

CAR & HiFi

INTERNATIONAL

2/25 • 4,80 €



European Edition

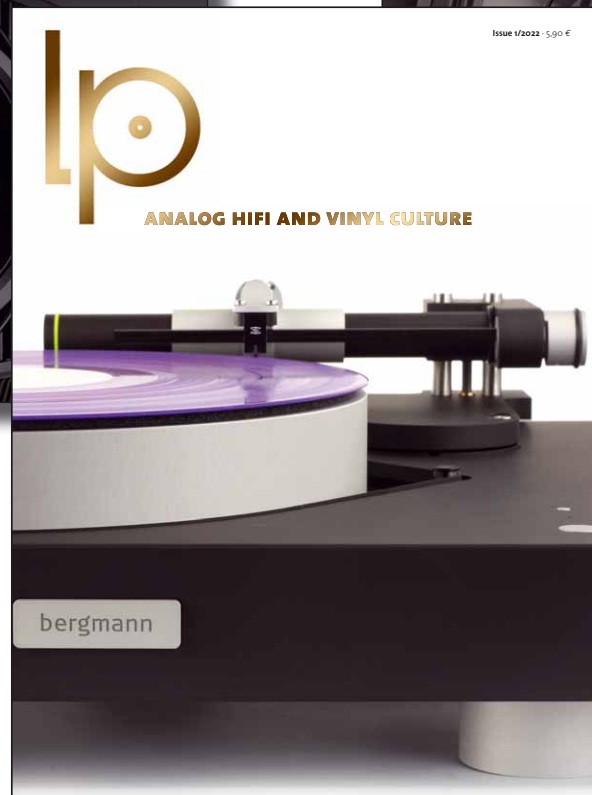
Best topics

- 6 channel DSP amplifier • 2 amplifiers in test
- 8 inch high end speakers • Best sounding affordable speaker set

Featured brands

- Audio System Germany • Bury • ebi-tec
- ESX • Ground Zero • Hifonics

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HIFONICS

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CAR, HiFi
6/2022

Hifonics ZXS550/2
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Preis-Leistung sehr gut

EMV-TIPP
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CAR, HiFi
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CAR, HiFi
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Hifonics ZXS900/1
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ZEUS ZXE EVOLUTION

BEST PRODUCT
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6/2023

Hifonics ZXE4000/1
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CAR, HiFi
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CAR, HiFi
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LEISTUNGSTIPP
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CAR, HiFi
5/2023

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CAR, HiFi
Preis-Leistung sehr gut

ZEUS ZXR POWER

LEISTUNGSTIPP
Oberklasse
CAR, HiFi
1/2025

Hifonics ZXR900/2E
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CAR, HiFi
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BEST PRODUCT
Spitzenklasse
CAR, HiFi
1/2025

Hifonics ZXR1200/2E
Spitzenklasse 1,1
CAR, HiFi
Preis-Leistung hervorragend

THE ZEUS CLASS: REACH FOR THE SKY

The story continues ...



Hifonics is a brand of Audio Design GmbH
Am Breillingsweg 3 · D-76709 Kronau
Tel. +49 7253 - 9465-0 · Fax 946510
www.hifonics.de - www.audiodesign.de

Summer sounds good

I'm pleased to once again present you with an interesting selection of highly desirable car audio devices that have successfully passed our test lab. A particular trend is emerging for this season: DSP amplifiers, and those with affordable price tags. Starting at 500 Euro, you can get fully-featured amplifiers with 5, 6, or more channels, and for just a little more, you get enormous power per channel, more than enough for most applications. Not to mention the built-in signal processors, which leave nothing to be desired in terms of audio features. If you'd like to

read more reviews in this area, we recommend our German-language website hifitest.de – simply activate the translator and read tons of test reports.

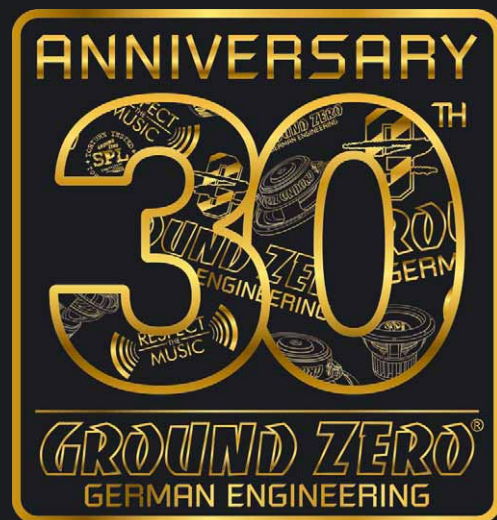


Elmar Michels
Editor-in-chief



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GZC 165-30A

165 mm / 6.5" 2-Way Compo System
220 W max - 4 Ohm - 88 dB



GZD 12-30A

30 cm / 12" High-Quality SPL Subwoofer
3500 Watt SPL - 2 x 2 Ohm



GZA 125.4-30A

High-Performance 4-Channel SQ Amplifier
960 W max
195 x 360 x 53 mm / 7.70" x 14.17" x 2.10"





Performance and Brainpower *p. 20*



Quantum Dynamics *p. 36*



Top Notch *p. 32*



Flawless *p. 28*



3-in-1-charging solution

p. 14



Latest generation GPS alarm

p. 8

Tests

Latest generation GPS alarm

ebi-tec GPS Alarm 6.0

- Vehicle tracking and alarm system

8

3-in-1-charging solution

Bury Powerflash 9050

- Mobile charging station for electric cars

12

Performance and Brainpower

ESX SE800.6DSP + SE1500.1

- 8-channel amplifier with 9-channel DSP and mono amplifier

20

Flawless

Hifonics ZXS900/6

- Sophisticated six-channel power amplifier

28

Top Notch

Audio System HX 200 Dust Evo3

- Premium speaker now also available as an 8"

32

Quantum Dynamics

GZRC 165.2SQX

- Sound Quality Speakers from Ground Zero

36

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The equipment classes

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Coming soon

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► Ground Zero Anniversary Edition

Recognizable by the product abbreviations starting with -30A, Ground Zero is celebrating itself with three exquisite products from the amplifier, loudspeaker, and subwoofer categories. Already in the starting blocks are the 16-inch two-way component GZC 165-30A and the 12-inch woofer GZW 12-30A as Anniversary Editions. The four-channel amplifier GZA 125.4-30A will follow later this season.

• www.ground-zero-audio.com



► Classic car entertainment



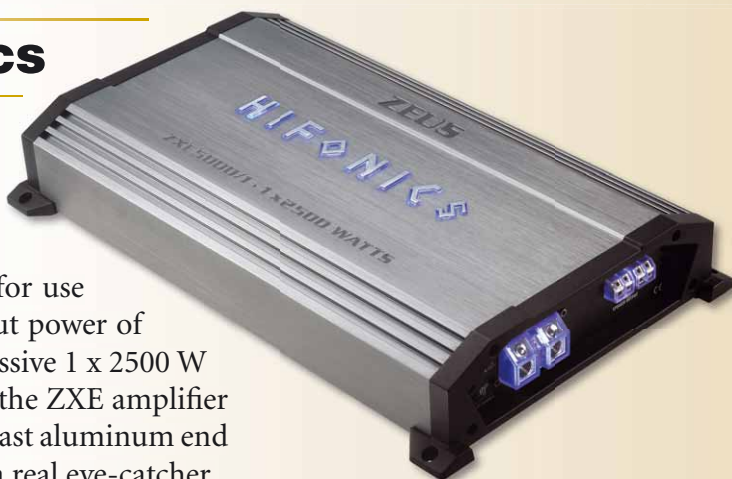
The number of historic vehicles has reached a new high, and there's more to come regarding all the vehicles between 20 and 30 years that will achieve classic car status in the coming years. All owners have one thing in common: they don't want to change the original appearance, which rules out retrofitting a modern screen. The solution for those who don't want to miss out on today's music and entertainment convenience, even in their classic horsepower car: Sound eXcellence Tradition - Pioneer Style. A radio with a simple design, numerous audio features, and modern connectivity. The Pioneer SXT-C10PS combines the look of the 80s with today's demands, including DAB, Bluetooth, and integration with a smartphone via app. Crossovers and equalizers ensure acoustic optimization in older vehicles where speakers are often poorly positioned and dimensioned. The SXT-10PS is expected to be available from authorized Pioneer dealers in October.

• pioneer-car.eu

► Watt Monster from Hifonics

The new Hifonics ZXE5000/1 mono amplifier combines – like all models in the series – old-school amplifier attributes with advanced features such as high-level inputs with EPS, automatic power-on, bass boost, remote bass level control, and master/slave functionality, making it perfectly suited for use in modern car hi-fi systems. With its extremely high output power of 1 x 1000 W at 4 ohms, 1 x 1800 W at 2 ohms, and an impressive 1 x 2500 W at 1 ohm, the ZXE5000/1 becomes the new mono head of the ZXE amplifier family. Featuring a brushed aluminum heatsink, black die-cast aluminum end caps, and an illuminated HiFonics logo, the monoblock is a real eye-catcher.

• www.hifonics.de/english/



MUSWAY

THE DSP EXPERTS



Also controllable via
smartphone with the
MUSWAY TUNEST app



6 amplifier channels
plus 8 DSP channels

BEST PRODUCT
Spitzenklasse
CAR & HiFi 1/2025

EMV-TIPP
Ungestörter Radioempfang
CAR & HiFi 1/2025

Musway M6v4
Spitzenklasse 1,1
CAR & HiFi 1/25
Preis/Leistung: hervorragend



M6v4 NEW

6-Channel Class D Amplifier with 8-Channel DSP incl. ISO plug+play cable set
Now with the new Musway v4-DSP chipset with more power and better THD
6 x 80/130 Watts RMS @ 4/2 Ohms, 3 x 260 Watts RMS @ 4 Ohms bridged
6 x High Level Input 3-21 V/RMS with EPS®, 2 x AUX/RCA Input 1-5 V/RMS
1 x Optical Input/Stereo PCM 192 kHz / 24 bit
Compatible with the Musway Dongles BTA2, BTS-HD and BTS
Also available as M6v4-24V and M6v4-EVO
Dimensions: 150 x 45 x 200 mm

HEARABLE BETTER

THE NEW CLASS LEADER



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TECHNIK FÜR KLANGBEGEISTERTE

Vehicle tracking and alarm system
ebi-tec GPS Alarm 6.0

Latest generation GPS alarm

- With GPS Alarm 6.0, ebi-tec is launching the eighth generation of its proven vehicle tracking system, which offers even more enhanced functionality.

RECOMMENDATION

Vehicle tracking

CAR & HiFi
INTERNATIONAL 2/25

GPS-Alarm

Lokalisierung

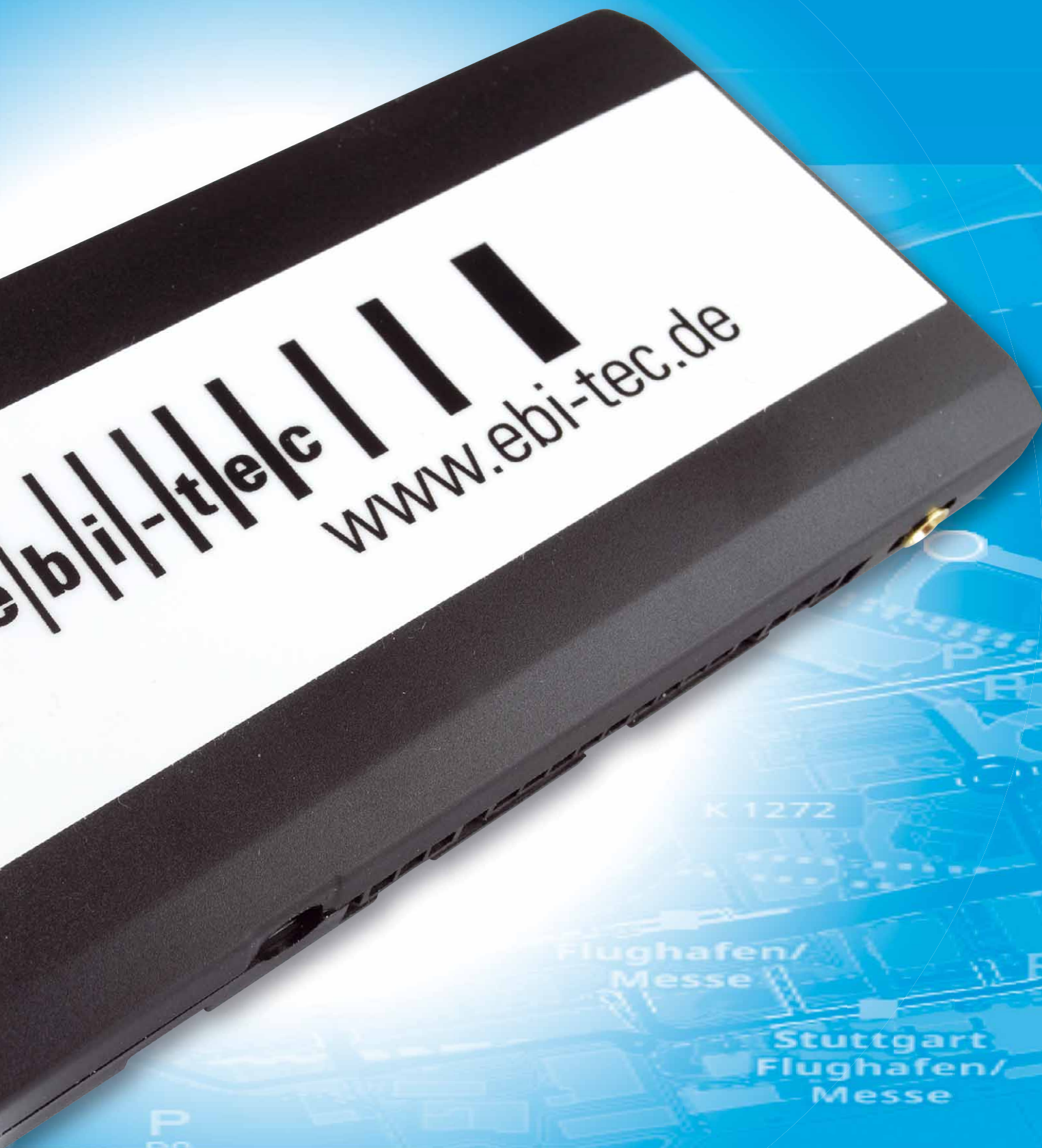
Verfolgen



SMS

Befehle

-[S.Ebinger].



The GPS alarm devices from ebi-tec are vehicle monitoring systems that send a silent alarm via the mobile network in the event of an alert, such as unauthorized vehicle use. The internal GPS antenna, or optionally, an external antenna, determines the vehicle's exact position. If GPS positioning is not possible, the position is determined by cell site location. The vehicle position determined this way is communicated via SMS over the 2G, 3G, or 4G (LTE) network. Vibration sensor: the technical heart of the devices is a triaxial B-sensor that registers vibrations in the vehicle and triggers the alarm if necessary. GPS alarms are available in versions for motorcycles, cars, vans, motorhomes, trucks, caravans, and even construction machinery. The difference lies in adjusting the sensor's yaw rate detection to each vehicle's weight and characteristics. This optimizes the response behavior and prevents false alarms. Additionally, the user can fine-tune the sensitivity via the app.

Easy installation

The compact box, measuring approximately 11 x 6 x 1.5 cm, can be quickly installed out of sight by a specialist

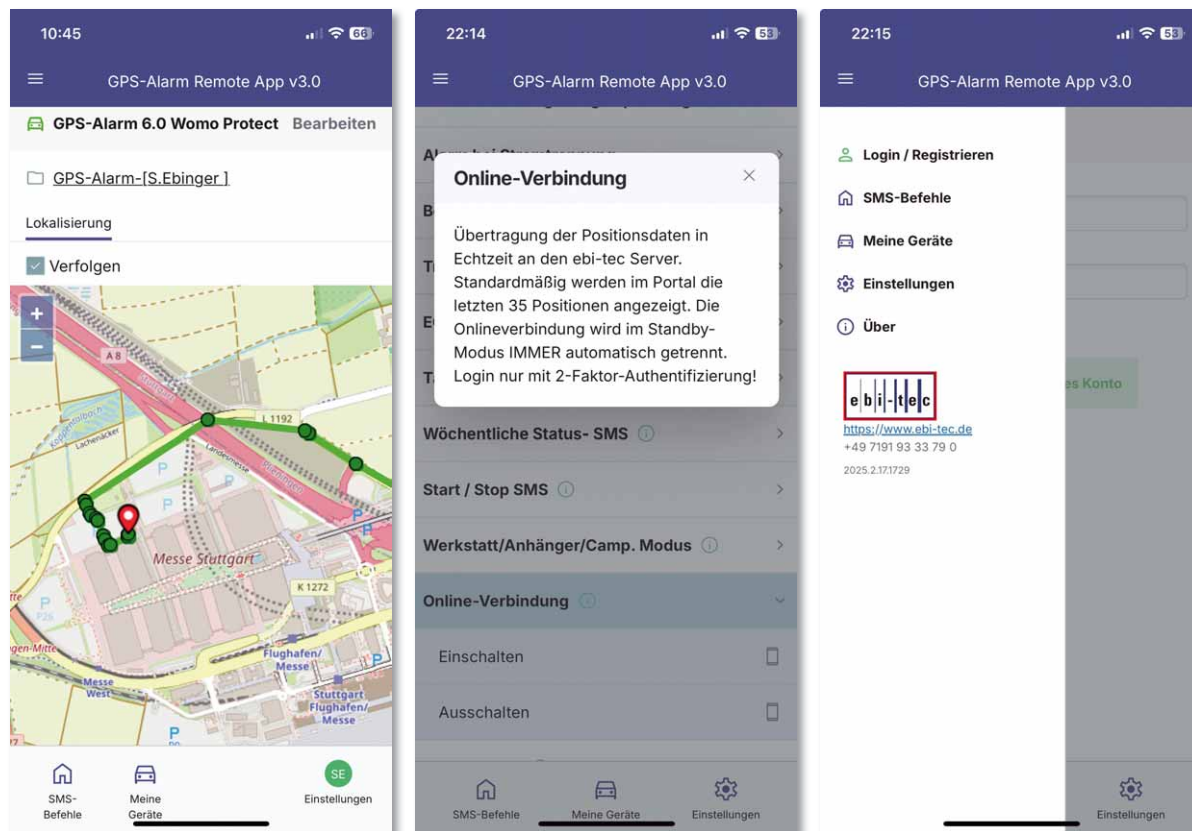
workshop. Only three cables are required for the connection: ground, ignition, and continuous positive (terminals 31, 15, and 30). The box also has an integrated emergency battery to maintain functionality even if the power supply is disconnected. Thanks to the specialized sensor technology, no complicated wiring of doors and windows is necessary.

New functionality

The new GPS Alarm 6.0 model from ebi-tec has all the functionality of the tried-and-tested 5.0 model. The hardware is also identical. New software and the new GPS Alarm Remote App 3.0 add useful functions. The good news for owners of the previous version, GPS Alarm 5.0, is that you don't need a new device to enjoy the latest features. For EUR 100, the exact difference between GPS Alarm 5.0 and 6.0, you can upgrade your existing GPS Alarm 5.0 to version 6.0 via a software update.

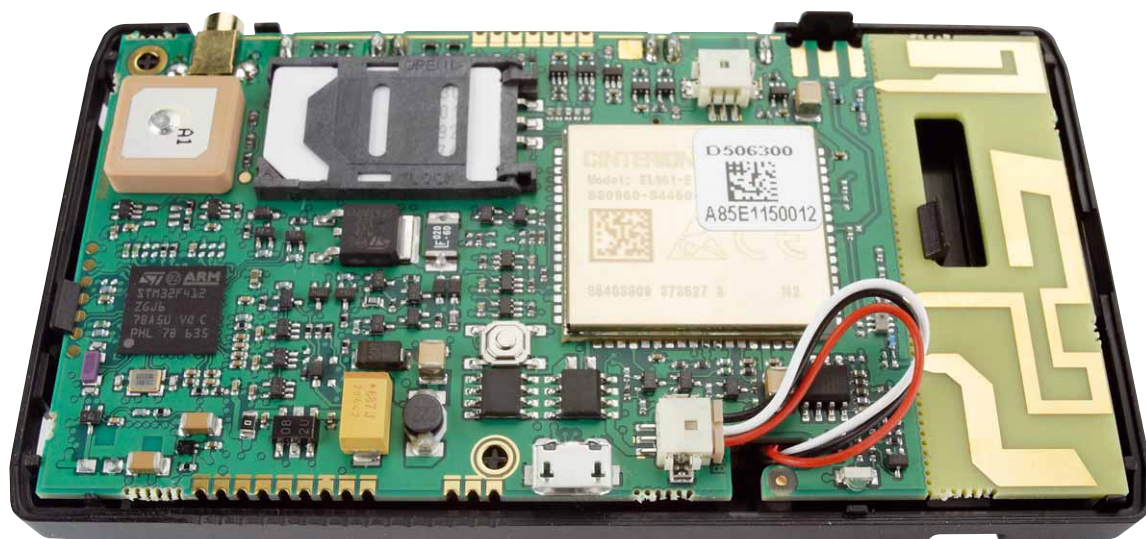
Real-time tracking

A new feature of GPS Alarm 6.0 is real-time tracking. As with previous versions, tracking via SMS is available at



The new app explains the functionality and displays the last position with reception in case of dead spots

The SIM card is inserted inside the box



intervals of one minute or every five minutes. The device activates automatically in the event of an alarm and sends a text message. This is sufficient if the vehicle has been stolen and parked in an area with mobile phone reception. The issue arises when the vehicle is in a dead zone, such as an underground parking garage. In this case, the last known position may have been sent up to five minutes earlier, but the exact current location remains unknown. The new 6.0 also transmits position data to the ebi-tec server whenever there is a change in direction of more than 10° and at least every 20 seconds when driving straight. The app displays the last 35 positions on a map, meaning that the last position with a mobile phone connection is identifiable. This could be the entrance to an underground parking garage, for example.

Safe tracking mode

In the new, deactivatable safe tracking mode, the vehicle's current position is communicated even if the trip is authorized and no alarm message is present. This allows for monitoring of the vehicle even when it has been loaned out, preventing

misuse. Additional enhancements include access to the online portal, now secured by two-factor authentication, as well as descriptions of the individual setting options in the app accessible at the touch of a button.

Jamming Detection

Like its predecessors, GPSAlarm 6.0 detects jamming attempts, which occur when vehicle thieves try to block GPS and mobile phone signals using a jammer. The system switches frequencies to counteract this, effectively neutralizing the attack and sending an alarm SMS. Additional switchable functions of GPSAlarm include monitoring the on-board voltage, triggering an alarm when the voltage falls below 11.7 volts, alerting when the device is disconnected from the on-board power supply, detecting dead cells, and sending an SMS when the ignition is turned on or off.

Conclusion

The predecessor model, GPS Alarm 5.0 from ebi-tec, has already been an excellent vehicle tracking system that is highly recommended for securing high-value vehicles. The new version, GPS Alarm 6.0, provides

even better security and functionality with real-time tracking, a safe tracking mode, and a new app.

Dipl.-Phys. Guido Randerath

ebi-tec GPS-Alarm 6.0

Price	around 600 Euro
Distributor	ebi-tec, Weissach im Tal
Internet	www.ebi-tec.de

Specifications

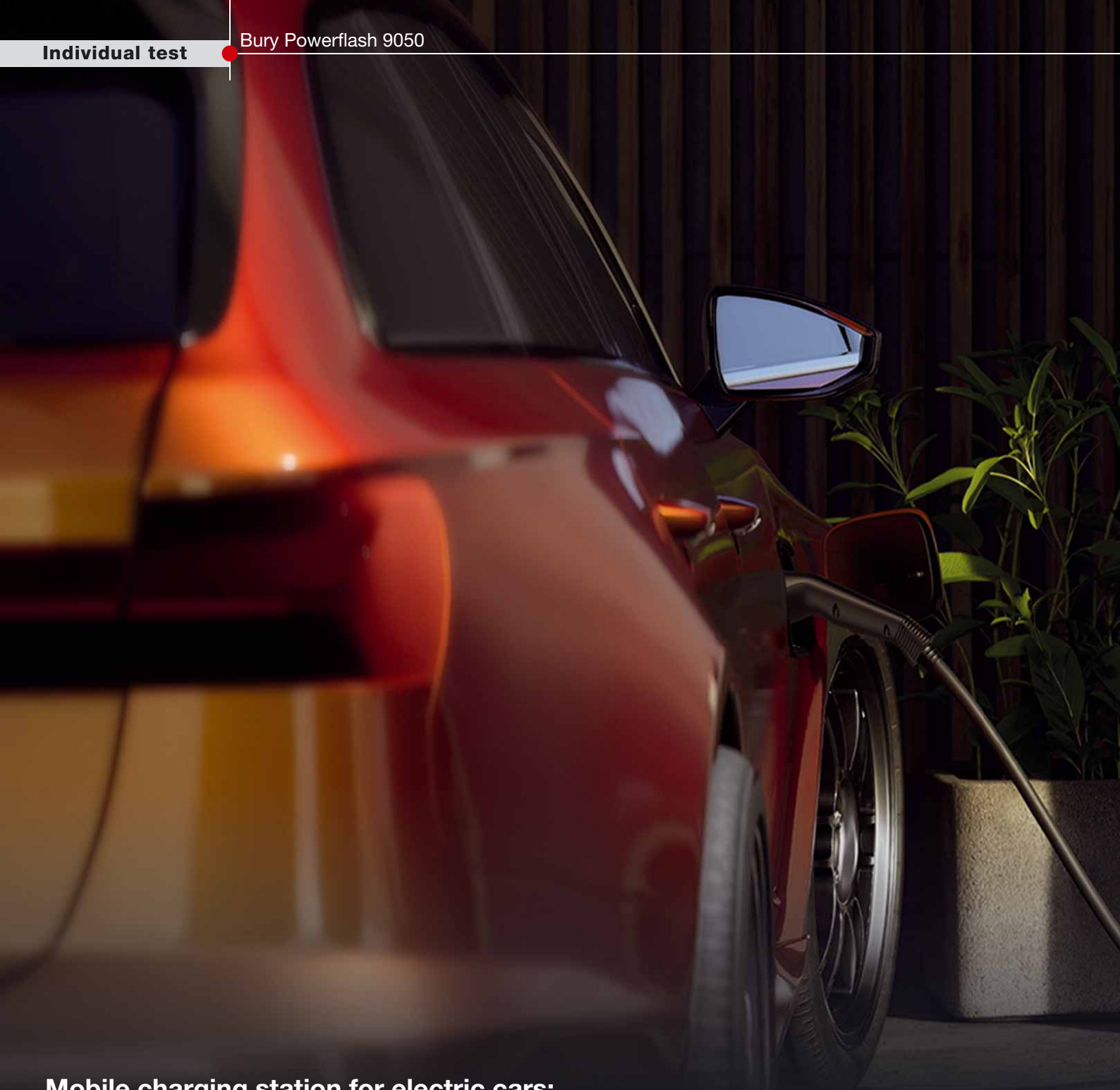
Alarm and tracking system for motorcycles, cars, vans, motorhomes, trucks, caravans, and construction machinery

- Real-time tracking
- Safe tracking mode
- SMS notification in case of movement, power disconnection, voltage drop
- Status report and position notification via SMS
- Position determination via GPS and cell tower location
- Eco mode
- Protection against GPS and GSM jamming
- Control via app

Price-performance: very good

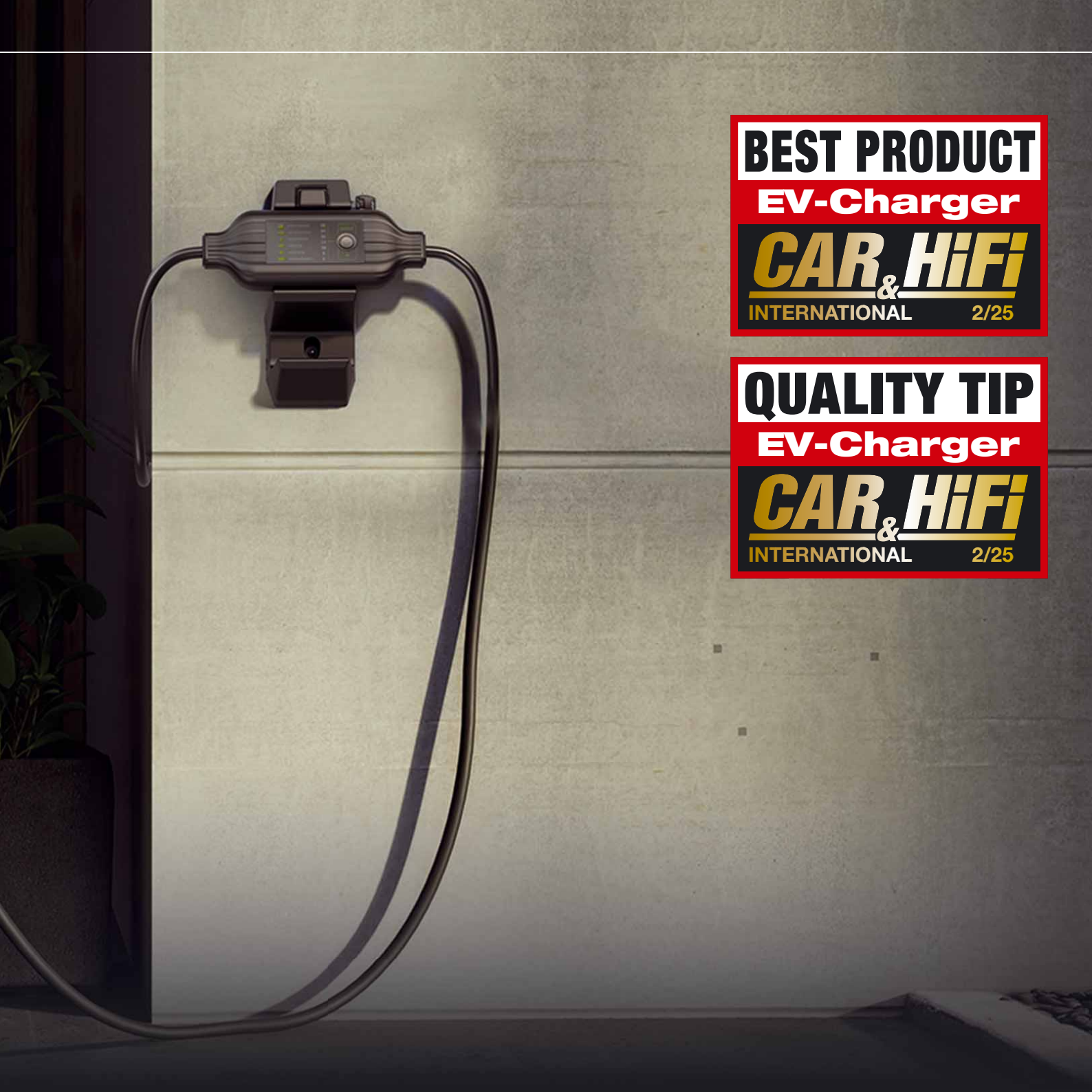
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„First-class vehicle tracking system with new functionality“



Mobile charging station for electric cars:
Bury Powerflash 9050

3-in-1-charging solution



BEST PRODUCT

EV-Charger

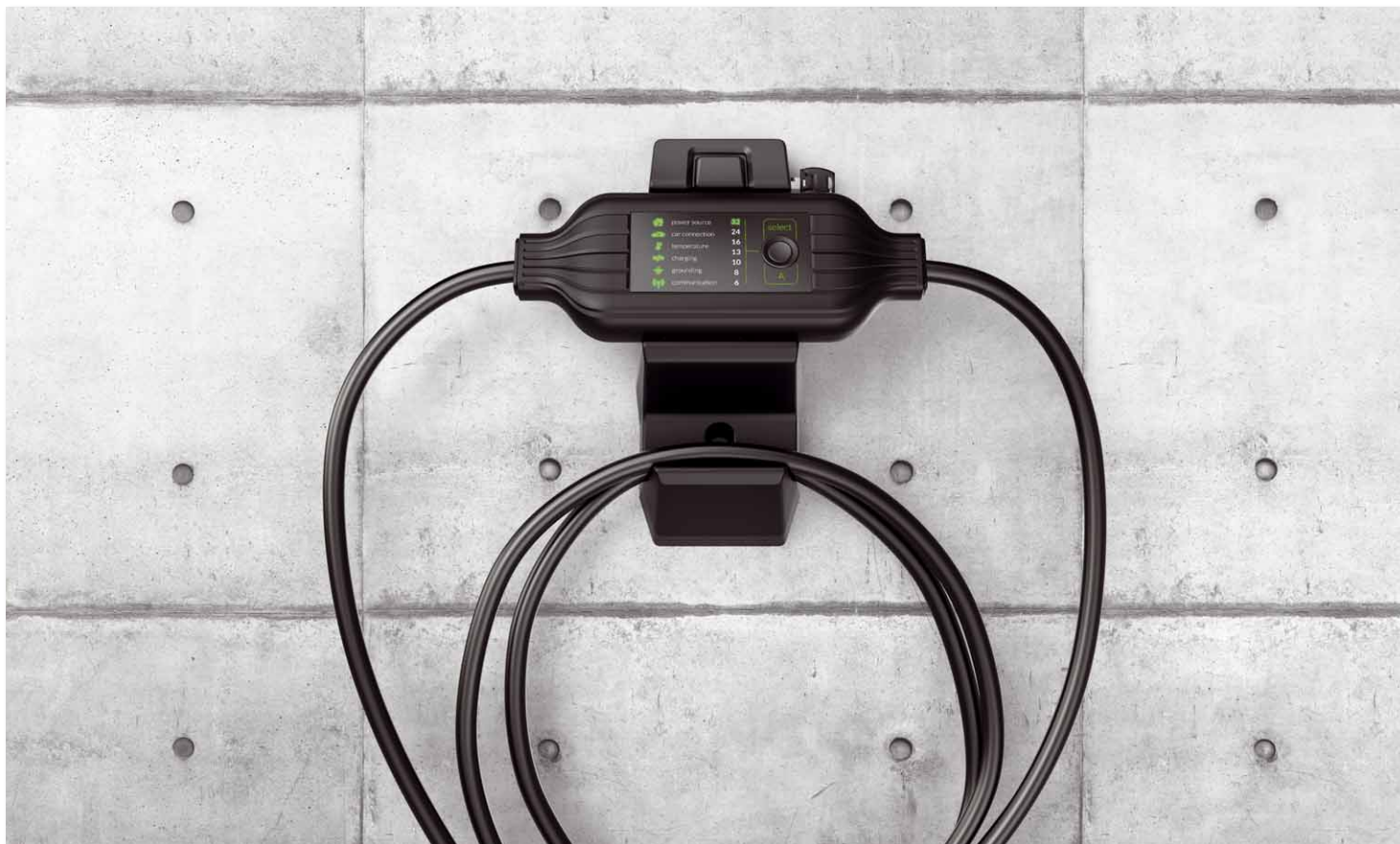
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QUALITY TIP

EV-Charger

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- Most people will remember Bury from the days of navigation devices: back then, the company based in Löhne, East Westphalia, shook up the navigation market dominated by TomTom and Co. with its Navi-Flash brand. The legendary System 8 and later System 9 hands-free kits, with their seemingly endless selection of cradles, are also fondly remembered.



With a wall mount, the Powerflash 9050 becomes a home wall box



Many people have probably used a Bury product in their vehicle without even realizing it. Examples include inductive charging for cell phones and USB-C sockets for vehicle connectivity, to name a few. Bury is a supplier to the automotive industry, boasting over 35 years of experience in information, communication, and connectivity technology. The company currently employs over 2,000 people at five locations on several continents. The central production facility is situated in one of Europe's most modern plants, located in Mielec, Poland.

Charging will always take place

We had the opportunity to test the latest product from Bury. The Bury Powerflash 9050 is a further development of the PF 9040.

Fast charging via 3-phase alternating current

But what exactly is Powerflash: an EV charging cable, a wall box, or a mobile charging station? In principle, all these descriptions are correct, as it is a 3-in-1 solution that is unique on the market, at least at this level of build quality.

With the Powerflash 9050, Bury offers an EV charger that ensures your electric car's battery is fully charged quickly and safely, both at home and on the road.

Not all charging cables are alike

Permanently installed wall boxes or charging stations control the charging process, detect short circuits or other faults if necessary, and stop charging when required. They regulate the charging current and optimize the charging time.

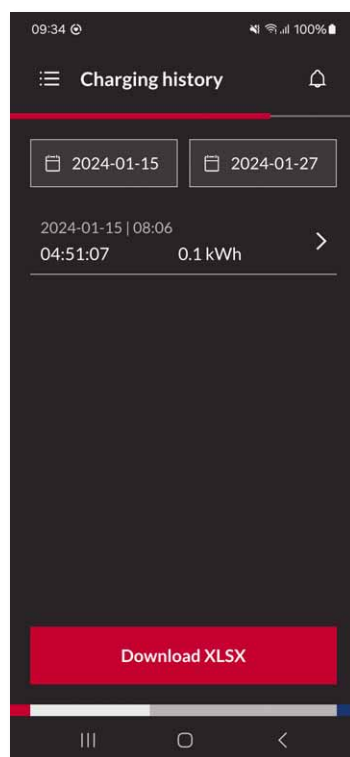
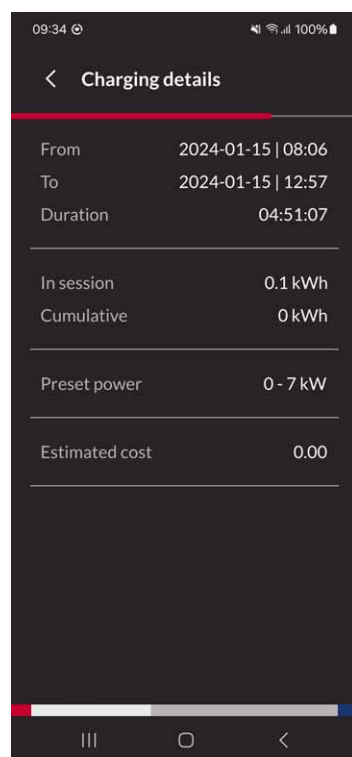
The Powerflash 9050 mobile charging solution from Bury offers all of this and more. Other mobile solutions on the market, on the other hand, are primarily just emergency charging cables, often equipped with only a Schuko plug and offering low charging capacities of 1.8 to 3 kW.



A Schuko adapter is also available

Up to 22 kW charging capacity

The Powerflash 9050 delivers a maximum charging capacity of 22 kW. This requires a 400 V three-phase connection fused with 32 amps, which the electricity supplier must approve. As standard, three-phase connections in homes are fused with 16 amps, which allows the Bury to deliver 11 kW. This means that the batteries



Charging history and costs can be exported from the app



The total length of the cable is 5 m

of most electric cars are fully charged again after approximately 3 hours. The charging power is correspondingly lower at a regular Schuko socket. Bury offers adapter plugs for Schuko, CEE (three-phase), and Type 2, ensuring the Powerflash 9050 is universally applicable and equipped for all charging connections commonly used in Germany.

As a wall box at home

The Bury Powerflash 9050 can also be used as a practical wall box at home with an optional adapter box and/or wall bracket. The cable's control unit is then inserted into the wall bracket and can be removed with a click, allowing it to be taken with you on longer journeys.

Operation

The intuitive LED display continuously shows the charging process status. The large button can be used to easily reduce the charging current if necessary. This can be beneficial, as slower charging extends the battery's service life. Suppose the electric car is parked in the garage overnight, for example. In that case, a lower charging power is usually sufficient to ensure that the battery is fully charged again the next morning.

App with data export

With the Powerflash 9050, charging processes can also be monitored and controlled using the free Bury app. The charging process and its costs can be specified in



Intuitive operation and clear LED display



We tested the Bury Powerflash 9050 on an Audi e-tron



Connection to the electric car via type 2 plug

advance and then documented. This provides a constant overview of the charging history, which can even be exported as an Excel table containing all the data. This functionality is particularly useful for workshops, as it

enables them to easily and reliably record and log the costs of charging customer vehicles and pass these costs on to the customers. OEM quality



Adapter for all commonly used charging systems in Germany

Bury has developed similar products to the Powerflash 9050 in Germany for renowned automotive manufacturers. It, therefore, meets strict automotive requirements and standards. It is dustproof and waterproof, meeting the IP 67 standard. This means you can also use it outdoors in adverse weather conditions. The wall box also has integrated theft protection. And if you accidentally drive over it with your electric car, it won't do any harm. The overall build quality is exemplary and of OEM standard, a rarity in the aftermarket.

The Powerflash 9050 can be unlocked and removed by pressing the button located on top of the wall box



Conclusion

It would be hard to imagine a better mobile charging solution that can also be configured as a wall box. This is where Bury's decades of experience as an automotive supplier pay off. Build quality, functionality, flexibility, and ease of use—the Bury Powerflash 9050 has it all.

Dipl.-Phys. Guido Randerath

Bury Powerflash 9050

Price	799 Euro
Distribution	Bury, Löhne
Internet	www.bury.com

Rating

► Practicality	40 %	★★★★★
► Build quality	40 %	★★★★★
► Operation	20 %	★★★★★

Specifications

Max. Charging Power	22 kW
Nominal voltage	230 V/400 V 50 Hz
Rated current	32 A
Fault current protection	AC 20 mA, DC 6 mA
IP- protection class	IP67
dimensions	300 x 116 x 49 mm
Total length	5 m
Weight	3.5 kg

Optional accessories

Adapter box	99 Euro
Wall bracket	89 Euro
Transport bag	79 Euro
Schuko adapter	89 Euro
CEE 3-phase adapter	89 Euro
CEE 1-phase adapter	89 Euro
Adapter type 2	89 Euro

- + High charging power
- + Flexible use
- + App with data export

Top class



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Price/performance: very good

„Mobile charging solution in automotive quality.“

HX SERIES

SUBWOOFER

since 1988

AUDIO
SYSTEM

german sound



Audio System HX12 Flat Evo
Spitzenklasse 1,2
CAR & HiFi 6/23
Preis/Leistung: sehr gut
„Sehr performanter
Flachwoofer.“

HX 10 FLAT EVO

■ 2x 150 WRMS ■ 2 Ohm Impedance

HX 12 FLAT EVO

■ 2x 200 WRMS ■ 2 Ohm Impedance



KLANGTIPP
Spitzenklasse
CAR & HiFi 1/2024

Audio System HX10 Flat Evo
Spitzenklasse 1,2
CAR & HiFi 1/24
Preis/Leistung: sehr gut
„Gut gemachter Premium-
Flachsubwoofer.“



KLANGTIPP
Spitzenklasse
CAR & HiFi 2/2024

Audio System HX10 Evo
Spitzenklasse 1,2
CAR & HiFi 2/24
Preis/Leistung: sehr gut
„Gut ausbalancierter
Subwoofer für Klangfreunde.“

HX 08 EVO

■ 2x 150 WRMS ■ 2x 2 Ohm Impedance

HX 10 EVO

■ 2x 200 WRMS ■ 2x 2 Ohm Impedance

HX 12 EVO

■ 2x 250 WRMS ■ 2x 2 Ohm Impedance



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BEST PRODUCT**Top Class****CAR & HiFi**

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BEST EMC**Undisturbed FM reception****CAR & HiFi**

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ESX SE800.6DSP + SE1500.1 – 8-channel amplifier with
9-channel DSP and mono amplifier put to the test

Performance and Brainpower

- Two new Signum amplifiers are set to attract customers this season. We put the brand new SE Amps from ESX through their paces.





On the left is the 1500.1 with sturdy terminals and double connections for thick wires, and on the right is the 800.6 with Molex multi-pin connectors for the six inputs and outputs



ESX is launching new amplifiers in its Signum series with state-of-the-art features and very attractive prices. Normally, Signum is positioned at the lower end of the product range, but the new SE amplifiers are definitely not entry level. They look very classy and have nothing to do with the existing Signum SEX amplifiers, so we can talk about a completely new SE series. The SE800.6DSP comes with six channels and a signal processor, while the SE1500.1 is a powerful mono amplifier – a perfect combination for modern car hi-fi systems. With their sturdy die-cast housings, the SEs offer excellent build quality, and the SE800.6DSP is also very easy to connect. Bluetooth is built in as standard, with the 5.0 standard ensuring flawless audio quality. There is also an optical digital input, and we find an analog AUX input as a pair of RCA sockets. The SE is mainly likely to be fed via the six speaker level inputs, which are equipped

with the company's own EPS, which is integrated into the high-level cable harnesses. A wide Molex connector handles channels 1–4, while the last two channels have their own plugs for input and output (although technically all six channels are the same). And the mode preset switch, also known as the cabrio pin, is always a welcome feature. It is a control contact that can switch between two presets so that the right sound is automatically selected. The Mono SE1500.1 is well equipped, offering solid power terminals and dual speaker terminals. In addition to the obligatory low-pass filter, it also offers a boost and a subsonic filter, which is very useful.

A look inside both SE amplifiers reveals their modern design. The Mono is very generously equipped, with basically everything duplicated. Two mains transformers, two pairs of MOSFETs, two Class D filters, and even a

Software

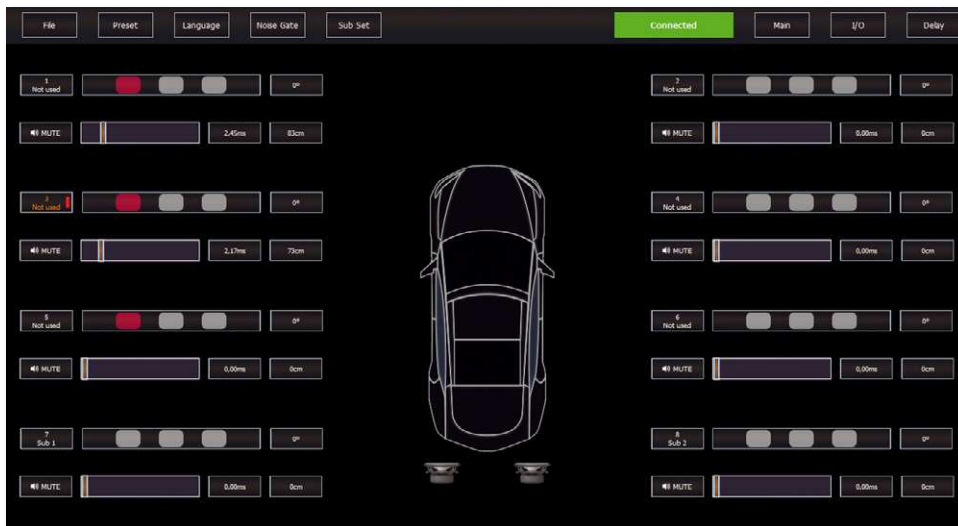
The ESX SE800.6DSP can be controlled via PC software, Android or iOS app. The whole thing is called DSP Master and serves as a cross-brand DSP platform that also works with amplifiers from Hifonics and Crunch. The PC software is straightforward, combining all important audio functions on one main screen, which is still manageable with the SE800.6DSP's 8 DSP channels. The channels can be linked and muted, and the crossovers offer slope rates of up to 48 dB per octave in the usual characteristics, which, however, are once again

not 100% serious. As is often the case with Far Eastern software, there are odd orders with Linkwitz and somehow sloping edges. It's nice that the EQs work flawlessly and can also be repurposed as allpasses. There are third-octave bands at the outputs, resulting in 31 per channel, and the delay time works in 7-millimeter steps at a sample rate of 48 kHz, which corresponds to 0.02 milliseconds. The routing, which is also straightforward, and the delay time are outsourced. In a sub set menu, up to four channels can be set as subwoofers,

which becomes interesting when you treat yourself to the optional display remote control, which can then adjust the SPL nicely. The Android app we tested is in no way inferior to the desktop software. All functions are also available on the phone, neatly sorted into individual screens, making operation logical and easy. The start screen acts as a remote control, allowing you to adjust the master and subwoofer levels and select sources easily and presets.



The main window features SPL, crossovers, and 31 EQ bands for the channels



The delay window allows you to conveniently set the delay times for all channels and also features mute and polarity reversal

Specifications

Inputs

- 6-channel high-level with autosense
- 2-channel Low-Level
- Sensitivity 11 V (high level)
- digital S/PDIF optical
- digital bluetooth

Outputs

- 2-channel RCA (processed)
- Remote-out

DSP-channels

- 8

DSP software (PC V2.0.15)

Equalizer

Outputs

- parametric, 31 band per channel
- EQ, Allpass
- 20 – 20k Hz, 1-Hz steps
- +12 – -12 dB, Q 0,7 – 9

Crossovers

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

Time and level

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

Outputs

- 0 – 510 cm (15.0 ms), 720 samples
- Phase 0, 180°
- Level steps 0.1 dB, mute

Features

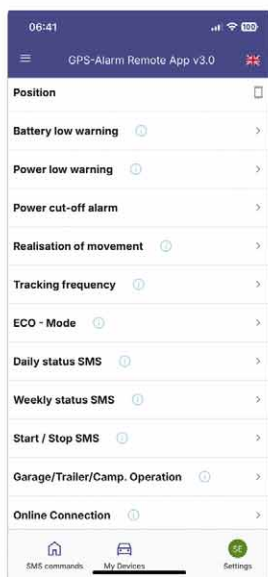
- 10 presets
- Desktop App and mobile (iOS and Android)
- Bluetooth 5.0 music streaming and wireless DSP setup
- Mode Preset Switch (convertible pin)

Optional accessories

- Display remote control RC-SXE
- Wiring harnesses

New! GPS-ALARM 6.0 Serie

Alarm and tracking system



No monthly fees!



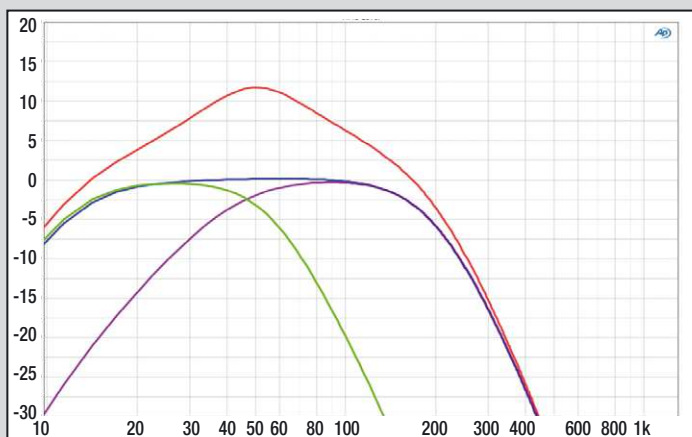
ebi-tec

Further information at www.ebi-tec.de

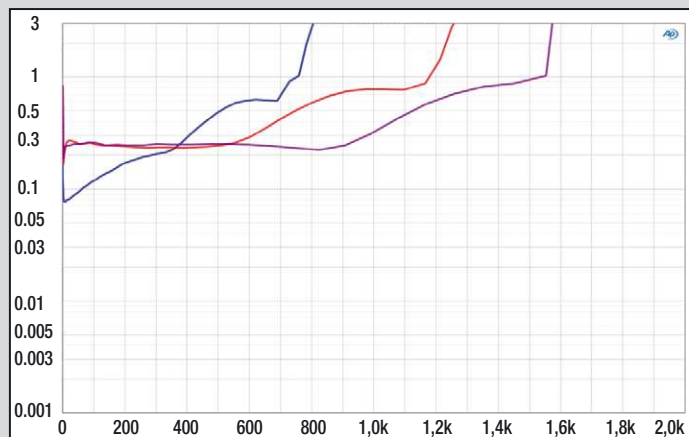
Tel.: +49 7191 93 33 79 - 0 E-Mail: vertrieb@ebi-tec.de

ebi-tec GmbH, Im Blütengarten 22, D-71554 Weissach i.T. (Germany)

CAR&HIFI Laboratory



The crossovers work reasonably well: high pass with Butterworth 6 – 48 dB, the low passes are consistent at 12 dB/octave, and the characteristics are roughly the same

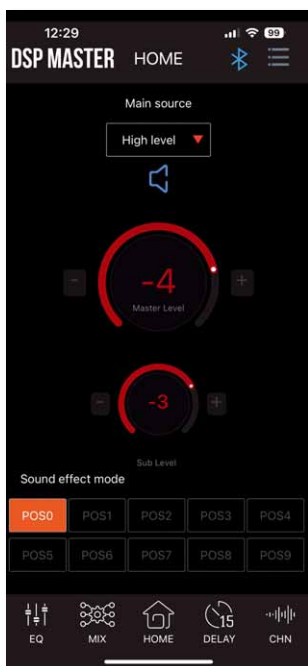


The SE1500.1 can manage 1500 W at 1 ohm; at 2 ohms, it delivers 1200 W, and at 4 ohms, it produces a respectable 750 W

dual-channel driver chip from Infineon. The three integrated 30-amp fuses on the circuit board make the 1.5 kilowatts possible, and we find two of them in the SE800.6DSP, which means that one kilowatt is

achievable. The amplification of the six-channel amplifier is state-of-the-art, equipped with the latest amplifier chips, which also come from Infineon. However, these are not just driver ICs, but the entire amplifier,

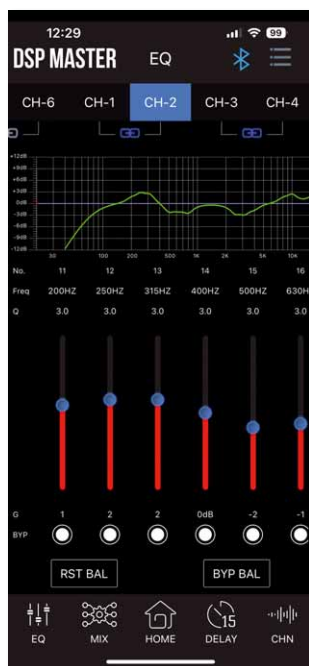
including the MOSFETs. The highlight is that the two-channel parts are simply installed on the circuit board and do not require a heatsink. Cooling is provided exclusively by the circuit board, which indicates an incredibly high efficiency. We also have a DSP, but SE is not very forthcoming with information here. We only see four dual-channel DACs; the rest is hidden (apart from a few peripherals in the form of Bluetooth or S/PDIF chips) in a large, mysteriously blackened multi-legged device that does the computing and is both a controller and an audio DSP. These components are not unknown; they can also be found in sister brands Crunch (CRE400.4) and almost certainly Hifonics (ZRX800/8), which use the same software and, therefore, have the same DSP platform. These are all affordable designs that require fewer components than top models, such as ESX's Vision series, which features high-quality components from Analog Devices and AKM.



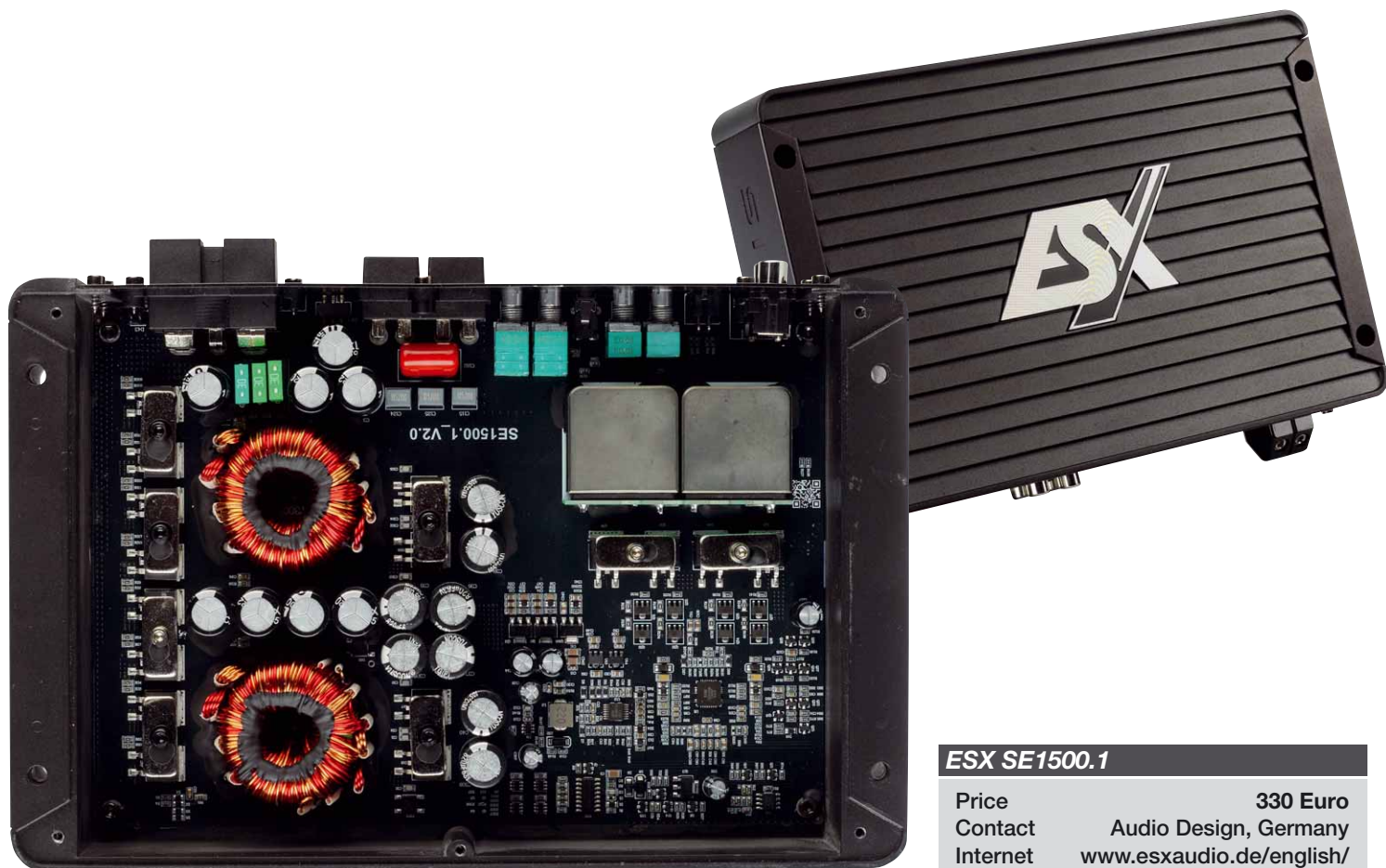
The app offers separate controls for overall level and bass level



The app divides the individual areas into crossovers, EQ, delay, etc., making it easy to use



The equalizer has a frequency response diagram for checking the settings



Everything is duplicated in the Mono: two mains transformers supply two pairs of transistors, and the two thick low-pass coils at the top right

Measurements and sound

The SE1500.1 is first up, with a price tag of EUR 330, and it slips into our Top Class, where it competes with significantly more expensive amplifiers. This makes the top marks it receives all the more impressive, starting with 750 watts at 4 ohms. At a load of 2 ohms, we measured almost 1.2 kW, and at 1 ohm, the SE1500.1 broke the 1500-watt barrier, blowing the three 30-amp fuses in the process. The SE800.6 is even more impressive, delivering more than 80 watts of channel power at 4 ohms. At 2 ohms, it manages 146 watts – as mentioned, without a heatsink and with two channels in a

Specifications

Channels	1
Power 4 ohms	757
Power 2 ohms	1177
Power 1 ohms	1553
Sensitivity max. mV	180
Sensitivity min. V	5,0
THD+N (<22 kHz) 5 W	0,088
THD+N (<22 kHz) Half Power	0,265
Signal-to-noise ratio dB(A)	80
Damping factor 20 Hz	152
Damping factor 40 Hz	151
Damping factor 60 Hz	152
Damping factor 80 Hz	155
Damping factor 100 Hz	158
Damping factor 120 Hz	164

Features

Low pass	40 – 150 Hz
High pass	–
Band pass	10 – 150 Hz
Bass boost	0 – 12 dB/50 Hz
Subsonic filter	10 – 50 Hz
Phase shift	–
High-level inputs	•
Automatic switch-on (Autosense)	–
RCA output	–
Start/stop capable	• (7,0 V)
Dimensions (L x W x H in mm)	250 x 163 x 47
Others	Remote control, EPS

ESX SE1500.1

Price	330 Euro
Contact	Audio Design, Germany
Internet	www.esxaudio.de/english/

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 %	★★★★★

Top Class

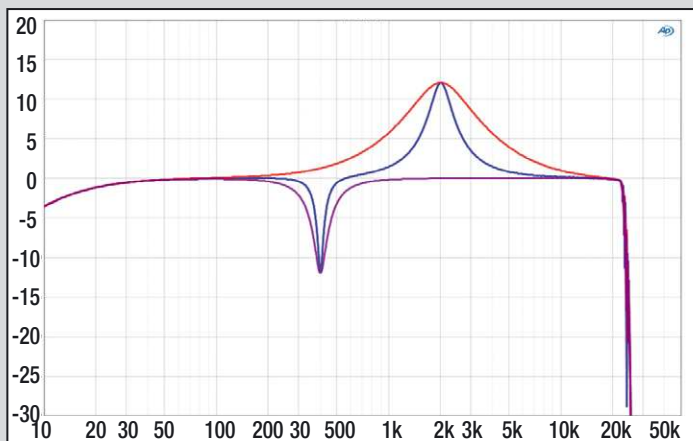


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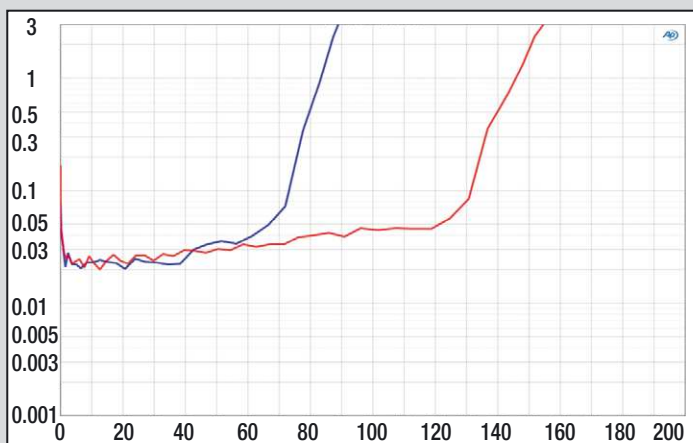
Price/performance: excellent

„State-of-the-art and at a very attractive price.“

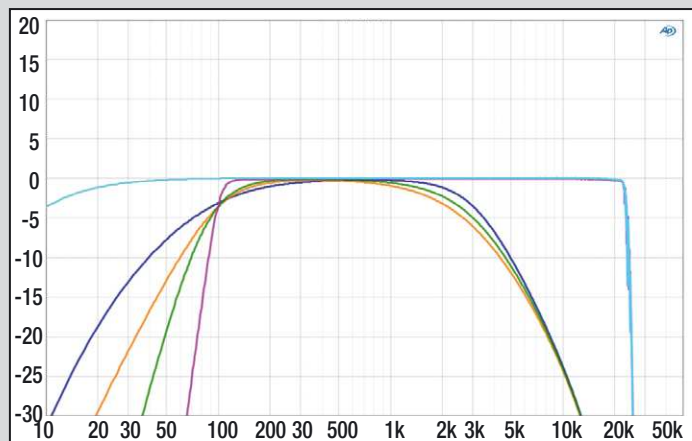
CAR & HIFI Laboratory



The 31 EQs per output offer useful adjustment ranges and can be used perfectly



Very punchy 83 W into 4 ohms and 146 W into 2 ohms with the SE800.6DSP

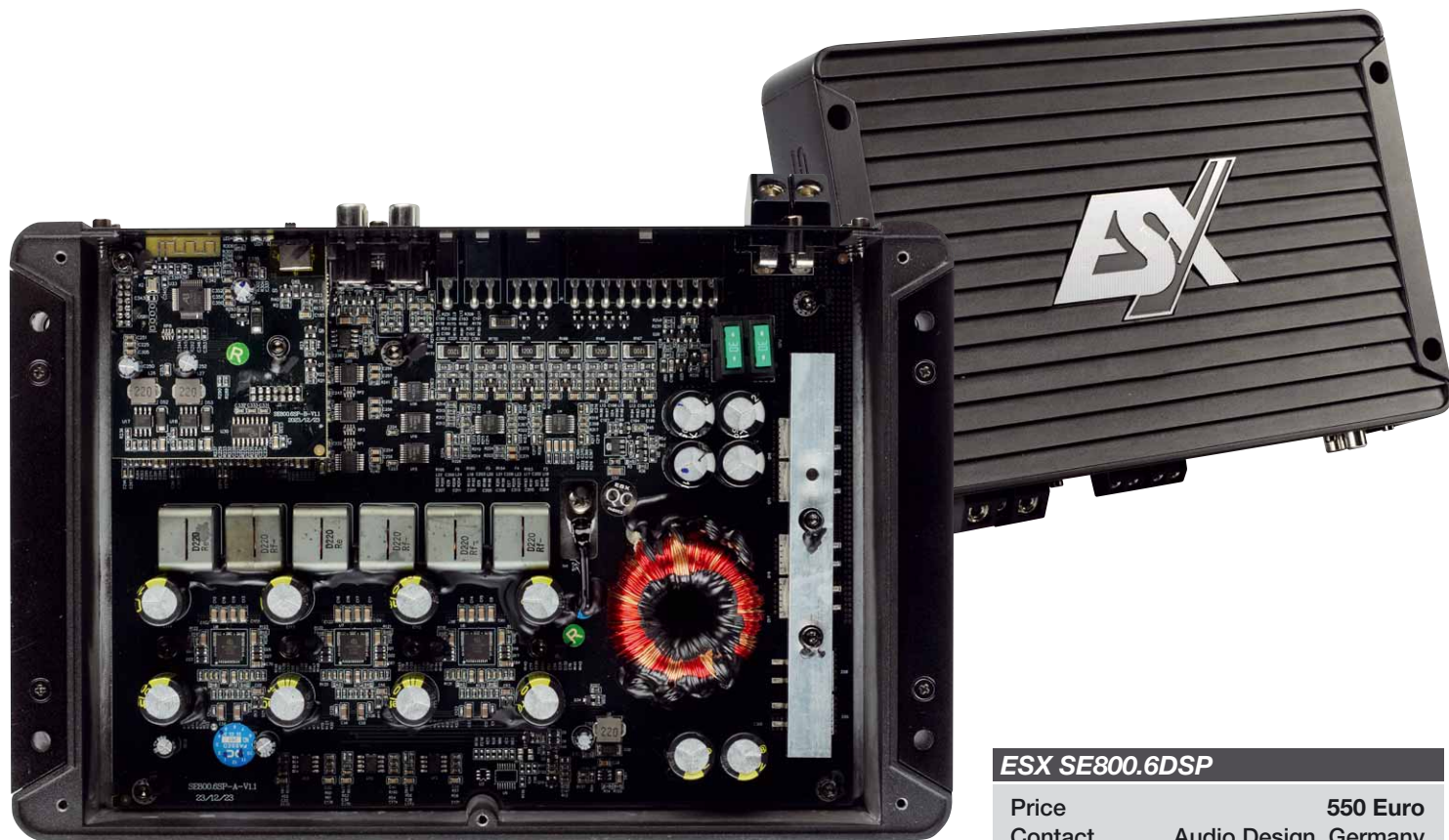


The crossovers work reasonably well: high-pass with Butterworth 6 – 48 dB, the low-passes agree at 12 dB/octave; the characteristics are about right

7 x 7 mm chip. All this is achieved with extremely low distortion, which suggests that the chip is not even being pushed to its limits; only the damping is modest, even with these miracle ICs. Sound-wise, the six-channel amplifier once again proves its worth, with its performance remaining unflinching even under harsh conditions. It sounds clean and clear even at high volumes, and the bass range remains contoured and clean at all times. But the SE800.6 also impresses at low volumes, delivering percussion and plucked strings with very nice micro dynamics. The Mono SE1500.1 is also the preferred means when things need to get a little louder. At low loads, it pushes powerfully down into the bass range and

Analog and digital inputs can be assigned to channels in the mixer with percentage accuracy; up to four channels can be defined as subwoofers under "Sub Set"





The daughter board with the Bluetooth receiver is mounted at the top left. The three amplifier chips, which do not require heatsinks, are located below the six Class D coils

makes the car body vibrate. But the ESX also impresses with a 4-ohm SQ sub, delivering beautiful bass lines and precise drums. Everything is in the green range – a bass amplifier doesn't need to do any more than that.

Conclusion

With its new SE amplifiers, ESX has launched a series that impresses with its high-quality build and excellent performance. Considering this, the prices of only EUR 550 and EUR 330 respectively can only be described as a bargain.

Elmar Michels

Specifications

Channels	6
Channel power 4 ohms W	6 x 83
Channel power 2 ohms W	6 x 146
Channel power 1 ohms W	–
Bridged power W	–
System power W	636
Sensitivity max. mV	–
Sensitivity min. V	–
THD+N (<22 kHz) 5W	0,024
THD+N (<22 kHz) half power	0,020
Signal-to-noise ratio dB(A)	86
Damping factor 20 Hz	12
Damping factor 80 Hz	15
Damping factor 400 Hz	21
Damping factor 1 kHz	24
Damping factor 8 kHz	11
Damping factor 16 kHz	3

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
Cinchausgänge	•, 2CH, processed
Start/stop capable	– (7,8 V)
Dimensions (L x W x H in mm)	250 x 163 x 47
Others	8-channel DSP

ESX SE800.6DSP

Price	550 Euro
Contact	Audio Design, Germany
Internet	www.esxaudio.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 %	★★★★★

Top Class



CAR & HiFi
INTERNATIONAL Germany 2/25

Price/performance: very good

„State-of-the-art and at a very attractive price.“

Hifonics ZXS900/6
– a sophisticated
six-channel power
amplifier that delivers
powerful performance

Flawless

- With the ZXS900/6, Hifonics offers a compact six-channel power amplifier that not only fills a gap in the ZXS series but also proves its capabilities through our testing.

BEST PRODUCT

Top Class

CAR & HiFi
INTERNATIONAL 2/25

BEST EMC

Undisturbed FM reception

CAR & HiFi
INTERNATIONAL 2/25





The Hifonics product range has something for everyone. From the SPL-oriented Zeus Extreme to the entry-level Mercury series, there are amplifiers for every requirement and budget. The important and powerful ZXR series is now available in two versions: in addition to the “normal” ZXR, there is also the ZXR/E Expansion series with reduced features specifically designed for use with DSPs. Among these, we find the ZXS amplifiers, which are perhaps the most interesting series, as they are more compact and less expensive than the ZXR while still offering more than just powerful performance.

Incidentally, a six-channel power amplifier was previously unavailable from Hifonics. Neither the digital ZXR nor the analog series offered six channels in one housing. Our ZXS900/6 is ideally suited for this application and seamlessly integrates into the compact ZXS series. With a front surface area of just 112 x 44 millimeters, the housing is a slim bar measuring 285 millimeters in length. The features are top-notch, with inputs that accept both high and low levels. The former includes EPS integrated into the cable for vehicles with speaker diagnostics and an automatic switch-on func-

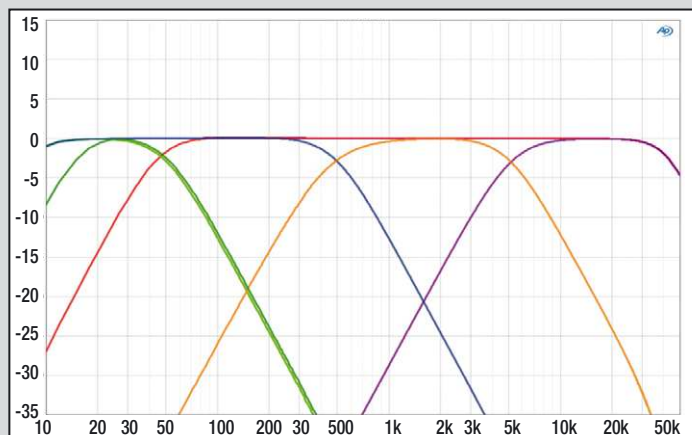
tion for both DC and signal. The filters are designed differently for the three channel pairs, ensuring they complement each other perfectly so that the ZXS900/6 can manage an entire system. And, of course, Hifonics has ensured that the ZXS remains operational in start-stop vehicles and does not interfere with radio reception.

The internal design of the 900/6 is characteristic of a ZXS; it essentially resembles a ZXS700/4 with two extra channels. This is positive news, as its four-channel sister model has proven its reliability across the board.

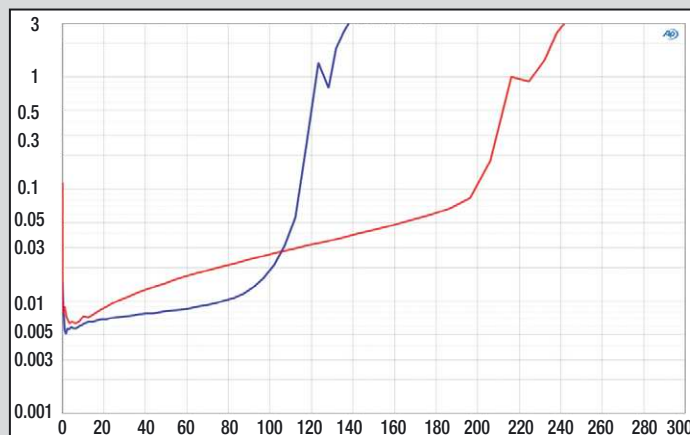


Neat layout featuring only the large components on the visible side of the circuit board; the driver chips are positioned on the rear

CAR & HIFI Laboratory



The crossovers of the ZXS vary for the three channel pairs. This enables filtering for all types of speakers, from subwoofers to tweeters



Remarkably low distortion at 4 ohms, with two zeros following the decimal point. With an impressive 120 and 230 watts, the ZXS provides powerful performance



High-pass, low-pass, and band-pass filters for the channel pairs, inputs for 2, 4, or 6 channels



The power supply is generously outfitted with a total of eight power semiconductors, and each channel has access to a pair of MOSFETs. Their control is concealed beneath the circuit board, which incorporates modern Class D driver chips, lending the board layout a very neat appearance. Only the six filter coils with external ferrite and the accompanying capacitors remain clearly visible.

Measurements and sound

As expected, the ZX5 passes our measurement tests with flying colors. With an SNR of 97 dB, it raises eyebrows, and distortion is so negligible that it earns a grade of 1+. It even offers more power than the four-channel model, which we measured at 118/207 W in 2022. The ZX5900/6 is in such great shape that it hits 220 watts at 4 ohms and delivers nearly 230 watts of channel power at 2 ohms. All channel pairs are bridgeable, and at full load with 6 x 2 ohms, our 900/6 shines with a full kilowatt in its compact housing. It would be hard to improve upon this, so we are eagerly awaiting the listening test, which—spoiler alert—turns out to be absolutely fantastic. The ZX5 paints incredible soundscapes in vibrant colors, with resounding female voices receiving just as much approval as the airy overtones of a saxophone. The spatial action is reproduced very accurately on stage, and the ZX5 plays beautifully

detailed with just the right amount of treble. The best part, however, is the dynamics, which never cease to amaze and simply bring joy. Sudden attacks make the listener jump, and the bass response is impressively fun.

Conclusion

The ZX5900/6 is an excellent device that performs exceptionally well. The build quality and features are

outstanding, while the setup and performance are truly impressive. There's nothing to complain about, absolutely nothing.

Elmar Michels

Specifications	
Channels	6
Channel power 4 ohms W	6 x 128
Channel power 2 ohms W	6 x 228
Channel power 1 ohms W	–
Bridged power W	3 x 456
System power W	1014
Sensitivity max. mV	220
Sensitivity min. V	5,2
THD+N (<22 kHz) 5W	0,006
THD+N (<22 kHz) half power	0,009
Signal-to-noise ratio dB(A)	97
Damping factor 20 Hz	104
Damping factor 80 Hz	103
Damping factor 400 Hz	101
Damping factor 1 kHz	93
Damping factor 8 kHz	13
Damping factor 16 kHz	3
Features	
Low pass	50 – 500 Hz (CH34)/ 50 – 5k Hz (CH56)
High pass	50 – 5k Hz (CH12), 10 – 500 Hz (CH56)
Band pass	10 – 5k Hz (CH56)
Bass boost	–
Subsonic filter	via HP (CH56)
Phase shift	via DSP
High-level inputs	•
Auto turn-on	•, DC or signal
Cinchausgänge	–
Start/stop capable	• (7,1 V)
Dimensions (L x W x H in mm)	285 x 112 x 44
Others	2, 4, 6CH In, EPS

Hifonics ZX5900/6

Price	400 Euro		
Distributor	Audio Design, Germany		
Internet	www.hifonics.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 %	★★★★★

Top Class

★★★★★

CAR & HiFi

INTERNATIONAL Germany 2/25

Price/performance: very good

„A welcome addition to the ZX5 series.“

Audio System HX 200
Dust Evo3 – Premium
speaker now also
available as an 8"

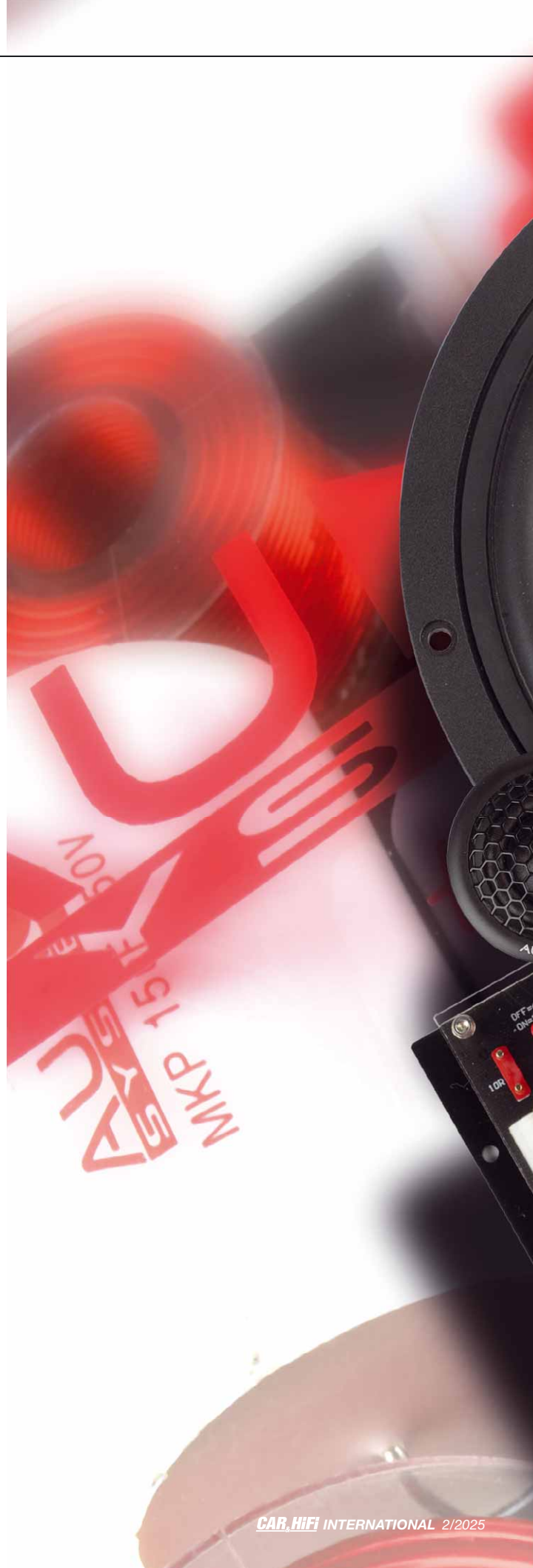
Top Notch

- The HX Dust speakers are among the finest in Audio System's product range. Now, with the HX 200 Dust Evo3, a large combo is available, which we will, of course, put through its paces in our test.

BEST PRODUCT

Absolute Top Class

CAR & HiFi
INTERNATIONAL 2/25



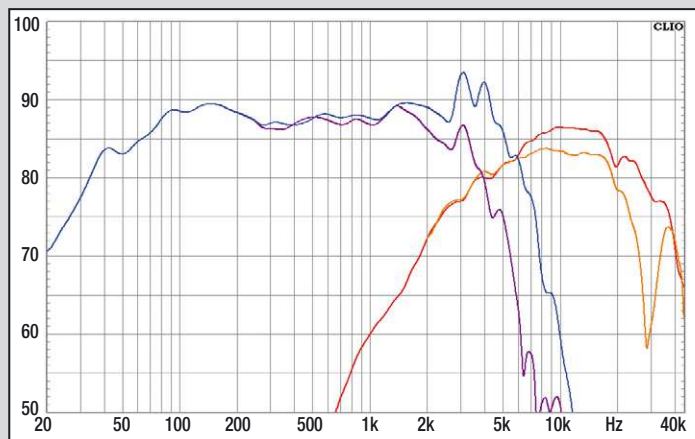


With the 200, Audio System completes its HX Dust speaker series, meaning that component systems are now available in sizes 100, 130, 165, and 200 mm. Our HX 200 Dust is also available as an EM version, which stands for Easy Mounting. This is a system with an install tweeter without a grille and flange and smaller crossovers. An active version should follow at some point, which is no major effort. The star of the day is the new EX 200 Dust midbass driver, which, like all Dust



The HX Dust 200 mid-bass driver features an elegant die-cast basket with excellent ventilation and a sophisticated neodymium motor

CAR&HIFI Laboratory



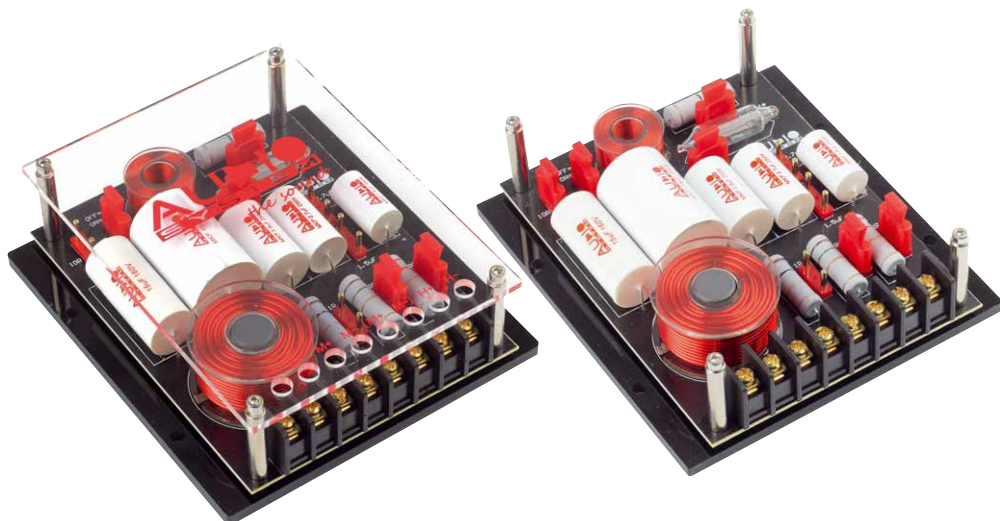
The woofer exhibits cone resonances above 3 kHz, but these are harmless



As with all drivers of the series, the cone consists of a paper pulp layer with glass fiber reinforcement

drivers, features a sturdy die-cast aluminum basket. It is also wonderfully airy, allowing an unobstructed view of the voice coil. We are dealing here with a reasonably large 38 mm or 1.5" specimen, which is wound on a perforated aluminum carrier, ensuring the best possible cooling. There is also a small pole piece ventilation featuring a rounded opening without sharp edges to minimize airflow noise. With the HX Dust series, everything must be of the highest quality, which is why expensive neodymium magnets are used. The cone is made of a reinforced paper construction, a standard feature in the HX Dust series. And finally, in the center of the diaphragm, we have the eponymous dust cap, a semi-soft rubber piece with good damping. The Dust tweeter is known for its use in the smaller systems and is very popular for a good reason. It originates from the renowned Wavacor forge and features an unusual 22 mm dome diaphragm with a wide surround. To compensate for the difference from the 25 mm model, the tweeter was equipped with a coupled chamber, ensuring that the driver is at least equal to a larger dome at both the top and bottom. The crossover is highly variable, as is typical for Audio System. The basic circuit is 12 dB for both low-pass and high-pass, but you can play around with the values of the high-frequency capacitor, which also affects the crossover frequency. On the woofer, the cross capacitor and an impedance element can be connected or disconnected, which regulates the midrange level. The purpose of this is to adjust the Dust System perfectly to the installation conditions in various vehicles, naturally in the interest of optimal sound quality.

Good component quality and a wide range of circuit options make the HX Dust crossover a top choice



Measurements and Sound

With such a high-end (and high-priced) speaker system, it goes without saying that the measurement results should be flawless, which is, of course, the case with our HX 200 Dust Evo3. In the tweeter, the coupled chamber lowers the resonance frequency to 750 Hz, delivering full sound pressure from 1 kHz. Above 20 kHz, it gets a little quieter, but there's still something there. The woofer has a resonance frequency of just 48 Hz, which could mean a bass festival. Thanks to the variable crossover, the SPL in the presence range between 1 kHz and 3 kHz can be controlled within wide limits, which is helpful for unfavorable mounting holes. The cone resonances remain on the axis, however, and prove to be relatively harmless at angles. Especially since there are no corresponding distortion peaks, both Audio System drivers remain clean here. In the listening test, the

large Dust is a lot of fun because it plays very nicely and carefully handles the music. However, this musical behavior does not prevent the system from stepping on the gas and, above all, producing real bass. This is a rare combination that we find absolutely fantastic and very nicely done.

Conclusion

The HX 200 Dust Evo3 is not an inexpensive speaker system, but it delivers excellent performance for its price – a welcome addition to the 20" speaker range.

Elmar Michels

Specifications

Basket diameter	224 mm
Mounting diameter	192 mm
Mounting depth	90 mm
Magnet diameter	65 mm
Membrane tw	22 mm
Casing tw	43 mm
X-over slope mid/high	6, 12/12 dB
Tweeter protection	switchable light bulb
Tweeter level adjustable	-4, -3, -2, -1, 0, +1 dB
Grid	–
Others	adjustable X-O frequency, slope, midrange, tweeter level
Nominal impedance	3 Ohm
DC resistance Rdc	2,51 Ohm
Voice coil inductance Le	0,12 mH
Voice coil diameter	38 mm
Cone area Sd	214 cm ²
Resonance frequency fs	48 Hz
Mechanical Q Qms	8,31
Electrical Q Qes	0,67
Total Q Qts	0,62
Equivalent volume Vas	26,1 l
Moving mass Mms	27,3 g
Rms	0,99 kg/s
Cms	0,41 mm/N
B*I	5,55 Tm
SPL 2v, 1m	88 dB
Amplifier power recommendation	50 – 150 W



The HX Dust tweeter features a 22 mm fabric dome and a coupled chamber

Audio System HX 200 Dust Evo3

Price	700 Euro
Distributor	Audio System, Germany
Internet	www.audio-system.de/english/

Rating

► Sound	55 %	★★★★★
Bass foundation	11 %	★★★★★
Neutrality	11 %	★★★★★
Sound stage	11 %	★★★★★
Spatiality	11 %	★★★★★
Dynamics	11 %	★★★★★
► Lab	30 %	★★★★★
Frequency response	10 %	★★★★★
Max. SPL	10 %	★★★★★
Distortion	10 %	★★★★★
► Practice	15 %	★★★★★
Crossover	10 %	★★★★★
Build quality	5 %	★★★★★

Absolute Top Class



CAR & HiFi
INTERNATIONAL Germany 2/25

Price/performance: very good

"A welcome addition to the elegant HX Dust series."

GZRC 165.2SQX – Sound
Quality Speakers from
Ground Zero

Quantum Dynamics

► With the GZRC 165.2SQX, Ground Zero is launching what may be its most significant speaker series renovation this year. We are very excited to see and hear the results.





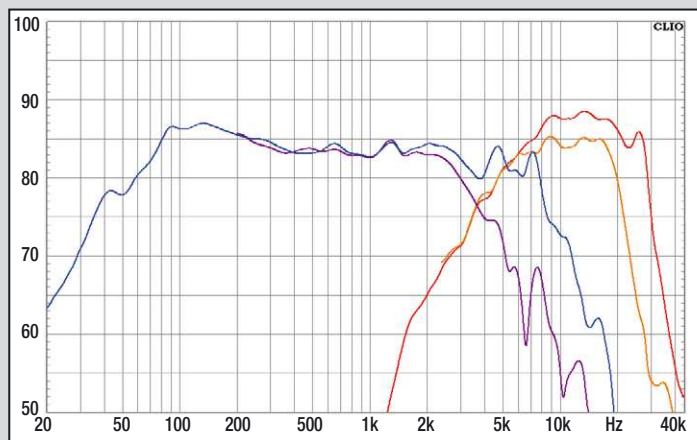
In addition to the elegantly designed Hydrogen series, the Radioactive range forms the core of Ground Zero's extensive speaker program. To distinguish itself from the more affordable Titanium and Iridium series, Radioactive does not compromise on materials. The only drawback to the still reasonably priced 6.5" GZRC 165.2SQX system is the midbass driver's frame, which is 'only' made of sheet steel rather than cast aluminum like in the more upscale series. This can easily be overlooked, especially since it focuses more on value than sound quality. Almost everything else is top-notch in our test model, which represents an entire family in our editorial office. There are active component systems without a crossover, and with the SQX-IV, an easy-to-install set featuring separately constructed crossover branches. The woofer is available separately as a replacement. Three-way enthusiasts can look forward to a newly developed midrange driver soon. A striking new feature of the GZRC 165.2SQX is the phase plug at the center of the woofer cone. Made of aluminum, it acts effectively as a heatsink since it sits on the pole piece. As a side effect, any standing waves between the pole piece and dust cap are mitigated, something Ground Zero considered right from the start of development, given the extensive software involved. This allows the cone, suspension, and motor to be simulated with specialized software components, which were already demonstrated last year in the



The motor and suspension of the 6.5" driver are newly developed and recognizable by the wine-red spider

award-winning SQX subwoofer. Another result of this development is proudly displayed in wine red beneath the black aluminum membrane: the new spider made of Conex composite fabric, which proved to have very linear characteristics in subsequent testing with the Klippel system. The SQX tweeter appears inconspicuous; a 25-millimeter silk dome is positioned in front of us. As a special feature, there is no coupled chamber; instead, a damped central bore ventilates the dome. The crossover of our luxury SQX system impresses with high-quality components and a sophisticated circuit design. A 12 dB filter controls the aluminum cone of the midbass driver, while the tweeter even features a steep 18 dB crossover to align the dome with the midbass driver's extended frequency range.

CAR & HIFI Laboratory



The Ground Zero crossover has both drivers firmly under control, resulting in an exemplary linear frequency response. The tweeter runs up to almost 30 kHz



This time, Ground Zero has dispensed with pole piece ventilation, replacing it with a phase plug at the front

Measurements and Sound

The aluminum cone of the 6.5" driver simply refuses to stop producing midrange. The driver operates unfiltered up to 20 kHz, but the rigid cone breaks up into a series of resonances. This is why careful filtering is necessary to achieve the exemplary, almost perfect frequency response measured at the microphone. The tweeter also deserves unreserved praise; it operates without a crossover from 2 kHz to nearly 30 kHz, making it one of the broadband types. Especially at the lower end, it performs almost distortion-free, which is a remarkable achievement for a loudspeaker. This also applies to the aluminum 6.5" driver; we didn't measure a single disturbing distortion peak across the entire frequency range! Sound-wise, it offers a real firework display of enthusiasm and dynamics. Rarely does a speaker provide so much enjoyment while listening. But never at the expense of showmanship, as the system rightly carries its SQ in its name. The highest sound quality is delivered at low volumes, whether it's delicately whispered vocals or overtones precisely placed in the room. Addition-



The 25 mm fabric dome tweeter is unobtrusive in appearance but delivers impressive sound



Ground Zero's Radioactive crossover features neat component selection and careful wiring

nally, it features a highly accurate bass range that will fully satisfy SQ fans, even if it isn't about brutal bass orgies. Overall, the SQX performs at the highest level – hats off!

Conclusion

With the GZRC 165.2SQX, Ground Zero has made a significant advance-

ment in its Radioactive series. The discreet black set performs at the highest level – the best Radioactive ever.

Elmar Michels

Specifications

Basket diameter	165 mm
Mounting diameter	145 mm
Mounting depth	68 mm
Magnet diameter	90 mm
Membrane tw	25 mm
Casing tw	48 mm
X-over slope mid/high	12/18 dB
Tweeter protection	–
Tweeter level adjustable	+2, 0 -2 dB
Grid	•
Others	–
Nominal impedance	3 Ohm
DC resistance Rdc	2,72 Ohm
Voice coil inductance Le	0,13 mH
Voice coil diameter	25 mm
Cone area Sd	131 cm ²
Resonance frequency fs	64 Hz
Mechanical Q Qms	5,10
Electrical Q Qes	0,74
Total Q Qts	0,64
Equivalent volume Vas	10,9 l
Moving mass Mms	13,6 g
Rms	1,07 kg/s
Cms	0,46 mm/N
B*I	4,48 Tm
SPL 2v, 1m	86 dB
Amplifier power recommendation	30 – 100 W

Ground Zero GZRC 165.2SQX

Price	280 Euro
Distributor	Ground Zero, Germany
Internet	www.ground-zero-audio.com

Rating

► Sound	55 %	★★★★★
Bass foundation	11 %	★★★★★
Neutrality	11 %	★★★★★
Sound stage	11 %	★★★★★
Spatiality	11 %	★★★★★
Dynamics	11 %	★★★★★
► Lab	30 %	★★★★★
Frequency response	10 %	★★★★★
Max. SPL	10 %	★★★★★
Distortion	10 %	★★★★★
► Practice	15 %	★★★★★
Crossover	10 %	★★★★★
Build quality	5 %	★★★★★

Top Class



CAR & HiFi
INTERNATIONAL Germany 2/25

Price/performance: very good

"The Radioactive SQX plays damn well."

The equipment classes

In **CAR&HIFI INTERNATIONAL**, all products are classified into one of five performance classes:

Ratings only comparable within their class: ★ (worst) ... ★★★★★ (best)

- **Absolute Top Class** – Uncompromising products with outstanding build and sound quality
- **Top Class** – Products for higher demands with excellent performance, sound, and processing quality
- **Upper Class** – Products for quality-conscious connoisseurs who value good value for money
- **Middle Class** – Solid products that meet average requirements in all respects
- **Entry Level** – Qualitatively convincing products with an excellent price-performance ratio

The rating

Devices are tested and rated according to strict criteria and can reach up to five “stars”. Ratings are only comparable within a class and device type. To score four stars in the top class, the device must meet more demanding requirements than for a 4-star rating in the upper class. The model names, prices (RRP), and equipment specifications for the devices always refer to the German market at testing. For some devices, prices and features may differ in the individual countries.

The star rating provides comprehensive and concise orientation when searching for devices for your in-car entertainment. However, depending on your situation and application, the device with the best star rating is not automatically the best fit for you. For example, an amplifier may score very well overall but may be difficult to connect to your car radio. So additional effort has to be considered for integration or a different model might be the better choice. Therefore, you should additionally consult the detailed information provided in the text of the test reports.

The test equipment of the **CAR&HIFI INTERNATIONAL** editorial team

For our tests, **CAR&HIFI INTERNATIONAL** uses – among others – the following special measuring instruments and reference devices for the comparison of image and sound quality:

- Audio Precision
- CLIO 12
- Kenwood CS-6030
- Microtech Gefell

LP Hoodie or T-Shirt »GEFÜHLSECHT«



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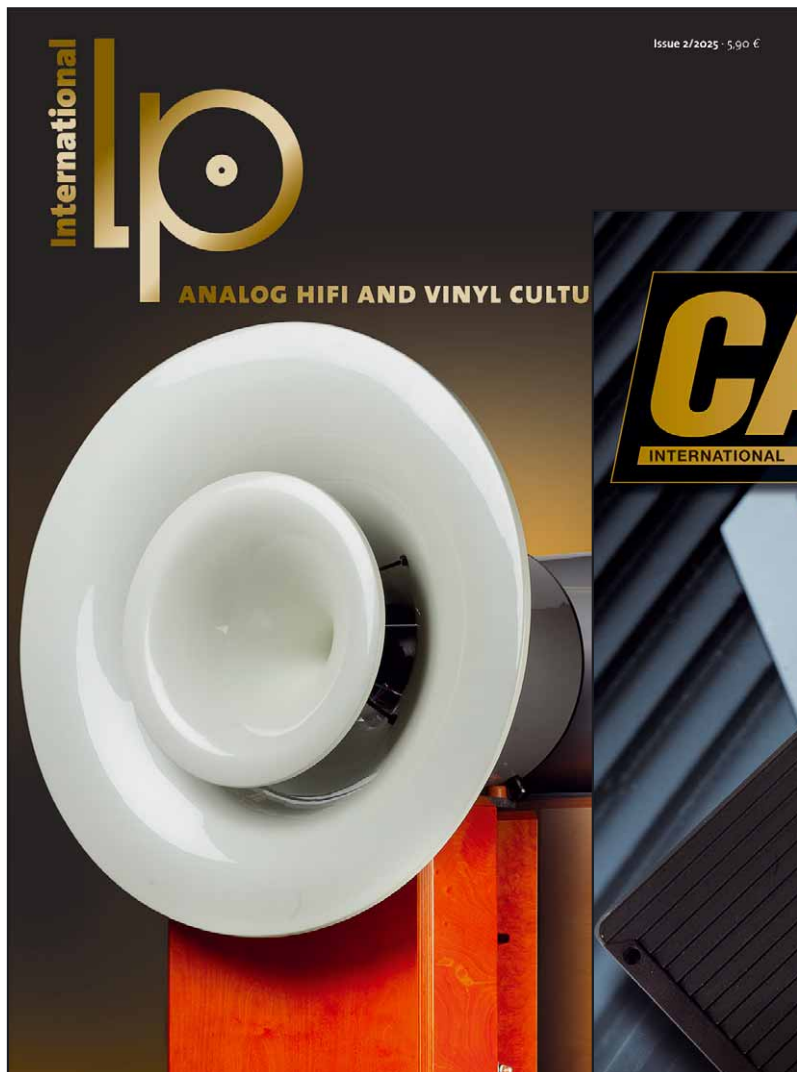


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