VOICE ACOUSTIC
professional german loudspeaker systems

MANUAL
MODULAR-15

Multifunctional Loudspeaker



QUALITY MADE IN GERMANY

Thank you very much,
for purchasing a Voice-Acoustic product.
Since 2006 we have been developing our
products in the firm belief that details matter.
May we wish you a lot of pleasure with this product.

Herzlichen Dank,
dass Sie ein Voice-Acoustic Produkt gekauft haben.
Seit dem Jahr 2006 entwickeln wir unsere Produkte
in der Überzeugung, dass es auf die Details ankommt.
Wir wünschen Ihnen viel Freude mit diesem Produkt.

Muchas gracias
por haber comprado un producto de Voice-Acoustic.
Desdel año 2006 estamos desarrollando nuestros productos
estando convencidos, que son los detalles que cuentan.
Le(s) deseamos mucha alegría usando este producto.

Merci beaucoup
d´avoir acheté un produit Voice-Acoustic.
Depuis 2006, nous développons des produits
avec la ferme conviction que les détails comptent.
Nous vous souhaitons beaucoup de plaisir à utiliser ce produit.

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Contents

Introduction

General Safety Instructions 4
Care 4
Transport and storage 4
Warranty 4
Components 5
Technical data 6
Connections 6
Setup 7
Connecting cables 7
Operation 7

Working with Modular-15

Forming a Array 8
Easyfly mechanics 9
Installations with Easyfly mechanics 9
Adjusting the inclination with the Easyfly mechanic 10
Mounting on box wall or traverse holder 12
Monitoring with Modular-15 12
Overview Accessories 13

Manufacturer's declaration

Imprint 14

Introduction

General Safety Instructions:
Loudspeakers produce a static magnetic field even if they are not connected or are not in use. Therefore make sure when erecting and transporting loudspeakers that they are nowhere near equipment and objects which may be impaired or damaged by an external magnetic field. Persons with cardiac pacemakers must maintain a safe distance.

The minimum recommended safety clearance is 1 m.

Never stand in the immediate vicinity of loudspeakers driven at a high level. Professional loudspeaker systems are capable of causing a sound pressure level detrimental to human health. Seemingly non-critical sound levels (from approx. 90 dB SPL) can cause hearing damage if people are exposed to it over a long period.

All connected cables must be laid in such a way that they cannot be crushed by objects and that nobody can step on them! Replace damaged cables immediately and do not use them!

Use only accessory parts specified by Voice-Acoustic or original accessory parts from Voice-Acoustic. Check all cabinets and accessories regularly for wear and replace them if necessary.

Do not set up the loudspeakers in places where they are permanently exposed to moisture, dust, dirt or direct sunlight.

Care
Wipe the surface of loudspeakers only with a damp cloth and pure water. In case of heavy pollution, repeat the above procedure several times if necessary. Do not use any chemical additives or aggressive detergents, as these may harm and damage the surfaces.

Transport and storage
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 Voice-Acoustic:

- Transport and rain cover for Modular-15, left and right (Art.-Nr. 501501100 und 501501200)
- Heavy duty flightcase for up to 2 x Modular-15 (Art.-Nr. 501503000)

Note: *The original packaging is unsuitable as permanent storage and transport packaging!*

Warranty
The warranty period is 24 months from date of delivery.

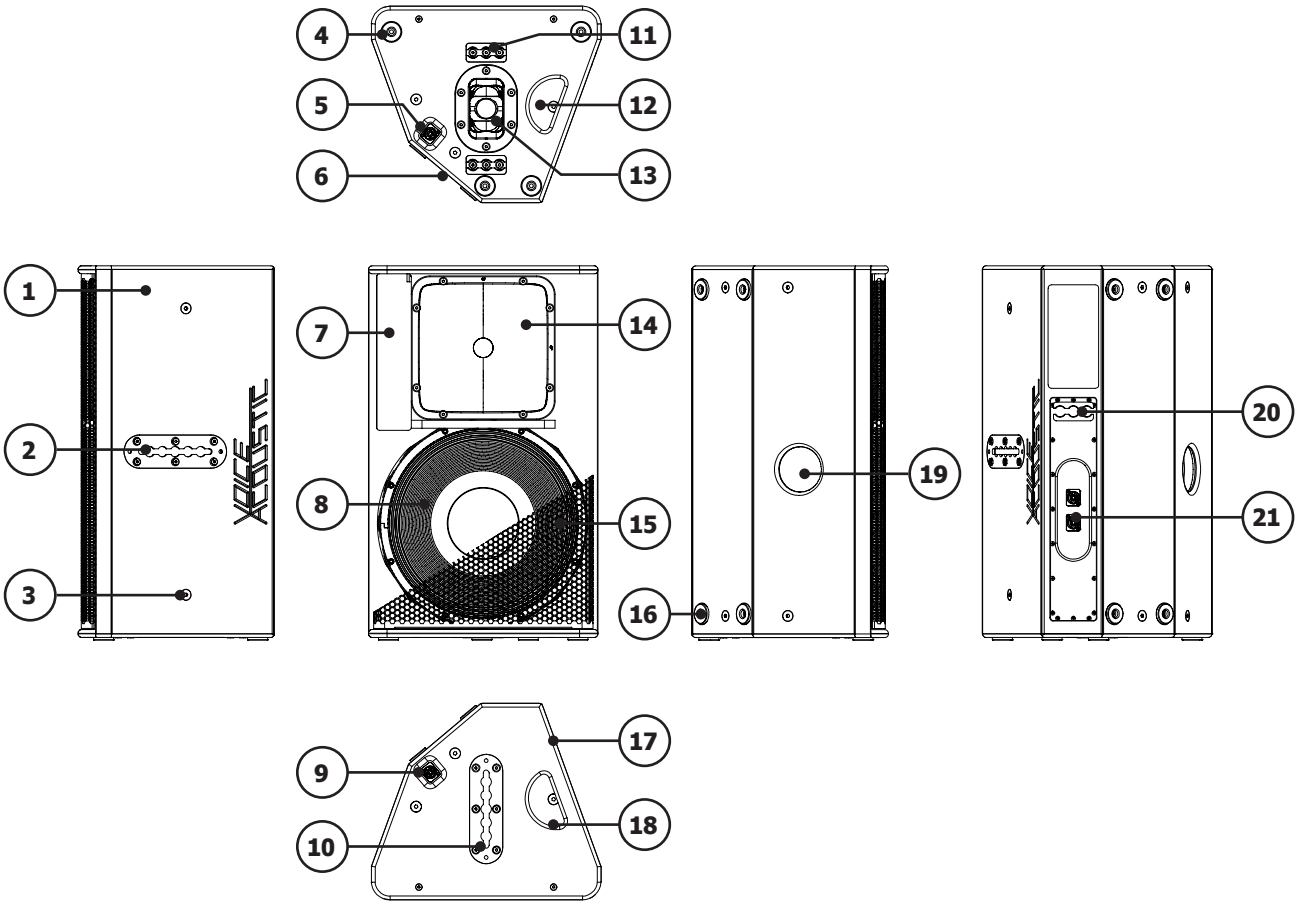
On our choice we will eliminate any lack of conformity with repair or with replacement of the faulty goods. The place of performance for warranty services is Voice-Acoustic headquarters in Dörverden. In case of remedy of defects, the buyer shall bear all costs resulting from transportation of the goods to Voice-Acoustic headquarters in Dörverden.

The ordering party is not entitled to remedy the defect by itself or to organise a replacement and to charge such activities to Voice-Acoustic. In case of self remedy by the ordering party the warranty given by Voice-Acoustic becomes void.

Warranty doesn't apply to parts of wear and tear, such as threaded points, such as threaded points, flying tracks, tilting pole socket, rubber feet and the SpeakON® connectors.

Introduction

Components



1. 24 and 15 mm multiplex cabinet, Warnex textured paint finish
2. Easyfly flying track for horizontal suspension
3. 12 x M10 mounting points with internal steel brackets
4. 4 x rubber feet on the underside
5. SpeakON® connector on the underside (not on Modular-15sp)
6. Monitor angle 20°
7. Bass reflex port
8. 15“ Neodym woofer
9. SpeakON® connector on top side (not on Modular-15sp)
10. Easyfly flying track for vertical suspension
11. 2 x small flying track at the bottom (to fly two loudspeakers below each other)
12. Recessed grip on the underside
13. Tilting pole socket +/- 18°
14. 1,4“ Neodym compression driver rotatable horn 90° x 40° or 60° x 40°
15. Front grille 1 mm with 10 mm acoustic foam
16. 4 x rubber feet at the monitor angle
17. Monitor angle 50°
18. Recessed grip on top
19. Recessed grip in the side panel
20. Safety point for safety rope with Single-Stud
21. Connector panel with two SpeakON® connectors and Type plate with serial number

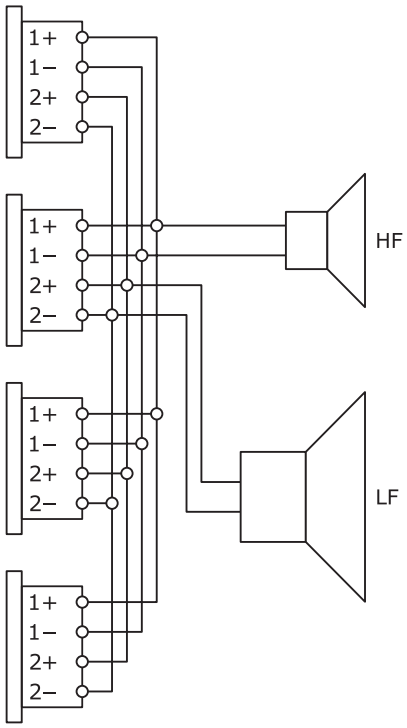
Introduction

Technical data

Components	1 x 15“ Neodym woofer (LF) with 4“ voice coil 1 x 1,4“ Neodym compression driver (HF) with 3“ voice coil
Frequency response 60° **Frequency response 90°**	60 Hz - 17,6 kHz (- 10 dB) 130 Hz - 17 kHz (+/- 3 dB) 58 Hz - 17,8 kHz (- 10 dB) 122 Hz - 16.5 kHz (+/- 3 dB)
Coverage range (h x v)	90° x 60° or 60° x 40°, rotable horn
Monitor angles	50° and 20°
Powerhandling	LF: 850 W AES / 1.700 W program / 3.400 W peak at 8 Ω HF: 110 W AES / 165 W program / 330 W peak at 16 Ω
Sound pressure	129 dB SPL AES / 132 dB SPL program / 135 dB SPL peak
Dimensions / Weight	698 (h) x 431 (w) x 368 (d) mm / 27,9 kg
Finish	Polyurea coating in RAL 9005, Special colors in Warnex textured paint

Connections

The speaker has four loop-through Neutrik NL4 SpeakON® IN/OUT connectors. They use the 1+/1- connection pins. Additional loudspeakers can be looped through via the second connector. The SpeakON® connectors at the top and bottom of the loudspeaker are ideal for easy connection in monitor mode.



Introduction

Setup

The Modular-15 loudspeaker is designed for standing, vertical and horizontal operation. A variety of accessories is available from Voice-Acoustic to securely attach the loudspeaker safely on tripods, distance rods or hanging it from on trusses, ceilings and walls. Ensure that the loudspeakers are securely attached to prevent personal injury and damage of property.

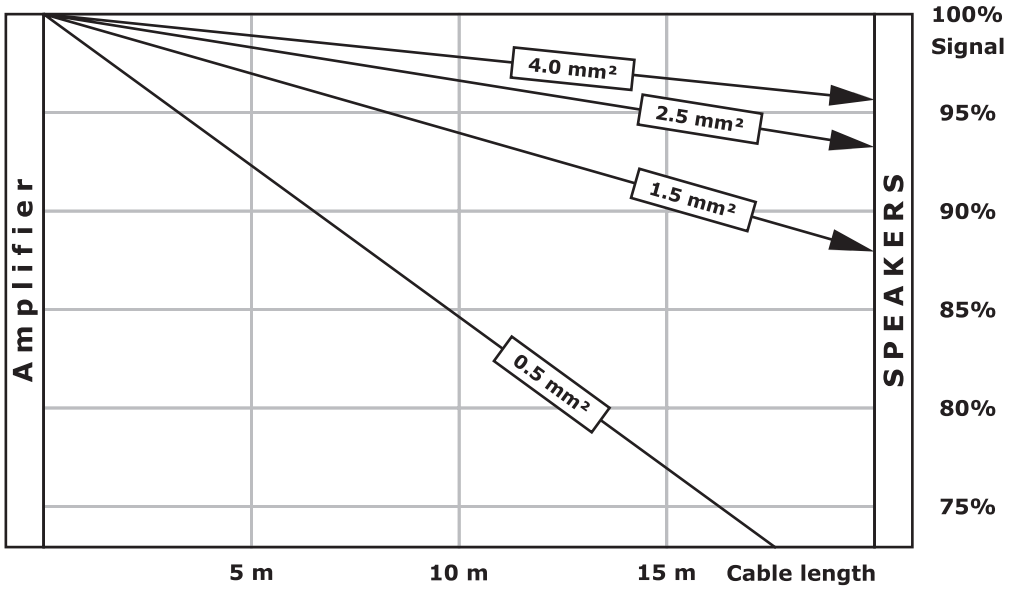
Connecting cables

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

The two connection sockets on the back of the 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.

Voice-Acoustic recommends to use the available 4 x 4 mm² Speakon cables for mobile use.

We recommend wiring the basses with at least 4 mm² in installations. The cables of the tops in installations must be sufficiently dimensioned according to impedance, power and cable length.



Simplified display without consideration of loudspeaker impedances

Operation

The Modular-15 is exclusively intended for operation with Voice-Acoustic system electronics with internal DSP controller: the HDSP power amplifiers or powered by the free 800 W amplifier channels of the self-powered subwoofers.

Make sure the appropriate preset has been selected before connecting the speaker to the system power amp or self-powered sub-woofer.

Using the wrong preset can damage parts of the loudspeaker.

Note: *If the Modular-15 is not operated on the intended Voice-Acoustic system electronics, the manufacturer's warranty for the loudspeaker expires!*

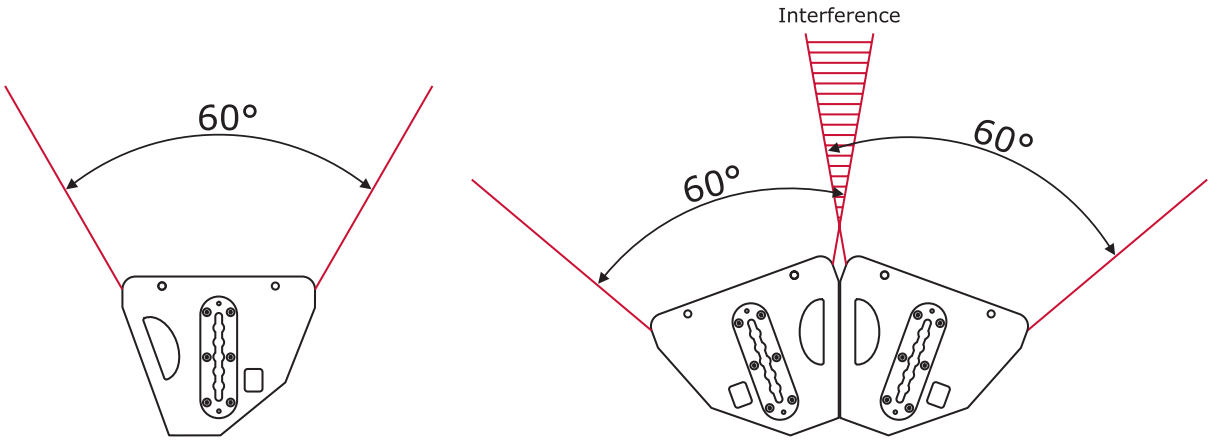
Working with Modular-15

Forming a Array

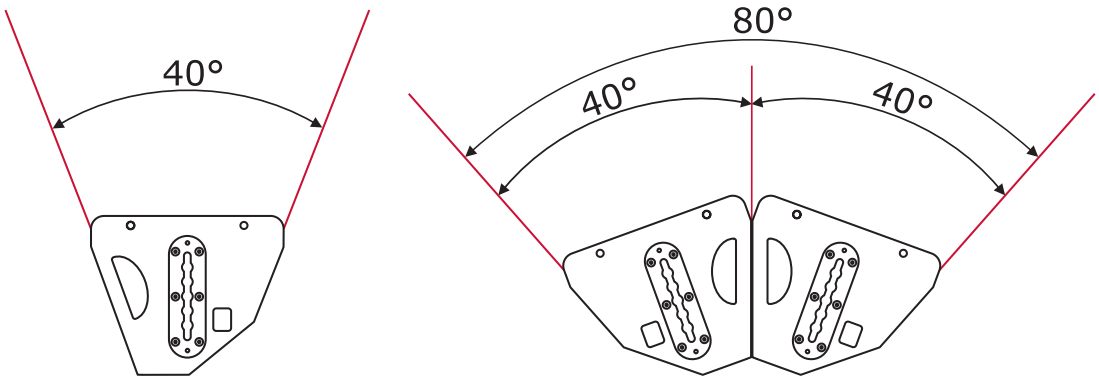
For maximum flexibility, the user can choose between two different beam angles, 60° x 40° or 90° x 60°. The system amplifiers of the HDSP series and the controller boards of the self-powered subwoofers contain specific settings as presets for both beam angles.

Horns 60° x 40° or 90° x 60° are fitted as standard. If you want to use two Modular-15 side by side in an array (only with 60° x 40° horn), the horns must be rotated to avoid interference.

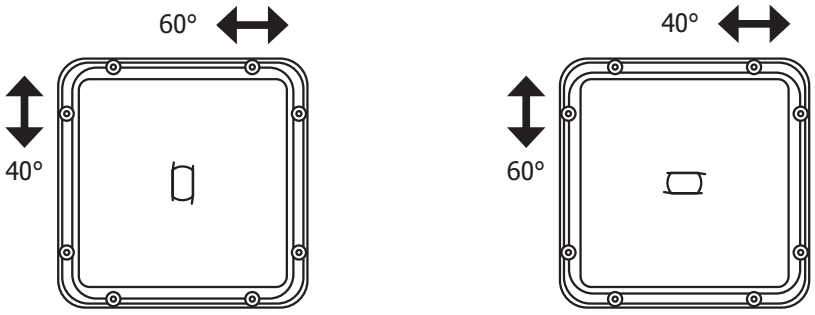
Note: *The two loudspeakers are always joined together on the side walls with the largest contact surface. So that the handles are inside and the bass ports outside.*



Modular-15 in array with horn 60° x 40° (v x h) interference occurs



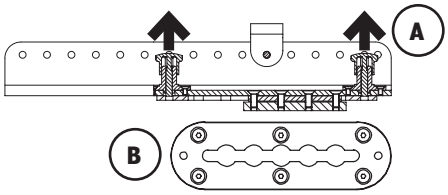
Modular-15 with rotated horn 40° x 60° (v x h) Interference minimized

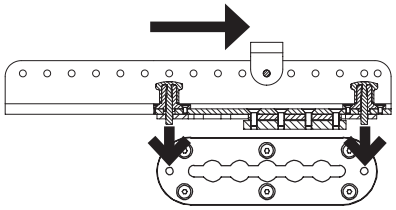


Horn 60° x 40° seen from the front

To turn the horn, remove the M6 x 40 mm countersunk head screws with which the horn is fixed. Then turn the horn with driver by 90° and screw it on again.

Working with Modular-15

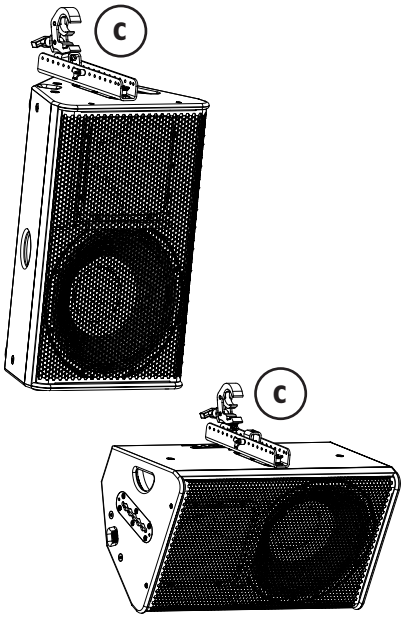




Easyfly mechanics
Tool-less flight mechanism for clicking in and exact alignment of the loudspeaker in the horizontal and vertical axis.

1. Pull the two locking bolts (A) upwards and let them engage by turning them slightly.
2. Insert the Easyfly mechanics into the flying track (B).
3. Slide the mechanics backwards as far as it will go.
4. Let the two locking bolts snap into the intended holes on the flying track.

Note: *Notice that the two locking pins (A) are engaged to prevent the Easyfly-Mechanics from slipping out.*



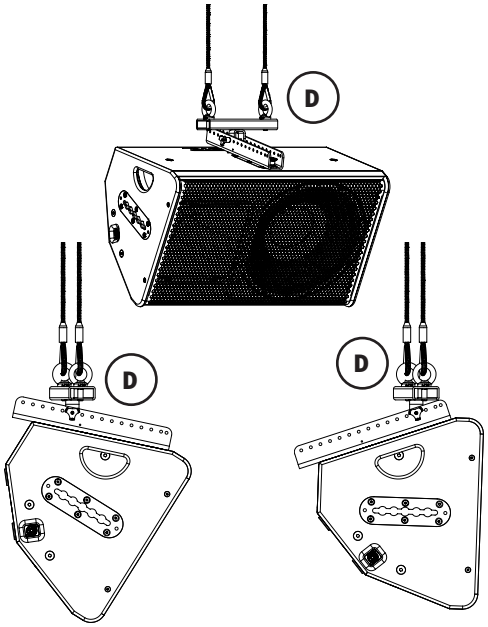
Installations with Easyfly mechanics
Installation with self-lock clamp (C) on trusses.

1. Mount the self-lock clamp to the Easyfly mechanics using an M10 threaded screw and lock nut.
2. Hang the clamp and holder into the mechanics using ball lock bolts.
3. Hang the loudspeaker into the truss.
4. Adjust the inclination by fixing the holder on the top hole rail with the ball locking pin.

Installation with universal suspension arrangement for flight mechanics (D) on high ceilings

1. Mount the universal suspension arrangement for flight mechanics with an M10 threaded screw and lock nut to the mounting of the Easyfly mechanics.
2. Hang the suspension device and holder into the mechanics using ball locking bolts.
3. Hang the loudspeaker into the installed chains.
4. Adjust the inclination by fixing the holder on the top hole rail with the ball locking pin.

Note: *The inclination depends on the hole in which you fix the Easyfly mount on the hole rail!*

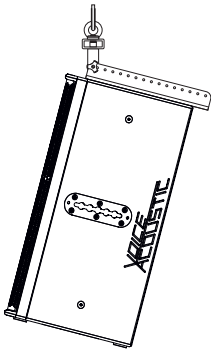
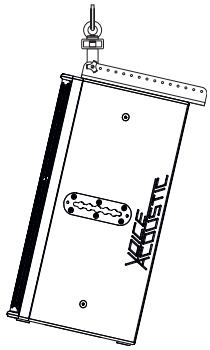
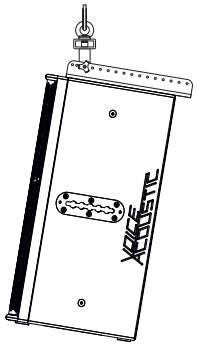
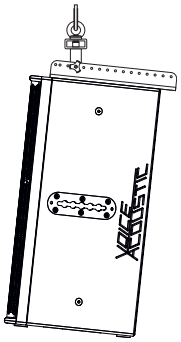
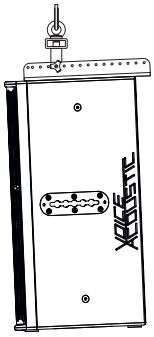
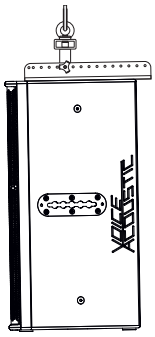
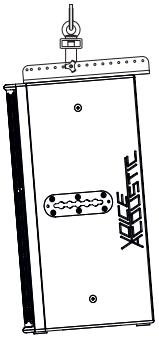
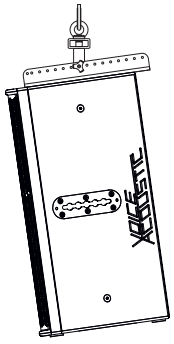
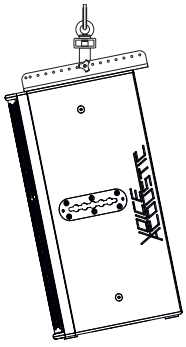
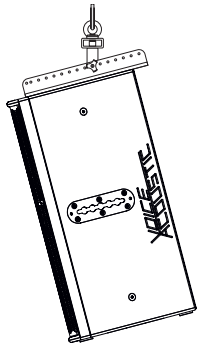
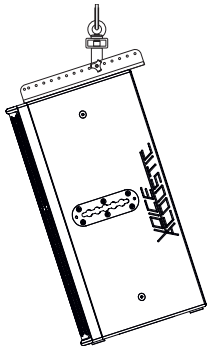
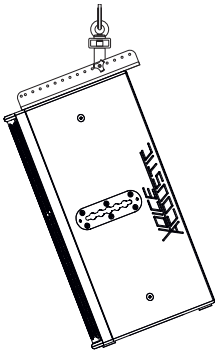
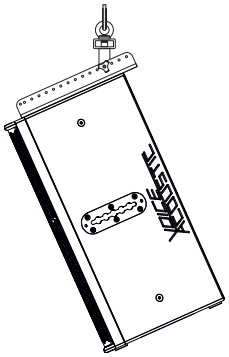
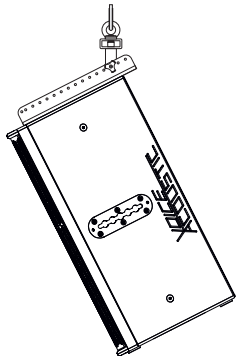
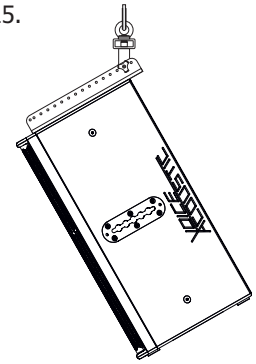
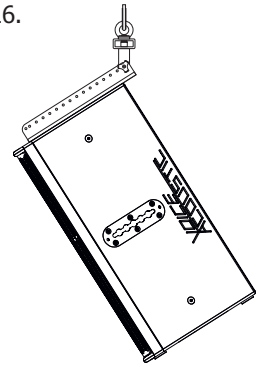


Working with Modular-15

Adjusting the inclination with the Easyfly mechanic

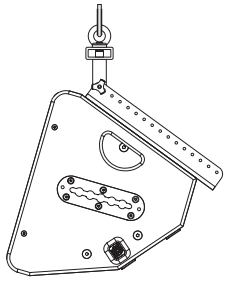
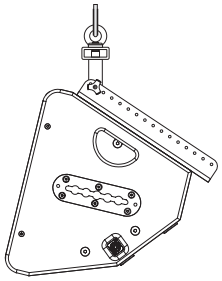
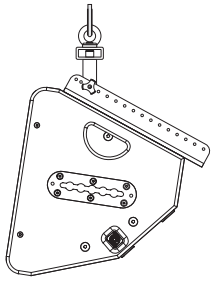
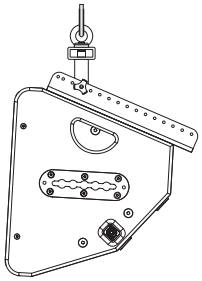
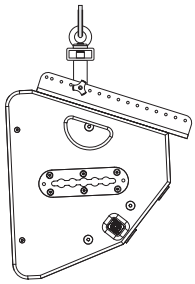
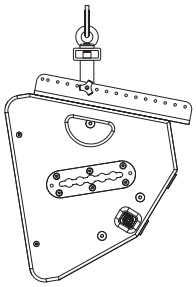
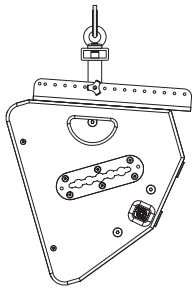
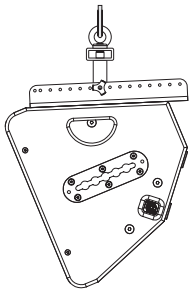
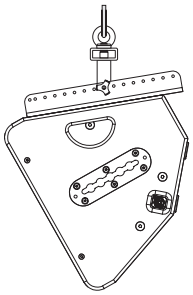
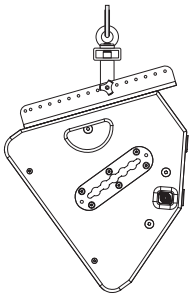
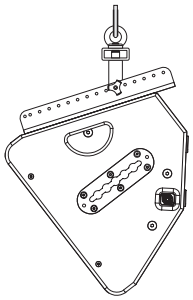
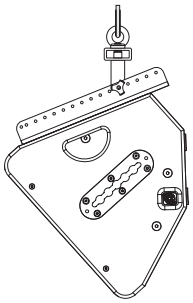
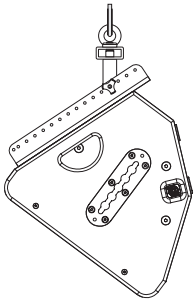
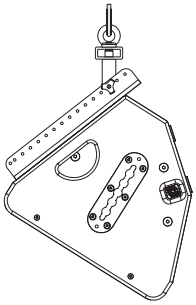
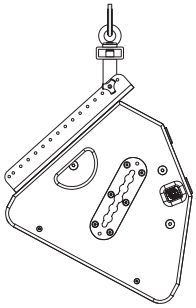
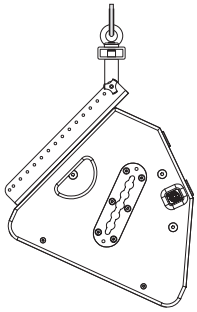
The Easyfly mechanic have 16 locking holes which can be used to determine the inclination.

Vertical operation

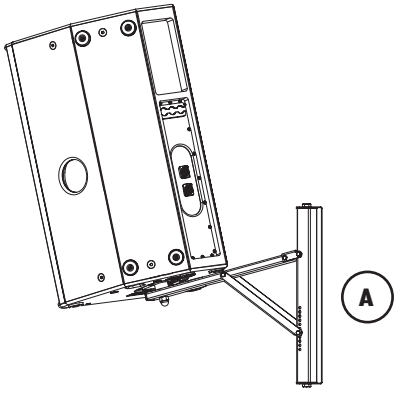
1.  **14.5°**	2.  **12.8°**	3.  **9.4°**	4.  **6.0°**
5.  **2.4°**	6.  **-1.0°**	7.  **-4.5°**	8.  **-8.0°**
9.  **-11.4°**	10.  **-14.7°**	11.  **-17.9°**	12.  **-21.1°**
13.  **-24.1°**	14.  **-26.9°**	15.  **-29.6°**	16.  **-32.3°**

Working with Modular-15

Horizontal operation

1.  **16.1°**	2.  **13.6°**	3.  **8.7°**	4.  **3.3°**
5.  **-2.6°**	6.  **-9.0°**	7.  **-15.9°**	8.  **-22.6°**
9.  **-29.4°**	10.  **-35.9°**	11.  **-37.6°**	12.  **-42.0°**
13.  **-53.3°**	14.  **-57.9°**	15.  **-61.8°**	16.  **-65.4°**

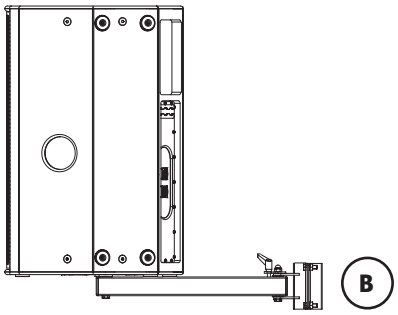
Working with Modular-15



Mounting on box wall or traverse holder

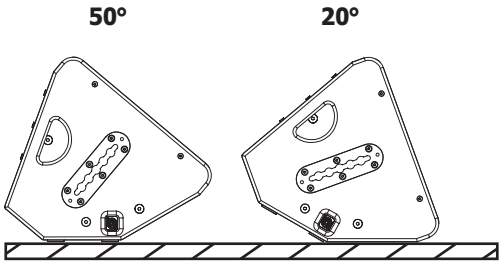
1. When mounting the brackets on the wall (A) or truss (B), follow the manufacturer's operating instructions.
2. Place the loudspeaker with the tilting pole socket on the wall- and truss holder.
3. Adjust the inclination with the tilting pole socket.

Note: *The tilting pole socket snaps into place by the weight of the loudspeaker. If you want to adjust the tilt, you have to raise the loudspeaker slightly.*



Monitoring with Modular-15

Two monitoring angles, 50° and 20°, are available for monitor operation with the Modular-15. The SpeakON® connectors at the top and bottom of the loudspeaker are ideal for easy connection in monitor mode.



Working with Modular-15

Overview Accessories



Transport and rain cover for Modular-15 left (Art.-Nr. 501501100)
Transport and rain cover for Modular-15 right (Art.-Nr. 501501200)



Heavy duty flightcase for up to 2 x Modular-15/15sp (Art.-Nr. 501503000)



1,4“ Horn, 60 x 40° rotatable (Art.-Nr. 999991464), with driver (Art.-Nr. 999141464)
1,4“ Horn, 90 x 60° rotatable (Art.-Nr. 999991495), with driver (Art.-Nr. 999141495)



Easyfly mechanics (Art.-Nr. 409991001)



Carrying bag for up to two Easyfly mechanisms with accessories (Art.-Nr. 409992000)



Self lock clamp for pipe 48-51mm, 30mm wide, max. 250 kg (Art.-Nr. 999950731)



Universal suspension arrangement for flight mechanics (Art.-Nr. 409992001)



Wall bracket, max. 50 kg, slewable and 22° tiltable (Art.-Nr. 999924120)



Wall- and truss holder, max. 50 kg, slewable (Art.-Nr. 999924150)



Safety 6/1000 mm (Art.-Nr. 999963100)



Single stud fitting (Art.-Nr. 999957450)

Manufacturer‘s declaration

Imprint

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All specifications in this manual are based on information available at the time of publishing for the features and safety guidelines of the described products. Technical specifications, measurements, weights and properties are not guaranteed.

The manufacturer reserves the right to make technical modifications according to legal regulations stipulating the continual improvement of product features. For the safe operation of the unit, this manual and all other required information must be available to all users at the time of assembly and disassembly of the unit, and during operation. Assemble or operate the unit only after reading and understanding this manual, and keeping it at hand at all times at the site.

We are happy to receive your suggestions and proposals for the enhancement of this manual.

Please send us your ideas to the following address:

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