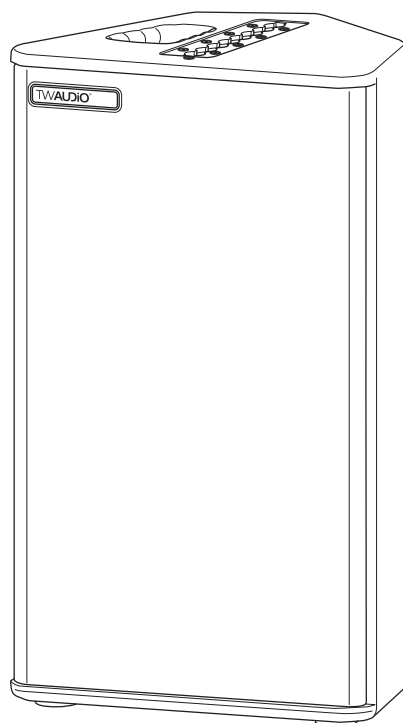


M12 | Operating Manual



Introduction

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

The M12 multifunctional loudspeaker dispenses with extended bass reproduction, instead placing special emphasis on enhanced mid/high performance. It offers extraordinary increased efficiency from a compact enclosure with precise dispersion and impulse behavior with lowest possible distortion.

The M12 is eminently suitable for use as a high performance front fill or near fill, as a compact delay line loudspeaker or as a wedge, and especially as a 12" top in a two-way active setup with the B18 and B30 speakers in our PA-SYS-TWO system.

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 therefore require additional copies of this operating manual, they can be obtained free of charge from TW AUDiO or downloaded 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 M12 loudspeaker.

General information

Operating manual: OM-M12
Version 1.1 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.

info@twaudio.de

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1. Safety | Intended use

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

The M12 loudspeaker was developed for professional use in 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.



When working with heavy loads over 20 kg [44,09 lbs], use suitable aids (dollies, hoisting slings, etc.). Multiple people may be required depending on the situation.

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

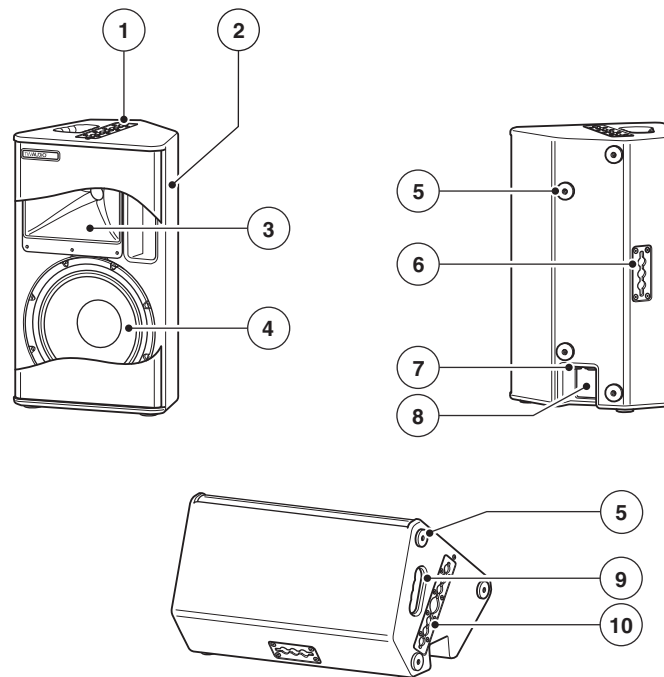


Figure 2.1 - Overview

1. Top rigging track
2. 15 mm multiplex enclosure – Warnex surface finish
3. Rotable horn with 1.4" compression driver
4. 12" cone driver
5. Rubber feet (4 pieces)
6. Rear rigging plate
7. Connection panel with two SpeakON® connectors
8. Type label
9. Ergonomic carrying handle (top and bottom)
10. Bottom rigging track with integrated cabinet flange

2.2 Variants

The M12 loudspeaker is available in right and left variants. These versions differ in the side on which the slanted wedge is located on the enclosure.

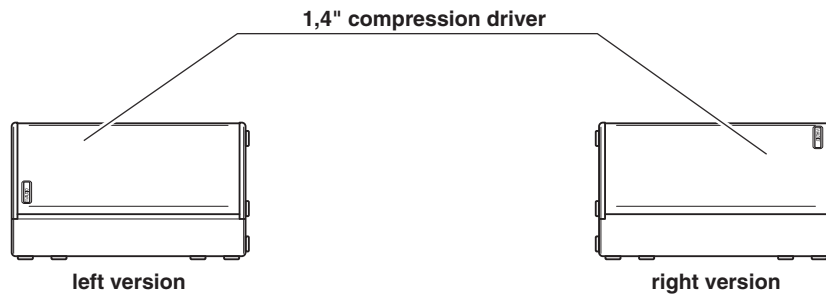


Figure 2.2 - Left and right versions

3. Technical data

3.1 Data sheet

Components	1x 12" LF/1x 1.4" HF
Frequency response	60 –19,000 Hz
Power handling, program/ peak	700/1400 W
Impedance	8Ω
Coverage angles (h x v)	75° x 50°
SPL max./1 m	132 dB
Dimensions (h x w x d)	606 x 360 x 314 mm [22,86 x 14,17 x 12,36 in]
Weight	20.2 kg [44,5 lbs]
Finish	Warnex texture paint

3.2 Wiring diagram

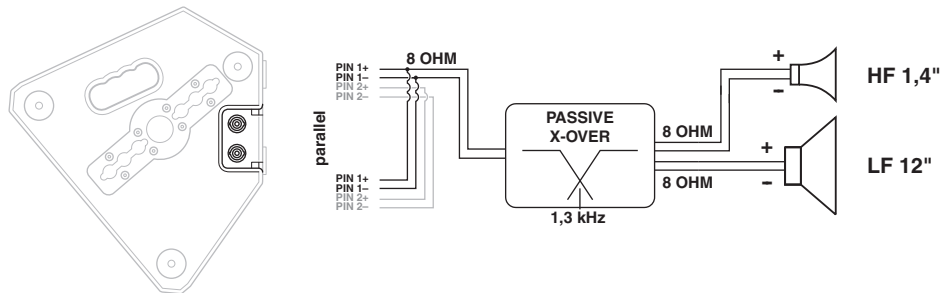


Figure 3.2 - Wiring diagram

4. Setting up the loudspeaker

4.1 Setup

The M12 loudspeaker is designed for standing, vertical and horizontal 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 secure the loudspeakers.

4.2 Rotating the horn

The horn of the M12 loudspeaker is mounted at the factory in such a way that the horizontal coverage is 75° and the vertical coverage is 50°. In some situations, it may be advantageous to switch the coverage of the high-frequency range. For this purpose, the horn can be rotated. Proceed as follows.

1. Place the M12 loudspeaker with the wedge inclined toward you with the front 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 fixing screws at the top and bottom of the loudspeaker enclosure.
3. Release the four screws of the horn using a 3 mm hex key. Pull the horn and the compression driver upward out of the loudspeaker enclosure.
4. Check that the seal between the enclosure and horn is properly seated.
5. Rotate the horn carefully by 90° and reinsert the horn and driver back into the recess. Screw it onto the enclosure using medium-strength thread locker.
6. Screw the front grill back on.

4.3 Connecting cables

To create a cable connection 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 M12 loudspeaker can be found in section 3.2 “Wiring diagram” on page 5.

The two connection sockets on the back of M12 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 M12 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 3.1. “Data sheet” on page 5.

5. Transport and storage

Because the M12 loudspeaker weighs over 20 kg [44,09 lbs], two people are needed to move and transport the unit.



To enable a single person to transport two M12 loudspeakers, TW AUDiO recommends using the CaseM12.

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:

- CoverM12 (protective cover for one M12)
- CaseM12 (flightcase for two M12)

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:

- M12 L
- M12 R

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

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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