the t.racks

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



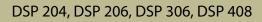
user manual

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1 General information

This 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 (<u>www.thomann.de</u>) 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
	Warning – danger zone.



2 Safety instructions

Intended use

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

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

Safety



DANGER! Danger for children

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

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

Never let children unattended use electrical devices.

NOTICE!

Risk of fire

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

NOTICE!

Operating conditions

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



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 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.

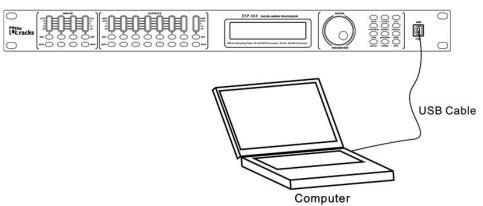
Create all connections while the device is off. Use the shortest possible high-quality cables for all connections. Take care when running the cables to prevent tripping hazards.

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

Configuration example 1

Rack mounting

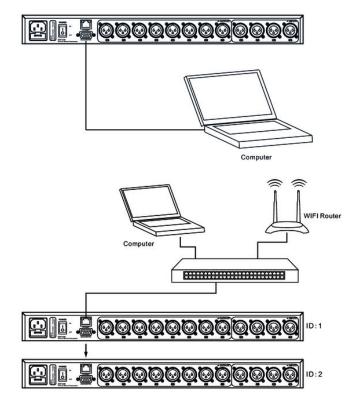
The figure schematically shows how the device can be controlled via a computer's USB port.





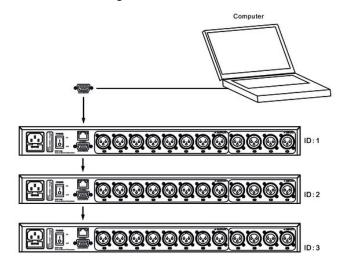


The figure schematically shows how one or more devices can be integrated into a local network (LAN).



Configuration example 3

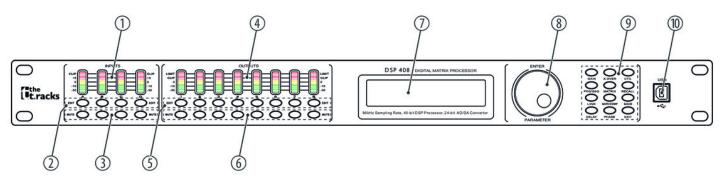
The figure schematically shows how one or more devices can be connected in a row via the serial interface (cascading).





5 Connections and controls

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] LEDs 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

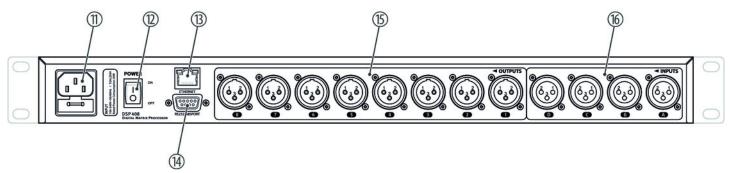
9 Buttons for direct selection of a parameter. Use the [EXIT] button to leave the edit mode.

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.



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 [EXIT].

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 [<i>EXIT</i>].	
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.
 - ⇒ 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 (num- bered 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



Param- eter	Button	Selection range	Meaning
'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]	ʻ0', ʻ180'	Inversion of phase length

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Output settings

- **1.** Press the *[EDIT]* button assigned to the desired channel.
 - ⇒ 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
ʻINLINKʻ	[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.



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

DSP 204, DSP 206, DSP 306, DSP 408



7 Control on the computer

Installing and starting the software

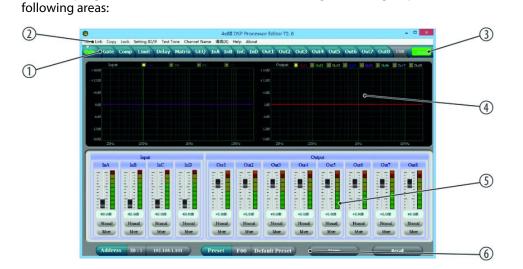
- **1.** Place the CD with the software into the CD drive of a computer with a Windows operating system and start the installation programme that matches the device you have.
- **2.** Follow the instructions of the installation programme until it is finished.
- **3.** Connect your computer via a USB 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.



Parts of the programme window



All of the programme window tabs have a similar design and are grouped into the

Tabs for selecting a function group
 Main menu
 Button for the status of the connection to the computer
 Display area
 Control area
 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

	Gate	Comp	Limit	Delay	Matrix	GEQ	InA	InB	InC	InD	Out1	Out2	Out3	Out4	Out5	Out6	Out7	Out8	USB	
+15d8	Input				1:18	.∎ ⊮c					+18d8	Output	• Ort	Curz	📕 Out3		10 Outs	🔲 Out6	Out7	🔳 Out
1248																				
+6d0																				
0d8																				
-6 d 8																				
-1240																				
-18 d 8	20Hz		100Hz		1KH:			10	XH12		-18dB	20Hz	,	00Hz		IJ	CH2		106	Hz
			Input											Output	-					
	InA	InB		InC	InD	yeed (0	#l	0	ut2	0	x 3	Out4		Out5	0	ut6	Out7		Out8
lood.	the second	1		- level			-		l					ll.						
									- daa	and the	-			1		n la ci	-			order -
-6	0.048	-60.0de		-60.0d8	-60.0d	в	+0.	860	+0	Bb0.	+0.	ode	+0.0d8		+0.0dB	+0	068	+0.0dB		+0.0d8
	iomal Mute	Norma	-	Normal Mute	Nom		-	mal ute		ormal Aure	-6000	mal	Norma		Normal Mute		amal	Noma		Normal Mute

Range	Meaning
Display area	The signal curve of the input and output channels is displayed graphically. Use the 'Inx' and 'Outx' 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.



"Gate" tab

ain		Comp	Limit	Delay	Matrix	GEQ 1	inA InB	InC	InD Out1	Out2	Out3	Out4	Out5	Out6	Out7	Out8	USB	014
InA																		
mA	20						In A	Gate							InA	InB	InC	InD
Cip														-	Clip	Clip	Clip	Clip
+12	0										-				+12	+12	+12	+12
+5	-29														+5	+5	+5	+5
+0	-40							-							+0	+0	+0	+0
-5	-60														-5 -10	-5	-5	-5
-20															-10	-20	-10	-10 -20
-30	-80														-30	-30	-30	-30
-50	100	100		80		-60		-40		20		0		2		-50	-50	-50
		Intershold	nA I Attack				InB Id Attack	1		I Threshol	nC d Attacl			1	Inl hreshold			
		212	-1-			= 1 -	- 1-			- 1-	- 1-				- 1 -	= [=		
		12-1	1				1 m 1			1.1					1 .	1.1		
		11								1					-			
		-90.0d8	1ms			-90.0dB	Ims			-90.0d8	lms				-90.0dB	1ms		
		Hold	Release			Hold	Release			Hold	Releas	c			Hold	Release		
		= =	2 3			= -	= =			2 2	= -				= =	= =		
						8 8	8 . 8			3						E .		
		E E										22						
		100ms	100ms			100ms	100ms			100ms	100ms				100ms	100ms		

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

in	-	V	L L L L L L	Dalar		oro)	-	n) rec	TOD	0		h and	land	0.00	0.00	0.00		1
m	Gate	1 interest	Limit	Delay	Matrix	GEQ	INA I	UR TUC	IND	Outi O	utz Out	J Uut4	Outs	Outo	Out	Outa	USB	0.0
Out					Out 1 RM	MS Com	pressor				Out	Out2	Out3	Out4	Out5	Out6	Out7	Outs
Linit										/	Linit	Linit	Limit	Limit	Limit	Limit	Limit	Limit
Clp +12									/			Clip		Clip	Clp	Clip	Clip	Сlp
+5	-	20					/				+12	+12	+12	+12	+12	+12	+12	+12
+0.		40				-	/				+5	+5	+5	+5	+5	45	+5	+5
-5		50			/						+0	+0	+0	+0	+0	40	+0	+0
-10				/							-5	-5	-5	-5	-5	-5 -10	-5	-5 -10
-30		10									-10	-10	-10	-10	-10	-10	-10	-30
-50	10	100	-80		50			-20			20 -50	-50	-50	-50	-50	-50	-50	-50
												-00						
		-100						-20			20	-50	-3.					
	Out		Ou	_	0		T	Out4	1	Out		Ou		1	Out7	T	Ou	
Thre				#2		at3	T	Out4	1		5		16	Thresh	Out7	1		#8
Thre	shold	1	Ou Threshold	n2	O	at3	T	Out4	1	Out	5	Ou	16	j.	Out7	1	Ou	#8
Thre		1	Ou	n2	Or Threshold	at3	T	Out4 shold At	1	Out	5	Ou	16	Thresh	Out7	1	Ou	#8
Teres I	shold	1	Or Threshold	n2	Or Threshold	at3	c Three	Out4 shold At	1	Out	5 Attack	Ou Ihreshold	16	Thresh	Out7 hold Att	tack 1	Ou Chreshold	Attaci
+20	shold	1 Attack	Ou Threshold	Attack	Or Threshold 	at3 Attack	C Thro	Out4 shold At	ntack 1	Out Threshold Thresh	5 Attack	Out Threshold	Attack	Thresh 	Out7 hold Att	tack 1	Ou Chreshold 	tt8 Attact
+20 Ra	shold 	Attack	Ou Threshold +20.0ds Ratio	Attack	Or Threshold + 0.0dB Ratio	Attack	c Three 	Out4 shold At	ttack 1	Out Threshold Thresh	5 Attack 5 50ms Release	Out Inreshold 	t6 Attack	Thresh 	Out7 hold Att	tack	Ou Inreshold +20.0d8 Ratio	tt8 Attact
+20 Ra	shold	1 Attack	Or Threshold +20.0d8 Ratio 1:1.0 +	Attack	00 Threshold +20.0db Ratio 1:1.0 +	at3 Attack	< Throat The second sec	Out4	ttack 1	Out Threshold 	5 Attack	Our Threshold +20.0d8 Ratio 1:1.0	Attack	Thresh +20.0 Rati	Out7 hold An	tack 1	Ou Threshold 	#8
+20 Ra	shold 	Attack	Ou Threshold +20.0ds Ratio	Attack	Or Threshold + 0.0dB Ratio	Attack	< Throat The second sec	Out4 shold At	ttack 1	Out Threshold Thresh	5 Attack 5 50ms Release	Out Inreshold 	t6 Attack	Thresh +20.0 Rati 1:1.0 Kne	Out7 hold An	tack	Ou Inreshold +20.0d8 Ratio	tt8 Attact

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

n Gat	e Comp		Delay	Matrix	GEQ	InA In	B InC In	D Out1	Out2	Out3	Out4	Out5	Out6	Out7	Out8	USB	Dri
Out 1				Out 1	Peak Li	imit				Out1	Out2	Out3	Out4	Out5	Out6	Out7	Out
linit Clip								/	-	Limit	Limit	Limit	Limit	Limit	Limit	Limit	Limit
+12							/			Clip	Clip		Clip	Clp.	Clip	Clip	Clip
+5						/				+12	+12	+12	+12	+12	+12	+12	+12
40.	40				/					+5	+5	+5	+5	+5	+5	+5	+5
-5	60									+0	+0	40 -5	+0	+0	-40	+0	+0 -5
-10																	
-00	80									-10	-10	-10	-10	-10	-10	-10	-10
-50 1	00	80	_	a)	-40	-2		0	20	-10 -30 -50	-30 -50	-30 -53	-10 -30 -50	-30 -50	-10 -30 -50	-30 -50	-30 -50
-50 -1 Ou	00 100 n1	Ou	#2	Ot	ut3	1	Out4	1	Out5	-30	-30 -50 Ou	-30 -50	-30 -50	-30 -50 Out7	-30 -50	-30 -50	-30 -50 nt8
-50 1	00 100 n1		#2		ut3	1		1		-30	-30 -50	-30 -50	-30 -50	-30 -50	-30 -50	-30 -50	-30 -50 nt8
-50 -1 Ou	00 100 n1	Oc Threshold	#2	Ot	ut3	1	Out4	1	Out5	-30 -50	-30 -50 Ou	-30 -50	-30 -50	-30 -50 Out7	-30 -50	-30 -50	-30 -50 nt8
-50 -1 Ou	00 100 n1	Ou	#2	Ot	ut3	1	Out4	1	Out5 Id Attac	-30 -50	-50 Ou reshold	-30 -50	-30 -50	-30 -50 Out7 told Att	-30 -50	-30 -50	-30 -50 nt8
-50 -1 Ou	n1 Attack	Oc Threshold	t2 Attack	Ot	ut3 Attack	1	Out4 nold Attack	1	Out5 Id Attac	-30 -50 ck Th	-50 Ou reshold	-30 -50 Attack	-30 -50	-30 -50 Out7 wold Att	-30 -50 ack T	-30 -50	-50 -50 Attac
-50 -1 Ou	Attack	Ou Threshold	Attack	Ot	ut3 Attack	Thres	Out4 aold Attack	Thresho	Out5 Id Attac	-30 -50	-50 Ou reshold	-50 -50 Attack 50ms	-30 -50	-30 -30 Out7 wold Att	-30 -50 ack I	-30 -50	-30 -50 Attac
-50 -1 Ou	nti Attack	Ou Threshold	t2 Attack	Ot	ut3 Attack	Thres	Out4 hold Attack	Thresho	Out5 Id Attac 	-30 -50 ck Th 	-50 Ou reshold	-30 -50	-30 -50	-30 -30 Out7 wold Att	-30 -50	-30 -50	-30 -50 Attac
-50 -1 Ou	Attack	Ou Threshold	Attack	Ot	ut3 Attack	Thres	Out4 nold Attack	Thresho	Out5 Id Attac	-30 -50 ck Th 	-50 Ou reshold	-50 -50 Attack 50ms	-30 -50	-30 -30 Out7 wold Att	-30 -50 ack I	-30 -50	-30 -50 Attac
-50 -1 Ou	Attack	Ou Threshold	Attack	Ot	ut3 Attack	Thres	Out4 aold Attack	Thresho	Out5 Id Attac 	-30 -50 ck Th 	-50 Ou reshold	-50 -50 Attack 50ms	-30 -50	-30 -30 Out7 wold Att	-30 -50 ack I	-30 -50	-30 -50 nt8

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

				InB InC In							<u>.</u>
	Ing	out Delay				<u></u>		Output De	lay		
0.000 ms					Out						
0.000 ms					Out	0 000 ms					
					Out5						
0.000 ms					Out6	0.000 ms					
0.000					Out7	0.000 ms					
0.000 813					Out8	0.000 ms					
									_		
	1200										U
			Out1	Out2	Out3	Out4	Out5	Out6	Out7	Out8	
InB	InC	InD									
	EE	E E	8 3	EE	= =	ΞΞ	5 3	8 3	ΞΞ	ΞE	•
			1 mil	1 mol			1000	hoot	I	Terest.	•
			Innin .	Inninn		1			Instan	hooloo	•
			Instructo		1		hoolooo ha	Tooloolo			
			International In				In the second		1		
	0 000 ms 0 000 ms 0 000 ms 0 000 ms	0.000 ms	0.000 ms 0.000 ms	0.000 ms 0.000 ms	0.000 ms 0.000 ms	0 000 ms	0.000 ms Out2 0 0.000 ms 0.000 ms Out2 0 0.000 ms 0.000 ms Out2 0 0.000 ms 0.000 ms Out5 0 0.000 ms	0:000 ms Out? © 0:000 ms 0:000 ms Out? © 0:000 ms	0:000 ms Out2 0:000 ms 0:000 ms Out3 0:000 ms 0:000 ms Out5 0:000 ms 0:000 ms Out7 0:000 ms 0:000 ms Out7 0:000 ms	0:000 ms Out? © 0:000 ms 0:000 ms Out? © 0:000 ms	0:000 ms Outl © 0:000 ms 0:000 ms Outl © 0:000 ms

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.



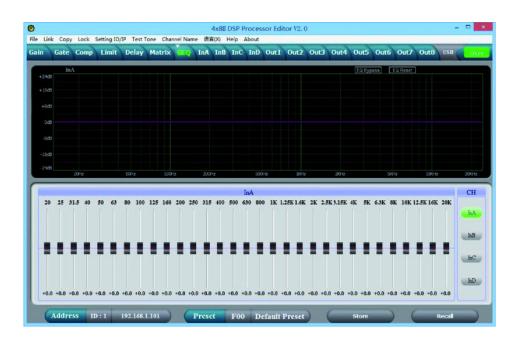
"Matrix" tab

in G	Sate	-	-	Delay	V		-	Acres of	-	Out1	Out2	Out3 0	ut4 Ou	5 Out	6 Out7	Out8	USB	Dra
																	1 million	
	InA	GAP	GAT	E GEO	PEQ	HP/LF	DELA	-		XOVER	PEQ	GAIN	COMP	LIMIT	DELAY	MUTE	Out	
		COMPANY.				11000				XOVER	PEQ	GAIN	COMP	LIMIT	DELAY	MUTE	Out	
1	InB	GAE	GAI	GEQ	PEQ	HP/LP	DELA	$\langle \rangle$		XOVER	PEQ	GAIN	COMP	LIMIT	DELAY	MUTE	Out	
								\rightarrow	\bigcirc	XOVER	PEQ	GAIN	COMP	LIMIT	DELAY	MUTE	Out	
1	InC	GAP	GAT	GEQ	PEQ	HP/LP	DELA	\leq		XOVER	PEQ	GAIN	COMP	LIMIT	DELAY	MUTE	Out	
				-	-	-				XOVER	PEQ	GAIN	COMP	LIMIT	DELAY	MUTE	Out	
. 1	InD	GAR	GAT	E GEQ	PEQ	HP/LP	DELA			XOVER	PEQ	GAIN	COMP	LIMIT	DELAY	MUTE	Out	3
	Out1		Ot	nt2		Dut3		Out4		0)ut5		Out6		Out7		Out	8
InA	+0.0d	÷	inA -	+0.0d8 📩	hA	+0.0d8	: •	A +0.00	• 🗄	inA	+0.0d8 🚊	- InA	+0.0d8	÷ 🖿	A +0.0d	• 🕂 🕚	hA +).0d8 🗄
<u>Lab</u>	+0.0d	÷	hB	+0.0dB ±	LB	40.0dB	: •	B +0.00	6 €	<u>LAB</u>	+0.0dB 🚊		+0.0dB	: w	+0.00	• ÷ (LB +	0.0dB 🗄
InC	+0.0d	÷	InC	+0.0d8 🛨	hC	+0.068	÷ 🕒	C +0.0d	∎ 🛨	InC	+0.0d8 主	- Inc	+0.0d8	1	+0.00	• ± 1	InC +	0.0d8
hD	+0.0d	• 🗄	InD	+0.0dB 🛨	LD	+0.0dB	÷ .	P +0.08	8 ÷	hD	+0.0dB 🛓		+0.0dB	: M	D +0.0d	• 🗄	ыр +).odB

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 $(InA' (InD')$. The number of input channels depends on the device design.



"In" tab

n	Gate	Comp	Limit	Delay	Matrix	GEQ	InB	InC	InD	Out1	Out2	Out3	Out4 Ou	t5 Out6	Out7	Dut8 USB	Dis
	InA	Fr	equency (+	-/)	Q(+/-)	Gam(1/1)	1	1:0	The second				EC	Bypass	EQ Reset	SHOW ALL	EQ
+18dB	O Mag	O Pha	ase														
+12d8				Q-3.00 50.8Hz													
+6d8				0.048													
0d8		HPF			2		3		4		s)		6		7 •	8	LPI
-6d8																	
12d8																	
18d8				50Hz	100+				500+		19942		210Hz				
		June		5072	1004			_	500*	5	140		2012		75	100712	2014
PEQ	Free	quency	Q		Gain	Туре		Bypa	55		PE	Q Param	eter	HighPass	LowPas	s Ga	in
	50.8	Hz	3.00		0dB	Peak	•	Bypa	\$5	Fre	.q	Q	Gain	= =		InA	Clip
2	101.	5Hz	3.00	— г	0dB	Peak	٠	Bypa	33	-	-			Ξ.Ξ	3 3	E E	+12dB
3	208.	lHz	3.00		0dB	Feak	•	Byped	33	Ē	-	: :	1 E	512	5 5	1.2	+5dB +0dB
4	500	OHa	3.00	- r	0dB	Feak	•	Вураз	33	E	Ξ	3 3	EEE		1 1		-5dB
5	1.000	KHz	3.00	-Γ	0dB	Peak	•	Bypes	55	Ξ.	3	11	11-2	19.7Hz	20.16KH:		-10dB
6	2.000	KHz	3.00		Bb0	Peak	•	Bypad	33	1	E	ΞŦ.	ΞΞ.	Slope	Slope		-20dB -30dB
7	5.041	KHa	3.00	- r	0dB	Peak	*	Byped	33	-	-		1 -	LK -48 •	LK -48	-60.0d8	-50dB
	L 10.00	KHz	3.00		OdB	Peak		Byped		50.8	Hz	3.00	+0.0dB	Bypass	Bypess	Normal	Mut

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.

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"Out" tab

n	Gate	Comp	Limit	Delay	Matrix	GEQ	InA	InB	InC	InD	(interest	Out2	2 Out3	Out4	Out5	Out6	Out7	Out8	USB	01
+18d8	Out1 O Hag	Freq Phase		/→)	2(+/-)	Gain († /	1) 🗉	Dura 1	Out3			5 🗐 0	uté 🔲 Out	7 💽 Out8	EQ Bypar	8	EQ Reset	<u></u>	HOW ALL	EQ
1248			0-1.00																	
+6d0			40.3Hz 0.065																	
		IPF			2		3		4			5	(7		8		9	LPF
0d8																				
-6d8																				
-12d0																				
18d8																				
	2	0Hr		50Hz	100-	2	200	12		500	Hz	36	17	290Hz		542	12	10012		201017
PEQ	Freq	uency	Q		Gain	1	Гуре		Вура	55		P	EQ Param	eter	Hi	ghPass	LowPa	a 55	G	ain
1	40.3	Ha	3.00		0dB	Feak		•	Bype	\$5	F	req	Q	Gain	-	- [_	_ (Dut 1	Limit
2	84.4	Hz [3.00		06B	Feak		*	Вура	33		12	- 1 -		- 13	Ξ		3 7		Clip
3	176.8	Ha	3.00		0dB	Peak	_	*	Bypa	33	-	1		1	3 8		3		∎Ē.,	+12dB
4	370.3	Hz	3.00		0JB	Feak		•	Bypa	55	1	-	2.2	Ξ.	2 1 3	1 8	3	8 8	-	+5dB +0dB
5	757.9	fiz	3.00		OdB	Feak		•	Вура	55	Ξ	-	5_5		Ξ.	-	20.166	-	Ξ	-JdB
6	1.598	Ha [3.00		0dB	Peak		*	Bypa	33	=	-	2.0	E.	- 14	9.7Hz	20.166	<u> </u>	-	-10dB
7	3.328	Нз	3.00	- F	0dB	Peak			Bype	\$3	Ξ	1 E	3 3	E		lope	Slop	e =	1 =	-20dB
8	6.81 8	Hz	3.00		0dB	Peak	-		Вура	55	-	Τ-		=	- IK	-48 •	LK -48	T (0.0dB	-50dB
	14.251	CH2	3.00		0dB	Peak	_	-	Bype		40	.3Hz	3.00	+0.0d	B	ypass	Bypas		lomal	Mute

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.



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					
Distortion (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		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)		$480 \times 45 \times 24.5 \text{ mm}$					
Weight		2.62 kg					

Block diagram

INA-(A/D)- GAIN - GATE - MUTE - HP/LP - GEQ - PEQ - PHASE - DELAY - LINK -	-	XOVER PEQ GAIN MUTE COMP LIMIT PHASE DELAY LINK D/A >0/1 XOVER PEQ GAIN MUTE COMP LIMIT PHASE DELAY LINK D/A >0/12
INB-JA/D-GAIN-GATE-MUTE-HP/LP-GEQ-PEQ-PHASE-DELAY-LINK		XOVER PEQ GAN MUTE COMP LIMIT PHASE DELAY LINK D/A >0013
INC	MATRO	
IND-A/D-GAIN - GATE - MUTE - HP/LP - GEQ - PEQ - PHASE - DELAY - LINK		XOVER PEQ GAN MUTE COMP LIMIT PHASE DELAY LINK D/A >0/17

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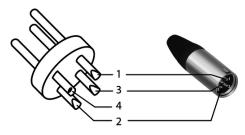
9 Plug and connection assignment

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



 $Musikhaus \ Thomann \cdot Hans - Thomann - Straße \ 1 \cdot 96138 \ Burgebrach \cdot Germany \cdot www.thomann.de$