the t.racks

DSP 204, DSP 206, DSP 306, DSP 408 digital speaker management system





user manual

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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 <u>www.thomann.de</u>.

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].
 - \Rightarrow 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 mate- rial and environmental damage if it is not avoided.
Warning signs	Type of danger
\checkmark	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 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

DANGER!

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



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

- Digital mixer
- Inputs:
 - DSP 204 (item no. 435191): 2 mono channels (XLR chassis sockets) for signals with line level
 - DSP 206 (item no. 435192): 2 mono channels (XLR chassis sockets) for signals with line level
 - DSP 306 (item no. 435193): 3 mono channels (XLR chassis sockets) for signals with line level
 - DSP 408 (item no. 435194): 4 mono channels (XLR chassis sockets) for signals with line level
- Outputs:
 - DSP 204 (item no. 435191): 4 mono channels (XLR chassis plugs) for signals with line level
 - DSP 206 (item no. 435192): 6 mono channels (XLR chassis plugs) for signals with line level
 - DSP 306 (item no. 435193): 6 mono channels (XLR chassis plugs) for signals with line level
 - DSP 408 (item no. 435194): 8 mono channels (XLR chassis plugs) for signals with line level
- Comprehensive setting options for optimal sound:
 - Parametric equalizer
 - Graphic equalizer
 - High- and low-pass filters
 - Noise Gate
 - Limiter
 - Phase inversion
- USB port for computer control using the supplied software
- D-Sub socket for remote control or for the cascading of several devices
- Network connection for integrating the device in a local network
- Operation of the device via buttons, jog wheel and display



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.





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.



Connections and controls 5

Front panel



1 [INPUTS]

Level indicator for the input channels. The number of channels depends on the device design.

The red [CLIP] LEDs indicate overload (clipping). In this case the level of the input signal is too high.

2 [EDIT]

Buttons for selecting the edit mode for the respective input channel. The set parameters of the selected channel appear in the display.

3 [MUTE]

Buttons for muting or unmuting the respective input channel.

4 [OUTPUTS]

Level indicator for the output channels. The number of channels depends on the device design.

The red [CLIP] | EDs indicate overload (clipping). In this case the level of the output signal is too high. The red [LIMIT]

	LEDs indicate that the built-in limiter has been tripped.
5	[EDIT]
	Buttons for selecting the edit mode for the respective output channel. The set parameters of the selected channel appear in the display.
6	[MUTE]
	Buttons for muting or unmuting the respective output channel.
7	Display
8	[ENTER / PARAMETER]
	Jog wheel
9	Buttons for direct selection of a parameter. Use the [EXIT] button to leave the edit mode.
10	[USB]
	USB port

Rear panel



11	Plug for mains cable with fuse holder
12	[POWER]
	Main switch. Turns the device on and off
13	[ETHERNET]
	RJ45 socket as a LAN port to connect with your network
14	[RS232/485PORT]
	D-Sub socket for remote control or for the cascading of several devices
15	[OUTPUTS]
	XLR chassis plugs for the output channels. The number of channels depends on the device design.
16	[INPUTS]
	XLR chassis sockets for the output channels. The number of channels depends on the device design.



DSP 204, DSP 206, DSP 306, DSP 408

6 Operating on the unit

Starting the device	Connect the device to the power grid and turn it on with the main switch to start operation. After a few seconds, the display indicates that a reset is in progress. The device is then ready for use. The display shows the model name and the user preset that's currently active.
	The device can only be operated directly with the buttons if it is not being controlled via USB, LAN or the serial interface.
	The buttons that can currently be used light up continuously, and the most previ- ously used ones flash on and off. Buttons that cannot be used at the moment remains dark.
Default settings	
	1. Keep pressing [UTIL] until the parameter you want appears in the display. The table below shows the available parameters and their ranges.
	2. Use the jog wheel to set the desired value of the parameter. Press the jog wheel to confirm.
	3. Press [<i>EXIT</i>].

Parameter	Selection range	Meaning
'ID Number Select'	'1' … '254'	Unique identification of the device when connected serially (in a cascade configuration). If several devices are connected seri- ally, each of them must have a unique ID number.
'Manual IP Set'		If the device is connected to a local network, its IP address can be set individually. The initial IP address is 192.168.1.101.
'Unit Lock PassWord'	'0000' … 'ZZZZ'	Four-character device password. Any combination of letters or numbers can be set. The initial password is 1234.
'Input Source Select'	'ANALOG INPUT' , 'PINK NOISE' , 'WHITE NOISE' , 'SINE xx'	Selection of the signal source: Either the analogue inputs or the internal test tone generator. The test tone generator can produce either: pink noise, white noise or a sine wave of 20 Hz20 kHz.
'Copy CH select'		Copies the settings from one channel to another.
'Delay Units Select'	'ms', 'm', 'ft'	Selects the unit for displaying the delay: Milliseconds, metres or feet.



User presets	All device settings can be saved in up to 20 different user presets and then recalled as needed. That way you can easily restore your settings for different rooms or stage set-ups.
Save use preset	1. Press [SAVE].
	⇒ The 'Store Preset' menu opens.
	2. Use the jog wheel to select a user preset between 'U01' and 'U20'. Press the jog wheel to confirm.
	3. Using the jog wheel, enter the name of the user preset by changing the Default Preset standard value.
	\Rightarrow The settings are saved.
	4. Press [EXIT].
Call up user preset	1. Press [RECALL].
	⇒ The 'Load preset' menu opens.
	2. Use the jog wheel to select a user preset between 'U01' and 'U20' or the basic setting 'F00'. Press the jog wheel to confirm.
	\Rightarrow The settings are loaded.



Input settings

- **1.** Press the *[EDIT]* button assigned to the desired channel.
 - \Rightarrow The settings menu for the desired channel will open. The display shows 'GAIN'.
- **2.** In the basic state of the menu, you can set the level of the channel within a range of -60 dB...+12 dB using the jog wheel.
- **3.** Press the respective button to set further parameters for the channel.

Use the jog wheel to set the desired value of the parameter. Press the jog wheel to confirm.

The table below shows the available parameters and their ranges.

Param- eter	Button	Selection range	Meaning
'PEQ'	1 × [PEQ/GEQ]	<pre>'PEQ': '1''9' 'F': '20Hz''20kHz' 'Q': '0.4''128' 'G': '-12dB''+12dB' 'Style': 'PEAK', 'L-SHLF', 'H-SHLF', 'LP6dB', 'LP12dB', 'HP6dB', 'HP12dB', 'A-PAS1', 'A-PAS2' 'ON', 'BP'</pre>	For 9 frequency bands (numbered with the parameter ' <i>PEQ</i> '), the parameters of the para- metric equalizer can be set individually: Centre frequency, filter quality, slope, filter type, bypass
'GEQ'	2 × [PEQ/GEQ]	'Freq': '20Hz' '20kHz' 'Gain': '-12dB' '+12dB'	Graphic equalizer parameters: The frequency range is divided into 31 fixed preset areas (numbered with the parameter ' <i>GEQ</i> '), which can be set separately for boost or cut.
'INLINK'	[LINK]		The settings of several input channels can be linked to each other. The number of input chan- nels depends on the device design.
'DELAY'	[DELAY]	'0ms' '680ms' '0m' '234m' '0ft' '766ft'	Delay time. The units that are displayed depends on the device's default setting.
'X-OVER'	[X-OVER]	'HP': '20Hz' '20kHz' 'LP': '20Hz' '20kHz' 'BUTTER-xx' (Butterworth), 'BESSEL-xx' (Bessel), 'LINK/R-xx' (Linkwitz-Riley), 'BYPASS' (Filter switched off)	Parameters for digital high pass and low pass: Cut-off frequency, slope and filter type
'GATE'	[COMP/ GATE]	'T': '-90dB''-0dB' 'HT': '10''999' (in milliseconds) 'AT': '1ms''999ms' 'RT': '10ms''3000ms'	Parameters for the noise gate: Threshold, hold, attack, release
'PHASE'	[PHASE]	'0', '180'	Inversion of phase length

Output settings

- **1.** Press the *[EDIT]* button assigned to the desired channel.
 - \Rightarrow The settings menu for the desired channel will open. The display shows 'GAIN'.
- **2.** In the basic state of the menu, you can set the level of the channel within a range of -60 dB...+12 dB using the jog wheel.
- **3.** Press the respective button to set further parameters for the channel.

Use the jog wheel to set the desired value of the parameter. Press the jog wheel to confirm.

The table below shows the available parameters and their ranges.

Param- eter	Button	Selection range	Meaning
'PEQ'	1 × [PEQ/GEQ]	<pre>'PEQ': '1''9' 'F': '20Hz''20kHz' 'Q': '0.4''128' 'G': '-12dB''+12dB' 'Style': 'PEAK', 'L-SHLF', 'H-SHLF', 'LP6dB', 'LP12dB', 'HP6dB', 'HP12dB', 'A-PAS1', 'A-PAS2' 'ON', 'BP'</pre>	For 9 frequency bands (numbered with the parameter ' <i>PEQ</i> '), the parameters of the para- metric equalizer can be set individually: Centre frequency, filter quality, slope, filter type, bypass
ʻINLINK'	[LINK]		The settings of several output channels can be linked to each other. The number of output chan- nels depends on the device design.
'DELAY'	[DELAY]	'0ms' '680ms' '0m' '234m' '0ft' '766ft'	Delay time. The units that are displayed depends on the device's default setting.
'X-OVER'	[X-OVER]	'HP': '20Hz''20kHz' 'LP': '20Hz''20kHz' 'BUTTER-xx' (Butterworth), 'BESSEL-xx' (Bessel), 'LINK/R-xx' (Linkwitz-Riley), 'BYPASS' (Filter switched off)	Parameters for digital high pass and low pass: Cut-off frequency, slope and filter type
'MATRIX'	1 × <i>'MATRIX'</i>		Selection of the assignment of the input channels to the respective output channel. Each output channel can be freely assigned to one input channel or a mix of several input channels. The selected input channels are marked with X' .
'MATRIX Output'	2 × ′MATRIX′	'-60dB' '+0dB'	One level adjustment can be set for each of the input channels assigned to the respective output channel.

Operating on the unit

Param- eter	Button	Selection range	Meaning
'GATE'	1 × [COMP/ GATE]	'T': '-90dB''-0dB' 'HT': '10ms''999ms' 'AT': '1ms''999ms' 'RT': '10ms''3000ms'	Parameters for the noise gate: Threshold, hold, attack, release
'LIMIT'	2 × [COMP/ GATE]	'TH': '-90dB' '+20dB' 'AT': '1ms' '999ms' 'RT': '10ms' '3000ms'	Parameters for the limiter: Threshold, attack, release
'PHASE'	[PHASE]	'0', '180'	Inversion of phase length



7 Control on the computer

Installing and starting the software

- **1.** Place the CD with the software into the CD drive of a computer with a Windows operating system and start the installation programme that matches the device you have.
- **2.** Follow the instructions of the installation programme until it is finished.
- **3.** Connect your computer via a USB cable to the device and switch the device on.
 - ⇒ The operating system recognizes the newly added USB device.
- **4.** Open the computer programme. It automatically recognized the attached device.
 - ⇒ The 'Online' marking will appear in the upper right corner of the programme window.

Closing the software

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

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Parts of the programme window



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

Main menu

Menu item	Meaning
'File'	Load user presets and save them on the computer
'Link'	Assign input and output channels
'Сору'	Copy parameter settings from one input or output channel to another
'Lock'	Change device password
'Setting ID/IP'	Change unique ID of the device in a serial configuration or IP address for integrating into a local net- work
'Test tone'	Setting of the internal test tone generator: Pink noise, white noise, sine wave 20 Hz20 kHz.
'Channel name'	Rename the input and output channels
'Language'	Language selection for the programme user interface (English or Chinese)
'Help'	Display of the control code for the serial interface
'About'	Information about the programme version



Buttons for quick access to the important presets

Range	Meaning
Address	Display of the ID of the device in a serial configuration or IP address for integrating into a local net- work
Preset	Display of the current user preset
Store	Save user preset
Recall	Call up user preset

"Gain" tab

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Gain		Gate	Comp	Limit	Delay	Matrix	GEQ	InA	InB	InC	InD	Out1	Out2	Out3	Out4	Out5	Out6	Out7	Out8	USB	OnLine
		Input				In8	I Inc						Output	- Out	Out2	Out3		Out5	Out6	Out7	Out8
+1	l8d8											+18d8									
+1	12d8											+12dB									
	-6d8											+6dB									
	0dB											0dB -									
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	A	ddres	55 II):1	192.168.	1.101		Prese	t	F00	De	fault	Preset			Store) (Recall	

Range	Meaning
Display area	The signal curve of the input and output channels is displayed graphically. Use the <i>'lnx'</i> and <i>'Outx'</i> option fields to set the inputs and outputs that should be displayed.
Control area	Drag the fader with the mouse to set the limits 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° if needed.

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"Gate" tab

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Gain	oate	Comp	Limit	Delay	Matrix	GEQ	INA	TUR	Inc	IND	OULI	Outz	Outs	Out4	Outs	Outo	Outz	Outa	USB	On	ine
InA								In A	Gate								InA	InB	InC	InI)
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+12	0																+12	+12	+12	+12	
+5	-20																+5	+5	+5	+5	-
-5	-40																-5	-5	-5	-5	
-10	-60						_										-10	-10	-10	-10	
-20	-80																-20	-20	-20	-20	
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Range	Meaning
Display area	Shows the current settings of the noise gate for the respective channel, with a symbolic level indi- cator symbol appearing next to it for the input channels. The red dot on the curve represents the cur- rent signal.
Control area	Drag the fader 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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Gain Gate Comp Limit Delay	Matrix GEQ InA	InB InC InD	Out1 Out2	Out3	Out4	Dut5 Out	6 Out7	Out8 USB	OnLine
Out 1	Out 1 RMS Compress	or		Out1	Out2	Out3 Ou	4 Out5	Out6 Out7	Out8
Clo Clo				Limit	Limit Lir	nit Linit	Limit	Limit 📕 Limit	Limit
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+5 -20				+12	+12 +	12 +12	+12	+12 +12	+12
+0 _40				+5	+5 +	-5 +5	+5	+5 +5	+5
-5 60				-5	+0 +	0+0	+0	-+0 +0	-5
-10 .90				-10	-10 -1	10 -10	-10	-10 -10	-10
-30				-30	-30 -3	30 -30	-30	-30 -30	-30
-50 100 -80 -	50 -40	-20 0	20	-50	-50 -5	50 -50	-50	-50 -50	-50
Out1 Out2	Out3	Out4	Out5		Out6		Out7	Or	t8
Threshold Attack Threshold Attack	Threshold Attack T	hreshold Attack	Threshold Attac	k Th	eshold A	ttack Thr	shold Attac	k Threshold	Attack
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Ratio Release Ratio Release	Ratio Release	Ratio Release	Ratio Relea	se F	Ratio Re	lease R	atio Relea	ise Ratio	Release
1:1.0 +	1:1.0 -	1:1.0	1:1.0 -	1:	1.0 2 3	11	• ± =	1:1.0 -	E_E
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Address ID : 1 192.168.1	.101 Prese	et F00 De	efault Preset) (s	tore		Recall	

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 the input channels. The red dot on the curve represents the current signal.
Control area	Drag the fader with the mouse to set the compressor function parameters for all output channels: Compression, threshold, ratio, attack, release



"Limit" tab

Link C	Copy Lock	Setting ID	IP Test T	one Chann	el Name	4×811 (语言(X) H	DSP Proces Help About	sor Edit	or V2. ()						-	
in Ga	ate Comp	Limit	Delay	Matrix	GEQ II	A InB	InC InD	Out1	Out2	Out3	Out4	Out5	Out6	Out7	Out8	USB (OnLin
Out 1				Out 1	Peak Lim	úť				Out1	Out2	Out3	Out4	Out5	Out6	Out7	Out8
Limit .	20							/	-	Limit	Limit	Limit	Limit	Limit	Limit	Limit	Limit
+12							/			Clip	Clip	Clip	Clip	Clip	Clip	Clip	Clip
+5										+12	+12	+12	+12	+12	+12	+12	+12
+0	-40									+5	+5	+5	+5	+5	+5	+5	+5
-5				/						+0	+0	+0	+0	+0	+0	+0	+0
-10	-60		/							-5	-5	-5	-5	-5	-5	-5	-5
-30	-80	_								-10	-10	-10	-10	-10	-10	-10	-10
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	-100	-80	•	50	-40	-20	0		20	-50	-50	-50	-50	-50	-50	-50	-50
	-100	-50	•	50	-40	-20	0		20	-50	-50	-50	-50	-50	-50	-50	-50
C	Dut1	0	ıt2	50 Ot	-40 #13	-20	0 Dut4	(20 Dut5	-50	-50 Out	-50 6	-50	Out7	-50	-50 Ot	-50 nt8
C	Dutl d Attack	O	ıt2 Attack	50 Ou Threshold	40 nt3 Attack	-20 (Threshol	0 Dut4 Id Attack	(Threshol	20 Dut5 d Attac	-50 :k Th	-50 Out	-50 6 Attack	-50 Thresh	Out7	-50 ack T	-50 Or hreshold	-50 nt8 Attack
C	Dutl d Attack	O	nt2 Attack	0 Ot Threshold	40 nt3 Attack	-20 (Threshol	0 Dut4 Id Attack	(Threshoi	20 Dut5 d Attao	-50 :k Th	-50 Out reshold	6 Attack	-50 Thresh	Out7 Iold Att	-so ack T	-50 Ou hreshold	-50 nt8 Attack
C Threshole	Dut1 d Attack	O Threshold	nt2 Attack	Ou Threshold	40 at3 Attack	20 (Threshol -	Out-4	(Threshol	20 Dut5 d Attac	-50	Out reshold	6 Attack	-so	Out7 Iold Att	-50 ack T	-50 Ou Inreshold	-50 it8 Attack
C Threshole	Dut1	O Threshold	at2 Attack	Ot Threshold	40 at3 Attack	20 (Threshol	Out-4 Id Attack	(Threshol	20 Dut5 d Attac	k Th	-50 Out reshold	6 Attack	-so	Out7	ack T	Ou Inreshold	-50 ntS Attack
C Threshold	Dut1 d Attack	O Threshold	nt2 Attack	Ot Threshold	40 at3 Attack	20 Threshol	Out4 Id Attack	Threshol	20 Dut5 d Attac	-50	Out reshold	-50 Attack	Thresh	Out7 told Att	ack T	Ou Inreshold	-50 nt8 Attack
C	Dut1 d Attack		nt2 Attack	Or Threshold	40 at3 Attack 50ms Release	20	Dut4 Id Attack	Threshol	20 Dut5 d Attao Some Relea	-50 	Out reshold	-50 6 Attack 	Thresh	Out7 old Att	ack I	-50 Dreshold	Attack
C Threshol	Dut1 d Attack		Attack Attack 50ms Release	Or Threshold	40 at3 Attack 50ms Release	20	Dut4 Id Attack	Threshol	20 Dut5 d Attao Some Relea	-50 ck Th	Out reshold	6 Attack	Thresh	Out7 oold Att	ack T	Or	-50 nt8 Attack
C	Dut1 d Attack		rt2 Attack	Ot Threshold	40 at3 Attack: 50ms Release 	20	Out4 Id Attack	(Threshol	20 Dut5 d Attac 50m Relea	-50 ck Th	Out reshold	-50 Attack 	Thresh	Out7 cold Att	ack T ms ease	-50 Or Threshold	-50 nt8 Attack
Threshole	Dutl d Attack	O Threshold	nt2 Attack	Or Threshold	40	20	Dut-4 Id Attack	C	20 Dut5 d Attac Some Relea	-50 sk Th	Out areshold	6 Attack 50ms Release	Thresh	Out7 cold Att	ack T	-50 Or Threshold	-50 nt8 Attack
C Threshold	Dutl d Attack	O Threshold	tt2 Attack 50ms Release	OU Threshold	40 at3 Attack	-20 Threshol	Our4 kd Attack	C Threshol	20 Dut5 d Attas Some Relea	s s s	-50 Out reshold	6 Attack 50ms Release	-50	Out7 old Att	ack T	-50 Or Direshold 	-50 nt8 Attack
C Threshole 	Dut1 d Attack	O Threshold	nt2 Attack	0 Threshold	40 at3 Attack 50ms Release 500ms	-20	Dut-4 Id Attack	Threshol	20 Dut5 d Attac Some Relea	se +	-50 Out reshold	6 Attack 50ms Release	-50	Out7 old Att	ack T ms case	-50 Or Trreshold 	-50 ht8 Attack

Range	Meaning
Display area	Shows the current settings of the limiter for the respective channel, with a symbolic level indicator symbol appearing next to it for all channels.
Control area	Drag the fader with the mouse to set the limiter parameters for all input and output channels: Threshold, attack, release



"Delay" tab

Link	Сору	Lock S	etting ID/I	P Test	Tone Char	nnel Nam	ie 语言	4×811 町(X) ト	DSP Pr Help A	ocess bout	or Edi	tor V2. ()							-	
in (Gate	Comp	Limit		Matrix	GEQ	InA	InB	InC	InD	Out1	Out2	Out3	Out4	Out5	5 Out	16 OL	ut7	Out8	USB	On
				Inp	ut Delay			-							Out	put Del	ay				
Ter A	000	00									Out1	0.000) ms								
	0.0	00 ms									Out2	0.000) ms								
	0.0	00 ms									Out3	0.000) ms								
											Out4	0.000) ms								
	0.0	00 m s									Outs	0,000	ms								
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											Out/	0.000									
	0.0	00 m s									Out8	0.000	ms								
.ix0	0.0	00 ms									Out8	0.000) ms								
InD	0.0	00 ms	Input								Out8	0.000	Output								Uni
LED L	0.0	00 ms InB	Input	аC	InD	(Dut1	(Out2	0	Out8 Out3	0.000 0	Oms Output 4	Out5	0	ut6	Out	t7	Out	t8	Uni
IкD II Г	0.0 nA	00 ms InB	Input In	nC	InD 	0	Dut1	(Dut2	0	Out8 Out3	0.000	Output	Out5	0	ut6	Out	17 -	Out	t8 	Uni
Ivo L	00.0	InB	Input	ΩC	InD	• Land	Dut1	C Local	Dut2	0 11	Out8 Dut3	0.000	Output	Out5	6 I	ut6	Out	17 17	Out	18	Un
L Lucius	nA Internet	00 ms	Input	aC Troutier	InD	C Intellect	Dut1	- Luniu	Dut2	0 1	Out8 Out3	Out-	Output	Out5	O tractica	ut6 Inninn	Out	17 11	Out	t8 	Uni
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La bardana bara	MA tooloon	InB	Input	contraction D	InD Internet in the second sec	• Internetion	Dut1	Frankriken kom	Dut2	• 1	Out8	Out:	Output	Out5	6 Instanting	to Innimu	Out	and manual 2	Out	18	Uni ma m
a burdenet	A Innihinal	InB	Input	Transford 3	In the second se	C hurdenedenial	Dutl	- London land	Dut2	• tuuluutuut	Out3	Out-	Output	Out5	6 hardeneli I	at particular	Out	Transmission 2	Out	Tructure 8	Uni ma m
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L Lundonnal	0.0	InB	Input	aC Tititititititititititititititititititit			Dut1	0.0	Dut2	0	Out3	Out=	Output 4	Out5	0	ut6 Transformer	Out	t7 [iiii]iiii] ms	Out 	18 1 · · · · · · · · · · · · · · · · · · ·	Uni ms n

Range	Meaning
Display area	Shows the set delays for all input and output channels.
Control area	Drag the fader with the mouse to set the delay for the respective channel. Press one of the buttons 'ms', 'm' or 'ft' to select the unit to use.



"Matrix" tab

O Ela lia	h. Com	Lask	Camia a 11	0.00 Test 1	in the	and Name	4x8II	DSP Proc	essor Edit	or V2. 0						-	
Gain	Gate	Comp	Limit	Delay	Matrix	GEQ	InA InB	InC In	D Out1	Out2	Out3 O	ut4 Out	5 Out6	out7	Out8	USB	Distine
	InA	GAL	N GAI	TE GEO	PFO	нрдр	DFLAY		XOVER	PEQ	GAIN	COMP	LIMIT	DELAY	MUTE	Outl	
									XOVER	PEQ	GAIN	COMP	LIMIT	DELAY	MUTE	Out2	
	InB	GAD	N GAI	TE GEQ	PEQ	HP/LP	DELAY		XOVER	PEQ	GAIN	COMP	LEMIT	DELAY	MUTE	Out3	
	InC	GAD	N GAI	TE GEQ	PEQ	HP/LP	DELAY <	\sim	XOVER	PEQ	GAIN	COMP	LIMIT	DELAY	MUTE	Out	5
									XOVER	PEQ	GAIN	COMP	LIMIT	DELAY	MUTE	Out	
	InD	GAI	N GAI	TE GEQ	PEQ	HP/LP	DELAY		XOVER	PEQ	GAIN	COMP	LIMIT	DELAY	MUTE	Outs	
	Out1		C	Dut2	(Dut3	1	Dut4	1 0	Dut5		Out6		Out7		Out	
In	A +0.0	dB 🔶	InA	+0.0d8 ÷	InA	+0.0dB ÷	hA	+0.0dB 🛓	InA	+0.0d8	InA	+0.0d8	InA	+0.0dt	• ±	InA +0	.0d8 🛨
Ini	B +0.0	IdB 🔶	hB	+0.0d8 ÷	hB	+0.0dB ÷	hB	+0.0d8 ÷	InB	+0.0dB	hB	+0.0dB	hB	+0.0d8	• ÷	InB +0	.0dB 🕂
Inc	C +0.0	dB ÷	InC	+0.0d8 🛨	hC	+0.0dB 🛨	hC	+0.0d8 🛓	InC	+0.0d8	hC	+0.0d8 -	InC	+0.0df	÷ (InC +0	.0dB 🛨
ini	D +0.0	dB 📩	hD	+0.0dB 📩	hD	+0.0dB 📩	hD	+0.0d8 🛓	hD	+0.0dB	HD	+0.0dB	InD	+0.0d	• ± •	InD +0	.0d8 📩
	Addre	SS I	D:1	192.168.	1.101	Р	reset	F00	Ju Default I	Preset		Stor				Recall	

Range	Meaning
Display area	Shows the current configuration of input to output channels. Output and input channels can be renamed. Click on a function area (e.g. ' <i>GEQ</i> ' or ' <i>DELAY</i> ') to open the tab in which you can directly enter the corresponding parameters.
Control area	By clicking with the mouse you can connect any input channel to any output channel. Each output channel can be freely assigned to one input channel or a mix of several input channels. The input channels with a green background are assigned to the respective output channel. You can set a level adjustment for any combination of input and output channel.



"GEQ" tab



Range	Meaning
Display area	Shows the setting of the graphic equalizer for the selected input channel. Click on the 'EQ Bypass' button to temporarily switch off the equalizer function for this channel or on the 'EQ Reset' button to return the equalizer to its basic status.
Control area	Drag the fader with the mouse to set the boost or cut for each of the available frequency bands. To select a channel, click on the buttons ' <i>InA</i> ' ' <i>InD</i> '. The number of input channels depends on the device design.



"In" tab

							4x8II	DSP Pro	cessor Ed	litor V2.	0				3	
e Link ain	Gate	Comp	Setting ID/	Delay	Fone Char Matrix	GEQ	e 语音(X)	Help Abo	nD Out	Out2	Out3	Out4 Ou	t5 Out6	Out7	Out8 USB	Onli
	InA	Fre	avency (+	-/→) ($\alpha + (-)$	Gain († /	1.7	ToR 1	il tec			E.	Bynass	FO Reset	SHOW AL	50
+18d8	Mag	🕐 Pha	ise					2010					(official)	Lu Houdin		
+12d8				0.2.00												
+6d8				50.8Hz												
		HPF		1	2		3		4	5		6		,	8	LPF
0d8					ن <u>م</u>		•									
-6dB																
-12d8																
-18dB																
		20Hz	_	50Hz	100	1z	200Hz	_	500Hz	193-	iz	2)0+1z	50	Hz	10KHz	201012
PEQ	Free	quency	Q		Gain	2	Type	Bypass		PI	EQ Param	eter	HighPass	LowPas	ss G	ain
	50.8	Hz	3.00		0dB	Peak	•	Bypass		Freq	Q	Gain	= =	-	InA	Clip
2	101.	5Hz	3.00		OdB	Peak	-	Bypass					1 2	ETE	: <u>7</u> 7	+12dB
3	203.	1Hz	3.00		OdB	Peak	•	Bypass			2 2	1 1		5 5		+0dB
4	500.0	OHz	3.00		0dB	Peak	•	Bypass			1 1	E E				-5dB
5	1.001	KHz	3.00		0dB	Peak	•	Bypass				11-1	19.7Hz	20.16KH	U ELE	-10dB
100	2.001	KHz	3.00		0dB	Peak	•	Bypass					Slope	Slope		-20dB
	-	KHz	3.00		0dB	Peak	*	Bypess		- 1 -			LK -48 🔻	LK -48	-60.0dB	-50dB
7	5.041															

Range	Meaning
Display area	Use the option fields ' <i>Mag</i> ' and ' <i>PHASE</i> ' to switch the diagram from Cartesian coordinates (level vs. frequency) to polar coordinates (angle vs. frequency).
	Use the option field 'SHOW ALL EQ' to show the parameters for all nine of the frequency bands.
Control area	You can enter the parameters of the parametric equalizer for each input channel and all nine fre- quency 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 temporarily switched off.
	In the middle part of the window (' <i>PEQ Parameter</i> ') you can set the parameters centre frequency, filter quality, and slope unit using the faders. The setting is based on the frequency band that is high-lighted 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 <i>'Bypass'</i> button to temporarily switch off the filter.
	Drag the fader into 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' / 'Inverse'</i> button shifts the phase of the respective channel by 180° if needed.



"Out" tab

in	Gate Co	mp Limit	Delay	Matrix	GEQ I	A InB	InC	InD	Outil	Out2	2 Out3	Out4	Out5	Out6	Out7	Out8	USB	On
	Out1	Frequency (-/→) (2(+/-)	Gain(↑/↓)	Out2	Out3		🛄 Out		ut6 🔲 Out7	7 🔲 Outs	EQ Byp	ass	EQ Reset		SHOW ALL E	Q
-1806	• Mag	Phase																
+12d8		Q:3.	ю															
+6d8		40.3	Hz B															
ode	HPF	1		2			4			5	6		7		8		9	LPF
oup																		
-6d8																		
-12d8																		
-18dB																		
	20Hz		SOHz	100	iz	200Hz		500H	z	110	4	210Hz		510	-tz	10KH	2	20KH2
PEQ	Freque	icy Q		Gain	Тур	ic	Bypa	55	-	р	EQ Param	eter	Н	ighPass	LowPa	ass	Gai	n
-	40.3Hz	3.0		BPO	Peak	•	Bypa	is	F	eq	Q	Gai	n .	- [-	-	-	Out1	Limit
2	84.4Hz	3.0		0dB	Peak	•	Вура	33						E E	1.5	3 3	- [-	Clip
3	176.8Hz	3.0		0dB	Peak	•	Bype	s	11 5	-	1 1	1	3		÷.		1	+12dB
4	370.3Hz	3.0		0dB	Peak	•	Bypa	35	11 -	-	2 2	12	- I I I	E 🔳 E .	Ξ	3 3	-	+5dB
5	757.9Hz	3.0		0dB	Peak	•	Вура	55	11 -		18 1 8		÷ .		20, 164			-SdB
6	1.59KHz	3.0		0dB	Peak	•	Bypa	55	1	-		-	리니님	19.7112	20, 100			-10dB
2	3.32KHz	3.0		09B	Peak	•	Bypa	35		1		-	3	Slope	Slop	e -	1-	-20dB
8	6.81 KHz	3.0		0dB	Peak	•	Вура	BS	-	-		-	- 10	K-48 🔻	LK -48	•	+0.0dB	-50dB
	phone and the second second second	2.0		OVE	Peak	-	Byna	1.2	40	3Hz	3.00	+0.00	B	Burnate	Bunga		Innel	Mast

Range	Meaning
Display area	Use the option fields ' <i>Mag</i> ' and ' <i>PHASE</i> ' to switch the diagram from Cartesian coordinates (level vs. frequency) to polar coordinates (angle vs. frequency).
	Use the option field 'SHOW ALL EQ' to show the parameters for all nine of the frequency bands.
Control area	You can enter the parameters of the parametric equalizer for each input channel and all nine fre- quency 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 temporarily switched off.
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	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 switch off the filter.
	Drag the fader into 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' / 'Inverse'</i> button shifts the phase of the respective channel by 180° if needed.



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8 Technical specifications

Inputs	Туре	XLR					
	Level	+18 dBu (max.)					
	Impedance	1 MΩ (stereo), 500 kΩ (mono)					
Outputs	Туре	XLR					
	Level	+20 dBu (max.)					
	Impedance	< 500 Ω					
Frequency response		20 Hz 20 kHz					
THD		< 0.005 % (1 kHz, 0 dBu)					
Signal-to-noise ratio		> 115 dBu					
Crosstalk		< 100 dB					
Digital signal processor	Resolution	24 bit					
	Sampling rate	96 kHz					
Voltage supply		AC 100 – 240 V~ 50/60 Hz					
Power consumption		20 W					
Fuse		5 mm × 20 mm, 2 A, 250 V, slow-blow					
Dimensions (W \times H \times D)		480 × 45 × 245 mm					
Weight		2.62 kg					
Ambient conditions		Temperature range 0 °C40 °C					
		Relative humidity	20 %80 % (non condensing)				

Further information

	DSP 204 (Item no. 435191)	DSP 206 (Item no. 435192)	DSP 306 (Item no. 435193)	DSP 408 (Item no. 435194)
2-way stereo	Yes	Yes	Yes	Yes
3-way stereo	No	Yes	Yes	Yes
Digital	Yes	Yes	Yes	Yes
Delay	Yes	Yes	Yes	Yes
EQ	Yes	Yes	Yes	Yes



Block diagram

INC->[A/D]GAINGATEMUTEHPJLPGEQPEQPHASEDELAYLINK	
IND-A/D- GAIN - GATE - MUTE - HP/LP - GEQ - PEQ - PHASE - DELAY - LINK -	



DSP 204, DSP 206, DSP 306, DSP 408

9 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)



10 Protecting the environment

Disposal of the packaging material



Disposal of your old device



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.

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



DSP 204, DSP 206, DSP 306, DSP 408



Notes



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