*Commercial Solutions Series*

# CSM-21 & CSM-32

*Mixer User Guide*

公共广播系统控制器
用户手册

# CSM-21 & CSM-32
# User Guide

# Contents

# IMPORTANT SAFETY INSTRUCTIONS

**CAUTION**

RISK OF ELECTRIC SHOCK
DO NOT OPEN

**ATTENTION:** RISQUE DE CHOC ELECTRIQUE - NE PAS OUVRIR

**WARNING:** TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE

The symbols shown above are internationally accepted symbols that warn of potential hazards with electrical products. The lightning flash with arrowpoint in an equilateral triangle means that there are dangerous voltages present within the unit. The exclamation point in an equilateral triangle indicates that it is necessary for the user to refer to the owner's manual.

These symbols warn that there are no user serviceable parts inside the unit. Do not open the unit. Do not attempt to service the unit yourself. Refer all servicing to qualified personnel. Opening the chassis for any reason will void the manufacturer's warranty. Do not get the unit wet. If liquid is spilled on the unit, shut it off immediately and take it to a dealer for service. Disconnect the unit during storms to prevent damage.

## SAFETY INSTRUCTIONS

NOTICE FOR CUSTOMERS IF YOUR UNIT IS EQUIPPED WITH A POWER CORD.

WARNING: THIS APPLIANCE SHALL BE CONNECTED TO A MAINS SOCKET OUTLET WITH A PROTECTIVE EARTHING CONNECTION.

The cores in the mains lead are coloured in accordance with the following code:

GREEN and YELLOW - Earth     BLUE - Neutral     BROWN - Live

As colours of the cores in the mains lead of this appliance may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:

- The core which is coloured green and yellow must be connected to the terminal in the plug marked with the letter E, or with the earth symbol, or coloured green, or green and yellow.
- The core which is coloured blue must be connected to the terminal marked N or coloured black.
- The core which is coloured brown must be connected to the terminal marked L or coloured red.

This equipment may require the use of a different line cord, attachment plug, or both, depending on the available power source at installation. If the attachment plug needs to be changed, refer servicing to qualified service personnel who should refer to the table below. The green/yellow wire shall be connected directly to the units chassis.

| CONDUCTOR | | WIRE COLOR | |
|---|---|---|---|
| | | Normal | Alt |
| L | LIVE | BROWN | BLACK |
| N | NEUTRAL | BLUE | WHITE |
| E | EARTH GND | GREEN/YEL | GREEN |

WARNING: If the ground is defeated, certain fault conditions in the unit or in the system to which it is connected can result in full line voltage between chassis and earth ground. Severe injury or death can then result if the chassis and earth ground are touched simultaneously.

**WARNING FOR YOUR PROTECTION**
**READ THE FOLLOWING:**

KEEP THESE INSTRUCTIONS

HEED ALL WARNINGS

FOLLOW ALL INSTRUCTIONS

THE APPARATUS SHALL NOT BE EXPOSED TO DRIPPING OR SPLASHING LIQUID AND NO OBJECT FILLED WITH LIQUID, SUCH AS VASES, SHALL BE PLACED ON THE APPARATUS

CLEAN ONLY WITH A DRY CLOTH.

DO NOT BLOCK ANY OF THE VENTILATION OPENINGS. INSTALL IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.

DO NOT INSTALL NEAR ANY HEAT SOURCES SUCH AS RADIATORS, HEAT REGISTERS, STOVES, OR OTHER APPARATUS (INCLUDING AMPLIFIERS) THAT PRODUCE HEAT.

ONLY USE ATTACHMENTS/ACCESSORIES SPECIFIED BY THE MANUFACTURER.

UNPLUG THIS APPARATUS DURING LIGHTNING STORMS OR WHEN UNUSED FOR LONG PERIODS OF TIME.

Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or third prong are provided for your safety. If the provided plug does not fit your outlet, consult an electrician for replacement of the obsolete outlet.

Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.

Use only with the cart stand, tripod bracket, or table specified by the manufacture, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over. Refer all servicing to to qualified service personnel. Servicing is required when the apparatus

has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

POWER ON/OFF SWITCH: For products provided with a power switch, the power switch DOES NOT break the connection from the mains.

MAINS DISCONNECT: The plug shall remain readily operable. For rack-mount or installation where plug is not accessible, an all-pole mains switch with a contact separation of at least 3 mm in each pole shall be incorporated into the electrical installation of the rack or building.

FOR UNITS EQUIPPED WITH EXTERNALLY ACCESSIBLE FUSE RECEPTACLE: Replace fuse with same type and rating only.

MULTIPLE-INPUT VOLTAGE: This equipment may require the use of a different line cord, attachment plug, or both, depending on the available power source at installation. Connect this equipment only to the power source indicated on the equipment rear panel. To reduce the risk of fire or electric shock, refer servicing to qualified service personnel or equivalent.

If connected to 240V supply, a suitable CSA/UL certified power cord shall be used for this supply.

# IMPORTANT SAFETY INSTRUCTIONS

# Quick Start

1.  Connect the included JBL power supply to the **POWER** jack on the rear panel of the mixer and check that it powers up.

2.  Switch on the **POWER** button on the front panel of the mixer.

3.  Connect a Left/Right RCA audio source to **SOURCE 1** input. Do not put any audio through the unit at this time.

4.  Turn the **SOURCE 1 GAIN** knob on the rear panel of the unit all the way counter-clockwise.

5.  Turn the **ZONE 1 LEVEL** knob on the front panel all the way counter-clockwise.

6.  On the front panel, select source 1 with the **ZONE 1 SELECT** knob.

7.  Connect the **ZONE 1** output on the rear panel to your power amplifier. Make sure the amplifier you are connecting to is not powered up while making this connection, this will prevent any nasty pops.

8.  Turn on your power amplifier.

9.  Turn on your audio source.

10. Slowly turn up **SOURCE 1 GAIN** knob on the rear panel until the **SIGNAL** LED is showing constant green.

11. Now turn up the source level by rotating the **ZONE 1 LEVEL** knob on the front panel until you hear audio through your source speakers.

12. Adjust **EQ** to sound right in the room.

13. See page 14 to 15 for setting **AutoWarmth™** and **LevelGuard™**.

# 1.0 Introduction

## 1.1 JBL Commercial CSM-21 and CSM-32 Mixer

The JBL Commercial® CSM-21 and CSM-32 mixers (hereafter called mixer) are specifically designed for flexible routing and control of multiple audio sources. To facilitate this, JBL has equipped the mixer with a wide array of input and output capabilities.

These features allow you to bring the same audio quality that many of your patrons are used to hearing at home into the realm of business. The mixers have been designed to make them easier to operate than any other product in their class. In reality, the feature set provided by the mixers put them in a class by themselves.

CSM-32 mixers provide 3 channel stereo inputs and 2 zone full range stereo outputs, and are equipped with functional connectors that provide connections to your microphones, direct input (fire alarm system), auxiliary devices, and CSR remote controls. CSM-21 mixers provide 2 channel stereo input, 1 zone full range stereo output, and are equipped with functional connectors that provide connections to microphones, direct input (fire alarm system), and CSR remote controls. For details about connectors and controls of mixs, refer to later chapters in this guide.

JBL's AutoWarmth™ and LevelGuard™ controls give you excellent sounding, easy to use equalization and dynamics control. This function allows the signal to be tailored for a wide variety of rooms, taste, and volume requirements.

## 1.2 Other Mixer Features

The mixers also feature linking capability. This is accomplished by connecting standard category 5 UTP cables to the mixer's LINK jacks.

Linking of multiple mixers provides additional output zones yet does not increase the number of inputs. SOURCES linking simply allows multiple mixers to share the same input source, eliminating the need for Y-cables. MAIN linking allows multiple mixers to share MIC input, MUSIC MUTE, and DIRECT INPUT functions. When multiple units are linked, there is no master or slave designation. The functions are simply paralleled so that sources, MIC input, MUSIC MUTE, and DIRECT INPUT can be run into any of the linked mixers.

JBL offers several optional remote controls: CSR-V, CSR-2SV, and CSR-3SV. These remote controls provide remote source selection and/or volume adjustments within a zone location.

# 2.0 Installation

**Method 1 - Attaching the brackets to the front panel for rack mounting**
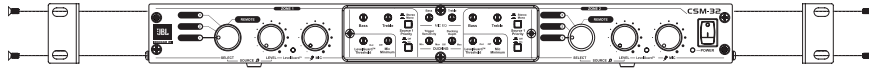


**Method 2 - Attaching the brackets to the sides of the unit for wall mounting**
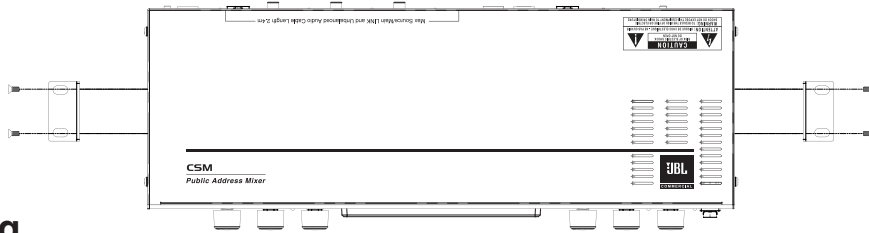


## 2.1 Unpacking

This product is carefully checked before packing to ensure flawless appearance and operation and that it reaches you in first class condition.

Please unpack and inspect your mixer for any damage that may have occurred during transit. If damage is found, notify the transportation company immediately. Only you can initiate a claim for shipping damage. We will be happy to help as needed. Save the shipping  carton as evidence of damage for the shipper's inspection.

We also recommend that you save all packing materials so you will have them if you ever need to transport the unit. Never ship the unit without the factory pack.

## 2.2 Mechanical Requirements

Adequate ventilation must be provided by allowing sufficient space around the sides, top, and rear of the mixer to ensure free circulation of air. Forced cooling is not required. The mixer requires a vertical rack space of 1U. Failure to do so may damage the mixer and invalidate the warranty.

## 2.3 Installing the Mixer

**CAUTION**: Before you begin, make sure that your mixer is disconnected from the power source and all level controls are turned completely down (counter-clockwise).

To install the mixer, you can use one of the following approaches:

- Use the original brackets come with the mixer.
    1. Align holes of a bracket with the holes on the case.
    2. Fasten the bracket with the provided screws.
    3. Follow step 1 to 2 to install rest bracket(s) to the case according your application.
    4. Install the assembly into the cabinet. For details of installation in the chassis of the cabinet, refer to the user guide of your cabinet.
- Install the mixer to the wall. See the Method 2 in the above figure.
- Stack amps without using a cabinet.

**NOTE**: When transporting, the mixer should be supported at both front and back.

## 2.4 Audio Input and Output Wiring Convention

Balanced wiring - The convention for balanced wiring (2-wire plus shield) is:
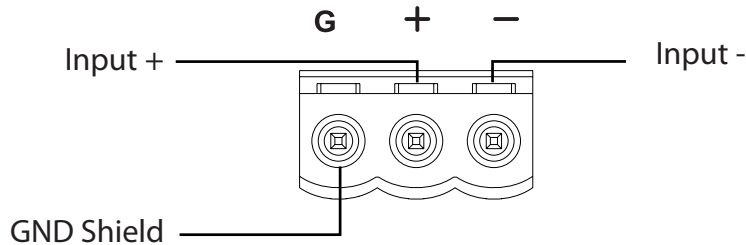


Unbalanced wiring - The convention for unbalanced wiring to the inputs (1-wire plus shield) is:
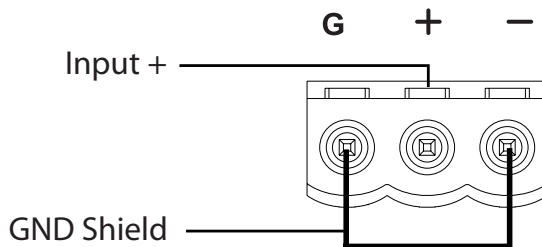


**NOTE**: The above wiring conventions are applicable for the following connectors: MIC INPUT, DIRECT INPUT, ISO AUX OUTPUT and ZONE OUTPUT.

## 2.5 Using Optimal Settings When Working with CSA-2120 Amplifiers

When working with the default level settings of CSA-2120 amplifiers, to optimize the volume performance of the mixer and CSA-2120 amplifers, you are recommended to use the following settings:

1. Set the **Bass** and **Treble** trim pots on the front panel of the mixer to the vertical positions, as shown below:



2. Set the **MIC** gain trim pot on the rear panel of the mixer to the optimal level as shown below:



3. Maintain a gap around 10 cm between the speaker's mouth and the microphone.
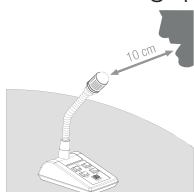
# 3.0 Rear Panel
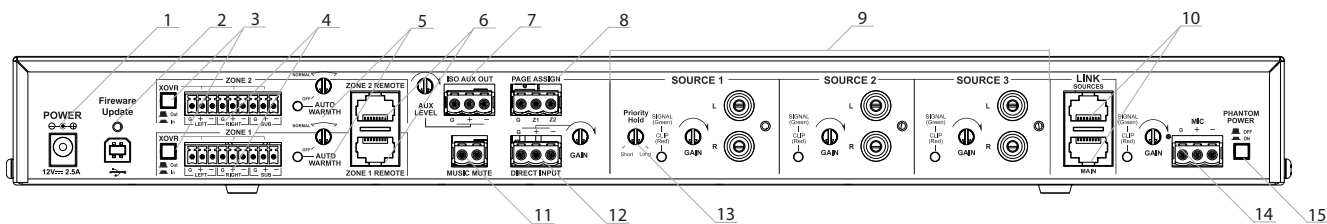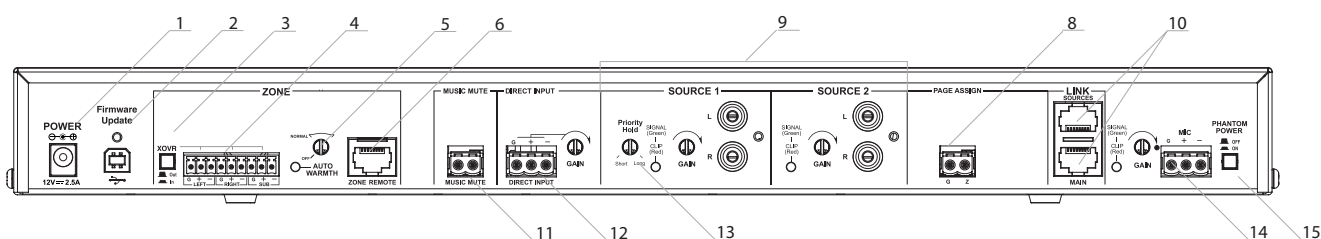
## 1. Power Supply Input

Connect your included JBL power supply here.

## 2. Firmware Update

The USB connector allows you to connect your computer to the mixer and update the firmware of the mixer.

You can know the version of this firmware by observing the LEDs on the rear panel during the mixer booting process. The LED in SOURCE 1 section indicates major. The LED in SOURCE 2 section indicates minor. The LED in SOURCE 3 section indicates build. The LED beside MIC connector indicates revision. Each LED will flash in green once or more times for the numeral it stands for. The format is "major.minor[.build[.revision]]". For example, if the first released version is "v1.0.0.0", when you switch on the mixer, the LED in SOURCE 1 section will flash once, and the rest LEDs will turn red directly. Then the unit is ready for use.

## 3. Crossover

This switch activates the ZONE output 125 Hz crossover functionality on the left, right, and subwoofer outputs. When the crossover is "in", the left and right outputs will allow frequencies above 125Hz to pass. The subwoofer output will allow frequencies below 125 Hz to pass.  When the crossover is "out", the left, right, and subwoofer outputs will pass full-range audio to allow the end-user to utilize the built-in crossover functionality on their speakers if desired. Use this crossover if the bass response of your room is too boomy, when you are using inexpensive loudspeaker transformers or in conjunction with the subwoofer crossover (see subwoofer crossover section).

## 4. Zone Output(s)

The mixer outputs utilize balanced Euroblock connectors. These outputs carry the Left, Right, and Sub-woofer signals. Connect these to your zone power amplifier.

## 5. AutoWarmth™ Indicator and Trim Pot

These indicators flash green when the AutoWarmth function is being activated. This trim pot adjusts at what point AutoWarmth™ is engaged.

### 6. Zone Remote Jacks

These inputs are for the optional remote controls: CSR-V, CSR-2SV, and CSR-3SV.

### 7. Isolated Auxiliary Output*

This sends a transformer isolated mono signal for a music-on-hold system, or for a separate mono auxiliary zone. The +/- outputs are 600 Ohm transformer isolated so that they can interface to ano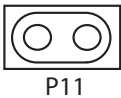ther system (telephone or remote amplifier) without having undesirable ground interaction. The level control adjusts the output level to match a variety of applications.

P11

**NOTE** : THE P11 JUMBER IS LOCATED ON THE PCB OF THE MIXER. AS SHIPPED, THE SOURCE FEEDING THE AUXILIARY OUTPUT IS SELECTED BY THE ZONE 1 SOURCE SELECTOR. WHATEVER SOURCE IS SELECTED BY ZONE 1 IS WHAT COMES OUT OF THE AUXILIARY OUTPUT. THIS CAN BE CHANGED TO ALWAYS BE SOURCE 3 BY REMOVING AN INTERNAL JUMPER CAP.

### 8. Page Assign

This allows you to assign pages between output zones. This can be accomplished with a simple remote selector switch or can be hard wired if pages are to the same zone every time. Shorting a zone pin (Z1 or Z2 or both) to the "G" pin assigns the page to that zone.

### 9. Source Inputs

Connect your RCA equipped source signals here.

### 10. Link Jacks

These inputs allow you to network multiple CSM mixers together. The units are connected by standard category 5 UTP cables. The length of the linking cable must be kept to under 2.4 meters.

### 11. Music Mute

This can be wired to a switch that mutes the background music when pin 2 is shorted to ground pin 1.

**NOTE 1**: MUSIC MUTE DOES NOT MUTE THE PAGING MIC AND DIRECT INPUT. IN AN EMERGEN-CY SITUATION, THE SYSTEM USER MAY NEED TO USE THE PAGING MIC FOR EMERGENCY AN-NOUNCEMENTS.

**NOTE 2**: WHEN THE CSM-21 AND CSM-32 MIXERS ARE LINKED TO PROVIDE AN ADDITIONAL OUT-PUT ZONE, MUSIC MUTE WILL BE APPLIED TO OTHER CSM-21 AND CSM-32 MIXERS THROUGH THE LINK CONNECTION.

### 12. Direct Input

The Direct Input signal is buffered and sent directly to the outputs. This is useful for alarms, emergency pages, or for another priority level of paging. The gain control adjusts the volume of Direct Input to the Zones.

**NOTE** : THE DIRECT INPUT REQUIRES A LINE-LEVEL SIGNAL, A MICROPHONE PRE-AMP IS NEED-ED TO BOOST A MIC LEVEL SIGNAL BEFORE IT CAN BE RUN INTO THE DIRECT INPUT.

Items with * are the controls only found on the CSM-32 mixer.

### 13. Priority Hold

Priority Hold smoothly adjusts the time it takes for the normal input source to become audible after the priority source ceases. This allows for compatibility with the many different types of priority sources that exist in business environments.

### 14. Microphone Input

Connect the paging microphone here. Line level paging inputs from telephone systems must be externally transformer isolated and reduced in volume to microphone level.

### 15. Phantom Power

This switch provides +48 V power for condenser microphones.

# 4.0 Front Panel
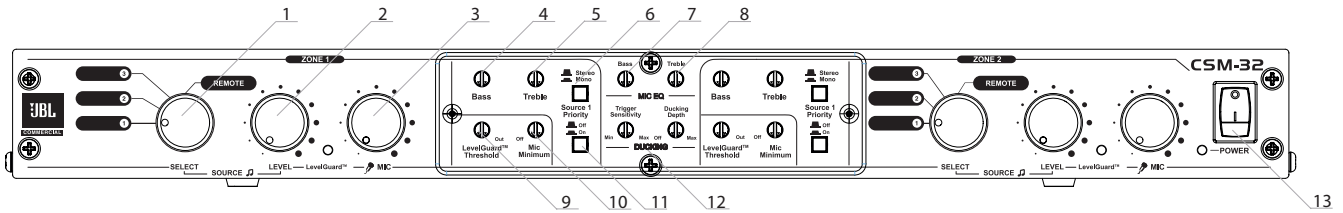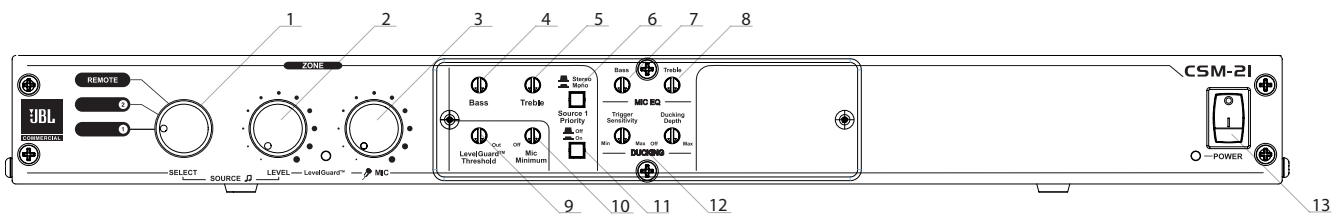
## 1. Source Selector

The **SELECT** knob selects which source is sending to that zone, or selects remote control with a remote control. To activate source selector on the remote control, this control must be set to the **REMOTE** position.

## 2. Source Level Knob

This **LEVEL** knob increases or decreases the output level of the background music. The range of this knob is: -inf,-48 to +15dB

## 3. Microphone Level Knob

This **MIC** level knob increases or decreases the level of the paging mic. The range of the knob is –inf,-30 to 0dB.

**NOTE**: the range of the MIC level knob is determined by the Mic Minimum setting. When the **Mic Minimum** trim pot is set to full clock-wise position, the range of the MIC level knob is limited to -10 to 0 dB.

## 4. Bass Zone EQ

The **Bass** trim pot cuts/boosts the zone's low frequencies.

## 5. Treble Zone EQ

The **Treble** trim pot cuts/boosts the zone's high frequencies.

## 6. Stereo/Mono Switch

This switch reduces the stereo image to mono. This is helpful for adjusting for mono input sources, or for stereo input sources into a mono system.

### 7. Bass Mic EQ

The **Bass** trim pot cuts/boosts by +/-6 dB the Microphone's low frequencies.

### 8. Treble Mic EQ

The **Treble** trim pot cuts/boosts by +/- 6 dB the microphone's high frequencies.

### 9. LevelGuard™ Threshold

This LED flashes amber when the LevelGuard™ function has been activated. Adjusts the threshold at which the LevelGuard™ function is activated. Fully clockwise is off.

### 10. Mic Minimum Volume Trim Pot

Sets the desired minimum paging microphone level, enabling the microphone's lowest preferred level to be set. This ensures that the main mic level control cannot be accidentally set to totally turn off a page into that zone.

### 11. Source Priority Switch

Selects whether Sources 2 and 3 are overridden by the Source 1 input.

### 12. Ducking

Ducking automatically decreases the level of the background music when a page takes place. Set the Sensitivity control so that the ducking occurs reliably whenever a mic page occurs. Set the depth control to suit the application. Typical ducking would be with the control straight up, letting through some of the background music during a page. You can set the depth for full, minimal, or no ducking of the music, as required.

### 13. Power Switch

Turns the mixer on/off.

# 5.0 Knowing Your Mixer

## 5.1 Source

What is a Source? This is a line-level input signal such as programmed music, CD player, VCR/DVD, satellite feed, tape player, radio, message repeater, or juke box. These sources are then equalized, dynamically controlled, and routed by your selections and priorities on the mixer.

## 5.2 Zones

What is a zone? This is the area where you wish the signal to end up. The mixer outputs a stereo or mono signal to your chosen zone. Built-in subwoofer crossovers allow you to include a subwoofer in that zone. This allows you to attain the wide bandwidth sound your patrons are used to hearing.

## 5.3 Volume

What is a good volume? Determining a good volume is a balance of art and science. You need maximum coverage without interfering with the workplace environment or customer comfort and communication.

The mixer gives you the tools you need in the form of AutoWarmth™ and LevelGuard™ to get the best sound quality from the volume that each application requires. Once you have set your volume preferences, AutoWarmth™ and LevelGuard™ help you keep it that way.

## 5.4 AutoWarmth™

What is AutoWarmth™? In its simplest terms JBL's AutoWarmth™ can be thought of as being similar to the "loudness" control on a home stereo, except its actual functions are considerably more complex. AutoWarmth™ operates on a variable basis and automatically makes the proper adjustments to maintain an even tonal perception. This function constantly adjusts for the ear's tendency to hear more low frequencies at low volumes, and less low frequencies at high volumes. AutoWarmth™ automatically ensures full music fidelity at all volumes.

## 5.5 LevelGuard™

What is LevelGuard™? The LevelGuard™ function helps keep the volumes of various sources consistent by sensing the level of the incoming audio source and automatically processing the signal to a user selected preference.

# 6.0 Setup

## 6.1 Determining Source Priorities

Determining the hierarchy of your sources is easier than it sounds. Generally it follows this order:

1. Emergency/Alarm (Direct Input with MUSIC MUTE engaged)

2. Pages (Paging Mic)

3. Prerecorded announcements (or another source into SOURCE 1 with Priority engaged).

4. Background music (SOURCE 2 and SOURCE 3)

In this example, your alarms would connect to the Direct Input, your page microphone connects to the MIC Input, prerecorded announcements connect to SOURCE 1, and background music connects to SOURCE 2 and 3.

**NOTE**: MUSIC MUTE DOES NOT MUTE THE PAGING MIC. IN AN EMERGENCY SITUATION IT IS USU-ALLY BEST TO KEEP ALL MICROPHONES ACTIVE FOR ANNOUNCEMENTS.

## 6.2 Connecting Sources

Connecting your sources is also very simple. Just connect the left and right outputs of your source to the left and right input of the mixer.

## 6.3 Adjusting Source Gain

Check the input level LEDs, they should show green for continuous signal. Red will flash if the input is too strong. Occasional flashes into the red are not harmful if no distortion is apparent.

## 6.4 Using EQ

The best determination for needed equalization is to trust your ears. Does the output sound boomy. Reduce bass setting or engage the high pass filter, this will reduce the bass frequencies. Does it sound dark or muffled? Turn up the treble. Or if it sounds thin or harsh, decrease the treble. Just like the tone controls on a car or home stereo.

## 6.5 Using Subwoofer Crossover

When the XOVR switch is engaged, the main speakers are high passed at 125 Hz and the subwoofer outputs are low-passed at 125 Hz (both with a slope of 24 dB per octave), forming a full subwoofer crossover. When the XOVR switch is NOT engaged, the main speaker outputs and the subwoofer outputs are full-range.

## 6.6 Setting Up AutoWarmth™ Method 1

To set up AutoWarmth™ begin by turning the AutoWarmth™ trimmer to the twelve o'clock position. Use this as your "baseline" setting. Now turn up the source volume (on front panel) to a typical operating level for that zone. Check the AutoWarmth™ indicator LED, on quieter passages the indicator should flash green. If it does not, start turning the trim pot clockwise until it does. If the indicator is constantly on, turn the trim pot counter-clockwise until it flashes only occasionally.

Then adjust the bass and treble tone controls for that zone. To check the adjustments, turn the volume down to as low as its ever going to be used in that zone and make sure the tone sounds full enough. If not then turn the AutoWarmth™ trimmer further clockwise to increase its effect. Go back and forth between typical level, low level, and high level. Adjust AutoWarmth™ for the best overall sound at all the compared levels.

## 6.7 Setting Up AutoWarmth™ Method 2

An alternate method is to turn the AutoWarmth™ trimmer full counter-clockwise. Turn the Source volume (on front panel) to the highest volume at which that zone will be operated. Adjust the Auto-Warmth™ trimmer clockwise until the green LED just starts to light on musical peaks. Then turn the AutoWarmth™ trimmer back counter-clockwise until it does not light at all. Next turn the zone's level down to normal operating level and adjust the bass and treble controls for that zone, the AutoWarmth LED will light.

With either of these setup methods, AutoWarmth™ should shut off when operating at higher volumes and be lit at both normal and lower volumes.

## 6.8 Setting Up LevelGuard™

To set up LevelGuard™ begin by turning the LevelGuard™ trim pot to 12:00. Use this as your "base-line" setting. Now turn up the Source volume to the level desired for a particular zone. Check the LevelGuard™ indicator LED, on quieter passages the indicator should be off. On peak volumes the indicator should flash amber. If the indicator is constantly on, turn the trim pot clockwise until it flashes only occasionally. It is useful to set LevelGuard™ so that the LED stays unlit during very low volume music, flashes on and off during normal volume, and then lights continuously as the volume increases. Adjust by ear to sound best.
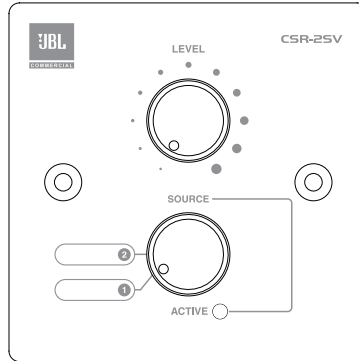
## 6.9 Security Cover

Affix the security panel over the front panel setup controls to prevent tampering.
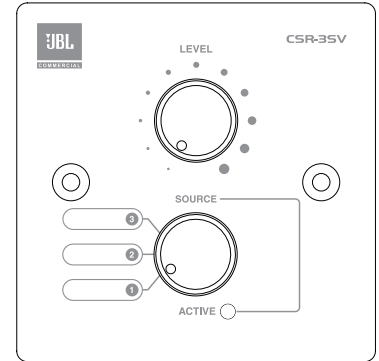
# Appendix A. Optional Item - CSR Series Remote Controls
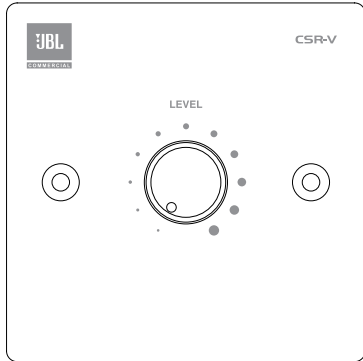


| CSR-V | CSR-2SV | CSR-3SV |

Optional remote controls are available from JBL to provide source selection and volume control from a remote location other than your mixer.

Selecting Source

The Source Selection control on the remote control only functions when the Source Selector switch for that zone is set to "REMOTE" on the mixer. When the remote control is active, the green LED on the remote control below the Source switch (labelled ACTIVE) lights. When this LED is not lit, the remote source control is not operational.

Controlling Volume

The LEVEL on the mixer is ALWAYS operational, regardless whether the Source Selector is active or not. This remote control is ATTENUATE ONLY.
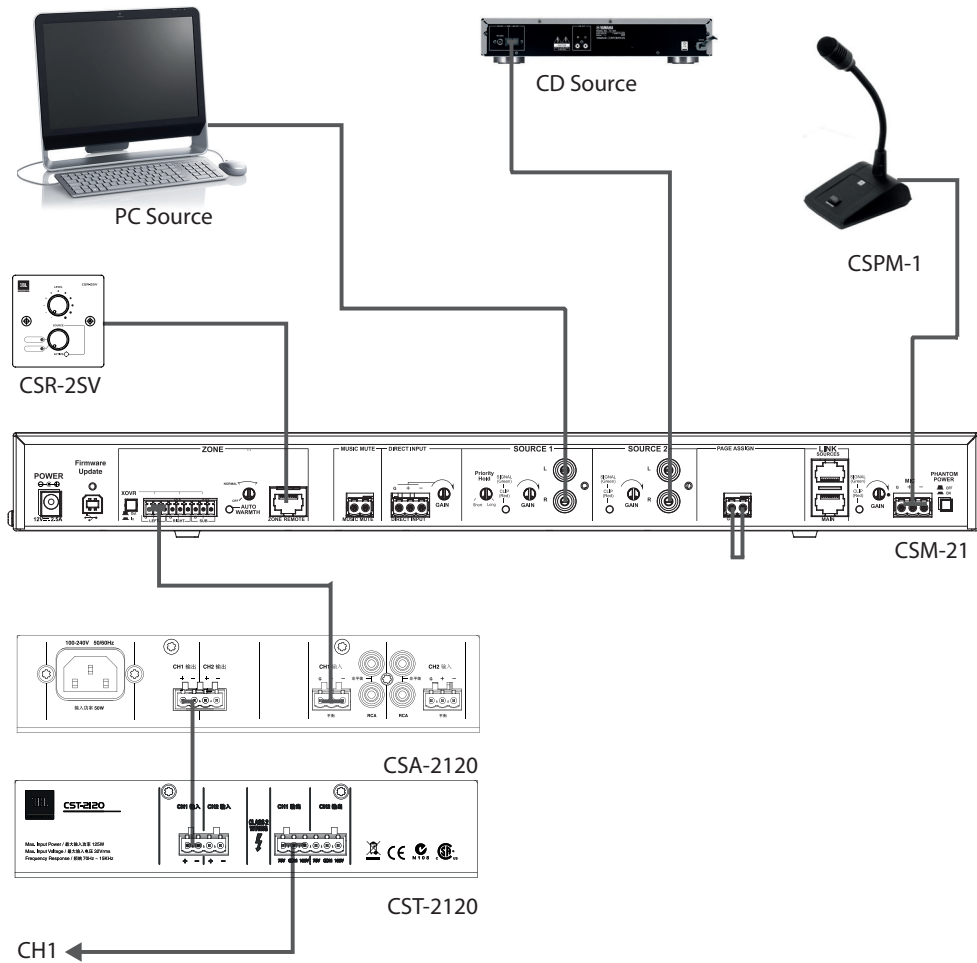
To set the volume control of the remote control, you can follow the steps:

1. Turn the remote control LEVEL to maximum (full clockwise).

2. Set the volume control on the mixer to the loudest you will ever need the system to be.

3. Turn the remote control LEVEL knob down to a comfortable or typical operating level. Now the volume control on the remote control cannot turn the volume up above what is set on the mixer.

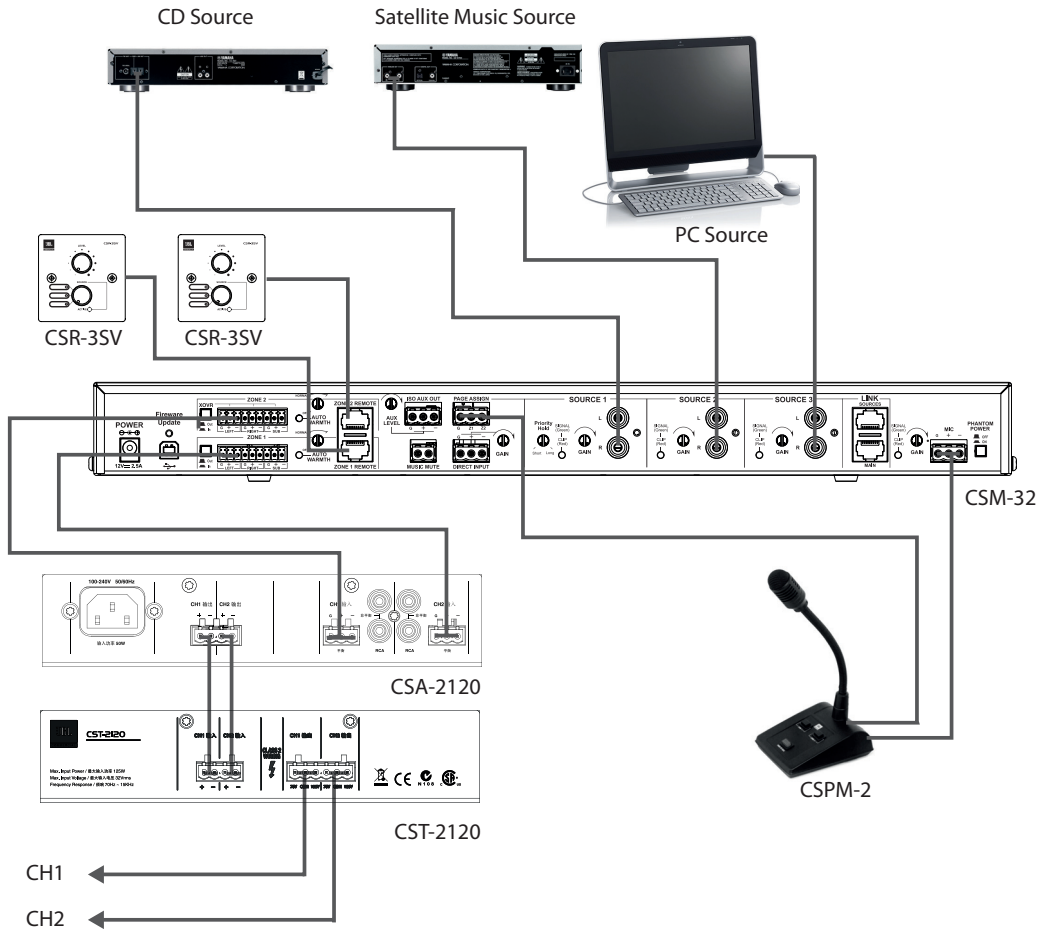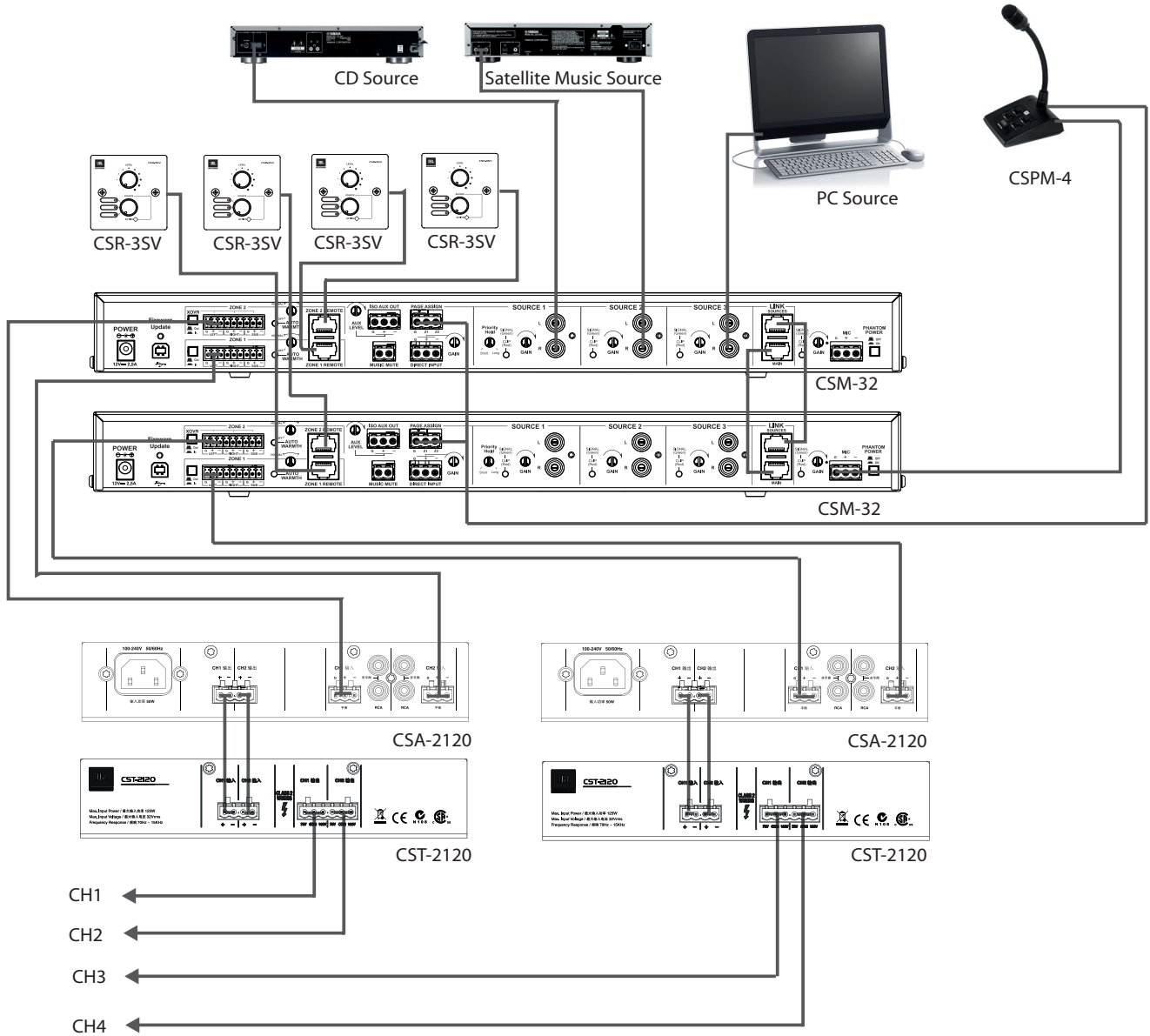| RJ-45 (8-Position) | Color | CSR-V | CSR-2SV/CSR-3SV |
|---|---|---|---|
| Pin 1 | White/Orange | +VREF 3.3VDC | +VREF 3.3VDC |
| Pin 2 | Orange | Volume Control | Volume Control |
| Pin 3 | White/Green | Not used | Source Selection |
| Pin 4 | Blue | Not used | LED (+2.8VDC) |
| Pin 5 | White/Blue | Not used | Not used |
| Pin 6 | Green | Not used | Not used |
| Pin 7 | White/Brown | Not used | Not used |
| Pin 8 | Brown | Ground | Ground |

# Appendix B: Applications

## Retail



This is for facility comprised of one zone, for example, the retail consisting of the shopping area and change rooms. The remote controls allow you to select source and control volume from a remote location. The CSM's LevelGuard™ features keeps the volume range at optimum and AutoWarmth™ automatically adjusts to ensure full high-fidelity sound regardless of the volume. The store audio system has background music and paging capability.

# Restaurant



CD Source

Satellite Music Source

PC Source

CSR-3SV    CSR-3SV

CSM-32

CSA-2120

CSPM-2

CST-2120

CH1

CH2

This is for facility comprised of two zones, for example, dining area and kitchen. Each zone is with independent volume capability and source selection via remote controls located within that zone. The CSM's LevelGuard™ features keeps the volume range at optimum and AutoWarmth™ automatically adjusts to ensure full high-fidelity sound regardless of the volume.

# Fitness Center



CD Source

Satellite Music Source

PC Source

CSPM-4

CSR-3SV    CSR-3SV    CSR-3SV    CSR-3SV

CSM-32

CSM-32

CSA-2120

CSA-2120

CST-2120

CST-2120

CH1

CH2

CH3

CH4

This is for a facility comprised of four zones, each with independent volume capability and source selection via remote controls located within that zone. The reception area comprises one zone. The central hall, cardiovascular training area, aerobic training and strength training areas constitute another zone. The pool is one zone, and the cycling room, dancing room, yoga room, and locker rooms are as the fourth zone. The selection of loudspeakers for the facility depends on which form factor the architecture requires, how the floor plan is laid out for coverage, and the sound level requirements. For high SPL facilities, the amplification system is expandable. For wide bandwidth fitness centers, a subwoofer can be easily added. The CSM's LevelGuard™ feature keeps the volume range at optimum and Auto-Warmth™ automatically adjusts to ensure full high-fidelity sound regardless of the volume.

# Appendix C: Block Diagrams

## JBL CSM-21 DSP Signal Diagram
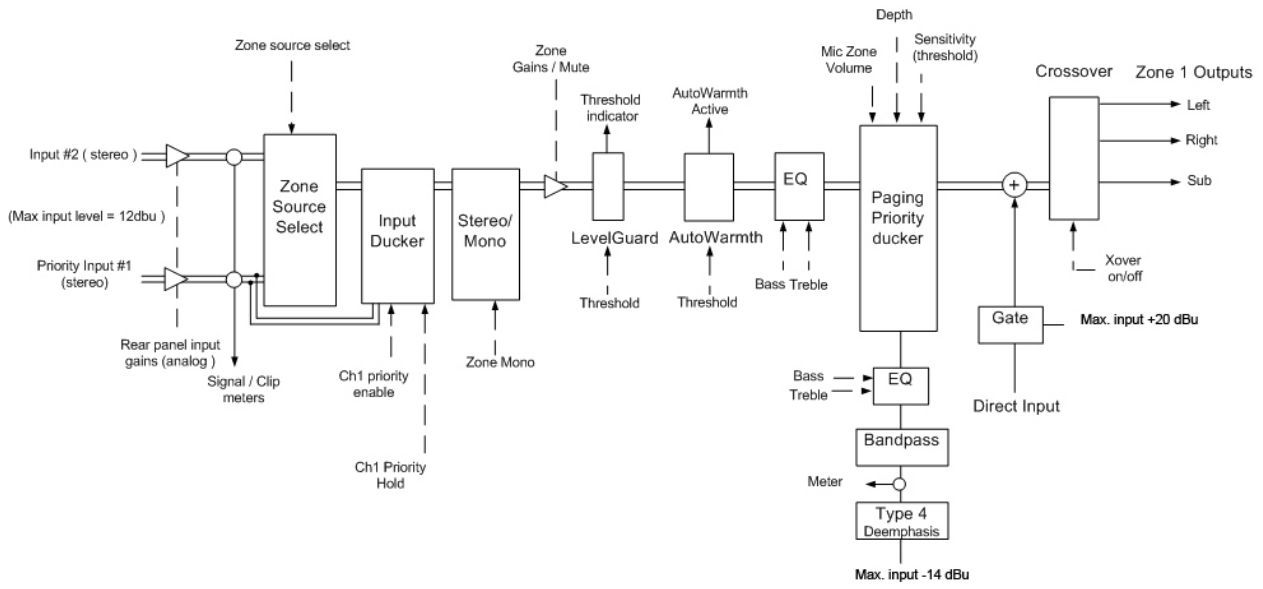


## JBL CSM-32 DSP Signal Diagram
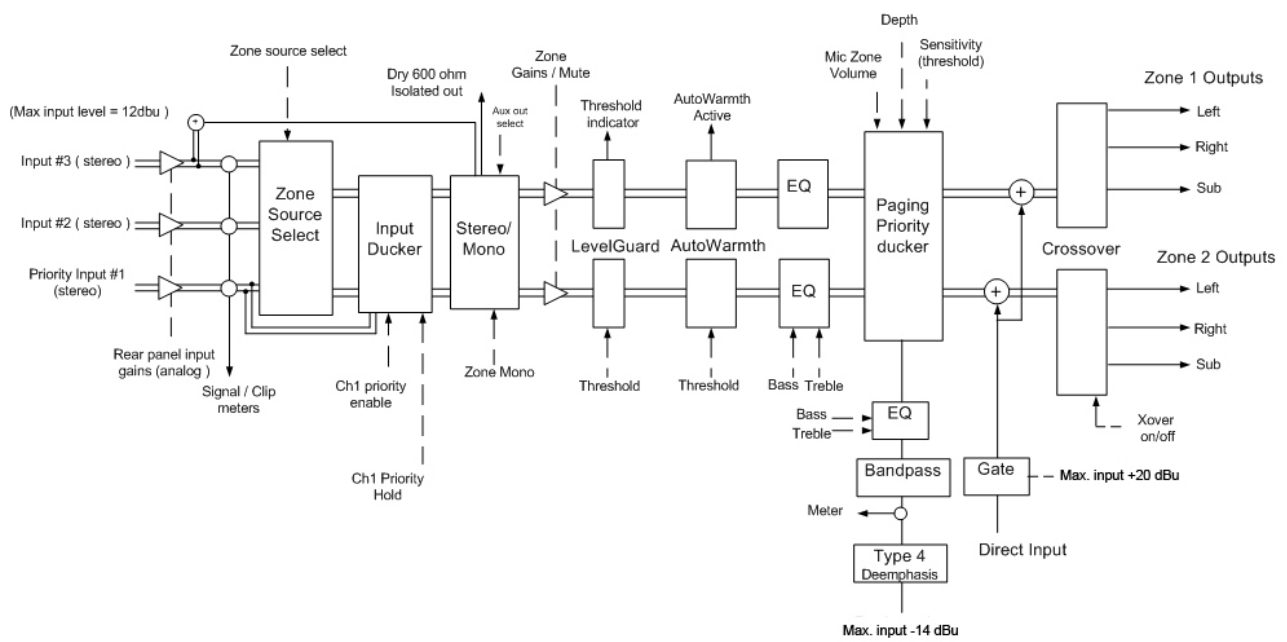
# Appendix D: Specifications

### LINE INPUT

| | |
|---|---|
| Type: | Unbalanced, RCA connectorx2, per source |
| Nominal Sensitivity: | Max. +3.3 dBu |
| Input Impedance: | 20 k ohms |
| Frequency Response: | 20 Hz - 20 kHz ± 1.5 dB |
| Equalization: | Bass ± 10 dB @ 20 Hz |
| | Treble ± 10 dB @ 14 kHz |

### MIC INPUT

| | |
|---|---|
| Type: | Balanced, Euroblock connector for bare wire |
| Input Impedance: | 330 ohms |
| Sensitivity: | -44 dBu @ maximum 60 dB pre-amp gain |
| | -14 dBu @ minimum 30 dB pre-amp gain |
| Noise: | <-81 dBu |
| Frequency Response: | Band limited to 150 Hz -6 kHz ± 1 dB |
| Equalization: | Bass ±6 dB @ 160 Hz |
| | Treble ±6 dB @ 5 kHz |

### ZONE OUTPUTS

| | |
|---|---|
| Type: | Balanced, Euroblock connector for bare wire |
| Maximum Output: | +20 dBu |
| Subwoofer Output: | Low-passed: 125 Hz (XOVR at "in"position) |
| | Low-passed: 20 kHz (XOVR at "out"position) |

## MISCELLANEOUS

| | |
|---|---|
| Direct Input: | +20 dBu (Max. input level) |
| Priority Hold: | Adjustable from approx 1 second to approx 20 seconds. |
| Iso Aux Out: | Isolated via 600 ohm balanced isolation transformer. Output level adjustable to +10.5 dBu max. |
| Remote Control: | Connection via Category 5 UTP, Category 5 connectors both ends, no audio runs through wires. RJ45 connector. |
| Mute Terminals: | Shorting the pins mutes all Source inputs, does not mute Mic input. |
| Page Assign: | Shorting zone pin to ground (provided) assigns page to that zone. |
| Source Linking: | Category 5 cable, RJ45 connector. With more than 2 units, Category 5 Y-cable required. Recommended max of 4 units for direct linking. More with outboard DA. Recommended max link cable length 6 ft (2.4 M). |

## GENERAL

| | |
|---|---|
| Power Consumption: | 10 W |
| Power Requirements: | 100-240 V Thermal fuse in external transformer |
| Dimensions (W x H x D): | 19.0" x 1.8" (no feet) x 7.0" (including knobs and connectors) |
| Weight: | 5.3 lbs (2.4 kg) |

# Appendix E: Contact Information

**On The World Wide Web:**
www.jblpro.com

**Professional Contacts, Outside the USA:**
Contact the JBL Professional Distributor in your area. A complete list of JBL Professional international distributors is provided at our U.S.A. website: www.jblpro.com

# CSM-21 & CSM-32
# 公共广播系统控制器
# 用户手册

# 目录

# 重要的安全说明

## 注意这些符号

| ⚡ | 警告<br>有电击危险，请勿拆开。 | ⚠ |
|---|---|---|

双重绝缘 - 维修时仅使用可互换零件。

如上符号为国际通用的电子产品危险警示符号。闪电三角形符号用来提示用户产品外壳可能存在"危险电压"从而可能造成电击危险。感叹号三角形符号用来提示用户重要的操作或者维护说明。

这些符号警示本产品内部无用户可自行维护部件。请勿试图自行维修本设备。请向有资格的服务人员咨询。无论出于何种原因打开本设备将无法享受到制造商提供本设备的保修服务。请避免本设备受潮或进水。如果本设备遭受水渗，请立即断开电源并将本设备提交代理商维护。请在雷暴天气时断开本设备的电源，以防止任何损失。

## 有关使用带电源线设备的特别提醒

警告：设备需要接入有接地保护的电源插座。

电源总线中的线缆有颜色规则如下：

绿黄线：接地

蓝线：零线

棕线：火线

当设备电源线中线缆的颜色可能与您使用插头上的标识不一致时，请按如下原则连接：

- 黄绿线必须与插头上标有E，或有接地标识，或绿色，或黄绿色的插脚相连。
- 蓝线必须与插头上标有N或黑色插脚相连。
- 棕线必须与插头上标有L或红色插脚相连。

根据安装现场提供的供电电源不同，此设备可能要求使用不同的线材和/或附带插头。如果附带插头需要更换，请让有资格的人员提供服务，并参照如下表格的内容。黄绿线需要直接与产品所安装机架相连。

| 导线 | | 线材颜色 | |
|---|---|---|---|
| | | 额定 | 交流 |
| L | 火线 | 棕色 | 黑色 |
| N | 零线 | 蓝色 | 白色 |
| E | 地线 | 绿色/黄色 | 绿色 |

警告：如果未做接地连接，连接使用的产品或系统在使用中可能产生故障，因此可使机架与大地间产生满载电压。一旦人同时接触机架和大地，将会严重受到伤害甚至死亡。

## 安全操作警示

保留本手册。

留意所有的警告。

遵守本手册中的所有操作说明。

不要将设备放置在容易遭受滴漏或者喷洒的地方。例如，不要将装有液体的物品，比如花瓶等放到设备上。

仅用干布清洁擦拭本设备

不要阻挡任何通风口，并严格按照制造商提供的操作说明进行安装。

不要靠近任何热源安装，比如散热器、电热器、火炉或者其他产生热量的设备（包括功放）。

仅使用制造商指定的附件或选件。

在有雷电时或者长时间不使用本设备时，请拔掉插头。

建议用户务必使用接地式电源插头及设备随附的或指定的缆线。请注意接地式电源插头的安全目的。接地式电源插头有两支金属插脚和第三支接地插脚。接地插脚是为安全要求而制定的。如果随机所附的插头与您的插座不符，请在更换不符的插座前，先咨询电工人员。

保护电源线。避免电源线被踩踏或者被捻搓。特别注意保护在插头、便捷插座和电源线接出设备处的电源线。

仅使用制造商指定的或者随本设备一同出售的推车、支架、三角架、托架或者工作台。在使用推车运输设备时，特别注意推车及设备，避免其翻倒成伤害。



电源开关：对于附带电源开关的产品电源开关并不断开与电源的连接，

断开电源：应保证电源插头可随时插拔使用。对于机架安装或插头无法通过的安装，需要在机架或建设物中配备极性端接触空间不得少于3MM的全极性交流开关。

对于配备有外部可更换保险丝接口的设备：务必更换同类型同规格的保险丝。

多种输入电压：此设备可能根据安装现场所使用电源不同而需要使用不同线缆和/或插头。确保此设备连接到设备后面板所标示的电源类型。为减少火灾或电击发生的可能性，请向有资格的维修人员咨询。

如果此设备需要连接到240V的供电系统，请使用已获得CSA/UL认证的电源线。

# 重要的安全说明

## 英式电源插头警告

不可将一体式电源插头切断后使用, 这是相当不安全的。

正确回收处理电源插头。

切勿在未将保险丝盖放到位的情况下使用电源插头。您可联系当地经销商以更换保险丝盖。保险丝为13A, 并必须符合BS1362及获得ASTA认证。

## 电磁兼容

本设备符合FCC第15部分的法规和《符合性声明》中的产品规格。本产品工作的条件如下:

- 本设备不会导致有害的干扰, 且

- 本设备必须经受任何可能的干扰, 包括可能导致其发生非预期工作的干扰。

    避免在强电磁干扰的区域使用本设备。

- 仅使用屏蔽线缆连接本设备。

如果您需要丢弃本产品, 请勿将其与一般家居废品混放。对于电子产品的废弃, 请遵循相关正确处理、恢复和回收法规, 将废弃产品统一回收到独立的回收系统。

在25个欧盟成员国、瑞士和挪威, 您可以免费将需要丢弃的家用电子产品回收到指定的收集站或零售商(如果您从此零售商处购买了同类新产品)。

对于如上未提及的国家和地区, 请联系您当地的部门咨询正确的废品处理方法。

采取正确的废品回收方法, 您将能保证所丢弃的产品得到相应的处理、恢复和回收, 从而避免给环境和人类健康带来有害影响。

# 快速使用指南

1.  将随本设备所附的JBL电源适配器连接到控制器的后面板，并确认已接通电源。

2.  开启本设备前面板上的电源开关。

3.  将任意一个左声道/右声道RCA音源接入**SOURCE 1**输入接口。在此期间请勿输入任何音源信号。

4.  将后面板上**SOURCE 1**的**GAIN**旋钮向逆时针方向旋转到最小位置。

5.  将前面板上的**ZONE 1**的**LEVEL**旋钮向逆时针方向旋转到最小位置。

6.  将前面板上**ZONE 1**的**SELECT**旋钮旋转到**SOURCE 1**位置。

7.  将后面板上的**ZONE 1**输出接口与功率放大器连接。连接时，确保断开功放电源，以免产生难听的噪音。

8.  开启您的功率放大器。

9.  开启您的音源设备。

10. 调节后面板上**SOURCE 1**的**GAIN**旋钮逐渐增大到**SIGNAL** LED灯稳定显示为绿色。

11. 调节前面板上**ZONE 1**的**LEVEL**旋钮逐渐增大到您能用音源音箱听到的合适音量。

12. 调整**EQ**达到房间及您所需的听觉效果。

13. 参照本手册第14至15页设定**AutoWarmth™** 和**LevelGuard™**。

# 1.0 简介

## 1.1 JBL Commercial CSM-21和CSM-32控制器

JBL Commercial® CSM-21和CSM-32控制器（下文简称"控制器"）提供更便捷的线路连接设计，让您轻松操控多种音源设备。这款控制器以其丰富的输入输出接口，满足您轻松操控音源设备的需要。

此控制器的功能让您只有在高级家庭音响中才能享受到的音乐品质带到商业领域。此控制器在同类产品中以其操控的便利性而不同凡响。而事实上，此控制器所带的功能已使其在同级产品中出类拔萃。

CSM-32控制器提供3通道立体声输入和两区域全频段立体声输出，并配备如下功能接口：麦克风输入、直接输入（例如火警报警系统）、辅助设备和CSR壁式控制盒。CSM-21控制器提供2通道立体声输入和一区域全频段立体声输出，并配备如下功能接口：麦克风输入、直接输入（例如火警报警系统）和CSR壁式控制盒。有关各种接口和控制钮的信息，参阅本手册后面章节。

JBL的AutoWarmth™和LevelGuard™功能让您聆听到优美的声音，体验到使用均衡和实现动态操控的便利性。这些功能能处理信号，使之满足不同场合对音色、品味和音量的需求。

## 1.2 控制器其它特点

此控制器的另一重要特点是强大的多机联接功能。您只需要使用第五类UTP电缆连接到控制器的**LINK**（联接）接口。

在不增加输入接口的情况下，将多台控制器联接可增加输出区域。SOURCES接口能让多台控制器共享同样的音源输入，而不需要您再使用Y电缆连接实现。MAIN接口能让多台控制器共享MIC INPUT、MUSIC MUTE和DIRECT INPUT功能。当连接多台控制器时，将不会有主控制器和从控制器的差别。这些功能实现并联，因此您可以从任意一台已并联的控制器上操作音源、MIC INPUT、MUSIC MUTE和DIRECT INPUT功能。
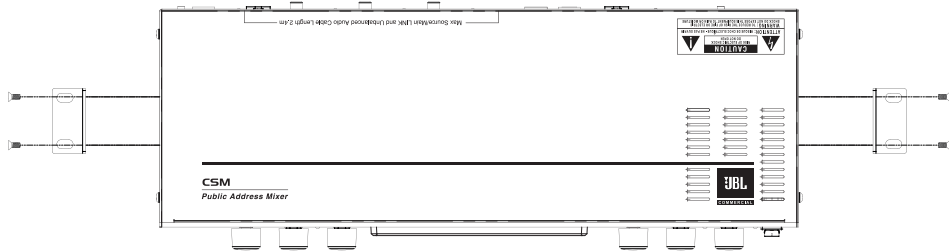
JBL提供可选壁式远程控制盒：CSR-V、CSR-2SV和CSR-3SV。这些控制盒可让您远程操作某一区域，如选择音源和/或调节音量。

# 2.0 安装

方法一：将支架安装到前面板两侧后再安装到机架
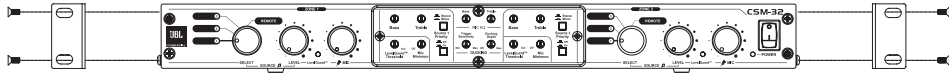


方法二：将支架安装到设备侧面板后再安装到墙壁



## 2.1 拆箱

本产品包装前已经过严格的检测，无任何外观和操作上的缺陷，确保到您手上的产品完好。

请将包装箱打开并检查运输过程中设备是否出现损坏。如果发现损坏，请立即通知运输公司。只有您可以对运输损坏提出索赔。我们乐于提供所需帮助。请留意运输硬纸箱，它能帮助您认定设备是否在托运中受损。

另外，我们建议您保存所有的包装材料，留待将来运输设备时使用。不要在无工厂包装的情况下运输设备。

## 2.2 安装环境需求

本产品需要各面、顶、后部都留足足够空间，以使空气自然流动帮助产品散热。通常本产品不需要进行强制散热。安装时请注意预留顶部1U空间以便散热。如果未能提供如上所需条件，本产品将可能遭受损坏，从而让您失去本产品的保证权益。

## 2.3 安装控制器

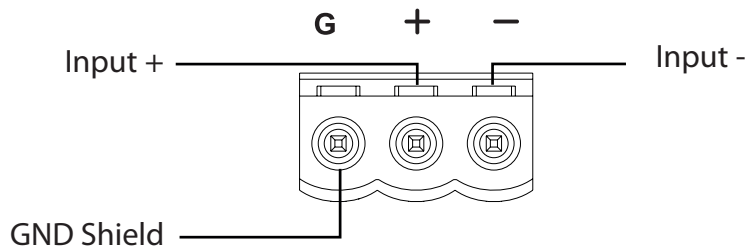**警告**：开始安装前，确保您已断开控制器与电源的连接，并将所有音量调节到最低（逆时针方向）。

您可以采用如下方法安装控制器：

- 使用原厂附带的设备支架将控制器安装到机柜。
  1. 将支架上的孔与控制器机身上的孔对齐。
  2. 用随机附带的螺钉将支架固定到控制器放上。
  3. 参照步骤1到2安装另一只支架。
  4. 将此控制器组件装入机柜。有关机柜中支架的安装操作，请参阅机柜使用说明书。
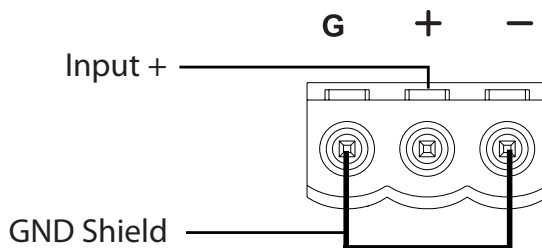- 安装到墙壁。参见方法二示意图。
- 不需要安装到机柜，直接将控制器放在台面使用。

**注意**：在运输时，必须在控制器的前面和背面提供支撑保护。

## 2.4 音频输入输出接线规则

平衡式 - 平衡式接线的规则（双线和屏蔽线）是：



非平衡式接线的规则（单线和屏蔽线）是：



**注意**：如上接线方式适用于：MIC INPUT、DIRECT INPUT、ISO AUX OUTPUT和ZONE OUTPUT接口。

## 2.5 与CSA-2120联用的最佳设定

CSA-2120功率放大器的音量控制钮已设定最佳音量水平。当CSM控制器与CSA-2120功率放大器联用时，为获得控制器和CSA-2120功率放大器的最佳音量表现，建议您作如下设定：
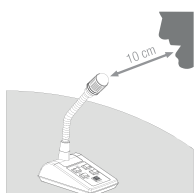
1. 将控制器前面板上的Bass（低频）和Treble（高频）微调钮设定到垂直位置，如图所示。



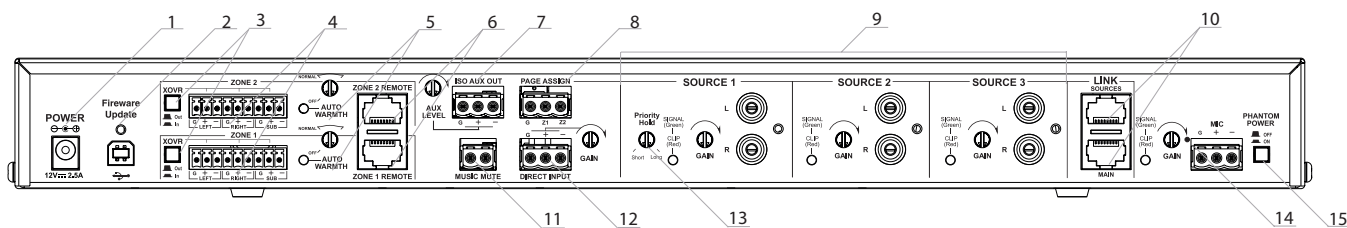2. 将控制器后面板上的MIC Gain（话筒增益）微调钮设定到如图所示位置。
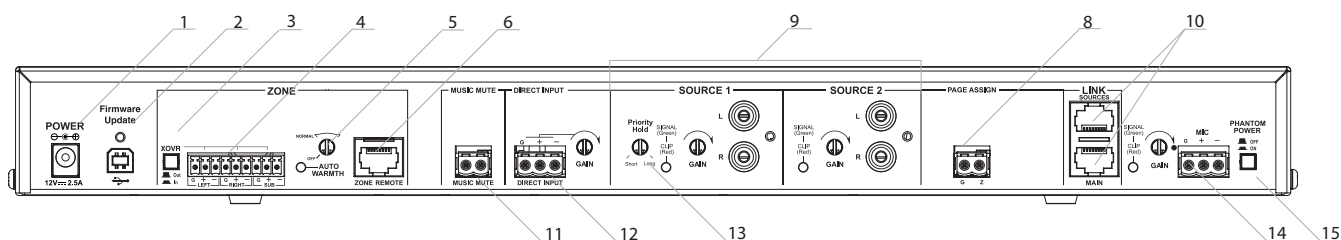


3. 确保演讲者的嘴与话筒的距离保持在10 CM左右。

# 3.0 后面板

## 1. 电源输入

此接口用于连接JBL电源适配器。

## 2. 固件更新

此USB连接接口可让您将电脑连接到控制器，完成控制器的固件更新操作。

您可以在控制器启动时观察后面板上的LED灯来判断固件的版本。SOURCE 1单元内的LED表示大版本，SOURCE 2单元内的LED表示小版本，SOURCE 3单元内的LED表示构建版本。位于MIC输入接口的LED灯表示改版。软件版本以"major.minor[.build[.revision]]"来表示。例如，如果第一个发行版本为"v1.0.0.0"，当您开启控制器时，SOURCE 1单元内的LED闪烁一下，其它位置的LED直接点亮为红色。启动完成，此控制器即进入就绪状态。

## 3. 分频器

此开关可开启ZONE输出的分频器功能，左声道、右声道和超低音的分频点在125Hz。当XOVR（分频器）开关处于"按下"状态时，左声道和右声道输出允许125 Hz以上的频率通过。超低音输出允许125Hz以下的频率通过。当XOVR（分频器）开关处于"释放"状态时，左声道、右声道和超低音输出的全频音频信号都能通过，因而可让用户在必要时使用扬声器的内置分频器来作分频处理。当使用入门级音箱变压器或与超低音音箱分频器（参见超低音音箱分频部分的描述）时，房间会出现低音过强现象，使用此分频器可以有效改善这个问题。

## 4. 区域输出

控制器的输出接口采用平衡式Euroblock连接器。这些输出接口能输送左声道、右声道和超低音信号。此接口供连接到区域功率放大器。
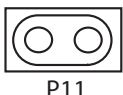
## 5. AutoWarmth™功能

当AutoWarmth功能启用时，此显示灯闪烁绿色。其微调钮用于调节启用AutoWarmth功能的临界点。

## 6. 远程区域控制接口

此接口为连接远程壁式控制盒（选配）：CSR-V、CSR-2SV和CSR-3SV。

## 7. 隔离辅助输出*

此接口可供发送一个由变压器隔离的单声道信号到音乐系统中，或者到一个独立单声道辅助区。正负输出极使用600欧姆变压器隔离，因此在接入其它系统（电话或远程功放）时，不会有不希望的接地互扰。其电平控制钮可调节输出电平，使电平与各类应用场合匹配。

**注意**：P11位于CSM控制器内部的PCB板上。出厂时，辅助输出为ZONE 1音源选择器所选取的音源的输出。任何ZONE 1音源选择器所选取的音源都成为辅助输出接口的输出。也可以通过移除内部跳线帽将其固定为音源3输出。

## 8. PAGE ASSIGN（呼叫分配）

此功能让您将呼叫分配到不同的输出区域。如果每次都呼叫相同的区域，只需使用远程选择器开关或电缆连接即可完成分配。将区域针脚（Z1或Z2或两者）与"G"针脚短路，即可将呼叫分配到相应的区域。

## 9. 音源输入

此接口供连接RCA音频信号。

## 10. LINK（联接）接口

此接口让您将多台CSM控制器联接在一起。此控制器由标准的第5类UTP电缆连接。连接线的长度在2.4米以内。

## 11. MUSIC MUTE（音乐静音）

短路左右针脚，系统进入背景音乐静音状态。

**注意**：
  A. 音乐静音功能不会消除呼叫话筒的声音及直接输入接口的信号。在紧急情况下，系统使用者可能使用呼叫话筒进行紧急情况呼叫。
  B. 当数台CSM-32和CSM-21通过LINK接口联接时，MUSIC MUTE信号可以通过LINK连线控制其它CSM-32和CSM-21控制器。

## 12. 直接输入接口

DIRECT INPUT接口的信号经缓冲后直接输出。此功能在警告、紧急呼叫或较高优先级呼叫时相当有用。其增益微调钮用于调节相应区域内直接输入信号的音量。

**注意**：
直接输入必须是线性信号。因此话筒等小信号输入该接口前，需使用外置放大器提升信号幅度。

带*的项目为CSM-32控制器特有的。

## 13. 优先保留

Priority Hold微调钮用于调整，当优先音源SOURCE 1停止播放后，输入SOURCE 2和SOURCE 3的音源转化为可听音源的时间。此功能可兼容商业环境中所使用的各类优先音源。
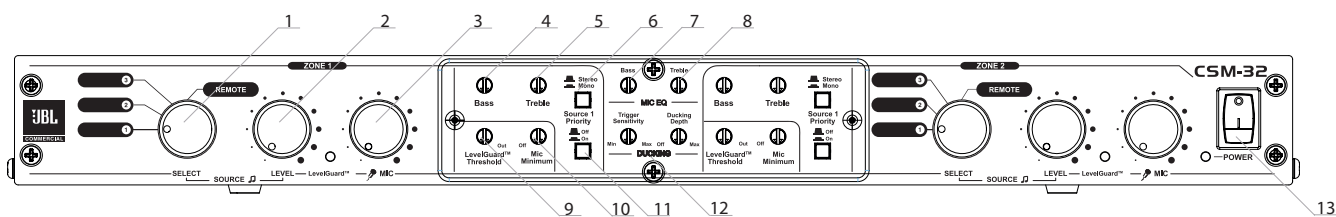
## 14. 话筒输入接口

MIC接口用于连接话筒。电话系统的线性呼叫输入信号必须用变压器隔离，且将音量减少到话筒电平。

## 15. 幻象电源

此开关可提供电容话筒+48V的供电。

# 4.0 前面板

图示为CSM-32



图示为CSM-21
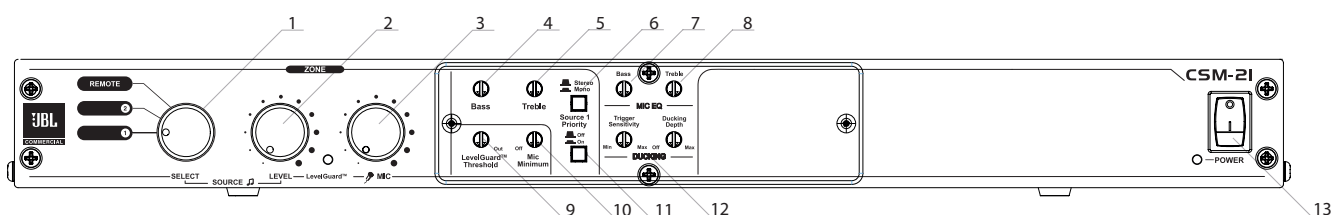


## 1. 音源选择器

SELECT旋钮用于选取发送到某一区域的音源。也可以使用壁式远程控制盒来选择音源。当控制器上的音源选择为**REMOTE**时，即可启用壁式控制盒的音源选择器。

## 2. 音源音量旋钮

LEVEL旋钮可增大或衰减背景音乐的音量。此旋钮的控制范围为：负无穷，-48 dB到+15 dB。

## 3. 话筒音量旋钮

MIC旋钮可增大或衰减呼叫话筒的音量。此旋钮的控制范围为：负无穷，-30 dB到0 dB。

注意：此旋钮的调节范围会受到Mic Minimum（话筒最小音量）微调钮所设定值的影响。当Mic Minimum微调钮位置顺时针方向最大值，话筒音量旋钮的可调范围即限定在-10到0 dB。

## 4. 区域低频EQ

Bass微调钮能衰减或提升区域的低频。

## 5. 区域高频EQ

Treble微调钮能衰减或提升区域的高频。

## 6. 立体声/单声道开关

Stereo/Mono开关可将立体声改变为单声道。在调整单声道输入音源，或将立体声输入音源转换为单声道时，此开关很有用。

## 7. 话筒低频EQ

Bass微调钮能将话筒的低频频段提升或衰减6 dB。

### 8. 话筒高频EQ

Treble微调钮能将话筒的高频频段提升或衰减6 dB。

### 9. LevelGuard™ 阈值

调节启用LevelGuard™功能的阈值。微调钮旋转到顺时针方向最大位置时此功能关闭。

### 10. 话筒最小音量微调钮

Mic Minimum微调钮用于设定所需最小呼叫话筒输出音量，设定话筒的最小音量。此功能可确保主话筒的输出音量不会被话筒音量旋钮完全关闭。

### 11. 音源优先级开关

选择是否允许SOURCE 1的输入优先于SOURCE 2和SOURCE 3。

### 12. 隐音功能

当进行呼叫时，隐音功能将自动衰减背景音乐的音量。调节Trigger Sensitivity（灵敏度）微调钮，使说话音量达到所设定灵敏度时即激活隐音功能。调节Ducking Depth（隐音深度）微调钮，使之适合应用场所。通常该功能是需要设置控制系数，以使在呼叫时也能听到一部分背景音乐。您可以根据应用需要，将隐音深度设定为：完全、最小或者不需要隐音。

### 13. 电源开关

此开关用于开启或关闭控制器。

# 5.0 认识您的控制器

## 5.1 音源

什么是音源？这里指线性输入信号，如编程音乐、CD播放器、VCR/DVD、卫星直播节目、磁带播放器、收音机、信息复读机或投币式点唱机。这些音源将根据您在控制器上选取的选项和启用的优先功能等，经均衡处理，动态控制并发送到所选区域。

## 5.2 区域

什么是区域？这里指您期望信号所到达的区域。控制器将立体声或单声道信号输出到您所选择的区域。内建低频分频器可将低音也发送到那个区域，从而让您听取只有高端设备才能获取的更广泛的音域。

## 5.3 音色

什么是好的音色？好的音色取决于艺术与技术的完美平衡。您需要最大的覆盖面而不会对工作环境、听众听觉和对话带来干扰。

此控制器提供您最好用的功能：AutoWarmth™和LevelGuard™，让各区域在不同的音量下都能获取最好的音质。只要您设定好音量偏好，AutoWarmth™和LevelGuard™便可帮您实现。

## 5.4 AutoWarmth™

什么是AutoWarmth™？简单地说，可将JBL的AutoWarmth™认作与家庭立体声中"响度"差不多的功能控制，虽然它的实际功能相当复杂。AutoWarmth™功能可应用于很多情况，能自动调节以维持平滑的音色感受。此电路不断地调节以使人耳在较低音量下听取更多的低频信号，在较高音量下听取更少低频信号。AutoWarmth™自动处理功能保证了在所有音量下音乐的最高保真度。

## 5.5 LevelGuard™

什么是LevelGuard™？ LevelGuard™功能可保证各类音源的一致性，通过感应输入音频信号音量大小并自动将信号处理到用户所选取的设定值。

# 6.0 设定

## 6.1 确定音源优先顺序

确定您音源听取的优先顺序很简单。您可以考虑如下顺序：

1. 紧急/报警（直接输入并激活MUSIC MUTE功能）

2. 呼叫（呼叫话筒）

3. 预先录制的通知（或其它音源输入SOURCE 1并启用优先功能）

4. 背景音乐（SOURCE 2和SOURCE 3）

在此例子里，您的报警器可以接入DIRECT INPUT接口，您的呼叫话筒可以接入MIC输入接口，预先录制的通知可以接入SOURCE 1，背景音乐可以接入SOURCE 2或SOURCE 3接口。

注意：MUSIC MUTE功能并不会将呼叫话筒的声音消除。在任何紧急情况出现时，最好是所有的话筒都保持启用，以便能及时通知所有区域的听众。

## 6.2 连接音源

连接音源很简单。只需要将您音源的左声道和右声道输出分别连接到控制器的左声道和右声道输入接口即可。

## 6.3 调节音源增益

检查所有的输入电平LED显示灯。如果输入信号是连续的，显示灯显示绿色。如果输入信号过强，显示灯闪烁红色。如果没有出现失真，偶尔闪烁红灯为正常现象。

## 6.4 使用均衡

什么时候使用EQ，您需要根据您的听觉来判断。如果声音伴随嗡嗡声，衰减低频设置或打开高通滤波功能，从而减少超低音频率。如果声音浑浊或不清晰，提升treble（高频）。如果声音听起来单薄刺耳，衰减高频。如同操作汽车或家庭音响的音色控制钮一样。

## 6.5 使用超低频分频器

当分频器(XVOR)开关启用时，主音箱以125Hz为分频点的高通输出，超重低音以125Hz为分频点的低通输出（两者的斜率均为24dB/oct），形成了一个完整的超重低音分频处理。 当XOVR开关未启用时，主音箱和超低音音箱均为全频输出。

## 6.6 AutoWarmth™ 设定方法1

将AutoWarmth™的微调钮调整到12点方向，并以此为设置的基准线。增大音源音量（前面板）到相应区域所需操作音量电平。查看AutoWarmth™LED显示灯，此显示灯在音量低于基准线时显示绿色。如果未显示绿色，将微调钮往顺时针方向调整，直到显示灯会显示绿色。如果显示灯持续点亮，将微调钮往逆时针方向调整，直到显示灯只在必要时闪烁。

然后调节相应区域的低频和高频音色控制钮。查看此调整，将音量关到相应区域使用过的最小音量并确保播放足够多的音色。如果无法播放全部音色，将AutoWarmth™微调钮往顺时针方向调整，以增加其影响。来回测听常用音量、较低音量和较高音量。调节AutoWarmth™以获取所有音量范围内的最佳音质。

## 6.7 AutoWarmth™ 设定方法2

另一个方法是将AutoWarmth™微调钮逆时针方向调整。将音源音量（前面板上）增大到相应区域所使用过的最高音量电平。顺时针方向调整AutoWarmth™微调钮直到LED显示灯在音乐峰值显示绿色。然后将AutoWarmth™微调钮往逆时针方向调整，直到它完全不点亮为止。将区域音量旋钮衰减到正常音量电平，并调整相应区域的低频和高频控制钮，AutoWarmth™LED显示灯点亮。

通过如上步骤，AutoWarmth™功能应该在达到较高音量时关闭，并在正常和较低音量时点亮。
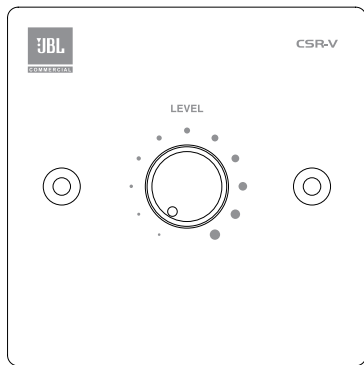
## 6.8 设定LevalGuard™

将LevelGuard™的微调钮调整到12点方向，并以此为设置的基准线。增大音源音量（前面板）到相应区域所需操作音量电平。

查看LevelGuard™LED显示灯，此显示灯在音量低于基准线时熄灭。在音量达到峰值时，显示灯闪烁琥珀色。如果显示灯持续点亮，将微调钮往逆时针方向调整，直到显示灯只在必要时闪烁。设定LevelGuard™是很有用的，这样LED显示灯在很低音量时熄灭，在正常音量时闪烁，在音量提升时持续点亮。您可根据听觉调整以获取最好的音质。
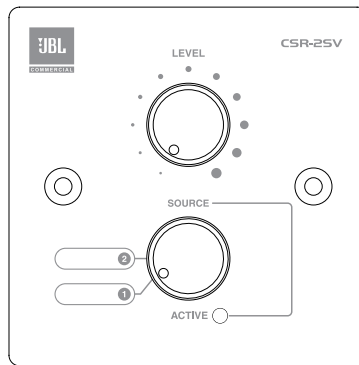
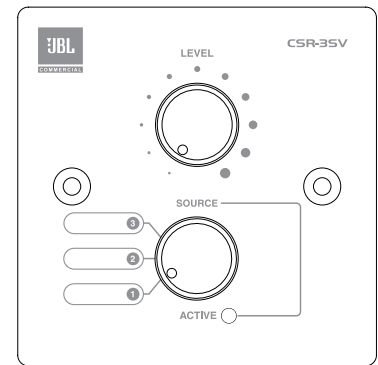## 6.9 安全盖板

前面板控制钮区域设计有安全盖板，以防止人为意外调整。

# 附录A：选件-CSR系列壁式控制盒



**CSR-V**



**CSR-2SV**



**CSR-3SV**

JBL也提供可选远程壁式控制盒增强您控制器的便利性。

### 音源选择

只有在CSM控制器上相应区域的音源选择器（SOURCE）设定到REMOTE位置时，壁式控制盒上的音源选择器（SOURCE）才可使用。此时，位于壁式控制盒上SOURCE旋钮下的LED灯显示绿色。如果LED显示灯熄灭，表示此壁式控制盒上的音源选择旋钮为不可用。

### 音量控制

壁式控制盒上的LEVEL音量控制旋钮无论选择器是否激活都是可用的。此控制钮只作衰减音量使用。

您可以参照如下步骤设定远程壁式控制盒上的音量控制：

1. 将壁式控制盒上的LEVEL旋钮旋到最大位置（顺时针方向）。

2. 设定控制器上的音量控制到您所需要的最大音量。

3. 将壁式控制盒上的LEVEL旋钮调整到听起来舒服或所需音量水平。壁式控制盒的音量将不能超过控制器所设定的最大音量。

| RJ-45<br>（8针） | 颜色 | CSR-V | CSR-2SV/CSR-3SV |
|---|---|---|---|
| Pin 1 | 白色/橙色 | +VREF 3.3VDC | +VREF 3.3VDC |
| Pin 2 | 橙色 | 音量调节 | 音量调节 |
| Pin 3 | 白色/绿色 | 未使用 | 音源选择 |
| Pin 4 | 蓝色 | 未使用 | LED（+2.8VDC） |
| Pin 5 | 白色/蓝色 | 未使用 | 未使用 |
| Pin 6 | 绿色 | 未使用 | 未使用 |
| Pin 7 | 白色/棕色 | 未使用 | 未使用 |
| Pin 8 | 棕色 | 接地 | 接地 |

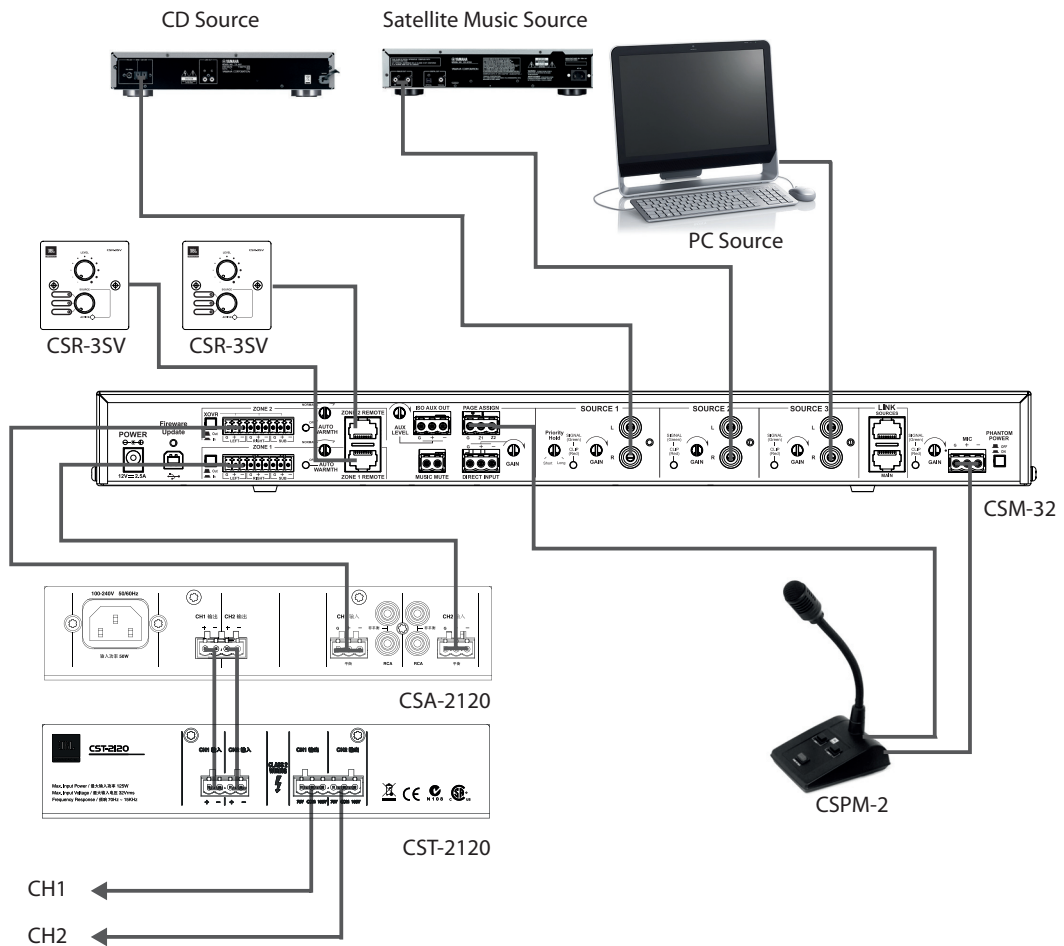# 附录B：应用图例

## 零售店
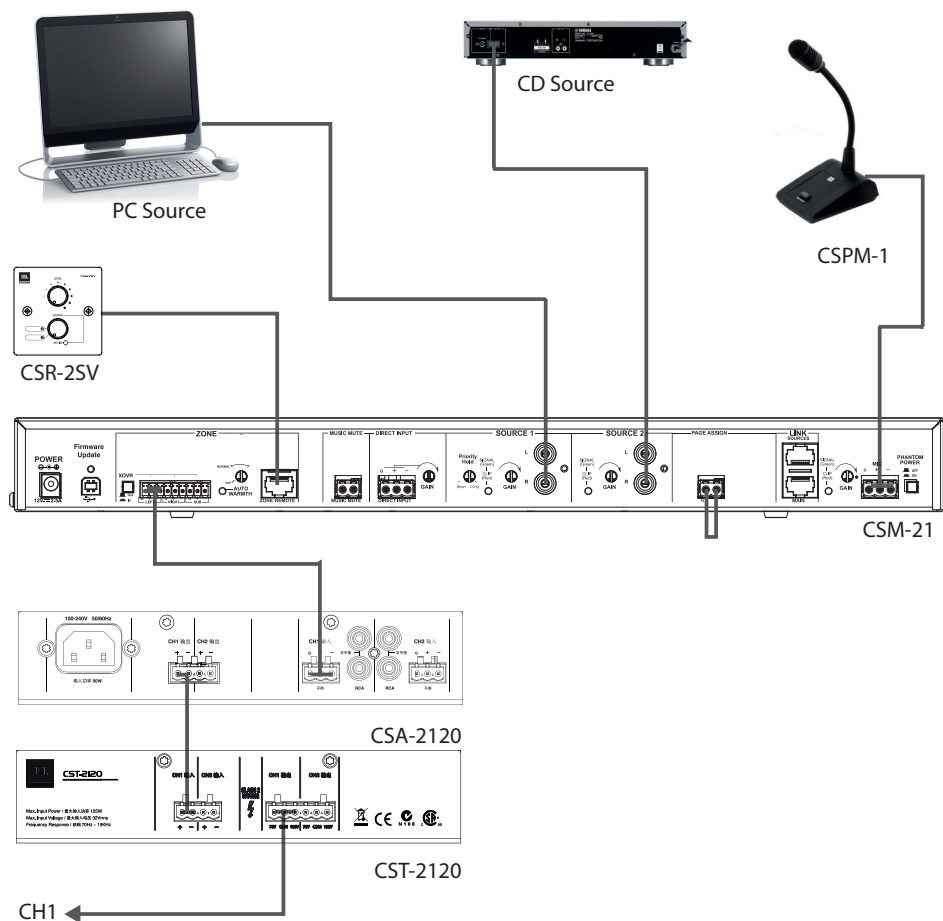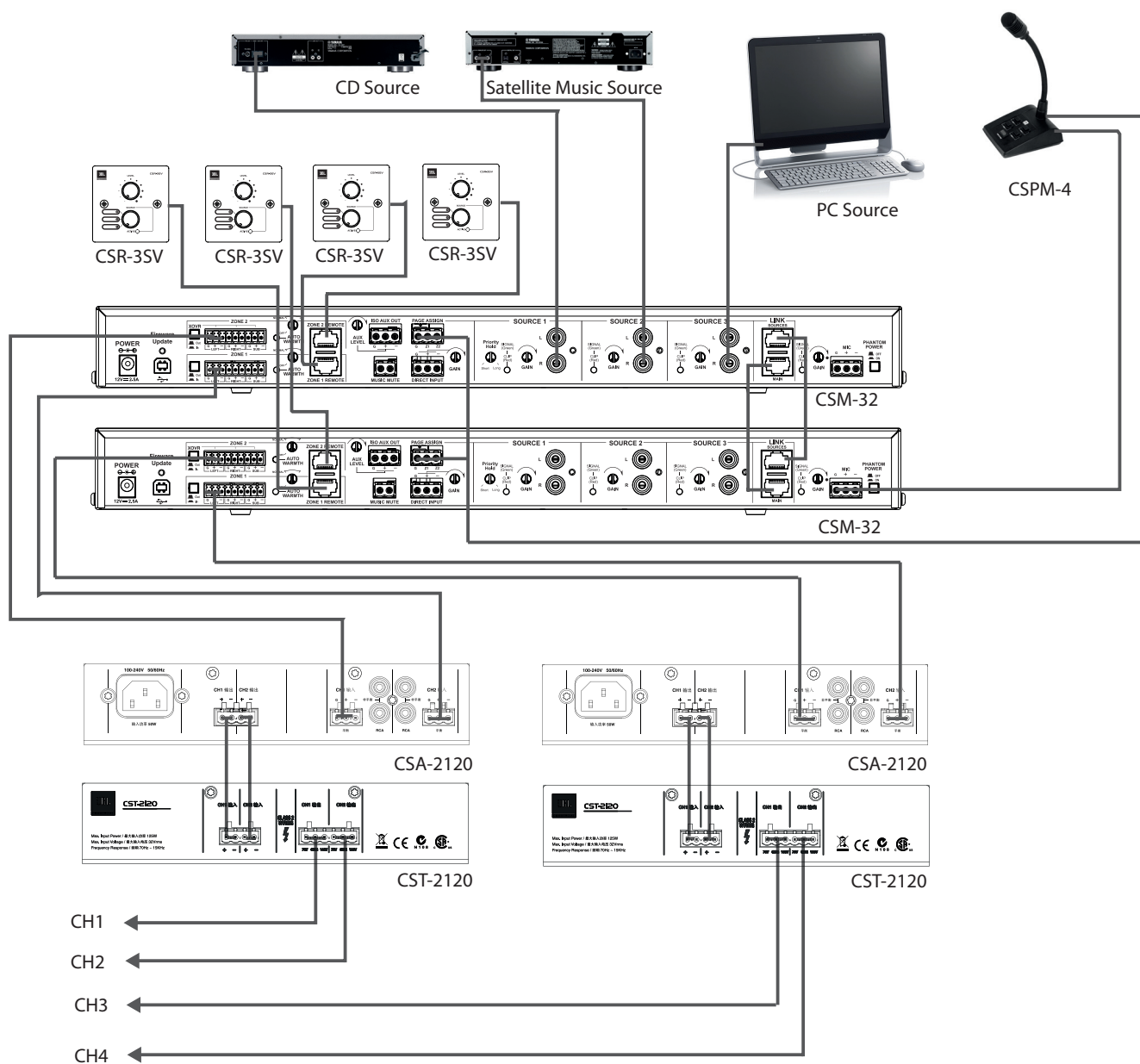


此方案适用于仅需要一个音频控制区域的场所，如带购物区和更衣室的时装名店。也可使用壁式控制盒远程选取所需音源及调节音量。CSM的LevelGuard™功能可优化音量范围，AutoWarmth™则无论音量大小都可自动调整信号以确保全频段高保真。

# 餐厅

CD Source    Satellite Music Source

PC Source

CSR-3SV    CSR-3SV

CSM-32

CSA-2120

CST-2120

CSPM-2

CH1

CH2

此方案适用于需要两个音频控制区域的场所，如就餐区和厨房。可使用每个控制区域内的壁式控制盒选取所需音源及调节音量。CSM的LevelGuard™功能可优化音量范围，AutoWarmth™则无论音量大小都可自动调整信号以确保全频段高保真。

# 健身中心



CD Source

Satellite Music Source

PC Source

CSPM-4

CSR-3SV  CSR-3SV  CSR-3SV  CSR-3SV

CSM-32

CSM-32
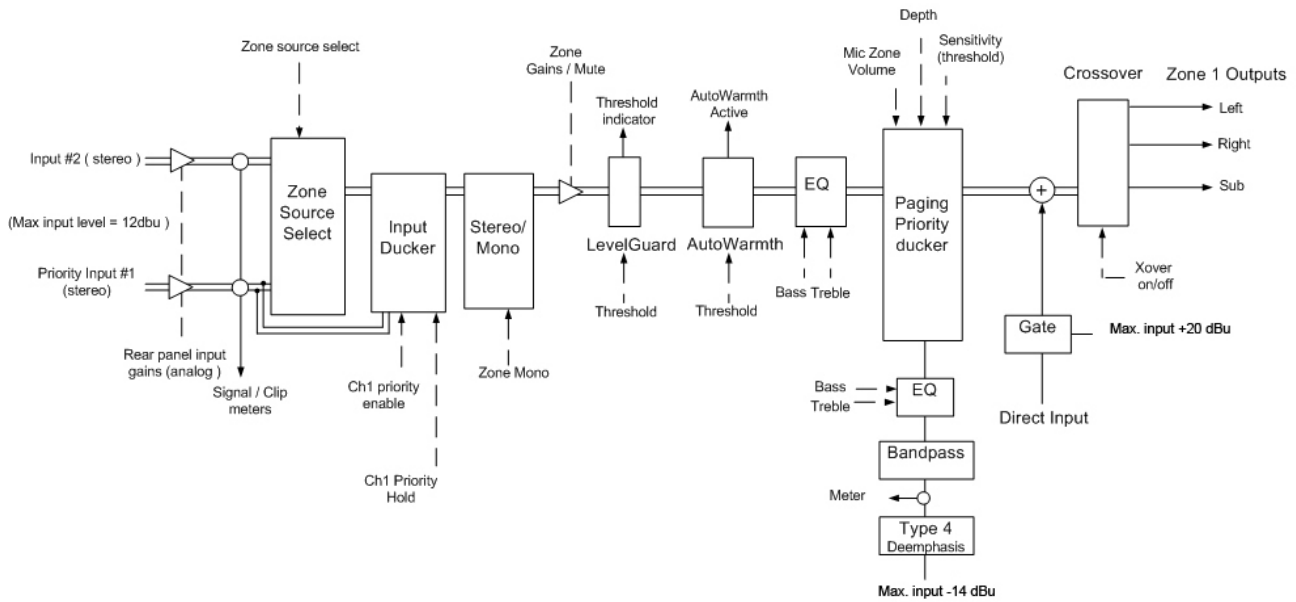
CSA-2120
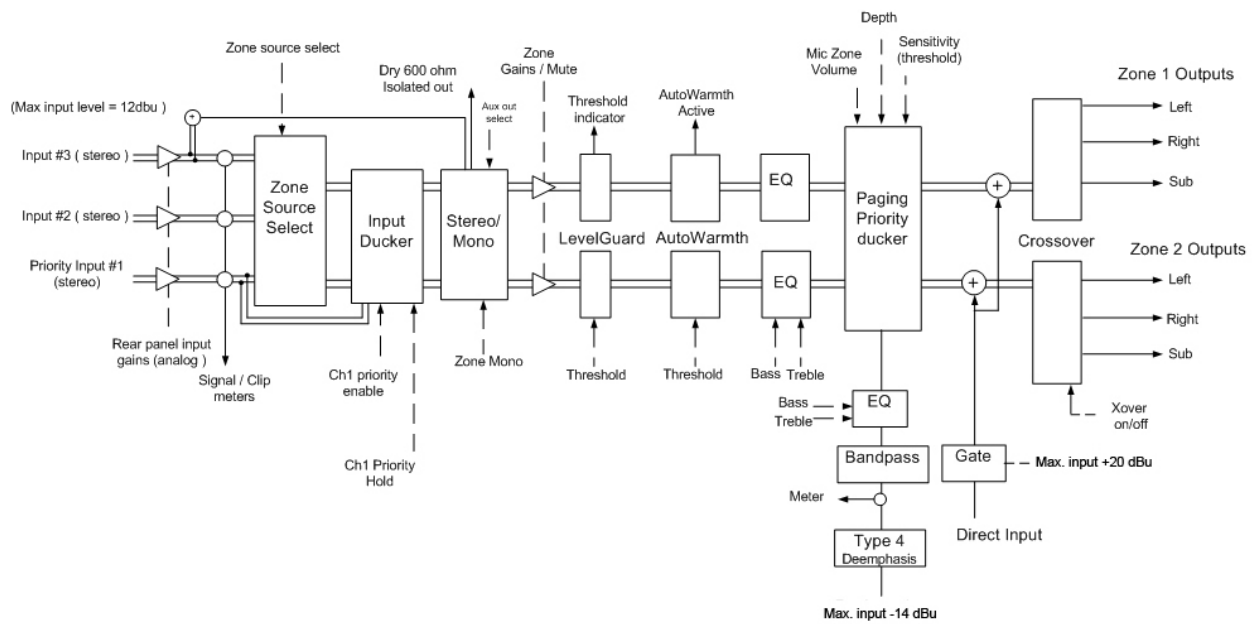
CSA-2120

CST-2120

CST-2120

CH1

CH2

CH3

CH4

此方案适用于需要四个音频控制区域的场所。可使用每个控制区域内的壁式控制盒选取所需音源及调节音量。接待处作为一个区域；中厅、心血管功能锻炼区域、有氧健身和强度训练区域作为一个区域；游泳池作为一个区域；单车训练室、舞蹈室、瑜珈室和更衣室作为第四个区域。选用扬声器时，应根据场所设施情况、线路部署及不同音量需求等因素来综合考虑。对于需要较高声压级的场所，考虑功放系统可扩充。对于有较宽音频需求的健身中心，考虑是否增加超重低音音箱。CSM的Level-Guard™功能可优化音量范围，AutoWarmth则无论音量大小都可自动调整信号以确保全频段高保真。

# 附录C：原理图

# 附录D：规格

## 线路输入

| | |
|---|---|
| 类型： | 每音源2个非平衡式RCA连接器 |
| 额定灵敏度： | 最大+3.3 dBu |
| 输入阻抗： | 20 k ohms |
| 频率响应： | 20 Hz – 20 kHz ± 1.5dB |
| 均衡： | 低频 ± 10 dB @ 20 Hz |
| | 高频 ± 10 dB @ 14 kHz |

## 话筒输入

| | |
|---|---|
| 类型： | 平衡式Euroblock连接器，裸线 |
| 输入阻抗： | 330 ohms |
| 灵敏度： | -44 dBu @ 前置放大的最大增益为60 dB |
| | -14 dBu @ 前置放大的最小增益为30 dB |
| 噪声： | <-81 dBu |
| 频率响应： | Band limited to 150 Hz –6 kHz ±1 dB |
| 均衡： | 低频 ±6 dB @ 160 Hz |
| | 高频 ±6 dB @ 5 kHz |

## 区域输出

| | |
|---|---|
| 类型： | 平衡式Euroblock连接器，裸线 |
| 最大输出： | +20 dBu |
| 超重低音输出： | 低通125 Hz（XOVR按钮位于按下状态时） |
| | 低通20 kHz（XOVR按钮位于释放状态时） |

## 其它

| | |
|---|---|
| 直接输入： | 最大+20 dBu输入 |
| 优先保留： | 可调，范围从1秒到20秒 |
| 隔离辅助输出： | 600 ohm隔离，平衡式隔离变压器输出最大可调至+10.5 dBu |
| 壁式远程控制盒： | 经第5类UTP线缆连接，端口为第5类连接器，无音频，RJ45接头 |
| 静音接口： | 短接针脚静音除MIC输入之外的所有的音源输入 |
| PAGE ASSIGN： | 区域针脚与接地短接将呼叫分配到相应区域 |
| 音源联接： | 第5类线缆，RJ45接头。两台以上联接需要第5类Y线缆，推荐最多联接4台控制器。推荐最长连接电缆长度2.4米（6英尺） |

## 一般规格

| | |
|---|---|
| 功率损耗： | 10 W |
| 电源需求： | 100-240 V 外接变压器需带保险丝 |
| 尺寸（宽x高x深）： | 19.0"x1.8"x7.0"（包含旋钮和连接器） |
| 重量： | 5.3 lbs （2.4 kg） |

# 附录E：联系信息

**全球网站：**
www.jblpro.com

**专业支持（美国之外的国家或地区）：**
请联系您所在国家或地区的JBL Professional授权经销商。我们的网站上提供有完整的经销商名单，您可以访问我们的网站www.jblpro.com查询您所在地区的经销商。

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# 附录F：中国RoHS声明

产品中有毒有害物质或元素的名称及含量：

| 部件名称 | 有毒有害物质或元素 | | | | | |
|---|---|---|---|---|---|---|
| | 铅(Pb) | 汞(Hg) | 镉(Cd) | 六价格(Cr+6) | 多溴联苯(PBB) | 多溴二苯醚(PBDE) |
| 控制面板 | ○ | ○ | ○ | ○ | ○ | ○ |
| 电路板组件 | ○ | ○ | ○ | ○ | ○ | ○ |
| 外壳 | ○ | ○ | ○ | ○ | ○ | ○ |
| 附件(遥控器，螺丝刀，白手套，电源线，连接线) | ○ | ○ | ○ | ○ | ○ | ○ |

○：表示该有毒有害物质在该部件所有均质材料中的含量均在SJ/T11363-2006标准规定的限量要求以下。

X： 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出SJ/T11363-2006标准规定的限量要求。

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