

Single test

ESXVE900.7SP



ESX VE900.7SP – Premium amplifier with DSP

Pure sound quality

With the VE1300.11SP, ESX presented a real hit in the form of an 11-channel power amplifier with premium DSP. Today we're talking about the smaller sister VE900.7SP, which promises equivalent performance for significantly less money.

ESX is very well positioned when it comes to DSP. In addition to the two VE DSP amplifiers, there are more recent devices, the stand-alone DSPs of the QE, QL and QM series, all of which are equipped with first-class components. This also applies to the "insider tip" DSPs D66SP and D68SP of the Direction series. The VE amplifiers are characterized by the fact that they have not included any stripped-down signal processors, the components are just as high-quality as those of the stand-alone processors, which makes the DSP amps almost a bargain.

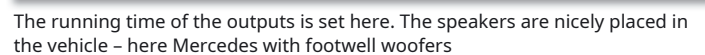
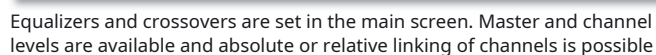
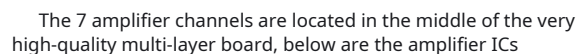
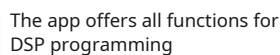
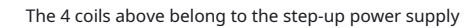
Our small VE900.7SP differs from the 1300.11 primarily in the number of channels. It uses the same technologies for the power supply, signal processing, amplification and DSP, so you can expect the same performance from it as the 11-channel power amplifier. The distribution of the channels has also been retained: Two large, 2 ohm stable channels are intended for larger woofers, with the VE900.7SP then 5 small 4 ohm channels remain, enough for front, rear and center. This means that

the VE900 is perfectly tailored to Mercedes and BMW, which have exactly this setup with their footwell or under-seat woofers. For an additional subwoofer, there is a processed mono output on the VE900, so that more bass can be brought into the vehicle if required. The EPS-Pro is particularly noteworthy with ESX, which enables perfect connection even to difficult factory systems. The circuitry fools a loudspeaker diagnosis on the part of the vehicle into thinking that the factory speakers are present. With the Pro version, the input impedance of the power amplifier can even be set in three stages. The lowest setting works with most diagnostic factory systems, the middle is for special symmetrically transmitting factory amplifiers (e.g. VW), which otherwise work suboptimally, and the high setting is what is normally used, namely 600 ohms for the best signal transmission in terms of freedom from interference and noise. The VE900 can still handle 40 volts at the signal input, so that it can also be used with powerful factory amplifiers.



Bluetooth is standard moderate. The various entrances and exits work by Mo-lex connector

The close relationship between the two VE amplifiers is also evident inside the sturdy die-cast housing. The small 900.7 comes with 4 instead of 6 power supply units.





First-class front
tend: For factory systems
tems can input
sensitivity
and impedance per
Adjust channel pair

DSP Toolkit, which recognizes all newer DSP products. The app for iOS and Android also works with the VE900.7SP, for programming all DSP functions. The DSP Toolkit is a powerful tool with extensive functions. There are perfect crossovers and all kinds of EQs, which can also be used as shelf or all-pass filters.

Technical data

Inputs

- 6-channel high level
- 6-channel RCA
- Sensitivity 6 V (RCA), 40 V (high level)
- 1 x digital S/PDIF optical
- 1 x digital Bluetooth
- 1 x mode ("convertible pin")

Outputs

- 1-channel RCA
- Remote out

DSP channels

- 8

DSP software

(PC V4/Android V1.0.15 in the test)

Equalizer

Inputs:

- param./shelf/allpass, 15 bands per channel, 6-channel + digital (standard)
- param./Shelf/Allpass, 30 bands per channel, 2-channel + digital (Expert)

Outputs:

- parametric, 31 bands per channel, + 12 -- 12 dB
- 20 – 20k Hz, 1 Hz steps, Q 0.3 – 15
- optional Shelf 25 – 10k Hz, Q 0.3-2
- optionally allpass 1st or 2nd order

Crossovers

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

Time and level

- Sample rate 96 kHz, 3.5 mm steps (0.01 ms)

Outputs:

- 0 – 680 cm (20.00 ms), 2048 samples
- Level steps 0.5 dB, Main: 1 dB

equipment

- Automatic switch-on after DC or signal
- EPS PRO (Error Protection System) for diagnostic function with 4 x gain control, input sensitivity and impedance adjustment
- 8 presets
- Inputs and outputs can be routed as required
- Signal-dependent switching to Bluetooth or S/PDIF
- Coupling of channels (gain and EQ) absolutely and relatively possible
- Setup change via mode pin
- Level meter and software gain for all inputs and outputs
- Bluetooth (audio streaming and app control of all functions)

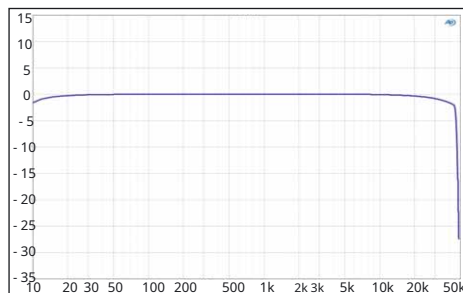
Optional accessories

- Remote controller RC-DQ (volume, bass level, setups)

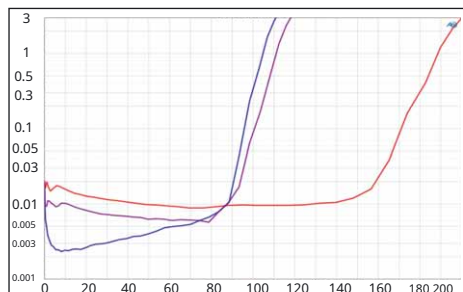
The expert mode is also available, but this is where the only real downside of our VE900.7SP comes in. The additional staging level is missing on the VE900.7SP, so there is no intermediate channel level with overall equalizing and no balance EQ. This is due to the fact that the VE900 only has to make do with one processor core, the single ADAU1452 can only handle either 96 kHz or staging channels, but not both. The decision was made in favor of signal quality, and we certainly won't complain about that. Especially since the expert mode has some goodies in store, namely the increase from 15 bands per input channel to 30, which means that even the most intricately bent frequency responses can be straightened out.

Measurements and sound

At the test station, the VE900.7SP is not stingy with power. The amplifier ICs deliver a whopping 104 watts at 4 ohms from the small channels 1 - 5, making the VE one of the most powerful chip power amplifiers on the market. Channels 6 and 7



The VE900.7SP operates with a high sampling rate of 96 kHz, enough for a HiRes frequency range of over 40 kHz



The superbly low distortion level on the small channels (blue) is amazing, and the large channels (violet and red) are also very good. At 2 ohms, there are almost 200 watts

BEST PRODUCT

Absolute top class

CAR & HiFi 5/2024

EMC TIP

Undisturbed radio reception

CAR & HiFi 5/2024

ESXVE900.7SP

Price

distribution

Hotline

Internet

around 1,000 euros

Audio Design, Kronau

07253 9465-0

www.esx-audio.de

Evaluation

sound	40%	1.0	----	-
Bass foundation	8%	1.0	----	-
neutrality	8%	1.0	----	-
transparency	8%	1.0	----	-
Spatiality	8%	1.0	----	-
dynamics	8%	1.0	----	-

laboratory	35%	1.1	----	-
Performance	20%	1.5	----	-
Damping factor	—	—	----	-
Signal-to-noise ratio	5%	1.0	----	-
Distortion factor	10%	0.5	----	-

Practice	25%	0.6	----	-
equipment	15%	0.5	----	-
Processing Electronics	5%	0.5	----	-
Processing mechanics	5%	1.0	----	-

Technical data

Channels	7
Channel power 4 Ohm W	5x104 + 2x111
Channel power 2 Ohm W	5 x 0 + 2 x 187
Channel power 1 Ohm W	—
Bridge power W	—
System power W	654
Sensitivity max. mV	390
Sensitivity min. V	3.0
THD+N (<22kHz) 5W%	0.003/0.009
THD+N (<22 kHz) Half load %	0.004/0.006
Signal-to-noise ratio dB(A)	96/92
Damping factor 20 Hz	12/18
Damping factor 80 Hz	12/18
Damping factor 400 Hz	12/18
Damping factor 1 kHz	11/18
Damping factor 8 kHz	7/14
Damping factor 16 kHz	4/8

equipment

Low pass	20 – 20kHz
High pass	20 – 20kHz
Bandpass	20 – 20kHz
Bass boost	- 12 – 12 dB/20 – 20k Hz
Subsonic filter	via HP
Phase shift	0, 180°/LZK via DSP
High-level inputs	•
Automatic switch-on (Autosense)	•, DC
RCA outputs	• 1CH, processed
Start-stop capability	– (7.6V)
Dimensions(L x W x H in mm)	250x150x50
Miscellaneous	8-channel DSP

ESXVE900.7SP

Absolute top class1+

CAR & HiFi 5/24

Price/performance: excellent

"For what it offers, the VE900.7SP is a small high-end bargain."

are roughly on par with 111 watts, and their potential is best achieved at lower loads of 2 ohms with just under 190 watts per channel. We are really impressed with this performance, however, because it is produced with very little distortion. And without compromises of the finest quality - this shows that the careful signal routing pays off. When measuring the system performance with a continuous sine wave at maximum load, it becomes clear that the step-up power supply can also deliver a lot of power: 654 watts at 5 x 4 ohms + 2 x 2 ohms is something. Apart from the system performance, the results are, as expected, more or less the same as its big sister, and this continues seamlessly with the sound check. The VE900.7SP immediately goes all out, it can hammer away dynamically and really inspire with drums and percussion. The VE takes no prisoners even with massive bass attacks, the thing simply sounds like it has even more power than it already has. Even at quieter tones, the little one is completely convincing, and listeners can indulge in the finely resolved overtones and realistically represented natural instruments. There is actually absolutely nothing to criticize, please leave everything as it is.

software

The ESX Toolkit is available as an app (Android and iOS) and as desktop software (Windows) with the same range of functions. The app also has the option of sharing the setup with other users, e.g. via WhatsApp. You immediately feel at home on the user interface, everything is logically arranged and largely self-explanatory. The settings are arranged in four windows, so that each one is not too cramped. The I/O area is of course used for routing and there is an input EQ with full functionality. The inputs and outputs can be assigned names, e.g. tweeter front left, these names can then be found in other places and the speakers are even placed correctly in the car diagram during the runtime. This also applies to the pre-configured BMW and Mercedes setups with the corresponding under-seat and footwell woofers. In general, there are a number of nice features in addition to the standard functions. For example, the channels designated as subwoofers (no matter which ones) are automatically assigned to the subwoofer level of the remote control. The setups show which ones are active, full or empty. You can also specify a start setup that is always active after switching on. The active/used/unused marking also runs through the main window, e.g. for the EQ bands, of which there are 31 per output and which can be shelf, 1st and 2nd order allpass or parametric EQ. The running time is in fine 3.5 millimeter steps or 0.01 millisecond steps. The crossovers can be Butterworth, Bessel and Linkwitz up to 48 dB/octave. The digital input or Bluetooth can be prioritized in the software, which means that it automatically switches to S/PDIF or Bluetooth when music is playing. If you don't want to do without vehicle sounds, you can mix them in in the mixer, so digital and analog sources can be mixed together. A great feature is the meter window, where we find level displays for all analog and digital inputs and outputs. This is helpful in order to be aware of what signal is present where. The correct level can not only be read, but also adjusted for all channels using level controls. The auto-save function, which automatically saves the entire setup in the device every 20 seconds, can also save you some nerves.

Another goodie is the expert mode, which now offers 30 bands per input instead of 15 input EQs. However, only two analog inputs (besides the digital ones) are then available, so you need a full-range stereo signal. To simplify settings, channels can also be linked so that levels and EQs can be changed either absolutely or relatively for the group.

Conclusion

The VE900.7SP is a top-quality power amplifier that is fully geared towards the best possible sound quality. With the best hardware components from front to back,

With its top features including Bluetooth and first-class integration features such as EPS Pro, it is the first choice for system setups with 5 + 2 channels.

Elmar Michels