

## **SPEAKER SYSTEM**

### **LOUDSPEAKER**

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**CXR 15** mk3

**CXR 12** mk3

**CXR 10** mk3

### **SUBWOOFER**

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**CXS 18** mk3

**CXS 15** mk3

**CXS 12** mk3

User Guide

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# 1. Introduction

Thank you for purchasing this Yamaha product. This product is a passive speaker designed for versatile sound system applications, such as live performances and fixed installations. This user guide provides detailed explanations of the features and installation instructions. Please read this user guide as needed to fully utilize the various features of this product.

## NOTE




- The example illustrations in this manual show the CXR12mk3 and CXS15mk3, unless otherwise specified.
- In this manual, the CXR15mk3, CXR12mk3, and CXR10mk3 are all referred to as “CXRmk3.” The CXS18mk3, CXS15mk3, and CXS12mk3 are all referred to as “CXSmk3.”

The CXRmk3 series and CXSmk3 series speakers covered in this manual consist of the following models.

	Model	Type
Full range	CXR15mk3	2-way 15"
	CXR12mk3	2-way 12"
	CXR10mk3	2-way 10"
Subwoofer	CXS18mk3	18"
	CXS15mk3	15"
	CXS12mk3	12"

## 1.1. Symbols used in this manual

The symbols used on this product and in this manual have the following meaning.

Symbol	Meaning
 CAUTION	Content describing a situation that might cause injury.
 NOTICE	Content describing a situation that might cause malfunction, damage, faulty operation, or loss of data.
 NOTE	Information regarding operation and use. Read this for your reference.

## 1.2. NOTICE

To avoid the possibility of malfunction/damage to the product, or damage to other property, follow the notices below.

- Protection Circuit  
This speaker system has an internal protection circuit that shuts off the speaker unit when an excessive input signal is applied. If the speaker unit emits no sound, reduce the output level of the amplifier immediately. (The sound will return automatically in several seconds.)

## 1.3. About this manual

- The illustrations as shown in this manual are for instructional purposes only.
- The company names and product names in this manual are the trademarks or registered trademarks of their respective companies

## 1.4. Features

### ■ CXRmk3 series

#### New acoustic design

- Bigger horn size expands the frequency range subject to directional control.
- A large, central port reduces the effects of wind noise and standing waves.
- Our newly designed proprietary speaker units deliver clear sound with little distortion.

#### Versatile enclosure design

- The pole socket has two angles to choose from.
- The symmetrical design allows mirrored placement when installing floor monitors.
- Rigging points for eye bolts are equipped. An optional U-bracket enables various installation arrangements.

### ■ CXSmk3 series

#### New acoustic design

- A new bandpass system is better at handling high sound pressure. The woofer provides high input resistance and low distortion, to achieve excellent low-frequency playback and high sound pressure.
- Reinforcing ribs are placed to suppress resonance, and the flared bass reflex port reduces wind noise, enabling ultra-low frequency playback, even at high sound pressure.

#### Versatile enclosure design

- The cabinet is made of sturdy plywood and painted with highly scratch-resistant polyurea resin.
- A speakON out connector is equipped for simpler cabling.
- A pole socket compatible with both  $\varnothing 35$  mm and M20 is also equipped. Optional silent casters can be installed.

## 1.5. Package Contents (Please Verify)

Read This First ×1

## 1.6. Optional Accessories (Sold Separately)

Speaker	Speaker Cover	U-Bracket	Wheels
CXR15mk3	SPCVR-DXR153	UB-DXR15A	
CXR12mk3	SPCVR-DXR123	UB-DXRDHR12A	
CXR10mk3	SPCVR-DXR103	UB-DXRDHR10A	
CXS18mk3	SPCVR-DXS183		SPW-1

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Speaker	Speaker Cover	U-Bracket	Wheels
CXS15mk3	SPCVR-DXS153		SPW-1
CXS12mk3	SPCVR-DXS123		SPW-1

## 1.7. Available Documentation

- **Read This First (packaged with the product)**

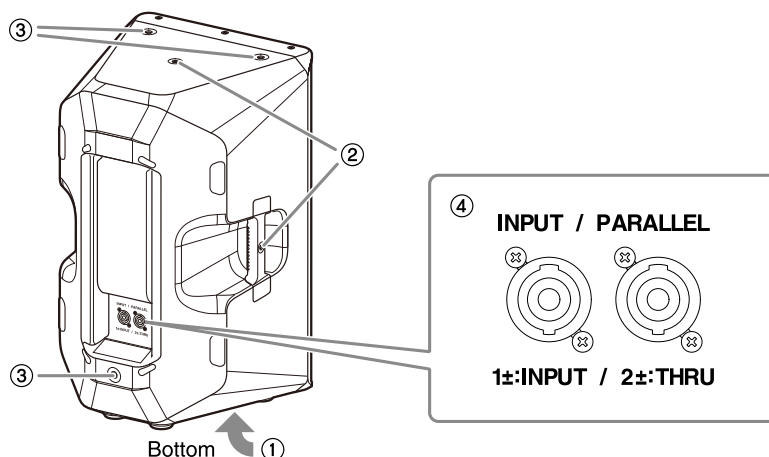
This manual explains how to use the product safely.

- **User Guide (this manual)**

This manual provides detailed explanations of the functions as well as the step-by-step procedures required to install and set up the product.

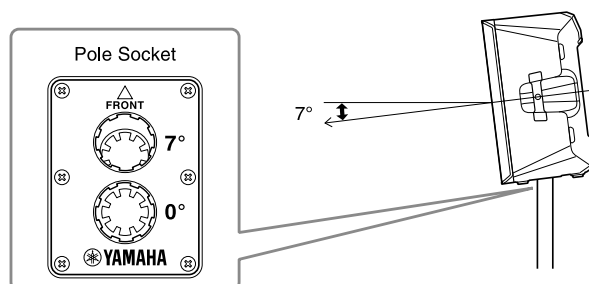
## 2. Functions

### 2.1. Full-Range Speaker CXRmk3



#### ① Tiltable pole socket

The pole socket has two holes: one that is level and one at a 7-degree tilt. Use only one of the holes. You can choose to mount the speaker either parallel to the floor or tilted down by 7 degrees. These sockets are compatible with commercially available speaker stands and speaker poles of 35 mm diameter.



#### ② Screw holes for U-bracket

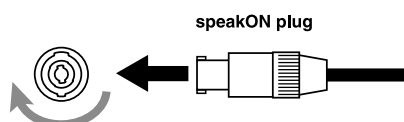
For installing with separately sold U-brackets.

#### ③ Screw holes for eye bolts

For installing the CXRmk3 using eye bolts. The screw holes for eye bolts go through the cabinet wall.

#### ④ [INPUT/PARALLEL] connectors

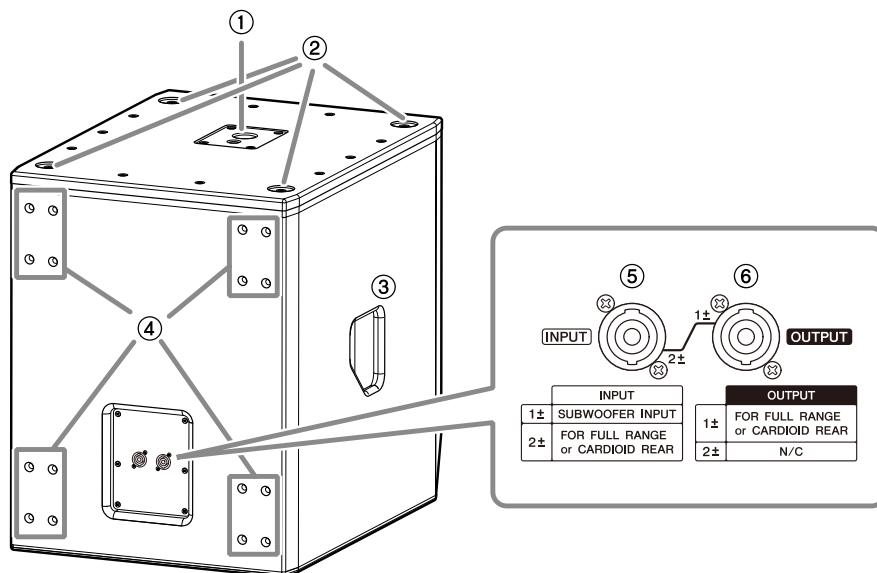
These connectors are compatible with Neutrik speakON plugs. Connect them to a power amplifier or powered mixer using a speaker cable. When connecting a speakON plug, insert it all the way in and turn it clockwise until it clicks into place to lock it. To remove the speakON plug, pull the latch towards you and turn the plug counterclockwise to remove it.



#### CAUTION

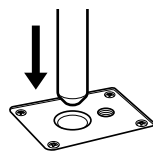
Be sure to use cables designed specifically for speakers. Using any other cable may result in a fire.

## 2.2. Subwoofer CXSmk3

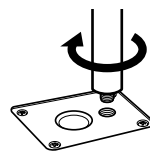


### ① Pole socket:

The socket is compatible with both commercially available 35 mm diameter poles and M20 screw-in speaker poles. Choose one mounting method to use.



35 mm dia




M20 screw

When installing speakers using the pole socket, observe the following conditions for safety.

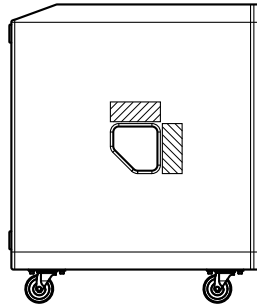
Subwoofer	Speaker to be installed	Pole length
CXS18mk3	Weight: 19.0 kg or less Height: 70 cm or less (up to CXR15mk3)	120 cm or less
CXS15mk3	Weight: 19.0 kg or less Height: 70 cm or less (up to CXR15mk3)	120 cm or less
CXS12mk3	Weight: 15.4 kg or less Height: 60 cm or less (up to CXR12mk3)	105 cm or less
	Weight: 12.2 kg or less Height: 50 cm or less (up to CXR10mk3)	120 cm or less

② **Rubber foot indents** When stacking speakers vertically, align the rubber feet of the top speaker with these indentions.

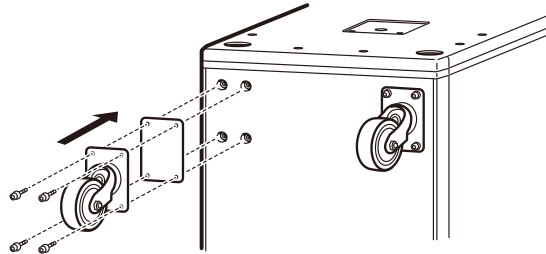
③ Handle

 CAUTION


When lifting and carrying the subwoofer, always hold the shaded area of the handle as indicated in the illustration. Holding it anywhere other than the shaded area may cause damage to the subwoofer or physical injury.



④ Caster mounting screws



These screws are for attaching the optional Yamaha Caster SPW-1 (sold separately). Casters can be attached for easier transport. To attach the wheels, use the screws that came attached to the CXSmk3 body. If you do not attach the wheels, do not remove these screws. Otherwise, air leakage will adversely affect sound quality.

 CAUTION

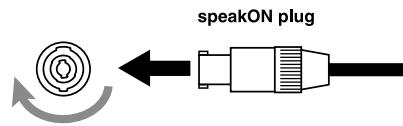
Be sure to use this subwoofer along with the optional wheels intended specifically for the Yamaha CXSmk3 series. If you use wheels other than the optional wheels dedicated for the Yamaha CXSmk3 series, the subwoofer may become unstable, increasing the risk of injury.

 NOTE

For more information about installing wheels and related precautions, refer to the corresponding manual for the wheels.

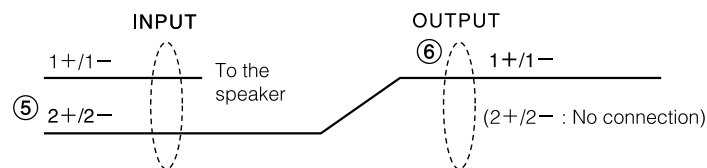
### ⑤ [INPUT] connector

This connector is compatible with Neutrik speakON plugs. Connect them to a power amplifier or powered mixer using a speaker cable. The speaker unit on the main unit is connected to 1+/1- of the [INPUT] connector. When connecting a speakON plug, insert it all the way in and turn it clockwise until it clicks into place to lock it. To remove the speakON plug, pull the latch towards you and turn the plug counterclockwise to remove it.



### ⑥ [OUTPUT] connector

This connector is compatible with Neutrik speakON plugs. Use this connector when connecting to another full-range speaker through the CXSmk3, or to a subwoofer in cardioid mode. The signal that is input to 2+/2- of the ⑤ [INPUT] connector is rerouted to the 1+/1- and output.

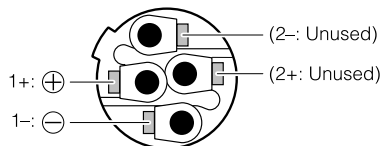


## 3. Connection

### 3.1. Wiring

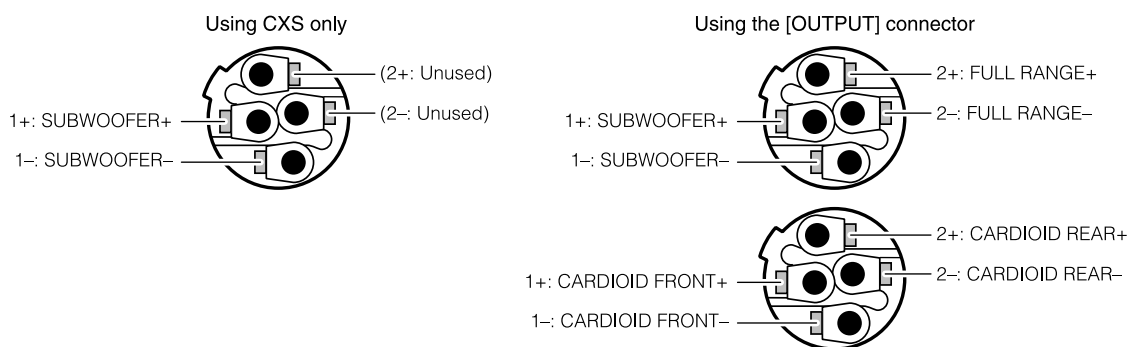
#### • CXRmk3 series

Wire the plugs as shown below. Use cables specially designed for speakers. When using only the CXRmk3 series itself, wiring to the 2+ and 2- contacts is unnecessary. If you are sending the signal for the subwoofer over a single cable, use the 2+ and 2- contacts, too. (See “Setting Example.”)



#### • CXSmk3 series

Wire the plugs as shown below. Use cables specially designed for speakers. When using only the CXS itself, wiring to the 2+ and 2- contacts is unnecessary. If you are using the [OUTPUT] connector and sending the full-range signal or cardioid signal over a single cable, use the 2+ and 2- contacts, too. (See “Setting Example” and “Cardioid Mode Setup.”)

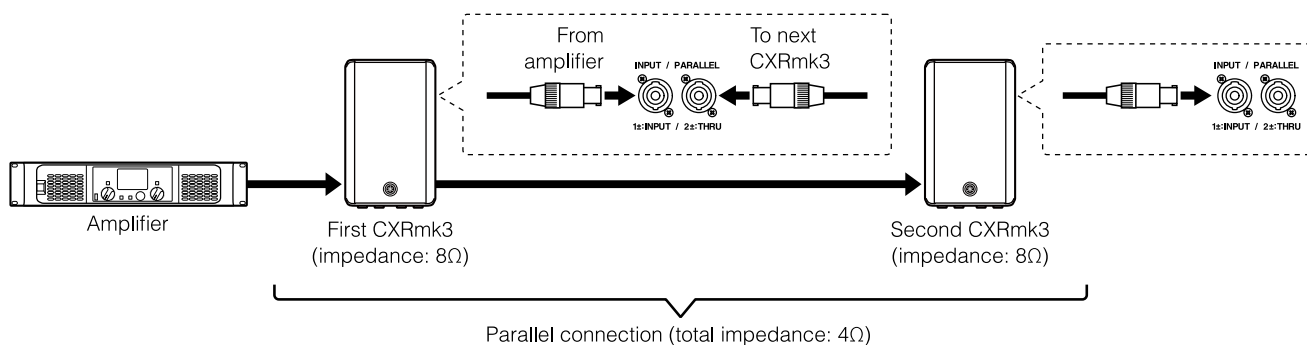


### 3.2. Parallel Connection of Speakers

#### • CXRmk3 series

[INPUT/PARALLEL] connectors are connected inside in parallel. The first CXRmk3 series can receive the signal from a power amplifier (hereinafter, “amplifier”) by one of the [INPUT/PARALLEL] connectors, and route the signal to the second CXRmk3 series from the rest of [INPUT/PARALLEL] connectors.

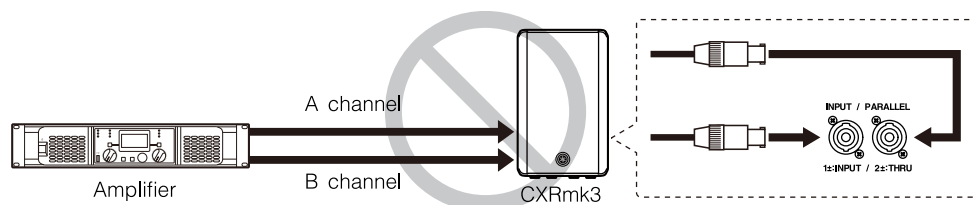
When connecting CXRmk3 series in parallel, be sure to check the load impedance that the amplifier can drive with. The rated impedance of one CXRmk3 series unit is eight ohms, so when two CXRmk3 series units are connected in parallel, the combined impedance is four ohms. In this case, the amplifier must be able to drive a speaker less than four ohm load impedance.



## ■ Invalid connection

**NOTICE**

- Never connect multiple signals from an amplifier to the [INPUT/PARALLEL] connectors simultaneously. Doing so will cause the signal to internally short circuit, which is extremely dangerous. It may cause the amplifier to malfunction.



## 4. Selection and Settings of Processors and Amplifiers

To achieve the full performance of the CXRmk3 series and the CXSmk3 series, you must adjust the crossover and equalizer (EQ) using a processor or an amplifier with built-in DSP.

When selecting an amplifier, the amplifier should have a similar program (PGM) wattage rating to the speaker.

Examples:

The PGM of the CXR15mk3 is 600 W, so an amplifier of 480 to 750 W (0.8 to 1.25 times 600 W) should be selected.

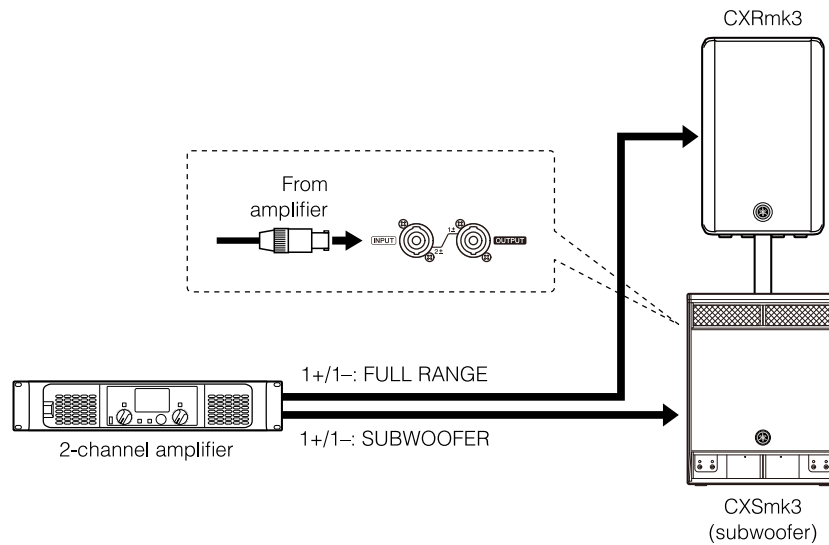
The PGM of the CXS18mk3 is 1000 W, so an amplifier of 800 to 1250 W (0.8 to 1.25 times 1000 W) should be selected.

However, when a speaker can be protected properly by a limiter, amplifiers with more power can be used together.

Visit the CXRmk3 series and CXSmk3 series product pages on the Yamaha Pro Audio website for details on the recommended models of processors and amplifiers and the EQ settings.

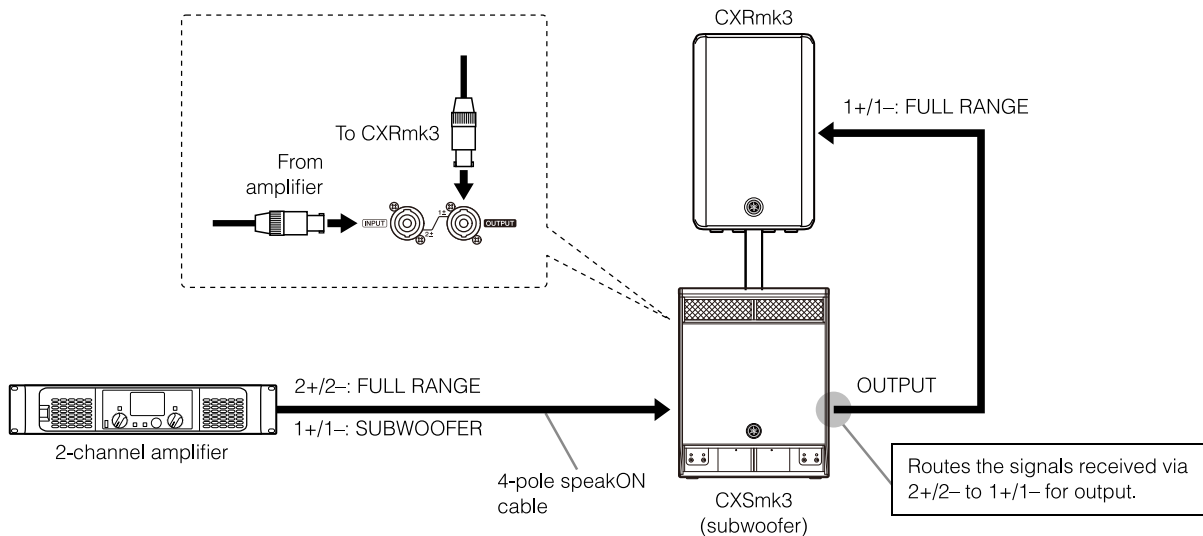
## 5. Setting Example

- This system is connected by separate cables from a two-channel amplifier to the CXRmk3 series and a subwoofer.



- This system is connected by a single cable from the outputs of a 2-channel amplifier, using the [OUTPUT] connector.

The [OUTPUT] connector of the CXRmk3 series receives the signals via 2+/2- of the [INPUT] connector and routes them to 1+/1- for output. Using the [INPUT] and [OUTPUT] connectors of the CXS along with a 4-pole speakON cable, you can connect an amplifier to the CXS with a single cable.

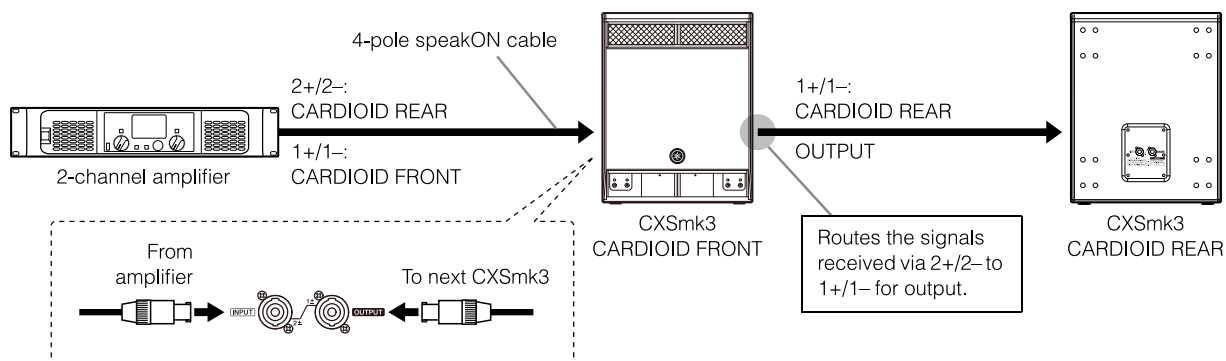


## 6. Cardioid Mode Setup

Because directivity in the low frequency range is weak, the output sound from the subwoofer diffracts not only toward the audience but also to the stage with almost the same sound pressure. By using the Cardioid mode, bass to the audience is summed up and bass to the stage is canceled. This suppresses the bass volume on the stage, providing greater headroom before feedback, and resulting in more powerful bass for the audience.

For cardioid mode, process the signals appropriately using a processor, and send signals from an amplifier to both the FRONT and REAR sides. For processor setting information specific to the CXSmk3 series, refer to the CXSmk3 series product page on the Yamaha Pro Audio website.

By using the [OUTPUT] connector on the CXSmk3 series and a 4-core speakON cable, you can connect the front and rear signals from a two-channel amplifier with just one cable.



## 7. Installation Examples



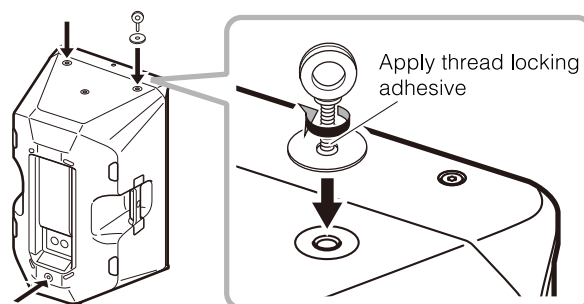
### CAUTION

- Ask the Yamaha dealer from whom you purchased the speaker for installation and mounting work.
- To ensure safe operation, perform regular maintenance and inspections. Some fittings may deteriorate over an extended period of time due to wear and/or corrosion.
- When choosing the installation location, suspension wire, and mounting hardware, make sure they are all strong enough to support the weight of the speaker.
- Be sure to take precautionary measures using safety wires to prevent the speaker from falling in the event of an installation failure.
- When attaching the safety wire to the wall, install it higher than the wire's attachment point on the speaker, with as little slack as possible. If the wire is too long, and the speaker happens to fall, the wire may snap as a result of too much strain.
- Be sure to use eye bolts that comply with standards and safety regulations in your area.

**Yamaha cannot be held responsible for damage or injury caused by insufficient strength of the support structure or improper installation.**

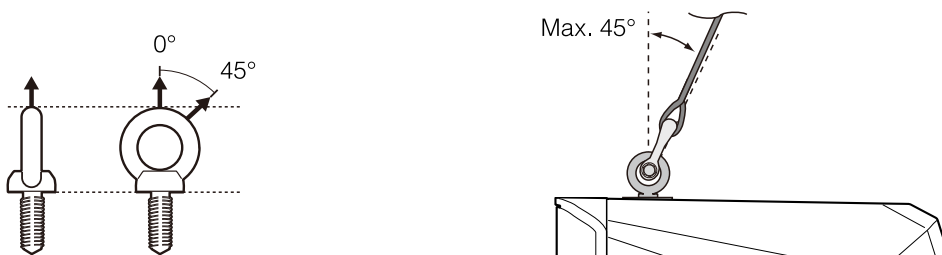
### 7.1. Suspended Installation Using Eye Bolts

When hanging a CXRmk3 series speaker, use the two threaded screw holes on the top panel and one on the rear panel of the speaker (which are sealed with stickers when shipped). Apply threadlocking fluid to commercially-available eye bolts, pass the washer over the bolt threads, and then screw the eye bolts into the holes. The screw holes on the CXR15mk3 and CXR12mk3 are size M10 (for eye bolts up to 18 mm long), and the screw hole on the CXR10mk3 is size M8 (for eye bolts up to 15 mm long). Be sure to use the two screw holes on the top panel to hang the speaker.

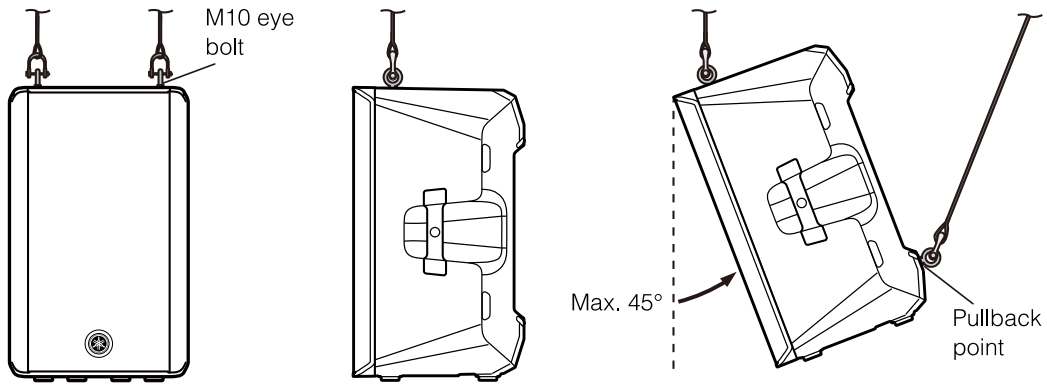


#### ■ Suspension angle

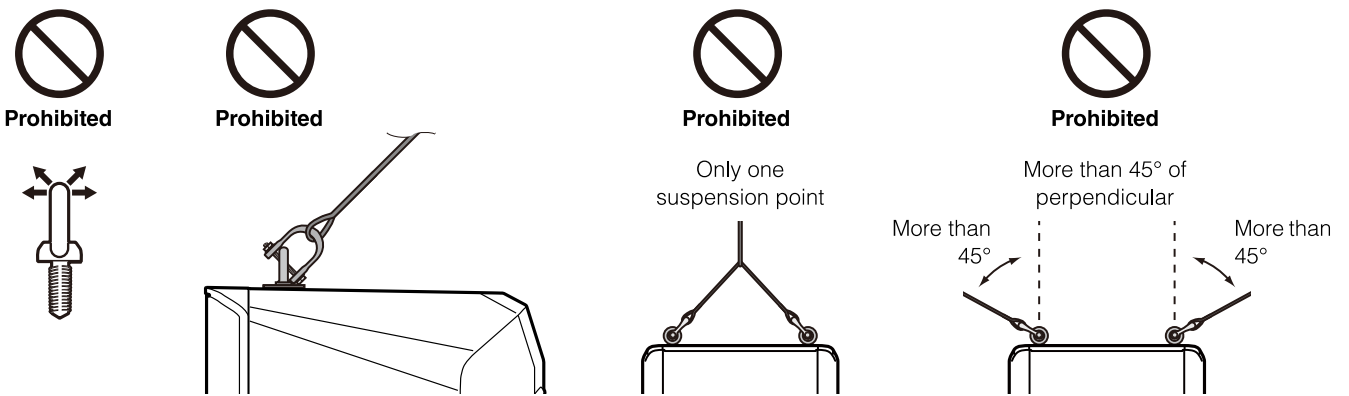
The strength of an eye bolt differs depending on the suspension angle. Be sure to use eye bolts within a range of 0 to 45 degrees of perpendicular (as shown).



■ Suspended installation example (CXR12mk3)



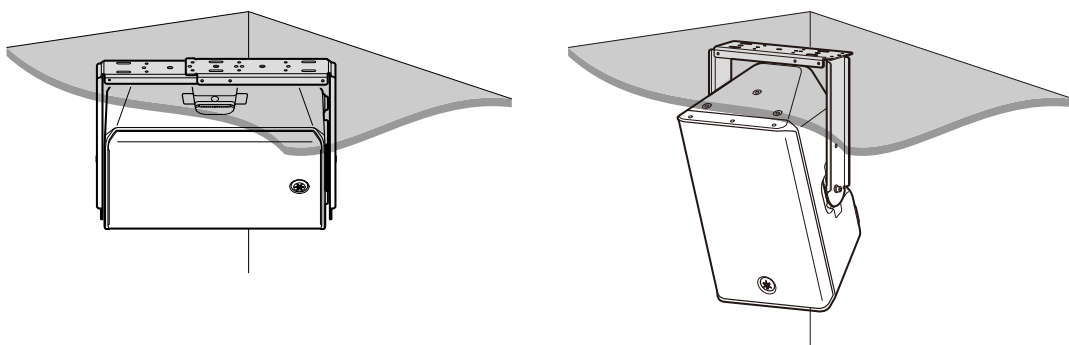
■ Incorrect examples for suspended installation



## 7.2. Installation Using a Dedicated U-bracket

The speaker can be mounted on a ceiling or wall using the optional Yamaha U-bracket (sold separately). For instructions on how to install the U-bracket, refer to the owner's manual for the UB-DXR15A, UB-DXR12A, or UB-DXR10A.

■ Usage example



 **NOTE**

The U-bracket can be used in combination with optional brackets sold separately. For product information, refer to the Yamaha Pro Audio website linked below.  
<https://www.yamahaproaudio.com/>

## 8. Troubleshooting

Symptom	Possible causes	Possible solution
No sound.	The cable is not connected properly.	<ul style="list-style-type: none"> <li>Insert the speakON plug all the way in and turn it clockwise until it clicks into place to lock it.</li> <li>Connect it to "1+" and "1-."</li> </ul>
Sound is interrupted suddenly.	The built-in protection system has been enabled because the input volume is excessive.	Refer to the "Protection Circuit" section of the "NOTICE" section.
	The speaker units are damaged.	If no sound although the connection and signal level are appropriate, there is a possibility of malfunction of the speaker units. Contact your Yamaha dealer.
The speaker is howling.	The microphone is facing the speaker.	Move the speaker away from the microphone's pickup range.
	The sound is amplified too much.	Turn down the volume on your power amplifier and move the microphone closer to the sound source.
The power amplifier shuts down.	The combined impedance of the speakers is lower than the minimum load impedance of the power amplifier. Example: Two or more speakers (8 ohms) are connected in parallel to a power amplifier with a load impedance of 6 ohms.	Check the minimum load impedance of your power amplifier and reduce the number of speakers connected in parallel so that it does not fall below the limit.
	The protection system of the amplifier has been enabled because the input volume is excessive.	Wait until the amplifier cools down. Before using it again, lower the input volume.
Sound is distorted.	Input volume is excessive.	Lower the volume of the input device so that the limit indicator of the amplifier lights only occasionally.

## 9. Reference

<https://manual.yamaha.com/audio/rt/speakers/cxr-mk3-cxs-mk3/en.html>

- Specifications
- Dimensions

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