

ZXM500.1 + ZXM500.4 – Mini amps from Phoenix Gold

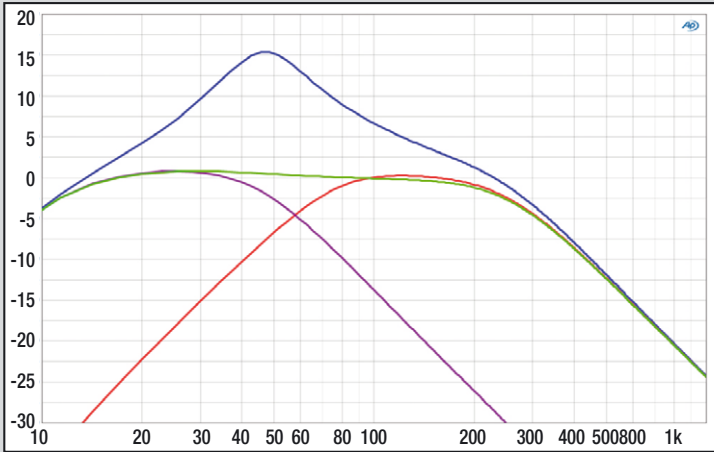
Everything but big

- ▶ With the new ZXM series, Phoenix Gold enters the market of small power amplifiers. And small means small in this case.

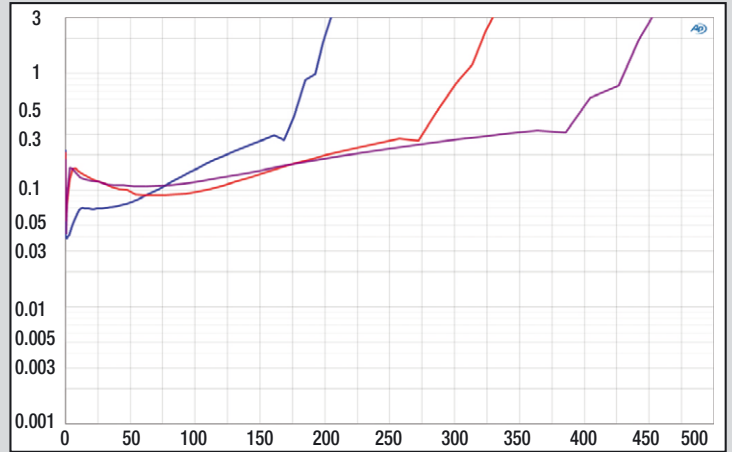
PHOENIX



CAR & HIFI Laboratory



The ZXM500.1 has everything you need on board. The bass boost achieves an (unnecessary) 15 dB boost. Low-pass and subsonic run smoothly



The ZXM500.1 delivers a whopping 430 W into 1 ohm. Even at low loads, distortion barely increases

Two new amplifiers comprise Phoenix Gold's ZXM series: the four-channel ZXM500.4 and the mono ZXM500.1. Both are the same size; the heatsinks measure just 142 x 84 x 35 millimeters and are smaller than a smartphone, except for

Many features on the mono amp: subsonic, boost and low pass



Two large coils can be seen on the PCB: the transformer for the power supply (center) and the standing coil for the class-D filter

the thickness. In the car, this naturally means that the amplifiers can be installed anywhere, e.g., in the radio slot. Both have a maximum power of 500 watts, distributed over four channels in the case of the ZXM500.4, making the amplifiers small but by no means weak; there is just as much power in them as in larger amplifiers. Both combined have enough power to supply a full-grown car hi-fi system: the front system, rear system, and a subwoofer box are no problem.

This is made possible by applying modern technologies, which help generate the required power highly efficiently and miniaturize the design simultaneously. Power amplification is based on the Class D principle, in which the power amplifier transistors are always switched through, and the music signal is modulated by pulse width modulation. Because the transistors are always fully closed or open, people often mistakenly speak of digital amplifiers, whereas the actual music is modulated as an analog signal. The final transistors sit on the ZXM500.4 as surface-mounted components on the circuit board, and two aluminum heat sinks provide a healthy temperature balance. The ZXM500.1 has to bring in heavier artillery because it handles higher currents. We find large heatsink-mounted MOSFETs here because the ZXM500.1 is one of the few mini amps that are 1-ohm-stable. When it comes to features, the mono power amplifier is not stingy. Besides a level remote control, it offers all features to control a subwoofer. A subsonic filter and a bass boost



Specifications

Channels	1
Power 4 ohms	193
Power 2 ohms	312
Power 1 ohms	428
Sensitivity max. mV	190
Sensitivity min. V	7,0
THD+N (<22 kHz) 5 W	0,034
THD+N (<22 kHz) Half Power	0,159
Signal-to-noise ratio dB(A)	91
Damping factor 20 Hz	80
Damping factor 40 Hz	109
Damping factor 60 Hz	128
Damping factor 80 Hz	132
Damping factor 100 Hz	136
Damping factor 120 Hz	140

Features

Low pass	50 – 250 Hz
High pass	–
Band pass	10 – 250 Hz
Bass boost	0 – 15 dB/45 Hz
Subsonic filter	10 – 50 Hz
Phase shift	–
High-level inputs	•
Automatic switch-on (Autosense)	•, DC
RCA output	–
Start/stop capable	• (7,7 V)
Dimensions (L x W x H in mm)	165 x 84 x 35
Others	remote control

Phoenix Gold ZXM500.1

Price	200 Euro
Contact	AAMP European Division, UK/Sweden
Internet	www.phoenixgold-eu.com

Rating

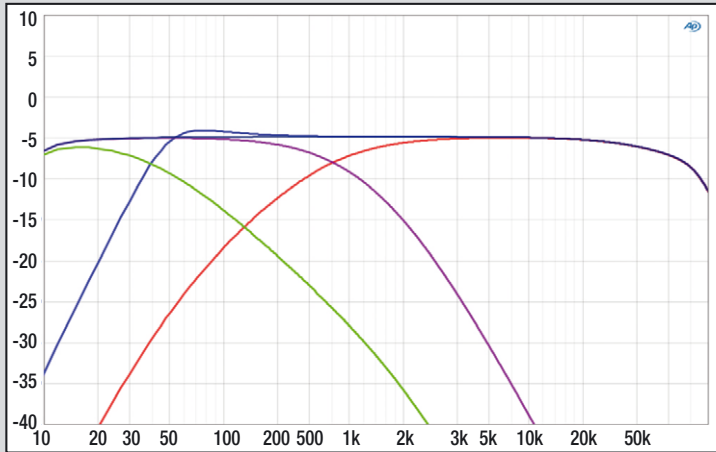
▶ Sound	40 %	★★★★★
Bass foundation	5 %	★★★★★
Bass pressure	5 %	★★★★★
Accuracy	5 %	★★★★★
Dynamics	5 %	★★★★★
▶ Lab	55 %	★★★★★
Power	40 %	★★★★★
Damping factor	5 %	★★★★★
Signal-to-noise ratio	5 %	★★★★★
Noise	5 %	★★★★★
▶ Practice	25 %	★★★★★
Features	15 %	★★★★★
Build quality electronics	5 %	★★★★★
Build quality mechanics	5 %	★★★★★

Upper class
★★★★★

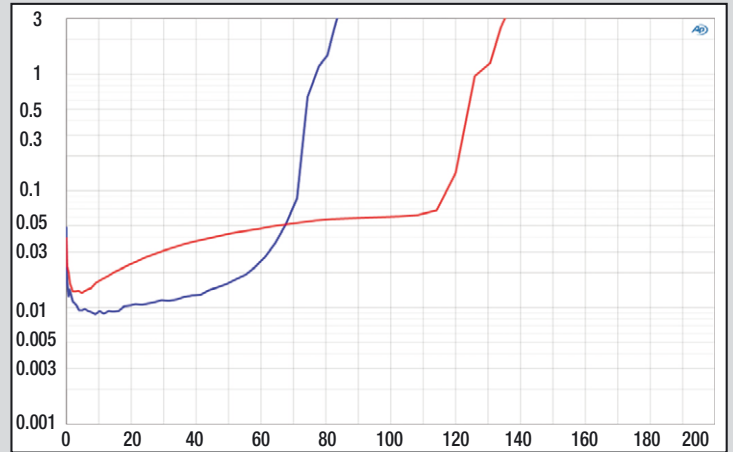
CAR & HiFi
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Price/performance: excellent
„The ZXM500.1 offers everything
but size for little money“

CAR & HIFI Laboratory



The ZXM500.4 only offers essential equipment. The filters also change their slope – a flaw that should hardly be noticed in practice.



The ZXM 500.4 produces impressive power with little distortion, and larger amplifiers can learn something from this performance.

supplement the obligatory low-pass filter. The ZXM500.4 is less lavishly equipped. The user has the choice between high-pass or low-pass up to 400 Hz. This is enough for the sub/sat crossing of speaker systems and subwoofers.

The two channel pairs use the same sets of filters, each can be switched to low pass or high pass



The power amplification is located in the upper part of the PCB, the large components are the two heatsinks and the four class-D coils

Measurements and sound

Both amplifiers leave a consistently positive impression during the test run on our power bench. The ZXM500.4 is 2-ohm stable and produces a remarkable 75 watts per channel at 4 ohms. At 2 ohms, it is 129 watts, which, with its tiny dimensions, results in a power density of over one kilowatt per liter. Distortion is completely harmless at all times, and there is also very little noise. The ZXM500.1 achieves just under 200 watts at 4 ohms, enough to drive a small, lightweight subwoofer. A 2 Ohm subwoofer, which already receives over 300 watts of power, is in good hands. And the little one is even allowed to drive 1 Ohm; here, there are 428 watts to report. The mono amplifier also generates its power largely without distortion; the proven driver chip is obviously used correctly. Sound-wise, the ZXM500.1 surprises with much more power than one would expect. Even a 12-inch subwoofer can be pushed hard. Bass pressure and SPL are perfectly sufficient for everyday use. The ZXM500.4 is equally pleasing with its ability to control the speaker cones. Even with deep bass, it drives the component system to peak performance. Voices and instruments are pleasant, and the detail resolution is satisfactory. The four-channel amplifier performs really well for the size and price.

Conclusion

ZXM500.1 and ZXM500.4 can do everything you expect from good amplifiers, except they are much smaller than ordinary amps. This makes them practical problem solvers that don't cost a fortune either.

Elmar Michels



Phoenix Gold ZXM500.4

Price	250 Euro
Contact	AAMP European Division, UK/Sweden
Internet	www.phoenixgold-eu.com

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 %	★★★★★

Specifications

Channels	4
Power 4 Ohm	75
Power 2 Ohm	129
Power 1 Ohm	0
Bridged Power 4 Ohm	258
Bridged Power 2 Ohm	0
Sensitivity max. mV	325
Sensitivity min. V	5,6
THD+N (<22 kHz) 5 W	0,010
THD+N (<22 kHz) Half Power	0,013
Signal-to-noise ratio dB(A)	89
Damping factor 20 Hz	71
Damping factor 80 Hz	70
Damping factor 400 Hz	71
Damping factor 1 kHz	69
Damping factor 8 kHz	17
Damping factor 16 kHz	5

Features

Low pass	40 – 400 Hz
High pass	40 – 400 Hz
Band pass	–
Bass boost	–
Subsonic filter	–
Phase shift	–
High-level inputs	•
Automatic switch-on (Autosense)	•, DC
RCA outputs	–
Start/stop capable	• (6,7 V)
Dimensions (L x W x H in mm)	165 x 84 x 35
Others	2 od 4 CH In

Upper Class



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INTERNATIONAL Germany 2/23

Price/performance: very good

„The ZXM500.4 is tiny, inexpensive and powerful enough to drive any door speaker“