

SMB-200 200 WATT 2-CHANNEL POWER AMPLIFIER

INTRODUCTION

These instructions contain the specifications and information necessary to install, operate, and maintain the SMB-200, 200 Watt 2-Channel power amplifier manufactured by Clarity, 1111 Industry Avenue, Roanoke, VA 24013.

"WARNING: To reduce the risk of fire or electric shock, do not expose this appliance to rain or moisture."

"WARNING: Shock Hazard - Do Not Open."

"AVIS: Risque de Choc Electrique ne pas Ouvrir."

SPECIFICATIONS

Purpose

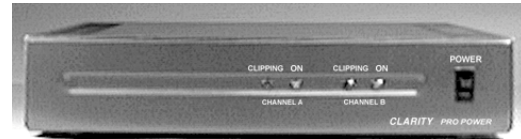
The SMB-200 2-Channel Power Amplifier provides up to 100 watts of audio power per channel in the 2-channel mode and 200 watts of audio power in bridge mode for voice paging or background music systems.

Applications

- Clarity Paging and Sound Reinforcement Systems
 - Clarity Stand Alone Background Music Systems
- Refer to Figure 1 for a block diagram of a typical installation.

Features

- 100 watts per channel
- Shelf or rack mount (optional rack kit SMA-RMK)
- Volume control for each channel
- ON/OFF switch
- Circuit breaker protection
- Overload limiting circuit protection
- Phono jacks for input connections
- Screw terminals for output connections
- Power "ON" indicator per channel
- Clipping indicator per channel
- 2 ohm output 2-channel, 4 ohm output bridge



Dimensions and Weight

- 17.1" W x 14.75" D x 3.9" H
(43.43 cm W x 37.38 cm D x 9.9 cm H)
- 24 lbs (10.8 kg)

Accessories

- SMB-101 Wall or shelf mount 100 watt 2-channel transformer unit (25,70,100 volt)
- SMB-102 Wall or shelf mount 200 watt 1-channel transformer unit (70,100 volt)
- SMB-201 Rack mount 100 watt 2-channel transformer unit (25,70,100 volt)
- SMB-202 Rack mount 200 watt 1-channel transformer unit (70,100 volt)
- SMA-RMK Rack mount kit

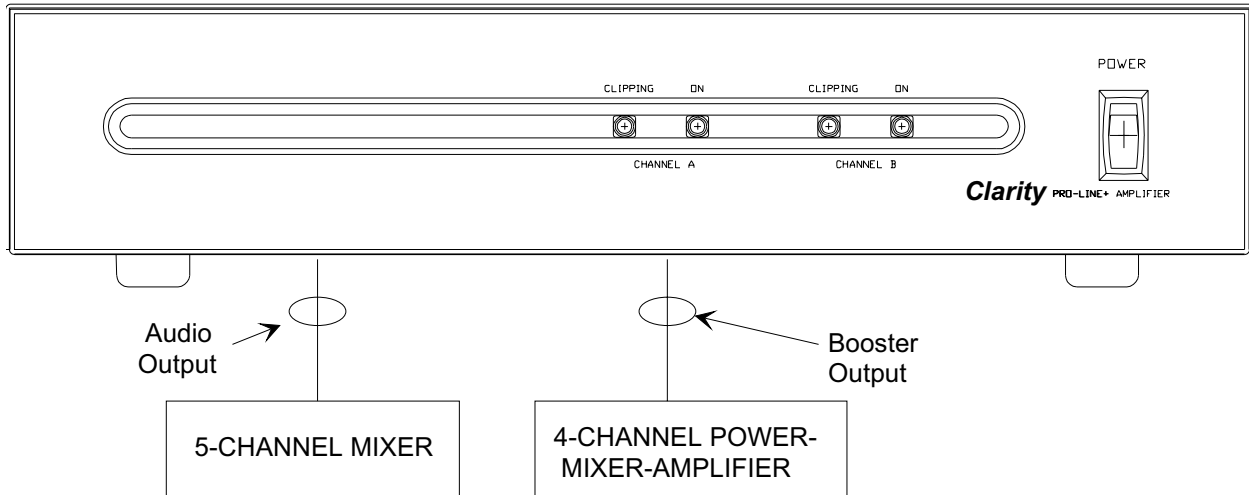
Nominal Specifications

Wattage Output	100 Watts RMS per channel 200 Watts RMS Bridge
Type Outputs	2- channel mode, 2 Ohms Bridge mode, 4 Ohms
Frequency Response	50-25 kHz \pm 2 dBm
Distortion	<.5% @ 1 kHz Rated Output
S/N	<80 dBm
Input Impedance	10 K Ohms
Sensitivity	500 mVRMS
Contour roll off	300 Hz 6dBm per octave
Mounting	Wall or Rack

Power Requirements

Voltage	120 Vac
Current	5.0 Amps

FIGURE 1
SMB-200 2-CHANNEL POWER AMPLIFIER



Environment

Temperature 0 to 50°C
Humidity 0 to 85% non-precipitating

DESIGN

The SMB-200 100 Watt 2-Channel Amplifier is designed to provide 100 watts of audio power in the 2-channel mode or 200 watts in the bridge mode.

The SMB-200 amplifier can be used to operate 2 Ohm speaker loads in the 2-channel mode or a 4 Ohm load in the 200 watt bridge mode.

The amplifier has an input volume control for each channel located on the back of the unit.

Circuit breakers are provided on the back of these units and will operate in the event of a catastrophic overload. The 2-channel amplifier contains limiting circuits for protection against short circuits or impedance mismatches. The units will shut down in the event of a trouble condition and reactivate automatically when the condition is corrected.

The amplifiers can be either shelf or rack mounted (rack mount kit is optional).

INSTALLATION

General

Figure 2 shows volume control locations. Figure 3 shows output terminal strips and switches on the back of the amplifier as well as typical connections to a mixer-amplifier.

Mounting

The SMB-200 is designed for shelf or rack mounting. Make certain the unit is not mounted near heat sources or strong magnetic fields. Verify control and terminal strip accessibility. The unit may be rack mounted. Order the associated rack mount kit SMA-RMK.

Input Connections

High impedance auxiliary devices such as mixers, equalizers, mixing boards, etc. can be connected to channel A or B. Phono jacks are provided at the rear of the amplifier for each channel input.

Speaker Cabling

Standard two conductor speaker wire can be used (14-20 AWG determined by the load).

Amplifier Setup

During initial system set up, it is recommended that the channel A and B input gain controls be set 1/4 turn clockwise.

All connections should be made to the amplifier and double-checked before the ac power cord is plugged in.

The power indicators will illuminate when the ac power cord is plugged in and the power switch is in the "ON" position.

OPERATION

General

The SMB-200 provides two modes of operation, 2-channel (100 watts per channel) or 1-channel mono (200 watts bridged).

When the amplifier is in the 2 channel mode signals are applied to both the channel A and B inputs. Channel A and B outputs are connected to their respective speaker loads. The output levels are controlled by the channel input volume controls. In the event that low frequency content is not required to the speaker load, i.e. paging horns, the contour switch may be operated to the ON position and frequencies below 300 Hz will be reduced at a rate of 6 dBm per octave.

When the amplifier is used in the bridge mode the switch located on the back of the amplifier is operated to the bridge mode position. The input signal is applied to Channel A. The speaker load is connected between the Channel A and Channel B 2 ohm output terminals. Channel A volume control is used to adjust the volume level; of the speakers. In the event that low frequency content is not required to the speaker load, i.e. paging horns, the contour switch may be operated to the ON position and frequencies below 300 Hz will be reduced at a rate of 6 dBm per octave.

Clipping lights are provided on the front of the unit. These lights will illuminate when the output signal exceeds the power rating of the amplifier.

There are 2 power lights located on the front of the unit that will illuminate when the unit is connected to a 120 Vac power source and the power switch is in the ON position.

TECHNICAL ASSISTANCE

When trouble is reported, verify that AC power is being supplied to the unit and there are no shorts or grounds on speaker cabling. Assistance in troubleshooting is available from the factory. When calling, you should have a VOM and a telephone test set available and be calling from the job site. Call (540) 427-3505 and ask for Technical Support. Visit our website at <http://www.clarity-com.com>.

CLARITY maintains service facilities in Roanoke, VA. Should repairs be necessary, attach a tag to the unit clearly stating company name, address, phone number, contact person and the nature of the problem. Send the unit to:

**Repair and Return Dept.
Clarity
5614 Hollins Road
Roanoke, VA 24019-5056**

TROUBLESHOOTING CHART

PROBLEM	POSSIBLE SOLUTION
No output.	<ol style="list-style-type: none"> 1. Verify AC power is being supplied to the unit and the power switch is in the "ON" position and both power lights are illuminated. 2. Verify that input signal is present at amplifier connection. 3. If speaker controller or equalizer is not being used, make sure that effects switch is in the "OFF" position. 4. Verify all speaker wiring (no opens, shorts or grounds).
Distorted output.	<ol style="list-style-type: none"> 1. Check input wiring for proper polarity connections. 2. Verify that speaker load does not exceed amplifier rating. 3. Verify input signal does not exceed input voltage rating. 4. Verify all speaker wiring (no opens, shorts or grounds).

FIGURE 2 - LOCATION OF POWER SWITCH/VOLUME CONTROLS

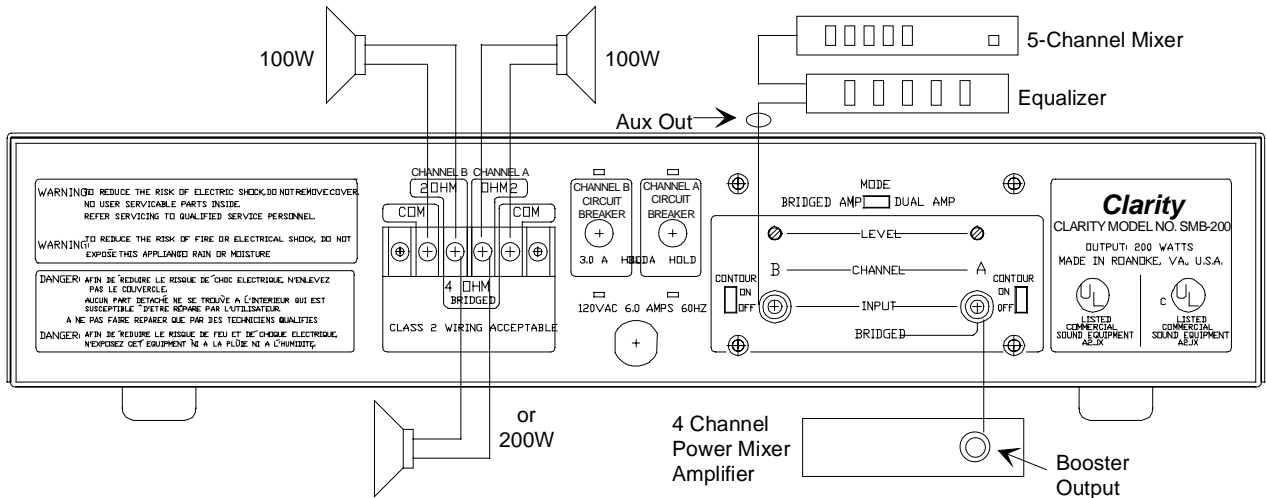
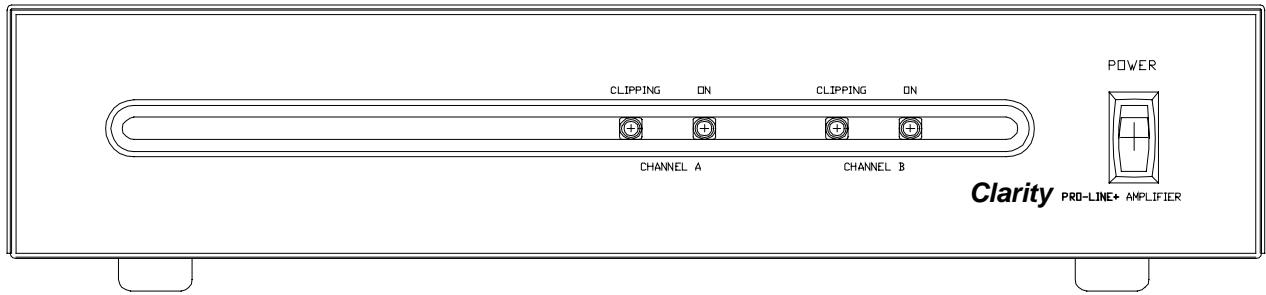


FIGURE 3 - CONNECTIONS

LIMITED WARRANTY

Clarity warrants its products to be free from defects in materials and workmanship under conditions of normal use and service for a period of one year from the date of shipment. The obligation under this warranty shall be limited to the replacement, repair or refund of any such defective device within the warranty period, provided that:

1. Inspection by Clarity indicates the validity of the claim;
2. The defect is not the result of damage, misuse, or negligence after the original shipment;
3. The product has not been in any way repaired by others and that factory sealed units are unopened (A service charge plus parts and labor will be applied to units defaced or physically damaged);
4. Freight charges for the return of products to Clarity are prepaid;
5. All units 'out of warranty' are subject to a service charge. The service charge will cover minor repairs (major repairs will be subject to additional charges for parts and labor).

This warranty is in lieu of and excludes all other warranties expressed or implied, and in no event shall Clarity be liable for any anticipated profits, consequential damages, loss of time or other losses incurred by the buyer in connection with the purchase, operation or use of the product.

This warranty specifically excludes damage incurred in shipment. In the event a product is received in damaged condition, the carrier should be notified immediately. Claims for such damage should be filed with the carrier involved in accordance with the F.O.B. point.