

Eton Mini 150.4 DSP: Small power amp with full feature set



4-Channel Power Amp with DSP and Streaming

► After the extraordinary Stealth 7.1 DSP we now test the Mini 150.4 DSP as the second DSP power amp of the new generation.

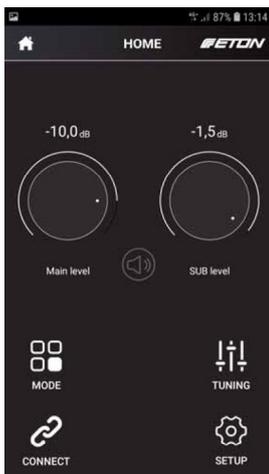
It is a year since Eton took the trade by surprise with the Stealth, a state-of-the-art, compact, high-performance power amp, which is one of the few its kind to have streaming capability as standard. What could be better than to put this digital technology into other amplifiers? And that is precisely what Eton has done. The Mini 150.4 is an obvious choice as, like the Stealth, it is also equipped with the latest class D technology. As a 4-channel power amp it also provides an excellent basis for building a car audio system. Chuck

out the analog signal processing of the Mini 150.4, replace it by a new digital circuit board, and there you have it – the Mini 150.4 DSP! In principle that's true: unfortunately it's just that the digital board needs a new form factor, so it had to be made from scratch. There are many indications that this is now to be the new universal weapon from Eton. The decision was made early on not to take any half measures: in particular, the DSP board of the Mini is top quality and more than generously equipped. For example, we find an

8-channel AD converter, although the Mini only has 4 inputs. And it gets even better. The DSP chip from AKM could have even 5 ADCs and 4 DACs on-board, thereby saving on the external ADC. Instead Eton has given the Mini one converter of top quality, namely the "Velvet-sound" AKM AK5558 at 32 bits. The DAC AK4458 is also from this series. Its 8 channels are in fact needed as the Mini has 4 amplifier channels and 4 processed outputs. The Mini DSP has also inherited streaming capability and app control directly from the Stealth. Both work over Wi-Fi, with the Mini DSP providing the hotspot. Also included in the kit is a small cable remote control so that the Eton comes out of the factory extremely well equipped. The only accessory you have to pay extra for is the RTA microphone for frequency response measurements. The streaming input works over Wi-Fi as mentioned. Compared with Bluetooth, that has the advantage of the higher data rate so that hi-res music can be streamed. Direct from the mobile device is no problem. In the case of streaming over the Internet on Spotify or Tidal the Apple users have the advantage, for this can only work if the device is simultaneously in the Stealth Wi-Fi and external data can be received. But first off we think that it is great that streaming is already included just like a cable remote control. Except for the signal processing, the main board of the Mini DSP is the same as for the normal Mini 150.4. That means we have a powerful power supply unit and a host of SMD components. A 4-channel class D driver chip helps save space, as does the 4-layer pc board, that is also good at „concealing“ critical wires in the interests of good

Available as separate accessory is a test microphone for the built-in RTA (real time analyzer)

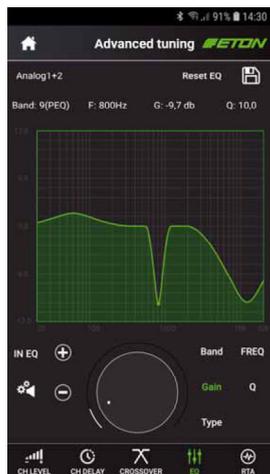




The Home screen provides level control for the Stealth and the subwoofer output. From here sub-menus can be accessed for source selection and settings



In the Time Alignment menu there are also buttons for reversing phase and muting individual speakers



The 21 + 10 EQs at the inputs and outputs can be used as fully parametric EQs or shelving



The app allocates crossovers, EQs and shelving to the filters; here we show the tuning of a bandpass crossover



The basic settings (preferences) cover color selection for remote control and amp, converter filter characteristics, and buttons for adjusting the sensitivity of inputs and outputs

EMC and interference-free radio reception. Once more the class D coils turn out to be generously sized; here we have very good, highly efficient foil wire coils at work.

Software

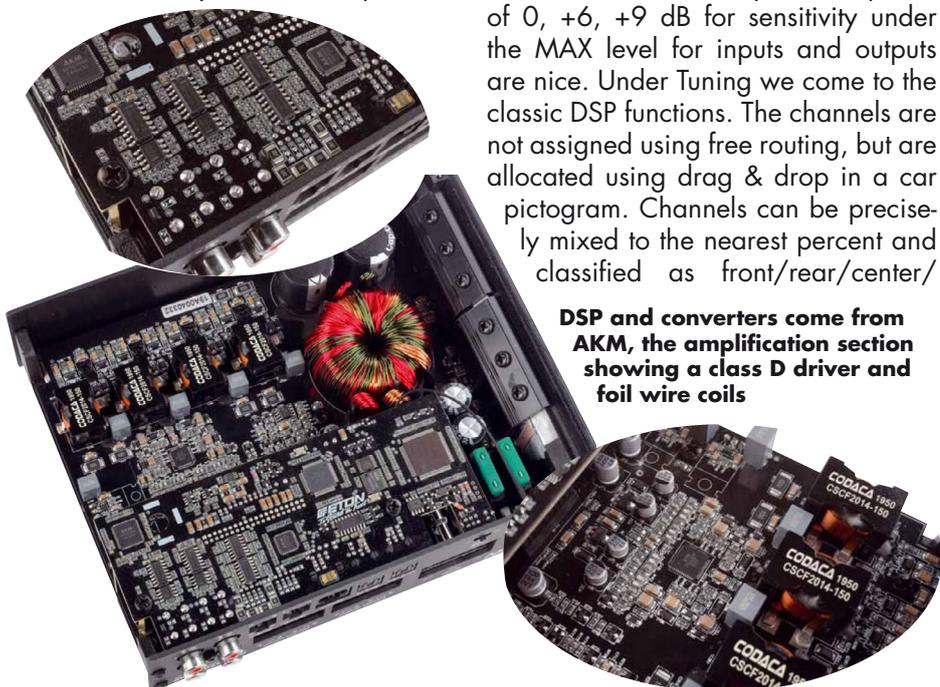
Programming the Mini is completely wireless thanks to the integrated Wi-Fi. There are apps for Apple and Android that contain almost all the functions of desktop software and with which complete programming of the DSP is possible. And that works faultlessly. Once used to the rotary knob the adjustment

is easily done by hand. As an alternative there are almost always +/- buttons available that are very helpful. During frequency tuning you get to the desired frequency in a very short time as there is the option to jump in steps of 1000, 100, 10 or 1. That is perfectly alright for an app and works very well. The Home screen offers a large volume control, then you continue with source selection, setup and tuning. The Setup menu includes the DSP Setup Management and Basic Settings like colors and filter characteristics of the AKM converter. The adjustment options of 0, +6, +9 dB for sensitivity under the MAX level for inputs and outputs are nice. Under Tuning we come to the classic DSP functions. The channels are not assigned using free routing, but are allocated using drag & drop in a car pictogram. Channels can be precisely mixed to the nearest percent and classified as front/rear/center/

sub. Systems with an active front system can be realized just like three-way systems or the partially active BMW/

Technical Data

- Dimensions** 183 x 146 x 50 mm
- Input**
 - 4-CH high-level
 - 4-CH RCA
 - Gain-control per channel
 - 1 x digital S/PDIF (optical)
 - Sensitivity 6 V (RCA), 18 V (high-level)
- Output**
 - 4-CH RCA (8 V)
 - 1 x digital S/PDIF (optical)
 - Remote-out
- App (Android V 1.3.4 as reviewed)**
- Equalizer**
 - Inputs: 21 bands per channel
 - Outputs: 10 bands per channel
 - parametric, +12 -- -12 dB
 - Shelf 20-20k Hz, Q, 0,1-10
- Crossover**
- Output:**
 - 20 - 20k Hz, 1-Hz steps
 - Butterworth, 6 - 48 dB/Okt.
- Time and Level**
 - Samplerate 48 kHz, 7-mm steps (0,02ms)
- Output:**
 - 0 - 686 cm (20,00 ms), 1024 samples
 - Phase 0, 180°
 - Level for input-pairs and separate outputs, adjustable 0,1 dB
- Features**
 - 2 Setups, selctable by button or app
 - Start-stop capable down to 6,1 V
 - RTA realtime-frequency-response-analysis (with optional microphone)
 - WIFI-access point for programming by app and music streaming
- Optional accessories**
 - Test microphone for RTA-frequency-response measuring



DSP and converters come from AKM, the amplification section showing a class D driver and foil wire coils



Front panel connectors: The connectors for power, speakers, processed outputs and high level inputs are all at the front

Mercedes Combi with front woofers and upper-mid range. Crossovers (as steep as 48 dB/octave) and time alignment (7 mm/0.02 ms) work as you would expect in a clear and intuitive way. The 31 EQ bands are split into 21 input EQs and 10 output EQs. As you can see Eton places emphasis on the inputs, which is aimed at integration in more complex factory systems. As usual, channel pairs can be tuned together or separately. That holds for all EQs, including those for digital inputs. So you have got everything you need, with the exception of the recognition of vehicle sounds, which (still) does not exist, though it might come with an update later on. Unfortunately we are still waiting for that, as we are for the final completion of the desktop software, which is ready for download as Beta version.

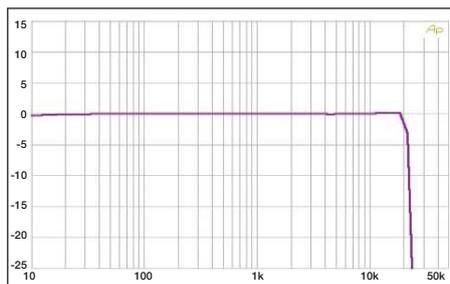
Measurements and Sound

The Mini 150.4 without DSP had already completely convinced us, being one of the best small class D power amps that our lab had ever seen. Naturally the DSP version builds seamlessly on that, and with 84 and 151 watts into 4 and 2 ohms respectively also delivers the same power output values. The distortion figures must be at a record low, which will please the techies and cannot do the sound any harm. Indeed,

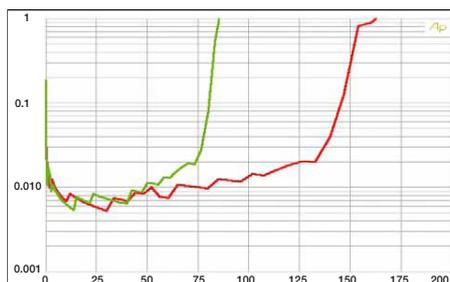
soundwise the Mini 150.4 DSP is also among the best in its class. It plays very cleanly and transparently, making it a joy to discover little details in the music and to pay attention to the nuances. The bass cuts through well enough and is of the cleaner, drier kind. Throughout the frequency range absolutely nothing seems muddy or imprecise. Yet with the Mini 150.4 you don't have to be intently listening as it manages to play so mellow and smooth that you can hear music with the greatest of ease.

Summary

Stealth meets Mini? This experiment is more than a success. The Mini 150.4 DSP is a great power amplifier with enough oomph and fine technology. With 8-channel DSP, Wi-Fi streaming and remote control it leaves nothing to be desired. That all this can be had for well under 600 euros is awesome!



With a 48 kHz sampling rate the Mini has a reproduction range up to 24 kHz; the crossovers can be tuned from 6 to 48 dB/octave



The Mini produces virtually no distortion even with DSP. For a small 4-channel device the output is more than enough



A remote control is also included. The controls are situated under the „Eton strip“

PRICE-TIP
Ultimate-Class
CAR&HiFi 4/2021



Eton Mini 150.4 DSP

Price about 570 Euro
 Distributor ACR, CH-5330 Zurzach
 Hotline info@etongmbh.com
 Internet www.etongmbh.com

Summary

▶ Sound quality	40 %	1,1	■■■■■
Bass	8 %	1,5	■■■■■
Neutrality	8 %	1,0	■■■■■
Transparency	8 %	1,0	■■■■■
Soundstaging	8 %	1,0	■■■■■
Dynamics	8 %	1,0	■■■■■
▶ Lab	35 %	1,6	■■■■■
Power	20 %	2,0	■■■■■
Damping factor	5 %	1,5	■■■■■
Distortion	5 %	1,5	■■■■■
Signal/Noise Ratio	5 %	0,5	■■■■■
▶ Practice	25 %	1+	■■■■■
Features	15 %	0,5	■■■■■
Workmanship electr.	5 %	1,0	■■■■■
Workmanship mech.	5 %	1,5	■■■■■

Technical Data

Channels	4
Power @ 4 ohms	84
Power @ 2 ohms	151
Power @ 1 ohms	0
Power bridged 4 ohms	302
Power bridged 2 ohms	0
Sensitivity max mV	410
Sensitivity min V	6,7
THD+N (<22 kHz) 5 W	0,007
THD+N (<22 kHz) half load	0,006
Signal/Noise Ratio dB(A)	87
Damping 20 Hz	179
Damping 80 Hz	172
Damping 400 Hz	160
Damping 1 kHz	149
Damping 8 kHz	18
Damping 16 kHz	5

Features

Lowpass	10 – 20k Hz
Highpass	10 – 20k Hz
Bandpass	10 – 20k Hz
Bass-boost	-12 – 12 dB/10 – 20k Hz
Subsonicfilter	by HP
Phaseshift	0, 180°/LZK by DSP
High-Level inputs	•
Autosense	•, DC or signal
RCA outputs	4CH processed
Start/Stop compatible	• (6,1 V)
Dimensions (L x W x H in mm)	183 x 146 x 50
Other	remote, WIFI, DSP, S/PDIF in/out

Eton Mini 150.4 DSP

Ultimate-Class 1,2

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Price/performance: excellent

“Super sound with DSP Wi-Fi streaming.”