the t.racks

DSP 4x4 Mini Amp

digital speaker
management system

user manual

Table of contents

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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.

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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'*.

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.

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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 – 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.

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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.

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! **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.

3   Features

- Ultra-compact 4-channel DSP and 4-channel power amplifier
- Ideal for small installations and in combination with ceiling speakers
- Inputs: 4 × 1/4" jack socket (balanced)
- Outputs: 4 ×1/4" jack socket (balanced) and screw terminals
- USB connection for control via PC using the supplied software (cable included)
- Comprehensive setting options for optimal sound
  - Parametric Equalizer
  - Graphic Equalizer
  - High- and low-pass filters
  - Noise Gate
  - Limiter
  - Phase inversion

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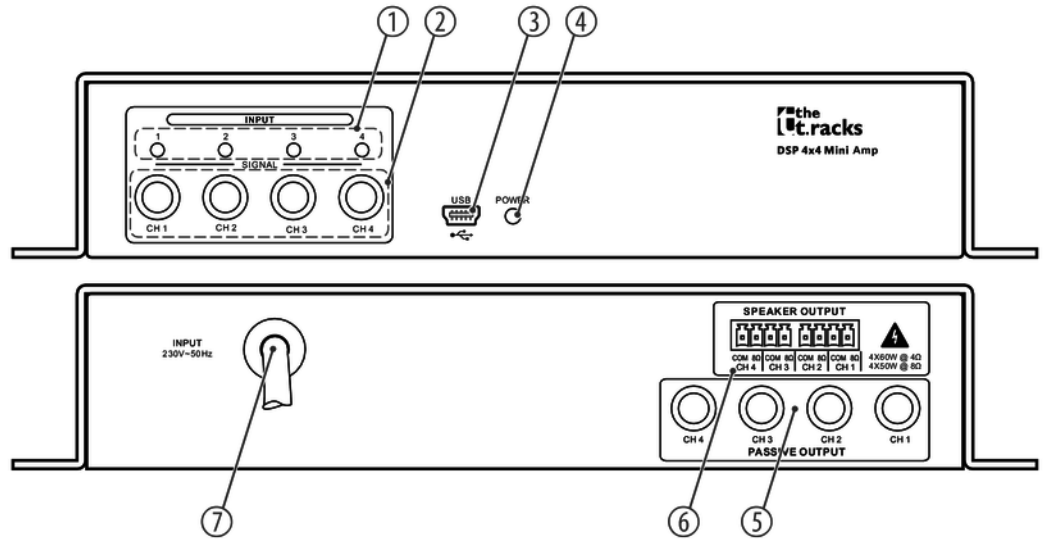
Create all connections while the device is off. Use the shortest possible high-quality cables for all connections. Take care when running the cables to prevent tripping hazards.

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

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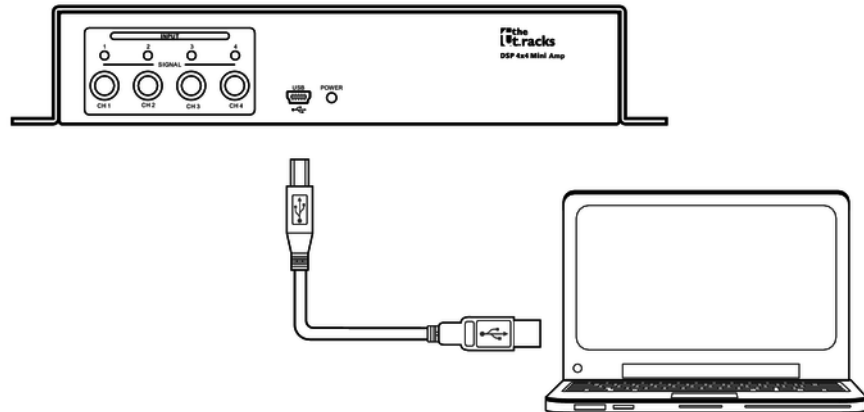
5 Connections and controls

Front panel	
1	LEDs *[1]*, *[2]*, *[3]*, *[4]* The LED lights up when a signal is present at the respective input.
2	Inputs *[CH 1]* … *[CH 4]*, designed as 1/4" phone jack (mono, balanced).
3	*[USB]* USB port
4	*[POWER]* This LED lights when the device is turned on.
Rear panel	
5	*[SPEAKER OUTPUT]* Screw terminal strip
6	*[PASSIVE OUTPUT]* Outputs *[CH 1]* … *[CH 4]*, designed as 1/4" phone jack (mono, balanced).
7	Power cord

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6 Operating on the computer

Install and start the software.

1. ▶ Insert the software CD into the disk drive of your Windows PC and start the installation programme that matches the device version.

2. ▶ Follow the instructions of the installation programme to completion.

3. ▶ Connect your PC to the device via a USB cable and turn on the device.

⇨ The operating system detects the newly added USB device.

4. ▶ Open the PC programme. It 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:

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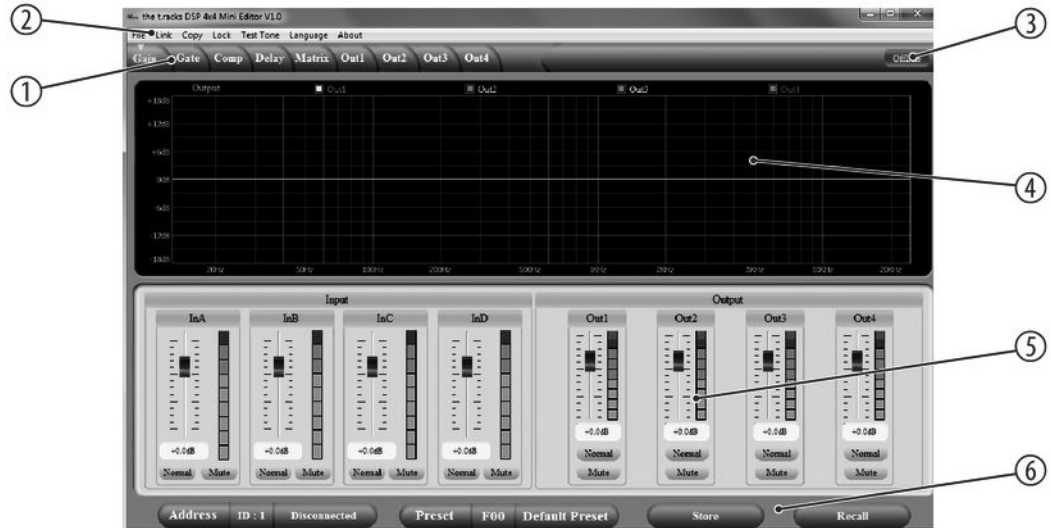
| 1	Tab for selecting a function group
2	Main menu
3	Button for the status of the connection to the PC
4	Display area
5	Control area
6	Buttons for quick access to important presets

Main menu

Menu item	Meaning
'File'	Loading user presets and saving them on the PC
'Link'	Assignment of input to output channels
'Copy'	Copying parameter settings from one input or output channel to another
'Lock'	Changing device password
'Test Tone'	Setting the internal test tone generator: Pink noise, white noise, sine wave 20 Hz…20 kHz
'Language'	Language selection for the user interface of the programme (English or German)
'About'	Information about the programme version

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**Buttons for quick access to
important presets**

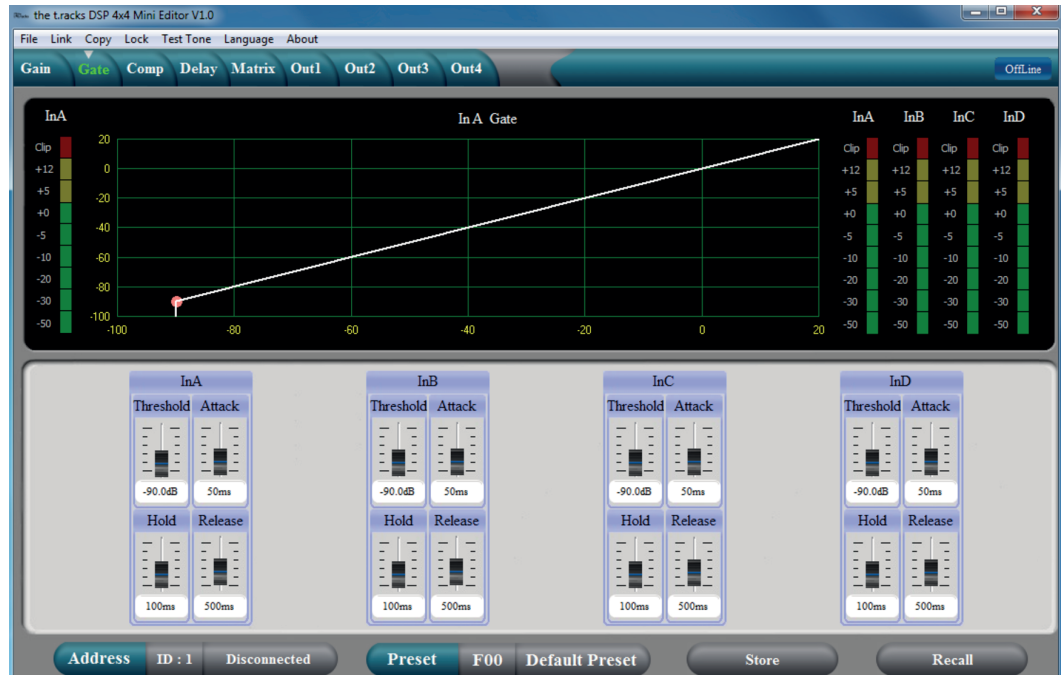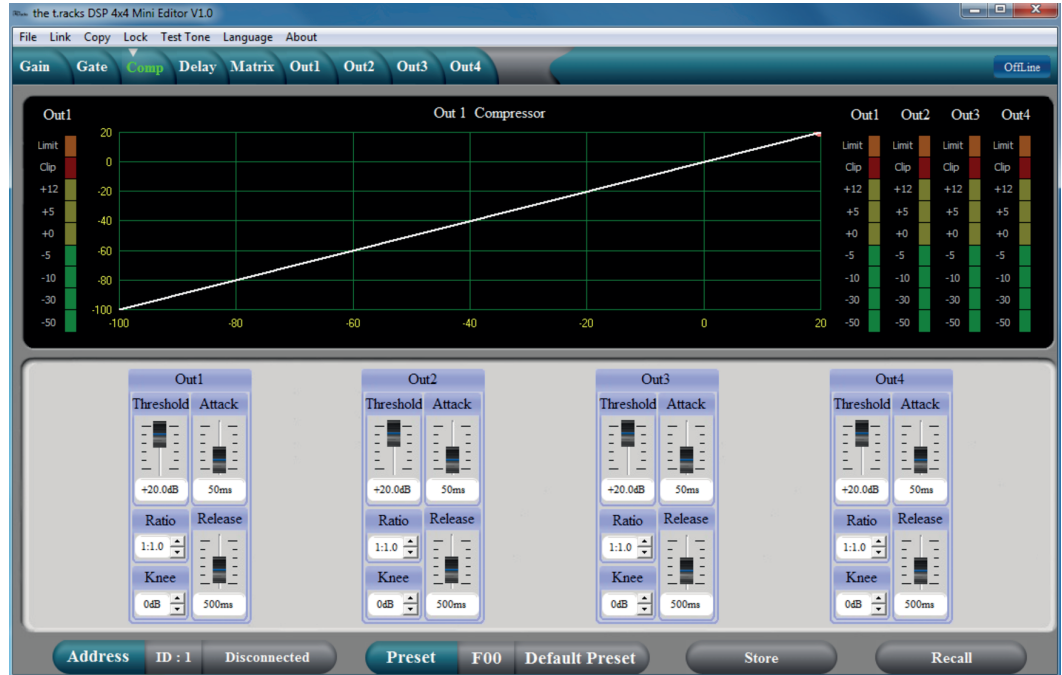| Range	Meaning
'Address'	Display of the marking of the device
'Preset'	Display of the current user's preset
'Store'	Saving user preset
'Recall'	Recalling user preset

'Gain' tab
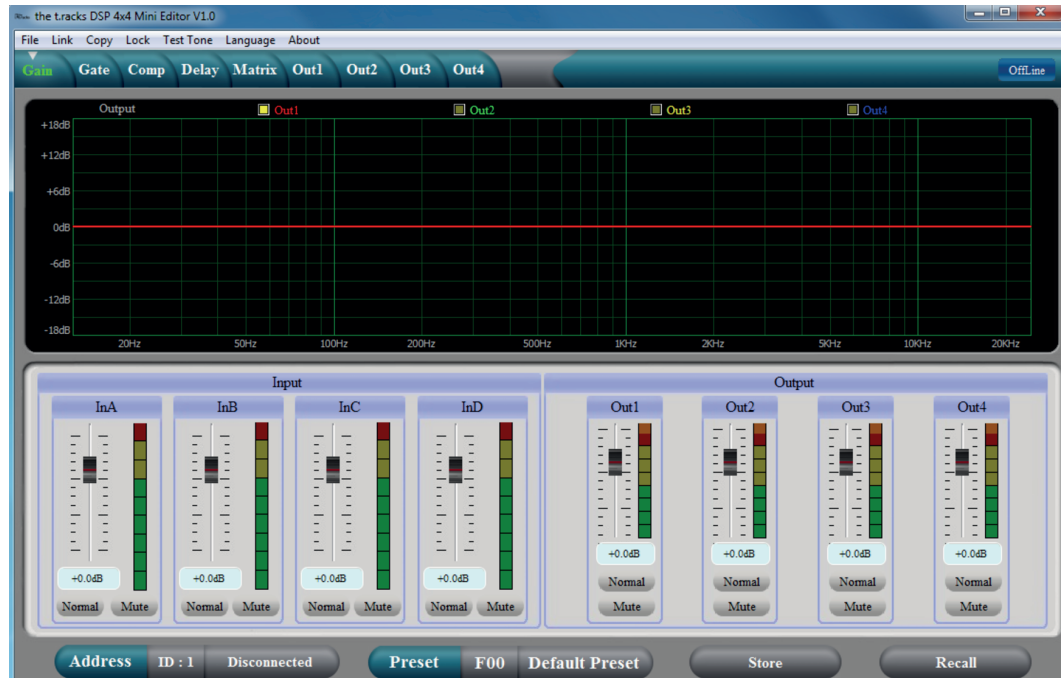
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Range	Meaning
Display area	The waveform of input and output channels is graphically displayed. Use the radio buttons *'Inx'* and *'Outx'* to determine the inputs and outputs to be displayed.
Control area	Drag the faders with the mouse to adjust the levels for the input and output channels. The *'Mute'* button mutes or unmutes the respective channel. The *'Normal'* / *'Inverse'* button inverts the phase of the respective channel by 180° when needed.

'Gate' tab

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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 represents the threshold level at which the noise gate opens.
Control area	Drag the faders with the mouse to set the noise gate parameters for all input and output channels: Threshold, hold, attack, release

'Comp' tab

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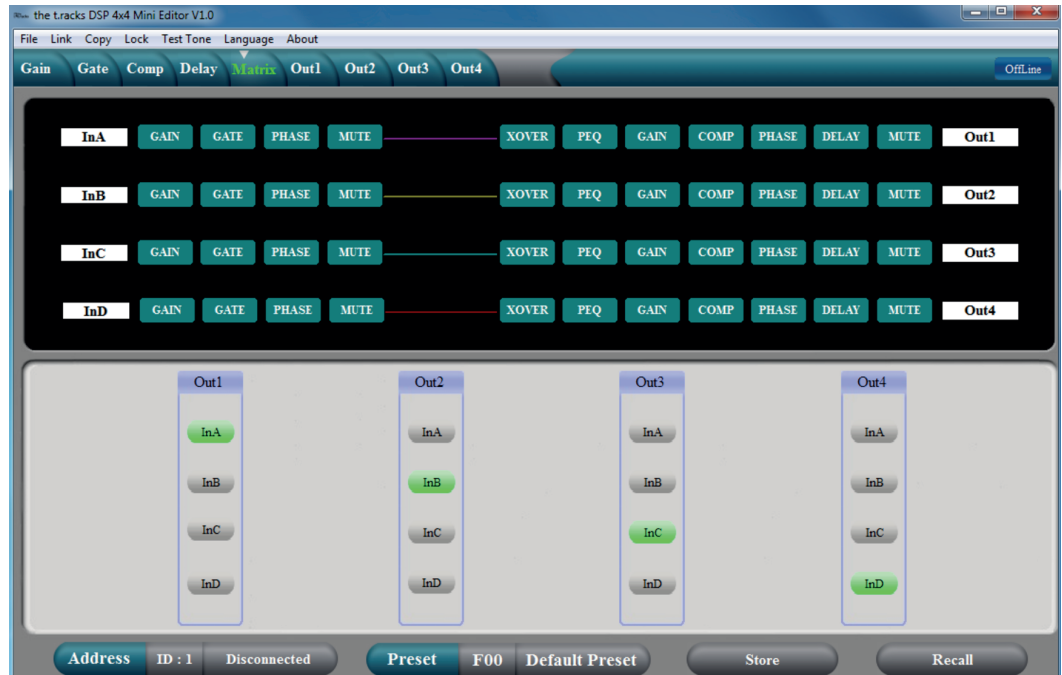| Range	Meaning
Display area	Shows the current settings of the compressor function for the respective output channel, with a symbolic level indicator symbol appearing next to it for all output channels. The red dot marks the threshold from which the compressor operates.
Control area	Drag the faders with the mouse to set the compressor parameters for the output channels: Threshold, ratio, knee, attack, release

'Delay' tab
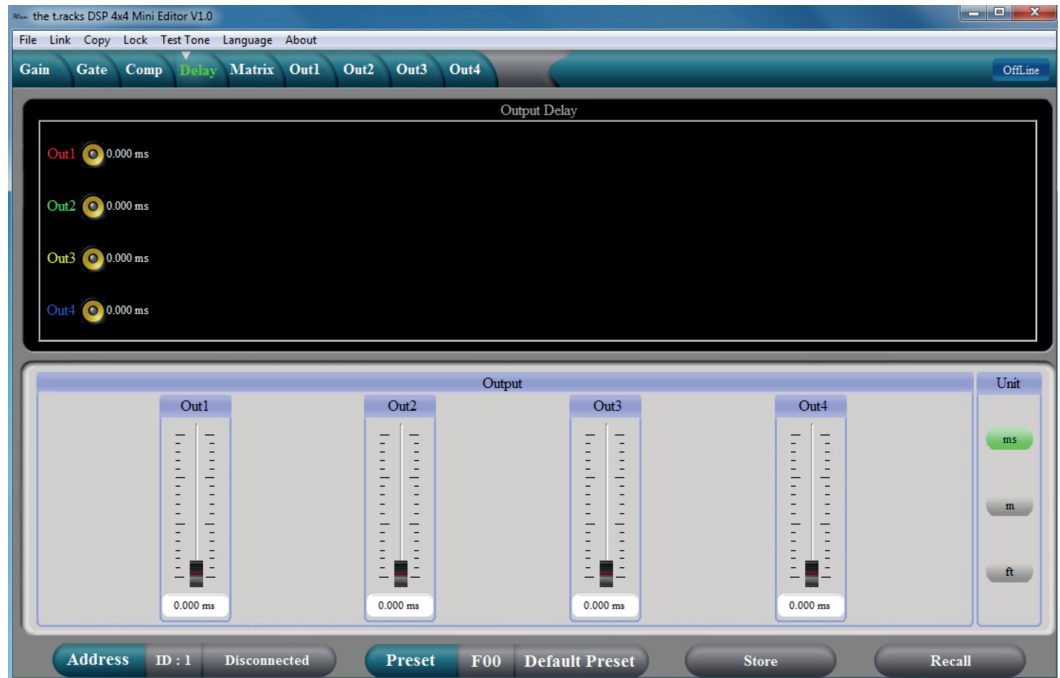
Range	Meaning
Display area	Shows the set delays for all output channels.
Control area	Drag the faders with the mouse to adjust the delay for the respective channel. In the Unit area, you can select the measuring unit milliseconds (ms), meters (m) or feet (ft).

'Matrix' tab

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Range	Meaning
Display area	Shows the current interconnection of input to output channels. Input and output channels can be renamed. Click on a function area (such as *'PEQ'* or *'DELAY'*) to open the tab. Here you can enter the corresponding parameters directly.
Control area	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.

'Out 1' – 'Out 4'

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Range	Meaning
Display area	Use the radio buttons *'Mag'* or *'Phase'* to switch the diagram from Cartesian coordinates (level vs. frequency) to polar coordinates (angle vs. frequency).
	Use the radio button *'SHOW ALL EQ'* to show the parameters for all seven of the frequency bands.
	The corner points of the equalizer can be moved in the display area with the mouse.
Control area	You can enter the parameters of the parametric equalizer for each input channel and all seven frequency bands (numbered with *'PEQ'*) in the left part of the window directly as numerical values: Centre frequency, filter quality, slope, filter type. With the *'Bypass'* button, the equalizer for the respective frequency band and the respective channel can be turned off temporarily.
	In the middle part of the window (*'PEQ Parameter'*) 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.
	You can select the cut-off frequency and the filter type for the low pass and the high pass filter. Use the *'Bypass'* button to temporarily turn off the filter.
	Drag the fader in the right part of the window using the mouse to set the level for the input channel. The *'Mute'* button mutes or unmutes the respective channel. The *'Normal'* / *'Inverse'* button inverts the phase of the respective channel by 180° when needed.

7 Technical specifications

Amp class		D	
Input connections	Audio signal	Type	4 × 1/4" jack socket, balanced
		Level	+12 dBu
		Impedance	1 MΩ (stereo), 500 kΩ (mono)
Output connections	Audio signal	Type	4 × 1/4" jack socket, balanced
		Level	+12 dBu
		Impedance	< 500 Ω
Frequency response		20 Hz … 20 kHz −0.3 dB	
Total harmonic distortion (THD)		< 0.5 % (1 kHz, 0 dBu)	
Signal-to-noise ratio		> 95 dBu	

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Crosstalk	> 70 dBu 20 Hz … 20 kHz	
Digital signal processing	Digital signal processor	32 bit
	A/D-D/A converter	24 bit
	Sampling rate	48 kHz
Output power	8 Ω	4 × 50 W RMS
	4 Ω	4 × 60 W RMS
Operating supply voltage	AC 230 V ∼ 50 Hz	
Dimensions (W × H × D)	240 mm × 160 mm × 43 mm	
Weight	1.6 kg	
Ambient conditions	Temperature range	0 °C…40 °C
	Relative humidity	50 %, non-condensing

Further information

2-way stereo	Yes
3-way stereo	No
Digital	Yes
Delay	Yes
EQ	Yes
Limiter	Yes
Computer remote	Yes
RTA connection	No
Suitable for rack mounting	No
Bridged operation	No
Temperature-controlled fan	No
Convection cooling	Yes

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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!

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

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

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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.

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Notes

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Notes