

Musway M6 - 6-Channel DSP Amp For Factory Audio Systems



SUCCESSFUL START

► With Musway, a new brand enters the European market. We are curious what the six-channel M6 has to offer.

Musway is an artificial word that stands for „music is the way“! And a new brand, at least for us. The European distributor is Audio Design from Kronau, one of the major players in the market and known for its own brands Hifonics and ESX, as well as distributor of great american brands like JL Audio, Rockford Fosgate and Kicker. Behind Musway is neither a new brand nor a pure distribution of foreign products, but something in between. Musway is located in the chinese technology epicenter Shenzhen

and is a highly competent company with its own production and above all a smart development department, which has so far excelled with modern home hi-fi equipment. Audio streaming, wireless, Smartphone connectivity and HiRes-Audio

Main inputs, subwoofer inputs and aux have their own gain controls. There are also two processed outputs and a digital input



are no strangers to them, so that the car hifi products should be top notch too. But Audio Design not only distributes the amplifiers provided by Musway, but also receives its own specification devices. The European Musways are not the same as the international ones. Rather Kronau has been spending a lot of effort for months to optimize the amplifiers for european needs. It's all about noise, specification of inputs and much more. In particular, the problem-free operation is at the top of the specifications, things such as disturbances of the radio reception, heat in hidden installation, switching noises should not exist for the demanding European clientele. Therefore, the first test candidate, the M6, was tested for months (including in a Golf VI with a factory sound system) and optimized.

But now it is so far and at the time of this test review, the series production is on the way to the specialized dealers. In fact, our test copy is not yet completely final, but already runs absolutely free of flaws. First of all, with the M6 we have a small beauty in front of us. The brushed aluminum case in gray is perfectly finished and really made pretty. With only 200 x 150 x 44 millimeters, the M6 is very handy, as it must be today. The pretty package features 6 amplifier channels and an 8-channel DSP. For the amplification, three DSP chips with two channels each are available, which work symmetrically, so that we have 6 equal channels in front of us. The DSP chips can be bridged, which is not the case on other DSP amplifiers.



In the input mixer, all inputs can be assigned to all outputs. The proportions of mixed outputs can be adjusted individually



The main window offers everything at a glance. An easy operation is not a problem on the PC

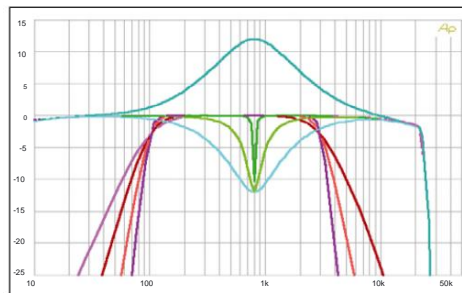
The four existing RCA jacks are distributed over two processed outputs and the analog aux-in. There is also an optical digital input and a USB interface for a Bluetooth dongle, which is not included in the delivery. The main inputs, as well as the loudspeaker outputs are designed as Molex plugs, a practice that saves space and is becoming more and more prevalent. The M6 can take a total of 6 high-level channels, so that no signal is lost, even in more complicated systems. All inputs can be routed to all outputs, whereby even the levels can be set from 0 - 100, so that an arbitrary summation can be made. In order to bypass diagnostic functions of the factory system, the inputs are so low-impedance designed that for a whole range of cars an error-free operation should be given.



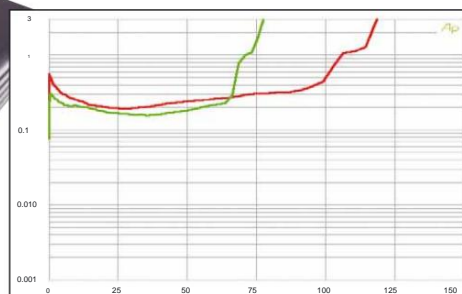
As additional equipment there are Bluetooth dongles for audio streaming and app control

Very well solved is the handling of the sources. If you have the Bluetooth upgrade, you will enjoy the automatic switching to the Bluetooth source as soon as play is pressed, and the fast speed without noticeable latency delay. As soon as the Bluetooth music stops, it is automatically switched back to the previous source. In addition, a "Hi-Level Mix" can be activated, which is the automatic switching to the factory radio to receive vehicle sounds. So GPS announcements, traffic or warnings come through, although music is still being streamed from the phone.

Very worth mentioning is the optional accessory program, because there are two Bluetooth sticks to choose from. For just 40 euros there's the simple Bluetooth BTS for music streaming. For 80 euros, the BTA comes into the car, which also contains the App control. And the app has it all, it controls almost all functions including EQs, runtime, routing, etc. Then, of course, a classic wired remote control is not lacking, it includes a LCD display.



All DSP settings are possible, the edge is due to the samplerate at 22 kHz



6 x 66 watts into 4 ohms are with tolerable distortions, at 1% THD's are even 6 x 70 watts, all channels are 2-ohm-stable and bridgeable

Last but not least, vehicle-specific cable harnesses for easy connection to the original system via Plug & Play are available, including for all newer Mercedes and BMW.

Soundprocessor

Nothing was saved on the DSP, which becomes immediately clear after screwing on the M6. A comparatively huge DSP chip immediately catches the eye and it turns out to be a C6720 from Texas Instruments, a 32-bit floating-point chip with a fast 350 MHz clock frequency. He is assisted by the proven PCM3168A (also TI), which handles both AD and DA conversion.



The automatic crossfading of vehicle sounds can be set in terms of sensitivity, attenuation and holding time

Technical specifications

Dimensions 200 x 150 x 44 mm

Inputs

- 6-channel High-Level with autosense, 2 x gain controllers
- 1 x digital S/PDIF (optical)
- 1 x Aux (RCA, Stereo) with gain controller

Outputs

- 2-channel RCA (processed)
- Remote out

DSP-Software (GV 1.05 in Test) Equalizer

- fully parametric EQ on outputs, 31 bands per channel
- 20 - 20k Hz, 1-Hz steps
- +12 - -12 dB, Q, 0,4 - 29 Crossovers
- 20 - 20k Hz, Butterworth, Bessel, Linkwitz, 1-Hz steps
- Slope up to 48 dB/Oct.

Time delay and level

- Time correction (48 kHz), up to 20,4 ms/ 692 cm, 0,02 ms/7-mm steps
- Phaseshift 0, 180°
- Level adjustment 0,1-dB steps
- Mute function

Features

- Inputs and outputs arbitrarily routable
- Start-stop ability up to 7.3V
- EPS (Error Protection System) for diagnostic function
- Automatic switching to Bluetooth
- Adjustable switching to high-level for sounds from the factory system

Optional accessories

- Bluetooth-Dongle BTS (Audiostreaming)
- Bluetooth-Dongle BTA (Audio streaming and App control for all functions)
- Remote Controller DRC1 (Master level, bass level, sources, setups)
- Vehicle cable harnesses (Mercedes, BMW, Audi etc.)



The 6 channels are amplified with 3 chips. The DSP sits with controller and memory on an additional board



The user interface of the PC software manages to accommodate all important parameters in a (non-scalable) window. And in a rather obvious form that does not give up any puzzles. You can find 31 parametric EQ bands per channel, which can be controlled by numeric entry, arrow keys and in the frequency window via drag & drop, as well as crossovers up to a slope of 48 dB/oct. and a time correction in 7 mm steps. Well solved is that for each channel and each source a checkmark is displayed (and can also be set / deleted), from where the channel gets its signal. The detailed routing settings are then available in an extra window. This is almost the same as a hidden setting window for the "Hi-Level-Mix" function, in which you can configure the fading according to sensitivity in dB, the degree of the reduction in dB and the hold time in seconds. Overall, the

software makes a very good impression. And if you consider that the M6 is a small and still affordable power amplifier, you can

be very satisfied with the performance.

Measurements and sound

In the lab check, the Musway turns out to be a pretty mature amp. With 6 x 66 watts, it has enough power for every factory speaker, and it does not run dry with a aftermarket compo system. In bridge mode there are over 200 watts, so that they can even drive a small subwoofer.

Thus, the M6 is much more than just an upgrade solution for a cheap factory sound. At around 0.2%, the THD is not sensationally low, but low enough to hear good music. This is also evident in the hearing test, where the M6 looks grown up. It sounds really good, and not just for a mini amp. The M6 makes a powerful bass, performs nice voices and sounds good and round overall. The sound is good enough in all circumstances and makes even the most demanding listeners happy.



The app offers almost full functionality, here with equalizers and frequency response



The crossovers can also be set with the app, as well as runtime, level etc.

Conclusion

The Musway M6 offers a successful overall package from the scratch. It is technically flawless and shines with very good features and good integration features, which otherwise reserved for much more expensive DSPs and DSP power amps. Along with a Bluetooth expansion, the M6 will find many friends.

Elmar Michels

Musway M6

Distribution	Audio Design, Kronau
Hotline	07253 9465-0
Internet	www.audiodesign.de

Sound	40 %	1,3	yyyyy
Bass foundation 8 %		1,5	yyyyy
Neutrality	8 %	1,0	yyyyy
Transparency	8 %	1,5	yyyyy
Dimensionality	8 %	1,0	yyyyy
Dynamics	8 %	1,5	yyyyy

Sound laboratory 35 %		1,6	yyyyy
Power	20 %	1,5	yyyyy
Damping factor —			
Noise ratio	5 %	1,5	yyyyy
THD	10 %	2,0	yyyyy

In practice	25 %	0,8	yyyyy
Equipment	15 %	0,5	yyyyy
Electronics	5 %	1,5	yyyyy
Mechanics	5 %	1,0	yyyyy

Technical Specifications

Channels	6
Power 4 Ohms	6 x 66
Power 2 Ohms	6 x 104
Power 1 Ohm	0
Bridged Power 4 Ohms	3 x 208
Bridged Power 2 Ohms	0
Sensitivity max. mV Sensitivity	670
min. V THD+N (<22 kHz) 5 W	1,9
THD+N (<22 kHz) half load	0,204
Signal-to noise ratio dB(A)	0,144
	87
Damping factor 20 Hz	56
Damping factor 80 Hz	58
Damping factor 400 Hz	57
Damping factor 1 kHz Damping	55
factor 8 kHz Damping factor	13
16 kHz	4

Features

Lowpass	20 – 20k Hz
Highpass	20 – 20k Hz
Bandpass	20 – 20k Hz
Bass boost	-12 – 12 dB/20 – 20k Hz
Subsonic filter	via HP
Phaseshift	0, 180° (DSP)
High level inputs	•, 6CH
Auto turn-on (auto sense)	•, DC
RCA outputs	•, 2CH
Start-stop ability	7.3 V
Dimensions (L x W x H in mm)	200 x 150 x 44
Misc	DSP, Digital input, Aux input

Rating

Price	around 600 Euros
Sound	40 % 1,3 yyyyy
Laboratory	35 % 1,6 yyyyy
In practice	25 % 1+ yyyyyy

Musway M6

Absolute Top Class
Top Class
 Upper Class
 Middle Class
 Entry Level

1,3
 Price/Performance Ratio
 very good



Edition 3/2018

„All-inclusive package for a factory sound system upgrade...“