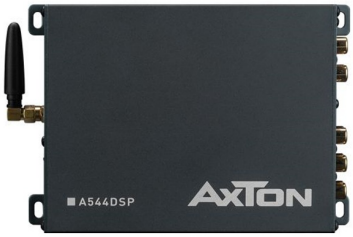


AXTON A544DSP 4 Channel Class A/B Car Amplifier User Guide

4 CHANNEL CLASS
A/B CAR AMPLIFIER
Installation & Operation Manual
A544DSP
SMART DSP

Thank you for purchasing this innovative AXTON amplifier!
To maximize the performance of this amplifier and your complete car audio system installation, we recommend you acquaint yourself thoroughly with all technical features and controlling options of this AXTON amplifier. Please read this manual carefully, before attempting the installation. If, after reading this manual, you still have questions regarding functions or the installation of the amplifier, we recommend you consult your dealer.

Contents

SAFETY INSTRUCTIONS

- Do not turn on any function which may distract you while driving the vehicle. Functions requiring sustained attention must only be used when the vehicle is at a complete standstill. Make sure to always stop your vehicle in a safe place before operating these functions. There are risks of causing an accident.
- Keep the volume at a low level to be able to hear exterior noises while driving the vehicle. There are risks of causing an accident.
- Do not open the amplifier or undertake any modification of the product. There is a risk of accident, fire or electric shock.
- Only use this amplifier with 12V mobile applications. Any use other than for this product intended may lead to fire, electric shock or injury.
- Use correct amperage fuses. There are risks of fire or electrocution.
- Do not obstruct radiators and/or vents. Internal overheating may occur and cause a fire.
- Ensure all connections are properly made. Check the section of cable and the type of cable if it does not correspond with the use. There is a risk of fire, injury and/or damage to the product.
- Do not use screw nuts or fasteners part of the steering or braking systems for ground connection. The fasteners and nuts used for the brake and steering systems (or any other security system) as well as various tanks must never be used for grounding. Use of these parts as ground may deactivate the vehicle's control system and cause a fire or other technical problem.
- Keep all small objects which could be swallowed, such as the fasteners and screws, out of the reach of children. Swallowing such objects may cause serious injuries. In the event of swallowing any of these objects, immediately seek medical advice.
- Before starting the installation, disconnect the negative terminal of the battery to avoid any risk of injury, fire or damage to the equipment.

TECHNICAL SPECIFICATIONS A544DSP

DSP

DSP type	AKM7735 Dual DSP
ADC	2x 24-bit
DAC	2x 32-bit
DSP MHz	2x 150 MHz
Audio sampling frequency	192 kHz

BLUETOOTH

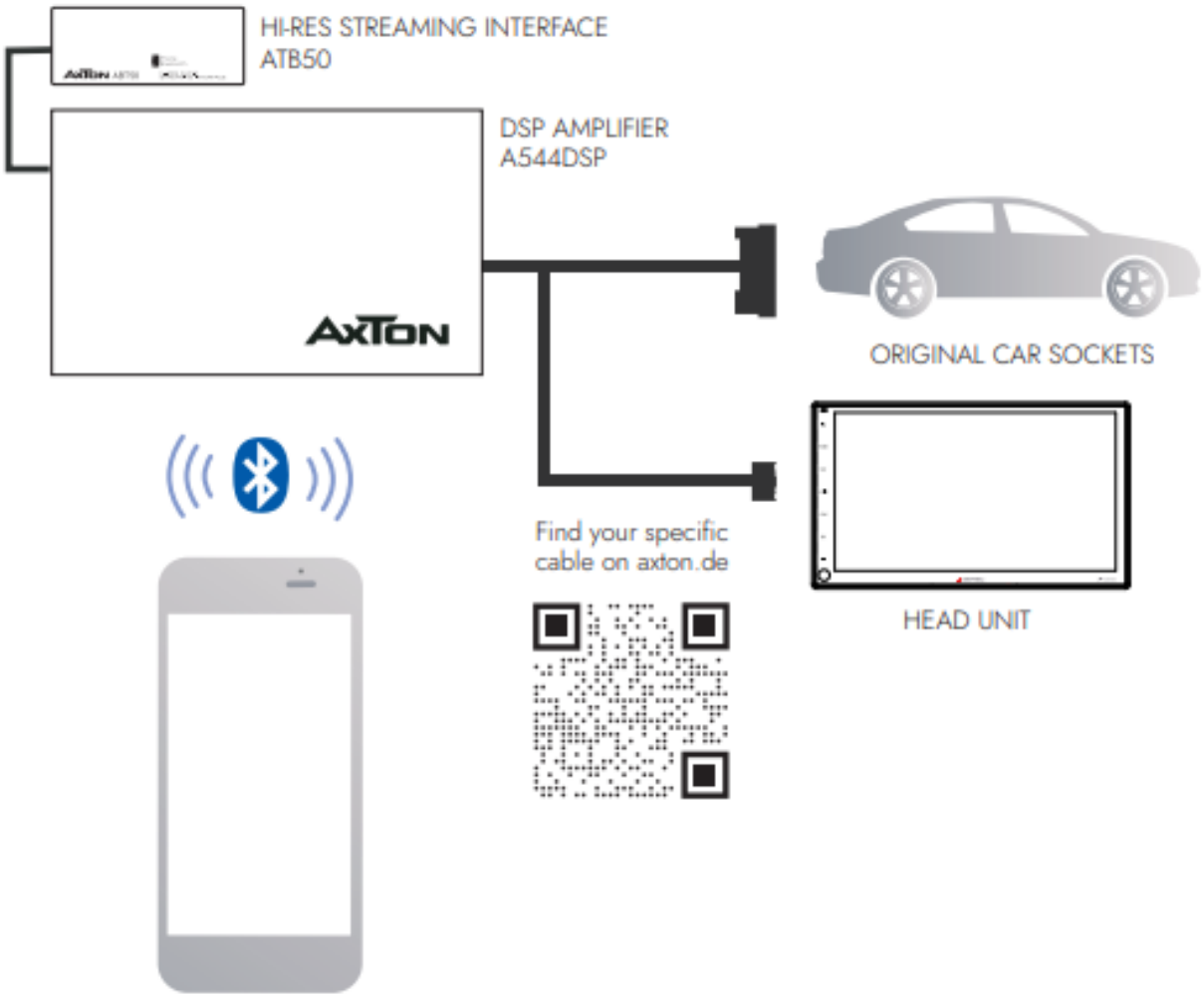
Bluetooth power class:	2
Bluetooth power:	1 mW / 0 dBm
Bluetooth range	10 m
Bluetooth Frequency:	2.4 – 2.48 GHz

AMPLIFIER

Music Power Output 4/2 ohms:	30 W x 4
RMS Power Output 4/2 ohms:	5 W x 4
Frequency response	20Hz ~ 48 kHz
High-Level Sensitivity	4.2 Vrms
High-Level Impedance	39 Ohms
RCA max voltage	5 Vrms
Supply voltage range	7.5 V – 16.5 V
Signal to noise ratio digital input	> 112 dB
Signal to noise ratio analogue input	> 106dB
THD:	1 KHz < 0.02%
Damping factor	>= 200
Standby current	0.23 A
Maximum operating current	20 A
Maximum Remote output power	0.3 A
Dimensions (WxHxD	0.3 A 177 x 40 x 114 mm

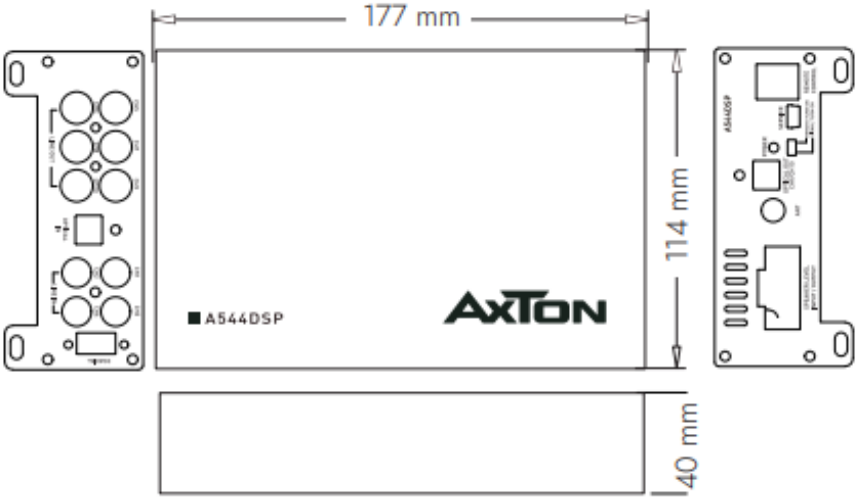
MAIN FEATURES

- 4-channel Smart Class-A/B Amplifier with iOS or Android App controlled audio DSP functions
- 10-channel DSP-controlled precut (5 Volt) including REM out to control additional amplifiers
- Optical and coaxial Input to connect the High-Res Audio interface ABT50 or another Axton DSP
- Optical Output to link the audio signal to another Axton DSP amplifier
- Bluetooth Audio Streaming with automatic source switching
- Plug’n’Play quick installation system by optional vehicle brand and model specific ISO wire harness
- Auto-Turn-On function on high-level input

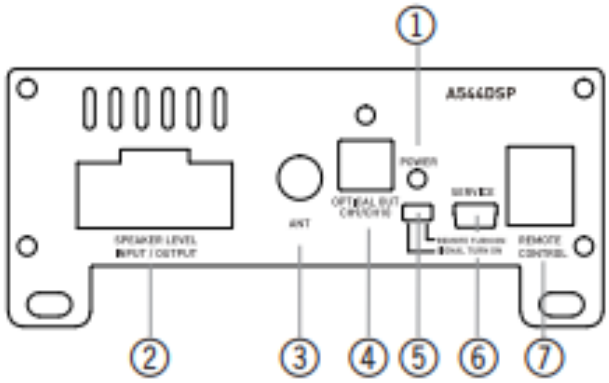


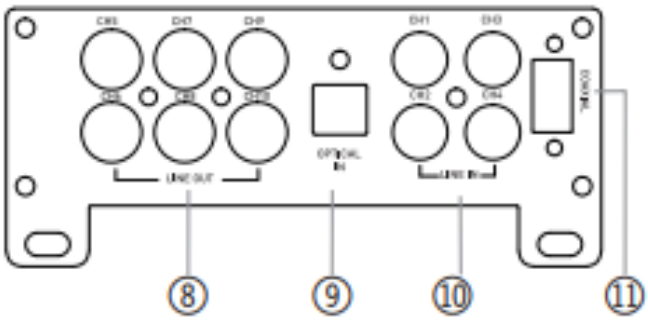
FUNCTIONALITY & ADJUSTABILITY

- Freely configurable active crossover: High-/Low-/Band-/Bypass with 6/12/18/24dB/Oct. slope for each channel (Butterworth, Bessel or Linkwitz-Riley)
- Freely configurable 15-band parametric Equalizer for each channel
- Freely configurable 9-band parametric Input-Equalizer for each source
- Gain, Phase switch and Mute function for each channel
- Time Alignment for each channel (0 – 550 cm / 0 – 15.8 ms)
- Can save 5 memories in the amp and unlimited sound settings on the smartphone
- Dynamic Bass setting for powerful performance without subwoofer
- Noise Gate function to reduce car stereo background noise

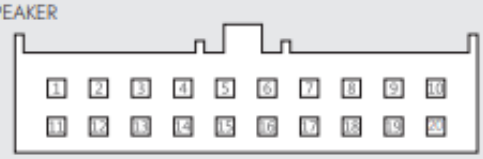


CONNECTIONS + CONTROLS A544DSP





SPEAKER



1*	ACC-in	11	GND
2*	Rem-out	12	+B
3	RR-in	13	FL+out
4	RR+in	14	FL-out
5	RL-in	15	FR+out
6	RL+in	16	FR-out
7	FL-in	17	RL+out
8	FL+in	18	RL-out
9	FR-in	19	RR+out
10	FR+in	20	RR-out

1. In some cases with old head units the Auto-Turn-On function cannot work. If you meet this problem, please connect the “ACC-IN” to the ACC/Amp Remote of the car stereo or another cable which will provide +12 V only when the car stereo is turned on. Secondly select “REMOTE TURN ON” on the remote switch.
2. REM-Out: Connect this wire to the remote input of a separate amplifier, for example a mono amp for a subwoofer.

1. **POWER**
   Two color LED: Green light shows normal operation. Green light blinking shows a current data transfer, i.e. receiving data from the app. Red light shows protection mode, i.e. too low impedance.
2. **SPEAKER LEVEL INPUT/OUTPUT**
   This is the main connector for Plug & Play installation.
3. **ANTENNA**
   External Bluetooth antenna for data and audio streaming.
4. **OPTICAL OUTPUT CH9/CH10**
   To send the signals of CH9 and CH10 to another Axton DSP amplifier with optical input.
5. **REMOTE / SIGNAL TURN ON**
   Choose if the amp shall turn on by separate ACC+/Remote wire or by DC Offset signal.
6. **SERVICE**
   For internal use only.
7. **REMOTE CONTROL**
   Connect the optional RC for convenient operating of Master Volume, Bass Volume and Mute function. When you are using the ABT50 with OTG for iPhone for lossless audio transmission, the signal is sent directly avoiding any converter. That’s awesome. But it also means that you are not able to adjust the volume with your iPhone. Therefore you need to connect the separate available RC.
8. **LINE OUT CH5 – CH10**
   Extend your DSP controlled sound system by additional amplifiers (e.g. Axton A601). Connect the RCA line outs of the A544DSP with the RCA input of your amplifier.
9. **OPTICAL INPUT**
   a) Connect to ABT50 for lossless Hi-Res audio transmission from your smartphone.
   b) Connect another Axton DSP amplifier with optical output.
10. LINE IN CH1 – CH4
    Connect the RCA outputs of the head unit to the RCA inputs CH1, CH2, CH3 and CH4
11. COAXIAL
    This input provides power for the ABT50 and also receives audio data from this device. It’s impossible to connect usual USB sticks.

A544DSP MOUNTING INSTRUCTIONS

1. Before you start with the installation, make sure you know the security code of your head unit (if applicable).
2. Remove the head unit from the dashboard and disconnect the main wire harness.
3. Wiring A) Plug & Play: Find a place for the A544DSP and connect the optionally available conspecific wire (**www.axton.de**) to the amp, to the headhunt and the cars main wire harness. Switch 5 is to be set to “Signal turn on”.
   B) RCA Line In: If you prefer using low level signal, then disconnect the speaker input cables and connect your

headhunt and A544DSP with the RCA interconnects. You will also need to use separate remote/ACC+ cable and switch to “Remote Turn On”.

4. For Hi-Res Sound from your smartphone: Connect the optical and coaxial cables to the inputs of A544DSP and outputs of the AXTON ABT50. Connect your smartphone via Bluetooth to the ABT50 for using APTX-HD standard or use the AXTON OTG cable for absolutely lossless audio transmission: the signal is sent from your smartphone directly to the amplifier without passing any D/A converter.
5. Connect the remote control for convenient operation of the Master Volume, Bass Extender and Mute function. Recommended when using A544DSP without any headhunt.
6. Connect the wire to the head unit.
7. Install the head unit back in the dashboard.

Stand-alone installation
When you intend to use the A544DSP without any head unit, please connect the optionally available N-A480DSP-ISOFLX cable and connect the wires according to the wiring diagram. Switch (4) is to be set to “Remote turn on”.

APP INSTALLATION A544DSP

For Android phones only:

1. Download the A544DSP_V1.0.apk by scan of the QR code or download from the Axton website **www.axton.de**. Install A544DSP_V1.0.apk to your Android smart phone.
2. Turn on Bluetooth, but do not pair the A544DSP in the Bluetooth settings.
3. Make sure that you enabled “Location” in your settings.
4. Open the app and press the “Connect” button in order to connect the amp with the app.

For iOS smart phones only:

1. Visit the Apple AppStore, search for ”A544DSP“ and install the app.
2. Turn on Bluetooth, but do not pair the A544DSP in the Bluetooth settings.
3. Open the app and press the “Connect” button in order to connect the amp with the app.

Scan to download and install the app from the Apple AppStore	Scan to download and install the app from the Axton homepage **www.axton.de**

BLUETOOTH AUDIO STREAMING

Open the Bluetooth settings on your smartphone and search for „BT Audio” device. Press “connect” and enter the code “1234” to get the amp paired with your mobile. When you start playing music on your mobile, the amp automatically mute the signal from our car stereo. Please note: you cannot hear any warnings or navigation notes from your car stereo.

APP FUNCTIONS A544DSP

Connect

Start the app and touch the “Connect” button in the upper center of the screen. After the connection procedure is done successfully, the “Connect” button is getting green and the app downloads the current settings from the amplifier.

Save to AMP

When you have done the settings, touch the „Save to AMP” button and chose the favorite to transfer the settings to the amplifier. During the saving process do not switch off the amplifier as this may lead to malfunction and/or damage.

Save to Phone

You can save the settings on your smartphone. To do this, press „Save on Phone” button, enter the desired filename, and confirm with „OK“.

Load File

Shows the list of files saved on the smartphone. Touch the desired setup to load. If you want to save the loaded file permanently on the amp, press now „Save to AMP” button.

Load Favorites

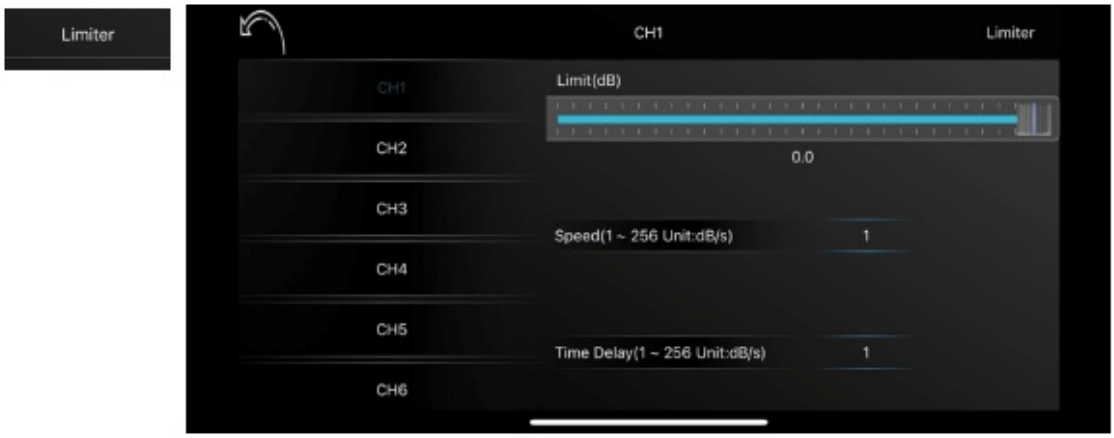
Select one of the favorites 1 – 5.

Dynamic Bass

Located on the left edge of the main screen, the “Bass” slider is a very effective way to increase bass performance without overloading the speakers. Level at “0” = no Dynamic Bass function active. Level at “1” to “10” = the higher the value the higher the bass increasing.

Dynamic Treble

Located on the left edge of the main screen, the “Treble” slider is a very effective way to increase Treble performance without overloading the tweeters. Level at “0” = no Dynamic treble function active. Level at “1” to “10” = the higher the value the higher the treble increasing.



The limiter function is the reinsurance if you drive your car stereo hard on the limit. Turn up the volume until you listen to distortion of the sound, especially the woofers and subwoofers. Now choose the limit (db) value how much the limiter should reduce the sound volume level, choose the speed how quickly the limiter shall reduce the sound volume level and finally how long the limiter shall reduce the sound volume level.

Audio Source

In this menu you can choose the input signal. Analogue means the speaker signal from the headhunt, Bluetooth is for the internal Bluetooth Audio module, and coaxial / optical for the corresponding input ports on the side panel of

the amp. If you choose automatic, the amp switches from analogue input to the other source once the music playback starts from that source. When music playback is stopped or paused, the amp switches back to analogue input.

Channel Routing

In this menu you can assign an input signal to each output channel – including desired gain level. It is also possible to combine two or more input signals to one output channel. For better convenience you can additionally label each channel.

Time Alignment

In this menu you can apply a time delay to the speaker signal to simulate an ideal listening position.

How to do:

Note the distance between your listening position and each speaker. Choose the most distant speaker as the reference for the other speakers.

With the aid of the following example, calculate the values for your speakers:

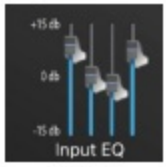
(FL)	front left is	0.80 m from the listening position
(FR)	front right is	1.40 m from the listening position
(RL)	rear left is	0.50 m from the listening position
(RR)	rear right is	1.30 m from the listening position
(SubW	subwoofer is	2.00 m from the listening position

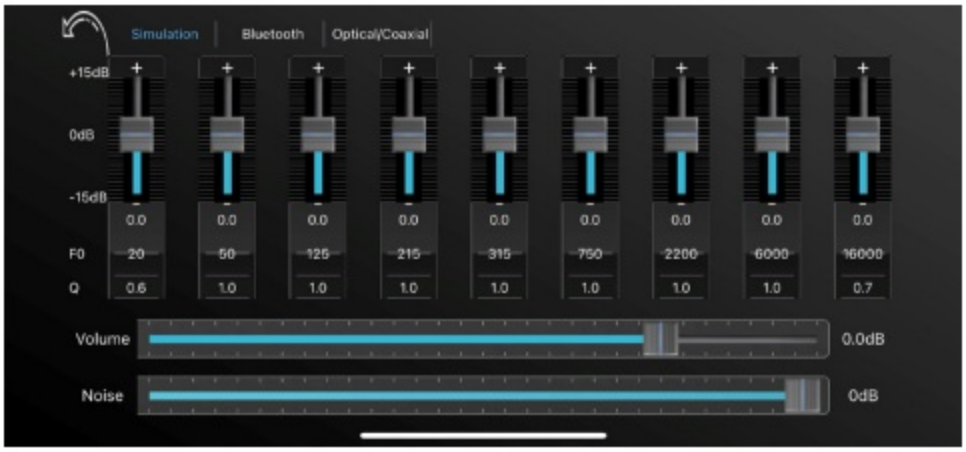
Value for FL = SubW – FL	FL = 2.00 – 0.80 m
Value for FR = SubW – FR	FL = 2.00 – 1.40 m
Value for RL = SubW – RL	RL = 2.00 – 0.50 m
Value for RR = SubW – RR	RR = 2.00 – 1.30 m

SubW remains at the value “0”

Due to reflections in the cabin and probably inaccurate measuring the correct values for the listening position may differ to the calculated values. So feel free to adjust the values by +/- 5 cm until you perceive a stable and accurate front staging. If you like an absolute exactly setup, contact your Axton dealer for a professional adjustment. The Time alignment settings also apply to the corresponding preamp outputs.

Input EQ





Depending on the source it might be necessary to flatten the input signal to receive an accurate sound signal. This could be necessary especially in cars with basic OE speaker system without separate tweeters. Some of the OE headhunts of those cars are provided with an extreme treble volume to get more treble sound out of the broadband speaker. You can adjust the input EQ for each source separately. You can adjust the Gain from -15 dB to + 15 dB

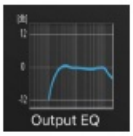
F0 means the frequency you would like to adjust. You can choose a frequency from 20 – 20'000 Hz for each band. A popup window appears to enter the value of the center frequency you want. The Q factor (Q) determines the effect of the EQ filter (bandwidth) on the frequency band around the chosen center frequency f0.

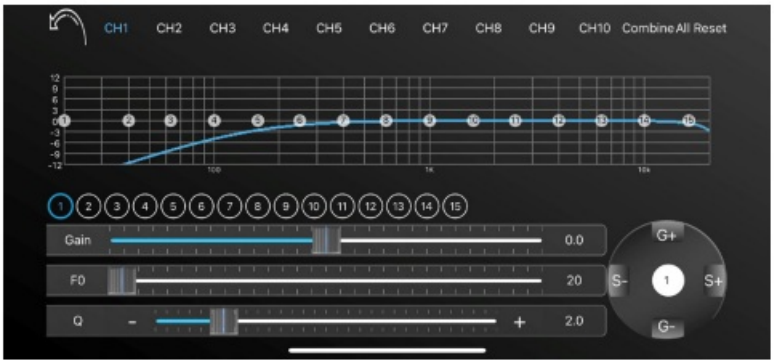
Example1: f0 = 1000 Hz
desired bandwidth of EQ filter = 1000 Hz (i.e. 500 Hz – 1500 Hz)
Q = 1
Example2: f0 = 1000 Hz
desired bandwidth of EQ filter = 200 Hz (i.e. 900 Hz – 1100 Hz)
Q = 5
Q factors from 0.3 to 9.9 are possible.

Noise Gate

The "Noise" function is intended to reduce the back ground noise of the head unit. If back ground noise of the head unit is audible, increase the Noise Gate level by sliding to the left until the noise disappeared. Please note that above a certain value the music quality also suffers.

Output EQ

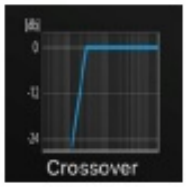


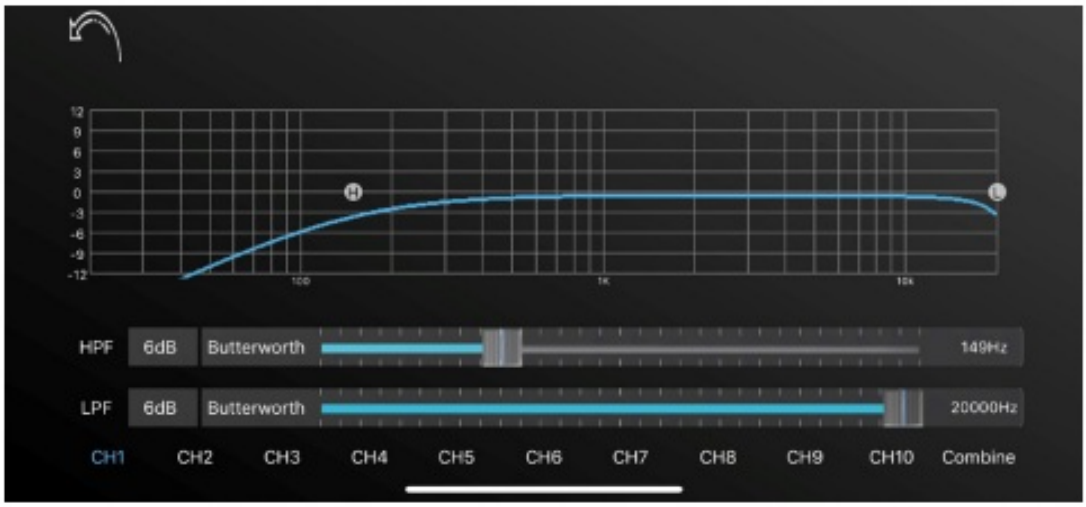


You can create your sound according to your settings in the EQ menu. Depending on the grade of required accuracy, you can adjust up to 15 bands of the parametric equalizer. In the line „f0" tap on the band you want to adjust. A pop-up window appears to enter the value of the center frequency you want. Confirm with „Ok". In the line „Q" tap on the band you want to adjust. A pop-up window appears to enter the value of the Q factor you want. Confirm with „Ok". Instead you can also touch "-" or "+" to adjust the Q factor in 0.1 steps. The Q factor (Q) determines the effect of the EQ filter (bandwidth) on the frequency band around the chosen center frequency f0.

Example1: f0 = 1000 Hz
desired bandwidth of EQ filter = 1000 Hz (i.e. 500 Hz – 1500 Hz)
Q = 1
Example2: f0 = 1000 Hz
desired bandwidth of EQ filter = 200 Hz (i.e. 900 Hz – 1100 Hz)
Q = 5
Q factors from 0.3 to 9.9 are possible.
If required, you can choose independent equalizer preferences for each channel separately or for all left and right channels together. Simply use the button “Combine” in the upper right and choose to copy the values from the left channels to the right one or right to left. To reset all settings to „0“, tap the „All Reset” button in the upper right corner. If you just want to try out the presets and then go back to your personal preferences, exit without saving the app, and then restart. The app will then load your saved references from the amplifier. The EQ settings also apply to the corresponding preamp outputs.

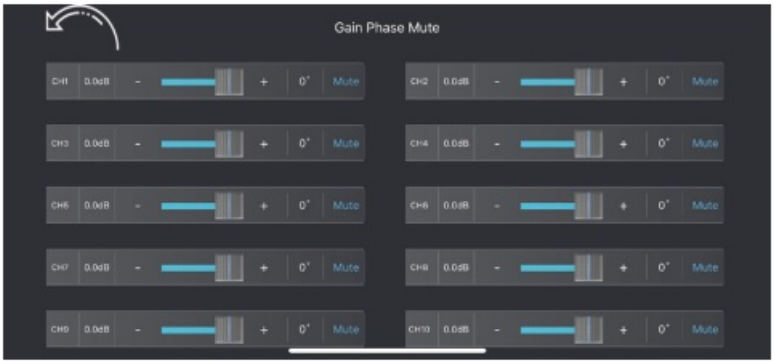
Crossover





In this menu you can assign a frequency band to the connected speakers that corresponds to their recommended operating range. You can choose independent crossover settings for each channel separately or for all left and right channels together. Simply use the button “Combine” in the lower right and choose to copy the values from the left channels to the right one or right to left. In the “HPF” line underneath the diagram you can set the highways filter slope (OFF, 6 dB, 12 dB, 18 dB and 24 dB), the filter characteristics (Butterworth, Bessel, Lackwits) and the cutting frequency.
In the “LPF” line underneath the diagram you can set the lowpass filter slope (OFF, 6 dB, 12 dB, 18 dB and 24 dB), the filter characteristics (Butterworth, Bessel, Lackwits) and the cutting frequency.
The blue line in the diagram shows the set slope of the filter. Setting the slope to „OFF” means the signal is unfiltered and contains all frequencies. The filter settings also apply to the corresponding preamp outputs.

Gain Phase Mute



In this menu you can adjust the following settings for each individual channel: sound level, mute and phase.
Adjust the gain by using the slider or with the +/- buttons.
Tap on 0 to switch between Phase 0 degrees or 180 degrees (inverted phase)
Tap on Mute to turn the channel off or on.

The Gain/Phase/Mute settings also apply to the corresponding preamp outputs.

WARRANTY CONDITIONS + LIMITATIONS

What products are covered by AXTON's limited Warranty?
The limited Warranty (the "Warranty") applies to AXTON products purchased from an authorized dealer by end customers in the European Economic Area or Switzerland ("Territorial Scope").
What is the validity period of AXTON's Warranty?
Under this Warranty, AXTON warrants, for a period of 2 years, that the product is free from defects in material and/or workmanship at the time of the original purchase. This 2-year period commences on the date of the original purchase as per the original invoice or until receipt. If you have purchased the product as a consumer, and the defect is identified within the first six months after the original purchase (see above), we will assume that the defect already existed at the time of purchase.
Who can claim under the Warranty?
AXTON grants the limited Warranty to natural persons only, who purchased the relevant product primarily for personal use.
What is covered by the Warranty?
AXTON warrants that the product is free from defects in material and/or workmanship at the time of the original purchase. AXTON does not, however, provide a warranty covering every defect and damage that may occur. It only covers the hardware components of the device, and in no event the software used with the device, regardless if this was provided by AXTON or the third-party vendor. The Warranty therefore does not cover the following cases, in particular:

- normal wear and tear (such as to surfaces and protective coverings);
- superficial damage, such as scratches, dents, and damaged plastic, worn or mechanically defective connections;
- misuse, including any treatment resulting in physical or superficial damage, such as a cosmetic defect, to the product;
- damage caused by connecting or using the product for a purpose other than those specified, or a failure to observe the operating and/or installation instructions for the particular model;
- installation or use of the product contrary to the applicable technical standards, or the safety regulations in the country in which the product is installed or used;
- damage caused through an unauthorized attempted repair, or an attempted repair by someone other than a AXTON authorized service partner;
- damage caused by modifications to the product not expressly authorized by the manufacturer;
- damage caused by malicious code ("Software Viruses") or by using software not supplied with the product or which was incorrectly installed;
- use of third party vendor software programs for editing, modifying, adapting, or extending AXTON's authorized software components as are run on the product;
- use of third-party vendor firmware/operating system software
- damage caused by liquids or chemicals of whatever type, and/or excessive temperatures, moisture, or damp;
- accidents, drops or other such effects of extreme accelerating forces;
- damage caused by lightning strikes, electrostatic charge, incorrect operating voltage, water, fire, force majeure, inadequate ventilation for other reasons for which AXTON is not responsible;
- damage caused by using the device outside of the defined specifications;
- damage caused by using the product with other systems or devices, which are not designed to be used with this product;
- adjustments or modifications without AXTON's prior written approval, including product upgrades extending beyond the specifications or characteristics described in the operating manual;

- modifications of the product for the purpose of adapting it to national or local technical norms or safety standards of countries for which the product was not expressly designed or manufactured;
- using service or spare parts not produced or distributed by AXTON;
- using the product in connection with accessories not approved for use with this product;

AXTON, moreover, does not warrant (expressly, implicitly, statutorily, or otherwise) the quality, performance, reliability or suitability of the product for a particular purpose except as described, nor the software/firmware installed on the device ex works.
No warranty service will be provided, moreover, if the model number /serial number/UUID/product number on the product is changed, erased, made illegible or removed. The same applies if the receipt or invoice is incomplete and/or illegible when presented.

Is AXTON liable for other defects or damage?

AXTON will repair or replace products, only if they are covered by the terms of this Warranty. AXTON is not liable for any material or intangible loss or damage such as the price paid for the product, loss of profits, revenue, data, or relating to the enjoyment of the product or components associated with it, arising directly or indirectly under this Warranty or otherwise in relation to products or services. This likewise applies to loss or damage relating to the impairment or operational failure of the product, or devices associated with it, caused by defects or the non-availability of the product during the time it is with AXTON or AXTON's service partner, as well as to periods of downtime and business interruptions. In addition, AXTON does not accept any liability for shipment-related risks – such as the loss or destruction of the product – in connection with the fulfilment of the Warranty. This disclaimer applies to losses of damage irrespective of the legal basis, especially on the grounds of negligence, other wrongful conduct (torts), breach of contract, express or implied guarantees, and strict liability (even if AXTON or its service partner has been advised of the possibility of such damage occurring). If these disclaimers are prohibited or limited under the applicable law, AXTON will limit its Warranty and liability to the extent permissible under the applicable regulations. For example, some national laws prohibit the exclusion or limiting of damages payable in connection with negligence, gross negligence, willful wrongdoing, deceitful conduct, and other such acts. For the duration of this Warranty, all liability that cannot be excluded completely will be limited to the extent permissible under the applicable law. Liability under this Warranty is limited to the price paid for the product. f the applicable law only permits higher limits on any liability, this higher limitation will apply.

How do I exercise my Warranty rights?

If you want to exercise your entitlements under this Warranty, please contact the authorized dealer where the product was purchased, and present it with the original copy of the till receipt or invoice. Do not return any products to AXTON directly, otherwise our Warranty obligations cannot be fulfilled. You will find the name of the relevant dealer or reseller on your proof of purchase. Defective devices sent by the authorized dealer to the service center, must also be accompanied by any accessories with a logical connection to the observed fault. This means, for example, the navigation package on an SD or microSD card supplied or purchased with the device, if problems or functional errors were observed in connection with the navigation function.

How will AXTON fulfil its Warranty?

AXTON or its service partner will choose to either repair or replace the product or its defective parts covered by the Warranty, and assume the costs of material and labor in doing so. Repairs under the Warranty must be carried out by AXTON or its authorized service partner. Products that are repaired or replaced may contain new and/or refurbished components and devices. Components that are swapped out will become the property of AXTON.

Will I incur any costs in connection with the Warranty service?

AXTON assumes the costs of material and labor in connection with its Warranty service. The Warranty holder is responsible for the costs of shipment and bears the risks connected with the shipment (see above). If the product is found to be operating faultlessly, or there is no warranty entitlement because the warrant period has expired or for any other reason, AXTON or its authorized service partner will be entitled to charge a flat-rate investigation fee of €30.00.

Do this Warranty affect my statutory or contractual rights?

This Warranty is made voluntarily by AXTON, and it will, in any case, extend your statutory rights. As a consumer, you remain fully entitled to your statutory rights, such as the statutory guarantee. This Warranty also has no effect whatsoever on your contractual rights against the reseller. You may continue to exercise these rights in full.

WARRANTY SLIP / GARANTIE-KARTE

Model name: **A544DSP**

Date of purchase
Your name / Ihr Name:
Your address / Ihre Adresse:
City / Stadt / Ville:
ZIP or Postal Code / PLZ:
Country / Land:

Phone: (+41) (0)56 269 64 64,
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Rev. A

Documents / Resources

	AXTON A544DSP 4 Channel Class A/B Car Amplifier [pdf] User Guide A544DSP 4 Channel Class A B Car Amplifier, A544DSP, 4 Channel Class A B Car Amplifier, C hannel Class A B Car Amplifier, Class A B Car Amplifier, A B Car Amplifier, Car Amplifier

References

- AXTON Car-Hifi Systeme für Ihr Auto | Home page
- ACR – Car HiFi, Multimedia und Navigation
- ACR – Car Audio, Multimedia and Navigation
- ACR – Car HiFi, Multimedia und Navigation
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