**the
t.racks**

DSP 4x4 Amp 4.250, DSP 4x4 Amp100V

User Manual

Controller

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1   General information

This document contains important instructions for the safe operation of the product. Read and follow the safety instructions and all other instructions. Keep the document for future reference. Make sure that it is available to all those using the product. If you sell the product to another user, be sure that they also receive this document.

Our products and documentation are subject to a process of continuous development. They are therefore subject to change. Please refer to the latest version of the documentation, which is ready for download under *www.thomann.de*.

1.1 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 document.

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.

Safety

DANGER!
Risk of injury and choking hazard for children!

Children can suffocate on packaging material and small parts. Children can injure themselves when handling the device. Never allow children to play with the packaging material and the device. Always store packaging material out of the reach of babies and small children. Always dispose of packaging material properly when it is not in use. Never allow children to use the device without supervision. Keep small parts away from children and make sure that the device does not shed any small parts (such knobs) that children could play with.

DANGER!
Danger to life due to electric current!

A short circuit could lead to a fire hazard and risk of death. Always use proper ready-made insulated triple-core mains cable with a safety plug. Do not modify the mains cable or the plug. In case of isolation damage, disconnect immediately the power supply and arrange repair. If in doubt, seek advice from a qualified electrician.

DANGER!

Danger to life due to electric current!

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 when covers, safety equipment or optical components are missing or damaged.

DANGER!

Risk of death from electrical current!

The output voltages of modern high-performance amplifiers may result in death or serious injury. Never touch the bare ends of loudspeaker cables when the amplifier is on.

NOTICE!

Risk of fire due to covered vents and neighbouring heat sources!

If the vents of the device are covered or the device is operated in the immediate vicinity of other heat sources, the device can overheat and burst into flames. Never cover the device or the vents. Do not install the device in the immediate vicinity of other heat sources. Never operate the device in the immediate vicinity of naked flames.

NOTICE!

Damage to the device if operated in unsuitable ambient conditions!

The device can be damaged if it is operated in unsuitable ambient conditions. Only operate the device indoors within the ambient conditions specified in the "Technical specifications" chapter of this user manual. Avoid operating it in environments with direct sunlight, heavy dirt and strong vibrations. Avoid operating it in environments with strong temperature fluctuations. If temperature fluctuations cannot be avoided (for example after transport in low outside temperatures), do not switch on the device immediately. Never subject the device to liquids or moisture. Never move the device to another location while it is in operation. In environments with increased dirt levels (for example due to dust, smoke, nicotine or mist): Have the device cleaned by qualified specialists at regular intervals to prevent damage due to overheating and other malfunctions.

3   Features

DSP 4x4 Amp 4.250

- 4-channel DSP installation power amplifier
- Front-side power switch
- 4 × 250 W into 8 ohms or 4 × 350 W into 4 ohms
- Programming via USB
- 3 front-side buttons for preset switching
- 3 rear-side contact inputs via screw terminals for preset switching
- Inputs: 4 × XLR (balanced)
- Outputs: 4 × Speaker Twist and 4 × 6.35 mm (1/4-inch) TRS jack (pre-out)
- Frequency response: 20 Hz…20 kHz
- Class-D power amplifier

DSP 4x4 Amp100V

- 4-channel DSP installation power amplifier
- Front-side power switch
- 4 × 40 W into 8 ohms
- Programming via USB
- 3 front-side buttons for preset switching
- 3 rear-side contact inputs via screw terminals for preset switching
- Inputs: 4 × XLR (balanced)
- Outputs: 4 × screw terminals and 4 × 6.35 mm (1/4-inch) TRS jack (pre-out)
- Frequency response: 20 Hz…20 kHz
- Class-D power amplifier

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.
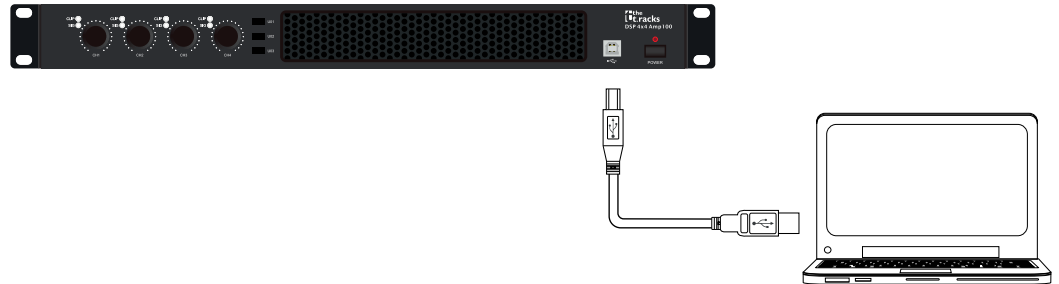
5   Connections and controls

Front

1	[CLIP] LED for each channel | The LED lights up when the signal on the respective input is overloading.
2	[SIG] LEDs for each channel | The LED lights up when a signal is present at the respective input.
3	Rotary control [CH 1]…[CH 4] | Controls the output level of the corresponding channel.
4	Buttons [U01], [U02], [U03] | Buttons for calling up the presets. Press and hold the button for 2 seconds to call them up.
5	[USB] | USB interface for connecting to a PC
6	[POWER] | The LED lights when the device is on.
7	[POWER] button | Button for switching on and off

Back
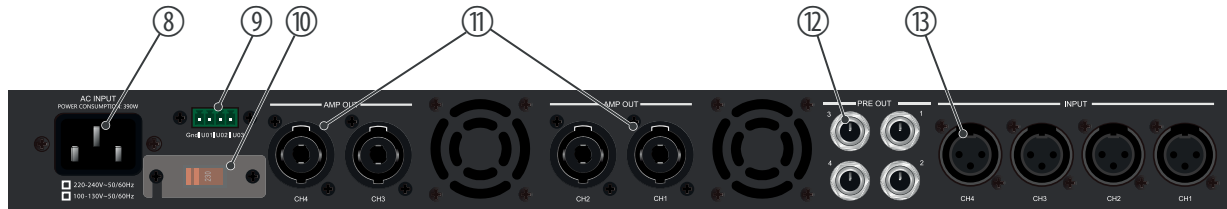
DSP 4×4 Amp 4.250	
8	Connection for the power cable
9	Screw terminal strip for switching the presets. The relevant preset is called up through potential-free bridging of pins *[Gnd]* and *[U01]…[U03]* for 2 seconds.
10	Switch to toggle the supply voltage
11	*[AMP OUT]*	Outputs *[CH1]…[CH4]*, designed as Speaker Twist
12	*[PRE OUT]*	Outputs *[1]…[4]*, designed as 6.35 mm (1/4-inch) jack sockets (mono, balanced)
13	*[INPUT]*	Inputs *[CH1]…[CH4]*, designed as XLR (mono, balanced)
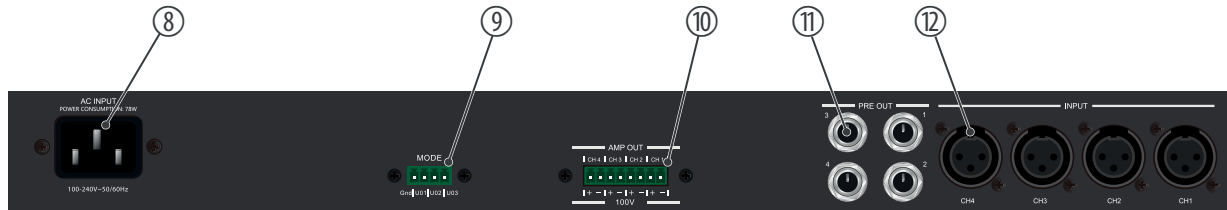
DSP 4×4 Amp100V

8	Connection for the power cable
9	*[MODE]* | Screw terminal strip for switching the presets. The relevant preset is called up through potential-free bridging of pins *[Gnd]* and *[U01]…[U03]*.
10	*[AMP OUT]* | 100 V outputs *[CH 1]…[CH 4]*, designed as screw terminal strip
11	*[PRE OUT]* | Outputs *[1]…[4]*, designed as 6.35 mm (1/4-inch) jack sockets (mono, balanced)
12	*[INPUT]* | Inputs *[CH1]…[CH4]*, designed as XLR (mono, balanced)

6 Operating on a PC

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.

Exiting the software

1. ▶ Click 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'	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'	Selecting the language for the user interface of the programme (English or German)
'About'	Information about the programme version

**Buttons for quick access to important presets**

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

"Gain" tab

Area	Meaning
Display area	Indicates the waveform of the input and output channels. 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
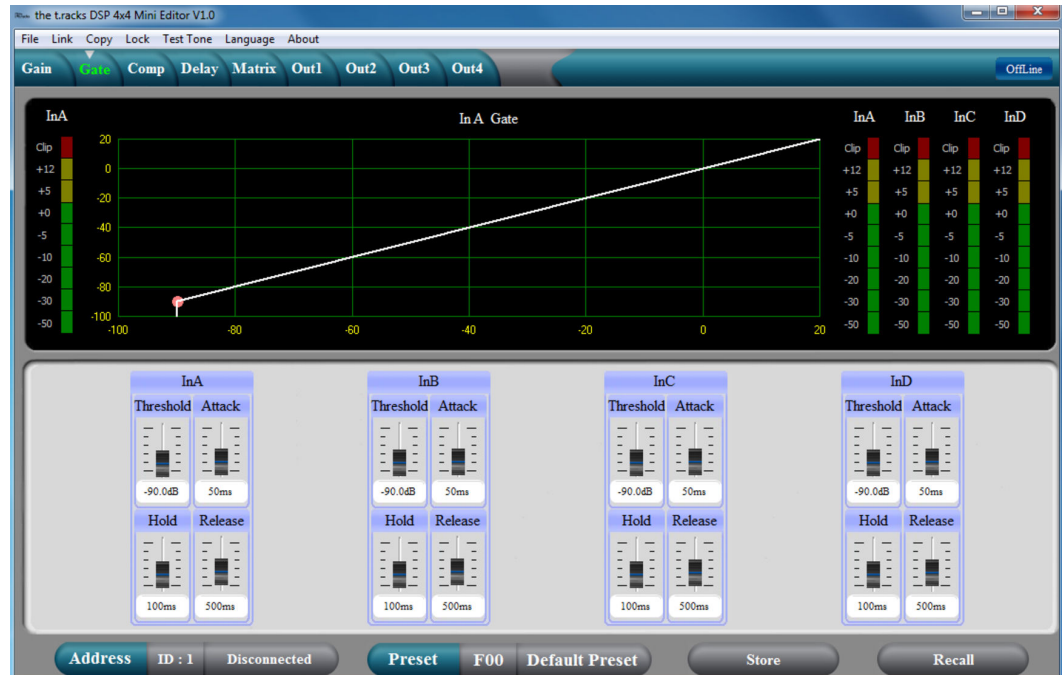
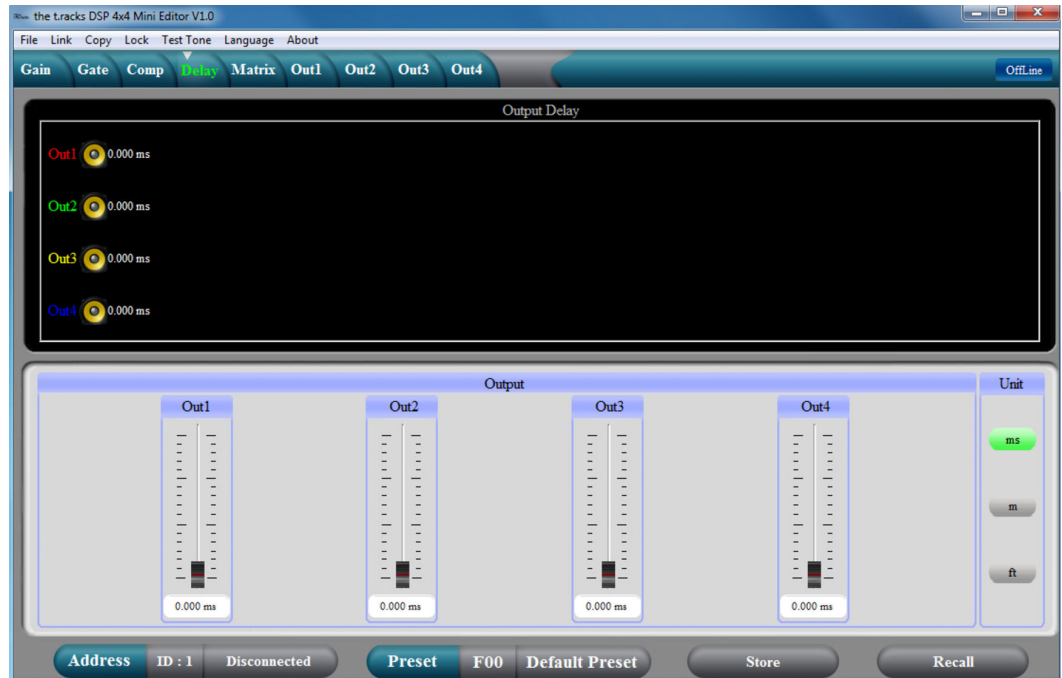| Area	Meaning
Display area	Shows the current settings of the noise gate for the respective channel, with a symbolic level indicator symbol appearing next to it for the input channels. The red dot represents the threshold level at which the noise gate opens.
Control area	Drag the faders with the mouse to set the noise gate parameters for all input and output channels: Threshold, hold, attack, release

"Comp" tab

Area	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

Area	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

Area	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.

Tabs "Out 1" – "'Out 4"

Area	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

DSP 4x4 Amp 4.250

Amp class		D	
Input connections	Power supply	IEC chassis plug C14	
	USB interface	1 × USB-B	
	Audio signal	Type	4 × XLR (mono, balanced)
		Level	+12 dBu
		Impedance	20 kΩ (balanced), 10 kΩ (unbalanced)
Output connections	Audio signal	Type	4 × Speaker Twist (balanced, Amp Out)
			4 × 6.35 mm (1/4-inch) jack socket (mono, balanced, Pre Out)
		Level	+35 dBu
		Impedance	< 500 Ω
Output power		8 Ω	4 × 250 W RMS
		4 Ω	4 × 350 W RMS

Frequency response	20 Hz…20 kHz	
	−0.3 dB	
Signal-to-noise ratio	> 105 dBu	
Total harmonic distortion (THD)	< 0.03 % (1 kHz, −10 dBu, 4 Ω)	
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
Supply voltage	230 V $\sim$ 50 Hz	
Dimensions (W × H × D)	482 mm × 44 mm × 339 mm | 1 RU	
Weight	5.8 kg	
Ambient conditions	Temperature range	0 °C…40 °C
	Relative humidity	20 %…80 %, non-condensing

Further information

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

DSP 4x4 Amp 100V

Amp class			D	
Input connections	Power supply		IEC chassis plug C14	
	USB interface		1 × USB-B	
	Audio signal	Type	4 × XLR (mono, balanced)	
		Level	+12 dBu	
		Impedance	20 kΩ (balanced), 10 kΩ (unbalanced)	
Output connections	Audio signal	Type	Screw terminal strip	
			4 × 6.35 mm (1/4-inch) jack socket (mono, balanced, Pre Out)	
		Level	+43 dBu	
		Impedance	100 Ω	
Output power		200 Ω	4 × 40 W RMS (89 V)	
			4 × 50 W RMS (100 V)	
Frequency response		20 Hz…20 kHz		
		−0.3 dB		
Signal-to-noise ratio		> 105 dBu		

Total harmonic distortion (THD)	< 0.03 % (1 kHz, −10 dBu, 200 Ω)	
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
Supply voltage	230 V ∿ 50 Hz	
Dimensions (W × H × D)	482 mm × 44 mm × 339 mm | 1 RU	
Weight	8.1 kg	
Ambient conditions	Temperature range	0 °C…40 °C
	Relative humidity	20 %…80 %, non-condensing

Further information

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

8   Plug and pin assignments

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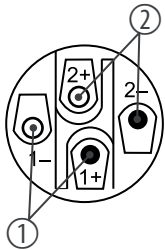
XLR plug (balanced)
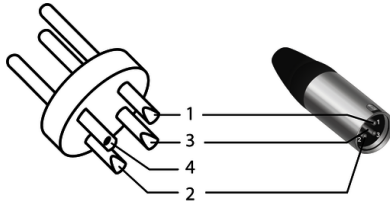
1	Ground, shielding
2	Signal (in phase, +)
3	Signal (out of phase, –)
4	Shielding on plug housing (option)

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

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

Speaker Twist chassis connector

1, +	Signal 1 (in phase)
1, −	Signal 1 (out of phase)
2, +	Signal 2 (in phase)
2, −	Signal 2 (out of phase)

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.

Notes

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