

Musway M6 Pro – 6-channel amplifier
with 10-channel DSP

Powerhouse

▶ The M6 was the first serious DSP product from Musway offered in Europe. Meanwhile, the v3 version has been on the market since 2022, so Musway is launching the M6Pro.

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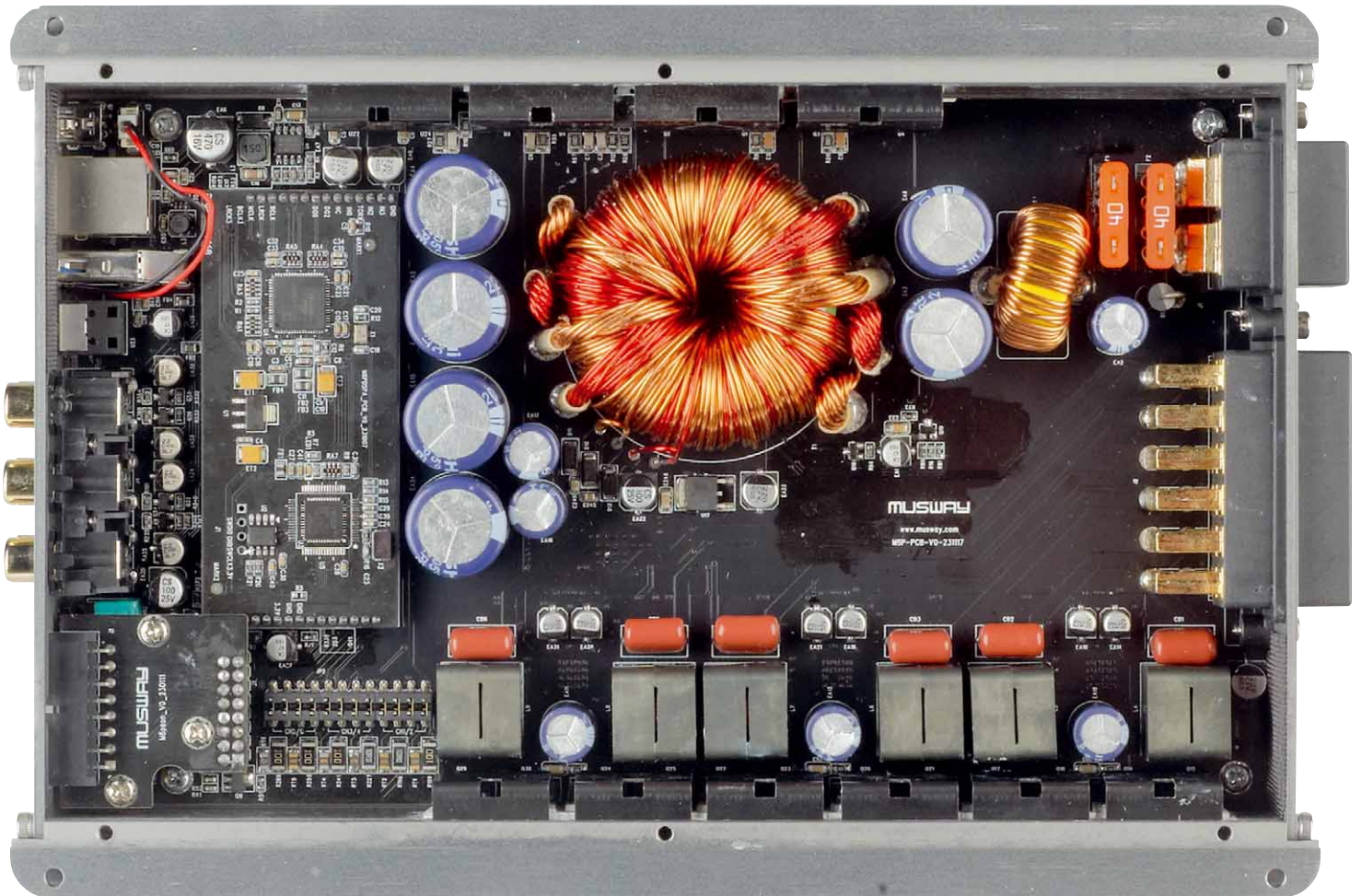


MUSWAY
HIGH QUALITY SOUND SYSTEM

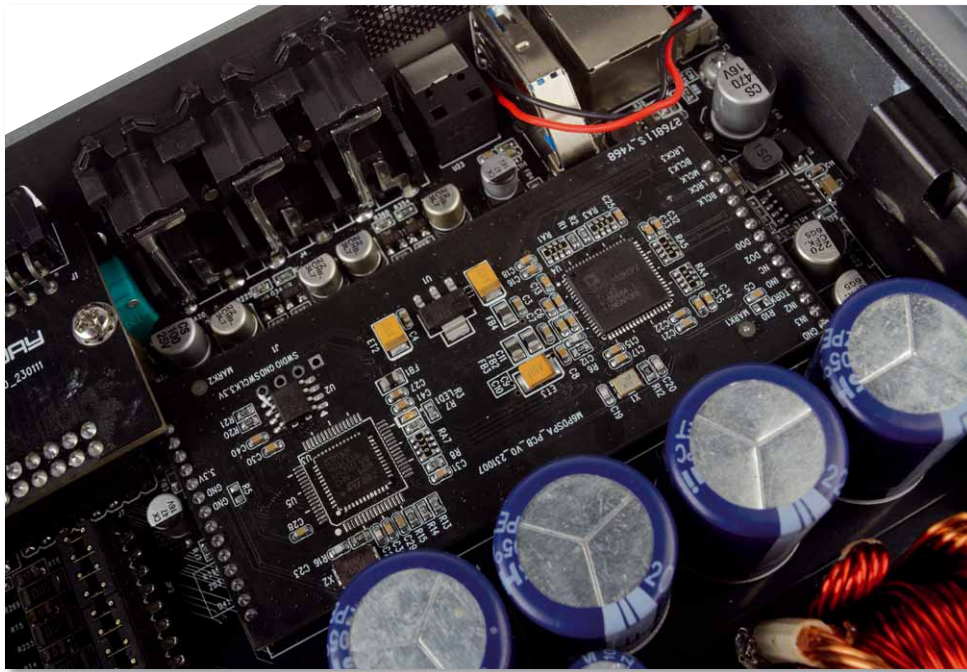
Musway has established itself as a serious supplier of DSP products in recent years. At the latest, with the M10 and M12 multi-channel amplifiers, Musway is also retrofitting modern factory systems. Now, with the M6 Pro, a more traditional DSP amplifier is coming to specialist dealers. At first glance, it doesn't look very spectacular. So after M6, M6v2 and M6v3 comes M6Pro? Yes and no, because the new Pro is not just an updated M6 but a completely new amplifier. While the original M6 could pass as an inexpensive upgrade for small factory

systems, the new M6Pro is a completely different caliber – more on that later. The tried and tested basic concept has remained the same: A compact amplifier that readily makes contact with small and medium-sized factory equipment with six speaker-level inputs. The inputs can handle 20 volts, so they are suitable for vehicles with a factory amplifier, up to 100 watts per channel, to give you an idea. The speaker level inputs can also be jumpered for low-level sources such as aftermarket radios; suitable RCA adapters are available from Musway. Generally, there is a

selection of ready-made cable harnesses for connection to the vehicle, for example, to Quadlock or ISO. A pair of RCA sockets for AUX input and an optical digital input are also available. The USB socket accepts various accessories. In addition to a remote control, there is a choice of the simple BTS streaming module, the BTA2, which can also be used to program the DSP, and the BTS-HD, which also enables high-resolution music streaming at up to 24 bit/96 kHz with the latest Bluetooth standard and aptX HD certification. And, of course, the in-house EPS



The massive transformer power supply unit supplies six identical channels powered by MOSFETs



The DSP is located on the daughterboard, here you can see the 32-bit ARM coprocessor and the DSP ADAU1452

is available for speaker-level input to fool factory radios with speaker diagnostics and suppress the corresponding error message.

A look at the front panel reveals that the M6Pro has gained a few RCA sockets. There are now four processed outputs - so we have a 10-channel DSP on board, which is the first upgrade to the previous M6. The DSP works with the popular ADAU1452 DSP core from Analog Devices, which is still the preferred means for high-quality signal processors. The

analog-to-digital-to-analog conversion is handled by the equally established PCM3168 codec with six ADCs and eight DACs, presumably because Musway hides the converters deep under the main board. Two channels of digital-to-analog conversion are still missing, which could be made up for with a small two-channel DAC. So the DSP section of the M6Pro doesn't have to be hidden from other designs. With 24-bit converters and a sampling rate of 48 kHz, we may not be looking at a high-end, but it's certain-



Accessories such as the Bluetooth module make contact via USB. Digital input is also possible via optical S/PDIF

Specifications

- 6-channel high-level with autosense or 6-channel RCA
- Sensitivity 6 V (RCA), 20 V (high level)
- 1 x AUX RCA stereo, gain control
- 1 x digital S/PDIF optical
- 2 x gain control (high level), 1 x gain control (AUX)

Outputs

- 4-channel RCA
- Remote-out

DSP-channels

- 10

DSP software (PC V3.4 in test)

Equalizer

Outputs

- parametric, 31 band per channel, +15 - -15 dB
- 20 - 20k Hz, 1 Hz steps, Q 0.1 - 10

Crossovers

- 20 - 20k Hz, 1 Hz steps
- Bessel, Butterworth, Linkwitz, 6 - 48 dB/oct.

Time and level

- Sample rate 48 kHz, 7 mm steps (0.02 ms)

Outputs

- 0 - 602 cm (17.7 ms), 1024 samples
- Level steps 0.1 dB
- Phase 0, 180°, mute

Features

- 6 presets
- Inputs and outputs arbitrarily routable
- Start-stop capability up to 7 V
- EPS (Error Protection System) for diagnostic function
- Signal dependent switching to Bluetooth or S/PDIF
- Signal dependent switching to high-level for vehicle tones
- Either high or low-level inputs

Optional accessories

- Bluetooth dongle BTS (streaming)
- Bluetooth dongle BTS-HD (hi-res streaming)
- Bluetooth dongle BTA2 (streaming + app control)
- Remote controller DRC1 (volume, bass level, sources, setups)
- RCA harness MPK-RCA6, MPK-RCA6-PP for ISO
- Vehicle specific harnesses (Mercedes, BMW, Audi, u.a.)



The PC software shows all essential functionality in the main window

ly a very solid product that does a great job. However, the M6Pro's real hit is yet to come: the completely new amplification. Externally recognizable by the speaker screw terminals, which can now accommodate thicker cables instead of the Molex cable harness, we find a

completely new amplification inside the M6Pro. Where the M6v3 was a minor upgrade amplifier with integrated power amplification in the form of three 2-channel amplifier chips, Class D driver chips with large MOSFETs now dominate the power amplification. This has significantly

more power potential, as indicated by the amplified transformer power supply and the chunky Class D low-pass coils.

Measurements and sound

First, let's take care of the basics, where the M6Pro is a typical Musway.

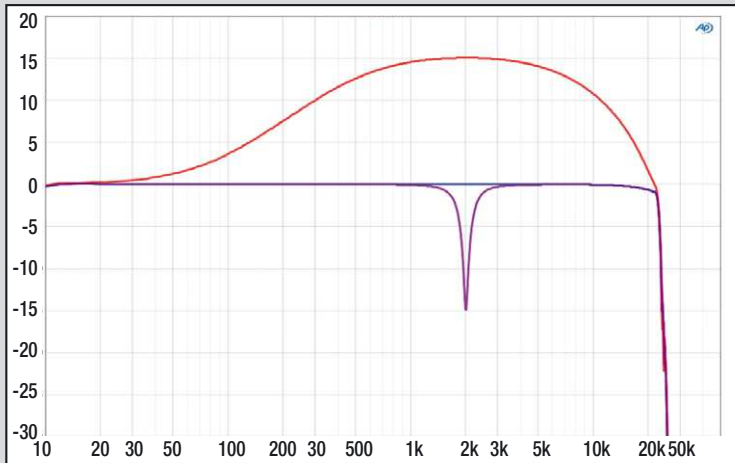
Software

All Musway DSPs can be programmed using PC desktop software or an Android app, the latter in conjunction with the optional BTA2 accessory. Except for routing and minor details, all relevant settings can be found in one window. When routing, it is essential to note that it is not enough to meter the inputs in the routing matrix; the correct checkmark(s) must also be set in the main window. There are bandpass crossovers for all channels up to 48 dB/octave in three characteristics. Programming the crossovers is a bit of a hassle, e.g., with odd orders for Linkwitz or varying attenuation at the set crossover frequency. However,

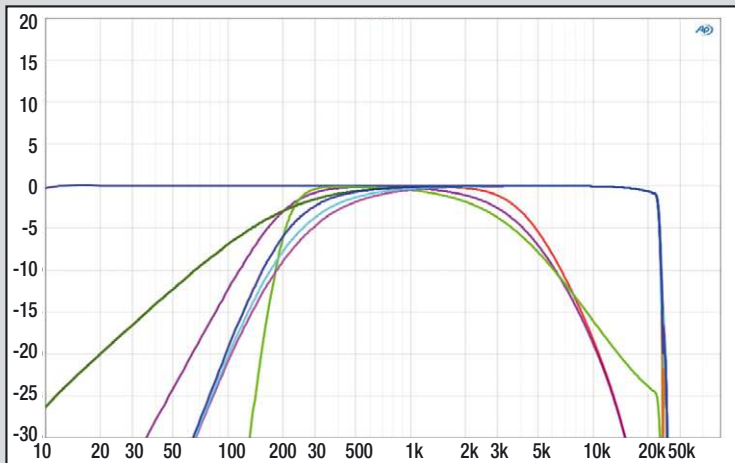
the crossovers work in principle. The EQ bands can be set fully parametrically, and there is also time alignment of the outputs in 0.02 ms or 7 mm steps. Conveniently, the time or path is displayed precisely and in plain text, without any frills such as coarse and fine adjustment. The frequency window clearly shows what is happening, and the EQs are also easy to operate (also via the keyboard). The grouping of channels is well solved; a bridge circuit can also be displayed, and up to four channels can be combined into a subwoofer group, which is then recognized by the optional remote control. The extras are few, but they are

important. We have a power-saving cut-off for Can vehicles, a setting for switching through vehicle sounds, and an auto-mute function to prevent crackling. Furthermore, the M12 offers an input pin for the reverse gear, which feeds in the vehicle sounds. This means that the Musway software is not the most complete on the market, but in most cases, it enables problem-free operation. A big plus point is the Musway „Tunest“ app, which, in conjunction with the BTS2, allows complete DSP programming and enables remote control functions such as master and sublevel, source selection, and source selection.

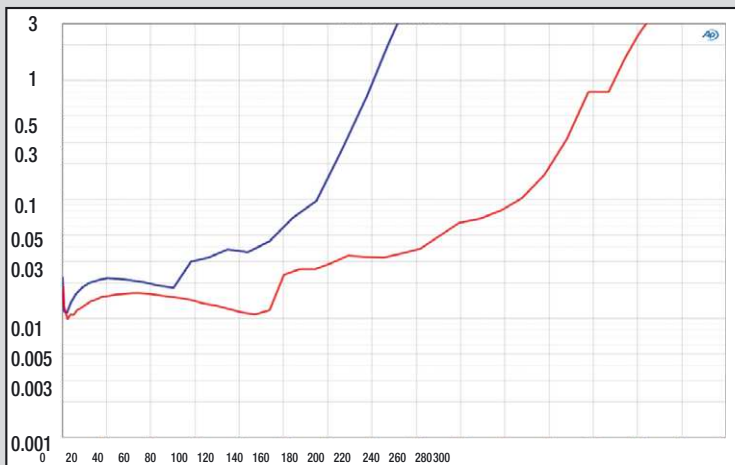
CAR&HIFI Laboratory



The 31 EQs per channel can be adjusted over a wide Q range with a gain of -15 to +15 dB



The tear-off edge is at 22 kHz due to the sampling rate; the cross-overs are programmed shirt-sleeved, here high-pass at 200 Hz (But, Bes, Lin) and low-pass at 3 kHz

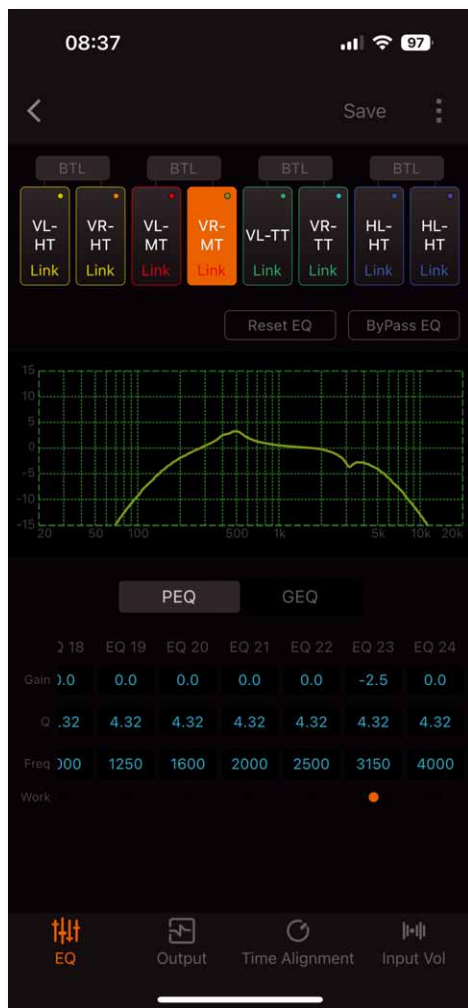


The M6Pro delivers an incredible 250 W into 2 ohms of stereo power



Master and sublevel in the Android app

According to the sampling rate of 48 kHz, the audio frequency response extends up to 22 kHz, and we have 0.02 millisecond steps for time alignment. This is (only) available for the outputs, as are the 31 EQs per channel. As the Musway software is responsible for all newer models, we also find the somewhat sloppily programmed cross-overs that we noticed in the test of the M12 and recently with the M10, with their „drawn“ filter slopes and odd Linkwitz orders (that simply don't exist). Apart from that, everything works, so you can accept that. However, when the load resistors are warmed up during power measurement, the M6Pro's time has come. With two loaded channels, it delivers 142 watts of channel power into 4 ohms, twice as much as the usual power amplifier ICs. At 2 ohms, it puts out 249 watts, almost half a kilowatt for a bridged 4-ohm subwoofer. This is very impressive, especially as the M6Pro also pro-



EQ setting in the Android app

duces well over a kilowatt with our system power of 6 x 2 ohms. This clarifies that the M6Pro is not a regular, slightly souped-up successor to the M6v3 but an entirely new amplifier, even for demanding retrofit systems.

Conclusion

With the M6Pro, Musway presents a chic six-channel power amplifier with immense power that targets the DSP amplifier Upper Class. Combined with the four processed outputs, XXL systems can be controlled that go far beyond a simple sound upgrade.

Elmar Michels



Specifications

Channels	6
Channel power 4 ohms W	6 x 142
Channel power 2 ohms W	6 x 249
Channel power 1 ohms W	-
Bridged power W	3 x 498
System power W	1074
Sensitivity max. mV	400
Sensitivity min. V	4,0
THD+N (<22 kHz) 5 W	0,023
THD+N (<22 kHz) half power	0,037
Signal-to-noise ratio dB(A)	91
Damping factor 20 Hz	263
Damping factor 80 Hz	263
Damping factor 400 Hz	248
Damping factor 1 kHz	213
Damping factor 8 kHz	15
Damping factor 16 kHz	4

Features

Low pass	20 – 20k Hz
High pass	20 – 20k Hz
Band pass	20 – 20k Hz
Bass boost	-12 – 12 dB/20 – 20k Hz
Subsonic filter	via HP
Phase shift	via DSP
High-level inputs	•
Auto turn-on	•, DC
RCA output	•, 4CH, processed
Start/stop capable	- (7,6 V)
Dimensions (L x W x H in mm)	235 x 160 x 45
Others	10-channel DSP

Musway M6Pro

Price	900 Euro
Contact	Audio Design, Germany
Internet	www.musway.de/english/

Rating

► Sound	40 %	★★★★★
Bass	8 %	★★★★★
Neutrality	8 %	★★★★★
Transparency	8 %	★★★★★
Spatial imaging	8 %	★★★★★
Dynamics	8 %	★★★★★
► Lab	35 %	★★★★★
Power	20 %	★★★★★
Damping factor	5 %	★☆☆☆☆
Signal-to-noise ratio	5 %	★★★★★
Noise	5 %	★★★★★
► Practice	25 %	★★★★★
Features	15 %	★★★★★
Build quality electronics	5 %	★★★★★
Build quality mechanics	5 %	★★★★★

Absolute Top Class



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Price/performance: very good

„Over one kW of power in a compact housing“