

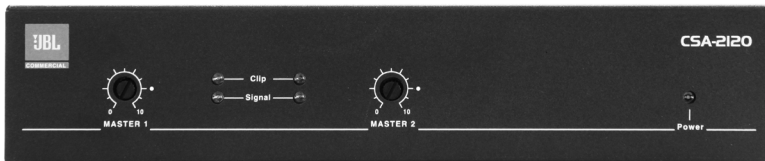


Commercial Solutions Series

CSA-2120

*Public Address System
Amplifier User Guide*

公共广播系统 功率放大器 用户手册



CSA-2120
Public Address System
Amplifier User Guide

This manual does not include all of the details of design, production, or variation of the equipment. Nor does it cover every possible situation which may arise during installation, operation or maintenance.

The information provided in this manual was deemed accurate as of the publication date. However, updates to this information may have occurred.

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IMPORTANT SAFETY INFORMATION



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 arrow-point 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 COLOUR	
		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 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 INFORMATION

U.K. MAINS PLUG WARNING

A molded mains plug that has been cut off from the cord is unsafe. Discard the mains plug at a suitable disposal facility. **NEVER UNDER ANY CIRCUMSTANCES SHOULD YOU INSERT A DAMAGED OR CUT MAINS PLUG INTO A 13 AMP POWER SOCKET.** Do not use the mains plug without the fuse cover in place. Replacement fuse covers can be obtained from your local retailer. Replacement fuses are 13 amps and **MUST** be ASTA approved to BS1362.



If you want to dispose this product, do not mix it with general household waste. There is a separate collection system for used electronic products in accordance with legislation that requires proper treatment, recovery and recycling.

Private household in the 25 member states of the EU, in Switzerland and Norway may return their used electronic products free of charge to designated collection facilities or to a retailer (if you purchase a similar new one).

For Countries not mentioned above, please contact your local authorities for a correct method of disposal.

By doing so you will ensure that your disposed product undergoes the necessary treatment, recovery and recycling and thus prevent potential negative effects on the environment and human health.

ELECTROMAGNETIC COMPATIBILITY

This device complies with part 15 of the FCC Rules and the Product specifications noted on the Declaration of Conformity. Operation is subject to the following two conditions:

- this device may not cause harmful interference, and
- this device must accept any interference received, including interference that may cause undesired operation.

Operation of this unit within significant electromagnetic fields should be avoided.

- use only shielded interconnecting cables.

MAGNETIC FIELD

CAUTION! Do not locate sensitive high-gain equipment such as preamplifiers or tape decks directly above or below the unit. Because this amplifier has a high power density, it has a strong magnetic field which can induce hum into unshielded devices that are located nearby. The field is strongest just above and below the unit.

If an equipment rack is used, we recommend locating the amplifier(s) in the bottom of the rack and the preamplifier or other sensitive equipment at the top.

DECLARATION OF CONFORMITY

Manufacturer's Name: Crown Audio Inc.
Manufacturer's Address: 1718 W. Mishawaka Road
Elkhart, IN 46517 USA

declares that the product:

Product name: Amplifier

Product model: CSA-2120

conforms to the following Product Specifications:

Safety:

IEC60065-2001 (Audio, video and similar electronic apparatus -- Safety requirements)

GB8898-2001 (Audio, video and similar electronic apparatus -- Safety requirements)

EMC:

GB13837-2003 (Sound and television broadcast receivers and associated equipment)

- Radio disturbance characteristics

- Limits and methods of measurement

GB17625.1-2003 (The Limits for the harmonic current emissions caused by low-voltage electrical and electronic equipments (equipment input current 16A per phase))

1.0 Welcome

The JBL® CSA-2120 power amplifier (hereafter called as the amplifier) is a professional tool designed and built for installed sound applications. The amplifier is two-channel model providing simple analog amplification, with a switch-mode universal power supply.

The amplifier includes a rack mounting kit. With the rack mounting kit, you can install the amplifier to a cabinet or wall. A transformer module can be purchased for use in high impedance distributed sound systems. If your loudspeaker system requires higher impedance, the transformer module can be connected between the amplifier and loudspeaker systems to obtain the impedance matching.

1.1 Features

- High power output, compact size, light weight
- Accurate, uncoloured sound with very low distortion for the best in music and voice
- Over heat auto protection
- Low voltage auto protection
- The auto-standby mode allows the amplifier to save energy
- Detachable Euroblock input and output
- Switch-mode universal power supply

1.2 How to Use This Manual

This manual provides you with necessary information to safely and correctly setup and operate your amplifier. It does not cover every aspect of installation, setup or operation that might occur under every condition.

We strongly recommend you read all instructions, warnings and cautions contained in this manual.

2.0 Setup

2.1 Unpacking Your Amplifier

Please unpack and inspect your amplifier 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.

WARNING: Before you start to set up your amplifier, make sure you read and observe the Important Safety Instructions found at the beginning of this manual.

2.2 Installing Your Amplifier

CAUTION: Before you begin, make sure your amplifier is disconnected from the power source and all level controls turned completely down (counterclockwise).

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

- Rack mount the amplifier with the rack mounting kit, see Figure 2.2.3 and Figure 2.2.4.
- Install the amplifier to the wall with the rack mounting kit, see Figure 2.2.5.
- Stack amps without using a cabinet. For amplifier dimensions, see Figure 2.2.1.

NOTE: When transporting, amplifiers should be supported at front.

Figure 2.2.1 Dimensions

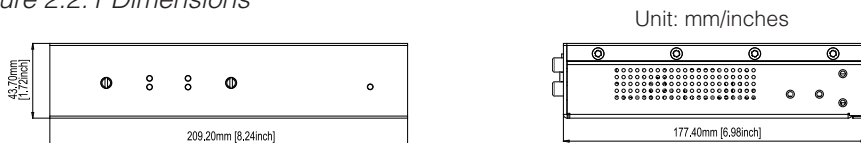


Figure 2.2.2 Rack Mounting Kit

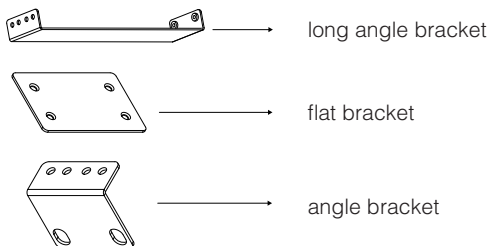
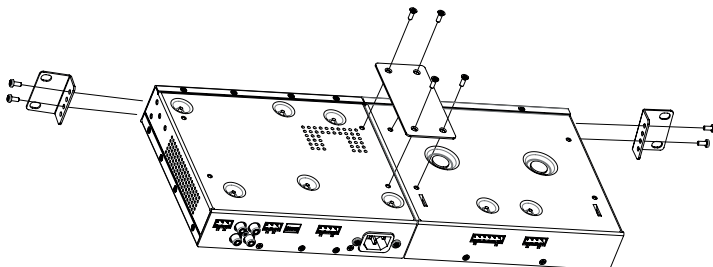


Figure 2.2.3 Rack mounting an amplifier and CST-2120 Transformer Module



Solution A: Rack Mounting an Amplifier and CST-2120 Transformer Module

To install an amplifier and a CST-2120 transformer module in your cabinet system, refer to Figure 2.2.3 and follow the steps below:

1. Align two modules side by side, with the front panel towards the same direction.
2. Connect them with the flat bracket.
3. Attach an angle bracket to each side of the amplifier assembly with screws.
4. Install the amplifier assembly into the cabinet. For details of installation in the chassis of the cabinet, refer to the user guide of your cabinet.

Figure 2.2.4 Rack Mounting Single Amplifier

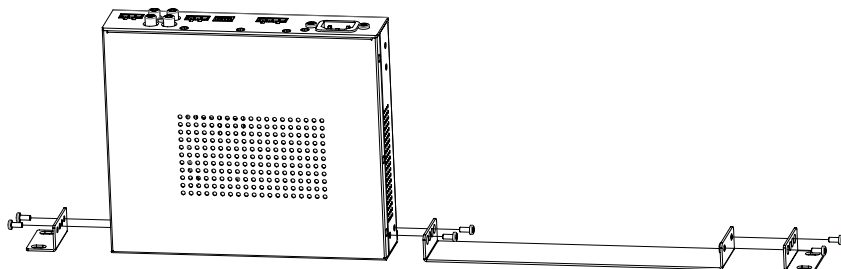
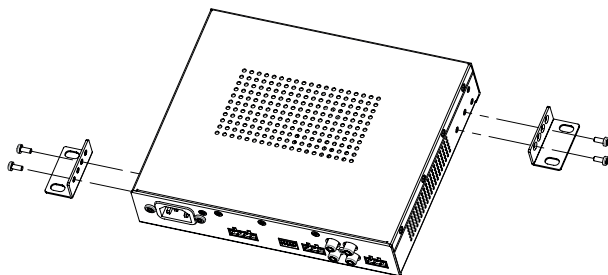


Figure 2.2.5 Wall Mounting



Solution B: Rack Mounting Single Amplifier

To install single amplifier in your cabinet system, refer to Figure 2.2.4 and follow the steps below:

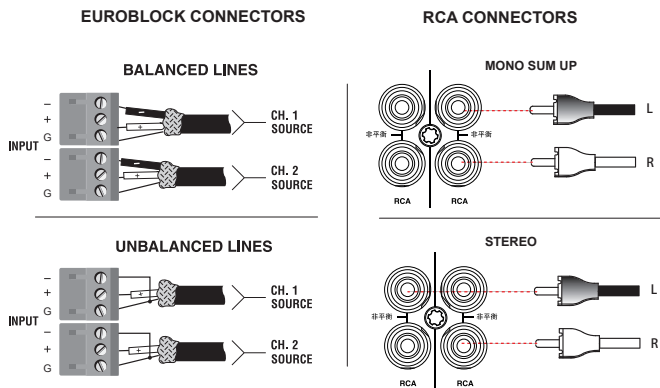
1. Attach the long angle bracket to one side of the amplifier that you need to reserve as dummy module with screws.
2. Attach an angle bracket to the side of the long angle bracket.
3. Attach an angle bracket to another side of the amplifier with screws.
4. Install the amplifier assembly into the cabinet. For details of installation in the chassis of the cabinet, refer to the user guide of your cabinet.

Solution C: Wall Mounting

To install the amplifier to wall, refer to Figure 2.2.5 and follow the steps below:

1. Attach two angle brackets to both sides of the amplifier with screws.
2. Install the amplifier assembly to a flat and stable place on the wall with enough clearance for heat dissipation.

Figure 2.4 Input Wiring



Note: You are not recommended to use RCA connectors and Euroblock connectors to input sound signal at the same time.

2.3 Ensuring Proper Cooling

When using an equipment rack, mount units directly on top of each other. DO NOT block side air vents. The back of the rack should be open.

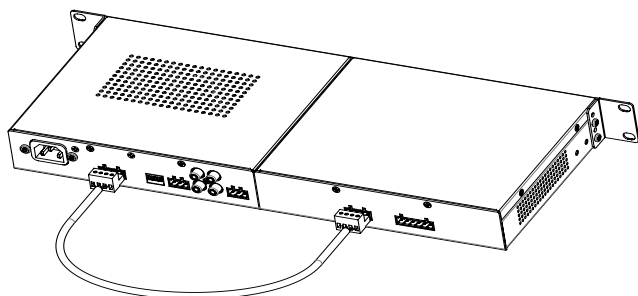
2.4 Choosing Input Wire and Connectors

We recommend using pre-built or professionally wired balanced line (two-conductor plus shield) 22-24 gauge cables to connect the amplifier balanced input by using shipped two 3-pin Euroblock connectors, see Figure 2.4. Unbalanced lines may be used, but may result in hum or RF noise very long cable runs.

You can also use RCA connectors to connect audio devices, for example, CD/DVD player. However, you are not recommended to use RCA connectors and Euroblock connectors to input sound signal at the same time.

NOTE: Custom wiring should only be performed by qualified personnel.

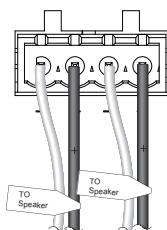
Figure 2.5.1 Connecting To a CST-2120 Transformer Module



NOTE: If driving a 70V or 100V distributed speaker system, use the optional CST-2120 transformer module (see Appendix A).

Figure 2.5.2 Connecting to Speakers

CH1输出 CH2 输出



2.5 Output Wiring

To drive distributed speaker systems designed to operate at 70V or 100V, connect the amplifier to a CST-2120 transformer module with the jumper cable that shipped with the CST-2120 transformer module, see Figure 2.5.1.

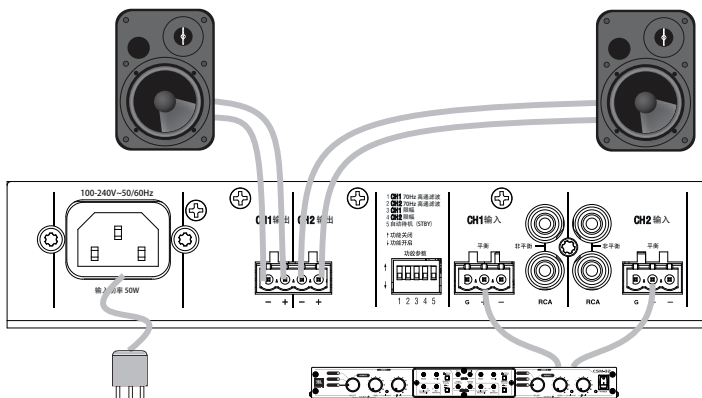
JBL recommends using pre-built or professionally wired, high-quality, two-conductor, heavy gauge speaker wire. Speakers wires should be twisted cable, if possible. To prevent the possibility of short-circuits, the wires should be stripped back no greater than 6 mm (1/4 inch), see Figure 2.5.2.

Suggested below are guidelines to select the appropriate size of wire based on the distance from amplifier to speaker. Check with local code as this may vary.

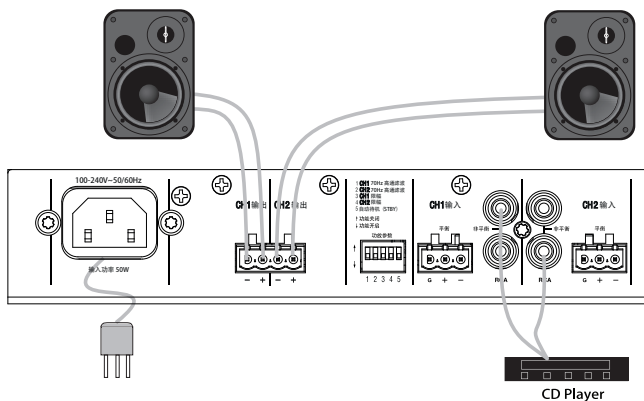
Distance	Wire Size
Up to 25 ft. (7.6m)	16AWG
26-40 ft. (7.9-12.2m)	14AWG

Figure 2.6 Wiring Audio System

Professional audio system



Personal audio system



2.6 Wiring Your Audio System

Typical input and output wirings are shown in Figure 2.6.

INPUTS: Connect input wiring for both channels.

OUTPUTS: Maintain proper polarity (+/-) on output connectors.

Connect Channel 1 loudspeaker's positive (+) lead to Channel 1 positive (+) terminal of amp; repeat for negative (-). Repeat Channel 2 wiring as for Channel 1.

The minimum impedance one of the amplifier channels can drive is 4 Ohms. Therefore, you can connect up to four 16 Ohms speakers, or two 8 Ohms speakers, or one 4 Ohms speaker to each amp channel.

2.7 Connecting to AC Mains

Connect your amplifier to the AC mains power source (power outlet) with the supplied AC power cord. First, connect the IEC end of the cord set to the IEC connector on the amplifier; then, plug the other end of the cord set to the AC mains.

WARNING: The third prong of this connector (ground) is an important safety feature. Do not attempt to disable this ground connection by using an adapter or other methods.

Amplifiers don't create energy. The AC mains voltage and current must be sufficient to deliver the power you expect. You must operate your amplifier from an AC mains power source with not more than a 10% variation above or a 15% variation below the amplifier's specified line voltage and within the specified frequency requirements (indicated on the amplifier's back panel label). If you are unsure of the output voltage of your AC mains, please consult your electrician.

2.8 Protecting Your Speakers

It's wise to avoid clipping the amplifier signal. Not only does clipping sound bad, it can damage high-frequency drivers. The built-in clip limiter prevents clipping.

Also, avoid sending strong subsonic signals to the amplifier. High-level, low-frequency signals from breath pops or dropped microphones can blow out drivers. You can switch on the highpass filters, and this avoids to send subsonic signals under 70 Hz to the amplifier. The high-pass filter is also useful when using the CST-2120 transformer module into a line of 70V or 100V distributed loudspeakers, to prevent distortion within the speakers due to transformer saturation.

2.9 Startup Procedure

Use the following procedure when first turning on your amplifier:

1. Turn down the level of your audio source.
2. Turn down the level controls of the amplifier.
3. Power up the amplifier. The Power indicator should light.
4. Turn up the level of your audio source to an optimum level.
5. Turn up the Level controls on the amplifier until the desired loudness or power level is achieved.

If you ever need to make any wiring or installation changes, don't forget to disconnect the power cord.

3.0 Operation

3.1 Precautions

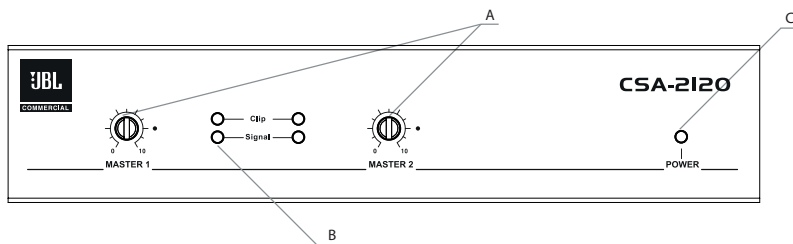
Your amplifier is protected from internal and external faults, but you should still take the following precautions for optimum performance and safety:

1. Before use, your amplifier first must be configured for proper operation, including input and output wiring hookup. Improper wiring can result in serious operating difficulties. For information on wiring and configuration, please consult the Setup section of this manual.
2. Use care when making connections, selecting signal sources and controlling the output level.
3. Do not short the ground lead of an output cable to the input signal ground. This may form a ground loop and cause oscillations.
4. **WARNING:** Never connect the output to a power supply, battery or power main. Electrical shock may result.
5. Tampering with the circuitry, or making unauthorized circuit changes may be hazardous and invalidates all agency listings.
6. Do not operate the amplifier with the red Clip LEDs constantly flashing.
7. Do not overdrive the mixer, which will cause clipped signal to be sent to the amplifier. Such signals will be reproduced with extreme accuracy, and loudspeaker damage may result.
8. Do not operate the amplifier with less than the rated load impedance. Due to the amplifier's output protection, such a configuration may result in premature clipping and speaker damage.
9. Use the amplifier in a well-ventilated environment and do not use it at high operating temperature. Failure of doing so will result in the auto disconnection from power supply and the activation of over heat auto protection function. The power indicator will be turned off, and nothing will be output from amplifier. In this case, turn down the volume to the minimum, and the amplifier will resume working when the amplifier returns to normal temperature. Turn the volume up to required level.
10. If the amplifier input voltage is too low, the low voltage protection function will be activated. The power indicator will be turned off.

CAUTION: JBL is not liable for damage that results from overdriving other system components.

3.2 Front Panel Controls and Indicators

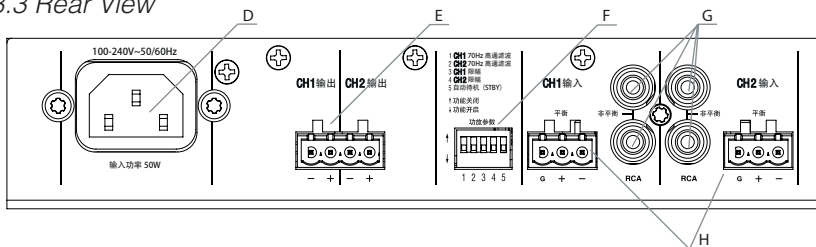
Figure 3.2 Front View



- A. Level: Detented rotary level control, one per channel.
- B. Meter Group (one per channel):
 - Clip Indicator: Red LED turns at the threshold of audible distortion.
 - Signal Indicator: Green LED flashes when a very low-level signal (Threshold -40dB) is present at input. May be used for troubleshooting cable runs.
- C. Power Indicator: On/off switch applies AC power to the amplifier.

3.3 Rear Panel Controls and Connectors

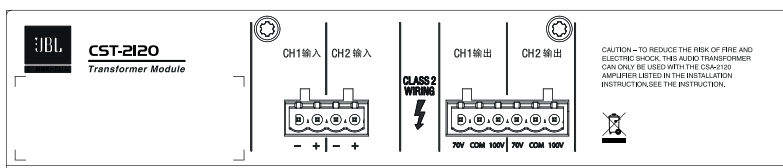
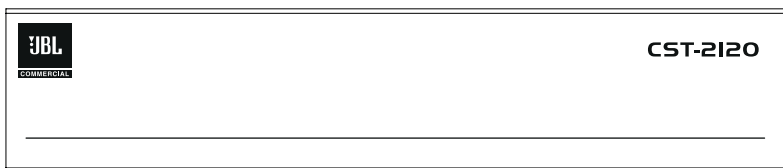
Figure 3.3 Rear View



- D. AC Line Connector
- E. Output Connectors: 4-pin Euroblock connectors for dual loudspeakers.
- F. Amplifier Parameter Switchers: Slide DOWN to turn on these functions. Slide UP to turn them off. The parameter switchers are numbered as below:
 1. CH1 70Hz highpass filter
 2. CH2 70Hz highpass filter
 3. CH1 peak limiter
 4. CH2 peak limiter
 5. Auto standby
- G. RCA Connectors
- H. Euroblock Connectors: Two 3-pin Euroblock connectors each accept a balanced or unbalanced line-level input signal.

Appendix A: Optional Item - Transformer Module

CST-2120 Overview



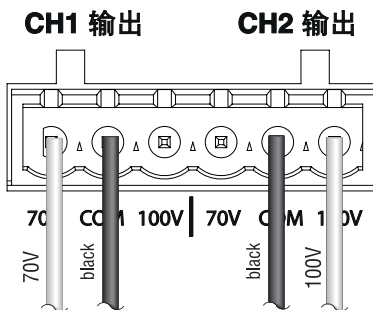
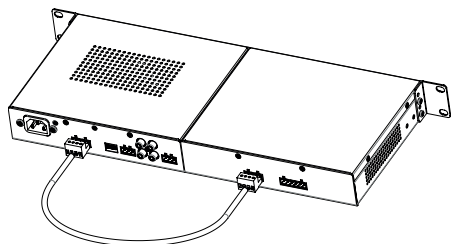
The rack-mountable JBL Commercial® CST-2120 transformer module provides impedance and voltage matching from the CSA-2120 amplifier (with 4 Ohms or 8 Ohms outputs) to drive 70V and 100V distributed speakers systems.

This unit allows amplifiers without direct 70V or 100V output capability to drive distributed speaker systems designed to operate at those voltages.

Features

- Providing two channels of impedance matching for “Constant-Voltage” operation
- Providing 70V and 100V output when used with CSA-2120 amplifiers
- Allowing amplifiers without direct Constant-Voltage capability to be easily integrated into distributed systems
- Detachable Euroblock input and output connector

CST-2120 Connection



Installation

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

1. If you need to mount the transformer module to rack, use a standard 19-inch (48.3-cm) equipment rack (EIA RS-310B) . You can have the following options according to your application:
 - Rack mounting the transformer module with a CSA-2120 amplifier
 - Rack mounting single unit
 - Wall mounting
2. Connect the input of the transformer module to the output of the CSA-2120 amplifier with the shipped 4-pin cable.
3. Determine the proper transformer module tap to use, based on the desired constant-voltage of your system.

Appendix B: Specifications

Output Power (two channels at 1 kHz power, THD+N<0.5%):	4 Ohms 120 W 8 Ohms 120 W
Frequency Response (1 watt into 4 or 8 Ohms):	+1/-1 dB
Load Impedance:	Rated for 4 or 8 Ohms
Sensitivity (8 Ohms load):	1.4 Vrms
Signal to Noise Ratio (below rated 8-Ohm power at 1 kHz, A weighted):	>100 dB
Crosstalk (Rated into 8 Ohms):	70 dB below rated from 20 Hz to 1 kHz; 50 dB below rated at 20 kHz
Input Impedance (nominal):	Balanced: 20 k Ohms Unbalanced: 10 k Ohms
AC Line Voltage and Frequency Configurations Available:	100-240 V, 50/60 Hz
Maximum Input Signal:	+20 dBu typical
Auto-Standby:	Go into auto-standby: 1 hour Recovery time: < 1 ms Recovery threshold: -60dBu
Operating Temperature:	0° C to 40° C at 95% relative humidity (non-condensing)
Dimensions (W x H x D) :	8.2" x 1.7 x 7" (209 mm x 44 mm x 178 mm)
Net Weight:	1 kg (2.1 lbs)
Shipping Weight:	1.5 kg (3.4 lbs)

Appendix C: AC Power Draw and Thermal Dissipation

CSA-2120																			
Condition	Load 2CH Driven	120 VAC / 60 Hz					220 VAC / 50 Hz					240 VAC / 50 Hz							
		Line current	Watts in	Watts out	Watts dissipated	Thermal Dissipation BTU/hr kcal/hr	Line current	Watts in	Watts out	Watts dissipated	Thermal Dissipation BTU/hr kcal/hr	Line current	Watts in	Watts out	Watts dissipated	Thermal Dissipation BTU/hr kcal/hr			
at Idle		0.22	8.56	0.00	8.56	29.22	7.37	0.17	11.10	0.00	11.10	37.88	9.55	0.16	11.32	0.00	11.32	38.64	9.74
at Idle sleep		0.18	7.72	0.00	7.72	26.35	6.64	0.15	9.30	0.00	9.30	31.74	8.00	0.15	9.52	0.00	9.52	32.49	8.19
1/8th sinewave	8	0.93	48.99	34.21	14.78	50.44	12.72	0.60	50.36	34.02	16.34	55.77	14.06	0.57	50.80	34.26	16.54	56.45	14.23
	4	0.98	52.36	34.69	17.67	60.31	15.20	0.64	53.73	34.71	19.02	64.92	16.36	0.60	53.99	34.71	19.28	65.80	16.59
1/3rd sinewave	8	1.98	113.22	88.01	25.21	86.04	21.69	1.23	112.63	88.05	24.58	83.89	21.15	1.15	112.97	88.02	24.95	85.15	21.47
	4	2.07	118.75	86.75	32.00	109.22	27.53	1.28	117.91	86.84	31.07	106.04	26.73	1.20	117.80	86.84	30.96	105.67	26.64
1/8th Power Pink Noise	8	1.04	53.99	32.04	21.95	74.92	18.89	0.72	55.46	32.03	23.43	79.97	20.16	0.70	55.44	32.06	23.38	79.80	20.12
	4	1.17	58.34	32.79	25.55	87.20	21.98	0.70	58.12	32.78	25.34	86.49	21.80	0.73	59.87	32.79	27.08	92.42	23.30
1/3rd Power Pink Noise	8	2.33	125.30	84.57	40.73	139.01	35.04	1.49	123.80	84.46	39.34	134.27	33.85	1.45	126.35	84.49	41.86	142.87	36.02
	4	2.53	136.30	85.19	51.11	174.44	43.98	1.57	137.32	85.25	52.07	177.71	44.80	1.54	137.00	85.27	51.73	176.55	44.51

Appendix D: Contact Information

For additional information, please consult JBL Professional Customer Service, your system installer or retailer.

On The World Wide Web:

www.jblcommercialproducts.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

CSA-2120

**公共广播系统功率放大器
用户手册**

本手册未提供有关产品设计、生产和变更的所有详细信息，也未列举出在安装、运行或维护本产品时可能出现的所有情况。本手册里提供的信息在出版时为准确无误。然而，我们仍可能在出版本手册后更新相应内容。

商标声明：本手册中出现的JBL为JBL International公司的注册商标。其它商标为相应公司的注册商标。

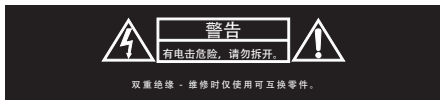
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重要的安全说明

注意这些符号



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：

- 黄绿线：接地
- 蓝线：零线
- 棕色：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。
- 棕色必须与插头上标有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 with 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。

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线缆。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，避免其翻倒造成伤害。



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3毫米的全极性交流开关。

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

磁场

警告！不要把敏感的高增益设备比如前置放大器或者大型录音机直接放在本功放上或者本功放下，因为此功放具有大功率密度，形成强磁场，这种磁场会使靠近的未屏蔽的设备产生嘈杂声。扬声器的上部和下部磁场最强。

如果使用设备架，我们建议把功放放在架的底部，把前置放大器或者其他敏感设备放在架顶。



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。

符合性声明

制造商名称: Crown Audio Inc.
制造商地址: 1718 W. Mishawaka Road
Elkhart, IN 46517 USA

声明本产品:
产品名称: 功率放大器
产品型号: CSA-2120

本产品符合如下标准:

安全:

IEC60065-2001 音频, 视频及类似电子设备安全要求

GB8898-2001 音频, 视频及类似电子设备安全要求

EMC:

GB13837-2003 声音和电视广播接收机及有关设备无线电骚扰特性限值和测量方法

GB17625.1-2003 低压电气及电子设备发出的谐波电流限值 (设备每相输入电流小于或等于 16A)

1.0 欢迎

JBL Commercial® CSA-2120功率放大器（以下简称“功放”）是为专业音响系统设计和制造的一款安装设备。此功放采用双通道模拟信号输入，实现信号放大功能，搭配适合各国不同标准电源输入的开关电源。CSA-2120功率放大器为预定要连续工作的设备。

此功放包含一套安装支架组件。您可以使用此安装支架组件将功放安装到机柜或墙壁。您可以购买与之搭配使用的音频变压器模块CST-2120，将其接入功放和扬声器系统之间，以达到功放输出电路与扬声器输入电路的阻抗匹配。

1.1 特点

- 高功率输出，紧凑机身，轻便
- 以最低的失真度实现乐器或人声音色的精准输出
- 过热自动保护功能
- 欠压自动保护
- 自动待机模式更节约能源
- 可插拔Euroblock类型输入输出端子
- 适合各国不同标准电源输入的开关电源

1.2 如何使用本手册

本手册为您安全而正确地安装和使用功放提供必要的信息。但是，它不能涵盖安装、设置或使用该设备时可能出现的所有情况。如果您需了解更多信息，请向JBL Professional的客户服务中心、或您系统的安装人员或经销商咨询。

我们强烈建议您仔细阅读本手册中的所有说明、警告和注意事项。

2.0 安装

2.1 拆箱

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。JBL Professional 乐于提供所需帮助。保留运输硬纸箱，在托运人检查时，作为认定设备受损的证据。

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 安装您的功放

警告： 开始安装前，确保您已断开功放与电源的连接，并将所有音量调节到最低（逆时针旋转）。

您可以采用如下方法安装功放：

- 使用支架将功放安装到机柜，见图2.2.3和图2.2.4。
- 使用支架将功放安装到墙壁，见图2.2.5。
- 直接将功放放在台面使用。见图2.2.1的功放尺寸。

注意： 在运输时，必须在功放的前面提供支撑保护。

图 2.2.1 功放尺寸

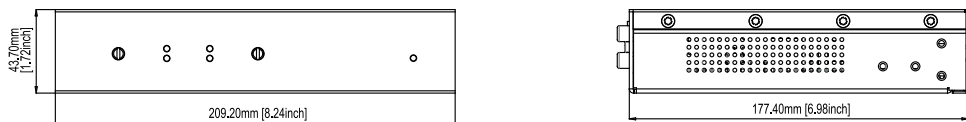


图 2.2.2 支架类型

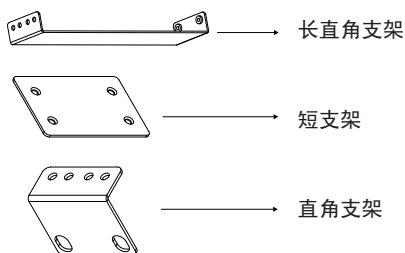
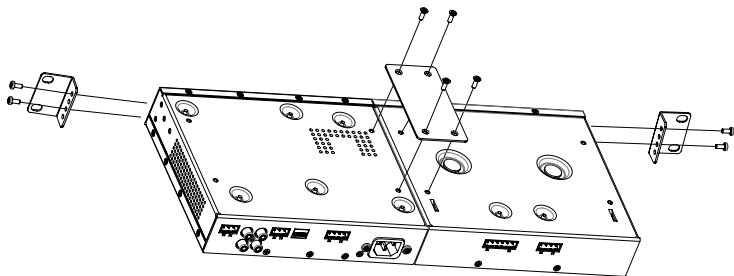


图 2.2.3 安装功放和CST-2120音频变压器到机柜



方案A: 安装功放和CST-2120音频变压器到机柜

在您的机柜系统里安装功放和CST-2120音频变压器时，请参照图2.2.3完成如下操作：

1. 将两个模块并列排放，侧边相对，正面同方向放置。
2. 用短支架连接两个模块。
3. 将两只直角支架分别固定在功放组件的正面双侧。
4. 将此功放组件装入机柜。有关机柜中支架的安装操作，请参阅机柜使用说明书。

图 2.2.4 安装单功放到机柜

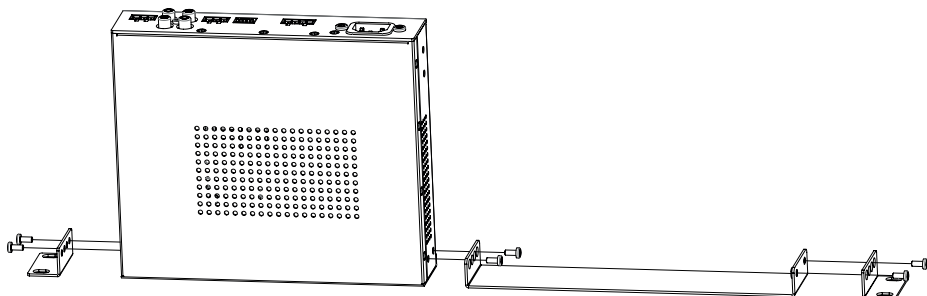
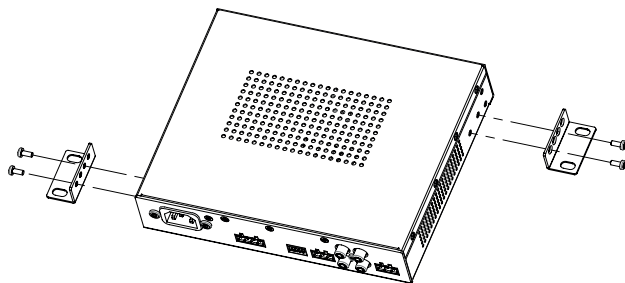


图 2.2.5 壁式安装



方案B: 安装单功放到机柜

在您的机柜系统里安装单功放机，请参照图2.2.4完成如下操作：

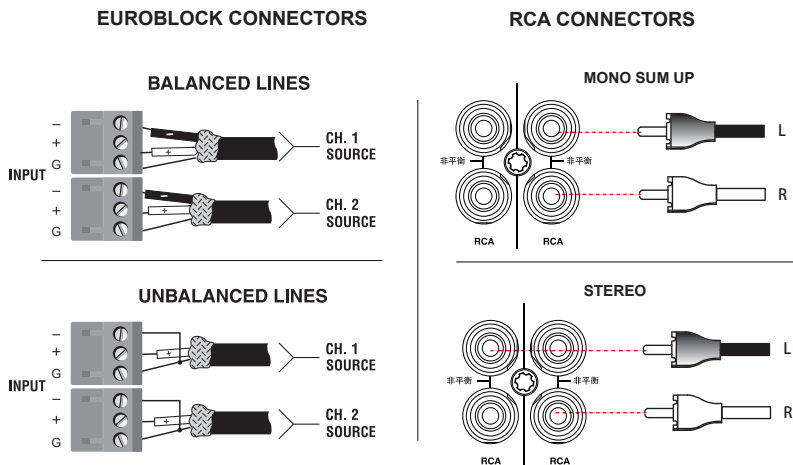
1. 将一只长直角支架用螺钉固定到您需要留空的一侧。
2. 将一只直角支架固定到长直角支架一侧。
3. 将一只直角支架固定到功放的另一侧。
4. 将此功放组件装入机柜。有关机柜中支架的安装操作，请参阅机柜使用说明书。

方案C: 壁式安装

将功放安装到墙壁，请参照图2.2.5完成如下操作：

1. 将两只直角支架分别固定在功放两侧。
2. 将此功放组件安装到平整稳固的墙面，并预留适当的间隙确保散热需要。

图 2.4 输入接线



注意： 不建议您同时使用RCA接口和Euroblock类型端子输入音源信号。

2.3 保证正常散热

在使用设备机柜时，直接将设备安装在机柜上。不要阻挡侧面的通风口。机柜的后面应该保持开放。

2.4 选择输入连接线和接口

JBL Professional建议您采用已有的或专业的平衡线（带两根屏蔽导线），22-24线规的电缆及随机附件专用Euroblock类型输入接口连接到功放平衡输入接口（见图2.4）。也可以采用非平衡线，但是，如果使用的电缆较长，会产生噪音或射频干扰。

您也可以使用RCA接口来连接如CD/DVD播放器的音响产品。但是，不建议您同时使用RCA接口和Euroblock类型端子输入音源信号。

注意： 必须由专业人员进行接线操作。

图 2.5.1 连接功放和CST-2120音频变压器

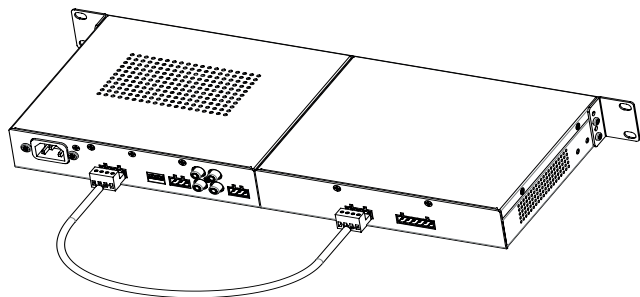
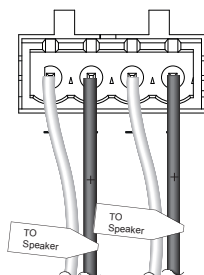


图 2.5.2 连接扬声器

CH1输出 CH2输出



2.5 输出连接

您可以使用随CST-2120附带的连接线缆连接功放和CST-2120音频变压器，以获得70伏或100伏的电压输出。见图2.5.1。

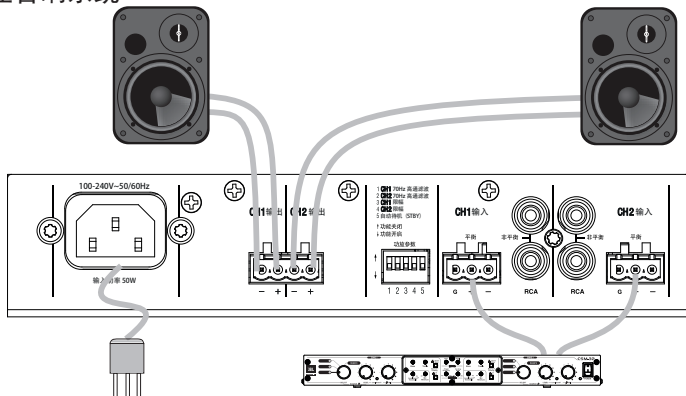
在连接输出到扬声器时，建议您采用已有或专业的，高质量的，双绞线的，大规格扬声器线材。为了防止短路，电缆与功放接驳线头不要超过6毫米。

请根据功放与扬声器之间的距离，采用如下建议规格的线材，并与核实是否适用于当地标准。

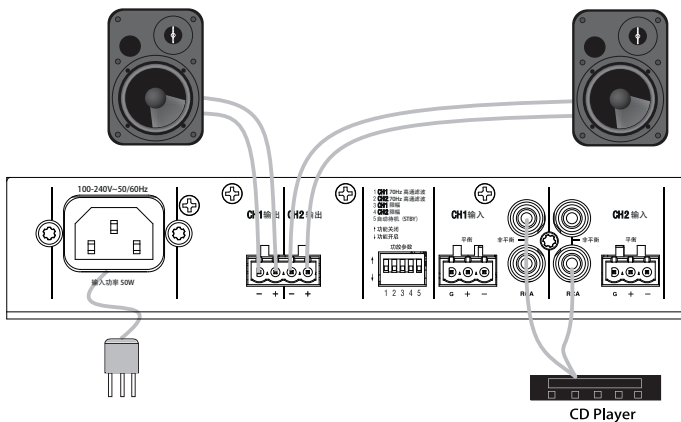
距离	线规
大于25英尺（7.6米）	16AWG
26-40英尺（7.9-12.2米）	14AWG

图 2.6 连接音响设备

专业音响系统



家庭音响系统



2.6 连接您的音响系统

图2.6为常用的输入和输出接线示例。

输入：连接两个通道的输入接线。

输出：确保正确使用输出端口上的正负极性 (+/-)。

将通道1扬声器的正极 (+) 导线连接到功放通道1的正极 (+) 端子上；用同样的方法，连接好通道1的负极。使用通道1的方法，连接好通道2的正负极。

每个功放通道的最低阻抗可驱动4欧姆。然而，您可以在每个功放通道上连接四个16欧姆的扬声器，两个8欧姆或一个4欧姆的扬声器。

2.7 连接交流电源

采用功放原装的交流电线组件，将您的功放连接到交流电源上（电源插座）。首先，将电线组件的IEC端连接到功放的IEC接口上，然后，将电线组件的另一端插入电源插座。

警告：此接口的第三个插脚（接地端）在安全性上起着至关重要的作用。切忌试图使用其它适配器禁用此接地连接。

功放不产生能量。请确保交流电的电压和电流充足，从而供给功放所需的电能。功放所需要的交流电源的电压不能高于功放指定工作电压的10%或低于15%，并符合指定的功率要求（功放后面板的标签有标示）。如果您不能确定交流电源的输出电压值，请咨询您当地的电工。

2.8 保护您的扬声器

在常规使用中，请尽量避免功放输出达到削波状态。因为削波不仅会导致声音质量变差，而且还可能会导致损坏功放连接负载。内置限幅器可以避免削波发生。

另外，使用中您还需避免功放接收到高强度的超低音。例如，呼吸声或话筒坠落而产生的高强度低频信号很可能会将功放连接负载烧毁。您也可以开启高通滤波器，避免70HZ以下低频信号进入功放。当在70V或100V的扬声器系统中使用CST-2120音频变压器时，高通滤波功能很有用，能防止由于变压器饱和而导致扬声器失真。

2.9 启动步骤

初次启动功放时，请按如下操作步骤进行：

1. 调低音源音量。
2. 调低功放的音量。
3. 将功放接入电源。电源指示灯点亮。
4. 将音源音量调至最佳水平。
5. 调节功放上的音量调节器，直到达到所需您所需要音量输出。

如果您需要更改接线或安装，确保先断开设备的电源线。

3.0 操作

3.1 预防措施

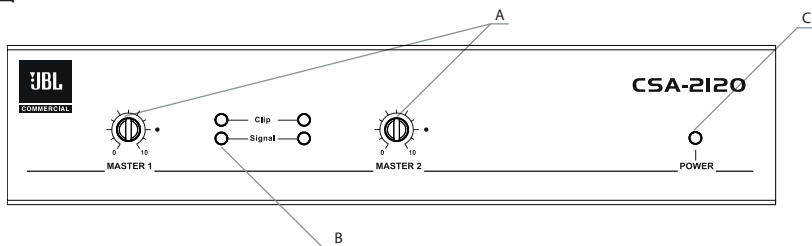
您的功放已无内外缺陷。但是为了获取最佳性能和安全，您仍应该采取以下的预防措施：

1. 使用前，必须针对功放的正常运行进行配置，其中包括输入和输出配线连接。接线不当将会导致操作故障。有关接线和配置的信息，请参考本手册的本用户手册安装部分。
2. 在进行连接、选择信号源和控制输出水平时，需要特别小心。
3. 不要将输出电缆的接地导线与输入信号接地短接。否则会导致功放工作不正常。
4. 警告：不要将输出端连接到电源、电池或供电网，否则会导致电击发生。
5. 篡改电路图或在未经允许的情况下改动电路是很危险的，并导致本产品无法获取保修。
6. 勿在红色削波LED指示灯持续闪烁时运行功放。
7. 勿将调音台信号设置过大，否则会导致功放输出削波。此削波信号一经放大，将导致扬声器受损。
8. 勿在低于额定载荷阻抗的条件运行功放。由于功放输出的保护，这样操作将可能导致过早达到削波，从而对扬声器造成损坏。
9. 请尽量保持功放使用环境有良好的通风，避免功放工作温度过高。否则功放将会自动切断电源进入过热保护状态。电源指示灯熄灭，功放无输出。这时，请将音量电位器调到最小，待温度降至正常使用范围时，功放将自动恢复正常使用。同时请将音量电位器调到合适位置。
10. 功放输入电压过低，功放将自动进入保护状态。电源指示灯关闭。

切记：由于超负荷驱动其它系统组件而导致的设备损坏，JBL Professional概不负责。

3.2 前面板控制钮和指示灯

正面图



A. 音量旋钮：每通道对应一个调节钮。

B. 状态指示灯（每通道一组指示灯）：

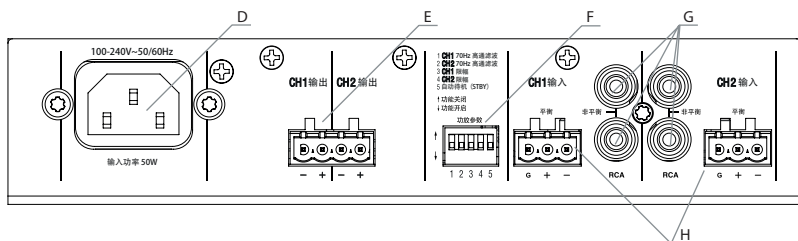
削波指示灯：当输入信号过大时，红色LED指示灯点亮。

信号指示灯：当检测到有微弱信号（门限值-40dB）输入时，绿色LED指示灯闪烁。可用于排除电缆上存在的故障。

C. 电源显示灯：功放接入电源后，正常工作时，此指示灯点亮。

3.3 后面板接口

背面图



D. 交流电源连接接口

E. 输出接口：4针可插拔Euroblock类型输出接口，用于扬声器的双声道输出。

F. 功放参数开关：往上拨动开关关闭相应功能；往下拨动开关开启相应功能。开关排序为：

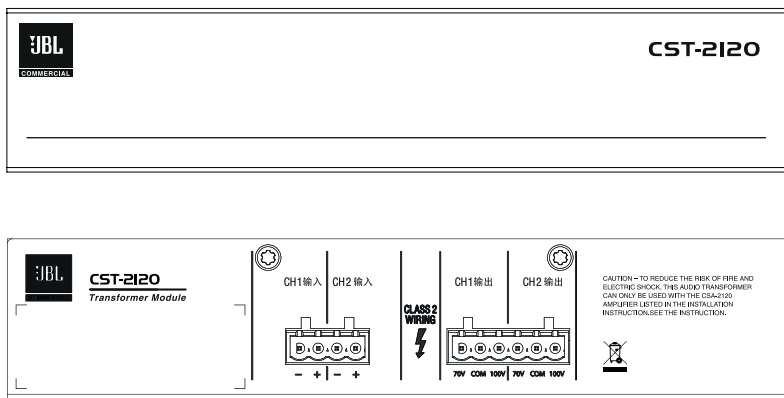
1. CH1 70 Hz 高通滤波
2. CH2 70 Hz 高通滤波
3. CH1 限幅
4. CH2 限幅
5. 自动待机功能

G. RCA接口

H. Euroblock类型连接器：两个3针可插拔Euroblock类型接口，接入平衡或非平衡输入信号。

附录A：选配件音频变压器

CST-2120外观图



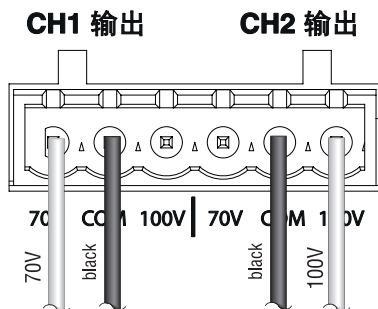
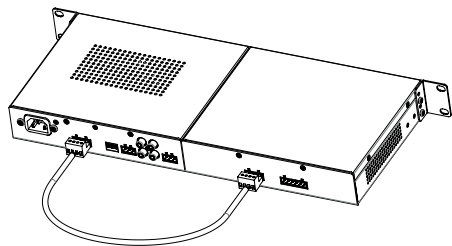
JBL Commercial® CST-2120是一款专用于CSA-2120功率放大器和定压音箱之间的音频变压器，能将4欧姆或8欧定阻输出转换成高阻抗定压输出，从而为音箱提供匹配的定压输入。此设备可安装在机架上。

当与CSA-2120功率放大器联用时，可实现70伏或100伏的电压输出，从而驱动工作在此电压的定压音箱系统。

特点

- 提供双通道高阻抗输出匹配
- 与CSA-2120功率放大器联用实现70伏或100伏的定压输出
- 使CSA-2120功率放大器具备应用到定压音箱系统的能力
- 可插拔式Euroblock类型输入输出接口

CST-2120连接示意图



安装

注意：安装前，请确保您已断开功率放大器的电源连接，并将所有音量控制钮调到最低音量（逆时针方向）。

1. 将音频变压器安装到标准的19英寸设备机架（EIA RS-310B）或直接安装到墙壁。您可以根据您现场需求选择如下方案进行安装：
 - 与CSA-2120组装后安装到机架
 - 安装单台设备到机架
 - 壁式安装
2. 使用随机所带的4针式连接线缆组件，连接音频变压器的输入接口与功率放大器的输出接口。
3. 根据系统所需电压选取正确的连接接口。

附录B：规格

输出功率 （双通道，1 kHz，THD+N<0.5%）：	4 Ohms 120 W 8 Ohms 120 W
频率响应 （4 Ohms或8 Ohms负载1 W输出）：	+1/-1 dB
负载阻抗 ：	额定4或8 Ohms
灵敏度 （8 Ohms负载）：	1.4 Vrms
信噪比 （1 kHz，额定8 Ohms，A记权）：	>100 dB
串音 （额定功率8 Ohms）：	20至1 kHz:70 dB 20 kHz:50 dB
输入阻抗 ：	平衡式20 k Ohms 非平衡式：10 k Ohms
交流电压和频率 ：	100到240伏，50 Hz或60 Hz
最大输入信号 ：	至少+20 dBu
自动待机 ：	进入待机：1小时 唤醒时间：低于1毫秒 唤醒电平：-60dBu
操作温度 ：	95%湿度下为 0° C到 40° C（无冷凝）
产品尺寸 （宽x高x深）：	8.2” x 1.7 x 7”（209 mm x 44 mm x 178 mm）
净重 ：	1 kg（2.1 lbs）
运输重量 ：	1.5 kg（3.4 lbs）

附录C：功率消耗和散热量

		CSA-2120																	
Condition	Low 2CH Driven	120 VAC / 60 Hz						220 VAC / 50 Hz						240 VAC / 50 Hz					
		Line current	Watts in	Watts out	Watts dissipate d	Thermal Dissipation BTU/hr kcal/hr		Line current	Watts in	Watts out	Watts dissipate d	Thermal Dissipation BTU/hr kcal/hr		Line current	Watts in	Watts out	Watts dissipate d	Thermal Dissipation BTU/hr kcal/hr	
at idle		0,22	8,56	0,00	8,56	29,22	7,37	0,17	11,10	0,00	11,10	37,88	9,55	0,16	11,32	0,00	11,32	38,64	9,74
at idle sleep		0,18	7,72	0,00	7,72	26,35	6,64	0,15	9,30	0,00	9,30	31,74	8,00	0,15	9,52	0,00	9,52	32,49	8,19
1/8th snewave	8	0,93	48,99	34,21	14,78	50,44	12,72	0,60	50,36	34,02	16,34	55,77	14,06	0,57	50,80	34,26	16,54	56,45	14,23
	4	0,98	52,36	34,69	17,67	60,31	15,20	0,64	53,73	34,71	19,02	64,92	16,36	0,60	53,99	34,71	19,28	65,80	16,59
1/3rd snewave	8	1,98	113,22	88,01	25,21	86,04	21,69	1,23	112,63	88,05	24,58	83,89	21,15	1,15	112,97	88,02	24,95	85,15	21,47
	4	2,07	118,75	86,75	32,00	109,22	27,53	1,28	117,91	86,84	31,07	106,04	26,73	1,20	117,80	86,84	30,96	105,67	26,64
1/8th Power Pink Noise	8	1,04	53,99	32,04	21,95	74,92	18,89	0,72	55,46	32,03	23,43	79,97	20,16	0,70	55,44	32,06	23,38	79,80	20,12
	4	1,17	58,34	32,79	25,55	87,20	21,98	0,70	58,12	32,78	25,34	86,49	21,80	0,73	59,87	32,79	27,08	92,42	23,30
1/3rd Power Pink Noise	8	2,33	125,30	84,57	40,73	139,01	35,04	1,49	123,80	84,46	39,34	134,27	33,85	1,45	126,35	84,49	41,86	142,87	36,02
	4	2,53	136,30	85,19	51,11	174,44	43,98	1,57	137,32	85,25	52,07	177,71	44,80	1,54	137,00	85,27	51,73	176,55	44,51

附录D: 联系信息

全球网站:

www.jblcommercialproducts.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JBLProfessional的经销商。我们的网站上提供有完整的经销商名单，您可访问我们的网页www.jblpro.com查询您所在地区的经销商。

特约经销商:

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香港总公司及展厅:

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电子邮件: acegz@acegz.com

附录E：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)	六价铬(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。



此绿色环保标识指电子信息产品中不含有有毒有害物质或元素，用户使用该电子信息产品不会对环境造成污染或对其人身，财产造成损害。



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