

Match M 5DSP MK2 — an upgraded
5-channel DSP amplifier

The Queen of Upgrade

► The Match M 5DSP MK2 is the first Match amplifier based on the new ACO platform. We are here to check out what has changed.

The FX features for Bass, Center, and Front have been enhanced. The bass processing now has an adjustable dynamic boost for the weak-bred factory systems



It was 2016 when the match M 5DSP appeared - a power amplifier unlike anything seen before. Five amplifier channels, a 7-channel DSP, and all this fits into the palm of your hand. At that time, the M 5 introduced completely new possibilities, it could be simply plugged into the factory radio via plug & play - and the installation was completed. Of its five channels, one was 2-ohm-stable and so powerful that it could drive even a small subwoofer, otherwise the M 5 made a lot of steam to the factory speakers thanks

to DSP power. Nothing has changed with the new MK2 variation. The five amplifier channels have remained largely the same. As for the hardware improvements in the M 5DSP MK2, they can be found in the hidden part of the device, namely the power supply and controller. The latter is now an ATSAM21 from Atmel, which enables new features with 32 bits and more computing power. Just like the sister brand Helix, the latest achievement in the DSP area is now entering the M 5, namely the current ACO platform. Thanks

to the 32-bit power, there are goodies like 10 lightning-fast switching setups, and the new controller increases the communication speed. By the way, the ACO platform also offers completely new features such as the Input Signal Analyzer (ISA), which can measure the analog inputs of the M 5DSP MK2. A frequency response measurement, that can be adjusted in frequency range and accuracy, enables for example the detection of non-linear frequency responses or incomplete signal from a factory radio. Due to the fact that

Switches and equalizer can be adjusted in the main window, in addition there is a mute button and a slider for phase and level



The new Input Signal Analyzer enables an electrical frequency response measurement for one or several input channels. Thus, the adversities of the factory system can be detected quickly. Input EQs and delay can be used to align the signal during measurement

single channels – as well as several channels simultaneously – can be measured as a sum, the factory allpass filters can also be exposed. Countermeasures are included, because the M 5DSP MK2 can also set its allpasses in its channel-separated input EQ. The input time alignment is in control as well. The innovative FX features of the Sauerland parent company Audiotec Fischer were also packed into the MK2. By the way, the Match M 5DSP MK2 is, like its predecessor,

a Made in Germany product, it is manufactured in Schmallenberg. The FX features are also made in Schmallenberg, because they were conceived and programmed in their own development department. There is a bass processing that makes the bass deeper, and a dynamically working bass enhancer that helps to gain the maximum performance from the speakers by level. There is also the Center Processing, which generates a center signal from the stereo input, in fact, the one that really works. Exactly in cars with a center speaker, the M 5DSP MK2 is perfectly helpful. The two processed signal outputs can then be used to control woofers or subwoofers; the perfect amplifier is found with the Match M 2FX in the same micro format. Since the M 5DSP MK2 is also programmed with the in-house DSP tool (alternatively wireless with the new WIFI Control or with the good old director), it will enjoy the full variety of features, which is also constantly being expanded. The highlights include the best integration tools available on the market, power-save mode for CAN vehicles, ADEP.3 circuit for diagnostic head units and a feature that takes into account the new generation of the VW radios with Class SB chips.



On the bottom side of the board, we can see the new 32-bit controller and the upgraded DSP

Match M 5DSP MK2

Distribution Audiotec Fischer, Schmallenberg
 Hotline 02972 9788 0
 Website www.audiotec-fischer.com

Technical description

Dimensions 110 x 85 x 35 mm

Input

- 4-channel high-level
- 1 x digital S/PDIF (optical)

Output

- 1 x line-out stereo processed (3.5 mm jack)
- Remote Out

DSP software (V 4.52a in the test)

Equalizer

- full parametric EQ with a graphical display, 30 bands per channel, +6 – -15 dB
- 20 – 20k Hz, 1-Hz steps, Q 0.5 – 15
- Shelf 25-10k Hz, Q 0.1-2
- Allpass filter 1st or 2nd order, f and Q adjustable
- Input EQ with 5 parametrical bands per channel

Crossovers

- 20-20k Hz, 1-Hz steps
- Bessel, Butterworth, Chebychev, Linkwitz, User, 6 - 42 dB/Oct.

Time and Level

- Sampling rate 48 kHz, 600 samples
- Delay 0 – 424 cm (12.48 ms), 7 mm steps (0.02 ms)
- Input Delay 0 – 5.2 ms
- Phase 0, 180° (fullrange), 0 – 360° (22.5° steps)
- Level steps adjustable 0.1 – 1 dB

Features

- 10 setups with fast switching
- Inputs and outputs can be routed freely
- Control connection for programmable remotes and accessories
- Start-stop capability down to 6 V
- Signal dependent switching to digital or aux inputs
- Automatic switch through all vehicle sounds
- Power Save Mode
- ADEP.3 Error Protection Circuit for Factory Radios with Speaker Detection
- Ground switch against hum interferences
- RTA real-time frequency response measurement (with an optional microphone)
- FX menu with dynamic bass, center and front processing
- ISA for measuring and summing the inputs
- Time Machine to undo and restore settings
- Mid-power mode for original wiring harness and high-power mode (requires separate power supply)

Optional accessories

- Various Plug & Play wiring harnesses
- Wired remote control (programmable)
- Display Remote Control Director with memory, USB, etc.
- WIFI Control interface for wireless programming via app



The small M 5DSP MK2 is even sporting an optical digital input, the control connector also accommodates the new WiFi Control module or the Director

In addition to the countless configuration options, the RTA frequency measurement features an external microphone, while the audio DSP appliances such as EQs and switches are state-of-the-art pieces. Especially for the M 5 there is also the option between mid-power and high-power mode, this function can be undone with the MK2. The mid-power mode is intended for plug&play installation, where the power supply is delivered via the original wiring harness. The high-power mode still squeezes some extra power out of the amplifier chips, but it requires some installation effort for thicker plus and minus cables for power supply.

Measurements and sound

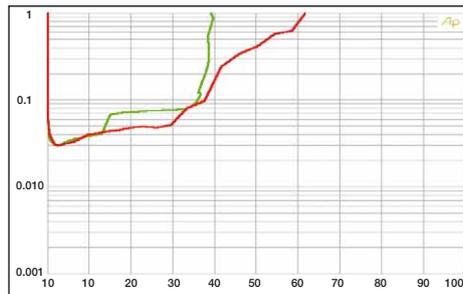
As already mentioned, the MK2 largely takes over the entire final gain from its predecessor. Therefore, it also provides approximately the same measurement data. The AKM converter codec has also been retained. However, the DSP chip was drilled on the proven 32-bitter ADAU1452 by Analog Devices, so that the M 5DSP MK2 can be easily seen in the hardware. However, it is still clocked at 48 kHz sampling rate so that the audio frequency response stops above 20 kHz. As with the original version, the MK2 also measures 40 watts in mid-power mode, which increases to 60 watts in high-power mode. A load of 4 ohms is required on the four small channels. The subwoofer channel works fullrange and can manage 2 ohms. At 4 ohms it achieves 77 watts with very little distortion. At 2 ohms the manufacturer promises 160 watts, but here the smart regulation becomes tricky, so that we could not measure this value.

It was already clear that after the M 5DSP, the M 5DSP MK2 would not come as disappointment. However, the „wow“ effect is still there, and it's always very funny how much music comes out of the tiny box. Voices and instruments are reproduced authentically and the resolution does not miss anything. The best thing, however, is the power with which the little one pulls on the speakers — there is certainly enough fun potential for a quick sound upgrade.

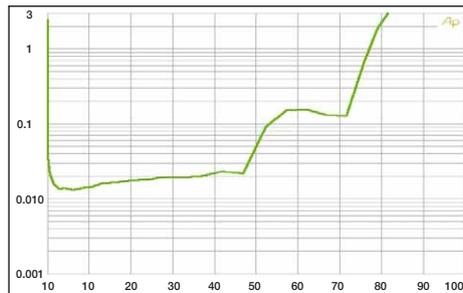
Conclusion

The Match M 5DSP MK2 is still a smart retrofit solution that works well in all vehicles, is affordable and super easy to install and retrofit. The new features of the ACO platform make the MK2 even more convincing.

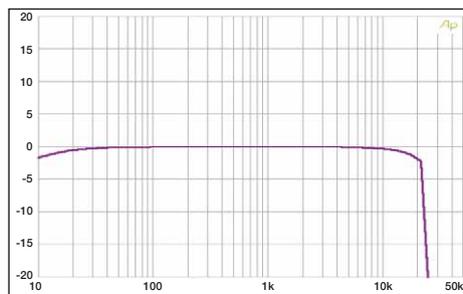
Elmar Michels



Channels 1 to 4 in the normal mode (green) and in high power mode at 4 ohms.



The bass channel already delivers about 80 watts at 4 ohms, it clicks even less than the first 4 channels



The M 5DSP offers a frequency range up to 22 kHz on all channels. With DSP, of course, we have all the mean tricks of turnouts and EQ covered

Match M 5DSP MK2

Distributor	Audiotec Fischer, Schmallenberg		
Hotline	02972 9788 0		
Internet	www.audiotec-fischer.com		

Sound	40 %	1,3	■■■■■
Bass	8 %	1,5	■■■■■
Neutrality	8 %	1,0	■■■■■
Transparency	8 %	1,5	■■■■■
Spatial imaging	8 %	1,0	■■■■■
Dynamics	8 %	1,5	■■■■■

Lab	35 %	1,9	■■■■■
Power	20 %	2,5	■■■■■
Damping factor	5 %	—	■■■■■
Signal-to-noise ratio	5 %	1,0	■■■■■
Noise	5 %	1,5	■■■■■

Practice	25 %	0,6	■■■■■
Features	15 %	0,5	■■■■■
Build quality electronicsk	5 %	0,5	■■■■■
Build quality mechanics	5 %	1,0	■■■■■

Technische Specifications

Channels	5
Power 4 Ohm	4 x 60 + 77
Power 2 Ohm	4 x 0 + 160
Power 1 Ohm	—
Bridged Power 4 Ohm	—
Bridged Power 2 Ohm	—
Sensitivity max. mV	—
Sensitivity min. V	11,2
THD+N (<22kHz) 5W	0,031/0,028
THD+N (<22kHz) Half Power	0,073/0,04
Signal-to-noise ratio dB(A)	91/94
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

Low pass	10 – 20k Hz
High pass	10 – 20k Hz
Band pass	10 – 20k Hz
Bass boost	-15 – 6 dB/10 – 20k Hz
Subsonic filter	via HP
Phase shift	0, 180°/LZK via DSP
High-level inputs	•
Separate gain control (Autosense)	• DC
RCA outputs	•, stereo jack, processed
Start/stop capable	
Dimensions (L x W x H in mm)	110 x 85 x 35
Others	7-Channel-DSP

Bewertung

Sound	40 %	1,3	■■■■■
Lab	35 %	1,9	■■■■■
Practice	25 %	1+	■■■■■

Match M 5DSP MK2

Absolute Top Class
Top Class
 Upper Class
 Middle Class
 Entry Level

1,3
 Preis/Leistung:
 excellent

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“The smallest full-fledged 5-channel DSP amplifier with advanced DSP features”