# EVO88-M Dual 8 Inch Active Line Array System User Manual



EVO

**EVO88-M**
**Dual 8-inch Active Line-Array System**
**Sistema Line-Array Activo doble de 8 pulgadas**
**USER MANUA**

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## overview

EVO88-M System is a multipurpose line-array cluster that can serve as a portable or installed FOH solution for medium to large venues and as ancillary side/down fill for lager PA systems, with a coherent, natural sound within the coverage area and superior power delivery in its category EVO88-M is an active line-array element that features a 1.2 kW Class-D Powersoft power module. One unit of self-powered EVO88-M feeds one passive EVO88-P, integrating a straightforward active system that optimises costs, setup and logistics.

The HF assembly mounts a 3” compression driver and an IDEA proprietary Hi-Q waveguide allowing for minimum vertical gap between array elements providing optimum element coupling and reducing artifacts and DSP adjustments while providing optimum directivity control. For LMF section, EVO88 elements mount dual very high-performance 8” woofers.

**features**

- 2-Way Dual 8” Ported Compact Line-Array elements
- Powersoft Class-D 1.2 kW power module
- Active 1.2 kW version powers another EVO88-P passive element
- Premium European High Efficiency custom IDEA Transducers
- Proprietary IDEA High-Q 6-slot line-array waveguide
- Dedicated transport /storage/rigging accessories and flying frame
- Matching subwoofer for stacked and flown setups

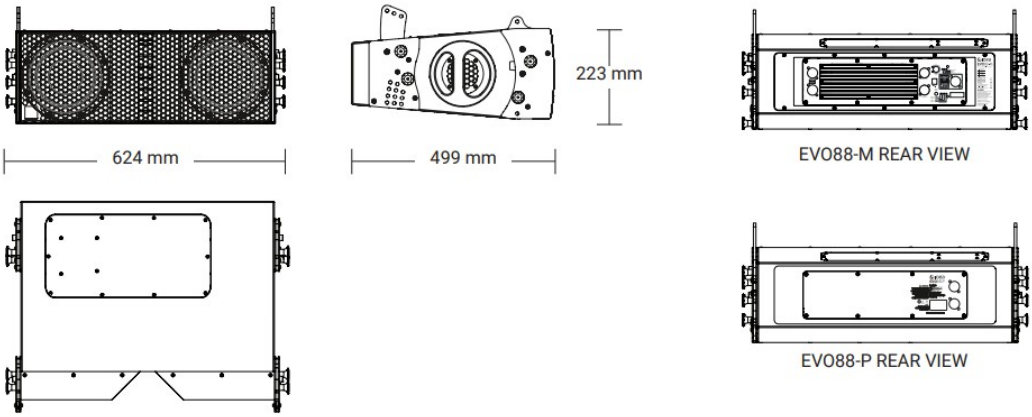
**applications**

- High SPL A/V portable sound reinforcement
- FOH for small to medium size performance venues and clubs
- Ultra-compact High SPL installed sound reinforcement

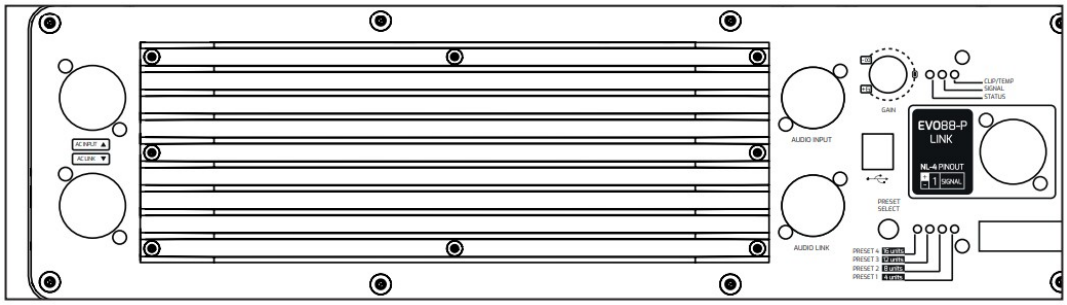
## Technical data

| | **EVO88-M (×1)** | **EVO88-P (×1)** |
|---|---|---|
| Enclosure design | 10˚ Trapezoidal | |
| LF Transducer | 2 × 8’’ High performance woofers | |
| HF Transducer | 3” Voice coil Compression Driver | |
| Amp/DSP Module | 1.2 kW | |
| Power Handling (RMS) | – | 500 W |
| Nominal Impedance | – | 16 Ω |
| SPL (Continuous/Peak) per element | 130/136 dB SPL | |
| Frequency Range (-10 dB) per element | 50 – 23000 Hz | |
| Frequency Range (-3 dB) per element | 72 – 21000 Hz | |
| Connectors | 2 × XLR + 2 × PowerCON + 1 × NL-4 | 2 × NL-4 |
| Cabinet Construction | 15 mm Birch Plywood | |
| Grille | 1.5 mm perforated weatherised steel with prot ective foam | 1 |
| Finish | Durable IDEA proprietary Aquaforce High Resi stance paint coating process | |
| Rigging Hardware | High-resistance, coated steel integrated 4-point rigging hardware 10 angulation points (0˚ -10˚ internal splay angles in 1˚steps) | |
| Dimensions (W×H×D) | 624 × 223 × 499 mm | 624 × 223 × 499 mm |
| Dimensions (W×H×D) System | 624 × 447 × 499 mm | |
| Weight – per element | 36.3 kg | 34.5 kg |
| Weight – System | 70.8 kg | |
| Handles | 2 integrated handles | |
| Accessories | RF-600 \| Rigging frame<br>RF 600 STK \| Rigging frame stack<br>CRT EVO88 \| Transport cart<br>COV-EV88-4 \| Rain cover for 4 × EVO88<br>RC-EV88-M + RC-EV88-F (included) \| Power module rain cover | |

**technical drawings**




**dsp/amp power module**
EVO88-M features a 1200 W Class-D Powersoft power module.




| | |
|---|---|
| Mains IN: | 32A PowerCON Mains IN connector. |
| Mains OUT: | 32A PowerCON Mains OUT connector. |
| Signal IN: | Balanced audio XLR Input connector |
| Signal OUT: | Balanced audio XLR Output connector |
| Preset Select: | Click to toggle between 4 pre-loaded presets |
| Activity LEDs: | Visual indicators of amp module status<br>Status: The unit is active and ready<br>Signal: Audio signal activity<br>Clip/Temp: unit’s temperature status |
| Gain Level: | Amp gain level knob with 40 intermediate jumps |
| Active Preset: | Visual indicator for active preset number |

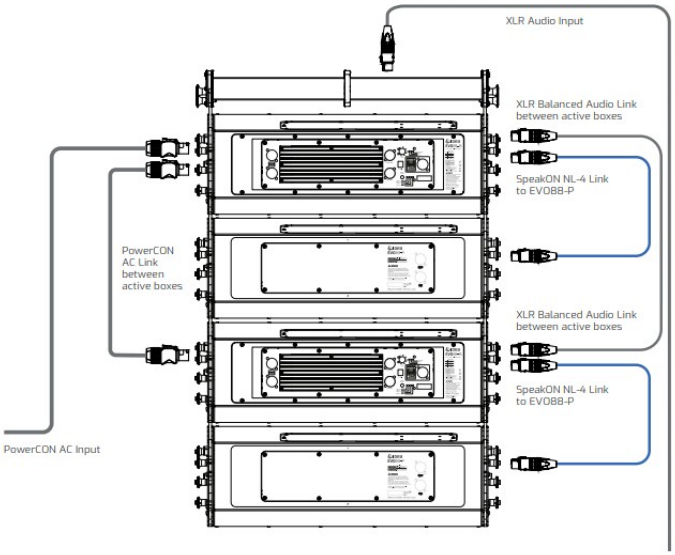
**factory presets**
EVO88-M internal DSP feature 4 preloaded presets to fit most common internal angulation splay and array length configurations:

- PRESET 1 – 4 units
- PRESET 2 – 6 units
- PRESET 3 – 8 units
- PRESET 4 – 12 units

## System configuration

The active EVO88-M features a 1.2 kW Class-D amp and DSP power module by Powersoft so one EVO88-M

element can power another EVO88-P in active system, as shown in the diagram, with the dedicated SpeakON NL-4 cable links included with every EVO88-M. Depending on the scale of the application, a medium-sized EVO88-M system can be easily split into smaller clusters for mobile and portable solutions.
Passive systems can be configured as factory ready with turn-key solutions for TEOd9 driven amps as well as top-tier third-party platforms.




**Introductory guidelines on Line-Array system configurations**
Line-Arrays work because of the interactions of the different transducers in each array element. Some of these interactions result in negative effects, such as distortion and phase issues, the benefits of energy summing and a degree of vertical directivity control prevail as the advantages of using Line-Array systems.
The IDEA DSP Line-Array settings aim to facilitate a simplified approach to the Line- Array setup and deployment and focus on two fundamental factors that affect the behavior of the array in terms of directivity and frequency response linearity.
**Array Length**
The first factor is Array Length, which influences the range of frequencies in which the linearity of the response of the array is affected by the total distance between the axis of all the transducers aligned in the vertical plane.
This is specially noticeable in the LF, as the LF woofers, due to their proximity in relation the their band pass, sum acoustic energy particularly efficiently, and require a compensation of the amplitude of the LF signal from the crossover point with the subwoofers up to different frequency points depending on the number of elements present in the array.
For this purpose the Settings are grouped in four Array lengths/ Element counts: 4 -6, 6-8, 8-12 and 12-16.
**Array Curvature**
The second key element for the DSP setting of the Arrays is the curvature of the array. Many different combination of angles can be set by the operators of a Line-Array, optimizing the desired vertical coverage required for the application.
Users can use EASE FOCUS as a guide to find the ideal internal splay angles between array elements.
Note that the sum of the internal splay angles and the nominal vertical coverage angles of the array do not correlate directly and their relation varies with the array length. (see examples)
**IDEA DSP settings**
IDEA DSP settings operate in 3 categories of averaged Array curvature:

- MINIMUM (<30° Recommended Internal Splay Angulation Sum)
- MEDIUM (30-60° Recommended Internal Splay Angulation Sum)
- MAXIMUM (>60° Recommended Internal Splay Angulation Sum)

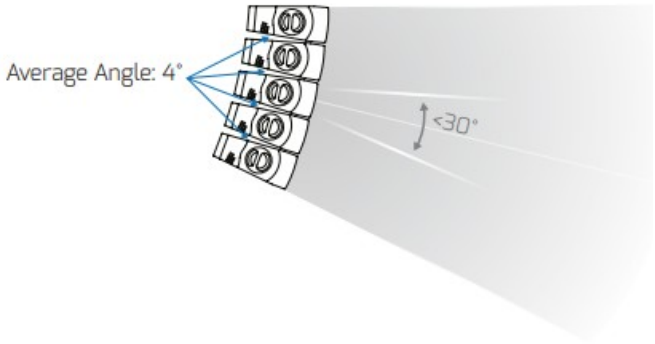
EASE FOCUS Prediction Software
EVO88-M Ease Focus GLL files are available for download from the product’s page as well as from the Downloads repository section.

**MINIMUM ARRAY CURVATURE**

<30° Recommended Internal Splay Angulation Sum Low internal splay angles result in more “straight” arrays that concentrate more HF energy on the acoustical axis of the Array, achieving greater HF energy over greater distances (improving “throw”) but narrowing down the usable vertical coverage.
These settings are available for TEOd9 and other External Standalone DSP processors for IDEA Active Line-Array systems like EVO88-M, and included in IDEA System-Amplifier DSP Solutions.

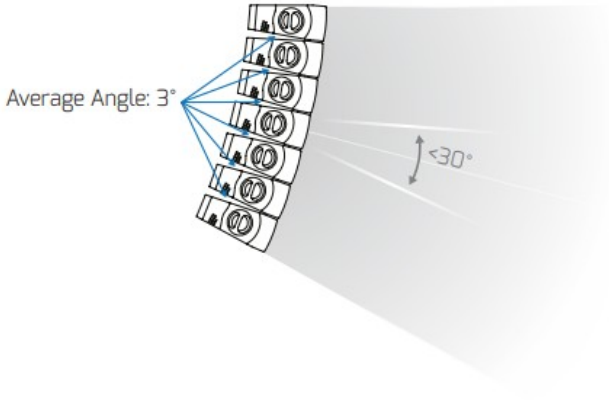
**4-6 × EVO88 elements**

The example image shows a 4˚×5-elements configuration [Total splay angle sum: 16˚]



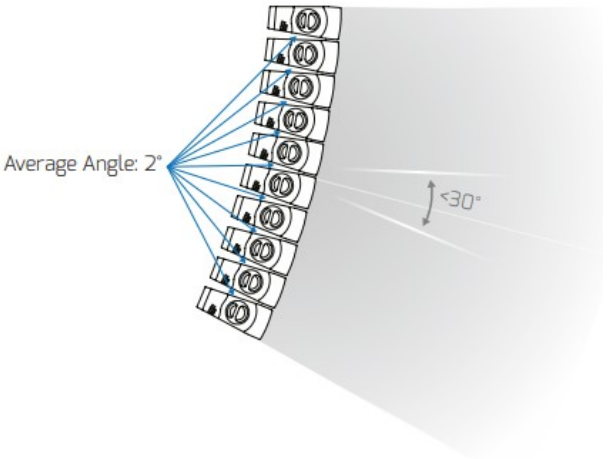

**6-8 × EVO88 elements**

The example image shows a 3˚×7-elements configuration [Total splay angle sum: 18˚]



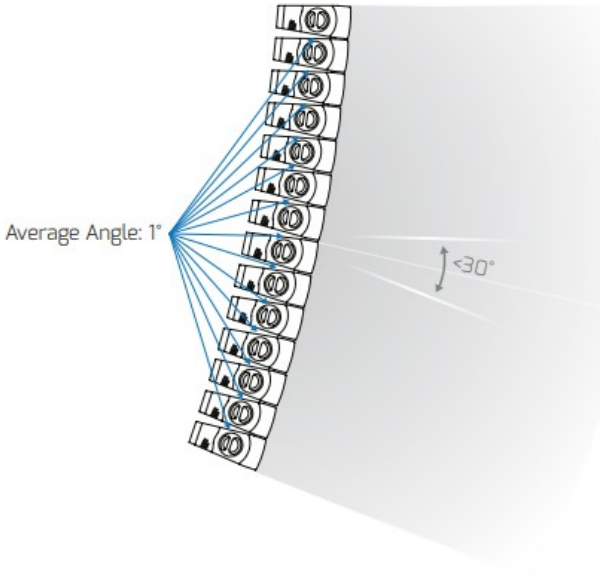

**8-12 × EVO88 elements**

The example image shows a 2˚×10-elements configuration [Total splay angle sum: 18˚]




**12-16 × EVO88 elements**

The example image shows a 1˚×14-elements configuration [Total splay angle sum: 13˚]



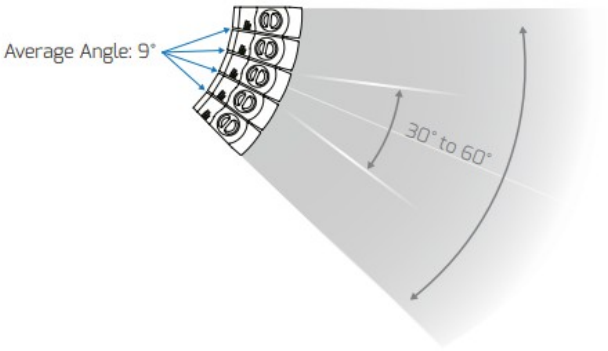

**MEDIUM ARRAY CURVATURE**

30°- 60° Recommended Internal Splay Angulation Sum This is the most useful level of vertical coverage for the most typical flown Line-Array applications and it will ensure balanced coverage and SPL within the listening area for the majority of the applications.

These presets are found as standard in the EVO88-M integrated DSP and can be directly selected from the back pannel interface as shown in the corresponding section of this document.

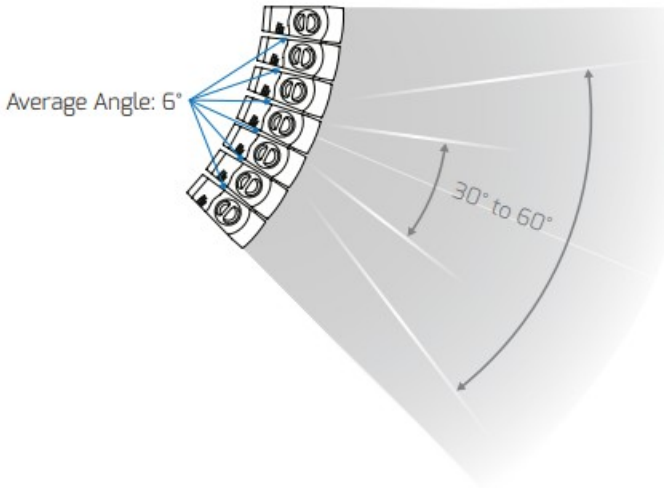
**4-6 × EVO88**

The example image shows a 9˚×5-elements configuration [Total splay angle sum: 36˚]



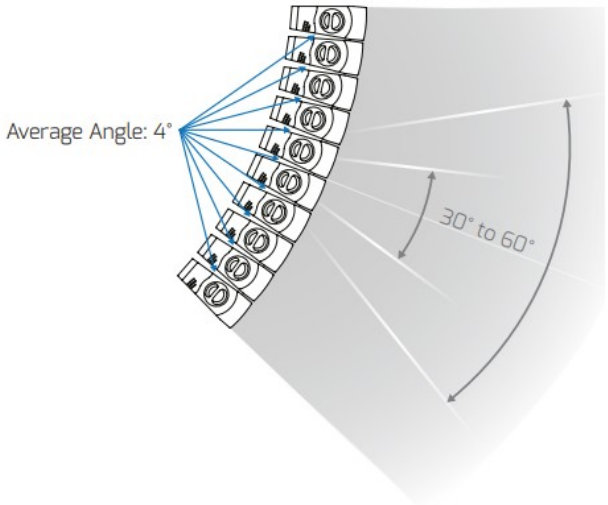

**6-8 × EVO88**

The example image shows a 6˚×7-elements configuration [Total splay angle sum: 36˚]



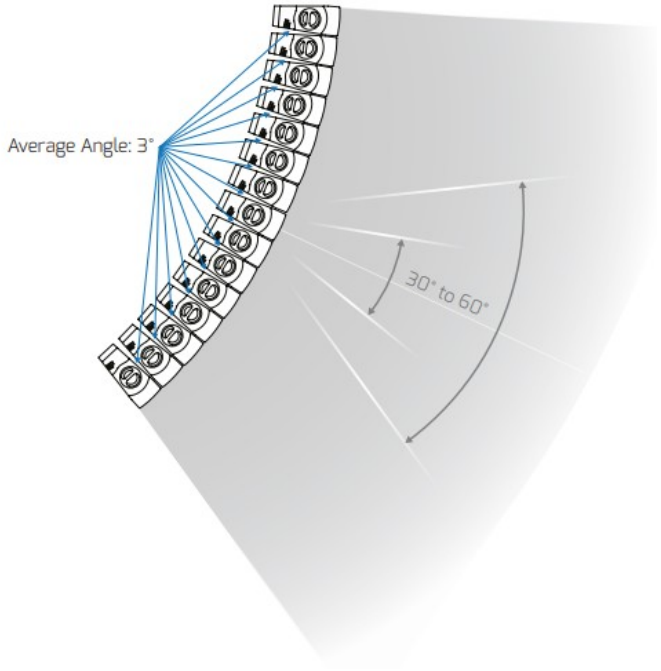

**8-12 × EVO88**

The example image shows a 4˚×10-elements configuration [Total splay angle sum: 36˚]




**12-16 × EVO88**

The example image shows a 3˚×14-elements configuration [Total splay angle sum: 39˚]




**MAXIMUM ARRAY CURVATURE**

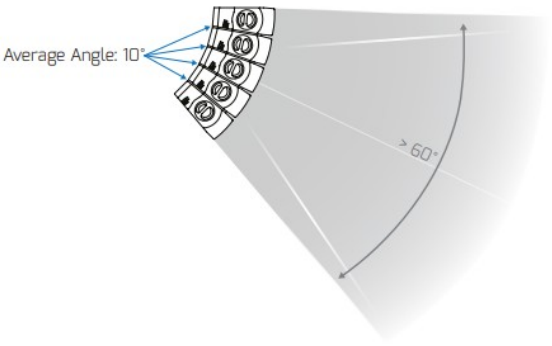
**60° Recommended Internal Splay Angulation Sum**

Larger internal splay angle counts result in greater curvatures, with wider vertical coverage patterns and lesser summing of the HF energy. This kind of angling is found in Arrays with a small box count or in larger arrays that are ground-stacked or installed close to grandstands in Sport arenas.

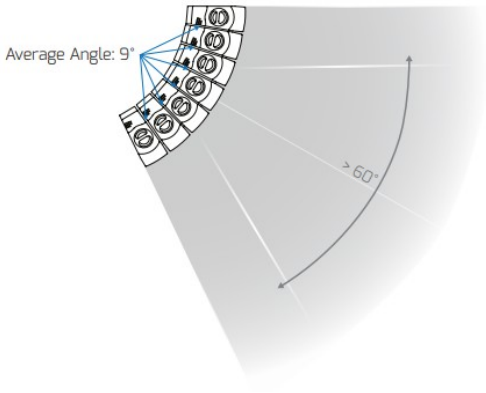
These settings are available for TEOd9 and other External Standalone DSP processors for IDEA Active Line-Array systems like EVO88-M, and included in IDEA System-Amplifier DSP Solutions.

**4-6 × EVO88**

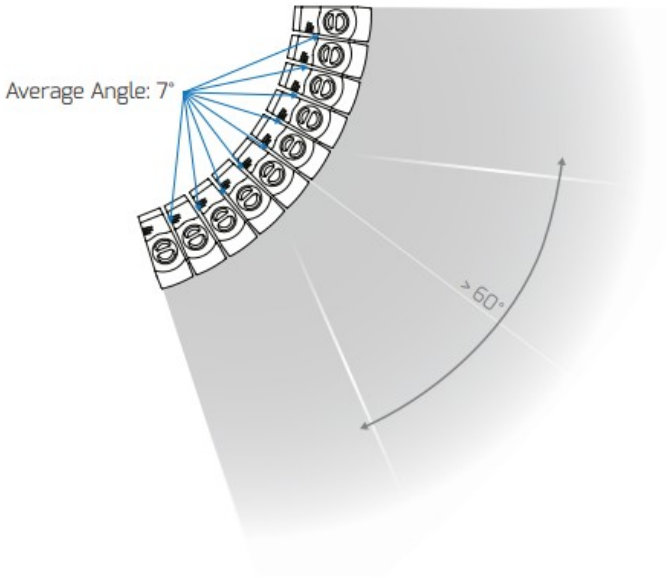
The example image shows a 10˚×5-elements configuration [Total splay angle sum: 40˚]



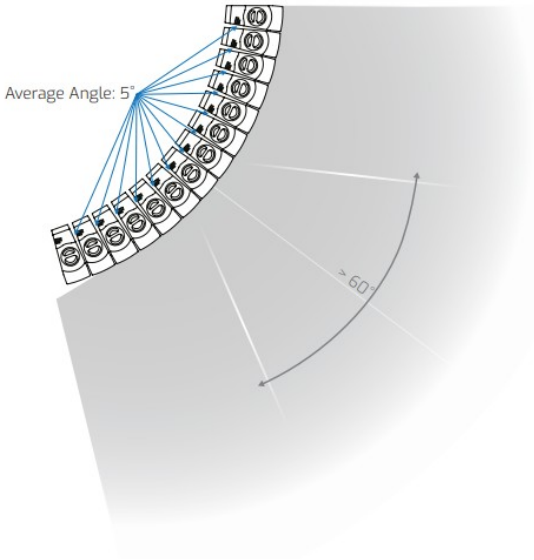
**6-8 × EVO88**
The example image shows a 9˚×7-elements configuration [Total splay angle sum: 54˚]




**8-12 × EVO88**
The example image shows a 7˚×10-elements configuration [Total splay angle sum: 63˚]




**12-16 × EVO88**
The example image shows a 5˚×14-elements configuration [Total splay angle sum: 65˚]

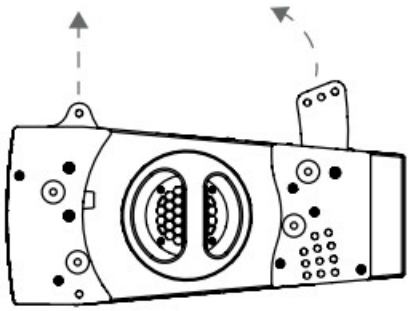



## Rigging and installation

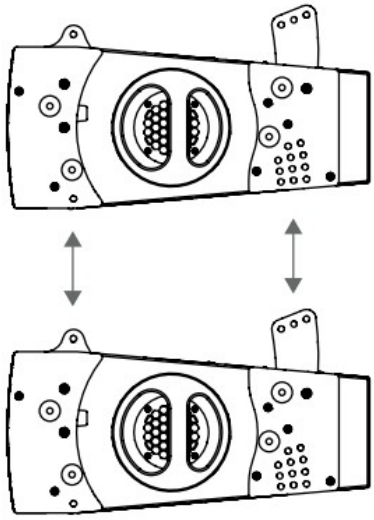
EVO88 Line-Array elements feature an integrated steel rigging hardware especially designed for ease of set-up and use. Up to 10 internal angulation options in 1° steps are available and dedicated stow positions for a precise and quick deployment of the array.
The following are the basics for array element linking.

**BASIC GUIDELINES**

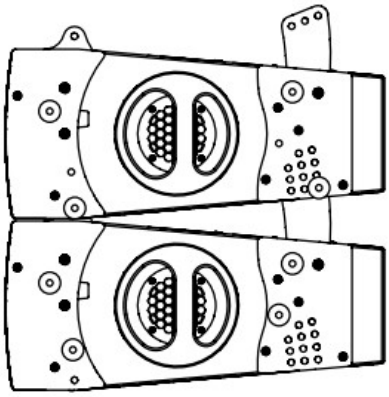
1. To proceed setting-up the array, release and unlock the front and back links of the lowest element in the system.



2. Position and lock the front and back links of the following element in the array using the spare pins stored in the dedicated hole labelled as Stow.

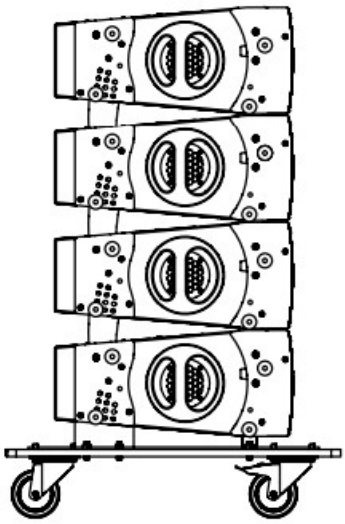


3. Finally lock the desired position with the dedicated pin stored in the Groundstack/Stow hole. Repeat the operation for the any other EVO88-M element in the system.

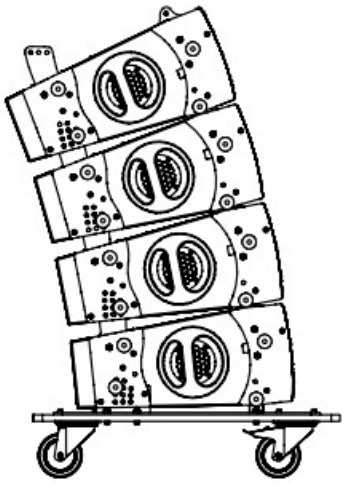


**RECOMMENDED SYSTEM SUSPENSION PROCEDURE**

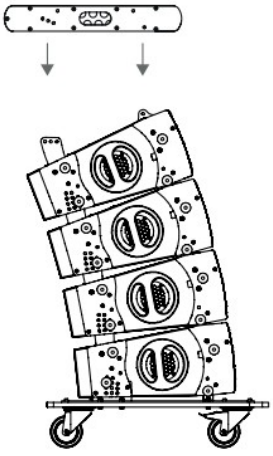
1. Set the transport cart with the EVO88 elements in the desired position and lock the wheel for a secure setup.



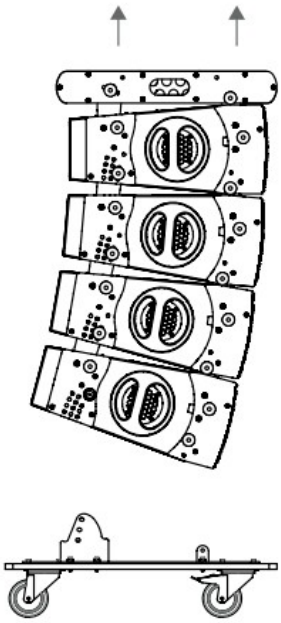
2. Set the proper internal spaly angles of the  EVO88 elements while still on the transport cart for a more convenient,  quicker setup operation.



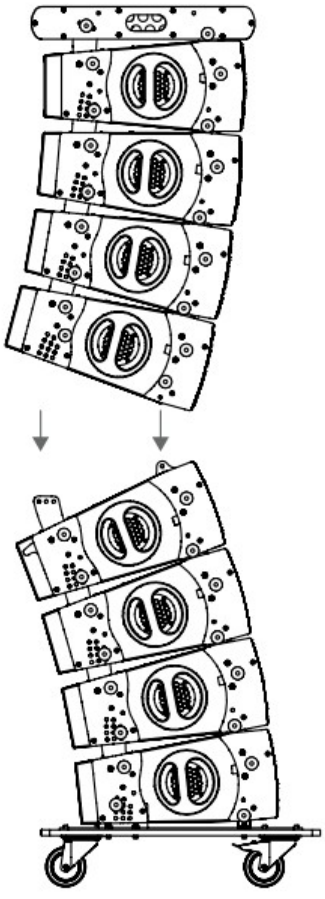
3. Fit the flying rigging frame RF-600 to the top element of EVO88 using the included locking pins.



4. Unlock the bottom EVO88 element from the transport cart and proceed to suspend the system up to a comfortable position for next step.



5. Lift the four top elements to a level where the next EVO88 elements in the transport cart  naturally allaign the already set-up array and repeat the above  steps.



### warnings on safety guidelines

- Read this document thoroughly, follow all safety warnings and keep it for future reference.
- ⚠ The exclamation mark inside a triangle indicates that whatever repairing and component replacement operations must be done by qualified and authorized personnel.
- No user serviceable parts inside.

- Only use accessories tested and approved by IDEA and supplied by the manufacturer or an authorized dealer.
- Installations, rigging and suspension operations must be done by qualified personnel.
- This is a Class I device. Do not remove Mains connector ground.
- Only use accessories specified by IDEA, complying with maximum loads specifications and following local safety regulations.
- Read the specifications and connection instructions before proceeding to connect the system and use only cabling supplied or recommended by IDEA. Connection of the system should be done by qualified personnel.
- Professional sound reinforcement systems can deliver high SPL levels that may result in hearing damage. Do not stand close to the system while in use.
- Loudspeaker produce magnetic field even while they are not in use or even when disconnected. Do not place or expose loudspeakers to any device that is sensitive to magnetic fields such as television monitors or data storage magnetic material.
- Keep the equipment in the safe working temperature range [0º-45º] at all times.
- Disconnect the equipment during lightning storms and when it is not to be used for a long time.
- Do not expose this device to rain or moisture.
- Do not place any objects containing liquids, such as bottles or glasses, on the top of the unit. Do not splash liquids on the unit.
- Clean with a wet cloth. Do not use solvent-based cleaners.
- Regularly check the loudspeaker housings and accessories for visible signs of wear and tear, and replace them when necessary.
-  Refer all servicing to qualified service personnel.
- This symbol on the product indicates that this product should not be treated as household waste. Follow local regula- tion for recycling of electronic devices.
- IDEA declines any responsibility from misuse that may result in malfunction or damage of the equipment.

**warranty**

- All IDEA products are guaranteed against any manufacturing defect for a period of 5 years from date of purchase for acoustical parts and 2 years from date of purchase for electronic devices.
- The guarantee excludes damage from incorrect use of the product.
- Any guarantee repair, replacement and servicing must be exclusively done by the factory or any of authorized service centres.
- Do not open or intend to repair the product; otherwise servicing and replacement will not be applicable for guarantee repair.
- Return the damaged unit, at shipper’s risk and freight prepaid, to the nearest service centre with a copy of the purchase invoice in order to claim guarantee service or replacement.

**declaration of conformity**

I MAS D Electroacústica S.L. , Pol. A Trabe 19-20 15350 CEDEIRA (Galicia – Spain), declares that EVO88-M complies with the following EU Directives:

- RoHS (2002/95/CE) Restriction of Hazardous Substances
- LVD (2006/95/CE) Low Voltage Directive
- EMC (2004/108/CE) Electro-Magnetic Compatibility
- WEEE (2002/96/CE) Waste of Electric and Electronic Equipment
- EN 60065: 2002 Audio, video and similar electronic apparatus. Safety requirements.
- EN 55103-1: 1996 Electromagnetic compatibility: Emission
- EN 55103-2: 1996 Electromagnetic compatibility: Immunit

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Specifications and product appearance may be subject to change without notice.
IDEA_EVO88-M_UM-BIL_v4.0 | 4 – 2024

## Documents / Resources

| | |
|---|---|
|  | EVO EVO88-M Dual 8 Inch Active Line Array System [pdf] User Manual<br>EVO88-M, EVO88-M Dual 8 Inch Active Line Array System, EVO88-M, Dual 8 Inch Active Line Array System, Active Line Array System, Line Array System, Array System |

## References

- IDEA Pro Audio
- User Manual