

The top half of the page features a complex, abstract background of overlapping, semi-transparent blue triangles and polygons, creating a dynamic, crystalline effect. The colors range from light sky blue to deep navy blue. A white diagonal line separates this patterned area from the plain white background below.

User Guide  
020-102172-02

# **Christie Vive Audio LS1S/ LS2S/LS4S/LS5S**

Line Source Surround Speakers

**CHRISTIE®**

## NOTICES

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- 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.
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- g. 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.

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### 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.


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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.

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

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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!

# Content

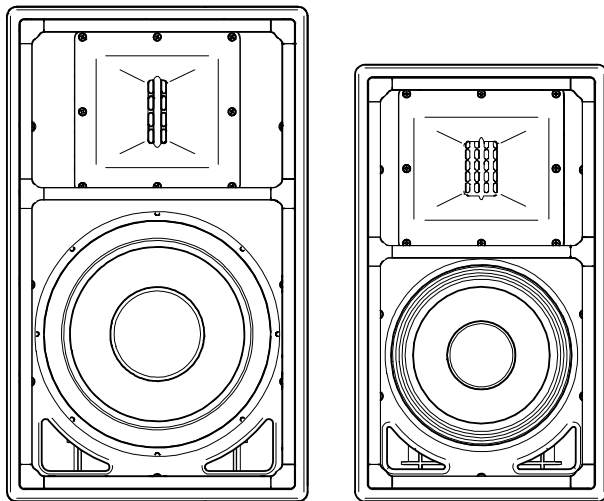
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# Introduction

The Christie Vive Audio LS1S, LS2S, LS4S, and LS5S Line Source surround speakers are designed for small-to-medium sized auditoriums. They can also be used as screen channel speakers in small auditoriums.

The speakers can be combined with a Christie S115 or S215 subwoofer when surround sound bass management is required, to create a three-way, bi-amplified, full range system.

The speakers contain an internal passive crossover, allowing them to operate without the need for a speaker processor or electronic crossover. Hardware attachment points on each speaker allow for multiple installation options.



**A**

**B**

|   |                   |
|---|-------------------|
| A | LS4S/LS5S speaker |
| B | LS1S/LS2S speaker |

# 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.
- 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.

## 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 (dB), 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

## Included components

This table lists the components that are shipped with the Vive Audio LS1S, LS2S, LS4S, and LS5S speakers.



Each speaker is shipped separately. The type of speaker you receive will depend on what parts you have ordered.

| Quantity | Description  | Part number   |
|----------|--------------|---------------|
| 1        | LS1S speaker | 145-171100-XX |
| 1        | LS2S speaker | 145-173102-XX |
| 1        | LS4S speaker | 145-174103-XX |

| <b>Quantity</b> | <b>Description</b> | <b>Part number</b> |
|-----------------|--------------------|--------------------|
| 1               | LS5S speaker       | 145-175104-XX      |

# Installation

Complete the following procedures to install the speaker.



All images shown in the installation instructions reference the LS1S speaker; however, these instructions are applicable to the entire LS surround speaker line.

## Mounting the speaker to the wall

Using the BKTW-LSXS tilt bracket, attach the speaker to the wall.

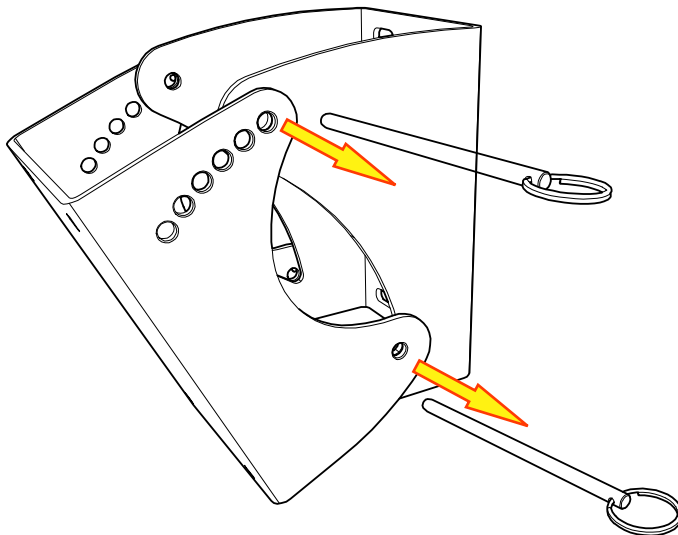
Laser alignment is required when installing this speaker.

For detailed laser alignment instructions, refer to *Vive Audio Line Array and Line Source Laser Alignment Procedures (020-101406-XX)* (<https://www.christiedigital.com>).



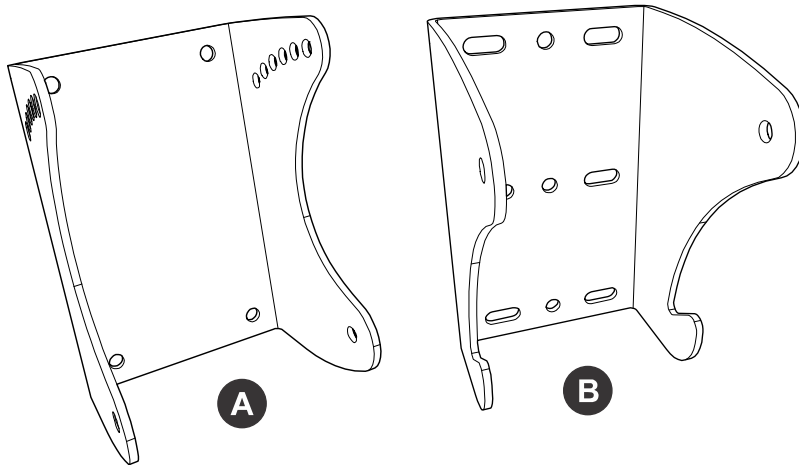
The tilt bracket is not included with the speaker box. It is supplied as a separate part (P/N: 145-179108-XX).

1. Remove both pins from the bracket.



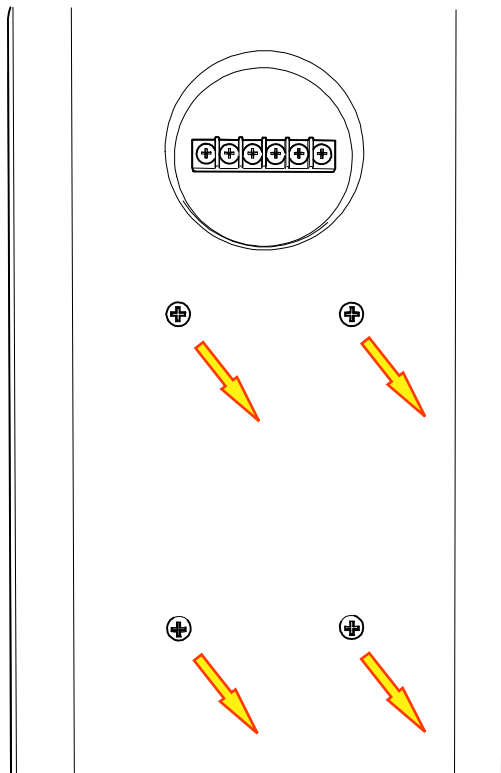
2. Separate the bracket halves.



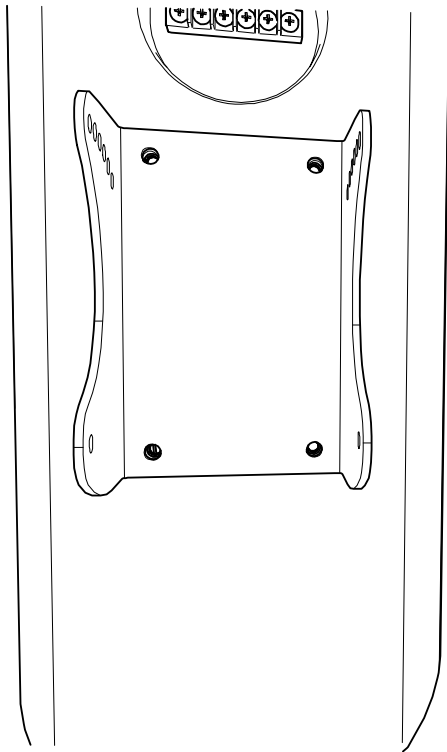


|   |                       |
|---|-----------------------|
| A | Speaker mounting half |
| B | Wall mounting half    |

- Remove the four M6 bolts and lock washers from the back of the speaker.



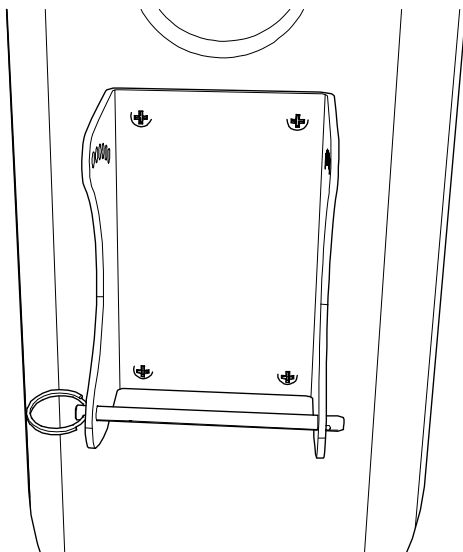
- Position the speaker mounting half of the bracket on the back of the speaker and align it with the four mounting holes.



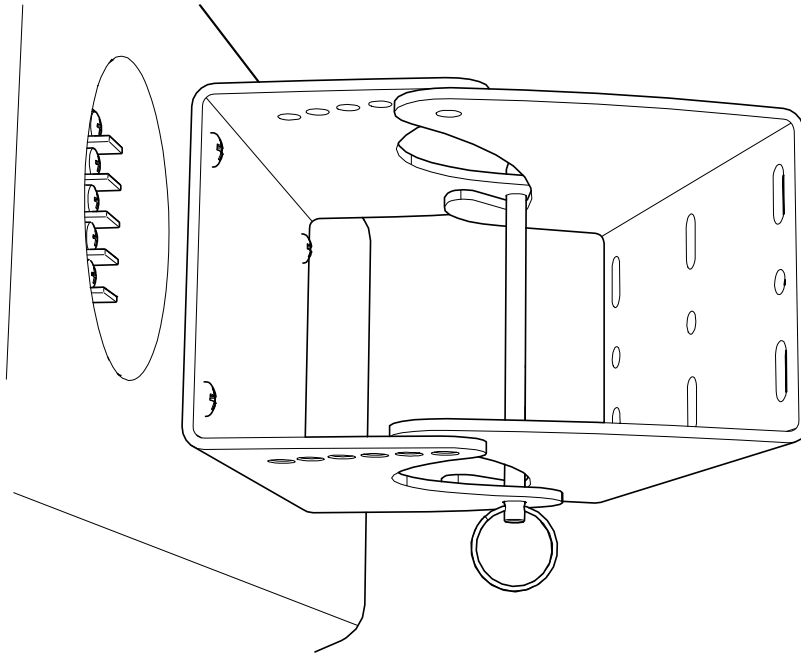
5. Secure the speaker mounting half of the bracket to the speaker with the four M6 bolts and lock washers removed in step 2, to the torque of 1.4 N\*m (12 in\*lb).
6. Insert one of the pins removed in step 1 into the bottom holes of the speaker mounting half of the bracket.



To ensure the bracket pin is not visible, insert it with the ring pointing towards the projection screen.



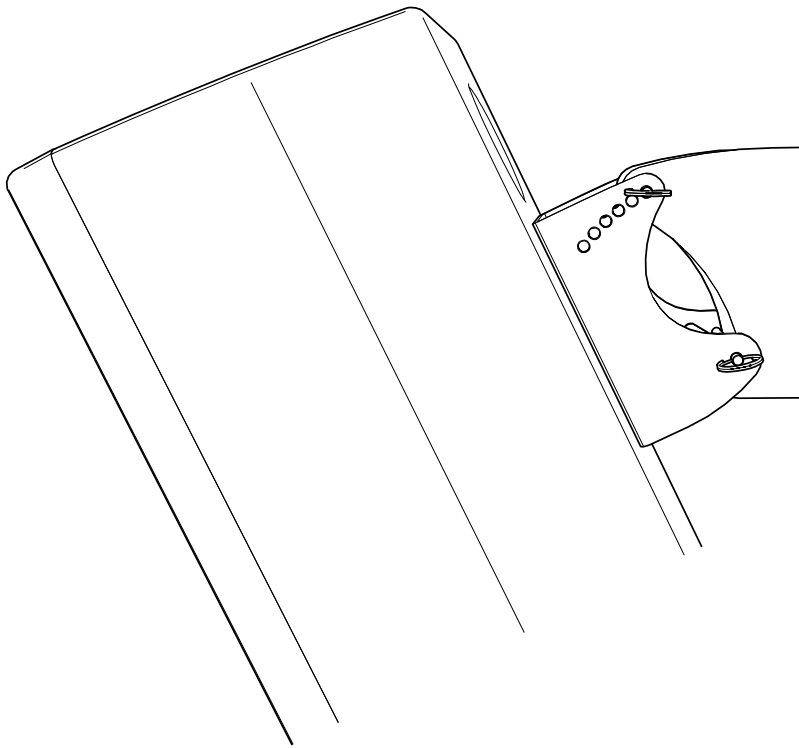
7. Attach the wall mounting half of the bracket to the wall using appropriately sized lag bolts (not included in the box) according to laws and regulations applicable to the venue.
8. Place the speaker mounting half of the bracket against the wall mount so the bottom prongs of the wall mount are resting directly underneath the bottom pin.



9. Using a laser alignment tool, adjust the tilt of the speaker.
10. Insert a pin removed in step 1 into the top hole marked with the required angle of tilt.



To ensure the bracket pin is not visible, insert it with the ring pointing towards the projection screen.



## Connecting the speaker wires

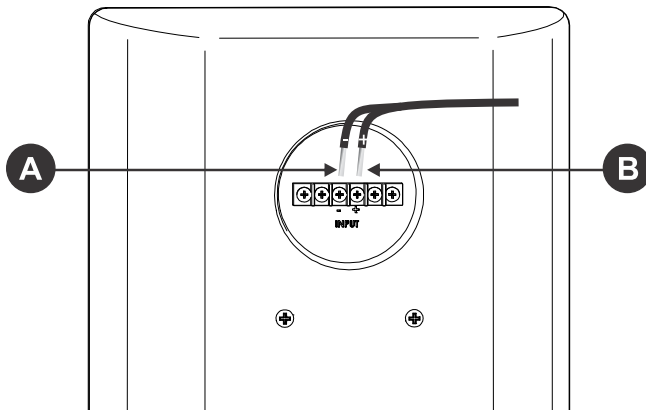
Once the speaker is installed, connect the speaker wires to the amplifier.



**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. Connect the speaker wires to the negative (A) and positive (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 | Negative (-) connection |
| B | Positive (+) connection |

2. Connect the speaker wires to the corresponding terminals on the amplifier.
3. Turn on the amplifier and verify that the speaker is receiving an input signal by playing a test signal through the system.  
Ensure that the amplifier attenuators or gain controls are at nominal settings.

# 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.

# Vive Audio LS1S, LS2S, LS4S, and LS5S Specifications

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

## Audio

Learn about the audio specifications.

| Specification                      | LS1S   | LS2S   | LS4S  | LS5S  |
|------------------------------------|--|--|---|---|
| System type                        | Two-way, passive, vented enclosure   |  |   |   |
| Driver components                  | High-frequency: 3 in. planar ribbon driver with Kapton diaphragm and Neodymium magnets<br>Low-frequency: 8 in. paper/Kevlar composite cone driver with 40 mm diameter voice coil | High-frequency: 3 in. planar ribbon driver with Kapton diaphragm and Neodymium magnets<br>Low-frequency: 8 in. paper/Kevlar composite cone driver with 51 mm diameter voice coil | High-frequency: 3 in. planar ribbon driver with Kapton diaphragm and Neodymium magnets<br>Low-frequency: 10 in. paper/Kevlar composite cone driver with 51 mm diameter voice coil | High-frequency: 3 in. planar ribbon driver with Kapton diaphragm and Neodymium magnets<br>Low-frequency: 10 in. paper/Kevlar composite cone driver with 64 mm diameter voice coil |
| Crossover <sup>1</sup>             | 2-way, passive at 2.3 kHz  | 2-way, passive at 2.2 kHz  | 2-way, passive at 2.2 kHz   | 2-way, passive at 2.2 kHz   |
| Frequency response <sup>2</sup>    | 70 Hz-20 kHz at -6dB   |  |   |   |
| Maximum SPL <sup>3</sup>           | 114.0 dB continuous, 115.5 dB IEC maximum long term, 117.0 dB IEC maximum short term   | 116.5 dB continuous, 117.6 dB IEC maximum long term, 118.8 dB IEC maximum short term   | 119.0 dB continuous, 121.0 dB IEC maximum long term, 122.0 dB IEC maximum short term  | 122.0 dB continuous, 123.0 dB IEC maximum long term, 124.0 dB IEC maximum short term  |
| System coverage <sup>4</sup>       | 100° horizontal dispersion, 50° vertical dispersion  |  |   |   |
| Sensitivity <sup>1</sup> , 1 W/1 m | 93 dB  | 94 dB  | 96 dB   | 97 dB   |
| Recommended amplifier power        | 150-250 W at 8 ohms  | 200-300 W at 8 ohms  | 300-400 W at 8 ohms   | 400-600 W at 8 ohms   |
| Rated impedance                    | 8 ohms   |  |   |   |



<sup>1</sup>For more detailed crossover information, see *Recommended Crossover Settings (P/N 020-101405-01)* (<https://www.christiedigital.com>).

<sup>2</sup> Measured at 2 m on tweeter axis in simulated free field conditions. Near field measurements were used for low frequency data. Sensitivity is calculated based on measured SPL response averaged in 200 Hz-5 kHz range.

<sup>3</sup> IEC refers to IEC 60268-5 standard. Maximum SPL values calculated based on sensitivity and IEC power ratings. Continuous power handling tested using IEC60268-1 noise signal for duration of two hours.

<sup>4</sup> Averaged in the 500 Hz-12 kHz range, at -6 dB.

## Power

Learn about the power specifications.

| Specification                        | LS1S  | LS2S  | LS4S  | LS5S  |
|--------------------------------------|---|---|---|---|
| Power handling capacity <sup>1</sup> | 125 W continuous, 175 W IEC long term, 250 W IEC short term | 175 W continuous, 225 W IEC long term, 300 W IEC short term | 200 W continuous, 300 W IEC long term, 400 W IEC short term | 300 W continuous, 400 W IEC long term, 500 W IEC short term |

<sup>1</sup> IEC refers to IEC 60268-5 standard. Maximum SPL values calculated based on sensitivity and IEC power ratings. Continuous power handling tested using IEC60268-1 noise signal for duration of two hours.

## Physical

Learn about the physical specifications.

| Specification          | LS1S   | LS2S  | LS4S  | LS5S  |
|------------------------|--|---|---|---|
| Input connectors       | Four position terminal barrier strip   |   |   |   |
| Enclosure              | <ul style="list-style-type: none"> <li>• Vented enclosure</li> <li>• Polymer composite enclosure with extensive structural reinforcements</li> <li>• Acoustically transparent fabric grill</li> <li>• Rated for overhead installation with 5:1 safety ratio</li> </ul> |   |   |   |
| Dimensions (H x W x D) | 450 mm x 260 mm x 244 mm (17.7 in. x 10.24 in. x 9.6 in.)  | 450 mm x 260 mm x 244 mm (17.7 in. x 10.24 in. x 9.6 in.) | 510 mm x 310 mm x 294 mm (20.0 in. x 12.2 in. x 11.6 in.) | 510 mm x 310 mm x 294 mm (20.0 in. x 12.2 in. x 11.6 in.) |
| Net weight             | 6.2 kg (13.7 lbs)  | 7.3 kg (16.1 lbs)   | 9.5 kg (21.0 lbs)   | 10.3 kg (22.7 lbs)  |

## Accessories

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

| Accessory  | Part number   |
|--|---------------|
| Christie S115 subwoofer (optional for bass management) | 145-108100-XX |
| Christie S215 subwoofer (optional for bass management) | 145-103105-XX |
| Allen Products MM-017 wall mount bracket               | 111-694201-XX |
| BKTW-LSXS wall tilt bracket                            | 145-179108-XX |
| #8 Spade Lug (for speaker input from amplifier)        | 145-159106-XX |

## Environmental

EU Directive (2011/65/EU) on the restriction of the uses of certain hazardous substances (RoHS) in electrical and electronic equipment and the applicable official amendment(s).

EU Regulation (EC) No. 1907/2006 on the registration, evaluation, authorization and restriction of chemicals (REACH) and the applicable official amendment(s).

EU Directive (2012/19/EU) on waste and electrical and electronic equipment (WEEE) and the applicable official amendment(s).

China Ministry of Information Industry (along with 7 other Government Agencies) Order No.32 (01/2016) on the control of pollution caused by electronic information products, hazardous substances concentration limits (GB/T 26572 - 2011), and the applicable product marking requirement (SJ/T 11364 - 2014).

International packaging recycling mark requirements.

- EU Directive (94/62/EC) on packaging and packaging waste
- China packaging recycling mark standard (GB18455-2001)

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