

CS Series

APPLICATION GUIDE





YOGA STUDIO

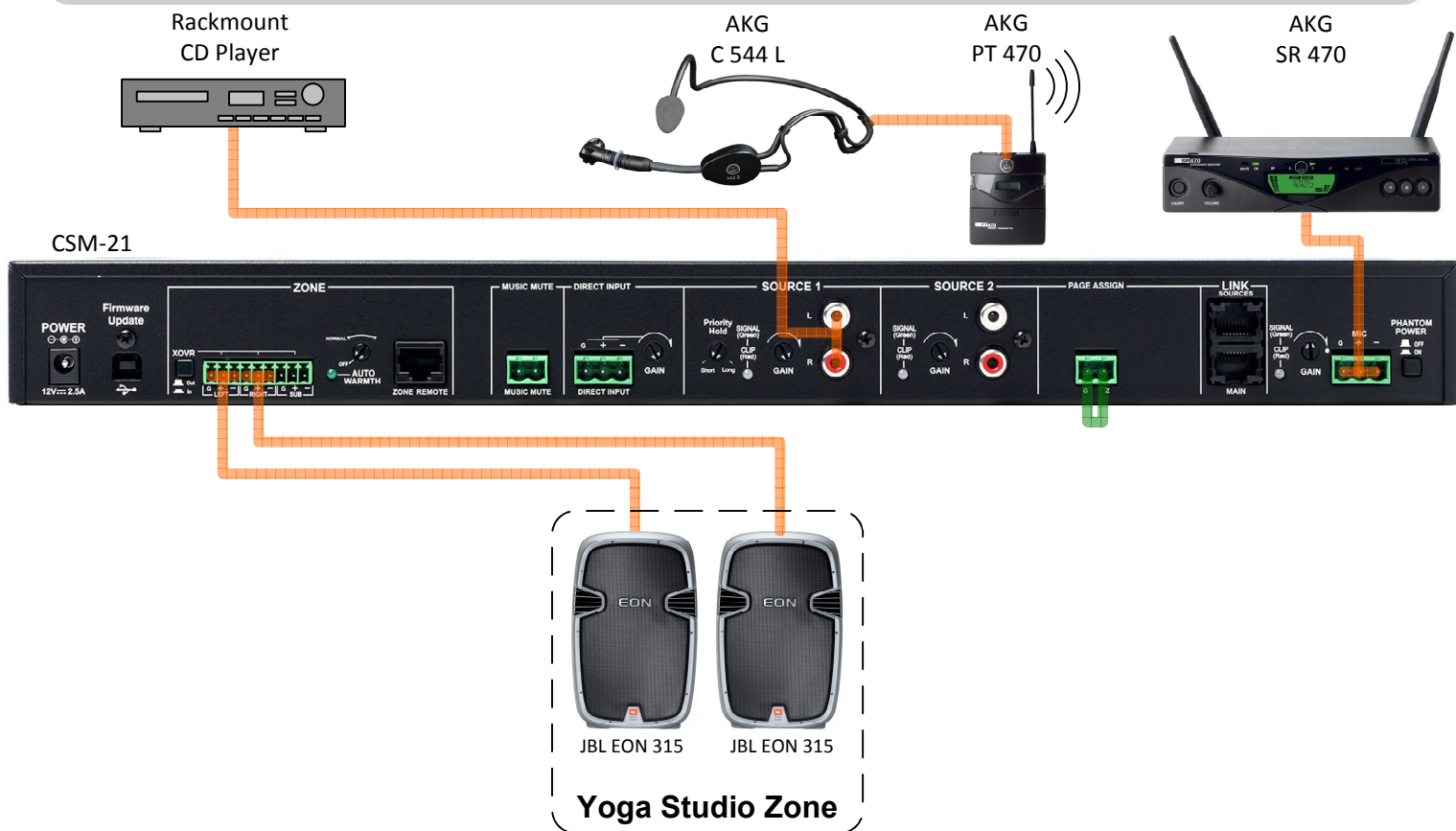


JBL Commercial CS SERIES

Application Guide

- Generic Copper Wire
- Mic/Line Cable

The **JBL Commercial CS (Commercial Solutions) Series** consists of paging microphones (CSPM), mixers (CSM), remotes (CSR), amplifiers (CSA), transformers (CST), and speakers (CSS)—all designed to work optimally with one another as a true system solution. However, CS Series devices can still be used in systems containing products outside the CS family. This Yoga Studio application guide serves as an example of such a system.



This yoga studio has one zone. On the front panel of the **CSM-21** mixer, there are two sets of EQ controls: one that affects the music, and another that affects the mic. This allows the instructor to EQ each type of audio source independently. For example, turning up ‘Treble’ in the ‘Mic EQ’ section will add intelligibility to the sound of the instructor’s voice without affecting the music. As the instructor speaks into her mic, the **CSM-21** automatically turns down—or “ducks”—the music. On the **CSM-21** front panel, there are two important controls that affect the ducking behavior. ‘Trigger sensitivity’ determines how strong the mic signal needs to be in order for the music to start turning down. ‘Ducking Depth’ determines how quiet the music gets. In this case, ‘Ducking Depth’ is set closer to OFF (approximately the 9 o’clock position), which results in the music being turned down only slightly as the instructor speaks. This slight reduction in music level allows the students to hear the instructor’s voice more clearly, while still preserving the mood created by the music. ‘Page Assign’ pins ensure compatibility with microphones equipped with a contact closure for muting the mic. Since the wireless mic does not have a contact closure, the ‘Page Assign’ pins are simply shorted together for proper operation. The ‘Select’ knob is set to 1 (to select the CD player), and the ‘Level’ and ‘Mic’ knobs are used by the instructor to adjust independently the level of the music and her voice, respectively. The **CSM-21**’s ‘Stereo/Mono’ button is set to STEREO, sending true stereo audio to a pair of portable powered loudspeakers. As an added benefit, the entire system can be made portable by installing the rack-mount gear into a 3U road case.

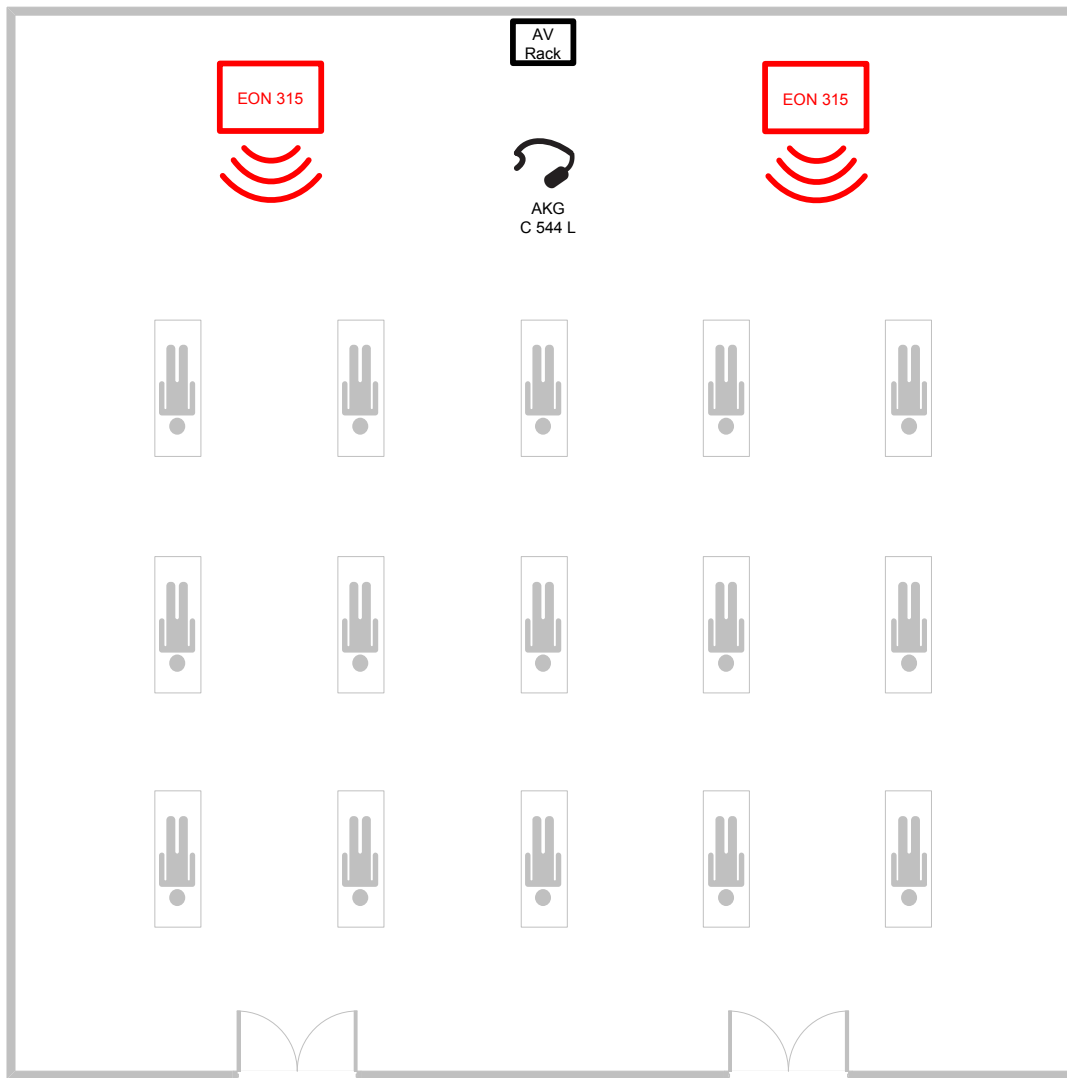


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Application Guide



YOGA STUDIO



CSM-21 Front Panel View









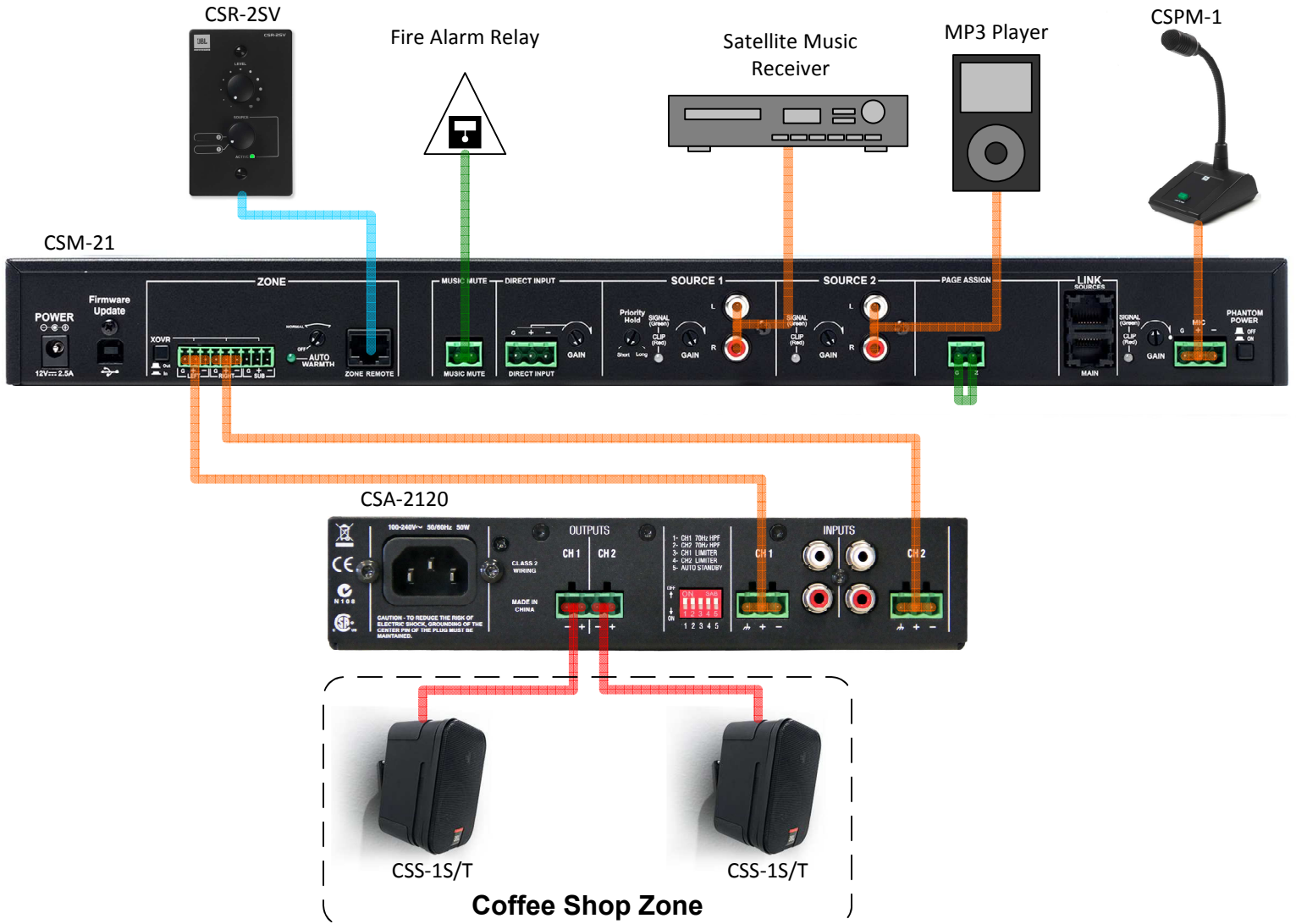
COFFEE SHOP



JBL Commercial CS SERIES

Application Guide

-  Cat 5 Cable
-  Generic Copper Wire
-  Mic/Line Cable
-  Speaker Cable



This small coffee shop has one zone. Employees use the **CSR-2SV** remote to adjust volume and to select Satellite Music or their own MP3 player as the source. Employees make announcements by pressing and holding the button on the **CSPM-1** paging mic while they speak into it. The **CSM-21** mixer automatically ducks the music during announcements. The **CSM-21**'s 'Page Assign' pins ensure compatibility with microphones that contain a contact closure for muting the mic. Since the **CSPM-1** has an audio mute switch and not a contact closure, the 'Page Assign' pins are simply shorted together for proper operation. The **CSM-21**'s *LevelGuard™* feature keeps the volume within an optimal range and *AutoWarmth™* automatically adjusts to ensure full high-fidelity sound at all volume levels. The building's fire alarm contains a normally open (NO) relay, which is connected to the 'Music Mute' pins on the **CSM-21**. Detection of smoke causes the relay to close, which in turn causes the **CSM-21** to mute the music immediately. The mic is unaffected by the 'Music Mute' functionality, and employees can therefore use the **CSPM-1** to make announcements during the alarm state if necessary. As a precaution against employees accidentally turning the mic volume down too far, the 'Mic Minimum' control on the **CSM-21** front panel is set fully clockwise. This effectively limits the range of the 'Mic' level knob from -10dB to 0dB (i.e. the mic can't be turned down past -10dB). True stereo audio is sent to a single pair of wall-mounted **CSS-1S/T** speakers in 8 ohm direct mode, which are powered by a **CSA-2120** amplifier.

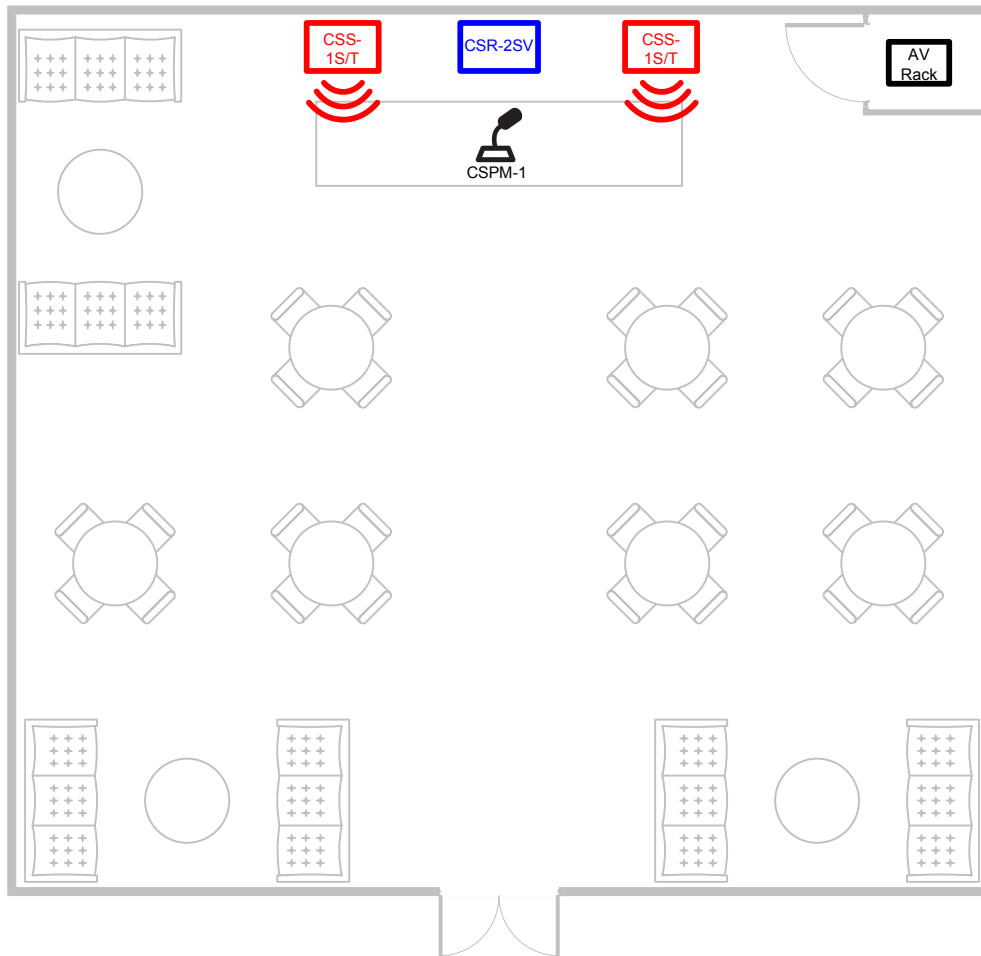


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Application Guide



COFFEE SHOP



CSA-2120 Front Panel View





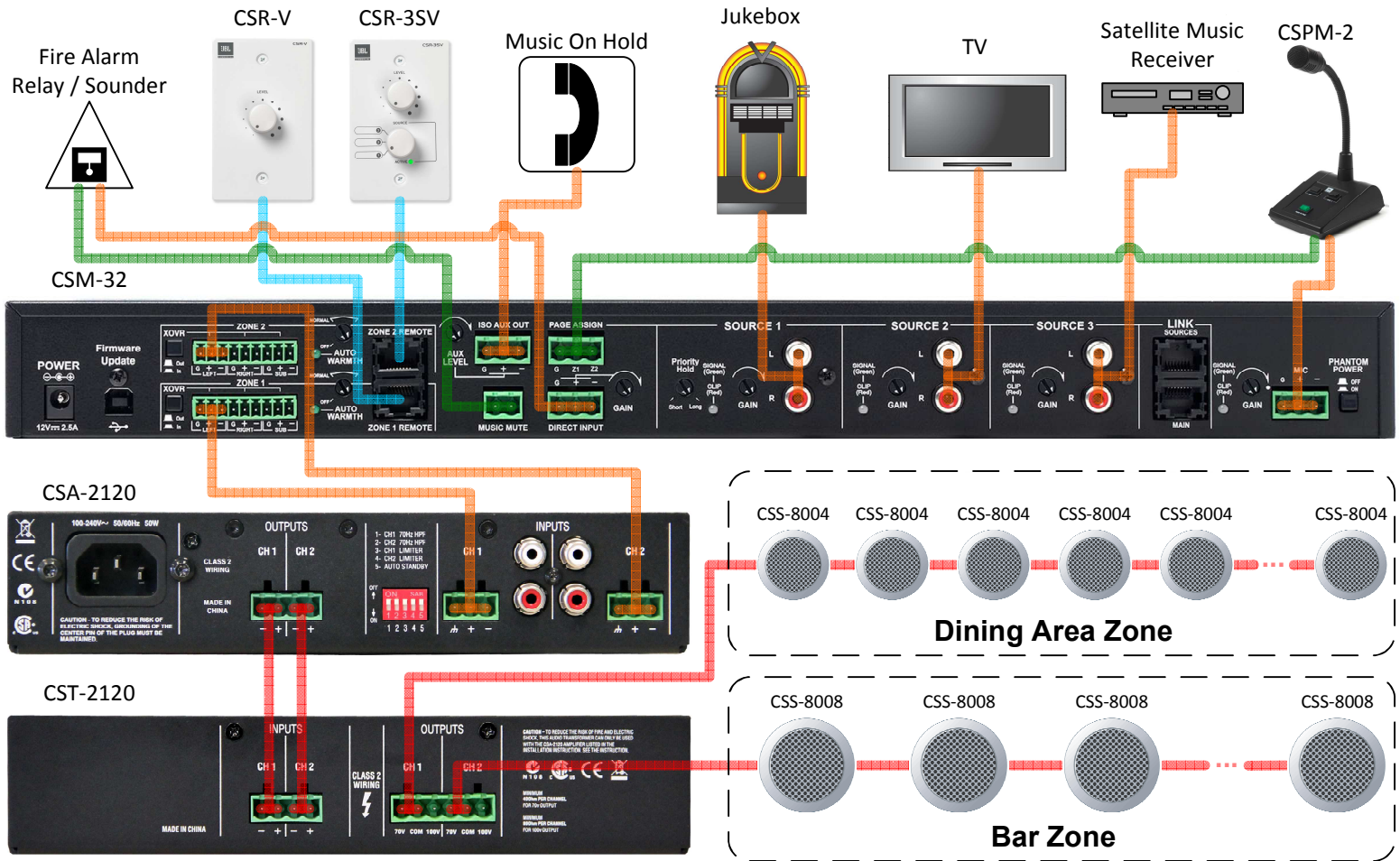
RESTAURANT



JBL Commercial CS SERIES

Application Guide

- Cat 5 Cable
- Generic Copper Wire
- Mic/Line Cable
- Speaker Cable



This restaurant has two zones—a dining area and a bar. Installed at the receptionist podium is a **CSR-V** remote that allows employees to adjust volume for the dining area. Installed behind the bar is a **CSR-3SV** remote that allows employees to adjust volume for the bar and to select Jukebox audio, or Satellite Music as the source for the bar. Within the 'Zone 1' section of the **CSM-32** mixer's front panel, the 'Source 1 Priority' button is set to ON, and the 'Select' knob is set to 3. (NOTE: see page 8 for a front panel view of the **CSM-32**). This causes Satellite Music to be the default source for the dining area, and when a patron pays to hear her favorite song on the Jukebox, that song automatically overrides the Satellite Music audio in the dining area. The **CSM-32**'s internal jumper cap has been removed, which causes the 'Iso Aux Out' channel to receive source 3 invariably*. Therefore, callers to the restaurant will hear the Satellite Music player when they're put on hold. Employees make announcements by first selecting the desired zone(s) and then pressing and holding the PTT button on the **CSPM-2** paging mic while they speak into it. The **CSM-32** automatically ducks the music during announcements in the zone(s) being paged. The building's fire alarm contains a normally open (NO) relay and a line-level audio output for playback of alarm tones and pre-recorded messages. When the relay closes and/or the fire alarm sends audio, the **CSM-32** will mute the music and also route the fire alarm's audio (if present) to both zones. Mono-summed audio is sent to distributed ceiling speakers in both zones, which are powered by a **CSA-2120** amplifier and **CST-2120** transformer. Low cost **CSS-8004** speakers are used in the dining area, and higher performance **CSS-8008** speakers are used at the bar.

* If the internal jumper cap is left installed (the factory default), the 'Iso Aux Out' channel receives whichever source is selected in Zone 1.



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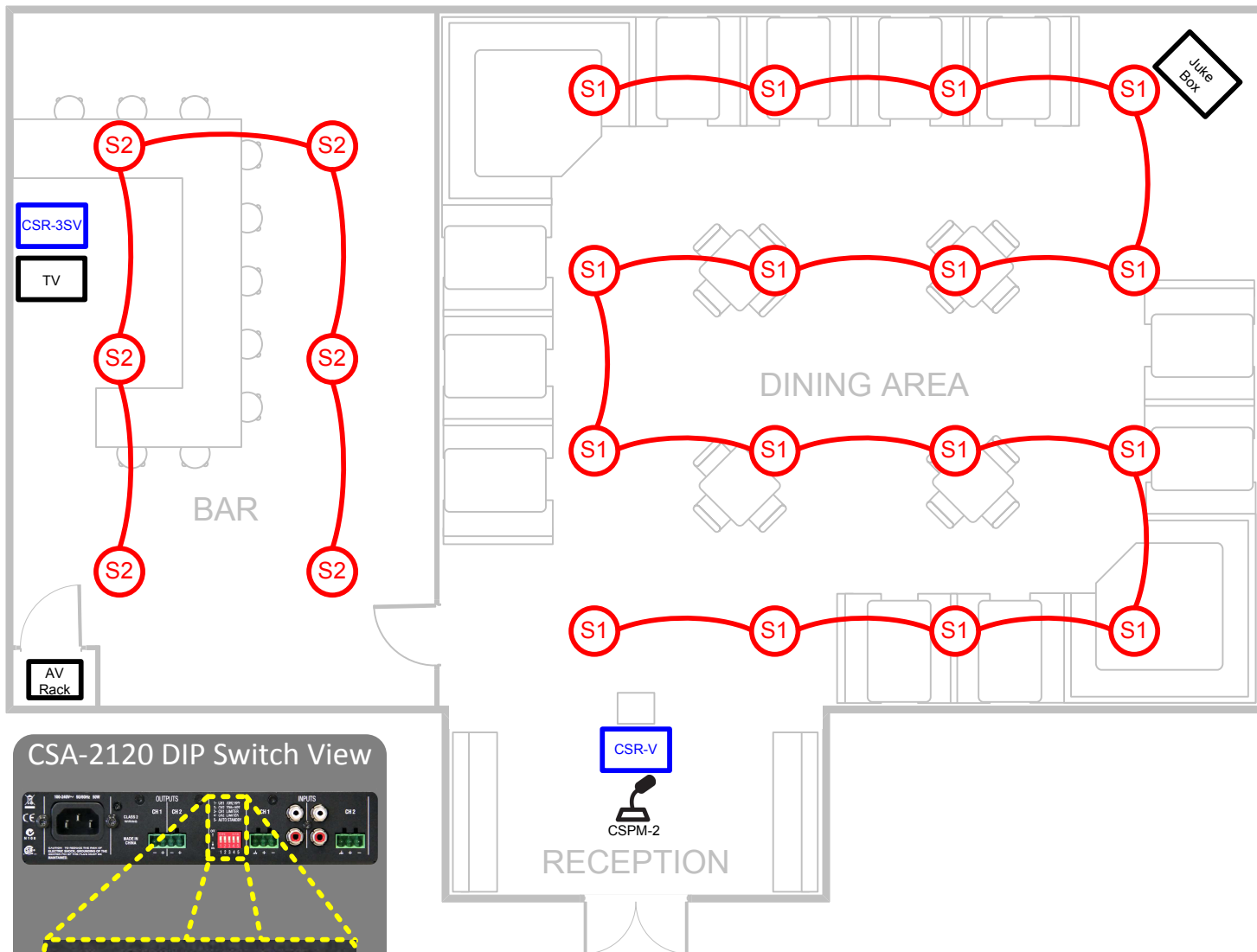
Application Guide

S1 = CSS-8004

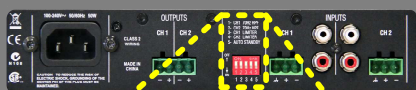
S2 = CSS-8008



RESTAURANT



CSA-2120 DIP Switch View



- 1- CH1 70Hz HPF
- 2- CH2 70Hz HPF
- 3- CH1 LIMITER
- 4- CH2 LIMITER
- 5- AUTO STANDBY

OFF

ON



It is possible to “clip” the amplifier signal if, for example, the receptionist were to yell into the mic. Not only does clipping sound bad, it can damage the high-frequency drivers in speakers. To avoid clipping the amplifier signal, the **CSA-2120**'s built-in limiter is turned ON. Also, strong low-frequency signals (such as breath pops and dropped microphones) can cause serious damage to speakers in a 70V or 100V distributed system by saturating the transformer. To avoid transformer saturation, the **CSA-2120**'s built-in 70 Hz high-pass filter is turned ON. This high-pass filter *must* be enabled when using the **CST-2120** to drive distributed speakers*. The **CSA-2120**'s limiter and high-pass functionality is configured using DIP switches on the rear panel.

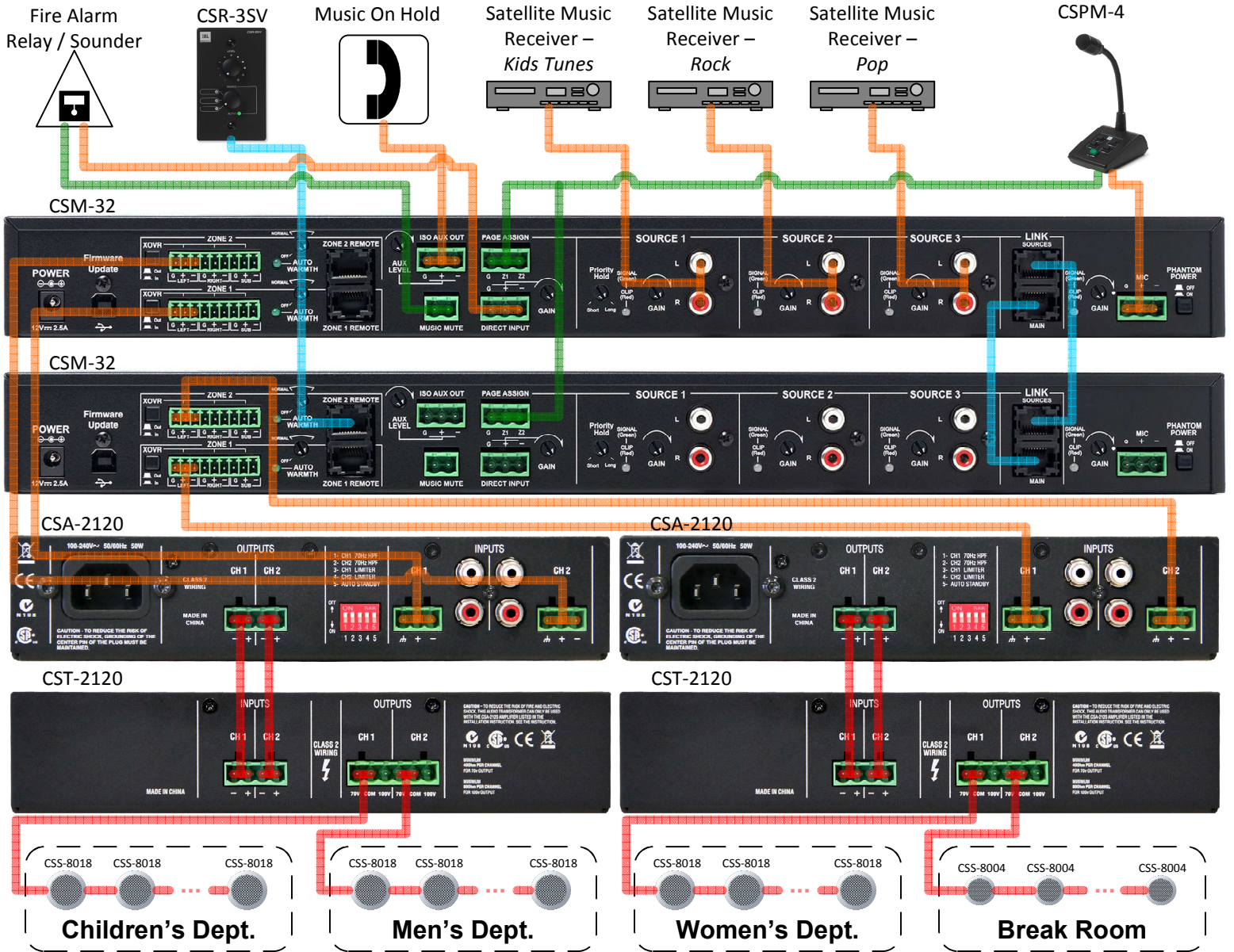
* Both **CSM** mixer models offer a 125 Hz high-pass filter (which is turned ON/OFF by the rear-panel button labeled “XOVR”). This gives the installer two high-pass filters in the signal chain from which to choose. To optimize the performance of any of the four **CSS** speaker models, use *only* the 70 Hz high-pass filter in the **CSA-2120**. The 125 Hz high-pass filter in the **CSM** can safely be turned OFF (the ‘Out’ position) unless “less bass” is desired.



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This retail store has four audio zones: Children's Dept., Men's Dept., Women's Dept., and Break Room. Since four independent output zones are required, two **CSM-32** mixers are linked together via their link ports. Linking allows multiple mixers to share the same input source, eliminating the need for Y-cables. Therefore, two linked **CSM-32**'s can be thought of as one **CSM-32** with three source inputs and *four* total output zones. Installed in the Break Room is a **CSR-3SV** remote, which allows employees to adjust volume and to select a music source to hear while they're on break. Volume control and source selection for the three other zones is accomplished using the front panel controls on the **CSM-32**'s, which are located in the manager's office—safe from unwanted tampering. Located in the checkout area is a **CSPM-4** paging mic, which allows employees to make announcements by first selecting the desired zone(s) and then pressing and holding the PTT button while they speak into the mic. Mono-summed audio is sent to distributed ceiling speakers in all zones, which are powered by **CSA-2120** amplifiers and **CST-2120** transformers. High performance **CSS-8018** speakers are used in the public zones, while low cost **CSS-8004** speakers are used in the break room.



JBL Commercial CS SERIES

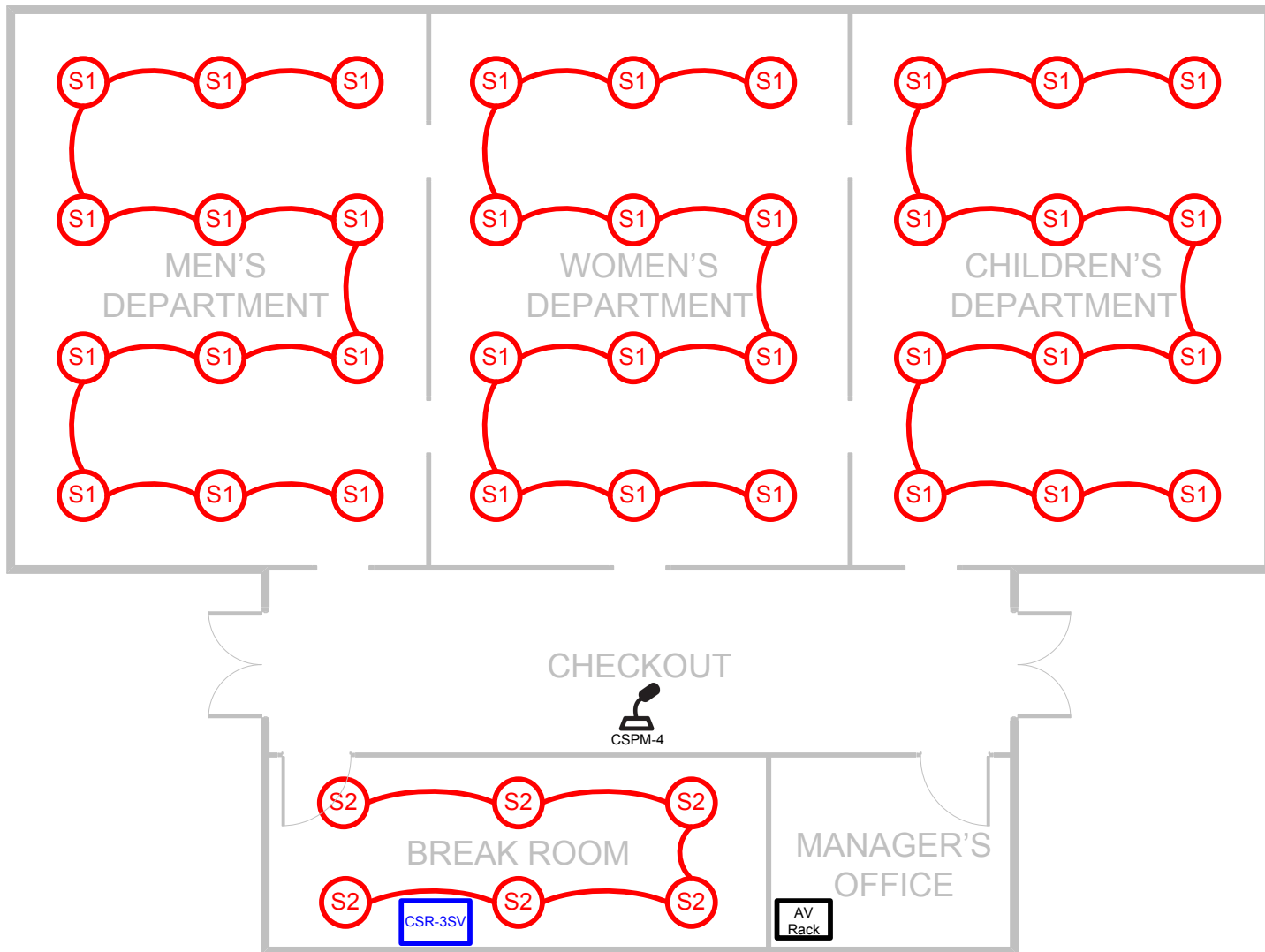
Application Guide

S1 = CSS-8018

S2 = CSS-8004



RETAIL STORE



CSM-32 Front Panel View



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