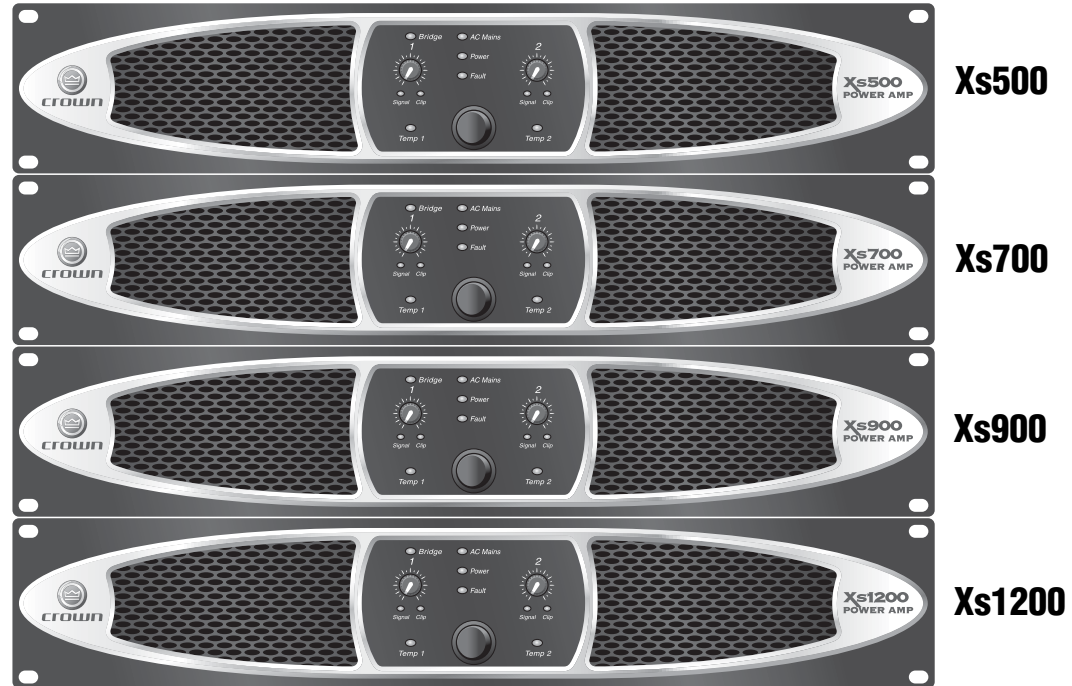




# Xs Series

Operation Manual



**Obtaining Other Language Versions:** To obtain information in another language about the use of this product, please contact your local Crown Distributor. If you need assistance locating your local distributor, please contact Crown at 574-294-8000.

This manual does not include all of the details of design, production, or variations 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. To obtain the latest version of this manual, please visit the Crown website at [www.crownaudio.com](http://www.crownaudio.com).

**Trademark Notice:** Crown, Crown Audio and Amcron are registered trademarks of Crown International. Other trademarks are the property of their respective owners.

**Some models may be exported under the name Amcron.®**

## Important Safety Instructions

- 1) Read these instructions.
- 2) Keep these instructions.
- 3) Heed all warnings.
- 4) Follow all instructions.
- 5) Do not use this apparatus near water.
- 6) Clean only with a dry cloth.
- 7) Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
- 8) Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- 9) 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 the third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- 10) Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
- 11) Only use attachments/accessories specified by the manufacturer.
- 12) Use only with a cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
- 13) Unplug this apparatus during lightning storms or when unused for long periods of time.
- 14) 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.



- 15) WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPARATUS TO RAIN OR MOISTURE.
- 16) DO NOT EXPOSE TO DRIPPING OR SPLASHING. DO NOT PLACE OBJECTS FILLED WITH LIQUID, SUCH AS VASES, ON THIS APPARATUS.

TO PREVENT ELECTRIC SHOCK DO NOT REMOVE TOP OR BOTTOM COVERS. NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

À PRÉVENIR LE CHOC ÉLECTRIQUE N'ENLEVEZ PAS LES COUVERCLES. IL N'Y A PAS DES PARTIES SERVICEABLE À L'INTÉRIEUR. TOUTS REPARATIONS DOIT ÊTRE FAIRE PAR PERSONNEL QUALIFIÉ SEULMENT.

TO COMPLETELY DISCONNECT THIS EQUIPMENT FROM THE AC MAINS, DISCONNECT THE POWER SUPPLY CORD PLUG FROM THE AC RECEPTACLE. THE MAINS PLUG OF THE POWER SUPPLY CORD SHALL REMAIN READILY OPERABLE.

### WATCH FOR THESE SYMBOLS:

The lightning bolt triangle is used to alert the user to the risk of electric shock.

The exclamation point triangle is used to alert the user to important operating or maintenance instructions.



**CAUTION**  
RISK OF ELECTRIC SHOCK  
DO NOT OPEN

**AVIS**  
RISQUE DE CHOC ÉLECTRIQUE  
N'OUVREZ PAS



**IMPORTANT**  
Xs Series amplifiers require Class 2 output wiring.

### 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.

## FCC COMPLIANCE NOTICE

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

**CAUTION:** Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

**NOTE:** This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Crown International, Inc.

## DECLARATION of CONFORMITY

**Issued By:** Crown International, Inc.  
1718 W. Mishawaka Road  
Elkhart, Indiana 46517 U.S.A.

FOR COMPLIANCE QUESTIONS ONLY: Sue Whitfield  
574-294-8289  
swhitfield@crowntl.com

**European Representative's Name and Address:**

Nick Owen  
35, Bassets Field  
Thornhill  
Cardiff, South Glamorgan  
CF14 9UG United Kingdom

**Equipment Type:** Commercial Audio Power Amplifiers

**Family Name:** Xs

**Model Names:** Xs1200, Xs900, Xs700, Xs500

**EMC Standards:**

**EN 55103-1:1995** Electromagnetic Compatibility - Product Family Standard for Audio, Video, Audio-Visual and Entertainment Lighting Control Apparatus for Professional Use, Part 1: Emissions

**EN 55103-1:1995** Magnetic Field Emissions-Annex A @ 10 cm and 1 M

**EN 61000-3-2:1995+A14:2000** Limits for Harmonic Current Emissions (equipment input current  $\leq 16A$  per phase)

**EN 61000-3-3:1995** Limitation of Voltage Fluctuations and Flicker in Low-Voltage Supply Systems Rated Current  $\leq 16A$

**EN 55022:1992 + A1: 1995 & A2:1997** Limits and Methods of Measurement of Radio Disturbance Characteristics of ITE: Radiated, Class B Limits; Conducted, Class B

**EN 55103-2:1996** Electromagnetic Compatibility - Product Family Standard for Audio, Video, Audio-Visual and Entertainment Lighting Control Apparatus for Professional Use, Part 2: Immunity

**EN 61000-4-2:1995** Electrostatic Discharge Immunity (Environment E2-Criteria B, 4k V Contact, 8k V Air Discharge)

**EN 61000-4-3:1996** Radiated, Radio-Frequency, Electromagnetic Immunity (Environment E2, criteria A)

**EN 61000-4-4:1995** Electrical Fast Transient/Burst Immunity (Criteria B)

**EN 61000-4-5:1995** Surge Immunity (Criteria B)

**EN 61000-4-6:1996** Immunity to Conducted Disturbances Induced by Radio-Frequency Fields (Criteria A)

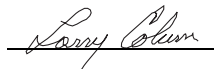
**EN 61000-4-11:1994** Voltage Dips, Short Interruptions and Voltage Variation

**Safety Standard:**

**EN 60065:** 1998 Safety Requirements - Audio Video and Similar Electronic Apparatus

I certify that the product identified above conforms to the requirements of the EMC Council Directive 89/336/EEC as amended by 92/31/EEC, and the Low Voltage Directive 73/23/EES as amended by 93/68/EEC.

Signed



Larry Coburn  
Title: Senior Vice President of Manufacturing

Date of Issue: March 1, 2003

## Table of Contents

Important Safety Instructions .....	2	<b>4 Advanced Features and Options .....</b>	<b>14</b>
Declaration of Conformity .....	3	4.1 Protection Systems .....	14
<b>1 Welcome .....</b>	<b>5</b>	4.1.1 Output Current Limiting .....	14
1.1 Features .....	5	4.1.2 DC Protection .....	14
1.2 How to Use This Manual .....	5	4.1.3 Circuit Breaker .....	14
<b>2 Setup .....</b>	<b>6</b>	4.1.4 Thermal Protection .....	14
2.1 Unpack Your Amplifier .....	6	<b>5 Troubleshooting .....</b>	<b>15</b>
2.2 Install Your Amplifier .....	6	<b>6 Specifications .....</b>	<b>16</b>
2.3 Ensure Proper Cooling .....	6	<b>7 AC Power Draw and Thermal Dissipation .....</b>	<b>18</b>
2.4 Choose Input Wire and Connectors .....	7	<b>8 Service .....</b>	<b>21</b>
2.5 Choose Output Wire and Connectors .....	7	8.1 International and Canada Service .....	21
2.6 Wire Your System .....	8	8.2 US Service .....	21
2.6.1 Stereo Mode .....	8	8.2.1 Service at a US Service Center .....	21
2.6.2 How to Parallel the Inputs.....	8	8.2.2 Factory Service .....	21
2.6.3 Bridge-Mono Mode .....	9	8.2.3 Factory Service Shipping Instructions .....	21
2.7 Connect to AC Mains.....	10	8.2.4 Packing Instructions.....	21
2.8 Protecting Your Speakers .....	10	8.2.5 Estimate.....	21
2.9 Startup Procedure.....	10	8.2.6 Payment of Non-Warranty Repairs.....	21
<b>3 Operation .....</b>	<b>11</b>	<b>9 Warranty .....</b>	<b>22</b>
3.1 Precautions.....	11	Crown Factory Service Information Form .....	25
3.2 Front Panel Controls and Indicators .....	12		
3.3 Back Panel Controls and Connectors.....	13		

<b>Xs500</b>	1 kHz Power*
2-ohm Dual (per ch.)	<b>750W**</b>
4-ohm Dual (per ch.)	<b>500W</b>
8-ohm Dual (per ch.)	<b>400W</b>
4-ohm Bridge	<b>1,600W**</b>
8-ohm Bridge	<b>1,450W</b>
*1 kHz Power: refers to maximum average power in watts at 1kHz with 0.15% THD.	
** at 0.5% THD.	

<b>Xs700</b>	1 kHz Power*
2-ohm Dual (per ch.)	<b>900W**</b>
4-ohm Dual (per ch.)	<b>750W</b>
8-ohm Dual (per ch.)	<b>450W</b>
4-ohm Bridge	<b>1,900W**</b>
8-ohm Bridge	<b>1,645W</b>
*1 kHz Power: refers to maximum average power in watts at 1kHz with 0.15% THD.	
** at 0.5% THD.	

<b>Xs900</b>	1 kHz Power*
2-ohm Dual (per ch.)	<b>1,200W**</b>
4-ohm Dual (per ch.)	<b>900W</b>
8-ohm Dual (per ch.)	<b>600W</b>
4-ohm Bridge	<b>2,500W**</b>
8-ohm Bridge	<b>2,100W</b>
*1 kHz Power: refers to maximum average power in watts at 1kHz with 0.15% THD.	
** at 0.5% THD.	



## 1 Welcome

The Xs Series of power amplifiers from Crown® represents a new era in affordable, quality power amplification. The line consists of four models, each in a uniform, rugged chassis. The Xs Series incorporates the best of tried-and-true design principles and innovative features.

Modern power amplifiers are sophisticated pieces of engineering capable of producing extremely high power levels. They must be treated with respect and correctly installed if they are to provide the many years of reliable service for which they were designed.

In addition, Xs Series amplifiers include a number of features which require some explanation before they can be used to their maximum advantage.

Please take the time to study this manual so that you can obtain the best possible service from your amplifier.

<b>Xs1200</b>	1 kHz Power*
2-ohm Dual (per ch.)	<b>1,600W**</b>
4-ohm Dual (per ch.)	<b>1,100W</b>
8-ohm Dual (per ch.)	<b>650W</b>
4-ohm Bridge	<b>3,000W**</b>
8-ohm Bridge	<b>2,300W</b>
*1 kHz Power: refers to maximum average power in watts at 1kHz with 0.15% THD.	
** at 0.5% THD.	

### 1.1 Features

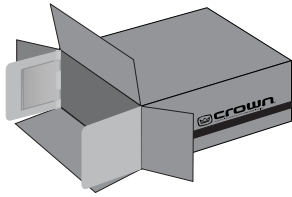
- Housed in a rugged, all-steel 2U chassis.
- Efficient forced-air fans prevent excessive thermal buildup.
- Models have touch-proof binding post outputs, Speakon® outputs, Phoenix-style inputs, and electronically balanced XLR-1/4" combo inputs with daisy-chain XLR outputs.
- Features precision detented level controls, power switch, and eight LEDs which indicate signal and clip for each channel, AC mains, power, bridge mode, temperature and fault conditions.
- Microprocessor-controlled protection system.
- Three-Year, No-Fault, Fully Transferable Warranty completely protects your investment and guarantees its specifications.

### 1.2 How to Use This Manual

This manual provides you with the 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. For additional information, please consult Crown's *Amplifier Application Guide* (available online at [www.crownaudio.com](http://www.crownaudio.com)), Crown Technical Support, your system installer or retailer.

We strongly recommend you read all instructions, warnings and cautions contained in this manual. Also, for your protection, please send in your warranty registration card today. And save your bill of sale — it's your official proof of purchase.

## 2 Setup



### 2.1 Unpack 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. Crown 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.**

YOU WILL NEED (not supplied):

- Input wiring cables
- Output wiring cables

Rack for mounting amplifier (or a stable surface for stacking)



**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.

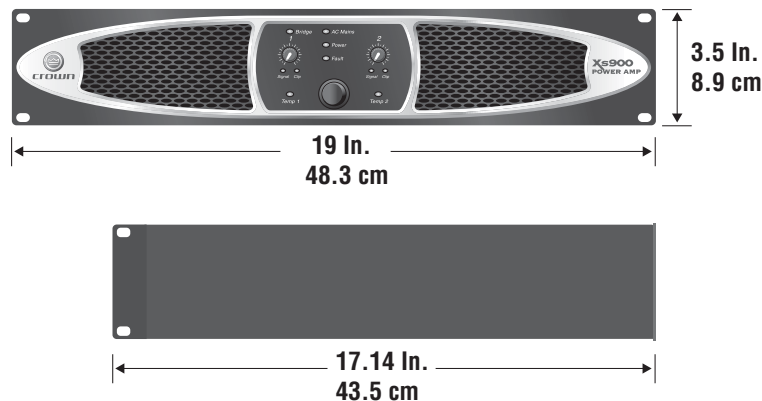


Figure 2.1  
Dimensions



### 2.2 Install Your Amplifier

**CAUTION:** Before you begin, make sure your amplifier is disconnected from the power source, with the power switch in the "off" position and all level controls turned completely down (counterclockwise).

Use a standard 19-inch (48.3 cm) equipment rack (EIA RS-310B). See Figure 2.1 for amplifier dimensions.

You may also stack amps without using a cabinet.

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

### 2.3 Ensure Proper Cooling

When using an equipment rack, mount units directly on top of each other. Close any open spaces in rack with blank panels. DO NOT block front, rear or side air vents. The side walls of the rack should be a minimum of two inches (5.1 cm) away from the amplifier sides, and the back of the rack should be a minimum of four inches (10.2 cm) from the amplifier back panel.

Figure 2.2 illustrates standard amplifier airflow.

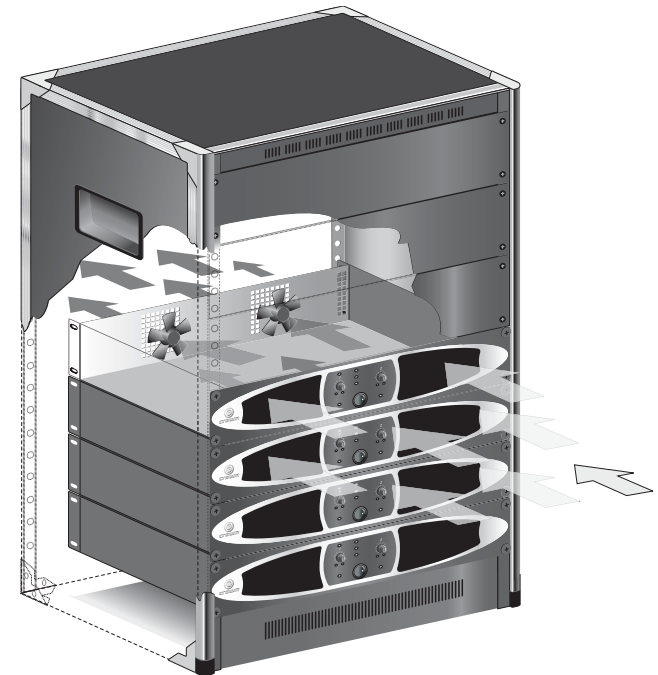


Figure 2.2 Airflow

## 2 Setup

### 2.4 Choose Input Wire and Connectors

Crown recommends using pre-built or professionally wired balanced line (two-conductor plus shield), 22-24 gauge cables and connectors. At the amplifier inputs, use either:

- 3-pin male XLR cable ends,
- TRS or TS 1/4" phone plugs, or
- Phoenix-style connectors.

Unbalanced lines may be used, but may result in noise over long cable runs.

Figure 2.3 shows XLR wiring, Figure 2.4 shows 1/4" phone plug wiring, and Figure 2.5 shows Phoenix-style connector wiring.

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

### 2.5 Choose Output Wire and Connectors

Crown recommends using pre-built or professionally wired, high-quality, two- or four-conductor, heavy gauge speaker wire and connectors. You can use banana plugs, spade lugs, or bare wire for your output connectors (Figure 2.6). Also, you can use a 4-pole Speakon® connector (Figure 2.7 and Table 1). To prevent the possibility of short-circuits, wrap or otherwise insulate exposed loudspeaker cable connectors.

**Note: Binding post outputs on European models come with safety plugs installed to prevent European power-cord plugs from being inserted. The top & bottom entry positions for these connectors should therefore be used with European models.**

Using the guidelines below, select the appropriate size of wire based on the distance from amplifier to speaker.

Distance	Wire Size
up to 25 ft.	16 AWG
26-40 ft.	14 AWG
41-60 ft.	12 AWG
61-100 ft.	10 AWG
101-150 ft.	8 AWG
151-250 ft.	6 AWG

**CAUTION: Never use shielded cable for output wiring.**

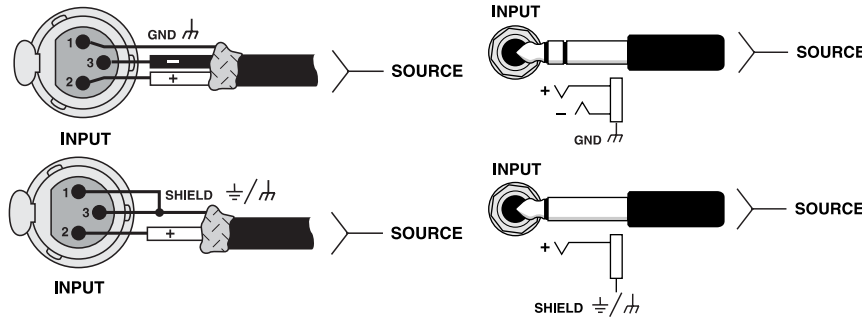


Figure 2.3  
Combo Input Connector XLR  
Wiring, Balanced (Top) and  
Unbalanced (Bottom)

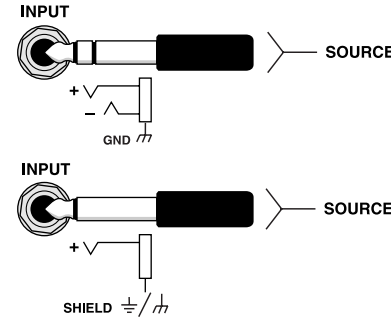


Figure 2.4  
Combo Input Connector 1/4"  
Phone Wiring, Balanced (Top)  
and Unbalanced (Bottom)

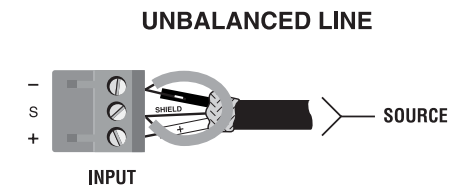
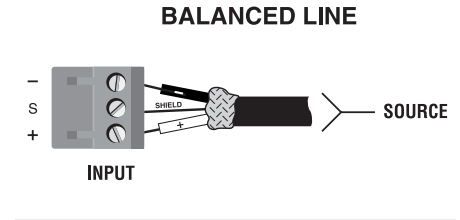


Figure 2.5  
Phoenix-Style Input Connector Wiring,  
Balanced (Top) and Unbalanced (Bottom).  
Note Jumper Between "S" and "-"

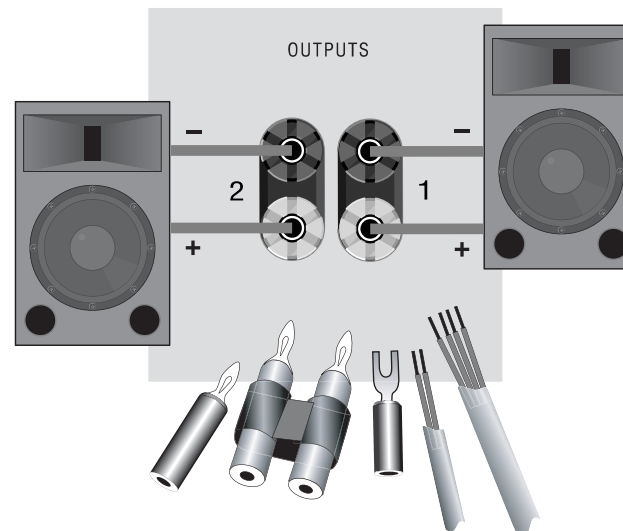


Figure 2.6  
Binding Post Output Wiring



Figure 2.7  
Left: Speakon® Output Connector on Back Panel  
Right: Speakon® Cable Connector

TABLE 1: OUTPUT ASSIGNMENT				
PIN	CH		PIN	CH
1+	2		1+	1
1-	2		1-	1
2+	NC		2+	2
2-	NC		2-	2
CH 2			CH 1	

## 2 Setup

### 2.6 Wire Your System

#### 2.6.1 Stereo Mode

Typical input and output wiring is shown in Figures 2.8 and 2.9.

**INPUTS:** Connect input wiring for both channels.

**OUTPUTS:** Connect speakers to the 5-way binding posts or to the two Speakon® connectors. See the details below.

#### Connection to 5-way binding posts:

1. Connect speaker 1 positive (+) lead to the amp's Channel-1 positive (red) binding post.
2. Connect speaker 1 negative (–) lead to the amp's Channel-1 negative (black) binding post.
3. Connect speaker 2 positive (+) lead to the amp's Channel-2 positive (red) binding post.
4. Connect speaker 2 negative (–) lead to the amp's Channel-2 negative (black) binding post.

#### Connection to Speakon® connectors:

1. Connect speaker 1 positive (+) lead to the amp's Channel-1 Speakon® terminal 1+.
2. Connect speaker 1 negative (–) lead to the amp's Channel-1 Speakon® terminal 1–.
3. Connect speaker 2 positive (+) lead to the amp's Channel-2 Speakon® terminal 1+.
4. Connect speaker 2 negative (–) lead to the amp's Channel-2 Speakon® terminal 1–.

#### 2.6.2 How to Parallel the Inputs

There are three ways to feed the same signal to each amplifier channel:

1. Buy a “Y” cable. Plug the female end into your signal cable, and plug the split male ends into both amplifier inputs.
2. Feed your signal to the Channel-1 input (either Phoenix or combo). Connect a jumper wire (Figure 2.9) between the Phoenix Channel-1 (+) screw terminal and the Channel-2 (+) screw terminal. Connect another jumper wire between the Channel-1 (–) screw terminal and the Channel-2 (–) screw terminal.
3. Feed your signal to the Channel-1 Phoenix terminals. Using a mic cable or phone-to-phone cable, connect Channel-1 combo jack to Channel-2 combo jack.

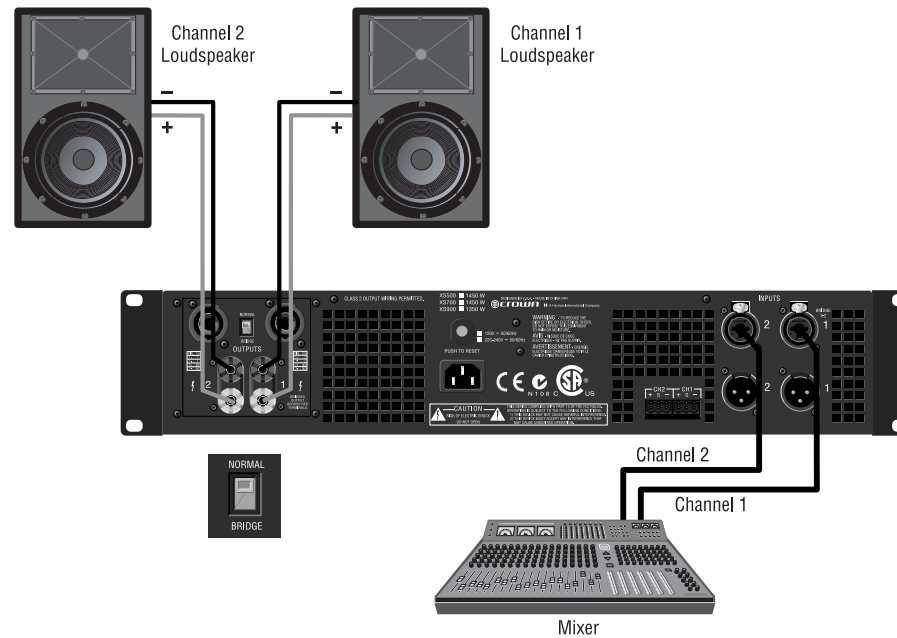


Figure 2.8  
Stereo Wiring

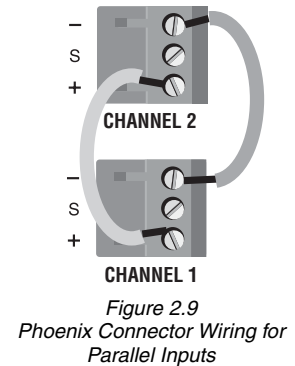


Figure 2.9  
Phoenix Connector Wiring for  
Parallel Inputs



## 2 Setup

### 2.6.3 Bridge-Mono Mode

Typical input and output wiring is shown in Figure 2.10.

NOTE: Crown provides a reference of wiring pin assignments for commonly used connector types in the *Crown Amplifier Application Guide* available at [www.crownaudio.com](http://www.crownaudio.com).

OUTPUTS: Connect the speaker across the red binding posts of each channel. Do not use the black binding posts when the amp is being operated in Bridge-Mono mode.

**IMPORTANT: Set the Bridge/Normal switch to "Bridge."**

**NOTE: In Bridge-Mono mode, only the Channel 1 Level control is functional.**



Figure 2.10 Bridge-Mono Wiring

## 2 Setup

### 2.7 Connect to AC Mains

Connect your amplifier to the AC mains power source (power outlet) with the supplied AC power cordset. First, connect the IEC end of the cordset to the IEC connector on the amplifier; then, plug the other end of the cordset to the AC mains. The AC Mains indication light on the front panel should be lit.



**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. To prevent clipping, insert a limiter between your mixer output and amplifier input. That way, no matter how strong a signal your mixer produces, the amplifier will not clip. Set the limiter threshold so that mixer signals above 0 on the mixer meters do not quite drive the amplifier into 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. To prevent subsonic signals, insert a high-pass filter between mixer output and amplifier input (or between mixer and limiter). Alternatively, switch in highpass filters at your mixer. Set the filter to as high a frequency as possible that does not affect your program. For example, try 35 Hz for music and 75 Hz for speech. On each mixer input channel, set the filter frequency just below the lowest fundamental frequency of that channel's instrument.



### 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. Turn on the "Power" switch. The Power indicator should glow.
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. NOTE: In Bridge-Mono mode, only the Channel 1 Level control is functional.
6. Turn down the level of your audio source to its normal range.

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

For help with determining your system's optimum gain structure (signal levels) please refer to the *Crown Amplifier Application Guide*, available online at [www.crownaudio.com](http://www.crownaudio.com).

## 3 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 or, for advanced setup techniques, consult Crown's *Amplifier Application Guide* available online at [www.crownaudio.com](http://www.crownaudio.com).
2. Use care when making connections, selecting signal sources and controlling the output level. The load you save may be your own!
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.

*Remember: Crown is not liable for damage that results from overdriving other system components.*

## 3 Operation

### 3.2 Front Panel Controls and Indicators

#### A. Cooling Vents

Front-to-rear forced airflow.

#### B. Gain Controls

Two or four grey rotary level controls, one for each channel.

#### C. Bridge Indicator

Yellow LED indicates that amplifier is in Bridge-Mono mode.

#### D. Power Indicator

Yellow LED indicates that amplifier has been turned on and AC power is available.

#### E. AC Mains Indicator

Red LED indicates that AC power is present at the power cord, even if the amplifier is not turned on.

#### F. Fault Indicator

Red LED illuminates when amplifier is in protect mode. Also illuminates briefly during normal power-up when amplifier is first switched on.

#### G. Signal Indicators

Two green LEDs, one for each channel, illuminates when the channel's input signal level is above  $-40$  dBu.

#### H. Clip Indicators

Two red LEDs, one for each channel, illuminates when the channel's output signal is being overdriven.

#### I. Temp Indicator

Red LED, one for each channel, indicates that channel(s) are in thermal protect mode.

#### J. Power Switch

Amplifier is on when the switch is depressed in the right-hand position. When the power switch is off and the unit is plugged into AC power, the amplifier is in standby mode; the AC mains are still connected to the unit.

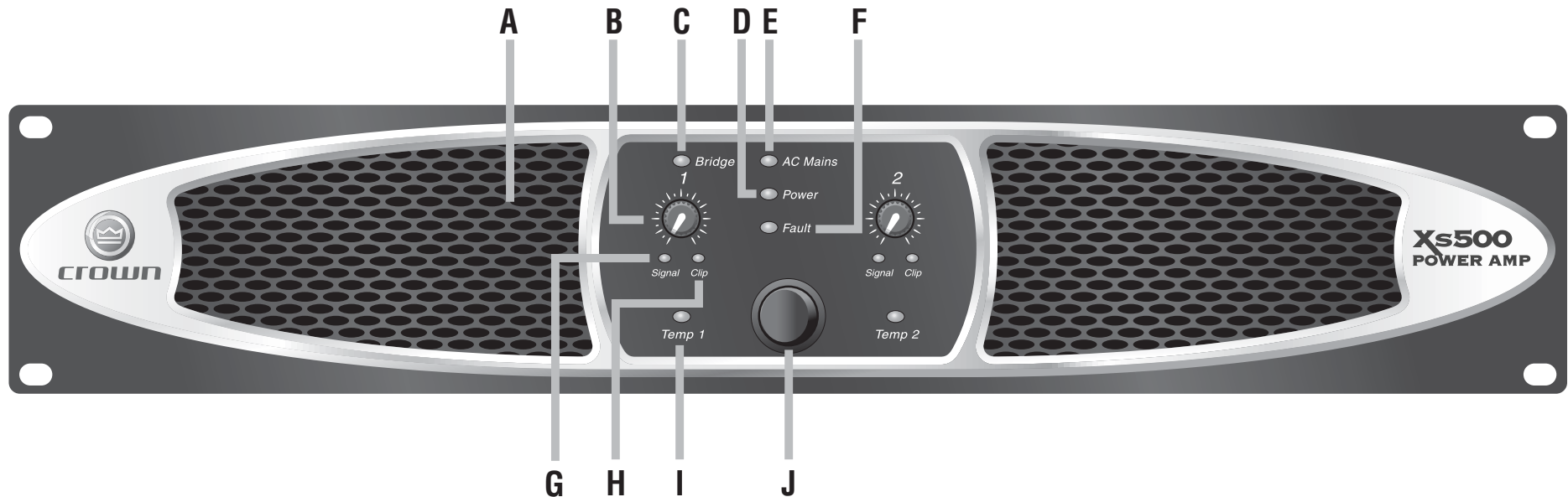


Figure 3.1 Front Panel Controls and Connectors

### 3 Operation

#### 3.3 Back Panel Controls and Connectors

##### A. 4-Pole Speakon Output Connector

One connector is used per channel. It accepts a 4-pole Speakon connector. See Figure 2.5 and Table 1 for connector wiring.

##### B. Normal/Bridge Switch

Two-position switch selects between normal (stereo) operation and Bridge-Mono operation.

##### C. Circuit Breaker

Provides overload protection.

##### D. XLR-1/4" Combo Input Connectors

One per channel, XLR-1/4" combo connector includes 3-pin female XLR connector and TRS 1/4" phone jack. Accepts balanced or unbalanced signals.

##### E. 5-Way Binding Post Output Connectors

One pair per channel; accept banana plugs, spade lugs or bare wire. **Note:** Binding post outputs on European models come with safety plugs installed to prevent European power-cord plugs from being inserted. The top & bottom entry positions for these connectors should therefore be used with European models.

##### F. IEC Power Inlet

##### G. Phoenix-Style Input Connectors

One per channel, 3-pin Phoenix-style connector accepts balanced or unbalanced signals.

##### H. XLR Output Connectors

One per channel, 3-pin male XLR connector in parallel with XLR-1/4" combo and Phoenix-style input connectors for daisy-chain operation.

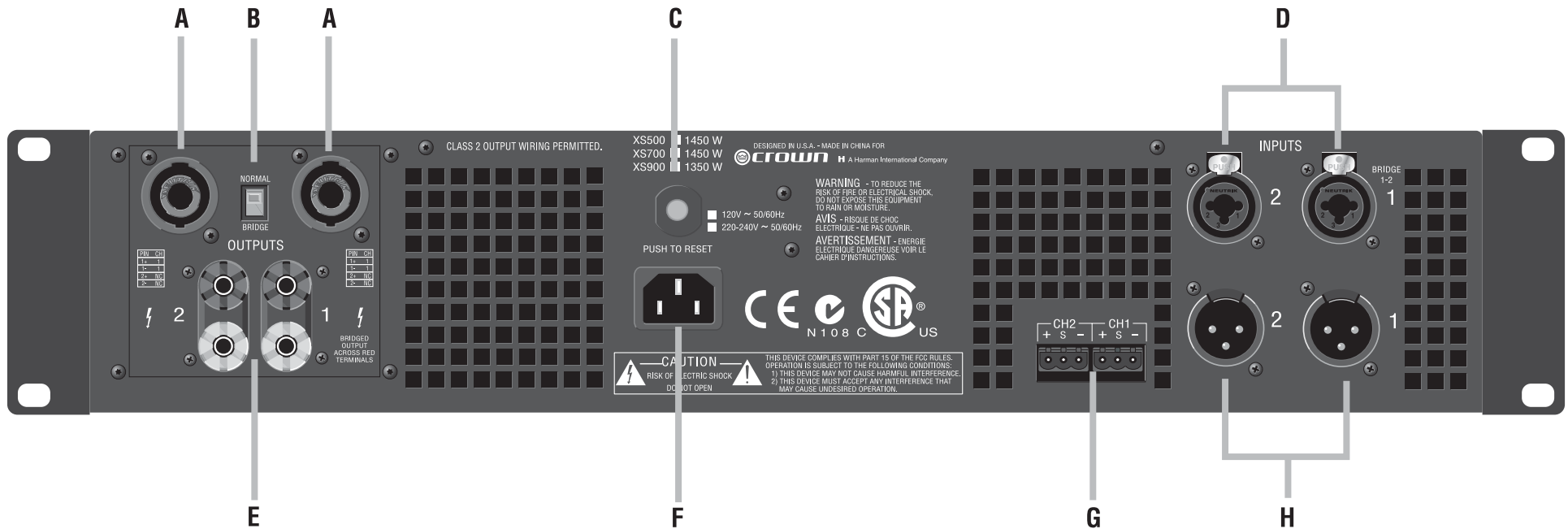


Figure 3.2 Back Panel Controls and Connectors

## 4 Advanced Features and Options

**NOTE:** For detailed information about these Crown amplifier features, please consult the *Crown Amplifier Application Guide*, available on the Crown website at [www.crownaudio.com](http://www.crownaudio.com).

### 4.1 Protection Systems

Your Crown amplifier provides extensive protection and diagnostic capabilities, including output current limiting, microprocessor-controlled DC protection, circuit breaker, and special thermal protection for the unit's transformers.

#### 4.1.1 Output Current Limiting

Output Current Limiting circuitry protects the amplifier output stage from damage caused by short-circuit loads.

#### 4.1.2 DC Protection

DC Protection disconnects the loudspeaker load in the event of an output DC offset exceeding 2V. In such an event the yellow Fault LED will illuminate (see Figure 4.1) and the amplifier channel will be muted. In the majority of cases, DC protection is indicative of a faulty amplifier channel, and will be accompanied by an illuminated Clip LED, even with no input connected and level controls set at minimum. If this is the case, contact your dealer or service center.



Figure 4.1  
Fault Indicator

#### 4.1.3 Circuit Breaker

The high-voltage power supplies of your Crown amplifier are protected by a circuit breaker. The breaker rating varies depending on model and supply voltage as follows:

Table 2: Circuit-Breaker Amperage Ratings

	120V	220V	240V
Xs1200	20A	15A	15A
Xs900	18A	12A	12A
Xs700	18A	12A	12A
Xs500	18A	12A	12A


#### 4.1.4 Thermal Protection

The Thermal Protection circuit will activate if the internal heatsink temperature exceeds proper operating temperatures (194 °F, 90 °C). When the heatsink temperature has fallen to a safe level, this protection circuit will automatically be reset. Principle causes of thermal protection are:

- 1) Inadequate ventilation of the equipment rack
- 2) Incorrect load impedance
- 3) Output cable short circuit
- 4) Blocked air vent
- 5) Heatsinks in need of cleaning
- 6) Cooling fan failure.

The cause of your amplifier's thermal protection state should be determined and corrected as soon as possible. Without correction, the Thermal Protection circuit will typically reactivate.


## 5 Troubleshooting



**CONDITION: Normal operation.**

**POSSIBLE REASON:**


- This is normal operation for your amp.



**CONDITION: No power to the amplifier.**

**POSSIBLE REASONS:**

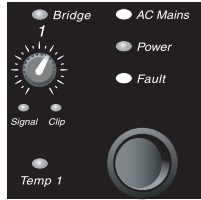
- The amplifier's Power switch is off.
- The amplifier's power cord is unplugged.
- The amplifier's high-voltage power supply circuit breaker has tripped. Verify that the AC mains voltage is correct, then press the Circuit Breaker button on the back panel.



**CONDITION: Distorted sound.**

**POSSIBLE REASON:**

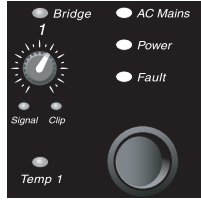
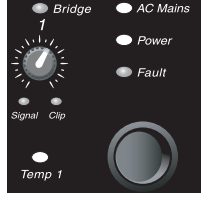
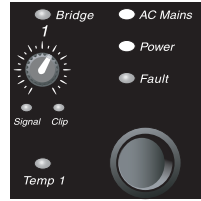

- Input signal level is too high. Turn down your amplifier Level controls. NOTE: Your amplifier should never be operated at a level which causes the Clip LEDs to illuminate constantly.



**CONDITION: No sound.**

**POSSIBLE REASONS:**

- The amplifier has just turned on and is still in the 4-second turn-on delay.
- The amplifier is in "fault" mode. A Fault status can be triggered when one of the amplifier's protection circuits is activated. First disconnect your speakers from the affected channel (s) one by one to determine if one of the loads is shorted. If the indicators return to normal status, then try a different speaker or cable to determine where the short is occurring. If no short can be found, turn off the amp and allow the amp to cool. If indicators do not return to normal after restarting your amp, check the fuse and replace if necessary, or return amp to Crown or an authorized Crown Service Center for servicing.
- Channel is in thermal protection.
- No input signal
- Input signal level is very low.
- Level controls are turned down.
- Speakers not connected.

## 6 Specifications

Minimum Guaranteed Power	Xs500	Xs700	Xs900	Xs1200
<b>120 VAC, 60 Hz Units, per channel, both channels driven 1 kHz with 0.15% THD</b>				
Dual, 2 ohms (per ch.)	750W*	900W*	1200W*	1600W*
Dual, 4 ohms (per ch.)	500W	750W	900W	1100W
Dual, 8 ohms (per ch.)	400W	450W	600W	650W
Bridge mono, 4 ohms	1600W*	1900W*	2500W*	3000W*
Bridge mono, 8 ohms	1450W	1645W	2100W	2300W
Performance	Xs500	Xs700	Xs900	Xs1200
Sensitivity (volts RMS) for full rated power at 4 ohms	1.4V	1.4V	1.4V	1.4V
Frequency Response (at 1 watt, 22Hz - 22 kHz)	± 1 dB	± 1 dB	± 1 dB	± 1 dB
Phase Response (at 1 watt, 20Hz to 20 kHz)	+5°, -18°	+5°, -18°	+5°, -18°	+5°, -18°
Signal to Noise Ratio below rated power (typical) A-weighted 22 Hz to 22 kHz filter	> 102 dB > 97 dB	> 103 dB > 98 dB	> 108 dB > 106 dB	> 109 dB > 107dB
Total Harmonic Distortion (THD) at 1 full bandwidth power, from 20 Hz to 20 kHz	< 0.5%	< 0.5%	< 0.5%	< 0.5%
Intermodulation Distortion (IMD) 60 Hz and 7 kHz at 4:1, from full rated output to -30 dB from full rated output to -40 dB	< 0.5% < 1.0%	< 0.5% < 1.0%	< 0.5% < 1.0%	< 0.5% < 1.0%

\* at 0.5% THD.

OUTPUT ASSIGNMENT				
PIN	CH		PIN	CH
1+	2		1+	1
1-	2		1-	1
2+	NC		2+	2
2-	NC		2-	2
CH 2			CH 1	



## 6 Specifications

<b>Performance</b>	<b>Xs500</b>	<b>Xs700</b>	<b>Xs900</b>	<b>Xs1200</b>
Damping Factor (8 ohm): 10 Hz to 400 Hz	> 200	> 200	> 200	> 200
Crosstalk (below rated power) at 1 kHz at 20 kHz	> 55 dB > 55 dB	> 55 dB > 55 dB	> 67 dB > 62 dB	> 65 dB > 45 dB
DC Output Offset (Shorted input)	± 75 mV	± 75 mV	± 75 mV	± 75 mV
Input Impedance (nominally balanced, nominally unbalanced)	20 kilohms, 10 kilohms	20 kilohms, 10 kilohms	20 kilohms, 10 kilohms	20 kilohms, 10 kilohms
Load Impedance (Note: Safe with all types of loads) Stereo Bridge Mono	2-8 ohms 4-8 ohms	2-8 ohms 4-8 ohms	2-8 ohms 4-8 ohms	2-8 ohms 4-8 ohms
Voltage Gain (at maximum level setting)	32:1 (30.1 dB)	38:1 (31.6 dB)	42:1 (32.5 dB)	47.4:1 (33.5 dB)
AC Line Voltage and Frequency Configurations Available (± 10%)	120 VAC/60 Hz and 240 VAC/50 Hz	120 VAC/60 Hz and 240 VAC/50 Hz	120 VAC/60 Hz and 240 VAC/50 Hz	120 VAC/60 Hz and 240 VAC/50 Hz
<b>Construction</b>	<b>Xs500</b>	<b>Xs700</b>	<b>Xs900</b>	<b>Xs1200</b>
Ventilation	Flow-through ventilation from front to back	Flow-through ventilation from front to back	Flow-through ventilation from front to back	Flow-through ventilation from front to back
Cooling	Internal heat sinks with forced-air cooling	Internal heat sinks with forced-air cooling	Internal heat sinks with forced-air cooling	Internal heat sinks with forced-air cooling
Dimensions: Width, Height, Depth (behind mounting surface)	EIA Standard 19" W (EIA RS-310-B) x 3.5" (8.9 cm) H x 17.14" (43.5 cm) D	EIA Standard 19" W (EIA RS-310-B) x 3.5" (8.9 cm) H x 17.14" (43.5 cm) D	EIA Standard 19" W (EIA RS-310-B) x 3.5" (8.9 cm) H x 17.14" (43.5 cm) D	EIA Standard 19"W (EIA RS-310-B) x 3.5" (8.9 cm) H x 17.14" (43.5 cm) D
Net Weight, Shipping Weight	28 lb 14 oz (13.1 kg), 34 lb (15.4 kg)	28 lb 14 oz (13.1 kg), 34 lb (15.4 kg)	28 lb 14 oz (13.1 kg), 34 lb (15.4 kg)	28 lb 14 oz (13.1 kg), 34 lb (15.4 kg)

## 7 AC Power Draw and Thermal Dissipation

This section provides detailed information about the amount of power and current drawn from the AC mains by Xs Series amplifiers and the amount of heat produced under various conditions. The calculations presented here are intended to provide a realistic and reliable depiction of the amplifiers. The following assumptions or approximations were made:

- The amplifier's available channels are loaded, and full power is being delivered.
- Efficiency at standard 1 kHz power into 4 ohms is 61% for the Xs500, 61.3% for the Xs700, 54.0% for the Xs900 and 54.0% for the Xs1200.
- Quiescent power draw is 36 watts for the Xs500, 36 watts for the Xs700, 37.4 watts for the Xs900 and 37.4 watts for the Xs1200 (an almost negligible amount for full-power calculations).
- The estimated duty cycles take into account the typical crest factor for each type of source material.
- Duty cycle of pink noise is 50%.
- Duty cycle of highly compressed rock 'n' roll midrange is 40%.
- Duty cycle of rock 'n' roll is 30%.
- Duty cycle of background music is 20%.
- Duty cycle of continuous speech is 10%.
- Duty cycle of infrequent, short duration paging is 1%.

Here are the equations used to calculate the data presented in Figures 7.1, 7.2, 7.3, and 7.4.

$$\text{AC Mains Power Draw (watts)} = \frac{\text{Total output power with all channels driven (watts)} \times \text{Duty Cycle}}{\text{Amplifier Efficiency (.65)}} + \text{Quiescent Power Draw (watts)}$$

The quiescent power draw is a maximum value and includes power drawn by the fan. The following equation converts power draw in watts to current draw in amperes:

$$\text{Current Draw (amperes)} = \frac{\text{AC Mains Power Draw (watts)}}{\text{AC Mains Voltage} \times \text{Power Factor (.83)}}$$

The value used for Power Factor is 0.83. The Power Factor variable is needed to compensate for the difference in phase between the AC mains voltage and current. The following equation is used to calculate thermal dissipation:

$$\text{Thermal Dissipation (btu/hr)} = \left( \frac{\text{Total output power with all channels driven (watts)} \times \text{Duty Cycle} \times .35}{\text{Amplifier Efficiency (.65)}} + \text{Quiescent Power Draw (watts)} \right) \times 3.415$$

The value used for inefficiency is 1.00-efficiency. The factor 3.415 converts watts to btu/hr. Thermal dissipation in btu is divided by the constant 3.968 to get kcal. If you plan to measure output power under real-world conditions, the following equation may also be helpful:

$$\text{Thermal Dissipation (btu/hr)} = \left( \frac{\text{Total measured output power from all channels (watts)} \times .35}{\text{Amplifier Efficiency (.65)}} + \text{Quiescent Power Draw (watts)} \right) \times 3.415$$

## 7 AC Power Draw and Thermal Dissipation

Figure 7.1 Xs500 Power Draw, Current Draw and Thermal Dissipation at Various Duty Cycles

Duty Cycle	LOAD														
	2 Ohm Stereo / 4 Ohm Bridge					4 Ohm Stereo / 8 Ohm Bridge					8 Ohm Stereo / 16 Ohm Bridge				
	AC Mains Power Draw (watts)	Current Draw (Amps)		Thermal Dissipation		AC Mains Power Draw (watts)	Current Draw (Amps)		Thermal Dissipation		AC Mains Power Draw (watts)	Current Draw (Amps)		Thermal Dissipation	
		120V	230V	btu/hr	kcal/hr		120V	230V	btu/hr	kcal/hr		120V	230V	btu/hr	kcal/hr
50%	1266	12.7	6.6	1760	444	856	8.6	4.5	1215	306	692	6.9	3.6	996	251
40%	1020	10.2	5.3	1433	361	692	6.9	3.6	996	251	561	5.6	2.9	822	207
30%	774	7.8	4.1	1105	279	528	5.3	2.8	778	196	429	4.3	2.2	647	163
20%	528	5.3	2.8	778	196	364	3.7	2.0	560	141	298	3.0	1.6	472	119
10%	282	2.8	1.5	450	114	200	2.0	1.0	341	86	167	1.7	0.9	167	75

Figure 7.2 Xs700 Power Draw, Current Draw and Thermal Dissipation at Various Duty Cycles

Duty Cycle	LOAD														
	2 Ohm Stereo / 4 Ohm Bridge					4 Ohm Stereo / 8 Ohm Bridge					8 Ohm Stereo / 16 Ohm Bridge				
	AC Mains Power Draw (watts)	Current Draw (Amps)		Thermal Dissipation		AC Mains Power Draw (watts)	Current Draw (Amps)		Thermal Dissipation		AC Mains Power Draw (watts)	Current Draw (Amps)		Thermal Dissipation	
		120V	230V	btu/hr	kcal/hr		120V	230V	btu/hr	kcal/hr		120V	230V	btu/hr	kcal/hr
50%	1504	15.1	7.9	2063	520	1259	12.6	6.6	1740	438	770	7.7	4.0	1093	275
40%	1211	12.2	6.3	1675	422	1015	10.2	5.3	1417	357	623	6.3	3.3	899	227
30%	917	9.2	4.8	1287	324	770	7.7	4.0	1093	275	476	4.8	2.5	705	178
20%	623	6.3	3.3	899	227	525	5.3	2.8	770	194	330	3.3	1.7	511	129
10%	330	3.3	1.7	511	129	281	2.8	1.5	446	112	183	1.8	1.0	317	80

Figure 7.3 Xs900 Power Draw, Current Draw and Thermal Dissipation at Various Duty Cycles

Duty Cycle	LOAD														
	2 Ohm Stereo / 4 Ohm Bridge					4 Ohm Stereo / 8 Ohm Bridge					8 Ohm Stereo / 16 Ohm Bridge				
	AC Mains Power Draw (watts)	Current Draw (Amps)		Thermal Dissipation		AC Mains Power Draw (watts)	Current Draw (Amps)		Thermal Dissipation		AC Mains Power Draw (watts)	Current Draw (Amps)		Thermal Dissipation	
		120V	230V	btu/hr	kcal/hr		120V	230V	btu/hr	kcal/hr		120V	230V	btu/hr	kcal/hr
50%	2260	22.7	11.8	3619	912	1704	17.1	8.9	2746	692	1149	11.5	6.0	1873	472
40%	1815	18.2	9.5	2920	736	1371	13.8	7.2	2222	560	926	9.3	4.9	1524	384
30%	1371	13.8	7.2	2222	560	1037	10.4	5.4	1699	428	704	7.1	3.7	1175	296
20%	926	9.3	4.9	1524	384	704	7.1	3.7	1175	296	482	4.8	2.5	826	208
10%	482	4.8	2.5	826	208	371	3.7	1.9	651	164	260	2.6	1.4	477	120

## 7 AC Power Draw and Thermal Dissipation

*Figure 7.4 Xs1200 Power Draw, Current Draw and Thermal Dissipation at Various Duty Cycles*

Duty Cycle	LOAD														
	AC Mains Power Draw (watts)	2 Ohm Stereo / 4 Ohm Bridge				4 Ohm Stereo / 8 Ohm Bridge				8 Ohm Stereo / 16 Ohm Bridge					
		Current Draw (Amps)		Thermal Dissipation		Current Draw (Amps)		Thermal Dissipation		Current Draw (Amps)		Thermal Dissipation			
		120V	230V	btu/hr	kcal/hr	120V	230V	btu/hr	kcal/hr	120V	230V	btu/hr	kcal/hr		
50%	3000	30.1	15.7	4782	1205	2074	20.8	10.9	3328	839	1241	12.5	6.5	2019	509
40%	2408	24.2	12.6	3851	971	1667	16.7	8.7	2688	677	1000	10.0	5.2	1640	413
30%	1815	18.2	9.5	2920	736	1260	12.6	6.6	2048	516	760	7.6	4.0	1262	318
20%	1223	12.3	6.4	1990	501	852	8.6	4.5	1408	355	519	5.2	2.7	884	223
10%	630	6.3	3.3	1059	267	445	4.5	2.3	768	193	278	2.8	1.5	506	127

## 8 Service

Crown amplifiers are quality units that rarely require servicing. Before returning your unit for service, please contact Crown Technical Support to verify the need for servicing.

This unit has very sophisticated circuitry which should only be serviced by a fully trained technician. This is one reason why each unit bears the following label:

**CAUTION: To prevent electric shock, do not remove covers. No user serviceable parts inside. Refer servicing to a qualified technician.**



Complete the Crown Audio Factory Service Information form, in the back of this manual, when returning a Crown product to the factory or authorized service center. The form must be included with your product inside the box or in a packing slip envelope securely attached to the outside of the shipping carton. Do not send this form separately.

### 8.1 International and Canada Service

Service may be obtained from an authorized service center. (Contact your local Crown/Amcron representative or our office for a list of authorized service centers.) To obtain service, simply present the bill of sale as proof of purchase along with the defective unit to an authorized service center. They will handle the necessary paperwork and repair.

Remember to transport your unit in the original factory pack.

### 8.2 US Service

Service may be obtained in one of two ways: from an authorized service center or from the factory. You may choose either. It is important that you have your copy of the bill of sale as your proof of purchase.

#### 8.2.1 Service at a US Service Center

This method usually saves the most time and effort. Simply present your bill of sale along with the defective unit to an authorized service center to obtain service. They will handle the necessary paperwork and repair. Remember to transport the unit in the original factory pack. A list of authorized service centers in your area can be obtained from Crown Factory Service, or online from <http://www.crownaudio.com/support/servcent.htm>.

#### 8.2.2 Factory Service

Crown accepts no responsibility for non-serviceable product that is sent to us for factory repair. It is the owner's responsibility to ensure that their product is serviceable prior to sending it to the factory. Serviceable product list is available at <http://crownweb.crownintl.com/crownrma/>. For more information, please contact us direct.

A Service Return Authorization (SRA) is required for product being sent to the factory for repair. An SRA can be completed online at [www.crownaudio.com/support/factserv.htm](http://www.crownaudio.com/support/factserv.htm). If you do not have access to the web, please call Crown's Customer Service at 574.294.8200 or 800.342.6939 extension 8205.

For warranty service, we will pay for ground shipping both ways in the United States. Contact Crown Customer Service to obtain prepaid shipping labels prior to sending the unit. Or, if you prefer, you may prepay the cost of shipping, and Crown will reimburse you. Send copies of the shipping receipts to Crown to receive reimbursement. Your repaired unit will be returned via UPS ground. Please contact us if other arrangements are required.

#### 8.2.3 Factory Service Shipping Instructions:

1. Service Return Authorization (SRA) is required for product being sent to the factory for service. Please complete the SRA by going to [www.crownaudio.com/support/factserv.htm](http://www.crownaudio.com/support/factserv.htm). If you do not have access to our website, call 1.800.342.6939, extension 8205 and we'll create the SRA for you.
2. See packing instructions that follow.
3. Ship product to:  
CROWN AUDIO FACTORY SERVICE  
1718 W MISHAWKA RD.  
ELKHART, IN 46517
4. Use a bold black marker and write the SRA number on three sides of the box.
5. Record the SRA number for future reference. The SRA number can be used to check the repair status.

#### 8.2.4 Packing Instructions

**Important:** These instructions must be followed. If they are not followed, Crown Audio, Inc. assumes no responsibility for damaged goods and/or accessories that are sent with your unit.

1. Fill out and include the Crown Audio Factory Service Information sheet in the back of this manual.
2. Do not ship any accessories (manuals, cords, hardware, etc.) with your unit. These items are not needed to service your product. We will not be responsible for these items.
3. When shipping your Crown product, it is important that it has adequate protection. We recommend you use the original pack material when returning the product for repair. If you do not have the original box, please call Crown at 800.342.6939 or 574.294.8210 and order new pack material. See instructions for "foam-in-place" shipping pack. (Do not ship your unit in a wood or metal cabinet.)
4. If you provide your own shipping pack, the minimum recommended requirements for materials are as follows:

- a. 275 P.S.I. burst test, Double-Wall carton that allows for 2-inch solid Styrofoam on all six sides of unit or 3 inches of plastic bubble wrap on all six sides of unit.
- b. Securely seal the package with an adequate carton sealing tape.
- c. Do not use light boxes or "peanuts". Damage caused by poor packaging will not be covered under warranty.

#### Using your 'foam-in-place' shipping pack

Note: The foam-in-place packing is molded so that there is only one correct position for your product.

1. Open carton and lift center cushion leaving both end-cushions in place.
2. Carefully place your product with the product's front panel facing the same direction as arrows indicate.

3. Reset center cushion down over top of product's chassis. The foam-in-place packing was molded to accommodate different chassis depth sizes. If your product's chassis does not completely fill the foam-in-place cavity, you may use a soft but solid packing material (such as paper or bubble wrap) behind the chassis.
4. Enclose the completed Crown Audio Factory Service Information form (or securely attach it to the outside of carton) and re-seal the shipping pack with a sturdy carton sealing tape.

#### 8.2.5 Estimate Approval

Approval of estimate must be given within 90 days after being notified by Crown Audio Inc. Units still in the possession of Crown after 90 days of the estimate will become the property of Crown Audio Inc.

#### 8.2.6 Payment of Non-Warranty Repairs

Payment on out-of-warranty repairs must be received within 90 days of the repair date. Units unclaimed after 90 days become the property of Crown Audio Inc.

If you have any questions, please contact Crown Factory Service.

**Crown Factory Service**  
1718 W. Mishawaka Rd.,  
Elkhart, Indiana 46517 U.S.A.

**Telephone:**  
574.294.8200  
800.342.6939 (North America,  
Puerto Rico, and Virgin Islands only)

**Facsimile:**  
574.294.8301 (Technical Support)  
574.294.8124 (Factory Service)

**Internet:**  
<http://www.crownaudio.com>

## 9 Warranty



### UNITED STATES & CANADA

#### SUMMARY OF WARRANTY

Crown International, 1718 West Mishawaka Road, Elkhart, Indiana 46517-4095 U.S.A. warrants to you, the ORIGINAL PURCHASER and ANY SUBSEQUENT OWNER of each NEW Crown product, for a period of three (3) years from the date of purchase by the original purchaser (the "warranty period") that the new Crown product is free of defects in materials and workmanship. We further warrant the new Crown product regardless of the reason for failure, except as excluded in this Warranty.

#### ITEMS EXCLUDED FROM THIS CROWN WARRANTY

This Crown Warranty is in effect only for failure of a new Crown product which occurred within the Warranty Period. It does not cover any product which has been damaged because of any intentional misuse, accident, negligence, or loss which is covered under any of your insurance contracts. This Crown Warranty also does not extend to the new Crown product if the serial number has been defaced, altered, or removed.

#### WHAT THE WARRANTOR WILL DO

We will remedy any defect, regardless of the reason for failure (except as excluded), by repair, replacement, or refund. We may not elect refund unless you agree, or unless we are unable to provide replacement, and repair is not practical or cannot be timely made. If a refund is elected, then you must make the defective or malfunctioning product available to us free and clear of all liens or other encumbrances. The refund will be equal to the actual purchase price, not including inter-

est, insurance, closing costs, and other finance charges less a reasonable depreciation on the product from the date of original purchase. Warranty work can only be performed at our authorized service centers or at the factory. Warranty work for some products can only be performed at our factory. We will remedy the defect and ship the product from the service center or our factory within a reasonable time after receipt of the defective product at our authorized service center or our factory. All expenses in remedying the defect, including surface shipping costs in the United States, will be borne by us. (You must bear the expense of shipping the product between any foreign country and the port of entry in the United States including the return shipment, and all taxes, duties, and other customs fees for such foreign shipments.)

#### HOW TO OBTAIN WARRANTY SERVICE

You must notify us of your need for warranty service within the warranty period. All components must be shipped in a factory pack, which, if needed, may be obtained from us free of charge. Corrective action will be taken within a reasonable time of the date of receipt of the defective product by us or our authorized service center. If the repairs made by us or our authorized service center are not satisfactory, notify us or our authorized service center immediately.

#### DISCLAIMER OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

YOU ARE NOT ENTITLED TO RECOVER FROM US ANY INCIDENTAL DAMAGES RESULTING

FROM ANY DEFECT IN THE NEW CROWN PRODUCT. THIS INCLUDES ANY DAMAGE TO ANOTHER PRODUCT OR PRODUCTS RESULTING FROM SUCH A DEFECT. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATIONS OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.

#### WARRANTY ALTERATIONS

No person has the authority to enlarge, amend, or modify this Crown Warranty. This Crown Warranty is not extended by the length of time which you are deprived of the use of the new Crown product. Repairs and replacement parts provided under the terms of this Crown Warranty shall carry only the unexpired portion of this Crown Warranty.

#### DESIGN CHANGES

We reserve the right to change the design of any product from time to time without notice and with no obligation to make corresponding changes in products previously manufactured.

#### LEGAL REMEDIES OF PURCHASER

THIS CROWN WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE. No action to enforce this Crown Warranty shall be commenced after expiration of the warranty period.

THIS STATEMENT OF WARRANTY SUPERSEDES ANY OTHERS CONTAINED IN THIS MANUAL FOR CROWN PRODUCTS. 12/01

## 9 Warranty



### WORLDWIDE EXCEPT USA & CANADA

#### SUMMARY OF WARRANTY

Crown International, 1718 West Mishawaka Road, Elkhart, Indiana 46517-4095 U.S.A. warrants to you, the ORIGINAL PURCHASER and ANY SUBSEQUENT OWNER of each NEW Crown1 product, for a period of three (3) years from the date of purchase by the original purchaser (the "warranty period") that the new Crown product is free of defects in materials and workmanship, and we further warrant the new Crown product regardless of the reason for failure, except as excluded in this Warranty.

<sup>1</sup> Note: If your unit bears the name "Amcron," please substitute it for the name "Crown" in this warranty.

#### ITEMS EXCLUDED FROM THIS CROWN-WARRANTY

This Crown Warranty is in effect only for failure of a new Crown product which occurred within the Warranty Period. It does not cover any product which has been damaged because of any intentional misuse, accident, negligence, or loss which is covered under any of your insurance contracts. This Crown Warranty also does not extend to the new Crown product if the serial number has been defaced, altered, or removed.

#### WHAT THE WARRANTOR WILL DO

We will remedy any defect, regardless of the reason for failure (except as excluded), by repair, replacement, or refund. We may not elect refund unless you agree, or unless we are unable to provide replacement, and repair is not practical or cannot be timely made. If a refund is elected, then you must make the defective or malfunctioning product available to us free and clear of all liens or other encumbrances. The refund will be equal to the actual purchase price, not including interest, insurance, closing costs, and other finance charges less a reasonable depreciation on the product from the date of original purchase. Warranty work can only be performed at our authorized service centers. We will remedy the defect and ship the product from the service center within a reasonable time after receipt of the defective product at our authorized service center.

#### HOW TO OBTAIN WARRANTY SERVICE

You must notify your local Crown importer of your need for warranty service within the warranty period. All components must be shipped in the original box. Corrective action will be taken within a reasonable time of the date of receipt of the defective product by our authorized service center. If the repairs made by our authorized service center are not satisfactory, notify our authorized service center immediately.

#### DISCLAIMER OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

YOU ARE NOT ENTITLED TO RECOVER FROM US ANY INCIDENTAL DAMAGES RESULTING FROM ANY DEFECT IN THE NEW CROWN PRODUCT. THIS INCLUDES ANY DAMAGE TO ANOTHER PRODUCT OR PRODUCTS RESULTING FROM SUCH A DEFECT.

#### WARRANTY ALTERATIONS

No person has the authority to enlarge, amend, or modify this Crown Warranty. This Crown Warranty is not extended by the length of time which you are deprived of the use of the new Crown product. Repairs and replacement parts provided under the terms of this Crown Warranty shall carry only the unexpired portion of this Crown Warranty.

#### DESIGN CHANGES

We reserve the right to change the design of any product from time to time without notice and with no obligation to make corresponding changes in products previously manufactured.

#### LEGAL REMEDIES OF PURCHASER

No action to enforce this Crown Warranty shall be commenced after expiration of the warranty period.

THIS STATEMENT OF WARRANTY SUPERSEDES ANY OTHERS CONTAINED IN THIS MANUAL FOR CROWN PRODUCTS. 7/01

THIS PAGE INTENTIONALLY LEFT BLANK





# Crown Audio Factory Service Information

Shipping Address: Crown Audio Factory Service, 1718 W. Mishawaka Rd., Elkhart, IN 46517

**PLEASE PRINT CLEARLY**

SRA #: \_\_\_\_\_ (If sending product to Crown factory service.)      Model: \_\_\_\_\_      Serial Number: \_\_\_\_\_      Purchase Date: \_\_\_\_\_

**PRODUCT RETURN INFORMATION**

Individual or Business Name: \_\_\_\_\_

Phone #: \_\_\_\_\_      Fax #: \_\_\_\_\_      E-Mail: \_\_\_\_\_

Street Address (please, no P.O. Boxes): \_\_\_\_\_

City: \_\_\_\_\_      State/Prov: \_\_\_\_\_      Postal Code: \_\_\_\_\_      Country: \_\_\_\_\_

Nature of problem: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Other equipment in your system: \_\_\_\_\_

If warranty is expired, please provide method of payment. Proof of purchase may be required to validate warranty.

**PAYMENT OPTIONS**

I have open account payment terms. Purchase order required. PO#: \_\_\_\_\_       COD

Credit Card (Information below is required; however if you do not want to provide this information at this time, we will contact you when your unit is repaired for the information.)

**Credit card information:**

Type of credit card:     MasterCard             Visa             American Express             Discover

Type of credit card account:     Personal/Consumer             Business/Corporate

Card # \_\_\_\_\_ Exp. date: \_\_\_\_\_ \* Card ID #: \_\_\_\_\_

\* Card ID # is located on the back of the card following the credit card #, in the signature area. On American Express, it may be located on the front of the card. This number is required to process the charge to your account. If you do not want to provide it at this time, we will call you to obtain this number when the repair of your unit is complete.

Name on credit card: \_\_\_\_\_

Billing address of credit card: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

THIS PAGE INTENTIONALLY LEFT BLANK

THIS PAGE INTENTIONALLY LEFT BLANK



**H** A Harman International Company