



owner's Manual

REVO LINE ARRAY SPEAKER ENCLOSURES

PASSIVE MODELS



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English

IMPORTANT SAFETY INSTRUCTION






TO REDUCE THE RISK OF ELECTRIC SHOCK PLEASE DO NOT REMOVE THE COVER OR THE BACK PANEL OF THIS EQUIPMENT. THERE ARE NO PARTS NEEDED BY USER INSIDE THE EQUIPMENT. FOR SERVICE, PLEASE CONTACT QUALIFIED SERVICE CENTERS.

 This symbol, wherever used, alerts you to the presence of un-insulated and dangerous voltages within the product enclosure. These are voltages that may be sufficient to constitute the risk of electric shock or death.

 This symbol, wherever used, alerts you to important operating and maintenance instructions.

Please read.


-  Protective Ground Terminal
-  AC mains (Alternating Current)
-  Hazardous Live Terminal

ON: Denotes the product is turned on.

OFF: Denotes the product is turned off.

CAUTION

Describes precautions that should be observed to prevent damage to the product.

1. Read this Manual carefully before operation.
2. Keep this Manual in a safe place.
3. Be aware of all warnings reported with this symbol. 
4. Keep this Equipment away from water and moisture.
5. Clean it only with dry cloth. Do not use solvent or other chemicals.
6. Do not damp or cover any cooling opening. Install the equipment only in accordance with the Manufacturer's instructions.
7. Power Cords are designed for your safety. Do not remove Ground connections! If the plug does not fit your AC outlet, seek advice from a qualified electrician. Protect the power cord and plug from any physical stress to avoid risk of electric shock. Do not place heavy objects on the power cord. This could cause electric shock or fire.
8. Unplug this equipment when unused for long periods of time or during a storm.
9. Refer all service to qualified service personnel only. Do not perform any servicing other than those instructions contained within the User's Manual.


10. To prevent fire and damage to the product, use only the recommended fuse type as indicated in this manual. Do not short-circuit the fuse holder. Before replacing the fuse, make sure that the product is OFF and disconnected from the AC outlet.

WARNING

To reduce the risk of electric shock and fire, do not expose this equipment to moisture or rain.



Dispose of this product should not be placed in municipal waste and should be separate collection.

11. Move this Equipment only with a cart, stand, tripod, or bracket, specified by the manufacturer, or sold with the Equipment. When a cart is used, use caution when moving the cart / equipment combination to avoid possible injury from tip-over. 
12. Permanent hearing loss may be caused by exposure to \ extremely high noise levels. The US. Government's Occupational Safety and Health Administration (OSHA) has specified the permissible exposure to noise level.

These are shown in the following chart:

HOURS X DAY	SPL	EXAMPLE
8	90	Small gig
6	92	train
4	95	Subway train
3	97	High level desktop monitors
2	100	Classic music concert
1,5	102	
1	105	
0,5	110	
0,25 or less	115	Rock concert

According to OSHA, an exposure to high SPL in excess of these limits may result in the loss of hear. To avoid the potential damage of heat, it is recommended that Personnel exposed to equipment capable of generating high SPL use hearing protection while such equipment is under operation.

The apparatus shall be connected to a mains socket outlet with a protective earthing connection.

The mains plug or an appliance coupler is used as the disconnect device, the disconnect device shall remain readily operable.

14. WARRANTY

1. WARRANTY REGISTRATION CARD

To obtain Warranty Service, the buyer should first fill out and return the enclosed Warranty Registration Card within 10 days of the Purchase Date.

All the information presented in this Warranty Registration Card gives the manufacturer a better understanding of the sales status, so as to provide amore effective and efficient after-sales warranty service. Please fill out all the information carefully and genuinely, miswriting or absence of this card will void your warranty service.

2. RETURN NOTICE

- 2.1 In case of return for any warranty service, please make sure that the product is well packed in its original shipping carton, and it can protect your unit from any other extra damage.
- 2.2 Please provide a copy of your sales receipt or other proof of purchase with the returned machine, and give detail information about your return address and contact telephone number.
- 2.3 A brief description of the defect will be appreciated.
- 2.4 Please prepay all the costs involved in the return shipping, handling and insurance.

3. TERMS AND CONDITIONS

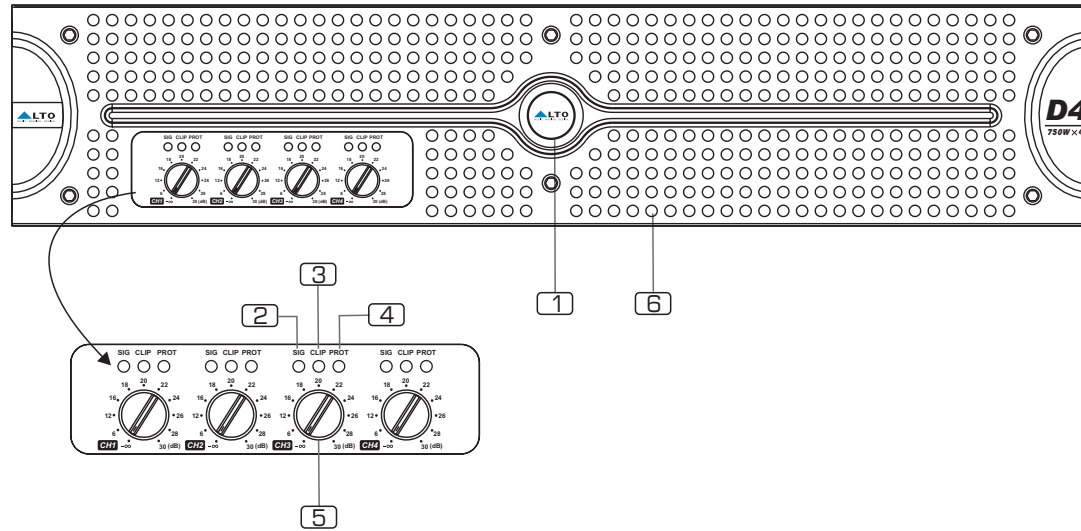
- 3.1 ▲LTO warrants that this product will be free from any defects in materials and/or workmanship for a period of 1 year from the purchase date if you have completed the Warranty Registration Card in time.
- 3.2 The warranty service is only available to the original consumer, who purchased this product directly from the retail dealer, and it can not be transferred.
- 3.3 During the warranty service, ▲LTO may repair or replace this product at its own option at no charge to you for parts or for labor in accordance with the right side of this limited warranty.
- 3.4 This warranty does not apply to the damages to this product that occurred as the following conditions:
 - Instead of operating in accordance with the user's manual thoroughly, any abuse or misuse of this product.
 - Normal tear and wear.
 - The product has been altered or modified in any way.
 - Damage which may have been caused either directly or indirectly by another product / force / etc.
 - Abnormal service or repairing by anyone other than the qualified personnel or technician.

And in such cases, all the expenses will be charged to the buyer.
- 3.5 In no event shall ▲LTO be liable for any incidental or consequential damages.

Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above exclusion or limitation may not apply to you.
- 3.6 This warranty gives you the specific rights, and these rights are compatible with the state laws, you may also have other statutory rights that may vary from state to state.

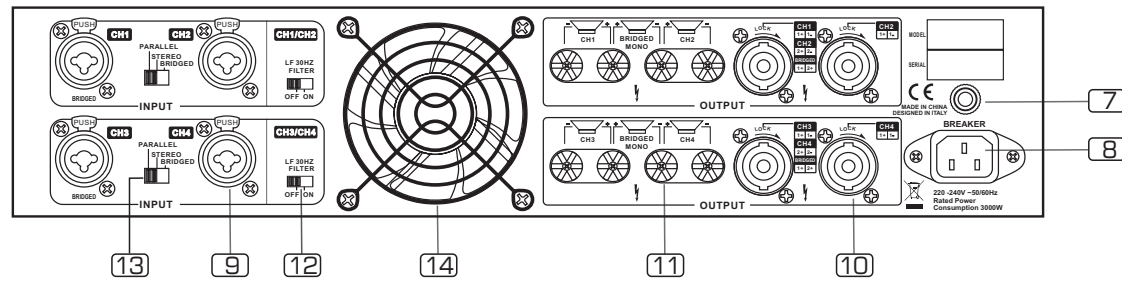
13. CONTROL ELEMENTS: D4 Amplifier

Front Panel



- | | |
|--------------------------------|------------------|
| 1 Power Switch & Indicator LED | 4 Protection LED |
| 2 Signal LED | 5 Gain Controls |
| 3 Clip LED | 6 Cooling Vents |

Rear Panel



- | | |
|-----------------------------------|-------------------------|
| 7 Circuit Breaker | 11 Binding Post Outputs |
| 8 IEC Socket for AC Power Cable | 12 Low Frequency Filter |
| 9 Combo Balanced Input Connectors | 13 Output Mode Selector |
| 10 Speakon Outputs | 14 Cooling Fan |

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1. INTRODUCTION TO THE REVO SAT208P

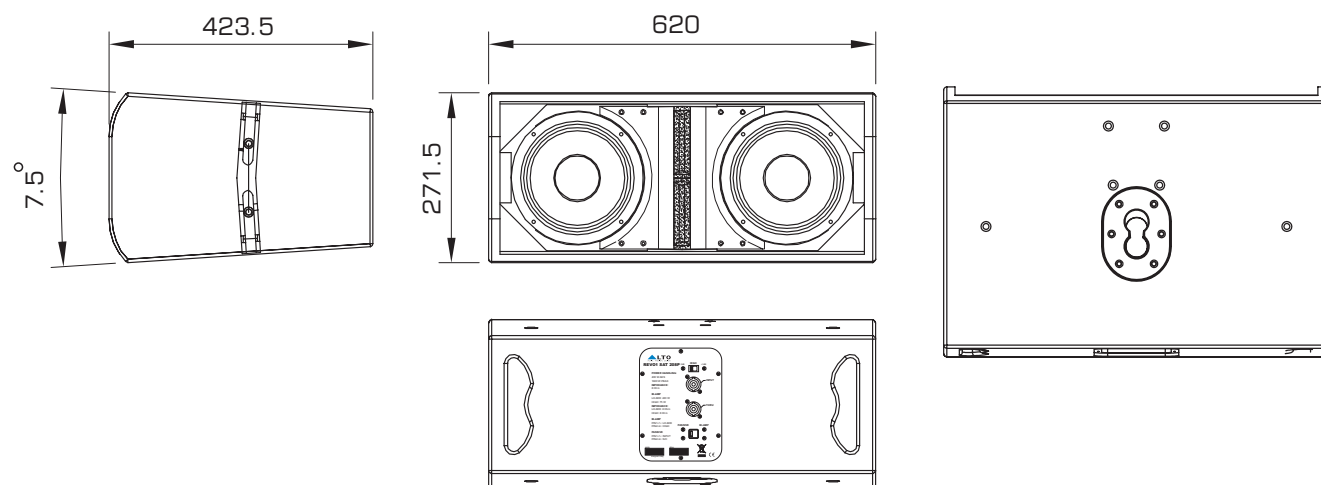


REVO is a compact two-way passive, line array system, intended for use in arrays with fixed curvature, up to six cabinets of SAT208P. The REVO is a versatile loudspeaker system for medium & large Indoor venues. it is suitable in small and medium outdoor scale application, or as a delay tower for large scale sound reinforcement system.

The REVO was born for make a line-array with fixed curvature, with 100° horizontal & 40° Vertical coverage pattern, aim to simulate a coherent waveguide with six enclosure.

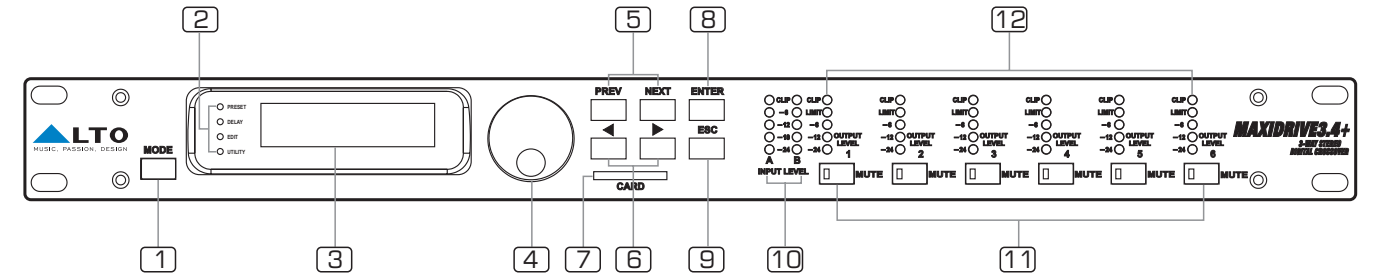
A main frame hardware defines the tilting of the complete array system between +20°/-25°. The SAT208P includes a dual angle pole socket, plus the accessory for a suspension options. It is easy to use integral rigging hardware, and give the possibility to assemble a max of 6 x SAT208P in suspension or 1x SUB118P plus 4 x SAT208P in the same way as a single source. A high frequency selector is included in the passive crossover for giving you more flexibility to define an amplitude shading of the REVO. The 0dB position is normally used to coverage the near field audience. The +3dB position is normally used to coverage the far field audience. The SAT208P is normally used in Passive mode, and no restriction exist for use in Bi-Amp mode with the way of Passive Active selector. The SAT208P is equipped with two custom high power 8" Mid-Bass of the 2" sandwich copper voice coil on fiberglass former, and two 1" high frequency drivers with 1.4" voice coil of titanium diaphragm are used on double proprietary waveguide horn.

Dimension Drawings for REVO SAT208P



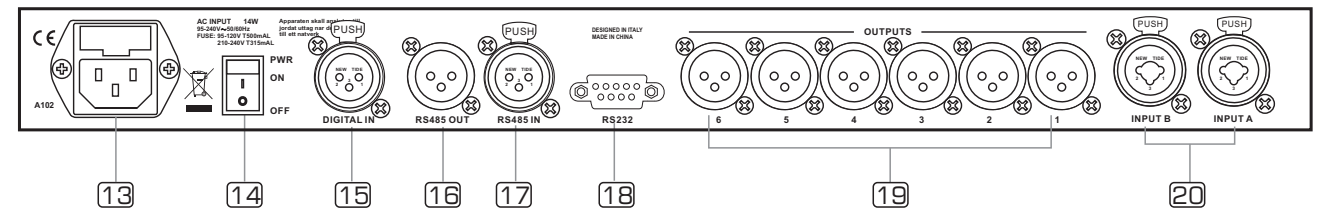
12. CONTROL ELEMENTS: MAXIDRIVE3.4+ PROCESSOR

Front Panel



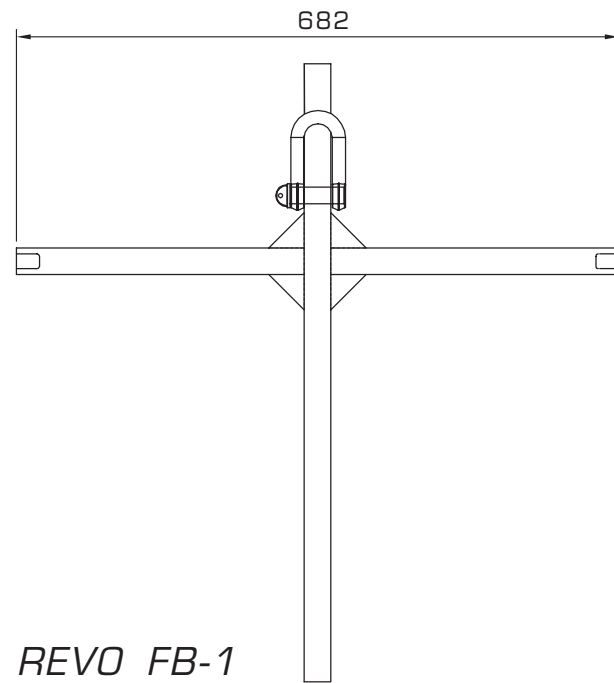
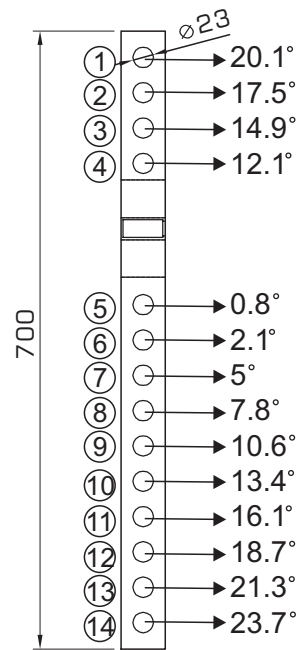
- | | | |
|---------------------|--------------------|--------------------------|
| 1 MODE Button | 2 LEDs | 3 Display |
| 4 DIAL Knob | 5 PREV/NEXT Button | 6 Navigation Cursor Keys |
| 7 Memory Card Slot | 8 ENTER Key | 9 ESC key |
| 10 Input Level LEDs | 11 Mute Switches | 12 Output Level LEDs |

Rear Panel



- | | |
|-----------------------------|-----------------|
| 13 AC Inlet and Fuse Holder | 14 Power Switch |
| 15 Digital In | 16 Rs485 OUT |
| 17 Rs485 IN | 18 RS 232 |
| 19 OUTPUTS | 20 INPUTS |

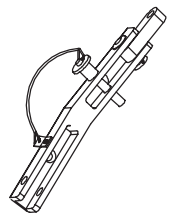
11. REVO LINE ARRAY HARDWARE PARTS



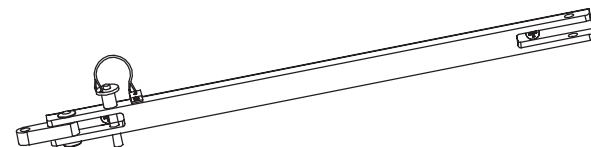
REVO FB-1



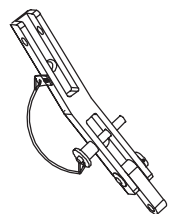
REVO SH



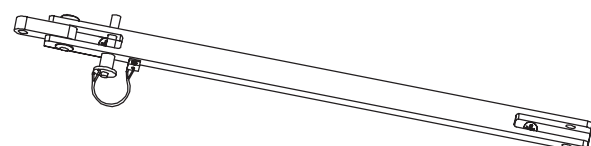
REVO SAT-HD-R



REVO SUB-HD-L



REVO SAT-HD-L



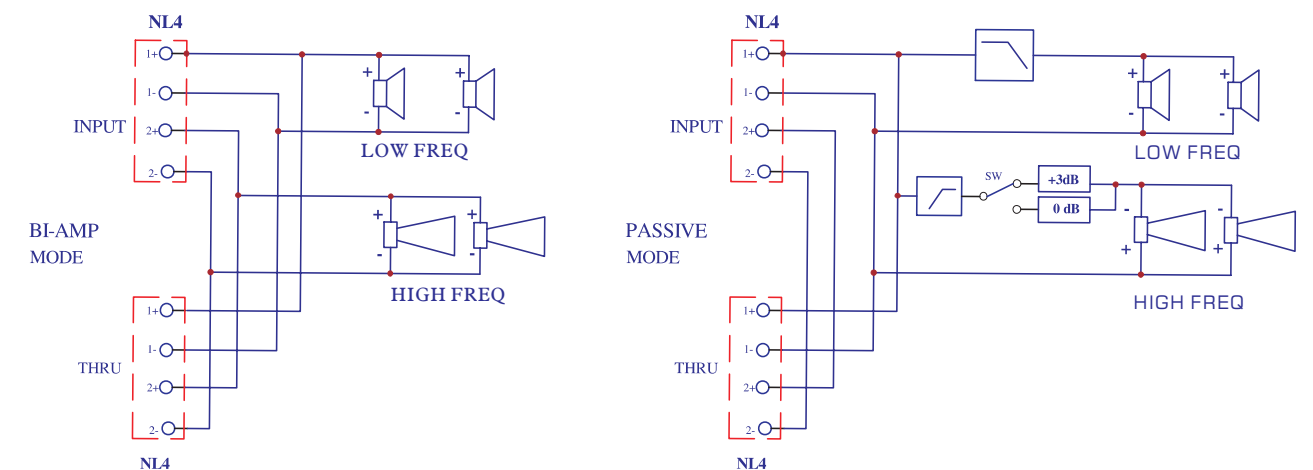
REVO SUB-HD-R

2. REVO SAT208P TECHNICAL SPECIFICATION

Model No.	REVO SAT 208P
Configuration	Two-way, Passive or Bi-Amp, with a total of four speakers device
Operating Frequency Range	65 Hz/20 kHz (-10 dB)
Frequency Response	77 Hz/18 kHz (+/-3 dB)
Maximum Peak SPL	126 dB SPL (calculated)
Power Rating (AES Standard)	400 W/800 W/1600W passive mode Bi-amp Low 400 W/800 W Bi-amp High 75 W/150 W
Coverage Horizontal	100° nominal, single unit
Coverage Vertical	7.5° variable with array configuration
Transducers Low-Mid	2 x 8" Mid-Bass, 2" high-power voice coil, ceramic magnet, Weather resistant cone. Impedance 16 ohm
Transducers High	2x1, 4" Titanium diaphragm, neodymium magnet, 1" exit Impedance 16 ohm 95 dB SPL (passive mode)
Crossover modes	Passive or Bi-Amp with externally selector High frequency externally level selector, Used for far field (+3 dB) or Near field(0dB)
System Sensitivity (1w@1mt)	97 dB SPL, passive version Bi-Amp Low 97 dB (device parallel) Bi-Amp High 107 dB (2 device parallel)
Nominal Impedance	Passive 8 ohm Bi-Amp Low 8 ohm (2 device parallel) Bi-Amp High 8 ohm (2 device parallel)
Suspension / Mounting	Integrated hardware for suspension in Line
Enclosure	Array, dual pole socket, two handle 18mm calibrated plywood, black finish, Perforated metal grille, black finish
Input Connectors	Two Speakon N-L 4 type, Passive, Input 1+/1- Output 1+/1- Bi-Amp, Low 1+/1- High 2+/ 2-
Dimension (H x W x D)	271.5 mm x 620 mm x 423.5 mm (10.7" x 24.4" x 16.7")
Net Weight (Kg/lbs)	21.8 kg (48 lbs)

- "Frequency Response" is measured in half-space condition.
- AES filtered pink noise with 6 dB crest factor for 2 hours.

REVO SAT208P BLOCK DIAGRAM

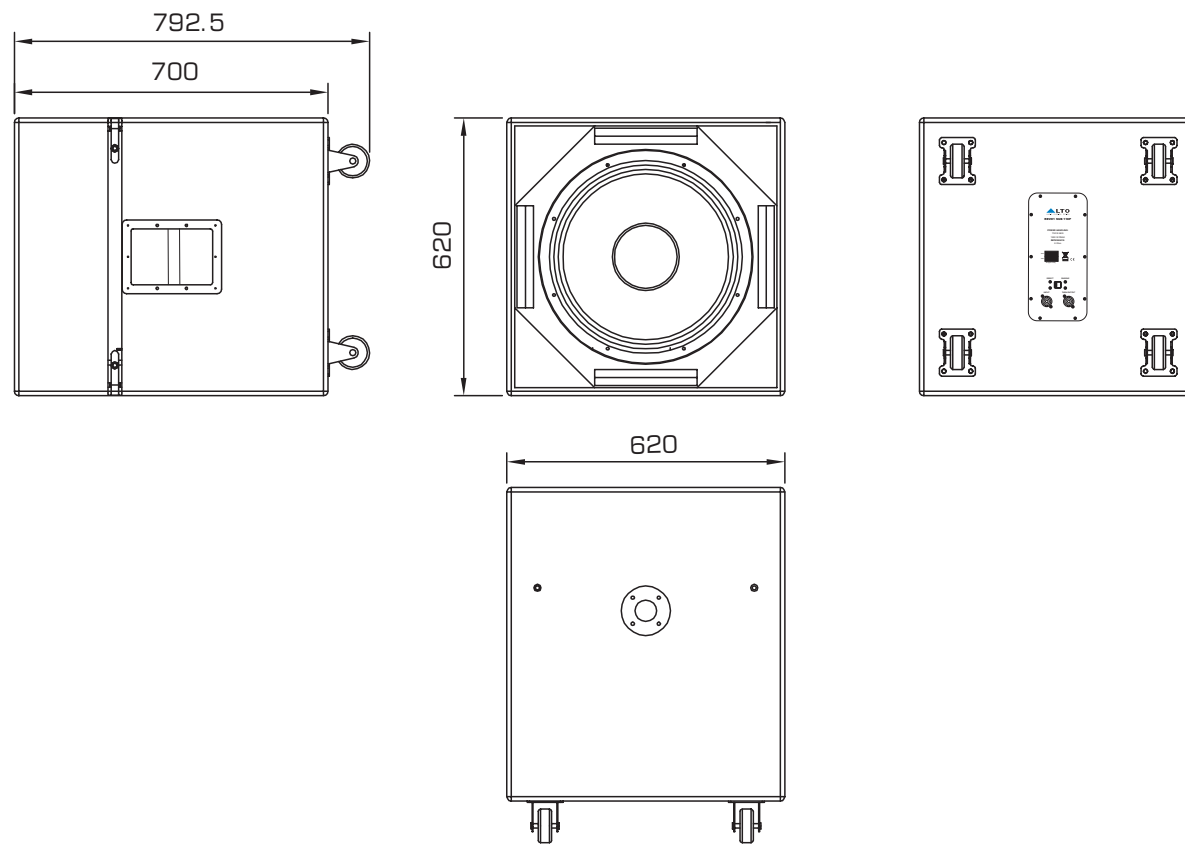


3. INTRODUCTION TO THE REVO SUB118P

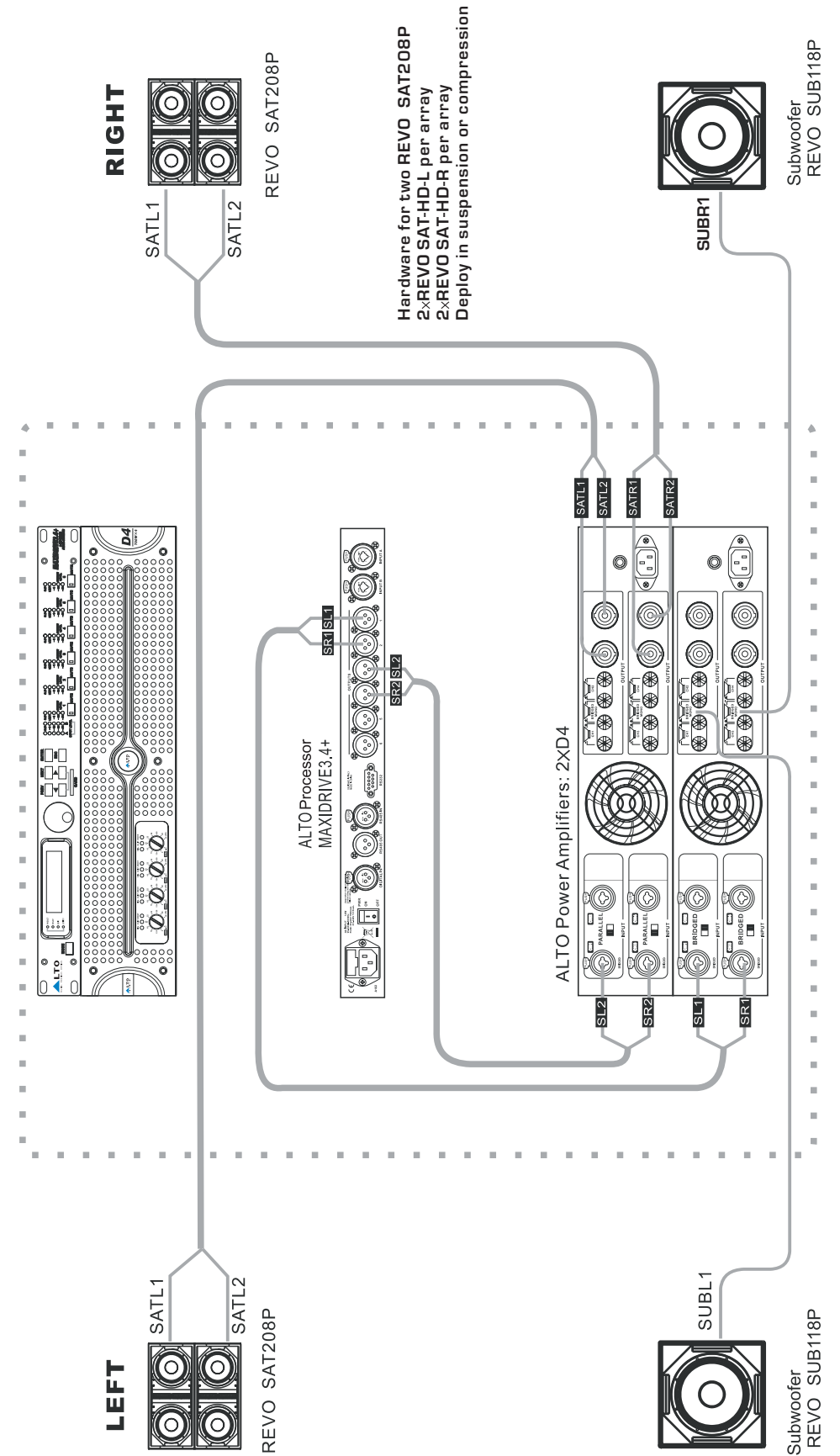


The SUB118P is a vented subwoofer equipped with a single custom high power 18" Subwoofer with 4" high-power sandwich copper voice coil on fiberglass former, double spider, ceramic magnet, and weather resistant cone. The enclosure is made with a 18mm multi-layer plywood, finished with anti-scratch black paint, with a strong perforated metal grille, two metal handles, one pole socket for satellite and four wheels.

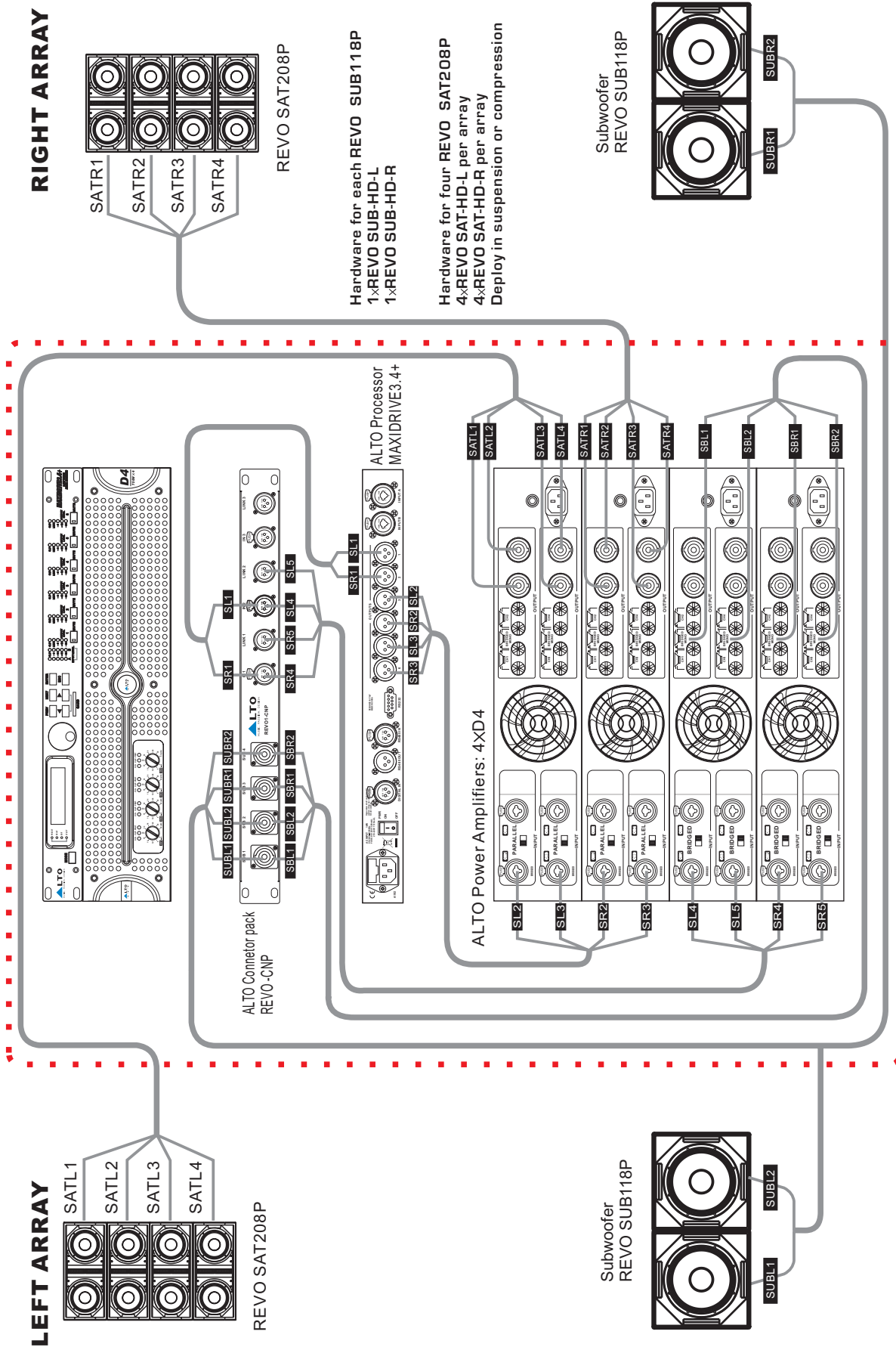
Dimension Drawings for REVO SUB118P



10. HOOK-UP: 4xSAT208P+2xSUB118P CONFIGURATION



10. HOOK-UP: 8xSAT208P+4xSUB118P CONFIGURATION

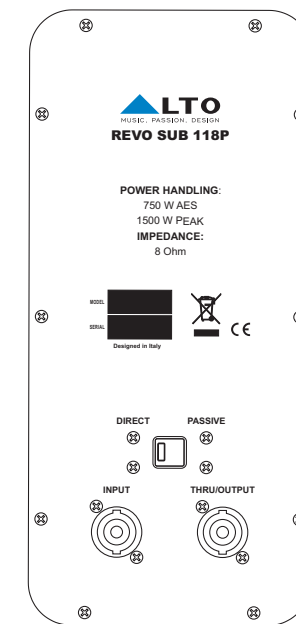


4. REVO SUB118P TECHNICAL SPECIFICATION

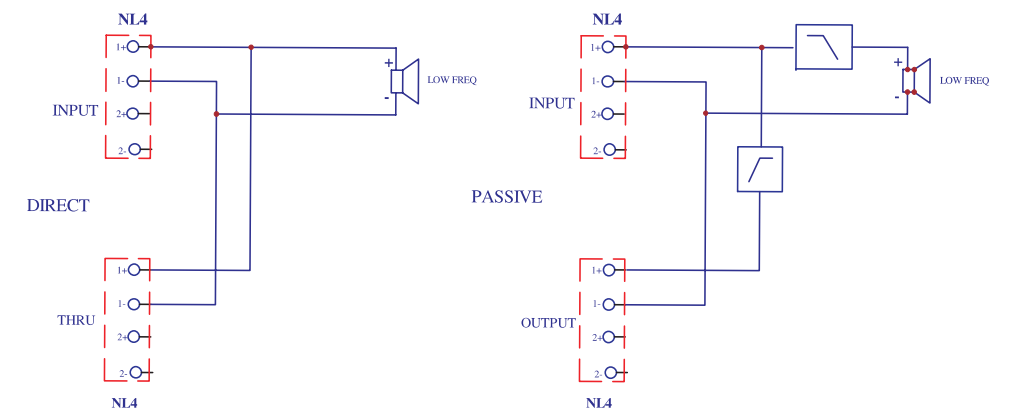
Model No.	REVO SUB 118P
Configuration	Vented Subwoofer, Passive or Direct
Operating Frequency Range	37 Hz~200 Hz (-10 dB)
Frequency Response	43 Hz~200 Hz (+/- 3 dB)
Maximum Peak SPL	129 dB SPL (calculated)
Power Rating (AES Standard)	750 W/1500 W
Transducers Low	18" Subwoofer, 4" high-power voice coil Ceramic magnet, weather resistant cone.
Crossover modes	Passive, Active with externally selector in direct connection
System Sensitivity (1w@1mt)	97 dB SPL, passive version
Nominal Impedance	8 ohm, nominal
Suspension / Mounting	Single 36 mm pole socket, four integrated point For line array suspension, two handle, four optional wheel
Enclosure	18 mm calibrated plywood, black finish, perforated metal grille
Input Connectors	Two SPK N-L 4 type, Passive, Input 1+/1- Output 1+/1- Direct 1+/1- (2 SPK parallel) with externally selector
Dimension (H x W x D)	620 mm x 620 mm x 700 mm (24.4" x 24.4" x 27.5")
Net Weight (Kg/lbs)	51.8 Kg (113.4 lbs)

1. "Frequency Response" is measured in half-space condition.
2. AES filtered pink noise with 6 dB crest factor for 2 hours.

Rear panel



REVO SUB 118P BLOCK DIAGRAM

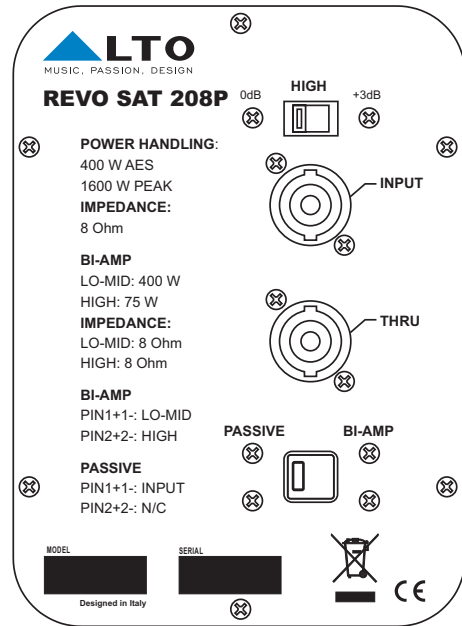


5. LAYOUT OF THE CONNECTOR PANEL REVO SAT208P

1 High Frequency Configurator (HFC)

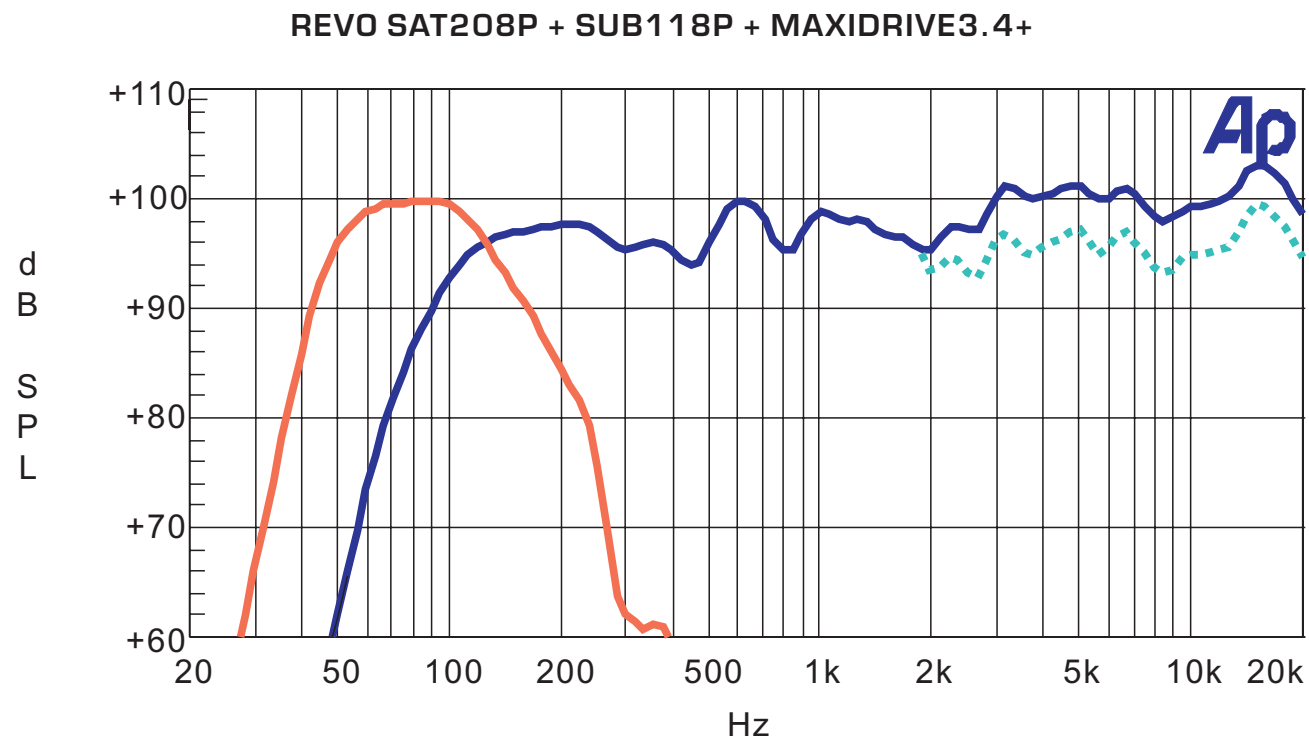
The High Frequency Configurator gives you the possibility to define the best sound pressure level in front of the audience. The HFC is included in the passive crossover and work only in Passive-Mode.

The +3 dB position is normally used for the SAT208P that work in array, for covering the more distant audience. The 0dB is normally used for covering the nearest audience.

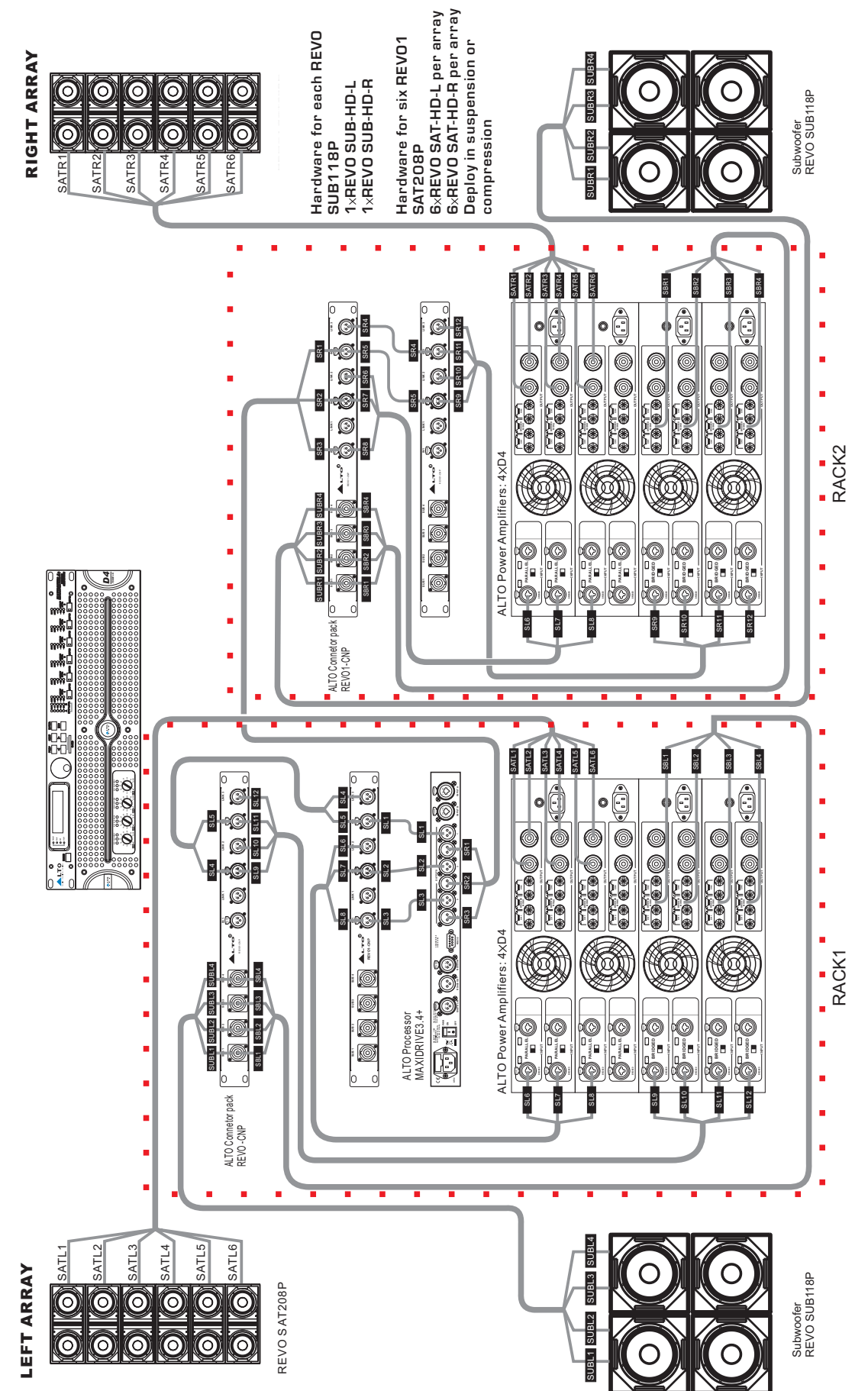


2 Frequency Response

The frequency response is visible to the HFC in the two different position of the selector, 0dB (dotted line) and +3dB (continuous).



10. HOOK-UP: 12xSAT208P+8xSUB118P CONFIGURATION



9. Speaker management: MAXIDRIVE3.4+

⚠ USER PRESET:2S18+6208U13

REVO MAXIDRIVE3.4+

User Preset:2S18+6208U13

EDIT → XOVER	FILTER TYPE	FILTER SHAPE	FILTER FREQ	PHASE
OP1&2	LPF	LR24	125,0Hz	0
	HPF	LR24	37,2Hz	
OP3&4	LPF	Thru	2K00Hz	0
	HPF	LR24	82,5Hz	
OP5&6	LPF	Thru	2K00Hz	0
	HPF	LR24	82,5Hz	

EDIT → OUT EQ	FILTER SELECT	FILTER TYPE	FILTER FREQ	FLITER Q	FILTER GAIN
OP1&2	EQ1	PEAK	37,2Hz	1,95	+3,0
	EQ2	PEAK	101,0Hz	1,95	+6,0
	EQ3 Default	PEAK	2K00	1,00	0,0
	EQ4 Default	PEAK	2K00	1,00	0,0
	EQ5 Default	PEAK	2K00	1,00	0,0
OP3&4	EQ1	PEAK	4K76Hz	1,0	-6,0
	EQ2	Hish6	10K93Hz		-3,0
	EQ3	PEAK	8K28Hz	1,95	+3,0
	EQ4 Default	PEAK	2K00	1,00	0,0
	EQ5 Default	PEAK	2K00	1,00	0,0
OP5&6	EQ1	PEAK	4K76Hz	1,0	-6,0
	EQ2	Hish6	10K93Hz		-3,0
	EQ3	PEAK	8K28Hz	1,95	+3,0
	EQ4 Default	PEAK	2K00	1,00	0,0
	EQ5 Default	PEAK	2K00	1,00	0,0

EDIT → OUTPUT GAIN	
OP1&2	-3dB
OP3&4	0dB(Default)
OP5&6	0dB(Default)

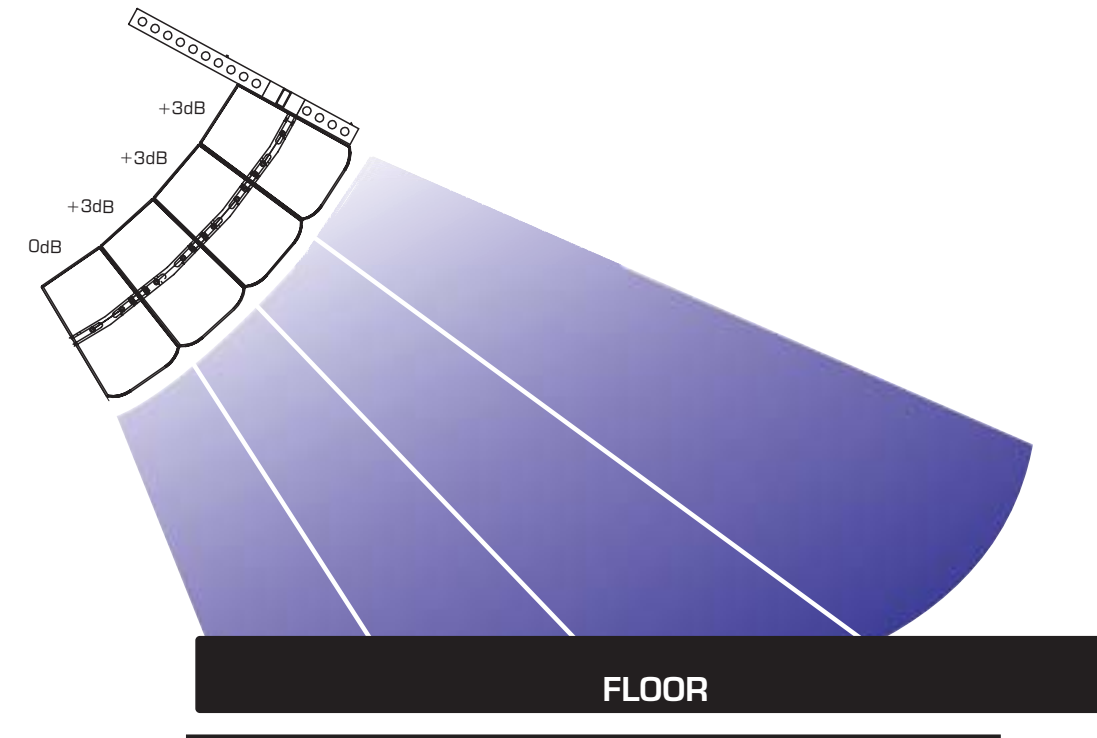
EDIT → POLARITY	
OP1&2	NORMAL
OP3&4	NORMAL
OP5&6	NORMAL

EDIT → COMP./LIM			
OP1&2	SLOW	LIM.	16.0
OP3&4	FAST	LIM.	14.0
OP5&6	FAST	LIM.	14.0

6. HIGH FREQUENCY CONFIGURATOR (HFC)

1 Medium Array Configuration

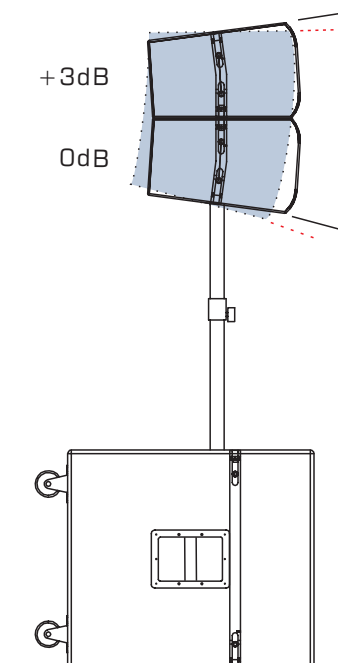
The below is an example of applying the HFC in four SAT208P in array. In this particular configuration, the HFC on the top speaker is set at +3 dB, and the bottom speaker 0 dB.



2 Small Array Configuration

This is the example of the HFC application at two SAT208P in a small array, with tilted speaker set at +3 dB and the bottom speaker at 0 dB.

Do not stack more than two SAT208P speaker on the pole. Be sure to lock the two speaker cabinets, with the original hardware.



7. REVO MAXIMUM ARRAY SIZE

1 REVO Array Frame

The following table defines the maximum number of speakers that may be suspended using the REVO FB-1 array frame. A security design factor is maintained for the speaker configurations indicated in the table.

Maximum quantity of REVO SAT208P in array	2xSAT	3xSAT	4xSAT	5xSAT	6xSAT
Maximum quantity of REVO SUB118P in array	0	1xSUB	1xSUB	0	0
			Max		Max

2 Suspension Safety Warning

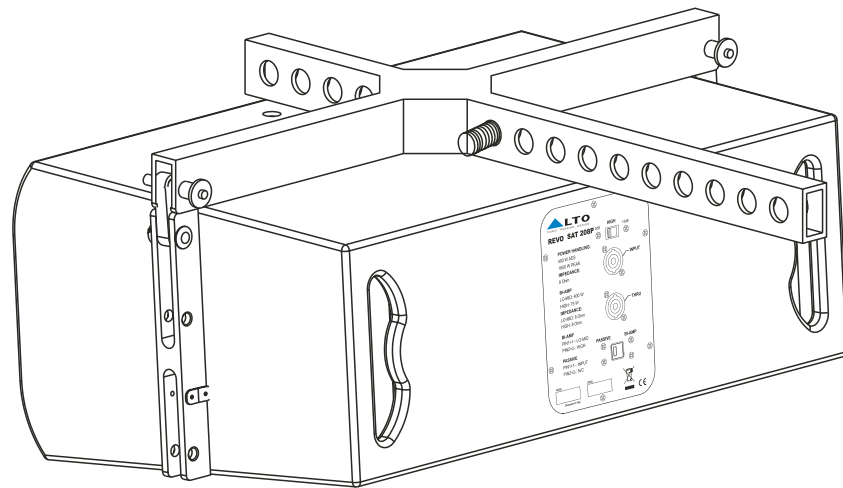
Never exceed the maximum recommended speaker cabinet listed on the table.

Research and understand the local regulation and requirements of the country where you intend to install the line array.

A correct assemble of all REVO hardware is required for safety suspension system.

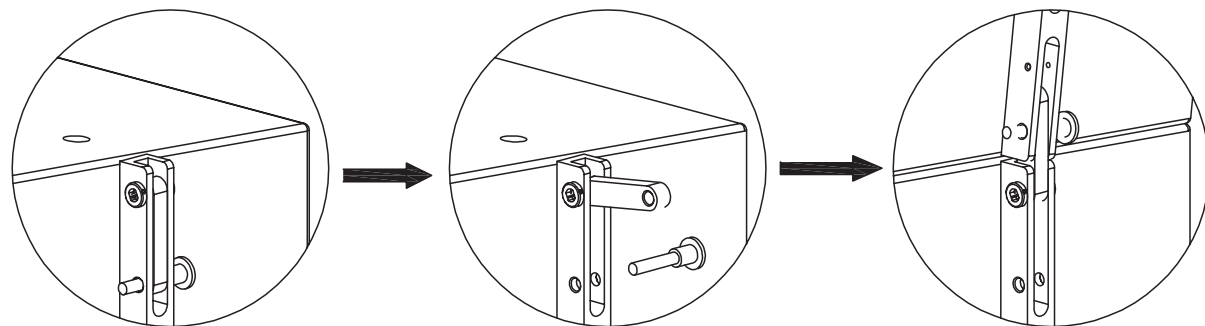
3 Array Frame Connection

REVO FB-1 frame is connected to REVO SAT-HD-L and REVO SAT-HD-R with ALTO quick release pins.



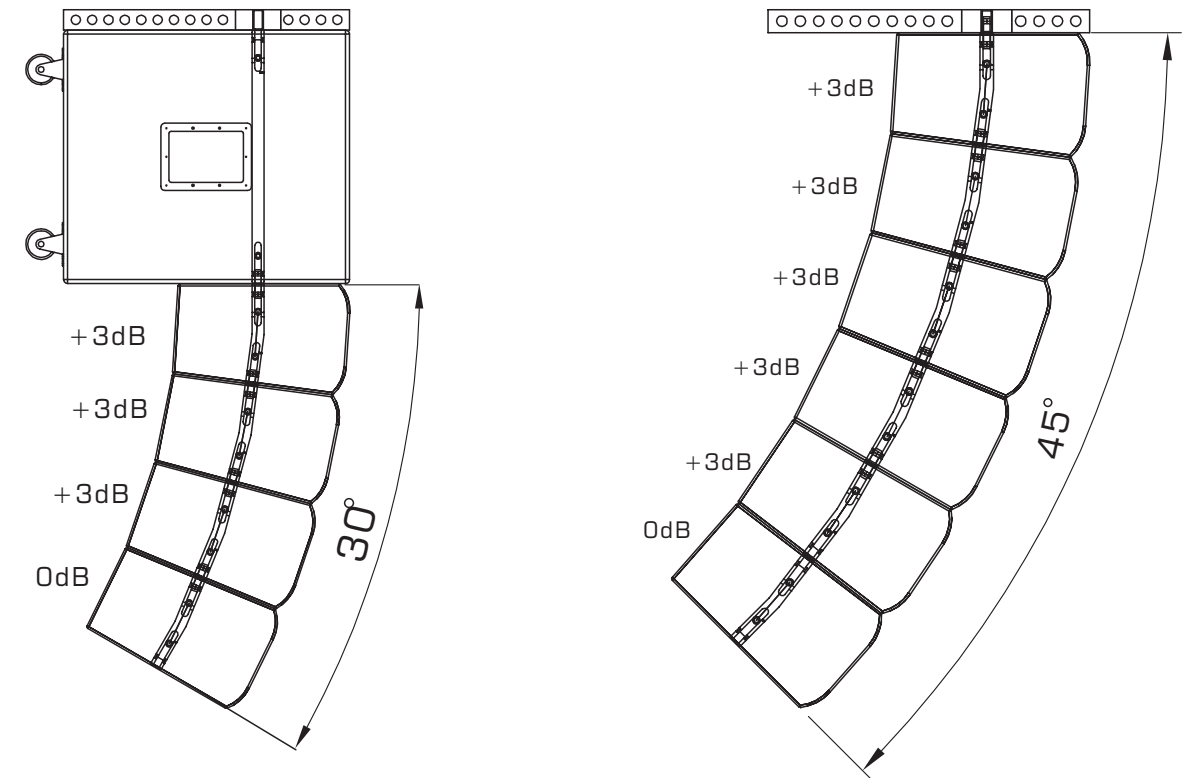
4 Lock The Loudspeakers Together

Any time two or more SAT208P and SUB118P are arrayed together, they must be mechanically secured to each other. See the diagram below for details.



8. DEPLOYING THE SYSTEM IN SUSPENSION & COMPRESSION

1 Suspension



2 Compression

