

# Subwoofer

## GZAW 15-2.5KD2

*Anleitung / Owner's manual*  
(AWV3.0)

### Features

- *High power 38 cm / 15" subwoofer*
- *Klippel® optimized*
- *Efficient magnet*
- *Strong cast basket*
- *Fiber reinforced non pressed paper cone*
- *75 mm / 3" voice coil*
- *High-roll U-surround*
- *Push terminal*

# GZ AUDIO GZAW 15-2.5KD2

## Introduction

Thank you for choosing a great GROUND ZERO product! We hope you will enjoy this product from the GZ AUDIO series.

This owner's manual contains information you need to use this product. Please read it carefully in order to achieve the best possible result. Your car audio specialist or our customer support will answer further questions about the product and its use.

Subwoofers are an important part of your car audio system. Please keep in mind, however, that they can only achieve their full performance if all other components of the entire system are carefully coordinated with one another. It is therefore recommended consulting a car audio specialist dealer or workshop for the assembly of the system and its installation and sound adjustments.

## GZ AUDIO Series – High-Grade Technology

Products GZ AUDIO by GROUND ZERO series meet the requirements of even the most demanding customers. All models are characterized by an astonishing performance, great sound quality and extremely high sound pressure whenever required. The subwoofers have been developed to handle a huge amount of input power reaching extremely high bass levels to be used successfully even under competition conditions but also for everyday music reproduction.

## General installation note

- Never drill a hole to the vehicle's gas tank or brake lines, to wirings or any other important vehicle parts!
- Never pass wires over sharp edges or vehicle parts to avoid any kind of damage
- Keep the wiring away from the antenna and electronic devices contributing to radio reception
- Lay the power supply wiring always separated from speaker wiring to avoid disturbance
- Use adequately dimensioned power and speaker wires to connect the components

## Safety instructions

**Safety instructions:** Keep all parts of the content and the packaging away from children and pets to avoid accidents and the risk of suffocation. Permanently extreme levels of over 85 dB can lead to irreparable damage to the hearing. Music systems with high amplifier output power can reach levels of 130 dB or more. Extreme levels can also hinder the perception of important traffic noises and distract from what is happening on the road. Ground Zero GmbH and its sales partners expressly assume no responsibility for hearing damage, physical damage or any damage to property or consequential damage resulting from improper or careless use or improper installation of its products. In particular, any claims are forfeited through the use under competitive conditions.

**Manufacturer's declaration:** Hereby, Ground Zero GmbH declares that this product conforms to the rules of the following EU directives (including all applicable changes): 2011/65 / EU RoHS2 and 2001/95 / EC directive on general product safety.

The full text of the EU declaration of conformity is available at [www.ground-zero-audio.com](http://www.ground-zero-audio.com). Loudspeakers contain magnetized metals and some valuable raw materials and must not be disposed of with normal household waste. Please leave defective or no longer required

## Terms of warranty

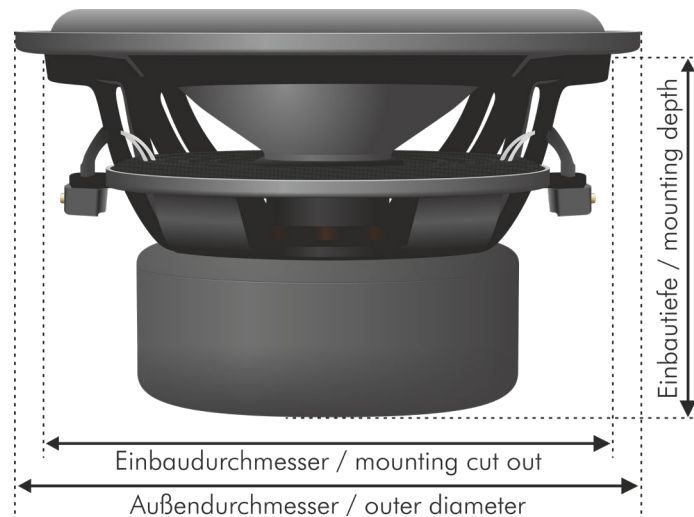
The limited warranty for this product is covered by GROUND ZERO's regional distribution partners and their terms and conditions. For further information contact your local retailer or distributor.

# GZ AUDIO GZAW 15-2.5KD2

## Specifications

|                       |                       |
|-----------------------|-----------------------|
| <i>Model</i>          | <b>GZAW 15-2.5KD2</b> |
| <i>voice coil</i>     | 75 mm / 3"            |
| <i>Impedance</i>      | 2 x 2 $\Omega$        |
| $F_s$                 | 28 Hz                 |
| $Q_{ms}$              | 4.91                  |
| $Q_{es}$              | 0.32                  |
| $Q_{ts}$              | 0.30                  |
| $V_{as}$              | 59.79 L / 2.11 cu.ft  |
| $M_{ms}$              | 471 g                 |
| $X_{max}$ (p2p)       | 30 mm / 1.18"         |
| <i>efficiency</i>     | 88 dB                 |
| $B_L$                 | 31.53                 |
| <i>power handling</i> | 2500 Watts            |

symbolische Darstellung  
symbolic illustration

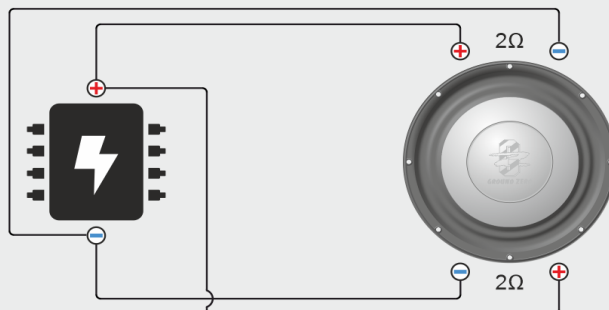


|                         |                 |
|-------------------------|-----------------|
| <i>outer diameter</i>   | 395 mm / 15.55" |
| <i>mounting cut out</i> | 357 mm / 14.06" |
| <i>mounting depth</i>   | 246 mm / 9.69"  |

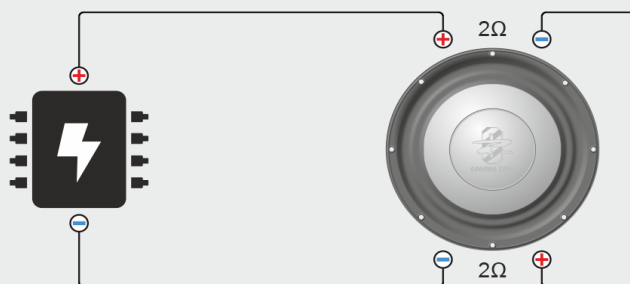
# GZ AUDIO GZAW 15-2.5KD2

## Wiring options

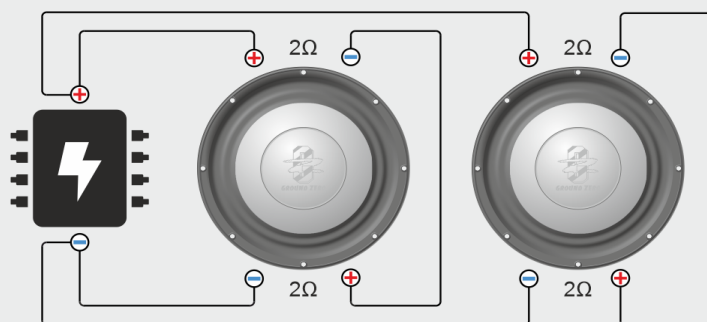
Parallel wiring → 1 Ohm



Serial wiring → 4 Ohms



Parallel / serial mixed wiring → 2 Ohms



## Verified with KLIPPEL®

GROUND ZERO is using the worldwide accepted **KLIPPEL® R&D Analyzer KA3** measurement system for speaker development during the German in-house development as well as for QC reporting for most production lines at the factory. The results of LPM and LSI measurements are the basis for evaluating and verifying further development enabling to offer perfectly working products in any practical application. Continuous and advanced trainings for development employees ensure the highest possible qualification.

The **Linear Parameter Measurement (LPM)** module of the KLIPPEL® Analyzer System is dedicated to identifying the electrical and mechanical small signal (Thiele/Small) parameters of electro-dynamical transducers with high accuracy. It is based on the electrical impedance by measuring the voltage and current at the speaker terminals. An additional benefit of the displacement measurement is the identification the suspension creep parameters, resulting in better accuracy of the loudspeaker model at low frequencies. The LPM provides tools to identify and avoid typical problems such as poor signal to noise ratio and malfunction due to nonlinear effects of the driver or amplifier limiting.

The **Large Signal Identification (LSI)** module measures the linear, nonlinear and thermal parameters of transducers operated in free air. The transducer is operated under normal working conditions (vertical position and fixed clamped in a laser stand or enclosure). Starting in the small-signal domain, the amplitude is gradually increased up to limits admissible for the particular transducer. The maximal amplitude is determined automatically using the identified transducer parameters and general protection parameters describing the thermal and mechanical load. The identification of the model parameters is performed in real time with an adaptive system. It is based on the estimation of the back EMF from the voltage  $U(t)$  and current signal  $I(t)$  measured at the electrical terminals. The identified model allows locating the sources of the nonlinear distortion and their contribution to the radiated sound. The dynamic generation of a DC-part in the displacement, amplitude compression and other nonlinear effects can be investigated in detail. After the initial identification, a temporal parameter variation and long-term thermal effects can be investigated.

KLIPPEL® R&D hardware and dB-Lab software for LPM/LSI measurements meet the following standards:

**Consumer Electronics Association**

CEA-2031 (LSI module)

**International Electrotechnical Commission**

IEC 60268-5, IEC 60268-7, IEC 60268-22, IEC 62458,

IEC 62459, IEC WD 63034

**European Standards**

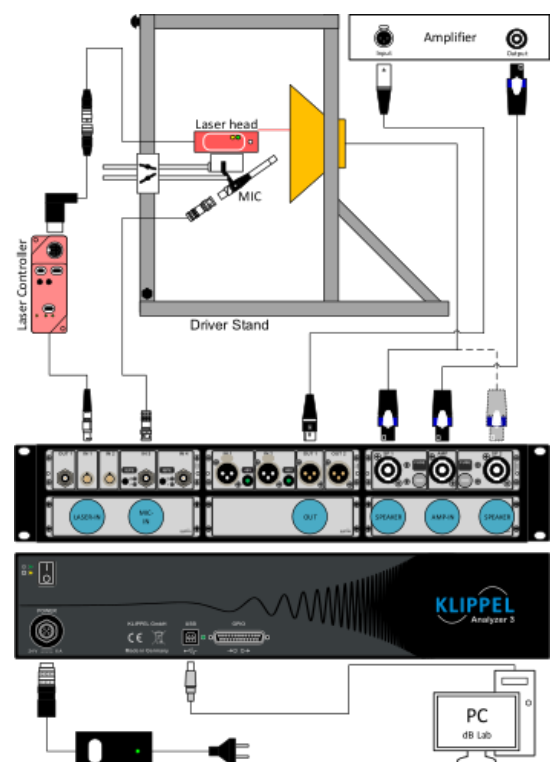
BS EN 54-24

**Audio Engineering Society**

AES2

**Institute of Electrical and Electronics Engineers**

IEEE 269, IEEE 1206, IEEE 1329, IEEE 1652



KLIPPEL® is a registered trademark of KLIPPEL GmbH

## Respect the Music



Musik hören kann unter anderem emotional, beeindruckend, entspannend oder unterhaltsam sein. Dabei spielt es kaum eine Rolle, welche Art von Musik der jeweils persönliche Favorit ist, also ob es sich um instrumentale Musik, Jazz, Electro, Latin, Klassik, Rock oder eine andere Musikrichtung handelt. Die Wiedergabequalität bei dem jeweils gewünschten Pegel spielt dabei hingegen eine wichtige Rolle. Manche Musik verlangt nach gehobenen Pegeln, während andere eher leisere Töne bevorzugt.

GROUND ZERO berücksichtigt all die unterschiedlichen Wünsche der Kunden bei der Entwicklung neuer Produkte. Hierbei gilt stets die Zielsetzung, einen möglichst realistischen Sound zu erzeugen und damit die Seele der Musik und die Intention des Künstlers zu vermitteln. Zu einem einzigen Satz zusammengefasst: RESPECT THE MUSIC!

*Listening to music can be emotional, impressive, relaxing or enjoyable. At that, it doesn't really matter what kind of music is the personal favorite, whether it's Instrumental, Jazz, Electro, Latin, Classic, Rock or any other music direction. However, audio reproduction quality at each desired volume is elementary. Some music styles require higher levels while others prefer the soft tones.*

*GROUND ZERO considers all the different wishes of customers during the development of new products. Along with this, the target is to create the most realistic sound, to transfer the soul of the music and the intention of the performer. Summarized to one phrase: RESPECT THE MUSIC!*



GROUND ZERO Produkte werden in Deutschland entwickelt  
GROUND ZERO products are engineered in Germany  
GROUND ZERO - international sponsor of



Ground Zero GmbH  
Erlenweg 25, 85658 Eggenstein, Germany  
Tel. +49 (0)8095/873 830 Fax -8310  
[www.ground-zero-audio.com](http://www.ground-zero-audio.com)

