



Axton A540DSP • DSP-amp • Car&HiFi 1/2019

The A540DSP is a hot deal

Axton A540DSP – low-priced DSP power amp from Axton

PRACTICE-TIP
Upper-class
CAR&HiFi 1/2019



Plug&Play-Upgrade

Axton A540DSP

► **Professional sound with sound processor, power boost, Bluetooth music streaming: everything for any factory radio and at a super price? Indeed: Axton claims all that with the new A540DSP.**

With the compact DSP amps A530DSP and A580DSP Axton was already a pioneer years ago in the area of Plug & Play upgrades for factory radios. Now with the A540DSP comes the launch of a new generation that shines with Bluetooth audio streaming. In direct comparison to its predecessor the A530DSP, the new 540 model has turned out smaller,

neater, and even more attractively priced: that all sounds good for the minnow from the outset. The concept remains the same: the idea is to make the sound upgrade

from a factory radio as simple and as fast as possible. The process leaves the

4 low-level-inputs and 5 output channels with dual Cinch socket for the subwoofer channel

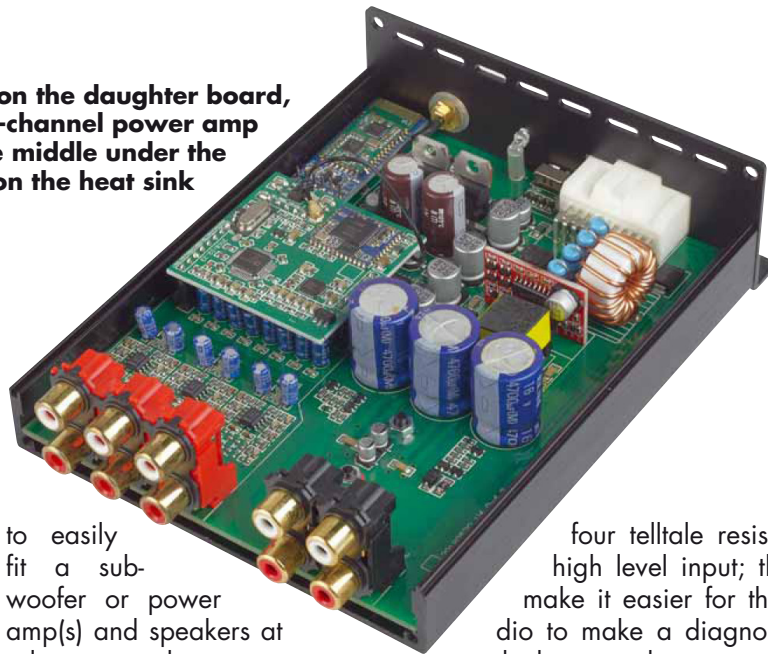




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The DSPs sit on the daughter board, the four-channel power amp seats in the middle under the board on the heat sink



original system untouched. The factory speakers stay in and the Axton is looped in with the Plug & Play wiring loom between the radio and speakers. The wiring loom docks to the Axton at the 20-pin system connector. Beside the speaker input and outputs the latter also includes the power supply and remote leads. If desired you can also use the Cinch sockets of which four channels are available as inputs and five channels as outputs. This allows you

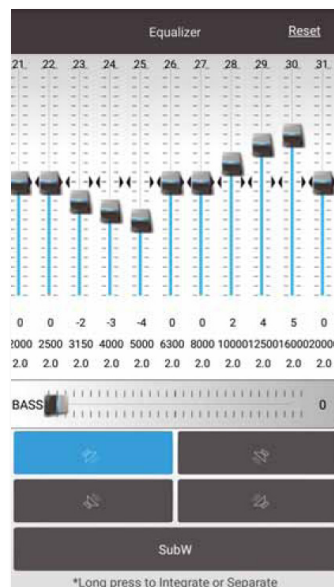
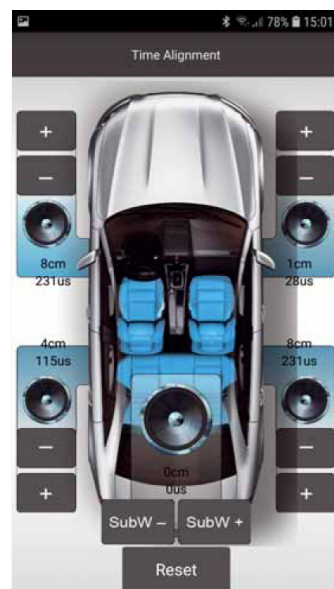
to easily fit a sub-woofer or power amp(s) and speakers at a later upgrade. To start with the A540DSP includes a small four-channel stage of which there is not much to see on opening the device. Amplification is done by a single IC that sits under the board on the bottom of the casing. Instead of a transformer power unit we find

four telltale resistances at the high level input; these serve to make it easier for the original radio to make a diagnostic check on whether speakers are present. There are two DSP chips, a ADAU1701 and a ADAU1761. Both are low-priced chips from Analog Devices with a 28-bit-bus that differ in the number of integrated converters. Each has a stereo-ADC. In addition there are four DAC-channels on the 1701 and two



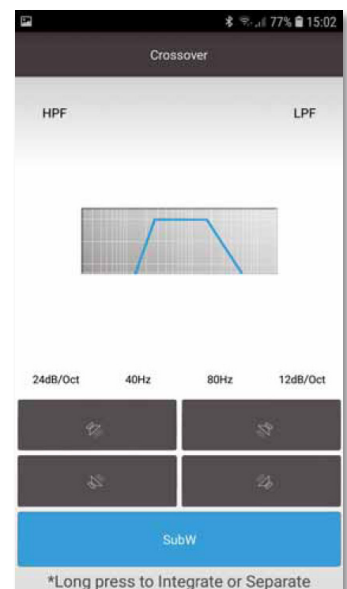
The main menu offers equalization, time alignment, gain and phase, as well as frequency cross-overs. The noise gate and the bass-expander are incorporated for gain and EQ

Conditioning of the time alignment of the 5 channels is superb. Large +/- buttons makes it quick to enter settings



After you have decided for 10 or 31 bands the EQ is intuitive. The 31 bands can be scrolled horizontally and also controlled on a smartphone

One bandpass per channel is available with slopes from 6 to 24 dB/octave





Technical data

Dimensions 145 x 114 x 40 mm

Input

- 4-channel high-level
- 4-channel RCA
- Bluetooth-audio-streaming

Output

- 5-channel RCA
- Remote-out

DSP-App (Android)

Equalizer

- full parametric EQ, 10 or 31 bands each channel, +12 – -12 dB
- Subwoofer (CH5): 5 bands each channel, +12 – -12 dB
- 20 – 20k Hz, 1-Hz-stepping
- Q 0,3 – 9,9

Crossover

- 20 – 20k Hz, 1-Hz-stepping
- Butterworth 6 – 24 dB/octave

Time Alignment / Gain

- time alignment 48 kHz, 512 samples
- time alignment 0 – 420 cm (12,14 ms), 10-mm-stepping (0,028 ms)
- phase 0, 180°

Features

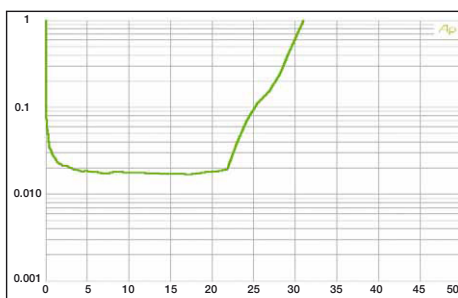
- 4-channel amp with 5-channel DSP
- App-control (iOS and Android)
- 5 setups can be saved
- Switch-on automatic (DC)
- Start-stop function up to 8,0 V
- for OEM radio with diagnostic function
- Bluetooth-audio-streaming with automatic source selection
- Dynamic Bass, adjustable
- Noisegate, adjustable

on the 1761 so that together the four inputs can be converted to digital signals and, in theory, six outputs can be converted to analog signals. All controls and settings are made with the app, which is available for both iOS and for Android devices. There is no routing of inputs and outputs: four inputs are always switched to the first four channels (simultaneously to speakers and outputs), with channel 5 being automatically mono summed as a subwoofer channel and output to two Cinch sockets. For the sub 5

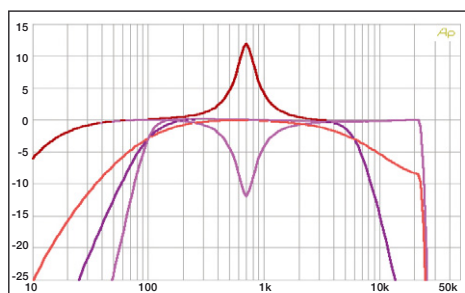
EQ bands are sufficient. The first four channels have optionally 10 or even 31 parametric bands. Time alignment and 24-dB-bandpass crossovers complete the configuration.

Measurements and Sound

In the lab the little Axton showed itself in a thoroughly positive light. It delivers 30 watts to its four channels with pleasingly little distortion – consistently under 0.02 % THD can be seen. Unfortunately the chip does not allow bridged operation nor is the Axton happy with less than a 4-ohm load; nevertheless for the intended application with standard-factory speakers the performance is entirely satisfactory. Thus you hear the difference immediately when the A540DSP fires up high-efficiency (factory) speakers as a booster. There is a decent dynamic push, and voices and instruments are clearly heard. Drums are enjoyable and with rock-and-pop music there is nothing to grumble about with the sound. If the DSP power is then utilized, a very respectable sound can be conjured up with the little Axton.



The little Axton still achieves 30 watts into 4 ohms with its amp-IC. The distortion level is pleasingly low



The little Axton accurately executes all the commands of the DSPs, so there is nothing to grumble about here

Summary

For 230 euros the Axton A540DSP is an unbeatable offer. It will win many friends as it makes it so easy and so effective to beef up the sound of factory speakers. Getting Bluetooth-streaming thrown in for this prices is sensational!

Axton A540DSP

Distributor	ACR, CH-Zürzach		
Hotline	info@acr.eu		
Internet	www.acr.eu		

Sound quality	40 %	1,3	■■■■■
Bass	8 %	2,0	■■■■■
Neutrality	8 %	1,0	■■■■■
Transparency	8 %	1,0	■■■■■
Soundstaging	8 %	1,5	■■■■■
Dynamics	8 %	1,0	■■■■■

Lab	35 %	2,2	■■■■■
Power	20 %	3,0	■■■■■
Damping	5 %	-	■■■■■
Signal/Noise Ratio	5 %	1,5	■■■■■
Distortion	5 %	1,0	■■■■■

Practice	25 %	0,9	■■■■■
Features	15 %	0,5	■■■■■
Workmanship electr.	5 %	1,5	■■■■■
Workmanship mech.	5 %	1,5	■■■■■

Zenec A540DSP

Channels	4
Power 4 ohms (x4/x2)	30
Power 2 ohms (x4/x2)	0
Power 1 ohm (x4/x2)	0
Bridged power 4 ohms (x2/x4)	0
Bridged power 2 ohms (x2/x4)	0
Sensitivity max. mV	850
Sensitivity min. V	2,3
THD+N (<22 kHz) 5 W	0,019
THD+N (<22 kHz) half load	0,018
Signal/Noise Ratio dB (A)	86
Damping factor 20 Hz	-
Damping factor 80 Hz	-
Damping factor 400 Hz	-
Damping factor 1 kHz	-
Damping factor 8 kHz	-
Damping factor 16 kHz	-

Features

Lowpass	20 – 20k Hz
Highpass	20 – 20k Hz
Bandpass	20 – 20k Hz
Bass-enhancement	via DSP
Subsonic-filter	via DSP
Phase-shift	0, 180° /LZK via DSP
High-level input	•
Automatic power-on (autosense)	• DC
RCA-out	• 5-channel
start-stop compatibility	- (10,0 V)
Dimensions (L x W x H in mm)	145 x 114 x 40
Other	DSP, App-controll, Bluetooth-audiostreaming

Summary

Price	about 230 Euro		
Sound quality	40 %	1,3	■■■■■
Lab	35 %	2,2	■■■■■
Practice	25 %	1+	■■■■■

Axton A540DSP

Ultimate-Class	1,5
Top-Class	
Upper-Class	
Entry-Class	
Price/performance: excellent	

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