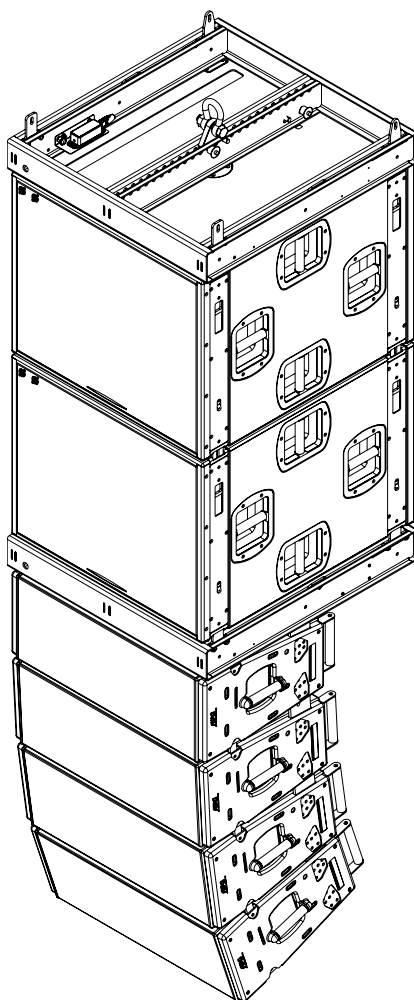


UNILINE MAX

APG

User Manual



General information:

UNILINE MAX - User Manual

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SAFETY NOTES AND GENERAL INFORMATION

- Information on the risk of exposure to high noise levels.
 - ♦ APG speakers are capable of generating sound pressure levels that are hazardous to health and may cause hearing damage.
 - ♦ It is recommended that you never stand in close proximity to the speakers when they are in operation and that you wear hearing protection when necessary.
 - ♦ Observe the maximum exposure time to noise according to the sound level and the regulations in force in your country.
 - ♦ Ensure that listeners wear hearing protection when using APG systems.
- Read this manual before use and keep it for future reference.
- Read all documents relating to the product before using it. Please do not hesitate to contact APG if you have any questions about the product.
- Get the latest version of the user manual by visiting the APG website at www.apg.audio.
- Observe all warnings and follow the instructions and recommendations for use.
- Ensure you are familiar with the safety rules regarding hanging, stacking, or mounting on a pole or tripod. Failure to follow these rules may expose people to potential injury or death.
- Ensure the safety of operators and the public.
- Personnel must wear personal protective equipment (PPE) during each stage of product installation (at a minimum, hard hats, gloves, and safety shoes).
- APG products must only be installed by qualified personnel trained in product suspension techniques ("Rigging") and the safety recommendations set out in this manual.
- Always check the stability, load resistance, flatness, and horizontality of the support. Prevent public access around the system, and avoid the possibility of people pushing or climbing on the stack of speakers. Use straps to prevent tipping.
- Do not store the product on an unstable cart, stand, tripod, bracket, or table.
- Use the products with the accessories specified by the manufacturer.
- Inspect lifting products and accessories before each use.
- Do not install equipment that is defective or at risk of breaking, and have it repaired by qualified personnel or by APG.
- Entrust all repairs to qualified personnel or to APG. Repairs are necessary if the device is damaged in any way, for example: damaged power cord or plug, spilled liquid or objects inside the device, exposure to rain or moisture for long periods of time, device not functioning normally, or device being dropped.
- Any unauthorized maintenance will void the product warranty.
- Perform safety and compliance checks on accessories, enclosures, and third-party accessories periodically, at least once a year.
- Respect the maximum load capacity of each configuration and perform compliance simulations using AFMG EASE Focus 3 prediction software and tools provided by APG (UMCalc, etc.).
- Use only with a cart, tripod, stand, or table specified by the manufacturer or sold with the device. If a cart is used, move the cart/device combination carefully to avoid tipping over, which could result in injury.
- Do not install near a heat source such as an open flame, radiator, heat vent, stove, or any other device that produces heat (including amplifiers).
- Do not expose the product to extreme conditions such as humidity (rain, sea water, condensation, ambient humidity, etc.) or excessive heat (sunlight, heating, etc.) for long periods of time.
- Take wind effects into account. It becomes difficult to use a suspended system if the wind speed exceeds 25 km/h. In these conditions, the system must be sufficiently secured using halyards and straps to prevent any movement. If the wind speed exceeds 72 km/h, the system must be placed on the ground.
- When performing outdoors, it is advisable to check the weather conditions and follow the local weather forecast and recommendations from the relevant authorities. An anemometer can be used at the height of the system.
- Use a secondary safety system for any APG speaker mount.
- The product is intended for use by professionals trained in professional audio applications.
- APG accepts no responsibility for the use of non-approved accessories or failure to comply with safety instructions and regulations.
- APG products come with a 5-year warranty. The full five-year warranty covers filters and transducers against any manufacturing defects under normal product use.

- APG pursues a policy of research and development aimed at improving its products. For this reason, new materials, manufacturing methods, and design changes may be introduced without prior notice. As a result, an APG product may differ in certain respects from its published description; however, unless otherwise stated, its characteristics will be superior to or equal to those published.
- Disposal of electrical or electronic equipment
 - ♦ The symbol shown opposite (on the right) on the product or its packaging indicates that it should not be treated as household waste. Instead, it should be taken to the appropriate collection point for recycling electrical and electronic equipment. By ensuring recycling, you will help prevent potential consequences for the environment and human health that could be caused by not treating this product.
 - ♦ Recycling materials will help conserve natural resources. For more detailed information on recycling this product, please contact your local office, waste collection agency, or retailer.

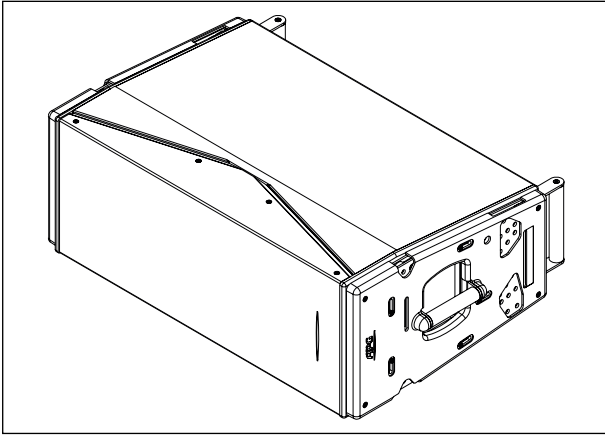


I. THE UNILINE MAX RANGE

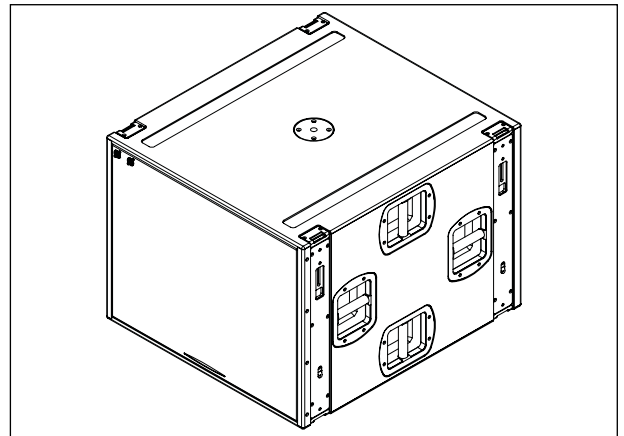
1. GENERAL DESCRIPTION

The UNILINE MAX range consists of two separate speakers: UM210 and UM121:

- The UM210 is the main line source speaker in the UNILINE MAX system.
- The UM121 is a dedicated bass reinforcement speaker that offers specific ergonomics for use in conventional or cardioid mode, either placed on the floor or suspended.

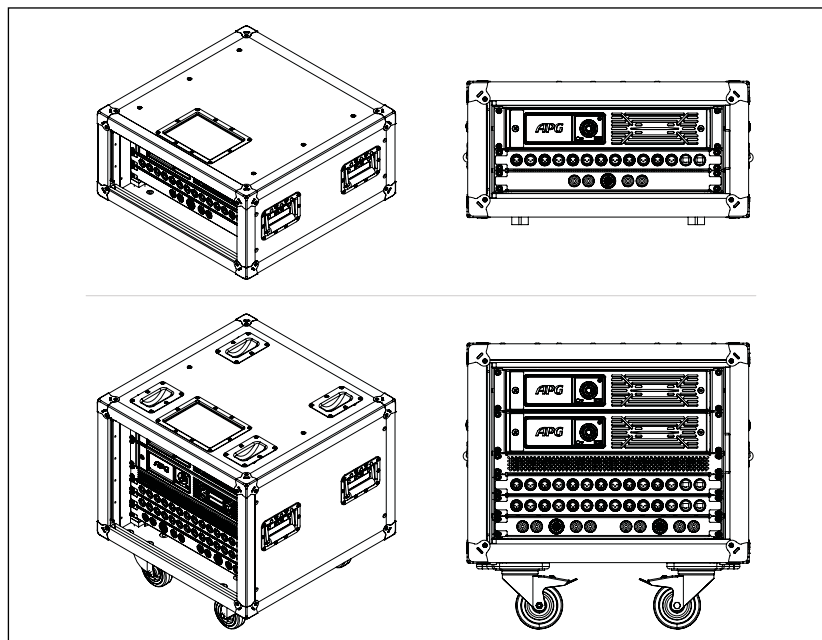


UM210



UM121

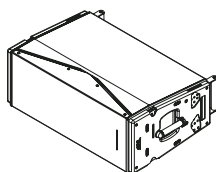
The use of APG Tourack and/or Unirack amplifier racks with APG DA8 and DA12 amplifiers is essential for optimal system performance.



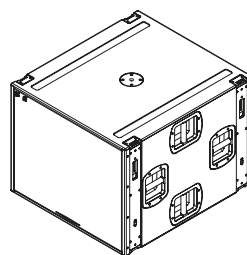
APG Unirack and Tourack unified amplification solution

2. RANGE COMPOSITION

SPEAKERS

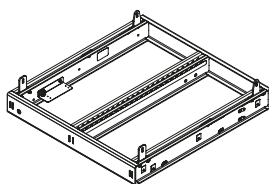


UM210

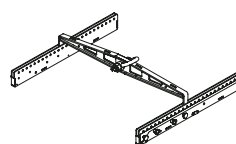


UM121

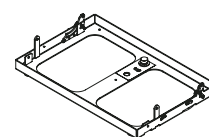
RIGGING



UMTRUSS

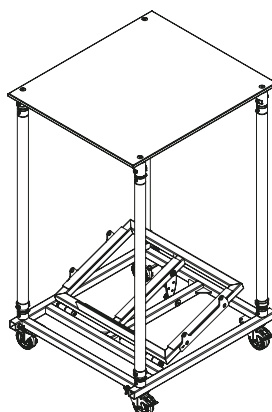


UMRAIL

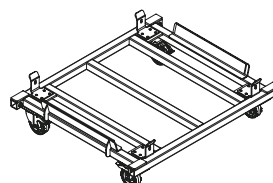


UMSTACK

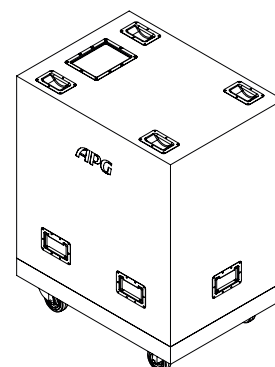
TRANSPORT



UM210D4



UM121D2

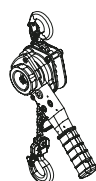


FCUMHEAVYRIG

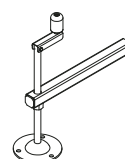
ACCESSORIES



UMTRUSSFSP



LH0.5T
LHC05
LHC4

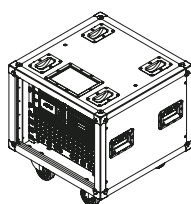


UMDSF

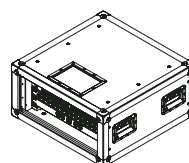


KR125

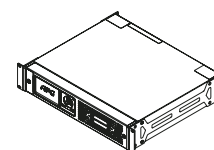
AMPLIFICATION



TOURACK



UNIRACK

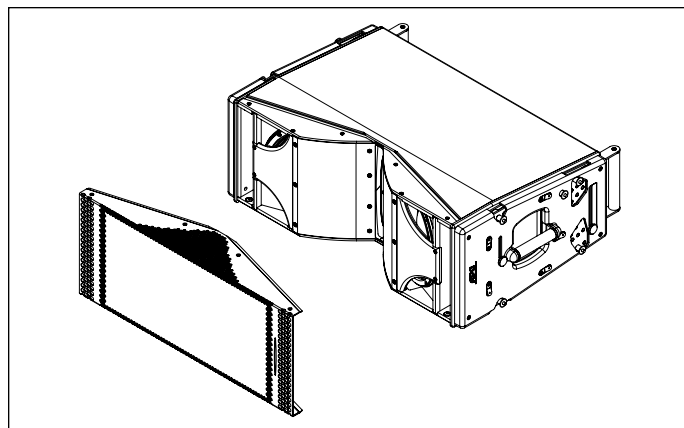


DA8 / DA12

3. DESCRIPTION OF ELEMENTS

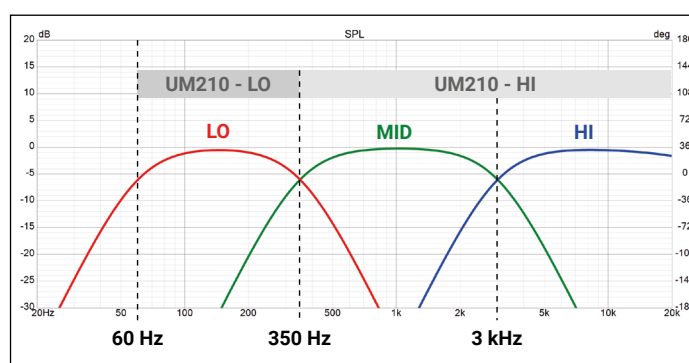
3.1. UM210

UM210 is the main element of the UNILINE MAX "line source" designed for medium and long-range diffusion with a constant horizontal directivity of 100°.



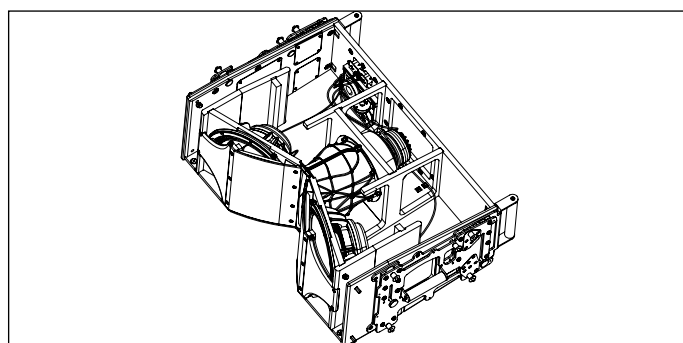
UM210

The UM210 is a bi-amplified 3-way acoustic speaker: LO section (48–350Hz) and HI section (350Hz–20kHz). The nominal impedance is 8Ω for the LO section and 16Ω for the HI section.



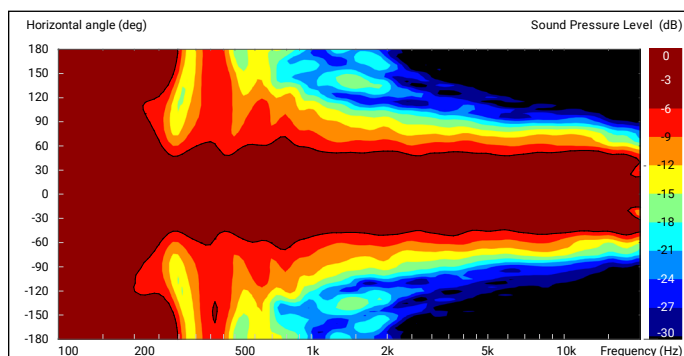
UM210 - Cutoff frequencies

The LO section consists of two 10" neodymium speakers positioned behind a radiation optimization piece that has three functions: it creates a load on the woofers, thereby increasing their efficiency; it optimizes the low-frequency coupling between the various speakers that make up the enclosure; and it also extends the useful horn for controlling horizontal directivity in the MID/HI bands.



UM210 - Interior 3D view

The shape of the UM210 enclosure has been calculated using BEM (Boundary Element Method) and guarantees minimal diffraction for MID/HI frequencies. The directivity of the UM210 enclosure is optimal for Line Source operation on a 100° horizontal aperture.



UM210 - Horizontal directivity (measurement)

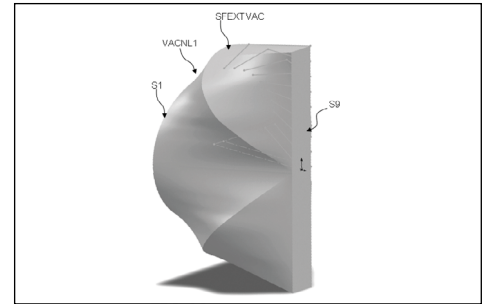
The midrange and high frequencies are handled by a coaxial assembly consisting of two separate speakers: a 6.5" midrange speaker behind which is installed a 1" compression chamber driver (2" coil).

The electro-acoustic assembly is driven by an innovative, patent-pending phase alignment waveguide, SIGMA, which optimizes the radiation pattern and ensures ideal coupling of the UM210 in line source.

In the vertical plane, the directivity index is progressive and determined by the angular configuration of the system.

The pivot axis of the speakers is located on the same plane as the waveguide outlet throat. This ensures a continuous acoustic source, regardless of the angle (line source ribbon type). The SPL level and coverage are therefore fully configurable to best suit the geometry of the audience area, simply by carefully selecting the speakers and angles between the speakers that make up the system.

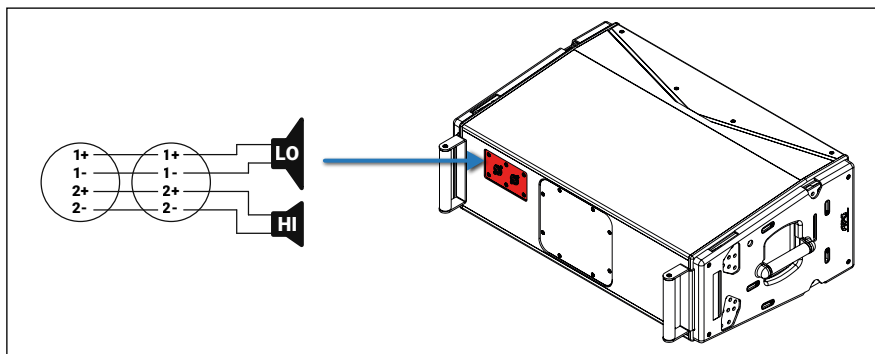
AFMG EASE Focus 3 software can be used to simulate all APG systems and determine the appropriate configuration for each application.



SIGMA Waveguide

The speakers are connected to the amplifiers via two 4-pin Speakon™ connectors connected in parallel at the rear of each speaker:

- 1+/1- on LO section (low)
- 2+/2- on HI section (midrange/treble)

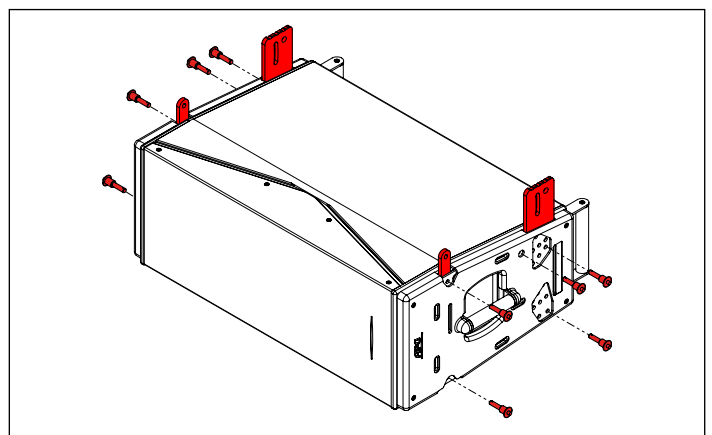


UM-210 - Wiring principle

The APG UM210 speakers are equipped with 4 handles (2 on the sides and 2 on the back).

Each side of the UM210 speaker has two vertical sliders and five push pins:

- 1x slider to extend or retract the front attachment system.
- 1x slider to extend or retract the rear mounting system and angle the speakers.
- 3x push pins to connect the speakers together
- 1x push-pin to select the inter-element angle.
- 1x push pin for compression mounting



UM210 - Rigging

The attachment system is detailed. **page 33** – "DESCRIPTION OF THE ANGULATION SYSTEM"

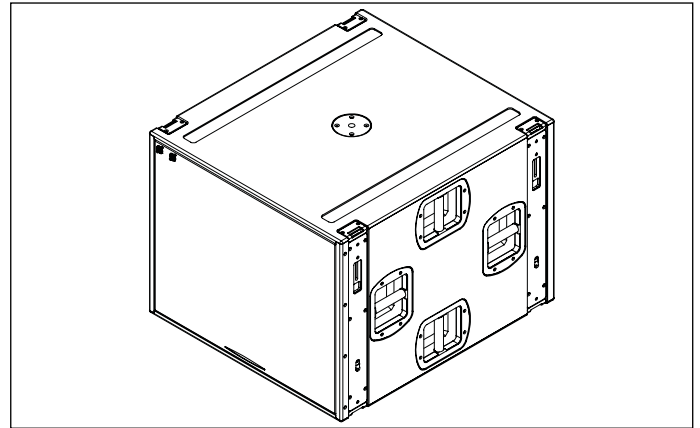
3.2. UM121

The UM121 is the bass reinforcement speaker dedicated to the UNILINE MAX system.

The UM121 was designed to extend and reinforce the low-frequency response from 25 to 110 Hz.

The bandpass acoustic load increases acoustic efficiency in the useful bandwidth while limiting the excursion of the speaker cone.

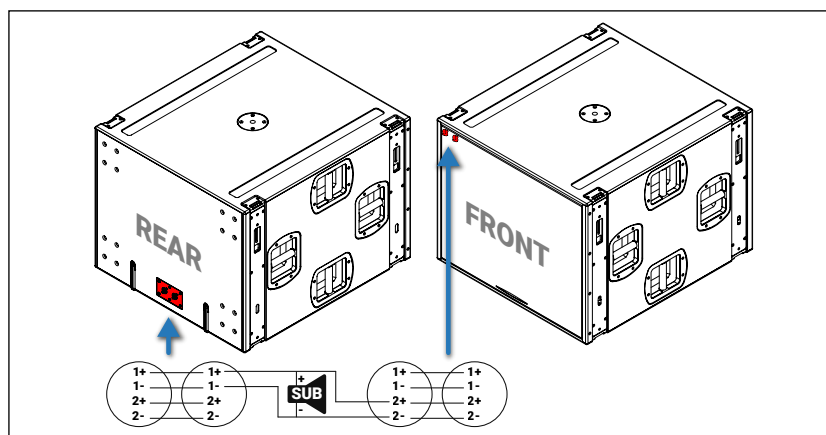
The 4-pin safety harness system allows for safe use in suspended or floor-standing mode thanks to the various accessories in the range. It can also be adapted for use in a cardio configuration.



UM121

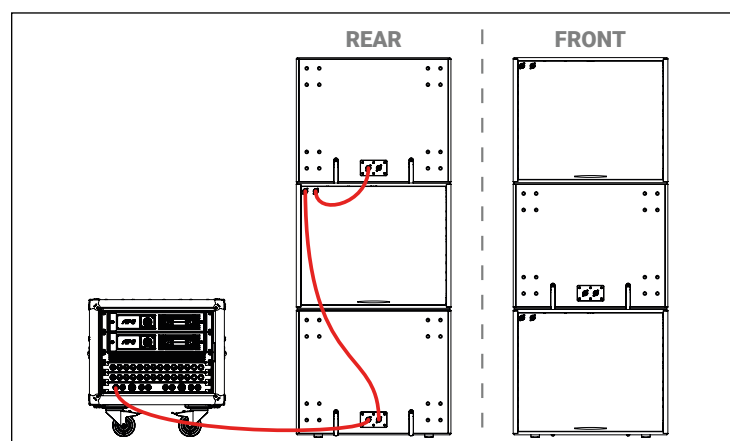
The UM121 is connected to amplifiers via 4-pin^{Speakon} connectors:

- 1+ / 1- on the rear panel
- 2+/2- on the front for the cardioid configuration. The 2+/2- on the back is connected between the two connectors but is not connected to the speakers.



UM-121 - Wiring principle

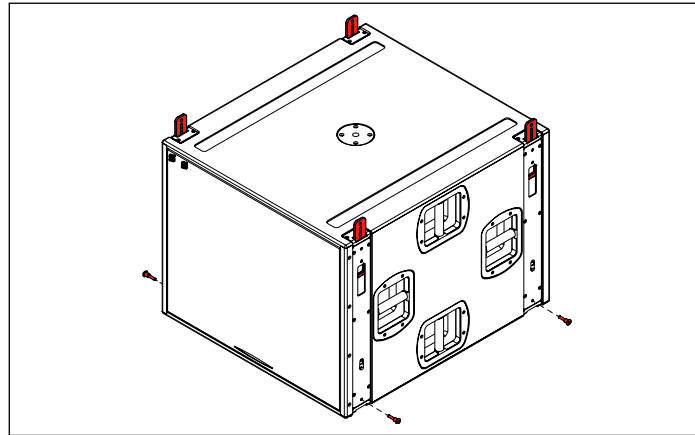
When using a subwoofer in a cardioid configuration, use the specific multi-channel preset and connect the subwoofers via the rear of the stack (connect the subwoofer upside down via the connectors on its front panel). This way, no cables will be visible to the audience at the front of the stack:



UM121 in cardio mode - Rear view: no cables are visible in front of the stack

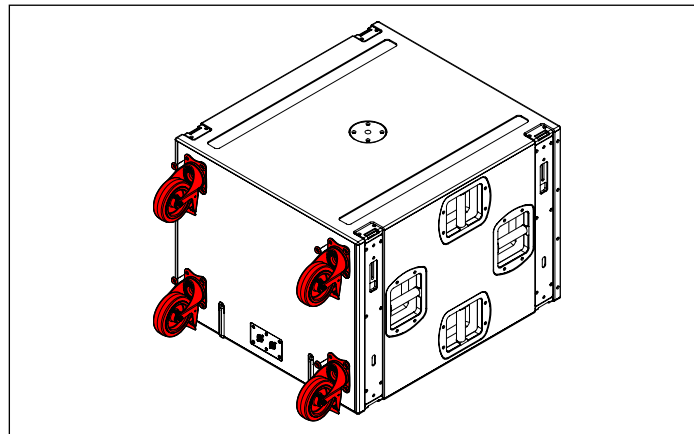
Each side of the UM121 speaker has two vertical sliders and two push pins:

- 1x slider to extend or retract the front attachment system.
- 1x slider to extend or retract the rear attachment system.
- 2x push pins to connect the speakers to each other or to a UMTRUSS.



UM121 - Rigging

For easy transport, the UM121 enclosure can be equipped with casters (option KR125).

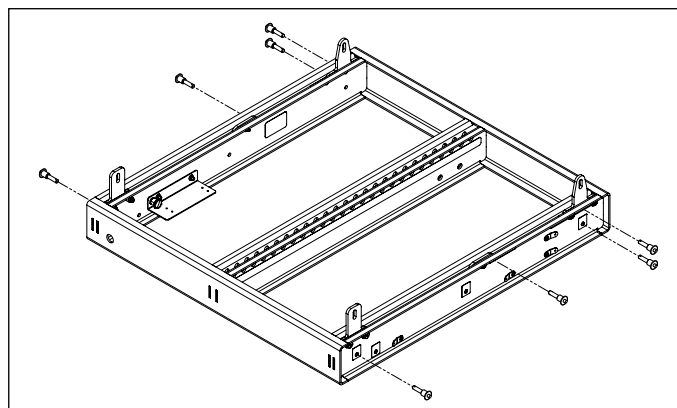


UM121 - 4x KR125 casters option

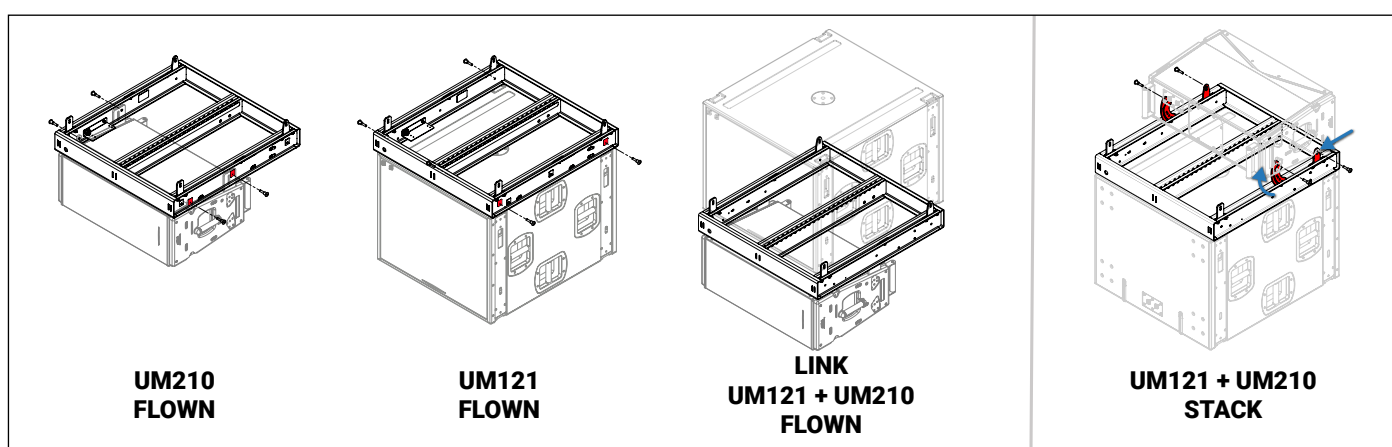
3.3. UMTRUSS

The UMTRUSS element is the main accessory of the UNILINE MAX system. It can be used in four different ways:

1. Hanging UM210 cluster riggings.
2. Hanging UM121 clusters.
3. Connection between the UM121 and UM210 suspended speakers.
4. Stacking UM210 and UM121 speakers.



UMTRUSS

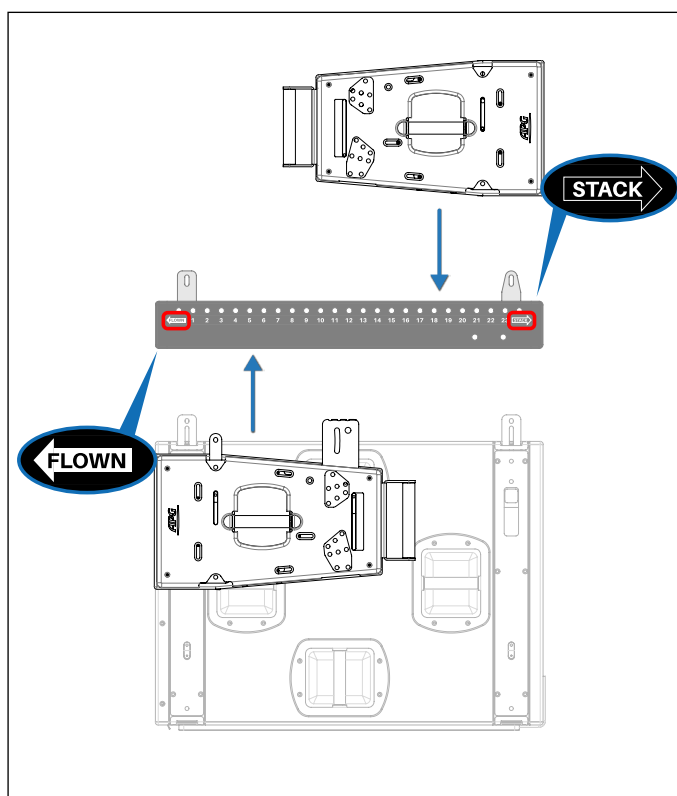


UMTRUSS: 4 possible uses

UMTRUSS therefore has two operating modes:

- **"FLOWN" mode:** UMTRUSS allows up to 18x UM210 or 9x UM121 to be suspended for a 1,600 lb (800 kg) maximum working load.
 - ♦ Visual markers help locate the mounting positions for UM210 and UM121 (see [page 36](#)).
 - ♦ A series of numbers on the central part allows you to adjust the azimuth (vertical angle) of a cluster mobile UMTRUSSFSP hook trolley (see [page 16](#)) fixed to UMTRUSS and connected to the lifting system.
- **"STACK" mode :** UMTRUSS allows a maximum of 4x UM210 to be stacked safely, using 2 retractable legs attached to the sides. These legs allow the overall angle of the system to be adjusted to 4 different settings (-10°/-5°/0°/+5°/+10°). UMTRUSS can be attached to UM121 (or UC118i) subwoofers, or used directly on the floor.

An arrow at each end of the vertical angle brackets on UMTRUSS indicates the direction of use.



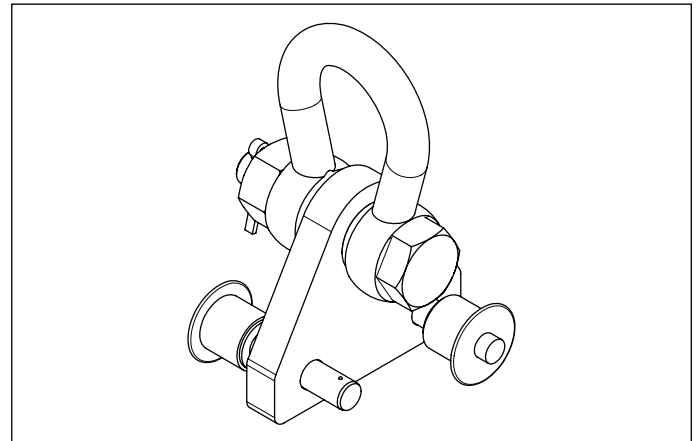
UMTRUSS: "FLOWN" or "STACK" mode

3.4. UMTRUSSFSP

The UMTRUSSFSP is the standard hook trolley for UMTRUSS. The number of UMTRUSSFSP trolleys depends on the application and can be up to 4 trolleys per UMTRUSS (2 motor points + safety sling + compression).

UMTRUSSFSP offers high precision adjustment of the vertical angle of the clusters, even with a single suspension point. The Ease Focus acoustic and mechanical simulation tool can be used to calculate the angles and suspension points.

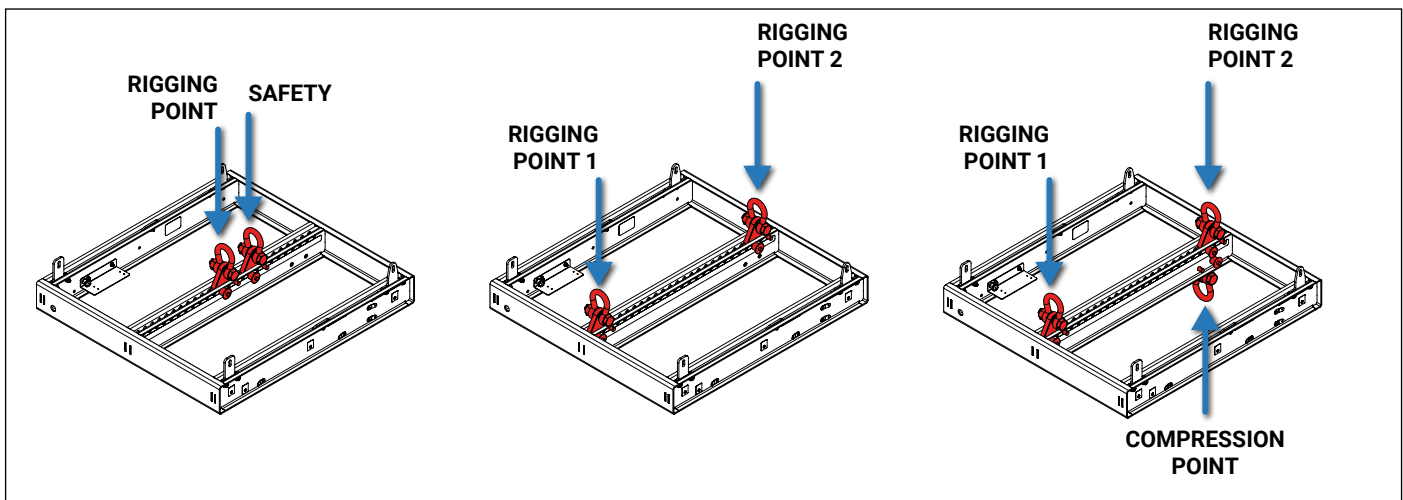
Under no circumstances should the shackle be removed or replaced.



UMTRUSSFSP

The functions of UMTRUSSFSP are:

- Hook shackle for single-pin suspension.
- Secondary attachment shackle for 2-pin suspension.
- Hook shackle for safety point.
- Shackle for lever hoist in compression mounting (use shackle at the bottom on UMTRUSS).



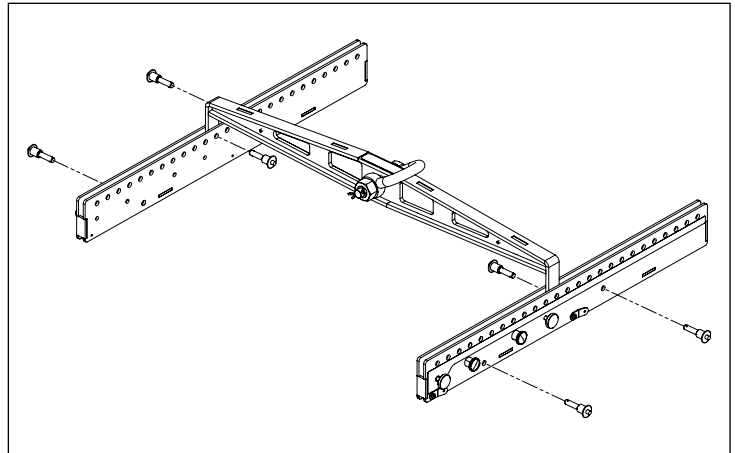
UMTRUSSFSP: possible use cases

3.5. UMRAIL

The UMRAIL element is the ideal alternative to UMTRUSS for suspending small clusters (in TENSION mode only).

UMRAIL is also an essential component for compression assemblies: in this case, it is used in "PULLBACK" mode.

Thanks to its compact size and low weight, UMRAIL can be adapted to environments where space is limited, for example when using winch lifting legs.



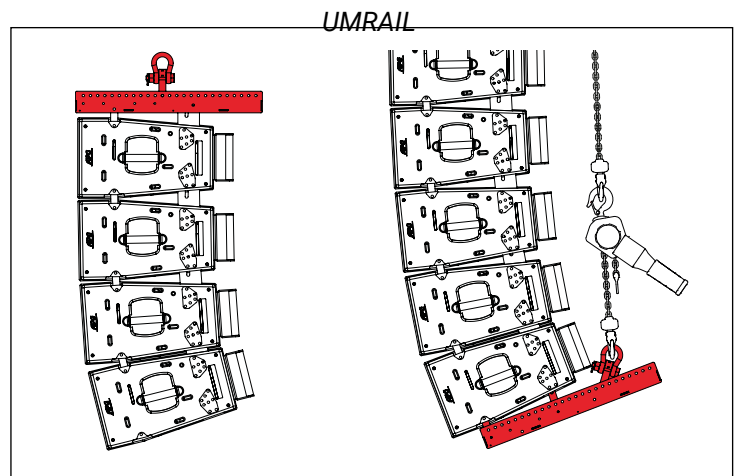
UMRAIL allows for two modes of use:

1. FLOWN MODE:

UMRAIL allows up to 9x UM210 to be suspended for a maximum working load of 400kg. Angulation will then be performed in TENSION mode only.

2. PULLBACK MODE:

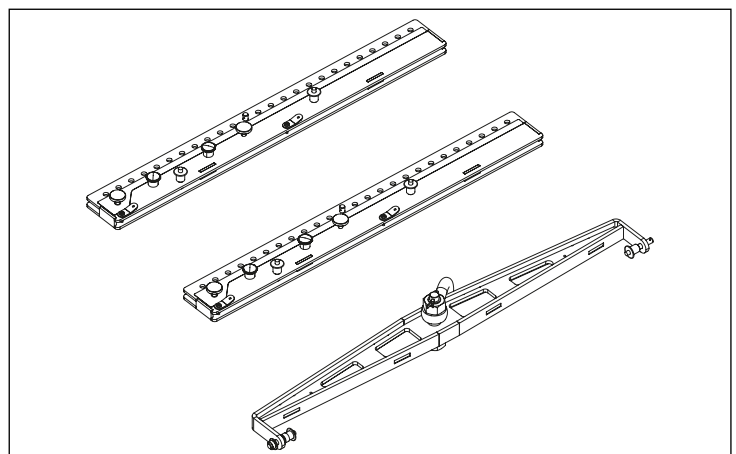
UMRAIL can be positioned at the bottom of a suspended cluster with UMTRUSS, to allow for compression mounting (maximum 18x UM210), using dedicated accessories (LH0.5T - LHC4 - LHC05). *see page 42 – "COMPRESSION MODE: SYSTEM INSTALLATION"*



UMRAIL - "FLOWN" mode and "PULLBACK" mode

UMRAIL consists of three parts (two hanging bars and a central angled bar), which can be separated for optimal storage.

CAUTION: The two hanging bars have a specific orientation (one for the right and one for the left). The angle indicator labels must always face outward from the cluster so that they are visible.



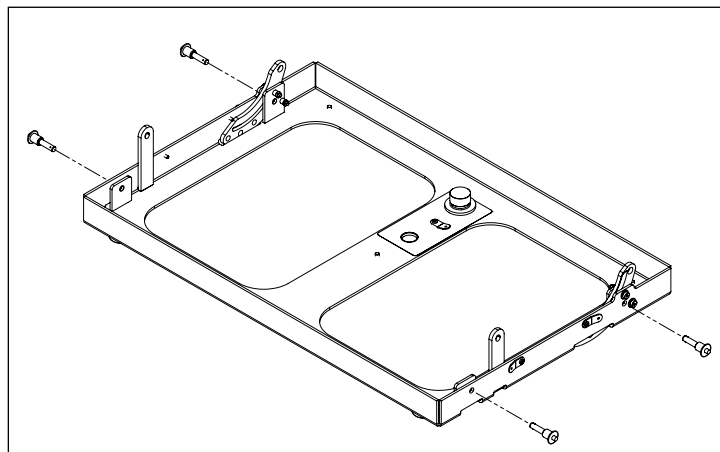
UMRAIL - Separation of the 3 parts

3.6. UMSTACK

The UMSTACK element is the dedicated accessory for ground-stacked. It must be used to safely configure up to 4 UM210 speakers, with 4 possible vertical angle values ($-10^{\circ}/-5^{\circ}/0^{\circ}/+5^{\circ}/+10^{\circ}$).

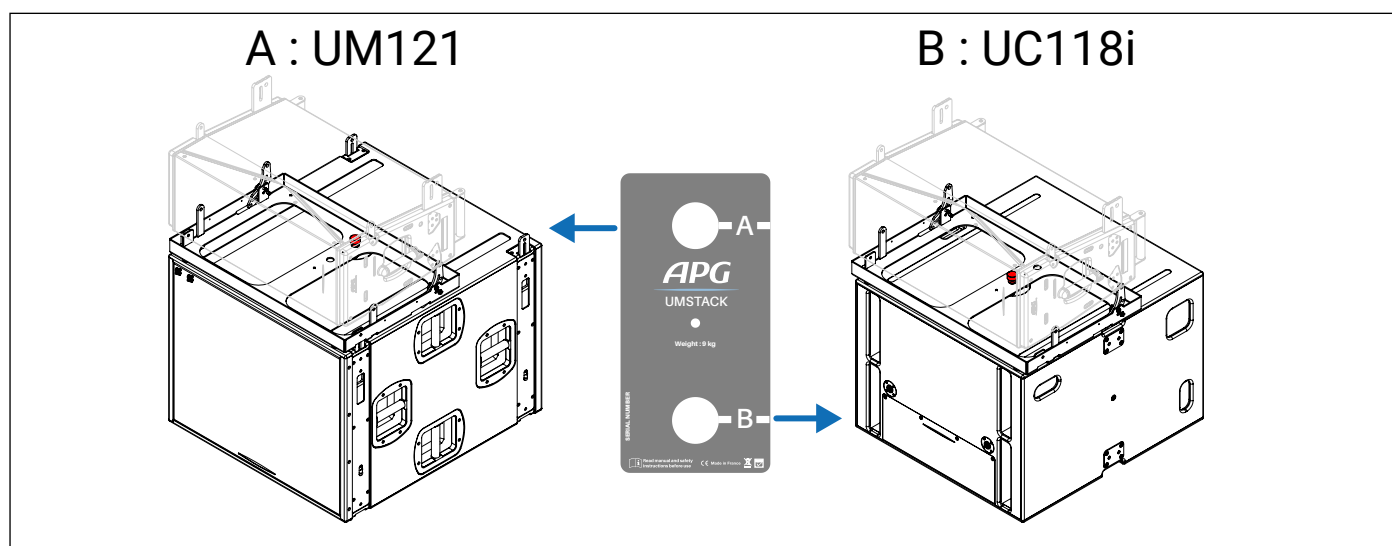
With UMSTACK, UM210 speakers can be positioned:

- Directly on the floor on its rubber feet
- Mounted on a subwoofer: using the supplied M20 knurled screw to secure the UMSTACK to the subwoofer (see below).



UMSTACK

UMSTACK is designed to use UM210 with UM121 or UC118i subwoofers: simply screw the supplied M20 screw through hole A (for UM121) or B (for UC118i). The positions are indicated on the UMSTACK product label.



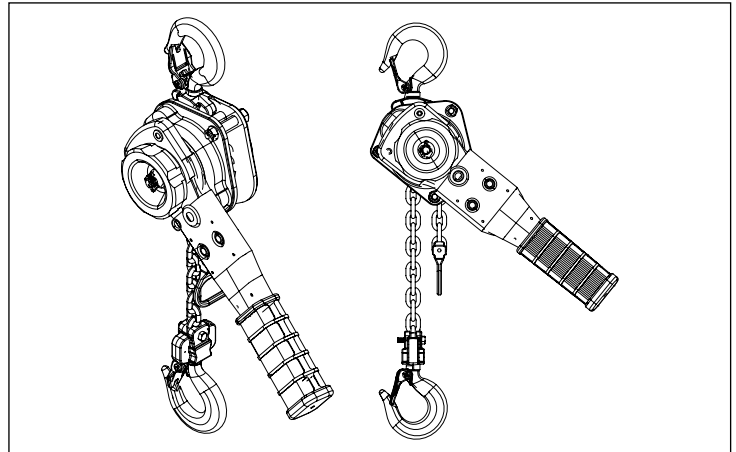
UMSTACK - Configurations on UM121 and UC118i subwoofers

3.7. COMPRESSION ACCESSORIES (LH0.5T - LHC05 - LHC4)

Compression accessories are essential for creating clusters of suspended speakers using COMPRESSION mode with UMRail and UMRUSS.

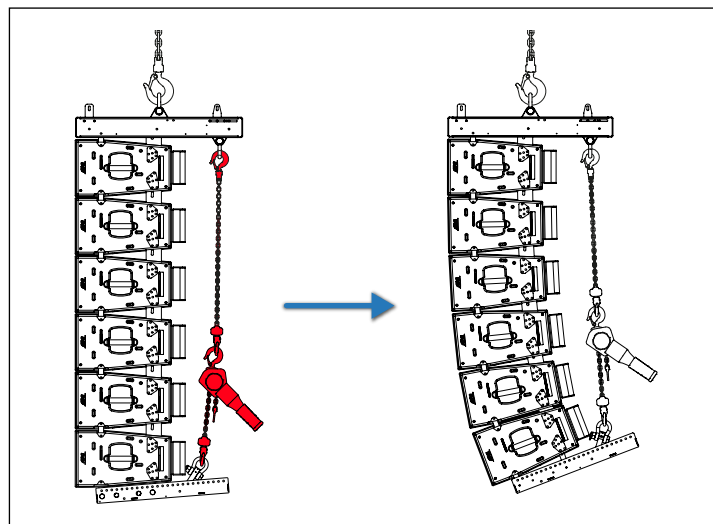
The available accessories are:

- LH05T lever hoist: Maximum Working Load (MWL) 500kg.
- A short chain with LHC05 hook: length 0.5 m / Maximum Working Load (MWL) 2 tons.
- A long chain with LHC4 hook and latch: length 4m / Maximum Working Load (MWL) 2 tons.



LH0.5T chain hoist

These accessories are used to connect the UMRUSS bumper (top of the cluster) and UMRail (bottom of the cluster) in order to achieve the desired inter-speaker angle.



Compression mounting of 6x UM210

Caution: Use the APG UMCALC calculation tool to validate the mechanical configuration before lifting.

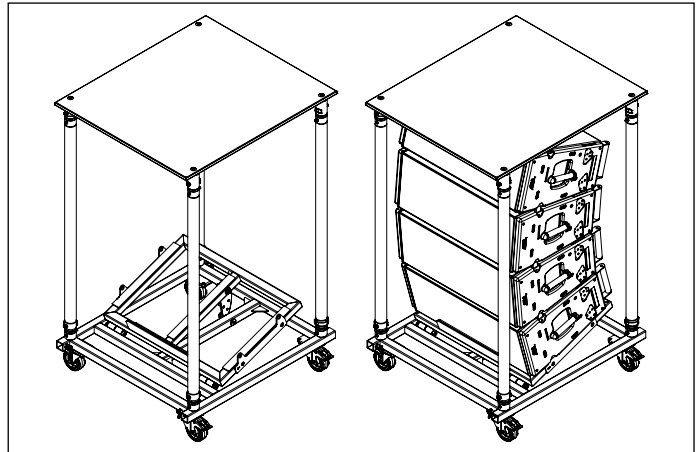
The hoist must be used to apply compression until the desired angle is achieved. Under no circumstances should it be used at full capacity until it disengages, so as not to damage the system's attachment mechanism.

3.8. UM210D4

The UM210D4 is a cart designed for the secure storage and transport of four UM210 speakers. It consists of a base with casters and a tray topped by four removable support posts.

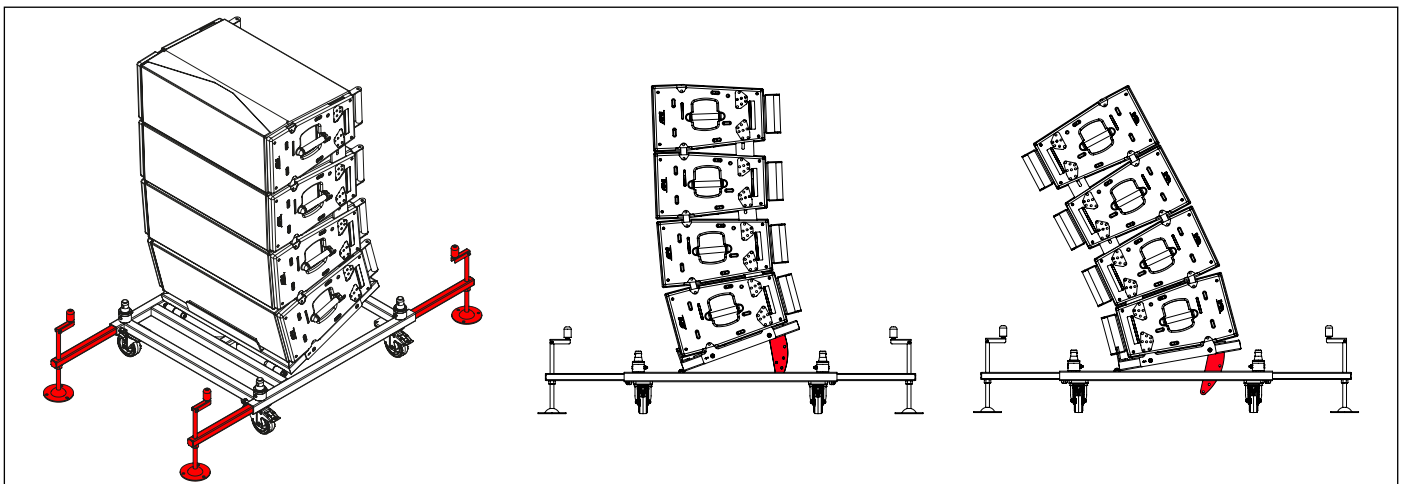
A weatherproof cover UM210SCH4 completes the set and provides total protection for UM210D4 and 4x UM210.

CAUTION: ALL UM210 speakers must be secured together before moving. The lowest speaker must be secured to the UM210D4 cart using the 4 push pins.



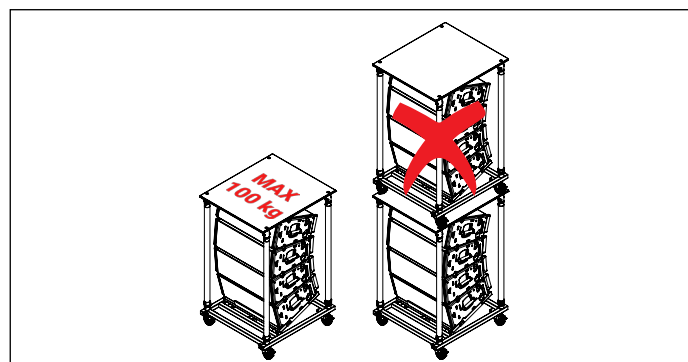
UM210D4

The UM210D4 can also be used to stack up to 4 x UM210 speakers, with 7 possible vertical angle settings ($-20^{\circ}/-10^{\circ}/-5^{\circ}/0^{\circ}/+5^{\circ}/+10^{\circ}/+20^{\circ}$). To use the angles in the negative direction, turn the UM210 speakers upside down on the cart. It is essential to use the UMDSF stabilizer feet (optional) to ensure the stability of the assembly. Ensure that the cart is level when stacking to reduce the risk of tipping, including when using the UMDSF extension feet. All 4 casters must also be off the ground.



UM210D4 - stacking mode with UMDSF (left) - Negative azimuth (center) or positive azimuth (right)

CAUTION: It is possible to load material on top of the upper tray of the UM210D4, up to a maximum weight of 100 kg. It is not possible to stack two full UM210D4 units on top of each other.



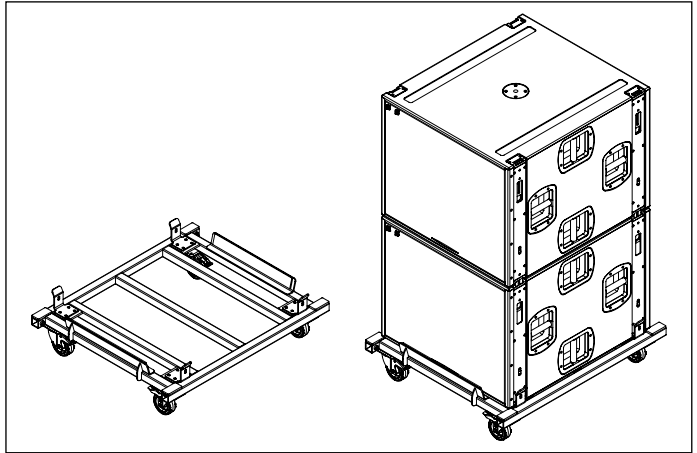
UM210D4 - maximum load

3.9. UM121D2

The UM121D2 is the ideal cart for the secure storage and transport of two UM121 subwoofer speakers.

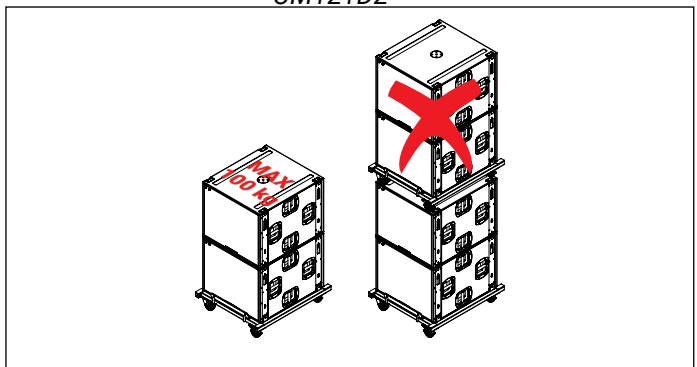
A weather-resistant cover UM121SCH2 completes the set and provides total protection for UM121D2 and 2x UM121.

CAUTION: ALL UM121 speakers must be secured together before moving. The lowest speaker must be secured to the UM121D2 cart using the 4 push pins.



ATTENTION: It is possible to load equipment on top of 2x UM121 and a UM121D2 cart, up to a maximum of 100kg. It is not possible to stack 2x full UM121D2.

UM121D2



UM121D2 - Maximum Working Load

3.10. MISCELLANEOUS ACCESSORIES

UNILINE MAX packaging accessories include:

- FCUMHEAVYRIG: Flight case for storing rigging accessories.
- UMDSF: Set of 4 stacking feet for UM210D4 or UM121D2 cart.
- SC121: Cover for UM121 single subwoofer.
- UM121SCH2: Cover for UM121 cart.
- UM210SCH4: Cover for UM210 cart.
- KR125: Kit of 4 optional casters for packaging UM121 units individually without using the UM121D2.

For more information on these products, see **page 65** – **"TECHNICAL SPECIFICATIONS"**

3.11. AMPLIFICATION

APG provides two standardized platforms for amplifying the UNILINE MAX system: UNIRACK and TOURACK are suitable for all types of configurations: touring, fixed installations, events, etc. (DA12 and DA8 amplifiers sold separately). Signal distribution and cabling are simplified thanks to integrated connection panel, which save time by providing a clear and quick view of the connections, as well as access to the displays on the front panel of the amplifiers.

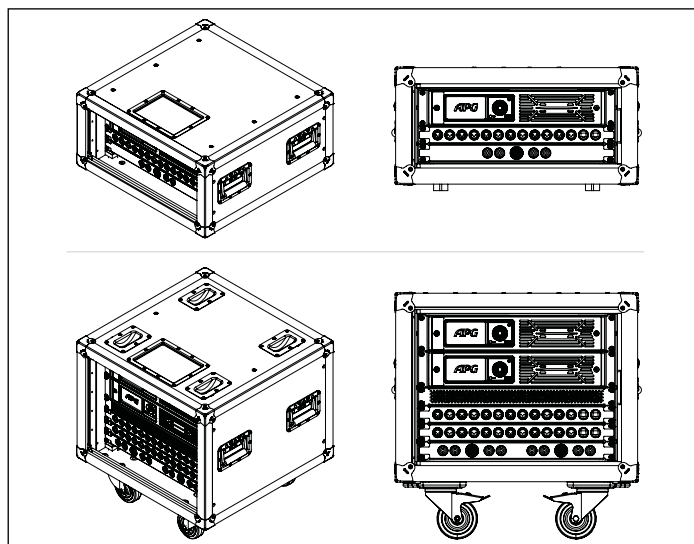
3.11.1. UNIFIED PLATFORM: DESCRIPTION OF UNIRACK/TOURACK

1. UNIRACK:

- 1x 4U rack with retractable doors.
- 1x RP1UMI - input wiring panel
- 1x RP1UM04 - 4-output wiring panel

2. TOURACK:

- 1x 8U flight case with casters and retractable doors.
- 2x RP1UMI - input wiring panel
- 1x RP1UM08 - 8-output wiring panel
- 1x 1U space available for peripheral device (switch, etc.)
- 1x 2U 32A single-phase electrical distribution panel, at the rear of the rack.

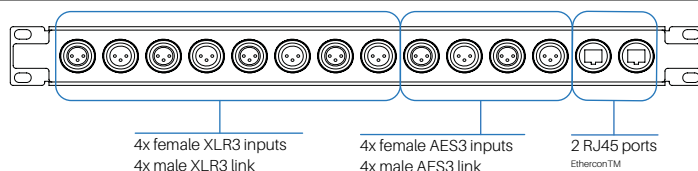


Unirack and Tourack amplifier racks

3.11.2. INPUT/OUTPUT PANEL

RP1UMI - 1U input wiring plate

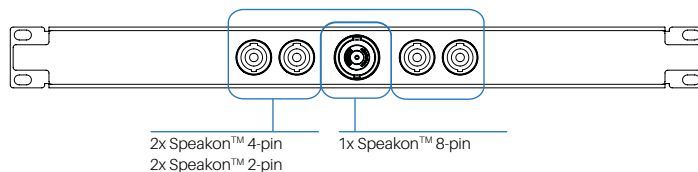
- 4 female XLR3 inputs + 4 male XLR3 links
- 2 female AES3 inputs + 2 male AES3 links
- 2 RJ45 Ethercon™ Ethernet ports



RP1UM04 / RP1UM08 - 1U input wiring panel - 4 or 8 outputs for 1 or 2 amplifiers

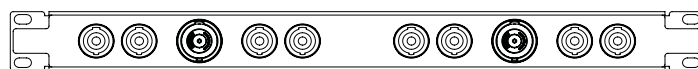
RP1UM04 - 4x output wiring plate with:

- 2x 4-pin Speakon™ outputs (1-2 / 3-4)
- 2x 2-pin Speakon™ outputs (2-NC / 4-NC)
- 1x 8-pin Speakon™ output (1-2-3-4)



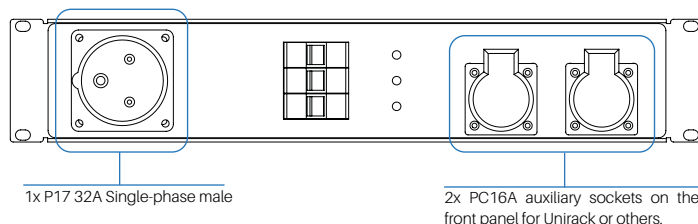
RP1UM08 - 8x output wiring plate with:

- 4x 4-pin Speakon™ outputs (1-2 / 3-4)
- 4x 2-pin Speakon™ outputs (2-NC / 4-NC)
- 2x 8-pin Speakon™ outputs (1-2-3-4)



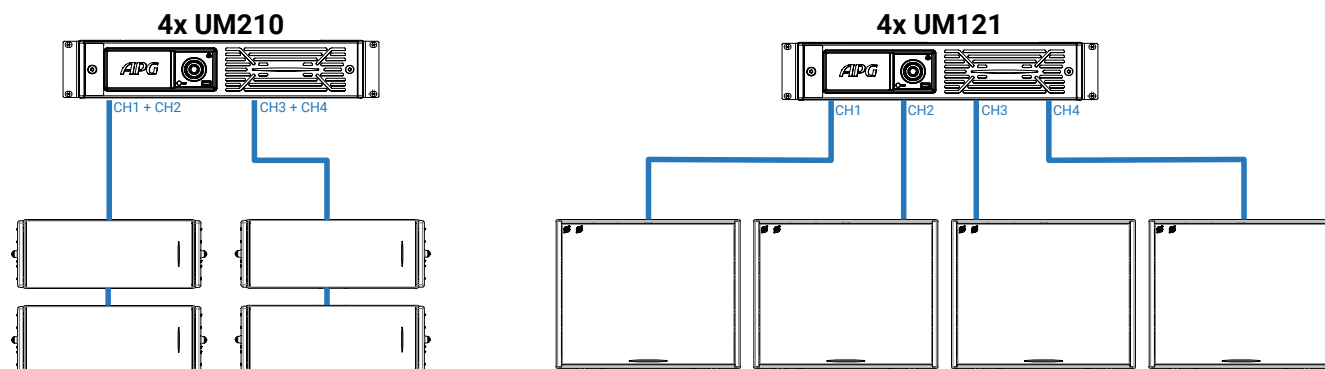
RPAL32M - 2U electrical distribution plate (at the rear of the rack)

- 1x P17 32A single-phase male input
- 5x 16A PC outlets (CEE 7/3 - Type F)
 - ♦ 3x rear panel for powering amplifiers
 - ♦ 2x on the front panel for easy connection to a Unirack or any other device.
- 3x 16A type C circuit breaker with tension presence indicators.

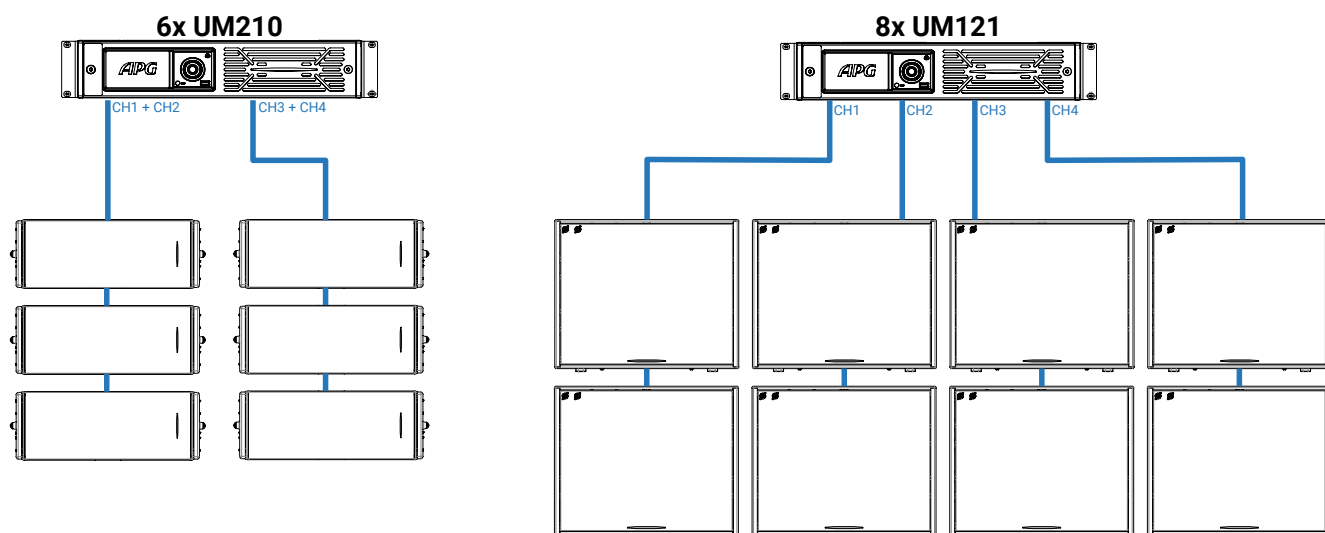


3.11.3. MAXIMUM NUMBER OF SPEAKERS PER AMPLIFIER

DA8



DA12



Maximum number of speakers per amplifier

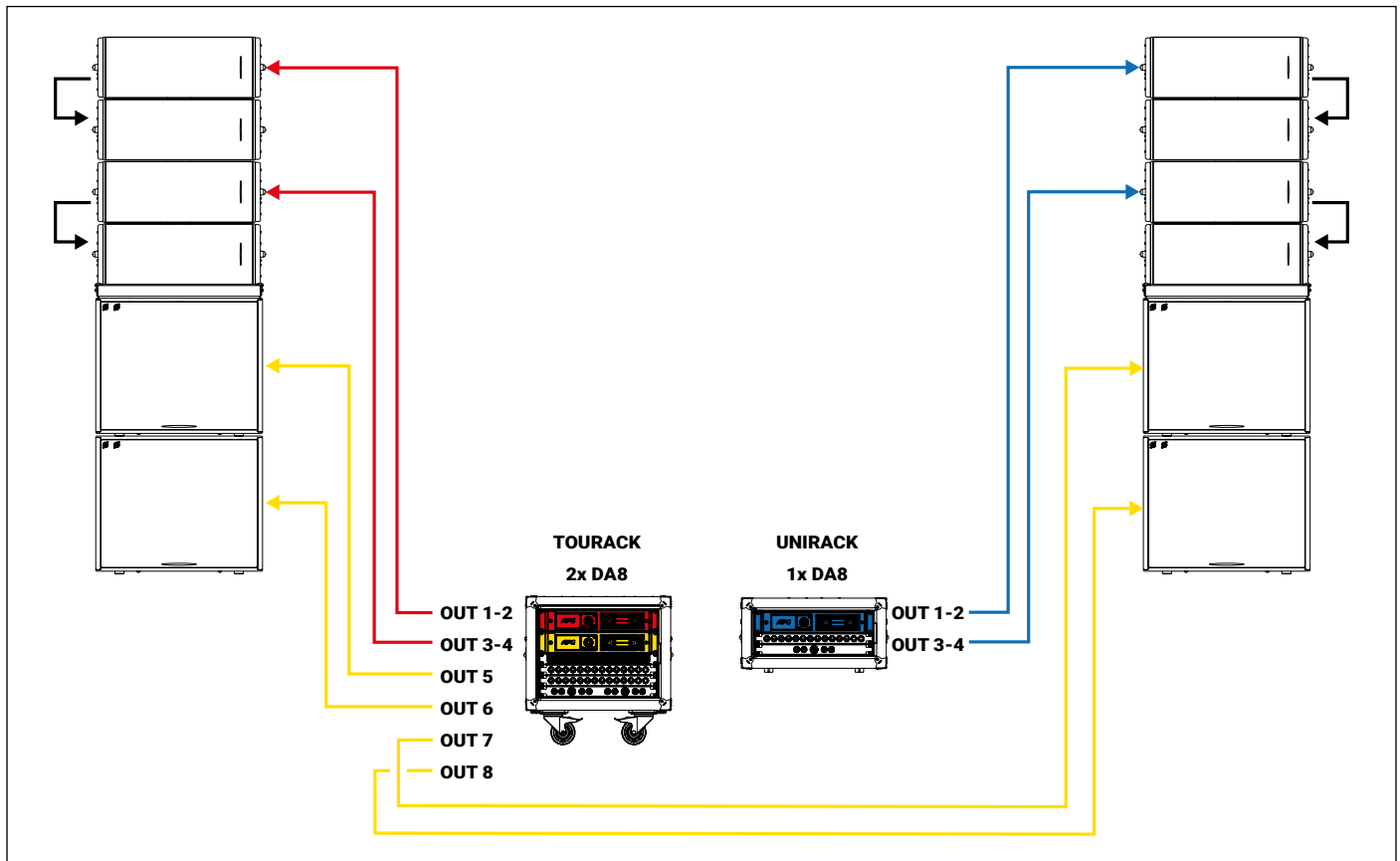
3.11.4. RECOMMENDED MAXIMUM CABLE LENGTHS

	DA8		DA12	
Maximum number of speakers in parallel	UM210 x2	UM121 x1	UM210 x3	UM121 x2
Total impedance (Ω)	8 Ω	4 Ω	2.7 Ω	4 Ω
Maximum length - 2.5mm ² cross-section / AWG#14	20 m	30 m	15 m	15 m
Maximum length - 4mm ² cross-section / AWG#12	35 m	45 m	25 m	25 m

3.11.5. CONFIGURATIONS EXAMPLES

• Example 1: Stacked configuration

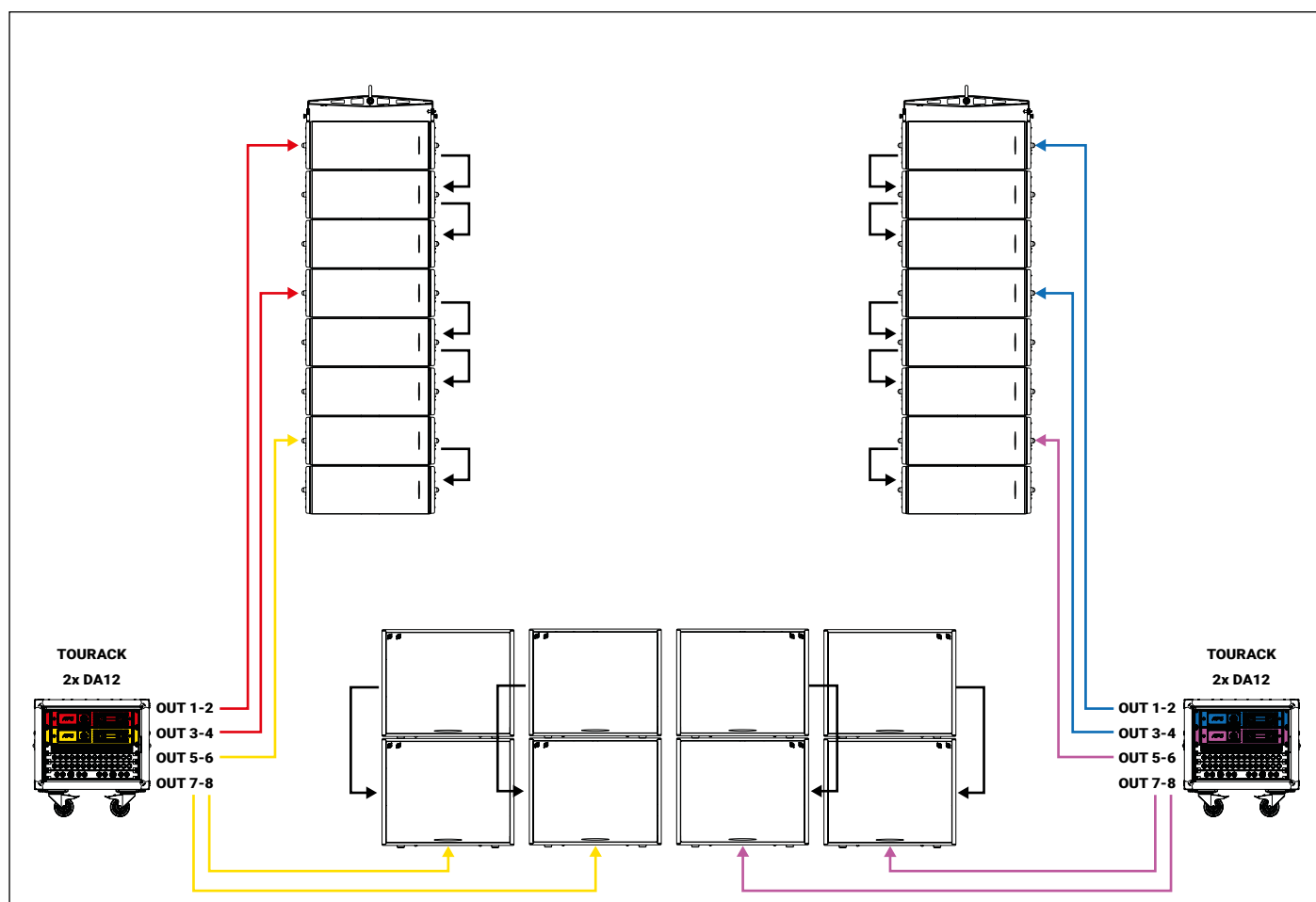
- ♦ 8x UM210
- ♦ 4x UM121
- ♦ 2x UMSTACK
- ♦ 1x TOURACK
- ♦ 1x UNIRACK



UNILINE MAX: Example configuration #1

• **Example 2:** Suspended configuration

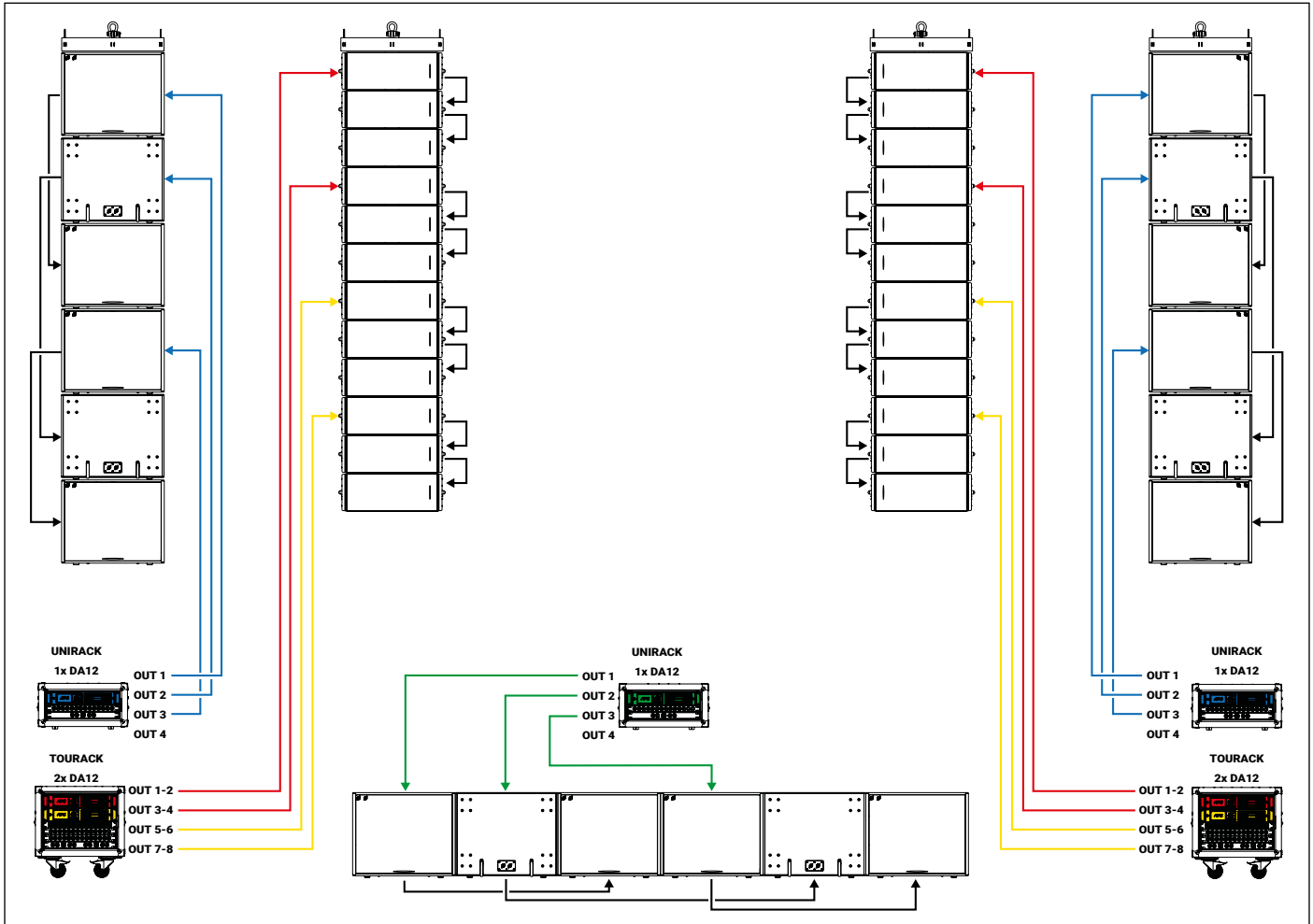
- ◊ 16x UM210
- ◊ 8x UM121
- ◊ 2x UMRAIL
- ◊ 2x TOURACK



UNILINE MAX: Example configuration #2

• **Example 3:** Suspended configuration with suspended subwoofers

- ◊ 24x UM210
- ◊ 18x UM121
- ◊ 4x UMRAIL
- ◊ 2x TOURACK
- ◊ 3x UNIRACK



UNILINE MAX: Example configuration #3

3.12. PRESETS GUIDE

In order to adapt to as many different configurations as possible, the UNILINE MAX system offers three possible crossover frequencies between the UM210 and UM121: 60Hz, 80Hz, or 110Hz. For UM121, cardioid presets are also available to limit rear rejection in the low frequencies.

The choice of cutoff frequency depends on :

- The distance between the main speakers and the subwoofers.
- The ratio between the number of UM210 speakers and the number of UM121 subwoofers.
- The desired sound pressure level (SPL).
- The necessary bandwidth and impact.

All UNILINE MAX presets are phase-matched and pre-aligned, including cardioid presets for UM121. Phase curves are therefore identical regardless of the cutoff frequency.

The headphones and subwoofers are in phase when the front grilles are on the same plane. This simplifies system adjustment : the sound engineer only has to compensate for the distance between the front grilles of the speakers using a delay time.

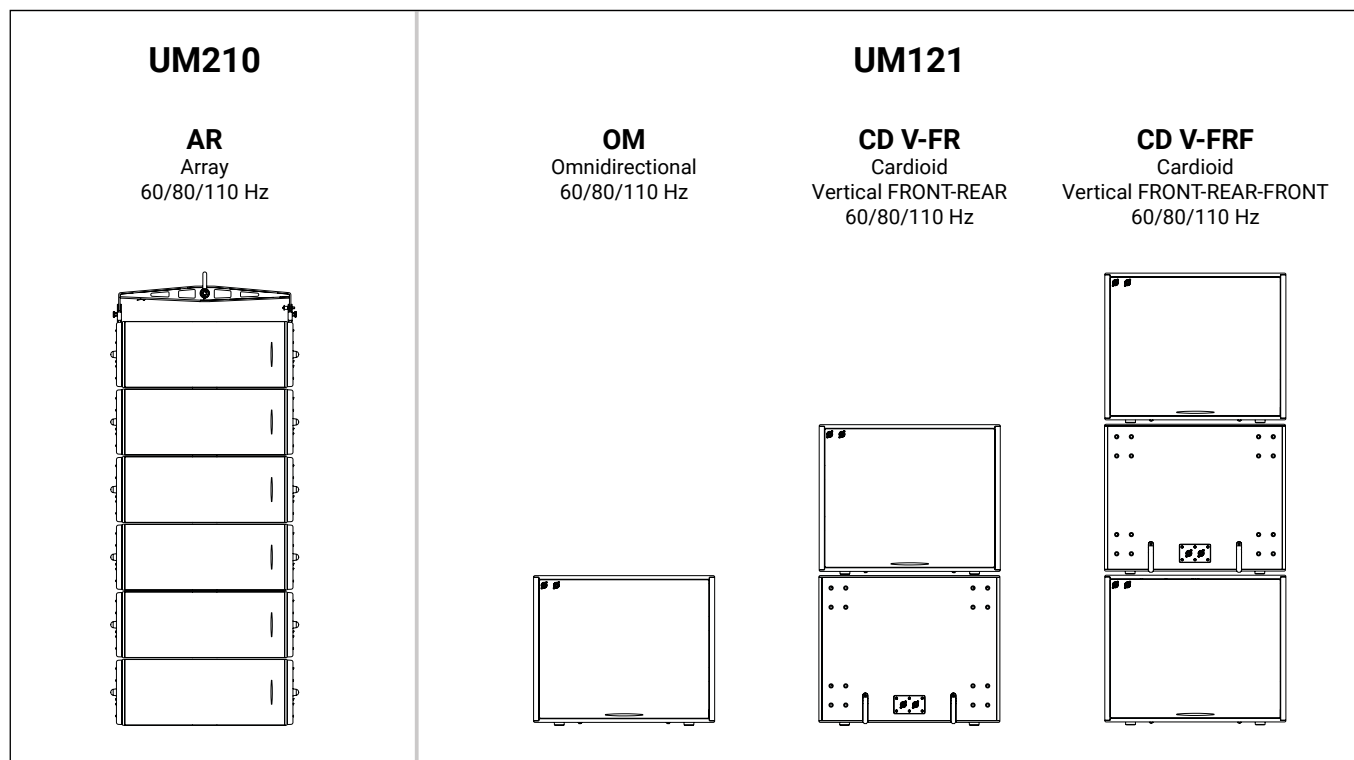
The presets available for UNILINE MAX are:

• **UM210**

- ♦ AR 60
- ♦ AR 80
- ♦ AR 110

• **UM121:**

- ♦ Omnidirectional
 - * OM 60
 - * OM 80,
 - * OM 110
- ♦ Cardio
 - * CD V-EN 60
 - * CD V-EN 80
 - * CD V-EN 110
 - * CD V-FRF 60
 - * CD V-FRF 80
 - * CD V-FRF 110



UNILINE MAX preset nomenclature

II. SYSTEM INSTALLATION

1. METHODS OF USE: TENSION OR COMPRESSION OR STACK?

UNILINE MAX offers three modes of use:

- System locked in "**TENSION**" mode.
- System locked in "**COMPRESSION**" mode.
- System placed on the floor, in "**STACK**" mode.

1.1. TENSION MODE

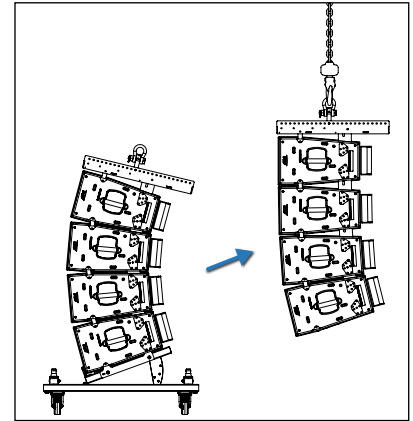
In **TENSION** mode, the angles between speakers are prepared on the ground before lifting, and are positioned by gravity once suspended.

ADVANTAGES:

- Single or double attachment point possible.
- Convenient for small speaker sets
- Preparing the corners on the floor.
- Operators do not carry the speakers to set the angles between speakers.

LIMITS:

- Angles cannot be modified once the system has been raised.
- Potentially difficult installation in the case of large speaker lines and/or with significant curvature.

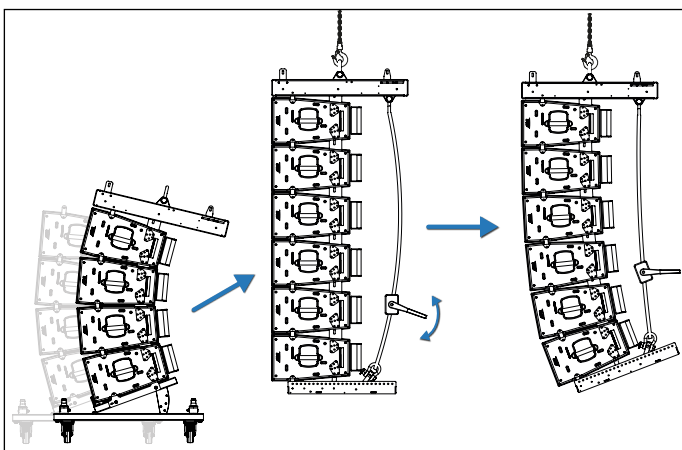


TENSION mounting

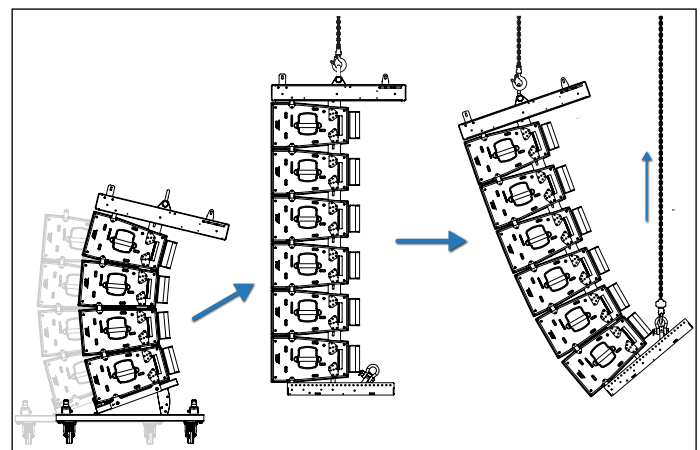
1.2. COMPRESSION MODE

In **COMPRESSION** mode, when lifted, the speakers are positioned vertically and all set to 0°. The operator then performs the angle sequence and the entire assembly is compressed to obtain the desired angle. The compression action is performed:

- Either by using an **LH05T chain hoist** attached between the UMTRUSS and UMRAIL in "Pullback" mode, which allows you to set the angles between selected speakers.
- Either by adding a **second lifting motor** attached to the UMRAIL in "Pullback" mode, which will perform the compression using the weight of the entire unit (to be reserved for configurations with a large azimuth).



COMPRESSION assembly with chain hoist



COMPRESSION mounting with 2 lifting motors

ADVANTAGES:

- Angles can be modified once the system is in place.
- Can be assembled in confined spaces (e.g., Layher tower).
- Easy to assemble (even for large clusters with many angles).
- Operators do not carry the speakers to set the angles between speakers.

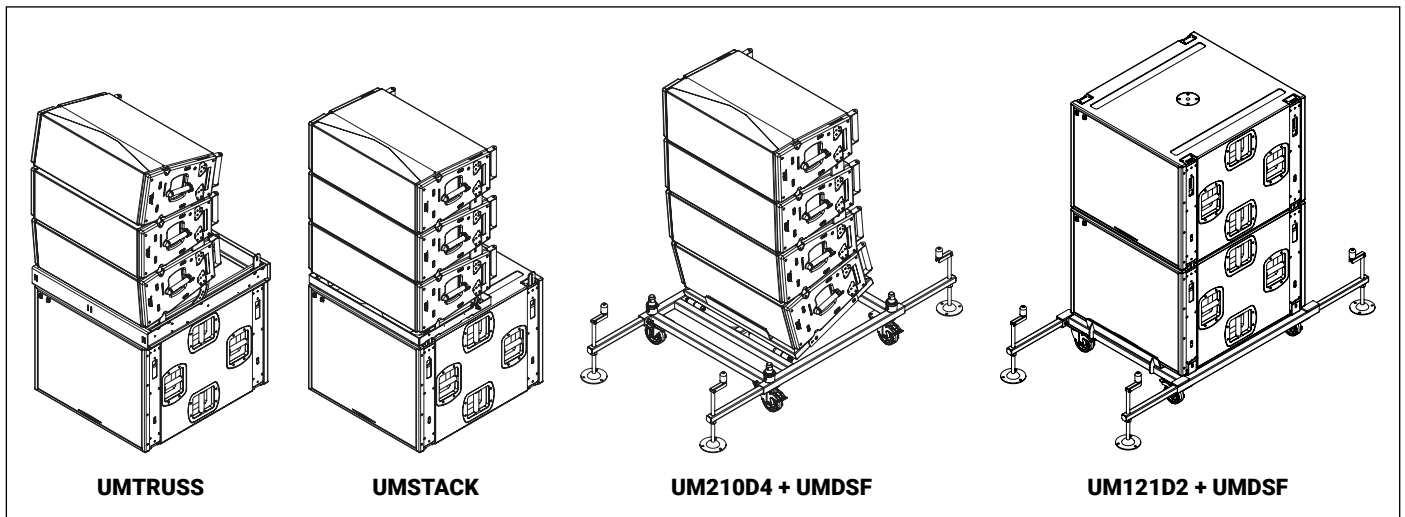
LIMITS:

- Requires additional equipment (chain hoist, additional UMRAIL pull-back bumper, or additional lifting motor dedicated to compression).

1.3. STACK MODE

In **STACK** mode, the speakers are placed on the floor or on a subwoofer and the angles are fixed. UNILINE MAX allows speakers to be placed on the floor in three different ways, depending on the desired configuration and the equipment available to the user:

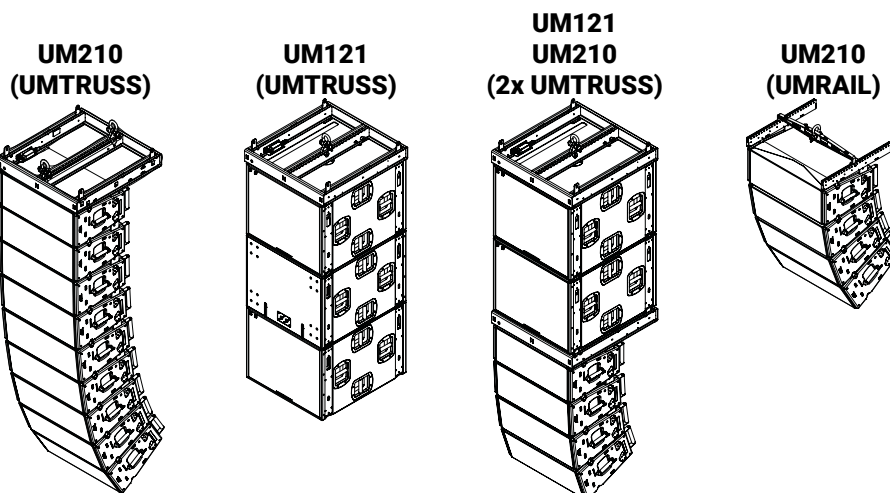
- With UMTRUSS (see *page 51* – "STACK MODE WITH UMTRUSS").
- With UMSTACK (see *page 50* – "STACK MODE WITH UMSTACK").
- With UM210D4 cart + optional UMDSF stabilizer legs (see *page 52* – "STACK MODE WITH CART (UM210D4 + UMDSF / UM121D2 + UMDSF)").
- With UM121D2 cart + optional UMDSF stabilizer legs.



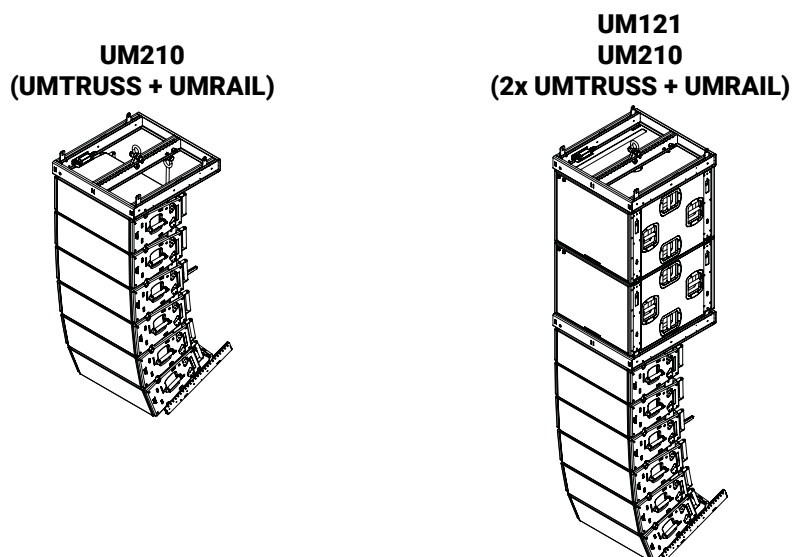
Stacking with UM121 and UM210

2. THE DIFFERENT POSSIBLE CONFIGURATIONS

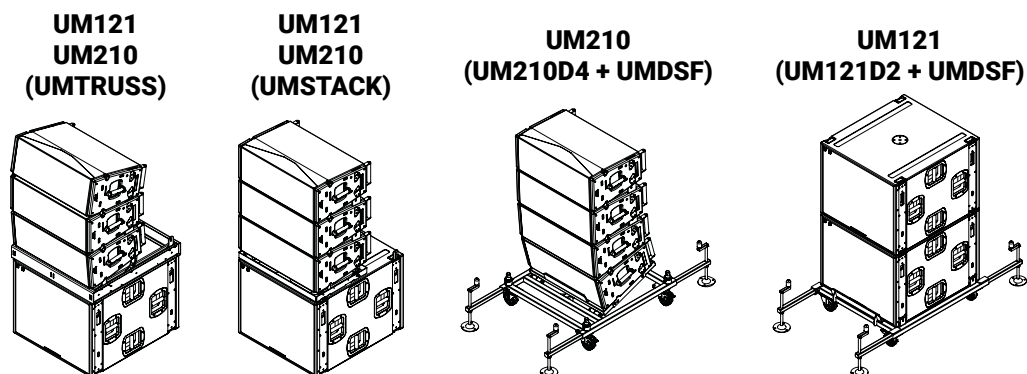
TENSION



COMPRESSION



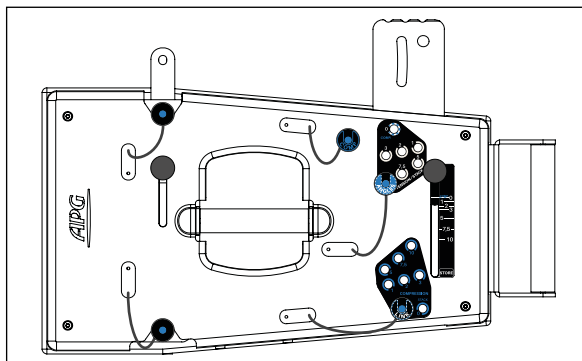
STACK



UNILINE MAX - Configurations

3. DESCRIPTION OF THE ANGULATION SYSTEM

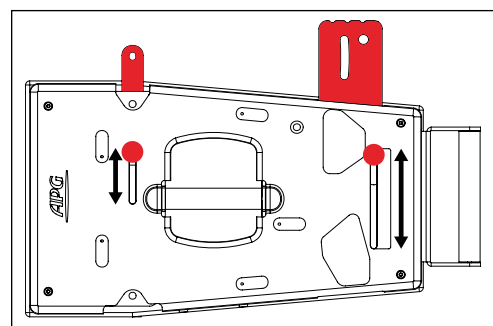
The UM210 speaker has a mounting and angulation system consisting of 4 movable parts (sliders) and 10 captive push-pins. and angulation system consisting of 4x movable parts (sliders) and 10x captive ball pins (push-pins) that allow the various elements to be locked in place:



UM210 - Hook and Angulation System

1. **Each side of the UM210 speaker has two vertical sliders:**

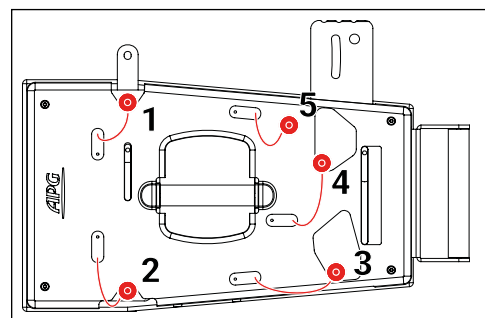
- At the front of the enclosure, a slider for extending or retracting the front mounting system.
- At the rear, a slider allows you to extend or retract the rear mounting system and adjust the desired angles between speakers.



UM210 - Sliders

2. **Each side of the UM210 speaker has 5 push pins:**

- (1) and (2) are used to secure the front parts of the speakers together.
- The (3), labeled "LINK," is used to connect the speakers together at the rear.
- The (4), labeled "ANGLE," is used to adjust the angle, regardless of the mode selected (tension or compression).
- The (5) marked "COMP" is used for compression only. In all other cases, it must be positioned in the storage hole provided for this purpose, as shown in the diagram opposite.



UM210 - Push pin

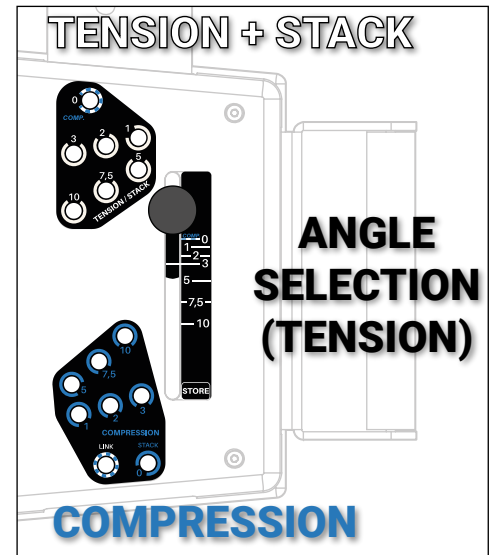
This push-pin numbering system will be used throughout this manual for assembly instructions.

3. **The inter-speaker angle adjustment system has 3 zones:**

- An area dedicated to **TENSION** or "**STACK**" assemblies with **WHITE** corner markers.
- An area dedicated solely to "**COMPRESSION**" assembly with **BLUE** corner markers.
- An area dedicated to angle selection ("**TENSION**" mode only).

On each speaker, the WHITE labels refer to the Tension and STACK modes, while the BLUE labels refer to the COMPRESSION mode.

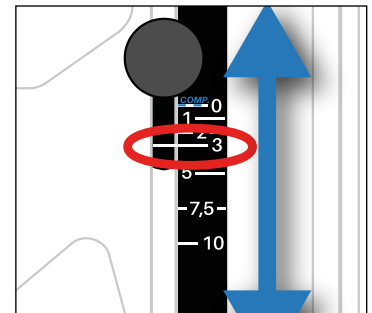
Some areas marked in WHITE + BLUE are used for both modes.



UM210 - Angle selection

4. **The angle selection area has a marker below the corresponding slider handle.**

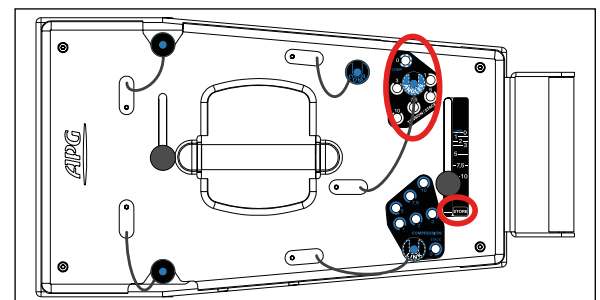
- In "**TENSION**" mode, to obtain an angle of "3°" for example, position this line opposite the value "3" (see illustration opposite). The "ANGLE" push pin (4) can then be locked into hole "3".
- In "**COMPRESSION**" mode, the slider must be positioned at the top, in the "COMP" BLUE position.



UM210 - Angle selection in "**TENSION**" mode

5. **The "rest" position of a single speaker is as follows:**

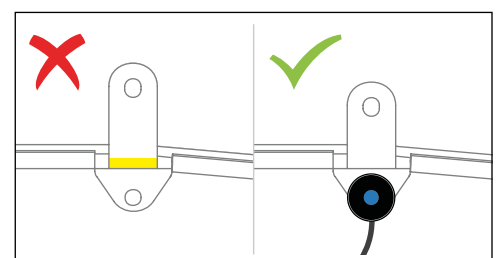
- Both sliders in the down position – The angle slider indicator is opposite "STORE."
- Push pin (3) in the "LINK" position.
- Push-pin "ANGLE" (4) in the TENSION position 2.
- Push the "COMP" pushpin (5) into its storage hole.



UM210 single unit - Rest position

6. **IMPORTANT: A fluorescent yellow marker indicates that the front hook is not locked.**

All push pins must be locked when using the speakers.

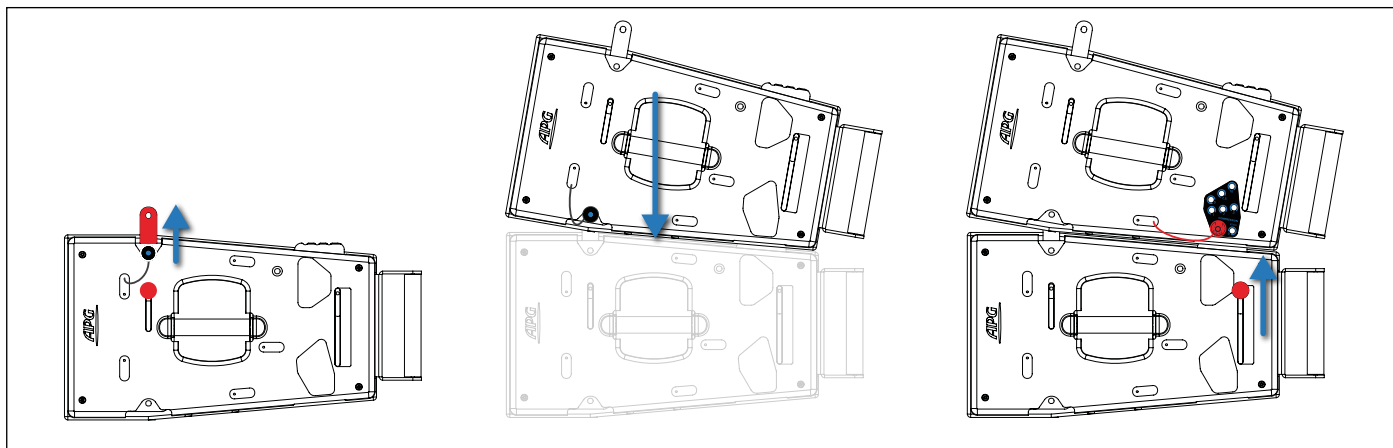


UM210 - Fluorescent marker

4. ASSEMBLING THE SPEAKERS TOGETHER

4.1. UM210

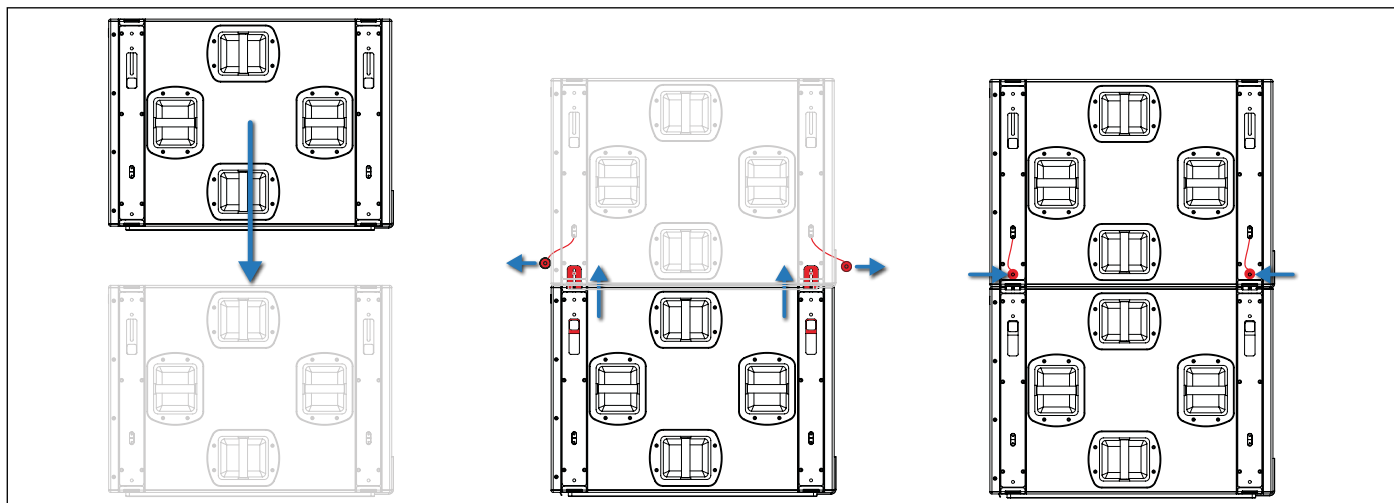
1. Remove and lock the front mounting system of the first speaker using the push pins (1).
2. Install the next speaker and lock it in place at the front with the push pins (2).
3. Raise the angle slider on the lower box to its maximum position, then lock it by inserting the push pins (3) into the "LINK" hole on the upper box. The slider will automatically lower.
4. Repeat the operation for each speaker.



UM210 - Assembly of components

4.2. UM121

1. Place the first UM121 speaker on the floor.
2. Place the next UM121 speaker on top of the first one.
3. Unlock and remove the push pins from the upper enclosure.
4. Remove the front and rear attachment systems from the lower enclosure by lifting the inner slider.
5. Lock the upper enclosure at the front and rear with the push pins.
6. Repeat the operation for each speaker.



UM121 - Assembly of components

5. BUMPER RIGGING

5.1. ATTACHING THE FIRST SPEAKER TO UMTRUSS / UMRAIL:

5.1.1. UM210

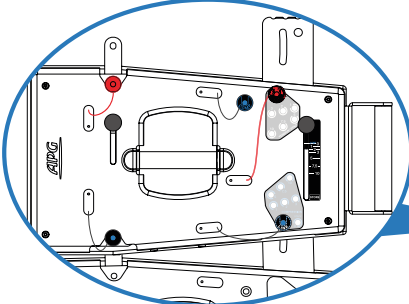
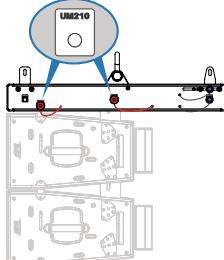
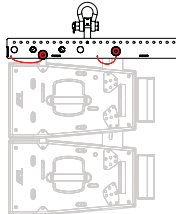
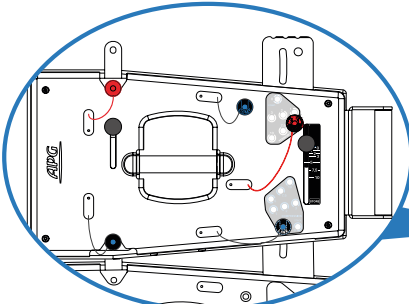
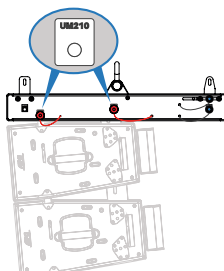
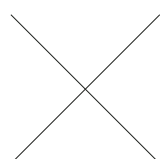
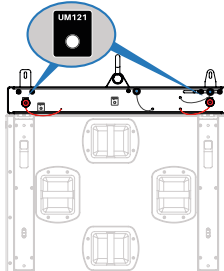
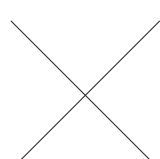
1. Install the front hook slider on the upper box, then lock it by positioning the push pin (1).
2. Select the desired angle (0° or 5°) on the rear slider and lock it using the "ANGLE" push pin (4).
3. Position the UMTRUSS or UMRAIL bumper in "FLOWN" mode (see [page 15](#) / [page 17](#)) and attach it to the upper enclosure using the corresponding push pins.

NOTE: The angle between UMTRUSS and the first UM210 speaker can be 0° or 5° (the Ease Focus simulation software allows both possibilities - only with UMTRUSS):

- ♦ 0° is the "standard" setting.
- ♦ 5° is useful, for example, in the case of a mixed UM210/UM121 cluster, as it allows you to angle the UM121 subwoofers relative to the UM210 speakers.

5.1.2. UM121

1. Install the hook sliders
2. Position the UMTRUSS bumper in "FLOWN" mode (see [page 15](#)) and attach it to the upper enclosure using the corresponding push pins.

	UMTRUSS	UMRAIL
UM210 Angle 0° 		
UM210 Angle 5° 		
UM121		

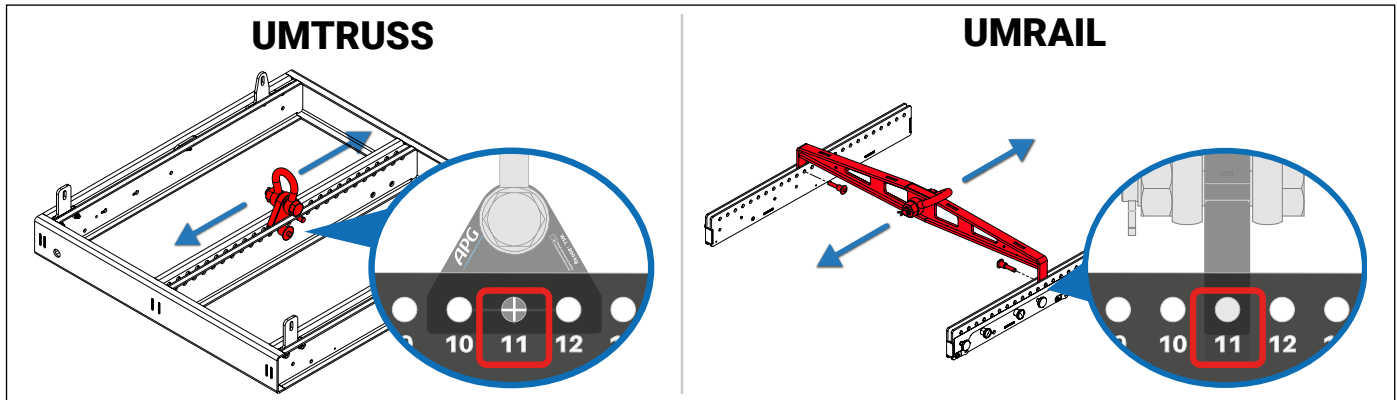
Detail of the UMTRUSS and UMRAIL hook

5.2. ATTACHING THE BUMPER TO THE LIFTING SYSTEM:

5.2.1. SINGLE POINT ATTACHMENT

The position of the point is obtained by simulation using the Ease Focus software («Pin-point number»):

- With UMTRUSS: position and lock the UMTRUSSFSP carriage in the position defined during simulation. Adding a UMTRUSSFSP adjacent to the suspension point can be used for the safety point.
- With UMRAIL: Position and lock the central angle bar in the position defined during the simulation.

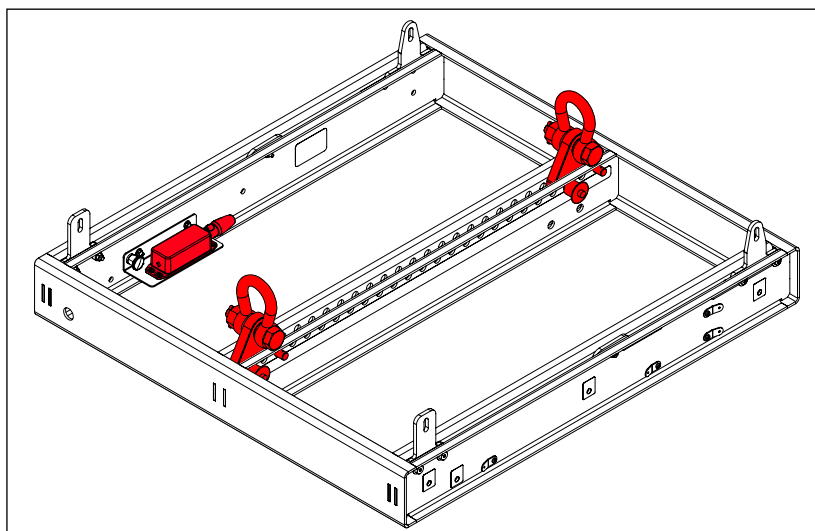


Single-pin attachment with UMTRUSS and UMRAIL

5.2.2. 2-PIN ATTACHMENT (UMTRUSS ONLY)

CAUTION: in the case of a 2-pin attachment, each hoist used must be capable of supporting the entire load indicated in the software (EASE Focus or UMCalc).

- Position the 2x UMTRUSSFSP at both ends of UMTRUSS to optimize the load on each point and prevent the system from swaying horizontally.
- Position and wire the inclinometer correctly on UMTRUSS. Use a cable that is long enough to validate the overall angle once the system has been raised.

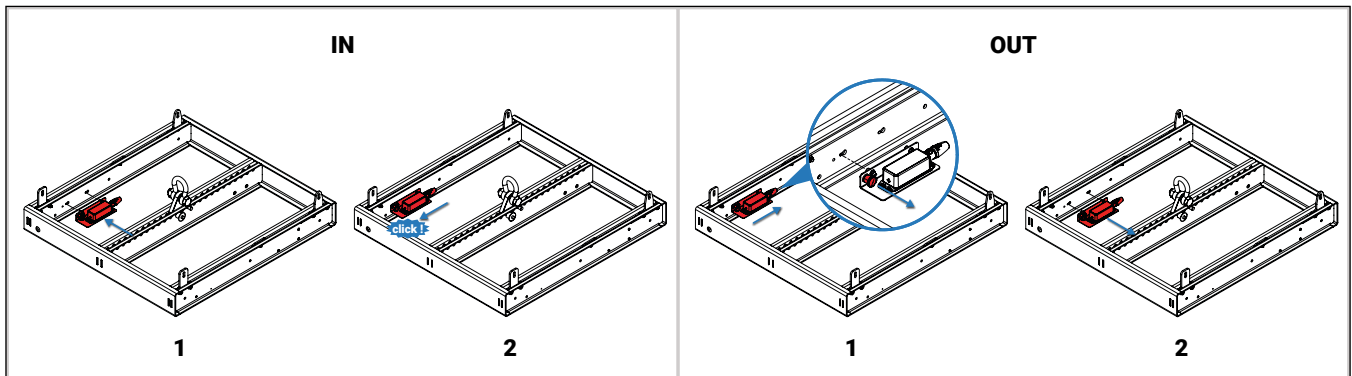


2-pin attachment with UMTRUSS

5.2.3. INCLINOMETER MOUNTING (UMTRUSS ONLY)

UMTRUSS has a plate designed to accommodate an inclinometer device in order to validate the vertical angle (azimuth) of the speaker system. This location is compatible with the LAP-TEQ PLUS laser inclinometer (TEQSAS).

The plate is easily detachable, so that the inclinometer can be moved from one UMTRUSS to another without having to unscrew it.



UMTRUSS - Inclinometer plate: assembly and disassembly.

6. TENSION MODE: SYSTEM INSTALLATION

6.1. PREPARATION OF ENCLOSURE PANELS

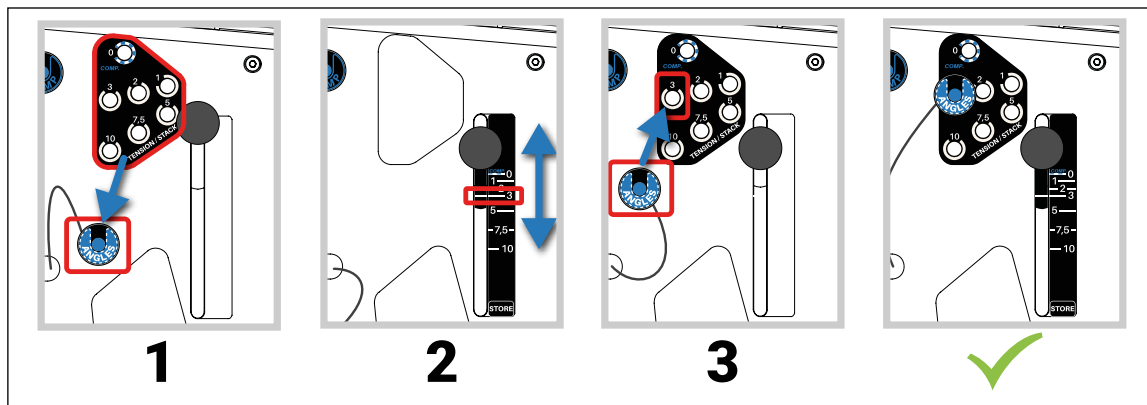
1. Remove the cover, hood, and uprights from the UM210D4 carts.
2. Check that all the speakers in each UM210D4 cart are securely attached to each other (see [page 35](#) – "ASSEMBLING THE SPEAKERS TOGETHER").
3. Attach the UMTRUSS or UMRail bumper to the first cart of the cluster (see [page 36](#) – "BUMPER RIGGING").

6.2. PREPARING THE ANGLES BETWEEN ENCLOSURES BEFORE LIFTING

The corners of the floor are always prepared from the top to the bottom of the UM210D4 cart. For each enclosure:

1. Remove the "ANGLE" push pins (4) from the speaker. No push pins should be positioned in the "TENSION/STACK" area.
2. Move the angle slider to the desired position by matching the white line on the slider with the angle mark.
3. Push the "ANGLE" push pin (4) all the way into the corresponding WHITE / "TENSION/STACK" corner hole.

CAUTION: The push pin must not pop out without pressing its release button.

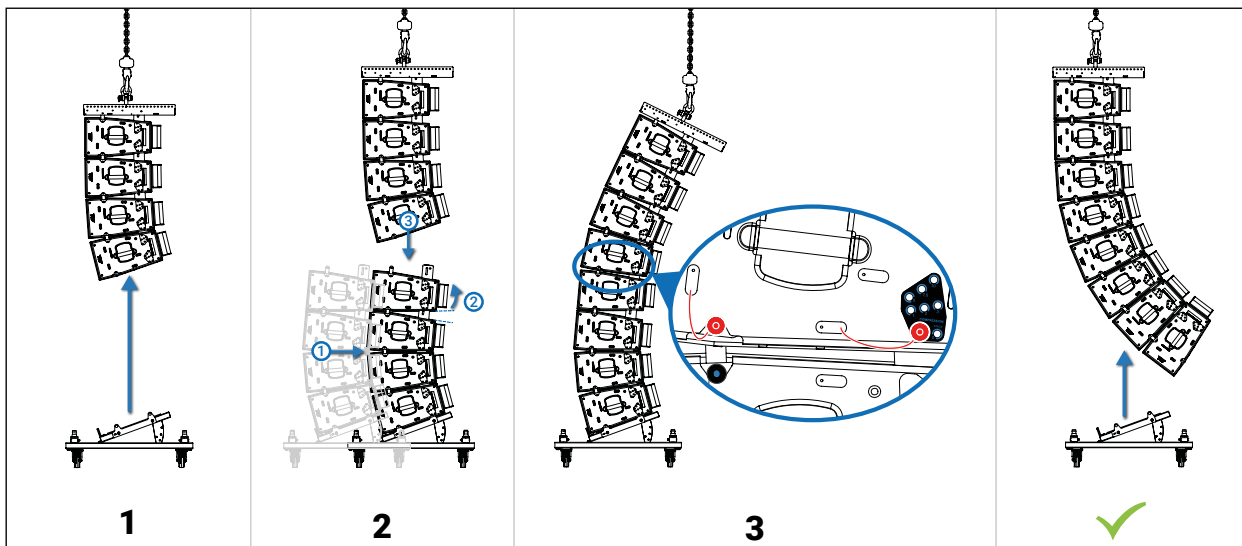


UM210 - Preparing corners before lifting

4. Once all angles have been defined on a UM210D4 cart, position the cart directly above the hoist. Detach the speaker from the bottom of the cart by removing the 4 push pins (2) and (3). Wire the speakers properly.

6.3. LIFTING AND CABLING

1. Lifting the entire unit: the angle is automatically adjusted by gravity, speaker by speaker.
2. Position the next pre-configured cart, then assemble the two parts, taking care not to tip the whole thing over. If necessary, lift the first cart off the floor to help you.
3. Lock both sets of speakers:
 - 1 - Lock the front attachment with the push pins (2).
 - 2 - Lock the rear section with the push pins (3) in the "LINK" holes.
4. Repeat steps 1 through 3 as many times as necessary.



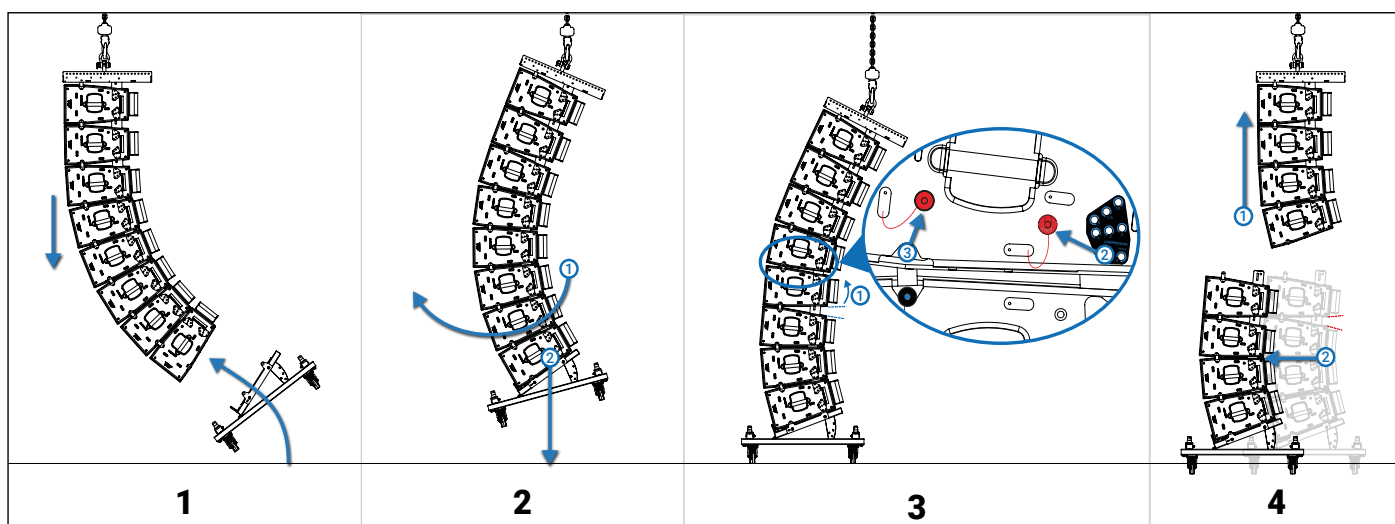
UM210 - Assembly and lifting

6.4. FINAL SETUP: HEIGHT AND ANGLE

1. Raise the entire system to the desired height.
2. Check the overall angle:
 - 1 - If attached at one point on the motor: the overall angle is correct once all the speakers are assembled.
 - 2 - If attached with two motor points: adjust the overall angle using the inclinometer.

6.5. DISASSEMBLY

1. Lower the system to about 50 cm from the ground and prepare to remove the first cart:
 - 1 - Unlock push pins (2) and (3) on the bottom of the last enclosure in the cluster.
 - 2 - Remove all possible wiring.
 - 3 - Position the tray of the first cart under the system.
 - 4 - Lift and position the cart tray under the lower enclosure, and lock it in place with the push pins (2) and (3) on each side.
2. Continue lowering the unit, pulling it forward if necessary, until the four lowest speakers are fully positioned with maximum curvature. **BE CAREFUL to ALWAYS** hold the unit securely to prevent it from tipping over.
3. Unlock the push pins (3) and then (2) on the upper enclosure of the cart—if necessary, lift the lower enclosure. **CAUTION:** always keep tension on the suspension chain to prevent the tray from bearing the entire load of the cluster.
4. Be sure to remove all cables connecting the two assemblies to prevent them from being torn off during installation, then:
 - 1 - Lift the system a few centimeters, taking care to hold it steady to prevent it from tipping over.
 - 2 - Remove the first full cart.
5. Repeat steps 1 through 4 as many times as necessary.
6. Place the uprights, tray, and cover on the cart. For the last cart, separate UMTRUSS from the last enclosure before replacing the uprights and top tray.



UM210 - Disassembly

7. COMPRESSION MODE: SYSTEM INSTALLATION

For each cluster, creating a compression mount requires:

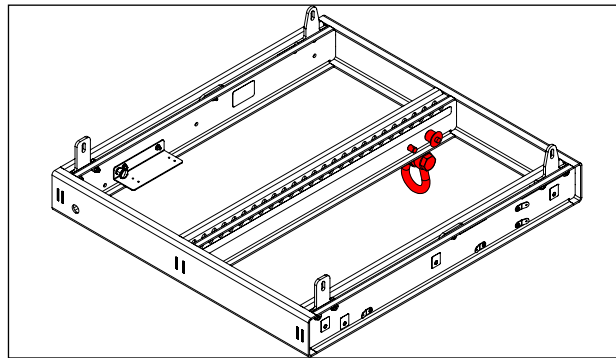
- A main UMTRUSS bumper for attaching and lifting the cluster.
- A UMRAIL bumper in "PULLBACK" mode that will be placed at the bottom of the cluster.

7.1. PREPARATION OF THE HANGING BUMPER:

7.1.1. UMTRUSS CONFIGURATION:

As seen in *page 30* – "COMPRESSION MODE", there are two ways to perform compression:

1. **With a chain hoist system** connecting the two UMTRUSS and UMRAIL bumpers: an additional UMTRUSSFSP must then be positioned on UMTRUSS in the space provided for this purpose: it will serve as an attachment point for the compression system.



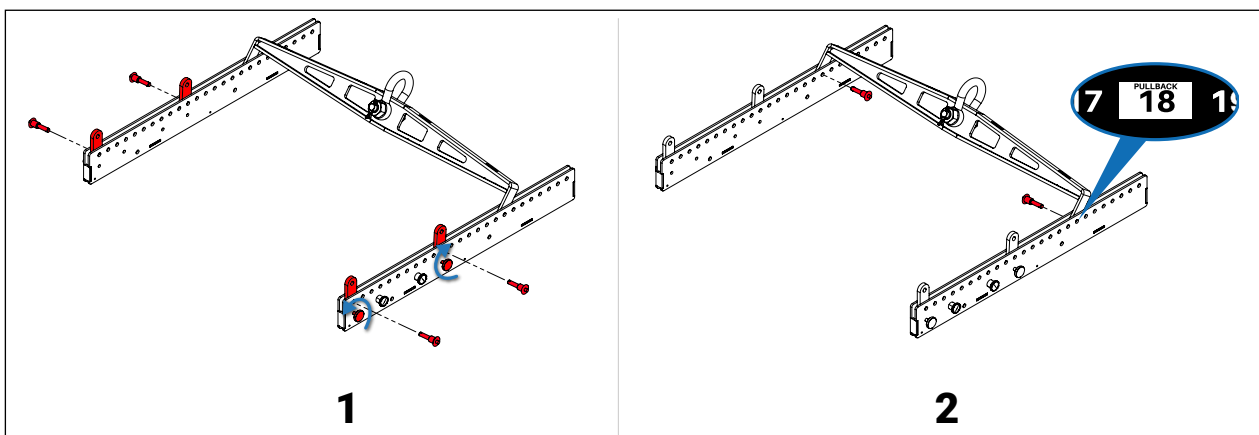
UMTRUSS - Compression mode with chain hoist

2. **OR with a rear lifting motor** for the UMRAIL "Pullback." In this case, adding an additional UMTRUSSFSP is not necessary: compression will be achieved by lifting the rear motor, which will also be used to adjust the overall angle of the system.

7.1.2. CONFIGURING UMRAIL IN "PULLBACK" MODE:

Configuring the UMRAIL accessory in "Pullback" mode allows a UNILINE MAX cluster to be suspended in compression mode with two motor points. The "Pullback" then acts as a second suspension point and takes up part of the load, which is useful in highly angled configurations.

1. Turn the 4 side knobs to release and lock the 4 attachment levers using the dedicated push pins.
2. Position and lock the center bar in the "18 / PULLBACK" position using the dedicated push pins.



UMRAIL - Pullback mode configuration

7.2. PREPARING THE ENCLOSURES BEFORE LIFTING:

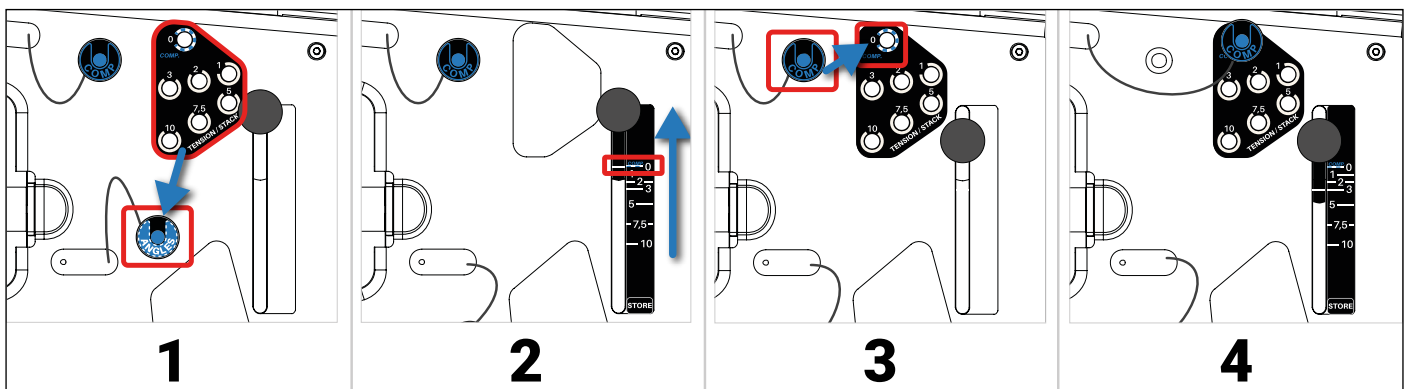
7.2.1. PREPARATION OF CARTS AND ATTACHMENT OF THE UMTRUSS BUMPER

1. Remove the cover, hood, and uprights from the UM210D4 carts.
2. Check that all the speakers in each UM210D4 cart are securely attached to each other (see [page 35](#) – "ASSEMBLING THE SPEAKERS TOGETHER").
3. Attach the UMTRUSS or UMRail bumper to the first cart of the cluster (see [page 36](#) – "BUMPER RIGGING").
4. Only in the case of compression mounting with a chain hoist, attach the chain extension to the inverted UMTRUSSFSP.

7.2.2. PREPARING THE SPEAKERS

In COMPRESSION mode, angles are not set on the ground, but after lifting. The speakers must therefore be configured for this mode so that they remain upright during lifting:

1. Unlock the shuttles/push pins (4) that angle all the speakers.
2. On all speakers, set the angle slider to the maximum (position "COMP."), always starting with the highest speaker and working down.
3. Position and lock the compression push-pin (5) in the "TENSION/STACK" area in the "COMP." position..

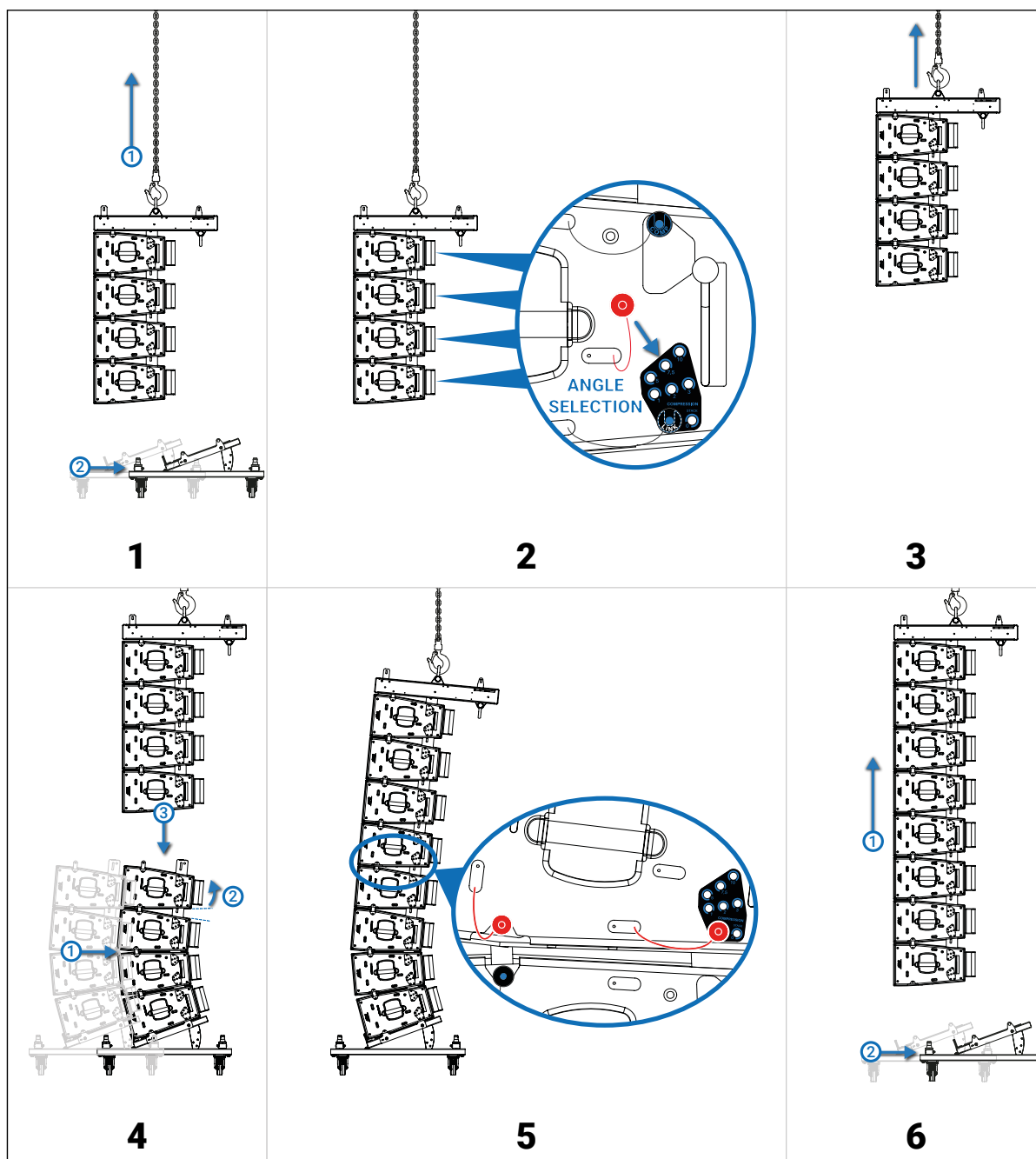


UM210 - Preparing COMPRESSION mode

4. Once all angles have been set on a UM210D4 cart, detach the speaker from the bottom of the cart by removing the 4x push-pins (2) and (3). Wire the speakers properly.
5. Repeat steps 1 through 4 for each speaker enclosure.

7.3. LIFTING AND CREATING ANGLES BETWEEN ENCLOSURES:

1. Lift the whole thing to remove it from the cart: it will then form a straight column.
2. For each speaker, position the "ANGLE" push pin (4) in the BLUE "COMPRESSION" hole corresponding to the desired angle.
3. Lift the whole thing.
4. Position the next cart and lower the cluster again.
5. Assemble the two parts, taking care not to tip the unit over. If necessary, lift the first speaker slightly to help you.
 - 1 - Lock the front fastener with the push pins (2).
 - 2 - Lock the rear section with the push pins (3) in the "LINK" holes.
6. Repeat steps 1 through 5 as many times as necessary.

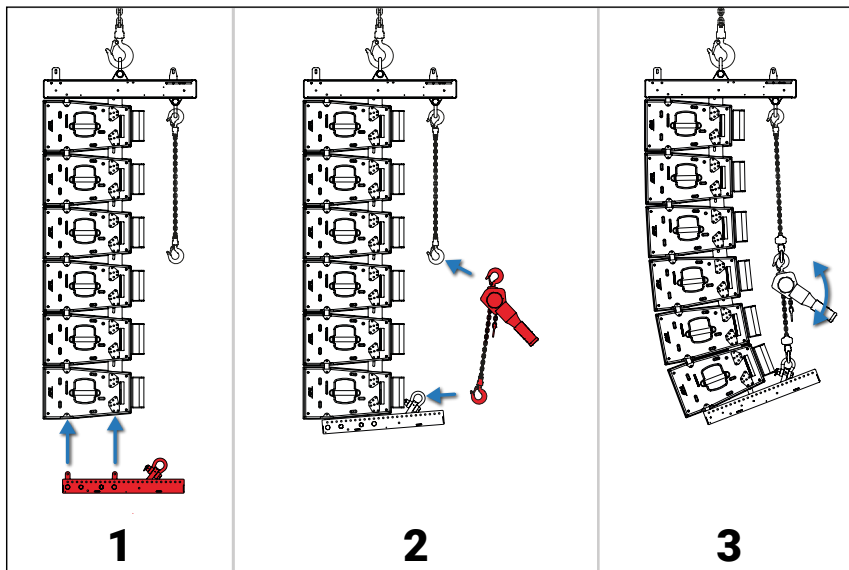


UM210 - Compression mounting: lifting the speakers and creating angles

7.4. COMPRESSION AND FINAL POSITIONING: HEIGHT AND ANGLE

7.4.1. CASE 1: COMPRESSION WITH A CHAIN HOIST (LH0.5T)

1. Attach the UMRAIL "pullback" under the lower enclosure using push pins (3) and (4).
2. Attach the LH0.5T compression lever to the UMRAIL shackle and connect the other end of the lever to the chain (LHC4 or LHC05) previously attached to the UMRUSS main bumper using the UMRUSSFSP turned over.
CAUTION: Always ensure that there is sufficient chain under the lever before compression to prevent the hoist from jamming against UMRAIL.
3. Operate the lever hoist to tension the chains and obtain the desired angles.
CAUTION: stop operating the lever once the angles have been achieved and the system is under slight tension, so as not to exert too much pressure on the attachment systems, which could cause premature wear. The force required to achieve the desired angle is calculated using the APG UMCalc software.



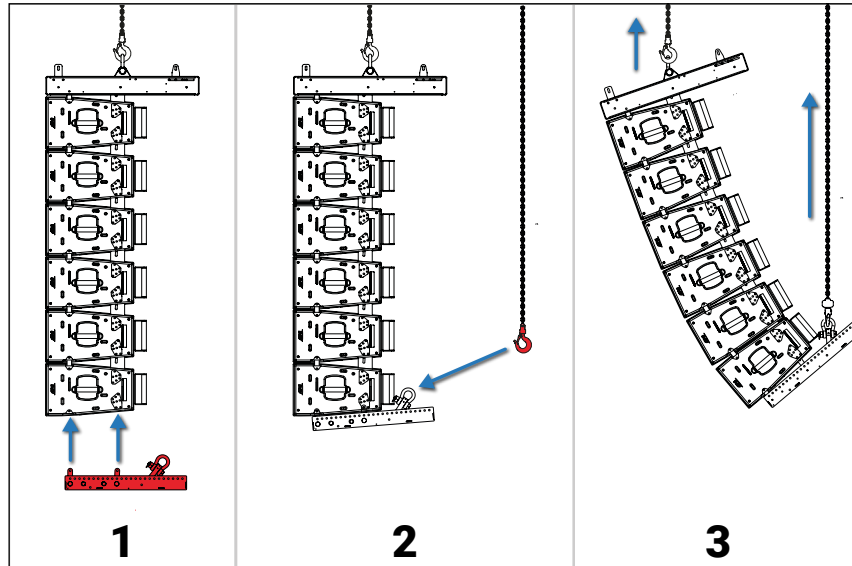
UM210 - Compression using an LH0.5T hoist

4. Raise the entire system to the desired height.
5. Adjust the overall angle:
 - 1 - If attached at one point on the motor: the overall angle is correct once all the speakers are assembled. Use an inclinometer to check the angle of the last speaker and compare it to the value given by EASE Focus.
 - 2 - If attached with two motor points: adjust the overall angle using the inclinometer until you obtain the value given by EASE Focus.

7.4.2. CASE #2: COMPRESSION WITH A REAR LIFT MOTOR

CAUTION: in this case, the chains of the two hoists used must be tensioned, and the load is distributed between two points. Each hoist used must be sized so that it can lift the entire load.

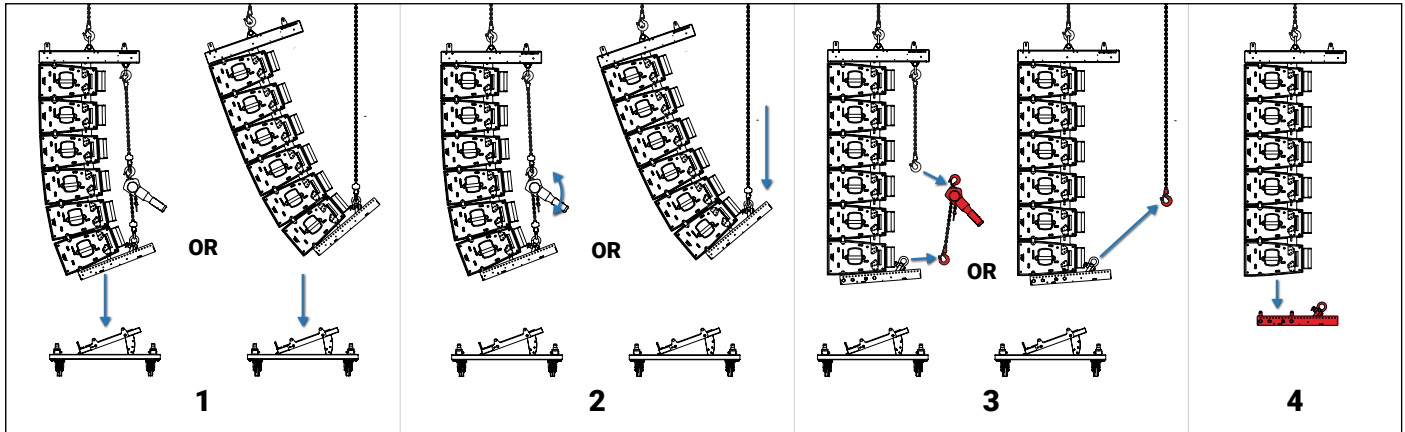
1. Attach the UMRail "pullback" under the lower enclosure using push pins (3) and (4).
2. Attach the rear lift motor to the UMRail shackle.
3. Raise the entire system to the desired height using the two lifting motors, and adjust the overall angle using the inclinometer until you achieve the vertical angle specified by EASE Focus.



UM210 - Compression using a rear lift motor

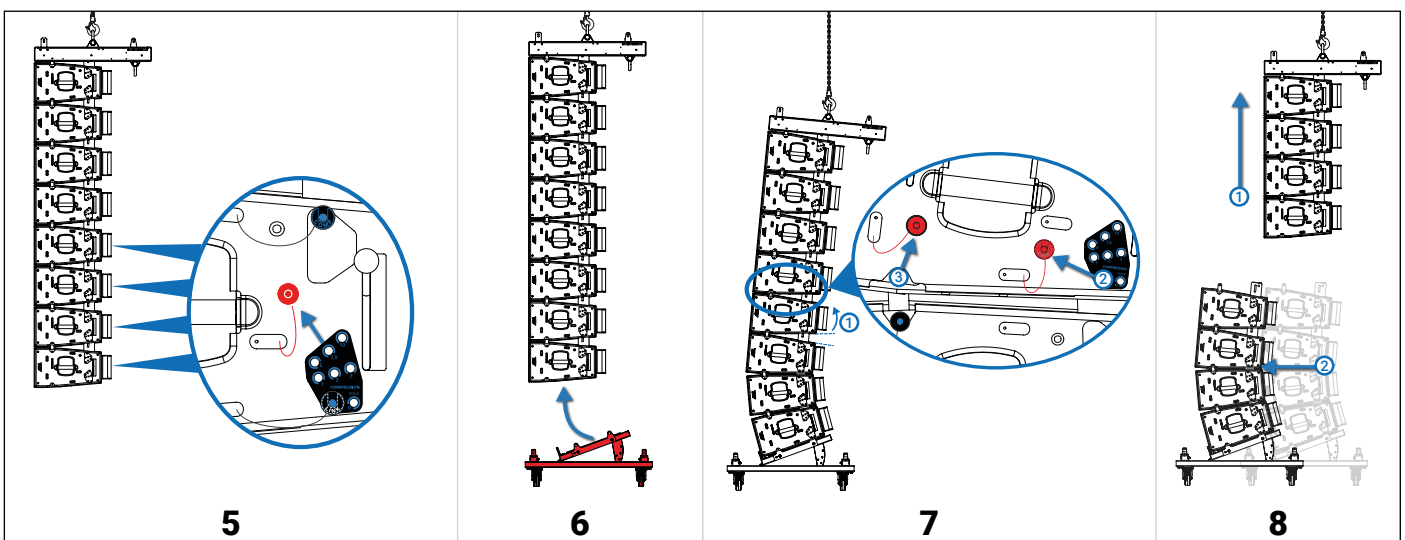
7.5. DISASSEMBLY

1. Lower the system to about 20 inches from the floor.
2. Release the compression:
 - ♦ Case 1 with chain hoist : reverse the direction of rotation of the hoist and operate the lever until the speaker cluster returns to the vertical position (0° angle between speakers).
 - ♦ Case 2 with rear motor: Lower the motor until the speakers are upright and the chain is stretched.
3. Detach the hoist (case 1) or rear motor (case 2) from UMRail.
4. Detach UMRail by unlocking push pins (2) and (3) on the lower enclosure.



UM210 in compression mode - Disassembling the system (1/2)

5. Remove the "ANGLE" push pins (4) from all accessible speakers. Remove all possible wiring.
6. Unlock the lower push pins (2) and (3) on the lower enclosure and reattach the tray of the first cart under the system.
7. Continue lowering until all four speakers are fully positioned with maximum curvature. **BE CAREFUL to ALWAYS** hold the unit securely to prevent it from tipping over. Unlock the rear push pin (3) on the upper speaker—if necessary, lift the lower speaker, then also unlock the front push pin (2) on the upper speaker to separate the first speaker assembly from the system that is still suspended.
8. Be sure to remove all cables connecting the two assemblies to prevent cables from being torn out when raising the speakers. Lift the system until the cart and the still-suspended system are completely separated, taking care to hold the assembly securely to prevent it from tipping over. Move the complete cart away.



UM210 in compression mode - Disassembling the system (2/2)

9. Repeat steps 5 through 8 as many times as necessary.
10. Return each cart to its storage position:
 - 1 - Unlock all "COMP" push pins (5) and return them to their storage position (**see page 34**).
 - 2 - Place the uprights, tray, and cover on the cart. For the last cart, separate UMTRUSS from the last enclosure before replacing the uprights and top tray.

8. STACK MODE: SYSTEM ASSEMBLY

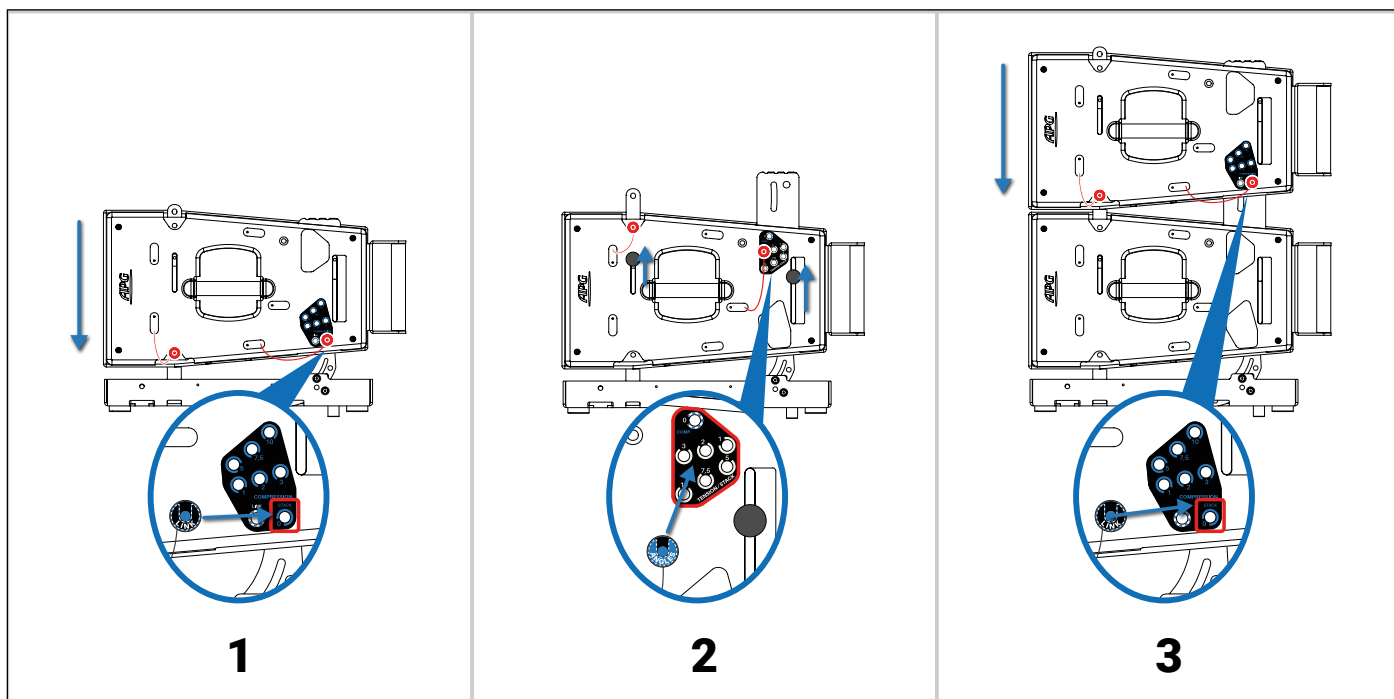
WARNING: Stacked configurations require that every possible precaution be taken to ensure the stability of the assembly. It is essential to place the cluster on a flat surface that is sufficiently solid to support the total weight. **ALWAYS CHECK THAT THE SPEAKERS CANNOT TIP FORWARD OR BACKWARD.**

The principle of mounting speakers in stack mode is identical regardless of the mounting system used (UMSTACK / UMTRUSS / UM210D4). The paragraph below details the general mounting principle, and the following sections detail how the three possible mounting systems work:

- 1 - With UMSTACK: see *page 50* – "STACK MODE WITH UMSTACK"
- 2 - With UMTRUSS: see *page 51* – "STACK MODE WITH UMTRUSS"
- 3 - With UM210D4: see *page 52* – "STACK MODE WITH CART (UM210D4 + UMDSF / UM121D2 + UMDSF)"

8.1. ASSEMBLY AND INSTALLATION OF INTER-ENCLOSURE CORNERS

1. Attach the first speaker to the front and rear legs of the UMSTACK/UMTRUSS/UM210D4 using the push pins (2) and (3) on the speaker. The push pin (3) must be positioned in the BLUE "STACK" hole on the first speaker (except for UM210D4 attachment: in this case, use the BLUE/WHITE "LINK" hole).
2. Remove and lock the front attachment system with the push pin (1). Move the angle slider to the desired position, then push the "ANGLE" push pin (4) all the way into the corresponding WHITE "TENSION/STACK" angle hole.
3. Place the next speaker and lock it in place:
 - 1 - At the front with the push pin (2).
 - 2 - At the rear with the push pin (3) in the BLUE "STACK" hole.



UM210 - Stacking

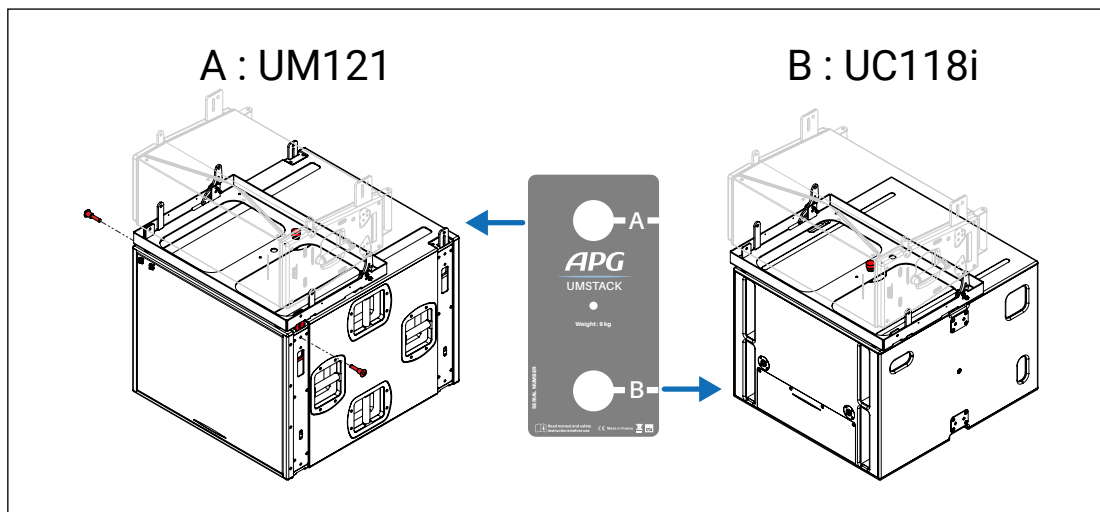
4. Repeat steps 1 to 3 as many times as necessary.
5. Check the stability of the assembly

8.2. STACK MODE WITH UMSTACK

8.2.1. POSSIBLE CONFIGURATIONS:

Three different configurations are possible with UMSTACK.

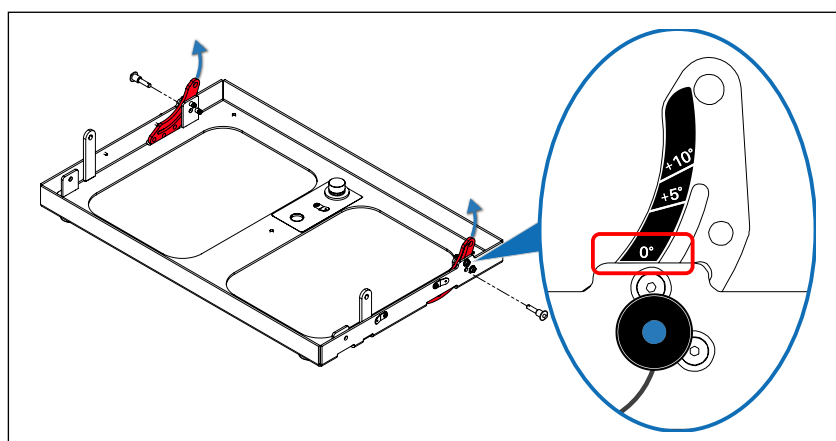
- **UMSTACK placed directly on the floor.**
- **UM210 mounted on UM121 subwoofer:** UMSTACK must be screwed onto the M20 base of UM121 with the clamping screw in position "A". The front push pins of UMSTACK are then used with the front mounting brackets to lock UMSTACK in the horizontal plane.
- **UM210 mounted on UC118i subwoofer:** UMSTACK must be screwed onto the M20 base of the UC118i with the clamping screw in position "B". In this case, if necessary, a complementary system (not supplied) must be added to lock UMSTACK in the horizontal plane.



UMSTACK - Configurations on UM121 and UC118i subwoofers

8.2.2. INITIAL VERTICAL ANGLE BETWEEN THE FIRST SPEAKER AND UMSTACK:

1. Unlock the push pins on the angle piece.
2. Set the UMSTACK angle bracket to the desired value ($-10^{\circ}/-5^{\circ}/0^{\circ}/+5^{\circ}/+10^{\circ}$): align the desired angle value with the top of UMSTACK, as shown in the diagram below
3. Lock the angle with the push pins on the angle piece.
4. Assemble the following speakers: see [page 49](#) - "ASSEMBLY AND INSTALLATION OF INTER-ENCLOSURE CORNERS"



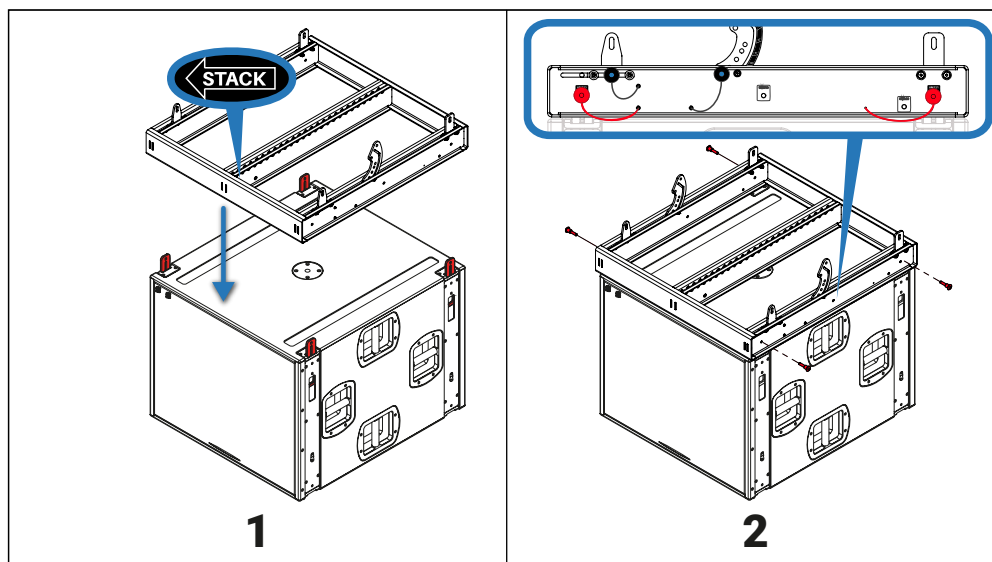
UMSTACK - Initial vertical angle adjustment

8.3. STACK MODE WITH UMTRUSS

8.3.1. POSSIBLE CONFIGURATIONS:

Two different configurations are possible with UMTRUSS.

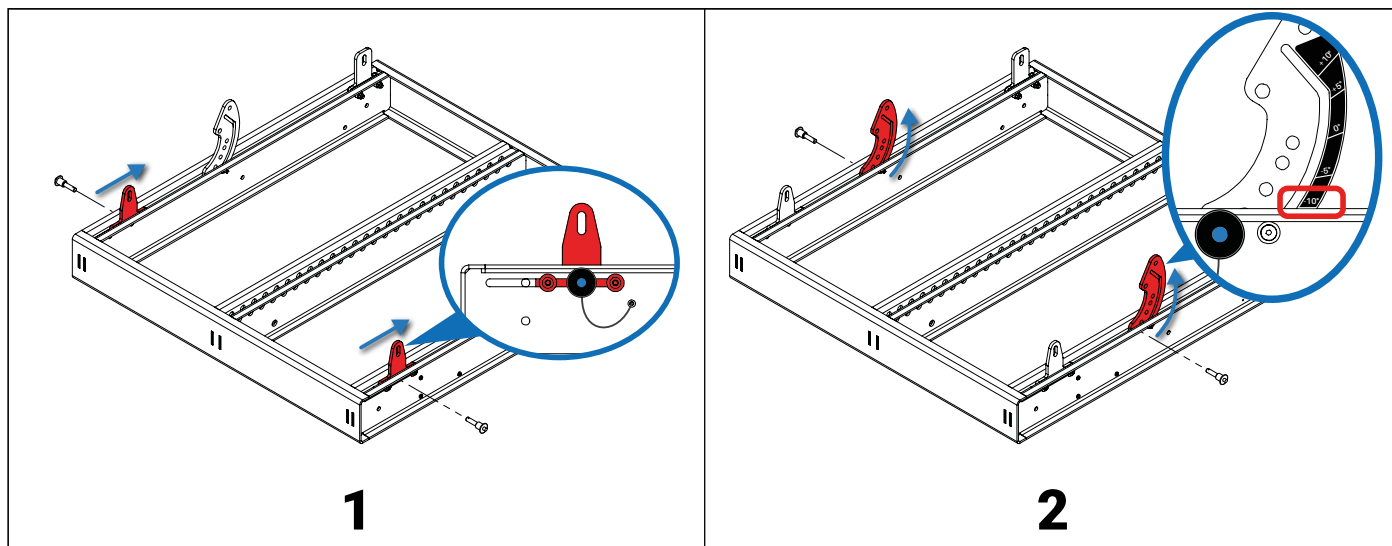
- UMTRUSS placed directly on the ground.
- UM210 placed on UM121 subwoofer. Then follow the procedure below:
 - 1 - Place UMTRUSS on the subwoofer, with the "STACK" arrow on the front (grille) side of the subwoofer. Remove the 4 mounting brackets from the UM121 subwoofer.
 - 2 - Lock UMTRUSS onto UM121 by pushing the 4 push pins into the "UM121" holes on UMTRUSS.



UMTRUSS - Configuration on UM121 subwoofer

8.3.2. INITIAL VERTICAL ANGLE BETWEEN THE FIRST ENCLOSURE AND UMTRUSS:

1. Move the mobile carriage and lock it in the stack position.
2. Unlock the push pins on the angle piece and then adjust the UMTRUSS angle bracket to the desired value ($-10^{\circ}/-5^{\circ}/0^{\circ}/+5^{\circ}/+10^{\circ}$): align the desired angle value with the top of UMTRUSS, as shown in the diagram below. Lock the angle with the push pins on the angle piece.
3. Assemble the following speakers: see *page 49* – "ASSEMBLY AND INSTALLATION OF INTER-ENCLOSURE CORNERS"



UMTRUSS STACK mode: Initial vertical angle adjustment

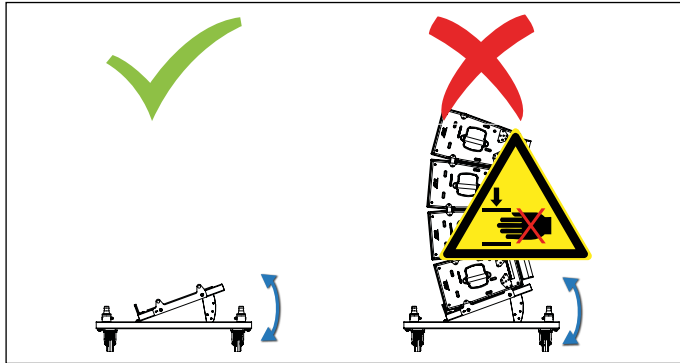
8.4. STACK MODE WITH CART (UM210D4 + UMDSF / UM121D2 + UMDSF)

8.4.1. IMPORTANT SAFETY NOTES:

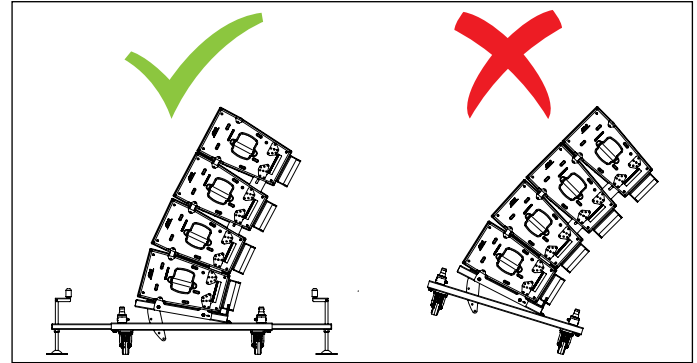
It is possible to stack a maximum of 4x UM210 on a UM210D4 cart or 2x UM121 on a UM121D2 cart.

CAUTION: RISK OF INJURY FROM PINCHING! Before handling the UM210D4 corner bracket, it is essential that the basket is EMPTY.

CAUTION: UMDSF feet must be used when the basket is used to stack speakers, in order to prevent tipping.



UM210D4 - Risk of injury from pinching

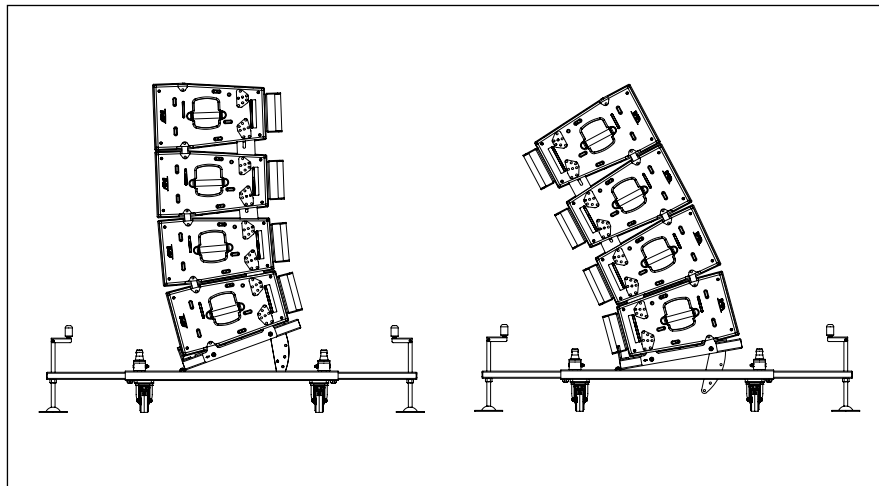


UM210D4 - Risk of tipping

8.4.2. POSSIBLE CONFIGURATIONS (UM210D4 ONLY):

Two different configurations are possible depending on the direction in which the UM210 speakers are positioned.

- Negative angles (downward diffusion): UM210 in transport position.
- Positive angles (upward diffusion): UM210 in inverted position.

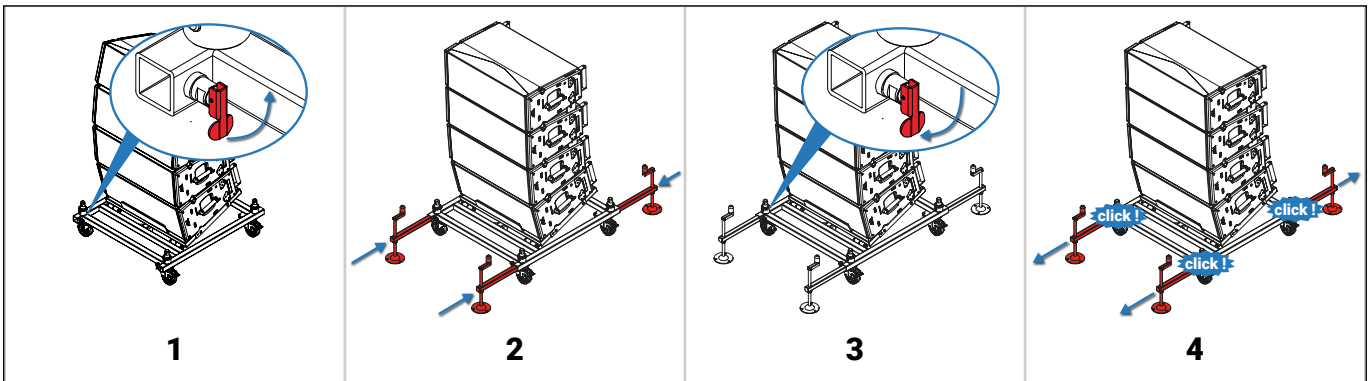


UM210D4 - stacking mode with negative or positive angle

8.4.3. IMPLEMENTATION:

1. Assembly of the 4 UMDSF stabilizer feet:

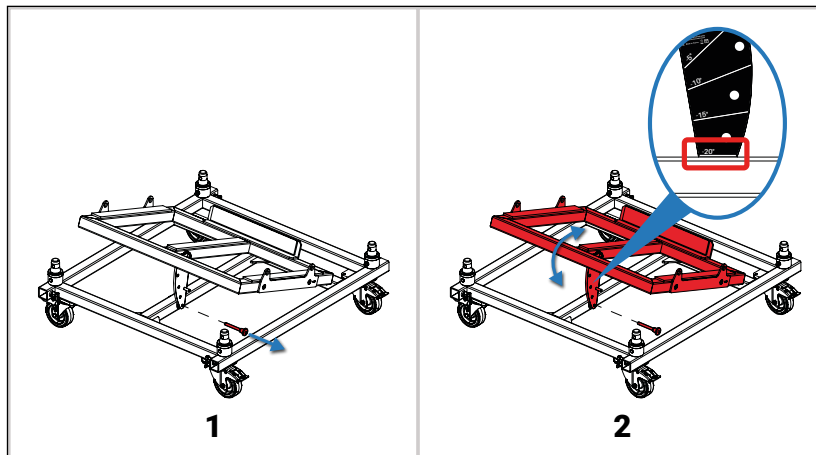
- 1 - Unlock the red lever located at the entrance to the square tube.
- 2 - Push the UMDSF foot down until it stops.
- 3 - Lower the red lever and gently pull the foot until it locks into place («click»).
- 4 - Repeat steps 1 through 3 for each of the 4 legs.
- 5 - Check the level in both directions (depth and width) and adjust if necessary. On soft ground such as grass or soil, it is recommended to use wooden wedges under the UMDSF cups.



UM210D4 - Mounting the 4 UMDSF feet

2. Angle of the first enclosure (UM210D4 only):

- 1 - Remove ALL UM210 speakers from the cart to avoid any risk of injury.
- 2 - Remove the push pin from the corner bracket located in the center of the cart.
- 3 - Adjust the UM210D4 angle bracket to the desired value (0°/5°/10°/15°/20°) and secure it with the push pin.

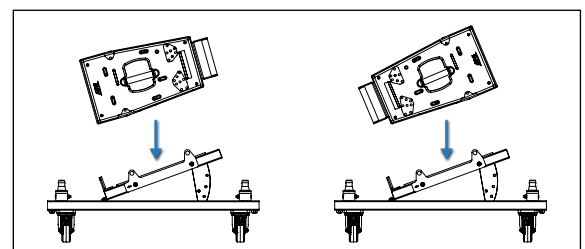


UM210D4 STACK mode - Initial vertical angle adjustment

3. Direction (azimuth) of sound dispersion and speaker assembly (UM210D4 only):

- Downward: position the grille of the first UM210 speaker on the side of the UM210D4 hinges.
- Upward: Position the grille of the first UM210 speaker on the opposite side of the UM210D4 hinges.

Position and secure the first speaker with push pins (2) and (3), then assemble the following speakers (see page 49 – "ASSEMBLY AND INSTALLATION OF INTER-ENCLOSURE CORNERS").



UM210D4 - Downward or upward diffusion.

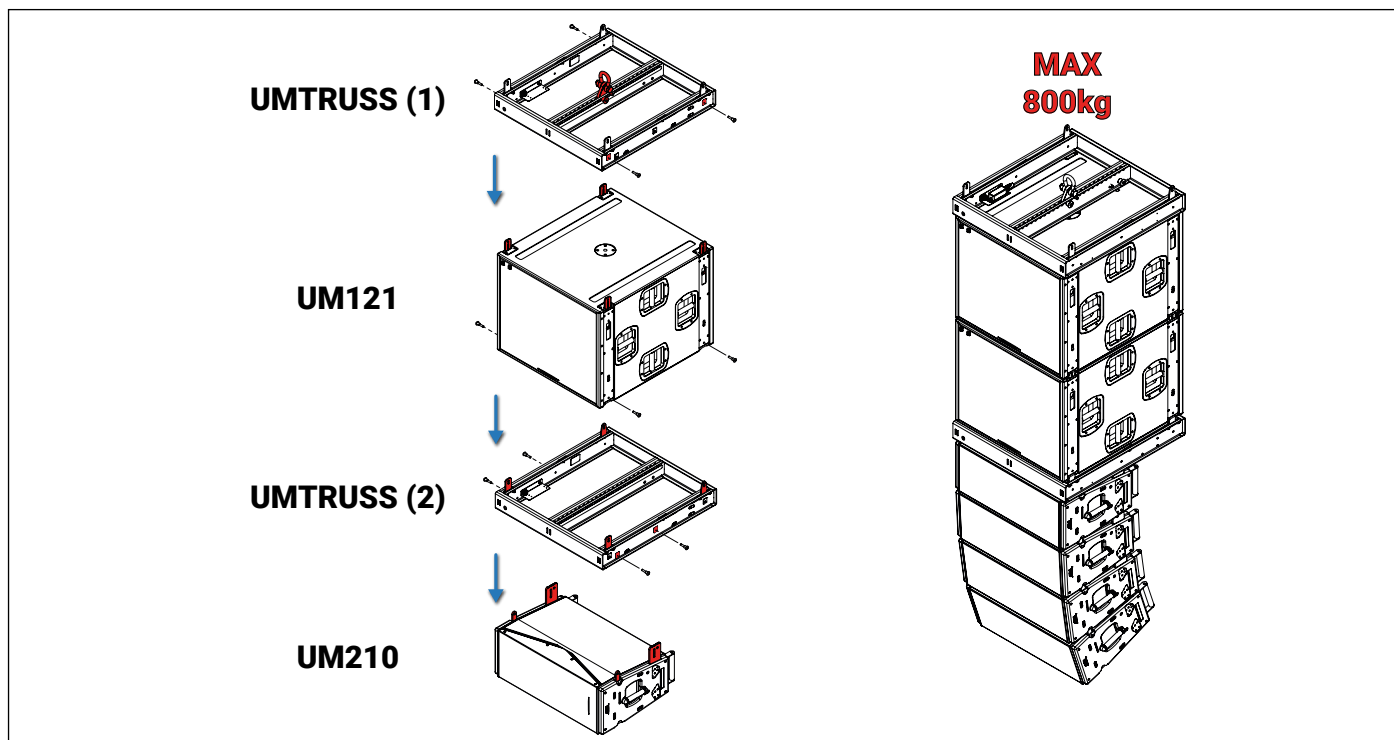
9. MIXED SUSPENDED CLUSTER (UM210 + UM121)

UNILINE MAX allow to suspend mixed clusters consisting of UM210 and UM121 units.

IMPORTANT: The total weight of the SPEAKERS + UMTRUSS assembly must not exceed 800 kg (corresponding to the UMTRUSS maximum load capacity).

In this type of configuration, it is necessary to have (for each cluster) 2x UMTRUSS:

- The first UMTRUSS is used to suspend the UM121s.
- The second UMTRUSS is used to hang the UM210s below the UM121s.



UM210-UM121 mixed cluster, suspended

9.1. IMPLEMENTATION:

1. Set UMTRUSS to "FLOWN" mode (see page 15) on the first UM121 subwoofer.
2. Remove the 4 UM121 mounting feet and lock them onto the UMTRUSS by pushing the 4 push pins into the "UM121" holes on the UMTRUSS.
3. Attach the bumper to the lifting system (see page 36 – "BUMPER RIGGING").
4. Wire the speakers properly.
5. Lift the entire unit and then attach the next UM121 speaker if necessary.
6. Repeat steps 4 and 5 as many times as necessary.
7. Secure the second UMTRUSS in "FLOWN" mode (see page 15) under the last UM121 using the four UMTRUSS push pins.

9.2. HANGING UM210 SPEAKERS ACCORDING TO THE SELECTED MODE:

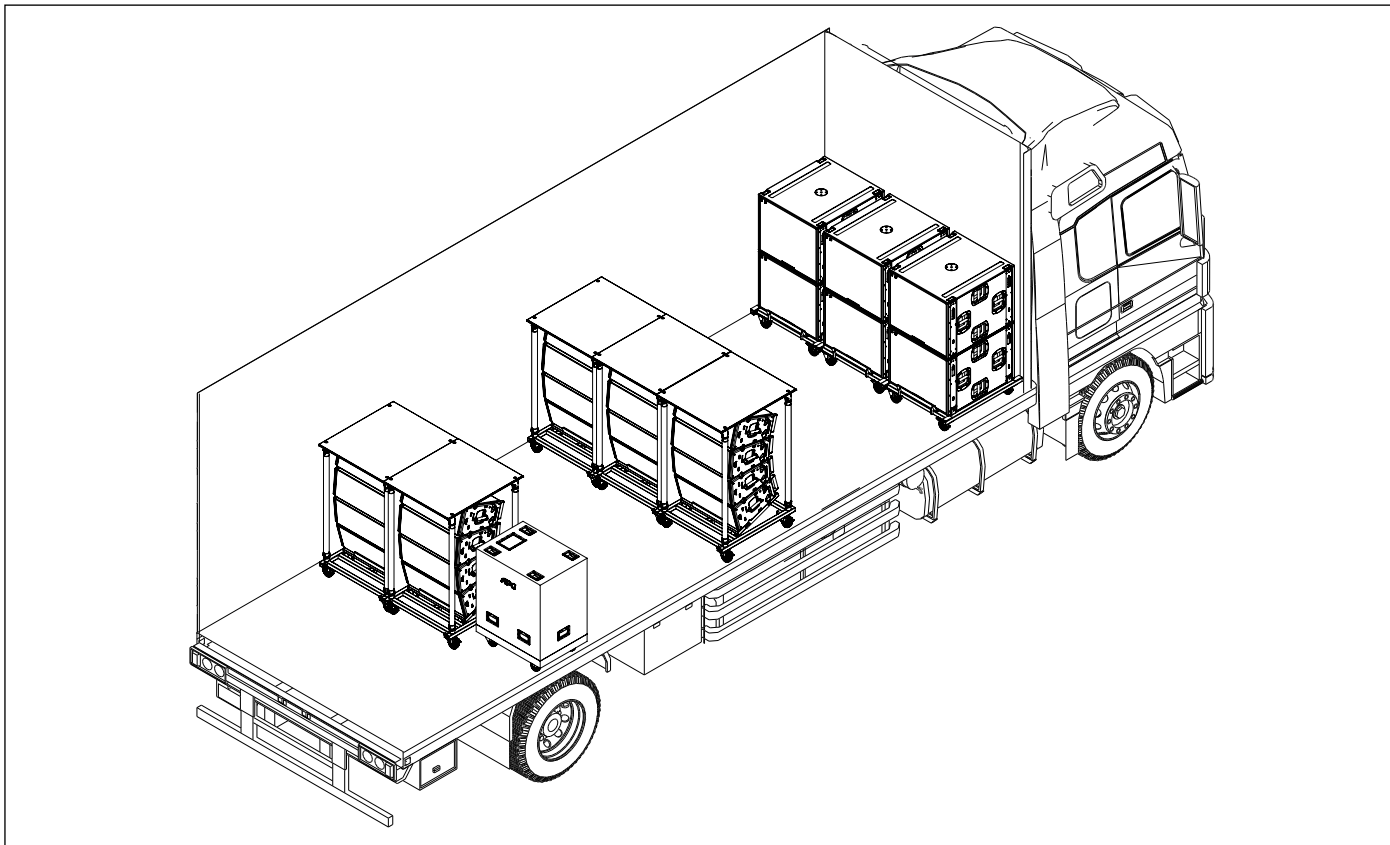
The procedure for attaching the UM210 speakers under the second UMTRUSS is exactly the same.

- page 39 – "TENSION MODE: SYSTEM INSTALLATION"
- page 42 – "COMPRESSION MODE: SYSTEM INSTALLATION"

10. SPACE OPTIMIZATION IN A TRUCK

The dimensions of the UM210D4 and UM121D2 transport cages allow for optimization of the available space in a truck. In fact, it is possible to position in each row (standard width of a trailer):

- 3x UM210D4 (i.e., 12x UM210 speakers)
- 3x UM121D2 (i.e., 6x UM121 speakers)
- 1x FCUMHEAVYRIG + 2x UM210D4 or 2x UM121D2



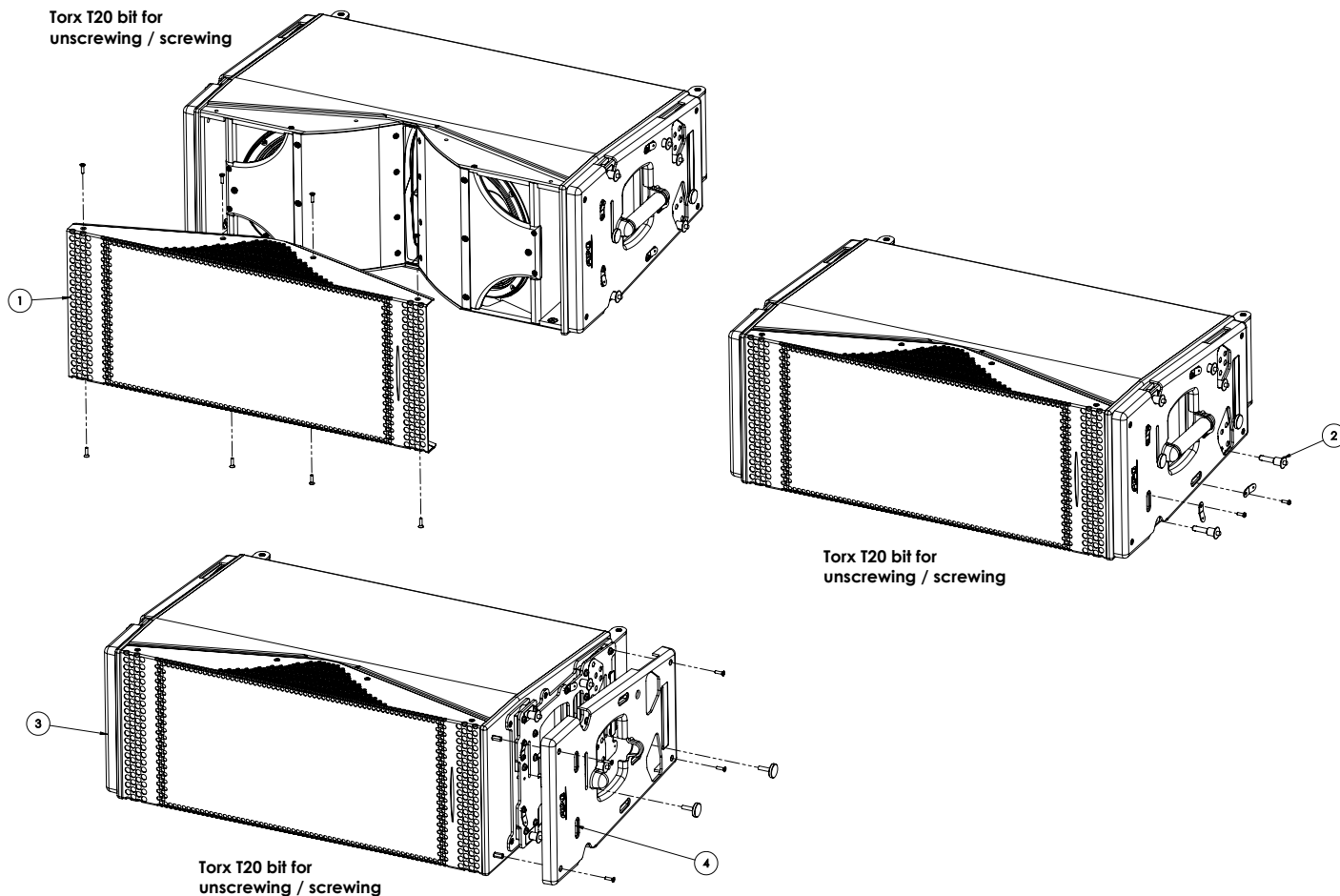
Optimization of UNILINE MAX component loading space

III. MAINTENANCE - SPARE PARTS

1. MAINTENANCE OF THE UM210 SPEAKER - SPARE PARTS

IMPORTANT: For any work on the SIGMA waveguide, the mid-high range speaker unit, or in the event of damage to the mounting parts, please contact your distributor or sales representative.

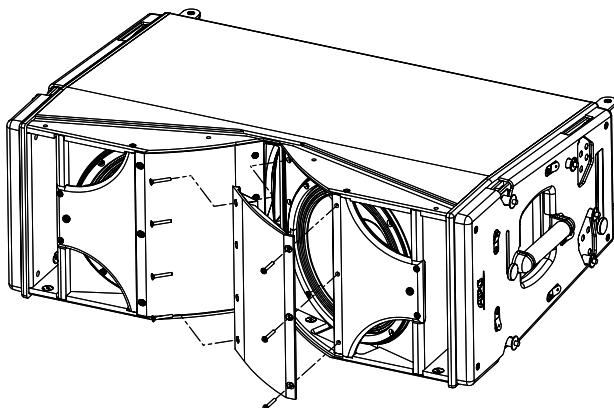
1.1. UM210: GRILLE, CASING, PUSH PINS: FRONT/SIDE ACCESS



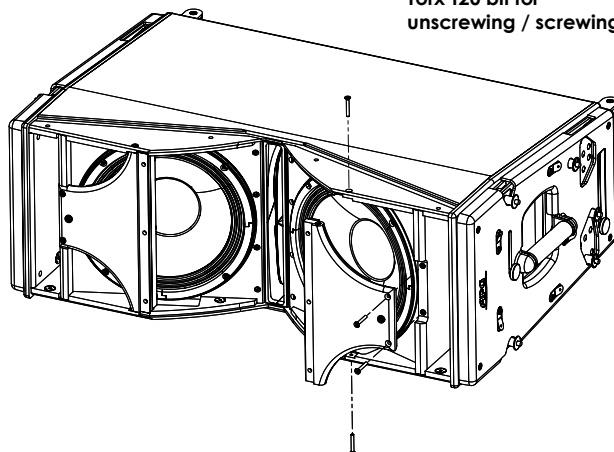
MARKER	REFERENCE	DESIGNATION
1	PRS_1329	UM210 grid assembly
2	PRS_1330	Ball pin 8x20 with cable length 120 and burnished terminal
3	PRS_1331	Garden shed
4	PRS_1332	Carter Cour

1.2. UM210: HORN AND REINFORCEMENTS, BASS SPEAKER: FRONT/SIDE ACCESS

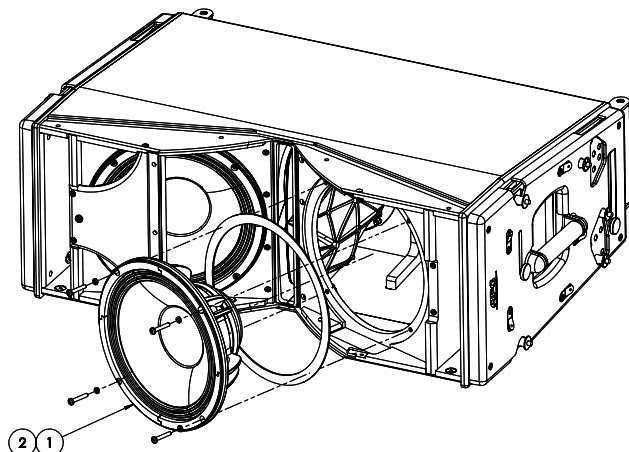
Torx T20 bit for
unscrewing / screwing



Torx T20 bit for
unscrewing / screwing



Torx T20 bit for
unscrewing / screwing

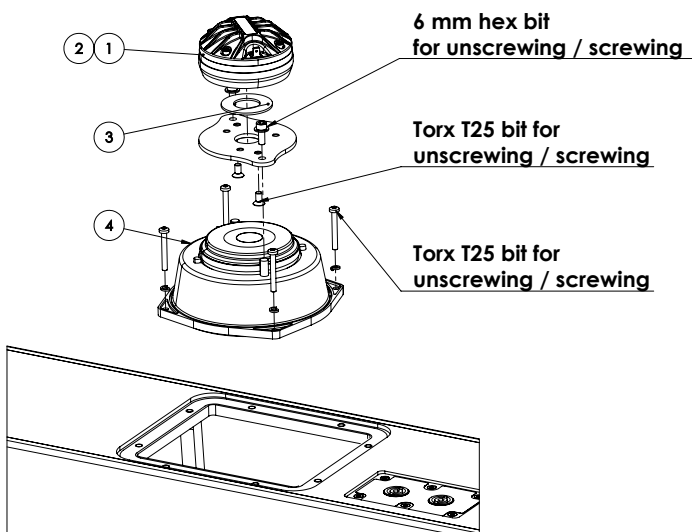
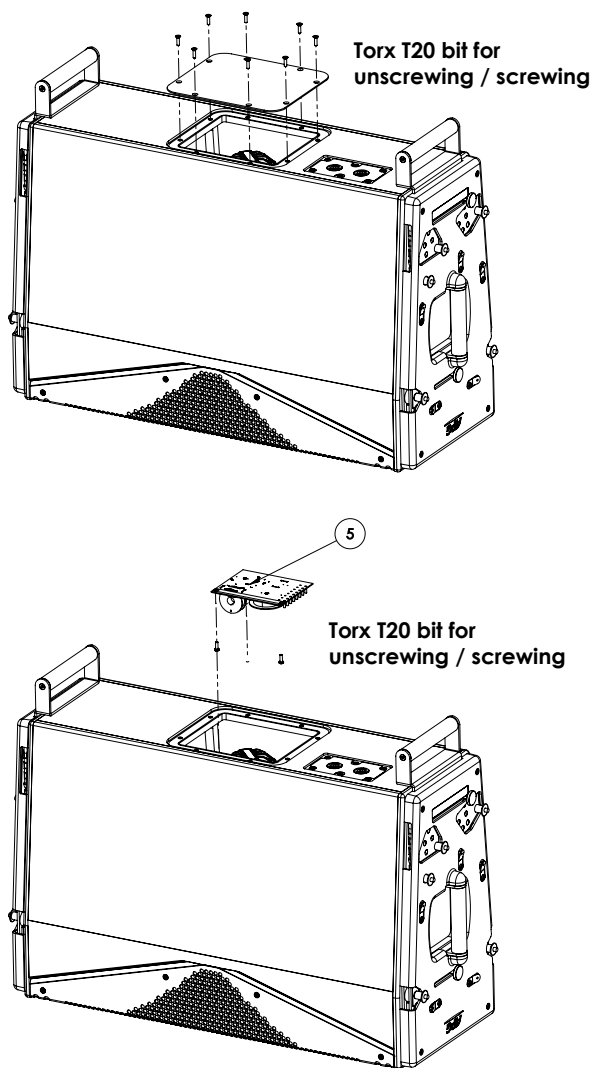


MARKER	REFERENCE	DESIGNATION
1	PRS_1334	Low-frequency 10" speaker (PST_2416)
2	PRS_1335	Recone kit for low-frequency 10" speaker (PST_2416)

1.3. UM210: MIDRANGE AND HIGH-FREQUENCY SPEAKER, FILTER: REAR ACCESS

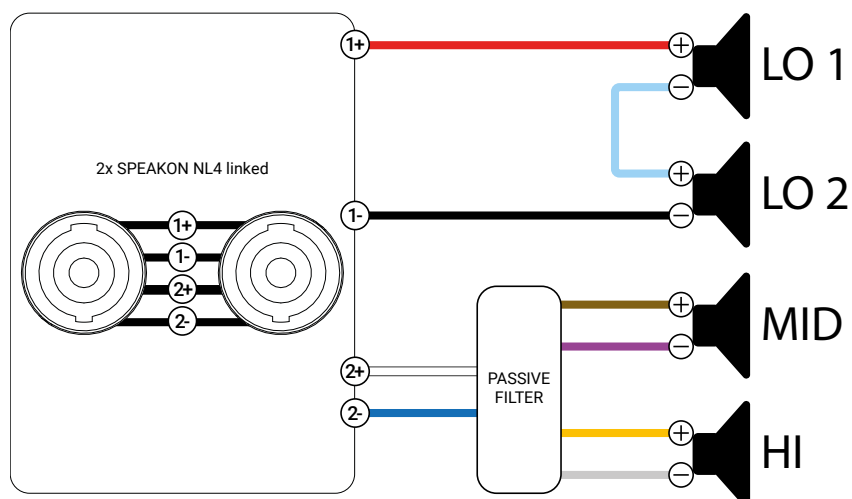
CAUTION: Replacing the UM210 coaxial mid-high range speaker unit is a delicate operation that must be performed by APG technical service only.

Reminder: for any work on the SIGMA waveguide, the mid-high frequency speaker unit, or in the event of damage to the mounting parts, please contact your distributor or sales representative.



MARKER	REFERENCE	DESIGNATION
1	PRS_1336	High-frequency speaker (PST_2454)
2	PRS_1337	Diaphragm for high-frequency speaker PST_2454
3	PRS_1338	Compression-medium gasket
4	PRS_1339	Medium-frequency speaker (PST_2480)
5	PRS_1346	Passive filter for UM210

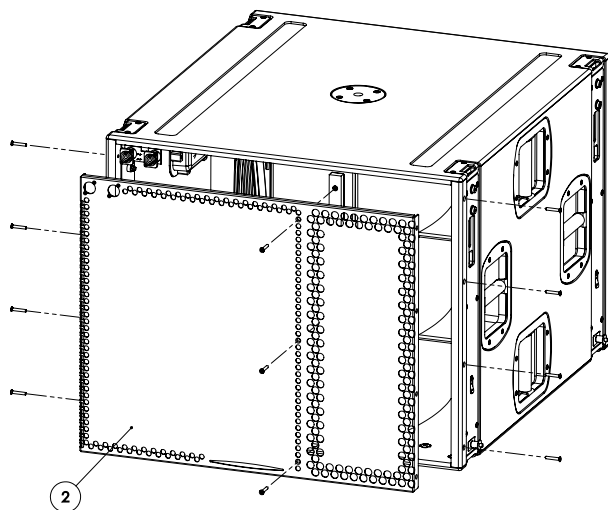
1.4. UM210: INTERNAL SPEAKER WIRING –COLOR CODES



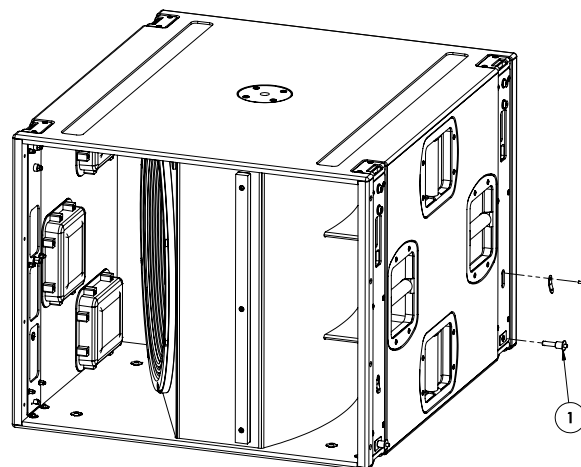
2. MAINTENANCE OF THE UM121 SPEAKER - SPARE PARTS

IMPORTANT: In the event of damage to the mounting parts, please contact your distributor.

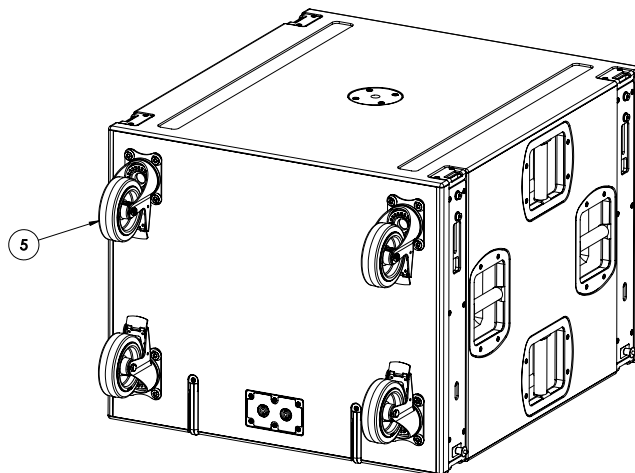
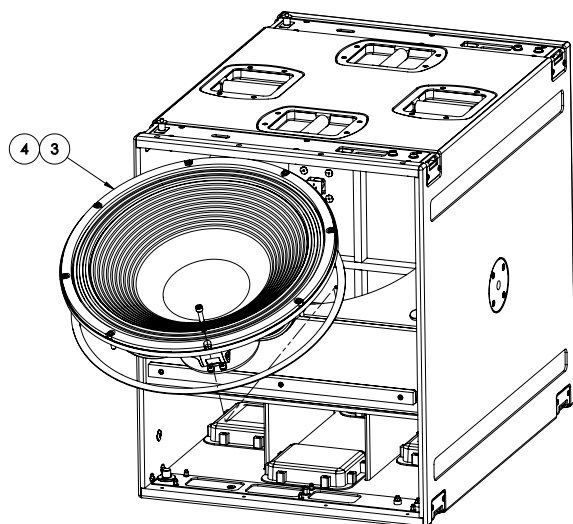
**Torx T25 bit for
unscrewing / screwing**



**Torx T20 bit for
unscrewing / screwing**

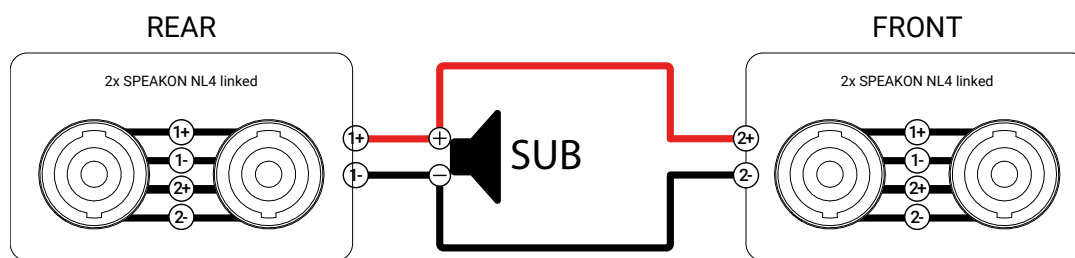


**6 mm hex bit
for unscrewing / screwing**
**Remove the handles
if access is too limited.**



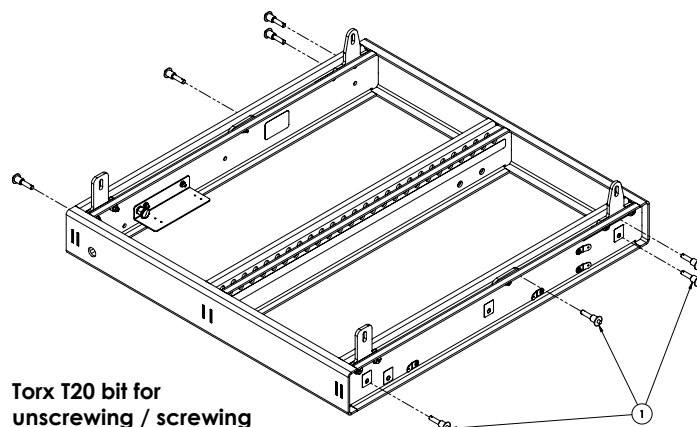
MARKER	REFERENCE	DESIGNATION
1	PRS_1330	Ball-locking pin Ø8x20 with 120mm cable and burnished terminal
2	PRS_1340	UM121 grid assembly
3	PRS_1341	Low-frequency 21" speaker (PST_2530)
4	PRS_1342	Recone kit for low-frequency 21" speaker PST_2530
5	PRS_1019	Caster with brake Ø125

2.1. INTERNAL WIRING OF UM121 SPEAKERS - COLOR CODES



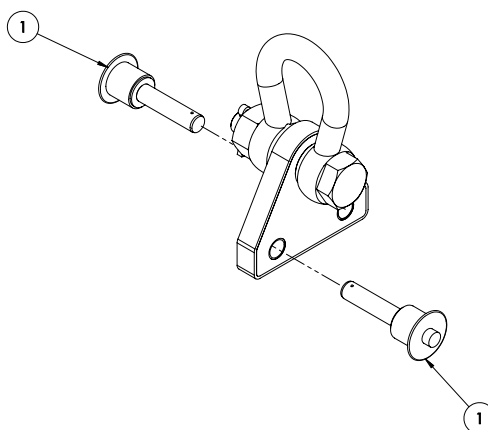
3. MAINTENANCE OF MOUNTING ACCESSORIES - SPARE PARTS

3.1. UMTRUSS



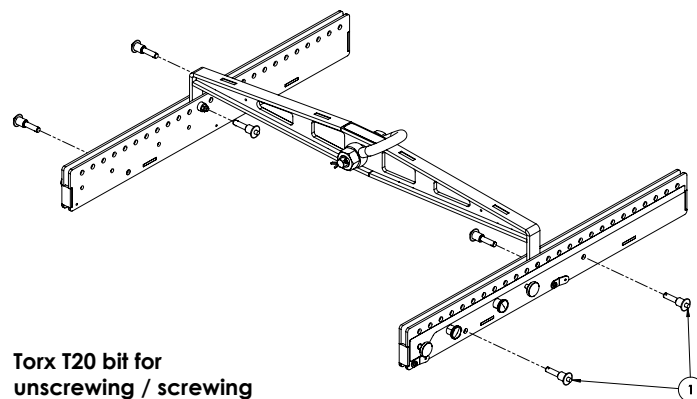
MARKER	REFERENCE	DESIGNATION
1	PRS_1330	Ball-locking pin Ø8x20 with 120mm cable and burnished terminal

3.2. UMTRUSSFSP



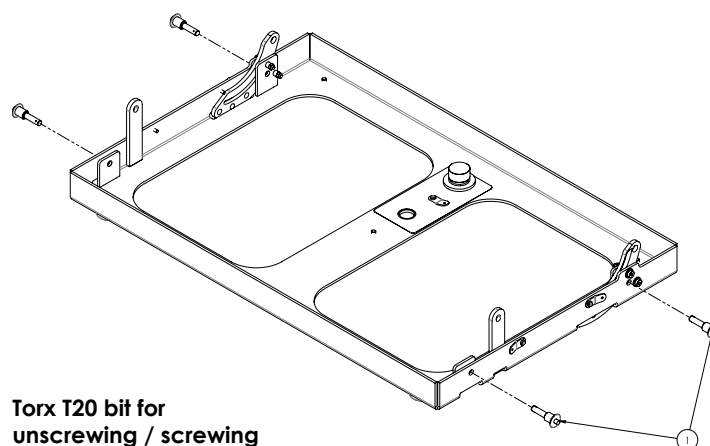
MARKER	REFERENCE	DESIGNATION
1	PRS_1347	Ball-locking pin Ø12x40

3.3. UMRAIL



MARKER	REFERENCE	DESIGNATION
1	PRS_1330	Ball-locking pin Ø8x20 with 120mm cable and burnished terminal

3.4. UMSTACK

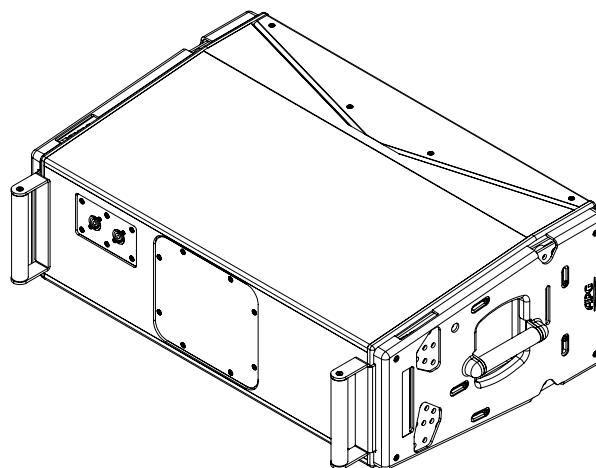
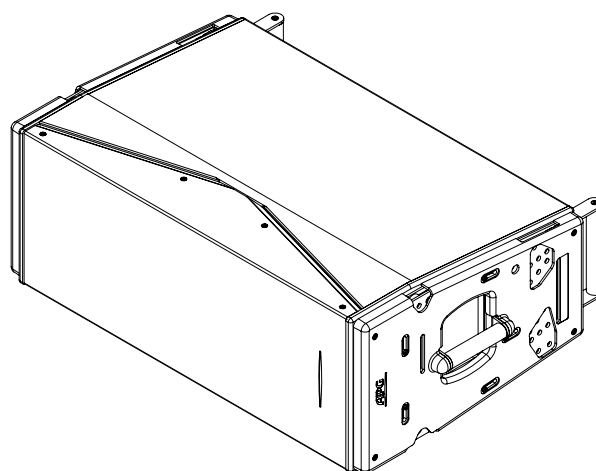
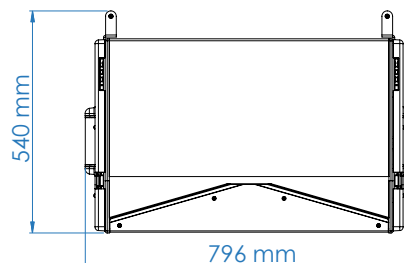
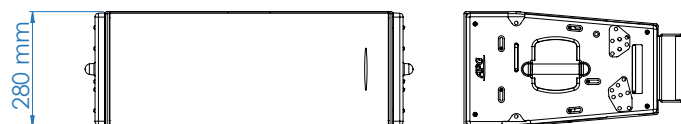


MARKER	REFERENCE	DESIGNATION
1	PRS_1330	Ball-locking pin Ø8x20 with 120mm cable and burnished terminal

IV. TECHNICAL SPECIFICATIONS

1. UM210

Features	
Description	Line source speaker
Frequency band of use (±10 dB)	48 Hz - 20 kHz
Max SPL at 1m	142 dB SPL (1)
Nominal directivity (HxV)	100° x 10° (2)
Nominal impedance	8 Ω
Components	
Transducers	2 x 10" Neodymium + 1 x 6.5" Neodymium / HF 1"
Source topology	Source Line
Amplification paths and sections	3-way, bi-amplified
Amplification	
Maximum number of speakers per DA8 amplifier	4
Maximum number of speakers per DA12 amplifier	6
Construction and physical characteristics	
Cabinetmaking / Painting	15 mm Baltic birch plywood / HPU coating with high impact and weather resistance
Dimensions H, W, D	280 x 796 x 540 mm
Weight	42 kg
Connectors	2 x NL4MP Speakon
Handles	4 handles
Grid	Perforated treated steel grille, fabric with high acoustic transparency
Color	Black RAL 9005
IP	56

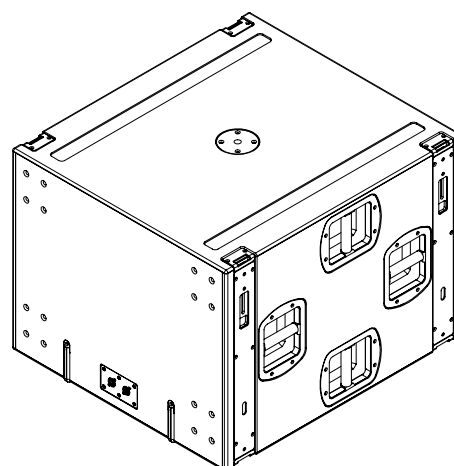
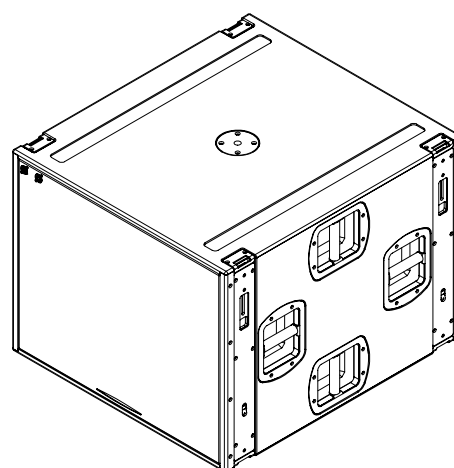
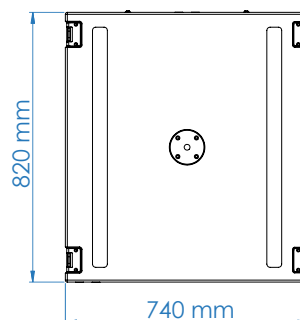
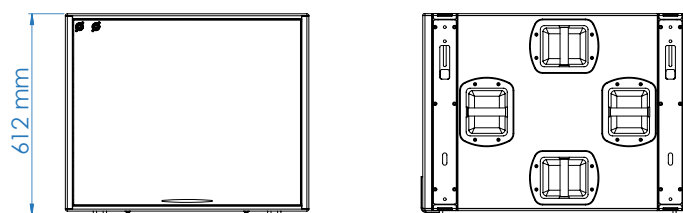


(1) Peak level at 1m AES2-2012, with pink noise of 12dB Peak factor and APG preset

(2) Nominal directivity at -6dB

2. UM121

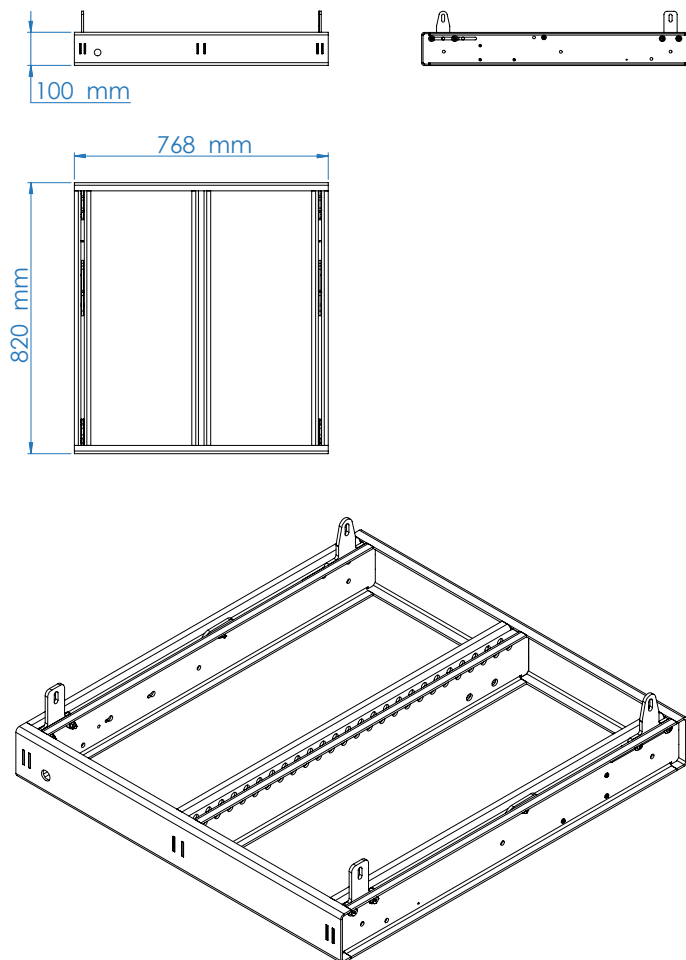
Features	
Description	Subwoofer speaker
Frequency band of use (±10 dB)	25 Hz - 110 Hz
Max SPL at 1m	141 dB SPL (1)
Nominal impedance	8 Ω
Nominal directivity	Omnidirectional
Components	
Transducers	1 x 21" (4.5" voice coil) Neodymium
Acoustic load	Hybrid bandpass filter with profiled vents
Amplification paths and sections	1 channel, mono-amplified
Amplification	
Maximum number of speakers per DA8 amplifier	4
Maximum number of speakers per DA12 amplifier	8
Construction and physical characteristics	
Cabinetmaking / Painting	Baltic birch plywood 15/18 mm / HPU coating with high impact and weather resistance
Dimensions H, W, D	612 x 740 x 820 mm
Weight	70 kg
Connectors	4x Speakon NL4MP (channels reversed on front panel for cardioid configuration)
Handles	8 handles
Grid	Perforated treated steel grille, 5mm black acoustic foam
Base for foot	Base with M20 insert for 35mm leg
Color	Black RAL 9005
IP	43



(1) Peak level at 1m AES2-2012, with pink noise of 12dB Peak factor and APG preset

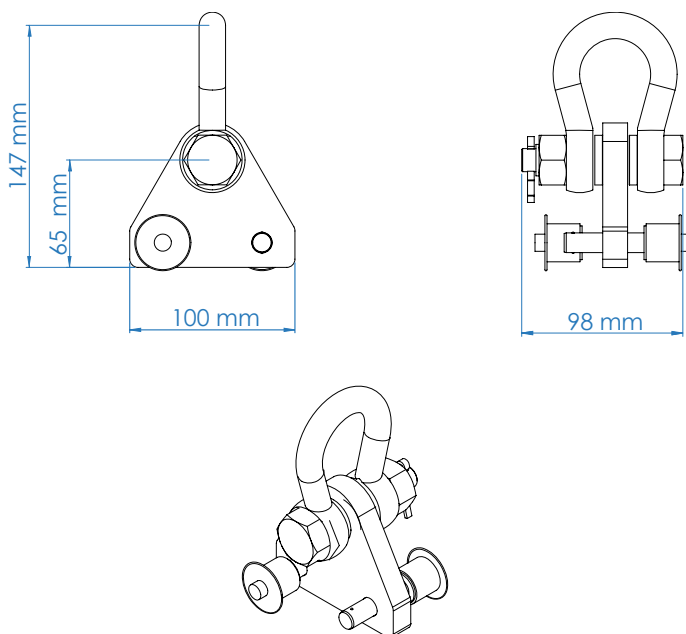
3. UMTRUSS

Physical characteristics	
Description	Lifting accessory for UNILINE MAX
Dimensions H, W, D	100 x 768 x 820 mm
Weight	28 kg
Maximum Working Load	800 kg 18x UM210 9x UM121



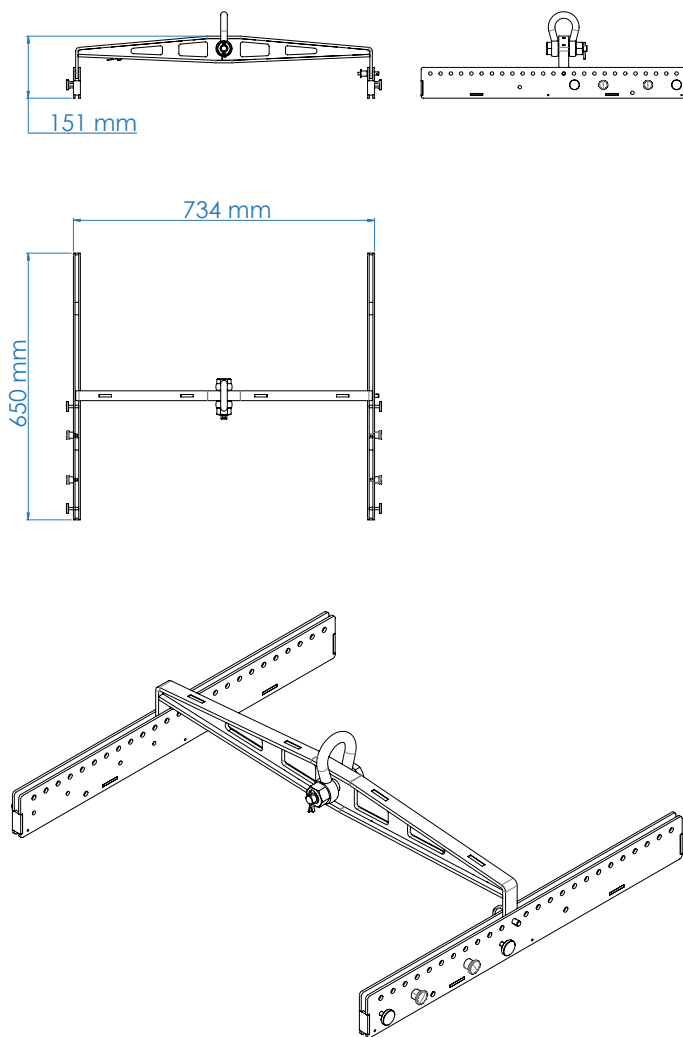
4. UMTRUSSFSP

Physical characteristics	
Description	1T hook trolley for UMTRUSS
Dimensions H, W, D	147 x 100 x 98 mm
Weight	1.5 kg
Maximum Working Load	800 kg



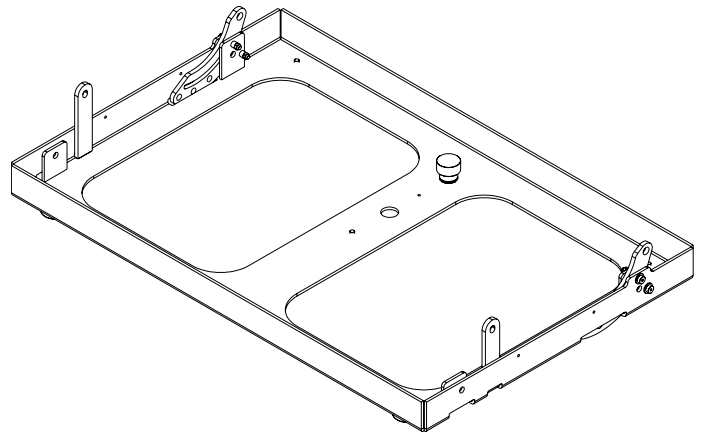
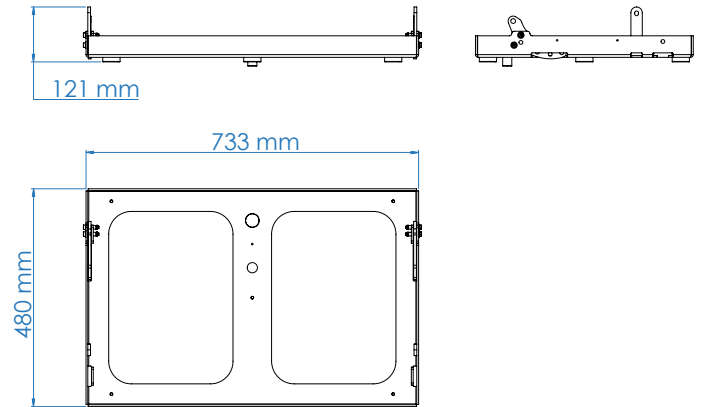
5. UMRail

Physical characteristics	
Description	Lightweight lifting accessory for UNILINE MAX
Dimensions H, W, D	151 x 734 x 650 mm
Weight	10 kg
Maximum Working Load	400 kg Maximum 9x UM210



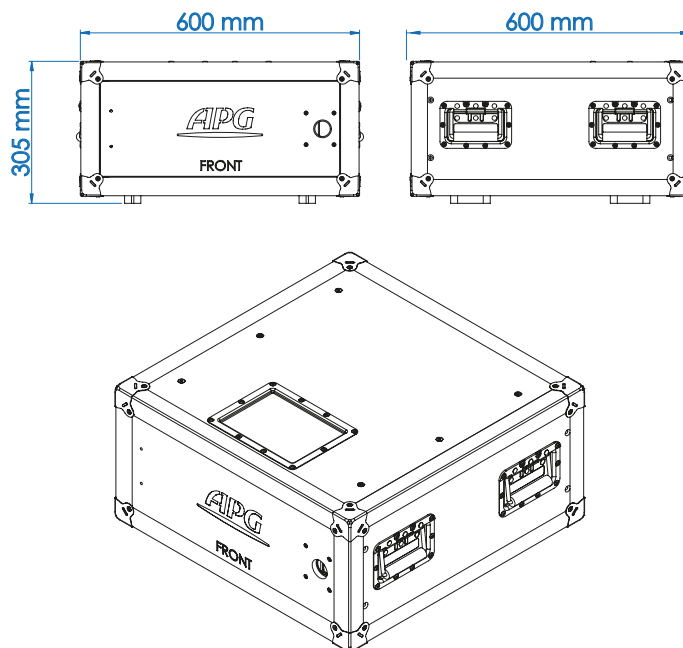
6. UMSTACK

Physical characteristics	
Description	Lightweight stacking accessory for UNILINE MAX
Dimensions H, W, D	121 x 733 x 480 mm
Weight	9 kg
Maximum Working Load	4x UM210



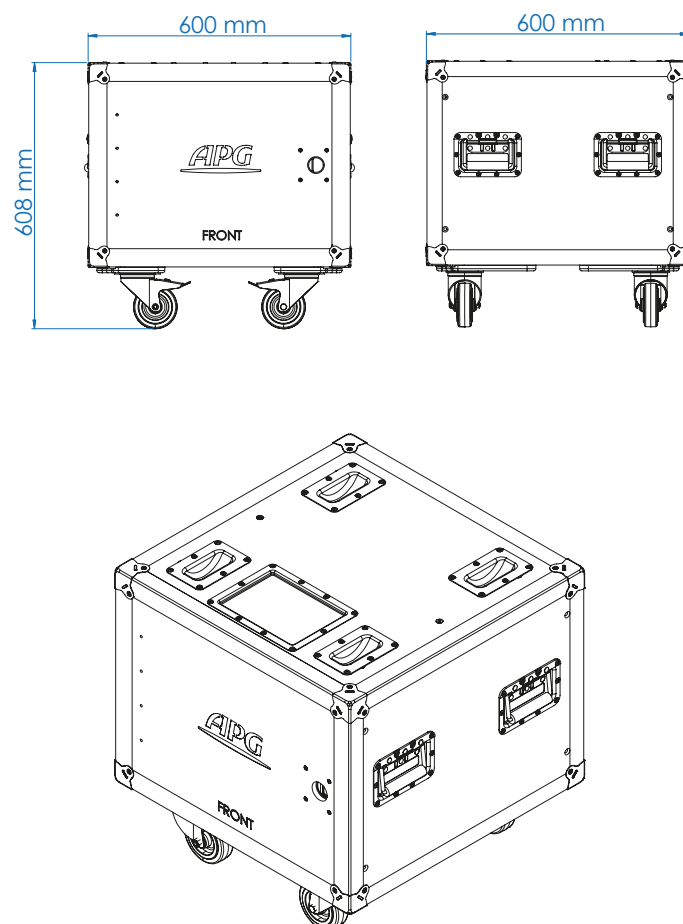
7. UNIRACK

Physical characteristics	
Description	4U rack and wall-mounted patch panel set for a DA8 or DA12 amplifier
Dimensions H, W, D	305 x 600 x 600 mm
Weight	23.3 kg



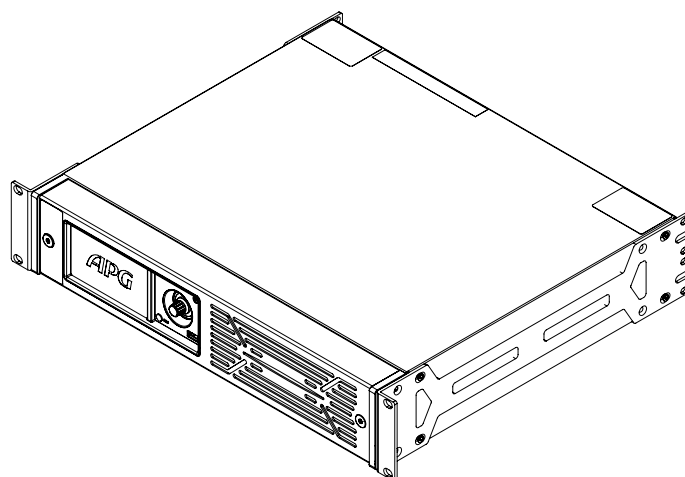
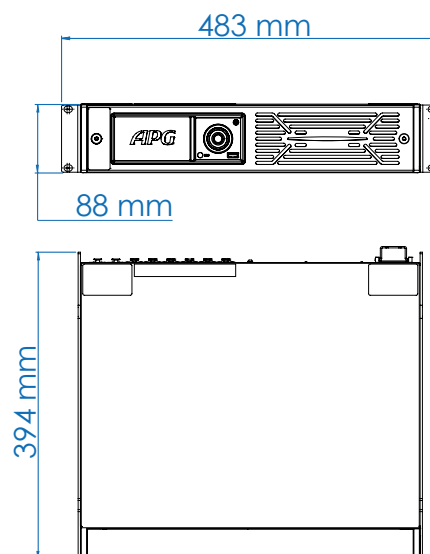
8. TOURACK

Physical characteristics	
Description	8U suspended rack assembly with input/output patch and 32A mono power supply for DA8 or DA12 amplifiers
Dimensions H, W, D	608 x 600 x 600 mm
Weight	39.2 kg



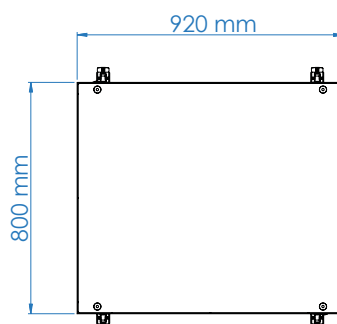
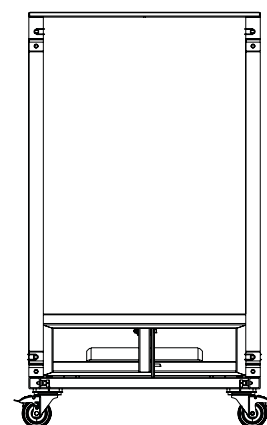
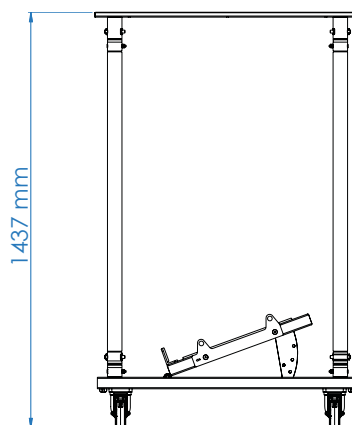
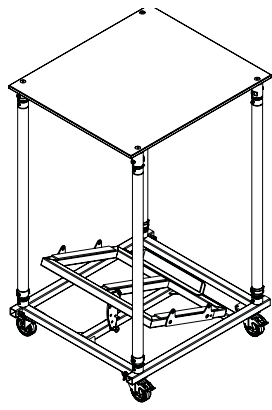
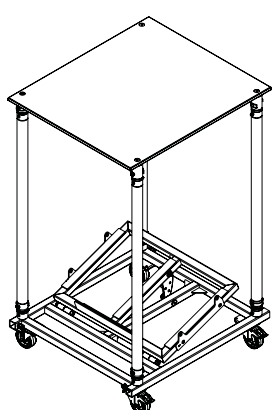
9. DA8 / DA12

Physical characteristics	
Description	4-channel amplifier
Dimensions H, W, D	89 x 483 x 424 mm
Format	2U
Weight	11.3 kg
Entries	
Analog	4x female XLR with male XLR connector
AES	2x female XLR with male XLR connector (4x channels)
Dante	2x RJ45 Ethercon (4x channels)
Outings	
4x Speakon NL4 outputs	



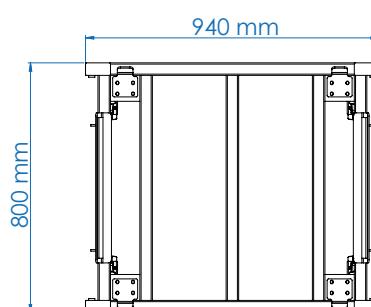
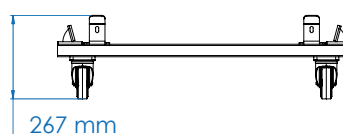
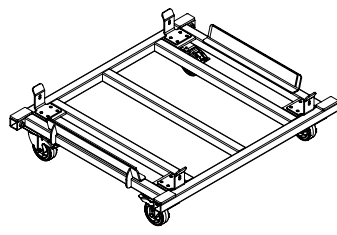
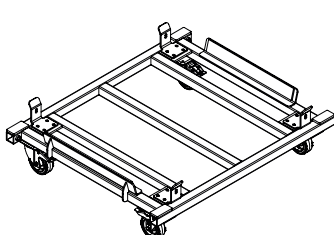
10. UM210D4

Physical characteristics	
Description	4x UM210 transport cart
Dimensions H, W, D	1437 x 800 x 920 mm
Weight	40 kg



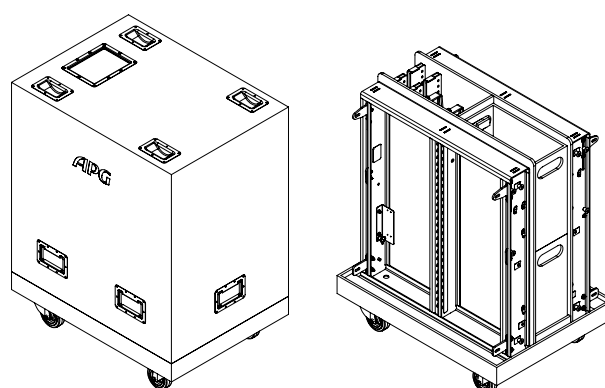
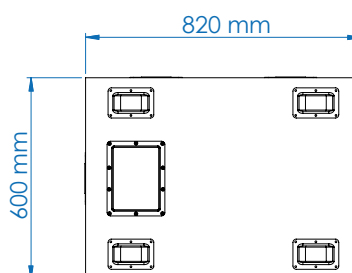
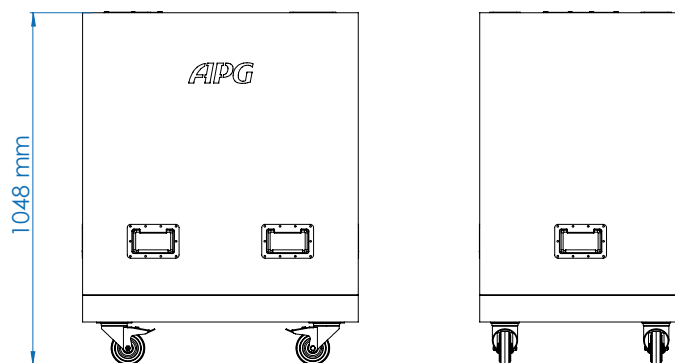
11. UM121D2

Physical characteristics	
Description	2x UM121 transport cart
Dimensions H, W, D	267 x 800 x 940 mm
Weight	18 kg



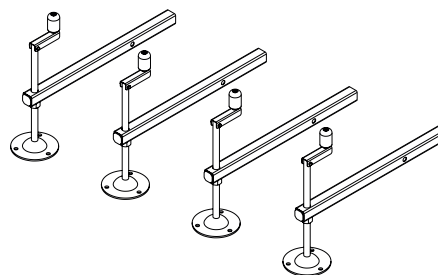
12. FCUMHEAVYRIG

Physical characteristics	
Description	Transport flight case for UNILINE MAX accessories
Dimensions H, W, D	1048 x 600 x 820 mm



13. UMDSF

Physical characteristics	
Description	Set of 4 stacking feet for UM210D4 or UM121D2 cart
Dimensions H, W, D	320 x 550 x 240 mm
Weight	6.8 kg



14. SC121

Physical characteristics	
Description	Cover for UM121 only
Dimensions H, W, D	840 x 820 x 80 mm
Weight	3.5 kg

15. UM121SCH2

Physical characteristics	
Description	Cover for UM121D2
Dimensions H, W, D	1300 x 850 x 80 mm
Weight	5.3 kg

16. UM210SCH4

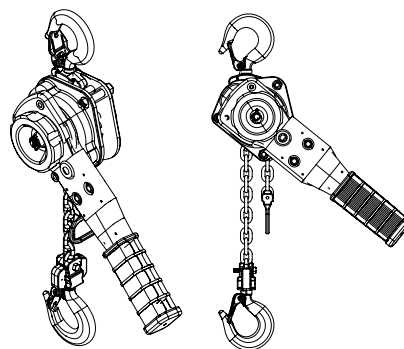
Physical characteristics	
Description	Cover for UM210D4
Dimensions H, W, D	1300 x 850 x 100 mm
Weight	6 kg

17. KR125

Physical characteristics	
Description	Set of 4 casters Ø125mm
Weight	4.8 kg

18. COMPRESSION ACCESSORIES

LH0.5T	
Description	0.5T lever hoist for compression
LHC05	
Description	Chain sling 0.5m CMU 2T
LHC04	
Description	4m chain sling with 2T WLL and intermediate ring



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