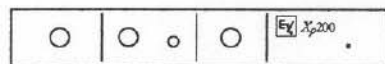
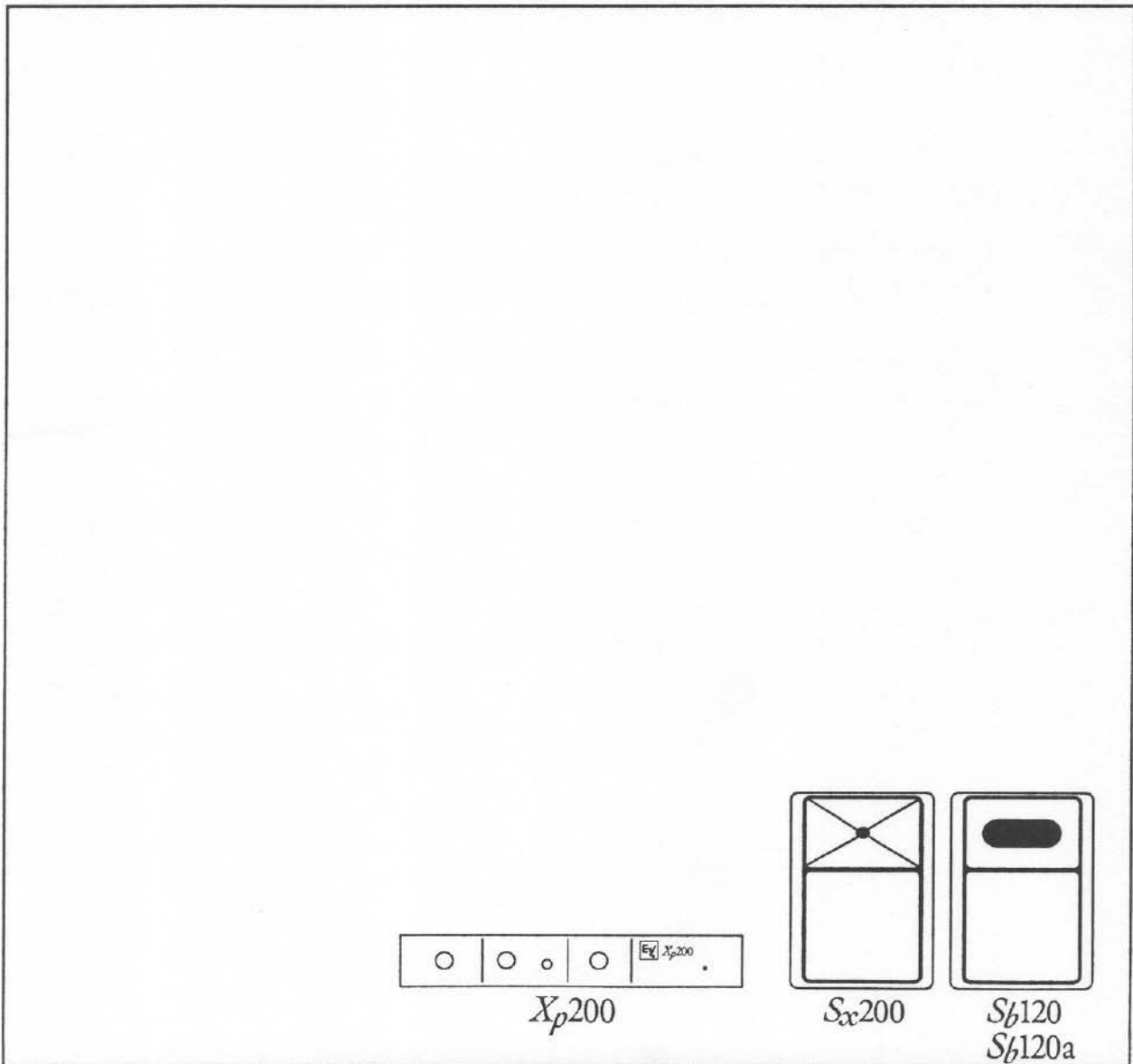




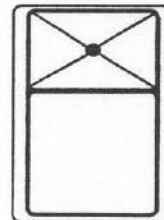
Electro-Voice[®]

SYSTEM 200[™] MODULAR PRO AUDIO

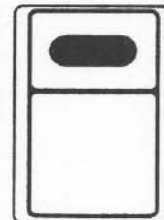
OWNER'S MANUAL



Xp200



Sx200



Sb120
Sb120a

**Xp200 CONTROLLER
AND ITS USE WITH THE
Sx200, Sb120a and Sb120 SPEAKER SYSTEMS**

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

Xp200 SYSTEM CONTROLLER SPECIFICATIONS

Measurement conditions and notes:

1. Measurements at 1,000 Hz unless otherwise specified.
2. All level controls full clockwise.
3. 0-dBu input voltage.
4. 18 V ac maintained at power input.
5. 0 dBu = 0.775 V rms.
6. 0 dBm = 1 mW.

Number of Channels:

Two

Front-Panel Controls and Indicators:

Input level (stereo rotary)
 Low-frequency profile (stereo rotary)
 Low-frequency profile in/out switch
 Subwoofer level (rotary)
 Power on/clip LED

Low-Frequency Profile:

Side-chain equalization circuit summed with direct signal, with up to 12 dB of enhancement at 60 Hz

Left and Right Main Inputs,**Type:**

Electronically balanced differential

Impedance:

30 kilohms

Maximum Input Level:

+22 dBu (9.8 V)

Nominal Input Level:

0 dBu (0.775 V)

Connectors:

1/4-in. tip-ring-sleeve (TRS) phone jacks

Left and Right Outputs,**Type:**

Electronically balanced, cross-coupled
 output topology

Source Impedance:

150 ohms

Load Impedance, Recommended/Minimum:

>1,500 ohms/600 ohms

Bandwidth:

40-20,000 Hz (40-Hz, 24-dB-per-octave
 high-pass filter for infrasonic speaker protection)

Maximum Output,**Power:**

+19 dBm (79 mW)

Voltage (15,000-ohm load):

+22 dBu (9.8 V)

Nominal Output Power (low-frequency profile switched out):

0 dBm (1 mW)

Clipping Indication:

Green power-on LED interrupted by flashing red
 at outputs above +19 dBm

Connectors:

1/4-in. tip-ring-sleeve (TRS) phone jacks

Subwoofer Output (monaural, sum of left and right inputs),**Type:**

Electronically balanced, cross-coupled
 output topology

Source Impedance:

150 ohms

Load Impedance, Recommended/Minimum:

>1,500 ohms/600 ohms

Bandwidth:

37-134 Hz, typical (24-dB-per-octave filters,
 37-Hz high pass for infrasonic speaker protection
 and 134-Hz low pass for crossover)

Maximum Output,**Power:**

+19 dBm (79 mW)

Voltage (15,000-ohm load):

+22 dBu (9.8 V)

Nominal Output Power (low-frequency profile switched out),

**0-dBu Signal Applied at 70 Hz to Left
 and Right Inputs:**

+3 dBm (2 mW)

**0-dBu Signal Applied at 70 Hz to Left
 or Right Input:**

0 dBm (1 mW)

Clipping Indication:

Green power-on LED interrupted by flashing red
 at outputs above +19 dBm

Connectors:

Two paralleled 1/4-in. tip-ring-sleeve (TRS)
 phone jacks

Total Harmonic Distortion Plus Noise at 0-dBm Output (40-20,000 Hz):

<0.1%

Output Noise, A-Weighted:

<-90 dBm

Channel Separation (output on one channel when the other channel is driven at 0 dBu):

<-85 dBm

Power Requirements (provided by external plug-in transformer, supplied):

18 V ac, 200 mA

Supplied Items and Accessories:

Owner's manual; rack-mount ears and hardware
 kit (mounted); pad of rubber feet; external plug-in
 power supply (120-V, 50/60-Hz PS10 supplied with
 U.S. units; Xp200 Export supplied to the customer
 with an appropriate alternate supply)

Chassis Construction:

Painted steel

Colors,**Overall:**

Gray

Nomenclature,**Front Panel:**

Pearlized light gray

Top and Rear Panel:

White

Dimensions (less rack ears),**Height:** 4.37 cm (1.72 in.)**Width:** 30.5 cm (12.0 in.)**Depth:** 15.2 cm (6.0 in.)**Net Weight (rack ears attached):**

1.56 kg (3.45 lb)

Shipping Weight:

2.31 kg (5.10 lb)

Specifications subject to change without notice.

SYSTEM 200™ MODULAR PRO AUDIO

Frequency and Beamwidth Response Curves

FIGURE 1 — X_p200 Frequency Response, Left and Right Outputs, Profile Control Off (full counterclockwise)

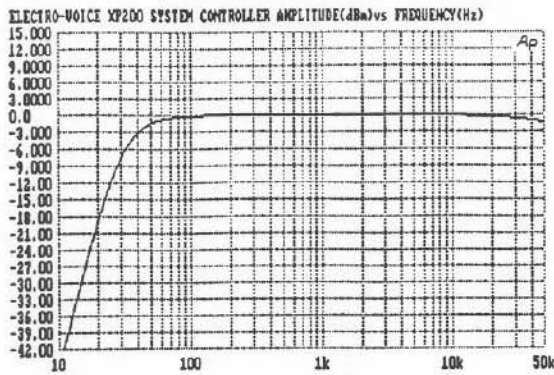


FIGURE 2 — X_p200 Frequency Response, Subwoofer Output, Profile Control Off (full counterclockwise)

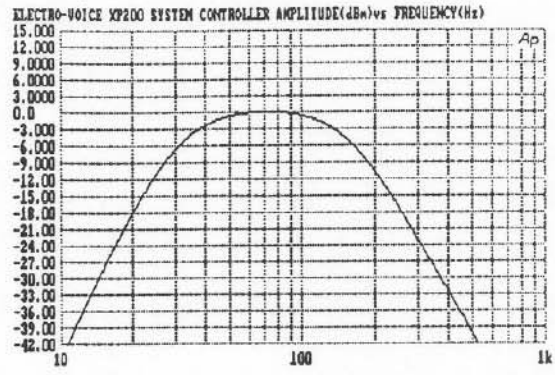


FIGURE 3 — X_p200 Frequency Response, Left and Right Outputs, Profile Control Advanced to Full Clockwise in 3-dB Steps

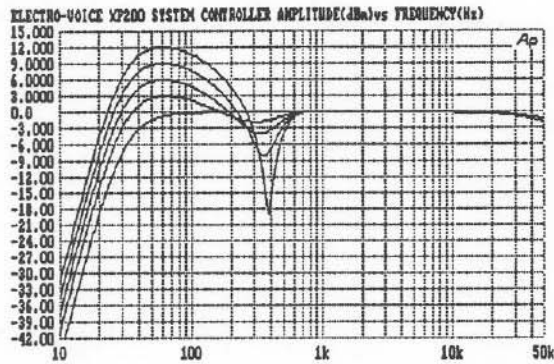


FIGURE 4 — S_x200 Frequency Response, 1 Watt/ 1 Meter (half-space anechoic environment)

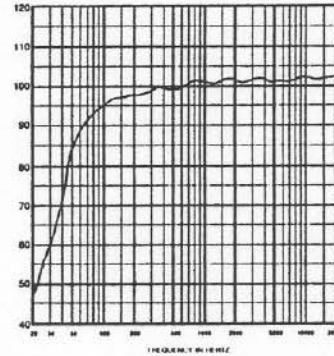


FIGURE 5 — S_b120 Frequency Response, 1 Watt/ 1 Meter (half-space anechoic environment)

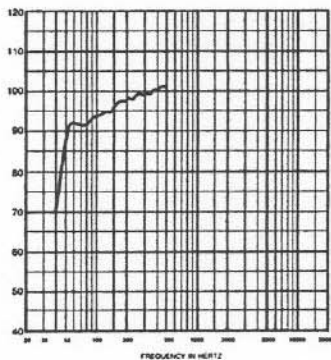


FIGURE 6 — S_b120a Frequency Response, 1 Watt Into Woofer, 1 Meter (half-space anechoic environment)

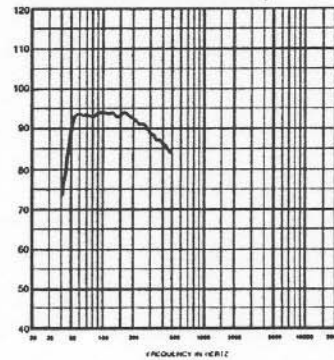


FIGURE 7 — S_x200 Beamwidth vs. Frequency (anechoic environment)

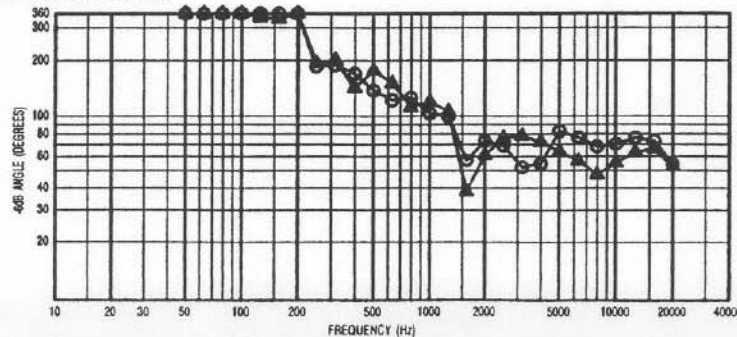
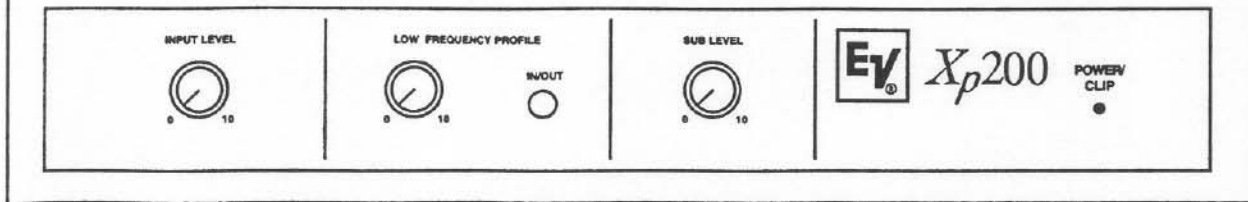


FIGURE 8 — Xp200 Front Panel (without rack ears)



OPERATION AND INSTALLATION

FRONT-PANEL INDICATORS AND CONTROLS

The front-panel layout is shown in Figure 8 and described below:

1. **INPUT LEVEL CONTROL:** this control attenuates the left and right inputs, and thus affects the left, right and subwoofer outputs. Attenuation is zero in the full-on, clockwise position (unity gain). Normally, for best overall system signal-to-noise ratio, this control would be set in the unity-gain position with level reductions made at other points in the signal chain, most likely at the power amplifier.
2. **LOW-FREQUENCY PROFILE CONTROL:** this control adjusts the degree of low-frequency enhancement, from a minimum of zero or off (full counterclockwise) to a maximum of +12 dB (full clockwise). The setting of this control is a matter of taste and is dependant on a variety of factors, including speaker performance characteristics and placement, room acoustics and program material. **Feel free to experiment. A good starting point is a midway setting of the control.**
3. **LOW-FREQUENCY PROFILE IN/OUT SWITCH:** this switch switches the low-frequency enhancement in and out. It makes it easy to asses the effect of changes in the low-frequency profile control.
4. **SUB LEVEL CONTROL:** this control attenuates the subwoofer output. (Keep in mind that the sub level is also affected by the Input

Level control.) With both the sub and input level controls set full on (clockwise) and the profile control off (counterclockwise), overall gain through the Xp200 is unity when a signal is present at **either** the left or right input. For stereo program with common signals in the subwoofer range (a common condition), the sub output will offer 6 dB of gain in the full-on (clockwise) position. (This gain characteristic results because the sub output is derived from a sum of the left and right inputs.)

There is no "correct" setting of the Sub Level control. Adjust until the bass level and impact are right for your ears/application. The setting may be less than full on, especially if the Low Frequency Profile control is advanced.

NOTE: the S_b120a powered bass module has a System Gain control on its back panel which attenuates the input signal and thus reduces speaker output much as the Xp200's Sub Level control does.

5. **POWER/CLIP INDICATOR:** when constant green, this LED indicates power on and undistorted operation. If clipping occurs (+19 dBm output power), the constant green is interrupted by flashes of red.

When clipping is indicated, for best sound quality, one or more Xp200 rotary controls should be turned down until undistorted operation is once again indicated. For the usual program material, the following sequence is probably best: (1) Low Frequency Profile, (2) Sub Level and (3) Input Level.

MOUNTING/INSTALLATION

The X_p200 is supplied with rack-mount ears attached, ready to install in 1 rack unit (1.75 in. high) of an EIA 19-in. rack. While the overall depth behind the front panel is about 15.2 cm (6.0 in.), about 5.1 cm (2.0 in.) of additional depth must be provided for typical connector/cable clearance.

For stand-alone mounting, each rack ear may be dismounted, by removing four Phillips-head screws. The two bottom screws must be reinstalled, since they help hold the cover to the chassis. The four rubber feet supplied may be installed on the bottom of the X_p200.

TYPICAL SYSTEM 200™ MODULAR PRO AUDIO CONFIGURATIONS

The X_p200 controller will enhance the performance of one or more pairs of S_x200 full-range speaker systems used alone, or the performance of S_x200's used in combination with one or more S_b120a (powered) or S_b120 (nonpowered) bass modules.

Amplifier Power Recommendations

The power amplifiers shown in Figures 10 through 13 are typical, relatively conservative choices: different output power ratings are quite workable, including larger ratings:

1. To use a speaker system to full capacity, skilled experts in sound system installation and operation will obtain the best results if the power amplifier is 2.0 to 4.0 times the long-term average noise power rating of the speaker system. For the S_b120 and S_x200 systems, this is 600 to 1,200 watts.

The **caution** cannot be made strongly enough, however, that **this arrangement is only for experts** or for those who can discipline themselves against "pushing" the system for ever-higher sound levels and who can avoid "accidents" such as catastrophic feedback or dropped microphones.

2. A more conservative, "nominal" amplifier size, which will produce audible results nearly equal to those of the "expert" recommendation, is 1.0 to 1.4 times the long-term average noise power rating of the speaker. For the S_b120 and S_x200 speaker systems, this is 300 to 420 watts.
3. To be very conservative, one can use an amplifier rated at 0.5 to 0.7 times the long-term average rating of the loudspeaker. For the S_b120 and S_x200 speaker systems, this is 150 to 210 watts.

Request P.A. Bible Addition No. Two ("Power Handling Capacity") for more background on these recommendations.

Configurations Shown

Figure 10 shows the most basic setup: a pair of S_x200's. In this setup, the X_p200 provides low-frequency enhancement and infrasonic speaker protection for the S_x200's.

Figure 11 shows how to add one or two S_b120a powered bass modules. (The second module and its connection are shown in grey.)

Figure 12 shows how to add one S_b120 nonpowered bass module.

Figure 13 shows how to add two S_b120 nonpowered bass modules.

FIGURE 11 — Hookup of an Xp200 Controller with a Pair of Sx200 Full-Range Speakers and One or Two Sb120a Powered Bass Modules

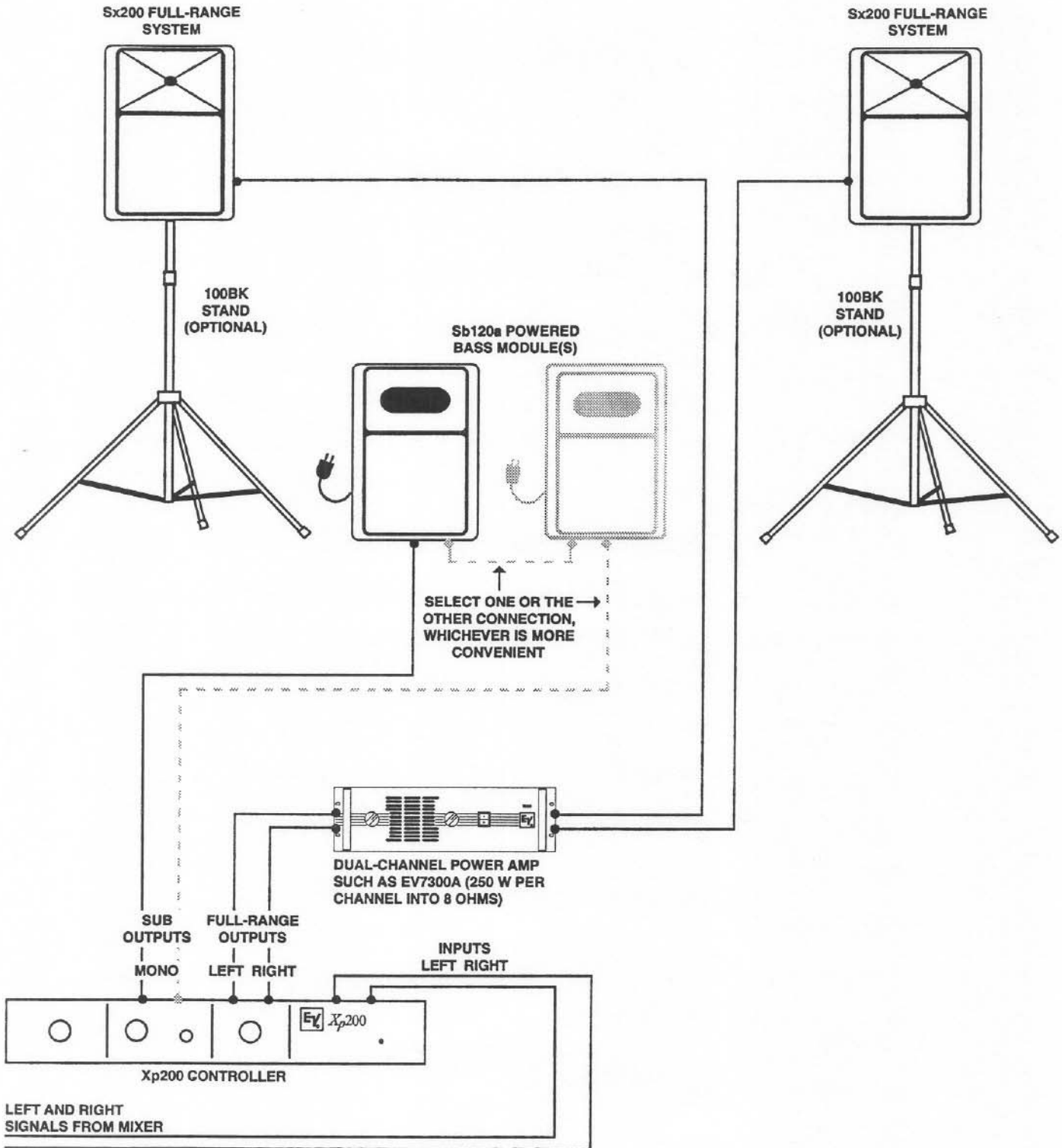
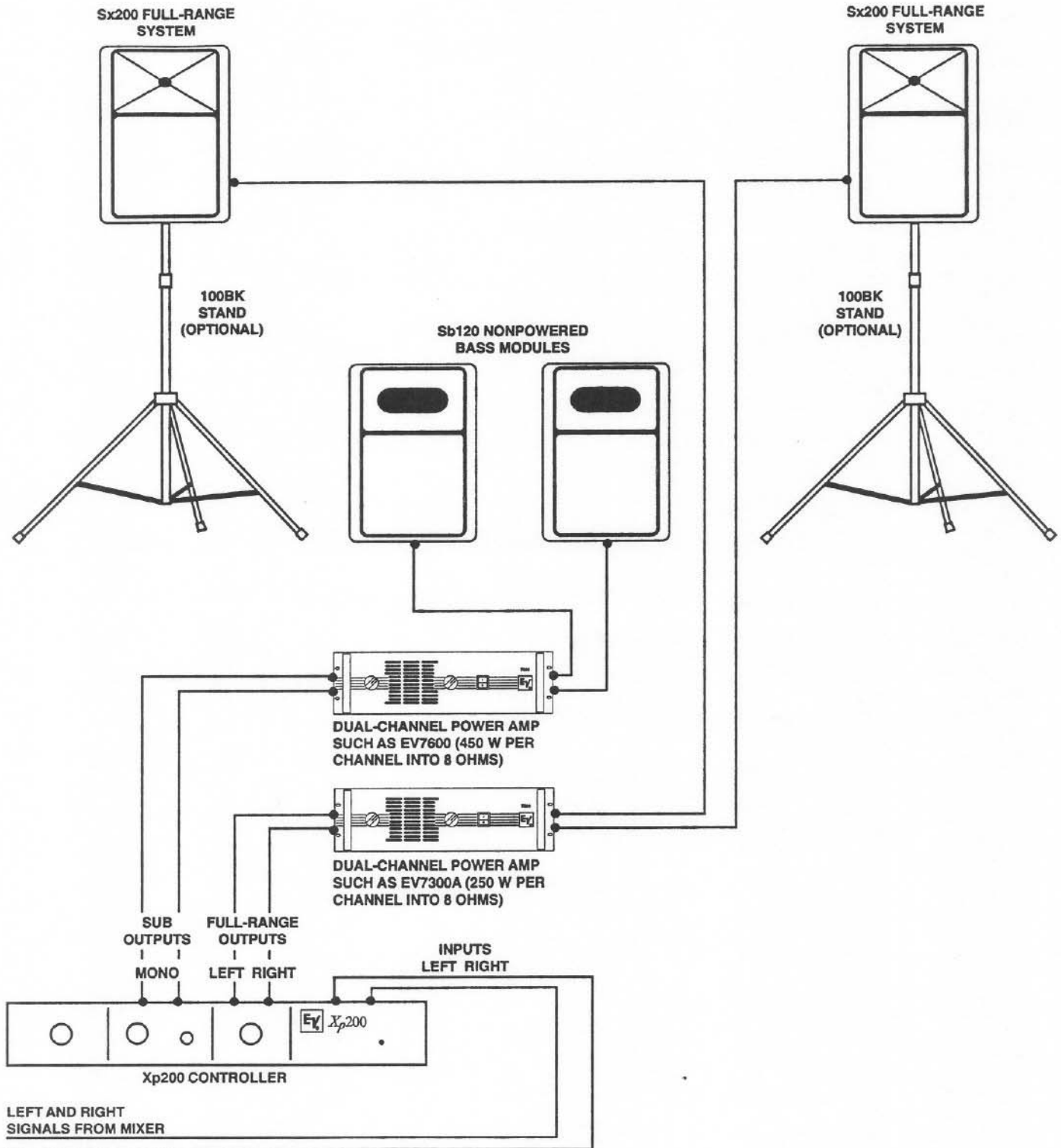


FIGURE 13 — Hookup of an Xp200 Controller and a Pair of Sx200 Full-Range Speakers and Two Sb120 Nonpowered Bass Modules



selected for their ability to reliably deliver to the speaker components the high currents delivered by high-wattage power amplifiers. An NL4FC mating connector is supplied with each system. The NL4FC is a four-pin connector, and Figure 16 shows how the usual two-conductor speaker cable should be wired to pins 1+ and 1-. Two typical connectors at the power amplifier end of the cable are shown: banana and 1/4-inch phone plugs. (The banana plug provides the more reliable connection.)

Note also that Neutrik Speakon® cables, connectors and wiring accessories are available from Pro Co Sound, Inc., and Whirlwind Music Distributors, Inc. To find your local Pro Co, Whirlwind or Neutrik dealer, contact:

Pro Co Sound, Inc.
135 E. Kalamazoo Ave.
Kalamazoo, MI 49007
616/388-9675

Whirlwind Music Distributors, Inc.
P.O. Box 1075
Rochester, NY 14603
716/663-8820

Neutrik USA, Inc.
195-S3 Lehigh Ave.
Lakewood, NJ 08701
908/901-9488

FIGURE 15 — Connecting the Xp200 Controller to Power Amplifiers and the Sb120a Powered Bass Modules

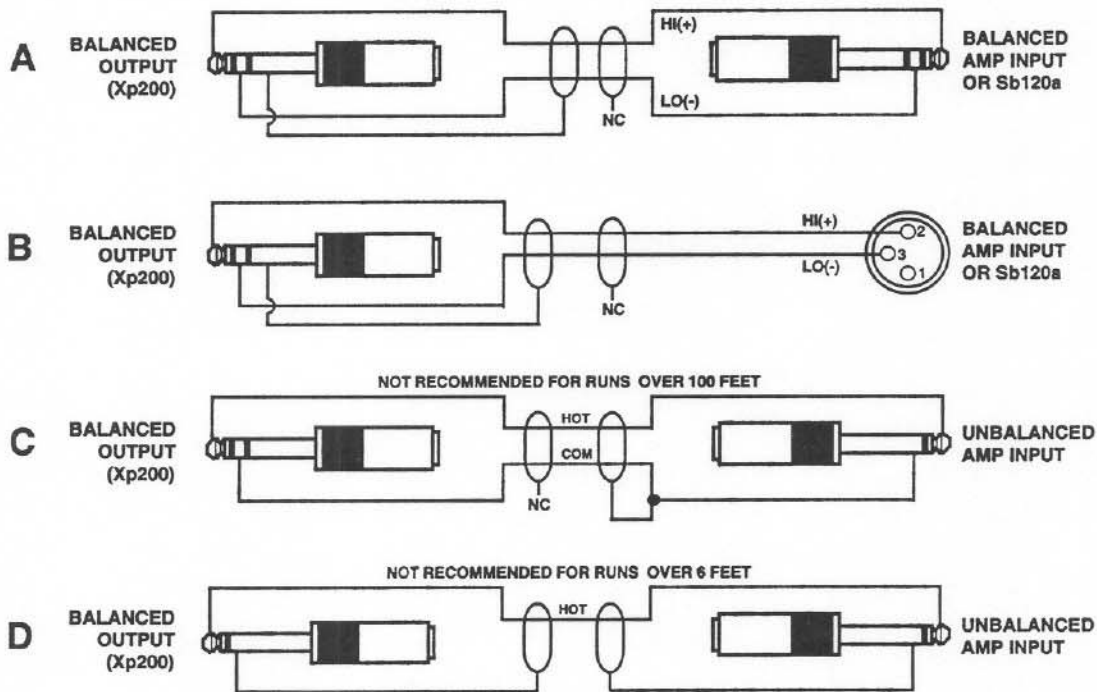
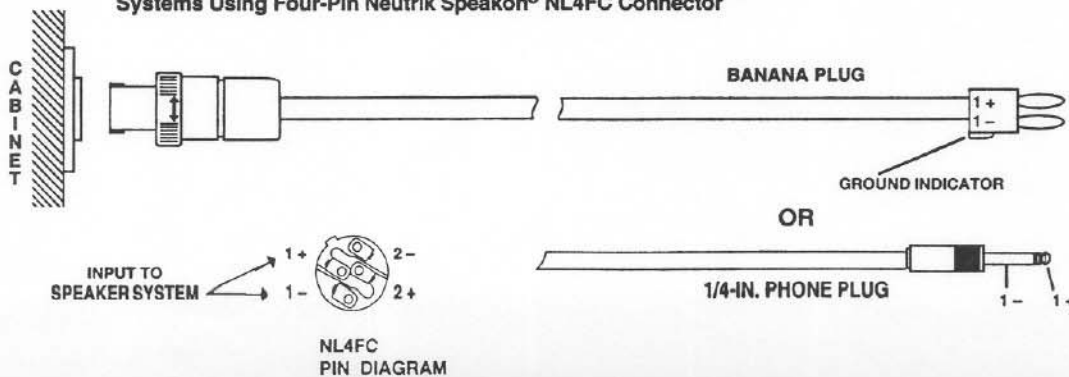


FIGURE 16 — Two-Conductor Cable Configurations for Sx200 and Sb120 Speaker Systems Using Four-Pin Neutrik Speakon® NL4FC Connector



SERVICE/WARRANTY INFORMATION**SHIPPING DAMAGE**

Inspect the shipping carton for possible damage. If damage is found, notify the transportation company immediately. Save the carton as evidence for the carrier to inspect. If damage occurs during shipping, it is the responsibility of the consignee to file a claim with the carrier. If the carton is in good condition but the unit is damaged, call Electro-Voice.

Included in the box with the X_p200 controller are rack-mount ears and hardware kit (mounted), pad of rubber feet, an external, plug-in power supply, Product Evaluation Questionnaire and this manual.

FIELD SERVICE**Controller Power Inspection**

If the X_p200 power indicator does not light, check the power supply connections.

WARRANTY (Limited)

Electro-Voice products are guaranteed against malfunction due to defects in materials or workmanship for a specified period, as noted in the individual product-line statement(s) below, or in the individual product data sheet or owner's manual, beginning with the date of original purchase. If such malfunction occurs during the specified period, the product will be repaired or replaced (at our option) without charge. The product will be returned to the customer prepaid. **Exclusions and Limitations:** The Limited Warranty does not apply to: (a) exterior finish or appearance; (b) certain specific items described in the individual product-line statement(s) below, or in the individual product data sheet or owner's manual; (c) malfunction resulting from use or operation of the product other than as specified in the product data sheet or owner's manual; (d) malfunction resulting from misuse or abuse of the product; or (e) malfunction occurring at any time after repairs have been made to the product by anyone other than Electro-Voice or any of its authorized service representatives. **Obtaining War-**

ranty Service: To obtain warranty service, a customer must deliver the product, prepaid, to Electro-Voice or any of its authorized service representatives together with proof of purchase of the product in the form of a bill of sale or receipted invoice. A list of authorized service representatives is available from Electro-Voice at 600 Cecil Street, Buchanan, MI 49107 (616/695-6831 or 800/234-6831) and/or Electro-Voice West, at 8234 Doe Avenue, Visalia, CA 93291 (209/651-7777 or 800/825-1242). **Incidental and Consequential Damages Excluded:** Product repair or replacement and return to the customer are the only remedies provided to the customer. Electro-Voice shall not be liable for any incidental or consequential damages including, without limitation, injury to persons or property or loss of use. Some states do not allow the exclusion or limitation of incidental or consequential damages so the above limitation or exclusion may not apply to you. **Other Rights:** This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Electro-Voice Speakers and Speaker Systems are guaranteed against malfunction due to defects in materials or workmanship for a period of five (5) years from the date of original purchase. The Limited Warranty does not apply to burned voice coils or malfunctions such as cone and/or coil damage resulting from improperly designed enclosures. **Electro-Voice Electronics** are guaranteed against malfunction due to defects in materials or workmanship for a period of three (3) years from the date of original purchase. **Electro-Voice Flying Hardware** (including enclosure-mounted hardware and rigging accessories) is guaranteed against malfunction due to defects in materials or workmanship for a period of one (1) year from the date of original purchase. Additional details are included in the Uniform Limited Warranty statement.

Service and repair address for this product: Electro-Voice, Inc., 600 Cecil Street, Buchanan, Michigan 49107 (616/695-6831 or 800/234-6831).

Specifications subject to change without notice.

