

User Guide
020-103286-01

Vive Audio LS2C Speaker

CHRISTIE®

NOTICES

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Products are warranted under Christie's standard limited warranty, the complete details of which are available by contacting your Christie dealer or Christie. In addition to the other limitations that may be specified in Christie's standard limited warranty and, to the extent relevant or applicable to your product, the warranty does not cover:

- a. Problems or damage occurring during shipment, in either direction.
- b. Problems or damage caused by combination of a product with non-Christie equipment, such as distribution systems, cameras, DVD players, etc., or use of a product with any non-Christie interface device.
- c. Problems or damage caused by misuse, improper power source, accident, fire, flood, lightning, earthquake, or other natural disaster.
- d. Problems or damage caused by improper installation/alignment, or by equipment modification, if by other than Christie service personnel or a Christie authorized repair service provider.
- e. Use of third party product enclosures for environmental protection during outside use must be approved by Christie.
- f. Problems or damage caused by use of a product on a motion platform or other movable device where such product has not been designed, modified or approved by Christie for such use.
- g. Except where the product is designed for outdoor use, problems or damage caused by use of the product outdoors unless such product is protected from precipitation or other adverse weather or environmental conditions and the ambient temperature is within the recommended ambient temperature set forth in the specifications for such product.
- h. Defects caused by normal wear and tear or otherwise due to normal aging of a product.

The warranty does not apply to any product where the serial number has been removed or obliterated. The warranty also does not apply to any product sold by a reseller to an end user outside of the country where the reseller is located unless (i) Christie has an office in the country where the end user is located or (ii) the required international warranty fee has been paid.

The warranty does not obligate Christie to provide any on site warranty service at the product site location.

PREVENTATIVE MAINTENANCE

Preventative maintenance is an important part of the continued and proper operation of your product. Failure to perform maintenance as required, and in accordance with the maintenance schedule specified by Christie, will void the warranty.


REGULATORY

The product has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the product is operated in a commercial environment. The product generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of the product in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at the user's own expense. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment

CAN ICES-3 (A) / NMB-3 (A)

이 기기는 업무용(A급)으로 전자파적합등록을 한 기기이오니 판매자 또는 사용자는 이점을 주의하시기 바라며, 가정 외의 지역에서 사용하는 것을 목적으로 합니다.

ENVIRONMENTAL

The product is designed and manufactured with high-quality materials and components that can be recycled and reused. This symbol  means that electrical and electronic equipment, at their end-of-life, should be disposed of separately from regular waste. Please dispose of the product appropriately and according to local regulations. In the European Union, there are separate collection systems for used electrical and electronic products. Please help us to conserve the environment we live in!

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Introduction

The Christie LS2C surround speaker is designed for auditoriums with up to approximately 300 seats. To create a surround system with bass management, bi-amp and pair it with S115 or S215 subwoofers. It may also be used for a range of other applications, where vertical coverage and maximum throw distance are appropriate.

The speaker contains an internal passive crossover, allowing it to operate with a single channel amplifier. Multiple hardware attachment points on the speaker allow for multiple installation options.

Safety and warning guidelines

Read all safety and warning guidelines before installing, operating, or maintaining the speakers.

Installation safety

The following guidelines apply when installing the speakers.



Warning! If not avoided, the following could result in death or serious injury.

- Before installation, inspect all components for cracks, deformations, corrosion, and missing or damaged parts that could reduce their installation strength.
- A minimum of two people or appropriately rated lift equipment is required to safely lift, install, or move the product.
- The supporting structure must safely support the combined load of the product, all attached hardware, and components following all local safety standards and regulations.
- Always install all legally required safety straps or cables.
- Install the minimum number of rigging wires required to suspend the speaker.
- Observe load ratings and applicable local safety codes.
- FIRE AND SHOCK HAZARD! Use only the attachments, accessories, tools, and replacement parts specified by Christie.



Caution! If not avoided, the following could result in minor or moderate injury.

- FIRE HAZARD! Do not install near any devices that produce heat such as amplifiers, radiators, heat registers, or stoves.
- Christie products must be installed and serviced by Christie qualified technicians.



Notice. If not avoided, the following could result in property damage.

- Always turn off and disconnect the amplifiers from power before making audio connections or servicing a speaker.

Operation safety

The following guidelines apply when operating the speakers.



Caution! If not avoided, the following could result in minor or moderate injury.

- To prevent permanent hearing loss, ear protection (ear plugs, canal protectors, or ear muffs) must be worn when operating the amplification system.
- Do not expose the product to moisture.
- Do not place objects containing liquids on the product.



Notice. If not avoided, the following could result in property damage.

- Speakers exposed to extremely low temperatures must be allowed to warm for a minimum of one hour before playing them at typical application levels.

Maintenance safety

The following guidelines apply when maintaining the speakers.



Caution! If not avoided, the following could result in minor or moderate injury.

- Only clean the components with Christie approved products.



Notice. If not avoided, the following could result in property damage.

- Always turn off and disconnect the amplifiers from power before making audio connections or servicing a speaker.
- Any changes to the product not approved by Christie will void the warranty.

Product documentation

For installation, setup, and user information, see the product documentation available on the Christie website. Read all instructions before using or servicing this product.

1. Access the documentation from the Christie website:

- Go to this URL: <http://bit.ly/374HaiA> or <https://www.christiedigital.com/en-us/cinema/cinema-products/cinema-speakers/cinema-surround-speakers>.
- Scan the QR code using a QR code reader app on a smartphone or tablet.



2. On the product page, select the model and switch to the **Downloads** tab.

Related documentation

Additional information on this product is available in the following documents.

- *Vive Audio L2SC Speaker Product Safety Guide (P/N: 020-103285-XX)*

Permissible sound pressure level limits

Exposure to extremely high noise levels may cause permanent hearing loss.

Individuals vary considerably in their susceptibility to noise-induced hearing loss, but nearly everyone will lose some hearing if exposed to intense noise for a sufficient length of time.

Earplugs or protectors to the ear canals or over the ears must be worn when operating this amplification system to prevent permanent hearing loss, if exposure is in excess of the following permissible limits provided by the United States Occupational Safety and Health Administration (OSHA):

Duration (consecutive)	Sound level (dba), slow responses
8 hrs	90
6 hrs	92
4 hrs	95
3 hrs	97
2 hrs	100
1.5 hrs	102
1 hr	105
30 min	110
≤15 min	115

Cleaning products

Clean the components with the following Christie approved products.

- Clean, dry, microfiber cloth

Installation

To install the speaker, complete the following procedures.

Connecting the speaker wires

Once the speaker is installed, connect the speaker wires to the amplifier.

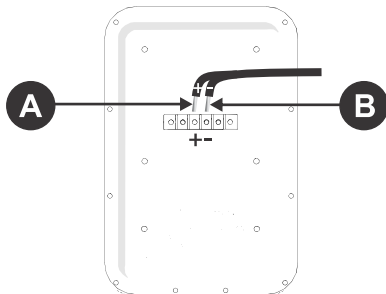


Notice. If not avoided, the following could result in property damage.

- Always turn off and disconnect the amplifiers from power before making audio connections or servicing a speaker.

1. Install the speaker according to the mounting instructions provided in this manual.
2. Connect the speaker wire to the positive (A) and negative (B) terminals on the back of the speaker.

If creating crimped spade lug terminations, use a #8 spade lug (P/N: 145-159106-XX).



A	Positive (+) connections
B	Negative (-) connections

3. Connect the negative and positive speaker wires from the speaker to the corresponding terminals on the amplifier.
4. Turn on the amplifier and verify that the speaker is receiving an input signal by playing a test signal through the system.

Ceiling mounting the LS2C speaker

To install the loudspeaker on the ceiling, use the appropriate bracket.

1. Remove the four pre-installed M8 button head screws on the back of the loudspeaker.
2. Attach the following bracket to the back of the loudspeaker using the four M8 button head screws.
 - Ceiling mount MM-3RDX-18 (P/N: 111-683209-XX)
3. Alternately, use a properly weight rated and sized U-bracket connected with the two M8 mounting points located on the sides of the loudspeaker.

4. Mount the loudspeaker to the ceiling using the manufacturer documentation provided with the bracket.

Wall mounting the LS2C speaker

Use a bracket to install the speaker on a wall.

1. Remove the four pre-installed M8 button head screws on the back of the speaker.
2. Attach one of the following brackets to the back of the speaker using the four M8 button head screws.
 - Wall tilt bracket BKTW-LSxS (P/N: 145-179108-XX)
 - Wall mount bracket MM-024 (P/N: 111-681207-XX)
3. Alternately, use a properly weight rated and sized U-bracket connected with the two M8 mounting points located on the sides of the loudspeaker.
4. Mount the speaker to the wall using the manufacturer documentation provided with the bracket.

Using the BKTW-LSXS bracket with Christie loudspeakers

The -01 version of the BKT-LSXS bracket was designed for use with the LS Series surround loudspeakers. After a minor field modification is performed, the bracket can be safely used with this model.

When installing Christie Vive Audio speakers and speaker mounting brackets, use a backup safety system such as a prefabricated safety cable.



Warning! If not avoided, the following could result in death or serious injury.

- Always install all legally required safety straps or cables.

Use experienced certified professionals when installing mounting and rigging equipment. Improperly installed speakers can result in property damage, personal injury, death, or liability to the installer.

To modify the BKT-LSXS to accept the larger M8 mounting bolts used for this model, using a suitable metal drill bit no larger than 9mm (23/64"), expand the four mounting holes.



Available safety cables

When choosing safety cables, always consult a qualified professional. The type of cable required is based on the speaker model, speaker mount, and installation specifications.



Do not use the backup safety cables as a primary suspension device.

The following cables are available to purchase from Christie:

- 18 in safety cable SC-018-BC (P/N: 003-006320-XX)
- 72 in safety cable SC-072-BC (P/N: 003-006321-XX)

If a different cable is required, contact an audio solution provider.

Troubleshooting

For assistance with common issues, refer to the following troubleshooting topics.

If you cannot resolve your issue with the information provided, contact Christie Technical Support.

The speaker does not function

The speaker is connected to the amplifier, but is not producing any sound.

Resolution

- Verify that the speaker is receiving an input signal from the amplifier.
- Verify that the circuit breaker for the main circuit to the amplifier is closed.
- Verify that amplifier is powered on and attenuators or gain controls are at nominal settings.
- If open, reset the circuit breaker. If the AC mains breaker continues to open, check the voltage and amperage of the circuit.
- Verify that the speaker wires are correctly connected to the input terminals on the speaker and the terminals on the amplifier.

The speaker sound is degraded

The speaker is receiving a signal and sound is being output, but it is distorted.

Resolution

- Visually inspect the speaker for deterioration or holes.
- Ensure that the input signal to the amplifier is clean.
- Verify that attenuators or gain controls on amplifiers and any audio processors are at nominal settings.
- Verify that the speaker wires from the speaker are securely connected to the terminals on the amplifier.
- Verify that the speaker wires are correctly connected to the input terminals on the speaker.
- Verify there are no loose or missing screws. Replace all screws you removed during installation.
- Have an authorized dealer complete an audio test (for example, pink noise, frequency sweeps, and content and program material).

There is audible noise from speaker

The speaker is producing audible noise when the amplifier driving it is powered on.

Resolution

- Mute channels, one at a time, to isolate the problem.
- Verify that all line-level cables in the signal chain are in good condition.
- Ensure that the input signal to the amplifier is clean.
- Reroute audio cables away from AC power and lighting cables.
- Verify the correct gain structuring of B chain, input levels, and output levels of source devices and amplifiers.

Technical support

Technical support for Christie products is available at:

- North and South America: +1-800-221-8025 or *Support.Americas@christiedigital.com*
- Europe, Middle East, and Africa: +44 (0) 1189 778111 or *Support.EMEA@christiedigital.com*
- Asia Pacific: +65 6877-8737 or *Support.APAC@christiedigital.com*

LS2C speaker Specifications

Learn about the product specifications. Due to continuing research, specifications are subject to change without notice.

Audio

Learn about the audio specifications.

Specification	Description
System type	Coaxial, two-way, passive, ported enclosure.
Driver components	2" annular ribbon HF driver with Kapton diaphragm, Neodymium magnets and 1.2" exit coaxially mounted within 12" paper Kevlar composite cone driver
Crossover	Linear phase, 2-way, passive at 1.7 kHz, 12 dB/octave
Frequency response ¹	80 Hz - 20 kHz at -3dB
Effective frequency range ¹	50 Hz - 25kHz at -10dB
Maximum sound pressure level (SPL) ²	122.3 dB, (AES) continuous, 124 dB long term, 126.8 dB short term
System coverage ³	100° spherical cone
Sensitivity ¹ , 1 W/1 m	97.5 dB
Recommended amplifier power	450 W - 850 W at 8 Ohms
Rated impedance	8 Ohms

¹ Measured at a distance of 1m in simulated free field conditions. Sensitivity is calculated based on the measured SPL response averaged in the 200 Hz-4 kHz range.

² Continuous power handling tested for 2 hours using IEC noise signal. IEC refers to IEC 60268-5 standard. Maximum continuous SPL is calculated based on sensitivity and power handling.

³ Averaged in 500 Hz -10 kHz range at -6dB.

Power requirements

Learn about the power specifications.

Specification	Description
Power handling	300 W (AES) continuous, 450 W (IEC) long-term, 850 W (IEC) short-term

Physical

Learn about the physical specifications.

Specification	Description
Input connectors	Screw terminal barrier strip.
Enclosure	<ul style="list-style-type: none"> • Ported box alignment • 18 mm marine plywood • Heavily damped and braced • Rated for overhead applications
Dimensions (H x W x D)	45.5 cm x 45.5 cm x 27.6 cm (17.52 in.) x (17.52 in.) x (10.87 in.)
Net weight	14 kg (31 lb)

Accessories

The following optional accessories are available to be used with the speakers.

Accessory	Part number
Wall tilt bracket (BKTW-LSxS)	145-179108-XX
Wall mount bracket (MM-024)	111-681207-XX
Ceiling mount (MM-3RDX-18)	111-683209-XX
Adapter channel 1/2 in. extension tube	111-687203-XX
Ceiling mount 1/2 in. extension tube	111-689205-XX
SpeakON Connector (for amplifier output to speaker)	145-158105-XX
#8 Spade Lug (for speaker input from amplifier)	145-159106-XX
18 in safety cable SC-018-BC	003-006320-XX
72 in safety cable SC-072-BC	003-006321-XX

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