Q-SYS PL-CA Series Two Way Passive Point Source Loudspeakers User Manual

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Q-SYS PL-CA Series Two Way Passive Point Source Loudspeakers

EXPLANATION OF SYMBOLS

- The term "**WARNING**!" indicates instructions regarding personal safety. If the instructions are not followed, the

result may be bodily injury or death.

- The term “**CAUTION**!” indicates instructions regarding possible damage to physical equipment. If these instructions are not followed, it may result in damage to the equipment that may not be covered under the warranty.
- The term “IMPORTANT!” indicates instructions or information that are vital to the successful completion of the procedure.
- The term “NOTE” is used to indicate additional useful information. The lightning flash with arrow head symbol in a triangle alerts the user to the presence of uninsulated dangerous voltage within the product’s enclosure that may constitute a risk of electric shock to humans. The exclamation point within a triangle alerts the user to the presence of important safety, operating, and maintenance instructions in this manual.

IMPORTANT SAFETY INSTRUCTIONS

WARNING!: While it is possible for one person to lift a loudspeaker, it is important to use proper lifting techniques. Suggested reading: OSHA Technical Manual (OTM) > Back Disorders and Injuries: https://www.osha.gov/otm/

1. Read, follow, and keep these instructions.
2. Heed all warnings.
3. Clean only with a dry cloth.
4. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
5. Only use attachments/accessories specified by the manufacturer.
6. Refer all servicing to qualified service personnel.
7. Adhere to all applicable, local codes.
8. Consult a licensed, professional engineer when any doubt or questions arise regarding a physical equipment installation.
9. Suspension of this product should be done by qualified persons following safe rigging practices. Other limitations may apply.
10. Use only the recommended system components and suspension hardware intended for use with this product as directed by this manual.

    WARNING!: Read and follow the installation instructions carefully. If these products are not suspended properly, they could fall, causing personal injury or death and damage to the equipment. Refer to the user manual for rules on suspension.

RoHS Statements

The Q-SYS PL Series loudspeakers are in compliance with European RoHS Directive. The Q-SYS PL Series loudspeakers are in compliance with “China RoHS” directives. The following table is provided for product use in China and its territories.

	Q-SYS PL Series Loudspeakers					
(Part Name)	(Hazardous Substances)					
	(Pb)	(Hg)	(Cd)	(Cr(vi))	(PBB)	(PBDE)
(PCB Assemblies)	X	O	O	O	O	O
(Chassis Assemblies)	X	O	O	O	O	O

SJ/T 11364

This table is prepared following the requirement of SJ/T 11364.

O: Indicates that the concentration of the substance in all homogeneous materials of the part is below the relevant threshold specified in GB/T 26572.

X: Indicates that the concentration of the substance in at least one of all homogeneous materials of the part is above the relevant threshold specified in GB/T 26572.

(Replacement and reduction of content cannot be achieved currently because of the technical or economic reason.)

Safety Regulations and Protection Ratings:
Product Configurations covered by this manual are designed and tested for compliance to the following regulations and standards:

- 2001/95/EC General Product Safety Directive
- EN 62368-1
- IEC 60529 IP54

General Rules for Suspension

- Consult a professional mechanical or structural engineer, licensed in the jurisdiction of the sound system installation, to review, verify, and approve all attachments to the building or structure.
- Employ the services of a certified, professional rigger for hoisting, positioning, and attaching the equipment to the supporting structure.
- Correct use of all suspension hardware and components is imperative in sound system suspension and deployment.
- Consult local codes and regulations to fully understand the requirements for suspended loads in the venue in which equipment will be suspended.
- Use only dedicated PL-CA accessories when deploying the Loudspeakers. Further details can be found below.
- Be absolutely certain of the integrity of any structural member intended to support suspended loads. Hidden structural members can have hidden structural weakness.
- Never assume anything! Owner or third-party supplied suspension attachment points may not be adequate for

suspending the loads.

- Before lifting, always inspect all components (enclosures, suspension brackets, pins, frames, bolts, nuts, slings, shackles, etc.) for cracks, wear, deformation, corrosion, missing, loose, or damaged parts that could reduce the strength of the assembly. Discard any worn, defective, or suspect parts and replace them with new, appropriately load-rated parts.

Shock Loading
When a load is moved or stopped, its static weight is magnified. Sudden movements can magnify the static weight several times. This is called “shock loading.” The effects of shock loading can be instantaneous, or it can remain undetected. Proper preparation for shock loading requires careful planning and knowledge of equipment, suspension, and lifting practices. Shock loading is most often the result of lifting and installation, but natural forces (winds, earthquakes, etc.) can create shock loads several times the static load. Shock loading poses a danger to equipment and workers. Because of this, structures and suspension equipment must be capable of supporting several times the weight of the suspended equipment.

Introduction

The Q-SYS PL-CA family is composed of two-way, full-range coaxial loudspeakers that offer wide, symmetrical coverage in a compact enclosure, making them ideal for situations where the listeners will be closer to the loudspeakers and/or where controlled coverage is not required.

Key Features and Technologies

- Five sizes available for optimal flexibility
- Anti-diffraction baffle avoids frequency response irregularities due to the diffraction on upper and lower loudspeaker lips
- Weatherized (IP54) enclosure for indoor and protected outdoor environments
- Pairing with Q-SYS CX-Q 4ch network amplifiers enables custom voicing and filter sets
- Several mounting options available for a variety of spaces and venue requirements

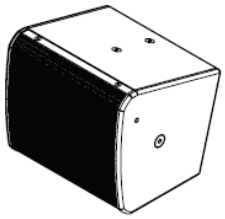
Outdoor Deployment
This equipment has been designed to withstand weather conditions encountered in protected outdoor environments. Ensure that the loudspeakers are positioned under cover to protect them. Direct deployment in environments close to the sea side or with a high degree of corrosion is not recommended.
While the grille is protected by a mesh that avoid ingress of water into the port, it is recommended to angle the loudspeaker with a down tilt of 5° to allow eventual creeping water to get out of the loudspeaker by gravity.

These loudspeakers feature the following:

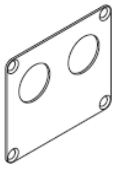
- IP54
- External plywood
- Stainless screws
- Treated grille vs. UV and corrosion
- Hydrophobic stainless steel mesh behind grille
- Polyurea paint
- Input cup (IP65) sealing with gland

What’s in the Box

PL-CA5 Loudspeaker



(1) PL-CA5 LOUDSPEAKER



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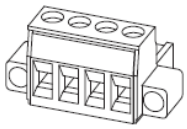
INPUT COVER FOR
IP65

(6) SC-000814-01
SCREWS FOR INPUT
COVER M4

(1) LABEL, COVER
LB-004254

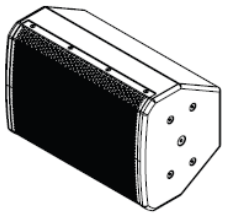


(1) CO-000649-01
CONNECTOR 4 POLES

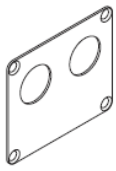
(1) TD-001688-00 SAFETY &
REGULATORY STATEMENTS

(1) WARRANTY
STATEMENT

PL-CA6 Loudspeaker



(1) PL-CA6 LOUDSPEAKER



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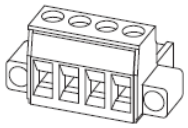
INPUT COVER FOR
IP65

(6) SC-000814-01
SCREWS FOR INPUT
COVER M4

(1) LABEL, COVER
LB-004254



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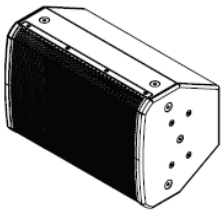
CONNECTOR 4 POLES

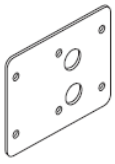
(1) TD-001688-00 SAFETY &
REGULATORY STATEMENTS

(1) WARRANTY
STATEMENT

PL-CA8 Loudspeaker



(1) PL-CA8 LOUDSPEAKER



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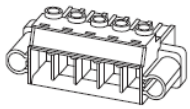
INPUT COVER FOR IP65

(6) SC-000814-01
SCREWS FOR INPUT COVER

(1) HOLE COVER
LB-004261-20

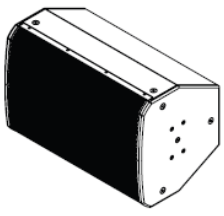


(1) CO-000981-01
CONNECTOR 4 POLES

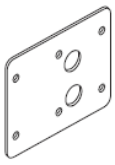
(1) TD-001688-00 SAFETY &
REGULATORY STATEMENTS

(1) WARRANTY STATEMENT

PL-CA12 Loudspeaker



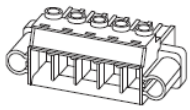
(1) PL-CA12 LOUDSPEAKER



(1) SG-000740-01
INPUT COVER FOR IP65

(6) SC-000814-01
SCREWS FOR INPUT COVER

(1) HOLE COVER
LB-004261-20



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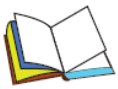
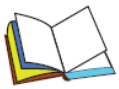
CONNECTOR 4 POLES

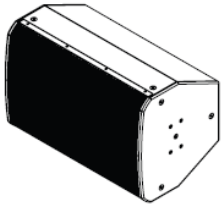
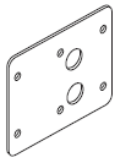
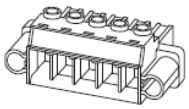


(1) TD-001688-00 SAFETY &
REGULATORY STATEMENTS

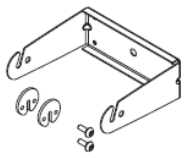
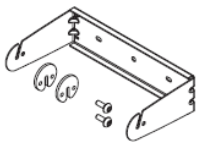
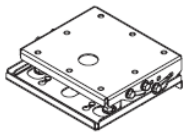
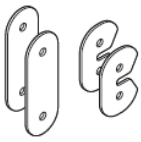


(1) WARRANTY STATEMENT

PL-CA15 Loudspeaker

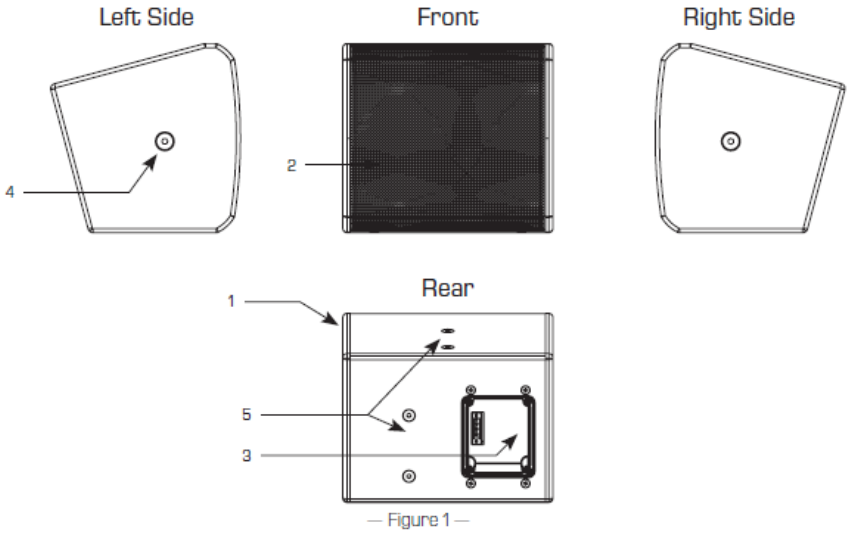
 (1) PL-CA15 LOUDSPEAKER	 (1) SG-000740-01 INPUT COVER FOR IP65 (6) SC-000814-01 SCREWS FOR INPUT COVER (1) HOLE COVER LB-004261-20
	 (1) CO-000981-01 CONNECTOR 4 POLES
(1) TD-001688-00 SAFETY & REGULATORY STATEMENTS	(1) WARRANTY STATEMENT

Accessories (Available Separately)

 (1) YOKE MOUNT PL-CA5-YM, PL-CA6-YM (2) PL-003529-01 RUBBER SPACER (2) SC-000826-01 SHOULDER SCREWS	 (1) YOKE MOUNT PL-CA8-YM, PL-CA12-YM, PL-CA15 (2) PL-003087-01 RUBBER SPACER (2) SC-000826-02 SHOULDER SCREWS
 (1) FLUSH MOUNT PL-DC-24-FM for PL-CA5 (2) SC-000840-01 M6-15 SCREWS	(2) PL-CA12-LK, SUB LINK (2) PL-003591-01 SPACER (2) PL-003592-01 SPACER YOKE
FG-000431-00 M10 KIT-W (3) SHOULDER EYEBOLT M10 35 MM-38 MM	 (4) SC-000834-01 SCREW, M8 25 MM (2) SC-000826-02 SHOULDER SCREW

Features

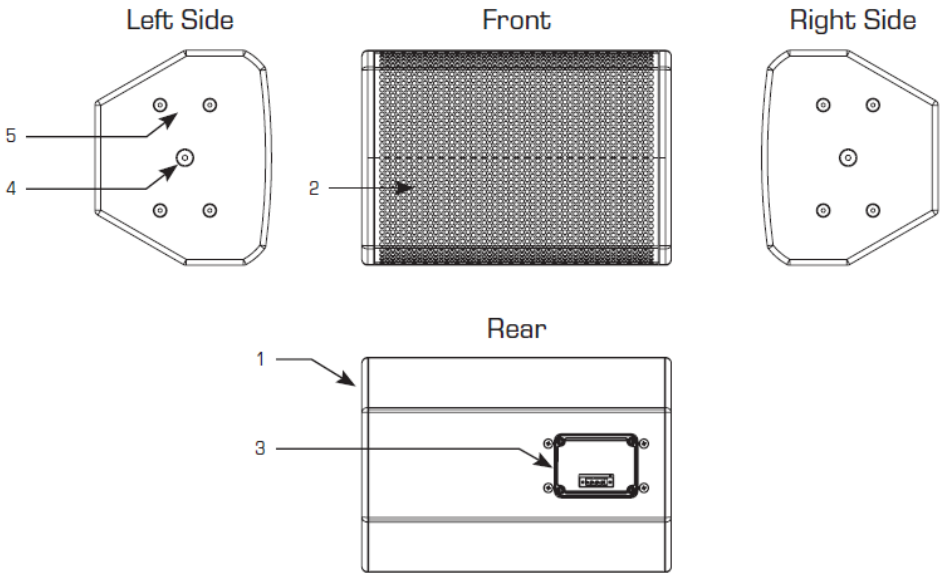
PL-CA5 Features



— Figure 1 —

1. Wood enclosure
2. Weatherized steel grille
3. Rear panel input cup
4. M8 yoke rigging points
5. M6 Accessory 60 mm mounting pattern

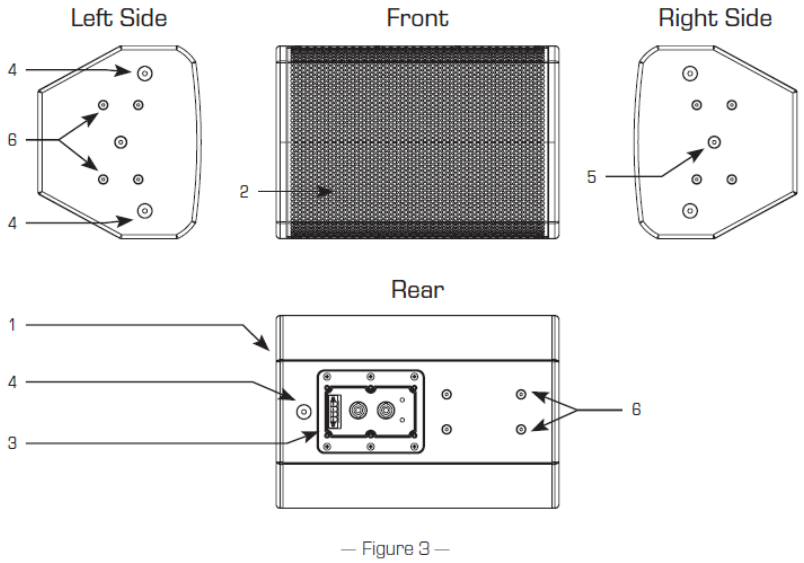
PL-CA6 Features



— Figure 2 —

1. Wood enclosure
2. Weatherized steel grille
3. Rear panel input cup
4. M8 yoke rigging points
5. 4-hole M6 mounting pattern

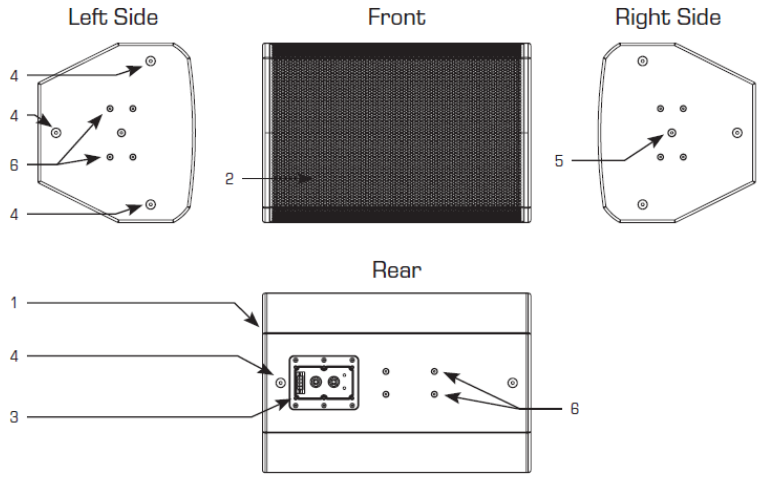
PL-CA8 Features



— Figure 3 —

1. Wood enclosure
2. Weatherized steel grille
3. Rear panel input cup
4. M10 suspension points
5. M8 yoke rigging points
6. 4-hole mounting pattern

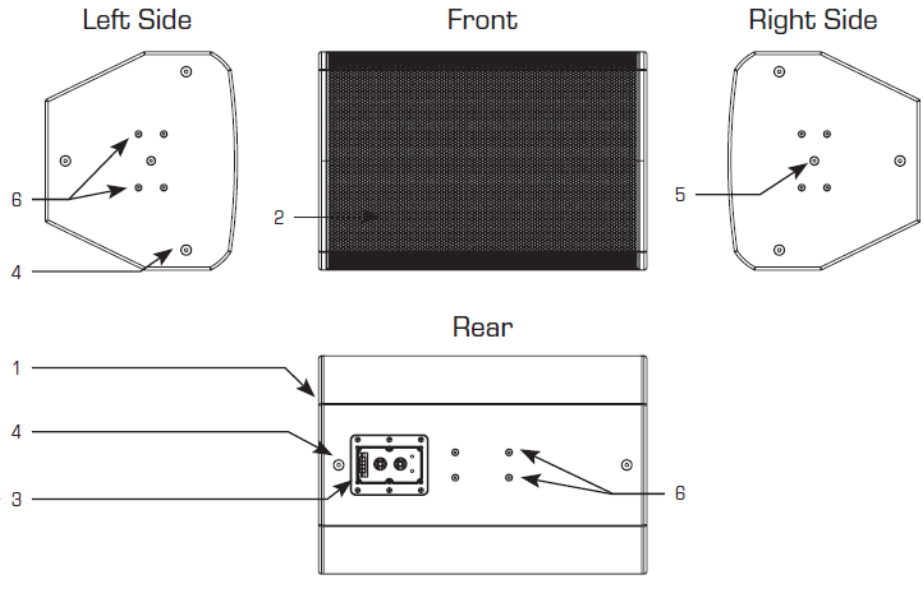
PL-CA12 Features



— Figure 4 —

1. Wood enclosure
2. Weatherized steel grille
3. Rear panel input cup
4. M10 suspension points
5. M8 yoke rigging points
6. 4-hole mounting pattern

PL-CA15 Features

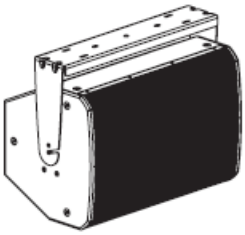


— Figure 5 —

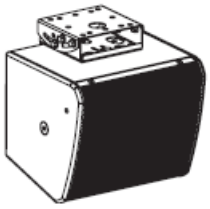
1. Wood enclosure
2. Weatherized steel grille
3. Rear panel input cup
4. M10 suspension points
5. M8 yoke rigging points
6. 4-hole mounting pattern

Mounting Options

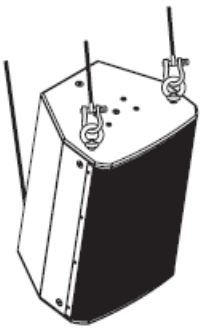
For Yoke Mount see page 18.



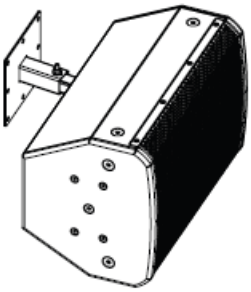
For Flush Mount see page 18.



For M10 Suspension Points see page 21.



For Mounting Arm (Third-party accessory) see page 21.



Deployment
The PL-CA loudspeakers feature a large variety of mounting options.

PL-CA5

- 2xM6 on the back spaced 70 mm (2.75 in)
- 2xM6 on the top and bottom spaced 60 mm (2.36 in)
- 1xM8 per side on CG for Yoke Attachment

PL-CA6

- 1xM8 per side on CG for Yoke Attachment

- 2 x 4.25 in (50 x 108 mm) four M6 holes mounting pattern on top and bottom

PL-CA8

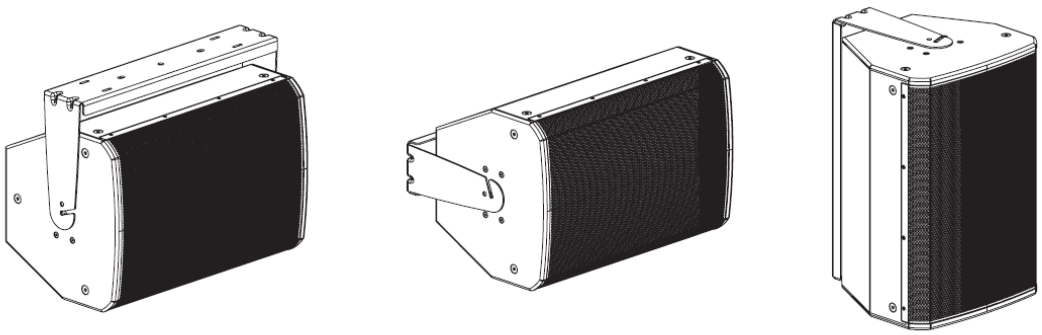
- 2xM10 on top and bottom
- 1xM10 on back
- 2 x 4.25 in (50 x 108 mm) four M6 holes mounting pattern on top, bottom and back
- 1xM8 per side on CG for Yoke Attachment

PL-CA12/PL-CA15

- 3xM10 on top and bottom
- 2xM10 on sides and back
- 2×4.25 in (50 x 108 mm) four M6 holes mounting pattern on top, bottom, and back
- 1xM8 per side on CG for Yoke Attachment

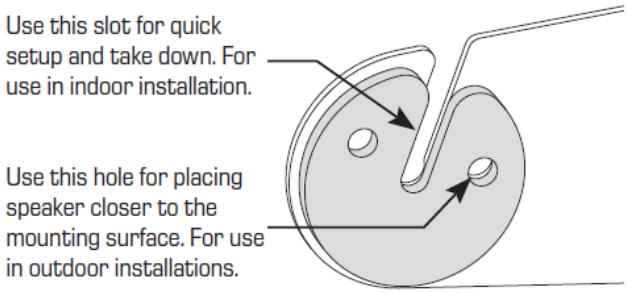
Accessories

Yoke Mount
The Yoke mounts are available as optional accessories for models PL-CA5, PL-CA6, PL-CA8, PL-CA12, and PL-CA15 and are optimized for horizontal deployment. Vertical deployment is also possible but won't allow an upwards or downwards tilt.



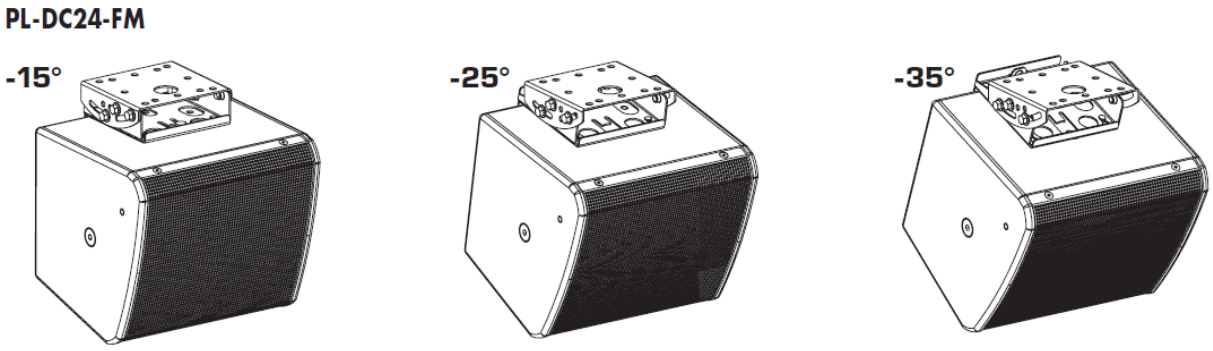
— Figure 6 —

1. Insert an M8 screw in the yoke hole on the loudspeaker.
2. Install Yoke in the position.
3. Hang the loudspeaker on the bracket by lowering the M8 screws into the bracket slots.
4. Connect the wiring.
5. Angle the loudspeaker.
6. Tighten the M8 screws.

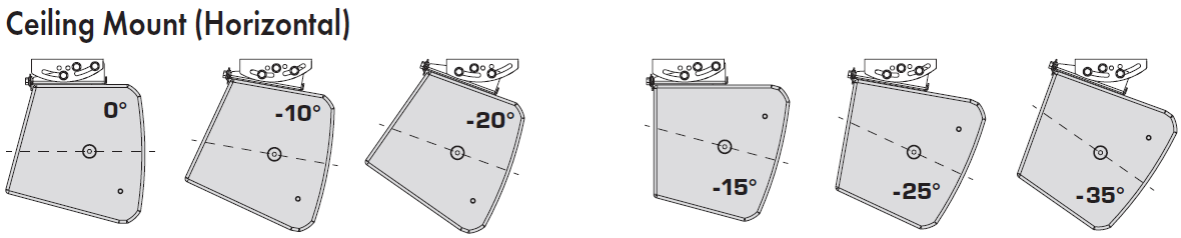


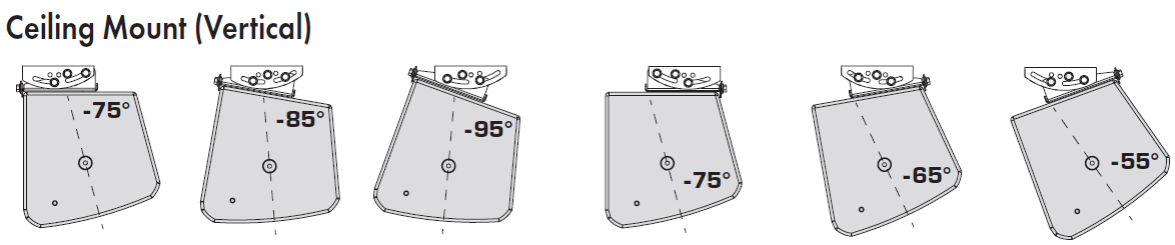
— Figure 7 —

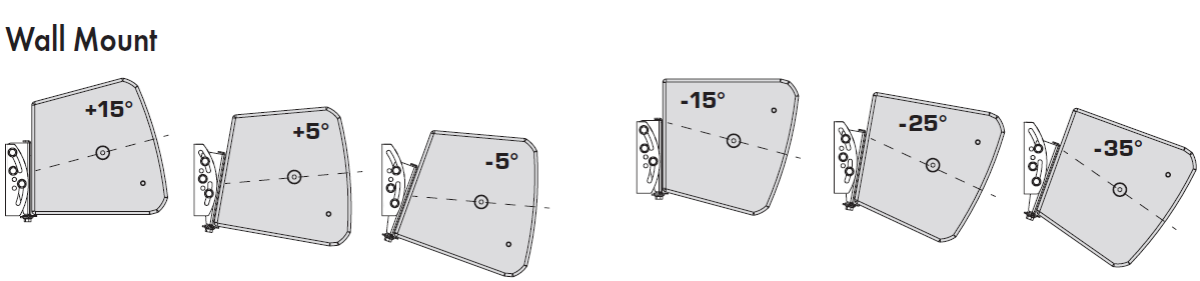
Flush Mount (Surface Mount)



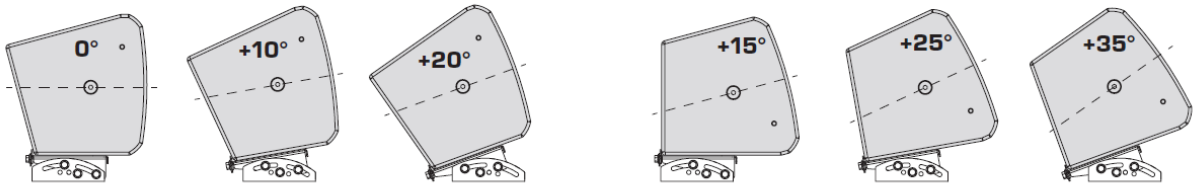
The Flush Mount accessory is designed to allow the loudspeaker to be mounted as close as it can from a ceiling (or wall) and can be mounted on the top, bottom, or back side of the loudspeaker. The asymmetric shape of the loudspeaker allows an offset of 5 degrees whether the accessory is mounted on the top or bottom. The accessory is designed to precisely lock into 3 different angles (offering 6 angles when the loudspeaker can be reversed) but can also be angled in any position. When mounted on the back side it can be used as a wall mounting or 90 degree downward firing ceiling mount. It can be also used on a stage but the accessory will need to be fastened to the stage as it does not offer enough stability on its own.







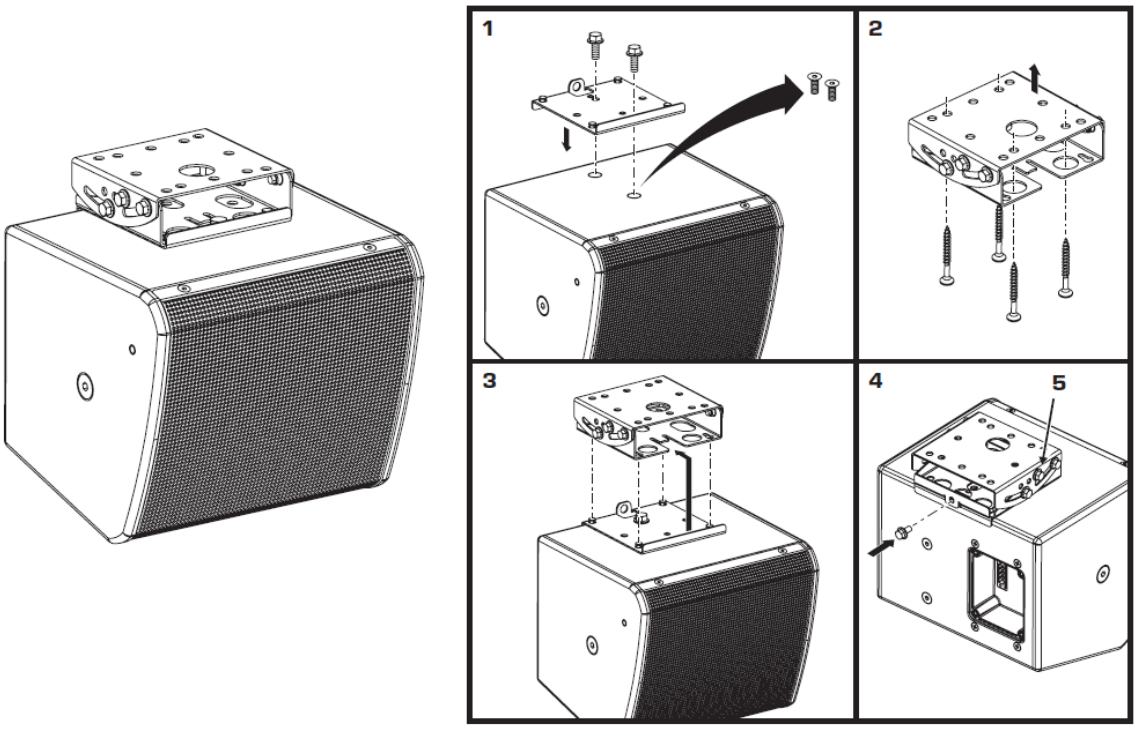
Floor Mount



— Figure 8 —

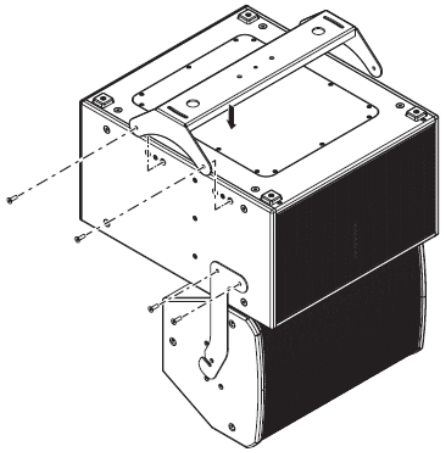
The following displays the deployment of the flush mount accessory for the CA5.

1. Attach the part with the male keyhole on the loudspeaker.
2. Attach the angle plate to the ceiling.
3. Attach the loudspeaker into the keyholes.
4. Secure at the back.
5. Insert a screw in the desired angle hole.



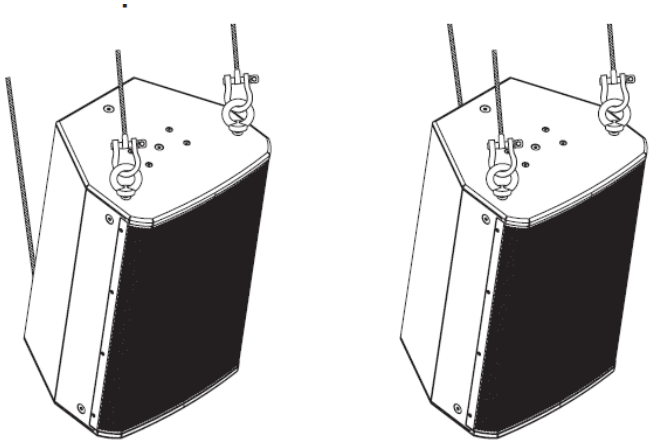
— Figure 9 —

PL-SUB15-AF + PL-CA12-LK Sub Link
Please refer to the PL-SUB manual to deploy the PL-CA12 Sub Link with the PL-SUB15.



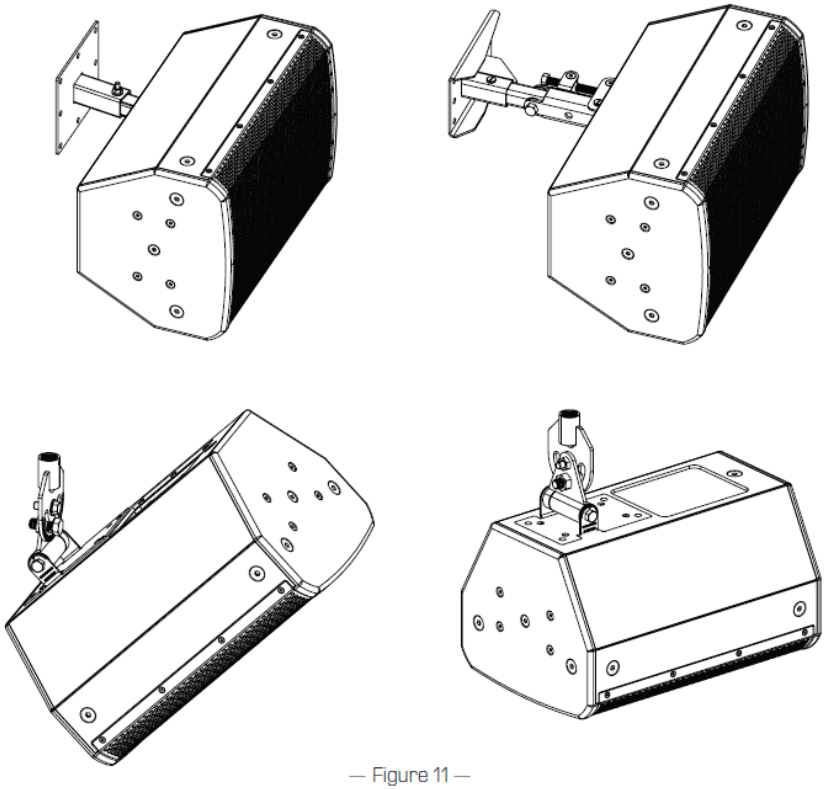
— Figure 10 —

M10 Suspension Points



Third Party Mounting Arms

The following are examples of compatible third party mounting arms that can be used with the PL-CA loudspeakers.



— Figure 11 —

Input Connection

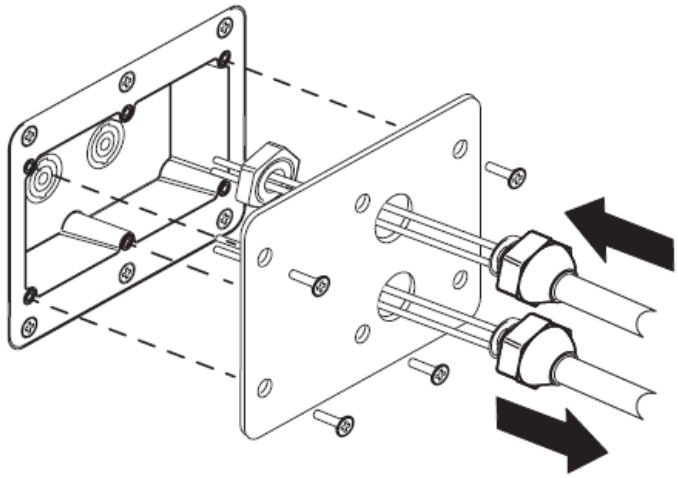
Product	Connector	Specifications
PL-CA5 PL-CA6	• 1 EUROBLOCK Connector	• Current Rating 12 Arms • Solid Wire 14 AWG (2.5 mm2) • 4 poles • Fasten on male part with M3.5 screws • The connector is recessed and may be covered by a IP65 sealing plate. • The plate allows 1 gland connectors (not provided) to pass the signal IN and OUT. • The input connection of the PL-CA5 & PL-CA6 does not allow bi-amp mode but does support throughput connection to daisy chain additional loudspeakers.
PL-CA8 PL-CA12 PL-CA15	• 1 EUROBLOCK Connector	• Current Rating 32 Arms • Solid Wire 8-24 AWG (up to 10 mm2) • The 4 poles Connector allows bi-amp mode but does not support daisy chain THRU connection. Use the SPEAKON NL4 for this purpose or connect IN and THRU wires in the same pole. • Fasten on male part with M3.5 screws
	• 2 x SPEAKON NL4 (cable connector not provided)	• Locking • Up to 30 Arms • Up to 9-16 AWG gauge (up to 6 mm2) • Connectors are wired in parallel, allowing daisy chain THRU in passive or bi-amp mode
	• Both connectors are recessed. • The plate allows 2 gland connectors (not provided) to pass the signal IN and OUT. • IP65 Sealing is only available when using the EUROBLOC connector. • Switching between PASSIVE and Bi-Amp requires removing the connection plate and adjusting an internal MOLEX connector.	

Installing the Optional Input Connection Cover

Due to the variety of cable diameters, the “cable gland” (suitable for 22.5 mm diameter hole) must be sourced independently. The loudspeaker comes with a weather cover for the input cup to protect the input connections and switches from precipitation and other weather hazards. Use the weather cover for all outdoor installations or any applications where the loudspeaker may be exposed to moisture. To ensure good seal in the cable gland, use outdoor-rated cable with a round jacket up to 0.37 in or 9.4 mm in diameter.

Using the Weather Cover

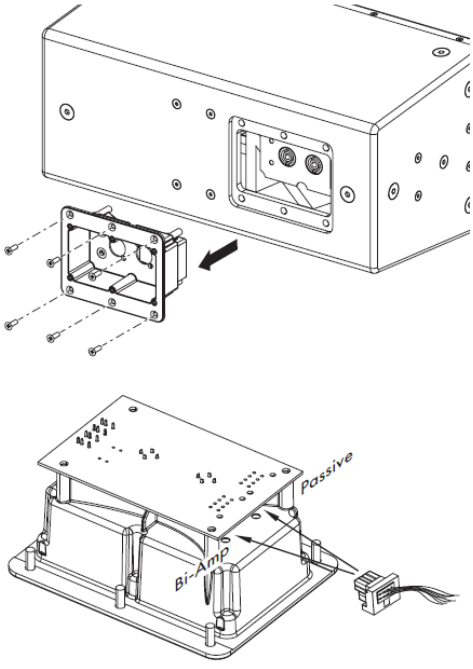
1. Loosen the nut on the cable gland.
2. Pass the cable all the way through the nut and the rest of the gland.
3. Attach the input connector to the wires (see Input Connector, below).
4. Once the loudspeaker enclosure is installed, plug the input connector into the loudspeaker's input cup. Secure the connector to the loudspeaker using the two captive retaining screws, one on each end.



5. Place the cover onto the loudspeaker's input cup and attach it using the four screws, lock washers, and flat washers provided.
6. Dress the cable so there is no undue strain on it. Tighten the gland nut until the grommet inside the gland has made a tight seal onto the cable jacket. The optional input cover only accommodates the EUROBLOC Connector, not the SPEAKON NL4. Use the hole cover LB-004261-20 (PL-CA8-12-15) or LB-004254 (PL-CA5 and PL-CA6) for sealing the extra hole when needing only single termination.

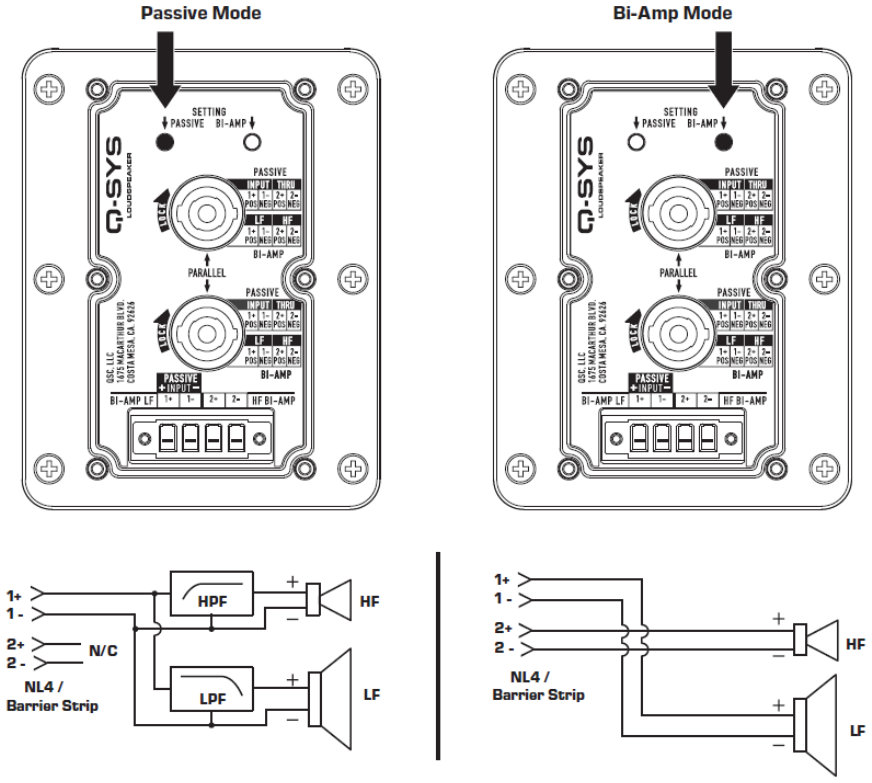
Changing from Passive to Bi-Amp Mode

To change from Passive to Bi-amp or Bi-amp to Passive mode:



1. Remove the six screws holding the input cup in place.

2. Remove the input cup, being careful not to place excess stress on the connecting wiring harness.
3. Remove the wiring harness plug from the receptacle at the bottom of the cup.
4. Insert the wiring harness plug into the desired mode receptacle at the bottom of the cup.
5. Turn the input cup over and verify that the yellow is visible in the proper SETTING port. If not, move the plug to desired receptacle.
6. Carefully place the input cup back into position on the enclosure, being careful not to bind or pinch any of the wiring.
7. Secure the input cup with the six screws removed in step 1.



System Amplification
The PL Series is meant to be used with CXQ amplifiers (or future generations). The exact model will depend on your application, the number of loudspeakers per channel, and the type of loudspeaker.

Bi-amp mode: All HF can be run on 2K4. If you are using amplifiers of a different type on HF and LF, please remember that those will have different gain that will have to be compensated for. The LF section requires the same amplifier as the passive mode.

System Processing
Q-SYS PL Series are designed to be used with a Q-SYS Core processor only and CXQ amplifier. Refer to the documentation for Q-SYS Designer Software (**help.qsys.com**) for a description of the settings.

System Power for Loudspeaker per Channel

Loudspeaker / Channel	CXQ 2K4	CXQ 4K4	CXQ 8K4
PL-CA5	2	4	8
PL-CA6	2	3	4
PL-CA8	1	2	4
PL-CA12 PL-CA15	–	1	2
Gain (1.2 V Setting)	33 dB	35 dB	38 dB

NOTE: The 8-channel CXQ amplifiers don't offer the same DSP resources as the 4-channel amplifiers. As a result, EQ precision between 400 and 1 kHz may be lost.

Knowledge Base
Find answers to common questions, troubleshooting information, tips, and application notes. Link to support policies and resources, including Q-SYS Help, software and firmware, product documents, and training videos. Create support cases. **support.qsys.com**

Customer Support
Refer to the Contact Us page on the Q-SYS website for Technical Support and Customer Care, including their phone numbers and hours of operation. **qsys.com/contact-us/**

Warranty
For a copy of the QSC Limited Warranty, go to: **qsys.com/support/warranty-statement/**

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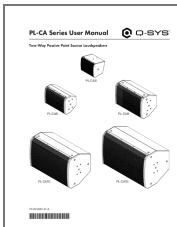
Documents / Resources

	Q-SYS PL-CA Series Two Way Passive Point Source Loudspeakers [pdf] User Manual PL-CA Series Two Way Passive Point Source Loudspeakers, PL-CA Series, Two Way Passive Point Source Loudspeakers, Passive Point Source Loudspeakers, Point Source Loudspeakers, Source Loudspeakers, Loudspeakers

References

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