

# HDSP Series

DSP-Amplifier

Manual



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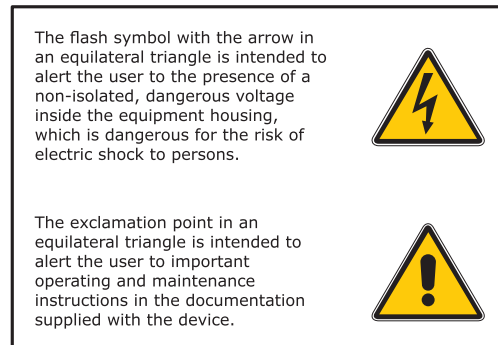
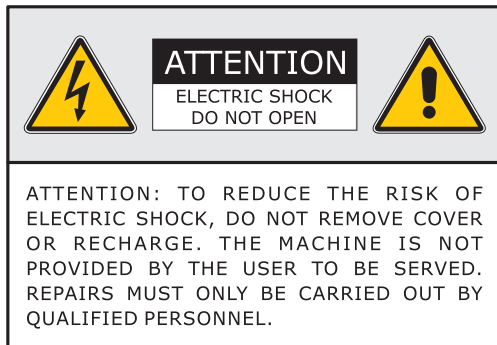
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### Safety Instructions



01. Read these instructions
02. Observe all warning instructions.
03. Follow all operating instructions.
04. To prevent fire hazard or risk of electric shock, do not use this device in the rain or in moist environments. Do not operate the unit nearby the water.
05. Observe when the unit is transported from cold to warm ambient air, condensation may occur. Do not operate the unit immediately, but allow it to be acclimatized first.
06. Do not mount the unit in the proximity of heat sources, such as heating units, herds or other heat radiation devices.
07. Do not load the unit with less than 4 ohms per channel. Connect a maximum of 4 ohms, two 8 ohms, or four 16 ohms speakers per channel.
08. Install the power cable at places where it cannot be damaged, especially at the sites of the socket, extension cables and where it leaves the unit.
09. The housing is designed for ventilation with air inlet and air outlet openings to protect the unit from overheating and ensure trouble-free operation. These openings must never be covered or closed. The device may only be operated if sufficient ventilation is provided at the installation site.
10. Regularly check the correct functioning of the fans in the back of the housing. The fans are temperature-controlled and switch on at a temperature of 65 ° Celsius and at 50 ° Celsius again.
11. Never open the housing, it is not necessary to service the unit! Leave such work to the qualified specialist.
12. A mains disconnection can only be carried out via the mains plug. The mains plug must be freely accessible for mains disconnection.
13. Only use additional devices/accessory parts, that meet the manufacturer's instructions.

### Warranty


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Voice-Acoustic provides a 2 year warranty for material and processing and it is product-related, which means that when you transfer your device, your warranty will still be valid.

The warranty starts at the date of purchase upon proof from an official dealer.

No claims are accepted for new imports which have not purchased via the official commercial channels and authorized dealers. The product warranty is void if the series number is removed or unreadable.

The serial number is located at the rear right side of the side wall!

serial no.	XXXXXXXX
typ	HDSP-6A
output 4Ω	6CH, 2x2.400W + 4x800W
connection	1+/- HT/top,2+/-TT/sub
voltage range: AC 95-240V +/-10%, 50/60Hz	
max. power input: 3600W Class 1 wiring	
risk of electric shock not open under voltage!	
<a href="http://www.Voice-Acoustic.de">www.Voice-Acoustic.de</a>	
germany	
	

Voice-Acoustic will not be liable for any damages due to transport, improper treatment, operation with inadequate voltages, humidity, maintenance not according to the prescribed intervals, excessive dust or contamination, powder of fire extinguisher, operation with defective power aggregates, operation with defective peripherals, modification or modifications without the prior authorization by the manufacturer, service by a non-authorized worksite or normal wear.

The warranty is only applicable to the material and worktime for the repair of the defective product.

Devices in compliance with the terms of the warranty will be repaired or replaced by Voice Acoustic, as we deem fit. For service, please contact your dealer. Repairs under warranty claims are performed at D-27313 Dörverden, or upon appointment with an authorized local service partner. Any transport costs are borne by the owner for which Voice-Acoustic is not liable.

No warranty or liability will be accepted for damaged downstream or upstream devices due to faulty handling.

### Definition HDSP-Series

The HDSP amplifier series has been developed with the most demanding requirements in audio quality and reliability in mind. With the high number of output channels, for the first time, it has become possible to separately filter bi and tri amping with the HDSP series cost effectively. The intelligent wide-range switching power supply automatically detects the AC input values making it possible to use anywhere in the world.

The integrated loudspeaker management systems (DSP – digital signaling processor) work with a 64 bit/96 kHz sampling rate in audiophile sound quality. Premium converters offer a 120 db dynamic range and can process an input level of up to + 23 dBu. This amplifier series is specked out with the factory settings for the speakers, limiter and time alignment for the output channels. Additionally each input channel boasts 10 parametric filters (Bell, High Shelf, Low Shelf, Notch, Allpass), compressors, flexible routing, phase settings, a lengthy delay section for delays up to 275 meters, and an input limiter. The series is also equipped with enough memory to add your own presets for the use of loudspeakers from other manufacturers. The amplifiers are likewise available without Voice-Acoustic factory presets.

### Technical Data

Modell	CH	Power 4 Ohm	Power 8 Ohm	Power 16 Ohm	Technology	Power Supply, DSP-Boards, Class-D Module	Analog Input	Digital Input	Internal Presets	Interface
HDSP-6A	6	8.000 W 2x 2.400 + 4x 800	4.960 W 2x 1.580 + 4x 450	2.400 W 2x 800 + 4x 200	Dual	2	4	-	2 x 80	Ethernet, USB
HDSP-4A	4	6.400 W 2x 2.400 + 2x 800	4.060 W 2x 1.580 + 2x 450	2.000 W 2x 800 + 2x 200	Dual	2	4	-	2 x 80	Ethernet, USB
HDSP-3A	3	4.000 W 1x 2.400 + 2x 800	2.480 W 1x 1.580 + 2x 450	1.200 W 1x 800 + 2x 200	Single	1	2	-	80	Ethernet, USB
HDSP-0.4A	4	3.200 W 4x 800	1.800 W 4x 450	800 W 4x 200	Dual	2	4	-	2 x 80	Ethernet, USB
HDSP-0.2A	2	1.600 W 2x 800	900 W 2x 450	400 W 2x 200	Single	1	2	-	80	Ethernet, USB

### 1.1 Rear connections

The quantity of connections differs for the HDSP models!



#### 01. Power connection

1 x 16 A Neutrik Powercon IN. *Note: Disconnect the open device during maintenance work!*

#### 02. Analog input

Separate 3-Pin connector for Audio-input. Each input is a symmetric XLR-connector.

#### 03. Analog output

Separate 3-Pin connector for Audio-output. Each output is a symmetric XLR-connector.

#### 04. Ethernet connection

RJ45 jack for network connection The unit can be connected to the PC via a router with a 1:1 CAT.5 cable.

#### 05. Standard USB Jack Type B

The unit can be connected to the PC via a traditional USB-cable.

#### 06. & 07. Speaker outputs

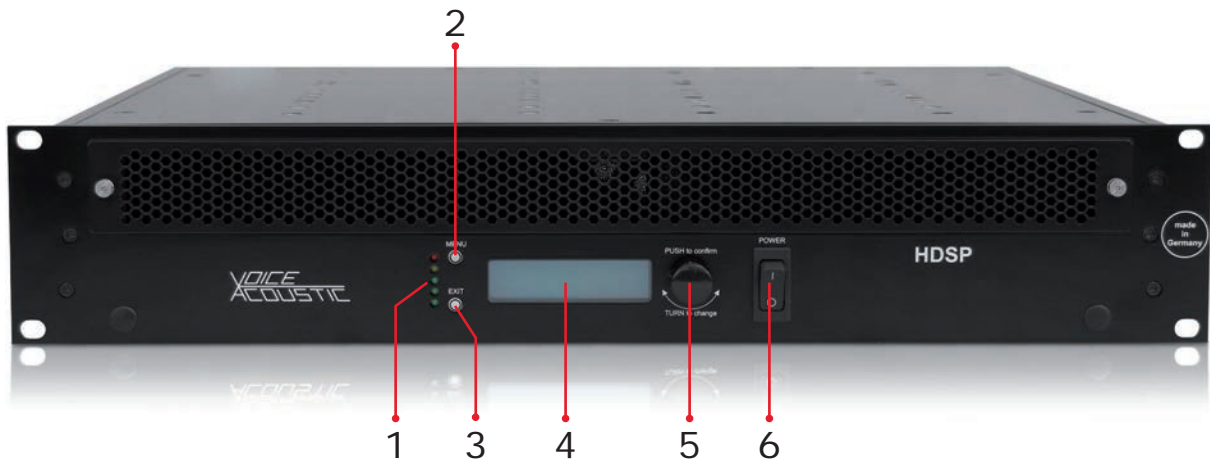
The 4-pole Speakon sockets are double occupancy.

	HDSP-3, 6, 12*	HDSP-4	HDSP-2*	HDSP-02, 04
6	2+/2-, CH2, 800 W 1+/1-, CH3, 800 W	2+/2-, free 1+/1-, CH2, 800 W		1+/1-, CH2, 800 W
7	2+/2-, CH1, 2.400 W 1+/1-, CH2, 800 W	2+/2-, CH1, 2.400 W 1+/1-, CH2, 800 W	2+/2-, CH1, 2.400 W	2+/2-, CH2, 800 W 1+/1-, CH1, 800 W

\*discontinued products

### 1.2 Control element front

The quantity of connections differs for the HDSP models!



#### 01. Peak Level LEDs

Displays the current PEAK level in 5 levels: -18 dB, -12 dB, -6 dB (green), -3 dB (yellow), Limit (red).

#### 02. Button top MENU

To enter the system menu and browse between the configuration functions.

#### 03. Button bottom EXIT

To leave the system menu or the configuration functions.

#### 04. LCD Display

Background lit double-space 16-Segment LCD Display, for all important edition parameters.

#### 05. Encoder wheel

The encoder wheel is used for changing the parameter values. By pressing you can select several parameter values and set these with a dial function.

#### 06. On/Off switch

The switch is only used to switch the unit on and off. Always unplug the power connection when cleaning the device to avoid the risk of electric shock!

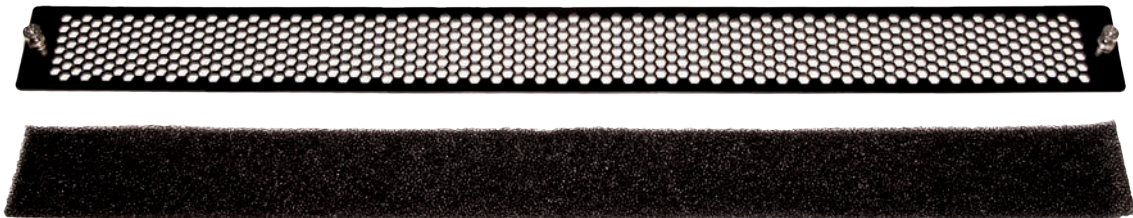


### 1.3 Filter cleaning

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The air inlet on the front of your HDSP amplifier is equipped with a removable filter foam. If this filter is dirty or clogged, the output stage is no longer cooled efficiently, which can lead to a reduction in the output power.

Therefore you should clean the filter at regular intervals!



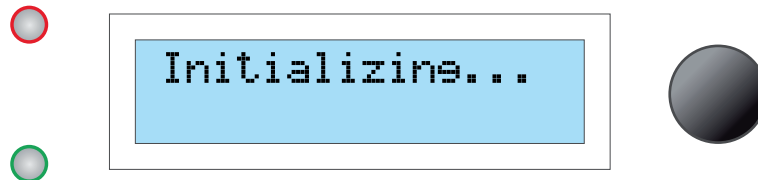
- Unplug the power connection to avoid the risk of electric shock!
- Release the two screws on the front grille and remove the front grille.
- Remove the filter foam and clean it with mild detergent under warm water.
- Do not use the filter until after drying.
- Mount the front grille with the two screws.
- You can reconnect the power connection.

### 1.4 Operation

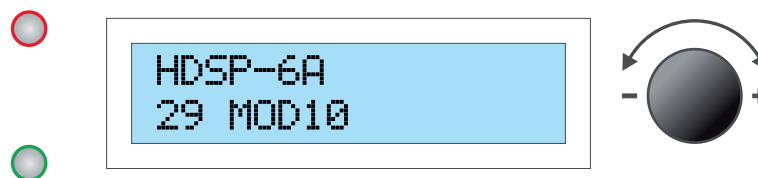
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**Important note:** Before connecting the speakers to the HDSP amplifier, first load the correct preset! The speakers could otherwise damage or sound bad, since wrong parameters have been loaded into the digital signal processor.

Connect the device to the power supply. The initialization process takes some minutes. This time is required for starting up the unit.

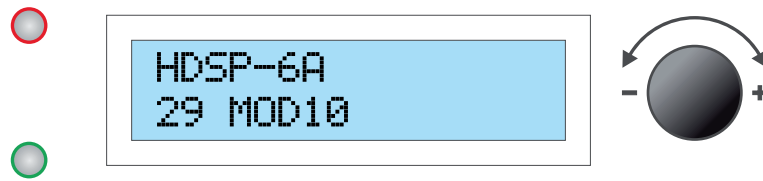


During the initialization process all inputs and outputs are muted automatically, in order to avoid undesired cracking sounds. When the controller has started up, it releases the programmed channels again, and the name of the model and the most recent preset are viewed on the LCD-display.



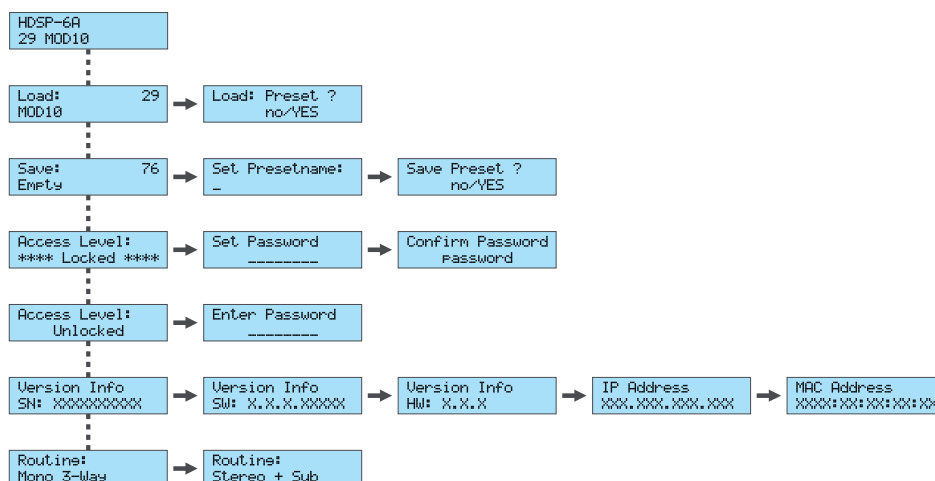
Now, HDSP-Amplifier is ready for operation.

## 2.1 Browsing through the system menu



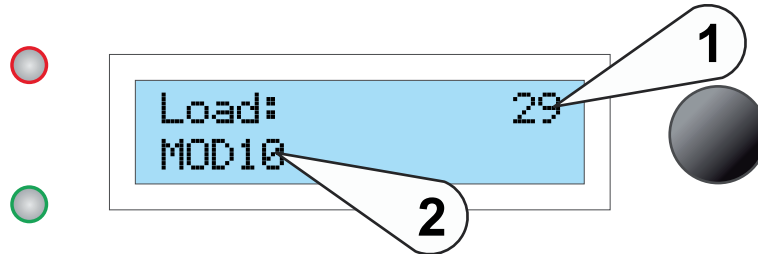
- When pressing the top **BUTTON** next to the LCD-display, the system menu is viewed.
- If you press again the top **BUTTON**, you are guided thought the configuration functions.
- Press the **Encoder wheel** for the desired configuration function.
- To browse through the modules of the selected function, turn the **Encoder wheel**.
- Press the **Encoder wheel** for the selection of the module.
- You can set the value in the module, by turning the **Encoder wheel**.
- To make modifications, press the **Encoder wheel**.
- Press the bottom **BUTTON** to leave the menu.

## 2.2 Menu tree



### 2.3 Preset Load

With the **Load** function in the system menu the stored presets are displayed.



#### 01. Preset-ID

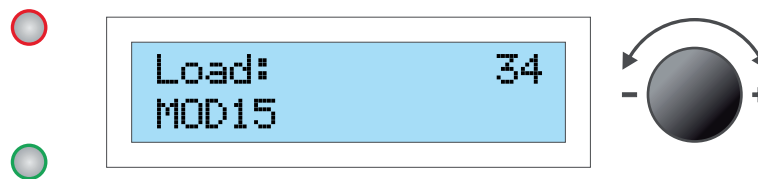
You can select out of 80 internal presets!

#### 02. Preset designation

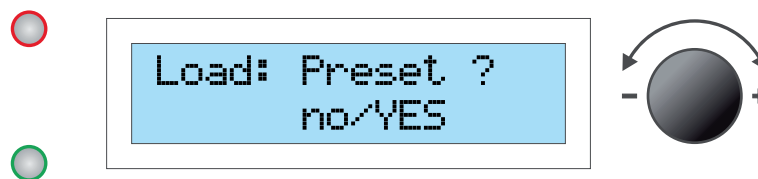
You can designate a maximum of 16 characters!

#### View preset

- Turn the **Encoder wheel** for viewing the desired preset.



- Press the **Encoder wheel** to select the preset.
- Turn the **Encoder wheel**, and select **YES**.



- Press again and confirm the **Encoder wheel**.

The preset has been loaded now and is ready for operation!

### 2.4 Preset Save

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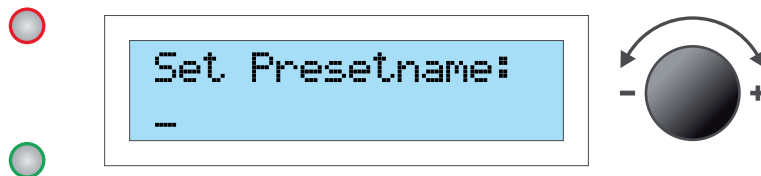
With the **Save** function in the system menu you can save your settings.

#### Save Preset

- Turn the **Encoder wheel** to select a storage site for your preset.



- Press the **Encoder wheel** to select the storage site.
- Turn the **Encoder wheel** to select a character.



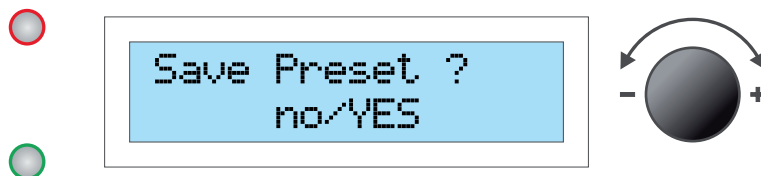
- Press the **Encoder wheel** to confirm a character.

---

#### *Modify characters!*

- Press the bottom **button** repeatedly, until you have reached the character for modification!
- Turn the **Encoder wheel** to select a new character.

- 
- Press the top **BUTTON** to confirm the designation.
  - Turn the **Encoder wheel** to select **YES**.



- Confirm by pressing again the **Encoder wheel**.

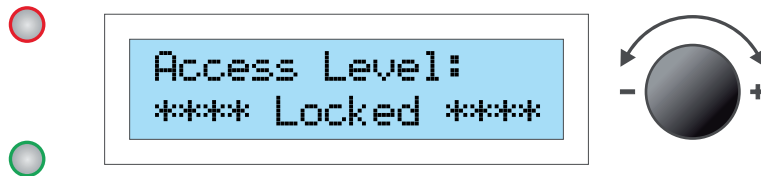
The preset has been saved now and is ready for operation!

### 2.5 Access Level (Password protection)

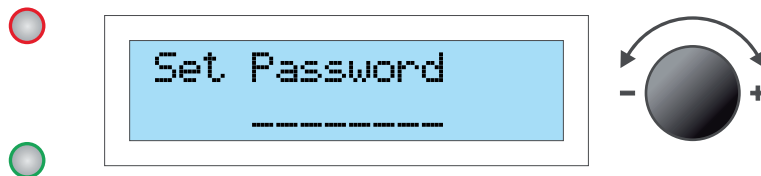
The **Access Level** in the system menu locks or unlocks your device through a password.

#### Locking the device

- Browse with the **Encoder wheel** to the module **Locked**.

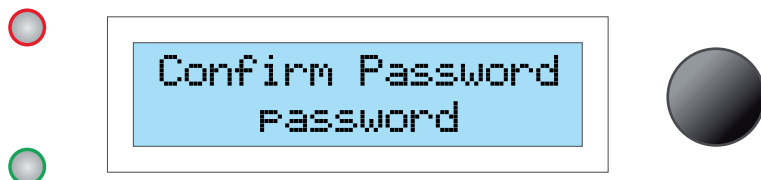


- Press the **Encoder wheel** to select the module.
- Press the **Encoder wheel** to select a character\*.



\* The password must contain at least 8 characters!

- Press the **Encoder wheel** to confirm a character.
- Press the top **BUTTON** to confirm the password.

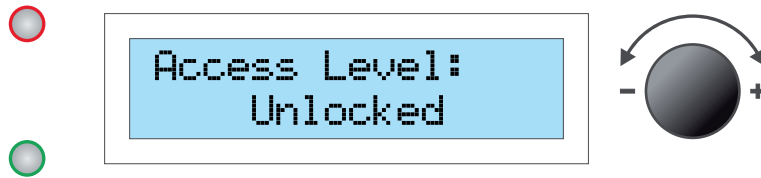


- Save the password with the top **BUTTON**.

Now, the device is protected with a password against improper use!

### Unlocking the device

- Browse with the Encoder wheel to the module Unlocked.



- Press the Encoder wheel to select the module.
- Turn the Encoder wheel for selecting a character.



- Press the Encoder wheel to confirm a character.
- Press the top BUTTON to confirm the password.

Now, the device is unlocked and you can make your settings!

### 2.6 Information

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Here only information is displayed and no modifications can be made.

- For viewing the information, press the Encoder wheel.

VA-Control Series number

```
Version Info  
SN: XXXXXXXXXXXX
```

Firmware Version

```
Version Info  
SW: X.X.X.XXXXX
```

Hardware Version

```
Version Info  
HW: X.X.X
```

IP Address

```
IP Address  
XXX.XXX.XXX.XXX
```

MAC Address

```
MAC Address  
XXXX:XX:XX:XX:XX
```

- Press the bottom **BUTTON** to leave the menu.

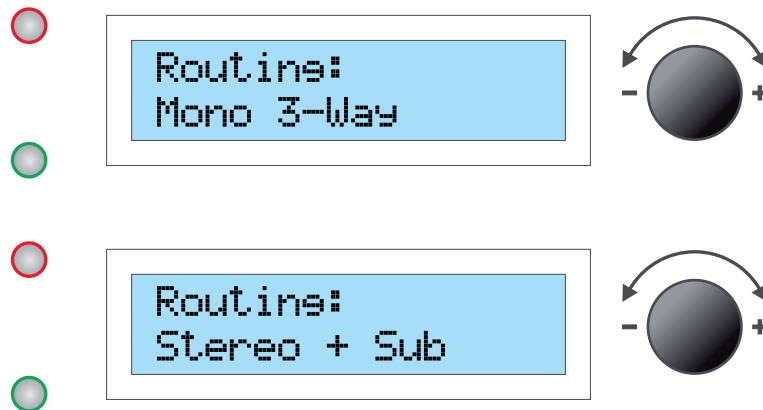


## 2.7 Routing

With the function **Routing** in the system menu you configure the signal source, if you wish to make your own presettings to operate other speakers/configurations.

For the implementation of a Voice-Acoustic Set and the display of a preset speaker, the router has already been determined and can not be altered, in order to avoid the occurrence of faults.

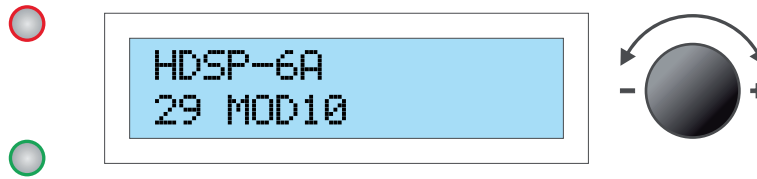
- Turn the **Encoder wheel** to select between **Mono 3-Way** or **Stereo + Sub**.



- Press the top **BUTTON** to confirm the selection.

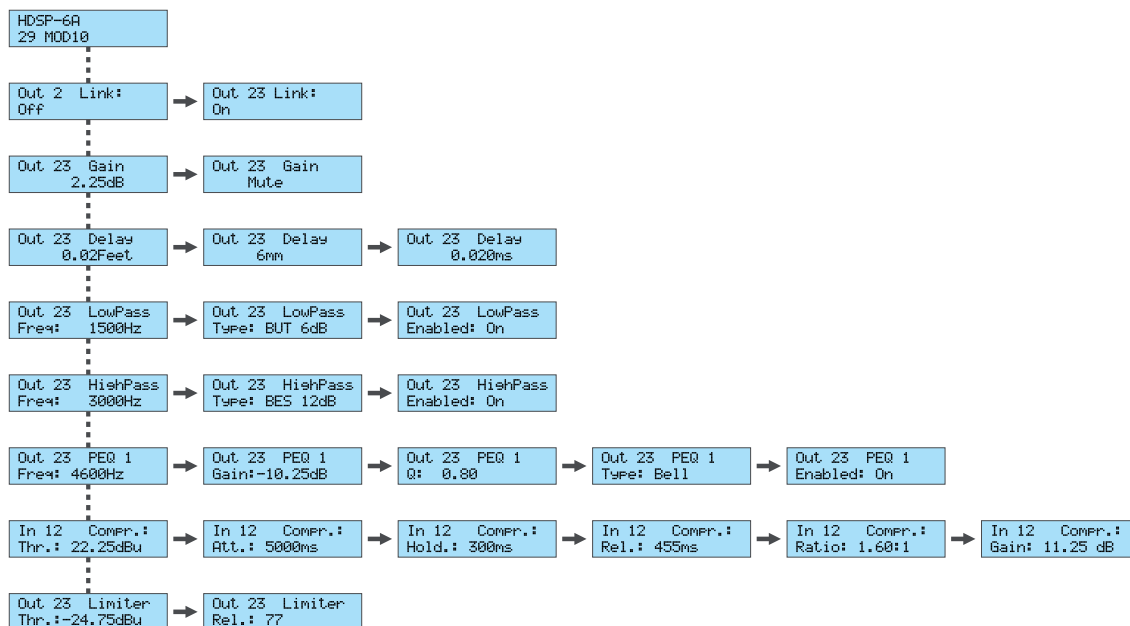
Now, the device is routed and you can make your settings!

### 3.1 Browsing through the channel menu



- To edit the selected presetting, press the **Encoder wheel**.
- Turn the **Encoder wheel** to search the channel for editing.
- Press twice the **Encoder wheel**, to select the channel.
- Turn the **Encoder wheel** to search a channel function.
- Press the **Encoder wheel** to view the channel function.
- Turn the **Encoder wheel** to search a channel module in the function menu.
- To make modifications, press the bottom **BUTTON**.
- Turn the **Encoder wheel** to select another function.
- Press twice the bottom **BUTTON** to leave the menu.

### 3.2 Menu tree

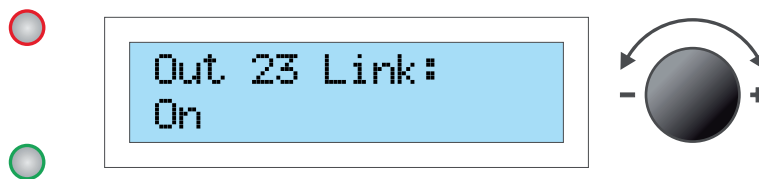


### 3.3 Link (linking of channels)

You can link input resp. output channels.

#### Linking of channels

- Press twice the **Encoder wheel**.
- Turn the **Encoder wheel** to search the channel for linking.
- Press the **Encoder wheel** and select the channel.
- Turn the **Encoder wheel**, and select **ON**.



- Press the bottom **BUTTON** to implement the change.

Each modification of the parameters is transferred automatically to the linked channel!

#### Cancel linking

- Press twice the **Encoder wheel**.
- Turn the **Encoder wheel** to search the channel canceling the linking.
- Press the **Encoder wheel** and select the channel.
- Turn the **Encoder wheel**, and select **OFF**.



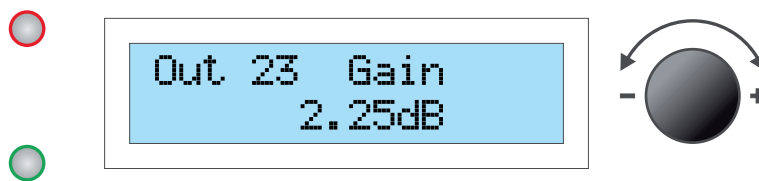
- Press the bottom **BUTTON** to implement the change.

Now, each channel can be configured individually!

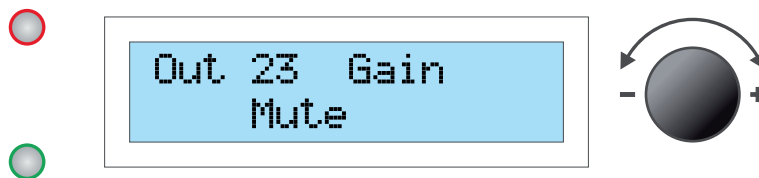
### 3.4 Gain (Input level and output level)

Here you can set the signal level (Gain) for the input and output channels.

- Turn the **Encoder wheel** for setting the desired level.
- Select within a range from **-47.75 dB** to **12.00 dB**.



- If you wish, you can switch the channel off by turning the **Encoder wheel** to **Mute**.

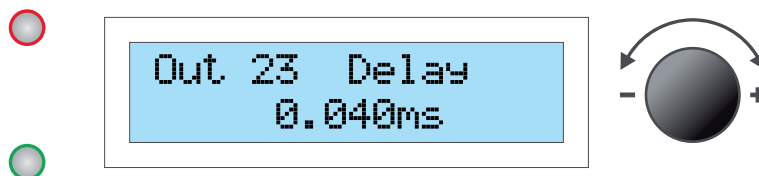


- Press the bottom **BUTTON** to implement the change.

### 3.5 Delay

Here you can define the delay for the input and output channels.

- Press the **Encoder wheel** to select from **Feet**, **mm** or **ms**.
- Turn the **Encoder wheel** for setting the delay.



- Press the bottom **BUTTON** to implement the change.

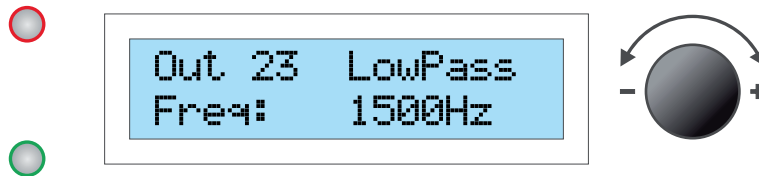
### 3.6 LowPass

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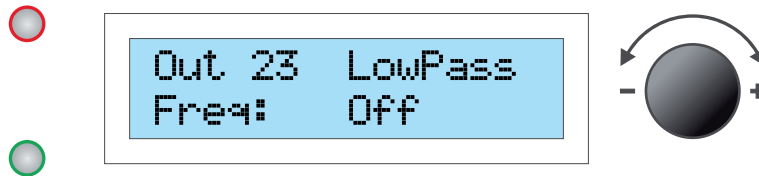
Here you set the Low Pass crossover. This function is subdivided into three modules.

#### Setting of LowPass

- Turn the **Encoder wheel** for setting the desired LowPass.
- Select within a range from **50 to 20,000 Hz**.



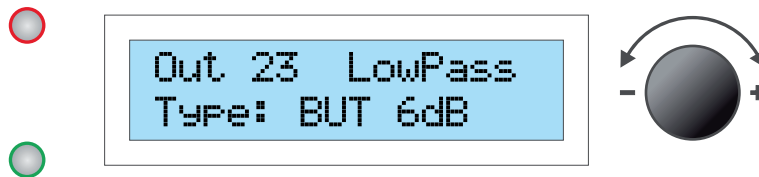
- If you wish, you can switch the LowPass off by turning the **Encoder wheel** to **Off**.



- Press the **Encoder wheel** to view the next module.

#### Set Filter Type

- Turn the **Encoder wheel** to search a filter.



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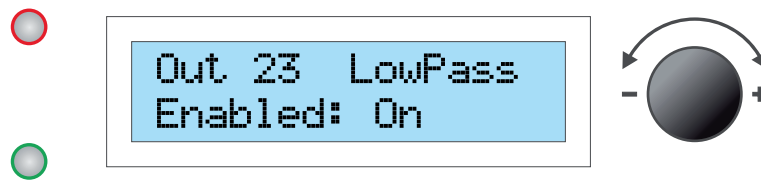
Here you can select from **10 different filters**:

- BUT 6dB, 12dB, 18dB, 24dB = Butterworth 6dB, 12dB, 18dB, 24dB
- BES 6dB, 12dB, 18dB, 24dB = Bessel 6dB, 12dB, 18dB, 24dB
- LR 12dB, 24dB = Linkwitz-Riley 12dB, 24dB

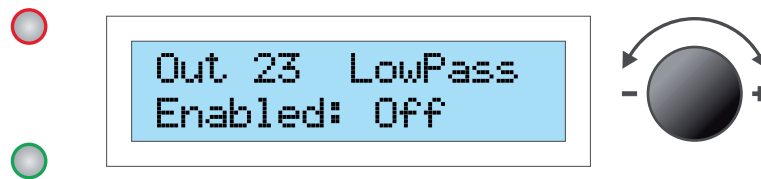
- Press the **Encoder wheel** to view the next module.

### Switching on and off crossover

- Turn the **Encoder wheel** to **On** for switching on the crossover.



- Turn the **Encoder wheel** to **Off** for switching off the crossover.

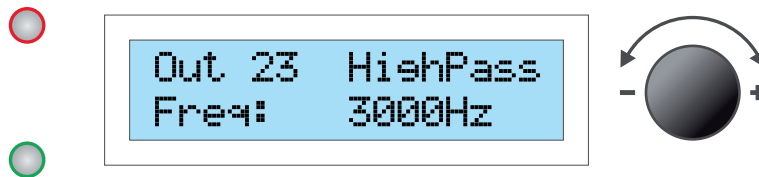


- Press the bottom **BUTTON** to implement all changes.

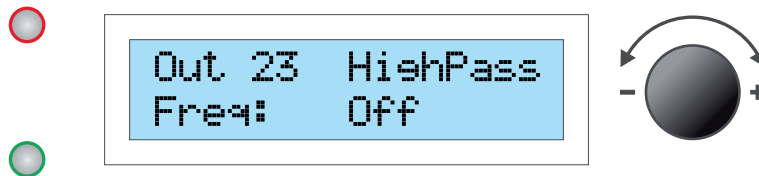
### 3.7 HighPass

Here you set the HighPass crossover. This function is subdivided into three modules.

- Setting of HighPass.
- Turn the **Encoder wheel** for setting the desired HighPass.
- Select within a range from **20** to **20,000 Hz**.



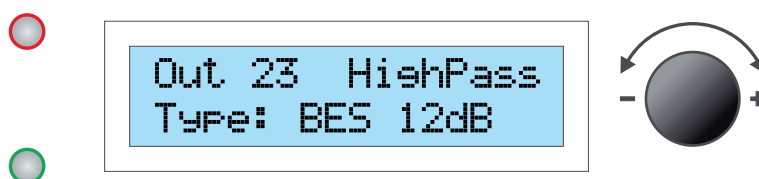
- If you wish, you can switch the HighPass off by turning the **Encoder wheel** to **Off**.



- Press the **Encoder wheel** to view the next module.

#### Set Filter Type

- Turn the **Encoder wheel** to search a filter.



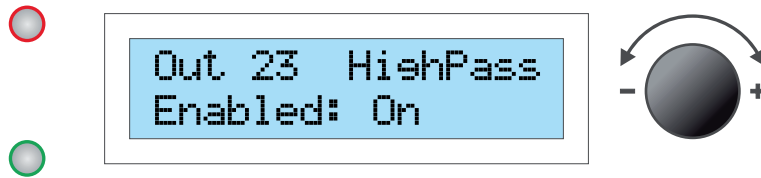
Here you can select from 10 different filters:

- BUT 6dB, 12dB, 18dB, 24dB = Butterworth 6dB, 12dB, 18dB, 24dB
- BES 6dB, 12dB, 18dB, 24dB = Bessel 6dB, 12dB, 18dB, 24dB
- LR 12dB, 24dB = Linkwitz-Riley 12dB, 24dB

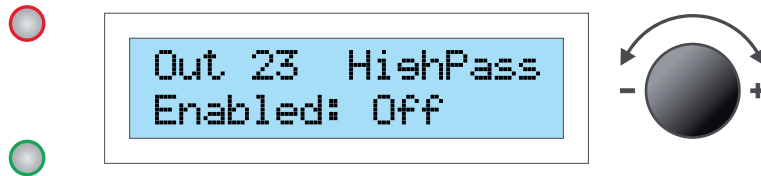
- Press the **Encoder wheel** to view the next module.

### Switching on and off crossover

- Turn the **Encoder wheel** to **On** for switching on the crossover.



- Turn the **Encoder wheel** to **Off** for switching off the crossover.



- Press the bottom **BUTTON** to implement all changes.



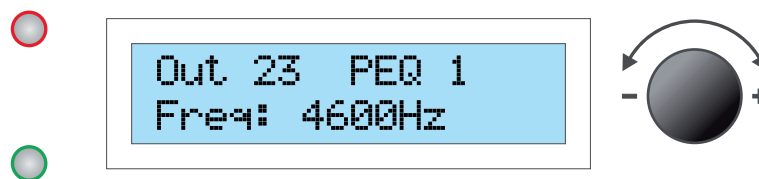
### 3.8 PEQ (Parameter filter)

Here you set the parameter filter. This function is subdivided into five modules.

Each input and output channel has 10 full parameter filters available!

#### Setting the frequency

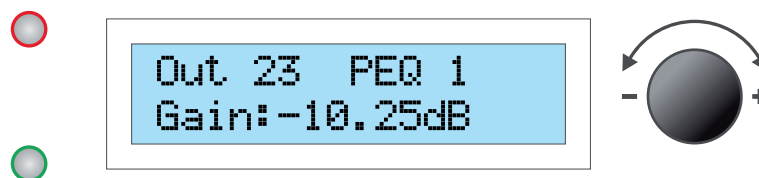
- Turn the **Encoder wheel** for setting the desired frequency.
- Select within a range from **20** to **20,000** Hz.



- Press the **Encoder wheel** to view the next module.

#### Setting the EQ level

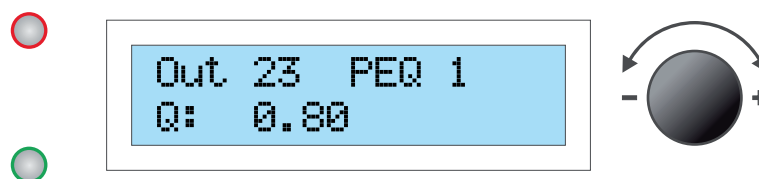
- Turn the **Encoder wheel** for setting the desired EQ level.
- Select within a range from **-12.00 dB** to **12.00 dB**.



- Press the **Encoder wheel** to view the next module.

#### Setting the edge steepness

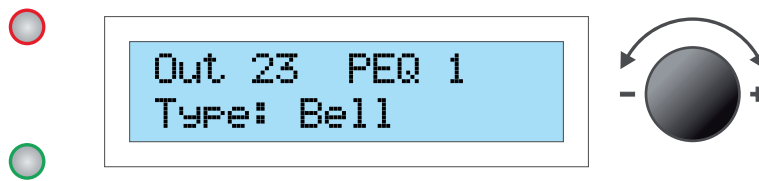
- Turn the **Encoder wheel** for setting the desired Q level.
- Select within a range from **0.10** to **25.00** Hz.



- Press the **Encoder wheel** to view the next module.

### Setting the Filter Type

- Turn the **Encoder wheel** to search a filter type.



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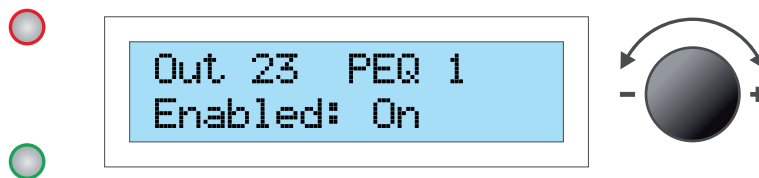
Here you can select from 8 different filters:

- Bell
- Notch
- AllPass
- Low Shelf and High Shelf
- Band
- High Pass and Low Pass.

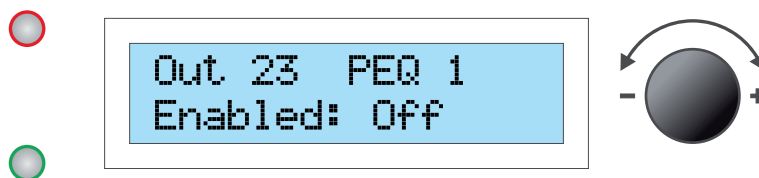
- 
- Press the **Encoder wheel** to view the next module.

### Switching on and switching off the parameter filter

- Turn the **Encoder wheel** to **On** for switching on the crossover.



- Turn the **Encoder wheel** to **Off** for switching off the crossover.



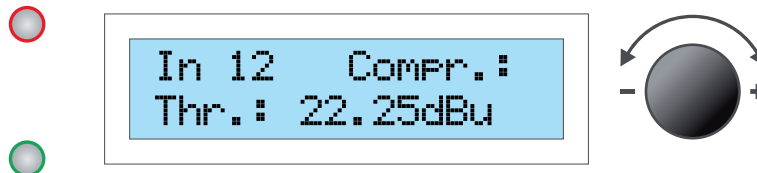
- Press the bottom **BUTTON** to implement all changes.

### 3.9 Compr.: (Input compressor)

Here you set the Input compressor. This function is subdivided into six modules.

#### Setting the threshold value

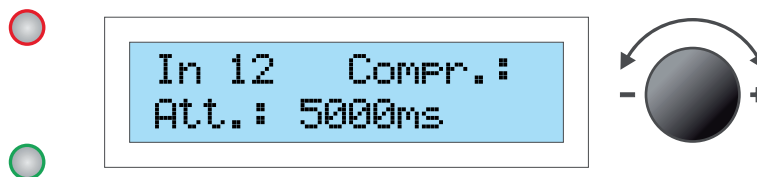
- Turn the **Encoder wheel** for setting the desired threshold value.
- Select within a range from **-48.00** to **24.00 dBu**.



- Press the **Encoder wheel** to view the next module.

#### Setting Attack

- Turn the **Encoder wheel** for setting the desired Attack.
- Select within a range from **1** to **10,000 ms**.



- Press the **Encoder wheel** to view the next module.

#### Setting hold

- Turn the **Encoder wheel** for setting the desired hold time.
- Select within a range from **1** to **10,000 ms**.



- Press the **Encoder wheel** to view the next module.

### Setting the release time

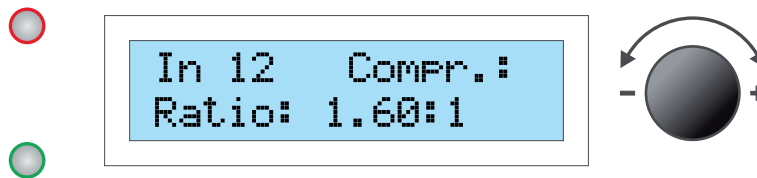
- Turn the **Encoder wheel** for setting the desired release time.
- Select within a range from **1** to **10,000 ms**.



- Press the **Encoder wheel** to view the next module.

### Setting the compression rate

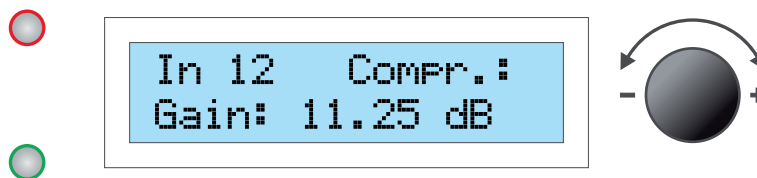
- Turn the **Encoder wheel** for setting the desired compression rate.
- Select within a range from **1.20:1** and **25.00:1**



- Turn the **Encoder wheel** to **Infinite** for a stepless compression rate.
- Press the **Encoder wheel** to view the next module.

### Setting the signal level

- Turn the **Encoder wheel** for setting the desired signal level.
- Select within a range from **-12.00 dB** to **12.00 dB**.



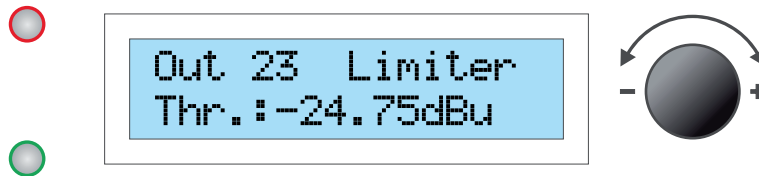
- Press the **bottom BUTTON** to implement all changes.

### 3.10 Limiter (Output limiter)

Here you set the Output limiter. This function is subdivided into two modules.

#### Setting the threshold value

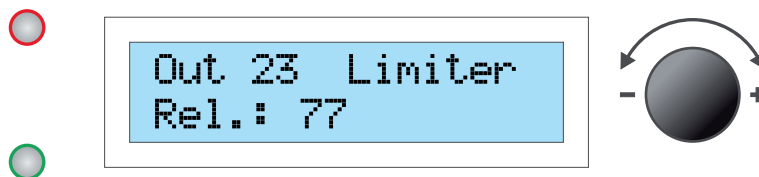
- Turn the **Encoder wheel** for setting the desired threshold value.
- Select within a range from **-48.00** to **24.00 dBu**.



- Press the **Encoder wheel** to view the next module.

#### Setting the release time

- Turn the **Encoder wheel** for setting the desired release time.
- Select within a range from **1** to **100 dB/s**.

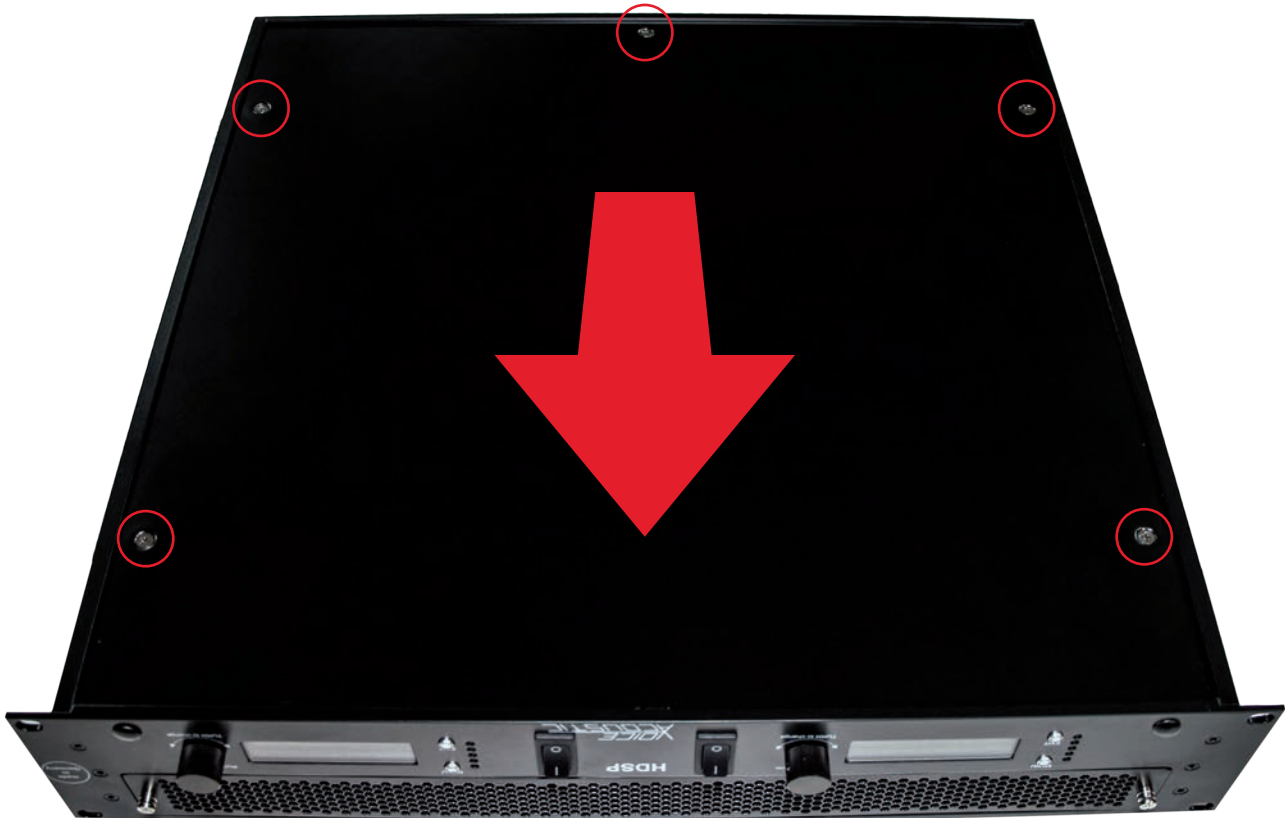


- Press the bottom **BUTTON** to implement all changes.

## Maintenance by professional staff

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Maintenance work in the interior of the device may only be carried out by professional staff.



### Open and close the device

- Unplug the power connection to avoid the risk of electric shock!
- Release the 5 screws on the bottom of the unit.
- Move the under-floor slightly forward until it is out of the rear notch.
- Use a small screwdriver to lift the under-floor.
- Remove the complete under-floor.
- After maintenance work, assemble the unit in the reverse order.

## Imprint

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All specifications in this manual are based on information available at the time of publishing for the features and safety guidelines of the described products. Technical specifications, measurements, weights and properties are not guaranteed.

The manufacturer reserves the right to make technical modifications according to legal regulations stipulating the continual improvement of product features. For the safe operation of the unit, this manual and all other required information must be available to all users at the time of assembly and disassembly of the unit, and during operation. Assemble or operate the unit only after reading and understanding this manual, and keeping it at hand at all times at the site.

We are happy to receive your suggestions and proposals for the enhancement of this manual.

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