

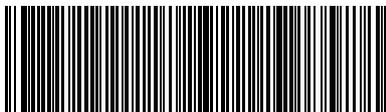
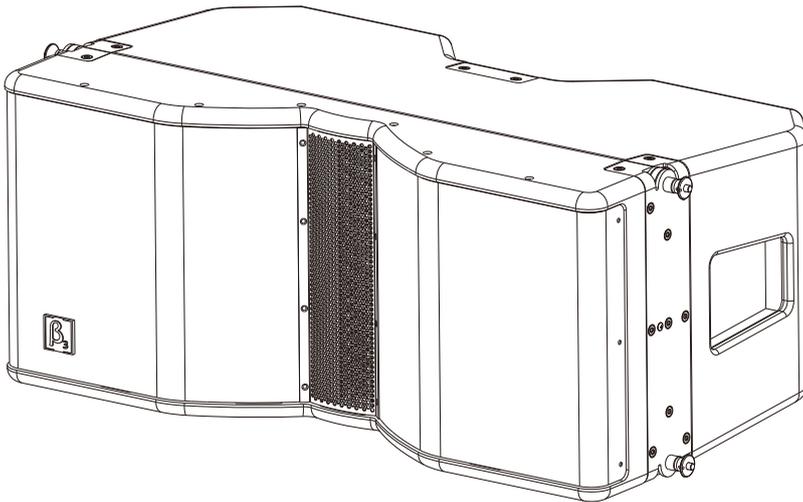


Beta Three

PL312F

Two-Way Dual 12" Waterproof Line Array Speaker System

User Manual



UM-PL312F-20200112 Ver A

Safety Precautions

Thank you for purchasing β_3 products. Please read this manual carefully, it will help you properly set up and run your system to its best performance. Keep this manual in a safe place for future references.

 Warning: Product installation and commissioning must be operated by a professional. When using rigging parts not specified by 3G Audio, ensure the strength of the structure and its compliance with local safety regulations.

 Warning: To prevent the risk of fire and electric shock, please do not expose the product to rain or moisture.

 Warning: To prevent the risk of electric shock, this product should only be operated by professionals. Non-professionals should not disassemble the system without authorization.

 The lightning flash within an equilateral triangle is intended to alert users to the presence of dangerous voltage within the product's enclosure that may result in a risk of electric shock to humans.

 The exclamation mark within an equilateral triangle is intended to alert users to the presence of important operating and servicing instructions in the user manual.

 Note: Do not modify the system or accessories without authorization. Unauthorized modification will cause potential safety hazards.

 Warning: Do not place an open flame source (such as lit candles) on the device

1. Please read these instructions first.
2. Keep these instructions for future reference.
3. Heed all warnings.
4. Follow all operation instructions.
5. Do not expose this product to rain or moisture.
6. Do not install the product near a heat source that generates heat, such as a heating pipe, heater, furnace, or other devices (including amplifier).
7. Do not damage the safety settings of the polarity or grounding plugs. If the plug provided cannot be inserted into the socket, contact a professional to replace the socket.
8. Protect the power cord and the signal cable, do not step on or tangle them (especially the plug and the socket).
9. Use accessories specified by the manufacturer and in compliance with local safety standards.
10. Only use with carts, racks, tripods, brackets, or tables designated by the manufacturer or sold with this device. Be careful not to tip over when pushing the cart/device.
11. Unplug the power cord when unused for a long time to prevent damaging the product.
12. Do not drop objects or liquids into the product, they may cause fire hazards or electrical shocks.
13. Please pay attention to the relevant safety signs on the product cover.



CONTENTS

PRODUCT INTRODUCTION	3
Features	3
Description	3
Applications	3
CONNECTION	4
Terminal Plate	4
Connection Method	4
System Connection Demonstration	4
INSTALLATION	5
Installation Accessories	5
Installation Reference	5
TECHNICAL SPECIFICATION	6
Specification Table	6
Frequency Response	7
Impedance Curve	8
Frequency Response Accumulation	10
2D Dimension Drawing	11



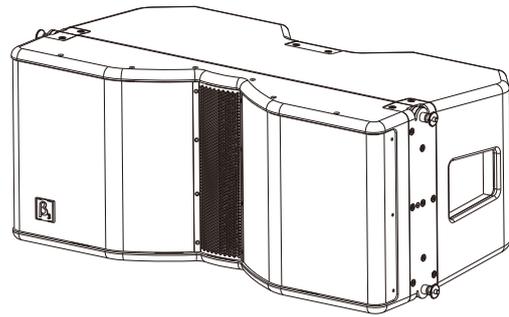
Product information may be updated without notice,
please visit www.beta3pro.com for the latest updates.

PL312F

Two-Way Dual 12" Waterproof Line Array Speaker System

Features

- Dual 3" neodymium magnet compression driver.
- Dual 12" neodymium magnet woofer.
- Long-term continuous power: LF 600W, MF/HF 140W.
- Dispersion: 100° horizontal, 0° x 10° vertical (adjustable).
- Frequency response: LF 55Hz-600Hz (-3dB), MF/HF 400Hz-18kHz (-3dB).
- Sensitivity: LF 96dB, MF/HF 102dB.
- Maximum SPL: LF 123dB/129dB (PEAK), MF/HF 120dB/126dB (PEAK).
- Compression driver is configured with over voltage protection function.
- Installation method: designated flying frame compatible with 3/4 size shackles.



Description

The PL waterproof line array system is composed of the PL312F dual 12" full-frequency waterproof speaker and the PL218BF dual 18" subwoofer. PL312F speakers can be grouped into 8 or 16 units in a flying line array when needed, and the PL218BF can be grouped into 4 or 8 units to form a bass sound field. The line array system is compact and lightweight with simple installation and connection, it is specially designed for outdoor touring performances.

PL waterproof line array speaker is designed based on the IP54 international waterproof rating standard, primarily used for outdoor mobile performance that meets the professional sound reinforcement needs of unexpected rainfall weather and humid environment with high moisture density.

All components of PL312F are designed following the IP54 international waterproof rating standard, and the cabinet structure is specifically designed with diversion and anti-splashing installation. The equipment is assembled with a unique production sealing process to ensure the equipment reaches the waterproof safety features of the IP54 rating. It also utilizes the function characteristic of executing high-quality sound reproduction.

The fan-shaped cylindrical wave emitted by each speaker in the PL waterproof line array speakers can be seamlessly coupled to form a coherent cylindrical wave. The opening angle between the two speakers is adjustable from 0° to 10°.

The LF transducer optimizes the magnetic circuit through finite element analysis to achieve ultra-low distortion and maximum clarity under high sound pressure. It has the overheating protection function of the driver temperature, and the flawless protection circuit is entirely safe and reliable.

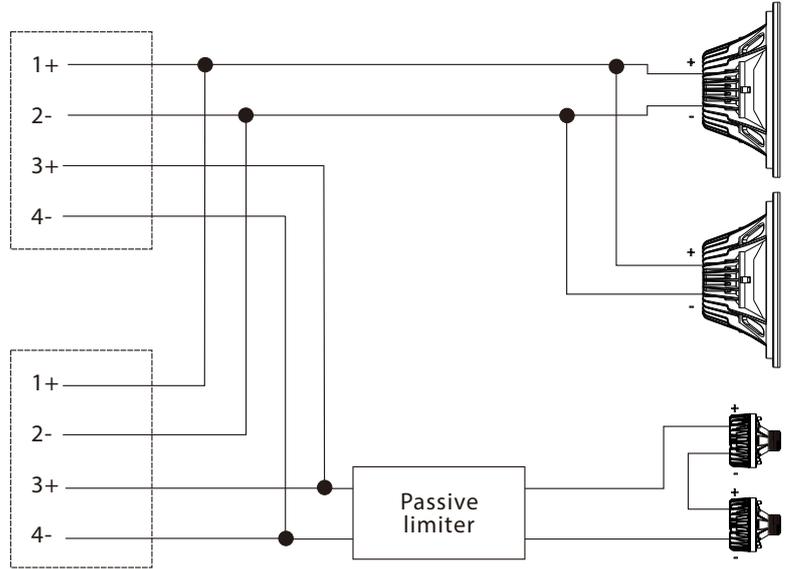
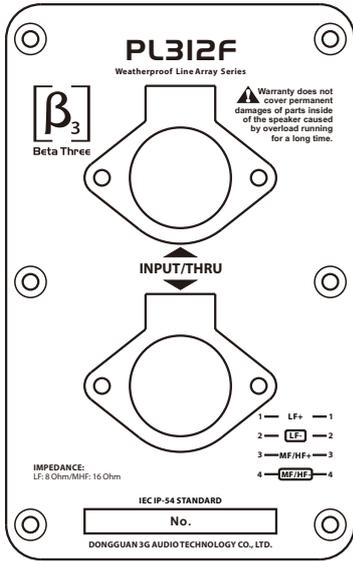
PL312F adopts a multifunctional structural design, and the cabinet is composed of imported plywood from Russia. The surface utilizes polyurethane spray treatment to provide superior weather resistance. The cabinet is equipped with a specified flying frame that can be conveniently and reliably installed and hung according to different environments.

Application

- Religious venue
- Auditorium
- Multifunctional hall
- Theater
- Various performance venues
- Sports competitions
- Touring performance

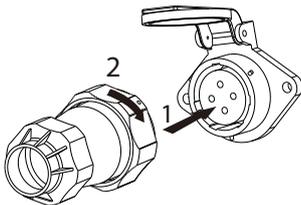
PL312F has two Speakon NL4 sockets to connect to the amplifier.
Two parallel sockets provide convenience when connecting to another speaker.

Terminal Plate



Connection Method

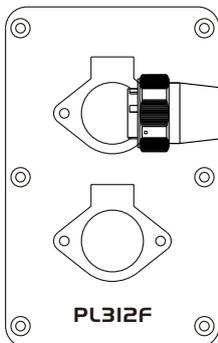
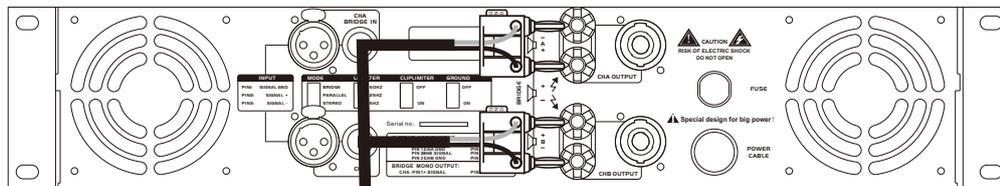
1. Connect



2. Disconnect



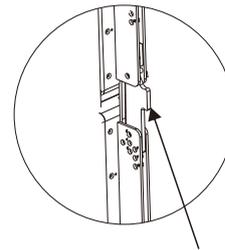
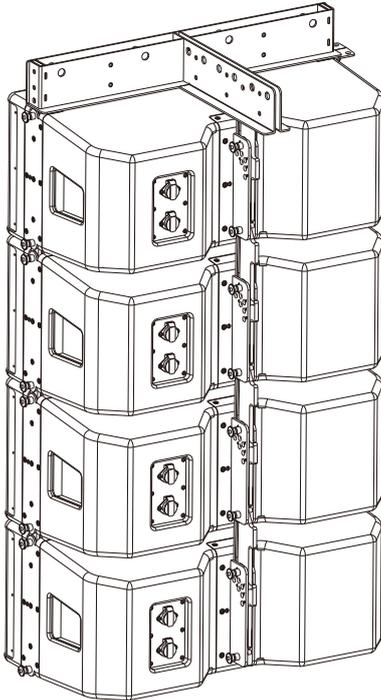
System Connection Demonstration:



- ⚠ Note:** Pay attention to the compatibility of the output impedance between the speaker and the amplifier when connecting the system.
- ⚠ Note:** Maintain proper polarity connection between the speaker and the amplifier.

Installation Reference

Flying



The outstanding point of the rear flying plate indicates the current angle.

Installation Accessories:

PL312F cabinets are equipped with a flying system and 4" polyurethane casters, which can be easily and reliably installed and hung for various environments.

The flying system includes the PL312F flying frame, front flying bracket, rear flying bracket (angle flying bracket on the back of the cabinet), and locking pins.

The rear flying bracket is installed fixedly on the cabinet for the convenience of selecting the opening angle between the speakers vertically.

The PL312F flying frame is a welded steel frame, and it has a maximum capacity of rigging a total of 16 full-frequency speakers and 4 subwoofers.

⚠ Warning: When installing the system, make sure all accessories in the installation system meet a safety factor of no less than 5:1 or meet local safety standards.



Specification

System: Two-Way Dual 12" Waterproof Line Array Speaker System
MF/HF Compression Driver: Dual 3" Neodymium compression driver
LF Driver: Dual 12" Neodymium inner magnet woofer
Frequency Response(-3dB): ¹ LF:55Hz-600Hz MHF:400Hz-18kHz
Sensitivity(1W@1m): ² LF:96dB MHF:102dB
Max.SPL(1m): ³ LF:123dB/129dB(PEAK) ⁴ MHF:120dB/126dB(PEAK)
Power: LF: 600W MHF: 70W Rated power(RMS) LF: 1200W MHF: 140W Long-term max power LF: 2400W MHF: 280W Short-term max power
Dispersion: Horizontal 100°, Vertical 0° × 10° Adjustable。
Rated Impedance: LF:8 Ohms MHF:16 Ohms
DC Impedance: LF:8 Ohms MHF:16 Ohms
Recommended Crossover Point: 400Hz
Cabinet: 15mm Imported birch plywood
Installation: Specified frame with 3/4" shackle
Transportation: 2 x Iron handles
Finish: Weather resistant polyurethane finish, black power coating for grille
Connectors: NL4 × 2 @ LF:1+ 2- MHF: 3+ 4-
Cabinet dimension: 810 × 475 × 354mm(31.9 × 18.7 × 13.9in)
Package dimension: 605 × 470 × 955mm(23.8 × 18.5 × 37.6in)
Net Weight: 48.0kg(105.6 lb)
Gross Weight: 52.0kg(114.4 lb)
Optional Accessory: Flying frame(131.98.0034.00066)

Speaker Testing Method

1. Frequency response

Use Pink noise to test the speaker in the anechoic room, adjust the level to make the speaker work at its rated impedance and the power output is 1W, then test the frequency response 1m away from the speaker.

2. Sensitivity

Use full range Pink noise which was modified by EQ curve to test the speaker in the anechoic room, enlarge the signal to make the speaker work at its rated impedance and the power output is 1W, then test the sensitivity 1m away from the speaker.

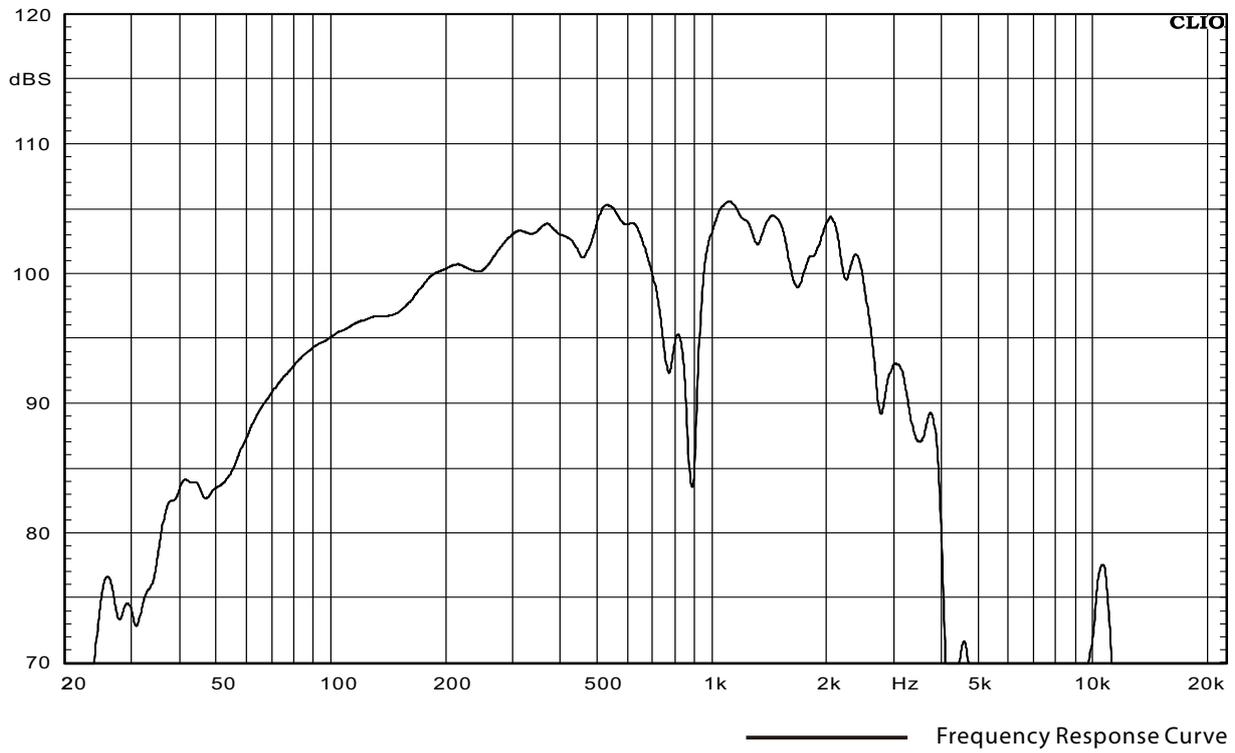
3. MAX.SPL

Use full range Pink noise which was modified by EQ curve to test the speaker in the anechoic room, enlarge the signal to make the speaker work at its instant power output level, then test the SPL 1m away from the speaker.

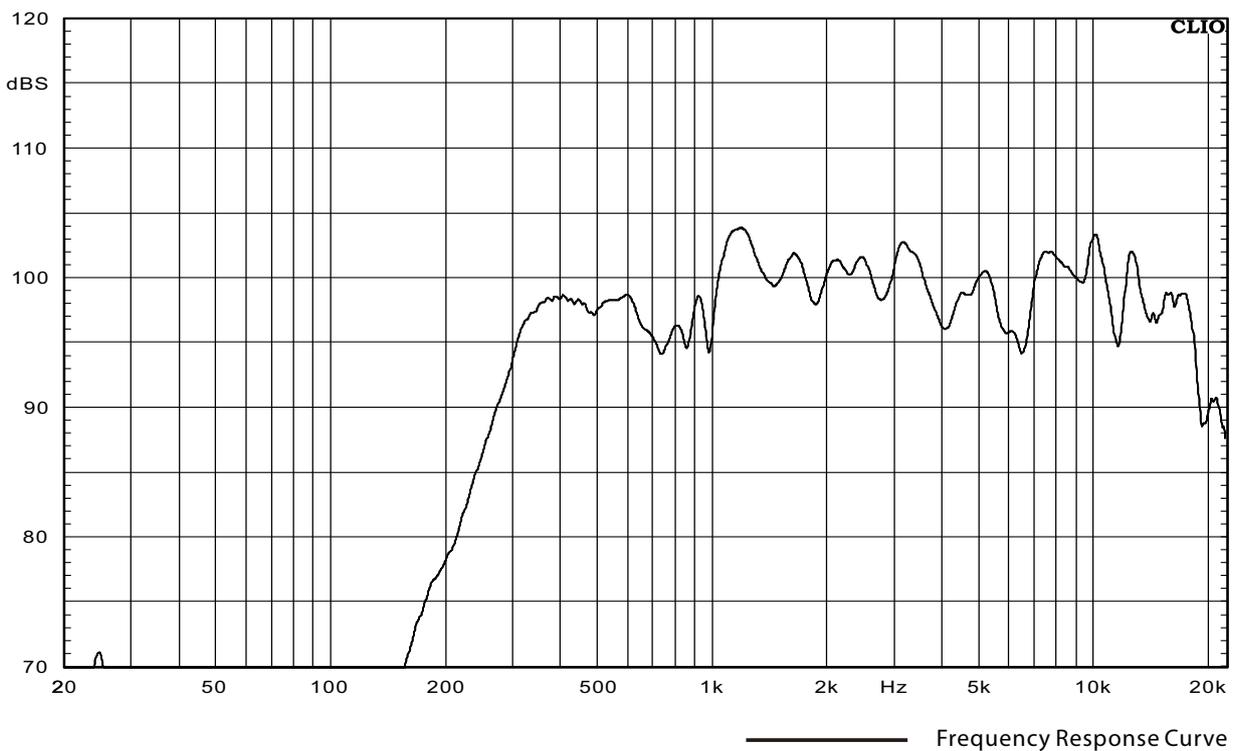
4. Rated Power

Use the pink noise according to IEC#268-5 to test the speaker, enlarge the signal for continuous 100hours, the rated Power is the power when the speaker will not incur hot damage or mechanics damage.

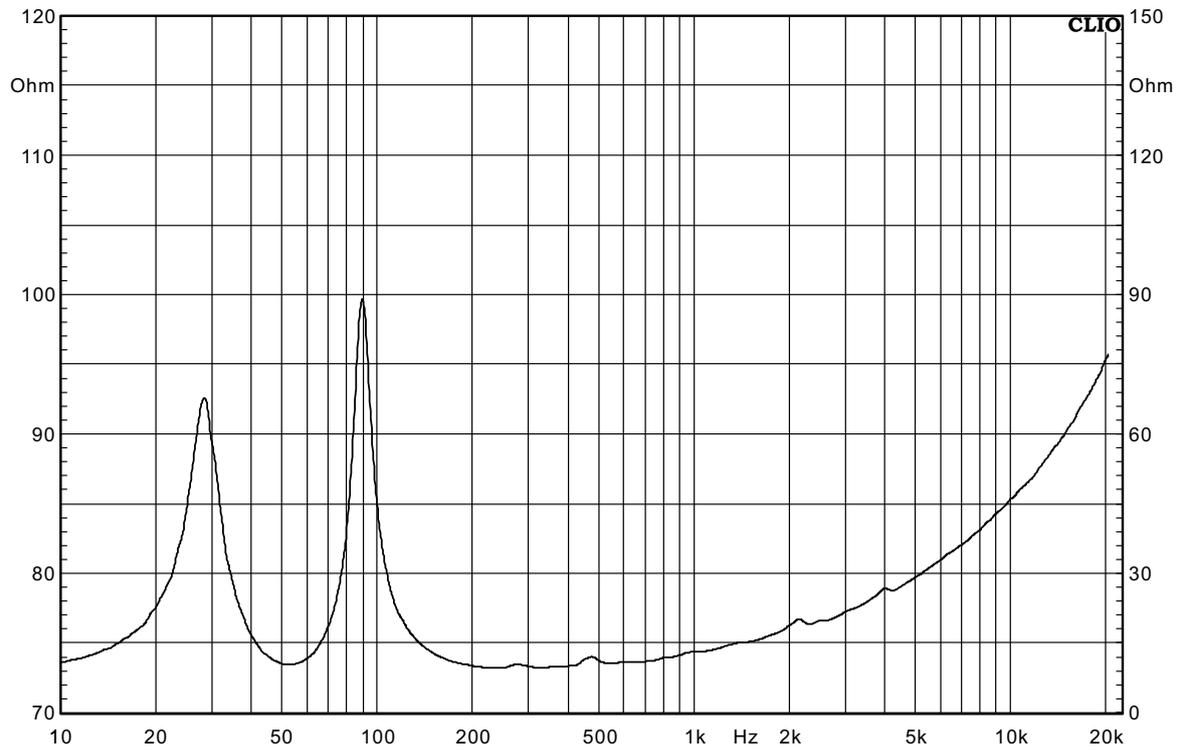
Frequency Response-LF



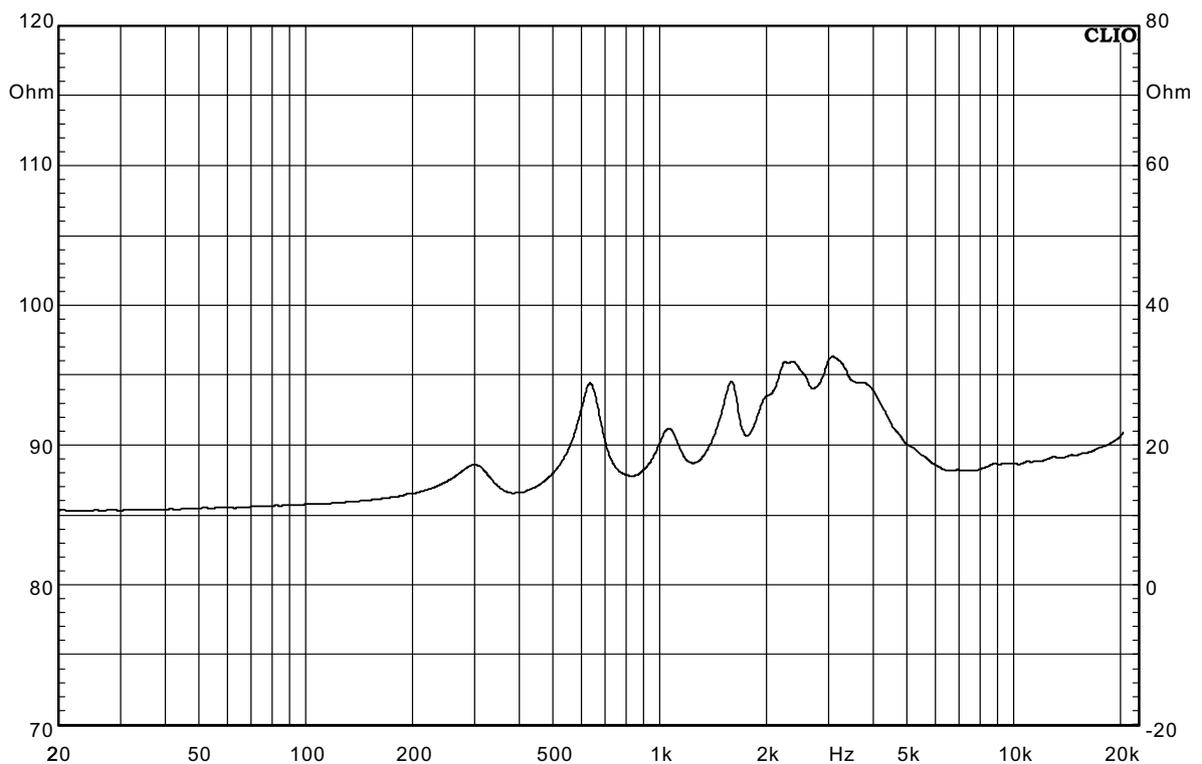
Frequency Response-MF/HF



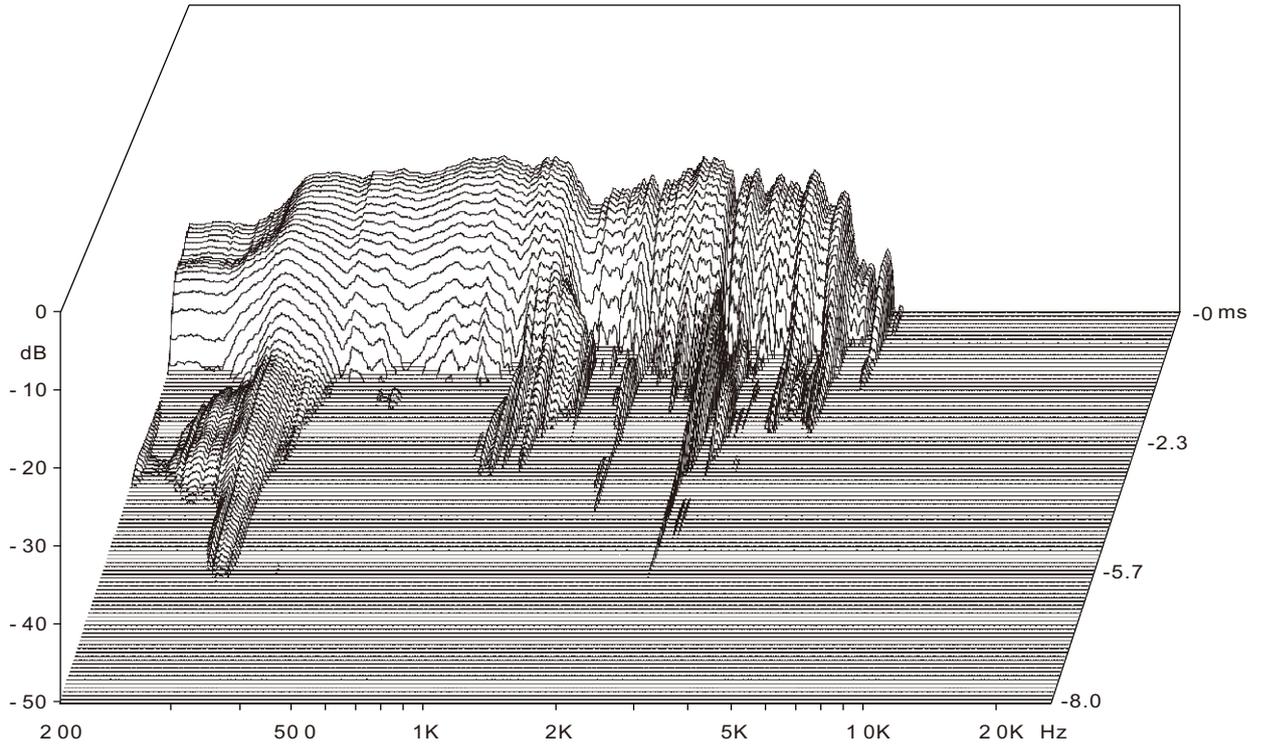
Impedance Curve-LF



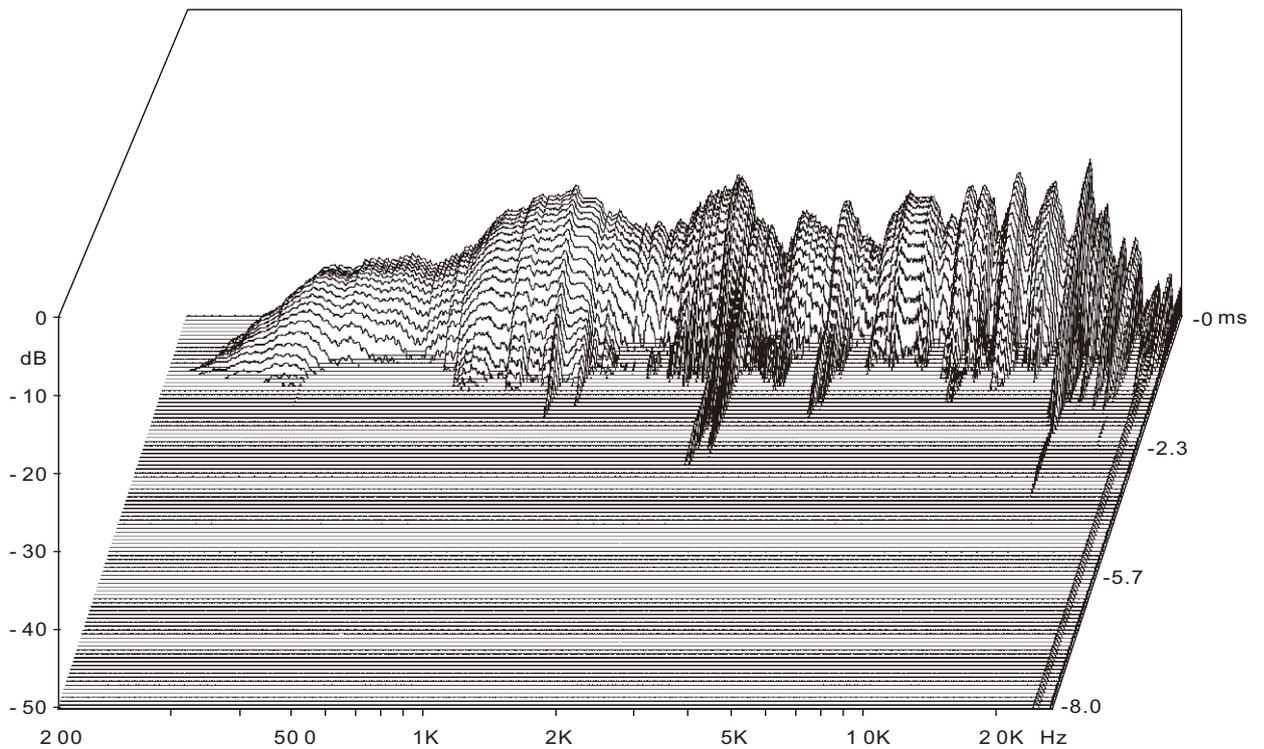
Impedance Curve-MF/HF



Frequency Response Accumulation-LF



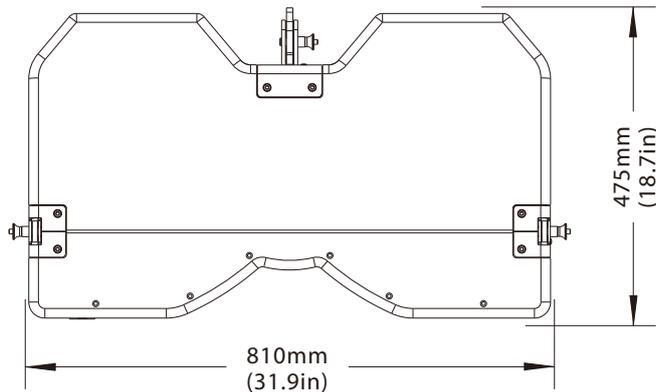
Frequency Response Accumulation-MF/HF



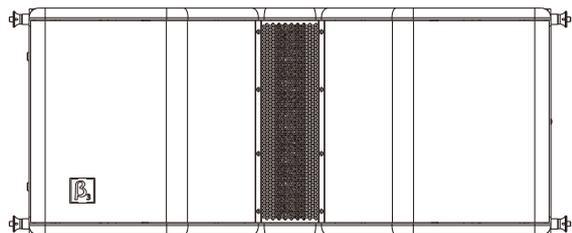


2D Dimension Drawing

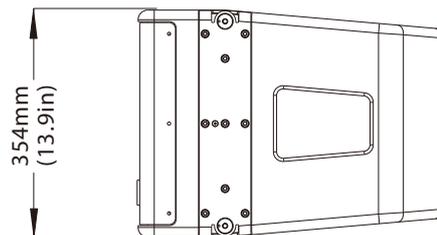
Top view



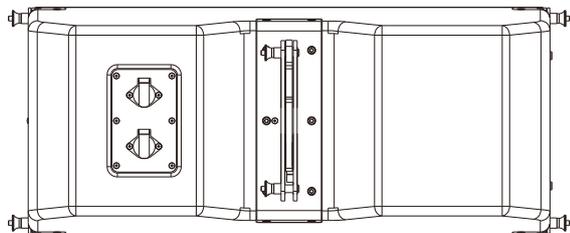
Front view



Side view



Rear view



Notes:

SYSTEM CONNECTION DIAGRAM

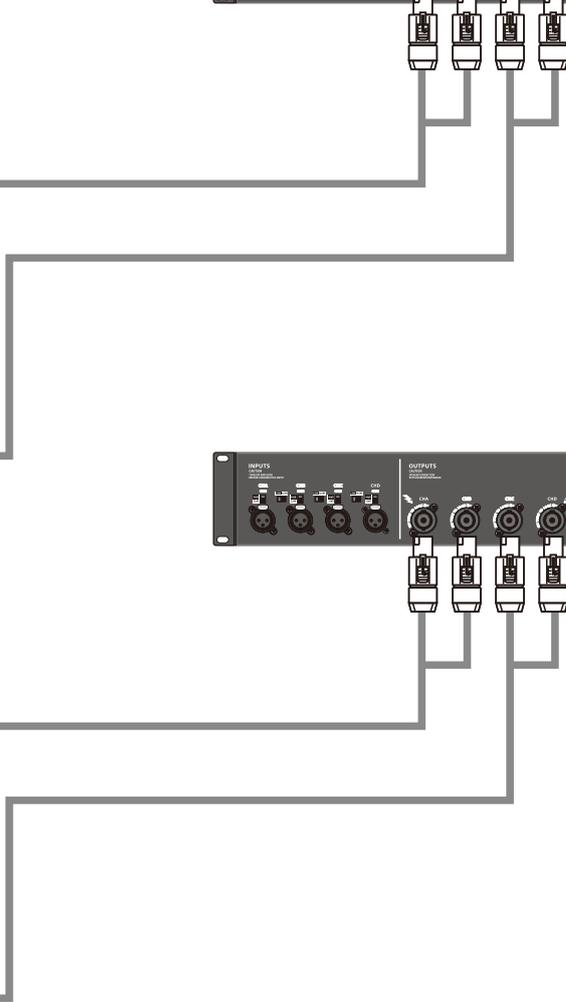
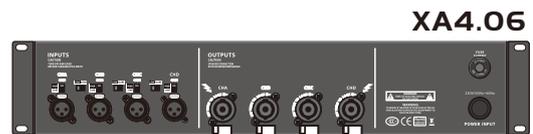
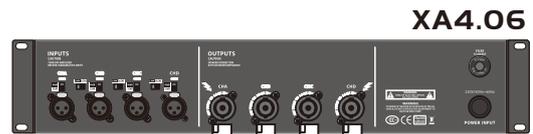
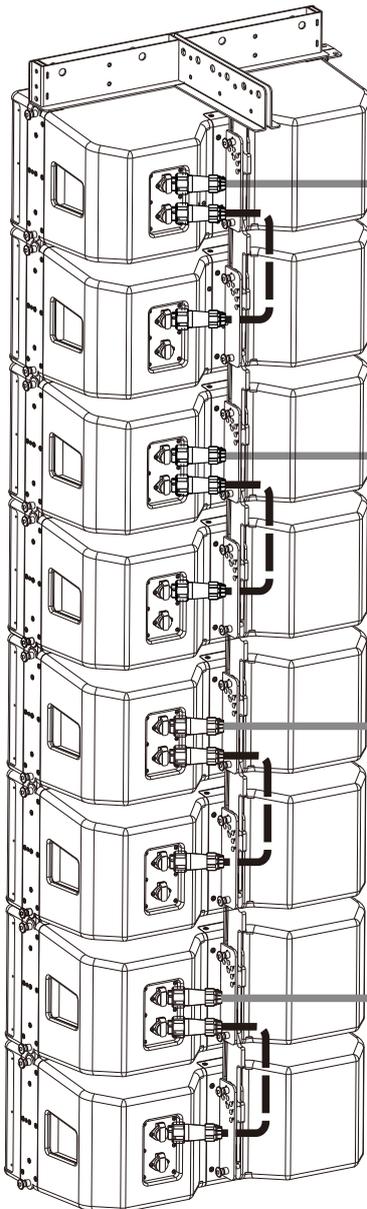
PL312F (8PCS)



4-core Speakon (1+2-3+4-) for parallel connection



The speaker connection is a 4-core connection
2-core Speakon (1+2-) LF connection
2-core Speakon (3+4-) HF connection





Beta Three