently selected channel.
21	<i>[Solo]</i> Assigns the currently selected input channel to the solo bus.
22	<i>[Control Room]</i> Volume control for the control room output
23	<i>[PFL]</i> Switches the Control Room output between the modes Pre Fader Listen (PFL) and After Fader Listen (AFL). This can be used to monitor a signal either as it is present at the input or as it sounds affected by the tone and volume controls.
24	<i>[Gate / Comp]</i> Opens the 'Gate' page for Noise Gate settings or the 'Comp' page for compressor settings.
25	<i>[Assign / Channel]</i> Opens the 'Assign' page for assigning input channels to buses or the 'Channel' page for a summary of the settings of the currently selected channel, bus, or DCA group.

26	<i>[Phones 1 / Phones 2]</i> Volume control for the headphones outputs
27	<i>[Parameter Adjust]</i> Control to set the main parameter of the currently selected effect. By pressing <i>[Up]</i> , <i>[Down]</i> , <i>[Left]</i> and <i>[Right]</i> you can navigate the display pages.
28	<i>[Main / Select]</i> Selects the Main bus to perform tone control and assignment to outputs.
29	<i>[Main / Volume]</i> Volume control for the Main output.
30	<i>[Enter / (TAP)]</i> Confirms settings in the menu. On pages 'FX1' and 'FX2' you can use this button to enter the setting for the delay function in time with the music.
31	<i>[PEQ / GEQ]</i> Opens the 'PEQ' page for Parametric EQ settings or the 'GEQ' page for for Graphic EQ settings.
32	<i>[Type]</i> Rotary control to directly select a filter type for the parametric equalizer
33	<i>[Q Shape]</i> Rotary control to directly select the Q factor of the parametric equalizer
34	<i>[Gain]</i> Rotary control to directly set the boost or cut of the parametric equalizer
35	<i>[Freq]</i> Rotary control to directly set the centre frequency of the parametric equalizer
36	<i>[FX 1 / Select]</i> Selects the effects bus FX1 to perform tone control and assignment to outputs.
37	<i>[Send / FX1]</i> Allows the assignment to outputs (routing) for the effects bus FX1.
38	<i>[FX 2 / Select]</i> Selects the effects bus FX2 to perform tone control and assignment to outputs.
39	<i>[Send / FX2]</i> Allows the assignment to outputs (routing) for the effects bus FX2.

## Rear panel



40	<i>[Mic/Line 1]...[Mic/Line 16]</i> Inputs for microphone level signals and line level signals, designed as XLR / 1/4" combo jacks.
41	<i>[HP2]</i> Monitor output for headphones, designed as 1/4" phone socket (stereo).
42	<i>[Insert]</i> 1/4" jacks for looping external effects into the signal path, available for input channels 1...8.
43	<i>[Ethernet]</i> RJ45 socket for the integration of the device into a local area network (LAN) or for firmware updates.
44	<i>[USB]</i> USB port for feeding in digital audio signals or for digital output of the sum signal, unaffected by the master faders.
45	<i>[Line inputs]</i> Inputs for line level signals, designed as 1/4" jack (mono, balanced).
46	<i>[Main Output]</i> Master output for connecting an amplifier or active speaker, designed as XLR sockets and 1/4" jacks (balanced) for left and right channels.
47	<i>[Ctrl Out L], [Ctrl Out R]</i> Control room output, designed with separate 1/4" jacks (balanced) for left and right channels.
48	<i>[USB Audio]</i> Connection for recording or playback via a USB device

49	<i>[Input]</i> IEC chassis plug for operating voltage supply with fuse holder. Should the fuse have blown, disconnect the unit from the power supply and replace the fuse with a new fuse of the same type.
50	<i>[AUX Outputs]</i> AUX outputs 1...8, designed as 1/4" phone jack (mono, balanced)
51	<i>[Power]</i> Main switch. Turns the device on and off.

## 6 Operating

### 6.1 Main menu

In the main menu, important settings are directly accessible.

1. ➤ Press *[System / Load Save]*.  
⇒ The main menu appears on the display.
2. ➤ Use the display to select, set values, and navigate the menu.  
The table below shows an overview of the available menus.

Menu item	Meaning
'Assign / C Strip'	Tapping the 'Assign / C Strip' button switches between 'Assign' and 'C Strip' function.
'Assign'	Assigning input channels and FX to the possible buses.
'Main'	Assigning the channel to the Main bus. When assigned, the button lights blue.
'AUX1-4'	Displays the status of the respective channels 'AUX1', 'AUX2', 'AUX3', 'AUX4'.
'AUX5-8'	Displays the status of the respective channels 'AUX5', 'AUX6', 'AUX7', 'AUX8'.
'Sends'	Sends the selected channel on 'AUX1' ... 'AUX4' or 'AUX5' ... 'AUX8'. Allows pre / post switching of 'AUX1' ... 'AUX4' or 'AUX5' ... 'AUX8'.
'Phase / INV'	Phase inversion of the selected channel.
	'INV' in 'Assign' view: Phase is inverted.
	'INV' in 'Phase' view: Phase is not inverted.
'Select Channel'	Selection of all available channels for editing.
'Load'	Loads a configuration.
'Copy'	Copies a configuration.
'Save'	Saves a configuration.
'C Strip'	Opens the settings for the input channels and for the output channels.
'Gate / Comp'	Tapping the 'Gate / Comp' button switches between 'Gate' and 'Comp' function.
'Gate'	Opens the settings for the channel-wise switchable noise gate.
'Comp'	Opens the settings for the channel-wise switchable compressor.
'PEQ / GEQ'	Tapping the 'PEQ / GEQ' button switches between 'PEQ' and 'GEQ' function.
'PEQ'	Opens the settings for the parametric equalizer.
'GEQ'	Opens the settings for the graphic equalizer.
'FX 1 / FX 2'	Tapping the 'FX 1 / FX 2' button switches between 'FX 1' and 'FX 2' function.
'FX 1'	Selecting and setting the effect type for the first effects unit.
'FX 2'	Selecting and setting the effect type for the second effects unit.



Menu item	Meaning
'System / Routing'	Tapping the 'System / Routing' button switches between 'System' and 'Routing' function.
'System'	Displays information about the hardware and software revision status and allows the device to be reset to the factory defaults.
'Routing'	Indicates which channels have been assigned to which buses via 'Select Channel'.
'DCA / Full Mix'	Tapping the 'DCA / Full Mix' button switches between 'DCA' and 'Full Mix' function.
'DCA'	Assigning channels to DCAs (Digitally Controlled Amplifier) to collectively change the level of assigned channels.
'Full Mix'	Displays all available channels for a complete overview of the entire mixer.
'Meters / Mixer'	Tapping the 'Meters / Mixer' button switches between 'Meters' and 'Mixer' function.
'Meters'	Overview of the level of all available channels.
'Mixer'	The 'Mixer' windows displays 8 channels at the same time. Tapping the 'Bank Left' or 'Bank Right' buttons calls up the previous or next 8 channels.

## 6.2 Parametric Equalizer

For each input channel and each output channel, a parametric equalizer with four frequency bands plus high-pass and low-pass filters can be switched on.

1. Tap the 'PEQ/GEQ' button to change to the 'PEQ' function.
2. Press one of the [CH] buttons for an input channel, one of the [AUX] buttons for an output channel, or the buttons [FX 1] or [FX 2].

Alternatively: Tap on the 'Select Channel' button and select the desired input channel or output channel on the display surface. Confirm the selection with 'Enter'.

⇒ The button for the selected input channel or output channel lights up blue. The desired input channel or output channel is shown in the display.

3. Tap on 'EQ1', 'EQ2', 'EQ3', 'EQ4' to select the frequency band.

⇒ The selected frequency band lights up.

4. Adjust the desired values by moving the slider on the display.

5. Save the settings with 'Save'.

You can save up to 48 individual settings.

Alternatively: Use the rotary controllers [Type], [Q Shape], [Gain] and [Freq] to adjust the desired values for filter type, Q shape, boost / cut and the centre frequency.

The 'Flat EQ' button can be used to cancel the settings made. The frequency response is then back in the initial state.

The 'ON/OFF' can be used to turn the EQ on of off. By default, the EQ is turned on.

Option	Selection range	Meaning
'Frequency HPF'	20.6 Hz – 20.0 kHz	High-pass filter frequency
'Type'	Bypass, BS6, BW12, BS12, LR12, BW18, BS18, BW24, BS24, LR24, BW30, BS30, BW36, BS36, LR36, BW42, BS42, BW48, BS48, LR48	Type and slope rate of the filter
'Low-pass filter frequency'	20.0 kHz – 20.6 Hz	Low-pass filter frequency
'Type'	Bypass, BS6, BW12, BS12, LR12, BW18, BS18, BW24, BS24, LR24, BW30, BS30, BW36, BS36, LR36, BW42, BS42, BW48, BS48, LR48	Type and slope rate of the filter
'Frequency EQ 1–4'	20.6 Hz – 20.0 kHz	Frequency of EQ bands 1–4.
'Type'	Bell, Hi-shelf, Lo-shelf	Filter type

Option	Selection range	Meaning
'Q'	0.4 – 24	Q shape of EQ band
'Gain'	-24 – +24 dB	Boost / cut

### 6.3 Graphic Equalizer

For the outputs MAIN and AUX, a 31-band equalizer can be switched on.

1. Tap the *'PEQ/GEQ'* button to change to the *'GEQ'* function.
2. Press one of the *[AUX]* buttons for an output channel.  
 Alternatively: Tap on the *'Select Channel'* button and select the desired output channel on the display surface. Confirm the selection with *'Enter'*.  
 ⇒ The button for the selected output channel lights up blue. The desired output channel is shown in the display.
3. Use the arrow buttons *'Left'* and *'Right'* to select the band for which you want to adjust the graphic EQ.  
 ⇒ A purple bar indicates the selected band.
4. Move the purple bar by tapping on it with your finger or using the arrow buttons *'Up'* and *'Down'* to make the desired setting.
5. Save the settings with *'Save'*.  
 You can save up to 48 individual settings.

The *'Flat EQ'* button can be used to cancel the settings made. The frequency response is then back in the initial state (flat).

The *'ON/OFF'* button can be used to turn the EQ on or off. By default, the EQ is turned on.

## 6.4 Compressor

For each input channel and each output channel, a compressor can be switched on.

1. Tap the 'Comp / Gate' button to change to the 'Comp' function.
2. Press one of the [CH] buttons for an input channel, one of the [AUX] buttons for an output channel, or the buttons [FX 1] or [FX 2].

Alternatively: Tap on the 'Select Channel' button and select the desired input channel or output channel on the display surface. Confirm the selection with 'Enter'.

⇒ The button for the selected input channel or output channel lights up blue. The desired input channel or output channel is shown in the display.

3. Tap on 'ON' to activate the setting options.
4. Tap the buttons to select the options 'Threshold', 'Attack', 'Release', 'Comp Ratio', 'Comp Gain'.
5. Adjust the desired values by moving the slider on the display.
6. Save the settings with 'Save'.

You can save up to 48 individual settings.

Option	Selection range	Meaning
'Threshold'	-30 – +20 dB	Threshold
'Attack'	10 – 150 ms	Slew rate
'Release'	10 ms – 1 s	Decay time
'Comp Ratio'	1:1 – LIMIT	Ratio
'Comp Gain'	0 – 24 dB	Gain

## 6.5 Noise Gate

For each input channel a noise gate can be switched on.

1. Tap the *'Comp / Gate'* button to change to the *'Gate'* function.
2. Press one of the *[CH]* buttons for an input channel, one of the *[AUX]* buttons for an output channel, or the buttons *[FX 1]* or *[FX 2]*.

Alternatively: Tap on the *'Select Channel'* button and select the desired input channel or output channel on the display surface. Confirm the selection with *'Enter'*.

⇒ The button for the selected input, output, or FX channel lights up blue. The desired input, output, or FX channel is shown in the display.

3. Tap on *'ON'* to activate the setting options.
4. Tap the buttons to select the options *'Threshold'*, *'Attack'*, *'Release'*.
5. Adjust the desired values by moving the slider on the display.
6. Save the settings with *'Save'*.

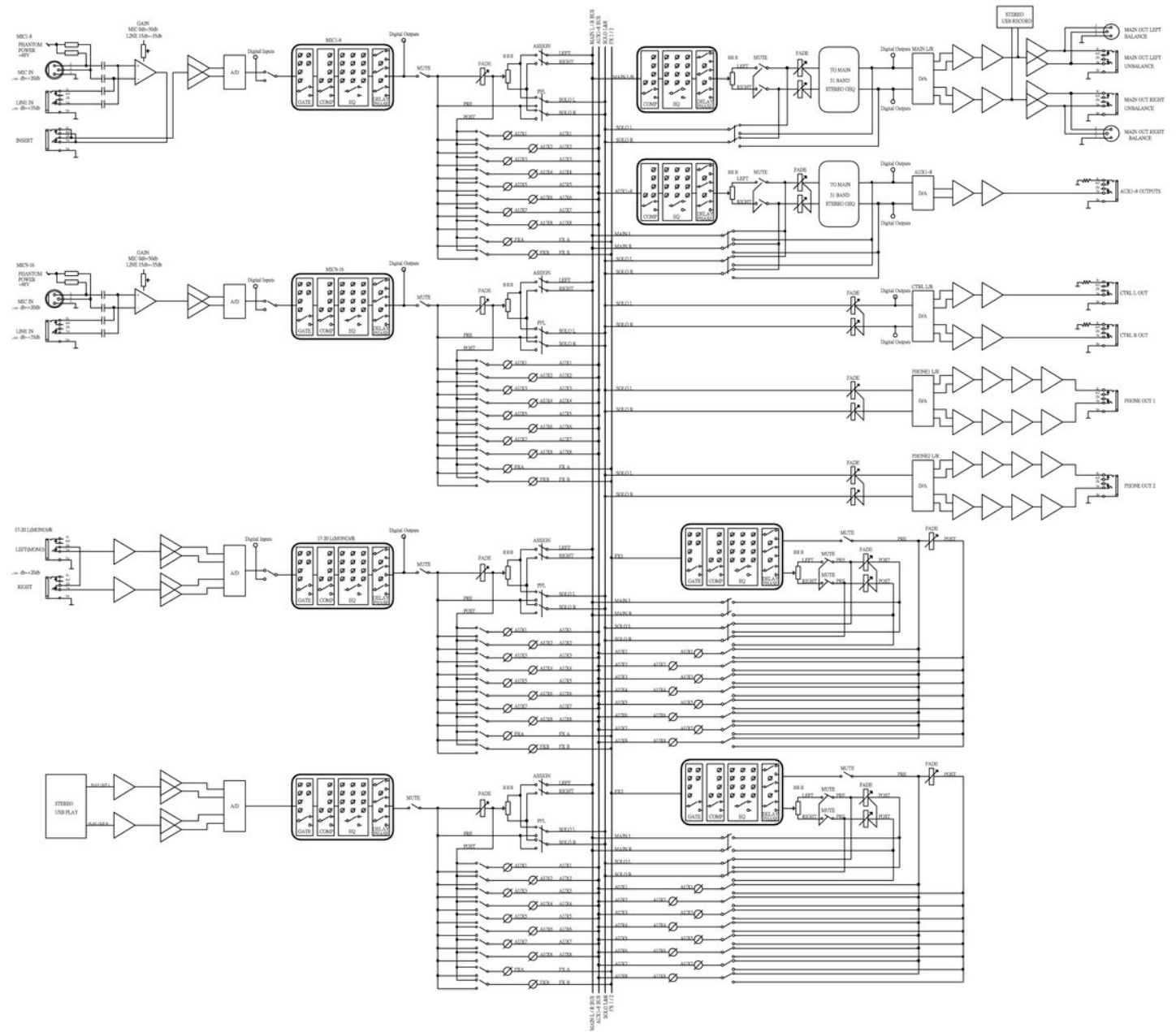
You can save up to 48 individual settings.

Option	Selection range	Meaning
<i>'Threshold'</i>	-84 – +20 dB	Threshold
<i>'Attack'</i>	0.5 – 200 ms	Slew rate
<i>'Release'</i>	10 ms – 1 s	Decay time

## 7 Technical specifications

Input level (Mic / Line)	XLR / 1/4" combo jacks (balanced): max. +22 dBu
Input impedance	Mic/Line: 1.4 k $\Omega$
Total harmonic distortion (THD)	< 0.01 %1 kHz
Frequency range	20 Hz...20 kHz, 0 dBu $\pm$ 1.5 dB
Signal-to-noise ratio	104 dB
Gain	$-\infty$ ...+10 dBu
Output level	max. +20 dBu
Output impedance	120 $\Omega$
Phantom power	48 V $\pm$ 3 V
Noise Gate	Threshold: -30...+20 dBu
	Slew rate (Attack): 10 ms...1 ms
	Decay time (Release): 10 ms...1 s
Compressor	Threshold: -30...+20 dBu
	Slew rate (Attack): 10 ms...150 ms
	Decay time (Release): 10 ms...1 s
	Compression: 1:1...24:1
	Gain: 0 dBu...+24 dB
Equalizer	Lows (low pass or low shelf) 21 Hz...19.2 kHz, $\pm$ 24 dB
	Low mids: 21 Hz...19.2 kHz, $\pm$ 24 dB
	High mids: 21 Hz...19.2 kHz, $\pm$ 24 dB
	Treble (high pass or high shelf): 21 Hz...19.2 kHz, $\pm$ 24 dB
Digital signal processing	Analogue / digital converter 114 dB, resolution: 24 bit
	Digital / analogue converter 114 dB, resolution: 24 bit
	Internal processor: 32 bit, floating point
Operating supply voltage	100 – 240 V $\sim$ 50/60 Hz
Fuse	5 mm $\times$ 20 mm, 1.6 A, 250 V, slow-blow
Dimensions (W $\times$ H $\times$ D)	480 mm $\times$ 130 mm $\times$ 350 mm
Weight	7.68 kg

Block diagram



## 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!

### Balanced and unbalanced transmission

Unbalanced transmission is mainly used in semi-professional environment and in hifi use. Instrument cables with two conductors (one core plus shielding) are typical representatives of the unbalanced transmission. One conductor is ground and shielding while the signal is transmitted through the core.

Unbalanced transmission is susceptible to electromagnetic interference, especially at low levels, such as microphone signals and when using long cables.

In a professional environment, therefore, the balanced transmission is preferred, because this enables an undisturbed transmission of signals over long distances. In addition to the conductors 'Ground' and 'Signal', in a balanced transmission a second core is added. This also transfers the signal, but phase-shifted by 180°.

Since the interference affects both cores equally, by subtracting the phase-shifted signals, the interfering signal is completely neutralized. The result is a pure signal without any noise interference.

### 1/4" TS phone plug (mono, unbalanced)



1	Signal
2	Ground, shielding

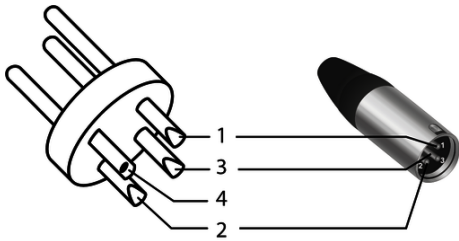
### 1/4" TRS phone plug (mono, balanced)



1	Signal (in phase, +)
2	Signal (out of phase, -)
3	Ground



**XLR plug (balanced)**



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

## 9 Cleaning

### Fan grids

The fan grids of the device must be cleaned on a regular basis to remove dust and dirt. Before cleaning, switch off the device and disconnect AC-powered devices from the mains. Use a lint-free damp cloth for cleaning. Never use solvents or alcohol for cleaning.

## 10 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.









