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.

Trademark Notice: Com-Tech, BCA, Crown, Crown Audio, Amcron and Multi-Mode are registered trademarks of Crown International. IQwic, PIP and PIP2 are trademarks of Crown International. Other trademarks are the property of their respective owners.
Wichtige Sicherheitshinweise

Instrucciones de Seguridad Importantes

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 are 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 is 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. Use the mains plug to disconnect the apparatus from the mains. This plug must remain readily operable.

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.

IMPORTANT

CTs Power Amplifiers

CTs Power Amplifiers

DECLARATION OF CONFORMITY

Crown Audio, Inc.

ISSUED BY: Crown Audio, Inc.
176 8th Street
Elkhart, Indiana 46517 U.S.A.

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

European Representative’s Name and Address:
David Budge
Whitfield & Merville
Unit 17/19

Equipment Type: Commercial Audio Power Amplifiers
Family Name: CTs
Model Name: CTs 300, CTs 700, CTs 1200, CTs 1600

EMC Standards:
EN 55013: 1997
EN 55013: 1997
Magnetic Field Emissions - A declared test value: 1/1000 M
EN 55013: 1997
Emission of Harmonics Current (Cabinet Input) Current - 1/10A phase
EN 55013: 1998
Limitation of Voltage Fluctuations and Flicker in Low Voltage Supply Systems (Class C; Category B)
EN 55013: 1997
Limits and Methods of Measurement of Radio Disturbance Characteristics of ITE: Radiated, Conducted/Current Conducted, Class B
EN 55013: 1997
EN 55022: 2003

EN 55022: 2003
Electromagnetic Emissions - Family Standard for Audio, Video, Audio-Visual and Entertainment Lighting Control Apparatus for Professional Use, Potentially causing interference to radio receivers, which can be determined by measuring equipment of the type specified in this test procedure.

EN 61000-3-3: 1995
Safety Requirements - Audio Video and Similar Electronic Apparatus

Limitation of Voltage Fluctuations and Flicker in Low-Voltage Supply Systems Rated Current

Safety Standard:
IEC 60825-1:1994 Safety Requirements – Audio Video and Similar Electronic Apparatus

Due to line current harmonics, we recommend that you contact your supply authority before connection.

European representative’s name and address:
David Budge
Whitfield & Merville
Unit 17/19

Operation Manual

Page 2

Page 3
Building on the foundation of the Com-Tech® Series, the CTs® Series offers new flexibility of application tailored to the installation. The CTs® Series delivers new features and options to perfectly integrate into fixed install design requirements.

CTs Series amplifiers continue that tradition, with power levels and features carefully chosen to provide the many years of reliable service for which they were designed. 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 operation for which they were designed.

In addition, CTs® Series amplifiers include a number of features that are required on some equipment and they can be used in the design and installation of the equipment. 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 operation for which they were designed. In addition, CTs® Series amplifiers include a number of features that are required on some equipment and they can be used in the design and installation of the equipment.
• Legendary Crown class I (BCA®) and class AB+B (Multi-Mode®) output topologies offer the best in amplifier reliability. CTs 600/1200 use Class AB+B; CTs 2000/3000 use Class I.
• Class I is the lowest distortion, lowest noise, and highest performing topology available among switch-mode amplifiers.
• Continuously-variable fans optimize cooling efficiency.
• Three Year, No-Fault, Fully-Transferable Warranty completely protects your investment and guarantees its specifications.

2 How to Use This Manual
This manual provides you with the necessary information to safely and correctly set up 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), Crown Tech Support, your system installer or retailer.

1 Welcome

Features (continued from page 5)
• Switchable high-pass filter on each channel provides low frequency roll off to reduce noise and improve clarity when used in distributed systems.

3.1 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 you with the process. Save the shipping carton as evidence of damage for the shipper’s inspection.

YOU WILL NEED (not supplied):
• Input wiring cables
• Output wiring cables
• Phillips screwdriver
• 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.
3.4 Choose Input Wire and Connectors

Figure 3.3 shows connector pin assignments for balanced wiring, and Figure 3.4 shows connector pin assignments for unbalanced wiring.

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

3.5 Choose Output Wire and Connectors

A protective cover is installed over the barrier-stripe output. Some models have a cover with two holes. To remove the cover, use a screwdriver of cover. To remove screws, insertion and extraction tools to release (see Figure 3.6).

1. Slide cover to left or right, then pull it off away from the amplifier.
2. Tighten screws.

Crown recommends using professionally constructed, high-quality, two- or four-conductor, heavy gauge speaker wire and connectors. You may use terminal forks up to 10 AWG or bare wire for your output connectors (see Figure 3.5). To prevent the possibility of short-circuits, wrap or otherwise insulate exposed loudspeaker cable connectors. Crown recommends using Panduit part #PV10-10LF-L or equivalent terminal fork. Screw spacing is shown in Figure 3.5.

Using the guidelines below, select the appropriate size of wire based on the distance from amplifier to speaker (low-impedance loads only).

<table>
<thead>
<tr>
<th>Distance</th>
<th>Wire Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>up to 25 ft. (7.6m)</td>
<td>16 AWG</td>
</tr>
<tr>
<td>26-40 ft. (7.9-12.2m)</td>
<td>14 AWG</td>
</tr>
<tr>
<td>41-60 ft. (12.5-18.3m)</td>
<td>12 AWG</td>
</tr>
<tr>
<td>&gt; 60 ft (18.3m)</td>
<td>10 AWG</td>
</tr>
</tbody>
</table>

**Cauti0n:** Never use shielded cable for output wiring.

**Note:** Replace output cover after output wiring is complete.

3.6 Wire Your System

3.6.1 Dual 8/4/2 Mode

Typical input and output wiring, along with Attenuator and Mode Switch settings, are shown in Figures 3.6 and 3.7. Make sure the Mode switch is set to the “Dual” position when operating in Dual mode.

**Inputs:** Connect input wiring to each channel. The Y switch on the rear PIP panel can be used to parallel the channel inputs when only mono input signals are necessary. The amplifier’s channel output can be set between -10 and +10 dB.

**Outputs:** Maintain proper polarity (+/–) on output connectors.

Connect the Channel 1 speaker’s positive (+) lead to amplifier Channel 1 positive terminal; repeat for negative (–). Repeat Channel-2 wiring as for Channel 1. Refer to Section 3.5 for output connector pin assignments.

3.6.2 Bridge-Mono 16/8/4 Mode

Typical input and output wiring, along with Attenuator and Mode Switch settings, are shown in Figures 3.8 and 3.9. Make sure the Mode switch is set to the “Mono” position when operating in Bridge-Mono mode.

**Inputs:** Connect input wiring to Channel 1 only.

**Outputs:** Connect the speaker across the positive terminals of each channel pair. Do not use the negative terminals of the channel pair when the pair is being operated in Bridge-Mono mode. Refer to Section 3.5 for output connector pin assignments.

**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.

**Note:** When operating in Bridge-Mono mode, turn down (full CCW) the input attenuator for channel 2. The channel-1 input attenuator works for both channels.

See the next page for constant-voltage operation.
3.6.3 Dual 70V/100V Mode

Typical input and output wiring, along with Attenuator and Mode Switch settings are shown in Figures 3.10 and 3.11. Make sure the Mode switch is set to the "Dual" position when operating in Dual mode.

**INPUTS:** Connect input wiring to both channels. **OUTPUTS:** In Dual Mode, the CTs 600/1200 can power 25/50/70V lines; the CTs 2000/3000 can power 25/50/70/100V lines. Connect each channel of output connectors to speakers that have the appropriate transformers.

3.6.4 Bridge-Mono 140V/200V Mode

Typical input and output wiring, along with Attenuator and Mode Switch settings are shown in Figures 3.12 and 3.13. Make sure the Mode switch is set to the "Mono" position when operating in Bridge-Mono mode.

**INPUTS:** Connect input wiring to Channel 1 only. **OUTPUTS:** In Bridge-Mono mode, the CTs 600/1200 can power 140V lines; the CTs 2000/3000 can power 140V and 200V lines. Connect speakers with 140V or 200V transformers across the positive terminals of the channel pair. Do not use the negative terminals of the channel pair when the pair is being operated in Bridge-Mono. Refer to Section 3.5 for output connector pin assignments.

**NOTE:** When operating in Bridge-Mono mode, turn down (full CCW) the input attenuator for channel 2. The channel 1 input attenuator works both channels.

3.6.5 Dual Mode with "Y" Input

See Figure 3.14. This configuration basic mono signal to both Channel 1 and Channel 2. In the example in Figure 3.14, Channel 1 drives a low-impedance loudspeaker and Channel 2 drives a loudspeaker with a 70V transformer.

**INPUTS:** Connect the signal to the Channel 1 input. **OUTPUTS:** Turn up both Input Attenuators and set the Mode Switch to Dual.

**NOTE:** When the "Y" Input Switch is on, the Channel 2 input can be used to daisy-chain to another amplifier.

3.6.6 Bridge-Mono 140V/200V Mode

Typical input and output wiring, along with Attenuator and Mode Switch settings are shown in Figures 3.12 and 3.13. Make sure the Mode switch is set to the "Mono" position when operating in Bridge-Mono mode.
3 Setup

3.1 Connect to AC Mains

On the back panel, check whether your amplifier is labeled for 120 or 220-240V mains. Connect your amplifier to the corresponding AC mains power supply unit (PSU) with the supplied AC power cord. First, connect the PSU end to the AC connection on the amplifier. Then, with the amplifier in the OFF position, plug the other end of the cordset to the AC mains. For help with determining your system’s optimum gain range, please refer to the Crown Operation Manual or, for advanced setup techniques, consult Crown’s manual or, for advanced setup techniques, consult the Setup section of this Operation Manual or, for advanced setup techniques, consult the Setup section of this Operation Manual.

WARNING: The third prong of your grounded AC power cord is an important safety feature. Do not attempt to disable this ground connection by using any adapter or other methods. Improperly inserting a round pin into the round prongs of your AC mains socket and screw may be sufficient to disable the ground pin you expect. Check the amp’s rack rear label and label the system’s required AC power voltage and phase. The AC power voltage must be within 10% of the rated voltage. The AC frequency must be within the regulated frequency range. If you are unsure of the AC mains voltage of your AC mains, please consult your electrician. The AC mains frequency must be within the required frequency range. If the AC mains voltage is approximately ±5% above or below the nominal voltage, the amplifier will operate normally. The AC mains voltage must be no more than 15% above the required AC mains voltage and frequency. The AC mains voltage and frequency must be checked with an accurate meter.

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

1. Before use, your amplifier must be configured for optimum performance and safety: check all the connections, select signal levels, please refer to the Crown’s manual or, for advanced setup techniques, consult the Setup section of this Operation Manual or, for advanced setup techniques, consult Crown’s manual or, for advanced setup techniques, consult the Setup section of this Operation Manual.

2. Turn down the level controls of the amplifier.

3. Turn on the “Power” switch. The Power indicator should glow. Wait for the “Ready” LED to illuminate. This signifies that the amplifier output channel has stopped reproducing audio signals. The Power indicator and Indicators

4. 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 less than the rated load impedance. Due to the amplifier’s output protection, such a configuration may result in damage.

7. Do not overdrive the mixer, which will cause clipped audio output. Indicator is off when the channel has shut down, or is very nearly shut down. Red LED, one per channel, illuminates when the channel’s output signal reaches the nominal rated value. The LED will flash when the AC line voltage is approximately ±5% above or 25% below the nominal voltage.

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 damage.

3.7 Connect to AC Mains

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. Wait for the “Ready” LED to illuminate. This signifies that the amplifier output channel has stopped reproducing audio signals. The Power indicator and Indicators

4.4 Front Panel Controls and Indicators

A. Power indicator

B. Thermal indicator

C. –10 dB

D. –20 dB

E. –30 dB

F. –40 dB

G. clip indicator

H. Signal indicator

I. Noise indicator

J. data indicator

K. Bridge Mode indicator

L. Power Switch

M. Front-to-rear forced airflow.

N. Therma l Level Control (TLC) limiting or overload.

O. Overdrive indicator

P. –10 dB

Q. –20 dB

R. –30 dB

S. –40 dB

T. 0 dB

U. –50 dB

V. –60 dB

W. –70 dB

X. –80 dB

Y. –90 dB

Z. –100 dB

aa. Ready indicator

ba. Overdrive indicator

ca. Signal indicator

da. Noise indicator

ea. Power indicator

fa. Front-to-rear forced airflow.

ga. Overdrive indicator

ha. Signal indicator

ia. Noise indicator

ja. Power indicator

ka. Front-to-rear forced airflow.

la. Overdrive indicator

ma. Signal indicator

na. Noise indicator

oa. Power indicator

pa. Front-to-rear forced airflow.

qa. Overdrive indicator

ra. Signal indicator

sa. Noise indicator

ta. Power indicator

ua. Front-to-rear forced airflow.

va. Overdrive indicator

wa. Signal indicator

xa. Noise indicator

ya. Power indicator

za. Front-to-rear forced airflow.

aa. Overdrive indicator

ba. Signal indicator

ca. Noise indicator

da. Power indicator

ea. Front-to-rear forced airflow.

fa. Overdrive indicator

ga. Signal indicator

ha. Noise indicator

ia. Power indicator

ja. Front-to-rear forced airflow.

ka. Overdrive indicator

la. Signal indicator

ma. Noise indicator

na. Power indicator

oa. Front-to-rear forced airflow.

pa. Overdrive indicator

qa. Signal indicator

ra. Noise indicator

sa. Power indicator

ta. Front-to-rear forced airflow.

ua. Overdrive indicator

va. Signal indicator

wa. Noise indicator

xa. Power indicator

ya. Front-to-rear forced airflow.

za. Overdrive indicator

aa. Signal indicator

ba. Noise indicator

ca. Power indicator

da. Front-to-rear forced airflow.

ea. Overdrive indicator

fa. Signal indicator

ga. Noise indicator

ha. Power indicator

ia. Front-to-rear forced airflow.

ja. Overdrive indicator

ka. Signal indicator

la. Noise indicator

ma. Power indicator

na. Front-to-rear forced airflow.

oa. Overdrive indicator

pa. Signal indicator

qa. Noise indicator

ra. Power indicator

sa. Front-to-rear forced airflow.

ta. Overdrive indicator

ua. Signal indicator

va. Noise indicator

wa. Power indicator

xa. Front-to-rear forced airflow.

ya. Overdrive indicator

za. Signal indicator

aa. Noise indicator

ba. Power indicator

ca. Front-to-rear forced airflow.

da. Overdrive indicator

ea. Signal indicator

fa. Noise indicator

ga. Power indicator

ha. Front-to-rear forced airflow.

ia. Overdrive indicator

ja. Signal indicator

ka. Noise indicator

la. Power indicator

ma. Front-to-rear forced airflow.

na. Overdrive indicator

oa. Signal indicator

pa. Noise indicator

qa. Power indicator

ra. Front-to-rear forced airflow.

sa. Overdrive indicator

ta. Signal indicator

ua. Noise indicator

wa. Power indicator

xa. Front-to-rear forced airflow.

ya. Overdrive indicator

za. Signal indicator

aa. Noise indicator

ba. Power indicator

ca. Front-to-rear forced airflow.

da. Overdrive indicator

ea. Signal indicator

fa. Noise indicator

ga. Power indicator

ha. Front-to-rear forced airflow.

ia. Overdrive indicator

ja. Signal indicator

ka. Noise indicator

la. Power indicator

ma. Front-to-rear forced airflow.

na. Overdrive indicator

oa. Signal indicator

pa. Noise indicator

qa. Power indicator

ra. Front-to-rear forced airflow.

sa. Overdrive indicator

ta. Signal indicator

ua. Noise indicator

wa. Power indicator

xa. Front-to-rear forced airflow.

ya. Overdrive indicator

za. Signal indicator

aa. Noise indicator

ba. Power indicator

ca. Front-to-rear forced airflow.

da. Overdrive indicator

ea. Signal indicator

fa. Noise indicator

ga. Power indicator

ha. Front-to-rear forced airflow.

ia. Overdrive indicator

ja. Signal indicator

ka. Noise indicator

la. Power indicator

ma. Front-to-rear forced airflow.

na. Overdrive indicator

oa. Signal indicator

pa. Noise indicator

qa. Power indicator

ra. Front-to-rear forced airflow.

sa. Overdrive indicator

ta. Signal indicator

ua. Noise indicator

wa. Power indicator

xa. Front-to-rear forced airflow.

ya. Overdrive indicator

za. Signal indicator

aa. Noise indicator

ba. Power indicator

ca. Front-to-rear forced airflow.

da. Overdrive indicator

ea. Signal indicator

fa. Noise indicator

ga. Power indicator

ha. Front-to-rear forced airflow.
4 Operation

4.3 Back Panel Controls and Connectors
CTs 2000/3000 Back Panel Controls and Connectors

- **O. Ventilation grille**
- **N. Reset Switch**
- **M. Power cord connector**

The Reset button is located near the IEC power inlet protects the amplifier from excessive AC current.

**R. Speaker connectors**

- **S. Input connectors**
- **T. Channel Level controls**
- **U. High-Pass Filter**
- **V. Output cover (not shown)**
- **W. Fuse**

Output cover (not shown) protects users from the connectors' potentially high voltage. This cover is required for Class 2 wiring installations.

- **X. Output cover (not shown)**

This covers the output connectors, accepts up to 10 AWG terminal forks.

- **Y. “Y” Input Switch**

One four-pole touch-proof terminal strip.

**Z. Variable-speed Fans**

Two continuously variable speed fans direct the airflow through the amplifier for cooling.

5 Advanced Features and Options

**5.1 Protection Systems**
Your Crown amplifiers are protected against product and electrical hazards. Included in the amplifier's safety features are circuit breakers, high-pass filtering, DC protect, AC under/over voltage protection, inrush limiting, and fault indicators.

**5.1.1 Switching Power Supply**
Crown’s Switching Power Supply minimizes the amplifier’s current draw during standby operation. Two continuously variable fans direct airflow through the amplifier for cooling.

**5.1.2 Junction Temperature**
CDM/JTS limits the temperature at which the amplifier shuts down. If the temperature exceeds the safe operating levels (within ±10°C), the Power LED will go off and the blue Power LED flashes. The amplifier will light the Fault LED if the temperature exceeds the safe operating levels by more than ±10°C.

**5.1.3 Fault**
The amplifier will shut down if the Fault LED lights. See Section 5.3 for details and diagram.

**5.1.4 DC Output Servo**
The output servo circuit protects your drivers by eliminating DC offset, even in the presence of very large asymmetrical signals.

**5.1.5 Inrush Limiting**
A high-current inrush circuit in the power supply minimizes the amplifier's current draw during power-on.

**5.1.6 AC Under/Over Voltage**
The power supply is voltage-specific, allowing the amplifier to operate with a much smaller (and lighter) power transformer. By contrast, switch-mode power supplies can operate with a much higher frequency and voltage. This allows for the required power at the output stage. These transformers need to be larger to supply the 60 Hz (standard AC supply) capability of the power company.

**5.1.7 Circuit Breaker**
A circuit breaker located near the IEC power inlet protects the amplifier from excessive AC current.

**5.1.8 DC Output Servo**
Crown amplifiers are protected against product and electrical hazards. Included in the amplifier’s safety features are circuit breakers, high-pass filtering, DC protect, AC under/over voltage protection, inrush limiting, and fault indicators.

**5.1.9 Inrush Limiting**
A high-current inrush circuit in the power supply minimizes the amplifier’s current draw during power-on.

**5.1.10 Variable-speed Fans**
Two continuously variable speed fans direct the airflow through the amplifier for cooling.

**5.2 Advanced Features**
Crown amplifiers are protected against product and electrical hazards. Included in the amplifier’s safety features are circuit breakers, high-pass filtering, DC protect, AC under/over voltage protection, inrush limiting, and fault indicators.

**5.2.1 Switching Power Supply**
Crown’s Switching Power Supply minimizes the amplifier’s current draw during standby operation. Two continuously variable fans direct airflow through the amplifier for cooling.

**5.2.2 High-Pass Filters**
Gaussian-approximation ultrasonic filters prevent excessive bass feedback and transfer in a channel. This feature of the transverse feedback extends the low-frequency range of the amplifier.

**5.2.3 Sleep Circuit**
Lowers standby power consumption by shutting down the high-voltage supplies during the inactivity period. Note: By default, the sleep circuit is not active on the CTs 600/1200, but may be activated as a service option.
5 Advanced Features and Options

5.2.4 Input Sensitivity Switches

See Figures 5.1 and 5.2. To access the Input Sensitivity Switches, turn off the amplifier and remove the PIP2-BBY Input Panel. The switches are in the top surface of the cavity behind the Input Panel. The specifications chapter lists the input sensitivity for the 26 dB gain setting.

5.3 Options

5.3.1 Nominal Attenuation Settings

The signal level for each input can be attenuated repeatably by adjusting the 21-step Level Control (see Section 4.3). Figure 5.5 shows the attenuation in dB for each detent and the setting of the input-sensitivity switch varies the actual attenuation as shown.

<table>
<thead>
<tr>
<th>Detent</th>
<th>26 dB</th>
<th>4/8 ohm or 70/100V</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>1</td>
<td>48.0 ±6</td>
<td>54.0</td>
</tr>
<tr>
<td>2</td>
<td>36.0 ±6</td>
<td>42.0</td>
</tr>
<tr>
<td>3</td>
<td>24.0 ±3</td>
<td>30.0</td>
</tr>
<tr>
<td>4</td>
<td>21.0 ±3</td>
<td>26.0</td>
</tr>
<tr>
<td>5</td>
<td>18.0 ±3</td>
<td>24.0</td>
</tr>
<tr>
<td>6</td>
<td>15.0 ±3</td>
<td>20.0</td>
</tr>
<tr>
<td>7</td>
<td>12.0 ±5</td>
<td>18.0</td>
</tr>
<tr>
<td>8</td>
<td>10.5 ±5</td>
<td>16.0</td>
</tr>
<tr>
<td>9</td>
<td>9.0 ±5</td>
<td>14.5</td>
</tr>
<tr>
<td>10</td>
<td>8.0 ±5</td>
<td>13.0</td>
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<td>11</td>
<td>7.0 ±5</td>
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<td>4.0 ±5</td>
<td>6.5</td>
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<tr>
<td>15</td>
<td>3.0 ±5</td>
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<td>16</td>
<td>2.0 ±5</td>
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<td>2.0</td>
</tr>
<tr>
<td>18</td>
<td>0.5 ±5</td>
<td>1.0</td>
</tr>
<tr>
<td>19</td>
<td>0.5 ±5</td>
<td>0.0</td>
</tr>
<tr>
<td>20</td>
<td>0.0</td>
<td>0.0</td>
</tr>
</tbody>
</table>

Visit the Crown website at www.crownaudio.com, or contact Crown Customer Services for descriptions of available PIP and PIP2 modules.
6 Troubleshooting

CONDITION: Power indicator is off.
POSSIBLE REASON:
- The amplifier has lost AC power.
- The amplifier's Power switch is off.
- The amplifier is plugged into the power receptacle.
- The power supply circuit breaker has tripped. Allow the unit to cool. Turn down the Level controls. Press the Reset Switch on the back panel.

CONDITION: Power indicator is flashing.
POSSIBLE REASON:
- The amplifier channel has stopped operating. Refer the unit to an authorized Crown Service Center.

CONDITION: Thermal indicator is on.
POSSIBLE REASON:
- The amplifier is becoming too hot for safe operation. Allow the unit to cool. Turn down the Level controls. Check for proper ventilation and proper mode switch setting.

CONDITION: Fault indicator is flashing.
POSSIBLE REASON:
- The amplifier channel has stopped operating. Refer the unit to an authorized Crown Service Center.

CONDITION: Distorted sound.
POSSIBLE REASON:
- The amplifier channel has stopped operating. Refer the unit to an authorized Crown Service Center.

CONDITION: No sound, even though the amp has power. Power LED is on and the amp is receiving an input signal. Signal indicator is flashing.
POSSIBLE REASON:
- Speakers not connected.
- Open circuit due to speaker failure.
- There is a short on the amplifier output. First disconnect your speakers from the affected channel and then press the amp to determine if a short is in the speaker cables. Check pin routing and output levels of the mixer or preamp.

CONDITION: No input signal.
POSSIBLE REASON:
- Input signal level is very low.
- Level controls are turned down.

CONDITION: Bridge LED is lit.
POSSIBLE REASON:
- Amplifier is in bridge-mono mode.

CONDITION: Data indicator not flashing, even though PIP module is installed and host computer control software is active.
POSSIBLE REASON:
- Cable between computer and PIP module is broken or not connected.

"Off/Flashing/On" above means that the LED can be off, or flashing, or on.
### Specifications

<table>
<thead>
<tr>
<th><strong>Minimum Guaranteed Power</strong> (20 Hz - 20 kHz)</th>
<th><strong>CTs 600</strong></th>
<th><strong>CTs 1200</strong></th>
<th><strong>CTs 2000</strong></th>
<th><strong>CTs 3000</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>CTs 600</td>
<td>Power at 0.1% THD</td>
<td>Power at 0.1% THD</td>
<td>Power at 0.35% THD</td>
<td>Power at 0.35% THD</td>
</tr>
<tr>
<td>4-ohm Bridge</td>
<td>200W</td>
<td>250W</td>
<td>1000W</td>
<td>1500W</td>
</tr>
<tr>
<td>8-ohm Bridge</td>
<td>400W</td>
<td>600W</td>
<td>2000W</td>
<td>3000W</td>
</tr>
<tr>
<td>16-ohm Bridge</td>
<td>600W</td>
<td>1200W</td>
<td>2000W</td>
<td>2500W</td>
</tr>
<tr>
<td>70V Bridge</td>
<td>300W</td>
<td>600W</td>
<td>1000W</td>
<td>1500W</td>
</tr>
<tr>
<td>100V Bridge</td>
<td>300W</td>
<td>600W</td>
<td>1000W</td>
<td>1500W</td>
</tr>
<tr>
<td>4-ohm Dual (per ch.)</td>
<td>200W</td>
<td>250W</td>
<td>1000W</td>
<td>1500W</td>
</tr>
<tr>
<td>8-ohm Dual (per ch.)</td>
<td>300W</td>
<td>600W</td>
<td>1000W</td>
<td>1250W</td>
</tr>
<tr>
<td>16-ohm Dual (per ch.)</td>
<td>300W</td>
<td>625W</td>
<td>1000W</td>
<td>800W</td>
</tr>
<tr>
<td>70V Dual (per ch.)</td>
<td>300W</td>
<td>600W</td>
<td>1000W</td>
<td>1500W</td>
</tr>
<tr>
<td>100V Dual (per ch.)</td>
<td>300W</td>
<td>600W</td>
<td>1000W</td>
<td>1500W</td>
</tr>
</tbody>
</table>

### Performance

- **CTs 600**
- **CTs 1200**
- **CTs 2000**
- **CTs 3000**

#### Frequency Response (at 1 watt, 20 Hz - 20 kHz)
- ± 0.25 dB
- ± 0.25 dB
- ± 0.25 dB
- ± 0.25 dB

#### Signal to Noise Ratio (ref. rated power, 20 Hz to 20 kHz, A-weighted)
- > 105 dB
- > 105 dB
- > 105 dB
- > 105 dB

#### Total Harmonic Distortion (THD) at full rated power, from 20 Hz to 20 kHz
- < 0.1%
- < 0.1%
- < 0.35%
- < 0.35%

#### Intermodulation Distortion (IMD) 60 Hz and 7 kHz at 4:1, from –40 dB to full rated power
- < 0.1%
- < 0.1%
- < 0.35%
- < 0.35%

#### Damping Factor:
- 10 Hz to 100 Hz
- > 3000
- > 3000
- > 3000
- > 3000

#### Crosstalk (below rated power)
- 20 Hz to 1kHz
- > 80 dB
- > 80 dB
- > 80 dB
- > 80 dB

#### Common Mode Rejection (CMR) (20 Hz to 1 kHz, typical)
- 50 dB
- 50 dB
- 50 dB
- 50 dB

#### DC Output Offset
- < 2 mV
- < 2 mV
- < 2 mV
- < 2 mV

#### Input Impedance
- nominally balanced, nominally unbalanced
- 10 k ohms, 5 k ohms
- 10 k ohms, 5 k ohms
- 10 k ohms, 5 k ohms

#### Maximum Input Level
- Before input compression
- Absolute maximum
- +20 dBu
- + 32 dBu
- +20 dBu
- + 32 dBu
- +20 dBu
- + 32 dBu
- +20 dBu
- + 32 dBu

#### Load Impedance (Note: Safe with all types of loads)
- Stereo
- Bridge Mono
- 2, 4, 8, 16 ohms, 70V, and 100V*
- 4, 8, 16, 100V*, 140V and 200V*
- 2, 4, 8, 16, 70V, and 100V
- 4, 8, 16, 140V, 200V
- 2, 4, 8, 16, 70V, and 100V
- 4, 8, 16, 140V, 200V

#### Voltage Gain (at maximum level setting)
- 8/4 Ohm Operation
- 26 dB
- 20 dB
- 50:1 (34 dB)
- 71.4:1 (37 dB)
- 50:1 (34 dB)
- 50:1 (34 dB)

#### Input Sensitivity
- 2/4/8 ohms
- 70V
- 100 V
- 26 dB gain
- 1.4V
- 1.4V
- 4 ohm load: 1.74V.
- 1.4V
- 1.4V
- 8 ohm load: 2.46V.
- 1.4V
- 1.4V
- 2.0V
- 4 ohm load: 3.17V.
- 1.4V
- 1.4V
- 2.0V
- 4 ohm load: 3.88V.

#### Required AC Mains (+15%, – 25%)
- 120V/60 Hz, 230V/50 Hz
- 120V/60 Hz, 230V/50 Hz
- 120V/60 Hz, 230V/50 Hz
- 120V/60 Hz, 230V/50 Hz

#### Power Draw at Idle  (120 VAC mains)
- 24W (Standby Mode)
- 35W (Standby Mode)
- 35W (Standby Mode)
- 35W (Standby Mode)

#### Overall Group Delay
- < 120 usec
- < 120 usec
- < 120 usec
- < 120 usec

#### Cooling
- Continuously variable speed forced air, front-to-back airflow

#### Dimensions
- Width
- Height
- Depth
- 19 in. (48.3 cm.)
- 3.5 in. (8.9 cm.)
- 14.25 in. (36.2 cm.)
- 19 in. (48.3 cm.)
- 3.5 in. (8.9 cm.)
- 14.25 in. (36.2 cm.)
- 19 in. (48.3 cm.)
- 3.5 in. (8.9 cm.)
- 14.25 in. (36.2 cm.)
- 19 in. (48.3 cm.)
- 3.5 in. (8.9 cm.)
- 14.25 in. (36.2 cm.)

#### Net Weight
- 22.8 lb (10.3 kg),
- 23.4 lb  (10.6 kg),
- 27.0 lb (12.2 kg)
- 27.7 lb (12.6 kg)
- 32.0 lb  (14.5 kg)
- 32.7 lb (14.8 kg)

---

*With T-170V or TP-170V.*
CTs Power Amplifiers

7 Specifications

Figure 7.1  CTs 600/1200 Typical Frequency Response (1 W, 8 ohms)

Figure 7.2  CTs 600/1200 Typical Crosstalk vs. Frequency

Figure 7.3  CTs 600/1200 Typical Damping Factor vs. Frequency

Figure 7.4  CTs 2000/3000 Typical Frequency Response (1 W)

Figure 7.5  CTs 2000/3000 Typical Crosstalk vs. Frequency

Figure 7.6  CTs 2000/3000 Typical Damping Factor vs. Frequency
### AC Power Draw and Thermal Dissipation

**Pink noise 12dB crest factor, bandwidth limited 22Hz to 22kHz.**

Typical line impedance used. Measurements made with 120VAC mains. Line current figures for 230VAC units derived by multiplying 120VAC figures by 0.5. Data based on all channels driven.

#### CTs 600

<table>
<thead>
<tr>
<th>Load</th>
<th>Rated Power</th>
<th>Line Current 120VAC</th>
<th>Line Current 230VAC</th>
<th>Watts</th>
<th>Thermal Dissipation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/8th Power Pink Noise</td>
<td>8 Ohms/Ch.</td>
<td>200/2</td>
<td>120</td>
<td>60</td>
<td>6.3</td>
</tr>
<tr>
<td></td>
<td>16 Ohms Bridge</td>
<td>300/2</td>
<td>200</td>
<td>71.6</td>
<td>4.3</td>
</tr>
<tr>
<td></td>
<td>40 Ohms Bridge</td>
<td>450/2</td>
<td>300</td>
<td>113.5</td>
<td>5.6</td>
</tr>
<tr>
<td></td>
<td>80 Ohms Bridge</td>
<td>600</td>
<td>400</td>
<td>10.8</td>
<td>5.4</td>
</tr>
<tr>
<td></td>
<td>160 Ohms Bridge</td>
<td>600</td>
<td>400</td>
<td>10.8</td>
<td>5.4</td>
</tr>
</tbody>
</table>

#### CTs 1200

<table>
<thead>
<tr>
<th>Load</th>
<th>Rated Power</th>
<th>Line Current 120VAC</th>
<th>Line Current 230VAC</th>
<th>Watts</th>
<th>Thermal Dissipation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/8th Power Pink Noise</td>
<td>8 Ohms/Ch.</td>
<td>2000/2</td>
<td>1200</td>
<td>11.5</td>
<td>5.7</td>
</tr>
<tr>
<td></td>
<td>16 Ohms Bridge</td>
<td>3000/2</td>
<td>2000</td>
<td>15.5</td>
<td>7.8</td>
</tr>
<tr>
<td></td>
<td>40 Ohms Bridge</td>
<td>4500/2</td>
<td>3000</td>
<td>13.4</td>
<td>6.7</td>
</tr>
<tr>
<td></td>
<td>80 Ohms Bridge</td>
<td>6000</td>
<td>4500</td>
<td>11.5</td>
<td>5.7</td>
</tr>
</tbody>
</table>
AC Power Draw and Thermal Dissipation:

Pink noise 12dB crest factor, bandwidth limited 22Hz to 22kHz.

Typical line impedance used.

Measurements made with 120VAC mains. Data based on all channels driven.

Line current figures for 230VAC units derived by multiplying 120VAC figures by 0.5.

Line current figures for 100VAC units (not shown) are 1.2 times the line current figures of 120VAC units.

Power draw ("watts in") of 100VAC units is the same as power draw of 120VAC units.

<table>
<thead>
<tr>
<th>Load</th>
<th>Rated Power</th>
<th>Line Current 120VAC</th>
<th>Line Current 230VAC</th>
<th>Thermal Dissipation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/8th Power Pink Noise</td>
<td>8 Ohms/Ch. 500W 1250x2</td>
<td>10.5</td>
<td>5.0</td>
<td>990</td>
</tr>
<tr>
<td>2/3rd Power Pink Noise</td>
<td>8 Ohms/Ch. 1000W 1250x2</td>
<td>11.2</td>
<td>5.6</td>
<td>990</td>
</tr>
</tbody>
</table>

CTs 3000

<table>
<thead>
<tr>
<th>Load</th>
<th>Rated Power</th>
<th>Line Current 120VAC</th>
<th>Line Current 230VAC</th>
<th>Thermal Dissipation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/8th Power Pink Noise</td>
<td>8 Ohms/Ch. 500W 1250x2</td>
<td>7.2</td>
<td>3.6</td>
<td>579</td>
</tr>
<tr>
<td>2/3rd Power Pink Noise</td>
<td>8 Ohms/Ch. 1000W 1250x2</td>
<td>13.7</td>
<td>6.8</td>
<td>1196</td>
</tr>
</tbody>
</table>
Crown amplifiers are a quality, easy-to-use service. Before you use your service, please contact your local service center to obtain a return authorization number (SRA) for your unit. Service centers have the right to service any product previously manufactured.


**CAUTION:** To prevent electric shock, do not use with a lighted cigarette. The use of a lighted cigarette is prohibited in enclosed public areas.

 önemli: To prevent electrical shock, do not use with a lighted cigarette. The use of a lighted cigarette is prohibited in enclosed public areas.

 **9.2.3 Factory Service Shipping Instructions**

 1. Fill out and include a Crown Audio Factory Service Authorization Form.
 2. Drop off or arrange for pick-up and delivery.
 3. When樹zoing your product, it is important that it has adequate protection. We recommend you consult with your local authorized service center or from the factory. You may also contact us to obtain a SRA number for future reference. The SRA number for future reference.

 **9.2.5 Estimate Approval**

 If the repairs made by us or our authorized service centers or from the factory. You may also contact us to obtain a SRA number for future reference. The SRA number for future reference.

 **9.2.6 Payment of Non-Warranty Repairs**

 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 is the exclusive remedy and no other person has the authority to act on behalf of Crown Audio Inc.

 **SUMMARY OF WARRANTY**

 This Crown Warranty is effective only for failure of Quality products which occur during the warranty period. This Crown Warranty is in effect only for failure of Quality products which occur during the warranty period. This Crown Warranty is in effect only for failure of Quality products which occur during the warranty period.

 **10. Warranty**

 The Crown Company will cover the product between any foreign country and the ports of entry, at our authorized service centers or from the factory. We will remedy any defect, regardless of the warranty period.

 **Terms and Conditions**

 For warranty service, we will pay for ground shipping both at the United States and Canada. For information on Warranty outside of the United States and Canada. For information on Warranty outside of the United States and Canada.

 **Design Changes**

 The Crown Company will cover the product between any foreign country and the ports of entry, at our authorized service centers or from the factory. We will remedy any defect, regardless of the warranty period.

 **10. Warranty**

 The Crown Company will cover the product between any foreign country and the ports of entry, at our authorized service centers or from the factory. We will remedy any defect, regardless of the warranty period.
Online registration is also available at http://crowndct.crownintl.com/webregistration. *Warranty is only valid within the United States of America. For information on Warranty outside of the U.S.A. please contact your local distributor. When this form is used to register your product, it may be mailed or faxed. Crown Audio, Inc.  
1718 W Mishawaka Rd  
Elkhart IN 46517  
Fax: 574-294-8329

Please note that some information is required. Incomplete registrations will not be processed. * Indicates required information.

**OWNER'S INFORMATION - PLEASE PRINT**

* First name: ______________________   * Middle initial: _____  * Last name: ________________________________

* Company: _________________________________________________________________________________

* Mailing address: ____________________________________________________________________________

* City: ____________________________   * State: ___________________________* Zip Code: ________________

* Country: __________________________   * E-mail address: ___________________________________________

* Phone # (include area code): ___________________________________________________________________

PRODUCT INFORMATION

* MODEL  
* SERIAL #  
* PURCHASE DATE  

Product purchased from: *(Business/Individual) ___________________________   Country: ________________________________

Comments: ____________________________________________________________________________________

_____________________________________________________________________________________________

_____________________________________________________________________________________________

_____________________________________________________________________________________________

_____________________________________________________________________________________________

_____________________________________________________________________________________________

_____________________________________________________________________________________________
# Crown Audio Factory Service Information

**Operation Manual**

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

## PLEASE PRINT CLEARLY

<table>
<thead>
<tr>
<th>SRA #</th>
<th>Individual or Business Name</th>
<th>Phone #</th>
<th>Fax #</th>
<th>E-Mail</th>
<th>Street Address (please, no P.O. Boxes):</th>
<th>City</th>
<th>State/Prov</th>
<th>Postal Code</th>
<th>Country</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Individual or Business Name</td>
<td></td>
<td></td>
<td></td>
<td>Street Address (please, no P.O. Boxes):</td>
<td>City</td>
<td>State/Prov</td>
<td>Postal Code</td>
<td>Country</td>
</tr>
<tr>
<td></td>
<td>Phone #</td>
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<tr>
<td></td>
<td>Fax #</td>
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</tr>
</tbody>
</table>

**PRODUCT RETURN INFORMATION**

<table>
<thead>
<tr>
<th>Nature of problem</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

**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:**

<table>
<thead>
<tr>
<th>Type of credit card</th>
<th>Type of credit card account</th>
<th>Card #</th>
<th>Exp. date</th>
<th>Card ID #</th>
</tr>
</thead>
<tbody>
<tr>
<td>MasterCard</td>
<td>Personal/Consumer</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Visa</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>American Express</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discover</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Card ID #:**  

*Card ID # is located on the back of the credit 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 the number when the repair of your unit is complete.*

**Name on credit card:** __________________________________________________________________________

**Billing address of credit card:** __________________________________________________________________________