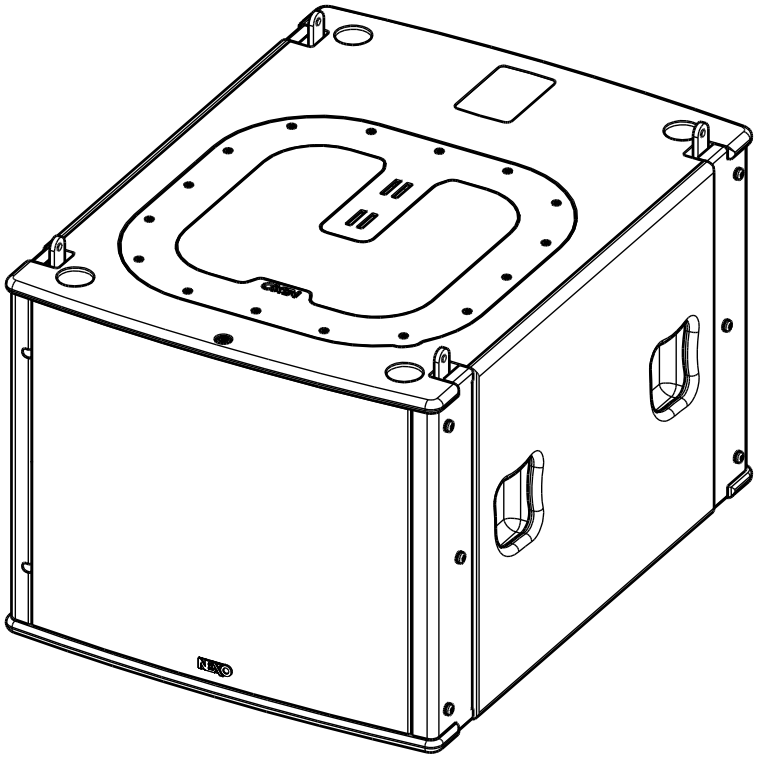
DP2754-02-DI

MSUB15

MSUB15-I



nexo-sa.com
ZA du Pre de la Dame Jeanne
60128 PLAILLY - France

User Manual

1 CONTENTS

EU Conformity declaration

We,	**NEXO SA** **ZA DU PRE DE LA DAME JEANNE** **60128 PLAILLY – France**
Declare under our sole responsibility that the product	**Loudspeaker**
Type	**MSUB15**
Serial number	**On the product**
Is in conformity with the provisions of the following directive including all applicable amendments:	**2006/95/CE (Low Voltage Directive)**
Applied rules and standards:	**EN ISO 12100, EN 60065**
Plailly, February 07th, 2017	**Joseph CARCOPINO, R&D Director**

2 WARNINGS

PRECAUTIONS

Do not open the speaker, do not try to disassemble it neither to modify it in any way. The system doesn't include any user-repairable part.

If the system seems to be malfunctioning or damaged, stop using it at once and have it repaired by a NEXO qualified technician.

Do not expose the system directly to the sun or to the rain, do not immerse it into fluids, do not place objects filled with liquid on the system. If a liquid gets into the system, please have it inspected by a NEXO qualified technician.

The connection should be performed by qualified technician, by ensuring that power is off.

Operating temperature with temperate climate: 0°C to +40°C (+32°F to +104); -20°C à +60°C (-4°F to +140°F) for storage.

SAFETY INFORMATIONS

Read this manual before using the speaker.

Keep this manual available for further reference.

Observe all warnings and cautions.

Please check the NEXO Web site **nexo-sa.com** to get the most up-to-date version of this manual.

Ensure you are aware of the safety rules applying to rigging, stacking or installing on tripod or speaker stand. Failure to observe these rules may expose persons to potential wounds or even death.

Only use the system with accessories specified by NEXO.

Please always consult a NEXO-accredited technician if the installation needs architectural works and observe following precautions:

Mounting Precautions:

- Please select screws and mounting location supporting 4 times the system weight.
- Do not expose the system to excessive dust, vibrations, to extreme cold or hot temperatures, to reduce the risk of damaging components.
- Do not place the system in an unstable position: it could fall accidentally.
- For fixed installations wind loading has to be taken into account in accordance to the national standards.
- If the system is used on a tripod, please ensure the tripod's specifications are adapted and that it's height does not exceed 1.40m/55". Do not move the tripod with the system in position.

Connection and Powering Precautions:

- Unplug connected cables before moving the system.
- Power off the system before connecting the system.
- When switching on the installation, the amplifier must be powered last; when switching the installation off, shut off the amplifier first.
- If you work by cold temperatures, progressively raise the level to nominal value during the first minutes of use, to allow the system components to stabilize.

Please check regularly the system condition.

HIGH ACOUSTIC PRESSURE LEVELS

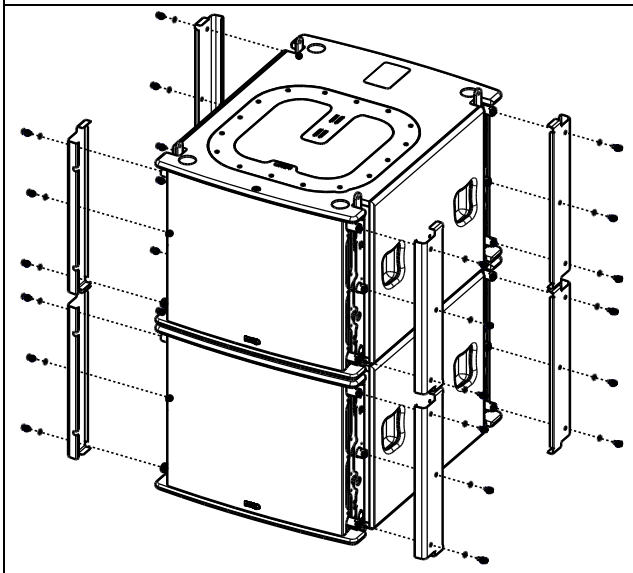
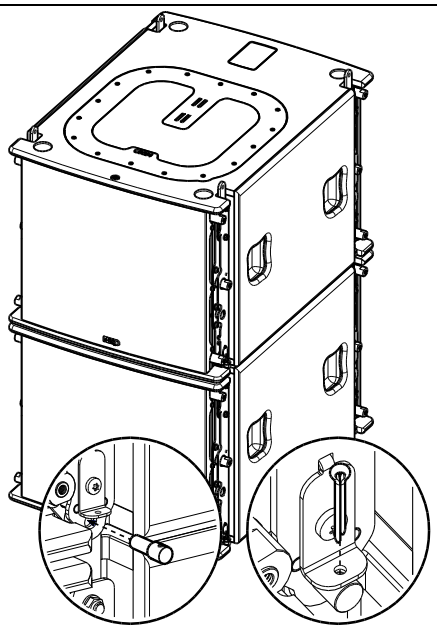
Exposure to very high sound pressure levels may cause permanent hearing losses. Degrees of hearing losses may be different from one person to another, but almost everybody will be affected if exposed to high sound pressure levels during a long period of time. The OSHA (Occupational Safety and Health Administration) American Agency specified the following maximal exposures:

Number of Hours	Sound Pressure Level (dBA), Slow Response
8	90
6	92
4	95
3	97
2	100
1 ½	102
1	105
½	110
¼ or less	115

WASTE OF ELECTRIC OR ELECTRONIC EQUIPMENT

This symbol on the product or its packaging indicates that this product must not be treated as household waste. Instead, it is your responsibility to hand it over to a designated collection point for the recycling of waste electrical and electronic equipment. By ensuring your waste equipment is recycled, you will help prevent potential negative consequences for the environment and human health, which could appear if this product was not recycled. Recycling helps spare natural resources. For more information about the recycling of this product, please contact your local city office, your household waste disposal service or your reseller.

3 MSUB15 RIGGING

Open the 4 bumpers (Tx30)	Insert the axis, positionning the pin and secure by bending the legs.
	

4 MSUB15 - ACCESSORIES

WARNING

All MSUB15 accessories are specifically rated in agreement with structural computations.

Never use other accessories – including push-pins – when assembling MSUB15 cabinets than the ones provided by NEXO: NEXO will decline responsibility over the entire MSUB15 accessory range if any component is purchased from different supplier.

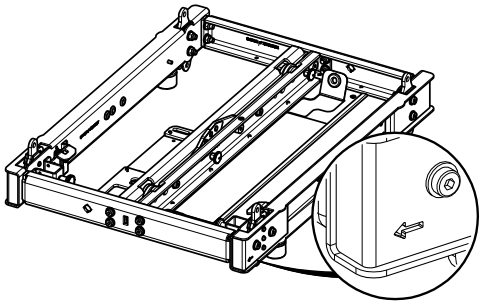
All MSUB15 accessories have been designed so that cabinet are arrayed vertically.

VNT-BUMPM10

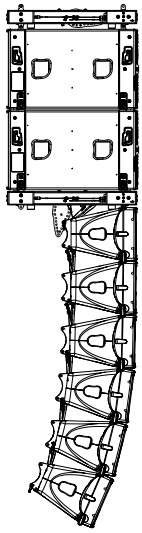
- **Rated for a maximum of 12 GEOM10 or 8 MSUB15.**
- **Maximum quantity for flown vertical cluster is:**

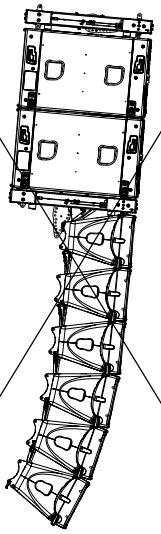
$$N_{GEOM10} + 1.5*N_{MSUB15} <= 12$$

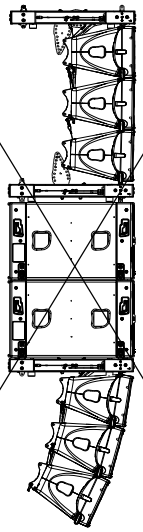
- **2 rigging points 2 points with retractable rings.**
- **Usable with VNT-EXBARM10 for a one rigging point.**
- **Ground stack assembly alone, or with VNT-GSTKM10S / VNT-GSTKM10L.**
- **2 locations for laser/inclinometer.**
  On each side, an arrow indicates the front.



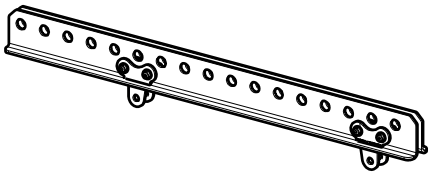
NO TILT – MSUB15 MUST ALWAYS BE POSITIONNED ON THE TOP THE ARRAY



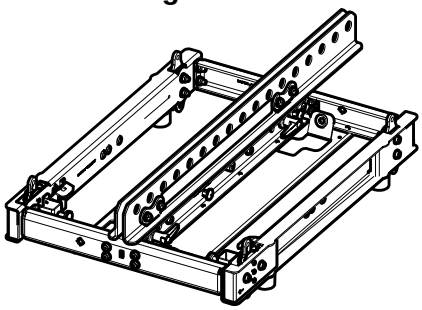




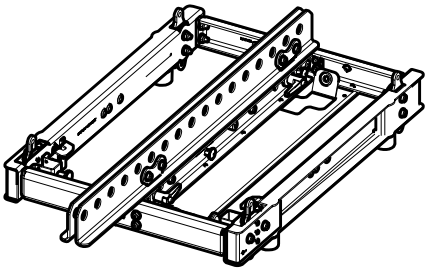
VNT-EXBARM10



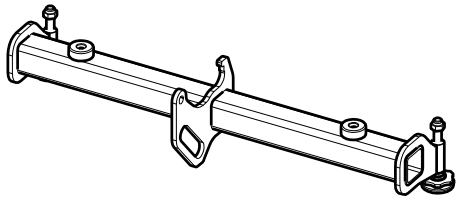
Negative Tilt

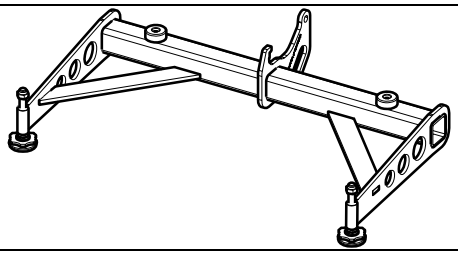


Positive Tilt



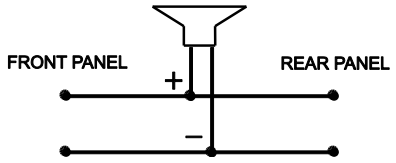
VNT-GSTKM10S – VNT-GSTKM10L





5 DESCRIPTION

- The MSUB15-I is a compact high technology arrayable sub, the ideal companion for the GEOM10 line array element, sharing same aesthetic design and arrayable in the same flown or stacked cluster.
- Versions:
  - MSUB15-I: for fix applications; Black
  - MSUB15-PW: for fix applications; White
  - MSUB15 and MSUB15-PW, for Touring versions (see user manual MSUB15).
- Connectors:
  - 2 fast connectors in front and back. *Seal your connections for an outdoor use*
  - **(+): Brown (or Red) / (-): Blue (or Black)**



- Amplification:
  - The MSUB15 must be used with a NEXO processor to handle EQ, phase alignment, crossover and excursion/thermal protection for the system loudspeakers. There are two NEXO processor series supporting the MSUB15 subwoofer: NXAMP (4-channel) amplified processors and DTD processors (stereo + sub).
  - The following table shows the number of MSUB15 subwoofers usable with each solution.

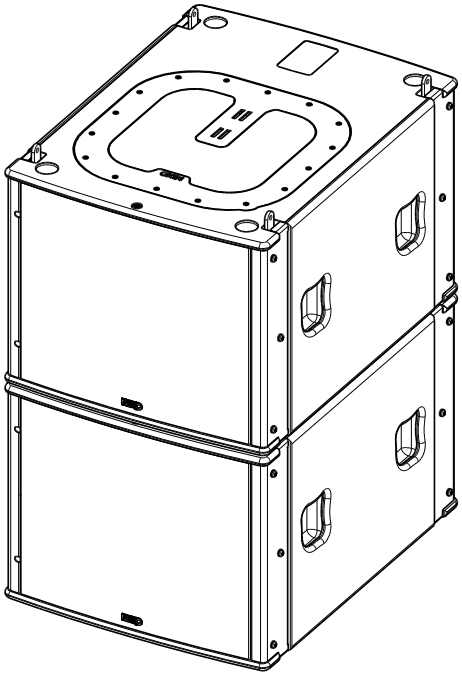
	NXAMP4x1MK2 (bridged)	NXAMP4x2MK2	NXAMP4x4	DTD + DTDAMP4x1.3
MSUB15	Up to 2 per channel	Up to 2 per channel	Up to 3 per channel	1 per channel
		Recommended		

6 SETTING RANGE

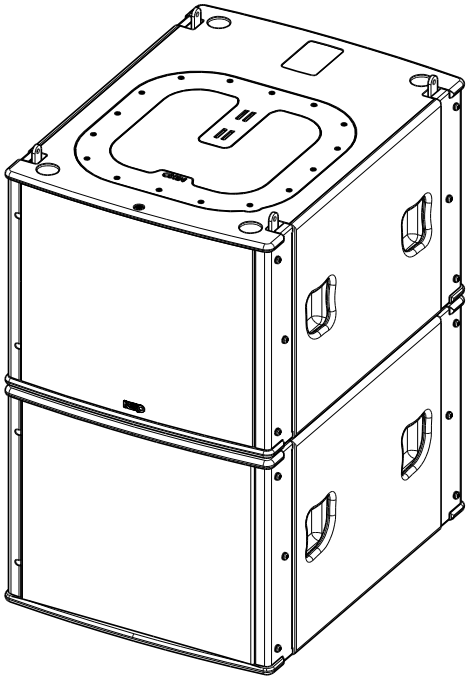
Please consult nexo-sa.com for NEXO TD Controllers firmware information.

There are two setting ranges for speaker MSUB15:

- « OMNI » setups (available on NXAMP and DTD); For a traditional use of the subwoofer in omnidirectional radiation (require at least one subwoofer and a channel of amplifier).
  - Omnidirectional Main setup, with low-pass at 63, 75, 85, 95 or 120 Hz.
  - Omnidirectional Monitor setup, with low-pass at 63, 75, 85, 95 or 120 Hz.
- « CARDIO » setups (only available on NXAMP); For a directional use (cardioid) of subwoofers (require at least two subwoofers and two channels of amplifier):
  - Cardioid back and front setups, with low-pass at 63, 75, 85, 95 or 120 Hz.
    - Setup « FR » (Front) for the subwoofer pointed at the audience.
    - Setup « BA » (Back) for the subwoofer turned around.
  - The ideal ratio for a directional use is 2 x MSUB15 in CARDIO FRONT mode on top of 1x Reversed MSUB15 in CARDIO BACK mode. From 1:1 to 4:1 ratio can be used.

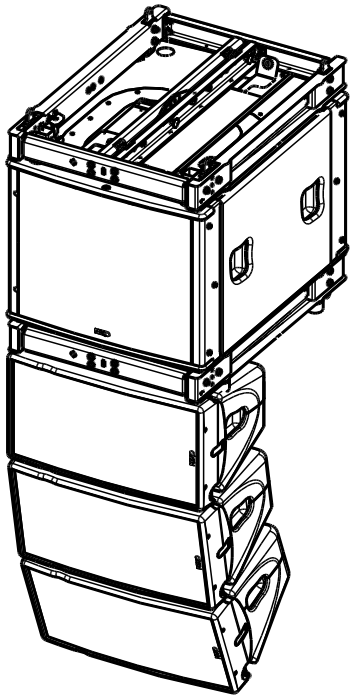


« OMNI » Assembly

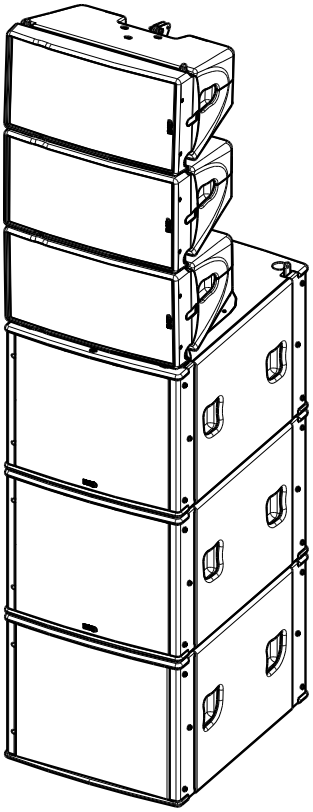


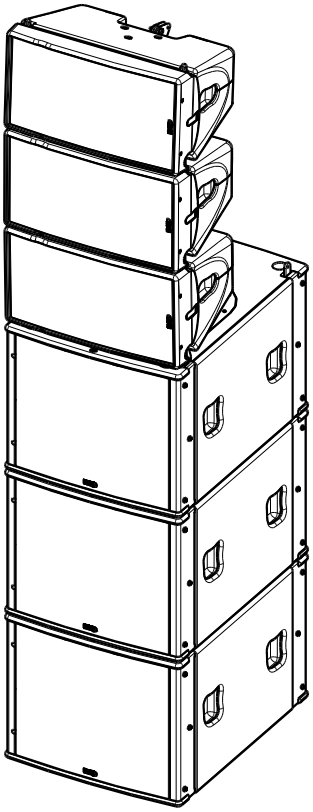
« CARDIO » Assembly

- **With 1 to 3 GEOM10**
  - For these configurations, crossover frequency 85Hz is recommended (85 Hz also for pour GEOM10).

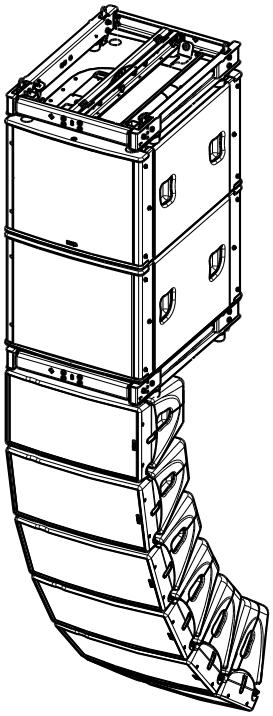


- For stack configuration using MSUB15 in OMNI or CARDIO mode with 1 Back and 2 Front and GEOM10 on top of them, cross over 85Hz is recommended (85 Hz also for GEOM10). A small overlap could have impact if needed, for example (MSUB15 120 Hz and GEOM10 75 Hz);

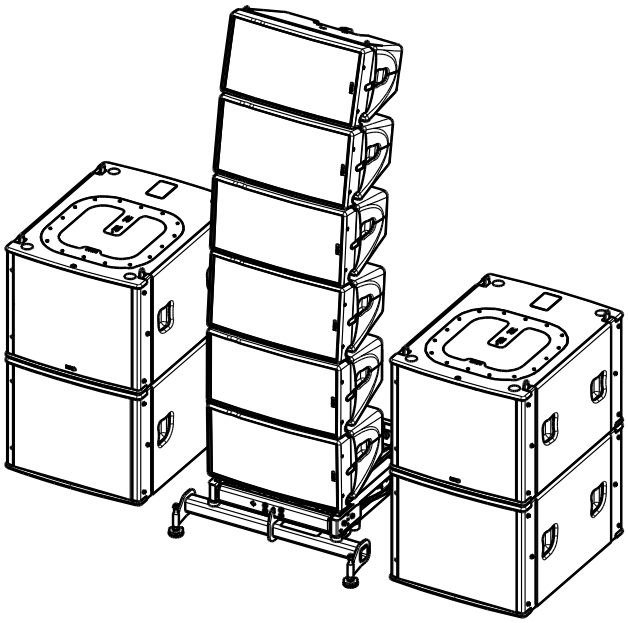




- **With 4 to 6 GEOM10**
  - For long throw flying application, crossover 95 Hz is recommended (CARDIO mode).

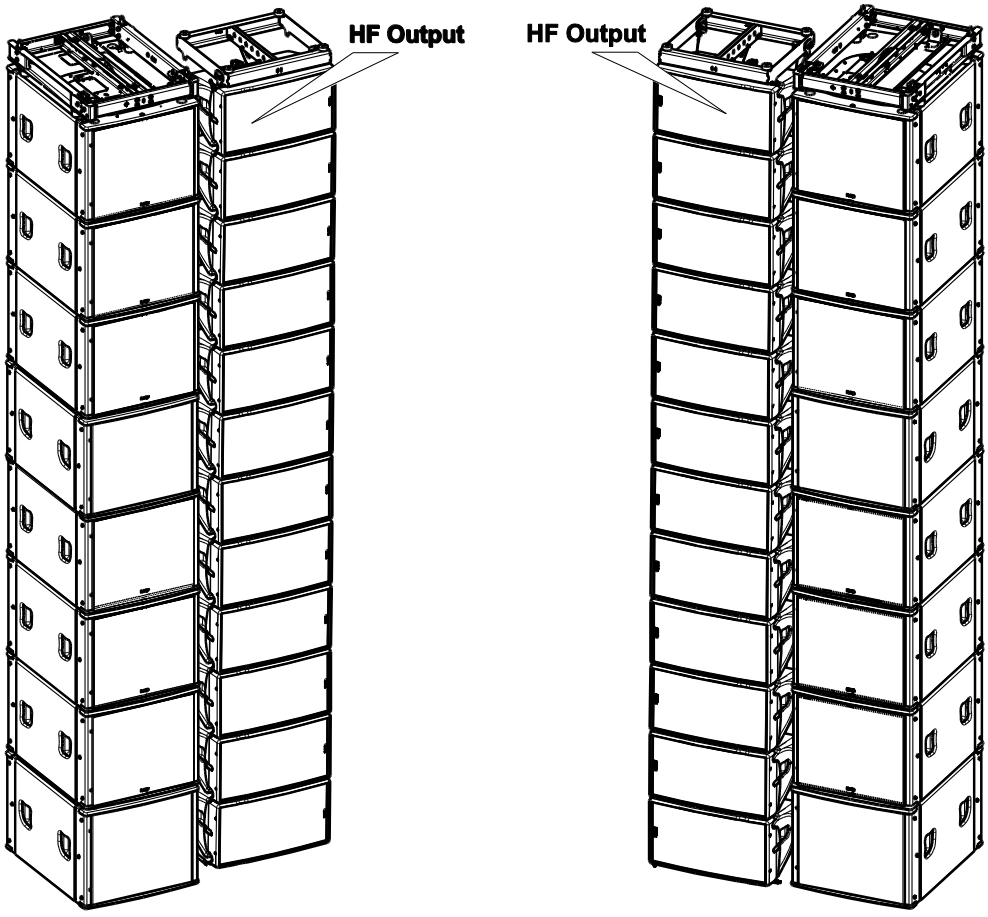


- For long throw stacking application, up to 6 GEOM10, crossover 85 Hz is recommended (also for GEOM10).

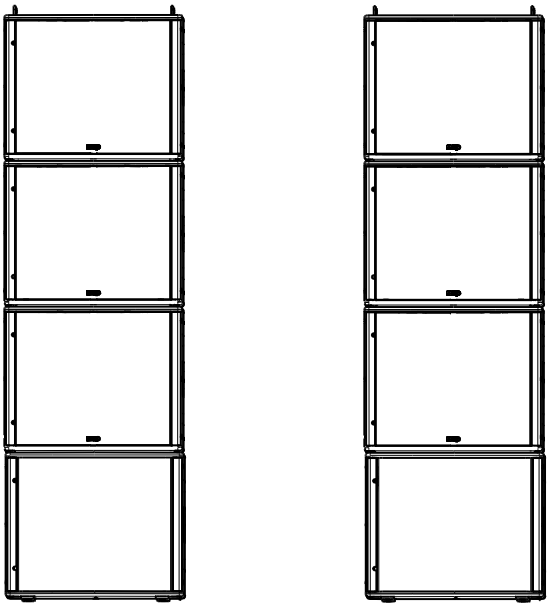


- **With 7 to 12 GEOM10**

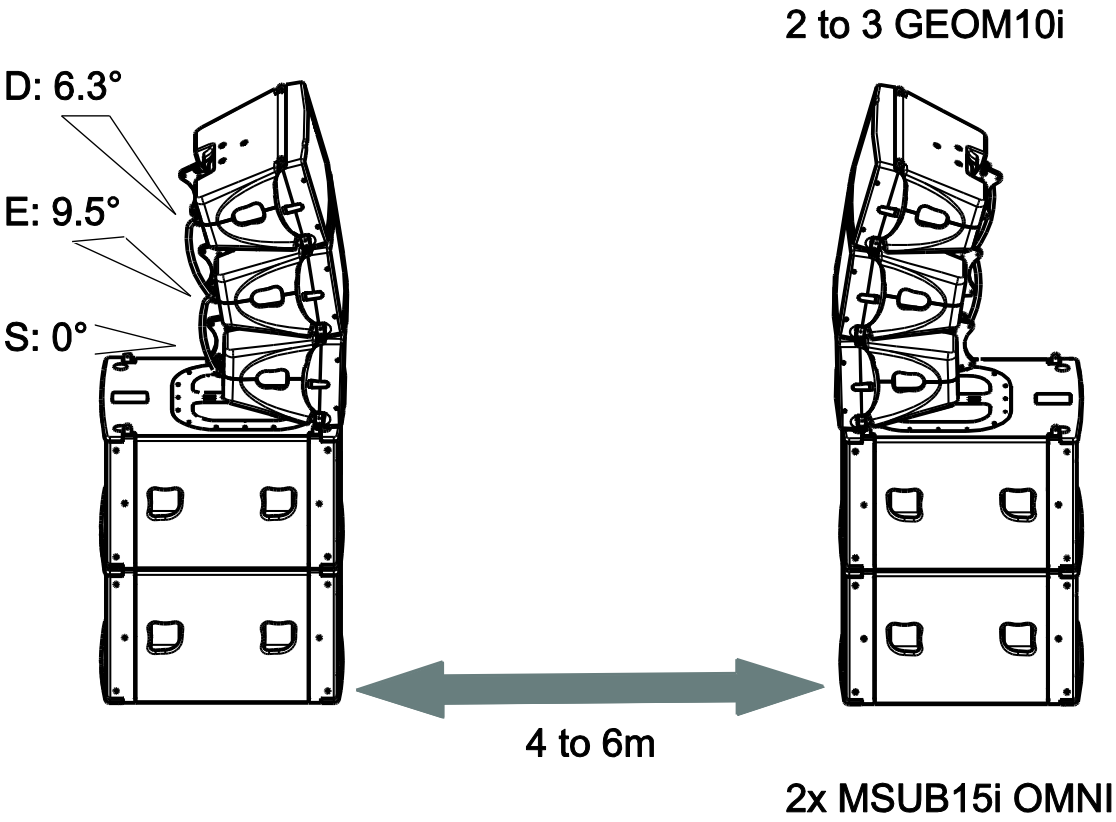
  - For very long throw application, with flowned or stacked MSUB15, recommended MSUB15-I cardioid mode, cross over MSUB15-I 95 HZ and 12 GEOM10 cross over 75Hz for maximum impact.



- Ground Stack Sub design is:

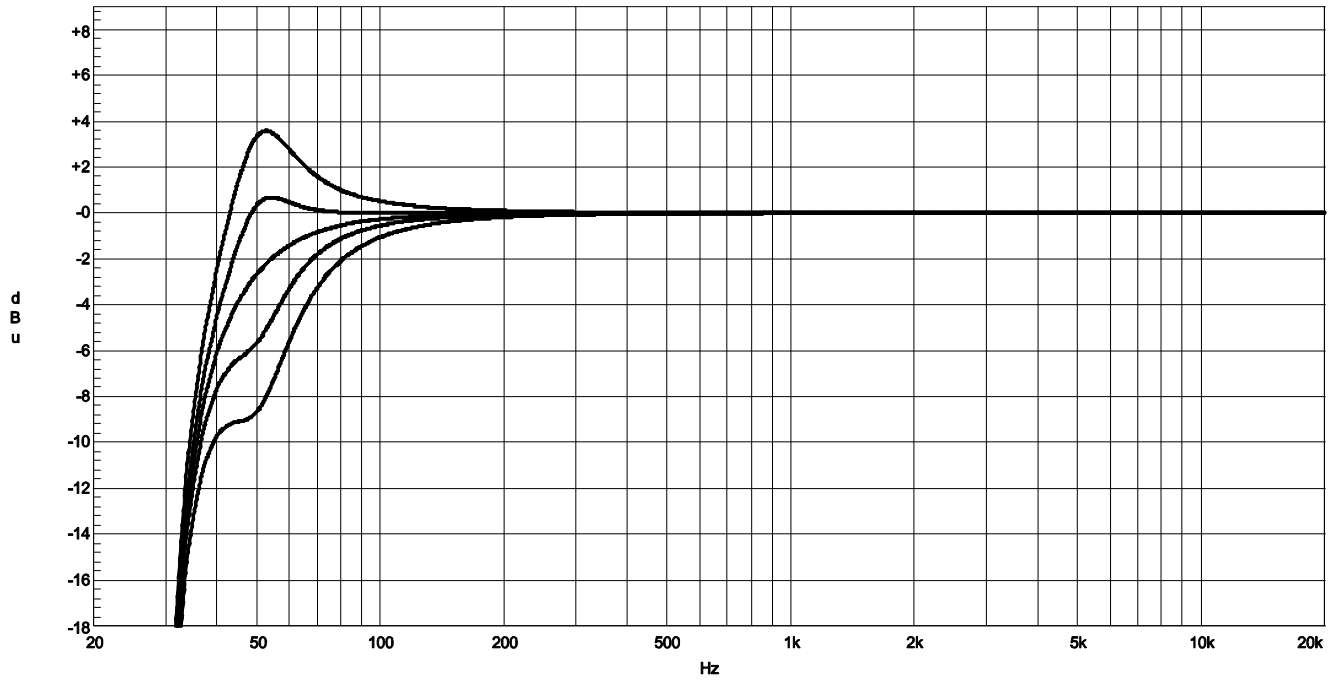


- **GEOM10 MON and MSUB15 MON**
  - Minimum phase setup not compatible with others.
  - Used for high power stage Monitor, DJ Monitor, Drum Fill, Stack side.
  - Always use same cross over between GEOM10 and MSUB15, no overlap possible without doing phase adjustment by yourself.
  - Very high LF headroom.
  - Clarity adjustment using -3dB on ArrayEQ – 75 Hz crossover default.



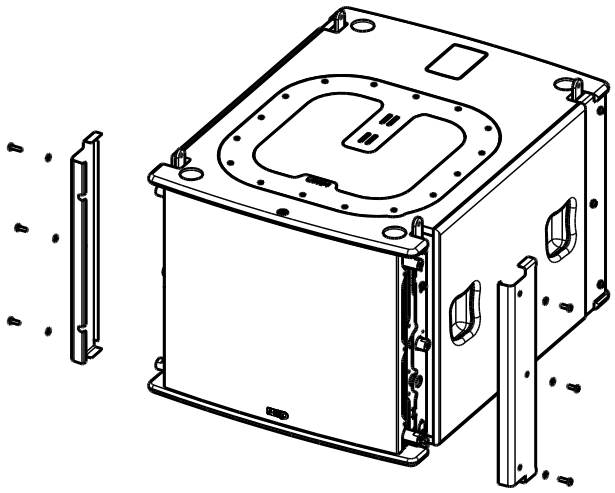
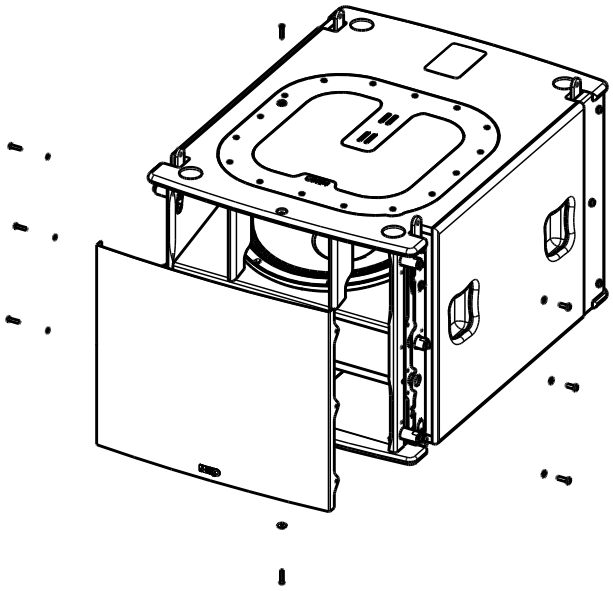
7 ARRAY EQ

The ArrayEQ allows to adjust the system frequency response in its lower range (see curves below, with different ArrayEq values):

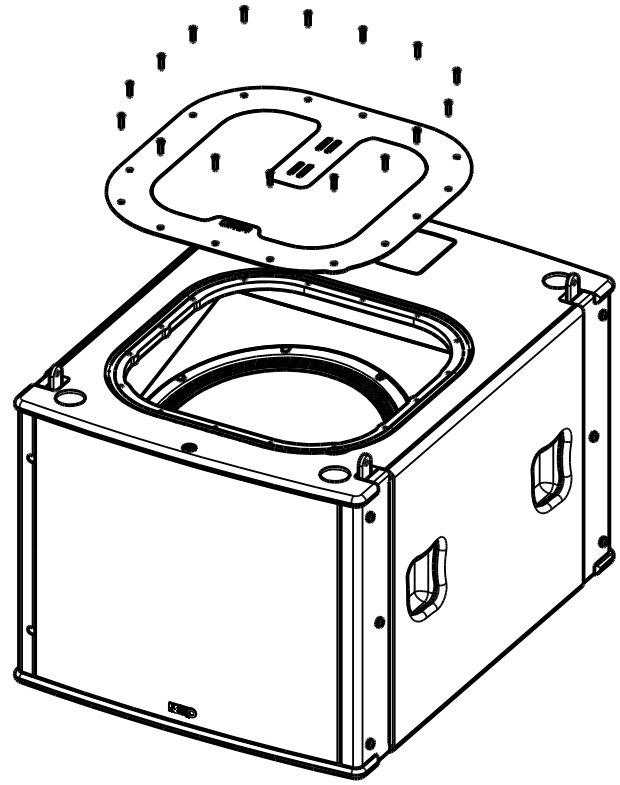
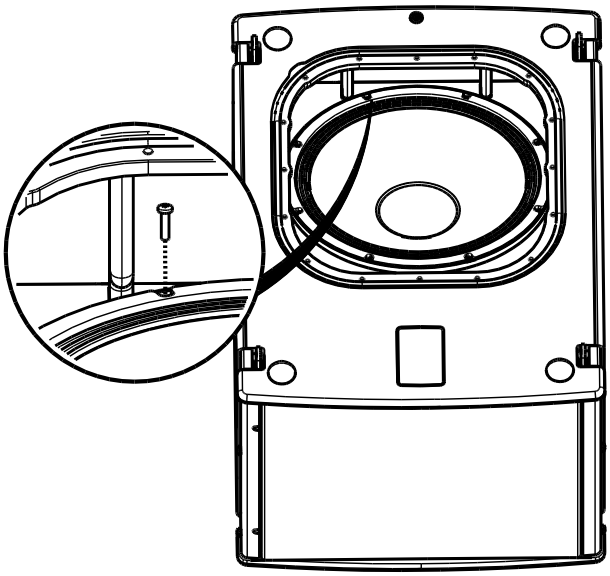


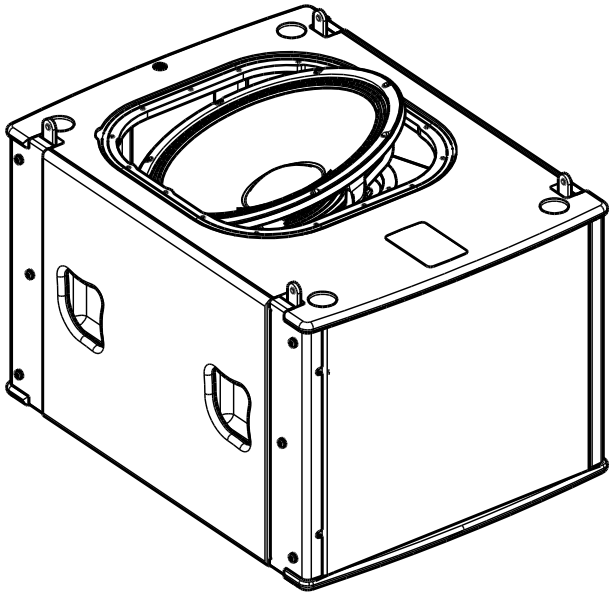
8 MAINTENANCE

8.1 Grille changing

Remove 6 screws (Tx30) and the bumper.	Remove 8 screws (TX25) on the side, top and below to remove the grille.
	

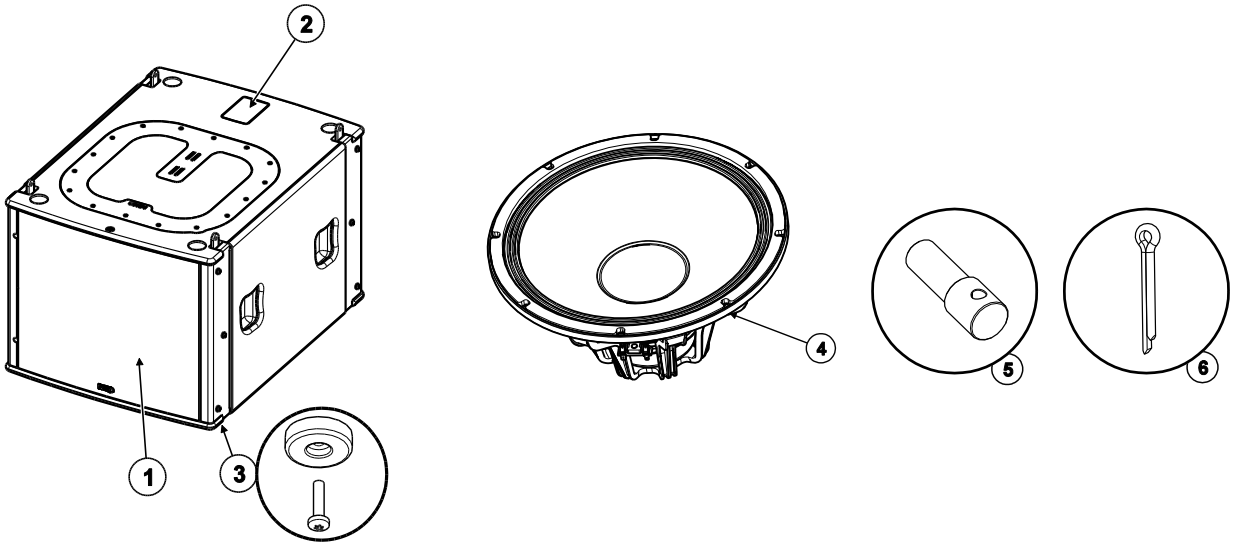
8.2 15’ Driver’

Remove 16 screws (Tx25) to remove the trap.	Remove 8 screws (TX25), use a TX25 wrench to unscrew the 2 screws located at the front.
	

To pull out the driver : **Lift up and pull it to the back.** **Shift it to pass through the opening.**	

Red (+) / Black (-)

8.3 Spare parts



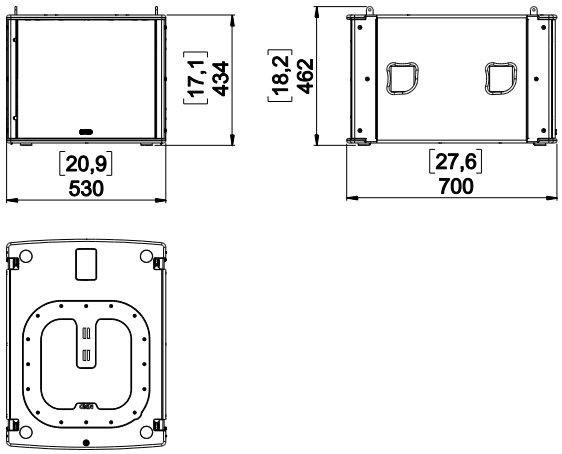
MARK	QUANTITY	REFERENCE	DESIGNATION
1	1	05MSUB15UA-I	Complete grille Installation Black (with fasteners)
	1	05MSUB15UA-IPW	Complete grille Installation White (with fasteners)
2	1	05MSUB15LEX	Lexan MSUB15
3	4	05FTCC38X10	Plastic pad 38x10 (with screw)
4	1	05HPB15NF-078	15'' Driver (with screws)
	1	05HPB15NF-078R/K	Recone kit HPB15NF (with screws)
5	4	05VAX8-30-18.5	Clevis Axis 8X30X18.5 + Split Pin Ø3.2x20 (x4)
5	4	05VGOUF3.2X20	Split Pin Ø3.2x20 (x10)

9 TECHNICAL SPECIFICATIONS

MSUB15 WITH NEXO ELECTRONICS

Frequency range (±6dB)	40Hz – 120Hz
Sensibility (1W / 1m)	101dB SPL Nominal
Peak SPL Level (1m)	136dB Peak
Operating voltage	40 Vrms (180 Vpeak)
Crossover Frequency	40-65 ; 40-75 ;40-85 ;40-95 ;40-120 Hz
Nominal Impedance	8Ω
Recommended Amplification	900 W per cabinet

SPECIFICATIONS

Model	**MSUB15**
Components	1x 15 '' – 8 Ohms – Long excursion – Neodymium driver
Material	Finnish birch plywood
Finish	Black or white structural paint
Front finish	Steel front grille Black or white paint Black or white mesh
Fittings	4x Side handles Retractable rigging Semi-auto lock
Weight	40 kg – 88 lb
Dimensions [Inches] / mm	

10 USER NOTES

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