

# USER MANUAL

## **CLA-200** **COMPACT LINE ARRAY** **200W - 8 $\Omega$**



# MAJORCOM:

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Warning


Please carefully follow the instructions in this manual to ensure long, trouble-free use of your equipment.

1. SAFETY PRECAUTIONS

- Before installation or use, be sure to carefully read all the instructions in this section for correct and safe operation.
- Be sure to follow all the precautionary instructions in this section, which contain important warnings and/or cautions regarding safety.
- After reading, keep this manual handy for future reference.

Safety symbol and message conventions

Safety symbols and messages described below are used in this manual to prevent bodily injury and property damage which could result from mishandling. Before operating your product, read this manual first and understand the safety symbols and messages so you are thoroughly aware of the potential safety hazards.

 **WARNING**

Indicates a potentially hazardous situation which, if mishandled, could result in death or serious personal injury.

When installing the unit

- Installation for flying requires extensive technical knowledge and experience. The speaker may fall off if incorrectly installed, resulting in possible personal injury.
- **Flying precautions**  
Be sure to follow the instructions below. Otherwise, the suspension wires or belts may be off or snap and the speaker may fall off, causing personal injury.
  - Check to confirm that the suspension wires and belts are strong enough to withstand the speaker load.
  - The connectors of the suspension wires and belts must be securely linked with those of the speaker.
  - All parts and components (such as enclosures, metal pieces, and screws) must be free from any deformation, crack, and corrosion.
  - Be sure to use screws supplied with the optional flying hardware when installing the speaker using such hardware.
- Install the unit only in a location that can structurally support the weight of the unit and the mounting bracket. Doing otherwise may result in the unit falling down and causing personal injury and/or property damage.
- When installing the unit in the snowy area, take appropriate measures to prevent snow from lying on the unit. If the snow lies on the unit, the unit may fall, causing personal injuries.
- Owing to the unit’s size and weight, be sure that at least 2 persons are available to install the unit. Failure to do so could result in personal injury.
- Do not use other methods than specified to mount the unit and the bracket. Extreme force is applied to the unit and the unit could fall off, possibly resulting in personal injuries.
- Use nuts and bolts that are appropriate for the ceiling’s or wall’s structure and composition. Failure to do so may cause the speaker to fall, resulting in material damage and possible personal injury.
- Tighten each nut and bolt securely. Ensure that the bracket has no loose joints after installation to prevent accidents that could result in personal injury.
- Do not mount the unit in locations exposed to constant vibration. The mounting bracket can be damaged by excessive vibration, potentially causing the unit to fall, which could result in personal injury.



Indicates a potentially hazardous situation which, if mishandled, could result in moderate or minor personal injury, and/or property damage.

### When installing the unit

- Avoid touching the unit's sharp metal edge to prevent injury.
- To avoid electric shocks, be sure to switch off the unit's power when connecting speakers.

### When the unit is in use

- Do not place heavy objects on the unit as this may cause it to fall or break which may result in personal injury and/or property damage. In addition, the object itself may fall off and cause injury and/or damage.
- Do not operate the unit for an extended period of time with the sound distorting. This is an indication of a malfunction, which in turn can cause heat to generate and result in a fire.
- Do not stand or sit on, nor hang down from the unit as this may cause it to fall down or drop, resulting in personal injury and/or property damage.
- Have the unit checked periodically. Failure to do so may result in corrosion or damage to the unit or its mounting bracket that could cause the unit to fall, possibly causing personal injury.

## 2. FEATURES

The CLA-200 is a 2-way compact speaker system that permits both constant directivity control over a wide frequency range and changes in directivity. It is ideal for reproducing clear sound in spaces with long reverberation times or high background noises. The CLA-200 is designed for both indoor and outdoor use.

- 4 speaker modules ensure high power and high quality.
- The changeable orientation of each of the 4 speaker modules independently allows the directivity angle of the speaker system to be adjusted.
- Built-in passive network ensures appropriate sound quality.
- Ideal for both permanent and temporary installations, including both vertical and horizontal positioning.
- Equipped with a convenient carrying handle.
- Can be mounted directly on a wall or suspended by wire, chain or shackle with no need to use optional brackets.
- Optional mounting brackets allow use in a wide variety of applications, including suspension, ceiling mounting and wall mounting.

## 3. ABOUT THE INPUT OVERLOAD PROTECTION CIRCUITRY

The speaker system features internal input overload protection circuitry. If an extremely high input level is fed to the unit, the protection circuitry automatically cuts off the signal to the tweeters.

A drastic reduction in sound volume for the high frequency range indicates that the protection circuitry has been enabled.

In such cases, simply reduce the amplifier volume. The protection circuitry will automatically reset in approximately 10 seconds. After reset, try to maintain the volume at a level slightly lower than before.

### Caution

This protection circuitry does not completely protect the unit against extremely high input power levels.

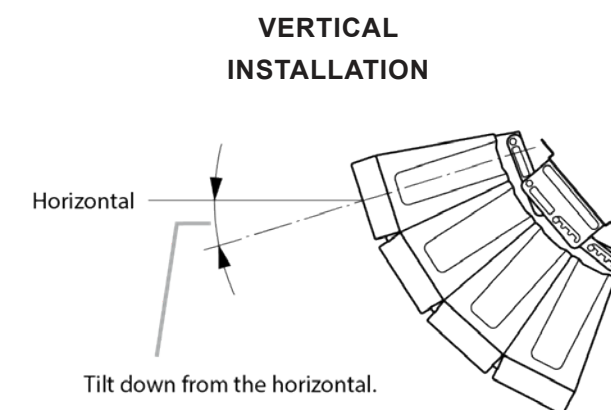
Depending on the type or duration of excessive power input, the protection circuitry might not be enabled, resulting in damage to the speaker element. Also, if the excessive power input continues for a long period of time, the circuitry may not be capable of resetting to its original condition.

Use the system with care so that the speakers are not exposed to excessive power input.

## 4. INSTALLATION PRECAUTIONS FOR OUTDOOR INSTALLATION

For outdoor installation, observe the following precautions :

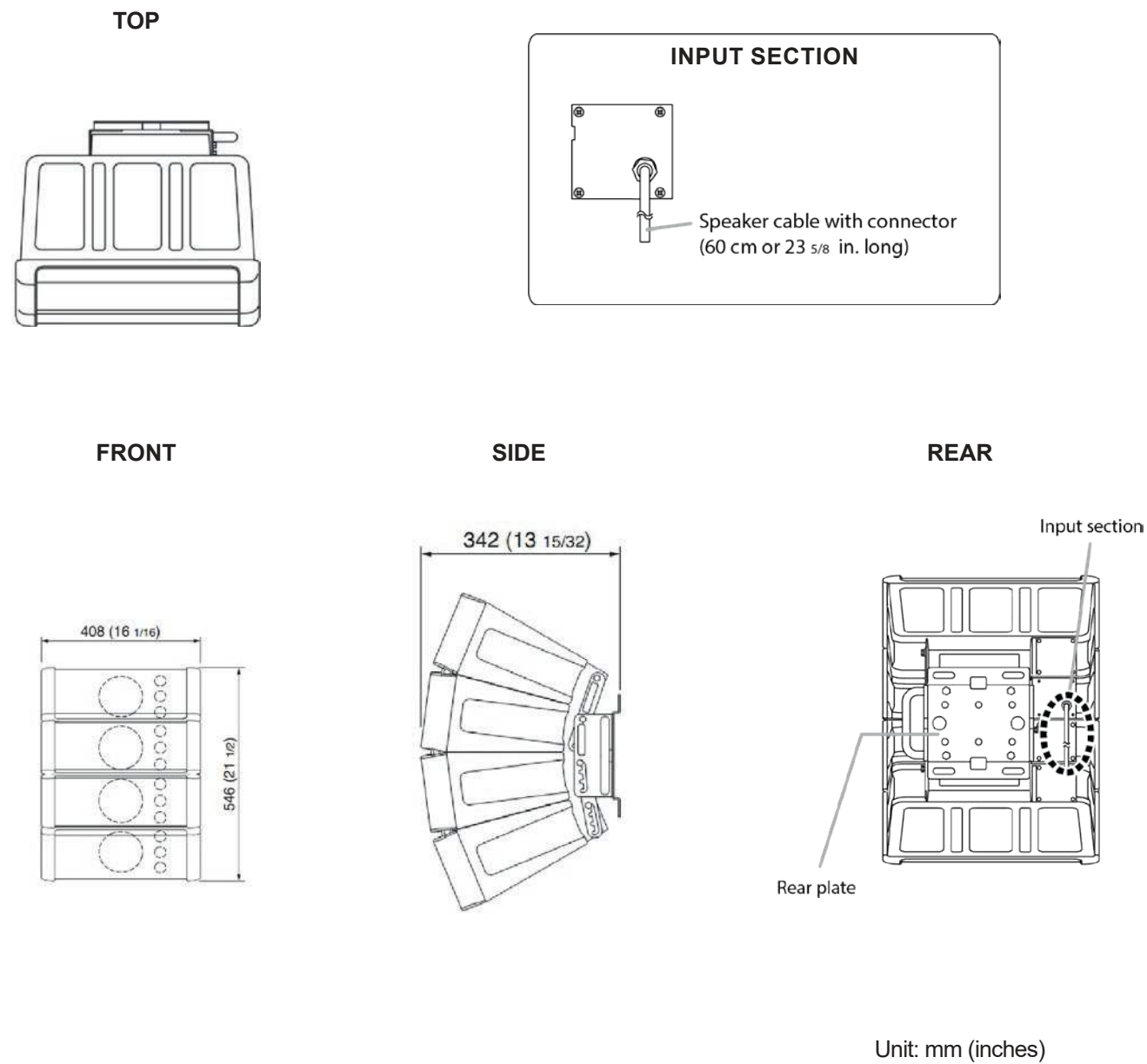
- All speaker modules must point downward from the horizontal. Failure to do so could adversely affect their intended weather-resistant capability, leading to malfunction.



- The CLA-200 employs a splash-proof construction that allows the speaker to be installed outdoors, but it should only be installed in locations where the ambient temperature is within the range of  $-15^{\circ}\text{C}$  to  $+50^{\circ}\text{C}$ . Exceeding the temperature range will cause the speaker to fail.

## 5. DIMENSIONAL DIAGRAM

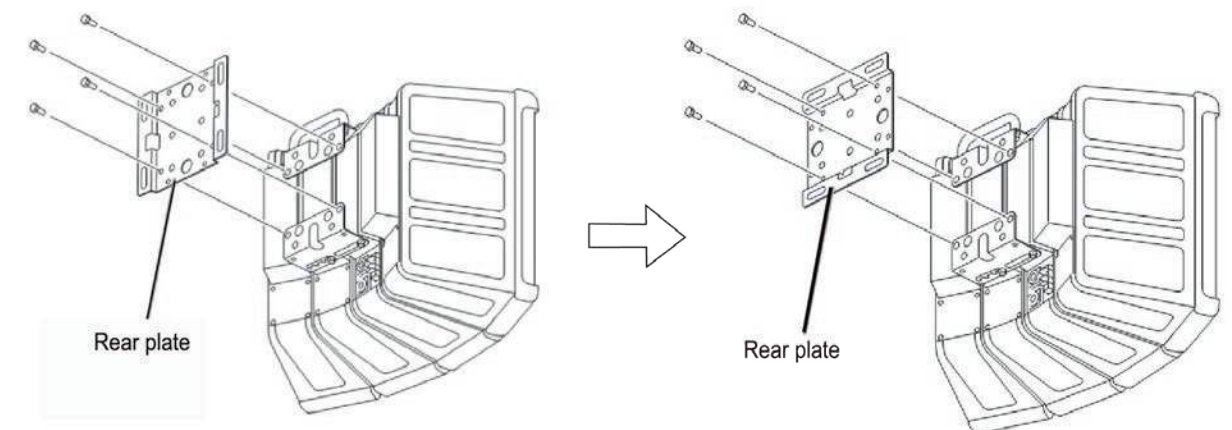
Figures show the CLA-200 speaker system with a directivity angle set to 60° mode (factory-preset).



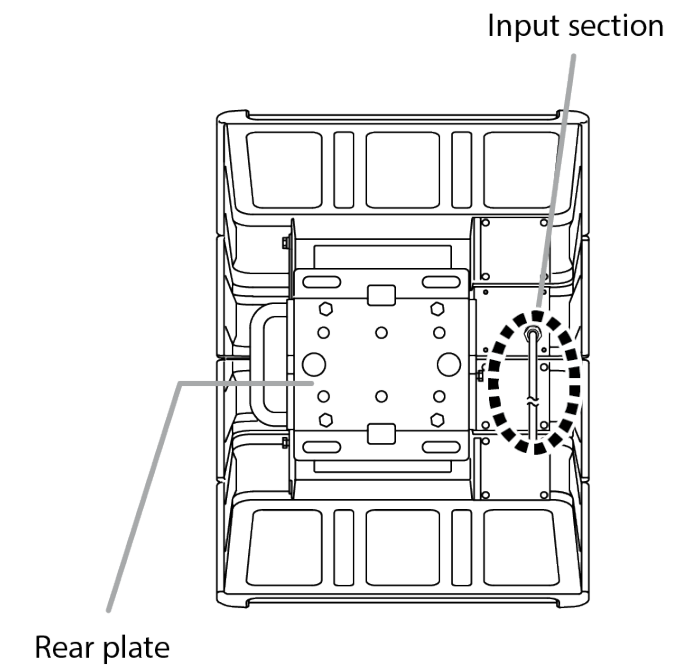
## 6. CHANGING THE ORIENTATION OF REAR PLATE

The orientation of the speaker system's rear plate can be changed as follows :

### FACTORY-PRESET MOUNTING



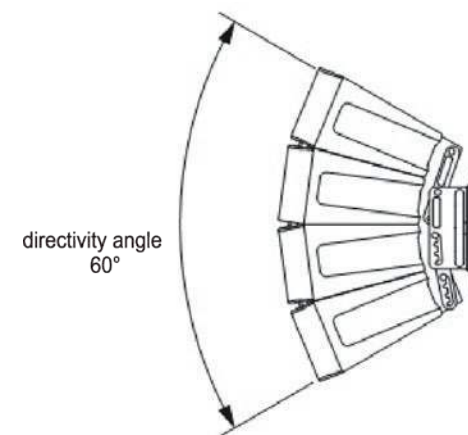
## 7. INPUT SECTION



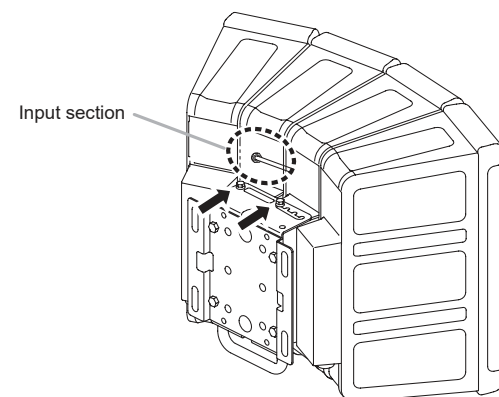
## 8. CHANGING THE SPEAKER'S DIRECTIVITY ANGLE

The speaker system's directivity angle mode is factory-preset to 60°, but this mode can be changed to 45°, 30°, or 15° by following the procedure described below.

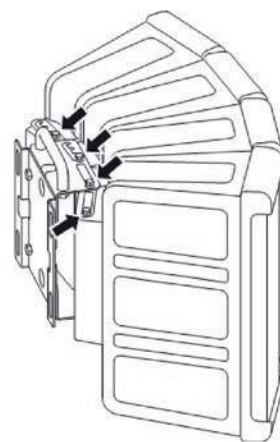
The figure on the right shows the speaker system in 60° mode.



**Step 1.** Loosen the 2 bolts on the input section side.

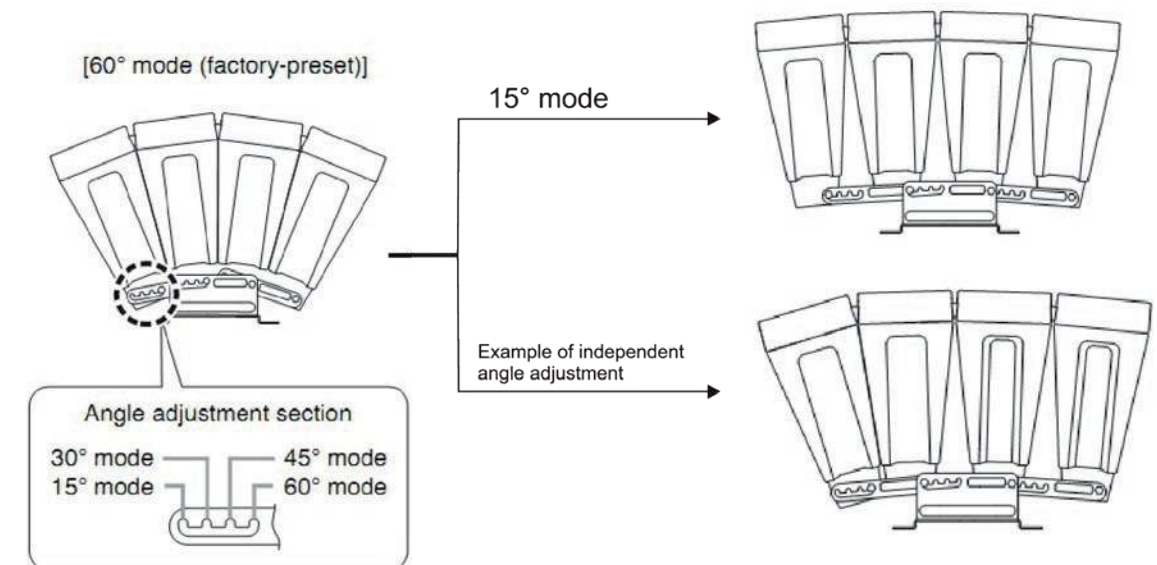


**Step 2.** Turn the speaker system upside down. Then, loosen the 4 bolts indicated by arrows.

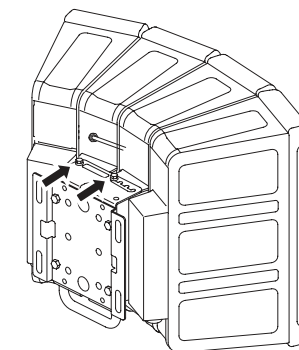


**Step 3.**

- Reposition the 4 bolts to the desired directivity angle, then retighten them securely.
- The sound coverage area can also be made asymmetrical by shifting the position of each bolt to different directivity angle.



**Step 4.** Reposition the speaker system by turning it upside down. Then, tighten the 2 bolts loosened in step 1.



### **WARNING**

Observe the following instructions to tighten the bolts securely. Failure to do this could cause the speaker to fall, potentially resulting in damage and/or personal injury.

- Ensure that each bolt is correctly inserted into its slot before tightening it.
- Bolts can be tightened using either a Phillips screwdriver or a wrench, but be sure to finish the tightening with the wrench to ensure optimum tightness.



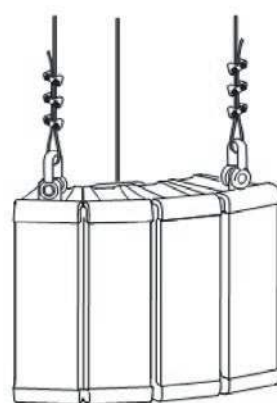
## 9. SUSPENDED INSTALLATION

The speaker systems may be suspended either vertically or horizontally. The 2 suspension brackets are included.

**VERTICAL  
SUSPENSION**



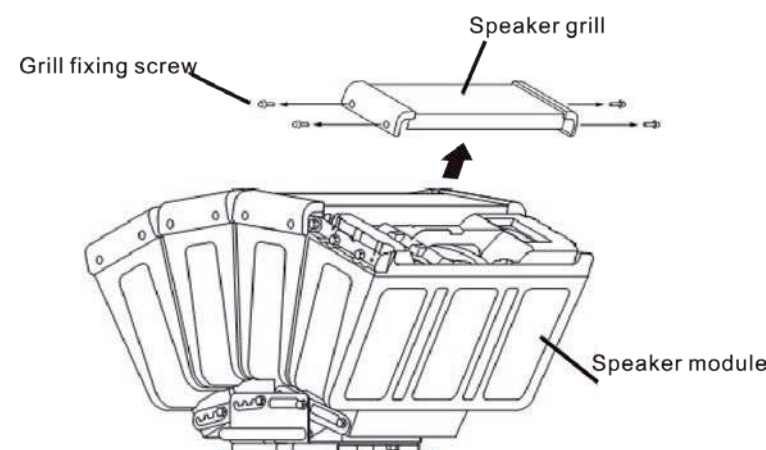
**HORIZONTAL  
SUSPENSION**



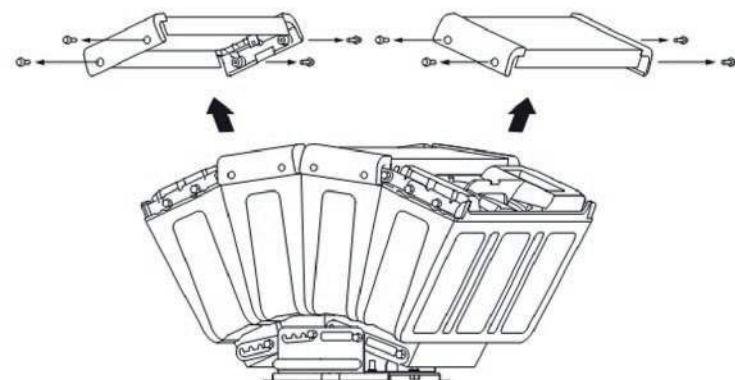
### Step 1.

- For vertical suspension : Remove the speaker grill on the module to be suspended.
- For horizontal suspension : Remove the speaker grills on the modules at both ends of the speaker system.
- Remove the grill fixing screws using a hex head wrench.

**VERTICAL  
SUSPENSION**



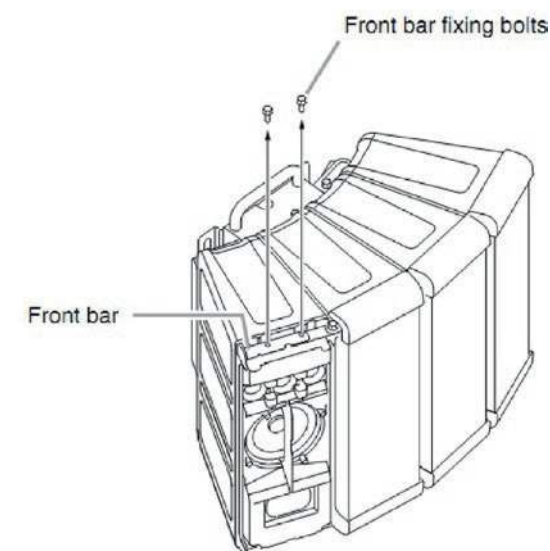
**HORIZONTAL  
SUSPENSION**



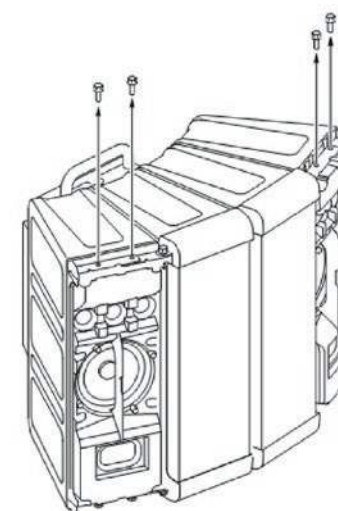
### Step 2.

- For vertical suspension : Remove the 2 front bar fixing bolts.
- For horizontal suspension : Remove the 4 front bar fixing bolts.
- Place the speaker system on a workbench when doing this work.

**VERTICAL  
SUSPENSION**



**HORIZONTAL  
SUSPENSION**



**Step 3.** Fix the suspension bracket and the front bar with the bolts removed in step 2.

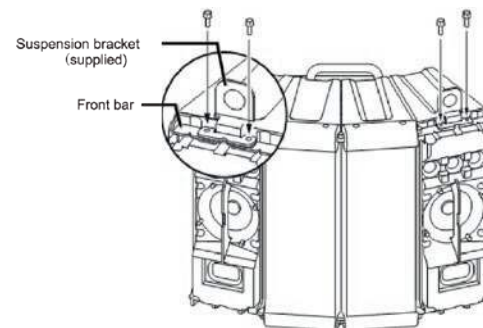
## ! WARNING

Observe the following instructions to tighten the bolts securely. Failure to do this could cause the speaker to fall, potentially resulting in damage and/or personal injury.

- Ensure that each bolt is correctly inserted into its slot before tightening it.
- Bolts can be tightened using either a Phillips screwdriver or a wrench, but be sure to finish the tightening with the wrench to ensure optimum tightness.

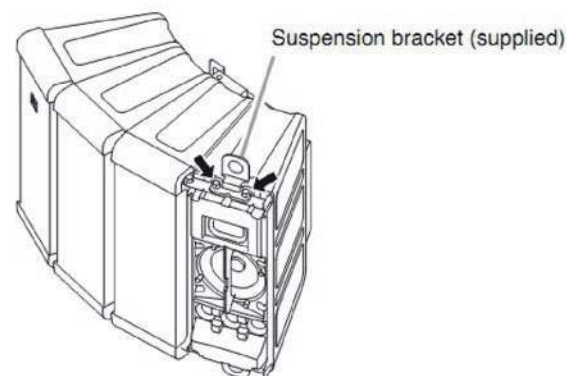
The figure on the right is for the horizontal suspension of speaker system.

For the vertical suspension, the work is done on either module to be suspended.



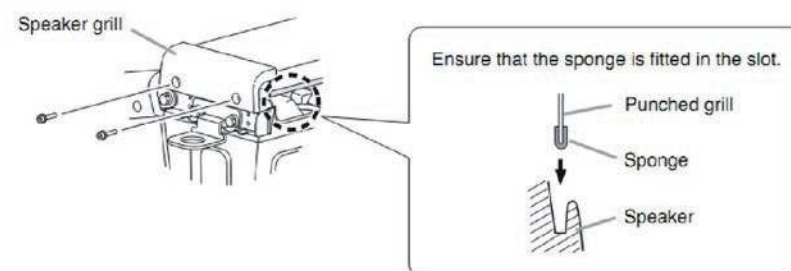
**Step 4.**

- For vertical suspension : Turn the speaker system upside down. Then, mount the suspension bracket in the same manner as described in steps 2 and 3.



**Step 5.**

- Replace the removed speaker grill.
- Be sure to use a hex head wrench to tighten the fixing screws.



**Step 6.**

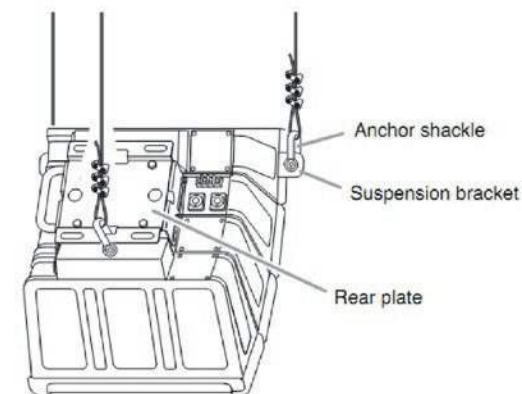
- Suspend the speaker system using appropriate commercially obtained wires, chains, or anchor shackles.
- To mount the speaker system horizontally, rotate the speaker system's rear plate 90° from the factory-preset orientation. For details, refer to **6. CHANGING THE ORIENTATION OF REAR PLATE**.

## ! WARNING

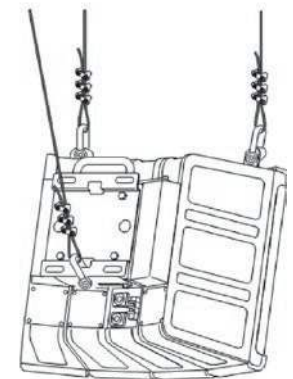
Be sure to select wires, chains, and/or anchor shackles with a safety factor appropriate to the weight of the speaker system. In correct selection of these suspension components may cause the speaker system to fall, potentially resulting in damage and/or personal injury.

Run the anchor shackles, etc. through the holes in the 2 suspension brackets and rear plate as shown in the figure.

### VERTICAL SUSPENSION



### HORIZONTAL SUSPENSION



## 10. DIRECT WALL MOUNTING

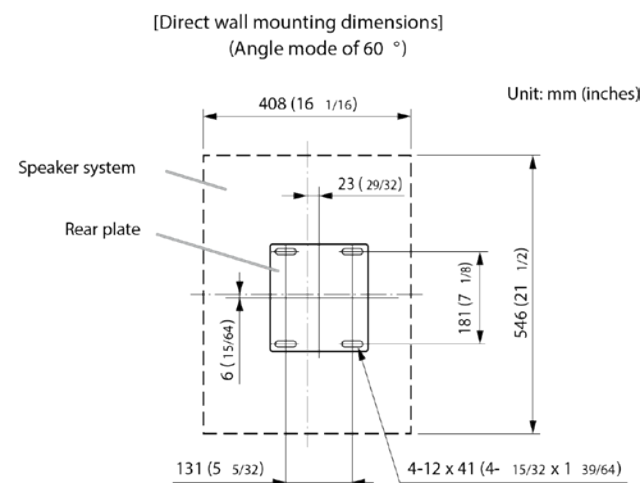
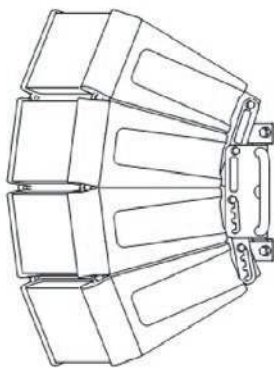
### WARNING

Observe the following instructions when mounting the speakers on a wall. Doing otherwise may cause the speaker system to fall, potentially resulting in damage and/or personal injury.

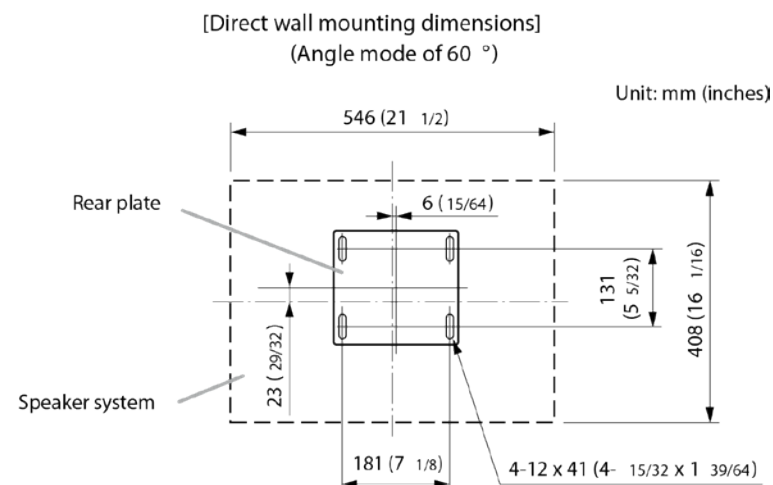
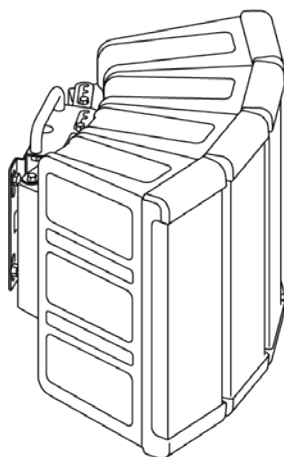
- Use anchor bolts, nuts, and washers with specifications appropriate for carrying the load of the speaker system. Also ensure that the structure of the wall is robust enough to stand the weight of the speaker.
- Take measures to prevent nuts and bolts from loosening and sliding out of their positions as required.

**Note :** Anchor bolts, nuts, and washers are not supplied with the speaker system.

### 10.1 VERTICAL INSTALLATION



### 10.2 HORIZONTAL INSTALLATION



## 11. OPTIONAL MOUNTING BRACKETS

The following mounting brackets are optional :

### • CLA-200CBK : Mounting bracket

Allow the speaker system to be mounted to a ceiling and its angle to be adjusted vertically.

**When the CLA-200TR matching transformer is installed on the CLA-200 speaker, the optional CLA-200CBK mounting bracket cannot be used.**

The CLA-200CBK is designed for indoor use.

The CLA-200CBK is designed to be used exclusively to mount the CLA-200 speaker system to a ceiling.

The speaker can be rotated 360° horizontally. It can also be tilted vertically up to 82.5° when suspended horizontally, and depending on the speaker directivity mode, up to 67.5° (for 60° mode) or 75° (for 15°, 30° or 45° mode) when suspended vertically.

### • CLA-200FRAME : Rigging frame

Can be used to suspend the CLA-200 speaker from high ceilings.

This bracket is designed for indoor use.

The CLA-200FRAME is used exclusively to suspend the CLA-200 speaker system from the ceiling.



## 12. CLA-200CBK CEILING BRACKET MOUNTING

When the CLA-200TR matching transformer is installed on the CLA-200 speaker, the optional CLA-200CBK mounting bracket cannot be used.

The CLA-200CBK is designed for indoor use.

The CLA-200CBK is designed to be used exclusively to mount the CLA-200 speaker system to a ceiling.

The speaker can be rotated 360° horizontally. It can also be tilted vertically up to 82.5° when suspended horizontally, and depending on the speaker directivity mode, up to 67.5° (for 60° mode) or 75° (for 15°, 30° or 45° mode) when suspended vertically.

### 12.1 INSTALLATION

#### PRECAUTIONS

The CLA-200CBK is designed for indoor use.

Since the unit is designed for indoor use, do not install it outdoors. If installed outdoors, the aging of parts causes the unit to fall off, resulting in personal injury.

#### Step 1.

- Mount the ceiling bracket to a ceiling.

**Note :** Anchor bolts, nuts, and washers required for mounting are not supplied with the bracket.

#### Step 2.

- Turn nut A fully to the root of the speaker bracket bolt.

#### Step 3.

- Remove the vertical angle adjustment bolts (one each for left and right) and loosen the axis bolt and axis nut.



## WARNING

Only loosen the axis bolt and axis nut; do not remove them as doing so may cause the speaker to fall, resulting in personal injury.

#### Step 4.

- Use the hex head bolts to attach the speaker bracket to the CLA-200's rear plate.

#### Step 5.

- Lift the speaker and insert the speaker bracket bolt through the slot in the ceiling bracket.

#### Step 6.

- Fix the CLA-200 in the desired horizontal orientation and tighten nuts A and B.



## WARNING

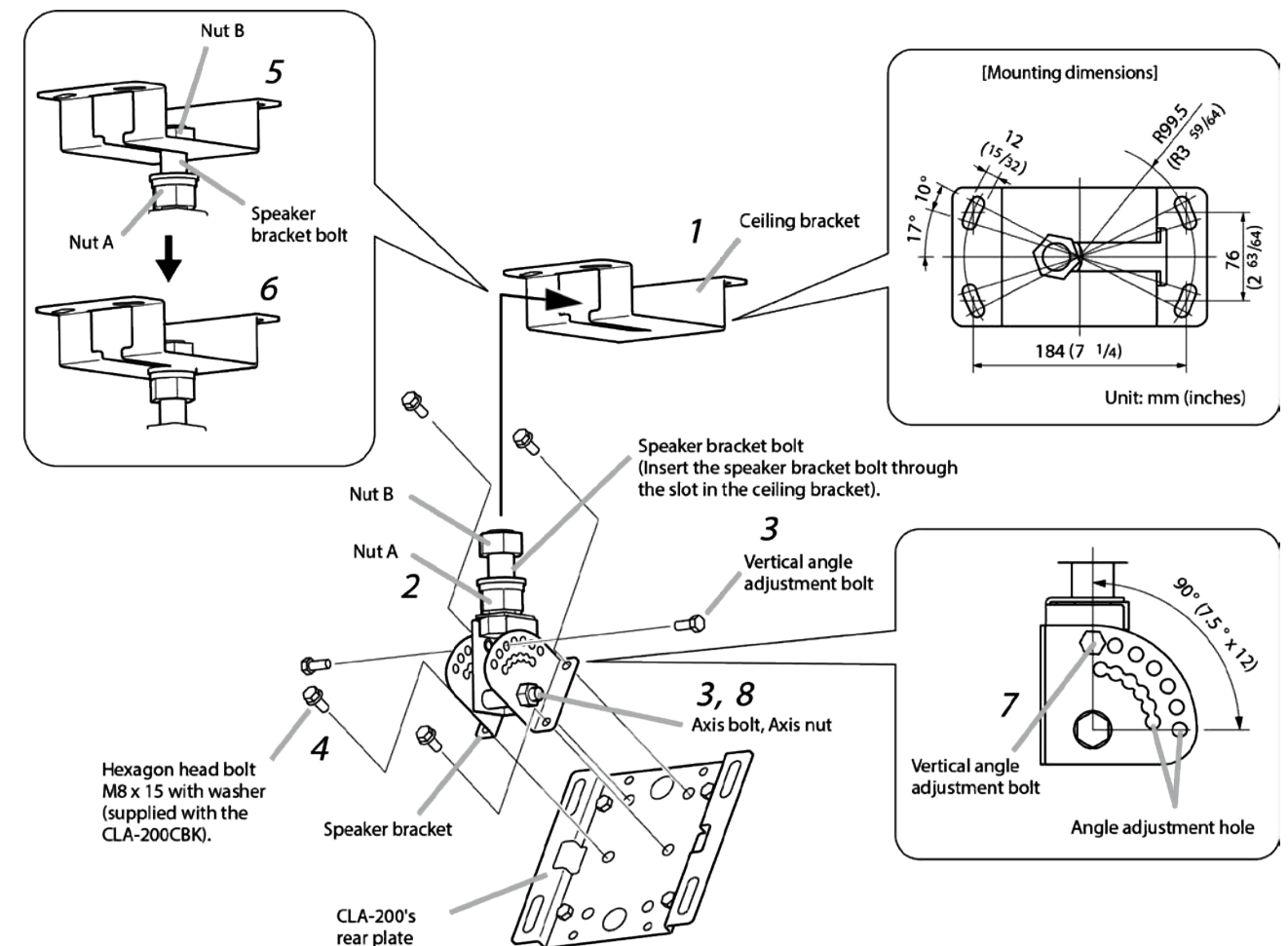
Tighten nut B so that the bolt head projects at least 3 mm (1/8») from the nut. Doing otherwise could allow the speaker to fall, resulting in personal injury.

#### Step 7.

- With the CLA-200's vertical orientation set to the desired position, fix the vertical angle adjustment bolts (one each for left and right) to the speaker bracket.

#### Step 8.

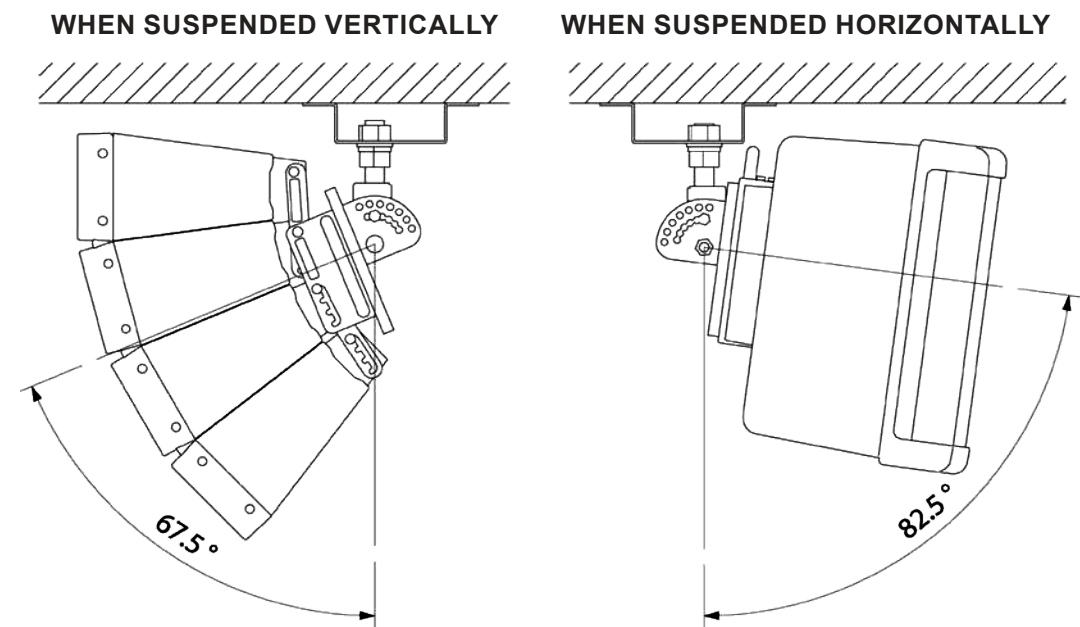
- Retighten the axis bolt and axis nut.



#### Note

If the CLA-200 is installed vertically, change the orientation of the rear plate. Refer to [6. CHANGING THE ORIENTATION OF REAR PLATE](#).

12.2 FINISHED ASSEMBLY DIAGRAM



12.3 SPECIFICATIONS

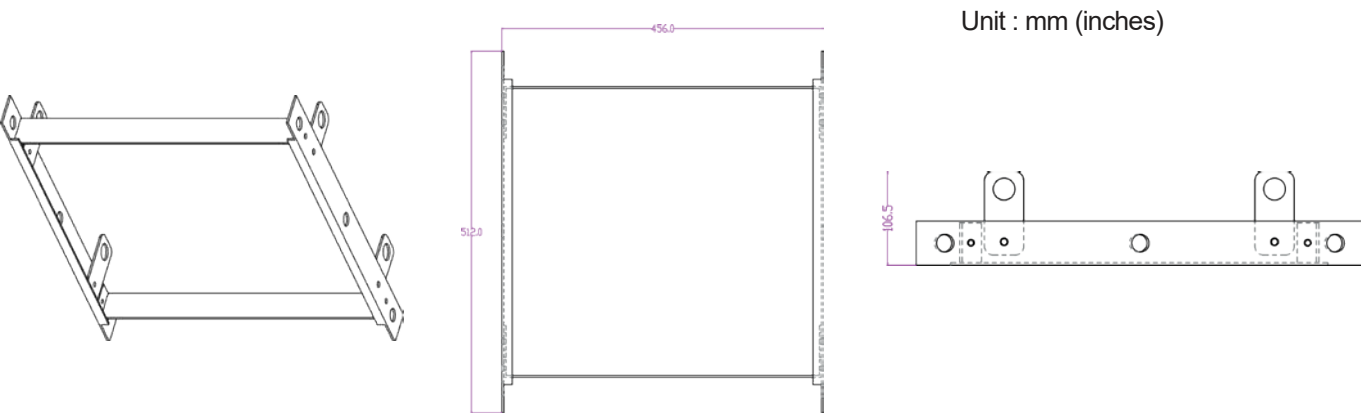
Model	CLA-200CBK
Finish	Steel plate, black, semi-gloss, paint
Dimensions	120 (w) x 200 (h) x 220 (d) mm
Weight	2 kg
Accessories (included)	4 x Hexagon head bolt M8 x 15 (with washer)

13. CLA-200FRAME RIGGING FRAME MOUNTING

PRECAUTIONS

CLA-200FRAME is used exclusively to suspend the CLA-200 speaker system from the high ceiling.  
The CLA-200FRAME is designed for indoor use.  
Since the unit is designed for indoor use, do not install it outdoors. If installed outdoors, the aging of parts causes the unit to fall off, resulting in personal injury.

13.1 DIMENSIONAL DIAGRAM



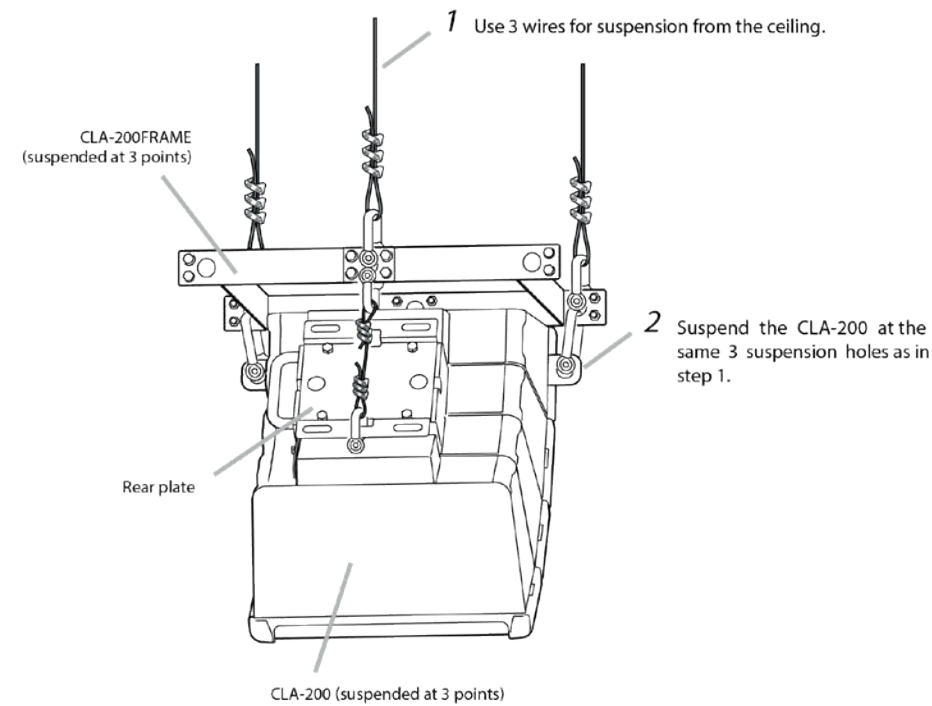
Note

The holes to use for suspension differ depending on the way of speaker suspension.

### 13.2 SUSPENSION

When suspending the CLA-200 speaker with the CLA-200FRAME, use chains, wires, or carabiners.  
A stack of up to 4 x CLA-200 can be suspended vertically. Only 1 x CLA-200 can be suspended horizontally.

#### EXAMPLE OF CLA-200 VERTICAL SUSPENSION



#### Note

If the CLA-200 is suspended horizontally, change the orientation of the rear plate. Refer to [6. CHANGING THE ORIENTATION OF REAR PLATE](#).

### 13.3 SPECIFICATIONS

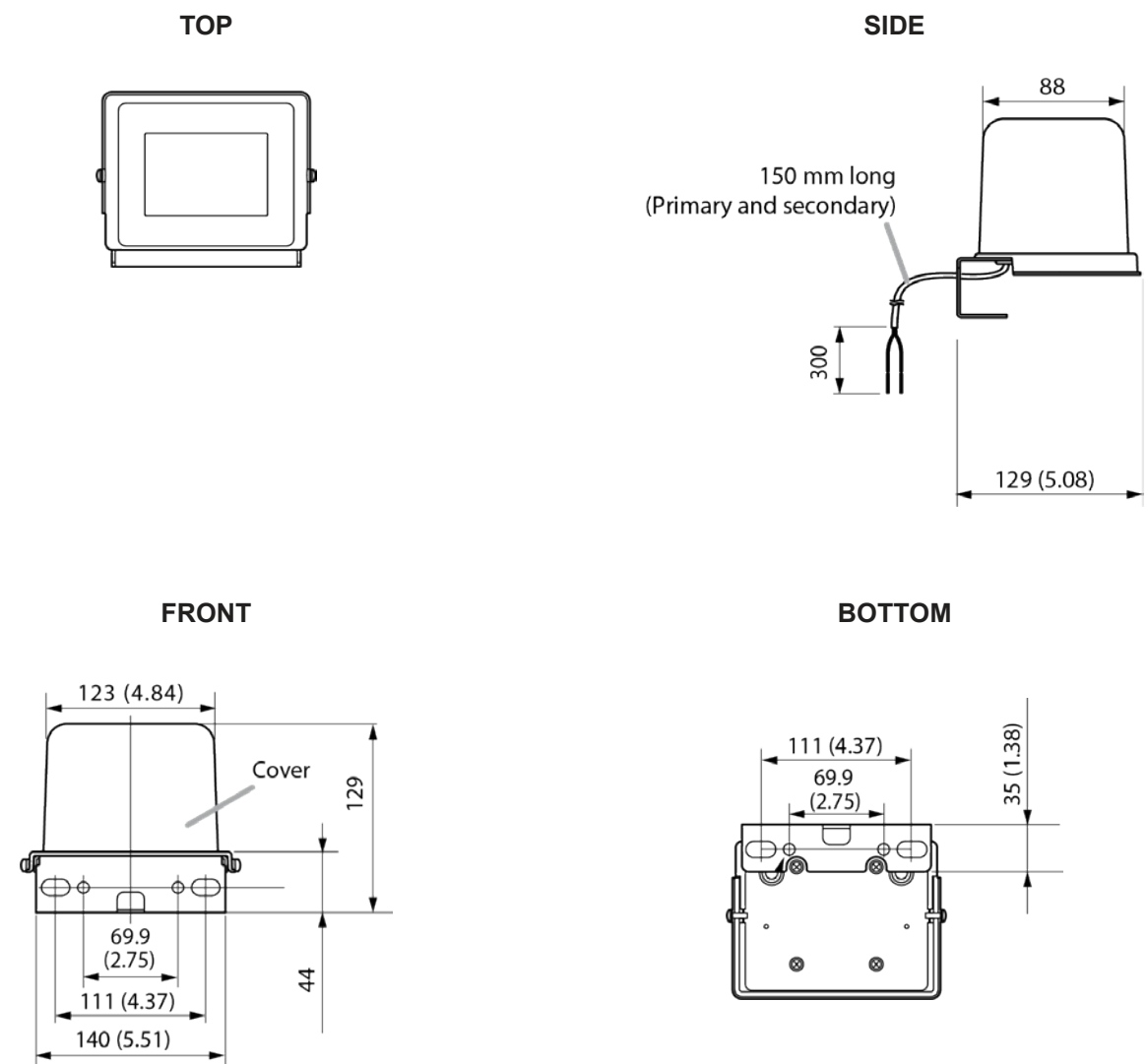
Model	CLA-200FRAME
Finish	Steel plate, black, semi-gloss, paint
Dimensions	512 (w) x 106,5 (h) x 456 (d) mm
Weight	3,6 kg
Accessories (included)	4 x Subwoofer fixing bracket 8 x Hexagon head bolt M8 x 40 with washer 4 x Nut for M8

### 14. COMBINATION WITH THE CLA-200TR MATCHING TRANSFORMER

Using the optional CLA-200TR matching transformer allows the speaker system to be connected to a high-impedance amplifier. This matching transformer is best for use when the distance between the amplifier and speaker is very long, or when multiple speaker systems are parallel-connected to a single amplifier.

The CLA-200TR transformer can be used both indoors and outdoors.

#### 14.1 DIMENSIONAL DIAGRAM



Unit : mm (inches)

14.2 SPECIFICATIONS

Model	CLA-200TR
Rated Input	200 W
Primary Impedance	100 V line : 50 Ω (200 W), 83 Ω (120 W), 167 Ω (60 W), 330 Ω (30 W) 70 V line : 25 Ω (200 W), 50 Ω (100 W), 83 Ω (60 W), 167 Ω (30 W), 330 Ω (15 W)
Secondary Impedance	8Ω
Water Protection	IPX4 (the tilt angle must be within 45°)*
Finish	Cover : Polypropylene Mounting bracket : Stainless steel (SUS304)
Dimensions	140 (w) x 129 (h) x 129 (d) mm
Weight	2.8 kg
Accessories (included)	2 x Hexagon head bolt M8 x 15 (with washers)

\* Every speaker module must be aimed horizontally or down to keep the water resistant capability.

**Note** : The design and specifications are subject to change without notice for improvement.

14.3 INSTALLATION



WARNING

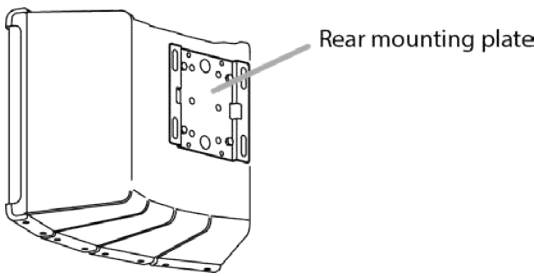
Bolts can be tightened using either a Phillips screwdriver or a wrench, but be sure to finish the tightening with the wrench to ensure optimum tightness. Failure to do this could cause the speaker to fall, potentially resulting in damage and/or personal injury.

When the CLA-200TR matching transformer is installed on the CLA-200 speaker, the optional CLA-200CBK mounting bracket cannot be used.

MOUNTING POSITION

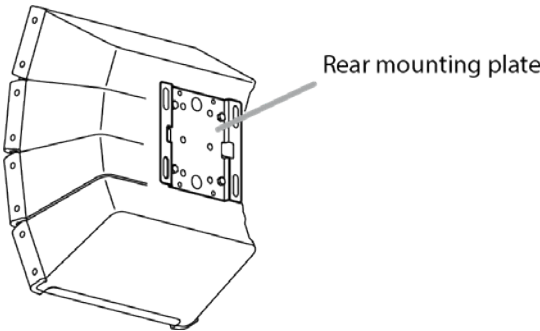
Mount the matching transformer CLA-200TR in the speaker system's rear mounting plate.

MOUNTING TO  
HORIZONTALLY-POSITIONED SPEAKERS



Use the rear mounting plate with its orientation pre-fixed at the factory.

MOUNTING TO  
VERTICALLY-POSITIONED SPEAKERS



Remove and attach the rear mounting plate so that its orientation is as illustrated.

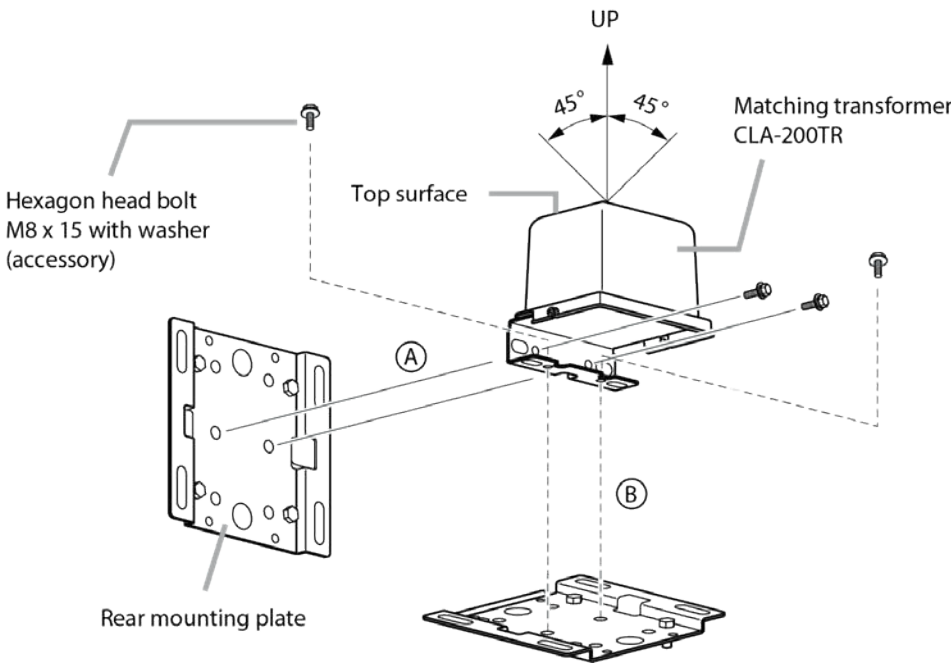
MOUNTING TO THE REAR MOUNTING PLATE

Mount the CLA-200TR in either way (A) or (B) as illustrated below.

**Note**  
When mounting the speaker outdoor, select either way (A) or (B) to keep the inclination of the CLA-200TR's top surface within 45° from the vertical axis.

Exceeding this angle range could deteriorate the CLA-200's water resistant capability.

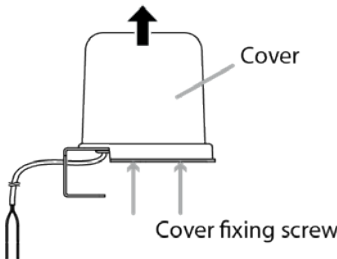
**Tip**  
When mounting the speaker indoor, both ways (A) and (B) are allowed.



14.4 CONNECTIONS

Step 1.

- Remove the cover.
- Loosen the 4 cover fixing screws to remove the cover, as indicated by the arrow.



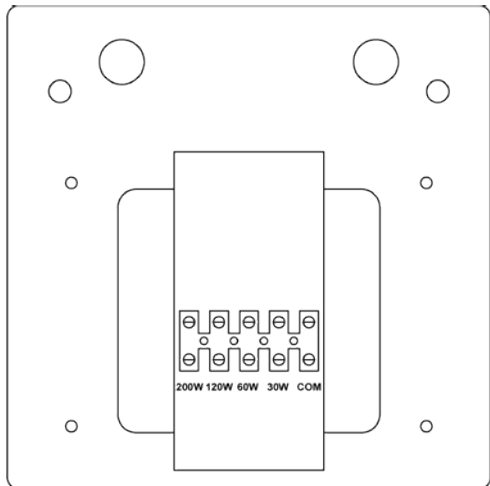


Step 2.

- Choose the primary connection wire : red for 100V line and yellow for 70V line.
- If needed, moove the secondary red wire to the requested power tap (factory-preset to 200W).
- To change the tap, reconnect the primary black cord according to the table below :

LINE \ TAP	200 W	120 W	60 W	30 W
100 V line	50 Ω	83 Ω	166 Ω	330 Ω
70 V line	25 Ω	40,8 Ω	81,6 Ω	136,6 Ω

**Note :** Never touch the black cord connected to the COM tap.

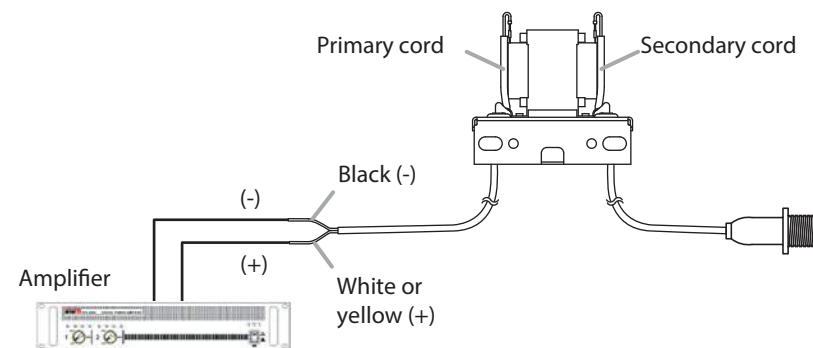


Step 3.

- Connect the primary cord to the amplifier and the secondary cord to the speaker.

Notes

- Be sure to use a high-impedance amplifier. If the transformer is connected to a low-impedance amplifier, sufficient sound volume may not be achieved.
- Take care to ensure correct primary and secondary cord connections. Incorrect connections may cause damage to the amplifier, matching transformer, and speaker system.

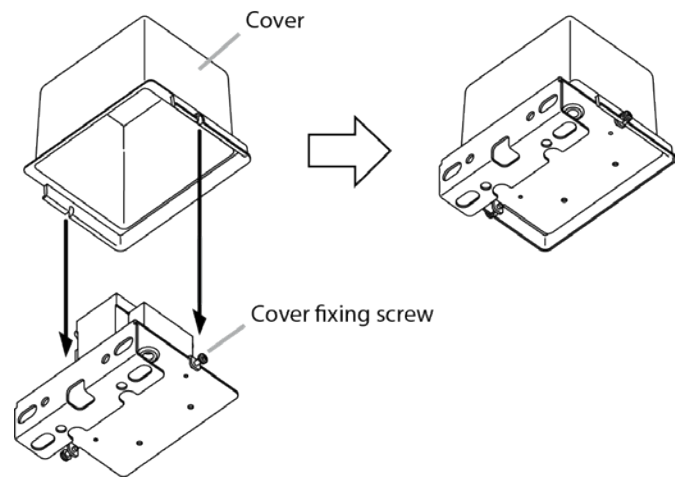


Step 4.

- Replace the cover and tighten the screws.
- Replace the removed cover and securely tighten the 4 cover fixing screws.

Notes

- To ensure the splash-proof capability, press the cover firmly onto the gasket.



## 15. EQUALIZATION USING A DIGITAL SIGNAL PROCESSOR

The speaker systems are to reproduce wide-band, high-efficiency sound even without the use of an equalizer. However, sound quality can be made even clearer and more dynamic with the addition of a digital signal processor.

### FILTER CHRACTERISTICS FOR NORMAL MODE

Filter	Frequency	Gain	Q
HPF (12 dB/oct)	60 Hz	-	2.053
	65 Hz	+2 dB	1.414
	800 Hz	-3 dB	0.7
	2.5 Hz	-4 dB	2.997
	5 Hz	+5 dB	0.305

## 16. SPECIFICATIONS

Model	CLA-200
Enclosure	Sealed or bass-reflex (removable sealing plate)
Power Handling Capacity	Continuous pink noise : 200 W Continuous program : 600 W
Rated Impedance	8Ω
Sensitivity (1W, 1m)	96dB (60° mode) 97dB (45° mode) 98dB (30° mode) 99dB (15° mode)
Frequency Response	70 – 20,000Hz (60° mode) 75 – 20,000Hz (45° mode) 80 – 20,000Hz (30° mode) 85 – 20,000Hz (15° mode)
Crossover Frequency	4kHz
Directivity Angle	Horizontal : 100° (> 2000Hz) Vertical : 60° (> 800Hz), 45° (> 1.2kHz), 30° (> 1.6kHz), 15° (> 3.2kHz) variable
Speaker Component	Low frequency : 12cm (5") cone-type × 4 High frequency : balanced dome-type × 12
Input Terminal	2-pin connector
Water Protection	IPX4*
Finish	Polypropylene, black
Dimensions (WxHxD)	408 x 546 x 342 mm
Weight	16 kg
Operating Temperature	-15°C to +50°C
Accessories (included)	2 x suspension bracket

\* Install with the every speaker module downward.

**Note :** The design and specifications are subject to change without notice for improvement.

# CLA-200

**COMPACT LINE ARRAY**  
**200W - 8  $\Omega$**

User manual

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**MAJORCOM:**

56, chemin de la Flambère • 31300 Toulouse • FRANCE • Tél. 33 (0)5 61 31 86 87  
Fax 33 (0)5 61 31 87 73 • [commercial@majorcom.fr](mailto:commercial@majorcom.fr) • [www.majorcom.fr](http://www.majorcom.fr)