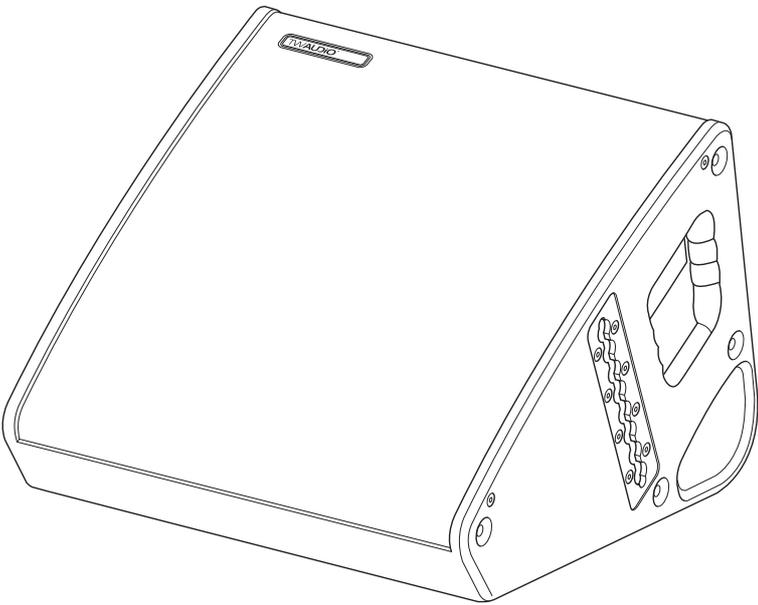


C12 | Operating Manual



Introduction

Thank you for choosing a high quality product "MADE IN GERMANY" from TW AUDiO.

The C12 loudspeaker is a wedge loudspeaker in a low-profile enclosure. It therefore blends perfectly into any environment. Inconspicuous. Elegant. Harmonious.

The coaxial loudspeaker use has a mid-high driver with 3" membrane/voice coil. The large 1.4" mid-high horn ensures perfect dispersion characteristics in the mid-high tone range. The passive crossover in the C12 loudspeaker sums up low and mid-range tones especially accurately and phase-coherently. Thanks to the truly low takeover frequency of the mid-high driver, the C12 loudspeaker sounds even more direct in the important voice range. And this with standard amplifiers without additional corrections or expensive controllers.

The C12 loudspeaker is recommended for all applications where the concern is compact size.

If you lend your product to another party, inform that party of the safety-related operating procedures and hand over this operating manual. If you require additional copies of this operating manual, they can be obtained free of charge from TW AUDiO or online by downloading from: www.twaudio.de

Instructions in the operating manual

Strictly adhere to the instructions contained in this operating manual that are marked as follows:



This symbol in combination with the signal word "Warning" identifies a potentially hazardous situation. Failure to comply with this safety instruction can lead to serious injury or even death.



This symbol in combination with the signal word "Warning" identifies a potentially hazardous situation for persons with a pacemaker. Failure to comply with this safety instruction can lead to serious injury or even death.



This symbol in combination with the signal word "Caution" identifies a potentially hazardous situation. Failure to comply with this safety instruction can lead to light or moderate injury.



This symbol in combination with the signal word "Note" identifies a potentially hazardous situation. Failure to comply with this safety instruction can lead to product damage.



This symbol in combination with the signal word "Tip" identifies additional information or notes that will simplify working with TW AUDiO products on the basis of practical experience.

Notes on the products

**Read manual
before use!**

Before setting up the device, read the operating manual carefully and keep this document in a safe place together with the C12 loudspeaker.

General information

Operating manual: OM-C12
Version 1.0 en, 09/2016
© by TW AUDiO 2016; all rights reserved.

All information contained in this operating manual was correct to the best of our knowledge at the time of printing.

Quality warranties or assurance of suitability for a certain type of use based on the technical specifications, dimensions and weights are not granted by TW AUDiO.

TW AUDiO also shall not assume liability for any secondary damage (property damage and/or personal injury) nor for the failure to comply with this operating manual.

TW AUDiO reserves the right to make changes that take into account the latest engineering advancements.

TW AUDiO is pleased to receive suggestions for improvement and recommendations on this operating manual. Please send us any feedback you may have to the following e-mail address.

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1. Safety | Intended use

Please adhere to the following safety instructions to avoid risks when operating the loudspeakers.

The C12 loudspeaker was developed for use in professional sound systems. The loudspeaker may only be used by trained and qualified personnel.

Note the operating modes described in this operating manual. Other uses are not permissible.

TW AUDiO GmbH shall not be held liable for any damage that ensues from unintended use.



Loudspeakers generate an electromagnetic field. Persons with pacemakers are not permitted to remain in the immediate vicinity of loudspeakers as the electromagnetic fields can cause pacemakers to malfunction.



Ensure that the units are in a stable position and are firmly attached. A falling loudspeaker can result in serious personal injury and property damage.

When using and assembling TW AUDiO loudspeakers, only use materials specified by TW AUDiO. These tasks must be performed by qualified personnel. Adhere to the applicable safety regulations.



When using the loudspeakers, ensure that they are not exposed to the following ambient conditions:

- Direct sunlight
- Moisture
- Jolting
- Dust



Keep away from the immediate vicinity of loudspeakers that are operated at high sound pressure levels. These loudspeaker systems are capable of endangering your health. Sound levels beginning as low as approx. 90 dB SPL can lead to long-term hearing impairment.



Avoid:

- Feedback
- Distorted signals (clipping)
- Peaks that result when devices are switched on or hot plugged and unplugged.

These signals can lead to loudspeaker overload.



Ensure that the loudspeaker is not exposed to permanent thermal overloads. This may cause a fire and result in serious personal injury and property damage.

Note that TW AUDiO does not provide a warranty for damage that can be attributed to this type of overload and therefore cannot be held liable for any secondary damage.



A permanent, magnetic field is present in the immediate vicinity of loudspeakers. Ensure that objects which react sensitively to magnetic fields are not located in the immediate vicinity of the loudspeaker. In particular, this applies to magnetic data carriers, EC cards and CRT displays. A distance of approx. one meter is sufficient to avoid damage.



Check loudspeakers and accessory parts regularly for visible wear. This is essential to ensure fault-free operation on a permanent basis. Replace worn parts promptly. Spare parts can be obtained from TW AUDiO.

2. Overview

2.1 Components

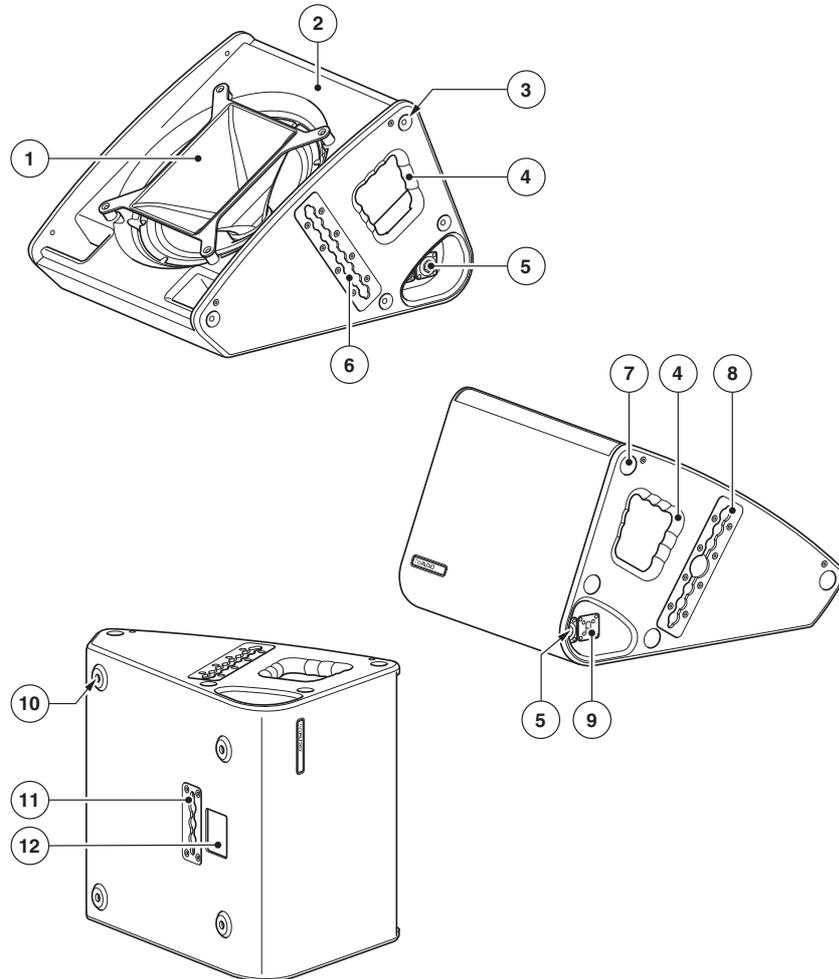


Figure 2.1 - Overview

1. Rotating horn with 1.4" compression driver
2. Acoustic baffle
3. Cutout for feet for safely stacking loudspeakers
4. Ergonomic carrying handles (left and right)
5. SpeakON[®] connectors (3 pieces)
6. Top rigging track
7. Side rubber feet (4 pieces)
8. Bottom rigging track with integrated cabinet flange
9. Selection switch for operating mode (biamp / passive)
10. Bottom rubber feet (4 pieces)
11. Rear rigging track
12. Type label

2.2 Operating modes

The C12 loudspeaker has a selection switch for switching between two different operating modes in the side cut-out of the connector panel (Pos. 9 "Figure 2.1 - Overview" on page 3).

In the "PASSIVE" mode, the loudspeaker is operated on a passive audio crossover with a single amplifier channel.

In "Biamp" mode, the woofer (1x12") and high frequency path (1x1.4") are operated with separate amplifier channels. The high pass filter for the high frequency driver and low pass filter for the low frequency driver remain operational in the signal path and in circuit even in "Biamp" mode "Figure 3.2 - Wiring diagram" on page 5.

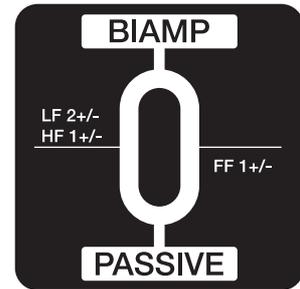


Figure 2.2



Never change the operating mode while the loudspeaker is connected. In addition to setting the switch, the corresponding preset on the amplifier must be changed.

3. Technical data

3.1 Data sheet

	Operating mode	
	Biamp	Passive
Components	1x 12" LF/1x 1.4" HF	
Frequency response	62 - 17,000Hz	
Power handling, program/peak	700 / 1400 W LF 280 / 560 W HF	700/1400 W
Impedance	8Ω LF 20Ω HF	8Ω passive
Coverage angles (h x v)	In wedge operation 55° x 70° HF horn, rotating	
Max. SPL/1 m	132 dB	
Dimensions (h x w x d)	348 x 445 x 525 mm [13,70 x 17,52 x 20,67 in]	
Weight	19.6 kg [43,2 lbs]	
Finish	Warnex texture paint	

3.2 Wiring diagram

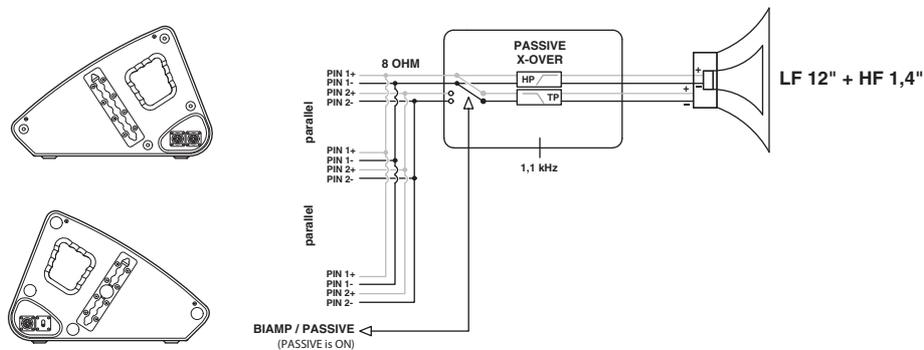


Figure 3.2 - Wiring diagram

4. Setting up the loudspeaker

4.1 Setup

The C12 loudspeaker is designed for horizontal operation as a monitor as well as standing, vertical operation. A variety of accessories is available from TW AUDiO to securely attach the loudspeaker, e.g. on stands or suspended horizontally or vertically from trusses and motor lifts.



Ensure that the loudspeakers are securely attached to prevent personal injury and property damage.



TW AUDiO recommends using only the accessories specified by TW AUDiO to install and secure the loudspeakers.

4.2 Rotating the horn

The horn of the C12 loudspeaker is positioned such that the horizontal coverage is 55° and the vertical coverage is 70°. In some situations, it may be advantageous to switch the coverage of the high-frequency range. To do this, you can rotate the horn of the C12 loudspeaker. Proceed as follows.

1. Place the C12 loudspeaker with the wedge inclined toward you with the grill facing up. Ensure that the working surface is clean with a non-slip finish.
2. To remove the front grill of the loudspeaker, use a 3 mm hex key. Remove the four screws on the top and bottom of the loudspeaker enclosure (two on each side).
3. Release the four screws of the horn using a 5 mm hex key.
4. Pull the horn upward out of the loudspeaker enclosure.
5. Now rotate the horn base by 90°. Ensure that you hold onto it firmly at all times. This will prevent damage to the woofer membrane. Now screw the horn back on. For this purpose, use a 6-Nm torque wrench.
6. Check that the foam between the grill and horn is properly seated.
7. Screw the front grill back on hand-tight.



4.3 Connecting cables

To connect the loudspeaker with an amplifier rack from TW AUDiO, proceed as follows.

The correct presets need to be selected for the cable connections.



Ensure that the cable cross section is sufficiently large (at least 1.5 mm²) to avoid power losses. TW AUDiO recommends using the loudspeaker cables available from TW AUDiO.

When connecting the cables to the loudspeaker, ensure that the polarity (+/-) and pin assignment (1/2) are correct. Incorrect connection results in a significant change in the loudspeaker sound characteristics and may damage the compression driver.

The pin connections of the C12 loudspeaker can be found in section “Wiring diagram” on page 5.

The three connection sockets on the C12 loudspeaker can be used to link multiple loudspeakers on a single amplifier. Note that parallel connection reduces the total impedance (Ω) seen by the amplifier.

The total impedance of loudspeakers connected in parallel must not drop below the minimum operating impedance of the amplifier.

4.4 Operation

TW AUDiO recommends operating the C12 loudspeaker on a DSP controller. TW AUDiO only recommends using presets developed by TW AUDiO. The TW AUDiO system racks are ideal for this purpose.



Ensure that the right preset was selected before connecting the loudspeaker with the amplifier.

Operating with an incorrect preset can damage parts of the loudspeaker.



Ensure that the amplifier is properly sized according to requirements. Undersizing or oversizing may damage the loudspeaker.

Please note the technical data in section “Data sheet” on page 5.

5. Transport and storage



To enable a single person to transport two C12 loudspeakers, TW AUDiO recommends using the CaseC12.

When transporting and storing the unit, it is important to ensure that the surface and front grill of the loudspeaker are not damaged. Moisture can penetrate through exposed wood surfaces and cause the wood to swell. A bent or broken front grill will no longer adequately protect the sensitive speaker membranes.

In addition, appreciable dust deposits may considerably impair the functionality of a loudspeaker membrane. For this reason, the loudspeakers should be transported and stored in a safe, careful, dry and largely dust-free manner.

The following accessory parts for transport and storage are available from TW AUDiO:

- CaseC12 (flight case for two C12)

The original packaging is unsuitable as permanent storage and transport packaging.

6. CE Conformity Declaration

Copy and translation of the original CE Conformity Declaration:



We hereby declare that the below-referenced components by virtue of their design and construction, and in the configuration placed on the market by us, satisfy the safety and health requirements of the applicable EC directives. This declaration becomes invalid in case of modifications that have not been approved by us.

This declaration applies to the following components:

- C12

as well as all model variants based on these, provided that they correspond to the original factory models and have not been technically modified in any way.

Applicable directives:

- 2001/95/EC
- 2011/65/EU

Applicable national standards and technical specifications:

- DIN 18800
- DIN 4113
- DIN EN ISO 14121-1
- BGV C1/BGI 810-3
- EN 50581:2012

Ludwigsburg, Germany, 01 April 2014

A handwritten signature in black ink, appearing to read 'T. Wüstner', is written over a horizontal line.

Tobias Wüstner

7. Disposal

It is prohibited to dispose of used electrical equipment with household refuse



All products of TW AUDiO GmbH are so-called B2B products. This means that they are sold by a commercial business to a commercial business. TW AUDiO products that bear the trash can symbol shown here are only permitted to be disposed of by TW AUDiO.

The loudspeaker owner is legally responsible for the disposal of used devices that do not bear this symbol. This pertains to all products delivered prior to 29 March 2010. Nevertheless, TW AUDiO will also be happy to assist you in this case.

If you have any question regarding the disposal of used devices, please contact us under the following telephone number:

+49 (0) 71 41 - 48 89 89 0

Thus, TW AUDiO is in strict compliance with the Waste Electrical and Electronic Equipment Directive (2012/19/EU) for the protection of our environment.

TW AUDiO is registered under the following WEEE reg. no. with the German National Register EAR as a B2B manufacturer and distributor of electrical devices:

DE54488702

In countries outside of the European Union, follow the local regulations.

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