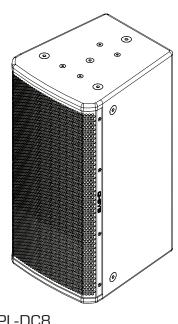
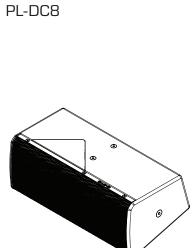
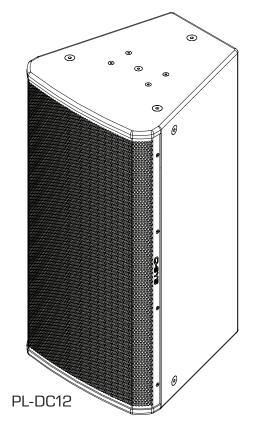
PL-DC Series User Manual

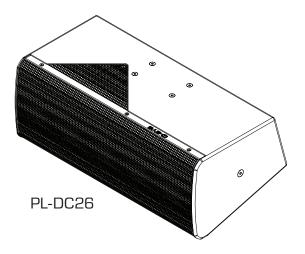


Two-Way Passive Point Source Loudspeakers









TD-001678-01-A

PL-DC24



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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 arrowhead 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					
部件名称 (Part Name)	有害物质 (Hazardous Substances)					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(vi))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
电路板组件 (PCB Assemblies)	X	0	0	0	0	0
机壳装配件 (Chassis Assemblies)	Х	0	0	0	0	0

本表格依据 SJ/T 11364 的规定编制。

- O:表示该有害物质在该部件所有均质材料中的含量均在 GB/T 26572 规定的限量要求以下。
- X: 表示该有害物质至少在该部件的某一均质材料中的含量超出 GB/T 26572 规定的限量要求。

(目前由于技术或经济的原因暂时无法实现替代或减量化。)

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.)

Rigging Safety Regulations and Protection Ratings:

- 2006/42/EC
- EN ISO 12100-1: 2004
- EN1991-1 / EN1993-1-1 / EN1993-1-8 / EN1999-1-1
- DGUV Vorschrift 17/18
- ANSI E1.8-2018
- DIN 18032-2 Ball Impact Test
- 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-DC 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-DC family consists of two-way, passive point source loudspeakers with directivity control for delivering premium sound across a wide range of settings - from entertainment venues to corporate auditoriums. Available in four sizes (dual-4-inch, dual-6-inch, 8-inch, and 12-inch), all the PL-DC models can act as stage fills or delays, while the smaller models can be placed under balconies to fill in lost coverage and the larger models can be part of front of house systems. Additionally, the dual-4-inch model offers a fixed 110° x 50° horn while the three larger models offer a reconfigurable horn, enabling more control over where sound needs to be heard. PL Series performance loudspeakers pair a rich legacy of high-performance audio with the power and flexibility of Q-SYS to extend an integrated audio, video, and control experience to your front-of-house applications.

Key Features and Technologies

- Reconfigurable and rotatable half-horn assemblies for symmetrical or asymmetrical coverage.
- Four sizes available for optimal flexibility
- PL-DC26, PL-DC8, and PL-DC12 include reconfigurable horn
- 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

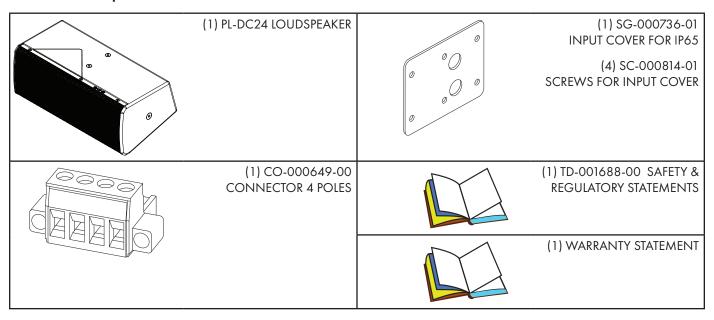
PL-DC8 Loudspeaker

(1) PL-DC8 LOUDSPEAKER EQUIPPED WITH 120 x 50 HORN (SG-000741-01)	(1) SG-000740-01 INPUT COVER FOR IP65 (6) SC-000814-01 SCREWS FOR INPUT COVER M4
SG-000744-01 (1) HORN DIVIDER (4) GASKETS (2) HALF HORN 90 x 50	(1) CO-000981-01 CONNECTOR 4 POLES
(4) SC-000509-00 HALF HORN SCREWS M3.5	
(4) SC-000770-01 HORN FRAME SCREWS M4	
(1) TD-001688-00 SAFETY & REGULATORY STATEMENTS	(1) Warranty Statement

PL-DC12 Loudspeaker

(1) PL-DC12 LOUDSPEAKER EQUIPPED WITH 90 x 50 HORN (SG-000759-01)	(1) SG-000740-01 INPUT COVER FOR IP65 (6) SC-000814-01 SCREWS FOR INPUT COVER
(1) HORN DIVIDER (4) GASKETS (2) HALF HORN 110 x 50* (2) HALF HORN 70 x 50** (10) SC-000770-01 HORN FRAME SCREWS M4	(1) CO-000981-01 CONNECTOR 4 POLES
(1) TD-001688-00 SAFETY & REGULATORY STATEMENTS	(1) WARRANTY STATEMENT

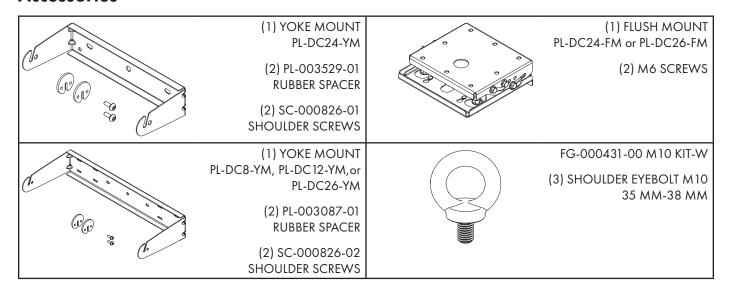
PL-DC24 Loudspeaker



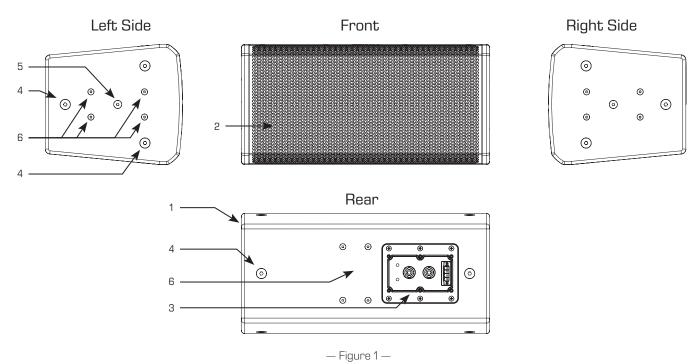
PL-DC26 Loudspeaker

(1) PL-DC26 LOUDSPEAKER EQUIPPED WITH 120 x 50 HORN (SG-000741-01)	(1) SG-000740-01 INPUT COVER FOR IP65 (6) SC-000814-01 SCREWS FOR INPUT COVER
SG-000744-01 (1) HORN DIVIDER (4) GASKETS (2) HALF HORN 90 x 50	(1) CO-000981-01 CONNECTOR 4 POLES
(4) SC-000509-00 HALF HORN SCREWS M3.5	
(4) SC-000770-01 HORN FRAME SCREWS M4	
(1) TD-001688-00 SAFETY & REGULATORY STATEMENTS	(1) Warranty Statement

Accessories

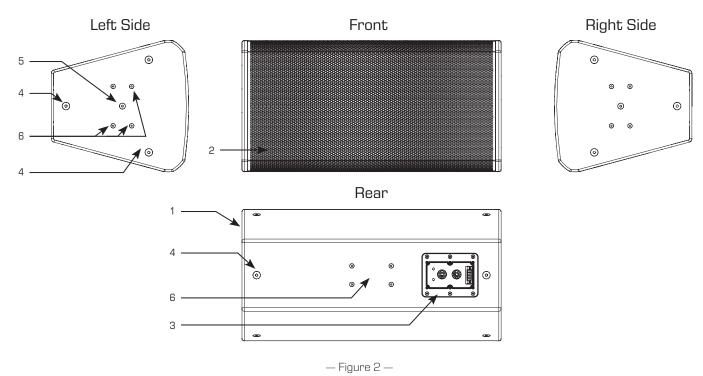


PL-DC8 Features



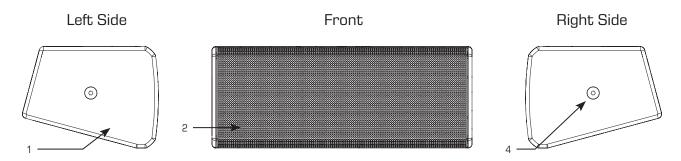
- 1. Wood enclosure
- 2. Weatherized steel grille
- 3. Rear panel input cup
- 4. M10 suspension points
- 5. Yoke rigging points
- 6. 4-hole mounting pattern

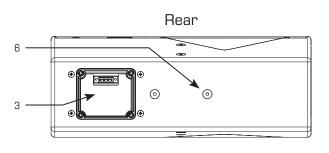
PL-DC12 Features

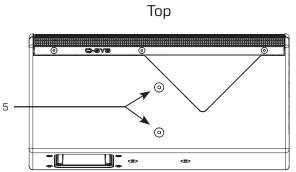


- 1. Wood enclosure
- 2. Weatherized steel grille
- 3. Rear panel input cup
- 4. M10 suspension points
- 5. M8 Yoke rigging points
- 6. 4-hole M6 mounting pattern

PL-DC24 Dual 4-inch 2-way Directivity Control 110°x50° Loudspeaker



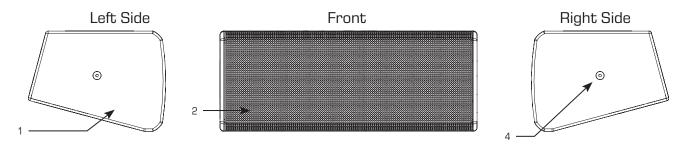


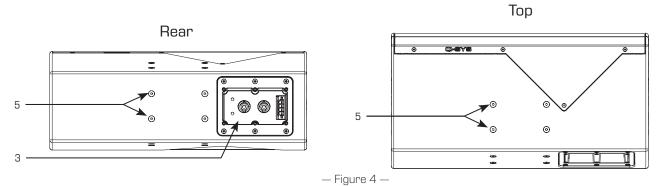


— Figure 3 —

- 1. Wood enclosure
- 2. Weatherized steel grille
- 3. Rear panel input cup
- 4. Yoke rigging points
- 5. 60 mm mounting pattern for Flush Mount and third-party accessories
- 6. 70 mm mounting pattern for Flush Mount and third-party accessories

PL-DC26 Dual 6-inch 2-way Directivity Control Configurable Loudspeaker

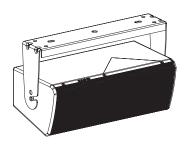




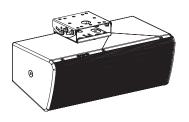
- Wood enclosure
- 2. Weatherized steel grille
- 3. Rear panel input cup
- 4. M8 Yoke rigging points
- 5. 4-hole M6 mounting pattern for Flush Mount and third-party accessories

Mounting Options

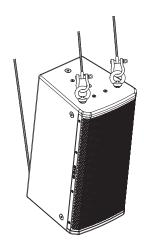
For Yoke Mount see page 19.



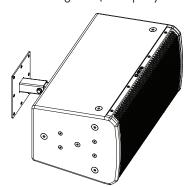
For Flush Mount (PL-DC24 and PL-DC26 only) see page 20.



For M10 Suspension Points see page 21.



For Mounting Arm (Third-party accessory) see page 22.

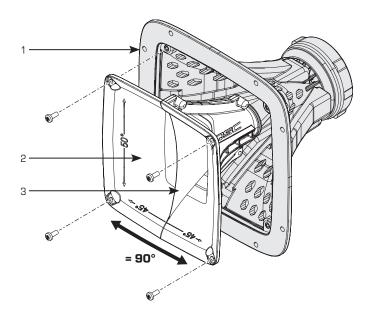


Horn Configuration

The configuration of the directivity is made by inserting two half horns, separated by a divider, into a frame holder. The Compression driver is fixed to this frame so there is no need to touch it when rotating or changing the configuration. By selecting different half horn you will be able to achieve different directives.

In the example, two 45° half horns make a 90° directivity. The directivity of the other plane is always 50° .

- 1. Frame
- 2. Half horn
- 3. Divider



Directivity

Model	Default Configuration	Optional Directivity
PL-DC24	110 x 50°	None
PL-DC26	120 x 50° (Vertical Deployment)	90 x 50° 105 x 50° Asymmetrical (Half Horn 45 + Half Horn 60)

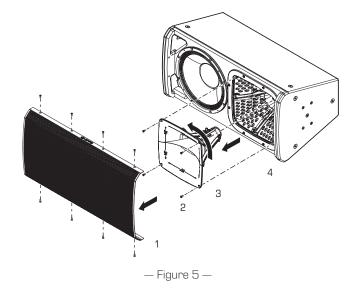
Model	Default Configuration	Optional Directivity
PL-DC8	120 x 50° (Horizontal Deployment)	90 x 50°
	120°	105 x 50° Asymmetrical (Half Horn 45 + Half Horn 60)
PL-DC12	90 x 50°	70 x 50°
	8	120 x 60°
	90°	105 x 50° Asymmetrical (Half Horn 45 + Half Horn 60)

Rotation of the Horn

- 1. Remove the grille from the front of the loudspeaker.
- 2. Remove the 4 SC-000770-01 screws holding the Half Horn assembly in place.
- 3. Rotate the horn.
- 4. Reassemble the screws using 1.4 N.m (12.4 lbs.in).

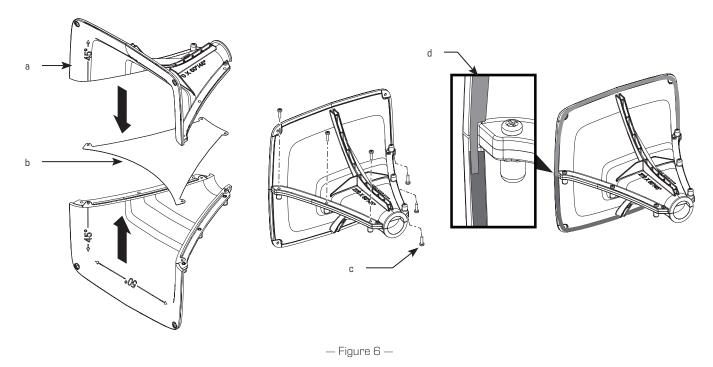


WARNING!: You do not have to remove the 8 screws keeping the frame into place.



Changing the Directivity

- 1. Remove the grille from the front of the loudspeaker.
- 2. Remove the 4 SC-000770-01 screws holding the Horn assembly in place. (See rotation of the Horn on previous page)
- 3. Build the half horn assembly.
 - a. Select the two corresponding half horns.
 - b. Insert the divider.
 - c. Tighten with the 4 SC-000509-00 M3.5 screws (PL-DC8, PL-DC26) or 6 SC-000770-01 M4 screws (PL-DC12) included in the package. (Torque 1 N.m (9 lbf.in))
 - d. Apply the two gaskets between the horn and the frame. The gaskets must overlap at the junction as shown below.
- 4. Reassemble the assembly in the frame. Tighten using the SC-000770-01 screws. (Torque 1.4 N.m (12.4 lbs.in))
- 5. Ensure that the assembly is not leaking (feeding a 80Hz sine wave at 1Vrms is a good way to listen to eventual leaks).



Deployment

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

PL-DC24

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

PL-DC26

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

NOTE: The PL-DC24 and PL-DC26 can be used with attachments on the top or the bottom allowing a 15 degree offset due to the asymmetrical shape.

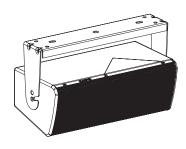
PL-DC8/PL-DC12

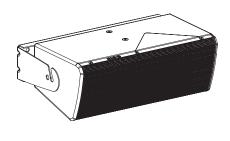
- 3xM10 on top and bottom
- 2xM10 on sides
- 2x4.25 in (108x50 mm) four M6 holes mounting pattern on top, bottom, and back
- 1xM8 per side on CG for Yoke Attachment

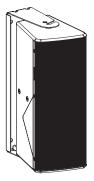
Accessories

Yoke Mount

The Yoke mounts are available as optional accessories for all models PL-DC24-YM, PL-DC26-YM, PL-DC8-YM, PL-DC12-YM and are optimized for horizontal deployment. Vertical deployment is also possible but won't allow an up or down tilt.





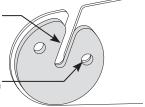


— Figure 7 —

- 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.
- Angle the loudspeaker.
- 6. Tighten the M8 screws.

Use this slot for quick setup and take down. For use in indoor installation.

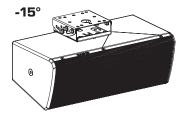
Use this hole for placing speaker closer to the mounting surface. For use in outdoor installations.

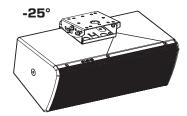


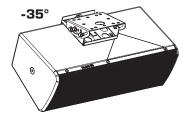
- Figure 8 -

Flush Mount (Surface Mount)

Available in two sizes PL-DC24-FM and PL-DC26-FM







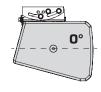
The Flush Mount accessory is designed to allow the loudspeaker to be mounted as close as it can from a ceiling (or wall) and can be mounted on the top, bottom, or back side of the loudspeaker. The asymmetric shape of the loudspeaker allows an offset of 5 degrees whether the accessory is mounted on the 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.

Ceiling Mount (Horizontal)













Ceiling Mount (Vertical)





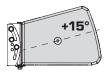


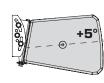




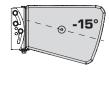


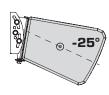
Wall Mount













Floor Mount









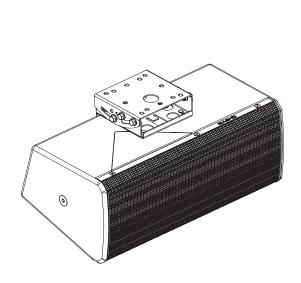


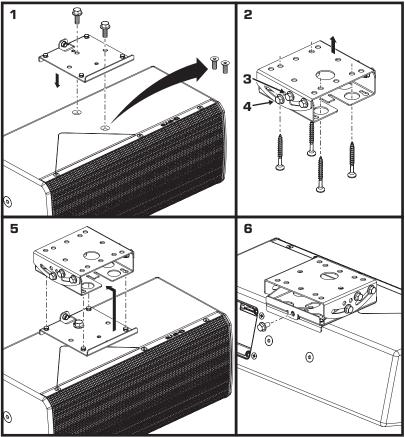


— Figure 9 —

The following displays the deployment of the flush mount accessory for the DC24. The mounting configuration can vary slightly for the PL-DC26 as it uses the 4 hole pattern but the overall principle is the same.

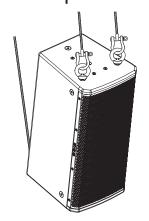
- 1. Attach the part with the male keyhole on the loudspeaker.
- 2. Attach the angle plate to the ceiling.
- 3. Insert a screw in the desired angle hole, if you want a determined angle.
- 4. Secure the angle with the screws into the circular slot.
- 5. Attach the loudspeaker into the keyholes.
- 6. Secure at the back.

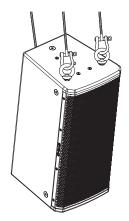




— Figure 10 —

M10 Suspension Points

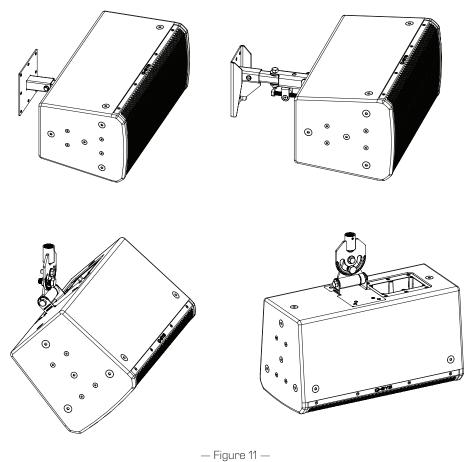




Third Party Mounting Arms

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

PL-DC8 / PL-DC12



Input Connection

Product	Connector	Specifications
PL-DC24	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-DC does not allow bi-amp mode and only feature a Euroblock connector.
PL-DC8	1 EUROBLOCK Connector (// to SPEAKON)	Current Rating 32 Arms Solid Wire 8-24 AWG (up to 10 mm²)
PL-DC12		4 polesFasten 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) Both connectors are recessed and may be covered by a IP65 sealing plate. 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. Bi-amp daisy chain is only possible with SPEAKON connector

Installing the Optional Input Connection Cover

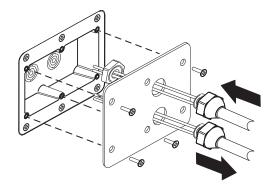
Due to the variety of cable diameters, the "cable gland" (suitable for 22.5 mm diameter hole) must be sourced independently.

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.

To use 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).
- 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.

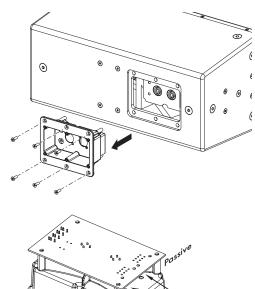
The optional input cover only accommodates the Eurobloc Connector, not the SPEAKON NL4.

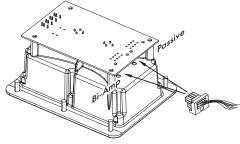


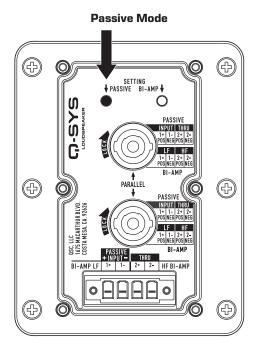
Changing from Passive to Bi-Amp Mode

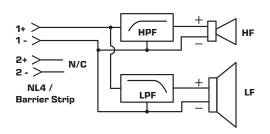
To change from Passive to Bi-amp or Bi-amp to Passive mode:

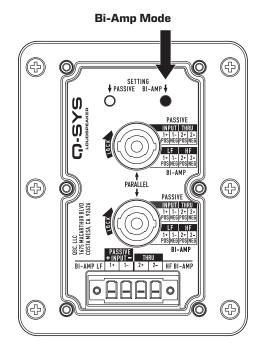
- Remove the six screws holding the input cup in place.
- Remove the input cup, being careful not to place excess stress on the connecting wiring harness.
- Remove the wiring harness plug from the receptacle at the bottom of the cup.
- Insert the wiring harness plug into the desired mode receptacle at the bottom of
- 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.
- Carefully place the input cup back into position on the enclosure, being careful not to bind or pinch any of the wiring.
- Secure the input cup with the six screws removed in step 1.

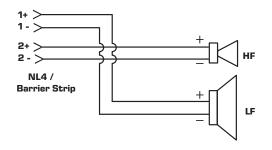












System Amplification

The PL Series is meant to be used with CXQ amplifiers with a preference for 4-channel models that have more DSP resources. The exact model will depend on your application, the number of loudspeakers per channel, and the type of loudspeaker.

The number in parenthesis means that it may work, but probably not fully exploiting the loudspeaker (avoid heavy musical content).

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	CXQ4K8	CXQ8K8
PL-DC24	2 (3)	3 (4)	4	3	2 (3)
				Not Recommended	Not Recommended
PL-DC26	1 (2)	2	4	1	2
				Not Recommended	Not Recommended
PL-DC8	1 (2)	2	4	1	2
				Not Recommended	Not Recommended
PL-DC12	(1)	1	2 (3)		1
					Not Recommended

NOTE: The 8-channel 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. The 8-channel amplifiers are not recommended for critical listening and for Bi amp mode.



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/